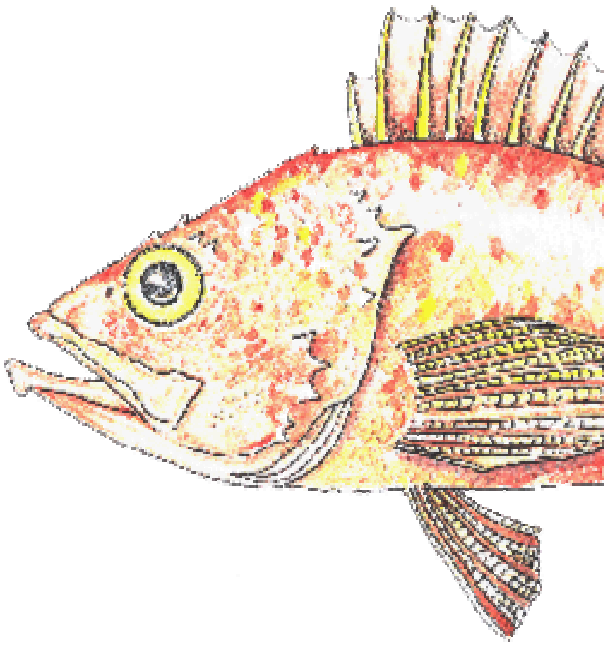
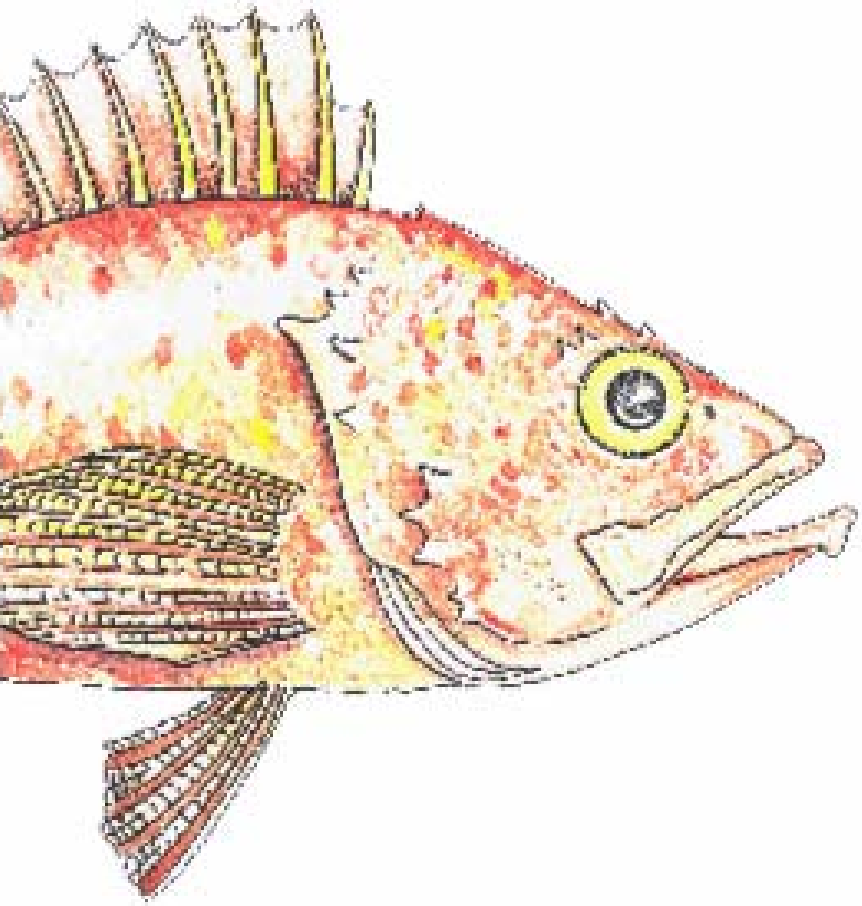


Final Review Draft

REGULATORY IMPACT REVIEW,
ENVIRONMENTAL ASSESSMENT, AND
INITIAL REGULATORY FLEXIBILITY ANALYSIS

For proposed **Amendment 68** to the
Gulf of Alaska Fishery Management Plan

CENTRAL GULF OF ALASKA ROCKFISH DEMONSTRATION PROGRAM



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Executive Summary

Section 802 of the Consolidated Appropriations Act of 2004, the U.S. Congress included a directive to the Secretary of Commerce to establish, in consultation with the North Pacific Fishery Management Council (the Council), a pilot program for management of three rockfish fisheries in the Central Gulf of Alaska (the Central Gulf rockfish fisheries). At the February 2004 Council meeting, National Marine Fisheries Service (NOAA Fisheries) presented a brief discussion paper requesting Council input in the development of the pilot program. Based on this request and public testimony, the Council requested industry stakeholders to prepare and submit proposed alternatives for establishing the program to the Council at its April 2004 meeting. Industry representatives presented a proposal at that meeting that defined an alternative for management of the fisheries under the pilot program. Using the industry proposal and public input and staff discussion papers, the Council developed alternatives for the pilot program management of the rockfish fisheries at its June 2004, October 2004, December 2004, and February 2005 meetings. Because of the different characteristics of the catcher vessel fleet and the catcher processor fleets, the Council has developed different, but closely related alternatives for these two sectors.

The Alternatives

To address its problem statement the Council has adopted two pilot program alternatives for the catcher vessel sector and two pilot program alternatives for the catcher processor sector for analysis, in addition to the status quo. Options would create separate sectors for trawl catcher processors, trawl catcher vessels, and non-trawl catcher vessels. Under this construction, the different gear types in the catcher vessel sector would be governed by the same management program, but they would be managed as separate sectors.

For the catcher processor sector, one pilot program alternative would allow harvesters to form cooperatives, which would receive annual harvest share allocations based on the qualified harvest histories of their members. Alternatively, a catcher processor license holder would receive an annual allocation based on the history associated with the license that could be fished independently. The second catch processor pilot program alternative would make an allocation to the sector based on the histories of catcher processors in the CGOA rockfish fisheries. Eligible catcher processors would be permitted to fish that allocation in a cooperative or fish in a limited access fishery, which would receive the allocation of all eligible catcher processors that do not join a cooperative.

For the catcher vessel sector, one pilot program alternative would allow each harvester to join a cooperative in association with the processor to which it delivered the most pounds of CGOA rockfish during the processor qualifying period. Cooperatives would receive an annual harvest share allocation based on the qualified harvest history of its members. Although no specific processor delivery requirement is created by this cooperative/processor relationship, since cooperative formation depends on the processor association, some delivery arrangement is likely to be incorporated into that relationship. The second catcher vessel pilot program alternative would allow harvesters to form cooperatives, which again would receive allocations based on members' qualified harvest histories. These cooperatives would be required to deliver their landings to processors that met threshold landing requirements during the processing qualifying years. Under both of these alternatives, harvesters that choose not to join a cooperative would be permitted to fish in a competitive fishery that receives an allocation based on the harvest histories of non-members of cooperatives.

Under all of the pilot program alternatives, set asides of CGOA rockfish would be made for an entry level fishery and to support incidental harvests in other directed fisheries.

The pilot program alternatives are derived from a common set of elements with differences that reflect the different operations of the two fleets.

Management of the Fisheries

Under its current management, the rockfish fisheries are conducted as a limited access race for fish. Managers must first manage the LLP, under which license holders must declare their intention to use a license on a vessel with the NOAA Fisheries. Non-trawl fishing in the rockfish fisheries begins on January 1st. The trawl season typically opens in early July and ongoing catch is monitored by managers with the closing timed to coincide with harvest of the TAC. Observer coverage varies with vessel size. In general, vessels that are 125 feet or longer LOA are required to have 100 percent observer coverage. Vessels under 125 feet and 60 feet or greater in length are required to have 30 percent observer coverage. Vessels under 60 feet have no observer requirement.

Under the catcher processor alternatives, management of the fisheries would change substantially. Under all of the pilot program alternatives, cooperatives would be permitted to fish their allocations during an extended (but limited) season. This season extension and the exclusive allocations could require substantial monitoring increases on vessels that fish cooperative allocations. Management of allocations will require that all catch under the program be monitored. To meet this end, a protocol will need to be developed for the participants in the program to notify NOAA Fisheries when fishing will be conducted under pilot program. For catcher processors, notices will be required prior to initiating a trip to ensure adequate observer deployment. All fishing during the trip would be presumed to be under the program, but fishing outside of the program could take place given prior notice to allow observers onboard to make adjustments in coverage to suit the fishing activity. The specific notification requirements will be developed to accommodate operational needs of participants and management, monitoring, and enforcement needs of NOAA Fisheries. NOAA Fisheries would establish minimum standards for the catcher processor fleet, specifically two observers (with each haul observed), flow scales, a sampling station with a motion-compensated platform scale (to verify accuracy of the flow scale), and an individual catch monitoring plan that would be consistent with existing standards in other fisheries. Information gathered onboard vessels would be used to validate catch accounting by inseason management. Management of the limited access fishery would differ substantially from the management of cooperatives. This fishery would continue to be prosecuted early in July, with managers monitoring harvests and timing the closing of the fishery to coincide with harvest of the sector TAC. Observer coverage would continue to be maintained at its current level for this fleet to ensure adequate information for managing harvests and monitoring the fleet. In addition to managing aspects of the rockfish target fishery, NOAA Fisheries would need to approve and monitor and manage sideboards. Any participant who intends to, or does, participate in any of these fisheries prior to commencing fishing in July must have adequate observer coverage on board the vessel so that all catch harvested during a sideboarded fishery will be assessed against the overall sector harvest limit. NOAA Fisheries must monitor any applicable standdowns in the BSAI and Gulf of Alaska non-pollock groundfish fisheries. NOAA Fisheries also must manage and monitor cooperative sideboards, which could be used to limit each cooperative to its historic catch in each of the July Gulf of Alaska groundfish fisheries other than target rockfish, in place of the standdowns. To use a cooperative sideboard, in lieu of standdowns, members of a cooperative will be required to submit to NOAA Fisheries a cooperative management plan that demonstrates that the cooperative will actively and adequately monitor harvests of members to ensure compliance with the harvest limitations of the cooperative sideboard.

Under the catcher vessel cooperative with limited processor entry alternative, catcher vessels would have the option of joining a cooperative (which would fish an allocation based on the history of its members) or fishing in a limited access fishery (which would receive an allocation based on the history of all non-members). The two types of allocations would require two different management approaches.

As under the catcher processor alternatives, implementation of the program will require that NOAA Fisheries determine the pool of eligible persons for the catcher vessel sector, the sector allocation and the individual histories of eligible persons. In addition, processor eligibility would be determined, based on processing histories. Cooperative agreements will be filed with NOAA Fisheries every two years, which must be reviewed for adequacy (including monitoring plan). NOAA Fisheries will be required to make annual catch allocations to cooperatives (based on member histories) and to the limited access fishery.

As under the catcher processor alternatives, cooperative allocations under the catcher vessel alternatives would be fished during the extended season. Fishing of exclusive allocations during an extended season will require a substantial increase in monitoring above the current levels, but because catch is processed on-shore management changes would differ from those for catcher processors. Management of allocations will require that increased catch monitoring under the program, as well. As a precursor to this monitoring, participants will need to make announced rockfish pilot program trips, to distinguish rockfish pilot program fishing from participation in other fisheries and allow deployment of adequate observer coverage. All fishing in a trip under the program would be exclusively under the program. Using this system of exclusive trips would also facilitate shoreside monitoring of offloads and account of catch against allocations. Beyond these requirement, NOAA Fisheries intends to develop monitoring programs to ensure adequate but efficient monitoring. NOAA Fisheries intends to develop monitoring appropriate to the fishing activities of the participants. While NMFS expects that most catcher vessel catch accounting will take place shoreside, monitoring for compliance with discard and retention requirements, and sampling to determine the quantity and composition of discards will be necessary components of this program. Monitoring allocations of halibut PSC will be problematic because NMFS would not be able to use a vessel specific rate for unobserved trips or for unobserved hauls on observed trips. It is possible that some form of fleetwide rate would have to be developed. Because of the paucity of data early in the season, NOAA Fisheries would probably be required to use an aggregate rate based on data from the prior year.

To manage and monitor catcher vessels sideboards, the NOAA Fisheries would require that vessels that are subject to the sideboard to make a declaration prior to fishing in any sideboarded fishery during July. Any participant who intends to, or does, participate in any of these fisheries prior to commencing fishing in July must have adequate observer coverage on board the vessel so that all catch harvested during a sideboarded fishery will be assessed against the overall sector harvest limit. NOAA Fisheries would not provide an individual allocation of sideboard fisheries, but will establish a sector allocation.

Participants in the entry level trawl fishery would be subject to management similar to management of the catcher vessels in the main program. Limited access fisheries for new non-trawl entrants and persons that choose not to participate in cooperatives would be managed in a manner similar to current management.

Participation and fishing practices

Maintaining current management is likely to result in the continuation of existing fishing practices and patterns. In the current fishery, the non-trawl fishermen take very little of the TAC between the opening on the non-trawl fishery in January and the opening of the trawl fishery in July. Trawl fishermen race for catch of rockfish when the trawl season opens in July. Typically, Pacific Ocean perch are caught first, followed by northern rockfish and pelagic shelf rockfish. In the past, catcher processors have caught more rockfish than catcher vessels. In recent years, however, the portion of the TACs caught by catcher vessels has increased and surpassed the catch of catcher processors. The quality of fish harvested likely suffers from the race for fish. Rockfish are considered relatively difficult to handle because of their spines and scales. These characteristics are said to make it more difficult to maintain quality when racing to maximize catch.

Trawl catcher processors must not only harvest fish rapidly, but also must process that fish rapidly, to maintain quality and accommodate additional catch. Discards can occur if the fish is not processed quickly enough to maintain its quality. Rockfish are generally considered more difficult to handle and process than species such as pollock and Pacific cod because of their spines and scales. With the current short seasons, most LLP holders not already participating in the rockfish fisheries are unlikely to perceive substantial gain from entering the fisheries. As a result, modest (if any) increase in participation should be expected if current management is maintained.

Historic harvests of CGOA rockfish are used to make allocations, under the pilot program alternatives so distribution of CGOA rockfish allocations both to and within the different sectors will be similar to the historic distribution of harvests during the qualifying years. The number of persons receiving allocations is approximately twice the average annual participation in the fisheries, showing that some participants have moved in and out of the fisheries over time. Within each cooperative, it may be anticipated that each member would receive revenues based on the allocation that the person brings to the cooperative, with participants that fish shares of others receiving compensation for their fishing expenses. Fishing within a cooperative, however, could be far more concentrated than the underlying allocations. Although the program is intended to rationalize the rockfish fishery, it is important to recognize the value of secondary species harvests. Historically, all of the secondary species have generated more revenues per pound for participants than the target rockfish. All of the pilot program alternatives permit persons to harvest secondary species allocations independent of the harvest of rockfish allocations. Given the value of the secondary species allocations and the harvest flexibility, participants can be expected to harvest their entire allocations of secondary species. Depending on incidental catch rates, it is likely that some cooperatives will choose to reserve a portion of the allocation of each secondary species until all of the target rockfish is harvested, after which all remaining secondary species allocations are harvested.

Under the catcher processor alternatives, members of the sectors could decide to consolidate their rockfish allocations to realize efficiencies in the rockfish fisheries and other fisheries. A cooperative that uses relatively few members to harvest its annual allocation could potentially minimize observer and monitoring equipment costs. Cooperatives that are able to manage their own sideboards would be permitted to harvest its allocation over the longer season, freeing its members to enter other fisheries in the beginning of July (without a standdown). This ability to enter other fisheries should lead to cooperatives harvesting their allocations either earlier or later than the traditional July opening, to free their members to compete in other fisheries that open early in July. The cooperative, however, would only be permitted to harvest its historic share from those other fisheries, limiting any potential impact on others. Although cooperatives that manage their own sideboards can be expected to harvest their allocations outside of the traditional early July season, the exact timing of their CGOA rockfish fishing will likely depend on the operational needs of cooperative members and their fishing success. Low catch rates of rockfish or high rates of incidental catch of secondary species or halibut could also lead a cooperative to change its timing of rockfish targeting. Some longtime participants in the fishery suggest that rockfish aggregations are at their greatest in the summer months. If participants observe relatively high aggregations (and catch rates) in summer months, it is likely that their harvests will be concentrated in the summer regardless of whether the season is extended into the spring and fall. Catcher processors may have less incentive to fish outside of the summer months than catcher vessels, as most produce only frozen head and gut and whole products and are less likely to attempt to serve fresh fish markets that may be more accessible to the shore-based fleet.

Participation and fishing practices of the catcher vessel sector are likely to change substantially from the status quo. Annual participation records show that between 30 and 35 catcher vessels participated in the fisheries each of the qualifying years. The number of persons receiving allocations is estimated at 47, more than 10 persons greater than average annual participation. The number of persons fishing under either catcher vessel alternative is likely to be fewer than the number of allocations and could be fewer

than the participation levels of recent years. Consolidation within cooperatives will be the greatest contributor to the reduction in participation. Since cooperative formation requirements are relatively minimal under the processor limited entry alternative (four qualified participants), it is likely that most persons eligible for the catcher vessel sector will join cooperatives. To save on observer coverage and operational costs, it is likely that most cooperatives will consolidate harvests to some extent. Cooperatives are likely to distribute revenues based on the allocation that the person brings to the cooperative, with fishing vessels compensated for their expenses. Under an extended season, cooperative fishing is likely to take place outside of the traditional early July season. As with the catcher processor cooperatives, timing of fishing CGOA rockfish allocations will depend on the particular operational needs of members, market opportunities, and fishing success. While success in the fishery cannot be predicted, rockfish targeting should be expected to be concentrated during periods of the year when high catch rates of rockfish and low catch rates of secondary species and halibut occur. Fishing outside the season could provide an opportunity for some participants to try to serve markets (including a possible fresh market) that have been historically impossible to access because of the timing of the season. In addition, slowing of the race for fish will allow harvesters to focus more on improving quality of their landings. If higher quality production generates higher revenues, participants can be expected to adopt fishing techniques that improve quality, such as reducing total catch in each tow and improved icing of catch. Fishing costs could rise, but only for a more than commensurate rise in revenues.

Under the processor license limitation alternative, fishermen will have the flexibility to make deliveries to any qualified processor. Since six processors qualify (see below), cooperatives are likely to solicit competition for landings during the extended season. Patterns of deliveries cannot be predicted, but it is likely that cooperatives could deliver to more than one processor to take advantage of different market opportunities.

The catcher vessel limited access fishery will be managed in the same manner as the catcher processor limited access fishery described above. Participants can be expected to race for catch during the short season, with managers closing the fishery when they estimate that the limited access TAC has been caught. Secondary species MRAs will be reduced from current levels to limit total catch of the secondary species to the allocated amount. These reduced MRAs for valuable secondary species are likely to act as a substantial deterrent to participation in the limited access fishery. A further deterrent will arise from the 20 percent reduction of all allocations to the limited access fishery. Since cooperative formation simply requires four members and since all cooperatives are required to accept membership of any person eligible for the cooperative subject to the same terms and conditions governing other members, it is unlikely that anyone will choose to fish in the limited access fishery.

Fishing participation and patterns are likely to be similar under the catcher vessel alternative with processor associations. Cooperatives, however, will be associated with a single processor. Given the processor involvement, it is likely that each cooperative will have limited latitude to pursue markets for their landings beyond the single associated processor. The implications of these rules for the temporal distribution of fishing (and landings) cannot be predicted. Planning of fishing activity, however, will likely be more coordinated with the associated processor, which could limit the ability of harvesters to pursue the best market opportunities by changing timing of fishing. Each cooperative is likely to pattern its fishing to serve the markets pursued by its associated processor. The cooperative formation rule, together with the limitations on cooperative eligibility and the requirement of a processor association, could have some impact on whether some participants choose to join a cooperative. Specifically, since each participant will be eligible for a single cooperative that must associate with a particular processor and cooperative formation requires 75 percent of the history eligible for a cooperative, the holders of that supermajority of history and the processor are likely to control the terms of the cooperative agreement. While both the cooperative and the processor will realize some benefit from more inclusive membership, it is possible that a cooperative agreement that suits the supermajority and the processor may not be

agreeable to some minority participants. Cooperative membership, however, is likely to be favored by most participants in the program because of the reduced MRAs and 20 percent reduction in allocations to the limited entry fishery.

Effects on processing practices

Processing participation and practices are likely to be similar to current participation and practices, if the status quo is maintained. Catcher processors in the rockfish fisheries current produce mostly whole and head and gut products. Shore-based processors race to process landings in an attempt maintain market share and to maintain a minimum quality for products. Quality, however, suffers because of the rapid rate of harvest and processing, which leads to the production of relatively lower value and lower quality products.

Processing by catcher processors under the catcher processor pilot program alternatives is likely to remain similar the current processing by this sector. Most vessels in the sector are equipped for producing a few simple products (frozen whole and head and gut fish). Because of size limitations, it is unlikely that any of these vessels will change plant configurations to process higher-valued, more processed products. Under this alternative, only processors that have processed at least 250 metric tons of aggregate CGOA rockfish per year for four years between 1996 and 2000 will be permitted receive deliveries of rockfish harvested under the main program.[1] Six processors meet this qualification criteria, all of which are based in Kodiak.

Processing of shore-based plants under the pilot program alternatives can be expected to change from the status quo. Share allocations to cooperatives should provide cooperatives with the ability to improve quality of landings. These quality improvements should provide processors with the ability to pursue higher revenue products. Under the processor license limitation alternative, the structure of the market for landings should be competitive, inducing some processors to aggressively pursue product improvements to attract additional landings. Although competition should exist in the market for landings, harvesters are likely to time landings to accommodate processing schedules, which processors should reward in turn with higher ex vessel prices. This timing of landings could be critical to processors meeting some market demands, particularly if a fresh market were to develop. Under the alternative with processor associations, it is possible that some processing differences could arise. Harvesters have no choice of cooperatives to join, but will be eligible for a single cooperative associated with a specific processor. As a consequence, processors are unlikely to compete for landings on a regular basis, but only in developing the terms of the cooperative agreement, which is subject to the processor's approval. This limit on the competition for landings from the fishery could reduce competition among processors for markets for their outputs. While some processors may aggressively pursue any available markets, it is possible that others will show less interest in extracting maximum revenues from rockfish landings, particularly if their processing of those landings could interfere with their operations in other fisheries. So, processing under this alternative should resemble that of the previous alternative, however, fewer products could be produced for challenging high revenue markets, as some processors may not perceive the need to compete as aggressively for landings due to the limited markets available to harvesters.

[1] A suboption in the current motion would qualify any processor that processed in excess of 250 metric tons in any one year between 1996 and 2002 provided that the owner also invested in excess of a minimum threshold amount in the plant. Confidentiality limitations prevent the disclosure of whether any processor meets this qualification.

Catcher processor efficiency

Production efficiency[2] of the catcher processor sector under the status quo is limited to some degree by the race for fish under the current LLP fishery. Catcher processors are compelled to race for rockfish harvests with other catcher processors, as well as catcher vessels participating in the fisheries during the few weeks they are open each year. Although catcher processors process their catch quickly, relative to catcher vessels, quality of harvests likely suffer to some extent, as participants adopt fishing techniques to maximize catch rates, which may lead to diminished quality and dissipation of a portion of the resource rents.

Under the pilot program alternatives, the catcher processor sector is likely to realize some gains in production efficiency capturing greater rents from the fishery. The primary efficiency gains in the catcher processor sector under this alternative will result from participants slowing the pace of fishing and processing. In the slower fishery, participants are likely to be able to reduce expenditures on inputs to some degree (possibly scaling down crews slightly) and increasing outputs slightly (with less loss due to diminished quality).

Catcher vessel efficiency

Production efficiency of catcher vessels under the status quo is also limited by the short, race for fish that has arisen under LLP management. Catcher vessel efficiency is particularly vulnerable under the current management because catcher vessel efforts that maximize the share of the TAC also substantially diminish quality of landings. Returns to catcher vessels under the existing management have been limited both by the quality of their landings and the compressed time period in which those landings must be made. During the current seasons, most processors have needed to process landings quickly to keep pace with the landings. These conditions have dampened competition for landings among the participating processors to some extent. The extent to which resource rents are captured and division of those rents under this alternative is not known. In a fishery that is prosecuted over a very short season (as the rockfish fisheries are) a substantial portion of the rents are likely to be dissipated.

The catcher vessel pilot program alternatives are likely to improve catcher vessel efficiency over status quo management. Since participants will be able to gain exclusive share allocations by joining cooperatives, a harvester's share of the fishery will generally be unaffected by catch rates. Participants, instead, will refocus their efforts toward harvesting allocations in a manner that improves technical efficiency – reducing inputs and increasing the quality of rockfish deliveries. Most participants may be expected to choose to sacrifice some cost efficiencies (i.e., use more inputs such as fuel) to improve quality of deliveries and receive a greater price for landings. This trade off may increase costs, but should result in improvements in technical efficiency and overall efficiency of catcher vessels because of the higher price that would be paid for these landings.

Under the alternative with processor limited entry, harvesters should be able to generate additional competition for landings among the licensed processors under this alternative. Since qualified processors have processed in excess of 90 percent of all historic landings during the two to three week season, processors that have been unable to compete for additional landings because of capacity constraints during the brief season are likely to have the ability to process substantially greater quantities of rockfish, if landings can be timed to take advantage of available processing capacity. Catcher vessel participants

[2] In the simplest terms, production efficiency is the difference between production revenues and production costs. Production efficiency is a measure of the effectiveness of a producer in using inputs to produce one or more outputs, focusing on the relationship between the quantity and quality of outputs produced and the quantity and quality of the various inputs (e.g., fuel, vessels, and labor) used for that production.

are likely to have the greatest negotiating leverage in the ex vessel market under this alternative, because of the extended season and the limited restriction on the processing market relative to the alternative with processor associations. Overall, the ability to coordinate harvest activity and remove vessels from the fleet without loss of harvest share, together with a relative improvement in bargain strength arising from the relatively weak processor protection of the limit on processor entry should result in substantial improvements in harvest sector efficiency over the status quo.

Under the alternative with processor associations, operations of the catcher vessel sector should be similar to those under the processor limited entry alternative. Catcher vessel efficiencies, however, are likely to be less under this alternative because of the shift of negotiating leverage to processors from the rigid cooperative/processor associations.

Shore-based processing efficiency

Under the current management, fishermen race for catch, landing that catch with processors shortly after it is harvested. Because of the race for fish, take less care in handling their catch and extended the length of trips slightly, decreasing the quality of landings. Processors also race to process the glut of landings from fishermen that are trying to maximize their shares of the total catch. Efficiency in the processing sector suffers, as lower valued products of poorer quality are produced and as crews must be scaled up for a short period of time to accommodate the rapid pace of landings during the brief season.

Under the pilot program alternatives, fishing will be slowed as cooperative receive exclusive allocations. Technical efficiency in processing should improve as processors are better able to schedule crews to process landings. Efficiency should also improve as processors improve product quality and produce more high quality products that cannot be produced under the current management because of the relatively low quality of landings and the need to process those landings rapidly. Catcher vessel participants are likely to use cooperatives to coordinate landings contributing to efficiency gains in the processing sector.

Processors may experience little improvement in their overall efficiency under the processor limited entry alternative because of their weak negotiating position in the market for landings. Although entry is limited under this alternative, the capacity of qualified processors far exceeds that necessary to process landings in a slowed fishery with an extended season. Processors, however, should obtain normal profits from their processing, but any less efficient processors unable to realize normal profits may be expected to drop out of the rockfish fishery.

The alternative with processor associations provides processors with a substantial advantage in the market for landings through its processor/cooperative associations. Since each qualified catcher vessel participant will have to join a cooperative in association with a specific processor, fishermen will have little negotiating leverage with respect to their landings. Potential negotiating leverage for the fishermen arises from withholding all rockfish landings or their deliveries in other fisheries. Fishermen's leverage from withholding rockfish landings is limited because the outside opportunity is the limited access fishery, which is likely to be substantially less efficient. The outcome should be that processor efficiency improves substantially with the reduction in processing costs and product improvements (some arising from improved quality of landings). Processors are likely to capture most of the increase in rents under this alternative, improving overall processing efficiency.

Overall production efficiency

Overall production efficiency in the CGOA rockfish fisheries is likely to remain at its current level, if the status quo management is continued. For catcher processors, quality of products is relatively high as catch is processed quickly onboard. These vessels are likely to continue producing exclusively whole and head

and gut products, as is the current practice. For the shore-based sector, quality of landings and processed products are likely to suffer under a race for fish. In addition, the race for fish is likely to limit the ability of shore-based processors to produce higher valued products.

Overall production efficiency is likely to increase slightly under the catcher processor pilot program alternatives as catcher processors are able to make some quality improvements with the ending of the race for fish under the current management. Product form (whole and head and gut) are likely to remain the same under this alternative due to operational limitations. Some efficiencies could be realized through the consolidation of catch on fewer vessels, but vessels will not be retired because rockfish is a minor part of each vessel's annual activity.

Overall production efficiency should improve substantially under the catcher vessel pilot program alternatives. Quality of rockfish landings should improve as the race for fish is ended. Processors should also be able to better handle landings producing higher quality and higher valued products. Both sectors should realize some gains in efficiency through better scheduling of their activities. Costs should be reduced as participants in both sectors are able to determine inputs to reduce costs of production without concern over losing their share in the fishery, if production is slowed. Efficiency gains under the alternative with processor associations, however, could be less than under the other catcher vessel alternative as the strict cooperative/processor association could reduce the incentive for some processors to aggressively pursue markets for rockfish landings.

Effects on consumers

Under the status quo, consumers are likely to be supplied with products from the rockfish fisheries that resemble those currently produced under status quo management. Catcher processors are likely to continue to produce high quality frozen head and gut and whole fish, most of which is sold into Asian markets. Production from catcher vessel catch is likely to suffer from poor handling. Landings are likely to be made into primarily head and gut and whole fish. Most of the catcher vessel production is sent to Asia, much of which returns after reprocessing. Some catch is made into fillets at the primary processing plant, but the ability to make quality fillets is limited because of the quality of the landings and the time pressures arising from the race for fish.

Production of the catcher processor sector is likely to be similar to current production under the pilot program alternatives. Some quality improvement could occur, but these vessels already produce high quality products because their catch is processed onboard soon after it is harvested. Any improvements in consumer benefits arising from improved quality are likely to be realized by Asian consumers, as most of the production from this sector is sold into that market.

Substantial changes are likely to occur in the production of catcher vessel harvests to the benefit of consumers. Catcher vessel landings are likely to be of higher quality under both of the catcher vessel pilot program alternatives. Processors are also likely to slow lines allowing them to produce fillets, instead of the less processed whole and head and gut products currently produced. This should limit the amount of reprocessing of products abroad for importation to U.S. markets. Some processors are likely to attempt to serve domestic fresh markets, which would also benefit U.S. consumers. Most of the benefits of production improvements in the fisheries are likely to be realized by U.S. consumers.

Management Costs

Under the status quo management, costs of management should remain at their current level. Under the pilot program alternatives, NOAA Fisheries will incur additional costs of determining eligibility and making allocations of history to participants under the program. Cooperative agreements will be reviewed

by the agency. Annual allocations must be made to cooperatives (and to either a limited access fishery or individuals, if any persons eligible for the program choose not to join a cooperative). NOAA Fisheries will be required to conduct catch accounting for the different allocations and monitor the allocations using observer data. The costs to NOAA Fisheries are likely to exceed the current costs of managing the rockfish fisheries under the LLP, which are in large part coordinated with management costs of several fisheries (and therefore are dispersed across several fisheries). Enforcement costs are also likely to rise under the pilot program, as enforcement personnel will be required to oversee activities over a longer period. In addition, individual accountability for catch of cooperative allocations requires additional enforcement resources. In addition to costs that will be borne by NOAA Fisheries, participants in the fishery are likely to have some additional costs. To date, NOAA Fisheries has maintained that to fully monitor total catch on a catcher processor requires the use of flow scales and sampling stations with every haul observed. Added costs of observers are difficult to predict under the program. A requirement that all catch under the program be observed is likely to result in some added observer coverage for vessels harvesting fish under the program. The extent of the additional coverage, however, is difficult to predict because participants may coordinate fishing under the program to focus observer coverage to reduce costs. Observer costs for catcher vessels, which are borne by the fleet, are likely to increase for the catcher vessel sector to provide adequate information concerning fishing activity under the program. The extent of these additional costs is not known, and depends on the specific monitoring program developed by NOAA Fisheries and the fishing practices of participants. To reduce observer costs (and operational costs), it is likely that some rockfish harvesting will be consolidated within (and possibly across) cooperatives.

Environmental benefits

Improvements in environmental conditions are valued by the public at large. For example, preservation of endangered species is often considered to have significant value to the public. In the current fisheries, catch of all species of interest are limited either by TAC or by PSC limits. Managers monitor harvests inseason, closing the fisheries when the total allowable catch is estimated to be taken. Managers have become quite adept in their estimates, and have generally succeeded in maintaining catch below TAC. Occasionally, TACs are exceeded, but overages have not exceeded overfishing limits or threatened stocks. Public non-use benefits derived from the management of health stocks of these species are likely to be maintained, if the current management is perpetuated. Under the pilot program alternatives, catch of all species of interest will continue to be limited by TAC or PSC limits. These limits should be effectively maintained through the monitoring and management program, perpetuating the current non-use public benefit derived from maintenance of healthy stocks.

Net benefits to the Nation

If the current management of the rockfish fisheries is continued, net benefits to the Nation are likely to remain at their current level. For catcher processors, quality of the whole and head and gut production is relatively high. Few consumer benefits from this production are realized in the U.S., as most fish is sold into foreign markets. For the shore-based sector, quality of landings and value of processed products suffer decreasing production efficiency. Consumer benefits of these harvests are diminished by the quality and product value. In addition, a substantial portion of any consumer benefits is not realized by U.S. consumers, as much of the production is sold into foreign markets. Costs of monitoring and management are relatively low, as catch is monitored at the fleet level. Non-use benefits to the public are decreased to some extent by waste and bycatch.

Net benefits to the Nation will be affected by a few different factors under the catcher processor pilot program alternatives. Production efficiency should increase slightly, as some participants realize moderate improvements in quality of production. Few, if any, benefits of production improvements will

be realized by U.S. consumers, as this fleet is likely to continue to serve international markets. Costs of management, monitoring, and enforcement will increase to administer and oversee the cooperative allocations. Some vessels may be required to purchase additional monitoring equipment.

A few different factors will affect net benefits to the Nation under the catcher vessel pilot program alternatives. Slowing the rate for fishing and extending the season should lead to substantial increases in production efficiency, as participants in both sectors improve quality and higher value products are produced. These production improvements should lead to benefits for U.S. consumers, as this fleet is likely maintain or increase production for domestic markets. In addition, greater production is likely to occur domestically, as fewer primary products are shipped abroad for reprocessing. Increased administration and oversight necessary for cooperative allocations and an extended season will result in an increase in costs of management, monitoring, and enforcement. Participants may also require additional observer coverage. Some additional benefits to the Nation could arise through reduction in bycatch, since the program requires full retention of several species. Since discard rates of these species are relatively low in the current fishery, these benefits are likely not substantial. Overall gains in net benefits to the Nation, however, could be lower under the alternative with processor associations that under the alternative without those associations, if processors perceive less need to compete in product markets because of the relatively tight linkage of the processor associations under this alternative. Whether competition in product markets is dampened depends on the specific situation of the processors and fishermen that deliver to the processor (including factors such as the markets the processor serves, the extent of involvement of the processor and fishermen in other fisheries, and the cost of developing participation in new and challenging markets).

Target rockfish stocks

Current management of the fisheries and fishing patterns should continue under the status quo. Rockfish are conservatively managed under in the current fishery, with from the limited access fishery harvests limited by TAC. Under this management a TAC can be exceeded, if managers have difficulty projecting when the fleet will have completed harvest of the TAC. Allowable biological catch limits are rarely, if ever exceeded, and it can be expected that overfishing limits will not be exceeded.

The pilot program alternatives should have no negative impact on stocks of target rockfish populations. These species will continue to be managed by conservatively set TACs. Cooperative allocations in the fisheries should effectively limit catch to the TACs. More precise management of the TACs should be possible under the change in management, as individuals within a cooperative will be responsible for any overage. Some potential benefit could arise, if participants distribute catch over larger areas or time periods, reducing any potential local depletion that could occur under the current management, in which effort is concentrated as a result of participants attempting to maximize their catch. Any beneficial effect from greater distribution of catch spatially is likely to be limited, if participants perceive a benefit to concentrating catch to reduce costs or increase revenues. For catcher vessels, concentration of catch in close proximity to processors could improve quality of landings, as needed to serve some high valued markets. For catcher processors, concentration of catch spatially and temporally could reduce costs, if consistent high catch rates are observed at particular times and locations. In conclusion, no negative impacts to rockfish stocks are expected from any of the pilot program alternatives.

Allocated secondary species and prohibited species catch

Under the status quo management, catch of secondary species (Pacific cod, sablefish, shortraker, rougheye, and thornyheads) in the target rockfish fishery will continue to be limited by MRA and by TACs that limit overall catch from all fisheries. Although catch of these species is substantial, each of these species is managed under conservative TACs. In addition, separate TACs for shortraker and

rougheye will be established in 2005 to ensure the integrity of their independent stocks. Halibut is managed as PSC in the CGOA rockfish fisheries. Catch of halibut is required to be discarded and is accounted for against the deep-water complex PSC allocation. Although halibut PSC has occasionally required the closure of the target rockfish fisheries, the fishery does not have negative effects on halibut stocks.

Similar to the target rockfish stocks, no negative effects on secondary species stocks are expected to occur under the pilot program alternatives. Catch of these species will be limited by cooperative allocations, which are more restrictive than the current MRAs. In addition, discards are not permitted for these species under the pilot program. Management of these allocations should contribute to more precise management of stocks under the program. Overall harvests will continue to be limited by TACs that apply to total catch from all fisheries. The pilot program alternatives will be prosecuted with cooperative allocations of halibut mortality. These allocations will constrain halibut bycatch and will prohibit participants in the program from fishing in excess of their halibut allocations. Although some fishing could take place out of the traditional July season (when halibut bycatch has been observed to be low), mortality will be constrained by the allocations of halibut mortality. The allocations of halibut are based on historic halibut mortality usage in the fisheries and will not allow overall halibut mortality in Central Gulf of Alaska fisheries to exceed historic levels. As a result, the pilot program alternatives should have no negative impact on halibut stocks.

Unallocated prohibited species catch

In the current rockfish fishery, prohibited species harvests are not at levels that raise concern. Fishing patterns are not expected to differ under any of the alternatives (including the status quo and the pilot program alternatives) in a manner that will affect prohibited species catch. Consequently, no adverse effects on prohibited species catch are expected under any of the alternatives.

Other unallocated species

Fishing patterns are not expected to differ under any of the alternatives (including the status quo and the pilot program alternatives) in a manner that will affect catch of unallocated species. Consequently, no adverse effects on prohibited species catch are expected under any of the alternatives.

Benthic habitat and essential fish habitat

Maintaining the current management will perpetuate current fishing practices and concentrate fishing for rockfish temporally and spatially. Current fishing, however, has minimal and temporary effects on benthic habitat and essential fish habitat. These effects are likely to continue, if current management is maintained. Under the pilot program alternatives rockfish fishing could be distributed over a longer season and may disperse spatially, as a result of the removal of time constraints by the cooperative allocations. Overall, the rockfish fisheries are likely to continue to have minimal and temporary effects on habitat. No negative impacts to habitat are likely under the pilot program alternatives.

Endangered or threatened species

None of the alternatives are expected to have negative impacts on endangered or threatened species beyond those identified in previous consultations under section 7 of the Endangered Species Act. Some spatial and temporal dispersion of rockfish catch could occur under the pilot program alternatives. This change in the distribution of catch is expected to be minor and is not expected to have any affect on any endangered or threatened species.

Forage fish

Catch of forage fish is expected to be unaffected by any of the alternatives. Consequently, no impacts on forage fish are expected under any of the alternatives.

Marine mammals and seabirds

Direct and indirect interactions between marine mammals or seabirds and harvests from the rockfish fisheries are not expected to differ under any of the alternatives, as total catch is expected to be the same under all of the alternatives and the distribution of catch is not expected to differ in a way that will affect interactions.

The ecosystem

Although some temporal and spatial dispersion of catch in the rockfish fisheries could occur under the pilot program alternatives, none of the alternatives are expected to have a negative effect on the Gulf of Alaska marine ecosystem.

Environmental justice

Under the pilot program alternatives, some consolidation of fishing activity could occur in the rockfish fisheries. This consolidation could affect income for participants on vessels that no longer participate in the rockfish fishery. This consolidation is unlikely to result in the removal of vessels from all fisheries and could lead to some of the vessels that leave the rockfish fisheries increasing their activities in other fisheries (to the extent permitted by sideboard limitations and cooperative agreements). As a result, the impacts to vessel owners and crewmembers are may not be negative, even if rockfish fishing activity decreases. In addition, the degree to which any impacts will affect minority or low-income vessel owners or crewmembers cannot be determined because demographics of vessel owners and crewmembers are not available.

Shore-based processing crews could be affected under the pilot program alternatives, although most effects are likely to benefit these workers. The pilot program alternatives are likely to result in the distribution of landings over a longer period of time, particularly when shore plants are not processing catch from other fisheries. This distribution of landings could result in a loss of some seasonal positions, but will also result in greater stability for crews that are year round processing workers. Both seasonal and fulltime positions are disproportionately held by persons with low incomes and minorities.

1. Introduction

Section 802 of the Consolidated Appropriations Act of 2004, the U.S. Congress included a directive to the Secretary of Commerce to establish, in consultation with the North Pacific Fishery Management Council (the Council), a pilot program for management of three rockfish fisheries in the Central Gulf of Alaska (the Central Gulf rockfish fisheries).[3] At the February 2004 Council meeting, National Marine Fisheries Service (NOAA Fisheries) presented a brief discussion paper requesting Council input in the development of the pilot program. Based on this request and public testimony, the Council requested industry stakeholders to prepare and submit proposed alternatives for establishing the program to the Council at its April 2004 meeting. Industry representatives presented a proposal at that meeting that defined an alternative for management of the fisheries under the pilot program. Using the industry proposal and public input and staff discussion papers, the Council developed alternatives for the pilot program management of the rockfish fisheries at its June 2004, October 2004, December 2004, and February 2005 meetings. Because of the different characteristics of the catcher vessel fleet and the catcher processor fleets, the Council has developed different, but closely related alternatives for these two sectors. In the case of the catcher vessel sector, the Council has developed for analysis two cooperative programs that differ in the relationships that would be established between participating catcher vessels and processors. In the case of the catcher processor sector, the Council has developed for analysis a cooperative program alternative and an alternative that simply makes a sector allocation.

Management actions for these rockfish fisheries must comply with applicable Federal laws and regulations. Although several laws and regulations guide this action, the principal laws and regulations that govern this action are the Consolidated Appropriations Act of 2004, the Magnuson-Stevens Act (MSA), the National Environmental Policy Act (NEPA), the Regulatory Flexibility Act, and Executive Order 12866.

This document contains a Regulatory Impact Review, a Regulatory Flexibility Analysis, and an Environmental Assessment of the alternatives for the demonstration program management of the Central Gulf of Alaska Pacific Ocean perch, Northern rockfish, and pelagic shelf rockfish (which comprises dusky rockfish, yellowtail rockfish, and widow rockfish) fisheries. Section 2 contains the Regulatory Impact Analysis, including the problem statement, a brief background, and a detailed description of the alternatives; the existing conditions in the fisheries, analyses the economic and socioeconomic effects of the alternatives, elements, and options; Section 3 contains the Environmental Assessment; and Section 4 contains the Regulatory Flexibility Analysis; and Section 5 contains a brief discussion of the MSA National Standards and a fishery impact statement.

2. Regulatory Impact Review

This chapter provides an economic analysis of the action, addressing the requirements of Presidential Executive Order 12866 (E.O. 12866), which requires a cost and benefit analysis of federal regulatory actions.

The requirements of E.O. 12866 (58 FR 51735; October 4, 1993) are summarized in the following statement from the order:

> In deciding whether and how to regulate, agencies should assess all costs and benefits of available regulatory alternatives, including the alternative of not regulating. Costs and benefits shall be

[3] A legislative floor statement providing some definition of the program envisioned by Congress is attached hereto as Appendix 1A. NOAA General Counsel provided the Council with a legal opinion concerning several aspects of the pilot program authorized the legislation. A copy of that opinion is attached as Appendix 1B.

understood to include both quantifiable measures (to the fullest extent that these can be usefully estimated) and qualitative measures of costs and benefits that are difficult to quantify, but nonetheless essential to consider. Further, in choosing among alternative regulatory approaches agencies should select those approaches that maximize net benefits (including potential economic, environmental, public health and safety, and other advantages; distributive impacts; and equity), unless a statute requires another regulatory approach.

E.O. 12866 further requires that the Office of Management and Budget review proposed regulatory programs that are considered to be "significant". A "significant regulatory action" is one that is likely to:

- Have an annual effect on the economy of $100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, local or tribal governments or communities;
- Create a serious inconsistency or otherwise interfere with an action taken or planned by another agency;
- Materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or
- Raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in this Executive Order.

This Regulatory Impact Review assesses several different economic effects of the alternatives to assess the effects of the alternatives on the net benefits to the Nation. In general, the economic effects of the different alternatives cannot be quantified. Quantitative estimation of the effects requires accurate data concerning several aspects of the fishery, many of which are not available. In addition, several factors limit the predictability of the impacts of the alternatives on these fisheries. Some program aspects of the alternatives are unique. For example, the processor associations under the "catcher vessel cooperative with processor association" alternative, differs from any implemented in any fisheries to date (including the Bering Sea pollock fisheries, which it most resembles). Quantification of impacts would require detailed cost data from the harvesting and processing sectors and substantial data concerning downstream markets and thorough economic analysis of all of those data. No such information or analyses are currently available. Due to these shortcomings, much of the economic analysis is qualitative, supplemented with any quantitative information available.

2.1. Problem Statement

The Council has developed the following problem statement defining its purpose for development of the rockfish pilot program:

The present management structure of the CGOA rockfish fishery continues to exacerbate the race for fish with:

- Increased catching and processing capacity entering the fishery,
- Reduced economic viability of the historical harvesters (both catcher vessels and catcher processors) and processors,
- Decreased safety,
- Economic instability of the residential processor labor force,
- Reduced product value and utilization,
- Jeopardy to historical groundfish community stability,
- Limited ability to adapt to Magnuson-Stevens Act (MSA) requirements to minimize bycatch and protect habitat.

While the Council is formulating GOA comprehensive rationalization to address similar problems in other fisheries, a short-term solution is needed to stabilize the community of Kodiak. Kodiak has experienced multiple processing plant closures, its residential work force is at risk due to shorter and shorter processing

seasons and the community fish tax revenues continue to decrease as fish prices and port landings decrease. Congress recognized these problems and directed the Secretary in consultation with the Council, to implement a pilot rockfish program with the following legislation:

> SEC. 802. GULF OF ALASKA ROCKFISH DEMONSTRATION PROGRAM. The Secretary of Commerce, in consultation with the North Pacific Fishery Management Council, shall establish a pilot program that recognizes the historic participation of fishing vessels (1996 to 2002, best 5 of 7 years) and historic participation of fish processors (1996 to 2000, best 4 of 5 years) for pacific ocean perch, northern rockfish, and pelagic shelf rockfish harvested in Central Gulf of Alaska. Such a pilot program shall (1) provide for a set-aside of up to 5 percent for the total allowable catch of such fisheries for catcher vessels not eligible to participate in the pilot program, which shall be delivered to shore-based fish processors not eligible to participate in the pilot program; (2) establish catch limits for non-rockfish species and non-target rockfish species currently harvested with pacific ocean perch, northern rockfish, and pelagic shelf rockfish, which shall be based on historical harvesting of such bycatch species. The pilot program will sunset when a Gulf of Alaska Groundfish comprehensive rationalization plan is authorized by the Council and implemented by the Secretary, or 2 years from date of implementation, whichever is earlier.

The fishing fleets have had little experience with cooperative fishery management and needs to begin the educational process. For the fishery to be rationalized all aspects of the economic portfolio of the fishery needs to recognized. To stabilize the fishery economy all the historical players – harvesters (both catcher vessels and catcher processors) and processors need to be recognized in a meaningful way. The demonstration program is designed as a short-term program for immediate economic relief until comprehensive GOA rationalization can be implemented.

2.2. Background

The rockfish species that are the subject of this program are primarily harvested using trawl gear, although some directed fishing with fixed gear has occurred. In the Central Gulf of Alaska, the directed trawl fisheries for these rockfish typically begin about the first of July. Directed fishing for these rockfish with hook-and-line opens on January 1. Separate total allowable catches (TACs) are set for the three different fisheries. Participants usually begin by targeting Pacific Ocean perch until that directed fishery is completed, then move on to the directed Northern rockfish and pelagic shelf rockfish fisheries. The directed fisheries for all three species are usually completed during the month of July.

The current entry limitations to the harvest sector in Gulf of Alaska groundfish fisheries (which include the rockfish fisheries) have restricted the fisheries to historic participants.[4] The first measure limiting entry established a vessel moratorium in 1995 that generally limited entry to vessels that made a legal landing of a moratorium species between January 1, 1988 and February 9, 1992. The second, and current, limitation is the License Limitation Program (LLP), under which licenses were issued to vessel owners that used their vessels to make harvests that meet both a general landing requirement and an area landing requirement. To meet the general requirement, a vessel must have a landing of a groundfish species during the general qualifying period (GQP), which is from January 1, 1988 to June 27, 1992.[5] To qualify for an area endorsement, a vessel must have a minimum number of landings from the applicable endorsement area during the endorsement qualification period, which is from January 1, 1992 to June 17, 1995. Separate endorsements apply to the Bering Sea, the Aleutian Islands, the Western Gulf of Alaska, the Central Gulf of Alaska (which also authorizes participation in West Yakutat), and Southeast Outside. Landing requirements for endorsement qualification vary with vessel length, area, and vessel designation (i.e., catcher vessel or catcher/processor).

[4] In addition to the measures discussed here, a complete discussion of the evolution of management of the fisheries should be contained in the Alaska Groundfish Fisheries Programmatic Supplemental Environmental Impact Statement (National Marine Fisheries Service, 2004).

[5] An exception extends the GQP for vessels less than 60 feet that fish with pot or jig gear until December 31, 1994.

Although these limitations on entry have restricted the introduction of additional harvest capital in the fisheries, entry limitations alone are insufficient to improve efficiency substantially in the Central Gulf rockfish fisheries. For example, in the fisheries that are the subject of this program, all harvests take place in the course of a few weeks in the year. Although in some instances participants may choose to concentrate landings for efficiency reasons, the level of concentration in the current fisheries contributes to inefficiency in both harvesting and processing. Harvesters add costs and sacrifice quality of landings by racing to obtain a share of the TAC prior to competing harvesters. Processors work quickly to offload and process landings to obtain market share and avoid spoilage of landings. Slowing this race for fish will provide participants in both sectors with the opportunity to realize efficiencies and reduce waste. Allowing participants to schedule their activities to coordinate with participation in other fisheries should also improve efficiencies. Allowing participants to determine inputs to reduce costs of production and improve product recovery rates and quality, without risking loss of share of the fishery, should also improve efficiency. In addition, timing participation in response to market conditions could provide for some improvement in returns. Consumers could also benefit from slowing the race for fish though improvements in quality and quantity of outputs as product recovery rates rise.

2.3. Description of the Alternatives

To address its problem statement, the Council has adopted two pilot program alternatives for the catcher vessel sector and two pilot program alternatives for the catcher processor sector for analysis, in addition to the status quo. Options would create separate sectors for trawl catcher processors, trawl catcher vessels, and non-trawl catcher vessels. Under this construction, the different gear types in the catcher vessel sector would be governed by the same management program, but they would be managed as separate sectors.

For the catcher processor sector, one pilot program alternative (the catcher processor cooperative alternative) would allow harvesters to form cooperatives, which would receive annual harvest share allocations based on the qualified harvest histories of their members. Catcher processor license holders that do not join a cooperative would receive an annual allocation based on the history associated with the license that could be fished independently. The second catcher processor pilot program alternative (the catcher processor sector allocation alternative with cooperartives) would make an allocation to the sector based on the histories of catcher processors in the CGOA rockfish fisheries. Participants in the sector could either join a cooperative, which would fish a cooperative allocation, or fish in a limited access fishery with other non-members of cooperatives.

For the catcher vessel sector, one alternative (the catcher vessel cooperative with limited processor entry alternative) would allow harvesters to form cooperatives, which would receive allocations based on members' qualified harvest histories. These cooperatives would be required to deliver their landings to processors that met threshold landing requirements during the processing qualifying years. The second catcher vessel pilot program alternative (the catcher vessel cooperative with processor associations alternative) would allow each harvester to join a cooperative in association with the processor to which it delivered the most pounds of CGOA rockfish during the processor qualifying period. Each cooperative would receive an annual harvest share allocation based on the qualified harvest history of its members. Although no specific processor delivery requirement is created by this cooperative/processor relationship, since cooperative formation depends on the processor association, some delivery arrangement is likely to be incorporated into that relationship as defined by the parties. Under both of the catcher vessel alternatives, harvesters that choose not to join a cooperative would be permitted to fish in a competitive fishery that receives an allocation based on the harvest histories of non-members of cooperatives.

Under all pilot program alternatives, set asides of CGOA rockfish would be made for an entry level fishery and to support incidental harvests in other directed fisheries.

The pilot program alternatives are derived from a common set of elements with differences that reflect the different operations of the two fleets. The specific elements and options that define the alternatives follow the brief description of the alternatives (including the status quo) below.

2.3.1. The status quo alternative

Under the status quo, participation in the rockfish fisheries is limited to holders of valid LLP licenses endorsed for the Central Gulf of Alaska. Directed fishing by the trawl sector, which dominates these fisheries, begins around July 1, with the specific opening date being set to accommodate the longline sablefish survey and monitoring over the 4th of July holiday weekend. Participants catch a variety of species during the directed CGOA rockfish fishery and top off on other valuable species, such as sablefish and Pacific cod. These other species are currently managed under "bycatch status" with a maximum retainable allowance (MRA), which limits retention of these species to a percent of the retained target harvest. Harvests are monitored inseason and each of the target rockfish fisheries is closed when managers estimate that the TAC is harvested. Directed fishing allowances are set to accommodate incidental catch of the rockfish species in other fisheries during the remainder of the year. After closure of the directed fishery, the three rockfish species are managed on a bycatch basis and are subject to MRAs in other target fisheries limiting the retention of rockfish relative to target species.

2.3.2. The pilot program alternatives

The different pilot program alternatives substantially overlap with one another. The summaries that follow reference each other to avoid repetition. For example, under all of the pilot program alternatives, allocations are made to two sectors, trawl catcher processors and trawl catcher vessels. These allocations are then distributed to individuals based on their historic harvests. Since these sector and individual allocations are the same under the different alternatives, the allocations are shown only once, and then are referenced to describe the distributions under the other alternatives.

Catcher processor sector allocation with cooperatives

Under the catcher processor sector allocation with cooperatives alternative, allocations would be made to the trawl catcher processor sector for target rockfish species, secondary species (Pacific cod, sablefish, shortraker, rougheye, and thornyhead) based on the historic harvests of sector members. Participants in the sector could either join a cooperative, which would fish the allocation of its members in accordance with a cooperative agreement, or fish in a limited access, competitive fishery, which would receive an allocation based on the history of non-members of cooperatives.[6] A license holder's fishing history would be the history of the vessel that led to the license and the history of any vessel that fished using the license.

Two set asides of the target rockfish will be made prior to the allocations to the sectors under the pilot program. The first of these set asides would allocate 5 percent of the TAC for each target rockfish species, which would be divided equally between two entry level fisheries (one for trawl fishermen and the other for non-trawl fishermen). The entry level fisheries would be open to harvesters and processors that are not eligible for the primary program. The entry level trawl fishery would be prosecuted by making direct, individual allocations of CGOA rockfish to applicants for the fishery. The non-trawl fishery would be conducted as a competitive fishery open to any applicants. The second set aside would be an incidental catch allowance (ICA) to support incidental catch of the rockfish by participants in other directed

[6] Since the allocations of non-members of cooperatives would be made to the limited access fishery, no provision for opting out of the rockfish fishery is necessary under this alternative. Persons that do not wish to fish rockfish would be eligible for, but not required to, fish in the limited access fishery.

fisheries. This set aside will be based on the incidental catch needs of other fisheries, which are estimated using rockfish incidental catch rates from those fisheries in recent years.

After removal of the two set asides, the remainder of the target rockfish would be allocated to the two sectors participating the pilot program. Allocations of the target rockfish to each sector would be based on retained catch (excluding landings processed into meal) of qualified vessels in the sector during the directed fishing season using each vessel's best five of the seven years from 1996 to 2002 (the qualifying period). Different years could be used for each species by each vessel for determining the allocation to maximize the allocation attributable to that vessel. For catcher processors, Weekly Processing Report data will be used to calculate qualifying catch. Any holder of a permanent or interim LLP license at the time of implementation that had at least one targeted harvest of CGOA rockfish during the qualifying period would be eligible for the program.

The sector would also be allocated secondary species (shortraker, rougheye, thornyhead, and sablefish) based on catch of those species by the sector during the qualifying years while targeting rockfish. The allocations of these species would be a percentage of the TAC based on the average annual percentage of retained catch of all sectors harvested by the sector in the CGOA rockfish fishery. Under this approach, the sector's annual percentage of retained secondary species catch while targeting rockfish relative to total retained catch of that secondary species by all gear types and participants would be averaged over the qualifying years. These secondary species allocations would be allocated in proportion to the allocation of CGOA rockfish to cooperatives and the limited access fishery. Pacific cod would be managed using a revised maximum retainable allowance percentage of 4 percent of target rockfish. All other species would be managed using the current MRA levels.

Halibut mortality would also be allocated under the pilot program based on halibut mortality during the qualifying period. The total allocation to the pilot program would be based on total mortality of both sectors during the qualifying period (1996 to 2002, inclusive). To determine the annual allocation to the pilot program, the total mortality would be divided by the number of qualifying years (seven). This overall allocation would be divided among the sectors based on each sector's relative share of the target rockfish allocation under the program (i.e., total qualified rockfish pounds).

Cooperative agreements under this alternative would have a term of two years and would include a fishing plan for the harvest of the cooperative's allocation. Cooperatives are intended only to conduct and coordinate fishing of their member's allocations and would not be formed under the Fishermen's Collective Marketing Act (and therefore could not negotiate prices). Cooperative members would be jointly and severally liable for the harvest of the cooperative's allocation. The cooperative would be required to file its agreement with the NOAA Fisheries Restricted Access Management Division to receive an annual allocation. A cooperative would be required to accept membership of any LLP license holder eligible for the cooperative subject to the same terms and conditions as governing other members. A cooperative could include fishing practice codes of conduct in its membership agreement. Cooperatives that meet a minimum two member threshold would be permitted to engage in the transfer of annual allocations. Catcher processors could also transfer annual allocations to catcher vessel cooperatives, but could not acquire annual allocations from catcher vessel cooperatives. Any transfers would be temporary transfers of a single year's annual allocation with the history reverting to the LLP license from which it came. No persons would be permitted to hold or use in excess of 20 percent of the catcher processor pool. This cap would be applied to limit the amount of shares that an individual could bring to a cooperative, either through license holding or through intercooperative leasing. To apply this cap, intercooperative transfers would need to be conducted through individuals. In addition, no catcher processor could harvest

in excess of 60 percent of the catcher processor pool.[7] Persons or vessels with history in excess of these limits would be grandfathered at their historic levels.

The season for the rockfish cooperatives would be extended substantially beyond the current season. The specific season length will be set to meet the management needs of National Marine Fisheries Service (including monitoring requirements). The season will likely open in the spring (substantially earlier than the current July opening) and extend into the third quarter. As under current management, the limited access portion of the catcher processor CGOA rockfish fishery would open in the beginning of July and would close when its participants have fully harvested the allocation in that fishery. All species except for the target rockfish would be managed with MRAs. The allocated species (shortraker, rougheye, thornyhead, and sablefish) would be managed with a revised MRA, intended to maintain catch levels below the allocated amount. Pacific cod would be managed with a revised MRA of 4 percent. All other species would be managed with MRAs at their current levels.

An LLP license holder that is eligible for the program would be permitted to transfer the license. The transfer would also transfer any privilege to participate in the program that is associated with or arises from holding the license. The interest in the program that is derived from the license would not be severable from the license or divisible.

Under all of the pilot program alternatives, sideboards will be established to limit encroachment of participants in the pilot program on other fisheries. Since the CGOA rockfish fishery is prosecuted in July, sideboards are generally intended to limit pilot program participants to their historic harvests in other fisheries during July. Specifically, in Gulf fisheries that are historically constrained by TAC, eligible participants from each sector would be limited to their historic catch, in the aggregate.

Sideboards for Gulf fisheries that are historically constrained by halibut PSC would limit eligible participants in each sector to their historic halibut mortality in the month of July, in the aggregate. Since halibut in the Gulf is not managed in each fishery, but is managed for the deep-water complex and the shallow-water complex, management of the sideboard on a fishery-by-fishery basis would be substantially more complicated than managing one sideboard for the deep-water complex and a second sideboard for the shallow-water complex. NOAA Fisheries would develop two separate halibut sideboards (one for the deep-water complex and the other for the shallow-water complex).[8] These July halibut sideboards would be administered by ending fishing in halibut limited fisheries in a complex by sector members eligible for the rockfish program when the sector halibut limitation is reached in that complex. In addition, each catcher processor participant would be required to abide by a stand down in all the Bering Sea and Aleutian Island non-pollock groundfish fisheries. The standdown would start on the July opening of the rockfish fishery and end on the earlier of two weeks or on the harvest of 90 percent of the participant's allocation, if the harvest of the allocation began on the traditional July opening. If multiple allocations are aggregated on a single vessel, the stand down would end when 90 percent of the total allocation fished by the vessel is harvested or after two weeks (whichever is earlier). The maximum standdown would allow participants to begin at a time other than early July, provided they are willing to abide by the two week standdown.

In lieu of the standdown in the Gulf of Alaska groundfish fisheries (other than the CGOA rockfish fisheries), a cooperative may (subject to NMFS approval) manage a sideboard of its catch in Gulf of Alaska groundfish fisheries. Under this approach, a cooperative would be limited in the aggregate to the

[7] History transferred to catcher vessel cooperatives would remain subject to the catcher processor caps and would not be subject to catcher vessel or shoreside processor caps.

[8] The deep-water complex includes sablefish, rockfish, deepwater flatfish, rex sole, and arrowtooth flounder. The shallow-water complex includes flathead sole, shallowwater flatfish, pollock, and Pacific cod.

historic catch of target species, if target catch constrains the fishery (or halibut PSC, if halibut PSC constrains the fishery) of its members in the qualifying years.

In addition, participants in the limited access fishery that account for less than 5 percent of the allocated catcher processor history of Pacific Ocean perch would be subject to no sideboard or standdown, beyond the aggregate sector sideboards. Limited access participants that account for 5 percent or more of the sector's Pacific Ocean perch would be required to standdown in Gulf of Alaska and Bering Sea and Aleutian Island groundfish fisheries until 90 percent of the limited access Pacific Ocean perch is harvested.

A program review would also be conducted at the end of both the first and second year under all of the pilot program alternatives. This review would assess the effects of the program on harvesters, processors, communities, and conservation.

Catcher processor cooperatives and individual allocations

Under the catcher processor cooperative and individual allocation alternative, sector allocations of target rockfish, secondary species, and halibut PSC would be made to the catcher processor sector, as described under the catcher processor sector allocation with cooperatives alternative.

After determining the catcher processor sector target rockfish allocations, those allocations would be divided among eligible catcher processors based on their qualified CGOA rockfish harvest histories. A license holder's fishing history would be the history of the vessel(s) that led to the license and the history of any vessel that fished using the license. Similarly, secondary species (identified above) and halibut PSC would be allocated in proportion to the allocation of CGOA rockfish. Each eligible catcher processor license holder would have the choice of either joining a cooperative, to which an annual allocation would be made based on the history of its members, or receiving an annual allocation based on its own fishing history, which could be fished independently. Pacific cod would be managed by a revised MRA of 4 percent of target rockfish for participating catcher processors. All other species would be managed under their current MRAs. Cooperatives would be subject to the same rules as cooperatives under the catcher processor sector allocation with cooperatives alternative.

Sideboards would limit the participation of eligible catcher processors in other fisheries as described under the catcher processor sector allocation with cooperatives alternative above with a few exceptions.[9] Under this alternative, persons could choose to opt out of the program. Persons that opt out of the rockfish fishery, however, for the two weeks that follow the traditional opening of the rockfish fishery, would be prohibited from entering any other GOA target fisheries in which they do not have target participation in the first two weeks of July in the qualifying years. These eligible catcher processors would remain subject to the aggregate sector sideboard regardless of opting out of the program. Program reviews would be conducted under this alternative as under the catcher processor sector allocation with cooperatives alternative.

Catcher vessel cooperative with limited processor entry

Under this alternative, the catcher vessel sector would generally receive a sector allocation of CGOA rockfish, secondary species, and halibut PSC as described under the catcher processor sector allocation alternative. The catcher vessel sector, however, would also receive an allocation of Pacific cod based on average annual percentage of total CGOA retained catch of Pacific cod taken by the sector during the CGOA rockfish fishery (instead of fishing under an MRA, as the catcher processor sector would). The catcher vessels sector could also receive an adjusted allocation of shortraker and rougheye rockfish or fish

[9] Under this alternative, however, the stand down for limited access participants would not apply since no limited access fishery is provided for.

those species under an MRA depending on the specific option selected by the Council. Options for management of these species for the catcher vessel sector appear in 3.3.1.2 of the elements and options below. Cooperative allocations of CGOA rockfish, secondary species, and halibut PSC would be based on the collective CGOA target rockfish histories of members during the qualifying years based on the method and qualifying years described under the catcher processor alternatives.

Holders of permanent or interim catcher vessel LLP licenses with targeted catch of CGOA rockfish in the qualifying years would be eligible for the main program. Eligible license holders would have the choice of either joining a cooperative, to which an annual allocation would be made based on the rockfish history of its members, or fishing in a limited entry competitive fishery open to eligible license holders that choose not to join a cooperative. The limited access fishery would receive the allocation of non-members of cooperatives. The limited access fishery would be closed on the harvest of the allocation of CGOA rockfish. Since the secondary species allocations are too small to support the current MRAs, MRAs for secondary species would be reduced in the limited access fishery to level that is likely to support incidental catch within the limits of that allocation.

All catcher vessel harvests (including those in the limited access fishery) would be required to be delivered to an eligible processor. To be eligible, a processor must have processed in excess of 250 metric tons of CGOA rockfish per year in four of the years from 1996 to 2000, inclusive. An option could qualify any processor that processed in excess of 250 metric tons of aggregate CGOA rockfish in any one of the qualifying years provided that the processor has invested in excess of a threshold amount (either $1,000,000 or $5,000,000) in its facility. Processor licenses would not be transferable. In determining eligibility for a processing license, if a facility has closed and another processor has purchased the history of the closed facility, that history would be credited to the purchaser. Processing by a single entity would be limited to 30 percent of the catcher vessel sector allocation. Any processor that historically processed in excess of the cap would be grandfathered at its historic level of processing.

A cooperative would be required to have a minimum of 4 eligible LLPs. The cooperative would be required to file its agreement with the NOAA Fisheries Restricted Access Management Division to receive an annual allocation. As under the catcher processor cooperative alternative, cooperative agreements would have a term of two years and would include a fishing plan for the harvest of the cooperative's allocation. Cooperatives are intended only to conduct and coordinate fishing of their member's allocations and would not be FCMA cooperatives.[10] Cooperative members would be jointly and severally liable for the harvest of the cooperative's allocation. A cooperative would be required to accept membership of any LLP license holder eligible for the cooperative subject to the same terms and conditions as governing other members. A cooperative could include fishing practice codes of conduct in its membership agreement. Processor affiliated license holders would be permitted to join cooperatives, but would not be permitted to engage in price negotiations except as permitted by antitrust laws.

Cooperatives would be permitted to engage in the transfer of annual allocations. Catcher vessel cooperatives would be permitted to acquire annual allocations from catcher processor cooperatives, but could not transfer annual allocations to catcher processor cooperatives. Any transfers would be temporary transfers of a single year's annual allocation with the history remaining with the LLP license from which it originates. Future annual allocations would be based on the cooperative membership of the LLP holder.

[10] FCMA refers to the Fishermen's Collective Marketing Act (15 U.S.C. 521), under which fishermen are granted limited antitrust protection to form cooperatives for collectively catching producing, preparing for market, processing, handling and marketing products. As such, harvest cooperatives formed under this action would not necessarily be subject to the antitrust immunity of the FCMA. Whether participants in the harvest cooperatives under this program would be eligible to form a cooperative under the FCMA, would be subject to the rules of that Act.

No catcher vessel cooperative would be permitted to hold or use in excess of 30 percent of the catcher vessel sector's allocation, while no person would be permitted to hold or use in excess of 5 percent of the catcher vessel sector's allocation. This cap would be applied to limit the amount of shares that an individual could bring to a cooperative, either through license holding or through intercooperative leasing. To apply this cap, intercooperative transfers would need to be conducted through individuals. Persons receiving an allocation in excess of the cap would be grandfathered at the level of the allocation.

Sideboards would limit the participation of eligible catcher vessels in other fisheries. As would be applied to catcher processors, a general sideboard would limit catcher vessel participants, in the aggregate, to their historic harvests in other fisheries in the month of July, the month during which the rockfish fisheries have been historically prosecuted. To accomplish this end, in Gulf fisheries that are historically constrained by TAC, eligible participants from each sector would be limited to their historic catch in the month of July, in the aggregate. Sideboards for Gulf fisheries that are historically constrained by halibut PSC would limit eligible participants in each sector to their historic halibut mortality in the month of July, in the aggregate. Since halibut in the Gulf is not managed in each fishery, but is managed for the deep-water complex and the shallow-water complex, management of the sideboard on a fishery-by-fishery basis would be substantially more complicated than managing one sideboard for the deep-water complex and a second sideboard for the shallow-water complex. NOAA Fisheries would develop two separate halibut sideboards (one for the deep-water complex and the other for the shallow-water complex).[11] Qualified catcher vessels would also be limited by a second set of sideboards that would prohibit their entry to the Bering Sea and Aleutian Islands direct fisheries for yellowfin sole, other flatfish, or Pacific Ocean perch in the month of July. In addition, qualified catcher vessels would be limited in the month of July to their historic average total catch in the Bering Sea and Aleutian Islands Pacific cod fishery, in the aggregate. Catcher vessel participants in the AFA would be exempt from any sideboards under this program. Program reviews would be conducted as under the catcher processor sector allocation alternative.

Catcher vessel cooperative with processor associations

Under this alternative, the catcher vessel sector would receive a sector allocation as described under the catcher processor sector allocation alternative. In addition, annual allocations of CGOA rockfish, secondary species, and halibut PSC would be made to cooperatives, based on the CGOA rockfish history of their members, as described under the catcher processor cooperative alternative. Holders of a permanent or interim CGOA LLP license at the time of implementation with a targeted landing of CGOA rockfish in the directed fishery would be eligible for the program.

Eligible catcher vessel LLP license holders would have the choice of either joining a cooperative, to which an annual allocation would be made based on the history of its members, or fishing in a limited entry competitive fishery open to eligible license holders that choose not to join a cooperative. The allocation to the competitive fishery would be based on the histories of participants in that fishery. Any allocation of an LLP holder withheld from the competitive fishery would be redistributed to catcher vessel cooperative which the LLP holder is eligible to join. All harvests from the competitive fishery must be landed with an eligible processor. This competitive fishery would be closed on the attainment of the allocation of CGOA rockfish or any of the allocated secondary species or PSC halibut that is necessary to support that rockfish harvest.

Each eligible catcher vessel license holder would be eligible to join a cooperative associated with the eligible processor to which it delivered the most pounds of CGOA rockfish during the processor qualifying period (1996 to 2000, four years as selected by each eligible processor). To be eligible, a

[11] The deep-water complex includes sablefish, rockfish, deepwater flatfish, rex sole, and arrowtooth flounder. The shallow-water complex includes flathead sole, shallowwater flatfish, pollock, and Pacific cod.

processor must have processed in excess of 250 metric tons of CGOA rockfish per year in four of the years from 1996 to 2000, inclusive. The Council motion is unclear whether this alternative includes the option to qualify any processor that processed in excess of 250 metric tons of aggregate CGOA rockfish, in any one of the qualifying years, provided that the processor has invested in excess of a threshold amount (either $1,000,000 or $5,000,000) in its facility. The analysis assumes that this option would be included in the alternative. In determining eligibility for a processing license, if a facility has closed and another processor has purchased the history of the closed facility, that history would be credited to the purchaser.

The terms of the cooperative/processor association are not specified, but would be subject to negotiation and agreement by each processor and its associated cooperative. Processor licenses and associations would not be transferable. No processing entity would be permitted to process in excess of 30 percent of the aggregate catcher vessel sector allocation. Any processor that historically processed in excess of the chosen cap would be grandfathered at its historic level of processing.

A single cooperative may form in association with each eligible processor. To form, a cooperative would be required to have membership of the holders of in excess of 75 percent of the harvest history eligible for the cooperative. The cooperative would be required to file its agreement, and a contract with the associated processor, with the NOAA Fisheries Restricted Access Management Division to receive an annual allocation. Cooperatives are intended only to conduct and coordinate fishing of their member's allocations and would not be FCMA cooperatives. As under the catcher processor cooperative alternative, cooperative agreements would have a term of two years and would include a fishing plan for the harvest of the cooperative's allocation. Cooperative members would be jointly and severally liable for the harvest of the cooperative's allocation. A cooperative would be required to accept membership of any LLP license holder eligible for the cooperative, subject to the same terms and conditions as governing other members. A cooperative could include fishing practice codes of conduct in its membership agreement. Processor affiliated license holders would be permitted to join cooperatives, but would not be permitted to engage in price negotiations, except as permitted by antitrust laws. No catcher vessel cooperative would be permitted to holdings or use in excess of 30 percent of the catcher vessel sector's allocation, while no person would be permitted to hold or use in excess of 5 percent of the catcher vessel sector's allocation. This cap would be applied to limit the amount of shares that an individual could bring to a cooperative, either through license holding or through intercooperative leasing. To apply this cap, intercooperative transfers would need to be conducted through individuals. Persons receiving an allocation in excess of the cap would be grandfathered at the level of the allocation.

Cooperatives would be permitted to engage in the transfer of annual allocations, subject to the consent of the associated processor. Catcher vessel cooperatives would be permitted to acquire annual allocations from catcher processor cooperatives, but could not transfer annual allocations to catcher processor cooperatives. Any transfers would be temporary transfers of a single year's annual allocation with the history remaining with the LLP license of origin. Future annual allocations would be based on the cooperative membership of the LLP holder.

Sideboards are intended to limit eligible participants in the catcher vessel program to their historic activity in other fisheries. The sideboards under this alternative are the same as those described under the catcher vessel cooperative with limited processor entry alternative. A program review would be conducted under this alternative, as described under the catcher vessel cooperative with limited processor entry alternative.

Elements and options defining the pilot program alternatives

The Council has identified the following elements and options to define its alternatives:

Alternatives, Elements and Options

The Council recommends the following elements and options for the CGOA Rockfish Pilot program be included for analysis:

Catcher Vessel Alternatives

1) Status Quo
2) Cooperative program with license limitation program for processors
3) Cooperative program with cooperative/processor associations

Catcher Processor Alternatives

1) Status Quo
2) Cooperative Program
3) Sector Allocation

Alternatives 2 and 3 are defined by the following elements and options. Differences in the elements and options between the two alternatives and across the two sectors are noted.

1 Set-asides

Prior to allocation of catch history to the sectors, NMFS shall set aside:

1.1 ICA: An Incidental Catch Allocation (ICA) of POP, Northern rockfish and pelagic shelf rockfish to meet the incidental catch needs of fisheries not included in the pilot program

1.2 Entry Level Fishery: A percentage of POP, Northern rockfish and pelagic shelf rockfish for catcher vessels not eligible to participate in the program, as mandated in the Congressional language. For the duration of this program, the annual set aside will be 5% of each of these target rockfish species.

- Allocations shall be apportioned between trawl and non-trawl gear:
  50/50
  The trawl sector's 50 percent allocation by weight (based on the aggregate TAC for Pacific Ocean perch, Northern and pelagic shelf rockfish) shall first be Pacific Ocean perch.
- Unharvested allocations to either sector shall be available to both sectors at the end of the third quarter.
- Prosecution of the entry level fishery will be supported by general allocations of PSC to the gear type not allocated under 3.3.1.3 and the general allocations of secondary species not allocated under 3.3.1.2

2 Entry-Level Fishery

2.1 Catcher Vessel Participation:
Vessels that can participate in the Entry Level fishery are those vessels that did not qualify for the CGOA rockfish pilot program.

2.2 Processor Participation:
Processors who purchase and process the entry level rockfish quota must be non-qualified processors.

2.3 Fishery participation:
Before the beginning of each fishing year an application must be filed with NMFS by the interested vessel that includes a statement from a non-qualified processor confirming an available market.

2.4 NMFS will determine:

- NMFS will provide for an entry level fishery.
  Equal shares distributions to the vessel applicants in the trawl sector
  Limited access competitive fishery in the non-trawl sector
- Entry permits are non-transferable and must be fished by the named vessel

3 Sector Allocations

3.1 Sector Definitions
Trawl catcher vessel
Trawl catcher processor

A trawl catcher-processor is a trawl vessel that has a CP LLP license and that processes its catch on board.

3.2 Rationalized Areas

- History is allocated for the CGOA only (NMFS statistical areas 620 and 630)

3.3 Sector Allocations

- Catch history is determined by the sector qualified catch in pounds as a proportion of the total qualified catch in pounds.
- Sector allocation is based on individual qualified vessel histories with the drop-2 provision at the vessel level.
- The eligibility for entry into the program is one targeted landing of POP, Northern rockfish or PSR caught in CGOA during the qualifying period.
- The CP catch history will be based on WPR data.

3.3.1 Each sector is allocated catch history based on:

The sum of all catch history of vessels in that sector for which it earned a valid, permanent, fully transferable CGOA LLP endorsement, for the years 1996-2002 drop two.

Suboption: include history of vessels which hold a valid interim endorsement on implementation of the program

3.3.1.1 Target species:

- Qualified target species history is allocated based on retained catch (excluding meal)
- History will be allocated to each sector for POP, Northern rockfish and PSR caught in CGOA based on retained catch during the open season
- Different years may be used for determining the history of each of the three rockfish species.
- Full retention of the target rockfish species required

3.3.1.2 Secondary species:

- Secondary species history is allocated based on retained catch over retained catch while targeting the primary rockfish species listed above.
- History will be allocated to each sector for sablefish, shortraker/rougheye rockfish, thornyheads and Pacific cod.

  Participants must retain all allocated secondary species and stop fishing when cap is reached.
- All non-allocated secondary species will be managed by MRA, as in the current regime. This includes Arrowtooth flounder, deep water flatfish, shallow water flatfish, flathead sole, rex sole, pollock, other species, Atka mackerel and other rockfish.
- Except as otherwise provided below, secondary species allocations will be based on:

  Percentage of catch by sector of the secondary species within the rockfish target fisheries divided by the total number of years in the qualifying period. The calculated percentage is multiplied by the secondary species quota for that fishery year and allocated to each sector in the pilot program. (retained catch over retained catch)

  Allocations of Pacific cod as a secondary species will be at the following rate of harvest history:

  100 percent

  For the offshore sector, Pacific cod history will be managed by MRA of 4 percent.

  Allocations of shortraker and rougheye as a secondary species will be at the following rate of harvest history:

  75 to 100 percent

Options for management of shortraker and rougheye for the catcher vessel sector:

Option 1: The shortraker/rougheye allocation for the catcher vessel sector will be based on the total catch of the sector during the target rockfish fishery over total catch of all sectors which yields the highest annual percentage during the qualifying years. The shortraker/rougheye hard cap for the catcher vessel target rockfish fishery will be calculated based on the aggregate shortraker/rougheye TAC and then divided:

A) 50 percent shortraker and 50 percent rougheye

B) 60 percent shortraker and 40 percent rougheye

Option 2: Manage catcher vessel shortraker and rougheye using an MRA between 0.7 percent (average use) and 1.1 percent (highest annual use)

(The analysis shall include a discussion of other fisheries that take shortraker and rougheye incidentally and what the impacts to those fisheries might be of allocating amounts of shortraker and rougheye to the rockfish trawl fisheries that may not leave enough TAC to accommodate historical harvests in other fisheries (i.e., it appears that historical catch in other fisheries exceeds what the 2005 amount available would be after trawl rockfish allocations are subtracted from the TAC).)

3.3.1.3 Prohibited species (halibut mortality):

- Allocation to the pilot program will be based on historic average usage, calculated by dividing the total number of metric tons of halibut mortality in the CGOA rockfish target fisheries during the years '96-'02 by the number of years (7). This allocation will be divided between sectors based on:

  The relative amount of target rockfish species allocated to each sector (e.g., total qualified catch).

4 Allocation from Sector to Vessel

4.1 Within each sector, history will be assigned to LLP holders with CGOA endorsement that qualify for a sector under the 'sector allocations' above. The allocations will be to the current owner of the LLP of the vessel which earned the history.

4.2 Basis for the distribution to the LLP license holder is: the catch history of the vessel on which the LLP license is based and shall be on a fishery-by-fishery basis. The underlying principle of this program is one history per license. In cases where the fishing privileges (i.e., moratorium qualification or LLP license) of an LLP qualifying vessel have been transferred, the distribution of harvest shares to the LLP shall be based on the aggregate catch histories of (1) the vessel on which LLP license was based up to the date of transfer, and (2) the vessel owned or controlled by the LLP license holder and identified by the license holder as having been operated under the fishing privileges of the LLP qualifying vessel after the date of transfer. (Only one catch history per LLP license.)

4.3 Target species:

Each LLP holder will receive an allocation of history equivalent to their proportion of the total of the sector qualifying history.

4.4 Secondary species:

Each LLP holder will receive an allocation of sector history proportional to their allocation of target rockfish history

4.5 PSC (halibut mortality)

- Each LLP holder will receive an allocation of halibut mortality equivalent to their proportion of the sector rockfish history

4.6 Allocations of secondary species:

May be fished independently of the primary species allocations.

5 Co-op provisions

5.1 Duration of cooperative agreements is 2 years.

5.2 For all sectors

- The co-op membership agreement and the Contract will be filed with the RAM Division. The Contract must contain a fishing plan for the harvest of all co-op fish.
- Co-op members shall internally allocate and manage the co-op's allocation per the Contract.
- Subject to any harvesting caps that may be adopted, allocated history may be transferred and consolidated within the co-op to the extent permitted under the Contract.
- The Contract must have a monitoring program. Co-op members are jointly and severally responsible for co-op vessels harvesting in the aggregate no more than their co-op's allocation of rockfish species, secondary species and PSC mortality, as may be adjusted by inter-co-op transfers.
- Co-ops may adopt and enforce fishing practice codes of conduct as part of their membership agreement.
- Co-op membership agreements shall allow for the entry of other eligible harvesters into the co-op under the same terms and conditions as agreed to by the original agreement.
- Co-ops will report annually to the Council as per AFA.

- The cooperatives formed under this program are harvest associations that are intended only to conduct and coordinate harvest activities of their members and are not FCMA cooperatives. Processor affiliated vessels will be permitted to join harvest cooperatives.

The Council recommends a season start date of March 1 and a closing date of November 15.

5.3 CP sector:

For Alternative 2:

History is allocated to the current owner of the LLP of the vessel that earned the history.

- Owners may fish their allocation independently if the LLP has a CGOA endorsement, or may enter into a cooperative arrangement with other owners.
- More than one co-op may form within the sector
- Any number of eligible LLPs may form a co-op
- Allocations may be transferred between co-ops of at least:
  two LLPs

For Alternative 3:

History is allocated to the current owner of the LLP of the vessel that earned the history.

- More than one co-op may form within the sector
- Allocations may be transferred between co-ops of at least:
  two LLPs
- Harvesters may elect not to join a co-op, and continue to fish in an LLP/Open Access fishery. The LLP's historic share will be fished in a competitive fishery open to rockfish qualified vessels who are not members of a cooperative.

5.4 CV sector:

For Alternative 2:

- Voluntary co-ops may form between eligible harvesters.
- All cooperative harvests under this program must be delivered to eligible processors.
- Harvesters may elect not to join a co-op, and continue to fish in an LLP/Open Access fishery. The LLP's share will be fished in a competitive fishery open to rockfish qualified vessels who are not members of a cooperative and must be delivered to one of the qualified processors.
- An eligible processor is a processing facility that has purchased 250 MT of aggregate Pacific Ocean Perch, Northern Rockfish, and Pelagic Shelf rockfish harvest per year, for 4 years, from 1996 to 2000. Eligible processors will be issued a license under this program. Licenses are not transferable.

  Suboption: An eligible processor is a processing facility with a substantial investment of depreciated capital assets:

  Option A) $1,000,000 or more

  Option B) $5,000,000 or more, and

  that has purchased 250 MT of aggregate Pacific Ocean Perch, Northern Rockfish, and Pelagic Shelf rockfish in any of the qualifying years.
- If a processing facility has closed down and another processing facility has acquired that processing history through purchase, for the purpose of determining processor eligibility the history belongs to the facility that purchased that history. That history can only be credited to another facility in the community that it was generated in for purposes of establishing eligibility under this program.
- The harvesters that enter into a co-op membership agreement shall be the members of the co-op.
- A pre-season Contract between eligible, willing harvesters is a pre-requisite to a cooperative receiving an annual allocation.
- Co-op membership agreements will specify that processor affiliated harvesters cannot participate in price setting negotiations except as permitted by general antitrust law.
- Catcher vessel cooperatives are required to have at least 4 eligible LLPs
- Co-ops may engage in inter-cooperative transfers of annual allocations to other cooperatives.
- No processor associations required by co-ops.

For Alternative 3:

- Voluntary co-ops may form between eligible harvesters in association with processors.
- Catcher vessel co-ops must be associated with an eligible processor.
- An eligible processor is a processing facility that has purchased 250 MT of aggregate Pacific Ocean Perch, Northern Rockfish, and Pelagic Shelf rockfish harvest per year, for 4 years, from 1996 to 2000.
- A harvester is eligible to join a cooperative in association with the processing facility to which the harvester delivered the most pounds of the three rockfish species combined during the year's 1996 – 2000 drop 1 year (processor chooses the year to drop, same year for all LLPs). If an LLP holder has no deliveries to a qualified processor, the LLP holder may join a coop with any one of the qualified processors, but their membership would not be considered in determining whether the threshold is met for co-op formation.
- Harvesters may elect not to join a co-op, and continue to fish in an LLP/Open Access fishery. The LLP's share will be fished in a competitive fishery open to rockfish qualified vessels who are not members of a cooperative and must be delivered to one of the qualified processors.
- If a processing facility has closed down and another processing facility has acquired that processing history through purchase, the history belongs to the facility that purchased that history. That history must remain in the community that it was generated in.
- The harvesters that enter into a co-op membership agreement shall be the members of the co-op. The processor will be an associate of the cooperative but will not be a cooperative member.
- A pre-season Contract between eligible, willing harvesters in association with a processor is a pre-requisite to a cooperative receiving an annual allocation.
- Co-op membership agreements will specify that processor affiliated harvesters cannot participate in price setting negotiations except as permitted by general antitrust law.
- Processors are limited to 1 co-op per plant.
- Catcher vessel cooperatives are required to have at least:
  75 percent of the eligible historical shares for each co-op associated with its processor.
- Co-ops may engage in inter-cooperative transfers of annual allocations to other cooperatives with agreement of the associated qualified processor.

5.5 Sector Transfer provisions

CP annual allocations may be transferred to CV cooperatives. CV annual allocations may not be transferred to CP cooperatives.

All transfers of annual allocations would be temporary and history would revert to the original LLP at the beginning of the next year.

A person holding an LLP that is eligible for this program may transfer that LLP. That transfer will effectively transfer all history associated with the LLP and any privilege to participate in this program that might be derived from the LLP.

6 Co-op harvest use caps

6.1 CVs:

No person may hold or use more than 5% of the CV historic shares, using the individual and collective rule (with grandfather provision).

Control of harvest share by a CV co-op shall be capped at:
30% of aggregate POP, Northern Rockfish and PSR for the CV sector

6.2 CPs:

No person may hold or use more than 20% of the CP historic shares, using the individual and collective rule (with grandfather provision).

Control of harvest share by a CP shall be capped at:
60% of aggregate POP, Northern Rockfish and PSR for the CP sector
Eligible CPs will be grandfathered at the current level

7 Shoreside processor use caps

Shoreside processors shall be capped at the entity level.
No processor shall process more than:
30% of aggregate POP, Northern Rockfish and PSR for the CV sector
Eligible Processors will be grandfathered.

The year 2002 will be used as a base (or index) year for applying the aggregate caps.

8 Program Review

Program review the first and second year after implementation to objectively measure the success of the program, including benefits and impacts to harvesters, processors and communities. Conservation benefits of the program would also be assessed.

As part of its annual review, the Council should consider the effects of "opting-out" of the CP rockfish program. Specifically, of the Council finds that the opt-out provision is used to consolidate rockfish catch while avoiding rockfish program sideboards, then the Council should take immediate action to provide a disincentive for future abuses by allocating "opt-out" fish to the fishery not the sector.

9 Sideboards

9.1 General Provisions

There are no exemptions from sideboards, except for a partial exemption for CP vessels which opt out of the pilot program or join cooperatives.

a. For fisheries that close on TAC in the GOA, the qualified vessels in each sector (trawl CV and trawl CP) would be limited, in aggregate, in the month of July to the historic average total catch of those vessels in the month of July during the qualification years 1996 to 2002. Fisheries that this sideboard provision would apply to include West Yakutat rockfish and WGOA rockfish.
b. For flatfish fisheries in the GOA that close because of halibut bycatch, the qualified vessels in each sector (trawl CV and trawl CP) would be limited, in the aggregate, in the month of July to the historic average halibut mortality taken by those vessels in the target flatfish fisheries in the month of July by deep and shallow complex.
c. In the event that one or more target rockfish fisheries are not open, sideboard restrictions will not apply for those target allocations.

- IFQ halibut and sablefish are exempt from sideboard provisions

9.2 CP Specific Sideboard Provisions

CP vessels may decide to opt out of the CGOA pilot program on an annual basis. These CP vessels may not target POP, Northern rockfish or Pelagic Shelf rockfish in the CGOA in the years they choose to opt out. They may retain these species up to the MRA amount in other fisheries. They will be sideboarded at the sector level in the GOA as described in 9.1.

The history of CP vessels which opt out will remain with the sector.

CPs that opt out of the rockfish pilot program will be prohibited, for two weeks following the start of the traditional July rockfish fishery, from entering other GOA fisheries in which they have not previously participated. Participation shall be defined as having been in the target fishery during the first week of July in at least two of the qualifying years. For purposes of qualifying under this provision, history from area 650 (SEO) will be considered the same as history from area 640 (WY). The following weekending dates will be used for determining participation in a target fishery:

1996 – July 6
1997 – July 5
1998 – July 4
1999 – July 10
2000 – July 15
2001 – July 7
2002 – July 6

Opting out is an annual decision. CP vessels which choose to opt out must so notify NMFS. The decision to opt out should not in any way alter the status of their catch history for future rationalization programs.

For the CP sector, the pilot program fishery participants must either:

1) start fishing in the target rockfish fisheries at the same time as the opening of the CGOA rockfish limited access fisheries (in July) and harvest 90% of their CGOA rockfish allocation prior to entering any other BSAI or GOA non-pollock groundfish fishery, or
2) standdown for two weeks from the opening of the CGOA rockfish limited access fishery prior to participating in any other BSAI or GOA non-pollock groundfish fishery.

A vessel which has met either standdown requirement can then move into the BSAI or GOA open access fisheries subject to the sector level limitations in the GOA in 9.1.

To the extent permitted by the motion, history may be leased between vessels. Each person that transfers its history to another CP or CV must still refrain from operating in any other BSAI or GOA non-pollock groundfish fishery until the earlier of:

1) 90% of all of the CGOA rockfish allocation on the stacked vessel is harvested in the CGOA, provided fishing of the allocation began on or after the opening of the CGOA rockfish limited access fishery
2) two weeks from the opening of the CGOA rockfish limited access fishery prior to participating in any other BSAI or GOA non-pollock groundfish fishery.

Members of a cooperative will be subject to all limitations and restrictions described in 9.1 and 9.2 except that cooperative members shall not be subject to any standdown in the GOA groundfish fisheries. The standdown provision in the BSAI groundfish fisheries will apply to cooperative members.

In addition to the other limitations and restrictions described above, each cooperative will be limited in the aggregate:

a. for fisheries that close on TAC in the GOA in the month of July, to the historic average total catch of the cooperative members in the month of July during the qualification years 1996 to 2002. Fisheries that this sideboard provision would apply to include West Yakutat rockfish and WGOA rockfish, and
b. for flatfish fisheries in the GOA that close because of halibut bycatch in the month of July, to the historic average halibut mortality taken by cooperative members in the target flatfish fisheries in the month of July by deep and shallow complex.

For Alternative 3:

The limited access fishery starts at the same time as the traditional rockfish target fishery (early July). For vessels that account for less than 5 percent of the allocated CP history in the Pacific Ocean perch fishery that participate in the limited access rockfish fishery, there are no additional intra-sector sideboards. For vessels that account for greater than or equal to 5 percent of the allocated CP history in the Pacific Ocean fishery that participate in the limited access rockfish fishery, GOA and BSAI standdowns are in place until 90 percent of the limited access Pacific Ocean perch quota is achieved.

9.3 CV Specific Sideboard Provisions

- The qualifying vessels in the trawl CV sector cannot participate in the directed yellowfin sole, other flatfish (flathead, etc) or Pacific Ocean perch fisheries in the BSAI in the month of July.
- Qualifying vessels in the trawl CV sector would be limited, in aggregate, in the month of July, to the historic average total catch of those vessels in the BSAI Pacific cod fishery in July during the qualification years 1996 to 2002.
- AFA CVs qualified under this program are subject to the restraints of AFA sideboards and their coop agreement, and not subject to additional sideboards under this program.

In the event this program has a duration of more than 2 years, the Council will reconsider the issue of use/ownership caps for companies and vessels.

2.4. Existing Conditions in the Fishery

This section describes the conditions in the CGOA rockfish fishery under the current management. Because the status quo alternative is continuation of the current management and continuation of that management is unlikely to result in substantial change in the fisheries, this section also provides much of the status quo baseline that is used to assess the effects of the pilot program alternatives under consideration. The section begins with a brief description of the management of the fisheries, and the stocks, biology, and environmental conditions. Participation patterns in harvesting and processing in the fisheries are described, including a discussion of the relationship between those two sectors and a brief summary of the other fisheries that CGOA rockfish participants also participate in. Ex vessel pricing practices are described and estimated historic prices are provided. Product markets are described and estimated historic first wholesale prices are provided. A brief description of community and social conditions are provided as background for the socioeconomic analysis.

2.4.1. Management of the fisheries

Under the current management the Gulf of Alaska rockfish fisheries open on January 1st for non-trawl gear participants. The opening for trawl gear is near July 1st, but varies year-to-year. The trawl opening is generally timed to coincide with the availability of the quarterly halibut PSC allocation. The fishery is also timed to accommodate the sablefish longline survey that occurs later in the summer. The rockfish fisheries, which also take some sablefish, must be completed early enough to allow the redistribution of sablefish stocks to avoid possible survey bias. The opening is also scheduled to accommodate in-season management so that managers have adequate catch and effort information to make Federal Register closure announcements, if needed, avoiding the 4th of July holiday weekend. The opening typically coincides with the openings of the Aleutian Islands Pacific Ocean perch and Bering Sea flathead sole fisheries to distribute effort among the fisheries.

Both the trawl and non-trawl fisheries are prosecuted from a single TAC, with the harvest from the trawl fishery limited to the remaining available TAC after the non-trawl fleet has prosecuted the fishery from its January 1st opening. Since the non-trawl fleet has shown little interest in the fisheries historically, most of the TAC has been harvested by the trawl fleet. Table 1 summarizes trawl openings and closings for all gear types in the CGOA directed rockfish fishery by species from 1996 to 2003.

Table 1. Season openings (trawl only) and closings (all gear) of the Central Gulf of Alaska directed rockfish fisheries by species 1996 to 2003.

			Closures			
Year	Opening for species	Opening date	Pacific Ocean Perch	Northern Rockfish	Pelagic Shelf Rockfish	Reason
1996	all	July 1	July 11	July 20	none	TAC (POP, Nor)
1996 closure		---	July 15	---	---	PSC
1997	all (incl.PSR nearshore)	July 1	July 7	July 10	June 7	TAC
1997	PSR offshore	July 1	---	---	July 15	TAC
1997 closure	POP	---	July 19	---	---	PSC
1998	all	July 1	July 6	July 14	July 19	TAC
1998 reopen	POP	July 12	July 14	---	---	TAC
1998 closure	POP	---	July 27	---	---	PSC
1999	all	July 4	July 11	July 19	---	TAC(POP, Nor)
1999 reopen	POP, Nor	August 6	August 8	August 10	---	TAC(POP, Nor)
1999 closure		---	September 3	September 3	September 3	PSC
2000	all	July 4	July 15	July 26	July 26	TAC(POP, Nor)/HAL(PSR)
2001	all	July 1	July 12	July 23	July 23	TAC(POP)/HAL(Nor, PSR)
2001 reopen	Nor, PSR	October 1	n/a	October 21	October 21	HAL
2002	all	June 30	July 8	July 21	July 21	TAC
2002 closure		---	August 5	---	---	PSC
2003	all	June 29	July 8	July 31	July 29	TAC

TAC - Total Allowable Catch

PSC - Prohibited Species Catch

Nor - Northern rockfish

PSR - Pelagic Shelf rockfish

Source: NOAA fisheries status reports and groundfish closure summaries

The closings show the general progression of participation in the rockfish fisheries. Most participants target Pacific Ocean perch first, until the TAC of that species is fully harvested. Pacific Ocean perch are a larger biomass and typically are easier to target than the other two fisheries. The season for Pacific Ocean perch usually lasts between one and two weeks. Once the Pacific Ocean perch fishery is closed, vessels will usually move on to the northern rockfish or pelagic shelf rockfish directed fisheries, although some vessels move on to other fisheries in and outside of the CGOA. The directed fisheries for northern rockfish and pelagic shelf rockfish typically last less than one month, closing before the end of July. Managers have exercised some caution in managing the fishery, occasionally closing the fisheries to ensure that the TAC is not exceeded. When sufficient TAC has remained available, managers have reopened the fisheries later to allow participants to complete the harvest.

Typically, harvests of the rockfish TACs have resulted in closure of the fisheries, although at times halibut PSC in the deep-water complex has closed the fisheries. In 2000, halibut PSC closed the pelagic shelf rockfish fishery. In 2001, halibut PSC closed both the northern rockfish and pelagic shelf rockfish fisheries in July. The fisheries were reopened on October 1st, when the fourth quarter halibut allocation came available. The fisheries closed again near the end of October after harvest of the deep-water halibut PSC allocation.

Until 1998, the federally managed rockfish fisheries in the CGOA included nearshore pelagic shelf rockfish (i.e., black and blue rockfish), which are prosecuted primarily in State waters. These species were targeted primarily with non-trawl gear. In 1997 non-trawl effort in the nearshore pelagic shelf rockfish fishery closed that fishery on June 7th, prior to the trawl opening. In 1998, the State took over management of the nearshore pelagic shelf rockfish fisheries. Those fisheries are currently prosecuted exclusively in State waters.

2.4.2. Stocks, biology, and environmental conditions

Current harvests of all species by vessels participating in the rockfish fishery are below overfishing levels. In addition, impacts on the benthic habitat and essential fish habitat are minimal and temporary. The fishery has no adverse effects endangered species, marine mammals, seabirds, or forage fish. A complete discussion of the environmental impacts of the fishery are provided in the Environmental Assessment in Section 3 below.

2.4.3. The harvest sector

The CGOA rockfish fisheries in federal waters are currently prosecuted almost exclusively with trawl gear. Generally, participation in the federal CGOA rockfish fisheries requires an LLP license with the requisite gear, area, and operation (catcher vessel or catcher processor) endorsements. In addition, the LLP limits the length of a vessel that may use a license based on the length of the qualifying vessel.

In recent years, an increasing number of fixed gear participants (both jig and longline) have expressed an interest in participating in the rockfish fisheries.[12] Participation with jig gear by vessels of 26 feet or less is permitted without an LLP. Table 2 shows the number of LLP licenses issued for the CGOA by gear, operation, and maximum length overall permitted by the license. The table shows that a substantial number of vessels are eligible to participate in the CGOA rockfish fisheries. Currently, RAM Division has issued 25 trawl-endorsed, permanent catcher processor licenses and 171 trawl-endorsed, permanent

[12] For purposes of this discussion, the rockfish fisheries refer exclusively to the Pacific Ocean perch, northern rockfish, and pelagic shelf rockfish fisheries in federal waters as currently defined. Black and blue rockfish, which were formerly part of the pelagic shelf rockfish aggregation and are currently harvested primarily by fixed gear vessels in State waters, are not included in this program and are not the focus of this analysis.

catcher vessel licenses endorsed for operation in the CGOA. RAM division has also issued in excess of 900 non-trawl licenses endorsed for the CGOA.

Table 2. LLP licenses endorsed for the Central Gulf of Alaska by gear, maximum length overall, license status, and vessel type.

Gear	Maximum length overall	LLP license status	vessel type: catcher processor	vessel type: catcher vessel	total
trawl	under 60 feet	permanent	0	64	64
		interim	0	4	4
	60 feet or greater and less than 125	permanent	8	91	99
		interim	2	3	5
	125 feet or greater	permanent	17	16	33
		interim	2	1	3
	subtotal		29	179	208
non-trawl	under 60 feet	permanent	5	698	703
		interim	1	17	18
	60 feet or greater and less than 125	permanent	24	173	197
		interim	2	11	13
	125 feet or greater	permanent	19	3	22
		interim	5	2	7
	subtotal		56	904	960
all gear (unique licenses)	under 60 feet	permanent	5	704	709
		interim	1	18	19
	60 feet or greater and less than 125	permanent	29	211	240
		interim	4	13	17
	125 feet or greater	permanent	31	16	47
		interim	6	2	8
	total		76	964	1040

Source: RAM Division, Groundfish LLP License List, August 3, 2004.

Although a substantial number of vessels are eligible to participate in the CGOA rockfish fisheries, most vessels eligible for the fisheries do not participate.

Table 3 shows vessel participation and harvests in metric tons by sector during the open season from 1996 to 2002, by vessels with at least one targeted landing of rockfish during that time period.[13] The table shows the three different sectors identified by the Council, non-trawl catcher vessels, trawl catcher vessels, and trawl catcher processors. The table divides the harvests of each sector by LLP license status, showing the harvests of holders of permanent LLP licenses, interim LLP licenses,[14] and persons that do not hold LLP licenses.[15] Table 4, the companion table, shows the portion of the annual harvest and total harvest caught by the different sectors. In addition, tables showing participation patterns for vessels in both sectors appears in Appendix 2.

[13] The open season for trawl gear begins in early July and ends when either the TAC is fully harvested or when the deep water halibut allocation is taken. The non-trawl season opens on January 1st and closes at the same time as the trawl season closure. Landings data for catcher vessels is from Alaska Department of Fish and Game fish tickets. Landings data for catcher processors is from federal Weekly Processing Reports.

[14] Recall that interim status is applied to any license under dispute. The dispute could, but need not, relate to the Central Gulf of Alaska endorsement.

[15] Since NOAA Fisheries implemented the LLP in 1998, it is clear that no participants held LLP licenses before that time. Participants with "no LLPs" in seasons prior to 1998 are those participants that do not appear to have qualified for an LLP license.

Table 3. Participation in the Central Gulf of Alaska rockfish fisheries by gear, vessel type, and LLP status, 1996 to 2002.

			Pacific Ocean perch		Northern rockfish		Pelagic shelf rockfish	
Year	Sector	LLP status	Metric tons	Number of vessels	Metric tons	Number of vessels	Metric tons	Number of vessels
1996	Non-trawl catcher vessel	permanent						
		interim						
		none					*	2
	Trawl catcher vessel	permanent	2,216.7	28	854.7	23	334.6	26
		interim						
		none						
	Trawl catcher processor	permanent	1,301.4	7	1,981.9**	7	1,183.9	7
		interim	56.2**	2	*	1	*	1
		none	*	1	*	1	*	1
	Total		3,574.2	38	2,836.6	32	1,571.7	37
1997	Non-trawl catcher vessel	permanent			*	1	*	1
		interim						
		none					*	2
	Trawl catcher vessel	permanent	2,259.1	26	758.3	17	198.6	21
		interim						
		none						
	Trawl catcher processor	permanent	2,994.2	10	1,115.7	10	1,387.4	10
		interim						
		none	576.3	3	*	3	*	3
	Total		5,829.6	39	2,264.0	31	1,815.6	37
1998	Non-trawl catcher vessel	permanent						
		interim						
		none					*	2
	Trawl catcher vessel	permanent	2,356.9	30	1,754.4	30	615.8	29
		interim						
		none						
	Trawl catcher processor	permanent	3,999.3**	7	896.0**	6	1,264.5	7
		interim						
		none	*	2	*	2	*	2
	Total		6,356.3	39	2,650.4	38	2,355.7	40
1999	Non-trawl catcher vessel	permanent						
		interim						
		none					*	2
	Trawl catcher vessel	permanent	2,430.2	31	1,882.3	32	1,293.2	32
		interim						
		none						
	Trawl catcher processor	permanent	3,114.4	7	1,249.7	6	1,784.1	7
		interim						
		none	1,017.6	3	528.3	3	*	3
	Total		6,562.2	41	3,660.4	41	3,364.0	44

Source:NPFMC Rockfish Database 2004, Version 1

* withheld for confidentiality

** includes any amounts from confidential cells immediately below.

*** includes amounts from confidential cells immediately above and below.

Table 3. Participation in the Central Gulf of Alaska rockfish fisheries by gear, vessel type, and LLP status, 1996 to 2002 (continued).

			Pacific Ocean perch		Northern rockfish		Pelagic shelf rockfish	
Year	Sector	LLP status	Metric tons	Number of vessels	Metric tons	Number of vessels	Metric tons	Number of vessels
2000	Non-trawl catcher vessel	permanent						
		interim						
		none					*	2
	Trawl catcher vessel	permanent	4,011.7**	30	1,681.2**	30	2,241.0***	30
		interim	*	1	*	1	*	1
		none						
	Trawl catcher processor	permanent	3,106.4	5	450.5	4	511.0	5
		interim						
		none						
	Total		7,118.1	36	2,131.7	35	2,752.0	38
2001	Non-trawl catcher vessel	permanent						
		interim						
		none					4.0	6
	Trawl catcher vessel	permanent	3,652.2**	31	1,239.7**	28	1,232.6**	31
		interim	*	1	*	1	*	1
		none	*	1	*	1	*	1
	Trawl catcher processor	permanent	4,419.3	7	819.5	7	902.1	7
		interim						
		none						
	Total		8,071.6	40	2,059.2	37	2,138.6	46
2002	Non-trawl catcher vessel	permanent						
		interim						
		none					2.1	8
	Trawl catcher vessel	permanent	4,423.1**	32	2,099.4**	29	1,265.6**	32
		interim	*	1	*	1	*	1
		none						
	Trawl catcher processor	permanent	2,912.5	6	584.4	6	1,152.2	6
		interim						
		none						
	Total		7,335.6	39	2,683.9	36	2,419.9	47
All years (totals)	Non-trawl catcher vessel	permanent			*	1	16.8**	1
		interim						
		none					*	21
	Trawl catcher vessel	permanent	21,350.0**	47	10,270.1**	46	7,181.3**	46
		interim	*	2	*	2	*	2
		none	*	1	*	1	*	1
	Trawl catcher processor	permanent	20,825.3**	13	6,560.1**	12	8,192.0**	12
		interim	*	2	*	1	*	1
		none	2,672.3	5	1,403.1	5	1,027.5	5
	Total		44,847.6	70	18,286.2	68	16,417.6	89

Source:NPFMC Rockfish Database 2004, Version 1

* withheld for confidentiality

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*** includes amounts from confidential cells immediately above and below.

Table 4. Percent of catch in Central Gulf of Alaska rockfish fishery by gear, vessel type, and LLP status, 1996 to 2002.

			Pacific Ocean perch		Northern rockfish		Pelagic shelf rockfish	
Year	Sector	LLP status	Percent of total	Number of vessels	Percent of total	Number of vessels	Percent of total	Number of vessels
1996	Non-trawl catcher vessel	permanent						
		interim						
		none					*	2
	Trawl catcher vessel	permanent	62.0	28	30.1	23	21.3	26
		interim						
		none						
	Trawl catcher processor	permanent	36.4	7	70.9**	7	75.3	7
		interim	1.6**	2	*	1	*	1
		none	*	1	*	1	*	1
1997	Non-trawl catcher vessel	permanent			*	1	*	1
		interim						
		none					*	2
	Trawl catcher vessel	permanent	38.8	26	33.5	17	10.9	21
		interim						
		none						
	Trawl catcher processor	permanent	51.4	10	49.3	10	76.4	10
		interim						
		none	9.9	3	*	3	*	3
1998	Non-trawl catcher vessel	permanent						
		interim						
		none					*	2
	Trawl catcher vessel	permanent	37.1	30	66.2	30	26.1	29
		interim						
		none						
	Trawl catcher processor	permanent	62.9**	7	33.8**	6	53.7	7
		interim						
		none	*	2	*	2	*	2
1999	Non-trawl catcher vessel	permanent						
		interim						
		none					*	2
	Trawl catcher vessel	permanent	37.0	31	51.4	32	38.4	32
		interim						
		none						
	Trawl catcher processor	permanent	47.5	7	34.1	6	53.0	7
		interim						
		none	15.5	3	14.4	3	*	3

Source:NPFMC Rockfish Database 2004, Version 1

* withheld for confidentiality

** includes any amounts from confidential cells immediately below.

*** includes amounts from confidential cells immediately above and below.

Table 4. Percent of catch in Central Gulf of Alaska rockfish fishery by gear, vessel type, and LLP status, 1996 to 2002 (continued).

			Pacific Ocean perch		Northern rockfish		Pelagic shelf rockfish	
Year	Sector	LLP status	Percent of total	Number of vessels	Percent of total	Number of vessels	Percent of total	Number of vessels
2000	Non-trawl catcher vessel	permanent						
		interim						
		none					*	2
	Trawl catcher vessel	permanent	56.4**	30	78.9**	30	81.4***	30
		interim	*	1	*	1	*	1
		none						
	Trawl catcher processor	permanent	43.6	5	21.1	4	18.6	5
		interim						
		none						
2001	Non-trawl catcher vessel	permanent						
		interim						
		none					0.2	6
	Trawl catcher vessel	permanent	45.2**	31	60.2**	28	57.8**	31
		interim	*	1	*	1	*	1
		none	*	1	*	1	*	1
	Trawl catcher processor	permanent	54.8	7	39.8	7	42.2	7
		interim						
		none						
2002	Non-trawl catcher vessel	permanent						
		interim						
		none					0.0	8
	Trawl catcher vessel	permanent	60.3**	32	78.2**	29	52.4**	32
		interim	*	1	*	1	*	1
		none						
	Trawl catcher processor	permanent	39.7	6	21.8	6	47.6	6
		interim						
		none						
All years (totals)	Non-trawl catcher vessel	permanent			*	1	0.01**	1
		interim						
		none					*	21
	Trawl catcher vessel	permanent	47.6**	47	56.5**	46	43.7**	46
		interim	*	2	*	2	*	2
		none	*	1	*	1	*	1
	Trawl catcher processor	permanent	46.4**	13	35.9**	12	49.9**	12
		interim	*	2	*	1	*	1
		none	6.0	5	7.7	5	6.3	5

Source:NPFMC Rockfish Database 2004, Version 1

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Total harvests of the three rockfish species have varied somewhat over the years. Pacific Ocean perch harvests have generally increased from a low of almost 3,600 metric tons in 1996, to a high of over 8,000 metric tons in 2001. Northern rockfish harvests follow no apparent pattern and have ranged from slightly more than 2,000 metric tons in 2001 to almost 3,700 metric tons in 1999, the only year that harvests exceeded 3,000 metric tons. Harvests of pelagic shelf rockfish rose from almost 1,600 metric tons in 1996, to over 3,300 metric tons in 1999. In the three years since 1999, harvests have range from approximately 2,100 metric tons to approximately 2,750 metric tons. The total harvest of Pacific Ocean perch, the most valuable of the rockfish species, was more than double that of the other two species during the years shown.

The tables show relatively consistent participation across sectors. In the non-trawl catcher vessel sector, two or fewer vessels showed landings of each rockfish species prior to 2001. No non-trawl catcher vessels had any landings of Pacific Ocean perch between 1996 and 2002. In 2001 and 2002, 6 vessels and 8 vessels had landings of the pelagic shelf rockfish accounting for less than 1 percent of the landings in that fishery. Total landings by the non-trawl sector from 1996 to 2002 were less than 1 percent of the total landings for all three species. Because the non-trawl sector has very limited participation in the CGOA

rockfish fisheries, much of the discussion in this section pertains only to trawl catcher vessels and trawl catcher processors.

Trawl catcher vessel participation in the rockfish fisheries ranged from 23 vessels to 32 vessels. In 1996 and 1997, fewer trawl catcher vessels participated in the fisheries than in later years. The portion of the three rockfish species harvested by trawl catcher vessels generally rose in later years, with the increase in participation. In 1996, however, trawl catcher vessels harvested approximately 62 percent of Pacific Ocean perch, the highest percentage harvested by the sector in any year. Overall, the harvests of the three rockfish species by trawl catcher vessels ranged 44 percent of the pelagic shelf rockfish to 56 percent of the northern rockfish. Although about 30 trawl catcher vessels participate in the different CGOA rockfish fisheries in each year, the specific vessels that participate vary year to year. From 1996 to 2002, approximately 50 different trawl catcher vessels participated in the each of the fisheries.

Fewer trawl catcher processors participated in the rockfish fisheries than trawl catcher vessels in the time period considered. A high of 13 trawl catcher processors participated in 1997, and a low of 5 in 2000. Since non-trawl vessels have shown minimal participation, the trawl catcher processors generally compete only with trawl catcher vessels in the rockfish fisheries. Harvests of all three species have fluctuated over the years following no discernable pattern. Harvests of Pacific Ocean perch have ranged from approximately 1,300 metric tons in 1996, to approximately 4,400 metric tons in 2001. Trawl catcher processors have harvested between 38 percent (in 1996) and 63 percent (in 1998 and 1999) of the Pacific Ocean perch fishery. Participation by vessels without LLP licenses has been greater in the trawl catcher processor sector than in the trawl catcher vessels sector, with unlicensed vessels harvesting between 6 and 8 percent of the different rockfish species. As with trawl catcher vessels, a variety of trawl catcher processors participate in the CGOA rockfish fisheries. So, although the annual participation by trawl catcher processors in the different fisheries has ranged from 4 vessels to 13 vessels, the total number of vessels that have participated in a fishery is 20 in the Pacific Ocean perch fishery.

Table 5 shows the retained catch of different species of fish by vessels targeting CGOA rockfish from 1996 to 2002.[16] The table also shows the current retainable percentage used for computing maximum retainable amounts for incidental catch (as defined by 50 CFR Section 679.20(e) and Table 10). Since some retainable percentages have changed over time, the retainable percentages presented in the table should be used only for comparison of historic retention with current allowable retention amounts. The retainable percentage is used to determine the maximum amount of an incidental catch species that can be retained by a vessel as a percentage of the CGOA rockfish target species.[17]

[16] The vessel counts in this table show the number of different vessels that have participated in the fishery over the specified period. Because other tables in the analysis of alternatives track "participants" with transfers of histories from vessels, the numbers of vessels and participants over the same time period may differ.

[17] Since the percentage used to determine the maximum retainable amount is applied to all species that are open for direct fishing, some of the "other species" retention in the table could increase the amount of the different species that could be retained.

Table 5. Retained catch and current retainable percentages for vessels targeting Central Gulf of Alaska rockfish, 1996 to 2002.

Sector	LLP license status	Target rockfish			Pacific cod			Sablefish		
		Number of vessels	Metric tons	Percent of total	Number of vessels	Metric tons	Percent of target rockfish	Number of vessels	Metric tons	Percent of target rockfish
Retainable percentage***				-			20			7
Trawl catcher vessel	permanent	49	38,148.3	81.7	47	4,293.9	11.3	49	2,455.6	6.4
	interim	2	*	*	2	*	*	2	*	*
	none	1	*	*	1	*	*	1	*	*
Trawl catcher processor	permanent	17	35,501.0	84.8	15	510.2	1.4	17	1,679.2	4.7
	interim	2	*	*	0	0.0	*	2	*	*
	none	5	5,102.9	87.0	5	*	*	5	237.2	4.6
Total		76	79,481.7	83.3	70	5,012.9	6.3	76	4,427.6	5.6

Sector	LLP license status	Shortraker/rougheye			Thornyheads			Other			All Species
		Number of vessels	Metric tons	Percent of target rockfish	Number of vessels	Metric tons	Percent of target rockfish	Number of vessels	Metric tons	Percent of target rockfish	Metric tons
Retainable percentage***				15**			15**			-	
Trawl catcher vessel	permanent	46	231.9	0.6	49	290.6	0.8	48	1,244.5	3.3	46,664.8
	interim	2	*	*	2	*	*	2	*	*	*
	none	1	*	*	1	*	*	1	*	*	*
Trawl catcher processor	permanent	16	2,295.4	6.5	17	584.9	1.6	17	1,288.5	3.6	41,859.2
	interim	1	*	*	2	*	*	2	*	*	*
	none	5	278.0	5.4	5	53.0	1.0	5	81.5	1.6	5,868.6
Total		71	2,807.4	3.5	76	943.2	1.2	75	2,692.7	3.4	95,365.4

* Withheld for confidentiality

** Retainable percentage is for combined retention of Shortraker/rougheye and thornyheads.

*** Retainable percentages refer to the current retainable percentage and are provided for comparison of historic catch to current allowable retention.

Source:NPFMC Rockfish Database 2004, Version 1

As the table shows, CGOA rockfish is the large majority of retained catch for vessels targeting rockfish. Trawl catcher vessels have significant retention of both Pacific cod and sablefish, with sablefish retained harvests of approximately 6.4 percent of target rockfish (within a percent of the retainable percentage for that species). Pacific cod retention by trawl catcher vessels is slightly more than one-half the current retainable percentage. Trawl catcher processors have had slightly less harvest of sablefish relative to their harvest of target rockfish (slightly more than 2 percent less than the current retainable percentage). Harvests of all other species (including Pacific cod) are substantially less than the retainable percentage. These figures suggest that in most instances the retainable percentage has limited only harvests of sablefish by vessels targeting rockfish. Trawl catcher processors have also harvested substantial amounts of shortraker/rougheye incidentally to their target rockfish harvests. During the years presented, catcher processor harvest of shortraker/rougheye was approximately 6.5 percent of their target rockfish harvests. Further information concerning catch of these species is provided in Appendix 3, which shows the retained and total catch by vessel type and total catch from the Central Gulf of Alaska for these species during the qualifying years.

In addition to groundfish species, participants in the rockfish fishery also catch halibut. Currently, halibut is a prohibited species and halibut caught while trawling for rockfish are required to be discarded. Table 6 shows the estimated annual catch and mortality of halibut in the Central Gulf of Alaska rockfish fisheries by vessel type. The catcher processor sector halibut mortality is based upon estimates of halibut bycatch from observer data. NOAA Fisheries estimates the total halibut caught by the catcher processor trawl fleet, then calculates halibut mortality, using a halibut mortality factor. The average estimated annual halibut mortality for the catcher processor sector is 111.29 mt. over the period from 1996-2002.

The total average annual halibut mortality for the catcher vessel sector is 113.06 metric tons. For the catcher vessel sector, processor weekly production reports are utilized to calculate the retained groundfish harvests by target fishery. The amount of halibut discarded by the catcher vessel fleet is estimated by NOAA Fisheries using projections from observer data.

Table 6. Estimated halibut catch and mortality in the Central Gulf of Alaska rockfish fisheries (1996-2002).

year	vessel type	estimated halibut harvest (mt.)	estimated halibut mortality (mt.)	targeted rockfish harvest (mt.)
1996	CP	88.75	50.61	7,111.95
1997	CP	221.24	143.81	8,718.47
1998	CP	215.22	146.35	9,049.53
1999	CP	263.54	168.64	9,322.94
2000	CP	72.67	47.96	6,202.18
2001	CP	160.37	110.64	7,881.36
2002	CP	160.86	110.99	6,114.43
totals (mt.)	CP	1,182.66	779.00	54,400.86
average annual halibut mortality (mt.)			**111.29**	

year	vessel type	estimated halibut harvest mt.	estimated halibut mortality (mt.)	targeted rockfish harvest mt.
1996	CV	163.11	92.98	7,340.23
1997	CV	76.21	49.54	4,669.52
1998	CV	127.72	86.84	5,680.23
1999	CV	194.26	124.33	8,797.19
2000	CV	206.62	136.36	10,574.27
2001	CV	298.91	206.27	8,786.00
2002	CV	137.82	95.10	10,143.63
totals (mt.)	CV	1,204.65	791.42	55,991.07
average annual halibut mortality (mt.)			**113.06**	

Source: Summarized from NMFS GOAHALX 1996-02.
Program data, 1996-2002.

Participation of Rockfish Vessels in Other Fisheries

Since the rockfish fisheries are prosecuted only in July, vessels that participate in the rockfish fisheries also participate in several other fisheries in the Gulf of Alaska and the Bering Sea and Aleutian Islands.[18]

Table 7 below shows the ex vessel gross revenues of catcher vessels eligible for the CGOA rockfish pilot program from 1996 to 2002. The table shows that these vessels have substantial participation in several other fisheries, primarily pollock and Pacific cod. Comparing this table to Table 13 and Table 14, one can see that revenues from the CGOA rockfish fisheries (including revenues from secondary species harvested in the fishery) are a minor part of the revenues of catcher vessels eligible for the CGOA rockfish fishery (i.e., less than 10 percent of total ex vessel gross revenues).

[18] In addition, many of the vessels that have participated in the rockfish fisheries have also participated in other fisheries both in and out of the CGOA in the month of July. This section provides background on the overall activity of vessels that target CGOA groundfish. Additional information on the participation of these vessels in other fisheries in the month of July is contained in the analysis of the effects on other fisheries in section 2.5.17 below.

Table 7. Ex vessel gross revenues of catcher vessels eligible for the CGOA rockfish pilot program (1996-2002).

	Pollock		Pacific cod		Rockfish		Flatfish and other groundfish	
Year	Number of vessels	Ex vessel gross revenues ($1,000)	Number of vessels	Ex vessel gross revenues ($1,000)	Number of vessels	Ex vessel gross revenues ($1,000)	Number of vessels	Ex vessel gross revenues ($1,000)
1996	44	13,430	46	7,118	43	650	43	5,821
1997	46	15,742	46	9,532	43	671	46	5,386
1998	48	13,719	48	6,736	44	905	48	3,066
1999	48	18,327	46	13,037	45	1,106	47	2,664
2000	46	25,204	46	9,962	40	1,357	46	4,676
2001	47	22,310	47	9,538	44	760	46	3,299
2002	44	14,533	45	8,924	41	939	44	3,405
Total	48	139,248	48	73,965	48	6,602	48	31,760

	Halibut		Crab and other species		All species	
Year	Number of vessels	Ex vessel gross revenues ($1,000)	Number of vessels	Ex vessel gross revenues ($1,000)	Number of vessels	Ex vessel gross revenues ($1,000)
1996	14	1,761	8	431	47	29,211
1997	16	2,348	10	1,155	46	34,833
1998	15	1,419	9	1,433	48	27,277
1999	13	2,399	6	1,471	48	39,004
2000	12	2,599	7	1,033	47	44,832
2001	11	1,799	18	686	47	38,392
2002	0	0	21	890	45	28,692
Total	18	13,985	33	7,592	48	273,152

Source: NPFMC Rockfish Database, Version 1.

Table 8 below shows total product weights and revenues for the catcher processor sector during the qualifying years. In considering the table, note that rockfish production includes all rockfish, including rockfish from the CGOA. Comparing this table with Table 17 and Table 18 shows that revenues from production from the CGOA rockfish fisheries (including production from secondary species) are a relatively small portion (i.e., slightly less than 5 percent) of the annual revenues of eligible catcher processors. In addition, some catcher processors eligible for the program also participate in the Bering Sea and Aleutian Island crab fisheries. Products and revenues from those fisheries are not included in Table 8.

Table 8. Total product weights and first wholesale revenues of CGOA rockfish eligible catcher processors in groundfish fisheries (1995-2002).

	Pollock			Pacific cod			Rockfish		
Year	Number of vessels	Pounds of product (1,000s)	First wholesale revenues ($1,000s)	Number of vessels	Pounds of product (1,000s)	First wholesale revenues ($1,000s)	Number of vessels	Pounds of product (1,000s)	First wholesale revenues ($1,000s)
1996	8	6,276	5,357	15	9,631	7,200	15	18,376	13,031
1997	11	3,322	3,657	15	11,523	6,913	14	18,258	12,790
1998	13	9,370	5,558	13	16,322	14,526	12	11,871	5,628
1999	12	6,181	1,675	12	11,242	13,362	11	19,234	8,963
2000	12	6,858	4,390	12	13,385	15,840	12	10,933	6,820
2001	12	7,831	4,506	12	15,908	17,410	11	10,210	4,572
2002	12	7,819	4,754	12	17,400	16,824	11	12,247	7,508
Total	14	47,658	29,897	15	95,412	92,075	15	101,129	59,311

Year	Flatfish and other species			All species		
	Number of vessels	Pounds of product (1,000s)	First wholesale revenues	Number of vessels	Pounds of product (1,000s)	First wholesale revenues
1995	15	104,323	68,170	15	132,426	91,333
1996	15	119,986	84,743	15	154,269	110,332
1997	15	133,212	69,779	15	166,316	93,139
1998	13	98,793	41,763	13	136,356	67,475
1999	12	84,484	41,996	12	121,141	65,997
2000	12	92,615	49,744	12	123,791	76,794
2001	12	91,687	53,606	12	125,637	80,093
2002	12	89,000	48,971	12	126,465	78,056
Total	15	814,101	458,772	15	1,086,401	663,218

Source: NPFMC Rockfish Database, Version 1.

Captains and Crew in the Rockfish Fisheries[19]

Trawl catcher vessels in the CGOA rockfish fisheries are typically operated by a captain and two to four crewmembers. Since the fisheries have a very short duration, rockfish captains and crew often work on the same vessel in other fisheries throughout the year. A limited number of crew, however, work on other vessels in other fisheries, including fixed gear fisheries for crab and halibut. Captains and crew are typically compensated using a share system, under which they receive a portion of the revenues generated by the vessel during the season. Crew shares are typically on the order of 5 to 10 percent of gross ex vessel revenues after fuel, food, observer coverage, freight and cargo insurance, fiber (in the case of catcher processors), and trip specific expenses are deducted. Captain's share s are typically one and one-half times the average crew share. Both captain and crew earn relatively larger shares on vessels with fewer crew. Total crew shares (including the captain's share) are on the order of 30 to 40 percent of gross revenues, depending on circumstances and deductions in determining the revenue basis on which shares are calculated.

In addition to fishing crews of similar size to those found on trawl catcher vessels, trawl catcher processors employ processing crews. The sizes of processing crews vary with the size of the vessel. The largest vessels have crews in excess of 50. Small vessels carry crews of fewer than 30 persons. Some deck crew also work in the processing plant. As with catcher vessels, catcher processor crews often work in several other fisheries in addition to the rockfish fisheries, as the CGOA rockfish fisheries is of relatively short duration. Most crews remain with the vessel on which they fish CGOA rockfish throughout the remainder of the year. Rockfish catcher processor crews are compensated based on vessel revenues, but earn a slightly lower percentage of revenues, since processed product generates higher revenues. Deck crew on processing vessels earn a share of between 1.5 percent and 3 percent, while the captains earn approximately between 5 and 10 percent. Processing crew earn between 0.5 percent and 2 percent, while the factory foreman earns approximately 1.5 to 3 percent. Some crewmembers (such as cooks) may be paid a daily wage (or receive a daily minimum) in some instances. Shares likely differ with the expenses that are deducted in determining the revenue basis on which shares are calculated. In some cases, long term crews may be provided additional benefits, such as health insurance. Total crew shares on catcher processors might be slightly lower than on catcher vessels, as they are based on processed product revenues, and are on the order of 25 to 35 percent of the basis revenues.

2.4.4. The processing sector

This section summarizes processor participation in the CGOA rockfish fisheries. Several processors have received deliveries from these fisheries in recent years. Table 9, Table 10, and Table 11 show deliveries of CGOA Pacific Ocean perch, northern rockfish, and pelagic shelf rockfish, respectively, to processors by processor qualification (under the catcher vessel alternatives) and port from 1996 to 2002. For

[19] The knowledge of captain and crew activity on rockfish vessels is limited by the a shortage of data. The following summary, therefore, relies on anecdotal information from participants in the fisheries.

purposes of qualification, the tables used the criteria identified in the main portion of the motion (and not the suboption).[20] The number of processors satisfying the suboption criteria cannot be reported because of confidentiality limitations and the lack of availability of information concerning investments in facilities. Any processor that is eligible for the main program would then be ineligible for the entry level fishery.

Table 9. Landings with processors by qualification and port – CGOA Pacific Ocean perch.

		Cordova		Kodiak		Sand Point		Seward		Totals	
Year		Plants	Tons	Plants	Tons	Plants	Tons	Plants	Tons	Plants	Tons
1996	qualifying			6	2,216.7					6	2,216.7
	non-qualifying										
1997	qualifying			5	2259.1**					5	2259.1**
	non-qualifying	1	*	1	*			1	*	3	*
1998	qualifying			6	2356.9**					6	2356.9**
	non-qualifying					2	*			2	*
1999	qualifying			6	2430.2**					6	2430.2**
	non-qualifying					1	*			1	*
2000	qualifying			6	4011.7**					6	4011.7**
	non-qualifying			1	*					1	*
2001	qualifying			6	3,652.2					6	3,652.2
	non-qualifying										
2002	qualifying			5	4,423.1					5	4,423.1
	non-qualifying										
All	qualifying			6	20,607.4					6	20,607.4
	non-qualifying	1	*	2	*	2	*	1	*	6	742.6

* Withheld for confidentiality

**Includes amounts from same year withheld for confidentiality.

Table 9 shows landings with processors by qualification and port of CGOA Pacific Ocean perch. The table shows that less than 5 percent of landings were with processors that are not qualified for the program. Six qualifying processors and six non-qualifying processors received landings between 1996 and 2002. Qualifying processor showed consistent participation with all six participating in 5 of the 7 years. Only one of the non-qualifying processors participated in more than one year. All qualifying processors are based in Kodiak. Non-qualifying processors are based in Cordova, Kodiak, Sand Point and Seward.

[20] To qualify a processor must have received in excess of 250 metric tons of CGOA rockfish during in 4 of the 5 years from 1996 to 2000.

Table 10. Landings with processors by qualification and port – CGOA Northern rockfish.

Year		Kodiak		Seward		Totals	
		Plants	Tons	Plants	Tons	Plants	Tons
1996	qualifying	6	854.7			6	854.7
	non-qualifying						
1997	qualifying	5	811.2			5	811.2
	non-qualifying						
1998	qualifying	6	1,754.4**			6	1,754.4**
	non-qualifying			2	*	2	*
1999	qualifying	6	1,882.3**			6	1,882.3**
	non-qualifying			1	*	1	*
2000	qualifying	6	1,681.2**			6	1,681.2**
	non-qualifying	1	*			1	*
2001	qualifying	6	1,239.7			6	1,239.7
	non-qualifying						
2002	qualifying	5	2,099.4			5	2,099.4
	non-qualifying						
All	qualifying	6	10,323.0**			6	10,323.0**
	non-qualifying	1	*	2	*	3	*

* Withheld for confidentiality

**Includes amounts from same year withheld for confidentiality.

Table 10 shows participation of processors in the CGOA Northern rockfish fishery from 1996 to 2002. Six qualified and three unqualified processors participated in the fishery during this period. Because only three unqualified processors participated in the fishery, no information concerning the distribution of landings between qualified and unqualified processors can be revealed. As in the Pacific Ocean perch fishery, all six qualified processors participated in 5 of the 7 years shown, while only one unqualified processor participated in more than one year. All qualified processors are from Kodiak, while the unqualified processors are from Kodiak and Seward.

Table 11. Landings with processors by qualification and port - CGOA Pelagic shelf rockfish.

Year		Cordova		Kodiak		Seward		Totals	
		Plants	Tons	Plants	Tons	Plants	Tons	Plants	Tons
1996	qualifying			6	335.3*			6	335.3*
	non-qualifying					1	*	1	*
1997	qualifying			5	208.1**			5	208.1**
	non-qualifying	1	*					1	*
1998	qualifying			5	587.3			5	587.3
	non-qualifying			1	*	3	*	4	28.6
1999	qualifying			6	1293.6**			6	1293.6**
	non-qualifying			1	*	1	*	2	*
2000	qualifying			6	2240.0**			6	2240.0**
	non-qualifying			2	*			2	*
2001	qualifying			6	1236.6**			6	1236.6**
	non-qualifying			3	*			3	*
2002	qualifying			6	1267.7**			6	1267.7**
	non-qualifying			2	*			2	**
All	qualifying			6	6,940.7			6	6,940.7
	non-qualifying	1	*	4	219.5**	4	38.0	9	257.5

* Withheld for confidentiality

**Includes amounts from same year withheld for confidentiality.

Table 11 shows deliveries to processors of CGOA pelagic shelf rockfish from 1996 to 2002. The table shows that 6 qualifying processors and 9 non-qualifying processor received deliveries of pelagic shelf rockfish during this period. Non-qualifying processors showed little consistent participation, except in Kodiak, where at least two non-qualifying processors participated in each of the last three years. Although participation by non-qualifying processors was more consistent in the pelagic shelf rockfish fishery than

the other rockfish fisheries, landings with non-qualifying processors account for less than 5 percent of the total landings during this period.

Table 12 below shows processing of all species by qualifying processors from 1996 to 2002. The data in the table are from the State of Alaska Commercial Operators Annual Reports. Since these data are not reported on a management area basis, all of the production numbers could include amounts from management areas other than the Central Gulf of Alaska.

Table 12. Production and first wholesale revenues by species of qualifying processors (1996-2002).

	Target rockfish*			Other groundfish			Halibut		
Year	Number of processors	Pounds of product	First wholesale revenues ($)	Number of processors	Pounds of product	First wholesale revenues ($)	Number of processors	Pounds of product	First wholesale revenues ($)
1996	5	2,177,681	1,079,184	6	76,293,620	97,178,910	6	5,851,288	17,663,681
1997	5	2,525,305	2,100,228	5	46,306,362	61,626,500	5	10,416,152	27,021,252
1998	6	3,182,861	4,138,575	6	60,225,492	75,263,476	5	6,793,551	12,908,444
1999	6	10,882,418	2,222,039	6	85,186,290	83,485,862	5	4,610,994	12,807,574
2000	6	3,918,959	3,109,583	6	52,037,853	80,525,827	6	3,671,595	10,699,500
2001	6	3,567,277	3,258,214	6	47,316,488	63,578,566	4	3,772,819	9,298,905
2002	6	4,503,351	4,739,876	6	41,264,425	59,797,762	5	3,672,234	11,673,430
Total	6	30,757,852	20,647,699	6	408,630,530	521,456,903	6	38,788,633	102,072,786

	Shellfish			Salmon			Other		
Year	Number of processors	Pounds of product	First wholesale revenues ($)	Number of processors	Pounds of product	First wholesale revenues ($)	Number of processors	Pounds of product	First wholesale revenues ($)
1996	5	1,087,704	4,819,521	5	19,069,365	36,979,713	6	3,426,434	5,165,301
1997	4	953,567	3,487,086	5	16,003,627	24,954,048	5	4,771,908	3,500,340
1998	3	*	*	5	22,878,189	33,176,023	5	1,942,002	1,637,775
1999	4	680,224	4,996,787	5	21,681,651	34,300,890	5	1,607,692	1,427,174
2000	3	*	*	5	21,632,006	32,214,388	5	1,661,827	1,424,343
2001	6	1,144,961	7,026,051	5	30,990,164	34,964,468	4	2,460,394	1,914,696
2002	6	1,202,454	7,708,056	4	31,559,447	34,453,075	5	1,842,279	1,506,087
Total	6	7,479,807	38,706,671	5	163,814,449	231,042,605	6	17,712,536	16,575,716

* Includes only allocated target rockfish species .
** Withheld for confidentiality.
Source: Rockfish pilot program database (Version 1).

The table shows that rockfish production is a relatively small portion of the production by qualified processing plants (slightly less than 5 percent of total production by weight and slightly more than 2 percent of total production by first wholesale revenue). The first wholesale revenues for rockfish show that qualifying processors receive substantially less for target rockfish products, than for other species. Although overall target rockfish production has increased in recent years, the production of other groundfish has declined substantially over the time period shown, which resulted from stock declines in some target species, primarily pollock.

2.4.5. Ex vessel pricing and harvester/processor relationships

Ex vessel prices are negotiated informally by the rockfish fleet in the preseason. Fishermen often contact processors in the preseason to inquire about pricing for the season. In addition, the fleet that delivers to a processor may meet with the processor to discuss delivery scheduling among fleet members. A processor typically offers a common price to all of its fleet members. Fishermen often communicate with each other concerning processor price offers, but most perceive that little negotiating leverage exists. In the last few years, a new processor has entered the market and reportedly has offered a slightly higher price than all other processors. The new entrant has drawn some vessels away from other processors, but most of the fishermen have remained with their historic processor. Usually fishermen will remain with their primary processor throughout the season. Harvesters typically deliver on a rotation, with fishing trips of less than 72 hours, to maintain product quality. Fishermen typically do not receive payment for low quality fish that cannot be marketed except as meal. At times fishermen will move to another processor for a delivery midseason. These movements are typically made to avoid loss of quality because of a long wait to offload, and at times are facilitated by the processors.

Occasionally, post season bonuses are paid by processors in response to good market prices for products or in response to prices of competing processors. Processors in the rockfish fisheries are reported to maintain relatively stable fleets, with most fishermen delivering to their rockfish processor throughout the year in other fisheries as well. When fishermen do move between processors, they typically move all of their deliveries, not just rockfish deliveries.

Secondary species (particularly Pacific cod and sablefish) are an important part of pricing in the rockfish fisheries. Fishermen typically inquire of the price of these species in the preseason. Prices of Pacific cod are typically based on the directed season price from earlier in the year, with a possible downward adjustment for the absence of milt and roe and the lower quality observed in the summer months. Sablefish prices are based on prices in the IFQ fishery, with some downward adjustment for lower quality in the trawl fishery.

Fishermen typically separate Pacific cod and sablefish from rockfish and store them in iced totes. Pacific cod are usually bled. Sablefish are usually bled and sometimes are headed and gutted. Both species bring a substantially higher price than the target rockfish and are priced based on quality, so fishermen give extra attention to their care. Shortraker, rougheye, and thornyheads also bring a premium price, but are caught in substantially lower quantities than Pacific cod and sablefish.

Table 13 shows the number of catcher vessels, landings, ex vessel revenues, and average ex vessel price from 1996 to 2002 in the CGOA rockfish fisheries.

Table 13. Number of catcher vessels, landings, ex vessel revenues, and average ex vessel prices in the Central Gulf of Alaska Rockfish Fisheries (1996-2002).

Year	Gear	Pacific Ocean perch				Northern rockfish				Pelagic shelf rockfish			
		Number of vessels	Landings (mt)	Ex vessel gross revenues ($)	Average ex vessel price ($/lb)	Number of vessels	Landings (mt)	Ex vessel gross revenues ($)	Average ex vessel price ($/lb)	Number of vessels	Landings (mt)	Ex vessel gross revenues ($)	Average ex vessel price ($/lb)
1996	Non-trawl									2	*	*	*
	Trawl	28	2,216.7	254,473	0.052	23	854.7	88,561	0.047	26	334.6	40,886	0.055
1997	Non-trawl					1	*	*	*	3	*	*	*
	Trawl	26	2,259.1	253,427	0.051	17	758.3	88,603	0.053	21	198.6	22,416	0.051
1998	Non-trawl									2	*	*	*
	Trawl	30	2,356.9	363,728	0.070	30	1,754.4	232,063	0.060	29	615.8	81,450	0.060
1999	Non-trawl									2	*	*	*
	Trawl	31	2,430.2	421,440	0.079	32	1,882.3	290,483	0.070	32	1,293.2	199,577	0.070
2000	Non-trawl									2	*	*	*
	Trawl	31	4,011.7	636,787	0.072	31	1,681.2	233,503	0.063	31	2,240.9	301,359	0.061
2001	Non-trawl									6	4.0	2,374	0.272
	Trawl	33	3,652.2	402,587	0.050	30	1,239.7	136,652	0.050	33	1,232.6	138,534	0.051
2002	Non-trawl									8	2.1	1,224	0.261
	Trawl	33	4,423.1	477,812	0.049	30	2,099.4	231,422	0.050	33	1,265.6	147,873	0.053
Total	Non-trawl					1	*	*	*	22	16.8	6,333	0.171
	Trawl	47	21,350.0	2,810,255	0.060	46	10,270.1	1,301,287	0.057	46	7,181.3	932,095	0.059

Source: NPFMC Rockfish Database, Version 1
* Withheld for confidentiality

As the table shows, trawl ex vessel prices ranged from slightly less than 5 cents per pound to almost 8 cents per pound during this period. Prices were at their highest in 1996, 1997, and 1998. No particular relationship appears to exist across species, as the prices varied relative to each other across the years. Non-trawl ex vessel prices were substantially higher, particularly in the last two reported years, when they were almost 5 times the trawl price.

Table 14 shows the number of vessels, landings, ex vessel gross revenues, and average ex vessel price for secondary species harvested by vessels with permanent LLPs targeting rockfish from 1996 to 2002.

Table 14. Number of catcher vessels, landings, ex vessel revenues, and average ex vessel prices for catch of secondary species by vessels with permanent LLPs in the Central Gulf of Alaska Rockfish Fisheries (1996-2002).

	Pacific Cod				Sablefish				Shortraker/rougheye				Thornyhead			
Year	Number of vessels	Landings (mt)	Ex vessel gross revenues ($)	Average ex vessel price ($/lb)	Number of vessels	Landings (mt)	Ex vessel gross revenues ($)	Average ex vessel price ($/lb)	Number of vessels	Landings (mt)	Ex vessel gross revenues ($)	Average ex vessel price ($/lb)	Number of vessels	Landings (mt)	Ex vessel gross revenues ($)	Average ex vessel price ($/lb)
1996	1	*	*	*	29	504.5	1,911,716	1.719	21	48.0	11,122	0.105	28	52.4	99,795	0.864
1997	24	114.7**	46,426**	0.184**	25	234.9	924,039	1.784	16	12.1	3,744	0.140	21	32.1	36,083	0.509
1998	31	378.2	135,869	0.163	31	273.8	665,041	1.102	25	39.6	10,396	0.119	29	69.1	59,783	0.392
1999	32	684.3	430,746	0.286	31	324.8	1,074,795	1.501	18	16.6	3,241	0.089	29	24.7	26,976	0.496
2000	30	1,014.0	701,281	0.314	30	450.2	1,532,063	1.544	21	45.3	17,354	0.174	27	60.4	44,151	0.332
2001	31	856.6	512,167	0.271	31	312.5	966,734	1.403	13	51.0	10,401	0.093	22	24.9	25,681	0.468
2002	32	1,245.9	672,974	0.245	32	355.0	1,101,153	1.407	24	19.3	4,420	0.104	23	27.1	17,011	0.285
Total	47	4,293.9	2,499,464	0.264	49	2,455.6	8,175,541	1.510	46	231.9	60,677	0.119	49	290.7	309,481	0.483

* Withheld for confidentiality

** Includes amount from adjacent cell.

Source: NPFMC Rockfish Database, 2004, Version 1.

As the table shows, vessels in the rockfish fishery have historically received substantially higher prices for landings of secondary species than targeted rockfish. Revenues in the fishery from catch of sablefish have exceeded revenues for all target rockfish combined. Revenues from Pacific cod exceed revenues from northern rockfish and pelagic shelf rockfish combined. Catcher vessels have substantially less revenue from catch of non-target rockfish, although the average ex vessel price for thornyheads exceeds the ex vessel price for Pacific cod.

Limited information is available concerning vertical integration in the fishery. In addition, confidentiality limitations prevent any specific description of the few vertically integrate processors. Because of these limitations, a qualitative discussion of the impacts of vertical integration is provided in the analysis of alternatives. Vertical integration likely has minor effects on the current fishery. Vertically integrated processors likely have a slight advantage arising from certain deliveries from their own vessels and through added information concerning fishing costs and operations. This information likely provides only a minimal negotiating advantage in the current fishery because of the concentrated season.

2.4.6. Product markets

Several different products are made from rockfish in the current fishery. Production differs somewhat across the two sectors (inshore and offshore). To provide a better understanding of these differences, the information in this section is separated by sector.

Table 15 shows production quantities, first wholesale revenues and average prices from 1996 to 2002 from Commercial Operators Annual Reports. These data are aggregated across all management areas, not allowing the separation of products from the Central Gulf of Alaska directed rockfish fishery.

Table 15. Production, first wholesale revenues, and average prices of rockfish products by inshore processors that received targeted rockfish from the Central Gulf of Alaska (1996-2002).

Pacific Ocean perch

	Fillets				Surimi				Whole and head & gut			
Year	Number of processors	Pounds of product	First wholesale revenues ($)	Average price ($/lb)	Number of processors	Pounds of product	First wholesale revenues ($)	Average price	Number of processors	Pounds of product	First wholesale revenues ($)	Average price ($/lb)
1996	1	*	*	*	1	*	*	*	5	1,342,691	522,566	0.389
1997	4	640,739**	925,912**	1.445	2	*	*	*	5	1,126,674	396,216	0.352
1998	6	970,533	1,803,902	1.859					6	733,822	282,951	0.386
1999	6	517,886	620,246	1.198	1	*	*	*	3	*	*	*
2000	6	982,950	1,120,501	1.140	1	*	*	*	4	1,794,058**	524,196**	0.292
2001	6	991,028	1,424,641	1.438	1	*	*	*	4	909,472	376,516	0.414
2002	5	894,835	1,928,008	2.155	3	*	*	*	4	1,018,763	334,915	0.329
Total	8	4,997,971	7,823,210	1.565	4	3,525,587	2,310,370	0.655	10	7,670,954	2,437,360	0.318

Northern rockfish

	Fillets				Surimi				Whole and head & gut			
Year	Number of processors	Pounds of product	First wholesale revenues ($)	Average price ($/lb)	Number of processors	Pounds of product	First wholesale revenues ($)	Average price ($/lb)	Number of processors	Pounds of product	First wholesale revenues ($)	Average price ($/lb)
1996	1	*	*	*					4	220,283	54,003	0.245
1997	2	*	*	*	1	*	*	*	3	*	*	*
1998	6	515,255	950,746	1.845	1	*	*	*	5	912,626	455,257	0.499
1999	2	*	*	*					4	1,454,105	218,307	0.150
2000	4	492,520	484,189	0.983					4	258,709	49,673	0.192
2001	5	278,678	426,790	1.531					3	*	*	*
2002	6	258,794	453,880	1.754	1	*	*	*	3	*	*	*
Total	7	2,049,212	3,132,966	1.529	2	*	*	*	7	3,184,011	920,369	0.289

Pelagic shelf rockfish

	Fillets				Surimi				Whole and head & gut			
Year	Number of processors	Pounds of product	First wholesale revenues ($)	Average price ($/lb)	Number of processors	Pounds of product	First wholesale revenues ($)	Average price ($/lb)	Number of processors	Pounds of product	First wholesale revenues ($)	Average price ($/lb)
1996	2	*	*	*					3	*	*	*
1997	3	*	*	*					6	581,819**	397,218**	0.683
1998	5	100,252	187,523	1.871					8	664,874	686,326	1.032
1999	4	191,497	290,935	1.519					5	609,521	315,509	0.518
2000	5	640,093	809,193	1.264					4	178,084	46,258	0.260
2001	6	369,367	564,578	1.529					6	440,054	270,096	0.614
2002	5	149,677	254,740	1.702	1	*	*	*	5	209,745	297,559	1.419
Total	10	1,533,828	2,301,611	1.501	1	*	*	*	13	2,684,097	2,012,966	0.750

* Withheld for confidentiality.
** Includes amount from adjacent cell.
Source: Commercial Operators Annual Reports

The data show that most production of rockfish is whole fish and headed and gutted fish. These products generate substantially less revenue than fillets, which sell for approximately 5 times the whole and head and gut price for all species. Accepting that whole and head and gut products have substantially higher recovery rates, the return per pound of raw fish from fillet production is substantially higher than that for whole and head and gut products.[21] The price differential across species is relatively small, although in recent years whole and headed and gutted pelagic shelf rockfish have sold for substantially more than whole and headed and gutted Pacific Ocean perch and northern rockfish. This price difference could be a reflection of increased non-trawl participation in the pelagic shelf rockfish fisheries, which tend to produce higher quality fish. Applying estimated recovery rates to these product weights, slightly more raw fish are produced into whole and head and gut products and fillets. The amount of raw fish that goes to surimi production cannot be revealed because of confidentiality limits in two of the three fisheries, but is less than the other two product forms in the Pacific Ocean perch fishery.

In general, fillet production is largely sold into U.S. markets and surimi production is largely sold into Asian markets. The whole and head and gut production is delivered to Asia, where the whole fish is

[21] Recovery rates are generally approximately 25 percent for fillets, 20 percent for surimi, and 55 percent for head and gut products.

typically consumed and the head and gut is generally reprocessed. A portion of the head and gut production is returned to U.S. markets.

Table 16 shows production of secondary species products by rockfish qualified processors.

Table 16. Production, first wholesale revenues, and average product prices of secondary species by inshore processors that received targeted rockfish from the Central Gulf of Alaska (1996-2002).

	Pacific cod				Sablefish				Rougheye			
Year	Number of processors	Pounds of product	First wholesale revenues ($)	Average price ($/lb)	Number of processors	Pounds of product	First wholesale revenues ($)	Average price ($/lb)	Number of processors	Pounds of product	First wholesale revenues ($)	Average price ($/lb)
1996	7	25,471,631	29,562,779	1.161	5	1,480,541	5,857,093	3.956	3	*	*	*
1997	8	26,625,305	38,136,968	1.432	8	2,318,254	10,176,174	4.390	3	*	*	*
1998	10	22,273,954	32,050,212	1.439	9	3,911,096	13,015,721	3.328	7	42,094	41,908	0.996
1999	6	33,261,085	44,396,203	1.335	6	1,577,611	5,538,332	3.511	4	54,296	37,528	0.691
2000	7	21,639,026	32,088,270	1.483	6	1,383,571	5,760,370	4.163	5	26,071	29,333	1.125
2001	9	22,665,303	30,077,297	1.327	8	1,924,852	6,957,882	3.615	6	24,636	27,279	1.107
2002	7	20,297,463	30,733,856	1.514	6	1,637,641	6,539,977	3.994	5	36,185	48,507	1.341
Total	15	172,233,767	237,045,585	1.376	13	14,233,566	53,845,549	3.783	10	228,932	242,560	1.060

	Shortraker				Thornyheads			
Year	Number of processors	Pounds of product	First wholesale revenues ($)	Average price ($/lb)	Number of processors	Pounds of product	First wholesale revenues ($)	Average price ($/lb)
1996	2	*	*	*	5	142,004	434,826	3.062
1997	3	*	*	*	8	234,333	560,596	2.392
1998	5	35,680	35,099	0.984	9	307,798	685,299	2.226
1999	3	*	*	*	6	132,628	267,845	2.020
2000	4	40,005	29,640	0.741	6	122,678	258,373	2.106
2001	5	9,123	7,778	0.853	8	99,613	177,713	1.784
2002	3	*	*	*	6	91,101	165,012	1.811
Total	10	144,119	134,192	0.931	12	1,130,155	2,549,664	2.256

* Withheld for confidentiality

Table 17 shows products, product revenues, and average produce prices for the catcher processor sector in the CGOA rockfish fisheries. The table shows that, for all species, most production is eastern cut head and gut, but that some whole fish and some western cut head and gut were also produced. Although prices of the species vary relative to one another, in most years Pacific Ocean perch brought the highest prices, while pelagic shelf rockfish sold for a higher price than northern rockfish.[22] Prices also varied year to year, with prices at their highest in the 1996 and 1997, the first two years of the period. No information concerning western cut could be released because few vessels processed that product.

The production of secondary and other (non-allocated) species is also important to rockfish catcher processor participants. Table 18 shows the product weights, product revenues, and average product prices for secondary and non-allocated species. As the table shows, catcher processors generate substantial revenues from sablefish, greater than from northern rockfish and pelagic shelf rockfish combined in the years shown. Shortraker/rougheye revenues also exceed those from pelagic shelf rockfish during the years shown. In addition, prices for each of the allocated secondary species exceed those of all of the target CGOA rockfish. Although not shown in the table most production of secondary species is head and gut fish.

[22] Note that for catcher processors Pacific Ocean perch generate the highest product prices, while for shre-based processors, the highest product prices are for pelagic shelf rockfish. The relatively high price of pelagic shelf rockfish in the shore-based sector likely results from the non-trawl catcher vessel harvest of that species.

Table 17. Target Rockfish Products, Product Weights, Product Revenues, and Average Product Prices of the Catcher Processor Sector in the Central Gulf of Alaska Rockfish Fishery (1996-2002).

		Pacific Ocean perch				Northern rockfish				Pelagic shelf rockfish			
Year	Product	Number of vessels	Product weight (MT)	Product revenues ($)	Average product price ($)	Number of vessels	Product weight (MT)	Product revenues ($)	Average product price ($)	Number of vessels	Product weight (MT)	Product revenues ($)	Average product price ($)
1996	whole	1	*	*	*	1	*	*	*	1	*	*	*
	eastern cut	11	610.0	980,244.00	0.729	10	847.9	560,418.00	0.300	9	615.8	919,308.00	0.677
1997	whole					3	207.6	21,517.00	0.047				
	western cut	2	*	*	*					1	*	*	*
	eastern cut	15	1,634.7	2,444,338.00	0.678	14	622.6	447,497.00	0.326	13	735.5	996,951.00	0.615
1998	whole	2	*	*	*	3	330.7	221,508.00	0.304				
	western cut	2	*	*	*								
	eastern cut	10	1,755.6	1,740,588.00	0.450	8	282.7	216,254.00	0.347	9	869.9	704,313.00	0.367
1999	whole	9	1,132.0	975,367.00	0.391	7	901.5	726,689.00	0.366	2	*	*	*
	western cut					1	*	*	*	1	*	*	*
	eastern cut	11	1,500.0	1,557,724.00	0.471	9	371.9	319,719.00	0.390	8	891.2	766,242.00	0.390
2000	whole	1	*	*	*	3	249.0	78,302.00	0.143	2	*	*	*
	western cut	1	*	*	*								
	eastern cut	5	1,545.5	1,785,118.00	0.524	4	100.7	68,960.00	0.311	5	171.3	180,738.00	0.479
2001	whole	3	53.9	34,226.00	0.288	2	*	*	*				
	western cut	2	*	*	*								
	eastern cut	7	2,174.3	1,690,796.00	0.353	7	395.1	245,879.00	0.282	7	451.0	358,333.00	0.360
2002	whole	1	*	*	*								
	western cut	1	*	*	*								
	eastern cut	6	1,443.3	1,765,196.00	0.555	6	292.2	262,836.00	0.408	6	576.1	543,668.00	0.428
All	whole	7	1,817.9	1,476,859.00	0.368	7	2,004.4	1,227,760.00	0.278	4	434.3	399,409.00	0.417
	western cut	2	*	*	*	1	*	*	*	1	*	*	*
	eastern cut	20	10,663.4	11,964,004.00	0.509	18	2,913.0	2,121,563.00	0.330	18	4,310.9	4,469,553.00	0.470

* Withheld for confidentiality.
Source: NPFMC Rockfish Database, Version 1.

Table 18. Secondary and Non-Allocated Species Product Weights, Product Revenues, and Average Product Prices of the Catcher Processor Sector in the Central Gulf of Alaska Rockfish Fishery (1996-2002).

	Pacific cod				Sablefish				Shortraker/rougheye			
Year	Vessels	Product weight (mt)	Product revenues ($)	Average product price ($)	Vessels	Product weight (mt)	Product revenues ($)	Average product price ($)	Vessels	Product weight (mt)	Product revenues ($)	Average product price ($)
1996	1	*	*	*	11	208.5	1,752,348	3.812	10	190.3	820,551	1.956
1997	12	30.1**	51,270**	0.774**	15	199.2	1,644,940	3.746	15	170.7	487,949	1.297
1998	9	61.7	108,733	0.799	9	228.4	1,446,786	2.874	8	238.2	464,478	0.885
1999	11	139.5	361,681	1.176	11	190.0	1,481,616	3.537	10	115.3	288,609	1.135
2000	5	27.3	72,843	1.210	5	140.4	1,285,190	4.152	5	211.9	747,070	1.599
2001	7	21.6	49,687	1.043	7	131.7	992,064	3.418	7	231.6	827,789	1.621
2002	6	26.5	61,858	1.059	6	141.4	1,099,037	3.527	6	182.0	545,592	1.360
All	18	306.7	706,072	1.044	21	1239.5	9,701,981	3.550	19	1340.0	4,182,038	1.416

	Thornyheads				Other			
Year	Vessels	Product weight (mt)	Product revenues ($)	Average product price ($)	Vessels	Product weight (mt)	Product revenues ($)	Average product price ($)
1996	11	42.2	283,229	3.044	11	85.0	129,793	0.693
1997	15	76.2	250,310	1.489	14	111.8	93,415	0.379
1998	8	80.6	297,737	1.676	10	144.6	144,656	0.454
1999	11	66.7	271,259	1.844	11	207.2	193,964	0.425
2000	5	94.0	371,515	1.792	5	206.1	227,632	0.501
2001	7	97.8	107,844	0.500	7	108.6	102,539	0.428
2002	6	98.3	276,398	1.276	5	70.2	76,927	0.497
All	21	555.8	1,858,292	1.517	21	933.4	968,926	0.471

* Withheld for confidentiality

** Includes amount from adjacent cell.

Source: NPFMC rockfish database, Version 1

2.4.7. Community and social conditions

Fisheries impact communities through the economic and social activities generated through participants in the different industry sectors and through supporting industry and business. Some information concerning these impacts can be gleaned from examining the residence of participants in the fisheries. Participation by residence estimates can be generated for each of the primary participating sectors, catcher vessels, catcher processors, and processors. In each case, care should be taken in evaluating the importance of the estimates, as the information available to estimate participation by residence will not fully reflect the distribution of regional and local impacts. For example, a vessel owner may not reside in the community that is used as a registered mailing address. In addition, participants in all sectors likely purchase inputs and hire crew from outside of their communities of residence. In addition, impacts of similar magnitudes will have differing importance with the size of the local and regional economy. Small communities could be greatly affected by impacts that are likely to go unnoticed in large cities.

Catcher vessel sector participation by community

Participants in the CGOA rockfish fisheries are from several different communities. CFEC vessel license files were used to estimate the participation by residency. Table 19 below shows catcher vessel landings by residency during the years 1996 to 2002. In addition, a complete list of vessels that are estimated to qualify for the program appears in Appendix 4.

The table shows that Kodiak residents dominate the catcher vessel sector in the fishery. Substantial catches are made by residents of Washington and states other than Washington and Alaska. Non-trawl participants are primarily from Alaska, as only one person from outside the State reportedly participated in any of the fisheries in the years shown.

Table 19. Central Gulf of Alaska Rockfish Landings of Catcher Vessels by Place of Residence (1996-2002).

Year	Gear	Community	Pacific Ocean perch		Northern rockfish		Pelagic shelf rockfish	
			Number of Participants	Catch (in metric tons)	Number of Participants	Catch (in metric tons)	Number of Participants	Catch (in metric tons)
1996	Non-trawl	Other Alaska					2	*
	Trawl	Kodiak	17	1,241.6	16	592.2**	17	182.7
		Other Alaska	1	*	1	*		
		Washington	3	*	2	*	3	*
		Other State	7	759.6	7	298.6	7	115.6
	Total		28	2,223.5	26	890.8	29	343.1
1997	Non-trawl	Kodiak			1	*	2	*
		Other Alaska					1	*
	Trawl	Kodiak	16	1,410.2	10	335.8	14	96.7
		Other Alaska	1	*				
		Washington	3	*	3	*	3	*
		Other State	6	615.3	5	346.4	6	83.7
	Total		26	2,264.8	19	811.6	26	210.3
1998	Non-trawl	Kodiak					1	*
		Other Alaska					1	*
	Trawl	Kodiak	13	1256.2**	13	779.4**	13	281.6**
		Other Alaska	2	*	2	*	1	*
		Washington	6	322.8	6	212.2	6	64.6
		Other State	9	779.5	9	763.5	9	273.1
	Total		30	2,358.4	30	1,755.1	31	619.2
1999	Non-trawl	Kodiak					2	*
	Trawl	Kodiak	13	968.2**	14	882.7**	14	504.8**
		Other Alaska	1	*	1	*	1	*
		Washington	8	806.6	8	457.0	8	471.3
		Other State	9	655.4	9	542.7	9	317.5
	Total		31	2,430.2	32	1,882.3	34	1,293.7
2000	Non-trawl	Kodiak					1	*
		Other Alaska					1	*
	Trawl	Kodiak	16	2183.3**	16	856.6**	16	1279.1**
		Other Alaska	1	*	1	*	1	*
		Washington	5	694.0	5	273.5	5	396.0
		Other State	9	1,135.3	9	578.2	9	576.8
	Total		31	4,012.6	31	1,708.3	33	2,251.9
2001	Non-trawl	Kodiak					3	6.4***
		Other Alaska					3	*
	Trawl	Kodiak	14	1437.5**	14	573.2**	14	411.3***
		Other Alaska	1	*	1	*	1	*
		Washington	6	535.9	5	184.2	6	359.3
		Other State	12	1,701.7	11	510.9	12	479.4
	Total		33	3,675.1	31	1,268.3	39	1,256.3
2002	Non-trawl	Kodiak					6	10.6***
		Other Alaska					1	*
		Other State					1	*
	Trawl	Kodiak	13	2011.3**	12	908.1**	13	554.4***
		Other Alaska	1	*	1	*	1	*
		Washington	8	1,004.5	7	522.6	8	321.7
		Other State	11	1,407.4	10	689.0	11	417.8
	Total		33	4,423.1	30	2,119.7	41	1,304.5

* Withheld for confidentiality

** Includes values for all cells for the same species and in same year with data suppressed for confidentiality

*** Includes values for cells immediately below with data suppressed for confidentiality

Note: Total tonnages may not agree with totals in other tables because of rounding errors.

Source: NPFMC Rockfish Database, Version 1 (2004).

As one of the largest ports in Alaska, vessels home ported in Kodiak participate in many of the State's largest fisheries. Over 1,500 fishing permit holders and over 150 owners of federally permitted vessels resided in Kodiak as of 2000. In excess of 100,000 metric tons of groundfish were delivered into Kodiak in 2000. Landings of other species (such as salmon and crab by Kodiak based vessels are also substantial; in 2000, vessels from the port landed over 200,000 metric tons of all species (NMFS/NPFMC, 2004). landings in Kodiak have Central Gulf of Alaska targeted rockfish catch typically averaged approximately 12,000 metric tons of landings in the qualifying years (1996 to 2002, inclusive), slightly more than 5 percent of the total 2000 harvest of Kodiak-based vessels. Similarly, fewer than 50 of the over 450

Kodiak-based catcher vessels participate in the CGOA rockfish fisheries. In general, one may conclude that the CGOA rockfish fisheries are of relatively minor importance to the Kodiak-based fleet.

Table 20 shows total landings by Kodiak-based vessels from 1995 to 2002. Table 21 shows total ex vessel gross revenues of Kodiak-based vessels from 1995 to 2002. Comparing the total catch and ex vessel revenues with catch and revenue from the rockfish fisheries, it is apparent that rockfish harvests are a relatively small portion of the total fishing activity in Kodiak. Notwithstanding this apparently small contribution to overall catch of Kodiak catcher vessels, some participants report that the fishery is important to their operations. These participants suggest that the marginal income from the fishery is important to their overall returns. As such, the fishery could also be of some importance to the trawl catcher vessel contribution to the Kodiak economy to the extent that it is important to the operations of these Kodiak groundfish vessels.

A brief profile of the Kodiak economy is included as Appendix 5 to this document.

Table 20. Landings by Kodiak vessel owners (in metric tons) (1995-2002).

	1995	1996	1997	1998	1999	2000	2001	2002
Groundfish (fixed gear, inc. jig)	16,949	17,903	18,887	17,236	20,115	15,795	11,541	13,375
Groundfish (trawl)	65,821	84,963	83,340	75,018	65,627	56,712	51,770	50,670
Halibut and sablefish (all gear)	3,845	4,591	6,340	6,628	7,073	6,569	6,646	6,376
Herring	5,253	6,073	7,188	6,057	5,276	3,998	4,142	4,650
Crab and other shellfish	16,275	15,527	19,101	19,617	15,482	4,021	3,852	3,419
Salmon	39,729	10,935	12,881	25,471	19,367	15,456	24,572	21,089
Total	147,872	139,992	147,737	150,027	132,940	102,551	102,523	99,579

Source: NPRB/NPFMC Fishing Community Profiles (2004)

Table 21. Ex vessel gross revenues of Kodiak vessels (in $1,000) (1995-2002).

	1995	1996	1997	1998	1999	2000	2001	2002
Groundfish - fixed gear (inc. jig)	7,961	7,620	8,564	6,857	12,332	10,998	6,135	6,480
Groundfish - trawl	17,110	20,806	22,495	12,104	16,894	14,623	11,440	10,695
Halibut and sablefish (all gear)	14,494	19,128	25,289	16,772	27,869	31,312	25,365	26,747
Herring	5,256	6,615	2,127	2,016	2,322	987	1,462	1,329
Crab and other shellfish	31,535	26,053	26,397	30,440	42,558	20,220	18,944	19,530
Salmon	23,593	12,318	9,432	14,955	16,542	11,321	10,515	6,230
Total	99,949	92,540	94,304	83,144	118,517	89,461	73,861	71,011

Source: NPRB/NPFMC Fishing Community Profiles (2004)

Catcher processor participation by community

Since few catcher processors participated in the rockfish fishery, disaggregation of data showing rockfish harvest by catcher processors on a community basis is not possible. Table 22 shows the number of catcher vessels participating in the CGOA rockfish fisheries by year and residence of owner from 1996 to 2002. The table shows that most participants are Seattle-based. Two participants are based in other Washington state communities, while the remainder are from Kodiak, Alaska.

Table 22. Catcher processor participation by year and residence of vessel owner (1996-2002).

Year	Kodiak	Seattle	Other Washington	Total
1996	1	8	2	11
1997	3	12		15
1998	2	8		10
1999	1	10		11
2000		5		5
2001		5	2	7
2002	1	5		6
Total	3	16	2	21

The CGOA rockfish catcher processor fleet is mostly Seattle-based. This fleet, however, is a relatively small part of the large and diverse economy of Seattle. In addition, the CGOA rockfish fisheries are a relatively small contributor to the large fishery interests in Seattle. Although CGOA rockfish fisheries may be important to the Seattle-based participants in these fisheries, the effects of these fisheries are largely overshadowed by both the large fishing and processing industry in Seattle and the general Seattle economy as a whole. A brief profile of the Seattle economy is attached as Appendix 6.

Processor participation by community

Information concerning participation in the processing sector appear in Table 9, Table 10, and Table 11 above. As noted, all qualified processors are Kodiak based. Processing from other communities cannot be reported, with the exception of the processing of less than 40 metric tons by processors in Seward. Since the only consistent processing history in the CGOA rockfish fishery is based in Kodiak, the remainder of this section addresses Kodiak processing. In addition, a profile of Kodiak is provided in Appendix 5.

Table 23 shows first wholesale revenues of Kodiak processors by species from 1995 to 2002. Revenues from CGOA rockfish species are less than 5 percent of the annual first wholesale revenues of Kodiak processors. Additional revenues are realized through the processing of secondary species harvested in the rockfish fisheries, which add substantially to the revenues of the rockfish fisheries. Processing of catch from the CGOA rockfish fishery is a relatively small portion of processing in the Kodiak (less than 15 percent of total first wholesale revenues when secondary species revenues are included), the fishery does contribute to the overall stability of processing in the community. This role is currently relatively minor, as the fishery is prosecuted for a very short time in the first few weeks of July. The timing of the rockfish fishery, however, currently conflicts with the pink salmon fishery. Most of the rockfish processors also participate in the salmon fisheries and struggle to meet demands arising from the rockfish fisheries and salmon fisheries. These conflicting seasons are challenging for processors that wish to compete in both fisheries as they attempt to simultaneously maintain space and crews for both fisheries.

Table 23. First wholesale revenues of Kodiak processors by species (in dollars) (1995-2002).

	1995	1996	1997	1998	1999	2000	2001	2002
Pollock and Pacific cod	57,676,104	74,447,330	52,606,288	62,626,309	73,412,002	65,668,095	61,323,482	48,575,665
Halibut and sablefish	22,534,581	28,599,072	38,441,173	23,860,232	28,866,143	27,739,523	28,616,318	27,446,192
King and Tanner crab	2,654,974*	704,546*	*	*	4,203,092*	4,584,558*	5,967,458	1,089,537*
Salmon	66,763,214	43,060,335	35,888,729	50,271,584	43,650,579	38,110,324	37,396,170	30,106,365
Herring	-	*	*	-	*	*	1,853,842	1,404,470
Other species	24,767,659	28,047,928	23,114,831	17,821,898	13,993,704	22,521,273	17,958,508	19,388,585
Total	174,396,532	174,859,211	150,051,021	154,580,023	164,125,520	158,623,773	153,115,778	128,010,814

* Excludes some or all of value, withheld for confidentiality.

Source: NPRB/NPFMC Fishing Community Profiles (2004)

2.5. Analysis of the alternatives

This section analyzes each of the alternatives, comparing the alternatives to each other and to the baseline condition in the fishery. Assessing the effects of the alternatives involves some degree of speculation. In general, the effects arise from the actions of individual participants in the fisheries under the incentives created by the different alternatives. Predictability of these individual actions and their effects is constrained by the novelty of the programs under consideration and incompleteness of information concerning the fisheries, including the absence of complete economic information and well-tested models that predict behavior under different institutional structures. In addition, unpredictable factors, such as conditions in different fisheries and of the different stocks and condition of the overall economy, could influence the responses of participants under the alternatives.

To examine the impacts of the alternatives, the analysis begins by considering practices and participation in fishing and processing that are likely to arise under the various management systems proposed by the alternatives. These differences in fishing and processing practices, together with the management changes, drive environmental, economic, and socioeconomic impacts. Through this methodology, all of the different impacts are brought to light, allowing the reader to evaluate the potential significance of impacts of the different alternatives.

In addition to the main pilot program fishery, all of the pilot program alternatives provide for an entry level fishery that is allocated 5 percent of the TAC of the CGOA target rockfish species. To simplify and provide a more coherent analysis, the entry level fishery is analyzed separately from the main pilot program fishery.

2.5.1. Effects on management, monitoring, and enforcement

The current rockfish fisheries are managed at the fleet level. Managers monitor fleet harvests attempting to time their closure announcement with full harvest of the TAC, reserving a relatively minor amount of rockfish to support incidental catch of rockfish in fisheries later in the year. The allocations under most of the pilot program alternatives would require substantial change in this management.[23] Season timing and length will change to allow recipients to slow the rate of fishing and fish at different times than the traditional July season. Monitoring will need to be modified so that these allocations are monitored at the individual or cooperative level. In addition, observer requirements will also need to be modified to suit the new system of allocations.

In addition to the management of the various allocations in the primary fishery, a monitoring program will need to be developed for the entry level fishery. Since the entry level fishery will be conducted under the same regulations under all of the pilot program alternatives, the entry level fishery is analyzed independently after the other pilot program alternatives.

Lastly, under all of the pilot program alternatives, an incidental catch allowance (ICA) of target CGOA rockfish would be set aside prior to the allocations to the pilot program and the entry level fishery to support incidental rockfish catch in other CGOA fisheries. The determination of the ICA is also discussed below at the end of this section.

This section briefly summarizes management, monitoring, and enforcement requirements under the program. A more detailed description appears in the Environmental Assessment in 3.4.1 below.

[23] The catcher processor sector allocation would be managed at a fleet level in a manner similar to the offshore sector allocation under the AFA.

Status quo

Under its current management, the rockfish fisheries are conducted as a limited access race for fish. Managers must first manage the LLP, under which license holders must declare their intention to use a license on a vessel with the NOAA Fisheries.

Non-trawl fishing in the rockfish fisheries begins on January 1st. The trawl season typically opens in early July and ongoing catch is monitored by managers with the closing timed to coincide with harvest of the TAC.[24]

Under the current management, observer coverage varies with vessel size. In general, vessels that are 125 feet or longer LOA are required to have 100 percent observer coverage. Vessels under 125 feet and 60 feet or greater in length are required to have 30 percent observer coverage. Vessels under 60 feet have no observer requirement. Shoreside and floating processors that process in excess of 1,000 metric tons of groundfish in a calendar month are required to maintain 100 percent coverage to observe landings. Shoreside and floating processors that process less than 1,000 metric tons and more than 500 metric tons of groundfish in a calendar month are required to maintain 30 percent observer coverage (CFR §679.50).

Catcher processor sector allocation with cooperatives

Under this alternative, the catcher processor sector would receive allocations of target rockfish, secondary species, and halibut PSC. Eligible catcher processors would then have the option of joining a cooperative, which would fish an allocation (target rockfish, secondary species, and halibut PSC) based on the collective histories of its members in accordance with a cooperative agreement, or fishing in a limited access fishery, which would receive an allocation based on the collective histories of non-members of cooperatives. Since these two different types of allocations would be managed differently, the discussions of management of cooperatives and the limited access fishery are separated.

The implementation of the program will require that NOAA Fisheries determine the pool of eligible persons for the catcher processor sector, the sector allocation and the individual histories of eligible persons. Cooperative agreements will be filed with NOAA Fisheries every two years, which must be reviewed for adequacy (including monitoring plan). NOAA Fisheries will be required to make annual catch allocations to cooperatives (based on member histories) and to the limited access fishery.

NOAA Fisheries would require that all participants in the pilot program to submit an annual registration in the fall prior to the year in which the fishing occurs. This requirement provides NOAA Fisheries with the time necessary to incorporate any allocations to participants in the program in the annual TAC specifications process.

Under all of the pilot program alternatives, cooperatives would be permitted to fish their allocations during an extended season. The length of the season, however, will be set to balance the interests of participants in distributing landings over a longer period of time each year and the conservation interest in managing stocks and catch in the fishery. Depending on the season opening and closing dates, harvests in the fishery could take place prior to completion of rockfish reproduction. A discussion of the issue of having the season open during rockfish reproduction is contained in 3.4.3.

Any fishing under the pilot program, including primary and secondary species, and the entry level trawl fishery would need to be conducted during this time period. This limitation is necessary to accommodate

[24] Additional information concerning current management appears in the description of the affected environment above.

the additional management responsibilities from expanded observer requirements and to ensure adequate ability to manage catch, including halibut PSC.

The current July season start date for the rockfish fishery is intended to reduce halibut PSC. While the pilot program is intended to increase the industry's ability to respond to the changing market needs, NOAA Fisheries has some concern that expanding the fishery into new time periods could affect halibut PSC and incidental catch of species not allocated under the program. Additionally, the July start date was established to reduce potential conflicts with the sablefish trawl survey, which typically occurs in early summer. Season dates will be set to provide a reasonable degree of additional flexibility.

This season extension and the exclusive allocations could require substantial monitoring increases on vessels that fish cooperative allocations. Management of allocations will require that all catch under the program be monitored. To meet this end, a protocol will need to be developed for participants in the program to notify NOAA Fisheries when fishing will be conducted under pilot program. For catcher processors, notices will be required prior to initiating a trip,to ensure adequate observer deployment. The notification would establish a default assumption that any fishing on the trip would be under the program. During the trip, fishing outside of the program could take place. Prior notice will be required to allow observers onboard to make adjustments in coverage to suit the fishing activity. This system would effectively require haul-by-haul notification of whether fishing is under the program, if the catcher processor intends to engage in both fishing under the program and outside the program on a single trip. The specific notification requirements will be developed to accommodate operational flexibility needs of participants and management, monitoring, and enforcement needs of NOAA Fisheries. NOAA Fisheries would establish minimum standards for the catcher processor fleet, specifically two observers or an alternative approved fishing plan (with each haul observed), flow scales, a sampling station with a motion-compensated platform scale (to verify accuracy of the flow scale), and an individual catch monitoring plan that would be consistent with existing standards in other fisheries. Information gathered onboard vessels would be used to validate catch accounting by inseason management. The individual catch monitoring plan could include a provision that would allow NOAA Fisheries to approve an alternative method of monitoring, if there is sufficient evidence to suggest that the fishery can be effectively managed and monitored and provide adequate information to enforcement using an alternative protocol.

Management of the limited access fishery would differ substantially from the management of cooperatives. This fishery would continue to be prosecuted early in July, with managers monitoring harvests and timing the closing of the fishery to coincide with harvest of the sector TAC. Observer coverage would continue to be maintained at its current level for this fleet to ensure adequate information for managing harvests and monitoring the fleet. Participation in the limited access component cannot be predicted. If most catcher processors choose to join cooperatives, however, it is possible that the allocation could be so small that the fishery would be opened for a very limited time, the length of which would be announced prior to the opening (e.g., a 12-hour opening announced prior to fishing). The length of any such opening would be based on estimates of harvest rates from previous seasons or openings and the estimated effort of participating vessels. If the amount of fish remaining available after the closure is adequate to support an additional opening (without overage), an additional opening could be scheduled.

In addition to managing target rockfish harvests, NOAA Fisheries would also be required to manage secondary species allocations to the limited access fishery. Catcher processors will receive secondary species allocations of sablefish, thornyheads, shortraker, and rougheye. These secondary species allocations are based on historic harvests when targeting rockfish and are intended to operate as hard caps on total harvests of each species. In a limited access fishery, management of non-target species is historically accomplished with an MRA. NOAA Fisheries would continue to use MRAs to manage

allocated secondary species. The levels of the MRAs, however, will be adjusted to a level that is likely to maintain catch levels of secondary species in the limited access fishery below the allocated amount.

To maintain catch below the allocated amount, MRA levels will need to be adjusted downward substantially. Since the allocated secondary species are valuable, and NOAA Fisheries has historically managed their catch using the MRAs, historical catch of these secondary species (on which the allocations are based) has been below the current MRA levels.[25] As a result, the allocations of secondary species are substantially less than would be available for harvest, if the current MRAs are maintained. Adjustment of the MRAs downward will be used to limit the incentive to target secondary species and maintain catch to a level below the allocation. Specific MRA levels will be set based on the relative allocations of target rockfish and secondary species.

Non-allocated species will also need to be managed in the limited access fishery. These species will be managed under existing MRAs, with the exception of Pacific cod, which will be managed with a revised MRA of 4 percent of the target rockfish. Initially, the Council considered allocating Pacific cod to catcher processors in a manner similar to allocated secondary species. This could result in an allocation that is not adequate to support prosecution of the targeted rockfish allocation by catcher processors, as catcher processors have relatively low historic levels of harvest of Pacific cod (see Table 5). The revised MRA is intended to restrict Pacific cod harvests to a level similar to historic levels, using an MRA that allows discards to ensure that Pacific cod does not restrict harvest of target rockfish.

In addition to managing aspects of the rockfish target fishery, NOAA Fisheries would need to approve, monitor,and manage sideboards. Catcher processor sideboards have a few aspects that must be considered.

First, an overall sector sideboard would limit harvest of eligible catcher processors from July Bering Sea, Aleutian Islands, and Gulf of Alaska fisheries, other than the CGOA rockfish fisheries. To manage and monitor this sideboard, the NOAA Fisheries would require that vessels that are subject to the sideboard make a declaration prior to fishing in any sideboarded fishery during July.

Any participant who intends to, or does, participate in any of these fisheries prior to commencing fishing in July must have adequate observer coverage on board the vessel so that all catch harvested during a sideboarded fishery will be assessed against the overall sector harvest limit. NOAA Fisheries would not provide an individual allocation of sideboard fisheries, but will establish a sector allocation.

Second, NOAA Fisheries must monitor any applicable standdowns in the BSAI and Gulf of Alaska non-pollock groundfish fisheries. These standdowns are intended to operate as sideboards, preventing rockfish participants from encroaching on other fisheries. Standdowns have a maximum length of two weeks, but could be shorter. If a participant joins a cooperative and that cooperative begins fishing the person's allocation prior to July 1, the traditional start date for the fishery, a two week standdown will apply to that participant during July. If the cooperative to which a participant belongs chooses to begin fishing the person's allocation on the traditional July opening the standdown would last either 2 weeks or until 90 percent of any annual allocations stacked with the participant's are fished. NOAA Fisheries will require participants subject to standdowns to report fishing activities during the period of the standdown and announce trips. Monitoring the 90-percent harvest requirement will be simplified because of the requirement of complete observer coverage and weighing of harvests.

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[25] Table 5 above shows that historic harvests of secondary species are substantially below the current MRAs.

Third, NOAA Fisheries must manage and monitor cooperative sideboards, which could be used to limit each cooperative to its historic catch in each of the July Gulf of Alaska groundfish fisheries other than target rockfish, in place of the standdowns. To use a cooperative sideboard, in lieu of standdowns, members of a cooperative will be required to submit to NOAA Fisheries a cooperative management plan that demonstrates that the cooperative will actively and adequately monitor harvests of members to ensure compliance with the harvest limitations of the cooperative sideboard. NOAA Fisheries has not yet developed a suite of measures that would need to be in place in order for a cooperative to manage its sideboarded fisheries without being subject to a specific standdown. Essentially, NOAA Fisheries would require a catch monitoring plan from the cooperatives sufficient to ensure that catch is adequately accounted for, monitored, and reported.

Catcher processor cooperative with individual allocations

Under the catcher processor cooperative program, catcher processors would have the option of fishing an individual allocation or joining a cooperative, which would fish the collective allocations of its members in accordance with a cooperative agreement. Management (including implementation) and monitoring of fishing of these allocations will be accomplished in the manner that cooperative allocations are managed under the catcher processor sector allocation with cooperatives alternative described above. No limited access fishery for eligible catcher processors would be created under this alternative.

Catcher Vessel Cooperative with Limited Processor Entry

Under the catcher vessel cooperative with limited processor entry program, catcher vessels would have the option of joining a cooperative (which would fish an allocation based on the cumulative history of its members) or fishing in a limited access fishery (which would receive an allocation based on the history of all non-members). The two types of allocation would require two different management approaches.

As under the catcher processor alternatives, implementation of the program will require that NOAA Fisheries determine the pool of eligible persons for the catcher vessel sector, the sector allocation and the individual histories of eligible persons. In addition, processor eligibility would be determined, based on processing histories. Cooperative agreements will be filed with NOAA Fisheries every two years, which must be reviewed for adequacy (including monitoring plan). NOAA Fisheries will be required to make annual catch allocations to cooperatives (based on member histories) and to the limited access fishery.

As under the catcher processor alternatives, NOAA Fisheries would require that all participants in the pilot program in this sector submit an annual registration in the fall, prior to the year in which the fishing occurs, to facilitate the incorporation of allocations in the annual TAC specifications process.

Cooperative allocations would be fished during the extended season described under the catcher processor alternatives. Fishing of exclusive allocations during an extended season will require a substantial increase in monitoring above the current levels, but because catch is processed on-shore management changes would differ from those for catcher processors. Management of allocations will require that all catch under the program be monitored. As a precursor to this monitoring, participants will need to make announced rockfish pilot program trips, to distinguish rockfish pilot program fishing from participation in other fisheries and allow deployment of adequate observer coverage. All fishing in a trip under the program would be exclusively under the program. Using this system of exclusive trips would also facilitate shoreside monitoring of offloads and account of catch against allocations. Beyond these requirements NOAA Fisheries intends to develop monitoring programs to ensure adequate but efficient monitoring.

NOAA Fisheries intends to develop monitoring appropriate to the fishing activities of the participants. While NMFS expects that most catcher vessel catch accounting will take place shoreside, monitoring for compliance with discard and retention requirements, and sampling to determine the quantity and

composition of discards will be necessary components of this program. NMFS is investigating the potential for use of video to address some of these information needs, but some level of at-sea observer coverage will be necessary for both monitoring purposes and collection of scientific data. In addition, the use of video monitoring is questionable for enforcement purposes. Resolution of issues involving chain of evidence, reliability, and admissibility in court remain to be addressed prior to use of video monitoring for some enforcement purposes. NMFS is currently engaged in a process to define monitoring information needs and evaluate alternative monitoring strategies for this program.[26]

Monitoring allocations of halibut PSC will be problematic because NMFS would not be able to use a vessel specific rate for unobserved trips or for unobserved hauls on observed trips. It is possible that some form of fleetwide rate would have to be developed.

An added advantage of experimentation with novel observer and monitoring practices in the rockfish pilot program is that the experimentation could provide evidence of the utility of this approach to the Council and NOAA Fisheries in the development of methods for implementing efficiencies in observer coverage and monitoring on a larger scale in forthcoming management actions, such as the comprehensive Gulf groundfish rationalization program. The development of observer and monitoring alternatives on a small scale could reduce the potential risks and provide useful lessons concerning their application in broader management settings.

In addition to the management of the exclusive cooperative allocations, NOAA Fisheries would need to manage the limited access fishery for participants that choose not to join cooperatives. The management of the limited access fishery would be the same as described under the catcher processor sector allocation with cooperatives alternative above.

In addition to the monitoring described above, all offloads will be monitored. This monitoring will ensure compliance with the harvest limitations of the various allocations under the program, as well as serving general management purposes.

Sideboards will also be managed and monitored by NOAA Fisheries for the catcher vessel sector under this alternative. Participants eligible for the catcher vessel sector will be limited to their aggregate historic catch of total catch of target species for Gulf fisheries that close because of harvest of the TAC (generally rockfish fisheries). In addition, participants in the sector will be limited to their aggregate historic catch of halibut in fisheries in the Gulf that close because of halibut bycatch (generally flatfish fisheries). Also, eligible catcher vessels will be limited to their historic catch of Pacific cod in the Bering Sea and Aleutian Islands Pacific cod fisheries. Lastly, eligible catcher vessels will be prohibited from participating in the directed yellowfin sole, other flatfish, and Pacific Ocean perch fisheries in the Bering Sea and Aleutian Islands during the month of July.

To manage and monitor this sideboard, the NOAA Fisheries would require that vessels that are subject to the sideboard to make a declaration prior to fishing in any sideboarded fishery during July. Any participant who intends to, or does, participate in any of these fisheries prior to commencing fishing in July must have adequate observer coverage on board the vessel so that all catch harvested during a sideboarded fishery will be assessed against the overall sector harvest limit. NOAA Fisheries would not provide an individual allocation of sideboard fisheries, but will establish a sector allocation.

[26] As part of a larger ongoing alternative observer deployment project taking place in Kodiak this summer, NOAA Fisheries, in cooperation with Pacific States Marine Fisheries Commission, hopes to assess the feasibility of video monitoring of illegal discards in an environment where some discard is required. Results from this project could affect some decisions concerning appropriate monitoring.

Catcher Vessel Cooperative with Processor Association

As under the other catcher vessel alternative, participants in the catcher vessel cooperative with processor association program would also have the option of joining a cooperative (which would fish an allocation based on the cumulative history of its members) or fishing in a limited access fishery (which would receive an allocation based on the history of all non-members). As noted in the description of management under the catcher processor cooperative with limited processor entry program, these two types of allocations require different management approaches. Since the allocations and fishing activity under the two alternatives are similar, implementation and management of the fishery under this alternative is very similar to that described under the catcher cooperative with limited processor entry program above. One difference is that at implementation, NOAA Fisheries will be required to determine cooperative eligibility (i.e., processor associations) for each eligible catcher vessel participant. Sideboards under this alternative are also the same as those described under the other catcher vessel alternative and will be managed as described under that alternative above.

Entry Level Fishery

Entry level fishery allocations totaling 5 percent of the TAC of CGOA rockfish (approximately 750 metric tons at current TACs) will be made to trawl and non-trawl catcher vessel sectors. Since the allocations to these sectors will differ, the fisheries will be managed differently.

As under the main pilot program alternatives, NOAA Fisheries would require all participants in an entry level fishery to submit an annual registration in the fall, prior to the year in which the fishing occurs, to facilitate the incorporation of the entry level fishery allocations in the annual TAC specifications process.

The trawl sector will be allocated 2.5 percent of the TAC of GOA rockfish in the aggregate. This allocation is to be first made from the TAC of Pacific Ocean perch. Using this approach, the trawl sector would likely be allocated only Pacific Ocean perch, as that species has accounted for in excess of half of the TAC of target CGOA rockfish in recent years. If the Pacific Ocean perch TAC declined relative to the TACs of northern rockfish and pelagic shelf rockfish, it is possible that some northern rockfish and pelagic shelf rockfish could be allocated to the entry level trawl sector. The rationale for allocating Pacific Ocean perch first to the trawl sector is that the non-trawl sector has no harvest history of the species. A relatively small allocation of Pacific Ocean perch would be available for non-trawl participants at the current TACs.

The trawl allocation would be divided equally among all applicants for the entry level program. Although the number of participants in this sector cannot be predicted, 208 LLP licenses are endorsed to use trawl gear in the CGOA. Any vessels with target participation in the rockfish fishery between 1996 and 2002 are eligible for the main program, preventing their participation in the entry level program. This leaves in excess of 150 license holders that could participate in the entry level fishery. Despite the large number of persons eligible for the fishery, the trawl fishery could draw few applicants as the allocation is relatively small and potential participants have no experience in the fishery.

Each applicant for the entry level trawl fishery would receive an equal allocation from the trawl entry level sector allocation. These individual allocations would be generally managed similarly to the allocations to catcher vessels under the main program. The season for harvesting these allocations will be the same as that for the main program. To harvest an allocation, a participant would need to declare their trip as a rockfish trip. All harvests on the trip would be subject to the rules of the rockfish program and would count against the rockfish allocation. The participant would be required to comply with monitoring requirements defined for the rockfish program on that trip. The management of the entry level allocations would differ from management under the main program because secondary species would be managed under the current MRAs in the entry level fishery (see Table 5 above for current MRAs). Entry level trawl

allocations will require adequate and reliable monitoring of allocations, which will likely be similar to the monitoring of the main program, but may not require as extensive observer coverage since secondary species are governed by MRA and not allocations. The monitoring must be adequate to ensure compliance with the allocations.

Given current TACs, the ability of NOAA Fisheries to effectively manage the trawl portion of the entry level fishery could be limited, if a substantial number of applications for the entry level trawl fishery are received. If the allocation to the trawl portion of the entry level fishery is unlikely to result in individual allocations that can be effectively managed by NOAA Fisheries, manageable allocations to that portion of the entry level fishery may not be possible. If this situation arises, NOAA Fisheries may choose not to open the fishery, to avoid exceeding the allocation to this entry level component and the overall TAC.

The non-trawl sector will be allocated 2.5 percent of the TAC of CGOA rockfish in the aggregate. The non-trawl sector entry level fishery would be conducted on a limited entry basis, which would result in the management of that fishery in a manner similar to current management. The season for the non-trawl sector will open January 1st and remain open until the TAC is fully harvested. The ability of the non-trawl sector to harvest the TAC cannot be predicted. In the past, the non-trawl sector has had limited harvests of CGOA target rockfish, harvesting less than 20 metric tons in any year (see Table 3 and Table 4 above). The allocation of rockfish under this program will be approximately 375 metric tons. Since it is possible that the non-trawl sector may be unable to harvest this allocation, provision is included to make the unharvested portion of the allocation available to all participants in the entry level fishery (including trawl participants) at the start of the 4th quarter.

To manage trawl harvest of the remaining entry level portion at the start of the 4th quarter will require that the agency conduct a limited access fishery, similar to limited entry components of the main program. Management will require that the agency estimate the catching power of the fleet and either monitor harvests to ensure that the fishery does not overharvest the allocation or use timed openings (e.g., 12 or 24 hour openings) to limit catch of the fleet. The specific management will depend on the number of participants in the fishery and the amount of fish to be harvested. To have a reasonable estimate of the number of vessels participating in the fishery, NOAA Fisheries will require an additional application for participation in this late season fishery. The fishery will only be open to persons that participated in the earlier entry level fishery and who also apply for the late season opening. Non-trawl participants may also participate in this fishery and would likely have their catch limited by the harvest of the entry level TAC by trawlers. Given the small allocations, and the likelihood that trawl vessels could rapidly harvest any allocation, it is unlikely that the unharvested portion of the non-trawl allocation would be opened to the trawl sector.

Incidental Catch Allowance

To ensure that other fisheries are not affected by the rockfish pilot program, an ICA will be implemented to support rockfish incidental catch in other groundfish fisheries. In other directed groundfish fisheries, harvest of CGOA rockfish is limited by MRA (§679.20(e) and Table 10 to Part 679). The ICA would be set based on historic incidental harvest of CGOA rockfish in other directed fisheries in recent years. NOAA Fisheries will likely set the ICA liberally (i.e., relatively high) to ensure that incidental catch of CGOA rockfish does not result in a closure of other directed fisheries. Doing so would be consistent with existing fishing practices, since CGOA rockfish incidental catch has not historically resulted in closures of other directed groundfish fisheries.

Table 24 shows the annual total catch of Pacific Ocean perch, northern rockfish, and pelagic shelf rockfish in the CGOA by trawl gear in the non-rockfish target.[27] Catch of all three rockfish species have fluctuated greatly during this time period. For example, the lowest incidental catch of pelagic shelf rockfish was in 2003, when only 41 metric tons were harvested. In the previous year, more than 5 times that amount was caught incidentally. Similar disparities occur in the incidental harvest of both Pacific Ocean perch and northern rockfish. Based on the wide range of incidental catch, NOAA Fisheries believes that its first year ICAs would be approximately 600 metric tons for Pacific Ocean perch, 300 metric tons for northern rockfish, and 200 metric tons for pelagic shelf rockfish. These liberal allowances should be adequate to support incidental catch of rockfish in directed fisheries for other groundfish. Using these ICAs, the agency would initially manage harvests of CGOA rockfish using the MRA. If catch rates indicated that an allocation was adequate to support incidental catch through the year, NOAA Fisheries would employ its usual management measure of putting a species on prohibited species status to deter incidental catch and prevent rockfish bycatch from resulting in a premature closure of other directed fisheries.

Table 24. Incidental catch of Pacific Ocean perch, northern rockfish, and pelagic shelf rockfish in CGOA trawl non-rockfish directed groundfish fisheries (1995-2004).

	Year										Average
Species	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004**	
Pacific Ocean perch	573	635	384	226	352	592	323	373	557	168	418
Northern rockfish	397	267	102	173	128	235	187	255	57	114	192
Pelagic shelf rockfish*	192	169	129	146	79	171	104	222	41	36	129
Total	1,162	1,071	614	545	560	999	614	850	655	319	739

*Pelagic shelf rockfish includes dusky, widow, and yellowtail.

** 2004 data are through 10/09/04.

Source: NMFS, Alaska Region, blend databases.

2.5.2. Effects on harvest participation and fishing practices

Patterns and levels of harvester participation in the CGOA rockfish fisheries are likely to vary under the different alternatives. Under the status quo alternative participation is likely to be similar to current participation. Likewise, under the catcher processor sector allocation, participation in that sector will likely continue to be similar to current participation. Under the cooperative program alternatives, however, participation could change substantially, as cooperative members coordinate and consolidate fishing and distribute their harvests over a greater portion of the year. This section discusses the specific impacts on harvester participation and patterns.

Status quo

Under the status quo, the CGOA rockfish fishery would remain under its current management. Table 2 shows the number of LLP licenses with CGOA endorsements by vessel and gear type. Table 3 above shows historic participation from 1996 to 2002 by sector. Maintaining current management is likely to result in the continuation of existing fishing practices and patterns. In the current fishery, the non-trawl fishermen take very little of the TAC between the opening on the non-trawl fishery in January and the opening of the trawl fishery in July. Trawl fishermen race for catch of rockfish when the trawl season opens in July. Typically, Pacific Ocean perch are caught first, followed by northern rockfish and pelagic shelf rockfish. In the past, catcher processors have caught more rockfish than catcher vessels. In recent years, however, the portion of the TACs caught by catcher vessels has increased and surpassed the catch of catcher processors.

[27] Since non-trawl catch of rockfish is very limited, incidental catch of rockfish by trawl gear in directed fisheries for other groundfish is adequate for determining the ICA (see Table 3 above).

The quality of fish harvested likely suffers from the race for fish. Rockfish are considered relatively difficult to handle because of their spines and scales. These characteristics are said to make it more difficult to maintain quality when racing to maximize catch. In addition, harvesters that try to maximize catch on a tow are likely to overstuff their nets, which also can affect fish quality. Catcher vessel holds typically use refrigerated sea water to maintain quality.

Secondary species (such as Pacific cod, sablefish, thornyhead, shortraker, and rougheye) are often harvested on separate tows from the target rockfish.[28] Rockfish fishermen typically receive a higher price for these fish, but processors demand better handling and quality. To meet these demands, catcher vessels often separate their secondary species harvests, carrying them in iced totes, rather than in the refrigerated sea water of their holds.

Trawl catcher processors must not only harvest fish rapidly, but also must process that fish rapidly, to maintain quality and accommodate additional catch. Discards can occur if the fish is not processed quickly enough to maintain its quality. Rockfish are generally considered more difficult to handle and process than species such as pollock and Pacific cod because of their spines and scales. These fish characteristics complicate efforts to rapidly process the fish for catcher processors. Larger vessels that can process catch more quickly and have larger holds likely have some advantage over smaller vessels that cannot move fish through their plants as quickly.

Given the number of endorsed LLP licenses substantially exceeds the number of vessels historically participating, substantial growth in participation could occur. Whether new entry would occur depends largely on whether potential entrants perceive a gain from entry. With the current short seasons, most LLP holders are unlikely to perceive substantial gain from entering the fisheries. As a result, modest (if any) increase in participation should be expected if current management is maintained.

Entry by non-trawl participants depends on whether participants in that sector are able to realize significant returns for harvests. Potential for success of non-trawl entrants is not apparent, given the historical participation of these vessels. Between 1996 and 2002, 22 vessels collectively harvested less than 17 metric tons of over 16,000 metric tons harvested from the pelagic shelf rockfish fishery. Only one non-trawl vessel participated in the northern rockfish fishery, so no information on catch can be released. No non-trawl vessels participated in the Pacific Ocean perch fishery. Whether future non-trawl participants will be able to succeed in the fishery cannot be determined. Growth is most likely to occur in the pelagic shelf rockfish fishery, the only fishery in which non-trawl participants have shown any consistency in participation. Jig participants have expressed the most interest in entry to the fisheries among non-trawl fishermen. Since small jig vessels can enter without an LLP license, it is possible that jig participation could rise if the current management is continued. Whether entry of jig vessels could substantially increase the take by non-trawl vessels cannot be predicted.

Trawl entry is only likely to occur if new entrants believe that they can make substantial harvests in the short fishery. To enter, participants would have to forego opportunities in other fisheries and would need to compete for landings with current participants. Currently, the opening of the Aleutian Islands Pacific Ocean perch, Bering Sea flathead sole, and the rex sole and deep-water flatfish fisheries in the Gulf of Alaska and the Western Gulf of Alaska rockfish fisheries coincide with the opening of the CGOA rockfish fisheries. These simultaneous openings distribute effort across fisheries and areas and are likely

[28] Table 29 includes observer data that show the incidental catch of Pacific cod, sablefish, shortraker, rougheye, and thornyheads by trawl tows targeting CGOA rockfish. These data show that incidental catch rates of these species are relatively low in tows targeting rockfish, suggesting that the catch of these species in the rockfish fishery is made in tows that target the secondary species.

to help curtail entry by fishermen eligible for the CGOA rockfish fisheries that perceive these other opportunities. In addition, the trawl rockfish seasons are likely to remain relatively short (i.e., a few weeks at most) limiting learning time for new entrants.

One factor in the current management of the rockfish fisheries arises from the division of the TAC for shortraker and rougheye rockfish, which have historically been managed using a combined TAC. Under the new division the 2005 Central Gulf shortraker TAC is 324 metric tons, while the 2005 Central Gulf rougheye TAC is 557 metric tons. NOAA Fisheries estimates that shortraker catch accounts for 57 percent of the combined catch of shortraker and rougheye. Based on this estimation, it is possible that the shortraker TAC will be inadequate to support historic catch levels of that species in all fisheries, including the CGOA target rockfish fisheries. Whether the catch of shortraker by rockfish participants and participants in other fisheries would result in that species being put on PSC status or other limitations on catch or retention cannot be determined with certainty. Additional information on catch of these species and the effects of the TAC division are presented in Appendix 7.

Catcher processor sector allocation with cooperatives

Under this alternative, the catcher processor sector would receive a sector allocation based on historic catcher processor participation in the fisheries. The sector allocation would be divided among eligible catcher processors (holders of interim or permanent LLP licenses) based on their historic harvests. Participants could either join a cooperative, which would fish the allocation of its members in accordance with a cooperative agreement, or fish in a limited access fishery, which would fish the allocations of non-members of cooperatives. Cooperatives would be permitted to fish during an extended season. The extent to which cooperatives are likely to take advantage of that extended season is described below. The limited entry fishery would be prosecuted in early July, the same time as the existing rockfish target fishery.

Under this alternative, the catcher processor sector would receive allocations of target rockfish, secondary species, and halibut prohibited species catch. These three types of allocations are described first, followed by the fishing and participation patterns that are likely to emerge under the program.

The allocation to a sector would be based on retained CGOA rockfish in the directed fishing season by vessels in the sector from 1996 to 2002, with each vessel dropping its lowest 2 years of harvests. The history of all holders of permanent and interim LLPs would be counted toward a sector's allocation. Only the catch of vessels that have a targeted rockfish landing in the qualifying years would be considered in determining the sector allocation. The inclusion of the histories of participants with valid interim licenses at the time of implementation could be justified, since holders of interim permits are allowed to participate in the current fisheries. All interim licenses are currently under appeal. Since LLP licenses can carry several area endorsements and those endorsements are not separable, the license could be interim because of a dispute unrelated to the CGOA endorsement.

Table 25 shows the allocations to the trawl catcher processor sector and the trawl catcher vessel sector. Since the table was prepared prior to the Council deciding whether to include catch of holders of interim LLP licenses or participants without LLP licenses, the table includes information on the allocations that would be made if interim license holders were excluded from the sector history, or if participants without any license were included in the sector history. Several values in the table cannot be revealed because of confidentiality restrictions that require all decipherable information to be aggregated to a minimum of 4 participants. As a result, the table shows the best available information concerning eligibility and allocations to the sectors in the program, consistent with confidentiality limitations.

Table 25. Sector participation, qualified history, and allocations of Central Gulf of Alaska rockfish.

Species	Qualified history	Sector	Number of participants	Qualified tons	Sector allocation (percent of qualified tons)
Pacific Ocean perch	Permanent LLP license holders	Trawl catcher vessel	47	19,773.0	50.0
		Trawl catcher processor	13	19,796.0	50.0
		Total	60	39,569.0	
	Permanent and interim LLP license holders	Trawl catcher vessel	49	*	*
		Trawl catcher processor	15	*	*
		Total	64	39,913.2	
	All historic participants	Trawl catcher vessel	50	*	*
		Trawl catcher processor	20	*	*
		Total	70	42,695.1	
Northern rockfish	Permanent LLP license holders	Trawl catcher vessel	46	9,781.8	61.1
		Trawl catcher processor	12	6,234.9	38.9
		Total	58	16,016.6	
	Permanent and interim LLP license holders	Trawl catcher vessel	48	*	*
		Trawl catcher processor	13	*	*
		Total	61	*	
	All historic participants	Trawl catcher vessel	49	*	*
		Trawl catcher processor	18	*	*
		Total	67	17,530.5	
Pelagic shelf rockfish	Permanent LLP license holders	Trawl catcher vessel	46	6,855.0	46.0
		Trawl catcher processor	12	8,043.2	54.0
		Total	58	14,898.1	
	Permanent and interim LLP license holders	Trawl catcher vessel	48	*	*
		Trawl catcher processor	13	*	*
		Total	61	*	
	All historic participants	Trawl catcher vessel	49	*	*
		Trawl catcher processor	18	*	*
		Total	67	16,090.7	

* Withheld for confidentiality

Source:NPFMC Rockfish Database 2004, Version 1

Counting only the catch of permanent LLP holders, the trawl catcher vessel sector would be allocated 50 percent of the Pacific Ocean perch fishery, 61.1 percent of the northern rockfish fishery, and 46 percent of the pelagic shelf rockfish fishery (in each case, after the allocation to the entry level fishery and the ICA). The trawl catcher processor sector would be allocated the remainder, 50 percent of the Pacific Ocean perch fishery, 38.9 percent of the northern rockfish fishery, and 54 percent of the pelagic shelf rockfish fishery.

Since total tonnages can be revealed in some instances for all participants, one can determine the percent of qualified tons that are from participants that do not hold permanent LLPs to assess the maximum possible effect of including interim LLP holders in a sector's history. Using this approach it can be concluded that catch by vessels that hold interim licenses is less than 1 percent of total qualified catch in the Pacific Ocean perch fishery. Affects on the other two fisheries cannot be predicted. Although not determinative of the distributions, the two trawl catcher vessels with interim LLP licenses have participated in the other two fisheries, while only one trawl catcher processor with an interim license has participated.

The sector allocation would be divided among cooperatives and the limited access fishery. Each person eligible for the catcher processor sector could choose to either join a cooperative that would receive an

annual allocation based on the histories of its members or enter a limited access fishery that would receive an allocation based on the histories of all catcher processor participants that chose not to join a cooperative. The allocation of each rockfish species to each cooperative would be the percent of total qualified pounds of the species harvested by its members from 1996 to 2002, with each qualified participant dropping its two years of lowest harvests of the species.

The numbers of participants in the catcher processor sector in the different fisheries and simple statistics concerning their allocations are shown in Table 26.[29] The table also shows simple statistics, using 2002 as a base year, for standardizing the allocations across species. The 2002 base year will be used for applying caps to cooperatives and individuals under the program. Fifteen catcher processor licenses are estimated to be eligible to receive an allocation in the CGOA rockfish fisheries.

Table 26. Mean, median, and four largest allocations by Central Gulf of Alaska rockfish species and total allocation, using 2002 as a base year.

Species	Sector	Characteristics of allocations to permanent and interim license holders			Eligible permanent and interim license holders	Eligible permanent license holders
		Mean allocation	Median allocation	Average of four largest allocations		
Northern rockfish	Catcher vessels	2.1	1.4	7.1	48	46
	Catcher processors	7.7	4.5	15.6	13	12
Pacific Ocean perch	Catcher vessels	2.0	1.6	4.5	49	47
	Catcher processors	6.7	4.5	15.6	15	13
Pelagic shelf rockfish	Catcher vessels	2.1	1.5	6.5	48	46
	Catcher processors	7.7	5.6	16.7	13	12
All - 2002 base	Catcher vessels	2.0	1.8	5.3	49	47
	Catcher processors	6.7	4.8	14.1	15	13

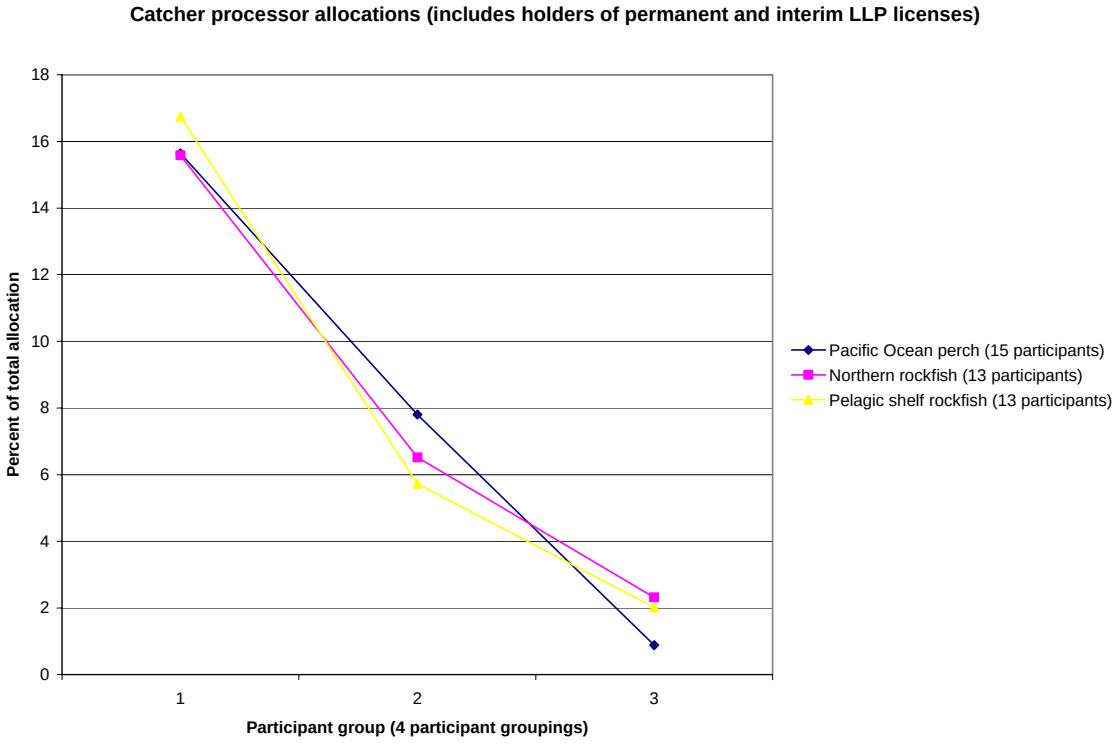
Source: NPFMC Rockfish Database 2004, Version 1

The distribution of catcher processor share allocations in the different target fisheries are shown in Figure 1. Allocations are aggregated into groups of four to maintain confidentiality, with vessel groupings made in descending order from the largest estimated allocation to the smallest allocation. The last and smallest grouping contains between 4 and 7 estimated allocations, since at least 4 persons' activities must be included under confidentiality rules. The estimated allocation shown for each 4-vessel group is the average allocation to members of that group. Allocations are shown as shares of the total harvest allocation. Each legend shows the total number of vessels that would receive an allocation in each fishery. Because allocations are averages, it is possible, particularly in the grouping with the largest allocation, that the largest allocation to a single vessel is significantly different from the average of those four vessels.

The table and figure show that the four largest allocations for each species are approximately 60 percent of total allocation for the species. In addition, the four largest allocations in the aggregate are slightly less than 60 percent of the total allocation of CGOA rockfish using 2002 as a basis. Notwithstanding the concentration of large allocations, since the catcher processor sector has relatively few participants, the mean allocations are all approximately 5 percent. The figure shows that approximately 5 participants in the sector will receive allocations of less than 3 percent of the sector's northern rockfish and pelagic shelf rockfish, while approximately 7 participants will receive allocations of less than 2 percent of the sector's Pacific Ocean perch.

[29] Appendix 4 lists vessels that appear to be eligible for the different sectors, based on the requirement of one targeted rockfish landing during the qualifying years.

Figure 1. Allocations to catcher processors by Central Gulf of Alaska rockfish species



Under the program, no vessel will be permitted to harvest in excess of 60 percent target rockfish allocated to the catcher processor sector allocation, using 2002 as a basis (with any vessel exceeding that level of participation grandfathered). Since the four largest allocations in the sector are less than 60 percent of the sector's allocation, it is clear that no vessel approaches this level of harvests. Further information cannot be released because of confidentiality limitations. In addition to the vessel caps, catcher processor sector participants are limited to holding and using no more than 20 percent of the annual allocation of all species combined using 2002 as a basis for aggregation (unless grandfathered).[30] This cap would be imposed on an individual and collective basis (similar to the halibut and sablefish IFQ caps). Using this approach, a person is credited with full ownership of direct share holdings and ownership in proportion to corporate ownership for all holdings indirectly held. Because of limited information concerning ownership of licenses and confidentiality, aggregation of holdings based on named LLP license holders provides no additional information concerning consolidation of share holdings beyond that shown and described above.

In addition to the rockfish allocations, allocations would be made to the catcher processor sector for four secondary species (sablefish, shortraker, rougheye, and thornyhead) that are typically harvested when harvesting rockfish.[31] The allocations of secondary species under this alternative would be based on catch of the secondary species while targeting rockfish. Specifically, the allocation would be a portion of the

[30] As described in deliberations this cap is intended to limit only the holdings of an individual and the shares that an individual can bring to a cooperative. Once an annual allocation is made to a cooperative, the allocation could be fished in accordance with the cooperative agreement, even if more than the individual cap amount were fished on a single vessel. Harvest from a single vessel, however, would be subject to the 60 percent vessel cap.

[31] Pacific cod is also considered a secondary species under the program. For catcher processors, however, Pacific cod would be managed under a revised MRA. For catcher vessels, Pacific cod would be managed using a secondary species allocation similar to those described for other secondary species here.

TAC equal to the average annual percentage of the all retained catch of the secondary species made by the sector. In other words, the average annual percentage of retained catch of the sector divided by total retained catch from the CGOA multiplied by the TAC for the year. The annual allocation to the sector would be the share of retained catch of the secondary species taken by the sector in the CGOA rockfish fisheries times the annual TAC for that secondary species. Table 27 shows the portion of each secondary species TAC that would be allocated to the different sectors. Notably, the table includes separate allocations of shortraker rockfish and rougheye rockfish, which will be managed as two separate species in future years. Historically, these two species had been managed using a single, combined TAC.[32] In most cases, the allocations exceed average historic harvests. Pacific cod allocations, however, would be smaller than average historic harvests for the catcher processor sector. The relatively small allocation to the catcher processor fleet has led the Council to include different provision for Pacific cod catch by catcher processors in the rockfish program.

For catcher processors, Pacific cod would be managed under a revised MRA of 4 percent. Historic harvest of Pacific cod by the catcher processor sector in the rockfish fishery has averaged less than 3 percent of the Pacific cod TAC. To avoid constraining participants with this relatively small allocation of Pacific cod, a revised MRA will be used to limit Pacific cod harvests by catcher processors. The MRA would be reduced from its current level of 20 percent to 4 percent.

The occasional large variation in retained catch rates for secondary species across the two sectors are, to some extent, a reflection of intentional catch of these species. Comparison of target rockfish ex vessel and wholesale prices with ex vessel and wholesale prices for the secondary species show that these species typically sell for substantially higher prices than target rockfish. As a result, participants in the rockfish fisheries typically boost revenues by intentionally catching secondary species (as permitted by MRAs).

Table 27. Rockfish Pilot Program: Secondary Species Allocation by Sector - Retained over Retained - retained harvest by species in targeted rockfish fishery divided by retained CGOA harvest

Secondary Species/Sector [1]	2005 TAC (mt)	Allocation Proportion	Allocation (mt)	Average Harvest 1996-2002
Pacific cod CV	25,086	2.09%	525.2	613.4
Pacific cod CP[2]	25,086	0.20%	50.9	72.9
Sablefish CV	7,250	6.31%	457.5	350.8
Sablefish CP	7,250	4.30%	311.9	239.9
Shortraker/Rougheye CV		5.91%		33.1
Shortraker	324		19.1	
Rougheye	557		32.9	
Shortraker/Rougheye CP		59.87%		327.9
Shortraker	324		194.0	
Rougheye	557		333.5	
Thornyhead CV	1,010	10.85%	109.6	41.5
Thornyhead CP	1,010	22.94%	231.7	83.6

Source: 1996-2002 NMFS WPR data for CP vessel harvests. 1996-2002 ADF&G Fish Tickets for CV vessel harvests.

1 The average harvest/year for the 1996-2002 period includes retained harvest by vessels with permanent LLP license status.

2 Note that Pacific cod will not be allocated to the catcher processor sector.

[32] In addition to the allocation options described here, the Council is considering an option to reduce the allocation of shortraker and rougheye to the catcher processor sector to as little as 75 percent of estimated historic usage described here. That option, together with options for management of shortraker and rougheye catch by the catcher vessel sector, are examined in Appendix 7.

Halibut PSC will also be allocated to the catcher processors through a two step process. In the first stage, an allocation would be made to the pilot program as a whole, based on historic average annual usage of halibut PSC by the rockfish fisheries. This allocation would then be divided between the sectors base on qualified rockfish catch. Table 6 shows the historic halibut PSC usage in the rockfish fishery during the qualifying years. Halibut mortality usage averaged slightly more than 110 metric tons for both sectors during the qualifying years. The division of the allocation between the two sectors (based on qualified rockfish harvests) is shown in Table 28. Dividing the allocation based on qualifying rockfish catch, the catcher vessel sector would receive slightly more than 115 metric tons of halibut PSC, while the catcher processor sector would receive slightly less than 110 metric tons of halibut PSC.

Table 28. Division of Halibut PSC Allocation between the Catcher Vessel Sector and the Catcher Processor Sector.

Estimated total halibut mortality 1996-2002 in aggregate for catcher processors and catcher vessels Allocate halibut according to relative share of targeted rockfish	
Total CP targeted rockfish 1996-2002 (permanent LLPs)	34,074.10
Total CV targeted rockfish 1996-2002 (permanent LLPs)	36,409.80
total trawl CGOA rockfish harvest	70,483.90
proportional share of targeted CGOA rockfish by CPs	48.34%
proportional share of targeted CGOA rockfish by CVs	51.66%
average annual halibut mortality for CPs & CVs 1996-2002	224.35
annual halibut allocation to CP sector	**108.46**
annual halibut allocation to CV sector	**115.89**

Description of participation and fishing patterns

Since fishing patterns in the cooperative and the limited access fisheries will likely differ, these fisheries are described separately. In addition, catcher processors may transfer their annual allocations to catcher vessel cooperatives. The potential for allocations to be transferred to catcher vessels is also discussed in this section.

Historic harvests of CGOA rockfish are used to make allocations, so distribution of CGOA rockfish allocations both to and within the catcher processor sector will be similar to the historic distribution of harvests during the qualifying years. The number of persons receiving allocations is approximately twice the average annual participation in the fisheries, showing that some participants have moved in and out of the fisheries over time.

Within each cooperative, it may be anticipated that each member would receive revenues based on the allocation that the person brings to the cooperative, with participants that fish shares of others receiving compensation for their fishing expenses. Fishing within a cooperative, however, could be far more concentrated than the underlying allocations. The two most likely scenarios that would lead to consolidation of rockfish fishing on fewer vessels than receive allocations arise out of the choices of persons that receive small rockfish allocations under the program.[33] First, persons eligible for the program that receive relatively small allocations could choose join a cooperative allowing other members of the cooperative to fish their allocations. Using this approach would allow some of these participants to avoid

[33] Based on 2002 TACs, 4 participants in the catcher processor sector would receive target rockfish allocations of less than 50 metric tons.

potential added costs of observers and monitoring equipment (at least in the short term). In addition, the participants' fishing activity would be simplified by not moving from fisheries for other species to fish a relatively small rockfish allocation.[34] A second possibility is that persons eligible for the sector with small allocations could choose to remain outside of the cooperatives allowing their allocations to be redistributed to the limited access fishery. Participants that choose not to enter a cooperative would not be required to standdown in fisheries in which they have met a minimum participation threshold of two years of the seven qualifying years. Consolidation of small allocations (i.e., less than 3 percent of the sector's total allocation) in the limited access fishery would result in approximately 5 to 7 vessels participating in the cooperative portion of the sector each year. Whether some or all of these vessels would choose to remain out of cooperatives cannot be predicted. Cooperative members will have some incentive to reach agreement with these recipients of small allocations, since the small allocations would be inaccessible to cooperatives once allocated to a limited access fishery.

In addition to the consolidation of relatively small rockfish allocations, other members of the sector could decide to consolidate their rockfish allocations to realize efficiencies in the rockfish fisheries and other fisheries. A cooperative that uses relatively few members to harvest its annual allocation could potentially minimize observer and monitoring equipment costs. Cooperatives that are able to manage their own sideboards would be permitted to harvest its allocation over the longer season, freeing its members to enter other fisheries in the beginning of July (without a standdown). This ability to enter other fisheries should lead to cooperatives harvesting their allocations either earlier or later than the traditional July opening, to free their members to compete in other fisheries that open early in July. The cooperative, however, would only be permitted to harvest its historic share from those other fisheries, limiting any potential impact on others. Because of this flexibility, rockfish catcher processor cooperative participants should be expected to fully harvest their historic share (sideboard amount) from these other fisheries, provided that cooperatives are able to develop sideboard monitoring plans that are satisfactory to NOAA Fisheries.

Although cooperatives that manage their own sideboards can be expected to harvest their allocations outside of the traditional early July season, the exact timing of their CGOA rockfish fishing will likely depend on the operational needs of cooperative members and their fishing success. For example, a cooperative may select fishing time to facilitate maintenance or other individual needs of its members. Low catch rates of rockfish or high rates of incidental catch of secondary species or halibut could also lead a cooperative to change its timing of rockfish targeting. Some longtime participants in the fishery suggest that rockfish aggregations are at their greatest in the summer months. If participants observe relatively high aggregations (and catch rates) in summer months, it is likely that their harvests will be concentrated in the summer regardless of whether the season is extended into the spring and fall. Catcher processors may have less incentive to fish outside of the summer months than catcher vessels, as most produce only frozen head and gut and whole products and are less likely to attempt to serve fresh fish markets that may be more accessible to the shore-based fleet.

The allocations of secondary species are based on total harvests made in the fisheries from 1996 to 2002. Since the allocation is the portion of the total catch made by the catcher processor sector in the rockfish fishery, the allocation is intended to credit harvesting at its historic rate. Secondary species are required to be retained, with all harvests counting against the allocation of the cooperative. The allocation of each secondary species to a cooperative will operate as a hard cap on the total harvests by the cooperative, so a cooperative that has fully harvested any one of its secondary species allocations would be prohibited from any additional harvest of CGOA rockfish or related allocations under the program.

[34] These cooperative participants would then be limited in other fisheries in July by both a sector sideboard and either a cooperative sideboard managed by the cooperative or a standdown, if the cooperative does not develop a plan for managing its sideboard that is acceptable to NOAA Fisheries.

These secondary species allocations might appear to be constraining because of the rigid cap. Yet, in all cases the estimated allocations of secondary species at current TACs would exceed average harvests from 1996 to 2002. Observer data also suggest that in only rare instances would secondary species allocations constrain participants.

Table 29[35] shows incidental catch of secondary species[36] in observed trawl tows that target CGOA rockfish between 1996 and 2003. Because shortraker and rougheye were formerly managed as an aggregate, data for those species are combined for some observer data reported in the table. Separate allocations of those species will be made under this program as management of those species has been separated. The table shows amounts of secondary species in hauls by percentile. For example, the rockfish targeting haul at the 85th percentile in terms of Pacific cod, included approximately 6 pounds of cod for each one-hundred pounds of rockfish. For all species, over 50 percent of the hauls had no catch of secondary species. In addition, only sablefish and Pacific cod were observed in more than 25 percent of the tows. The total catch of each secondary species in all trawls combined is in all cases less than 3 percent of the total catch of targeted rockfish catch.

Although the secondary species allocations to the catcher processor sector are not expected to be constraining, in some instances they could limit rockfish harvests.[37] If participants with relatively small rockfish allocations were to have tows with incidental catch of secondary species in the highest percentiles, it is possible that the harvest of secondary species could prevent their harvest of target rockfish. In addition, since the incidental catch allocations are based on fleet averages, relative to target rockfish, it is possible that some participants may either have high incidental catch rates in general, or a different distribution of incidental catch than the fleet average. These participants could be constrained by the secondary allocations, if they are unable to reduce incidental catch rates of secondary species. Also, if participants attempt to extend fishing over a longer season, it is possible that higher incidental catch rates of secondary species could constrain their rockfish harvests. If high incidental catch in other parts of the year is perceived as limiting, it is likely that participants would choose to concentrate their fishing under the program closer to the traditional season. Cooperatives should prove useful for addressing any constraints arising from the secondary species allocations. By distributing secondary species allocations among the cooperative members to cover cases of higher than historic average incidental catch, the cooperatives should allow members to fully harvest their allocations of target rockfish. These redistributions of secondary species allocations, however, are likely to cost the participants that are constrained by those allocations. Since secondary species historically bring higher revenues per pound than the target rockfish, it is likely that the revenues generated by the harvest of secondary species allocations will accrue to the person that holds the license with the history leading to the allocation. On the whole, the allocations of secondary species should not constrain harvests of target rockfish, unless the rates of incidental catch of secondary species in the rockfish fishery change substantially.

Although the program is intended to rationalize the rockfish fishery, it is important to recognize the value of secondary species harvests to the participants in the rockfish fishery. Historically, all of the secondary species have generated more revenues per pound for participants than the target rockfish. All of the alternatives permit persons to harvest secondary species allocations independent of the harvest of rockfish allocations. Given the value of the secondary species allocations and the harvest flexibility, participants

[35] Note that this table has been revised to show aggregated shortraker and rougheye catch. Data showing separation of catch were not available at time of printing.
[36] Pacific cod is also included in the table, since that species is allocated as a secondary species to catcher vessels under the catcher vessel pilot program alternatives.
[37] The potential for the allocation of shortraker to the catcher vessel sector to be constraining is examined in Appendix 7 below.

can be expected to harvest their entire allocations of secondary species. Depending on incidental catch rates, it is likely that some cooperatives will choose to reserve a portion of the allocation of each secondary species until all of the target rockfish is harvested, after which all remaining secondary species allocations are harvested.

Table 29. Incidental catch of secondary species in observed trawl hauls targeting Central Gulf of Alaska rockfish (1996-2003).

Incidental catch species	Trawl hauls with Central Gulf rockfish targets	Hauls with bycatch species	Weight of incidental catch species	Weight of Central Gulf rockfish	25th Percentile	50th Percentile	75th Percentile	85th Percentile	95th Percentile	100th Percentile
CGOA rockfish	2756	2756	41,519,208	41,519,208	1	1	1	1	1	1
Pacific Cod	2756	1364	742,872	17,791,489	0	0	0.03227	0.063956	0.171188	0.985509
Sablefish	2756	1102	1,123,400	15,111,336	0	0	0.028388	0.082713	0.270718	0.954764
Thornyhead	2756	638	309,699	13,153,414	0	0	0	0.006582	0.05213	0.876952
Shortraker	2756	232	337,940	4,524,135	0	0	0	0	0.025923	0.92532
Rougheye	2756	371	389,981	7,698,578	0	0	0	0	0.031289	0.881127
Shortraker/Rougheye (1)	2756	14	33,008	527,828	0	0	0	0	0	0.167984
Source: 1996-2003 GOA Observer data, with data calculations by NPFMC.										
Central Gulf rockfish includes Pacific Ocean perch, northern rockfish and pelagic shelf rockfish.										
(1) where shortraker rockfish and rougheye rockfish were combined in the observer data										

As with secondary species allocations, halibut PSC allocations are based on historic halibut catch in the rockfish target fishery. Unlike current management, the specific allocations of halibut PSC could close the fishery for individual participants, in the event that bycatch of halibut PSC exceeds historic rates. Changes in the rates of halibut bycatch cannot be predicted since the most significant change in fishing activity is likely to be a change in the timing of harvests under the extended season. If participants observe an increase in the bycatch of halibut outside of the historic season, they are likely to limit their fishing activity under the program to the historic season. On the other hand, if bycatch of halibut can be maintained at or below historic levels at other times of the year, it is possible that some participants would extend fishing to different times of the year. As with secondary species allocations, each cooperative is likely to pool halibut PSC allocations of its members to ensure that the cooperative's rockfish and secondary species allocation can be fully harvested.

Since any catcher processor limited access fishery will be managed in a manner similar to the current fishery, that fishery is likely to resemble the current fishery, with a few notable differences. Participants can be expected to race for catch during the limited time that the fisheries will remain open. First, the catch of secondary species will be limited by reduced MRAs intended to limit total catch of the secondary species to the allocated amount. These reduced MRAs are likely to act as a substantial deterrent to participation in the limited access fishery, since secondary species are considerably more valuable than target rockfish. If the fishery receives a small allocation, it is possible that the fishery would be prosecuted in a timed opening (i.e., 12 or 24 hours) to keep total harvests under the allocation to the fishery. The constraints on fishing under the limited access management, together with the low membership threshold for cooperative formation (2 licenses) will likely lead all catcher processors that choose to fish under the program to join cooperatives.

Catcher processors can also transfer their annual allocations to catcher vessel cooperatives, but would not be permitted to receive catcher vessel annual allocations. The extent of any transfers from catcher processors to catcher vessels cannot be predicted with any certainty. Transfers to the catcher vessel sector are most likely to occur between catcher processors that have affiliations with the shore-based sector. In addition, transfers to the shore-based sector could be made from catcher processors that will receive relatively small allocations. The potential for transfers to catcher vessels will increase, if participants in

the shore-based sector are able to develop markets for higher quality or more highly processed products that cannot be served by the offshore fleet that produces mostly frozen head and gut and whole products.

Catcher processor cooperative with individual allocations

Under the catcher processor cooperative alternative, an allocation is made to the catcher processor sector using the same calculations as under the catcher processor sector allocation with cooperatives alternative. Allocations of secondary species and halibut PSC are also the same under this alternative. Allocations of target rockfish, secondary species, and halibut PSC within the sector are also quantitatively the same under this alternative. Table 25, Table 26 and Figure 1 describe the history allocations of target rockfish to the sector and individuals. Secondary species and halibut PSC allocations are as described under the other catcher processor alternative. This alternative, however, differs from the sector allocation alternative in that eligible catcher processors that choose not to join a cooperative would receive an individual allocation instead of being eligible for a limited access fishery. No limited access fishery would exist under this alternative.

Description of participation and fishing patterns

Participation and fishing patterns under this alternative are likely to be very similar to those under the catcher processor sector allocation alternative. Cooperative members are likely to fish outside of the traditional season to ensure that they are able to participate in other fisheries that open early in July and harvest their historic share from these other fisheries. The distribution of fishing is likely to depend on the ability of the participants to successfully target rockfish, without exceeding allocations of secondary species and halibut PSC. Market considerations could also influence choices of fishing times. Allocations of secondary species are likely to be fully harvested given the flexibility of participants to harvest those allocations independent of target rockfish.

Holders of small allocations are likely to consolidate their allocations with others to achieve harvest efficiencies or, in some cases, may opt out of the program to avoid potential restrictions from sideboards, if they are unable to come to terms with potential cooperative partners.

Although the opportunity exists for eligible catcher processors to fish individual allocations, the low threshold for cooperative formation (2 licenses) is likely to lead to all participants that choose to remain in the program to join cooperatives. Since only members of cooperatives that meet the minimum membership threshold will be permitted to transfer annual allocations, the potential benefits from cooperative membership create a strong incentive for cooperative membership. The relatively low threshold, however, could lead to more cooperatives with fewer members resulting in relatively more vessels fishing rockfish.

The potential for transfer of allocations to catcher vessels are similar under this alternative as under the other catcher processor alternative. Transfers are likely to be made, if returns from relatively high valued rockfish products in the onshore sector exceed returns from the whole and head and gut products produced by the catcher processor sector.

Catcher vessel cooperative with limited processor entry

Under this alternative, an allocation to the catcher vessel sector would be made based on historic catch of the sector during the qualifying years, in the same manner as the allocations described and estimated under the catcher processor sector allocation alternative. In addition to the catcher processor sector allocation,

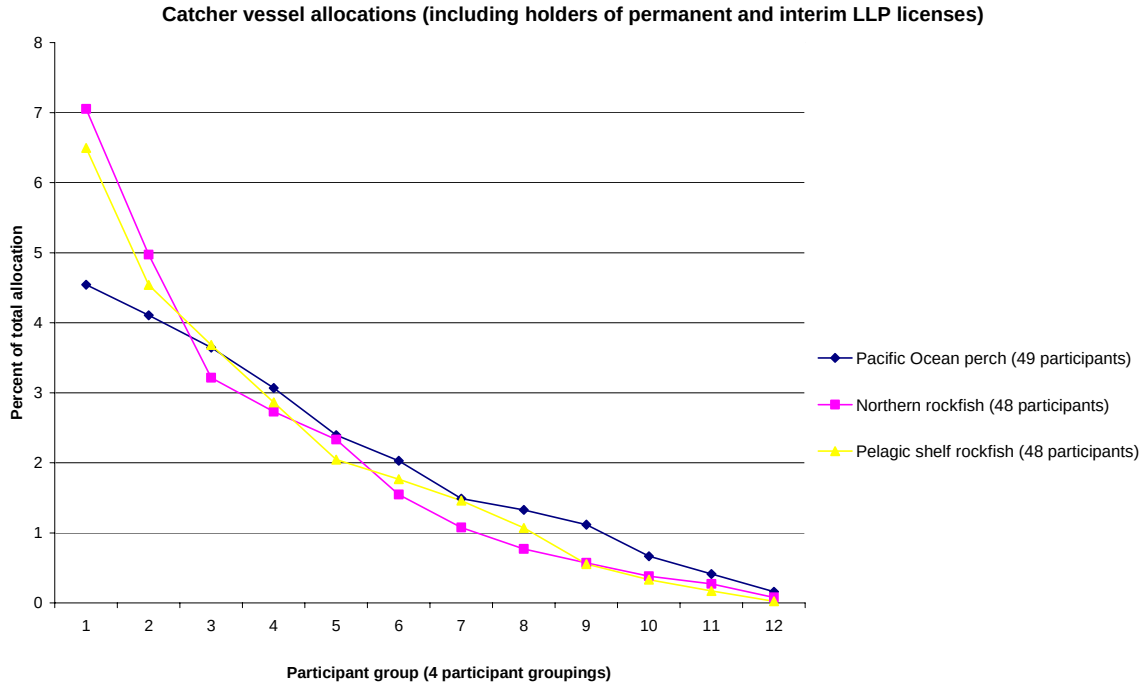
Table 25 above shows the allocation to the catcher vessel sector under this alternative. Similarly, allocations of secondary species and halibut PSC to the catcher vessel sector would be made under the same terms as described in the catcher processor sector allocation alternative. Estimates of those allocations are shown in Table 27 for secondary species and Table 6 and Table 28 for halibut PSC. One distinction between the catcher vessel sector and the catcher processor sector is that Pacific cod will be allocated as a secondary species to the catcher vessel sector (as shown in Table 27). In addition, separate options are under consideration for the management of shortraker and rougheye rockfish. Those options (including revised allocations and MRA management) are analyzed in Appendix 7.

After the catcher sector allocation is determined, allocations of histories would be made to eligible LLP license holders in the catcher vessel sector. To be eligible for an allocation, a person must hold either an interim or permanent LLP license at the time of the allocation and have at least one targeted landing of CGOA rockfish between 1996 and 2002. The allocation of history to a license would be based on the catch history of vessels associated with the license from 1996 to 2002, best 5 of 7 years. The allocation of each target species to a license holder will be equivalent to the license holder's proportion of the sector history. So, a vessel with one percent of the qualified pounds of CGOA Pacific Ocean perch of the catcher processor sector would receive 1 percent of the catcher processor sector allocation of that species.

The numbers of participants in the catcher vessel sector in the different fisheries and simple statistics concerning their allocations are shown in Table 26. The table also shows simple statistics, using 2002 as a base year, for standardizing the allocations across species. The 2002 base year will be used for applying caps to cooperatives and individuals under the program. Forty-nine licenses are estimated to be eligible to receive an allocation in the CGOA rockfish fisheries.

The distribution of catcher vessel share allocations in the different target fisheries are shown in Figure 2. Allocations are aggregated into groups of four to maintain confidentiality, with vessel groupings made in descending order from the largest estimated allocation to the smallest allocation. The last and smallest grouping contains between 4 and 7 estimated allocations, since at least 4 persons' activities must be included under confidentiality rules. The estimated allocation shown for each 4-vessel group is the average allocation to members of that group. Allocations are shown as shares of the total harvest allocation. Each legend shows the total number of vessels that would receive an allocation in each fishery. Because allocations are averages, it is possible, particularly in the grouping with the largest allocation, that the largest allocation to a single vessel is significantly different from the average of those four vessels.

Figure 2. Allocations to catcher vessels by Central Gulf of Alaska rockfish species.



The table and figure show that the four largest allocations to catcher vessel average approximately 5.3 percent of the total allocation of rockfish (using the 2002 index year). The average of the largest four allocations of northern rockfish is slightly larger, but still only approximately 7 percent of the total catcher vessel sector allocation. The median allocation is approximately 1.4 percent of the sector allocation (using the 2002 index year).

Under the program, no person will be permitted to hold or use in excess of 5 percent of the catcher vessel sector allocation.[38] Participants with historic harvests in excess of this cap would be grandfathered. Table 26 shows that the four largest allocations in the sector currently exceed this allocation. In addition, that table does not show specific ownership of licenses, but only the allocations to each license. LLP license ownership files show that some participants hold more than one license. Aggregation of allocations to holders of multiple licenses show that five persons would exceed the cap (based on the limited available information). The limited data available and confidentiality limitations prevent disclosure of additional information concerning the number of persons over the ownership cap. These persons would be prevented from acquiring any additional interest in the fishery, but would be permitted to retain their existing interests. In addition, no cooperative may control or hold more than 30 percent of the catcher vessel sector allocation. Since catcher vessels cooperatives are free to form among catcher vessel participants that are able to come to terms, this provision could prevent the sector from forming fewer than four cooperatives. Whether the limitation would actually prevent any consolidation of allocations within the sector cannot be predicted.

[38] As described in deliberations this cap is intended to limit only the holdings of an individual and the shares that an individual can bring to a cooperative. Once an annual allocation is made to a cooperative, the allocation could be fished in accordance with the cooperative agreement, even if more than the individual cap amount were fished on a single vessel. A cooperative, however, could not receive in excess of 30 percent of the aggregate cap in any instance.

Allocations of both secondary species and halibut PSC within the catcher vessel sector would be in proportion to target rockfish history. Using this approach, total qualified pounds of rockfish history (i.e., all three rockfish allocations) would determine the allocation of secondary species.

Catcher vessel sector participants would be permitted to join cooperatives with each cooperative receiving an annual allocation based on the qualified history of its members. A cooperative would be required to have at least 4 members. Non-members of cooperatives would be permitted to fish in a limited access, competitive fishery open to catcher vessel participants eligible for the program that do not join a cooperative. The allocation to the competitive fishery will be based on the histories of participants eligible for the program who choose not to join a cooperative. The annual allocation to the limited access fishery would be reduced by 20 percent. This reduction would be redistributed to catcher vessel cooperatives in proportion to the histories of their members.

Description of participation and fishing patterns

Participation and fishing practices of the catcher vessel sector are likely to change substantially from the status quo. Because fishing patterns in the cooperative and the limited access fisheries will likely differ, these fisheries are described separately.

As with catcher processors, historic harvests of target rockfish species are used to make allocations, so distribution of allocations both to and within the catcher vessel sector are similar to the historic distribution of harvests during the qualifying years. Annual participation records show that between 30 and 35 catcher vessels participated in the fisheries each of the qualifying years. The number of persons receiving allocations is estimated at 47, more than 10 persons greater than average annual participation. The number of persons fishing under this alternative is likely to be fewer than the number of allocations and could be fewer than the participation levels of recent years. Consolidation within cooperatives will be the greatest contributor to the reduction in participation.

Since cooperative formation requirements are relatively minimal under this alternative (four qualified participants), it is likely that most persons eligible for the catcher vessel sector will join cooperatives. To save on observer coverage and operational costs, it is likely that most cooperatives will consolidate harvests to some extent. Cooperatives are likely to distribute revenues based on the allocation that the person brings to the cooperative, with fishing vessels compensated for their expenses.

Under an extended season, cooperative fishing is likely to take place outside of the traditional early July season. As with the catcher processor cooperatives, timing of fishing CGOA rockfish allocations will depend on the particular operational needs of members, market opportunities, and fishing success. While success in the fishery cannot be predicted, rockfish targeting should be expected to be concentrated during periods of the year when high catch rates of rockfish and low catch rates of secondary species and halibut occur. As noted earlier, some participants in the fishery suggest that rockfish aggregations are at their greatest in the summer months.

Fishing outside the season could provide an opportunity for some participants to try to serve markets (including a possible fresh market) that have been historically impossible to access because of the timing of the season. In addition, slowing of the race for fish will allow harvesters to focus more on improving quality of their landings. If higher quality production generates higher revenues, participants can be expected to adopt fishing techniques that improve quality, such as reducing total catch in each tow and improved icing of catch. Fishing costs could rise, but only for a more than commensurate rise in revenues.

Under this alternative, fishermen will have the flexibility to make deliveries to any qualified processor. Since six processors qualify (see below), cooperatives are likely to solicit competition for landings during

the extended season. Patterns of deliveries cannot be predicted, but it is likely that cooperatives could deliver to more than one processor to take advantage of different market opportunities.

Cooperatives will also have an incentive to consolidate catch and fish outside of the traditional July time period to ensure that cooperative members have access to other July fisheries that their members have historically fished. Catch by rockfish catcher vessel participants will be limited in those fisheries by aggregate sideboards to limit potential impacts on others. Rockfish catcher vessel participants, however, could compete among themselves for their share of the sideboard. It is possible that the cooperatives could reach an intercooperative agreement to limit catch to their own historic portion of the sideboard. Successfully reaching such an agreement will require most or all members of the sector and provision for monitoring compliance with the agreement. The potential for reaching such an agreement cannot be predicted.

Unlike catcher processors, the allocations of secondary species could constrain the catcher vessel fleet. Allocations of Pacific cod, sablefish, rougheye rockfish and thornyheads are unlikely to constrain the fleet (absent any substantial changes in the TACs or changes in incidental catch rates) as those allocations are based on historic portion of the total catch made by the sector in the rockfish fishery. Whether allocations of shortraker rockfish are adequate to support harvest of the fleet's target rockfish allocations is uncertain. Beginning in 2005, an independent TAC is being set for shortraker. In the past, this species was managed using a combined shortraker/rougheye TAC. The 2005 CGOA TAC for shortraker is approximately half of the rougheye TAC. Yet, NOAA Fisheries estimates of catch composition suggest that 57 percent of the catch of shortraker/rougheye is shortraker. Given the difference between estimates of species abundance and catch composition for shortraker and rougheye, it is uncertain whether the allocation will be constraining and may depend on the accuracy of those estimates and the extent to which catcher vessels are able to avoid catch of shortraker. Observer data for tows targeting CGOA target rockfish shown in Table 29 show slightly higher incidental catch of rougheye than shortraker. An analysis of options for making allocations of shortraker and rougheye, which examines their adequacy, is contained in Appendix 7. Secondary species are required to be retained, with all harvests counting against the allocation of the cooperative. With the exception of shortraker, observer data suggest that in only rare instances would secondary species allocations constrain participants in the rockfish fishery.

At the individual level, however, it is possible that secondary allocations could be constraining. Participants that receive relatively small rockfish allocations that have tows with high incidental catch of secondary species could quickly exceed a secondary species allocation. Also, participants attempting to target rockfish outside of the traditional early July season could have incidental catch rates that differ from historic rates. Participants that have high incidental catch rates during these other parts of the year are likely to limit their rockfish fishing at those times to avoid the constraint of the allocation. Cooperatives should help members avoid constraining allocations by providing information to members about incidental catch rates and by pooling allocations to prevent the allocation from constraining harvests of rockfish allocations. Secondary species allocations in the fishery can be expected to be fully harvested, because of their value (which is generally higher than that of target rockfish) and because harvesters have the flexibility to harvest these allocations independently of target rockfish.

Since each cooperative will receive an allocation of halibut PSC, it is possible that halibut bycatch could close the fishery for a cooperative, in the event that bycatch exceeds historic rates. Changes in the rates of halibut bycatch cannot be predicted since the most significant change in fishing activity is likely to be a change in the timing of harvests under the extended season. If participants observe an increase in the bycatch of halibut outside of the historic season, they are likely to limit their fishing activity under the program to the historic season. On the other hand, if bycatch of halibut can be maintained at or below historic levels at other times of the year, it is possible that some participants would extend fishing to

different times of the year. Pooling of allocations in cooperatives should help participants from being constrained by halibut PSC allocations.

The catcher vessel limited access fishery will be managed in the same manner as the catcher processor limited access fishery described above. Participants can be expected to race for catch during the short season, with managers closing the fishery when they estimate that the limited access TAC has been caught. Secondary species MRAs will be reduced from current levels to limit total catch of the secondary species to the allocated amount. These reduced MRAs for valuable secondary species are likely to act as a substantial deterrent to participation in the limited access fishery. Since cooperative formation simply requires four members and since all cooperatives are required to accept membership of any person eligible for the cooperative subject to the same terms and conditions governing other members, it is unlikely that anyone will choose to fish in the limited access fishery.

Catcher vessel cooperative with processor associations

Catcher vessel participation and fishing patterns under this alternative are likely to be similar to that described under the catcher vessel cooperative alternative with limited processor entry, with a few significant differences. Allocations will be determined using the same eligibility requirements and qualifying years, so will be the same as those described above. In addition, most of the rules governing catcher vessel participation under this alternative are the same as the rules governing participation under the other catcher vessel pilot program alternative. Yet, a few critical differences in the rule of this alternative could result in some substantial changes in participation and fishing patterns. Specifically, under this alternative most harvesters are eligible to join a single cooperative, which would be required to associate with the processor to which the harvester delivered the most rockfish during the processor qualifying years (1996 to 2000, with each processor required to choose a year to drop from consideration). A single cooperative would be permitted to associate with each qualified processor. Cooperative formation would require holders of 75 percent of the history eligible to join the cooperative.

Processing associations were estimated in the analysis by assuming that each processor drops the year in which it receives the least pounds of rockfish landings. As noted earlier no cooperative would be permitted to control in excess of 30 percent of the sector allocation of target rockfish using 2002 as an index year.

Table 30 shows the number of qualified processors by the number of associated LLP licenses. The table shows a variety of processors, including some with 5 or fewer potentially associated licenses, and 2 with 10 or more associated licenses. In addition, between 5 and 6 licenses that are eligible for allocations have no deliveries to a qualifying processor. These license holders would be permitted to join any of the cooperatives formed under this alternative.[39] Table 31 shows the number of eligible processors by the number of associated harvesters. The table shows that no processor would have associated harvesters that hold 30 percent or more eligible history. Consequently, no cooperative would have members that historically harvested in excess of 30 percent of the qualified history.

[39] A suboption in the current motion would qualify any processor that processed in excess of 250 metric tons in any one year between 1996 and 2002, provided that the owner also invested in excess of a minimum threshold amount in the plant. Confidentiality limitations prevent the disclosure of whether any processor meets this qualification or would have any associations arising from past landings of qualified catcher vessels also cannot be revealed. If a processor qualified under the suboption received substantial landings from qualified catcher vessels, it could be better off than it would be competing in the limited access fishery, if the suboption were not adopted.

Table 30. Number of qualifying processors by number of associated LLP licenses and number of LLP licenses without deliveries to a qualifying processor.

	Number of qualifying processors with				Number of LLPs with no deliveries to a qualifying processor	Allocation to LLPs without deliveries to a qualifying processor
	no associated LLPs	5 or fewer associated LLPs	more than 5 and fewer than 10 associated LLPs	10 or more associated LLPs		
Pacific Ocean perch	0	2	1	2	6	3.0 percent
Northern rockfish	0	2	1	2	5	1.5 percent
Pelagic shelf rockfish	0	2	1	2	6	2.1 percent

Source: NPFMC Rockfish Database 2004, Version 1

Table 31. Number of processors by allocation to associated harvesters.

	Number of processors associated with LLPs holding more than		
	30 percent of all catcher vessel history	20 percent of all catcher vessel history	10 percent of all catcher vessel history
Pacific Ocean perch	0	*	4
Northern rockfish	0	*	5
Pelagic shelf rockfish	0	*	5
Total - 2002 index	0	*	5

* Withheld for confidentiality.

Source: NPFMC Rockfish Database 2004, Version 1

Description of participation and fishing patterns

Fishing within cooperatives is likely to be similar to that described for the other catcher vessel alternative. Cooperatives, however, will be associated with a single processor. The terms of the cooperative agreement, and consequently, the cooperative/processor association are subject to negotiation between the cooperative members and the processor. Given the processor's involvement in this contract, it is likely that each cooperative will have limited latitude to pursue markets for their landings beyond the single associated processor. The implications of these rules for the temporal distribution of fishing (and landings) cannot be predicted. Planning of fishing activity, however, will likely be more coordinated with the associated processor, which could limit the ability of harvesters to pursue the best market opportunities by changing timing of fishing. Each cooperative is likely to pattern its fishing to serve the markets pursued by its associated processor. The overall effects of the processor associations on timing of fishing cannot be predicted.

The cooperative formation rule, together with the limitations on cooperative eligibility and the requirement of a processor association, could have some impact on whether some participants choose to join a cooperative. Specifically, since each participant will be eligible for a single cooperative that must associate with a particular processor, and cooperative formation requires 75 percent of the history eligible for a cooperative, the holders of that supermajority of history and the processor are likely to control the terms of the cooperative agreement. While both the cooperative and the processor will realize some benefit from more inclusive membership, it is possible that a cooperative agreement that suits the supermajority and the processor may not be agreeable to some minority participants. Cooperative membership, however, is likely to be favored by most participants in the program because of the reduced MRAs and 20 percent reduction in allocations to the limited entry fishery.

Entry level fishery

Since the limited entry fishery is comprised of a trawl sector and a non-trawl sector, each with different management, the participation and fishing practices in these two fisheries are described separately.

The non-trawl entry level fishery will receive an allocation of one-half of the 5 percent entry level target rockfish set aside. The allocation will be made first from northern rockfish and pelagic shelf rockfish, with the remainder coming from Pacific Ocean perch. Since recent Pacific Ocean perch TACs have exceeded the combined northern rockfish and pelagic shelf rockfish TACs, the sector can be expected to receive some Pacific Ocean perch in its allocation.

The entry level non-trawl fishery will be prosecuted as a limited access fishery (similar to the current limited access fishery) open to any non-trawl participants that apply to participate. Historically, non-trawl vessels have very minimal participation in the CGOA target rockfish fisheries. Although the fisheries have opened to non-trawl participants on January 1st and not opened to trawl gear until early July, non-trawl harvests never exceeded two-tenths of one percent of the TAC for any of the target species. No harvest of Pacific Ocean perch by non-trawl vessels has occurred, although some experimental gear is being used to target Pacific Ocean perch in Southeast. Despite the minimal historic participation, some non-trawl fishermen have expressed an interest in prosecuting the entry level fishery. Most have said that they will participate primarily in the summer months when the weather is the best, allowing the fleet to target these offshore rockfish. The potential success of these persons cannot be predicted. If some participants are successful in the fishery, additional entry can be expected.

The entry level trawl fishery will be allocated one-half of the 5 percent entry level set aside. This allocation will be deducted first from the Pacific Ocean perch set aside, which in the absence of a large TAC change will be large enough to accommodate the entire trawl entry level allocation. The entry level trawl fishery is open only to LLP holders that have not participated in the target rockfish fisheries in the qualifying years. The level of participation in this fishery cannot be predicted, since participants are limited to persons with no CGOA rockfish history.

Fishing practices in this fishery are likely to resemble those in the main pilot program. Since secondary species will be managed under the current MRAs (instead of direct allocations), timing of fishing is less likely to be constrained by incidental catch of secondary species. Some participants may try to catch secondary species to the MRA permitted amount. The small rockfish allocations when translated through the MRA mean that harvests of secondary species will be relatively smaller, making it difficult for an entry level participant to harvest secondary species to the MRA permitted amount. This could result in a substantial amount of discards, if participants do not use caution. Some entry level participants could elect to harvest under the MRA amount to avoid overcatching and discarding. Halibut PSC usage by the entry level fishery will be deducted from the general trawl allocation of PSC to the CGOA deep-water complex. Since halibut PSC is allocated quarterly and is frequently fully harvested, the halibut PSC is likely to constrain the operations of this fleet at times throughout the year.

Harvests from both sectors of the entry level fishery will be required to be delivered to processors that are not eligible for the main program. Although the primary rockfish processors for the CGOA are included in the main program, harvesters should have some choice of processors in the entry level fishery. Processor preferences for delivery timing, however, could play some role in determining when fishing takes place in the trawl entry level fishery.

2.5.3. Effects on participation in the processing sector

Development of a rationalization program, which slows the pace of fishing and distributes landings over a longer period of time is likely to affect the processing sector in many ways. This section compares the impacts of the different alternatives on participation in the processing sector and processing practices.

Status quo

Processing participation and practices are likely to be similar to current participation and practices, if the status quo is maintained.

Catcher processors in the rockfish fisheries current produce mostly whole and head and gut products. Catcher processors are likely to continue producing these products, processing catch as it is landed in the race for fish.

In the current fishery, shore-based processors race to process landings in an attempt maintain market share and to maintain a minimum quality for products. Quality, however, suffers because of the rapid rate of harvest and processing, which leads to the production of relatively lower value and lower quality products. Secondary species catch, which tends to be of higher value, is often handled better than target rockfish catch by vessels. As a consequence, secondary species are typically processed into higher quality products.

Catcher processor sector allocation with cooperatives

Processing by catcher processors, under the catcher processor sector allocation with cooperatives, is likely to remain similar to the current processing by this sector. Most vessels in the sector are equipped for producing a few simple products (frozen whole and head and gut fish). Because of size limitations, it is unlikely that any of these vessels will change plant configurations to process higher-valued, more processed products.

Although catcher processor product mix may not change from the status quo under this alternative, it is possible that some improvement in quality may be made by some participants. Generally, catcher processors produce a relatively high quality product, so the ability to make quality improvements may be limited.

Catcher processor cooperative

Processing by catcher processors under this alternative is likely to be the same as processing under the catcher processor sector allocation alternative.

Catcher vessel cooperative with limited processor entry

Under this alternative, only processors that have processed at least 250 metric tons of aggregate CGOA rockfish per year for four years between 1996 and 2000 will be permitted receive deliveries of rockfish harvested under the main program.[40] Five processors meet this qualification criteria, all of which are based in Kodiak.

Processing of shore-based plants under this alternative can be expected to change from the status quo. Share allocations to cooperatives should provide cooperatives with the ability to improve quality of landings. These quality improvements should provide processors with the ability to pursue higher revenue products. Whole and head and gut products are the leading products of shore-based plants that currently participate in the rockfish fisheries. Rockfish fillet prices, however, average 5 times the average price of whole and head and gut rockfish products. Even though recovery rates may be substantially lower and production costs higher for fillet production, the expected return on these higher valued products should be sufficient to warrant changing to fillet production, if quality can be maintained.[41] Similarly, some plants produce substantial amounts of surimi. Average prices for fillets are more than twice the average

[40] A suboption in the current motion would qualify any processor that processed in excess of 250 metric tons in any one year between 1996 and 2002, provided that the owner also invested in excess of a minimum threshold amount in the plant. Confidentiality limitations prevent the disclosure of whether any processor meets this qualification. Qualification would allow a processor to compete for all landings from the main rockfish pilot program. Although this increased competition from additional qualified processors is unlikely to affect the general conclusions of the analysis, the ability to compete for these landings could be important to a processor that receives that qualification.

[41] Fillet recovery rates have been estimated to be approximately one-half the recovery rate for head and gut and whole products (Crapo, 1993).

surimi price, while these products have similar product recovery rates. If quality improvements in landings can be realized processors may also shift from surimi production to fillet production. Some processors are likely to develop products to serve a fresh market. The travel limitations of Kodiak (where all of the qualified plants are located) could pose some challenge to participants wishing to serve that market. Potential revenues in the market, however, should induce some processors to produce fish for fresh markets.

The structure of the market for landings should be competitive under this alternative, inducing some processors to aggressively pursue product improvements to attract additional landings. Although the processors will participate in a market with limited entry, eligible processors have processed in excess of 90 percent of the landings of CGOA rockfish between 1996 and 2002. Since the fishery was prosecuted over a very short period in the past and will be prosecuted under an extended season under this alternative, it is likely that competition for landings would develop despite the limit on processor entry. Although competition should exist in the market for landings, harvesters are likely to time landings to accommodate processing schedules, which processors should reward in turn with higher ex vessel prices. This timing of landings could be critical to processors meeting some market demands, particularly if a fresh market were to develop.

Some processors (particularly those with loyal fleets that have historically made deliveries from many different fisheries to the same processor) may choose to compete less in more challenging markets (such as the fresh market). These processors are likely to produce more high quality products, such as frozen fillets, but may also be expected to balance the potential costs of production of other species with their improvements of production of rockfish. The extent to which processors are able to adopt this approach would depend on the loyalty of their fleet, including the interaction of the fleet's participation in the rockfish fisheries with their participation in other fisheries. Overall, it is possible that some harvesters that participate in diverse fisheries throughout the year could choose to remain with a processor offering lower rockfish prices, if lower revenues for rockfish were to be compensated for by increased revenues from landings in other fisheries or other operational considerations provided by the processor (e.g., fuel, storage, or pre-season loans).

Catcher vessel cooperative with processor associations

Processing practices under this alternative should be similar to those under the previous alternative. The processor associations under this alternative, however, are likely to dampen competition among the eligible processors, which could limit the extent to which some processors aggressively pursue new or challenging markets.

Under this alternative, each eligible participant would be permitted to join a cooperative in association with the eligible processor to which it delivered the most pounds of rockfish during the processor qualifying period. Processor eligibility would be based on the same criteria defined for other catcher vessel pilot program alternative, so five processors would be eligible under this alternative. A harvester/processor association would be determined based on the processor to which the harvester delivered the most pounds of target rockfish during the years 1996 to 2000, inclusive, with each processor permitted to drop the year of its choice from the calculation. Harvester/processor associations were estimated by dropping for each processor, the year in which the processor received the least pounds of target rockfish.

Table 30 and Table 31 (above) show characteristics of the harvester/processor associations. Table 30 shows the number of processors that have various numbers of associated harvesters (or LLP licenses). This table also shows the number of harvesters without deliveries to a qualified processor and the estimated allocations to those harvesters. The table shows that all qualified processors have at least one associated harvester, while two have 10 or more associated harvesters. In addition, 6 harvesters that

would receive allocations have no deliveries to a qualified processor. These harvesters would be permitted to join any rockfish cooperative, but their allocations would not be considered in determining whether the cooperative formation threshold is met (holders of 75 percent of eligible history). Table 31 shows the number of processors by the allocations of their associated harvesters. The table shows that no processor would be associated with harvesters that have in excess of 30 percent of the sector's qualified harvest history.

A processing cap is intended to prevent excess consolidation of processing under the program. Under this rule, no processor would be permitted to process in excess of 30 percent of the sector's aggregate rockfish, using 2002 as an index year. On this basis, no processor is associated with harvesters that have historically processed in excess of the 30 percent limit.

Because the cooperative structure under this alternative differs from the structure under the other catcher processor alternative, it is possible that some processing differences could arise. In general, efficiency gains should be similar to those realized under the other catcher vessel alternative, as processing can be slowed and landings can be timed to realize efficiency gains. Under this alternative, however, harvesters have no choice of cooperatives to join, but will be eligible for a single cooperative associated with a specific processor. As a consequence, processors are unlikely to compete for landings on a regular basis, but only in developing the terms of the cooperative agreement, which is subject to the processor's approval. This limit on the competition for landings from the fishery could reduce competition among processors for markets for their outputs. While some processors may aggressively pursue any available markets, it is possible that others will show less interest in extracting maximum revenues from rockfish landings, particularly if their processing of those landings could interfere with their operations in other fisheries. So, processing under this alternative should resemble that of the previous alternative, however, fewer products could be produced for challenging high revenue markets, as some processors may not perceive the need to compete as aggressively for landings due to the limited markets available to harvesters.

Entry level fishery

Processing practices in the entry level fishery should be similar to those under the catcher vessel alternative. In the trawl sector, entry level participants should time their landings to processors to receive maximum value for their landings. Entry level processors are likely to be smaller than the more established processors that have qualified for the program. Consequently, most are likely to be familiar with aggressively pursuing smaller market opportunities. Trawl allocations in the entry level are likely to be relatively small (equal shares of the approximately 375 metric tons to each trawl applicant). In addition, harvesters fishing their allocations are likely to be permitted to make their harvests over an extended season, allowing the processors to time landings to achieve processing efficiency. Given that landings of these small allocations can be timed with processors, it is likely that even small plants would be equipped to participate in the entry level trawl fishery.

Participants in the entry level non-trawl fishery, historically have received a higher price for their landings of rockfish, likely as a result of better quality of landings. Because of this higher quality and the relatively smaller landings dispersed over longer time periods, historically landings from this sector have likely been processed into higher quality products. In the entry level program, landings from this sector could be made throughout the year until the third quarter, when the trawl sector is likely to sweep up any fish remaining in the non-trawl entry level allocation. Landings from this sector, however, are likely to be concentrated in the summer months. Processors receiving landings from this sector are likely to pursue more challenging, high value markets (such as the fresh fish market).

2.5.4. Effects on catcher processor efficiency

This section of the analysis examines the effects of the alternatives on catcher processor efficiency. Since only three of the alternatives apply to catcher processors, this section only considers the effects of those three alternatives on catcher processor efficiency. The interaction of the catcher processor alternatives with the two catcher vessel alternatives is discussed, where applicable.

Catcher processor efficiency is a contributor to overall production efficiency in the fishery. The next two sections examine catcher vessel efficiency and shore-based processor efficiency, which together determine production efficiency in the shore-based sector. Together catcher processor efficiency and efficiency in the shore-based sector determine overall production efficiency in the fishery. To assess the production efficiency impacts of the alternatives on net benefits, the sum of the effects in these three sections (catcher processor efficiency, catcher vessel efficiency, and shore-based processing efficiency) are summarized for each alternative after the three sections.

To establish a framework for this portion of the analysis, a brief description of production efficiency (and its role in overall economic efficiency that is used to examine the net benefits of an action) follows. In the simplest terms, production efficiency is the difference between production revenues and production costs. Production efficiency is a measure of the effectiveness of a producer in using inputs to produce one or more outputs, focusing on the relationship between the quantity and quality of outputs produced and the quantity and quality of the various inputs (e.g., fuel, vessels, and labor) used for that production.[42] Two different types of efficiencies contribute to, and together constitute, production efficiency. "Technical efficiency" refers only to the production process that converts inputs to outputs and is a measure of the quantities of inputs used and the quantity of outputs produced in a production process (independent of prices and their effects). Decreasing quantities of inputs and increasing quantities of outputs are sources of technical efficiencies, ceteris paribus. "Allocative efficiency" considers of both the markets for inputs and outputs and choices of inputs and outputs and is a measure of the economic benefits of choosing different mixes or combinations of inputs and outputs in production. Allocative efficiency necessarily considers the costs and revenues generated by these choices. Collectively, these two types of efficiency define "production efficiency". Overall production efficiency, which is the concern of this section, therefore requires the consideration of both the choices that the producer makes in the markets for inputs and outputs and the process by which inputs are converted to outputs. In the end, overall production efficiency may be measured by the returns to producers – the difference between the producer's revenues generated by outputs and the producer's costs of inputs.

Since the output of the fishery is fish products (e.g., head and gut fish, fillets), an analysis of overall efficiency would assess the efficiency of both the harvest of fish and the processing of that fish into these products. The Council's problem statement, however, recognizes that production in the fisheries is generally separated into two industry segments – harvesting and processing – and expresses its intent that

[42] Economists estimate four different contributions to production efficiency, all of which together constitute production efficiency:

1. Reducing the quantities of inputs used to produce a given set of outputs;
2. Increasing the quantities of outputs produced with a given set of inputs;
3. Reducing the cost of production by improving the mixture of inputs used to produce a given set of outputs; and
4. Increasing revenues by improving the mixture of outputs produced using a given set of inputs.

The first two of these estimates are "technical efficiency" and refer only to the production process that converts inputs to outputs (rather than the markets for inputs and outputs). The later two measures are "allocative efficiency" and require consideration of both the markets for inputs and outputs and choices of inputs and outputs.

the rationalization program contribute to the economic stability of both of those segments. To facilitate an understanding of the implications of the alternatives on these two segments, this analysis separately assesses the implications of the different alternatives on the efficiency of harvesting and the efficiency of processing.

To develop an understanding of production efficiencies under the alternatives, it is helpful to develop a framework for assessing returns to producers in the fisheries and the sources of those returns. Three different sources contribute to returns to producers in the fisheries: resource rents, harvester normal profits, and processor normal profits. First, fish that will be harvested and processed have a scarcity value while unharvested in the water that is realized by harvesting and processing. This value can be said to exist independent of the action of harvesters and processors. Once the fish is harvested and processed, this value is captured by the industry. The value referred to here is the resource rents, or the value of fish in its natural state that is realized only by the harvesting and processing of the fish. In the case of catcher processors, this value is captured entirely by the catcher processor. For the shore-based sector, the ex vessel price determines the division of resource rents between the catcher vessels and the shore-based processors. This value, however, is only one part of the returns realized through the harvesting and processing of fish.

In addition to resource rents, each sector is generally expected to receive its normal profits (or a reasonable return on investment in the industry). The normal returns on harvesting investments and normal returns on processing investments are the other two sources of returns in the fisheries. As in any business, harvesters and processors invest capital and labor on the reasonable expectation of receiving a return on that investment.

When assessing the efficiencies in this section, one must keep in mind the relationship between resource rents and efficiencies. In a more efficient fishery, a greater portion of the rents of the resource will be captured by the fishery participants, ceteris paribus. For example, ending a race for fish may slow the flow of rockfish through processing plants, increasing product quality, which increases returns from the fishery. This capture of additional rents could result in relative improvements in both the catcher vessel and the shore-based processing sectors, if the efficiency gain is shared between the sectors. The discussion of efficiencies is largely an analysis of the capture and distribution of the resource rents between the two sectors. The reader should bear in mind that in a fishery in which the division of revenues moves to the detriment of one sector, that sector does not necessarily suffer a decline in efficiency (and hence may not be made worse off), if substantial efficiencies are realized (or in other words, substantial additional rents are captured). If total revenues in the fishery rise substantially, even a negative shift in the division of revenues could leave a party more efficient and better off.

As should be apparent from this discussion, a critical factor in the assessment of the effects of the alternatives on efficiency of the catcher vessels and shore-based processors is the ex vessel price of rockfish, which determines the distribution of product revenues between those two sectors. Rockfish landings generate revenues for harvesters and are a principal input cost to processors. Because of the importance of ex vessel prices in determining the efficiencies of the different shore-side sectors, the analysis in this section devotes considerable attention to the effects of the different alternatives on the distribution of revenues between these sectors (reflected in those ex vessel prices).

Since all of the participants in the rockfish fisheries also participate in other fisheries, most of the alternatives will also affect efficiencies in other fisheries. To fully understand the efficiency effects of the alternatives, the effects on rockfish participants' activities in other fisheries is also considered.[43]

[43] Some analysts might consider these effects on other fisheries to be "cumulative effects" because they concern the interaction of the alternatives with the management programs in other fisheries. Since the interactions influence not

For each segment of the industry discussed below, it is possible that efficiencies could differ. Specifically, participants with small allocations could be affected differently from those receiving large allocations. To the extent that these differences can be assessed, the analysis of each alternative concludes with a discussion of the differential impacts of the alternatives within the sector.

Status quo

Production efficiency of the catcher processor sector under the status quo is limited to some degree by the race for fish under the current LLP fishery. Catcher processors are compelled to race for rockfish harvests with other catcher processors, as well as catcher vessels participating in the fisheries during the few weeks they are open each year. Although catcher processors process their catch quickly relative to catcher vessels, quality of harvests likely suffer to some extent, as participants adopt fishing techniques to maximize catch rates, which may lead to diminished quality and dissipation of a portion of the resource rents that would otherwise be available. Particularly on vessels with smaller processing plants, fishermen may harvest fish at a rate that exceeds the rate at which the plant can process that fish. If fish are held too long prior to processing, quality will decline. Generally, participants in the catcher processor fleet are only equipped to produce whole and head and gut frozen products. Production of these products is likely to continue, if the status quo is maintained.

Catcher processor sector allocation with cooperatives

Under this alternative, the catcher processor sector is likely to realize some gains in production efficiency capturing greater rents from the fishery. As noted earlier, most eligible catcher processors are likely to join cooperatives under this alternative, since operations in the limited access fishery with reduced MRAs are likely to be less efficient (and profitable).

The primary efficiency gains in the catcher processor sector under this alternative will result from improvements in technical efficiency. Allocative efficiency gains are unlikely to occur since the vessels participating in this sector are equipped to produce only whole and head and gut products and are unlikely to reconfigure for different production outputs. Technical efficiency gains should occur as participants are able to slow the pace of fishing and processing. In the slower fishery, participants are likely to be able to reduce expenditures on inputs to some degree (possibly scaling down crews slightly) and increasing outputs slightly (with less loss due to diminished quality). Additional technical efficiencies should arise because of the cooperative structure of the alternative. In a cooperative, participants will be free to consolidate fishing up to the 60 percent vessel cap. Consolidating catch on fewer vessels in the fishery should also reduce aggregate harvest costs.

Some cooperatives may also improve efficiency in other July fisheries, if they are able to reduce the number of vessels in the rockfish fishery or change the timing of rockfish harvests (away from the traditional early July fishery). This interactive effect should arise one of two ways. Since each cooperative will be limited to the historic catch of its members in other July fisheries[44], the outputs of each cooperative will be limited. A cooperative could enter more vessels into these other fisheries (since no or fewer vessels will be occupied with rockfish targeting in early July) slowing the rate of harvesting and processing without reducing its total harvest from historic levels. At this slower rate, technical efficiencies

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only the efficiencies realized in those other fisheries, but also the efficiencies realized in the rockfish fisheries, a thorough analysis of the effects of the alternatives on the rockfish fisheries requires their consideration. In addition, since these interactive effects do affect the overall efficiency arising from the rockfish alternatives, a comprehensive net benefits analysis must include those effects.

[44] Although cooperative members could choose to be subject to a standdown in lieu of the cooperative sideboard, it is unlikely that a cooperative would choose to accept the standdown given the opportunity to enter the July fisheries on their opening.

similar to those in the target rockfish fishery could be realized. Alternatively, a cooperative could choose to use fewer vessels to make its historic harvests in these other fisheries, since vessels would be able to begin fishing at the opening of the non-CGOA rockfish seasons, instead of needing to race for fish in the CGOA rockfish fishery prior to entering these other fisheries. A cooperative whose members have diverse histories in several different July fisheries may be less able to achieve these efficiencies in other fisheries, since the cooperative may need to enter vessels in several fisheries simultaneously to maintain its historic shares.

Participants in this sector will also have the option of transferring their annual allocations to the shore-based sector. Some historic participants could elect to transfer their allocations for harvest by a catcher vessels cooperative, if they perceive an added benefit from fishing of the allocation by that sector. Participants with relatively small allocations who cannot achieve efficiencies internally harvesting and processing those allocations (and are unable to reach satisfactory agreements with other participants in the catcher processor sector) may find that transferring their small allocations to the shore-based sector could yield a better return. Whether better returns can be realized in the shore-based fishery cannot be predicted and depends on both the difference in harvesting and processing costs between the shore-based and offshore sectors and the differences in product outputs and quality. As noted in the discussion of shore-based processing below, the shore-based sector is likely to produce higher-value processed products, such as fresh fillets that cannot be processed onboard the catcher processors that participate in the rockfish fisheries. Whether these different products lead to greater production efficiencies, however, depends greatly on harvesting and processing costs.

Although technical efficiencies should be realized by the catcher processor sector overall, some catcher processors eligible for the program may realize efficiencies that are substantially less than those realized by others. Eligible catcher processors that receive small rockfish allocations may have little to gain from coordinating the harvest of relatively small rockfish allocations, particularly since sideboards will limit their harvest from other July fisheries. It is also possible that some members of the sector could be disadvantaged by participating in the rockfish program, because the loss of revenues from limits on their activities in other fisheries from the sideboards may exceed the benefits of the exclusive rockfish allocations. These participants are likely to opt out of the program to remove the constraints of cooperative sideboards on their participation in other fisheries. A catcher vessel that opts out of the program would only be permitted to participate in fisheries that it has participated in during the first week of July in at least two of the seven qualifying years. This minimal limitation is unlikely to constrain any vessels that have limited rockfish history that are likely to opt out of the program.

Catcher processor cooperative with individual allocations

Efficiency gains under the catcher processor cooperative alternative should be similar to those realized under the other catcher processor pilot program alternative. Under this alternative, persons who choose not to enter cooperatives would be permitted to fish individual allocations, but would be prohibited from exchanging annual allocations with other participants. Notwithstanding the ability to fish individually, all eligible catcher processors that choose to remain in the program are likely to join cooperatives that will allow greater flexibility in harvesting and the exchange of shares that is likely to facilitate harvest of substantially greater portions of the allocations given the hard caps of the secondary species allocations. As under the other catcher processor alternative, some catcher processors with minimal allocations under the program may choose to opt out of the program to avoid the restrictions of the cooperative sideboards, or transfer their allocations to a catcher vessel cooperative, if better returns are available from that sector. Whether recipients of small allocations is more likely to opt out under this alternative than they would be to decline to join a cooperative (and instead fish in the limited access fishery) under the other catcher processor alternative cannot be predicted. Vessels that choose to fish in the limited access fishery are subject to greater sideboard restrictions under that alternative. Total catcher processor efficiencies under this alternative are likely to be the same as the efficiencies under the other catcher processor alternative.

2.5.5. Effects on catcher vessel efficiency

This section examines efficiency in the catcher vessels sectors under the three alternatives that apply to the sector. A limited literature has developed examining the effects of harvester landing obligations (such as processor quota shares and cooperative/processor associations of the AFA type) on efficiency and the distribution of benefits between harvesters and processors. A brief summary of that literature is contained in Appendix 8. None of this literature examines the specific alternatives under consideration here. The analysis, however, provide some theoretical basis for analyzing efficiency and the distribution of benefits between the sectors.

To understand the efficiency effects of these alternatives on harvesters requires consideration of the nature of the cooperatives created under the program. The harvest cooperatives are explicitly for the sole purpose of coordinating the harvest of allocations. The cooperatives are not cooperatives formed under the Fisheries Collective Management Act (FCMA). Given their form, these cooperatives cannot negotiate price or terms of deliveries with processors. Members (or even potential members of a harvest cooperative), however, may form an FCMA cooperative with the same or similar membership as a rockfish harvest cooperative.[45] This FCMA cooperative could negotiate price and delivery terms for all or a portion of the rockfish harvest cooperative allocation. The ramifications of this distinction are discussed in the analysis of the pilot program alternatives below, and are of particular significance under catcher vessel cooperative with processor association alternative.

Status quo

Production efficiency of catcher vessels under the status quo is also limited by the short, race for fish that has arisen under LLP management. Catcher vessel efficiency is particularly vulnerable under the current management because catcher vessel efforts that maximize the share of the TAC also substantially diminish quality of landings. Increasing catch per tow and filling holds can damage rockfish that are difficult to handle, in comparison to other groundfish. Also, extending trip lengths to increase catch per trip and decrease total travel time to and from grounds also results in a decline in quality of rockfish, which typically lose color after approximately 72 hours in a hold. The LLP management and the system of MRAs has led most catcher vessel participants to use fishing effort to maximize quantities of target rockfish and quality of incidental catch species (primarily Pacific cod and sablefish), which are often iced in totes separate from the target rockfish in the holds. The result is a loss of resource rents on target rockfish. These fishing practices are likely to be perpetuated, if the current management is maintained.

Returns to catcher vessels under the existing management have been limited both by the quality of their landings and the compressed time period in which those landings must be made. During the current seasons, most processors have needed to process deliveries quickly to keep pace with the landings. These conditions have dampened competition for landings among the participating processors to some extent. In addition, the inability of harvesters to maintain both quality of landings and their shares of the total catch has also limited their ability to attract some smaller processors into the market that would only be capable of serving higher quality markets. The extent to which resource rents are captured and division of those rents under this alternative is not known. In a fishery that is prosecuted over a very short season (as the rockfish fisheries are) a substantial portion of the rents are likely to be dissipated.

[45] Catcher vessel participants that are affiliated with, or owned or controlled by processors, however, may not join FCMA cooperatives.

Catcher vessel cooperative with limited processor entry

The catcher vessel cooperative with limited processor entry alternative is likely to improve catcher vessel efficiency over status quo management. As noted earlier, most eligible catcher vessels are likely to join cooperatives under this alternative.[46]

Since participants will be able to gain exclusive share allocations by joining cooperatives, a harvester's share of the fishery will generally be unaffected by catch rates.[47] Participants, instead, will refocus their efforts toward harvesting allocations in a manner that improves technical efficiency – reducing inputs and increasing the quality of rockfish deliveries.[48] Most participants may be expected to choose to sacrifice some cost efficiencies (i.e., use more inputs such as fuel) to improve quality of deliveries and receive a greater price for landings. This trade off may increase costs, but only in return for higher revenues that resulting from improvements in technical efficiency and overall efficiency of catcher vessels because of the higher price that would be paid for these landings.

Some cooperatives are likely to remove vessels from the rockfish fisheries to reduce costs. Consolidation of catch on fewer vessels and fishing outside of the traditional July season could also allow the cooperative to enter more vessels in other July fisheries to ensure that the cooperative's members maintain their historic harvests in those fisheries. Sideboards will prevent rockfish catcher vessel participants from increasing their share from July fisheries in the aggregate, but will not prevent the cooperatives from competing amongst themselves to increase their shares of the sideboard amount. The extent of this competition in other fisheries could be reduced, if cooperatives are able to agree on the division of the sideboard amount. Such an agreement could provide the sector with some opportunity to realize efficiency gains in those other fisheries, if harvests can be slowed. Slowing the fishery will also depend on the level of competition from persons outside the rockfish program. Substantial competition from others could limit the ability of rockfish participants to slow their fishing in other fisheries. In addition, the prospect for cooperatives reaching an agreement concerning the harvest of the sideboard amount cannot be predicted.

Although processor entry into the rockfish fisheries is limited, harvesters should be able to generate additional competition for landings among the licensed processors under this alternative. Since qualified processors have processed in excess of 90 percent of all historic landings during the two to three week season, processors that have been unable to compete for additional landings because of capacity constraints during the brief season are likely to have the ability to process substantially greater quantities of rockfish, if landings can be timed to take advantage of available processing capacity.[49] Catcher vessel participants are likely to have the greatest negotiating leverage in the ex vessel market under this

[46] The alternative of participating in the limited access fishery (with reduced MRAs to keep catch under the allocation) is unlikely to appeal to many participants. In addition, cooperative rules are favorable for cooperative membership under this alternative. Cooperative formation simply requires four holders of four eligible LLPs. Also, cooperatives are required to accept any eligible LLP holder as a member subject to the same rules governing other members.

[47] Seasons will be of limited length to accommodate management and oversight. Harvests, however, are unlikely to be constrained by season length given the current ability of the fleet to harvest the TACs of all CGOA rockfish in less than three weeks.

[48] Because catcher vessels deliver a single product (unprocessed fish) to shore plants, the change in their outputs arising from quality improvements is characterized as a technical efficiency improvement here. Some economists may assert that the change is actually allocative, because of the difference in quality could be argued to be effectively changing outputs. Regardless of the characterization of the change, the result is an efficiency improvement.

[49] Although most processors have substantial participation in other Gulf of Alaska LLP fisheries, substantial down times exist between seasons that occupy most of the qualified processing capacity.

alternative, because of the extended season and the limited restriction on the processing market relative to the alternative with processor associations. As a result, catcher vessel participants should be expected to receive a greater share of resource rents under this alternative than under the other pilot program alternative.[50]

Since the CGOA rockfish fishery is only a small portion of the fishing undertaken by most participants in the fishery, it is possible that some catcher vessel participants may choose to accept a lower price for landings from the rockfish fishery to maintain a relationship with a processor in other fisheries. In addition, it is possible that some catcher vessel participants may not exert their competitive advantage to the full extent because it may affect the distribution of negotiating strength under comprehensive Gulf of Alaska groundfish rationalization. If this program is adopted and perceived to have a great imbalance of power in favor of catcher vessels, it is possible that the distribution of power under Gulf rationalization may be designed to favor processors. The strength of the effects of these constraints cannot be predicted.

Overall, the ability to coordinate harvest activity and remove vessels from the fleet without loss of harvest share, together with a relative improvement in bargaining strength arising from the relatively weak processor protection of the limit on processor entry should result in substantial improvements in harvest sector efficiency over the status quo.

Catcher vessel cooperative with processor associations

Operations of the catcher vessel sector under this alternative should be similar to those under the other pilot program alternative. Catcher vessel efficiency gains, however, are likely to be smaller under this alternative because of the rigid cooperative/processor associations.[51]

Catcher vessel fishing practices and technical efficiency gains under this alternative are likely to resemble those under the other catcher vessel pilot program alternative. Rockfish fishing will be dispersed over the longer seasons. Slowing of fishing and greater attention to handling of catch should improve quality of landings. Also, cooperatives are likely to use fewer vessels to fish rockfish to reduce costs and allow cooperative members to maintain their share of harvests in other fisheries.

Although fishing under the two catcher vessel pilot program alternatives should be similar, the ability of catcher vessels to realize efficiency gains will be less under this alternative because of the cooperative/processor associations. Since each catcher vessel participant will be eligible to join a single cooperative in association with the processor that it delivered the most rockfish to in the qualifying years, catcher vessel participants will have substantially less ability to use competition for rockfish landings as

[50] Matulich, et al. (2001) concluded that under the more restrictive AFA cooperative/harvester associations and landing obligations harvesters realize a substantial portion of the rents of the fishery.

[51] Although the alternative creates no specific landing requirement, given that cooperative formation requires a specific processor relationship, it is likely that processors will use that requirement to negotiate landing obligations. Anderson (2002) concluded in his analysis of the relatively more flexible cooperative structure of the AFA that cooperative obligations limited the efficiency gains in that fishery. Anderson, however, did not account for intercooperative transfers under that program. Matulich et al. (2001) also question the efficiency gains under the AFA suggesting that in the absence of tradable quota, processing efficiency will not be maximized. Intercooperative transfers (undertaken by harvesters with processor consent) would seem to overcome these inefficiencies. Whether participants would engage in these transfers, however, is uncertain. Some participants may choose not to engage in intercooperative transfers to use their rockfish operations to support their equipment use during periods when other fisheries are closed. In addition, as Matulich et al. (2001) suggest, some differences in the scales of operations across participants in a sector may lead to certain efficiencies from associations with participants in the other sector of compatible scale. The potential for these efficiencies, however, is not fully explored in that analysis. The potential reduction of processor efficiency from the rigid cooperative/processor associations in this program are examined in 2.5.6 below.

leverage in price negotiations. Two potential sources of negotiating leverage might be exploited under this alternative. First, a cooperative's members could use the threat of not fishing their allocation, instead choosing to either not fish at all, or fishing in the limited access fishery. The potential for negotiating leverage that arises from the opportunity to participate in the limited entry fishery is limited because of the reduced MRAs for valuable secondary species. So, the extent to which a rockfish catcher vessel can assert leverage depends on the importance of the rockfish fishery to the participant. If the rockfish fishery is an important component of a catcher vessel's operations, the ability to withhold fishing to leverage a better price is very limited. Similarly, the effectiveness of withholding catch from a processor for negotiating leverage also depends on the importance of rockfish to the processor. Processors that are more dependent on rockfish revenues are likely to be more responsive to catcher vessels withholding catch. For qualified processors, rockfish is a relatively small portion of their overall processing, limiting the potential for rockfish catcher vessels to withhold landings to assert negotiating leverage.

A second potential source of negotiating leverage for catcher vessels is their deliveries in other fisheries. Some harvesters may be able to use their deliveries in other fisheries to induce a processor to share efficiency gains. This approach could be more effective, but still should have only a limited effect since the market for those other landings is somewhat fluid, allowing the processor to compete for landings from other vessels, if formerly loyal catcher vessels threaten to move to another processor because of low ex vessel prices in the rockfish fishery. The ability of catcher vessels to use this method of negotiation for leverage will likely depend on whether a substantial portion of the processor's fleet in these other fisheries is willing to withhold deliveries. If so, substantial leverage may be brought to bear on the processor. Given the relatively small scale of the rockfish fishery and the fleet that participate in that fishery, efforts to exert leverage by withholding deliveries (from either the CGOA rockfish fishery or other fisheries) are likely to have only a minor effect. In instances in which a processor is highly dependent on the fleet that delivers to it in the CGOA rockfish fishery, it is possible that organized effort of the fleet to exert leverage on the processor could yield some results. In the case of large processors that participate in several different fisheries (including fisheries outside of the Gulf), efforts by catcher vessels to exert negotiating leverage by withholding deliveries of CGOA rockfish or fish from other fisheries are likely to be unsuccessful. In most cases, the prospect of a catcher vessel negotiating a disproportionately large share of the increase in resource rents from a processor is limited.

A substantial portion of resource rents are likely dissipated in the very short season under the status quo management. As a result, overall catcher vessel efficiency should not decline under this alternative in comparison to the status quo. The potential for a substantial share of increases in rents, however, is limited by the relatively weaker negotiating position of catcher vessel participants under the alternative. All catcher vessels that participate in the fishery can be expected to receive at least their costs of fishing and normal profits. Catcher vessels that are able to exert some negotiating leverage may be able to use that leverage to gain some portion of the rents from the fishery.

The dynamics of price negotiations under this alternative could be complicated by the limited purpose served by the harvest cooperatives and the harvest cooperative formation rules. Since the harvest cooperatives under the program are not permitted to negotiate price, members of the same harvest cooperative could conduct negotiations separately. This could disadvantage some cooperative members and lead to different prices for landings of equivalent quality in the same harvest cooperative. For example, a group of catcher vessel participants eligible to associate with a processor could form an FCMA cooperative. If this FCMA cooperative includes holders of more than 25 percent of the history that is eligible to associate with the processor, the FCMA cooperative members could threaten the formation of a harvest cooperative in its negotiations with the processor. Once a cooperative has formed, any catcher vessel participants that have not agreed to delivery terms with the processor will be disadvantaged in their

negotiations, losing any ability to threaten cooperative formation.[52] The processor, on the other hand, will have less incentive to make any concessions to participants (including matching the already agreed price) once the cooperative has formed. Whether a processor is likely to assert different leverage against cooperative members will depend on the level of unification of catcher vessel participants in their negotiations. In addition, price differences could be relatively small, if the processor asserts the leverage available in its negotiations prior to formation of the harvest cooperative.

Additionally, the prospect of comprehensive rationalization of the Gulf of Alaska groundfish fisheries could affect price negotiations under this alternative. Specifically, processors may choose not to fully exert their bargaining strength under this alternative, if they believe that the balance of negotiating strength under the future rationalization program could be affected. If this program is perceived to have a great imbalance of negotiating strength, it is possible that the program selected to rationalize the Gulf could be designed to be more favorable to catcher vessels. The extent of this effect on negotiations under this alternative cannot be predicted.

Entry level fishery

Since the program elements governing the trawl and non-trawl entry level fisheries differ, the catcher vessel efficiency effects of these alternatives are discussed separately.

Fishing practices in the trawl entry level fishery should be similar to those in the main program. The entry level participants are likely to have small allocations relative to the participants in the main program. In addition, these participants will not be permitted to transfer allocations among vessels, limiting their ability to realize technical efficiencies through consolidation. Entry level participants, however, will be subject to the current MRAs, which would allow catch of higher value secondary species in excess of the allocations in the main program. Entry level trawl participants will not be subject to time pressures of a race for fish, since each will receive an exclusive allocation, so secondary species could be harvested to the amount allowed by the MRA. This higher harvest of secondary species could contribute to revenues (and efficiency) for entry level participants. Yet, permitted harvests of secondary species are likely to be small, since the directed rockfish allocations will be small. All harvests should be of relatively high quality since the exclusive harvests will allow harvesters to handle catch with care.

Participation in the entry level fishery requires that the harvester demonstrate a market for landings with a processor eligible for the entry level fishery (i.e., a processor that is not eligible for the main program). Since several processors that process landings from the Central Gulf of Alaska are not eligible for the main program, demonstration of a market should not be difficult. Since allocations would be harvestable at any time during an extended season, participants should have substantial negotiating leverage with processors. So, if catcher vessel participants can achieve a reasonable level of technical efficiency in harvesting allocations, they should be able to realize relatively substantial overall efficiency.

Harvest of the remaining TAC from the non-trawl entry level fishery by trawl vessels at the end of the third quarter is likely to be managed as a limited access fishery. As a result, harvests of this fish will likely be similar to the harvests in the status quo fishery. Quality could suffer if trawl vessel participants race to harvest the available TAC. Prices of landings from this fishery are likely to be lower than harvests made with exclusive allocations in the entry level fishery because of the quality of landings.

Non-trawl entry level participants will participate in a limited access fishery. Although the limited access fishery will be managed similarly to other competitive fisheries in the Gulf of Alaska, a race for fish that

[52] The provision permitting eligible catcher vessels to join the harvest cooperative subject to the same terms and conditions as other members will not address any pricing differences, since harvest cooperatives cannot negotiate delivery terms.

dissipates rents is not likely (at least initially). Non-trawl participants have little historic participation in the rockfish fisheries, never harvesting even one-tenth of the amount of fish that are being allocated to the sector under this program. This lack of history in the fishery raises the question of whether non-trawl vessels can successfully prosecute the fishery. It is possible that harvests by non-trawl vessels could remain relatively low under the program, with most of the allocation being caught when open to the trawl sector in the third quarter.

Any portion of the allocation harvested by the non-trawl sector should be of high quality and should bring a relatively high ex vessel price, as the few harvests of this sector in the past have generated substantially higher ex vessel prices than trawl harvests in the current fishery. Participants in this sector's entry level fishery are likely to have substantial negotiating leverage, since their harvests can be made over an extended period of time, including times when processors have less landings because few other open fisheries are being prosecuted aggressively by the high volume landing trawl fleet.

2.5.6. Effects on shore-based processing efficiency

Shore-based processing is provide for only under the two catcher vessel alternatives and in the entry level fishery. The efficiency effects of these alternatives are discussed in this section.

Status quo

Under the current management, fishermen race for catch, landing that catch with processors shortly after it is harvested. Because of the race for fish, they tend to take less care in handling their catch and extended the length of trips slightly, decreasing the quality of landings. Processors also race to process the glut of landings from fishermen that are trying to maximize their shares of the total catch. Efficiency, both technical and allocative, in the processing sector suffers, as lower valued products of poorer quality are produced. Technical efficiency also is lost, as crews must be scaled up for a short period of time to accommodate the rapid pace of landings during the brief season.

Vertical integration likely has minor effects on processor efficiency in the current fishery. Vertically integrated processors likely have some information concerning fishing costs and operations that is not available to independent processors. This information likely provides only a minimal negotiating advantage in the current fishery because of the concentrated season.

Landings from non-trawl participants are a very small portion of the status quo fishery. These landings, however, bring fishermen and processors a premium price because of their relative higher quality.[53] The relatively unique high quality catch made over a long season, provides harvesters with some negotiating leverage. The small scale of the fishery, however, limits its importance to any processor (except possibly some of the small processors) reducing fishermen's negotiating leverage somewhat.

Catcher vessel cooperative with limited processor entry

Under this alternative, fishing will be slowed, as cooperative receive exclusive allocations. Technical efficiency in processing should improve as processors are better able to schedule crews to process landings. Allocative efficiency should also increase as processors improve product quality and produce more higher quality products that cannot be produced under the current management structure, because of the relatively low quality of landings and the need to process those landings rapidly. Catcher vessel participants are likely to use cooperatives to coordinate landings contributing to technical efficiency gains in the processing sector, as well as the harvesting sector.

[53] The specific processed products data from CGOA rockfish non-trawl fishing cannot be separated from processed products data from other fisheries. Both fishermen and processors assert, however, that products from this fishery are generally of higher quality and sell for a higher price than products from the main fishery.

Processors, however, may experience little improvement in their overall efficiency under this alternative because of their weak negotiating position in the market for landings. Although entry is limited under this alternative, the capacity of qualified processors far exceeds that necessary to process landings in a slowed fishery with an extended season. The cooperation from catcher vessels may improve quality and value of processing outputs and help processors minimize costs of production, but catcher vessels should be in a relatively good negotiating position to receive most of the benefits of those improvements through ex vessel pricing. Notwithstanding the relatively strong position fishermen may have under this alternative, processors, overall, should obtain normal profits from their processing. Some less efficient processors may be unable to realize normal profits, and may be expected to drop out of the rockfish fishery.

Some processors may be able to gain some negotiating leverage in the rockfish market through negotiating landings from these same fishermen in other fisheries. The extent of this leverage is likely to be limited and only arise from landings in fisheries in which fishermen have limited markets for their landings (such as the flatfish fisheries). As noted in the discussion of catcher vessel efficiency, it is also possible that catcher vessels may not fully exert their negotiating strength, if they believe that it could affect the distribution of negotiating strength under comprehensive Gulf rationalization.

Vertically integrated processors could have some advantage over processors that are not vertically integrated under this alternative. In general, vertically integrated processors would be assured of some landings in the fishery. In the structure of this alternative, however, the ability to leverage their position for landings is not certain, but is likely to be very limited. Under the structure of this alternative, processor owned licenses are not permitted to participate in negotiations concerning deliveries of the cooperative. As a result, it is unlikely that a processor could use its license ownership to direct landings of members of a cooperative to its plant. The processor, however, could likely ensure that the cooperative agreement allows it to land catch of its licenses at its plant. These landings could provide a basis on which to build with landings from other licenses in the cooperative or other cooperatives and could be used to fill gaps between landings from these other participants. Vertically integrated processors are also likely to be more familiar with catcher vessel operating costs providing them with a slight negotiating advantage over processors that are not integrated. In addition, if a vessel owned by a processor has operating relationships with vessels that are not vertically integrated, it is possible that this relationship could influence non-integrated vessel's choice of processors. The extent of the advantage held by vertically integrated processors is difficult to predict and will differ with circumstances.

A portion of the benefits realized by shore-based processors could flow to foreign-owned entities. This distribution depends on the extent of foreign ownership of processing facilities and the extent to which those entities are profitable and take those profits outside the U.S.

Catcher vessel cooperative with processor associations

As under the other catcher vessel pilot program alternative, technical efficiencies and product improvements in the processing sector are likely to occur under this alternative. The slower rate of fishing should allow processors to reduce processing costs and produce higher value and higher quality outputs.

Unlike the other catcher vessel alternative, this alternative provides processors with a substantial advantage in the market for landings through processor/cooperative associations. Since each qualified catcher vessel participant will have to join a cooperative in association with a specific processor, fishermen will have little negotiating leverage with respect to their landings. Any potential negotiating leverage for the fishermen arise from withholding deliveries to the processor (either in the CGOA rockfish fishery or other fisheries). This leverage is likely to be limited, particularly if the processor is not highly dependent on the rockfish fishery. The outcome should be that processor efficiency improves substantially with the reduction in processing costs and product improvements (some arising from improved quality of landings). Processors are likely to capture most of the increase in rents under this

alternative, improving overall processing efficiency. As noted in the discussion of catcher vessel efficiency, processors may choose not to fully exert their bargaining strength under this alternative, if they believe it could affect the distribution of bargaining strength under Gulf rationalization.

Vertical integration is unlikely to affect landings patterns significantly under this alternative. Processors have substantial negotiating leverage under this alternative regardless of the extent of vertical integration in the fishery. Vertically integrated processors, however, could have an advantage in negotiations because of their knowledge of vessel operating costs. This information could aid vertically integrated processors in their negotiations with independent catcher vessels.

As under the other catcher vessel alternative, a portion of the benefits realized by shore-based processors could flow to foreign-owned entities. Although the amount cannot be predicted with any specificity, the flow of benefits outside the U.S. is likely to be greater under this alternative because a greater share of the benefits flows to the processing sector, the sector with some foreign ownership.

Entry level fishery

In the trawl entry level fishery technical efficiency and product improvements should be similar to those realized under the two catcher vessel pilot program alternatives. The distribution of benefits from these improvements (i.e., distribution of rents) should be similar to those under the catcher vessel cooperative with limited processor entry, as fishermen should have better negotiating leverage than processors in the market for landings over the extended season. Processors, however, should realize normal profits from their landings.

Processor efficiencies from harvests by trawlers of any remaining TAC from the non-trawl allocation should be similar to those of the status quo fishery. The relatively small amount of the allocation remaining at this point in the year, however, could lead to limited participation and a very short season in the fishery. If this fourth quarter season is very short allowing only one or two tows for rockfish, it is possible that quality could be maintained, as harvesters perceive little loss of opportunity from handling catch with care. In the fourth quarter trawl fishery, it is possible that some of the negotiating leverage could shift back to processors. Fishermen, however, should be able to generate competition by negotiating with several processors prior to the opening.

Efficiency in the processing sector in the non-trawl entry level fishery should be the same as processor efficiency for non-trawl participants under the status quo.

2.5.7. Effects on overall production efficiency

This section examines the effects of the alternatives on overall production efficiency. This efficiency is the combined efficiency in fishing and efficiency in processing. This analysis is relatively short, as it is derived from the separate analyses of efficiency of the fishing and processing sectors above.

Status quo

Overall production efficiency in the CGOA rockfish fisheries is likely to remain at its current level, if the status quo management is continued. For catcher processors, quality of products is relatively high as catch is processed quickly onboard. These vessels are likely to continue producing exclusively whole and head and gut products, as is the current practice. For the shore-based sector, quality of landings and processed products are likely to suffer under a race for fish. In addition, the race for fish is likely to limit the ability of shore-based processors to develop and supply markets for higher valued products.

Production of rockfish caught by non-trawl vessels is likely to remain at the current level of efficiency. Catch is likely to be of high quality and will be processed into relatively high valued products.

Catcher processor sector allocation with cooperatives alternative

Overall production efficiency is likely to increase slightly under this alternative, as catcher processors are able to make some quality improvements with the ending of the race for fish under the current management. Product form (whole and head and gut) almost certainly will remain the same under this alternative due to operational limitations and regulatory and vessel safety requirements (e.g., load line). Some technical efficiencies could be realized through the consolidation of catch on fewer vessels, but vessels will not be retired because rockfish is a minor part of each vessel's annual activity.

Catcher processor cooperative alternative

The change in overall production efficiency under this alternative is likely to be the same as under the other catcher processor alternative. Minor improvements in quality and technical efficiencies could result in some overall production efficiency gains.

Catcher vessel cooperatives with limited processor entry

Overall production efficiency should improve substantially under this alternative. Quality of rockfish landings should improve as the race for fish is ended. Processors should also be able to better handle landings producing higher quality and higher valued products. Both sectors should realize some gains in technical efficiency through better scheduling of their activities. Costs should be reduced as participants in both sectors are able to determine inputs to reduce costs of production without concern over losing their share in the fishery, if rate of harvest is slowed.

Catcher vessel cooperatives with processor associations

Overall production efficiency should also improve substantially under this alternative. As under the previous catcher vessel alternative, quality of production should improve and higher valued products should be produced. Participants in both segments of the inshore sector should realize some efficiencies in cost, as they will no longer have to race to preserve their share of fish. Efficiency gains under this alternative, however, could be less than under the other catcher vessel alternative. The strict cooperative/processor association under this alternative could reduce the incentive for some processors to aggressively pursue markets for rockfish landings.

Entry level fishery

The trawl sector of the entry level fishery should realize levels of overall production efficiency similar to that realized under the catcher vessel alternatives. The entry level fishery, however, may not be as successful in achieving efficiencies as the main program alternatives because of the limited allocation to the fishery. With small allocations, efficiencies in operational costs could be hard to realize for both segments of the inshore sector, since no consolidation of allocations is permitted. Efficiency of the trawl sector in the harvest of the remaining non-trawl allocation at the start of the fourth quarter should be similar to the status quo efficiency.

Overall production efficiency of catch from the non-trawl entry level fishery should be similar to the level of efficiency achieved by the non-trawl sector in the status quo fishery. Catch can be expected to be of relatively high quality and processed into relatively high valued products.

2.5.8. Effects on consumers

This section examines the effects of the pilot program alternatives on consumers. To allow an examination of the net benefits to the Nation, where possible, the effects on U.S. consumers are distinguished from the effects on consumers in other markets. The pilot program alternatives are again grouped in this section, because the effects are similar under those alternatives.

Status quo

Consumers are likely to be supplied with products from the rockfish fisheries that resemble those currently produced under status quo management. Catcher processors are likely to continue to produce high quality frozen head and gut and whole fish, most of which is sold into Asian markets. Production from catcher vessel catch is likely to suffer from poor handling. Landings are likely to be made into primarily head and gut and whole fish.

Most of the catcher vessel production is sent to Asia, much of which returns after reprocessing. Some catch is made into fillets at the primary processing plant, but the ability to make quality fillets is limited because of the quality of the landings and the time pressures arising from the race for fish.

Pilot program alternatives

Production of the catcher processor sector is likely to be similar to current production under the pilot program alternatives. Some quality improvement could occur, but these vessels already produce high quality products because their catch is processed onboard soon after it is harvested. Any improvements in consumer benefits arising from improved quality are likely to be realized by Asian consumers, as most of the production from this sector is sold into that market.

Substantial changes are likely to occur in the production of catcher vessel harvests to the benefit of consumers. Catcher vessel landings are likely to be of higher quality under both of the catcher vessel pilot program alternatives. Processors are also likely to slow lines, allowing them to produce fillets, instead of the less processed whole and head and gut products currently produced. This should limit the amount of reprocessing of products abroad for re-importation to U.S. markets. Some processors are likely to attempt to serve domestic fresh markets, which would also benefit U.S. consumers. Most of the consumer benefits of production improvements in the fisheries are likely to be realized by U.S. consumers.

Although the effects on consumers of the two catcher vessel alternatives are likely to be similar, a few differences could arise. Under the alternative with cooperative/processor associations, processors may be less compelled to compete aggressively in the market for landings. This could lead to less aggressive competition in the product outputs markets, if some processors perceive no threat to their supply of fish from reducing competition. Lesser competition is likely to be manifest in lower quality outputs, as processors perceive less need to search for higher revenues in the market place. The impact of this on benefits to consumers is not obvious and depends on the extent to which prices affect demand for the products. It is generally accepted that a measure of consumer benefit is the difference between the amount consumers are willing to pay for a product and the amount that is actually paid in the market (i.e., consumer surplus). For a given quantity of the product all of which is purchased, this difference will be larger for products that consumers are less able obtain substitutes (i.e., products with fewer substitutes are likely to have steeper demand curves). In general, one would surmise that lower quality products have relatively greater substitutes (i.e., flatter demand curves) than higher quality products, as substitutes are more readily available. Assuming the same quantity of production, higher quality products therefore could be argued to bring a greater benefit to consumers, as consumers in general are would be willing to pay more than the market price for higher quality products. Assuming that this argument holds, consumer surplus is likely to be greater under the processor limited entry alternative than the alternative with processor associations. The magnitude of this difference depends on the degree to which competition in product markets is dampened by the protection of the processor associations.

2.5.9. Effects on management, monitoring, and enforcement costs

Management, monitoring, and enforcement under the different alternatives are described in section 2.5.1 above. This section compares the costs of the management, monitoring, and enforcement under the different alternatives, as part of the net benefits analysis.

Status Quo

Under the status quo management, NOAA Fisheries incurs the costs of management and enforcement of fishing under the LLP. The costs of observer coverage are borne by the fleet and shore-based processors.

Catcher processor pilot program alternatives

Under the catcher processor pilot program alternatives, NOAA Fisheries will incur additional costs of determining eligibility and making allocations of history to participants under the program. Cooperative agreements will be reviewed by the agency. Annual allocations must be made to cooperatives (and to either a limited access fishery or individuals, if any persons eligible for the program choose not to join a cooperative). NOAA Fisheries will be required to conduct catch accounting for the different allocations and monitor the allocations using observer data. The costs to NOAA Fisheries are likely to exceed the current costs of managing the rockfish fisheries under the LLP, which are in large part coordinated with management costs of several fisheries (and therefore are distributed across several fisheries). Enforcement costs are also likely to rise under the pilot program, as enforcement personnel will be required to oversee activities over a longer period. In addition, individual accountability for catch of cooperative allocations requires additional enforcement resources. If a limited access fishery is required (which is not likely) additional inseason management of a limited access fishery with a relatively small allocation will be required. This management is generally similar to the current management. Although the cost of the management for a smaller fleet should be less, the additional complication of monitoring a very small fleet fishing a very small allocation could add to those costs.

In addition to costs that will be borne by NOAA Fisheries, participants in the fishery are likely to have some additional costs. To date, NOAA Fisheries has maintained that to fully monitor total catch on a catcher processor requires the use of flow scales, with every haul observed. A sampling station with a motion-compensated platform scale (to verify accuracy of the flow scale) could also be required on board the vessel. Currently, three of the vessels that carry licenses that are eligible for the program have both flow scales and observer stations. One vessel carrying a license eligible for the program has flow scales but no approved observer station (NMFS, 2004). Fully outfitting vessels to meet the monitoring requirements could be costly.[54] Approximately one-half of the vessels qualifying for this program, however, would be subject to minimum groundfish retention standard requirements to continue their participation in Bering Sea fisheries. Since that program also requires these same monitoring upgrades, the cost of the upgrades for those vessels should be considered a cost of maintaining the vessel's operations in both the CGOA rockfish fisheries and the Bering Sea fisheries, rather than simply a cost of continued participation in the rockfish fisheries. In addition, it is possible that some participants may choose have their allocations harvested by vessels with adequate monitoring equipment and facilities, instead of upgrading their vessels to participate in the cooperative component of the rockfish fisheries.

Added costs of observers are difficult to predict under the program. A requirement that all catch under the program be observed is likely to result in some added observer coverage for vessels harvesting fish under

[54] Approved flow scales are estimated to cost $50,000. Observer station equipment, including an approved platform scale, is estimated to cost between $6,000 and $12,000. Installation costs are likely to vary across vessels and cannot be predicted. In addition, smaller vessels in the fleet could have difficulty accommodating these equipment and facility upgrades. As a result, installation could range from $20,000 to $250,000. Total costs of equipment and installation would therefore range from approximately $75,000 to $300,000. Costs in excess of $150,000 are likely to be rare.

the program. A certified observer is estimated to cost approximately $375 per day. The rockfish fishery has remained open approximately 2 to 3 weeks each year. The cost of an observer for approximately 2 and ½ weeks is approximately $6,500. If an average vessel attempted to slow fishing to improve quality of products under the program fishing could be extended beyond the current 2 and ½ weeks. In considering these costs, it is also important to consider costs will vary with the size of the allocation fished and that several participants' allocations vary from the average.

The extent of the additional coverage, however, is difficult to predict because participants may coordinate fishing under the program to focus observer coverage to reduce costs. Savings are likely to be realized not only by participants stacking history on a single vessel, but also through coordinating monitoring within a trip. For example, a catcher processor harvesting allocations in the program may be able to catch pilot program rockfish and non-pilot program fish in a single trip. If pilot program tows are coordinated with an observer that is already on the vessel to observe harvests in the fisheries for other species, some savings on observer costs may be realized. The coordination of observer coverage for fishing under the program will determine the extent to which participants are able to realize observer costs savings by coordinating observer coverage for their rockfish fishing and other fishing activity.

The overall rise of administration and enforcement costs will be reduced by the very small catcher processor fleet that is eligible for the program.

Catcher vessel pilot program alternatives

As under the catcher processor pilot program alternatives, NOAA Fisheries will incur additional costs under the catcher vessel pilot program alternatives of determining eligibility and making allocations of history to participants under the program. Cooperative agreements will be reviewed by the agency. Annual allocations must be made to cooperatives (and to either a limited access fishery or individuals, if any persons eligible for the program choose not to join a cooperative). NOAA Fisheries will be required to conduct catch accounting for the different allocations and monitor the allocations using observer data. Enforcement costs are also likely to rise under the pilot program, as more resources will be required because of the cooperative allocations and the longer seasons. If an entry level fishery is prosecuted by non-members of cooperatives, cost of management would rise to an extent similar to the costs described for the limited access catcher processor fishery.

Observer costs, borne by the fleet, are likely to increase for the catcher vessel sector to provide adequate information concerning fishing activity under the program. The extent of these additional costs is not known, and depends on the specific monitoring program developed by NOAA Fisheries and the fishing practices of participants. To reduce observer costs (and operational costs), it is likely that some rockfish harvesting will be consolidated within (and possibly across) cooperatives. The extent of the impact of this consolidation cannot be predicted and will depend on costs in general, including observer costs.

Entry level fisheries

For both entry level sectors, NOAA Fisheries would have some expense related to the application process for persons that wish to participate in the program. Once applications are received, NOAA Fisheries would also have the expense of making allocations to the two fisheries and to the individual participants in the trawl sector. Since none of the allocations are history based, the computation of allocations would be very simple and virtually cost free.

For the trawl catcher vessel sector, the entry level fishery would be managed, monitored and enforced in a manner similar to the main pilot program catcher vessel fishery. Costs of management, monitoring, and enforcement would be similar to that described in for the catcher vessel pilot program alternatives. Some reduction in costs is likely to be realized because of the similar requirements for the pilot program and the

entry level program. The specific costs will depend on the number of applicants for the program, which cannot be predicted.

For the non-trawl sector, the entry level fishery would be managed, monitored, and enforced in a manner similar to the limited access fisheries under the LLP. In general these fisheries cost less to manage. In addition, NOAA Fisheries expenses should be reduced since protocol for these fisheries are already well defined.

NOAA Fisheries is also like to have some additional expense, if the non-trawl allocation is opened for harvest by trawl vessels at the end of the third quarter. The agency will likely require a second application process for this fishery, which would be used to estimate the catching power of participants and determine whether a limited opening should be set for the fishery (i.e., 12 or 24 hour opening). The general expense of management and monitoring this opening should be similar to the management of the current LLP fisheries.

2.5.10. Effects on environmental/non-use benefits

Improvements in environmental conditions are valued by the public at large. For example, preservation of endangered species is often considered to have significant value to the public. Although rockfish populations could be of less concern to the public than high visibility species such as bald eagles, it is likely that the public values preservation of these stocks. The value of knowing that a stock is well maintained in its natural habitat is commonly referred to as a non-use value. In addition to the existence of a resource, the public also likely values the use of the resource. For example, even if fish stocks are well managed and catch is at levels that maintain acceptable stock sizes, the public may experience some loss of value, if catch from the fishery is not well utilized and goes to waste. No known studies of these non-use values have been conducted to date, preventing any quantitative estimates here. This section, however, provides a qualitative analysis of these non-use benefits.[55]

Status Quo

In the current fisheries, catch of all species of interest are limited either by TAC or by PSC limits. Managers monitor harvests inseason, closing the fisheries when the total allowable catch is estimated to be taken. Managers have become quite adept in their estimates, and have generally succeeded in maintaining catch below TAC. Occasionally, TACs are exceeded, but overages have not exceeded OFL or threatened stocks. Public non-use benefits derived from the management of health stocks of these species are likely to be maintained, if the current management is perpetuated.

Although total catch of each species is limited, discarding is permitted of most species. Secondary species tend to have very low discard rates in the rockfish fishery, rarely exceeding 1 percent of their total catch in the fishery (NMFS discard reports).[56] Additionally, minor amounts of other species are caught incidentally, much of which is discarded (see Table 48). Mortality of discards of incidental catch reduces the non-use values to the public that arise through productive use of the resource.

Pilot program alternatives

Under the pilot program alternatives, catch of all species of interest will continue to be limited by TAC or PSC limits. These limits should be effectively maintained through the monitoring and management program, perpetuating the current non-use public benefit derived from maintenance of healthy stocks.

[55] This section intends to discuss only the public benefits from the environmental consequences of the alternatives.
[56] In only one year, 1998, have any of the discard rates of secondary species exceeded 2 percent of total catch of that species. In that year, discards of thornyheads was almost 20 percent.

NOAA Fisheries will make annual, exclusive cooperative allocations for the three target rockfish species and for 3 (or 4) secondary species, depending on the sector, under the program. The program will establish full retention requirements for all of these allocations. These measures should have the effect of reducing discards of these species, contributing additional non-use benefits that might arise from conservation of the resource. In addition, production from rockfish catch under the program is likely to be of substantially higher quality and of higher valued products in the catcher vessel sector. These improvements could also provide non-use benefits to the public that values efficient production from the resource (i.e., improved utilization and improved retention).

2.5.11. Effects on net benefits to the Nation

The net benefits to the Nation arising out of the change in management can accrue from several sources. First, production efficiencies in harvesting and processing could occur as a direct result of management changes. These production changes may affect the benefits realized by U.S. consumers, through changes in product quality, availability, variety, and price. Further, the changes in conduct of the fisheries and management could result in changes in the environment, which yield benefit changes to the Nation through ecosystem productivity changes and welfare changes attributable to non use/passive use values. These various contributing effects of the alternatives to the net benefits to the Nation are summarized in the sections above. This section summarizes the different effects to allow comparison of the different alternatives and conclusions concerning the overall effects of the alternatives on net benefits to the Nation.

Status Quo

If the current management of the rockfish fisheries is continued, net benefits to the Nation are likely to remain at their current level. For catcher processors, quality of the whole and head and gut production is relatively high. Few consumer benefits from this production are realized in the U.S., as most fish is sold into foreign markets. For the shore-based sector, quality of landings and value of processed products suffer decreasing production efficiency. Consumer benefits of these harvests are diminished by the quality and product value. In addition, a substantial portion of any consumer benefit is not realized by U.S. consumers, as much of the production is sold into foreign markets. Costs of monitoring and management are relatively low, as catch is monitored at the fleet level. Non-use benefits to the public are decreased to some extent by waste and bycatch.

Catcher processor sector allocation with cooperatives alternative

Net benefits to the Nation will be affected by a few different factors under the catcher processor sector allocation with cooperatives alternative. Production efficiency should increase slightly, as some participants realize moderate improvements in quality of production. Few, if any, benefits of production improvements will be realized by U.S. consumers, as this fleet is likely to continue to serve international markets. Costs of management, monitoring, and enforcement will increase to administer and oversee the cooperative allocations. Some vessels may be required to purchase additional monitoring equipment. Since that additional equipment will be required for participation in other fisheries, only a portion of its cost should be attributed to participation in the rockfish fisheries. The amount attributable to the rockfish fisheries will vary among participants. Some participants may avoid these costs altogether, if their allocations are fished by other cooperative members. Some additional benefits to the Nation could arise through reduction in bycatch, since the program requires full retention of several species. Since discard rates of these species are relatively low in the current fishery, these benefits are likely not substantial.

Catcher processor cooperative alternative

The effects of this alternative on net benefits to the Nation should be the same as those realized under the other catcher processor alternative.

Catcher vessel cooperatives with limited processor entry

A few different factors will affect net benefits to the Nation under the catcher vessel cooperatives with limited processor entry alternative. Slowing the rate for fishing and extending the season should lead to substantial increases in production efficiency, as participants in both sectors improve quality and higher value products are produced. Some production benefit could flow to foreign-owned processing entities, but since increases in processor net benefits under this alternative are relatively minor, almost all of the gain in production efficiency should realized by U.S. entities and citizens. Production improvements should lead to benefits for U.S. consumers, as this fleet is likely to maintain, or even increase production for domestic markets. In addition, greater production is likely to occur domestically, as fewer primary products are shipped abroad for reprocessing. Increased administration and oversight necessary for cooperative allocations and an extended season will result in an increase in costs of management, monitoring, and enforcement. Participants may also require additional observer coverage. Some additional benefits to the Nation could arise through reduction in bycatch, since the program requires full retention of several species. Since discard rates of these species are relatively low in the current fishery, these benefits are likely not substantial.

Catcher vessel cooperatives with processor associations

Changes in net benefits to the Nation under this alternative are likely to be similar to the changes in net benefits to the Nation under the other catcher vessel alternative.[57] Overall gains in net benefits to the Nation, however, could be reduced under this alternative, if processors perceive less need to compete in product markets because of the relatively tight linkage of the processor associations under this alternative. Whether competition in product markets is dampened depends on the specific situation of the processors and fishermen that deliver to the processor (including factors such as the markets the processor serves, the extent of involvement of the processor and fishermen in other fisheries, and the cost of developing participation in new and challenging markets). In addition, a portion of the net benefit gains in production could be lost to foreign-owned processing entities.

2.5.12. Effects on entry into the fisheries

The ability of interested persons to enter the rockfish fisheries differs under the status quo and the different pilot program alternatives. Since the "entry level fishery" is a component of any pilot program, the analysis analyzes the main program alternatives given the existence of the entry level fishery. Since entry opportunities are very similar across all pilot program alternatives, these alternatives are analyzed in a single discussion, with any differences discussed within that section.

Status quo

Entry to the trawl rockfish fisheries under status quo is limited by the LLP. Since a substantial number of LLPs endorsed for the CGOA fisheries are not currently active in the rockfish fisheries, several persons holding those licenses could enter the fishery. The lack of entry to the fishery under continuation of the status quo is a result of overcapacity in the fishery, which is demonstrated by the very short seasons. If the current management is continued, entry of additional vessels is unlikely. In the long run, some persons may choose to enter the fishery, but only if current participants depart from the fishery, or stock abundance or market conditions change significantly for the better.

[57] The distribution of benefits among participants is likely to differ from the distribution under the previous alternative. The relatively strong, processor association is likely to limit the need for processors to compete for landings, resulting in a greater distribution of benefits to processors under this alternative. Also, this distribution could affect benefits to the Nation, since some processors are foreign owned. Net benefits to the Nation will be reduced to the extent that the increase in benefits realized by foreign owned processors are redistributed to their foreign-based parent owners.

Entry to the non-trawl sector is also limited by the LLP. Vessels under 26 feet, however, do not require an LLP license to fish in federal waters, so fishermen wishing to use these relatively small vessels are not limited. If the status quo management is maintained, it is possible that some entry in the non-trawl sector would occur, as several persons participating in this sector have expressed an interest in the fishery. The sector has had relatively little historic participation, so the potential for the sector to successfully target rockfish has not been firmly established. In the long run, the prospect for entry, however, depends on the success of new entrants, since this sector has little history in the fishery and has not demonstrated that it can successfully prosecute rockfish.

Pilot program alternatives

To assess the effect of the pilot program alternatives, one must first develop a workable definition of entry. This analysis assumes that entry means more than simply entering a vessel into the fishery, but instead means the development of one's participation to resemble a typical participant in the fishery. The analysis examines both the potential to achieve that level of participation and the potential processes by which a person could develop participation to that level.

Using the definition, entry to the trawl fishery is clearly limited by the rules of the pilot program alternatives. Although entry to the "entry level fishery" is open to all LLP holders, this fishery is unlikely to support activities of a typical rockfish vessel. To enter the rockfish fisheries at the level of a typical participant, a person must acquire one or more licenses that are eligible and carry history adequate to support the operation of a vessel. Alternatively, a person could acquire a single license to enter the fishery, then enter a cooperative and acquire annual allocations within a cooperative to fish on a vessel. While this entry is possible, the cooperative structures that are effective at reducing transactions costs for existing participants are also likely to limit the ability of a new entrant to acquire additional portions of the cooperative's annual allocation to fish on a vessel. Clearly entry is quite limited under the pilot program alternatives. In addition, the prices of eligible licenses are likely to vary with history in other fisheries. Since any transaction is likely to value all groundfish history related to the non-severable license, it is possible that some rockfish licenses with substantial history in other fisheries could be very costly despite relatively small qualifying rockfish histories.[58] The extent of the effects of histories in other fisheries on the prices of licenses cannot be predicted. Whether entry is more effectively limited by the pilot program than under the existing management (which allows free entry to a fishery that dissipates a substantial portion of the rents in a race for fish) is uncertain.

For catcher vessels, entry is likely to be more limited under the catcher vessel cooperative with limited processor entry alternative. Under this alternative, catcher vessels are likely to receive a substantially greater portion of the rents in the fishery. These rents are likely to be capitalized into the eligible licenses driving up the costs of those licenses to potential entrants. Acquisition of annual allocations under the program is also likely to be more costly under this alternative. Under the catcher vessel cooperative with processor association alternative, entry of catcher vessels should be less costly as catcher vessel participants are likely to realize little more than normal profits from their participation in the fishery. Entry, however, could still be costly, if most rockfish eligible licenses carry substantial history in other fisheries.

Entry to the non-trawl sector is likely to be similar to entry in the status quo fishery. In recent years, non-trawl participants have harvested a very small portion of the target rockfish TACs. Unless harvests can be increased substantially in the future, the relatively small 2.5 percent allocation should be adequate to support any participants in this sector that wish to enter the fisheries.

[58] Histories in other fisheries will likely be considered an economic asset for their potential value in other rationalization programs, such as comprehensive Gulf rationalization.

2.5.13. Effects on fishing crew

The effects on fishing crew of the different pilot program alternatives are likely to be the same. To simplify the analysis the discussion of those alternatives are consolidated in a single discussion.

Status quo

Crew participation and compensation in the rockfish fishery are likely to continue in their current manner, if the status quo management is continued. Most crewmembers currently work in several different fisheries on the vessel that they work on during the rockfish season, while some move to other vessels for particular fisheries. Crew are compensated on a share basis, receiving a specific percent of the vessel's revenues (with crew of greater experience or in more demanding positions receiving a greater share). The existing patterns of crew participation and compensation are likely to remain the same, if the current management is maintained.

Pilot program

The development of the pilot program is likely to have some minor effects on crew. Fishing can be expected to slow and occur outside of the traditional July season. In addition, some vessels that have historically participated are likely to no longer fish in the rockfish fisheries. Notwithstanding this decrease in vessels in the rockfish fishery, it is unlikely that any vessels will entirely leave the North Pacific fisheries, as most rockfish vessels also have substantial participation in other fisheries.

Crew compensation could change in some cases. Crew on some vessels that leave the rockfish fishery are likely to lose some income, if the vessel is unable to make up the loss in revenues in other fisheries. This income is not likely to be a substantial portion of a person's annual income, but could be significant to the crewmember in some cases. In addition, crew on vessels that remain in the rockfish could realize an increase in income from increased harvests and revenues in the fishery. Catch increases are likely under all alternatives. Revenue increases should be the greatest for catcher vessels under the catcher vessel with limited processor entry because of the increased negotiating leverage of catcher vessels and product improvements under that alternative. Catcher vessel crews, however, may not fare as well under the catcher vessel cooperative with processor association alternative, as catcher vessel negotiating leverage is likely to be substantially weaker. Crew on catcher processors that participate in the fishery could benefit from consolidation of harvests on fewer vessels and possibly a minor increase in revenues, if quality improvements are realized.

2.5.14. Effects on shore-based processing crew

Shore-based processing crew could be affected by the pilot program. Affects are likely to be similar under the two catcher vessel alternatives, so they are discussed in a single section.

Status quo

Processing practices are likely to remain unchanged, if current management is maintained. In the current fishery, most of the processing takes place in Kodiak and is undertaken by resident crews. Crews are employed processing rockfish for a relatively short period of time. When rockfish is processed, relatively large crews are necessary to maintain a flow of fish through plants that keeps pace with vessel offloads. Because the fishery coincides with the pink salmon fishery, some plants must employ substantially larger crews that are juggled between lines to process landings from both fisheries. Although most plant workers are also employed in other fisheries, the short intense season means that their employment is more sporadic. Processing landings from limited access, competitive fisheries hinder the ability of plants to develop regular employment schedules and support their primary resident crews. The absence of regular employment also makes it more difficult for plants to retain good employees.

Pilot program alternatives

Shore-based processing employment should change some under the pilot program alternatives. Harvests from the rockfish fishery are likely to be distributed over a longer period of time to improve quality and to produce higher valued, more processed products. Landings are likely to be scheduled to serve particular markets, but also to facilitate the scheduling of crews. Although the rockfish fishery is a relatively small portion of the processing of participating qualified processors, the pilot program alternatives are likely to contribute to stability in processing employment, if landings are distributed across periods when plants are less utilized. This increased stability could lead to fewer processing jobs at peak times, but the remaining jobs should provide more stable and consistent employment. The relative stability should contribute to the processors' ability to maintain stable resident crews that are common in Kodiak processors.

The effects of the two catcher processor alternatives could be slightly different. The alternative with processor associations is likely to have greater stability across processors, as each qualified processor can be expected to be associated with a cooperative composed of vessels that made historic landings it. Each processor should have a relatively strong position in negotiations with cooperative members to schedule landings at time preferred by the processor. Under the limited processor entry alternative, processors will need to compete more aggressively for landings for the cooperatives. While landings can be expected to be scheduled to achieve efficiencies through serving available markets and addressing employment scheduling needs, it is possible that some processors will lose landings in the competition. This change in the distribution of landings could be disruptive to processing crew employment, at least in the short run.

2.5.15. Effects on excessive shares

Limits on excessive shares can serve a variety of purposes, including limiting market control to prevent monopoly power in the product market, limiting market control in the labor market, limiting the ability of a few shareholders to control entry to the fishery, limiting windfalls from the resource, and increasing the number of persons that are supported by resource utilization and production. In the case of a pilot program, such as this, the limits may also improve the utility of the program as a demonstration for both participants and managers, as broader participation would familiarize more participants with the workings of a rationalized fishery, which could affect their choices in future rationalization programs. The rationalization program proposed is also complex, relative to those in other North Pacific fisheries (i.e., halibut and sablefish), since it involves share allocations of several species (including target and incidental catch species) that are fished simultaneously. Consolidation of shares by a few participants could limit the ability of management to identify and develop solutions to problems that might arise in a more complex program (such as Gulf rationalization). The benefit of a more expansive pilot program to management could be considerable.

In assessing the caps, the participation patterns of rockfish participants should be kept in mind. Participants in the fishery have historically participated in several different fisheries throughout the year (and in July). Consolidation in the fishery could have benefits of allowing greater specialization, improving harvest techniques and quality of landings and potentially reducing bycatch in the fishery.

Since the pilot program alternatives for the each sector have the same excessive share limitations, the effects on excessive shares for each sector are discussed in a single section.

Status quo

Since no allocations are made under the existing management, no issue concerning excessive shares exists.

Catcher processor pilot program alternatives

Under the catcher processor pilot program alternatives, participants would be permitted to consolidate the harvest of up to 60 percent of the CGOA rockfish allocation to the sector on a single vessel. Although some vessels currently have significant participation in the fishery, this cap is equal to approximately the aggregate allocation to the four largest participants in the sector. Assuming the sector consolidated catch to the extent permitted by the program, few vessels are likely to develop any experience harvesting allocations under the program, limiting its utility as a pilot program.

Although considerable consolidation is allowed at the vessel level, an individual cap would prevent any person from holding or using in excess of 20 percent of the sector's allocation.[59] Although this cap could prevent some consolidation, the number of persons retaining interests in this small fishery could be reduced somewhat from the initial allocation to 13 participants. The sector's participation in the fishery historically has been concentrated in relatively few participants.

Catcher vessel pilot program alternatives

The catcher vessel pilot program alternatives prevent any cooperative from controlling in excess of 30 percent of the sector's allocation in the fishery. A parallel cap would limit any eligible plant from processing excess of 30 percent of the sector's allocation.[60] This cap is slightly larger than the greatest potential allocation to a single cooperative under the alternative with processor associations, so historically, no group of vessels that could co-op under that alternative would have harvested in excess of the cap and no processor has historically processed in excess of the cap amount. The cap would prevent consolidation under that alternative by the leasing of shares among cooperatives. The extent to which the cap would prevent consolidation under the limited processor entry alternative cannot be predicted, but it would prevent consolidation to an extent that fewer than four cooperatives would exist and fish allocations under the program, or fewer than four processors would participate in the fishery. Six processors have adequate processing to qualify for the program.

An additional cap would limit any individual from holding or using in excess of 5 percent of the catcher vessel sector allocation. A few participants that have historically exceeded 5 percent of the harvest in the fishery would be grandfathered to the extent of their history. This cap would allow some consolidation in the fishery, particularly for the participants with relatively little qualifying history.

2.5.16. Effects on safety

Since fishing practices and seasons are likely to be very similar under all of the pilot program alternatives, implications for safety should be the same. To simplify the analysis safety considerations under the pilot program alternatives are contained in a single discussion.

Status Quo

Under the status quo, participants race for catch during a brief season early in July. Although weather tends to be relatively good at this time of the year, occasionally, inclement weather comes up during this

[59] Although this 20 percent individual cap might appear inconsistent with permitting the harvest of 60 percent on a vessel, the potential inconsistency is resolved by applying the individual cap to the allocation brought to the cooperative by an individual. So, the individual cap would limit the amount of history that a person may hold (by virtue of license holdings) and the amount of history that the person could bring to a cooperative through leases of annual allocations. Using this approach, any leasing of annual allocations by a cooperative would need to be accomplished through members to allow application of the individual caps.

[60] Under both catcher processor alternatives, a participant in that sector could bring their allocation onshore to be harvested by a catcher vessel cooperative and processed onshore. This use of catcher processor shares would be subject to catcher processor caps only (and would not count toward either a catcher vessel cap or a shore-based processing cap), since the caps apply exclusively to use and control of the different sector's allocations.

season. Under the current management, an incentive is created to fish in inclement weather and to continue fishing despite operational dangers to increase one's share of the total catch. The effects of this incentive likely vary among participants. The overall effect on safety in the fishery is not known with certainty.

Pilot program alternatives

Management of the fishery under an extended season with exclusive allocations to cooperatives should reduce the incentive for fishermen to continue fishing in inclement weather or when operational dangers arise. Although a person's allocation will not be jeopardized by decisions to delay fishing to reduce safety risks, some incentives may exist for persons to fish in inclement weather (including market opportunities and operational cost savings). Many proponents contend that share-based management (or rationalization) makes fisheries safer, but little empirical work has been undertaken to verify that conclusion. Overall, the incentive for participants to fish in inclement weather should be reduced under the pilot program alternatives.

2.5.17. Effects on other fisheries

Development of a rationalization program often will impact other fisheries, if participants in the rationalization program are able to increase their effort in other fisheries because of the redistribution of effort under the rationalization program. This section examines the effects of the pilot program alternatives on other fisheries.

Status Quo

Continuation of the current management will have no effect (beyond the current effects) on other fisheries. The opening of the rockfish fisheries is scheduled to distribute effort between rockfish and flatfish in the North Pacific. Continuation of the status quo should continue the current distribution of effort.

One effect of the status quo management of the CGOA rockfish fisheries on other fisheries arises from the division of the TAC for shortraker and rougheye rockfish, which have historically been managed using a combined TAC. Based on estimated historic catch of shortraker (in CGOA rockfish fisheries and other fisheries), it is possible that the shortraker TAC will be inadequate to support historic catch levels of that species in all fisheries. Whether the catch of shortraker would result in that species being put on PSC status or other limitations on catch or retention cannot be determined with certainty. Additional information on catch of these species and the effects of the TAC division are presented in Appendix 7.

Catcher processor alternatives

Under the catcher processor alternatives, intersectoral sideboards will be established to limit license holders eligible for the rockfish program from increasing their effort in other fisheries. Under the alternatives, the sector will be limited, in the aggregate, 1) to their historic catch of target species in Gulf of Alaska July fisheries that are typically constrained by catch of the target species, and 2) to their historic average halibut mortality in Gulf of Alaska July fisheries that are typically constrained by catch of halibut. Table 32 shows the reasons for closings of the different July fisheries during the qualifying years. Although management has changed over time, in general, the rockfish fisheries in the Gulf close because of harvest of the TAC, and the flatfish fisheries in the Gulf close because of halibut PSC bycatch limits. Based on these closure summaries, catch limitations on target species would be established for Western Gulf of Alaska Pacific Ocean perch, northern rockfish, and pelagic shelf rockfish and Western Yakutat Pacific Ocean perch, northern rockfish, and pelagic shelf rockfish, while halibut PSC limits would be established for Western Gulf of Alaska rex sole, flathead sole, shallow-water flatfish, deep-water flatfish, and arrowtooth flounder, Central Gulf of Alaska rex sole, flathead sole, shallow-water flatfish, deep-water flatfish, and arrowtooth flounder, and Western Yakutat rex sole, flathead sole, shallow-water flatfish,

deep-water flatfish, and arrowtooth flounder. As noted earlier, to manage the halibut sideboards, the limits would be applied to all fishing within the applicable complex (i.e., deep-water or shallow-water).

Table 32. Reasons for closures in Gulf of Alaska July groundfish fisheries (1996-2002)

		1996	1997	1998	1999	2000	2001	2002
Western Gulf	Pacific Ocean perch	TAC	TAC	TAC	TAC	TAC	TAC	TAC
	Northern rockfish	TAC	TAC	TAC		TAC	TAC	TAC
	Pelagic shelf rockfish			TAC		halibut	halibut	halibut
	Other rockfish		TAC	TAC		bycatch	bycatch	bycatch
	Shallow water flatfish					halibut	halibut	halibut
	Deep water flatfish						halibut	halibut
	Rex sole					halibut	halibut	halibut
	Flathead sole					halibut	halibut	halibut
	Arrowtooth flounder					TAC	halibut	halibut
Central Gulf	Other rockfish					bycatch	bycatch	bycatch
	Shallow water flatfish					halibut	halibut	halibut
	Deep water flatfish					halibut	halibut	halibut
	Rex sole					halibut	halibut	halibut
	Flathead sole					halibut	halibut	halibut
	Arrowtooth flounder					halibut	halibut	halibut
West Yakutat	Pacific Ocean perch	TAC*	TAC*	TAC*	TAC*		TAC	TAC
	Northern rockfish	bycatch*	TAC*	bycatch*	bycatch*			
	Pelagic shelf rockfish			TAC*		TAC	TAC	TAC
	Other rockfish		TAC*	TAC*	TAC*	TAC	bycatch	bycatch
	Shallow water flatfish					halibut	halibut	halibut
	Deep water flatfish					halibut	halibut	halibut
	Rex sole					halibut	halibut	halibut
	Flathead sole					halibut	halibut	halibut
	Arrowtooth flounder					halibut	halibut	halibut
Gulfwide	Shallow water complex	halibut	halibut	TAC	halibut			
	Deep water complex	halibut	TAC	halibut	halibut			

* Managed in the Eastern Gulf

To estimate sideboard amounts, data from the week ending dates shown in table 33 were used. These dates were chosen to estimate July harvests as specified by the Council motion. Table 34 shows estimated sideboards for the catcher processor sector in fisheries that would be limited by catch of the target species.[61] The table shows both the sector's retained catch and total retained catch and total catch (including discards) taken by rockfish eligible catcher processors. **When selecting a preferred alternative, the Council should specify whether sideboards would be based on the sector's retained catch as a percentage of retained catch in a fishery or as a percentage of total catch in a fishery.** In reviewing the table, the Council should also recognize that the retained and total catch figures for the West Yakutat pelagic shelf rockfish fishery include catch from Southeast Outside for the years 1996 to 1998. Separate West Yakutat pelagic shelf total catch data for 1996 to 1998 were unavailable at the time of release of this document. In the years 1999 to 2002, pelagic shelf rockfish retained and total catch in Southeast Outside were approximately 3 percent of the Eastern Gulf retained and total catch, respectively. Consequently, the effect of including Southeast Outside catch in the sideboard calculation denominators is likely very small (i.e., less than 3 percent, if 1999 to 2002 are representative). If the Council wished to have a more accurate sideboard, it could direct the agency to use only catch from West Yakutat during those years to establish the sideboard.

[61] "Transfer history" is included in the tables by including both the harvests of the vessel that is currently associated with the LLP license and the vessel that was originally associated with the LLP license, in the case of transferred LLP licenses. The table includes all retained catch by eligible participants regardless of whether the species was targeted.

Table 33 Week ending dates for data used to generate retained harvest of sideboard species.

Weekending Dates for Sideboarded Species Table of Retained Harvests

1996	1997	1998	1999	2000	2001	2002
6-Jul	5-Jul	4-Jul	3-Jul	8-Jul	7-Jul	6-Jul
13-Jul	12-Jul	11-Jul	10-Jul	15-Jul	14-Jul	13-Jul
20-Jul	19-Jul	18-Jul	17-Jul	22-Jul	21-Jul	20-Jul
27-Jul	26-Jul	25-Jul	24-Jul	29-Jul	28-Jul	27-Jul
3-Aug	2-Aug	1-Aug	31-Jul		4-Aug	3-Aug

Table 34. Estimated catcher processor sideboard amounts in fisheries limited by target catch (using 1996 to 2002 catch).

		Number of vessels	Retained catch (metric tons)	Total catch (metric tons)	Percent of total catch	All retained catch (metric tons)	Percent of retained catch
Western Gulf	Northern rockfish	6	1,094.4	2,511	43.6	1,786	78.9
	Pelagic shelf rockfish	8	411.0	961	42.8	747	63.3
	Pacific Ocean perch	6	5,488.1	10,426	52.6	9,033	61.1
West Yakutat	Pelagic shelf rockfish	4	2,454.1	3,418*	71.8	3,389*	72.4
	Pacific Ocean perch	4	4,718.6	6,449*	73.2	6,206*	76.0

* Catch from Eastern Gulf (1996-1998) and West Yakutat (1999-2002)
Note: Northern rockfish is not open for directed fishing in West Yakutat.
Source: NPFMC Rockfish Database, Version 1 and NMFS Discard Reports

Catcher processors would also be limited in their catch of halibut by a second sideboard that is intended to constrain harvests from fisheries that are typically halibut constrained. NOAA Fisheries would administer the sideboard on a deep-water complex/shallow-water complex basis. So, a separate sideboard would be set for each complex.[62] If, in July, vessels eligible for the pilot program have caught the sideboard halibut amount within a complex, they would be precluded from participating in halibut sideboarded fisheries in the complex for the remainder of the month of July. Table 35 shows the halibut usage in fisheries in the Western Gulf, Central Gulf, and West Yakutat. Notably, halibut usage is generally highest in the rockfish target fisheries in the Central Gulf and Western Gulf and substantial halibut is taken in the rockfish fishery in West Yakutat. The relatively high incidental catch of halibut in the rockfish fisheries raises the question of why halibut has not constrained the rockfish fisheries. The reason that the rockfish fisheries have not been constrained by halibut is likely that participants typically target rockfish prior to moving on to the other fisheries. The non-rockfish fisheries (mostly the flatfish fisheries) are halibut constrained because of their own halibut usage and the reduced halibut remaining after the taking of halibut by the rockfish fisheries. These trends in halibut usage could suggest two interpretations needed to make the halibut sideboard fair and effective.

First, since halibut usage in the rockfish fishery is substantial in the Western Gulf and West Yakutat rockfish fisheries, the halibut catch by the rockfish fisheries in those areas could be included in determining the deep-water complex limit for those areas. Otherwise, catch of halibut in the rockfish target fisheries is likely to preclude sideboarded vessels from the opportunity to maintain their historic

[62] The deep-water complex includes sablefish, rockfish, deepwater flatfish, rex sole, and arrowtooth flounder. The shallow-water complex includes flathead sole, shallow water flatfish, pollock, and Pacific cod.

participation in the flatfish fisheries in the deep-water complex that are sideboarded by halibut limits. (Since halibut is allocated for the CGOA rockfish fisheries under this program, halibut to support incidentally caught halibut in the CGOA rockfish fisheries should not be included in the sideboard.)

Second, applying a halibut sideboard to the deep-water complex (including rockfish in West Yakutat and the Western Gulf) raises the question of whether the halibut sideboard should also be applied to the rockfish fisheries in those areas. Since the rockfish fisheries are responsible for substantial halibut catch in those areas and that halibut catch would be included in the sideboard, it could be logically consistent to apply the halibut sideboard to the rockfish fisheries, as well as the flatfish fisheries.

Table 35 shows July halibut mortality in the Western Gulf, Central Gulf, and West Yakutat from 1996 to 2002, on which are the basis for sideboard estimates. The table shows substantial halibut mortality in rockfish fisheries. Halibut mortality is reported at the processing plant basis (including catcher processors as processing plants). The data show that in some instances halibut mortality could not be released because of confidentiality protections. Also, because of the limited number of entities reporting data for each target, estimates could not be provided for eligible catcher processors only.

Table 35. July halibut mortality in Gulf of Alaska trawl fisheries (1996-2002).

	Western Gulf	Central Gulf	West Yakutat
Rockfish	119.41	1,484.56	83.08
average annual halibut mortality	17.06	212.08	11.87
Deep water flatfish	0.00	35.32	8.84
average annual halibut mortality	0.00	5.05	1.26
Shallow water flatfish	0.00	877.02	**
average annual halibut mortality	0.00	125.29	**
Flathead sole	22.23	80.58	22.33
average annual halibut mortality	3.18	11.51	3.62
Arrowtooth flounder	162.28	325.68	16.12
average annual halibut mortality	25.18	46.53	2.30
Rex sole	*	97.06	*
average annual halibut mortality	*	13.87	*

* Rex sole included with arrowtooth due to confidentiality concerns.

** Shallow water flatfish included with flathead sole due to confidentiality concerns.

Deepwater complex includes sablefish, rockfish, deepwater flatfish, rex sole, and arrowtooth flounder.

Shallowwater complex includes flathead sole, shallowwater flatfish, pollock, and Pacific cod.

Source: NMFS GOAHALX data file for the years 1996 through 2002.

The second step in estimating halibut mortality is to estimate the amount of halibut historically used by catcher processors eligible for the CGOA rockfish pilot program. To estimate the amount of halibut used in a fishery, the percentage of total retained catch of each target species in July by eligible catcher processors was determined.[63] This percentage was multiplied by the total halibut usage in that target fishery for the month. Estimates arrived at using this method are shown in Table 36. Estimates are separated into the deep-water complex and shallow-water complex, with estimates of halibut amounts to support the Western Gulf and West Yakutat rockfish fisheries. As noted earlier, halibut to support the Central Gulf rockfish harvests are allocated under the program, and therefore are not included in the sideboard amounts.

[63] This estimation uses retained catch, as total catch estimates on a vessel basis for catcher vessels are inherently unreliable, particularly for a short period of time, such as a single calendar month.

Table 36. Estimated catcher processor July halibut mortality sideboard amounts.

		Number of eligible catcher processors with July catch	July retained catch of eligible catcher processors (metric tons)	Total retained July catch (metric tons)	Percent of retained July catch by eligible catcher processors	July halibut mortality sideboard amount
Central Gulf						
Deep water complex	Arrowtooth flounder	16	4,759.5	8,303.5	57.3	26.7
	Deepwater flatfish	15	383.7	1,174.9	32.7	1.6
	Rex sole	16	1,215.5	2,325.7	52.3	7.2
	Total deep water					**35.6**
Shallow water complex	Flathead sole	13	473.4	1,719.4	27.5	3.2
	Shallow water flatfish	13	232.9	7,106.2	3.3	4.1
	Total shallow water					**7.3**
Western Gulf						
Deep water complex	Arrowtooth flounder	10	2,918.2	4,379.5	66.6	17.8
	Deepwater flatfish	6	5.9	5.9	100.0	0.0
	Rex sole	10	682.2	717.6	95.1	*
	Rockfish	10	8,763.2	11,173.9	78.4	13.4
	Total deep water					**31.2**
Shallow water complex	Flathead sole	5	211.7	216.6	97.7	3.1
	Shallow water flatfish	6	67.0	77.8	86.1	0.0
	Total shallow water					**3.1**
West Yakutat						
Deep water complex	Arrowtooth flounder	5	98.3	132.4	74.3	1.3
	Deepwater flatfish	5	137.1	233.6	58.7	0.7
	Rex sole	5	42.7	124.1	34.4	*
	Rockfish	4	7,641.4	8,247.4	92.7	11.0
	Total deep water					**13.0**
Shallow water complex	Flathead sole	3	4.1	47.6	8.7	0.2
	Shallow water flatfish	0	0.0	49.0	0.0	**
	Total shallow water					**0.2**

* Rex sole included with arrowtooth due to confidentiality concerns.

** Shallow water flatfish included with flathead sole due to confidentiality concerns.

Deepwater complex includes sablefish, rockfish, deepwater flatfish, rex sole, and arrowtooth flounder.

Shallowwater complex includes flathead sole, shallowwater flatfish, pollock, and Pacific cod.

Source: NPFMC Rockfish Database and NMFS GOAHALX data file for the years 1996 through 2002.

In addition, either a cooperative sideboard or a standdown would apply to any eligible license holders that elect to participate in the cooperative program. As noted earlier, most participants can be expected to co-op and opt for a cooperative level sideboard, under which a cooperative would be limited to its historic catch in sideboarded fisheries. These limitations should be sufficient to prevent participants from encroaching on other fisheries by increasing their efforts. Some eligible license holders with relatively small allocations could elect to either opt out of the program or fish in the limited access fishery. Since these license holders are likely to have relatively small rockfish allocations, their impacts on the other fisheries arising from the rockfish program can be expected to be relatively minor.

Under cooperatives program with individual allocations, any eligible license holder that opted out of the program would be prevented from fishing in any fishery that the license holder did not participate in the first week of July during at least two of the seven qualifying years. This provision is intended to prevent participants with multiple licenses and substantial history from opting out of the program with one license and entering other fisheries in which the license holder has no history. The history from the "opt out license" would be reallocated within the sector, including to other licenses also held by the holder of the "opt out license". To determine whether an eligible license holder participated in another fishery in the first week of July will require identification of the operative first weeks for each year. Table 37 shows the weekending dates from the first two weeks of July in each of the qualifying years. The Council has

identified the bolded weekending dates, as those that should be used for identifying participation in the first week of July. Seven licenses are estimated to have history in excess of the 5 percent threshold. Because the choice of vessels to opt-out of the program is uncertain, no estimation of the extent to which vessels will enter other fisheries under this provision can be provided. Whether this provision can effectively prevent participants from increasing participation in non-rockfish fisheries to the detriment of other persons eligible for the program cannot be determined with any certainty. Since the provision does not apply to the catcher processor cooperative alternative, to the extent that the provision provides any protection to eligible persons within the sector, that protection will not be present under that alternative. The two alternatives do not appear to differ in a way that would make the provision more applicable to one than the other.

Table 37. Rockfish opening dates and weekending dates for federal data (1996-2002).

	Opening	1st Weekending date	2nd Weekending date
1996	July 1	**July 6**	July 13
1997	July 1	**July 5**	July 12
1998	July 1	**July 4**	July 11
1999	July 4	July 3	**July 10**
2000	July 4	July 8	**July 15**
2001	July 1	**July 7**	July 14
2002	June 30	**July 6**	July 13

Bolded dates are to be used for identifying participation in the first week of July for sideboard purposes.

Another possible effect of the rockfish program on other fisheries could arise from the allocation of shortraker and rougheye to pilot program participants. Whether the portion of the TAC remaining after the allocations to the rockfish fisheries will be adequate to support catch of shortraker and rougheye in other fisheries is not certain. Appendix 7 contains a comprehensive analysis of the allocations and the usage of shortraker and rougheye by fisheries in the Central Gulf of Alaska.

Catcher vessel alternatives

Catcher vessel participation in other fisheries is limited by the same sector sideboard that limits the catcher processor sector. Under sideboards eligible catcher vessel license holders will be limited in the aggregate 1) to their historic catch of target species in Gulf of Alaska July fisheries that are typically constrained by catch of the target species and 2) to their historic average halibut mortality in Gulf of Alaska July fisheries that are typically constrained by catch of halibut. In addition, the eligible license holders would also be limited, in the aggregate, to their historic catch of Pacific cod in the Bering Sea and Aleutian Islands in the month of July. Table 38 shows estimated sideboard percentages for the catch vessel sector in fisheries in which sideboards would limit harvest of the target species. The table shows both the sector's retained catch and total retained catch and total catch (including discards) taken by rockfish eligible catcher processors. **When selecting a preferred alternative, the Council should specify whether sideboards on catch of target species would be based on the sector's retained catch as a percentage of retained catch in a fishery or as a percentage of total catch in a fishery.** These sideboards should effectively prevent members of this sector from increasing their participation in other Gulf of Alaska July fisheries.

Under both catcher vessel alternatives, AFA catcher vessels would not be subject to the rockfish sideboards. The rationale for this exemption is that those vessels are already covered by AFA sideboards for their harvests of Gulf of Alaska and Bering Sea/Aleutian Islands species that would be sideboarded under this program. Some AFA catcher vessels with limited pollock history, however, are exempt from the AFA sideboards. The rationale for excluding these vessels from the sideboards under this program is not apparent, since their catch in the exempt fisheries are not limited by the AFA sideboards. Of the 48 catcher vessels that are eligible for the catcher vessel sector in this program, 24 are qualified for AFA

cooperatives. Of these 13 vessels are exempt from the AFA Gulf sideboards and 3 are exempt from the AFA Bering Sea and Aleutian Islands Pacific cod sideboards. It is possible that sideboard exempt AFA vessels could increase their catch in fisheries. In addition, it is also possible that some AFA catcher vessels could increase their harvests in July in fisheries sideboarded under the AFA because CGOA rockfish allocations may allow them to redistribute effort to these other fisheries. Whether these increases by AFA sideboarded vessels would be detrimental to other participants depends on the extent of the increase and whether it deprives others of their harvests in those other fisheries because of earlier harvest of the TAC and closure.

In considering these sideboards, the Council should consider a few factors. First, in the Western Gulf northern rockfish and pelagic shelf rockfish fisheries, the catch vessel sector has no July harvests. The sideboard would effectively remove all CGOA rockfish catcher vessels from those fisheries. In addition, the Council should recognize that the relatively small sideboard percentages in other fisheries are likely to make the sideboard percentages for the Gulf of Alaska rockfish fisheries unmanageable, in which case NOAA Fisheries would prohibit sideboarded vessels from participating in the Western Gulf and West Yakutat target rockfish fisheries altogether. If NOAA Fisheries determines that catch of sideboarded vessels can be effectively constrained to the sideboard amount, it would allow participation by sideboarded vessels.

Table 38. Estimated catcher vessel sideboard amounts in fisheries limited by target catch and historic participation by AFA vessels eligible for the CGOA rockfish program (using 1996 to 2002 catch).

		AFA Trawl CVs						Non-AFA Trawl CVs		All trawl		Total catch including discards (metric tons)	Percent of total catch	All retained catch (metric tons)	Percent of retained catch
		Not exempt		Exempt		Total									
		Number of vessels	Landings (metric tons)	Number of vessels	Landings (metric tons)	Number of vessels	Landings (metric tons)	Number of vessels	Landings (metric tons)	Number of vessels	Landings (metric tons)				
BSAI Pacific cod		15	*	1	*	16	*	2	*	18	355.1	304,135**	0.0	292,572**	0.0
Western Gulf	Northern rockfish	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2,511	0.0	1,786	0.0
	Pelagic shelf rockfish	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	961	0.0	747	0.0
	Pacific Ocean perch	0	0.0	0	0.0	0	0.0	1	*	1	*	10,426	*	9,033	*
West Yakutat	Pelagic shelf rockfish	3	*	2	*	5	50.8	6	7.1	11	57.9	3,418***	1.7	3,389***	1.7
	Pacific Ocean perch	3	*	3	*	6	*	3	*	9	181.9	6,449***	2.8	6,204***	2.9

* Withheld for confidentiality.
** Includes only inshore catch
*** Catch from Eastern Gulf (1996-1998) and West Yakutat (1999-2002)
Note: Northern rockfish is not open for directed fishing in West Yakutat.
Source: NPFMC Rockfish Database, Version 1 and NMFS Discard Reports

Eligible catcher vessels would also be limited by halibut mortality in flatfish fisheries in the Western Gulf, Central Gulf, and West Yakutat. Table 39 shows estimated halibut mortality sideboard amounts including amounts for rockfish in the Western Gulf and West Yakutat. The table also shows participation by AFA catcher vessels, including AFA catcher vessels exempt from the AFA Gulf sideboards.

Table 39. Estimated July halibut mortality sideboard amounts for catcher vessels.

		Number of non-exempt eligible AFA catcher vessels with July catch	Number of exempt eligible AFA catcher vessels with July catch	Total number of eligible AFA catcher vessels with July catch	July retained catch of eligible AFA catcher vessels (metric tons)	Number of non-AFA eligible catcher vessels with July catch	July retained catch of eligible non-AFA catcher vessels (metric tons)	Total number of eligible catcher vessels with July catch	July retained catch of all eligible catcher vessels (metric tons)	Total retained July catch (metric tons)	Percent of retained July catch by eligible catcher vessels	July halibut mortality sideboard amount
Central Gulf												
Deep water complex	Arrowtooth flounder	11	13	24	2,156.2	23	2.9	47	2,159.1	8,303.5	26.0	12.1
	Deepwater flatfish	10	13	23	447.0	23	223.3	46	670.3	1,174.9	57.0	2.9
	Rex sole	10	13	23	499.7	23	265.1	46	764.8	2,325.7	32.9	4.6
	Total deep water											**19.5**
Shallow water complex	Flathead sole	9	13	22	486.8	23	667.3	45	1,154.1	1,719.4	67.1	7.7
	Shallow water flatfish	8	12	20	2,142.3	23	4,386.3	43	6,528.6	7,106.2	91.9	115.1
	Total shallow water											**122.8**
Western Gulf												
Deep water complex	Arrowtooth flounder	0	0	0	0.0	0	0.0	0	0.0	4,379.5	0.0	0.0
	Deepwater flatfish	0	0	0	0.0	0	0.0	0	0.0	5.9	0.0	0.0
	Rex sole	0	0	0	0.0	0	0.0	0	0.0	717.6	0.0	0.0
	Rockfish	0	0	0	0.0	1	*	1	*	11,173.9	*	*
	Total deep water											*****
Shallow water complex	Flathead sole	0	0	0	0.0	0	0.0	0	0.0	216.6	0.0	0.0
	Shallow water flatfish	0	0	0	0.0	0	0.0	0	0.0	77.8	0.0	0.0
	Total shallow water											**0.0**
West Yakutat												
Deep water complex	Arrowtooth flounder	3	4	7	30.7	4	1.1	11	31.8	132.4	24.0	1.0
	Deepwater flatfish	3	4	7	59.4	8	36.4	15	95.8	233.6	41.0	0.5
	Rex sole	3	4	7	43.0	7	38.3	14	81.3	124.1	65.5	**
	Rockfish	3	4	7	244.1	10	67.2	17	311.2	8,247.4	3.8	0.4
	Total deep water											**2.0**
Shallow water complex	Flathead sole	1	3	4	17.3	6	26.1	10	43.5	47.6	91.2	3.5
	Shallow water flatfish	1	2	3	*	7	*	10	49.0	49.0	100.0	***
	Total shallow water											**3.5**

* Withheld for confidentiality

** Rex sole included with arrowtooth due to confidentiality concerns.

*** Shallow water flatfish included with flathead sole due to confidentiality concerns.

Deepwater complex includes sablefish, rockfish, deepwater flatfish, rex sole, and arrowtooth flounder.

Shallowwater complex includes flathead sole, shallowwater flatfish, pollock, and Pacific cod.

Source: NPFMC Rockfish Database and NMFS GOAHALX data file for the years 1996 through 2002.

In addition to the rockfish sideboards, the eligible catcher vessel license holders would be prohibited from entering the Bering Sea and Aleutian Islands directed fisheries for yellowfin sole, other flatfish, and Pacific Ocean perch in the month of July, as these vessels have not historically participated in those fisheries.

Another possible effect of the rockfish program on other fisheries could arise from the allocation of shortraker and rougheye to pilot program participants. Whether the portion of the TAC remaining after the allocations to the rockfish fisheries will be adequate to support catch of shortraker and rougheye in other fisheries is not certain. Appendix 7 contains a comprehensive analysis of the allocations and the usage of shortraker and rougheye by fisheries in the Central Gulf of Alaska.

3. Environmental Assessment

In Section 802 of the Consolidated Appropriations Act of 2004 the U.S. Congress directed to the Secretary of Commerce to establish, in consultation with the Council, a pilot program for management of the Central Gulf rockfish fisheries. In response to this directive, and at the request of NOAA Fisheries, the Council has developed two pilot program alternatives for the catcher vessel sector and two pilot program alternatives for the catcher processor sector for analysis. This section of the document contains an environmental assessment of the proposed pilot program alternatives and the status quo addressing the requirement for a regulatory impact review of E.O. 12866.

3.1. Problem Statement

The Council has developed the following problem statement defining its purpose for development of the rockfish pilot program:

The present management structure of the CGOA rockfish fishery continues to exacerbate the race for fish with:

- Increased catching and processing capacity entering the fishery,

- Reduced economic viability of the historical harvesters (both catcher vessels and catcher processors) and processors,
- Decreased safety,
- Economic instability of the residential processor labor force,
- Reduced product value and utilization,
- Jeopardy to historical groundfish community stability,
- Limited ability to adapt to Magnuson-Stevens Act (MSA) requirements to minimize bycatch and protect habitat.

While the Council is formulating GOA comprehensive rationalization to address similar problems in other fisheries, a short-term solution is needed to stabilize the community of Kodiak. Kodiak has experienced multiple processing plant closures, its residential work force is at risk due to shorter and shorter processing seasons and the community fish tax revenues continue to decrease as fish prices and port landings decrease. Congress recognized these problems and directed the Secretary in consultation with the Council, to implement a pilot rockfish program with the following legislation:

> SEC. 802. GULF OF ALASKA ROCKFISH DEMONSTRATION PROGRAM. The Secretary of Commerce, in consultation with the North Pacific Fishery Management Council, shall establish a pilot program that recognizes the historic participation of fishing vessels (1996 to 2002, best 5 of 7 years) and historic participation of fish processors (1996 to 2000, best 4 of 5 years) for pacific ocean perch, northern rockfish, and pelagic shelf rockfish harvested in Central Gulf of Alaska. Such a pilot program shall (1) provide for a set-aside of up to 5 percent for the total allowable catch of such fisheries for catcher vessels not eligible to participate in the pilot program, which shall be delivered to shore-based fish processors not eligible to participate in the pilot program; (2) establish catch limits for non-rockfish species and non-target rockfish species currently harvested with pacific ocean perch, northern rockfish, and pelagic shelf rockfish, which shall be based on historical harvesting of such bycatch species. The pilot program will sunset when a Gulf of Alaska Groundfish comprehensive rationalization plan is authorized by the Council and implemented by the Secretary, or 2 years from date of implementation, whichever is earlier.

The fishing fleets have had little experience with cooperative fishery management and needs to begin the educational process. For the fishery to be rationalized all aspects of the economic portfolio of the fishery needs to recognized. To stabilize the fishery economy all the historical players – harvesters (both catcher vessels and catcher processors) and processors need to be recognized in a meaningful way. The demonstration program is designed as a short-term program for immediate economic relief until comprehensive GOA rationalization can be implemented.

3.2. The alternatives

To address its problem statement the Council has adopted two pilot program alternatives for the catcher vessel sector and two pilot program alternatives for the catcher processor sector for analysis, in addition to the status quo. Options would create separate sectors for trawl catcher processors, trawl catcher vessels, and non-trawl catcher vessels. Under this construction, the different gear types in the catcher vessel sector would be governed by the same management program, but they would be managed as separate sectors.

For the catcher processor sector, one pilot program alternative would allow harvesters to form cooperatives, which would receive annual harvest share allocations based on the qualified harvest histories of their members. Alternatively, a catcher processor license holder would receive an annual allocation based on the history associated with the license that could be fished independently. The second catch processor pilot program alternative would simply make an allocation to the sector based on the histories of catcher processors in the CGOA rockfish fisheries.

For the catcher vessel sector, one pilot program alternative would allow each harvester to join a cooperative in association with the processor to which it delivered the most pounds of CGOA rockfish during the processor qualifying period. Cooperatives would receive an annual harvest share allocation

based on the qualified harvest history of its members. Although no specific processor delivery requirement is created by this cooperative/processor relationship, since cooperative formation depends on the processor association, some delivery arrangement is likely to be incorporated into that relationship. The second catcher vessel pilot program alternative would allow harvesters to form cooperatives, which again would receive allocations based on members' qualified harvest histories. These cooperatives would be required to deliver their landings to processors that met threshold landing requirements during the processing qualifying years. Under both of these alternatives, harvesters that choose not to join a cooperative would be permitted to fish in a competitive fishery that receives an allocation based on the harvest histories of non-members of cooperatives.

Under all of the pilot program alternatives, set asides of CGOA rockfish would be made for an entry level fishery and to support incidental harvests in other directed fisheries.

The pilot program alternatives are derived from a common set of elements with differences that reflect the different operations of the two fleets. The specific elements and options that define the alternatives follow the brief description of the alternatives (including status quo) below.

3.2.1. Alternatives considered but not advanced for analysis

The Council developed the alternatives using a list of elements and options proposed by industry proponents of the program, the public, and the Advisory Panel. The Council used an iterative process for defining alternatives, deliberating concerning the specific provisions after receiving staff discussion papers and public testimony over the course of several meetings. In general, the starting point for developing the options was the Congressional legislation. One alternative for the catcher processor sector would have made a simple sector allocation to the catcher processor sector, without any further division of allocations to individuals or cooperatives. The Council chose to drop that alternative, as it would not rationalize that portion of the fishery, as necessary to satisfy the problem statement. In addition, the Council chose to remove or modify several other provisions to establish alternatives consistent with the problem statement, including:

- Removing provisions that would make very small allocations to non-trawl catcher vessels limiting their ability to fish the entry level set aside
- Modifying provisions to limit the participation of eligible catcher processors in other fisheries to balance the interests of vessel with limited history with the interests of vessels with extensive history
- Generally, making allocations of secondary species based on retained catch except when those allocations would be limiting on participants.
- Limiting the role of cooperatives to allow processor affiliated vessels to participation in the program without risk of anti-trust violations.

3.3. Affected environment

This section describes the environment (including the human environment) that would be affected by the proposed action. The section begins with a description of the physical environment of the CGOA rockfish fisheries. The section describes the stocks and biology of the various species that could be affected by the action and provides a brief fishery overview for each species. The section also describes various other species that could be affected by the rockfish fisheries, such as marine mammals and seabirds. The section concludes by very briefly describing the Gulf of Alaska marine ecosystem and the economic and socioeconomic conditions in the human environment that would be affected by the proposed action.

3.3.1. Physical environment

The Fishery Management Unit (FMU) for the Gulf of Alaska includes all waters in the EEZ along the southeastern, southcentral and southwestern coasts of Alaska from Dixon entrance to Unimak Pass. While depths in this region are as great as 7,000m in the western region near the Aleutian Trench, it is the continental shelf area which is of greatest importance in the context of fishery management. The continental shelf in the GOA is narrowest in southeast alaska, and broadens to between 100-200 km along the southcentral coast. South of Kodiak Island it reaches its broadest point (approximately 200km) at Portlock Bank. Along the Alaska Peninsula and proceeding westward the shelf narrows to 50 km at Unimak Pass.

Circulation in the GOA is dominated by the Alaska Coastal Current (ACC), a fast moving westward trending coastal current. Coastal circulation in the GOA is driven in the winter by anti-clockwise wind stress over the GOA region and in the summer by the freshwater inputs along the coast. To the west of Kodiak Island where freshwater input is reduced, the circulation is driven by prevailing winds.

Along the continental shelf, seasonal variations in water properties are driven by differential wind stress. During the winter, southwesterly winds bring convergence and downwelling (Royer 1981) together with winter cooling and replacement of the warm, high saline bottom waters. During the summer the wind field is reversed resulting in the upwelling of warmer, higher saline nutrient rich waters from the central GOA onto the shelf break.

The GOA FMU is subdivided for management purposes into three regions, Western GOA, Central GOA and Eastern GOA. For purposes of this analysis it is the Central GOA subregion that is of interest. This region includes the regulatory areas of 620 and 630.

3.3.2. Target rockfish stocks

The principal target rockfish species for this pilot project are Pacific Ocean Perch, Northern rockfish and the pelagic Shelf rockfish assemblage. Pertinent information on the biology, ecological relationships and fishery information on each species is summarized below.

Pacific Ocean Perch

Pacific ocean perch (*Sebastes alutus*) is a demersal rockfish species with a wide geographic distribution from California to the North Pacific and the Bering Sea to the Kuril Islands (Hanselman et al 2003). They are a long-lived, slow-growing rockfish species, with maximum age estimated to be in excess of 90 years (Leaman 1991). There is a great deal of uncertainty about the early life history of the species given that larval identification is difficult and infrequent (Gharret et al 2001). Larvae are hypothesized to stay at depth of release for several months then move to shallower waters. Larvae are pelagic and do not become demersal for approximately 2-3 years (Gunderson 1977, Haldorson and Love 1991) Pacific Ocean perch juveniles have some of the slower daily growth rates of all the rockfish species. After recruitment, juveniles settle on hard low-relief sediments while older fish are generally found between 150-350 meters in the summer and deeper in the winter (Love et al. 1991).

Pacific ocean perch abundance is influenced by periodically abundant year classes. Availability of abundant zooplanktonic prey for Pacific Ocean perch larvae or post-larvae may be an important determining factor in year class strength (Hanselman et al 2003). However, there is no information on food habits of larval or post-larval rockfish thus it is difficult to draw a relationship between food availability and year class strength. Some juvenile rockfish in inshore habitat have been found to prey on shrimp, amphipods, other crustaceans, mollusks and some fish (Byerly 2001). Adult Pacific Ocean perch feed primarily on euphausiids which is also a major prey item for walleye pollock, thus changes in

walleye pollock population could impact the population of euphausiids and thus impact the Pacific Ocean perch populations as well (Hanselman et al 2003).

Pacific Ocean perch are preyed upon by a variety of other fish at all life stages and to some extent marine mammals as well during late juvenile and adult stages (Hanselman et al 2003). Documented predators include Pacific halibut and sablefish and it is likely that Pacific cod and arrowtooth flounder also prey upon Pacific Ocean perch (NMFS 2004). Pelagic juveniles are consumed by salmon and benthic juveniles are consumed by lingcod and other demersal fish (NMFS 1997). The relative population impact of predators is unknown, although it is presumed predation would have a larger impact at the larval, post-larval and juvenile life stages. Information on these life stages and their related predators however is unknown.

The majority of the historical commercial catch of Pacific Ocean perch has been taken by bottom trawls, although in recent years a portion of the catch has been taken by pelagic trawls. The percentage of the POP Gulfwide catch taken in pelagic trawls increased from 2-8% during 1990-1995 to 14-20% during 1996-1998 (Hanselman et al 2003). In the most recent period from 1999-2002, annual percentages have ranged from 10.3-17% (Hanselman et al 2003).

The Pacific Ocean perch ABC, OFL and TAC are apportioned over the three areas of the GOA (western, central and eastern) based upon a proportional weighting scheme which considers the proportion of biomass in each region as well as the relative variability in survey biomass estimates. The ABC, OFL and TAC and catch for the CGOA Pacific Ocean perch stock from 1996 to 2003 are included in Table 40.

Recent data from 1997-2002 (Gaichas and Ianelli summaries of Observer data) indicate that bycatch in the combined rockfish trawl fishery is predominantly arrowtooth flounder, Pacific cod and sablefish. The only non-rockfish fishery catching a major amount of Pacific Ocean perch as bycatch is in the rex sole fishery, averaging 280 metric tons per year, while smaller amounts are taken in the other flatfish, pacific cod and sablefish fisheries (Gaichas and Ianelli summary, in Hanselman et al 2003).

Additional information on the GOA Pacific ocean perch biology and fishery can be found in the Final PSEIS (NMFS 2004) as well as the annual Stock Assessment and Fishery Evaluation reports.

Table 40. Overfishing limit, allowable biological catch, total allowable catch, and catch of Central Gulf of Alaska Pacific Ocean perch (1996-2003).

Pacific Ocean Perch *(mt.)*				
Year	**Overfishing Level**	**ABC**	**TAC**	**Catch**
2004	9,960	8,390	8,390	8,446
2003	10,120	8,510	8,510	8,106
2002	9,760	8,220	8,220	8,262
2001	11,350	9,610	9,610	9,249
2000	15,390	9,240	9,240	8,379
1999	18,490	6,760	6,760	7,910
1998	18,090	6,600	6,600	7,452
1997	19,760	6,690	5,352	6,720
1996	10,165	3,860	3,333	5,145
Source: NMFS Annual Catch Reports & Groundfish Harvest Specifications, 1996-2004.				
Available at: *http://www.fakr.noaa.gov/sustainablefisheries/catchstats.htm*				

Northern Rockfish

The northern rockfish, *Sebastes polyspinis*, are a semidemersal long-lived rockfish species. Their distribution ranges from northern British Columbia across the Pacific Rim to eastern Kamchatka and the northern Kurile Islands to the eastern Bering Sea (Allen and Smith 1988). They are most abundant throughout their northerly range in Alaskan waters from the western end of the Aleutian Islands to Portlock Bay in the Central GOA (Clausen and Heifetz 2004). There is little known about the life history of northern rockfish.

While there is limited information on the habitat preference of juvenile northern rockfish, trawl surveys and commercial fishery data have indicated that adult northern rockfish prefer relatively shallow banks on the outer continental shelf at depths between 75-150 m (Clausen and Heifetz 2004). These data also indicate that within this habitat adult northern rockfish have patchy, localized distributions (Clausen and Heifetz 2004). This may be a result of the prey availability of euphausiids. Offshore euphausiids are not directly associated with the bottom but are presumed to be advected onshore near bottom at the upstream ends of underwater canyons (Brodeur 2001). This distribution of prey may help to explain the observed patchy distribution of northern rockfish.

Northern rockfish feed primarily on euphausiids but have also been shown to feed on copepods, hermit crabs and shrimp in smaller quantities (Yang 1993, 1996, Yang and Nelson 2000). Predators of northern rockfish are not well documented. Predators of other rockfish species, such as Pacific halibut, are presumed likely to prey upon northern rockfish. Rockfish in general are preyed upon by a variety of other fish at all life stages and to some degree marine mammals during late juvenile and adult stages. Predator effects are likely to be more important on the earlier lifestages of northern rockfish but actual information on these lifestages and their relative predators is unknown. The influence of predator-prey relationships on the population dynamics of northern rockfish is likewise unknown.

The majority of the commercial catch of northern rockfish in the fishery is taken with bottom trawl gear. Most of the catch has been taken in the Central GOA management area, where the majority of the exploitable biomass is concentrated. The northern rockfish ABC and TAC are apportioned over the three areas of the GOA (western, central and eastern) based upon a proportional weighting scheme which considers the proportion of biomass in each region as well as the relative variability in survey biomass estimates. The majority of the exploitable biomass of northern rockfish is located in the Central GOA. The weighted average apportionment utilized for the 2004 fishery was 84.10% of the biomass in the Central GOA. The OFL for northern rockfish is gulfwide over the three management areas. The ABC, OFL and TAC and catch for the CGOA northern stock from 1996 to 2003 are included in Table 41.

Based on observer program data from 1990-1998, 80 percent of the catch of northern rockfish came from the directed fishery while 18% came as bycatch in other fisheries (Clausen and Heifetz 2004), in Courtney et al 2003). Bycatch in the directed northern rockfish fishery was predominantly dusky rockfish, followed distantly by “other slope rockfish”, Pacific Ocean perch, and arrowtooth flounder (Ackley and Heifetz 2001). This study was based on observer program data from 1993-1995 and represents the only detailed study to date of bycatch in the slope rockfish fishery in the GOA. Additional information on the GOA northern rockfish biology and fishery can be found in the Final PSEIS (NMFS 2004) as well as the annual Stock Assessment and Fishery Evaluation reports.

Table 41. Overfishing limit, allowable biological catch, total allowable catch, and catch of Central Gulf of Alaska northern rockfish (1996-2003).

Northern Rockfish *(mt.)*				
Year	**Overfishing Level (Gulfwide)**	**ABC**	**TAC**	**Catch**
2004	5,790	4,100	4,100	3,711
2003	6,560	4,640	4,640	4,810
2002	5,910	4,170	4,170	2,999
2001	5,780	4,280	4,280	2,588
2000	7,510	4,490	4,490	2,578
1999	9,420	4,150	4,150	4,825
1998	9,420	4,150	4,150	2,967
1997	9,420	4,150	4,150	2,870
1996	9,926	4,610	4,610	3,146
Source: NMFS Annual Catch Reports & Groundfish Harvest Specifications, 1996-2004.				
Available at: *http://www.fakr.noaa.gov/sustainablefisheries/catchstats.htm*				

Pelagic Shelf Rockfish

The pelagic shelf rockfish are a managed assemblage of mid-water, schooling rockfish which inhabit the continental shelf area of the Gulf of Alaska. The assemblage is comprised of three species: dusky rockfish, *Sebastes ciliatus*, yellowtail rockfish, *S. flavidus*, and widow rockfish, *S. entomelas*. Of these three, dusky rockfish is the most important species Gulfwide in the assemblage while the other two species are minor parts of the assemblage in alaskan waters. Dusky rockfish has the northernmost distribution of all rockfish species in the Pacific Ocean. While the species range extends from British Columbia north to the Bering Sea and west to Hokkaido Island, Japan, the species appears to be abundant only in the Gulf of Alaska.

There are two distinct species of dusky rockfish in the Gulf of Alaska, a lighter-colored species (light dusky), found in more offshore waters and a darker-colored species found in shallow waters closer inshore (Clausen, et al. 2003). The majority available data on dusky rockfish from trawl surveys and the commercial fishery is on light dusky rockfish. Currently an annual stock assessment with an age-structured model is being done for light dusky rockfish. There exists the potential in the future to separate light and dark duskys for management purposes, with dark duskies being removed to the state for jurisdiction over management, similar to black and blue rockfish in 1998. However, at present the two are managed as one species despite the majority of the catch being comprised of light dusky rockfish (NMFS, 2003).

The stock condition of dusky rockfish is influenced by periodically abundant year classes. As with the other rockfish species, the availability of zooplankton prey may play an important role in year class strength, however there is insufficient information available on food habits to determine this. Euphausiids are important in the diet of adult rockfish thus any change in the abundance of euphausiids based on climatic conditions or predation by other fish species could impact food availability for rockfish.

Pelagic shelf rockfish are caught almost exclusively with bottom trawl gear although some small amounts of reported catch are caught with longline gear. The vast majority of the catch is composed of light dusky rockfish (see table below). Catch of light dusky rockfish occurs in July following the close of the Pacific Ocean perch target fishery. Catches are concentrated on shallow, offshore banks of the continental shelf, specifically the areas west of Yakutat, Portlock Bank northeast of Kodiak Island and

around Albatross Bank southeast of Kodiak Island (Clausen et al. 2003). The highest CPUE in the commercial fishery tends to be within the 100-149m depth range (Reuter 1999).

The ABC and TAC for pelagic shelf rockfish assemblage are apportioned over the three areas of the GOA (western, central, eastern). In the Eastern GOA, West Yakutat and South East Outside are split with separate ABCs and TACs for each region. The OFL for the comples is gulfwide. The ABC, OFL and TAC for the complex from 1996-2003 are included in Table 42.

Bycatch in the directed pelagic shelf rockfish fishery tends to be largely northern rockfish and "other slope" rockfish, with smaller amounts of Pacific Ocean perch (Ackley and Heifetz 2001). Catch data from a different study also showed that dusky rockfish were most commonly associated with northern rockfish, Pacific Ocean perch and harlequin rockfish (Reuter 1999). No information is available on bycatch of pelagic shelf rockfish in the non-rockfish fisheries, however it is presumed to be small (Clausen et al 2003).

Additional information on the GOA pelagic shelf rockfish biology and fishery can be found in the Final PSEIS (NMFS 2004) as well as the annual Stock Assessment and Fishery Evaluation reports.

Table 42. Overfishing limit, allowable biological catch, total allowable catch, and catch of Central Gulf of Alaska pelagic shelf rockfish (1996-2003).

Pelagic Shelf Rockfish *(mt.)*				
Year	**Overfishing Level**	**ABC**	**TAC**	**Catch**
	(Gulfwide)			
2004	5,570	3,010	3,010	2,158
2003	8,220	3,480	3,480	2,209
2002	8,220	3,480	3,480	2,680
2001	9,040	4,080	4,080	2,436
2000	9,040	4,080	4,080	3,074
1999	8,190	3,370	3,370	3,835
1998	8,040	3,260	3,260	2,477
1997(Offshore*)	8,400	3,320*	3,320*	1,760*
1997(Nearshore**)		260**	260**	199**
1996	8,704	3,200	3,200	1,849
Source: NMFS Annual Catch Reports & Groundfish Harvest Specifications, 1996-2004.				
Available at: *http://www.fakr.noaa.gov/sustainablefisheries/catchstats.htm*				

3.3.3. Allocated secondary species stocks and prohibited species catch

The following section summarizes biological, ecosystem, and fishery information concerning other species that are caught incidentally in the Central Gulf of Alaska rockfish fisheries, including sablefish, shortraker rockfish, rougheye rockfish, thornyhead rockfish, and Pacific cod.

Sablefish

Sablefish (*Anoploma fimbria*) are distributed from northern Mexico to the Gulf of Alaska, westward to the Aleutian Islands and into the Bering Sea (Wolotira et al 1993). Adult sablefish are found along the continental slope, gullies and deep fjords generally at depths greater than 200m. Sablefish that were observed from a manned submersible were found within 1m of the bottom (Krieger 1997).

Sablefish are assessed as a single population in Federal waters off Alaska because northern sablefish are highly migratory for at lease part of their life (Heifetz and Fujioka, 1991; Maloney and Heifetz, 1997; Kimura et al, 1998). Sablefish are managed by discrete regions to distribute exploitation throughout their wide geographical range. There are four management areas in the Gulf of Alaska; Western, Central, West Yakutat, and East Yakutat/Southeast Outside (SEO) and two management areas in the Bering Sea/Aleutian Islands.

Spawning is pelagic at depths of 300 to 500 meters near the edges of the continental slope (McFarlane and Nagata, 1988), with eggs developing at depth and larvae developing near the surface as far offshore as 180 miles (Wing, 1997). Average spawning (date based on otolith analysis) is March 30 (Sigler, et al., 2001). During surveys of the outer continental shelf, most young-of-the-year sablefish are caught in the central and eastern Gulf of Alska (Sigler et al., 2001). Near the end of the first summer, pelagic juveniles less than 20 cm drift inshore and spend the winter and following summer in inshore waters, reaching 30 to 40 cm by the end of their second summer (Rutecki and Varosi, 1997). After their second summer, they begin moving offshore, typically reaching their adult habitat, the upper continental slope at 4 to 5 years.

Young-of-the-year sablefish prey mostly on euphausiids (Sigler, et al., 2001). Juvenile and audult sablefish are opportunistic feeders. Diet studies have found that three-fourths of stomach content weight is fish, with the remainder invertebrates (Yang and Nelson, 2000). Because of their opportunistic feeding practices, juveniles and adults are unlikely to be affected by availability and abundance of individual prey species, but overall changes in ecosystem productivity could affect growth and survival rates. The main sablefish predators are adult coho and Chinook salmon, which prey on young-of-the-year.

Water mass movements and temperature appear related to recruitment success (Sigler, et al., 2001). Above average recruitment is somewhat more likely with northerly winter currents and much less likely for years when the drift is southerly. Growth rate of young-of-the-year sablefish is higher in years when they are more abundant.

Fishing effects of the current management regime are either minimal or temporary based on the criteria that sablefish are currently above MSST. Sablefish are substantially dependent on benthic prey, which may be adversely affected by fishing. Little is known about sablefish spawning habitat and the effects of fishing on that habitat. Habitat requirements for growth to maturity are better known, but this knowledge is incomplete. Although sablefish do not appear dependent on physical structure, living structure and coral are substantially reduced in much of the area where sablefish are concentrated.

U.S. and Canadien fishermen have exploited sablefish since the end of the 19th century. The fishery developed as a secondary fishery for participants in the U.S. and Canadien halibut fisheries. The fishery developed off the Washington and British Columbia, spreading north to Alaska in the 1920s. Until the late 1950s, the fishery was exclusively U.S. and Canadian ranging from northern California to the Gulf of Alaska off Kodiak Island (Low, et al., 1976).

In the late 1950s, Japanese longliners entered the sablefish fisheries in the eastern Bering Sea. Japanese fishing quickly expanded to the Gulf of Alaska, where catches peaked at almost 37,000 metric tons in 1972. this heavy fishing led to a substantial population decline and a sharp reduction in catch. Japanese trawlers also caught sablefish incidentally in the Gulf Pacific Ocean perch fishery until 1972, when directed trawl fishing for sablefish developed (Sasaki, 1973).

The U.S. longline fishery began expanding substantially in 1982. By 1988 almost all Gulf sablefish were taken by U.S. fishermen, with the exception of minor harvests by some remaining joint venture participants. The fishery expanded rapidly through the 1980s, prompting the development the IFQ

program. IFQ management has increased fishery catch rates and decreased the harvest of immature fish (Sigler and Lundsford, 2001).

In addition to the directed longline fishery, sablefish are caught incidentally in Gulf trawl fisheries, primarily fisheries for rockfish and deep-water flatfish. In addition, five State longline fisheries land sablefish outside of the IFQ program. A switch by some fishermen to pot gear for sablefish in the Bering Sea and Aleutian Islands has been prompted by killer whale depredation of longline catch. Pot gear is not permitted in the Gulf of Alaska.

The longline fishery catches mostly medium and large fish which are typically mature. The trawl fishery, which accounts for a small part of the total catch, occurs along the continental shelf where catches medium and small fish are often made. Catching these fish as juveniles, likely reduces the yield available from each recruit, though the shift is likely small because trawl harvests are a small portion of the total catch.

The ABC and TAC for sablefish are apportioned over the four areas of the Gulf of Alaska: the Western Gulf, the Central Gulf, West Yakutat, and East Yakutat/South East Outside with separate ABCs and TACs for each region. The OFL for sablefish is Gulfwide. The ABC, OFL and TAC for the sablefish from 1996-2003 are included in Table 43.

The sablefish quota in the Central Gulf of Alaska is allocated 80 percent to hook and line gear and 20 percent to trawl gear. Current MRAs vary by directed basis species. The MRA for pollock, Pacific cod, Atka mackerel, shallow water flatfish, skates, “other species,” and aggregated amounts of non-groundfish species is 1 percent. Deep water flatfish, rex sole, flatehead sole, Pacific Ocean perch, shortraker rockfish, rougheye rockfish, northern rockfish, pelagic shelf rockfish, thornyheads, and other rockfish have an MRA of 7 percent. Sablefish may not be retained for directed arrowtooth flounder.

Table 43. Overfishing limit, allowable biological catch, total allowable catch, and catch of Central Gulf of Alaska pelagic shelf rockfish (1996-2003).

Sablefish *(mt.)*				
Year	**Overfishing Level**	**ABC**	**TAC**	**Catch**
	(Gulfwide)			
2004 (H&L)	22,160	16,550	5,840	6,096
2004 (Trawl)	```		1,460	989
2003 (H&L)	20,020	6,440	5,152	5,661
2003 (Trawl)			1,288	1,429
2002 (H&L)	19,350	5,430	4,344	4,611
2002 (Trawl)			1,086	1,569
2001 (H&L)	15,720	5,410	4,328	4,434
2001 (Trawl)			1,082	1,084
2000 (H&L)	16,660	5,730	4,584	4,786
2000 (Trawl)			1,146	1,386
1999 (H&L)	19,720	5,590	4,472	4,557
1999 (Trawl)			1,118	1,316
1998 (H&L)	23,450	6,320	5,056	4,674
1998 (Trawl)			1,264	1,245
1997 (H&L)	39,950	6,410	5,128	4,935
1997(Trawl)			1,282	1,302
1996 (H&L)	22,800	6,900	5,520	5,122
1996 (Trawl)			1,380	1,650
H&L refers to hook and line fishing gear.				
Source: NMFS Annual Catch Reports & Groundfish Harvest Specifications, 1996-2004.				
Available at: *http://www.fakr.noaa.gov/sustainablefisheries/catchstats.htm*				

Shortraker/Rougheye rockfish

As with most other rockfish, shortraker rockfish (*Sebastes borealis*) and rougheye rockfish (*Sebastes aleutianus*) are slow growing and long-lived. They inhabit waters of the outer continental shelf and continental slope. Shortraker are consistently most abundant in the Yakutat area. Rougheye are typically most abundant in the Southereastern area. Estimates of maximum age of shortraker rockfish is 120 years, while estimates of maximum age of rougheye rockfish range from 90 years to 140 years.

Shortraker and rougheye rockfish have traditionally been combined for management purposes. Prior to 2004 there was no requirement to report catchers of these two species separately and fishermen and processors could report shortraker, rougheye or shortraker/rougheye catch. Beginning in 2005, on the suggestion of the Scientific and Statistical Committee, the management of these two species will be separated to protect shortraker rockfish from disproportionate harvest within the shortraker/rougheye group. Instead, the ABC for shortraker rockfish will be the estimated proportion of shortraker in the shortraker/rougheye catch in trawl surveys. An important component of management is the accurate estimation of shortraker catch within that group in the commercial fishery. This estimation is particularly problematic in the longline fleet, which is primarily composed of small vessels with little or no observer coverage in the Gulf of Alaska. A pilot program is underway to develop further information on catch from the unobserved portion of the fleet. Appendix 7 to this analysis provides some additional background information concerning historic harvests of shortraker and rougheye in various target fisheries in the Central Gulf.

As with other slope rockfish, shortraker and rougheye appear to be influenced by periodic abundant year classes. Availability of suitable zooplankton prey in sufficient quantity for larval and post-larval rockfish may be an important determining factor of year class strength. Information is unavailable to further assess this relationship. Adult shortraker and rougheye are thought to opportunisticly feed on mollusks and fish. Little is known about the abundance trends of rockfish prey items. Rockfish are preyed on by a variety of other fish at all life stages, and to some extent marine mammals during late juvenile and adult stages. Whether any particular predator has a significant or dominant effect is unknown. Predator effects on larval, post-larval, and small juvenile fish, but information on these stages and their predators is nil.

Shortraker/rougheye are harvested incidentally by both longline and trawl gear. In 1991, management of these species were separated from slope rockfish in 1991. Historically, both species were harvested in directed longline and trawl fisheries. Currently, no directed fishery exists for these species, but incidental catch is permitted under MRAs. Currently, these species are part of the "aggregated rockfish" MRA, which includes other slope rockfish species. The current MRA is 15 percent for basis species in the deep-water complex and 5 percent for species in the shallow-water complex.

Shortraker and rougheye are caught with both trawl and hook and line gear. The ABC and TAC for shortraker and rougheye are apportioned by each of the three GOA areas while the OFL is managed gulfwide. The relative proportions by areas are calculated based on comparison with the most recent trawl survey results. The largest proportional allocation in 2003 and 1999 was in the Central GOA (52% of the ABC/TAC 2003, 42% in 1999) while in previous years the Eastern GOA had the largest proportional allocation. The ABC, OFL and TAC for the complex from 1996-2003 are included in Table 44.

Table 44. Overfishing limit, allowable biological catch, total allowable catch, and catch of Central Gulf of Alaska shortraker/rougheye rockfish (1996-2003).

Shortraker/rougheye *(mt.)*				
Year	**Overfishing Level**	**ABC**	**TAC**	**Catch**
	(Gulfwide)			
2004	2,510	656	656	329
2003	2,340	840	840	856
2002	2,340	840	840	631
2001	2,510	930	930	998
2000	2,510	930	930	887
1999	2,740	970	970	580
1998	2,740	970	970	868
1997	2,740	970	970	931
1996	2,925	1,210	1,210	941
Source: NMFS Annual Catch Reports & Groundfish Harvest Specifications, 1996-2004.				
Available at: *http://www.fakr.noaa.gov/sustainablefisheries/catchstats.htm*				

Thornyhead rockfish

Thornyhead rockfish are long-lived, slow-growing high value rockfish species in Alaskan waters. The shortspine thornyheads, *Sebatolobus alaskanus,* are abundant in the Gulf of Alaska and are of commercial importance as a high value rockfish species. Longspine thornyheads, *S. altivelis,* as well as another thornyhead species common off Japan, *S. macrochir,* are infrequently encountered in the Gulf of Alaska, thus annual assessments focus upon the shortspine thornyhead.

Shortspine thornyheads are a demersal species found in deep waters from 92m to 1460 m with a geographic distribution extending from the Bering Sea and Gulf of Alaska to Baja California (Gaichas and Ianelli 2003). Thornyhead life history is not well known. The maximum recorded age is in excess of 50 years (NMFS 2004). Groundfish species that are commonly associated with thornyheads include: arrowtooth flounder, Pacific ocean perch, sablefish, rex sole, Dover sole, shortraker rockfish, rougheye rockfish and grenadiers (Alverson 1964, in Gaichas and Ianelli 2003).

Shrimp had been noted to be the most important food in the thornyhead diet (Yang 1993, 1996 and Yang and Nelson 2000, In, NMFS 2004) Other important prey items include Tanner crabs, Pollock, capelin, sculpins, polychatetes, mysids, amphipods and other crabs (Yang 1993, 1996 and Yang and Nelson 2000, In, NMFS 2004). California sea lion (Lowry et al 1990) and sablefish (Orlov 1997) are documented predators of shortspine thornyheads.

Thornyhead rockfish are caught with both trawl and hook and line gear. Directed fishing for thornyheads is not permitted currently. The ABC and TAC for thornyheads are apportioned by each of the three GOA areas while the OFL is managed gulfwide. The relative proportions by areas are calculated based on comparison with the most recent trawl survey results. The largest proportional allocation in 2003 and 1999 was in the Central GOA (52% of the ABC/TAC 2003, 42% in 1999) while in previous years the Eastern GOA had the largest proportional allocation. The ABC, OFL and TAC for the complex from 1996-2003 are included in Table 45.

Discards of thornyheads by weight were highest in 2001 and 2002 in the sablefish fishery followed by rockfish and the combined flatfish fishery (Gaichas and Ianelli 2003).

Additional information on thornyhead rockfish biology and fishery can be found in the Final PSEIS (NMFS 2004) as well as the annual Stock Assessment and Fishery Evaluation reports.

Table 45. Overfishing limit, allowable biological catch, total allowable catch, and catch of Central Gulf of Alaska thornyhead (1996-2003).

Thornyhead *(mt.)*				
Year	**Overfishing Level**	**ABC**	**TAC**	**Catch**
	(Gulfwide)			
2004	2,590	1,940	1,940	401
2003	3,050	840	840	744
2002	2,330	840	840	505
2001	2,770	970	970	523
2000	2,820	990	990	551
1999	2,800	700	700	583
1998	2,840	710	710	716
1997 (Gulfwide)	2,400	1,700	1,700	1,240
1996 (Gulfwide)	2,200	1,560	1,248	1,132
Source: NMFS Annual Catch Reports & Groundfish Harvest Specifications, 1996-2004.				
Available at: *http://www.fakr.noaa.gov/sustainablefisheries/catchstats.htm*				

Pacific cod

Pacific cod (*Gadus macrocephalus*), also known as grey cod, are moderately fast-growing and short-lived fish. Females reach 50 percent maturity of about 67 cm, at an age of 6.7 years and are highly fecund. Annual natural mortality of adults is estimated to be 0.37. Cod are demersal fish and in the winter and

spring concentrate on the shelf edge and upper slope at depths of approximately 100 to 200 meters. They spawn from January through April, then move to shallower waters (less than 100 meters) in the summer. Cod recruit to trawl fisheries at approximately 3 years, but are not fully recruited to all fisheries until 7 years.

Pacific cod is a transoceanic species, occurring at depths from shoreline to 500 meters. The southern limit of the species distribution is about 34 N latitude, with a northern limit of about 63 N latitude. Pacific cod is distributed widely over the Gulf of Alaska, as well as the eastern Bering Sea and Aleutian Islands area. Tagging studies have demonstrated significant migration both within and between the eastern Bering Sea, Aleutian Islands, and Gulf of Alaska. Genetic studies have failed to show significant evidence of stock structure within these areas. Pacific cod is not known to exhibit any special life history characteristics that require it to be assessed or managed differently form other groudfish stocks in the Gulf of Alaska.

A primary ecosystem phenomenon affecting Pacific cod seems to the periodic occurrence of "regime shifts" (Livingston, ed. 2002). Additional study of the relationship between ecology of Pacific cod and these regime changes is necessary to fully understand the implications of these changes. Major trends in predators and prey can be expected to affect Pacific cod dynamics. Small Pacific cod feed mostly on invertebrates, while large Pacific cod are mainly piscivorous. Predators for Pacific cod include halibut, salmon shark, northern fur seals, Steller sea lions, harbor porpoises, various whale species, and tufted puffin.

Potentially, fisheries for Pacific cod can have effects on other species in the ecosystem through a variety of means. Pitcher (1981) showed that Pacific cod is important winter prey for Steller sea lions. Sinclair and Zeppelin (2002) reinforced this finding, showing that Pacific cod was one of the four most important prey items of Steller sea lions, based on frequency of occurrence averaged over years, seasons, and sites, and was particularly important in winter. Size ranges of Pacific cod harvested commercially overlap with those consumed by sea lions, and to some extent commercial fisheries share geographic regions with sea lions (Livingston, ed., 2002).

Prior to adoption of the MSA in 1976, the Pacific cod fishery was relatively small, averaging approximately 3,000 metric tons per year in the two previous decades. In the late 1970s the fishery grew, mostly through foreign participation, which peaked in 1981 with a catch of almost 35,000 metric tons. The domestic fishery grew slowly through the early 1980s, then jumped sharply in 1987 to approximately 31,000 metric tons, as the foreign fishery was eliminated. The current fishery is prosecuted by three gear types: trawl gear, hook and line gear, and pot gear. Traditionally trawl gear has taken the largest share of the catch, although in the last two years, pot gear has accounted for the largest share.

The ABC and TAC for Pacific cod are apportioned by each of the three GOA areas (Western Gulf, Central Gulf, Eastern Gulf), while the OFL is managed gulfwide. In addition, Pacific cod is allocated between processor components (inshore/offshore) and season. 90 percent of the TAC is allocated to the inshore component and 10 percent to the offshore component. On the Central Gulf, 60 percent of each component's quota is allocated to the A season (January 1 to June 10), and the remainder is allocated to the B season (June11 to December 31). Directed fishing in the B season opens September 1. Historically, the majority of the Gulf catch of cod has come from the Central Gulf. This distribution of effort has resulted, to some extent, from catch limits established for the different areas. Area specific allocations have varied with estimates of the distribution of biomass and management responses to local concerns. The ABC, OFL and TAC for Pacific cod from 1996-2003 are included in Table 46.

Table 46. Overfishing limit, allowable biological catch, total allowable catch, and catch of Central Gulf of Alaska Pacific cod (1996-2003).

Pacific cod *(mt.)*				
Year	**Overfishing Level**	**ABC**	**TAC**	**Catch**
	(Gulfwide)			
2004 (Inshore)	102,000	35,800	27,116	25,129
2004 (Offshore)			2,712	1,931
2003 (Inshore)	70,100	29,000	20,421	22,584
2003 (Offshore)			2,269	2,159
2002 (Inshore)	77,100	31,680	22,311	22,665
2002 (Offshore)			2,479	2,393
2001 (Inshore)	91,200	38,650	27,225	25,255
2001 (Offshore)			3,025	2,066
2000 (Inshore)	102,000	43,550	30,672	30,257
2000 (Offshore)			3,408	1,928
1999 (Inshore)	134,000	53,170	38,642	40,928
1999 (Offshore)			4,293	3,619
1998 (Inshore)	141,000	49,080	37,548	38,031
1998 (Offshore)			4,172	3,405
1997 (Inshore)	180,000	51,400	42,321	43,406
1997 (Offshore)			1,369	271
1996 (Inshore)	88,000	42,900	38,610	42,213
1996 (Offshore)			4,290	5,351

Halibut

Pacific halibut (*Hippoglossus stenolepsis*) range from the Eastern Bering Sea to Oregon, with the center of abundance in the Gulf of Alaska. Spawning takes place in the winter months from December to February, mostly off the edge of the continental shelf at depths of 400 to 600 meters. Male halibut become sexually mature at 7 or 8 years of age; females become sexually mature at 8 to 12 years. In the 1970s, 10-year old males averaged 9.1 kilograms, and females averaged 16.8 kilograms. Males can grow to approximately 35 kilograms and live up to approximately 30 years; females can grow to over 225 kilograms and live up to approximately 40 years. Females can produce up to 3 million eggs annually. Fertilized eggs float free for about 15 days before hatching. Larvae drift free for up to 6 months and can be carried great distances to shallow waters by prevailing currents. Most young halibut spend 5 to 7 years in shallow waters. At about 35 centimeters, these fish begin life as bottom dwellers. Up to age 10, halibut in the Gulf are highly migratory, generally migrating clockwise throughout the Gulf. Older halibut are much less migratory. Halibut prey on variety of fish, crab, and shrimp, at times leaving the bottom to feed on fish, such as herring and sand lance.

The catch of halibut in directed fisheries is managed under a treaty between the U.S. and Canada, through the International Pacific Halibut Commission. Pacific halibut are considered a single interrelated stock, but are regulated by quotas at the subarea level. Both commercial and recreational fisheries date back to the 1800s.

NOAA Fisheries regulates the bycatch of halibut in Gulf of Alaska groundfish fisheries. The Council and NOAA Fisheries set mortality rates each year and TAC apportionments each year for each gear and target fishery group. In limited access fisheries, NOAA Fisheries monitors halibut mortality throughout the year (including using extrapolated estimates for unobserved vessels), closing fisheries when the applicable

bycatch mortality limit is estimated to be reached (50 CFR 79.21). Other measures have been used to reduce halibut bycatch including area closures, careful release requirements, a vessel incentive program to hold individual vessels accountable for excessive bycatch, public reporting of individual bycatch rates, and gear modifications.

In recent years, the halibut mortality limit in the Gulf of Alaska trawl fisheries has been 2,000 metric tons. Of this, 800 metric tons is allocated to the deep-water complex, which includes the rockfish fisheries. This allocation is split among seasons, with the third season (starting in July, when the rockfish fisheries open) being allocated 400 metric tons. If the halibut mortality limit is reached prior to the catch of the rockfish TAC, the rockfish fisheries are closed for the season and reopened when a rollover of any amounts of mortality on used in the first two seasons comes available in September. In the Central Gulf of Alaska trawl rockfish fisheries, a halibut mortality rate of 67 percent was set for 2005 and 2006 in the TAC specification process.

3.3.4. Unallocated prohibited species catch

In prosecuting the targeted rockfish fishery in the CGOA, participating catcher processors and catcher vessels in the fishery also harvest prohibited species. Retention of prohibited species is not allowed in the GOA groundfish fisheries, including the trawl rockfish fishery. The Magnuson-Stevens Act prohibition on retention of prohibited species harvests was intended to eliminate any incentive that groundfish fishermen might otherwise have to target these species. Prohibited species include: Pacific halibut (*Hippoglossus stenolepis*), Pacific salmon (*Oncorhynchus spp.*), steelhead trout (*Oncorhynchus mykiss*), Pacific herring (*Clupea pallasi*), red king crab (*Paralithodes camtschaticus*), blue king crab (*P. platypus*), golden or brown king crab (*Lithodes aequispinus*), bairdi Tanner crab (*Chionoecetes bairdi*) and opilio Tanner crab (*C. opilio*).

Prohibited species harvest data were obtained from National Marine Fisheries Service (NMFS) for the CGOA trawl rockfish fishery. NMFS uses observer data to calculate prohibited species harvests. For prohibited species other than halibut, 100 percent mortality is assumed.

Table 47 provides an overview of the prohibited species catch that has resulted from the CGOA rockfish fishery over the seven year period from 1996-2002. The total annual amount of targeted groundfish (reported in metric tons) is shown in the second column of the table. For the prohibited species, the figures show the number harvested, not the weight of the harvest, with the exception of herring. The last column in the table shows the harvest of herring in kilograms.

Table 47. Prohibited Species Catches in the Targeted CGOA Rockfish Fishery - 1996-2002

year/sector	targeted groundfish (mt.)	halibut mortality (nos)	bairdi mortality (nos)	red king crab mortality (nos)	chinook salmon mortality (nos)	other salmon mortality (nos)	other king crab mortality (nos)	other tanner crab mortality (nos)	herring mortality (kgs.)
1996 CP totals	7,112.00	50.6	60.83	0	14.68	0.19	422.52	393.18	20.4
1997 CP totals	8,718.50	143.8	62.19	0	2,201.69	362.24	456.28	0	0
1998 CP totals	9,049.50	146.4	19.2	0	51.79	145.55	276.66	0	0
1999 CP totals	9,322.90	168.6	173.52	226.09	140.53	619.7	332.05	0	0
2000 CP totals	6,202.20	48	0.19	0	905.71	81.5	279.2	0	57.5
2001 CP totals	7,881.40	110.6	1,615.10	0	176.98	129.93	324.68	36	0
2002 CP totals	6,114.40	111	724.49	0	1,139.02	671.17	354.25	0	0
1996 CV totals	7,340.20	93	4,172.38	0	121.23	49.74	75.4	163.84	0
1997 CV totals	4,669.50	49.5	6,770.81	0	0	0	0	0	0
1998 CV totals	5,680.20	86.8	2,726.97	0	55.42	207.7	82.38	0	0
1999 CV totals	8,797.20	124.3	384.54	5.23	328.02	909.44	130.59	0	0
2000 CV totals	10,574.30	136.4	223.51	0	210.79	485.29	0	0	
2001 CV totals	5,887.30	114.8	12.16	0	51.2	144.38	39.11	0	0
2002 CV totals	10,143.60	95.1	178.36	0	107.89	222.91	21.12	0	0

Source: NMFS, based on GOA observer data, 1996-2002

3.3.5. Other unallocated species

All non-allocated secondary species harvested in the CGOA rockfish fishery will be managed by MRA, the same as under current management. These non-allocated species include arrowtooth flounder, deep water flatfish, shallow water flatfish, flathead sole, rex sole, pollock, other species, Atka mackerel and other rockfish.

Table 48 shows the annual harvest of the non-allocated secondary species for the period from 1996 through 2002 for the catcher processor sector and the catcher vessel sector. The data source for all of the tables is the same, NMFS blend data 1996-2002.

Table 48. Incidental catch of unallocated species by sector in the Central Gulf of Alaska target rockfish fishery (1996-2002).

Species	Year	Sector	Sector harvest (mt.)	Total CGOA harvest (mt.)
Atka Mackerel	1996	CP	1.02	8.96
Atka Mackerel	1997	CP	1.02	7.40
Atka Mackerel	1998	CP	0.04	38.20
Atka Mackerel	1999	CP	0.13	0.75
Atka Mackerel	2001	CP	6.90	17.92
Atka Mackerel	2002	CP	11.08	29.57
total 1996-2002 harvest			20.18	102.80

Species	Year	Sector	Sector harvest (mt.)	Total CGOA harvest (mt.)
Atka Mackerel	1996	CV	2.61	8.96
Atka Mackerel	1998	CV	0.00	38.20
Atka Mackerel	1999	CV	0.00	0.75
Atka Mackerel	2000	CV	1.29	2.45
Atka Mackerel	2001	CV	0.00	17.92
Atka Mackerel	2002	CV	15.02	29.57
total 1996-2002 harvest			18.92	97.85

Species	Year	Sector	Sector harvest (mt.)	Total CGOA harvest (mt.)
Arrowtooth Flounder	1996	CP	271.04	19,739.55
Arrowtooth Flounder	1997	CP	524.86	12,619.02
Arrowtooth Flounder	1998	CP	773.99	9,589.66
Arrowtooth Flounder	1999	CP	937.77	11,458.38
Arrowtooth Flounder	2000	CP	589.04	17,633.50
Arrowtooth Flounder	2001	CP	326.89	12,732.61
Arrowtooth Flounder	2002	CP	394.23	14,894.73
total 1996-2002 harvest			3,817.82	98,667.45

Species	Year	Sector	Sector harvest (mt.)	Total CGOA harvest (mt.)
Arrowtooth Flounder	1996	CV	1,507.46	19,739.55
Arrowtooth Flounder	1997	CV	476.85	12,619.02
Arrowtooth Flounder	1998	CV	659.36	9,589.66
Arrowtooth Flounder	1999	CV	1,232.85	11,458.38
Arrowtooth Flounder	2000	CV	1,659.44	17,633.50
Arrowtooth Flounder	2001	CV	1,035.09	12,732.61
Arrowtooth Flounder	2002	CV	746.62	14,894.73
total 1996-2002 harvest			7,317.68	98,667.45

Species	Year	Sector	Sector harvest (mt.)	Total CGOA harvest (mt.)
Flathead Sole	1996	CP	7.48	2,165.45
Flathead Sole	1997	CP	13.59	1,933.09
Flathead Sole	1998	CP	5.91	1,167.92
Flathead Sole	1999	CP	6.64	686.67
Flathead Sole	2000	CP	2.39	1,270.62
Flathead Sole	2001	CP	19.64	1,309.87
Flathead Sole	2002	CP	2.64	1,724.84
total 1996-2002 harvest			58.27	10,258.47

Species	Year	Sector	Sector harvest (mt.)	Total CGOA harvest (mt.)
Flathead Sole	1996	CV	99.76	2,165.45
Flathead Sole	1997	CV	32.24	1,933.09
Flathead Sole	1998	CV	12.53	1,167.92
Flathead Sole	1999	CV	50.90	686.67
Flathead Sole	2000	CV	71.62	1,270.62
Flathead Sole	2001	CV	70.93	1,309.87
Flathead Sole	2002	CV	17.07	1,724.84
total 1996-2002 harvest			355.03	10,258.47

Species	Year	Sector	Sector harvest (mt.)	Total CGOA harvest (mt.)
Other flatfish	1996	CP	59.83	10,853.66
Other flatfish	1997	CP	115.71	9,983.95
Other flatfish	1998	CP	37.52	5,386.01
Other flatfish	1999	CP	33.46	4,144.98
Other flatfish	2000	CP	28.10	7,129.99
Other flatfish	2001	CP	70.45	6,613.22
Other flatfish	2002	CP	48.55	7,444.01
total 1996-2002 harvest			393.62	51,555.82

Species	Year	Sector	Sector harvest (mt.)	Total CGOA harvest (mt.)
Other flatfish	1996	CV	579.42	10,853.66
Other flatfish	1997	CV	158.68	9,983.95
Other flatfish	1998	CV	97.39	5,386.01
Other flatfish	1999	CV	157.09	4,144.98
Other flatfish	2000	CV	490.82	7,129.99
Other flatfish	2001	CV	459.48	6,613.22
Other flatfish	2002	CV	154.76	7,444.01
total 1996-2002 harvest			2,097.63	51,555.82

Species	Year	Sector	Sector harvest (mt.)	Total CGOA harvest (mt.)
Other rockfish	1996	CP	489.67	1,278.30
Other rockfish	1997	CP	843.70	1,184.31
Other rockfish	1998	CP	553.51	828.71
Other rockfish	1999	CP	252.77	688.32
Other rockfish	2000	CP	221.47	550.54
Other rockfish	2001	CP	220.85	461.60
Other rockfish	2002	CP	367.93	600.34
total 1996-2002 harvest			2,949.90	5,592.12

Species	Year	Sector	Sector harvest (mt.)	Total CGOA harvest (mt.)
Other rockfish	1996	CV	382.53	1,278.30
Other rockfish	1997	CV	32.98	1,184.31
Other rockfish	1998	CV	58.33	828.71
Other rockfish	1999	CV	307.17	688.32
Other rockfish	2000	CV	61.91	550.54
Other rockfish	2001	CV	34.91	461.60
Other rockfish	2002	CV	49.60	600.34
total 1996-2002 harvest			927.43	5,592.12

Species	Year	Sector	Sector harvest (mt.)	Total CGOA harvest (mt.)
Other species	1996	CP	54.38	3,699.30
Other species	1997	CP	98.05	4,508.58
Other species	1998	CP	63.85	2,691.32
Other species	1999	CP	60.01	2,778.80
Other species	2000	CP	55.01	4,982.18
Other species	2001	CP	118.04	4,334.60
Other species	2002	CP	115.54	3,444.54
total 1996-2002 harvest			564.88	26,439.32

Species	Year	Sector	Sector harvest (mt.)	Total CGOA harvest (mt.)
Other species	1996	CV	65.24	3,699.30
Other species	1997	CV	63.52	4,508.58
Other species	1998	CV	45.85	2,691.32
Other species	1999	CV	76.50	2,778.80
Other species	2000	CV	123.27	4,982.18
Other species	2001	CV	178.88	4,334.60
Other species	2002	CV	103.05	3,444.54
total 1996-2002 harvest			656.30	26,439.32

Species	Year	Sector	Sector harvest (mt.)	Total CGOA harvest (mt.)
Pollock	1996	CP	27.02	25,653.92
Pollock	1997	CP	130.10	57,977.89
Pollock	1998	CP	35.73	88,078.00
Pollock	1999	CP	18.51	68,273.75
Pollock	2000	CP	17.03	47,685.81
Pollock	2001	CP	11.85	37,663.33
Pollock	2002	CP	7.50	31,437.34
total 1996-2002 harvest			247.73	356,770.05

Species	Year	Sector	Sector harvest (mt.)	Total CGOA harvest (mt.)
Pollock	1996	CV	48.85	25,653.92
Pollock	1997	CV	47.10	57,977.89
Pollock	1998	CV	47.97	88,078.00
Pollock	1999	CV	30.94	68,273.75
Pollock	2000	CV	117.07	47,685.81
Pollock	2001	CV	53.38	37,663.33
Pollock	2002	CV	92.80	31,437.34
total 1996-2002 harvest			438.11	356,770.05

Species	Year	Sector	Sector harvest (mt.)	Total CGOA harvest (mt.)
Rex Sole	1996	CP	40.88	5,202.28
Rex Sole	1997	CP	87.18	2,437.59
Rex Sole	1998	CP	28.31	2,194.75
Rex Sole	1999	CP	32.17	2,392.90
Rex Sole	2000	CP	12.14	2,700.10
Rex Sole	2001	CP	65.43	2,490.94
Rex Sole	2002	CP	55.64	2,618.59
total 1996-2002 harvest			321.75	20,037.15

Species	Year	Sector	Sector harvest (mt.)	Total CGOA harvest (mt.)
Rex Sole	1996	CV	202.20	5,202.28
Rex Sole	1997	CV	52.29	2,437.59
Rex Sole	1998	CV	24.70	2,194.75
Rex Sole	1999	CV	116.00	2,392.90
Rex Sole	2000	CV	73.14	2,700.10
Rex Sole	2001	CV	151.66	2,490.94
Rex Sole	2002	CV	163.14	2,618.59
total 1996-2002 harvest			783.12	20,037.16

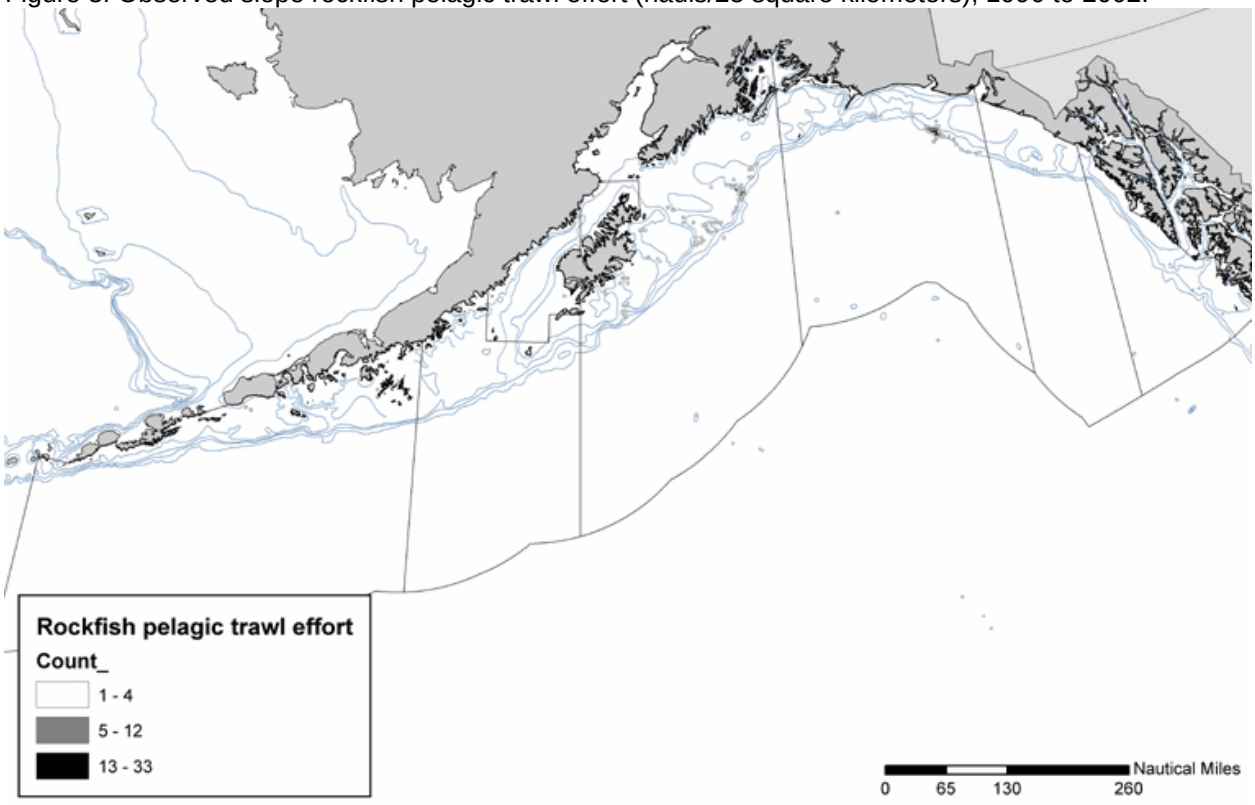
3.3.6. Benthic habitat and essential fish habitat

Section 303(a)(7) of the Magnuson-Stevens Act requires all FMPs to describe and identify Essential Fish Habitat (EFH), defined as "those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity." In addition, FMPs must minimize to the extent practicable adverse effects of fishing on EFH and identify other actions to conserve and enhance EFH. To this end, the Environmental Impact Statement for Essential Fish Habitat Identification and Conservation in Alaska (NMFS, 2004) provides a detailed analysis of the interactions between fisheries and EFH. Most of the controversy surrounding EFH concerns the effects of fishing activities on sea floor habitats. The analysis concludes that there are long term effects of fishing on benthic habitat features off Alaska and acknowledges that considerable

scientific uncertainty remains regarding the consequences of those effects on the sustained productivity of managed species. Based on the best available scientific information, the EIS concludes that the effects on EFH are minimal because the analysis finds no indication that continued fishing activities at the current rate and intensity would alter the capacity of EFH to support health populations of managed species over the long term. The analysis concludes that no Council-managed fishing activities have more than a minimal and temporary adverse effect on EFH, which is the regulatory standard requiring action to minimize adverse effects under the MSA. Notwithstanding these findings, the Council elected to adopt a variety of new measures to conserve EFH, which are scheduled to be implemented by August 13, 2006.

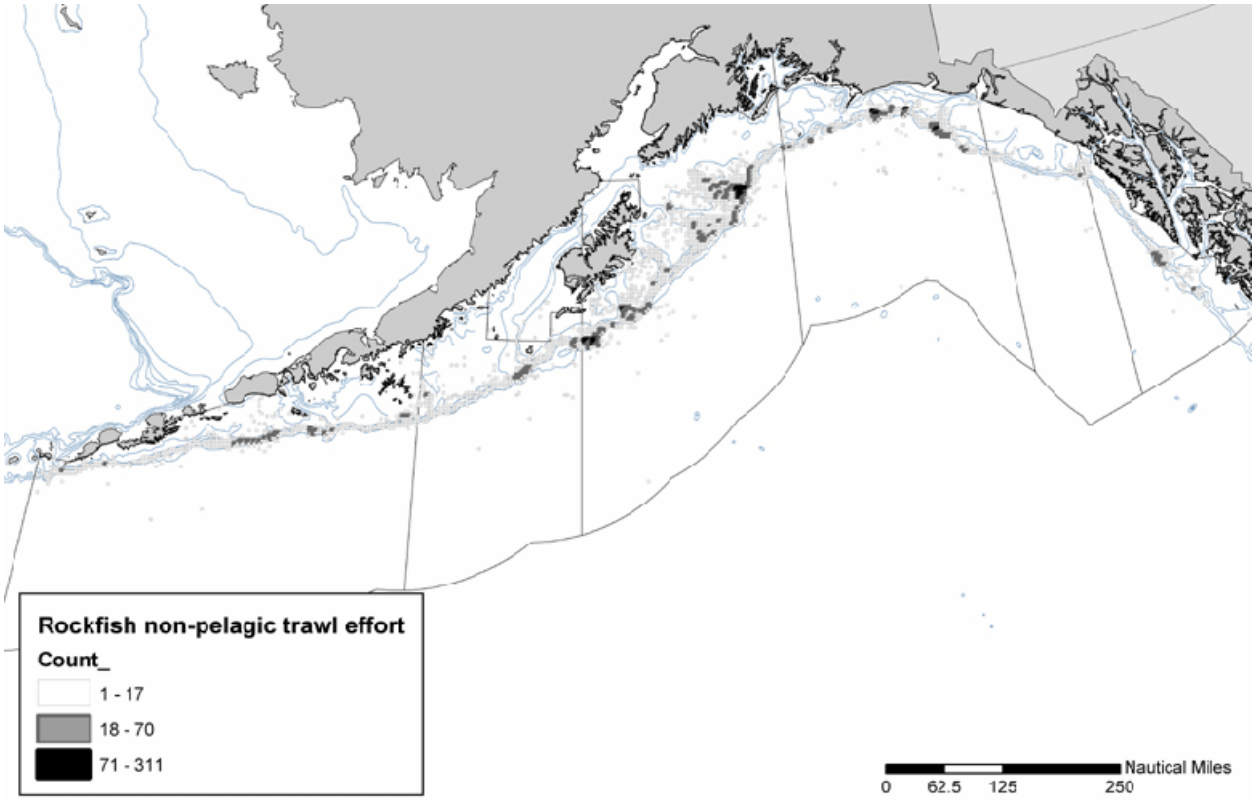
Figure 3 shows the concentration of observed rockfish pelagic trawl hauls from 1990 to 2002. The figure suggests that slope rockfish pelagic trawl fisheries (including all three of the CGOA target rockfish fisheries) occur at relatively low effort levels (fewer than 33 observed hauls/25 square kilometers from 1990 to 2002) in all locations in the Gulf of Alaska. The areas of greatest concentration are on the slope south of the Kenai Peninsula, with fewer areas of concentration south of Kodiak Island. Figure 4 shows the concentration of observed rockfish non-pelagic (bottom) trawl hauls from 1990 to 2002. The figure suggests that bottom trawl fishery for slope rockfish has taken place at relatively low effort levels all along slope areas. As with the pelagic trawl effort, concentrations of bottom trawl effort (more than 71 observed hauls/25 square kilometers from 1990 to 2002) in the Central Gulf have occurred south of Kodiak Island and south of the Kenai Peninsula. The Pacific Ocean perch fishery occurs over sand, gravel, and mud at depths of 90 to 200 fathoms. The northern rockfish and pelagic shelf rockfish fisheries occur over rock, gravel, and hard sand at depths of 40 to 80 fathoms. The analysis of the EIS provides detailed descriptions of EFH and the effects of fishing on EFH (NMFS, 2004).

Figure 3. Observed slope rockfish pelagic trawl effort (hauls/25 square kilometers), 1990 to 2002.



Source: Cathy Coon, NPFMC Staff, North Pacific Observer Program Data.

Figure 4. Observed slope rockfish non-pelagic (bottom) trawl effort (hauls/25 square kilometers), 1990 to 2002.



Source: Cathy Coon, NPFMC Staff, North Pacific Observer Program Data.

3.3.7. Endangered or threatened species

The Endangered Species Act of 1973 as amended [16 U.S.C. 1531 et seq; ESA], provides for the conservation of endangered and threatened species of fish, wildlife, and plants. The program is administered jointly by the NMFS for most marine mammal species, marine and anadromous fish species, and marine plants species and by the USFWS for bird species, and terrestrial and freshwater wildlife and plant species.

The designation of an ESA listed species is based on the biological health of that species. The status determination is either threatened or endangered. Threatened species are those likely to become endangered in the foreseeable future [16 U.S.C. § 1532(20)]. Endangered species are those in danger of becoming extinct throughout all or a significant portion of their range [16 U.S.C. § 1532(20)]. Species can be listed as endangered without first being listed as threatened. The Secretary of Commerce, acting through NMFS, is authorized to list marine fish, plants, and mammals (except for walrus and sea otter) and anadromous fish species. The Secretary of the Interior, acting through the USFWS, is authorized to list walrus and sea otter, seabirds, terrestrial plants and wildlife, and freshwater fish and plant species.

In addition to listing species under the ESA, the critical habitat of a newly listed species must be designated concurrent with its listing to the "maximum extent prudent and determinable" [16 U.S.C. § 1533(b)(1)(A)]. The ESA defines critical habitat as those specific areas that are essential to the conservation of a listed species and that may be in need of special consideration. Federal agencies are prohibited from undertaking actions that destroy or adversely modify designated critical habitat. Some

species, primarily the cetaceans, which were listed in 1969 under the Endangered Species Conservation Act and carried forward as endangered under the ESA, have not received critical habitat designations.

Species listed as endangered and threatened under the ESA that may be present in the Federal waters off Alaska include:

Common Name	Scientific name	ESA status
Northern Right Whale	*Balaena glacialis*	Endangered
Bowhead Whale [1]	*Balaena mysticetus*	Endangered
Sei Whale	*Balaenoptera borealis*	Endangered
Blue Whale	*Balaenoptera musculus*	Endangered
Fin Whale	*Balaenoptera physalus*	Endangered
Humpback Whale	*Megaptera novaeangliae*	Endangered
Sperm Whale	*Physeter macrocephalus*	Endangered
Snake River Sockeye Salmon	*Onchorynchus nerka*	Endangered
Short-tailed Albatross	*Phoebaotria albatrus*	Endangered
Steller Sea Lion	*Eumetopias jubatus*	Endangered and Threatened [2]
Snake River Fall Chinook Salmon	*Onchorynchus tshawytscha*	Threatened
Snake River Spring/Summer Chinook Salmon	*Onchorynchus tshawytscha*	Threatened
Puget Sound Chinook Salmon	*Onchorynchus tshawytscha*	Threatened
Lower Columbia River Chinook Salmon	*Onchorynchus tshawytscha*	Threatened
Upper Willamette River Chinook Salmon	*Onchorynchus tshawytscha*	Threatened
Upper Columbia River Spring Chinook Salmon	*Onchorynchus tshawytscha*	Endangered
Upper Columbia River Steelhead	*Onchorynchus mykiss*	Endangered
Snake River Basin Steelhead	*Onchorynchus mykiss*	Threatened
Lower Columbia River Steelhead	*Onchorynchus mykiss*	Threatened
Upper Willamette River Steelhead	*Onchorynchus mykiss*	Threatened
Middle Columbia River Steelhead	*Onchorynchus mykiss*	Threatened
Spectacled Eider	*Somateria fishcheri*	Threatened
Steller Eider	*Polysticta stelleri*	Threatened

[1] The bowhead whale is present in the Bering Sea area only.
[2] Steller sea lion are listed as endangered west of Cape Suckling and threatened east of Cape Suckling.

Of the species listed under the ESA and present in the action area, some may be negatively affected by commercial groundfish fishing. Section 7 consultations with respect to the actions of the Federal groundfish fisheries have been done for all the species listed above, either individually or in groups. Additional information on endangered and threatened species appears in the Alaska Groundfish Fisheries Programmatic Supplemental Environmental Impact Statement (NMFS 2004).

3.3.8. Forage fish

Forage fish are those species that are a critical food source for many marine mammal, seabird, and fish species. Biomass estimates of forage fish are uncertain because independent surveys for forage fish have not been implemented. Preliminary estimates from ecosystem models suggest that stocks of forage fish are stable. Catch of forage fish by commercial fisheries is small and results in insignificant forage fish mortality. Additional detail analysis of the effects of commercial fisheries on forage fish appears in the

Alaska Groundfish Fisheries Programmatic Supplemental Environmental Impact Statement (NMFS 2004).

3.3.9. Marine mammals

Marine mammals not listed under the ESA that may be present in the BSAI and GOA include cetaceans [minke whale (Balaenoptera acutorostrata), killer whale (Orcinus orca), Dall's porpoise (Phocoenoides dalli), harbor porpoise (Phocoena phocoena), Pacific white-sided dolphin (Lagenorhynchus obliquidens) and the beaked whales (e.g., Berardius bairdii and Mesoplodon spp.)] and pinnipeds [northern fur seals (Callorhinus ursinus) and Pacific harbor seals (Phoca vitulina)] and the sea otter (Enhydra lutris).

Direct and indirect interactions between marine mammals and groundfish harvest occur due to overlap in the size and species of groundfish harvested in the fisheries that are also important marine mammal prey and due to temporal and spatial overlap in marine mammal foraging and commercial fishing activities. A detailed analysis of the effects of commercial fisheries on marine mammals appears in the Alaska Groundfish Fisheries Programmatic Supplemental Environmental Impact Statement (NMFS 2004).

3.3.10. Seabirds

Many seabirds occur in Alaskan waters indicating a potential for interaction with commercial fisheries. The most numerous seabirds in Alaska are northern fulmars, storm petrels, kittiwakes, murres, auklets, and puffins. These groups, and others, represent 38 species of seabirds that breed in Alaska. Eight species of Alaska seabirds breed only in Alaska and in Siberia. Populations of five other species are concentrated in Alaska but range throughout the North Pacific region. Marine waters off Alaska provide critical feeding grounds for these species as well as others that do not breed in Alaska but migrate to Alaska during summer, and for other species that breed in Canada or Eurasia and overwinter in Alaska. A detailed analysis of the effects of commercial fisheries on seabirds appears in the Alaska Groundfish Fisheries Programmatic Supplemental Environmental Impact Statement (NMFS 2004).

3.3.11. The ecosystem

An ecosystem is a spatially explicit area that includes all organisms and components of the abiotic environment within its boundaries. The Gulf of Alaska is a large marine ecosystem, identified by its distinct geographical and biological features (see the Alaska Groundfish Fisheries Programmatic SEIS).

Three natural processes underlie changes in population structure of species in marine ecosystems: competition, predation, and environmental disturbance. Natural variations in recruitment, survivorship, and growth of fish stocks are consequences of these processes. Human activities, such as commercial fisheries, can also influence the structure and function of marine ecosystems. Fishing may affect ecosystems by altering energy flows, change predator-prey relationships and community structure, introducing foreign species, affecting trophic or functional diversity, alter genetic diversity, and alter habitat, and damage benthic organisms or communities. An assessment of the effects of commercial fishing on marine ecosystems off Alaska is contained in the Alaska Groundfish Fisheries Programmatic SEIS.

3.3.12. Environmental justice

Environmental justice requires that federal agencies address any disproportionately high, adverse environmental or health effects of on minority or low-income populations. Environmental justice includes not only effects on the natural and physical environment, but also related social, cultural, and economic effects (see Executive Order 12898).

To assess the environmental justice of the alternatives, the demographics of the geographic areas affected by the action are examined to determine the extent of minority or low-income populations and the degree to which those populations could be affected. The connection of these populations to the fishery resource is examined to determine the degree to which the alternatives are likely to disproportionately affect those populations.

The city most affected by this action is Kodiak, where all of the eligible processors operate and several of the owners of eligible catcher vessels reside. The 2000 U.S. census estimated the population of Kodiak at 6,334. Of this population, approximately 30 percent are estimated to be of Asian descent, while another 10 percent are estimated to be Native American or Native Alaskan and slightly less than 10 percent are estimated to be Hispanic. An addition 10 percent are estimated to be of mixed race, making approximately 50 percent of the community minority or mixed race. The U.S census also estimated approximately 7.4 percent of the population to be at or below the poverty level (U.S. Bureau of the Census, 2000).

The Kodiak minority and low income population that is likely to be affected by the alternatives are employees of the processing facilities in the community. As recent as 2002, approximately 1,000 persons were estimated to be employed by Kodiak shore-based processing facilities. A large portion of this workforce is believed to be drawn from the local, minority populations (EDAW, Inc, 2005). Consequently, any differential impacts of the alternatives on processing employment are likely to have some environmental justice implications. Additional information concerning Kodiak-based processing can be found in the Comprehensive Baseline Community Profiles (EDAW, Inc., 2005). Although no crew specific data are available, if catcher vessel crews are assumed to mirror the local population demographics, Kodiak catcher vessels likely employ a substantial number of minority crew.

While most of the eligible catcher vessel and shore-based processing activity is based in Kodiak, a large portion of the eligible catcher processor fleet is based in Seattle. No specific minority or low population community is known to depend substantially on the catcher processor fleet for employment. As a result, no environmental justice considerations arise with respect to the Seattle-based catcher processor fleet.

3.3.13. Economic and socioeconomic factors

The current LLP Central Gulf of Alaska rockfish fisheries open early in July. Participants from both sectors race to catch as much fish as possible prior to catch of the TAC. In recent years, TAC and effort levels have resulted in the fisheries lasting only a few weeks each year. As a result of the race for fish, participants (particularly in the catcher vessels and processors in the shore-based sector) often sacrifice quality of landings and products to maintain their shares of the catch, dissipating rents in the fishery. Product choices are also limited for processors, as they attempt to keep pace with landings. In addition to harvest of the target rockfish, participants from all sectors also generate a substantial portion of their rockfish fishery revenues from species for which directed fishing is not permitted (i.e., Pacific cod, sablefish, shortraker rockfish, and rougheye rockfish). The current regulations permit retention of these species in an amount relative to the harvest amount of target rockfish. In recent years, slightly more than 30 catcher vessels participate in the fisheries annually, while between 5 and 10 catcher processors participate. As the season for rockfish is relatively short, most participants rely on other fisheries for a substantial portion of their annual revenues. A comprehensive description of the social and economic of the fisheries is contained in 2.4 of the Regulatory Impact Review above.

3.4. Analysis of the alternatives

This section analyses each of the alternatives comparing the alternatives to each other and to the baseline condition in the fishery. Assessing the effects of the alternatives involves some degree of speculation. In general, the effects arise from the actions of individual participants in the fisheries under the incentives

that arise under the different alternatives. Predictability of these individual actions and their effects is constrained by the novelty of the programs under consideration and incompleteness of information concerning the fisheries, including the absence of complete economic information and well-tested models that predict behavior under different institutional structures. In addition, unpredictable factors, such as conditions in different fisheries and of the different stocks and condition of the overall economy, could influence the responses of participants under the alternatives.

To examine the impacts of the alternatives, the analysis begins by considering the changes in practices and participation in fishing and processing that are likely to arise under the various management systems proposed by the different alternatives. These differences in fishing and processing practices, together with the management changes, drive environmental, economic, and socioeconomic impacts. Through this methodology, all of the different impacts are brought to light allowing the reader to determine the significance of impacts of the different alternatives.

3.4.1. Effects on Implementation, Management, Monitoring, and Enforcement

The current rockfish fisheries are managed at the fleet level. Managers monitor fleet harvests attempting to time their closure announcement with full harvest of the TAC, reserving a relatively minor amount of rockfish to support incidental catch of rockfish in fisheries later in the year. The allocations under most of the pilot program alternatives would require substantial change in this management.[64] Season timing and length will change to allow recipients to slow the rate of fishing and fish at different times than the traditional July season. Monitoring will need to be modified so that these allocations are monitored at the individual or cooperative level. In addition, observer requirements will also need to be modified to suit the new system of allocations.

In addition to the management of the various allocations in the primary fishery, a monitoring program will need to be developed for the entry level fishery. Since the entry level fishery will be conducted under the same regulations under all of the pilot program alternatives, the entry level fishery is analyzed independently after the other pilot program alternatives.

Lastly, under all of the pilot program alternatives, an incidental catch allowance (ICA) of target CGOA rockfish would be set aside prior to the allocations to the pilot program and the entry level fishery to support incidental rockfish catch in other CGOA fisheries. The determination of the ICA is also discussed below at the end of this section.

Status quo

Under its current management, the rockfish fisheries are conducted as a limited access race for fish. Managers must first manage the LLP, under which license holders must declare their intention to use a license on a vessel with the NOAA Fisheries.

Non-trawl fishing in the rockfish fisheries begins on January 1st. The trawl season typically opens in early July and ongoing catch is monitored by managers with the closing timed to coincide with harvest of the TAC.[65]

Under the current management, observer coverage varies with vessel size. In general, vessels that are 125 feet or longer LOA are required to have 100 percent observer coverage. Vessels under 125 feet and 60

[64] The catcher processor sector allocation would be managed at a fleet level in a manner similar to the offshore sector allocation under the AFA.

[65] Additional information concerning current management appears in the description of the affected environment above.

feet or greater in length are required to have 30 percent observer coverage. Vessels under 60 feet have no observer requirement. Shoreside and floating processors that process in excess of 1,000 metric tons of groundfish in a calendar month are required to maintain 100 percent coverage to observe landings. Shoreside and floating processors that process less than 1,000 metric tons and more than 500 metric tons of groundfish in a calendar month are required to maintain 30 percent observer coverage (CFR §679.50).

Pilot program alternatives

The major components of catch accounting, observer coverage, and the application process for the various components of the fishery are described in the Table 50. The text provides supporting documentation and clarification.

Implementation issues.

If adopted, there will be several implementation issues associated with the rockfish pilot program that will need to be resolved before fishing can begin under the pilot project. These include: 1) processor development and NMFS approval of Catch Monitoring and Control Plans (CMCPs); 2) programming changes to catch accounting software; 3) development of systems for and implementation of applications for quota, quota allocations and quota transfers allocations.

Approval of CMCPs

Processors will need time to develop and implement CMCPs, and NOAA Fisheries will need time to review and approve those plans before fishing starts. The CMCP standards allow processors to use a range of monitoring tools in meeting performance standards, so it is not possible to estimate the time needed for processors to develop and implement plans. NOAA Fisheries requires approximately 14 business days to review and approve a CMCP and an additional 10 business days to arrange for a plant inspection.

Programming changes to catch accounting software

The migration from a limited access to a quota fishery will require changes from a system under which catch is reported and monitored on a fishery-wide basis to one with a mix of cooperative quotas for allocated species and more general accounts for other species that are not allocated. Development, implementation, and maintenance of the more complex catch accounting system will require significant NOAA Fisheries resources.

The catch accounting system is currently organized so that each component of fisheries specified in the annual harvest specifications is described by species, area, season, and gear as an single, independent account. At this time, there are 240 primary accounts for the directed fishing allowances and PSC limits for the BSAI and GOA FMPs. There are also 429 secondary accounts that are subdivisions or sub-combinations of the primary accounts, including components such as AFA sideboards, CDQ groups, or AFA cooperatives. NOAA Fisheries tracks these accounts to ensue adequate accounting.

Approximately 50 catcher vessels and 15 catcher processors will be eligible to participate in the CGOA rockfish pilot program. There are 3 allocated primary targets (northern, Pacific Ocean perch, and pelagic shelf rockfish), 5 allocated secondary species (sablefish, shortraker rockfish, rougheye rockfish, thornyhead rockfish, and Pacific cod), and 1 allocated PSC species (halibut), for a total of 9 allocated species. The catcher processor fleet could have a range of 1 to 15 cooperatives (or individual allocations). At the maximum, this would create a total of 135 separate accounts, 9 separate species accounts for each catcher processor. The catcher vessel fleet would have a minimum of 4 cooperatives based on the current use cap alternative, and a maximum of 12 coops (based on the four LLPs per cooperative requirement) for a maximum of 108 separate accounts.

Additional accounts will be required for the management of sideboards including accounts for catcher vessel and catcher processor Pacific Ocean perch, northern rockfish, and pelagic shelf rockfish in the Western Gulf and West Yakutat and catcher vessel and catcher processor deepwater halibut accounts and shallow water halibut accounts for the Central Gulf of Alaska, Western Gulf of Alaska, and West Yakutat, and catcher vessel Pacific cod in the Bering Sea and Aleutian Islands. Additional tracking of landings (and possibly accounts) will be required for monitoring the activity of vessels that opt out and monitoring the 90 percent harvest threshold under the sideboard stand-down provisions.

An additional complication is that catch histories and allocations are based on LLPs. The catch accounting system is currently based on NMFS vessel permit (or identifiers). An extra layer would be required to establish the link between the LLP and vessel identifiers.

Establishment of new accounts is not a trivial matter. For example, the addition of CDQ to the accounting structure in 2005 added approximately 30 BSAI primary accounts, and the 6 individual CDQ groups added approximately 200 BSAI secondary accounts. The addition of these accounts required approximately 8 months for a programmer to add CDQ fisheries into the catch accounting system. The programmer was an expert on the separate CDQ system, the then current catch accounting system, and the fisheries were well-understood with established reporting requirements.

Leasing of catch history by cooperatives must be tracked in the accounting system. In addition, for all catcher processor shares transfers the lessor must be tracked after transfer, because the standdown may prohibit the lessor from fishing in specific sideboarded fisheries until the 90 percent of all fish on the lessee's vessel are harvested. Leasing will require receipt of lease information, incorporation of lease information for reassignment, readjustment of accounts, and most likely reporting for both lessee and lessor.

The entry-level fishery will require annual receipt of applications, calculation of allocations and establishment of individual accounts. Separate accounts would be necessary for each vessel for northern rockfish, Pacific Ocean perch, and pelagic shelf rockfish. The number of entries each year is unknown, and it will require a significant additional amount of time to create these annual accounts.

Implementation issues associated with quota, quota transfers, and quota allocations.
Permitting and quota determination processes are also staff intensive. These processes include receiving applications for quota, calculating allocations based on history, accounting for catch history transfers, and distributing annual quota to cooperatives. Time would be needed for the completion of these processes prior to the beginning of fishing. The initial allocation process would be subject to requirements for appeals of disputed catch history claims.

Given the complexity of the program and the limited time period for its effectiveness, NOAA Fisheries intends to manage the fishery to reduce costs and the complexity of quota management. Several approaches are likely. First, the initial allocation process would be simplified. Eligible LLP holders would be provided with a summary of their catch history and would have an opportunity to dispute claims and present evidence to support their claims, but NOAA Fisheries would not require a formal application period with a specific deadline as was required under the BSAI crab rationalization program.

Second, NOAA Fisheries intends to use the analytical database developed by the Council for determining catch history allocations. The Council data are the most recent available, and are the best available information for assessing catch history. Further, relying on these data will reduce confusion that may arise if NOAA Fisheries and Council data sources differ in their estimates of catch history by vessel. If necessary, appeals would require the NOAA Fisheries to consult original source data.

Third, cooperatives would be required to notify NOAA Fisheries annually which LLP holders are in a cooperative prior to the annual harvest specification process. We have proposed an October 15 deadline for this notification to provide adequate time to allocate catch history to specific cooperatives through the specification process. Those LLPs holders not in a cooperative would have their catch history assigned to the limited access pool under most of the options, or as an individual allocation, depending on the catcher processor alternative selected.

Fourth, for vessels subject to standdown provisions, NMFS would impose check-in and check-out requirements for vessel operators to ensure adequate compliance with standdown provisions.

Monitoring Issues

Share-based management programs can increase the incentive of participants to misreport and high grade catch, while at the same time increasing the burden on managers to provide highly defensible estimates of catch, especially when those estimates directly impact quota holders. NOAA Fisheries has dealt with these issues by clearly articulating goals for the management of share-based fisheries and imposing new and more stringent monitoring and observer requirements as these programs have been developed. All of these programs have been unique in terms of the fleet and fisheries rationalized. In addition, interventions developed for the programs have varied, as well. The Central Gulf of Alaska rockfish pilot program is no different in this regard and development of a suitable monitoring program will involve the development of new tools to ensure defensible catch data and minimize unreported discard of allocated species catch.

Major issues specific to the rockfish pilot program.

Availability of halibut PSC may limit participants' ability to fully harvest quotas. The rockfish pilot program will be allocated an amount of halibut mortality equal to the sector's historic use during the qualifying years, and that halibut PSC will be proportionally allocated to participants based on the amount of target rockfish to which they are entitled. To the extent that halibut bycatch mortality is higher than the average mortality encountered during the qualifying years, participants will not be able to fully harvest their rockfish allocations. Participants will have a strong incentive to reduce halibut bycatch and will probably take measures to do so (such as the use of midwater gear and avoidance of high bycatch areas). In this sense, this program is fairly similar to the allocation of offshore flatfish quotas in the Bering Sea under Amendment 80 and, for the catcher processor sector the required interventions would be similar. In other ways, this program could create different issues in the rockfish fishery.

In the CGOA rockfish fishery the secondary species (Pacific cod and sablefish) are more valuable than the target rockfish. If quota holders believe that they will be forced to leave some of their quota unharvested, they will tend to harvest their Pacific cod and sablefish earlier in the season to ensure that the unharvested quota is the less valuable rockfish. In turn, this could increase incentives to illegally discard secondary species if halibut bycatch rates decline late in the season or incidental catch of secondaries is greater than anticipated in order to more fully harvest target species.

NMFS will be forced to rely on expanded estimates of halibut mortality rather than a full census. With the exception of some species and fisheries in the MS CDQ program, NOAA Fisheries strives to base quota accounting on a full census of the quota species rather than an estimate of catch. Our experience with the MS CDQ program has been that these estimates have been the source of much of the controversy surrounding issues of quota catch accounting. In most cases, this controversy has been the result of a vessel or CDQ group either flagging an individual species-composition sample as having an anomalously high incidence of a given species; or attempting to influence estimation protocol in ways that result in a systematic bias of catch estimates in favor of vessels. Unfortunately, these incidents are not identified systematically but only when industry perceives that a different estimate would be to their advantage. The greater the expansion of a given sample, the more likely it is that real or perceived errors in the

sample will cause controversy. Also, as sample expansion increases, the benefit of hiding a small quantity of a limiting species such as halibut, is expanded as well.

Observers in the catcher vessel fleet currently base their estimate of halibut PSC on 300 kilogram basket samples which are expanded to estimate halibut catch for the entire haul. The sampled hauls are then expanded to give an estimate of halibut for the unsampled hauls on a trip. The Regional office bases their estimates of total halibut catch on the halibut catch rate from only the sampled hauls to derive a halibut bycatch rate for each target. These rates are then applied to all deliveries to estimate total halibut mortality. Thus the degree to which a given quantity of halibut is expanded varies enormously depending on the fraction of observed vessels, the fraction of observed hauls on those vessels, and the fraction of sampled catch in the observed hauls. This issue is exacerbated by high spatial/temporal variability of halibut bycatch as well as the inherently lower precision of an estimate of an uncommon species (such as halibut) compared to an estimate of a more common species for a given sample size. Table 49 shows data from the summer rockfish fisheries in 2003 and 2004 illustrating the degree to which observer samples are expanded in the fishery.

Table 49. Expansion of observer samples in the 2003 and 2004 Gulf of Alask rockfish trawl fisheries. Quantities for total delivered weight are from processor data.

	2004	2003
total delivered (mt)	11,749	12,698
total of sampled hauls (mt)	2,352	2853
total of unsampled hauls on observed trips (mt)	796	793
estimated total sample weight for sampled hauls (mt)	66	87

While reliance upon sampling for halibut is also an issue with the MS CDQ program and will become an issue under Amendment 80, the problem of sample expansion to unobserved hauls is generally not an issue. In the MS CDQ program, catcher vessel harvest in targets where halibut bycatch is problematic is minimal, and catcher vessels wishing to participate in the program are 100 percent observed. In the catcher processor sector, vessels generally carry two observers and almost 100 percent of the hauls or sets are observed. However, we anticipate that Amendment 80 will not rely on the expansion of observed hauls to unobserved hauls. Unfortunately, without a change in operations or a requirement to carry two observers on each trip, NOAA Fisheries will be required to develop an accounting system for halibut quota based on some level of expansion of observed to unobserved hauls.

Multispecies nature of the allocations. This program will allocate at least five main species that will be targeted: Pacific Ocean perch, northern rockfish, pelagic shelf rockfish (primary species), Pacific cod and Sablefish (secondary species). Though the majority of the allocation will be to the "primary target" rockfish fisheries, the "secondary target" species are considerably more valuable per ton and cooperatives will wish to optimize the harvest of all allocations. At some point, however, the availability of one quota species will limit the full harvest of all other quota species. Ideally, cooperatives will harvest the majority of their target rockfish first and, to the extent that quota for the secondary species remains, they will then harvest the quota of secondary species. However, the desire to ensure that the allocations of secondary species are fully harvested may cause participants to harvest these quotas early and fail to reserve sufficient quantities to accommodate the actual bycatch needs of primary species allocations. Further, sablefish and Pacific cod caught incidentally to the harvest of rockfish will likely be in worse condition than sablefish or Pacific cod caught in small directed tows for those species. Both of these factors could create incentives for vessels to discard catch of secondary species when targeting rockfish.

Dramatic change in the duration of fishing. The summer rockfish fishery currently begins in late June or early July. Pacific Ocean perch generally closes in approximately one week, and fishing effort switches to northern rockfish, which normally closes in another one to two weeks. The Council's preferred alternative suggests consideration of a season between early March and mid November, thereby expanding the duration of this fishery from its current three weeks to 8 months. Because there has not been a trawl fishery for rockfish during much of this period, it is not possible to say to what extent this could change the nature and patterns of target species co-occurrence, or how it will affect halibut bycatch rates. However, halibut bycatch rates may be higher early in the year when halibut are in deeper water, which would exacerbate the potential for halibut to limit full harvest of quota species and increase the incentive for deliberate data fouling on the part of participating vessels. Further, NOAA Fisheries experience has shown that the management of new quota programs such as MS CDQ is very staff intensive. Clearly, a fishery of this length would stress existing staff resources and would limit the ability of NOAA Fisheries to consider innovative monitoring approaches such as video monitoring.

Blending of quota-based species and non quota-based species under this program. The rockfish pilot program does not envision allocations of other groundfish species (arrowtooth flounder, deep water flatfish, shallow water flatfish, flathead sole, rex sole, Atka mackerel and other rockfish) that are encountered when engaged in rockfish fishing. Rather, these species will be managed under the current MRA regulations. At this time, there is limited bycatch of these non-allocated species in the rockfish fishery. Further, there is no incentive for topping off on these species because either they are open for directed fishing at the same time or they are lower in value than rockfish. Under the current management regime, vessels engage in directed fishing for rockfish, and top off on sablefish and Pacific cod. Under the rockfish pilot, they may engage in directed fisheries for the primary and secondary quota species and top off on non-allocated groundfish. As the relative values of various groundfish targets change across time, these top off fisheries could become significant. Depending on the nature of the top off activity, this aspect of the fishery could increase demands on available halibut PSC. For example, demand for arrowtooth flounder has increased dramatically in the past year as new markets have been developed. If participating vessels were allowed to top off at the current rate, they would be allowed to harvest an amount of arrowtooth flounder equal to 35 percent of their quota for rockfish. Given the high halibut bycatch associated with arrowtooth flounder, this would clearly increase the use of halibut PSC and create monitoring program challenges. Halibut PSC allocations, however, could limit the ability of participants top off on these unallocated species.

Five percent set aside for non eligible vessels. This program will set aside five percent of the rockfish allocations (but not the secondary species allocations) for harvest by vessels not eligible to participate in the pilot program. Half of this allocation will be made to trawl and half to non-trawl catcher vessels. The majority of trawl vessels that may choose to participate in the 2.5% set aside are close to or greater than 60 feet in length and the logistics of deploying observers on these vessels would probably not be substantially different than the logistics associated with those vessels that are eligible for the pilot program. At this time, there is no non-trawl rockfish fishery in the Gulf, though there has been speculation that a jig fishery for day boats may be viable. Such vessels would be more difficult to observe because of their small size, but observer programs for similar fleets appear to be successful in other parts of the country.

However, the nature of allocations to this fleet are significantly different than the allocations to the eligible vessels, because they will only be allocated the primary target species (POP and northern rockfish) and they will not be allocated either the secondary species or halibut PSC. Because the set asides will only be for rockfish, there will be less added incentive for these vessels to manipulate catch data for the catch of secondary species or halibut PSC and it may be reasonable to monitor this component of the pilot program with limited or no at-sea observer coverage. Accounting for target catch would be based on landings and the catch of other groundfish and halibut would be based on assumed

rates. Alternatively, given that vessels wishing to participate in the set aside fishery would be required to deliver to a non-qualified processor, it may be possible to require the processor to develop a fishing plan and an associated monitoring program that encompassed the vessels as well as the processor and set forth how the fishery could be monitored.

Interventions appropriate to the fishery.

Catcher/processor sector. The rockfish pilot program is very similar in its monitoring demands to the program currently being developed under Amendment 80. Because of the similarities between the programs and because the vast majority of vessels that will be allocated quota under the rockfish pilot program will also be participants in the Amendment 80 program, there is no apparent reason to develop different standards for the two programs.

The nature and rational for the monitoring interventions being developed for Amendment 80 are discussed elsewhere but in brief are:

- all hauls must be observed (200% observer coverage or an alternative fishing plan)
- an observer work area is required
- all catch must be weighed on NOAA Fisheries approved scales
- No catch may be on deck when fish are moving from the bins or tanks to the factory or when fish are passing across the scale
- vessels must implement a vessel specific monitoring plan that will help to ensure unbiased sampling, and provide additional sorting space for observers.

Catcher vessel sector. The rockfish pilot program is most similar to the existing MS CDQ program. While differences exist, the monitoring program for MS CDQ provides a logical framework for meeting the monitoring needs of this program. Specifically, a trawl catcher vessel less than 60 feet harvesting MS CDQ catch must:

- retain all CDQ species and salmon PSQ
- retain all halibut until counted or sampled by an observer
- provide deck space for an observer to sort and store samples and a location to hang an observer sampling scale
- carry a level II observer on all CDQ trips
- deliver all catch to a processor that has a level 2 observer on duty and where all CDQ catch is sorted and weighed by species on a State approved scale.

Under all alternatives, participating vessels would be required to carry and use a VMS (Vessel Monitoring System) transponder. Use of VMS will allow NOAA Fisheries to monitor standdown vessels, track harvest location, ensure that deliveries are made to participating processors and facilitate general enforcement. With the exception of some vessels that may choose to participate in the entry level fishery, all of the vessels that are eligible for this program are currently required to use VMS during most of the fishing year. Thus, this requirement will have little or no impact on the participating fleet.

Shoreside sector. With the exception of accounting for halibut PSC, catch accounting for shoreside deliveries will take place shoreside. Thus, it is important for NOAA Fisheries to ensure that adequate measures have been taken to facilitate accurate catch accounting. In other recently rationalized fisheries where catch accounting takes place shoreside, NOAA Fisheries has required that processors operate under an approved CMCP. This plan is developed by the processor and approved by NMFS. It details a series of performance based standards that ensure that all delivered catch can be effectively monitored by an observer, that the observer can effectively conduct their sampling duties, and that all catch is accurately sorted and weighed by species. The standards are:

- From the observation area[1], an observer must be able to monitor the entire flow of fish and ensure that no removals of catch have occurred between the delivery point[2] and a location where all sorting has taken place and each species has been weighed.
- All catch delivered to the plant must be sorted and weighed by species. The CMCP must detail the amount and location of space for sorting catch, the number of staff, devoted to catch sorting and the maximum rate that catch will flow through the sorting area.
- The observation point must be located where it is convenient to the observer work station. An observer in average physical condition must be able to walk between the work station and the observation point in less than 20 seconds without encountering safety hazards.
- The observer workstation must be located where the observer has access to unsorted catch.
- An observer work station, for the exclusive use of the observer, must provide: a platform scale of at least 50 kg capacity; an indoor working area of at least 4.5 square, meters, a table, and a secure and lockable cabinet.
- A plant liaison, designated by name, that would be responsible for orienting new observers to the plant, ensuring that the CMCP is implemented, and assisting in the resolution of observer concerns.

All deliveries made to shoreside processors under this project will have to be observed. This will require that an observer be on duty whenever program deliveries are made. Because observers will not be allowed to work more than 12 hours per day, processors that wish to take deliveries around the clock would be required to provide more than one observer. NOAA Fisheries also wishes to ensure that full coverage of rockfish deliveries does not adversely affect shoreside coverage for other fisheries that may be taking place at the same time. In order to prevent this, observer coverage for rockfish deliveries will not count towards meeting a processor's observer coverage obligations in other fisheries.

Entry level fishery. Monitoring protocols would need to be in place for all participants in the pilot project, including the entry level fishery. Implementing a monitoring program in the entry level fishery could include high costs relative to gross revenues particularly for trawl vessels and may preclude participation by some eligible vessels. However, these measures would be necessary to adequately measure small levels of catch in a sector where there is a high potential for exceeding quota levels. Because participants in the entry level fishery are allocated only primary species, NOAA Fisheries believes that only 30 percent observer coverage will be necessary for this fleet. Because catch accounting will take place shoreside, participating entry level processors will be required to meet the same standards as other pilot program processors. Vessels would also be required to carry and use a VMS system when participating in the program.

Use of Alternative Monitoring Strategies.
Since the implementation of the MS CDQ program, there has been significant evolution of video monitoring technologies as well as the widespread implementation of VMS regulations. While NOAA Fisheries does not believe that video technology is sufficiently tested at this time, these developments may allow NOAA Fisheries to develop a monitoring approach that is less reliant on high levels of observer coverage at some point in the future. An alternative to the CDQ system of monitoring would have to satisfy several conditions before it could be supported by NOAA Fisheries. First, it would have to provide adequate tools for halibut quota accounting on unobserved trips. Second, it would have to

[1] The observation area is a location designated in the CMCP where an observer monitors the flow of fish during a delivery.

[2] The delivery point is the first location where fish removed from a delivering catcher vessel can be sorted or diverted to more than one location.

provide adequate assurance that unobserved discard or high grading of quota species is not occurring on unobserved trips. Third, it would have to be implemented at an acceptable cost to the agency.

If observer coverage is sufficiently evenly distributed through the fishing period, NOAA Fisheries can use a fleet rate for halibut catch accounting. Improved estimation of overall halibut mortality is not intrinsically necessary when the fishery moves from a limited access to a quota fishery. Rather, it is only necessary that there be a defensible and consistent way to debit quota holders for their share of the halibut mortality. As described above, the current catch accounting system is not suitable for a quota-based system, but, to the extent that industry is willing to live with a regulatory algorithm for the calculation of halibut mortality on unobserved trips, it may be possible to develop an alternative approach to 100 percent observer coverage. However, any such approach will likely be extremely NOAA Fisheries staff intensive and may require shortening the overall length of the season. The current system of estimating halibut bycatch relies on rates from observed hauls on unobserved vessels. The fewer observed vessels supplying information, the more aggregated the rates become (e.g. if no vessel specific rates are available, fleet-wide rates must be applied). A chronic problem is the small amount of observer information available during certain periods, such as the beginning of a fishery, such that sometimes there is no information available from which to derive an estimate during the first week or two of a fishery. If 100 percent observer coverage is not required, a system that insures few temporal reporting gaps could be employed but would be staff intensive. To the extent that the length of the rockfish pilot season is limited and video monitoring becomes feasible for ensuring full retention of quota species, it may be possible to implement one of these options.

If NOAA Fisheries can implement reasonable safeguards to prevent discard of quota species on unobserved trips, it would be possible to fully account for harvest of quota species shoreside. Several demonstration projects in Canada and in the hake fishery off Oregon and Washington have shown that video monitoring has promise for compliance monitoring of a full retention requirement. In this fishery, however, it is unlikely that a full retention requirement would be politically acceptable because of the increased halibut mortality that would result. Further, the current preferred alternative envisions MRA type management for non-quota groundfish species and a vessel exceeding that MRA amount would be required to discard the non-quota groundfish. Thus, an acceptable video system would be required to reliably differentiate between required discard of halibut and groundfish above an MRA amount, and the prohibited discard of quota species. With the exception of pollock, other rockfish and Atka mackerel, however, all species that will be required discard are flatfish, whereas all species that will need to be retained are roundfish. Thus, in most cases, the body morphology of the required retention species is very different than the body morphology of the required discard species, and it may be possible to use video to differentiate allowable from unallowable discard.

NOAA Fisheries, in cooperation with Pacific States Marine Fisheries Commission (PSMFC), will be investigating the possibility of using video for this application during this summer's rockfish fisheries during 2005. NOAA Fisheries and PSMFC intend to deploy video systems on a representative subset of approximately nine of the vessels participating in the rockfish fishery and hope to determine whether this can be developed as a viable approach to ensure full retention of specified species.

In addition to the technical aspects of video monitoring for this application, several other issues related to video must be resolved. These include admissibility as evidence, the amount of staff time and resources that would be required to review video footage, and the degree to which video data can be considered confidential and protected from Freedom of Information Act requests. Until these issues are satisfactorily resolved, NOAA Fisheries would implement proven monitoring and catch estimation protocols that include retention requirements and extrapolated catch estimates from observer samples.

Table 50. Summary of Management and Monitoring Requirements for the Pilot Program.

	Qualified Processors	Entry Level Processors	Qualified Trawl Catcher Processors	Qualified Trawl Catcher Vessels	Entry Level Trawl Vessels	Entry Level Fixed Gear Vessels
1. Season	Cooperative Participants & Entry Level Participants (to be determined). Limited Access Fishery Same as the current fishery (start in early July).					
2a. Vessels in Program **Target Rockfish Species Management**	N/A	N/A	For vessels in a cooperative, manage all target rockfish as an allocation to the cooperative. Vessels not in a cooperative: Alt. 2: may choose to receive an individual allocation of target rockfish or may "opt-out" of the program and be subject to sideboard restrictions during the first two weeks of July. Alt. 3: Vessels would be eligible to participate in the limited access fishery for target rockfish.	For vessels in cooperative, manage all target rockfish as an allocation to the cooperative. Vessels not in a cooperative would be eligible to fish in the limited access fishery for target rockfish.	Manage all rockfish as an allocation to the individual vessels that are applying.	Manage all rockfish as an allocation to the sector in a limited access fishery.

2b. Vessels in Program **Allocated Secondary Species Management**	N/A	N/A	For vessels in a cooperative, sablefish, shortraker, rougheye, and thornyheads would be allocated to the cooperative. Vessels not in a cooperative: Alt. 2: may choose to receive an individual allocation or may "opt-out" of the program and be subject to sideboard restrictions during the first two weeks of July. Alt. 3: Vessels would be eligible to participate in the limited access fishery in which sablefish, shortraker, rougheye, and thornyheads would be managed by MRA.	For vessels in a cooperative, sablefish, shortraker, rougheye, and thornyheads would be allocated to the cooperative. Vessels would be eligible to participate in the limited access fishery in which sablefish, shortraker, rougheye, and thornyheads would be managed by MRA.	Sablefish, shortraker, rougheye, thornyheads and Pacific cod would be managed as an MRA based on the gear type.	Sablefish, shortraker, rougheye, thornyheads and Pacific cod would be managed as an MRA based on the gear type.

2c. Vessels in Program **Unallocated Species Management**	N/A	N/A	Arrowtooth flounder, deep water flatfish, shallow water flatfish, flathead sole, rex sole, pollock, other species, Atka mackerel and other rockfish managed as an MRA to the gear type. During July, catch of these unallocated species is "sideboarded" to the amount of catch historically harvested by the sector.	Arrowtooth flounder, deep water flatfish, shallow water flatfish, flathead sole, rex sole, pollock, other species, Atka mackerel and other rockfish managed as an MRA to the gear type. During July, catch of these unallocated species is "sideboarded" to the amount of catch historically harvested by the sector.	Arrowtooth flounder, deep water flatfish, shallow water flatfish, flathead sole, rex sole, pollock, other species, Atka mackerel and other rockfish managed as an MRA to the gear type.	Arrowtooth flounder, deep water flatfish, shallow water flatfish, flathead sole, rex sole, pollock, other species, Atka mackerel and other rockfish managed as an MRA to the gear type.
2d. Vessels in Program **Halibut PSC Management**			For vessels in a cooperative, halibut PSC would be allocated to the cooperative. Vessels not in a cooperative: Alt. 2: may choose to receive an individual halibut PSC allocation or may "opt-out" of the program and be subject to sideboard restrictions during the first two weeks of July. Alt. 3: Vessels would be eligible to participate in the limited access fishery which would receive a halibut PSC allocation.	For vessels in a cooperative, halibut PSC would be allocated to the cooperative. Vessels not in a cooperative would be eligible to participate in the limited access fishery which would receive a halibut PSC allocation.	PSC would be derived from the general PSC pool for the gear type during that time period (by quarter). Managed according to PSC rates in the fishery.	PSC would be derived from the general PSC pool for the gear type during that time period (by trimester). Managed according to PSC rates in the fishery.

3a. Vessels in Limited Access **Rockfish Species Management**	N/A	N/A	Allocation is based on history of catcher processor limited access participants. If the allocation to the limited access pool is not sufficient, than NOAA Fisheries may not open that limited access fishery. Target fisheries are closed once the allocations are reached.	Allocation is based on history of catcher vessel limited access participants. If the allocation to the limited access pool is not sufficient, than NOAA Fisheries may not open that limited access fishery. Target fisheries are closed once the allocations are reached.	N/A	N/A
3b. Vessels in Limited Access **Allocated Secondary Species Management**	N/A	N/A	Managed as an MRA. The MRA would be based on the amount of secondary species available to catcher processor participants in the limited access pool.	Managed as an MRA. The MRA would be based on the amount of secondary species available to catcher vessel participants in the limited access pool.	N/A	N/A
3c. Vessels in Limited Access **Unallocated Species Management**	N/A	N/A	Managed as an MRA. The amount available would be based on the sector and gear allocations at current MRA levels.	Managed as an MRA. The amount available would be based on the sector and gear allocations at current MRA levels.	N/A	N/A
3d. Vessels in Limited Access **Halibut PSC Management**	N/A	N/A	Based on PSC rates for the sector and gear type and time period (quarter).	Based on PSC rates for the sector and gear type and time period (quarter).	N/A	N/A

4a. Processors and Vessels in Program **Observer Requirements** **Assuming Video Monitoring is <u>Not Feasible</u>.**	100 percent onshore observer coverage for all rockfish or secondary species landings. Landings must be fully observed.	100 percent onshore observer coverage for all rockfish or secondary species landings. Landings must be fully observed.	100 percent observer coverage of all hauls required for all rockfish or secondary species trips.	100 percent observer required for all rockfish or secondary species trips.	Observer coverage of 30 percent or greater for all trips of vessels less than 125' LOA (including vessels less than 60' LOA). If allocations are small, could effectively require 100 percent observer coverage.	No observer requirement, as rockfish and secondary species catch is determined using retained catch landed onshore.
4b. Processors and Vessels in Program **Observer Requirements** **Assume:** **Video Monitoring is <u>Feasible</u>.**	100 percent onshore observer coverage for all rockfish or secondary species landings. Landings must be fully observed.	100 percent onshore observer coverage for all rockfish or secondary species landings. Landings must be fully observed.	100 percent observer coverage of all hauls required for all rockfish or secondary species trips.	Alternative observer coverage requirements may apply. Video monitoring may be used to assess discards of non-allocated species. All rockfish and secondary species would be retained and delivered to onshore processors with observer coverage.	Alternative observer coverage requirements may apply. Video monitoring may be used to assess discards of non-allocated species. All rockfish and secondary species would be retained and delivered to onshore processors with observer coverage.	No observer requirement, as rockfish and secondary species catch is determined using retained catch landed onshore.
5. Vessels and Processors in the Limited Access Fishery **Observer Requirements**	100 percent onshore observer coverage for all rockfish or secondary species landings. Landings must be fully observed.	N/A	Vessels would maintain the current levels of observer coverage in the fishery.	Vessels would maintain the current levels of observer coverage in the fishery.	N/A	N/A

6. Trawl Vessels in Entry Level	An adequate number of observers will need to be stationed in Kodiak (or possibly other ports) during the rockfish fishery for monitoring entry level trawl vessels. Depending on registration for the fishery, the number of observers required could be substantial. To minimize the number of observers required and management costs and to ensure vessels stay below their individual allocation, if the allocation to an individual vessel is less than 10 metric tons, NOAA Fisheries will not open this fishery.					
7a. Application Requirements	Application as a Qualified Processor will be due by December 15 of the year preceding the fishery. Under Alternative 3, this application is due October 15 and must include the terms of the cooperative agreement for associated LLPs.	Application as an Entry Level Processor due by December 15 of the year preceding the fishery.	For cooperative members, an application for a rockfish cooperative (including terms of the cooperative agreement) will be due by October 15 of the year preceding the fishery. For non-members of a cooperative: Under Alternative 2, an Application for an individual allocation or an application to Opt-Out due by December 15 of the year preceding the fishery. Under Alternative 3, an application to participate in limited Access due by December 15 of the year preceding the fishery.	For cooperative members, an application for a rockfish cooperative (including terms of the cooperative agreement) will be due by October 15 of the year preceding the fishery. For non-members of a cooperative, an application to participate in limited Access due by December 15 of the year preceding the fishery.	Application as an Entry Level Vessel due by December 15 of the year preceding the fishery. .	Application as an Entry Level Vessel due by December 15 of the year preceding the fishery.
7b. Additional Forms for Vessels in the Program **(Including Entry Level Participants)**	Declaration of Rockfish or Secondary Species Landing. Must be provided 6 hours before landing.	Declaration of Rockfish or Secondary Species Landing. Must be provided 6 hours before landing.	Declaration of Rockfish or Secondary Species Trip. Must be provided 8 hours before departure from port. Transfer of Catch History. Must be approved before transfer.	Declaration of Rockfish or Secondary Species Trip. Must be provided 8 hours before departure from port. Transfer of Catch History. Must be approved before transfer.	Declaration of Rockfish Trip. Must be provided 8 hours before departure from port.	Declaration of Rockfish Trip. Must be provided 8 hours before departure from port.

3.4.2. Effects on Fishing Patterns

Patterns and levels of harvester participation in the CGOA rockfish fisheries are likely to vary under the different alternatives. The following summarizes changes in fishing patterns that are pertinent to the analysis of this environmental assessment. Additional information on fishing patterns is contained in the RIR above.

Status quo

Under the status quo alternative, fishing patterns are likely to be similar to current patterns of fishing. Trawl catch is likely to dominate the fisheries, with that catch concentrated shortly after the early July opening. (Table 1 above lists season openings and closings for the rockfish fisheries.)

Catch of catcher vessels typically occurs close to port because of the need to offload harvests and return to the fishing grounds to maximize total catch. In addition, processors have demanded that fishermen limit trips to less than 72 hours as a means of ensure quality of catch. The limitation on fishing trip time effectively limits the spatial distribution of catch for catcher vessels. Since Kodiak processors process the great majority of catch from the rockfish fisheries, catch of the catcher vessel sector is concentrated in the grounds near Kodiak. While catcher processors are also subject to the time limitation of the season, since they process their catch on board, their fishing activity is not spatially limited in the same manner as catcher vessel harvests.

Participants are likely to continue to catch valuable secondary species (Pacific cod, sablefish, thronyhead rockfish, shortraker rockfish, and rougheye rockfish) at levels approaching the MRA. Catch of these species is likely to be limited because of the race for the target rockfish. Participants try to strike a balance of time harvesting target rockfish and valuable secondary species in an attempt to maximize their total revenues.

Pilot program alternatives

For the most part fishing patterns are likely to be similar under all of the pilot program alternatives, so those patterns are summarized in this single discussion.

The two most pronounced differences in fishing practices that are likely under the pilot program are the spatial and temporal distribution of catch. Because the programs allocate cooperative fishing privileges, which may be fished during an extended season, participants in the program are likely to slow their rate of harvest and distribute that harvest over greater time and a larger area.

Changes in activities across the two sectors are likely to differ somewhat because of operational requirements. Catcher vessels have typically been limited in the range of fishing activity by processor demands related to the quality of landings. Typical rockfish fishing trips last less than 72 hours. As participants in the pilot program alternatives strive to improve quality of landings, it is unlikely that fishing trip lengths will lengthen. As a result, catcher vessel fishing is still likely to be concentrated in areas that are in relatively close proximity to Kodiak, where all of the qualified processors are located. Catcher processors, on the other hand, are not constrained by shore-based processing, and may distribute their catch over larger areas of the grounds. The extent of this distribution of catch could be limited, if catcher processors perceive a cost reduction benefit to concentrating catch in one area. If catch is consolidated on a few catcher processors, concentration of landings temporally is more likely.

Both sectors should distribute catch over extended time periods, as the longer season allows. The extent to which catch is temporally distributed depends on both operational needs of participants and bycatch considerations. Most participants are likely to schedule fishing to avoid conflicts with their participation

in other fisheries. At a minimum, one would expect substantial fishing to occur prior to or after the traditional July season to allow participants to fish in other July fisheries. Catch may also be distributed throughout the season (by catcher vessels particularly) to attempt to develop markets for fresh fish. Other market demands and scheduling preferences are likely to occur, but depend on individual circumstances and cannot be predicted.

Bycatch considerations could also affect the temporal distribution of fishing effort. Participating fishermen will be strictly limited by allocations of the three rockfish species, three or four secondary species, and halibut PSC. All of the allocations are based on historic catch that occurred in the traditional July season. Attempting to fully harvest all of these allocations could be challenging, if catch composition changes substantially outside of the traditional July season. One reason that the current opening is scheduled for early July is to avoid halibut bycatch. The extent to which participants will be able to harvest rockfish at other times and avoid halibut cannot be predicted. If participants find that halibut bycatch is relatively high outside of the traditional season, they are likely to restrict their fishing to times when halibut bycatch rates are low.

3.4.3. Effects on target rockfish stocks

Status quo

Current management of the fisheries and fishing patterns should continue under the status quo. Rockfish are conservatively managed under in the current fishery, with from the limited access fishery harvests limited by TAC. Under this management a TAC can be exceeded, if managers have difficulty projecting when the fleet will have completed harvest of the TAC. Allowable biological catch limits are rarely, if ever exceeded, and it can be expected that overfishing limits will not be exceeded.

Pilot program alternatives

The pilot program alternatives should have no negative impact on stocks of target rockfish populations. These species will continue to be managed by conservatively set TACs. Cooperative allocations in the fisheries should effectively limit catch to the TACs. More precise management of the TACs should be possible under the change in management, as individuals within a cooperative will be responsible for any overage.

Some potential benefit could arise, if participants distribute catch over larger areas or time periods, reducing any potential local depletion that could occur under the current management, in which effort is concentrated as a result of participants attempting to maximize their catch. Any beneficial effect from greater distribution of catch spatially is likely to be limited, if participants perceive a benefit to concentrating catch to reduce costs or increase revenues. For catcher vessels, concentration of catch in close proximity to processors could improve quality of landings, as needed to serve some high valued markets. For catcher processors, concentration of catch spatially and temporally could reduce costs, if consistent high catch rates are observed at particular times and locations.

In addition, under some of the alternatives, participants could elect to participate in a limited access fishery similar to the current management. Few participants are expected to elect to fish in this fishery, primarily because catch of secondary species will be constrained (see discussion in 3.7.2 below). Catch of target rockfish will be limited by the allocation to the limited access fishery, so, total harvest of target rockfish by rockfish fishery participants will be limited by the overall TAC. Harvests from a limited access fishery are likely to be concentrated similar to the catch in the current fishery, which does not have any negative impact on target rockfish stocks. In conclusion, no negative impacts to rockfish stocks are expected from any of the pilot program alternatives.

Depending on the season opening and closing dates, harvests in the fishery could take place prior to completion of rockfish reproduction. The exploitation rates for rockfish in the Gulf of Alaska are conservative, largely due to the lack of definitive biological information on many of the species. It is not likely that allowing the fishery to occur prior to larvae release would create a biological concern. However, all else being equal, it may be desirable to allow reproduction to occur prior to the season opening.

Reproductive characteristics of the Gulf of Alaska rockfish included in the rockfish pilot program (including Pacific ocean perch , northern rockfish, pelagic shelf rockfish, shortraker rockfish, rougheye rockfish and thornyhead rockfish) are largely unknown. It is assumed that all of the species are viviparous (having internal fertilization and incubation of eggs) but that is not known with certainty. The timing of spawning and release of larvae is also uncertain, but generally considered to be in the spring. An overview of parturition (completion of larvae release) times for Pacific Ocean perch (Lunsford, 1999) provides a range of dates for completion of larvae release, but no definitive conclusion concerning the timing of larvae release. In addition, the overview cites two studies that suggest that parturition for POP in the Gulf of Alaska may lag one to two months behind British Columbia, where reproduction has been observed to be largely completed by the end of April. Other studies cited suggest that there is a general trend for rockfishes to spawn later in higher latitudes and report the peak period for parturition for nearshore *Sebastes* species in southeast Alaska occurs in April to May. Based on these studies, the overview concludes that parturition for Pacific Ocean perch is almost certainly completed by July, since no fertilized or ripe specimens were found in July samples. Given the ranges suggested, an opening date in May or June may ensuring that most of the reproductive activities for the various rockfish species will be concluded.

3.4.4. Effects on allocated secondary species and prohibited species catch

Four or five "secondary species," depending on the sector, are allocated under the rockfish pilot program. Those species are Pacific cod, sablefish, shortraker, rougheye, and thornyheads. In addition, halibut mortality will be allocated under the pilot program alternatives. This section briefly examines the effects on the stocks of those species.

Status quo

Under the status quo management, catch of secondary species in the target rockfish fishery will continue to be limited by MRA and by TACs that limit overall catch from all fisheries. Incidental catch of Pacific cod and sablefish in the rockfish fishery are approximately 2.5 and 10 percent of the respective TACs of those species in the Central Gulf of Alaska. Incidental catch of thornyheads by the rockfish fisheries during the qualifying years was approximately 25 percent of the Central Gulf total catch, while incidental catch of shortraker/rougheye (under the combined TAC) was over half of the total harvest from the Central Gulf. Although this catch is substantial, each of these species is managed under conservative TACs. Retained catch in the rockfish fishery is limited by MRA, with total catch limited by the current system of putting species on PSC status, if the TAC is reached and closing fisheries that incidentally catch the species, if the allowable biological catch is reached. In addition, separate TACs for shortraker and rougheye will be established in 2005 to ensure the integrity of their independent stocks.

Halibut is managed as PSC in the CGOA rockfish fisheries. Catch of halibut is required to be discarded and is accounted for against the deep-water complex PSC allocation. Although halibut PSC has occasionally required the closure of the target rockfish fisheries (see Table 1), the fishery does not have negative effects on halibut stocks.

Pilot program alternatives

Similar to the target rockfish stocks, no negative effects on secondary species stocks are expected to occur under the pilot program alternatives. Catch of these species will be limited by cooperative allocations, which are more restrictive than the current MRAs.[66] In addition, discards are not permitted for these species under the pilot program. Management of these allocations should contribute to more precise management of stocks under the program. Overall harvests will continue to be limited by TACs that apply to total catch from all fisheries.

As noted above, some rockfish participants could elect to participate in a limited access fishery. Secondary species harvest from any such limited access fishery will be limited to the allocation to participants in the limited access fishery using reduced MRAs. These reduced MRAs should be a substantial disincentive for participation in the limited access fishery. In any case, harvests of secondary species will be limited to the allocation, which should ensure that overall TAC is not exceeded. Depending on the season opening and closing dates, harvests in the fishery could take place prior to completion of rockfish reproduction. Information concerning reproduction of secondary species rockfish is limited. A complete discussion of the issue and potential effects of season opening date choices on rockfish reproduction is contained in 3.4.3.

The pilot program alternatives will be prosecuted with cooperative allocations of halibut mortality. These allocations will constrain halibut bycatch and will prohibit participants in the program from fishing in excess of their halibut allocations. Although some fishing could take place out of the traditional July season (when halibut bycatch has been observed to be low), mortality will be constrained by the allocations of halibut mortality. Some participants have suggest that they intend to use pelagic gear and possibly experiment with gear modifications in an attempt to reduce halibut bycatch. The success of these efforts cannot be predicted. Notwithstanding, the allocations of halibut are based on historic halibut mortality usage in the fisheries and will not allow overall halibut mortality in Central Gulf of Alaska fisheries to exceed historic levels. Although some participants in the pilot program could elect to participate in a limited entry fishery under some of the alternatives, these limited access fisheries will be prosecuted under strict limitations on halibut mortality, which are also based on historic halibut mortality in the rockfish fisheries. As a result, the limited access fishery should not increase halibut mortality in the rockfish fisheries. Overall, the pilot program alternatives should have no negative impact on halibut stocks.

3.4.5. Effects on stocks of unallocated prohibited species catch

In the current rockfish fishery, prohibited species harvests are not at levels that raise concern. Fishing patterns are not expected to differ under any of the alternatives (including the status quo and the pilot program alternatives) in a manner that will affect prohibited species catch. Consequently, no adverse effects on prohibited species catch are expected under any of the alternatives.

Additional information is presented concerning salmon bycatch, as additional concern has been expressed concerning potential effects of the alternatives concerning that issue. The primary species of concern for trawl salmon bycatch are chinook salmon (*Onchohynchus tshawytscha*) and chum salmon (*O. keta*). Other salmon appear in the trawl bycatch in much smaller numbers than chinook and chum and generally are

[66] For the catcher processor sector an MRA will apply to Pacific cod harvests that will limit catch to 4 percent of the harvest of target rockfish. In addition, an option would create an MRA for shortraker and rougheye rockfish for the catcher vessels sector. This MRA could allow greater catch of these species than the allocation. Managers, however, would continue to manage these species using "PSC status" and closing fisheries, if necessary to limit the catch of the species. Appendix 7 contains an analysis of the various options for management of shortraker and rougheye and the impacts of those options on participants in the program and participants in other fisheries.

not a bycatch concern (NPFMC, 2005). For the period from 2000 through 2004, the average bycatch of salmon for all groundfish trawl fisheries in the Gulf of Alaska was 17,643 chinook and 7,252 chums (see Table 51 below). This is well below the 1990-2004 average bycatch levels of 19,733 chinook and 17,572 chums, indicating a declining trend for bycatch of salmon in the GOA trawl fisheries in recent years.

Table 51. Bycatch of Pacific salmon in Gulf of Alaska groundfish trawl fisheries, by species, 1990-2004.

	Numbers of Fish				
Year	**Chinook**	**Chum**	**Coho**	**Sockeye**	**Pink**
1990	16,913	2,541	1,482	85	64
1991	38,894	13,713	1,129	51	57
1992	20,462	17,727	86	33	0
1993	24,465	55,268	306	15	799
1994	13,973	40,033	46	103	331
1995	14,647	64,067	668	41	16
1996	15,761	3,969	194	2	11
1997	15,119	3,349	41	7	23
1998	16,941	13,539[a]			
1999	30,600	7,529[a]			
2000	26,705	10,996[a]			
2001	14,946	5,995[a]			
2002	12,921	3,218[a]			
2003	15,860	10,400[a]			
2004	17,785	5,650[a]			
Average (1990-2004)	19,733	17,572[b]			
Average (2000-2004)	17,643	7,252[b]			

Source: NPFMC, 2005

[a] Coho, sockeye, and pink salmon are combined with chum salmon.

[b] Average chum salmon bycatch includes chum, coho, sockeye, and pink salmon.

Most salmon bycatch in the Gulf of Alaska occurs in the CGOA management area. For the period from 2000 through 2004, for example, the average annual bycatch in the CGOA was 13,882 chinook (78.6 percent of the chinook bycatch for the entire GOA) and 5,311 chums (73.2 percent of the chum bycatch for the entire GOA – including an unknown small bycatch of other salmon species).

Chinook salmon bycatch in the Gulf of Alaska trawl fishery are harvested from the start of the pollock fishery in January, with the first peak period from mid-February through late March (NPFMC, 2005). The second peak activity period in the bi-modal bycatch pattern for chinook starts around the first of September and extends through the end of October. The first peak bycatch period is well outside of the proposed season starting date for the rockfish pilot program; therefore, an earlier opening should have little effect on chinook bycatch. The proposed ending dates for the rockfish pilot program extend as late as November 15th, and therefore would encompass the second peak activity period for chinook bycatch. However, the rockfish trawl fishery is most likely to occur prior to October since fish begin to move into deeper water as temperatures cool. Even if the fishing pattern associated with the rockfish pilot program resulted in shifting some effort into September and October, the overall chinook bycatch should remain a small portion of the overall trawl bycatch in the Gulf of Alaska due to the relatively small size of the fishery.

The pattern for chum salmon bycatch is considerably different than for chinook. Chum bycatch appears to remain at very low levels until approximately the first week of June. It increases markedly around the middle of August and then stays at relatively high levels through September and into October (NPFMC,

2005). An earlier season starting date for the CGOA rockfish pilot program will likely have very little effect on chum salmon bycatch. Extending the rockfish trawl season until November 15th would potentially increase chum salmon bycatch since effort in the fishery would shift from the current pattern of fishing in July, when chum abundance is low, to the mid August to mid October time period, when chum salmon abundance is higher. The extent to which trawl fishing would shift is uncertain and will depend upon individual choices by vessel operators.

The magnitude of increase to salmon bycatch initiated by extending the trawl rockfish season in the CGOA is uncertain, but should be relatively modest. By fishery, the largest portion (57.7 percent) of the 2000-2004 chinook salmon bycatch occurred while trawling for pollock (NPFMC, 2005). The chinook bycatch estimates prepared for the Gulf of Alaska analysis of salmon bycatch aggregate rockfish and sablefish trawl catch in the Gulf of Alaska over the same time period average 928 chinook (5.2 percent of the 17,643 average annual bycatch). Based on this respective contribution to total bycatch, the trawl rockfish fishery appears to have had a very minor role in chinook bycatch. Even if the rockfish pilot program extends fishing into September and October, the overall level of salmon bycatch is likely to remain low due to the relatively small size of the fishery.

The pollock and flatfish fisheries contribute the largest share of 'other salmon' bycatch in the Gulf of Alaska. Over the 2000-2004 period, an annual average of 3,603 'other' salmon were taken in the pollock fishery (49.7 percent of the total), while an annual average of 2,848 'other' salmon (39.2 percent of the bycatch by all trawl fisheries) were taken in the flatfish fishery. The combined rockfish/sablefish catch of 'other' salmon averaged of 650 annually, or 8.9 percent of the bycatch for all trawl fisheries. Although the rockfish/sablefish bycatch of 'other' salmon bycatch is higher than the catch of chinook salmon, it is still a relatively small amount compared with the total bycatch of 'other' salmon.

As a part of the analysis of comprehensive rationalization of the Gulf of Alaska groundfish fisheries, the impact of all trawl groundfish fisheries on the prohibited species catch will be examined.

3.4.6. Effects on stocks of other unallocated species

Fishing patterns are not expected to differ under any of the alternatives (including the status quo and the pilot program alternatives) in a manner that will affect catch of unallocated species. Consequently, no adverse effects on prohibited species catch are expected under any of the alternatives.

3.4.7. Effects on benthic habitat and essential fish habitat

Status Quo

Maintaining the current management will perpetuate current fishing practices and concentrate fishing for rockfish temporally and spatially. Effort levels are considered low and occur in areas of less sensitive habitat (rock, gravel, mud, and sand). The current fishing has minimal and temporary effects on benthic habitat and essential fish habitat (EFH EIS). These effects are likely to continue, if current management is maintained.

Pilot program alternatives

Under the pilot program alternatives rockfish fishing could be distributed over a longer season and may disperse spatially, as a result of the removal of time constraints by the cooperative allocations. The relatively low effort levels of this fishery along slope areas is likely to continue. Concentrations of bottom trawl effort in the Central Gulf could be reduced to some extent, but the need for catcher vessels to keep short trip lengths to maintain quality is likely to result in some continued concentration in the area of Kodiak Island. Overall, the rockfish fisheries are likely to continue to have minimal and temporary effects on habitat. No negative impacts to habitat are likely under the pilot program alternatives.

3.4.8. Effects on endangered or threatened species

None of the alternatives are expected to have negative impacts on endangered or threatened species beyond those identified in previous consultations under section 7 of the Endangered Species Act. Some spatial and temporal dispersion of rockfish catch could occur under the pilot program alternatives. This change in the distribution of catch is expected to be minor and is not expected to have any affect on any endangered or threatened species.

3.4.9. Effects on forage fish

Catch of forage fish is expected to be unaffected by any of the alternatives. Consequently, no impacts on forage fish are expected under any of the alternatives.

3.4.10. Effects on marine mammals

Direct and indirect interactions between marine mammals and harvests from the rockfish fisheries are not expected to differ under any of the alternatives, as total catch is expected to be the same under all of the alternatives and the distribution of catch is not expected to differ in a way that will affect interactions.

3.4.11. Seabirds

Direct and indirect interactions between seabirds and harvests from the rockfish fisheries are not expected to differ under any of the alternatives, as total catch is expected to be the same under all of the alternatives and the distribution of catch is not expected to differ in a way that will affect interactions.

3.4.12. Effects on the ecosystem

Effects of fishing on the Gulf of Alaska marine ecosystem are analyzed in detail in the Alaska Groundfish Fisheries Programmatic SEIS. Although some temporal and spatial dispersion of catch in the rockfish fisheries could occur under the pilot program alternatives, none of the alternatives are expected to have a negative effect on the Gulf of Alaska marine ecosystem.

3.4.13. Effects on the economic and socioeconomic factors

The current LLP Central Gulf of Alaska rockfish fisheries open early in July. Participants from both sectors race to catch as much fish as possible prior to catch of the TAC. In recent years, TAC and effort levels have resulted in the fisheries lasting only a few weeks each year. As a result of the race for fish, participants (particularly in the catcher vessels and processors in the shore-based sector) often sacrifice quality of landings and products to maintain their shares of the catch, dissipating rents in the fishery. Product choices are also limited for processors, as they attempt to keep pace with landings. The proposed alternatives to the status quo are intended to address these issues, by allocating shares to cooperatives and ending the race for fish. Several small entities (as defined by the RFA) participate in these fisheries and experience these effects.

Under the two catcher processor alternatives, eligible members of the sector would be permitted to join cooperatives that would receive annual allocations based on member catch histories. A cooperative's allocation would be fished in accordance with a cooperative agreement negotiated by its members. The change in management would likely benefit members of this sector, by providing cooperatives with an exclusive allocation of rockfish. These exclusive allocations, together with the coordination of fishing in cooperatives, will allow participants to determine their effort in a manner that reduces costs. Vessels may be removed from the fishery and the rate of catch may be slowed, allowing for reduced costs and possible increases in revenues. Potential revenue improvements are uncertain for this catcher processor fleet, as their product outputs are subject to operational limitations. Modification of vessels to produce higher value products is likely to be cost prohibitive for most members of the sector.

Under both catcher vessel alternatives, production by the shore-based sector should increase substantially with the slowing of the race for fish. Product quality should improve and output should shift to higher valued products. Overall participants in both the catcher vessel and processing sectors should be at least as well off under the two pilot program alternatives as the under the status quo. The effects of the two alternatives on these different sectors are not the same.

Harvesters should benefit more under the alternative with limited processor entry, because catcher vessels will have substantially greater negotiating leverage under that alternative's flexible cooperative structure. As a result, catcher vessel entities should realize the greatest benefit under that alternative, while processing entities would benefit less. Under the alternative with cooperative/processor associations, processors should have substantially greater negotiating leverage because of the specific processor association that a catcher vessel must accept to enter the rationalized fishery. As a result, processors should benefit more than catcher vessels under the alternative with cooperative/processor associations.

Under both of the alternatives, the distribution of benefits will vary within each sector. In addition, some participants could be disadvantaged. Under either alternative, catcher vessel entities that receive small allocations could be disadvantaged, if holders of large allocations are able to draft cooperative terms that favor holders of large allocations over holders of small allocations. Since catcher vessel participants can freely form cooperatives under the alternative with processor limited entry, the potential of recipients of small allocations to be disadvantaged is reduced.

Qualified processors with less historic participation in the rockfish fishery would be better situated to increase their landings from the rockfish fishery under the processor limited entry alternative, because the limit on entry allows all qualified processors to compete for landings. On the other hand, processors with greater historic participation would not be constrained by the processing time pressures of the race for fish and may be in a better position to compete to increase their share of crab processing.

A more detailed summary of the economic and socioeconomic impacts of the alternatives is contained in the Regulatory Impact Review in 2 above.

3.4.14. Effects on environmental justice

The status quo alternative is expected to continue current trends in the fisheries. No negative impacts on minority or low income populations have been identified currently. No negative impacts are expected under continuation of the current management.

Under the pilot program alternatives, some consolidation of fishing activity could occur in the rockfish fisheries. This consolidation could affect income for participants on vessels that no longer participate in the rockfish fishery. This consolidation is unlikely to result in the removal of vessels from all fisheries and could lead to some of the vessels that leave the rockfish fisheries increasing their activities in other fisheries (to the extent permitted by sideboard limitations and cooperative agreements). As a result, the impacts to vessel owners and crewmembers may not be negative, even if rockfish fishing activity decreases. In addition, the degree to which any impacts will affect minority or low-income vessel owners or crewmembers cannot be determined because demographics of vessel owners and crewmembers are not available. If employment and vessel ownership of Kodiak resident owned vessels mirrors the local population a substantial number of minority crew could be affected by this action. The overall affect of the action, however, is likely to be beneficial, as returns from the fishery are expected to improve. In addition, the program is likely to provide some additional stability to crew employment in the fishery.

Kodiak based processing crews, which include a substantial number of minority employees, are also likely to be affected by this action. In general the affects of the pilot program alternatives are expected to

be beneficial to these workers. The pilot program alternatives are likely to result in the distribution of landings over a longer period of time, particularly when shore plants are not processing catch from other fisheries. This distribution of landings could result in a loss of some seasonal positions, but will also result in greater stability for crews that are year round processing workers. This additional stability in employment is likely to benefit the minority population that are employed by the processing facilities.

3.4.15. Cumulative effects

This section describes the cumulative effects of the various alternatives. Cumulative effects of an alternative are the impacts on the environment resulting from the incremental effect of the alternative when added to other past, present or reasonably forseeable future actions.

Categorizing effects as direct, indirect, or cumulative is often imprecise because most effects typically have some components that arise in part from the way the action interacts with other actions. For example, the negotiating leverage of the participants in the rockfish fisheries under the alternatives depends, in part, on interactive effects that arise from their participation in other fisheries. Understanding even the direct effects of the action requires consideration of those interactive effects. Earlier sections of this analysis describe the effects of the alternatives, given the current management of other fisheries.

In addition to those interactive effects, a few other factors are worthy of consideration as cumulative effects. In 2005, for the first time, shortraker and rougheye rockfish are being managed under separate TACs. The specific effects of this division of the TAC are uncertain because of some of the uncertainty concerning catch composition across the various fisheries and gear types. Appendix 7 and sections 2.5.2 and 3.3.3 of this analysis summarize the existing information concerning catch composition and the effects of the TAC division.

A second interactive effect that could cause cumulative impacts is the possible division of management of dusky rockfish. Currently, both light and dark dusky rockfish are managed under the federal FMP. Most of the dusky rockfish catch of the CGOA rockfish fishery is light dusky rockfish. Small amounts of dark dusky rockfish are caught by hook-and-line and jig fishermen in State waters. It is possible that management of dark dusky rockfish could be separated from management of light dusky rockfish. The effect of this possible division of management is likely to be very minor, as little of the current catch is believed to be dark dusky rockfish.

A third action currently under consideration that could have some interactive effect with this action is Amendment 80 to the Bering Sea and Aleutian Island Groundfish FMP. Under Amendment 80 non-AFA catcher processors would be eligible to join cooperatives, which would receive exclusive allocations of several groundfish species (excluding Pacific cod). These allocations could obviate the need for the Bering Sea and Aleutian Island standdowns that are proposed under the catcher vessel sideboards in this action. Additional economic benefits could arise for participants in the two programs, as the exclusive allocations under the Amendment 80 and this action could allow for the realization of greater economic efficiencies through the coordination of harvest activities across the fisheries governed by the two actions.

One additional set of actions that have affected most of the participants in this program are the management actions taken in recent years to limit any potential affects of commercial fishing on Steller sea lions in the Gulf of Alaska, Bering Sea, and Aleutian Islands. These actions collectively have increased the costs of harvesting for participants in the fisheries and may have disadvantaged small vessels as fishing grounds are more distant from ports. The exclusive allocations created under the pilot program alternatives should decrease the cost to participants of meeting the Steller sea lion management measures and could also mitigate the differential effects of those measures on small vessels to some extent.

From reviewing available biological data on the CGOA rockfish species that make up the secondary species allocations under the rockfish pilot program, it is clear that more accurate accounting of catch by species would be a strong asset to management of the fishery. Under the status quo, without the rockfish pilot program, it is likely that uncertain species identification, particularly for shortraker and rougheye rockfish, will continue to be a problem. At their meeting in November 16th, 2004, the Gulf of Alaska Plan Team noted that improved species identification is necessary at the plant level as species are not being identified shoreside.[1] The team discussed the need for quantification of discard catch and improved shoreside identification to a species level and noted that part of the pilot program would encourage species identification at the plant level.

Implementation of the pilot rockfish pilot program is likely to increase the rate of development of the shoreside species identification program. Therefore, an indirect or cumulative benefit from the rockfish pilot program will likely accrue from improved species identification of the harvest levels for shortraker, rougheye and other rockfish, which should also improve management of stocks of individual rockfish species.

4. Consistency with other applicable laws

This section of the analysis examines the consistency of the rockfish pilot program alternatives with respect to the National Standards and Fishery Impact Statement requirements in the Magnuson-Stevens Act and Executive Order 12866.

4.1. National standards

Below are the ten National Standards as contained in the Magnuson-Stevens Act, and a brief discussion of the consistency of the proposed alternatives with each of those National Standards, as applicable.

National Standard 1

Conservation and management measures shall prevent overfishing while achieving, on a continuing basis, the optimum yield from each fishery

Nothing in the proposed alternatives would undermine the current management system that prevents overfishing. The proposed alternatives would result in annual allocations to cooperatives. In the current race for fish, management to a specified TAC can prove difficult. Managers attempt to regulate harvests to the TAC by timing the closure of the fishery with the harvest of the rockfish TAC. The use of annual allocations is likely to result in catch levels that are closer to the specified TACs in the fisheries.

National Standard 2

Conservation and management measures shall be based upon the best scientific information available.

The analysis draws on the best scientific information that is available concerning the CGOA rockfish fisheries. The most up-to-date information that is available has been provided by the managers of these fisheries, as well as by members of the fishing industry.

National Standard 3

To the extent practicable, an individual stock of fish shall be managed as a unit throughout its range, and interrelated stocks of fish shall be managed as a unit or in close coordination.

The various stocks that are affected by this action are each managed as separate stocks. All interrelated stocks are managed as a unit or are managed in close coordination.

National Standard 4

Conservation and management measures shall not discriminate between residents of different states. If it becomes necessary to allocate or assign fishing privileges among various U.S. fishermen, such allocation shall be (A) fair and equitable to all such fishermen, (B) reasonably calculated to promote conservation, and (C) carried out in such a manner that no particular individual, corporation, or other entity acquires an excessive share of such privileges.

The proposed alternatives would treat all participants in the rockfish fisheries the same, regardless of their residences. The allocations in the fisheries would be based on historical catch in the fisheries without discrimination among participants.

The total annual allocation in each fishery will be based on the fishery management plan that is developed to promote conservation of the resource. Any changes in a fishery, as a result of the pilot program, that impact conservation of the resource will be taken into account when setting the TACs in a year. No changes are expected.

Limits on cooperative holdings, individual holdings or usage of allocations, and processing would prohibit any individual from acquiring an excessive share of harvest privileges or controlling an excessive share of processing in the fisheries.

National Standard 5

Conservation and management measures shall, where practicable, consider efficiency in the utilization of fishery resources, except that no such measure shall have economic allocation as its sole purpose.

The preferred alternative is proposed to improve the efficiency of utilizing the CGOA rockfish resources. Given the current race for fish in these fisheries, concern has been expressed that both the harvest and processing sectors operate in an inefficient manner. While the allocation of quota under all of the alternatives would have economic consequences, the primary goals are to increase efficiency and equitably distribute interests in each of the fisheries. Additional benefits would be realized through the direct allocation of catch of eight species under the program. No discards of these species would be permitted, which should have the effect of allowing more precise management of catch and could contribute to reductions in bycatch and discards.

National Standard 6

Conservation and management measures shall take into account and allow for variations among, and contingencies in, fisheries, fishery resources, and catches.

Under all of the pilot program alternatives changes in the availability of the rockfish fishery resources each year would be addressed through changes in annual allocations. These changes in allocations will be used to ensure conservation of the resource in the future.

National Standard 7

Conservation and management measures shall, where practicable, minimize costs and avoid unnecessary duplication.

The pilot program alternatives would substitute for existing LLP management of the rockfish fisheries and would not duplicate any other laws. The costs of managing the fisheries may increase under the pilot program alternatives. The costs would be due to administration of annual allocations to cooperatives and an increased need for inseason monitoring of harvests and observer coverage, which are necessary to ensure realization of other benefits from the pilot program alternatives.

National Standard 8

Conservation and management measures shall, consistent with the conservation requirements of this Act (including the prevention of overfishing and rebuilding of overfished stocks), take into account the importance of fishery resources to fishing communities in order to (A) provide for the sustained participation of such communities, and (B) to the extent practicable, minimize adverse economic impacts on such communities.

Implementing the pilot program alternative is likely to have impacts on fishing communities. The pilot program alternatives, however, should have primarily positive impacts on communities. Presently, benefits to communities from the fisheries are decreased because of inefficiencies of the race to fish under the current management. Quality of landings and products from the fisheries are decreased as participants in both sectors race to maximize shares of the catch. The pilot program alternatives are intended to address these inefficiencies, which could result in more total profits generated from the fishery. Community participation in the fisheries is unlikely to change under the pilot program alternatives. Kodiak has historically been home to processors that have processed almost all of the rockfish landings. Under the pilot program alternatives, this should continue.

National Standard 9

Conservation and management measures shall, to the extent practicable, (A) minimize bycatch, and (B) to the extent bycatch cannot be avoided, minimize the mortality of such bycatch.

The rationalization of the fisheries should reduce bycatch levels. Currently, participants in the fishery are governed by MRAs that limit their retention of non-target species. Under the pilot program alternatives, allocations of four or five species (depending on the sector) in addition to the target rockfish will be made. Full retention of these species will be required, with the allocation operating as a hard cap, which requires participants to stop fishing when any allocation is fully harvested. This measure should reduce bycatch in the fisheries. In addition, slowing the race for fish should increase the ability of crews to handle bycatch carefully to decrease bycatch mortality.

National Standard 10

Conservation and management measures shall, to the extent practicable, promote the safety of human life at sea.

The pilot program alternatives should reduce the incentives for rockfish fishermen to fish in inclement weather or fish in a manner that compromises safety. The removal of time pressures of the race to fish could reduce fishing activity in bad weather and may result in improved safety in the fisheries. Safety concerns should also be addressed through other means while working closely the U.S. Coast Guard.

4.2. Section 303(a)(9) - Fisheries impact statement

Section 303(a)(9) of the Magnuson-Stevens Act requires that any management measure submitted by the Council take into account potential impacts on the participants in the fisheries, as well as participants in adjacent fisheries. The impacts of the pilot program alternatives on both participants in the rockfish fisheries and participants in other fisheries have been discussed in previous sections of this document. Under the pilot program alternative, rockfish allocations to cooperatives would be based on historical participation of eligible members of the cooperative. Persons without the qualifying history necessary to receive allocations could be negatively impacted.

Less obvious impacts from the pilot program alternatives could accrue to participants in ‘adjacent’ fisheries. The impacts would be in terms of “spillover” effects as rockfish fishery participants are able to increase effort in other fisheries after removal of the time pressures of the race to fish. Sideboard

limitations included in the pilot program alternative will limit rockfish pilot program participants to their historic participation in federal Gulf of Alaska, Bering Sea, and Aleutian Island groundfish fisheries, which are most likely to receive additional effort as a result of the implementation of the pilot program. These sideboards should almost fully mitigate any negative spillover impacts in those fisheries.

5. Regulatory Flexibility Analysis

5.1. Introduction

The Regulatory Flexibility Act (RFA), first enacted in 1980, and codified at 5 U.S.C. 600-611, was designed to place the burden on the government to review all regulations to ensure that, while accomplishing their intended purposes, they do not unduly inhibit the ability of small entities to compete. The RFA recognizes that the size of a business, unit of government, or nonprofit organization frequently has a bearing on its ability to comply with a Federal regulation. Major goals of the RFA are: 1) to increase agency awareness and understanding of the impact of their regulations on small business; 2) to require that agencies communicate and explain their findings to the public; and 3) to encourage agencies to use flexibility and to provide regulatory relief to small entities.

The RFA emphasizes predicting significant adverse impacts on small entities as a group distinct from other entities and on the consideration of alternatives that may minimize the impacts, while still achieving the stated objective of the action. When an agency publishes a proposed rule, it must either, (1)"certify" that the action will not have a significant adverse effect on a substantial number of small entities, and support such a certification declaration with a "factual basis", demonstrating this outcome, or, (2) if such a certification cannot be supported by a factual basis, prepare and make available for public review an Initial Regulatory Flexibility Analysis (IRFA) that describes the impact of the proposed rule on small entities.

Based upon a preliminary evaluation of the proposed pilot program alternatives, it appears that "certification" would not be appropriate. Therefore, this IRFA has been prepared. Analytical requirements for the IRFA and FRFA are described below in more detail.

The IRFA must contain:

1. A description of the reasons why action by the agency is being considered;
2. A succinct statement of the objectives of, and the legal basis for, the proposed rule;
3. A description of, and where feasible, an estimate of the number of small entities to which the proposed rule will apply (including a profile of the industry divided into industry segments, if appropriate);
4. A description of the projected reporting, record keeping, and other compliance requirements of the proposed rule, including an estimate of the classes of small entities that will be subject to the requirement and the type of professional skills necessary for preparation of the report or record;
5. An identification, to the extent practicable, of all relevant Federal rules that may duplicate, overlap, or conflict with the proposed rule;
6. A description of any significant alternatives to the proposed rule that accomplish the stated objectives of the Magnuson-Stevens Act and any other applicable statutes, and that would minimize any significant adverse economic impact of the proposed rule on small entities. Consistent with the stated objectives of applicable statutes, the analysis shall discuss significant alternatives, such as:
    a. The establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities;
    b. The clarification, consolidation or simplification of compliance and reporting requirements under the rule for such small entities;

c. The use of performance rather than design standards;
d. An exemption from coverage of the rule, or any part thereof, for such small entities.

The "universe" of entities to be considered in an IRFA generally includes only those small entities that can reasonably be expected to be directly regulated by the proposed action. If the effects of the rule fall primarily on a distinct segment of the industry, or portion thereof (e.g., user group, gear type, geographic area), that segment would be considered the universe for purposes of this analysis.

In preparing an IRFA, an agency may provide either a quantifiable or numerical description of the effects of a proposed rule (and alternatives to the proposed rule), or more general descriptive statements if quantification is not practicable or reliable.

5.1.1. Definition of a Small Entity

The RFA recognizes and defines three kinds of small entities: 1) small businesses; 2) small non-profit organizations; and 3) and small government jurisdictions.

Small businesses: Section 601(3) of the RFA defines a "small business" as having the same meaning as a "small business concern," which is defined under Section 3 of the Small Business Act. A "small business" or "small business concern" includes any firm that is independently owned and operated and not dominate in its field of operation. The U.S. Small Business Administration (SBA) has further defined a "small business concern" as one "organized for profit, with a place of business located in the United States, and which operates primarily within the United States, or which makes a significant contribution to the U.S. economy through payment of taxes or use of American products, materials, or labor. A small business concern may be in the legal form of an individual proprietorship, partnership, limited liability company, corporation, joint venture, association, trust, or cooperative, except that where the form is a joint venture there can be no more than 49 percent participation by foreign business entities in the joint venture."

The SBA has established size criteria for all major industry sectors in the U.S., including fish harvesting and fish processing businesses. A business "involved in fish harvesting" is a small business if it is independently owned and operated and not dominant in its field of operation (including its affiliates), and if it has combined annual receipts not in excess of $3.5 million for all its affiliated operations worldwide. A seafood processor is a small business if it is independently owned and operated, not dominant in its field of operation (including its affiliates) and employs 500 or fewer persons, on a full-time, part-time, temporary, or other basis, at all its affiliated operations worldwide. A business involved in both the harvesting and processing of seafood products is a small business if it meets the $3.5 million criterion for fish harvesting operations. A wholesale business servicing the fishing industry is a small business if it employs 100 or fewer persons on a full-time, part-time, temporary, or other basis, at all its affiliated operations worldwide.

The SBA has established "principles of affiliation" to determine whether a business concern is "independently owned and operated." In general, business concerns are affiliates of each other when one concern controls or has the power to control the other, or a third party controls or has the power to control both. The SBA considers factors such as ownership, management, previous relationships with or ties to another concern, and contractual relationships, in determining whether affiliation exists. Individuals or firms that have identical or substantially identical business or economic interests, such as family members, persons with common investments, or firms that are economically dependent through contractual or other relationships, are treated as one party, with such interests aggregated when measuring the size of the concern in question. The SBA counts the receipts or employees of the concern whose size is at issue and those of all its domestic and foreign affiliates, regardless of whether the affiliates are organized for profit, in determining the concern's size. However, business concerns owned and controlled

by Indian Tribes, Alaska Regional or Village Corporations organized pursuant to the Alaska Native Claims Settlement Act (43 U.S.C. 1601), Native Hawaiian Organizations, or Community Development Corporations authorized by 42 U.S.C. 9805 are not considered affiliates of such entities, or with other concerns owned by these entities, solely because of their common ownership.

Affiliation may be based on stock ownership when: (1) A person is an affiliate of a concern if the person owns or controls, or has the power to control 50% or more of its voting stock, or a block of stock which affords control because it is large compared to other outstanding blocks of stock, or (2) If two or more persons each owns, controls or have the power to control less than 50% of the voting stock of a concern, with minority holdings that are equal or approximately equal in size, but the aggregate of these minority holdings is large as compared with any other stock holding, each such person is presumed to be an affiliate of the concern.

Affiliation may be based on common management or joint venture arrangements. Affiliation arises where one or more officers, directors, or general partners control the board of directors and/or the management of another concern. Parties to a joint venture also may be affiliates. A contractor and subcontractor are treated as joint venturers if the ostensible subcontractor will perform primary and vital requirements of a contract or if the prime contractor is unusually reliant upon the ostensible subcontractor. All requirements of the contract are considered in reviewing such relationship, including contract management, technical responsibilities, and the percentage of subcontracted work.

Small organizations: The RFA defines "small organizations" as any nonprofit enterprise that is independently owned and operated and is not dominant in its field.

Small governmental jurisdictions: The RFA defines small governmental jurisdictions as governments of cities, counties, towns, townships, villages, school districts, or special districts with populations of fewer than 50,000.

5.2. A description of the reasons why action by the agency is being considered

The Council has identified the following problem statement, which this action is intended to address:

> The present management structure of the CGOA rockfish fishery continues to exacerbate the race for fish with:
>
> - Increased catching and processing capacity entering the fishery,
> - Reduced economic viability of the historical harvesters (both catcher vessels and catcher processors) and processors,
> - Decreased safety,
> - Economic instability of the residential processor labor force,
> - Reduced product value and utilization,
> - Jeopardy to historical groundfish community stability,
> - Limited ability to adapt to Magnuson-Stevens Act (MSA) requirements to minimize bycatch and protect habitat.
>
> While the Council is formulating GOA comprehensive rationalization to address similar problems in other fisheries, a short-term solution is needed to stabilize the community of Kodiak. Kodiak has experienced multiple processing plant closures, its residential work force is at risk due to shorter and shorter processing seasons and the community fish tax revenues continue to decrease as fish prices and port landings decrease. Congress recognized these

problems and directed the Secretary in consultation with the Council, to implement a pilot rockfish program with the following legislation:

> SEC. 802. GULF OF ALASKA ROCKFISH DEMONSTRATION PROGRAM. The Secretary of Commerce, in consultation with the North Pacific Fishery Management Council, shall establish a pilot program that recognizes the historic participation of fishing vessels (1996 to 2002, best 5 of 7 years) and historic participation of fish processors (1996 to 2000, best 4 of 5 years) for pacific ocean perch, northern rockfish, and pelagic shelf rockfish harvested in Central Gulf of Alaska. Such a pilot program shall (1) provide for a set-aside of up to 5 percent for the total allowable catch of such fisheries for catcher vessels not eligible to participate in the pilot program, which shall be delivered to shore-based fish processors not eligible to participate in the pilot program; (2) establish catch limits for non-rockfish species and non-target rockfish species currently harvested with pacific ocean perch, northern rockfish, and pelagic shelf rockfish, which shall be based on historical harvesting of such bycatch species. The pilot program will sunset when a Gulf of Alaska Groundfish comprehensive rationalization plan is authorized by the Council and implemented by the Secretary, or 2 years from date of implementation, whichever is earlier.

The fishing fleets have had little experience with cooperative fishery management and needs to begin the educational process. For the fishery to be rationalized all aspects of the economic portfolio of the fishery needs to recognized. To stabilize the fishery economy all the historical players – harvesters (both catcher vessels and catcher processors) and processors need to be recognized in a meaningful way. The demonstration program is designed as a short-term program for immediate economic relief until comprehensive GOA rationalization can be implemented.

The CGOA rockfish fisheries are currently managed under the LLP. Under that management, the fisheries openings are scheduled, after which each participant races to harvest the available resource. Managers monitor harvests in-season and close each fishery when they estimate that the TAC for that species is reached. Under this management, fishermen and processors have made investments in the fisheries, and capacity in these fisheries exceeds that necessary to harvest and process the available resources, if harvest rates are slowed. Under current management, the fisheries are prosecuted in an economically inefficient manner that diminishes quality and value of landings and products. The race for fish also creates incentives for participants to compromise safety to increase catch. The problem facing the Council is to develop a management program which slows the race for fish, minimizes bycatch and associated mortalities, provides for improved conservation of habitat, and addresses the social and economic concerns that have arisen under current management.

5.3. The objectives of, and the legal basis for, the proposed rule

Under the current regulatory structure, the CGOA rockfish fisheries are managed under the LLP. The pilot program alternatives proposed by the Council are intended to end the race for fish under the LLP. By ending this race, the pilot program alternatives are expected to improve economic efficiency, reduce incentives for bycatch, remove pressure to take unnecessary physical risk when fishing conditions are hazardous, and address a range of social concerns.

In January of 2004, Congress passed legislation directing the Secretary of Commerce, in consultation with the Council to establish a pilot program for CGOA rockfish. The specific legislation authorizing this action, together with the floor statement concerning that legislation, is contained in Appendix 1A.

5.4. A description of, and where feasible, an estimate of the number of small entities to which the proposed rule will apply

Information concerning ownership of vessels and processors, which would be used to estimate the number of small entities that are regulated by this action, is somewhat limited. Using available information and data, however, estimates of the number of small entities regulated by the action are provided.

No processors or catcher processors that are eligible for the main pilot program regulated by this action are small entities, as defined by the RFA. Some processors that are not eligible for the main program, but may choose to compete for landings from the entry level fishery could be small entities. The extent of participation by small entities in the processing segment of the entry level fishery cannot be predicted.

The ability to estimate of small entities that operate catcher vessels that are regulated by this action is limited due to incomplete information concerning vessel ownership. No catcher vessel individually exceeds the small entity threshold of $3.5 million in gross revenues. At least three catcher vessels are believed to be owned by entities whose operations exceed the small entity threshold, leaving 45 small catcher vessel entities that are directly regulated by this action.

In addition to the main pilot program, this action also creates an "entry level" fishery for catcher vessels and processors that are ineligible for the main program. Since participation in that fishery is voluntary, the number of small entities participating cannot be predicted. It is likely that a substantial portion of the catcher vessel participants will be small entities. It is also possible that some small processing entities could choose to participate in the entry level fishery.

5.5. A description of the projected reporting, record keeping, and other compliance requirements of the proposed rule

Implementation of any of the pilot program alternatives would change the overall reporting structure and recordkeeping requirements of the vessels and processors in the CGOA rockfish fisheries. Under all of the alternatives, cooperatives would be issued an allocation of catch.
NOAA Fisheries would require all participants in the pilot program or entry level fishery to submit an annual registration in the fall prior to the year in which the fishing occurs to facilitate the incorporation of annual allocations in the annual TAC specifications process. Each vessel would be required to track catch to avoid exceeding the allocation. In other IFQ fisheries in the North Pacific, processors provide catch recording data to managers to monitor harvest of allocations. Processors would be required to record deliveries and processing activities to aid in the administration of the program. These requirements are similar to those currently imposed, and therefore would not be new or duplicative, in the pilot program fisheries.

In addition, vessels are likely to be required to increase observer coverage in both the rockfish fisheries and any of the under all of the alternatives. Catcher processors are also likely to be required to add flow scales and observer stations on their vessels. These observer requirements and their costs are fully described in Sections 2.5.1 and 2.5.9. Equipment requirements for catcher processors are likely to be very similar and consistent with the requirements of Amendments 79 and 80 of the Bering Sea and Aleutian Islands Groundfish FMP. Since most of the catcher processors in this fishery also participate in that

fishery, these equipment costs are likely to be supported by activities in both the CGOA rockfish fisheries and the Bering Sea and Aleutian Islands fisheries.

NMFS will be required to develop new databases to monitor cooperative allocations. These changes could require the development of new reporting systems, similar to those maintained in other North Pacific rationalized fisheries.

5.6. An identification, to the extent practicable, of all relevant Federal rules that may duplicate, overlap, or conflict with the proposed rule

The analysis uncovered no Federal rules that would conflict with, overlap, or be duplicated by the pilot program alternatives.

5.7. A description of any significant alternatives to the proposed rule that accomplish the stated objectives of the Magnuson-Stevens Act and any other applicable statutes, and that would minimize any significant adverse economic impact of the proposed rule on small entities

The Council considered a suite of three alternatives for the catcher vessel sector (including shore-based processors) and three alternatives for the catcher processor sector. For both sectors one alternative is the status quo (continued fishing under the current LLP management) and two are cooperative programs, under which participants would be permitted to join a fishing cooperative that would receive an annual allocation on behalf of its members. These alternatives comprise the suite of "significant alternatives" for purposes of the RFA. Each is addressed briefly below. The alternatives are fully described and analyzed in the RIR and EA above. The following analysis summarizes applicable portions of those more comprehensive analyses and focuses on aspects that pertain to small entities.

The current LLP Central Gulf of Alaska rockfish fisheries open early in July. Participants from both sectors race to catch as much fish as possible prior to catch of the TAC. In recent years, TAC and effort levels have resulted in the fisheries lasting only a few weeks each year. As a result of the race for fish, participants (particularly in the catcher vessels and processors in the shore-based sector) often sacrifice quality of landings and products to maintain their shares of the catch, dissipating rents in the fishery. Product choices are also limited for processors, as they attempt to keep pace with landings. The proposed alternatives to the status quo are intended to address these issues, by allocating shares to cooperatives and ending the race for fish. Several small entities (as defined by the RFA) participate in these fisheries and experience these effects.

Under the two catcher processor alternatives, eligible members of the sector would be permitted to join cooperatives that would receive annual allocations based on member catch histories. A cooperative's allocation would be fished in accordance with a cooperative agreement negotiated by its members. No small entities are eligible for the catcher processor sector, so no small entities are directly regulated by these alternatives.

The exclusive allocations under the program, together with the coordination of fishing in cooperatives, will allow catcher processor participants to determine their effort in a manner that reduces costs. Vessels may be removed from the fishery and the rate of catch may be slowed, allowing for reduced costs and possibly increases in revenues. Potential revenue improvements are uncertain for this catcher processor fleet, as their product outputs are subject to operational limitations. Modification of vessels to produce

higher value products is likely to be cost prohibitive for most members of the sector. Some members of the sector could suffer negative effects, if they receive very small allocations and are unable to negotiate reasonable cooperative agreement terms with others. Efficiency differences across vessels may favor entering small vessels in the rockfish fisheries to allow other cooperative members to compete in other fisheries that remain under LLP management. This could result in an increase in rockfish activity by small participants. The ability to harvest allocations of others on small vessels, however, will depend on whether small vessels can cost-effectively install the flow scales and observer station required to support observer coverage. Differences in effects based on the size of the business, in general, are difficult to predict and depend on the particular circumstances and actions of other participants.

Under both catcher vessel alternatives, production by the shore-based sector should increase substantially with the slowing of the race for fish. Product quality should improve and output should shift to higher valued products. Overall participants in both the catcher vessel and processing sectors should be at least as well off under the two pilot program alternatives as the under the status quo. The effects of the two alternatives on these different sectors are not the same.

Small catcher vessels should benefit more under the alternative with limited processor entry, because catcher vessels will have substantially greater negotiating leverage under that alternative's flexible cooperative structure. As a result, catcher vessel entities should realize the greatest benefit under that alternative, while processing entities would benefit less. Under the alternative with cooperative/processor associations, processors should have substantially greater negotiating leverage because of the specific processor association that a catcher vessel must accept to enter the rationalized fishery. As a result, processors should benefit more than catcher vessels under the alternative with cooperative/processor associations.

Under both of the alternatives, the distribution of benefits will vary within each sector. In addition, some participants could be disadvantaged. Under either alternative, catcher vessel entities that receive small allocations could be disadvantaged, if holders of large allocations are able to draft cooperative terms that favor holders of large allocations over holders of small allocations. Since catcher vessel participants can freely form cooperatives under the alternative with processor limited entry, the potential of recipients of small allocations to be disadvantaged is reduced.

No small entities are eligible for the processing segment of the main program, so no small entities are directly regulated by the processing aspects of the catcher vessel sector alternatives. Qualified processors with less historic participation in the rockfish fishery would be better situated to increase their landings from the rockfish fishery under the processor limited entry alternative, because the limit on entry allows all qualified processors to compete for landings. On the other hand, processors with greater historic participation would not be constrained by the processing time pressures of the race for fish and may be in a better position to compete to increase their share of crab processing. As a result, the effects on relatively small processors that are qualified for the program is uncertain in the alternative with limited processor entry. The historic level of processing of relatively small processors that are eligible for the program would be better protected under the alternative with cooperative/processor associations. The ability to increase processing activity beyond historic levels is unlikely under that alternative because of the strong cooperative/processor association.

The effects of the program on small entities that are not eligible for the main pilot program are uncertain. For catcher vessels that wish to participate in the rockfish fishery, opportunities to participate are limited by the requirement of a qualified license for participation in the main fishery. On the other hand, the limited entry set aside is likely to be less competitive than the current fishery and may provide a reasonable opportunity for participation, if few vessels enter that fishery. Processors that do not qualify for the program will be limited in the extent that they can compete for landings in the rockfish fishery,

since only 5 percent of the TAC is available to the entry level fishery. Competition for landings in that fishery, however, might be less intense than in the current fishery, allowing small processors to compete more effectively. The specific effects depend on the number of processors that compete in the entry level fishery.

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Appendix 1A Legislative History

PASSAGE OF THE FY2004 CONSOLIDATED APPROPRIATIONS CONFERENCE REPORT REGARDING PROVISIONS RELATED TO ALASKAN FISHERIES

(Portions relevant to the rockfish pilot program are bolded)

Mr. STEVENS. Mr. President, three years ago Congress directed the North Pacific Fishery Management Council to analyze the management of the Bering Sea Crab fisheries and determine whether rationalization was necessary. The North Pacific Council completed its study and recommended a rationalization program that recognized the historical participation in the fishery of remote Alaska fishing communities, harvesters, and processors. The "Three-pie Voluntary Cooperative Program" developed by the North Pacific Council protects the resource and ends the dangerous race for fish. Section 801 of Title VIII-Alaskan Fisheries of the FY2004 Consolidated Appropriations conference report directs the Secretary to implement the North Pacific Council's crab rationalization program in its entirety.

Section 801 amends section 313 of the Magnuson-Stevens Fishery Conservation and Management Act by adding a new subsection 313(j). Paragraph 313(j)(1) directs the Secretary to approve and implement the North Pacific Council's rationalization program for the Bering Sea/Aleutian Islands crab fisheries, including all trailing amendments. It also clarifies that the Secretary may approve and implement additional trailing amendments approved by the North Pacific Council. The Secretary must implement all parts of the crab rationalization program that were reported to Congress between June 2002 and April 2003, and all trailing amendments including those reported on May 6, 2003, no later than January 1, 2005. Any further amendments approved by the Council should be corrective in nature or address unforeseen problems with the overall functionality of the crab rationalization program. Primary elements of the Voluntary Three-pie Cooperative crab program that made three separate allocations, one to the harvest sector, one to the processing sector, and one to defined regions, should not change as this was the basis of understanding of how the crab fisheries would be rationalized in the Bering Sea and Aleutian Islands. It is imperative that the deadly and inefficient race for crab in the harsh winters months in the Bering Sea ends. Congress expects the Secretary to meet the statutory deadline of implementation of the rationalization program in time for the 2005 crab fisheries. Congress does not expect the Council to revisit particulars of the crab rationalization program that were part of the initial report to Congress in June of 2002, such as individual harvest shares, processing shares, the 90/10 split of “Class A” and “Class B” shares, regional share designations, voluntary harvester cooperatives, and community development quota allocations, to name a few.

Paragraph 313(j)(2) directs the Secretary to approve all parts of the North Pacific Council's crab program, including harvester quota, processor quota, and community protections. It also includes a non-severability clause that prevents a court from overruling only certain parts of the program. If any part of the program is found to violate the law, the entire program fails and the Bering Sea/Aleutian Islands crab fisheries will operate under their current open-access management scheme. It also prevents processors from improperly seeking crab deliveries harvested under a harvester's open-delivery quota.

Paragraph 313(j)(3) authorizes the North Pacific Council to recommend to the Secretary any necessary changes after implementation of the crab program to continue to meet conservation and management goals set out in the program for the Bering Sea/Aleutian Islands crab fisheries.

Paragraph 313(j)(4) specifies that the loan program defined under the crab rationalization program for captains and crew be authorized pursuant to relevant sections of Title XI of the Merchant Marine Act as amended for fisheries financing and capacity reduction and for direct loan obligations for fisheries financing and capacity reduction. The loan program for crab fishing vessel captains and crew members is to be a low interest loan program similar to the loan program under the halibut and sablefish IFQ program.

Paragraph 313(j)(5) authorizes $1,000,000 each year from funds available in the National Marine Fisheries Service account for Alaska fisheries activities to implement the program.

Paragraph 313(j)(6) specifies that the antitrust laws of the United States apply to the crab program. It requires the Secretary of Commerce to work with Department of Justice and the Federal Trade Commission to develop and implement a mandatory information collection and review process to monitor the crab program and ensure no anticompetitive acts occur among persons receiving individual processing quota. If any person receiving individual processor quota is found to have violated a provision of the antitrust laws the Secretary may revoke their processor quota share.

Paragraph 313(j)(7) requires individual processor quota share under the crab program to be considered a permit and subject to sections 307 (Prohibited Acts) and 308 and 309 (penalties and criminal offenses) of the Magnuson-Stevens Fishery Conservation and Management Act. It specifies that, like individual fishing quota, issuance of individual processor quota share does not confer any compensation right if it is revoked or limited, and does not create title or other interest in or to any fish before purchase from a harvester.

Paragraph 313(j)(8) specifies that the restriction on the collection of economic data in section 303(d)(7) of the Magnuson-Stevens Act will not apply for any processor that receives individual processing quota under the crab program. In addition, the restriction on the confidentiality of information in section 402(b)(1) will not apply when the information is used to determine eligibility or verify history for individual processing quota. This is consistent with the exception to the confidentiality of information requirement under the Magnuson-Stevens Act for verifying catch under an individual fishing quota program.

Paragraph 313(j)(9) specifies that sections 308 (civil penalties and permit sanctions), 310 (civil forfeitures), and 311 (enforcement) of the Magnuson-Stevens Act will apply to the processing facilities and fish products of any person holding individual processing quota. In addition, to ensure compliance with the crab program it may be necessary for the Secretary to inspect a processor's facilities, therefore facilities owned or controlled by a person holding individual processing quota will be subject to the prohibited acts of section 307(1) subparagraphs (D), (E) and (L) of the Magnuson-Stevens Act.

The North Pacific Council is recognized for developing novel and innovative approaches to conservation and management of the abundant fisheries in the North Pacific. The "Three-pie Voluntary Cooperative Program" for rationalizing the Bering Sea and Aleutian Islands crab fisheries is another example of that creativity. It is the product of three years of public meetings and discussion by industry sectors, citizens and affected communities, two years of discussion and development by the North Pacific Council and its Advisory Panel, and nearly two years of extensive and thorough analysis by Council staff, with technical assistance from the National Marine Fisheries Service, Alaska Department of Fish and Game, and independent economists and fisheries consultants.

The Council meticulously constructed the crab rationalization program to achieve bold conservation and management goals for the resource; but also considered the very unique reality of a high value, capital intensive, high risk fishery that is prosecuted entirely in the distant waters of the Bering Sea and Aleutian Islands. The Council has done a great job crafting the Three-pie Voluntary Cooperative crab rationalization program and it is expected to implement the program in its entirety, including all trailing amendments, as reported to Congress in June of 2002. The Council should not revisit the particulars of the crab program, but should continue to work with the Commerce Department to ensure that the crab program is implemented in its entirety in time for the 2005 winter crab fisheries.

The Magnuson-Stevens Act requires fishery management plans and amendments to provide for the sustained participation of communities in the fisheries it has historically depended on for employment and economic opportunity. Small, isolated communities like St. Paul and St. George located on the Pribilof Islands, and Adak on the Aleutian chain have become dependent on the crab resource crossing their docks. This plan slows down the pace of the fishery, achieves efficiencies in harvesting the resource, manages and conserves the resource better, and helps decapitalize the fishery.

While there will inevitably be a degree of economic dislocation in the communities dependent on the revenues. The crab rationalization program addresses these concerns by tying the crab resource to the communities that historically processed the crab. Processor quota share is a form of community protection which maintains historical processing capacity in the communities. Processor quota share

should remain in those unique, isolated communities like St. Paul, St. George, King Cove and Adak; communities completely dependent on the crab fishery, that do not benefit from multi-species processing and other economic opportunities. The North Pacific Council determined that for the crab fisheries, processor quota share was a necessary safeguard to protect the investments made by the processing sector and more importantly, to maintain the economic benefits in the communities that have historically depended on the resource.

Section 802 of Title VIII-Alaskan Fisheries directs the Secretary in consultation with the North Pacific Fishery Management Council to establish a pilot fisheries management program that recognizes the historic participation of fishing vessels and fish processors in the central Gulf of Alaska rockfish fishery. The provision delineates the years and types of rockfish that should be considered for a pilot rationalization program to allow for increased use and value in the fishery. The pilot rockfish program will expire when the North Pacific Council authorizes a comprehensive rationalization program for Gulf of Alaska Groundfish and implemented by the Secretary, or two years from the date of implementation, whichever is earlier. The pilot program contemplates new entrants into this fishery and provides a set-aside of up to five percent of the total allowable catch of such fishery for catcher vessels not eligible to participate in the program. In addition, the five percent that is available for new entrants must come into Kodiak, Alaska for processing and can be processed by processors that have not historically participated in the fishery. The North Pacific Council will establish catch limits for nonrockfish species and non-target rockfish species currently harvested along with pacific ocean perch, northern rockfish, and pelagic shelf rockfish, which should be based on historical harvesting of such bycatch species. The Gulf of Alaska rockfish pilot program should also recognize the historic fishing and processing participation of catcher-processors that have historically participated in this fishery, and should utilize the same years and species of fish considered under the provision.

The intent of the pilot program is to consider the historic participation of all of those that have been involved in the fishery. The Gulf of Alaska rockfish pilot program does not authorize individual processing quota share for processors in this fishery. The "historic participation of fish processors" under this pilot program should be considered pursuant to the cooperative model under the American Fisheries Act, or any other manner the North Pacific Council determines is appropriate. This provision in no way authorizes individual processor quota share for the comprehensive Gulf of Alaska groundfish rationalization program that the North Pacific Council is currently developing. This pilot program is intended to allow for better conservation and management of the central Gulf of Alaska rockfish and extend the work year for processing jobs in Kodiak.

Section 803 of Title VIII-Alaskan Fisheries directs the Aleutian Islands pollock allocation to the Aleut Corporation for economic development in Adak, Alaska. If the North Pacific Council opens the Aleutian pollock fishery, the allocation of pollock for economic development in Adak will be restricted by the prohibited acts contemplated under section 307 of the Magnuson-Stevens Fishery Conservation and Management Act and subject to the penalties and sanctions under section 308 of the Act, including the forfeiture of any fish harvested or processed. Two classes of vessels may harvest this pollock allocation: vessels that are 60 feet or less in length overall and have a valid fishery endorsement can harvest the Aleutian pollock allocation and deliver it to Adak for processing; and vessels eligible to harvest pollock under section 208 of Title II of Division C of Public Law 105-277 are permitted to form partnerships with the Aleut Corporation to harvest the Aleutian Islands pollock allocation for economic development in Adak. Section 803 does not waive the requirements of the Magnuson-Stevens Act, Endangered Species Act, National Environmental Policy Act or any other federal laws. The North Pacific Council and NMFS should be cautious in implementing section 803(a)to ensure that any reopening of a directed Aleutian Islands pollock fishery is accomplished in full compliance with all applicable law, and without disrupting 2004 groundfish fisheries which have already commenced.

In an effort to gradually establish a small boat fleet in Adak, subsection (b) of section 803 provides that during the years 2004 through 2008, up to 25 percent of the Aleutian allocation may be

harvested by vessels 60 feet or less in length overall. During the years 2009 through 2013, up to 50 percent of such allocation may be harvested by vessels 60 feet or less in length overall. After the year 2012, 50 percent of such allocation shall be harvested by vessels 60 feet or less in length overall, and 50 percent shall be harvested by vessels eligible under section 208 of Title II of Division C of Public Law 105-277. Establishing a small boat fleet will be critical for the economic diversification of Adak and the revenues generated from the use of the Aleutian Islands pollock allocation will allow for greater investment opportunities in this community. For purposes of implementing this section, section 206 of the American Fisheries Act (AFA) is redefined so that the allocations in section 206(b) of the AFA should only apply to the Bering Sea portion of the directed pollock fishery.

Subsection (c) of section 803 codifies one of the longest standing conservation and management measures of the North Pacific Fishery Management Council, the 2 million metric ton cap for groundfish in the Bering Sea. The optimum yield for groundfish in the Bering Sea and Aleutians Islands Management Area shall not exceed 2 million metric tons. Upon the recommendation of the North Pacific Council and approval of the Secretary of Commerce, and only if consistent with the conservation and management goals and requirements of the Magnuson-Stevens Fishery Conservation and Management Act, the allocation of Aleutian pollock for economic development in Adak, may be in addition to the 2 million metric ton optimum yield. This treatment of the Aleutian Islands pollock allocation would only be during the 2004 through the 2008 fishing years, but only if harvests in excess of the cap do not result in overfishing and then only to the extent necessary to accommodate a directed pollock fishery in the Aleutian Islands and should not adversely affect the current participants in the Bering Sea pollock fishery in the near term. Eventually this pollock allocation will come under the combined optimum yield for all groundfish in the Bering Sea and Aleutian Islands 2 million metric ton cap by taking proportional reductions in the total allowable catches for each of the existing groundfish fisheries as necessary to accommodate the establishment of the Aleutian Island pollock fishery.

Subsection (d) of section 803 allows the North Pacific Fishery Management Council to recommend and the Secretary to approve an allocation of Aleutian Islands pollock to the Aleut Corporation for the purposes of economic development in Adak pursuant to the requirements of the Magnuson-Stevens Fishery Conservation and Management Act. The North Pacific Council should consider pollock allocations given to the various groups that participate in the Community Development Quota program to recommend a reasonable amount of the Aleutian Islands pollock to the Aleut Corporation for purposes of economic development in Adak and in no case should this amount exceed 40,000 metric tons.

Nothing in this section requires the North Pacific Council to open the Aleutian Islands pollock fishery. The Council should not take any action in regards to this fishery which would require a new consultation under the current biological opinion or Endangered Species Act covering Steller sea lions.

Section 804 of Title VIII–Alaskan Fisheries prohibits any Regional Fishery Management Council or the Secretary from approving any fishery management plan or plan amendments to allocate or issue individual processing quota or processor share in any fishery of the United States other than the crab fisheries of the Bering Sea and Aleutian Islands.

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Office of General Counsel
P.O. Box 21109
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February 3, 2005

MEMORANDUM FOR: Stephanie Madsen, Chair
North Pacific Fishery Management Council

Chris Oliver, Executive Director
North Pacific Fishery Management Council

FROM: Lisa L. Lindeman
Alaska Regional Counsel

SUBJECT: Rockfish Demonstration Program

This memorandum responds to the request of the North Pacific Fishery Management Council (Council), including requests from Council staff,[1] for guidance from NOAA General Counsel on the appropriate construction of section 802 of the Departments of Commerce, Justice, and State, the Judiciary, and Related Appropriations, 2004 (CAA–2004).[2]

The specific questions include:

(1) What is the scope of section 802?

(2) Whether the Council has authority to change the years specified in section 802 for recognizing the historic participation of fishing vessels and processors? Whether a processor must have processed in each of the years 1996 to 2000 to be eligible for the Central Gulf of Alaska (CGOA) Rockfish Demonstration Program (Rockfish Program)?

(3) Whether the Rockfish Program includes West Yakutat?

(4) Whether a person who is eligible under the Rockfish Program has authority to exercise an option not to participate in the Rockfish Program and instead participate in the five percent set-aside?

(5) Whether the Council has authority to reduce limited access rockfish allocations to eligible applicants who choose not to join cooperatives?

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[1] Letters from Chris Oliver, Executive Director, North Pacific Fishery Management Council, to Lisa Lindeman, NOAA-GC, dated February 25, 2004, and December 29, 2004.

[2] Pub. L. No. 108-199, 118 Stat. 110.

(6) What management programs for shoreside processors are authorized by section 802 (e.g., processor shares, "AFA-style" cooperatives[3], or limited licenses for shoreside processors)?

We have reviewed the statutory language, legislative history and relevant case law, and a summary of our responses to these six questions follows.

Summary Conclusions:

(1) Section 802 requires the Secretary of Commerce (Secretary) and the Council to recognize the historic participation of fishing vessels and fish processors for specific time periods, geographical areas, and rockfish species when establishing the Rockfish Program.

(2) Section 802 does not authorize recognition of the historic participation of fishing vessels or processors in years other than those specified in section 802. Further, Section 802 defines the range of years, but does not specify that a processor must have actually processed in each of those years in order to be eligible to participate in the Rockfish Program.

(3) Section 802 does not authorize the inclusion of West Yakutat in the Rockfish Program. Section 802 specifically uses the phrase "Central Gulf of Alaska" as the geographical area for the Rockfish Program. The CGOA as defined in the Fishery Management Plan for the Groundfish of the Gulf of Alaska and in regulations at 50 CFR part 679 does not include West Yakutat. The use of catch history from the CGOA and West Yakutat to qualify a person for a Central Gulf endorsement under the License Limitation Program for Groundfish has no impact on the Rockfish Program authorized under section 802.

(4) Section 802 does not authorize any person who is eligible to participate in the Rockfish Program to exercise an option not to participate in the program and participate in the five percent set-aside. Section 802 explicitly states that the five percent set-aside is for "catcher vessels *not eligible* to participate in the [Rockfish Program]," and not for an eligible person who chooses not to participate (emphasis added).

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[3] The phrase "AFA-style cooperatives" is not further defined in the letter. We interpret the phrase to mean cooperatives authorized by and formed under provisions of the American Fisheries Act (AFA), Div. C, Title II, Pub. L. No. 105-277, 112 Stat. 2681 (1998), 16 U.S.C. 1851nt. Under the AFA, NOAA Fisheries allocates individual quotas of the inshore Bering Sea (BS) pollock total allowable catch (TAC) to inshore catcher vessel cooperatives that form around a specific inshore processor and agree to deliver at least 90 percent of their pollock catch to that processor. This interpretation is consistent with the common understanding of the phrase as used by the Council, which is to allow the formation of harvesting cooperatives that are allocated a percentage of the TAC and are formed around a particular processor. The cooperatives engage only in harvesting activities and may include processor-owned catcher vessels. The Council has not interpreted the phrase, and we do not interpret the phrase, to mean cooperatives that automatically enjoy antitrust immunity under the Fishermen's Collective Marketing Act, 15 U.S.C. 521 (FCMA).

(5) The Council has authority to reduce limited access rockfish allocations for eligible applicants who choose not to join cooperatives. Section 802 does not distinguish between fishing vessels that choose to participate in cooperatives under the pilot program and those that choose not to participate in cooperatives. However, under the Magnuson-Stevens Fishery Conservation and Management Act (MSA), the Council and the Secretary are authorized to make such a distinction as long as the administrative record includes support demonstrating why such a distinction would be fair and equitable to all eligible applicants and reasonably calculated to promote conservation.

(6) Section 802 authorizes the Council and Secretary to develop a program that would establish "AFA-style" cooperatives or a program that would establish limited entry licenses for processors in the CGOA rockfish fishery. However, section 802 does not authorize the establishment of processor shares since they are prohibited under section 804 of the CAA. The legislative history supports the position that the Council is authorized to consider a broad range of "appropriate" management schemes, including "AFA-style" cooperatives, which are specifically mentioned in the legislative history. Appropriate management tools would be those that meet applicable legal standards (i.e., decisions cannot be arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law) and that are not specifically prohibited. Antitrust concerns also must be taken into consideration in creating a program under section 802.

Discussion and Analysis:

(1) What is the scope of section 802?

Section 802 provides:

> The Secretary of Commerce, in consultation with the North Pacific Fishery Management Council, shall establish a pilot program that recognizes the historic participation of fishing vessels (1996 to 2002, best 5 of 7 years) and the historic participation of fish processors (1996 to 2000, best 4 of 5 years) for pacific ocean perch, northern rockfish, and pelagic shelf rockfish harvested in the Central Gulf of Alaska. Such a pilot program shall: (1) provide for a set-aside of up to 5 percent for the total allowable catch of such fisheries for catcher vessels not eligible to participate in the pilot program, which shall be delivered to shore-based fish processors not eligible to participate in the pilot program; and (2) establish catch limits for non-rockfish species and non-target rockfish species currently harvested with pacific ocean perch, northern rockfish, and pelagic shelf rockfish, which shall be based on historic harvesting of such bycatch species. The pilot program will sunset when a Gulf of Alaska Groundfish comprehensive rationalization plan is authorized by the Council and implemented by the Secretary, or 2 years from the date of implementation, whichever is earlier.

What this language authorizes is discussed in detail in our response to question 6. This response

deals only with the scope of the provision.

First, section 802 requires the Council and the Secretary to establish a Rockfish Program for CGOA rockfish with specific provisions. Other than for management of the rockfish fisheries specified in section 802 (i.e., pacific ocean perch, northern rockfish, and pelagic shelf rockfish harvested in the Central Gulf of Alaska), section 802 does not affect the existing authorities of the Council and the Secretary under the MSA relative to management of fisheries under their jurisdiction.

Second, section 802 provides very specific instructions about the Rockfish Program, including what years to recognize for historic participation of fishing vessels and processors, what fish to include, a set-aside for persons not eligible to participate in the program, and a time limit on the program. It does not provide any other authority beyond what can be read or reasonably construed from its plain language.

Third, section 802 and the MSA must be read to give effect to both, to the maximum extent possible. Erlenbaugh v. United States, 409 U.S. 239, 243 (1972) (*quoting* United States v. Freeman, 3 How. 556, 564 (1845)). However, giving effect to both also "'assumes that the implications of a statute may be altered by the implications of a later statute.' This is particularly so where the scope of the earlier statute is broad but the subsequent statutes more specifically address the topic at hand." FDA v. Brown & Williamson Tobacco Corp., 529 U.S. 120, 143 (2000) (*quoting* United States v. Fausto, 484 U.S. 439, 453 (1987)). Thus, the Secretary and the Council must comply with both section 802 and the MSA, but where section 802 makes specific provisions for the CGOA rockfish fishery, the more specific provisions govern.

(2) Does the Council have authority to recognize the historic participation of fishing vessels and processors in years other than those specified in section 802? Must a processor have processed in each of the years 1996 to 2000 to be eligible for the Rockfish Program?

Section 802 does not merely authorize the Secretary of Commerce, in consultation with the Council, to manage the CGOA rockfish fishery in accordance with its terms, it requires the Secretary to manage that fishery in accordance with its terms. This specific requirement overrides any other options that might have otherwise been available under the MSA.

Section 802 specifies what years the Council must use to recognize the historic participation of processors (i.e., 1996 to 2000, best 4 of 5 years). To recognize other years would be inconsistent with the plain language of section 802, which clearly sets out the years Congress requires the Council to use when recognizing historic participation of processors for the Rockfish Program. Further, Congress specified a range of years, but did not specify that a processor must have actually processed fish in each of the years. Therefore, a processor that processed in some but not all of the years 1996 to 2000 would be eligible for the Rockfish Program. However, being determined as eligible under the Rockfish Program under criteria developed by the Council precludes the possibility of participating in the five percent set-aside (see discussion and analysis

under question 4).

(3) Does the Rockfish Program includes West Yakutat?

The language in section 802 requires that the Rockfish Program established by the Secretary in consultation with the Council recognize the historic participation for "pacific ocean perch, northern rockfish, and pelagic shelf rockfish harvested in the *Central Gulf of Alaska*" (emphasis added). The Central Gulf of Alaska, as defined in the Fishery Management Plan for the Groundfish of the Gulf of Alaska and regulations at 50 CFR part 679, does not include West Yakutat. Therefore, the Rockfish Program does not include West Yakutat.

(4) Does a person who is eligible under the Rockfish Program have authority to exercise an option not to participate in the Rockfish Program and instead participate in the five percent set-aside?

Pursuant to section 802, the Rockfish Program must "provide for a set-aside of up to 5 percent for the total allowable catch of such fisheries for catcher vessels not eligible to participate in the pilot program, which shall be delivered to shore-based fish processors not eligible to participate in the pilot program . . .." The language of section 802 clearly provides that the set-aside is for catcher vessels and shore-based processors not eligible to participate in the Rockfish Program. Although it could be argued that under the Council's and Secretary's MSA authority to manage *catcher vessels*,[4] they could develop a program that would allow an eligible catcher vessel to exercise an option not to participate, such an argument would conflict with the specific provision of section 802 that provides: "[s]uch a pilot program shall: (1) provide for a set-aside of up to 5 percent for the total allowable catch of such fisheries for catcher vessels not eligible to participate in the pilot program." Therefore, if a person is eligible under the Rockfish Program developed by the Council and the Secretary, that person cannot opt out and participate in the set-aside.

(5) Does the Council have authority to reduce limited access rockfish allocations to eligible applicants who choose not to join cooperatives?

Section 802 provides that the Secretary and Council "shall establish a pilot program that recognizes the historic participation of fishing vessels (1996 to 2002, best 5 of 7 years) . . . for pacific ocean perch, northern rockfish, and pelagic shelf rockfish harvested in the Central Gulf of Alaska." The language in section 802 does not distinguish between fishing vessels that choose to participate, and those that choose not to participate, in cooperatives. This, in and of itself, does not mean that the Secretary and Council could not distinguish between those two group of vessels, it only means that section 802 does not require the Secretary and Council to distinguish between

[4] This would not apply to shoreside processors, since the MSA does not authorize such action. Memorandum for the North Pacific Fishery Management Council from Lisa L. Lindeman, NOAA General Counsel–Alaska Region, on Magnuson Act authority to allocate fishing and processing privileges to processors, September 20, 1993.

those two groups. Limited access programs, by their very nature, exclude or limit certain groups. Alliance Against IFQs v. Brown, 84 F.3d 343 (9th Cir. 1996). However, if the Council and Secretary choose to make such a distinction, they would still be required to abide by the national standards of the MSA, including the requirements of national standard 4, which provides that "[i]f it becomes necessary to allocate or assign fishing privileges among various United States fishermen, such allocation shall be (A) fair and equitable to all such fishermen; (B) reasonably calculated to promote conservation; and (C) carried out in such a manner that no particular individual, corporation, or other entity acquires an excessive share of such privileges." Therefore, if eligible applicants were penalized for not choosing to join cooperatives, the Council would need to articulate for the record a rational reason why such action was fair and equitable to all eligible applicants, and why it is reasonably calculated to promote conservation.

(6) What management programs for shoreside processors are authorized by section 802 (e.g., processor shares, "AFA-style" cooperatives[5], or limited licenses for shoreside processors)?

Legislative Intent

The legislative history of section 802 shows that Congress' primary purpose was to provide the Council and the Secretary limited discretion to develop a pilot program for management of CGOA rockfish. Congress chose to do so by requiring in the statute that the Council recognize the historic participation of fishing vessels and fish processors. Congress also chose to specify in the statute the range of years for eligibility. Congress did not, however, define specifically what it meant by "historic participation." However, as Senator Stevens explained during Senate debate on CAA-2004,[6] "the 'historic participation of fish processors' under this pilot program should be considered pursuant to the cooperative model under the American Fisheries Act, or any other manner the North Pacific Council determines is appropriate" as long as the Council does not include processor quotas.[7] As a statement of one of the legislation's sponsors, Senator Stevens'

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[5] The phrase "AFA-style cooperatives" is not further defined in the letter. We interpret the phrase to mean cooperatives authorized by and formed under provisions of the American Fisheries Act (AFA), Div. C, Title II, Pub. L. No. 105-277, 112 Stat. 2681 (1998), 16 U.S.C. 1851nt. Under the AFA, NOAA Fisheries allocates individual quotas of the inshore Bering Sea (BS) pollock total allowable catch (TAC) to inshore catcher vessel cooperatives that form around a specific inshore processor and agree to deliver at least 90 percent of their pollock catch to that processor. This interpretation is consistent with the common understanding of the phrase as used by the Council, which is to allow the formation of harvesting cooperatives that are allocated a percentage of the TAC and are formed around a particular processor. The cooperatives engage only in harvesting activities and may include processor-owned catcher vessels. The Council has not interpreted the phrase, and we do not interpret the phrase, to mean cooperatives that automatically enjoy antitrust immunity under the Fishermen's Collective Marketing Act, 15 U.S.C. 521 (FCMA).

[6] Congressional Record Online, January 22, 2004 (Senate) [Page S152].

[7] Section 804 of CAA-2004 specifically prohibits processor quota shares in any fishery other than the BSAI crab fishery.

statement "deserves to be accorded substantial weight in interpreting the statute."[8] The legislative history does not further define an AFA-style cooperative or indicate whether Congress intended a cooperative that requires a catcher vessel to deliver to a particular processor or a cooperative that also enjoys antitrust immunity under the FCMA.[9] It also does not further define what other manner of management would be appropriate.

It can be reasonably assumed that in crafting section 802, Congress was familiar with the circumstances surrounding the CGOA rockfish fishery and management tools that could be used to better conserve and manage the rockfish in the Central GOA. The Council's discretion to choose a management system is bounded by the authorities granted by section 802 and the MSA. Hence, based upon section 802 and the legislative history, the Council may develop a management program that includes AFA-style cooperatives (authorized by section 802's legislative history–"cooperative model under the American Fisheries Act") and harvester quota issued to onshore processors (authorized by section 802 or the MSA). The Council also could develop other appropriate management systems, which could include limited licenses for processors (authorized by section 802's legislative history–"any other manner the North Pacific Council determines is appropriate"[10]), but not processor quota (processor quota is specifically prohibited, as explained below). Although the cooperative model under the AFA was the management program that was specifically mentioned in the legislative history, the Council should analyze other programs that would be based on processors' historic participation as reasonable alternatives to cooperatives.

Individual processor quotas are not authorized for CGOA rockfish, as there is no authority to issue processor quota under the MSA except for BSAI crab fisheries, and in his floor statement, Senator Stevens specifically stated that "[t]he Gulf of Alaska rockfish pilot program does not authorize individual processing quota share for processors in this fishery."[11] Section 802 was passed concurrently as part of the same appropriations legislation as section 804. Section 804 provides:

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[8] Federal Energy Administration v. Algonquin SNG, Inc., 426 U.S. 548, 564 (1975).

[9] Cf footnote 3, supra. We interpret "cooperative model under the American Fisheries Act" consistent with our interpretation of "AFA-style cooperatives."

[10] The Council and Secretary have recognized the historic participation of fishing vessels under the MSA through license programs, such as the North Pacific License Limitation Program (LLP) for groundfish (50 CFR 679.4(k)). Under the LLP, the Council recognized historic participation by requiring, among other things, that a vessel must have fished during certain years and in certain areas and had a minimum number of landings to show some sustained level of participation. Under section 802, we believe the Council could recognize the historic participation of shoreside processors by similarly requiring that they must have processed a minimum level of fish during 1996 to 2000 to show a sustained level of participation in the processing sector. For example, the Council could require that a processor have processed one pound of rockfish during the specified years if the administrative record demonstrates that was a reasonable level of historic participation, or they could require that a processor have processed 10,000 tons of rockfish during each of those years to show historic participation.

[11] Congressional Record Online, January 22, 2004 (Senate) [Page S152].

"A Council or the Secretary may not consider or establish any program to allocate or issue an individual processing quota or processor share in any fishery of the United States other than the crab fisheries of the Bering Sea and Aleutian Islands."[12] Individual sections of a statute should be construed together. Erlenbaugh, at 244. If Congress had intended to allow processing quota or shares in the Rockfish Program, Congress could have specifically exempted it along with the BSAI crab fisheries from the prohibition on processing quota or shares.

Antitrust Concerns

We are concerned about potential antitrust implications if the Council recommends a program that allows catcher vessels owned or affiliated with shoreside processors to join "AFA-style cooperatives" in the CGOA rockfish fishery. A similar question arose in connection with processor-affiliated vessels participating in cooperatives in the BSAI pollock fishery. At the request of the Department of Commerce General Counsel, in 1999, DOJ reviewed the question of whether under the AFA, catcher vessels owned by shoreside processors could participate in inshore fishery cooperatives in the BSAI pollock fishery and enjoy the antitrust immunity specifically provided to fishery cooperatives under the FCMA and the Capper-Volstead Act, 7 U.S.C. 291.[13] Section 210 of the AFA established a framework for the formation of fishery cooperatives in the BSAI pollock fishery. Section 210(b) set out the precise criteria for the formation of inshore catcher vessel cooperatives. Section 210(a) referred to fishery cooperatives implemented under the FCMA. DOJ looked at whether the reference to the FCMA in section 210(a) effectively incorporated into the AFA the limits of the FCMA so as to preclude the participation of processor-owned catcher vessels in the AFA cooperatives. DOJ analyzed the existing case law interpreting the scope of the FMCA and the Capper-Volstead Act exemptions, which it found had not dispositively resolved the question. However, taking into account the specific language of the statute and the legislative history, DOJ determined that given the structure of the BSAI pollock fishery, Congress must have intended to allow participation by processor-affiliated catcher vessels, because the specific requirements for co-op eligibility could not be met without including such vessels. Interpreting the AFA to exclude processor-owned catcher vessels would have defeated the primary purpose of the Act. Because the participation of integrated catcher vessels in such cooperatives was critical to achieving Congress' purposes, DOJ concluded Congress must have intended that such vessels could be included in cooperatives that would enjoy antitrust immunity under the FCMA.

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[12] Although the prohibition in section 804 expires at the end of the 2004 fiscal year because it is part of an appropriation act that expires at the end of the fiscal year (unless Congress passes a continuing resolution for that appropriation) and because it does not amend a permanent statute or have any words of futurity (e.g., hereafter, or for 2 years), it still provides legislative intent, along with the legislative history of section 802, that the authority granted in section 802 does not include the authority to issue individual processing quota or processor shares.

[13] Memorandum for Andrew Pincus, General Counsel, Department of Commerce, from Randolph D. Moss, Acting Assistant Attorney General, Office of Legal Counsel, Department of Justice, December 10, 1999 (DOJ Memo).

Here, unlike the AFA, the statute does not include statutory language establishing a specific structure for fishery cooperatives and does not refer to the FCMA. Neither the statute nor the legislative history clearly indicates that Congress' intent can only be achieved with AFA-style cooperatives. In fact, the floor statement indicates Congress' intent to provide broad discretion to the Council to recognize the historic participation of fish processors pursuant to the AFA co-op model or any other manner the Council deems appropriate. Based solely on the legislative history, we believe an argument can be made to support the Council's developing a program under which catcher vessels form cooperatives to receive a guaranteed allocation of rockfish TAC and deliver their catch to a particular shoreside processor. However, unlike DOJ's determination with respect to the AFA cooperatives, we do not believe a credible argument can be made that FCMA antitrust immunity would extend to such cooperatives in the CGOA rockfish fishery. After reviewing DOJ's AFA opinion, we believe section 802 does not provide a solid basis upon which to conclude that FCMA immunity could extend to cooperatives in the rockfish fishery that include processor-owned catcher vessels. The factors DOJ relied upon to determine that AFA cooperatives that include processor-affiliated catcher vessels could enjoy antitrust immunity under the FCMA are not present in this case.

Notwithstanding the lack of antitrust immunity, harvesting cooperatives established pursuant to section 802 that include processor-owned or affiliated vessels may be able to avoid antitrust problems to the extent they operate consistent with the "Antitrust Guidelines for Collaboration Among Competitors," issued by DOJ and the Federal Trade Commission (FTC) in August 2000. The Guidelines state DOJ's and FTC's antitrust enforcement policy with respect to competitor collaborations. As NOAA-GC has explained with respect to harvesting cooperatives under the crab rationalization program,[14] generally, if the activity of the cooperative does not have an anticompetitive effect and promotes efficiency, it is unlikely DOJ would determine the activity violates the antitrust laws. However, some activities by members could, under certain circumstances, violate the antitrust laws.

We stress that while this memorandum provides a credible basis for the Council to develop AFA-style cooperatives, it does not provide a basis for arguing such cooperatives would have antitrust immunity. As with crab harvesting cooperatives, we strongly recommend that counsel for non-FCMA cooperatives consider seeking a business review letter from DOJ before commencing any activity if they are uncertain about the legality of their clients' proposed conduct under the antitrust laws.

cc: Jane Chalmers
Sam Rauch
John Lepore
Jim Balsiger

[14] Memorandum for James W. Balsiger, Administrator, Alaska Region, from Lisa L. Lindeman, Alaska Regional Counsel, "Harvesting Cooperatives under the Crab Rationalization Program," December 4, 2004.

Appendix 2 to Central Gulf of Alaska Rockfish Demonstration Program Analysis

Participation Patterns in the Targeted Rockfish Fishery

Tables 1 and 2 show participation patterns of eligible catcher processor and catcher vessel participants in the targeted rockfish fishery. These tables include transfer of history that occurred through the transfer of licenses between vessels. In these instances, the combined participation of both vessels is reflected in the table. So, if the original vessel associated with the LLP participated in 1996 and 1997 and the current vessel associated with the LLP participated in 1999, the table would reflect a single vessel that participated in 1996, 1997, and 1999.

Table 1. Participation patterns in the targeted rockfish fishery of eligible catcher processor participants

1996	1997	1998	1999	2000	2001	2002	Number of vessels with pattern	Cumulative number of vessels
X	X	X	X	X	X	X	2	2
	X	X	X	X	X	X	1	3
	X		X	X	X	X	1	4
X	X		X		X	X	1	5
X		X	X	X		X	1	6
X				X	X		1	7
	X	X			X		1	8
	X				X		1	9
X	X	X					1	10
X	X		X				1	11
X	X						2	13
X							1	14
		X					1	15

Table 2. Participation patterns in the targeted rockfish fishery of eligible catcher vessel participants.

1996	1997	1998	1999	2000	2001	2002	Number of Vessels with Pattern	Cumulative Number of Vessels
X	X	X	X	X	X	X	12	12
X	X	X	X		X	X	1	13
X	X	X		X	X	X	1	14
X	X			X	X	X	1	15
	X	X	X	X	X	X	3	18
	X	X		X	X	X	1	19
X		X	X	X	X	X	2	21
X			X	X	X	X	3	24
		X	X	X	X	X	2	26
			X	X	X	X	1	27
					X	X	1	28
X	X		X	X		X	1	29
X	X					X	1	30
X			X			X	1	31
				X		X	1	32
						X	1	33
X	X	X	X	X	X		1	34
X	X	X		X	X		1	35
					X		1	36
X	X	X	X	X			1	37
X	X	X					2	39
X							1	40
		X					4	44
			X				4	48

Table 3 shows the number eligible participants of each type by number of years of participation. The table shows that consistency of participation varies significantly across eligible participants for both sectors.

Table 3. Number eligible participants in each sector by number of years of participation

	years of participation							
	1	**2**	**3**	**4**	**5**	**6**	**7**	**Total**
Number of catcher processors	2	3	4	0	3	1	2	15
Number of catcher vessels	11	2	4	1	10	8	12	48
Total number of vessels	13	5	8	1	13	9	14	63

Appendix 3 to Central Gulf of Alaska Rockfish Demonstration Program Analysis

Catch of Secondary Species in the Central Gulf of Alaska Rockfish Fisheries.

Table 1. Total catch of secondary species for catcher processors during the CGOA rockfish fisheries (1996-2002).

Species	Year	Sector	Sector Sum (mt.)	Total CGOA Harvest (mt.)
Pacific cod	1996	CP	108.68	47,564.79
Pacific cod	1997	CP	175.87	43,668.89
Pacific cod	1998	CP	214.52	41,424.46
Pacific cod	1999	CP	338.49	44,442.30
Pacific cod	2000	CP	57.39	32,180.10
Pacific cod	2001	CP	49.81	27,313.66
Pacific cod	2002	CP	95.92	25,057.27
total 1996-2002			1,040.67	261,651.47

Species	Year	Sector	Sector Sum (mt.)	Total CGOA Harvest (mt.)
sablefish	1996	CP	483.90	6,772.28
sablefish	1997	CP	538.24	6,233.63
sablefish	1998	CP	446.30	5,876.70
sablefish	1999	CP	293.21	5,874.07
sablefish	2000	CP	298.01	6,168.32
sablefish	2001	CP	303.74	5,443.70
sablefish	2002	CP	697.84	6,179.71
total 1996-2002			3,061.23	42,548.41

Species	Year	Sector	Sector Sum (mt.)	Total CGOA Harvest (mt.)
shortraker/rougheye	1996	CP	581.29	941.27
shortraker/rougheye	1997	CP	540.66	932.66
shortraker/rougheye	1998	CP	522.00	869.85
shortraker/rougheye	1999	CP	239.10	579.89
shortraker/rougheye	2000	CP	615.00	883.70
shortraker/rougheye	2001	CP	496.36	998.16
shortraker/rougheye	2002	CP	347.55	631.61
total 1996-2002			3,341.95	5,837.13

Species	Year	Sector	Sector Sum (mt.)	Total CGOA Harvest (mt.)
thornyheads	1996	CP	101.95	595.35
thornyheads	1997	CP	153.75	716.30
thornyheads	1998	CP	137.95	571.63
thornyheads	1999	CP	110.36	579.86
thornyheads	2000	CP	163.16	548.44
thornyheads	2001	CP	147.23	516.24
thornyheads	2002	CP	142.62	505.05
total 1996-2002			957.01	4,032.87

Source: 1996-2002 NMFS blend data

Table 2. Total catch of secondary species for catcher processors during the CGOA rockfish fisheries (1996-2002).

Species	Year	Sector	Sector Sum (mt.)	Total CGOA Harvest (mt.)
Pacific cod	1996	CV	225.77	47,564.79
Pacific cod	1997	CV	156.86	43,668.89
Pacific cod	1998	CV	432.76	41,424.46
Pacific cod	1999	CV	926.74	44,442.30
Pacific cod	2000	CV	1,332.90	32,180.10
Pacific cod	2001	CV	1,035.54	27,313.66
Pacific cod	2002	CV	1,466.77	25,057.27
total 1996-2002			5,577.34	261,651.47

Species	Year	Sector	Sector Sum (mt.)	Total CGOA Harvest (mt.)
sablefish	1996	CV	607.77	6,772.28
sablefish	1997	CV	293.96	6,233.63
sablefish	1998	CV	309.40	5,876.70
sablefish	1999	CV	544.43	5,874.07
sablefish	2000	CV	555.54	6,168.32
sablefish	2001	CV	457.97	5,443.70
sablefish	2002	CV	511.16	6,179.71
total 1996-2002			3,280.22	42,548.41

Species	Year	Sector	Sector Sum (mt.)	Total CGOA Harvest (mt.)
shortraker/rougheye	1996	CV	88.08	941.27
shortraker/rougheye	1997	CV	17.48	932.66
shortraker/rougheye	1998	CV	42.08	869.85
shortraker/rougheye	1999	CV	45.99	579.89
shortraker/rougheye	2000	CV	41.06	883.70
shortraker/rougheye	2001	CV	18.38	998.16
shortraker/rougheye	2002	CV	22.94	631.61
total 1996-2002			276.00	5,837.13

Species	Year	Sector	Sector Sum(mt.)	Total CGOA Harvest (mt.)
thornyheads	1996	CV	82.65	595.35
thornyheads	1997	CV	41.78	716.30
thornyheads	1998	CV	67.12	571.63
thornyheads	1999	CV	84.17	579.86
thornyheads	2000	CV	89.00	548.44
thornyheads	2001	CV	52.75	516.24
thornyheads	2002	CV	46.08	505.05
total 1996-2002			463.54	4,032.87

Source: 1996-2002 NMFS blend data

Appendix 4 Vessel List for the Pilot Rockfish Program for the Central Gulf

Following is a list of vessels with target rockfish history that may be eligibility for the Central Gulf of Alaska rockfish pilot program. For purposes of generating this list, eligibility for the program is assumed to be based on having one or more targeted landings in the Central Gulf rockfish fishery (i.e., Pacific Ocean perch, northern rockfish, and pelagic shelf rockfish) between 1996 and 2002 and a valid LLP with trawl and Central Gulf endorsements. For catcher vessels, fish ticket data were assigned a weekly target based on retained fish only (not including fish destined for meal production). For catcher/processors, NMFS Blend data weekly target determinations were used.

The list was developed by identifying vessels that:

1) have one or more targeted rockfish landings in the CGOA in the month of July in at least one of the years 1996 to 2002, inclusive; and
2) received a CGOA trawl endorsed LLP license by
    a) meeting the requirements for that license; or
    b) transfer.

For each license/vessel meeting these requirements, the most recent vessel associated with the LLP license is identified below. In the case of licenses that have been transferred, the original vessel is also referenced in parentheses. LLP data, current to May 7, 2004, were used to assess LLP license/vessel associations. If no vessel is currently associated with the LLP, then the original vessel, which generated the LLP license is included on the list. Only vessels that are either currently associated with an LLP license or the original vessel that generated the LLP are included on the list. Only one LLP per vessel is shown; some vessels have more than one Gulf trawl LLP. Also, note that the Intrepid Explorer, received both CV and C/P LLPs through transfer, and is included on both the catcher vessel and the catcher/processor lists.

Note: The list is being produced solely for analytical purposes and to assist industry members in coordinating discussions of the program. The presence or absence of your vessel on these lists does not establish your eligibility for the program. The methodology used is admittedly incomplete, in that it does not capture all transfers or transfer history. Eligibility for the program will be determined by NOAA Fisheries after adoption by the Council and approval by the Secretary of Commerce. Due to confidentiality requirements that protect catch data, this list will not be revised in the analysis, as doing so could compromise some data released concerning landings.

QUALIFIED CATCHER VESSELS

ALASKA BEAUTY	LLG1590
ALASKA DAWN	LLG1905
ALASKAN	LLG3764
AMBER DAWN	LLG2608
BAY ISLANDER	LLG3504
CAPE KIWANDA	LLG2636
CAPT'N ART	LLG2148
CARAVELLE	LLG2973
COHO	LLG4851
COLLIER BROTHERS	LLG1523
COMMODORE	LLG3904
DAWN	LLG2487
DEFIANT	LLG3496
DUSK	LLG2165
ELIZABETH F	LLG1273
EXCALIBUR II	LLG3521
FORUM STAR	LLG2394
GOLD RUSH	LLG3987
GREEN HOPE	LLG2188
GRUMPY J	LLG3604

HAZEL LORRAINE	LLG2567
HICKORY WIND	LLG3600
INTREPID EXPLORER	LLG3756 (NORDIC EXPLORER)
LADY JOANNE	LLG2222
LAURA	LLG3665
LESLIE LEE	LLG1183
MAR DEL NORTE	LLG1841
MAR PACIFICO	LLG2696
MARATHON	LLG2882
MARCY J	LLG2278
MICHELLE RENEE	LLG2550
MISS LEONA	LLG1710
MORNING STAR	LLG2164 (OCEAN HOPE I)
MUIR MILACH	LLG2554
NEW LIFE	LLG1367 (DOMINION)
OCEAN HOPE 3	LLG2683
PACIFIC RAM	LLG3144
PACIFIC STAR	LLG4852
PEGGY JO	LLG3594
PROGRESS	LLG3896
PROVISION	LLG2319
ROSELLA	LLG2364
TAASINGE	LLG2603
TOPAZ	LLG2535
TRAVELER	LLG3463
VANGUARD	LLG2565
WALTER N	LLG1271
WINONA J	LLG2653

(Two catcher vessels have targeted landings that do not appear to have LLP licenses)

QUALIFIED CATCHER/PROCESSORS

ALASKA RANGER	LLG2083 (ALASKA WARRIOR)
ALASKA SPIRIT	LLG3043
ALASKA VICTORY	LLG2080
ALLIANCE	LLG2905
AMERICAN NO 1	LLG2028
BILLIKIN	LLG3744 (BERING ENTERPRISE)
DEFENDER	LLG3217
GOLDEN FLEECE	LLG2524
INTREPID EXPLORER	LLG3741 (HARVESTER ENTERPRISE)
LEGACY	LLG1802
SEAFISHER	LLG2014
SOVEREIGNTY	LLG3740 (AMERICAN ENTERPRISE)
U.S. INTREPID	LLG3662
UNIMAK	LLG3957
VAERDAL	LLG1402

(5 catcher processors have targeted rockfish landings that do not appear to have LLP licenses)

Appendix 5

Socioeconomic Profile of Kodiak

Jennifer Sepez, Alaska Fisheries Science Center

People and Place

Location

The city of Kodiak is located close to the eastern tip of Kodiak Island. Kodiak Island is located in the Gulf of Alaska and is the largest island in Alaska, also referred to as 'the emerald isle'. The community is 252 air miles south of Anchorage and is located in the Kodiak Recording District. It is made up of 3.5 sq. miles of land and 1.4 sq. miles of water.

Demographic Profile

In the year 2000 there were 6,334 inhabitants of Kodiak as recorded by the Census and of those 53.3% were male and 46.7% were female. A population was first recorded by the Census for Kodiak in the year 1890 and at that time was reported as having 495 inhabitants. Until 1930 the population remained relatively stable, although in 1940 it doubled to 864 inhabitants and has continued to grow substantially, but in the year 2000 it decreased slightly from the 6,365 people reported in 1990 to the 6,334 reported in 2000. There is a large seasonal population in the community which was most likely not recorded by the Censuses. Of the total population reported in 2000: 46.4% were White, 0.7% were Black or African American, 10.5% were American Indian and Alaska Native, 31.7% were Asian (29.2% of those reported as Asian were designated as Filipino), 0.9% were Native Hawaiian and Other Pacific Islander, 4.4% were some other race, and 5.4% were of two or more races. About 8.5% of the population was Hispanic or Latino. The median age of Kodiak was 33.5 years in the year 2000, whereas the national age median was 35.3 years. About 70.9% of the population of Kodiak was of the age of 18 years and over. There were a total of 2,255 housing units in the city in the year 2000, but 259 were vacant and 32 of those were vacant due to seasonal use. Out of the total population of 6,334, an amount of 6,188 lived in households and 146 inhabitants lived in group quarters. Of the population age 25 and over in Kodiak, 78.6% had graduated from high school or gone on to further schooling; 17.2% had obtained a bachelor's degree or higher; and 5.4% had a graduate or professional degree at the time of the Census.

History

Kodiak Island has been peopled for approximately 8,000 years. According to some archaeologists "the ancestors of the present-day Native Alaskan residents of the Alutiiq culture area have continuously inhabited the area for at least 7,000 years" (Mason 1995). Alutiiq is the more recent term which is used for the culture and the language of the "group of Alaska Native people indigenous to the Kodiak Island Archipelago, the southern coast of the Alaska Peninsula, Price William Sound, and the lower tip of the Kenai Peninsula" (Mason 1995). By about A.D. 1200 the island may have had a population of about 14,000 Alutiiq inhabitants which is similar to the total number of inhabitants today on the island of Kodiak (Rennick 2002, p. 24).

At the time of Russian contact the peoples living on Kodiak Island were the Koniags (the Alutiiq of Kodiak Island and the Alaska Peninsula) of which there were 10,000 or more (Korsmo 1994). The first European and specifically Russian contact was in 1763 by Stephen Glotov. A Russian settlement was established at Three Saints Bay by Gregorii Shelikof in 1784 where the native population was forced to work at the hunting of sea otters. Prior to this hundreds of Alutiiq natives were killed attempting to hide

from Shelikof's party and the Alutiiqs were dominated by the Russians using muskets and cannons (Mason 1995). Shelikof was recalled back to Russia and in 1792 Alexander Baranov, a fur trapper established a trading post at St. Paul Harbor, which is the site of the city of Kodiak today. Kodiak became the capital of the Russian America and at that time the island was called "Kikhtak" and later "Kadiak" which is the Inuit word for the island. Russian Orthodox clergymen arrived around 1794 to missionize the region. There were more than 6,500 Koniags in the area at that time, but by the end of Russian control of the island in 1867 the population had decreased down to around 2,000 because of "hardship, accidents, and starvation, along with diseases introduced by the Russians" (Mason 1995).

Alaska became a U.S. Territory in 1867 and the harvesting of the sea otters was still the major commercial enterprise of the area, although this quickly led to the near extinction of the animals. In 1882 a fish cannery opened at the Karluk spit which began the development of commercial fishing in the Kodiak area. Many canneries opened by the 1890's with salmon being the main fish harvested at that time. Kodiak was incorporated in the year of 1940. During World War II, Kodiak was a key operations area throughout the Aleutian Campaign and both the Navy and Army built bases on the island. The population of the town rocketed up to more than 25,000 people during the World War II. After the war the Navy base was transferred into a Coast Guard base and now is the largest Coast Guard base in the world.

The 1960's brought growth to Kodiak in terms of fish processing and commercial fishing, but in 1964 on Good Friday an earthquake hit the islands and caused a chain of tsunamis. One of the waves reached 35' above mean low tide and damaged Kodiak's central business district and waterfront, destroyed the village of Kaguyak, destroyed the village of Old Harbor other than the church, and the village of Afognak was so severely damaged that residents were permanently relocated to the new community of Port Lions. In Kodiak $30 million in damage was caused: 158 homes were destroyed, the fishing fleet, processing plant, and the canneries were all destroyed. But by 1968 the city had been rebuilt and had become the largest fishing port in terms of dollar value in the United States. With the passing of the Magnusson Act in 1976, foreign fleet competition was reduced and the city was able to develop a groundfish processing industry.

Infrastructure

Current Economy

Kodiak's economy is based on fishing, seafood processing, retail, and government employment. A total of 1,569 commercial fishing permits were issued to residents of Kodiak in the year 2000 and many fish processors operate in Kodiak including but not limited to: Cook Inlet Processors, North Pacific, Ocean Beauty, Trident, and International Seafoods. A total of 1,263 residents of Kodiak were licensed crew members in the year 2000. In addition to fishing and processing, the City and the hospital are also top employers of those in the community. A $38 million low-Earth orbit launch facility, the Kodiak Launch Complex is located near Chiniak and the largest U.S. Coast Guard station is located south of the city. Subsistence is also important to residents of the community.

Of the population age 16 and over in Kodiak in the year 2000; 68.0% were employed, 3.6% were unemployed, 2.4% were in the armed forces, and 26.1% were not in the labor force. The median household income in the year 2000 was $60,484 with the per capita income having been $21,522. About 7.4% of those in Kodiak were below the poverty level in the year 2000.

Governance

Kodiak is a Home Rule city which was incorporated in 1940 and has a Manager form of government and includes a mayor, a six person city council, and a variety of municipal employees. There is a 6% sales tax for a maximum of $30 per transaction, a property tax of 2 mills (0.2%) by the City and 9.25 mills (0.925%) by the Borough, and a 5% accommodations tax imposed by the City and the Borough. Kodiak is part of the Kodiak Island Borough. The regional native corporation for the area is Koniag, Incorporated and the non-profit half of Koniag, Inc. is the Kodiak Area Native Association. The native urban corporation for the area is called the Natives of Kodiak, Inc. and is one of four native urban corporations established in the Alaska Native Claims Settlement Act (ANCSA). The native village corporations in Kodiak are Shuyak, Inc.; Bells Flats Natives, Inc.; and Litnik, Inc. The Shoonaq' Tribe of Kodiak is the Bureau of Indian Affairs (BIA) recognized traditional council for the village which was federally recognized in 2001. The closest National Marine Fisheries Service (NMFS), Alaska Department of Fish & Game (ADF&G), and Bureau of Citizenship and Immigration Services (BCIS) offices are all located within the city of Kodiak. The new NMFS research vessel, the Oscar Dyson is to be home ported in Kodiak.

Facilities

Kodiak is reachable by both air and sea and also by about 140 miles of state roads from the other cities on the east side of the island. The Kodiak Airport has a 7,500' paved runway which is owned by the State and the Municipal Airport has a 2,475' paved runway as well. According to Travelocity and Expedia the approximate cost to fly to Anchorage roundtrip from Kodiak is $263 (price given for date as close to September 1st 2003 as possible). There are three airlines which serve Kodiak with several daily flights and there are quite a few air taxi services which fly to other communities on the island. There are also seaplane bases at Trident Basin and Lilly Lake which are both city-owned. A ferry service is operated by the Alaska Marine Highway System both to and from Seward and Homer with the travel time to Homer being 12 hours by ferry. There are two boat harbors in Kodiak with 600 boat slips and three commercial piers, but boat launch ramps and vessel haul-outs are available as well. A $20 million breakwater on Near Island which was newly completed provides another 60 acres of mooring space. The float system at the St. Paul Harbor has also had funds provided to replace the aging system.

Accommodations in Kodiak are available at the R&R Lodge, Russian Heritage Inn, The Shelikof Lodge, The Kodiak Inn, Wintel's B&B, Inlet Guest Rooms, Kodiak Buskin River Inn, VFW RV Park, and the Afognak Wilderness Lodge. Health care is available at the Providence Kodiak Island Medical Center, Alutiiq Health Clinic, and the Coast Guard Integrated Support Center/Rockmore-King Medical Clinic. There is a City Police Department as well as a State Troopers Post in Kodiak. The electric utility in the community is the Kodiak Electric Association which is operated by REA Co-op with the main power source being hydro. The City operates the water and sewer systems, although the Borough collects the refuse and operates the landfill. There were six schools in Kodiak in the year 2000 with a total of 2,252 students and 137 teachers.

Involvement in North Pacific Fisheries

Commercial Fishing*

Kodiak is among the state's largest fishing ports where almost every commercially harvested species is harvested and delivered by almost every possible gear group. There were 1,569 commercial fishing permits issued to residents of Kodiak in the year 2000 and 1,263 licensed crew members which were

* Commercial fishing permit data from the CFEC is given for the communities of Chiniak and Kodiak

residents of the community. There were 256 vessel owners which were residents of the city of Kodiak who participated in the federal commercial fisheries and 187 participated in the commercial salmon fishery. Of the total 1,569 permits issued, 948 were fished in the year 2000. There were 119 crab permits issued to residents of Kodiak for crab, 285 for halibut, 152 for herring, 540 for other groundfish, 67 for other shellfish, 58 for sablefish, and 348 were issued for salmon.

Crab: Of the 119 crab permits issued to residents of Kodiak, 82 were actually fished: 23 were issued for Dungeness crab using pot gear on a vessel under 60' westward (six were fished), one for Dungeness crab using pot gear on a vessel under 60' on the Alaska Peninsula (zero were fished), one for Dungeness crab using pot gear on a vessel over 60' in Cook Inlet (zero were fished), eight for Dungeness crab using pot gear on a vessel over 60' westward (five were fished), two for king crab using pot gear on a vessel under 60' in Bristol Bay (one was fished), two for king crab using pot gear on a vessel over 60' by Kodiak (one was fished), five for king crab using pot gear on a vessel over 60' in the Bering Sea (zero were fished), 38 for king crab using pot gear on a vessel over 60' in Bristol Bay (33 were fished), 38 for tanner crab using pot gear on a vessel over 60' in the Bering Sea (35 were fished), and one permit was issued for tanner crab using pot gear on a vessel over 60' for the Bering Sea CDQ (one was fished).

Halibut: In regards to the 285 halibut permits, 236 were actually fished. 162 were issued for halibut using a longline vessel under 60' statewide (138 were fished), 25 using a mechanical jig statewide (15 were fished), and 98 using a longline vessel over 60' statewide (83 were fished).

Herring: Of the 152 herring permits issued in 2000, only 37 were fished. For herring roe: one permit was issued using a purse seine in the southeast (one was fished), 11 using a purse seine in the Prince William Sound (zero were fished), nine using a purse seine in Cook Inlet (zero were fished), 34 using a purse seine in Kodiak (nine were fished), two using a purse seine in the Alaska Peninsula (zero were fished), 22 using a purse seine in Bristol Bay (17 were fished), one using a gillnet and purse seine in Kodiak (zero were fished), 48 using a gillnet in Kodiak (six were fished), one using a gillnet on the Alaska Peninsula (zero were fished), two using a gillnet in Security Cove (one was fished), five using a gillnet in Bristol Bay (one was fished), and one for herring roe using a gillnet in Norton Sound (zero were fished). In regards to herring food or bait; two permits were issued for herring food/bait using a purse seine in the southeast (zero were fished), one using a purse seine in Prince William Sound (zero were fished), five using a purse seine in Kodiak (zero were fished), five using a purse seine on the Alaska Peninsula (two were fished), and two using an otter trawl in Kodiak (zero were fished).

Groundfish: Out of the 540 other groundfish permits issued to residents of Kodiak in the year 2000, 280 were actually fished. One was issued for ling cod using a dinglebar troll statewide (zero were fished), 12 for ling cod using a mechanical jig statewide (one was fished), and two for ling cod using pot gear on a vessel over 60' statewide (zero were fished). For miscellaneous salt water finfish one permit was issued using a purse seine statewide (zero were fished), 34 using a hand troll statewide (nine were fished), 72 using longline on a vessel under 60' statewide (43 were fished), 40 using an otter trawl statewide (33 were fished), 78 using pot gear on a vessel under 60' statewide (48 were fished), 207 for a mechanical jig statewide (84 were fished), 21 for longline on a vessel over 60' statewide (seven were fished), and 70 using pot gear on a vessel 60' or over statewide (55 were fished). And for demersal shelf rockfish one permit was issued for longline on a vessel under 60' in the southeast (zero were fished) and one using mechanical jig in the southeast (zero were fished).

Other Shellfish: Of the 67 other shellfish permits, 26 were actually fished. No permits were issued for geoduck clams using diving gear in the southeast, but one permit was fished by a resident of the community. For octopi or squid three permits were issued using longline on a vessel under 60' statewide (zero were fished), 21 using pot gear on a vessel under 60' statewide (10 were fished), and 10 using pot gear on a vessel over 60' statewide (three were fished). For shrimp; one permit was issued using an otter trawl westward (zero were fished), nine using pot gear on a vessel under 60' westward (zero were fished), one using pot gear in the southeast (zero were fished), and four using pot gear on a vessel over 60' westward (zero were fished). Two permits were issued for sea cucumbers using diving gear in the southeast (one was fished) and 10 were issued for sea cucumbers using diving gear statewide excluding the southeast (seven were fished). One permit was issued for clams using a shovel to a resident of Kodiak,

but was not fished. In regards to sea urchins, no permits were issued using diving gear in the southeast but one was fished and four were issued using diving gear statewide excluding the southeast (two were fished). One permit was issued for scallops dredging statewide and it was fished.

Sablefish: Of the 58 total sablefish permits, 40 were fished. A total of 33 permits were for longline on a vessel under 60' statewide (21 were fished), one was using a mechanical jig statewide (zero were fished), 23 were using longline on a vessel over 60' statewide (19 were fished), and one was issued using pot gear on a vessel over 60' statewide (zero were fished).

Salmon: Out of the 348 salmon permits issued to residents of Kodiak, 247 were actually fished. Four permits were issued for salmon using a purse seine in the southeast (three were fished), one using a purse seine in Prince William Sound (zero were fished), 174 using a purse seine in Kodiak (105 were fished), nine using a purse seine in Chignik (11 permits of this type were fished during the year), one using a purse seine in the Alaska Peninsula/Aleutian Islands (zero were fished), 16 using a beach seine in Kodiak (two were fished), four using a drift gillnet in the Prince William Sound (four were fished), seven using a drift gillnet in Cook Inlet (six were fished), four using a drift gillnet on the Alaska Peninsula (four were fished), 29 using a drift gillnet in Bristol Bay (25 were fished), 87 using a set gillnet in Kodiak (76 were fished), nine using a set gillnet in Bristol Bay (10 were fished), three using a hand troll statewide (zero were fished), and no permits were issued using a set gillnet in the Kuskokwim but one was fished by a resident of the community.

Landings and Processing

In regards to landings, 455 vessels participated in the other groundfish fishery and delivered landings to Kodiak for a total of 102,318.27 metric tons in groundfish landings in the year 2000. There were 108 vessels which delivered sablefish for a total of 1,542.49 metric tons. A total of 298 vessels delivered 4,352.30 metric tons of halibut, 32 vessels delivered 1,041.98 metric tons of Bering Sea Aleutian Islands (BSAI) crab, 331 vessels delivered 23,759.03 metric tons of salmon, and 26 vessels delivered 951.34 metric tons of herring. In accordance with confidentiality regulations, landings data for scallops in Kodiak is unavailable because there were only 2 vessels which delivered scallops to the community. The total amount landed in federal species in Kodiak in 2000 was 109,255.03 metric tons.

Kodiak is a major processing center where all species including BSAI crab, groundfish, halibut, herring, sablefish, salmon, and scallops are processed. There are quite a few processors in the community including 11 which processed federal species in the year 2000. Some of the processors in Kodiak include Alaska Fresh Processors Inc., Global Seafoods Kodiak LLC, Island Seafoods Inc, Kodiak Salmon Packers Inc, Tt Acquisition Inc, and Western Alaska Fisheries Inc, with the largest processors in Kodiak being Cook Inlet Processors, International Seafoods, Ocean Beauty, North Pacific, and Trident. Production runs year round at many of the facilities and the workforce population most likely runs in the thousands with a large amount of the work force being residents of the communities of the island. There is a large subculture of Filipino employees in Kodiak because of their work in the canneries.

The City of Kodiak was recently allotted $321,521 in federal salmon disaster funds and the Kodiak Island Borough was allotted $362,963.14 which will most likely be applied to projects within the borough. The City of Kodiak was also recently granted $31,221 by the Southwest Alaska Municipal Conference as part of the Steller Sea Lion Mitigation program "in recognition of the negative economic impacts of federal measures to protect the Steller sea lion" with money which had been allocated by the United States government (Southwest Alaska Municipal Conference 2003). The Borough was also granted $69,687 from the Steller Sea Lion Mitigation program.

Sport Fishing

Kodiak is known for its famous sport fishing. The community had a large amount of sport fishing businesses listed for the year 2002 with a wide variety of services including saltwater guide businesses,

freshwater guide businesses, aircraft fly-in services, drop-off services, and full service guiding services. There were 5,030 sport fishing licenses sold to Alaskan residents in the city of Kodiak in the year 2000 and a total of 11,331 licenses sold in Kodiak to residents of Alaska, the United States, and from all over the world. There is a variety of sport fishing activities held in the community such as the Kodiak Kid's Pink Salmon Jamboree and the Silver Salmon Derby.

Subsistence Fishing

According to the Alaska Department of Fish and Game (ADF&G), Division of Subsistence in the city of Kodiak for the most representative subsistence year which was in 1993; 99% of all households in Kodiak used all subsistence resources, 93.3% used salmon, 95.2% used non-salmon fish (herring, herring roe, smelt, cod, flounder, greenling, halibut, perch, rockfish, sablefish, sculpin, shark, skates, sole, wolffish, char, grayling, pike, trout, and whitefish), 1.9% used marine mammals, and 79.0% of all households used marine invertebrates. The per capita harvest of all subsistence resources was 151.05 lbs in the community in 1993. Of that per capita harvest 31.61% was salmon, 39.70% was non-salmon fish, 0% was marine mammals, 6.29% was marine invertebrates, 0.44% was birds and eggs, 15.36% was land mammals, and 6.59% was vegetation. Also according to ADF&G there were 1,138 household permits for subsistence salmon issued to residents of Kodiak in the year 1999 for an estimated harvest of 24,956 total salmon. Residents of Kodiak do have the right to apply for halibut subsistence certificates.

Additional Information

There are many fishing related events, ceremonies, and festivals held in the city of Kodiak such as the Blessing of the Fleet, the Kodiak Crab Festival, the Kodiak Salmon Celebration, and a Fisherman's Memorial Service for Those Lost At Sea.

Appendix 6

Socioeconomic Profile of Seattle

According to the U.S. Census, the population of Seattle was 3,554,760 in 2000. This represents an increase of nearly 1 million people since the previous census in 1990.

Locational issues are discussed with respect to the Seattle area and Alaska fisheries. The first part of the discussion is divided into three components: the institution of the Port of Seattle, the "traditional" community of Ballard, and the planning area construct of the Ballard Interbay Northend Manufacturing Industrial Center (BINMIC). Each component provides a different perspective on the Seattle social/socioeconomic ties to the fishery.

The Port of Seattle

Martin Associates (2000) provides an overall assessment of the economic impact of fishing activity based at Port of Seattle facilities. They conclude that such activity generates $400 million in wages (direct, indirect, and induced), $315 million in business revenues, $42 million in local purchases, and $48 million in state and local taxes. There is no way to desegregate the Alaskan distant water fleet from this overall impact, so the utility of the information for the present purposes is limited. They do provide estimates for the annual expenditures in Seattle of the various fishing vessels homeported there, and as might be expected, those for the larger vessels, such as participate in the Alaskan groundfish fisheries, are the highest in terms of expenditures per vessel – $250,000 for catcher trawlers, $900,000 for factory trawlers, and $1.7 million for motherships. Crabbers are in the $180,000 range. Most of the vessels in these classes homeported in Seattle probably participate in the Alaskan groundfish fisheries but also participate in other fisheries. There are also many vessels in the Seattle distant water fleet that do not participate in the Alaskan groundfish fisheries. The Port itself does not have information on moorage fees received, either in total or for segments of the fleet.

The Port of Seattle is separate from the Municipality of Seattle and is an economically self-supporting entity. Besides its direct revenues, it receives 1 percent of the property tax collected in King County, but with a cap on funding not to exceed $33 million a year. In turn, all port revenues are charged a 12.4 percent tax, which is split between the City of Seattle and the State of Washington (in lieu of property tax). The Port's charge is the development of infrastructure that will support local and regional economic activities, especially in cases where the rate of return on investment in that infrastructure may be too low (although still positive) for the private investor. Such development contributes to the overall economy of the region through synergistic and multiplier effects.

Ballard

When looked at on a neighborhood basis, one of more obvious foci of the distant water fishery in the greater Seattle area is the community of Ballard. Today the term "Ballard" represents a loosely defined geographical neighborhood of northwest Seattle. There is no geographically standard area for which various types of comparable information exists. Nonetheless, the area does have a geographical identity in peoples' minds and, together with Magnolia and Queen Anne, has its own yellow pages telephone directory (published by the Ballard and Magnolia Chambers of Commerce). The following brief section is based predominately on information from the Ballard Chamber of Commerce (1998), Reinartz (1988a, 1988b, 1988c, 1988d), Hennig and Tripp (1988), and McRae (1988).

Fishermen's Terminal on Salmon Bay is recognized as the home of the Pacific fishing fleet and has been characterized as the West Coast's "premier home port." Fishermen's Terminal (Salmon Bay Terminal) in turn has often been identified with Ballard, which was formerly a separate city (incorporated 1890) before

annexation by Seattle in 1907. Until the construction of the Chittenden Locks and the Lake Washington Ship Canal, opened in 1917, Salmon Bay Terminal was confined to relatively small vessels but was the focus of a developing fishing fleet. Once the area was platted and incorporated, it quickly attracted settlers and industries desiring or dependent upon access to Puget Sound. The timber industry was the first to develop, due to the need to clear land as well as the value of the timber that was available. By the end of the 1890s, Ballard was a well-established community with the world's largest shingle manufacturing industry, as well as boat building and fishing industries. By 1900 Ballard was the largest area of concentrated employment north of San Francisco.

Ballard effectively blocked the expansion of Seattle to the north, and court decisions had given Seattle control over Ballard's freshwater supply, with the result that Ballard became part of Seattle in 1907. At that time the community had 17 shingle mills, 3 banks, 3 saw mills, 3 iron foundries, 3 shipyards, and approximately 300 wholesale and retail establishments. The Scandinavian identity of Ballard developed at or somewhat before this time. In 1910, first- and second-generation Scandinavian-Americans accounted for 34 percent of Ballard's population, and almost half of Ballard's population was foreign-born. Currently, less than 12 percent of the population is of Scandinavian descent, but the cultural association remains pervasive.

Ballard's economy continued to develop and diversify, but it remained fundamentally dependent on natural resources, and especially timber and fishing. In 1930 the *Seattle Weekly News* reported that 200 of the 300 schooners of the North Pacific halibut fleet were homeported in Ballard, demonstrating not only the centrality of Ballard but the long-term importance of distant water fisheries to Seattle fishermen. In 1936 the Port of Seattle built a new wharf at the Salmon Bay terminal, and in 1937 a large net and gear warehouse was scheduled for construction there. Over the years, Seattle-based vessels were central to the evolution of a number of North Pacific fisheries.

Thus in some ways Ballard is considered a "fishing community within" Seattle. While this has historically been the case, when examined specifically with respect to the BSAI crab fishery, the area cannot cleanly be considered a "village within a city." While there is a concentration of multigenerational fishing families within the area, the "industrialization" of the Alaska fisheries has tended to disperse the ties and relationships. While support service businesses remain localized to a degree (as discussed in another section below), there does not appear to be a continuity of residential location that is applicable to the Alaska crab fishery. This is due to the many changes within the cluster of individual species fisheries that make up the overall Alaska crab fishery, and others in which these fishermen may participate. In summary, this "community within the community" issue is not straightforward due to the complex nature of historical ties, continuity of fishing support sector location through time, changes in the technology and methods of fishing, and industrialization of the fishery. Clearly, Seattle represents a different pattern of colocation of residence and industry with respect to the BSAI crab fishery than that seen in the relevant Alaska communities.

The Ballard Interbay Northend Manufacturing Industrial Center

One of the fundamental purposes for the establishment of the BINMIC Planning Committee was the recognition that this area provided a configuration of goods and services that supported the historical, industrial, and maritime character of the region. At the same time, developmental regional dynamics are promoting changes within the BINMIC area that may threaten the continued vitality of its maritime orientation. Among other objectives, the BINMIC final plan states:

> The fishing and maritime industry depends upon the BINMIC as its primary Seattle home port. To maintain and preserve this vital sector of our economy, scarce waterfront industrial land shall be preserved for water-dependent industrial uses and adequate uplands parcels shall be provided to sufficiently accommodate marine-related services

and industries (BINMIC Planning Committee 1998:6).

Previous documents produced for the NPFMC (e.g., NPFMC 2002; IAI 1998) have discussed the BINMIC area, and some of this information is abstracted below. It is now becoming dated, however, as the BINMIC planning document has remained in the form in which it was "finalized" and the City of Seattle does not collect time series measures for the BINMIC area comparable to those, for example, collected for the Port of Seattle.

As previously noted, Ballard, in northwest Seattle, is commonly identified as the center of Seattle's fishing community. This may be true in a historical residential sense, but commercial fishing-related suppliers and offices are spread along both sides of Salmon Bay-Lake Washington Ship Canal, around Lake Union, along 15th Avenue West through Queen Anne, and then along the shores of Elliot Bay on both sides of Pier 91. Not surprisingly, this is also the rough outline of the formal boundaries of BINMIC, which is bordered by the Ballard, Fremont, Queen Anne, Magnolia, and Interbay neighborhoods. It is defined so as to exclude most residential areas, but to include manufacturing, wholesale trade, and transportation-related businesses. It includes rail transportation, ocean and freshwater freight facilities, fishing and tug terminals, moorage for commercial and recreational boats, warehouses, manufacturing and retail uses, and various port facilities (Terminal 86, Piers 90 and 91).

The BINMIC "Economic Analysis" document (Economic Consulting Services 1997) uses much of the same information as was reviewed above, in combination with an economic characterization of the BINMIC area, to establish that certain economic activities are especially important for that area. One of these activities is commercial fishing, although again the specific extent of connections to the BSAI crab fishery in particular are difficult to establish.

The BINMIC area is relatively small, but contributes disproportionately to the city and regional economy. Again, those characteristics are part of what determined its borders. The BINMIC resident population is only 1,120 (1990 census), but there are 1,048 businesses in the area and 16,093 employees. The great majority of business firms are small, 85 percent have fewer than 26 employees, but accounted for only 30 percent of total BINMIC employment. Self-employed individuals (i.e., fishermen) are probably not included in these numbers.

An important indicator of the importance of commercial fishing and other maritime activities is the availability of commercial moorage. As of 1994, more than 50 percent of all commercial moorage available in Puget Sound was located in Seattle, and of that, more than 50 percent was in the BINMIC area (representing 30 percent of all commercial moorage in the Puget Sound area). Thus, the BINMIC area is clearly important in terms of being an area where vessels (especially larger commercial vessels) are concentrated. The Port of Seattle has concluded that only the ports of Olympia and Tacoma at present provide a significant source of moorage in Puget Sound outside of Seattle. Port Angeles may build additional capacity at some point in the future. Olympia's facility was rebuilt in 1988. Some older moorage constructed of timber piling prior to 1950 is nearing the end of its useful life and will need to be replaced. On the other hand, it is expected that much of the private old timber moorage will not be replaced, so that overall moorage capacity will decline. In the Seattle area, there has also been a dynamic whereby commercial moorage had been converted to recreational moorage. Within the BINMIC area, recreational moorage within the UI Shoreline is prohibited altogether, because of the importance of commercial activity and the danger of interference from recreational moorage. The Port has concluded that it is unlikely that any new private commercial moorage will be developed (because of cost and regulatory regime) and is examining their options (Port of Seattle 1994). As previously mentioned, the Port is pursuing a program of repairing its facilities where economically feasible (when it can be fairly well assured of a steady tenant).

The BINMIC area is fairly well "built out." The BINMIC area contains 971 acres, divided into 806 parcels with an average size of 1.043 acres, but a median size of 0.207 acres. Thus there are many small parcels. Public entities of one sort or another own 574.8 acres (59 percent). The Port of Seattle is the largest landowner with 166 acres, while the city has 109 acres. Private land holders own 396 acres, of which only 19.45 acres were classified as vacant – 19.27 acres in 81 parcels as vacant industrial land and 0.18 acres in 2 parcels as vacant commercial land. An additional 200.76 acres were classified as "underutilized," meaning that it had few buildings or other improvements on it. This classification does not mean that the land may not be in use in a fruitful way (for instance, storage of gear or other use that is not capital intensive).

Economic Consulting Services (1997, Appendix C) lists 85 companies that have a processing presence in Washington State. Of these, over half (47) are located in Seattle, with many in the surrounding communities (Bellevue, Kirkland, Redmond). Of these 47, at least 18 are located within the BINMIC area, and the rest are located very near the boundaries of the BINMIC. Some examples of fairly large fishing entities that are located within the BINMIC (as well as elsewhere) are Trident Seafoods, Icicle Seafoods, Ocean Beauty Seafoods, Peter Pan, Alaska Fresh Seafood, and NorQuest Seafoods. All demonstrate some degree of integration of various fishing industry enterprises.

The BINMIC area of Seattle displays the following characteristics, which indicate its important economic roles:

- significant component of, and plays a vital role in, the greater Seattle economy;
- integrated into local, regional, national, and multinational markets;
- key port for trade with Alaskan and the West Coast, Pacific, and Alaska fishing industries - and the Alaskan fishery is especially significant;
- Salmon Bay, Ship Canal, and Ballard function as a small port of its own but also support fishing and a wide range of other maritime activities - including recreation and tourist vessels and activities; and
- an area of concentration of businesses, corporations, organizations, institutions, and agencies that participate in, regulate, supply, service, administer, and finance the fishing industry.

Importance of Fisheries and Seafood Industry

Chase and Pascall (1996) focus on the importance of Alaska as a market for Seattle region (Puget Sound) produced goods and services. They do so by identifying particular industrial sectors that generate the bulk of these economic impacts, but they do not locate these industrial sectors in terms of particular geographic locations within the region. In their discussion of the fisheries sector, Chase and Pascall indicate that only a fraction of the regional economy is based on fishing and seafood processing industries, but that these industry sectors are concentrated in several communities and rely heavily on North Pacific (Alaskan) resources. The communities that they single out are Bellingham, Anacortes, and the Ballard neighborhood of Seattle. They say that Seattle is the major base for vessels for various fisheries – groundfish (catcher vessels, catcher processors, motherships), halibut, crab, salmon, and others. There are numerous secondary processing plants in the region, and about 60 percent of the seafood harvested and shipped south for processing moves through the Port of Tacoma (Chase and Pascall 1996:23).

The relative value of Alaskan shellfish (crab, shrimp, etc.) for the Seattle fleet varies from year to year, but in 1994 was about 25 percent of the ex-vessel value of the Alaska/North Pacific commercial fishing harvest (Chase and Pascall 1996:26), which represented about 75 percent by harvest value, and 92 percent by weight, of all fish harvested by the Puget Sound fishing fleet (Chase and Pascall 1996:23 - citing ADF&G, NPFMC, NMFS). Since that time, crab harvests have declined considerably, however, so this

percentage would now be smaller.

Other relatively recent work (Martin O'Connell Associates 1994) indicates the wide range of activities that the Port of Seattle supports and the web of support services that commercial fishing helps support, but it provides no measure of the contribution of the BSAI crab fishery to this support. Fishing activities are included in this study only to the extent that they are reflected in activities at Fishermen's Terminal. This would generally reflect Bering Sea and Gulf of Alaska catcher vessel activity but would also include a great number of other smaller vessels moored at Fishermen's Terminal. On the other hand, it would also include some Alaskan groundfish activity of similarly sized and somewhat larger vessels, and some factory trawlers. It would not include the activities of larger Alaskan groundfish vessels such as catcher-processor, mothership, and secondary processing activities. By their estimation, fishing activity at Fishermen's Terminal in 1993 generated 4,007 direct jobs (the majority of them crew positions), earning an average of $48,690 per direct job (total $195 million). Also, an additional 2,765 induced and indirect jobs were created. Fishing businesses also expended $145 million on local purchases of goods and services (Martin O'Connell Associates 1994:45-49). Again, this does not indicate the contribution of the BSAI crab fishery so much as it establishes that the local fishing/processing economy is densely developed.

Natural Resource Consultants (NRC) has compiled quite comprehensive accounts of commercial fishing activity by the Seattle and Washington state fleets (NRC 1986, 1999). They provide a brief historical narrative on the development of the various fisheries and then a more detailed summary of the status of fish stocks and historical harvest information. In 1986, the estimated ex-vessel value of the grand total of all seafood taken from local waters by Washington's local fleet was about $93 million (NRC 1986:18,19). Distant water fisheries, primarily in the Gulf of Alaska and the Bering Sea, yielded an estimated grand total of $290 million by 1,371 vessels with an aggregate crew of 6,088 (NRC 1986:28,33). The joint-venture fleet accounted for about $80 million (ex-vessel) of this, with about 81 vessels and 405 crew, with an additional 11 catcher processors accounting for another $25 million (ex-vessel) and about 330 jobs. In terms of weight or volume, 92 percent of the seafood harvested by Washington fishermen came from Alaskan waters, and only 7 percent from local waters. In terms of ex-vessel value, the Alaskan harvest was worth $283 million and local harvest $110 million (and other harvest $8 million). None of these general statements had changed to any appreciable degree by 1998/99, and Alaskan distant waters fisheries still provided 95 percent of the harvest for the Washington state fishing fleet (NRC 1999).

Most of the Alaskan catch was processed to some extent in Alaska by processing entities based in Seattle (i.e., either by mobile facilities or onshore facilities owned by Seattle-based entities). NRC states that there were about 130 seafood processing/wholesaling and 33 wholesale/cold storage companies in Washington in 1985, operating 250 primary processing and wholesale plants in Washington and 120 shore based or at sea in Alaska. Washington processing employment was 4,000 seasonally and in Alaska was 8,000, with half coming from Washington (NRC 1986:35-39).

A similar NRC study in 1988 found that Washington fishermen harvested about 80 percent (ex-vessel value) of their catch in distant waters, with 98 percent of that coming from Alaskan waters. About 72 Washington state vessels participated in the joint venture trawl fishery, directly employing about 360 people. There were also 43 catcher processors employing about 2,200 people, and 26 shore-based trawlers, employing about 130 people.

Turning to relatively more recent data, Chase and Pascall (1996) focus on the importance of Alaska as a market for Seattle region (Puget Sound) produced goods and services. They do so by identifying particular industrial sectors that generate the bulk of these economic impacts, but they do not locate these industrial sectors in terms of particular geographic locations within the region. In their discussion of the fisheries sector, Chase and Pascall indicate that only a fraction of the regional economy is based on

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A summary profile of the Puget Sound maritime industry, which includes commercial fishing, is included in Economic Development Council of Seattle and King County 1995 (Appendix A:39-49). Pertinent information has been abstracted here. The list of included businesses is quite long and is a good indicator of how far indirect benefits can spread:

> . . . cargo shipping, tugs and barges, commercial fishing and supply; ship and boat building; cruise ships; vessel design and repair; fueling; moorage; the fabrication and sale of marine gear such as electronics; refrigeration, hydraulics, and propulsion equipment; the operation of marinas, dry docks and boat yards; services provided by customs and insurance brokers and shipping agents; and maritime professional services including admittedly law, marine surveying and naval architecture (Appendix A:39).

It was estimated that in 1992 there were 30,000 jobs in the maritime sector within the four-county region, including 10,000 in commercial fishing, 7,000 in fish processing, 5,000 in marine recreation, and 3,900 in boat building and repair. Average wages were estimated at $24,000 for fish processors, $32,000 for ship and boat building and repair, and $50,000 to $80,000 for commercial fishing. The sector is one noted for providing entry-level positions for those with limited education and job skills, so that they can learn a high-wage job. Each job in this sector creates or supports one to two other jobs in the regional economy,

and each dollar of sector output generates about one additional dollar in output from the rest of the economy.

Seattle offers the maritime sector, and the distant water fleet in particular, a "critical mass" of businesses that allows vessel owners and other buyers a competitive choice of goods and services. The same is true to a lesser extent of other regional ports, such as Tacoma. Efficient land transportation systems are also critical, and Seattle has good rail and truck linkages (and the Port of Seattle is working to improve them).

Although the maritime sector is an important one for the region, some of its components are currently experiencing some difficult times. Other regional communities (Anacortes, Bellingham, Port Townsend) as well as locations in Alaska (closer to the distant fishing waters) are working to develop port facilities to lure vessels so that they may gain the economic benefits of the associated support and supply business. Common sorts of projects are the improvement of shoreside access, building additional moorage, or work and storage capacity.

NRC revised some of their earlier work and added additional analysis focused specifically on the contributions of inshore Washington state (but also Alaska) processing plants to the Washington State economy (NRC 1991/92, 1997). The Washington inshore seafood processing industry purchased $859.5 million of raw material in 1991, $720.1 million from Alaska, and $139.4 million from Washington waters. Salmon accounted for 46 percent of the total value of these purchases, shellfish for 20 percent, groundfish for 19 percent, halibut for 11 percent, and other species for much less. The total finished product from all this raw material was worth $2.1 billion ($1.8 billion from the Alaskan raw material). Salmon accounted for $780 million of the final product's value, shellfish for $563 million, and groundfish for $482 million. "... inshore processors operating in Alaska and Washington account for more than 50 percent of the value of U.S. seafood exports" (NRC nd:4). For 1996, the total purchased was comparable at $877.2 million – 41 percent salmon, 20 percent shellfish, groundfish 15 percent, halibut 9 percent, herring 7 percent, and other species much less. The total finished product totaled $2.17 billion, $1.9 billion from Alaskan material. Salmon accounted for 35 percent, shellfish for 28 percent, and groundfish for 18 percent. Thus Alaskan shellfish is at least as important in terms of value of product as is groundfish for 1991-1996.

Expenditure patterns for Washington (and Washington-owned Alaskan) inshore plants were modeled in these NRC documents. Inshore plants expenditures average 46 percent for their raw materials (fish and shellfish), 16 percent for wages and benefits, 9 percent for processing materials, and 7 percent for tendering and other transportation costs. About 55 percent of these expenditures were made in Washington, 43 percent in Alaska, and 2 percent from other states. This is stated to include fish and shellfish purchased in Alaska from fishermen who homeport in Washington (NRC nd:9), and economic benefits were produced from these expenditures in direct proportion to their magnitude.

The estimated total economic output from primary and secondary processing activities for all seafood to the Washington state economy in 1991 was calculated to be $1.865 billion. This was the result of three main factors (in order of their significance in terms of contributions to economic benefits):

- A substantial portion of expenditures for raw material (fish) in Alaska is made to fishermen whose home ports are in Washington.
- The majority of administrative and sales functions of processing companies are carried out in Washington.
- A major portion of support industries (equipment and packaging manufacturing) is located in Washington.

In 1996 the Washington inshore seafood industry generated 32,837 full-time equivalent jobs (21,308 in

Washington and 11,529 in Alaska) and $791 million of earnings impacts ($532 million in Washington and $259 million in Alaska). In terms of economic output, it contributed $1.9 billion to the Washington state economy and $1.2 billion to the Alaska state economy (NRC 1997). As noted earlier, these data underscore the interrelatedness of the economies of Alaska and Washington and, as has been seen through the sector profiles and the ties to particular communities, the ties between Seattle and specific Alaska communities. Companies based in Washington depend on Alaska fisheries for the great bulk of the raw materials processed in Washington, and residents of both states harvest Bering Sea resources. Also, as noted earlier, the corporate offices and sales outlets of the processing companies are located in Washington, as are most of the suppliers and support services for the industry.

Appendix 7
Analysis of Shortraker/Rougheye Incidental Catch

Introduction

To complete the development of the rockfish pilot program, the Council must decide the method for allocating (or otherwise managing) secondary species, specifically shortraker rockfish and rougheye rockfish. This discussion paper reviews and supplements the data and analyses the Council has considered concerning the allocation of these species over the past several months. The future allocation of shortraker and shortraker rockfish is complicated, in part, because secondary allocations under the program are made on the basis of historical catches by sector of the combined catch of shortraker/rougheye. Prior to 2005, shortraker and rougheye rockfish were managed in the Central Gulf under an aggregate TAC. Under this management, historical catch levels of the individual species are not well known due to the species aggregation. In December 2004, the Council established separate TACs for the two species, following the recommendations of the SSC and the Gulf of Alaska plan team. Due to the separate TACs for the two species introduced in the 2005 fishery, future allocations will need to be made on an individual species basis.

For 2004, the aggregate shortraker/rougheye TAC for the CGOA was 656 metric tons. The 2005 TAC for shortraker rockfish in the CGOA was set at 324 metric tons and the 2005 CGOA TAC for rougheye rockfish was set at 557 metric tons.

Although several fisheries have incidental catch of shortraker and rougheye rockfish, no directed fishery for these species is prosecuted. Shortraker and rougheye, however, are valuable species and are commonly retained in the rockfish fishery. In addition, some intentional catch of the species likely occurs, as permitted by the current MRA management. Some participants in the rockfish fishery likely have come to depend on revenues from this catch. In determining the allocations for the rockfish program participants, the Council must consider both the historic interests of different fisheries on the species for revenues and the potential for the allocations of shortraker or the remaining TAC available to fisheries outside of the pilot program to constrain target fishing activity.

Background and Decisions to Date

In February 2005, the Council selected an allocation formula for secondary species, including shortraker and rougheye, based on the catch history during the qualifying period of 1996-2002. According to the method selected, the annual allocation of shortraker/rougheye would be 5.91 percent of the CGOA TAC to the CV sector and 59.87 percent of the CGOA TAC to the CP sector.

The formula for calculation of secondary allocations selected by the Council at the February meeting would base sector allocations on the average percentage of the catch taken by a sector (the "standard" method) expressed as:

$$\text{sector allocation} = \left(\frac{\sum_{1996}^{2002} \text{annual percent catch}}{\text{number of years in the 1996 - 2002 period}} \right)$$

where,

(1) the numerator is the sum of the annual average percentage of retained catch of the secondary species by the sector for the period 1996-2002 taken while targeting rockfish within the CGOA; and
(2) the denominator in the equation is the total number of years in the target period (7)

During the AP deliberations on the rockfish pilot program, additional information was requested of staff to show the sector total catch, including discards, of secondary species (see Supplemental Table AP-1 and AP-2, February 2005 in the appendix). After considering this information and AP and Council deliberations on the issue, an option was added for analysis to allocate shortraker/rougheye to catcher vessels based on total catch of the sector in the target rockfish fishery over the total CGOA catch for all sectors which yields the highest annual percentage during the qualifying years (the "highest year usage option").

During AP and Council deliberations at the April 2005 meeting, concerns were raised that the allocation of shortraker rockfish may be insufficient to support complete catch of the target rockfish allocations. Among the data considered by the Council was a summary table (see Supplemental Table - Shortraker/Rougheye CGOA Catch by Sector, 1996-2002 in the appendix) showing the total sector catch of shortraker/rougheye (including discards) for the catcher vessel and catcher processor sectors. This table also includes the estimation of the "highest year usage option" under which the catcher vessel sector would be allocated 9.36 percent of the CGOA TAC (as compared with 5.91 percent under the standard method). Applying this rate to the 2005 TAC, the catcher vessel sector would be allocated 30.32 mt. of shortraker rockfish (9.36 percent times the 2005 TAC of 324 mt. within the CGOA). If the shortraker proportion of the combined incidental catch of shortraker/rougheye is assumed to be 57 percent (as suggested by the GOA plan team), incidental catch of shortraker would have exceeded the allocated amount in only one out of the seven qualifying years.

The Council also advanced for analysis the following alternative options that could be used to address any possible shortfall of shortraker to the catcher vessel sector:

Option 1: The shortraker/rougheye hard cap will be calculated based on the aggregate shortraker/rougheye TAC and then divided:

A) 50 percent shortraker and 50 percent rougheye
B) 60 percent shortraker and 40 percent rougheye

Option 2: Manage catcher vessel shortraker and rougheye using and MRA between 0.7 percent (average use) and 1.1 percent (highest annual use).

In addition at the April meeting, concern was expressed that the allocations to the rockfish program could deplete the shortraker TAC to an extent that other fisheries could be constrained by shortraker incidental catch. To address that potential concern, the Council added for analysis, the following provision concerning **allocation of shortraker and rougheye to the catcher processor sector**:

Allocations of shortraker and rougheye as a secondary species will be at the following rate of history:

75 to 100 percent

The potential impacts of these options are examined below.

Biological and Catch Issues

Rockfish comprising the target and secondary species for the rockfish pilot program are generally long-lived, slow growing species. As noted in comments by the Scientific and Statistical Committee (SSC) in 2003 while reviewing the annual Stock Assessment and Fishery Evaluation Reports (SAFE) for that year, there are major gaps in basic biological knowledge for most rockfish species that complicate management for these species.

Much of the biological information used in the management of shortraker and rougheye come from the NMFS biannual survey (which was a triannual survey prior to 2001) in the Gulf of Alaska. Other information comes from the longline survey that is completed annually to help assess relative population numbers and relative population weights. A review of the various SAFE reports and minutes from the plan team meetings reveals no consensus on management parameters for shortraker and rougheye. In November 2004, for example, four alternative approaches to ABC estimation for shortraker and rougheye were presented for the Council to choose among, indicating a wide variety of opinions on the best approach. The November 2004 SAFE discussion of shortraker/rougheye rockfish (Clausen, 2004) suggests that the trawl survey indicates rougheye rockfish almost always has a larger biomass than shortraker rockfish and therefore is a larger proportion of the ABC of the species aggregate. However, the NMFS groundfish observer program has indicated that a majority of the shortraker/rougheye catch appears to be shortraker. In the SAFE report, the possibility is raised that shortraker may be disproportionately caught within the shortraker/rougheye group. Commercial fishermen may fish along rocky slopes using 'rockhopper' trawl gear, whereas the survey stations may avoid the roughest bottom and the slope. This possible difference in areas fished has led some to question the accuracy of the relative biomass estimates for these two species.

In addition to concerns over the biomass estimates, some concerns have also been expressed concerning the estimated catch composition of shortraker and rougheye. At the February meeting, staff presented a summary of observer data concerning incidental bycatch of Pacific cod, sablefish, thornyhead, shortraker, rougheye and the combined shortraker/rougheye aggregation. In general, these data indicated relatively low incidental catch rates of all secondary species. The data also indicated that shortraker was 92 percent of the combined shortraker/rougheye incidental catch in the observed hauls targeting CGOA rockfish. However, staff subsequently discovered an error with the data file used to calculate the February bycatch tables. The data problem has been corrected, and the revised tables are included at the end of this report (Appendix Tables 5, 6 and 7). Based on the revised data, the shortraker proportion of incidental catch of shortraker and rougheye) in observed hauls targeting rockfish is 46.42 percent (see Appendix Table 7).

The Gulf Plan Team and SSC have also considered the issue of catch composition of shortraker/rougheye incidental catch. In the December 2004 SAFE report, the summary section for shortraker/rougheye included an appendix that discussed the proportion of shortraker in the commercial harvest (Clausen et. al., 2004). A copy of this appendix is included at the end of this report. In the SAFE appendix, various proportions for shortraker as a proportion of shortraker/rougheye are presented, including a historical series by gear type. The report concludes that the average for the years 2000, 2001 and 2002 (57 percent shortraker) is the best available data for estimating the composition of incidental catch of the two species. In all estimations in this document, we use the factor of 57/43 shortraker to rougheye reported in the 2004 SAFE document as noted below.

Reviewing the revised incidental catch tables (Appendix Tables 5,6, and 7), bycatch rates for most species (including shortraker and rougheye) are relatively low for all three targets examined. The incidental catch

rate for shortraker rockfish is less than 1 percent for the observed target rockfish tows and less than 2 percent of the observed target sablefish sets in the longline fishery.

Management Issues Relating to Shortraker and Rougheye

To allocate the overall CGOA TACs for shortraker and rougheye rockfish under the rockfish pilot program, NOAA Fisheries will make allocations of each species to the two rockfish trawl sectors. The allocations will be hard caps, so a cooperative will be prevented from catching its target rockfish allocation once its secondary allocation has been caught. Participants will have an incentive to make most efficient use of their shortraker and rougheye allocations. Likely strategies are to sequentially focus on species that have the lowest bycatch rates moving to species with higher bycatch to ensure the highest probability of catching the entire allocation without fully catching the secondary species allocation.

Impacts on Other CGOA and Gulf of Alaska Fisheries

At its April 2005 meeting, the Council asked staff to describe the potential impacts of the rockfish pilot program allocations on other fisheries that typically catch shortraker and rougheye rockfish. Tables 1(a) and 1(b) show the primary fisheries that catch shortraker and rougheye in the GOA: the trawl fishery targeting flatfish, the trawl fishery targeting rockfish, and the longline fishery targeting sablefish.

Under current management, incidental catch of shortraker and rougheye rockfish in the Central Gulf is limited by an MRA limit of 15 percent of total weight of the target species catch. Under the MRA specifications (NOAA 2005), bycatch of rockfish is under a single aggregate category called 'aggregated rockfish' which includes shortraker, rougheye and other rockfish. Whether the catch of shortraker and rougheye is retained or discarded, it counts against the TAC for the respective species. Participants in the IFQ fisheries are required to retain all shortraker and rougheye rockfish, unless discarding is required by the MRA or another regulation.

If NOAA Fisheries managers' inseason monitoring reveals that the catch of shortraker or rougheye were likely to approach or exceed the TAC for the respective species, they would likely place the species of concern on prohibited species catch status (PSC), under which all catch of the species is required to be discarded. If monitoring reveals that the overfishing level for a species is likely to be reached, NOAA Fisheries managers would close fisheries of concern in the Gulf. Since the overfishing level for both shortraker and rougheye are set at a Gulfwide level, NOAA Fisheries would focus on fisheries Gulfwide and not restrict potential closures to the CGOA. Typically, when taking an action of this sort, NOAA Fisheries sequentially closes fisheries beginning with those limited access fisheries that have the highest incidental catch rates for the species of concern. In the case of shortraker or rockfish under current management, the first fishery targeted would likely be the trawl fisheries for rockfish and/or the trawl fisheries for flatfish. In the past, NOAA Fisheries has avoided closures of IFQ fisheries, but, if the situation warranted action, the next fishery to be closed to protect shortraker or rougheye would be the longline fishery for sablefish. Under the pilot program, the Central Gulf rockfish fishery would likely not close (or would close as a last resort), since the limitations of the shortraker and rougheye rockfish allocations should adequately protect overharvest of the species by participants in the program.

Total Catch by Fishery

To gain a perspective on the total use of shortraker and rougheye rockfish by the different fisheries, total catch of both species, including retained catch and discards, by fishery from 1996 through 2004 are shown in Tables 1(a) and 1(b), for trawl and hook and line fisheries, respectively. As can be observed, most of the catch is not designated by species, but included in the aggregate category of

shortraker/rougheye. On the far right column of Table 1, the percentage figure refers to the total percent use for each fishery over the entire period. For example, the pollock trawl fishery utilized 2.28 percent of the total catch of shortraker/rougheye during the 1996-2004 period.

Table 1(a): Trawl Catch of Shortraker/Rougheye in the CGOA 1996-2004 (units in metric tons including retained catch and discards)

target species	shortraker	rougheye	shortraker/rougheye	total	percent [2]
pollock	12.14	10.20	138.19	160.53	2.28%
Pacific cod	22.99	12.21	119.92	155.12	2.21%
rockfish	498.35	525.63	3,266.68	4,290.66	61.03%
flatfish [1]	166.63	158.13	658.76	983.52	13.99%
sablefish	0.14	0.00	1.50	1.64	0.02%
other	0.88	0.48	0.44	1.80	0.03%
total	701.13	706.65	4,185.49	5,593.27	79.56%

[1] The flatfish category includes: deepwater flatfish; other flatfish; shallow water flatfish; flathead sole; rock sole; greenland turbot; arrowtooth flounder; rex sole; and yellowfin sole

[2] This column is the percentage share of the total catch for all gear, i.e. 7030.44 mt.

As can be noted from the tables, three fisheries account for the largest share of the shortraker/rougheye catch. The rockfish trawl fishery accounts for 61.03 percent of the total catch. The second largest fishery, in terms of shortraker/rougheye use, is the longline fishery targeting on sablefish, with 16.15 percent of the total catch, followed by the trawl flatfish fishery, with 13.99 percent of the total catch.

The data in Table 1(a) and 1(b) are aggregated for the entire period, 1996 through 2004. To investigate the trend in shortraker/rougheye use over this period, the individual years of catch are displayed for the three fisheries that catch the most shortraker and rougheye in Figure 1. The use trends for trawl flatfish and longline sablefish fisheries are relatively consistent through the period. The use pattern for the trawl rockfish fishery fluctuates widely from year to year, possibly reflecting different levels of intentional catch.

Table 2 provides detail on the respective level of retained catch and discarded catch of shortraker for the data presented in Table 1. Over the period from 1996 through 2004, 74.28 percent of the catch was retained and 27.72 percent was discarded. Notably, the historic catches on average exceed the 2005 TAC of 881 metric tons.

Table 1(b): Hook & Line Catch of Shortraker/Rougheye in the CGOA 1996-2004 [3]
(units in metric tons including retained catch and discards)

target species	shortraker	rougheye	shortraker/rougheye	total	percent [2]
pollock	0.00	0.00	0.00	0.00	0.00%
Pacific cod	27.00	6.99	158.74	192.73	2.74%
rockfish	36.80	17.50	11.92	66.22	0.94%
flatfish [1]	0.00	0.00	0.00	0.00	0.00%
sablefish	212.71	130.02	793.02	1,135.75	16.15%
other	2.56	0.20	39.08	41.84	0.60%
total	279.07	154.71	1,002.76	1,436.54	20.44%

[1] The flatfish category includes: deepwater flatfish; other flatfish; shallow water flatfish; flathead sole; rock sole; greenland turbot; arrowtooth flounder; rex sole; and yellowfin sole

[2] This column is the percentage share of the total catch for all gear, i.e. 7030.44 mt.

[3] The catch for hook & line gear includes a very small amount of catch by one or two jig vessels that cannot be released due to confidentiality concerns.

Figure 1: Total Shortraker/Rougheye Harvest in the CGOA 1996-2004 by Target and Gear
(harvest in metric tons including discards)

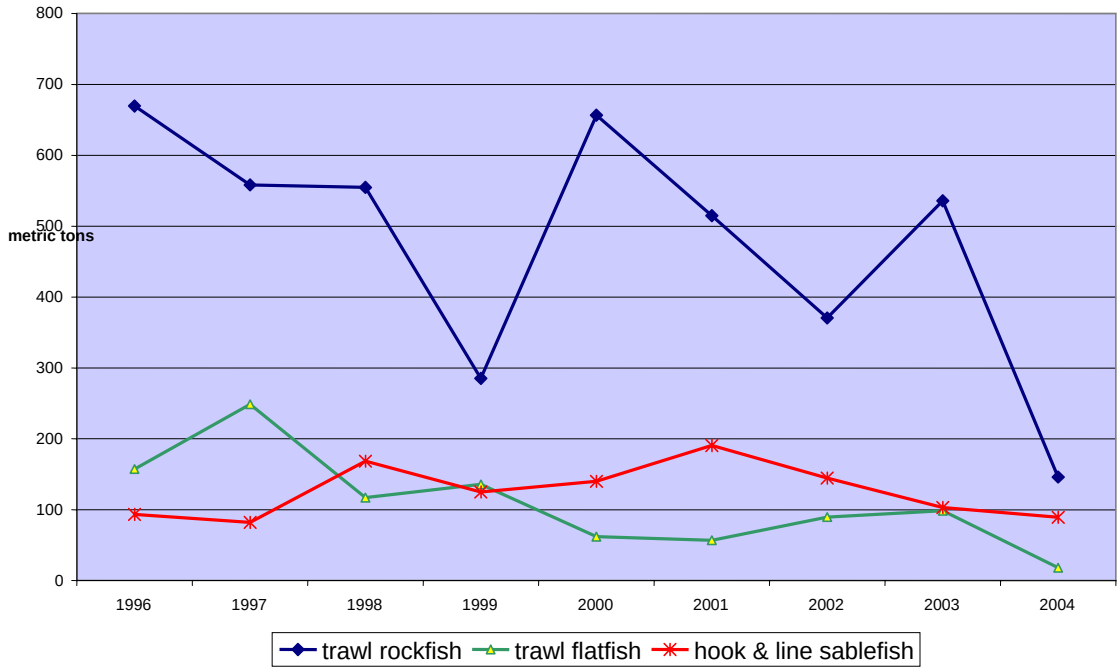

Table 2: Total and Annual Average Shortraker/Rougheye Catch 1996-2004[1]

(units in metric tons)

Total

species	retained	discard	total
rougheye	893.26	87.3	980.56
shortraker	833.37	28.23	861.59
sr/re	3495.15	1693.11	5188.26
total	5221.78	1808.64	7030.41

Annual Average

species	retained	discard	total
rougheye	127.61	12.47	140.08
shortraker	119.05	4.03	123.08
sr/re	499.31	241.87	741.18
total	745.97	258.38	1004.34

Source: NMFS blend data, 2005.

[1] including discards (see table 1)

To examine the potential impacts of the secondary allocations of shortraker and rougheye on other fisheries, as requested by the Council, data from Table 1, along with the estimate of the proportion of shortraker in the combined shortraker/rougheye catch (57 percent), can be used to estimate the total use of shortraker for the different fisheries. These estimates are then compared to the available TAC, by applying the 2005 TAC for shortraker (324 metric tons) and rougheye (557 metric tons) assuming the allocations of both species to the rockfish fisheries. Table 3 shows the estimated annual usage of shortraker by fisheries including the rockfish trawl fisheries. The table shows that if historic catch of shortraker is maintained, the TAC would be exceeded by approximately 175 metric tons. The calculation also shows that these fisheries combined are estimated to use approximately 879 metric tons of shortraker and rougheye. The table also shows that the estimated historic catch, excluding catch in the target rockfish fishery is approximately 195 metric tons.

Table 4 shows the estimated shortraker usage and shortfall assuming the proposed allocations in the pilot program. As the table shows, under the standard proposed allocations a substantial shortfall is estimated to occur, if other fisheries maintain their annual average usage of shortraker. The estimated shortfall is exacerbated slightly, if catcher vessel allocations are made under the "highest year option". The shortfall is reduced (but not overcome), if catcher processors receive a reduced allocation. In considering the estimated shortfalls, one must bear in mind that the estimated historic usage by the rockfish trawl fishery is be approximately 305 metric tons, an amount substantially greater than the combined allocation to the two rockfish sectors under any of the allocation options.[1]

In considering the impacts of the shortraker and rougheye allocations and separate TACs on both the rockfish fishery and other fisheries, no information exists for evaluating the potential of participants in any fishery to modify their fishing practices to reduce incidental catch of shortraker. Flexibility to take action for bycatch avoidance is likely greatest in the fisheries that receive exclusive shares (IFQs or cooperative allocations). Proponents of IFQ and cooperative programs often identify potential bycatch reduction arising from this flexibility as a primary benefit of those programs.

[1] See Table 6 for a summary of shortraker allocations.

Table 3. Estimated annual shortraker catch in the Central Gulf in metric tons (1996-2004).

Gear	Target fishery	Annual average (shortraker and rougheye)	Estimated shortraker catch (assuming 57 percent shortraker)
Trawl	pollock	20.1	11.4
	Pacific cod	19.4	11.1
	rockfish	536.3	305.7
	flatfish [1]	122.9	70.1
	sablefish	0.2	0.1
	other	0.2	0.1
	total	699.2	398.5
Hook and line	Pacific cod	24.1	13.7
	rockfish	8.3	4.7
	sablefish	142.0	80.9
	other	5.2	3.0
	total	179.6	102.4
Total (both sectors)		878.7	500.9
Total excluding trawl target rockfish catch			195.2

[1] The flatfish category includes: deepwater flatfish; other flatfish; shallow water flatfish; flathead sole; rock sole; greenland turbot; arrowtooth flounder; rex sole; and yellowfin sole

Table 4. Estimated Central Gulf shortraker usage and shortfall assuming annual average usage and various catcher vessel and catcher processor rockfish fishery allocations (in metric tons).

Catcher processor allocation		Catcher vessel allocation					
		Standard	Total shortraker usage	Shortraker shortfall	Highest year option	Total shortraker usage	Shortraker shortfall
Full allocation	194	19.1	408.3	84.3	30.3	419.5	95.5
75 percent	145.5		359.8	35.8		371.0	47.0

Effect of new (April 2005) Council options

As noted above, in April 2005, the Council added two options for allocation of shortraker rockfish and rougheye rockfish under the pilot program. The options and their potential effects on other fisheries are briefly discussed below.

Option 1: The shortraker/rougheye hard cap will be calculated based on the aggregate shortraker/rougheye TAC and then divided:

C) 50 percent shortraker and 50 percent rougheye
D) 60 percent shortraker and 40 percent rougheye

The effect of C) would be to allocate 50 percent of the combined shortraker/rougheye TAC as shortraker to the CV sector. This would result in a shortraker allocation of 26.0 metric tons (5.91 percent of 881 metric tons) based on 2005 TACs,[2] an increase in the catcher vessel allocation of approximately 7 metric tons from the amounts shown in Table 4.

The effect of D) would be to allocate 60 percent of the combined shortaker/rougheye TAC as shortraker to the CV sector. This would result in a shortraker allocation of 31.2 metric tons (5.91 percent of 881 metric tons) based on 2005 TACs,[3] an increase of approximately 12 metric tons from the amount shown in Table 4.

The shortraker allocations under both options would exceed or equal average annual total catch of the sector shown in Supplemental Table - Shortraker/Rougheye CGOA Catch by Sector, 1996-2002 – in the appendix to this discussion.

The Council also added the following new options under which shortraker/rougheye catch by the CV fleet would be based on a revised MRA, with options ranging from 0.7 to 1.1 percent of directed rockfish catch in the CGOA. The following option would define this MRA:

Option 2: Manage catcher vessel shortraker and rougheye using and MRA between 0.7 percent (average use) and 1.1 percent (highest annual use).

Analyzing the effects of an MRA on total catch is at best imprecise. An MRA in and of itself may create no incentive to avoid incidental catch, since discarding is permitted above the retainable amount. Table 5 shows the estimated MRA given the incidental catch allowance for other fisheries and the allocation of the estimated allocation of the remaining TAC to the catcher vessel sector from the analysis. For the purpose of analysis, using the 2005 CGOA TACs for the three target rockfish species (Pacific ocean perch, northern rockfish and pelagic shelf rockfish) for the higher MRA limit of 1.1 percent, shortraker/rougheye retention by the CV fleet would be limited to 49.6 metric tons. For the lower MRA limit of 0.7 percent, maximum permitted retention of shortraker/rougheye by the CV fleet would be 31.5 metric tons.

Since the proposed MRA does not distinguish shortraker from rougheye, the catch composition would determine the amount of shortraker retained under the MRA. In any case, exceeding the MRA would not limit catcher vessel participants' catch of target rockfish, but merely require discarding of shortraker and rougheye. Given the uncertainty concerning catches from the catcher vessel rockfish fisheries, determining the impacts of the use of an MRA for managing shortraker and rougheye on the other fisheries is uncertain.

[2] If the "highest year option and the 50/50 shortraker/rougheye allocation are both applied, the resulting shortraker allocation would be 41.23 mt. (9.36% x 881 mt. x 50% = 41.23 mt.) based on 2005 TACs.
[3] If the "highest year option and the 60/40 shortraker/rougheye allocation are both applied, the resulting shortraker allocation would be 49.47 mt. (9.36% x 881 mt. x 60% = 49.47 mt.) based on 2005 TACs.

Table 5 Possible retention of shortraker/Rougheye rockfish under proposed MRAs

Rockfish Target Species	2005 CGOA TAC (mt.)	Catcher vessel allocation
Pacific ocean perch	8,535.00	4058.5
Northern Rockfish	4,283.00	2495.51
Pelagic Shelf Rockfish	3,067.00	1351.48
Total	15,885.00	7905.49
MRA of 1.1 percent of rockfish target		49.6
MRA of 0.7 percent of rockfish target		31.5
Note: 2005 TAC level assumed to be catch level		

Table 6 shows the estimated historic total catch of shortraker in the rockfish target fishery (assuming 57 percent of all shortraker/rougheye catch is shortraker) and summarizes the allocation options for the different sectors based on the 2005 CGOA shortraker TAC. The table suggests that none of the allocation options for the catcher processor sector will match or exceed its average historic total catch. Only the standard catcher vessel allocation option would result in an allocation less than the historic average total catch of that sector. In addition, the three options that elevate the shortraker allocations all approximately match or exceed estimated shortraker catch of the sector in all but one year (a year in which shortraker catch of the sector was more than double the average).

Given that the two sectors have very similar allocations of target CGOA rockfish (i.e., Pacific Ocean perch, northern rockfish, and pelagic shelf rockfish), it is likely that the allocation to the catcher vessel fleet is a better reflection of incidental catch rates in the target rockfish fishery. The catcher processor historic catch of shortraker and rougheye likely reflect some intentional catch of these species, as product prices for shortraker and rougheye are more than double the product prices for target rockfish (see Tables 17 and 18 in the analysis).

Table 6

Estimated shortraker catch and allocations to CGOA rockfish sectors (in metric tons).

		catcher processors	**catcher vessels**
Yearly total catch	1996	331.3	50.2
	1997	308.2	10.0
	1998	297.5	24.0
	1999	136.3	26.2
	2000	350.6	23.4
	2001	282.9	10.5
	2002	198.1	13.1
	Average	272.1	22.5
Standard allocation estimates		194.0	19.1
Catcher processor suboption	75 percent allocation	145.5	-
Catcher vessel suboptions	highest year option	-	30.3
	50/50 sr/re	-	26.0
	60/40 sr/re	-	31.2

References:

Clausen, David. Gulf of Alaska Shortraker/Rougheye and Other Slope Rockfish. Chapter 9, Appendix A of the Stock Assessment and Fishery Evaluation Report for the Groundfish Resources of the Gulf of Alaska, compiled by the Plan Team for the Gulf of Alaska Groundfish Fisheries of the Gulf of Alaska, North Pacific Fishery Management Council, November 2004.

Clausen, David et. al. Gulf of Alaska Shortraker/Rougheye and Other Slope Rockfish. Chapter 9, Appendix B of the Stock Assessment and Fishery Evaluation Report for the Groundfish Resources of the Gulf of Alaska, compiled by the Plan Team for the Gulf of Alaska Groundfish Fisheries of the Gulf of Alaska, North Pacific Fishery Management Council, November 2004.

NMFS. Table 10 to Part 679 Gulf of Alaska Retainable Percentages. Available at www.fakr.noaa.gov/rr/tables/tabl10/pdf.

Appendix Tables & Materials for Shortraker/Rougheye Discussion Paper

Appendix Table 1 – from the February 2005 Council meeting
Supplementary Table AP-1: Rockfish Pilot Program - CGOA Total Sector Catches by Species

Appendix Table 2- from the February 2005 Council meeting
Supplementary Table AP-2: Rockfish Pilot Program - CGOA Total Sector Catches by Species

Appendix Table 3 – from the April 2005 Council meeting
Table 4: CGOA Catch of Shortraker/Rougheye Rockfish for the CV Sector 1996-2000

Appendix Table 4 – from the April 2005 Council meeting
Supplemental Table - Shortraker/Rougheye CGOA Catch by Sector, 1996-2002

Appendix Table 5 – from the February 2005 meeting
Table 1: Percentiles of Set Specific Ratios of Bycatch Species/Target Species for CGOA Hook & Line Sets with Pacific Cod as the Targeted Species: 1996-2002

Appendix Table 6 – from the February 2005 meeting
Table 2: Percentiles of Set Specific Ratios of Bycatch Species/Target Species for CGOA Hook & Line Sets with Sablefish as the Targeted Species: 1996-2002

Appendix Table 7 – from the February 2005 meeting
Table 3: Percentiles of Set Specific Ratios of Bycatch Species/Target Species for CGOA Trawl Hauls with Rockfish as the Targeted Species: 1996-2002

Appendix 9A – Alternative ABCs for Shortraker/Rougheye Rockfish in the Gulf of Alaska. From the November 2004 GOA SAFE document (13 pages)

Supplementary Table AP-1: Rockfish Pilot Program - CGOA Total Sector Harvests by Species by Year for the Catcher-Processor Sector, 1996-2002 (harvest in metric tons)

Species	Year	Sector	Sector Sum (mt.)	Total CGOA Harvest (mt.)
Pacific cod	1996	CP	108.68	47,564.79
Pacific cod	1997	CP	175.87	43,668.89
Pacific cod	1998	CP	214.52	41,424.46
Pacific cod	1999	CP	338.49	44,442.30
Pacific cod	2000	CP	57.39	32,180.10
Pacific cod	2001	CP	49.81	27,313.66
Pacific cod	2002	CP	95.92	25,057.27
total 1996-2002			1,040.67	261,651.47
Species	Year	Sector	Sector Sum (mt.)	Total CGOA Harvest (mt.)
sablefish	1996	CP	483.90	6,772.28
sablefish	1997	CP	538.24	6,233.63
sablefish	1998	CP	446.30	5,876.70
sablefish	1999	CP	293.21	5,874.07
sablefish	2000	CP	298.01	6,168.32
sablefish	2001	CP	303.74	5,443.70
sablefish	2002	CP	697.84	6,179.71
total 1996-2002			3,061.23	42,548.41
Species	Year	Sector	Sector Sum (mt.)	Total CGOA Harvest (mt.)
shortraker/rougheye	1996	CP	581.29	941.27
shortraker/rougheye	1997	CP	540.66	932.66
shortraker/rougheye	1998	CP	522.00	869.85
shortraker/rougheye	1999	CP	239.10	579.89
shortraker/rougheye	2000	CP	615.00	883.70
shortraker/rougheye	2001	CP	496.36	998.16
shortraker/rougheye	2002	CP	347.55	631.61
total 1996-2002			3,341.95	5,837.13
Species	Year	Sector	Sector Sum (mt.)	Total CGOA Harvest (mt.)
thornyheads	1996	CP	101.95	595.35
thornyheads	1997	CP	153.75	716.30
thornyheads	1998	CP	137.95	571.63
thornyheads	1999	CP	110.36	579.86
thornyheads	2000	CP	163.16	548.44
thornyheads	2001	CP	147.23	516.24
thornyheads	2002	CP	142.62	505.05
total 1996-2002			957.01	4,032.87

Source: 1996-2002 NMFS blend data

Supplementary Table AP-2: Rockfish Pilot Program - CGOA Total Sector Harvests by Species by Year for the Catcher Vessel Sector, 1996-2002 (harvest in metric tons)

Species	Year	Sector	Sector Sum (mt.)	Total CGOA Harvest (mt.)
Pacific cod	1996	CV	225.77	47,564.79
Pacific cod	1997	CV	156.86	43,668.89
Pacific cod	1998	CV	432.76	41,424.46
Pacific cod	1999	CV	926.74	44,442.30
Pacific cod	2000	CV	1,332.90	32,180.10
Pacific cod	2001	CV	1,035.54	27,313.66
Pacific cod	2002	CV	1,466.77	25,057.27
total 1996-2002			5,577.34	261,651.47
Species	Year	Sector	Sector Sum (mt.)	Total CGOA Harvest (mt.)
sablefish	1996	CV	607.77	6,772.28
sablefish	1997	CV	293.96	6,233.63
sablefish	1998	CV	309.40	5,876.70
sablefish	1999	CV	544.43	5,874.07
sablefish	2000	CV	555.54	6,168.32
sablefish	2001	CV	457.97	5,443.70
sablefish	2002	CV	511.16	6,179.71
total 1996-2002			3,280.22	42,548.41
Species	Year	Sector	Sector Sum (mt.)	Total CGOA Harvest (mt.)
shortraker/rougheye	1996	CV	88.08	941.27
shortraker/rougheye	1997	CV	17.48	932.66
shortraker/rougheye	1998	CV	42.08	869.85
shortraker/rougheye	1999	CV	45.99	579.89
shortraker/rougheye	2000	CV	41.06	883.70
shortraker/rougheye	2001	CV	18.38	998.16
shortraker/rougheye	2002	CV	22.94	631.61
total 1996-2002			276.00	5,837.13
Species	Year	Sector	Sector Sum(mt.)	Total CGOA Harvest (mt.)
thornyheads	1996	CV	82.65	595.35
thornyheads	1997	CV	41.78	716.30
thornyheads	1998	CV	67.12	571.63
thornyheads	1999	CV	84.17	579.86
thornyheads	2000	CV	89.00	548.44
thornyheads	2001	CV	52.75	516.24
thornyheads	2002	CV	46.08	505.05
total 1996-2002			463.54	4,032.87

Source: 1996-2002 NMFS blend data

Table presented at the April meeting:

Table 4: CGOA Harvest of Shortraker/Rougheye Rockfish for the CV Sector 1996-2000

Species	Year	Sector	Sector Sum (mt.)	Total CGOA Harvest (mt.)	Percent sector/total
shortraker/rougheye	1996	CV	88.08	941.27	9.36%
shortraker/rougheye	1997	CV	17.48	932.66	1.87%
shortraker/rougheye	1998	CV	42.08	869.85	4.84%
shortraker/rougheye	1999	CV	45.99	579.89	7.93%
shortraker/rougheye	2000	CV	41.06	883.70	4.65%
shortraker/rougheye	2001	CV	18.38	998.16	1.84%
shortraker/rougheye	2002	CV	22.94	631.61	3.63%
total 1996-2002			276.00	5,837.13	4.73%

Source: 1996-2002 NMFS blend data

. **C-3 Rockfish, 4/7/05**

Supplemental Table - Shortraker/Rougheye CGOA Harvest by Sector, 1996-2002

Species	Year	Sector	Sector (mt.)	Sum	Sector	Sector (mt.)	Sum	Other (mt.)	Total (mt.)	CGOA	TAC (mt.)
shortraker/rougheye	1996	CP	581.29		CV	88.08		271.90	941.27		1,210
shortraker/rougheye	1997	CP	540.66		CV	17.48		374.52	932.66		970
shortraker/rougheye	1998	CP	522.00		CV	42.08		305.77	869.85		970
shortraker/rougheye	1999	CP	239.10		CV	45.99		294.80	579.89		970
shortraker/rougheye	2000	CP	615.00		CV	41.06		227.64	883.70		930
shortraker/rougheye	2001	CP	496.36		CV	18.38		483.42	998.16		930
shortraker/rougheye	2002	CP	347.55		CV	22.94		261.13	631.61		840
total 1996-2002			3,341.95			276.00		2,219.18	5,837.13		6,820

Source: 1996-2002 NMFS Blend Data for harvest levels; NMFS Annual Harvest Summaries for TAC's.

2005 CGOA TAC for shortraker	324 mt.	9.36 % x 324 mt. =30.32 mt.
2005 CGOA TAC for rougheye	557 mt.	
total	881 mt.	

Table 1: Percentiles of Set Specific Ratios of Bycatch Species/Target Species for CGOA Hook & Line Sets with Pacific Cod as the Targeted Species: 1996-2002

Incidental catch species	Longline sets with Central Gulf Pacific cod target	Hauls with bycatch species	Weight of incidental catch species	Weight of Central Gulf Pacific cod	25th Percentile	50th Percentile	75th Percentile	85th Percentile	95th Percentile	100th Percentile
Pacific Cod	507	507	1,984,614	1,984,614	1	1	1	1	1	1
Sablefish	507	70	15,097	155,146	0	0	0	0	0.1386324	0.8812155
Thornyhead	507	7	207	11,552	0	0	0	0	0	0.1095972
Shortraker	507	16	366	125,765	0	0	0	0	0	0.3701964
Rougheye	507	10	180	12,903	0	0	0	0	0	0.0882742
Shortraker/Rougheye (1)	507	1	*	1,101	0	0	0	0	0	*

Source: 1996-2003 GOA Observer data, with data calculations by NPFMC.

(1) where shortraker rockfish and rougheye rockfish were combined in the observer data

Table 2: Percentiles of Set Specific Ratios of Bycatch Species/Target Species for CGOA Hook & Line Sets with Sablefish as the Targeted Species: 1996-2002

Incidental catch species	Longline sets with Central Gulf sablefish target	Sets with bycatch species	Weight of incidental catch species	Weight of Central Gulf sablefish	25th Percentile	50th Percentile	75th Percentile	85th Percentile	95th Percentile	100th Percentile
Pacific Cod	2350	140	12,591	206,877	0	0	0	0	0.0085599	0.9619496
Sablefish	2350	2350	4,394,352	4,394,352	1	1	1	1	1	1
Thornyhead	2350	2202	168,090	4,251,711	0.0126187	0.0308037	0.0609804	0.0838902	0.1452489	0.5368937
Shortraker	2350	624	47,300	1,227,754	0	0	0.0028377	0.0141428	0.0785955	0.823041
Rougheye	2350	459	15,877	846,033	0	0	0	0.0033429	0.0254521	0.6111716
Shortraker/Rougheye (1)	2350	189	28,248	384,970	0	0	0	0	0.0143314	0.9444172

Source: 1996-2003 GOA Observer data, with data calculations by NPFMC.

(1) where shortraker rockfish and rougheye rockfish were combined in the observer data

Table 3: Percentiles of Set Specific Ratios of Bycatch Species/Target Species for CGOA Trawl Hauls with Rockfish as the Targeted Species: 1996-2002

Incidental catch species	Trawl hauls with Central Gulf rockfish targets	Hauls with bycatch species	Weight of incidental catch species	Weight of Central Gulf rockfish	25th Percentile	50th Percentile	75th Percentile	85th Percentile	95th Percentile	100th Percentile
CGOA rockfish	2756	2756	41,519,208	41,519,208	1	1	1	1	1	1
Pacific Cod	2756	1364	742,872	17,791,489	0	0	0.0322703	0.0639561	0.1711875	0.9855091
Sablefish	2756	1102	1,123,400	15,111,336	0	0	0.028388	0.0827129	0.2707176	0.9547639
Thornyhead	2756	638	309,699	13,153,414	0	0	0	0.0065823	0.0521304	0.8769523
Shortraker	2756	232	337,940	4,524,135	0	0	0	0	0.0259231	0.9253202
Rougheye	2756	371	389,981	7,698,578	0	0	0	0	0.0312887	0.8811273
Shortraker/Rougheye (1)	2756	14	33,008	527,828	0	0	0	0	0	0.1679843

Source: 1996-2003 GOA Observer data, with data calculations by NPFMC.

Central Gulf rockfish includes Pacific Ocean perch, northern rockfish and pelagic shelf rockfish.

(1) where shortraker rockfish and rougheye rockfish were combined in the observer data

Appendix 9A – Alternative ABCs for Shortraker/Rougheye Rockfish in the Gulf of Alaska

by
David M. Clausen
November 2004

Introduction

Past computations of ABC for the shortraker/rougheye rockfish management group in the Gulf of Alaska have been based on survey biomass estimates for these species. Because rougheye rockfish have almost always had a much larger biomass in the surveys than shortraker rockfish, rougheye have therefore comprised a larger proportion of the ABC. However, data from the NMFS Alaska Groundfish Observer Program (Clausen et al. 2003; see also Tables 9A-4 - 9A-8) have indicated that a majority of the shortraker/rougheye catch appears to be shortraker rockfish. This means that shortraker rockfish may be disproportionately harvested within the shortraker/rougheye group, and it raises the possibility that shortraker may be overexploited under the current ABC methodology. To remedy this situation, the North Pacific Fisheries Management Council's (NPFMC) Scientific and Statistical Committee (SSC) in December 2002 suggested that the combined shortraker/rougheye ABC could be set at a level such that the individual ABC for shortraker would not be exceeded. An easy and straightforward way to do this is to divide the ABC for shortraker rockfish by the estimated proportion of shortraker in the shortraker/rougheye catch to yield an alternative value of the combined ABC. In last year's SAFE report, we gave an example of an alternative ABC value (1,035 mt) for shortraker/rougheye based on this method, although we noted in the text that our estimate of the shortraker catch from the NMFS Groundfish Observer Program may have been biased because we did not account for catch differences by gear type when making the estimate. In this appendix, we present four possible ABC alternatives for shortraker/rougheye rockfish in 2005, two of which are based on the SSC's suggested procedure.

Shortraker/Rougheye ABC Alternative 1

This alternative is the same ABC for shortraker/rockfish as presented in this year's Executive Summary and was our recommendation in last year's SAFE report. However, it was later rejected by the SSC at their December 2003 meeting and replaced by ABC Alternative 2. Alternative 1 represents a continuation of what has been the standard way to compute ABC for shortraker/rougheye in the Gulf of Alaska since 1994, i.e., computing exploitable biomass from the average of the three most recent trawl surveys and then multiplying these by appropriate values of F. **For Alternative 1, ABC for shortraker/rougheye in 2004 and 2005 would be 1,760 mt, divided into these area apportionments: Western, 335 mt; Central, 875 mt; and Eastern, 200 mt.**

Shortraker/Rougheye ABC Alternative 2

At its December 2003 meeting, the SSC decided that to protect shortraker rockfish from disproportionate harvest within the shortraker/rougheye group, the old method of determining ABC (i.e., Alternative 1) should be replaced by the new method described above in the Introduction. An important requirement of

the computations in the new method is an accurate estimate of the proportion of the shortraker catch within the shortraker/rougheye group. Because the estimated proportion of the shortraker catch presented in our November 2003 SAFE report may have been biased, the SSC requested that new estimates be computed. The new estimates took into account catch differences by gear type and were based on the NMFS Alaska Regional Office catch accounting system rather than data from the Observer Program (Ianelli 2003). Details of the methods and data used to determine the new estimates are shown in the section below entitled "Catch Composition Data Used to Calculate ABC Alternatives 2 and 3 for Shortraker/Rougheye Rockfish" and in Tables 9A-1 – 9A-3. The results indicated the proportion of the shortraker catch within the shortraker/rougheye group was 56%, 54%, and 61% for the years 2000, 2001, and 2002, respectively (Table 9A-3). The SSC recommended using the average of these values, 57%, in computing ABC for shortraker/rougheye. **Thus, in this method that we call Alternative 2, the ABC for shortraker rockfish of 753 mt is divided by 0.57 (the proportion of shortraker in the shortraker/rougheye catch) to yield an ABC of 1,318 mt for the shortraker/rougheye group. This ABC is apportioned amongst the management areas as follows: Western, 254 mt; Central, 656 mt; and Eastern, 408 mt.** The NPFMC accepted these ABC values for the shortraker/rougheye group in the Gulf of Alaska in 2004.

Shortraker/Rougheye ABC Alternative 3

Alternative 3 is a new alternative that we present here for the first time. Its methods are similar to those used for determining the example alternative ABC presented in the November 2003 SAFE report, as both are based on data from the Observer Program. This is in contrast to Alternative 2, which used the NMFS Alaska Regional Office catch accounting system to make its catch estimates. In comparison to the example alternative ABC in the November 2003 SAFE report, Alternative 3 is considered an improvement that reduces the risk of possible bias in the estimation of shortraker and rougheye rockfish catches. Possible bias is reduced because Alternative 3 takes into account catch differences by gear type, whereas the example 2003 alternative did not.

We are presenting Alternative 3 because it may provide a more accurate estimate of the true proportion of the shortraker catch than does Alternative 2. Alternative 2 bases its catch estimates on the NMFS catch accounting system, which is derived from a combination of data turned in by fishermen, processors, and observers. In the case of fishermen and processors, prior to 2004 there was no requirement to report catches of shortraker/rougheye rockfish by species, and fishermen and processors were free to report their catch as either shortraker, rougheye, or shortraker/rougheye combined. Shortraker and rougheye rockfish are often difficult for an untrained person to separate taxonomically, and fishermen and processors had no particular incentive to accurately identify the fish to species. In some instances, it is possible that economic marketing may have influenced fishermen and processors to report one species rather than the other, which would result in inaccurate species catch reports[1]. In contrast, all observers in the NMFS Observer Program are trained in identification of Alaska groundfish, and they are instructed as to the importance of accurate identifications. Consequently, because Alternative 3 is based only on catch data from observers, its catch estimates for shortraker and rougheye rockfish may be more reliable than those in the NMFS catch accounting system. Details of the methods and data used to determine the catch estimates for Alternative 3 are shown in the section below entitled "Catch Composition Data Used to Calculate ABC Alternatives 2 and 3 for Shortraker/Rougheye Rockfish" and in Tables 9A-4 – 9A-8.

[1] T. Pearson, Kodiak Fisheries Research Center, National Marine Fisheries Service, Sustainable Fisheries, 302 Trident Way, Room 212, Kodiak, AK 99615. Pers. commun. Jan. 2004.

The catch estimates for Alternative 3 show that shortraker rockfish comprise a much larger proportion of the shortraker/rougheye catch than they do for Alternative 2 (see Table 9A-8 vs. Table 9A-3). The Alternative 3 estimates (based on observer data) indicate that shortraker rockfish comprise about 2/3rd of the shortraker/rougheye catch, whereas the Alternative 2 estimates (based on the NMFS catch accounting system) show that shortraker usually comprise slightly more than ½ of the catch. Further examination of these catch estimates by gear type reveals that the two methods of estimating catch generally agree on the species composition of the trawl catch, but find very different results for the longline catch (see Table 9A-7 vs. Table 9A-2). The estimates of longline catch from the NMFS catch accounting system show approximately equal catches of shortraker and rougheye for most years, whereas those based on observer data indicate that shortraker predominate by a factor of about 3 to 1.

As previously discussed, the species catch data from the Observer Program may be more accurate than those from the NMFS catch accounting system because of the better identification of shortraker and rougheye rockfish by observers. Further evidence lending credence to the observer estimates is the consistent predominance of shortraker rockfish in the species composition of the longline catches. Even though the rate of observer coverage of shortraker/rougheye longline catches is relatively low in the Gulf of Alaska compared to that of trawls (Table 9A-6), the observed catch of shortraker rockfish on longlines is much greater than that of rougheye rockfish in virtually every area and year (Appendix 9A, Table 9A-4). This remarkable consistency in the observer data strongly suggests that shortraker rockfish do indeed comprise the majority of the longline catch of shortraker/rougheye.

Finally, one other factor favoring the observer data and Alternative 3 is that starting in 2003, the NMFS catch accounting system was modified in such a way that it can no longer provide catch estimates by species. New algorithms were written that estimated catch, but catches from these algorithms are only available for specified management species or species groups. The new system cannot account for non-specified species or individual species within management groups, such as shortraker and rougheye rockfish in the Gulf of Alaska. Although there are plans to eventually modify the algorithms to allow catch estimates by species, at present the only way to estimate the species catch of shortraker and rougheye is to use data from the Observer Program.

Therefore, **Alternative 3** estimates the 2005 ABC for shortraker/rougheye rockfish in the Gulf of Alaska as follows: The estimated proportion of shortraker rockfish in the shortraker/rougheye catch for the three most recent years is 0.701 in 2001, 0.794 in 2002, and 0.719 in 2003, with an average proportion of 0.738 (Table 9A-8). **The ABC for shortraker rockfish, 753 mt, divided by 0.738, yields a Gulfwide ABC of 1,020 mt for the shortraker/rougheye management group. This ABC can then be apportioned to the geographic areas based on the apportionment values listed above: Western, 194 mt; Central, 507 mt; and Eastern, 319 mt.**

Shortraker/Rougheye ABC Alternative 4

This alternative, which was briefly mentioned in last year's SAFE report, would dispense with the shortraker/rougheye group entirely and establish separate ABCs for each species. **Hence, Alternative 4 ABCs for 2005 in the Gulf of Alaska would be 753 mt for shortraker rockfish and 1,007 mt for rougheye rockfish.** Establishing separate ABCs for shortraker and rougheye rockfish would solve the problem that presently exists regarding possible overexploitation of shortraker rockfish within the shortraker/rougheye group. If this alternative was adopted, management of these two species in Gulf of Alaska would also be consistent with that in the Bering Sea and Aleutian Islands, where separate ABCs for shortraker and rougheye were initiated in 2004. Although separating shortraker and rougheye rockfish

in the Gulf of Alaska appears to be a logical management step and will probably occur sometime in the future, at present it may not be a feasible option. This is because of the current difficulty obtaining accurate species catch identification for shortraker and rougheye rockfish, especially from the longline fishery. Species identification is not so much of a problem in the Bering Sea and Aleutian Islands, where observer coverage rates are relatively high for both trawl and longline vessels. In the Gulf of Alaska, however, observer coverage is low or non-existent on the small vessels that comprise most of the longline fleet. Therefore, to successfully manage shortraker and rougheye rockfish in the Gulf of Alaska separately under their own individual ABCs and TACS, we would be dependent on fishermen and processors to make accurate species identifications. An aggressive training program to educate fishermen and processors on the identification of shortraker and rougheye rockfish would likely be required before Alternative 4 could be adopted.

Comments on Shortraker/Rougheye ABC Alternatives

Although we are definitely concerned about possible overexploitation of shortraker rockfish in the Gulf of Alaska, we are also concerned about the methodology used in Alternatives 2 and 3 to obtain new ABC estimates for shortraker/rougheye rockfish. To compute ABC, Alternatives 2 and 3 both rely on estimates of the proportion of shortraker in the catch; as we have discussed, however, these estimates are uncertain. Alternative 3 is probably preferable to Alternative 2 because the former is based exclusively on observer identifications, and these observer data were highly consistent in showing a predominance of shortraker rockfish in the longline catches over many areas and years. Even so, the amount of observed shortraker/rougheye catch in the longline fishery was relatively low, which suggests caution in the use of these estimates for determining ABC. Also, Alternative 3's relatively low ABC of 1,020 mt represents a significant decrease compared to previous ABCs for shortraker/rougheye rockfish in the Gulf of Alaska. This ABC is low enough that it could impose a hardship to commercial fishermen if it were to result in closures of other fisheries because of shortraker/rougheye bycatch constraints

One option would be to revert back to the old method of determining ABC (Alternative 1) until additional catch information is available and/or fishermen and processors are better trained in identification of the two species. A cooperative research project involving the Alaska Longline Fishermen's Association and NMFS is planned for 2005 to obtain information on the shortraker/rougheye species catch composition from un-observed longline vessels in the Gulf of Alaska. The project will also train processing crews at shoreside plants to correctly identify the two species and later will investigate how successful the training was. After this project is completed, we could then re-examine the possible change of our ABC determinations to one of the new alternatives.

References

Clausen, D. M., J. T. Fujioka, and J. Heifetz. 2003. Shortraker/rougheye and other slope rockfish. In Stock assessment and fishery evaluation report for the groundfish resources of the Gulf of Alaska, p. 531 – 572. North Pacific Fishery Management Council, 605 W 4th Ave, Suite 306, Anchorage AK 99501.

Ianelli, J. 2003. An examination of GOA SR/RE species composition available from the NMFS catch-accounting system. Unpubl. manu. 3 p. (Available from National Marine Fisheries Service, Alaska Fisheries Science Science, REFM Division, 7600 Sand Point Way NE, Seattle WA 98115-0070).

Sources of Catch Composition Data Used to Calculate ABC Alternatives 2 and 3 for Shortraker/Rougheye Rockfish

The data in Tables 9A-1 through 9A-3 were originally listed in Ianelli (2003) and are from the NMFS Alaska Regional Office catch accounting system. These three tables were used to estimate the proportion of shortraker rockfish in the Gulf of Alaska shortraker/rougheye catch (see column 4 in Table 9A-3). This proportion in turn was used to calculate shortraker/rougheye ABC for Alternative 2 in this appendix. For the years 1993-2002, catches were available in the catch accounting system by gear type for two categories of shortraker/rougheye: those catches specifically identified as rougheye or shortraker, and those identified only as shortraker/rougheye combined. The species proportions computed from the identified catch (Table 9A-2) were applied to the shortraker/rougheye combined catches in Table 9A-1 to estimate the species composition of the combined catches. These estimated catches were then added to the identified catch to yield estimates of total catch for each species (Table 9A-3). Because of technical changes in the catch accounting system, only data for an overall catch of shortraker/rougheye combined are available for 2003.

The data in Tables 9A-4 through 9A-8 were newly compiled for this appendix and are from the NMFS Alaska Groundfish Observer Program database and from the NMFS Alaska Regional Office website. These tables were used to estimate the proportion of shortraker rockfish in the Gulf of Alaska shortraker/rougheye catch (see column 4 in Table 9A-8). This proportion in turn was used to calculate shortraker/rougheye ABC for Alternative 3 in this appendix. Tables 9A-4 and 9A-5 contain the basic data, from which the remaining tables are derived. Catches for 1993-2003 were available from the observer database by area, gear, and species for those hauls sampled by observers (Table 9A-4). These data were then used to compute the proportions of the shortraker and rougheye catch by gear type (Table 9A-7). Finally, these proportions were applied to the combined shortraker/rougheye catches from the Regional Office website (Table 9A-5) to yield estimates of the total catch for each species (Table 9A-8).

Table 9A-1. Catch (mt) of shortraker and rougheye rockfish in the Gulf of Alaska, by gear type, 1993-2003, based on data from the NMFS Alaska Regional Office catch accounting system. (SR/RE = shortraker and rougheye rockfish combined; RE = rougheye rockfish; SR = shortraker rockfish; n.a. = not available).

Year	SR/RE Trawl	RE Trawl	SR Trawl	SR/RE Longline	RE Longline	SR Longline	SR/RE Total
1993	1,391	15	30	486	116	58	2,095
1994	891	38	20	703	110	57	1,819
1995	1,398	60	92	406	168	125	2,249
1996	927	107	81	268	169	102	1,654
1997	717	144	208	195	180	159	1,604
1998	494	283	139	387	220	194	1,717
1999	524	71	133	207	201	174	1,310
2000	780	84	131	290	229	229	1,743
2001	510	117	165	544	309	331	1,976
2002	516	75	165	233	161	158	1,309
2003	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	1,405

Table 9A-2. Composition (proportion) of the shortraker and rougheye rockfish identified catch in the Gulf of Alaska, by gear type, 1993-2003, based on the data in Table 9A-1 from the NMFS Alaska Regional Office catch accounting system. (RE = rougheye rockfish; SR = shortraker rockfish; n.a. = not available).

	Composition of Identified SR-RE Catch			
	Trawl		Longline	
Year	RE	SR	RE	SR
1993	0.33	0.67	0.67	0.33
1994	0.66	0.34	0.66	0.34
1995	0.39	0.61	0.57	0.43
1996	0.57	0.43	0.62	0.38
1997	0.41	0.59	0.53	0.47
1998	0.67	0.33	0.53	0.47
1999	0.35	0.65	0.54	0.46
2000	0.39	0.61	0.50	0.50
2001	0.41	0.59	0.48	0.52
2002	0.31	0.69	0.50	0.50
2003	n.a.	n.a.	n.a.	n.a.

Table 9A-3. Total estimated catch (mt) of shortraker and rougheye rockfish in the Gulf of Alaska, by gear type, 1993-2003, based on the data in Tables 9A-1 and 9A-2 from the NMFS Alaska Regional Office catch accounting system. Also shown is the estimated percentage of shortraker rockfish in the shortraker/rougheye catch. (RE = rougheye rockfish; SR = shortraker rockfish; n.a. = not available).

Year	RE	SR	% SR
1993	919	1,177	56.2
1994	1,195	624	34.3
1995	1,013	1,236	55.0
1996	971	683	41.3
1997	721	882	55.0
1998	1,040	677	39.4
1999	565	745	56.8
2000	763	980	56.2
2001	900	1,076	54.4
2002	515	793	60.6
2003	n.a.	n.a.	n.a.
Average % SR 2000-2002 =			57.1

Table 9A-4. Observed catch (kg) of shortraker and rougheye rockfish in the Gulf of Alaska, by gear type, 1993-2003. (From NMFS Alaska Observer Program database; RE = rougheye and SR = shortraker; E. Yak/SE = East Yakutat/Southeastern area).

		Non-pelagic trawl			Pelagic trawl			Longline			Grand
Year	Area	RE	SR	Total	RE	SR	Total	RE	SR	Total	total
1993	Shumagin	9,436	7,392	16,828	0	0	0	6,968	37,644	44,612	61,440
	Chirikof	54,121	52,704	106,825	9	513	523	6,964	12,910	19,874	127,221
	Kodiak	117,037	223,635	340,673	17	1	19	16,927	38,176	55,104	395,795
	W. Yakutat	10,903	78,675	89,577	889	233	1,122	7,821	56,950	64,771	155,470
	E. Yak/SE	1,086	4,786	5,872	0	0	0	2,920	2,701	5,621	11,493
	Total	192,583	367,192	559,775	915	748	1,663	41,600	148,381	189,981	751,419
1994	Shumagin	23,097	27,010	50,106	3	0	3	1,500	7,355	8,855	58,964
	Chirikof	16,578	21,405	37,982	5	11	16	6,033	1,814	7,847	45,845
	Kodiak	115,776	194,108	309,884	1,637	451	2,088	5,197	5,975	11,171	323,143
	W. Yakutat	10,255	115,792	126,047	6,965	667	7,632	1,992	17,304	19,296	152,975
	E. Yak/SE	9,915	7,343	17,259	0	0	0	337	3,484	3,821	21,080
	Total	175,620	365,658	541,278	8,610	1,129	9,739	15,058	35,932	50,991	602,008
1995	Shumagin	60,729	14,696	75,425	8	0	8	11,040	42,466	53,506	128,939
	Chirikof	54,467	100,412	154,879	264	0	264	313	761	1,074	156,217
	Kodiak	134,594	261,509	396,104	258	0	258	2,559	8,006	10,565	406,926
	W. Yakutat	22,892	123,139	146,031	2,091	4,109	6,199	4,119	15,983	20,102	172,333
	E. Yak/SE	4	20,554	20,559	0	0	0	9,869	19,148	29,017	49,576
	Total	272,687	520,311	792,998	2,620	4,109	6,729	27,899	86,364	114,263	913,990

Table 9A-4. (continued.)

		Non-pelagic trawl			Pelagic trawl			Longline			Grand
Year	Area	RE	SR	Total	RE	SR	Total	RE	SR	Total	total
1996	Shumagin	11,397	2,404	13,800	17	0	17	17,320	37,155	54,475	68,292
	Chirikof	27,488	39,688	67,176	6,284	0	6,284	642	4,306	4,948	78,409
	Kodiak	140,865	170,994	311,859	39	0	39	5,296	12,842	18,138	330,036
	W. Yakutat	23,966	110,453	134,419	845	533	1,378	4,049	15,856	19,905	155,702
	E. Yak/SE	7,095	30,365	37,461	0	0	0	5,832	31,577	37,410	74,871
	Total	210,811	353,904	564,716	7,185	533	7,718	33,141	101,735	134,876	707,309
1997	Shumagin	3,856	21,964	25,821	39	361	400	8,921	37,962	46,883	73,104
	Chirikof	30,734	21,221	51,955	97	107	204	281	3,221	3,501	55,660
	Kodiak	140,971	161,021	301,993	198	0	198	1,474	8,493	9,967	312,157
	W. Yakutat	4,812	73,520	78,332	2,692	29,493	32,186	1,276	12,431	13,707	124,225
	E. Yak/SE	16,026	10,001	26,027	0	0	0	13,800	16,278	30,078	56,105
	Total	196,400	287,728	484,128	3,026	29,961	32,987	25,751	78,386	104,137	621,251
1998	Shumagin	17,887	16,703	34,590	0	0	0	6,885	22,702	29,587	64,177
	Chirikof	11,099	4,612	15,711	407	0	407	1,857	3,546	5,402	21,520
	Kodiak	324,116	129,629	453,745	0	0	0	3,896	14,019	17,915	471,660
	W. Yakutat	3,646	135,845	139,492	0	35,220	35,220	1,237	14,635	15,871	190,583
	E. Yak/SE	0	0	0	0	0	0	7,663	19,813	27,475	27,475
	Total	356,748	286,790	643,538	407	35,220	35,627	21,537	74,714	96,251	775,415

Table 9A-4. (continued.)

Year	Area	Non-pelagic trawl RE	Non-pelagic trawl SR	Non-pelagic trawl Total	Pelagic trawl RE	Pelagic trawl SR	Pelagic trawl Total	Longline RE	Longline SR	Longline Total	Grand total
1999	Shumagin	12,790	50,072	62,863	0	0	0	3,072	12,305	15,377	78,240
	Chirikof	39,088	40,342	79,430	0	0	0	440	950	1,390	80,820
	Kodiak	50,305	104,372	154,677	57	310	367	1,887	7,231	9,117	164,161
	W. Yakutat	17,905	103,723	121,628	0	8,035	8,035	2,111	7,293	9,404	139,066
	E. Yak/SE	0	0	0	0	0	0	3,292	16,422	19,714	19,714
	Total	120,089	298,509	418,597	57	8,345	8,401	10,801	44,201	55,002	482,001
2000	Shumagin	25,471	17,716	43,187	0	2	2	4,126	7,937	12,063	55,252
	Chirikof	20,874	4,007	24,881	0	0	0	629	3,752	4,381	29,262
	Kodiak	146,057	327,961	474,018	917	147	1,064	5,423	11,567	16,991	492,073
	W. Yakutat	11,134	96,207	107,341	8	4,367	4,375	2,943	5,955	8,898	120,613
	E. Yak/SE	0	0	0	0	0	0	7,367	20,286	27,653	27,653
	Total	203,536	445,890	649,427	924	4,516	5,440	20,488	49,498	69,985	724,852
2001	Shumagin	16,964	10,745	27,708	68	0	68	2,218	5,540	7,758	35,534
	Chirikof	4,915	3,486	8,401	2,422	1,548	3,969	889	1,466	2,355	14,726
	Kodiak	66,964	129,759	196,723	26	22	49	1,674	11,392	13,066	209,837
	W. Yakutat	9,748	39,694	49,441	0	10,060	10,060	2,018	6,555	8,573	68,075
	E. Yak/SE	0	0	0	0	0	0	6,880	11,914	18,793	18,793
	Total	98,591	183,683	282,274	2,516	11,630	14,146	13,678	36,867	50,545	346,965

Table 9A-4. (continued.)

		Non-pelagic trawl			Pelagic trawl			Longline			Grand
Year	Area	RE	SR	Total	RE	SR	Total	RE	SR	Total	total
2002	Shumagin	17,068	128,295	145,363	0	0	0	4,670	14,053	18,724	164,086
	Chirikof	28,654	69,976	98,631	2,466	1,803	4,269	86	1,337	1,423	104,322
	Kodiak	29,844	145,616	175,461	259	1,674	1,933	2,111	6,096	8,207	185,601
	W. Yakutat	3,448	42,932	46,380	396	23,296	23,692	2,789	6,161	8,950	79,021
	E. Yak/SE	0	0	0	0	0	0	2,305	6,538	8,842	8,842
	Total	79,014	386,819	465,833	3,122	26,773	29,894	11,961	34,184	46,145	541,873
2003	Shumagin	22,553	42,371	64,924	0	0	0	6,199	22,462	28,661	93,585
	Chirikof	34,024	68,255	102,278	14,873	9,985	24,858	843	2,233	3,076	130,212
	Kodiak	57,300	147,484	204,784	198	87	285	2,123	6,528	8,651	213,720
	W. Yakutat	15,759	61,609	77,368	455	6,499	6,954	1,745	6,140	7,885	92,207
	E. Yak/SE	0	0	0	0	0	0	4,416	9,844	14,259	14,259
	Total	129,636	319,719	449,354	15,526	16,571	32,097	15,326	47,207	62,533	543,984
Grand Total		2,035,715	3,816,203	5,851,918	44,907	139,535	184,442	237,240	737,469	974,709	7,011,068

Table 9A-5. Total catch (mt) of the shortraker/rougheye management category in the Gulf of Alaska, by gear type, 1993-2003, based on data on the NMFS Alaska Regional Office website.

Year	Trawl	Longline	Total
1993	1,277	655	1,932
1994	951	881	1,832
1995	1,550	700	2,250
1996	1,116	545	1,661
1997	1,068	543	1,611
1998	915	818	1,733
1999	728	583	1,311
2000	996	747	1,743
2001	791	1,184	1,975
2002	756	567	1,323
2003	900	505	1,405

Table 9A-6. Percent of the total shortraker/rougheye catch in the Gulf of Alaska that was observed, by gear type, 1993-2003. Percents were computed from data in Table 9A-4 and Table 9A-5.

	Percent observed	
Year	Trawl	Longline
1993	44.0	29.0
1994	57.9	5.8
1995	51.6	16.3
1996	51.3	24.7
1997	48.4	19.2
1998	74.2	11.8
1999	58.7	9.4
2000	65.8	9.4
2001	37.5	4.3
2002	65.6	8.1
2003	53.5	12.4

Table 9A-7. Species composition (proportion) of the observed shortraker and rougheye catch by gear type, 1993-2003, based on the observer data in Table 9A-4.

	Composition of Observed SR-RE Catch			
	Trawl		Longline	
Year	RE	SR	RE	SR
1993	0.34	0.66	0.22	0.78
1994	0.33	0.67	0.30	0.70
1995	0.34	0.66	0.24	0.76
1996	0.38	0.62	0.25	0.75
1997	0.39	0.61	0.25	0.75
1998	0.53	0.47	0.22	0.78
1999	0.28	0.72	0.20	0.80
2000	0.31	0.69	0.29	0.71
2001	0.34	0.66	0.27	0.73
2002	0.17	0.83	0.26	0.74
2003	0.30	0.70	0.25	0.75

Table 9A-8. Estimated catch (mt) of shortraker and rougheye rockfish in the Gulf of Alaska, 1993-2003, from observer data, based on applying the proportions in Table 9A-7 to the catches in Table 9A-5. Also shown is the estimated percentage of shortraker rockfish in the shortraker/rougheye catch.

Year	RE	SR	% SR
1993	584	1,348	69.8
1994	578	1,254	68.4
1995	705	1,545	68.7
1996	559	1,102	66.4
1997	546	1,065	66.1
1998	664	1,069	61.7
1999	319	992	75.6
2000	529	1,214	69.6
2001	590	1,385	70.1
2002	272	1,051	79.4
2003	395	1,010	71.9
Average % SR 2001-2003 =			73.8

Appendix 8

Reviews of Analyses

Anderson, "A Microeconomic Analysis of the Formation and Potential Reorganization of AFA Coops (*sic.*)," Marine Resource Economics (2002).

This article examines the cooperative structure developed under the AFA for the Bering Sea pollock fishery. Specifically, the efficiency effects of requirement that a cooperative landing 90 percent of its catch with its associated processor are studied. Vessel level effects of movement among cooperatives and fishing within cooperatives are examined, from which overall effects can be derived. Landings limitations on cooperatives could limit the efficiency gains in the fishery relative to an IFQ program without those landings limitations. In the short run, this results from the absence of "rationalization" in the processing sector (which would occur through competition for landings). Although this is a short run conclusion, it is likely that some short run inefficiencies occur in IFQ programs as markets for landings develop. Overcoming these inefficiencies would be slowed under an AFA cooperative structure because of the limitations on landings.

Additionally, potential inconsistencies between individual incentives of vessels under the cooperative structure raises concern in the author that potential overall efficiency gains may not be realized. Movement from one cooperative to another could reduce efficiency for some vessels even though the overall effect is an efficiency gain. The author suggests that this could lead to a reduction in overall efficiency, although that is a weak conclusion of the analysis, and depends on the extent to which participants are unwilling to use side payments to prevent inefficient movements. This conclusion may be suspect considering the subsequent development of intercooperative trades under the program. The effect of intercooperative transfers on overall efficiency depends on whether those trades are undertaken for broad efficiency purposes (or for addressing short term issues, such as operational challenges).

Some aspects of the pollock fishery are not fully accounted for in the analysis, which could affect overall efficiency in the fishery. First, the need to spend a year in the limited access fishery is briefly discussed, but is not modeled. If a vessel cannot be relatively certain to maintain its profits during a year in the limited access fishery that aspect of the program would likely reduce the number of efficiency improving moves. Second, the general limitation on the entry of processors to the fishery could also limit efficiency gains in the fishery. Modeling this effect is likely impossible, but this aspect of the program could also reduce overall efficiency. Lastly, the article does not account for interactive effects that arise through coordination among cooperative fleets and their associated processors. These interactive effects could substantially contribute to efficiency through a reduction in transaction costs, but are also difficult (or impossible) to model.

In general, the article concludes that the AFA cooperative structure could provide efficiency gains, but those gains may not be equivalent to those realized in an IFQ program. As the author points out, the magnitude of any efficiency loss is an empirical issue, which may differ across fisheries. In addition (and perhaps most importantly), the author points out that the cooperative structure is intended to address distribution concerns that may be difficult to address in an IFQ program that grant all harvest privileges to vessels.

Matulich, Sever, and Inaba, "American Fisheries Act Cooperative Rationalization," Marine Resource Economics (2001).

This article examines bargaining and the distribution of benefits between catcher vessels and processors under the AFA catcher vessel cooperative structure. The article uses a bilateral monopoly model to

analyze processor competition and collective bargaining across cooperatives. The article qualitatively analyzes the potential for processors to adopt one of two polar strategies: a market sharing strategy, characterized by reduced competition, or a market realignment strategy, characterized by relatively intense competition. The authors conclude that the more competitive, market realignment strategy is likely to be adopted because of heterogeneity of vessels and processors and different levels of vertical integration among processors. The authors argue that processors with substantial vertical integration are likely to be in a much better position to engage in competition for landings than processors that are not vertically integrated, since landings from their existing fleet are not at risk. Vertically integrated processors are argued to have lower costs of unprocessed fish, since any ex vessel price increases arising from competition would not require it to make additional payments for its landings from vertically integrated vessels. The author correctly points out that any movement among cooperatives would result in an uncompensated loss of historic processing activity to the processor.

The authors also examine the effect of the requiring a vessels to fish for one year in a limited access fishery to switch cooperatives. The authors believe that this requirement is unlikely to be a substantial deterrent to moves for three reasons. First, the authors believe that vertically integrated processors will have the ability to pay a substantially higher price for landings once the vessel joins the cooperative. Second, vessels are unlikely to move without first securing long term contracts to ensure that their costs from the limited access fishery are covered. And third, processors may be willing to bear the risk of reduced harvests in the limited access fishery by guaranteeing the vessel revenues during that year. The authors conclude that vessel movement is likely under the program and that because vertically integrated processors have a competitive advantage, and that efficiency may not be maximized. The authors, instead, advocate a two-pie program that allocates quota to processors based on historic processing activity, allowing processors to participate in the quota market would contribute to efficiency. Whether intercooperative transfers undertaken with the consent of processors could be used to overcome these inefficiencies is not examined.

The qualitative analysis of this article is focused largely on the short run effects that occur as a fishery transitions under the new system. The long term conclusion (drawn by the authors) is that rents in the fishery go to vessels under this management structure. A few observations, however, may be worth noting. Given this long run outcome, it is unclear how vertical integration provides any better position to a processor than simple access to funds to support ex vessel price increases. The article frames the competitive advantage as arising out of the vertical integrated processor having a supply of fish for which the higher ex vessel need not be paid. In effect this reduces to shifting revenues from company's profits on harvesting (that arise out of vessel ownership exclusive of the processing interest) to fund purchase of landings to support its processing. In other words, the result arises simply from the processor having available revenues to compete with, rather than some intrinsic negotiating advantage because of that interest being a fishing interest. It is unclear a processor with available resources that can be used to compete are any different from processors that hold fishing interests. The article seems to ignore the information that a vertically integrated processor may have concerning operational costs for vessels, which may have some impact on negotiations, and the possible operational advantage that might arise from vertical integration.

Interestingly, the article's arguments concerning the added negotiating leverage from vertical integration lead to a counterintuitive result – that vertical integration leads to an ex vessel price that is higher than would be paid, if no processors were vertically integrated. Additionally, this competition is argued to reduce efficiency, since a less efficient vertically integrated processor could bargain away vessels from a less efficient processor that is independent. This result is also counterintuitive and to the extent it exists is likely a short run phenomenon that has more to do with relative wealth of processors than any specific effects of vertical integration. The article interestingly argues that processors will induce vessels to move by entering long term contracts that effectively ensure long term returns after the move and shift the risk

of a year in a limited access fishery to processors are evidence of a lack of processing protection. This scenario would seem to describe the level of protection that is provided to processors by the cooperative structure. A vessel will only move if the processor to which it is moving is willing to cover the cost of the limited access through either a higher ex vessel price after the move or accepting all risk for the loss of revenues in the limited access fishery. The adequacy of this protection is both an empirical and political issue that depends on effort levels in the limited access fishery and opinions concerning equitable distributions of benefits. The authors clearly believe that low effort levels in the limited access fishery result in little processor protection.

In the post script, the authors discuss cooperative formation and vessel movements that have occurred in the first year of fishing under the program. The discussion is largely supportive of the papers conclusions, citing four vessel movements as evidence of competition. The post script, however, also raises new aspects of the industry beyond those discussed in the article – the effects of heterogeneity of vessel and processing operations on cooperative memberships. Specifically, the authors point out that cooperatives seemed to have formed in a manner that vessel and processing operations are complementary – relatively small vessels have gravitated to (or remained with) certain processors, while relatively large vessels have gravitated to (or remained with) others achieving some benefits from these operational consistencies. The article unfortunately does little more than introduce these alignments, failing to address potential efficiency and distribution effects. Instead the article suggests that a change in total catch or markets would likely disrupt the equilibrium resulting in a return to competition, which would advantage vertically integrated processors.

Halvorsen, Khalil, and Lawarrée, "Inshore Sector Catcher Vessel Cooperatives in the BSAI Pollock Fisheries," Discussion Paper for the North Pacific Fishery Management Council.

This article examines the bargaining strength of the processing and harvesting sectors under the AFA with and without cooperatives to assess the distribution impacts of the change in management brought about by the AFA cooperatives.

The authors first examine the race for fish that would occur without cooperatives and assert that processors have some important advantages. The authors assert that the high costs of entry to processing is an effective barrier to entry during the race for fish. Competition among processors is also argued to be limited because short term gains from competition are thought to yield little in terms of long term profits. In addition, the authors assert that vertical integration of processors reduces their dependence on the harvest sector supply of inputs. Vertical integration also provides processors with better information concerning harvest sector costs, which can be used in price negotiations.

The authors go on to examine the fishery when managed with cooperatives ending the race to fish. They assert that the change in allocation percentages to each sector under the AFA is likely to benefit independent catcher vessels but that one cannot conclude that the overall effect will be positive. Under cooperatives, the authors assert that longer seasons will increase effective processing capacity creating opportunity for greater competition in the processing sector. Vertical integration is thought to continue to dampen this tendency toward greater competition. Several factors are asserted to contribute to potential for negative effects on the independent catcher vessels including concentration in the processing sector, which would limit competition; the amount and importance of vertical integration, which also would limit competition and provide information to processors; the amount of excess harvest capacity, which would increase harvest sector competition; and the difficulty in entering long term price contracts, which would reduce price certainty. The authors also examined the AFA transfer limit rule, under which a cooperative can deliver up to 10 percent of its harvests to processors with which it is not affiliated. Processors would be expected to pay more for these incremental supplies of fish but the extent to which processors would compete aggressively for these fish could not be determined. The authors, however, assert that

independent harvest vessels could realize significant benefits from increasing the transfer limit above 10 percent if processors compete aggressively for the transferable portion of the allocation.

Matulich, Mittelhammer, and Reberte, "Toward a More Complete Model of Individual Transferable Fishing Quotas," Journal of Environmental Economics and Management (1996).

This article examines the rent redistribution between the harvesting and processing sectors that occurs during rationalization of a fishery with a harvester only IFQ program. The analysis focuses on the transition from the pre-IFQ equilibrium to the IFQ equilibrium. The authors believe that examination of the transition from a race to fish to a rationalized fishery is important because it is during the transition that most gains and losses will be realized. The analysis assumes fully competitive harvesting and processing sectors. Both the harvesting and processing sectors are assumed to have excess capacity. Season elongation, often observed after rationalization of fishery, drives many of the results.

The IFQ fishery provides harvesters with a protected interest in quota allowing them to determine efficient rate of harvest of their shares. The extended IFQ seasons allow more efficient harvesters to realize efficiencies by purchasing shares from less efficient harvesters. The exiting, less efficient harvesters are argued to be fully compensated when exiting by the voluntary sale of quota to the more efficient harvesters.

In the harvester only IFQ program, processors receive no processing privilege, but can only control inputs through changing the exvessel price they pay. Processors that desire to increase inputs can do so only by increasing the exvessel price that they pay to harvesters. Processors that are less efficient are argued to be less able to pay for inputs and will ultimately lose any price competition to more efficient processors. Processors in a harvester IFQ program are argued to have no mechanism for compensation for any capital that is removed from the fishery. The authors find that if processing capital is nonmalleable (or not useable for other purposes), quasi-rents will be transferred from the processing sector to the harvesting sector during the transition from an open access equilibrium to a harvester only IFQ equilibrium. The authors rely on the status quo equilibrium (or equilibrium in the race to fish) as the baseline for assessing the redistribution of quasi rents. In the model, a portion of the pre-IFQ processing quasi rents are capitalized into the harvesting quota share privileges. The transfer of rents is found to be a decreasing function of the malleability of processing capital. In the special case of perfectly malleable processing capital, no transfer of quasi-rents would occur. The authors come to no conclusion concerning whether processors remaining in the fishery in the long run will lose or gain quasi rents. Processors that survive in the long run will realize efficiency gains and market share but could lose some exvessel price concession leaving their overall position indeterminate.

Matulich and Sever, "Reconsidering the Initial Allocation of ITQs," Land Economics (1999).

In this article the authors examine and compare the distribution of rents under a harvester only IFQ program and a two pie IFQ program. The authors contend that efficiency gains will occur under either allocation but distribution of rents change depending on the program adopted and the market power (or distribution of bargaining strength) of the harvesting and processing sectors. The objective of the authors is to find an outcome that would not make any member of either sector worse off in the rationalized fishery than under the status quo derby fishery (which the author's define as a "Pareto safe" allocation).

If both sectors are competitive, the authors assert that fishers will form a bargaining cooperative that will extract all rents under either a harvester only IFQ or a two pie allocation. Similarly, it is asserted that in a bilateral monopoly, a harvester only IFQ would not be "Pareto safe" because harvesters would extract all rents through their bargaining association coupled with the control over the resource granted by the IFQ allocation. The authors, however, assert that a two pie IFQ allocation under bilateral monopoly is Pareto

safe (or equivalently would make no participant worse off). This outcome is derived from an assumption that the representatives of both sectors adopt bargaining positions that maximize joint profits and make no members worse off.

The cooperation of the harvesters in a bargaining unit seems to be critical to the conclusions reached. The bilateral monopoly is justified on the grounds that the harvesters will cooperate in a bargaining unit as is permitted by law. This cooperation benefits not only harvesters by creating monopoly power but also provides processors with price information (conveyed by the bargaining unit) that permits processors to act as a monopsony (without direct collaboration). Processors gain harvest information through negotiations with the harvesters enabling processors to act in a manner that resembles cooperative action. The authors argue that the result of this bilateral monopoly together with allocation of corresponding harvest and processing shares is offsetting market power that results in no participant being made worse off.

The authors caution that transaction costs can inhibit efficiency. Specifically, they point out that thin harvesting or processing share markets (or markets with few participants or share holders) could reduce efficiency gains in both sectors. Limited numbers of participants would limit the ability of participants to purchase the number of shares necessary to operate efficiently. Vertical integration is argued to have the potential to contribute to these efficiency losses.

Matulich and Clark, "Efficiency and Equity Choices in Fishery Rationalization Policy Design," Regional Information Report for the State of Alaska Department of Fish and Game.

This article is an empirical study of the distributional impacts of the halibut and sablefish IFQ program on processors. The authors arithmetically estimate the quasi-rents of processors in the pre-IFQ and post-IFQ fisheries. The authors conclude that a significant number of processors suffered a loss of quasi rents in both fisheries. The authors caution that the findings do not show causality and therefore the loss of rents cannot be attributed to the IFQ program but could have arisen from other influences. The authors also caution that the results are robust only to the extent that the collected data are representative of the industry as a whole. The authors collected data from processors of between one-half and two-thirds of the halibut and sablefish catch in the time periods examined. Applicability of this study to crab fisheries, however, might be questioned because of the differences in the market conduct of processors participating in the halibut and sablefish fisheries and the BSAI crab fisheries. For example, pricing practices and market opportunities available to processors in these fisheries differ and could result in different impacts.

Milon, Walter and Steve Hamilton, "A Comparative Analysis of Alternative Rationalization Models for the Bering Sea/Aleutian Islands Crab Fisheries," Discussion Paper for the North Pacific Fishery Management Council.

This article examines harvester only IFQ, two pie IFQ, and cooperative regulatory structures for BSAI crab fisheries. The authors assume that the harvesting sector is competitive and that the processing sector is an oligopsony. Using a game theoretic framework, the authors assert that a harvester only IFQ would realize any possible efficiency gains and would leave both harvesters and processors better off. In the harvest sector, the allocation of quota shares provides harvesters with a windfall allocation of the resource. Harvesters can realize efficiencies by slowing harvest rates and removing excess harvest capital from the fishery. The authors find that no change in the ex vessel prices would occur. In the short run, the authors find that there could be some excess processing capacity. The potential for processors to reduce costs by improved scheduling of deliveries and reduced storage costs and the absence of a change in ex vessel prices result in processors being better off. In the long run processors are asserted to realize additional benefits through plant resizing and technology improvements. The authors assume that entry for processors is limited by the cost of entry.

The authors also examine regionalization alternatives. They assert that any regionalization program will segment the market for harvesters' deliveries limiting their negotiating power with processors. The regionalization of delivery requirements creates an incentive for processors to consolidate shares in a region to maximize bargaining strength in a segmented portion of the market.

The authors also assert that a two pie allocation would limit competition in the processing sector providing each processor with a guaranteed supply of inputs. Processing shares together with a regionalization program could allow processors to capture efficiency gains realized by the harvesting sector since harvesters would be required to deliver harvests to processors holding processing shares.

The article also examines the two different cooperative alternatives. The authors state that generally cooperatives could limit efficiency gains in the harvesting sector, if they have the effect of protecting less efficient vessels of its members. The authors specifically conclude that voluntary cooperative within in a two pie IFQ framework could increase the market power of harvesters by providing a mechanism for collective action. In the other cooperative framework (cooperatives that are each linked to a single processor) the impact on harvesters would depend on the delivery commitment of the cooperative. Under this cooperative framework, the link to a single processor could allow rents to be captured by processors if harvest vessels have limited ability to deliver harvests to other processors.