Appendix 1-1

Summary of Ad Hoc Committee, Crab Rationalization Committee, Advisory Panel, and Council Efforts on Crab Rationalization

This Appendix provides a brief summary of the proceedings of the ad hoc committee and the crab rationalization committee that developed some of the alternatives for rationalizing the crab fisheries.

A-1.1 Summary of ad hoc cooperative committee efforts

October 1999. At its October 1999 meeting, the Council received public testimony and a summary of recent industry meetings aimed at providing relief for the crab fleet. The Council encouraged the industry to continue to work towards a solution with broad industry support. While the industry group was not considered a formal Council committee, two Council members volunteered to facilitate future meetings.

November - December 1999. The industry group met in November and December 1999. During the December meeting, a draft problem statement was reviewed and approved as a working document to be sent to persons holding crab LLP licenses. The group considered several methods to rationalize the fishery, including a buy-back program, cooperatives, IFQs and the status quo, but did not select a preferred method.

March 2000. During its March 2000 meeting, the industry group decided to create two smaller committees to begin developing the details of the buyback and cooperative programs. The Ad-hoc Buyback Committee would try to move quickly to develop a vessel buyback proposal that could be submitted to Washington D.C. The Ad-hoc Cooperative Committee would move forward at a slower pace. (As discussed earlier, the efforts of the Buyback Committee contributed to the buyback program passed by Congress in December 2000.)

April 2000. At its April 2000 meeting, the Ad-hoc Cooperative Committee identified five major issues that required resolution: (1) catch history, (2) processor linkages, (3) community considerations, (4) skipper and crew concerns, and (4) IFQs as an alternative to cooperatives.

1. The Ad-hoc Committee recognized catch history as an important and controversial issue. The Committee, however, decided to postpone detailed discussions of catch history options until its May meeting but stated it would not select an option that included catch history earned after December 31, 1999. The Committee also adopted a motion that only LLP qualified vessels, including the Council's October 1998 recency requirements, would be eligible for the cooperative program.

2. A wide variety of perspectives were offered on the issue of processor linkages. Processor representatives felt that any cooperative (or IFQ) program must recognize and protect the investments of processors, either through co-op linkages or through mirror processor quotas (under an IFQ option). Some processors felt that the AFA-style cooperatives would provide only the minimum protection needed and that a two-pie IFQ program may be preferable. The primary concerns of harvesters centered around the issues of a ‘closed class' for processors, requirements to deliver to specific processors and the potential loss of bargaining power that would result, particularly considering the involvement of processor-owned harvesters. They felt that reduced ex-vessel prices could have impacts to communities as well as harvesters.

3. Regarding community issues, the Committee heard from a representative of Dutch Harbor who noted that 60% of the raw fish tax (1999) related to Dutch Harbor was from crab, while a St. Paul representative noted that community was about 85% dependent on crab. Both stressed the importance of crab to these communities and the need to design a program that maintains each community's ‘share’ and promotes community stability relative to the crab fisheries.

4. A Skippers for Equitable Access (SEA) representative presented their perspective that skippers are responsible to a large degree for the catch history of vessels and, therefore, any program based on that catch history should include skippers. They also stressed that the bargaining position for skippers would be negatively affected if they are not included, because they then become simply 'drivers' of a vessel that has a guaranteed share.

5. The Ad-hoc Committee discussed the issue of whether cooperatives would be the best way to proceed, as opposed to an IFQ program. It was recognized that, under an IFQ program, either sector could buy into the other; i.e., processors could obtain harvester quota shares and vice-versa. Some members of the Committee felt that, in some ways, an IFQ program may offer a more elegant solution that takes into account the concerns of both harvesters and processors.

May 2000. At their May 2000 meeting, the Ad-hoc Cooperative Committee worked off the original, extensive set of options previously developed by the Committee and decided to set alternatives on a fishery-by-fishery basis, starting with Bristol Bay red king crab and opilio. It was noted that the options selected are for determination of allocation percentages, assuming that the Council's collective LLP actions will determine the field of eligible participants. The Ad-hoc Committee also heard proposals from the (1) processing sector, (2) the community of St. Paul, and (3) Skippers for Equitable Access (SEA).

1. The processor proposal essentially would create both harvesting and processing shares (as either quota shares or in a co-op format), which would have to be matched up in a given fishing year. Options for calculating processors' relative shares all were based on more recent participation (1995-1999) in each fishery.

2. The community of St. Paul offered a proposal designed to maintain community participation in the crab fisheries. Rather than a direct allocation of shares, this proposal recommends a minimum amount (percentage) to be delivered to specific geographic regions (Pribilofs, Aleutians and Kodiak) based on historical delivery rates (both floating and shore-based in each area) for the agreed-upon qualifying years. This proposal suggests qualifying years that go back no further than five years. Some Committee members noted that this type of proposal may impose economic inefficiencies, given that the co-op program is designed to eliminate the race for fish and some of the processing centers have developed recently because of the race for fish. It also was noted that there may be legal impediments to this approach.
3. A proposal from SEA was offered which would essentially provide for 10% of the harvest shares to be set aside for allocation to active captains based on their contribution to each vessels' catch history. The Committee accepted this proposal as a starting point for future discussions but noted that the details of the proposal needed further development.

June 2000. In June 2000, it was decided that the Ad-hoc Cooperative Committee needed to continue its work before turning the alternatives over to the Council process for formal analysis. The Committee, however, requested the Council to designate staff support to develop a database that could be used to evaluate landings data, processing data, individual percentages, etc., for harvesters and processors with respect to a given set of years and alternatives. (An Excel spreadsheet program was developed as a result of this request and made available on the Council's web site.)

The Ad-hoc Committee requested that the Council address BSAI crab rationalization as a formal 'topic of the Council's attention on the Council Agenda.' They also requested, to the extent possible, that the Council recognize the Ad-hoc Cooperative Committee as the advisory entity to the Council with respect to the development of options for BSAI crab rationalization. Finally, the Ad-hoc Committee received a report from SEA which outlined a new proposal for skipper inclusion (as a compromise to their original proposal for a 10% allocation of any vessels' quota shares). The new proposal is for a guaranteed minimum crew share at traditional rates and a first right of refusal for 10% of any quota shares (QS) sold.

A-1.2 Summary of crab rationalization committee efforts

October 2000. At its October 2000 meeting, the Council received a report from the Ad-hoc Committees regarding the industry initiatives to facilitate a buyback program for the BSAI crab fisheries and development of cooperative or IFQ alternatives for rationalizing those fisheries. The Council voted to formalize the process by establishing a Crab Rationalization Committee whose first task would be to review the following Draft Problem Statement and formulate specific alternatives and options for Council consideration:

> *The crab fisheries in the BSAI are fully utilized. Despite amendments to the License Limitation Program and AFA sideboards, capacity in these crab fisheries far exceeds available resources. The ability for crab harvesters to diversify into other fisheries has been severely curtailed under the LLP program and other management actions designed to bring stability to other gear groups and species. Many of the concerns identified by the North Pacific Fishery Management Council in 1992 still exist for the BSAI crab fisheries, including:*
>
> 1. *Resource problems*
> 2. *Excess harvesting capacity*
> 3. *Bycatch mortality and deadloss concerns*
> 4. *Safety*
> 5. *Economic stability*
>
> *As a necessary step in the continued process of comprehensive rationalization, prompt action is required to protect the crab resource and to promote stability for those dependent on the crab fisheries, which includes harvesters, processors, and coastal communities.*

December 2001. At its December 2001 meeting, the Council reaffirmed its intent to appoint a formal Council committee to address crab rationalization. The Council appointed members to the BSAI Crab Rationalization Committee shortly thereafter, which included representatives for harvesters, processors, skippers and crewmen, communities and environmental organizations. The Committee was tasked with developing elements and options for analysis and reporting to the Council at the April 2001 meeting.

January 2001. In January 2001, the BSAI Crab Rationalization Committee reviewed the Council's Draft Problem Statement and the direction from the Council to develop alternatives, elements, and options for crab rationalization which would be forwarded to the Council for formal analysis. The formal Committee discussed and recognized the importance of the work previously done by the Ad-hoc Cooperative Committee as a starting point for further development. While the Committee's charge was not to develop a preferred alternative for the Council, there was a consensus that they should strive for as much definition as possible in program design, to facilitate both the staff's analysis and the Council's deliberations. Because of the

economic state of the crab fisheries, it was also noted that the industry's potential response to the $50 million loan for the buyback could be affected by the timeliness and commitment to rationalization and the ultimate design of the program.

February 2001. The BSAI Crab Rationalization Committee met in Seattle on February 15-16, 2001. While the focus of the Ad-hoc Committee had been on coop-style approaches to rationalization, the formal Committee focused mainly on IFQ-type programs. The Committee reviewed proposals from representatives for each sector, including harvesters, processors and communities (representatives for skippers/crew and the environmental organizations were absent). These three proposals became the basis for the three components of the IFQ program alternative considered in this analysis.

The harvesting sector proposal included a problem statement, a set of objectives, a suite of options for IFQs for catcher vessels and a set of conditions that would make a two-pie system more acceptable for harvesters. The IFQ options would apply either to a harvester-only (i.e., one-pie) IFQ system or to a two-pie IFQ system that would allocate separate quota shares to harvesters and processors. The main issues discussed included the following:

1. General consensus was reached to include years 1990-1999 only. While a few expressed an interest in including 2000/2001, the vast majority recommended that 2000/2001 be excluded. The main reasons cited for excluding 2000/2001 were (a) processing side-boards were in effect, (b) the low GHLs in both 2000 and 2001, ©) icy conditions in 2000 delayed the season, and (d) the harvester strike in 2001.

2. The Committee agreed that deadloss would not count in the initial allocation but would count against a harvester's quota. The main reason cited for excluding deadloss in the initial allocation was to avoid rewarding those with high deadloss. Also, there was concern that the method used to report deadloss in the early years was not accurate.

3. The Committee had a lot of discussion on who would be eligible to receive quota shares by transfer. As proposed, only initial recipients or eligible crew members could receive quota shares by transfer. Concerns were raised that this may create a "closed class" system. Others suggested that participants in other (Federal) fisheries should be able to buy into the crab fishery. The Committee was not able to reach consensus on this issue and agreed to postpone further discussion until the March meeting.

4. The Committee discussed the various options for transferability. Since many felt that the options for transferability would require significant more thought and discussion, the Committee decided to postpone further discussion of transferability until the March meeting.

The Committee next considered a proposal for processing quota shares from representatives of the processing sector. The proposal suggested a two-pie system, in which processor shares for a predetermined percentage of the GHL would be allocated to eligible processors based on processing history, with the remainder of the GHL available to any processor as a means to promote competition. The Committee accepted the range of allocated shares suggested by the processors of 80 to 90% of the GHL, recognizing that the Council was free to broaden the range for analytical purposes. (There was much discussion and lack of consensus on this range of percentages.)

The Committee then discussed how the processing quota share system would be implemented. In order to implement the processing quota share system, harvesters would receive two classes of harvesting quota shares, A and B. Any amount harvested using Class A shares must be delivered to a processor holding processing quota shares. Any harvest using Class B shares may be delivered to any processor qualified to receive harvest under the "open access" terms and conditions.

With respect to the two-pie IFQ proposal, the Committee discussed several other issues identified by those representing the harvesting sector. The Committee agreed that the degree of vertical integration (processor ownership of harvesters) should be analyzed. The degree of vertical integration is viewed as relevant to whether restrictions are needed to prevent further vertical integration of the industry. Staff noted that determination of the degree of vertical integration may be expensive and time consuming. Members representing the processing sector agreed that processors would provide this information.

The Committee next reviewed a proposal to restrict transfers of harvesting and/or processing shares between regions of the BSAI. Two regions were proposed: a Pribilof /Bering Sea Region (PBS) and an Aleutian Chain/Alaska Peninsula Region (ACAP). Under the proposal, an endorsement would be assigned to processing shares which restricts the region in which the shares may be used based on deliveries to the region in the past. The endorsements would be assigned to harvesting shares, if processing shares are not approved. Under the regionalization model, harvesting and/or processing quota shares may be transferred within a region but transfers between regions would be restricted. The Committee agreed that the proposed regionalization model should be considered as an overlay to the harvester and/or processor quota share programs for purposes of analysis.

March 2001. The Crab Rationalization Committee met in Anchorage on March 22-23. The Committee further refined the proposals and options developed at its last meeting and considered a letter from ADF&G dated March 22, 2001 that outlined some of the State's views on rationalization. The Committee also received proposals from representatives of Skippers for Equitable Access (SEA) and the Alaska Marine Conservation Council (AMCC).

Representatives from ADF&G provided an overview of the State's letter. In general, the ADF&G letter expressed support for rationalization but also outlined several concerns, including the following: (1) if guideline harvest levels (GHLs) are replaced by total allowable catches (TACs), ADF&G may need to be more conservative for some crab stocks, (2) seasonality will continue to be an issue since certain characteristics of the fishery (e.g., soft shell stage) will continue to warrant controls, (3) funding sources for management, research and enforcement, (4) rationalization efforts need to keep community interests in mind, and (5) more aggressive data collection is needed to monitor economic impacts. The Committee discussed these issues and agreed to recommend that the Council request the State to work with staff to address two issues: (1) collection of economic data to monitor the impact of rationalization, and (2) funding sources for management, research and enforcement.

The Committee next considered a proposal from AMCC. In general, AMCC indicated that it is not opposed to rationalization but supported measures that would promote conservation and safety, and provide incentives for clean fishing. Some specific options that AMCC expressed support for included (1) an option that does not include processing shares, (2) measures that would preserve choices for harvesters and opportunities for processors, and (3) an option for a periodic program review of the program.

The SEA representative presented a proposal for skippers and crew members. The proposal reflected SEA's desire to protect traditional crew share percentages and provide eligible crew members with a "first right of refusal" on 10 percent of all shares transferred. In addition, the proposal included an option for a low interest-rate loan program to assist crew purchases of QS.

The Committee devoted the remainder of its time to finalizing the options for analysis, focusing in particular on the transferability issues and how the different components of the program would fit together. Some of the issues that involved extensive discussion by the Committee include (1) who is eligible to receive QS by transfer, (2) whether there should be an allocation of QS to communities or CDQ groups, (3) ownership caps on harvester QS, (4) qualifying years for processor shares, (5) percentage of GHL for which processor shares would be issued, (6) regionalization, (7) whether AFA vessels should be allowed to form a cooperative for Bristol Bay red king crab, (8) caps on processor ownership of harvester QS, (9) whether 1990 and 1991 should be dropped from the options for harvester QS qualifying periods, and (10) whether the analysis could address the effects of catch history of vessels that are no longer in the fishery on the initial allocation of harvester QS.

A-1.3 Summary of Council and advisory panel efforts

April 2001. At the April 2001 Council meeting, the Crab Rationalization Committee's recommended elements and options for a crab rationalization program were presented to both the Council's Advisory Panel (AP) and to the Council. Both the AP and Council received public testimony on this agenda item.

Based on public testimony and discussion among its members, the AP added a number of options to the Committee's proposal for the Council's consideration. For example, the AP significantly expanded the options for qualifying years for the processing quota share allocation and added an alternative approach to processing shares that would issue processing shares on a percentage of the season's GHL that ranged from 105 percent to 130 percent of the GHL. The AP also amended the options for ownership caps, added options for roll-over provisions, and requested that the analysis provide a brief discussion on the use of private-sector (non-governmental) binding arbitration for failed price negotiations. Finally, the AP recommended the analysis address 18 specific issues, most of which focused on the degree of vertical integration between harvesters and processors and the implications of the different IFQ models (i.e., one-pie, two-pie, with or without regionalization) on the competitive structure of the crab industry.

Given the complexity of the proposed elements and options and issues raised during public testimony, the Council moved to direct staff to develop a discussion paper for the June meeting on the proposed elements and options for the BSAI Crab Rationalization program. Specifically, the Council requested staff to provide perspectives on the anticipated amount of effort and time required to analyze the suite of options under consideration and, where possible, identify ways to make the analytical task more manageable. The Council requested staff to highlight in the discussion paper any proposed options that may be problematic in terms of data requirements, analytical difficulty, and management aspects in light of the Council's desire for the analysis to be completed by December 2001. The staff was instructed to use the AP motion (which includes alternatives from the Crab Rationalization Committee) as the focus of the discussion paper.

While the Council directed staff to use the AP motion as a starting point, the Council also requested that the discussion paper address several additional options as follows: (1) an expanded the range for processing shares of 0-100 percent; (2) an initial allocation of 0, 10 percent, or 20 percent of harvesting quota shares

distributed equally to qualifying crew members; (3) expanded range of 0-20 percent for crew shares that would receive first-right-of- refusal; and (4) controls on vertical integration.

The Council also adopted the following problem statement for rationalization of the BSAI crab fisheries:

BSAI crab rationalization problem statement

The crab fisheries in the Bering Sea/Aleutian Islands are fully utilized. Despite amendments to the LLP Program and AFA sideboards, capacity in these crab fisheries far exceeds available resources. The ability of crab harvesters to diversify into other fisheries has been severely curtailed under the LLP program and other management actions designed to bring stability to other gear groups and species. Many of the concerns identified by the NPFMC at the beginning of the comprehensive rationalization process in 1992 still exist for the BSAI crab fisheries. The race for fish continues to result in:

1. Resource/conservation management problems
2. Bycatch/handling mortality and dead loss
3. Excess harvesting capacity
4. Lack of economic stability
5. Safety issues

In the continued process of comprehensive rationalization, prompt action is needed to protect the crab resource and to promote stability for those dependent on the crab fisheries. In order to achieve a balanced resolution, the concerns of harvesters, processors and coastal communities must be addressed.

June 2001. At the June 2001 meeting, staff presented its discussion paper on the proposed elements and options for rationalization of the BSAI crab fisheries to the AP and Council (a copy of the discussion paper is provided in Appendix I). While the discussion paper was not an analysis of the proposed options, it was intended to assist the Council in finalizing a suite of alternatives, elements and options for formal analysis.

The discussion paper first addressed several legal considerations including the scope of analysis required to fulfill the mandate from Congress that the Council analyze various options for rationalization. The paper then described the various components of the proposed IFQ program alternative and discussed data requirements, particularly ownership information that would be needed from industry. (Note that industry representatives had agreed to provide the required ownership information during the Crab Rationalization Committee meetings.) The paper then discussed a variety of analytical issues for each component of the proposed IFQ program, including options for the harvesting and processing sectors, options governing the interaction between harvesters and processors, and options for regionalization. Finally, the paper provided estimates of the analytical time requirements and suggestions for streamlining the analysis. Overall, it was noted that it may not be possible to reduce the required analytical effort because of the inherent complexity of the proposed rationalization program, the number of crab fisheries under consideration and the complexity of the issues involved.

The AP recommended to the Council a number of refinements to the proposed crab rationalization options, including the following:

- identification of the crab fisheries included in the program;
- clarification of the eligibility requirements for receiving an initial allocation of QS, the basis for the QS distribution and method for calculating the distribution;
- refinement of the options for qualifying periods for harvesting QS;
- definition of sea time for the options to receive harvesting QS by transfer;
- replacement of the options governing the use of individual fishing quotas (IFQs) by catcher vessels and catcher/processors;
- elimination of options for treatment of discards under IFQs;
- elimination of one of the skipper/crew options for protection of traditional crew share percentages with no sunset;
- restatement of roll-over provisions as overage provisions;
- reduction in the number of options for qualifying periods for processing quota shares; and
- elimination of options for issuing processing shares on 105 percent-130 percent of the GHL.

Furthermore, the AP provided more detailed guidance on the option for a private-sector (non-governmental) binding arbitration process for settlement of pricing disputes since this was viewed by many to be a key design feature in a two-pie IFQ model. The AP also recommended that the Council include a comparative analysis of the proposed IFQ program models to two types of coop-style models, AFA-type and "Dooley-Hall" type coops. (Note that the basic difference between these two coop models is that, under an AFA-type coop, harvesters would be linked to processors while, under a Dooley-Hall coop, harvesters and processors would not be linked.) Finally, the AP recommended that the Council reaffirm its earlier policy statement that catch history in the crab fisheries beyond December 31, 1998 may not count in future rationalization programs, including a fishery cooperative system.

After consideration of the staff's discussion paper, the AP's recommendations and public testimony, the Council adopted a suite of alternatives, elements and options for rationalization of the BSAI crab fisheries (see Section 1.2 for the complete list of elements and options). The Council motion included the recommendations of the AP, amended as follows:

1. Addition of a detailed set of options for a co-op program as another alternative to the IFQ program and in addition to the AFA-style and Dooley-Hall style coops recommended by the AP. The set of options referenced many of the elements and options proposed for the IFQ program but included additional options unique to cooperatives. This coop alternative was further amended to include (a) an option to protect traditional crew share percentages, (b) a minimum of 4 (instead of 3) vessels per coop for confidentiality reasons, and ©) options for accounting for discards under a coops.

2. Addition of another option to grant harvesting QS to persons that own catch history and/or fishing rights of BSAI crab vessels (as opposed to granting QS to persons that own a certified vessel) and an accompanying option that describes the basis for the distribution of harvesting QS.

3. Addition of the period 1996-2000 (best 4 seasons) as additional options for harvester qualifying periods for the opilio, Bristol Bay red king and brown king crab fisheries. These same options were also added under the qualifying period options for processor quota shares. These options were included in order to address the need for the Council to give consideration to recent participants in the crab fisheries.

4. Clarification of the definition of sea time to require sea time in the applicable commercial fisheries in a harvesting capacity.

5. Clarification of the options for catcher/processors as follows: (a) eligible catcher/processors would be granted processing quota shares based on their processing history, (b) catcher/processors may purchase catcher vessel QS but may not process any crab harvested with such QS, and ©) catcher/processors may sell processed or unprocessed crab.

6. Reinstatement of the options for treatment of discards under IFQs which the AP had eliminated.

7. For the option to allocate 0-20 percent of harvesting QS to eligible skippers/crew, addition of an option to distribute the QS based on a point system presented during public testimony. The option to protect traditional crew share percentages (which had been eliminated by the AP) based on the Canadian Groundfish Development Authority Code of Conduct was also reinstated.

8. Under regionalization, addition of an option for a third region (an Aleutian Region) with an option to split deliveries of Aleutian Islands brown king crab and Adak red king crab into a western and eastern area, with a suboption to require up to 50 percent of the western Aleutian Islands brown king crab processed in the western region.

9. Addition of an option to sunset the program after 5 years or 7 years.

10. Addition of options for allocations to the existing CDQ program, including (1) no change, (2) expand existing CDQ program to all BSAI crab species included in rationalization program, (3) increase allocation for all crab species to 10 percent, (4) increase allocation for all crab species to 12.5 percent, and (5) for Aleutian Islands brown king crab, allocate the percentage of the resource unutilized during the qualifying period to the community of Adak.

11. Expansion of the options for program review to require "an analysis of post-rationalization impacts to coastal communities in terms of adverse economic impacts and options for mitigating those impacts."

As part of the Council's discussion of the motion, the Council's representative from ADF&G articulated the State's perspective on the overall goals of rationalization. From the State's perspective, the first priority is conservation and sustainable fisheries management, and achieving economic efficiency in the harvest of the

fishery resources off Alaska. There is a need, however, to balance the goals of conserving stocks, reducing bycatch, minimizing habitat impacts and achieving full utilization of the fishery resources. Thus, any strategies for more sustainable and efficient fisheries should contain explicit mechanisms to provide measurable reductions in bycatch on a fishery-by-fishery basis and measurable reductions in habitat impacts, including allowances to transition to lower-impact gear types where possible. The State also considers safety to be a major concern. Additionally, the State considers that any rationalization program needs to include the harvesting sector, processing sectors and communities, and protect their interests to the extent possible. Regarding communities, the economies of fishery-dependent communities should be protected but also allowed to grow with new opportunities. Other goals highlighted by the State's representative included measures to maintain an owner-operated fleet by Alaskans, controls on excessive consolidation and vertical integration, and provisions that recognize the contributions of skippers and crew members.

The Council also identified several additional issues that should be addressed in the analysis as follows: (1) effects of the proposed crab rationalization alternatives on other fisheries, such as salmon and herring processing and tendering activities; (2) the potential downside of excessive economic planning by government, including the decrease in asset values and decrease in the value of quota shares that may result from some of the proposed measures; and (3) in general, the adverse impacts to society and individuals that would result from diminishing economic freedom.

Finally, the Council reaffirmed its earlier policy statement (made at its October 1999 meeting) that catch history in the crab fisheries beyond December 31, 1998 may not count in future rationalization programs, including a fishery cooperative system.

Appendix 1-2

Bering Sea Crab Rationalization
Harvest Data Base

Harvest information was taken from State of Alaska electronic fish ticket data from the ADF&G Shellfish database. These data were received through the Alaska Fisheries Information Network (AKFIN) after the Commercial Fisheries Entry Commission's (CFEC) permit matching and gross earnings estimate processes had been run. The data reflect the ADF&G electronic shellfish data base as of:

Year	Date
2001	August 3, 2001
2000	January 6, 2001
1999	November 13, 2000
1998	November 13, 2000
1997	November 13, 2000
1996	November 13, 2000
1995	November 13, 2000
1994	November 13, 2000
1993	November 13, 2000
1992	November 13, 2000
1991	November 13, 2000

King and Tanner crab species from the Bering Sea were selected, excepting *Lithodes couesi* (scarlet king crab) , *T. Tanneri*, and *T. angularis* . Harvests associated with CDQ, test fishing, cost recovery harvests, home pack/personal use, and confiscated deliveries were removed from the data base.

Table 1. Summary of Bering Sea crab data excluded from data base.

Species	Harvest Type	Pounds
King	CDQ Harvests	1,846,498
King	Confiscated	195,602
King	Deadloss	3,314,037
King	Personal Use	205,652
King	Test Fishing	1,240,672
King	Total	6,802,461
Tanner	CDQ Harvests	22,866,679
Tanner	Confiscated	120,675
Tanner	Deadloss	20,800,964
Tanner	Personal Use	67,192
Tanner	Test Fishing	26,345
Tanner	Total	43,881,855

Season totals from the Bering Sea crab rationalization data base were compared to the season totals shown in SAFE documents in Table 2 to evaluate the fish ticket data's completeness.

Table 2. Comparison of harvests from SAFE documents to Bering Sea Crab rationalization data base, by fishery and season.

Fishery	Season	Safe reports (incl deadloss)	Crab rationalization data base + excluded deadloss	Difference	Percent	Safe figures from:
AI_BRN	1991-1992	7,702,141	7,676,192	25,949	0.3%	TABLE 4.3 1999 CRAB SAFE
AI_BRN	1992-1993	6,291,197	6,247,869	43,328	0.7%	TABLE 4.3 1999 CRAB SAFE
AI_BRN	1993-1994	5,551,143	5,551,143	0	0.0%	TABLE 4.3 1999 CRAB SAFE
AI_BRN	1994-1995	8,128,297	8,106,912	21,385	0.3%	TABLE 4.3 1999 CRAB SAFE
AI_BRN	1995-1996	6,890,906	6,960,725	-69,819	-1.0%	TABLE 4.3 1999 CRAB SAFE
AI_BRN	1996-1997	5,854,236	5,771,036	83,200	1.4%	TABLE 4.3 1999 CRAB SAFE
AI_BRN	1997-1998	5,945,682	5,973,868	-28,186	-0.5%	TABLE 4.3 1999 CRAB SAFE
AI_BRN	1998-1999	4,939,248	4,939,248	0	0.0%	TABLE 4-4 2001 CRAB SAFE
AI_BRN	1999-2000	5,838,788	5,838,788	0	0.0%	TABLE 4-4 2001 CRAB SAFE
AI_BRN	2000-2001	6,018,761	6,100,125	81,364	-1.	Preliminary/F. Bowers
BB_RED	1991	17,177,894	16,956,415	221,479	1.3%	TABLE 5-1 1999 CRAB SAFE
BB_RED	1992	8,043,018	7,996,040	46,978	0.6%	TABLE 5-1 1999 CRAB SAFE
BB_RED	1993	14,628,639	14,475,680	152,959	1.0%	TABLE 5-1 1999 CRAB SAFE
BB_RED	1996	8,405,614	8,344,921	60,693	0.7%	TABLE 5-1 1999 CRAB SAFE
BB_RED	1997	8,756,490	8,756,065	425	0.0%	TABLE 5-1 1999 CRAB SAFE
BB_RED	1998	14,233,063	14,233,063	0	0.0%	TABLE 5-1 1999 CRAB SAFE
BB_RED	1999	11,090,930	11,070,612	20,318	0.2%	TABLE 5-1 2001 CRAB SAFE
BB_RED	2000	7,546,145	7,544,523	1,622	0.0%	TABLE 5-1 2001 CRAB SAFE
BS_OPIE	1991	328,647,269	328,647,269	0	0.0%	TABLE 5-24 1999 CRAB SAFE
BS_OPIE	1992	315,302,034	315,156,256	145,778	0.0%	TABLE 5-24 1999 CRAB SAFE
BS_OPIE	1993	230,787,000	230,747,760	39,240	0.0%	TABLE 5-24 1999 CRAB SAFE
BS_OPIE	1994	149,775,765	149,792,718	-16,953	0.0%	TABLE 5-24 1999 CRAB SAFE
BS_OPIE	1995	75,252,677	75,294,328	-41,651	-0.1%	TABLE 5-24 1999 CRAB SAFE
BS_OPIE	1996	65,712,797	65,696,173	16,624	0.0%	TABLE 5-24 1999 CRAB SAFE
BS_OPIE	1997	119,543,024	119,543,024	0	0.0%	TABLE 5-24 1999 CRAB SAFE
BS_OPIE	1998	243,341,381	243,341,381	0	0.0%	TABLE 5-24 1999 CRAB SAFE
BS_OPIE	1999	184,529,821	184,529,821	0	0.0%	TABLE 5-25 2001 CRAB SAFE
BS_OPIE	2000	30,774,838	30,716,208	58,630	0.2%	TABLE 5-25 2001 CRAB SAFE
BS_TANN	1991-1992	31,796,381	31,794,086	2,295	0.0%	TABLE 5-23 1999 CRAB SAFE
BS_TANN	1992-1993	35,130,866	35,130,866	0	0.0%	TABLE 5-23 1999 CRAB SAFE
BS_TANN	1993-1994	16,891,320	16,893,368	-2,048	0.0%	TABLE 5-23 1999 CRAB SAFE
BS_TANN	1994	7,766,886	7,766,886	0	0.0%	TABLE 5-23 1999 CRAB SAFE
BS_TANN	1995	4,233,061	4,228,510	4,551	0.1%	TABLE 5-23 1999 CRAB SAFE
BS_TANN	1996	1,806,077	1,802,710	3,367	0.2%	TABLE 5-23 1999 CRAB SAFE
PR_RB	1993	2,607,634	2,586,438	21,196	0.8%	TABLE 5-6 1999 CRAB SAFE
PR_RB	1994	1,338,953	1,338,953	0	0.0%	TABLE 5-6 1999 CRAB SAFE
PR_RB	1995	2,138,627	2,282,653	-144,026	-6.7%	TABLE 5-6 1999 CRAB SAFE
PR_RB	1996	1,137,336	1,131,684	5,652	0.5%	TABLE 5-6 1999 CRAB SAFE
PR_RB	1997	1,269,192	1,263,920	5,272	0.4%	TABLE 5-6 1999 CRAB SAFE
PR_RB	1998	1,027,361	1,026,671	690	0.1%	TABLE 5-6 1999 CRAB SAFE
STM_BLU	1991	3,372,066	3,372,066	0	0.0%	TABLE 5-9 1999 CRAB SAFE
STM_BLU	1992	2,474,080	2,475,916	-1,836	-0.1%	TABLE 5-9 1999 CRAB SAFE
STM_BLU	1993	2,999,921	3,003,089	-3,168	-0.1%	TABLE 5-9 1999 CRAB SAFE
STM_BLU	1994	3,764,262	3,764,262	0	0.0%	TABLE 5-9 1999 CRAB SAFE
STM_BLU	1995	3,166,093	3,166,093	0	0.0%	TABLE 5-9 1999 CRAB SAFE
STM_BLU	1996	3,080,916	3,078,959	1,957	0.1%	TABLE 5-9 1999 CRAB SAFE
STM_BLU	1997	4,649,660	4,649,660	0	0.0%	TABLE 5-9 1999 CRAB SAFE
STM_BLU	1998	2,868,965	2,869,655	-690	0.0%	TABLE 5-9 1999 CRAB SAFE

Yearly data were merged with annual ADF&G Intent to Operate files to append processor information (e.g. processor's name, type, processing vessel id, processing vessel name etc.) Processor codes not matching to the year in question were merged to an all-years intent file which contained the most recent information for a given code.

A data set of the season opening and closing dates[1] for each fishery was made using information from Crab SAFEs and Annual Management Reports. This information was matched with fish ticket records tp determine whether the landing date of the crab harvest fell within the season opening dates and to assign a season to the records. There were 23 out of season records identified throughout the time period..

Summary of Out of Season Landings, by Species, 1991-2001

	Records	Pounds
red king crab	7	58,116
brown king crab	10	64,192
T. bardi	1	0
T. opilio	5	217,017

After the identification of out of season harvests, Adak golden king crab harvest occurring east of 174 W longitude was reassigned to the Dutch Harbor golden king crab fishery. A new, hybrid closing date was constructed for the Dutch Harbor golden king crab datter (opening date of the Dutch Harbor fishery and closing date of the Adak fishery).

The next step was to merge the fish ticket data to the CFEC vessel license file, by year, and append vessel owner information to the record.

The identification of catcher processor records was done after this step, and after a few coding corrections to the Intent to Operate's processing vessel ADF&G numbers. Records were flagged as catcher/processor data if the ADF&G number of the harvesting vessel was equal to the ADF&G number of the processing vessel on each ticket. Records of catcher/vessels delivering to catcher/processors were also flagged . Information from the ADF&G registration lists was added at this time.

A special file was constructed to cross-referenced a consistent 'company' name to individual processor codes and also to cross- reference a consistent plant identifier for each facility across time.. This was important to accomplish because the existing Intent to Operate data did not have a satisfactory way to group or link processor codes for a given company across years and because a given plant could have had numerous State of Alaska processor codes throughout the period. This special file was also annotated with a 'Qualified' processor flag. This flag came from selecting the unique processor codes in the 1998 and 1999 shellfish Bering Sea fish ticket data, excepting non-commercial and CDQ harvest. The consistent company name from these records was then merged back to the base data so that all facilities of a company which had processed commercial Bering Sea crab in 1998 or 1999 were given a qualified processor flag of "YES".

[1]The closing date of the fishery refers to the date on which fishing must cease. Since the fleet has a period of time after the close to offload the crab a second date was added to cover this period.

Separate flags for boats meeting the general qualification period, the endorsement qualification period, and the general recency qualification period were added . The remaining two assigned flags were a vertical integration flag (and company) for vessels owned by processors, as identified by the processing sector (10 percent or more).

A regionalization flag was created as follows: Information from the ADF&G ITO file was used to assign shore based processors to a port. These ports were then assigned to either a northern or a southern region. Industry supplied the seasonal location(s) for the floating processors. Because responses were not received from all processors, some of the harvests delivered to the floating sector could not be assigned to a region.

The resulting data base can be summarized in terms of qualified/unqualified vessels or processors, region of processing,, company ownership of catcher vessels, catcher-processors /catcher-vessel harvests, catcher vessel ownership, etc.

Appendix 2-1

BSAI Crab Vessel Participation Tables

Bering Sea C. opilio **qualified catcher vessels**												
1992	1993	1994	1995	1996	1997	1998	1999	2000	Years	Unique Vessels	Cum Vessels	Cum%
155	155	155	155	155	155	155	155	155	9	155	155	63.5%
0	7	7	7	7	7	7	7	7	8	7	162	66.4%
2	2	0	2	2	2	2	2	2	8	2	164	67.2%
2	2	2	0	2	2	2	2	2	8	2	166	68.0%
2	2	2	2	2	0	2	2	2	8	2	168	68.9%
1	1	1	1	1	1	0	1	1	8	1	169	69.3%
1	1	1	1	1	1	1	0	1	8	1	170	69.7%
9	9	9	9	9	9	9	9	0	8	9	179	73.4%
0	0	6	6	6	6	6	6	6	7	6	185	75.8%
1	0	0	1	1	1	1	1	1	7	1	186	76.2%
1	0	1	1	0	1	1	1	1	7	1	187	76.6%
1	1	1	0	0	1	1	1	1	7	1	188	77.0%
0	1	1	1	1	1	1	1	0	7	1	189	77.5%
1	1	0	1	1	1	1	1	0	7	1	190	77.9%
1	1	1	1	0	1	1	1	0	7	1	191	78.3%
1	1	1	1	1	1	0	1	0	7	1	192	78.7%
1	1	1	1	1	1	1	0	0	7	1	193	79.1%
0	0	1	1	1	0	1	1	1	6	1	194	79.5%
1	1	1	0	0	0	1	1	1	6	1	195	79.9%
0	1	1	1	1	0	0	1	1	6	1	196	80.3%
1	1	1	1	0	0	0	1	1	6	1	197	80.7%
1	1	1	1	0	0	1	0	1	6	1	198	81.1%
2	2	2	2	2	2	0	0	0	6	2	200	82.0%
1	0	0	0	0	1	1	1	1	5	1	201	82.4%
1	1	0	1	0	1	0	0	1	5	1	202	82.8%
3	3	3	3	3	0	0	0	0	5	3	205	84.0%
1	0	0	0	0	0	1	1	1	4	1	206	84.4%
0	0	1	0	1	0	0	1	1	4	1	207	84.8%
0	0	0	1	1	1	0	0	1	4	1	208	85.2%
1	0	0	0	0	1	1	1	0	4	1	209	85.7%
1	0	1	0	0	0	1	1	0	4	1	210	86.1%
0	2	2	2	2	0	0	0	0	4	2	212	86.9%
1	0	1	1	1	0	0	0	0	4	1	213	87.3%
0	0	0	0	1	1	0	0	1	3	1	214	87.7%
0	1	1	0	0	0	0	1	0	3	1	215	88.1%
1	1	0	0	0	0	0	1	0	3	1	216	88.5%
1	0	0	1	0	0	1	0	0	3	1	217	88.9%
0	1	0	0	1	1	0	0	0	3	1	218	89.3%
0	0	1	1	0	1	0	0	0	3	1	219	89.8%
0	0	1	1	1	0	0	0	0	3	1	220	90.2%
0	0	0	0	0	0	0	1	1	2	1	221	90.6%
0	0	0	1	0	0	0	0	1	2	1	222	91.0%
0	0	1	0	0	0	0	0	1	2	1	223	91.4%
0	0	0	0	0	0	1	1	0	2	1	224	91.8%
0	0	1	0	1	0	0	0	0	2	1	225	92.2%
0	0	2	2	0	0	0	0	0	2	2	227	93.0%
1	0	0	1	0	0	0	0	0	2	1	228	93.4%
0	2	2	0	0	0	0	0	0	2	2	230	94.3%
0	0	0	0	0	0	0	0	4	1	4	234	95.9%
0	0	0	0	0	0	0	2	0	1	2	236	96.7%
0	0	0	0	2	0	0	0	0	1	2	238	97.5%
0	0	2	0	0	0	0	0	0	1	2	240	98.4%
0	2	0	0	0	0	0	0	0	1	2	242	99.2%
2	0	0	0	0	0	0	0	0	1	2	244	100.0%
198	204	215	211	208	200	200	206	197		244		

Bering Sea *C. opilio* qualified catcher/processors												
1992	1993	1994	1995	1996	1997	1998	1999	2000	Years	Unique Vessels	Cum Vessels	Cum Percent
7	7	7	7	7	7	7	7	7	9	7	7	38.9%
1	1	1	1	1	0	1	1	1	8	1	8	44.4%
1	1	1	1	1	1	1	1	0	8	1	9	50.0%
1	1	1	1	1	1	1	0	0	7	1	10	55.6%
1	1	1	1	1	1	0	0	0	6	1	11	61.1%
3	3	3	3	3	0	0	0	0	5	3	14	77.8%
0	1	1	1	1	0	0	0	0	4	1	15	83.3%
1	0	0	0	0	1	0	0	0	2	1	16	88.9%
0	0	2	0	0	0	0	0	0	1	2	18	100.0%

Bering Sea *C. opilio* qualified catcher/processors												
1992	1993	1994	1995	1996	1997	1998	1999	2000	Years	Unique Vessels	Cum Vessels	Cum Percent
7	7	7	7	7	7	7	7	7	9	7	7	38.9%
1	1	1	1	1	0	1	1	1	8	1	8	44.4%
1	1	1	1	1	1	1	1	0	8	1	9	50.0%
1	1	1	1	1	1	1	0	0	7	1	10	55.6%
1	1	1	1	1	1	0	0	0	6	1	11	61.1%
3	3	3	3	3	0	0	0	0	5	3	14	77.8%
0	1	1	1	1	0	0	0	0	4	1	15	83.3%
1	0	0	0	0	1	0	0	0	2	1	16	88.9%
0	0	2	0	0	0	0	0	0	1	2	18	100.0%
15	15	17	15	15	11	10	9	8		18		

Bristol Bay Red King Crab Qualified Catcher Vessels

1992	1993	1994	1995	1996	1997	1998	1999	2000	Years	Unique Vessels	Cum Vessels	Cum Percent
131	131	0	0	131	131	131	131	131	7	131	131	51.4%
30	30	0	0	0	30	30	30	30	6	30	161	63.1%
5	0	0	0	5	5	5	5	5	6	5	166	65.1%
0	4	0	0	4	4	4	4	4	6	4	170	66.7%
4	4	0	0	4	4	4	0	4	6	4	174	68.2%
3	3	0	0	3	0	3	3	3	6	3	177	69.4%
4	4	0	0	4	4	4	4	0	6	4	181	71.0%
0	6	0	0	0	6	6	6	6	5	6	187	73.3%
4	0	0	0	0	4	4	4	4	5	4	191	74.9%
4	4	0	0	0	0	4	4	4	5	4	195	76.5%
0	0	0	0	2	2	2	2	2	5	2	197	77.3%
2	2	0	0	0	2	2	0	2	5	2	199	78.0%
0	1	0	0	1	0	1	1	1	5	1	200	78.4%
1	1	0	0	0	1	0	1	1	5	1	201	78.8%
8	8	0	0	0	8	8	8	0	5	8	209	82.0%
0	3	0	0	3	3	3	3	0	5	3	212	83.1%
2	0	0	0	2	2	2	2	0	5	2	214	83.9%
8	8	0	0	8	8	8	0	0	5	8	222	87.1%
2	2	0	0	0	0	2	0	2	4	2	224	87.8%
1	0	0	0	0	0	1	1	1	4	1	225	88.2%
0	1	0	0	0	1	0	1	1	4	1	226	88.6%
1	0	0	0	1	0	0	1	1	4	1	227	89.0%
0	1	0	0	0	1	1	0	1	4	1	228	89.4%
1	0	0	0	0	1	1	0	1	4	1	229	89.8%
0	2	0	0	0	2	2	2	0	4	2	231	90.6%
1	1	0	0	0	0	1	1	0	4	1	232	91.0%
1	1	0	0	0	1	1	0	0	4	1	233	91.4%
2	2	0	0	2	2	0	0	0	4	2	235	92.2%
0	0	0	0	1	1	0	0	1	3	1	236	92.5%
1	0	0	0	1	0	0	1	0	3	1	237	92.9%
1	1	0	0	0	0	0	1	0	3	1	238	93.3%
1	1	0	0	0	0	1	0	0	3	1	239	93.7%
3	3	0	0	3	0	0	0	0	3	3	242	94.9%
0	0	0	0	0	0	0	1	1	2	1	243	95.3%
0	1	0	0	0	0	0	0	1	2	1	244	95.7%
0	0	0	0	0	1	1	0	0	2	1	245	96.1%
0	1	0	0	0	1	0	0	0	2	1	246	96.5%
4	4	0	0	0	0	0	0	0	2	4	250	98.0%
0	5	0	0	0	0	0	0	0	1	5	255	100.0%
225	235	0	0	175	225	232	217	207		255		

From BSAI Crab Rationalization Data Base. 2001-1

Bering Sea *C. bairdi* Qualifed Catcher Vessels

1991-1992	1992-1993	1993-1994	1994	1995	1996	Years	Vessels	Cumulative Vessels	Cumulative Percent
116	116	116	116	116	116	6	116	116	45.8%
20	20	20	0	20	20	5	20	136	53.8%
11	11	11	11	0	11	5	11	147	58.1%
0	2	2	2	2	2	5	2	149	58.9%
2	2	0	2	2	2	5	2	151	59.7%
10	10	10	10	10	0	5	10	161	63.6%
11	11	11	0	0	11	4	11	172	68.0%
2	2	0	0	2	2	4	2	174	68.8%
0	1	1	1	0	1	4	1	175	69.2%
0	1	0	1	1	1	4	1	176	69.6%
1	0	0	1	1	1	4	1	177	70.0%
11	11	11	11	0	0	4	11	188	74.3%
0	6	6	6	6	0	4	6	194	76.7%
6	6	6	0	6	0	4	6	200	79.1%
3	3	0	0	0	3	3	3	203	80.2%
2	0	2	0	0	2	3	2	205	81.0%
0	0	1	1	0	1	3	1	206	81.4%
0	1	1	0	0	1	3	1	207	81.8%
1	0	0	0	1	1	3	1	208	82.2%
16	16	16	0	0	0	3	16	224	88.5%
0	0	1	1	1	0	3	1	225	88.9%
0	1	0	1	1	0	3	1	226	89.3%
1	0	1	0	1	0	3	1	227	89.7%
0	3	3	0	3	0	3	3	230	90.9%
0	0	1	0	0	1	2	1	231	91.3%
0	0	0	0	1	1	2	1	232	91.7%
0	7	7	0	0	0	2	7	239	94.5%
2	0	2	0	0	0	2	2	241	95.3%
6	6	0	0	0	0	2	6	247	97.6%
0	0	1	0	1	0	2	1	248	98.0%
0	0	3	0	0	0	1	3	251	99.2%
0	1	0	0	0	0	1	1	252	99.6%
1	0	0	0	0	0	1	1	253	100.0%
222	237	233	164	175	177		253		

Bristol Bay Red King Crab Qualified Catcher/Processors

1992	1993	1994	1995	1996	1997	1998	1999	2000	Years	Unique Vessels	Cum Vessels	Cum Percent
2	2	0	0	2	2	2	2	2	7	2	2	12.5%
2	2	0	0	0	2	2	2	2	6	2	4	25.0%
0	1	0	0	1	1	1	1	1	6	1	5	31.3%
0	1	0	0	0	1	1	1	1	5	1	6	37.5%
0	2	0	0	0	2	2	0	0	3	2	8	50.0%
0	0	0	0	0	0	1	1	0	2	1	9	56.3%
1	0	0	0	1	0	0	0	0	2	1	10	62.5%
4	4	0	0	0	0	0	0	0	2	4	14	87.5%
0	2	0	0	0	0	0	0	0	1	2	16	100.0%
9	14	0	0	4	8	9	7	6		16		

Bering Sea *C. bairdi* Qualifed Catcher/Processors

1991-1992	1992-1993	1993-1994	1994	1995	1996	Years	Vessels	Cumulative Vessels	Cumulative Percent
1	1	1	1	1	1	6	1	1	6.3%
1	1	1	0	1	1	5	1	2	12.5%
4	4	4	4	4	0	5	4	6	37.5%
1	1	1	0	0	1	4	1	7	43.8%
2	2	2	0	2	0	4	2	9	56.3%
1	1	1	1	0	0	4	1	10	62.5%
0	0	1	1	1	0	3	1	11	68.8%
0	1	1	0	1	0	3	1	12	75.0%
1	0	1	0	1	0	3	1	13	81.3%
1	1	1	0	0	0	3	1	14	87.5%
1	0	0	0	0	1	2	1	15	93.8%
1	1	0	0	0	0	2	1	16	100.0%
14	13	14	7	11	4		16		

Pribilof Red King Crab Qualified Catcher Vessels

1993	1994	1995	1996	1997	1998	Years	Unique Vessels	Cumulative Vessels	Cumulative Percent
14	14	14	14	14	14	6	14	14	11.7%
3	3	3	3	3	0	5	3	17	14.2%
0	1	1	1	1	1	5	1	18	15.0%
1	1	1	0	1	1	5	1	19	15.8%
5	0	5	5	5	5	5	5	24	20.0%
5	5	0	5	5	5	5	5	29	24.2%
7	7	7	7	0	7	5	7	36	30.0%
3	3	3	3	0	0	4	3	39	32.5%
1	1	1	0	1	0	4	1	40	33.3%
1	0	1	1	0	1	4	1	41	34.2%
1	0	1	0	1	1	4	1	42	35.0%
0	2	2	2	0	2	4	2	44	36.7%
2	2	2	0	0	2	4	2	46	38.3%
0	2	2	2	0	0	3	2	48	40.0%
1	0	1	1	0	0	3	1	49	40.8%
1	1	0	1	0	0	3	1	50	41.7%
10	10	10	0	0	0	3	10	60	50.0%
1	0	1	0	1	0	3	1	61	50.8%
1	1	0	0	1	0	3	1	62	51.7%
0	2	2	0	2	0	3	2	64	53.3%
0	1	1	0	0	1	3	1	65	54.2%
0	11	11	0	0	0	2	11	76	63.3%
6	0	6	0	0	0	2	6	82	68.3%
12	12	0	0	0	0	2	12	94	78.3%
1	0	0	0	0	1	2	1	95	79.2%
0	14	0	0	0	0	1	14	109	90.8%
11	0	0	0	0	0	1	11	120	100.0%
87	93	75	45	35	41		120		

Pribilof Blue King Crab Qualified Catcher Vessels

1993	1994	1995	1996	1997	1998	Years	Unique Vessels	Cum Vessels	Cum Percent
0	0	20	20	20	20	4	20	20	24.1%
0	0	9	9	0	9	3	9	29	34.9%
0	0	0	4	4	4	3	4	33	39.8%
0	0	2	0	2	2	3	2	35	42.2%
0	0	4	4	4	0	3	4	39	47.0%
0	0	3	0	0	3	2	3	42	50.6%
0	0	0	1	0	1	2	1	43	51.8%
0	0	6	6	0	0	2	6	49	59.0%
0	0	4	0	4	0	2	4	53	63.9%
0	0	0	0	0	1	1	1	54	65.1%
0	0	0	1	0	0	1	1	55	66.3%
0	0	27	0	0	0	1	27	82	98.8%
0	0	0	0	1	0	1	1	83	100.0%
0	0	75	45	35	40		83		

Pribilof Red King Crab Qualified Catcher/Processors

1993	1994	1995	1996	1997	1998	Years	Unique Vessels	Cumulative Vessels	Cumulative Percent
2	0	0	0	0	0	1	2	2	100.0%

Pribilof Blue King Crab Qualified Catcher/Processors

1993	1994	1995	1996	1997	1998	1999	2000	Years	Unique Vessels	Cumulative Vessels	Cumulative Percent
0	0	1	0	0	0	0	0	1	1	1	100.0%

Saint Matthews Blue King Crab Qualified Catcher Vessels

1993	1994	1995	1996	1997	1998	Years	Unique Vessels	Cum Vessels	Cum Percent
31	31	31	31	31	31	6	31	31	22.46%
9	0	9	9	9	9	5	9	40	28.99%
0	5	5	5	5	5	5	5	45	32.61%
4	4	0	4	4	4	5	4	49	35.51%
3	3	3	3	0	3	5	3	52	37.68%
1	1	1	1	1	0	5	1	53	38.41%
0	0	7	7	7	7	4	7	60	43.48%
6	0	0	6	6	6	4	6	66	47.83%
0	3	0	3	3	3	4	3	69	50.00%
3	3	0	0	3	3	4	3	72	52.17%
0	1	1	0	1	1	4	1	73	52.90%
0	1	1	1	0	1	4	1	74	53.62%
1	1	0	1	0	1	4	1	75	54.35%
0	1	1	1	1	0	4	1	76	55.07%
1	1	1	0	1	0	4	1	77	55.80%
1	1	1	1	0	0	4	1	78	56.52%
0	0	0	7	7	7	3	7	85	61.59%
1	0	0	0	1	1	3	1	86	62.32%
0	0	1	1	0	1	3	1	87	63.04%
0	1	0	1	0	1	3	1	88	63.77%
1	0	0	1	0	1	3	1	89	64.49%
0	1	1	0	0	1	3	1	90	65.22%
1	0	1	0	0	1	3	1	91	65.94%
0	0	1	1	1	0	3	1	92	66.67%
1	1	0	0	1	0	3	1	93	67.39%
0	3	3	3	0	0	3	3	96	69.57%
2	0	2	2	0	0	3	2	98	71.01%
3	3	3	0	0	0	3	3	101	73.19%
0	0	0	0	5	5	2	5	106	76.81%
0	0	0	3	0	3	2	3	109	78.99%
1	0	0	0	0	1	2	1	110	79.71%
0	0	0	3	3	0	2	3	113	81.88%
0	2	0	0	2	0	2	2	115	83.33%
0	5	5	0	0	0	2	5	120	86.96%
5	5	0	0	0	0	2	5	125	90.58%
0	0	0	0	0	4	1	4	129	93.48%
0	0	0	0	2	0	1	2	131	94.93%
0	0	1	0	0	0	1	1	132	95.65%
0	1	0	0	0	0	1	1	133	96.38%
5	0	0	0	0	0	1	5	138	100.00%
80	78	79	95	94	100		138		

Saint Matthews Blue King Crab Qualified Catcher/Processors

1993	1994	1995	1996	1997	1998	Years	Unique Vessels	Cum Vessels	Cum Percent
0	0	0	1	1	1	3	1	1	16.7%
1	1	1	0	0	0	3	1	2	33.3%
1	0	0	1	0	0	2	1	3	50.0%
1	1	0	0	0	0	2	1	4	66.7%
0	2	0	0	0	0	1	2	6	100.0%
3	4	1	2	1	1		6		

Eastern Aleutians Islands (Dutch Harbor) Golden King Crab Catcher/Vessels

1992-1993	1993-1994	1994-1995	1995-1996	1996-1997	1997-1998	1998-1999	1999-2000	2000-2001	Years	Unique Vessels	Cum Vessels	Cum Percent
0	0	2	0	0	0	0	0	0	1	2	2	11.8%
0	0	1	0	1	0	0	0	0	2	1	3	17.6%
0	0	1	1	0	0	0	0	0	2	1	4	23.5%
0	1	1	0	0	0	0	0	0	2	1	5	29.4%
1	1	0	0	0	0	0	0	0	2	1	6	35.3%
0	0	0	0	0	0	1	1	1	3	1	7	41.2%
0	0	0	0	0	1	1	1	1	4	1	8	47.1%
1	1	1	1	0	0	0	0	0	4	1	9	52.9%
1	1	0	0	1	0	0	1	1	5	1	10	58.8%
0	0	1	1	1	1	1	1	1	7	1	11	64.7%
0	3	3	3	3	3	3	3	3	8	3	14	82.4%
1	0	1	1	1	1	1	1	1	8	1	15	88.2%
2	2	2	2	2	2	2	2	2	9	2	17	100.0%
6	9	13	9	9	8	9	10	10		17		

Western Aleutian Islands (Adak) Red King Crab Qualified Catcher Vessels

1992-1993	1993-1994	1994-1995	1995-1996	Years	Vessels	Cum Vessels	Cum Percent
0	1	1	1	3	1	1	3.7%
3	3	3	0	3	3	4	14.8%
0	2	0	2	2	2	6	22.2%
0	1	1	0	2	1	7	25.9%
1	0	1	0	2	1	8	29.6%
1	1	0	0	2	1	9	33.3%
0	0	11	0	1	11	20	74.1%
0	3	0	0	1	3	23	85.2%
4	0	0	0	1	4	27	100.0%
9	11	17	3		27		

Eastern Aleutian Islands (Dutch Harbor) golden king crab qualified catcher/processors												
1992-1993	1993-1994	1994-1995	1995-1996	1996-1997	1997-1998	1998-1999	1999-2000	2000-2001	Years	Vessels	Cum Vessels	Cum Percent
0	0	0	0	0	0	0	1	0	1	1	1	33.3%
2	0	0	0	0	0	0	0	0	1	2	3	100.0%
2	0	0	0	0	0	0	1	0		3		

Western Aleutian Islands (Adak) red king crab qualified catcher vessels							
1992-1993	1993-1994	1994-1995	1995-1996	Years	Vessels	Cum Vessels	Cum Percent
1	1	1	1	4	1	1	50.0%
0	0	1	0	1	1	2	100.0%
1	1	2	1		2		

Western Aleutian Islands (Adak) golden king crab qualified catcher vessels												
1992-1993	1993-1994	1994-1995	1995-1996	1996-1997	1997-1998	1998-1999	1999-2000	2000-2001	Years	Unique 'Vessels	Cum Vessels	Cum Percent
0	1	1	1	1	1	0	1	1	7	1	1	5.0%
0	0	1	1	1	1	0	1	1	6	1	2	10.0%
1	1	1	0	1	1	0	1	1	6	1	3	15.0%
0	1	1	0	1	0	0	1	1	5	1	4	20.0%
0	1	1	1	0	0	0	1	1	5	1	5	25.0%
0	0	1	1	1	1	0	0	1	5	1	6	30.0%
1	1	1	1	0	1	0	1	0	5	1	7	35.0%
1	0	1	0	1	0	0	1	1	4	1	8	40.0%
0	1	0	1	1	0	0	1	0	4	1	9	45.0%
0	0	0	0	1	0	0	1	1	3	1	10	50.0%
0	2	2	2	0	0	0	0	0	3	2	12	60.0%
1	1	1	1	0	0	0	0	0	3	1	13	65.0%
0	1	0	1	0	0	0	0	0	2	1	14	70.0%
0	2	2	0	0	0	0	0	0	2	2	16	80.0%
2	2	2	0	0	0	0	0	0	2	2	18	90.0%
0	2	0	0	0	0	0	0	0	1	2	20	100.0%
6	16	15	10	8	5	0	9	8		20		

Western Aleutian Islands (Adak) golden king crab qualified catcher processors												
1992-1993	1993-1994	1994-1995	1995-1996	1996-1997	1997-1998	1998-1999	1999-2000	2000-2001	Years	Vessels	Cum Vessels	Cum Percent
2	0	0	0	0	0	0	0	0	1	2	2	66.7%
1	1	1	1	1	1	1	1	1	9	1	3	100.0%
3	1	1	1	1	1	1	1	1		3		

Appendix 2-2

Harvest and Ex-vessel Revenues

for BSAI Fisheries

Figure 2-2-1. Total pounds, exvessel gross revenue, and number of vessels for qualified and non-qualified vessels by type and season for Bering Sea C. *opilio* fishery.

		Qualified			Non-Qualified			Total		
Season	Vessel Type	Pounds	Exvessel Gross Revenue	Vessels	Pounds	Exvessel Gross Revenue	Vessels	Pounds	Exvessel Gross Revenue	Vessels
1991	ALL	277,038,196	$140,106,737	186	48,145,037	$24,361,389	34	325,183,233	$164,468,126	220
1992	ALL	263,316,684	$134,738,987	211	49,522,720	$25,355,633	39	312,839,404	$160,094,620	250
1993	ALL	192,794,833	$145,560,104	219	36,378,975	$27,466,127	35	229,173,808	$173,026,231	254
1994	ALL	126,131,616	$166,974,142	231	21,861,339	$28,692,576	42	147,992,955	$195,666,718	273
1995	ALL	68,241,554	$158,792,881	226	5,763,805	$13,374,605	27	74,005,359	$172,167,486	253
1996	ALL	62,298,495	$85,311,579	221	2,064,663	$2,828,588	13	64,363,158	$88,140,168	234
1997	ALL	110,175,845	$86,818,566	211	7,003,838	$5,519,024	15	117,179,683	$92,337,590	226
1998	ALL	221,759,908	$125,296,748	209	18,673,742	$10,550,665	20	240,433,650	$135,847,412	229
1999	ALL	165,749,984	$162,932,235	214	16,928,523	$16,640,738	27	182,678,507	$179,572,974	241
2000	ALL	27,356,045	$50,471,904	205	2,902,125	$5,354,421	23	30,258,170	$55,826,325	228
1991	C/P	46,247,487	$23,400,401	17	20,713,480	$10,481,021	9	66,960,967	$33,881,421	26
1992	C/P	29,497,134	$15,102,533	15	24,796,443	$12,695,779	15	54,293,577	$27,798,312	30
1993	C/P	25,224,431	$19,044,446	15	16,452,662	$12,421,760	12	41,677,093	$31,466,207	27
1994	C/P	15,259,838	$20,356,533	17	8,564,205	$11,313,773	7	23,824,043	$31,670,305	24
1995	C/P	6,415,864	$14,725,914	15	1,909,708	$4,508,821	4	8,325,572	$19,234,735	19
1996	C/P	10,622,330	$14,552,592	15	0	$0	0	10,622,330	$14,552,592	15
1997	C/P	*	*	11	*	*	1	12,395,552	$9,767,695	12
1998	C/P	*	*	10	*	*	2	16,301,645	$9,210,430	12
1999	C/P	*	*	9	*	*	1	9,934,426	$9,765,541	10
2000	C/P	*	*	8	*	*	1	1,350,744	$2,492,123	9
1991	C/V	230,790,709	$116,706,337	174	27,431,557	$13,880,368	27	258,222,266	$130,586,704	201
1992	C/V	233,819,550	$119,636,454	198	24,726,277	$12,659,854	24	258,545,827	$132,296,308	222
1993	C/V	167,570,402	$126,515,658	204	19,926,313	$15,044,367	23	187,496,715	$141,560,025	227
1994	C/V	110,871,778	$146,617,609	215	13,297,134	$17,378,804	35	124,168,912	$163,996,413	250
1995	C/V	61,825,690	$144,066,967	211	3,854,097	$8,865,784	23	65,679,787	$152,932,751	234
1996	C/V	51,676,165	$70,758,987	208	2,064,663	$2,828,588	13	53,740,828	$73,587,576	221
1997	C/V	98,738,242	$77,805,735	200	6,045,889	$4,764,161	14	104,784,131	$82,569,895	214
1998	C/V	208,147,517	$117,605,746	200	15,984,488	$9,031,236	18	224,132,005	$126,636,982	218
1999	C/V	156,454,954	$153,795,221	206	16,289,127	$16,012,212	26	172,744,081	$169,807,433	232
2000	C/V	26,139,185	$48,226,797	197	2,768,241	$5,107,405	22	28,907,426	$53,334,202	219

Figure 2-2-2. Total pounds, exvessel gross revenue and number of vessels for qualified and non-qualified vessels by type and season for Bristol Bay red king crab fishery.

		Qualified			Non-Qualified			Total		
Season	Vessel Type	Pounds	Exvessel Gross Revenue	Vessels	Pounds	Exvessel Gross Revenue	Vessels	Pounds	Exvessel Gross Revenue	Vessels
1991	ALL	14,203,706	$46,403,508	244	2,645,856	$8,644,012	54	16,849,562	$55,047,519	298
1992	ALL	6,936,546	$36,402,993	234	1,053,494	$5,528,737	45	7,990,040	$41,931,730	279
1993	ALL	12,575,720	$50,051,366	247	1,767,318	$7,033,926	43	14,343,038	$57,085,291	290
1996	ALL	7,842,994	$31,591,580	179	476,617	$1,919,813	15	8,319,611	$33,511,393	194
1997	ALL	8,109,415	$26,477,241	233	610,988	$1,994,876	23	8,720,403	$28,472,117	256
1998	ALL	12,700,690	$33,428,216	241	1,419,797	$3,736,906	33	14,120,487	$37,165,122	274
1999	ALL	9,763,590	$61,178,655	224	1,186,266	$7,433,143	32	10,949,856	$68,611,798	256
2000	ALL	6,709,374	$32,332,474	213	758,866	$3,656,975	31	7,468,240	$35,989,449	244
1991	C/P	1,231,006	$4,021,697	12	1,096,244	$3,581,429	13	2,327,250	$7,603,126	25
1992	C/P	385,502	$2,023,115	9	240,428	$1,261,766	6	625,930	$3,284,881	15
1993	C/P	*	*	14	*	*	2	1,194,577	$4,754,416	16
1996	C/P	236,566	$952,888	4	0	$0	0	236,566	$952,888	4
1997	C/P	305,426	$997,216	8	0	$0	0	305,426	$997,216	8
1998	C/P	*	*	9	*	*	2	780,643	$2,054,652	11
1999	C/P	*	*	7	*	*	1	600,103	$3,760,245	8
2000	C/P	209,181	$1,008,043	6	0	$0	0	209,181	$1,008,043	6
1991	C/V	12,972,700	$42,381,811	232	1,549,612	$5,062,582	41	14,522,312	$47,444,393	273
1992	C/V	6,551,044	$34,379,879	225	813,066	$4,266,970	39	7,364,110	$38,646,849	264
1993	C/V	11,589,976	$46,128,104	235	1,558,485	$6,202,770	41	13,148,461	$52,330,875	276
1996	C/V	7,606,428	$30,638,692	175	476,617	$1,919,813	15	8,083,045	$32,558,505	190
1997	C/V	7,803,989	$25,480,025	225	610,988	$1,994,876	23	8,414,977	$27,474,901	248
1998	C/V	12,020,973	$31,639,201	232	1,318,871	$3,471,268	31	13,339,844	$35,110,469	263
1999	C/V	9,194,954	$57,615,582	217	1,154,799	$7,235,971	31	10,349,753	$64,851,552	248
2000	C/V	6,500,193	$31,324,430	207	758,866	$3,656,975	31	7,259,059	$34,981,406	238

Figure 2-2-3. Total pounds, exvessel gross revenue, and number of vessels for qualified and non-qualified vessels by type and season for Bering Sea C. *bairdi* fishery.

		Qualified			Non-Qualified			Total		
Season	Vessel Type	Pounds	Exvessel Gross Revenue	Vessels	Pounds	Exvessel Gross Revenue	Vessels	Pounds	Exvessel Gross Revenue	Vessels
1991-1992	ALL	25,827,541	$39,010,333	234	5,686,804	$8,538,118	51	31,514,345	$47,548,451	285
1992-1993	ALL	30,360,268	$50,041,533	249	4,426,643	$7,255,484	45	34,786,911	$57,297,017	294
1993-1994	ALL	14,704,102	$26,136,024	247	1,915,877	$3,416,009	49	16,619,979	$29,552,033	296
1994	ALL	7,355,745	$34,166,641	171	278,361	$1,199,417	12	7,634,106	$35,366,058	183
1995	ALL	4,063,363	$11,573,901	186	120,648	$349,759	10	4,184,011	$11,923,660	196
1996	ALL	1,675,352	$4,305,655	181	112,750	$289,750	15	1,788,102	$4,595,405	196
1991-1992	C/P	3,415,988	$5,138,908	14	3,026,720	$4,547,074	15	6,442,708	$9,685,982	29
1992-1993	C/P	2,754,082	$4,502,530	13	1,492,001	$2,426,907	9	4,246,083	$6,929,437	22
1993-1994	C/P	*	*	14	*	*	3	2,072,386	$3,695,064	17
1994	C/P	*	*	7	*	*	2	630,984	$2,830,811	9
1995	C/P	370,209	$1,073,236	11	0	$0	0	370,209	$1,073,236	11
1996	C/P	15,316	$39,362	4	0	$0	0	15,316	$39,362	4
1991-1992	C/V	22,411,553	$33,871,425	222	2,660,084	$3,991,044	37	25,071,637	$37,862,469	259
1992-1993	C/V	27,606,186	$45,539,003	237	2,934,642	$4,828,577	38	30,540,828	$50,367,580	275
1993-1994	C/V	13,043,857	$23,175,807	233	1,503,736	$2,681,161	46	14,547,593	$25,856,968	279
1994	C/V	6,862,800	$31,878,681	164	140,322	$656,567	10	7,003,122	$32,535,247	174
1995	C/V	3,693,154	$10,500,665	175	120,648	$349,759	10	3,813,802	$10,850,424	185
1996	C/V	1,660,036	$4,266,293	177	112,750	$289,750	15	1,772,786	$4,556,043	192

Figure 2-2-6. Total pounds, exvessel gross revenue, and number of vessels for qualified and non-qualified vessels by type and season for St. Matthew blue king crab fishery.

		Qualified			Non-Qualified			Total		
Season	Vessel Type	Pounds	Exvessel Gross Revenue	Vessels	Pounds	Exvessel Gross Revenue	Vessels	Pounds	Exvessel Gross Revenue	Vessels
1991	ALL	2,339,768	$5,928,972	51	815,839	$2,067,336	17	3,155,607	$7,996,308	68
1992	ALL	2,205,585	$6,896,864	154	268,495	$839,584	20	2,474,080	$7,736,448	174
1993	ALL	2,686,189	$7,720,107	82	313,732	$901,666	10	2,999,921	$8,621,773	92
1994	ALL	3,432,831	$13,861,627	82	284,732	$725,895	5	3,717,563	$14,587,522	87
1995	ALL	2,772,016	$6,790,651	80	303,886	$756,676	10	3,075,902	$7,547,327	90
1996	ALL	2,443,818	$6,375,921	97	596,948	$1,557,437	25	3,040,766	$7,933,359	122
1997	ALL	3,641,843	$8,875,172	95	796,552	$1,941,197	22	4,438,395	$10,816,369	117
1998	ALL	2,197,756	$4,213,098	101	651,818	$1,249,535	30	2,849,574	$5,462,634	131
1991	C/P	*	*	5	*	*	4	*	*	9
1992	C/P	*	*	4	*	*	3	*	*	7
1993	C/P	*	*	3	*	*	0	*	*	3
1994	C/P	*	*	4	*	*	2	*	*	6
1995	C/P	*	*	1	*	*	0	*	*	1
1996	C/P	*	*	2	*	*	1	*	*	3
1997	C/P	*	*	1	*	*	0	*	*	1
1998	C/P	*	*	1	*	*	1	*	*	2
1991	C/V	*	*	46	*	*	13	*	*	59
1992	C/V	*	*	150	*	*	17	*	*	167
1993	C/V	*	*	80	*	*	10	*	*	90
1994	C/V	*	*	78	*	*	3	*	*	81
1995	C/V	*	*	79	*	*	10	*	*	89
1996	C/V	*	*	95	*	*	24	*	*	119
1997	C/V	*	*	94	*	*	22	*	*	116
1998	C/V	*	*	100	*	*	29	*	*	129

Figure 2-2-7. Total pounds, exvessel gross revenue, and number of vessels for qualified and non-qualified vessels by type and season for Eastern Aleutian Islands (Dutch Harbor) golden king crab fishery.

		Qualified			Non-Qualified			Total		
Season	Vessel Type	Pounds	Exvessel Gross Revenue	Vessels	Pounds	Exvessel Gross Revenue	Vessels	Pounds	Exvessel Gross Revenue	Vessels
1991-1992	ALL	1,974,126	$4,528,732	8	2,416,727	$5,462,367	7	4,390,853	$9,991,098	15
1992-1993	ALL	2,043,019	$4,159,592	8	2,386,525	$4,868,158	5	4,429,544	$9,027,751	13
1993-1994	ALL	*	*	9	*	*	1	3,259,394	$10,811,642	10
1994-1995	ALL	3,303,883	$11,363,276	13	1,275,940	$4,527,827	6	4,579,823	$15,891,104	19
1995-1996	ALL	3,483,070	$8,686,647	9	996,393	$2,804,567	9	4,479,463	$11,491,213	18
1996-1997	ALL	2,268,056	$5,020,547	9	837,603	$1,858,443	5	3,105,659	$6,878,990	14
1997-1998	ALL	2,253,734	$5,054,463	8	1,104,133	$2,482,160	5	3,357,867	$7,536,623	13
1998-1999	ALL	2,209,045	$4,183,032	9	955,975	$1,830,274	5	3,165,020	$6,013,306	14
1999-2000	ALL	2,257,904	$7,006,276	11	741,986	$2,302,383	4	2,999,890	$9,308,659	15
2000-2001	ALL	2,088,183	$6,991,796	10	998,707	$3,344,395	5	3,086,890	$10,336,191	15
1991-1992	C/P	*	*	2	*	*	4	*	*	6
1992-1993	C/P	*	*	2	*	*	3	*	*	5
1995-1996	C/P	*	*	0	*	*	1	*	*	1
1996-1997	C/P	*	*	0	*	*	2	*	*	2
1997-1998	C/P	*	*	0	*	*	1	*	*	1
1998-1999	C/P	*	*	1	*	*	0	*	*	1
1991-1992	C/V	*	*	6	*	*	3	*	*	9
1992-1993	C/V	*	*	6	*	*	2	*	*	8
1993-1994	C/V	*	*	9	*	*	1	*	*	10
1994-1995	C/V	*	*	13	*	*	6	*	*	19
1995-1996	C/V	*	*	9	*	*	8	*	*	17
1996-1997	C/V	*	*	9	*	*	5	*	*	14
1997-1998	C/V	*	*	8	*	*	3	*	*	11
1998-1999	C/V	*	*	9	*	*	4	*	*	13
1999-2000	C/V	*	*	10	*	*	4	*	*	14
2000-2001	C/V	*	*	10	*	*	5	*	*	15

Figure 2-2-8. Total pounds, exvessel gross revenue, and number of vessels for qualified and non-qualified vessels by type and season for the Western Aleutian Islands (Adak) golden king crab fishery.

		Qualified			Non-Qualified			Total		
Season	Vessel Type	Pounds	Exvessel Gross Revenue	Vessels	Pounds	Exvessel Gross Revenue	Vessels	Pounds	Exvessel Gross Revenue	Vessels
1991-1992	ALL	*	*	8	*	*	3	3,143,391	$6,719,363	11
1992-1993	ALL	1,546,165	$3,053,918	9	130,745	$258,469	5	1,676,910	$3,312,387	14
1993-1994	ALL	*	*	16	*	*	2	2,119,067	$8,403,487	18
1994-1995	ALL	2,460,486	$7,631,290	15	794,630	$2,449,951	13	3,255,116	$10,081,240	28
1995-1996	ALL	1,293,107	$2,950,817	10	872,834	$1,995,799	8	2,165,941	$4,946,616	18
1996-1997	ALL	1,845,823	$4,076,466	9	557,898	$1,217,520	4	2,403,721	$5,293,986	13
1997-1998	ALL	*	*	6	*	*	3	2,405,622	$4,765,475	9
1998-1999	ALL	*	*	1	*	*	2	*	*	3
1999-2000	ALL	2,226,614	$7,100,926	10	436,667	$1,393,585	5	2,663,281	$8,494,511	15
2000-2001	ALL	*	*	9	*	*	3	2,902,518	$4,090,565	12
1991-1992	C/P	*	*	4	*	*	3	*	*	7
1992-1993	C/P	*	*	3	*	*	1	*	*	4
1993-1994	C/P	*	*	1	*	*	0	*	*	1
1994-1995	C/P	*	*	1	*	*	1	*	*	2
1995-1996	C/P	*	*	1	*	*	0	*	*	1
1996-1997	C/P	*	*	1	*	*	1	*	*	2
1997-1998	C/P	*	*	1	*	*	1	*	*	2
1998-1999	C/P	*	*	1	*	*	0	*	*	1
1999-2000	C/P	*	*	1	*	*	0	*	*	1
2000-2001	C/P	*	*	1	*	*	0	*	*	1
1991-1992	C/V	*	*	4	*	*	0	*	*	4
1992-1993	C/V	*	*	6	*	*	4	*	*	10
1993-1994	C/V	*	*	16	*	*	2	*	*	18
1994-1995	C/V	*	*	15	*	*	12	*	*	27
1995-1996	C/V	*	*	10	*	*	8	*	*	18
1996-1997	C/V	*	*	8	*	*	3	*	*	11
1997-1998	C/V	*	*	5	*	*	2	*	*	7
1998-1999	C/V	*	*	0	*	*	2	*	*	2
1999-2000	C/V	*	*	9	*	*	5	*	*	14
2000-2001	C/V	*	*	8	*	*	3	*	*	11

Figure 2-2-9. Total pounds, exvessel gross revenue, and number of vessels for qualified and non-qualified vessels by type and season for Western Aleutian Islands (Adak) red king crab fishery.

		Qualified			Non-Qualified			Total		
Season	Vessel Type	Pounds	Exvessel Gross Revenue	Vessels	Pounds	Exvessel Gross Revenue	Vessels	Pounds	Exvessel Gross Revenue	Vessels
1991-1992	ALL	*	*	7	*	*	3	951,278	$3,351,570	10
1992-1993	ALL	*	*	10	*	*	2	1,281,424	$5,817,731	12
1993-1994	ALL	*	*	11	*	*	1	690,675	$2,570,610	12
1994-1995	ALL	*	*	19	*	*	1	195,537	$1,076,824	20
1995-1996	ALL	*	*	3	*	*	1	38,706	$103,670	4
1991-1992	C/P	*	*	2	*	*	1	*	*	3
1992-1993	C/P	*	*	1	*	*	1	*	*	2
1993-1994	C/P	*	*	1	*	*	0	*	*	1
1994-1995	C/P	*	*	2	*	*	0	*	*	2
1995-1996	C/P	*	*	1	*	*	0	*	*	1
1991-1992	C/V	*	*	5	*	*	3	*	*	8
1992-1993	C/V	*	*	9	*	*	1	*	*	10
1993-1994	C/V	*	*	11	*	*	1	*	*	12
1994-1995	C/V	*	*	17	*	*	1	*	*	18
1995-1996	C/V	*	*	3	*	*	1	*	*	4

Appendix 2-3

First Wholesale Prices

The price that the first processor of crab receives for their product is known as the first wholesale price. In the crab fisheries, the best source of first wholesale price information is the Commercial Operator's Annual Report (COAR). Processors are required to file the COAR with the State of Alaska each year they submit an Intent to Operate application. The Intent to Operate application must be completed for a processor to operate in the State of Alaska.

Information in the COAR include the species that was processed, the product form that was produced, the price received for the product, and the quantity of the product produced on an annual basis. Weighted first wholesale prices can then be calculated by dividing the value of the product by the quantity all processors produced. Table 1 reports a summary of the weighted first wholesale prices by species and product. As can be seen from Table 2, shellfish sections accounted for the majority of the crab products produced in all species.

Other product forms were listed as being processed in the COAR data. Those product listed in the data are provided in Table 3. All of the products were excluded from the calculations presented in previous tables except for shellfish meat, shellfish sections, and whole crabs. Excluding those unusual data types helped to clean the prices that are reported, as they contained either very high or low prices in many cases. A hand check of the data was then used to check for other outliers. There was only two other cases where additional data were deleted from the analysis. Both were in the *C. bairdi* fishery where are price of more than $44 per pound was reported. The total number of pounds deleted from the calculation was less than 58,000. The maximum and minimum prices of the products that were retained are reported in Table 4.

In general there has been a fairly substantial amount of price fluctuation over the 1991 to 2000 time period. First wholesale prices tended to peak in 1994 and 1995. Prices then declined from 1996 through 1998. However, in 1999 and 2000 prices increase to levels closer to those seen in 1994 and 1995.

Table 1. First wholesale crab prices by species and product form, 1991-2000 (prices have not been adjusted for inflation)

Species	Product	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Red King Crab	Shellfish Sections	$ 6.57	$ 8.24	$ 7.43	$ 11.90	$ 10.01	$ 8.53	$ 6.15	$ 5.52	$ 11.25	$ 9.11
	Whole	$ 6.47	$ 9.35	$ 6.64	$ 5.75	$ 5.73	$ 4.59	$ 6.42	$ 3.83	$ 10.69	$ 7.74
Blue King Crab	Shellfish Sections	$ 5.80	$ 5.85	$ 4.54	$ 10.08	$ 5.86	$ 5.91	$ 5.02	$ 4.80	Conf.	Conf
Golden King Crab	Shellfish Sections	$ 5.89	$ 4.83	$ 4.59	$ 6.15	$ 5.79	$ 5.18	$ 4.75	$ 4.24	$ 6.90	$ 7.22
	Whole	$ 4.28	$ 5.03	$ 4.84	$ 6.97	Conf.	Conf.	Conf.	$ 4.90	$ 3.79	$ 4.60
C. bairdi (Tanner) Crab	Shellfish Sections	$ 3.56	$ 3.44	$ 3.61	$ 6.01	$ 7.04	$ 5.33	$ 5.27	$ 4.81	$ 4.23	$ 5.83
	Whole	$ 3.72	$ 3.98	$ 3.88	$ 5.42	$ 6.06	$ 3.56	$ 2.95	$ 2.95	$ 3.71	$ 3.33
C. opilio (snow) Crab	Shellfish Sections	$ 1.80	$ 1.88	$ 2.43	$ 3.57	$ 5.28	$ 3.25	$ 2.13	$ 2.03	$ 2.92	$ 4.16
	Whole	$ 1.88	$ 1.79	$ 1.84	$ 3.23	$ 5.38	$ 1.67	$ 1.36	$ 2.05	$ 1.06	

Source: Commercial Operator's Annual Reports (1991-2000)

Note: The average price for each species included three product forms (shellfish meat, shellfish sections, and whole crabs). Those products were not always broken out separately in the table because of confidentiality issues.

Table 2. Pounds of product produced (in 1,000's) by species and product form, 1991-2000

Species	Product	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Red King Crab	Shellfish Sections	10,604	6,358	11,274	1,716	1,006	6,009	5,442	9,118	6,875	5,012
	Whole	636	335	107	124	152	81	51	114	135	63
Red King Crab (total)		11,240	6,694	11,381	1,841	1,158	6,091	5,493	9,232	7,010	5,075
Blue King Crab	Shellfish Sections	1,599	1,456	1,715	1,615	2,633	1,632	3,305	2,068	Conf.	Conf.
Blue King Crab Total		1,616	1,480	1,797	1,743	2,643	1,658	3,311	2,081	Conf.	Conf.
Golden King Crab	Shellfish Sections	3,216	2,804	3,308	4,305	4,647	4,712	2,697	2,812	3,000	3,649
	Whole	12	3	12	6	Conf.	Conf.	Conf.	106	322	95
Golden King Crab (total)		3,228	2,807	3,320	4,311	Conf.	Conf.	Conf.	2,918	3,322	3,744
C. bairdi (Tanner) crab	Shellfish Sections	23,829	23,516	16,359	11,744	4,479	2,297	1,071	1,335	1,078	817
	Whole	1,277	2,222	1,006	624	190	142	114	314	40	29
C. bairdi (Tanner) crab (total)		25,107	25,738	17,365	12,368	4,669	2,439	1,185	1,649	1,118	847
C. opilio (Snow) crab	Shellfish Sections	168,399	179,713	136,910	83,164	40,428	39,576	184,993	156,562	114,186	18,980
	Whole	9,969	6,049	318	2,096	2,127	347	133	373	1,287	-
C. opilio (Snow) crab (total)		178,368	185,762	137,229	85,260	42,555	39,923	185,127	156,935	115,473	18,980

Source: Commercial Operator's Annual Reports (1991-2000)
Note: "Conf." means there were not enough observations to report the information.

Table 3. Product forms reported in the 1991-2000 COAR data, by count and total weight

Product	Data	Total
Bait	# of Times Product was Reported	1
	Pounds of Product Reported	100
Bones	# of Times Product was Reported	3
	Pounds of Product Reported	6,091,338
H & G	# of Times Product was Reported	1
	Pounds of Product Reported	81,238
H & G, Eastern Cut	# of Times Product was Reported	1
	Pounds of Product Reported	241,980
H & G, Western Cut	# of Times Product was Reported	4
	Pounds of Product Reported	3,053
Other	# of Times Product was Reported	50
	Pounds of Product Reported	2,330,476
Roe	# of Times Product was Reported	1
	Pounds of Product Reported	31,113
Shellfish Meat	# of Times Product was Reported	42
	Pounds of Product Reported	1,657,482
Shellfish Sections	# of Times Product was Reported	1,498
	Pounds of Product Reported	1,327,137,265
Shrimp Tails	# of Times Product was Reported	17
	Pounds of Product Reported	351,898
Stomachs	# of Times Product was Reported	5
	Pounds of Product Reported	68,186
Whole	# of Times Product was Reported	424
	Pounds of Product Reported	31,499,249
Not Reported	# of Times Product was Reported	30
	Pounds of Product Reported	3,256,683

Table 4. Maximum and minimum prices reported in the retained data (prices have not been adjusted for inflation).

Species	Product	Data	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Red King Crab	Shellfish Sections	Max Price	$ 9.50	$ 21.50	$ 9.50	$ 18.33	$ 14.00	$ 10.95	$ 8.82	$ 9.75	$ 13.06	$ 12.44
		Min Price	$ 0.70	$ 4.60	$ 3.80	$ 1.50	$ 5.00	$ 2.25	$ 4.09	$ 2.41	$ 5.45	$ 7.00
	Whole	Max Price	$ 7.88	$ 10.26	$ 7.50	$ 13.96	$ 12.83	$ 8.49	$ 8.36	$ 7.86	$ 15.03	$ 12.00
		Min Price	$ 3.60	$ 4.76	$ 3.27	$ 3.00	$ 4.08	$ 0.34	$ 3.50	$ 1.29	$ 5.40	$ 6.47
Blue King Crab	Shellfish Sections	Max Price	$ 9.00	$ 7.63	$ 7.82	$ 14.35	$ 11.04	$ 8.00	$ 8.03	$ 6.00	Conf.	Conf.
		Min Price	$ 2.90	$ 3.25	$ 2.85	$ 5.00	$ 5.20	$ 4.70	$ 4.30	$ 2.86	Conf.	Conf.
	Whole	Max Price	$ 6.40	$ 7.10	$ 7.50	$ 10.30	$ 6.63	$ 5.00	$ 7.00	$ 4.85	Conf.	Conf.
		Min Price	$ 4.16	$ 4.00	$ 3.25	$ 7.60	$ 5.97	$ 2.00	$ 6.00	$ 3.50	Conf.	Conf.
Golden King Crab	Shellfish Sections	Max Price	$ 8.75	$ 10.50	$ 10.50	$ 10.00	$ 9.62	$ 8.46	$ 7.50	$ 7.19	$ 13.00	$ 10.20
		Min Price	$ 3.50	$ 4.39	$ 3.20	$ 4.23	$ 4.71	$ 3.81	$ 4.22	$ 3.96	$ 3.45	$ 5.19
	Whole	Max Price	$ 5.94	$ 6.41	$ 5.50	$ 7.95	Conf.	Conf.	Conf.	$ 9.01	$ 6.60	$ 9.31
		Min Price	$ 3.00	$ 3.00	$ 4.25	$ 3.00	Conf.	Conf.	Conf.	$ 4.52	$ 3.08	$ 4.25
C. bairdi	Shellfish Sections	Max Price	$ 5.80	$ 6.39	$ 5.05	$ 10.05	$ 9.94	$ 7.50	$ 6.26	$ 5.50	$ 5.78	$ 6.55
		Min Price	$ 0.46	$ 0.12	$ 1.61	$ 3.54	$ 5.56	$ 2.60	$ 3.25	$ 1.79	$ 1.74	$ 2.76
	Whole	Max Price	$ 5.47	$ 6.18	$ 5.50	$ 9.55	$ 7.01	$ 6.24	$ 6.00	$ 4.86	$ 4.43	$ 5.50
		Min Price	$ 1.65	$ 0.88	$ 1.95	$ 0.65	$ 0.99	$ 2.00	$ 2.00	$ 2.50	$ 3.06	$ 3.19
C. opilio	Shellfish Sections	Max Price	$ 2.25	$ 2.55	$ 4.04	$ 4.95	$ 6.50	$ 5.90	$ 3.03	$ 3.17	$ 4.09	$ 4.65
		Min Price	$ 0.14	$ 1.20	$ 0.72	$ 1.17	$ 1.00	$ 0.51	$ 1.56	$ 1.20	$ 2.30	$ 0.69
	Whole	Max Price	$ 3.22	$ 3.33	$ 2.98	$ 3.85	$ 5.46	$ 3.00	$ 2.43	$ 3.60	$ 1.87	
		Min Price	$ 0.70	$ 1.55	$ 0.70	$ 1.36	$ 3.48	$ 1.25	$ 1.00	$ 0.66	$ 0.98	

Source: Commercial Operator's Annual Reports (1991-2000)

Note: "Conf." means there were not enough observations to report the information.

Appendix 2-4

Vessel Ownership Information

Appendix 2-4 Vessel Ownership Information – Vertical Integration Vessels with processor or processor affiliate ownership greater than 10 percent

Company	Vessel
Trident Seafoods	Dominator
	Gladiator
	Golden Dawn
	Viking Explorer
	Arcturus
	Aldebaran
	Majesty
	Royal Viking
	Farwest Leader
	Barbara J
	Billikin
	Bountiful
	NORTHERN ENTERPRISE
	WESTERN ENTERPRISE
	GLACIER ENTERPRISE
	ROYAL ENTERPRISE
	Note: Vessels in CAPS are catcher/processors
Icicle Seafoods	Viking Queen
	Adventure
	Commodore
	Storm Petrel
	Anita J
	Half Moon Bay
	Sunset Bay
Alyeska Seafoods	Tuxedni
	Bulldog
	Husky
	Labrador
	Retriever
	Alaska Challenger
	Kevleen K
	Sea Wolf
	Note: These vessels are owned by shareholders or affiliates of Alyeska Seafoods, not by the company Alyeska Seafoods
NorQuest Seafoods	Beverly B
	Cape Caution
	Southern Wind
Yardarm Knot	WESTERWARD WIND
	Note: Vessel is a catcher/processor

Royal Aleutian Seafoods	Arctic Sea North Sea Bering Sea Erla N Alaska Sea Note: These vessels are owned by shareholders in Royal Aleutian, not by the company Royal Aleutian
Snopak Products	No crab eligible vessels
Peter Pan Seafoods	No crab eligible vessels
Westward Seafoods	No crab eligible vessels

Appendix 2-5

Ex-vessel Prices by Processor,

Fishery, Season, and Species

Procedures: The following procedures were used to determine the ex-vessel prices for the BSAI crab fisheries. Ex-vessel value information from ADF&G fish ticket data were first reviewed and then summarized by processor code, fishery, and season. Landed pounds and value of crab were used to calculate a weighted ex-vessel price for each processor. Summary records include the ex-vessel value of priced fish ticket data and the pounds of both the priced and unpriced deliveries. Since the data were summarized by State of Alaska processor code (i.e., at the plant level), there are multiple records for companies owning more than one processing facility.

Preliminary Preparation of Selected [1] Data: An overview of the fish ticket data revealed fish tickets where the landed weights were distributed among several statistical areas but the ex-vessel values were not. For example, the 1994 ADF&G fish ticket for, BS *C. opilio,* below has a single landed value reported for harvests made in four statistical areas.

Ticket #	Item #	Pounds	Value	Price	Stat Area
nnnnnn	001	48,422	0	0	Stat Area 1
	002	48,422	0	0	Stat Area 2
	003	48,422	0	0	Stat Area 3
	004	48,422	$236,492	$3.20	Stat Area 4

This ticket shows the equal apportionment of 193,688 pounds among the four statistical areas with only one of the records reporting a value of $236,492 (equates to a price of $3.20 per pound for that record). However, if the total value were divided by the total landed weights on all the items on that fish ticket (193,688) then the price for the BS *C. opilio* would be $1.22, a value compatible with Commercial Fisheries Entry Commission average annual ex-vessel price estimates and with data from the Commercial Operator's Annual Reports. Therefore, when fish tickets had the above pattern, the values were applied to all pounds reported on the fish ticket.

The methodology used to combine the values and the landed weights on individual tickets was to count the number of times a monetary value occurred on a fish ticket and to also count the number of times a weight value was reported. When a ticket had only one dollar value and more than one weight value the weights were aggregated[2] and the number of observations with apparently invalid prices decreased.[3] The restructuring procedure was not without fault, however, as a review of the subsequently identified outliers contained some restructured tickets. However, the procedure was thought to correct a systematic problem encountered when estimating prices which is related to a legitimate method of reporting pounds and values on fish tickets.

Step1:

After the above restructuring was completed, means, minimums, maximums and standard deviations of the price variable were calculated by fishery and season. The results are shown in Table 1. The landed weights were used to weight the prices, this was done because deadloss and discards would not be purchased by the plant and including those weights would skew the estimated prices. After the prices were calculated, a

[1] Fish ticket records associated with test fishing, confiscated catch, cost recovery harvests, CDQ harvests, and out of season harvests were excluded.

[2] This situation occurred in the 1992-1995 period. There were 1,641 tickets containing 3,826 items.

[3] There were 268 records with prices ranging from a lows of $ .002 and a high of $1,285.050 before the restructuring and 83 records afterwards. See Table 2 for more detail.

review of the resulting data revealed some prices of well over $100 per pound and other prices which were well under $0.01 per pound.

While these values were not terribly prevalent, they at times skewed a processor's data so greatly that the entire group of data for that processor was effectively unuseable. For this reason an arbitrary edit was done: All records with prices over $10 were deleted along with all records with prices under $0.75, with the exception of BS *C. opilio*, for which a minimum price of $0.01 was used. (so that the lower valued old shell crab would be included). These limits were chosen after reviewing Table 1 and Commercial Fisheries Entry Commission weighted average annual ex-vessel price estimates. This edit removed 83 records across all fisheries in the time periods that were considered. Table 2 provides the range and number of prices deleted. Table 3 shows similar information for the prices that were retained.

Step2:

A weighted mean, minimum, maximum, and standard deviation was then computed on the retained records by fishery, season, species for each processor code. Again, landed weights were used as the weighting factor. A second price edit examined tickets whose price varied from the mean by a factor of ten. For example, if the mean price was $3.00, then prices of under $0.30 and over $30 would be deemed likely data entry problems. BS *C. opilio* prices between $0.01 and the mean were excepted by this edit because they appeared to reflect valid low prices for hard shell crab. Two records with prices over $5.00 in the BS *C. opilio* fishery were excluded.

Step3:

A second weighted mean, minimum, maximum, standard deviation, and median were computed from the remaining data. These statistics were then merged back to records containing the total pounds delivered to each processor, the total priced pounds, the total numbers of vessels delivering to the processor, and the total number of vessels which had priced records. Assembling these data allowed the computation of the percent of pounds and records priced for each processor.

A summary of the pricing information by fishery and season is displayed in Table 4 (for all processors). Table 5 provides similar information but excludes catcher/processors and catcher/sellers because these types of operations do not generate typical ex-vessel prices.

Table 1 Observed mean, minmum, maximum and record count of unedited and edited prices, weighted by landed weights by fishery and season

Fishery	Season	Unedited Mean	Edited Mean	Unedited Minimum	Edited Minimum	Unedited Maximum	Edited Maximum	Unedited Record Count	Edited Record Count	Rejected Record Count
ADK-BRN	1991-1992	$1.861	$1.925	$0.501	$1.154	$2.150	$2.150	45	44	1
	1992-1993	$1.919	$1.919	$0.920	$0.920	$2.250	$2.250	42	42	0
	1993-1994	$2.896	$2.740	$2.107	$2.107	$259.701	$4.900	86	82	4
	1994-1995	$3.288	$3.288	$1.534	$1.534	$4.400	$4.400	417	417	0
	1995-1996	$2.091	$2.087	$1.700	$1.700	$23.000	$2.322	479	478	1
	1996-1997	$2.201	$2.195	$0.982	$0.982	$165.981	$2.702	251	250	1
	1997-1998	$2.138	$2.138	$1.800	$1.800	$3.000	$3.000	275	275	0
	1998-1999	$2.040	$2.040	$1.800	$1.800	$2.250	$2.250	70	70	0
	1999-2000	$3.129	$3.129	$2.747	$2.747	$3.600	$3.600	415	415	0
	2000-2001	$3.097	$3.097	$2.745	$2.745	$3.550	$3.550	499	499	0
										7
ADK-RED	1991-1992	$3.097	$3.097	$2.500	$2.500	$3.500	$3.500	9	9	0
	1992-1993	$4.746	$4.746	$4.250	$4.250	$5.500	$5.500	12	12	0
	1993-1994	$3.519	$3.519	$2.597	$2.597	$3.880	$3.880	14	14	0
	1994-1995	$5.491	$5.491	$4.501	$4.501	$5.519	$5.519	27	27	0
	1995-1996	$2.640	$2.640	$2.500	$2.500	$2.940	$2.940	5	5	0
										0
BB-RED	1992-1992	$4.937	$4.965	$0.711	$1.000	$5.500	$5.500	126	125	1
	1993-1993	$3.744	$3.827	$0.380	$3.800	$4.350	$4.350	45	44	1
	1996-1996	$4.013	$4.013	$4.000	$4.000	$4.500	$4.500	219	219	0
	1997-1997	$3.258	$3.258	$3.246	$3.246	$4.000	$4.000	324	324	0
	1998-1998	$2.644	$2.611	$2.000	$2.000	$26.000	$3.000	381	380	1
	1999-1999	$6.262	$6.262	$6.247	$6.247	$7.000	$7.000	394	394	0
	2000-2000	$4.807	$4.807	$4.797	$4.797	$5.000	$5.000	365	365	0
										3
BS-OPIE	1992-1992	$0.501	$0.500	$0.005	$0.015	$5.634	$1.600	1999	1996	3
	1993-1993	$0.648	$0.649	$0.009	$0.012	$1.752	$1.752	1349	1347	2
	1994-1994	$1.256	$1.252	$0.133	$0.133	$11.700	$2.058	995	994	1
	1995-1995	$2.429	$2.429	$0.019	$0.019	$3.300	$3.300	988	988	0
	1996-1996	$1.326	$1.326	$0.500	$0.500	$2.000	$2.000	1006	1006	0
	1997-1997	$0.785	$0.785	$0.007	$0.010	$1.400	$1.400	1698	1677	21
	1998-1998	$0.561	$0.561	$0.007	$0.010	$0.955	$0.955	2234	2226	8
	1999-1999	$0.881	$0.881	$0.002	$0.010	$1.400	$1.400	2251	2249	2
	2000-2000	$1.846	$1.846	$0.850	$0.850	$2.050	$2.050	459	459	0
										37

Table 1(Cont.) Observed mean, minmum, maximum and record count of unedited and edited prices, weighted by landed weights by fishery and season

Fishery	Season	Unedited Mean	Edited Mean	Unedited Minimum	Edited Minimum	Unedited Maximum	Edited Maximum	Unedited Record Count	Edited Record Count	Rejected Record Count
BS-TANN	1991-1992	$1.774	$1.676	$0.002	$0.952	$788.984	$2.850	1375	1369	6
	1992-1993	$1.505	$1.523	$0.002	$0.800	$171.530	$2.500	1627	1609	18
	1993-1994	$1.778	$1.794	$0.020	$0.764	$19.500	$2.450	559	554	5
	1994-1994	$3.672	$3.682	$0.355	$2.939	$36.748	$9.807	282	280	2
	1995-1995	$2.949	$2.774	$2.713	$2.713	$29.098	$3.476	185	183	2
	1996-1996	$2.497	$2.497	$2.249	$2.249	$3.000	$3.000	370	370	0
										33
DUT-BRN	1992-1992	$2.232	$2.232	$2.150	$2.150	$2.250	$2.250	12	12	0
	1993-1994	$2.124	$2.124	$2.100	$2.100	$2.200	$2.200	14	14	0
	1994-1995	$3.885	$3.885	$3.000	$3.000	$8.000	$8.000	87	87	0
	1995-1995	$2.709	$2.561	$2.450	$2.450	$25.140	$2.654	33	32	1
	1996-1996	$2.234	$2.234	$1.100	$1.100	$2.340	$2.340	238	238	0
	1997-1998	$2.250	$2.250	$2.249	$2.249	$2.253	$2.253	221	221	0
	1998-1999	$1.868	$1.868	$1.799	$1.799	$2.801	$2.801	155	155	0
	1999-2000	$3.222	$3.222	$2.700	$2.700	$3.600	$3.600	170	170	0
	2000-2001	$3.503	$3.503	$3.298	$3.298	$3.550	$3.550	165	165	0
										1
PRB-BLU	1995-1995	$2.923	$2.923	$2.400	$2.400	$3.000	$3.000	168	168	0
	1996-1996	$2.652	$2.652	$2.000	$2.000	$2.864	$2.864	112	112	0
	1997-1997	$2.817	$2.817	$2.749	$2.749	$4.000	$4.000	116	116	0
	1998-1998	$2.343	$2.343	$2.000	$2.000	$3.000	$3.000	105	105	0
										0
PRB-RED	1993-1993	$4.516	$4.503	$0.524	$4.441	$20.885	$4.750	88	86	2
	1994-1994	$6.446	$6.446	$6.000	$6.000	$7.500	$7.500	138	138	0
	1995-1995	$3.366	$3.366	$2.400	$2.400	$4.000	$4.000	174	174	0
	1996-1996	$2.759	$2.759	$2.000	$2.000	$3.253	$3.253	108	108	0
	1997-1997	$3.087	$3.087	$3.000	$3.000	$4.000	$4.000	119	119	0
	1998-1998	$2.391	$2.391	$2.150	$2.150	$3.400	$3.400	113	113	0
										2
STM-BLU	1992-1992	$2.756	$2.791	$0.192	$2.000	$3.250	$3.250	72	71	1
	1993-1993	$2.657	$2.657	$2.500	$2.500	$2.900	$2.900	72	72	0
	1994-1994	$4.150	$4.150	$3.750	$3.750	$4.500	$4.500	126	126	0
	1995-1995	$2.316	$2.320	$0.225	$2.151	$2.550	$2.550	122	121	1
	1996-1996	$2.200	$2.200	$1.781	$1.781	$2.900	$2.900	190	190	0
	1997-1997	$2.213	$2.213	$2.150	$2.150	$2.400	$2.400	199	199	0
	1998-1998	$1.867	$1.867	$1.600	$1.600	$2.251	$2.251	300	300	0
										2
										85

Table 2 Ranges And counts of excluded prices by fishery and season

Fishery	Season	Minimum Low	Maximum Low	Record Count	Minimum High	Maximum High	Record Count
ADK-BRN	1991-1992	$0.501	$0.501	1	.	.	0
	1993-1994	.	.	0	$10.388	$259.701	4
	1995-1996	.	.	0	$23.000	$23.000	1
	1996-1997	.	.	0	$165.981	$165.981	1
BB-RED	1992-1992	$0.711	$0.711	1	.	.	0
	1993-1993	$0.380	$0.380	1	.	.	0
	1998-1998	.	.	0	$26.000	$26.000	1
BS-OPIE	1992-1992	$0.005	$0.005	1	.	.	0
	1993-1993	$0.009	$0.009	2	.	.	0
	1994-1994	.	.	0	$11.700	$11.700	1
	1997-1997	$0.007	$0.009	21	.	.	0
	1998-1998	$0.007	$0.009	8	.	.	0
	1999-1999	$0.002	$0.009	2	.	.	0
BS-TANN	1991-1992	$0.002	$0.456	5	$788.984	$788.984	1
	1992-1993	$0.002	$0.727	13	$10.658	$171.530	5
	1993-1994	$0.020	$0.624	4	$19.500	$19.500	1
	1994-1994	$0.355	$0.355	1	$36.748	$36.748	1
	1995-1995	.	.	0	$27.139	$29.098	2
DUT-BRN	1995-1995	.	.	0	$25.140	$25.140	1
PRB-RED	1993-1993	$0.524	$0.524	1	$20.885	$20.885	1
STM-BLU	1992-1992	$0.192	$0.192	1	.	.	0
	1995-1995	$0.225	$0.225	1	.	.	0
		$0.002	$0.727	63	$10.388	$788.984	20

Table 3 Ranges And counts of retained prices by fishery and season

Fishery	Season	Minimum Price	Maximum Price	Record Count
ADK-BRN	1991-1992	$1.154	$2.150	44
	1992-1993	$0.920	$2.250	42
	1993-1994	$2.107	$4.900	82
	1994-1995	$1.534	$4.400	417
	1995-1996	$1.700	$2.322	478
	1996-1997	$0.982	$2.702	250
	1997-1998	$1.800	$3.000	275
	1998-1999	$1.800	$2.250	70
	1999-2000	$2.747	$3.600	415
	2000-2001	$2.745	$3.550	499
ADK-RED	1991-1992	$2.500	$3.500	9
	1992-1993	$4.250	$5.500	12
	1993-1994	$2.597	$3.880	14
	1994-1995	$4.501	$5.519	27
	1995-1996	$2.500	$2.940	5
BB-RED	1992-1992	$1.000	$5.500	125
	1993-1993	$3.800	$4.350	44
	1996-1996	$4.000	$4.500	219
	1997-1997	$3.246	$4.000	324
	1998-1998	$2.000	$3.000	380
	1999-1999	$6.247	$7.000	394
	2000-2000	$4.797	$5.000	365
BS-OPIE	1992-1992	$0.015	$1.600	1,996
	1993-1993	$0.012	$1.752	1,347
	1994-1994	$0.133	$2.058	994
	1995-1995	$0.019	$3.300	988
	1996-1996	$0.500	$2.000	1,006
	1997-1997	$0.010	$1.400	1,677
	1998-1998	$0.010	$0.955	2,226
	1999-1999	$0.010	$1.400	2,249
	2000-2000	$0.850	$2.050	459
BS-TANN	1991-1992	$0.952	$2.850	1,369
	1992-1993	$0.800	$2.500	1,609
	1993-1994	$0.764	$2.450	554
	1994-1994	$2.939	$9.807	280
	1995-1995	$2.713	$3.476	183
	1996-1996	$2.249	$3.000	370
DUT-BRN	1992-1992	$2.150	$2.250	12
	1993-1994	$2.100	$2.200	14
	1994-1995	$3.000	$8.000	87
	1995-1995	$2.450	$2.654	32
	1996-1996	$1.100	$2.340	238
	1997-1998	$2.249	$2.253	221
	1998-1999	$1.799	$2.801	155
	1999-2000	$2.700	$3.600	170
	2000-2001	$3.298	$3.550	165
PRB-BLU	1995-1995	$2.400	$3.000	168
	1996-1996	$2.000	$2.864	112
	1997-1997	$2.749	$4.000	116
	1998-1998	$2.000	$3.000	105

Table 3(Cont.) Ranges And counts of retained prices by fishery and season

PRB-RED	1993-1993	$4.441	$4.750	86
	1994-1994	$6.000	$7.500	138
	1995-1995	$2.400	$4.000	174
	1996-1996	$2.000	$3.253	108
	1997-1997	$3.000	$4.000	119
	1998-1998	$2.150	$3.400	113
STM-BLU	1992-1992	$2.000	$3.250	71
	1993-1993	$2.500	$2.900	72
	1994-1994	$3.750	$4.500	126
	1995-1995	$2.151	$2.550	121
	1996-1996	$1.781	$2.900	190
	1997-1997	$2.150	$2.400	199
	1998-1998	$1.600	$2.251	300
		$0.010	$9.807	25,209

Table 4 Overview of weighted fish ticket prices by fishery and season all processor types

Fishery	Season	Total Landed Pounds	Total Priced Pounds	Percent Pounds Priced	Total Value	Wtd Average Price	Processors With Priced Data	All Processors
ADK-BRN	1990-1991	4,219,857	.	.	$0	.	0	10
	1991-1992	6,088,514	2,045,692	33.60	$3,938,522	$1.925	6	12
	1992-1993	4,782,530	2,565,525	53.64	$4,923,081	$1.919	6	11
	1993-1994	4,470,325	2,532,677	56.66	$6,940,551	$2.740	7	8
	1994-1995	6,114,580	5,138,526	84.04	$16,894,522	$3.288	9	11
	1995-1996	4,718,451	4,461,689	94.56	$9,311,200	$2.087	6	6
	1996-1997	2,403,721	1,358,630	56.52	$2,982,290	$2.195	6	7
	1997-1998	2,405,622	1,245,994	51.80	$2,663,475	$2.138	6	8
	1998-1999	1,670,167	577,648	34.59	$1,178,628	$2.040	2	3
	1999-2000	2,663,281	1,733,913	65.10	$5,425,704	$3.129	6	6
	2000-2001	2,902,518	2,271,421	78.26	$7,035,571	$3.097	8	8
ADK-RED	1990-1991	169,102	.	.	$0	.	0	3
	1991-1992	951,278	262,384	27.58	$812,632	$3.097	6	11
	1992-1993	1,281,424	277,956	21.69	$1,319,074	$4.746	6	9
	1993-1994	690,675	451,830	65.42	$1,590,137	$3.519	8	10
	1994-1995	195,537	119,584	61.16	$656,608	$5.491	7	10
	1995-1996	38,706	21,531	55.63	$56,834	$2.640	3	4
BB-RED	1991-1991	16,849,562	.	.	$0	.	0	56
	1992-1992	7,990,040	3,480,048	43.55	$17,279,406	$4.965	15	41
	1993-1993	14,343,038	1,430,810	9.98	$5,475,256	$3.827	6	39
	1996-1996	8,319,611	7,702,893	92.59	$30,908,556	$4.013	12	17
	1997-1997	8,720,403	8,232,026	94.40	$26,821,854	$3.258	16	25
	1998-1998	14,120,487	12,974,819	91.89	$33,881,052	$2.611	17	27
	1999-1999	10,949,856	10,059,005	91.86	$62,988,135	$6.262	16	23
	2000-2000	7,468,240	6,558,477	87.82	$31,525,323	$4.807	15	23
BS-OPIE	1991-1991	325,183,233	.	.	$0	.	0	69
	1992-1992	312,839,404	218,982,153	70.00	$109,410,709	$0.500	31	64
	1993-1993	229,173,808	160,562,569	70.06	$104,157,710	$0.649	34	68
	1994-1994	147,992,955	110,311,435	74.54	$138,159,392	$1.252	32	59
	1995-1995	74,005,359	58,564,396	79.14	$142,271,956	$2.429	29	52
	1996-1996	64,363,158	49,997,836	77.68	$66,295,848	$1.326	28	44
	1997-1997	117,179,683	102,965,597	87.87	$80,851,245	$0.785	26	42
	1998-1998	240,433,650	218,439,523	90.85	$122,587,985	$0.561	29	44
	1999-1999	182,678,507	173,675,517	95.07	$153,041,662	$0.881	26	36
	2000-2000	30,258,170	27,969,602	92.44	$51,638,940	$1.846	22	28
BS-TANN	1990-1991	15,630,566	.	.	$0	.	0	62
	1991-1992	31,514,345	7,151,670	22.69	$11,984,597	$1.676	34	69
	1992-1993	34,786,911	23,116,968	66.45	$35,210,839	$1.523	38	71
	1993-1994	16,619,979	10,826,581	65.14	$19,418,231	$1.794	28	51
	1994-1994	7,634,106	6,195,418	81.15	$22,811,242	$3.682	14	28
	1995-1995	4,184,011	2,869,483	68.58	$7,958,508	$2.773	14	27
	1996-1996	1,788,102	1,531,372	85.64	$3,823,354	$2.497	13	19

Table 4(Cont.) Overview of weighted fish ticket prices by fishery and season all processor types

Fishery	Season	Total Landed Pounds	Total Priced Pounds	Percent Pounds Priced	Total Value	Wtd Average Price	Processors With Priced Data	All Processors
DUT-BRN	1991-1991	1,445,730	.	.	$0	.	0	8
	1992-1992	1,323,924	540,208	40.80	$1,205,709	$2.232	3	8
	1993-1994	908,136	908,136	100.00	$1,928,674	$2.124	5	5
	1994-1995	1,720,359	1,650,819	95.96	$6,412,973	$3.885	6	6
	1995-1995	1,926,953	1,578,323	81.91	$4,041,812	$2.561	4	5
	1996-1996	3,105,659	3,105,659	100.00	$6,938,551	$2.234	5	5
	1997-1998	3,357,867	2,981,457	88.79	$6,708,306	$2.250	4	6
	1998-1999	3,165,020	2,925,915	92.45	$5,466,986	$1.868	6	7
	1999-2000	2,999,890	2,864,096	95.47	$9,227,924	$3.222	6	7
	2000-2001	3,086,890	3,086,890	100.00	$10,812,630	$3.503	4	4
PRB-BLU	1995-1995	1,195,861	1,067,353	89.25	$3,120,211	$2.923	8	12
	1996-1996	916,474	847,326	92.45	$2,246,802	$2.652	10	11
	1997-1997	491,434	474,799	96.62	$1,337,639	$2.817	12	12
	1998-1998	494,424	474,338	95.94	$1,111,172	$2.343	13	15
PRB-RED	1993-1993	2,585,966	1,757,623	67.97	$7,915,389	$4.503	13	17
	1994-1994	1,336,024	1,181,948	88.47	$7,618,788	$6.446	15	16
	1995-1995	855,063	728,576	85.21	$2,452,168	$3.366	9	12
	1996-1996	199,718	193,003	96.64	$532,459	$2.759	9	10
	1997-1997	735,109	720,799	98.05	$2,224,857	$3.087	12	12
	1998-1998	501,042	498,845	99.56	$1,192,881	$2.391	13	14
STM-BLU	1991-1991	3,155,607	.	.	$0	.	0	15
	1992-1992	2,474,080	1,005,578	40.64	$2,806,627	$2.791	9	19
	1993-1993	2,999,921	1,652,041	55.07	$4,389,127	$2.657	11	16
	1994-1994	3,717,563	3,118,422	83.88	$12,941,504	$4.150	16	22
	1995-1995	3,075,902	2,894,251	94.09	$6,715,195	$2.320	10	11
	1996-1996	3,040,766	2,242,369	73.74	$4,933,888	$2.200	11	15
	1997-1997	4,438,395	4,426,626	99.73	$9,796,323	$2.213	12	13
	1998-1998	2,849,574	2,544,794	89.30	$4,752,367	$1.867	12	14

Table 5 Overview of weighted fish ticket prices by fishery and season (catcher/processors and catcher/sellers excluded)

Fishery	Season	Total Landed Pounds	Total Priced Pounds	Percent Pounds Priced	Total Value	Weighted Average Price	Processors With Priced Data	All Processors
ADK-BRN	1990-1991	1,796,371	.	.	$0	.	0	4
	1991-1992	2,431,180	1,661,596	68.35	$3,297,409	**$1.984**	4	4
	1992-1993	3,632,021	2,322,078	63.93	$4,497,049	**$1.937**	5	8
	1993-1994	3,905,984	2,532,677	64.84	$6,940,551	**$2.740**	7	7
	1994-1995	5,190,845	5,122,144	98.68	$16,832,515	**$3.286**	8	9
	1995-1996	4,392,003	4,390,761	99.97	$9,190,622	**$2.093**	5	5
	1996-1997	1,327,012	1,326,944	99.99	$2,951,160	**$2.224**	5	5
	1997-1998	1,249,377	1,245,994	99.73	$2,663,475	**$2.138**	6	6
	1998-1999	577,648	577,648	100.00	$1,178,628	**$2.040**	2	2
	1999-2000	1,697,941	1,697,764	99.99	$5,326,299	**$3.137**	5	5
	2000-2001	1,993,874	1,993,874	100.00	$6,272,350	**$3.146**	7	7
ADK-RED	1991-1992	266,383	187,170	70.26	$624,597	**$3.337**	5	8
	1992-1993	806,524	250,950	31.12	$1,197,547	**$4.772**	5	7
	1993-1994	465,651	451,830	97.03	$1,590,137	**$3.519**	8	9
	1994-1995	98,102	82,612	84.21	$453,539	**$5.490**	6	8
	1995-1996	22,272	21,531	96.67	$56,834	**$2.640**	3	3
BB-RED	1991-1991	14,360,990	.	.	$0	.	0	32
	1992-1992	7,186,419	3,480,048	48.43	$17,279,406	**$4.965**	15	24
	1993-1993	13,053,109	1,369,365	10.49	$5,241,765	**$3.828**	5	24
	1996-1996	7,897,131	7,702,893	97.54	$30,908,556	**$4.013**	12	13
	1997-1997	8,493,704	8,232,026	96.92	$26,821,854	**$3.258**	16	18
	1998-1998	12,634,107	12,324,131	97.55	$32,184,792	**$2.612**	14	16
	1999-1999	10,018,299	9,638,028	96.20	$60,357,026	**$6.262**	14	15
	2000-2000	7,172,614	6,505,761	90.70	$31,271,920	**$4.807**	13	15
BS-OPIE	1991-1991	257,523,354	.	.	$0	.	0	38
	1992-1992	259,777,128	218,311,053	84.04	$109,075,160	**$0.500**	30	34
	1993-1993	187,346,715	160,562,569	85.70	$104,157,710	**$0.649**	34	38
	1994-1994	126,126,831	110,241,449	87.41	$138,077,985	**$1.253**	31	36
	1995-1995	66,087,115	58,564,396	88.62	$142,271,956	**$2.429**	29	34
	1996-1996	54,738,161	49,997,836	91.34	$66,295,848	**$1.326**	28	30
	1997-1997	106,126,849	102,965,597	97.02	$80,851,245	**$0.785**	26	29
	1998-1998	224,132,005	217,433,414	97.01	$122,044,686	**$0.561**	28	29
	1999-1999	172,639,663	172,270,184	99.79	$151,841,907	**$0.881**	24	25
	2000-2000	28,318,872	27,485,530	97.06	$50,748,270	**$1.846**	18	19
BS-TANN	1990-1991	13,633,166	.	.	$0	.	0	36
	1991-1992	25,177,190	7,142,652	28.37	$11,968,818	**$1.676**	33	39
	1992-1993	30,354,794	23,115,953	76.15	$35,208,809	**$1.523**	37	43
	1993-1994	14,524,022	10,800,149	74.36	$19,370,649	**$1.794**	27	34
	1994-1994	7,003,122	6,195,418	88.47	$22,811,242	**$3.682**	14	19
	1995-1995	3,831,529	2,869,483	74.89	$7,958,508	**$2.773**	14	17
	1996-1996	1,754,467	1,531,372	87.28	$3,823,354	**$2.497**	13	15

Table 5(Cont.) Overview of weighted fish ticket prices by fishery and season (catcher/processors and catcher/sellers excluded)

Fishery	Season	Total Landed Pounds	Total Priced Pounds	Percent Pounds Priced	Total Value	Weighted Average Price	Processors With Priced Data	All Processors
DUT-BRN	1991-1991	838,620	.	.	$0	.	0	4
	1992-1992	546,984	540,208	98.76	$1,205,709	**$2.232**	3	3
	1993-1994	908,136	908,136	100.00	$1,928,674	**$2.124**	5	5
	1994-1995	1,720,359	1,650,819	95.96	$6,412,973	**$3.885**	6	6
	1995-1995	1,649,978	1,578,323	95.66	$4,041,812	**$2.561**	4	4
	1996-1996	3,105,659	3,105,659	100.00	$6,938,551	**$2.234**	5	5
	1997-1998	2,981,457	2,981,457	100.00	$6,708,306	**$2.250**	4	4
	1998-1999	2,925,915	2,925,915	100.00	$5,466,986	**$1.868**	6	6
	1999-2000	2,755,684	2,755,684	100.00	$8,883,247	**$3.224**	5	5
	2000-2001	3,086,890	3,086,890	100.00	$10,812,630	**$3.503**	4	4
PRB-BLU	1995-1995	1,154,386	1,067,353	92.46	$3,120,211	**$2.923**	8	10
	1996-1996	909,713	840,565	92.40	$2,233,280	**$2.657**	9	10
	1997-1997	491,434	474,799	96.62	$1,337,639	**$2.817**	12	12
	1998-1998	494,424	474,338	95.94	$1,111,172	**$2.343**	13	15
PRB-RED	1993-1993	2,542,592	1,757,623	69.13	$7,915,389	**$4.503**	13	15
	1994-1994	1,336,024	1,181,948	88.47	$7,618,788	**$6.446**	15	16
	1995-1995	796,543	728,576	91.47	$2,452,168	**$3.366**	9	11
	1996-1996	199,718	193,003	96.64	$532,459	**$2.759**	9	10
	1997-1997	735,109	720,799	98.05	$2,224,857	**$3.087**	12	12
	1998-1998	501,042	498,845	99.56	$1,192,881	**$2.391**	13	14
STM-BLU	1991-1991	2,166,613	.	.	$0	.	0	6
	1992-1992	2,087,645	980,865	46.98	$2,752,901	**$2.807**	8	11
	1993-1993	2,834,296	1,652,041	58.29	$4,389,127	**$2.657**	11	13
	1994-1994	3,366,915	3,072,690	91.26	$12,749,429	**$4.149**	15	16
	1995-1995	3,022,097	2,894,251	95.77	$6,715,195	**$2.320**	10	10
	1996-1996	2,866,705	2,119,826	73.95	$4,664,292	**$2.200**	10	12
	1997-1997	4,426,626	4,426,626	100.00	$9,796,323	**$2.213**	12	12
	1998-1998	2,645,489	2,544,794	96.19	$4,752,367	**$1.867**	12	12

Appendix 2-6

Review of Rationalization Programs

The Icelandic Individual Transferable Quota program

Most of Iceland's fishing activity is regulated by an system of individual quotas. The first Icelandic individual quota system was developed in its herring fishery. In the late 1960s, the fishery was first threatened. After a few unsuccessful efforts to restrict harvests, declining stocks led managers to close the fishery. When the fishery was reopened in 1976, an individual quota program was implemented. Under the original program quotas were not transferable. Quotas were low (because of the poor stock levels) and often could not be fished economically. To address this shortcoming, quotas were made transferrable in 1979. A similar program was established for capelin in 1980. The shares in that fishery were made transferrable in 1986 (OECD, 2000a).

Prior to 1970, Iceland's cod fishery was dominated by foreign vessels. With the extension of the EEZ in 1975, Iceland sought to capitalize on its expanded fishing grounds by development of its fleets. The fleet grew rapidly, threatening stocks by the end of the 1970s. By the late 1970s, efforts were underway to constrain growth of the fleet. In 1984, an Individual Transferrable Quota (ITQ) program was implemented in all major groundfish fisheries, including the cod fishery. The program also restricted entry into the fishery permitting a new vessel to enter the fishery only when a larger or equal sized vessel was retired (OECD, 2000a). A 1999 ruling of the Supreme Court of Iceland eliminated the prohibition on entry finding that it was a violation of the constitutional right of equal access to employment. Under the ruling any registered vessel is permitted to obtain a license to enter the fishery. Vessels, however, require a valid quota to make any harvests (OECD, 2000b).

In the groundfish fishery, quota shares were issued based on fishing history in the three years preceding implementation of the program. Crews have been dissatisfied with the program, since only vessel owners received an initial allocation of quota shares (NRC, 1999). At the outset, annual quotas could be sold but the underlying quota shares (which create the entitlement to the annual quota) were not transferrable, except with transfer of the vessel or between vessels commonly owned. In the first few years of the program vessels could opt out of the program, instead adopting restrictions on effort. Those choosing to operate under the effort restrictions could reenter the catch quota system with a new harvest record established under the effort restrictions. Up to two-thirds of harvests were made under the effort restrictions in the years that the option was available. Vessels under 10 gross registered tons were initially exempt from the ITQ program and the entry moratorium. By 1988, the program was extended to cover all vessels over 6 gross registered tons (OECD, 2000a).

In 1990, a new fishing law was adopted that brought most of the remaining fisheries under ITQ management and extended the program indefinitely. The program instituted several changes to ITQ management. Vessels under 6 GRT were brought into the program for the first time. Quota shares were permitted to be sold outright–transfers were formerly limited to leasing of shares. A requirement that at least one half of a vessel's allocation must be fished every other year to retain the interest in those shares was created. To protect small communities, the law requires the Ministry of Fisheries to consult municipal governments and the local fishermen's unions before approving transfers of shares from a vessel located in one area to a vessel located in another area. Most transfers, however, have been permitted and trading is quite common under the program. For example, in 1993-94 season approximately 45 percent of the cod quota was traded and approximately 96 percent of the saithe quota was traded (NRC, 1999).
While the 1990 law was intended to make the program comprehensive by bringing vessels under 6 GRT into the ITQ program, those vessels can elect to fish in certain fisheries under options that restrict effort instead of under the ITQ program. Four different options exist, including one that is based solely on effort restrictions (Icelandic Ministry of Fisheries, 2001). Current legislation will remove the effort restriction option for these vessels and incorporate them fully into the ITQ program (FNI, 2001).

ITQ management has had mixed results in protecting stocks in Iceland's fisheries. Herring harvests rose seven fold between 1975 and 1995. Cod harvests, however, were at historic lows in the early 1990s (NRC, 1999). The decline of the cod stock is likely attributable to two causes– the method of setting the TAC and the exemption of some catch from the TAC. Historically, the TAC was set by managers based on the biological recommendations of Marine Research Institute (MRI). Every year, managers have set the TAC higher than the MRI recommendation. TACs, on average, exceeded the recommendation by 12 percent during the late 1980s and early 1990s. The second source of overharvesting is the omission of certain catches from the TAC. Small vessels using certain gear types (including those participating in the effort restriction options) are not subject to an allocation under the TAC or may have their catch counted at a reduced rate against the TAC. As a consequence, harvests have exceeded the TAC by more than 12 percent on average. These two factors combined have led to the catches exceeding the TAC recommended by the MRI by an average of 26 percent. The condition of the stock may have suffered from these excessive harvests (OECD, 2000a). A new rule for specifying the cod TAC limits the TAC to 25 percent of the fishable biomass (Icelandic Ministry of Fisheries, 2001). Although the rule is intended to bring the TAC in line with scientific recommendations, the cod TAC has continued to be set in excess of the MRI recommendations (see OECD, 2000a and Icelandic Ministry of Fisheries, 2001).

In both the herring and the cod fishery, productivity has increased substantially. Between 1980 and 1996 the number of vessels participating in the herring fishery decreased from more than 200 to less than 30. During the same period, harvests increased almost three fold (NRC, 1999). Although the number of vessels active in the Icelandic fleets has declined, the fleet has grown in terms of gross tonnage (NRC, 1999). The two segments of the fleet that have grown are small vessels exempt from some of the barriers to entry created by the ITQ program and large trawlers that have been substituted for smaller vessels and have increased their interests in the fisheries by purchasing shares. The fleet is still considered to have excess capacity by some experts. Some of the overcapacity is attributed to the rule that permits vessels to enter the fleet only on withdrawal of another vessel. It is argued that this provision has created a value in vessels in excess of their performance in the fishery. The fleet is also thought to be overcapitalized in part because the TAC has been set too high. A larger fleet and more effort are thought to be required to harvest the diminished stock (OECD, 2000a).

The Icelandic groundfish ITQ system also is unique in its characterization of several species in "cod equivalents". In the program, vessels are issued a single quota expressed in quantities of cod. Since harvests are mixed species, each species can be quantified in its "cod equivalent," which is based on the market values of the different species in the fishery.

Quota shares have become more concentrated in recent years. In the last ten years, the largest 24 quota share holders have increased their holdings from one-quarter of the outstanding quota shares to more than half of the outstanding quota shares. Parliament has also responded to the consolidation by setting ownership caps of 10 percent in the cod and haddock fisheries and 20 percent in most other fisheries. The transferability of quota shares has caused a backlash from a few groups. Icelanders are concerned that their fisheries have become private–a point of some dispute in a country that believes fisheries are a public resource. In response, Parliament issued a declaration that fish are the property of the nation at the same time modifying rules to increase reliance on the rights created by the ITQ system (OECD, 2000a).

Consolidation of quota shares under the existing program has hurt small communities (with populations of less than 500) more than larger communities, as the tendency is for quota shares to become more concentrated in larger communities (NRC, 1999). The redistribution of interests is not thought to have created any regional redistribution, which may be the reason that most transfers have been permitted (OECD, 2000a). Small communities also fear the move to include small vessels in the program, which they believe will lead to further concentration of quota shares in large vessels that are typically based in larger

communities (FNI, 2001). Small communities depend more on small vessels than large vessels. In a few villages, up to 80 percent of harvests are by the small vessel fleet that is currently exempt from the ITQ program. In over 20 villages, more than 30 percent of harvests are by this small vessel fleet. Losses to communities from quota shares being sold are said to extend beyond the decline in the harvesting sector, as many businesses can be affected (including those unrelated to fishing). Some communities have responded, making purchases in the quota share market to support local fishermen. Small processors also fear that the inclusion of small vessel owners in the program will further harm their businesses.

The positions of small communities, small vessel owners, and small processors are also affected by the price of quota shares. In recent years, the quota share prices have increased sharply. In the current market, quota shares lease for more than one-half of the ex vessel price of fish (NRC, 1999). Quota share sales are at approximately three times the ex vessel price of fish– so the entire revenues of three years harvests would be required to pay the cost of purchasing a share (FNI, 2001). These high prices are thought to exacerbate the problems of small communities, as small vessel owners are attracted to the immediate return from the sale of quota shares. The current quota prices also affect crews and processors. Fishermen are said to have been forced to reduce crew shares to cover the cost of quota shares. The cost of fish to processors is said to have risen to the point where some of the small processors are complaining that they are unable to recruit employees and are unable to keep up with plant maintenance (FNI, 2001). The consequences of the inclusion of small vessels in the program are uncertain. Their inclusion will help regulators control harvests, but the change could be detrimental to the small vessel fleet, small processors, and small communities.

Individual Quotas and Cooperative Management in the Netherlands

In recent years, fisheries management in the Netherlands has focused on the reduction of fleet capacity. Initial efforts to address this problem included a license program that limited entry to replacement vessels of smaller engine capacity than the vessels that they replaced. Later measures have included the development of effort limitations (such as days at sea limits), individual quotas, co-management, and vessel buyouts (MANM, 1993). These measures have been relatively successful, as vessels in the fisheries declined by approximately 15 to 20 percent in the first half of the 1990s (NRC, 1999).

The ability of the Netherlands to implement its own fisheries policy is somewhat constrained by its membership in the European Union (EU). The EU under its Common Fisheries Policy grants member countries a share of the overall TAC in the EU fisheries. Within each member country, allocation of interests among fishermen remains the province of the country.

The Dutch have used individual quotas (IQ) in management since 1976 when they were implemented in the plaice and sole fisheries. Managers have since expanded their use to several other fisheries. IQ first became transferrable among licensed fishermen in 1985, with a provision for temporary ownership by shipyards and banks to enable fishermen to use them as collateral for loans. Transfer rules allow shares to be leased or sold in whole but are not divisible (NRC, 1999). Shares can also be set aside for a period of up to two years, to allow fishermen to take their vessels out of service. Days at sea limits continued to be maintained to limit effort levels in the fisheries (MANM, 1993).

The roundfish fishery (cod and whiting), mackerel, and herring fisheries have been (or are being) managed by using a system of "documents". "Documents" allow the holder to harvest of a specific amount of a species each month. This system limits the catch and fishing effort by controlling the issue of documents (MANM, 1993).

In 1993, as part of an effort to improve cooperation and to shift some of the management of fisheries to industry, the government developed a program in which fishermen could join together into groups to manage

and fish their IQ shares. Under the program each group is responsible for development and enforcement of rules under which members fish their shares (MANM, 1993). For the program to be implemented a threshold of 75 percent of vessel owners joining groups was required. The program created incentives for group membership, including greater flexibility for transfers among group members, more days at sea for group members, and a threat of more license buyouts if the system did not succeed (MANM, 1993). Under the program, all share transfers by fishermen that are not members are required to be completed by the end of February. Transfers between groups are required to be completed by the end of November and transfers between group members are permitted at any time. The value of quotas held by fishermen that are not group members are reduced further by an additional provision that prohibits fishing of unused quotas in later years (NRC, 1999). The groups have also been used by fishermen to transfer portions of their shares, an option that is not available to fishermen that are not group members. Fishermen seem satisfied with the plan and prefer the flexibility of co-management over a system of government oversight. Many believe that co-management has put to rest the race to fish (OECD, 1997). Fishermen also have indicated that the co-management program has helped to level income disparities among fishermen. Whether the satisfaction is with the co-management program or conditions in the fishery is questionable since TACs have been relatively high and capacity is down since the program was implemented (OECD, 1997).

Under this co-management (cooperative) type program, the group is responsible for managing member IQs and allocating member days at sea limits, to ensure that IQ limits are not exceeded. IQs remain individual but the group assumes the responsibility for their management (MANM, 1993). To enable better tracking of harvests, group members are required to sell harvests at auctions (OECD, 1997). Groups are also required to impose heavy fines on fishermen that violate their quotas (MANM, 1993). Although groups at times have been recalcitrant in sanctioning members, actions of government overseers have improved reliance on the system (OECD, 1997).

Individual Fishing Quotas in the Alaska halibut and sablefish fisheries

The Alaska halibut and sablefish fisheries are regulated by similar Individual Fishing Quota (IFQ) programs. Although the fisheries differ, both historically and in the method of prosecution, they are similar in many respects. Both species are targeted with fixed gear, primarily longlines and command a relatively high ex-vessel price. Prior to implementation of the IFQ programs, the fisheries were open access regulated by TAC and season length. The number of participants in the fisheries grew rapidly in the second half of the 20th century, forcing managers to shorten seasons causing a race to fish. The short seasons led to both fisheries becoming part time fisheries. Many participants in the halibut fishery fished only halibut commercially, relying on other jobs as their primary source of income. Other participants in the fishery split their time between the halibut fishery and other fisheries, including the sablefish fishery. The sablefish fishery has a similar history, although it developed later than the halibut fishery. Sablefish also are fished farther from shore than halibut limiting competition somewhat in that fishery.

In the 1980s, both fisheries were experiencing the consequences of the race to fish. Fishermen would fish in poor weather to avoid being left out of the short seasons (for halibut - some were only one day long). Managers had difficulty regulating harvest quantities, as harvest levels could not be accurately gauged for very short openings. Both fisheries were overcapitalized since the only way fishermen could maintain or increase their share of the TAC was by harvesting fish faster. Excessive gear set to increase catch was abandoned on the closing of the fishery leading to gear loss and deadloss. Quality of fish also suffered both because fresh fish was available for a short time each year and because the race to fish limited the time available to fishermen to carefully handle their catch. The IFQ program was developed, in part, to address these problems.

The initial allocation of quota in the halibut and sablefish IFQ programs was intended to preserve the size and character of the fleets and reward active participants. To accomplish this goal the initial allocation was based on historical participation in the fisheries. To protect investment, only vessel owners (or fishermen that leased vessels) who demonstrated eligibility by participation in the fisheries during 1988, 1989, or 1990 were issued quota shares (QS) in the fisheries. The initial allocation of QS was based on the amount of harvests made by a fisherman during a series of years–a fisherman's best five years from 1984 to 1990 for halibut and a fisherman's best five years from 1985 to 1990 for sablefish. The broad, inclusive distribution of QS from this allocation scheme was intended to limit individual windfalls from the initial allocation and also to prevent hardship to any fisherman that might have been unable to fish for a given period of time because of uncontrollable circumstances.

NMFS developed a separate division, the Restricted Access Management (RAM) division, to implement the initial allocation and operation of the fishery under the IFQ programs. As the name suggests, this division has developed a role in the management of several different federal fisheries in the north Pacific. Management of the halibut and sablefish IFQ programs continues to be the primary duty of the RAM division.

Quota shares (QS) entitle a fisherman to a fixed proportion of the annual TAC in a fishery. A fisherman's annual harvest allotment (referred to as IFQs) is equal to the annual TAC multiplied by the fisherman's QS, divided by the total outstanding QS in the fishery. Both fisheries are divided into several management areas, each with its own QS allotments, corresponding IFQs, and annual TAC. Under the IFQ program, seasons in both fisheries begin on March 15th and end on November 15th. Fishermen are permitted to harvest their IFQs at any time during that period. Owner operator provisions require that the owner of the IFQs be on board the vessel when most classes of IFQs are harvested.[1]

QS (and the corresponding IFQs) are further categorized, based on the size of the vessel on which harvests were made that created the right to the initial allocation of QS. The halibut fishery has four vessel size categories and the sablefish fishery has three vessel size categories. IFQs are permitted to be fished only on vessels of the same or smaller size category. Categorizing QS and IFQ by vessel size is intended to preserve the character of the fleet (especially small vessel participation) by maintaining the distribution of interests across the different vessel size groups.

QS are transferable subject to a variety of limits adopted to manage the fishery and the distribution of interests in the fishery. IFQs, on the other hand, are not transferable, except for IFQs for harvests by freezer vessels. To maintain the owner operator character of the fleet the QS and IFQs can be owned only by IFQ crewmembers (defined as crew that have fished in excess of 150 days in a U.S. commercial fishery) and entities that received an initial allocation.[2] To prevent over-consolidation, ownership and use caps on QS and IFQs apply to both fisheries. In the halibut fishery, ownership of QS is limited to 1.5 percent of the total harvests from the Bering Sea and Aleutian Islands, 0.5 percent of the total harvests from the Gulf of Alaska and Southeast Alaska, and a special restriction of 1.0 percent of the total harvests in Southeast Alaska alone. In the sablefish fishery, ownership and use are limited to 1.0 percent of the harvests from the entire fishery and 1.0 percent of the harvests from Southeast Alaska alone. Similar restrictions on the consolidation of use of IFQs on a single vessel provide that no single vessel may harvest more than 1.0 percent of the total halibut TAC or no more than 1.0 percent of the Southeast halibut TAC in any year. Likewise, no single vessel may

[1] An exception permits those receiving initial allocation to fish IFQs with hired skippers. In addition, freezer vessel shares are not subject to owner on board requirements, as those vessels are typically owned by larger interests and operated by hired skippers. Corporations or partnerships that own IFQs are required to own at least 20 percent of the vessel on which their IFQs are harvested.

[2] In Southeast Alaska only IFQ crewmembers are eligible to receive transfers of QS and IFQs.

be used to harvest more than 1.0 percent of the combined TAC from the Bering Sea, Aleutian Islands, and Gulf of Alaska or more than 1.0 percent of the TAC in Southeast Alaska. Southeast Alaska is thought to require additional restriction because of the number of communities in that region that are dependent on the halibut and sablefish fisheries.

The program also contains restrictions on the ownership and division of small quantities of QS (which made up less than 20,000 pounds of IFQs under the 1994 TAC), known as 'blocks". Fishermen can own only two blocks or only one block and any amount of unblocked QS. Blocks cannot be divided into more than one block or aggregated with other blocks (except that blocks that collectively amount to less than 5,000 pounds of sablefish or 3,000 pounds of halibut may be aggregated into a single block). The development of rules concerning blocks were intended to ensure that the fisheries retain their small fleet characteristics and that interests in the fisheries do not become consolidated in large vessels.

Provisions intended to prevent the consolidation of QS and the interests of small vessels in fisheries have been largely successful. **Tables 1** and **2** show the number of QS shareholder by size of holding in both fisheries from 1995 (at the initial allocation) through 2000. Although consolidation of QS has occurred in both fisheries, QS is still well distributed across all of the different holding sizes. Relatively small QS holdings (less than 10,000 pounds) are more prevalent than larger QS holdings in both fisheries.

The number of vessels active in the fisheries is still quite large but has remained less than the number of QS holders for at least two reasons **(Tables 3** and **4)**. First, a share of fishermen have not fished their IFQs in any year. This is more common among holders of small amounts of QS. Second, fishermen also team up on vessels to fish their shares. Fishermen that received initial issuances may hire skippers to fish their IFQs or combine their IFQs with other QS holders' and fish them on a single vessels. Owner on board provisions require that fishermen that have entered the fisheries by purchasing QS be on board any vessel fishing their IFQs.

Table 1 Number of persons holding halibut quota shares by size of holding

Number of QS	Initial (1995)	End of 1996	End of 1997	End of 1998	End of 1999
3,000 or less	2,522	2,244	1,936	1,832	1,672
3,001-10,000	1,158	925	878	865	853
10,001-25,000	648	629	613	613	586
More than 25,000	500	523	537	536	538
Total (unique persons)	4,816	4,321	3,964	3,846	3,649

Table 2 Number of persons holding sablefish quota shares by size of holding

Number of QS	Initial (1995)	End of 1996	End of 1997	End of 1998	End of 1999
5,000 or less	541	497	446	417	403
5,001-10,000	109	102	113	115	114
10,001-25,000	146	145	144	141	140
More than 25,000	254	252	244	246	240
Total (unique persons)	1,052	996	947	919	897

Table 3 Number of active vessels by halibut management area

Management Area	1992	1993	1994	1995	1996	1997	1998	1999
2C	1,775	1,562	1,461	1,105	1,029	993	836	840
3A	1,924	1,529	1,712	1,145	1,104	1,076	899	892
3B	478	401	320	332	350	357	325	323
4A	190	165	176	140	147	142	120	121
4B	82	65	74	57	64	69	47	51
4C	62	58	64	35	41	46	30	36
4D	26	19	39	27	33	33	22	29
Total (unique vessels)	3,452	3,393	3,450	2,057	1,962	1,925	1,601	1,613

Table 4 Number of active vessels by halibut management area

Management Area	1992	1993	1994	1995	1996	1997	1998	1999
Southeast	507	391	488	378	378	326	296	283
West Yakutat	266	196	249	228	218	218	176	162
Central Gulf	588	462	562	326	294	273	241	226
Western Gulf	103	29	19	86	81	79	66	63
Aleutian Islands	27	33	33	53	50	47	26	27
Bering Sea	72	40	31	55	49	41	28	20
Total (unique vessels)	1,123	915	1,139	517	503	504	449	433

Beginning in the 2001 season, a cost-recovery program was implemented to fund most program administration. Fees of up to 3 percent of ex-vessel value of IFQ landings may be charged to fishermen. A portion of the collections under this program are used to fund a loan program for fishermen that wish to enter the IFQ fisheries and for small vessel owners that wish to increase their interests in the fisheries.

Although many fishermen are satisfied with the IFQ program, a few identifiable groups are not satisfied with the program. Some fishermen felt that their initial allocations were too small. A survey of first year QS

holders in the sablefish fishery found that 20 percent believed that their QS was too small to be fished economically (Knapp and Hull, 1996). Fishermen active in the fishery only between 1991 and 1994 did not receive an initial allocation and believed that the program unfairly excluded them. More than 25 percent of the sablefish and more than 17 percent of the halibut harvested in these years were caught by fishermen that received no initial allocation. Crewmembers were left out of the initial allocation and believe their participation in the fisheries were hurt by the program. Verifying crewmember interests was not possible and crewmembers were viewed as having less of an investment in the fishery than vessel owners who had purchased vessels to support their activity. Processors also were excluded from the initial allocation. Processors believe that their investment in the fisheries are comparable to those of fishermen, since they purchase plant equipment to support their operations.

Individual Quotas in the Newfoundland snow crab fishery

The Newfoundland snow crab fishery originated in the late 1960s. The fishery developed as a directed fishery in the 1970s and steadily expanded in both size and area with declines in the groundfish fisheries. Landings in the fishery were less than 5,000 tons for most of the 1970s. At the end of the 1970s and for the first half of the 1980s landings averaged approximately 12,000 tons. **Table 5** shows that landings declined slightly for the remainder of the 1980s, then rose substantially through the 1990s exceeding 52,000 tons (or 115 million pounds) in 1998.

Table 5 Newfoundland snow crab fishery quota, landings, landed value, and average price for the years (1985-1998)

Year	Quota	Landings (thousand metric tons)	Landed Value (millions $CA)	Average price ($CA/Lb)
1985		8	6.9	0.39
1986	9.2	9	10.3	0.52
1987	8.4	6.7	12.6	0.86
1988	8.6	9.6	21.8	1.03
1989	10.1	8.3	10.3	0.56
1990	10.5	11	13.1	0.54
1991	15.8	16.2	19.9	0.56
1992	14.5	16.4	13.0	0.36
1993	18.7	22.9	31.7	0.63
1994	23.8	27.9	87.2	1.42
1995	31.9	32.4	176.2	2.47
1996	37.8	38	96.8	1.16
1997	44.5	45.7	91.7	0.91
1998	49.2	52.7	101.6	0.88

Source: Integrated Management Plan Newfoundland and Labrador Snow Crab 1999-2001 (1999) Fisheries Management Branch, Department of Fisheries and Oceans, Canada.

The increase in landings in the 1990s were a result of two factors. First, good recruitment during this period increased the biomass. Second, the range of fishing expanded substantially as the fishery expanded to accommodate Newfoundland fishermen moving to the crab fishery from the declining groundfish fishery. Although, the fleet consistently exceeded the quota during the late 1980s and 1990s, these overruns resulted primarily from harvests from exploratory fisheries that operated without quotas.

The importance of the crab fishery increased substantially in the early 1990s as Newfoundland groundfish fisheries collapsed. From 1987 to 1991, snow crab harvests comprised 9 percent of the landed value of vessels less than 65 feet. By 1995, crab accounted for 71 percent of this fleet's landed value. Although still

very important, crab harvests declined to approximately was 46 percent of this fleet's landed value for the years 1996 to 1998.

The distribution of harvests among the fleets in the snow crab fishery has been greatly impacted by the attempt to alleviate financial stress to fishermen resulting from the declines in the groundfish fisheries. The composition of the fleet demonstrates this. The crab fishery is composed of three fleets (Table 6), each of which is divided into several fleets. Original participants in the fishery, most of whom operate vessels 50 to 65 feet in length, comprise the fulltime fleet. A supplementary fleet (established to supplement incomes affected by groundfish declines) is made up of vessels between 34 and 65 feet. A temporary seasonal fleet for vessels under 35 feet in length without crab licenses was established in 1995 for small vessels adversely affected by the closure of the cod fishery. This fleet carries only yearly permits, with the continued issuance dependent on stock levels in the fishery. A small exploratory fleet also participates in the fishery. The fishery is divided regionally and is structured so that larger vessels are required to fish in areas further from shore. A large majority of vessels are in the temporary seasonal fleet, with the fulltime fishery being the smallest. In addition, a communal snow crab license is issued to the Labrador Inuit Association, who participate in the northern area of the fishery.

Table 6 Number of Newfoundland snow crab fishery license and permit holders 1998 season

Temporary Seasonal	Supplemental	Fulltime	Exploratory	Total
2,499	700	71	70	3,340

Fleet quotas (or allocations of quotas to different sectors of the fleet), limitations on entry, individual quotas, harvest limits, seasons, softshell closures, specific landing weeks and gear limitations are used to regulate the fishery. The first individual quotas were issued as part of a pilot program in 1995. Individual quotas were quickly adopted throughout the fleet with 95 percent of the fishery currently managed under individual quota systems. Support for individual quotas is evident since conversion to quotas requires two-thirds agreement of license holders in the affected fleet. Only one fleet in one region did not elect to operate under individual quotas in the 1999 and 2000 seasons. Individual quota distributions are made from the fleet quota, which is determined annually by Department of Fisheries and Oceans (DFO). Once the individual quota system is adopted, fleet representatives determine the specific individual quota distributions (DFO, 1999). Currently, fleets distribute quota equally among vessels. Neither licenses nor quotas are transferable. Processors have participated in the consultative process but have no direct allocation of an interest in the fishery. Crewmembers do not receive a direct allocation, except for crewmembers that are the heads of enterprises and license holders (Dooley, 2001).

Individual quotas have decreased the need for some management measures, such as staggered openings, landing limits, and trap limits.[3] These measures, however, have been retained to maintain orderly harvesting and processing of quotas. Because these measures were adopted through a consultation process involving both the harvesting and processing sectors, changes in these measures would require approval of both sectors.

One of the more controversial management measures is a "buddy up" program that is applicable only to the temporary seasonal fleet. Under the program, two license holders can work together on a single vessel to harvest their individual quotas. Participants must notify DFO of their intent to participate in the program. The

[3] No landing limits apply to the temporary seasonal fleet, since the small vessels in this fleet have limited capacity.

program requires both license holders to participate in harvesting and prohibits vessel leasing. The program is also applicable only in areas where it is approved by a majority of the temporary seasonal fleet.

All landings are monitored by DFO certified monitors at the expense of the fisherman or fleet. In addition, a fee of one-third cent per pound of quota is paid by each fisherman to pay for 10 percent observer coverage. In addition, each fleet is responsible for administration of its own individual quota program and week and trip landing limits. Guidelines adopted by each fleet are subject to the approval of DFO and should contain appropriate sanctions for fishermen that exceed their quotas.

The management of the fishery has been adapted to meet several objectives, including maintaining or increasing quotas for all vessels. This objective is being addressed in part by developing the fishery further from shore. Generally, fleet members are not forced to move out but vessels have been induced to move out by the potential to obtain greater quota for participating in more distant waters.

High grading is also a concern in the fishery since two prices exist in the market. A higher price is usually received for crab with a carapace greater than 4 inches. High grading has been discouraged by a "20 percent tolerance" pricing program adopted in the fishery. Under this program, the first 20 percent of undersized crab is purchased at the higher price paid for larger crab, reducing the incentive for discarding undersized crab.

Pacific whiting cooperatives

In 1996, a limited entry program divided the Pacific Coast whiting fishery among the onshore, offshore, and mothership sectors. The program permitted catcher processors to purchase and combine licenses from smaller catcher vessels to enter the fishery. By 1997, four companies owned licenses for the offshore sector and were using ten catcher processors in the fishery. Regulation fixed the offshore sector's share of the fishery, creating a small, identifiable class of vessels that competed for a fixed share of the fishery. In mid-1997, the four companies participating in the offshore fishery, formed the Pacific Whiting Conservation Cooperative, dividing the offshore fishery among the companies and ending the race to fish in that sector.[4] Under the cooperative agreement, the companies negotiated a division of the annual harvests based on each company's history in the fishery and harvest capacity. The cooperative agreement provides for harvest monitoring and penalty provisions for overharvesting shares to ensure that the agreement is adhered to.

The cooperative brought substantial changes to the offshore sector of the fishery. With the reduced pressure to harvest fish quickly, three of the ten catcher processors were no longer used in the fishery in 1998. Shares were leased among the cooperative members to increase efficiency of the fleet. Management of the harvests from the fishery are also more precise under the cooperative. Under the previous management, managers would close the fishery as the fleet approached the TAC, using a conservative cut off to ensure that the TAC was not exceeded. Private harvest monitoring on a vessel basis under the cooperative has enabled the members to limit their harvests to their allocation. Accuracy is improved by the slower pace in the fishery. The division of the fishery among members and coordination of monitoring has allowed participants to focus efforts on harvesting the quota, not simply harvesting fish as quickly as possible. The cooperative has also coordinated the harvest of the last part of the each member's quota on a single vessel to limit the chances of overharvesting the quota.

Bycatch rates have declined as much as 50 percent under the cooperative. Since a vessel's allocation is not determined by the rate at which it harvests fish, vessels can afford the time to move if bycatch rates in an area

[4]The inshore fleet has not entered a cooperative agreement, but has engaged in some co-management to establish rules to reduce bycatch of rockfish (Salens, 2001).

are high. Real-time monitoring among cooperative members has provided more current bycatch information enabling vessels to avoid areas with high bycatch rates. The success of the cooperative in reducing bycatch is shown by the decline of bycatch of yellowtail rockfish from 2.47 kg per metric ton of whiting to 0.96 kg per metric ton. Vessels in the mothership sector increased bycatch of yellowtial rockfish from 3.43 kg per metric ton to 6.51 kg per metric ton during the same period.

Recovery rates have risen by 40 percent under the cooperative. Vessels have time to target larger fish, which have higher product yields than smaller fish. Changes in production output, mostly in response to market changes, have also increased recovery rates. With the weak Asian economy demand for surimi was low in the late 1990s. Catcher processors in the cooperative were able to switch production from surimi to fillets and block products increasing profitability. The cooperative helped make this possible by allowing producers to respond to markets without the time pressures of the race to fish. A secondary advantage of the change is that the distribution of products to US consumers increased since US consumers tend to prefer fillets and block products to surimi.

The only reported downside of the development of cooperatives is that some of the vessels that became surplus in the whiting fishery have moved contributing to overcapacity in other fisheries.

BSAI pollock cooperatives

Passage of the American Fisheries Act (AFA) generated an industry structure suitable to the formation of cooperatives. The AFA divided the at-sea portion of the BSAI pollock allocation into two parts (an allocation to catcher/processors and the catcher vessels that deliver to them and the catcher vessels in the mothership sector). The AFA also limited entry into the fishery by identifying a eligible pool of vessels and processors based on recent historic participation. These were the two primary factors that allowed cooperatives to form.

Cooperatives were formed in all three sectors of the BSAI pollock fishery. All eligible catcher/processors and the catcher vessels that delivered to them were able to form a cooperative in 1999. Members of the mothership sector formed a single cooperative in 2000. Seven cooperatives were formed in the inshore sector in 2000.[5] Activities of all the inshore cooperatives are linked/monitored through an inter-cooperative agreement that every inshore cooperative has agreed to operate under. Inshore cooperatives were formed by the catcher vessels that delivered a majority of their landings to an eligible processor during the qualifying years.

The structure of the current BSAI pollock fishery divided the TAC so that 50% is allocated to the inshore sector, 40% to the catcher/processor sector (including the catcher vessels that deliver to catcher/processors), and 10% to the mothership sector, after 10% of TAC is deducted for Community Development Quotas and an additional deduction (about 3-5%) is made for pollock bycatch in other fisheries. Each cooperative is then allocated a percentage of that sector's allocation, by NMFS, based on the catch history of the vessels that join. The cooperatives then determine how much pollock each vessel in the cooperative will be allowed to harvest. Cooperatives then monitor the catch of individuals to ensure they have not exceeded their allocation. Cooperative agreements are in place that define penalties and fines if a vessel exceeds their allotment. NMFS in turn monitors the harvests of the cooperatives, and imposes penalties if a cooperative exceeds its allocation.

[5]Some of the vessels that were eligible to join those cooperatives elected to remain in the open access fishery instead. The quota in that fishery is determined by the historical catch of the vessels that elect to join. Fewer vessels joined the open access fishery in 2001 than in 2000. Part of the decrease is due to regulatory changes that define the amount of pollock assigned to the open access pool.

Members of the BSAI pollock fleet then operate under "sideboard" caps in other fisheries. These caps limit the amount of other species they can harvest, to protect the historic participants in those fisheries from being adversely impacted as a result of the pollock fleet changing harvest patterns.

Most members of the fishing industry feel that the cooperatives have been very successful (NPFMC, 2002). The race to fish has slowed, excess capacity has been removed from the fishery, utilization rates of the pollock harvested have increased, and spillover into other fisheries has been constrained. The improvements in fishing performance were predicted by the fleets before the AFA was implemented.

Some members of industry, primarily those excluded from the initial allocation or those that would have received relatively small allocations, have expressed the most dissatisfaction with the program. Those concerns are certainly understandable. Others that have expressed concern are members of other fisheries that could potentially be affected by changes in the pollock participation patterns.

Individual transferable quota in the South Atlantic wreckfish fishery

An Individual Transferable Quota (ITQ) program is currently used to manage the South Atlantic wreckfish fishery. The fishery is conducted in an area approximately 120 miles offshore of South Carolina. Wreckfish species biology was and is largely unknown. The fish is long lived but population dynamics are not well understood. The fishery began in 1987. The fishery grew rapidly from its outset. Harvests grew from 29 thousand pounds in 1987 to 4 million pounds in 1990. Participation grew from 2 vessels in 1987 to 80 vessels in 1991. Prior to the ITQ program the fishery was managed by TAC, trip limits, a permit system, a spawning closure, restricted offloading hours, and a bottom longlining limit. The ITQ program was adopted both to protect the species and to avoid a race to fish that was developing in the fishery.

Shares in the fishery were allocated to all permit holders that landed more than 5,000 pounds of wreckfish in either 1989 or 1990. Half of the initial allocation was distributed in proportion to landings for the years 1987 to 1990 and half was distributed in equal shares to all permit holders qualified to receive an initial allocation. The initial allocation to any business entity was capped at 10 percent of the total initial allocation. Annually, each holder of shares is issued a coupon for a share of the TAC, which is based on proportion of the total share holdings. Coupons are valid for use in a single year. Only permit holders are allowed to own shares or the coupons that represent yearly harvest allocations. Permits are limited and apply not only to the wreckfish fishery but also to the snapper and grouper fisheries. Transfers of shares and coupons are otherwise unrestricted.

Under the program the TAC and harvests have remained relatively constant. In every year, harvests are far below the TAC. Underharvesting is thought to be caused by the relatively low price of wreckfish, in comparison to other species that could be targeted by the same vessels. The number of vessels in the fishery has declined substantially since the ITQ program was implemented. By 1996, the fishery was reduced to 25 shareholders, only 8 of whom participated in the fishery. Currently, approximately 2 fishermen are active in the fishery. These 2 fishermen sell their harvests to the same dealer. Vertical integration does not appear to be a problem in the fishery.

Because of the relatively few fishermen participating in the fishery and the quantity of unharvested TAC some experts believe that quota share holders may be "banking" the catch, saving the biomass for future years when prices rise relative to the other fisheries. Given the dearth of information concerning wreckfish populations, the unharvested TAC may also be beneficial from a biological and management perspective. On the other hand, fishermen wishing to enter the fishery are frustrated by the amount of TAC that ITQ holders have left unharvested. These excluded fishermen believe that the ITQ program has unfairly excluded them from participating in an underexploited resource.

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Appendix 2-7

BSAI Crab Rationalization:

Implications from the AFA's Effects on

Efficiency and Capacity Utilization

in the Pollock Fishery

Prepared for the North Pacific Fisheries Management Council

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Abstract

The American Fisheries Act (AFA) of 1998 significantly altered the Bering Sea and Aleutian Islands (BSAI) pollock fishery by allowing the formation of harvesting and processing cooperatives and defining exclusive fishing rights. Currently, a rationalization scheme is being considered for the BSAI crab fisheries that may include components similar to those within the AFA. Thus, where applicable, impacts of the AFA may be used as an indicator of the potential effects of certain proposed crab rationalization tools. This paper discusses the findings of a recent study that looked at the effects of the AFA on catcher-processors' technical harvesting efficiency and capacity utilization.

Therefore, it may be useful to begin this discussion with a description of specific types of production efficiency. This clarification will allow for a bit more specificity and detail in assessing effects of the American Fisheries Act (AFA) and rationalization in the crab fisheries. A common way to decompose overall efficiency is into technical and allocative components (Coelli, Rao, and Battese, 1998). With this distinction made, one can then further specify whether the focus is input-or output-oriented, and whether the focus on harvesting or processing.

In an input orientation, the degree of *technical* efficiency relates to the quantity of inputs used to obtain a given bundle of output(s), where lower levels of input use imply increasing technical efficiency. In an output orientation, the degree of technical efficiency reflects the amount of output one can obtain from a given bundle of inputs. Because the input- and output-oriented measures of technical efficiency essentially capture the same information, the distinction will be dropped for the balance of this discussion.[1] Both measures essentially indicate one's skill in combining inputs to create outputs.

In an input orientation, *allocative* efficiency pertains to the degree to which one chooses the optimal proportion of inputs (to achieve a given level of output), given their relative costs and marginal products. In an output orientation, allocative efficiency reflects the degree to which one chooses the optimal mix of outputs (with a specific input bundle), given the respective market prices and marginal rates of transformation. Loosely speaking, measures of input (output) allocative efficiency can be thought of as the extent to which one minimizes (maximizes) the cost of (revenue from) a given level of outputs (inputs). Note that one can be input-allocatively efficient and output-allocatively inefficient, or vice-versa. Similarly, one can be allocatively efficient and technically inefficient. The point here is that each measure captures a different aspect of production, and each can be affected in different ways from changing institutional or regulatory environments.

It may also be worthwhile to briefly clarify the concept of capacity in fisheries. Many people will equate capacity with capital, or excess capacity with overcapitalization, but as discussed in Kirkley and Squires (1999), the notions coincide only under fairly stringent restrictions on production technologies. Simply put, excess capacity may arise because of excessive use of *all* factors of production (relative to some target level of output), while overcapitalization merely refers to the presence of excess capital in a fishery – the former being the more relevant concern. Thus, measures of *capacity utilization* indicate the extent to which a vessel is using variable inputs in conjunction with the fixed capital stock to create output (and not just, for example, the size of the capital stock relative to output). In a harvesting context, capacity utilization can be thought of as how one is utilizing the capital base used in fishing practices, while in processing it reflects one's utilization of processing equipment and facilities.

[1] Input and output distance functions (Shephard, 1970) are the theoretical constructs typically used to measure technical efficiency in input and output orientations, respectively. Under constant returns to scale, the value of an input distance function is the reciprocal of an output distance function.

A recent paper by Felthoven (2001) looks at the effects of the American Fisheries Act (AFA) on the BSAI catcher-processor fleet. Although the empirical analysis focuses primarily on the technical efficiency and capacity utilization in harvesting, the paper does discuss effects on allocative efficiency and some aspects of processing. Many of the findings do not appear to be unique results arising from the specific cooperative structure, but instead due to the benefits afforded from eliminating the race for fish and allowing the transfer of quota. Thus, the results of the study presented below represent changes in efficiency and capacity utilization that may be likely under various crab rationalization approaches.

One effect of eliminating the race for fish in the pollock fishery was a significant increase in the harvesting capacity utilization estimates for AFA-eligible vessels.[2] The number of days spent fishing also increased markedly over past three years, as did the average annual towing time and crew hours. Anecdotal evidence from the pollock fishery also suggests that the slower daily pace allowed vessels to harvest in a more cost-effective manner, thus improving input allocative efficiency. In contrast, estimates of technical harvesting efficiency did not significantly increase after rationalization. This result may come as a surprise, as one might think that with a slower pace and less fierce competitions, one could fish under more desirable conditions and increase the catch per unit effort. The probable causes for this result can likely be attributed to two main factors.

First, the pre-AFA race for fish served as an incentive for throughput and catch maximization, which bolster measures of technical harvesting efficiency. However, in absence of a race for fish, less emphasis is placed on the sheer quantity of fish caught per trip, with more attention being given to the quality and characteristics of the fish being caught. Processing operations now tend to dictate the rate at which fish are caught, and vessels have increased output allocative efficiency through their heightened ability to adapt production to market signals. Second, the potential for increases in technical harvesting efficiency afforded by improved timing and searching for the most productive fishing grounds may have been stifled somewhat by Steller sea lion restrictions. Thus, given the stricter regulatory environment and the apparent harvesting/processing tradeoffs for catcher-processors, the net effect on technical harvesting efficiency (i.e., the lack of an increase) is not too surprising.

The extent to which technical harvesting efficiency may increase under crab rationalization is less likely to depend on sea lion closures than the pollock fishery, but should still be affected by the processing strategies and capacity of inshore processors, and by the potential for gains in allocative efficiency (arising from the heightened ability to target larger, more valuable crabs). Furthermore, capacity utilization gains appear to be quite likely given the relatively short seasons in many of the current crab fisheries.

On the processing side, the AFA led to large gains in technical processing efficiency through increased product recovery rates (PRRs) for pollock. They are reported to have increased by 26% during 1999 over the 1998 baseline, and by 35% in 2000 relative to 1998 (PCC and HSCC, 2001).[3] And, given the strong production link in harvesting and processing aboard catcher-processors, the estimated increases in capacity utilization reported for harvesting operations were likely achieved in processing as well[4]. While it is unlikely that the potential PRR increases in crab processing will match those for pollock, other efficiency and capacity utilization gains may be possible. In particular, given the existing capacity of crab processors, the likelihood

[2] The increases in capacity utilization were also due to increases in each vessel's catch share (because of the buyback program).

[3] This increase is attributable to two factors: pure technical efficiency increases in processing for a given type of product, and a change toward products that have relatively high product recovery rates (which was largely motivated their market prices).

[4] Increases in harvesting capacity utilization are likely to lead to additional utilization of processing capacity since most fish accounted for in harvesting by pollock catcher-processors will enter the processing chain due to the full retention and utilization requirements for pollock and cod.

of a slower pace under rationalization, and the heterogeneity of processing equipment, it may be possible for processors to achieve both technical and allocative gains by retiring older equipment and utilizing newer, more cost-effective capital.

Another interesting factor to note about the pollock fishery is that there were significant differences in the historic technical harvesting efficiency among vessels. This finding is likely due to the heterogeneity of the fleet in terms of vessel size and age. When such differences exist, it implies that potential technical efficiency gains could be realized by shifting harvesting effort from less efficient vessel to more efficient vessels. Given that the fleet of crab vessels is also quite heterogeneous, similar opportunities may exist there as well. Quota transfers would be facilitated within a cooperative or ITQ system. Within the pollock fishery, transfers have occurred between vessels within the same company, between companies, and from catcher boats to catcher-processors.

The empirical results in Felthoven indicate the companies that transferred fishing quota among their vessels typically chose to idle vessels that had the historically lowest levels of technical harvesting efficiency and capacity utilization.[5] This finding is consistent with the claim that the ability of vessels to trade quota will lead to increases in production efficiency. However, the estimates also suggest that the remaining group of active vessels in the fishery was not the most technically efficient group of harvesters overall; some companies active vessels had been historically less technically efficient than other companies' idled vessels, and differences exist among remaining active vessels. This suggests that another potential way to realize increases in technical harvesting efficiency is through inter-company trading of quota, which could be facilitated within either a cooperative or an ITQ system.

The changes in efficiency and capacity utilization discussed above are short-run effects. As discussed in Matulich, Inada and Sever (2001), and Halvorsen, Khalil and Lawarree (1999), the long-term gains depend on issues of market power, the initial allocation of quota, the extent to which the quota can be traded, the rules within any cooperative structure (if adopted), and more. In general, the extent to which a competitive market for quota is limited – either through market power, market failure, regionalization, or other mechanisms – will affect the extent of overall efficiency in a fishery. Furthermore, the management plan that maximizes the degree of efficiency achieved in harvesting and processing may not coincide with that which provides an equitable or popular distribution of benefits to current fishery participants. Regardless of such concerns, one thing is relatively certain, and is supported by the repercussions of the AFA: relative to open-access, rationalization provides the mechanism and incentives for increases in technical and allocative efficiency for both harvesters and processors. It is the question of who will capture these benefits that is more difficult to address.

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[5] This is not to say that past levels of technical efficiency or the extent to which the vessel had been utilized is the deciding factor in choosing which vessel to operate. However, these factors are correlated with overall profitability and had good predictive power in probit models that modeled post-AFA participation as a function of past technical efficiency and capacity utilization.

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Appendix 2-8

Product Markets and Prices

Crab produced in Alaska's fisheries enters a world market. As a result, global production, seasonal supply and demand fluctuations, inventory levels, and exchange rates all play a role in the market for Alaska crab. Product markets and prices can influence the ex-vessel price that processors are willing to pay for harvested crab. This subsection provides data and information on the global production and consumption of crab products. The discussion separates crab by general species groups focusing on the two species groups produced in the BSAI crab fisheries–*Paralithodes* (or king crab) species group and the *Chinonoecetes* (or Tanner crab) species group.[1]

2-9.1 Global production of king and Tanner crab

Figures 2-9-1 and 2-9-2 show the historical harvest levels of king and Tanner crab by the major global harvesters. King crab is currently harvested primarily by the U.S. and Russia. In the early 1970s, Japan was also a major harvester of king crab. Since Japanese harvests declined in the mid-1970s, the combined harvests of king crab by countries other than the U.S. and Russia (formerly the U.S.S.R.) has averaged less than 1 percent of the global harvest. From 1972 to 1981, the U.S. harvested the majority of the global king crab harvests. U.S. harvests peaked in 1980 at about 186 million pounds–82 percent of global harvests. Starting in 1981, the U.S. harvest of king crab declined sharply as resource abundance declined. At the same time, king crab harvested by the former U.S.S.R. began to increase. Since 1982, the global harvest of king crab has averaged approximately 100 million pounds per year, with the U.S. harvesting approximately 22 percent and Russia (or the former U.S.S.R.) harvesting approximately 77 percent.

The majority of global Tanner crab harvests are by the U.S. and Canada. Japan and Russia also harvest Tanner crab, although harvest data for Russia (and the former U.S.S.R.) is not available prior to 1978. Since the early 1970s, U.S. harvests of Tanner crab have cycled–sharply increasing and decreasing with changes in effort and resource abundance. From a low of approximately 50 million pounds in 1984, the U.S. harvest of Tanner crab climbed to a peak of approximately 357 million pounds in 1991. The number of U.S. vessels participating in the Tanner crab fisheries increased steadily during this time period, precipitated in part by the decline of the king crab fisheries in the early 1980s. Canadian harvests of snow crab have also cycled, but a relationship with U.S. cycles is not clear. Since 1989, Canadian harvests of Tanner crab have steadily grown, reaching 209 million pounds in 1999. Since 1995 (except in 1998), Canada's share of global Tanner crab harvests has exceeded that of the U.S.

[1] For purposes of this subsection the king crab group includes all species of king crab and the Tanner crab group includes *C. opilio* and *C. bairdi*.

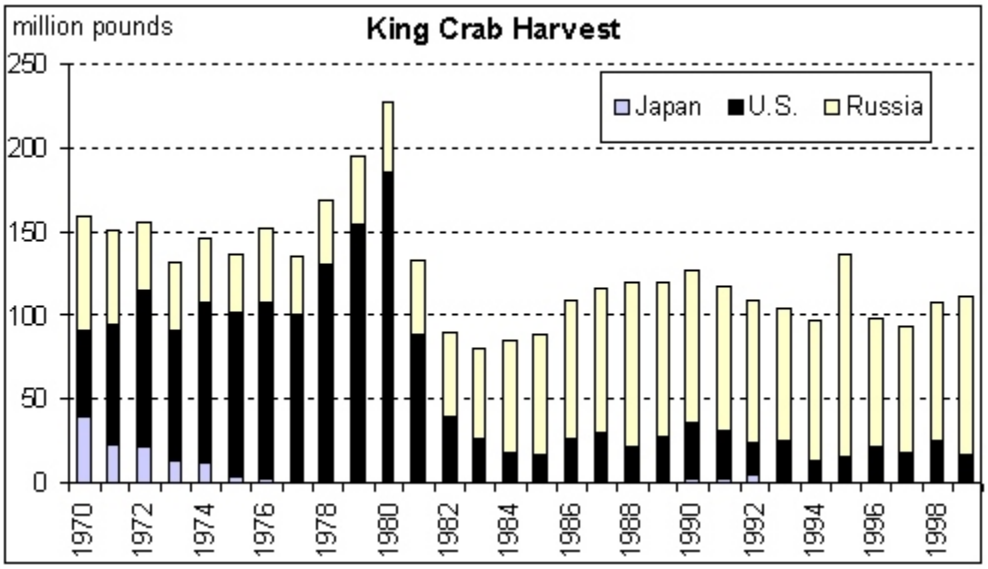


Figure 2-9-1 Harvest of king crab species by major producing country.
Source: U.N. FAO

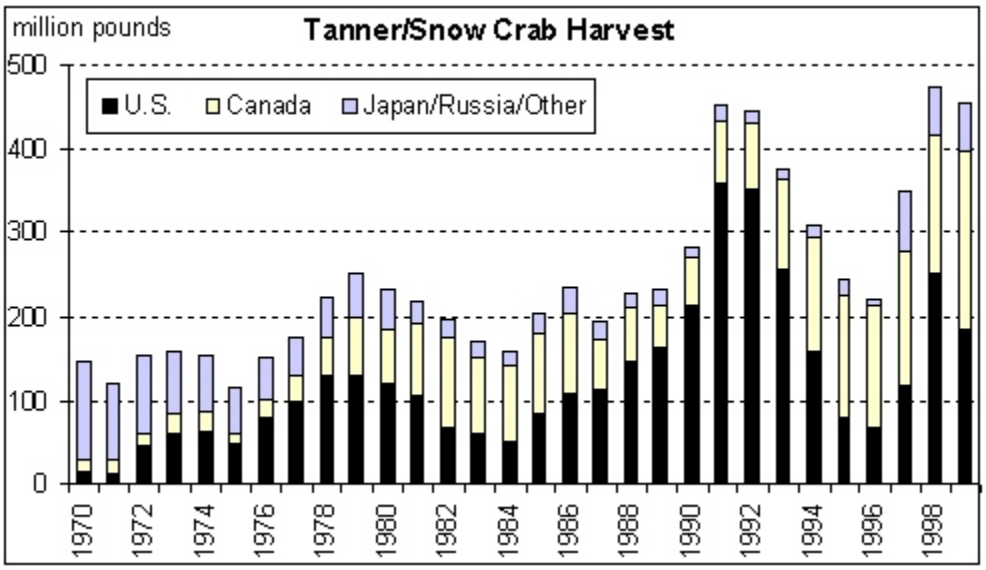


Figure 2-9-2 Harvest of snow crab species by major producing country. Note: data for Russia not available prior to 1997. Source: U.N. FAO

2.9.2 Exports, Imports and Consumption of King and Tanner Crab

Statistics on U.S. exports and imports of king and Tanner crab are available from the NMFS Office of Industry and Trade.[2]

U.S. Exports by Country. U.S. exports of king and Tanner crab are shown in Tables 2-9-1 and 2-9-2. For both king and Tanner crab, the majority of crab exports are exported to Japan. King crab exports peaked in 1993 at 13.4 million pounds, with 92 percent of exports going to Japan. Since 1993, annual exports of King crab have ranged from 6 to 10 million pounds. Since then, the proportion of King crab exports going to Japan has declined (from 92 percent in 1993 to 71 percent in 2000), while the proportion of exports to Canada has risen (from 6 percent in 1993 to over 20 percent in 1998, 1999, and 2000).

U.S. exports of snow crab products peaked in 1992 at 137 million pounds, with 92 percent exported to Japan. Since 1992, U.S. exports of snow crab have dropped sharply, mainly due to the decline in resource abundance. In 2000, the U.S. exported 12.3 million pounds of snow crab which is less than 10% of the 1992 export level. The proportion of snow crab exports going to Japan has also declined, from 92% in 1992 to 72% in 2000. Over this time, the proportion of exports to other countries has increased, especially exports to China. For example, less than 5% of snow crab exports went to China in 1992 while over 20% of exports went to China in 1999.

Table 2-9-1 U.S. Exports of King Crab Products

	U.S. Exports of King Crab (millions of pounds)							%
	Japan	Canada	Thailand	China	Mexico	Other	Total	Japan
1989	0.03	0.05			0.01	0.02	0.11	25%
1990	0.04				0.00	0.08	0.13	35%
1991	8.54				0.00	0.05	8.59	99%
1992	7.89	0.37			0.03	0.14	8.43	94%
1993	12.37	0.76		0.22	0.01	0.05	13.41	92%
1994	7.22	0.61			0.06	0.28	8.17	88%
1995	5.55	0.62	0.00	0.08	0.00	0.18	6.44	86%
1996	8.60	0.87	0.17	0.03	0.00	0.26	9.92	87%
1997	4.48	0.98	0.37	0.17	0.04	0.40	6.44	70%
1998	4.74	1.57	0.47		0.01	0.34	7.13	66%
1999	3.93	1.68	0.13		0.14	0.31	6.18	64%
2000	5.20	1.55	0.08	0.02	0.11	0.35	7.30	71%

Source: NMFS, Office of Industry & Trade

[2] Data files of the NMFS Office of Industry & Trade define "snow crab" to include both C. bairdi and C. opilio (and a few other species). For consistency, "Tanner" is substituted for "snow" in this analysis.

Table 2-9-2 U.S. Exports of Snow Crab Products

U.S. Exports of Snow Crab (million pounds)								%
Year	Japan	China	S. Korea	Canada	Thailand	Other	Total	Japan
1989	0.31		0.10	0.05		0.08	0.54	57%
1990	2.15	0.09	0.94		0.00	0.16	3.34	64%
1991	68.54	1.49	0.36		0.67	0.82	71.88	95%
1992	127.14	6.54	0.78	0.68	0.79	1.21	137.13	93%
1993	92.25	7.26	1.00	0.36	0.55	0.44	101.87	91%
1994	62.43	5.17	0.66	0.26	0.04	0.22	68.78	91%
1995	26.25	0.65	0.03	0.07	0.06	0.28	27.34	96%
1996	19.22	1.57	0.14	0.11	0.17	0.95	22.17	87%
1997	20.28	1.19	0.01	0.40	0.38	0.75	23.00	88%
1998	23.71	2.24		0.45	0.00	0.39	26.79	89%
1999	27.53	7.55		0.18	0.01	0.41	35.68	77%
2000	8.92	2.21	0.05	0.15	0.19	0.80	12.32	72%

Source: NMFS, Office of Industry & Trade

U.S. Imports by Country. U.S. imports of king and snow crab products are shown in Tables 2-9-3 and 2-9-4, respectively. The majority of king crab imports are imported from Russia while the majority of snow crab imports are imported from Canada. While exports of king and snow crab products declined in the late 1990's due to declining resource abundance, imports of both have increased during this time period. Imports of king crab increased from a low of 3.1 million pounds in 1993 to a high of 27.4 million pounds in 1998. Since 1997, over 90% of king crab imports have been imported from Russia. U.S. imports of snow crab have generally increased during the 1990's, except for a one-year decline in 1995. In 2000, the U.S. imported over 68 million pounds of snow crab, with 86% coming from Canada.

Table 2-9-3 U.S. Imports of King Crab

U.S. Imports of King Crab (million pounds)								%
	Russia	S. Korea	Canada	Japan	Indonesia	Other	Total	Russia
1989	0.00	0.07	0.00	0.20	0.20	0.53	1.00	
1990	0.00	0.00	0.07	0.03	0.27	0.64	1.01	
1991	0.00	0.15	0.14	0.08	0.25	1.22	1.84	
1992	4.43	0.15	0.29	0.51	0.02	0.17	5.59	79%
1993	2.41	0.00	0.39	0.18	0.06	0.08	3.12	77%
1994	5.68	0.09	0.89	0.04	0.05	0.08	6.83	83%
1995	8.58	0.10	0.49	0.00	0.07	0.23	9.48	91%
1996	12.27	0.90	0.37	0.19	0.08	0.51	14.32	86%
1997	19.89	1.62	0.30	0.03	0.03	0.09	21.97	91%
1998	25.87	0.33	0.21	0.05	0.06	0.86	27.38	94%
1999	24.38	0.88	0.04	0.36	0.05	0.15	25.87	94%
2000	20.59	0.56	0.08	1.04	0.05	0.14	22.46	92%

Source: NMFS, Office of Industry & Trade

U.S. Exports by Product Form. Amounts and average values of U.S. exports of king and snow crab by product forms are shown in Tables 2-9-5 and 2-9-6, respectively. Exports of crab are broken down into three product categories, frozen crab, frozen crabmeat and crabmeat in air tight containers (ATC). For both king and snow crab, the vast majority of exports are in the frozen crab product form. Relatively small amounts of king and snow crab are exported as crabmeat (either frozen or in ATC). Typically, frozen crab sections have a higher average exported value than crabmeat. Also, exported king crab typically has a higher average value than exported frozen snow crab. For example, since 1991, the average value of exported frozen king crab ranged from $3.34 per pound (in 1998) to $7.31 per pound in 1992 while the average value of exported frozen snow crab ranged from $2.03 per pound (in 1998) to $4.58 per pound (in 1995). The difference in average exported value between frozen king crab and frozen snow crab reflects (1) differences in end market uses, and (2) differences in supply and demand. For example, king crab is viewed as comparable to lobster and tends to be sold into the higher end of the market while snow crab tends to be sold into the lower end of the market (e.g., restaurants offering buffets, etc.).

Table 2-9-4 U.S. Imports of Snow Crab Products

	U.S. Imports of Snow Crab (million pounds)							%
Year	Canada	Russia	S. Korea	Greenland	Japan	Other	Total	Canada
1989	0.18		0.11		0.48	0.07	0.84	22%
1990	1.73		0.43		0.41	0.12	2.69	64%
1991	3.51		1.16		0.46	0.19	5.32	66%
1992	4.20		0.72	0.00	0.38	0.19	5.49	77%
1993	7.69		0.67		0.45	0.09	8.90	86%
1994	7.95		1.63		0.55	0.16	10.29	77%
1995	4.68		1.17	0.76	1.14	0.20	7.96	59%
1996	9.13	0.08	1.07	0.09	0.86	0.02	11.26	81%
1997	14.68	1.82	1.63	0.70	0.56	0.06	19.44	76%
1998	24.73	3.69	1.51	0.64	0.72	0.10	31.38	79%
1999	52.34	2.99	1.12	2.73	0.72	0.80	60.70	86%
2000	58.70	2.92	0.63	3.70	0.98	1.67	68.59	86%

Source: NMFS, Office of Industry & Trade

Table 2-9-5 U.S. Exports of King Crab by Product Form

	King Crab Frozen		King Crabmeat Frozen		King Crabmeat in ATC*		Total	
Year	mil lbs	$/lb	mil lbs	$/lb	mil lbs	$/lb	mil lbs	$mil
1989			0.07	5.60	0.03	2.35	0.1	0.5
1990			0.05	8.02	0.07	2.83	0.1	0.6
1991	8.5	6.31	0.04	6.19	0.05	4.76	8.6	54.1
1992	8.2	7.31	0.05	4.35	0.22	3.57	8.4	60.7
1993	13.1	6.56	0.08	6.41	0.19	3.69	13.4	87.4
1994	8.0	5.99	0.05	2.69	0.13	4.06	8.2	48.5
1995	6.3	5.54	0.06	2.61	0.09	2.87	6.4	35.3
1996	9.8	5.75	0.04	2.55	0.05	2.65	9.9	56.8
1997	6.2	4.58	0.04	4.62	0.24	2.14	6.4	28.9
1998	6.8	3.34	0.09	3.21	0.21	2.59	7.1	23.6
1999	6.0	4.24	0.06	1.89	0.10	2.04	6.2	25.9
2000	6.7	6.75	0.32	2.39	0.26	2.44	7.3	46.8

*ATC = air tight container Source: NMFS, Office of Industry & Trade

Table 2-9-6 U.S. Exports of Snow Crab by Product Form

	Snow Crab Frozen		Opilio (meat) Frozen		Opilio (meat) in ATC*		Other (meat) Frozen		Other (meat) in ATC*		Total	
Year	mil lbs	$/lb	mil lbs	$/lb	mil lbs	$/lb	mil lbs	$/lb	mil lbs	$/lb	mil lbs	$mil
1989			0.1	1.80			0.5	1.77	0.0	7.61	0.5	1.0
1990			1.8	2.19	0.0	5.50	1.5	2.11	0.0	5.23	3.3	7.3
1991	71.0	2.16	0.2	1.89	0.0	3.37	0.7	0.86	0.0	3.21	71.9	154.5
1992	135.8	2.22	0.1	2.26			1.1	0.67	0.1	1.39	137.1	303.2
1993	100.5	2.67	1.0	2.47			0.1	1.20	0.3	1.63	101.9	271.8
1994	68.6	3.72	0.0	2.02			0.0	5.88	0.1	1.36	68.8	255.9
1995	27.0	4.58	0.1	1.80			0.2	0.95	0.1	1.65	27.3	124.1
1996	21.0	3.33	0.1	1.63			1.0	1.14	0.0	2.03	22.2	71.3
1997	22.4	2.39	0.1	1.80	0.2	2.69	0.2	1.23	0.1	1.21	23.0	54.7
1998	26.4	2.03	0.1	1.52			0.2	1.97	0.0	1.42	26.8	54.2
1999	34.5	2.69	1.0	2.05	0.0	5.14	0.2	1.50	0.0	2.65	35.7	94.9
2000	10.5	3.94	1.1	1.82	0.6	2.04	0.1	1.53	0.0	6.10	12.3	44.9

*ATC = air tight container

Source: NMFS, Office of Industry & Trade

U.S. Trade Balance in Crab Products. The U.S. trade balance (in millions of U.S. dollars) is summarized for king and snow crab products in Table 2-9-7. Note that a small portion of the imports are re-exported to other countries. The U.S. trade balance was positive for both king and snow crab in the early 1990's, i.e., the value of U.S. exports exceeded the value of U.S. imports. Starting 1995 for king crab and 1997 for snow crab, the U.S. has been running a trade deficit for crab products, i.e., the value of imports has exceeded the value of exports. In 2000, the value of U.S. imports reached $146 million for king crab and $277 million for snow crab, resulting in trade deficits of $93 million and $229 million for king and snow crab, respectively.

Table 2-9-7 U.S. Trade Balance ($millions) for King and Snow Crab Products

	King Crab				Snow Crab			
Year	Import	Export	Re-Export	Balance	Import	Export	Re-Export	Balance
1989	2.3	0.5	0.02	(1.8)	3.2	1.0	0.30	(1.9)
1990	2.6	0.6	0.02	(2.0)	12.9	7.3	0.47	(5.2)
1991	7.5	54.1	0.01	46.7	23.2	154.5	0.02	131.3
1992	24.6	60.7	1.97	38.0	18.8	303.2	0.07	284.5
1993	15.1	87.4	0.02	72.3	28.5	271.8	0.49	243.8
1994	40.5	48.5	0.46	8.5	39.9	255.9	0.23	216.3
1995	49.7	35.3	0.42	(14.0)	35.8	124.1	0.60	88.9
1996	66.4	56.8	0.07	(9.6)	41.7	71.3	0.25	29.9
1997	112.1	28.9	0.69	(82.4)	58.5	54.7	0.18	(3.6)
1998	125.6	23.6	0.22	(101.8)	82.4	54.2	0.60	(27.6)
1999	137.6	25.9	0.43	(111.3)	199.2	94.9	0.08	(104.1)
2000	145.9	46.8	6.06	(93.1)	277.1	44.9	2.72	(229.4)

Source: NMFS, Office of Industry & Trade

Estimated U.S. Consumption and Inventory Changes. Tables 2-9-8 and 2-9-9 summarize estimated yearly U.S. consumption and changes in inventory for king and snow crab, respectively. The yearly consumption plus inventory change (not broken out separately) is estimated as the sum of production and imports minus exports and re-exports. Production (in pounds of product) is estimated by multiplying the yearly harvest by an average product yield (or recovery rate). Typical product yields of 64 percent for king crab and 62 percent for snow crab were used in the calculations (these product yields were provided by the Alaska Seafood Marketing Institute).

Table 2-9-8 Estimated Consumption (+ Inventory Change)
of King Crab (in millions of pounds)

Year	Production Catch[1]	Product[2]	Import[3]	Export[3]	Re-Expo[3]	Consumption + Chg Inv
1989	26.4	16.9	1.00	0.1	0.01	17.78
1990	33.9	21.7	1.01	0.1	0.00	22.59
1991	28.1	18.0	1.84	8.6	0.00	11.27
1992	19.1	12.2	5.59	8.4	0.33	9.03
1993	24.7	15.8	3.12	13.4	0.00	5.54
1994	12.0	7.7	6.83	8.2	0.06	6.25
1995	14.7	9.4	9.48	6.4	0.06	12.37
1996	21.0	13.4	14.32	9.9	0.01	17.83
1997	18.0	11.5	21.97	6.4	0.16	26.91
1998	24.1	15.4	27.38	7.1	0.04	35.65
1999	16.9	10.8	25.87	6.2	0.10	30.43

Sources: (1) U.N. FAO; (2) Calculated assuming 64% recovery rate;
(3) NMFS, Office of Industry & Trade

In 1993, the year that the harvest of king crab peaked, U.S. consumption (including inventory changes) of king crab bottomed at 5.5 million pounds. Between 1993 and 1998, U.S. consumption grew steadily reaching 35.6 million pounds in 1998, with over 75 percent from imports. The consumption pattern for snow crab has generally followed changes in harvest levels since the majority of snow crab is consumed domestically. Thus, consumption (including inventory changes) bottomed in 1995 at 30.5 million pounds and most recently peaked in 1998 at 160.5 million pounds. During the 1990's, the percentage of annual U.S. consumption that is imported (versus the percentage produced domestically) has increased for both king and snow crab. Imports of king crab comprised less than 10 percent of consumption in 1989 but over 80% of consumption in 1999. Similarly, imports of snow crab comprised less than 1 percent of consumption in 1989 but over 40% of consumption in 1999.

Japan Imports of Crab by Country. Table 2-9-10 shows the Japan imports of crab by product type and by country for the year 2000 in millions of pounds. In 2000, Japan imported a total of 301.6 million pounds of crab with a value of $1.13 billion. The highest percentage of imports were from Russia (58%), followed by Canada (12%), China (11%), and the U.S. (5%). Japan imported 6.2 million and 7.1 million pounds of king and snow crab from the U.S., respectively. Japan, however, imported five times as much snow crab from Canada and more than 10 times as much king and snow crab from Russia that year. Japan also imported over 10 million pounds of snow crab (live, fresh or chilled) from North Korea.

Table 2-9-9 Estimated Consumption (+ Inventory Change)
of Snow Crab (in millions of pounds)

Year	Production Catch[1]	Product[2]	Import[3]	Export[3]	Re-Expo[3]	Consumption + Chg Inv
1989	164.7	102.1	0.84	0.5	0.08	102.32
1990	213.4	132.3	2.69	3.3	0.06	131.63
1991	357.2	221.5	5.32	71.9	0.00	154.90
1992	350.1	217.1	5.49	137.1	0.02	85.41
1993	255.8	158.6	8.90	101.9	0.11	65.51
1994	159.6	99.0	10.29	68.8	0.05	40.42
1995	80.8	50.1	7.96	27.3	0.22	30.53
1996	67.9	42.1	11.26	22.2	0.13	31.05
1997	118.9	73.7	19.44	23.0	0.05	70.13
1998	251.9	156.2	31.38	26.8	0.29	160.47
1999	185.2	114.8	60.70	35.7	0.02	139.83

Sources: (1) U.N. FAO; (2) Calculated assuming 62% recovery rate;
(3) NMFS, Office of Industry & Trade

Table 2-9-10 Japan Imports of Crab in 2000 by Country (million pounds)

	Russia	Canada	China	U.S.	N. Korea	Other	Total
Frozen king crabs	41.4	0.1	0.8	6.1	-	0.5	48.9
King crabs	46.1	-	-	0.0	0.0	-	46.2
Frozen snow crabs	25.8	35.3	0.9	7.0	0.2	5.4	74.5
Snow crabs	49.1	0.0	-	0.1	10.4	0.1	59.8
Frozen swimming crabs	-	-	15.4	0.2	-	12.9	28.4
Swimming crabs	-	-	2.6	0.0	-	0.8	3.3
Frozen crabs (other)	0.4	0.0	0.3	0.3	0.2	0.7	1.9
Crabs (other)	9.5	0.0	0.2	-	0.2	1.1	11.0
Crab preserved (no rice)	1.6	1.0	14.0	0.4	0.0	10.2	27.2
Crab (airtight containers)	0.1	-	-	0.0	-	0.1	0.2
Crabs, dried, salted	-	-	0.1	0.0	0.0	0.0	0.1
Subtotal King Crab	87.5	0.1	0.8	6.2	0.0	0.5	95.1
Subtotal Snow Crab	74.9	35.4	0.9	7.1	10.6	5.5	134.3
Subtotal	174.0	36.6	34.2	14.1	10.9	31.7	301.6
Percent of Total	58%	12%	11%	5%	4%	11%	100%

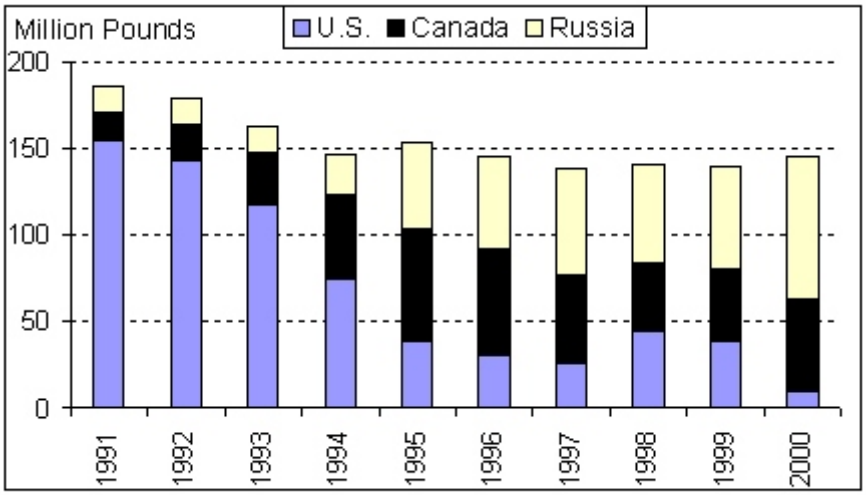
Source: Ministry of Finance International Trade Statistics

Table 2-9-11 Japan Snow Crab Inventories, Imports and Consumption 1991-2000

Year	Beginning Inventory	Imports/Production U.S.	Canada	Russia	Coastal	Total	Ending Inventory	Consump-tion	% from U.S.
1991	6.6	154.3	16.8	14.1	18.7	203.9	13.2	197.3	78.2%
1992	13.2	143.3	20.5	15.4	17.6	196.9	15.4	194.7	73.6%
1993	15.4	117.9	29.8	14.3	9.7	171.7	8.8	178.4	66.1%
1994	8.8	74.1	48.7	24.0	11.0	157.9	13.2	153.4	48.3%
1995	13.2	38.6	65.0	50.0	8.8	162.5	19.8	155.9	24.8%
1996	19.8	30.2	61.9	53.6	3.3	149.0	22.0	146.8	20.6%
1997	22.0	26.0	51.4	60.6	2.9	140.9	11.0	151.9	17.1%
1998	11.0	44.8	39.7	56.4	2.2	143.1	11.0	143.1	31.3%
1999	11.0	38.1	41.9	59.3	4.4	143.7	22.0	132.7	28.7%
2000	22.0	10.4	52.9	81.6	4.4	149.3	22.0	149.3	6.9%

Source: Bill Atkinson, Japanese seafood market analyst.

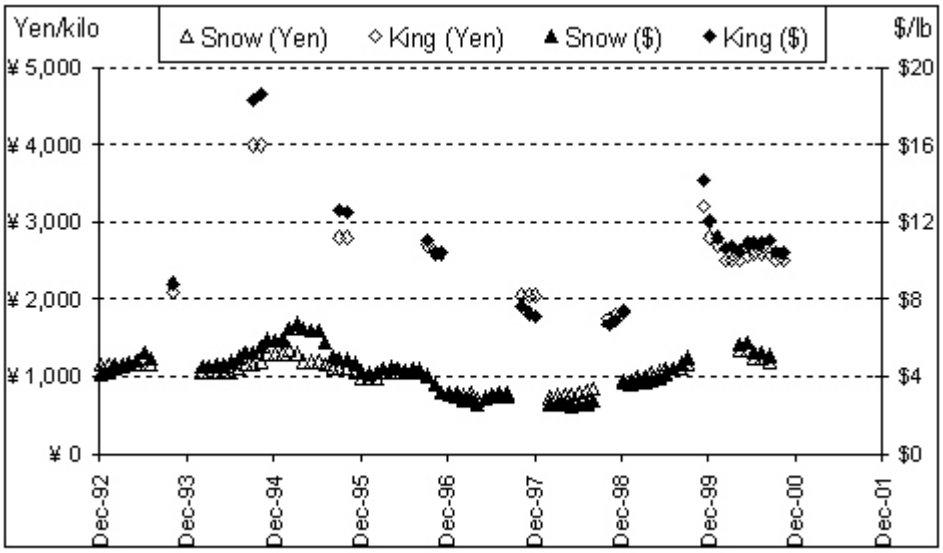
Japan Inventories, Imports and Consumption of Snow Crab. Table 2-9-11 shows Japan beginning and ending inventories, imports/production and consumption of snow crab for 1991-2000. The snow crab imports from the U.S., Russia and Canada are graphed in Figure 2-9-3. This data was obtained from Bill Atkinson, an analyst for the Japan seafood markets, and exhibits some modest differences from the data obtained from NMFS and the Japan Ministry of Finance. We believe these differences are largely due to differences in product categorization and the timing of reporting. As shown, Japan's consumption of snow crab has declined during the 1991-2000 period, from 197 million pounds (in 1991) to 149 million pounds (in 2000). Imports of snow crab from the U.S. have declined during this period, both in terms of pounds and as a percentage of consumption. In 1991, imports from the U.S. comprised 78% of consumption while, in 2000, imports comprised only 7% of consumption. Growth in imports from Canada and Russia have partially offset the decline in imports from the U.S.; from 1991 to 2000 imports from Canada grew from 17 million to 53 million pounds and imports from Russia grew from 14 million to 82 million pounds. Compared to U.S. consumption of snow crab (see Table 2-9-9), Japan's annual consumption has exceeded U.S. consumption during most of the 1990's. In 1998 and 1999, however, the U.S. consumed amounts of snow crab that were comparable to the amounts consumed by Japan.



Source: Bill Atkinson, Japanese seafood market analyst.

Figure 2-9-3 Japanese imports of snow crab (millions of pounds).

Japanese Wholesale Market Prices. Figure 2-9-4 shows Japanese wholesale market prices for Alaskan snow and king crab in Japanese yen and U.S. dollars. The wholesale prices in dollars were calculated from the prices in yen and the average monthly exchange rates (yen per dollar).Japanese wholesale prices for king crab have exhibited a high degree of variability during the 1990's. King crab prices spiked up to 4000 yen/kilo (above $18/lb) in 1994, fell below 2000 yen/kilo (below $7.00/pound) in 1998, and again spiked above 3000 yen/kilo (above $12/lb) in late 1999. By contrast, Japanese wholesale prices for snow crab have been somewhat more stable in terms of yen/kilo (or $/pound) but as volatile on a percentage basis. During the 1993-2000 period, Japanese wholesale prices for snow crab have ranged from 700-1,400 yen/kilo (or $2.50 - $6.80 per pound).



Source: Bill Atkinson, Japanese seafood market analyst.

Figure 2.3-6 Japanese Wholesale Prices for Alaskan King and Snow Crab

Appendix 3-1

NOAA GC Letter

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Office of General Counsel
P.O. Box - 21109
Juneau, Alaska 99802-1109
Telephone (907) 586-7414

DATE: July 1, 1998

MEMORANDUM FOR: Steven Pennoyer
Regional Administrator
NMFS, Alaska Region

THROUGH: Lisa Lindeman LL
Regional Attorney
GCAK

FROM: Robert Babson RB
Attorney
GCAK

RECEIVED
JUL - 9 1998
N.P.F.M.C

SUBJECT: Proposed Action 4: Clarify the Council's Intent on the Transfer of Catch History.

This is to inform you and the Council that the proposal, above, currently being analyzed in the Draft Analysis of Proposed License Limitation Amendment Package (May 28, 1998, p. 58) is, in our opinion, contrary to Federal fishery management policy as expressed in the Magnuson-Stevens Act and legally indefensible.

The purpose of the proposal is to amend the LLP so as to deny permits to the owners of the fishing history of otherwise qualified vessels solely on the basis that after the qualifying period, the vessels were re-flagged so as to participate in a foreign (Russian) fishery. Section 201(f) of the Magnuson-Stevens Act requires "reciprocity" of foreign nations in fishing activities in our respective EEZ's. Section 202(a)(4)(A) of the Act instructs the Secretary of State to negotiate international fishing agreements "which allow fishing vessels of the United States equitable access to fish over which foreign nations assert exclusive fishery management authority..."[1] The vessels targeted by the proposal in question fished under such a negotiated agreement and with the full knowledge and assistance of the U.S. Departments of Commerce, State, and Transportation. To now penalize the owners of the fishing histories of these vessels for no other reason than that the previous owners of the vessels availed themselves of such opportunities does not meet the legal requirements of the Act. A reviewing court likely would find "arbitrary and capricious" any proposal which uses past participation in such a foreign fishery as

[1] In its mission statement, the agency has committed itself to "...leadership supporting U.S. fishery interests globally."

the sole criterion for the denial of limited entry rights to otherwise qualified applicants.

To the extent the proposal is based upon a wish to amend the LLP to require a showing of continued reliance upon the fishery after the qualifying period, there seems no rational relationship between such a purpose and the way in which that purpose is effectuated because the proposal treats similarly situated persons differently. For example, the proposal would deny LLP permits to the present owners of the fishing histories of those vessels which were re-flagged on June 17, 1995, while granting permits to the owners of fishing vessels who participated in foreign fisheries after the qualifying period without re-flagging, as well as vessels which failed to continue participation in the fishery after the end of the qualifying period for other reasons (e.g., vessels used in other non-Alaskan domestic fisheries, vessels not used in the fishery because of bankruptcy proceedings, vessel owners who have since retired). It is probable that the failure of the proposal to rationally effectuate such a stated purpose would lead a reviewing court to find the proposal "arbitrary and capricious" on this additional ground as well.

For the reasons stated herein, we recommend you advise the Council that this proposal is likely to be disapproved.

cc: Jay Johnson, DGC
Margaret Hayes, GCF

2

Appendix 3-2

Analysis of QS Ownership Caps

Using Vessel Ownership Data

Fishery	Catcher Processor	Sum of Owners Over 8 Percent Cap	Sum of Owners Over 5 Percent Cap	Sum of Owners Over 1 Percent Cap	Sum of Owners Over 0.5 Percent Cap	Number of Owners
Bering Sea Opilio						
Option 1A -1994 - 1999 (Best of 5 seasons)	No	0	0	0	62	236
	Yes	0	0	*	12	18
Option 2A - 1992 - 1999 (Best of 7 seasons)	No	0	0	0	59	240
	Yes	0	0	*	12	18
Option 3A -1995 - 1999 (All seasons)	No	0	0	*	66	231
	Yes	0	0	*	9	16
Option 3B - 1995 - 1999 (Best of 4 seasons)	No	0	0	0	66	231
	Yes	0	0	*	10	16
Option 4A -1996 - 2000 (Best of 4 seasons)	No	0	0	0	61	233
	Yes	0	0	*	8	16
Bristol Bay Red King Crab						
Option 1A -1993 - 1999 (All seasons)	No	0	0	0	54	255
	Yes	0	0	*	*	16
Option 1B - 1992 - 1999 (Best of 4 seasons)	No	0	0	0	50	255
	Yes	0	0	0	*	16
Option 2A -1993 - 1999 (All seasons)	No	0	0	0	55	255
	Yes	0	0	0	*	16
Option 2B - 1992 - 1999 (Best of 5 seasons)	No	0	0	0	49	255
	Yes	0	0	0	*	16
Option 3A -1996 - 2000 (Best of 4 seasons)	No	0	0	0	60	246
	Yes	0	0	0	*	10
Bering Sea Bairdi (EBS Tanner Crab)						
Option 1A -1992 - 1996 (All seasons)	No	0	0	*	79	252
	Yes	0	0	*	6	16
Option 1B - 1992 - 1996 (Best of 4 seasons)	No	0	0	*	76	252
	Yes	0	0	*	9	16
Option 2A -1991-1992 - 1996 (Best of 5 seasons)	No	0	0	*	71	253
	Yes	0	0	*	9	16
Pribilof Red King Crab						
Option 1A -1993 - 1998 (Best of 4 seasons)	No	*	*	34	68	120
	Yes	0	0	0	0	*
Option 2A -1994 - 1998 (All seasons)	No	*	0	36	58	109
	Yes	0	0	0	0	0
Option 2B - 1994 - 1998 (Drop one season)	No	*	0	37	59	109
	Yes	0	0	0	0	0
Pribilof Blue King Crab						
Option 1A -1993 - 1998 (Best of 4 seasons)	No	0	*	35	49	83
	Yes	0	0	0	*	*
Option 2A - 1994 - 1998 (All seasons)	No	0	*	35	49	83
	Yes	0	0	0	*	*
Option 2B -1994 - 1998 (Drop one season)	No	0	*	35	49	83
	Yes	0	0	0	*	*
St. Matthew Blue King Crab						
Option 1A -1993 - 1998 (Best 4 seasons)	No	0	0	23	101	138
	Yes	0	0	0	*	6
Option 2A - 1994 - 1998 (All seasons)	No	0	0	33	92	133
	Yes	0	0	0	*	6
Option 2B - 1994 - 1998 (Drop one season)	No	0	0	30	97	133
	Yes	0	0	0	*	6

Fishery	Catcher Processor	Sum of Owners Over 40 Percent Cap	Sum of Owners Over 20 Percent Cap	Sum of Owners Over 10 Percent Cap	Number of Owners
Eastern Aleutian Islands (Dutch Harbor) Golden King Crab					
Option 1A -1992-1993 to 1998-1999 (All seasons)	No	0	*	*	17
	Yes	0	0	0	*
Option 1B -1992-1993 to 1998-1999 (Drop one season)	No	0	*	*	17
	Yes	0	0	0	*
Option 2A -1995-1996 to 1998-1999 (All seasons)	No	0	*	*	13
	Yes	0	0	0	0
Option 2B -1995-1996 to 1998-1999 (Drop one season)	No	0	*	*	13
	Yes	0	0	0	0
Option 3A -1996-1997 to 1998-1999 (All seasons)	No	0	*	*	11
	Yes	0	0	0	0
Option 3B -1996-1997 to 1998-1999 (Drop one season)	No	0	*	5	11
	Yes	0	0	0	0
Option 4A -1996-1997 to 2000-2001 (Best 4 seasons)	No	0	*	4	11
	Yes	0	0	0	*
Western Aleutian Islands (Adak) Golden King Crab					
Option 1A -1992-1993 to 1998-1999 (All seasons)	No	0	0	0	20
	Yes	*	*	*	*
Option 1B -1992-1993 to 1998-1999 (Drop one season)	No	0	0	0	20
	Yes	*	*	*	*
Option 2A -1995-1996 to 1998-1999 (All seasons)	No	0	0	0	14
	Yes	*	*	*	*
Option 2B -1995-1996 to 1998-1999 (Drop one season)	No	0	0	0	14
	Yes	*	*	*	*
Option 3A -1996-1997 to 1998-1999 (All seasons)	No	0	0	0	9
	Yes	*	*	*	*
Option 3B -1996-1997 to 1998-1999 (Drop one season)	No	0	0	0	9
	Yes	*	*	*	*
Option 4A -1996-1997 to 2000-2001 (Best 4 seasons)	No	0	0	*	10
	Yes	*	*	*	*
GHL Split EAI (Dutch Harbor)/Western Aleutian Islands (Adak) Golden King Crab					
Option 1A -1992-1993 to 1998-1999 (All seasons)	No	0	*	*	20
	Yes	0	*	*	*
Option 1B -1992-1993 to 1998-1999 (Drop one season)	No	0	*	*	20
	Yes	0	*	*	*
Option 2A -1995-1996 to 1998-1999 (All seasons)	No	0	*	*	14
	Yes	0	*	*	*
Option 2B -1995-1996 to 1998-1999 (Drop one season)	No	0	*	*	14
	Yes	0	*	*	*
Option 3A -1996-1997 to 1998-1999 (All seasons)	No	0	*	*	11
	Yes	0	*	*	*
Option 3B -1996-1997 to 1998-1999 (Drop one season)	No	0	*	*	11
	Yes	0	*	*	*
Option 4A -1996-1997 to 2000-2001 (Best 4 seasons)	No	0	*	*	11
	Yes	0	*	*	*

Fishery	Catcher Processor	Sum of Owners Over 30 Percent Cap	Sum of Owners Over 20 Percent Cap	Sum of Owners Over 10 Percent Cap	Number of Owners
Western Aleutian Islands (Adak) Red King Crab					
Option 1A -1992 - 1996 (All seasons)	No	0	0	*	27
	Yes	*	*	*	*
Option 1B -1992 - 1996 (Best 2 seasons)	No	0	0	*	27
	Yes	0	*	*	*

Appendix 3-3

Company Ownership

of Processing Plants

Plant Type	Company	Plant or Vessel Name
Shore based	ADAK SEAFOODS LLC	ADAK SEAFOODS LLC - ADA
Shore based	ALASKA FRESH SEAFOODS INC.	ALASKA FRESH SEAFOODS INC. - KOD
Shore based	ALYESKA SEAFOODS INC.	ALYESKA SEAFOODS INC. - DUT
Shore based	BALLARD LAMAR	BALLARD LAMAR
Shore based	BALLARD LAMAR	BALLARD LAMAR - ANC
Catcher/processor	BARANOF FISHERIES	BARANOF
Catcher/processor	BLUE DUTCH LLC	BLUE DUTCH
Catcher/processor	BLUE DUTCH LLC	KISKA ENTERPRISE
Catcher/processor	CJW FISHERIES	PACIFIC LADY
Catcher/processor	CJW FISHERIES	PACIFIC WIND
Shore based	COOK INLET PROCESSING	COOK INLET PROCESSING - KOD
Catcher/processor	COURAGEOUS SEAFOODS	COURAGEOUS
Shore based	DEEP CREEK CUSTOM PACKING	DEEP CREEK CUSTOM PACKING - NIN
Catcher/processor	GOLDEN SHAMROCK INC.	PRO SURVEYOR
Catcher/processor	HIGHLAND LIGHT SEAFOODS	WESTWARD WIND
Shore based	HIS CATCH VALUE ADDED PRODUCTS	HIS CATCH VALUE ADDED PRODUCTS
Floater	ICICLE SEAFOODS INC.	ARCTIC STAR
Floater	ICICLE SEAFOODS INC.	BERING STAR
Floater	ICICLE SEAFOODS INC.	COASTAL STAR
Floater	ICICLE SEAFOODS INC.	EVENING STAR INC.
Floater	ICICLE SEAFOODS INC.	NORTHERN VICTOR
Shore based	KING FISHER	KING FISHER
Shore based	MALEZI KWASI DBA	MALEZI KWASI DBA FISHERMAN OF AK
Floater	NORQUEST SEAFOODS INC.	ALEUTIAN FALCON
Floater	NORQUEST SEAFOODS INC.	LAFAYETTE
Shore based	NORQUEST SEAFOODS INC.	NORQUEST - ADAK INC
Shore based	NORQUEST SEAFOODS INC.	NORQUEST - CHIGNIK
Floater	NORQUEST SEAFOODS INC.	PRIBILOF
Shore based	NORTH ALASKA FISHERIES INC.	NORTH ALASKA FISHERIES INC.
Shore based	NORTH PACIFIC PROCESSORS INC.	NORTH PACIFIC PROCESSORS INC. - KOD
Shore based	OCEAN BEAUTY SEAFOODS INC.	OCEAN BEAUTY SEAFOODS INC-KOD
Floater	OCEAN BEAUTY SEAFOODS INC.	OCEAN PRIDE
Shore based	OSTERMAN FISH	OSTERMAN FISH
Catcher/processor	PATRICIA LEE INC.	PATRICIA LEE
Catcher/processor	PAVLOF INC.	NEW STAR
Catcher/processor	PAVLOF INC.	PAVLOF
Floater	PETER PAN SEAFOODS INC.	BLUE WAVE
Shore based	PETER PAN SEAFOODS INC.	PETER PAN - KCO
Shore based	PETER PAN SEAFOODS INC.	PETER PAN - MOL
Shore based	PRIME ALASKA SEAFOODS INC.	PRIME ALASKA SEAFOODS INC.
Shore based	PRIME ALASKA SEAFOODS INC.	PRIME ALASKA SEAFOODS INC.
Shore based	QUALITY ALASKAN SEAFOODS	ORION
Shore based	ROYAL ALEUTIAN SEAFOODS INC.	ROYAL ALEUTIAN SEAFOODS INC. - DUT
Catcher/processor	SANKO FISHERIES LLC	ALASKAN ENTERPRISE
Catcher/processor	SEAWIND FISHERIES	SEAWIND
Floater	SNOPAC PRODUCTS INC.	SNOPAC
Catcher/processor	SOUTH ATLANTIC FISHERIES LLC	MR. B
Floater	STELLAR SEAFOODS INC.	STELLAR SEA
Floater	TRIDENT SEAFOODS CORP.	AKUTAN
Floater	TRIDENT SEAFOODS CORP.	ALASKA PACKER
Catcher/processor	TRIDENT SEAFOODS CORP.	BOUNTIFUL
Catcher/processor	TRIDENT SEAFOODS CORP.	GLACIER ENTERPRISE
Floater	TRIDENT SEAFOODS CORP.	INDEPENDENCE
Catcher/processor	TRIDENT SEAFOODS CORP.	NORTHERN ENTERPRISE
Catcher/processor	TRIDENT SEAFOODS CORP.	ROYAL ENTERPRISE
Floater	TRIDENT SEAFOODS CORP.	SEA ALASKA
Shore based	TRIDENT SEAFOODS CORP.	SOUTH NAKNEK

Plant Type	Company	Plant or Vessel Name
Floater	TRIDENT SEAFOODS CORP.	TEMPEST
Shore based	TRIDENT SEAFOODS CORP.	TRIDENT SEAFOODS CORP. - AKU
Shore based	TRIDENT SEAFOODS CORP.	TRIDENT SEAFOODS CORP. - STP
Catcher/processor	TRIDENT SEAFOODS CORP.	WESTERN ENTERPRISE
Floater	UNISEA INC.	OMNISEA
Shore based	UNISEA INC.	UNISEA - STP
Shore based	UNISEA INC.	UNISEA INC. - DUT
Shore based	WESTWARD SEAFOODS INC.	WESTWARD SEAFOODS INC. - DUT
Shore based	WHITTIER JOHN WALTER	WHITTIER JOHN WALTER
Floater	YARD ARM KNOT INC.	YARD ARM KNOT

Appendix 3-4A

Analysis of Arbitration Alternatives

Last best offer binding arbitration

General

The Last Best Offer Model provides efficiency by resolving all price and delivery disputes pre-season, while also providing a later opportunity for an IFQ holder, who did not arbitrate or conclude a contract, to opt in on the same terms to a contract resulting from any of the completed arbitrations. The Last Best Offer Model allows voluntary agreements between IFQ and IPQ Quota Holders at any time, and provides a pre-season "matching" period for IFQ Holders to match with an IPQ Holder. The arbitration would occur close to the beginning of the season.

Specific characteristics include:

1. Processor-by-processor. Processors will participate individually and not collectively, except in the choice of the market analyst and the arbitrator/arbitration panel.

2. Processor-affiliated shares. Participation of processor-affiliated shares will be limited by the current rules governing antitrust matters.

3. Arbitration standard. The standard for the arbitrator is the historic division of revenues between harvesters and processors in the aggregate (across the entire sectors), based on arm's-length first wholesale prices and ex-vessel prices (Option 4 under "Standard for Arbitration" in the staff analysis). The arbitrator shall consider several factors including those specified in the staff analysis, such as current ex vessel prices for A, B, and C Shares, innovations, efficiency, safety, etc.

4. Opt-in. An IFQ holder may opt in to any contract resulting from a completed arbitration for an IPQ holder with available IPQ by giving notice to the IPQ holder of the intent to opt in, specifying the amount of IFQ shares involved, and acceptance of all terms of the contract. Once exercised, an Opt-in is binding on both the IPQ holder and the IFQ holder.

5. Performance Disputes. Performance and enforcement disputes (e.g. quality, delivery time, etc.) initially will be settled through normal commercial contract dispute remedies. If those procedures are unsuccessful and in cases where time is of the essence, the dispute will be submitted for arbitration before the arbitrator(s). The costs of arbitration shall be paid from the fees collected, although the arbitrator(s) will have the right to assign fees to any party for frivolous or strategic complaints.

6. Lengthy Season Approach. For a lengthy season, an IPQ holder and an IFQ holder (or group of IFQ holders) may agree to revise the entire time schedule below and could agree to an arbitration(s) during the season. That approach may also be arbitrated pre-season if the holders cannot agree.

Process

1. Negotiations and Voluntary Share Matching.

At any time prior to the season opening date, any IFQ holders may negotiate with any IPQ holder on price and delivery terms for that season (price/price formula; time of delivery; place of delivery, etc.). If agreement is reached, a binding contract will result for those IFQ and IPQ shares. IPQ holders will always act individually and never collectively, except in the choice of the market analyst(which may occur at any time pre-season) and the arbitrator/arbitration panel for which all IFQ and IPQ holders will consult and agree.

2. Required Share-Matching and Arbitration.

Beginning at the 25-day pre-season point, IFQ holders may match up IFQ shares not already subject to contracts with any IPQ shares not under contract, either as collective groups of IFQ holders or as individual IFQ holders (the offered IFQ Shares must be a substantial amount of the IFQ Holder(s)' uncontracted shares). The IPQ holder must accept all proposed matches up to its non-contracted IPQ share amount. All IFQ holders "matched" with an IPQ holder will jointly choose an arbitrator with that IPQ holder. The matched share holders are committed to the arbitration once the arbitrator is chosen (if the parties wish, the arbitrator may initially act as a mediator to reach an agreement quickly). Arbitration must begin no later than 15 days before the season opening date.

3. Data.

The Arbitrator will gather relevant data independently and from the parties to determine the historical distribution of first wholesale crab product revenues (at FOB point of production in Alaska) between harvesters and processors in the aggregate (across the entire sectors). For a vertically integrated IPQ holder(and in other situations in which a back-calculation is needed), the arbitrator will work with that IPQ holder and the IFQ holders to determine a method for back-calculating an accurate first wholesale price for that processor. The Arbitrator will receive a pre-season market report from the market analyst, and may gather additional data on the market and on completed arbitrations. The Arbitrator will also receive and consider all data submitted by the IFQ holders and the IPQ holder. The Arbitrator will not have subpoena power.

All data obtained by the Arbitrator will be shared with the parties, subject only to antitrust limitations. The Arbitrator may consult with the third party data collector (e.g., the Pacific States Marine Fisheries Commission) for purposes of verifying data.

4. Arbitration Decisions.

Arbitration will be based on a "last best offer" system, with the Arbitrator choosing one of the last best offers made by the parties. The Arbitrator will work with the IPQ and IFQ holders to determine the matters that must be included in the offer (e.g. price, delivery time & place, etc.) and will set the date on which "last best offers" must be submitted. The last best offers may also include a price over a specified time period, a method for smoothing prices over a season, and an advance price paid at the time of delivery.

If several groups or individual IFQ Holders have "matched" with that IPQ Holder, each of them may make a last best offer. Prior to submission of the last-best offers, the Arbitrator may meet with parties, schedule joint meetings, or take any actions aimed at reaching agreement. The Arbitrator will notify the IPQ holder and the IFQ holders of the Arbitration Decision no later than 10 days before the season opening date. The Arbitration Decision may be on a formula or ex-vessel price basis. The Arbitration Decision will result in a contract for the IPQ holder and the IFQ holders who participated in arbitration with that IPQ holder.

5. Post-Arbitration Opt-In.

Any IFQ holder with shares not under contract may opt in to any contract resulting from an Arbitration Decision for an IPQ holder with IPQ that is not under contract, on all of the same contract conditions (price, time of delivery, etc.). If there is a dispute regarding whether the "opt in" offer is consistent with the contract, that dispute may be decided by the arbitrator who will decide only whether the Opt-in is consistent with the contract.

6. Formula and Prices.

Throughout the year, the market analyst will survey the crab product market and publish periodically a composite price. That price will be a single price per species, based on the weighted average of the arm's length transactions in products from that species.

7. Additional Modifications.

The Committee is requested to consider the following modifications to this preferred alternative and to report back to the Council at the April meeting:

a. The arbitrator who makes the last pre-season arbitration decision will review all of the arbitration decisions for that season and select the highest arbitrated prices(s), which is representative of 7% of the market share of the PQ. That price shall become the price for all arbitrated prices of that season, inclusive of the opt-in provision, and, independent of delivery terms at the harvester option. If the arbitration decisions include both formula and straight price decisions, the arbitrator shall have the discretion to select and apply one of each type. The decision on which price is the 'highest arbitrated price' shall take into consideration terms of delivery that may have a significant impact on price, including time and place of delivery.

b. A single annual fleet-wide arbitration will be used to establish a non-binding formula under which a fraction of the weighted average first wholesale prices for the crab products from each fishery may be used to set an ex-vessel price. The formula is to be based on the historical (1990-2000) distribution of first wholesale revenues between fishermen and processors. The formula may be adjusted by the arbitrator(s) to take into account post-rationalization developments as the arbitrator(s) deem appropriate, subject to certain general guidelines.

Appendix 3-4B

Analysis of Arbitration Alternatives

Fleet-wide binding arbitration model

General

A single annual fleet-wide arbitration will be used to establish a formula under which a fraction of the weighted average first wholesale prices for the crab products from each fishery is used to set a default ex-vessel price. This price will apply in cases where a delivery is made in the absence of contract between a harvester and a processor. The formula is to be based on the historical (1990-2000) distribution of first wholesale revenues between fishermen and processors.[1] The formula may be adjusted by the arbitrator(s) to take into account post-rationalization developments as the arbitrator(s) deem appropriate, subject to certain general guidelines.

On certain terms and conditions, harvesters holding individual fishing quotas (IFQs) for which they do not have a contract with a processor may "put" such IFQs to any processor with available individual processing quota (IPQs) for the arbitrated default price, by providing a notice of intent to deliver, which specifies the date, place, quantity, etc. of the proposed delivery. If a processor to whom a harvester puts IFQ does not agree with the delivery terms, the terms will be subject to expeditious negotiation, and, if the harvester elects, binding arbitration before the arbitrator(s) that establish the default price formula. Under no circumstances will a processor have the ability to "call" IFQ.

To address differences in timing between when deliveries are made and when the related product is sold, and the potential that processors will exclusively reserve delivery periods when product has higher value to harvesters with whom they are affiliated, the arbitrator(s) will have the authority to "smooth" first wholesale prices over a period that the arbitrator(s) determine is appropriate.

Because there will be some time lag between deliveries to which the default price applies and the determination of that price, the arbitrator(s) will establish a method for projecting the default price, and will establish a formula for determining the percentage of the default price to be paid at delivery (as an advance), and the balance to paid when the default price has actually been calculated (as a settlement).

Procedure

1. Arbitrator. Representatives of the harvesting and processing sectors select an arbitrator. If the two sectors are not able to agree, each sector will choose an arbitrator, and the two so chosen will choose a third arbitrator.

2. Market Analyst. The arbitrator(s) select a market analyst, in consultation with representatives of the harvesting and processing sectors.

3. Data Gathering. The arbitrator(s) and the market analyst (the "Team") meet with each processor individually as necessary (to address antitrust issues) and harvesters individually and/or collectively (subject to the vertical integration standards of generally applicable antitrust laws[2]) to:

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[1] The reference first wholesale price for purposes of constructing and applying the formula is to be determined in the course of the pre-season arbitration of the price formula. It could be, for example, the FOB point of production.

[2] Currently, the standards to be applied are the general standards promulgated in the Hinote case, and not the more permissive standards applicable to processor affiliates participating in AFA cooperatives.

a. gather data relevant to determining the historical distribution of first wholesale crab product revenues between harvesters and processors;

b. determine a method for constructing a composite first wholesale price from the IPQ holders' crab product transactions;

c. determine composite price adjustment factors for each crab delivery port, to reflect the differential costs associated with delivering to, processing at and shipping from each port;

d. determine the percentage of the default price to be paid at delivery (as an advance), and the balance to paid when the default price has actually been calculated (as a settlement);

e. determine the start date and duration of the period during which harvesters may "put" their IFQ to an IPQ holder with available IPQs, on a fishery by fishery basis;

f. determine the level of "upward" vertical integration of each IPQ holder, and to determine, in cases where a processor does not sell product on an arm's length basis at the first wholesale level, the value accrued by the processor at each transaction level up to and including the first point at which it sells on an arm's length basis to a third party (which will be used to back-calculate a proxy first wholesale price for any such processor); and

g. the variety of crab product forms projected to be produced and the likely markets for such products.

4. Initial Discussions/Mediation. Not less than 120 days before the opening of the first crab fishery of the upcoming year, the Team meets with each processor individually and with harvesters collectively (subject to the vertical integration standards set forth above) to present their preliminary conclusions regarding the items listed in section 3., above. The arbitrator(s) seek consensus among representatives of the harvesting and processing sectors regarding these issues.

5. Contract Negotiation Period. The Team encourages harvesters and processors to negotiate voluntary contracts concerning IFQ/IPQ transactions prior to the opening of the period during which put options may be exercised. The arbitrator(s) allow adequate time between the initial discussions and mediation referenced in Section 4., above, and the opening of the put option period(s) to facilitate contract negotiation and formation.

6. Arbitration. Not less than 30 days before the first crab fishery opens, the arbitrator(s) stipulate the revenue distribution formulas, method for constructing composite first wholesale prices, advance and settlement percentages and the put option periods for each fishery, if they have not been agreed upon by all IPQ and IFQ holders.

7. Composite Price Calculation. Throughout the year, the market analyst surveys the crab product market, and publishes a weekly composite price based on the survey structure and price construction methodology developed by the Team. The weekly composite price is a single price per species, based on the weighted average of the arm's length transactions in products produced from that species.

8. Price Smoothing Function. The weekly composite prices may be used, at the arbitrators' discretion, to establish a single season or multi-week price, to "smooth" differences between prices at delivery and prices at the time of product sales, and to address optimal delivery times being reserved to processor-affiliated vessels. In addition, for purposes of determining appropriate seasonal advance payments at delivery, the

Team will produce a weekly projection of the smoothed price that would apply to deliveries made during a given week.

9. Delivery Mechanics. In the absence of a contract, a fisher would have the option to put his IFQs to a processor with available IPQs[3] at the default price, during the put exercise period. A harvester may exercise its put option by providing a notice of intent to deliver, proposing place, time, quantity, etc. The amount of IFQ involved must be substantial, relative to the harvester's uncommitted IFQ. Upon a harvester putting IFQ to a processor with available IPQ, the put IFQ and the equivalent amount of IPQ are reserved until: (I) terms of delivery are agreed upon (in which case the IFQ and IPQ are committed), (ii) the harvester withdraws the IFQ put (which may be any time through the harvester electing to undertake binding arbitration with respect to the put), or (iii) expiration of the negotiation period, if the harvester does not elect to enter binding arbitration. The negotiation period is 5 business days for harvesters that are not members of a cooperative, and 7 business days for harvesters that are. In cases where a processor objects to any term of the IFQ put, the matter is not resolved through negotiation during the negotiation period, and the harvester elects to undertake binding arbitration, the dispute will be arbitrated by the arbitrator(s) selected to determine the formula. To reduce the administrative burden associated with such dispute resolution, the arbitrator(s) are expected to use reasonable efforts to consolidate such disputes on a processor by processor basis, such that each processor is subjected to no more dispute resolution sessions than necessary, and to conduct the related arbitration(s) expeditiously.

10. Opt-In. After the put option period has closed, a harvester with uncommitted IFQ may deliver to a processor with uncommitted IPQ by either (I) accepting the delivery terms established under put option arbitration(s) with that processor, or (ii) by negotiating mutually agreeable delivery terms with the processor.

11. Payment. Because the price smoothing function may introduce some lag between delivery and price determination, payments will be made on an advance and settlement basis. The advance percentage is intended to be that which typically applied pre-rationalization in transactions where a harvester was not sharing market risk, and is expected to be a reasonably high percentage (i.e., 80%) of the projected composite price. The settlement will be calculated promptly following the close of the price smoothing period, and paid promptly thereafter.

12. Performance-Related Dispute Resolution. Disputes arising out of any IFQ/IPQ transactions (including but not limited to disputes concerning product quality, delivery, payment or other harvester and processor performance obligations) will initially be addressed through standard commercial contract procedures (i.e., notice of breach, opportunity to cure for a commercially reasonable period, etc.). Disputes that are not resolved through such procedures will be submitted to binding arbitration before the arbitrator(s). To reduce the risk that disparate resources could affect the outcome, the costs of arbitration will be paid out of the pool of funds collected (as taxes or industry assessments) to support the price arbitration process. On the other hand, to discourage frivolous or strategic (as opposed to substantive) complaints, the arbitrator(s) may deny access to arbitration or assess arbitration costs and fees in cases where a party asserts a non-substantive claim.

Summary comments

The arbitrator(s) pre-season functions (other than determining the historical distribution of first wholesale revenues) are repeated annually. The arbitrator(s) are expected to take into account changes in fishery and

[3] A regularly updated report of processors holding uncommitted IPQs will be issued during the "put" exercise period and thereafter.

market characteristics, such as changes in season duration and product forms each successive season, and to adapt the structure and function of the model accordingly, while preserving its general parameters.

In addition to developing a composite base price formula, the arbitrator(s) and the market analyst will be expected to develop individual port price adjustment factors, to reflect the differential costs of delivering to, processing in and shipping from each community.

The arbitrator(s) may exclude high value products from the composite price calculation in cases where processors and/or harvesters have incurred extraordinary expenses or made capital investments to produce such products, or in cases where the arbitrator determines exclusion of such products is appropriate to provide an incentive to improve efficiency or product quality. The arbitrator(s) would not be expected to exclude high value products in cases where the higher value relates to market timing.

Price smoothing is intended to eliminate the need to track product from delivery to first arm's length sale, reducing administrative burden to processors. Further, price smoothing is intended to address the disparity in value related to delivery timing, where delivery periods associated with peak values are reserved to a processor's affiliated fleet, and/or in cases where a processor chooses to process products other than crab during such periods. On the other hand, it may be appropriate in some circumstances to allow the composite price to float with the market price, to reflect differences in value associated with harvest timing, such as in-fill percentages, and generally applicable market cycles. The arbitrator(s) will have substantial discretion in balancing relevant factors, and determining the appropriate duration and scope of the price smoothing function.

The arbitrator(s) will have the authority to address market timing and processor operational or logistical considerations in put option arbitrations. On the other hand, the arbitrator(s) will be expected to address the opportunity costs incurred by harvesters as the result of addressing those considerations.

Because the historical distribution of first wholesale revenues was based on an ex-vessel cash sales and not on profit/loss sharing, it did not include risk compensation for fishermen. Therefore, in cases where the ultimate composite price is less than the advance, fishermen would not be expected to refund the difference.

APPENDIX 3-4C

Experimental Analysis

of Arbitration Structures

Preliminary Results

At its June 2002 meeting the North Pacific Fishery Management Council selected a preferred alternative for the rationalization of the Bering Sea/Aleutian Islands crab fisheries. As a part of its decision, the Council formed an industry committee to develop an arbitration program to resolve ex vessel price disputes between harvesters and processors. The committee developed two alternative structures for the arbitration program for consideration by the Council. To help the Council understand of the implications of the different arbitration structures, Council staff contracted Charles Plott, Ph.D. of California Institute of Technology to conduct an experimental analysis of the two arbitration structures preferred by the committee.[1] The analysis is to determine whether differences in the bargaining strength of sectors are inherent in the different arbitration structures.

Experimental economic analysis is the use of a controlled institutional environment with real money incentives to examine economic outcomes. Experimental methods are particularly useful for testing theories that are applied in an uncontrolled environment. Experimental methods are also useful for examining a complex institutional system too rich for comprehensive theoretical analysis. The application of experimental methods to the arbitration system in the crab fishery is intended to isolate the influence of the different arbitration structures to facilitate the analysis of those structures.

Dr. Plott has applied experimental methods to a variety of complex allocation problems, including allocation of resources on Space Station Freedom, the markets for emissions permits in southern California (RECLAIM), and mechanisms for pricing the use of natural gas pipelines, the auctioning of the right to use railroad tracks, markets for electric power in California and the design and implementation of the auction used by the Federal Communications Commission for the sale Personal Communications Systems licenses.

Following is a description of the experiment and its results. This report concludes with a discussion of some caveats concerning the interpretation of the results.

Environment

Three experiments were conducted, two using the fleet-wide model and one using the last best offer model. Different players participated in the different experiments, so all participants entered the experiment with no experience.

A three to one ratio of harvesters to processors was maintained in each experiment. The first fleet-wide experiment used three processors and nine harvesters, the second fleet-wide experiment and the last best offer experiment used two processors and six harvesters.

The first fleet-wide experiment consisted of 3 periods. The second fleet-wide experiment and the last best offer experiment used 4 periods each.

Each harvester is allocated 20 shares each period. 18 of these shares are A shares (requiring delivery to a processor holding processing shares) and 2 are B shares deliverable to any processor. Each processor is allocated 54 shares.

Harvesters had a per share operating cost of 50 francs in the fleet-wide experiments. In the last best offer experiment harvesters had a per share operating cost of 75 francs per unit. Processors have no operating costs. This assumption does not affect the results. Operating costs of each sector are unknown to the other sector. Harvesters can convey a slight benefit on processors by timing of deliveries. Making a delivery in a manner that favors a processor increases the processor's return by 10 francs. Harvester's bear a minor cost

[1] A copy of Dr. Plott's vita is attached.

(of 5 francs) for making a timely delivery. This factor is within a harvester's control but is outside negotiations. The harvester can use delivery timing to build a reputation with the processor.[2]

Revenues generated for delivery of a share by processors are 200 francs in the fleet-wide model. In the last best offer model these revenues were 225 francs per share.[3] The historic division of revenues in the fishery is 0.7 to harvesters and 0.3 to processors.

Prior to commencing negotiations all parties are informed of the historic division of revenues (i.e., 70/30). They also are informed of the arbitrator's decision rule, which differs slightly between the two models. During the experiment, on the completion of any contract all participants were informed of the negotiated price in the contract. Harvesters did not collude in negotiating prices for any deliveries.[4]

Fleet-wide model

Prior to negotiations, the fleet gathers and adopts a initial proposed price for A share deliveries, which is announced to the processing sector.[5] A negotiation period follows during which contracts can be formed for any deliveries on a voluntary basis between any harvesters and processors that come to terms. At the end of this negotiating period, each processor submits a price proposal, each harvester submits an arbitration price proposal, and an arbitrated price is announced based on the arbitration rule.

The arbitration rule uses four numbers:

1. The average negotiated price in the A share delivery market in the period
2. The historical division of revenues (70/30) fixed in all periods
3. The average harvester arbitration proposal in the period
4. The average of the processor proposals in the period

The two of these that are closest to the average negotiated price and the average negotiated price are retained (i.e., three of the four are retained, always including the average price), then one of those three is selected at random. The arbitration determines that A share delivery price only. Proposals apply only to A share deliveries. B share prices are negotiated independent of the arbitration process.

After the arbitrated price is announced, a second negotiating period begins. At the expiration of the negotiation period, harvesters can put deliveries to processors at the negotiated price. A harvester can elect not to make a put.

This completes a period (or season). The procedure is repeated in each following period.

[2] Having timing in as a negotiated term would make the experiment overly complex. Four products would need to be included in the market; deliveries of A shares and deliveries of B shares, both with good and bad timing.

[3] Revenues are akin to first wholesale prices.

[4] In the fisheries, harvesters might work together, using B share deliveries to elicit a higher price from a processor.

[5] Prices here refer to ex vessel prices.

Last best offer model

This process begins with a negotiation period (with no harvester price proposal). During this period contracts can be formed for any deliveries on a voluntary basis between any harvesters and processors that come to terms. At the end of this term, an announcement is made of the number of shares held by each processor that are not under contract. Each harvester with available A shares then submits its preferences for processor associations, ranking each processor. Harvesters are then assigned to processors using a "draft choice" procedure, under which harvesters are randomly selected and assigned to processors with available shares in accordance with their preferences. A harvester is constrained to negotiations for A share deliveries with the identified processor for the remainder of the period.

A second negotiation commences, at the end of which any unresolved A share deliveries are subject to arbitration at the election of the harvester. The arbitration is between the processor and the harvesters assigned to the processor. The arbitration is final offer with each processor submitting a single proposal applicable to all of its shares and each harvester submitting a proposal. For each harvester, the arbitrator selects between the harvester offer and the offer of the assigned processor. A harvester may elect not to arbitrate. Proposals to the arbitrator apply only to A share deliveries.

The arbitration rule uses four numbers:

1. The average negotiated price in the A share delivery market in the period
2. The historical division of revenues (70/30) fixed in all periods
3. The harvester proposal in the period
4. The average of the processor proposals in the period

The two of these that are closest to the average price and the average price are retained (i.e., three of the four are retained, always including the average price), then one of those three is selected at random. The proposal that is closest to this number is the arbitrated price. The arbitration determines that A share delivery price only. Harvesters are unconstrained in their B share deliveries (so they may make those deliveries to a different processor than their A share deliveries without added cost.)

This completes a period (or season). The procedure is repeated in each following period.

Results of the fleet-wide experiments

The results of the two fleet-wide experiments are shown in Figures 1 and 2. The figures show increasing prices from period to period for both A share and B share deliveries. Different prices for A and B share deliveries can be observed. In the experiment, A share delivery prices appear to drift upward with the B share delivery price. Prices for deliveries of both share types appear to tend toward a competitive market outcome in which processors would earn normal profits. This outcome could take several periods to transpire. The cause of this outcome is not readily apparent. Delivery timing may contribute. Whether this outcome is inevitable is not determined.

The initial harvester proposal has no influence on the outcome. That proposal is only remotely connected to the arbitrator's decision. Since the initial harvester proposal is made prior to any contracting, it is disregarded by processors in fashioning their proposals. In this experiment, in most instances deliveries were timed in a manner favorable to the processor.

Results of the last best offer experiment

The results of the last best offer experiment are shown in Figure 3. Two distinct markets develop for deliveries of the different types of shares. Prices for A share deliveries are relatively stable in this experiment. In this model processors use negotiated A share delivery prices to drive the arbitration result, which keeps that price relatively stable. A separate market develops for B share deliveries with substantially greater competition and higher prices. This price appears to be the competitive price. In this experiment, in many instances deliveries were timed in a manner unfavorable to processors.

Caveats

The experiments are designed to elicit the impacts of the different arbitration structures on outcomes of price negotiations. Developing a workable experiment always requires reasonable assumptions with respect to the environment, the institutional setting, and policies. Interpretation of the results requires accommodation of those assumptions. Several factors likely to impact the outcome from the application of the arbitration structures in the fisheries could not be included in the experiment. The influence of these factors on outcomes is lost to the experiment results. For example, the proposed standard to be applied by the arbitrator is a historic division of revenues considering a list of enumerated factors (such as current delivery prices and market developments). Although derived from the arbitration standard, the somewhat mechanical rule applied in the experiments does impact the experiment outcomes. The exact impact cannot be determined without a complete understanding of the arbitrator's application of the standard, which is unknowable.

Another factor likely to have an impact on the outcome is share trading. In the experiments 90 percent of each harvester's allocation was A shares and 10 percent was B shares. Altering this ratio of holdings for different harvesters might affect outcome for not only those individuals, but also for all others (through the impact on the arbitrator's decision).

Several other factors are not incorporated into the experiment including:

- annual changes in TACs
- product market changes
- prior experience and knowledge of other participants
- differences in participants (including share holdings, non-crab revenues, cost structures)
- geographic locations of processors and regional landing requirements (including their affect on production costs and transaction costs)
- any influence of or on captain's shares is omitted

These factors all could influence price settlements in the fisheries. In assessing the results of the experiment, the potential influence of these various factors should be borne in mind.

Figure 1

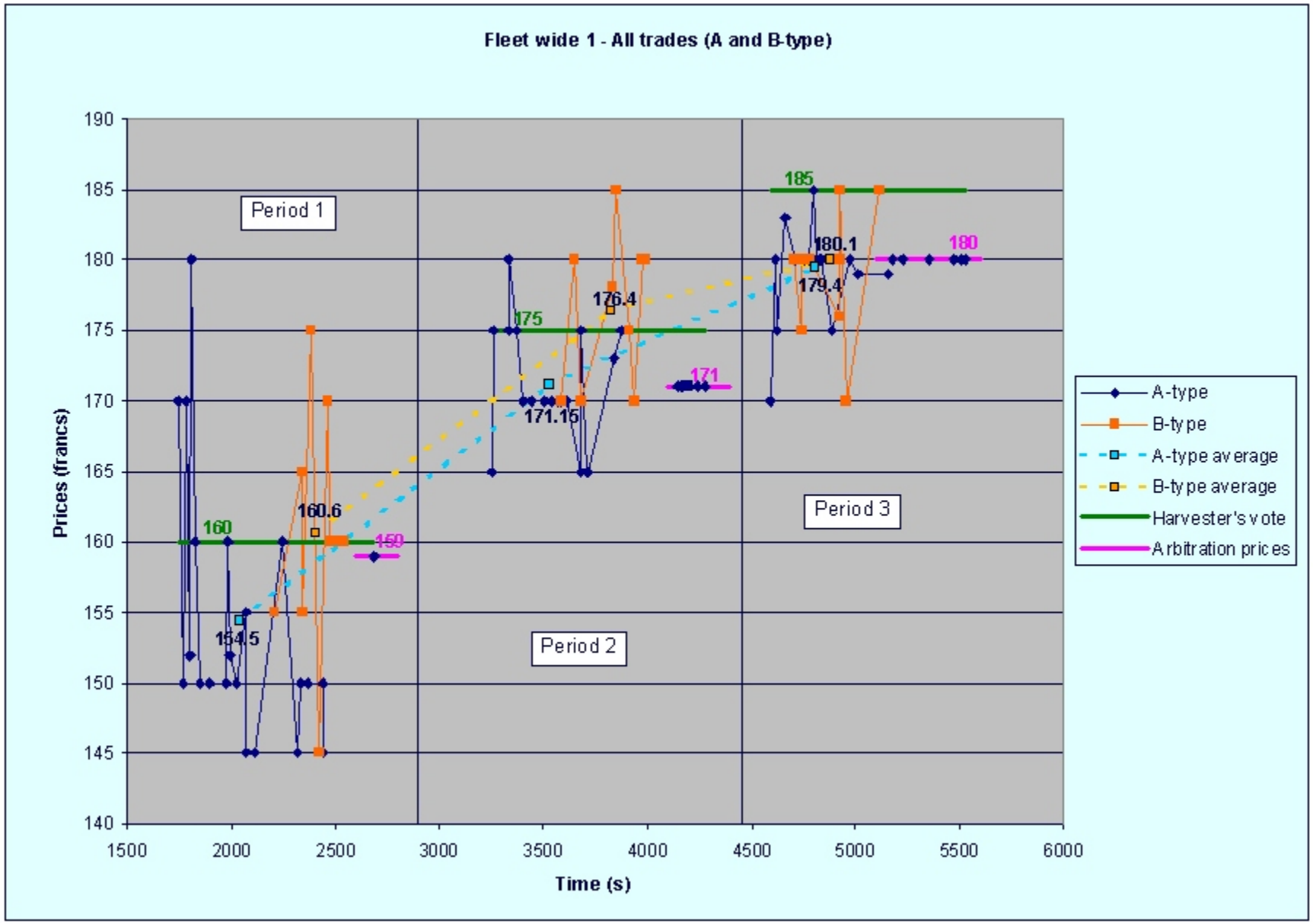

Fleet wide 1 - All trades (A and B-type)
Prices (francs)
Time (s)
Period 1
Period 2
Period 3
160
150
175
171
185
180
154.5
160.6
171.15
176.4
179.4
180.1
A-type
B-type
A-type average
B-type average
Harvester's vote
Arbitration prices

Figure 2

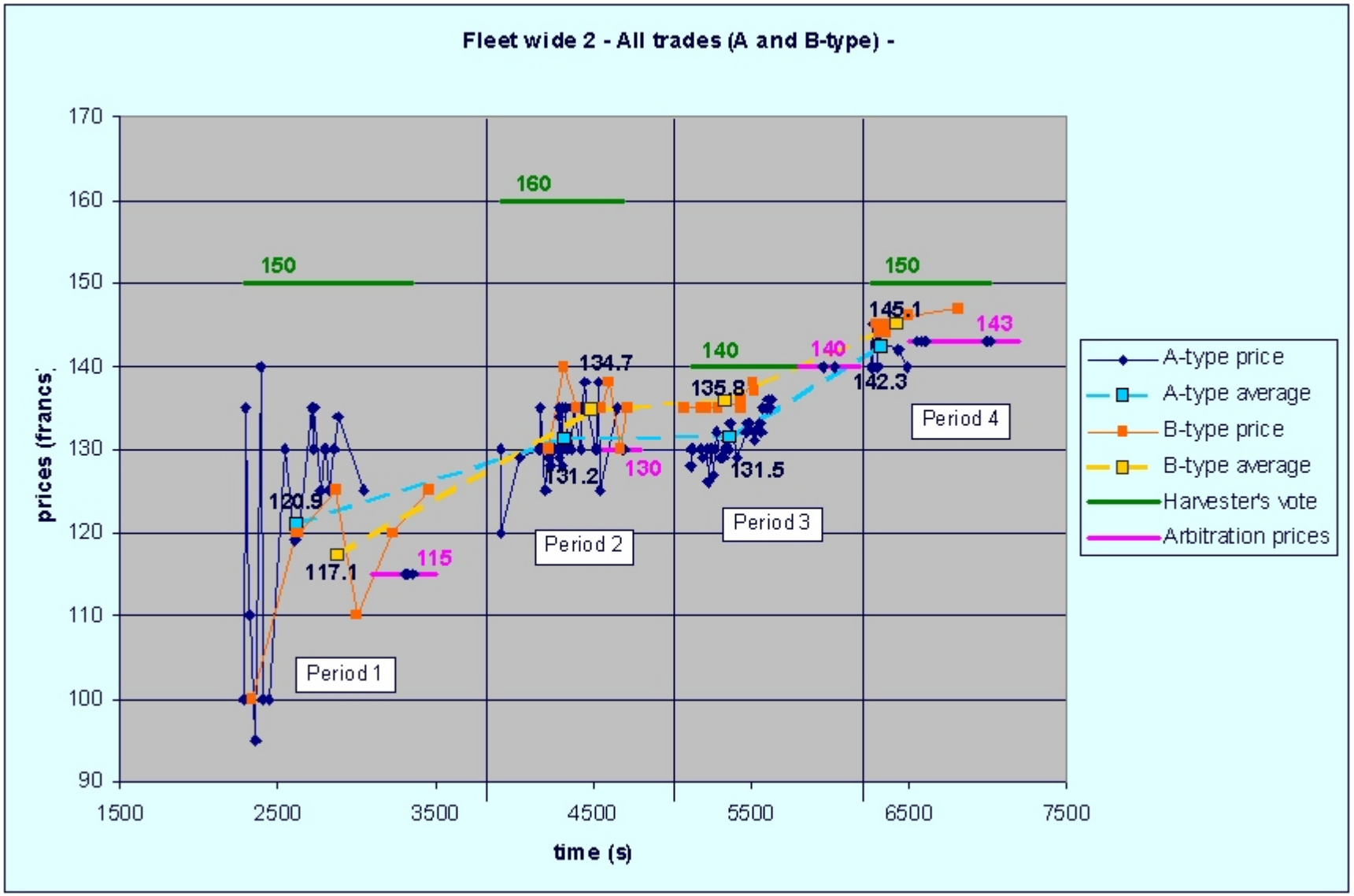
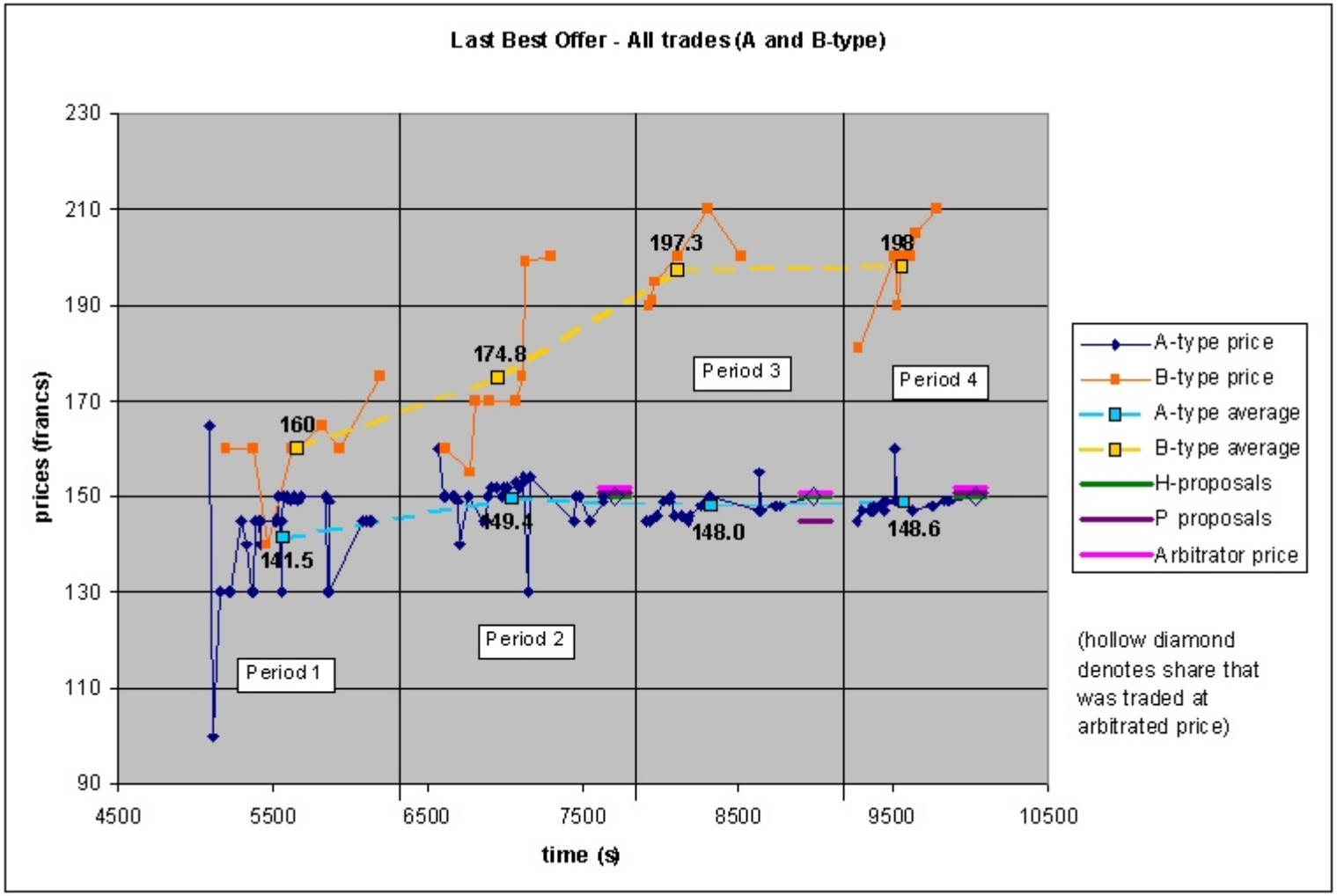

Fleet wide 2 - All trades (A and B-type) -
prices (francs)
time (s)
170
160
150
140
130
120
110
100
90
1500
2500
3500
4500
5500
6500
7500
150
160
150
140
140
143
145.1
142.3
134.7
135.8
131.2
131.5
130
120.9
117.1
115
Period 1
Period 2
Period 3
Period 4
A-type price
A-type average
B-type price
B-type average
Harvester's vote
Arbitration prices

Figure 3


Last Best Offer - All trades (A and B-type)
prices (francs)
time (s)
230
210
190
170
150
130
110
90
4500
5500
6500
7500
8500
9500
10500
160
174.8
197.3
198
141.5
149.4
148.0
148.6
Period 1
Period 2
Period 3
Period 4
A-type price
B-type price
A-type average
B-type average
H-proposals
P proposals
Arbitrator price
(hollow diamond denotes share that was traded at arbitrated price)

Appendix 3-5

Application for Entry Permit

Southeastern Crab Pot Fishery

APPLICATION FOR ENTRY PERMIT
SOUTHEASTERN ALASKA RED AND BLUE KING CRAB POT FISHERY

COMMERCIAL FISHERIES ENTRY COMMISSION
P.O. BOX KB
JUNEAU, ALASKA 99811

This is an application for a permanent entry permit for the SOUTHEASTERN ALASKA RED AND BLUE KING CRAB POT fishery. If you wish to apply for a permanent entry permit, complete this application and submit it to the Commission before April 30, 1987. ALL ELIGIBLE FISHERMEN ARE STRONGLY URGED TO SUBMIT APPLICATIONS REGARDLESS OF THE NUMBER OF POINTS CLAIMED. A non-refundable application fee of $100 is required and should be submitted with each application. Without the application fee your application will not be processed. Alaska residents may apply for a reduced application fee of $30 if their total family income falls within the poverty guidelines. See pages 25 and 26 of the instruction booklet for the poverty guidelines. THE APPLICATION DEADLINE IS APRIL 30, 1987. Late applications may be accepted until June 30, 1987, if the applicant can demonstrate good cause for the late filing.

IMPORTANT: Read the instruction booklet before completing this application. (Please Print)		Commission Use Only Date Issued
Name (First, M.I., Last)		Perm.Permit No.
Permanent Mailing Address	Physical Location	Date Awarded
Temporary Mailing Address		Verified Points
Birthdate	Social Security Number	Fee Received: $
		/__/Cash /__/Check /__/M.O. No. TR No.

INTERIM-USE PERMITS for the 1987 crab seasons must be applied for by a separate interim-use permit application form. No applications for interim-use permits for these limited crab fisheries will be accepted after the application deadline of April 30, 1987 unless you have a permanent permit application on file.

We recommend you mail your application by certified or registered mail, especially if mailing close to the application deadline. The Commission will mail you notice to verify the receipt of your application. IF YOU DO NOT RECEIVE VERIFICATION FROM THE COMMISSION WITHIN TWO WEEKS AFTER YOU MAIL YOUR APPLICATION, YOU SHOULD CONTACT THE COMMISSION BY MAIL OR BY TELEPHONE AT (907) 586-3456. If you are unable to mail or deliver your application to the Commission by the deadline, you will be allowed to submit it until June 30, 1987, ONLY IF YOU ARE ABLE TO DEMONSTRATE GOOD CAUSE FOR LATENESS. MAKE EVERY EFFORT TO FILE YOUR APPLICATION BY THE APRIL 30, 1987 DEADLINE.

THE APPLICATION DEADLINE IS APRIL 30, 1987.

Part I. Fishing History

ITEMS I-1 THROUGH I-3 MUST BE COMPLETED BY ALL ELIGIBLE APPLICANTS. If a particular item does not apply to you or your situation, you must check the box(es) marked N/A (Not Applicable). If additional space is needed to answer any of the items, use the space on the back of this booklet, or additional sheets. Please refer to the item number when responding.

I-1. ELIGIBILITY TO APPLY: You must have harvested red or blue king crab as a gear license or interim-use permit holder in Southeastern Alaska some time between 1960 and December 31, 1983. If your fishing was prior to 1975, indicate the year(s), ADF&G number and vessel name from which you harvested crab.

Year	ADF&G Number	Vessel Name From Which Landings Were Recorded

I-2. For each of the following year(s) in which you participated in the Southeastern red and blue king crab fishery, check the type(s) of license(s) you held.

N/A	Year(s)	Crewmember License	Gear License	Interim-Use Permit
☐	75	☐	☐	☐
☐	76	☐	☐	☐
☐	77	☐	☐	☐
☐	78	☐		☐
☐	79	☐		☐
☐	80	☐		☐
☐	81	☐		☐
☐	82	☐		☐
☐	83	☐		☐

(9/86)

Appendix 3-6

Sections 1 through 4

Section 1: Inter-agency economic data collection workgroup draft report

The following draft report, prepared by the Inter-Agency Economic Data Collection Workgroup, includes a detailed discussion of the need for mandatory data collection programs:

DRAFT FOR AGENCY REVIEW (February, 2002)

A Proposal to Develop an Inter-Agency Economic Data Collection Protocol And Data Sharing Agreement for FMP Fisheries in Alaska and Other Fisheries for Which the North Pacific Fishery Management Council Makes Recommendations to the U.S. Secretary of Commerce (SOC)

1. Summary

Economists from four State and Federal agencies have met to discuss methods of collecting economic data that are necessary for the preparation of FMP amendments but are currently not available. After review of past experiences and agency problems associated with voluntary data collection, participants in the meeting have concluded that it is necessary to develop a mandatory data collection program. Participants in the meeting also felt that it was necessary to ensure that the data collected under such a program would be available only to authorized staff from each of the represented agencies.

Economists from these agencies are charged with conducting net benefit and distributional analyses. A mandatory data collection system is believed to be the best way to meet these objectives. Voluntary data collection programs, with rare exceptions, are not timely, have low response rates, do not result in adequate time series, and can be subject to strategic bias. Moreover, several recent attempts by NMFS, ADF&G and the Council to collect economic data have not been successful despite multiyear efforts and working very closely with industry members.

Many important issues, including property rights, closed areas, Improved Retention/Improved Utilization, and endangered species, have been brought to the forefront recently, but economists do not have adequate data to conduct complete and thorough analyses of these issues. New emphases on regulatory completeness, such as was the case in the shark FMP amendment, have also highlighted the need for better economic data.

Economists attending the meeting believe that successful economic data collection will require the State and Federal agencies to continue to work together on the program. To facilitate development of the proposed economic data collection program the economists also concluded that the agencies should provide the staff time and resources necessary to develop a draft document that would outline some alternatives for a mandatory data collection program.

2. Background Information

Economists from four State and Federal management agencies are currently involved in developing a proposal for an inter-agency agreement to collect economic data for Alaskan fisheries. Combined, those agencies[1] have the responsibility of managing both the

[1]Dave Colpo, Pacific States Marine Fishery Commission (PSMFC) economist, also attended the meeting in an advisory capacity.

commercial and recreational fisheries off the coast of Alaska. The agencies involved in developing the proposal are the:

- Alaska Department of Fish and Game (ADF&G) represented by Jeff Hartman;
- Commercial Fisheries Entry Commission (CFEC) represented by Kurt Schelle;
- National Marine Fisheries Service (NMFS) represented by Todd Lee;
- North Pacific Fishery Management Council (NPFMC) represented by Darrell Brannan.

The economists held a meeting during September 2001 to discuss the current status of economic data collection and the future outlook. The economists from each agency unanimously agreed that a mandatory data collection program should be explored and that inter-agency coordination is needed. The need for mandatory economic data collection is evident since several attempts to collect these data under voluntary programs have only had very limited success. It is important that a mandatory data collection program has the support of each of the management agencies involved in overseeing FMP fisheries and other fisheries for which the NPFMC makes recommendations to the SOC. Cooperation will ensure that the necessary data are collected while minimizing the burden on industry members. Cooperation will also help to ensure that once the data are collected they will be available only to the analysts within each agency.

The present need for economic data is quite high. Currently there are many important policy issues that affect commercial fisheries in Alaska. These include property rights, closed areas, Improved Retention/Improved Utilization, and endangered species. These policy issues may lead to economic and structural change in the fishing industry and result in distributional effects that rival or exceed those associated with the initial Americanization of North Pacific fisheries. Economic analyses are also coming under increased scrutiny to ensure that agencies are living up to their statutory requirements. New emphases on regulatory completeness, such as was the case in the Atlantic shark FMP amendment, have continued to highlight the need for better economic information.

In light of the increased scrutiny and threat of litigation, there has been a national and regional commitment by NMFS to supply more resources to improve the collection and analysis of economic data. If these regulatory requirements are to be addressed, the economists participating in this meeting are not aware of any viable alternatives to mandatory economic data collection for the FMP fisheries of the North Pacific. Thus, we recommend that the participating agencies work toward a unified data collection system. The data to be collected would include cost, employment and earnings data at the vessel or plant level.

3. Voluntary Economic Data Collection

Over the past several years, as the stakes have increased in fisheries management decisions, it has become more and more difficult to collect economic data on a voluntary basis, and the most recent attempts were met with very limited success. Today there are no economic cost data being collected for the commercial fleets on a voluntary basis that can be used for FMP

The Commission has no opinion on voluntary versus mandatory data collection mechanisms for economic data.

and regulatory amendments for fisheries that the NPFMC makes recommendations to the SOC.

The most recent attempt at voluntary economic data collection was a program developed by NMFS. That economic survey focused on the pollock harvesting and processing sectors participating in the Bering Sea and Aleutian Island groundfish fisheries. After approximately two and a half years of working with industry members to develop the data collection surveys, only one firm completed a survey and that was ultimately returned to the company when no other industry members responded. This effort included the development of a data verification process as requested by the industry.

ADF&G has recently attempted to collect ownership information from pollock catcher vessel owners. This information is essential to defining each firm as an entity for economic analysis. Catcher vessel response rates to the survey was initially very low and there has been continuing resistance to requests for reporting this basic data. These data were ultimately collected after a strong request was made by both the ADF&G and the NPFMC.

In another independent effort, the Council's economic data committee was unable to secure a commitment from industry participants to collect individual firm level cost data from the EEZ pollock groundfish fisheries after several meetings from 1998 through 2000. That committee has recently been disbanded by the Council for lack of progress towards meeting its objectives. Given the reluctance of industry members to supply these data, economists from each of the agencies have concluded that it is unlikely that any voluntary program will result in a systematic and periodic data collection program that would provide analysts with a useful time series of disaggregated economic data. Therefore, the focus should shift to studying how the data can be collected through a mandatory program.

4. Existing Mandatory Data Collection

Currently, revenue and price data are the only economic data being systematically collected under mandatory programs. Two examples of these are ADF&G's fish ticket records, which contain a value field, and ADF&G's Commercial Operator's Annual Reports (COAR) which contain data on both ex-vessel and wholesale values.

The data from these reporting systems are extremely useful for a variety of purposes, but neither fish tickets nor COAR reports collect the additional data on costs or employment that are needed to carry out requisite economic net benefit and economic impact analyses. A systematic approach to collecting cost, employment, and earnings data at the vessel or plant level is needed.

In recent years, some efforts have been made to indirectly estimate marginal costs from fish ticket data based upon the participant's in-season fishing decisions. While similar approaches to estimate in-season marginal costs deserve continued exploration, the methodologies require many simplifying and ad hoc assumptions. The regular and systematic collection of detailed cost and employment data from participating entities would directly provide a reliable database that could be used for the analyses of many proposals.

5. Problem Statement

A successful economic data collection program has all of the following characteristics:

- The data are available in a timely fashion
- Sufficient cross sectional and time series data coverage at the operating unit level to allow for statistical analyses
- Sufficient in scope to carry out standard economic analyses (i.e., net benefit)
- Minimal biases (i.e., non-response bias and strategic bias)
- High degree of confidence in the accuracy of the data

If data satisfying the above characteristics were available, it would substantially improve the ability of economists to develop models and provide useful information to the public, fishing industry, policy makers, and fishery managers.

The economic data necessary to study the impacts of regulatory changes are currently not available. Analysts are being tasked with analyzing complex FMP and regulatory amendment packages without being provided the economic data necessary to conduct formal economic analyses. These analyses are considered to be inadequate by many reviewers of the documents, since most must fall back on gross revenue calculations, which provide no insights to profitability or net benefits to the nation. Recent legal actions leave the agencies vulnerable to regulatory challenge (i.e., Atlantic Shark Amendment). Because the analysts lack the data required to conduct formal cost-benefit or distributional analyses, policy makers that rely on their work are often required to base their decisions on incomplete economic analyses. Furthermore, the number of policies requiring these types of analyses are increasing.

6. Goals

The goal of the proposed project is to develop a mandatory data collection program for vessel or plant level data that is verified to the extent practicable. The program will be designed to protect confidential data, coordinate the collection of data, minimize the burden on industry, and be administratively efficient. Improving the quality and scope of the economic data that are being collected will require cooperation from all of the agencies involved, as well as a commitment to supply the resources necessary to make the program successful.

It is the intent of this group that the disaggregated (raw) data be shared among participating agencies in accordance with Federal and State laws[2]. Each agency would then be responsible for ensuring that the confidentiality of the data is protected.

7. Tasks

To facilitate the collection of economic data it is necessary to develop a data collection protocol that all of the agencies would agree to follow. The protocol would establish the following:

- Which agency would collect specific data
- Who would be responsible for oversight of the data collection and ensuring its confidentiality
- How the data would be shared between agencies,
- Ensure adequate data sharing agreements that allow the exchange of disaggregated economic data among the appropriate staff members within the participating agencies, and

[2] It is also the intent of the committee that if current laws prohibit/inhibit the sharing of disaggregated economic data among the appropriate analytical staffs of the agencies participating in this effort, that those laws be modified to allow the sharing of disaggregated economic data.

- The funding sources for the data collection projects.

Defining the basic structure of the data collection process before setting out to collect the data should ensure that the proper data are collected, they are properly stored and maintained, and that they can be used in the most effective manner.

A larger group of economists from the agencies met in July 2001 to develop a list of needs for economic research. That list represents the areas we feel need to be improved. Some of the areas of need that relate to this effort are:

ºPt	Markets
½Pt	Industrial organization
¼Pt	Regional and community economic impacts
¢Pt	Prediction of behavior
²Pt	Economic performance
ⁿPt	Rights based management

It is critical that the process to develop these protocols begins within a relatively short period of time. Currently several fisheries under the authority of the NPFMC, NMFS, and ADF&G are moving towards systems of more rational management. The management system changes being discussed for these fisheries will alter the economics of the industries and communities that rely on them. Without collecting information on the fisheries before these changes take place, economists and policy makers will not be in a position to determine the overall impacts of the programs. Therefore, without an adequate data collection mechanism, the successes, failures, and ability of those programs to meet their objectives may never be truly understood.

8. The Next Steps

If each of the agencies agrees to provide staff support for development of this project, the next two steps towards implementing a mandatory data collection program will be (1) developing a draft Inter-agency proposal fleshing out the mandatory data collection mechanisms and (2) presentation of the proposal to each agency for modification and approval of the concepts.

Should each of the agencies agree to the proposal then efforts will focus on developing the implementation details of the program and the collection of data. These steps will require additional support from a broad group of people with specialized knowledge in the agencies (lawyers, policy experts, and database designers and administrators).

Section 2

Objective Measures, Models, and Necessary Data

Discussion Paper

Prepared for the Crab Data Group

August 19, 2002

National Marine Fisheries Service
Alaska Fisheries Science Center
Seattle, Washington

This discussion paper is based upon the objective measures previously identified by the SSC to monitor the success of the crab rationalization program. It identifies the method or models typically used to construct such measures and the data required to adequately construct them.

The measures identified by the SSC are intended to allow the Council to monitor the success of the crab rationalization program in terms of addressing the five problems currently facing the fishery (as identified in the BSAI crab rationalization problem statement prepared by the Council in June 2002). Those five problems and the summary of the problems facing the Council are as follows:

1. Resource conservation, utilization and management problems;
2. Bycatch and its associated mortalities, and potential landing deadloss;
3. Excess harvesting and processing capacity, as well as low economic returns;
4. Lack of economic stability for harvesters, processors and coastal communities; and
5. High levels of occupational loss of life and injury.

> "The problem facing the Council, in the continuing process of comprehensive rationalization, is to develop a management program which slows the race for fish, reduces bycatch and its associated mortalities, provides for conservation to increase the efficacy of crab rebuilding strategies, addresses the social and economic concerns of communities, maintains healthy harvesting and processing sectors and promotes efficiency and safety in the harvesting sector. Any such system should seek to achieve equity between the harvesting and processing sectors, including healthy, stable and competitive markets."

The objective measures

This paper discusses the economic objective measures that will likely need to be computed, and the corresponding economic data that is needed (some of which must be elicited through the surveys). For a majority of the measures elaborated on below, the required data is discussed in the context of the vessel or plant (and at times, the firm), depending on the measure. Measures that are primarily production based (capacity utilization, productivity, and efficiency) are best constructed with data from the vessel or plant level. Such a focus allows the analyst to more directly identify the link between inputs used to catch or process fish and the quantity of fish or product forms obtained, respectively. Characterizing this link, and how it changes, is a key part in assessing the changes in economic performance that arise under rationalization. However, because the production process of one vessel or plant is at times only one component of the overall business structure, instances arise in which the firm (which may own one or more vessels, plants, or both) is the natural unit of observation.

Therefore, in addition to the individual measures discussed below, ownership data are required to link each piece of the overall puzzle. This data allows one to assimilate the individual effects into the likely "overall" effect of crab rationalization on the residual claimants of the operations we observe on a piece-by-piece basis. It also allows analysts to monitor structural changes not reflected directly in performance- or profit-based measures, such as changes in the concentration of domestic and foreign ownership in the harvesting and processing sectors, the structure of ownership (including proprietorships, publicly traded corporations and privately held corporations), and the relationships both within firms, (i.e., the amount and nature of vertical and horizontal integration) and among firms.

Although vessel-, plant-, or firm-level detail is needed to adequately construct many of the measures discussed below, there are measures for which aggregate (e.g., sector-level) data can likely provide an adequate representation. One underlying problem with using aggregated data for all purposes, however, is that the conditions under which the aggregate data accurately represents the individual firms' production technologies and decisions is quite restrictive. The result is a model with unrealistic assumptions may seriously bias the resulting measures (aggregation issues constitute a large branch of economic theory). Furthermore, if the aggregation is too extreme, the information that can be obtained from a model will not allow the analyst to adequately explain the source or cause of any changes. In other cases, the lack of sufficient number of observations (i.e., data on each vessel, plant, or firm operating in a given time period) may preclude estimation of the model typically used to construct a particular measure. Finally, aggregate data cannot be used to determine whether most fishermen and processors will have benefitted from crab rationalization. For example, aggregate processor profits could increase even though the profits for the majority of the processors decreased. Additional discussion of these issues is provided in the Appendix.

Note that this paper does not provide a discussion of the specific data needed to address problems 1), 2), and 5), as the primary data required is not necessarily "economic" in nature and therefore not requested in the economic data surveys under consideration. However, some of the objective measures discussed for problems 3) and 4), and the data used therein, may be useful in monitoring the success of the crab rationalization program with regard to problems 1), 2), and 5). For example, issues of resource conservation and utilization may be addressed by examining the patterns of spatial and temporal effort and catch given in the trip-level harvesting records. The incidence of ghost fishing mortality can, in part, be inferred by changes in pot losses, which are currently requested on the draft harvesting surveys. Information regarding changes in the likelihood of injury or loss of life may be supplemented by data on the nature of fishing trips that reflects their intensity and duration.

Problems, measures, and data

3. Excess harvesting and processing capacity and low economic returns

Measures:

a) Harvesting capacity and capacity utilization

Data Required: Typically, the analysis of capacity and capacity utilization is based upon the cost structure of the vessel, and examines whether the observed level of catch coincides with the least-cost level, given the capital stock. This process requires one to compile information on all significant variable costs (labor, fuel, bait, pots, etc.), including the price of all variable inputs and the quantities used. A measure of the capital stock is also required, and is often expressed as the dollar value of the vessel and equipment onboard, or with proxies such as vessel characteristics [length, tonnage, horsepower, etc.]). One can then model the relationship between output (total catch, by species) and cost. If production is currently less than the level at which total average costs are minimized, given the existing capital stock, capacity is under utilized (the opposite is true if current output exceeds such a level). Further extensions of the model allow one to directly compute the contribution of the capital stock in production and thus, provide an alternative measure of the extent to which capital is being utilized.

Summary: Variable input prices and quantities purchased, capital quantities, and catch quantities (by species) are required.

b) Processing capacity and capacity utilization

Data Required: The same approach and data requirements would apply in assessing processing capacity and capacity utilization (although the specific inputs used and outputs produced are different). It can be more difficult, however, to quantify the capital stock for processors, as is evidenced by conversations with industry.

Summary: Variable input prices and quantities purchased, capital quantities, and production quantities by species and product form are required.

c) Harvesting sector profit (total revenue - total cost)

Data Required: This measure is comprised of total revenues less total cost. If one wants to understand the source of any change in its value at the most basic level, one needs separate measures of total revenues and total costs. However, without details on total catch, the prices and quantities of variable inputs, and fixed costs, one cannot tell if costs changed due to changes in catch levels, effort (variable input) levels, input prices, or fixed costs. Furthermore, without detail on the quantities sold and prices received, for each species, one cannot tell if changes in revenue are attributable to changes in price or total catch. Thus, without the above information, changes in profit cannot be explained and increased production or cost efficiency cannot be discerned from exogenous market impacts. The data components described above can also be used to construct predictive models that assess the likely change in production patterns, revenues, and costs in response to market shocks and/or regulations.

Summary: Variable input prices and quantities purchased, fixed costs, total catch quantities and prices received, by species are required.

d) Harvesting sector quasi rent (total revenue - total variable cost)

Data Required: The comments expressed in c) with respect to profits apply to quasi-rents as well, except fixed costs are not required for the analysis. Such a focus eliminates accounting for fixed costs that cannot be easily allocated to a specific vessel (or solely to crab operations), and must be prorated across several vessels.

Summary: Variable input prices and quantities purchased, total catch quantities and prices received, by species are required.

e) Processing sector profit

Data Required: essentially the same type of information is required as for harvesters, which is discussed in c) above (with the obvious qualification that the respective variable inputs are likely to be different and revenue data should include product form, by species, quantity produced, and price received).

Summary: Variable input prices and quantities purchased (including fish purchases by species), fixed costs, total production, by species and product form, and prices received for each product are required.

f) Processing sector quasi rent

Data Required: The same comments apply to quasi-rents, except fixed costs are not required for the analysis. Such a focus eliminates accounting for fixed costs that cannot be easily allocated to a specific plant (or solely to crab processing), and must be prorated across several plants.
Summary: Variable input prices and quantities purchased (including fish purchases by species), total production, by species and product form, and prices received for each product are required.

Productivity:

Data Required: The measurement of productivity essentially involves the quantity of inputs required to produce a unit of output. The inputs included in the model should consist of those that directly contribute to the quantity of output one can produce. In the simplest terms, a single-input productivity measure such as labor productivity is computed as the ratio of output to labor hours. These measures are quite limited, however, in that they fail to account for the use of other inputs in production. That is, the ratio of total output to labor hours may have increased over time for a particular plant, but this may be due to increased use of automation (so the decreased labor use has been offset by increased capital expenditures). Therefore, *total* factor productivity measures are preferred, which account for the use of, and substitution among, all inputs in production. Because the contribution (and cost) of a one-unit change in each factor of production can differ widely, each input's share of the total cost of production is needed as a weight when accounting for the changes in input use.

Summary: Direct inputs in production (quantities used and the cost of each), total catch quantities, by species are required.

Efficiency:

Technical Efficiency

Data Required: The measurement of "efficiency" can be undertaken in several ways to identify different notions of efficiency. *Technical* efficiency is similar to productivity in that it relates to the quantity of inputs used to obtain a given bundle of output(s). Essentially, productivity measurement involves computing how the skill with which inputs are converted to outputs progresses (or regresses) over several periods of time, and technical efficiency measurement involves analyzing each firm's relative proficiency in production processes within each period.

Summary: Direct inputs in production and total catch quantities by species are required.

Allocative Efficiency:

Data Required: The measurement of *input-allocative* efficiency pertains to the degree to which one minimizes costs of producing a given level of output by choosing an optimal proportion of inputs, given their relative costs and contributions to production. In more familiar terms, cost savings afforded by eliminating the race for crab are likely to increase input-allocative efficiency. *Output-allocative* efficiency reflects the degree to which one chooses the optimal mix of outputs (here, catch), given the respective market prices and opportunity costs of targeting one species instead of another. Loosely speaking, measures of input (output) allocative efficiency can be thought of as the extent to which one minimizes (maximizes) the cost of (revenue from) a given level of outputs (inputs). Note that one can be input-allocatively efficient and output-allocatively inefficient, or vice-versa. Similarly, one can be technically efficient and allocatively inefficient. The point here is that each measure captures a different aspect of production, and each can be affected in different ways from changing institutional or regulatory environments.

Summary: The quantities of direct inputs in production and their costs, total catch quantities and prices by species are required.

h) Processing sector productivity and efficiency

Data Required: The basic data required to measure productivity and efficiency in the processing sector is the same as in the harvesting sector -- only the definition of direct inputs and outputs changes. See g) I), ii), and iii) for a description of the measures, models, and data.

4. Lack of Economic Stability for Harvesters, Processors and Coastal Communities

The objective measures c), d), e) and f) listed for Problem 3 are well suited to assess the success of the crab rationalization program in increasing economic stability for harvesters and processors. This can be accomplished by examining each vessel or plant's annual profit or quasi-rents, and calculating measures of variation for pre- and post-

rationalization periods. The detail afforded in the data used to construct c), d), e) and f) also allows one to account for exogenous market effects (or varying stock levels) that may affect stability. That is, one can ascertain whether economic stability or viability is more likely in the rationalized fishery (relative to pre-rationalization) when market shocks are prevalent. Stability can also be analyzed by designating vessels or plants into groups of interest (based on size, species composition, regional designation, etc.) and presenting the mean values for the group (along with indicators of the variation within that group) for each year. Such an approach will preserve confidentiality, yet allow for the most accurate and informative measures of stability and the distribution of income among and between harvesters and processors. The following section outlines additional measures that can be constructed -- many of which provide information on impacts to coastal communities, which are not adequately addressed in c), d), e), and f) above.

Measures:

a) Distribution of catch and ex-vessel revenue by vessel class (e.g., length class and type), port of landing, and residence

Data Required: Catch and revenue information, vessel information, and vessel owner information are required.

b) Distribution of processed product revenue by community and processor or processor category (size, ownership, location)

Data Required: Product revenue information, plant and plant owner information are required.

c) Distribution of profits and quasi rents within and between the harvesting and processing sectors

Data Required: The measures computed in c), d), e), and f) from Problem 3 above can be aggregated together in various ways to construct measures of profits and quasi-rents within and between the harvesting and processing sectors. Such an approach would allow analysts to explain any observed changes and facilitate predictive modeling.

d) Distribution of harvester use rights by vessel class:

Data Required: Distribution of use rights by vessel and vessel class information are required.

e) Distributions of harvester and processor use rights by processor or processor category

Data Required: Distribution of use rights by processor and processor category information are required.

f) Seasonality of catch and ex-vessel revenue by vessel class, port of landing, and residence

Data Required: Catch, ex-vessel revenue, vessel class, port of landing, ownership, and owner residence data are required.

g) Processor ownership interest in BSAI crab catcher vessels and harvester QS/catch history

Data Required: Processor, vessel and QS ownership data are required.

h) Catcher vessel ownership interest in BSAI crab processors and processing QS/catch history

Data Required: Processor, vessel and QS ownership data are required.

I) Concentration of domestic and foreign ownership in the BSAI crab harvesting and processing sectors

Data Required: Processor and vessel ownership data are required.

j) Level and distribution of harvesting and processing sector employment and payments to labor (number of individuals, hours/days worked, and income)

Data Required: Harvesting and processing sector employment and payments to labor data are required.

k) Degree of involvement of BSAI crab harvesters and processors in other AK fisheries

Data Required: Processor and vessel ownership data, as well as, catch, production, and revenue data are required.

l) Value of use right

Data Required: Information on the prices of buying and leasing QSs is required.

m) Regional economic impacts (employment and income) of the BSAI crab fisheries

Data Required: Data on expenditures by location and the residence of those involved in harvesting and processing crab, and other regional economic data are required to develop regional economic models.

Appendix: - The need for (disaggregated) observations in economic models

Economic theory is concerned with explaining the relationships among economic variables (e.g., inputs in production, outputs, input prices/costs, and output prices) and using that information to explain, evaluate, and/or predict production, allocation, and distribution decisions. This process typically involves specifying a "model" that characterizes the salient aspects of a particular process or decision. The chosen model defines the general relationships to be examined, and within the model, observed choices, outcomes and factors (i.e., data) are used to provide information regarding the relationships of interest.

For example, one may specify a model of producer behavior that examines the effect of input and output prices on input and output decisions. Within this model, one can establish both the sign of certain relationships (i.e., does an increase in the cost of fuel decrease the quantity of fuel demanded?) and the magnitude or sensitivity of these relationships (i.e., what is the percent change in fuel consumption when fuel prices increase by one percent?). These relationships are established by examining the observed reactions of all the producers in the sample to changes in the price of fuel.

To get an accurate and complete characterization of how firms may react to the price changes, one must observe several choices over the quantity of fuel purchased at various prices. These observations increase the amount of "evidence" substantiating the relationship, and show the relationship over a wider range of conditions (e.g., is the reaction to increasing fuel prices larger when fuel prices are low or when they are already higher than their typical levels?). Furthermore, the quality and reliability of the model increases when one observes the same firm or decision making unit in several periods. Such observations help to establish whether observed choices and relationships are stable, and the extent to which they may change in conjunction with other potential shocks. Therefore, it is widely accepted that "more is better" when incorporating data into models -- as long as the quality of the data is not compromised by extracting more detail.

Fortunately (for both those supplying the data and the analyst tasked with compiling it), statistical tests can be used to evaluate the strength or significance of the estimated relationships, and one typically knows the number of observations necessary to construct a particular model. Assuming that all relevant variables are included in the model, there comes a point at which one can reject the conclusion that the estimated relationships are spurious. Just as with the relationships one attempts to characterize in the model, the tests of significance typically become increasingly conclusive as the number of observations increase. Going in the opposite direction, by say, aggregating data, results in a loss of unique observations from which to characterize and test relationships, and generates a "representative" data set that does not coincide with actual choices.

To elaborate this point a bit, let us go back to our fuel example. Micro-level data (the plant or vessel in our current context) may indicate that "firm one" decreased fuel consumption by 1,000 gallons when fuel costs rose, while "firm two" decreased consumption by 500 gallons. The obvious information here is that the two firms may react differently to input price changes. This would be masked by instead only seeing that total fuel consumption dropped by 1,500 gallons – when in fact no actual decision maker cut fuel consumption by 1,500 gallons in response to the price change. Furthermore, we would not know if one firm is more price-sensitive than the other is, or if the entire change should be attributed to only one of the firms. At the micro-level, we could examine the scale of the two operations and see if firm one's production was twice the second's (and thus, they reacted the same, but total quantity consumed was different due to their differently sized operations), or if their product mix is more varied and they could thus switch to a less fuel-intensive production plan.

It should be fairly clear by this point that the aggregate response postulates a relationship that does not reflect the observed choices, and often eliminates one's ability to say why changes occurred. In addition to this anecdotal example, there is a vast literature on the effects of aggregation across firms and the conditions under which it is valid. Unfortunately, many of the assumptions required do not coincide with reality. For example, to model the cost structure of multiple fishing vessels using data on total catch and the total quantity (and cost) of the inputs used, all vessels in the sample must have identical marginal costs of production. If this is not the case, and one proceeds with the analysis, the model results will be inaccurate and biased by the aggregation. There are several other aggregation-related issues that not only restrict the types of production that can be analyzed in aggregate, but compromise the interpretability of the results from the models that can be constructed.

It is worth emphasizing at this point that the benefits of using firm-level data in models (increased precision, robustness, and validity of estimated relationships) need not be tainted by concerns regarding elicitation of the detail used to construct them. The results of the models can be presented at an aggregate level – as though the micro-level detail was never there. The essential difference, however, is that much more information went into establishing the relationships described by the model, even though the level of sensitive detail shown in the model results is identical. If there is a large enough sample that sub-groups (with similar operating characteristics) can be broken out without threatening confidentiality, the increased precision of the micro-level data allows for much more accurate description, evaluation, or prediction of the subgroup's choices and/or reactions.

Section 3: Other issues associated with implementing mandatory reporting requirements

1. Data Collection Mechanisms

As noted above, the existing data collection programs (e.g., the fish ticket, COAR, crab observer, fishery permit, and ADOL processing sector employment data programs) provide only some of the data required to monitor the effects of the crab rationalization program. Furthermore, they collect data on a less frequent basis than that required for the development of economic models required to monitor and predict economic effects. The other required data can be obtained by expanding the current programs and by establishing additional data collection programs such as log book or periodic survey programs. The cost to the industry and the usefulness of the data are two key criteria for determining what mix of these two methods should be used and how to modify each existing data collection program. A cooperative effort among the management agencies and industry will be required to develop efficient and effective data collection programs. Obviously no change could be made to an existing data collection program without the approval of the agency responsible for that program.

2. Data Verification

During the late 1990s, NMFS staff and representatives of the harvesting and processing sectors of the BSAI groundfish fishery had extensive discussions of economic data collection programs. One issue for which there was general agreement was the need for a process to verify the data provided by the industry. Such a process would provide industry with an incentive to supply accurate data and would tend to increase the confidence that industry, management agencies, and other stakeholders would have in assessments based on that data. Therefore, methods of verification are expected to be developed and implemented. This will also require a cooperative effort among the management agencies and industry.

3. Frequency of Data Collection

The frequency at which data would be collected is expected to vary by type of data. For example, ex-vessel price data are collected for each trip but fixed cost data would be collected much less frequently. The cost to the industry and the usefulness of the data are two key criteria for determining how frequently each type of data should be collected. A cooperative effort among the management agencies and industry will be required to determine how frequently to collect the various types of data.

4. Federal and State Reporting Requirements

It is anticipated that some of the data required to monitor the success of the crab rationalization program will be collected under State of Alaska reporting regulation for the harvesting and processing sectors, and that other data will be collected using Federal reporting regulations. When existing State programs are used to collect data, State regulations would be required. Similarly, when existing Federal programs are used to collect data, Federal regulations would be required. It will have to be determined if the new data collection programs that are required will be State or Federal programs with State or Federal regulations, respectively. Although it is assumed that the expansions of existing data collection programs and the implementation of new data collection programs will be principally federally funded, it is expected that there will continue to be a mix of State and Federal data collection programs. If the new programs are implemented by the State, the existing State statute and data sharing agreement for confidential data would need to be modified to provide access to the new data sources to Council and NMFS staff. If new Federal data collection programs are implemented, the data sharing agreement may need to be amended to provide access to that data by ADF&G staff.

The cost, effectiveness, State and Federal restrictions on data collection programs, and confidentiality are four critical criteria for determining whether new data collection efforts should be administered as a State or Federal program. The plan is to use a cooperative effort among the management agencies and industry to determine what mix of State and Federal programs will be used to collect the data required to monitor the success of the crab rationalization program.

5. Magnuson-Stevens Fishery Conservation and Management Act Considerations

The Magnuson-Stevens Fishery Conservation and Management Act (MSA) contains requirements to monitor the economic and social impacts of fishery management plans (FMPs) and to assess the economic and social impacts of changes to the FMPs. At a minimum, this implies a requirement to collect the data needed to monitor and assess these impacts. However, the MSA also contains data collection restrictions in sections 303(b)(7) and 402.

The relevant language from those two sections with the restrictions highlighted are as follows:

> **SEC. 303. CONTENTS OF FISHERY MANAGEMENT PLANS**
>
> > **(b) DISCRETIONARY PROVISIONS.--**Any fishery management plan which is prepared by any Council, or by the Secretary, with respect to any fishery, may--
> >
> > (7) require **fish processors** who first receive fish that are subject to the plan to submit data **(other than economic data)** which are necessary for the conservation and management of the fishery;
>
> **SEC. 402. INFORMATION COLLECTION**
>
> > **(a) COUNCIL REQUESTS.--**If a Council determines that additional information **(other than information that would disclose proprietary or confidential commercial or financial information regarding fishing operations or fish processing operations)** would be beneficial for developing, implementing, or revising a fishery management plan or for determining whether a fishery is in need of management, the Council may request that the Secretary implement an information collection program for the fishery which would provide the types of information **(other than information that would disclose proprietary or confidential commercial or financial information regarding fishing operations or fish processing operations)** specified by the Council. The Secretary shall undertake such an information collection program if he determines that the need is justified, and shall promulgate regulations to implement the program within 60 days after such determination is made. ....

The former restriction (Sec 303) applies to the Councils and the Secretary; however, the latter restriction (Sec 402) applies only to information collection programs initiated by a Council.

"Economic data" is not defined in the MSA but can be interpreted any number of ways.
Put simply, subparagraph 7 both authorizes and limits the collection from processors of "data...necessary for the conservation and management of the fishery". The phrase "would disclose proprietary or confidential commercial or financial information regarding fishing operations or fish processing operations" is another phrase that can be interpreted broadly like the "economic data". There are innumerable ways to break the phrase apart and try to fit or categorize data in or out of it. There is virtually no helpful legislative history.

Recently at the request of the Council, NMFS promulgated regulations that extended to at-sea processors the requirement to submit groundfish COAR data to the State. State reporting requirements have been in effect for shoreside processors for many years. In reviewing the proposed regulation, General Counsel (GC) had to weigh the phrases above and ascertain if the wholesale price information was "economic data" or "proprietary or operations" data. GC decided wholesale information and the rest of the data collected under the COAR was not exempt from collection.

To ensure that these two data collection restrictions will not prevent the Council and NMFS from obtaining the data required to monitor the success of the crab rationalization program, it probably is necessary to have Congress explicitly provide to the Council and NMFS the authority to collect the types of data discussed in this discussion paper. The Congressional action could include one of the following

(a) Eliminate these restrictions.

(b) Eliminate these restrictions, require the Council to collect the data required to monitor the effects of the crab rationalization program, and increase the protection provided for confidential data received by NMFS.

(c) Eliminate these restrictions, require the Secretary to collect the data required to monitor the effects of the crab rationalization program, and increase the protection provided for confidential data received by NMFS.

In addition, Congress could help ensure that the data required to monitor the success of the crab rationalization program are available in a cost effective manner by providing NMFS limited authority to access information collected by other Federal agencies. One example is the ownership information collected by the Maritime Administration

6. Confidentiality

Protecting the confidentiality of the economic data collected to monitor the success of the crab rationalization program is a very high priority for the management agencies and the industry. Although the MSA, other Federal law, and State law provide substantial protection for such data, methods for providing additional protection should be considered. Those methods could include strengthening existing laws and having some of the data collected by the Bureau of the Census, which has additional legal protections for confidential data. The decision as whether to use State or Federal data collection programs could be made in part based on which alternative provides the greater protection for confidential data.

7. Scope of the Data Collection Programs

The following topics are addressed in this section: (1) the need to collect sufficiently detailed economic data on harvesting and processing activities both before and after the crab rationalization program is implemented; (2) the need to collect economic data for all of the economic activities of the firms participating in the BSAI crab fisheries; and (3) the required level of detail of the economic data.

How Many Years of Data

In order to monitor the success of the crab rationalization program, it will be necessary to collect economic data for one or more years preceding program implementation. This data would provide a benchmark that would allow for “before and after” comparisons. Different data collection mechanisms

may be appropriate for the pre-implementation data and post-implementation data, unless the data collection can be put in place one or more years before the crab rationalization program is implemented. Once the program is implemented, ongoing data collection programs will be required to allow periodic assessments of the success of the crab rationalization program and to identify ways to make the program more successful.

Economic Data for All Fisheries

The effects of the crab rationalization program will depend not only on how it affects economic activity in the BSAI crab fisheries, but also on how it affects the economic activity of BSAI crab fishing vessels and processing plants in other fisheries. Therefore, the success of the crab rationalization program cannot be fully assessed without data for the full range of fishery activities of those vessels and plants.

Required Level of Detail

The level of detail that is required naturally depends on intended uses of the data. At the very minimum, analysts will require the data necessary to construct the objective measures discussed in this discussion paper. Such a level of detail will allow analysts to show how the objective measures may differ in the pre- and post-rationalization periods, but will not allow them to: (1) determine which changes were principally the result of the crab rationalization program, as opposed to other external factors or (2) predict the changes that would occur over time with the crab rationalization program as initially implemented or with proposed changes to the program after it is implemented.

Section 4: Additional issues concerning data collection

Between the April and June 2002 Council meetings, informal discussions were held with members of the agencies involved in crab management and the fishing industry regarding the collection of economic data. While these meetings did not define a complete program to collect economic data for the BSAI crab fisheries, they did provide insights into the types of data that would be required and some of the concerns members of industry have with providing the data. These issues are discussed in more detail in the remainder of this section.

Data are proposed to be collected from shore-based processors, harvesters, catcher/processors, and floating processors (floaters). A distinct data collection procedure would be developed for each of the four industry segments listed. The goal of the program would be to collect the data that are needed by analysts to study the impacts of the crab rationalization program in addition to collecting the data that would be needed for future BSAI crab FMP amendments.

Summaries of the data that were proposed to be collected are provided in Appendix 3-8. A separate list was generated for each of the four industry segments (i.e., shore-based processors, harvesters, catcher/processors, and floaters. These lists were developed by using the surveys constructed for harvesters and processors by the North Pacific Crab Association. Their surveys were expanded to create the lists attached in Appendix 3-8.

Preliminary meetings with some members of industry have allowed them to express concerns over specific aspects of the data collection program. Foremost on their minds were concerns over who would have access to the data and how enforcement would react to data that were submitted and later determined to contain errors. These two issues will be addressed first; then other topics discussed during the meetings will be presented.

Protection of Confidential Data Members of the fishing and processing industry have indicated that before data are collected there must be regulations established that protect the data from being released for reasons other than the purposes for which it was collected. Individuals have stated that in the past data have been provided to agencies on a voluntary basis. Those data were then forced to be released, through court proceedings, and used in lawsuits against the companies that provided the data. Because of such incidents, members of industry feel it is imperative that laws are in place which preclude the data from being used by individuals that are not intended to have assess to the data. Authorized agency staff from NMFS, ADF&G, and NPFMC are currently defined as the primary users of these data. Other users would include individuals that are contractors of the above agencies that are conducting research associated with the BSAI crab fisheries. Examples include agencies like AKFIN or PSMFC that are involved in maintaining and supplying data to other agencies. University faculty conducting research for one of the above agencies would also be envisioned as users that would be given access to these data. The release of these data outside of the primary users or for other purposes would be strictly regulated. NMFS has stated that protecting the confidentiality of the data will be one of its highest priorities.

NOAA GC will need to be involved in the development of laws designed to protect the data being collected so that the data are collected under an appropriate statute. Their input will help ensure that the goals set out for the protection of these data are strictly adhered to by all agencies. Until legal advice is received, it is not possible to address the specific laws that need to be added or modified.

Other laws will require modification to allow the collection of these data. Those issues were addressed in earlier sections of this document.

Ensuring Data Accuracy Regulations need to be developed in order to ensure the accuracy of data being provided and protect the suppliers of the data from fines or other penalties when good faith efforts were made to supply accurate data (even though errors may be found). To help protect both the providers of the data and the agency collecting the information, a review process could be established to ensure the data being submitted is accurate. This could be accomplished through a review of the underlying information by an auditor. While the review of the data would not likely be an official "audit" in the accounting sense of the term, it would be an established procedure that could be used to verify the accuracy of the data being submitted.

Input from certified public accountants was solicited when NMFS was developing the pollock data collection program. Knowledge gained from that processes could be used as a starting point from which procedures for verifying crab data could be developed.

The second concern with the accuracy of data being submitted deals with the enforcement/laws under which the data are collected. Members of industry are concerned that fines or jail time could result from accidental submission of incorrect data. If a firm's data are determined to contain errors, a mechanism for correcting the problem must be in place. If it is determined that the data were willfully and purposely submitted in error, enforcement proceedings against the firm should be initiated. In cases were there was no intent to misrepresent the activities of the firm, corrections to the data should be made without imposing sanctions against the firm that submitted the inaccurate data. It will be up to legal experts to develop regulations that accomplish the desired result.

Other Issues Several other issues that industry members felt were important to consider during the data collection process were discussed during the meetings. Those issues are listed below and each is then discussed briefly.

1. Some cost data are not solely assigned to crab production.

2. The cost of borrowing money is different depending on its source (i.e., CCF funds vs bank loans).

3. Industry needs to understand why collection of the data are important and how it will be used.

The first issue raised by members of industry is that not all costs are specific to the crab fisheries. Obtaining an accurate description of costs will require that these costs are somehow divided among the appropriate fisheries. For example, a processor that produces both crab and pollock may purchase permits, land, equipment, or labor that is used in both fisheries. The costs associated with those inputs must be apportioned among the two activities to estimate the expenditures associated with crab production.

There are a variety of ways the costs could be apportioned among activities (based on value, volume, production time, etc.). Selecting the best method for dividing the costs among the various operations of the firm will require a cooperative effort of the analysts and industry.

The next issue of concern pertained to the cost of borrowing money. Fishermen can often access loans at lower rates than are available in the open market (CCF funds are an example). Understanding the impacts of being able to access money at a lower interest rate was felt to be important in the crab fishery, where owners require substantial amounts of capital to purchase vessels and gear.

While other issues were raised during the meetings with members of industry, the last issue that will be addressed here is the importance of providing an understanding of why the data are needed. The earlier section on data collection in this analysis, provided by NMFS, provides a good discussion of why the data are needed. In addition to that discussion it is important to look at the Council's problem statement for the crab rationalization issue to understand why these data are needed.

DRAFT

Minutes from the July 25th Meeting of the Crab Rationalization Data Collection Workgroup.

The following individuals were in attendance for the meeting. Note that members of the workgroup that were appointed by the Council are listed with an asterisk next to their name.

Glenn Reed*	Mark Fina
Kevin Kaldestad*	Darrell Brannan
John Garner*	Dave Colpo
Gary Painter*	Ron Felthoven
Doug Wells*	Joe Terry
Terry Leitzell*	Jeff Harman
Tom Casey	
Margaret Hall	

Terry Cosgrove and Joe Plesha are also members of the workgroup, but were unable to attend this meeting.

John Garner and Gary Painter were elected as co-chairs of the workgroup. Co-chairs were elected to help provide a balance between the harvester and processor interests as the data collection process moves forward.

Mark Fina provided an overview of the current time lines for completing the analysis of the crab rationalization program. The goal of the workgroup is to have the analysis of the data collection aspects of the program included in the analysis when it goes forward for initial review. That will likely occur in December. To meet that timeline the program will be presented to the Council in October when it reviews all of the trailing amendment packages. The Council would then be on a schedule to take final action on the crab rationalization EIS/RIR/IRFA in April of 2003.

Considerable discussion and comments occurred on the structure, detail, and definitions used in the draft surveys developed by the NMFS Alaska Fisheries Science Center for the crab fisheries. Ron Felthoven will be responsible for incorporating the workgroup's comments into a revised draft of the surveys that is to be available for review at the next meeting.

The workgroup provided several comments regarding the need for additional information and the structure of that data collection system. Major points from the group's discussion were:

1. Industry suggested that historical data over a longer period of time (such as five years, or back to 1997) would be more meaningful compared to the two years

prior to implementation of the data collection program that was initially suggested. The two years prior to implementation were years when the GHLs were low and several fisheries were closed, and therefore may not be representative of a participant's historic fishing activities.

Data for the longer time period should be accessible to most harvesters that use computers in their operations and processors so long as they could refer to internal company summaries and recaps for the data. If source documents were required for processors to access the data, then it may not be possible to supply the data with the accuracy requested, and the data may be very expensive and cumbersome to produce.

The collection of historic data should be mandated by Congress to ensure that the data can be protected from unauthorized access. It would also help to ensure that all members of the crab harvesting and processing industry comply with the program. Currently NMFS cannot mandate the collection of data from past fishing seasons, such a mandate would require Congressional authorization.

2. NOAA GC and the State of Alaska Attorney General's office should provide a side-by-side comparison of how data could be protected under their regulatory structure when data are submitted to a third party, under a mandatory data collection program, and under a voluntary data collection program. This discussion should also include a discussion of the various State and Federal rules governing the release of confidential data. Industry attorneys noted that under the current interagency data sharing agreement between NMFS and ADF&G, the agreement, by itself, is not sufficient to protect FOIA requestors from accessing confidential ADF&G data. Though the ADF&G data is collected under a mandatory State data collection system there must be some form of sufficient Federal law requiring protection of this type of data from FOIA of federal records. It was not determined at this meeting if any such protective federal laws exist. Darrell Brannon agreed that he would forward some questions to NOAA GC and Kevin Duffy. This would aid in answering these legal questions. If Federal law does not provide adequate protection of data supplied by ADF&G, the committee may recommend measures to correct that deficiency.

3. NMFS enforcement should provide a report on the penalties that will be imposed when errors in the data are found. This would include errors that are deemed to be inadvertent as well as intentional misstatements of data.

4. A discussion of whether the aggregation rules of 3 (used by NMFS) or 4 (used by the State of Alaska) are the proper rules to use when reporting the economic data collected under this program. We should develop alternative rules that better protect these data - if additional protections are needed.

5. A single method to allocate fixed costs should be selected. Members of industry have suggested using purchase dollars, sales dollars, purchase pounds, finished

pounds, operating days, or relative labor costs. The method selected should be used throughout the life of the data collection program to allocate fixed costs. The government agencies support the collection of certain verifiable data on fixed costs that is required to address crab rationalization policy questions developed by the Council. Particularly, they agree that fixed costs would lend themselves to determining the distributional impacts and indirect effects of crab rationalization. The method to be used for allocating these fixed costs should be determined for the specific application by the agencies, with careful consideration of input from the industry. The allocation method may depend on the policy question being addressed. If industry is requested to supply information on allocation of fixed costs, a specific method should be specified by the data collection agencies throughout the life of the data collection program.

6. The persons that is responsible for the fishing operation and processing operation would be responsible for filling out the cost surveys and the person that leased the QS would be responsible for reporting the amount of revenues generated from the lease. Depending on the roles skippers play in harvesting their IFQ, they may need to respond to one or both surveys.

7. The cost of repacking crab needs to be captured in the surveys.

8. CDQ crab needs to be accounted for in the surveys filled out by both harvesters and processors.

9. Processors cannot assign labor costs by month. Those costs can be more accurately assigned by fishing season.

10. The issue of whether revenue information needs to be collected on sales that were made to related firms, or whether it would be more appropriate to collect only revenues from sales that were made to unrelated firms needs to addressed. Some believe that transfers that occur within a company may not result in a credit to the processor equal to the true market price. Therefore, it may be more appropriate to apply the average price of the transactions that occur between unrelated firms to the sales of crab that take place within a firm. Others believe that sales data should not be categorized by whether the transaction was between a related or unrelated party. Current US law and corporate practice is to state a revenue amount for related party transactions based on market value, and there is therefore no need for separate data categories of this nature.

11. The draft surveys should identify whether the information asked for in a particular question could be obtained from another source that already collects the information. That source should be identified. The public agencies agree that collection of duplicate information should be minimized, except where some duplicate identifier variables are needed (e.g. vessel ID, permit number).

12. Ownership information will need to be collected, as it is essential for determining the benefits, costs, income and distributional effects of the program

13. This program will focus on the crab fisheries with minimal information being collected for other fisheries.

14. Existing data sources should be used to the extent possible

15. Why is economic data being collected only from the crab fishery participants? Other fisheries, such as pollock, sablefish, and halibut have been rationalized but participants in those fisheries have not been required to submit comparable data. Members of the committee also questioned why the crab fishery participants have to provide revenue data from non-crab sources.

16. Ongoing communication is needed between the agencies and industry members to ensure data quality as well as proper use of the data.

17. The uses of data should be identified. The planned uses should be identified early on in the process. *(Note that a partial answer to the question is that the data are needed to address the Council's problem statement and the objective measures identified by the SSC at the request of the Council.)*

18. Industry representatives recommended that the data collection portion of the program should not hold up implementation. Representatives of the public agencies offered no specific confirmation that implementation of the program would not be delayed without the necessary data collection.

19. Trip level data would be submitted on an annual or seasonal timeframe.

20. Problems with a consistent pre and post rationalization identification of the entities on the harvester side (what is the firm?) were discussed with no final resolution. As the primary intent of the Council seems to be the determination of pre and post distribution of quasi rents and other distributional effects, this objective is complicated by the fact that the definition of a harvesting entity is going to change under rationalization. Under the present regulated access condition, the entities are (1) vessel owners, (2) CFEC permit holders and (3) owners of LLP licenses. After rationalization, the owners of QS, may no longer be LLP qualified, if they buy quota. However vessels will still need to be tracked, as will permits issued by the CFEC. A plan for tracking a single set of entities through the structural changes anticipated in the program is needed.

Finally, a list of assignments was made at the end of the meeting. Those assignments were as follows:

1. Glenn Reed would develop a list of questions for NOAA GC and the State AG regarding protection of confidential data.

2. Ron Felthoven would rework the questionnaires given the input from this meeting as well as additional comments that will be emailed. The revised questionnaires will be available the week of July 29th.
3. John Garner will develop a short discussion regarding the issue of related party transactions
4. Gary Painter will provide a blank copy of his vessel summary sheet. John Garner will try to provide similar information from the processors.

The next meeting is scheduled for August 7th at 9:00am.

DRAFT

Minutes from the August 7th Meeting of the Crab Rationalization Data Collection Workgroup.

Participation:

The following individuals were in attendance.

Glenn Reed*	Mark Fina
Kevin Kaldestad*	Darrell Brannan
John Garner*	Lew Queirolo
Arni Thompson	Ron Felthoven
Doug Wells*	Joe Terry
Margaret Hall	

The following individuals were linked to the meeting via teleconference

Dave Colpo	Jeff Passer
Tom Casey	Tom Meyer
Jeff Hartman	
Gary Painter*	

* Indicates official members of the workgroup that were appointed by the Council

Terry Cosgrove, Terry Leitzell, and Joe Plesha are also members of the workgroup but were unable to attend this meeting.

Meeting Summary:

Jeff Hartman provided several suggested changes to the minutes from the July 25th meeting of the workgroup. Those changes were accepted by the workgroup and those changes will be made to the minutes from that meeting.

Ron Felthoven provided a review of the changes that have been made to the surveys since they were reviewed at the July 25th meeting. A brief summary is as follows:

1. Costs that are collected on an annual basis were broken up into three categories, based upon the way they could be allocated: vessel-specific crab costs (those that need no prorating), vessel-specific costs (those that only need to be prorated among a vessel's crab and non-crab activities), and vessel-related costs (those that must be prorated among multiple vessels and among crab and non-crab activities). The same was done for processing plants.

2. Historic surveys were changed so that the most temporally specific information was at the "fishery" level (rather than trip- or week-level data).

3. Cost categories were added for freight and broker's fees.

4. Line-level detail was excluded from all processor surveys

The workgroup requested that in the future Ron track the changes made on the survey to aid the reviewers in understanding the exact changes that were made.

After Ron provided a brief overview of the major changes to the document, the group went over the processing sector surveys line-by-line. That review of the surveys yielded the following opinions by the members of the workgroup and others in attendance:

1. Use of the Federal Tax ID to track firms is not a good method. There was concern expressed over the usefulness of the Tax ID as well as how it would be used. The analysts indicated that it was not their intent to link the number to tax records. Instead it was considered to be an identifier that could be used to track a taxable entity. After that discussion it was recommended that the Tax ID be dropped as a means to identify entities.

2. The industry members of the workgroup suggested that the COAR be used to track dependence in other fisheries. They felt that the COAR is a verified annual census of all processors in the State of Alaska. Gaps in the COAR data that may exist in the offshore sector should be addressed instead of requiring all processors to file another survey that addresses their participation in other fisheries.

3. Members of the workgroup and agency staff members have struggled with selecting the best method for determining the value of the plants and vessels operating in the BSAI crab fisheries. Insured value has been suggested as a method, but rejected because of the different philosophies owners may use when setting the insured value. It was also suggested that the insured value might change after quota shares are issued. Estimated market value less depreciation was also suggested. That figure was also considered to be too hard to estimate consistently. Ultimately it was suggested that the government hire a surveyor to set a consistently estimated value for each of the plants and vessels.

4. The industry members of the workgroup next inquired as to the purpose for collecting workers SSNs. Agency staff indicated that the SSNs would be useful in determining the total number of people employed, as well as movement of those individuals as they change jobs. Members of industry indicated that supplying SSNs might be difficult for the historic time period. They also felt that going back in time would increase the likelihood that reporting errors will occur. Industry members also indicated that if SSNs are only going to be used to determine the total number of employees, then SSNs are not needed and a question asking for the total number of employees should be asked instead.

Going forward in time is not expected to present as much of a problem. Industry members also indicated that assigning some workers to an activity would be difficult for both historic and future surveys.

5. Members of the workgroup indicated that if the survey asks for separate information on sales to related and unrelated firms the survey should use the Council's definition of "related firms". Firms that sell crab have also indicated that they believe sales to related firms represent a fair market price. Ultimately industry recommended that we do not separate sales to related/unrelated firms.

6. It was noted that the terms of sale are important to understanding the reported sales price, but they will not be captured in the survey. Terms of the sales were considered too varied to collect in a survey.

7. The workgroup received a short presentation from Tom Meyer (NOAA GC) and Jeff Passer (NMFS Enforcement). Tom discussed, in general terms, issues relating to protecting the confidentiality of the data and changes in statute that are needed to collect the data. A list of question that was developed for NOAA GC is included under the "Other Assignments" section. That list will be forwarded on to Tom so he can provide guidance ASAP. Jeff provided a general discussion of how the program would be enforced. However, the program needs to be fleshed out before a detailed description of the enforcement program can be provided.

Considerable time was also spent going over why the detail asked for in the surveys is necessary. It was decided that Ron Felthoven would provide a short summary of why each of the data pieces are needed in the form they are requested. This will be available at the next meeting.

Several other changes to the survey were also suggested. Ron will incorporate those changes in the next draft of the surveys that should be available at the August 20th meeting of the workgroup.

Other Assignments:

John Garner volunteered to provide a short discussion on the issue of sales to related and unrelated firms.

John Garner and Glenn Reed will report back to the workgroup on whether it makes sense to ask for sales to domestic versus foreign markets. Darrell Brannan will provide information on export data that is currently being collected by the Federal government.

Ron Felthoven will provide a discussion of why detailed data (as proposed in the surveys) are needed to perform economic analyses. This discussion may also include information collected from other industries that have exclusive use rights to Federal resources (timber and land for example).

Ron Felthoven will revise the surveys based on input at this meeting. The revised surveys are expected to be available for use at the next meeting.

Darrell Brannan will provide a discussion on how entities will be tracked pre and post implementation of the crab rationalization program.

John Garner will look at the cost categories in Sections 6.1, 6.2, and 6.3 of the survey to ensure that the list includes the appropriate items.

Darrell Brannan will provide the following list of question to NOAA GC so they can provide the workgroup guidance on the issues.

1. Under what circumstances can the data collected under this program be legally protected?
2. What statutory and regulatory language would be suggested to best protect the data from being released do to FOIA or court order?
3. Can we require that SSNs be provided as part of this data collection program?
4. Can the data be better protected if they are submitted to a third party (i.e., PSMFC)?
5. Is sharing of this type of economic data covered under the current MOUs between NMFS and the State of Alaska?

DRAFT

Minutes from the August 20th Meeting of the Crab Rationalization Data Collection Workgroup.

Participation:

The following individuals were in attendance.

Terry Cosgrove *	Mark Fina
Kevin Kaldestad*	Darrell Brannan
John Garner*	Lew Queirolo
Arni Thompson	Ron Felthoven
Terry Leitzell *	Joe Terry
Margaret Hall	Jeff Hartman
Gary Painter*	Tom Casey
James Mize	

Tom Meyer of NOAA GC was linked to the meeting via teleconference.

* Indicates official members of the workgroup that were appointed by the Council. Glenn Reed, Doug Wells, and Joe Plesha are also members of the workgroup but were unable to attend this meeting.

Meeting Summary:

The meeting started with a discussion of the purpose of the workgroup and what the end product of these meetings should be. It was noted that output from this group would be given to the Council in the form of their meeting minutes. In addition, it is expected that the products of this workgroup would be incorporated into the trailing amendment that is being developed for the Council's October 2002 meeting.

Concern was once again expressed regarding the level of detail that is being asked for in the surveys. It was also noted that some of the data potentially being required may not be collected given the constraints on data collection currently in the MS Act.

One person thought that perhaps the focus of data collection should be on fisheries that are more profitable than crab (pollock was suggested). The suggestion was noted, but was thought to be outside the scope of the workgroup's assigned task and was not discussed further.

Ron Felthoven presented his discussion paper on why firm level data are being requested, the need for disaggregated data, and the importance of collecting sufficient observations to conduct research that offers information on statistical significance.

Members of the workgroup asked that the agencies represented discuss the rules for data sharing within and among their organizations. The NMFS and ADF&G data sharing agreement was distributed to the workgroup. Each agency also discussed the internal methods used to ensure data are maintained in a confidential manner. Each agency uses a slightly different method. The Council and NMFS require each employee to sign a form stating that they must prevent the release of the data except in aggregate form or they can be held liable. The methods used to protect data held by the State of Alaska likely vary by agency. However, it was indicated that members of ADF&G staff were not required to sign a special form solely to access confidential data. However, it is clearly understood that release of the data is prohibited except to approved users. It was also stated that some data may be more widely used within the agencies that others. A suggestion was then made that if the workgroup wishes to make a statement regarding who should have access to the data they should provide that to the Council as part of their report. A small working group was then formed to develop a discussion paper on confidentiality of the data. That paper will be presented to the Council's workgroup at their September 5th meeting.

Enforcement would have access to any of these data unless they were precluded through statue or regulation.

Additional questions were raised regarding whether the staffs of the Oregon Department of Fish and Wildlife and the Washington Department of Fish and Wildlife would have access to these data. It was indicated that under the current data sharing agreements they would not has access to the confidential data, but could be provided summaries that are not confidential. New agreements would be required before they could access the confidential data.

Potential advantages and disadvantages of submitting data to a third party and having them assign a unique code to identify the individuals and firms was also discussed. The purpose would be to help protect the confidentiality of the data. It was noted that even using codes for names it would still be possible (at least in some cases) to identify the firm using existing data sources.

Staff members from the agencies that would use these data thought that only having access to a code should not present substantial problems in their work, as long as the information could be linked to other data sources such as fishtickets and the COAR.

The workgroup discussed whether information to estimate profits is needed or whether information used to estimate quasi-rents (revenue less variable costs) is adequate. Because of problems assigning fixed costs across the entire operation and the inaccuracies that could be introduced, it was felt that quasi-rents may be a better indicator of changes that take place in the crab fisheries.

Ron presented a short discussion of how changes in capacity and capacity utilization can be estimated. There was some confusion in the difference between capacity and efficiency, so a discussion of those terms in an economic sense was also provided.

Members of the industry indicated that it makes more sense to collect data on a seasonal basis rather than trip-by-trip. Most firms retain data on seasonal basis. Forcing them to allocate costs to a trip could introduce inaccuracies. It was generally agreed that this would be acceptable.

A discussion of how a season might change after rationalization followed. Industry members pointed out that after rationalization trips would likely be taken to harvest multiple species of crab. Cost of harvesting a specific species of crab on a trip might then be muddled even further.

The group discussed that it may be possible to obtain information regarding harvest crew using the numbers issued to them in the crew license files and the CFEC permit file. Members of industry noted that they expect the number of crew size per vessel to decrease by about one after rationalization.

Ron provided a summary of the revised surveys. The workgroup provided input on changes to be made. Those will be incorporated into the surveys for the next meeting.

Jeff Hartman will provide his comments on where data requested in the surveys can be found in other sources to Ron. That information can then be incorporated into the revised surveys where necessary.

Tom Meyer provided two handouts to the workgroup. The first was a response to some of the questions[1] asked of NOAA GC at the last meeting. The second was a copy of NAO 216-100 regulations that define the "Protections for Confidential Fisheries Statistics".

Tom indicated that in his opinion the "Reciprocal Data Access Agreement" between NOAA, ADF&G, and CFEC should be reviewed to ensure that data collected under this program are adequately covered by that agreement. Substantial time may be required to rework that agreement.

Assignments from the meeting

John Garner, Gary Painter, and Terry Leitzell will develop a paper related to the issue of confidentiality. That paper will be presented at the next meeting on September 5th.

Ron will redraft the surveys given input from this meeting.

Darrell Brannan will provide the following list of questions to NOAA GC so they can offer the workgroup and Council guidance on these issues.

[1] They included (1) Under what circumstances can the data collected under this program be legally protected? (2) What statutory and regulatory language would be suggested to best protect the data from being released do to FOIA or court order? And (3) Better protection of data submitted to a third party.

6. Can NMFS require the submission of cost and earnings data if the Council is precluded from requiring that information?
7. What legislative language would best protect the data submitted under this program?
8. Under what circumstances can the data collected by a third party be accessed by (a) the public or (b) NMFS or the Council?
9. Review the “Reciprocal Data Access Agreement” to ensure it covers data collected under this program.

DRAFT

Minutes from the September 5th Meeting of the Crab Rationalization Data Collection Workgroup.

Participation:

The following individuals were in attendance.

Terry Cosgrove *	James Mize
Kevin Kaldestad*	Darrell Brannan
John Garner*	Lew Queirolo
Arni Thompson	Ron Felthoven
Terry Leitzell *	Joe Terry
Margaret Hall	Tom Casey
Doug Wells*	

Gary Painter*, Jeff Hartman, Mark Fina, Kurt Schelle, and Tom Meyer of NOAA GC was linked to the meeting via teleconference.

* Indicates official members of the workgroup that were appointed by the Council.

Glenn Reed and Joe Plesha are also members of the workgroup but were unable to attend this meeting.

Meeting Summary:

The focus of the meeting was to provide the catcher vessel, catcher/processor, and processor sectors the opportunity to present their proposals regarding what data should be collected by the Council to meet the objectives outlined in the June crab rationalization motion. Representatives of the committee provided papers describing their position to the members of the workgroup prior to the meeting. Those papers served as the starting point for each sector's presentation.

Members of the industry workgroup were in general agreement that they would rather supply additional data to a third party rather than supplying less data to an agency that could be linked to existing data sets (i.e., fishtickets, vessel registration files, COAR, etc.). They felt that supplying additional data in a "blind" format would result in them incurring higher costs to meet the requirements, but it would provide greater protection for their confidential data. Given the trade off, and their concern that these sensitive data be closely held, they would prefer to spend additional money with the expectation that it would help to ensure that their confidentiality is maintained.

Representatives from the public agencies provided some initial thoughts on potential problems with the use of an independent agency for creating blind data sets.

1. Costs to the public agencies as well as industry would increase because third party suppliers would need to become experts in all State and Federal data sets, to be able to be able to supply meaningful data. Blind identifiers would need to be developed for all existing data sets that would be merged to construct a set of observations for statistical analysis.

2. Identifiers for any new data sets collected after the program was in place, that were deemed to have useful economic data, would need to be provided to the third party, and a set of blind identifiers would need to be generated.

Finally, creating a truly blind data set, might not prevent a knowledgeable analyst with access to the State vessel file, permit file, and fish ticket file from identifying entities that industry wishes to protect. Unless restrictions were placed on the use of data in this way the third party system may offer less protection than anticipated by industry.

A discussion of the need for information on the quantity of inputs purchased was also held at the meeting, since the position papers generally only referred to input costs. Agency staff indicated that quantity and cost information was needed to understand efficiency changes. Members of the industry recognized the economist's need for quantities purchased, but no consensus among all sectors of the industry was reached in terms of providing those data. That issue will likely be discussed at future meetings of the industry.

Two other types of data that were excluded from the industry proposals were expenditures by location and plant or vessel specific annual costs. Without those types of data some objective measures of the success of the crab rationalization program cannot be generated

Gary Painter was first to presented the views of the people he represents. His presentation started by indicating that in their view (his constituents) the data being requested was "proprietary, confidential, and financial in nature". Further they felt that harvesters never agreed to provide these data as part of the crab rationalization "deal". Mr. Painter also indicated that several people that he has spoken to resent being singled out for data collection. They feel that participants in other rationalized fisheries (such as pollock, halibut, and black cod) were not required to submit similar types of data when they were rationalized, and the crab fishery should not be the only group required to provide this type of information.

Mr. Painter felt that no additional economic data are needed because a binding arbitration program based on the division of first wholesale revenues will help ensure fair ex vessel crab prices. If the binding arbitration program needs to collect cost/revenue data, he suggested it should be collected by a third part and not be made available to agency personal.

In summary, Mr. Painter's paper proposed that the fishticket program continue to collect

information on crab harvests and that ownership information be collected to enforce the caps outlined in the crab rationalization program. If additional information is requested by the Council (they recommend that it not be requested), then information should be submitted to a third party and supplied to agency staff with only coded identifiers (blind data) to enhance confidentiality. They also requested that the written data sharing agreement between the Council, NMFS, and ADF&G be reviewed and updated if necessary. Finally, they felt that the standards and penalties for unauthorized release of the data should be uniform across all the agencies that are allowed to access the data.

Kevin Kaldestad present a proposal developed by the Alaska Crab Coalition (ACC). Under that proposal catcher vessels would supply variable cost data, revenue data, employment data, and ownership data, but are concerned about the level of detail being requested in the surveys that have been developed in the workgroup to date. The people represented by the ACC also requested that any new data being collected be submitted to a third party to help protect the confidentiality of the data. The ACC recommendation stated that variable costs and revenues could be used to estimate quasi-rents (variable costs - revenue), and that level of information is adequate to address the mandate of the Council. Including fixed costs in the survey would require the apportioning of fixed costs among a firms crab operations and that could introduce inconsistencies in the treatment of the data. Those inconsistencies were listed as a primary concern in the ACC proposal in terms of collecting and using fixed cost data.

Ownership data was proposed to be provided at a level similar to that used to monitor the halibut and sablefish IFQ program and the BSAI pollock fishery. The ACC proposal was in agreement with the proposal from Gary Painter in that the interagency MOU for data sharing should be revised where necessary to protect data from unauthorized release. Their proposal also stated that legislative language should be developed to further protect the confidentiality of the data.

The ACC proposal recommended that variable cost and revenue data be provided on a fishery-by-fishery basis. Employment data would also be provided and it would include the name, state of residence, and SSN of each crew member. Variable costs would be provided for (1) fuel, oil, and hydraulic fluids (2) insurance (3) crew costs (4) bait (5) fishing related taxes (6) observer costs and (7) miscellaneous costs. The ACC proposal, as written does not provide any information on the quantities of variable inputs. As stated earlier, there was a discussion with the agency staff of the need for this information to explain any observed changes in the industries' cost structure.

Finally, the ACC proposal stated that historic data would be collected for the years 1999-2001. Members of industry indicated that they would review the years to be included in the data collection program at their next meeting. Therefore, the years listed in the ACC report may be subject to change.

Doug Wells presented the catcher/processor's perspective on data collection. Mr. Wells stated that the catcher/processor data submissions would likely be a synthesis of the catcher vessel and processor requirements. Like the ACC proposal, the

catcher/processor's proposal did not provide any information on the quantities of variable inputs. He noted that about eight catcher/processors are currently operating in the crab fisheries and they are heterogeneous in their operating characteristics.

The catcher/processors indicated that they would prefer to supply data to a third party to help protect the confidentiality of the data. They would prefer providing "blind" data, even if it requires them to submit more information, rather than information that can be linked to existing data sources. They also recommended that data should only be collected to the level of variable costs. Fixed costs should not be collected as part of this program. Their statement also implied that they would be willing to supply information on vessel ownership as well as employment information. Finally, they indicated that they could "live with" the survey that has been prepared by Ron Felthoven for the previous workgroup meeting.

John Garner presented the processor's proposal. The processors felt that they faced many of the same issues that were concerns expressed by the catcher vessel representatives.

The processing sector indicated that they are willing to supply ownership data. They felt this information is appropriate and should be supplied at a level similar to that collected to monitor consolidation in the halibut, sablefish, and pollock fisheries. Employment information would also be provided. They are willing to provide wage information for direct labor associated with the processing of each crab species, including SSNs for those employees. Processors are also willing to provide revenue data by size and grade for each species (and associated information) that would allow revenue to be stated on an FOB Alaska basis. Cost data would be supplied for the direct production costs of each crab species (variable costs). They do not believe that non-variable costs are needed and cannot be allocated to various fishery activities in a uniform, consistent manner, and that therefore the data would have little use to the council. Processors also believe that there is no justification in the Council's motion to collect information beyond the crab fisheries. They also believe that redundant information should not be collected if it is available (and can be linked to the data that is being collected).

In terms of how the data will be provided, the processors felt that data should be submitted to a third party. The processors would prefer to submit aggregate data to the third party but understand that this may not allow the analysts to conduct rigorous analyses. Therefore, they would like to explore the feasibility of the third party providing only aggregated to the agencies.

Mr. Garner also indicated that the current MOU allowing data sharing among the agencies should be reviewed and updated if necessary. This process should begin immediately given the time it has taken for these types of review to be completed in the past. The agencies should also develop Federal and State regulations governing access and use of the data collected under this program. The goal of those regulations would be to allow the data to only be used to analyze the impacts of the crab rationalization program and ensure the confidentiality of the data that are collected.

The processors continue to be concerned with the enforcement of the program and the penalties that will be imposed when errors in the data are found. Their two main areas of concern are 1) what is the consequence of unintended data submission errors and 2) when must the data be submitted. Little information could be provided in terms of the consequences of data submission errors. That will need to be worked out with NMFS enforcement. However, members of the agencies present at the meeting indicated that they do not need "real time" submission of the data, and the three-month lag period proposed by the processors would allow them to conduct the analyses that would be required.

Each of the written proposals provided to the workgroup are attached to these minutes as the "Position Paper Appendix" and provide additional detail on the positions taken by member of the workgroup.

After the meeting Mr. Garner sent additional information on the kinds of data the processors are willing to provide. A summary of his statement is included at the end of the processor's position statement in the Appendix. In general, the processors agreed to supply the location of variable input purchases, the quantity of variable input purchases, and revenue information in the format requested in Ron felthoven's survey.

Tom Meyer, representing NOAA GC, connected to the meeting via phone and provided an update on the questions he has been asked to research. He indicated that, due to the short time between meetings, he has not been able to determine if NMFS can require data collection from the crab fishery participants if the Council does not include it as part of their FMP amendment package. He also stated that he would prefer that Congress clearly state what data may be collected under this program when they make modifications to the MS Act. He also indicated that it is too early for NOAA GC to draft language to protect the confidentiality of the data. The program needs to be more clearly defined before that can take place. Mr. Meyer also indicated that a FOIA request could reach information that is under the "control" of the government. It could be argued that data submitted to a third party is under government control and could be reached through a FOIA request. Therefore, under the existing law, the use of a third party for data collection and dissemination may be equally or more vulnerable to FOIA than the current protections provided through the agencies. It was recommended that if the objective is to prevent any release of sensitive data, then legislation would need to make this clear while simultaneously mandating its submission to a third party contractor (if a third party contractor is used to collect the data). Rules governing the release of the data to any class of individuals (public, NMFS, ADF&G, Council, etc.) could then be specified in the legislation.

Mr. Meyer also indicated that any data collection program (including data collected by a third party) would likely not be approved by the SOC if NMFS enforcement were restricted from accessing the data. Compliance monitoring is critical part of any mandatory data collection program and enforcement would play a key role in ensuring that people fulfill their commitment to supply these data.

Representatives of the crab data collection workgroup are scheduled to meet again on September 16. Members of industry will compile the results of that meeting and make them available to Council staff so they can be incorporated into the "trailing amendment" that is being prepared for the Council's October meeting.

POSITION PAPER APPENDIX

Gary Painter's Position Paper on Crab Data Collection

Re: Data Collection from Harvesters

I have received numerous calls from those in the fleet whom I consider to be my constituents. I have thought long and hard about data collection. What I have come to is this:

The data collection being asked for by NMFS and ADF&G as representatives of the Council is proprietary, confidential, and financial in nature. **Magnuson-Stevens** specifically protects our privacy on these counts in Section 402.

There were many concerned about a 2-Pie program. The BSAI crab processors made a deal to provide their own proprietary business information, in exchange for a 2-Pie program.

We harvesters never gave our consent to that deal. But I am still for rationalization, because fleet consolidation is mandatory for our survival. I continue to stand behind and rely on our confidential protection under **MSA-96 Section 402.**

The Council declared in its **BSAI Crab Rationalization Report to Congress** that "…It may not be the appropriate model for other fisheries in the Nation…and is not intended to be a template for other fisheries…" Many of those I have spoken with resent being singled out for micro-economic scrutiny while ignoring (for instance) the successful halibut & blackcod fisheries, and the wildly successful pollock fishery.

I propose:

3. Continued **mandatory and timely** submission of traditional fish ticket information for each trip, because it is the real world basis for ADF&G conservation and management of the BSAI crab fisheries.
4. **To provide information about the ownership of vessels and quota.**
5. A strong revenue based (Not economic rent based.) binding arbitration system.
6. A third party data-collection group (Such as Pacific States Marine Fisheries Commission.) to further enhance confidentiality.
7. An updated written agreement between the Council and all agencies it works with protecting the confidentiality of any proprietary information that we submit to that third party data-collection group.
8. For ADF&G, the same standards (and penalties) of confidentiality of information that NMFS employees are currently held to.

ACC DRAFT RECOMMENDATIONS FOR THE NPFMC DATA COLLECTION COMMITTEE

September 3, 2002

CONCERNS AND RECOMMENDATIONS:

- The ACC references industry concerns about the level of detail that is being asked for in the surveys, conflicts with the MS Act in regards to the data requests, interagency agreements relative to confidentiality, the advantages of submitting data to a third party—preferably the PSMFC to protect confidentiality and other concerns including the need to restrict data collection to variable costs, as noted in the Data Collection Committee Minutes of August 20th, 2002. The ACC recommends these committee minutes be attached to the committee's formal submission to the NPFMC to provide background information on issues of concern to the crab industry.

- At the August 20th meeting the workgroup discussed whether information to estimate profits is needed or whether information used to estimate quasi-rents (revenue less variable costs) is adequate. Because of problems assigning fixed costs across the entire operation and the inaccuracies that could be introduced, it was felt that quasi-rents may be a better indicator of changes that take place in the crab fisheries.

- The ACC expects that ownership data that is requested for the crab fisheries will be similar to that which is required to monitor the consolidation rules in the other rationalized fisheries under the jurisdiction of the NPFCMC, the halibut, sablefish and pollock fisheries.

- The current MOU allowing data sharing between the NMFS and the State of Alaska may not have adequate protections to ensure data confidentiality. NOAA GC has suggested that a review of the MOU is needed and that it should be incorporated in the new data collection effort; the ACC agrees that the review should be conducted immediately, with or without this data effort. The agencies must also develop internal protocol governing the access and use of data that is reviewed and approved by the Council.

- To provide additional protection for confidentiality of data to be collected, the ACC concurs with workgroup's interest and efforts to develop appropriate legislative language.

- With the above concerns in mind, the ACC recommends the Committee review the attached Crab Harvesting (Catcher) Vessel Variable Cost and Revenue Worksheet for submission to the NPFMC as a preferred alternative for data collection. Note that submission of data is proposed on a fishery-by-fishery seasonal basis, including provision of names, state of residence, and Social Security Numbers for crew men.

DRAFT RECOMMENDATION FOR NPFMC DATA COLLECTION COMMITTEE, SEPTEMBER 2, 2002 FOR PROPOSED SEASON BY SEASON REVENUE & VARIABLE COST REPORTING FOR CRAB RATIONALIZATION PROGRAM

Crab Harvesting Vessel
Variable Cost and Revenue Worksheet
(Recommended period for each BSAI Crab LLP fishery 1999 – 2001, and for future years to enable comparisons, open access vs. rationalization).

Vessel Name _____

Vessel Owner _____

ADF&G # _____ **USCG #** _____

Species (Check One) **Opilio ____ Bristol Bay red king crab _____**
Bairdi ____
Pribilofs red and blue king crab _____
St. Matthew blue king crab _____
Aleutians golden king crab _____

Year of Harvest _____ **(one sheet for each season)**

AFA qualified? **Yes _____ No _____**

Pounds Sold _____

Revenues _____ **(total gross amount)**

Variable Costs (See Notes Below For Definition):

Fuel, oil, hydraulic fluids _____

Insurance _____

Crew costs _____

Bait _____

Fisheries related taxes _____

Observer costs _____

Miscellaneous _____

NOTES:

INCLUDE VARIABLE COSTS ONLY. DO NOT INCLUDE ANY FIXED COSTS IN THE COST DATA.

Fuel should include fuel from the beginning of the voyage to its termination, regardless of the origination and destination port. It should be the same fuel expense used to calculate the net revenues for crew share calculation.

Insurance costs are included only if they are specifically for the crab fishery. If Hull and Machinery is paid on a year round basis, for example, do not include it. If it is bought month to month, and crab fishing is the only activity for the month, then include the cost. P&I should be reported here on the same basis as Hull and Machinery.

Crew costs should include crew share, airfares (if paid by the boat owner), food (if paid by the boat owner), and any gear provided for the crew (if paid by the boat owner). Also, provide names and Social Security Numbers for crew men on separate sheet.

Fisheries related taxes would be the line for any taxes deducted directly from the gross receipts of the vessel. Sales tax and ASMI tax are two examples.

Observer costs should include travel, insurance, food, etc, plus the cost of the observer.

Miscellaneous costs are any variable costs not captured by the specific categories listed. Examples might include port and harbor charges. Do not include pot storage costs, but do include the cost of transporting pots to and from storage for the season.

Crab Processors Positions
Data Collection Committee

The crab processors believe the following data submissions are adequate to provide the information the Council needs to determine the efficacy of the Crab Rationalization program.

Ownership data: we believe that ownership data is appropriate to determine the degree of consolidation occurring in the processing sector and to determine the degree of vertical integration within the industry. The type of ownership data that we would expect to have to provide is similar to that which is required to monitor the consolidation rules in the halibut, sablefish and pollock fisheries.

Employment data: the processing sector is prepared to provide wage information for direct labor associated with each crab species, including SSN for each employee.

Revenue data: the processing sector is prepared to provide revenue information for each crab species, including sufficient data to state revenue on an FOB Alaska basis, production style and grade.

Cost data: the processing sector is prepared to provide the direct (variable) costs of production for each crab species. We do not believe that non-variable costs are needed and we believe that non-variable costs will necessarily be misunderstood due to the need to make subjective assumptions regarding the basis for allocating non-variable costs to various fishery activities.

See our attached draft "worksheet" setting out the specific information related to costs and revenues that we believe is appropriate.

General considerations:

Confidentiality of the data, particularly on an individual firm basis is a key concern of the processing sector. We would therefore ask that the following be considered:

- All data should be submitted to a third party entity (such as PSMC). The data may then be made available to appropriate agencies on a blind basis. Although the processors prefer that the data be made available only in an aggregated format, we do agree that it is difficult to anticipate in what format or manner Council queries will require the data be presented. We would like to explore the feasibility of a third party providing blind data aggregated specifically on request of authorized agencies.
- The agencies must develop internal protocol governing the access and use of data that is reviewed and approved by the Council. This protocol must specify the

types of data that may be accessed, the offices that will have access to the data, and whether that data may be available on an individual firm basis or not.

- The current MOU allowing data sharing between the National Marine Fisheries Service and the State of Alaska may not have adequate protections to ensure data confidentiality. Data supplied by the State of Alaska to NMFS is not necessarily subject to the confidentiality provisions of the State, and may be subject to disclosure under Federal law including FOIA requests or Federal Court Orders. Similarly, there appears to be inadequate control of access of federal data when transferred to State agencies. NOAA GC has suggested that a review of the MOU is needed and that it should be incorporated in the new data collection effort; we agree that the review is needed, with or without this data effort, and that it should be undertaken immediately.
- The National Marine Fisheries Service, Alaska Department of Fish and Game, and the Council must develop federal and state regulations governing access and use of data collected under the crab rationalization program. The objectives of the regulations should be to provide data to the Council, NMFS, and state fish and game agencies for the purpose of analyzing the impacts of the program, and to ensure the confidentiality of the data collected. Those regulations should include the following points, at a minimum:
    1. All data should be provided to a third party entity such as the Pacific States Marine Fishery Commission. The PSMFC shall provide data only to those agencies covered by the regulations either through direct application or through an MOU with NMFS. The data provided by the PSMFC shall be "blind" with no identification of the entities making submissions.
    2. Data provided by the PSFMC shall be aggregated as directed by the Council (by sector, or by size categories, etc.).
    3. Access to the data should be limited to those individuals specifically requested by the Council, NMFS or a state agency to undertake an analysis of the impacts of the crab rationalization program.
    4. All individuals shall sign a confidentiality agreement before having access to the data. That agreement shall impose liability on an individual for breach of the agreement or regulations.
    5. For data already supplied to the Council, NMFS, or a state agency, sharing of that data with another agency shall be subject to an MOU which imposes the requirements of these regulations, e.g. an individual confidentiality agreement.

The data collected should relate only to the crab fisheries included in the Council's crab rationalization motion. There is no justification to require the submission of data related to non-crab activities of the firms.

The data should be collected from individual firms only if it is not already available to agencies through some other means, including data that substantially fulfills the data requirement. As the Council motion stated, the data effort must be sensitive to the burden imposed on individual firms. Processors already routinely provide data on

revenues, ex-vessel payments, employment and ownership, supplied to a variety of local, state and federal agencies. There should not be a duplication of that data collection effort already being made. A review should be undertaken to determine if the current data submissions are satisfactory for specific data requirements, and if not if they can be revised in some manner to be satisfactory. We are also concerned that the system of verification not be overly burdensome. Audit procedures similar to what is employed in the AFA are envisioned as appropriate for the data effort in the crab program.

Industry understands that there will be enforcement rules to ensure that data is supplied in an accurate and timely manner. The Council noted its concern that enforcement be sensitive to unintended errors in data submission, especially given the extent and complexity of the data industry is being required to submit compared to any other fishery under its jurisdiction. We are familiar with the enforcement system used in the halibut, blackcod and pollock fisheries. To the extent that this system is designed with the paramount need to enforce the harvest quotas, which is a resource conservation issue, the system of exacting time schedules and data accuracies are understood. The same principles do not necessarily apply though for the new types of data being required in the crab program. There are two aspects to this:

1. What is the consequence of unintended data submission errors.
2. When must the data be submitted.

Each of these factors should be analyzed in light of the specific data being required. By way of example:

Ownership data is needed to enforce caps. Caps are scrutinized annually and, presumably, at each transfer of quota. Ownership information should therefore be required annually, only, and upon any transfer of quota. Accuracy is critical to determining cap compliance, and therefore the enforcement standard may be higher than some other data requirements.

Revenue, ex-vessel payment, cost of production and employment data are the type of data that takes time to collect, internally verify and submit to the agency collecting it. Rigid, and "quick" time frames for submission of this data are not needed for any Council purpose. As an example, for similar data submissions, the State of Alaska typically allows at least one month from the close out date to submit the data, up to three and one half months in the case of payment of the fisheries business taxes. Requiring data within three months of the close out date should be timely enough for any agency purposes and should give the processing firms an adequate period of time to compile and internally verify the information.

Similarly, for revenue, ex-vessel payment, cost of production and employment data are data summaries by firm that are built on a myriad of detail; unintended errors can and will occur. The enforcement approach with respect to this data should take this into consideration. First, as stated above, ample time following a close out period is essential for the firms involved. Second, failure to comply with a reasonable submission deadline should be treated completely differently than minor errors in the data that is submitted. The penalties, if any, should reflect the seriousness of the offense.

Processing Costs and Revenues Worksheet

Company Name _____

Production Facility Name _____

Species and Area _____

Year of Production _____

Location of production _____

Pounds Purchased _____

Finished Pounds _____

Revenues _____ **(total dollars received)**

Variable costs (see notes for definitions):
Payments to fishermen (including retros) _____

Taxes paid by processor for raw crab purchases _____

Custom processing fees you paid _____

Direct Labor costs _____

Observer costs (including transportation) _____

Utility costs (including fuel) _____

Housing, transportation and food _____

Packaging materials and supplies _____

Freight of production _____

Storage and handling of production _____

Cost of repacking _____

Brokers fees, promotional expenses _____

DO NOT INCLUDE ANY FIXED OR OVERHEAD COSTS IN THESE COST CATEGORIES.

Notes to Cost of Production Worksheet:

Variable costs are direct costs that vary with both season length and volume of production.

If you had product custom processed by another plant, include the revenues from the sale of production and report the custom processing fees you paid on the appropriate line.

If you custom processed product for someone else, exclude the variable costs and the revenues associated with that production.

Revenues should include all receipts from the sale of finished products, including products repacked by you or for your account after initial production. Revenues should be net of any brokerage fees paid to any independent broker making the sale on your behalf. If there is a broker's allowance or promotional fee that is deducted from your reported revenues, then you will need to enter that amount in the line asking for brokers fees or promotional expenses.

Direct labor costs EXCLUDES management or salaried labor, but includes all costs of processing labor, such as employer taxes, employer paid insurance, 401k contributions of employer in addition to the wages paid. The insurance costs should include any insurance related to direct labor; health (if any) insurance, worker's compensation or Jones Act coverage, including payment of deductibles or claims if self insured. Costs of training hourly workers should be included on this line item.

Utility costs include public or privately supplied utilities, including fuel, water, power, and sewer.

Housing, transportation and food category should include any expenses incurred for processing labor not listed in the labor category. It may include for example employer supplied special clothing and airfares.

Packaging materials and supplies should include fiber, banding materials, shrink-wrap, pallets, labels and anything else required to enclose and ship the finished product. This category should also report the cost of shipping packaging to the plant. Processing expendables of any sort are included in this category.

Freight of production. This should be zero if you reported sales on an FOB plant basis. If you reported sales from a different delivery point, the cost of freight and handling to that delivery point should be reported here. For example, sales that are FOB Seattle would include the freight from the plant to Seattle, and the cost of that freight would be reported on this line.

Storage and handling of production should include cold storage and handling costs incurred by you prior to sale.

Costs of repacking should include all charges associated with repacking crab that are sold by you after repacking. Brokers fees, promotional expenses that are paid as a deduction from the revenues reported in this worksheet should be included on this line item.

THIS WORKSHEET WOULD BE REVISED AFTER A REVIEW OF INFORMATION ALREADY AVAILABLE THROUGH OTHER DATA SOURCES.

John Garner noted after the meeting that their intent in providing the worksheet *(above)* was to restate what they thought were the costs that are variable by crab species." Mr. Garner also stated that if information on quantities or units of effort is needed to understand cost data, it would also be provided. If information on where money is spent is desired to assess community impacts, that would be provided. And finally, the processor's intent is to provide revenue information based on the format used in the survey developed Ron Felthoven, which has detailed information with respect to pack size, information needed to determine percentage of sales to related entities, and costs needed to derive an FOB Alaska wholesale value.

DRAFT

Minutes from the October 18th Meeting of the Crab Rationalization Data Collection Workgroup.

Participation:

The following individuals were in attendance.

Terry Cosgrove *	Jeff Hartman
Kevin Kaldestad*	Darrell Brannan
John Garner*	Dave Colpo
Arni Thompson	Ron Felthoven
Terry Leitzell*	Joe Terry
Margaret Hall	Tom Casey
Doug Wells*	

Gary Painter*, Ben Muse, and Herman Savikko were linked to the meeting via teleconference.

* Indicate official members of the workgroup that were appointed by the Council.

Glenn Reed and Joe Plesha are also members of the workgroup but were unable to attend this meeting.

Meeting Summary:

The workgroup reviewed a paper, developed by staff, describing the actions taken by the Council at their October meeting. That paper indicated that the Council wished to see the workgroup complete their work on the "9/18/2002 surveys" for the December meeting. The Council also wished to have additional information presented to them in December on the need and usefulness of fixed cost data, the need and best way to collect information on location of purchases, the usefulness of a third party data collection system and how it would function, the costs of the program, the need for arms length transaction data on prices, the need for additional community data, enforcement issues, and providing additional protection for confidential data. The requested studies are expected to help the Council determine the need for collecting data beyond that already contained in the draft surveys as well as help structure the overall data collection program.

Members of the workgroup discussed the meaning of the section of the Council motion that requested a discussion of audit requirements for voluntary and mandatory data collection programs. It was indicated that the intent of that language could have been to initiate a study to determine if a mandatory data collection program can be implemented

that would allow community impact data to be collected on a periodic basis. The timeframe could be selected by the Council or be setup so that data collection would be initiated on an as needed basis. That analysis is to be completed for the December council meeting.

The workgroup then proceeded to discuss the fixed cost sections of the "9/18/2002 surveys". Each sector's surveys were discussed in turn, but the minutes will describe the aggregate discussion of each fixed cost category for all sectors. The discussion is structured this way because of the substantial overlap in the problems associated with utilizing fixed cost data under each category. The group also decided that the data needed to analyze community impacts would be discussed separately from other fixed cost data needed to understand the operation of the firms.

Members of the fishing industry voiced no strong objection[2] to supplying information on insurance and property taxes. They have noted concern in the past with using insurance information to derive proxies for the market value of vessels and plants. Agency staff noted that insurance must be accounted for in impact analyses. They also noted that changes in insurance costs could reflect safety changes in the fishery that result from rationalization.

Consensus was not reached on the need to collect data on principal and interest payments. Member of industry asked agency staff how those data would be used. Staff responded that they would be useful in conducting community impact analyses and would provide one source of understanding concentration and entry/exit in the fishery. Members of industry were concerned that relying on principle and interest payments to understand the viability of a firm may mislead the analyst for two reasons. First, it is not always easy to trace the use of a loan back to the asset that was used as collateral to borrow the money. Therefore, the principal and interest payment may not be easily assigned to the plant or vessel operating in the crab fishery. If the vessel, for example, was used as collateral for a loan servicing the needs of other vessels owned by the firm, it would make the indebtedness of that vessel seem much larger. Second, a vessel/plant could increase their debt load for a variety of reasons. If the analyst cannot identify the reason for the change in indebtedness, they may come to the wrong conclusion about a firm's viability. Finally, a discussion was held regarding how CCF funds should be treated in this context. It was concluded that they primarily impact taxes, and, therefore should be lumped in with other principal and interest payments, if they are collected.

Expenditures on capital improvements were discussed next. It was noted that capital expenditures could be just for the crab portion of a firm's operation, not related to a firm's crab operation, or could be used for both crab and other species. The workgroup indicated that only capital expenditures related to a firm's crab or crab and other species production process should be included. Therefore, investments that have no link to crab production would be excluded from the data collection process. Agency staff feels that

[2] Some committee members expressed strong objection to supplying fixed cost data, while others expressed strong reservations over how that data would be used by analysts.

collecting information on capital expenditures is important in understanding the use of variable input in the production process. Many committee members agreed that capital investment in crab operations may effect the variable costs of crab production, and is therefore needed to better understand changes in crab production costs that might be observed.

Repair and maintenance costs were discussed along with the problems of allocating these costs to crab operations. Industry suggested that they would likely provide an annual amount for the entire plant/vessel. A system would need to be devised by the analysts to allocate those costs to crab operations. The workgroup also discussed where the salaries of repair and maintenance employees would be assigned. Two options were discussed under the repair and maintenance or included with other salaried employees. It was suggested that all salaried labor costs would be collected and then assigned by agency staff to the crab operations of a facility. The analysts were also warned that they should be careful about how they interpret repair and maintenance variation across years. Some major repairs and maintenance items are scheduled every other year, for example. Understanding these cycles is important to explaining this cost category.

It was decided that a category for other plant or vessel fixed costs would be included in the survey. However, no one suggested a major cost category that was not otherwise covered in the fixed cost section of the survey.

A mechanism of assigning fixed costs to the crab portion of a fishing/processing operation was discussed next. Many committee members expressed reservations about developing a uniform system to allocate non-variable cost to crab operations. They re-iterated that their desire was to provide accurate cost information, and that allocation systems rest upon assumptions that may not be an accurate basis to pro-rate cost to different activities. For that reason, if the agencies wish to collect this data, they should develop the system of allocation that makes sense to them.

Members of the committee had two divergent views of collecting and using these data. The first view was that the industry groups would not endorse or oppose the system the agencies develop to allocate these costs. However, a primary justification for collecting this type of information is to develop a database sufficient for a net benefit (profit) analysis. Most committee members felt that the data assigned by allocation among activities should not be used for that purpose. The second opinion expressed was that because of industry members concern with the accuracy of allocating fixed costs to crab production, they have indicated that they do not wish to recommend a specific method of allocating those costs.

Some members of the workgroup then suggested collecting the data in a stepwise fashion. Variable costs and perhaps some fixed costs, such as capital expenditures and repair and maintenance costs, would be collected first. More extensive fixed costs could be collected later if it is determined that they are needed and can be used in a meaningful way.

The data needed to conduct community impact analyses was discussed next. Jeff Hartman indicated that tracking the flow of money (expenditure, wages, and residual income) is an important part of conducting community impact analyses. He also indicated that these data perhaps could be collected using different collection mechanism than the current surveys being developed. To help the workgroup and the Council better understand the level of detail that is needed to conduct these analyses, beyond that in the current survey, staff will work with economists that specialize in this area and report back at the next meeting. Staff will also report at the next meeting on the ownership structure of the crab catcher vessel fleet. This information was requested to better understand the level of corporate ownership in the fleet. That information will provide insight into the problems that will be encountered when trying to track residual income back to the residence of the owners of a corporation.

PSMFC staff (Dave Colpo) was present at the meeting to discuss issues related to third party data collection. Dave discussed the PSMFC expertise in area of data collection, manipulation, and storage. He also indicated that, to his knowledge, persons trying to access their data have never served PSMFC with a FOIA request. He also stated that he understood that because they are not a Federal agency they are outside of the FOIA statutes. As discussed at previous meetings, NOAA GC will be asked to comment on this issue.

A discussion was held regarding whether the third party would create blind data sets linking economic survey data, fish tickets, COAR, vessel registration files, etc., and then downloading the entire file to NMFS, ADF&G, and Council staff, or if they would provide only the data needed for a specific project each time it is requested. It was decided that the most efficient system would be to provide the entire linked data sets to each agency. They could then query the data sets to conduct their analyses. If questions arise when using the data, they would need to be resolved through PSMFC. While PSMFC staff can provide this level of support Dave indicated there are reasons that a more direct interaction between analyst and industry might be useful. If analysts could contact industry directly they will get a richer understanding of the data with which they are working which will aid in their analysis. Other members of industry supported the concept of keeping the identifiers hidden from the analysts. They felt that while it may result in inefficiencies for the analysts trying to resolve questions, it could also reduce the burden on industry by limiting the questions they would be asked that are ancillary to resolving issues associated with data accuracy.

With regards to blind data sets, there is some question as to how effective this technique will be in masking the identities of industry participants when providing data to the agencies. For example, the agencies will have copies of the original fish tickets as well as those with masked identifiers. It would be a relatively simple procedure to develop a table that links the true and the blind identifiers. Still, some members of industry feel that blind data set would provide some value if staff were prohibited, through regulation or statute, from matching data sets available to them to determine the true identity of an entity.

Dave also stated that he felt PSMFC could use the data verification protocol developed for the Pollock surveys. That protocol involves using an accounting firm agreed upon by the agency and industry to conduct random review of the data provided.

PSMFC also feels that protecting the confidentiality of the data is paramount. The more specific the rules describing who has access to the data the more comfortable they feel. They are sensitive to competitors, the general public, and non-authorized agency staff accessing to these data.

Four points major points were made by PSMFC staff at the meeting that are worth highlighting.

1. PSMFC has a long history of data collection from multiple sources for multiple agency use. It is efficient in doing so and avoids the "turf" battles that might result over who collects the data and for whom.
2. Efficiencies will be lost unless they are allowed to provide "data dumps" to the agencies without using blind codes and without aggregating the data.
3. If blind data are supplied to the agencies without being aggregated, the user could, if they wanted, easily determine the identity of the firm from other sources.
4. PSFMC can easily integrate data from other sources to reduce the burden of multiple reporting requirements.

Staff from the NMFS indicated that they would encourage the use of PSFMC to collect and maintain the data required by this program. They believe that PSMFC is in a position to complete that task as cheaply and accurately as any other agency.

Jeff Hartman asked whether the use of a third party would change the cost of the data collection program. Staff will report any additional information they gather on this question at the next meeting.

The Council asked the workgroup to consider whether they feel good estimates of crew days can be developed using fish tickets combined with crew license identifiers collected under this mandatory program. The workgroup felt that fairly reliable estimates could be made under an open access system using the season start date and the landing date on the fish ticket. However, under a rationalized fishery with extended seasons, additional information would need to be collected on the survey to estimate the number of crew days by vessel.

Members of the workgroup also noted that off-season hourly wages are currently not included in the survey and would be missed if not added.

<u>Staff's Tasks for the Next Meeting:</u>

1. Staff will provide a draft of the paper being developed for the Council regarding collecting no, some, or all fixed cost data.

2. Provide a discussion of whether the ownership structure of the BSAI crab fleet is different from the SE AK salmon fleet. This relates to the analysts ability to assign residual income to a specific geographic location.

3. Ask that the NOAA GC and the State AG review of the MOU include the possibility of using a third party collection agent, and that PSMFC be consulted as a likely agent for that role. Indicate that this is a very important part of the data collection program and needs to be in place at the beginning of the data collection process.

4. Provide a discussion of setting up a protocol to collect data under mandatory system on an as needed basis. This program would collect data (for community impact analysis) when it is needed, instead of every year. The idea is to reduce the burden on members of industry, by collecting these data on a less frequent basis.

5. Work with other economists to report back on the level of detail, beyond the current surveys, that is needed to conduct community impact analyses.

Next Meeting:

The next meeting has not yet been scheduled. The chairmen will notify the workgroup when the meeting day has been selected.

DRAFT

Minutes from the November 19th Meeting of the Crab Rationalization Data Collection Workgroup.

Participation:

The following individuals were in attendance.

Terry Cosgrove *	Lew Queirolo
Kevin Kaldestad*	Darrell Brannan
John Garner*	Jeff Passer
Arni Thompson	Ron Felthoven
Glenn Reed*	Joe Terry
Margaret Hall	Tom Casey
Doug Wells*	Herman Savikko

Gary Painter*, Tom Meyer, and Dave Colpo were linked to the meeting via teleconference.

* Indicate official members of the workgroup that were appointed by the Council.

Terry Leitzell and Joe Plesha are also members of the workgroup but were unable to attend this meeting.

Meeting Summary:

The Data Collection Workgroup met November 19th. Staff gave presentations on the five assignments made at the previous meeting. Other presentations to the Workgroup were made by Jeff Passer (regarding enforcement issues), Tom Meyer (regarding legal issues), and Dave Colpo (regarding third party data collection).

Staff's first assignment was based on the Council's October motion. Staff was directed to develop a document that discussed collecting all, none, or some of the fixed cost data elements outlined in the draft surveys presented to the Council at their October meeting. That paper was provided to the workgroup just prior to the meeting. Because members of the workgroup received the document so close to the start of the meeting, they did not have adequate time to review the paper in order to provide feedback. Instead, staff provided an overview of the paper and indicated that comments received from members of the Workgroup would be considered and perhaps incorporated into the document if they are received by noon on November 25th. The Workgroup was notified that staff intends to release the document to the Council family on November 26th.

The second assignment was to compare the ownership structure of the SE Alaskan salmon fleet to the BSAI crab to see if they are comparable in terms of the level of corporate ownership. The comparison of the two fleets showed that the vessels operating in the BSAI crab fleet were primarily comprised of partnerships, companies, and corporations. Individuals were the primary owners of the SE Alaska salmon fishing fleet. Therefore, community impact analyses that rely on tracking "residual income" to an owner's location of residence would require more detailed ownership information than is currently being considered in the surveys. In addition to collecting information on ownership structure that is already being contemplated, questions would also need to be asked regarding how income is distributed to individual owners and if all the "residual income" is distributed each year. Those questions are not a part of the current survey, and staff concurred that they would not seek residual income (net profit) from harvesters as part of the survey. That data is not requested because estimating the flow of income to residents of specific communities is problematic for the reasons identified by the crab vessel ownership patterns.

Assignment number three requested that NOAA GC and the State AG's office continue work on the data sharing MOU and that it be reviewed in light of PSMFC being considered as the possible agent whose role would be to collect the data.

Tom Meyer (NOAA GC) presented the progress that has been made to date on this assignment. He and Steve White (State AG's Office) have met and discussed the need to either revise the MOU or draft a new MOU specific to this program. Because this may well be a "one way" data-sharing program, a new MOU that defines how NMFS would share the data with specific state agencies/employees and the restrictions on how those agencies/employees could use the data may be appropriate.

Assignment four directed staff to provide a discussion on the development of a protocol that would mandate the collection of data necessary to study community impacts. This discussion was folded into the first assignment. The discussion paper states that this information could be collected under a mandatory program on a timeline that is different from the current program. It is possible that the information could be collected on a less frequent basis and only from a sample of the crab harvesting and processing sectors (instead of the entire population). During past meetings it has been noted that collection of some of this information is a task to be undertaken by the Council's committee appointed to address community issues.

The fifth assignment directed staff to work with economists that specialize in constructing community impact analyses, and report back on the level of detail needed to construct those analyses beyond that already contained in the surveys. Staff held a conference call with other agency and university economists specializing in community impact analyses. During that call several pieces of information were discussed but no specific recommendations were made. After that meeting, a paper was developed by a NMFS economist listing specific data elements that would be used to conduct community impact analysis. That paper has had little review and was only released to the workgroup for their input. Members of the workgroup and agency staff do not believe that the

Council should take action on data needed for community impact analysis at their December meeting. They feel that additional time is needed to address this issue.

Jeff Passer, from NMFS enforcement, attended the meeting and provided his view of that agencies role in the data collection process. NOAA GC will need to have access to the raw data and the person supplying the data to enforce compliance with this program. Enforcement will work closely with the agency collecting the data to ensure that the program is functioning properly. They will likely set up an annual visit, at least during the first years of the program, with the entity collecting the data to review the collection procedures. Mr. Passer also noted that enforcement is not interested in receiving a "data dump". They anticipate requesting only the data needed for a specific action.

Enforcement will only become involved in a case when they are notified of a problem (outside of information collected on the annual review of the program). If the data are collected using a third party and the data are issued to the agencies in a blind format, then it will be the responsibility of the group collecting the data to notify enforcement of problems as they arise. However, it is the hope of everyone that problems with the data can be rectified before enforcement has to become involved.

Members of the workgroup asked if enforcement could use the data for any enforcement action. They were told that if the data were available it could be used to verify other sources of information.

Enforcement also noted that for criminal prosecution of a case to occur, the government would need to prove that they intended to misreport information. Criminal trials make up a very small percentage of the cases. Most cases are civil trials that would result in fines being imposed.

Finally, members of the Data Collection Workgroup discussed the possibility of the third party providing analysts only aggregated data. Some industry members of the workgroup expressed interest in pursuing such a format while others did not. Members of the workgroup and other industry attendees held a vote during the meeting to request 1) that the Council require harvest vessel data to be aggregated by vessel length at 25' increments; and 2) that all vessels greater than 150' would be placed in the same size category, as would all vessels under a specific size. Agency economists did not participate in the vote. The industry vote ended in a tie, four in favor and four opposed, and therefore failed. However, members of the workgroup that voted for aggregation remain interested in the concept of releasing only aggregated data. They also felt that more information would need to be available before they could make a decision on this issue.

Next Meeting:

The next Data Collection Workgroup is scheduled for December 17 at 9:30am in the PSPA conference room. If the December Council meeting results in tasks that must be taken up by the workgroup, the meeting will include both industry and agency

representatives. If the Council does not take action on issues affecting the workgroup, the meeting may only be for members of the fishing industry.

DRAFT

Minutes from the January 14, 2003 Meeting of the Crab Rationalization Data Collection Workgroup.

Participation:

The following individuals were in attendance.

Gary Painter*	Tom Casey
Kevin Kaldestad*	Darrell Brannan
John Garner*	Joe Terry
Arni Thompson	Ron Felthoven
Terry Leitzell*	

Terry Cosgrove*, Tom Meyer, and Herman Savikko were linked to the meeting via teleconference.

* Indicate official members of the workgroup that were appointed by the Council.

Glenn Reed, Doug Wells, and Joe Plesha are also members of the workgroup but were unable to attend this meeting.

Meeting Summary:

John Garner called the meeting to order. Committee members that were present then approved the minutes from the November 19, 2002 meeting.

Members of the Workgroup then worked to finalize their positions for the report to be available at the Council's February meeting. The first issue discussed was what data should be collected under this program. All members of the workgroup agreed that only information from the crab portion of a vessel's/plant's fishing season should be included in the data collection program. The majority of the harvesters, that are members of the workgroup, indicated that they would prefer that only variable cost data be collected from vessels operating in the BSAI crab fisheries. Members of the catcher/processor fleet and the processing sector indicated that they would be willing to provide fixed cost data that are necessary to explain changes in variable costs in addition to variable cost data. One member of the harvesting sector felt that all fixed cost data should be included in the program. The workgroup was unable to reach a consensus position on this issue.

Aggregation of data was the second issue discussed by the workgroup. Members of the harvest sector stated that their position was that the data should be aggregated into groups

of 10-15 vessels before it is released, by the collecting agency, to the staff analysts at ADF&G, NMFS, or the NPFMC. The workgroup members did not provide a rational for selecting aggregations 10-15 vessels. Members of the catcher/processor and processing sectors indicated that aggregation of four plants or vessels would be adequate.

Agency staff members present at the meeting indicated that they still feel the data should not be aggregated before being released to the analysts. They have agreed that the data could be submitted to them in a "blind" format. They also agree that the data must be aggregated before being released to the general public. Staff members noted that if the data are to be aggregated it would be best for the agency staff to determine which plants/vessels would go in each aggregation. Members of the committee agreed that it would be appropriate for staff to define the aggregation methods, and that those methods could be changed as necessary. A suggestion was also made that in some cases it may be appropriate for the agency with access to the raw data to run models provided to them using the disaggregated data. Models could be developed and provided by staff members of the agencies that do not have access to the raw data.

John Garner notified the group that Tom Meyer (NOAA GC) had stated that it is legal to collect identifiers for members of the harvesting crew. This clarified a question raised at the last Council meeting regarding whether the NPFMC/NMFS had the authority to mandate the collection of SSNs or other individual identifiers of crewmembers. Members of the Workgroup had agreed at a previous meeting that they would supply these data, and they continue to hold that position. It was also agreed that the AP had requested crew information to help the public better understand the impacts of the crab rationalization program on persons working as crab harvesting crew. Staff also clarified that the surveys are currently only asking for crew SSNs, residence information, and aggregate crew wages for the vessel. Wages are not being requested for each individual member of the crew.

Use of the data to be collected was the next issue discussed. The general focus of the discussion was who would have access to the raw data, how they would gain access to the data, and for what purposes the data could be used. It was pointed out that if only aggregated data are released to agency staff, this issue becomes less important. Under that scenario, staff members within ADF&G, NMFS, and the NPFMC would not have access to confidential data. Therefore, the rules for use and release of the data could potentially be relaxed[3]. In any case, legal counsel for the agencies involved will develop an MOU that will require staff to sign an agreement in order to access the data. The MOU will also define the terms for using the data as well as penalties for its misuse.

Members of the workgroup requested that language in the enforcement document prepared by staff be changed to better reflect previous discussions on the issue. Staff agreed that they would change the language leading to the penalty phase of the program

[3] Because the data are not confidential the same data used by the analysts could potentially be released or used by anyone.

from “intentional” submission of incorrect data to “willful and intentional” submission of incorrect data.

Tom Meyer provided a paper that discusses how data collected under this program could be made available to the arbitrator. The conclusion of that paper is that members of the fishing industry would need to sign a waiver, absent any changes to the current laws and regulations, for an arbitrator to access the data. Changes to the laws and regulations that would be needed were also discussed in the paper.

Tom Meyer also stated that a regulatory package that defines the data that will be collected is likely needed before changes can be made to protect the confidentiality of the data under the MSA. He also stated that confidentiality standards must be linked to the MSA if standalone legislation is developed for the crab rationalization program.

Members of the Workgroup noted that they did not think it would be helpful to separate fixed costs into recoverable and non-recoverable (“sunk” cost) categories. This addresses the Council’s request to consider collecting “sunk” costs as a subcategory of fixed costs. Members of the Workgroup were given a copy of a journal article that defined variable, fixed, and sunk costs.

Darrell Brannan was requested to follow-up with Mark Fina on whether the data collected under this program, in addition to other data that will be available, is adequate to meet the data needs for community impact analyses envisioned by the Community Protection Committee.

Appendix 3-6

09-09-02

Catcher Vessel Survey

This survey is intended to gather information principally on BSAI crab operations (including CDQ fisheries). The definition of terms used in each question/category in the survey is included in an Appendix at the end of this document. Using the Appendix will help to improve the clarity of the both the questions and your responses. You can tear off these last few pages and use them as you proceed through the survey.

Person Completing the Survey

Name:_____

Title: _____

Telephone Number:_____FAX _____

E-mail address:_____

Vessel Information

Vessel name:_____

Owner: _____

USCG vessel ID: _____

ADF&G vessel ID: _____

Homeport: _____

1. BSAI Crab Activity

SEASON	# OF DAYS AT SEA	AVERAGE CREW SIZE	# POTS LOST

2. BSAI Crab Ex-Vessel Revenues

SEASON	SPECIES	GRADE	SIZE	POUNDS SOLD	REVENUE

3.1 BSAI Crab Crew Costs

SEASON	# OF CREW EARNING SHARES	TOTAL CREW SHARE PAYMENT	TOTAL CREW SHARE PAYMENT MINUS CAPTAIN'S SHARE

SEASON	# OF CREW EARNING WAGES	TOTAL CREW WAGE PAYMENT

3.2 BSAI Crab Crew Annual Identification

SOCIAL SECURITY NUMBER	RESIDENCE

4.1 Vessel-Specific BSAI Crab Costs

Record the costs incurred **for this vessel only** for the year's **crab fisheries** for each item in the TOTAL column.

COST CATEGORY	TOTAL
a. Insurance (hull, P&I and pollution)	
Season: _____	$
Season: _____	$
Season: _____	$
Season: _____	$
Season: _____	$
Season: _____	$
b. Pot purchases	
City/Port and State:_____ Quantity_____	$
City/Port and State:_____ Quantity_____	$
City/Port and State:_____ Quantity_____	$
c. Other crabbing gear and line purchases:	
City/Port and State:_____	$
City/Port and State:_____	$
City/Port and State:_____	$
d. Bait	
Season: _____ City/Port: _____ Species: _____ Quantity: _____	$
Species: _____ Quantity: _____	$
Species: _____ Quantity: _____	$
Season: _____ City/Port: _____ Species: _____ Quantity: _____	$
Species: _____ Quantity: _____	$
Species: _____ Quantity: _____	$
Season: _____ City/Port: _____ Species: _____ Quantity: _____	$
Species: _____ Quantity: _____	$
Season: _____ City/Port: _____ Species: _____ Quantity: _____	$
Species: _____ Quantity: _____	$
Season: _____ City/Port: _____ Species: _____ Quantity: _____	$
Species: _____ Quantity: _____	$

e. Fuel	
Season: _____ City/Port: _____ Qty: _____	$
Season: _____ City/Port: _____ Qty: _____	$
Season: _____ City/Port: _____ Qty: _____	$
Season: _____ City/Port: _____ Qty: _____	$
Season: _____ City/Port: _____ Qty: _____	$
Season: _____ City/Port: _____ Qty: _____	$
Season: _____ City/Port: _____ Qty: _____	$
Season: _____ City/Port: _____ Qty: _____	$
f. Lubrication and hydraulic fluids	
Location: 1) City/Port: _____	$
2) City/Port: _____	$
3) City/Port: _____	$
g. Other crew costs (food and provisions, transportation and housing, P&I claims, benefits, recruitment, training and education)	$
h. Freight	$
i. Observer Costs	
Season: _____	$
Season: _____	$
Season: _____	$
Season: _____	$
Season: _____	$
j. Other crab-specific costs; specify:_____ _____	$

4.2 Vessel-Specific Costs Record the annual costs **for this vessel only** for each item in the TOTAL column. If the reported total should not be attributed solely to BSAI crab operations, please record the TOTAL and place an "X" in the "PRORATE OVER ALL ACTIVITIES?" column.

COST CATEGORY	TOTAL	PRORATE OVER ALL ACTIVITIES?
a. Principal payments	$	
b. Interest payments	$	
c. Capital improvements in vessel and gear		
1) City/Port and State: _____	$	
2) City/Port and State: _____	$	
3) City/Port and State: _____	$	

COST CATEGORY	TOTAL	PRORATE OVER ALL ACTIVITIES?
d. Maintenance and repair expenses for vessel and gear		
1) City/Port and State: _____	$	
2) City/Port and State: _____	$	
3) City/Port and State: _____	$	
e. Other vessel-specific costs; specify:_____ _____	$	

5. BSAI Crab Crew Payment Details

5.1 Which of the following expenses were subtracted from total revenues (gross stock) before calculating the crew share? (*Circle one number for each*)

	DEDUCTED	NOT DEDUCTED
a. Fuel and lube _____	1	2
b. Food and provisions_____	1	2
c. Observer costs _____	1	2
d. Gear loss _____	1	2
e. Other (specify) _____	1	2

5.2 What percentage of the net share (gross stock minus the expenses indicated above in 5.1) went to:

a. Boat Share _____%
b. Crew Share (including skipper)..... _____%

5.3 Approximate the percentage of crew payments paid to persons who live in the following regions:

a. Alaska _____%
b. Oregon _____%
c. Washington _____%
d. Another US state…… _____%
e. Foreign country…….. _____%

Appendix: Survey Question Details

1. **SEASON**: record the name of one of the following management/quota areas: BS snow (opilio), Bristol Bay red king, Western AI brown, Eastern AI brown, Western AI red, BS Tanner (bairdi), Pribilof red and blue, St. Matthew blue.
 # OF DAYS AT SEA: record the total number of days you spent at sea during the specified season.
AVERAGE CREW SIZE: record the average number of crewmembers onboard for each trip taken in each of the BSAI crab fisheries.

2. **GRADE**: record the grade of the crab caught during the season using one of the following grades: #1, #2, #3. If multiple grades were caught, record the information for each grade on separate lines.
REVENUE: record the total payment you received (less any taxes paid to the buyer) for each species and grade/size landed. Include any post-seasonal adjustments you received.

3.1 **# OF CREW EARNING SHARES**: record the number of crewmembers who were paid according to a share system (as opposed to an hourly, daily, or trip wage).
TOTAL CREW SHARE PAYMENT: record the total payment made to all crewmembers paid on the share system, including the captain. Do not include other crew-related expenses (such as benefits, food and provisions, etc.) in the payment columns.
TOTAL CREW SHARE PAYMENT MINUS CAPTAIN'S SHARE: subtract the captain's share payment off of the total share payment and record this value.
 # OF CREW EARNING WAGES: record the number of crewmembers who were paid a wage (as opposed to a share system).
TOTAL CREW WAGE PAYMENT: record the total payment made to all wage-earning crewmembers. Do not include other crew-related expenses in the payment column.

4.1 **a. INSURANCE (HULL, P&I AND POLLUTION):** the annual insurance premiums for this vessel for

the year, by crab season. If some insurance costs cannot be attributed to each crab season, enter these costs in Section 4.2.a.

b. POT PURCHASES: the total quantity and cost of pots purchased for the year, by location of purchase.

c. OTHER CRABBBING GEAR AND LINE PURCHASES: the total expense on line, floats, and other fishing gear other than pots used in BSAI crab fishing, by location of purchase.

d. BAIT: the total quantity and cost of bait (by species) purchased in each season for the year, by location of purchase. If you caught a portion of your bait, do not list the location and estimate the cost of catching the bait, by species. If you received bait from a processor and this cost is already reflected in your reported catch revenues (i.e., you were paid less to reflect the bait given to you), do not record this as a bait cost here.

e. FUEL: the total quantity and cost of fuel used in crab fishing in each season, by location of purchase.

f. LUBRICATION AND HYDRAULIC FLUIDS: the total cost of lubrication & hydraulic fluids used in BSAI crab fisheries for the year.

g. OTHER CREW COSTS (FOOD AND PROVISIONS TRANSPORTATION AND HOUSING, P&I CLAIMS, BENEFITS, RECRUITMENT, TRAINING AND EDUCATION): record the resulting costs for these items that were borne solely by you. For example, if crew was charged to offset the cost of certain items, do not include these costs here.

h. FREIGHT: total expenses for having equipment/items used on this vessel (for BSAI crab only) shipped and stored on your behalf.

i. OBSERVER COSTS: record the sum of all expenditures incurred as a result of having observers onboard in each BSAI crab season for the year.

j. OTHER CRAB-SPECIFIC COSTS; SPECIFY: other costs specific to BSAI crab harvesting that are not included in the categories above (such as crab gear storage and transport expenses). Please specify the nature of the expense(s) and do not list costs to be recorded in Section 4.2 or the costs of permits, licenses, or IFQ fees (these costs can be determined internally by state and federal agencies).

4.2 **a. PRINCIPAL PAYMENTS:** the total annual payment made this year on the principal for outstanding debt related to this vessel.

b. INTEREST PAYMENTS: the total interest expense paid this year on outstanding debt related to this vessel.

c. CAPITAL IMPROVEMENTS IN VESSEL AND GEAR: the total annual expenditure on new equipment related to fishing, by location of purchase. Include improvements but exclude standard repairs and purchases that are necessary to conduct fishing operations. Exclude the pot and crabbing gear and line purchases listed above.

d. MAINTENANCE AND REPAIR EXPENSES FOR VESSEL AND GEAR: the total expenses for maintaining this vessel and repairing mechanical and physical problems with the vessel or (exclude improvements).

e. OTHER VESSEL-SPECIFIC COSTS; SPECIFY: record any other vessel-specific cost(s) that was not included in the categories above and not reported in the crab season-specific table (Section 4.1), such as port and harbor charges, or other insurance expenses. Please specify the nature of the expense(s) and do not list costs of permits, licenses, or IFQ fees (these costs can be determined internally by state and federal agencies).

Appendix 3-6

09-09-02

Shoreside Processor Survey

This survey is intended to gather information principally on BSAI crab operations (including CDQ fisheries). The definition of terms used in each question/category in the survey is included in an Appendix at the end of this document. Using the Appendix will help to improve the clarity of the both the questions and your responses. You can tear off these last few pages and use them as you proceed through the survey.

Person Completing the Survey

Name:_____

Title: _____

Telephone Number:_____FAX _____

E-mail address:_____

Current Company and Plant Information

Plant Name: _____

Owner: _____

ADF&G processor ID: _____

Federal Plant ID: _____

Year Built: _____

Assessed Value ($): _____

1. BSAI Crab Production (include CDQ crab)

SEASON	# OF CRAB PROCESSING DAYS	SPECIES	PRODUCT	SIZE/GRADE	BOX SIZE	RAW POUNDS	FINISHED POUNDS	CUSTOM PROCESSED (Y or N)?

2.1 BSAI Crab Labor Costs

Include wages and bonuses only for direct crab labor and exclude salaried employees (such as plant managers) from total payment.

SEASON	# OF CRAB POSITIONS	TOTAL MAN-HOURS	TOTAL LABOR PAYMENT

2.2 BSAI Crab Direct Labor Identification

SOCIAL SECURITY NUMBERS	RESIDENCE

3. BSAI Crab Custom Processing Costs

CUSTOM BSAI CRAB PROCESSING DONE FOR YOU					
SEASON	**SPECIES**	**PRODUCT**	**RAW POUNDS SUPPLIED**	**FINISHED POUNDS**	**PROCESSING FEE**

4. BSAI Crab Costs (Include CDQ crab purchases)

SEASON	**SPECIES**	**GRADE / SIZE**	**RAW POUNDS PURCHASED**	**GROSS PAYMENT**

5. Annual BSAI Crab Sales

SPECIES	PRODUCT	SIZE/GRADE	BOX SIZE	FINISHED POUNDS	GROSS REVENUE (FOB ALASKA)

6.1 Plant-Specific BSAI Crab Costs

Record the costs incurred **for this plant only** in the year's **crab processing** for each item in the TOTAL COST column.

COST CATEGORY	TOTAL COST
a. Total of fishery resource landing taxes, processing taxes, fisheries business taxes, borough and city taxes, where applicable (exclude property taxes)	$
b. Fuel, electricity, lubrication, hydraulic fluids	$
c. Packaging materials and supplies	
Location 1) City/Port and State: _____	$
2) City/Port and State: _____	$
3) City/Port and State: _____	$
d. Other costs for direct crab labor (food and provisions, transportation and housing, P&I claims, benefits, recruitment, training and education)	$
e. Re-packing costs	$
f. Broker fees and promotions for BSAI crab	
Season: _____ Species: _____	$
Season: _____ Species: _____	$
Season: _____ Species: _____	$
Season: _____ Species: _____	$
Season: _____ Species: _____	$
Season: _____ Species: _____	$
g. Observer costs	
Season: _____	$
Season: _____	$
Season: _____	$
Season: _____	$
Season: _____	$
Season: _____	$
h. Freight	$
i. Product storage, handling	$
j. Water, sewer, waste and disposal	$
k. Other crab-specific costs; specify:_____ _____	$

6.2 Plant-Specific Costs

Record the annual costs **for this plant only** for each item in the TOTAL column. If the reported total should not be attributed solely to BSAI crab processing, please record the TOTAL and place an "X" in the "PRORATE OVER ALL ACTIVITIES?" column.

COST CATEGORY	TOTAL	PRORATE OVER ALL ACTIVITIES?
a. Insurance	$	
b. Property taxes	$	
c. Principal payments for plant and equipment	$	
d. Interest payments for plant and equipment	$	
e. Capital improvements in plant and equipment		
Location 1) City/Port and State: _____	$	
2) City/Port and State:_____	$	
3) City/Port and State:_____	$	
f. Maintenance and repair for existing plant and equipment	$	
g. Salaries for foremen, plant managers and other plant-level employees in support of crab processing that are not included in the direct labor costs reported in Section 2.1 NUMBER OF EMPLOYEES: _____	$	
h. Other plant-specific costs; specify: _____ _____	$	

7. BSAI Crab Custom Processing Revenue

PRODUCT INFORMATION	REVENUE
Species: _____ Product Form: _____	$
Species: _____ Product Form: _____	$
Species: _____ Product Form: _____	$
Species: _____ Product Form: _____	$
Species: _____ Product Form: _____	$
Species: _____ Product Form: _____	$
Species: _____ Product Form: _____	$

8. Labor Payment Details.

Approximately what percentage of total employee wages for BSAI crab processing were paid to persons who live in the following regions:

f. Alaska _____%
g. Oregon _____%
h. Washington _____%
i. Another US state _____%
j. Foreign country _____%

Appendix: Survey Question Details

1. **SEASON**: record the name of one of the following management/quota areas: BS snow (opilio), Bristol Bay red king, Western AI brown, Eastern AI brown, Western AI red, BS Tanner (bairdi), Pribilof red and blue, St. Matthew blue.
 # OF CRAB PROCESSING DAYS: record the total number of days spent processing BSAI crab in each season.
SPECIES: record the name of each species processed during the season. If multiple species were processed, record each species on a separate line.
PRODUCT: record the name of each product produced from the reported species, by season. If multiple products were produced from a given species, record the total for each on a separate line.
SIZE/GRADE: record the size and grade of each product produced from the reported species, by season. If different sizes or grades of a product were produced in a season, record the total for each on a separate line.
BOX SIZE: record the box size associated with each product. If different box sizes were produced, record the total amount for each box size on separate lines.
RAW POUNDS: record the number of raw pounds used in processing the specified products.
FINISHED POUNDS: record the number of finished pounds produced for each specified product.
CUSTOM PROCESSED (Y OR N)?: record custom and non-custom processing activities on separate lines. If the recorded production was custom work, enter a "Y" – otherwise enter a "N".

2.1 **# OF CRAB POSITIONS:** record an estimate of the total number of employees engaged in, and in support of, crab processing in each 24 hour period, during each season. For example, if you typically had two shifts of 15 crab-designated laborers, you would record 30 crab positions.
TOTAL MAN-HOURS: record the sum of all hours worked by processing workers during the season.
TOTAL LABOR PAYMENT: record the total direct payment made to direct crab laborers. Exclude benefits and indirect expenses made on their behalf.

3. **RAW POUNDS SUPPLIED:** record the number of raw pounds supplied to the custom processor for processing on your behalf**.**
FINISHED POUNDS: record the number of finished pounds of the specified product processed on your behalf.
PROCESSING FEE: record the total payment you made to custom processors for their BSAI crab processing services, by species and product.

4. **GRADE/SIZE**: record the sizes/grades of the raw fish purchased each season, by species. If you purchased different sizes/grades of a particular species, record the total purchases for each on a separate line.
RAW POUNDS PURCHASED: record the total pounds of raw fish purchased in each season, by grade.
GROSS PAYMENT: record the total cost of the raw fish purchased in each season, by species and grade/size. Include any post-seasonal adjustments in the totals.

5. **FINISHED POUNDS SOLD:** record the total pounds of each product sold in the year.
GROSS REVENUE (FOB ALASKA): record the total FOB Alaska revenue received for each product sold in the year.

6.1 **a. TOTAL OF FISHERY RESOURCE LANDING TAXES, FISHERIES BUSINESS TAXES, BOROUGH AND CITY TAXES, WHERE APPLICABLE:** the sum of all direct tax payments you made to a borough or the state of Alaska as a result of landing or processing BSAI crab for the year.
b. FUEL, ELECTRICITY, LUBRICATION & HYDRAULIC FLUIDS: the total annual cost of fuel, electricity, lubrication & hydraulic fluids used in BSAI crab processing, by location.
c. PACKAGING MATERIALS & SUPPLIES: the total cost of all materials used to package BSAI crab products processed by this plant.
d. OTHER COSTS FOR DIRECT CRAB LABOR (FOOD & PROVISIONS TRANSPORTATION AND HOUSING, P&I CLAIMS, BENEFITS, RECRUITMENT, TRAINING AND EDUCATION): record the resulting costs for these items that were borne solely by you. For example, if labor was charged to offset the cost of certain items, do not include these costs.
e. RE-PACKING COSTS: record the total cost of re-packing BSAI crab products processed by this plant.

6.1 (continued)

f. BROKER FEES AND PROMOTIONS FOR BSAI CRAB SALES: record the sum of all fees paid to brokers for sales and promotion of BSAI crab in the year.

g. OBSERVER COSTS: record all costs for having observers in your plant during BSAI crab processing.

h. FREIGHT: total expenses for having equipment/items used in this plant (for BSAI crab only) shipped and stored on your behalf. Do not include freight costs for product sales, as the sales revenues are to be reported on a FOB Alaska basis.

i. PRODUCT STORAGE, HANDLING: record the total amount paid to store and handle processed BSAI crab products during the year.

k. OTHER CRAB-SPECIFIC COSTS; SPECIFY: list the total cost of other expenditures incurred this year that were specific to BSAI crab processing not included in any of the other categories. Please specify the nature of the expense(s) and do not list costs to be recorded in Sections 6.2 or the costs of permits, licenses, or IFQ fees (these costs can be determined internally by state and federal agencies).

6.2 **a. INSURANCE:** the annual insurance premiums for this plant for the year.

b. PROPERTY TAXES: the sum of all property taxes levied on this plant for the year.

c. PRINCIPAL PAYMENTS FOR PLANT & EQUIPMENT: the total annual payments made for the year on the principal of outstanding debt related to this plant and its equipment.

d. INTEREST PAYMENTS FOR PLANT & EQUIPMENT: the total annual payments made for the year for interest on outstanding debt related to this plant and its equipment.

e. CAPITAL IMPROVEMENTS IN PLANT AND EQUIPMENT: the total annual capital expenditures on new equipment and improvements related to processing or storage, by location of purchase. Exclude standard repairs and purchases that are necessary to conduct operations.

f. MAINTENANCE & REPAIR EXPENSES FOR EXISTING PLANT AND EQUIPMENT: the total annual expenses for maintaining or repairing this plant and its equipment (exclude improvements) for the year.

h. OTHER PLANT-SPECIFIC COSTS; SPECIFY: list the total cost of all other plant-specific expenditures incurred this year that were not included in any of the other categories. Please specify the nature of the expense(s) and do not list costs recorded in Sections 6.1.

Appendix 3-6

09-09-02

Floating Processor Survey

This survey is intended to gather information principally on BSAI crab operations (including CDQ fisheries). The definition of terms used in each question/category in the survey is included in an Appendix at the end of this document. Using the Appendix will help to improve the clarity of the both the questions and your responses. You can tear off these last few pages and use them as you proceed through the survey.

Person Completing the Survey

Name:_____

Title: _____

Telephone Number:_____FAX _____

E-mail address:_____

Plant Information

Plant name:_____

Owner: _____

USCG vessel ID: _____

ADF&G vessel ID: _____

1. BSAI Crab Production (include CDQ crab)

SEASON	# OF CRAB PROCESSING DAYS	SPECIES	PRODUCT	SIZE/GRADE	BOX SIZE	RAW POUNDS	FINISHED POUNDS	CUSTOM PROCESSED (Y or N)?

2.1 BSAI Crab Labor Costs

Include wages and bonuses only for direct crab labor and exclude salaried employees (such as plant managers) from total payment.

FISHERY	# OF CRAB POSITIONS	TOTAL MAN-HOURS	TOTAL LABOR PAYMENT

2.2 BSAI Crab Crew Identification

SOCIAL SECURITY NUMBERS	RESIDENCE

3. BSAI Crab Custom Processing Costs

CUSTOM BSAI CRAB PROCESSING DONE FOR YOU					
SEASON	**SPECIES**	**PRODUCT**	**RAW POUNDS SUPPLIED**	**FINISHED POUNDS**	**PROCESSING FEE**

4. BSAI Crab Costs (include CDQ crab purchases)

SEASON	**SPECIES**	**GRADE / SIZE**	**RAW POUNDS PURCHASED**	**GROSS PAYMENT**

5. BSAI Crab Sales

SPECIES	PRODUCT	SIZE/GRADE	BOX SIZE	FINISHED POUNDS	GROSS REVENUE (FOB ALASKA)

6.1 Plant-Specific BSAI Crab Costs

Record the costs incurred **for this plant only** in the year's **crab harvesting and processing** for each item in the TOTAL COST column.

COST CATEGORY	TOTAL COST
a. Total of fishery resource landing taxes, fisheries business taxes, processing taxes, borough and city taxes, where applicable	$
b. Fuel, electricity, lubrication, hydraulic fluids	$
c. Packaging materials and supplies	
Location 1) City/Port and State: _____	$
2) City/Port and State: _____	$
3) City/Port and State: _____	$
d. Other crew costs (food and provisions, transportation and housing, P&I claims, benefits, recruitment, training and education)	$
e. Re-packing costs	$
f. Broker fees and promotions for BSAI crab sales	
Season: _____ Species: _____	$
Season: _____ Species: _____	$
Season: _____ Species: _____	$
Season: _____ Species: _____	$
Season: _____ Species: _____	$
Season: _____ Species: _____	$
g. Observer Costs	
Season: _____	$
Season: _____	$
Season: _____	$
Season: _____	$
Season: _____	$
Season: _____	$
h. Freight	$
i. Product storage, handling	$
j. Waste and disposal	$
k. Other crab-specific costs; specify: _____ _____	$

6.2 Vessel-Specific Costs Record the annual costs **for this vessel only** for each item in the TOTAL column. If the reported total should not be attributed solely to BSAI crab, please record the TOTAL and place an "X" in the "PRORATE OVER ALL ACTIVITIES?" column.

COST CATEGORY	TOTAL	PRORATE OVER ALL ACTIVITIES?
a. Insurance	$	
b. Principal payments	$	
c. Interest payments	$	
d. Capital improvements in vessel, gear and equipment		
1) City/Port and State: _____	$	
2) City/Port and State: _____	$	
3) City/Port and State: _____	$	
e. Maintenance and repair expenses for vessel, gear and equipment	$	
f. Salaries for foremen, managers and other vessel-level employees not included in direct labor costs reported in 2.1 # OF EMPLOYEES: _____	$	
g. Other vessel-specific costs; specify_____ _____	$	

7. BSAI Crab Custom Processing Revenue

PRODUCT INFORMATION	REVENUE
Species: _____ Product Form: _____	$
Species: _____ Product Form: _____	$
Species: _____ Product Form: _____	$
Species: _____ Product Form: _____	$
Species: _____ Product Form: _____	$
Species: _____ Product Form: _____	$
Species: _____ Product Form: _____	$

8. Labor Payment Details

Approximately what percentage of total employee wages for BSAI crab processing were paid to persons who live in the following regions:

k. Alaska _____%
l. Oregon _____%
m. Washington _____%
n. Another US state _____%
o. Foreign country _____%

Appendix: Survey Question Details

1. **SEASON**: record the name of one of the following management/quota areas: BS snow (opilio), Bristol Bay red king, Western AI brown, Eastern AI brown, Western AI red, BS Tanner (bairdi), Pribilof red and blue, St. Matthew blue.

 # OF CRAB PROCESSING DAYS: record the total number of days spent processing BSAI crab in each season.

SPECIES: record the name of each species processed during the season. If multiple species were processed, record each species on a separate line.

PRODUCT: record the name of each product produced from the reported species, by season. If multiple products were produced from a given species, record the total for each on a separate line.

SIZE/GRADE: record the size and grade of each product produced from the reported species, by season. If different sizes or grades of a product were produced in a season, record the total for each on a separate line.

BOX SIZE: record the box size associated with each product. If different box sizes were produced, record the total amount for each box size on separate lines.

RAW POUNDS: record the number of raw pounds used in processing the specified products.

FINISHED POUNDS: record the number of finished pounds produced for each specified product.

CUSTOM PROCESSED (Y OR N)?: record custom and non-custom processing activities on separate lines. If the recorded production was custom work, enter a "Y" – otherwise enter a "N".

2.1 **# OF CRAB POSITIONS:** record an estimate of the total number of employees engaged in, and in support of, crab processing in each 24 hour period, during each season. For example, if you typically had two shifts of 15 crab-designated laborers, you would record 30 crab positions.

TOTAL MAN-HOURS: record the sum of all hours worked by processing workers during the season.

TOTAL LABOR PAYMENT: record the total direct payment made to direct crab laborers. Exclude benefits and indirect expenses made on their behalf.

4. **RAW POUNDS SUPPLIED:** record the number of raw pounds supplied to the custom processor for processing on your behalf**.**

FINISHED POUNDS: record the number of finished pounds of the specified product processed on your behalf.

PROCESSING FEE: record the total payment you made to custom processors for their BSAI crab processing services, by species and product.

4. **GRADE/SIZE**: record the sizes/grades of the raw fish purchased each season, by species. If you purchased different sizes/grades of a particular species, record the total purchases for each on a separate line.

RAW POUNDS PURCHASED: record the total pounds of raw fish purchased in each season, by grade.

GROSS PAYMENT: record the total cost of the raw fish purchased in each season, by species and grade/size. Include any post-seasonal adjustments in the totals.

5. **FINISHED POUNDS SOLD:** record the total pounds of each product sold in the year.

GROSS REVENUE (FOB ALASKA): record the total FOB Alaska revenue received for each product sold in the year.

6.1 **a. TOTAL OF FISHERY RESOURCE LANDING TAXES, FISHERIES BUSINESS TAXES, BOROUGH AND CITY TAXES, WHERE APPLICABLE:** the sum of all direct tax payments you made to a borough or the state of Alaska as a result of landing or processing BSAI crab for the year.

b. FUEL, ELECTRICITY, LUBRICATION & HYDRAULIC FLUIDS: the total annual cost of fuel, electricity, lubrication & hydraulic fluids used in BSAI crab processing, by location.

c. PACKAGING MATERIALS & SUPPLIES: the total cost of all materials used to package BSAI crab products processed by this plant.

d. OTHER COSTS FOR DIRECT CRAB LABOR (FOOD & PROVISIONS TRANSPORTATION AND HOUSING, P&I CLAIMS, BENEFITS, RECRUITMENT, TRAINING AND EDUCATION): record the resulting costs for these items that were borne solely by you. For example, if labor was charged to offset the cost of certain items, do not include these costs.

e. RE-PACKING COSTS: record the total cost of re-packing BSAI crab products processed by this plant.

6.1 (continued)

f. BROKER FEES AND PROMOTIONS FOR BSAI CRAB SALES: record the sum of all fees paid to brokers for sales and promotion of BSAI crab in the year.

g. OBSERVER COSTS: record all costs for having observers in your plant during BSAI crab processing.

h. FREIGHT: total expenses for having equipment/items used in this plant (for BSAI crab only) shipped and stored on your behalf. Do not include freight costs for product sales, as the sales revenues are to be reported on a FOB Alaska basis.

i. PRODUCT STORAGE, HANDLING: record the total amount paid to store and handle processed BSAI crab products during the year.

k. OTHER CRAB-SPECIFIC COSTS; SPECIFY: list the total cost of other expenditures incurred this year that were specific to BSAI crab processing not included in any of the other categories. Please specify the nature of the expense(s) and do not list costs to be recorded in Sections 6.2 or the costs of permits, licenses, or IFQ fees (these costs can be determined internally by state and federal agencies).

6.2 **a. INSURANCE:** the annual insurance premiums for this plant for the year.

b. PRINCIPAL PAYMENTS FOR PLANT & EQUIPMENT: the total annual payments made for the year on the principal of outstanding debt related to this plant and its equipment.

c. INTEREST PAYMENTS FOR PLANT & EQUIPMENT: the total annual payments made for the year for interest on outstanding debt related to this plant and its equipment.

d. CAPITAL IMPROVEMENTS IN PLANT AND EQUIPMENT: the total annual capital expenditures on new equipment and improvements related to processing or storage, by location of purchase. Exclude standard repairs and purchases that are necessary to conduct operations.

e. MAINTENANCE & REPAIR EXPENSES FOR EXISTING PLANT AND EQUIPMENT: the total annual expenses for maintaining or repairing this plant and its equipment (exclude improvements) for the year.

g. OTHER PLANT-SPECIFIC COSTS; SPECIFY: list the total cost of all other plant-specific expenditures incurred this year that were not included in any of the other categories. Please specify the nature of the expense(s) and do not list costs recorded in Section 6.1.

Appendix 3-6

09-09-02

Catcher-Processor Survey

This survey is intended to gather information principally on BSAI crab operations (including CDQ fisheries). The definition of terms used in each question/category in the survey is included in an Appendix at the end of this document. Using the Appendix will help to improve the clarity of the both the questions and your responses. You can tear off these last few pages and use them as you proceed through the survey.

Person Completing the Survey

Name:_____

Title: _____

Telephone Number:_____FAX _____

E-mail address:_____

Vessel Information

Vessel name:_____

Owner: _____

USCG vessel ID: _____

ADF&G vessel ID: _____

Homeport: _____

1.1 BSAI Crab Activity

SEASON	# OF DAYS AT SEA	AVERAGE CREW SIZE	# POTS LOST

1.2 BSAI Crab Production (Include CDQ crab)

SEASON	# OF CRAB PROCESSING DAYS	SPECIES	PRODUCT	SIZE/GRADE	BOX SIZE	RAW POUNDS	FINISHED POUNDS	CUSTOM PROCESSED (Y or N)?

2.1 BSAI Crab Labor Costs

Harvesting Labor:

SEASON	# OF CREW EARNING SHARES	TOTAL CREW SHARE PAYMENT	TOTAL CREW SHARE PAYMENT MINUS CAPTAIN'S SHARE

SEASON	# OF CREW EARNING WAGES	TOTAL CREW WAGE PAYMENT

Processing Labor: note: if some employees harvest and process crab, and are paid according to a share system and included in the payment above, do not include them in the following.

SEASON	# OF EMPLOYEES WITH PAY DETERMINED BY PROCESSING WORK	# OF CRAB PROCESSING POSITIONS	TOTAL MAN-HOURS	TOTAL PROCESSING LABOR PAYMENT

2.2 BSAI Crab Crew Identification

SOCIAL SECURITY NUMBER	RESIDENCE	SOCIAL SECURITY NUMBER	RESIDENCE

3. BSAI Crab Custom Processing Costs

CUSTOM BSAI CRAB PROCESSING DONE FOR YOU					
SEASON	SPECIES	PRODUCT	RAW POUNDS SUPPLIED	FINISHED POUNDS	PROCESSING FEE

4. BSAI Crab Costs from Delivering Vessels (include CDQ crab)

SEASON	SPECIES	GRADE / SIZE	RAW POUNDS PURCHASED	GROSS PAYMENT

5. Annual BSAI Crab Sales

SPECIES	PRODUCT	SIZE/GRADE	BOX SIZE	FINISHED POUNDS	GROSS REVENUE (FOB ALASKA)

6.1 Vessel-Specific BSAI Crab Costs

Record the costs incurred **for this vessel only** for the year's **crab harvesting and processing** for each item in the TOTAL COST column.

COST CATEGORY	TOTAL COST
a. Insurance (hull, P&I and pollution)	
Season: _____	$
Season: _____	$
Season: _____	$
Season: _____	$
Season: _____	$
Season: _____	$
b. Total of fishery resource landing taxes, fisheries business taxes, processing taxes, borough and city taxes, where applicable	$
c. Pot purchases	
City/Port and State:_____ Quantity_____	$
City/Port and State:_____ Quantity_____	$
City/Port and State:_____ Quantity_____	$
d. Other crabbing gear and line purchases:	
City/Port and State:_____	$
City/Port and State:_____	$
City/Port and State:_____	$
e. Bait	
Season: _____ City/Port: _____ Species: _____ Quantity: _____	$
Species: _____ Quantity: _____	$
Species: _____ Quantity: _____	$
Season: _____ City/Port: _____ Species: _____ Quantity: _____	$
Species: _____ Quantity: _____	$
Species: _____ Quantity: _____	$
Season: _____ City/Port: _____ Species: _____ Quantity: _____	$
Species: _____ Quantity: _____	$
Season: _____ City/Port: _____ Species: _____ Quantity: _____	$
Species: _____ Quantity: _____	$
Season: _____ City/Port: _____ Species: _____ Quantity: _____	$
Species: _____ Quantity: _____	$

COST CATEGORY	TOTAL COST
f. Fuel	
Season: _____ City/Port: _____ Qty: _____	$
Season: _____ City/Port: _____ Qty: _____	$
Season: _____ City/Port: _____ Qty: _____	$
Season: _____ City/Port: _____ Qty: _____	$
Season: _____ City/Port: _____ Qty: _____	$
Season: _____ City/Port: _____ Qty: _____	$
Season: _____ City/Port: _____ Qty: _____	$
Season: _____ City/Port: _____ Qty: _____	$
g. Lubrication and hydraulic fluids	
Location: 1) City/Port: _____	$
2) City/Port: _____	$
3) City/Port: _____	$
h. Other crew costs (food and provisions, transportation and housing, P&I claims, benefits, recruitment, training and education)	
i. Packaging materials and supplies	
Location 1) City/Port and State: _____	$
2) City/Port and State: _____	$
3) City/Port and State: _____	$
j. Re-packing costs	$
k. Broker fees and promotions for BSAI crab sales	
Season: _____ Species: _____	$
Season: _____ Species: _____	$
Season: _____ Species: _____	$
Season: _____ Species: _____	$
Season: _____ Species: _____	$
Season: _____ Species: _____	$
l. Observer Costs	$
Season: _____	$
Season: _____	$
Season: _____	$
Season: _____	$
Season: _____	$
Season: _____	$

COST CATEGORY	TOTAL COST
m. Freight	$
n. Product storage, handling	$
o. Waste and disposal	
p. Other crab-specific costs; specify: _____ _____	$

6.2 Vessel-Specific Costs

Record the annual costs **for this vessel only** for each item in the TOTAL column. If the reported total should not be attributed solely to BSAI crab, please record the TOTAL and place an "X" in the "PRORATE OVER ALL ACTIVITIES?" column.

COST CATEGORY	TOTAL	PRORATE OVER ALL ACTIVITIES?
a. Principal payments	$	
b. Interest payments	$	
c. Capital improvements in vessel, gear and equipment		
1) City/Port and State: _____	$	
2) City/Port and State: _____	$	
3) City/Port and State: _____	$	
d. Maintenance and repair expenses for vessel, gear and equipment		
1) City/Port and State: _____	$	
2) City/Port and State: _____	$	
3) City/Port and State: _____	$	
e. Salaries for foremen, managers and other vessel-level employees not included in direct labor costs reported in 2.1 # OF EMPLOYEES: _____	$	
f. Other vessel-specific costs; specify_____ _____	$	

7. BSAI Crab Custom Processing Revenue

PRODUCT INFORMATION	REVENUE
Species: _____ Product Form: _____	$
Species: _____ Product Form: _____	$
Species: _____ Product Form: _____	$
Species: _____ Product Form: _____	$
Species: _____ Product Form: _____	$
Species: _____ Product Form: _____	$
Species: _____ Product Form: _____	$
Species: _____ Product Form: _____	$

8. Labor Payment Details

8.1 Which of the following expenses were subtracted from total revenues (gross stock) before calculating the crew share? (*Circle one number for each*)

	DEDUCTED	NOT DEDUCTED
a. Fuel and lube _____	1	2
b. Food and provisions_____	1	2
c. Observer costs _____	1	2
d. Gear loss _____	1	2
e. Other (specify) _____	1	2

8.2 What percentage of the net share (gross stock minus the expenses indicated above in 8.1) went to:

a. Boat Share _____%
b. Crew Share (including skipper)..... _____%

8.3 Approximate the percentage of crew payments paid to persons who live in the following regions:

p. Alaska _____%
q. Oregon _____%
r. Washington _____%
s. Another US state…… _____%
t. Foreign country…….. _____%

Appendix: Survey Question Details

1.1 **SEASON**: record the name of one of the following management/quota areas: BS snow (opilio), Bristol Bay red king, Western AI brown, Eastern AI brown, Western AI red, BS Tanner (bairdi), Pribilof red and blue, St. Matthew blue.
 # OF DAYS AT SEA: record the total number of days you spent at sea during the specified season.
AVERAGE CREW SIZE: record the average number of crewmembers onboard for each trip taken in each of the BSAI crab fisheries.

1.2 **# OF CRAB PROCESSING DAYS:** record the total number of days spent processing BSAI crab in each season.
SPECIES: record the name of each species processed during the season. If multiple species were processed, record each species on a separate line.
PRODUCT: record the name of each product produced from the reported species, by season. If multiple products were produced from a given species, record the total for each on a separate line.
SIZE/GRADE: record the size and grade of each product produced from the reported species, by season. If different sizes or grades of a product were produced in a season, record the total for each on a separate line.
BOX SIZE: record the box size associated with each product. If different box sizes were produced, record the total amount for each box size on separate lines.
RAW POUNDS: record the number of raw pounds used in processing the specified products.
FINISHED POUNDS: record the number of finished pounds produced for each specified product.

CUSTOM PROCESSED (Y OR N)?: record custom and non-custom processing activities on separate lines. If the recorded production was custom work, enter a "Y" – otherwise enter a "N."

2.1 **# OF CREW EARNING SHARES**: record the number of crewmembers who were paid according to a share system (as opposed to an hourly, daily, or trip wage).

TOTAL CREW SHARE PAYMENT: record the total payment made to all crewmembers paid on the share system, including the captain. Do not include other crew-related expenses (such as benefits, food and provisions, etc.) in the payment columns.

TOTAL CREW SHARE PAYMENT MINUS CAPTAIN'S SHARE: subtract the captain's share payment off of the total share payment and record the value.

 # OF CREW EARNING WAGES: record the number of crewmembers who were paid a wage (as opposed to a share system).

TOTAL CREW WAGE PAYMENT: record the total payment made to all wage-earning crewmembers. Do not include other crew-related expenses in the payment column.

 # OF EMPLOYEES WITH PAY DETERMINED BY PROCESSING WORK: record the total number of employees whose pay was determined by their processing activities.

 # OF CRAB POSITIONS: record an estimate of the total number of employees engaged in, and in support of, crab processing in each 24 hour period, during each season. For example, if you typically had two shifts of 15 crab-designated laborers, you would record 30 crab positions.

TOTAL MAN-HOURS: record the sum of all hours worked by processing workers during the season.

TOTAL PROCESSING LABOR PAYMENT: record the total direct payment made to direct crab laborers engaged in processing. Exclude benefits and indirect expenses made on their behalf.

5. **RAW POUNDS SUPPLIED:** record the number of raw pounds supplied to the custom processor for processing on your behalf**.**

FINISHED POUNDS: record the number of finished pounds of the specified product processed on your behalf.

PROCESSING FEE: record the total payment you made to custom processors for their BSAI crab processing services, by species and product.

4. **GRADE/SIZE**: record the sizes/grades of the raw fish purchased each season, by species. If you purchased different sizes/grades of a particular species, record the total purchases for each on a separate line.

RAW POUNDS PURCHASED: record the total pounds of raw crab purchased in each season, by grade.

GROSS PAYMENT: record the total cost of the raw crab purchased in each season, by species and grade/size. Include any post-seasonal adjustments in the totals.

5. **FINISHED POUNDS:** record the total pounds of each product sold in the year.

GROSS REVENUE (FOB ALASKA): record the total FOB Alaska revenue received for each product sold in the year.

6.1 **a. INSURANCE (HULL, P&I AND POLLUTION):** the annual insurance premiums for the year for this vessel, by crab season. If some insurance costs cannot be attributed to each crab season, enter these costs in Section 6.2.

b. TOTAL OF FISHERY RESOURCE LANDING TAXES, FISHERIES BUSINESS TAXES, BOROUGH AND CITY TAXES, WHERE APPLICABLE: the sum of all tax payments you made directly to a borough or the state of Alaska as a result of landing or processing BSAI crab for the year.

c. POT PURCHASES: the total quantity and cost of pots purchased for the year, by location of purchase.

d. OTHER CRABBBING GEAR AND LINE PURCHASES: the total expense on line, floats, and other fishing gear other than pots used in BSAI crab fishing, by location of purchase.

e. BAIT: the total quantity and cost of bait (by species) purchased in each season for the year, by location of purchase. If you caught a portion of your bait, do not list the location and estimate the cost of catching the bait, by species. If you received bait from a processor and this cost is already reflected in your reported catch revenues (i.e., you were paid less to reflect the bait given to you), do not record this as a bait cost here.

f. FUEL: the total quantity and cost of fuel used in crab fishing for the year, by location of purchase.

g. LUBRICATION AND HYDRAULIC FLUIDS: the total cost of lubrication & hydraulic fluids used in BSAI crab fisheries for the year.

6.1 (continued)

h. OTHER CREW COSTS (FOOD AND PROVISIONS TRANSPORTATION AND HOUSING, P&I CLAIMS, BENEFITS, RECRUITMENT, TRAINING AND EDUCATION): record the resulting costs for these items that were borne solely by you. For example, if labor was charged to offset the cost of certain items, do not include these costs.

i. PACKAGING MATERIALS & SUPPLIES: the total cost of all materials used to package BSAI crab products processed by this vessel.

j. RE-PACKING COSTS: record the total cost of re-packing BSAI crab products processed by this vessel.

k. BROKER FEES AND PROMOTIONS FOR BSAI CRAB SALES: record the sum of all fees paid to brokers for sales and promotion of BSAI crab in the year.

l. OBSERVER COSTS: record all costs for having observers on your vessel during BSAI crab processing.

m. FREIGHT: total expenses for having equipment/items used on this vessel (for BSAI crab only) shipped and stored on your behalf. Do not include freight costs for product sales, as the sales revenues are to be reported on a FOB Alaska basis.

n. PRODUCT STORAGE, HANDLING: record the total cost of storing processed BSAI crab products during the year.

p. OTHER CRAB-SPECIFIC COSTS; SPECIFY: list the total cost of other expenditures incurred this year that were specific to BSAI crab processing not included in any of the other categories. Please specify the nature of the expense(s) and do not list costs to be recorded in Section 6.2 or the costs of permits, licenses, or IFQ fees (these costs can be determined internally by state and federal agencies).

6.2 **a. PRINCIPAL PAYMENTS:** the total annual payment made this year on the principal for outstanding debt related to this vessel.

b. INTEREST PAYMENTS: the total interest expense paid this year on outstanding debt related to this vessel.

c. VESSEL AND GEAR IMPROVEMENTS: the total annual expenditure on new equipment related to fishing, by location of purchase. Include improvements but exclude standard repairs and purchases that are necessary to conduct fishing operations. Exclude the pot and crabbing gear and line purchases listed above.

d. VESSEL AND GEAR MAINTENANCE AND REPAIR EXPENSES: the total expenses for maintaining this vessel for fishing, and for repairing mechanical and physical problems with the vessel or equipment (exclude improvements).

f. OTHER VESSEL-SPECIFIC COSTS; SPECIFY: record any other vessel-specific cost(s) that was not included in the categories above and not reported in the crab season-specific table (Section 4.1), such as port and harbor charges, or other insurance expenses.

Appendix 3-6

Sections 7 and 8

Section 7: Potential uses of the industry's September 5th data proposal

This section of the appendix provides a discussion of some specific questions that are likely to be of interest to the Council and of the analysts' ability to answer those questions given the industry's September 5th data collection proposal (see Appendix 3-6, Section 6 for the submitted documents). As will be shown in more detail below (in Table 3-7.7.1), some of the questions can be addressed adequately and some cannot. Presumably in response to the limited analyses that could be performed with the data provided in the September proposals, in October the Council moved to evaluate three alternatives that mandate the collection of all variable cost data and varying degrees of fixed cost data. In all fairness to industry, they had submitted their proposals before the direction was provided at the October Council meeting, and again have agreed to provide whatever data the Council deems appropriate.

Without information on all input costs and revenues a firm's profitability cannot be estimated. Therefore, based on the September proposal, the profitability of the industry, sectors within the industry, or firms within each sector, cannot be estimated. Quasi-rents could be estimated, but just for the BSAI crab operations of a firm, and the role of rationalization in any observed cost changes could not be distinguished with confidence. Technical efficiency and productivity of firms within the industry cannot be accurately estimated without measures of all the inputs used in harvesting and processing crab. Cost efficiency of firms cannot be estimated without accompanying measures of the quantity (or price) of the inputs used. Community impact analysis cannot be undertaken without information on the location, price, and quantity of input purchases. Finally, with the data that industry has proposed to provide, it will not be possible to provide accurate estimates of net benefits[1] to the Council for use in RIRs.

Questions that could be answered with the data in the September 5th proposal are those regarding the number of employees (direct labor only) in the crab fishery, the cost of employing those individuals, changes in ownership patterns and structure, changes in vertical integration, quasi-rents earned solely in the BSAI crab portion of a firm's business, and the value of QS transfers. The ability to quantify changes in these areas would, however, represent an improvement over our current state of knowledge.

The following table shows issues that the Council may wish to see addressed in their reports, the information that would be available given the September 5th industry proposals and existing data bases, how well that information can address the issues, and the additional data that would be required to perform a satisfactory analysis[2]. The measures to be estimated were taken from Section 2 in Appendix 3-6.

[1]Recall that net benefit analyses compute producer surplus (total revenue minus total costs excluding transfer payments [e.g., taxes, grants, etc.]) and consumer surplus within the US economy.

[2] The "additional data needed" is that which is generally accepted as a required element of the model(s) typically used by economists to construct each objective measure. Other data elements may be incorporated to enhance one's confidence in the estimate, but these elements are omitted here.

Table 3-7.7.1 Economic measures, data, and confidence in estimate

Measures	Data Collected (*italics* indicate industry proposed data)	Additional Data Needed from Industry	Confidence in Estimate without this Additional Data
Issue: Excess Harvesting and Processing Capacity and Low Economic Returns			
Harvesting capacity and capacity utilization (CU)	Harvest levels per vessel, time spent fishing, number of active vessels, *some variable input costs*	Complete variable input costs and quantities, "fixed costs" related to capital (R&M and new purchases) and salaried employees	Fishery participation and activity can be monitored, but standard CU measures cannot be adequately constructed.
Processing capacity and capacity utilization	Processing levels per plant, time spent processing, number of active plants, *variable input costs and quantities*	"Fixed costs" related to capital (R&M and new purchases) and salaried employees	Processing activity can be monitored, and *technical* capacity and CU measures can be constructed with some caveats[3].
Harvesting sector profit for BSAI crab only (total revenue - total cost	A firm's revenue and *some variable input costs from the BSAI crab fishery only*	Complete fixed and variable cost data	Cannot be estimated because some variable costs and all fixed costs would not be provided.
Harvesting sector quasi rent for BSAI crab only (total revenue - total variable cost)	A firm's revenue and *some variable input costs from the BSAI crab fishery only*	Complete variable input costs and quantities, "fixed costs" related to capital (R&M and new purchases) and salaried employees	Rough estimates for the BSAI crab portion of a firm's operation could be provided.
Processing sector profit for BSAI crab only	A firm's revenue and *some variable input costs (and quantities) from BSAI crab processing only*	Complete fixed and variable cost data	Cannot be estimated because fixed costs would not be provided.
Processing sector quasi rent for BSAI crab only	A firm's revenue and *variable input costs (and quantities) from BSAI crab processing only*	"Fixed costs" related to capital (R&M and new purchases) and salaried employees	Estimates for the BSAI crab portion of a firm's operation could be provided
Harvesting sector productivity and efficiency	Catch levels, fishing weeks, pot lifts, *some variable input cost data*	Complete variable input costs and quantities, "fixed costs" related to capital (R&M and new purchases) and salaried employees	Reliable estimates of productivity, technical efficiency, and allocative cost efficiency cannot be developed without measures of input use to accompany the cost data

[3]A distinction is drawn here between *technical* and *economic* capacity (and CU) estimates. As discussed earlier, economic capacity estimates reflect the extent to which costs are minimized through utilization of capacity, and thus provide a richer interpretation. Technical capacity (and CU) estimates indicate the extent to which a firm is producing near their maximum physical output level, regardless of cost.

Table 3-7.7.1(Cont.) Economic measures, data, and confidence in estimate

Measures	Data Collected (*italics* indicate industry proposed data)	Additional Data Needed from Industry	Confidence in Estimate without this Additional Data
Processing sector productivity and efficiency	Production levels, *crab purchases*, weeks processing crab, *variable input cost and quantity data*	Costs related to capital (R&M and new purchases) and salaried employees	Estimates of productivity, technical efficiency, and allocative cost efficiency can be developed; data on capital expenditures/value are required for good estimates
Management costs	Will not rely on data collected from industry	None	Good estimates can be provided by agencies.
Issue: Lack of Economic Stability for Harvesters, Processors and Coastal Communities			
Distribution of catch and ex-vessel revenue by vessel class (e.g., length class and type), port of landing, and residence	Revenue, fish tickets, *ownership, and employment data* (*for direct labor*)	None	Good estimates can be made with the data sources listed
Distribution of processed product revenue by community and processor or processor category (size, ownership, location)	Revenue, fish tickets/RAM landings, *ownership, and employment data* (*for direct labor*)	None	Good estimates can be made with the data sources listed
Distribution of profits and quasi rents within and between the harvesting and processing sectors	Revenue, *some BSAI crab variable costs*, and plant/owner location data	Complete variable and fixed costs	Profits cannot be estimated. Quasi rents in BSAI crab (with caveats) could be assigned to plant/ vessel
Distribution of harvester use rights by vessel class	RAM QS data	None	Good estimates can be made
Distributions of harvester and processor use rights by processor or processor category	RAM QS data	None	Good estimates can be made
Seasonality of catch and ex-vessel revenue by vessel class, port of landing, and residence	Fish tickets/RAM *landings data, revenue, ownership data*	None	Good estimates can be made
Processor ownership interest in BSAI crab catcher vessels and harvester QS/catch history	*Ownership data*, RAM QS data	None	Good estimates can be made
Catcher vessel ownership interest in BSAI crab processors and processing QS/catch history	*Ownership data*, RAM QS data	None	Good estimates can be made

Table 3-7.7.1(Cont.) Economic measures, data, and confidence in estimate

Measures	Data Collected (*italics* indicate industry proposed data)	Additional Data Needed from Industry	Confidence in Estimate without this Additional Data
Concentration of domestic and foreign ownership in the BSAI crab harvesting and processing sectors	*Ownership data/MARAD data*.	None. Assumes information that links companies to parent companies will be collected	Would need to collect as part of the ownership data or be allowed to access MARAD data.
Level and distribution of harvesting and processing sector employment and payments to labor (number of individuals, hours/days worked, and income)	*Aggregate employment data for direct labor*	Need estimates of hours/days worked, labor cost estimates need to be separated into payments to labor and other labor costs (benefits, training, etc.)	Estimates of labor costs (not wages) and the number of individuals employed would be provided. Hours/days worked would be problematic, and labor payments would have to be imputed from total labor costs
Degree of involvement of BSAI crab harvesters and processors in other AK fisheries	RAM QS data, fishtickets, NMFS Blend data, COAR	None	Good estimates can be made with the listed data sources
Value of use right	RAM Transfer data	None, assuming RAM tracks transfer prices	Reasonable estimates could be made if RAM tracks the value of transfers
Regional economic impacts (employment and income) of the BSAI crab fisheries	*No data is currently available with industry proposals*	Location, quantity, and cost of all purchases made by crab harvesters and processors	Cannot be estimated
Issue: High Levels of Loss of Life and Injury			
Vessel safety	USCG vessel safety statistics and NIOSH data	None	Reasonable estimates can be made
Number of days at sea by weather risk level	Fish tickets and weather service data	Information on specific days at sea	Difficult to estimate because we cannot determine the specific days at sea
Pots carried or fished per trip by vessel class	Only pot limit and buoy tag data are available	Information on the number of pots fished	Could not estimate the number of pot fished - especially under an IFQ system

Some members of industry have expressed concern that the data collection elements proposed by agency economists will be used to study the profits of individual firms, and that the information might be used in the future to redistribute harvest rights. While it may be possible for that to occur[4], the questions agency economists are tasked with addressing are rarely concerned with the profits of a single firm. Economic analyses generally focus on *"exploring the ins and outs of how society's pool of scarce resources (..natural resources, technology, labor, capital goods, managerial talents) can be utilized to produce a stream of goods and services that produce the greatest consumer and societal fulfillment"* (Thompson, 1985).

In producing RIRs for the Council and SOC, analysts are required to estimate the action's impact on net benefits to the Nation, which does not elicit information in individual plants, vessels, or firms. The Council has also asked for periodic reports on the success of the crab rationalization program. The estimates contained in such reports also do not require the release of individual records. Therefore, none of the information gathered as part of this process would be presented in public documents or reports that would identify the profitability of a vessel/processor/firm. All information would be presented in aggregate to preserve the confidentiality of the participants in the fishery.

[4]The Council may begin an FMP amendment for a fishery when problems are brought to their attention that they feel warrant action on their part.

Section 8: Effects of aggregation in economic analyses

It is clear that aggregating the results of analyses based upon confidential data is a prudent step, as it protects the identities of all parties involved, yet allows for public discussion of the results. Furthermore, aggregating results obtained from analyses in no way compromises the quality of work, types of methods that can be used, or one's confidence in the results. The same cannot be said, however, when the underlying data used to construct analyses is aggregated. Aggregating data prior to analyses gives rise to several problems that limit analysts' ability to understand the effects of rationalization.

Diminished Ability to Verify the Accuracy of Data

When data is only examined at an aggregate level, one is unable to spot data anomalies that may lie within particular observations. Data anomalies would only be obvious if the underlying error is quite large, and would likely go unobserved in other cases. Even in cases where the suspected error were sufficiently large to raise questions, the analyst would be unaware of the specific source that gave rise to the anomaly, which would make it more difficult to track down. Finally, observations which contain outliers (i.e., those which are reported correctly, yet differ greatly from other observations within the sample) cannot be distinguished, interpreted, or handled differently from more representative data points when constructing models or providing descriptive statistics.

Inability to Discern Distributional Impacts

The use of aggregate data does not allow the analyst to describe the number of firms that "gained" or "lost" according to a particular metric (e.g., quasi-rents, profits, productivity, efficiency) – only the net outcome can be expressed. Therefore, it is not possible to determine with certainty whether a majority of firms are better or worse off because of a particular policy action. An obvious result of not being able to discern the number of firms that gained and the number that lost is an inability to explain why that pattern came about. This would make it difficult to adapt policies in response to unintended effects (effects which may be immeasurable, coincidentally, if analysis relies upon aggregated data) .

Furthermore, when data is aggregated according to a particular rationale (say, by size class), it is not possible to restructure the data according to other groupings that may be of interest to the Council. Only if all vessels within the aggregated groups share the characteristics of the other groupings can one change the point of reference for the analysis.

Limited Ability to Conduct Statistical Analyses

While aggregate data might provide some useful information for tracking the economic performance (e.g., total quasi-rents for each group or averages across groups) it would not be very useful for policy analysis. With access to only a limited number of observations, one cannot estimate the statistical models that allow analysts to isolate the effects of policies from other external effects (such as market or stock effects). In order to clarify the role of observations within statistical models, the following discussion is provided.

Economic theory is concerned with explaining the relationships among economic variables and using that information to explain, evaluate, and/or predict production, allocation, and distribution decisions. The economic variables typically considered when analyzing production decisions are the inputs used, the output obtained, and the prices paid or received for the inputs and outputs, respectively. This process typically involves specifying a "model" that characterizes the salient aspects of a particular process or decision. The model defines the general relationships to be examined, and relies upon data on observed choices and factors affecting those choices to provide information on relationships of interest.

One motivation for constructing models, as opposed to merely observing each factor in a production or decision making process in isolation, is that several influential factors may change simultaneously and one

cannot distinguish the role (or the relative importance) each may have played on the observed outcome. In such cases, one is unable to give a qualitative or anecdotal description of why the observed result came about. One may be able to use *a priori* judgement about the effect of each factor in isolation, but the collective effect of simultaneous factors that may each have different and/or offsetting impacts cannot be deciphered.

Fortunately, a statistical model allows one to incorporate several important factors (or "variables") that collectively determine an outcome, and structure the roles of these variables to reflect the nuances of the situation being examined. The basic structure chosen to characterize these relationships is called the "specification", which may be thought of as a definition of the variables that affect the decision being examined and the way in which they are involved.

The primary role of the data used in a model is to contribute information to estimate and quantify the role or effect of each variable on the decision. This information then allows one to estimate the overall effects that would arise when multiple variables change simultaneously, or predict the outcome that is likely to occur when the variables take on particular values. Because each data point used in the model represents an observed outcome and gives the corresponding value of the variables that affect that outcome, having more data points generates more evidence to characterize the role and relative magnitude of each variable in the relationship under study. Thus, the quality of the information obtained from the model depends crucially upon the number of observations one has to rely upon.

Once the relationship between outcomes and each influential variable has been estimated, one can construct estimates of the likely outcome that would occur if particular values of the influential variables were to arise. For example, if one has a good estimate of the way (direction and magnitude) in which fishing costs are affected by input prices and stock conditions, and a mechanism to monitor changes in those variables, one can identify the costs changes that arise from other impacts such as a changes in the management of the fishery (e.g., rationalization). One can isolate these external impacts because one is simultaneously accounting for any changes in the other salient variables that affect harvesting costs.

The role of each variable in the model is identified by examining statistical correlations between its value and the associated outcome. The benefit of estimating the relationships in this way is that the strength of the correlations can be quantified in order to assess one's confidence in the estimated relationships, or define a range of values in which the estimates are very likely to lie ("confidence intervals"). However, the precision of the estimated relationships is dependent on the number of data points (outcomes and their influential variables) one observes, and the confidence in, and precision of, estimates diminishes with fewer observations. In this way, it is typically the number of observations available to the analyst that limits the complexity and realism of a model, and one's confidence in the conclusions that may be drawn.

As a result, by aggregating data on production decisions over one or more firms, one immediately diminishes a model's ability to accurately characterize the relationships of interest as well as the certainty and precision of one's estimates. Furthermore, restrictions not associated with the loss of observations are also imposed through aggregation. Specifically, rather than looking at individual decisions and the state of the factors that effect them, one looks at the net outcome of a multitude of decisions and states of nature. Reliance on a "representative" data set therefore masks reality, requires one to assume that all firms are affected identically by changes in the influential variables, and necessitates that large costs incurred by one firm and benefits gained by another go unaccounted.

It is worth emphasizing, however, that the benefits of firm-level data in models (increased precision, robustness, and confidence in the estimated relationships) need not be offset by concerns regarding the release of the confidential data when the results of the model are reported. One can present results of a

models at various levels of aggregation (focusing on groups of interest) -- as though the firm-level detail was never there. The essential difference, however, is that much more information (based on actual decisions) went into establishing the relationships described by the model, even though the level of sensitive detail shown in the model results is identical.

Bias Arising from Incorrect Aggregation

Up to this point, the discussion has centered on the limited analyses that can be conducted with aggregate data, and has not focused on issues related to the way in which data are aggregated. These issues have their roots in economic theory, and are therefore more difficult to convey without use of mathematics, but can be summarized as follows. There are assumptions implicitly made when one groups together multiple vessels or plants, which, if incorrect, can severely bias the results of the economic model one is constructing. Typical assumptions that must hold, for example, are that all plants/vessels and decision making entities are "identical" (in terms of their costs, risk preferences, the type of technology they use, etc.). When such assumptions are not valid, the aggregation leads to erroneous results.

The economics literature provides a vast discussion of the problems associated with aggregating over firms or individuals. Two well-written books on production theory provide complete chapters on issues related to aggregation bias (Chambers 1988, and Cornes 1992). Many journal articles have also been written on this topic. Examples include Crown (1990), DeBeaumont and Singell (1999), Derrick and Wolken (1985), De Serres, Scarpetta and de la Maisonneuve (2001), Fortin (1991), Gupta (1971), Kymn (1990), Lai (1991), May Lee (1997), Lee, Pesaran and Pierse (1990), Lewbel (1992), Lovell (1973), Lovell *et al.* (1988), Mittelhammer *et al*. (1996), Mozayeni (1998), Olsen (2000), Pesaran *et al*. (1994), Shumway and Davis (2001), Teulings (2000), and Thomas and Tauer (1994).

An Empirical Example of Aggregation Bias

The literature cited above contains many examples of aggregation bias, but in an attempt to provide an example directly related to the fishing industry (and crab in particular), we provide the following. In October 2002, the Alaska Fisheries Science Center compiled a report that provided quantitative estimates of fishing capacity for the vessels that participated in federally managed Alaskan fisheries in 2001 (NMFS, 2002). The estimates computed in the report used vessel-level data to estimate what each vessel could have caught, by species, if they targeted the same species as in 2001, but fished the maximum number of weeks they had ever fished (over the 1990-2001 period). Once estimates were computed for each vessel, vessels were categorized according to vessel type, gear and other factors (e.g., target species, vessel length, license type). Table 3-7.8.1 below shows the capacity estimates for the group of catcher vessels using pot gear for Pacific Cod and crab. Estimates in the "Disaggregated Data" column were computed with individual vessel observations, using the methodology described above. Estimates in the "Aggregate Data" column were computed by taking the means for each of the variables used in the former calculations to create an aggregate capacity estimate for each species.

Table 3-6.8.1 Capacity estimates based on aggregated and disaggregated data

Species	Aggregate Data	Disaggregated Data	% Difference
Pacific Cod	25,869.4	27,781.0	-6.9%
Golden King Crab	3,656.3	4,930.0	-25.8%
Red King Crab	4,623.8	12,104.0	-61.8%
Tanner Crab	13,691.3	35,495.0	-61.4%

As can be seen in the third column, the capacity estimates based on aggregated and disaggregated data are substantially different (especially for each crab species). Although the potential bias that may arise in a model is dependent upon the degree of heterogeneity in the fleet under study (which is masked by only examining means or totals), it is evident that the crab fleet has enough heterogeneity to be affected. With that in mind, the potential for creating such biases through aggregation represents a significant concern that should be considered when designing and implementing the mandatory data collection.

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DRAFT Council Motion for BSAI Crab Rationalization
June 10, 2002 as updated through the June 9, 2004

The following incorporates the preferred Bering Sea Crab Rationalization Program Alternatives – established at the Council's June 2002, October 2002, December 2003, January/February 2003, April 2003, February 2004, and June 2004 meetings. Unless otherwise noted, the provisions were adopted at the June 2003 meeting. This motion advances a VOLUNTARY THREE PIE COOPERATIVE, designed to recognize the prior economic interests and importance of the partnership between harvesters, processors and communities.

BSAI Crab Rationalization Problem Statement

Vessel owners, processors and coastal communities have all made investments in the crab fisheries, and capacity in these fisheries far exceeds available fishery resources. The BSAI crab stocks have also been highly variable and have suffered significant declines. Although three of these stocks are presently under rebuilding plans, the continuing race for fish frustrates conservation efforts. Additionally, the ability of crab harvesters and processors to diversify into other fisheries is severely limited and the economic viability of the crab industry is in jeopardy. Harvesting and processing capacity has expanded to accommodate highly abbreviated seasons, and presently, significant portions of that capacity operate in an economically inefficient manner or are idle between seasons. Many of the concerns identified by the NPFMC at the beginning of the comprehensive rationalization process in 1992 still exist for the BSAI crab fisheries. Problems facing the fishery include:

Resource conservation, utilization and management problems;
Bycatch and its' associated mortalities, and potential landing deadloss;
Excess harvesting and processing capacity, as well as low economic returns;
Lack of economic stability for harvesters, processors and coastal communities; and
High levels of occupational loss of life and injury.

The problem facing the Council, in the continuing process of comprehensive rationalization, is to develop a management program which slows the race for fish, reduces bycatch and its associated mortalities, provides for conservation to increase the efficacy of crab rebuilding strategies, addresses the social and economic concerns of communities, maintains healthy harvesting and processing sectors and promotes efficiency and safety in the harvesting sector. Any such system should seek to achieve equity between the harvesting and processing sectors, including healthy, stable and competitive markets.

Elements of the Crab Rationalization Program

Harvesting Sector Elements

Harvester shares shall be considered a privilege and not a property right.

1.1 Crab fisheries included in the program are the following fisheries subject to the Federal FMP for BSAI crab:

Bristol Bay red king crab
Brown king (AI Golden king) crab
Adak (WAI) red king crab – West of 179° W
Pribilof Islands blue and red king crab
St. Matthew blue king crab
Opilio (EBS snow) crab
Bairdi (EBS Tanner) crab

3. Exclude the EAI Tanner, WAI Tanner, Dutch Harbor (EAI) red king crab, and Adak (WAI) red king crab east of 179° West longitude.

1.2 Persons eligible to receive an initial allocation of QS must be:

Option 1. Any person that holds a valid, permanent, fully transferable LLP license.

1.3 Categories of QS/IFQs

1.3.1 Crab Fishery Categories - QS/IFQs will be assigned to each of the crab fisheries included in the program as identified in paragraph 1.1 except Dutch Harbor red king, EAI Tanner, and WAI Tanner and WAI red king crab east of 179° West longitude.

1.3.1.1 Brown king crab (AI golden king crab) option.

Option 1. Split into two categories: Dutch Harbor (EAI) brown king crab (east of 174° W long.) and Western Aleutian Islands brown king crab (west of 174° W long.).

1.3.2 Harvesting sector categories - QS/IFQs will be assigned to one of the following harvesting sector categories:
a. catcher vessel (CV), or
b. catcher/processor (CP)

QS-IFQ for the Catcher/Processor sector is calculated from the crab that were both harvested and processed onboard the vessel. This shall confer the right to harvest and process crab aboard a catcher processor in accordance with section 1.7.2.

1.3.3 Processor delivery categories - QS/IFQs for the CV sector shall be assigned to the following two processor delivery categories (the percentage split between class A/B shares is defined under the Processing Sector Elements, 2.4):
(a) Class A – allow deliveries only to processors with unused PQs
(b) Class B – allow deliveries to any processor, except catcher processors

1.3.4 Regional Categories - QS/IFQs for the CV sector is assigned to regional categories. The two regions are defined as follows (see Regionalization Elements for a more detailed description of the regions):
North Region - All areas on the Bering Sea north of 56° 20' N. Latitude.
South Region - All areas not included in the North Region.

1.4 Initial allocation of QS

1.4.1. Calculation of initial QS distribution will be based on legal landings excluding deadloss.

(a) Calculation of QS distribution. The calculation is to be done, on a vessel-by-vessel basis, as a percent of the total catch, year-by-year during the qualifying period. Then the sum of the yearly percentages, on a fishery-by-fishery basis, is to be divided by the number of qualifying years included in the qualifying period on a fishery-by-fishery basis to derive a vessel's QS.

For each of the fisheries for which such a vessel holds valid endorsement for any years between the sinking of the vessel and the entry of the Amendment 10 replacement vessel to the fishery and was active as of June 10, 2002, allocate QS according to 50% of the vessel's average history for the qualifying years unaffected by the sinking.

Additional Sunken Vessel Provision (from December 2002 motion)

The following provision would apply to persons whose eligibility to replace their vessel was initially denied under PL 106-554. The sunken vessel must have been replaced with a newly constructed vessel and have been under construction by June 10, 2002, and participated in a Bering Sea crab fishery by October 31, 2002 for a person to receive a benefit under this provision.

For each of the fisheries for which such a vessel holds a valid endorsement , for all seasons between the sinking of the vessel and the entry of the replacement vessel to the fishery within the IRS replacement period (as extended by the IRS, if applicable) allocate QS according to 50 percent of the vessel's average history for the qualifying years unaffected by the sinking. Construction means the keel has been laid.

(b) Basis for QS distribution.

Option 1. For eligibility criteria in paragraph 1.2, the distribution of QS to the LLP license holder shall be based on 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 vessel.

(Option 1) Persons who have purchased an LLP, with GQP, EQP and RPP qualifications to remain in a fishery may obtain a distribution of QS on the history of either the vessel on which the LLP is based or on which the LLP is used, NOT both. License transfers for purposes of combining LLPs must have occurred by January 1, 2002.

(Old Option 3) In cases where the fishing privileges (i.e. moratorium qualification or LLP license) of an LLP qualifying (i.e. GQP, EQP, RPP and Amendment 10 combination) vessel have been transferred, the distribution of QS 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. The only catch histories that may be credited by transfer under this suboption are the individual catch histories of vessels that generate a valid permanent fully transferable LLP license.

1.4.2. Qualifying Periods for Determination of the QS Distribution:

1.4.2.1 Opilio (EBS snow crab)

Option 4. 1996 - 2000 (5 seasons)
a. Best 4 seasons

1.4.2.2 Bristol Bay red king crab

Option 3. 1996 - 2000 (5 seasons)
a. Best 4 seasons

1.4.2.3 Bairdi (EBS Tanner crab)

Option 2. 91/92 - 1996 (best 4 of 6 seasons)

1.4.2.4 and 1.4.2.5 Pribilof red and blue king crab

Option 2. 1994 - 1998
b. Drop one season

1.4.2.6 St. Matthew blue king crab

Option 2. 1994 - 1998
b. Drop one season

1.4.2.7 Brown king crab (based on biological seasons)
(*Options apply to both Dutch Harbor (EAI) and Adak western Aleutian Island brown king crab)*

Option 4. 96/97 2000/01 (all 5 seasons)

Suboption: Award each initial recipient QS based on:
b. historical participation in each region.

1.4.2.8 Adak (WAI) red king crab - west of 179° west long.

Option 1. 1992/1993 – 1995/1996 (4 seasons)
d. Best 3 seasons

1.5 Annual allocation of IFQs:

1.5.1 Basis for calculating IFQs:

Option 2. Convert GHL to a TAC and use the TAC as the basis.

1.6 Transferability and Restrictions on Ownership of QS/IFQs:

1.6.1 Persons eligible to receive QS/IFQs by transfer:

Option 2. US citizens who have had at least:
(b). 150 days of sea time

Option 3. Entities that have a U. S. citizen with 20% or more ownership and at least:
(b). 150 days of sea time

Suboption: Initial recipients of harvesting quota share grandfathered
*Definition of sea time
Option 1. Sea time in any of the U.S. commercial fisheries in a harvesting capacity.

Option 4. Allow a CDQ organization to be exempted from the restriction for the 150 days of sea time requirement under 1.6 Transferability and Restrictions on Ownership of QS/IFQs.

1.6.2 Leasing of QS (leasing is equivalent to the sale of IFQs without the accompanying QS.) Leasing is defined as the use of IFQ on vessel which QS owner holds less than 10% ownership of vessel or on a vessel on which the owner of the underlying QS is present:

Option 1. Leasing QS is allowed with no restrictions during the first five years after program implementation.

1.6.3 Separate and distinct QS Ownership Caps - apply to all harvesting QS categories pertaining to a given crab fishery with the following provisions:

a. Initial issuees that exceed the ownership cap are grandfathered at their current level as of June 10, 2002; including transfers by contract entered into as of that date.
b. Apply individually and collectively to all QS holders in each crab fishery;
c. Percentage-cap options for the Bristol Bay red king crab, Opilio, Bairdi, Pribilof red and blue king crab and St. Matthew blue king crab fisheries (a different percentage cap may be chosen for each fishery):

Option 4. 1.0% of the total QS pool for Bristol Bay red king crab.

Option 5. 1.0% of the total QS pool for Opilio crab.
Option 6. 1.0% of the total QS pool for Bairdi crab.
Option 7. 2.0% of the total QS pool for Pribilof red and blue king crab.
Option 8 2.0% of the total QS pool for St. Matthew blue king crab.

d. A percentage-cap of 10% is adopted for the Dutch Harbor (EAI) brown king crab, and a 10% cap for western Aleutian Island (Adak) brown king crab.
e. A percentage-cap of 10% is adopted for WAI (Adak) red king crab west of 179º West longitude.

Harvest Share Ownership Caps for CDQ Groups (from the February 2003)

The following ownership caps shall apply to CDQ ownership of crab QS

Bristol Bay red king crab	5%
Bering Sea opilio crab	5%
Bering Sea bairdi crab	5%
Pribilof red and blue king crab	10%
St. Matthew blue king crab	10%
EAI brown king crab	20%
WAI red king crab	20%
WAI brown king crab	20%

In addition, the Council shall apply the individual and collective rule for calculation of the CDQ ownership caps, under which the holder of an interest in an entity will be credited with holdings in proportion to its interest in the entity.

1.6.4 Controls on vertical integration (ownership of harvester QS by processors):

Option 2: A cap of 5% with grandfathering of initial allocations as of June 10, 2002, including transfers by contract entered into as of that date.

Option 3: Vertical integration ownership caps on processors shall be implemented using both the individual and collective rule using 10% minimum ownership standards for inclusion in calculating the cap. PQS ownership caps are at the company level.

Processor Holdings of Harvest Shares (A/B Share Issue) (from the April 2003 motion)

Crab harvester QS held by IPQ processors and persons affiliated with IPQ processors will only generate class A annual IFQ, so long as such QS is held by the IPQ processor or processor affiliate.

IPQ processors and affiliates will receive class A IFQ at the full poundage appropriate to their harvesters QS percentage.

Independent (non-affiliated) harvesters will receive class B IFQ pro rata, such that the full class B QS percentage is allocated to them in the aggregate.

"Affiliation" will be determined based on an annual affidavit submitted by each QS holder. A person will be considered affiliated, if an IPQ processor controls delivery of a QS holder's IFQ.

Catcher Processor Elements

1.7.2.1.1 Catcher/Processors shall be granted CP-QS in the same manner as catcher vessels.

1.7.2.3 Allowance for Catcher/Processors:

Option 2. Catcher/Processors are allowed to purchase additional PQS from shore based processors as well as PQS from other Catcher/Processors as long as the crab is processed within 3 miles of shore in the designated region.

Option 4. Catcher/Processors may sell unprocessed crab to any processor

Option 5. Only catcher processors that both caught and processed crab onboard their qualifying vessels in any BSAI crab fishery during 1998 or 1999 will be eligible for any CP QS in any IFQ or Coop program.

Option 6. CP-QS initially issued to a catcher/processor shall not be regionally or community designated.

Option 8. The CP sector is capped at the aggregate level of initial sector-wide allocation.

1.7.2.4 Transfers to shore-based processors:

c. Catcher/Processors shall be allowed to sell CP/QS as separate Catcher Vessel QS and PQS. The shares shall be regionally designated when sold (both shares to same region).

Other Harvester Options

1.7.3 Catch accounting under IFQs - All landings including deadloss will be counted against IFQs. Options for treatment of incidental catch are as follows:

Option 4. Discards of incidentally caught crab will be allowed

Option 5. Request ADF&G & BOF & BOF/NPFMC Joint Protocol Committee to address concerns of discard, highgrading, incidental catch and need for bycatch reduction and improved retention in season with monitoring to coincide with implementation of a crab rationalization program.

1.7.4 Use caps on IFQs harvested on any given vessel are provided for those vessels not participating in a voluntary cooperative described under section 6.1.:

Option 1.

c. Two times the ownership cap:

2.0% for BS Opilio crab
2.0% BB red king crab
2.0% BS bairdi crab
4.0% for Pribilof red and blue king crab
4.0% for St. Matthew blue king crab
20% for EAI (Dutch Harbor) brown king crab
20% for Adak (WAI) brown king crab
20% for Adak (WAI) red king crab west of 179° West longitude

1.8.1 Options for captain and crews members (from December 2002 motion):

1.8.1.2 Percentage to Captain:

1. Initial allocation of 3% shall be awarded to qualified captains as C shares.

a. Allocation from QS pool

1.8.1.3 Species specific:

1. As with vessels.

1.8.1.4 Eligibility:

Option 1

1. A qualified captain is determined on a fishery by fishery basis by

    1) having at least one landing in 3 of the qualifying years used by the vessels and
    2) having recent participation in the fishery as defined by at least one landing per season in the fishery in two of the last three seasons prior to June 10, 2002.

    Suboption: For recency in the Adak red king, Pribilof, St. Matthew, and bairdi fisheries a qualified captain must have at least one landing per season in the opilio, BBRKC, or AI brown crab fisheries in two of the last three seasons prior to June 10, 2002 (operators of vessels under 60 feet are exempt from this requirement for the Pribilof red and blue king crab fishery).

2. A captain is defined as the individual named on the Commercial Fishery Entry Permit.

For captains who died from fishing related incidents, recency requirements shall be waived and the allocation shall be made to the estate of that captain. All ownership, use, and transfer requirements would apply to C shares awarded to the estate.

1.8.1.5 Qualification period:

1. As with vessels.

1.8.1.6 Distribution per captain:

1. C QS based on landings (personal catch history based on ADF&G fish tickets) using harvest share calculation rule.

Regionalization and Class A/B Designation

Option 2: C shares shall be a separate class of shares not subject to the Class A share delivery requirements during the first three years. But, at the end of three years, C shares shall be subject to A/B designations with regionalization unless the Council determines (after review) not to impose these designation.

Initial Allocation Regionalization

If C shares are regionalized, at the initial allocation regional designations shall be made based on the captain's history, with an adjustment to the allocation to match the PQS regional ratio made based on the same scheme used for regional adjustment of harvest shares.

1.8.1.7 Transferability criteria:

1. Purchase of C QS.
    a. C QS may be purchased only by persons who are
        Option 1. US citizens who have had at least 150 days of sea time in any of the US commercial fisheries in a harvesting capacity and
        Option 2. active participants

An "active participant" is defined by participation as captain or crew in at least one delivery in a crab fishery included in the rationalization program in the last 365 days as evidenced by ADF&G fish ticket, affidavit from the vessel owner, or evidence from other verifiable sources.

2. C share leasing
   a. C QS are leasable for the first three seasons a fishery is prosecuted after program implementation.
   b. In cases of hardship (injury, medical incapacity, loss of vessel, etc.) a holder of C shares may lease C QS, upon documentation and approval, (similar to CFEC medical transfers) for the term of the hardship/disability for a maximum of 2 years over a 10 year period.

1.8.1.8 Loan program for crab QS

A low-interest rate loan program consistent with MSA provisions, for skipper and crew purchases of QS, shall be established for QS purchases by captains and crew members using 25% of the Crab IFQ fee program funds collected. These funds can be used to purchase A, B, or C shares.

Loan funds shall be accessible by active participants only.

Any A or B shares purchased under the loan program shall be subject to any use and leasing restrictions applicable to C shares (during the period of the loan).

National Marine Fisheries Service (NOAA Fisheries) is directed to explore options for obtaining seed money for the program in the amount of $250,000 to be available at commencement of the program to leverage additional loan funds.

1.8.1.9 Captain/Crew on Board requirements

1) Holders of captain QS or qualified lease recipients are required to be onboard vessel when harvesting IFQ.
2) C QS ownership caps for each species are
   Option 2. the same as the vessel use caps for each species

   C share ownership caps are calculated based on the C QS pool (i.e. section 1.7.4). Initial allocations shall be grandfathered.

3) Use caps on IFQs harvested on any given vessel shall not include C shares in the calculation.

1.8.1.10 C/P Captains

Captains with C/P history shall receive C/P C QS at initial issuance. C/P C shares shall carry a harvest and processing privilege.

Option 3. C/P C shares may be harvested and processed on C/Ps or harvested on catcher vessels and delivered to shore based processors.

1.8.1.11 Cooperatives

C share holders shall be eligible to join cooperatives.

C shares shall be included in the IFQ fee program.

1.8.2 Overage Provisions for the Harvesting Sector:
Allowances for overages during last trip:

Option 2. Overages up to 3% will be forfeited. Overages above 3% results in a violation and forfeiture of all overage.

1.8.3 AFA Vessel Option. Eliminate harvester sideboard caps.

1.8.5 Sideboards (from December 2002 motion as revised in the June 2004 motion).

Option 1 (a): Non-AFA vessels that qualify for QS in the rationalized opilio crab fisheries would be limited to their GOA groundfish catch history excluding sablefish. The sideboards would be based on the history of vessels subject to the caps, applied in aggregate, on an area specific basis, and apply jointly to both the vessel and the license.

Combine options 2 and 3:	Vessels with less than 100,000lbs total opilio history during the qualifying years and more than 500MT of total cod history during the qualifying years would be exempt from the sideboard cap.
Option 4:	Vessels with less than 50MT total groundfish landings in the qualifying period would be prohibited from participating in the GOA cod fishery.

Sideboards will expire on rationalization of the Gulf of Alaska.

2. Processing Sector Elements

Processor shares shall be considered a privilege and not a property right.

2.1 Eligible Processors - processors (including catcher-processors) eligible to receive an initial allocation of processing quota shares (PQs) are defined as follows:
(a.)U.S. corporation or partnership (not individual facilities) that processed crab during 1998 or 1999, for any crab fishery included in the IFQ program.

Hardship provisions for processors that did not process crab in 1998 or 1999 but meet the following provisions:

- A processor (not Catcher/Processor) that processed opilio crab in each season between 1988 and 1997 and
- Invested significant capital in the processing platform after 1995, will be determined to be a qualified processor.
- Significant capital is defined as a direct investment in processing equipment and processing vessel improvements in excess of $1 million.

2.2 Categories of Processing Quota Shares

2.2.1 Crab fishery categories - processing quota shares shall be issued for the same crab species identified in Section 1.1

2.2.2 Regional categories - processing quota shares will be categorized into two regions (see Regionalization Elements for description of regions):
Northern Region - All areas on the Bering Sea north of 56º 20' N. latitude
Southern Region - All areas not in the Northern region

2.3 Initial allocation of processing quota shares

Option 1. Processing quota shares shall be initially issued to Eligible Processors based on three-year average processing history[1] for each fishery, determined by the buyer of record listed on ADF&G fish tickets, as follows:
(a) 1997 - 1999 for Bristol Bay red king crab
(b) 1996 - 1998 for Pribilof red and blue king crab,
(c) 1996 - 1998 for St. Matthew blue crab
(d) 1997 - 1999 for opilio crab
(e) EBS bairdi crab based on 50/50 combination of processing history for BBRKC and opilio
(f) 1996/97 - 1999/00 seasons for brown king crab
(g) The qualifying years for issuance of IPQ in the Adak (WAI) red king crab fishery west of 179° West longitude will be:

Option B. Based on Western Aleutian Islands brown king crab IPQ

Option 4. If the buyer can be determined, by NMFS using the State of Alaska Commercial Operators Annual Report, fish tax records, or evidence of direct payment to fishermen, to be an entity other than the entity on the fish ticket, then the IPQ shall be issued to that buyer.

2.4 Percentage of season's GHL or TAC for which IPQs are distributed:

2.4.1 IPQs will be issued for a portion of the season's GHL or TAC for each species to provide open delivery processing as a means to enhance price competition:

Option 3. 90% of GHL (or TAC) would be issued as IPQs - the remaining 10% would be considered open delivery.

2.5 Implementation of the open delivery-processing portion of the fishery:

Catcher vessel QS/IFQs are categorized into Class A and Class B shares. Purchases of crab caught with Class A shares would count against IPQs while purchases of crab caught with Class B shares would not. Crab caught with Class B shares may be purchased by any processor on an open delivery basis.

2.6 Transferability of processing shares - provisions for transferability include the following:
a. Processing quota shares and IPQs would be freely transferable, including leasing
b. IPQs may be used by any facility of the eligible processor (without transferring or leasing)
c. Processing quota shares and IPQs categorized for one region cannot be transferred to a processor for use in a different region.
d. New processors may enter the fishery by purchasing IPQ or by purchasing Class B Share crab or by processing CDQ crab.

2.7 Ownership and use caps –
2.7.1 Ownership caps

Option 4. No ownership to exceed 30% of the total PQS pool on a fishery by fishery basis with initial issuees grandfathered.

PQS ownership caps should be applied using the individual and collective rule using 10% minimum ownership standards for inclusion in calculating the cap. PQS ownership caps are at the company level.

2.7.2 Use Caps.
Option 3. In the Northern Region annual use caps will be at 60% for the opilio crab fishery.

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[1]The three-year average shall be the three-year aggregate pounds purchased by each Eligible Processor in a fishery divided by the three-year aggregate pounds purchased by all Eligible Processors in that fishery.

2.8 Other Optional Provisions:

The crab processing caps enacted by Section 211(c)(2(A) of the AFA would be terminated

Binding Arbitration System (from February 2003 motion, revised by the June 2004 motion)

The Council adopts the following elements for a system of binding arbitration to resolve failed price negotiations.

1. The Standard for Arbitration

The primary role of the arbitrator shall be to establish a price that preserves the historical division of revenues in the fisheries while considering relevant factors including the following:

a. Current ex vessel prices (including prices for Class A, Class B, and Class C shares recognizing the different nature of the different share classes)
b. Consumer and wholesale product prices for the processing sector and the participants in the arbitration (recognizing the impact of sales to affiliates on wholesale pricing)
c. Innovations and developments of the different sectors and the participants in the arbitration (including new product forms)
d. Efficiency and productivity of the different sectors (recognizing the limitations on efficiency and productivity arising out of the management program structure)
e. Quality (including quality standards of markets served by the fishery and recognizing the influence of harvest strategies on the quality of landings)
f. The interest of maintaining financially healthy and stable harvesting and processing sectors
g. Safety
h. Timing and location of deliveries
i. Reasonable underages to avoid penalties for overharvesting quota and reasonable deadloss

2. Market Report

An independent market analyst selected by the mutual agreement of the sectors will present to both sectors and all designated arbitrators an analysis of the market for products of that fishery.

3. Selection of the Arbitrator(s) and Market Analyst

The market analyst and arbitrator(s) will be selected by mutual agreement of the PQS holders and the QS holders. PQS holders collectively must agree and QS holders collectively must agree. Processors may participate collectively in the selection process. The details of the selection will be decided at a later time.

4. Shares subject to binding arbitration

This binding arbitration system shall address price disputes between holders of delivery restricted IFQ (including Class A IFQ and Class C IFQ when subject to delivery restrictions) and holders of IPQ. Binding arbitration does not apply to the negotiation of price for deliveries under the class B IFQ and Class C IFQ when not subject to delivery restrictions. C share holders, however, may elect to participate in the arbitration process prior to delivery restrictions taking effect.

5. Shares of processor affiliates

Participation of processor affiliates in binding arbitration as IFQ holders will be determined by any applicable rules governing anti-trust. Any parties eligible for collective bargaining under the Fishermen's Cooperative Marketing Act of 1934 (FCMA) will be eligible to participate collectively as a member of that FCMA co-op in binding arbitration. No antitrust exemption should be made to enable processor affiliated IFQ holders to participate in arbitration.

6. Payment of the arbitration and market analysis

The payment for the market analysis and the arbitrators will be shared by the two sectors. Cost shall be shared by all participants in all fisheries.

For shared costs, the payment of those costs shall be advanced by IPQ holders. The IPQ holders will collect the IFQ holders' portion of the shared costs by adding a pro rated surcharge to all deliveries of Class A crab.

7. Quality dispute resolution

In cases where the fisherman and the processor cannot come to agreement on quality and thus price for crab, two mechanisms are suggested for resolving the price dispute-after the processor has processed the crab (to avoid waste from dumping the load at sea): (1) In cases where fishermen and processors have agreed to a formula based price, the two parties would take their normal shares of the price, after the disputed load is sold. (2) This type of dispute would most likely apply in cases where fishermen desire to stay with fixed dockside prices and there is disagreement on quality and therefore price. These cases could be referred to an independent quality specialist firm. The two parties in dispute would decide which firm to hire.

8. Data used in arbitration

Under any arbitration structure, the arbitrator must have access to comprehensive product information from the fishery (including first wholesale prices and any information necessary to verify those prices).

Subject to limitations of antitrust laws and the need for proprietary confidentiality, all parties to an arbitration shall have access only to information provided to the arbitrator(s) or panel for that arbitration directly by the parties to that arbitration. Access to information by a harvester participating in an arbitration will be limited to information submitted by itself and the processor. All participants to an arbitration shall sign a confidentiality agreement stating they will not disclose any information received from the arbitrator.

Data collected in the data collection program may be used to verify the accuracy of data provided to the arbitrator(s) in an arbitration proceeding. Any data verification will be undertaken only if the confidentiality protections of the data collection program will not be compromised.

9. Enforcement of the Arbitration Decision

The decision of the arbitrator will be enforced by civil damages

10. Oversight and administration of the Binding Arbitration system.

Oversight and administration of the binding arbitration should be conducted in a manner similar to the AFA cooperative administration and oversight. System reporting requirements and administrative rules should be developed in conjunction with the Council and NOAA Fisheries after selection of the preferred program.

The structure for the system of Binding Arbitration system shall be as described below:

LAST BEST OFFER BINDING ARBITRATION

GENERAL

The Last Best Offer Model provides a mechanism to resolve failed price and delivery negotiations efficiently in a short period before the opening of the season. The Model includes the following specific characteristics:

1. Processor-by-processor. Processors will participate individually and not collectively, except in the choice of the market analyst and the arbitrator/arbitration panel.
2. Processor-affiliated shares. Participation of processor-affiliated shares will be limited by the current rules governing antitrust matters.
3. Arbitration standard. The standard for the arbitrator is the historic division of revenues between harvesters and processors in the aggregate (across the entire sectors), based on arm's-length first wholesale prices and ex-vessel prices (Option 4 under "Standard for Arbitration" in the staff analysis). The arbitrator shall consider several factors including those specified in the staff analysis, such as current ex vessel prices for both A, B and C Shares, innovations, efficiency, safety, delivery location and timing, etc.
4. Opt-in. An IFQ holder may opt in to any contract resulting from a completed arbitration for an IPQ holder with available IPQ by giving notice to the IPQ holder of the intent to opt in, specifying the amount of IFQ shares involved, and acceptance of all terms of the contract. Once exercised, an Opt-in is binding on both the IPQ holder and the IFQ holder.
5. Performance Disputes. Performance and enforcement disputes (e.g. quality, delivery time, etc.) initially will be settled through normal commercial contract dispute remedies. If those procedures are unsuccessful, the dispute will be submitted for arbitration before the arbitrator(s). If those procedures are unsuccessful and in cases where time is of the essence, the dispute will be submitted for arbitration before the arbitrator(s). The costs of arbitration shall be paid from the fees collected, although the arbitrator(s) will have the right to assign fees to any party for frivolous or strategic complaints.
6. Lengthy Season Approach. For a lengthy season, an IPQ holder and an IFQ holder (or group of IFQ holders) may agree to revise the entire time schedule below and could agree to arbitration(s) during the season. That approach may also be arbitrated pre-season if the holders cannot agree.

PROCESS

1. Negotiations and Voluntary Share Matching.

At any time prior to the season opening date, any IFQ holders may negotiate with any IPQ holder on price and delivery terms for that season (price/price formula; time of delivery; place of delivery, etc.). If agreement is reached, a binding contract will result for those IFQ and IPQ shares. IPQ holders will always act individually and never collectively, except in the choice of the market analyst (which may occur at any time pre-season) and the arbitrator/arbitration panel for which all IFQ and IPQ holders will consult and agree.

2. Required Share-Matching and Arbitration.

Beginning at the 25-day pre-season point, IFQ holders may match up IFQ shares not already subject to contracts with any IPQ shares not under contract, either as collectively as part of an FCMA cooperative or as individual IFQ holders (the offered IFQ Shares must be a substantial amount of the IFQ Holder(s)' uncontracted shares). The IPQ holder must accept all proposed matches up to its non-contracted IPQ share amount. All IFQ holders "matched" with an IPQ holder will jointly choose an arbitrator with that IPQ holder. The matched share holders are committed to the arbitration once the arbitrator is chosen (if the parties wish, the arbitrator may initially act as a mediator to reach an agreement quickly). Arbitration must begin no later than 15 days before the season opening date.

3. Data.

The Arbitrator will gather relevant data independently and from the parties to determine the historical distribution of first wholesale crab product revenues (at FOB point of production in Alaska) between harvesters and processors in the aggregate (across the entire sectors). For a vertically integrated IPQ holder (and in other situations in which a back-calculation is needed), the arbitrator will work with that

IPQ holder and the IFQ holders to determine a method for back-calculating an accurate first wholesale price for that processor. The Arbitrator will receive a pre-season market report from the market analyst, and may gather additional data on the market and on completed arbitrations. The Arbitrator will also receive and consider all data submitted by the IFQ holders and the IPQ holder. The Arbitrator will not have subpoena power.

4. Arbitration Decisions.

Arbitration will be based on a "last best offer" system, with the Arbitrator choosing one of the last best offers made by the parties. The Arbitrator will work with the IPQ and IFQ holders to determine the matters that must be included in the offer (e.g. price, delivery time & place, etc.) and will set the date on which "last best offers" must be submitted. The last best offers may also include a price over a specified time period, a method for smoothing prices over a season, and an advance price paid at the time of delivery.

If several groups or individual IFQ Holders have "matched" with that IPQ Holder, each of them may make a last best offer. Prior to submission of the last-best offers, the Arbitrator may meet with parties, schedule joint meetings, or take any actions aimed at reaching agreement. The Arbitrator will notify the IPQ holder and the IFQ holders of the Arbitration Decision no later than 10 days before the season opening date. The Arbitration Decision may be on a formula or ex-vessel price basis. The Arbitration Decision will result in a contract for the IPQ holder and the IFQ holders who participated in arbitration with that IPQ holder.

5. Post-Arbitration Opt-In.

Any IFQ holder with shares not under contract may opt in to any contract resulting from an Arbitration Decision for an IPQ holder with IPQ that is not under contract, on all of the same contract conditions (price, time of delivery, etc.). If there is a dispute regarding whether the "opt in" offer is consistent with the contract, that dispute may be decided by the arbitrator who will decide only whether the Opt-in is consistent with the contract.

6. (deleted)

7. Non-Binding Price Arbitration (from the April 2003 motion)

There will be a single annual fleet-wide arbitration to establish a non-binding formula under which a fraction of the weighted average first wholesale prices for the crab products from each fishery may be used to set an ex-vessel price. The formula is to be based on the historical distribution of first wholesale revenues between fishermen and processors, taking into consideration the size of the harvest in each year. The formula shall also include identification of various factors such as product form, delivery time and delivery location. The non-binding arbitration shall be based upon the Standard for Arbitration set out in the February 2003 Council motion, Item 1 including a. through i. As a part of this process, the arbitrator will review all of the arbitration decisions for the previous season and select the highest arbitrated prices for a minimum of at least 7% of the market share of the PQS. This provision allows for the aggregation of up to 3 arbitration findings that collectively equal a minimum of 7 percent of the PQS, to be considered for the highest price for purposes of this provision. If arbitration findings are aggregated with two or more entities, then the lesser of the arbitrated prices of the aggregated entities included to attain the 7 percent minimum market share of PQS shall be considered for purposes of developing the benchmark price. The arbitrator in the non-binding arbitration shall not be an arbitrator in the last best offer binding arbitration(s). This formula shall inform price negotiations between the parties, as well as the Last Best Offer arbitration in the event of failed price negotiations.

8. Public Disclosure of Arbitration Results

The result of each arbitration will be announced as it occurs to the processors and harvesters in that arbitration and non-vertically integrated harvesters that have not committed to a processor.

3. Regionalization Elements

3.1 Two regions are proposed:

a. Northern Region - All areas on the Bering Sea north of 56º 20' N. latitude. (This region includes the Pribilof islands and all other Bering Sea Islands lying to the north. The region also includes all communities on Bristol Bay including Port Heiden but excludes Port Moller and all communities lying westward of Port Moller.)

b. Southern Region - All areas not in the Northern Region.

Suboption: Regional categories for deliveries of Aleutian Islands brown king crab are split into a "Western" (west of 174° West longitude) and "Eastern" (east of 174° West longitude) area. 50% of the WAI IPQ brown king crab QS shall be processed in the W AI region.

3.2 Regional categorization of processing and/or harvesting quota shares

3.2.1 Categorization will be based on all historical landings. Periods used to determine regional percentages are the same as in Section 3.2.5.

There shall be no regional designation of the bairdi fishery shares. When there is a harvestable surplus of bairdi, an open season, and the vessel has bairdi quota, bairdi will be retained and delivered as incidental catch in the red /blue king crab and opilio fisheries.

3.2.2 Options for the harvesting sector:

Option 2. Only Class A CV quota shares are categorized by region (applies to point of delivery and not point of harvest).

3.2.3 Options for the processor sector:

Option 1. Processing quota shares and IPQs are categorized by region

3.2.4 Once assigned to a region, processing and/or harvesting quota shares cannot be reassigned to a different region.

3.2.5 Options for addressing any remaining mismatch of harvesting and processing shares within the region.

1. The base years for determining processing shares and the base period for determining the share assigned to each region shall be the same.
2. If the cumulative harvester quota associated with each region differs from the total regional share, by species, the harvester share, by species, shall be adjusted, up or down, in the following manner:
   a. The adjustment shall apply only to harvesters with share in both regions.
   b. The adjustment shall be made on a pro rata basis to each harvester, so that the total share among those harvesters, by region, equals the total share assigned to each region.
3. The adjustment shall only be on shares that carry a regional designation; Class B quota would be excluded from the adjustment.

3.3 Delivery and processing restrictions - the following provisions apply to the delivery and processing of crab with IFQs or IPQs that are categorized by region:

a. Crab harvested with catcher vessel IFQs categorized for a region must be delivered for processing within the designated region

b. Crab purchased with IPQs categorized for a region must be processed within the designated region.

3.4 Alternative Regionalization/Community Protection Option

IPQ Caps (from the February 2003 meeting)

The amount of IPQ in any year shall not exceed the percentage of the TAC for crab as follows:

For opilio, IPQ percentage times a TAC (after CDQ allocations) of 175 million pounds.

For Bristol Bay red king crab, IPQ percentage times a TAC (after CDQ allocations) of 20 million pounds.

IFQ (that would have been A shares but for the cap) issued in excess of IPQ limit shall be subject to regional landing requirements.

Cool Down Period (from the December 2002 motion and February 2003 motion)

A cooling off period of 2 years shall be established during which processing quota earned in a community may not be used outside that community. (from December 2002 motion)

During the Cool Down Period the following elements will apply (from the February 2003 motion):

1. The method to determine the shares associated with a community will be the same method used for allocating processing quota as established by the Council.
2. Community shall be defined as the boundaries of the Borough or, if no Borough exists, the first class or second class city, as defined by applicable state statute. A community must have at least 3 percent of the initial PQS allocation in any fishery based on history in the community to require continued use of the IPQs in the community during the cool down period.
3. 10% of the IPQs, on a fishery by fishery basis, may leave a community on annual basis, or up to 500,000 pounds, whichever is less. The amount that can leave will be implemented on a pro rata basis to all PQS holders in a community.
4. Exempt the Bairdi, Adak red crab and Western Aleutian Islands brown crab fishery from the cool down provision.
5. There should be an exemption from the requirement to process in the community if an act of God prevents crab processing in the community. This provision will not exempt a processor from any regional processing requirements, if there is processing capacity in the region.

Regionalization of the Bairdi Fishery (from the February 2003 motion)

If biological information indicates that the bairdi fishery is likely to become a directed fishery, the Council would consider the following management, along with other alternatives for management of that fishery:

If the bairdi fishery becomes a directed fishery, it shall be allocated according to the original distribution of the BBRKC and shall not be subject to the regionalization provisions of the Council Crab Rationalization program.

Community Purchase and Right of First Refusal Options (from April 2003 motion)

1. General Right of First Refusal

For communities with at least three percent of the initial PQS allocation in any BSAI crab fishery based on history in the community except for those communities that receive a direct allocation of any crab species (currently only Adak), allow CDQ groups or community groups representing qualified communities a first right of refusal to purchase processing shares that are based on history from the community which are being proposed to be sold for processing outside the boundaries of the community of original processing history in accordance with the provisions below.

Entity Granted the Right of First Refusal

The right of refusal shall be established by a contract entered into prior to the initial allocation of PQS which will contain all of the terms specified in paragraphs A through I below. The contract will be between the recipient of the initial allocation of the PQS and:

1) the CDQ group in CDQ communities

2) the entity identified by the community in non-CDQ communities.

In non-CDQ communities, the community must designate the entity that will represent the community at least 90 days prior to the deadline for submission of applications for initial allocations of PQS.

Contract Terms

A. The right of first refusal will apply to sales of the following processing shares:

1. PQS and
2. IPQs, if more than 20 percent of a PQS holder's community based IPQs (on a fishery by fishery basis) has been processed outside the community of origin by another company in 3 of the preceding 5 years.

B. Any right of first refusal must be on the same terms and conditions of the underlying agreement and will include all processing shares and other goods included in that agreement.

C. Intra-company transfers within a region are exempt from this provision. To be exempt from the first right of refusal, IPQs must be used by the same company. In the event that a company uses IPQs outside of the community of origin for a period of 3 consecutive years the right of first refusal on those processing shares (the IPQs and the underlying PQS) shall lapse. With respect to those processing shares, the right of first refusal will not exist in any community thereafter.

D. Any sale of PQS for continued use in the community of origin will be exempt from the right of first refusal. A sale will be considered to be for use in the community of origin if the purchaser contracts with the community to:

1. use at least 80 percent of the annual IPQ allocation in the community for 2 of the following 5 years (on a fishery by fishery basis), and
2. grant the community a right of first refusal on the PQS subject to the same terms and conditions required of the processor receiving the initial allocation of the PQS.

E. All terms of any right of first refusal and contract entered into related to the right of first refusal will be enforced through civil contract law.

F. A community group or CDQ group can waive any right of first refusal.

G. The right of first refusal will be exercised by the CDQ group or community group by providing the seller within 60 days of receipt of a copy of the contract for sale of the processing shares:

1. notice of the intent to exercise and
2. earnest money in the amount of 10 percent of the contract amount or $500,000 whichever is less.

The CDQ group or community group must perform all of the terms of the contract of sale within the longer of:

1. 120 days of receipt of the contract or
2. in the time specified in the contract.

H. The right of first refusal applies only to the community within which the processing history was earned. If the community of origin chooses not to exercise the right of first refusal on the sale of PQS that is not exempt under paragraph D, that PQS will no longer be subject to a right of first refusal.

I. Any due diligence review conducted related to the exercise of a right of first refusal will be undertaken by a third party bound by a confidentiality agreement that protects any proprietary information from being released or made public.

2. GOA First Right of Refusal

For communities with at least three percent of the initial PQS allocation of any BSAI crab fishery based on history in the community that are in the area on the Gulf of Alaska north of 56º20'N latitude, groups representing qualified communities will have a first right of refusal to purchase processing quota shares which are being proposed to be transferred from unqualified communities in the identified Gulf of Alaska area.

The entity granted the right of first refusal and terms and method of establishing the right of first refusal will the same as specified in the general right of first refusal.

3. Community Purchase Option

Allow for a community organization in those communities that have at least 3 percent of the initial PQS allocation of any BSAI crab fishery based on history in the community to be exempted from the restriction for the 150 days of sea time requirement under 1.6 Transferability and Restrictions on Ownership of QS.

4. Identification of Community Groups and Oversight

For CDQ communities, CDQ groups would be the entity eligible to exercise any right of first refusal or purchase shares on behalf of the community. Ownership and management of harvest and processing shares by CDQ groups will be subject to CDQ regulations.

For non-CDQ communities, the entity eligible to exercise the right of first refusal or purchase shares on behalf of a community will be identified by the qualified city or borough, except if a qualified city is in a borough, in which case the qualified city and borough must agree on the entity. Ownership and management of harvest and processing shares by community entities in non-CDQ communities will be subject to rules established by the halibut and sablefish community purchase program.

5. Right of First Refusal is Non-assignable.

The community right of first refusal is not assignable by the community group granted the right.

6. Fisheries Exempt from the Community Right of First Refusal.

The bairdi, Western Aleutian brown king crab and Adak red king crab fisheries are exempt from the right of first refusal.

4. Community Development Allocation (based on existing CDQ program):

Option 2. Expand existing program to all crab fisheries approved under the rationalization program with the exception of the Western AI brown king crab.

Option 3. Increase for all species of crab to 10%. A minimum of 25% of the total CDQ allocation must be delivered on shore.

Option 5. For the WAI brown king crab fishery, the percentage of resource not utilized (difference between the actual catch and GHL) during the base period is allocated to the community of Adak. In any year, that sufficient processing exists at that location, the percentage of the difference between the GHL and actual catch, that was not harvested in these 4 years is not to exceed 10%).

Additional Provisions Concerning the Adak Allocation (from December 2002 motion)

Criteria for Selection of Community Entity to Receive Shares: A non-profit entity representing the community of Adak, with a board of directors elected by the community (residents of Adak) in a manner similar to the CDQ program. As a suboption, the shares given to this entity may be held in trust in the interim by the Aleut Enterprise Corporation and administered by it.

A set of use procedures, investment policies and procedures, auditing procedures, and a city or state oversight mechanism will be developed. Funds collected under the allocation will be placed in a separate trust until the above procedures and a plan for utilizing the funds for fisheries related purposes are fully developed. Funds will be held in trust for a maximum of 2 years, after which the Council will reassess the allocation for further action.

Performance standards for management of the allocation to facilitate oversight of the allocation and assess whether it achieves the goals. Use CDQ type management and oversight to provide assurance that the Council's goals are met. Continued receipt of the allocation will be contingent upon an implementation review conducted by the State of Alaska to ensure that the benefits derived from the allocation accrue to the community and achieve the goals of the fisheries development plan.

5. Program Elements

RAM Division in conjunction with State of Alaska will produce annual reports regarding data being gathered with a preliminary review of the program at 3 years.

Option 2. Formal program review at the first Council Meeting in the 5th year after implementation to objectively measure the success of the program, including benefits and impacts to harvesters (including vessel owners, skippers and crew), processors and communities by addressing concerns, goals and objectives identified in the Crab Rationalization problem statement and the Magnuson Stevens Act standards. This review shall include analysis of post-rationalization impacts to coastal communities, harvesters and processors in terms of economic impacts and options for mitigating those impacts. Subsequent reviews are required every 5 years.

Option 5. A proportional share of fees charged to the harvesting sectors and processing sectors for management and enforcement of the IFQ/IPQ program shall be forwarded to the State of Alaska for use in management and observer programs for BSAI crab fisheries.

(from the February 2004 and June 2004 motions)
The Council directs staff to prepare an analysis for delivery to the Council 18 months after fishing begins under the program. The analysis is to examine the effects of the 90/10 A share/B share split and the binding arbitration program on the distribution of benefits between harvesters and processors. After receiving the analysis, the Council will consider whether the A share/B share split and the arbitration program are having their intended effects and, if not, whether some other A share/B share split is appropriate. In addition, staff shall the prepare an analysis of captain and crew share (C share) landings for consideration by the Council 18 months after fishing begins under the program. The analysis is to examine landings patterns of C shares to determine whether the distribution of landings among processors and communities of C shares differs from the distribution of landings of the general harvest share pool. After receiving the analysis, the Council

will consider whether to remove the 90/10 Class A/Class B split from C shares, which is scheduled to take effect three years after the beginning of fishing under the program.

6. Cooperative model options:

6.1 Coop model with the following elements and options:

1) Individual harvesting and processing histories are issued to both catcher and processors. (Harvesters under Section 1.3.2 a) which meet program qualifications. Processors under Section 2.1, 2.3, and 2.4 (Options 1-4) which meet qualifications of the program).

2) Cooperatives may be formed through contractual agreements among fishermen who wish to join into a cooperative associated with one or more processors holding processor history for one or more species of crab. Fleet consolidation within this cooperative may occur either by internal history leasing and vessel retirement or by history trading within the original cooperative or to a different cooperative. A coop agreement would be filed annually with the Secretary of Commerce, after review by the Council, before a coop's catch history would be set aside for their exclusive use.

3.) Suboption only : There must be at least 4 or more unique harvester quota share holders engaged in one or more crab fisheries to form a coop associated with a processor. Vessels are not restricted to deliver to a particular plant or processing company.
4. New processors may enter the fishery by purchasing IPQ or by purchase of crab caught with B share landings or by processing CDQ crab. New processors entering the fishery may associate with cooperatives.

5. Custom processing would continue to be allowed within this rationalization proposal.

7. Regional Categories: As adopted earlier

8. Duration of coop agreements.

Option 4. A harvester quota shareholder may exit the cooperative at any time after one season. One season shall mean the season established by the Alaska Board of Fisheries for the fishery associated with the quota shares held by the harvester.

10. Observer requirements: Defer observer requirements to the Alaska Board of Fisheries.

11. Length of program: Same as earlier in Section 5.

12. Option for skipper and crew members: Same as developed earlier.

13. Catch Accounting - All landings including deadloss will be counted against a vessel's quota. Options for treatment of incidental catch are as follows: Same as developed earlier.

14. The North Pacific Fishery Management Council and the National Marine Fisheries Service shall have the authority to implement a mandatory data collection program of cost, revenue, ownership and employment data upon members of the BSAI crab fishing industry harvesting or processing fish under the Council's authority. Data collected under this authority will be maintained in a confidential manner and may not be released to any party other than staffs of federal and state agencies directly involved in the management of the fisheries under the Council's authority and their contractors.

A mandatory data collection program shall be developed and implemented as part of the crab rationalization program and continued through the life of the program. Cost, revenue, ownership and employment data will be collected on a periodic basis (based on scientific requirements) to provide the information necessary to study the impacts of the crab rationalization program as well as collecting data that could be used to analyze the economic and social impacts of future FMP amendments on industry,

regions, and localities. This data collection effort is also required to fulfill the Council problem statement requiring a crab rationalization program that would achieve "equity between the harvesting and processing sectors" and to monitor the "…economic stability for harvesters, processors and coastal communities". Both statutory and regulatory language shall be developed to ensure the confidentiality of these data.

Any mandatory data collection program shall include:

A comprehensive discussion of the enforcement of such a program, including enforcement actions that would be taken if inaccuracies in the data are found. The intent of this action would be to ensure that accurate data are collected without being overly burdensome on industry for unintended errors.

The mandatory data collection program shall have the following elements (from the February 2003 motion):

A. Purpose. The purpose of the data program is as set out in the June 2002 motion. The Council will require the production of data needed to assess the efficacy of the crab rationalization program and to determine its relative impact on fishery participants and communities.

B. Type of data to be collected. The data collected shall be that needed to achieve the Council's purpose, with the following general guidelines:
    1. The information will be specific to the crab fisheries included in the crab rationalization plan.
    2. The data shall include information on costs of fishing and processing, revenues for harvesters and processors, and employment data
    3. The general guide for information requirements will be as set out in the draft surveys prepared by National Marine Fisheries Service dated 9/18/02, except
        a) Non-variable costs shall be collected only as needed to explain and analyze variable cost data.
        b) Collect a unique identifier for harvesting and processing crew members to explain changes in participation patterns as requested by the AP
    4. Historical information will be required as recommended by the Data Collection Committee.

C. Method of Collection. Data shall be submitted to an independent third party agent such as the Pacific States Marine Fisheries Commission.

D. Use of data. Data will be used following these general guidelines:
    1. Data shall be supplied to Agency users in a blind and unaggregated form.
    2. The agencies will develop a protocol for the use of data, including controls on access to the data, rules for aggregation of data for release to the public, penalties for release of confidential data, and penalties for unauthorized use.
    3. The agencies will revise the current Memorandum of Understanding governing the sharing of data between the State of Alaska and National Marine Fisheries Service, and will address in this MOU the role of the third party data collection agent.
    4. The Agency and Council will promote development of additional legislative and regulatory protection for these data as needed.

E. Verification of Data. The third party collection agent shall verify the data in a manner that assures accuracy of the information supplied by private parties.

F. Enforcement of the data requirements. The Council endorses the approach to enforcing the data requirements developed by the staff and the Data Collection Committee, as set out on page 3.17-20 in the February, 2003 document entitled "BSAI Crab Rationalization Program, Trailing Amendments", which provides:

Anticipated Enforcement of the Data Collection Program The analysts anticipate that enforcement of the data collection program will be different from enforcement programs used to ensure that accurate landings are reported. It is critical that landings data are reported in an accurate and timely manner, especially under an IFQ system, to properly monitor catch and remaining quota. However, because it is unlikely that the economic data will be used for in-season management, it is anticipated that persons submitting the data will have an opportunity to correct omissions and errors[37] before any enforcement action would be taken. Giving the person submitting data a chance to correct problems is considered important because of the complexities associated with generating these data. Only if the agency and the person submitting the data cannot reach a solution would the enforcement agency[38] be contacted. The intent of this program is to ensure that accurate data are collected without being overly burdensome on industry for unintended errors.

A discussion of four scenarios will be presented to reflect the analysts understanding of how the enforcement program would function. The four scenarios are 1) a case where no information is provided on a survey; 2) a case where partial information is provided; 3) a case where the agency has questions regarding the accuracy of the data that has been submitted; and 4) a case where a random "audit" to verify the data does not agree with data submitted in the survey.

In the first case, the person required to fill out the survey does not do so. In the second case, the person fills out some of the requested information, but the survey is incomplete. Under either case that person would be contacted by the agency collecting the data and asked to fulfill their obligation to provide the required information. If the problem is resolved and the requested data are provided, no other action would be taken. If that person does not comply with the request, the collecting agency would notify enforcement that the person is not complying with the requirement to provide the data. Enforcement would then use their discretion regarding the best method to achieve compliance. Those methods would likely include fines or loss of quota and could include criminal prosecution.

In the third case the person fills out all of the requested information, but the agency collecting the data, or the analysts using the data, have questions regarding some of the information provided. For example, this may occur when information provided by one company is much different than that provided by similar companies. These data would only be called into question when obvious differences are encountered. Should these cases arise, the agency collecting the data would request that the person providing the data double check the information. Any reporting errors could be corrected at that time. If the person submitting the data indicates that the data are accurate and the agency still has questions regarding the data, that firm's data could be "audited". It is anticipated that the review of data would be conducted by an accounting firm selected jointly by the agency and members of industry. Only when that firm refuses to comply with the collecting agencies attempts to verify the accuracy of the data would enforcement be contacted. Once contacted, enforcement would once again use their discretion on how to achieve compliance.

The fourth case would result when the "audit"[39] reports different information than the survey. The "audit" procedure being contemplated is a verification protocol similar to that which was envisioned for use in the pollock data collection program developed by NMFS and PSMFC. During the design of this process, input from certified public accountants was solicited in order to develop a verification process that is less costly and cumbersome than a typical "audit" procedure. That protocol involves using an accounting firm, agreed upon by the agency and industry, to conduct a random review of certain elements of the data provided[40].

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[37]The intent of the program is to have enforcement actions triggered by the willful and intentional submission of incorrect data or noncompliance with the requirements to submit data.

[38]The term enforcement agency in this case may or may not include the RAM Division and the Office of Administrative Appeals (in addition to NMFS Enforcement). Those details are still under discussion within NOAA.

[39]This "audit" could be the result of either the random review process that is contemplated or an "audit" triggered under scenario three.

[40]However, in cases of non-compliance in which enforcement has to be notified, the data verification process is likely be more comprehensive.

Since some of the information requested in the surveys may not be maintained by companies and must be calculated, it is possible that differences between the "audited" data from financial statements and survey data may arise. In that case the person filling out the survey would be asked to show how their numbers were derived[41]. If their explanation resolves the problem, there would be no further action needed. If questions remained, the agency would continue to work with the providers of the data. Only when an impasse is reached would enforcement be called upon to resolve the issue. It is hoped that this system would help to prevent abuse of the verification and enforcement authority.

In summary, members of the crab industry will be contacted and given the opportunity to explain and/or correct any problems with the data, that are not willful and intentional attempts to mislead, before enforcement actions are taken. Agency staff does not view enforcement of this program as they would a quota monitoring program. Because these data are not being collected in "real" time, there is the opportunity to resolve occasional problems as part of the data collection system. Development of a program that collects the best information possible to conduct analyses of the crab rationalization program, minimizes the burden on industry, and minimizes the need for enforcement actions are the goals of the data collection initiative.

Clarifications and Expressions of Council Intent

At its October 2002 meeting the Council clarified several issues in the June 10, 2002 motion identifying a preferred alternative for rationalizing the Bering Sea/Aleutian Islands crab fisheries. Since the Council motion of June was not a final action, the Chairman suspended the rule which would require a super majority to alter the motion. Decisions were by a simple majority of the Council. In addition, Hazel Nelson, who joined the Council since the June meeting, was permitted to participate in all votes. The following clarifications of the June motion were made:

1. A cutoff date of June 10, 2002 was established for the processor shares ownership cap grandfather provision - The ownership cap on processing shares to prevent persons from acquiring shares in excess of specific caps would be applied as of June 10, 2002. This cutoff date would prevent persons from acquiring interests in processing history in excess of the specified cap after the cutoff date.

2. Ownership/use cap distinction - The current council motion contains several provisions that limit ownership and use of the harvest and processing shares. These provisions include the following:

    1.6.3 contains provisions limiting the ownership of QS
    1.6.4 contains provisions limiting processor ownership of QS
    1.7.4 contains provisions limiting a vessels use of IFQs
    2.7.1 contains provisions limiting ownership of the PQS pool
    2.7.2 contains a use cap of 60 percent for the Northern region opilio crab fishery

    The Council confirmed that the ownership caps limit ownership of the QS and PQS, which carry a long-term privilege, and IFQs and IPQs, which are annual allocations. Application of the caps to both types of shares is consistent with interpretation of caps in the halibut and sablefish IFQ program, in which use caps are interpreted as limiting IFQ use and the ownership of both QS and IFQs. This broad interpretation has two primary effects. First, this interpretation prevents individuals from accumulating shares in excess of the cap through leasing arrangements. Long term leasing, unlimited under a narrow interpretation of the caps, could allow a person to effectively control shares well in excess of cap. Second, under the broad interpretation the caps operate as a individual use cap since IFQ and IPQ holdings determine use. The IPQ use cap in the

[41]Any time a number must be derived, the survey will provide direction on how the calculate the information requested. This direction should help minimize differences. However, when discrepancies do arise, the firm will be given an opportunity to show how they derived their figures, and correct the information if necessary.

North region *C. opilio* fishery also operates as both a cap on ownership of PQS and IPQs in that region and as a use cap on IPQs in that region. The vessel use caps would limit the use of shares on a vessel but would not impose any limit on share ownership.

Although custom processing is permitted by the Council motion, the Council established that limits on ownership and use would count any crab custom processed by a plant toward the cap of the plant owner. The application of the cap to custom processing is intended to prevent consolidation, which could occur if custom processing is not considered.

3. Norton Sound red king crab fishery CDQ allocation - The Council clarified that the increase of CDQ allocations does not apply to the Norton Sound red king crab fishery. The Norton Sound fishery was excluded from the CDQ allocation increase because its currently regulated under a super exclusive permit program that prohibits its participants from participating in any of the other BSAI crab fisheries. The Norton Sound permit rules are for the benefit local, small vessel participants in that fishery.

4. Adak allocation in the WAI(Adak) golden king crab fishery - The Council motion provides for the allocation of unused resource (up to 10 percent) in the WAI (Adak) golden king crab fishery to the community of Adak. The Council asked for additional information for determining the entity to receive this allocation (see Additional Issues, below).

5. Regionalization of the initial allocation in the WAI (Adak) golden king crab fishery - In the Council's motion, the WAI golden king crab fishery is regionalized by designation of 50 percent of A shares (and corresponding processor shares) as west shares and by the remaining 50 percent of A shares (and corresponding processor shares) being undesignated. The Council clarified that individual processing share allocations would be made with the 50 percent west shares to participants with processing facilities in the west. If the allocations of processors with facilities in the west does not equal 50 percent, the remaining west allocation could be allocated on a pro rated basis to participants without facilities in the west. These remaining west shares could be pro rated so that each shareholder with west facilities would get the same portion of its initial allocation as west shares.

   For harvesters, individual harvesters share allocations would made with each harvester with west history allocated west shares. If the allocations of vessels with west history exceed 50 percent of the fishery, share allocations would be pro rated so that each shareholder with west history receives the same portion of its allocation as west shares.

6. Catcher/processor definition for purposes of processing crab harvested with Class B harvest shares[2] - A catcher/processor must be defined for purposes of applying the restriction on deliveries of B shares to catcher/processors (Section 1.3.3(b)). In a share based program, definition of this sector can be problematic because vessels used as catcher/processors are also used as floating processors. The Council clarified that for purposes of implementing this provision, a vessel that takes deliveries of crab harvested with Class B shares would be considered a floating processor for the duration of the season and would be prohibited from operating as a catcher/processor during that season. Likewise, a vessel that operates as a catcher/processor during a season would be prohibited from taking delivery of crab harvested with Class B shares during that season.

7. Sector cap on catcher/processors - Catcher/processors are permitted to purchase PQS from shore based facilities for use within 3 miles of shore (Section 1.7.2.3, Option 2). The "catcher/processor sector" also is capped at "the aggregate level of the initial sector-wide allocation" (Section 1.7.2.3, Option 8). The Council clarified the following effects of these provisions:

   A) The catcher/processor sector-wide cap applies only to catcher/processor shares and not to the use or ownership of processing shares by catcher/processors.

[2] This clarification pertains only to processing of crab harvested with Class B harvest shares and does not pertain to processing of crab harvested with Class A IFQs or the harvesting of crab.

B) Catcher/processor shares cannot be created by combining the processing privilege of PQS or IPQs with the harvest privilege of Class A QS or IFQs.

C) The catcher/processor sector-wide cap applies only to catcher/processor shares and not to the use or ownership of catcher vessel harvest shares by catcher/processors.

8. Regionalization of PQS allocations to catcher/processors - Processing shares allocated to catcher/processors would be regionally designated based on the historic area of processing. State records of processing activity should be adequate for determining the location of processing activity.

9. Definition of a lease - the word "not" was inadvertantly omitted from the definition of a lease. The definition was revised to read:

> Leasing is defined as the use of IFQs on a vessel that the QS owner holds less than 10% ownership of vessel or on a vessel on which the owner of the underlying QS is not present (Section 1.6.2).

10. Grandfathering vessel use allocations in excess of the cap - The Council clarified that a vessel the activity of which is the basis for an allocation in excess of the vessel use cap would be grandfathered with respect to that allocation.

11. Cost recovery definition - The Council clarified that cost recovery funds would be collected in accordance with the current cost recovery program, which allows for the collection of actual costs up to 3 percent of ex vessel gross revenues. The Council provided that costs would be paid in equal shares by the harvesting and processing sectors (on all landings including landings of crab harvested with Class B IFQs). Catcher/processors would pay the entire 3 percent since catcher/processors participate in both sectors. A loan program for share purchases would be established with 25 percent of the fees collected. The motion authorized the collection of 133 percent of actual costs of management under the new program, which would provide for 100 percent of management costs after allocation of 25 percent of the cost recovery to the loan program.

12. Regionalization of the WAI (Adak) red king crab fishery - The processor share allocation in the WAI (Adak) red king crab fishery would be based on the historical landings in the WAI (Adak) golden king crab fishery. No landings in the golden king crab fishery were in the North during the qualifying years. The Adak red king crab fishery would therefore be entirely South. The South designation will be made despite the landing of a portion of the harvests in the Adak red king crab fishery in the North region during the qualifying years for vessels.

13. Rules governing cooperatives - The Council clarified the following rules for governing cooperatives:

A) Exemption from use caps - Cooperative members would not be subject to either the individual or vessel use caps, which would apply to IFQ holders that are not cooperative members.

B) Application of ownership caps - To effectively limit ownership, the number of shares (IFQs and QS) that each cooperative member could bring to a cooperative would be subject to the ownership caps (with initial allocations grandfathered).

C) IFQ allocations to cooperatives - The annual allocations of IFQs of cooperative members would be made to the cooperative, with use of those shares governed by the cooperative agreement.

D) Leasing - Leasing among cooperative members would be unlimited. For IFQ holders that are not cooperative members, leasing would be allowed for the first 5 years of the program.

E) Inter-cooperative transfers - Transfers between cooperatives would be undertaken by the members individually, subject to ownership caps. Requiring the inter-cooperative transfers to occur through members is necessary for the application of the ownership caps.

F) Four entities are required for a cooperative - The requirement for four owners to create a cooperative would require four unique entities to form a cooperative. Independent entities must be less than 10 percent common ownership without common control (similar to the AFA common ownership standard used to implement ownership caps).

G) Monitoring and enforcement at the cooperative level - The monitoring and enforcement of harvest allocations would be at the cooperative level (rather than the individual level). Cooperative members would be jointly and severally liable for the actions of the cooperative.

Vertical Integration Caps (from the February 2003 motion)

The Council clarified that the 5 percent cap on QS holdings by processors shall exempt only the primary corporate processing entity from more restrictive generally applicable caps on QS holdings. All individuals and subsidiaries will be subject to the general caps on QS holdings.

A/B Share Linkage (from the April 2003 meeting)

At its April 2003 meeting:

The Council clarified that the A/B share component of QS will be linked for purposes of transfers.