

Initial Review Draft

**ENVIRONMENTAL ASSESSMENT / REGULATORY IMPACT REVIEW /
INITIAL REGULATORY FLEXIBILITY ANALYSIS**

for

Revised Management Authority of Pelagic Shelf Rockfish Complex (Dark Rockfish)

Proposed **Amendment 67** to the
Fishery Management Plan for Groundfish
of the Gulf of Alaska Management Area



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EXECUTIVE SUMMARY

This Environmental Assessment, Regulatory Impact Review and Initial Regulatory Flexibility Analysis describes the proposed amendment 67 to the Gulf of Alaska Groundfish Fishery Management Plan (FMP). This amendment proposes to remove dark rockfish (*Sebastes ciliatus*) from the GOA groundfish FMP. This species is currently contained in the pelagic shelf rockfish (PSR) assemblage. It makes up a small proportion of the total biomass in this complex, is more often found in nearshore waters, and is caught in State fisheries. Removing this species from the FMP would turn management for this species in both State and Federal waters over to the State of Alaska.

The following problem statement was adopted for this analysis:

Dark rockfish are a nearshore, shallow water species which are rarely caught in offshore, Federal waters. For management purposes they are contained within the pelagic shelf rockfish complex, whose OFL and ABC are based primarily on the stock assessment for dusky rockfish which makes up the majority of the total exploitable biomass estimate for the PSR complex. As dark rockfish have now been identified as a separate species, are found in nearshore, shallow waters, and could potentially be locally overfished within the larger PSR complex TAC, the Council should consider removing this species from the GOA groundfish FMP and transferring their management to the State of Alaska.

This analysis considers the following alternatives to address the problem identified above.

Alternative 1.

Retain dark rockfish under the pelagic shelf rockfish assemblage. Continue to specify OFL and ABC for the complex as a whole, based primarily upon the stock assessment for Dusky rockfish. (Status Quo)

Alternative 2.

Remove dark rockfish from the Federal groundfish FMP. Management responsibility in State and Federal waters would be assumed by the State of Alaska.

Under the Magnuson-Stevens Act, State management authority may be extended into Federal waters off Alaska in the absence of Federal management of the species in question. Under this alternative, the State of Alaska could assume management authority for dark rockfish. Management plans for this species would be prepared by ADF&G staff for the Gulf of Alaska state management regions and reviewed by the Board of Fisheries.

Environmental Assessment

There is limited impact in the Federal fishery of removing this species from the FMP. Dark rockfish comprise a small proportion of the total biomass in the PSR assemblage, which is dominated by the target species, dusky rockfish. Impacts to other PSR stocks as well as other groundfish stocks are minimal due to the relatively minor contribution to the overall exploitable biomass from the dark rockfish stock. Management of dark rockfish by the State is anticipated to be an improvement over Federal management within the PSR complex due to the State's ability to manage this stock as a single stock and on smaller management areas to protect against the potential for localized depletion. There are no anticipated impacts to marine mammals, seabirds, threatened or endangered species, habitat or the ecosystem.

Regulatory Impact Review

Removal of dark rockfish from the pelagic shelf rockfish complex could result in minor decreases in the pelagic shelf rockfish TAC, but since dark rockfish are such a small part of the stock of the complex any decline in the TAC is likely to be nominal.

Initial Regulatory Flexibility Analysis

Transfer of management of dark rockfish to the State is likely to result in some changes in regulation of catch. The State could develop a directed fishery for dark rockfish, most likely for fixed gear vessels. Since fixed gear vessels tend to be small, it is possible that the development of such a directed fishery would have a positive impact on small entities, by increasing fishing opportunities. The IRFA in this document is preliminary until the Council selects a preferred alternative. At that point, the potential impact on affected small entities of the action will be developed further in the analysis.

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1.0 PURPOSE AND NEED FOR ACTION

The groundfish fisheries in the Exclusive Economic Zone (EEZ) (3 to 200 miles offshore) in the Gulf of Alaska (GOA) are managed under the Fishery Management Plan (FMP) for the Groundfish Fisheries of the Gulf of Alaska. The FMP was developed by the North Pacific Fishery Management Council (Council) under the Magnuson Fishery Conservation and Management Act (Magnuson Act). It was approved by the Secretary of Commerce and became effective in 1978.

Actions taken to amend FMPs or implement other regulations governing the groundfish fisheries must meet the requirements of Federal laws and regulations. In addition to the Magnuson Act, the most important of these are the National Environmental Policy Act (NEPA), the Endangered Species Act (ESA), the Marine Mammal Protection Act (MMPA), Executive Order (E.O.) 12866, and the Regulatory Flexibility Act (RFA).

NEPA, E.O. 12866 and the RFA require a description of the purpose and need for the proposed action as well as a description of alternative actions which may address the problem. This information is included in Chapters 1 and 2 of this document. Chapter 3 contains information on the biological and environmental impacts of the alternatives as required by NEPA. Impacts on endangered species and marine mammals are addressed in Chapter 4. Chapter 5 contains a Regulatory Impact Review (RIR) which addresses the requirements of both E.O. 12866 and the RFA that economic impacts of the alternatives be considered. Chapter 6 discusses the potential impacts on small entities per the Regulatory Flexibility Act.

1.1 Purpose and Need

Dark rockfish are part of the pelagic shelf rockfish (PSR) assemblage in the Gulf of Alaska Groundfish Fishery Management Plan (FMP). Members of this assemblage include the following four species: dusky rockfish (*Sebastes variabilis*), dark rockfish (*S. ciliatus*), yellowtail rockfish (*S. flavidus*), and widow rockfish (*S. entomelas*). The forms of dusky rockfish commonly recognized as “light dusky rockfish” and “dark dusky rockfish” are now officially recognized as two species (Orr and Blackburn 2004). *S. ciliatus* applies to the dark shallow-water species with a common name dark rockfish, and *S. variabilis* applies to variably colored deeper-water species with a common name dusky rockfish.

Dark rockfish are found predominantly in nearshore, shallow waters. Assessment authors have suggested for years that dark rockfish be turned over the State of Alaska for management as data in the stock assessment for PSR are predominantly from dusky rockfish (the offshore variety) not dark rockfish (the nearshore, shallow water variety). Most of the available information is from the offshore trawl surveys and offshore commercial fishery and dusky rockfish makes up the majority of the exploitable biomass and catch from the assemblage.

1.1.1 Problem Statement

Given that dark rockfish are located predominantly in nearshore, shallow waters, if specifically targeted the potential exists for them to be locally overfished under the relatively high TAC for the entire pelagic shelf rockfish complex. Amendment 46 to the GOA groundfish FMP addressed a similar situation in the PSR complex by removing black and blue rockfish, nearshore rockfish populations which were not thought to be well-assessed by the trawl survey, from the GOA groundfish FMP and turned management over to the State of Alaska (NPFMC 1998). A similar situation exists for dark rockfish, and management by the State of Alaska would better address localized harvest requirements for this nearshore species than is currently provided by Federal management under the larger PSR complex.

Since official recognition as a separate species, the GOA Plan Team has also endorsed removing dark rockfish from the FMP based on the following rationale: (1) separation at species level, (2) distribution of dark rockfish to nearshore habitats that are not specifically assessed by the GOA trawl survey, and (3) the risk of overfishing dark rockfish in local areas given the relatively high TAC for the pelagic shelf rockfish assemblage as a whole. In 2004, the SSC endorsed the rationale and agreed with the Plan Team's recommendation of removing dark rockfish from the FMP. The Council initiated this in 2005 but action was delayed until the 2005 GOA trawl survey data became available for analysis.

Given these concerns as noted by the assessment authors and the GOA groundfish plan team, the Council crafted the following problem statement:

Dark rockfish are a nearshore, shallow water species which are rarely caught in offshore, Federal waters. For management purposes they are contained within the pelagic shelf rockfish complex, whose OFL and ABC are based primarily on the stock assessment for dusky rockfish which makes up the majority of the total exploitable biomass estimate for the PSR complex. As dark rockfish have now been identified as a separate species, are found in nearshore, shallow waters, and could potentially be locally overfished within the larger PSR complex TAC, the Council should consider removing this species from the GOA groundfish FMP and transferring their management to the State of Alaska.

1.2 Next Steps in the Process

This analysis is scheduled for initial review at the April Council meeting. Pending the review process by the Council, the analysis will be revised and released for public review following the April Council meeting. Final action on this amendment is scheduled for June 2006.

2.0 DESCRIPTION OF ALTERNATIVES

Two alternatives are analyzed in this document: alternative 1, to continue managing dark rockfish within the larger pelagic shelf rockfish complex; and alternative 2, to remove dark rockfish from the FMP and turn over to the State of Alaska for management.

2.1 Alternative 1: Status Quo

Under this alternative, dark rockfish would continue to be managed within the pelagic shelf rockfish assemblage. The Council and the National Marine Fisheries Service would retain management authority for dark rockfish within the PSR complex in the EEZ. Overfishing limits (OFLs), acceptable biological catch (ABC) limits and total allowable catch (TAC) limits are established for the complex as a whole and managed accordingly. In season, catch is managed through monitoring directed fishing, with the fishery closed when directed fishing is estimated to leave only the portion of the TAC necessary to support incidental catch in other directed fisheries. Once the directed fishery is closed, incidental catch is managed under the aggregate rockfish MRA, which limits catch of all rockfish of the genera *Sebastes* and *Sebastes* (which includes Pacific ocean perch, northern rockfish, pelagic shelf rockfish, demersal shelf rockfish, and “other rockfish”) to 15 percent of directed fishing harvests.

2.2 Alternative 2: Remove dark rockfish from the Gulf of Alaska FMP

Under this alternative, management authority for dark rockfish is redefined by withdrawing dark rockfish from the Federal GOA groundfish FMP. Under the Magnuson-Stevens Act, State management authority may be extended into Federal waters off Alaska in the absence of Federal management of the species in question. Under this alternative, the State of Alaska could assume management authority for dark rockfish. Management plans for this species would be prepared by ADF&G staff for the Gulf of Alaska state management regions and reviewed by the Board of Fisheries.

OFLs, ABCs and TACs would continue to be specified for the PSR complex, but this complex would no longer include dark rockfish. The State would take on the responsibility for assessment and management of the dark rockfish stock.

In managing dark rockfish, the State of Alaska would develop a fishery management plan for the species under which gear type, season and guideline harvest level (GHL) for the species would be specified. The State may impose on State-registered vessels fishing in Federal fisheries only such additional State measures such as bycatch retention limits for dark rockfish, as are consistent with the applicable Federal fishing regulations for the fishery in which the vessel is operating. It is not the intention of the Council or NMFS to give the State authority to indirectly regulate other Federal fisheries through State implementation of gear restrictions, area closures or other bycatch control measures. Most likely, State management of dark rockfish would include regulation of any directed fishing for dark rockfish. Dark rockfish catch in Federal fisheries would be limited by the current MRA for aggregate rockfish or a separate bycatch limit as established by the State.

While specific management plans have not yet been formulated by the State, it is likely that measures used currently (e.g., in management of black rockfish) would be among those considered for dark rockfish management by the State (D. Carlile, pers. comm.).

These candidate measures would include, but not necessarily be limited to the following:

- Guideline harvest limits (GHLs, or quotas)
- Gear-, area- and directed-fishery-specific bycatch limits, wherein catch in excess of bycatch limits would be reported as bycatch overage on an ADF&G fish ticket, the excess bycatch would be required to be landed, with all proceeds from the sale of excess dark rockfish bycatch surrendered to the State.
- Full retention of all rockfish caught, with proceeds of the sale of any bycatch overage paid to the State of Alaska.
- Directed fisheries for dark rockfish in some areas of the State; in others perhaps bycatch only.
- No-take zones, wherein dark rockfish might not be allowed to be taken in a directed fishery and proceeds from any bycatch would be surrendered to the State.
- Gear restrictions (e.g. jig only) for directed fisheries.
- Trip limits.
- Reporting requirements such as submission of ADF&G fish tickets and/or logbooks.
- Vessel registrations for specific directed dark rockfish fishery areas.

2.3 Alternatives Considered but not Carried Forward

One alternative which was considered but not carried forward for analysis involves transferring management authority of dark rockfish to the State of Alaska while retaining the species under the Federal FMP. Demersal shelf rockfish in Southeast Alaska is under a similarly delegated management program to the State of Alaska. This alternative was not carried forward for dark rockfish for many reasons. A similar alternative was considered and rejected for black and blue rockfish under amendment 46 to the GOA groundfish FMP. Reasons for rejecting this for that amendment are the following: 1) State personnel would be required to comply with additional management processes; 2) the State would need to meet both state and federal requirements which are often on different time-frames for management (e.g., public meetings and reports); and 3) the State did not believe it could meet the costly assessment requirements for managing a nearshore species under a federal management plan (NPFMC 1998). Instead conservative management of the species under a state management jurisdiction only would be less costly and more conservative. These reasons are also valid for the delegating state management of dark rockfish. Given the Council's rejection of this alternative under amendment 46, this alternative was not carried forward for analysis in this document.

3.0 AFFECTED ENVIRONMENT

3.1 Pelagic Shelf rockfish complex

Four species comprise the pelagic shelf rockfish (PSR) assemblage: dusky rockfish (*Sebastes variabilis*), dark rockfish (*S. ciliatus*), yellowtail rockfish (*S. flavidus*), and widow rockfish (*S. entomelas*). The forms of dusky rockfish commonly recognized as “light dusky rockfish” and “dark dusky rockfish” are now officially recognized as two species (Orr and Blackburn 2004). *S. ciliatus* applies to the dark shallow-water species with a common name dark rockfish, and *S. variabilis* applies to variably colored deeper-water species with a common name dusky rockfish. Dusky rockfish are often found in large aggregations over the outer continental shelf and upper slope to depths of 675m (Orr and Blackburn, 2004). Dark rockfish are found in more shallow habitats from nearshore rocky reefs to depths no greater than 160m (Orr and Blackburn 2004).

The range of dark rockfish extends from the western Aleutian Islands and eastern Bering Sea, through the Gulf of Alaska to southeast Alaska (Orr and Blackburn 2004). Throughout its range it is common in depths ranging from 5m to 160m (Orr and Blackburn 2004). Dark rockfish are commonly collected with black rockfish (*S. melanops*) by trawl and hook-and-line gear in shallow waters and are often misidentified as black rockfish (Orr and Blackburn 2004). In deeper trawls in the Aleutian Islands and Gulf of Alaska dark rockfish are found in association with Pacific ocean perch, northern rockfish and dusky rockfish (Blackburn and Orr 2004). Dark rockfish are occasionally found in association with other rockfishes such as harlequin rockfish, sharpchin rockfish, and redstripe rockfish (Orr and Blackburn 2004).

3.1.1 Biological characteristics of pelagic shelf rockfish species

Life history characteristics for all *Sebastes* species include an egg stage completed within the female and a pelagic larval stage (Lunsford et al. 2005). Larval studies for dusky rockfish (the best studied of the species in the PSR assemblage) are hampered by a lack of genetic analyses thus post-larval dusky rockfish have not been identified but are assumed to be similar to other *Sebastes* species and hence to be pelagic. Information for dark rockfish is presumed to be similar to known information for dusky rockfish. The habitat of young juveniles is unknown but a demersal stage follows the pelagic stage as evidenced by the appearance of juveniles less than 25 cm fork length in bottom trawl surveys (Clausen et al. 2002). Older juveniles have been taken only infrequently in trawl surveys and then in inshore more shallow waters than the adults (Lunsford et al. 2005). Limited food information for this species indicates that euphausiids are an important prey item for adult dusky rockfish (Yang 1993).

The size of dusky rockfish taken in the fishery generally appears to have increased after 1992; in particular, the mode increased from 42 cm in 1991-92 to 44-47 cm in 1993-97. The mode then decreased to 42 cm in 1998, and rose back to 45 cm in 1999-2002 (Lunsford et al. 2005). Age data from the fishery indicates a range of ages from 4-76 years (Lunsford et al. 2005). Age and length data from the Federal fishery data are only available for dusky rockfish.

Limited age and length data are available from ADF&G for dark rockfish from dockside sampling efforts from the 2002-2004 black rockfish commercial jig fishery. Preliminary 2002 length data for dark rockfish ranged from 25–50 cm in the Kodiak region while ages ranged from 7-52 years (N. Sagalkin, unpublished data).

Mortality rates and maximum age for pelagic shelf rockfish species are presented in Table 1. The estimates range from 0.06–0.09 and were based on dusky rockfish samples (Lunsford et al. 2005). A value of 0.09 has typically been used in stock assessments for pelagic shelf rockfish species because these species were typically younger than other long-lived rockfish (Lunsford et al. 2005). A value of 0.07 was recently computed for dark rockfish based upon a study completed in the GOA (Chilton. *In Review*). This study indicated a higher maximum age than had been previously assumed for dark rockfish. This value of 0.07 was utilized to compute ABCs and OFLs for dark, widow and yellowtail rockfish in the recent stock assessment for pelagic shelf rockfish (Lunsford et al. 2005).

Table 1. Instantaneous rate of natural mortality and maximum age for pelagic shelf rockfish, based on the break-and-burn method of aging otoliths. Area indicates location of study: Gulf of Alaska (GOA) or British Columbia (BC).

Species	Mortality Rate	Maximum Age	Area	Reference
Dusky Rockfish	0.09	59	GOA	1
	0.09	51 ^b	GOA	7
	0.08	59 ^c	GOA	5
	0.06	76	GOA	6
Dark Rockfish	0.07	75	GOA	2
Yellowtail Rockfish	0.07	53	BC	3
Widow Rockfish	0.05a	59	BC	4

^a Instantaneous rate of total mortality (Z).

^b Maximum survey age.

^c Maximum survey age.

References: (1) Clausen and Heifetz (1991); (2) Chilton, L. *In Review*. Growth and natural mortality of dark rockfish (*Sebastes ciliatus*) in the western Gulf of Alaska. 23rd. Lowell Wakefield Fisheries Symposium on Biology, Assessment, and Management of North Pacific Rockfishes; (3) Leaman and Nagtegaal (1987); (4) Chilton and Beamish (1982); (5) Malecha et al. (2004); (6) Calculated for this document using Hoenig (1983) ($-\ln(0.001)/t_m$); (7) back calculated maximum age using Hoenig (1983) ($-\ln(0.001)/M$).

3.1.2 Biomass by species

Dusky rockfish are the most abundant species in the pelagic shelf rockfish assemblage gulfwide. The remaining three species make up a small proportion of the assemblage. Biomass estimates from GOA trawl surveys are shown in Table 2. GOA trawl surveys were triennial until 1999 and biennial since that time. Starting in 1996 a distinction was made between “light” and “dark” dusky rockfish (and since 2005 they have been referred to by their now official names of dusky rockfish and dark rockfish).

Biomass in all years is dominated by dusky rockfish. Biomass of dark, widow and yellowtail rockfish is patchy from one year to the next, with occasional single tows during the survey dominating the biomass estimate for that species. In 1999, dusky rockfish predominated, but a relatively large biomass of yellowtail rockfish was also seen in the Southeastern area. This yellowtail rockfish biomass can be mostly attributed to one relatively large catch in Dixon Entrance near the U.S./Canada boundary. In 2005, the dusky and dark rockfish biomass estimates were the highest ever recorded. The dark rockfish biomass was influenced by a large catch of 1,154 kg in the Shumagin area. The next largest catch of dark rockfish was 167 kg (Lunsford et al. 2005). With the exception of 2005 the relative contribution to the overall survey biomass from dark rockfish has been low (Table 3).

Table 2. Biomass estimates (mt) for species in the pelagic shelf rockfish assemblage in the Gulf of Alaska, based on results of bottom trawl surveys from 1984 through 2005 (Lunsford et al. 2005)

Species	Statistical Area					Total
	Shumagin	Chirikof	Kodiak	Yakutat	Southeastern	
1984						
Dusky rockfish	3,843	7,462	4,329	15,126	307	31,068
Yellowtail rockfish	0	0	0	17	454	471
Total, all species	3,843	7,462	4,329	15,143	761	31,539
1987						
Dusky rockfish	12,011	4,036	46,005	18,346	1,097	81,494
Widow rockfish	0	0	0	51	96	147
Total, all species	12,011	4,036	46,005	18,397	1,193	81,641
1990						
Dusky rockfish	2,963	1,233	16,779	5,808	953	27,735
Widow rockfish	0	0	0	285	0	285
Total, all species	2,963	1,233	16,779	6,093	953	28,020
1993						
Dusky rockfish	11,450	12,880	23,780	7,481	1,626	57,217
Total, all species	11,450	12,880	23,780	7,481	1,626	57,217
1996						
Light dusky rockfish	3,553	19,217	36,037	14,193	1,480	74,480
Dark dusky rockfish	152	139	59	0	0	350
Widow rockfish	0	10	0	0	919	929
Yellowtail rockfish	0	0	20	0	65	85
Total, all species	3,704	19,366	36,116	14,193	2,464	75,843
1999						
Light dusky rockfish	2,538	9,157	33,729	2,097	2,108	49,628
Dark dusky rockfish	2,130	31	49	0	0	2,211
Widow rockfish	0	0	69	0	115	184
Yellowtail rockfish	0	0	0	162	12,509	12,671
Total, all species	4,668	9,188	33,847	2,259	14,732	64,694
2001						
Light dusky rockfish	5,352	2,062	23,590	7,924 ^a	1,738 ^a	40,667 ^a
Dark dusky rockfish	362	15	36	0 ^a	0 ^a	413 ^a
Widow rockfish	0	0	0	0 ^a	345 ^a	345 ^a
Yellowtail rockfish	0	0	0	54 ^a	4,192 ^a	4,245 ^a
Total, all species	5,714	2,077	23,626	7,978 ^a	6,275 ^a	45,670 ^a
2003						
Light dusky rockfish	4,039	46,729	7,198	11,519	1,377	70,862
Dark dusky rockfish	235	49	16	0	0	300
Widow rockfish	0	0	0	0	32	32
Yellowtail rockfish	0	0	0	71	635	705
Total, all species	4,274	46,778	7,214	11,590	2,044	71,899
2005						
Dusky rockfish	69,295	38,216	60,097	2,488	389	170,484
Dark rockfish	21,454	389	2,348	0	0	24,191
Widow rockfish	0	0	51	0	77	128
Yellowtail rockfish	0	0	0	0	1,121	1,121
Total, all species	90,749	38,605	62,445	2,448	1,587	195,924

^aNote: The Yakutat and Southeastern areas were not sampled in the 2001 survey. Estimates of biomass for these two areas in 2001 were obtained by averaging the corresponding area biomasses in the 1993, 1996, and 1999 surveys.

Table 3. Contribution of dark rockfish survey biomass to overall PSR survey biomass estimate

Year	% Survey Biomass
2001*	0.90
2003	0.42
2005	12.35

*Note the 2001 survey did not cover the eastern GOA

Trawl survey data shows locations by species in the pelagic shelf rockfish assemblage observed in the Gulf of Alaska since 1996. Dark rockfish shows high biomass in selected tows in the Shumagin area in 1999 (Figure 1a) and 2005 (Figure 1e). Trawl survey data also shows selected high tows east and southeast of Kodiak (Figure 1e).

Dusky rockfish trawl survey data shows consistent high tows albeit patchily distributed from one survey to the next (Figure 2a-e). The 2005 survey showed the highest biomass of dusky rockfish since the survey has been conducted (Lunsford et al. 2005).

Survey Biomass data for widow and yellowtail rockfish are shown for the 1984-2005 survey years (Figure 3a-i and Figure 4a-i). Widow rockfish showed only one high biomass tow in 1996 in the southeast leading to a biomass estimate in that area of >900 mt. Yellowtail rockfish showed higher biomass tows in southeast in 1984, 1996, 1999, and 2005 (Figure 4a-i). The high survey biomass estimate for yellowtail rockfish in 1999 was attributed to one relatively large catch in the Dixon entrance area (Figure 4f).

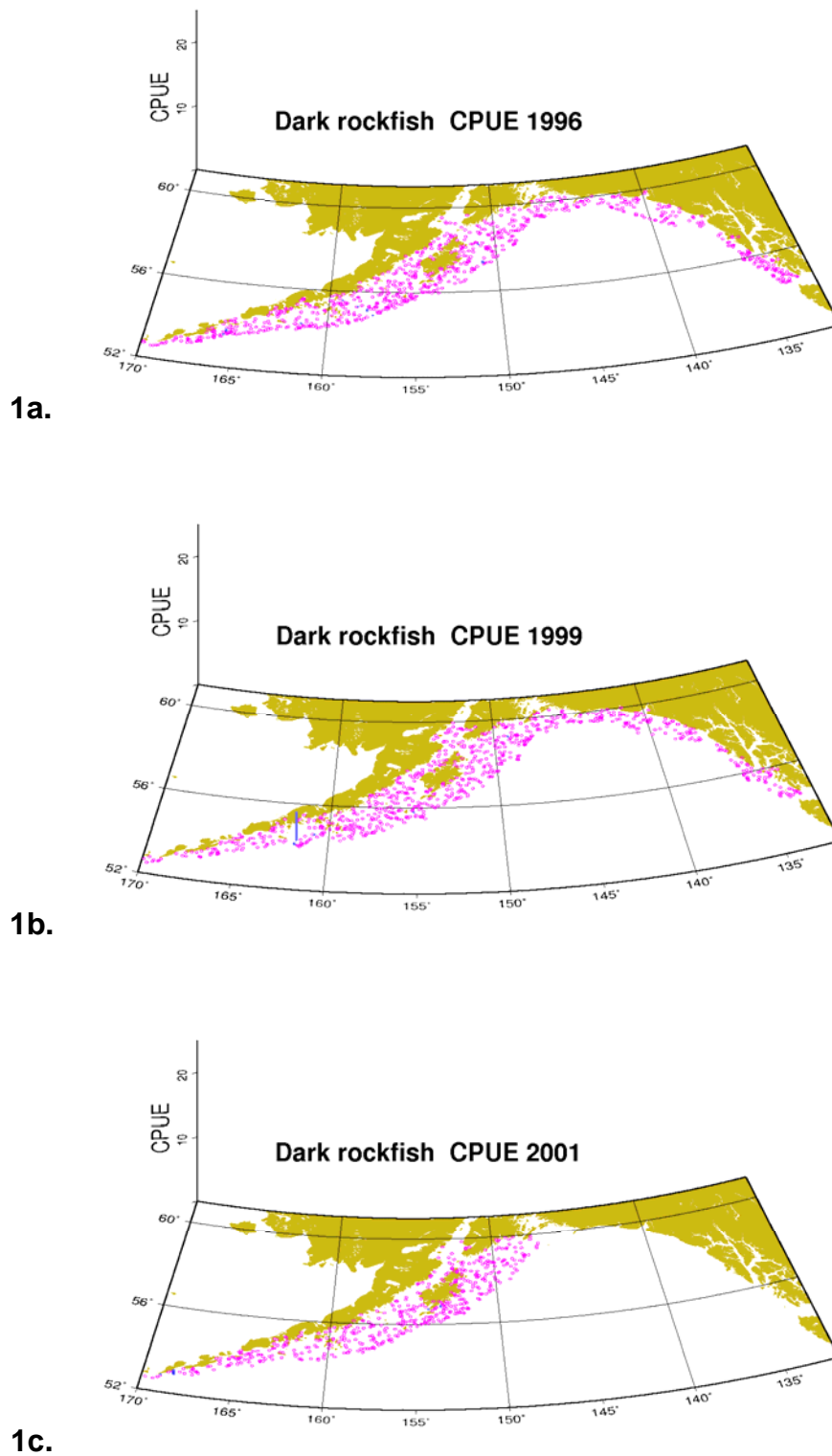
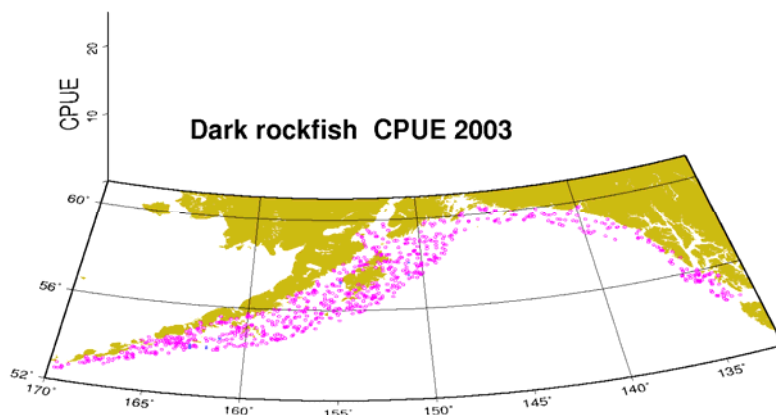
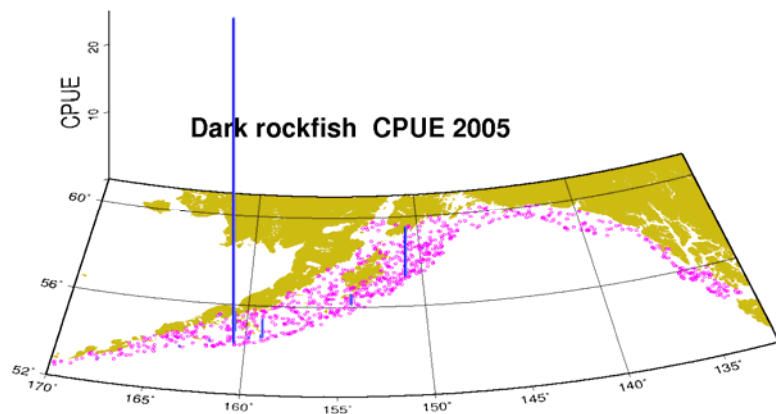


Figure 1. Dark rockfish survey catch per unit effort (CPUE); survey years 1996-2005



1d.



1e.

Figure 1 continued.

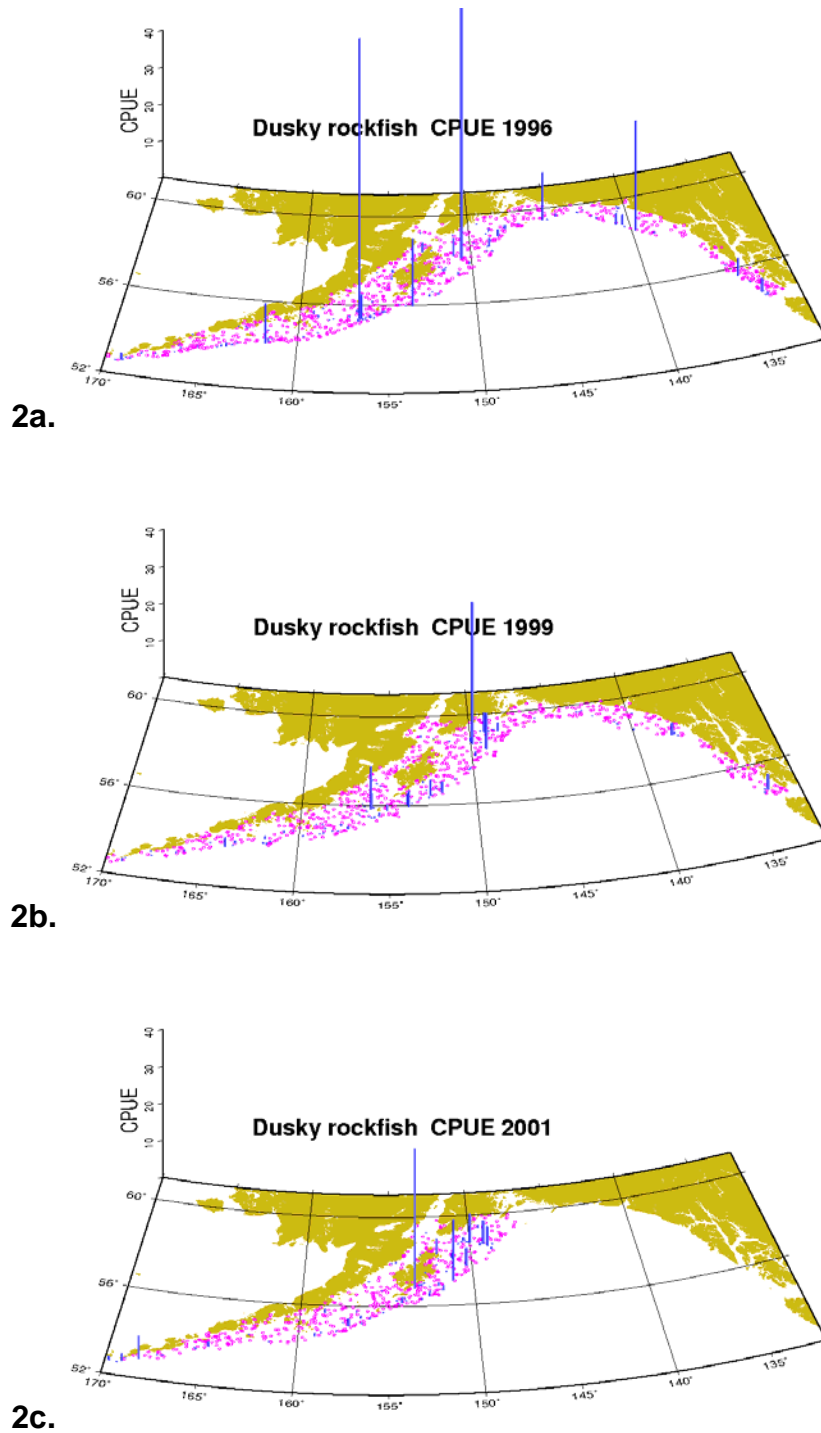


Figure 2. Dusky rockfish survey catch per unit effort (CPUE), survey years 1996-2003

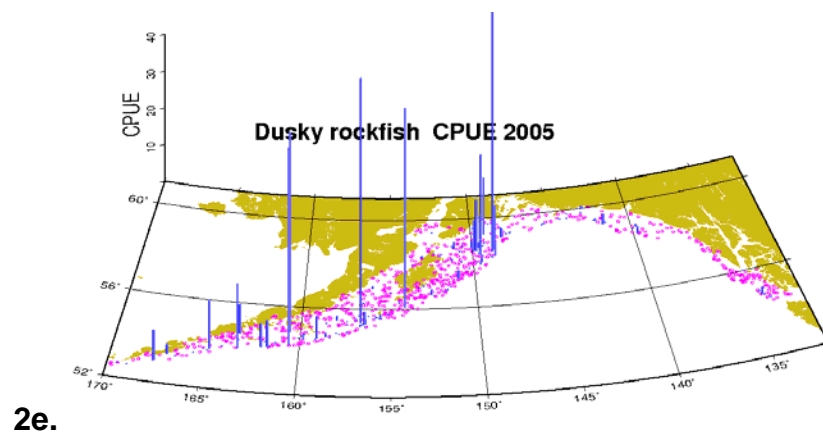
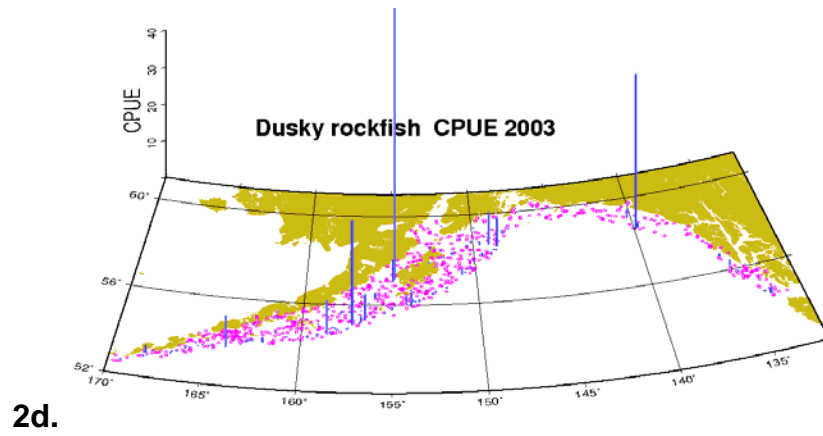


Figure 2 continued.

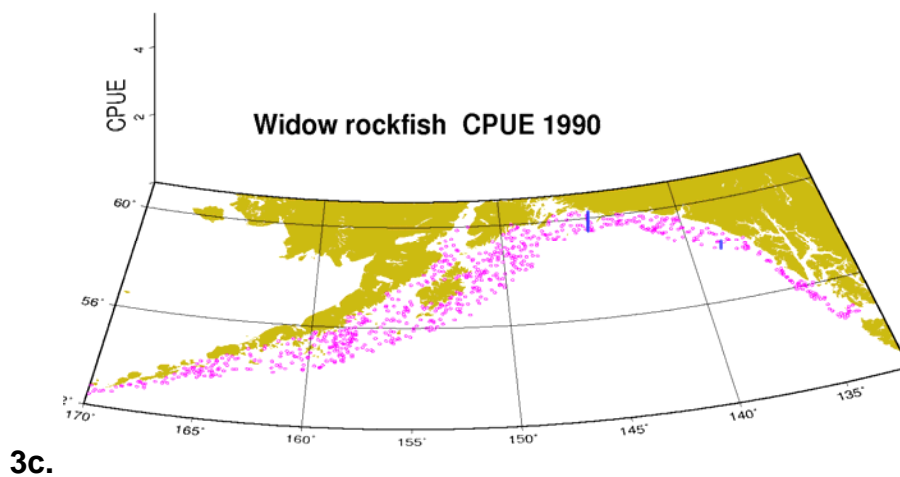
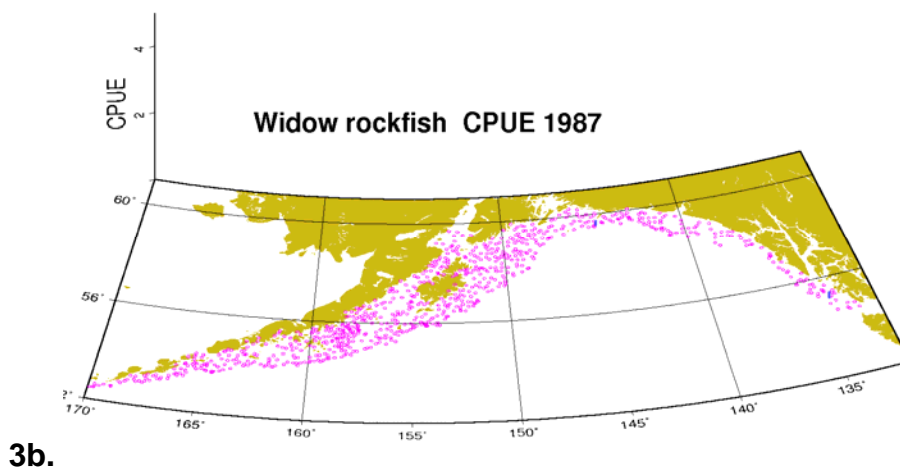
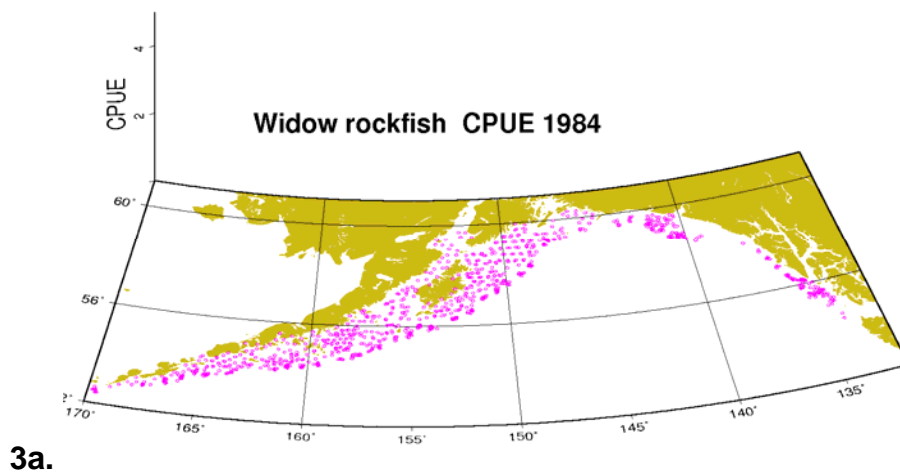
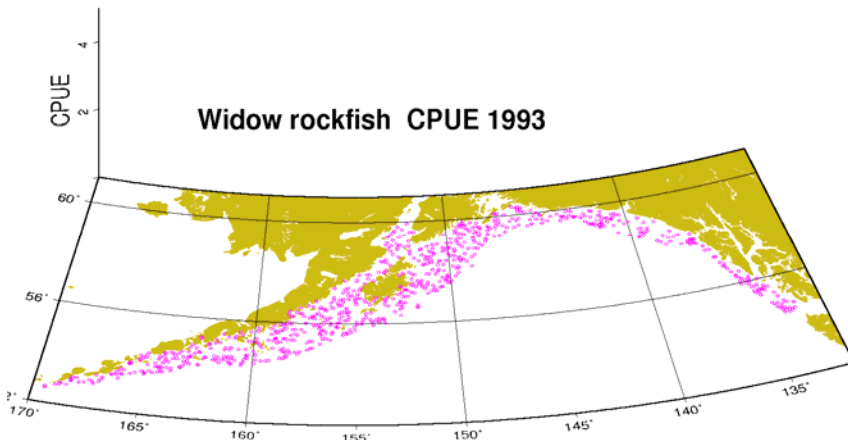
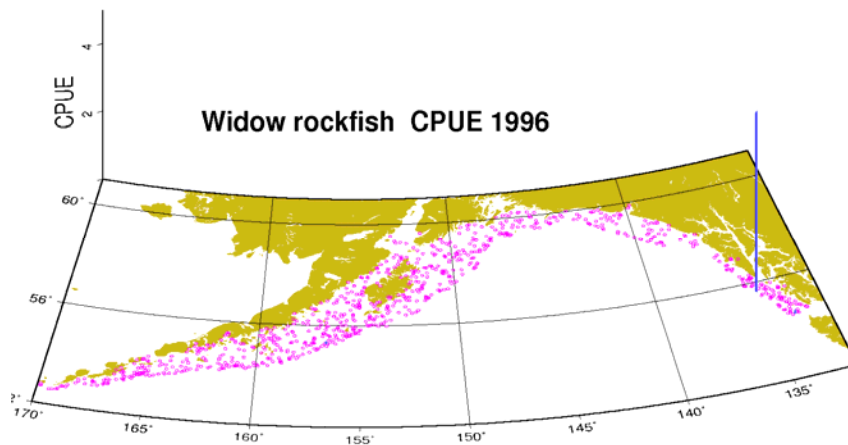


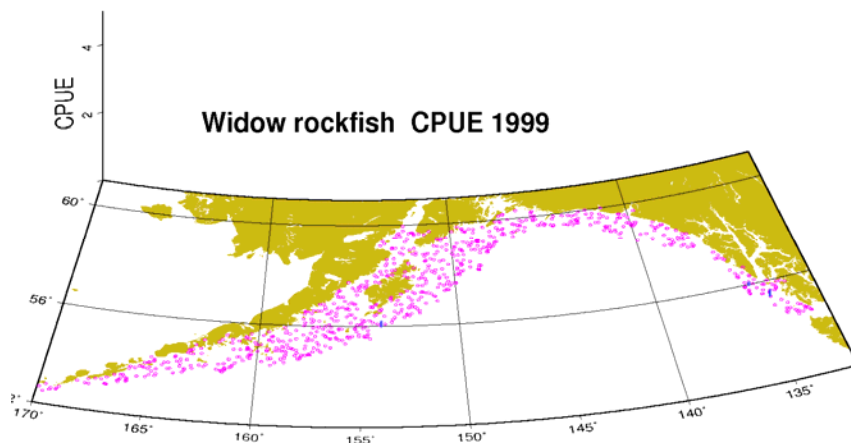
Figure 3. Widow rockfish survey catch per unit effort (CPUE), survey years 1984-2005



3d.

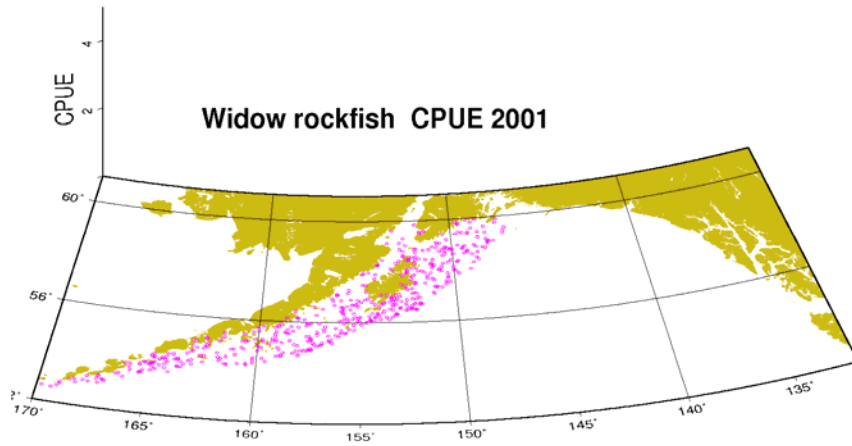


3e.

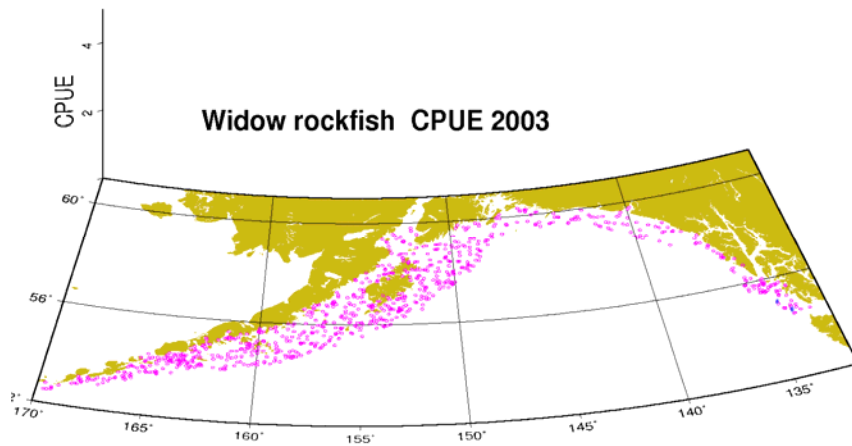


3f.

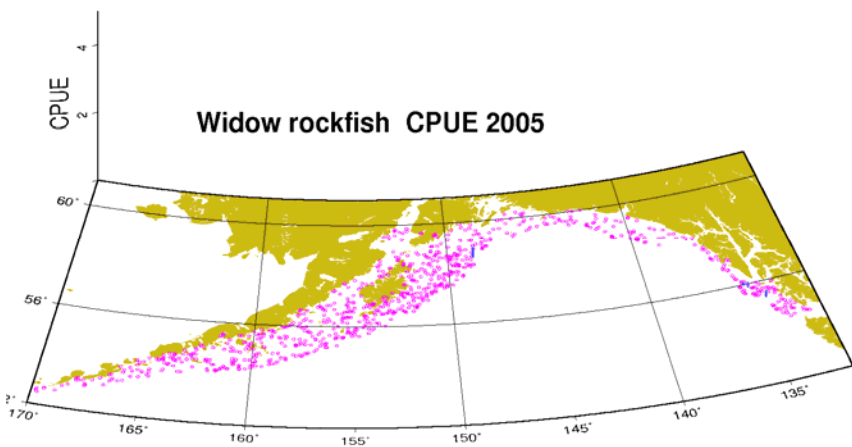
Figure 3 continued.



3g.

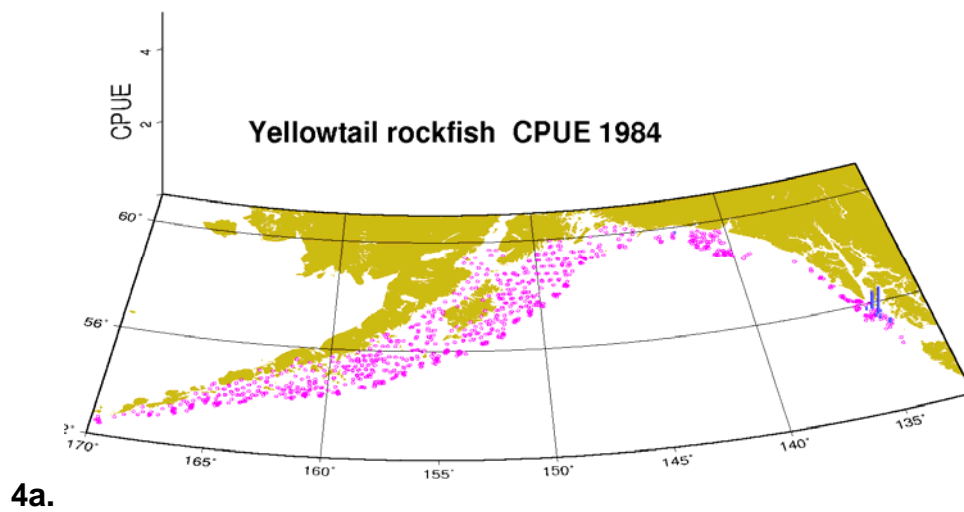


3h.

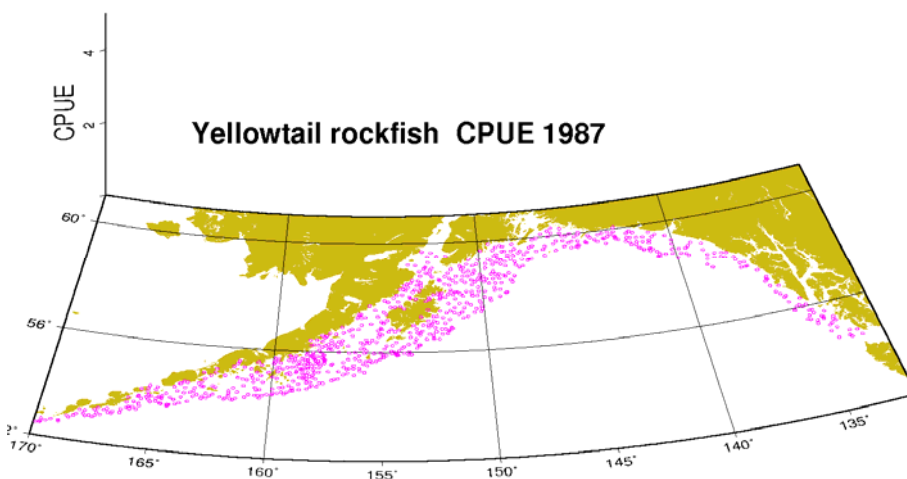


3i.

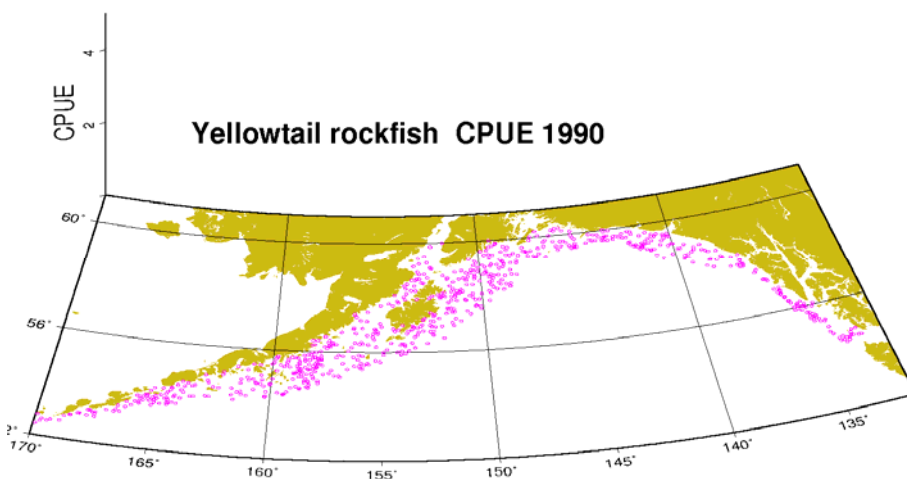
Figure 3 continued.



4a.

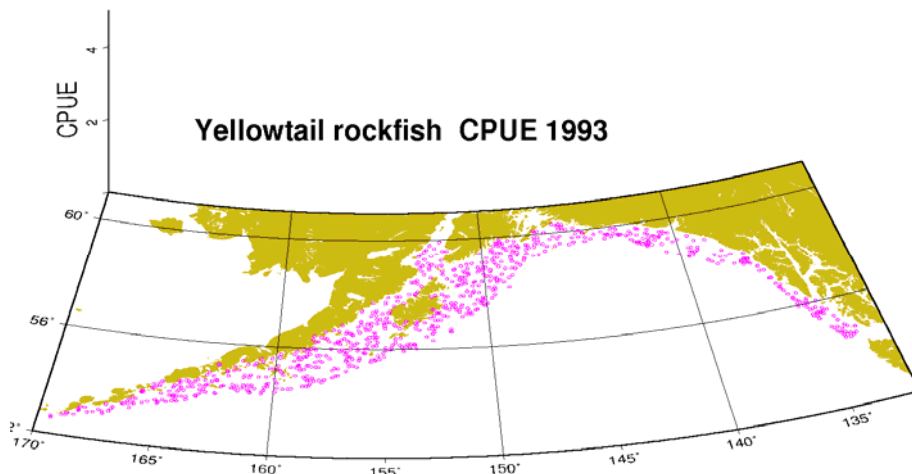


4b.

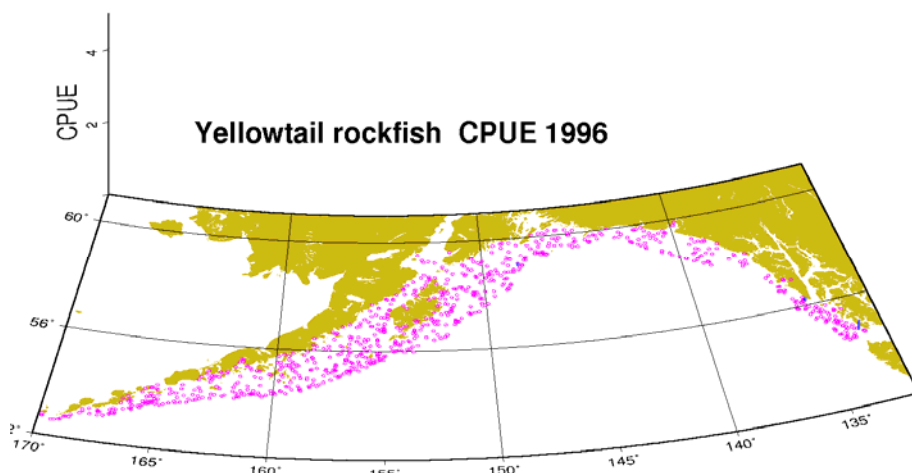


4c.

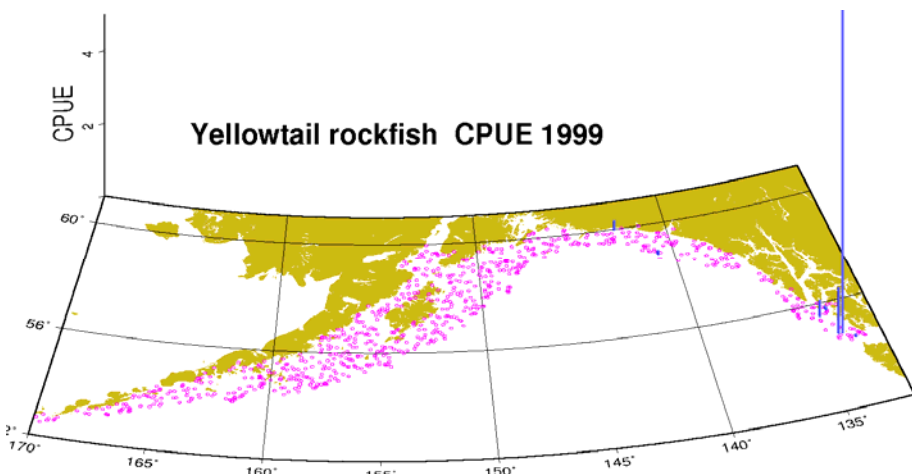
Figure 4. Yellowtail rockfish survey catch per unit effort (CPUE) trawl surveys 1984-2005



4d.

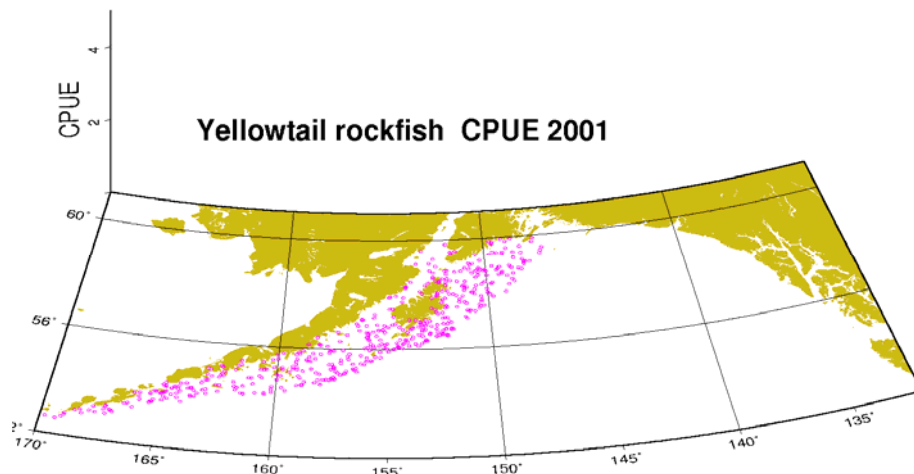


4e.

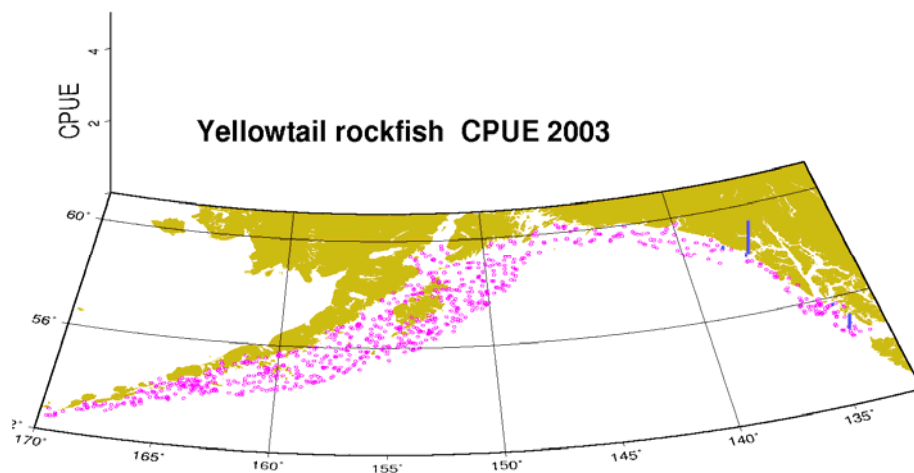


4f.

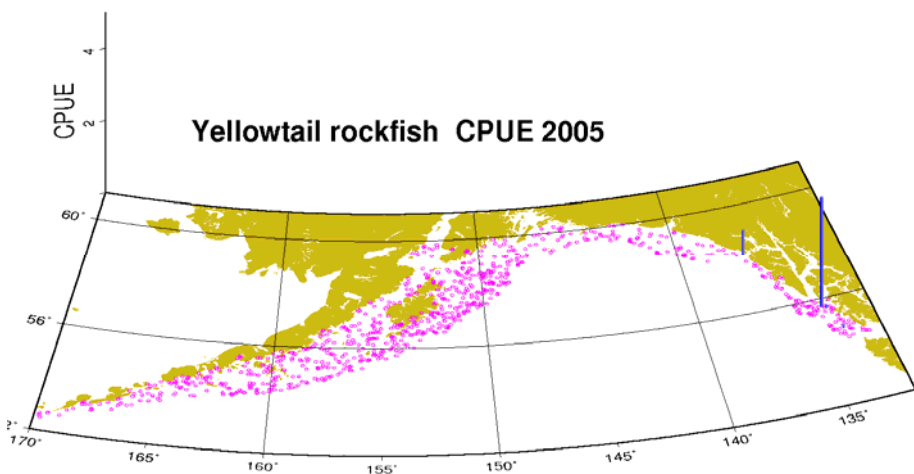
Figure 4 continued.



4g.



4h.



4i.

Figure 4 continued.

3.1.3 Stock Assessment

A single ABC is estimated for the pelagic shelf complex as a whole. An age-structured model is used to estimate the ABC and OFL for the dusky rockfish stock. This stock is currently in Tier 3. Under Amendment 56, Tier 3, the maximum permissible fishing mortality for ABC is $F_{40\%}$ and fishing mortality for OFL is $F_{35\%}$. These fishing rates are applied to the model estimated biomass to generate the ABC and OFL for the stock. The ABC is then apportioned over the three GOA management areas. For widow, yellowtail and dark rockfish, the average of exploitable biomass from the three most recent trawl surveys is used to determine the ABC (Tier 5). In Tier 5, F_{ABC} is defined to be $\leq 0.75 \times M$. For M of 0.07 for the three species, F_{ABC} is then $0.75 \times M$, which equals 0.0525. Multiplying this value of F by the current exploitable biomass for dark, widow, and yellowtail rockfish (10,493 mt) yields an ABC of 551 mt for 2006. The ABC is then apportioned over the GOA management areas. Table 4 provides the 2006 OFL and ABC calculated by species based on the 2005 stock assessment.

Table 4. 2006 OFL and ABC, calculated by species.

Species	OFL	ABC
Dusky	5,927	4,885
Dark	735 (combines all three species)	436
Widow		9
Yellowtail		106
Total PSR	6,662	5,436

The 2006 complex OFL is 6,662mt and the ABC is 5,436mt. This is apportioned over the three GOA areas as the following for 2006 WGOA=1,438mt, CGOA = 3,262mt, WYAK =301mt and EYAK/SEO = 435 mt.

3.2 Pelagic Shelf Rockfish Fishery

Pelagic shelf rockfish have been caught almost exclusively with bottom trawls although some contribution from observed longline vessels has occurred. OFLs are specified gulfwide while ABCs and TACs are apportioned by area in the GOA. Overfishing levels in recent years are lower than in the period from 1998-2003 while ABCs have remained fairly constant (Table 5). Generally, in the PSR fishery in the GOA, the TAC has been established as equal to the ABC (Table 6).

Table 5. Overfishing levels (OFL), acceptable biological catch (ABC) and total allowable catch (TAC) levels for the GOA pelagic shelf rockfish complex 1998-2006

Year	OFL	ABC (total all areas)	TAC (total all areas)
1998*	9,420	4,880	4,880
1999	9,420	4,880	4,880
2000	9,040	5,980	5,980
2001	8,220	5,980	5,490
2002	8,220	5,490	5,490
2003	8,220	5,490	5,490
2004	5,570	4,470	4,470
2005	5,680	4,553	4,553
2006	6,662	5,436	5,436

*includes black and blue rockfish which were removed from the GOA FMP in 1998

The majority of the catch occurs in the Central GOA management area (Table 6).

Table 6. Commercial catch^a (mt) of fish in the pelagic shelf rockfish assemblage in the Gulf of Alaska, with Gulfwide values of acceptable biological catch (ABC) and total allowable catch (TAC), 1988-2005. Updated through October 18, 2005. (Lunsford et al. 2005)

Year	Category	Regulatory Area ^b					Gulfwide		
		Western	Central	Eastern	West Yakutat ^c	Southeast Outside ^d	Total	ABC	TAC
1988	Foreign	0	0	0	-	-	0		
	U.S.	400	517	168	-	-	1,085		
	JV	Tr	1	0	-	-	1		
	Total	400	518	168	-	-	1,086	3,300	3,300
1989	U.S.	113	888	737	-	-	1,738	6,600	3,300
1990	U.S.	165	955	527	-	-	1,647	8,200	8,200
1991	U.S.	215	1,191	936	-	-	2,342	4,800	4,800
1992	U.S.	105	2,622	887	-	-	3,605	6,886	6,886
1993	U.S.	238	2,061	894	-	-	3,193	6,740	6,740
1994	U.S.	290	1,702	997	-	-	2,989	6,890	6,890
1995	U.S.	108	2,247	536	471	64	2,891	5,190	5,190
1996	U.S.	182	1,849	265	190	75	2,296	5,190	5,190
1997	U.S.	96	1,959	574	536	38	2,629	5,140	5,140
1998	U.S.	60	2,477	576	553	22	3,113	4,880	4,880
1999	U.S.	130	3,835	694	672	22	4,659	4,880	4,880
2000	U.S.	190	3,074	467	445	22	3,731	5,980	5,980
2001	U.S.	121	2,436	451	439	12	3,008	5,980	5,980
2002	U.S.	185	2,680	457	448	9	3,322	5,490	5,490
2003	U.S.	164	2,194	617	607	10	2,975	5,490	5,490
2004	U.S.	281	2,182	211	199	12	2,885	4,470	4,470
2005	U.S.	118	1,843	218	215	3	2,397	4,553	4,553

^aCatches for 1988-97 include black rockfish and blue rockfish, which were members of the assemblage during those years.

^bCatches for West Yakutat and Southeast Outside areas are not available for years before 1996. Eastern area is comprised of the West Yakutat and Southeast Outside areas combined.

^cWest Yakutat area is comprised of statistical areas 640 and 649.

^dSoutheast Outside area is comprised of statistical areas 650 and 659.

Catches have been below TACs. Annual catches have generally increased from 1988 to 1992 and have fluctuated since that time. The pattern can largely be explained by management actions affecting rockfish during this time period. Prior to 1991 TACs for more desirable rockfish species such as Pacific ocean perch were relatively large thus the incentive to target lower valued rockfish (such as dusky rockfish in the PSR complex) was low. As TACs for slope rockfish became more restrictive in the 1990's the incentive to target other rockfish increased, resulting in higher catches for PSR species and a high in 1992 of 3605mt gulfwide. In-season management measures have largely prevented further increases in the dusky rockfish fishery. In some years (e.g., 1997-1998 and 2000-2005) the PSR trawl fishery in the Central GOA was closed prior to reaching the TAC. The fishery was closed either to ensure that catch did not exceed TAC or to prevent excessive bycatch of species such as Pacific Ocean perch and Pacific halibut (Lunsford et al. 2005).

Under the current management the Gulf of Alaska rockfish fisheries open on January 1st for non-trawl gear participants. The opening for trawl gear is near July 1st, but varies year-to-year. The trawl opening is generally timed to coincide with the availability of the quarterly halibut PSC allocation. The fishery is also timed to accommodate the sablefish longline survey that occurs later in the summer. The rockfish

fisheries, which also take some sablefish, must be completed early enough to allow the redistribution of sablefish stocks to avoid possible survey bias. The opening is also scheduled to accommodate in-season management so that managers have adequate catch and effort information to make Federal Register closure announcements, if needed, avoiding the 4th of July holiday weekend. The opening typically coincides with the openings of the Aleutian Islands Pacific ocean perch and Bering Sea flathead sole fisheries to distribute effort among the fisheries.

Both the trawl and non-trawl fisheries are prosecuted from a single TAC, with the harvest from the trawl fishery limited to the remaining available TAC after the non-trawl fleet has prosecuted the fishery from its January 1st opening. Since the non-trawl fleet has shown little interest in the fisheries historically, most of the TAC has been harvested by the trawl fleet.

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

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

From 1991-2005, dark rockfish have not made up more than 2.6 percent of the assemblage catch for pelagic shelf rockfish (Table 5). In most of these years dark rockfish made up only trace amounts of the catch with more than 99% of the catch made up of dusky rockfish. In 1999, dark rockfish made up 2.6% with dusky rockfish making up 97.4% of the catch. In 2004, widow rockfish made up a larger relative percentage of the total catch than in previous years with dusky rockfish making up 95.5% and dark rockfish 0.4%. In both of these survey years the high observed catch for dark rockfish (2.6% in 1999) and widow rockfish (4.5% in 2004) respectively were due to abnormally large individual tows recorded by observers (C. Lunsford, pers. comm.). In 2005, the catch composition was 98.7% dusky rockfish and 1.1% dark rockfish (Table 7).

Table 7. Percentage of assemblage catch (from observer data)

Year	Dusky	Dark	Yellowtail	Widow
1991	93.5	0.2	5.1	1.2
1992	98.9	0.3	trace	0.8
1993	98.1	trace	0.5	1.4
1994	98.3	1.2	0.1	0.4
1995	99.2	trace	trace	0.8
1996	99.7	trace	trace	0.3
1997	99.9	trace	trace	0.1
1998	99.9	trace	trace	trace
1999	97.4	2.6	trace	trace
2000	99.2	0.6	0.1	0.2
2001	99.7	0.3	trace	trace
2002	99.4	0.5	trace	0.1
2003	98.8	0.8	trace	0.3
2004	95.5	0.4	trace	4.5
2005	98.7	1.1	0.2	trace

Source: C. Lunsford, NMFS

Catches for dusky rockfish are concentrated on several relatively shallow, offshore banks on the outer continental shelf particularly the “W” grounds west of Yakutat, Portlock Bank (northeast of Kodiak Island) and around Albatross Bank south of Kodiak Island (Lunsford et al. 2005). Highest CPUE in the commercial fishery is generally at depths of 100-149 m (Reuter 1999).

From 1988-1995 nearly all of the catch of dusky rockfish was taken by large factory trawlers that processed the fish at sea. Since 1999 a larger proportion of the catch has been taken by smaller shore-based trawlers in the Central GOA and the catch has been delivered to Kodiak-based processing plants. These shore-based trawlers have accounted for the following percentages of trawl catch in the CGOA from 1996-2004 (Table 8).

Table 8. Percent shore-based trawl catch in Central GOA area 1996-2004 (Lunsford et al 2005)

Year	Percent shore-based trawl catch in Central GOA area
1996	27.1
1997	18.1
1998	25.0
1999	45.2
2000	74.4
2001	58.0
2002	49.7
2003	n/a
2004	64.6

Overall catch by gear type from 1998-2005 is shown in Table 9. Some fish are not identified to species and end up in an aggregate PSR catch category. Here dusky rockfish contains both dark and dusky rockfish. Trawl catch accounts for the majority of all catch in the pelagic shelf rockfish fishery. Dark rockfish are caught by jig gear and the jig catch listed in Table 9 could be primarily dark rockfish. The highest jig catch in recent years was 2004 with 53 mt. Trawl catch of dusky rockfish dominates all catch by year and gear type in this assemblage. Separate species codes are being developed to identify dusky rockfish and dark rockfish in future catch accounting given the differentiation to species level. In order to identify dark rockfish as a separate species in the Federal catch accounting system the federal reporting requirements need revision and fairly complex data processing revisions are also required (A. Smoker,

pers. comm.). New reporting requirements will be necessary whether or not the Council chooses to move dark rockfish for State management.

Table 9. Retained catch (mt) of PSR species by gear type 1998-2005 (screened for confidentiality). Source: NMFS Catch Accounting

Species and year	Trawl	Fixed gear*	Jig Gear
1998			
Dusky rockfish	1,288	84	4
PSR**	1,510	0	0
Widow rockfish	18	0	0
Yellowtail rockfish	0	0	2
1999			
Dusky rockfish	2,364	19	3
PSR**	2,136	0	0
Widow rockfish	0	0	0
Yellowtail rockfish	0	1	3
2000			
Dusky rockfish	2,395	15	5
PSR**	1,092	0	0
Widow rockfish	0	0	0
Yellowtail rockfish	0	1	2
2001			
Dusky rockfish	1,932	9	9
PSR**	892	0	0
Widow rockfish	0	0	0
Yellowtail rockfish	24	0	1
2002			
Dusky rockfish	1,807	3	15
PSR**	1,195	0	0
Widow rockfish	0	0	0
Yellowtail rockfish	0	0	1
2003			
Dusky rockfish	2,946	9	8
Widow rockfish***	n/a	n/a	n/a
Yellowtail rockfish	0	0	3
2004			
Dusky rockfish	2,410	8	53
Widow rockfish	n/a	n/a	n/a
Yellowtail rockfish	0	1	1
2005			
Dusky rockfish	2,023	18	17
Widow rockfish	n/a	n/a	n/a
Yellowtail rockfish	0	n/a	1

*fixed gear includes hook and line and pot gear. Jig gear is not included as it is broken out separately.

**PSR aggregate were not identified to species

***total only available in 2003 (7mt)

Dark rockfish are also caught in the state jig fishery. Dark rockfish have often been misidentified as black rockfish and caught in the black rockfish commercial fishery (Orr and Blackburn 2004). Dark rockfish have not been separately identified in the black rockfish fishery, although recent dockside sampling efforts by ADF&G have identified dark rockfish and other pelagic shelf rockfish species during the state jig fishery (see section 3.3 for additional information).

Major bycatch species for hauls targeting pelagic shelf rockfish include primarily northern rockfish and fish in the “other slope” rockfish category, followed by Pacific ocean perch (Ackley and Heifetz 2001). The “other slope” rockfish category includes 15 rockfish species with the primarily caught species in the category being sharpchin, redstripe, harlequin, silvergrey, yellowmouth and redbanded rockfish. Dusky rockfish was the primary bycatch species for hauls targeting northern rockfish (Ackley and Heifetz 2001). Bycatch of pelagic shelf rockfish species in the non-rockfish fisheries is presumed to be small (Lunsford et al 2005).

Discard rates of pelagic shelf rockfish have been lower than the rates for other slope rockfish species and in recent years (200-2004) have ranged from 2.4% to 4.7% (Lunsford et al 2005).

3.3 Other Groundfish Stocks

Groundfish stocks caught in conjunction with fisheries for pelagic shelf rockfish include Pacific ocean perch, northern rockfish and species in the “other slope” rockfish complex. Descriptions of these species and fisheries are contained in the annual Stock Assessment and Fishery Evaluation reports for the Gulf of Alaska (NPFMC 2005).

Dark rockfish are often caught in conjunction with black rockfish. Dark rockfish and black rockfish often co-occur in nearshore kelp beds of the Gulf of Alaska, and are superficially similar in appearance, especially in body color, which can lead to misidentification. Black rockfish are a nearshore, shallow water species that are commercially targeted using jig gear. Black and blue rockfish were both removed from the Federal FMP in 1998 under amendment 46 and turned over to the State of Alaska for management due to concerns of overfishing these species under the relatively high TAC for the pelagic shelf species complex (NPFMC 1998).

Black rockfish is now solely managed by the State of Alaska following removal from the GOA groundfish FMP of black and blue rockfish under amendment 46 to the FMP (NPFMC 1998). Commercial fisheries targeting black rockfish use jig gear. The commercial fishery for black rockfish opens in all Westward districts on January 1st and remains open until December 31, or until GHs are attained (Mattes and Failer-Rounds 2005). Harvests are monitored through fish ticket records, processor reports and dockside sampling of commercial catches. Some black rockfish is also landed as bycatch in other fisheries (Ruccio et al. 2004). Trip limits in the Kodiak District for black rockfish are 5,000 pounds per five day harvest and landing. Vessel operators must register specifically for the black rockfish fishery in this district. No trip limits are imposed in the Chignik or South Alaska Districts of the Westward Region.

Canneries processing black rockfish in Kodiak in 2003 noted that increased sorting efforts for dusky and dark rockfish led to estimates that many deliveries that were close to 5,000 pounds total for all rockfish species often contained ¼ to ½ “dusky” rockfish (combined light and dark dusky rockfish species) once sorted (Ruccio et al. 2004). Total harvest in 2003 as reported on fish tickets for Kodiak, Chignik and South Alaska Peninsula areas for black rockfish was 141,265 pounds and for combined dusky rockfish species 17,967 pounds. The majority of the dusky rockfish harvest (17,910 of the total 17,967 pounds) was taken in the Kodiak District.

Information from ADF&G has indicated that as much as 25% of the fish reported as black rockfish caught in the Kenai Peninsula jig fishery may have actually been dark rockfish (Lunsford et al 2005).

Catch and effort data for the Kodiak District from 1990-2004 are shown in Table 10.

Table 10. Catch and effort, excluding discards, for the Kodiak Area black rockfish fishery 1998-2004 (from Sagalkin and Spalinger 2005)

Year	Vessels	Number of Landings	Directed GHL	Total Harvest (lbs)	Price per pound
1998	76	355	190,000	195,623	0.32
1999	84	316	185,000	131,986	0.40
2000	92	282	185,000	255,044	0.41
2001	55	194	185,000	220,825	0.40
2002	41	143	185,000	204,547	0.43
2003	49	106	185,000	85,362	0.36
2004	52	140	185,000	123,231	0.36

A total of 76 vessels harvested 231,555 pounds (105 mt) of black rockfish from the combined Kodiak, Chignik and Eastern District of the South Alaska Peninsula Area in the 2004 fishery (Sagalkin and Spalinger 2005). Of those participating, 31 vessels harvested black rockfish in the directed commercial fishery with jig gear while the remainder landed it as bycatch in other fisheries (Sagalkin and Spalinger 2005). The majority of the harvest was from the Kodiak District.

Dockside sampling efforts have increased in recent years and samplers have collected a range of data in addition to fish ticket records, fishing locations and effort. Recently data has been collected during the black rockfish jig fishery on fish length, sex, reproductive maturity, and otoliths for aging (Sagalkin and Spalinger 2005). Species composition data from dockside sampling indicates that the percentage of black rockfish identified as darks is higher in recent years (Figure 5 and Figure 6).

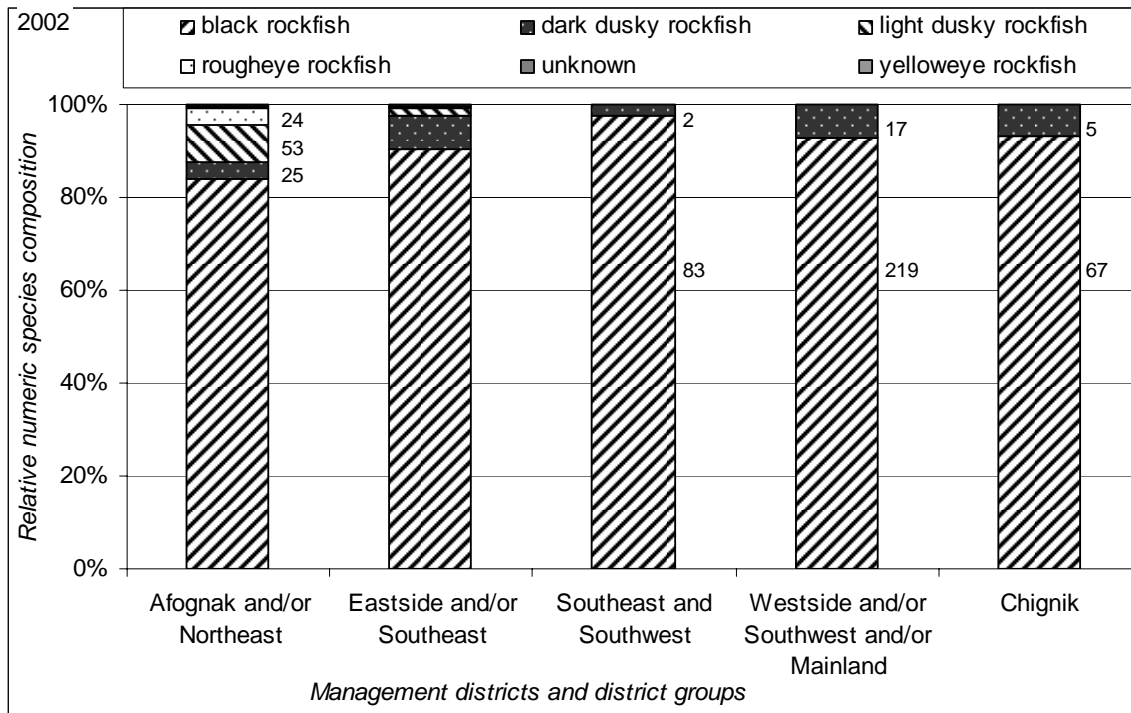


Figure 5. Percent species composition landed in the 2002 Black rockfish jig fishery (Source ADF&G)

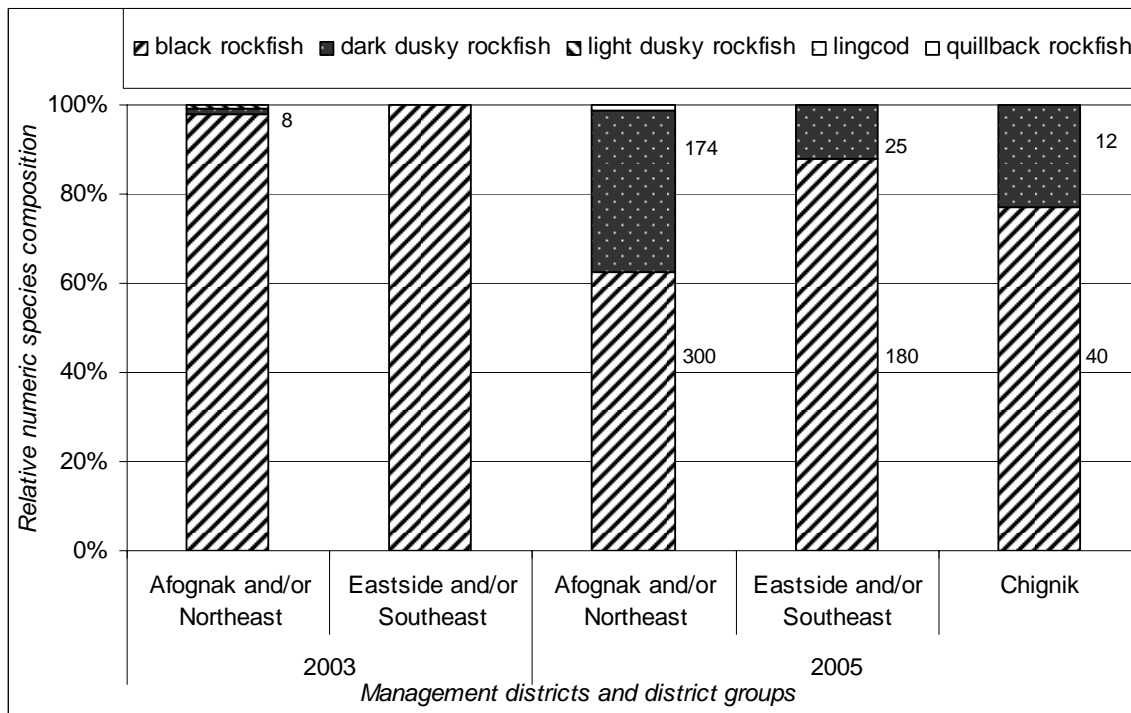


Figure 6. Percent species composition landed in the Black rockfish jig fishery 2003, 2005 (Source ADF&G)

Figures 5 and 6 show the percent species composition from the directed black rockfish jig fishery from dockside sampling in the Westward Region. In all areas and years the catch is predominantly black rockfish, however in 2005 a substantial proportion of the catch was dark rockfish (Figure 6). Generally processors offer less money for dark rockfish than for black rockfish, thus there is limited incentive for the fishermen to separate the two species (N. Sagalkin pers. comm.).

Preliminary data from the Cook Inlet management region also shows the proportion of dark rockfish in the landed black rockfish catch (Table 11). The relative proportion of dark rockfish in the catch has ranged from 0.9 to 5.6%. The lower rates of 0.9 in 2001, as compared to the following three years, may be due to the higher relative percentage of unidentified dusky rockfish in that year that were likely dark rockfish (Table 11).

Table 11. Species composition of pelagic shelf rockfish sampled in the Cook Inlet Area jig fishery and surveys 2001-2004.

Species	2001	2002	2003	2004	Ave (01-04)
Black rockfish	94.4	94.7	93.5	96.4	94.5
Unspec. Dusky rockfish	4.3	0.5	0.2	0.0	1.9
Dark rockfish	0.9	4.2	5.6	3.3	3.0
Dusky rockfish	0.4	0.7	0.8	0.3	0.5

Source: W. Dunn, ADF&G preliminary data

Dockside sampling data in the 2004 fishery for the Cook Inlet Area indicated that from a total of 672 rockfish sampled in the ports of Homer and Seward, species composition were 79% black rockfish, 7% dusky rockfish, 1% quillback rockfish and 13% yelloweye rockfish (Trowbridge and Bechtol 2004). Dusky rockfish were not separated into dusky and dark by species. Of the samples collected 87% came from the directed jig fishery.

A research survey in 2004 in the Shumagins area using a chartered jig vessel caught approximately 900 black rockfish and 434 dark rockfish, which could show an indication of the species composition in that region (D. Urban pers. comm.). The Shumagins are also the region of the high biomass estimates from tows in the trawl surveys in 1999 and 2005 (Figure 1).

Thus while data are still limited there are indications that a relatively high proportion of dark rockfish are caught in the commercial fisheries for black rockfish. Dusky rockfish are not caught in high amounts in the black rockfish fishery (Figure 5, Figure 6 and Table 11).

3.4 Threatened and Endangered Species

The Endangered Species Act of 1973 as amended [16 U.S.C. 1531 et seq; ESA], provides for the conservation of endangered and threatened species of fish, wildlife, and plants. The program is administered jointly by the NMFS for most marine mammal species, marine and anadromous fish species, and marine plants species and by the USFWS for bird species, and terrestrial and freshwater wildlife and plant species.

The designation of an ESA listed species is based on the biological health of that species. The status determination is either threatened or endangered. Threatened species are those likely to become endangered in the foreseeable future [16 U.S.C. § 1532(20)]. Endangered species are those in danger of becoming extinct throughout all or a significant portion of their range [16 U.S.C. § 1532(20)]. Species can be listed as endangered without first being listed as threatened. The Secretary of Commerce, acting through NMFS, is authorized to list marine fish, plants, and mammals (except for walrus and sea otter)

and anadromous fish species. The Secretary of the Interior, acting through the USFWS, is authorized to list walrus and sea otter, seabirds, terrestrial plants and wildlife, and freshwater fish and plant species.

In addition to listing species under the ESA, the critical habitat of a newly listed species must be designated concurrent with its listing to the "maximum extent prudent and determinable" [16 U.S.C. § 1533(b)(1)(A)]. The ESA defines critical habitat as those specific areas that are essential to the conservation of a listed species and that may be in need of special consideration. Federal agencies are prohibited from undertaking actions that destroy or adversely modify designated critical habitat. Some species, primarily the cetaceans, which were listed in 1969 under the Endangered Species Conservation Act and carried forward as endangered under the ESA, have not received critical habitat designations.

Table 12. Species listed as endangered and threatened under the ESA that may be present in the Federal waters off Alaska include:

Common Name	Scientific name	ESA status
Northern Right Whale	<i>Balaena glacialis</i>	Endangered
Bowhead Whale ¹	<i>Balaena mysticetus</i>	Endangered
Sei Whale	<i>Balaenoptera borealis</i>	Endangered
Blue Whale	<i>Balaenoptera musculus</i>	Endangered
Fin Whale	<i>Balaenoptera physalus</i>	Endangered
Humpback Whale	<i>Megaptera novaeangliae</i>	Endangered
Sperm Whale	<i>Physeter macrocephalus</i>	Endangered
Snake River Sockeye Salmon	<i>Onchorynchus nerka</i>	Endangered
Short-tailed Albatross	<i>Phoebaotria albatrus</i>	Endangered
Steller Sea Lion	<i>Eumetopias jubatus</i>	Endangered and Threatened ²
Snake River Fall Chinook Salmon	<i>Onchorynchus tshawytscha</i>	Threatened
Snake River Spring/ Summer Chinook Salmon	<i>Onchorynchus tshawytscha</i>	Threatened
Puget Sound Chinook Salmon	<i>Onchorynchus tshawytscha</i>	Threatened
Lower Columbia River Chinook Salmon	<i>Onchorynchus tshawytscha</i>	Threatened
Upper Willamette River Chinook Salmon	<i>Onchorynchus tshawytscha</i>	Threatened
Upper Columbia River Spring Chinook Salmon	<i>Onchorynchus tshawytscha</i>	Endangered
Upper Columbia River Steelhead	<i>Onchorynchus mykiss</i>	Endangered
Snake River Basin Steelhead	<i>Onchorynchus mykiss</i>	Threatened
Lower Columbia River Steelhead	<i>Onchorynchus mykiss</i>	Threatened
Upper Willamette River Steelhead	<i>Onchorynchus mykiss</i>	Threatened
Middle Columbia River Steelhead	<i>Onchorynchus mykiss</i>	Threatened
Spectacled Eider	<i>Somateria fishcheri</i>	Threatened
Steller Eider	<i>Polysticta stelleri</i>	Threatened

¹ The bowhead whale is present in the Bering Sea area only.

² Steller sea lion are listed as endangered west of Cape Suckling and threatened east of Cape Suckling.

Of the species listed under the ESA and present in the action area, some may be negatively affected by commercial groundfish fishing. Section 7 consultations with respect to the actions of the Federal groundfish fisheries have been done for all the species listed above, either individually or in groups.

Additional information on endangered and threatened species appears in the Alaska Groundfish Fisheries Programmatic Supplemental Environmental Impact Statement (NMFS 2004).

3.5 Marine Mammals

Marine mammals not listed under the ESA that may be present in the GOA include cetaceans [minke whale (*Balaenoptera acutorostrata*), killer whale (*Orcinus orca*), Dall's porpoise (*Phocoenoides dalli*), harbor porpoise (*Phocoena phocoena*), Pacific white-sided dolphin (*Lagenorhynchus obliquidens*) and the beaked whales (e.g., *Berardius bairdii* and *Mesoplodon spp.*)] and pinnipeds [northern fur seals (*Callorhinus ursinus*) and Pacific harbor seals (*Phoca vitulina*)] and the sea otter (*Enhydra lutris*).

Direct and indirect interactions between marine mammals and groundfish harvest occur due to overlap in the size and species of groundfish harvested in the fisheries that are also important marine mammal prey and due to temporal and spatial overlap in marine mammal foraging and commercial fishing activities. A detailed analysis of the effects of commercial fisheries on marine mammals appears in the Alaska Groundfish Fisheries Programmatic Supplemental Environmental Impact Statement (NMFS 2004).

3.6 Seabirds

Many seabirds occur in Alaskan waters indicating a potential for interaction with commercial fisheries. The most numerous seabirds in Alaska are northern fulmars, storm petrels, kittiwakes, murre, auklets, and puffins. These groups, and others, represent 38 species of seabirds that breed in Alaska. Eight species of Alaska seabirds breed only in Alaska and in Siberia. Populations of five other species are concentrated in Alaska but range throughout the North Pacific region. Marine waters off Alaska provide critical feeding grounds for these species as well as others that do not breed in Alaska but migrate to Alaska during summer, and for other species that breed in Canada or Eurasia and overwinter in Alaska. A detailed analysis of the effects of commercial fisheries on seabirds appears in the Alaska Groundfish Fisheries Programmatic Supplemental Environmental Impact Statement (NMFS 2004).

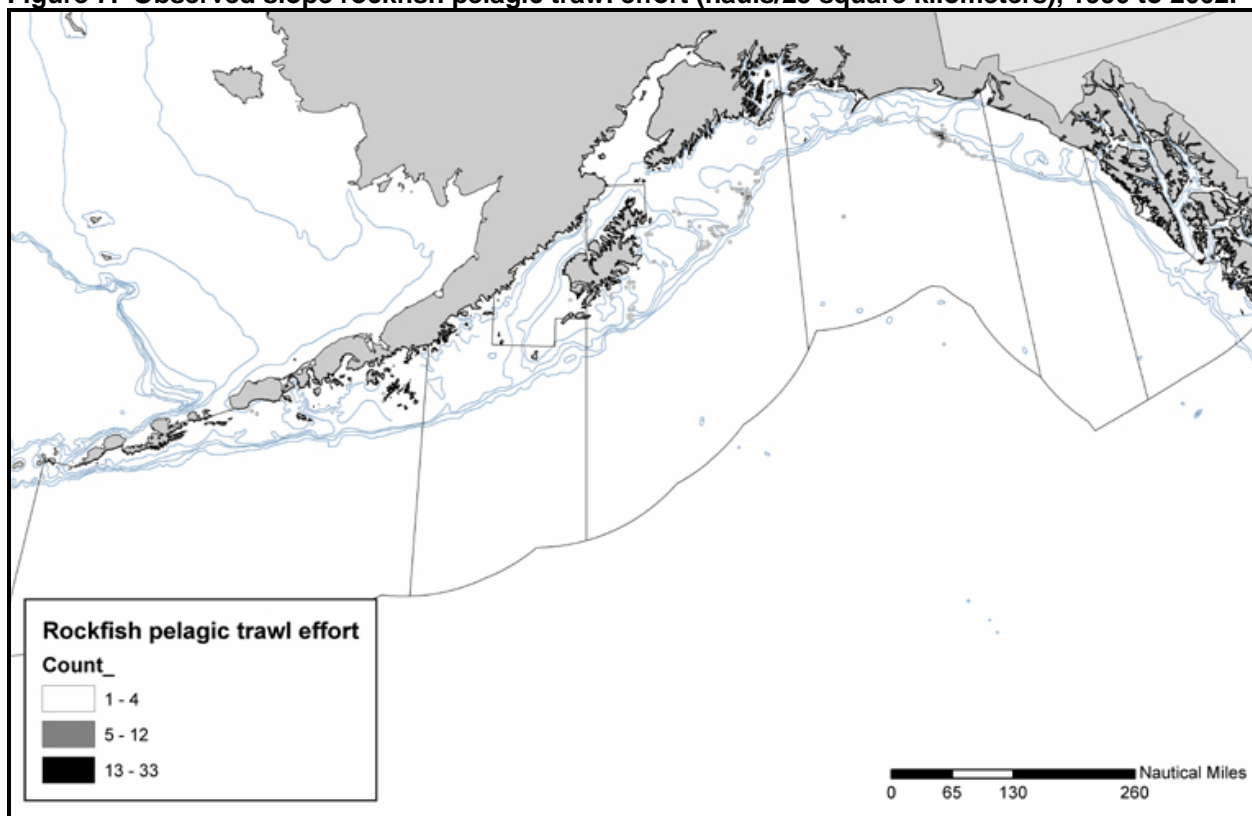
3.7 Habitat and Essential Fish Habitat

Section 303(a)(7) of the Magnuson-Stevens Act requires all FMPs to describe and identify Essential Fish Habitat (EFH), defined as “those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity.” In addition, FMPs must minimize to the extent practicable adverse effects of fishing on EFH and identify other actions to conserve and enhance EFH. To this end, the Environmental Impact Statement for Essential Fish Habitat Identification and Conservation in Alaska (NMFS, 2004) provides a detailed analysis of the interactions between fisheries and EFH. Most of the controversy surrounding EFH concerns the effects of fishing activities on sea floor habitats. The analysis concludes that there are long term effects of fishing on benthic habitat features off Alaska and acknowledges that considerable scientific uncertainty remains regarding the consequences of those effects on the sustained productivity of managed species. Based on the best available scientific information, the EIS concludes that the effects on EFH are minimal because the analysis finds no indication that continued fishing activities at the current rate and intensity would alter the capacity of EFH to support health populations of managed species over the long term. The analysis concludes that no Council-managed fishing activities have more than a minimal adverse effect on EFH, which is the regulatory standard requiring action to minimize adverse effects under the MSA. Notwithstanding these findings, the Council elected to adopt a variety of new measures to conserve EFH, which are scheduled to be implemented by August 13, 2006.

Figure 7 shows the concentration of observed rockfish pelagic trawl hauls from 1990 to 2002. The figure suggests that slope rockfish pelagic trawl fisheries occur at relatively low effort levels (fewer than 33

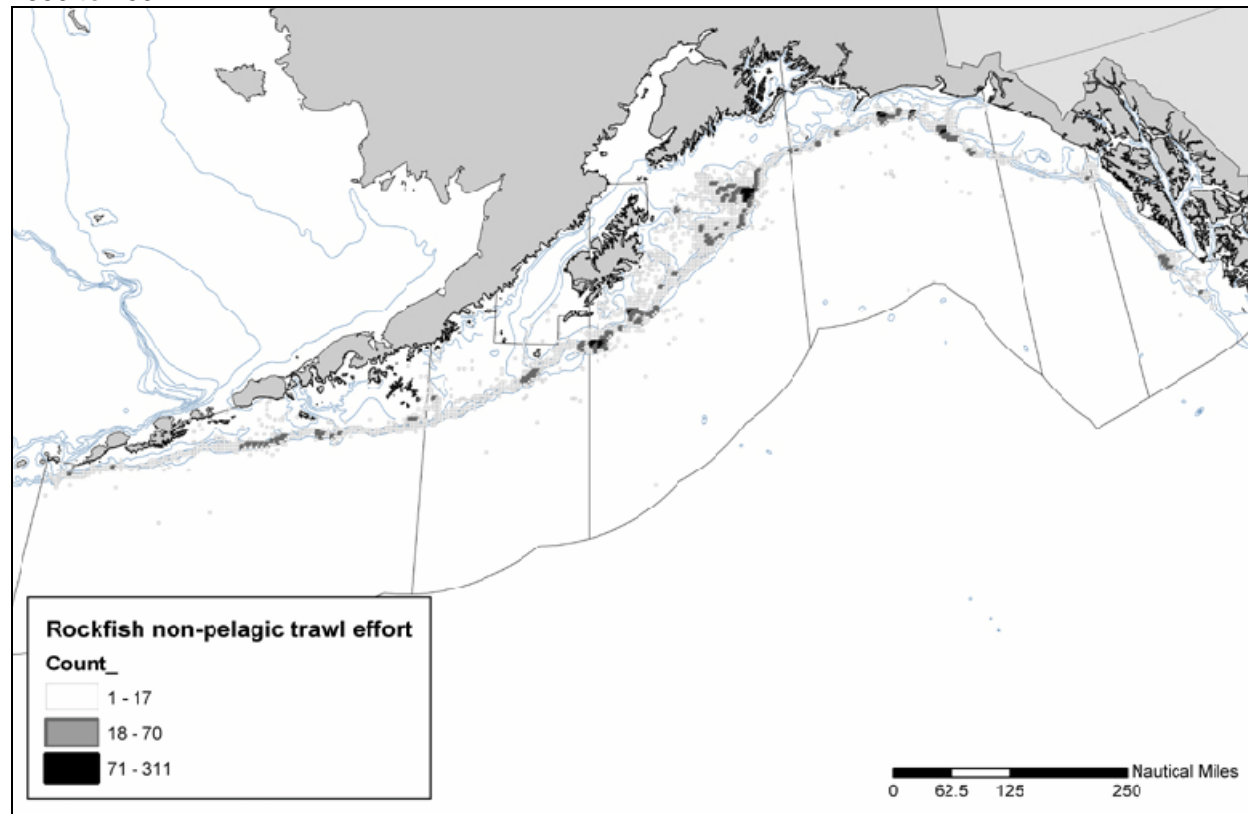
observed hauls/25 square kilometers from 1990 to 2002) in all locations in the Gulf of Alaska. The areas of greatest concentration are on the slope south of the Kenai Peninsula, with fewer areas of concentration south of Kodiak Island. Figure 8 shows the concentration of observed rockfish non-pelagic (bottom) trawl hauls from 1990 to 2002. The figure suggests that bottom trawl fishery for slope rockfish has taken place at relatively low effort levels all along slope areas. As with the pelagic trawl effort, concentrations of bottom trawl effort (more than 71 observed hauls/25 square kilometers from 1990 to 2002) in the Central Gulf have occurred south of Kodiak Island and south of the Kenai Peninsula. The Pacific Ocean perch fishery occurs over sand, gravel, and mud at depths of 90 to 200 fathoms. The northern rockfish and pelagic shelf rockfish fisheries occur over rock, gravel, and hard sand at depths of 40 to 80 fathoms. The analysis of the EIS provides detailed descriptions of EFH and the effects of fishing on EFH (NMFS, 2004).

Figure 7. Observed slope rockfish pelagic trawl effort (hauls/25 square kilometers), 1990 to 2002.



Source: EFH EIS (NMFS 2004).

Figure 8. Observed slope rockfish non-pelagic (bottom) trawl effort (hauls/25 square kilometers), 1990 to 2002.



Source: EFH EIS (NMFS 2004).

3.8 Ecosystem Considerations

Ecosystem considerations from the pelagic shelf rockfish fishery are summarized annually in the Gulf of Alaska Stock Assessment and Fishery Evaluation (SAFE) report (NPFMC 2005). These considerations are summarized according to the ecosystem effects on the pelagic shelf rockfish stock as well as the potential fishery effects on the ecosystem. Generally, determination of ecosystem considerations is limited by lack of biological and habitat information for rockfish.

The following table summarizes the available information on indicators of ecosystem effects for this fishery.

Table 13. Analysis of ecosystem considerations for pelagic shelf rockfish and the dusky rockfish fishery.

Ecosystem effects on GOA pelagic shelf rockfish			
Indicator	Observation	Interpretation	Evaluation
<i>Prey availability or abundance trends</i>			
Phytoplankton and Zooplankton	Important for larval and post-larval survival but no information known	May help determine year class strength, no time series	Possible concern if some information available
<i>Predator population trends</i>			
Marine mammals	Not commonly eaten by marine mammals	No effect	No concern
Birds	Stable, some increasing some decreasing	Affects young-of-year mortality	Probably no concern
Fish (Halibut, arrowtooth, lingcod)	Arrowtooth have increased, others stable	More predation on juvenile rockfish	Possible concern
<i>Changes in habitat quality</i>			
Temperature regime	Higher recruitment after 1977 regime shift	Contributed to rapid stock recovery	No concern
Winter-spring environmental conditions	Affects pre-recruit survival	Different phytoplankton bloom timing	Causes natural variability, rockfish have varying larval release to compensate
Production	Relaxed downwelling in summer brings in nutrients to Gulf shelf	Some years are highly variable like El Nino 1998	Probably no concern, contributes to high variability of rockfish recruitment
GOA pelagic rockfish fishery effects on ecosystem			
Indicator	Observation	Interpretation	Evaluation
<i>Fishery contribution to bycatch</i>			
Prohibited species	Stable, heavily monitored	Minor contribution to mortality	No concern
Forage (including herring, Atka mackerel, cod, and pollock)	Stable, heavily monitored (P. cod most common)	Bycatch levels small relative to forage biomass	No concern
HAPC biota	Medium bycatch levels of sponge and corals	Bycatch levels small relative to total HAPC biota, but can be large in specific areas	Probably no concern
Marine mammals and birds	Very minor take of marine mammals, trawlers overall cause some bird mortality	Rockfish fishery is short compared to other fisheries	No concern
Sensitive non-target species	Likely minor impact on non-target rockfish	Data limited, likely to be harvested in proportion to their abundance	Probably no concern
Fishery concentration in space and time	Duration is short and in patchy areas	Not a major prey species for marine mammals	No concern, fishery is being extended for several months starting 2006
Fishery effects on amount of large size target fish	Depends on highly variable year-class strength	Natural fluctuation	Probably no concern
Fishery contribution to discards and offal production	Decreasing	Improving, but data limited	Possible concern with non-target rockfish
Fishery effects on age-at-maturity and fecundity	Black rockfish show older fish have more viable larvae	Inshore rockfish results may not apply to longer-lived slope rockfish	Definite concern, studies being initiated in 2005

4.0 ENVIRONMENTAL IMPACTS

4.1 Alternative 1

4.1.1 Impacts on Pelagic Shelf Rockfish Stocks

Under alternative 1, Status Quo, there would be no change to the management of the pelagic shelf rockfish assemblage. Complex-level ABCs, OFLs and TACs would continue to be specified. As the TAC for the complex as a whole is largely based upon the biomass of dusky rockfish, the dark rockfish stock would continue to be at risk for potential overfishing under this relatively high complex-level TAC. One change that is anticipated under the status quo alternative is that catch accounting would begin to identify dark rockfish in the catch records due to the segregation of dark and light dusky by species. Catch information for dark rockfish will improve. However no management measures to restrict the harvest of dark rockfish will be taken.

4.1.2 Impacts on Other Groundfish Stocks

Under alternative 1, Status Quo, there would be no change to management of the pelagic shelf rockfish assemblage, thus there is no anticipated change in the impact of this fishery on other groundfish stocks. Bycatch in the PSR fishery includes northern rockfish and species in the “other slope” rockfish complex (see Section 3.2 for more information). The pelagic shelf rockfish fishery will continue to concentrate on dusky rockfish and relative bycatch of species is unlikely to change.

The impact on the State-managed black rockfish fishery is unlikely to change under current management of the pelagic shelf rockfish complex. Dark rockfish will likely continue to be caught in conjunction with the black rockfish fishery. Under the current management system there is limited incentive to report dark rockfish landings as separate from black rockfish landings. With the separation of dark and dusky rockfish by species, State reporting codes will change (as with Federal) and improved information on dark rockfish information is likely.

4.1.3 Impacts on Threatened or Endangered Species

This alternative is not expected to have negative impacts on endangered or threatened species beyond those identified in previous consultations under section 7 of the Endangered Species Act. No spatial or temporal dispersion of pelagic shelf rockfish catch is anticipated.

4.1.4 Impacts on Marine Mammals

Direct and indirect interactions between marine mammals and harvests from the pelagic shelf rockfish fisheries are not expected to differ under this alternative. Total catch is expected to be the same and the distribution of catch is not expected to differ in a way that will affect interactions.

4.1.5 Impacts on Seabirds

Direct and indirect interactions between seabirds and harvests from the pelagic shelf rockfish fisheries are not expected to differ under this alternative. Total catch is expected to be the same and the distribution of catch is not expected to differ in a way that will affect interactions.

4.1.6 Impacts on Habitat and EFH

The Status Quo alternative is not expected to have any additional impacts on habitat or EFH. Effort levels for rockfish fisheries in general (of which pelagic shelf rockfish fishery is a small portion) are considered low and occur in areas of less sensitive habitat (rock, gravel, mud, and sand). The current fishing has minimal effects on benthic habitat and essential fish habitat (EFH EIS). These effects are likely to continue, if current management is maintained.

4.1.7 Impacts on the Ecosystem

Effects of fishing on the Gulf of Alaska marine ecosystem are analyzed in detail in the Alaska Groundfish Fisheries Programmatic SEIS. Additional impacts on the ecosystem from the pelagic shelf rockfish fishery are summarized annually in the SAFE report. The status quo alternative is not anticipated to have any negative impact on the Gulf of Alaska ecosystem.

4.1.8 Socioeconomic Impacts

Socioeconomic impacts of maintaining the current pelagic shelf rockfish assemblage are anticipated to be minimal. Dark rockfish make up a small percentage of overall catch in the complex. Retaining them in the pelagic shelf rockfish complex has limited economic impact. Additional information on participation in the PSR fishery, ex-vessel values in the PSR fishery and economic impacts can be found in the Regulatory Impact Review in Chapter 5 of this document.

4.2 Alternative 2

4.2.1 Impacts on Pelagic Shelf Rockfish Stocks

Alternative 2, transferring dark rockfish to State management by removing it from the Federal FMP, is anticipated to result in better management of the dark rockfish stock. Currently dark rockfish are managed under a relatively high complex-level TAC which is set primarily for dusky rockfish. If dark rockfish are removed from the pelagic shelf rockfish assemblage, the State will manage them as a single stock in State and Federal waters. The majority of the dark rockfish stock are presumed to be located in near-shore, shallow waters. The biennial trawl survey conducted by NMFS does not adequately assess this habitat and thus does not adequately assess the biomass of dark rockfish stocks.

Dark rockfish are caught infrequently in the Federal PSR fishery but more frequently in the State jig fishery. Under State management, dark rockfish would be assessed and managed as a single stock and the potential would exist to manage on smaller regions than the Federal management of the complex. There would be a decrease in the overall annual ABCs (and TACs) for the pelagic shelf rockfish complex as a result of no longer including the fractional amount of biomass contributed by the dark rockfish stock.

In recent years (with the exception of 2005) this decrease in the overall ABC (and TAC) has been less than 2% (Table 14). As discussed in Sections 3.1 and 3.2, the ABC and TAC for the complex is primarily based on the much larger biomass of dusky rockfish thus the contribution from dark rockfish is very low in most years. Widow and yellowtail rockfish would continue to be managed within the pelagic shelf rockfish complex and the relative contribution to the ABC from these stocks will continue to be incorporated into the PSR ABC.

Table 14. ABC for the pelagic shelf rockfish complex 2002-2006 and the relative contribution from the dark rockfish stock to the overall complex ABC.

Year	PSR ABC	Dark rockfish ABC (mt)	% contribution to ABC
2002	5,490	90	1.64
2003	5,490	90	1.64
2004	4,470	88	1.99
2005	4,553	88	1.93
2006	5,436	436	8.02

As discussed in section 3.1, the trawl survey biomass estimate for dark rockfish in 2005 was much higher than previous years (12% of the 2005 biomass estimate was made up of dark rockfish). Again, this was due to one abnormally large tow in the survey. The ABC is based upon a three survey average due to fluctuations in biomass from one survey to the next (Lunsford et al. 2005). Thus, even with the three survey average taken into consideration, the percent contribution to the ABC in 2006 from dark rockfish is 8%.

In all fisheries (including Federal fisheries), State managers would set an MRA (or separate bycatch limit) to limit incidental catch. Although uncertain, these MRAs would likely allow minor amounts of dark rockfish to continue to be retained in the pelagic shelf rockfish fishery. Since historic catches are approximately 1 percent or less of pelagic shelf rockfish catch, it is unlikely that the MRA would compel substantial discarding or reduce catch. The MRA, however, would prevent targeting of dark rockfish, which could occur under current rules. In other directed fisheries, discards of dark rockfish required by the MRA are likely to be minor, as catch of the species is relatively small relative to target catch.

Under this alternative the State would assume all management responsibilities for dark rockfish. This would entail assessment of the stock, management and all recordkeeping and recording requirements. Both federal and State recordkeeping requirements would be adjusted to account for dark rockfish as a species separate from dusky rockfish. Catch information for dark rockfish will be improved by these changes in catch accounting. New reporting requirements will be necessary whether or not the Council chooses to move dark rockfish for State management. The State of Alaska reporting requirements and catch processing coding changes will also be necessary. Creation of a State Fishery Management Plan for dark rockfish will also presumably be necessary as well as the reporting requirements (logbook requirements and other dockside sampling as per black rockfish) that are necessary for directed State fisheries.

A potential exists for exploiting the State management of this stock in Federal waters under this alternative. Hypothetically, a vessel could refuse to comply with State regulations for the State dark rockfish fishery (e.g., a permit and compliance with directed fishing according to State law) and then proceed to fish the species in Federal waters. A similar situation occurred in the scallop fishery in 1995, when a Federal Scallop FMP did not exist (for more information see the 2006 Scallop SAFE report, NPFMC 2006). The fishery was eventually closed in State and Federal waters by emergency order and re-opened when a Federal FMP officially delegating authority to the State was approved. However, given the limited interest in the dark rockfish fishery, coupled with the predominance of the biomass of the nearshore species in State waters, it appears highly unlikely that such a situation would develop. Nevertheless, if a situation as described were to develop, emergency State and Federal measures would be immediately taken to protect the dark rockfish stock and ameliorate the situation.

4.2.2 Impacts on other groundfish stocks

Transferal to State management under alternative 2 is expected to have no impact on other Federally managed groundfish stocks. As discussed in Chapter 3 dark rockfish make up a very small percentage of the overall biomass and catch in the pelagic shelf rockfish complex. Dusky rockfish make up the majority of all catch (and the biomass of the complex). Impacts to the bycatch of species such as northern rockfish are expected to be the same under alternative 2 as under the current status quo alternative.

State management of dark rockfish under this alternative would enhance reporting of dark rockfish in both the directed dark rockfish fishery as well as the black rockfish fishery. This would enhance data collection on dark rockfish and black rockfish stocks and improve catch accounting for both species.

4.2.3 Impacts on threatened or endangered species

This alternative is not expected to have negative impacts on endangered or threatened species beyond those identified in previous consultations under section 7 of the Endangered Species Act. No spatial or temporal dispersion of pelagic shelf rockfish catch is anticipated.

4.2.4 Impacts marine mammals

Direct and indirect interactions between marine mammals and harvests from the pelagic shelf rockfish fisheries are not expected to differ under this alternative. Total catch is expected to be the same or slightly decreased and the distribution of catch is not expected to differ in a way that will affect interactions.

4.2.5 Impacts on seabirds

Direct and indirect interactions between seabirds and harvests from the pelagic shelf rockfish fisheries are not expected to differ under this alternative. Total catch is expected to be the same or slightly decreased and the distribution of catch is not expected to differ in a way that will affect interactions.

4.2.6 Impacts on habitat and EFH

This alternative is not expected to have any additional impacts on habitat or EFH. Effort levels for rockfish fisheries in general (of which pelagic shelf rockfish fishery is a small portion) are considered low and occur in areas of less sensitive habitat (rock, gravel, mud, and sand). The current fishing has minimal effects on benthic habitat and essential fish habitat (EFH EIS). These effects are likely to continue, if current management is maintained.

4.2.7 Impacts on the ecosystem

Effects of fishing on the Gulf of Alaska marine ecosystem are analyzed in detail in the Alaska Groundfish Fisheries Programmatic SEIS. Additional impacts on the ecosystem from the pelagic shelf rockfish fishery are summarized annually in the SAFE report. This alternative is not anticipated to have any negative impact on the Gulf of Alaska ecosystem.

4.2.8 Socio-economic impacts

Removing dark rockfish from the Federal FMP and developing State management would convey additional protection for the species from overfishing and would allow for more conservative and potentially area (and species) specific management. Removal of dark rockfish from the pelagic shelf rockfish complex could result in decreases in the pelagic shelf rockfish TAC. As discussed in section 4.2.1, the contribution to the TAC from the dark rockfish portion of the PSR assemblage is variable from one survey year to the next. It has ranged from 2-8% of the total complex ABC from 2000-2006.

Additional information on participation in the PSR fishery, ex-vessel values in the PSR fishery and economic impacts can be found in the Regulatory Impact Review in Chapter 5 of this document.

4.2.9 Cumulative Impacts

This section describes the cumulative effects of the various alternatives. Cumulative effects of an alternative are the impacts on the environment resulting from the incremental effect of the alternative when added to other past, present or reasonably foreseeable future actions.

Direct and indirect effects of this action have been discussed in previous sections of this analysis. Additional actions considered here are ones which are reasonably foreseeable and may in conjunction with the proposed action have an additional impact.

One action of this nature of the Central GOA pilot rockfish program, approved by the Council under alternative 68 to the GOA groundfish FMP. This program will allocate rockfish species in the Central GOA management area in order to convey short-term economic stability to the region while comprehensive GOA groundfish rationalization initiatives are undertaken by the Council and NMFS. The pelagic shelf rockfish assemblage is among the species to be allocated under this program. A direct allocation of PSR will be specified, while dark rockfish, if they are removed from the assemblage, will likely have either a separate MRA or be included under the aggregate rockfish MRA. In either case the incremental effect of implementing this program with dark rockfish excluded from the PSR allocation is expected to be minimal. This program is anticipated to be implemented in 2008.

As with implementation of the pilot rockfish program, any incremental effect of implementing long-term comprehensive rationalization of the GOA groundfish fishery with dark rockfish removed from the PSR assemblage is likewise expected to be minimal.

5.0 REGULATORY IMPACT REVIEW

5.1 Introduction

This Regulatory Impact Review (RIR) examines the costs and benefits of a proposed amendment to remove dark rockfish from the Gulf of Alaska groundfish FMP.

5.2 What is a Regulatory Impact Review?

The preparation of an RIR is required under Presidential Executive Order (E.O.) 12866 (58 FR 51735: October 4, 1993). The requirements for all regulatory actions specified in E.O. 12866 are summarized in the following Statement from the E.O.:

In deciding whether and how to regulate, agencies should assess all costs and benefits of available regulatory alternatives, including the alternative of not regulating. Costs and Benefits shall be understood to include both quantifiable measures (to the fullest extent that these can be usefully estimated) and qualitative measures of costs and benefits that are difficult to quantify, but nonetheless essential to consider. Further, in choosing among alternative regulatory approaches agencies should select those approaches that maximize net benefits (including potential economic, environmental, public health and safety, and other advantages; distributive impacts; and equity), unless a statute requires another regulatory approach.

E.O. 12866 requires that the Office of Management and Budget (OMB) review proposed regulatory programs that are considered to be “significant.” A “significant regulatory action” is one that is likely to:

Have an annual effect on the economy of \$100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, local or tribal governments or communities;

Create a serious inconsistency or otherwise interfere with an action taken or planned by another agency;

Materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or

Raise novel legal or policy issues arising out of legal mandates, the President’s priorities, or the principles set forth in this Executive Order.

5.3 Statutory Authority

Under the Magnuson-Stevens Act, the United States has exclusive fishery management authority over all marine fishery resources found within the exclusive economic zone (EEZ). The management of these marine resources is vested in the Secretary of Commerce (Secretary) and in the Regional Fishery Management Councils. The groundfish fisheries in the EEZ off Alaska are managed under the Fishery Management Plan (FMP) for Groundfish of the GOA.

5.4 Purpose and Need for Action

Dark rockfish are federally managed under the pelagic shelf rockfish (PSR) assemblage in the Gulf of Alaska Groundfish Fishery Management Plan (FMP). Members of this assemblage include the following four species: dusky rockfish (*Sebastes variabilis*), dark rockfish (*S. ciliatus*), yellowtail rockfish (*S. flavidus*), and widow rockfish (*S. entomelas*). The forms of dusky rockfish commonly recognized as “light dusky rockfish” and “dark dusky rockfish” are now officially recognized as two species (Orr and Blackburn 2004). *S. ciliatus* applies to the dark shallow-water species with a common name dark rockfish, and *S. variabilis* applies to variably colored deeper-water species with a common name dusky rockfish.

Dark rockfish are found predominantly in nearshore, shallow waters. Assessment authors have suggested for years that dark rockfish be turned over the State of Alaska for management as data in the stock assessment for PSR are predominantly from Dusky rockfish (the offshore variety) not dark rockfish (the nearshore, shallow water variety) as most of the available information is from the offshore trawl surveys and offshore commercial fishery and dusky rockfish makes up the majority of the exploitable biomass and catch from the assemblage.

Since official recognition as a separate species, the GOA Plan Team has also endorsed removing dark rockfish from the FMP based on the following rationale: (1) separation at species level, (2) distribution of dark rockfish to nearshore habitats that are not specifically assessed by the GOA trawl survey, and (3) the risk of overfishing dark rockfish in local areas given the relatively high TAC for the pelagic shelf rockfish assemblage as a whole. In 2004, the SSC endorsed the rationale and agreed with the Plan Team's recommendation of removing dark rockfish from the FMP. The Council initiated this in 2005 but action was been delayed until the 2005 GOA trawl survey data became available for analysis.

5.5 Alternatives Considered

Two alternatives are analyzed in this document, alternative 1, to continue managing dark rockfish within the larger pelagic shelf rockfish complex and alternative 2, to remove dark rockfish from the FMP and turn over to the State of Alaska for management.

5.5.1 Alternative 1: Status Quo

Under this alternative, dark rockfish would continue to be managed within the pelagic shelf rockfish assemblage. The Council and the National Marine Fisheries Service would retain management authority for dark rockfish within the PSR complex in the EEZ. Overfishing limits (OFLs), acceptable biological catch (ABC) limits and total allowable catch (TAC) limits are established for the complex as a whole and managed accordingly. In season, catch is managed through monitoring directed fishing, with the fishery closed when directed fishing is estimated to leave only the portion of the TAC necessary to support incidental catch in other directed fisheries. Once the directed fishery is closed, incidental catch is managed under the aggregate rockfish MRA, which limits catch of all rockfish of the genera *Sebastes* and *Sebastolobus* (which includes Pacific ocean perch, northern rockfish, pelagic shelf rockfish, demersal shelf rockfish, and "other rockfish") to 15 percent of directed fishing harvests.

5.5.2 Alternative 2: Remove dark rockfish from the Gulf of Alaska FMP

Under this alternative, management authority for dark rockfish is redefined by withdrawing dark rockfish from the federal GOA groundfish FMP. Under the Magnuson-Stevens Act, State management authority may be extended into Federal waters off Alaska in the absence of Federal management of the species in question. Under this alternative, the State of Alaska could assume management authority for dark rockfish. Management plans for this species would be prepared by ADF&G staff for the Gulf of Alaska state management regions and reviewed by the Board of Fisheries.

OFLs, ABCs and TACs would continue to be specified for the PSR complex, but this complex would no longer include dark rockfish. The State would take on the responsibility for assessment and management of the dark rockfish stock. Most likely, State management of dark rockfish would include regulation of any directed fishing for dark rockfish. Dark rockfish catch in federal fisheries would be limited by the current MRA for aggregate rockfish or a separate MRA as established by the State.

5.6 Background

The 2005 Economic SAFE report gives summary information on the ex-vessel value of the rockfish fishery as a whole (Hiatt et al. 2005). Information from this document for the GOA aggregate rockfish fishery is summarized below in Table 15. Note this includes all rockfish catches, of which pelagic shelf rockfish is only a small fraction. Dark rockfish, in turn, are a small portion of the pelagic shelf rockfish catch.

Table 15. Ex-vessel value of rockfish catch in the GOA by vessel category and year (\$ millions) from Hiatt et al. 2005

Gear	Year	Catcher vessel	Catcher processor	Total
Trawl	2000	2.7	2.7	5.4
	2001	1.4	2.0	3.5
	2002	2.4	3.0	5.4
	2003	3.2	2.8	6.0
	2004	3.0	3.5	6.5
Hook and Line	2000	2.2	.2	2.4
	2001	1.9	.2	2.1
	2002	2.0	.2	2.1
	2003	1.6	.2	1.8
	2004	1.7	.2	2.0

Data for the dusky rockfish landings by all gear types from 2003-2005 (includes both dusky rockfish and dark rockfish catch) indicates that catcher vessels catch a significantly higher proportion of the catch in this fishery than catcher processors (Table 16).

Table 16.

Year	Vessel category	Number of Vessels	Retain Catch (mt)
2003	Catcher processor	17	926
	Catcher Vessel	148	1,466
2004	Catcher processor	19	985
	Catcher Vessel	134	1,381
2005	Catcher processor	18	777
	Catcher Vessel	89	1,104

Data are not available at this time for ex-vessel value in price per pound specifically for the dusky rockfish fishery. However, data analyzed for the Central GOA pilot rockfish project (Amendment 68 to the GOA groundfish FMP) show ex-vessel price per pound for catcher vessels in the Central GOA pelagic shelf rockfish fishery (Table 17). The table shows that trawl ex-vessel prices ranged from 5 cents per pound to 7 cents per pound, while non-trawl ex-vessel prices ranged from 17 cents per pound to 26 cents per pound.

Table 17. Number of catcher vessels, landings, ex-vessel revenues and average ex vessel prices in the Central GOA pelagic shelf rockfish fishery (1998-2002) From NPFMC 2005.

Year	Gear	Number of vessels	Landings (mt)	Ex-vessel gross revenues (\$)	Average ex-vessel price (\$/lb)
1998	Non-Trawl	2	*	*	*
	Trawl	29	615.8	81,450	0.60
1999	Non-Trawl	2	*	*	*
	Trawl	32	1,293.2	199,577	0.070
2000	Non-Trawl	2	*	*	*
	Trawl	31	2,240.9	301,359	0.061
2001	Non-Trawl	6	4.0	2,374	0.272
	Trawl	33	1,232.6	138,534	0.051
2002	Non-Trawl	8	2.1	1,224	0.261
	Trawl	33	1,265.6	147,873	0.053

A further look at participation by year, gear and management area gives some indication of the relative participation for each gear type in the overall pelagic shelf rockfish fishery (Table 18).

Table 18. Number of vessels operating by NMFS management area and gear types for pelagic rockfish (primarily dusky, dark, yellowtail, and widow rockfish). From NMFS Catch Accounting (preliminary data)

Year/Sum of # of vessels	Gear	Area						GOA Total	
		610	620	630	640	649	650		659
1998	Jig		2	11	2	1	11	1	28
	Fixed	15	18	70	20	12	33	30	198
	Trawl	26	37	53	16				132
1998 Total		41	57	134	38	13	44	31	358
1999	Jig			10		2	13	1	26
	Fixed	27	27	60	19	16	33	38	220
	Trawl	22	39	52	20				133
1999 Total		49	66	122	39	18	46	39	379
2000	Jig		6	12		2	13	5	38
	Fixed	25	30	79	24	13	39	39	249
	Trawl	27	26	39	9	2			103
2000 Total		52	62	130	33	17	52	44	390
2001	Jig		4	13			12	5	34
	Fixed	29	21	55	11	6	36	26	184
	Trawl	27	27	38	11				103
2001 Total		56	52	106	22	6	48	31	321
2002	Jig	2	6	18	3		11	9	49
	Fixed	22	14	37	7		28	21	129
	Trawl	20	19	33	4				76
2002 Total		44	39	88	14		39	30	254
2003	Jig			10	0		57	3	70
	Fixed	0	0	3			35	8	46
	Trawl	9	3	37	0				49
2003 Total		9	3	50	0		92	11	165
2004	Jig		0	22			43	4	69
	Fixed			3	0		25	5	33
	Trawl	10	5	36	0				51
2004 Total		10	5	61	0		68	9	153
2005	Jig	0	0	16			27	0	43
	Fixed			0			10	7	17
	Trawl	8	6	33	0				47
2005 Total		8	6	49	0		37	7	107

The State fishery for black rockfish catches a higher proportion of dark rockfish than the Federal fishery for pelagic shelf rockfish (see section 3.4 for additional information on the black rockfish fishery and relative species composition of dark rockfish). The majority of the black rockfish harvest occurs in the Kodiak District. Catch and effort data for this fishery indicate that price per pound for landed black rockfish has varied from 32 cents per pound to 40 cents per pound since 1998 (Table 19).

Table 19. Catch and effort, excluding discards, for the Kodiak Area black rockfish fishery 1998-2004 (from Sagalkin and Spalinger 2005)

Year	Vessels	Number of Landings	Directed GHL	Total Harvest (lbs)	Price per pound
1998	76	355	190,000	195,623	0.32
1999	84	316	185,000	131,986	0.40
2000	92	282	185,000	255,044	0.41
2001	55	194	185,000	220,825	0.40
2002	41	143	185,000	204,547	0.43
2003	49	106	185,000	85,362	0.36
2004	52	140	185,000	123,231	0.36

No price information is available for dark rockfish, but anecdotal reports indicate that price per pound is lower than for black rockfish. Currently, fishermen have limited incentive to report catches of dark rockfish separately from black rockfish, given the lower price potential for dark rockfish.

5.7 Analysis of the Alternatives

Under the current management, dark rockfish is managed by federal managers as a part of the pelagic shelf rockfish complex. Continued management as part of the complex is likely to maintain current impacts. As described in Section 3.3, the majority of the pelagic shelf rockfish catch is dusky rockfish. Percent contribution by dark rockfish to total catch ranges from 0.4 to 1.1 percent of the total catch between 2000 and 2005, inclusive (Table 4). Catch of dark rockfish is likely to remain a relatively small portion of the pelagic shelf rockfish catch, with little affect on fishermen.

Removing dark rockfish from the Federal FMP and developing State management would convey additional protection for the species from overfishing and would allow for more conservative and potentially area (and species) specific management. Removal of dark rockfish from the pelagic shelf rockfish complex will likely result in decreases in the pelagic shelf rockfish TAC. As discussed in section 4.2.1, the contribution to the TAC from the dark rockfish portion of the PSR assemblage is variable from one survey year to the next. From 2000-2005, the dark rockfish stock contributed less than 2% of the total ABC (and TAC). However, due to a large survey biomass estimate in 2005, the resulting relative contribution of dark rockfish to the PSR ABC (and TAC) rose to 8% in 2006.

In all fisheries (including Federal fisheries), State managers would likely set an MRA (or separate bycatch limit) to limit incidental catch. Although uncertain, these MRAs would likely allow minor amounts of dark rockfish to continue to be retained in the pelagic shelf rockfish fishery. Since historic catches are approximately 1 percent or less of pelagic shelf rockfish catch, it is unlikely that the MRA would compel substantial discarding or reduce catch. The MRA, however, would prevent targeting of dark rockfish, which could occur under current rules. In other directed fisheries, discards of dark rockfish required by the MRA are likely to be negligible, as catch of the species is relatively small relative to target catch.

Depending on management choices of the State, it is possible that a directed fishery for dark rockfish could develop in State waters. Most likely such a fishery would be prosecuted with fixed gear, which could increase the value of catch, as rockfish harvested with fixed gear have typically brought higher ex vessel prices than trawl caught rockfish. Whether such a fishery would grow to the current level of trawl catch is uncertain. Since the current directed fishery for pelagic shelf rockfish opens on January 1st and closes with the closing of the trawl fishery, which starts in the first week of July, opportunity exists for targeting dark rockfish with fixed gear under current management. In any case, due to the relatively low abundance of dark rockfish, such a fishery is likely to be relatively small. Anecdotal reports from

fishermen indicate that dark rockfish can be targeted, either together with black rockfish or separately. In either case, the development of a directed fixed gear fishery for the dark rockfish could increase revenues generated from harvest of the species, but depends heavily on the growth of the fishery.

6.0 INITIAL REGULATORY FLEXIBILITY ANALYSIS

6.1 Introduction

This Initial Regulatory Flexibility Analysis (IRFA) evaluates the impacts, on small entities, of a proposed amendment to remove dark rockfish from the Gulf of Alaska groundfish FMP.

This IRFA addresses the statutory requirements of the Regulatory Flexibility Act (RFA) of 1980, as amended by the Small Business Regulatory Enforcement Fairness Act (SBREFA) of 1996 (5 U.S.C. 601-612).

6.2 The Purpose of an IRFA

The Regulatory Flexibility Act (RFA), first enacted in 1980, was designed to place the burden on the government to review all regulations to ensure that, while accomplishing their intended purposes, they do not unduly inhibit the ability of small entities to compete. The RFA recognizes that the size of a business, unit of government, or nonprofit organization frequently has a bearing on its ability to comply with a Federal regulation. Major goals of the RFA are: (1) to increase agency awareness and understanding of the impact of their regulations on small business, (2) to require that agencies communicate and explain their findings to the public, and (3) to encourage agencies to use flexibility and to provide regulatory relief to small entities. The RFA emphasizes predicting impacts on small entities as a group distinct from other entities and on the consideration of alternatives that may minimize the impacts while still achieving the stated objective of the action.

On March 29, 1996, President Clinton signed the Small Business Regulatory Enforcement Fairness Act. Among other things, the new law amended the RFA to allow judicial review of an agency's compliance with the RFA. The 1996 amendments also updated the requirements for a final regulatory flexibility analysis, including a description of the steps an agency must take to minimize the significant economic impact on small entities. Finally, the 1996 amendments expanded the authority of the Chief Counsel for Advocacy of the Small Business Administration (SBA) to file *amicus* briefs in court proceedings involving an agency's violation of the RFA.

In determining the scope, or 'universe', of the entities to be considered in an IRFA, NMFS generally includes only those entities that can reasonably be expected to be directly regulated by the proposed action. If the effects of the rule fall primarily on a distinct segment, or portion thereof, of the industry (e.g., user group, gear type, geographic area), that segment would be considered the universe for the purpose of this analysis. NMFS interprets the intent of the RFA to address negative economic impacts, not beneficial impacts, and thus such a focus exists in analyses that are designed to address RFA compliance.

Data on cost structure, affiliation, and operational procedures and strategies in the fishing sectors subject to the proposed regulatory action are insufficient, at present, to permit preparation of a "factual basis" upon which to certify that the preferred alternative does not have the potential to result in "significant adverse impacts on a substantial number of small entities" (as those terms are defined under RFA).

Because, based on all available information, it is not possible to 'certify' this outcome, should the proposed action be adopted, a formal IRFA has been prepared and is included in this package for initial review.

6.3 What is required in an IRFA?

Under 5 U.S.C., Section 603(b) of the RFA, each IRFA is required to contain:

- A description of the reasons why action by the agency is being considered;
- A succinct statement of the objectives of, and the legal basis for, the proposed rule;
- A description of and, where feasible, an estimate of the number of small entities to which the proposed rule will apply (including a profile of the industry divided into industry segments, if appropriate);
- A description of the projected reporting, record keeping and other compliance requirements of the proposed rule, including an estimate of the classes of small entities that will be subject to the requirement and the type of professional skills necessary for preparation of the report or record;
- An identification, to the extent practicable, of all relevant Federal rules that may duplicate, overlap or conflict with the proposed rule;
- A description of any significant alternatives to the proposed rule that accomplish the stated objectives of the proposed action, consistent with applicable statutes, and that would minimize any significant economic impact of the proposed rule on small entities. Consistent with the stated objectives of applicable statutes, the analysis shall discuss significant alternatives, such as:
 1. The establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities;
 2. The clarification, consolidation, or simplification of compliance and reporting requirements under the rule for such small entities;
 3. The use of performance rather than design standards;
 4. An exemption from coverage of the rule, or any part thereof, for such small entities.

6.4 What is a small entity?

The RFA recognizes and defines three kinds of small entities: (1) small businesses, (2) small non-profit organizations, and (3) small government jurisdictions.

Small business. Section 601(3) of the RFA defines a ‘small business’ as having the same meaning as ‘small business concern’, which is defined under Section 3 of the Small Business Act. ‘Small business’ or ‘small business concern’ includes any firm that is independently owned and operated and not dominant in its field of operation. The SBA has further defined a “small business concern” as one “organized for profit, with a place of business located in the United States, and which operates primarily within the United States or which makes a significant contribution to the U.S. economy through payment of taxes or use of American products, materials or labor... A small business concern may be in the legal form of an individual proprietorship, partnership, limited liability company, corporation, joint venture, association, trust or cooperative, except that where the firm is a joint venture there can be no more than 49 percent participation by foreign business entities in the joint venture.”

The SBA has established size criteria for all major industry sectors in the United States, including fish harvesting and fish processing businesses. A business involved in fish harvesting is a small business if it is independently owned and operated and not dominant in its field of operation (including its affiliates) and if it has combined annual receipts not in excess of \$3.5 million for all its affiliated operations worldwide. A seafood processor is a small business if it is independently owned and operated, not dominant in its field of operation, and employs 500 or fewer persons on a full-time, part-time, temporary,

or other basis, at all its affiliated operations worldwide. A business involved in both the harvesting and processing of seafood products is a small business if it meets the \$3.5 million criterion for fish harvesting operations. Finally, a wholesale business servicing the fishing industry is a small business if it employs 100 or fewer persons on a full-time, part-time, temporary, or other basis, at all its affiliated operations worldwide.

The SBA has established “principles of affiliation” to determine whether a business concern is “independently owned and operated.” In general, business concerns are affiliates of each other when one concern controls or has the power to control the other, or a third party controls or has the power to control both. The SBA considers factors such as ownership, management, previous relationships with or ties to another concern, and contractual relationships, in determining whether affiliation exists. Individuals or firms that have identical or substantially identical business or economic interests, such as family members, persons with common investments, or firms that are economically dependent through contractual or other relationships, are treated as one party with such interests aggregated when measuring the size of the concern in question. The SBA counts the receipts or employees of the concern whose size is at issue and those of all its domestic and foreign affiliates, regardless of whether the affiliates are organized for profit, in determining the concern’s size. However, business concerns owned and controlled by Indian Tribes, Alaska Regional or Village Corporations organized pursuant to the Alaska Native Claims Settlement Act (43 U.S.C. 1601), Native Hawaiian Organizations, or Community Development Corporations authorized by 42 U.S.C. 9805 are not considered affiliates of such entities, or with other concerns owned by these entities solely because of their common ownership.

Affiliation may be based on stock ownership when, (1) a person is an affiliate of a concern if the person owns or controls, or has the power to control 50 percent or more of its voting stock, or a block of stock which affords control because it is large compared to other outstanding blocks of stock, or (2) if two or more persons each owns, controls or has the power to control less than 50 percent of the voting stock of a concern, with minority holdings that are equal or approximately equal in size, but the aggregate of these minority holdings is large as compared with any other stock holding, each such person is presumed to be an affiliate of the concern.

Affiliation may be based on common management or joint venture arrangements. Affiliation arises where one or more officers, directors, or general partners, controls the board of directors and/or the management of another concern. Parties to a joint venture also may be affiliates. A contractor and subcontractor are treated as joint venturers if the ostensible subcontractor will perform primary and vital requirements of a contract or if the prime contractor is unusually reliant upon the ostensible subcontractor. All requirements of the contract are considered in reviewing such relationship, including contract management, technical responsibilities, and the percentage of subcontracted work.

Small organizations. The RFA defines “small organizations” as any not-for-profit enterprise that is independently owned and operated and is not dominant in its field.

Small governmental jurisdictions. The RFA defines small governmental jurisdictions as governments of cities, counties, towns, townships, villages, school districts, or special districts with populations of fewer than 50,000.

6.5 Reason for considering the action

As discussed in the EA and RIR sections of this analysis, the Council is considering this action in order to provide better protection for the small inshore stock of dark rockfish. This stock is currently contained in the pelagic shelf rockfish assemblage which is dominated by the biomass of the offshore dusky rockfish. Detailed descriptions of each alternative analyzed in this EA/RIR/IRFA can be found in Section 2.0.

6.6 Objectives of, and legal basis for, the proposed action

Under the Magnuson-Stevens Act, the United States has exclusive fishery management authority over all marine fishery resources found within the exclusive economic zone (EEZ). The management of these marine resources is vested in the Secretary of Commerce (Secretary) and in the Regional Fishery Management Councils. The groundfish fisheries in the EEZ off Alaska are managed under the Fishery Management Plan (FMP) for Groundfish of the GOA.

Statutory authority for measures designed to prevent overfishing is specifically addressed in Sec. 600.350 of the Magnuson-Stevens Act. That section establishes National Standard 1—Prevent Overfishing.

The objective of the proposed action is to prevent overfishing of the dark rockfish stock.

6.7 Number and description of small entities regulated by the proposed action

6.8 Impacts on Regulated Small Entities

Transfer of management of dark rockfish to the State is likely to result in some changes in regulation of catch. The State could develop a directed fishery for dark rockfish, most likely for fixed gear vessels. Since fixed gear vessels tend to be small, it is possible that the development of such a directed fishery would have a positive impact on small entities, by increasing fishing opportunities. The increase over current opportunities is likely to be relatively minor, as fixed gear vessels currently have little catch despite an extended season.¹

Small entities that own trawl vessels are unlikely to realize any noticeable adverse effects from this action. Although trawl vessels would no longer be permitted to directed fish for dark rockfish (as a part of the pelagic shelf rockfish complex) in federal waters, since dark rockfish make up a very small part of the pelagic shelf rockfish catch, it is unlikely that any vessels would be required to discard dark rockfish catch in that fishery because of the MRA. A decline in the pelagic shelf rockfish TAC could occur, but that decline is likely to be small since the dark rockfish stock is a very small part of the combined stock of pelagic shelf rockfish. Since some of the decline in TAC is likely to be offset by incidental catch under the MRA, it is unlikely that catches will be noticeably affected.

6.9 Recordkeeping and Reporting Requirements

No additional recordkeeping will be required by the change in management proposed by this action.

6.10 Federal rules that may duplicate, overlap, or conflict with proposed action

This analysis did not reveal any federal rules that duplicate, overlap or conflict with the proposed action.

7.0 CONSISTENCY WITH APPLICABLE LAW AND POLICY

7.1 Magnuson-Stevens Act

¹ Current regulations allow fixed gear vessels to begin fishing for pelagic shelf rockfish (including dark rockfish) in January, with the fixed gear fishery typically closing in mid-July with the harvest of the TAC by trawl vessels, which begin fishing in early July.

7.1.1 National Standards

The Council's over-arching mandate to guide it in the prevention of overfishing is National Standard 1. This national standard states that:

Conservation and management measures shall prevent overfishing while achieving, on a continuing basis, the optimum yield from each fishery.

This action is specifically being considered in order to limit the current potential for overfishing of the dark rockfish stock. Under the current pelagic shelf rockfish assemblage, the dark rockfish stock is vulnerable to overfishing given the relatively high complex-level TAC that could be taken on any member of the assemblage. Dark rockfish as discussed in the analysis makes up a small fraction of the biomass in the assemblage and is generally found in shallow, in-shore waters. Transferal of management to the State of Alaska is anticipated to be better responsive to protection of this stock.

7.1.2 Section 303(a)(9) – Fisheries Impact Statement

Section 303(a)(9) of the Magnuson-Stevens Act requires that any plan or amendment include a fishery impact statement which shall assess and describe the likely effects, if any, of the conservation and management measures on a) participants in the fisheries and fishing communities affected by the plan or amendment; and b) participants in the fisheries conducted in adjacent areas under the authority of another Council, after consultation with such Council and representatives of those participants taking into account potential impacts on the participants in the fisheries, as well as participants in adjacent fisheries.

The alternative actions considered in this analysis are described in Chapter 2 of this document. The impacts of these actions on participants in the fisheries and fishing communities are evaluated in the Regulatory Impact Review, Chapter 5.

7.2 Marine Mammal Protection Act

The alternatives analyzed in this action are not likely to result in any significant impacts to marine mammals.

7.3 Coastal Zone Management Act

This action is consistent with the Coastal Zone Management Act.

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