

MEMORANDUM

TO: Council, SSC, and AP Members

FROM: Chris Oliver *CO*
Acting Executive Director

DATE: February 1, 2001

SUBJECT: Revising the TAC-setting process

ESTIMATED TIME
4 HOURS
(all D-1 items)

ACTION REQUIRED

Approve analysis for public review.

BACKGROUND

Since 1995, the Council has considered various regulatory mechanisms to revise the procedure detailed in the Bering Sea/Aleutian Island and Gulf of Alaska groundfish fishery management plans for setting groundfish specifications (optimum yields, allowable biological catches, and total allowable catches). The Council submitted Amendments 48/48 in May 1998 for Secretarial review. Those amendments would have streamlined the annual groundfish harvest specification process; however, NMFS subsequently identified legal and technical problems. As a result, the original concept for Amendments 48/48 was tabled in mid-1999.

NMFS again is attempting to develop options for revising the existing TAC specification process to respond more effectively to the following objectives:

1. manage fisheries based on best available information
2. respond to new information or conservation concerns
3. comply with Congressional requirements while minimizing unnecessary disruption to fisheries
4. provide adequate opportunity for public review and comment
5. promote administrative efficiency while minimizing public confusion regarding annual specifications.

NMFS staff will present an analysis for revising the annual TAC setting process for initial review. A previous version of the analysis was presented to the SSC in June 2000. It recommended that additional alternatives be developed by the Groundfish Plan Teams (Item D-1(b)(1)) and for the Council to reschedule initial review when the analysis addressed its concerns. The Teams reviewed and commented on the draft at its November 2000 meeting (Item D-1(b)(2)). The revised initial review analysis is also included under this agenda tab.

June 2000 SSC minutes (excerpt)

D-1 AMEND THE TAC SETTING PROCESS

The SSC reviewed the draft EA/RIR for Amending the Process by Which TAC Specifications are Established for Alaska Groundfish. The draft EA/RIR was presented to the SSC by Sue Salveson and Jill Stevenson (NMFS). Public testimony was provided by Glenn Merrill (Aleutians East Borough) and Ed Richardson (At Sea Processors).

The current TAC specification procedure is grossly inefficient. The public is asked to comment on interim specifications that are published as a proposed rule and eventually published as a final rule, even though it is known that this information will be outdated by the time it is published. Therefore, the TAC setting procedure needs to be changed. The alternative TAC setting procedures offered by this EA/RIR balance the needs of fulfilling administrative requirements under NEPA, ESA, APA, and RFA with the desire to base TAC's under current survey and biological information. Alternatives 2-4 eliminate problems associated with reporting on interim TAC. The SSC questioned whether Alternatives 3 and 4 will provide sufficient "extra" time to allow the fulfillment of administrative requirements.

The SSC believes that there are several aspects of the alternatives that need to be addressed in a revised document. The SSC recommends the analysis be revised to address the following comments. The revised document should be reviewed at the October meeting.

Alternative 2A (Issue proposed and final specifications based on previous year's stock assessment surveys) has associated benefits to the stock assessment process. The alternative has the "downside" of not utilizing the most current survey information in the stock assessment process. In terms of meeting the public review requirement and relaxing the often-harried pace at which the annual stocks assessments take place, this Alternative solves certain problems associated with the status quo. Under this alternative, stock assessments – based on the previous year's survey and catch-age data – could be prepared earlier in the calendar year. Conceivably, the assessments could be ready for SSC review by the April meeting, Council review by the June meeting, with recommended TACs, public review and comment, and publication of final TACs occurring before January 1.

While it is generally preferable to utilize the most current survey data, there are a number of reasons why it is not necessarily disadvantageous to shift the stock assessment process as noted above and restrict the analysis to the previous year's data. Technically, the stock assessments would still be based on the most recently available data since the assessments would be conducted in the spring through summer and survey results not available until fall. The expanded timeline would allow for thorough review by all parties and a more complete comment and response interaction between analysts and commentators than is currently practical.

Given the current timeline, survey biomass estimates are not available until October, shortly before stock assessment results and preliminary ABCs are given to the SSC for review. There are legitimate questions whether this rushed use of data is warranted and whether the process would benefit from a lengthier review and validation period. There is also a tendency to place a disproportionate amount of weight on the most recent data points. In particular, much attention is paid to the newest recruitment estimate, which is possibly the most poorly estimated parameter in the stock assessment model. The utility of these data increases with time and the addition of auxiliary data. Finally, in the Gulf of Alaska and the West Coast, where surveys are

conducted biennially or triennially, assessments have long been based on survey data collected 18-30 months previously.

Alternative 2B (Issue proposed and final specifications based on an alternative fishing year schedule) appears to both take advantage of the most recent survey data and relieve many of the problems currently associated with the TAC specification process. The SSC, however, would like to see a more complete discussion about the expected consequences of this alternative. In particular, the SSC is concerned about the following issues:

1. The impact of a revised fishing season on the stock assessment process. Presumably, the assessments would be modified to provide biomass estimates in April or May rather than December. There is some question as to how the models would be adapted and whether the data are amenable to this change.
2. How would these new fishing years interact with the January-December managed fisheries that impact the groundfish fisheries such as Pacific halibut, sablefish, ADF&G managed fisheries including crab and salmon.
3. The implications of having the high value/high volume fisheries at the end of the fishing calendar, furthest removed from the biomass surveys.

Analysts ranked alternative 2c high in its ability to use current survey data. However, the technical feasibility of a late-winter survey is questionable, and must be addressed in the revised document. Specific issues include:

1. The ability to conduct a consistent and comprehensive stock assessment surveys in the Bering Sea during the late winter months due to presence of ice and hazardous inclement weather, and;
2. The consistency of the late-winter and conventionally timed stock assessment surveys.

Here the stock's spatial distribution and availability to a late winter surveys would be different from the distribution and availability during historically timed stock assessment surveys. Some period of concurrent late-winter and conventional surveys would be required to calibrate the late-winter survey in order to maintain continuity of the stock assessment data

The SSC notes that the proposed non-discretionary procedure for determining interim TAC's under Alternative 3 (Interim specifications calculated from ABC, followed by proposed and final specifications) depends on the ABC's and TAC's (where Council-recommended TAC's are lower than calculated TAC's) set at the December Council meeting, and may not satisfy APA standards for public review and input. It was noted in public testimony that there could be problems with area apportionments under this alternative. The SSC suggests this be clarified in the revised document.

November 2000 Joint Groundfish Plan Team minutes (excerpt)

TAC-setting analysis. The Plan Team recommended that the Council add two new alternatives to the analysis:

3. **Alternative 3B.** Annually set specifications for 2 years, implementing the Plan Team/SSC OFL and ABC recommendations for year 1 and the stock assessment projection to set interim OFLs and ABCs for year 2.

The year 2 fishery would start under the OFL, ABC, TAC, and PSC projections for that year. These would be replaced by the new assessment recommendations. The Plan Team/Council schedule for preliminary (September/October) and final recommendations (November/December) for groundfish specifications would continue unchanged. However, the proposed rule for the specifications and the accompanying EA/RIR/IRFA would be available for more thorough preparation, review, and public comment during the spring, with filing of the final rule by May/June.

The Teams noted that the Pacific Council does not incorporate the current year's survey into its model (because it prepares models every three years tied to triennial survey frequency). The authors determined that not incorporating the current year's survey may have biological impacts on the short-lived individual stocks such as pollock and cod, but may not for longer-lived fish such as rockfish.

4. **Alternative 3B, Suboption:** Biannually set GOA specifications for three years, implementing the Plan Team/SSC OFL and ABC recommendations for years 1 and 2 (based on the biennial survey results) and the stock assessment projection of OFLs and ABCs for year 3.

The Council would implement the Plan Team OFL and ABC recommendations for years 1 and 2 (based on the biennial survey beginning in 2001) and the stock assessment projection of OFL and ABC for year 3 (until replaced by the new assessment recommendations). Therefore, most GOA stock assessments would be prepared every other year. The Team may convene once instead of twice each year to review: 1) possible assessment model changes, 2) groundfish proposals, 3) ecosystem considerations, or other issues. Some surveys are done annually and those assessments are likely to be prepared annually (sablefish and pollock).

The Plan Teams felt that changing the time of the trawl surveys should not be considered, due to weather hazards and possible temporal changes in fish distribution.



Proposed Amendments 48/48

Revisions to the TAC-Setting Process




Current TAC-Setting Process

- Summer: Surveys
- September: Plan Team Meeting
- October: Proposed/interim spec recommendations
- November: New information on status of stocks
- December: Final spec recommendations
- February: Final specifications published



Problems with Current Process

- Proposed/interim specs issued prior to new information
 - Lack of opportunity for informed comment on final specifications
 - Overharvest of interim specs (25% of annual specs) & closures could disrupt fishery
 - High administrative costs
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Objectives

- Base management on best available info.
- Provide flexibility to respond to new info.
- Minimize unnecessary disruption to fisheries
- Provide opportunity for meaningful public comment
- Promote administrative efficiency

Alternatives

- 1 Status Quo
 - 2 No interim specs; Proposed and final specs prior to start of fishing year
 - 3 Interim specs using nondiscretionary formula; Proposed/final specs after December Council meeting
 - 4 Interim specs using rollover; Proposed/final specs or interim final specs after Dec. meeting
 - 5 Multi year annual spec. process
- Option Abolish TAC Reserves

Alt. 2: Proposed and Final Specs

- Publish proposed and final specs before fishing year starts;

2A. Base specs on previous year's survey data

2B. Delay fishing year calendar

2C. Conduct surveys earlier in calendar year

Alt 3: Interim Specs Using Formula

Interim TAC₂₀₀₀ =

$$\mathbf{ABC_{2000} / ABC_{1999} * 1999 \text{ TAC}}$$

- Interim TAC = Calculated TAC using formula or Council-recommended TAC, whichever is lower

Alternative 3

- Proposed and final specs based on December Council recommendations
- Interim PSC limits = Adjustments based on new abundance data; rollover of apportionments
- Proposed specs + 15-day comment period; Final specs effective by May 1

Alt. 4: Rollover of Specs

- Interim specs = Previous year's specs

Proposed (+ comment period) and final specs issued by
May 1

-OR-

Interim Final Specs issued by May 1 followed by
comment period

- Final specs based on Dec. Council recommendations




Alt. 5 Multi Year Spec.

- 5A Base YR 1 specs and project YR 2 interim specs. on annual stock assessment.
- 5B For species on biennial survey schedule, base YR 1 and YR 2 specs. and project YR 3 interim specs. on biennial stock assessment.



Option: Abolish TAC Reserves

- Reduces confusion regarding available TAC
 - Promotes administrative efficiency

 - Could be considered under all alternatives
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Summary

Objective	Status Quo	Alt. 2	Alt 3	Alt. 4	Alt 5
Use best avail. Info	Interim and Proposed- No Final -Yes	2A: no 2B & 2C: yes,but	Interim, Proposed and Final- Yes	Interim- no Proposed and (interim) Final-Yes	Interim, Proposed and Final- Yes
Avoid disruption to Fishery	No	2A: yes 2B: possible 2C: yes	Less likely	Less likely	Less likely
Meaningful comment	No	Yes	Yes	Yes	Yes
Lowers admin. costs	No	Yes	Yes, but not as low as others	Yes	Yes, but not as low as others

Table 2.5.

Relative Ranking of Alternatives with Respect to Objectives of this Action. A score of '3' is highest possible ranking, a score of '1' is lowest. Alternatives 2-5 are considered relative to the Status Quo. Weighted objectives have a doubled score.

Objective	Alt 1 (No Action)	Alt 2 -Proposed/final TACs prior to start of fishing year			Alt 3 Calc. Interim TACS	Alt 4 rollover		Alt 5A Multi- yr specs	Alt 5B Multi- yr specs
		2A Last year's data	2B Later fishing year	2C Earlier surveys		4A Proposed/ final specs	4B IF	2yr	3 yr
Is the process designed to utilize current year's surveys? What is the quality of these surveys?	2 ¹	1	2 ²	2 ³	3	2 ¹	2 ¹	2 ⁹	2 ⁹
Is the process flexible enough to maximize use of current year's surveys ?	2 ¹	1	2 ²	3	3	2 ¹	2 ¹	2	2
Process allows for effective compliance with legal requirements while minimizing disruption to fisheries	1 ⁴	2	2 ⁵	3	2 ⁶	2 ⁷	2 ⁷	3	3
Process provides for adequate ¹¹ public review & comment (weighted)	2	6	6	6	4	4	4 ⁸	6	6
Process promotes administrative efficiency	1	2	2	2	1	2	3	2	2
Meets National Standards (weighted)	6	2 ¹²	4	2 ^{12,13}	6	4	4	4	4
Reduces public confusion	1	3	2	3	2	3	2	2	1 ¹⁰
Relative assessment of alternatives	15	17	20	21	21	19	19	21	20

¹ Not for interim TACs (or proposed TACS under Alt 1), which are based on previous year's survey information.

² The last quarter of the fishing year (Jan-Mar) managed on status of stock information derived from stock surveys at least 20-18 months earlier.

³ This alternative would use the best available information but that information may not be as reliable as the historic time series based on summer surveys.

⁴ Interim specifications can impose artificial constraint on fisheries, especially those set at 25 % of the proposed values.

⁵ Changes in fishery patterns and increased seasonal apportionments of TAC and PSC likely would occur to ensure protection of 4th qtr. (Jan - March) roe fisheries.

⁶ Some disruption to fisheries may occur to extent that interim TACs are less than final TACs or PSC limit apportionments among seasons or fisheries differ from one year to the next. Potential fishery disruptions are minimized if a species' TAC = ABC. In this case, interim TACs would equal final TACs unless NMFS revises the Council's recommended TACs in response to public comment and review.

⁷ The roll over of specifications from one year to the next until superceded by final specifications could result in fishery disruptions to the extent that the rollover specifications differ from the final specifications implemented for that fishing year.

⁸ Prior public comment could not be accommodated if an interim final rule is used to implement the final harvest specifications each year.

⁹ TAC is set on most recent survey but future interim TAC is based upon projection from previous survey.

¹⁰ TAC and interim TAC would be set on different schedules for the BSAI and most of the GOA.

¹¹ Meets 30 day public review and comment period required by APA on meaningful proposed rule.

¹² Does not meet Magnuson-Stevens Act Sec 301(a)(2), best scientific information available.

¹³ Does not meet Magnuson-Stevens Act Sec 301(a)(10), promote safety of human life at sea.

DRAFT ENVIRONMENTAL ASSESSMENT/ REGULATORY IMPACT REVIEW/
INITIAL REGULATORY FLEXIBILITY ANALYSIS
For Amending the Process by Which Annual Harvest Specifications Are Established for
Alaska Groundfish Fisheries

Implemented Under the Authority of the
Fishery Management Plans
for the
Groundfish Fishery of the Bering Sea and Aleutian Islands Area
and
Groundfish of the Gulf of Alaska

January 31, 2001

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Abstract: This draft Environmental Assessment/Regulatory Impact Review/Initial Regulatory Flexibility Analysis (EA/RIR/IRFA) provides an analysis of alternative administrative procedures necessary to support the annual specification of Total Allowable Catch (TAC) and other management measures for the Alaska groundfish fisheries in the exclusive economic zones of the Bering Sea and Aleutian Islands management area and the Gulf of Alaska. This Federal action would amend the process by which annual specifications would be set in future years. Objectives for the revised process include management of the Alaska groundfish fisheries based on the best available scientific information and meaningful opportunity for useful public comment. The action is not expected to have significant environmental, social, or economic impacts. Annual specifications would continue to be assessed under separate EA/RIR/IRFAs prepared each year prior to agency approval of final specifications.

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EXECUTIVE SUMMARY

Each year, normally in November, proposed groundfish harvest specifications for the Bering Sea and Aleutian Islands area (BSAI) and Gulf of Alaska (GOA) are published in the Federal Register. These proposed specifications, recommended by the North Pacific Fishery Management Council (Council) at its October meeting for the following year, list total allowable catch (TAC), acceptable biological catch (ABC) and prohibited species catch (PSC) limits, and apportionments thereof, based upon specifications effective for the current fishing year. Based on public comment on the proposed specifications and information made available at the December Council meeting, final specifications are published in the Federal Register during February or early March. So that fishing may begin January 1, interim regulations are published in the Federal Register in December that authorize the release of one-fourth of each proposed TAC and apportionment thereof, one-fourth of each PSC and apportionment thereof and the first seasonal allowance of pollock and Atka mackerel. These interim specifications are superseded by the final specifications.

The existing annual specification process is problematic for several reasons. The public is notified and given opportunity to comment on proposed specifications that often are outdated by the time they are published. The publication of proposed specifications each year can confuse the public, because incomplete and outdated information is provided due to the need to adhere to a strict time line in order to comply with all relevant regulations. Because the interim specifications are based on the proposed specifications, they do not take into account the recommendations contained in the Groundfish Plan Teams' final SAFE documents or the recommendations coming from public testimony, the Science and Statistical Committee, Advisory Panel, and Council at its December meeting. One fourth of the initial TAC and PSC amounts have been found to be an inadequate amount for those fisheries that attract the greatest amount of effort at the beginning of the fishing year. Under the current process, administrative inefficiency exists in taking the regulatory actions necessary to set interim, proposed and final specifications. For these reasons, NMFS seeks to revise the annual specification process.

The objectives of this action relevant to the framework for specifying annual harvest specifications are to manage fisheries based on best available information, respond to new information or conservation concerns, comply with the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), National Environmental Policy Act (NEPA), Endangered Species Act (ESA), and Regulatory Flexibility Act (RFA) provisions while minimizing unnecessary disruption to fisheries, provide adequate opportunity for public review and comment, and promote administrative efficiency while minimizing public confusion regarding annual specifications.

The management alternatives and an option that may be considered with any alternative are:

- Alternative 1. Status quo. (Publish proposed specifications, followed by interim and final specifications)
- Alternative 2: Eliminate publication of interim specifications. Issue proposed and final specifications prior to the start of the fishing year. This alternative has three sub-alternatives; (a) base proposed and final specifications on previous year's survey data, (b) delay the start of the fishing year, or (c) conduct surveys earlier in calendar year.
- Alternative 3: Issue interim specifications based on new information on status of stocks and a non-discretionary formula, followed by publication of proposed and final specifications based on December Council recommendations. This alternative would use new ABC recommendations from the December Council meeting to establish non-discretionary interim TACs.
- Alternative 4: Eliminate publication of interim specifications. Rollover previous year's specifications during interim period. This alternative has two sub-alternatives; (a) Rollover followed by publication of proposed and final specifications or (b) rollover followed by publication of interim final specifications with comment period.
- Alternative 5: Establish interim and final specifications based upon multiple year stock assessment projections. This alternative has two sub-alternatives; (a) base interim TAC for subsequent year on annual stock assessment projection for all BSAI and GOA groundfish fisheries or (b) for biennially surveyed target species, set TAC biennially based on a biennial stock assessment and base interim TAC on a third year projection from biennial stock assessments.

The Option: Abolish TAC Reserves

Table A summarizes the potential advantages and disadvantages of each alternative in relation to the objectives of this action. Because the majority of the alternatives have no significant environmental impacts, it is anticipated that the preferred alternative will have no significant environmental impacts. If an alternative is chosen that may have significant impacts, an environmental impact statement will be prepared. NMFS concludes that any of the considered actions could have a significant impact on a substantial number of small entities as defined under the Regulatory Flexibility Act. Environmental impacts and socioeconomic impacts resulting from changing fishing patterns as a result of the preferred alternative would be assessed annually in the EA/RIR/IRFA that accompanies the final annual specifications.

At this time, a preferred alternative has not been identified. NMFS seeks public comments on these alternatives and on the potential impacts on fishery participants and the environment.

Table A. Summary of Alternatives and Option Relative to the Status Quo

Alternative	Benefits	Disadvantages
Alternative 1 (Status Quo)	Process currently used eliminating the need for developing new process, amendments, and regulatory authority.	High administrative costs. Proposed specs are misleading. Economic constraints on early season high value fisheries from interim specifications.
Alternative 2 (Proposed and final specs) 2A: Based on previous year's data 2B: Alter fishing year calendar 2C: Conduct surveys earlier in year	Lowers administrative costs because no interim specs needed. Better planning opportunity by participants because final specs out before fishing year begins. Opportunities for meaningful public comment on proposed specs. No constraints on early season fisheries due to interim specifications.	2A: Best 'available' science ? 2B: Could disadvantage high value fisheries; might require changes in fishing patterns and/or changes in seasonal apportionments, possible environmental impacts of those changes. 2C: Safety concerns, decreased reliability of data, increased administrative costs associated with research.
Alternative 3 (Non-discretionary interim specs, followed by proposed and final specs)	Opportunities for meaningful public comment on proposed specs. Best available science. Lesser constraints on early season fisheries due to interim specifications . Lower administrative costs relative to the status quo.	Limited opportunity for comment on interim specifications. Administrative costs benefits may be reduced by expense of issuing two sablefish IFQ permits in a year for interim and final TAC.
Alternative 4 (Rollover of TACs and PSCs) 4A: followed by proposed and final specs 4B: followed by interim final rule	Lowers administrative costs because no interim specs needed Lesser constraints on early season fishery because rollover is less restrictive than status quo interim TAC. 4A: Opportunity for meaningful public comment on proposed specs. 4B: Very low administrative costs.	Administrative costs benefits may be reduced by expense of issuing two sablefish IFQ permits in a year for rollover and final TAC. 4A: Higher administrative costs than 4B. 4B: Reduced opportunities for public comment to NMFS prior to approval of final specifications.

Alternative	Benefits	Disadvantages
<p>Alternative 5 (Multi year TAC)</p> <p>5A: interim TAC for second year based on stock assessment projection.</p> <p>5B: 5A and for biennially surveyed target species, final TAC set for two years and based on biennial stock assessment and third year interim TAC based on stock assessment projections.</p>	<p>Second year interim TAC based upon stock assessment projection, better science. Better planning opportunity by participants because second and third year's interim TAC published well before fishing year begins. Opportunities for meaningful public comment on proposed specs. Lesser constraints on early season fisheries due to stock assessment based second or third year interim TAC .</p> <p>5B: Better planning for participants because final specs published well before fishing year begins and covers 2 to 3 years. Slightly lower administrative cost in two year rulemaking for biennial species only. Less review, writing and meetings required for biennial species for plan teams.</p>	<p>5B: Different time period for setting TAC for some biennially surveyed species than for others, may cause confusion.</p> <p>Administrative costs benefits may be reduced by expense of issuing two sablefish IFQ permits in a year for interim and final TAC.</p>
<p>The Option (Abolish TAC Reserves)</p>	<p>Lowers administrative costs. Reduces confusion regarding available TAC.</p>	

1.0 PURPOSE AND NEED FOR ACTION

Under the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) of 1996, the United States has exclusive fishery management authority over all living marine resources, except for marine mammals and birds, found within the exclusive economic zone (EEZ) between 3 and 200 nautical miles from the baseline used to measure the territorial sea. The management of these marine resources is vested in the Secretary of Commerce (Secretary) and in Regional Fishery Management Councils. In the Alaska region, the North Pacific Fishery Management Council (Council) has the responsibility to prepare fishery management plans (FMPs) for the marine resources it finds require conservation and management. The National Marine Fisheries Service (NMFS) is charged with carrying out the federal mandates of the Department of Commerce with regard to marine fish. NMFS Alaska Regional Office and Alaska Fisheries Science Center research, draft, and support the management actions requested by the Council.

The Magnuson-Stevens Act established that the FMPs must specify the optimum yield from each fishery, which would provide the greatest benefit to the Nation, and must state how much of that optimum yield can be expected to be harvested in U.S. waters. The FMPs must also specify the level of fishing that would constitute overfishing. Using the framework of the FMPs and current information about the marine ecosystem (stock status, natural mortality rates, and oceanographic conditions), the Council annually recommends to the Secretary total allowable catch (TAC) specifications and prohibited species catch (PSC) limits and/or fishery bycatch allowances based on biological and economic determinations made by NMFS to the Secretary. Determinations of acceptable biological catch (ABC) and overfishing level (OFL) amounts for each of the FMP established target species or species groups accompanies recommendations of TAC specifications and PSC limits/apportionments.

This Environmental Assessment/Regulatory Impact Review/Initial Regulatory Flexibility Analysis (EA/RIR/IRFA) addresses the need to revise the annual specification process for setting ABCs, TACs, and PSC limits/apportionments for the groundfish fisheries of the Bering Sea and Aleutian Islands management area (BSAI) and the Gulf of Alaska (GOA) to reflect current data collection and stock assessment requirements and to adequately notify the public of proposed annual harvest specifications and other related fishery management measures.

1.1 Project Area

The groundfish fisheries occur in the North Pacific Ocean and Bering Sea in the EEZ from 50°N to 65°N. The subject waters are divided into two management areas; the BSAI area and the GOA. The BSAI groundfish fisheries effectively cover all the Bering Sea under U.S. jurisdiction, extending southward to include the waters south of the Aleutian Islands west of 170° W. longitude to the border of the U.S. EEZ. The GOA FMP applies to the U.S. EEZ of the North Pacific Ocean, exclusive of the Bering Sea, between the eastern Aleutian Islands at 170° W. longitude and Dixon Entrance at 132°40' W. longitude. These regions encompass those areas directly affected by fishing, and those that are likely affected indirectly by the removal of fish at

nearby sites. The area affected by the fisheries necessarily includes adjacent State of Alaska and international waters. Annual specifications and fishery management measures affect groundfish fishing throughout the BSAI and GOA management areas.

1.2 Current Specification Process

Using stock assessments prepared annually by NMFS and the Alaska Department of Fish and Game (ADF&G), Groundfish Plan Teams (Plan Teams) calculate biomass, ABC, and OFL for each species or species group, as appropriate, for specified management areas of the EEZ off Alaska that are open to harvest of groundfish. In November, the Plan Teams' rationale, models, and resulting ABC and OFL calculations are documented in the annual Stock Assessment and Fishery Evaluation (SAFE) reports. The SAFE reports incorporate biological survey work recently completed, any new methodologies applied to obtaining these data, and ABC and OFL determinations that are based on the most recent stock assessments. At its December meetings, the Council, its Advisory Panel (AP), Scientific and Statistical Committee (SSC), and the public review the SAFE reports and make recommendations on annual specifications based on the information about the condition of groundfish stocks in the respective fishing areas. The annual specifications recommended by the Council for the upcoming year harvest quotas, therefore, are based on new scientific information, including projected biomass trends, information on assumed distribution of stock biomass, and revised technical methods used to calculate stock biomass. SAFE reports are part of the permanent record on the fisheries.

Specification of the upcoming year harvest levels currently is a three-step process. First, proposed ABCs, TACs, and PSCs limits¹ are recommended by the Council at its October meeting and published in November in the Federal Register for public review and comment. In October, new data on stock levels are not yet available, therefore the proposed specifications are based on the previous year's data.

Second, NMFS annually publishes interim specifications to manage the fisheries from January 1 until they are superceded by the final specifications. The interim specifications are based upon the current year's specifications in the same manner as the proposed specifications. Reserves are subtracted from the TACs for most target species to calculate an initial TAC (ITAC) (50 CFR § 679.20(b)). Except for herring, reserves are also subtracted from PSC limits to establish the CDQ program prohibited species quota (50 C FR § 679.21(e)(1)(i)). The TAC reserves are generally divided between the Community Development Quota program and unspecified reserves. It is the unspecified portion of the reserves that is proposed to be eliminated in the option to the alternatives. See section 1.4 below for more information. The implementing regulations, 50 CFR § 679.20(c)(2), authorize interim specifications as one-fourth of each proposed ITAC and apportionment thereof, one-fourth of each proposed PSC allowance and the first seasonal allowance of GOA and BSAI pollock and BSAI Atka mackerel to be in effect on

¹BSAI crab and herring and GOA halibut only; BSAI PSC limits for halibut and salmon are established in regulations.

January 1 on an interim basis and to remain in effect until superceded by final specifications. NMFS publishes the interim specifications in the Federal Register as soon as practicable after the October Council meeting and prior to the December meeting. Retention of sablefish with fixed gear is not currently authorized under interim specifications. Further, existing regulations do not provide for an interim specification for the CDQ non-trawl sablefish reserve or for an interim specification for sablefish managed under the IFQ program.

Third, final TAC and PSC specifications are recommended by the Council at its December meeting following completion of analysis of any new stock status information. Those TAC specifications and PSC limits, and apportionments thereof, are recommended to the Secretary for implementation in the upcoming fishing year. With the final specifications, most of the non-specific reserves are released and the final TAC is increased proportionally. Currently, the final specifications are typically implemented in mid to late February and replace the interim specifications as soon as they are effective.

Table 1.1. Current FMP timeline for annual TAC specification and PSC limit procedure.

September	Plan Teams provide proposed groundfish ABC recommendations
October	Council approves proposed groundfish specifications
November	Proposed specifications are published ¹ Interim specifications are published ¹ Plan Teams provide final groundfish ABC recommendations
December	Council approves final groundfish specifications
January	Non-trawl groundfish fisheries open January 1 and trawl fisheries open January 20 with interim specifications of 25% of proposed specifications (with several exceptions)
February	Non-specific reserves released and final specifications are published ²

¹Publication of proposed and interim specifications can occur as late as December.

²Publication of final specifications can occur as late as March.

1.3 Why Changes to the Annual Specification Process are Being Proposed

The existing annual specification process is problematic for several reasons. Concerns have been raised about the current process of publishing proposed specifications prior to the December Council meeting on “outdated” information, establishing interim specifications based on proposed specifications, and preempting public opportunity to formally comment on the Council’s December recommendations for the upcoming year’s harvest specifications. The public is notified and given opportunity to comment on proposed specifications that often are outdated by the time they are published. The publication of proposed specifications each year can confuse the public, because incomplete and possibly erroneous information is provided due to the need to adhere to a strict timeline in order to comply with all relevant regulations. Public comment on these specifications rarely is made due to the fact that most informed, interested parties realize that those numbers will change, sometimes considerably, after release of the final

SAFE reports and the December Council meeting. The Federal Register publication of proposed specifications under the existing regulatory schedule, therefore, is of limited utility.

New data from resource assessment surveys become available under different schedules for different areas and species. Currently, the anticipated schedule is as follows:

Schedule	Survey
Annual	Bering Sea summer bottom trawl survey
Biennial	Bering Sea summer bottom trawl slope survey (first year is 2000)
Annual	Winter pollock spawning survey in Shelikof and Bogoslof
Biennial	Aleutian Islands and Gulf of Alaska summer trawl surveys: 2001 GOA; 2002 AI
Biennial	Acoustic surveys in Bering Sea and GOA: 2001 - GOA; 2002 - BS pending vessel availability and West Coast hake survey conflicts
Annual	GOA longline sablefish survey
Biennial	BSAI longline sablefish survey, BS odd years, AI even years

Publication of meaningful proposed specifications is currently not practicable, because much of the data necessary for calculating updated ABCs are not available until late October or later. For the BSAI, the annual September Plan Team meeting produces final assessments for some species, but for most, stock assessment results still are preliminary. Many assessments are updated after summer trawl survey data become available in October. As the year progresses, the Plan Team and the Council also acquire updated information on harvest trends. Although the proposed and final GOA ABCs do not change as much as those for the BSAI, proposed OFLs and ABCs are not produced for some species until the November Plan Team meeting.

In December, the Council uses the best available information from the Plan Teams and recommendations by its SSC in recommending ABCs for each species and its Advisory Panel (AP) in recommending TAC levels and PSC limits, allocations among fisheries for TAC level and PSC limits, and TAC level apportionments to specific gears or seasons. Because the biological data and harvest trends presented at the September Plan Team and Council meetings are preliminary, they are updated at the November Plan Team meetings and December Council meeting.

Using 1996 as an example, the difference between proposed and final TACs for the BSAI averaged 22 percent over all species and species groups and a range of 0-200 percent change for individual species TACs. For the GOA the difference averaged 7 percent with a range of 0-87 percent. If the public had perceived that the proposed specifications were an indication of what the final TACs and apportionments would be, they would have been misled. Any public comments received on the proposed rule would have very little meaning because although the proposed ABCs, TACs and PSC limits/apportionments were based on the best available stock assessment and harvest trends, these proposed amounts and trends would change before the start of the upcoming fishing year. Further, it is difficult under the current timeline to develop and

make available to the public final analyses to accompany proposed and interim specifications prior to January 1.

Because the interim specifications are based on the proposed specifications, they do not take into account the recommendations contained in the Plan Team's final SAFE documents or the recommendations coming from public testimony, the SSC, AP, and Council at its December meeting. In addition, one fourth of the initial TAC and PSC amounts have been found to be an inadequate amount for those fisheries that attract the greatest amount of effort at the beginning of the fishing year². Constraints under the 25 percent interim TACs are particularly experienced by the Bering Sea fixed gear cod fishery, and the rock sole fishery is often constrained by the halibut PSC limit early in the fishing year. Those fisheries that are allocated their first seasonal allowance (from the previous year) suffer if the new seasonal allowances recommended by the Council increase. That is, they may forego the benefits of that increase until the following year. This is true for the pollock fishery and the Aleutian Islands Atka mackerel fishery because they are high value fisheries that focus fishing effort early in the fishing year. Concern exists that the current process does not provide for meaningful public comment and artificial constraints are placed on the fishery in the interim period (which may disrupt the fishery).

1.4 Reserve TAC: The Current Process and the Need for Change

Under existing regulations, the TACs are reduced by specified percentages to establish reserves as follows:

- (1) 15 percent of the BSAI TACs for each target species and the "other species" category (except pollock and the hook and line and pot gear allocation for sablefish);
- (2) 20 percent of the GOA TACs for pollock, Pacific cod, flatfish, and "other species";
- (3) BSAI CDQ: 20 percent of the fixed gear allocation of BSAI sablefish; 7.5 percent of each TAC category for which a reserve is established, i.e., half the reserve established under (1) above; 10 percent of pollock; and 7.5 percent for prohibited species.

Detailed information regarding apportionments can be found in 50 CFR §679.20 (b) and 50 CFR §679.21 (e).

1.4.1 BSAI Groundfish Reserves

Under the American Fisheries Act (AFA), BSAI pollock is fully allocated to fishing sectors, including CDQ, with a set-a-side for an annual incidental catch allowance. Pollock reserves no longer are specified. The reserve for the remaining groundfish species is a portion of the total

²Harvest amounts of GOA and BSAI pollock and BSAI Atka mackerel under the interim TAC are limited to the proposed first seasonal allowance for each species.

allowable catch (15%) which is set aside at the beginning of the fishing (calendar) year for later allocations. The reserve is not designated by species, and any amount of the reserve may be apportioned to a target species (except for fixed gear allocation for sablefish, or the "other species" category) so long as apportionments do not result in overfishing. Ten percent of the pollock TAC is allocated to the CDQ program under the AFA, and seven and a half percent of the remaining groundfish TACs are placed in a reserve assigned to the CDQ program. Any reserve apportioned to Pacific cod is allocated by gear type as established in the FMP. Reserves are scheduled to be released by the Regional Administrator on or about April 1, June 1, and August 1. In recent years, reserves have not resulted in TAC being reapportioned from one species to another, although nothing precludes this. For 2001, portions of the unspecified reserve for a number of target species were released with the setting of final TAC for BSAI and GOA (66 FR 7276, January 22, 2001).

The reserves were developed to provide flexibility to the management system when the fishery and processing were performed entirely by foreign fleets or under the joint venture system where American catcher vessels supplied groundfish to the foreign processors. The groundfish catch is now entirely domestic and the reserve is structured to provide some latitude in the management of individual TACs. Conceptually, the reserves can allow managers to increase a TAC of groundfish up to that species' or species group's ABC, so long as the optimum yield for the entire fishery of 2 million mt is not exceeded. This option has been exercised once in the years since the effort in the groundfish fishery became entirely domestic (1991). The reserve system is expected to provide a 'buffer' for the in-season management of the fisheries. However the buffer really doesn't slow the catch as the managers and fishermen know of the reserve and expect to catch the entire TAC. The same effect can be accomplished by establishing a limited directed fishing allowance (50 CFR § 679.20 (d)). Since the reserve system does not provide significant increases in efficiency of the fishery, its effect is to increase confusion regarding which numbers are currently available for harvest and increase the administrative burden on the fishery managers to provide regulatory actions to add the reserve back into the TAC amounts. In addition, the American Fisheries Act (AFA) requires the establishment of catch limits for AFA qualified vessels which are based on a proportion of the TAC. Each time a reserve amount is apportioned to the TAC, the AFA catch limits are required to be adjusted as well.

1.4.2 GOA Groundfish Reserves

In the Gulf of Alaska the reserve is a portion of the total allowable catch (20%) of pollock, Pacific cod, flatfish, and other species which is set aside at the beginning of the fishing (calendar) year for later allocations. Any reserve of pollock and Pacific cod is apportioned between inshore and offshore sectors. Reserves are scheduled to be released by the Regional Administrator on or about April 1, June 1, and August 1 or when NMFS determines it is appropriate. For 2001, all reserves were released with the setting of final TAC. (66 FR 7276, January 22, 2001)

Between 1997 and 2000, reserves have only been used for Pacific cod in an effort to establish a buffer to prevent the fishery, which occurs early in the year and incurs high catch rates, from exceeding the directed fishing allowance established by 50 CFR § 679.20 (d). This process has

been only marginally successful and the problem can be solved under existing, less cumbersome regulations, by establishing a conservative directed fishing allowance. As in the BSAI, establishing reserves not only requires additional work as the final specifications of groundfish are established, the catch limits for vessels qualified under the American Fisheries Act must be revised as the reserve apportionments are made which creates confusion not only as to what the "full" TAC is, but requires the AFA vessels to revise their fishing plans in season.

1.5 Objectives of this Action

The objectives of this proposed action, changing the process for establishing annual specifications and eliminating reserves, are to manage fisheries based on best scientific information available, respond to new information or conservation concerns, comply with the Magnuson-Stevens Act, NEPA, ESA, and RFA provisions while minimizing unnecessary disruption to fisheries, provide adequate opportunity for public review and comment, and promote administrative efficiency while minimizing public confusion regarding annual specifications.

1.6 Related NEPA Documents

The original environmental impact statements (EISs) for the BSAI and GOA FMPs were completed in 1981 and 1979, respectively. NMFS issued a Supplemental Environmental Impact Statement (SEIS) on the action of TAC setting in December 1998 (NMFS 1998a) which analyzed the impacts of groundfish fishing over a range of TAC levels (alternatives). This EA/RIR/IRFA tiers off the broader analysis of groundfish fishing under various levels of TAC specifications which was documented in the SEIS prepared to supplement the original EISs for the Fishery Management Plans for the Gulf of Alaska (GOA) (NPFMC 1978) and Bering Sea and Aleutian Islands (BSAI) (NPFMC 1981). NMFS notes that in a July 8, 1999 order, amended on July 13, 1999, the Court in Greenpeace, et al., v. NMFS, et al., Civ No. 98-0492 (W.D. Wash.) held that the SEIS did not adequately address aspects of the GOA and BSAI groundfish fishery management plans other than TAC setting, and therefore was insufficient in scope under National Environmental Policy Act (NEPA). In response to the Court's order, NMFS has developed a draft programmatic SEIS for the GOA and BSAI groundfish fishery management plans which become available for public review January 26, 2001. The draft SEIS is available through the NMFS web site at <http://www.fakr.noaa.gov/>. Because the TAC setting process was determined to be adequately addressed by the 1998 SEIS, NMFS believes that the discussion of impacts and alternatives in the 1998 SEIS is directly applicable to this action to be analyzed in this EA/RIR/IRFA. Therefore, this EA/RIR/IRFA adopts the discussion and analysis in the SEIS (NMFS 1998a).

1.7 Public Participation

This draft EA/RIR/IRFA has not been subject to public review. An earlier version of this draft environmental assessment, including alternative 1-4 and the option to the alternatives, was reviewed at the NPFMC June 2000 meeting (Agenda item D-1b) and was reviewed during the joint Groundfish Plan Team meeting in November 2000. These meetings are open to the public.

2.0 ALTERNATIVES CONSIDERED

Alternatives 1 through 5 provide a range of actions that were considered to remedy the issues and concerns associated with the current annual specification process, as outlined above. The option addresses a related procedural issue; that of establishing TAC reserves. The option could be adopted in conjunction with any of the other alternatives considered.

An additional alternative to set annual specifications through a single Federal Register notice was also considered and rejected. Under this alternative, the Council would recommend annual specifications in December based upon SSC and AP recommendations. NMFS would approve and publish the annual specifications as a notice in Federal Register by the end of December. Public review and comment on the SAFE and EA/RIR/IRFA would be possible at the Plan Team and Council meetings. Three issues make this a nonviable alternative. The first problem is the lack of time to complete the NEPA and RFA analyses between the December Council meeting and before publication of the notice. The second problem is that this alternative does not provide ample opportunity for public review and comment, one of the most important goals of revising the annual specification process. The third possible problem is that the fishery may not open on January 1 if the notice is not issued by then. Because of these problems, this alternative will not be further analyzed in this document.

Alternative 1. Status Quo (NO ACTION ALTERNATIVE).

Descriptive information about the status quo process for setting TAC specifications can be found in the background section (Section 1.2). This alternative would continue the existing process for setting TAC specifications for the Alaska groundfish fisheries (proposed specifications, followed by interim and final specifications) and would not be amended to address those issues outlined in Section 1, including the concerns raised in regard to TAC 'reserves'.

Alternative 2: Eliminate publication of interim specifications. Issue Proposed and Final Specifications Prior to Start of the Fishing Year.

NMFS would publish proposed specifications based on Council recommendations with a comment period, followed by final specifications, prior to the beginning of the fishing year. In order to issue proposed and final specifications prior to the start of the fishing year, scheduling of "steps" in the current process must be modified. The following three sub-alternatives explore

changing different steps in this process that involve scientists, the Council, and fishery participants.

Alternative 2A: Issue Proposed and Final Specifications based on previous year's abundance surveys

This alternative would alter the timeline of the specification process by relying on existing "official" survey data and proposing and finalizing TAC specifications earlier in the year. Under this alternative, NMFS would not consider "preliminary" survey data for the current year because it would not be available in time to set the TACs for the coming season. Instead, all TACs recommended at the beginning of the fishing year would be based on the previous year's "official" survey data. Under this scenario, the Council could recommend TACs as early as their Spring meeting to allow for public comment and publication of final TACs before January 1. This alternative provides for traditional public input avenues during Council meetings and comment period on proposed specifications.

Alternative 2B: Issue Proposed and Final Specifications based on an alternate fishing year schedule

This alternative would utilize the time line under status quo but without interim specifications (Table 1.1); only proposed and final specifications would be published and the fishing year would be adjusted to begin in April or May. Final specifications would be published prior to the beginning of the fishing year. This would allow for adequate public review and comment and would be consistent with NEPA requirements. Setting the start of the fishing year is relatively arbitrary. Over time, fishing years have not always coincided with the calendar.

Alternative 2C: Proposed and Final Specifications Issued based on current year survey results but conduct surveys earlier in year

This alternative would maintain the existing fishing year schedule but abundance surveys would be conducted earlier in the year, and Council recommendations would be provided in time to publish proposed and final specifications before January 1. This alternative would require survey work to be conducted in late winter months. This alternative would allow for adequate public review and comment and would provide adequate time to develop analyses prior to agency approval for the annual specifications.

Alternative 3: Interim Specifications calculated from ABC, followed by Proposed and Final Specifications.

Under this alternative, NMFS would issue interim specifications by Federal Register notice after the December Council meeting and prior to January 1, based on the following non-discretionary formula which uses the best available information on status of the stocks that comes from the November/December Plan Team, SSC, and Council deliberations.

$$[ABC_{\text{year } x+1} / ABC_{\text{year } x} * TAC_{\text{year } x}] = \text{Interim } TAC_{\text{year } x+1}$$

Under this simple formula, interim TACs would be proportionately adjusted up or down from the previous year's TACs based on changes to ABCs. *The interim TACs would be the lower of the calculated TACs or the Council-recommended TACs.* The interim TAC would be apportioned into gear, season, and area allocations as specified in regulations. Table 2.1 provides regulations and statutes that apply in setting interim TAC for GOA and BSAI target species. In addition, this alternative would provide for sablefish CDQ and IFQ interim TACs according to the above formula.

Table 2.1.

Existing statute or regulatory provisions that would be applied to interim TACs under Alternative 3.

Regulatory Citation	Interim TAC and Allocations
<p>§ § 679.20(a)(4), 679.20(b)(1)(i), and 679.20(c)(2),</p>	<p>Sablefish for Trawl only - East GOA: 5% of TAC for bycatch -C/W GOA: 20% of TAC -Bering Sea: 50% of ITAC -Aleutian Is: 25% of ITAC</p>
<p>§ § 679.20(a)(5), 679.20 (a)(6), 679.20 (b)(2), 679.20(c)(2), 679.22(a)(11), 679.22(b)(3) Section 206(a) of AFA,</p>	<p>Pollock TAC set using global control rule and critical habitat closures as Steller sea lion protection measures -Bering Sea: -Steller sea lion protection measures with 2 seasonal TAC apportionments outside Steller sea lion conservation area (SCA) and 4 seasons inside SCA, critical habitat harvest limits. -AFA sector allocations between the ICA, CDQ, C/P, MS, Inshore sectors. Inshore Co-op allocations, inshore/offshore allocations. -GOA: - Steller sea lion protection measures with 4 seasonal TAC apportionments. Interim TAC include inshore/offshore allocations. -Interim TAC without reserves, but usually released. Shelikof Strait TAC determination based on biomass.</p>
<p>§ § 679.20(a)(7), 679.20 (a)(6), 679.20(b)(1)(i), 679.20(b)(2), 679.20(c)(2), 679.22(a) and (b)</p>	<p>Pacific cod TAC set using global control rule and critical habitat closures as Steller sea lion protection measures. BSAI - 2 seasonal allocations, Jig gear 2%; hook & line/pot gear 51% (further allocated to hook-and-line catcher processors 80%, hook-and-line catcher vessels 0.3%, pot gear vessels 18.3 %, vessel <60 ft LOA 1.4 %); trawl gear 47 % - Trawl gear allocation split evenly between catcher vessels and catcher/processor vessels - Inseason reallocation provisions among gear sectors -Seasonal allowances for hook-&-line/pot gear allocations may be specified among following 3 periods: Jan 1 - April 30; May 1 - August 31; and Sept 1 - Dec 31 -Interim TAC is without CDQ reserves, nospecified reserves usually released. GOA- inshore/offshore allocations, two seasonal allowances. Interim TAC without reserves, but usually released</p>
<p>§§679.20 (a)(8)(i), 679.20(a)(8)(ii)(A), 679.20(c)(2), and 679.22(a)</p>	<p>Atka mackerel TAC set using global control rule and critical habitat closures as Steller sea lion protection measure. BSAI- Jig gear allocated up to 2 percent of TAC for Eastern AL/BS. Actual percentage annually specified. - Non-jig gear allocation divided equally between 2 seasons: Jan1 - April 15 and Sept 1 - Dec 1 -interim TAC is without CDQ reserves, nonspecified reserves usually released. -Critical habitat harvest restrictions for the Atka mackerel fishery in the W/C AI Districts</p>
<p>§§ 679.20(a)(9), 679.20(b)(1)(i), and 679.20(c)(2)(ii)</p>	<p>Aleutian Islands shortraker/rougheye rockfish -Trawl gear 70%; non-trawl gear 30% -Interim TAC is without reserves.</p>

§ 679.20(a)(10), 679.20(b)(1)(i), and 679.20(c)(2)(ii)	All other BSAI groundfish -Interim TAC is without reserves.
§§ 679.20(a)(10), 679.20(b)(2), and 679.20(c)(2)(i),	GOA flatfish and "other species" -Interim TAC without reserves, but usually released
§§ 679.20(a)(10), and 679.20(c)(2)(i),	All Other GOA species
§ 679.20(b)	Reserves -BSAI: With exception of pollock and non-trawl sablefish allocation, each TAC reduced by 15% for reserve. One half of reserve is apportioned to the groundfish CDQ reserve (sablefish CDQ reserve = 20% of the fixed gear allocation). Remainder is nonspecified reserves. -GOA: Reserves for pollock, Pacific cod, flatfish, and "other species" established at 20% of respective TACs.

Interim PSC limits for crab species and herring would be established consistent with the existing regulatory framework, based on abundance (e.g., 1 percent of Eastern Bering Sea herring biomass for BSAI trawl operations). Any fishery and/or seasonal apportionments of these PSC limits would roll over from the previous year to serve as interim apportionments and be adjusted relative to any change in the PSC limit. These interim PSC limits would remain effective until superseded by the final specifications. Under Alternative 3, the entire annual PSC limits that are established in regulations for halibut and salmon would be available during the interim period except that PSC apportionments among fisheries³ and seasons (when applicable) would rollover from the previous year during the interim period until replaced with final specifications on or before May 1. This would challenge the Council to develop PSC apportionments with a 16-month period outlook.

The impacts on the environment of these interim specifications would be considered in the range of alternatives included in the NEPA, ESA, and RFA assessments, consultations, and analyses prepared for the previous year's annual specifications. Non-discretionary adjustments at the beginning of the year to accommodate new information on the status of the stocks would be required to be within the scope of these consultations and assessments. This alternative might require NMFS scientists to develop projections of the impacts of various harvesting scenarios over a 16-month period (January through the following April). Relying on the previous year's EA presents a challenge to consider possible scenarios that the interim specifications might fall into. In addition, a possible risk exists that new information (i.e., new environmental impacts) would result in considerations which would not be included within the scope of the previous year's EA/RIR/IRFA. In this case, NMFS would need to develop, review and approve an EA to accompany the interim specifications by January 1.

³This would include a rollover of specified non-trawl fishery exemptions from the halibut PSC limits in the BSAI .

Interim specifications for PSC amounts may be less flexible to accommodate new Council recommendations on fishery or seasonal apportionments given the socioeconomic nature of fishery bycatch allowances. Overall PSC limits either are set in regulations (BSAI Pacific halibut and salmon) or are established annually through frameworked regulations that take into account updated information on status of stocks (BSAI crab and herring, GOA halibut). These frameworked limits should be able to be accommodated within the interim specification process envisioned. That is, if abundance of crab species or herring increases, the PSC limit available in the interim period for the upcoming year would increase accordingly, consistent with regulatory intent. However, Council recommendations for fishery or seasonal apportionments of PSC limits are subject to annual changes to meet various objectives that focus on optimizing groundfish harvest under different PSC restrictions. Interim PSC apportionments would reflect those in place the first quarter of the previous year until superceded by final specifications for the new year. These apportionments would be adjusted proportional to changes in PSC limit effective January 1 under interim specifications.

Interim specifications would be followed by proposed specifications (with a 15-day comment period⁴) and final specifications; both based on the Council's December recommendations. This alternative would also reduce the public comment period on GOA halibut PSC limits to 15 days. Any change in harvest limits in response to public comment on proposed specifications may be implemented by NMFS without further consultation with the Council. The final specifications would be effective on or before May 1. If final specifications were not in place on or before May 1, the fishery would not be authorized to continue. Table 2.2 illustrates the timeline under this alternative.

Under the status quo, drafting, review, clearance, and publication in the Federal Register of proposed annual specifications takes approximately two months since the proposed specifications for the following year are based upon the current year's specifications and no new survey information. For example, the year 2000 proposed annual specifications were published December 13, 1999, (BSAI 64 FR 69464 and GOA 64 FR 69457). Four months from the time that the Council recommends specifications is not considered unreasonable, therefore, to publish proposed and final specifications, and to have a 15-day comment period.

Alternative 3 allows for adequate, meaningful public comment and does not change the resource assessment survey schedule. This alternative relies on the provision that the interim specifications would be analyzed within the scope of the previous year's EA/RIR/IRFA and thus would meet legal requirements without disrupting the fishery.

⁴In any instance in the regulations where a 30-day comment period is referred to with respect to annual specifications, including the comment period on the proposed halibut PSC limits and apportionments thereof (§679.21(d)(2)), that comment period would be shortened to 15 days under this alternative..

Table 2.2. Timeline for setting annual TAC specifications and PSC limits under Alternative 3.

	June-Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	April
Data	Survey Age & length data		Survey Biomass & ABC recommendations						
Plan Team		Preliminary SAFE/ model review		Final SAFE/ABC recommendations					
Council			Council meeting: Review, no action SSC: review of stock assessment models		Council meeting: Recommend ABC/ TAC/PSC amounts & apportionments				
NMFS		Initiate any necessary ESA consultation		Begin EA/IRFA based on draft ABCs	Publish interim specs notice, effective Jan. 1, complete ESA consultation	Fishery opens under interim specs	Publish proposed TAC specs	Prepare final specs and publish by May 1	
Public Comment		Welcome at Plan team meeting	Welcome at SSC, AP, & Council meetings	Welcome at Plan team meeting	Review SAFE		Comment period open on proposed specs for 15 days		
NEPA					Draft EA for proposed TAC available at Council meeting		Draft EA available		Final EA for current TAC and future interim TAC available

Alternative 4: Rollover of existing specifications until superseded by new specifications

This alternative would set annual specifications for a 16-month period (Jan-Dec + following year Jan-April). The annual specifications would effectively “roll over” into the first four months of the following year, or until replaced by new final specifications. If final specifications were not in place on or before May 1, the fishery would not be authorized to operate. Public comment would be taken at Plan Team meetings and Council meetings. There are no changes to the resource assessment survey schedule. It would reduce administrative costs relative to the status quo because no need exists for issuing interim specifications. Two options include:

Alternative 4A: Rollover of current year’s specifications on interim basis; NMFS would publish proposed specifications with a 15-day comment period and final specifications, following the December Council meeting.

This alternative would implement regulations that would stipulate the rollover of the current year’s specifications, without any Federal action needed. That is, the TACs would be set for a 16-month period, or until superseded by final specifications. Proposed specifications would be based on Council recommendations and would be published after the December Council meeting. Public comment would be taken during the proposed specifications comment period and at Plan Team meetings and Council meetings.

Alternative 4B: Rollover of current year’s specifications on interim basis; NMFS would publish interim final specifications with a 30-day comment period. If necessary after considering comments received, NMFS would publish revised final specifications.

Under this alternative, NMFS would publish interim final specifications based on the Council recommendations after the December Council meeting, accompanied by the required NEPA and economic analyses. Public comment would be taken during interim final specification comment period, and at Plan Team meetings and Council meetings.

Alternative 5: Use Stock Assessment Projections for multi year TAC and interim TAC

This alternative would use stock assessment information provided by the Plan Teams and approved by the SSC to establish OFL, ABC and TAC levels for more than one year based upon projections from the current stock assessment. In the first year of implementing this alternative, interim specifications would need to be issued for the following year in December and interim specifications for the second or third year would be issued a few months later with the final specifications in February or March. After the “start-up”, interim specifications for the following year would be issued with final specifications for the current year. Interim TACs would be for a full year, rather than the current interim of 25% of the annual TAC or the first seasonal allowance.

The PSC apportionments would need to be recommended annually by the Council. If the State and NMFS have the resources, and if the data were reliable, crab and herring interim PSC limits would be projected based upon biomass assessments. Otherwise, interim PSC limits would be rolled over from the previous year. The remainder of the PSC limits are specified in regulations. (50 CFR §679.21) The two options include:

Alternative 5A: For the BSAI and GOA set the annual TAC based upon the most recent stock assessment and set interim TAC for the following year based upon projected interim OFL and interim ABC values

The status quo schedule for preliminary OFL, ABC and TAC recommendations by the Plan Teams and the Council would be unchanged in this alternative. In November, the Plan Team would recommend to the SSC, OFL and ABC for the following fishing year and interim OFL and ABC for the second year. For example, a November 2000 Plan Team recommendation would include OFL and ABC for the year 2001 and interim OFL and interim ABC for the year 2002. Public comment would be taken during the proposed specifications comment period and at Plan Team meetings and Council meetings. Final specifications would include the second year interim TAC levels and interim PSC limits. The annual specification setting process is an annual process with each step identified in Table 2.3

Table 2.3. Timeline for setting annual specifications under Alternative 5A.

	June-Aug	Sept	Oct	Nov	Dec	Year 1 Jan	Feb	March/April/May
Data	biennial and annual Survey Age & length data		Survey Biomass & ABC recommendations					
Plan Team		Preliminary SAFE/ model review		Final SAFE/YR 1 ABC and YR 2 interim ABC recommendations				
Council			Council meeting: Review, no action SSC: review of stock assessment models		Council meeting: Recommend YR 1 annual specs. and YR 2 interim specs.			
NMFS		Initiate any necessary ESA consultation		Begin EA/IRFA based on draft ABCs		Fishery opens under interim specs, complete ESA consultation, revised draft NEPA/RFA analyses	Publish proposed YR 1 annual specs and YR 2 interim specs	Publish final YR 1 annual specs. and YR 2 interim annual specs. by May 31.
Public Comment		Welcome at Plan team meeting	Welcome at SSC, AP, & Council meetings	Welcome at Plan team meeting	Review SAFE		Comment period open on proposed specs for 30 days	
NEPA					Draft EA available at Council meeting		Draft EA available	Final EA available May 28 1st

Alternative 5B: For the target species on a biennial survey schedule, set TAC biennially and base interim TAC on a third year OFL and ABC projection from biennial stock assessments.

Under this alternative, NMFS would set groundfish specifications for two years for the target species on a biennial survey. The species on a biennial survey schedule include all of the target species in the Aleutian Islands, Bering Sea sablefish, and all GOA target species, except sablefish. The Plan Team would make a recommendation of OFL and ABC in November for the following two years based upon the biennial survey results. The Plan Team would also recommend interim OFL and ABC based upon projections for the following third year. Setting of annual specifications for species on an annual survey schedule would follow the procedure in Alternative 5A. Table 2.4 illustrates the timeline under this alternative for the target species with biennial surveys.

Table 2.4. Timeline for setting biennial TAC specifications and PSC limits under Alternative 5B for target species with biennial surveys.

	Data	Plan Team	Council	NMFS	Public Comment	NEPA
Jun-Aug	biennial Survey Age & length data					
Sept		Preliminary SAFE/ model review		Initiate any necessary ESA consultation	Welcome at Plan team meeting	
Oct	Survey Biomass & ABC recommendations		Council meeting: Review, no action SSC: review of stock assessment models		Welcome at SSC, AP, & Council meetings	
Nov		Final SAFE/YR 1 and YR 2 ABC and YR 3 interim ABC recommendations		Begin EA/IRFA based on draft ABCs	Welcome at Plan team meeting	
Dec			Recommend YR 1 and YR 2 annual specs. and YR 3 interim specs		Welcome at SSC, AP, & Council meetings, Review SAFE	Draft EA available at Council meeting
<u>Year 1</u> Jan				Fishery opens under interim specs, complete ESA consultation, revised draft NEPA/IRFA analyses		
Feb				Publish proposed YR 1 and YR 2 annual specs and YR 3 interim specs	Comment period open on proposed specs for 30 days	Revised Draft EA available

	Data	Plan Team	Council	NMFS	Public Comment	NEPA
March/April/May				Publish final YR 1 and YR 2 annual specs. and YR 3 interim annual specs. by May 31.		Final EA available May 31
<u>Year 2</u> Jan- Dec				Fishery open under YR 2 annual specs.		
Jun-Aug	biennial Survey Age & length data					
Sept		Preliminary SAFE/ model review		Initiate any necessary ESA consultation	Welcome at Plan team meeting	
Oct	Survey Biomass & ABC recommendations		Council meeting: Review, no action SSC: review of stock assessment models		Welcome at SSC, AP, & Council meetings	
Nov		Final SAFE/YR 3 and YR 4 ABC and YR 5 interim ABC recommendations		Begin EA/IRFA based on draft ABCs	Welcome at Plan team meeting	
Dec			Recommend YR 3 and YR 4 annual specs. and YR 5 interim specs		Welcome at SSC, AP, & Council meetings, Review SAFE	Revised Draft EA available at Council meeting
<u>Year 3</u> Jan-May				Fishery opens under interim specs, complete ESA consultation, revised draft NEPA/RFA analyses		
Feb				Publish proposed YR 3 and YR 4 annual specs and YR 5 interim specs	Comment period open on proposed specs for 30 days	Draft EA available
March/April/May				Publish final YR 3 and YR 4 annual specs. and YR 5 interim annual specs. by May 31.		Final EA available May 31
<u>Year 4</u> Jan-Dec				Fishery open under YR 4 annual specs.		

The option: Abolish TAC Reserves.

With this option, NMFS would no longer set-aside TAC reserves. CDQ TACs would be established as a set allocation of the total TAC (i.e., 7.5 percent of each BSAI PSC limit; and 7.5 percent of most BSAI groundfish TACs except 10 percent of BSAI pollock and 20 percent of the fixed gear sablefish allocation). This option could be implemented regardless of which alternative is adopted to revise the current annual specification process. It would promote administrative efficiency while minimizing public confusion regarding TAC specifications.

Summary

Each of these alternatives meets some of the objectives. However, it is necessary to weight some objectives over others. For example, legal requirements supercede the desire to improve administrative efficiency and public participation in the annual specification process is critical. The following table (2.5) demonstrates the ability of each alternative to fulfill the objectives of this action set forth in Section 1.5 of this analysis.

Table 2.5. Relative Ranking of Alternatives with Respect to Objectives of this Action. A score of '3' is highest possible ranking, a score of '1' is lowest. Alternatives 2-5 are considered relative to the Status Quo. Weighted objectives have a doubled score.

Objective	Alt 1 (No Action)	Alt 2 -Proposed/final TACs prior to start of fishing year			Alt 3 Calc. Interim TACS	Alt 4 rollover		Alt 5A Multi- yr specs 2yr	Alt 5B Multi- yr specs 3 yr
		2A Last year's data	2B Later fishing year	2C Earlier surveys		4A Proposed/ final specs	4B IF		
Is the process designed to utilize current year's surveys? What is the quality of these surveys?	2 ¹	1	2 ²	2 ³	3	2 ¹	2 ¹	2 ⁹	2 ⁹
Is the process flexible enough to maximize use of current year's surveys ?	2 ¹	1	2 ²	3	3	2 ¹	2 ¹	2	2
Process allows for effective compliance with legal requirements while minimizing disruption to fisheries	1 ⁴	2	2 ⁵	3	2 ⁶	2 ⁷	2 ⁷	3	3
Process provides for adequate ¹¹ public review & comment (weighted)	2	6	6	6	4	4	4 ⁸	6	6
Process promotes administrative efficiency	1	2	2	2	1	2	3	2	2
Meets National Standards (weighted)	6	2 ¹²	4	2 ^{12,13}	6	4	4	4	4
Reduces public confusion	1	3	2	3	2	3	2	2	1 ¹⁰
Relative assessment of alternatives	15	17	20	21	12 21	19	19	21	20

¹ Not for interim TACs (or proposed TACS under Alt 1), which are based on previous year's survey information.

² The last quarter of the fishing year (Jan-Mar) managed on status of stock information derived from stock surveys at least 20-18 months earlier.

³This alternative would use the best available information but that information may not be as reliable as the historic time series based on summer surveys.

⁴ Interim specifications can impose artificial constraint on fisheries, especially those set at 25 % of the proposed values.

⁵ Changes in fishery patterns and increased seasonal apportionments of TAC and PSC likely would occur to ensure protection of 4th qtr. (Jan - March) roe fisheries.

⁶ Some disruption to fisheries may occur to extent that interim TACs are less than final TACs or PSC limit apportionments among seasons or fisheries differ from one year to the next. Potential fishery disruptions are minimized if a species' TAC = ABC. In this case, interim TACs would equal final TACs unless NMFS revises the Council's recommended TACs in response to public comment and review.

⁷ The roll over of specifications from one year to the next until superceded by final specifications could result in fishery disruptions to the extent that the rollover specifications differ from the final specifications implemented for that fishing year.

⁸ Prior public comment could not be accommodated if an interim final rule is used to implement the final harvest specifications each year.

⁹TAC is set on most recent survey but future interim TAC is based upon projection from previous survey.

¹⁰TAC and interim TAC would be set on different schedules for the BSAI and most of the GOA.

¹¹Meets 30 day public review and comment period required by APA on meaningful proposed rule.

¹²Does not meet Magnuson-Stevens Act Sec 301(a)(2), best scientific information available.

¹³Does not meet Magnuson-Stevens Act Sec 301(a)(10), promote safety of human life at sea.

3.0 AFFECTED ENVIRONMENT

The groundfish fisheries occur in the North Pacific Ocean and Bering Sea in the U.S. EEZ from 50° N to 65°N latitude. The TAC specifications and the process by which they are established could affect groundfish fishing throughout the BSAI and GOA management areas. The SEIS which accompanied the 1999 groundfish TAC specifications provides a complete detailed description of the affected environment (NMFS 1998a). Substrate is described at section 3.1.1, water column at 3.1.3, temperature and nutrient regimes at 3.1.4, currents at 3.1.5, groundfish and their management at 3.3, marine mammals at 3.4, seabirds at 3.5, benthic infauna and epifauna at 3.6, prohibited species at 3.7, and the socioeconomic environment at 3.10. NMFS has also release an updated draft SEIS (NMFS 2001) for public review and comment which is also available through the NMFS Alaska Region home page at <http://www.fakr.noaa.gov>. Additionally, the current, detailed status of each target species category, biomass estimates, and acceptable biological catch specifications are annually presented both in summary and in detail in the annual GOA and BSAI SAFE reports. The SAFE reports for the 2001 fisheries are available through the Council's home page at <http://www.fakr.noaa.gov/npfmc>.

An EA is prepared pursuant to NEPA to determine whether a proposed action will result in significant effects on the human environment. If the environmental effects of the action are determined not to be significant based on an analysis of relevant considerations, the EA and resulting finding of no significant impact are the final environmental documents required by NEPA. If it is concluded that the proposal is a major Federal action significantly affecting the human environment, an environmental impact statement must be prepared.

3.1 Overview of Status of Managed Groundfish Species

This EA cross-references and summarizes the status of the stocks information in the SAFE reports (NPFMC 2000a for BSAI and 2000b for GOA). The BSAI and GOA Plan Teams met in November 2000 to finalize the SAFE reports and to forward ABC and OFL recommendations to the Council for action at its December 2000 meeting. The following is a description of the latest status and Council action for each target species in the GOA and BSAI fisheries.

3.1.1 Status of Groundfish Target Species in the Bering Sea and Aleutian Islands

Designated target groundfish species and species groups in the BSAI are walleye pollock, Pacific cod, yellowfin sole, Greenland turbot, arrowtooth flounder, rock sole, other flatfish, flathead sole, sablefish, Pacific ocean perch, other rockfish, Atka mackerel, squid, and other species. 2001 specifications for the BSAI area are presented in the emergency interim rule for the implementation of Steller sea lion protection measure and 2001 specifications for the BSAI and GOA (66 FR 7276, January 22, 2001). For detailed life history, ecology, and fishery management information regarding groundfish stocks in the BSAI see Section 3.3.3 of the SEIS (NMFS 1998a) and in the draft SEIS (NMFS 2001).

Walleye pollock had a large increase in projected biomass over the 1999 assessment for the *Eastern Bering Sea (EBS)*. The 2000 pollock assessment features data from the 2000 fishery and bottom trawl

and echo-integration trawl surveys. The 2000 bottom trawl survey estimated a biomass of 5,140,000 mt, an increase of 44% over estimates from 1999 survey data. The 2000 echo-integration trawl survey estimated a biomass of 3,005,000 mt, a decrease of 7% from the 1999 estimate. Exploitable biomass of the EBS pollock stock is estimated to be 10,060,000 mt.

A model similar to the model used in 1998 was selected by the Plan Team to base its recommendations for 2001 OFL and ABC. This model is a slightly modified version of the model used for the 2000 recommendations. The Plan Team concurred with the senior assessment author that a 2001 ABC of 1,840,000 mt for the EBS is appropriate. This is a 62% increase over the 2000 ABC. The reasons for concurring with the author's ABC recommendation include:

1) The model to estimate abundance and the method to recommend 2001 ABC are the same as those used for the 1999 and 2000 ABC values.

2) Abundance has substantially increased, therefore, a substantial increase in ABC appeared reasonable to the stock assessment author and the Plan Team. A broad distribution of ages in the population are average strength or better, not only the strong 1996 year class. The catch will come from multiple year classes, not a single predominant year class as occurred for some harvests in the past. Spawning biomass is projected to stay above 35% of unfished biomass if harvesting in future years continues based on an $F_{40\%}$ policy, except for a slight dip below $B_{35\%}$ in 2003. Even if biomass equals the lower confidence bound for abundance of 5,000,000 mt, a 1,840,000 mt catch would result in an exploitation rate of about 30%, which the senior assessment author states is considered a reasonable maximum exploitation rate for gadid stocks.

3) Increased pollock abundance potentially provides additional prey to pollock predators. Even with the increased ABC, additional pollock is likely to be available as prey compared to three years ago when pollock abundance was substantially less. In addition other measures are in place to provide pollock as prey to higher trophic level species.

The OFL set by the Plan team was 2,350,000 mt using $F_{35\%}$ for the strategy. The SSC determined that F_{msy} yield should have been used which gives an OFL of 3,536,000 mt. **Model projections indicate that the EBS walleye pollock stock is not overfished nor approaching an overfished condition.** The SSC recommended an ABC for the EBS pollock of 1,842,000 mt. The AP and Council recommended a TAC of 1,400,000 mt.

The 2000 bottom trawl survey of the *Aleutian Islands* region resulted in an on-bottom pollock biomass of 106,000 mt, an increase of 13% relative to the 1997 estimate. Anticipating that the SSC will continue to find that Aleutian pollock qualify for management under Tier 5, the Plan Team recommended using the 2000 survey biomass estimate as the best available estimate of biomass in 2000 and set the 2001 ABC and OFL to 23,800 mt and 31,700 mt, respectively, same as 1998 through 2000. However, because of endangered Steller sea lion concerns, pollock is available for bycatch only in the Aleutian Islands area, prohibiting any directed fishing for pollock during the 2001 fishery. Only incidental catch amounts of pollock in the Aleutian Islands area can be harvested in 2001. The SSC and

Council concurred with the Plan Team's ABC recommendation of 23,800 mt. The AP and Council recommended a TAC of 2,000 mt to allow for the retention of incidental catch only. **As a Tier 5 stock, it is not possible to determine whether Aleutian pollock is overfished or whether it is approaching an overfished condition**

The 2000 hydro acoustic survey of the *Bogoslof region* resulted in an exploitable biomass estimate of 301,000 mt. The stock is in Tier 5, classifying it similarly with Aleutian pollock, a stock which generally has about the same quality of assessment information. The Plan Team recommended that the assumptions of zero growth and zero recruitment be discontinued for Bogoslof pollock and recommended that projected biomass be set equal to the most recent survey biomass estimate. The Plan Team recommended 2001 ABC and OFL of 45,200 mt and 60,200, respectively. The SSC and Council concurred with an OFL of 60,200 mt and set the ABC to 8,470 mt to account for considerations for the entire Aleutian Basin stock. As with the Aleutian pollock, the AP and Council recommended a TAC of 1,000 mt to allow for retention of incidental catch only. **As a Tier 5 stock, it is not possible to determine whether Bogoslof pollock is overfished or whether it is approaching an overfished condition.**

Atka mackerel stock size has continued to decline with current biomass at 40% of peak estimates made in the early 1990s. Large confidence intervals are associated with survey results for this species over the years. The 2000 survey found very little Atka mackerel in the Eastern Aleutian Islands (EAI) District. Previous survey biomass estimates for the EAI ranged from about 45,000 to 208,000 mt. The 2000 survey estimate for that district was 922 mt. Catch rates from commercial and research fishing just prior to the survey indicated abundant Atka mackerel. Using the previous year's percentages for ABC apportionments to demonstrate the impact of that estimate, apportionments to that district are cut by about half when the low biomass value estimated for the EAI district is incorporated into the method for distributing the ABC. The low biomass estimate is counterintuitive. When combined with the large confidence intervals associated with the 5 surveys occurring between 1986 and 2000, the estimate promotes concerns that current survey methods, while appropriate for estimating groundfish biomass, are not confidently estimating the abundance of Atka mackerel. The author recommended and the Plan Team agreed that a weighted average of the 4 most recent survey estimates of the distribution of the biomass should be used to calculate ABC, giving the most weight to the 2000 survey. The Plan Team recommended that the authors develop a more sophisticated method for incorporating variability in the assessment for the future. The SSC used a rate of $F_{52\%}$ for calculating ABC.

The Plan Team recommended an ABC and OFL level of 58,700 mt and 138,000 mt, respectively. In 1994, the Atka mackerel ABC in the Aleutian Islands subarea was divided between the Western, Central, and Eastern Aleutian districts. The stock author recommended and the Plan Team concurred with the subarea-specific ABCs: Eastern Bering Sea and Eastern Aleutians = 6,600 mt (11.2%), Central Aleutians = 28,500 mt (48.5%), Western Aleutians = 23,600 mt (40.2%). The SSC used a time weighting scheme to account for measurement error and recommended ABCs of 6,600 mt, 33,600 mt, and 27,900 mt for the Eastern, Central, and Western Aleutian Islands areas, respectively. The AP and Council recommended that TAC be set equal to ABC amounts. **Model projections indicate that this fish is neither overfished nor approaching an overfished condition.**

Pacific cod is managed as a single BSAI stock and is the second largest Alaskan groundfish fishery. A length-based synthesis model is used to assess Pacific cod biomass estimates. Annual trawl surveys in the eastern Bering Sea and triennial trawl surveys in the Aleutian Islands are the primary fishery independent sources of data. The present assessment is a straightforward update of the 1999 assessment, incorporating new catch and survey information. The Aleutian Islands area was surveyed in 2000 and showed a biomass increase of 63% from 1997. The EBS trawl survey 2000 biomass estimate 528,000 mt, a 9% decrease over the 1999 biomass estimate. Projected age 3+ biomass for the BSAI area increased from 1,300,000 mt in 2000 to 1,320,000 mt for 2001. The Plan Team concurred with the authors' recommendation to set 2001 ABC at 188,000 mt, about 12% below the maximum permissible level. This recommendation is based on a risk-averse optimization procedure which considers uncertainty in the estimates of the survey catchability coefficient and the natural mortality rate in the computation of an $F_{40\%}$ harvest level. The Plan Team felt that a 12% reduction from the maximum permissible ABC is justified not only on the basis of these decision-theoretic concerns, but also because estimated spawning biomass from the model has declined continuously since 1988 and because four of the last five year classes (assessed at age 3) appear to have been well below average. In year 2001, a catch of 188,000 mt would represent an decrease of 2% over the 2000 ABC of 193,000 mt, in the same direction as the EBS 9% decrease in the trawl survey biomass estimate. However, the Plan Team noted that the assessment model projects a 2003 ABC (using the same relative harvest rate) of 150,000 mt, meaning that the increase for 2001 is expected to be short-lived. The spawning biomass is projected to continue to decline through 2004. The SSC and Council concurred with the Plan Team's ABC recommendation. The AP and Council recommended that TAC be set at the ABC level.

NMFS, by interim emergency rule (66 FR 7276, January 22, 2001), in accordance with Public Law 106-544 is phasing in measures contain in the Comprehensive BiOp in 2001 to protect the western population of Steller sea lions. For Pacific cod this includes a seasonal apportionment of Pacific cod TAC in the BSAI Regulatory Areas of 60 percent of the annual TAC for these areas from January 1 to June 10 and 40 percent of the annual TAC from June 10 to December 31, 2001.

The Plan Team's recommended OFL was determined from the tier 3b formula, giving a 2001 OFL of 248,000 mt. **Model projections indicate that this stock is neither overfished nor approaching an overfished condition.**

Sablefish: The BSAI sablefish relative abundance in 2000 is similar to 1998, and the abundance now is considered low and stable and projected to increase slowly. For the 2000 SAFE report assessment model, new sources of information include: 1) relative abundance and length data from the 2000 longline survey; 2) length data from the 1999 trawl fishery, and 3) age data from the 1999 longline survey. Modeling was similar to the 1999 assessment. Exploitable biomass (age 4+) for 2001 is estimated to be 20,000 mt in the Eastern Bering Sea and 38,000 mt in the Aleutian Islands areas, a 10% and 9% increase over last year's projections, respectively.

The stock assessment author recommended and the Plan Team concurred with a 2001 ABC of 16,900 mt for the combined stocks (including the Gulf of Alaska), a 2% decrease from 2000. Recommended ABC for the EBS and AI are 1,560 mt and 2,500 mt, respectively. The SSC concurred with the Plan

Team's ABC recommendation and the AP recommended that TAC be set at ABC levels. The Council recommended the TAC be set at ABC levels.

The 2001 recommended OFL (combined areas) is 20,700 mt. Using the survey-based apportionment scheme described above, 2001 OFL also may be apportioned among regions and resulted in the following values: EBS-1,910 mt, AI-3,070 mt, and GOA-15,720 mt. **Model projections indicate that this stock is neither overfished nor approaching an overfished condition.**

Yellowfin sole: The 2000 assessment is similar to the 1999 assessment and includes new catch and survey information. The 2000 EBS bottom trawl survey resulted in a biomass estimate of 1,580,000 mt, an increase of 21% from last year's survey, but still a 32% decline from 1998. The sharp decrease in 1999 was attributed in part to cold water which might have decreased availability. However, both the 1999 and 2000 trawl survey lower estimates may be due to the survey being performed earlier, when a significant portion of the stock is still at the spawning grounds in shallow water. Extra tows were done outside the normal trawling area (in shallow waters) and concentrations of yellowfin sole were encountered. An AI trawl survey was also performed and caught yellowfin sole in only two tows, of less than 20 kg each. The biomass estimate for the AI is not included in the model due to the relatively low catch.

Age 2+ biomass estimates for 2001 is 2,384,180 mt, a decrease of 15% from the 2000 biomass estimate. The stock assessment author believed that in 1999 and 2000, a higher percentage of yellowfin sole resided in shallow water unavailable to the standard survey. The survey results may be affected by temperature and time, with the occurrence of fish positively correlated to temperature and the timing of the survey may miss the spawning aggregations. The results of both the 1999 and 2000 surveys show biomass estimates at much lower numbers than survey results during the 1990's with most results over 2,000,000 mt. It is possible that the yellowfin sole resided in shallow water unavailable to the standard survey during 1999 and 2000. The stock assessment author recommended and the Plan Team concurred with a 2001 ABC of 176,000 mt, an 8% decrease from the 2000 ABC. The SSC and Council concurred with the Plan Team's ABC recommendation. The AP and Council recommended that TAC be set at 123,262 mt.

The Plan Team's recommended 2001 OFL was 209,000 mt. **Model projections indicate that this stock is neither overfished nor approaching an overfished condition.**

Rock sole: The 2000 assessment changes from the 1999 assessment include new catch and survey information. The 2000 EBS bottom trawl survey resulted in a biomass estimate of 2,130,000 mt, a 26% increase relative to the 1999 estimate. The biomass estimate from the 1999 survey constituted a 22% decrease relative to 1998. Total age 2+ biomass is estimated to be 1,940,000 mt in 2001. The author recommended and the Plan Team concurred with ABC and OFL for 2001 of 228,000 mt and 271,000 mt, respectively. The SSC and Council concurred with the Plan Team's ABC recommendation. The AP and Council recommended a TAC of 75,000 mt. **Model projections indicate that this stock is neither overfished nor approaching an overfished condition.**

Greenland turbot: An assessment was not completed for this species for 2000 but new catch and survey information was considered in developing 2001 projections. The 2001 age 1+ biomass is 210,000 mt, a 10% decrease from the 1999 projected biomass for 2000. The Plan Team concurred with the stock assessment author's recommendation to set an ABC value substantially less than the maximum permissible resulting in a 2001 ABC of 8,400 mt. The Plan Team believed that a 2001 ABC well below the maximum permissible value is warranted for the following reasons: 1) estimated age 1+ biomass has trended downward continually since 1972; 2) the 7 most recent age 1 recruitments constitute 7 of the lowest 8 values in the entire time series; and 3) if the maximum permissible ABC were actually caught, this would constitute the highest catch since 1983, even though spawning biomass in 2001 is projected to be less than half of what it was in 1983. The SSC and Council concurred with the Plan Team's ABC recommendation. The AP and Council recommended that TAC be set at ABC levels and apportioned 67% (5,630 mt) to the Bering Sea and 33% (2,770 mt) to the Aleutian Islands areas.

The OFL fishing mortality rate is computed under Tier 3a, translates into a 2001 OFL of 31,000 mt. **Model projections indicate that this stock is neither overfished nor approaching an overfished condition.**

Arrowtooth flounder: The 2000 stock assessment incorporates new catch and survey information. The 2000 EBS bottom trawl survey resulted in a biomass estimate of 340,000 mt, a 29% increase relative to the 1999 estimate. The 2000 Aleutian Islands area bottom trawl survey resulted in an estimated biomass of 93,500 mt, representing 22% of the BS/AI combined biomass estimate from the trawl surveys. Exploitable biomass (age 1+) is estimated to be 701,000 mt in 2001. The stock assessment author recommended and the Plan Team concurred with a 2001 ABC of 130,000 mt. Subsequent to the plan team meeting, the assessment author identified a mistake in the calculations and determined that the ABC should be set at 117,000 mt. (SAFE report addendum). The SSC and Council concurred with the Plan Team's ABC recommendation. The AP and Council recommended that TAC be set at 22,015 mt.

The Plan Team recommended a 2001 OFL fishing mortality rate, computed under Tier 3a, of 141,500 mt. **Model projections indicate that this stock is neither overfished nor approaching an overfished condition.**

Flathead sole: A significant change was made in the 2000 assessment with the use of AD Model Builder for the modeling platform. New information used in the estimates include 1999 and 2000 catch and discards through September 23, 2000, EBS and AI 2000 trawl surveys, and 1999 and 2000 length composition fishery and survey data. The 2000 EBS bottom trawl survey resulted in a biomass estimate of 399,000 mt, a 1% increase relative to 1999 estimate. It should be noted that 1999 estimate was a 43% decrease relative to that of 1998, which in turn was a 14% decrease relative to the 1997 estimate. Exploitable biomass (age 3+) is estimated to be 618,000 mt in 2001. An Aleutian Islands area trawl survey was also done in 2000 with a result of 8,970 mt, a decrease from 11,540 mt in 1997. The stock assessment author recommended and the Plan Team concurred with a 2001 ABC of 84,000 mt for the

BSAI area. The SSC and Council concurred with the Plan Team's ABC recommendation. The AP and Council recommended a TAC of 40,000 mt.

The OFL was determined from the Tier 3a formula, giving a 2001 OFL of 102,000 mt. **Model projections indicate that this stock is neither overfished nor approaching an overfished condition.**

Other flatfish: This complex is composed of eight species in the Bering Sea (Alaska plaice, rex sole, Dover sole, starry flounder, English sole, butter sole, sand sole, and deep sea sole). In the Bering Sea, Alaska plaice is the most abundant (comprising 86% of the estimated 2000 trawl survey group biomass) and more commercially important of the other flatfish species. In general, other flatfish are taken as incidental catch in other directed groundfish fisheries. The 2000 assessment is a straightforward update of the 1999 assessment, including the use of AD Model Builder for Alaska plaice. New data used in estimates included 1999 and 2000 catch and retain portions, corrected Alaska plaice biomass estimates for 1982-1999, and 2000 trawl survey biomass estimates for Alaska plaice and other flatfish.

The EBS 2000 trawl survey estimated biomasses are 444,000 mt for Alaska plaice and 79,800 mt for miscellaneous other flatfish species, a decrease of 19% and an increase of 1% relative to the 1999 estimates, respectively. The model projected the Alaska plaice exploitable biomass (age 2+) to be 865,000 mt in 2001. Because 85% of the "other flatfish" category is Alaska plaice and the assessment author calculates plaice separately, the Plan Team recommended setting the ABC and OFL for Alaska plaice separately from the other species. For Alaska plaice, the Plan Team recommended a 2001 ABC of 122,000 mt for Alaska plaice. For the remaining species in the flatfish complex, the Plan Team recommended a 2001 ABC of 18,000 mt for "other" non-plaice flatfish. The SSC did not recommend splitting Alaska plaice from the other species and set the ABC for all other flatfish at 122,000 mt. The AP and Council recommended TAC be set at 23,000 mt.

As with the ABC, the plan recommends separating Alaska plaice from "other" flatfish for OFL. The Plan Team's OFL for Alaska plaice is 147,000 mt. For the "other flatfish" species, the Plan Team recommends a 2001 OFL of 22,000 mt. The SSC recommended the OFL for all other flatfish be set at 47,000 mt. **Model projections indicate that this stock complex is neither overfished nor approaching an overfished condition.**

Pacific Ocean Perch Complex: The Pacific ocean perch complex consists of Pacific ocean perch (POP), and other red rockfish including northern rockfish, roughey rockfish and shortraker rockfish. Because of the limited catch, the Plan Team recommended grouping sharpchin rockfish with "other rockfish" for management purposes.

Through 2000, the other red rockfish complex was split out into northern/sharpchin and roughey/shortraker groups in the AI, and a combined other red rockfish group for the eastern Bering Sea. The stock assessment authors provided an assessment for these species groups, by incorporating recent catch data and the 2000 AI survey results. For 2001, the Plan Team recommended that the complex be broken out to separate species and managed accordingly for the whole BSAI area. The Plan Team rationale was based on conservation concerns. When managed as a species complex, a risk exists

that one stock would be fished disproportional to its abundance, resulting in overfishing of that stock. This is especially true when one species has a higher value to the fishery than the other species. This has happened in the other red rockfish complex, where catches have sometimes exceeded what OFL would have been. This occurred for rougheye rockfish in the AI in 1997, and northern rockfish in the Bering Sea in 2000. Establishing ABCs on a species by species basis would help prevent overfishing.

Immediate economic and management issues are also addressed by splitting the other red rockfish from the POP complex. The low abundance of rockfish in the EBS would be very constraining to the fleet. The low OFL calculated for the 2001 EBS other red rockfish complex (180 mt) could greatly impact the 2001 fisheries. The 2000 catch was 228 mt even though it was on bycatch status all year. Other target fisheries could be shut down, or prohibited to retention, to prevent the OFL from being exceeded.

EBS Pacific Ocean Perch: The present assessment is a straightforward update of the 1999 assessment, incorporating new catch information. Age 9+ biomass is estimated to be 41,000 mt in 2001, a decrease of 11% from the 2000 biomass estimate. The stock assessment authors recommended and the Plan Team concurred with a 2001 ABC of 1,730 mt, a 900 mt decrease over last year's ABC. The SSC and Council concurred with the Plan Team's ABC recommendation. The AP and Council recommended that TAC be set at the ABC level.

The Plan Team's recommended 2001 OFL is 2,040 mt. **Model projections indicate that this stock is neither overfished nor approaching an overfished condition.**

AI Pacific Ocean Perch: The present assessment is a straightforward update of the 1999 assessment, incorporating new catch information, age composition data and a 2000 trawl survey. For 2001 the age 9+ biomass is estimated to be 191,000 mt, a slight decrease from the 2000 biomass estimate. The stock assessment authors recommended and the Plan Team concurred with a 2001 ABC of 10,200 mt, a 2,100 mt decrease from the year 2000 ABC. The ABC is apportioned among AI subareas based on survey distribution as follows: Western AI = 46.5%, Central AI = 25.1%, and Eastern = 28.4%. The SSC and Council concurred with the Plan Team's ABC recommendation. The AP and Council recommended that TAC be set at the ABC levels of 2,900 mt, 2,560 mt, and 4,740 mt in the Eastern, Central and Western Aleutian Islands areas respectively.

The Plan Team's recommended 2001 OFL is 11,800 mt. **Model projections indicate that this stock is neither overfished nor approaching an overfished condition.**

Northern rockfish: Current biomass estimate in the BSAI area is 150,000 mt. The stock assessment authors recommended and the Plan Team concurred with a 2001 ABC of 6,760 mt. The SSC and Council concurred with the Plan Team's ABC recommendation. The AP and Council recommended that TAC be set at the ABC level. The Plan Team recommended and the SSC concurred with a 2001 OFL of 9,020 mt.

Rougheye rockfish: Current biomass estimate in the BSAI area is 14,000 mt. The stock assessment authors recommended and the Plan Team concurred with a 2001 ABC of 262 mt. The SSC and

Council concurred with the Plan Team's ABC recommendation. The AP and Council recommended that TAC be set at the ABC level. The Plan Team recommended and the SSC concurred with a 2001 OFL of 349 mt.

Shortraker rockfish: Current biomass estimate in the BSAI area is 34,000 mt. The stock assessment authors recommended and the Plan Team concurred with a 2001 ABC of 766 mt. The SSC and Council concurred with the Plan Team's ABC recommendation. The AP and Council recommended that TAC be set at the ABC level. The Plan Team recommended a 2001 OFL of 1,020 mt.

Because northern, rougheye and shortraker rockfish are considered Tier 5 stocks, it is not possible to determine if the stocks are overfished or approaching an overfished condition.

Some risk is associated with establishing area-wide ABCs if there are truly separate stocks of shortraker and rougheye rockfish in the AI and EBS. For rougheye rockfish, some genetic samples have been collected in the EBS, but most of the research to date has been done in the Gulf of Alaska. To address this concern, the Plan Team recommended that TAC's for these species be apportioned among BS and AI areas. Apportionments of the full ABC based on average (1991-2000) survey biomass would be:

	Bering Sea	Aleutian Islands
Northern	19 mt (0.3%)	6,741 mt (99.7%)
Rougheye	32 mt (10.9%)	230 mt (89.1%)
Shortraker	84 mt (11.0%)	682 mt (89.0%)

To prevent topping off of northern, rougheye, and shortraker rockfish, the quota for these species may be managed as prohibited to retention in the EBS at the beginning of the year. Another possibility would be to reduce maximum retainable bycatch levels from the current 15%. To effect these changes, however, would require proposed and final rulemaking, therefore, these changes would not be in place for the start of the 2001 fishing year.

The SSC and Council did not adopt the area apportionment recommendation above. NMFS agreed with the Council recommendations, but was not able to implement all of them in 2001 due to unanticipated monitoring constraints in the fixed gear fisheries. These species are reported by observers using group species codes, which, under current observer procedures, cannot be separated into specific species and incorporated into routine observer reports prior to the 2001 fishing year. Thus NMFS modified the Council's recommendation and established BSAI wide OFL and ABC amounts for sharpchin/northern and rougheye/shortraker rockfish. The Bering Sea subarea is managed as the Aleutian Islands subarea has in the past, with two groups: sharpchin/northern rockfish and shortraker/rougheye rockfish. Splitting the Bering Sea subarea "other red rockfish" complex into two groups addresses overfishing concern by decreasing the TAC amounts. To remain consistent with previous years' management, until species specific reporting is feasible, sharpchin rockfish remain in a group with northern rockfish instead of being placed in the other rockfish group.

Other rockfish: This group includes all rockfish that were not included in the POP complex. The Plan Team recommended adding Sharpchin to this group for 2001 and beyond. Traditionally, the biomass estimates (split according to management area) from all bottom trawl surveys (EBS shelf/slope and Aleutians) are averaged over all years to obtain the best estimates of biomass for the species in this complex. Summed over the species in the complex, this procedure produces a 2001 biomass estimate of 6,880 mt in the EBS and a biomass estimate of 12,900 mt in the Aleutians, a slight decrease for both areas.

The stock assessment authors provided catch and survey data for individual species within this complex. Notably, about 90% of this complex is composed of shortspine thornyheads according to survey data. However, the commercial fishery in the AI takes mostly dusky rockfish and this raised some concerns about the potential for localized overfishing. For example, the catch in 2000 of Dusky rockfish in the EAI was 171 mt, whereas the estimated biomass was 522 mt. The Plan Team recommended that the stock author continue with this analysis of exploitation rates for individual species in this complex.

The Plan Team recommended a 2001 ABC of 361 mt in the EBS and 676 mt in the Aleutians. The SSC and Council concurred with the Plan Team's ABC recommendations. The AP and Council recommended that TAC be set at ABC levels.

The Plan Team's recommended 2001 OFLs of 482 mt in the EBS and 901 mt in the Aleutians. **As a Tier 5 stock complex, it is not possible to determine whether the "other rockfish" complex is overfished or whether it is approaching an overfished condition.**

Squid: Squid are found throughout the Pacific Ocean and are not currently taken by a directed fishery in the BSAI region. They are primarily caught as incidental catch in trawl fisheries for pollock and rockfish. The present squid assessment incorporates new catch information. Estimates of exploitable biomass are not available. The average catch from 1978 through 1995 was 2,620 mt. Given a 2001 OFL of 2,620 mt, the maximum permissible value of ABC for 2001 would be 1,970 mt, which is the Plan Team's recommended value and has been the ABC for the past several years. **As a Tier 6 stock complex, it is not possible to determine whether the squid complex is overfished or whether it is approaching an overfished condition.** The SSC and Council concurred with the Plan Team's ABC recommendation. The AP and Council recommended that TAC be set at the ABC level

Other species: The "other species" assessment is a straightforward update of the 1999 assessment, incorporating new catch and survey biomass information. The 2000 EBS bottom trawl survey resulted in a biomass estimate (exclusive of smelts) of 497,000 mt, a 4% decrease from the 1999 estimate of 520,000 mt. Exploitable biomass is estimated to be 567,000 mt in 2001.

For the 2001 fishing year, the SSC disagreed with the Plan Team for the ABC for other species. Using a Tier 5 ABC determination process and a 10 year 'stair step' strategy, the SSC recommended the 2001 other species ABC as 31,100 mt. The stock assessment author noted that enough parameters can be estimated to suggest that the ABC and OFL for the other species assemblage could be set using the

criteria in Tier 5, however, the values derived would increase the potential annual catch over three-fold. The Plan Team concurred with the stock assessment author that no compelling reason existed to alter the method of computing the ABC and it remained a Tier 6 stock. Concerns are that more information regarding the large number of species comprising this complex is necessary before exploitation is encouraged by an increased ABC. The Plan Team recommended a 2001 ABC equal to the average catch, which is 26,500 mt. The SSC recommended the ABCs for 2001 at 33,600 mt based on the same method used for setting 2000 TAC, the Tier 5, ten year "stair step". The AP and Council recommended that TAC be set at 26,500 mt.

The Plan Team has noted that sculpins and skates make up the majority of the survey biomass of the "other species" complex and recommended that these species be broken out of the complex to avoid overharvesting.

The Plan Team recommended 2001 OFL at 113,000 mt. The SSC recommended an OFL of 69,000 mt. **As a Tier 5 stock complex, it is not possible to determine whether the "other species" complex is overfished or whether it is approaching an overfished condition.**

3.1.2 Status of Groundfish Target Species in the GOA

Designated target species and species groups in the GOA are walleye pollock, Pacific cod, deep water flatfish, rex sole, shallow water flatfish, flathead sole, arrowtooth flounder, sablefish, other slope rockfish, northern rockfish, Pacific Ocean perch, shortraker and roughey rockfish, pelagic shelf rockfish, demersal shelf rockfish, Atka mackerel, thornyhead rockfish, and other species. Year 2001 annual specifications for the GOA area are presented in the emergency interim rule for the implementation of Steller sea lion protection measures and 2001 specifications for the BSAI and GOA (66 FR 7276, January 22, 2001). For detailed life history, ecology, and fishery management information regarding groundfish stocks in the GOA see Section 3.3 of the SEIS (NMFS 1998a).

Walleye pollock The GOA pollock biomass can be described as below target stock size and increasing. Relative to the November 2000 SAFE report, new sources of information include: 1) 1999 triennial trawl age composition; 2) 1999 fishery catch at age; 3) 2000 Shelikof Strait echo integration trawl (EIT) survey biomass and length composition; 4) 2000 ADF&G crab/groundfish trawl survey biomass and length composition; and 5) new estimates of weight at age for the Shelikof Strait EIT survey (1992-1998), triennial trawl survey (1984-1999), and fishery (1990-1999). The age-structured model developed using AD Model Builder software was relatively unchanged from that used in 1999. Exploitable biomass for 2001 in the W/C/WYK area of the GOA pollock stock is estimated to be 699,000 mt, an increase of 19 % from the 1999 estimate. Exploitable biomass for 2001 in the SEO area of the GOA is estimated to be 28,710 mt, unchanged from the 2000 estimate.

The Plan Team expressed the following concerns: (1) the stock biomass is now at an all time low; (2) the stock is projected to decline into 2002; and (3) there is large variability around the biomass estimate from the 1999 trawl survey. The Plan team recommends the 2001 ABC be apportioned according to the mean distribution of the exploitable biomass in the four most recent trawl surveys. The Plan Team

concluded with the assessment authors' recommendation of ABC levels of 99,530 mt for the W/C/WYK pollock stock (which reflects the deduction of the State of Alaska's GHF of 1,420 mt for the 2001 pollock fishery in Prince William Sound) and 6,440 mt for the SEO District. These amounts are an increase in the W/C/WYK area of 6 % (93,540 mt in 2000) and unchanged in the SEO District from 2000 levels. The apportionment of pollock ABC to the WYK area is based upon the proportion of W/C/WYK pollock biomass found in the WYK District. The apportionment of ABC in the combined W/C area is based upon 4 seasonal (A, B, C, and D) apportionments of the annual ABC and the seasonal distribution of pollock biomass in the A and B seasons among 4 areas; the Shelikof Strait, area 630 (outside the Shelikof Strait), area 620 (outside the Shelikof Strait), and area 610; and the seasonal distribution of pollock biomass in the C and D seasons among 3 areas; area 630, area 620 and area 610. Pollock ABCs are not seasonal apportioned in the WYK and SEO Districts. This results of annual ABC apportionments of 35,240 mt in the Western GOA, 14,260 mt in area 620 of the Central GOA, 26,650 mt in area 630 of the GOA, 20,680 mt in the Shelikof Strait, 2,520 mt in WYK District of the GOA, and 6,460 mt in the SEO District of the GOA. This method of annual, seasonal, and area apportionments amounts are consistent with the final RPAs adopted for the management of the pollock fisheries in the GOA by interim emergency rule in 2000 (65 FR 3892, January 25, 2000).

Pollock in the W/C/WYK area fall into a Tier 3b assessment, which results in a 2001 OFL of 117,750 mt for the W/C/WYK pollock stock, a decrease of 10% from 130,760 mt in 2000. Pollock in the SEO District fall into a Tier 5 assessment, which results in a 2001 OFL of 8,610 mt for pollock in the SEO District, unchanged from 2000. **Model projections indicate that the pollock stock in the W/C/WYK area is not overfished or approaching an overfished condition.** Pollock in the SEO District fall into a Tier 5 assessment and it is not possible to determine whether the SEO pollock are overfished or approaching an overfished condition. The assessment authors noted that the annual pollock catch in the SEO District has never exceeded 100 mt during 1991-2000.

The SSC and Council concurred with the Plan Team's recommended OFLs, ABCs and apportionments thereof within the GOA. The AP and Council recommended that TAC be set at ABC levels.

To meet requirements of the Steller sea lion protection measures developed in a November 30, 2000 Biological Opinion (Comprehensive BiOp) on the groundfish FMPs (NMFS 2000b), the global control rule (GCR) is applied for setting ABC for pollock, Atka mackerel and Pacific cod. The GCR decreases the likelihood that the biomass of Steller sea lion principal prey species will drop below 40 percent of the estimated unfished level of spawning biomass per recruit, the $B_{40\%}$ level. In the GOA in 2001, the GCR would apply to the combined Western, Central, and West Yakutat Regulatory Area (W/C/WYK) stock of pollock as the projected spawning biomass in 2001 for this stock is estimated to be 202,800 mt, below the $B_{40\%}$ value of 247,000 mt. Application of the GCR to this stock of pollock in the GOA would lower the Council's recommended ABC (and TAC) from 99,350 mt to 80,462 in 2001, a reduction of 18,888 mt or 19 percent. Public law 106-554 phases in the implementation of the RPA in 2001. Specifically section 209(c)(5) states that when the GCR applies in 2001 it "shall not cause a reduction in the total allowable catch of any fishery of more than ten percent." NMFS therefore adjusted the Council's recommended TAC of pollock in the combined W/C/WYK area downward by ten percent (9,935 mt) from 99,350 mt to 89,415 mt.

Pacific cod The GOA Pacific cod biomass can be described as above target stock size but declining. Relative to the November 1999 SAFE report, new sources of information include size composition and total catch data from the 1999 and January to August 2000 commercial fisheries (both federally and state-managed). Exploitable biomass for 2001 is estimated to be 526,000 mt, down 7% from last year's estimate for 2000 of 567,000 mt.

The Bayesian meta-analysis that has formed the basis for a risk-averse ABC recommendation in each of the last four years, was not performed. Instead, the ratio between last year's recommended F_{ABC} and $F_{40\%}$ (0.87) was assumed to apply to year 2001 as well. The Plan Team concurred with the assessment author's recommended 2001 ABC for the GOA stock of 67,800 mt, obtained by applying the ratio of 0.87 to the updated model fit. This is down about 11 % from last year's recommendation for 2000 and is down about 5 % from last year's $F_{40\%}$ projection for 2001. Apportioning the ABC between regulatory areas in proportion to the biomass estimates from the most recent survey, results in the following: Western-36%, Central-57%, Eastern-7%, which would result in 2001 ABCs of 24,400 mt, 38,650 mt, and 4,750 mt, to the Western, Central, and Eastern areas, respectively.

Pacific cod falls into Tier 3a which results in a 2001 OFL for the GOA stock of 91,000 mt gulfwide, down about 11% from last year's of 102,000 mt in 2000. **Model projections indicate that the GOA Pacific cod stock is neither overfished nor approaching an overfished condition.**

The SSC and Council concurred with the Plan Team's recommended OFL, ABC and area apportionments. The AP and Council recommended TACs lower than ABCs by 25% in the Western GOA, 21.75% in the Central GOA, and 25% in the Eastern GOA, based on the 2001 guideline harvest levels (GHL) of Pacific cod in the state waters fishery. These GHL levels (expressed as a percentage of ABC) for the state waters are unchanged from 2000 and amount to 6,100 mt, 8,406 mt, and 1,188 mt in the Western, Central, and Eastern GOA, respectively.

NMFS, by interim emergency rule (66 FR 7276, January 22, 2001), in accordance with Public Law 106-544 phased in measures contain in the Comprehensive BiOp (NMFS 2000b) in 2001 to protect the western population of Steller sea lions. For Pacific cod this includes a seasonal apportionment of Pacific cod TAC in the Central and Western Regulatory Areas of 60 percent of the annual TAC for these areas from January 1 to June 10 and 40 percent of the annual TAC from June 10 to December 31, 2001.

Deep water flatfish include Greenland turbot, Dover sole and deep sea sole. The relative abundance and trend of the deep water flatfish biomass is unknown. Relative to the November 1999 SAFE report, the only new information incorporated into the assessment is updated catch information. The exploitable biomass for deep water flatfish is based on a delay difference model that includes estimates of growth, natural mortality, and recruitment, as well as biomass estimates from the 1996 and 1999 trawl surveys. Exploitable biomass for 2001 is estimated to be 74,460 mt, unchanged from 2000.

The Plan Team concurred with the assessment authors' recommendation that the ABC for deep water flatfish be based upon the November 1999 assessment for 2000 which were estimated using the 1999 survey biomass estimate for Dover sole and the mean catch of Greenland turbot and deep sea sole from 1978 to 1995. The recommended 2001 ABC of 5,300 mt is unchanged from 2000. The Plan Team recommended that the deep water flatfish ABC be apportioned among the regulatory areas in proportion to the 1999 triennial trawl survey biomass distributions and that the Eastern GOA ABC of 2,310 mt be split between the WYK and SEO subareas. The resulting 2001 ABCs are 280, 2,710, 1,240, and 1,070 mt for the Western, Central, West Yakutat, and Southeast Outside areas, respectively.

Deep water flatfish fall into Tiers 5 (Dover sole) and 6 (Greenland turbot and deep sea sole) which results in a 2001 OFL of 6,980 mt gulfwide, unchanged from 2000. **As a Tier 5 and 6 stock, it is not possible to determine whether deep water flatfish in the GOA is overfished or approaching an overfished condition.**

The SSC and Council concurred with the Plan Team's OFL, ABC and area apportionments. The AP and Council recommended that TAC be set at ABC levels.

Rex sole The relative abundance of rex sole biomass is unknown but stable. Relative to the November 1999 SAFE report, the only new information incorporated into the assessment is updated catch information. The exploitable biomass for rex sole is based on a delay difference model that includes estimates of growth, natural mortality, and recruitment, as well as biomass estimates from the 1996 and 1999 trawl surveys. Exploitable biomass for 2001 is estimated to be 81,020 mt, an increase from 74,600 mt in 2000.

The Plan Team concurred with the assessment authors' recommendation that the ABC for rex sole be based upon the November 1999 assessment for 2000 which were estimated using the 1999 survey biomass estimate. The recommended 2001 ABC of 9,440 mt is unchanged from 2000. The Plan Team recommended that the rex sole ABC be apportioned among the regulatory areas in proportion to the 1999 triennial trawl survey biomass distributions and that the Eastern GOA ABC of 2,550 mt be split between the WYK and SEO subareas. The resulting 2001 ABCs are 1,230, 5,660, 1,540, and 1,010 mt for the Western, Central, West Yakutat, and Southeast Outside areas, respectively.

Rex sole fall into Tier 5 which results in a 2001 OFL of 12,300 mt gulfwide, unchanged from 2000. **As a Tier 5 stock, it is not possible to determine whether rex sole in the GOA is overfished or approaching an overfished condition.**

The SSC and Council concurred with the Plan Team's OFL, ABC and area apportionments. The AP and Council recommended that TAC be set at ABC levels.

Shallow water flatfish comprise all flatfish species in the GOA, except those species for which a separate ABC is calculated (deep water flatfish, rex sole, flathead sole, arrowtooth flounder, and Pacific halibut). The relative abundance of shallow water flatfish biomass is unknown but stable. Relative to the November 1999 SAFE report, the only new information incorporated into the assessment is updated

catch information. The exploitable biomass for shallow water flatfish is based on a delay difference model that includes estimates of growth, natural mortality, and recruitment, as well as biomass estimates from the 1996 and 1999 trawl surveys. Exploitable biomass for 2001 is estimated to be 299,100 mt, unchanged from 2000.

The Plan Team concurred with the assessment authors' recommendation that the ABC for shallow water flatfish be based upon the November 1999 assessment for 2000 which were estimated using the 1999 survey biomass estimate. The recommended 2001 ABC of 37,860 mt is unchanged from 2000. The Plan Team recommended that the shallow water flatfish ABC be apportioned among the regulatory areas in proportion to the 1999 triennial trawl survey biomass distributions and that the Eastern GOA ABC of 1,950 mt be split between the WYK and SEO subareas. The resulting 2001 ABCs are 19,510, 16,400, 790, and 1,160 mt for the Western, Central, West Yakutat, and Southeast Outside areas, respectively.

Shallow water flatfish fall into Tiers 4 (rock sole) and 5 (all other species in the assemblage) which results in a 2001 OFL of 45,330 mt gulfwide, unchanged from 2000. **As a Tier 4 and 5 stock, it is not possible to determine whether shallow water flatfish in the GOA is overfished or approaching an overfished condition.**

The SSC and Council concurred with the Plan Team's OFL, ABC and area apportionments. The AP and Council recommended that TAC be set 4,500 mt, 12,950 mt, 790 mt, and 1,160 mt, in the Western, Central, West Yakutat, and Southeast Outsides areas, respectively.

Flathead sole The relative abundance of flathead sole biomass is unknown but stable. Relative to the November 1999 SAFE report, the only new information incorporated into the assessment is updated catch information. The exploitable biomass for flathead sole is based on a delay difference model that includes estimates of growth, natural mortality, and recruitment, as well as biomass estimates from the 1996 and 1999 trawl surveys. Exploitable biomass for 2001 is estimated to be 207,520 mt, unchanged from 2000.

The Plan Team concurred with the assessment authors' recommendation that the ABC for flathead sole be based upon the November 1999 assessment for 2000 which were estimated using the 1999 survey biomass estimate. The recommended 2001 ABC of 26,270 mt is unchanged from 2000. The Plan Team recommended that the flathead sole ABC be apportioned among the regulatory areas in proportion to the 1999 triennial trawl survey biomass distributions and that the Eastern GOA ABC of 2,060 mt be split between the WYK and SEO subareas. The resulting 2001 ABCs are 8,490, 15,720, 1,440, and 620 mt for the Western, Central, West Yakutat, and Southeast Outside areas, respectively.

Flathead sole fall into Tier 5 which results in a 2001 OFL of 34,210 mt gulfwide, unchanged from 2000. **As a Tier 5 stock, it is not possible to determine whether flathead sole flatfish in the GOA is overfished or approaching an overfished condition.**

The SSC and Council concurred with the Plan Team's OFL, ABC and area apportionments. The AP and Council recommended that TAC be set 2,000 mt, 5,000 mt, 1,440 mt, and 620 mt, in the Western, Central, West Yakutat, and Southeast Outsides areas, respectively.

Arrowtooth flounder The GOA arrowtooth flounder biomass can be described as above target stock size but declining. Relative to the November 1999 SAFE report, the only new information incorporated into the assessment is updated catch information. The exploitable biomass estimate is based on abundance estimates derived from an age-structured model developed with AD Model Builder software. Similar to the previous assessment, the model accommodated a higher proportion of females in the larger size intervals of both survey and fishery data by giving males a higher mortality rate than females. Exploitable biomass for 2001 is estimated to be 1,588,070 mt, up from 1,571,670 mt in 2000.

The Plan Team concurred with the assessment authors' 2001 ABC recommendation of 148,150 mt for arrowtooth flounder and that ABC be apportioned among regulatory areas in proportion to biomass distribution in the 1999 trawl survey and that the Eastern GOA 2001 ABC of 32,080 mt be split between the WYK and SEO subareas. The resulting 2001 ABCs are 16,480, 99,590, 24,220, and 7,860 mt for the Western, Central, West Yakutat, and Southeast Outside areas respectively.

Arrowtooth flounder fall into Tier 3a which results in a 2001 OFL of 173,550 mt gulfwide, a small decrease from 173,910 mt in 2000. **Model projections indicate that the GOA arrowtooth flounder stock is neither overfished nor approaching an overfished condition.** No new biomass projections were developed for the 2001 fishing year.

The SSC and Council concurred with the Plan Team's OFL, ABC and area apportionments. The AP and Council recommended that TAC be set 8,000 mt, 25,000 mt, 2,500 mt, and 2,500 mt, in the Western, Central, West Yakutat, and Southeast Outsides areas, respectively.

Sablefish The GOA sablefish biomass can be described as below target stock size but stable. Relative to the 1999 SAFE report, new sources of information include: 1) relative abundance and length data from the 2000 longline survey; 2) relative abundance and length data from the 1999 longline fishery; 3) length data from the 1999 trawl fishery; 4) age data from the 1999 longline survey and fishery; and 5) age data from the 1981 longline survey. Exploitable biomass for 2001 was estimated to be 188,00 mt up from 169,000 mt in 2000.

The Plan Teams concurred with the assessment authors' recommendation that 2001 ABC be set at the maximum permissible $F_{40\%}$ adjusted rate which yields a result of 16,900 mt for the combined BSAI and GOA stock. This value is a 2% decrease from the 2000 combined ABC of 17,300 mt. For the GOA the recommended 2001 ABC is 12,840 mt, a 4% decrease from the GOA 2000 ABC of 13,330 mt.

Prior to 2000, apportionment of the combined ABC to regions and areas were based solely on estimates of relative abundance obtained from survey data. Although the Council apportioned the 2000 ABC based on both survey and fishery data, the Plan Team had no biological concern over the differences in apportionment methods.

A five-year exponential weighting of the longline survey relative abundance would apportion a 12,920 mt 2001 ABC in the GOA to 2,240, 5,630, 1,770, and 3,280 mt to the Western, Central, West Yakutat, and Southeast Outside areas respectively. If apportionment of the 2001 ABC is based on survey and fishery catch per unit effort (CPUE) estimates of relative abundance as was adopted by the Council for 2000, the GOA ABC of 12,840 mt would be apportioned 2,010, 5,410, 1,880, and 3,540 mt to the Western, Central, West Yakutat, and Southeast Outside areas respectively. The adjustment of the Eastern GOA ABCs by subtracting 5% of the Southeast Outside District 2001 ABC and adding that amount to the West Yakutat District 2001 ABC to allow 5% of the combined 2001 Eastern GOA ABC to be harvested by trawl gear in the West Yakutat District, as was done in 2000, does not raise biological concern under either apportionment method.

Sablefish fall into Tier 3b which results in a 2001 OFL of 15,720 mt in the GOA gulfwide, a decrease of 6% from 16,660 mt in 2000. **Model projections indicate that the BSAI/GOA sablefish stock is neither overfished nor approaching an overfished condition.**

The SSC and Council concurred with the Plan Team's OFL, ABC and area apportionments based on the method using survey and fishery data. The AP and Council recommended that TACs be set at ABC levels. These ABCs are 2,010, 5,410, 2,060, and 3,360 mt for the Western, Central, West Yakutat, and Southeast Outside areas, respectively. These apportionments also take into account the effect of allocating 5 % of combined Eastern Gulf sablefish TAC to trawl gear in the West Yakutat area without affecting the amounts allocated to hook-and-line gear in each area.

Other slope rockfish include all species in the genus *Sebastes* excluding Pacific Ocean perch, northern rockfish, shortraker rockfish, rougheye rockfish, pelagic shelf rockfish, and demersal shelf rockfish in the Southeast Outside District. The relative abundance and trend of the other slope rockfish biomass is unknown. Exploitable biomass for 2001 is determined from the average of the three most recent trawl surveys and is estimated to be 102,510 mt, unchanged from 2000.

The Plan Team concurred with the assessment authors' recommendation that the 2001 ABC for other slope rockfish is based on $F = M$ or $F = 0.75M$ applied to exploitable biomass. Exploitable biomass is determined from the average of the three most recent trawl surveys and is estimated to be 102,510 mt. Applying the definitions for ABC places sharpchin rockfish in Tier 4 where $F_{ABC} \leq F_{40\%}$, and the other species of other slope rockfish in Tier 5 where $F_{ABC} \leq 0.75M$. For sharpchin rockfish, $F_{ABC} = M = 0.05$ is less than $F_{40\%} = 0.055$. This results in a recommended combined 2001 ABC for other slope of 4,900 mt (including 5 mt of northern rockfish in the West Yakutat area), unchanged from 2000. Distributing this ABC based on the same method used for Pacific Ocean perch results in ABCs of 20 mt in the Western area, 740 mt in the Central area, and 4,140 mt in the Eastern area.

The Plan Team recommended that a separate ABC be set for other slope rockfish in the West Yakutat area. Using the same weighted average method as used for Pacific ocean perch results in a point estimate of 0.06 for the proportion of the exploitable biomass in the Eastern area that occurs in West Yakutat. Because a small portion of the Eastern ABC of other slope rockfish has been taken recently and some other slope rockfish are caught with longline gear, the Plan Team recommended that this

point estimate be used to apportion the 2001 ABC. This corresponds to an ABC of 250 mt (including 5 mt of northern rockfish) in WYK and 3,890 mt in the SEO areas.

Other slope rockfish fall into Tiers 4 (sharpchin rockfish) and 5 (other rockfish species in the assemblage) which results in a 2001 OFL of 6,390 mt gulfwide, unchanged from 2000. **As a Tier 4 and 5 stock, it is not possible to determine if other slope rockfish in the GOA are overfished or approaching an overfished condition.**

The SSC and Council concurred with the Plan Team's OFL, ABC and area apportionments. The AP recommended that TAC be set at ABC levels. The Council requested that NMFS set TAC for other rockfish in the Eastern GOA at levels sufficient to allow incidental catch to be retained throughout the year but that would be insufficient to allow directed fishing to occur in 2001. This results in TACs of 20, 740, 150, and 100 mt for the Western, Central, West Yakutat, and Southeast Outside areas, respectively.

Northern rockfish The relative abundance and trend of northern rockfish can be described as above target stock size but declining. For the first time, the stock assessment for northern rockfish is based on an age-structured model constructed using AD Model Builder software described in the November 1999 SAFE report, new sources of information include: 1) 1999 survey age compositions; 2) catch data from the 1999 and 2000 fishery; and 3) 1999 fishery length data. Exploitable biomass for 2001 is estimated to be 93,850 mt in 2001, an increase of 10% from 85,350 mt in 2000.

The Plan Team concurred with the assessment authors' recommendation that the ABC for northern rockfish be based upon the new model which results in a 2001 ABC of 4,880 mt, a decrease of 5% from 5,120 mt in 2000. Distributing the ABC based on the same method used for Pacific ocean perch results in ABCs of 600 mt in the Western and 4,280 mt in the Central GOA.. The small ABC of 5 mt apportioned to the Eastern is combined with the WYK ABC for other slope rockfish. Northern rockfish in the Eastern GOA, at the eastern edge of this species geographical range, are combined with other slope rockfish.

Northern rockfish fall into Tier 3a which results in a 2001 OFL of 5,780 mt, a decrease of 23% from 7,510 mt in 2000. **Model projections indicate that the northern rockfish stock in the GOA is neither overfished nor approaching an overfished condition.**

The SSC and Council concurred with the Plan Team's OFL, ABC and area apportionments. The AP and Council recommended that TAC be set at ABC levels.

Pacific Ocean perch (POP) The GOA POP biomass can be described as below target stock size but increasing. Relative to the November 1999 SAFE report, the only new update to the model was the inclusion of updated catch for 1999 and 2000. Current stock condition is based on a projection using the results from the 1999 age-structured model. Exploitable biomass for 2001 is estimated to be 211,160 mt, an increase of 5% from 200,310 mt in 2000.

The Plan Team concurred with the assessment authors' recommendation that the 2001 ABC for POP in the GOA be 13,510 mt, and that the method of apportionment to regulatory areas be unchanged. The method weights prior surveys based on the relative proportion of variability attributed to survey error. This results in apportionments of 9.5%, 71%, and 19.4% for the Western, Central, and Eastern GOA areas respectively. Since POP are caught exclusively with trawl gear, there is concern that the entire Eastern TAC could be taken in the West Yakutat District. The Plan Team recommended that the 2001 Eastern GOA ABC of 2,620 mt be split between the WYK and SEO Districts based proportionately on the upper 95% confidence limit of 0.33 in the West Yakutat District. The resulting 2001 ABCs are 1,280, 9,610, 870, and 1,750 mt in the Western, Central, West Yakutat, and Southeast Outside areas, respectively. Under this apportionment strategy, very little of the 1,750 mt assigned to the remaining SEO District is expected to be harvested.

Pacific Ocean perch fall into Tier 3b which results in a 2001OFL of 15,960 mt gulfwide, an increase of 4% from 15,390 mt in 2000. For POP the overfishing level is apportioned by area. Using the same apportion method as used for ABC this results in 2001 OFLs of 1,520, 11,350, and 3,090 mt in the Western, Central, and Eastern areas, respectively. **Model projections indicate that the GOA POP stock is neither overfished nor approaching an overfished condition.**

The SSC and Council concurred with the Plan Team's OFL, ABC and area apportionments. The AP and Council recommended that TAC be set at ABC levels.

Shortraker and rougheye rockfish The relative abundance and trend of shortraker and rougheye rockfish biomass is unknown. Exploitable biomass for 2001 is determined from the average of the three most recent trawl surveys and is estimated to be 70,880 mt, unchanged from 2000.

The Plan Team concurred with the assessment authors' recommendation that the 2001 ABC for rougheye and shortraker slope rockfish be based on $F = M$ or $F = 0.75M$ applied to exploitable biomass. Exploitable biomass is determined from the average of the three most recent trawl surveys and is estimated to be 70,880 mt. Applying the definitions for ABC and OFL places rougheye rockfish in Tier 4 where $F_{ABC} \leq F_{40\%}$, and shortraker rockfish in Tier 5 where $F_{ABC} \leq 0.75M$. For rougheye rockfish, $F_{ABC} = M = 0.025$ is less than $F_{40\%} = 0.032$. This results in a recommended combined 2001 ABC for rougheye and shortraker rockfish of 1,730 mt, unchanged from 2000. Distributing this ABC based on the same method used for Pacific ocean perch results in ABCs of 210, 930, and 590 mt for the Western, Central, and Eastern areas, respectively.

Shortraker and rougheye rockfish fall into Tiers 4 (rougheye rockfish) and 5 (shortraker rockfish) which results in a 2001 OFL of 2,510 mt gulfwide, unchanged from 2000. **As a Tier 4 and 5 stock, it is not possible to determine if shortraker and rougheye rockfish in the GOA are overfished or approaching an overfished condition.**

The SSC and Council concurred with the Plan Team's OFL, ABC and area apportionments. The AP and Council recommended that TAC be set at ABC levels.

Pelagic shelf rockfish (PSR) includes dusky, yellowtail, and widow rockfishes. The relative abundance and trend of PSR biomass is unknown. Biomass estimates for PSR indicate that PSR dusky rockfish comprise nearly all the biomass. Based on mean trawl survey data in 1993, 1996, and 1999, the 2001 exploitable biomass is estimated to be 66,440 mt, unchanged from 2000.

The Plan Team concurred with the assessment authors' recommendation that the 2001 ABC for PSR rockfish be based on $F = M$ applied to exploitable biomass. An $F=M$ strategy equal to 0.09 for dusky rockfish resulted in an ABC of 5,980 mt for the assemblage. This strategy is more conservative than the Tier 4 maximum $F_{40\%}$ of 0.11 and the Team felt a reduction is justified due to concern over the reliability of biomass estimates for this assemblage. Given the rationale described above for POP, a respective weighting of 4:6:9 applied to PSR geographical distributions from the 1993, 1996, and 1999 surveys results in 2001 ABC apportionments of 550, 4,080, and 1,350 mt to the Western, Central, and Eastern areas, respectively.

The Plan Team recommended that the Eastern area 2001 ABC be apportioned to West Yakutat according to the upper 95% confidence limit estimate of proportion in West Yakutat from the three most recent survey years with total Eastern area ABC not to exceed 1,350 mt, resulting in 580 mt and 770 mt for the WYK and SEO Districts respectively. Point estimates for West Yakutat and SEO are 420 mt and 930 mt, respectively.

PSR fall into Tier 4 which results in a 2001 OFL of 9,040 mt gulfwide, unchanged from 2000. **As a Tier 4 stock, it is not possible to determine if PSR in the GOA are overfished or approaching an overfished condition.**

The SSC and Council concurred with the Plan Team's OFL, ABC and area apportionments. The AP and Council recommended that TAC be set at ABC levels.

Demersal shelf rockfish (DSR) is a subgroup of seven species from the other slope rockfish complex which is managed by the State of Alaska in the Southeast Outside area of the GOA. The relative abundance and trend of demersal shelf rockfish biomass is unknown. Relative to the 1999 SAFE report, new sources of information include: 1) 1999 average weight data and associated standard error; 2) 1999 fishery age data; and 3) updated catch data. The exploitable biomass estimate for yelloweye rockfish, the predominant species in the assemblage, is based on the sum of the lower 90% confidence limit of biomass is for 2001 14,695 mt, a decrease of 3% from 15,100 mt in 2000.

The Plan Team concurred with the assessment author's recommendation that the 2001 ABC for DSR rockfish be based on $F = M$ applied to exploitable biomass. Using tier 4 and adjusting for the 10% of other species landed in the assemblage, the F_{ABC} was set at $F=M=0.02$, more conservative than the $F_{40\%}$ rate and yields a 2001 ABC of 330 mt.

DSR fall into Tier 4 which results in a 2001 OFL of 410 mt in the Southeast Outside District, a decrease of 3% from 420 mt in 2000. **As a Tier 4 stock, it is not possible to determine if DSR in the Southeast Outside District are overfished or approaching an overfished condition.**

The SSC and Council concurred with the Plan Team's OFL and ABC. The AP and Council recommended that TAC be set at ABC level.

Atka mackerel The relative abundance and trend of Atka mackerel biomass is unknown. Prior to 1997, exploitable biomass and ABC for GOA Atka mackerel were based on triennial bottom trawl survey estimates. However, schooling behavior, patchy distribution, and habitat preference makes this species difficult to sample with standard trawl survey gear. Atka mackerel are also poor targets for hydroacoustic surveys because they lack swim bladders. Re-evaluation of historical survey data indicated abundance estimates prior to 1997 were also compromised by high variability. Thus, existing GOA bottom trawl survey data has limited utility for either absolute abundance estimates or indices for Atka mackerel.

The Plan Team supported a bycatch only fishery as a conservative harvest policy for Atka mackerel because: 1) there is no reliable biomass estimate; 2) localized depletion may occur; and 3) this species has previously exhibited a particular vulnerability to fishing pressure in the GOA. The Plan Team recommended an ABC of 600 mt in 2001 to satisfy bycatch needs in other fisheries.

In the GOA Atka mackerel fall under Tier 6 criteria, which results in a 2001 OFL of to 6,200 mt gulfwide, the average catch for 1978-1995, and unchanged from 2000. As a Tier 6 stock, it is not possible to determine if Atka mackerel in the GOA are overfished or approaching an overfished condition.

The SSC and Council concurred with the Plan Team's OFL and ABC. The AP and Council recommended that TAC be set at ABC level.

Thornyhead rockfish The GOA thornyhead biomass can be described as above target stock size and stable. A new assessment for thornyhead rockfish was not conducted in 2000 since only limited new data were available and this species is relatively long-lived and has relatively low-recruitment variability. The assessment author recommended that the projection model results for 2001 as presented in the November 1999 SAFE report be used. In that report projected exploitable biomass for 2001 was estimated to be 52,100 mt, a decrease of 2% from 53,200 mt in 2000.

The Plan Team concurred with the assessment author's recommendation that the 2001 ABC for thornyhead rockfish be 2,310 mt. The stock is well above its $B_{40\%}$ level and the survey trend, from deeper waters where this species resides, has shown an increase in abundance. The Plan Team concurred with this approach noting that is likely to be conservative since the model projected a slight decline in abundance and the actual catch was less than the projections. The recommended area apportionments are 420, 970, and 920 mt to the Western, Central, and Eastern areas respectively.

Thornyhead rockfish fall into Tier 3b which results in a 2001 OFL of 2,770 mt gulfwide, a decrease of 2% from 2,820 mt in 2000. **Model projections indicate that the GOA thornyhead rockfish stock is neither overfished nor approaching an overfished condition.** No new biomass projections based upon harvest alternatives are available for the 2001 fishing year.

The SSC and Council concurred with the Plan Team's OFL, ABC and area apportionments. The AP and Council recommended that TAC be set at ABC levels.

Other species in the GOA includes sharks, skates, sculpins, squid, and octopus. At present, these species are not targeted in the GOA and are taken incidentally in trawl and longline fisheries. The relative abundance and trend of these stocks are unknown. The Plan Team recommended that the other species TAC be apportioned to its individual components based on the 1999 draft other species stock assessment. This would result in apportioning the other species 2001 TAC 20 % to sharks, 45% to skates, 30% to sculpins, and 5% to octopus and squid.

The SSC concurred with this approach, however partitioning the other species assemblage TAC into its major components will require the development and approval of an amendment to the GOA FMP. The TAC for the other species assemblage is set at five percent of the sum of all assessed species or species groups in the GOA and is 13,619 mt.

3.2 Status of Prohibited Species Stocks

Prohibited species taken incidentally in groundfish fisheries include: Pacific salmon (chinook, coho, sockeye, chum, and pink salmon), steelhead trout, Pacific halibut, Pacific herring, and Alaska king, Tanner and snow crabs. In order to control its bycatch of prohibited species in the groundfish fisheries, the Council annually specifies halibut limits for the GOA fishery and halibut and other PSC limits in BSAI. During haul sorting, these species or species groups are to be returned to the sea with a minimum of injury except when their retention is required by other applicable law. The status of the different prohibited species are summarized below.

3.2.1 Pacific Salmon

Pacific salmon are managed by the State of Alaska. A detailed description of its management, production history, and life history are contained in Section 3.7.2 of the SEIS (NMFS 1998a). Salmon run sizes off Alaska have exhibited wide variations throughout its known history and have generally been strongly correlated to environmental factors.

In 2000, statewide salmon harvests in Alaska were estimated at nearly 136 million fish, down from a near record harvest of 208 million fish in 1999. The State's most valuable fishery, sockeye salmon in Bristol Bay, yielded a commercial harvest of 20.5 million fish in 2000, down from 26 million fish in 1999. For 2001 the Bristol Bay sockeye return is forecast to be 24.3 million fish, if all escapement goals are met this could be expected to yield a commercial harvest of about 17 million fish. This forecast is 37 % lower than the 20-year mean (38.6 million fish) returns. The statewide pink salmon harvest of 74 million fish in 2000 was down from the record high of 140 million fish set in 1999. The overall harvests of nearly 24 million chum salmon in 2000 ranks among the three historical largest, however poor returns of chum salmon to the Yukon, Kuskokwim, and Norton Sound region remain a concern. The statewide coho salmon harvest totaled 4 million fish in 2000. The statewide harvest of 350,000 king salmon in 2000 is similar to 1999.

Salmon returns (all species) throughout the Yukon and Kuskokwim River drainages and the entirety of Norton Sound were less than 50 % of the mean 20-year average which resulted in severe constraints on commercial, sport, and subsistence harvest. The State of Alaska declared that an emergency disaster exists in the area July 12, 2000.

Pacific salmon bycatch data are routinely tabulated by species only for chinook salmon. All other salmon species and steelhead trout are grouped together and reported as "other salmon". The Council adopted and the Secretary approved Amendment 58 to the BSAI FMP which reduced chinook salmon PSC limits in the BSAI, effective November 12, 2000 (65 FR 60587, October 12, 2000). This action modified slightly the boundaries of the Chinook Salmon Savings Area (CHSSA), sets new CHSSA closure dates, and reduced the Chinook Salmon bycatch limit in the CHSSA to 41,000 fish in 2001, 37,000 fish in 2002, 33,000 fish in 2003, and 29,000 fish in 2004 and after.

In the GOA, while PSC limits have not been established for salmon, in previous years the timing of seasonal openings for pollock in the Central and Western GOA have been adjusted to avoid periods of high chinook and chum salmon bycatch. In the year 2000, the trawl gear groundfish fisheries of the GOA had a bycatch of 26,614 chinook and 13,112 "other salmon" through November 18, 2000. As of November 18, 2000, neither the chinook or non-chinook PSC limits were exceeded to trigger closure of the CHSSA or CVOA in the BSAI.

3.2.2 Pacific Halibut

Pacific halibut fisheries are managed by a Treaty between the United States and Canada through recommendations of the International Pacific Halibut Commission (IPHC). Pacific halibut is considered to be one large interrelated stock, but is regulated by subareas through catch quotas. The commercial and recreational fishery has a long tradition dating back to the late 1800s. Further details on the management, production history, and life history of Pacific halibut are described in section 3.7.2 of the SEIS (NMFS 1998a).

The most recent assessment was conducted by the IPHC in December 2000. The halibut resource is considered to be healthy, with total catch near record levels. The current estimate of exploitable halibut biomass for 2001 is estimated to be 249,007 mt. The exploitable biomass of the Pacific halibut stock apparently peaked at 326,520 mt in 1988 (Sullivan, 1998). The long-term average reproductive biomass for the Pacific halibut resource was estimated at 118,000 mt (Parma, 1998). Long-term average yield was estimated at 26,980 mt, round weight (Parma, 1998). The species is fully utilized. Recent average catches (1994-96) were 33,580 mt for the U.S. and 6,410 mt for Canada, for a combined total of 39,990 mt for the entire Pacific halibut resource. This catch was 48 percent higher than long-term potential yield, which reflects the good condition of the Pacific halibut resource. At its January 2000 annual meeting, the IPHC recommended commercial catch limits totaling 33,910 mt (round weight equivalents) for Alaska in 2000, down from 35,314 mt in 1999. Though November 24, 2000 commercial hook-and line harvests of halibut in Alaska total 33,056 mt (round weight equivalents).

The major change in stock assessment results for the year 2000 came from the elimination of the downward correction in recent survey catch rates that was applied in 1999 to account for a suspected

increase in the fishing power of the surveys due to a bait change in 1993. Experiments conducted in 2000 have shown that the precautionary adjustment is not required. The stock assessment shows only minor changes for the southern portion of the range (Areas 2A, 2B, and 2C). Improvements in the estimated biomass of the stock in Area 3A are accounted for largely by the change in the treatment of historical survey data. Weight at age for halibut in the central portion of the range increased slightly in 2000 over the very low values of recent years. However, recruitment of year classes from the years 1989 and 1993 appears to be poor. The outlook for the stock biomass over the near future is for a decline from the record high levels of recent years until increased recruitment to the stock occurs.

IPHC staff preliminary 2001 commercial catch limit recommendations for 2001 in Alaska total 63.5 million pounds (dressed weight) which is equivalent to 38,406 mt (round weight) an increase of 4,496 mt from the year 2000.

Fixed PSC mortality limits have been set for the Alaska groundfish fisheries. Each year the IPHC evaluates the performance of the groundfish fisheries and recommends mortality rates for halibut bycatch in each groundfish fishery. PSC amounts for Pacific halibut mortality are actually the component of fish greater than 81 centimeters deducted from the available constant exploitable yields for the directed Pacific Halibut fishery by the IPHC. Therefore, the allowable commercial catch of halibut is reduced on account of halibut bycatch mortality in the groundfish fisheries. The Council uses the best estimate of halibut bycatch mortality rates each year and the groundfish TAC apportionments to set halibut bycatch mortality allowances for each gear and target fishery group. NMFS monitors halibut bycatch performance throughout the fishing season, including the extrapolation of data to unobserved vessels, and closes fishing by gear group before bycatch mortality limits are reached.

In the GOA, the PSC mortality limit for halibut is 2,300 mt (allocated as 2,000 mt for the trawl fisheries and 290 mt to the hook & line non-Demersal shelf rockfish (DSR) fisheries and 10 mt to hook-and-line DSR fisheries). Since 1996 pot gear and jig gear targeting groundfish, and hook-and-line gear targeting sablefish have been exempted from PSC caps due to relatively low bycatch by these gear types and since the sablefish and halibut IFQ program requires quota share holders to retain halibut. The 2,000 mt of halibut mortality allocated to trawl gear is further apportioned by season throughout the fishing year and to two target fishery complexes; the shallow water complex (consisting of pollock, pacific cod, shallow-water flatfish, flathead sole, Atka mackerel, and "other species") and the deep-water complex (consisting of sablefish, rockfish, deep-water flatfish, rex sole, and arrowtooth flounder). As of November 18, 2000, neither the 2000 mt mortality limit for the trawl fisheries nor the 290 mt of halibut mortality allocated to the hook-and-line fisheries were exceeded. The 290 mt PSC cap for other hook-and-line fisheries is further apportioned seasonally throughout the fishing year.

The BSAI Pacific halibut PSC mortality limit is 4,575 mt (3,400 mt for trawl and 832 mt for non-trawl gear, and 343 mt for the CDQ program). The trawl mortality component (3,400 mt) is sub-allocated to target groundfish fisheries (Pacific cod, yellowfin sole, rock sole, pollock/Atka mackerel/other species, rockfish, and arrowtooth/sablefish/turbot). Although the yellowfin sole, rock sole/flathead sole/other flatfish, and pollock/Atka mackerel/other species fisheries exceeded bycatch allocations, the overall halibut PSC limit has not been exceeded. Except for hook-and-line Pacific cod, none of the fixed gear target fisheries have exceeded their bycatch allocations in 2000.

3.2.3 Pacific Herring

Pacific herring fisheries are managed by the State of Alaska. A detailed description of its management, production history, and life history are contained in Section 3.7.4 of the SEIS (NMFS 1998a). The fisheries occur in specific areas in the Gulf of Alaska and the Bering Sea when the stocks come inshore to spawn. In the Gulf of Alaska, spawning concentrations occur mainly off southeastern Alaska, in Prince William Sound, and around the Kodiak Island-Cook Inlet area. In the Bering Sea, the centers of abundance are in northern Bristol Bay and Norton Sound. Although most herring are harvested near-shore in the sac-roe season in spring, fall seasons are also designated for food and bait fisheries. From catch records, it is evident that herring biomass fluctuates widely due to influences of strong and weak year-classes. The major populations Bering Sea and Gulf of Alaska stocks are currently at moderate levels and in relatively stable condition, with the exception of Prince William Sound and Cook Inlet which are at depressed levels. Stock assessments indicated that the herring biomass in Prince William Sound and Cook Inlet were below the minimum threshold needed to conduct a harvest so these fisheries were closed for 1999 and 2000. Annual statewide harvests of herring through June 21, 2000 were estimated at 36,091 mt for the sac roe harvest and 2,981 mt for the food and bait fishery through November 6, 2000. The Alaska statewide sac roe harvest was about 20 percent less than forecast for 2000, with harvests less than quotas at Kodiak, Togiak, Security Cove, Goodnews Bay, Nunivak Island, and Norton Sound. At Togiak (the largest herring fishery in Alaska) the main spawning run occurred over a very short period in 2000, during which harvest was constrained by the amount of processing capacity on the fishing grounds. Unusual run timing, limited fishing effort, herring availability, and weather were factors limiting harvests in the other areas. Recent statewide harvests have averaged 52,800 mt.

Pacific herring PSC limitations in the groundfish fisheries apply to trawl gear in the Bering Sea. The PSC limit for trawl gear is determined each year during the ABC and TAC setting process, and is set at 1% of the estimated EBS herring biomass, which is further apportioned by target fishery (50 CFR § 679.21 (e)(1)(iv)). Should the herring PSC limit for a particular groundfish target fishery be reached during the fishing year, the trawl fishery for that species is closed in the Herring Savings Areas (Figure 3-10 of the SEIS (NMFS 1998a)) (50 CFR § 679.21 (e)(7)(v)). None of the bycatch allocations have been exceeded in 2000.

The ADF&G estimates that the 2001 spawning biomass of the eastern Bering Sea herring stock will be approximately 152,574 mt, a decrease from the 1999 estimate of 185,330 mt, primarily resulting from a more conservative biomass estimate for herring spawning at Togiak. All major Bering Sea herring stocks are considered to be healthy and are expected to be above their thresholds in 2001. The 1993 and 1995 year classes appear to be moderately strong in most areas and are expected to sustain healthy spawning populations for several years.

Under amendment 16 to the BSAI groundfish FMP, the herring PSC limit is set at 1% of the spawning biomass, equal to 1,526 mt for 2001.

3.2.4 BSAI Alaska King, Tanner and Snow Crab

BSAI Alaska king, Tanner and snow crab fisheries are managed by the State of Alaska, with federal oversight established in the Fishery Management Plan for Bering Sea/Aleutian Islands King and Tanner Crabs (crab FMP). The commercially important crab species are: red king crab (*Paralithodes camtschaticus*), blue king crab (*Paralithodes platypus*), golden or brown king crab (*Lithodes aequispinus*), Tanner crab (*Chionoecetes bairdi*), and snow crab (*Chionoecetes opilio*). A detailed description of their management, production history, and life history are contained in Section 3.7.1 of the SEIS (NMFS 1998a) and in the 2000 Crab SAFE (NPFMC 2000c).

NMFS conducts annual trawl surveys for crab stock assessments in the BSAI. A length-based analysis, developed by ADF&G, incorporates survey, commercial catch, and observer data to estimate stock abundance (Zheng 1995; Zheng 1998). Abundance estimates generated by this model are used to set guideline harvest levels (GHLs) for the crab fisheries. Catches are restricted by GHLs, seasons, licenses, pot limits, and size and sex limits that restrict landings to legal sized male crabs. Fishing seasons are set at times of the year which avoid molting, mating, and softshell periods, both to protect crab resources and to maintain product quality.

Based on analysis of the 2000 NMFS survey results, the latest status of red king crabs are as follows. In Bristol Bay the number of mature male red king crab decreased 21 percent in 2000. Numbers of mature female red king crabs (>90mm carapace width), however, increased 21 percent in 2000. The effective spawning biomass is estimated at 18,140 mt. A 10 percent exploitation rate of mature male crabs was established for the 2000 fishery. The guideline harvest level (GHL) for the year 2000 was 3,788 mt, which included 284 mt for the CDQ fisheries. This is a reduction from the 4,835 mt GHL in 1999. The Bristol Bay stock remains depressed compared to past abundance levels. Two hundred thirty-seven vessels participated in the fishery in the year 2000, harvesting 3,402 mt in four days. Twenty-six AFA vessels fished in a cooperative with a pre-specified harvest cap of 384 mt, 10.957% of the open access GHL). The Council created the Nearshore Bristol Bay habitat protection area and the red king crab savings area to protect crab habitat from non-pelagic trawl gear. Besides PSC limits, red king crab is protected in this closed area. Only the yellowfin sole fishery exceeded its PSC limit of red king crab in 2000.

Estimates of red king crabs in the Pribilof Islands area decreased significantly from 1999. The blue king crab population in the Pribilof District is low (Stevens et al. 2000). However, the survey index has very low precision, making the reliability of that estimate extremely low. Given significant declines of blue king crab in that area, the high degree of uncertainty surrounding the estimate of red king crab abundance, and the poor fishery performance of recent years, the red and blue king crab fishery in the Pribilof District were closed in 2000. The Pribilof stock of blue king crab is not below the minimum stock size threshold (MSST) established by the crab FMP but is closely approaching it. The Council created the Pribilof Island habitat conservation area, therefore, bycatch of these crab species is not a concern and no PSC limits have been established.

NMFS survey results for blue king crabs in the St. Matthews Island area indicate a steep decline since 1998. This stock is overfished as defined in the crab FMP. As a result, and coupled with the poor

fishery performance in 1998, this area was closed for the 1999 and 2000 season. The Council developed a rebuilding plan, Amendment 15, for this stock in accordance with the Magnuson Stevens Act. The Secretary approved the rebuilding plan on November 29, 2000 (65 FR 76175 December 6, 2000). There is no PSC limit for blue king crab.

ADF&G and NMFS do not estimate abundance annually for Bering Sea golden king crabs and commercial harvest is controlled by ADF&G permit (Morrison et al. 1998). Catches have declined from the early years of the fishery as the virgin stock was exploited and recruitment was unable to sustain the fishery at its initial harvest levels (Morrison et al. 1998). In 1995, the State of Alaska mandated observer coverage for all vessels targeting golden king crab in the Aleutian Islands. In 2000, 59 mt were harvested from the Pribilof District and 1,647 mt, (fishery ongoing) have been harvested from the Aleutian Islands District. No PSC limit is established for this stock.

The Tanner crab fishery has been closed since 1996 due to low abundance and will remain closed in 2001. Based on the year 2000 survey results, the population is increasing slightly due to recent recruitment. The stock was declared overfished on March 3, 1999, because survey data indicated that spawning biomass was below the MSST established for this stock. At its October 1999 meeting the Council adopted Amendment 11, a rebuilding plan for this stock. The Secretary approved this amendment on June 8, 2000, (65 FR 38216, June 20, 2000). The plan consists of a conservative and precautionary harvest strategy, crab bycatch reduction measures in the crab fisheries, and increased habitat protection. The trawl target fisheries have not exceeded any Tanner crab PSC limits.

From a low in 1985, Bering Sea snow crab rebounded sharply, producing high catches in 1991 which have since declined. The biomass of both male and female snow crab in the Bering Sea declined significantly from levels observed during the 1998 survey. The 2000 survey estimates a 147 percent increase in legal sized males, a 24 percent increase in pre-recruits, and a 15 percent decline in large females. The population is believed to be increasing slightly due to recent recruitment. Survey results indicate that the Bering Sea snow crab stock is slightly above the MSST which is one half the long term average mature biomass, as defined in the crab FMP. The Magnuson-Stevens Act directed the Council to develop a rebuilding plan within one year to bring the stock back to the average mature biomass. A rebuilding plan was submitted to the Secretary on September 18, 2000 (65 FR 58501, September 29, 2000). Under the current rebuilding plan a very restricted harvest is allowed. In 2000, the GHL was set at 12,928 mt. The fishery was delayed by extensive ice coverage of the fishing grounds until April 1, 2000. Three hundred and two vessels participated in a seven day fishery landing 15,105 mt.

ADF&G has established a GHL of 12,383 mt for the 2001 fishing season, which includes 930 mt for the CDQ fishery. The fishery is scheduled to open January 15, 2001. Beginning in 1999 *C. opilio* bycatch was apportioned by trawl fishery. No PSC allocation has been exceeded in 2000.

3.2.5 GOA Alaska King and Tanner Crab

GOA Alaska king and Tanner crab stocks in the GOA are assessed and managed by the State of Alaska exclusively because no federal FMP for crab has been developed in the GOA. Alaska king and Tanner crab are treated as prohibited species in the groundfish fisheries in the GOA.

Alaska king and Tanner crab stocks are severely depressed over much of the GOA. The last king crab fishery in the Kodiak, Chignik, and South Peninsula Districts occurred in 1982, and in Cook Inlet in 1983. The red and blue king crab fisheries will remain closed in all Districts of the GOA in 2001. The only 2000 Tanner crab fishery in the GOA occurred in the Southeast District. In that fishery, 771 mt of Tanner and 254 mt of golden king crab were harvested. The 2000 survey indicated that the number of legal sized males was sufficient to permit a 2001 Tanner crab fishery in portions of the GOA. GHs are 227 mt within the Kodiak District and 170 mt within the South Peninsula District. These areas have been previously closed since 1994. There are no PSC bycatch limits in the groundfish fisheries in the GOA, rather to protect crab, large areas of historically important crab habitat have been closed to the use of non-pelagic trawl gear in the GOA. Though November 18, 2000, in the groundfish fisheries gulfwide, trawl gear had a bycatch of 46,918 Tanner and 38 red king crab; hook-and-line gear had a bycatch of 167 Tanner and 41 red king crab; and pot gear had a bycatch of 65,832 Tanner and 7 red king crab.

3.3 Forage Species

Forage fish species are abundant fishes that are preyed upon by marine mammals, seabirds and other commercially important groundfish species. The following forage species are included in the forage fish category established in 1998: Osmeridae (which includes capelin and eulachon), Myctophidae (lanternfishes), Bathylagidae (deep sea smelts), Ammodytidae (sand lances), Trichodontidae (sandfishes), Pholididae (gunnels), Stichaeidae (pricklebacks), Gonostomatidae (bristlemouths), and the Order Euphausiacea (krill). For further detailed discussion of forage fish species, see section 3.3.3.13 of the SEIS (NMFS 1998a) and the EA for Amendments 36 and 39 to the FMPs (NMFS 1998b). Information on the current status for a number of forage species may be found in detail in Ecosystem Considerations for 2001 (NMFS 2000a).

Forage fish perform a critical role in the complex ecosystem functions of the Bering Sea and Aleutian Islands management area and the Gulf of Alaska by providing the transfer of energy from the primary or secondary producers to higher trophic levels. For example, Eulachon and capelin play a key role in the trophic interaction of species, transferring energy from primary production to high trophic level predators in the GOA (NMFS 2000a) and are seen in the diet of Steller sea lions (Pitcher 1981). Sand lance form large migrating schools in the late summer and early fall and move inshore to spawn in the winter, providing one of the few sources of food inshore in the winter while most other fish species migrate off shore at this time of the year (NMFS 2000a).

Because of their importance to so many ecosystem components, a management assemblage for forage fish was established in 1998 in Amendments 36 and 39 to the BSAI and GOA FMPs, respectively (63 FR 13009, March 17, 1998). Although ABC and TAC amounts are not specified for species in the forage fish category, the amendments provide protection for forage fish by preventing the development of commercial fisheries for these species groups. Directed fishing for forage fish species is restricted year-round with a maximum retainable bycatch of 2%. These amendments also established mandatory reporting by categories for forage fish species groups, taking effect during 1998.

Forage fish bycatch in the commercial groundfish trawl fisheries are less than one percent of any directed fishery⁵. Even though the amount of biomass is unknown for the individual forage fish groups, it is assumed that the amount of bycatch is not likely to affect the forage species' ability to reproduce. It is also assumed that the small amount of bycatch should not cause competition with predators of forage fish species (NMFS 1998a).

3.4 Status of Marine Habitat

This EA/RIR/IRFA tiers off of the analysis in section 4.3.4.1 of the SEIS (NMFS 1998a) regarding effects of TAC on substrate and benthic habitat. All the marine waters and benthic substrates in the management areas comprise the habitat of the target species. Additionally the adjacent marine waters outside the EEZ, adjacent State waters inside the EEZ, shoreline, freshwater inflows, and atmosphere above the waters, constitutes habitat for prey species, other life stages, and species that move in and out of, or interact with, the target species in the management areas. Distinctive aspects of the habitat include water depth, substrate composition, substrate infauna, light penetration, water chemistry (salinity, temperature, nutrients, sediment load, color, etc.), currents, tidal action, phytoplankton and zooplankton production, associated species, natural disturbance regimes, and the seasonal variability of each aspect. Substrate types include bedrock, cobbles, sand, shale, mud, silt, and various combinations of organic material and invertebrates which may be termed biological substrate. Biological substrates present in these management areas include corals, tunicates, mussel beds, tube worms. Biological substrate has the aspect of ecological state (from pioneer to climax) in addition to the organic and inorganic components. Ecological state is heavily dependant on natural and anthropogenic disturbance regimes. The fishery management plans (NPFMC 1995, 1994) contain some descriptions of habitat preferences of the target species and projects are underway to systematically present biological requirements for each life history stage that are known (NMFS-Council in progress). Much remains to be learned about habitat requirements for most of the target species.

Fisheries could alter the composition of the BSAI and GOA ecosystems in a number of ways, including enhancement of a prey species by removal of a predator, enhancement of one competitor by removal of another, and suppression of a predator by removal of prey (NMFS 2000d). Indirect effects may also occur depending on the role of the species removed and the method of removal. For example, Estes et al. (1998) suggests that killer whale predation has shifted from a diet that did not include sea otters prior to the 1990s to one that now includes sea otters which have experienced a rapid decline in population in recent years. This shift may be due to the decline in other prey species such as Steller sea lions and harbor seals.

Most of the work evaluating predator/prey relationships in the EBS/AI and GOA regions in recent years has been done in the eastern Bering Sea. Evidence from retrospective and modeling studies (Hollowed et al. 2000, Livingston and Jurado-Molina, 2000) and examination of trophic guild changes (Anderson

⁵Personal Communications with L. Fritz, National Marine Fisheries Service, Alaska Fisheries Science Center, National Marine Mammal Laboratory, Seattle, Washington 98115.

and Piatt, 1999; Livingston et al., 1999) suggest that under the present groundfish fishery management regime, there has not been clear evidence of fishing as a cause of species fluctuations through food web effects. Trends in biomass for a number of target species, also do not seem to be affected by various fishing regimes, as seen in a number of biomass projection for groundfish species in the BSAI SAFE report (NPFMC 2000a).

The marine habitat may be further altered by changes in the amount and flow of energy with the removal of fish and the return of discard in fisheries. The recipients, locations and forms of discards may differ from those in an unfished system. For the eastern Bering Sea total catch biomass including non groundfish removals) as a percentage of total system biomass (excluding dead organic material known as detritus) was estimated to be 1% of the total system biomass (Hilborn and Walters 1992). From an ecosystem perspective, total fishing removals are a small proportion of the total system energy budget and are small relative to internal sources of interannual variability in production (NMFS 2000b). Energy flow paths do not seem to be redirected by discards and offal. Before improved retention requirements for P. cod and pollock were in place it was estimated that the total offal and discard production was 1% of the estimated unused detritus going to the ocean bottom (Queirolo et al. 1995). Combined evidence regarding the level of discards relative to natural sources of detritus and no evidence of changes in scavenger populations that are related to discard trends suggest that the present groundfish fishery management regime has insignificant ecosystem impacts through energy removal and redirection. (NMFS 2000b).

Auster and Langton (1999) reviewed the indirect effects of fishing on EFH. Studies that they reviewed showed immediate effects of fishing on species composition and diversity and a reduction of habitat complexity. Short-term effects were a good indicator of long term effects, and recovery was variable depending on habitat type, life histories of component species, and the natural disturbance regime. They also wrote that data are lacking on the spatial extent of fishing-induced disturbance, the effects of specific gear types along a gradient of fishing effort, and the linkages between habitat characteristics and the population dynamics of fishes. Trawling on sea floor habitat and benthic communities in the GOA generally disturb sea floor habitats by displacing boulders, removing epifauna, decreasing the density of sponges and anthozoans, and damaging echinoderms. However, the effect of this disturbance on fish and other living marine resources is not known.

3.5 Status of Marine Mammal Populations

Marine mammals not listed under the ESA that may be present in the GOA and BSAI 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.*)] as well as pinnipeds [northern fur seals (*Callorhinus ursinus*), and Pacific harbor seals (*Phoca vitulina*)] and the sea otter (*Enhydra lutris*).

For further information see Section 3.4 and 4.3.2 of the SEIS (NMFS, 1998a), and the following discussion.

3.5.1 Pinniped Species

Steller Sea Lions

The most recent detailed review of Steller sea lion population status in Alaska is contained in the Section 7 Biological Opinion and Incidental Take Statement (Comprehensive BiOp)(NMFS 2000b). Recent survey data used to monitor population status are contained in section 4.8.12 of the Comprehensive BiOp (NMFS 2000b). The opinion describes the continuing decline of the Steller sea lion population and concluded that the FMPs for the Groundfish fisheries in the BSAI and the GOA were likely to jeopardize the continued existence of the Steller sea lion population west of 144°W longitude. An overview of ESA Section 7 consultations for Steller sea lions and the groundfish fisheries is in section 3.7 of this EA/RIR/IRFA.

Northern fur seals

Northern fur seals were listed as depleted in 1988 under the Marine Mammal Protection Act. Much of the research effort for fur seals takes place on the Pribilof Islands (St. Paul and St. George). The National Marine Mammal Laboratory (NMML) conducts counts of adult males (bulls) annually, and counts of pups biennially. Analysis of the 1998 bull and pup counts indicate a continued slight decrease in fur seal numbers on both of the Pribilof Islands. From 1997 to 1998 the total number of adult males on the Pribilof Islands decreased by 1.6 percent. Because of the high variability in these counts, however, several more years of data are needed to determine if a trend exists. The estimate of the total number of pups born on St. Paul Island in 1998 was 179,149 (SE = 6,193); the standard error accounts for variance in the estimation of both live and dead pups. The total estimated number of pups born in 1998 was not significantly different ($P = 0.82$) from 1996, but was significantly less than the estimate in 1994 ($P < 0.01$). The total number of pups born on St. George Island and the approximate 95 percent confidence interval was 21,547 - 22,633. The 1998 estimate of pups born on St. George Island is significantly less ($P < 0.01$) than the number of pups born in 1996, but the estimate is not significantly different ($P = 0.22$) from the estimate of the number of pups born in 1994.

A conservation plan for the northern fur seal was written to delineate reasonable actions to protect the species (NMFS 1993). Following that, fishery regulations were implemented in 1994 (50 CFR 679.22(a)(6)) to create a Pribilof Islands Area Habitat Conservation Zone, in part to protect the northern fur seals. This trawl closure area reduces the risk of direct interaction between the northern fur seal and the trawl fisheries. The incidental take of northern fur seals has been primarily in the trawl fisheries and has been determined to not contribute significantly to the stocks potential biological removal (PBR) (Hill et al. 1996). Northern fur seal have a diet similar to Steller sea lions, preying on small pollock, and P. cod. The groundfish fisheries generally remove fish that are larger than the prey normally selected by northern fur seals and fishing takes place at a time that northern fur seal are usually not present. The current trend in the northern fur seal population has been generally stable and increasing over the past 10 years (Hill et al. 1996).

Harbor seals

Harbor seals are divided into 3 stocks, southeast, GOA and Bering Sea. Details on the each stock may be found in the 2000 Alaska Marine Mammal Stock Assessment (NMFS 2000c). This report is also available on the web at http://www.fakr.noaa.gov/protectedresources/mmsa_00.pdf.

For the Southeast Alaska stock, results from the Sitka, Ketchikan, and Glacier Bay trend analyses provide a strong indication that the number of harbor seals in Southeast Alaska has been increasing since at least 1983 (Small et al. 1997). The NMML conducted aerial assessment surveys for harbor seals in the southern portion of southeast Alaska, from Frederick Sound to the US/Canadian border in 1998. The northern portion of southeast Alaska was surveyed in 1997. Two observers worked out of Petersburg and five observers used Ketchikan as their base of operations. From 18 to 28 August 1998, the entire coastline was surveyed from small, single-engine aircraft equipped with floats, at an altitude of 200-250 m (700-800 ft.). Observers estimated the number of seals hauled out and took photographs of all seal haulouts. Results from the two surveys will be combined to produce an overall estimate for southeast Alaska.

For the Gulf of Alaska harbor seal stock, the only complete survey available is from 1994. From the information available, the stock assessment authors state that the general trend of the population is decreasing with large declines occurring in Prince William Sound after the 1989 oil spill and a steady decline along the Kodiak archipelago. Despite a few areas of increase, the overall population size for the Gulf of Alaska is small compared to populations in the 1980s and 1970s.

The number of harbor seals in the Bering Sea stock is thought to be declining (Alaska SRG, see DeMaster 1996); however, published data to support this conclusion are unavailable. Specifically, in 1974 there were 1,175 seals reported on Otter Island. The maximum count in 1995 (202 seals) represents an 83% decline (Withrow and Loughlin 1996). However, as noted by the Alaska SRG (DeMaster 1996), the reason(s) for this decline is(are) confounded by the recolonization of Otter Island by northern fur seals since 1974, which has caused a loss of available habitat for harbor seals. Further, counts of harbor seals on the north side of the Alaska Peninsula in 1995 were less than 42% of the 1975 counts, representing a decline of 3.5% per year. The number of harbor seals in northern Bristol Bay are also lower, but have remained stable since 1990 (Withrow and Loughlin 1996).

None of the harbor seal stocks are listed as "depleted" under the MMPA or listed as "threatened" or "endangered" under the Endangered Species Act. For commercial groundfish fisheries, the estimated incidental take is 36 to 87 animals per year (NMFS 2000c). At present, annual mortality levels less than 211 animals per year (i.e., 10% of PBR) can be considered insignificant and approaching zero mortality and serious injury rate. Although considered unlikely due to stable or increasing trends, it is unknown if the estimated annual level of total human-caused mortality and serious injury exceeds the PBR (2,114) for this stock.

3.5.2 Cetacea Species

Beluga whales

There are five stocks of Beluga whales that occur in the action area., the Beaufort, Eastern Chukchi, Eastern Bering, Bristol Bay and the Cook Inlet stocks. All of the stocks, except Cook Inlet, are stable and there is no record of groundfish fisheries incidental take. Because their diet consists mainly of salmonids and small schooling fishes, there is little groundfish fisheries interaction for this species.

The NMML flew aerial surveys of the isolated stock of beluga whales in Cook Inlet, Alaska, during June and July of 1993 through 2000. This included nearly 100% of the coastal areas each year, and with the addition of offshore transects, systematic searches encompassed 13 to 29 percent of the entire inlet. Beluga whales were concentrated in a few dense groups in shallow areas near river mouths in the northern portion of upper Cook Inlet. Very few belugas occurred elsewhere. Over the past three decades, there have been decreases in sightings of beluga whales both in offshore areas and in lower Cook Inlet. Estimated abundance of beluga's has declined 50% from 1994 to 1998 leading to the stock being designated in 2000 as depleted under the Marine Mammal Protection Act (65 FR 34590). Since 1995, there have been no sightings in NMML surveys south of the upper inlet.

Harbor porpoise and Dall's porpoise

Harbor porpoise occur in three stocks in Alaskan waters: Southeast, Gulf of Alaska and Bering Sea. No reliable information is available on trends in abundance for these stocks of harbor porpoise and no records of incidental take by the groundfish fisheries of either the Southeast stock or the Gulf of Alaska stock exist. The Bering Sea stock has had a small amount of incidental take in the Bering Sea trawl fishery. When averaged with the incidental take in the gillnet fishery the annual average of incidental take for the Bering Sea stock is 2 animals, well below the PBR of 86 (NMFS 2000c).

Dall porpoise are managed as one stock throughout Alaskan waters. No reliable information is available on trends in abundance for this stock. Six different commercial fisheries operating within the range of the Alaska stock of Dall's porpoise were monitored for incidental take by NMFS observers during 1990-95: Bering Sea (and Aleutian Islands) groundfish trawl, longline, and pot fisheries, and Gulf of Alaska groundfish trawl, longline, and pot fisheries. No mortalities of Dall's porpoise were observed by NMFS observers in either pot fishery or the Gulf of Alaska longline fishery. The mean annual (total) mortality was 4.6 (CV=0.20) for the Bering Sea groundfish trawl fishery, 0.6 (CV=1.0) for the Gulf of Alaska groundfish trawl fishery, and 1.6 (CV=.61) for the Bering Sea groundfish longline fishery. Based on currently available data, the level of all human-caused mortality and serious injury (42) does not exceed the PBR (1,537).

Researchers from the NMML conducted line transect aerial surveys for harbor porpoise and Dall's porpoise from 27 May to 28 July 1998 in the Gulf of Alaska (offshore waters from Cape Suckling to Unimak Pass), Prince William Sound, and Shelikof Strait. The survey aircraft was a Twin Otter flown at an altitude of 500 ft and an airspeed of 100 knots. Sawtooth lines covered the offshore waters from Cape Suckling to Unimak Pass (offshore of Kodiak Island) from about 15 nm seaward to the 1,000 fathom line. A series of zigzag lines covered Shelikof Strait, between the Alaska Peninsula and Kodiak Island. Larger inlets and bays were also included in the survey. The survey in Prince William Sound consisted of two lines: one covering the central waters and one along the coast with extensions into selected inlets. Two primary observers surveyed from bubble windows on each side of the aircraft. A third observer, viewing directly beneath the aircraft from a belly window, recorded porpoises missed on the trackline by the primary observers.

Poor weather restricted the completion of the entire planned survey. Survey lines were completed in Prince William Sound and an adequate number of survey miles were completed offshore from Cape Suckling west along the Kenai Peninsula, offshore of Kodiak Island, west to Sutwik Island (Alaska

Peninsula), and in Shelikof Strait. A total of 5,722 nm were flown, with sightings of 83 harbor porpoise, 69 Dall's porpoise, 13 killer whales, 47 humpback whales, 24 fin whales, 1 Cuvier's beaked whale, 1 northern right whale, 25 harbor seals, 20 Steller sea lions, and 1 northern fur seal. These data are used to estimate annual abundance of harbor porpoise and Dall's porpoise, one of the key pieces of information needed to manage marine mammal-fishery interactions. A report should be available in 2001.

3.5.3 Order Carnivora

Northern Sea Otter

The northern sea otter living in the Aleutian Islands area was listed as a candidate for listing under the ESA by the U. S. Fish and Wildlife Service. (65 FR 67343, November 9, 2000). The population has declined from 55,000 to 73,700 individuals in the 1980s (Calkins and Schneider 1985) to approximately 6,000 individuals in the late 1990s. (U. S. Fish and Wildlife Service, unpublished data). There are no anticipated direct or indirect impacts upon sea otters by the groundfish fisheries since sea otters occur primarily in nearshore waters and feed mostly on benthic invertebrates⁶. In the Adak area, sea otters have been observed eating fish, though they prefer to eat clams and mussels⁷.

Sea otters are considered a keystone species because of their influence on the structure of the marine community (O'Clair 1998). With the reduction in sea otter population, the sea urchin population has increased leading to a reduction in kelp beds. The kelp beds are important for maintaining lower trophic levels of marine organisms which in turn support raptors, marine mammals, and marine birds. Kelp beds are known to support various species of juvenile fish and invertebrates and help provide the sedimentation necessary to support clams (USFWS 1983). The kelp beds occur in nearshore waters to 40 feet in depth. Walleye pollock and Pacific cod have been collected in nearshore waters by beach seining around Unalaska (USGS 1999). In Akutan, rock sole were commonly observed during shoreline transects to below 30 feet, in deeper waters where kelp beds occur (USFWS 1983). If groundfish depend upon kelp beds during any part of their life stages, the disappearance of the kelp beds with the reduction in sea otter populations may have an impact on groundfish survival by reducing available habitat.

3.6 Seabird Species Population Status

Seabirds spend the majority of their life at sea rather than on land. Alaska's extensive estuaries and offshore waters provide breeding, feeding, and migrating habitat for approximately 100 million seabirds. Thirty-four species breed in the Bering Sea/Aleutian Islands (BSAI) and Gulf of Alaska (GOA) regions and number 36 million and 12 million individuals, respectively. Another 6 species

⁶D. Burn, November 30, 2000. Personal Communication. U. S. Fish and Wildlife Service. Marine Mammals Management Office, 1011 Tudor Rd. Anchorage, AK 99503.

⁷Devries S. 1997. Personal communication U. S. Fish and Wildlife Service. Marine Mammals Management Office, 1011 Tudor Rd. Anchorage, AK 99503

breed at other locations in Alaska. In addition, up to 50 million shearwaters and 3 albatross species feed in Alaskan waters during the summer months but breed farther south. The current world population of short-tailed albatross is approximately 1200 individuals. Detailed seabird information on species population status, life history, ecology, and bycatch is contained in section 3.5 of the SEIS (NMFS 1998a).

3.7 Status of Endangered or Threatened Species

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

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

In addition to listing species under the ESA, the critical habitat of a newly listed species is 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.

Federal agencies have an affirmative mandate to conserve listed species. One assurance of this is Federal actions, activities or authorizations (hereafter referred to as Federal action) must be in compliance with the provisions of the ESA. Section 7 of the ESA provides a mechanism for consultation by the Federal action agency with the appropriate expert agency (NMFS or USFWS). Informal consultations, resulting in letters of concurrence, are conducted for Federal actions that may affect but are not expected to adversely affect listed species or critical habitat. Formal consultations, resulting in biological opinions, are conducted for Federal actions that may have an adverse affect on the listed species. Through the biological opinion, a determination is made as to whether the proposed action is likely to jeopardize the continued existence of a listed species (jeopardy) or destroy or adversely modify critical habitat (adverse modification). If the determination is that the action proposed (or ongoing) will cause jeopardy, reasonable and prudent alternatives may be suggested which, if implemented, would modify the action to avoid the likelihood of jeopardy to the species or destruction or adverse modification of designated critical habitat. A biological opinion with the conclusion of no

jeopardy may contain conservation recommendations intended to further reduce the negative impacts to the listed species. These conservation recommendations are advisory to the action agency [50 CFR. 402.25(j)]. If a likelihood exists of any taking⁸ occurring during promulgation of the action, an incidental take statement may be appended to a biological opinion to provide for the amount of take that is expected to occur from normal promulgation of the action.

Twenty-three species occurring in the GOA and/or BSAI groundfish management areas are currently listed as endangered or threatened under the ESA (Table 3.1). The group includes great whales, pinnipeds, Pacific salmon and steelhead, and seabirds.

⁸ The term "take" under the ESA means "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct" [16 U.S.C. § 1538(a)(1)(B)].

Table 3.1.

ESA Listed Species. The following species are currently listed as endangered or threatened under the ESA and occur in the GOA and/or BSAI groundfish management areas.

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>Phoebastria 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 (Table 3.1), some may be negatively affected by groundfish fishing. NMFS is the expert agency for ESA listed marine mammals and anadromous fish species. The USFWS is the expert agency for ESA listed seabirds. The fisheries as a whole must be in compliance with the ESA.

Section 7 consultations with respect to actions of the federal groundfish fisheries have been done for all the species listed in Table 3.1, either individually or in groups. See section 3.8 of the SEIS (NMFS 1998a), for summaries of section 7 consultations done prior to December 1998. An FMP-level biological opinion was prepared pursuant to Section 7 of the ESA on all NMFS listed species present in the fishery management areas for the entire groundfish fisheries program. The opinion was issued November 30, 2000 (NMFS 2000b). The Steller sea lion was the only species to be determined to be in jeopardy or risk of adverse modification of its habitat based upon the FMPs. Consultations prepared subsequent to the SEIS (NMFS 1998a) are summarized below.

Steller sea lions and other ESA listed marine mammals.

The only marine mammal identified as a concern with the implementation of the FMPs for the BSAI and GOA groundfish fisheries was the Steller sea lion. In compliance with the ESA, NMFS developed

a reasonable and prudent alternative (RPA) for the BSAI and GOA groundfish fisheries to avoid jeopardy to endangered Steller sea lions and adverse modification of their critical habitat. The RPA is based on the following three main principles: (1) temporal dispersion of fishing effort, (2) spatial dispersion of fishing effort, and (3) sufficient protection from fisheries competition for prey in waters adjacent to rookeries and important haulouts. The RPA focused on three fisheries that posed the most concern for competition with Steller sea lions for prey; the BSAI and GOA pollock and Pacific cod fisheries, and the BSAI Atka mackerel fishery. Neither the conclusions of the Comprehensive Biop (NMFS 2000b) nor the RPA was adopted by the Council at its December 2000 meeting for numerous reasons, including lack of confidence in the scientific premises supporting the biological opinion, lack of public and Council input during its development, and general disagreement about the efficacy of the RPA measures. Subsequently, the Alaska congressional delegation sponsored a rider to the 2001 appropriations bill (Section 209 of Pub.L. 106-554) that provided direction for a one-year phase-in of the RPA and opportunity for the Council to assess and potentially modify the RPA prior to full implementation in 2002 based on independent scientific reviews or other new information.

The protection measures in the emergency rule (66 FR 7276, January 22, 2001) reflect the first year implementation phase of the RPA and provides for full implementation of the RPA by 2002. Some elements of the RPA, such as critical habitat harvest limits for GOA pollock and Pacific cod, will require new monitoring and management measures that NMFS has yet to develop and implement.

ESA Listed Pacific Salmon

When the first Section 7 consultations for ESA listed Pacific salmon taken by the groundfish fisheries were done in 1994 and 1995 only three evolutionary significant units (ESUs) of Pacific salmon were listed that ranged into the fishery management areas (NMFS 1994, 1995). Additional ESUs of Pacific salmon and steelhead were listed under the ESA in 1998 and 1999 (NMFS 1999b). Only the Snake River fall chinook salmon has designated critical habitat and none of that designated habitat is marine habitat. Under Section 7 regulations, consultation should be reinitiated in the event of additional listings. Using the year 2000 proposed TAC specifications, NMFS reinitiated consultations for ESA listed Pacific salmon for all twelve ESUs of Pacific salmon that are thought to range into Alaskan waters. The consultation for the Pacific salmon species was issued December 22, 1999, and contained a determination of not likely to jeopardize their continued existence. No critical habitat has been designated for these species within the action area, therefore, none will be affected by the proposed fisheries. The biological opinion reviewed the status of Snake river fall chinook, Snake River spring/summer chinook, Puget Sound chinook, Upper Columbia river spring chinook, Upper Willamette River chinook, Lower Columbia river chinook, Upper Columbia river steelhead, Upper Willamette River steelhead, Middle Columbia river steelhead, Lower Columbia river steelhead, and Snake river Basin steelhead, the environmental baseline for the action area, the effects of the proposed fishery and the cumulative effects. The opinion was accompanied by an Incidental Take Statement that states the catch of listed fish will be limited specifically by the measures proposed to limit the total bycatch of chinook salmon. Bycatch should be minimized to the extent possible and in any case should not exceed 55,00 chinook per year in the BSAI fisheries or 40,000 chinook salmon per year in the GOA fisheries.

Project-level consultation for ESA listed Pacific salmon was not reinitiated for the year 2001 TAC specifications because none of the triggers for reinitiation are thought to have occurred. Those four triggers include: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered; (3) the identified action is subsequently modified in a manner that causes an effect to listed species or critical habitat that was not considered in the biological opinion; (4) a new species is listed or critical habitat designated that may be affected by the identified action. In instances where the amount or extent of incidental take is exceeded, the action agency must immediately reinitiate formal consultation. The Comprehensive BiOp (NMFS 2000b) stated that ESA listed Pacific salmon are not in jeopardy or risk of adverse modification of their habitat by the groundfish fisheries in the BSAI or GOA.

Short-tailed Albatross

The only new information on seabirds since publication of the SEIS (NMFS 1998a) concerns the taking of short-tailed albatross and subsequent Section 7 consultations on that species. It is summarized below:

On 22 October 1998, NMFS reported the incidental take of 2 endangered short-tailed albatrosses in the hook-and-line groundfish fishery of the BSAI. The first bird was taken on 21 September 1998, at 57°30'N, 173°57'W. The bird had identifying leg bands from its natal breeding colony in Japan. It was 8 years old. In a separate incident, one short-tailed albatross was observed taken on 28 September 1998, at 58°27'N, 175°16'W, but the specimen was not retained for further analysis. Identification of the bird was confirmed by USFWS seabird experts. The confirmation was based upon the observer's description of key characteristics that matched that of a subadult short-tailed albatross to the exclusion of all other species. A second albatross was also taken on 28 September 1998, but the species could not be confirmed (3 species of albatross occur in the North Pacific). Both vessels were using seabird avoidance measures when the birds were hooked.

The USFWS listed the short-tailed albatross as an endangered species under the ESA throughout its United States range (65 FR 46644, July 31, 2000). Under terms of the 1999 biological opinion, incidental take statement, a take of up to 4 birds is allowed during the 2-year period of 1999 and 2000 for the BSAI and GOA hook-and-line groundfish fisheries (USFWS 1999). If the anticipated level of incidental take is exceeded, NMFS must reinitiate formal consultation with the USFWS to review the need for possible modification of the reasonable and prudent measures established to minimize the impacts of the incidental take.

NMFS Regional Office, NMFS Groundfish Observer Program, and the USFWS Offices of Ecological Services and Migratory Bird Management are actively coordinating efforts and communicating with each other in response to the 1998 take incidents and are complying to the fullest extent with ESA requirements to protect this species. Regulations at 50 CFR § 679.24(e) and 679.42(b)(2) contain specifics regarding seabird avoidance measures. In February 1999, NMFS presented an analysis on seabird mitigation measures to the Council that investigated possible revisions to the currently required seabird avoidance methods that could be employed by the long-line fleet to further reduce the take of seabirds.

The Council took final action at its April 1999 meeting to revise the existing requirements for seabird avoidance measures. The Council's preferred alternative would: 1) explicitly specify that weights must be added to the groundline (Currently, the requirement is that baited hooks must sink as soon as they enter the water. It is assumed that fishermen are weighting the groundlines to achieve this performance standard.); 2) the offal discharge regulation would be amended by requiring that prior to any offal discharge, embedded hooks must be removed; 3) streamer lines, towed buoy bags and float devices could both qualify as bird scaring lines (Specific instructions are provided for proper placement and deployment of bird scaring lines.); 4) towed boards and sticks would no longer qualify as seabird avoidance measures; 5) the use of bird scaring lines would be required in conjunction to using a lining tube; and 6) night-setting would continue to be an option and would not require the concurrent use of a bird scaring line.

These revised seabird avoidance measures are expected to be effective in 2001. The avoidance measures affect the method of harvest in the hook-and-line fisheries, but are not intended to affect the amount of harvest.

A Biological Opinion on the BSAI hook-and-line groundfish fishery and the BSAI trawl groundfish fishery for the ESA listed short-tailed albatross was issued March 19, 1999, by the USFWS for the years 1999 through 2000 (USFWS 1999). The conclusion continued a no jeopardy determination and the incidental take statement expressing the requirement to immediately reinitiate consultations if incidental takes exceed four short-tailed albatross over two years' time. Consultations on short-tailed albatross was not re-initiated for the year 2000 TAC specifications because the March 19, 1999, biological opinion covered through the end of calendar year 2000. In September 2000, NMFS requested re-initiation of consultation for all listed species under the jurisdiction of the USFWS, including the short-tailed albatross, spectacled eider and Steller's eider for the BSAI and GOA FMPs and 2001-2004 TAC specifications. Based upon NMFS' review of the fishery action and the consultation material provided to USFWS, NMFS concluded that the BSAI and GOA groundfish fisheries are not likely to adversely affect either the spectacled eider or the Steller's eider or destroy or adversely modify the critical habitat that has been proposed for each of these species.

3.8 Ecosystem Considerations

Ecosystem considerations for the BSAI and GOA groundfish fisheries are explained in detail in *Ecosystem Considerations for 2001* (NMFS 2000a). This document provides updated information on biodiversity, essential fish habitats, consumptive and non-consumptive sustainable yields, and human considerations. This information is intended to be used in making ecosystem-based management decisions such as establishing ABC and TAC levels.

3.9 The Human Environment

The operation of the groundfish fishery in the Bering Sea/Aleutian Islands and the Gulf of Alaska is described by gear type in the SEIS (NMFS, 1998a) and in the draft SEIS (NMFS 2001). General background on the fisheries with regard to each species is given in the BSAI and GOA groundfish FMPs (NPFMC 1999a and 1999b). The following fishery sectors are most likely to be affected by a

change in the annual specification process: pollock (GOA and BSAI), Pacific cod fishery, Atka mackerel fishery, and the rock sole roe fishery. These fisheries are predominantly high volume fisheries (or high value fisheries) that are prosecuted early in the calendar year and could be constrained by interim TACs or PSC limits. Depending on the preferred alternative, the fisheries could be affected by the process itself. Environmental impacts resulting from the specified TACs would be assessed in annual EAs that accompany the final specifications.

3.9.1 Fishery Participants

For detailed information on the fishery participants including vessels and processors see sections 5.3 and 5.4 of this EA/RIR/IRFA. Revising the process by which annual TAC specifications are set may result in impacts on all fishery participants but would particularly affect those who concentrate effort early in the calendar year, depending on which alternative is selected. Section 5.0 outlines the economic impacts of each alternative on fishery participants. Additional information regarding fishery participants can be found in the 1999 Economic SAFE report (Hiatt and Terry, 2000).

3.9.2 Economic Aspects of the Fishery

The most recent description of the economic aspects of the groundfish fishery is contained in the 1999 Economic SAFE report (Hiatt and Terry, 2000). This report, incorporated herein by reference, presents the economic status of groundfish fisheries off Alaska in terms of economic activity and outputs using estimates of catch, bycatch, ex-vessel prices and value, the size and level of activity of the groundfish fleet, the weight and value of processed products, wholesale prices, exports, and cold storage holdings. The catch, fleet size and activity data are for the fishing industry activities that are reflected in Weekly Production Reports, Observer Reports, fish tickets from processors who file Weekly Production Reports, and the annual survey of groundfish processors. External factors that, in part, determine the economic status of the fisheries are foreign exchange rates, the prices and price indices of products that compete with products from these fisheries, and fishery imports. Sections 5.0 and 6.0 of this document contain additional information regarding the economics of this fishery.

4.0 ENVIRONMENTAL IMPACTS OF THE ALTERNATIVES

The environmental impacts generally associated with fishery management actions are effects resulting from (1) harvest of fish stocks which may result in changes in food availability to predators and scavengers, changes in the population structure of target fish stocks, and changes in the marine ecosystem community structure; (2) changes in the physical and biological structure of the marine environment as a result of fishing practices, e.g., effects of gear use and fish processing discards; and (3) entanglement/entrapment of non-target organisms in active or inactive fishing gear. A summary of the effects of the impacts associated with groundfish harvest on the biological environment are discussed in the final EA for the 2000 annual groundfish TAC specifications (NMFS 1999a). The SEIS (NMFS 1998a) and draft SEIS (NMFS 2001) analyzes the impacts of fishing over a range of TAC specifications and compares them to impacts of status quo fishing.

In this section, a focus is presented on the administrative changes associated with the alternatives being considered. An analysis of the possible impacts from each alternative follow. Any environmental impacts of the preferred alternative presented here would be assessed each year when the EA is prepared for the annual specifications for the groundfish fishery. Revising the annual specification process will not affect NEPA compliance procedures. A draft EA on proposed harvest specifications would still be developed and made available for public review and comment in December, except for Alternative 6. A final EA would be prepared annually prior to the approval of the final specifications.

Different alternatives could have a different influence on fishing patterns (e.g., changing the fishing year under Alternative 2) and on the overall ABC/TAC (e.g., rollover vs. use of new information). It is difficult to predict what these changes would be and therefore difficult to estimate their impacts on the environment. The analyses that will be developed for annual specifications would consider any change in fishing patterns and the resulting impacts.

4.1 Impacts on Groundfish Species

Alternative 1. Status Quo

The Status Quo process is not likely to have adverse impacts on groundfish species because interim TACs make available only a fraction of the Council-recommended TAC, depending on the fishery (25 percent or first seasonal allowance). The 25-percent cap for interim TACs is an artificial constraint on the fishery which may have economic impacts (refer to Section 5.0) but is not likely to have negative environmental impacts. Final specifications are based on the best available science. If the Council is not using the precautionary approach to recommending ABCs, long-term impacts on groundfish species may occur. However, this action does not seek to address how the Council establishes ABCs for a species or species groups.

Alternative 2. Proposed and Final Specifications

With Alternative 2A (using previous year's survey data to set TACs), possible negative public perception could arise associated with the use of the previous year's data. Table 4.1 illustrates the potential of the difference if this alternative had been implemented in 2000. Alternative 2A could have adverse impacts on groundfish stocks if the survey or model estimates indicate significant population decline or declining ABCs from the previous year. Based on an analysis of recent data, significant changes in ABCs are not common, but are possible. For example, between 1999 and 2000, the ABCs for GOA arrowtooth flounder, BSAI rock sole, and yellowfin sole decreased by 33, 25, and 10 percent, respectively. However, harvest amounts of these species don't approach ABC levels. Depending on the life history of affected stocks, a one-year delay in restricting fishing mortality may or may not be critical to sustainable management of the stock.

Table 4.1.

2000 TACs, if established using process identified by Alternative 2A¹. Only the species for which there was a difference between status quo (actual 2000 TAC) and 2000 TAC under Alternative 2A are listed.

Species	2000 TAC Under Alternative 2A ²	Actual 2000 TAC	Potential Change in Final TAC (as a result of Alt. 2A)	
			mt	%
Gulf of Alaska				
Deep Water Flatfish	6,050	5,300	750	14.2
Flathead Sole	9,040	9,060	-20	-0.2
Northern Rockfish	4,990	5,120	-130	-2.6
Other Species	14,600	14,270	330	2.3
Pacific Cod	67,835	59,800	8035	13.4
Pelagic Shelf Rockfish	4,880	5,980	-1100	-18.4
Pollock	100,920	100,000	920	0.9
Pacific Ocean Perch	12,590	13,020	-430	-3.3
Rex Sole	9,150	9,440	-290	-3.1
Other Slope Rockfish	5,270	4,900	370	7.6
Sablefish	12,700	13,330	-630	-4.7
Shallow Water Flatfish	18,770	19,400	-630	-3.3
Shorthead/Rougheye Rockfish	1,590	1,730	-140	-8.1
Thornyhead	1,990	2,360	-370	-15.7
Bering Sea/Aleutian Islands				
Pollock BS	992,000	1,139,000	-147,000	-12.9
Pacific cod	177,000	193,000	-16,000	-8.2
Atka Mackerel AI	66,400	70,800	-4,400	-6.2
Sablefish BS	1,340	1,470	-130	-8.8
Sablefish AI	1,380	2,430	-1,050	-43.2
Greenland Turbot	9,000	9,300	-300	-3.2
Yellowfin sole	207,980	123,262	84,718	68.7
Flathead sole	77,300	52,652	24,648	46.8
Rock sole	120,000	134,760	-14,760	-11.0
Arrowtooth flounder	134,354	131,000	3,354	2.6
Other flatfish	154,000	83,813	70,187	83.7
Pacific Ocean Perch BS	1,400	2,600	-1,200	-46.2
Pacific Ocean Perch AI	13,500	12,300	1,200	9.8
Sharpchin/Northern Rockfish AI	4,230	5,150	-920	-17.9
Shorthead/Rougheye AI	965	885	80	9.0
Other red rockfish BS	267	194	73	37.6
Other species	32,860	31,360	1,500	4.8

¹Refer to Appendices 1 and 2 for historical data related to TACs.

²This is the 1999 final TAC. Alternative 2A would cause a one-year delay in responding to the annual survey results and the resulting ABCs.

Alternative 2B (change the fishing year) could have unpredictable results and might have adverse impacts on groundfish species, because a change in fishing year could cause fishermen to change their fishing behaviors. This change in the timing of fishing effort might affect different life stages of species or stock assessment modeling (less of an issue for Atka mackerel, Pacific cod, and pollock

because of seasonal allocations). For example, fishermen may choose to fish conservatively early in the [new] fishing year in order to "save up" PSC limits and TAC in order to maximize their returns during the winter high value roe fishery. Under Alternative 2B, this winter roe fishery would occur late in the fishing year. Real-time tracking and co-operation among fishery participants might mitigate the possible economic impacts and minimize changes in fishing patterns, which could mitigate the possible environmental impacts. In addition, the last quarter fishery would not benefit from the most recent survey data on stock abundance if surveys indicate increasing stock sizes. The last quarter fisheries would be based on survey data that would be 18 months old. This could pose conservation concerns if stock abundance has decreased since the annual specifications were adopted. In addition, a change in the fishing year could affect stock assessment model structure and require manipulations to both the models and historic data. This may compromise the certainty of abundance estimates.

Alternative 2C (earlier surveys) could result in negative impacts to many groundfish species because it would force NMFS to conduct surveys in late winter or early spring when surveys could be hindered due to poor weather conditions. Furthermore, changing the timing of the abundance surveys could affect estimates made concerning stock biomass. Different life stages may or may not be available to the gear in winter months which could increase the uncertainty of abundance estimates. For example, many temperate species reproduce early in the Spring and recruitment can be measured during the summer, allowing scientists to complete stock assessments in September and October. In addition, any change in the fishing year could affect model structure and require manipulations to both the models and historic data. Further, commercial vessels would not be as readily available to serve as contracted survey platforms and historical data series based on summer surveys would be disrupted. Indirectly, poor survey data leads to greater uncertainty in population models and ABC estimates and a higher likelihood of overfishing, and may increase the uncertainty associated with stock assessment models as it would disrupt historical data trends which are based on summer abundances. Further, weather conditions under this alternative could limit survey activity by affecting the ability to bottom trawl or use hydro-acoustic sampling equipment. The uncertainty associated with modeling stock dynamics may have negative long-term environmental effects.

Alternative 3. Interim Specifications, Followed by Proposed and Final Specifications

Under this alternative, if the Council-recommended TAC is lower than the calculated TAC, the Council TAC would be established as the interim TAC. This precautionary approach could benefit groundfish stocks by preventing the interim TACs from exceeding recommended levels for the final TACs and thus, undermining the Council's intent for optimization of harvest under established OYs. This stipulation would benefit primarily those species that are not subject to seasonal apportionments and which are harvested early in the fishing year. Table 4.2 shows what the interim TAC would have been for the 2000 fishing year.

Alternative 3 would have a positive benefit on the environment beyond those assessed for the status quo because interim TACs would be based on the best available information collected during summer surveys. If environmental conditions changed dramatically and impacts of the calculated interim TACs were not within the scope of the previous year's EA for annual specifications, NMFS would be required to develop a new EA to assess the impacts of the interim TACs prior to January 1. This alternative

would require that scientists be able to project TAC levels 16 months in advance so that the annual TAC EA would be able to adequately estimate the impacts of the interim TACs for the following year.

Table 4.2. A comparison of interim TACs under Alternative 3 and final TACs for 2000.

Species	Interim TAC under Alternative 3 (mt)	Final 2000 TAC (mt)	Potential Change in Final TAC from Interim TAC Under this Alternative ¹	
			mt	%
Gulf of Alaska				
Arrowtooth Flounder	23,433	35,000	11,567	49.4
Flathead Sole	9,060 (9,095) ²	9,060	0	0
Pacific Cod	59,800 (61,405)	59,800	0	0
Pacific Ocean Perch	12,494	13,020	526	4.2
Shallow Water Flatfish	16,469	19,400	2,931	17.8
Bering Sea/Aleutian Islands				
Pollock Bogoslof	1,000 (1,458)	1,000	0	0
Pacific cod	193,000	193,000	0	0
Atka Mackerel AI	64,135	70,800	6,665	10.4
Sablefish AI	1,803	2,430	627	34.8
Greenland Turbot	5,894	9,300	3,406	57.8
Yellowfin sole	123,262 (187,378)	123,262	0	0
Flathead sole	52,652 (73,500)	52,652	0	0
Rock sole	89,320	134,760	45,440	50.9
Arrowtooth flounder	125,717	131,000	5,283	4.2
Other flatfish	83,813 (117,000)	83,813	0	0
Pacific Ocean Perch BS	1,916	2,600	684	35.7

¹ This column represents the difference between the final TAC and the interim TAC. If no change, the species is not listed except, as noted in footnote 2.

² The numbers in parentheses indicate a species in which the Council-recommended TAC was lower than the calculated interim TAC and therefore, the Council TAC was used as the interim TAC. The numbers in parentheses are the calculated interim TACs derived solely from the non-discretionary formula.

Alternative 4. Rollover of Specifications until Superseded by Final Specifications

Alternative 4A would rollover the previous year's TACs and PSC limits, until superseded by proposed and final specifications. Alternative 4B would rollover the previous year's TACs until superseded by interim final specifications. The rolled over TACs effectively operate as interim specifications, allowing the fishery to operate on January 1 (or January 20, in the case of the trawl fishery). If the new Council-recommended ABCs and TACs are lower than in the previous year, there is a possibility that those could be exceeded in the interim period. This is possible; especially for those fisheries that operate early in the fishing year. However, ABCs do not tend to change dramatically from one year to the next and depending on the life history of affected species, a four-month delay in restricting fishing mortality likely would not impact the stock. If questions exist on whether projected impacts are within the scope of the previous year's EA, NMFS would determine that a subsequent EA must be developed prior to January 1 to assess fishery activities under the interim specifications.

Alternative 5. Multi year TAC setting

In Alternatives 5A and 5B the interim TAC set for the future year will be based upon projections from a stock assessment rather than upon the previous year's TAC. This allows the interim value to be based more accurately on a scientifically derived value rather than an administrative adoption of a previous year's harvest level. This process would allow for better management of the groundfish stock, preventing the possibility of overfishing for a stock that may be projected to have a decrease in biomass in the second or third year when the interim TAC is set. This alternative does not give the flexibility to use recent catch data for modeling to establishing interim TAC which may lead to less accurate ABC projection and possibly less effective management of the groundfish stocks.

The Option. Abolish TAC Reserves.

This option is an administrative change to accommodate the practice of releasing nonspecified TAC reserves for the fisheries. Implementation of this option would have no impact on the groundfish target species that differs from the status quo. Given that the option addresses TAC reserves as a subset of the TAC that is assumed to be available for harvest, the impacts are assessed annually in the analyses that accompany final specifications.

4.2 Effects on Species Prohibited in Groundfish Fisheries Harvest

Catches of Pacific halibut, crabs, salmon, and herring are controlled by PSC limits that are established in regulations. Section 4.3.5 of the SEIS (NMFS 1998a) describes the possible impacts of a range of total harvest alternatives on prohibited species.

Alternative 1. Status Quo.

Under the status quo, 25 percent of the previous year's PSC limits and fishery apportionments thereof are made available during the interim period, until final specifications are published in the Federal Register. This does not have any adverse impacts on prohibited species unless the annually -specified PSC limits are reduced significantly. In such a case, they are not likely to be reduced by more than 75 percent. Therefore, the status quo allocation of 25 percent of the PSC limits as an interim measures "protects" against excessive harvesting of prohibited species.

Alternative 2. Proposed and Final Specifications

The alternatives under Alternative 2 are not likely to affect bycatch except as survey data may be incomplete due to difficulty in carrying out the survey in winter months. This may have indirect impacts on non-target species population dynamics modeling and management. Proposed and final specifications, including PSC limits, would be finalized under this alternative before the fishing year started, leading to better management of PSC over the status quo.

Alternative 3. Interim Specifications, Followed by Proposed and Final Specifications

The revisions to the annual specification process, of themselves, are not expected to have significant impacts on prohibited species in groundfish fisheries harvest. Operating under Alternative 3, NMFS would annually assess the expected impacts from proposed and final annual specifications on species prohibited in the groundfish fisheries harvest. Regulations establishing PSC limits for BSAI herring and crab are frameworked to account for annual abundance changes. These changes would be accommodated under the interim specifications issued under Alternative 3. Thus, this alternative would be more responsive to new abundance-based PSC limits, compared to alternatives 1, 2, 4, and 5. It is possible that other PSC limit apportionments rolled over from the previous year could exceed "new" recommended apportionments during the interim period which may result in more bycatch of PSC in a fishery or season than recommended.

Alternative 4. Rollover of Specifications until Superseded by Final Specifications

Alternative 4 could have an adverse impact on non-target species. Under this alternative, the PSC limits would be identical to those issued in the previous year until final specifications were specified. If PSC limits decrease, those limitations would not be implemented until the publishing of the final specifications increasing the possibility of allowing excessive bycatch of prohibited species during the first half of the fishery year.

Alternative 5. Multi year TAC setting

For PSC species other than crab and herring, the PSC limits are specified in regulations and this alternative would have no effect other than what is specified under the status quo. For crab and herring NMFS and/or the State would need to provide projections of crab and herring biomass for the interim PSC limits under Alternatives 5A and 5B. Future years' crab and herring interim PSC limits will be based upon projections from the annual stock assessments rather than upon the previous year's PSC limits as in the status quo. This would allow the interim value to be based more accurately on a scientifically derived value rather than an administrative adoption of a previous year's limits. During the interim time period, there may be concerns with allocation of PSC limits between the fisheries and seasons and the need to rollover PSC allocations until the Council makes annual allocation recommendations and they appear in the Federal Register. There is also the possibility that trying to make a third year projection with the abundance data could lead to unreliable results making effective management of crab and herring PSC limits difficult.

The option. Abolish TAC Reserves

This alternative has no impact on prohibited species bycatch since it only involves an administrative process to remove the need to establish nonspecified TAC reserves.

4.3 Effects on Marine Mammals, Sea Birds, and Species Listed as Threatened or Endangered Under the ESA

Revising the process by which TAC specifications are established and eliminating TAC reserves are not expected to affect listed species in any way not considered in previous consultations. All annual specification alternatives must comply with the Steller sea lion protection measures identified under Section 7 consultation. Further, it is not expected to affect other marine mammals or sea birds that may be present in the GOA or BSAI. All alternatives considered for setting the annual specifications would be subject to annual consultations. Any RPAs deemed necessary would be implemented by separate rulemaking.

The effects of groundfish harvest at various TAC levels on marine mammals is discussed in section 4.3.2 of the SEIS (NMFS, 1998a) and the draft SEIS (NMFS 2001). Causal relationships between commercial harvesting of groundfish in the EEZ off Alaska and the population status and trends of marine mammals have not been established. The complexity of potential interactions at multiple temporal and spatial scales that might affect foraging behavior, coupled with the paucity of data available to characterize those relationships, inherently limit detection of fisheries effects. Thus, the mechanisms by which fish biomass removals might translate to marine mammal fitness or mortality are largely unknown at this time.

4.3.1 Effects on Steller sea lions

The Comprehensive BiOp (NMFS, 2000b) evaluated all fisheries authorized and the overall management framework established by the GOA and BSAI FMPs. After analyzing the cumulative, direct, and indirect effects of the groundfish fisheries authorized by the GOA and BSAI FMPs on ESA listed species, NMFS concluded that the pollock, Pacific cod, and Atka mackerel fisheries, as currently prosecuted, do jeopardize the continued existence of the western population of Steller sea lions and adversely modify their critical habitat. On December 21, 2000, the President signed Public Law 106-554. This law provided for a one year phase in of the RPA consistent with the ESA and other applicable laws. During this period the Council is challenged to conduct scientific review and develop modifications to the RPA prior to its full implementation in 2002. On January 18, 2001, (66 FR 7276, January 22, 2001) NMFS issued an emergency interim rule to implement temporary protection management measures allowing for scientific review and recommendations by the Council before modifying and finalizing the RPA.

The RPA addresses in several ways the competition between the groundfish fishery and non-human predators in the marine ecosystem, which is considered by NMFS to be a significant factor in the population decline of Steller sea lions. The RPA modifies the existing harvest control rule to ensure that there are enough prey resources overall and that prey densities are sufficient to supply all competitors on a large scale. The catch of important prey species is distributed over space and time to reduce the effects of localized depletion. Localized depletion is the reduction of prey resources below a threshold necessary to effectively supply predators in a specific area during a specific time period. Fishing is prohibited in areas immediately surrounding rookery and haulout sites and fishing is curtailed for important prey species in significant portions of designated critical habitat to relieve competition in

areas considered important to Steller sea lion survival and recovery. These regulations control available biomass, temporal and spatial aspects of the pollock, Pacific cod and Atka mackerel fisheries in an attempt to reduce competition for prey species between fishermen and Steller sea lions.

Alternative 1. Status Quo

Under alternative 1, there is no change to the annual specification setting process and no additional effect on Steller sea lions.

Alternative 2. Proposed and Final Specifications

Under alternative 2A and 2C there would be no effect on Steller sea lions because the execution of the fishery will not be changed, only the process in setting levels.

Alternative 2B may pose some difficulties in executing the fisheries in the framework of the Steller sea lion protective measures because of starting the fishing year at a later date. The RPA specifies beginning and ending dates for seasonal allocations for BSAI and GOA pollock and Pacific cod and BSAI Atka mackerel in a way which may conflict with beginning a fishing year at a later date. With a later fishing year, the end of the fishing year would be in the January-March time period, which is also a period of major activity in the Atka mackerel, P. cod and pollock fisheries. The harvest levels set for this time period would be based upon stock assessments that are 20 to 18 months old, increasing the possibility that the TAC may not be set at an appropriate level for the current biomass. The available biomass of Atka mackerel, P. cod and pollock were identified as a critical element in the RPA. If the biomass had unexpectedly dropped in the time period between setting TAC and harvest levels were set too high for the current biomass, there may be increased competition between the Steller sea lions and commercial fisheries. To the extent authorized under the RPA, the participants in the Atka mackerel, pollock and P. cod fisheries may also alter their fishing practices to "save" their fishing allocation towards the end of the fishing year, when it is most profitable. This may cause localized depletion if not carefully monitored to meet RPA requirements.

Alternative 3. Interim Specifications, Followed by Proposed and Final Specifications

Because Alternative 3 bases the interim TAC on new information on the status of the stocks, this alternative may be more desirable than the status quo alternative. With the new stock information, the interim TAC will be set at a level appropriate for the current biomass, reducing the risk of overfishing a declining stock and reducing the possibility of competition for prey.

Alternative 4. Rollover of Specifications until Superseded by Final Specifications

With the TAC being set for up to a 16 month period, there is less ability to respond to changes in biomass which may be detected on an annual basis for pollock and P. cod. If the biomass of pollock or P. cod drop between annual surveys, the TAC would not be adjusted accordingly until well into the following fishing season. This may increase the risk of increased competition between Steller sea lions and commercial fisheries during the early part of the fishing year.

Alternative 5. Multi Year TAC

This alternative could have an effect on Steller sea lions. The possibility of setting the interim TAC at a level that is too high for the biomass over time is reduced by using projections from stock assessments. The setting of interim TAC over time is more scientifically based rather than administratively done as in the status quo alternative. Nonetheless, the possibility exists that the interim TAC may be set too high if the projections overestimate the amount of biomass available over time. This may increase competition for prey between the Steller sea lions and the commercial fisheries.

The option. Elimination of TAC Reserves

This alternative should have no effect on Steller sea lions since it is only a change in regulations on the management of reserves and has no effect on the current fisheries practices or on the final level of TAC.

Additional information regarding Section 7 consultations for the groundfish fishery for Steller sea lions and all other listed species can be found in the Comprehensive BiOp (NMFS, 2000b).

4.3.2 Incidental Takes

None of the alternative is expected to have an impact on direct incidental takings of marine mammals or sea birds since there will be no significant changes in fishing practices. In all cases in the groundfish fisheries, levels of direct incidental take are low relative to each marine mammal stock's Potential Biological Removal. As noted previously, two short-tailed albatross were taken in 1998 in the long-line fishery, however, this was within incidental take guidelines and did not prompt the USFWS to re-initiate consultation. The Council adopted additional seabird avoidance measures for implementation in the year 2000. Regulations at 50 CFR Parts 679.24(e) and 679.42(b)(2) contain specifics regarding seabird avoidance measures.

4.4 Coastal Zone Management Act

Implementation of any of the considered alternatives would be conducted in a manner consistent, to the maximum extent practicable, with the Alaska Coastal Management Program within the meaning of Section 30(c)(1) of the Coastal Zone Management Act of 1972 and its implementing regulations.

4.5 Effects on Essential Fish Habitat

The management areas where the fisheries take place are identified as essential fish habitat (EFH) for all the managed species listed in the fishery management plans. The proposed action would potentially involve all BSAI and GOA species noted in the environmental assessment prepared for EFH (NPFMC, 1999c). The impacts of fishing gear on substrates and benthic communities was analyzed in the SEIS (NMFS, 1998a) and draft SEIS (NMFS 2001). NMFS prepared an assessment of impacts to essential fish habitat and received a letter of consultation in reply regarding 2000 TAC specifications. In that letter NMFS stated it concurs with the assessment that fishing may have adverse impacts on EFH for

managed species but concluded that any adverse effects have been minimized to the extent practicable. No EFH recommendations were offered.

This action changes procedures for establishing annual specifications. Changing temporal patterns of fishing may occur under Alternative 2, although this effect, to the extent that it occurs, would be assessed annually. Allowable harvest amounts on an interim basis would be affected by the alternative chosen, although whether or not any differences could result in discernible changes to impacts on EFH relative to the status quo is unknown. Effects on EFH, target and non-target species, and associated species such as prey species, resulting from annual specifications will be assessed annually in supporting documents for those actions and are not discussed here.

4.6 Summary of Environmental Impacts and Conclusions

To determine the significance of impacts of the actions analyzed in this EA, NMFS is required by NEPA and 50 CFR § 1508.27 to consider the following:

Context: The setting of the action is the groundfish fisheries of the BSAI and GOA. Any effects of the action are limited to these areas. The effect on society within these areas is isolated to the direct participants in the groundfish fisheries of the BSAI and the GOA. There are no major changes to fishing practices nor to total allowable allocations, only administrative changes to the process of setting annual specifications.

Intensity: A listing of considerations to determine intensity of the impacts are in 50 CFR § 1508.27 (b). Each consideration is addressed below in order as it appears in the regulations.

1. Beneficial and adverse impacts are required to be considered in this action. Because this action would affect the process by which annual specifications are set, and not the specifications themselves, impacts to the environment are expected to be minimal. Further, specific impacts resulting from the annual specifications would be assessed annually in a NEPA document. There are potential changes to fishing patterns and ABC/TAC levels that could result from the considered alternatives, depending on which is preferred. Alternative 2 (change in fishing year) could alter fishing patterns which has unpredictable results. However, those changes would be assessed in an annual EA that accompanies the TAC/PSC limit specifications. None of the considered alternatives is expected to have an adverse impact on essential fish habitat or on protected species because regulations currently exist that control fishing effort and practices to mitigate adverse impacts on listed species.
2. Public Health and Safety may be impacted by alternative 2C with the requirement to conduct survey earlier in the year. This would require scientists and crew to work during the winter months when the weather conditions may be more dangerous than during summer. All other alternatives have no new, additional effects on public health and safety.
3. This action takes place in the geographic areas of the Bering Sea, Aleutian Islands and Gulf of Alaska. Even though these areas contain cultural resources and ecologically critical areas, no effects

on the unique characteristics of these areas are anticipated to occur with any alternative considered with this action.

4. This action is not controversial.

5. The risks to the human environment by implementing the BSAI and GOA groundfish fisheries are described in detail in the SEIS (NMFS 1998a) and in the draft SEIS (NMFS 2001). Because the action analyzed in this EA is an administrative process, conducted consistently with the Steller sea lion RPA, and does not change fishing practices, it is anticipated that there will be minimal or no risk to the human environment by taking this action.

6. Future actions related to the setting of annual specifications may result in significant impacts on the groundfish fisheries and environment. The setting of specifications is an annual process that includes a NEPA analysis with each regulatory action. NMFS has released for public review and comment a draft SEIS to address the BSAI and GOA groundfish fishery FMPs. Future EAs analyzing the setting of annual specifications will be tiered from this SEIS once it is finalized.

7. Cumulatively significant impacts may result with this action. The State of Alaska sets guideline harvest levels based upon the annual specifications for the BSAI and GOA. Any changes in the federal TAC process may have an effect on the State GHLL setting process. Sablefish outside of Prince William Sound and Pacific cod are dependent on federal ABC/ TAC setting process so that their GHLL would be derived from ABC up to 25 % for P. cod and GHLL for sablefish as historical percentage of catch from inside state waters. Under alternative 5, NMFS would need crab and herring biomass projections from the State for setting year 2 or year 3 interim PSC limits. This would increase the State's workload and would provide projections that the State does not normally use because it is less unreliable than a single year projection.

8. Because this is primarily an administrative process, this action will have no effect on districts, sites, highways, structures, or objects listed or eligible for listing in the National Register of Historic Places, nor cause loss or destruction of significant scientific, cultural, or historical resources. This consideration is not applicable to this action.

9. NEPA required NMFS to determine the degree an action may affect threatened or endangered species under the ESA. The only ESA listed species of concern with this action is the Steller sea lion. Alternative 2B may pose some difficulties in executing the fisheries in the framework of the Steller sea lion protective measures because of starting the fishing year at a later date. The ESA Section 7 consultation for the BSAI and GOA groundfish fisheries FMPs resulted in a Comprehensive BiOp (NMFS 2000b) including an RPA specifying beginning and ending dates for seasonal allocations for BSAI and GOA pollock and Pacific cod and BSAI Atka mackerel in a way which may conflict with beginning a fishing year at a later date. With a later fishing year, the end of the fishing year would be in the January-March time period, which is also a period of major activity in the Atka mackerel, Pacific cod and pollock fisheries. The harvest levels set for this time period would be based upon stock assessments that are 20 to 18 months old, increasing the possibility that the TAC may not be set at an appropriate level for the current biomass. The available biomass of Atka mackerel, Pacific cod and

pollock were identified as a critical element in the RPA. If the biomass had unexpectedly dropped in the time period between setting TAC and harvest levels were set too high for the current biomass, there may be increased competition between the Steller sea lions and commercial fisheries. To the extent authorized under the RPA, the participants in the Atka mackerel, pollock and P. cod fisheries may also alter their fishing practices to "save" their fishing allocation towards the end of the fishing year, when it is most profitable. This may cause localized depletion if not carefully monitored to meet RPA requirements. Because the other alternatives will be implemented in a manner consistent with the Steller sea lion RPA measures, there will be no effect from the other alternatives on ESA listed species in the BSAI and GOA because no changes in fishing practices that may affect ESA listed species will result.

10. This action poses no known violation of Federal, State, or local laws or requirements for the protection of the environment. Section 1.3 describes the legal consideration of tiering this EA off of the SEIS for the groundfish fisheries (NMFS 1998a). A draft SEIS for the BSAI and GOA groundfish fisheries FMPs is available for public review.

5.0 REGULATORY IMPACT REVIEW

This section provides information about the economic and socioeconomic impacts of the alternatives including the nature of these impacts, quantification of the economic impacts if possible, and discussion of the trade offs between qualitative and quantitative benefits and costs. The requirements for all regulatory actions specified in E.O. 12866 are summarized in the following statement from the order:

In deciding whether and how to regulate, agencies should assess all costs and benefits of available regulatory alternatives, including the alternative of not regulating. Costs and benefits shall be 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 nevertheless essential to consider. Further, in choosing among alternative regulatory approaches, agencies should select those approaches that maximize net benefits (including potential economic, environment, public health and safety, and other advantages; distributive impacts; and equity), unless a statute requires another regulatory approach.

This section also addresses the requirements of the E.O. 12866 to provide adequate information to determine whether an action is "significant", as defined under this Executive Order

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

(1) 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, the environment, public health or safety, or State, local, or tribal governments or communities;

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

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

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

5.1 Purpose and Need for Action

The current TAC specification process and a description of the need for action is discussed in detail in Sections 1.1 and 1.2 of this document. The current TAC -setting process involves proposing specifications based on the previous year's specifications (and requesting comments), setting interim specifications, and publishing final specifications after the start of the fishing year based on Council-recommended TACs. The status quo process does not provide for meaningful public comment because the proposed specifications are outdated once the plan teams and SSC provide new information based on the annual surveys. Further, the interim TACs place an artificial and undesirable constraint on fisheries which occur early in the fishing year, before the final specifications are published. Incidentally, the participants that focus fishing effort early in the fishing year and are directly "managed" under the interim TACs are predominantly active in high value roe fisheries.

Because this action is a revision to the process of setting TACs and not a change in the TACs themselves, a quantitative description of the need for action is impracticable. Management actions that will decrease groundfish catches or increase operating costs may result from continued concerns with: 1) the bycatch of prohibited species, 2) the discard and utilization of groundfish catch, and 3) the effects of the groundfish fisheries on marine mammals and sea birds. Management actions taken to allocate the catch between various user groups can significantly affect the economic health of the fishery. However, there would not likely be significant economic effects of the considered alternatives on fishery participants attributable to the alternatives under consideration here, because the action would merely change the TAC-setting *process*, not the harvest levels or allocations. Any subsequent action to alter harvest levels or allocations would, necessarily, be accompanied by its own impact statement, providing ample opportunity for public input and debate.

5.2 Objectives

The objectives of this action are treated in detail in Section 1.5, and include a desire to manage fisheries based on the best available information, respond to new information or conservation concerns, and comply with NEPA, ESA, and RFA provisions while minimizing unnecessary disruption to fisheries. It is also the purpose of this action to provide adequate opportunity for public review and comment, and promote administrative efficiency while minimizing public confusion regarding TAC specifications.

The following discussion identifies possible economic impacts resulting from alternatives designed to satisfy the above-mentioned objectives. Detailed descriptions of each alternative can be found in

Section 2.0. The management alternatives and an option that may be implemented with any alternative are:

- Alternative 1. Status quo. (Publish proposed specifications, followed by interim and final specifications)
- Alternative 2: Eliminate publication of interim specifications. Issue proposed and final specifications prior to the start of the fishing year. This alternative has three sub-alternatives; (a) base proposed and final specifications on previous year's survey data, (b) delay the start of the fishing year, or (c) conduct surveys earlier in calendar year.
- Alternative 3: Issue interim specifications based on new information on status of stocks and a non-discretionary formula, followed by publication of proposed and final specifications based on December Council recommendations. This alternative would use new ABC recommendations from the December Council meeting to establish non-discretionary interim TACs.
- Alternative 4: Eliminate publication of interim specifications. Rollover previous year's specifications during interim period. This alternative has two sub-alternatives; (a) Rollover followed by publication of proposed and final specifications or (b) rollover followed by publication of interim final specifications with comment period.
- Alternative 5: Establish interim and final specifications based upon multiple year stock assessment projections. This alternative has two sub-alternatives; (a) base interim TAC for subsequent year on annual stock assessment projection for all BSAI and GOA groundfish fisheries and (b) for biennially surveyed target species, set TAC biennially based on a biennial stock assessment and base interim TAC on a third year projection from biennial stock assessments.
- The Option: Abolish TAC Reserves. This option may be implemented together with any of the alternatives

This document describes the potential range of impacts that could result from each alternative.

Under all of these alternatives, including the status quo, if new information becomes available at any time that would preclude the fishery from operating under existing NEPA or ESA analyses and current management measures, NMFS could publish emergency regulations that would bring the fishery into compliance with all relevant statutes. Any such emergency regulation may close the fishery or enact management changes that may have a significant economic impact on affected parties. Those impacts would be assessed prior to emergency action.

5.3 Description of the BSAI and GOA Groundfish Fisheries⁹

The commercial groundfish catch off Alaska totaled 1.7 million t in 1999, compared to 1.9 million t in 1998. The ex-vessel value of the catch, excluding the value added by at-sea processing, increased from \$416 million in 1998 to \$483 million in 1999. The value of the 1999 catch after primary processing was approximately \$1.2 billion. The groundfish fisheries accounted for the largest share of the ex-vessel value of all commercial fisheries off Alaska in 1999 (39%), while the Pacific salmon (*Oncorhynchus* spp.) fishery was second with \$346 million or 28% of the total Alaska ex-vessel value. The value of the shellfish catch amounted to \$271 million or 22% of the total for Alaska. During the last 15 years, estimated total catch in the commercial groundfish fisheries off Alaska (including foreign and joint venture fisheries as well as the domestic fishery) varied between 1.7 and 2.4 million t.

Walleye (Alaska) pollock (*Theragra chalcogramma*) has been the dominant species in the commercial groundfish catch off Alaska. The 1999 pollock catch of 1.09 million t accounted for 66% of the total groundfish catch of 1.66 million t. The pollock catch was down approximately 13% from 1998. The next major species, Pacific cod (*Gadus macrocephalus*), accounted for 242,500 t or almost 15% of the total 1999 groundfish catch. The Pacific cod catch was down about 6% from a year earlier. The 1999 catch of flatfish, which includes yellowfin sole (*Pleuronectes asper*), rock sole (*Pleuronectes bilineatus*), and arrowtooth flounder (*Atheresthes stomias*) was 186,400 t, down over 16% from 1998. Pollock, Pacific cod, and flatfish comprised over 91% of the total 1999 catch. Other important species are sablefish (*Anoplopoma fimbria*), rockfish (*Sebastes* and *Sebastolobus* spp.), and Atka mackerel (*Pleurogrammus monopterygius*).

Trawl, hook and line (including longline and jigs), and pot gear account for virtually all the catch in the BSAI and GOA groundfish fisheries. There are catcher vessels and catcher processor vessels for each of these three gear groups. Catcher vessels catch groundfish and make deliveries to a mothership or on-shore processor for processing; catcher processors catch, but are also equipped to do some processing on board.

In the last 5 years, the trawl catch averaged about 90% of the total catch, while the catch with hook and line gear accounted for 7.9%. Most species are harvested predominately by one type of gear, which typically accounts for 90% or more of the catch. The one exception is Pacific cod, where in 1999, 44% (105,000 t) was taken by trawls, 42% (101,000 t) by hook and line gear, and 15% (35,000 t) by pots. In the last five years for the BSAI and GOA as a whole, catcher vessels took 43% of the catch and catcher processor vessels took the other 57%. In 1999, catcher vessels took about 48% of the total. That increase is explained in part by the American Fisheries Act (AFA) which among other things increased the share of the BSAI pollock TAC allocated to catcher vessels

⁹Unless otherwise indicated, the following discussion is abstracted from the "Stock Assessment and Fishery Evaluation Report for the Groundfish Fisheries of the Gulf of Alaska and the Bering Sea/Aleutian Islands Area: Economic Status of the Groundfish Fisheries Off Alaska, 2000"

delivering to inshore processors. The distribution of catch between catcher vessels and catcher processor vessels differed substantially by species and area.

Residents of Alaska and of other states, particularly Washington and Oregon, are active participants in the BSAI and GOA groundfish fisheries. For the domestic groundfish fishery as a whole, 92% of the 1999 catch was made by vessels with owners who indicated that they were not residents of Alaska. The catches of the two vessel-residence groups were much closer to being equal in the Gulf where Alaskan vessels accounted for the majority of the Pacific cod and sablefish catch.

The ex-vessel value of the domestic landings in the FMP fisheries, excluding the value added by at-sea processing, decreased from \$585 million in 1995 to \$531 million in 1996, increased in 1997 to \$615 million, decreased again to \$416 million in 1998, and increased to \$488 in 1999. The distribution of ex-vessel value by type of vessel differed by area, gear and species. In 1999, catcher vessels accounted for 52% of the ex-vessel value of the groundfish landings compared to 48% of the total catch because catcher vessels take larger percentages of higher-priced species such as sablefish, which was \$2.79 per pound in 1999. Similarly, trawl gear accounted for only 64% of the total ex-vessel value compared to 89% of the catch because much of the trawl catch is of low-priced species such as pollock, which was about \$0.09 per pound in 1999.

For the BSAI and GOA combined, 80.6% of the 1999 ex-vessel value was accounted for by vessels with owners who indicated that they were not residents of Alaska. Vessels with owners who indicated that they were residents of Alaska accounted for 18.9% of the total and the remaining 0.5% was taken by vessels for which the residence of the owner was not known. The vessels owned by residents of Alaska accounted for a much larger share of the ex-vessel value than of catch (18.9% compared to 8.1%) because these vessels accounted for relatively large shares of the higher-priced species such as sablefish.

The total product value, through primary processing, was about \$1.2 billion in 1999. Various pollock products, including roe, deep-skin fillets, and surimi, accounted for over half of this, about \$721 million. Pacific cod products, including headed and gutted and fillet products, were the next most important, accounting for \$307 million. Sablefish and flatfish products accounted for about \$72 million and \$73 million respectively. Rockfish and Atka mackerel products followed accounting for \$22 million and \$23 million respectively.

The Weekly Production Reports include employment data for at-sea processors but not inshore processors. Those data are summarized in Table 35 by month and area. The data indicate that in 1999, the crew weeks totaled 87,238 with the majority of them (80,591) occurring in the BSAI groundfish fishery. In 1999, the maximum monthly employment (14,839) occurred in February. Much of this was accounted for by the BSAI pollock fishery.

Three mother ships were in operation in 1999 (Northern Economics, 2000). All three have ownership or business affiliations with large Japanese-owned processing companies, and are further affiliated with

some of their delivering catcher vessels. Taken together with their affiliated entities, none of these motherships meet the criteria for small entities.

There were 58 onshore processors operating in 1999. Large entities in the processing sector are those employing more than 500 persons (including employment in affiliated operations). In 1999 onshore processors fell into five groups. Six plants were Bering Sea Pollock Inshore Plants. These are assumed to be large processors. Similarly, there were 10 Alaska Peninsula and Aleutian Island Inshore Plants in 1999 and 10 Kodiak Island Inshore Plants in 1999. These have also all been assumed to be large entities. Eighteen plants were Southcentral Alaska Inshore Plants and 14 were Southeast Alaska Inshore Plants. These last two classes of plants have been assumed to be small entities. This gives a total of 32 small entities and 26 large entities among the onshore processing plants. This is a rough estimate of the numbers of large and small onshore processing entities. (The classification of onshore processors into different regional categories has been based on Northern Economics, 2000) Small and large entity determinations are estimates based on anecdotal information.

Through the Community Development Quota (CDQ) program, the North Pacific Fishery Management Council and NMFS allocate a portion of the BSAI groundfish, prohibited species, halibut and crab TAC limits to 65 eligible Western Alaska communities. These communities work through six non-profit CDQ Groups to use the proceeds from the CDQ allocations to start or support commercial fishery activities that will result in ongoing, regionally based, commercial fishery or related businesses. The CDQ program began in 1992 with the allocation of 7.5% of the BSAI pollock TAC. The fixed gear halibut and sablefish CDQ allocations began in 1995, as part of the halibut and sablefish Individual Fishing Quota Program. In 1998, allocations of 7.5% of the remaining groundfish TACs, 7.5% of the prohibited species catch limits, and 7.5% of the crab guidelines harvest levels were added to the CDQ program. In 1999, the amount of the BSAI pollock TAC allocated to the CDQ program was increased to 10 percent under the American Fisheries Act.

5.4 Affected Catcher Vessels and Catcher-processors

Tables 5.1 and 5.2 summarize the numbers of vessels of different sizes and different processor types involved in the Alaska groundfish fisheries and provides a general snapshot of the range of capital invested in these fisheries. Table 5.3 provides estimates of catcher vessel and catcher-processor activity by month in 1999.

Table 5.1. Counts of Catcher-vessels that Caught Groundfish in the 1999 Groundfish Fishery

Area	Gulf of Alaska			Bering Sea/Aleutian Islands			Alaska Total		
	<60ft	60-124	>125ft	<60ft	60-124	>125ft	<60ft	60-124	>125ft
Hook and Line	766	117	2	34	40	3	780	124	5
Pot	131	65	2	4	63	23	133	97	23
Trawl	50	74	25	6	84	31	53	108	31

Source: 2000 Economic Groundfish SAFE document. Table 28.
<http://www.fakr.noaa.gov/npfmc/safes/2000/EconSAFE00.nov.pdf>

Table 5.2. Counts of Catcher-processor vessels that Caught Groundfish in the 1999 Groundfish Fishery

Area	Gulf of Alaska			Bering Sea/Aleutian Islands			Alaska Total		
	<125ft t	125- 234	>234 ft	<125ft t	125- 234	>234ft	<125ft	125- 234	>234ft
Hook and Line	16	13	0	15	26	0	18	26	0
Pot	2	9	0	3	11	0	3	11	0
Trawl	6	9	3	9	14	17	9	14	17

Source: 2000 Economic Groundfish SAFE document. Table 29.
<http://www.fakr.noaa.gov/npfmc/safes/2000/EconSAFE00.nov.pdf>

Table 5.3. Number of vessels that caught groundfish off Alaska by month, area, catcher type, and gear, 1999

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec.	Total
Gulf of Alaska - Catcher vessels													
Hook & Line	82	55	155	195	429	346	175	149	169	205	112	7	910
Pot	66	73	109	128	79	13	0	0	21	22	23	41	201
Trawl	77	99	103	24	4	60	26	8	83	54	1	0	154
All gears	222	225	331	344	499	419	210	157	273	279	135	48	1156
Gulf of Alaska - Catcher-processors													
Hook & Line	5	12	11	12	8	8	5	3	3	4	0	0	29
Pot	0	0	0	2	5	10	6	6	1	0	0	0	11
Trawl	3	3	6	9	3	0	12	13	1	7	0	0	18
All gears	8	15	17	23	16	18	23	22	5	11	0	0	57
Bering Sea/Aleutian Islands- Catcher vessels													
Hook & Line	1	1	2	6	19	19	36	28	18	18	7	2	78
Pot	2	2	2	40	54	22	0	0	24	30	1	1	90
Trawl	64	86	80	70	0	0	12	91	73	69	2	1	126
All gears	67	89	84	115	73	41	48	119	115	117	10	4	288
Bering Sea/Aleutian Islands- Catcher-processor vessels													
Hook & Line	27	28	34	36	27	6	4	8	37	37	8	14	41
Pot	0	0	0	5	11	4	1	1	6	3	0	0	14
Trawl	36	36	37	29	20	6	29	38	37	32	6	2	40
All gears	63	63	71	70	55	16	33	46	78	72	14	16	88
Source: 2000 Economic Groundfish SAFE document, Table 28. http://www.fakr.noaa.gov/npfmc/safes/2000/EconSAFE00.nov.pdf													

5.5 Expected Effects of Each Alternative

For all of the considered alternatives, if an ESA concern emerges after the December Council meeting regarding newly available information NMFS may need to initiate a new Section 7 consultation to comply with the ESA and the fishery may not be able to operate until NMFS evaluated the new information and produced the required analyses. The potential risk of this occurrence is reduced for those species with first season harvest limits (e.g., pollock, Atka mackerel). If the "crisis" is a concern regarding conservation, NMFS would rely on issuing an emergency rule, based on new Section 7 consultations or additional analyses.

Alternative 1. Status quo. Proposed specifications (and comment period), followed by interim specifications published before January 1 and final specifications.

The status quo process could result in a significant cost to the fishing industry if participants are misled by proposed specifications that are subsequently changed, in a substantial way, by final specification. If the TACs and apportionments thereof change considerably between proposed and final rules, over- or under-utilization of scarce and valuable economic resources (e.g., labor, capital investment in equipment and stores) may occur when preparing for an upcoming fishing season. This process could have adverse impacts on all sectors and segments of the industry (e.g., inshore processors, catcher/processors, motherships, and catcher vessels), increasing their economic exposure and financial risk, as they develop operational and business plans for the upcoming fishing season. Increasing risk and uncertainty imposes costs on all those operators which supply goods and services to the industry. It also decreases the stability of seafood markets and increases the cost of negotiating price, product mix and supply contracts. Such uncertainty can have adverse impacts on secondary users of the catch (e.g., reprocessors, restaurants, food service firms) as well as on final consumers, as reflected in higher retail prices, unstable product supplies, or both.

While not amenable to quantification, *a priori*, these potential adverse economic impacts attributable to retention of the status quo annual specification setting process are real and need to be considered in weighing the comparative 'costs and benefits' of the competing alternatives.

In the past, NMFS has set interim TACs based on 25 percent of the recommended TAC for some fisheries. This 25 percent level is an artificial constraint which could deny access to the full amount of the annual quota by fishermen who, for market, product, or logistical reasons, focus their effort early in the year (before final specifications are issued).

Retention of the status quo alternative could, therefore, result in a closure of one or more of the groundfish fisheries in the BSAI and GOA management areas if, for example, NMFS cannot publish final specifications before the interim TAC levels are reached. This would result in severe negative economic impacts on all those dependent upon the fishery or fisheries in question, particularly for those fishery participants who concentrate fishing effort early in the fishing year. In particular, pollock and fixed gear cod fisheries have a high probability of attaining interim TACs in any given year, under the status quo alternative. This potential attainment of the interim TACs and subsequent short-term closure

of important fisheries could have a significant adverse impact on vessels, processors, and the affiliated industries and communities that support and are supported by them.

In addition, PSC limits (which can result in closure of fisheries with resulting social and economic impacts) may be limiting during the interim period, particularly to the BSAI rock sole fishery which operates early in the fishing year, under the status quo alternative. If the interim 25 percent PSC limitations restrict fisheries, fishermen would forego potential revenues during the interim period, perhaps without the ability to subsequently recoup those losses.

Alternative 2: Eliminate publication of interim specifications. Issue Proposed and Final Specifications Prior to Start of the Fishing Year.

It is in the public interest to have final specifications implemented prior to the beginning of the fishing year, since it can be constraining and costly to industry to operate on interim TACs as described under the Status Quo alternative. Alternative 2 would minimize unnecessary disruption to the fisheries (and thus reduce the associated economic costs and planning burden), provide adequate review and comment by the public, and promote administrative efficiency, while minimizing public confusion. Alternative 2 would have a positive impact on the entire specification process to the extent that the fleet would be better able to plan for the upcoming fishing season.

In addition, the sablefish IFQs cannot be distributed before final specifications are in effect. Further, fishery co-operative agreements also are complicated if uncertainty exists concerning differences between interim and final specifications. It is therefore crucial to implement final specifications as close to the beginning of the fishing year as possible. This alternative would provide available TAC to these fisheries prior to the start of their fishing seasons.

Alternative 2 may provide a “buffer” for situations that may arise regarding ESA consultations. For example, Alternative 2 would give NMFS and Council time to consider responses to a jeopardy finding, prior to the start of the fishing year. This may decrease the need for emergency regulations. This would be expected to have a lesser economic impact on affected parties than under the status quo alternative. Emergency rules often have significant impacts on all fishery participants.

While the above discussion anticipates generally positive impacts from adoption of the Alternative 2 approach (publishing proposed and final specifications prior to January 1), several processes are possible to implement such a system whereby final specifications are in place January 1. The following discussion will address specific impacts associated with each sub-alternative.

Alternative 2A: Issue Proposed and Final Specifications based on previous year’s abundance surveys

Under this alternative, final TACs are set based on the previous year’s “official” biomass data. If new data subsequently indicate increased ABCs, fishery participants could be forced to forego potential income, at least in the short-term. Of course in the following year, they would be able to take advantage of the projected increase in ABC and TAC, as well as benefitting from the growth which accrued over

the year. This effect would be felt equally by all fishery participants. A one-year lag in implementing an indicated ABC or TAC change could also impose effects in the opposite direction. That is, if “preliminary”, but as yet unofficial information indicated a stock abundance decline, fishermen would not be required to decrease their harvests until the following year, thereby delaying social and economic impacts. Because of in-season management protections against ‘overfishing’, any longer term risk of adverse impact on the resource, itself, would be prevented, under such a circumstance.

Alternative 2B: Issue Proposed and Final Specifications based on an alternate fishing year schedule

Current in-season management is such that if seasonal apportionments of PSC or TAC are exceeded, the overharvests are deducted from the last seasonal apportionments of the fishing year. This overharvest is currently minimized by careful in-season monitoring and management. However, factors beyond the control of fishery managers might result in a fishery exceeding its seasonal apportionment. In the last two years, these seasonal overharvests have been quite minimal due to intense scrutiny of the prosecution of the fisheries. Fishery managers would close any fishery to “protect” against overharvest. This is applicable to both TACs and PSC limits as well as apportionments. Therefore, it is possible that the participants who fish in the last few months of a fishing year may be negatively affected by seasonal overharvests that occurred earlier in the year.

Changing the fishing year to begin April 1 or May 1 could place that economic burden on roe fishery participants, thus adversely affecting high value fisheries, with no possibility that these losses could be subsequently recovered.¹⁰ Roe fishermen might face constraints attributable to overharvests occurring in previous seasons or a lack of PSC allowances and limits. This impact would effectively make them dependent upon the behavior and practices of those fishing the “pre-ro” portion of the fishery and could require conscious cooperation of fishermen, or a change in allocation and apportionment strategies.

Such active cooperation among fishermen is facilitated by the presence of co-ops in the BSAI pollock fishery and by the established seasonal TACs. However, the GOA pollock, and BSAI/GOA cod and rock sole fisheries might require more formal measures such as seasonal apportionments of TAC or PSC to “protect” the viability of the roe fisheries. In order to minimize the effects of the potential seasonal overharvests, it is preferable to have any “overrun” subtracted from lower-valued (in the economic sense) fisheries. Since virtually all the participants are the same in both the roe and non-ro

¹⁰Technically, of course, if an ‘end-of-the-year’ roe fishery is foregone due to a management closure, some of the forgone catch will successfully spawn, thus contributing to future biomass. Those fish, once recruited into the fishery, may then be harvested by these same operators at some distant future date, perhaps even in a roe fishery. However, the intervals involved may be of such duration as to make the assertion that “*foregone catches cannot be subsequently made-up*”, a reasonable approximation of the economic effect of a closure attributed to scheduling roe fisheries at the “end” of a fishing year, as under the proposed alternative.

fisheries, the re-distribution of impacts would be among seasons for a given operator, rather than among different groups of fishermen.

In order to “protect” the valuable 4th quarter fishing season under this alternative, fishermen may voluntarily alter their fishing patterns. This may result in less efficient fishing and reduced gross revenues over the fishing year period, although this is largely an empirical question unamenable to assessment, *a priori*.

Alternative 2C: Proposed and Final Specs Issued, but earlier surveys and thus, earlier Council recommendations

Under this alternative, groundfish abundance surveys would need to be conducted earlier in the calendar year. This change in survey timing, besides posing serious logistical and operational challenges, may have long-term adverse economic impacts on management of the fisheries because it could reduce the accuracy of stock assessment models by collecting data less representative of biomass abundance and disrupting historical fishery-independent data series. This alternative, therefore, might risk long-term declines in the stock and the associated losses to affected participants. This is likely to affect all sectors of the fleet. This alternative would likely also be most costly, would divert resources from other research needs, and thus would impose impacts on other fisheries and in other areas, which cannot be anticipated in advance.

Alternative 3: Calculated Interim Specifications, followed by Proposed and Final Specifications by May 1 (based on Council recommendation).

This alternative would allow for an interim TAC to be established by a non-discretionary formula prior to January 1. Compared to the status quo, revenues to fishery participants during the interim under this process could be increased because the entire calculated TAC would be available (except for pollock and Atka mackerel, which are allocated through seasonal apportionments). Alternative 3 would also alleviate the problem of including potentially misleading information in the proposed specifications.

However, it is in the public interest to have final specifications implemented prior to the beginning of the fishing year, since otherwise it can be constraining and potentially costly for industry planning. This alternative would minimize that constraint relative to the status quo because the interim TAC would be non-discretionary, based on Council-recommended ABCs. Prior to the start of the fishing year there might be adverse economic impacts due to uncertainty associated with final TAC levels because the fleet would still be operating on interim TACs under this alternative.

Under this alternative, PSC fishery apportionments of salmon and halibut would “rollover” during the interim period. Crab and herring PSC limits would be adjusted based on abundance, but fishery apportionments would remain relatively constant. If the Council-recommended PSCs are higher than the previous year’s, fishermen could be forced to forego catch (and thus revenue) if constrained by the previous year’s PSC during the interim period. Note that this is likely only in the rock sole fishery which operates early in the fishing year and could be limited by crab bycatch limits. If interim TACs increase but PSC amounts rollover, essentially a larger number of fisheries could be constrained by PSC

apportionments due to the potential for increased fishing effort. That is, fisheries would be less restricted by interim TACs than they were in the previous year, but equally restricted by PSC limits.

Under this alternative, if the Council-recommended TAC is lower than the calculated TAC, the Council TAC would be established as the interim TAC. In cases in which ABC equals TAC, ABC adjustments would equal the recommended final TAC, which would equal the calculated interim TAC. This precautionary approach to implementing the lower of the two “values” as an interim TAC could increase long-term revenues by preventing the interim TACs from exceeding recommended harvest levels for the final TACs but may deviate from the Council’s intent for socioeconomic optimization of harvest under established OYs.

A numerical example may demonstrate the point. Under this alternative, the 2000 calculated interim TAC for BSAI yellowfin sole would have been 187,378 mt. The final Council-recommended TAC was 123,262 mt while the previous year’s TAC for this species was 207,980 (although only 32 percent of that TAC was landed.) Therefore, under this alternative, the interim TAC would be established for yellowfin sole at 123,262 mt, reflecting the expressed allocative preference of the Council to ‘optimize’ OY. This is so, because setting the yellowfin TAC at 123,262 mt allowed for more of the BSAI-wide total yield (capped at 2 million mt) to be reapportioned to “higher value” fisheries (however that term is term defined by the Council), without exceeding OY in the final specifications. See Table 5.4 below as an example or refer to Appendix A.

Table 5.4. Setting the BSAI yellowfin sole TAC (in mt) under this alternative.

Species	1999 TAC	1999 Catch	1999 ABC	2000 ABC	Calculated 2000 Interim TAC	2000 Council-Recommended TAC
Yellowfin sole	207,980	67,392	212,000	191,000	187,378	123,262

If the non-discretionary calculated interim TAC for any species is lower than the Council-recommended TAC, businesses dependent upon such fisheries may experience foregone revenues. For example, in a given year a fishery’s TAC might be well below its ABC, while for another species, demand exceeds its TAC. In this case, only in the following year could the Council decide to increase the TAC for the latter species (as long as its ABC was not exceeded), while decreasing the TAC for the former, thus remaining under the 2 million mt OY cap. This is not expected to be a significant impact because most of the high value fish are currently harvested at their ABC levels.

Management under this alternative might have short-term economic impacts due to the potential for being “limited” under interim specifications. However, those impacts would be less than under the status quo. Table 4.2 gives an example of possible interim TACs under this alternative compared to the final 2000 TACs had this alternative been in place in 2000. There could be a negative socioeconomic impact if fishing effort is concentrated in the first quarter because fishermen may not have access to the entire TAC until final specs are published. This could adversely affect those vessels operating in January-March. If the difference between the calculated interim and final TACs is not significant,

economic impacts would be minimal. For participants of fisheries whose TAC generally equals the ABC, there would not be any adverse impacts expected.

Alternative 3 poses problems for fixed gear sablefish individual fisherman's quota management because of the delay in publishing final TACs in the Federal Register. Under the status quo, each quota share holder receives individual quota (a share in the sablefish TAC) in a sablefish management area in proportion to their holding of sablefish QS in that area. The sablefish fishery opens on March 15. Managers need to have published final sablefish TACs for the year in each area before that date. In fact, for logistical reasons, it is necessary to begin mailing sablefish permits in mid-February, and to calculate the year's individual quotas even before that. Annual individual quotas are now calculated on January 31. Under this alternative, however, final TACs for the calendar year might not be published until May. Interim TAC would apply to the IFQ sablefish fishery so that two sets of permits would be issued, interim and final. There may be a change in the individual quota between the interim and final TAC. The possibility of a mid-year change in the individual quota "content" of a quota share would undercut an important component of an individual quota program - a known annual fishing right.

Under this alternative, the six communities that hold community development quotas may be adversely affected because the interim TACs may be only a portion of their final TACs. Of specific concern is the rock sole roe fishery, which is fished early in the fishing year. The value of this fishery would be substantially diminished if some portion of the rock sole quota had to be caught later in the year, when the high-valued roe was no longer present. For other species, this is less of a problem because the price is relatively constant throughout the year and these quotas are typically used only when the season is closed to open-access participants. However, relative to the status quo, impacts under the status quo would be reduced.

Under the status quo, final specifications have been published as late as mid-March. NMFS considered an earlier "expiration date" for the interim TACs to be superseded, however, the potential for fishery closures is increased if the final specifications could not be issued, given the shorter time period. Because the high value fisheries operate until the end of March and the subsequent flatfish fishing does not raise significant conservation concerns, there would not appear to be any adverse impact due to implementing the final specifications by May 1 (in lieu of an April 1 date, for example).

Alternative 4: Rollover of existing specifications until superseded by Final Specifications

Alternative 4 could have a positive impact on the entire specification process to the extent that the fleet would be better able to plan for the first 3-4 months of the upcoming fishing year, thus potentially avoiding the kinds of wasteful expenditures cited under the status quo alternative associated with planning "uncertainty". It can be constraining to industry to operate on interim TACs for two reasons. If interim TACs are established close to the time of the start of the fishing year, participants cannot plan in advance. The second reason is that under the status quo, and under Alternatives 3 and 4, interim TACs (or rollover) may not represent the total amount of TAC for the year. Alternative 4 would minimize unnecessary disruption to the fisheries because the fleet would be better able to plan for the upcoming fishing season. That is, they would know in advance, the TACs for the interim period. This alternative may not provide the full amount of the annual final TAC if ABCs increase, however the

process under Alternative 4B (interim final rule) would facilitate a quicker implementation of the new final TACs. Alternative 4A would provide adequate review and comment by the public; Alternative 4B would pre-empt public opportunity for prior review and comment to NMFS while promoting administrative efficiency, and minimizing public confusion and industry uncertainty.

Alternative 4 provides a buffer for situations that require additional analyses to accompany Federal actions. The Alternative 4 process would be expected to have a lesser economic impact on affected parties. A final TAC would be in place (i.e., no federal action would take place), until an interim final (Alternative 4B) or proposed and final specifications (Alternative 4A), with accompanying analyses, addressed the new information.

If new data indicate increased ABCs and TACs, however, fishery participants could forego potential income in the short-term. This is because they would be fishing on "outdated" TAC levels from the previous year. Of course in the following months of that fishing year and the first four months of the next fishing year, they would be able to take advantage of the increase in stock size. This effect would be felt equally by all fishery participants. A lag could also be felt in the opposite direction. That is, if recent information indicated population decline, fishermen would not be required to decrease their harvests until the following months although overfishing is protected against through in-season monitoring and closures.

Alternative 5: Multi Year TAC Setting

Alternative 5 could have a positive impact on the entire specification process to the extent that the fleet would be better able to plan for the second fishing year in the BSAI and GOA under 5A and for an additional third year for most species in the GOA under 5B, thus potentially avoiding the kinds of wasteful expenditures cited under the status quo alternative associated with planning "uncertainty". Alternative 5 would minimize unnecessary disruption to the fisheries because the fleet would be better able to plan for the upcoming fishing season. That is, they would know in advance, the TACs for the interim period. Alternatives 5A and 5B would provide adequate review and comment by the public and promote administrative efficiency, while minimizing public confusion and industry uncertainty.

If new data indicate increased ABCs and TACs, however, fishery participants could forego potential income in the short-term. This is because they would be fishing on "outdated" TAC levels from the previous year. Of course in the following months of that fishing year and the next fishing year, they would be able to take advantage of the increase in stock size. This effect would be felt equally by all fishery participants. A lag could also be felt in the opposite direction. That is, if recent information indicated population decline, fishermen would not be required to decrease their harvests until the following months although overfishing is protected against through in-season monitoring and closures.

Alternative 5 poses the same problem with respect to sablefish individual fisherman's quota management that Alternative 3 does. This problem is caused by the delay in publishing final TAC specifications in the Federal Register. As noted earlier, under the status quo sablefish program each quota share holder receives individual quota (a share in the sablefish TAC) in a sablefish management area in proportion to their holding of sablefish QS in that area. The sablefish fishery opens on March

15. Managers need to have published final sablefish TACs for the year in each area before that date. In fact, for logistical reasons, it is necessary to begin mailing sablefish permits in mid-February, and to calculate the year's individual quotas even before that. Annual individual quotas are now calculated on January 31. Under this alternative, however, final TACs for the calendar year might not be published until May. Interim TAC would be used so that two permits would need to be processed, interim and final. The possibility of a mid-year change in the individual quota "content" of a quota share would undercut an important component of an individual quota program - a known annual fishing right.

Option: Abolish TAC Reserves

This option would not have any negative impacts on fishery participants. It may have minor economic benefits by reducing confusion as to the amount of available TAC at a given time and reducing the need to adjust fishery operations.

5.6 Administrative Costs

If any of the alternatives involving interim TACs, including the status quo, is selected and subsequently, new information becomes available that requires additional analyses to address impacts of the interim TACs, NMFS would develop and make available these analyses prior to the start of the fishing year. If new information regarding ESA concerns becomes available, NMFS would develop analyses and implement proposed and final regulations to implement RPAs. However, if the timing is such that there is not enough time to complete rulemaking, NMFS could undertake emergency rulemaking to address ESA concerns.

Alternative 1, the status quo (proposed, interim, and final specifications), involves a cost and burden to NMFS and the Council (and its SSC, AP, and Plan Teams) in time spent drafting proposed and interim specifications that are not useful indicators of the final specifications. Diversion of scarce resources to this task means other resource and management tasks must be delayed or foregone.

Alternative 2 (proposed and final specifications) allows for meaningful public comment by providing the public with information based on the best available science. This alternative and Alternative 4 would have the lowest administrative costs because they would eliminate the need for interim specifications. In addition, because Alternative 2 allows for an extended period of time prior to the start of the fishing year, NMFS and the Council could consult on possible response to potentially new information regarding ESA concerns. This may reduce the probability of the need for emergency rulemaking before the fishing year begins. If the Council and Plan Team meetings occurred earlier in the year, more time would be available to publish proposed and final specifications, and interim specifications would be unnecessary. A limiting factor to the Alaska groundfish specification process, however, is the time needed by the Plan Teams to analyze data and produce final SAFE reports. Survey data are not available until late summer or early fall, and it is unlikely that assessments of the fisheries could be made any earlier. In addition, the Plan Teams and the Council would like to base their recommendations on the most current possible information. A minimum of two weeks is needed between the November Plan Team meeting and the next Council meeting for the SAFE reports to be

finalized and distributed to the Council family and public. It would be impracticable, therefore, for the specification process to occur any earlier in the year.

Alternative 2C, however, would require that surveys occur earlier in the calendar year, which may not provide the best scientific information due to life history of the species involved and the disruption to the fishery-independent time series. It may also impose costly logistical and operational challenges, due simply to the extremes of the Alaska maritime environment in winter and early Spring. For example, reportedly, sea ice often covers substantial portions of the areas to be surveyed. Furthermore, because NMFS surveys rely, in large part, on chartered commercial fishing vessels as 'survey platforms', moving the surveys into the earlier part of the year would make finding available and suitable vessel problematic, since most will be fully employed in commercial prosecution of the fisheries, themselves. Alternative 2C would also reduce the review and analysis time for the SSC which would not be desirable.

Alternative 3 (interim, proposed and final specifications) would reduce the administrative costs of issuing interim specifications. These would no longer be discretionary under this proposal.

In addition, administrative costs of managing the IFQ sablefish fishery could increase with the IFQ sablefish fishery started on interim fishing specifications. Under the status quo, fixed gear sablefish fishery is under the IFQ system and does not have an interim TAC. Under this alternative, the sablefish IFQ fishery would fish under interim specifications. NMFS would have to issue interim IFQ permits based on the interim TAC. Once the final TACs were published, NMFS would have to re-issue IFQ permits, reflecting each permit holder's IFQ allotment based upon the final TAC. This would greatly inflate administrative costs; increase the risks of errors, add to public confusion, and may lead to litigation, etc (there were 1,094 permits issued for this fishery in 2000).

Alternative 4 would have lower administrative costs relative to the status quo because it would eliminate the need for interim specifications (annual specifications would "rollover" until replaced with new final specifications.) In addition, Alternative 4B would have the lowest administrative costs because proposed specifications would not be necessary. Further, Alternative 4 would allow the fishery to open January 1 with no Federal action needed until the final specifications were issued. Alternative 4A would likely result in the same issues with the sablefish IFQ program as in Alternative 3.

Alternative 5 would reduce administrative costs relative to the status quo because specifications would be issued only every other year under Alternative 5B for most of the GOA species. This alternative will also save administrative costs in rule making by combining the future interim TAC with the current TAC under alternative 5A, reducing the need for an additional Federal Register notice solely for the interim TAC as in the status quo. The administrative problems identified in Alternative 3 for the sablefish IFQ fishery are the same for this alternative.

Option would reduce administrative costs relative to the status quo because NMFS would not need to set aside reserve TACs and then release the reserve in various notices. It would impose no discernible costs.

5.7 Enforcement Costs

Current enforcement of the management measures is complex as these fisheries range geographically over an extensive area of the north Pacific Ocean and the Bering Sea. NMFS enforcement agents and U.S. Coast Guard conduct enforcement activities such as monitoring vessel activity and dockside landings. None of the alternatives considered for this action is expected to add complexity to enforcement of the Groundfish FMPs. As annual TACs are specified in the future under this or another process, enforcement costs will be assessed in the EA accompanying those proposed and final specifications.

5.8 Information Costs and Administrative Procedure Act (APA) Considerations

The APA requires that proposed regulations be published in the Federal Register, so that the public has the opportunity to review and comment. A statutory exemption may be granted if meeting APA requirements is not in the public interest or if it is impracticable or unnecessary.

Prior notification of proposed and interim specifications under Alternative 1 is contrary to the public's interest, since the notice contains information that is likely to change as data is updated. Historically, the proposed and interim specifications have not been indicative of final specifications, in that individual allocations of catch by species and subarea in the final specifications have ranged (in 1996, for example), from no change to double the proposed specifications. In fact, the proposed specifications are subject to change almost immediately after their publication as new information becomes available. The Plan Teams provide a brief report to the SSC, AP, and Council at the October Council meeting. Public comments are taken at each of these meetings.

It is impracticable to publish realistic proposed specifications under the status quo, since the relevant survey data upon which the specifications are currently based are not available until October of trawl survey years (annual in the Bering Sea, triennially in the Aleutian Islands and Gulf of Alaska). Survey data therefore cannot be analyzed and presented before the November Plan Team meetings. It is in the public interest to use as much data as possible from the current fishing year in setting catch limits and allocations. As the year progresses, more data are available from that current fishing year, and the subsequent analyses reflect more current fishing trends. Similarly, State management decisions are often made in late fall for regulating the inshore groundfish fishery for the following year (e.g., Pacific cod in the GOA). Many of these decisions have impacts on federal groundfish fisheries and therefore must be considered when determining the final TAC specifications and PSC limits for those fisheries.

Alternative 3 provides multiple opportunities for meaningful public comment, including during the comment period on proposed specifications. By effectively "stretching" out the timeline for proposed and final specifications, information costs could be lowered and the public could be better informed of the agency's intentions.

Even though prior publication in the Federal Register of January-April TACs would be waived under Alternative 4, the public's access to information and opportunity to comment is not minimized under Alternative 4. September and November Plan Team meetings are announced in the Federal Register

and by other media and are open to the public. Copies of the preliminary and final SAFE reports are available for public review and are sent to interested parties, upon request. The proposed and final SAFE reports will continue to be presented by the Plan Teams to the SSC, AP, and Council at the October and December Council meetings, which are also announced in the Federal Register. SAFE report results will also be published on the Council's and NMFS' web pages and in the Council's October newsletter. Draft minutes of the Plan Teams, SSC, and AP meetings are available immediately after each meeting. Draft Council minutes are generally available at the next Council meeting; however, the Council newsletter is distributed within two weeks of the Council meeting through the mail and on the Council's web page. If any pending regulations could affect the specifications, then the Council newsletter mentions how the draft TACs and allocations would change if the rulemaking were approved.

Under Alternative 5, opportunity for public comments would be 30 days with the publication of proposed annual specifications. The nature of the information would be more meaningful since the proposed values would be based upon stock assessment projections for future years rather than just a percentage of TAC rolled over from the previous fishing year as in the status quo. This alternative meets the requirements of APA.

Implementing the Option would reduce information costs by providing an accurate TAC at the beginning of the fishing year, rather than NMFS notifying the fishing community of a TAC that will be changed when the nonspecific reserves are added. This would provide better information to the public and allow for more meaningful comment.

5.9 Costs and Benefits and Significance under E.O. 12866

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

1. 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, the environment, public health or safety, or State, local, or tribal governments or communities;
2. Create a serious inconsistency or otherwise interfere with an action taken or planned by another agency;
3. Materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or
4. Raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in this Executive Order.

NMFS does not believe that these alternatives will have an annual effect on the economy of \$100 million or more or adversely affect the factors listed in Item #1. This is primarily a procedural change, with no direct impact on the total volume of fish harvested and processed. Table 5.5 indicates possible changes as a result of each alternative.

NMFS is not aware that this proposal (a) will create a serious inconsistency or otherwise interfere with an action taken or planned by another agency, (b) materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof, or (c) raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in Executive Order 12866.

Table 5.5 Summary of net benefits and costs for the considered alternatives (Alternatives 2-5 are considered relative to the status quo).

Action	Net Economic Benefits	Net Economic Costs
Status Quo		<ul style="list-style-type: none"> -Commercial fishermen and processors may be misled by proposed specs which may affect planning for season -Interim TACs don't represent new information: If increase in stock size, fishermen/processors will forego short-term revenues -Commercial fishermen may suffer short-term losses if harvest/bycatch levels exceed interim TACs/PSC limits and fishery is closed -High administrative costs
Alternative 2	<ul style="list-style-type: none"> -All fishery participants benefit from final specifications being published before fishing year starts -Low administrative costs 	<ul style="list-style-type: none"> -Interim TACs don't represent new information: If increase in stock size, fishermen/processors will forego short-term revenues -Changing fishery patterns under Alt. 2B(to "protect" 4th qtr.) may reduce efficiency
Alternative 3	<ul style="list-style-type: none"> -Interim TACs represent new information: If increase in stock size, fishermen/processors will benefit -Lower administrative costs due to elimination of interim specs. relative to Status Quo 	<p>Net benefits may be reduced by expense of issuing two sablefish IFQ permits in a year for interim and final TAC.</p>
Alternative 4	<ul style="list-style-type: none"> -Low administrative costs 	<ul style="list-style-type: none"> -Interim TACs don't represent new information: If increase in stock size, fishermen/processors will forego short-term revenues -Net benefits may be reduced by expense of issuing two sablefish IFQ permits in a year for rollover and final TAC.
Alternative 5	<ul style="list-style-type: none"> -Low administrative costs -All fishery participants benefit from final specifications being published before fishing year starts 	<ul style="list-style-type: none"> -Interim TACs don't represent new information: If increase in stock size, fishermen/processors will forego short-term revenues -Net benefits may be reduced by expense of issuing two sablefish IFQ permits in a year for interim and final TAC.
Option	<ul style="list-style-type: none"> -Low administrative costs 	

6.0 INITIAL REGULATORY FLEXIBILITY ANALYSIS

6.1 Background

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 (SBREFA). 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.

If it cannot be certified that a proposed rule “*will not* have a significant economic impact on a substantial number of small entities”, an initial regulatory flexibility analysis (IRFA) must be prepared. To ensure a broad consideration of impacts and alternatives, NMFS has prepared an IRFA pursuant to 5 USC 603, without first making the threshold determination of whether or not this proposed action would have a significant economic impact on small entities.

The central focus of the IRFA should be on the economic impacts of a regulation on small entities and on the alternatives that might minimize the impacts and still accomplish the statutory objectives.

The level of detail and sophistication of the analysis should reflect the significance of the impact on small entities. Under 5 U.S.C., Section 603(b) of the RFA, each IRFA is required to address:

- 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 Magnuson-Stevens Act and any other 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.

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

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 dominate 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 form is a joint venture there can be no more than 49% participation by foreign business entities in the joint venture.”

The SBA has established size criteria for all major industry sectors in the US 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 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 less 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 million criterion for fish harvesting operations. Finally a wholesale business servicing the fishing industry is a small businesses if it employs 100 or less persons on a full-time, part-time, temporary, or other basis, at all its affiliated operations worldwide.

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

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

Affiliation may be based on common management or joint venture arrangements. Affiliation arises where one or more officers, directors or general partners 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.

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

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

The groundfish fisheries in the Exclusive Economic Zone (EEZ) (3 to 200 miles offshore) off Alaska are managed under the FMPs for the GOA and BSAI. Both FMPs were developed by the Council under the Magnuson-Stevens Act. The GOA FMP was approved by the Secretary of Commerce and became effective in 1978, and the BSAI FMP became effective in 1982.

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-Stevens 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).

This Initial Regulatory Flexibility Analysis (IRFA) analyzes the impact of proposed revisions to the annual TAC-specification process. Annual harvest specifications are implemented under existing regulations at 50 CFR part 679. To ensure that the impacts of this action are fully analyzed, NMFS has prepared this IRFA pursuant to 5 U.S.C. 603 without first determining whether the action will or will not have a significant impact on a substantial number of small entities.

6.2 Purpose and Need for Action

The current annual specification process and a description of the need for action is discussed in detail in Sections 1.1 and 1.2 of this document. The current annual specifications process involves proposing specifications based on the previous year's specifications (and requesting comments), setting interim specifications, and publishing final specifications after the start of the fishing year based on Council-recommended TACs and PSC limits. The status quo process does not provide for meaningful public comment because the proposed specifications are outdated once the plan teams and SSC provide new information based on the annual surveys. Further, the interim TACs and PSC limits place an artificial constraint on fisheries which occur early in the fishing year, before the final specifications are published. Incidentally, the participants that focus fishing effort early in the fishing year and are directly "managed" under the interim TACs are by in large, relatively high value roe fisheries.

Because this action is a revision to the process of setting annual specifications and not a change in the TACs and PSC limits or apportionments, a quantitative description of the need for action is not useful. Management actions that will decrease groundfish catches or increase operating costs may result from continued concerns with: 1) the bycatch of prohibited species, 2) the discard and utilization of groundfish catch, and 3) the effects of the groundfish fisheries on marine mammals and sea birds. Management actions taken to allocate the catch between various user groups can significantly affect the economic health of the fishery. However, there would not be significant economic effects of the proposed alternatives on fishery participants because the action would merely change the annual specifications process, not the harvest levels or allocations.

6.3 Objectives

The objectives of this action are treated in detail in Section 1.5, and include a desire to manage fisheries based on the best available information, respond to new information or conservation concerns, and

comply with NEPA, ESA, and RFA provisions while minimizing unnecessary disruption to fisheries. It is also the purpose of this action to provide adequate opportunity for public review and comment, and promote administrative efficiency while minimizing public confusion regarding TAC specifications.

6.4 Description of the Alternatives

The following alternatives are being considered. They are described in detail in Section 2.0 of the Environmental Assessment.

Alternative 1. Status Quo (NO ACTION ALTERNATIVE)

Alternative 2: Eliminate publication of interim specifications. Issue Proposed and Final Specifications Prior to Start of the Fishing Year

Alternative 2A: Issue Proposed and Final Specifications based on previous year's abundance surveys

Alternative 2B: Issue Proposed and Final Specifications based on an alternate fishing year schedule

Alternative 2C: Proposed and Final Specifications Issued based on current year survey results but conduct surveys earlier in year

Alternative 3: Interim Specifications calculated from ABC, followed by Proposed and Final Rulemaking

Alternative 4: Rollover of existing specifications until superseded by new specifications

Alternative 5: Multi-year TAC specifications

Option: Abolish Reserve TACs.

6.5 Description of the Fishery

The Alaskan groundfish fisheries and affected entities are described in Section 3.9 of the Environmental Assessment and Section 5.3. of the Regulatory Impact Review.

6.6 Numbers of small entities

SBA criteria, which pertain to "small businesses," set the threshold for "small" boats which catch, but do not process, at \$3 million in aggregate gross revenues (i.e., earning from all activities and all affiliated operations, combined). Furthermore, detailed ownership and affiliation information for the catcher vessel fleets is very limited (for both the GOA and BSAI management area operations). NMFS has estimated the numbers of catcher vessels and catcher-processor vessels which caught or processed more and less than \$3 million in ex-vessel or processed groundfish value in 1999. All catcher vessels grossed less than \$3 million in groundfish ex-vessel value. Forty-seven catcher-processors grossed less than \$3 million. Therefore, all catcher vessels (1,254 vessels) and 47 out of 100 catcher-processors are considered small. These estimates probably overestimate the numbers of small entities in each category, since they do not account for revenues from fisheries other than groundfish, and they do not account for affiliations among vessels and between vessels and processing firms. By making the

assumption that these are all small vessels NMFS avoids the risk of *understating* the potential impact on "small entities."

The six Bering Sea CDQ groups participating in the BSAI groundfish CDQ fisheries are the only organizations that are directly affected by the final specifications, and are all "small entities" within the RFA definition of non-profit organizations. The governmental jurisdictions with direct involvement in the groundfish fisheries are the 65 Bering Sea CDQ communities, and are all "small entities," with the RFA definition for small jurisdictions.

Mothership operations and onshore processing operations were described in Section 5.3. In that section it was noted, on the basis of anecdotal information, that none of the three motherships were small entities, and that 32 out of 58 on-shore processors were small entities.

6.7 Possible Impacts of the Alternatives

To the extent that this action merely revises a 'process', the impacts on affected entities are likely to be a result of the flexibility of the alternative to incorporate new information. For example, if surveys indicate that stock size is increasing but the process adopted does not accommodate that information during the interim period, fishery participants across the board could suffer forgone revenues. However, those revenues could, in theory, be earned during the interim period of the following year. Likewise, if stock surveys indicate decreasing abundance, fishery participants would not be subject to lower TACs during the interim and thus economic impacts could be delayed. The following discussion results from this basic tenet.

Because NMFS does not have cost data, it is not known what the individual impacts would be on various participants in these fisheries. However, it is clear that some burden could be disproportionate based on the seasonality of fishing effort. That is, those entities that participate in the fishing season early in the fishing year may be positively or negatively affected by a change in administrative process for setting annual specifications. These positive or negative impacts, however likely would be proportionate for large and small entities.

The No Action alternative provides for only 25 percent of the annual TACs for most species in the interim period between the beginning of the fishing year and the date of publication of final specifications. Many high volume fisheries occur early in the fishing year and are managed under these interim TACs. The No Action alternative could result in an effective seasonal closure of the groundfish fisheries in the BSAI and GOA management areas until final specifications are published, with severe economic impacts on all those dependent upon them. This alternative does not provide interim TAC to the sablefish IFQ or CDQ fishery participants, and therefore may constrain these fisheries. This could have an overwhelmingly adverse effect on small entities, in all three SBA categories (i.e., small businesses, small non-profits, and small jurisdictions). However, Alternative 1 is likely to have the same general economic impacts on small and large entities.

Under Alternative 2A, negative short-term environmental or economic impacts could result if recent surveys indicated a decrease or increase in stock size. The fishery would not realize any gains (if there

was an increase) until the following year. Conversely, the stock might sustain another year of harvest levels that might be considered too high if stock abundance decreased.

Under Alternative 2B, negative economic impacts on different sectors of the fishery could result because the fourth quarter of the fishery sometimes absorbs the overharvests of the previous three quarters. This alternative, therefore, could place constraints and a possible early closure on the most profitable season (Jan.-March).

Management under Alternative 3 might have positive impacts on small entities, particularly the communities which are involved in the CDQ program. Under this alternative, they would not be constrained by the interim TAC early in the fishing year as they have been under the status quo specification process.

Management under the Alternative 4 process could have positive impacts on small and large entities; inshore processors, catcher/processors, and catcher vessels because they would be aware of the final TAC prior to the start of the fishing year, and could incorporate the best available information into the business planning, thus reducing the economic uncertainty and risk characterized under the status quo.

Management under Alternative 5 could have positive impacts on small and large entities; inshore processors, catcher/processors, and catcher vessels because they would be aware of the final TAC prior to the start of the fishing year, and could incorporate the best available information into the business planning, thus reducing the economic uncertainty and risk characterized under the status quo. It might also have positive impacts on small entities, particularly the communities which are involved in the CDQ program. Under this alternative, they would not be constrained by the interim TAC early in the fishing year as they have been under the status quo specification process. With the projection of TAC into the future in Alternative 5 business may be able to do longer range planning than under the status quo.

Management under the option to abolish TAC reserves may have a positive impact on business because the TAC for the start of the fishing year will no longer have a reserve removed (other than CDQ) and will not be as restrictive.

6.8 Description of the Compliance and Reporting Requirements

There are no recordkeeping and reporting requirements with this action. Current reporting requirements are contained in regulations at 50 CFR 679.5 and are not altered by the proposed specification process.

6.9 Relevant Federal Rules Which Might Conflict with this Regulation

NMFS is not aware of any other Federal rules which duplicate, overlap or conflict with the proposed specifications.

6.10 Significant Alternatives

NMFS is not aware of any alternatives in addition to those discussed that would accomplish the objectives of the Magnuson-Stevens Act and that would minimize the economic impact on small entities.

7.0 SOCIAL IMPACTS

This section analyzes the social impacts of the final actions on fishing communities. The BSAI and GOA groundfish FMPs (NPFMC, 1999a and 1999b) have additional information regarding socioeconomic characteristics of fishing communities that depend to some extent on the harvesting of Alaska groundfish. NMFS continues to improve its data on all fishing communities, particularly the Alaska groundfish fisheries. Often it is the economic impacts which drive the changes in fishing communities. However, social impacts can occur without any associated economic impacts. This section describes any social impacts that may occur in fishing communities as a result of these considered alternatives.

These alternatives are not likely to have significant impacts on communities, except if new information becomes available, either related to ESA concerns or concerns about ABC levels, and NMFS must implement an emergency rule to close the fishery or to implement RPAs. At that time, NMFS will assess the social impacts of that rule. In the case of closing the fishery, the fishery sectors which fish early in the fishing year would be most affected. These include the valuable pollock, Atka mackerel, and rock sole roe fisheries.

The existing CDQ Program represents a fundamental change in the pattern and quality of life for residents of some coastal Alaskan communities. These alternatives are not expected to have adverse social impacts on the CDQ program or the affected communities, except to the extent that Alternative 3 and the status quo might not maximize revenues from the roe fisheries early in the fishing year because only the interim TAC would be in place. Because the CDQ levels are so small to begin with at the start of the fishing year, allowing access to only a portion of the potential final TACs during the season in which the ex-vessel prices are the highest. In addition, because there are such short seasons or opportunities in which to utilize CDQs (because open access fisheries are open), being constrained by interim TACs may pose an additional constraint. Social impacts associated with annual TAC specifications would be assessed in the annual EA which would accompany the proposed and final specifications. General information regarding the impacts of TAC specifications on communities can be found in section 4.4.4 of the SEIS (NMFS, 1998a).

Specific to safety of human life at sea, only Alternative 2C would pose significant safety concerns due to conducting surveys in late winter or early spring because of poor weather conditions. The other alternatives are not likely to raise additional safety concerns.

8.0 SUMMARY AND CONCLUSIONS

Each year, normally in October, proposed groundfish harvest specifications for the Bering Sea and Aleutian Islands area (BSAI) and Gulf of Alaska (GOA) are published in the Federal Register. These proposed specifications based upon total allowable catch (TAC), acceptable biological catch (ABC) and prohibited species catch (PSC) amounts, and apportionments thereof, which have been recommended by the North Pacific Fishery Management Council (Council) for the current year. Based on public comment on the proposed specifications and information made available at the December Council meeting, final specifications are published in the Federal Register during February or early March. So that fishing may begin January 1, regulations authorize the release of one-fourth of each proposed TAC and apportionment thereof, one-fourth of each PSC and apportionment thereof and the first seasonal allowance of pollock and Atka mackerel. These interim specifications are based upon the proposed specifications and published in the Federal Register in December and are superseded by the final specifications.

There have been a number of concerns with the current process leading to exploring new ways of setting annual specifications. The objectives of changing the annual specification process are to manage fisheries based on best scientific information available, respond to new information or conservation concerns, comply with the Magnuson-Stevens Act, NEPA, ESA, and RFA provisions while minimizing unnecessary disruption to fisheries, provide adequate opportunity for public review and comment, and promote administrative efficiency while minimizing public confusion regarding TAC specifications.

The management alternatives for amending this process are:

Alternative 1. Status quo.

Alternative 2. Eliminate publication of interim specifications. Proposed and final specifications published before start of fishing year.

Alternative 3. Publish interim specifications based on a set formula effective January 1 through May 1. Proposed and final specifications published after December Council meeting.

Alternative 4. Eliminate publication of interim specifications for BSAI and GOA groundfish fisheries. The previous year's specifications are effective until superseded by proposed and final specifications or interim final specifications only.

Alternative 5. Establish interim and final specifications based upon multiple years stock assessment projections.

The option. Eliminate the use of reserve TACs.

Table 8.1 summarizes the benefits and the disadvantages of the alternatives in relation to the objectives. Section 4.6 gives the environmental summary and conclusions. The environmental impacts of the

alternatives vary and it is not possible to determine if this action may be significant until a preferred alternative is identified. Section 5 and Section 6 give the economic and regulatory impact. NMFS concludes that any of the considered actions could have a significant impact on a substantial number of small entities as defined under the Regulatory Flexibility Act. Environmental impacts and socioeconomic impacts resulting from changing fishing patterns as a result of the preferred alternative would be assessed annually in the EA/RIR/IRFA that accompanies the final annual specifications.

Table 8.1. Summary of Alternatives Relative to the Status Quo

Alternative	Benefits	Disadvantages
Alternative 1 (Status Quo)	Process currently used eliminating the need for developing new process, amendments, and regulatory authority.	High administrative costs. Proposed specs are misleading. Economic constraints on early season high value fisheries from interim specifications.
Alternative 2 (Proposed and final specs) 2A: Based on previous year's data 2B: Alter fishing year calendar 2C: Conduct surveys earlier in year	Lowers administrative costs because no interim specs needed. Better planning for season by participants because final specs out before fishing year begins. Opportunities for meaningful public comment on proposed specs. No constraints on early season fisheries due to interim specifications.	2A: Best 'available' science ? 2B: Could disadvantage high value fisheries; might require changes in fishing patterns and/or changes in seasonal apportionments, possible environmental impacts of those changes. 2C: Safety concerns, decreased reliability of data, increased administrative costs associated with research.
Alternative 3 (Non-discretionary interim specs, followed by proposed and final specs)	Opportunities for meaningful public comment on proposed specs. Best available science. Lesser constraints on early season fisheries due to interim specifications Lower administrative costs relative to the status quo.	Limited opportunity for comment on interim specifications. Administrative costs benefits may be reduced by expense of issuing two sablefish IFQ permits in a year for interim and final TAC.
Alternative 4 (Rollover of TACs and PSCs) 4A: followed by proposed and final specs 4B: followed by interim final rule	Lowers administrative costs because no interim specs needed Lesser constraints on early season fishery because rollover is less restrictive than status quo interim TAC. 4A: Opportunity for meaningful public comment on proposed specs. 4B: Very low administrative costs.	Administrative costs benefits may be reduced by expense of issuing two sablefish IFQ permits in a year for rollover and final TAC. 4A: Higher administrative costs than 4B. 4B: Reduced opportunities for public comment to NMFS prior to approval of final specifications.

Alternative	Benefits	Disadvantages
<p>Alternative 5 (Multi year TAC)</p> <p>5A: interim TAC for second year based on stock assessment projection.</p> <p>5B: 5A and for GOA biennially surveyed target species, final TAC set for two years and based on biennial stock assessment and third year interim TAC based on stock assessment projections.</p>	<p>Second year interim TAC based upon stock assessment projection, better science.</p> <p>Better planning for season by participants because second and third year's interim TAC published well before fishing year begins.</p> <p>Opportunities for meaningful public comment on proposed specs.</p> <p>Lesser constraints on early season fisheries due to stock assessment based second or third year interim TAC .</p> <p>5B: Better planning for participants because final specs published well before fishing year begins and covers 2 to 3 years.</p> <p>Slightly lower administrative cost in two year rulemaking for GOA only.</p> <p>Less review, writing and meetings required for GOA plan team.</p>	<p>Administrative costs benefits may be reduced by expense of issuing two sablefish IFQ permits in a year for interim and final TAC.</p> <p>5B: Different time period for setting TAC for some GOA species than for others, may cause confusion.</p> <p>Different methods of setting TAC between BSAI and GOA may cause confusion.</p>
<p>The option (Abolish TAC Reserves)</p>	<p>Lowers administrative costs.</p> <p>Reduces confusion regarding available TAC.</p>	

At this time, a preferred alternative has not been identified. NMFS seeks public comments on these alternatives and on the potential impacts on fishery participants and the environment.

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Appendix 1. GOA Groundfish TACs and Supporting Information: 1996-2000.

Table 1 - GOA Groundfish TACs and Supporting Information: 2000

Species	1999 TAC	1999 Catch	1999 ABC	2000 ABC	Calculated 2000 Interim TAC	2000 final TAC
Atka Mackerel	600	262	600	600	600	600
Arrowtooth Flounder	35,000	16,062	217,110	145,360	23,433	35,000
Deep Water Flatfish	6,050	2,285	6,050	5,300	5,300	5,300
Flathead Sole	9,040	891	26,110	26,270	9,095	9,060
Northern Rockfish	4,990	5,398	4,990	5,120	5,120	5,120
Other Species	14,600	3,735	n/a	n/a	n/a	14,270
Pacific Cod	67,835	68,570	84,400	76,400	61,405	59,800
Pelagic Shelf Rockfish	4,880	4,657	4,880	5,980	5,980	5,980
Pollock	100,920	93,380	100,920	100,000	100,000	100,000
Pacific Ocean Perch	12,590	10,476	13,120	13,020	12,494	13,020
Rex Sole	9,150	3,057	9,150	9,440	9,440	9,440
Other Slope Rockfish	5,270	789	5,270	4,900	4,900	4,900
Sablefish	12,700	12,099	12,700	13,330	13,330	13,330
Shallow Water Flatfish	18,770	2,545	43,150	37,860	16,469	19,400
Shortraker/Rougheye Rockfish	1,590	1,302	1,590	1,730	1,730	1,730
Thornyhead	1,990	1,274	1,990	2,360	2,360	2,360
Grand Total - Gulf of Alaska	306,535	227,044	532,590	431,410	248,300	299,650

Table 2 - GOA Groundfish TACs and Supporting Information: 1999

Species	1998 TAC	1998 Catch	1998 ABC	1999 ABC	Calculated 1999 Interim TAC	1999 final TAC	1999 catch
Atka Mackerel	600	316	600	600	600	600	262
Arrowtooth Flounder	35,000	13,063	208,340	217,110	36,473	35,000	16,062
Deep Water Flatfish	7,170	2,472	7,170	6,050	6,050	6,050	2,285
Flathead Sole	9,040	1,747	26,110	26,110	9,040	9,040	891
Northern Rockfish	5,000	3,051	5,000	4,990	4,990	4,990	5,398
Other Species	15,570	3,698	n/a	n/a	n/a	14,600	3,735
Pacific Cod	66,060	62,327	77,900	84,400	71,572	67,835	68,570
Pelagic Shelf Rockfish	4,880	3,109	4,880	4,880	4,880	4,880	4,657
Pollock	124,730	123,853	130,000	100,920	96,829	100,920	93,380
Pacific Ocean Perch	10,776	8,961	12,820	13,120	11,028	12,590	10,476
Rex Sole	9,150	2,671	9,150	9,150	9,150	9,150	3,057
Other Slope Rockfish	2,170	860	5,260	5,270	2,174	5,270	789
Sablefish	14,120	12,501	14,120	12,700	12,700	12,700	12,099
Shallow Water Flatfish	18,630	3,540	43,150	43,150	18,630	18,770	2,545
Shortraker/Rougheye Rockfish	1,590	1,690	1,590	1,590	1,590	1,590	1,302
Thornyhead	2,000	1,130	2,000	1,990	1,990	1,990	1,274
Grand Total - Gulf of Alaska	327,046	245,295	548,650	532,590	317,473	306,535	227,044

Table 3 - GOA Groundfish TACs and Supporting Information: 1998

Species	1997 TAC	1997 Catch	1997 ABC	1998 ABC	Calculated 1998 Interim TAC	1998 final TAC	1998 Catch
Atka Mackerel	1,000	331	1,000	600	600	600	316
Arrowtooth Flounder	35,000	16,408	197,840	208,340	36,858	35,000	13,063
Deep Water Flatfish	7,170	3,622	7,170	7,170	7,170	7,170	2,472
Flathead Sole	9,040	2,456	26,110	26,110	9,040	9,040	1,747
Northern Rockfish	5,000	2,948	5,000	5,000	5,000	5,000	3,051
Other Species	13,470	5,293	n/a	n/a	n/a	15,570	3,698
Pacific Cod	69,115	68,825	81,500	77,900	66,062	66,060	62,327
Pelagic Shelf Rockfish	5,140	2,646	5,140	4,880	4,880	4,880	3,109
Pollock	79,980	89,801	79,980	130,000	130,000	124,730	123,853
Pacific Ocean Perch	9,190	9,527	12,990	12,820	9,070	10,776	8,961
Rex Sole	9,150	3,265	9,150	9,150	9,150	9,150	2,671
Other Slope Rockfish	2,170	1,213	5,260	5,260	2,170	2,170	860
Sablefish	14,520	13,215	14,520	14,120	14,120	14,120	12,501
Shallow Water Flatfish	18,630	7,689	43,150	43,150	18,630	18,630	3,540
Shortraker/Rougeye Rockfish	1,590	1,619	1,590	1,590	1,590	1,590	1,690
Thornyhead	1,700	1,237	1,700	2,000	2,000	2,000	1,130
Grand Total - Gulf of Alaska	282,815	230,486	493,050	548,650	314,707	327,046	245,295

Table 4 - GOA Groundfish TACs and Supporting Information: 1997

Species	1996 TAC	1996 Catch	1996 ABC	1997 ABC	Calculated 1998 Interim TAC	1997 final TAC	1997 Catch
Atka Mackerel	3,240	1,585	3,240	1,000	1,000	1,000	331
Arrowtooth Flounder	35,000	22,539	198,130	197,840	34,949	35,000	16,408
Deep Water Flatfish	11,080	2,199	14,590	7,170	5,445	7,170	3,622
Flathead Sole	9,740	3,072	28,790	26,110	8,833	9,040	2,456
Northern Rockfish	5,270	3,387	5,270	5,000	5,000	5,000	2,948
Other Species	12,390	4,448	n/a	n/a	n/a	13,470	5,293
Pacific Cod	65,000	68,213	65,000	81,500	81,500	69,115	68,825
Pelagic Shelf Rockfish	5,190	2,313	5,190	5,140	5,140	5,140	2,646
Pollock	54,810	50,349	54,810	79,980	79,980	79,980	89,801
Pacific Ocean Perch	6,959	8,369	8,060	12,990	11,216	9,190	9,527
Rex Sole	9,690	5,847	11,210	9,150	7,909	9,150	3,265
Other Slope Rockfish	2,020	881	7,110	5,260	1,494	2,170	1,213
Sablefish	17,080	15,985	17,080	14,520	14,520	14,520	13,215
Shallow Water Flatfish	18,630	9,335	52,270	43,150	15,379	18,630	7,689
Shortraker/Rougheye Rockfish	1,910	1,671	1,910	1,590	1,590	1,590	1,619
Thornyhead	1,248	1,127	1,560	1,700	1,360	1,700	1,237
Grand Total - Gulf of Alaska	260,207	201,735	475,170	493,050	269,998	282,815	230,486

Table 5 - GOA Groundfish TACs and Supporting Information: 1996

Species	1995 TAC	1995 Catch	1995 ABC	1996 ABC	Calculated 1998 Interim TAC	1996 final TAC	1996 Catch
Atka Mackerel	3,240	696	3,240	3,240	3,240	3,240	1,585
Arrowtooth Flounder	35,000	17,813	198,130	198,130	35,000	35,000	22,539
Deep Water Flatfish	11,080	2,211	14,590	14,590	11,080	11,080	2,199
Flathead Sole	9,740	2,174	52,270	28,790	5,365	9,740	3,072
Northern Rockfish	5,270	5,689	5,270	5,270	5,270	5,270	3,387
Other Species	13,308	3,608	n/a	n/a	n/a	12,390	4,448
Pacific Cod	69,200	68,073	69,200	65,000	65,000	65,000	68,213
Pelagic Shelf Rockfish	5,190	2,973	5,190	5,190	5,190	5,190	2,313
Pollock	65,360	71,241	65,360	54,810	54,810	54,810	50,349
Pacific Ocean Perch	5,630	5,794	6,530	8,060	6,949	6,959	8,369
Rex Sole	9,690	4,027	11,210	11,210	9,690	9,690	5,847
Other Slope Rockfish	2,235	1,480	7,110	7,110	2,235	2,020	881
Sablefish	21,500	17,906	21,500	17,080	17,080	17,080	15,985
Shallow Water Flatfish	18,630	5,431	28,790	52,270	33,824	18,630	9,335
Shortraker/Rougheye Rockfish	1,910	2,293	1,910	1,910	1,910	1,910	1,671
Thornyhead	1,900	1,107	1,900	1,560	1,560	1,248	1,127
Grand Total - Gulf of Alaska	279,463	223,796	492,780	475,170	269,476	260,207	201,735

Appendix 2. BSAI Groundfish TACs and Supporting Information: 1996-2000.

Table 1 - BSAI Groundfish TACs and Supporting Information: 2000

Species	1999 TAC	1999 Catch	1999 ABC	2000 ABC	Calculated 2000 Interim TAC	2000 Interim TAC (adjusted for lower Council TACs)	2000 final TAC
Pollock BS	992,000	884,133	992,000	1,139,000	1,139,000	1,139,000	1,139,000
Pollock AI	2,000	1,003	23,800	23,800	2,000	2,000	2,000
Pollock Bogoslof	1,000	21	15,300	22,300	1,458	1,000	1,000
Pacific cod	177,000	160,084	177,000	193,000	193,000	193,000	193,000
Atka Mackerel AI	66,400	52,962	73,300	70,800	64,135	64,135	70,800
Sablefish BS	1,340	628	1,340	1,470	1,470	1,470	1,470
Sablefish AI	1,380	529	1,860	2,430	1,803	1,803	2,430
Greenland Turbot	9,000	5,776	14,200	9,300	5,894	5,894	9,300
Yellowfin sole	207,980	67,392	212,000	191,000	187,378	123,262	123,262
Flathead sole	77,300	17,777	77,300	73,500	73,500	52,652	52,652
Rock sole	120,000	40,362	309,000	230,000	89,320	89,320	134,760
Arrowtooth flounder	134,354	10,679	140,000	131,000	125,717	125,717	131,000
Other flatfish	154,000	15,184	154,000	117,000	117,000	83,813	83,813
Pacific Ocean Perch BS	1,400	376	1,900	2,600	1,916	1,916	2,600
Pacific Ocean Perch AI	13,500		13,500	12,300	12,300	12,300	12,300
Sharpchin/Northern Rockfish AI	4,230	5,181	4,230	5,150	5,150	5,150	5,150
Shortraker/Rougeye AI	965	474	965	885	885	885	885
Other red rockfish BS	267	217	267	194	194	194	194
Other rockfish BS	369	137	369	369	369	369	369
Other rockfish AI	685	632	685	685	685	685	685
Squid	1,970	413	1,970	1,970	1,970	1,970	1,970
Other species	32,860	18,396	32,860	31,360	31,360	31,360	31,360
Total	2,000,000		2,247,846	2,260,113	2,056,504	1,937,895	2,000,000

Table 2 - BSAI Groundfish TACs and Supporting Information: 1999

Species	1998 TAC	1998 Catch	1998 ABC	1999 ABC	Calculated 1999 Interim TAC	1999 Interim TAC (adjusted for lower Council TACs)	1999 final TAC
Pollock BS	1,110,000	1,021,720	1,110,000	992,000	992,000	992,000	992,000
Pollock AI	23,800	21,945	23,800	23,800	23,800	2,000	2,000
Pollock Bogoslof	1,000	8	6,410	15,300	2,387	1,000	1,000
Pacific cod	210,000	179,115	210,000	177,000	177,000	177,000	177,000
Atka Mackerel AI	64,300	55,782	64,300	73,300	73,300	66,400	66,400
Sablefish BS	1,300	573	1,300	1,340	1,340	1,340	1,340
Sablefish AI	1,380	615	1,380	1,860	1,860	1,380	1,380
Greenland Turbot	15,000	8,856	15,000	14,200	14,200	9,000	9,000
Yellowfin sole	220,000	95,036	220,000	212,000	212,000	207,980	207,980
Flathead sole	100,000	24,228	132,000	77,300	58,561	58,561	77,300
Rock sole	100,000	33,454	312,000	309,000	99,038	99,038	120,000
Arrowtooth flounder	16,000	14,930	147,000	140,000	15,238	15,238	134,354
Other flatfish	89,434	15,137	164,000	154,000	83,981	83,981	154,000
Pacific Ocean Perch BS	1,400	1,031	1,400	1,900	1,900	1,900	1,400
Pacific Ocean Perch AI	12,100	9,070	12,100	13,500	13,500	13,500	13,500
Sharpchin/Northern Rockfish AI	4,230	3,652	4,230	4,230	4,230	4,230	4,230
Shorthead/Rougheye AI	965	668	965	965	965	965	965
Other red rockfish BS	267	107	267	267	267	267	267
Other rockfish BS	369	205	369	369	369	369	369
Other rockfish AI	685	306	685	685	685	685	685
Squid	1,970	908	1,970	1,970	1,970	1,970	1,970
Other species	25,800	23,448	25,800	32,860	32,860	32,860	32,860
Total	2,000,000	1,510,794	2,454,976	2,247,846	1,811,451	1,771,664	2,000,000

Table 3 - BSAI Groundfish TACs and Supporting Information: 1998

Species	1997 TAC	1997 Catch	1997 ABC	1998 ABC	Calculated 1998 Interim TAC	1998 Interim TAC (adjusted for lower Council TACs)	1998 final TAC
Pollock BS	1,130,000	1,124,593	1,130,000	1,110,000	1,110,000	1,110,000	1,110,000
Pollock AI	28,000	25,940	28,000	23,800	23,800	23,800	23,800
Pollock Bogoslof	1,000	168	32,100	6,410	200	200	1,000
Pacific cod	270,000	234,641	306,000	210,000	185,294	185,294	210,000
Atka Mackerel AI	66,700	65,839	66,700	64,300	64,300	64,300	64,300
Sablefish BS	1,100	547	1,308	1,300	1,093	1,093	1,300
Sablefish AI	1,200	779	1,367	1,380	1,211	1,211	1,380
Greenland Turbot	9,000	7,666	12,350	15,000	10,931	10,931	15,000
Yellowfin sole	230,000	166,915	233,000	220,000	217,167	217,167	220,000
Flathead sole	43,500	20,272	101,000	132,000	56,851	56,851	100,000
Rock sole	97,185	67,520	296,000	312,000	102,438	100,000	100,000
Arrowtooth flounder	20,760	9,651	108,000	147,000	28,257	16,000	16,000
Other flatfish	50,750	22,131	97,500	164,000	85,364	85,364	89,434
Pacific Ocean Perch BS	2,800	827	2,800	1,400	1,400	1,400	1,400
Pacific Ocean Perch AI	12,800	12,648	12,800	12,100	12,100	12,100	12,100
Sharpchin/Northern Rockfish AI	4,360	1,997	4,360	4,230	4,230	4,230	4,230
Shortraker/Rougheye AI	938	1,045	938	965	965	965	965
Other red rockfish BS	1,050	233	1,050	267	267	267	267
Other rockfish BS	373	161	373	369	369	369	369
Other rockfish AI	714	307	714	685	685	685	685
Squid	1,970	1,761	1,970	1,970	1,970	1,970	1,970
Other species	25,800	22,552	25,800	25,800	25,800	25,800	25,800
Total	2,000,000	1,788,193	2,464,130	2,454,976	1,934,694	1,919,997	2,000,000

Table 4 - BSAI Groundfish TACs and Supporting Information: 1997

Species	1996 TAC	1996 Catch	1996 ABC	1997 ABC	Calculated 1997 Interim TAC	1997 Interim TAC (adjusted for lower Council TACs)	1997 final TAC
Pollock BS	1,190,000	1,189,296	1,190,000	1,130,000	1,130,000	1,130,000	1,130,000
Pollock AI	35,600	28,933	35,600	28,000	28,000	28,000	28,000
Pollock Bogoslof	1,000	390	121,000	32,100	265	265	1,000
Pacific cod	270,000	240,590	305,000	306,000	270,885	270,000	270,000
Atka Mackerel AI	106,157	103,867	116,000	66,700	61,040	61,040	66,700
Sablefish BS	1,100	629	1,200	1,308	1,199	1,100	1,100
Sablefish AI	1,200	720	1,300	1,367	1,262	1,200	1,200
Greenland Turbot	7,000	6,376	10,300	12,350	8,393	8,393	9,000
Yellowfin sole	200,000	130,163	278,000	233,000	167,626	167,626	230,000
Flathead sole	30,000	16,795	116,000	101,000	26,121	26,121	43,500
Rock sole	70,000	47,146	361,000	296,000	57,396	57,396	97,185
Arrowtooth flounder	9,000	14,610	129,000	108,000	7,535	7,535	20,760
Other flatfish	35,000	18,543	102,000	97,500	33,456	33,456	50,750
Pacific Ocean Perch BS	1,800	2,635	1,800	2,800	2,800	2,800	2,800
Pacific Ocean Perch AI	12,100	20,443	12,100	12,800	12,800	12,800	12,800
Sharpchin/Northern Rockfish AI	5,229	6,696	5,810	4,360	3,924	3,924	4,360
Shortraker/Rougheye AI	1,125	946	1,250	938	844	844	938
Other red rockfish BS	1,260		1,400	1,050	945	945	1,050
Other rockfish BS	447	364	497	373	335	335	373
Other rockfish AI	857	278	952	714	643	643	714
Squid	1,000	1,167	3,000	1,970	657	657	1,970
Other species	20,125	21,437	27,600	25,800	18,813	18,813	25,800
Total	2,000,000	1,852,024	2,820,809	2,464,130	1,834,939	1,833,893	2,000,000

Table 5 - BSAI Groundfish TACs and Supporting Information: 1996

Species	1995 TAC	1995 Catch	1995 ABC	1996 ABC	Calculated 1996 Interim TAC	1996 Interim TAC (adjusted for lower Council TACs)	1996 final TAC
Pollock BS	1,250,000	1,264,578	1,250,000	1,190,000	1,190,000	1,190,000	1,190,000
Pollock AI	56,600	64,925	56,600	35,600	35,600	35,600	35,600
Pollock Bogoslof	1,000		22,100	121,000	5,475	1,000	1,000
Pacific cod	250,000	245,030	328,000	305,000	232,470	232,470	270,000
Atka Mackerel AI	80,000	81,554	125,000	116,000	74,240	74,240	106,157
Sablefish BS	1,600	929	1,600	1,200	1,200	1,100	1,100
Sablefish AI	2,200	1,119	2,200	1,300	1,300	1,200	1,200
Greenland Turbot	7,000	8,193	7,000	10,300	10,300	7,000	7,000
Yellowfin sole	190,000	124,752	277,000	278,000	190,686	190,686	200,000
Flathead sole	30,000		138,000	116,000	25,217	25,217	30,000
Rock sole	60,000	55,028	347,000	361,000	62,421	62,421	70,000
Arrowtooth flounder	10,227	9,283	113,000	129,000	11,675	9,000	9,000
Other flatfish	19,540		117,000	102,000	17,035	17,035	35,000
Pacific Ocean Perch BS	1,850	1,210	1,850	1,800	1,800	1,800	1,800
Pacific Ocean Perch AI	10,500	14,734	10,500	12,100	12,100	12,100	12,100
Sharpchin/Northern Rockfish AI	5,103		5,670	5,810	5,229	5,229	5,229
Shortraker/Rougheye AI	1,098		1,220	1,250	1,125	1,125	1,125
Other red rockfish BS	1,260		1,400	1,400	1,260	1,260	1,260
Other rockfish BS	329	629	365	497	448	448	447
Other rockfish AI	693	220	770	952	857	857	857
Squid	1,000	459	3,110	3,000	965	965	1,000
Other species	20,000	22,201	27,600	27,600	20,000	20,000	20,125
Total	2,000,000	1,894,844	2,836,985	2,820,809	1,901,402	1,890,753	2,000,000