

MEMORANDUM

TO: Council, SSC and AP Members
FROM: Chris Oliver *Chris*
Executive Director
DATE: December 1, 2004
SUBJECT: Groundfish FMP Revisions

ESTIMATED TIME 8 HOURS (all D-1 items)
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ACTION REQUIRED

Final action on BSAI and GOA Groundfish FMP revisions.

BACKGROUND

Groundfish FMP amendments 83/75 will implement housekeeping changes that reorganize the content of the FMPs, technically edit the language, and update certain descriptions within the FMPs that do not reflect the current status of the groundfish fisheries. The most recent versions of the draft revised FMPs were distributed to the Council family at the end of August, and are dated August 13, 2004.

Notes on the FMP revisions, and on final action for these amendments, as well as a series of attachments including addendums to the August 13, 2004 drafts, are described below.

Notes on FMP Revisions

What is the FMP?

- Staff have drafted a series of questions and answers about the required contents of the FMP and the difference between the FMP and regulations (**Attachment 1**)

June 2004 meeting

- SSC provided comments on the FMP revisions in their minutes, and formed a subcommittee to review the definitions and specifications of OY, MSY, TAC, ABC, overfishing definitions, and harvest control rules (*copy of minutes included as Attachment 2*)
- Council directed staff to incorporate the SSC's comments
- Council deferred action on staff's list of considerations

Since June

- SSC subcommittee supplied comments on Section 3.2 of the FMPs (*copy of revisions included in Attachment 2*)
- FMPs were revised to address comments in the SSC minutes and subcommittee changes
- Draft revised FMPs were mailed to the Council family in late August (and posted on website)

Deferred list of staff considerations from the June meeting

- Most were addressed by the SSC, in their minutes, or by the subcommittee
 - definition/description of MSY/OY (revised by the subcommittee)
 - missing vessel safety section in BSAI (included)
 - obsolete reference to the POP rebuilding plan in the GOA (removed)
 - consistency of appendices I and J (appendix I, habitat information on non-FMP species, deleted; appendix J expanded to include information on both marine mammals and seabirds)
- Others remain to be addressed
 - minor edits to management approach (**Attachment 3**)
 - review of Section 3.10, Council review of the FMP

New material since June

- suggested addition to the BSAI FMP
 - The GOA FMP contains an explicit statement of what occurs when TAC is attained. It would be beneficial to include this section explicitly in the BSAI FMP also.

3.2.7 Attainment of Total Allowable Catch

The attainment of a TAC for a species will result in the closure of the target fishery for that species. That is, once the TAC is taken, further retention of that species will be prohibited. Other fisheries targeting on other species could be allowed to continue as long as the non-retainable bycatch of the closed species is found to be non-detrimental to that stock.

- Suggested language for revising Section 3.10
 - The SSC, in their June 2004 minutes, recommended that this section be expanded to incorporate a periodic review of all critical components of the FMP
 - In October 2004, the SSC suggested that the period for reviews should be linked to the preparation of future programmatic environmental impact statements
 - Along these lines, staff has prepared a revised draft of Section 3.10. The annual review period for the management approach is maintained, as this was only recently adopted in April 2004, and the review period for EFH components remains as it is recommended in the EFH final rule. (**Attachment 4**)
- Addendums to the August 2004 draft revised FMPs: revised sections
 - BSAI FMP: revised Executive Summary Table ES-2, new Section 3.7.2.5 to reflect changes to the draft amendment text for BSAI 62 (single geographic location), revised Section 3.7.3 to reflecting changes to the draft amendment text for BSAI 82 (AI Pollock allocation), and missing figures (**Attachment 5**), and other technical edits (**Attachment 6**)
 - GOA FMP: revised Executive Summary Table ES-2, revised Section 3.2.6.3.2 reflecting changes to the draft amendment text for GOA 62 (single geographic location), and missing figures (**Attachment 7**), and other technical edits (**Attachment 8**)

Final Action at the December 2004 meeting

The amendment action could have two parts:

1. *Housekeeping changes*

- Action would incorporate housekeeping changes that will reorganize the content of the FMPs, technically edit the language, and update certain descriptions within the FMPs that do not reflect the current status of the groundfish fisheries. These housekeeping changes would not substantively alter the provisions of the BSAI and GOA groundfish FMPs that have previously been approved by NMFS.
- The housekeeping changes would be along the lines of those presented in the draft BSAI and GOA groundfish FMPs dated August 2004, with any modifications, such as those based on the following considerations:
 - Addendums distributed in November 2004
 - Proposed edits to Section 2.2, Management approach
 - Inclusion of a Section 3.2.7, Attainment of TAC, in the BSAI FMP
- Action would recognize that some of the housekeeping changes include draft FMP text contained in separate BSAI or GOA FMP amendments that may be under Secretarial review at the start of Secretarial review for Amendments 83/75, and that, depending on the decision of the Secretary, may not be included in Amendments 83/75.
 - Draft amendment text is included for 62/62 (single geographic location), BSAI 71a (CDQ), BSAI 82 (Adak), GOA 72 (IR/IU flatfish exemption)
 - Amendment text is not included for BSAI 79 (groundfish retention standard) as amendment language has yet to be drafted

2. *Substantive changes*

- a) Remove language in the BSAI and GOA FMPs that allows TAC or OY to be set higher than ABC or the sum of ABCs
 - This change is on the Council's workplan for implementing the PSEIS preferred alternative
 - Analysis required to support this change is in the PSEIS, where example FMPs that set TAC greater than ABC, equal to or less than ABC, and substantially less than ABC were all analyzed.
 - This change was recommended by the SSC in their subcommittee revisions. As a result, the draft August 2004 FMPs already reflect this change.
- b) Revise Section 3.10 of the FMPs that provides a timeline for reviewing particular components of the FMP
 - SSC recommendation to periodically review all critical components of the FMP, in conjunction with future programmatic review of the groundfish fisheries
 - To change the Council's commitment to review the FMP is a policy decision that does not require supporting analysis. This change could therefore be acted on at this meeting, and go forward with the housekeeping changes as part of Amendments 83/75.

FMP QUESTIONS AND ANSWERS

What is the FMP?

A fishery management plan (FMP) is developed by the Council for each fishery under its authority that requires conservation and management. FMPs describe the fisheries and contain necessary and appropriate conservation and management measures, applicable to fishing activities undertaken in the EEZ. The plans are submitted to the Secretary of Commerce (Secretary) for approval. If approved, the Secretary promulgates regulations implementing the conservation and management measures set forth in the FMP.

What is the difference between the FMP and the regulations?

FMPs are required to contain the conservation and management measures necessary and appropriate for the conservation and management of the fishery. The conservation and management measures contained in an FMP may be very detailed and specific measures, or they may provide a broader, overarching authority for the promulgation in regulation of certain types of management measures that are not specifically articulated in the FMP. The level of specificity contained in FMPs varies according to the action under consideration by the Council. Although the FMP contains the management measures necessary for conservation and management of the fishery, the FMPs do not have the force and effect of law. The regulations that implement the provisions of the FMPs, and that must be consistent with the provisions of the FMPs, do carry the force and effect of law. The regulated community must be able to understand the regulatory requirements it is subject to and therefore the regulations contain the level of detail necessary for the agency to enforce such regulations.

What governs the contents of the FMP?

The Magnuson-Stevens Act (16 USC 1801, et seq.) Section 303 describes the specific required and discretionary provisions of the FMP. There are fourteen required provisions and twelve discretionary provisions set forth in Section 303. Pursuant to Sections 301 and 303, any FMP and any regulation promulgated to implement the FMP must be consistent with the national standards, other provisions of the Magnuson-Stevens Act, and other applicable law.

What goes in the FMP?

The first of the required provisions of an FMP, as described in the Magnuson-Stevens Act, is to contain the conservation and management measures applicable to foreign and domestic fishing vessels. There are, however, thirteen other required provisions, including a description of the fishery and fishery sectors, present and future condition of MSY and OY, requirements for scientific and social and economic data, identification of essential fish habitat, and overfishing criteria.

Does the FMP need to contain all the details of the management regime?

No. The Council may be as specific as it chooses in its development of the FMP and amendments as long as it meets the requirements found in Sections 301 and 303 of the Magnuson-Stevens Act. At a minimum, the FMP must describe the conservation and management measures sufficiently so as to clarify the intent of the measures. In fact, in the North Pacific, it has often been the Council's practice to include the overarching framework of its management measures in the FMP and have the details presented in the implementing regulations. Some overarching frameworks are more specific than others.

Why are some of the management measures described in detail, and others not?

There are a number of factors that come into play in determining the level of specificity of FMP amendment language. For example, the type of management measure may dictate the level of specificity within the FMP (for example, general authority for recordkeeping and reporting requirements versus a limited access system for a particular fishery). Also, the Council's preference for stating a more explicit management approach to address a certain management issue versus a broader approach that may evolve over time through the implementing regulations is a factor in determining the specificity of FMP amendment language.

Do we need to include all of the descriptive information that changes every year?

The Magnuson-Stevens Act, Section 303 requires that the FMP describe the state of the fishery and stocks. Even though this information is updated annually in the SAFE reports, it must be included in the FMP. In an effort to reduce the burden of annually updating the FMP, a goal of revising the FMP has been to create descriptions that satisfy the requirements of section 303(a) and that have some longevity to them while also referencing those sources where current information is available.

Why is there so much more habitat information than anything else?

The 1996 amendments to the Magnuson-Stevens Act (Sections 303 and 305 (b)) require NMFS and regional Fishery Management Councils (Councils) to describe and identify essential fish habitat (EFH) within FMPs based on guidelines established by the Secretary, minimize to the extent practicable adverse effects on EFH caused by fishing, and identify other actions to encourage the conservation and enhancement of EFH. EFH is defined in the Magnuson-Stevens Act as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity."

As required by the Magnuson-Stevens Act, NMFS developed guidelines, (located at 50 CFR part 600, Subpart J), to assist the Councils in the description and identification of EFH and in the consideration of actions to ensure the conservation and enhancement of EFH. The EFH regulations also include guidelines for identifying adverse impacts from both fishing and non-fishing activities and considering the practicability of actions for minimizing adverse effects on EFH from fishing. In addition, the implementing regulations identify eight other activities that either should or must be included when amending the FMPs.

Because the BSAI and GOA Groundfish FMPs manage so many species, this means that a lot of the bulk of these FMPs and their appendices is devoted to habitat information.

Why do we need an amendment to make non-substantive changes to the FMP?

Pursuant to the Magnuson-Stevens Act, each FMP must be submitted by the Council to the Secretary for review and approval. Additionally, changes to an already approved FMP must be submitted to the Secretary for review and approval as an FMP amendment. Because minor, non-substantive changes amend the Secretarially-approved FMP language just as substantive changes do, all changes to approved FMP text must follow the process set forth in section 304 of the Magnuson-Stevens Act.

What happens if the revisions to the FMP create an erroneous change to the conservation and management measures?

Any time the FMP is revised, there is a chance that the revision may inadvertently make an unintended change to FMP language. For example, in revising the FMP to incorporate housekeeping changes, staff may incorrectly describe the Council's intended conservation and management measures. Should this occur, the regulations implementing the FMP would be inconsistent with the FMP itself. However, it will be clear from the record that this is a technical error in the FMP, which will be amended as soon as possible. It is unlikely that there would be further consequence.

ANNOTATED EXCERPT from the Draft Minutes of the Scientific Statistical Committee, June 7-9, 2004

Annotations reflect staff's response to the SSC comments, and are indicated in bold italics.

C-2 (b) Groundfish FMP revisions

The SSC commends staff on their efforts to standardize the outline and format of different FMPs. The revised FMPs provide well structured and readable documents with excellent sections on the most pertinent characteristics of major stocks, fisheries, and fishing communities. While originally intended as a housekeeping amendment, the SSC concurs with others that this is a good time to review the document in its entirety and make changes as necessary. The majority of SSC concerns were in regard to definitions and specifications of OY, MSY, TAC, ABC, overfishing definitions, and harvest control rules in sections 3.2.1 and 3.2.2 of the FMP. Because of the importance of these issues, the SSC wishes to conduct a more thorough review of these sections before final action is taken. To this end, a SSC subcommittee consisting of Rich Marasco (chair), Terry Quinn, Gordon Kruse, Pat Livingston, Franz Mueter, and Farron Wallace was established and will conduct a review prior to the next council meeting.

Subcommittee conducted the review by email during the month of July. The revisions made by the subcommittee to Sections 3.2 of the revised BSAI and GOA FMPs are included in this document, beginning on page 5 (for the BSAI FMP) and page 12 (for the GOA FMP). Deletions are marked with ~~strikeout~~, and additions with bold.

In addition, the SSC noted a number of issues that may require either substantive changes or minor reorganization. The SSC recommends that the following changes be performed and a thorough review of the FMPs and language be conducted before final action.

- A rewrite of the procedures for setting TACs to clarify the Council process for annual TAC-setting and the role of the SSC in the Council process (see also specific suggestions below).

Addressed through the subcommittee rewrites

- An expansion of section 3.10 on Council review of the FMP. Currently, this section singles out management objectives (3.10.2), EFH components (3.10.3), and PSC catch limits (3.10.3, BSAI only) for periodic review. However, periodic review of all critical components of the plan should be performed on a regular basis. The SSC suggests that a schedule be developed to specify when, how often, and by whom other components of the FMP are reviewed, including MSY/OY definitions and specification, overfishing criteria, procedures for setting TACs, stock definitions, restrictions, and monitoring and reporting requirements.

Council may wish to take action on this at the December meeting

- If possible, a mechanism to update section 4.1.2 on the status of stocks should be developed. Staff noted that any changes require an amendment to the FMP. SSC suggested updating stock status on the NPFMC website and reference the website in the FMP.

Website now referenced in the FMP

- The amount of habitat information in the FMP far exceeds information on the biology and dynamics of stocks, which is far more relevant to current management. The SSC suggests, if possible, shortening detailed habitat information and deleting Appendix I unless required by law.

Habitat sections of FMP will be revised following adoption of the EFH amendment; Appendix I (habitat information for non-FMP species) has been deleted

- Current MSY and OY definitions and specifications are outdated and confusing. Moreover, the current definition of OY in GOA FMP, section 3.2.1.1. (*[OY]..is prescribed as such on the basis of the MSY from such fishery, as modified by any relevant economic, social, or ecological*

factors), is inconsistent with the MSA, which reads: ... *as reduced by any relevant economic, social, or ecological factors*. The SSC subcommittee will review modifications suggested by Grant Thompson (Notebook, Item C-2(b)2).

Addressed by subcommittee

- The organization seems to be fitting for easily updating the appendices when new information arrives, though some more thought might be given to including sections of the SEIS that provide overviews of non-fishing and cumulative impacts or threats to resources and to more clearly outline the other institutional components that may be involved in managing human activities in these ecosystems and what the SEIS said were some of the most important threats that might need to be considered.

New Section 4.6, Ecosystem Characteristics, created that draws information from PSEIS

A number of minor modifications were suggested, including:

- Chapter 2.2, Management approach, lacks a clearly identified policy statement. The 3rd sentence in section 2.2 appears to contain the Council's key policy statement. The SSC suggests changing the sentence to read: "*The Council's policy is to apply judicious and responsible fisheries management practices, based on sound scientific research and analysis ...*" and to highlight or move this statement to the beginning of the policy section.

Changes made

- As noted in SSC minutes from April 2004, the jurisdictional authority with regards to finfish managed by the State of Alaska should be more clearly identified. This is covered in some detail in section 5.4. We suggest including the current section 3.1.2.1 on state regulation of demersal rockfish assemblage under section 5.4 and inserting a general statement with regard to stocks managed jointly with the State or by the State of Alaska in section 3.1.2. A table listing the agency that has jurisdiction of each stock/area combination may be helpful.

In GOA FMP, section on state regulation of DSR moved to 3.8.1; reference included in 5.4; jurisdiction clarified in Table 3-1

- The SSC suggests providing a brief rationale for important quantities specified in the FMP. For example:
 - The TAC of the other species category is set to 5% of the combined TACs for target species without a clear justification
 - Parameter 'a' under Overfishing Criteria (3.2.2) is set to default value of 0.05 without rationale.

Justification added to GOA FMP, section 3.2.5.1

Parameter justified in section 3.2.4, both FMPs

- Section 3.2.3.1 of the GOA FMP is confusing because it combines the rebuilding plan for POP with a general procedure for setting TACs. The SSC suggests deleting the discussion regarding rebuilding of POP stocks as well as adding a general procedure for setting TACs (steps 1-3 in section 3.2.3.1) to the BSAI FMP.

POP rebuilding plan deleted from GOA FMP, and "Framework for Setting TAC" section added to BSAI FMP

- Section 3.2.3.3 of the GOA FMP, which specifies a reserve amount of 20%, should be reconciled with Table ES-2, which specifies a reserve amount of 15%.

Change made

- Section 3.3.1 of GOA FMP, which states that vessels less than 26' will be exempt from LLP should be reconciled with Table ES-2 (vessels less than 32').

Change made

- GOA FMP has a section on vessel safety (3.8.3), which presumably should be in the BSAI FMP as well.

Vessel safety section added to BSAI FMP

- Table ES-2 in the GOA FMP should include definition of MSY, as in BSAI
MSY is the basis for the upper end of OY; listed in ES table as such
- Some of the species descriptions in the GOA FMP refer to BSAI region (e.g. distribution of rock sole) and should be updated to reflect life history of species in the GOA.

Changes made

- Section 4.1.1 (GOA FMP): Rock sole is listed as single species, should be northern (*L. polyxystra*) and southern (*L. bilineata*) rock sole.

Change made

- GOA FMP, Tables D.1.b/c: replace BSAI in title with GOA

Change made

- Section 4.2.3.2 in BSAI was written for GOA, not BSAI, and should be deleted or updated.

Section describes HAPC type; will be revised following adoption of the EFH amendment that revises HAPC definitions

- BSAI FMP, section 4.3.2 lists ex-vessel value of GOA groundfish catch (p.85), should be BSAI groundfish catch.

Change made

- Boiler plate language needs updating in some sections so that it reflects the present and not initial implementation of each amendment

Changes made

- Need referencing of the $F_{40\%}$ review and inclusion of the historical review of the Council process contained therein

Referenced in Section 3.2

- Description of fishing communities needs updating and AFSC sociologist Jennifer Sepez may have information on Alaskan fishing community profiles. It also seems non-Alaskan communities have been ignored.

Community information has been updated as compared to the existing FMPs, although it is not current. When the Sepez profiles are complete, they should be incorporated into the FMP, along with a more complete description of non-Alaskan communities.

- Sometimes it is made clear what the source of the information was while other times it is not, making it unclear how recent some of the information was.

Where appropriate, dates included

- Insufficient consideration of the role of climate in influencing ecosystem processes and species production is included in the descriptive parts of the FMP dealing with climate.

Information added in Section 4.6, Ecosystem characteristics

- Elements required of Fishery Ecosystem Plans might also be included in these plans more explicitly.

New section 4.6 addresses some elements, and revisions under EFH amendment will also help to address

- A listing of other FMPs that are in place in the region would also be informative to readers of these FMPs.

Included in section 5.3

Differences between the two plans that should be minimized are:

- Table ES-2 for BS makes clear that non specified species are not included in OY but GOA does not
Substantive issue; intended that eventual non-target species amendment will address this difference
- Table ES-2 for BSAI does not include mention of the fishing year as GOA does in section on time and area restrictions
Fishing year is not defined in the BSAI FMP
- Table 3-1 in BSAI lists some main groups of nonspecified species, GOA has no mention of non specified species in its table
As above, this is a substantive difference between the FMPs, which will be addressed probably under the non-target species amendment
- OY definitions differ between the two FMPs. Definition of BSAI OY does not seem to match the way OY is implemented in BSAI (as a range in which individual ABCs are not exceeded) p11 BSAI, p12 GOA
Addressed in subcommittee revisions; subcommittee has proposed that language that allows OY to exceed the sum of ABCs be stricken
- No TAC definition was included in the BSAI FMP, p11
Addressed in subcommittee revisions
- There was no mention of PSC limits in the TAC setting procedures of Section 3.2.3 of BSAI, p. 14
Procedures for setting PSC limits are detailed in Section 3.6.2 of the revised BSAI FMP
- GOA FMP has section 3.6.3.3 on size limits (p.31) which was not contained in BSAI FMP.
The BSAI FMP does not address size limits
- Appendices: GOA FMP is missing a section on marine mammals, neither has a section on seabirds
The new appendix I in both FMPs addresses information on marine mammal and seabird populations

SSC SUBCOMMITTEE'S TEXT FOR REVISED BSAI GROUND FISH FMP

3.2 Determining Harvest Levels

This section discusses the determination of optimum yield and maximum sustainable yield for the groundfish of the Bering Sea and Aleutian Islands (Section 3.2.1). The overfishing criteria are included in Section 3.2.2, followed by a description of the procedures for setting TAC. Finally, Section 3.2.4 specifies those instances where the apportionment of TAC is mandated in the FMP by gear type, area, or season.

3.2.1 Maximum Sustainable Yield and Optimum Yield

3.2.1.1 Definition of terms

Maximum sustainable yield (MSY) is an average over a reasonable length of time of the largest long-term catch or yield which that can be taken continuously from a stock or stock complex under current prevailing ecological and environmental conditions. It should normally be presented with a range of values around its point estimate.

~~Where sufficient scientific data as to the biological characteristics of the stock do not exist or the period of exploitation or investigation has not been long enough for adequate understanding of stock dynamics, the MSY will be estimated from the best information available.~~

Optimum yield (OY) may be obtained by a plus or minus deviation from ABC for purposes of promoting economic, social or ecological objectives as established by law and public participation processes. Ecological objectives, where they primarily relate to biological purposes and factors, are included in the determination of ABC. Where biological objectives relate to resolving conflicts and accommodating competing uses and values, they are included as appropriate with economic and/or social objectives. OY may be set higher than ABC in order to produce higher yields from other more desirable species in a multispecies fishery. It might be set lower than ABC in order to provide larger sized individuals or a higher average catch per unit effort, or to rebuild overfished stocks: is the amount of fish which—

- a) will provide the greatest overall benefit to the Nation, particularly with respect to food production and recreational opportunities, and taking into account the protection of marine ecosystems;
- b) is prescribed as such on the basis of the MSY from the fishery, as reduced by any relevant economic, social, or ecological factor; and
- c) in the case of an overfished fishery, provides for rebuilding to a level consistent with producing the MSY in such fishery.

Overfishing level (OFL) is a limit reference point set annually for a stock or stock complex during the assessment process, as described in Section 3.2.4, Overfishing criteria. Overfishing occurs whenever a stock or stock complex is subjected to a rate or level of fishing mortality that jeopardizes the capacity of a stock or stock complex to produce MSY on a continuing basis. Operationally, overfishing occurs when the harvest exceeds the OFL.

Acceptable biological catch (ABC) is an annual sustainable target preliminary description of the acceptable harvest (or range of harvests) for a given stock or stock complex, determined by the Plan Team

and the Science and Statistical Committee during the assessment process. It is derived from the status and dynamics of the stock, environmental conditions, and other ecological factors, given the prevailing technological characteristics of the fishery. ~~The fishing mortality rate used to calculate ABC is capped as described in Section 3.2.2, overfishing criteria.~~ The target reference point is set below the limit reference point for overfishing.

Total allowable catch (TAC) is the annual harvest limit for a stock or stock complex, derived from the ABC by considering social and economic factors.

In addition to definitional differences, OY differs from ABC and TAC in two practical respects. First, ABC and TAC are specified for each stock or stock complex within the “target species” and “other species” categories, whereas OY is specified for the groundfish fishery (comprising target species and other species categories) as a whole. Second, ABCs and TACs are specified annually whereas the OY range is constant. The sum of the stock-specific ABCs may fall within or outside of the OY range. If the sum of annual TACs falls outside the OY range, TACs must be adjusted or the FMP amended.

3.2.1.2 Maximum Sustainable Yield of the Groundfish Complex

The groundfish complex and its fishery are a distinct management unit of the Bering Sea. ~~The complex has more than 10 commercially important species and many others of lesser or no commercial importance.~~ This complex forms a large subsystem of the Bering Sea ecosystem with intricate interrelationships between predators and prey, between competitors, and between those species and their environment. ~~Therefore~~ **Ideally, concepts such as the productivity and MSY of groundfish should be viewed in terms of conceived for the groundfish complex as a unit rather than for many individual species and species groups. Due to the difficult of estimating the parameters that govern interactions between species, however, estimates of MSY for the groundfish complex have sometimes been computed by summing MSY estimates for the individual species and species groups.**

~~The Early studies estimated MSY for of the groundfish complex in the range of 1.7 to 2.4 million mt. This range was obtained is calculated by summing the MSYs ranges of each target species and of the “other species” category, as defined in Section 3.2.2 of this plan. that are derived from species-by-species analysis. A reasonable verification of the MSY for the groundfish complex is derived by averaging the 1968-1977 catches when the fishery went through periods of growth, peak, decline, and some stability (see Section 4.3.1, History of Exploitation). The average catch was 1.8 million mt with a range of 1.1 to 2.4 million mt. By way of comparison, this range included both the average annual catch (1.8 million mt) and the maximum annual catch (2.4 million mt) taken during the period 1968-1977 (see Section 4.3.1, History of Exploitation). However, current multi-species models suggest that the sum of single-species MSYs provides a poor estimate of MSY for the groundfish complex as a whole (Walters et al., in press) because biological reference points for single stocks, such as F_{MSY} , may change substantially when multi-species interactions are taken into account (Gislason 1999; Collie and Gislason 2001). Fishing mortality rates for prey species that are consumed by other marine predators should be conditioned on the level of predation mortality, which may change over time depending on predator population levels.~~

~~An ecosystem model of the Bering Sea developed by the Northwest and Alaska Fisheries Center (Laevastu and Larkins 1981) shows that the mean exploitable biomass for the groundfish species covered by this FMP is about 9.3 million mt. This ecosystem model, the Prognostic Bulk Biomass model, simulated the principal components of the ecosystem (mammals, birds, demersal fish, semi-demersal fish, pelagic fish, squid, crabs,~~

and benthos) and considered their fluctuations in abundance caused by predation, natural mortality, environmental anomalies, and fishing. The magnitude of the mean exploitable biomass (9.3 million mt) suggests that the annual yield from it is probably much higher than the 1.7 to 2.4 million mt range estimated conservatively by the single species approach.

The An ecosystem perspective suggests consideration also indicates that MSY of the groundfish complex may change if an environmental regime shift occurs or if the present mix of species is altered substantially from the present period. Also, as new data are required and as statistical methodology evolves over time, it is to be expected that estimates of MSY will change, even if the ecosystem has remained relatively stationary. Therefore, as changes take place, estimates of MSY contained in this section should be viewed in context, as historical estimates that guided the development of the FMP but not necessarily as reflective of the best scientific information available currently for the complex may have to be reexamined.

3.2.1.3 Optimum Yield of the Groundfish Complex

The optimum yield of the groundfish complex is specified as set equal to 85% of the historical estimate of the MSY range for the target species and the "other species" categories (1.4 to 2.0 million mt), to the extent this can be harvested consistently with the management measures specified in this FMP, plus the actual amount of the nonspecified species category that is taken incidentally to the harvest of target species and the "other species" category. This deviation from the historical estimate of MSY reflects the combined influence of biological ecological, social and socioeconomic factors. The important ecological biological factors may be summarized as follows indicate that:

1. • When considering the condition of individual species within the complex, the OY range encompasses the summed acceptable biological catches (ABCs) of individual species for 1978-1981 (Low et al. 1978; and Bakkala et al. 1979, 1980, and 1981). This sum may be used as an indicator of the biological productivity of the complex, although it such use is not completely satisfactory, because multi-species/ ecosystem interactions are cannot be adequately taken into account explicitly. The 15% reduction of from MSY reduces the risk associated with relying upon incomplete data and questionable assumptions in assessment models used to determine the condition of stocks.
2. When considering multi-species/ecosystem models, the OY range is probably a conservatively safe level for the groundfish complex. The mean exploitable biomass of 9.3 million mt for the species groups (Laevastu and Larkins 1981) suggests that the harvest level can be considerably higher than the OY range.

Although the multi-species/ecosystem models suggest that the harvest level can be higher than 2.0 million mt, it would only be so if the proper combination of exploitation rates by individual species commensurate to the natural balance of the groundfish complex is applied. This combination may not be desirable to the fishermen because the industry prefers only certain species. The recent catch history indicates that the present mix of species is socio-economically acceptable and that the groundfish complex should probably not be exploited at levels higher than 2.0 million mt at this time.

All of The important social and economic considerations indicate that factors may be summarized as follows:

1. The OY range is not likely to have any significant detrimental impact on the industry. On the contrary, this **specification of OY as a constant range**, when compared to the annual determination of OY, ~~is more desirable because it helps to~~ creates a more stable management environment in which where the industry can consistently plan its activities consistently, with an minimum expectation of OY being equal to **that each year's total groundfish catch will be at least 1.4 million metric tons.**
2. The OY range also covers ~~encompasses the annual~~ actual catch levels during 1974-76 when the **foreign taken in the period immediately prior to its implementation, during which the fishery operated profitably before the Magnuson-Stevens Act was implemented and is slightly higher than actual catches since then.**

Therefore, the range of 1.4 to 2.0 million mt of the target species and "other species" categories, to the extent it can be harvested consistently with the management measures prescribed in this FMP, plus the incidental harvest of nonspecified species, will be the OY of the Bering Sea/Aleutian Islands groundfish complex covered by this FMP unless the plan is amended. An amendment will be made when the status of the groundfish complex changes substantially from the present condition or when socioeconomic considerations dictate that OY should fall outside the present range. OY may also have to be reexamined if substantial change from the present mix of species occurs or is desired of the groundfish complex. OY may need to be respecified in the future if major changes occur in the estimate of MSY for the groundfish complex. Likewise, OY may need to be respecified if major changes occur in the ecological, social, or economic factors governing the relationship between OY and MSY.

3.2.2 Overfishing Criteria [no SSC changes to this section]

Overfishing is defined as any amount of fishing in excess of a prescribed maximum allowable rate. This maximum allowable rate is prescribed through a set of six tiers which are listed below in descending order of preference, corresponding to descending order of information availability. The Council's Science and Statistical Committee (SSC) will have final authority for determining whether a given item of information is "reliable" for the purpose of this definition, and may use either objective or subjective criteria in making such determinations.

For tier (1), a "pdf" refers to a probability density function. For tiers 1 and 2, if a reliable pdf of B_{MSY} is available, the preferred point estimate of B_{MSY} is the geometric mean of its pdf. For tiers 1 to 5, if a reliable pdf of B is available, the preferred point estimate is the geometric mean of its pdf. For tiers 1 to 3, the coefficient a is set at a default value of 0.05, with the understanding that the SSC may establish a different value for a specific stock or stock complex as merited by the best available scientific information. For tiers 2 to 4, a designation of the form " $F_{X\%}$ " refers to the fishing mortality rate (F) associated with an equilibrium level of spawning per recruit equal to $X\%$ of the equilibrium level of spawning per recruit in the absence of any fishing. If reliable information sufficient to characterize the entire maturity schedule of a species is not available, the SSC may choose to view spawning per recruit calculations based on a knife-edge maturity assumption as reliable. For tier 3, the term $B_{40\%}$ refers to the long-term average biomass that would be expected under average recruitment and $F=F_{40\%}$.

Tier 1 Information available: Reliable point estimates of B and B_{MSY} and reliable pdf of F_{MSY} .

- 1a) Stock status: $B/B_{MSY} > 1$
 $F_{OFL} = m_A$, the arithmetic mean of the pdf
 $F_{ABC} \leq m_H$, the harmonic mean of the pdf
- 1b) Stock status: $a < B/B_{MSY} \leq 1$
 $F_{OFL} = m_A \times (B/B_{MSY} - a)/(1 - a)$
 $F_{ABC} \leq m_H \times (B/B_{MSY} - a)/(1 - a)$
- 1c) Stock status: $B/B_{MSY} \leq a$
 $F_{OFL} = 0$
 $F_{ABC} = 0$

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- Tier 2 Information available: Reliable point estimates of B , B_{MSY} , F_{MSY} , $F_{35\%}$, and $F_{40\%}$.
- 2a) Stock status: $B/B_{MSY} > 1$
 $F_{OFL} = F_{MSY}$
 $F_{ABC} \leq F_{MSY} \times (F_{40\%}/F_{35\%})$
- 2b) Stock status: $a < B/B_{MSY} \leq 1$
 $F_{OFL} = F_{MSY} \times (B/B_{MSY} - a)/(1 - a)$
 $F_{ABC} \leq F_{MSY} \times (F_{40\%}/F_{35\%}) \times (B/B_{MSY} - a)/(1 - a)$
- 2c) Stock status: $B/B_{MSY} \leq a$
 $F_{OFL} = 0$
 $F_{ABC} = 0$
- Tier 3 Information available: Reliable point estimates of B , $B_{40\%}$, $F_{35\%}$, and $F_{40\%}$.
- 3a) Stock status: $B/B_{40\%} > 1$
 $F_{OFL} = F_{35\%}$
 $F_{ABC} \leq F_{40\%}$
- 3b) Stock status: $a < B/B_{40\%} \leq 1$
 $F_{OFL} = F_{35\%} \times (B/B_{40\%} - a)/(1 - a)$
 $F_{ABC} \leq F_{40\%} \times (B/B_{40\%} - a)/(1 - a)$
- 3c) Stock status: $B/B_{40\%} \leq a$
 $F_{OFL} = 0$
 $F_{ABC} = 0$
- Tier 4 Information available: Reliable point estimates of B , $F_{35\%}$, and $F_{40\%}$.
 $F_{OFL} = F_{35\%}$
 $F_{ABC} \leq F_{40\%}$
- Tier 5 Information available: Reliable point estimates of B and natural mortality rate M .
 $F_{OFL} = M$
 $F_{ABC} \leq 0.75 \times M$
- Tier 6 Information available: Reliable catch history from 1978 through 1995.
OFL = the average catch from 1978 through 1995, unless an alternative value is established by the SSC on the basis of the best available scientific information
 $ABC \leq 0.75 \times OFL$

3.2.3 Procedures for Setting Total Allowable Catch

The Secretary, after receiving recommendations from the Council, will determine up to 2 years of TACs and apportionments thereof, and reserves, for each **stock or stock complex in the “target species” category** and the “other species” category, by January 1 of the new fishing year, or as soon as practicable thereafter, by means of regulations implementing the FMP. ~~New final annual specifications will supercede current annual specifications on the effective date of the new annual specifications.~~ Notwithstanding designated **stock or stock complexes target species and species groups listed by category** in Table 3-1, the Council may consider **recommend** whether splitting or combining species **stocks or stock complexes** in the “target species” category for purposes of establishing a new TACs **if such action** is desirable based on commercial importance of a **stock or stock complex species or species group** and whether sufficient biological information is available to manage a **stock or stock complex species or species group** on its own biological merits.

Prior to making final recommendations to the Secretary, the Council will make available to the public for ~~comment as soon as practicable after its October meeting;~~ proposed specifications **recommendations** of ABC and TAC for each target **stock or stock complex species** and the “other species” category, **PSC limits, and apportionments thereof, and TAC reserves available to the public for comment as soon as practicable after its October meeting.**

The Council will provide proposed recommendations for harvest specifications to the Secretary after its October meeting, including detailed information on the development of each proposed specification and any

future information that is expected to affect the final specifications. As soon as practicable after the October meeting, the Secretary will publish in the *Federal Register* proposed harvest specifications based on the Council's October recommendations and make available for public review and comment, all information regarding the development of the specifications, identifying specifications that are likely to change, and possible reasons for changes, if known, from the proposed to final specifications. The prior public review and comment period on the published proposed specifications will be a minimum of 15 days.

At its December meeting, the Council will review the final SAFE reports, recommendations from the Groundfish Plan teams, SSC, AP, and comments received. The Council will then make final harvest specifications recommendations to the Secretary for review, approval, and publication. **New final annual specifications will supercede current annual specifications on the effective date of the new annual specifications.**

3.2.3.1 Framework for Setting Total Allowable Catch

A procedure has been developed whereby the Council may set annual harvest levels by specifying a TAC for each groundfish fishery on an annual basis. The procedure is used to determine TACs for every groundfish stock and stock complex managed by the FMP.

Scientists from the Alaska Fisheries Science Center, the Alaska Department of Fish and Game, and other agencies and universities prepare *Stock Assessment and Fishery Evaluation* (SAFE) documents annually (see Section 3.2.5.2 for further information). These documents are first reviewed by the Groundfish Plan Team, and then by the Council's SSC and AP, and the Council. Reference point recommendations are made at each level of assessment. Usually, scientists recommend values for ABC and OFL, and the AP recommends values for TAC. The Council has final authority to approve all reference points, but focuses on setting TACs so that OY is achieved and OFLs are not exceeded.

The procedure for setting TAC consists of the following steps:

1. **Determine the ABC for each managed species or species group. ABCs are recommended by the Council's SSC based on information presented by the Plan Team.**
2. **Determine a TAC based on biological and socioeconomic information. The TAC may be lower than the ABC if bycatch considerations or socioeconomic considerations cause the Council to establish a lower harvest.**
3. **Sum TACs for all groundfish species, including the "other species" category but excluding nonspecified species, to assure that the sum is within the optimum yield range specified for the groundfish complex in the FMP. If the sum falls outside this range the TACs must be adjusted or the FMP amended.**

[no SSC changes to remaining sections in chapter 3.2]

SSC SUBCOMMITTEE'S TEXT FOR REVISED GOA GROUND FISH FMP

3.2 Determining Harvest Levels

This section discusses the determination of optimum yield and maximum sustainable yield for groundfish of the Gulf of Alaska (Section 3.2.1). The overfishing criteria are included in Section 3.2.2, followed by a description of the procedures for setting TAC (Section 3.2.3). Finally, Section 3.2.4 specifies those instances where the apportionment of TAC is mandated in the FMP by gear type, area, or season.

3.2.1 Maximum Sustainable Yield and Optimum Yield

3.2.1.1 Definition of terms

Maximum sustainable yield (MSY) is an average over a reasonable length of time of the largest long-term catch or yield which that can be taken continuously from a stock or stock complex under current prevailing ecological and environmental conditions. It should normally be presented with a range of values around its point estimate.

~~Where sufficient scientific data as to the biological characteristics of the stock do not exist or the period of exploitation or investigation has not been long enough for adequate understanding of stock dynamics, the MSY will be estimated from the best information available.~~

Optimum yield (OY) is the amount of fish which

- (a) will provide the greatest overall benefit to the Nation, particularly with respect to food production and recreational opportunities, and taking into account the protection of marine ecosystems; and
- (b) is prescribed as such on the basis of the MSY from such the fishery, as modified reduced by any relevant economic, social, or ecological factor; and
- (c) in the case of an overfished fishery, provides for rebuilding to a level consistent with producing the MSY in such fishery.

~~Specifically, for Gulf of Alaska groundfish resources as a whole, the OY is specified as a range established from historical fishery performance and estimates of MSY for each species.~~

Overfishing level (OFL) is a limit reference point set annually for a stock or stock complex during the assessment process, as described in Section 3.2.4, Overfishing criteria. Overfishing occurs whenever a stock or stock complex is subjected to a rate or level of fishing mortality that jeopardizes the capacity of a stock or stock complex to produce MSY on a continuing basis. Operationally, overfishing occurs when the harvest exceeds the OFL.

Acceptable biological catch (ABC) is an annual sustainable target preliminary description of the acceptable harvest (or range of harvests) for a given stock or stock complex, determined by the Plan Team and the Science and Statistical Committee during the assessment process. It is derived from the status and dynamics of the stock, environmental conditions, and other ecological factors, given the and prevailing technological characteristics of the fishery. The fishing mortality rate used to calculate ABC is capped as described in Section 3.2.2, overfishing criteria. The target reference point is set below the limit reference point for overfishing.

Total allowable catch (TAC) is the **annual harvest quota limit** for a stock or stock complex, derived from the ABC by considering social and economic factors species or species group. TAC will be apportioned by area.

3.2.1.2 ~~Optimum Yield and~~ Maximum Sustainable Yield of the Groundfish Complex

The groundfish complex and its fishery are a distinct management unit of the Gulf of Alaska. This complex forms a large subsystem of the Gulf of Alaska ecosystem with intricate interrelationships between predators and prey, between competitors, and between those species and their environment. Ideally, concepts such as productivity and MSY should be viewed in terms of the groundfish complex as a unit rather than for individual species or species groups. Due to the difficulty of estimating the parameters that govern interactions between species, however, estimates of MSY for the groundfish complex have sometimes been computed by summing MSY estimates for the individual species and species groups.

Early studies estimated MSY for the Gulf of Alaska groundfish complex ranging from 804,950 mt in 1983 to 1,018,750 mt for the 1987 fishing year. This range was obtained by summing the MSY ranges for each target species excluding the "other species" category. However, current multi-species models suggest that the sum of single-species MSYs provides a poor estimate of MSY for the groundfish complex as a whole (Walters et al., in press) because biological reference points for single stocks, such as F_{MSY} , may change substantially when multi-species interactions are taken into account (Gislason 1999; Collie and Gislason 2001). Fishing mortality rates for prey species that are consumed by other marine predators should be conditioned on the level of predation mortality, which may change over time depending on predator population levels.

An ecosystem perspective suggests that the MSY of the groundfish complex may change if an environmental regime shift occurs or if the present mix of species is altered substantially. Also, as new data are acquired and as statistical methodology evolves over time, it is to be expected that estimates of MSY will change, even if the ecosystem has remained relatively stationary. Therefore, estimates of MSY contained in this section should be viewed in context, as historical estimates that guided development of the FMP but not necessarily as reflective of the best scientific information available currently.

3.2.1.3 Optimum Yield of the Groundfish Complex

The range of optimum yield specified in the FMP is 116,000-800,000 mt of groundfish for the target species and "other species" categories, to the extent this can be harvested consistently with the management measures specified in this FMP. This range was established in 1987 based on the examination of historical and recent catches, recent determinations of ABC, and recent and past estimates of MSY for each major groundfish species. This derivation from historical estimates of MSY and fishery performance reflects the combined influence of biological, ecological, and socioeconomic factors. The end points of the range were derived as described below.

For the minimum value, 116,000 mt was approximately equal to the lowest historical groundfish catch during the 21-year period 1965-1985 (116,053 mt in 1971, Table 4.1 GOA FMP, October 1994). In that year catches of pollock, Pacific cod and Atka mackerel were all at very low levels. Given the status of the groundfish resources and the present management regime, it was considered extremely unlikely that future

total harvest would fall below this level. Thus, the TACs must be established so as to result in a sum of at least 116,000 mt.

The upper end of the OY range, 800,000 mt, was derived from MSY information. The MSY for all species of groundfish (excluding the other species category) between 1983 and 1987 ranged from 804,950 mt in 1983 to ~~1,018,750~~ 1,137,750 mt for the 1987 fishing year. The average MSY over the five-year period was ~~825,470~~ 873,070 mt. Therefore, the upper end of the range is approximately equal to 92.97% of the mean MSY for the five-year period. The ABC summed for all species ranged from 457,082 mt in 1985 to 814,752 mt in 1987. Most of the variation in the ABC and catch over the five-year interval resulted from changes in the status of two species: pollock and flounder. Pollock ABC ranged from 112,000 mt in 1987 to 516,600 mt in 1984; while flounder ABC ranged from 33,500 mt in 1985 to 537,000 mt in 1987. Therefore, the 800,000 mt upper end of the OY range was selected in consideration of the volatility in pollock and flounder ABC, and the potential for harvesting at MSY.

The OY range is not likely to have any significant detrimental impact on the industry. On the contrary, specification of OY as a constant range helps to create a stable management environment in which the industry can plan its activities consistently, with an expectation that each year's total groundfish catch will be at least 116,000 mt. The OY range encompasses the annual catch levels taken in the period immediately prior to its implementation, during which the fishery operated profitably.

OY may need to be respecified in the future if major changes occur in the estimate of MSY for the groundfish complex. Likewise, OY may need to be respecified if major changes occur in the ecological, social, or economic factors governing the relationship between OY and MSY.

3.2.2 Overfishing Criteria *[no SSC changes to this section]*

Overfishing is defined as any amount of fishing in excess of a prescribed maximum allowable rate. This maximum allowable rate is prescribed through a set of six tiers which are listed below in descending order of preference, corresponding to descending order of information availability. The Council's Science and Statistical Committee (SSC) will have final authority for determining whether a given item of information is "reliable" for the purpose of this definition, and may use either objective or subjective criteria in making such determinations.

For tier (1), a "pdf" refers to a probability density function. For tiers 1 and 2, if a reliable pdf of B_{MSY} is available, the preferred point estimate of B_{MSY} is the geometric mean of its pdf. For tiers 1 to 5, if a reliable pdf of B is available, the preferred point estimate is the geometric mean of its pdf. For tiers 1 to 3, the coefficient a is set at a default value of 0.05, with the understanding that the SSC may establish a different value for a specific stock or stock complex as merited by the best available scientific information. For tiers 2 to 4, a designation of the form " $F_{X\%}$ " refers to the F associated with an equilibrium level of spawning per recruit equal to $X\%$ of the equilibrium level of spawning per recruit in the absence of any fishing. If reliable information sufficient to characterize the entire maturity schedule of a species is not available, the SSC may choose to view spawning per recruit calculations based on a knife-edge maturity assumption as reliable. For tier 3, the term $B_{40\%}$ refers to the long-term average biomass that would be expected under average recruitment and $F=F_{40\%}$.

- Tier 1 Information available: Reliable point estimates of B and B_{MSY} and reliable pdf of F_{MSY} .
- 1a) Stock status: $B/B_{MSY} > 1$
 $F_{OFL} = m_A$, the arithmetic mean of the pdf
 $F_{ABC} \leq m_H$, the harmonic mean of the pdf
- 1b) Stock status: $a < B/B_{MSY} \leq 1$
 $F_{OFL} = m_A \times (B/B_{MSY} - a)/(1 - a)$
 $F_{ABC} \leq m_H \times (B/B_{MSY} - a)/(1 - a)$
- 1c) Stock status: $B/B_{MSY} \leq a$
 $F_{OFL} = 0$
 $F_{ABC} = 0$
- Tier 2 Information available: Reliable point estimates of B , B_{MSY} , F_{MSY} , $F_{35\%}$, and $F_{40\%}$.
- 2a) Stock status: $B/B_{MSY} > 1$
 $F_{OFL} = F_{MSY}$
 $F_{ABC} \leq F_{MSY} \times (F_{40\%}/F_{35\%})$
- 2b) Stock status: $a < B/B_{MSY} \leq 1$
 $F_{OFL} = F_{MSY} \times (B/B_{MSY} - a)/(1 - a)$
 $F_{ABC} \leq F_{MSY} \times (F_{40\%}/F_{35\%}) \times (B/B_{MSY} - a)/(1 - a)$
- 2c) Stock status: $B/B_{MSY} \leq a$
 $F_{OFL} = 0$
 $F_{ABC} = 0$
- Tier 3 Information available: Reliable point estimates of B , $B_{40\%}$, $F_{35\%}$, and $F_{40\%}$.
- 3a) Stock status: $B/B_{40\%} > 1$
 $F_{OFL} = F_{35\%}$
 $F_{ABC} \leq F_{40\%}$
- 3b) Stock status: $a < B/B_{40\%} \leq 1$
 $F_{OFL} = F_{35\%} \times (B/B_{40\%} - a)/(1 - a)$
 $F_{ABC} \leq F_{40\%} \times (B/B_{40\%} - a)/(1 - a)$
- 3c) Stock status: $B/B_{40\%} \leq a$
 $F_{OFL} = 0$
 $F_{ABC} = 0$
- Tier 4 Information available: Reliable point estimates of B , $F_{35\%}$, and $F_{40\%}$.
 $F_{OFL} = F_{35\%}$
 $F_{ABC} \leq F_{40\%}$
- Tier 5 Information available: Reliable point estimates of B and natural mortality rate M .
 $F_{OFL} = M$
 $F_{ABC} \leq 0.75 \times M$
- Tier 6 Information available: Reliable catch history from 1978 through 1995.
 OFL = the average catch from 1978 through 1995, unless an alternative value is established by the SSC on the basis of the best available scientific information
 $ABC \leq 0.75 \times OFL$

3.2.3 Procedures for Setting Total Allowable Catch

The Secretary, after receiving recommendations from the Council, will determine up to 2 years of TACs and apportionments thereof, and reserves: for each **stock or stock complex in the "target species"** and the "other species" category, by January 1 of the new fishing year, or as soon as practicable thereafter, by means of regulations implementing the FMP. Notwithstanding designated target species and species groups listed in **Table 3-1 Section 3.1**, the Council may recommend splitting or combining species in the "target species"

category for purposes of establishing a new TAC if such action is desirable based on commercial importance of a **stock or stock complex** species or species group and whether sufficient biological information is available to manage a **stock or stock complex** species or species group on its own merits.

~~Notwithstanding designated target species and species groups listed in Table 3-1, the Council may recommend splitting or combining species in the target species category for purposes of establishing a new TAC if such action is desirable based on commercial importance of a species or species group and whether sufficient biological information is available to manage a species or species group on its own biological merits.~~

Prior to making final specifications recommendations to the Secretary, the Council will make proposed specifications recommendations of ABC and TAC for each target **stock or stock complex** species and the "other species" category, PSC limits, apportionments thereof, and TAC reserves available to the public for comment as soon as practicable after its October meeting.

The Council will provide proposed recommendations for harvest specifications to the Secretary after its October meeting including detailed information on the development of each proposed specification and any future information that is expected to affect the final specifications. As soon as practicable after the October meeting, the Secretary will publish in the *Federal Register* proposed harvest specifications based on the Council's October recommendations and make available for public review and comment all information regarding the development of the specifications that are likely to change, and possible reasons for changes, if known, from the proposed to final specifications. The prior public review and comment period on the published proposed specifications will be a minimum of 15 days.

At its December meeting, the Council will review the final SAFE reports, recommendations from the Groundfish Plan teams, SSC, AP, and comments received. The Council will then make final recommendations to the Secretary for review, approval, and publication. New final annual specifications will supersede current annual specifications on the effective date of the new annual specifications.

3.2.3.1 Framework for Setting Total Allowable Catch

A procedure has been developed whereby the Council may set annual harvest levels by specifying a total allowable catch for each groundfish fishery on an annual basis. The procedure is used to determine TACs for every groundfish species and species group managed by the FMP with the exception of the "other species" management category. The "other species" category will be managed by a single TAC equal to 5% of the combined TACs for all stocks in the "target species" category. **The percentage, determined in 1987, is intended to amply provide for the anticipated incidental catch of these species.**

~~The biomass of the Pacific ocean perch remains well below historical levels. The Council's policy is to achieve optimum yield and proper conservation and management in the Gulf of Alaska by managing fisheries to ensure timely rebuilding of depressed stocks of Pacific ocean perch. The Council considers minimizing controllable Pacific ocean perch mortality necessary to maximize the probability of rebuilding success. Specifically, this policy (1) provides a framework calculation for the annual fishing mortality of Pacific ocean perch that is projected to rebuild to a target biomass of B_{MSY} in a reasonable length of time, as detailed in this section, and (2) seeks to reduce the total mortality of Pacific ocean perch in other target fisheries by defining the overfishing level in the three regulatory areas (Western, Central, and Eastern). The overfishing level in each of the three areas will be proportionate to the occurrence of Pacific ocean perch biomass in the areas.~~

The procedure for setting TAC consists of the following steps:

1. Determine the ABC for each managed species or species group stock or stock complex. ABCs are recommended by the Council's SSC based on information presented by the Plan Team.
2. Determine a TAC based on biological and socioeconomic information. The TAC may be lower than the ABC if bycatch considerations or socioeconomic considerations cause the Council to establish a lower harvest. Conversely, the TAC may be higher than ABC if the Council believes that socioeconomic considerations warrant a harvest in excess of ABC.

The Council has examined biological and socioeconomic information and has adopted a rebuilding plan for Pacific ocean perch. Rebuilding is determined to have occurred when the current total biomass of mature females is equal to, or greater than, B_{MSY} . Other procedures notwithstanding, this rebuilding plan establishes the annual TAC of Pacific ocean perch as follows:

- a. determine the current and target biomass and optimal fishing mortality rate. For purposes of this rebuilding plan, the target biomass is B_{MSY} , the total biomass of mature females that would produce the maximum sustainable yield, on average. The optimal fishing mortality rate is the rate that maximizes expected biological and economic yields over a range of plausible stock-recruitment relationships.
 - b. determine the fishing mortality rate halfway between the optimal fishing mortality rate and the fishing mortality rate estimated to be sufficient to supply unavoidable bycatch of Pacific ocean perch in the Gulf based on 1992 bycatch.
 - c. when the current biomass of mature females is less than B_{MSY} , adjust the resultant fishing mortality rate in (b) by the ratio of current biomass to B_{MSY} . When B_{MSY} is attained, the fishing mortality rate will be the optimal fishing mortality.
 - d. the TAC of Pacific ocean perch is the amount of fish resulting from the adjusted fishing mortality rate.
 - e. the TAC is apportioned among regulatory areas in proportion to Pacific ocean perch biomass distribution.
 - f. the TAC, once calculated and apportioned as outlined in the above paragraphs (a-e), may be further adjusted downward in one or more Gulf of Alaska regulatory areas or districts to accommodate the following:
 - i. biological or resource conservation concerns about the Pacific ocean perch resource or associated with the Pacific ocean perch fishery that are not accounted for in the Rebuilding Plan or the annual Stock Assessment and Fishery Evaluation reports, or
 - ii. to maintain the TAC within the bounds of the ABC, in cases where the calculated TAC results in an amount that is higher than the ABC.
3. Sum TACs for all groundfish "target species" and including "other species" but excluding nonspecified species, to assure that the sum is within the optimum yield range specified in this FMP. If the sum falls outside this range the TACs must be adjusted or the FMP amended.

[no SSC changes to remaining sections in chapter 3.2]

NMFS SUGGESTED EDITS TO MANAGEMENT APPROACH

2.2 Management Approach for the BSAI/GOA Groundfish Fisheries

2.2.1 Management Objectives

Prevent Overfishing:

2. Continue to use the **existing 2 million mt** optimum yield cap for the BSAI (~~as stated in current law~~) groundfish fisheries. (*NOTE: BSAI only; GOA objective unchanged.*)
4. ~~Initiate a scientific review~~ **Provide for periodic reviews** of the adequacy of F_{40} and adopt improvements, as appropriate.

Improve Data Quality, Monitoring and Enforcement:

39. ~~Improve the North Pacific Groundfish Observer Program, and consider ways to address the disproportionate costs associated with the current funding mechanism.~~ **Develop funding mechanisms that achieve equitable costs to the industry for implementation of the North Pacific Groundfish Observer Program.**

3.10 Council Review of the Fishery Management Plan

3.10.1 Procedures for Evaluation ¹

The Council will maintain a continuing review of the fisheries managed under this FMP through the following methods:

1. Maintain close liaison with the management agencies involved, usually the Alaska Department of Fish and Game and NMFS, to monitor the development of the fisheries and the activity in the fisheries.
2. Promote research to increase their knowledge of the fishery and the resource, either through Council funding or by recommending research projects to other agencies.
3. Conduct public hearings at appropriate times and in appropriate locations to hear testimony on the effectiveness of the management plans and requests for changes.
4. Consider all information gained from the above activities and develop, if necessary, amendments to the FMP. The Council will also hold public hearings on proposed amendments prior to forwarding them to the Secretary for possible adoption.

3.10.2 Schedule for Review

Adaptive management requires regular and periodic review. Unless specified below, all critical components of the FMP will be reviewed by the Council at such time as a supplement to the programmatic environmental impact statement on the groundfish fisheries is anticipated, or as otherwise warranted. Following the Council's review, components of the FMP may be identified that should be further examined in the programmatic analysis.

Management Approach ²

Objectives identified in the management policy statement (Section 2.2) will be reviewed annually by the Council. The Council will also review, modify, eliminate, or consider new issues, as appropriate, to best carry out the goals and objectives of the management policy.

Essential Fish Habitat Components ²

To incorporate the regulatory guidelines requirement for review and revision of essential fish habitat (EFH) FMP components, the Council will conduct a complete review of all the EFH components of each FMP once every 5 years and will amend those EFH components to include new information.

In between each five-year comprehensive review, the Council will utilize its annual FMP amendment cycle to solicit proposals on habitat areas of particular concern and/or conservation and enhancement measures to minimize the potential adverse effects from fishing. Those proposals that the Council endorses should be developed independent of the five-year comprehensive EFH review cycle.

An annual review of existing and new EFH information will be conducted and this information will be provided to the BSAI [GOA] Groundfish Plan Team for their review during the annual SAFE report process. This information could be included in the "Ecosystems Considerations" chapter of the SAFE report.

~~The PSC limits and area closures for groundfish fisheries will be reviewed each year to determine whether changes in prohibited species stock abundance or other factors justify consideration of alternative PSC limits or time/area closures.~~ ³

¹ This section is from the BSAI FMP

² This paragraph is from the BSAI and GOA FMPs

³ This paragraph would be deleted from the BSAI FMP, to be superceded by the periodic review requirement.

NOTE: Section 3.10.1 in the draft revised GOA FMP, entitled Ongoing Actions, will be moved to Section 3.8.2.2, Measures to Address Habitat Problems, where it is more appropriate.

**Addendum to
Draft Bering Sea and Aleutian Islands Groundfish Fishery Management Plan
dated August 13 2004**

Various corrections have been made to the content of the August 13, 2004 version. The changes are described in the attachments as follows:

- **Table ES-2** replaces same table
- **Section 3.7.2.5** new section (draft amendment language for Amendment 62)
- **Section 3.7.3** replaces same section (revisions to Amendment 82)
- **Missing figures** replace placeholders on pp. 8, 25, 27, and 91
- **Technical edits** see Attachment 6

Table ES-2 Summary of Management Measures for the BSAI Groundfish Fishery

Management Area	<p>U.S. Exclusive Economic Zone (EEZ) of the eastern Bering Sea and that portion of the North Pacific Ocean adjacent to the Aleutian Islands which is west of 170° W. up to the U.S.-Russian Convention Line of 1867.</p> <p>Subareas: The area is divided into two subareas, the Bering Sea and the Aleutian Islands.</p>
Stocks	<p>All stocks of finfish and marine invertebrates in the management area except salmonids, shrimps, scallops, snails, king crab, Tanner crab, Dungeness crab, corals, surf clams, horsehair crab, lyre crab, Pacific halibut, and Pacific herring.</p> <p>Those stocks and stock complexes that are commercially important and for which an annual TAC is established include: walleye pollock, Pacific cod, sablefish, yellowfin sole, Greenland turbot, arrowtooth flounder, rock sole, flathead sole, Alaska plaice, "other flatfish", Pacific ocean perch, northern rockfish, shortraker and rougheye rockfish, "other rockfish", Atka mackerel, and squid.</p>
Maximum Sustainable Yield (MSY)	<p>The historical estimate of MSY for the BSAI groundfish complex is in the range of 1.7 to 2.4 million mt.</p>
Optimum Yield (OY)	<p>The OY of the BSAI groundfish complex (consisting of stocks listed in the 'target species' and 'other species' categories, as listed in Table 3-1) is 85% of the historical estimate of MSY, or 1.4 to 2.0 million mt, plus the incidental harvest of nonspecified species.</p>
Procedure to set Total Allowable Catch (TAC)	<p>Based on the annual Stock Assessment and Fishery Evaluation (SAFE) report, the Council will recommend to the Secretary of Commerce TACs and apportionments thereof for each target species and the "other species" category. The Secretary will implement annual TACs which may cover up to 2 fishing years, following public comment and Council recommendations at the December Council meeting.</p> <p>Reserve: 15% of the TAC for each target species (except pollock and fixed-gear sablefish) and the "other species" category is set aside to form the reserve, used for correcting operational problems of the fleets, adjusting species TACs for conservation, or apportionments. The reserve is not designated by species or species groups.</p>
Apportionment of TAC	<p>Pollock: the amount of pollock that may be taken with non-pelagic trawls may be limited; pollock TAC shall be divided into roe-bearing ("A" season) and non roe-bearing ("B" season) allowances.</p> <p>Sablefish: vessels using fixed gear may harvest no more than 50% of the TAC in the Bering Sea and 75% of the TAC in the Aleutian Islands; vessels using trawl gear may harvest no more than 50% of the TAC in the Bering Sea and 25% of the TAC in the Aleutian Islands.</p> <p>Pacific cod: TAC shall be allocated 2% to vessels using jig gear, 47% to vessels using trawl gear, and 51% to vessels using hook-and-line or pot gear. The trawl gear allocation is apportioned 50% to catcher/processor vessels and 50% to catcher vessels. The allocation to hook-and-line and pot gear is apportioned 80% to hook-and-line catcher/processor vessels, 0.3% to hook-and-line catcher vessels, 3.3% to pot catcher/processor vessels, 15% to pot catcher vessels, and 1.4% to catcher vessels less than 60' LOA. Allocations may be seasonally apportioned.</p> <p>Atka mackerel: up to 2% of the eastern Aleutian Islands and Bering Sea TACs will be allocated to vessels using jig gear.</p> <p>Shortraker and rougheye rockfish: after subtraction of reserves, the Aleutian Islands TAC will be allocated 70% to vessels using trawl gear and 30% to vessels using non-trawl gear.</p>
Permit	<p>All vessels participating in the BSAI groundfish fisheries, other than fixed gear sablefish, require a Federal groundfish license, except for: vessels fishing in State of Alaska waters; vessels less than 32' LOA; and jig gear vessels less than 60' LOA that meet specific effort restrictions. Licenses are endorsed with area, gear, and vessel type and length designations. Fixed gear vessels engaged in directed fishing for Pacific cod must qualify for a Pacific cod endorsement.</p> <p>Fishing permits may be authorized, for limited experimental purposes, for the target or incidental harvest of groundfish that would otherwise be prohibited.</p>
Authorized Gear	<p>Gear types authorized by the FMP are trawls, hook-and-line, pots, jigs, and other gear as defined in regulations.</p> <p>Pollock: The use of non-pelagic trawl gear in the directed fishery for pollock is prohibited.</p>

Table ES-2 Summary of Management Measures for the BSAI Groundfish Fishery

<p>Time and Area Restrictions</p>	<p>All trawl: Fishing with trawl vessels is not permitted year-round in the Crab and Halibut Protection Zone and the Pribilof Islands Habitat Conservation Area. The Nearshore Bristol Bay Trawl Closure area is also closed year-round except for a subarea that remains open between April 1 and June 15 each year. The Chum Salmon Savings Area is closed to trawling from August 1 through August 31.</p> <p>Non-pelagic trawl: The Red King Crab Savings Area is closed to non-pelagic trawling year-round, except for a subarea that may be opened at the discretion of the Council and NMFS when a guideline harvest level for Bristol Bay red king crab has been established.</p> <p>Directed pollock fishery: Catcher/processor vessels identified in the American Fisheries Act are prohibited from engaging in directed fishing for pollock in the Catcher Vessel Operational Area during the non-roe ("B") season unless they are participating in a community development quota fishery.</p> <p>Marine mammal measures: Regulations implementing the FMP may include conservation measures that temporally and spatially limit fishing effort around areas important to marine mammals.</p> <p>Gear test area exemption: Specific gear test areas for use when the fishing grounds are closed to that gear type, are established in regulations that implement the FMP.</p>
<p>Prohibited Species</p>	<p>Pacific halibut, Pacific herring, Pacific salmon and steelhead, king crab, and Tanner crab are prohibited species and must be returned to the sea with a minimum of injury except when their retention is authorized by other applicable law.</p> <p>Groundfish species and species under this FMP for which TAC has been achieved shall be treated in the same manner as prohibited species.</p>
<p>Prohibited Species Catch (PSC) Limits</p>	<p>When a target fishery attains a PSC limit apportionment or seasonal allocation, the bycatch zone or management area to which the PSC limit applies will be closed to that target fishery for the remainder of the year or season.</p> <p>Red king crab: Based on the size of the spawning biomass of red king crab, the PSC limit in Zone 1 for trawl fisheries is either 23,000, 97,000 or 197,000 red king crab; attainment closes Zone 1.</p> <p>C. bairdi crab: Established in regulation for trawl fisheries based on population abundance; attainment closes Zone 1 or Zone 2.</p> <p>C. opilio crab: Established in regulation for trawl fisheries in the C. opilio Bycatch Limitation Zone based on population abundance, with minimum and maximum limits; attainment closes zone.</p> <p>Pacific halibut: Halibut mortality limits established in regulation for trawl and non-trawl fisheries.</p> <p>Pacific herring: 1% of the annual biomass of eastern Bering Sea herring, for trawl fisheries; attainment may close the Herring Savings Areas.</p> <p>Chum salmon: Attainment of 42,000 fish limit in the Catcher Vessel Operational Area between August 15 and October 14 closes the Chum Salmon Savings Area for the rest of that time period.</p> <p>Chinook salmon: Attainment of chinook PSC limit established in regulation for the Bering Sea or the Aleutian Islands subarea closes the Bering Sea or Aleutian Island Chinook Salmon Savings Area to directed pollock trawl fishing.</p> <p>Apportionment: For trawl fisheries, may be apportioned by target fishery and season; for non-trawl fisheries, may be apportioned by target fishery, gear type, area, and season.</p>
<p>Retention and Utilization Requirements</p>	<p>Pollock: Roe-stripping is prohibited; see also below.</p> <p>Improved Retention/Improved Utilization Program: All pollock and Pacific cod must be retained and processed.</p>
<p>Fixed Gear Sablefish Fishery</p>	<p>The directed fixed gear sablefish fisheries are managed under an Individual Fishing Quota program. The FMP specifies requirements for the initial allocation of quota share in 1995, as well as transfer, use, ownership, and general provisions.</p> <p>Annual Allocation: The ratio of a person's quota share to the quota share pool is multiplied by the fixed gear TAC (adjusted for the community development quota allocation - see below), to arrive at the annual individual fishing quota.</p>

Table ES-2 Summary of Management Measures for the BSAI Groundfish Fishery

<p>Bering Sea Pollock Fishery</p>	<p>Subtitle II of the American Fisheries Act (AFA), incorporated by reference in the FMP, implemented a cooperative program for the pollock fishery.</p> <p>Access: Limits pollock fishery access to named vessels and processors; included a buyout of 9 catcher/processor vessels.</p> <p>Allocation: After adjustment for the community development quota allocation (see below) and incidental catch of pollock in other fisheries, the pollock TAC is apportioned 50% to vessels harvesting pollock for inshore processing, 40% to vessels harvesting pollock for catcher/processor processing, and 10% to vessels harvesting pollock for mothership processing.</p> <p>Cooperatives: Creates standards and limitations for the creation and operation of cooperatives.</p> <p>Sideboards: Establishes harvesting and processing restrictions on AFA pollock participants to protect other fisheries.</p> <p>Catch monitoring: Increases observer coverage and scale requirements for catcher/processors.</p>
<p>Aleutian Islands Pollock Fishery</p>	<p>The non-CDQ directed pollock fishery in the Aleutian Islands is fully allocated to the Aleut Corporation for the purpose of economic development in Adak, Alaska.</p> <p>Allocation: To be funded, to the extent possible in whole or in part, from the difference between the sum of all BSAI groundfish fishery TACs and the 2 million mt OY cap, if the difference is large enough to do so. The remainder of the funding comes from a reduction in the Bering Sea pollock recommended TAC. A mechanism for determining "A" and "B" season allowances is specified.</p>
<p>Community Development Quota (CDQ) Multispecies Fishery</p>	<p>Eligible fishery-dependent communities in western Alaska will receive a percentage of all groundfish species or species group TACs, except squid, and a pro-rata share of PSC species.</p> <p>Sablefish: 20% of the fixed gear TAC</p> <p>Pollock: 10% of the TAC</p> <p>Other groundfish species: 7.5% of the TAC, to come out of the groundfish reserve</p>
<p>Flexible Authority</p>	<p>The Regional Administrator of NMFS is authorized to make inseason adjustments through gear modifications, closures, or fishing area/quota restrictions, for conservation reasons, to protect identified habitat problems, or to increase vessel safety.</p>
<p>Recordkeeping and Reporting</p>	<p>Recordkeeping that is necessary and appropriate to determine catch, production, effort, price, and other information necessary for conservation and management may be required. May include the use of catch and/or product logs, product transfer logs, effort logs, or other records as specified in regulations.</p> <p>Processors: Shall report necessary information for the management of the groundfish fisheries as specified in regulations.</p> <p>At-sea processor vessels: Must submit a weekly catch/receipt and product transfer report and record cargo transfer and off-loading information in a separate transfer log. Catcher/processors are also required to check in and check out of any fishing area for which TAC is established, as specified in regulations.</p>
<p>Observer Program</p>	<p>U.S. fishing vessels that catch groundfish in the EEZ, or receive groundfish caught in the EEZ, and shoreside processors that receive groundfish caught in the EEZ, are required to accommodate NMFS-certified observers as specified in regulations, in order to verify catch composition and quantity, including at-sea discards, and collect biological information on marine resources.</p>
<p>Evaluation and Review of the FMP</p>	<p>The Council will maintain a continuing review of the fisheries managed under this FMP.</p> <p>Management Policy: Objectives in the management policy statement will be reviewed annually.</p> <p>Essential Fish Habitat (EFH): The Council will conduct a complete review of EFH once every 5 years, and in between will solicit proposals on Habitat Areas of Particular Concern and/or conservation and enhancement measures to minimize potential adverse effects from fishing. Annually, EFH information will be reviewed in the "Ecosystems Considerations" chapter of the SAFE report.</p> <p>PSC limits and related area closures: Will be reviewed each year to determine whether changes in stock abundance or other factors justify consideration of alternative limits or closures.</p>

3.7.2.5 Single Geographic Location per week for Stationary Floating Processors

In the Bering Sea directed pollock fishery, AFA inshore stationary floating processors would be required to operate in a single geographic location in state waters for the duration of each reporting week, but would be allowed to change locations from week to week, to a maximum of four changes per calendar year. In addition, AFA inshore processors would be required to process all GOA pollock and GOA Pacific cod in the same location at which they processed these species in 2002. Motherships and floating processors that hold an inshore processing endorsement in the GOA are prohibited from operating as catcher/processors in the Bering Sea during the same fishing year, or operating as an AFA mothership in the BSAI directed pollock fishery during the same fishing year.

3.7.3 Aleutian Islands Directed Pollock Fishery

Section 803 of the Consolidated Appropriations Act of 2004 (Pub. L. 108-199) established the Aleutian Islands directed pollock fishery allocation to the Aleut Corporation. This act supersedes the AFA provisions for the directed pollock fishery in the Aleutian Islands subarea. Beginning in 2004, the non-CDQ directed pollock fishery in the Aleutian Islands is fully allocated to the Aleut Corporation for the purpose of economic development in Adak, Alaska. NMFS, in consultation with the Council, will manage the Aleutian Islands directed pollock fishery to ensure compliance with the implementing statute (Pub. L. 108-199) and with the annual harvest specifications. Management provisions and considerations may include but are not limited to: prohibitions on having pollock from more than one management area on board the vessel, catch monitoring control plan requirements for shoreside and stationary floating processors, Aleut Corporation responsibilities for vessel and processor approval and quota management, observer requirements, and economic development reporting.

The harvest specifications for the Aleutian Islands directed pollock fishery include the following provisions:

1. When the combined BSAI groundfish fishery recommended TACs, without the AI pollock recommended TAC, are equal to the 2 million mt OY specified at §679.20(a)(1)(i), the AI pollock fishery recommended TAC would be funded by reducing the Bering Sea pollock fishery recommended TAC. When the sum of other BSAI groundfish fishery recommended TACs is below the 2 million mt BSAI OY, the allocation to the AI pollock fishery recommended TAC would be funded from the difference between the sum of all other BSAI groundfish fishery recommended TACs and the OY, to the extent possible in whole or in part. If the difference is only large enough to fund part of the allocation, the remainder of the funding would come from the BS pollock fishery recommended TAC.
2. The annual Aleutian Islands pollock TAC will equal the limit on the Aleutian Islands pollock TAC specified in regulations when the Aleutian Islands pollock ABC is equal to or more than the limit on the Aleutian Islands pollock TAC specified in regulations. When the Aleutian Islands pollock ABC is less than the limit on the Aleutian Islands pollock TAC specified in regulations, the annual Aleutian Islands pollock TAC will not exceed the annual Aleutian Islands pollock ABC.
3. The CDQ direct fishery allowance and incidental catch allowance for pollock in the Aleutian Islands will be deducted from the Aleutian Islands annual pollock TAC.
4. The A season apportionment will be greater than the annual TAC or 40 % of the AI pollock ABC.

The A season pollock harvest (Aleutian Islands directed pollock fishery, any A season CDQ fishery, and incidental catch allowance) shall be no more than 40 % of the Aleutian Islands pollock ABC.

The directed pollock fishery allocation to the Aleut Corporation for the B season will be equal to the annual Aleutian Islands pollock initial TAC minus the incidental catch allowance and minus the A season directed pollock fishery allocation. The B season allocation may be further adjusted by rollover of unharvested A season pollock.

5. Any unharvested pollock initial TAC from the Aleutian Islands fishery that is not expected to be harvested during the fishing year may be reallocated as soon as practicable to the Bering Sea subarea pollock fishery, in accordance with regulations.
6. The harvest of the Aleutian Islands directed pollock fishery allocation is limited to vessels eligible to harvest pollock under section 208 of Title II, Division C of Pub. L. 105-277 and vessels 60 feet or less in length over all. During 2005 through 2008, no more than 25 percent of the directed pollock fishery may be allocated to vessels 60 feet or less in length overall. During 2009 through 2012, no more than 50 percent of the directed pollock fishery may be allocated to vessels 60 feet or less in length overall. Beginning in 2013, 50 percent of the directed pollock fishery will be allocated to vessels 60 feet or less in length overall.

Figure 3-1 Subareas and districts of the Bering Sea and Aleutian Islands management area.

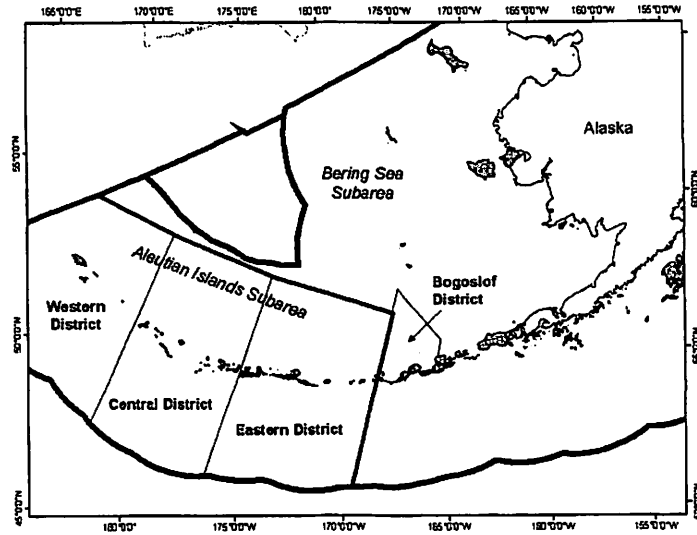


Figure 3-2 Crab and Halibut Protection Zone.

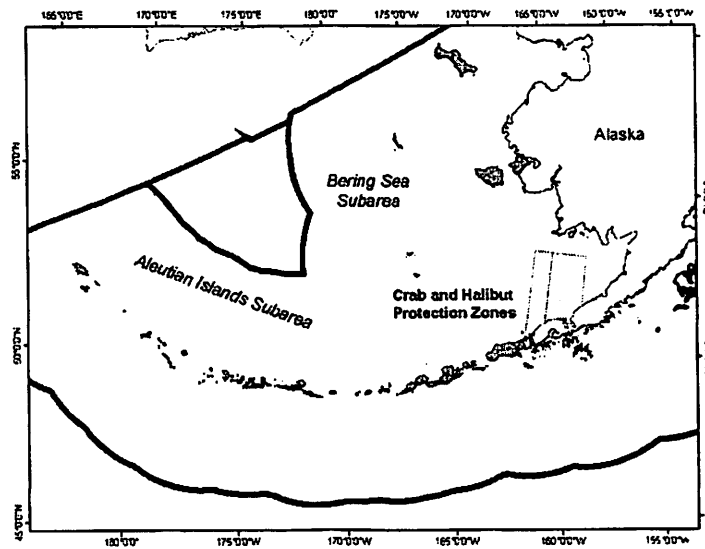


Figure 3-7 Catcher Vessel Operational Area.

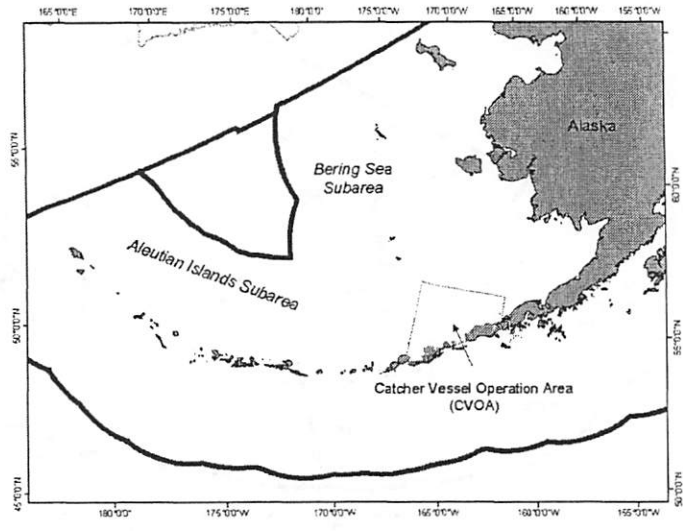


Figure 4-4 Bering Sea fishing communities. NOTE: Not all communities are represented.

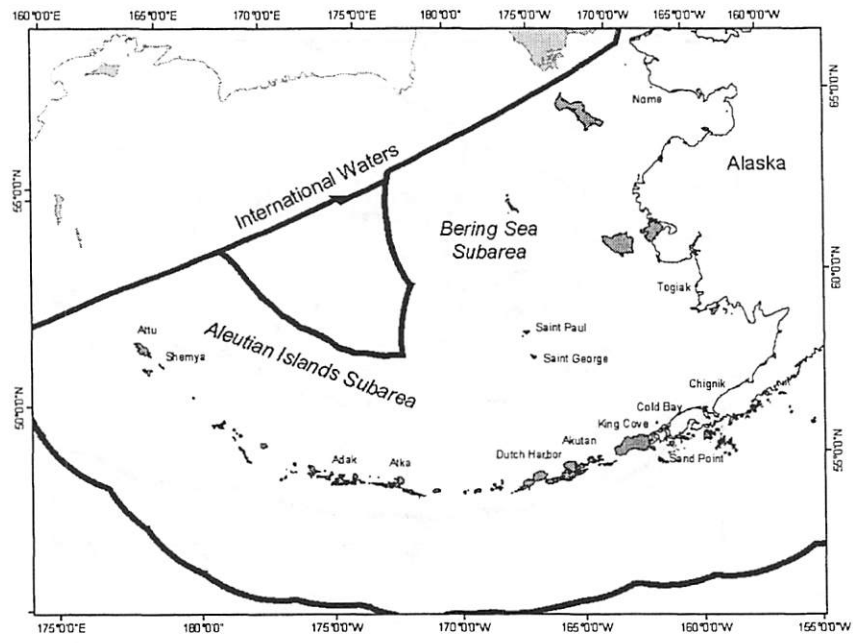
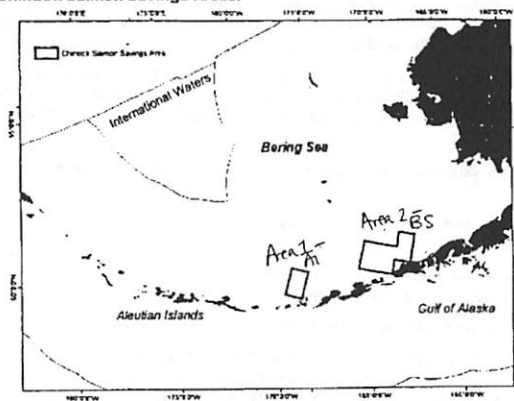


Figure 3-11 Chinook Salmon Savings Areas.



3.6.2.3 Apportionment of Prohibited Species Catch Limits

3.6.2.3.1 Target Fishery Categories

Trawl fisheries: The Pacific halibut PSC limit for trawl gear and the PSC limits for *C. bairdi* crab, *C. opilio* crab, red king crab, and herring apply to trawl fisheries for groundfish that are categorized by target species or species groups.

Non-trawl fisheries: The Pacific halibut PSC limit for non-trawl gear applies to non-trawl groundfish fisheries that may be categorized by target species or species groups, gear type, and area.

Fishery categories will be implemented by regulations that implement the goals and objectives of the FMP, the Magnuson-Stevens Act, and other applicable law. Fishery categories will remain in effect unless amended by regulations implementing the FMP. When recommending a regulatory amendment to revise fishery categories, the Council will consider the best information available on whether recommended fishery categories would best optimize groundfish harvests under the PSC limits established under Section 3.6.2.

3.6.2.3.2 Apportionments and Seasonal Allocations

Apportionments of PSC limits to target fishery categories established in Section 3.6.2.3.1, and seasonal allocations of those apportionments may be determined annually by the Secretary of Commerce, after consultation with the Council, using the following procedure:

3.6.3 Retention and Utilization Requirements

3.6.3.1 Utilization of Pollock

Roe-stripping of pollock is prohibited, and the Regional Administrator is authorized to issue regulations to limit this practice to the maximum extent practicable. It is the Council's policy that the pollock harvest shall be utilized to the maximum extent possible for human consumption.

3.6.3.2 Improved Retention/Improved Utilization Program

Minimum retention requirements

All vessels participating in the groundfish fisheries are required to retain all catch of Improved Retention/Improved Utilization Program (IR/IU) species, pollock and Pacific cod, when directed fishing for those species is open, regardless of gear type employed and target fishery. When directed fishing for an IR/IU species is prohibited, retention of that species is required only up to any maximum retainable amount in effect for that species, and these retention requirements are superseded if retention of an IR/IU species is prohibited by other regulations.

No discarding of whole fish of these species is allowed, ^{except as permitted in the regulations} either prior to or subsequent to that species being brought on board the vessel. At-sea discarding of any processed product from any IR/IU species is also prohibited, unless required by other regulations.

Minimum utilization requirements

All IR/IU species caught in the BSAI must be either (1) processed at sea subject to minimum product recovery rates and/or other requirements established by regulations implementing the FMP, or (2) delivered in their entirety to onshore processing plants for which similar processing requirements are implemented by State regulations.

3.6.4 Bycatch Reduction Incentive Programs

3.6.4.1 Prohibited Species Catch

The Secretary of Commerce, after consultation with the Council, may implement by regulation measures that provide incentives to individual vessels to reduce bycatch rates of prohibited species for which PSC limits are established under Section 3.6.2. The intended effect of such measures is to increase the opportunity to harvest groundfish TACs before established PSC limits are reached.

3.7 Share-based Programs

This section describes the share-based programs that are in place for specific target fisheries in the Bering Sea and Aleutian Islands groundfish fisheries.

recipient. In general this compensation plan will issue incremental amounts of quota share in each non-CDQ area to each disadvantaged person.

3.7.2. American Fisheries Act Pollock Fishery

Subtitle II of the American Fisheries Act (AFA) of 1998, entitled *Bering Sea Pollock Fishery*, directed the Council and NMFS to develop and implement four general categories of management measures: (1) regulations that limit access into the fishing and processing sectors of the BSAI pollock fishery and that allocate pollock to such sectors; (2) regulations governing the formation and operation of fishery cooperatives; (3) regulations that institute sidebar measures to protect other fisheries from spillover effects from the AFA; and (4) regulations governing catch measurement and monitoring in the BSAI pollock fishery. Key provisions are summarized in Appendix C. This entire subtitle of the AFA is incorporated into the FMP by reference and all management measures that are consistent with the provisions of Subtitle II of the AFA will be issued through regulations. The subtitle is reprinted in Appendix C.

~~3.7.2.1 Management Measures to Supersede the American Fisheries Act~~

Subsection 213(c) of the AFA (Appendix C) provides the Council with the authority to recommend management measures to supersede certain provisions of the AFA.

Any measure recommended by the Council that supersedes a specific provision of the AFA must be implemented by FMP amendment in accordance with the Magnuson-Stevens Act. Under the authority set out in subsection 213(c) of the AFA, the Council has recommended the following management measures to supersede specific provisions of sections 210 and 211 of the AFA. These measures shall be implemented by NMFS through regulation.

3.7.2.1 Inshore Cooperative Allocation Formula

(supersedes the inshore cooperative allocation formula set out in subparagraph 210(b)(1)(B) of the AFA)
An inshore catcher vessel cooperative that applies for and receives an AFA inshore cooperative fishing permit will receive a sub-allocation of the annual Bering Sea subarea inshore sector directed fishing allowance. If the Aleutian Islands subarea is open to directed fishing for pollock then the cooperative also will receive a sub-allocation of the annual Aleutian Islands subarea inshore sector directed fishing allowance. Each inshore cooperative's annual allocation amount(s) is determined using the following procedure:

1. Calculation of individual vessel catch histories. The Regional Administrator will calculate an official AFA inshore cooperative catch history for every inshore-sector endorsed AFA catcher vessel according to the following steps:

- a. Determination of annual landings. For each year from 1995 through 1997 the Regional Administrator will determine each vessel's total inshore landings from the Bering Sea subarea and Aleutian Islands subarea separately.
- b. Offshore compensation. If a catcher vessel made a total of 500 or more mt of landings of Bering Sea subarea pollock or Aleutian Islands subarea pollock to catcher/processors or offshore mothships other than the EXCELLENCE (USCG documentation number 967502); GOLDEN ALASKA (USCG documentation number 651041); or OCEAN PHOENIX (USCG documentation number 296779) over the 3-year period from 1995 through 1997, then all

Persons must control IFQs for the amount to be caught before a trip begins, with the exception that limited overages will be allowed as specified in an overage program approved by NMFS and the International Pacific Halibut Commission.

10. Quota Share Block Provisions

- a. A person may own and use up to two blocks in each management area.
- b. Persons owning two blocks in a given management area may not use normal quota share in that area.
- c. Persons who own less than two blocks in an area may own and use normal quota share up to the limits specified under this program, noting that the limit applies to both normal quota share and quota share embedded in blocks.

3.7.1.6 Annual Allocation of Quota Share/Individual Fishing Quota

Individual fishing quotas are determined for each calendar year for each person by applying the ratio of a person's quota share to the quota share pool for an area to the annual fixed gear total allowable catch for each management area, after adjusting for the CDQ program. In mathematical terms: $IFQs = (QS / QS \text{ pool}) \times \text{fixed gear TAC}$.

3.7.1.7 General Provisions

- 1. For IFQ accounting purposes:
 - a. The sale of catcher vessel caught sablefish or halibut to other than a legally registered buyer is illegal, except that direct sale to dockside customers is allowed provided the fisher is a registered buyer and proper documentation of such sales is provided to NMFS.
 - b. Frozen product may only be off-loaded at sites designated by NMFS for monitoring purposes.
 - c. Persons holding IFQs and wishing to fish must check-in with NMFS or their agents prior to entering any relevant management area, additionally any person transporting IFQ caught fish between relevant management areas must first contact NMFS or their agents.
- 2. Quota shares and IFQs arising from those quota shares may not be applied to trawl-caught sablefish. Quota shares are a harvest privilege, and good indefinitely. However, they constitute a use privilege which may be modified or revoked by the Council and the Secretary at any time without compensation.
- 4. Discarding of sablefish is prohibited by persons holding sablefish IFQs and those fishing under the CDQ program.
- 5. Any person retaining sablefish or halibut with commercial fixed gear must own or otherwise control IFQs.
- 6. Persons holding IFQs may utilize those privileges at any time during designated seasons. Retention of fixed-gear caught sablefish or any halibut is prohibited during closed seasons. Seasons will be identified by the Council and the International Pacific Halibut Commission on an annual basis.
- 7. Those persons that would otherwise have received a full complement of sablefish quota share in the BSAI management area, but would receive less due to the provisions of CDQs, will be partially compensated and the cost of the compensation will be borne equally by all initial sablefish QS/IFQ

offshore pollock landings made by that vessel during from 1995 through 1997 will be added to the vessel's inshore catch history by year and subarea.

c. Best two out of three years. After steps (a) and (b) are completed, the 2 years with the highest landings will be selected for each subarea and added together to generate the vessel's official AFA inshore cooperative catch history for each subarea. A vessel's best 2 years may be different for the Bering Sea subarea and the Aleutian Islands subarea.

2. Calculation of annual quota share percentages. Each inshore pollock cooperative that applies for and receives an AFA inshore pollock cooperative fishing permit will receive an annual quota share percentage of pollock for each subarea of the BSAI that is equal to the sum of each member vessel's official AFA inshore cooperative catch history for that subarea divided by the sum of the official AFA inshore cooperative catch histories of all inshore sector-endorsed AFA catcher vessels. The cooperative's quota share percentage will be listed on the cooperative's AFA pollock cooperative permit.

3. Conversion of quota share to annual TAC allocation. Each inshore pollock cooperative that receives a quota share percentage for a fishing year will receive an annual allocation of Bering Sea and/or Aleutian Islands pollock that is equal to the cooperative's quota share percentage for that subarea multiplied by the annual inshore pollock allocation for that subarea. Each cooperative's annual pollock TAC allocation may be published in the interim, and final BSAI TAC specifications notices.

3.7.2.X.2 Definition of Qualified Catcher Vessel

(supersedes AFA paragraph 210(b)(3) that has the effect of requiring a qualified catcher vessel to have actually fished for BSAI pollock in the year prior to the year in which the cooperative will be in effect)

A catcher vessel is qualified to join an inshore catcher vessel cooperative under paragraph 210(b)(3) of the AFA, if:

1. Active vessels. The vessel delivered more pollock harvested in the BSAI inshore directed pollock fishery to the inshore cooperative's designated AFA inshore processor than to any other shoreside processor or stationary floating processor during the year prior to the year in which the cooperative fishing permit will be in effect; or
2. Inactive vessels. The vessel delivered more pollock harvested in the BSAI inshore directed pollock fishery to the inshore cooperative's designated AFA inshore processor than to any other shoreside processor or stationary floating processor during the last year in which the vessel harvested BSAI pollock in the directed fishery for delivery to an AFA inshore processor.

3.7.2.X.3 Crab Processing Sideboard Limits

(supersedes the 1995-1997 formula set out in subparagraph 211(c)(2)(A) of the AFA)

Upon receipt of an application for a cooperative processing endorsement from the owners of an AFA membership or AFA inshore processor, the Regional Administrator will calculate a crab processing cap percentage for the associated AFA inshore or membership entity. The crab processing cap percentage for each BSAI king or Tanner crab species is equal to the percentage of the total catch of each BSAI king or Tanner crab species that the AFA crab facilities associated with the AFA inshore or membership entity processed in the aggregate, on average, in 1995, 1996, 1997, and 1998 with 1998 given double-weight (counted twice).

3.7.2.X.4 Inshore Cooperative Contract Fishing by non-Member Vessels

(supersedes subparagraph 210(b)(1)(B) of the AFA that prohibits inshore cooperative vessels from fishing in excess of their cooperative allocation, and paragraph 210(b)(5) of the AFA that prohibits inshore cooperative vessels from fishing for any BSAI pollock that is not allocated to the cooperative under 210(b)(1)(B))

An inshore catcher vessel cooperative may contract with a non-member vessel to harvest a portion of its inshore pollock allocation provided that the non-member vessel holds an AFA catcher/vessel permit with an inshore processing endorsement and is a member of another inshore cooperative. Procedures for entering into and fishing under such contracts will be established in regulations.

3.7.3 Aleutian Islands Directed Pollock Fishery

Section 803 of the Consolidated Appropriations Act of 2004 (Pub. L. 108-199) established the Aleutian Islands directed pollock fishery allocation to the Aleut Corporation. This act supersedes the AFA provisions for the directed pollock fishery in the Aleutian Islands subarea. Beginning in 2004, the directed pollock fishery in the Aleutian Islands is fully allocated to the Aleut Corporation for the purpose of economic development in Adak, Alaska. NMFS, in consultation with the Council, will manage the Aleutian Islands directed pollock fishery to ensure compliance with the implementing statute (Pub. L. 108-199) and with the annual harvest specifications. Management provisions and considerations may include but are not limited to: prohibitions on having pollock from more than one management area on board the vessel, catch monitoring control plan requirements for shoreside and stationary floating processors, Aleut Corporation responsibilities for vessel and processor approval and quota management, observer requirements, and economic development reporting.

The harvest specifications for the Aleutian Islands directed pollock fishery includes the following provisions:

1. During the harvest specifications process, the Aleutian Islands directed pollock fishery will be funded from the difference between the sum of all BSAI groundfish fishery TACs and the BSAI 2 million mt OY cap, unless the difference is not large enough to do so. If the difference between the sum of all BSAI groundfish fishery TACs and the OY cap is not large enough, balance of the pollock allocation to the Aleutian Islands fishery will be funded by a reduction in the Bering Sea pollock initial TAC.
2. The allocation of pollock for harvest in the Aleutian Islands will be established from the BSAI pollock initial TAC, (the BSAI TAC after subtraction of the CDQ reserve). The annual Aleutian Islands pollock initial TAC will equal the limit on the Aleutian Islands pollock initial TAC specified in regulations when the Aleutian Islands pollock ABC is equal to or more than the limit on the Aleutian Islands pollock initial TAC specified in regulations. When the Aleutian Islands pollock ABC is less than the limit on the Aleutian Islands pollock initial TAC specified in regulations, the annual Aleutian Islands pollock ITAC will not exceed the annual Aleutian Islands pollock ABC.
3. The incidental catch allowance for pollock in the Aleutian Islands will be deducted from the Aleutian Islands annual pollock initial TAC.
4. The A season apportionment of the directed pollock fishery allocation will be the lesser of:
 - a. No more than 40 % of the AI pollock ABC, or
 - b. The annual AI pollock initial TAC, after subtraction of the incidental catch allowance.

Comments to be made by the Council and NMFS

The total harvest of pollock in the A season (directed pollock fishery and incidental catch allowance) will not exceed 40% of the annual Aleutian Islands pollock ABC.

The directed pollock fishery allocation to the B season will be equal to the annual Aleutian Islands pollock initial TAC minus the incidental catch allowance and minus the A season directed pollock fishery allocation. The B season allocation may be further adjusted by rollover of unharvested A season pollock.

5. Any unharvested pollock initial TAC from the Aleutian Islands fishery that is not expected to be harvested during the fishing year will be rolled back to the Bering Sea subarea pollock fishery in accordance with regulations. This roll back will occur at the earliest time possible in the calendar year in accordance with regulations.

6. The harvest of the Aleutian Islands directed pollock fishery allocation is limited to vessels eligible to harvest pollock under section 208 of Title II, Division C of Pub. L. 105-277 and vessels 60 feet or less in length over all. During 2005 through 2008, no more than 25 percent of the directed pollock fishery may be allocated to vessels 60 feet or less in length overall. During 2009 through 2012, no more than 50 percent of the directed pollock fishery may be allocated to vessels 60 feet or less in length overall. Beginning in 2013, 50 percent of the directed pollock fishery will be allocated to vessels 60 feet or less in length overall.

3.7.4 Community Development Quota Multispecies Fishery

The western Alaska Community Development Quota (CDQ) Program (hereinafter the CDQ Program) was established to provide fishermen who reside in western Alaska communities a fair and reasonable opportunity to participate in the Bering Sea and Aleutian Islands groundfish fisheries; to expand their participation in salmon, herring, and other nearshore fisheries; and to help alleviate the growing socioeconomic crisis within these communities. Residents of western Alaska communities are predominantly Alaska Natives who have traditionally depended upon the marine resources of the Bering Sea for their economic and cultural well-being. The CDQ program is a joint program of the Secretary and the Governor of the State of Alaska.

The purpose of the CDQ program is to allocate CDQ to CDQ groups representing eligible Western Alaska communities. The first priority for use of these allocations is to provide the means for investing in participating in, starting, or supporting commercial fisheries business activities that will result in an ongoing, regionally-based fisheries economy. The second priority is to strengthen the non-fisheries related economy in the CDQ region.

The NMFS Regional Administrator shall hold the designated percent of the annual total allowable catch of groundfish for each management subarea in the Bering Sea and Aleutian Islands for the western Alaska community quota as noted below. These amounts shall be released to eligible Alaska communities who submit a plan, approved by the Governor of Alaska, for their wise and appropriate use.

The CDQ program is structured such that the Governor of Alaska is authorized to recommend to the Secretary that a Bering Sea rim community be designated as an eligible fishing community to receive a portion of the reserve. To be eligible a community must meet specified criteria and have developed a fisheries development plan approved by the Governor of Alaska. The Governor shall develop such recommendations in consultation with the Council. The Governor shall forward any such recommendations to the Secretary, following consultation with the Council. Upon receipt of such recommendations, the Secretary may designate a community as an eligible fishing community and, under the plan, may release appropriate portions of the reserve.

Not more than 33 percent of the total western Alaska community quota may be designated for a single CDQ applicant, except that if portions of the total quota are not designated by the end of the second quarter, applicants may apply for any portion of the remaining quota for the remainder of that year only.

3.7.4.1 Eligible Western Alaska Communities

The Governor of Alaska is authorized to recommend to the Secretary that a community within western Alaska which meets all of the following criteria be eligible for the CDQ program:

1. be located on or proximate to the Bering Sea coast from the Bering Strait to the western most of the Aleutian Islands or a community located on an island within the Bering Sea, which the Secretary of the Interior has certified pursuant to section 11(b)(2) or (3) of Pub. L. No. 92-203 as Native villages are defined in section 3(c) of Pub. L. No. 92-203;
2. be unlikely to be able to attract and develop economic activity other than commercial fishing that would provide a substantial source of employment;
3. its residents have traditionally engaged in and depended upon fishing in the waters of the Bering Sea coast;
4. has not previously developed harvesting or processing capability sufficient to support substantial participation in the commercial groundfish fisheries of the BSAI because of a lack of sufficient funds for investing in harvesting or processing equipment; and
5. has developed a community development plan approved by the Governor, after consultation with the Council.

Also, Akutan is included in the list of eligible CDQ communities.

3.7.4.2 Fixed Gear Sablefish Allocation

The NMFS Regional Administrator shall hold 20 percent of the annual fixed-gear total allowable catch of sablefish for each management subarea in the BSAI for the western Alaska sablefish community quota. The portions of sablefish TACs for each management area not designated to CDQ fisheries will be allocated as quota share and IFQs and shall be used pursuant to the program outlined in Section 3.7.1.

3.7.4.3 Pollock Allocation

Ten percent of the pollock TAC in the BSAI management area shall be allocated as a directed fishing allowance to the CDQ program. This quota shall be released to communities on the Bering Sea coast which submit a plan, approved by the Governor of Alaska, for the wise and appropriate use of the quota.

3.7.4.4 Multispecies Groundfish and Prohibited Species Allocations

In addition to the CDQ allocations authorized in Section 3.7.2 and Section 3.7.3, 7.5 percent of the TAC available for all BSAI groundfish species or species groups, except squid, will be issued as a pro-fair share of PSC reserve. The program is patterned after the pollock CDQ program.

fishery), which provided catches of 1.0 to 1.4 million mt during the years 1986 through 1989. No directed fishing has occurred on this stock since 1991.

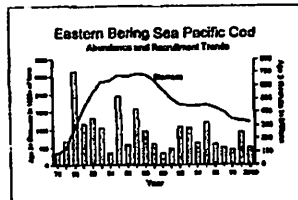
The BSAI pollock TAC has been allocated between inshore and offshore trawl fishing sectors since 1992. The American Fisheries Act (AFA) of 1998 established specific allocations for the pollock TAC: 10% to the community development quota program, with the remainder allocated 50% to catcher vessels delivering inshore, 40% to catcher processors processing offshore, and 10% to catcher vessels delivering to motherships. The Act also established the authority and mechanisms for pollock fishery cooperatives (for further information, see Appendix C).

In 1990, roe-stripping of pollock was prohibited, and the Bering Sea pollock fishery was divided into roe and non-roe fishing seasons. The pollock fishery has also been affected by management measures designed to protect Steller sea lions since 1992. Temporal and spatial dispersion of the fleet has been accomplished through fishery exclusion zones around rookeries or haulout sites, phased in reduction in the seasonal proportions of TAC that can be taken in Steller sea lion critical habitat, and additional seasonal TAC allocations.

Measures have also been implemented to reduce bycatch in the pollock fishery. Bycatch limits for chum salmon (42,000 fish), Chinook salmon (29,000 fish), and herring (1% of total BSAI herring biomass) trigger area closures for the pollock fisheries in particular (see Section 3.6). Beginning in 1998, 100% retention was required for pollock under the improved retention/improved utilization (IR/IU) program. In 1999, the use of bottom trawl gear for directed pollock fishing was prohibited, to reduce bycatch of halibut and crabs.

4.1.2.2 Pacific Cod

The BSAI Pacific cod stock increased to high levels in the mid 1990s, then declined. The 2000 year class was above average, with recruits into the fishery beginning in 2003. Significant uncertainty surrounds the maximum permissible ABC computed in the stock assessment model. Between 1998 and 2002, the ABC below the maximum permissible in 2003 and 2004. Council, with advice from the Groundfish Plan Team and the SSC, instead selected an ABC through an alternative 'constant catch' approach, as the resulting ABC is at least as conservative as under the previous approach.



Year	Biomass	ABC
2002	1,540,000	223,000
2003	1,680,000	223,000
2004	1,660,000	223,000

The BSAI Pacific cod TAC is not apportioned by area, but is currently allocated 2 percent to jig gear, 51 percent to fixed gear, and 47 percent to trawl gear. The fixed gear allocation is seasonally apportioned by trimester. Any unused TAC from the jig gear quota becomes available to fixed gear on September 15. 80 percent of the fixed gear apportionment is reserved for longline catcher/processors, 0.3 percent for longline catcher vessels, 15 percent for pot catcher vessels, 3.3 percent for pot catcher/processors, and 1.4 percent for fixed gear

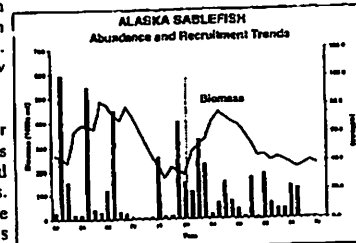
catcher vessels less than 60' length overall. Beginning in 1998, 100% retention was required for Pacific cod under the IR/IU program.

4.1.2.3 Sablefish

Sablefish in the Bering Sea, Aleutian Islands, and Gulf of Alaska are considered to be of one stock. The resource is managed by region in order to distribute exploitation throughout its range. Large catches of sablefish (up to 26,000 mt) were made in the Bering Sea during the 1960s, but have declined considerably. Since 1991, catch has rarely exceed 1,000 mt. Catch in the Aleutian Islands has never exceeded 3,600 mt, and in the early 2000s has hovered at around 1,000 mt. Biomass of the sablefish stock off Alaska appears low and stable, increased from recruitment, and has appears to be at a moderate level.

Year	Biomass	ABC
2002	12,620,440	14,890,000
2003	12,620,440	14,890,000
2004	12,620,440	14,890,000

The TAC for sablefish is apportioned among gear types. Sablefish in the Bering Sea is allocated 50% to

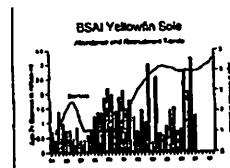


fixed gear and 50% to trawl gear. In the Aleutian Islands, the sablefish TAC is allocated 75% to fixed gear and 25% to trawl gear. Twenty percent of the fixed gear allocations is reserved for use by community development quota program participants. The remaining fixed gear apportionment of the sablefish TAC is managed under an individual fishing quota (IFQ) program, which began in 1995. Important, although small, state water open access sablefish fisheries occur in the Aleutians.

4.1.2.4 Flatfish

After pollock, flatfish species comprise a large proportion of groundfish exploitable biomass in the BSAI. Dominant species are yellowfin sole and rock sole. Other abundant or commercially important BSAI flatfish species are Greenland turbot, arrowtooth flounder, flathead sole, and Alaska plaice.

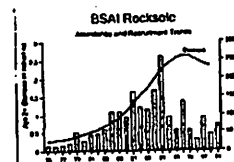
As of 2004, the biomass of most BSAI flatfish stocks remains relatively high. For many flatfish species, recruitment in more recent years has been low; consequently, stock declines are expected in coming years. The yellowfin sole stock has been declining since the mid-



1980s, however the possibility of the 1995 year class being above average suggests that the stock may be more stable in the near future. Although biomass of rock sole increased from 2002 to 2003, it is expected to decline over the next few years. Recruitment of

Species	Biomass	ABC
yellowfin sole	1,560,000 ¹	114,000
Greenland turbot	132,000 ²	
arrowtooth flounder	696,000 ²	115,000
rock sole	1,160,000 ²	139,000
flathead sole	505,000 ²	61,900
Alaska plaice	1,050,000 ²	203,000
other flatfish	90,300 ²	13,500

¹ age 0+ biomass
² age 1+ biomass
³ Greenland turbot ABC is apportioned by subarea
⁴ age 3+ biomass



eastern Bering Sea in 1961, and 109,100 mt in 1965 in the Aleutian Islands, and subsequent biomass declines. Above average year classes in the early 1980s has boosted biomass levels, which have remained relatively stable since 1995.

ABCs and TACs for POP are apportioned by subarea, and for the Aleutian Islands, are further allocated by district. In 2004, the ABC for POP was 2,128 mt in the Bering Sea, 3,059 mt in the eastern Aleutian Islands, 2,926 in the central Aleutian Islands, and 5,187 in the western Aleutian Islands.

4.1.2.6 Other Rockfish

Rockfish other than Pacific ocean perch were divided into two complexes, the other red rockfish complex and the other rockfish complex, through 2000. Since 2001, northern, shortraker and roughgeyer rockfish have been managed as separate species in order to manage them more consistently.

In the early 2000s, approximately 90 percent of northern rockfish were harvested in the Atka mackerel bottom trawl fishery, mainly in the Western Aleutian Islands district. Compared to northern rockfish, shortraker rockfish, and roughgeyer rockfish are a relatively high valued species, and consequently are less frequently discarded.

Since 1998, the Aleutian Islands TAC for shortraker/roughgeyer rockfish is allocated between trawl and fixed gear fisheries. Since 2001, shortraker and roughgeyer rockfish have been allocated separate TACs. Thirty percent of the TAC is allocated to fixed gear and 70 percent to vessels using trawl gear.

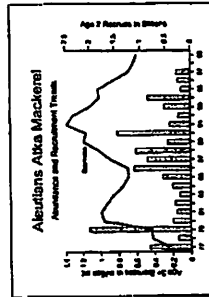
The "other rockfish" category contains eight rockfish species; the most abundant members are shortspine thornyhead and light dusky. Shortspine thornyheads are a higher priced species, and are caught mainly by fixed gear rather than trawl fisheries. The ABCs for the complex are listed in the box above.

4.1.2.7 Atka Mackerel

Atka mackerel are found along the Aleutian Islands, and to a lesser extent in the western Gulf of Alaska. Biomass increased from 1977 to a peak in 1992, declined over the 1990s, and has since increased. Catches have been relatively high since 1992, in response to evidence of a large exploitable biomass in the central and western Aleutian Islands; a record 103,000 mt was harvested in 1996. The Atka mackerel fishery takes place primarily with bottom trawl gear at depths of less than 200 m. The fishery is highly localized and takes place in the same few locations each year.

Year	Biomass
2002	440,000
2003	358,000
2004	286,000

In 1993, TAC allocations in the Aleutian Islands subarea was divided into districts, in part to allow localized management. In 2004, the ABCs for Atka mackerel were 11,240 mt in the combined Eastern Aleutian Islands/Bering Sea subarea, 31,100 in the Central Aleutian Islands, and 24,360 in the Western Aleutian Islands.



Species	Biomass	ABC
northern rockfish	142,000	68,800
shortraker rockfish	23,400	528
roughgeyer rockfish	10,400	195
eastern Bering Sea 'other rockfish'	18,300	860
Aleutian Islands 'other rockfish'	12,100	634

Note: ABC is apportioned by subarea.

The foreign fleets were phased out in the 1980s. The transition period from foreign to fully domestic groundfish fisheries was stimulated by a quick increase in joint-venture operations. The American Fisheries Promotion Act (the so-called "fish and chips" policy) required that allocations of fish quotas to foreign nations be based on the nation's contributions to the development of the U.S. fishing industry. This provided incentive for development of joint-venture operations, with U.S. catcher vessels delivering their catches directly to foreign processing vessels. Joint-venture operations peaked in 1987, giving way to a rapidly developing domestic fleet. By 1991, the entire BSAI groundfish harvest (472,000 mt, worth \$351 million ex-vessel) was taken by only 391 U.S. vessels. Groundfish harvest has been entirely domestic since that time.

Catch History

Catch statistics since 1954 are shown for the eastern Bering Sea subarea in Table 4-7. The initial target species was yellowfin sole. During the early period of these fisheries, total catches of groundfish reached a peak of 674,000 mt in 1961. Following a decline in abundance of yellowfin sole, other species (principally walleye pollock) were targeted upon, and total catches rose to 2.2 million mt in 1972. Catches have since varied from 1 to 2 million mt as catch restrictions and other management measures were placed on the fishery.

Catches in the Aleutian Islands subarea have always been much smaller than those in the eastern Bering Sea. Target species have also been different (Table 4-8): in the Aleutians, POP was the initial target species. During the early years of exploitation, overall catches of Aleutian groundfish reached a peak of 112,000 mt in 1965. As POP abundance declined, the fishery diversified to other species. Total catches from the Aleutians in recent years have been about 100,000 mt annually.

5.3 Relationship to Other Federal Fisheries

The North Pacific Fishery Management Council (Council) has implemented four other FMPs in the Alaska exclusive economic zone (EEZ). These FMPs govern groundfish fishing in the Gulf of Alaska (GOA), king and tanner crab fishing in the BSAI, and scallop and salmon fishing in the Alaska EEZ. The relationship of the BSAI groundfish FMP with these other management plans is discussed below.

Gulf of Alaska Groundfish FMP

The BSAI and GOA groundfish fisheries are managed in close connection with one another. While many of the same groundfish species occur in both the BSAI and GOA management areas, they are generally considered to be separate stocks. There is some overlap between participants in the BSAI and GOA groundfish fisheries. Many of the management measures and stock assessment science are similar for the two areas. Management measures proposed for the BSAI groundfish fisheries are analyzed for potential impacts on GOA fisheries. Where necessary, mitigation measures are adopted (for example, sideboard measures in the AFA pollock cooperative Section 3.7.2).

BSAI King and Tanner Crab FMP

Domestic fishing for crab for the most part predates the domestic groundfish fishery, and since the inception of the FMP the consideration of crab bycatch in the groundfish fisheries has been paramount. The crab species are considered prohibited in the BSAI groundfish fisheries, with any catch required to be returned immediately to the sea with a minimum of injury. In order to discourage targeting on those species, other management measures have also been instituted to minimize the bycatch of crab in the groundfish fisheries, including area closures, gear modifications, and catch limits. Some participants in the BSAI crab fishery also target groundfish. The crab FMP contains sideboard measures constraining AFA pollock fishery participants from increasing their participation in the crab fishery.

Scallop FMP

There is very little interaction between the scallop FMP and the BSAI groundfish FMP. Virtually none of the participants in the scallop fishery target groundfish. The scallop FMP contains sideboard measures constraining AFA pollock fishery participants from participating in the scallop fishery.

Salmon FMP

Pacific salmon are also a prohibited species in the BSAI groundfish FMP. There is no fishing of salmon allowed in the EEZ, therefore there is no overlap of participants or grounds conflicts. The BSAI groundfish FMP includes management measures to reduce the bycatch of salmon in federal waters, including catch limits and area closures.

5.4 Relationship to State of Alaska Fisheries

The Constitution of the State of Alaska states the following in Article XIII:

Section 2 General Authority. The legislature shall provide for the utilization, development, and conservation of all natural resources belonging to the State, including land and waters, for the maximum benefit of the people.

Section 4 Sustained Yield. Fish, forest, wildlife, grasslands, and all other replenishable resources belonging to the State shall be utilized, developed, and maintained on the sustained yield principle, subject to preferences among beneficial uses.

Section 15 No Exclusive Right of Fishery. has been amended to provide the State the power "to limit entry into any fishery for purposes of resource conservation" and "to prevent economic distress among fishermen and those dependent upon them for a livelihood".

The relationship of the FMP with State of Alaska fisheries is discussed below.

State parallel groundfish fishery

A parallel groundfish fishery occurs where the State allows the federal species TAC (total allowable catch) to be harvested in State waters. Parallel fisheries occur for pollock, Pacific cod, and rockfish species, for some or all gear types. Opening state waters allows the effective harvesting of fishery resources because many fish stocks straddle State and Federal jurisdiction and in some cases a significant portion of the overall federal TAC is harvested within State waters. Although the State cannot require vessels fishing inside state waters during the Federal fishery to hold a Federal permit, it can adopt regulations similar to those in place for the Federal fishery if those regulations are approved by the Board of Fisheries and meet State statute. An example of a Federal fishery regulation that was concurrently adopted by the Board of Fisheries is the Steeler sea lion protection measures implemented in 2001.

State shellfish fishery

King and Tanner crab species are considered prohibited in the BSAI groundfish fisheries, with any catch required to be returned immediately to the sea with a minimum of injury. In order to discourage targeting on those species, other management measures have also been instituted to minimize the bycatch of crab in the groundfish fisheries, including area closures, gear modifications, and catch limits.

State salmon fishery

Pacific salmonids are prohibited species in the BSAI groundfish FMP, and must be immediately returned to the sea with a minimum of injury. Some controversy exists regarding the degree to which salmon bycatch in the groundfish fisheries affects State salmon runs, particularly in times of declining returns. The Council has instituted and reduced salmon bycatch limits in the BSAI groundfish trawl fisheries in response to increased salmon bycatch concerns.

State herring fishery * Data revealed the cap hinders closure of a predetermined "herring survey areas" to the remainder of the season.

Pacific herring are considered a prohibited species in the groundfish fishery, and must be immediately returned to the sea with a minimum of injury. Bycatch of herring has historically been high in the Bering Sea pollock fishery, however in the early 1990s the Council adopted a catch limit of 1% of the herring biomass, which has successfully limited bycatch. Bycatch of herring in other target fisheries is very low.

State water subsistence fishery

Subsistence fisheries in Alaska are managed by the State, and take place primarily in state waters. Groundfish fishery participants and fishing communities engage in subsistence activities, however groundfish are a minor target of subsistence fishing (see Section 4.3.3 for a description of the subsistence groundfish fishery). Where appropriate, subsistence groundfish harvests are accounted for in annual groundfish stock assessment.

on the national website. Also, NMFS produces an annual report to Congress on the status of U.S. fisheries, which can be accessed from this website.

6.2 Management and Enforcement Considerations

This section provides information about management and enforcement of the groundfish fisheries off Alaska. Management and enforcement responsibilities include the following:

- Data collection, research, and analysis to prepare annual stock assessments;
- The annual groundfish specifications process through which TAC limits and prohibited species catch (PSC) limits are established;
- The ongoing process of amending the FMPs and regulations to implement fishery management measures recommended by the Council or NMFS;
- Monitoring of commercial fishing activities to estimate the total catch of each species and to ensure compliance with fishery laws and regulations;
- Actions to close commercial fisheries once catch limits have been reached; and
- Actions taken by NMFS Enforcement, the U.S. Coast Guard (USCG), and NOAA General Counsel to identify, educate, and, in some cases, penalize people who violate the laws and regulations governing the groundfish fisheries.

Management of the groundfish fisheries in the BSAI and enforcement of management measures governing those fisheries comprise a complex system for overseeing fisheries that range geographically over an extensive area of the North Pacific Ocean and Bering Sea.

NMFS manages the fisheries off Alaska based on TAC amounts for target species and PSC amounts for species that may not be retained. The TAC and PSC amounts are further subdivided by gear type, area, and season. As the complexity of the management regime has grown, the number of TAC and PSC subdivisions has grown as well. For example, in 1995 for the BSAI there were 40 TAC allocations, 38 PSC allocations, and two CDQ allocations. In 2003 for the BSAI, there were 152 TAC allocations, 78 PSC allocations, and 34 CDQ allocations. Each allocation represents a possible need for NMFS to take management actions, such as closing fisheries, reallocating incidental catch amounts, or investigating overages. When a directed fishery in one area is closed, the boats that participated in the fishery often move to another area or change to another target. This, in turn, often leads to the need for additional management actions.

Through the number of allocations has increased, the quantity of fish available for these allocations has not, and NMFS is required to manage increasingly small blocks of fish. To do this adequately requires the use of increasingly sophisticated catch-monitoring tools, such as observer coverage, electronic reporting, vessel monitoring systems (VMS), and the use of at-sea scales. Through these tools increase the quantity, quality, and timeliness of the data available to NMFS management, they also increase the demands on staff to effectively make use of a larger and more complex data system.

Current fishery management recognizes that a meaningful enforcement program must accompany management measures for them to be effective. As management becomes more complex, the difficulty of adequately enforcing the regulations grows. As the size and complexity of the regulatory environment increases, the burden on enforcement personnel to fully understand the nuances and implications of

Amendment 70 was not submitted.

Amendment 71 is pending:

Would make administrative changes to the Western Alaska CDQ program.

Amendment 72 implemented August 28, 2003, revised Amendment 15:

Required a verbal departure report instead of a vessel clearance requirement for vessels with IFQ halibut or sablefish leaving the jurisdiction of the Council.

Amendment 73 was not submitted.

Amendment 74 was not submitted: is unassigned.

Amendment 75 was partially approved on May 29, 2003, revised Amendment 49:

Delayed indefinitely the implementation of the flatfish retention and utilization requirements.

Amendment 76 was not submitted.

Amendment 77 implemented January 1, 2004, revised Amendment 64:

Implemented a Pacific cod fixed gear allocation between hook and line catcher processors (80%), hook and line catcher vessels (0.3%), pot catcher processors (3.3%), pot catcher vessels (15%), and catcher vessels (pot or hook and line) less than 60 feet (1.4%).

Amendment 78 is pending, revised Amendment 55:

Would revise the EFH definitions.
and HAPL

Amendment 79 was approved by the Council in June 2003:

Would implement a groundfish retention standard in the non-AFA trawl catcher-processor fleet.

Amendment 80 is pending:

Would allocate groundfish (except pollock) to individual sectors and create a non-AFA trawl catcher-processor cooperative structure.

Amendment 81 was approved by the Council in April 2004: implement August 27, 2004:
Would replace the management policy in the FMP.

Amendment 82 is pending: was approved by the Council in June 2004:

1. Created separate Chinook Salmon PSC limits for the Bering Sea and Aleutian Islands subareas, and modified the closures when the PSC limits are attained.
2. Allocated the directed pollock fishery in the AI subarea to the Aleut Corporation for the purpose of economic development in Adak, Alaska.

Amendment 83 is pending:

Would reorganize the FMP and update descriptive language. the FMP.

salmon drift and set gillnet fisheries are listed in Category II, including those in Bristol Bay, Aleutian Islands, Alaska Peninsula, Kodiak, Cook Inlet, PWS, and Southeast Alaska. NMFS PRD has recently proposed reclassifying the Cook Inlet drift and set gillnet fisheries from Category II to Category III (68 FR 1414).

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1.2 Seabird Populations

Over 70 species of seabirds occur over waters off Alaska and could potentially be affected by direct and indirect interactions with the Bering Sea Aleutian Islands and Gulf of Alaska (BSAI and GOA) groundfish fisheries. Thirty-eight of these species regularly breed in Alaska and waters of the Exclusive Economic Zone (EEZ). More than 1,600 seabird colonies have been documented, ranging in size from a few pairs to 3.5 million birds (USFWS 2000). Breeding populations of seabirds are estimated at approximately 48 million birds and non-breeding migrant birds probably account for an additional 30 million birds (USFWS 2000). 1998 Most of the migrant birds are present only during the summer months (May through September) although some non-breeding albatross have been sighted at all months of the year (USFWS 1999). The distributions of species that breed in Alaska are well known in summer but for some species winter distributions are poorly documented or completely unknown.

1.2.1 Potential impacts of fisheries on seabird species

Potential fisheries impacts on a given seabird species could theoretically be measured by changes in survival or reproductive rates and ultimately by changes in the population. For all of these biological parameters, one would expect fluctuations in time and space as part of "normal" or natural conditions. The ability to

* Data is collected for selected species at geographically dispersed breeding sites along the entire coastline of AK. Some sites are scheduled for annual monitoring while others are monitored every 3 years. Although trends at sampling plots are reasonably well-known at particular colonies, overall

distinguish these natural fluctuations from potential human-caused fluctuations requires reasonably accurate measurements of several parameters over a long time period and in many different areas. Although the United States Fish and Wildlife Service (USFWS) surveys a number of large seabird colonies every year, present population estimates for most species are not precise enough to detect anything but the largest fluctuations in numbers. This is especially true for species that do not nest in dense concentrations. For some species, like the burrow and crevice-nesting alcids and storm-petrels, field methods for censusing populations are not available and require additional budgetary support for development (Dragoo et al. 2001).

Seabirds can interact with fisheries in a number of direct and indirect ways. Direct effects occur at the same time and place as the fishery action. Seabirds are attracted to fishing vessels to feed on prey churned up in the boat's wake, escaping fish from trawl nets, baited hooks of longline vessels, and offal discharged from trawl, pot, and longline vessels. In the process of feeding, seabirds sometimes come into contact with fishing gear and are caught incidentally. A direct interaction is usually recorded as the injury or killing of a seabird and is referred to as an "incidental take". Information on the numbers of birds caught incidentally in the various gear types comes from the North Pacific Groundfish Observer Program (Observer Program) and is summarized in the seabird section of "Ecosystem Considerations for 2003" report (NPFMC 2002, Tables 8, 9, 11, and 12).

Another direct fishery effect is the striking of vessels and fishing gear by birds in flight. Some birds fly away without injury but others are injured or killed and are thus considered incidental take. The Observer Program does not collect data on vessel strikes in a systematic way but there are some records of bird-strikes that have been collected on an opportunistic basis. These sporadic observations of vessel strikes from 1993-2000 have been entered into the Observer Notes Database, which is maintained by the USFWS, but have only received preliminary statistical analysis (seabird section of "Ecosystem Considerations for 2003", NPFMC 2002). Indirect effects refer to either positive or negative impacts on the reproductive success or survival of seabirds that may be caused by the fishery action but are separated in time or geographic location. The indirect effect which has received the most attention is the potential impact of fisheries competition or disturbance on the abundance and distribution of prey species that seabirds depend on, thus affecting seabird foraging success. Of particular note would be those effects on breeding piscivorous (fish-eating) seabirds that must meet the food demands of growing chicks at the nest colony. Reproductive success in Alaskan seabirds is strongly linked to the availability of appropriate fish (Piatt and Rosenau 1998, Suryan et al. 1998a, Suryan et al. 2000, Golet et al. 2000). Although seabird populations remain relatively stable during occasional years of poor food and reproduction, a long-term scarcity of forage fish leads to population declines. Other potential indirect effects on seabirds include physical disruption of benthic foraging habitat by bottom trawls, consumption of processing wastes and discarded offal, contamination by oil spills, introductions of nest predators (i.e., rats) to nesting islands, and ingestion of plastics released intentionally or accidentally from fishing vessels. Some of these potential impacts are related more to the presence of fishing vessels rather than the process of catching fish.

1.2.2 Statutory protection for seabirds

There are two major laws that protect seabirds and require the Council to address seabird conservation in their Fishery Management Plans (FMPs). The first is the Migratory Bird Treaty Act of 1918 (16 U.S.C. 703-712), as amended over the years. This law pertains to all of the seabird species found in the BSAI/GOA area (66 FR 52282) and governs the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts and nests. The definition of "take" in the Migratory Bird Treaty Act (MBTA) is "to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to pursue, hunt, shoot, wound, kill, trap, capture,

1.2.3 Consideration of seabirds in groundfish fishery management

Seabird protection measures in the BSAI/GOA groundfish fisheries were initiated in the 1990s and have focused primarily on collecting seabird/fishery interaction data and on requiring longliners to use specific types of gear and fishing techniques to avoid seabird incidental take. This emphasis on longline gear restrictions has been driven by conservation concerns for the endangered short-tailed albatross as well as other species. Longline vessels over 26 ft LOA are required to use either single or paired streamer lines (or in some cases for smaller vessels, a buoy bag line) to reduce incidental take of seabirds (see www.fish.noaa.gov/pocketresources/seabirds.html for further information).

Observers collect incidental take data in the trawl and pot sectors of the fishery. USFWS and the trawl sector of the fishing industry are collaborating on research into minimizing the effects of the trawl "third wire" (a cable from the vessel to the trawl net monitoring device) on incidental take of seabirds. However, there have been no regulatory or FMP-level efforts to mitigate seabird incidental take in the trawl and pot sectors.

For species listed as threatened or endangered under the ESA, the USFWS may establish a threshold number of incidental takes that are allowed before mitigation measures are reviewed and perhaps changed. Although this is sometimes viewed as a "limit" on the number of birds (e.g., short-tailed albatross) that can be taken, the result of exceeding this threshold number is a formal consultation process between NMFS and USFWS, not an immediate shutdown of the fishery.

Another management tool that may affect incidental take of seabirds is the regulation of who is allowed to fish. Limited entry and rationalization programs such as Individual Fishing Quota (IFQ) and Community Development Quota (CDQ) may impact seabird incidental take if the number or size of fishing vessels changes because regulations on protective measures are based on the size of the vessel. Since different types of fishing gear are more prone to take different kinds and numbers of seabirds, allocation of TAC among the different gear sectors can also have a substantial impact on incidental take.

Food web impacts can be addressed with several management tools. The Council has designated particular species and size classes of fish as being important prey for seabirds and marine mammals and has prohibited directed fisheries on these forage fish (BSAI FMP Amendment 36 and GOA Amendment 39). The Council may also manage the allocation, biomass, and species of fish targeted by the industry through the total allowable catch (TAC)-setting process. These factors impact the food web and could thus alter the availability of food to seabirds. While more information is available for the dynamics of fish populations than of invertebrate prey, food web interactions are very complicated and there is a great deal of scientific uncertainty regarding the specific effects of different management options.

Each of the management tools listed above requires reliable data to monitor the extent of fishery interactions and the effectiveness of mitigation efforts in accordance with management policy objectives. The Council established the Observer Program in order to collect fishery information. Beginning in 1993, the Observer Program was modified to provide information on seabird/fishery interactions. Observers are presently required on vessels 125 feet (ft) or more in length overall (LOA) for 100 percent of their fishing days and aboard vessels 60-124 ft LOA for 30 percent of their fishing days. Vessels less than 60 ft LOA do not have to carry observers.

Observers receive training in seabird identification, at least to the level of being able to place birds into the categories requested by the USFWS. Some of these categories identify individual species and others lump species under generalized groups, e.g., "unidentified alcids." In many cases, birds that were caught as the

gear was deployed on board they may be identifiable only to a generalized group level. NMFS is currently working to improve the training of its observers in identifying birds from their feet and bills, which are often the only parts of the bird that are recognizable (S. Fitzgerald, Observer Program, personal communication). When the Observer and Program data is analyzed and reported (as in the Ecosystem Considerations Report in *Stock Assessment and Fishery Evaluation*), ~~observers~~ individual species with relatively few records are often lumped into larger categories. For example, the "gull" category contains many "unidentified gulls" but also various numbers of five different gull species that observers have identified to species. Similarly, the "alcid" group contains separate records of seven different alcid species.

For those vessels operating without observers, regulations require captains to report the taking of any ESA-listed species and to retain and deliver the body to USFWS for positive identification. Unfortunately, such self-reporting is unreliable due to the inability or unwillingness of some crews to identify and retain species of concern. Other existing fishery record-keeping and reporting requirements provide data on the distribution of fishing effort which could potentially be used in conjunction with directed research to analyze potential food web and seabird population impacts.

1.2.4 Bibliography

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**Addendum to
Draft Gulf of Alaska Groundfish Fishery Management Plan
dated August 13, 2004**

Various corrections have been made to the content of the August 13, 2004 version. The changes are described in the attachments as follows:

- **Table ES-2** replaces same table
- **Section 3.2.6.3.2** replaces same section
- **Missing figures** replace placeholders on pp. 8, 24, 25, 53, 77
- **Technical edits** see Attachment 8

Table ES-2 Summary of Management Measures for the GOA Groundfish Fishery

Management Area	<p>U.S. exclusive economic zone (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.</p> <p>Regulatory areas: Three regulatory areas are defined in the Gulf of Alaska: Eastern, extending from Dixon Entrance to 147° W. longitude; Central, extending between 147° W. and 159° W. longitude, and Western, extending between 159° W. and 170° W. longitude.</p>
Stocks	<p>All finfish, except salmon, steelhead, halibut, herring, and tuna, which are distributed or exploited in the management area, and are listed in Table 3-1.</p> <p>Those stocks and stock complexes that are commercially important and for which an annual TAC is established include: walleye pollock, Pacific cod, sablefish, shallow and deep water flatfish, rex sole, flathead sole, arrowtooth flounder, Pacific ocean perch, shortraker/rougeye rockfish, northern rockfish, "other slope" rockfish, pelagic shelf rockfish, demersal shelf rockfish, thomyhead rockfish, Atka mackerel, and skates.</p>
Optimum Yield (OY) and Maximum Sustainable Yield (MSY)	<p>The OY of the GOA groundfish complex (consisting of stocks listed in the 'target species' and 'other species' categories, as listed in Table 3-1) is in the range of 116,000 to 800,000 mt. The upper end of the range is derived from historical estimates of MSY.</p>
Procedure to set Total Allowable Catch (TAC)	<p>Based on the annual Stock Assessment and Fishery Evaluation (SAFE) report, the Council will recommend to the Secretary of Commerce TACs and apportionments thereof for each target species. TAC for the "other species" category will be set at 5% of the summed target species TACs. Up to two years of TACs may be established for certain species.</p> <p>Reserve: 20% of the TAC for pollock, Pacific cod, flatfish, and the "other species" category is set aside to form the reserve, which may be reapportioned to these fisheries at any time and in any amount by the Regional Administrator.</p>
Apportionment of TAC	<p>Harvest allocations and management are based on the calendar year. TACs are apportioned by regulatory area, and by district for some stocks. Areas or districts may also be managed together.</p> <p>Pollock: the Western and Central regulatory areas are combined, and annual TACs are divided into seasonal allowances. 100% of the TAC is allocated to the inshore sector.</p> <p>Pacific cod: TAC shall be allocated 90% to the inshore sector and 10% to the offshore sector.</p> <p>Sablefish: the Eastern regulatory area is divided into two districts, West Yakutat and Southeast Outside. In the Eastern regulatory area, vessels using hook and line gear will be permitted to take up to 95% of the TAC, and vessels using trawl gear up to 5%. In the Western and Central regulatory areas, vessels using hook and line gear will be permitted to take up to 80% of the TAC, and vessels using trawl gear up to 20%.</p> <p>Rockfish: the Eastern regulatory area is divided into two districts, West Yakutat and Southeast Outside.</p>
Attainment of TAC	<p>The attainment of a TAC for a species will result in the closure of the target fishery for that species. Further retention of that species will be prohibited.</p>
Permit	<p>All vessels participating in the GOA groundfish fisheries, other than fixed gear sablefish and demersal shelf rockfish in Southeast Outside district, require a Federal groundfish license, except for: vessels fishing in State of Alaska waters and vessels less than 26' LOA. Licenses are endorsed with area, gear, and vessel type and length designations.</p> <p>Fishing permits may be authorized, for limited experimental purposes, for the target or incidental harvest of groundfish that would otherwise be prohibited.</p>
Participation Restrictions	<p>American Fisheries Act (AFA): Vessels or processors participating in the Bering Sea and Aleutian Islands pollock fishery authorized under the AFA are subject to harvesting and processing sideboard restrictions on GOA groundfish.</p>
Authorized Gear	<p>Gear types authorized by the FMP are trawls, hook-and-line, pots, jigs, and other gear as defined in regulations.</p> <p>Sablefish: Legal gear for taking sablefish in the GOA is hook and line and trawl gear.</p>

Table ES-2 Summary of Management Measures for the GOA Groundfish Fishery

Time and Area Restrictions	<p>Fishing Year: January 1-December 31.</p> <p>All vessels: Fishing or anchoring within the Sitka Pinnacles Marine Reserve is prohibited at all times.</p> <p>All trawl: Use of trawl gear is prohibited at all times in the Southeast Outside district.</p> <p>Non-pelagic trawl: The use of non-pelagic trawl is prohibited in Cook Inlet. Three types of closure areas are designated around Kodiak Island. Type I areas prohibit non-pelagic trawling year-round; Type II prohibit non-pelagic trawl from February 15 to June 15; adjacent areas designated as Type III may be reclassified by the Regional Administrator as Type I or Type II following a recruitment event.</p> <p>Marine mammal measures: Regulations implementing the FMP may include conservation measures that temporally and spatially limit fishing effort around areas important to marine mammals.</p> <p>Gear test area exemption: Specific gear test areas for use when the fishing grounds are closed to that gear type, are established in regulations that implement the FMP.</p>
Prohibited Species	<p>Pacific halibut, Pacific herring, Pacific salmon, steelhead trout, king crab, and Tanner crab are prohibited species and must be returned to the sea with a minimum of injury except when their retention is authorized by other applicable law.</p> <p>Groundfish species and species under this FMP for which the TAC has been achieved shall be treated in the same manner as prohibited species.</p>
Prohibited Species Catch (PSC) Limits	<p>The attainment of a PSC limit for a species will result in the closure of the appropriate fishery.</p> <p>Pacific halibut: Halibut mortality PSC limits are established annually in regulation; may be apportioned by season, regulatory area, gear type, and/or target fishery.</p>
Retention and Utilization Requirements	<p>Pollock: Roe-stripping is prohibited; see also Improved Retention/Improved Utilization Program (IR/IU).</p> <p>IR/IU: All pollock and Pacific cod must be retained and processed.</p>
Bycatch Reduction Programs	<p>Shallow water Flatfish: The Council will annually review the GOA fisheries that exceed a discard rate of 5% of shallow water flatfish, and may propose management measures to reduce bycatch in these fisheries.</p>
Fixed Gear Sablefish Fishery	<p>The directed fixed gear sablefish fisheries are managed under an Individual Fishing Quota program. The FMP specifies requirements for the initial allocation of quota share in 1995, as well as transfer, use, ownership, and general provisions.</p> <p>Annual Allocation: The ratio of a person's quota share to the quota share pool is multiplied by the fixed gear TAC (adjusted for the community development quota allocation - see below), to arrive at the annual individual fishing quota.</p> <p>Community Quota Share Purchases: Specified GOA coastal communities are eligible to hold commercial catcher boat sablefish quota share under the IFQ program.</p>
Delegated Authority	<p>Demersal shelf rockfish: Managed by the State of Alaska under Council oversight. The Council retains the responsibility of setting the demersal shelf rockfish harvest level.</p>
Flexible Authority	<p>The Regional Administrator of NMFS is authorized to make inseason adjustments through gear modifications, closures, or fishing area/quota restrictions, for conservation reasons, to protect identified habitat problems, or to increase vessel safety.</p>
Recordkeeping and Reporting	<p>Recordkeeping that is necessary and appropriate to determine catch, production, effort, price, and other information necessary for conservation and management may be required. May include the use of catch and/or product logs, product transfer logs, effort logs, or other records as specified in regulations.</p> <p>At-sea processor vessels: Catcher/processor vessels and mothership processors vessels may be required to submit check-in and check-out reports for any Federal statistical areas or the U.S. EEZ.</p>
Observer Program	<p>U.S. fishing vessels that catch groundfish in the EEZ, or receive groundfish caught in the EEZ, and shoreside processors that receive groundfish caught in the EEZ, are required to accommodate NMFS-certified observers as specified in regulations, in order to verify catch composition and quantity, including at-sea discards, and collect biological information on marine resources.</p>
Evaluation and Review of the FMP	<p>Management Policy: Objectives in the management policy statement will be reviewed annually.</p> <p>Essential Fish Habitat (EFH): The Council will conduct a complete review of EFH once every 5 years, and in between will solicit proposals on Habitat Areas of Particular Concern and/or conservation and enhancement measures to minimize potential adverse effects from fishing. Annually, EFH information will be reviewed in the "Ecosystems Considerations" chapter of the SAFE.</p>

3.2.6.3.2 Pacific Cod and Pollock

The GOA pollock and Pacific cod TACs will be allocated between the inshore and offshore components of industry in specific shares in order to lessen or resolve resource use conflicts and preemption of one segment of the groundfish industry by another, to promote stability between and within industry sectors and affected communities, and to enhance conservation and management of groundfish and other fish resources.

Definitions

Inshore component means the following three components of the industry:

1. Any shoreside processors as defined in federal regulations.
2. Any catcher/processor less than 125 ft LOA that has, less than 125' LOA that has an "inshore" endorsement on its Federal fisheries or Federal processor permit.
3. Any mothership or stationary floating processor that has an "inshore" endorsement on its Federal fisheries or Federal processor permit.

Offshore component means all processors not included in the definition of inshore component.

Inshore endorsements and operating restrictions

Annually, before operations commence, each mothership, floating processing vessel and catcher/processor vessel that intends to process GOA pollock or GOA Pacific cod harvested in an inshore directed fishery for those species must apply for and receive an inshore processing endorsement on its Federal fisheries or Federal processor permit. All shoreside processors are by definition included in the inshore component and are not required to apply for an inshore processing endorsement. Once an inshore processing endorsement is issued it is valid for the duration of the fishing year and cannot be rescinded. Processors that lack an inshore processing endorsement are prohibited from processing GOA pollock or GOA Pacific cod harvested in a directed fishery for processing by the inshore component. Catcher vessels may choose to deliver their catch to either or both components. A catcher/processor that is greater than or equal to 125 feet LOA may not receive an inshore endorsement.

Catcher/processers that hold an inshore processing endorsement are prohibited from harvesting or processing more than 126 mt (round weight) of pollock or GOA Pacific cod, in combination, during any fishing week. Motherships and floating processors that hold an inshore processing endorsement must process all GOA pollock and GOA Pacific cod harvested in a directed fishery for those species in a single geographic location inside the waters of the State of Alaska during a fishing year.

Allocations

One hundred percent of the allowed harvest of GOA pollock is allocated to inshore catcher/processers or to harvesting vessels that deliver their catch to the inshore component, with the exception that offshore catcher/processers, and vessels delivering to the offshore component, will be able to take pollock incidentally as bycatch in other directed fisheries. All pollock caught as bycatch in other fisheries will be attributed to the sector that processes the remainder of the catch.

Ninety percent of the allowed harvest of GOA Pacific cod is allocated to inshore catcher/processers or to harvesting vessels which deliver to the inshore component and to inshore catcher/processers; the remaining ten percent is allocated to offshore catcher/processers and harvesting vessels that deliver to the offshore

component. All Pacific cod caught as bycatch in other fisheries will be attributed to the sector which processes the remainder of the catch.

These allocations shall be made by subarea and period as provided in federal regulations implementing this FMP.

Figure 3-1 Regulatory Areas of the Gulf of Alaska.

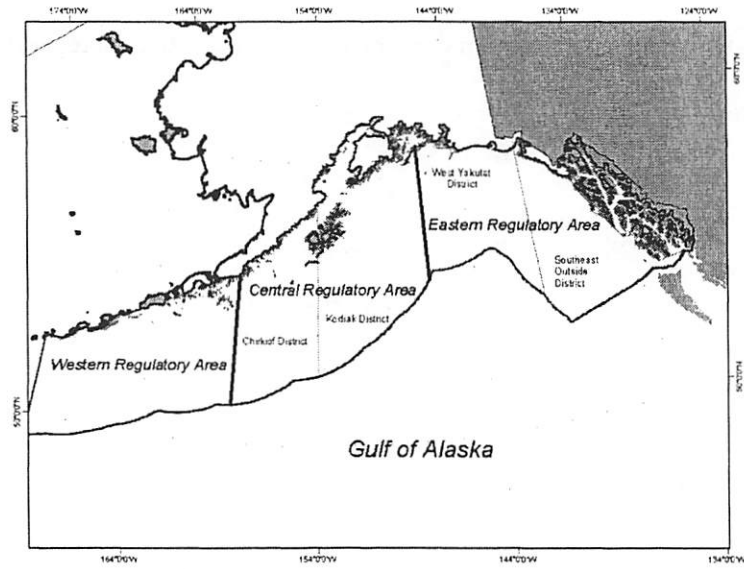


Figure 3-2 Sitka Pinnacles Marine Reserve.

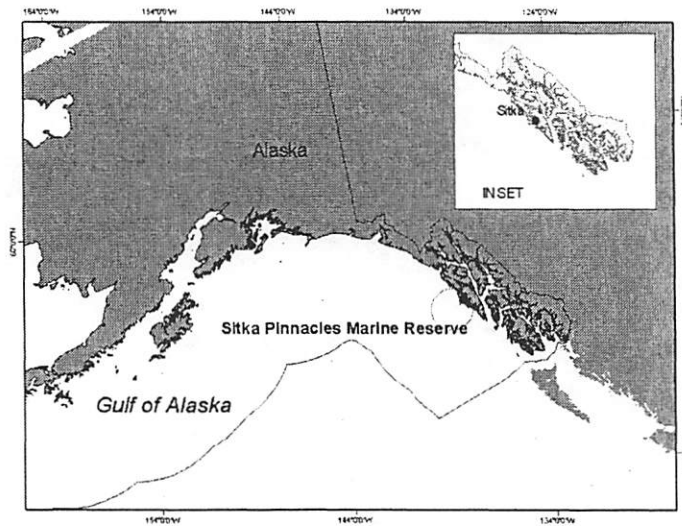


Figure 3-3 King Crab Closure Areas around Kodiak Island.

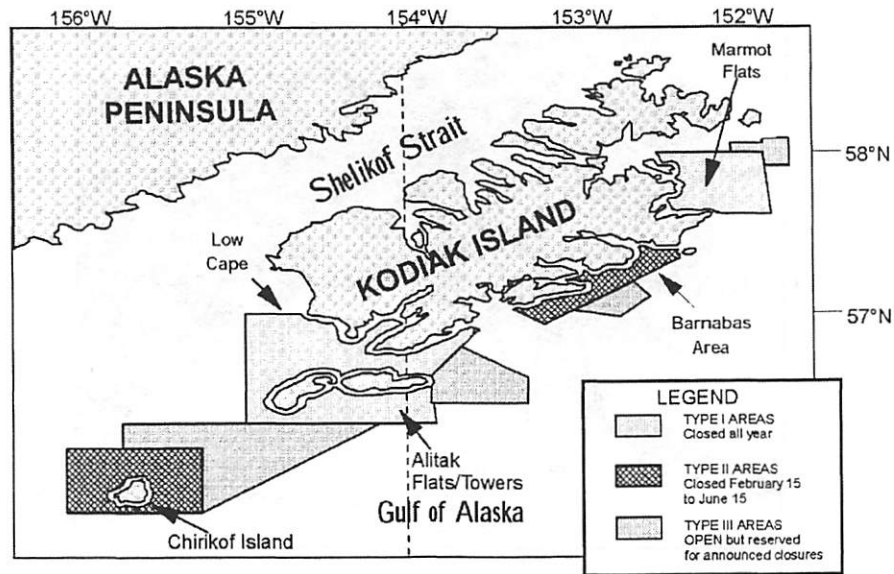


Figure 3-4 Cook Inlet non-pelagic trawl closure area.

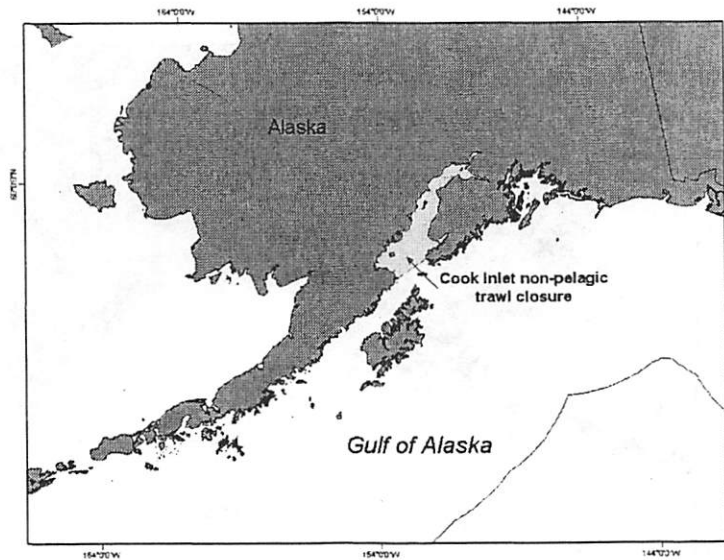


Figure 3-5 Southeast Outside trawl closure.

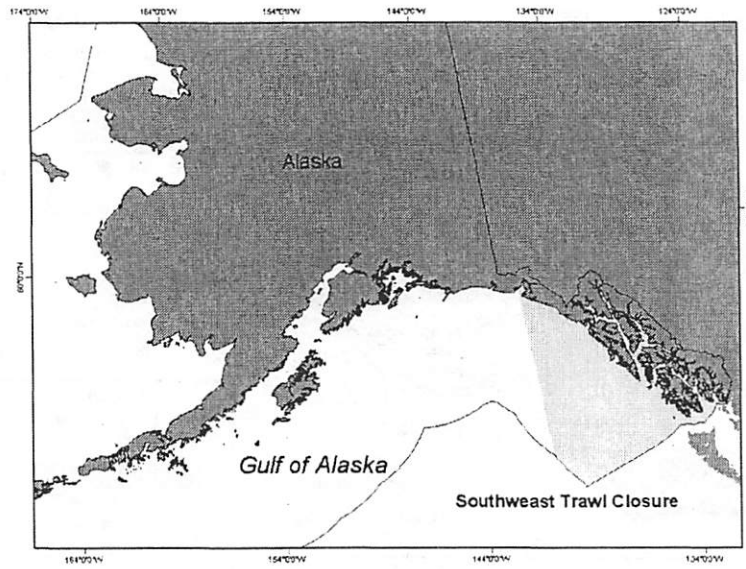


Figure 4-1 Bathymetric map of the Gulf of Alaska.

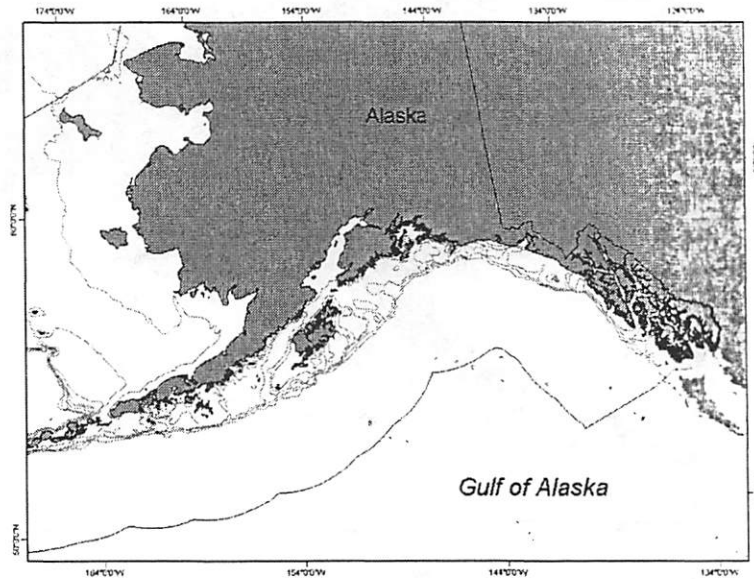
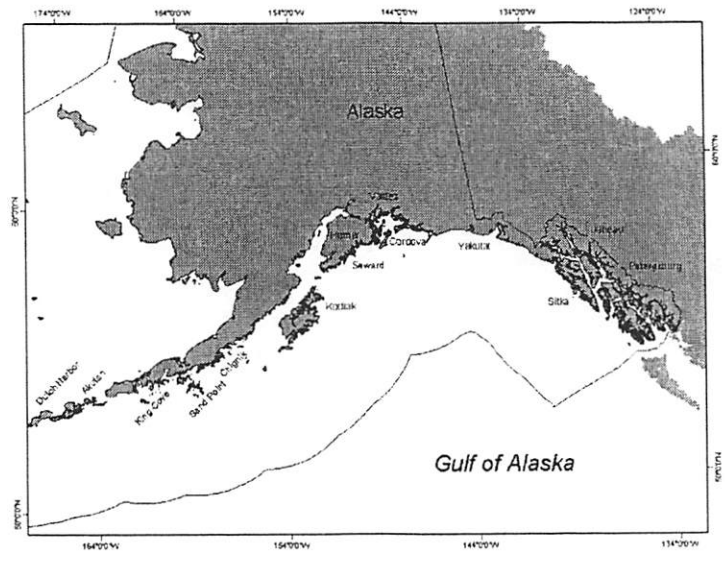


Figure 4-2 Gulf of Alaska fishing communities. NOTE: Not all communities represented.



the sum of single-species MSYs provides a poor estimate of MSY for the groundfish complex as a whole (Walters et al., in press) because biological reference points for single stocks, such as F_{MSY} , may change substantially when multi-species interactions are taken into account (Gislason 1999; Collic and Gislason 2001). Fishing mortality rates for prey species that are consumed by other marine predators should be conditioned on the level of predation mortality, which may change over time depending on predator population levels.

An ecosystem perspective suggests that the MSY of the groundfish complex may change if an environmental regime shift occurs or if the present mix of species is altered substantially. Also, as new data are acquired and as statistical methodology evolves over time, it is to be expected that estimates of MSY will change, even if the ecosystem has remained relatively stationary. Therefore, estimates of MSY contained in this section should be viewed in context, as historical estimates that guided development of the FMP but not necessarily as reflective of the best scientific information available currently.

3.2.3 Optimum Yield of the Groundfish Complex

The range of optimum yield specified in the FMP is 116,000-800,000 mt of groundfish for the target species and the "other species" categories, to the extent this can be harvested consistently with the management measures specified in this FMP. This range was established in 1987 based on the examination of historical and recent catches, recent determinations of ABC, and recent and past estimates of MSY for each major groundfish species. This derivation from historical estimates of MSY and fishery performance reflects the combined influence of biological, ecological, and socioeconomic factors. The end points of the range were derived as described below.

For the minimum value, 116,000 mt was approximately equal to the lowest historical groundfish catch during the 21-year period 1965-1985 (116,053 mt in 1971, ~~Table 4.1 GOA FMP October, 1994~~). In that year catches of pollock, Pacific cod and Atka mackerel were all at very low levels. Given the status of the groundfish resources and the present management regime, it was considered extremely unlikely that future total harvest would fall below this level. Thus, the TACs must be established so as to result in a sum of at least 116,000 mt.

The upper end of the OY range, 800,000 mt, was derived from MSY information. The MSY for all species of groundfish (excluding the other species category) between 1983 and 1987 ranged from 804,950 mt in 1983 to 1,137,750 mt for the 1987 fishing year. The average MSY over the five-year period was 873,070 mt. Therefore, the upper end of the range is approximately equal to 92% of the mean MSY for the five-year period. The ABC summed for all species ranged from 457,082 mt in 1985 to 814,752 mt in 1987. Most of the variation in the ABC and catch over the five-year interval resulted from changes in the status of two species: pollock and flounder. Pollock ABC ranged from 112,000 mt in 1987 to 516,600 mt in 1984; while flounder ABC ranged from 33,500 mt in 1985 to 537,000 mt in 1987. Therefore, the 800,000 mt upper end of the OY range was selected in consideration of the volatility in pollock and flounder ABC, and the potential for harvesting at MSY.

The OY range is not likely to have any significant detrimental impact on the industry. On the contrary, specification of OY as a constant range helps to create a stable management environment in which the industry can plan its activities consistently, with an expectation that each year's total groundfish catch will be at least 116,000 mt. The OY range encompasses the annual catch levels taken in the period immediately prior to its implementation, during which the fishery operated profitably.

3.6.1 Prohibited Species

Prohibited species identified in this FMP are Pacific halibut, Pacific herring, Pacific salmon, steelhead trout, king crab, and Tanner crab. Species identified as prohibited must be avoided while fishing groundfish and must be immediately returned to the sea with a minimum of injury when caught and brought aboard, except when their retention is authorized by other applicable law.

Groundfish species and/or species groups under this FMP for which the ~~quote~~ ^{TAC} has been reached shall be treated in the same manner as prohibited species.

3.6.1.1 Prohibited Species Donation Program

The Prohibited Species Donation Program authorizes the distribution of specified prohibited species, taken as bycatch in the groundfish trawl fisheries off Alaska, to economically disadvantaged individuals through a NMFS-authorized distributor selected by the Regional Administrator in accordance with regulations that implement the FMP. The program is limited to the following species:

1. Pacific salmon
2. Pacific halibut

3.6.1.2 Time and Area Closures to Reduce Bycatch Rates of Prohibited Species

The Secretary, after consulting with the Council, may identify and establish, by regulatory amendment, time/area closures to reduce bycatch rates of prohibited species. Closures of all or part of an area would require a determination by the Secretary that the closure is based on the best available scientific information concerning the seasonal distribution and abundance of prohibited species and bycatch rates of prohibited species associated with various directed groundfish fisheries or gear types. A time/area closure will be limited to the minimum size and duration, which the Secretary determines are reasonably necessary to accomplish the intent of the closure. Any time/area closure would be based upon a determination that it is necessary to prevent:

1. a continuation of relatively high bycatch rates of prohibited species with an area;
2. the take of an excessive share of prohibited species catch limits or bycatch allowances by vessels fishing within an area;
3. the closure of one or more directed fisheries for groundfish due to excessive prohibited species bycatch rates that occur in a specified fishery operating within an area; or
4. the premature attainment of specified prohibited species catch limits or bycatch allowances and associated foregone opportunity for vessels to harvest available groundfish.

3.6.2 Prohibited Species Catch Limits

Prohibited species catch (PSC) is nonretainable catch. It can take the form of a prohibited or nongroundfish species and/or a groundfish species for which TAC has been achieved that is captured incidentally in groundfish fisheries. A PSC limit is an apportioned, nonretainable amount of fish provided to a fishery for bycatch purposes. The attainment of a PSC limit for a species will result in the closure of the appropriate fishery.

apportionments thereof among target fisheries and gear types, and an economic analysis of the effects of the apportionments.

5. December Council meeting. While recommending final groundfish harvest levels, the Council reviews public comments, takes public testimony, and makes final decisions on apportionments of PSC limits among fisheries and seasons, using the factors set forth under (2) above concerning PSC limits, and concerning seasonal allocations of PSC limits. The Council will provide recommendations, including no change for the new fishing year, to the Secretary of Commerce for review and implementation.
6. As soon as practicable after the Council's December meeting, the Secretary will publish the Council's final recommendations as a notice of final harvest specifications in the *Federal Register*. Information on which the final harvest specifications are based will also be published in the *Federal Register* or otherwise made available by the Council.

3.6.3 Retention and Utilization Requirements

3.6.3.1 Utilization of Pollock

Roe-stripping of pollock is prohibited, and the Regional Administrator is authorized to issue regulations to limit this practice to the maximum extent practicable. It is the Council's policy that the pollock harvest shall be utilized to the maximum extent possible for human consumption.

3.6.3.2 Improved Retention/Improved Utilization Program

Minimum retention requirements

All vessels participating in the GOA groundfish fisheries are required to retain all catch of pollock and Pacific cod when directed fishing for those species is open, regardless of gear type employed and target fishery. When directed fishing for pollock and Pacific cod is prohibited, retention of those species is required up to any maximum retainable amount in effect for these species, and these retention requirements are superseded if retention of pollock and Pacific cod is prohibited by other regulations.

No discarding of whole fish of these species is allowed, either prior to or subsequent to that species being brought on board the vessel. ^{except as permitted in the regulations} At-sea discarding of any processed product from pollock and Pacific cod is also prohibited, unless required by other regulations.

Minimum utilization requirements

All pollock and Pacific cod caught in the GOA must be either 1) processed at sea subject to minimum product recovery rates and/or other requirements established by regulations implementing the FMP, or 2) delivered in their entirety to onshore processing plants for which similar processing requirements are implemented by State regulations.

3.6.3.3 Size Limits

A commercial size limit for a particular species group may be necessary to afford the opportunity for the species to reproduce or to direct fishing toward an optimal size given existing markets and processing capabilities. Should the Council desire a size limit, the FMP will require an amendment specifying a specific length and the supporting rationale for the limit.

3.6.4 Bycatch Reduction Incentive Programs

3.6.4.1 Prohibited Species Catch

The Secretary of Commerce, after consultation with the Council, may implement by regulation measures that provide incentives to individual vessels to reduce bycatch rates of prohibited species for which PSC limits are established under Section 3.6.2. The intended effect of such measures is to increase the opportunity to harvest groundfish TACs before established PSC limits are reached by encouraging individual vessels to maintain average bycatch rates within acceptable performance standards and discourage fishing practices that result in excessively high bycatch rates.

3.6.4.2 Shallow Water Flatfish Bycatch

The Council will annually review the GOA fisheries that exceed a ^{discard} bycatch rate of 5% for shallow water flatfish. At its discretion, the Council may propose to the Secretary new management measures to reduce bycatch, if a fishing sector exceeds this rate.

3.7 Share-based Programs

This section describes the share-based program in place for the fixed gear sablefish fishery in the Gulf of Alaska.

3.7.1 Fixed Gear Sablefish Fishery

The directed fixed gear sablefish fishery is managed under an Individual Fishing Quota (IFQ) program, implemented in 1994-1995. This form of limited entry replaced the open access fisheries for sablefish in the GOA.

3.7.1.1 Definitions

For purposes of Section 3.7.1, the following definitions of terms apply:

Person means any individual who is a citizen of the United States or any corporation, partnership, association, or other entity (whether or not organized or existing under the laws of any state) that meets the requirements set forth in 46 CFR Part 67.03, as applicable.

An individual means a natural person who is not a corporation, partnership, association, or other entity.

Quota shares (QS) are equal to a person's fixed gear landings (qualifying pounds) for each area fished.

Quota Share Pool is the total amount of quota share in each management area. The quota share pool may change over time due to appeals, enforcement, or other management actions.

Individual Fishing Quota (IFQ) means the annual poundage of fish derived by dividing a person's quota share into the quota share pool and multiplying that ratio by the annual fixed gear TAC for each management area.

as well as the fishing industry that utilize them. This information is also used to judge the effectiveness of regulations guiding these decisions. The Council will recommend changes to regulations when necessary on the basis of such information.

The need for the Council and NMFS to consider the best available information is explicit in the goals and objectives as established by the Council and contained in the FMP. They are also explicit in the Magnuson-Stevens Act, Executive Order 12866, the Regulatory Flexibility Act, the National Environmental Policy Act, and other applicable law. The Secretary, therefore, will require segments of the fishing industry to keep and report certain records as necessary to provide the Council and NMFS with the needed information to accomplish these goals and objectives. The Secretary may implement and amend regulations at times to carry out these requirements after receiving Council recommendations to do so, or at other times as necessary to accomplish these goals and objectives. Regulations will be proposed and implemented in accordance with the Administrative Procedure Act, the Magnuson-Stevens Act, and other applicable law.

Information on catch and production, effort, and price

In consultation with the Council, the Secretary may require recordkeeping that is necessary and appropriate to determine catch, production, effort, price, and other information necessary for conservation and management of the fisheries. Such requirements may include the use of catch and/or product logs, product transfer logs, effort logs, or other records. The Secretary may require the industry to submit periodic reports or surveys of catch and fishery performance information derived from the logs or other recordkeeping requirements. Recordkeeping and reporting would be required of operators of catcher vessels, catcher/processor vessels, mothership processor vessels, and by responsible officers of shoreside processor plants. Such requirements will be contained in regulations implementing this FMP.

Information on catching and/or processing activity 3.9.1.1 At-sea Processor Vessels

The Secretary may require catcher/processor vessels and mothership processor vessels to submit check-in and check-out reports for any Federal statistical area and the U.S. exclusive economic zone. Such requirements will be contained in regulations implementing this FMP.

3.9.2 Observer Program

The Council and NMFS must have the best available biological and socioeconomic information with which to carry out their responsibilities for conserving and managing groundfish resources. To address management and scientific information needs, NMFS, in consultation with the Council, will require U.S. fishing vessels that catch groundfish from the EEZ or receive groundfish from the EEZ, and shoreside processors that receive groundfish caught in the EEZ, to accommodate observers certified by NMFS. Provisions of the North Pacific Groundfish Observer Program will be developed in consultation with the Council and established in regulations. The purpose of the groundfish observer program is to verify catch composition and quantity, including those discarded at sea, and collect biological information on marine resources.

(*Hippoglossoides elassodon*); rex sole (*Glyptocephalus zachirus*); and, in deep water, the Dover sole (*Microstomus pacificus*).

The most diverse species in the GOA is the rockfish group (genus *Sebastes* and *Sebastolobus*). Two species of *Sebastolobus* and at least 32 species of *Sebastes* have been identified in this area. Several species of rockfish are of significant commercial interest, including the Pacific ocean perch (*S. alutus*), shortraker rockfish (*S. borealis*), rougheye rockfish (*S. aleutianus*), dusky rockfish (*S. ciliatus*), northern rockfish (*S. polycipinus*), and yelloweye rockfish (*S. ruberrimus*). Pacific ocean perch was the subject of a substantial foreign and domestic trawl fishery from the 1960s through the mid-1980s. For management purposes, rockfish are classified into four distinct assemblages. Thymyhead rockfish are managed independently, and *Sebastes* rockfish are classified into three assemblages based on their habitat and distribution. These assemblages are:

Slope Assemblage	Demersal Shelf Assemblage	Pelagic Shelf Assemblage
Aurora rockfish (<i>S. aurora</i>)	Canary Rockfish (<i>S. pinnipor</i>)	Dusky rockfish (<i>S. ciliatus</i>) Dusky rockfish (<i>S. ciliatus</i>) Widow rockfish (<i>S. antoniulus</i>)
Blackgill rockfish (<i>S. melanostomus</i>)	China Rockfish (<i>S. nebulosus</i>)	Yellowtail rockfish (<i>S. flaviventris</i>)
Bocaccio (<i>S. paucispinus</i>)	Copper rockfish (<i>S. caurinus</i>)	
Chillipepper rockfish (<i>S. goodii</i>)	Oullback rockfish (<i>S. maliger</i>)	
Darkblotch rockfish (<i>S. crameri</i>)	Redbanded rockfish (<i>S. babcocki</i>)	
Greensitped rockfish (<i>S. elongatus</i>)	Rosethorn rockfish (<i>S. helvomaculatus</i>)	
Harlequin rockfish (<i>S. variegatus</i>)	Tiger Rockfish (<i>S. nigrocinctus</i>)	
Northern rockfish (<i>S. polycipinus</i>)	Yelloweye rockfish (<i>S. ruberrimus</i>)	
Pacific Ocean Perch (<i>S. alutus</i>)		
Pygmy rockfish (<i>S. wilsoni</i>)		
Redstripe rockfish (<i>S. protiger</i>)		
Rougheye rockfish (<i>S. aleutianus</i>)		
Sharpchin rockfish (<i>S. zaccantus</i>)		
Shortbelly rockfish (<i>S. jordani</i>)		
Shortraker rockfish (<i>S. borealis</i>)		
Silvergray rockfish (<i>S. brevispinus</i>)		
Spillnose rockfish (<i>S. diploproa</i>)		
Stripetail rockfish (<i>S. saxicola</i>)		
Vermilion rockfish (<i>S. miniatus</i>)		
Yellowmouth rockfish (<i>S. roedi</i>)		

The four most valuable slope species, Pacific ocean perch, shortraker, rougheye, and northern rockfish, have been managed separately from the remainder of the slope assemblage since the early 1990s, to prevent possible overfishing. A rebuilding plan was put into place in 1995 for Pacific ocean perch, to address population declines resulting in a biomass well below historical levels. The population has since increased in abundance and is now at a level above $B_{0.95}$.

Atka mackerel, a member of the greenling family (*Hexagrammidae*), supported a targeted foreign fishery in the Central regulatory area in the 1970s, but abundance of this species has declined to negligible quantities. The decreased abundance of Atka mackerel may be due to westward shift in the distribution of the stocks, to excessive fishing mortality, or to successive years of poor recruitment. Length frequency information suggests that the population consists mostly of large fish. The absence of catches in the Eastern and Central

Yakutat and East Yakutat/Southeast Outside, for some species. Summary information for the slope, pelagic shelf, and demersal shelf rockfish assemblages is provided below.

Slope rockfish - In the early 1990s, the slope assemblage was divided into four management subgroups: Pacific ocean perch (POP), shortraker/rougheye rockfish, northern rockfish, and all other species of slope rockfish, in order to protect the most sought-after species in the assemblage from possible overfishing. The primary commercial rockfish species in the GOA is POP. A plan for rebuilding POP was implemented in 1995 after the population declines resulted in a biomass level at well below historical levels. Relatively strong recent year-classes appear to have contributed to

increased abundance, and the spawning stock now exceeds the B_{MSY} level. The majority of the exploitable biomass of the northern rockfish is located in the Central GOA. Gulf-wide catch has ranged from 2,947 mt to 5,760 over the last ten years, with annual ABCs and TACs remaining fairly constant (between 4,880 mt and 5,760 mt) over the same period. Shortraker and rougheye rockfish inhabit a narrow band along the upper continental slope at depths of 300-500m, and often co-occur in trawl or longline hauls. They are similar in appearance and can be difficult to distinguish visually, which is why they are grouped together as a management category. With the exception of hartequin rockfish, the 17 species that comprise the "other slope" rockfish assemblage are at the northern edge of their ranges, and are most abundant in the eastern GOA. Actual catch is considerably less than the ABC, particularly since the 1998 trawl closure east of 140° W. longitude.

Projected biomass and ABC (mt) of GOA slope rockfish, 2004.	
Species	ABC
Pacific ocean perch	13,340
shortraker/rougheye	73,000
northern	95,160
other slope	89,480
	3,900

Pelagic shelf rockfish - The PSR assemblage in the GOA includes those rockfish on the continental shelf that typically exhibit a midwater, schooling behavior. A proposal to reorganize to separate dusky rockfish into two distinct species - an inshore-shallow water, dark-colored variety and an offshore, deeper-water, light-colored variety. Most information is available on the light-colored dusky rockfish. In 1998, black rockfish and blue rockfish were removed from federal management as part of the pelagic shelf complex, and are now managed by the State of Alaska. A proposal to reorganize to separate toward blue rockfish to Stock Management also.

Demersal shelf rockfish - The DSR assemblage is comprised of seven species of shallow, nearshore, bottom-dwelling rockfishes. Yelloweye rockfish accounts for 90% of all DSR landings. ABC recommendations for the entire assemblage are keyed to adult yelloweye abundance. Since 1991, the DSR assemblage has been managed by the State of Alaska under Council oversight, although the harvest level is still set by the Council and NMFS. DSR were excluded from the Council license limitation program because ADF&G planned to initiate an analysis for a separate DSR license limitation program. As of 2004, full retention of all DSR caught off Southeast Alaska is required.

Projected biomass and ABC (mt) of GOA demersal shelf rockfish.	
Year	ABC
2002	15,615
2003	17,510
2004	20,168
	450

4.3.2 Commercial Fishery

This section contains a general discussion of the commercial groundfish fisheries in the GOA. The information in this section comes from the annually (or biennially for some species) updated *Stock Assessment and Fishery Evaluation* (SAFE) report (NPFMC 2003), in particular the *Economic Status of the Groundfish Fisheries off Alaska* appendix (Hlatt et al. 2003). This document is available on the Council website, or by request from the Council office. Additionally, catch data is also reported on the NMFS Alaska region website. Website addresses for the Council and NMFS are included in Chapter 6.

In 2002, 824 vessels participated in the groundfish fisheries in the GOA. Of these, 642 were hook-and-line vessels, 131 pot vessels, and 123 trawl vessels. Total groundfish catch was 165,000 mt, which represents approximately 8 percent of the total groundfish catch off Alaska. Pollock and Pacific cod represented the largest part of the harvest in terms of weight. Total ex-vessel value of the GOA groundfish catch in 2002 was \$137.3 million, with sablefish and Pacific cod accounting for three quarters of the total ex-vessel value.

The domestic pollock fishery began in the GOA in 1976 when a fleet of three trawlers from Petersburg trawled for pollock during the winter months. Approximately 60 mt of pollock were landed to shore-side processors. Pelagic trawl gear is the principle gear type that is utilized in the pollock fishery. A large majority of the pollock fishery concentrates in the Central regulatory area, although in 2002 approximately 20 percent of the pollock catch was landed in the Western area. Since 1998, full retention of pollock is required under the *Improved Retention/Improved Utilization* (IR/IU) program. In 2002, the ex-vessel value of pollock was \$45.3 million.

Pacific cod have been landed domestically since the late 1950s and early 1960s, however the fishery did not really begin to develop until 1978. Unlike most species, which are harvested predominantly by one type of gear accounting typically for 90 percent or more of the catch, Pacific cod is taken by trawl, hook-and-line, and pot gear types. In 2002, 35 percent of the catch was taken by vessels using hook-and-line gear, and 47 percent by trawl gear, with the remainder by pot vessels. As with pollock, since 1998, full retention of Pacific cod is required in the GOA under the IR/IU program. In 2002, the ex-vessel value of Pacific cod was \$45.3 million.

The U.S. longline fishery for sablefish began expanding in 1982 in the GOA and in 1988, harvested all sablefish taken in Alaska, except minor joint venture catches. Following the domestication of the fishery, the previously year-round season in the GOA began to shorten in 1984. By the late 1980s, the average season length decreased to one to two months, and was even as short as 10 days in some areas. In 1995 an Individual Fishing Quota (IFQ) program was implemented for the hook-and-line sablefish fishery, along with a season running from March to November. The sablefish IFQ fishery runs concurrently with the halibut IFQ fishery. IFQ management has increased fishery catch rate and decreased the harvest of immature fish, as well as increasing efficiency resulting in a savings in operating costs averaging \$3.1 million annually. The directed sablefish fishery is primarily a hook-and-line fishery, although sablefish are also caught incidentally during directed trawl fisheries for species groups such as rockfish and deepwater flatfish. In 2002, the ex-vessel value of sablefish landed in the GOA had an ex-vessel value of \$37.6 million.

The flatfish fishery also became entirely domestic in 1988. Since that time, the majority of the flatfish harvest has occurred on the continental shelf and slope east of Kodiak Island, in the Central regulatory area. The flatfish assemblage is managed in 5 target categories: deep water flatfish complex, rex sole, shallow water flatfish complex, flathead sole, and arrowtooth flounder. Arrowtooth flounder in the GOA is a species of high abundance but low commercial value. The ex-vessel value of all flatfish in the GOA in 2002 was \$3.5 million, for 34,100 mt (of which 21,200 mt was arrowtooth flounder). The flatfish resources were lightly to moderately harvested in 2002, compared to their acceptable biological catch levels. The flatfish fisheries have been and are likely to continue to be limited by the potential for high bycatch of Pacific halibut, which

can result in target fishery closure due to reaching the halibut PSC limit prior to achieving the target species TAC. Since 2003, full retention of shallow-water flounder is required under the IFU program. ^{2007 - All vessels of 27 ft or less TACs have been removed from the GOA VED as ex-vessel}

The domestic fishery for rockfish became important in 1985, and expanded each year until full domestication in 1991. Pacific ocean perch was initially the primary target, however in the early 1990s, overall catch of slope rockfish diminished due to more restrictive management policies intended to promote rebuilding of POP stocks. During this time, catches of lower valued shelf rockfish, such as dusky rockfish, increased. Since 1996, increasing POP biomass has once again raised slope rockfish TACs. In 2002, slope rockfish accounted for 78 percent of GOA rockfish catch. Since the late 1990s, shore-based trawlers delivering to Kodiak processors have begun taking around 50 percent of the POP catch in the Central regulatory area, although catcher/processors continue to dominate catch in the Western and Eastern areas. Historically, bottom trawls have accounted for nearly all the commercial harvest of POP, however in recent years, a sizable portion of the catch has been taken by pelagic trawls. The 1998 trawl closure off Southeast Alaska east of 140° W. longitudes significantly affected all rockfish catch in that area. The demersal shelf rockfish fishery is managed by the State of Alaska with Council oversight. It occurs exclusively in the Southeast Outside district. Price per pound has increased significantly over time. Since 2004, full retention of demersal shelf rockfish is required.

The directed state fishery developed in 2003 in the Western and Central regulatory areas, around Kodiak Island, while skates were still managed under a group TAC as part of the "other species" category. In response to conservation and management concerns, skates were moved to the target species category beginning in 2004. Skate catch in 2003 totalled 3,300 mt. Vessels using both hook-and-line and trawl gear retained skate catch in 2003.

The discards of groundfish in the groundfish fishery have received increased attention in recent years by NMFS, the Council, Congress, and the public at large. The discard rate is the percent of total catch that is discarded. For the GOA groundfish fisheries as a whole, the annual discard rate for groundfish decreased from 18.6 percent in 1994 (total discards, 43,500 mt) to 13.9 percent in 2002 (total discards, 23,100 mt).

The bycatch of Pacific halibut, crab, Pacific salmon, and Pacific herring has been an important management issue in the commercial fishery for more than twenty years. The retention of these species was first prohibited in the foreign groundfish fisheries, to ensure that groundfish fishers had no incentive to target on these species. Estimates of bycatch of these prohibited species are assessed annually in the *Stock Assessment and Fishery Evaluation* report. Additionally, management measures such as prohibited species catch limits and time and area closures regulate bycatch in the groundfish fisheries.

An extensive at-sea observer program was developed for the foreign fleets and then extended to the domestic fishery once it had all but replaced foreign participation. The North Pacific Groundfish Observer Program resulted in fundamental changes in the nature of the bycatch program. First, by providing good estimates of total groundfish catch and non-groundfish bycatch by species, it eliminated much of the concern that total fishing mortality was being underestimated due to fish that were discarded at sea. Second, it made it possible to establish, monitor, and enforce the groundfish quotas in terms of total catch as opposed to only retained catch. For groundfish fisheries, this means that both retained catch and discarded catch are counted against TACs. Third, it made it possible to implement and enforce bycatch quotas for the non-groundfish species that by regulation had to be discarded at sea. Finally, it provided extensive information that managers and the industry could use to assess methods to reduce bycatch and bycatch mortality. In summary, the observer program provided fishery managers with the information and tools necessary to prevent bycatch from adversely affecting the stocks of the bycatch species. Therefore, bycatch in the groundfish fisheries is principally not a conservation program, although it can be an allocation problem.

4.3.3 Subsistence Fishery ^{The earliest fisheries for groundfish in the GOA were the native subsistence fisheries.}

The coastal native peoples of Alaska have historically relied heavily upon marine resources for their subsistence. The Aleuts and Koniags utilized not only marine mammals and salmon extensively, but also other fish species such as halibut, cod, flounders, greenling, and smelt. Collins (1945) described the jig fishery for Alka mackerel in inshore waters, the drying of capelin and the taking of sculpins for human consumption. Halibut, turbot, and cod were fished in depths to 60 fathoms using line made of sinew or kelp, V-shaped wooden and bone hooks, floats of carved wood or inflated seal stomachs, and stone anchors (Hrdlicka, 1945). Clark (1974) and DeLaguna (1964) describe the use of similar techniques in the Kodiak and Yakutat areas, respectively. In addition to salmon, the Tlingit and Haida of the Yakutat and Southeastern areas of Alaska relied most heavily upon halibut, herring, and smelt. In the early protohistoric period, much of the fish was eaten raw or boiled or broiled, cod being one species which was always cooked before consumption.

Today, the use of fish for subsistence, with the exception of salmon and halibut, is considerably less than during the period prior to the establishment of local retail stores and easily accessible packaged foods. Of the groundfish species, cod and rockfish are the most extensively utilized, with flounders and greenling as lesser contributors. Southcentral Alaska has a much lower level of subsistence use than other areas of the GOA (NMFS 2004).

Subsistence resource use by residents of groundfish communities in the Alaska Peninsula and Aleutian Islands (Unalaska, Akutan, Sand Point, and King Cove) ranges from about 200 to over 450 pounds per capita. Groundfish ranges from about 4 to 9 percent of total subsistence resource consumption, primarily cod and rockfish. Residents of the City of Kodiak are reported to harvest and consume about 151 pounds of subsistence resource per capita, and groundfish average about 8 percent of the total per capita subsistence consumption (12 pounds per capita), with cod, rockfish, and greenling as primary species. In Southeast Alaska, specifically the communities of Petersburg, Sitka, and Yakutat, total subsistence resource consumption ranges between about 200 and 400 pounds per capita, with groundfish ranging between 1 and 5 percent of the total annual consumption, and the primary species flounder, cod, rockfish, and greenling (NMFS 2004).

4.3.4 Recreational Fishery

In most areas of the state, groundfish, except rockfish, are not highly regarded as sportfish. Relatively minor recreational fisheries for flounder, Pacific cod, and greenling exist near coastal population centers. However, these fisheries account for very few recreational fishing days when compared with the primary sport fisheries for salmon, steelhead trout, charr, and halibut.

Based upon Alaska Department of Fish and Game Sport Fish Division data, it appears that recreational use of rockfish and Pacific cod accounted for 4 percent of all sport fish harvest in Alaska in 2000, the latest data currently available. Rockfish made up the majority of this catch with 131,628 fish harvested, and 4,605 of Pacific cod. In the same year, halibut sport landings, statewide, were estimated at 403,280 fish, approximately 12 percent of total harvest (the amount of halibut harvested by sport fishing was the third largest in 2000, after coho and sockeye salmon) (Walker et al. 2003).

Recreational use of groundfish has increased since 1990, when rockfish harvest represented only 2 percent of total Alaska sportfish harvest. Virtually all of the sport catch is taken in the Southeast and Southcentral regions of the state, and is associated with the larger population centers (Walker et al. 2003). However,

on the national website. Also, NMFS produces an annual report to Congress on the status of U.S. fisheries, which can be accessed from this website.

6.2 Management and Enforcement Considerations

This section provides information about management and enforcement of the groundfish fisheries off Alaska. Management and enforcement responsibilities include the following:

- Data collection, research, and analysis to prepare annual stock assessments;
- The annual groundfish specifications process through which TAC limits and prohibited species catch (PSC) limits are established;
- The ongoing process of amending the FMPs and regulations to implement fishery management measures recommended by the Council or NMFS;
- Monitoring of commercial fishing activities to estimate the total catch of each species and to ensure compliance with fishery laws and regulations;
- Actions to close commercial fisheries once catch limits have been reached; and
- Actions taken by NMFS Enforcement, the U.S. Coast Guard (USCG), and NOAA General Counsel to identify, educate, and, in some cases, penalize people who violate the laws and regulations governing the groundfish fisheries.

Management of the groundfish fisheries in the GOA and enforcement of management measures governing those fisheries comprise a complex system for overseeing fisheries that range geographically over an extensive area of the Gulf of Alaska and North Pacific Ocean.

NMFS manages the fisheries off Alaska based on TAC amounts for target species and PSC amounts for species that may not be retained. The TAC and PSC amounts are further subdivided by gear type, area, and season. As the complexity of the management regime has grown, the number of TAC and PSC subdivisions has grown as well. For example, in 1995 for the BSAI there were 40 TAC allocations, 38 PSC allocations and two CDQ allocations. In 2003 for the BSAI, there were 152 TAC allocations, 78 PSC allocations, and 34 CDQ allocations. Each allocation represents a possible need for NMFS to take management actions, such as closing fisheries, reallocating incidental catch amounts, or investigating overages. When a directed fishery in one area is closed, the boats that participated in the fishery often move to another area or change to another target. This, in turn, often leads to the need for additional management actions.

Though the number of allocations has increased, the quantity of fish available for these allocations has not, and NMFS is required to manage increasingly small blocks of fish. To do this adequately requires the use of increasingly sophisticated catch-monitoring tools, such as observer coverage, electronic reporting, vessel monitoring systems (VMS), and the use of at-sea scales. Though these tools increase the quantity, quality, and timeliness of the data available to NMFS management, they also increase the demands on staff to effectively make use of a larger and more complex data system.

Current fishery management recognizes that a meaningful enforcement program must accompany management measures for them to be effective. As management becomes more complex, the difficulty of adequately enforcing the regulations grows. As the size and complexity of the regulatory environment increases, the burden on enforcement personnel to fully understand the nuances and implications of

Extended the inshore/offshore allocations for the GOA.

Amendment 62 is pending

Amendment 63 is pending

Amendment 64 implemented in 2003:

Changed recordkeeping and reporting requirements for the IFQ program.

Amendment 65 was withdrawn ~~not submitted~~.
April 30.

Amendment 66 implemented 2004:

Established a community quota share purchase program for the IFQ sablefish fishery.

Amendments 67-69 are not assigned

Amendment 70 was withdrawn ~~not submitted~~.

Amendment 71 is unassigned

Amendment 72 is pending ~~was approved by the Council in April 2003:~~

1. Reduced shallow water TACs from the IFQ program
2. Created an annual review for fisheries that exceed a discard rate of 5% of shallow water flatfish
Amendment 73 is pending, revised Amendment 55.
would revise definitions of EPR and HAPC.

Amendment 74, implemented in 2004: August 27, 2004, revised Amend 15.
Revised management policy and objectives.

Amendment 75, is pending

Housekeeping amendment to reorganize and update the FMP.

* Data is collected for selected species of geographically dispersed breeding sites along the entire coastline of the state. Sites are scheduled for annual monitoring while others are revisited every 2 years. Although trends at sampling plots are reasonably well known at particular colonies, overall

Appendix I Important Habitat for non-FMP Species

DRAFT GOA FMP
distinguish these natural fluctuations from potential human-caused fluctuations requires reasonably accurate measurements of several parameters over a long time period and in many different areas. Although the United States Fish and Wildlife Service (USFWS) surveys a number of large seabird colonies every year, present population estimates for most species are not precise enough to detect anything but the largest fluctuations in numbers. This is especially true for species that do not nest in dense concentrations. For some species, like the burrow and crevice-nesting alcid and storm-petrels, field methods for censusing populations are not available and require additional budgetary support for development (Tringali et al. 2000). Many species that are monitored are present in an annual cycle, but are mostly present in the same areas at the same time of year. Seabirds can interact with fisheries in a number of direct and indirect ways. Direct effects occur at the time and place as the fishery action. Seabirds are attracted to fishing vessels to feed on prey chummed up in the boat's wake, escaping fish from trawl nets, baited hooks of longline vessels, and offal discharged from trawl, pot, and longline vessels. In the process of feeding, seabirds sometimes come into contact with fishing gear and are caught incidentally. A direct interaction is usually recorded as the injury or killing of a seabird and is referred to as an "incidental take". Information on the numbers of birds caught incidentally in the various gear types comes from the North Pacific Groundfish Observer Program (Observer Program) and is summarized in the seabird section of "Ecosystem Considerations for 2003", report NPFMC-2002, Tables 8-9-11 and 12.

Another direct fishery effect is the striking of vessels and fishing gear by birds in flight. Some birds fly away without injury but others are injured or killed and are thus considered incidental take. The Observer Program does not collect data on vessel strikes in a systematic way but there are some records of bird-strikes that have been collected on an opportunistic basis. These sporadic observations of vessel strikes from 1993-2000 have been entered into the Observer Notes Database, which is maintained by the USFWS, but have only received preliminary statistical analysis (seabird section of "Ecosystem Considerations for 2003", NPFMC 2002). Indirect effects refer to either positive or negative impacts on the reproductive success or survival of seabirds that may be caused by the fishery action but are separated in time or geographic location. The indirect effect which has received the most attention is the potential impact of fisheries competition or disturbance on the abundance and distribution of prey species that seabirds depend on, thus affecting seabird foraging success. Of particular note would be those effects on breeding piscivorous (fish-eating) seabirds that must meet the food demands of growing chicks at the nest colony. Reproductive success in Alaskan seabirds is strongly linked to the availability of appropriate fish (Piat and Roseman 1998, Suryan et al. 1998a, Suryan et al. 2000, Golet et al. 2000). Although seabird populations remain relatively stable during occasional years of poor food and reproduction, a long-term scarcity of forage fish leads to population declines. Other potential indirect effects on seabirds include physical disruption of benthic foraging habitat by bottom trawls, consumption of processing wastes and discarded offal, contamination by oil spills, introductions of nest predators (i.e., rats) to nesting islands, and ingestion of plastics released intentionally or accidentally from fishing vessels. Some of these potential impacts are related more to the presence of fishing vessels rather than the process of catching fish.

1.2.2 Statutory protection for seabirds

There are two major laws that protect seabirds and require the Council to address seabird conservation in their Fishery Management Plans (FMPs). The first is the Migratory Bird Treaty Act of 1918 (16 U.S.C. 703-712), as amended over the years. This law pertains to all of the seabird species found in the BSAI/GOA area (66 FR 52282) and governs the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts and nests. The definition of "take" in the Migratory Bird Treaty Act (MBTA) is "to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to pursue, hunt, shoot, wound, kill, trap, capture, or collect".

1.2 Potential impacts of fisheries on seabird species

Potential fisheries impacts on a given seabird species could theoretically be measured by changes in survival or reproductive rates and ultimately by changes in the population. For all of these biological parameters, one would expect fluctuations in time and space as part of "normal" or natural conditions. The ability to

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salmon drift and set gillnet fisheries are listed in Category II, including those in Bristol Bay, Aleutian Islands, Alaska Peninsula, Kodiak, Cook Inlet, PWS, and Southeast Alaska. NMFS PRD has recently proposed reclassifying the Cook Inlet drift and set gillnet fisheries from Category II to Category III (68 FR 1414).

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1.2 Seabird Populations

Over 70 species of seabirds occur over waters off Alaska and could potentially be affected by direct and indirect interactions with the Bering Sea Aleutian Islands and Gulf of Alaska (BSAI and GOA) groundfish fisheries. Thirty-eight of these species regularly breed in Alaska and waters of the Exclusive Economic Zone (EEZ). More than 1,600 seabird colonies have been documented, ranging in size from a few pairs to 3.5 million birds (USFWS 2000). Breeding populations of seabirds are estimated at approximately 48 million birds and non-breeding migrant birds probably account for an additional 30 million birds (USFWS 2000). Most of the migrant birds are present only during the summer months (May through September) although some non-breeding albatross have been sighted at all months of the year (USFWS 1999). The distributions of species that breed in Alaska are well known in summer but for some species winter distributions are poorly documented or completely unknown.

1.2.1 Potential impacts of fisheries on seabird species

Potential fisheries impacts on a given seabird species could theoretically be measured by changes in survival or reproductive rates and ultimately by changes in the population. For all of these biological parameters, one would expect fluctuations in time and space as part of "normal" or natural conditions. The ability to

1.2.3 Consideration of seabirds in groundfish fishery management

Seabird protection measures in the BSAI/GOA groundfish fisheries were initiated in the 1990s and have focused primarily on collecting seabird/fishery interaction data and on requiring longliners to use specific types of gear and fishing techniques to avoid seabird incidental take. This emphasis on longline gear restrictions has been driven by conservation concerns for the endangered short-tailed albatross as well as other species. Longline vessels over 26 ft LOA are required to use either single or paired streamer lines (or in some cases for smaller vessels, a buoy bag line) to reduce incidental take of seabirds (see www.fws.gov/petted/resources/seabirds.html for a further reference).

Observers collect incidental take data in the trawl and pot sectors of the fishery. USFWS and the trawl sector of the fishing industry are collaborating on research into minimizing the effects of the trawl "third wire" (a cable from the vessel to the trawl net monitoring device) on incidental take of seabirds. However, there have been no regulatory or FMP-level efforts to mitigate seabird incidental take in the trawl and pot sectors.

For species listed as threatened or endangered under the ESA, the USFWS may establish a threshold number of incidental takes that are allowed before mitigation measures are reviewed and perhaps changed. Although this is sometimes viewed as a "limit" on the number of birds (e.g., short-tailed albatross) that can be taken, the result of exceeding this threshold number is a formal consultation process between NMFS and USFWS, not an immediate shutdown of the fishery.

Another management tool that may affect incidental take of seabirds is the regulation of who is allowed to fish. Limited entry and rationalization programs such as Individual Fishing Quota (IFQ) and Community Development Quota (CDQ) may impact seabird incidental take if the number or size of fishing vessels changes because regulations on protective measures are based on the size of the vessel. Since different types of fishing gear are more prone to take different kinds and numbers of seabirds, allocation of TAC among the different gear sectors can also have a substantial impact on incidental take.

Food web impacts can be addressed with several management tools. The Council has designated particular species and size classes of fish as being important prey for seabirds and marine mammals and has prohibited directed fisheries on these forage fish (BSAI FMP Amendment 36 and GOA Amendment 39). The Council may also manage the allocation, biomass, and species of fish targeted by the industry through the total allowable catch (TAC)-setting process. These factors impact the food web and could thus alter the availability of food to seabirds. While more information is available for the dynamics of fish populations than of invertebrate prey, food web interactions are very complicated and there is a great deal of scientific uncertainty regarding the specific effects of different management options.

Each of the management tools listed above requires reliable data to monitor the extent of fishery interactions and the effectiveness of mitigation efforts in accordance with management policy objectives. The Council established the Observer Program in order to collect fishery information. Beginning in 1993, the Observer Program was modified to provide information on seabird/fishery interactions. Observers are presently required on vessels 125 feet (ft) or more in length overall (LOA) for 100 percent of their fishing days and aboard vessels 60-124 ft LOA for 30 percent of their fishing days. Vessels less than 60 ft LOA do not have to carry observers.

Observers receive training in seabird identification, at least to the level of being able to place birds into the categories requested by the USFWS. Some of these categories identify individual species and others lump species under generalized groups, e.g., "unidentified alcid." In many cases, birds that were caught as the

gear was being deployed have soaked at depth for hours and have been eaten by invertebrates. By the time they are retrieved on board they may be identifiable only to a generalized group level. NMFS is currently working to improve the training of its observers in identifying birds from their feet and bills, which are often the only parts of the bird that are recognizable (S. Fitzgerald, Observer Program, personal communication). When the Observer Program data is analyzed and reported (as in the Ecosystem Considerations reports in *Stock Assessment and Fishery Evaluation documents*), individual species with relatively few records are often lumped into larger categories. For example, the "gull" category contains many "unidentified gulls" but also various numbers of five different gull species that observers have identified to species. Similarly, the "alcid" group contains separate records of seven different alcid species.

For those vessels operating without observers, regulations require captains to report the taking of any ESA-listed species and to retain and deliver the body to USFWS for positive identification. Unfortunately, such self-reporting is unreliable due to the inability or unwillingness of some crews to identify and retain species of concern. Other existing fishery record-keeping and reporting requirements provide data on the distribution of fishing effort which could potentially be used in conjunction with directed research to analyze potential food web and seabird population impacts.

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DOI, USFWS, Migratory Bird Management, Anchorage, AK.

Public Testimony Sign Up Sheet

Agenda Item D-1(8) FMP Updates

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NOTE to persons providing oral or written testimony to the Council: Section 307(1)(I) of the Magnuson-Stevens Fishery Conservation and Management Act prohibits any person " to knowingly and willfully submit to a Council, the Secretary, or the Governor of a State false information (including, but not limited to, false information regarding the capacity and extent to which a United State fish processor, on an annual basis, will process a portion of the optimum yield of a fishery that will be harvested by fishing vessels of the United States) regarding any matter that the Council, Secretary, or Governor is considering in the course of carrying out this Act.

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Donna Parker

Industry Comments

12/12/04

FMP Revisions

1) MSY: BSAI FMP Sec. 3.2.2 (page 12)

In this discussion of MSY, the last sentence reads as follows: "Therefore, estimates of MSY contained in this section should be reviewed as historical estimates that guided development of the FMP but not necessarily as reflective of the best scientific information available." The underlined portion of the sentence may conflict with National Standard 2 and should be dropped. The sentence should end after the word, FMP.

2) Gear Allocation: BSAI FMP Section 3.2.6.1.1 (page 13)

This language seems archaic in that it allocates BSAI Pollock to a bottom trawl sector which no longer exists because it is a pelagic fishery. It should be eliminated.

3) Observer Program. Sec. 3.9.2 (page 52)

As currently written the description only contemplates an observer program. It should recognize the current program that has been in place for several years. Proposed new language is attached.

3.9.2 Observer Program

The Council and NMFS must have the best available biological and socioeconomic information in order to carry out their responsibilities for conserving and managing the groundfish resources under their jurisdiction. To address management and scientific information needs, NMFS, in consultation with the Council, has developed and implemented through its regulatory authority, the North Pacific Groundfish Observer Program (NPGOP). The NPGOP imposes a comprehensive set of observer requirements on the vessels and processors engaged in the BSAI groundfish fisheries. Under those regulations, all fishing vessels over sixty (60) feet in length that catch groundfish from the EEZ or receive groundfish caught in the EEZ and shoreside processors that receive groundfish caught in the EEZ are required to accommodate observers certified by NMFS. Observer coverage levels are specified in the regulations published by NMFS and vary by gear type and size of vessel. The cost of such observers is paid for by the vessels and plants to which they are assigned.

While on board the vessels or at the shoreside plants, the observers collect data and information necessary to verify catch composition and quantity, including catch discarded at sea. The observers also collect such other biological information as the NMFS, in consultation with the Council, determines to be necessary and appropriate in order to comply with its obligations to conserve and manage groundfish and other marine resources in the EEZ off Alaska, including non-target groundfish species, marine mammals and seabirds.

catch (1.8 million mt) and the maximum annual catch (2.4 million mt) taken during the period 1968-1977 (see Section 4.3.1, History of Exploitation). However, current multi-species models suggest that the sum of single-species MSYs provides a poor estimate of MSY for the groundfish complex as a whole (Walters et al., in press) because biological reference points for single stocks, such as F_{MSY} , may change substantially when multi-species interactions are taken into account (Gislason 1999; Collie and Gislason 2001). Fishing mortality rates for prey species that are consumed by other marine predators should be conditioned on the level of predation mortality, which may change over time depending on predator population levels.

An ecosystem perspective suggests that the MSY of the groundfish complex may change if an environmental regime shift occurs or if the present mix of species is altered substantially. Also, as new data are acquired and as statistical methodology evolves over time, it is to be expected that estimates of MSY will change, even if the ecosystem has remained relatively stationary. Therefore, estimates of MSY contained in this section should be viewed in context, as historical estimates that guided development of the FMP but not necessarily as reflective of the best scientific information available currently.

3.2.3 Optimum Yield of the Groundfish Complex

The optimum yield of the groundfish complex is specified as 85% of the historical estimate of the MSY range for the target species and the "other species" categories (1.4 to 2.0 million mt), to the extent this can be harvested consistently with the management measures specified in this FMP, plus the actual amount of the nonspecified species category that is taken incidentally to the harvest of target species and the "other species" category. This deviation from the historical estimate of MSY reflects the combined influence of ecological, social, and economic factors. The important ecological factors may be summarized as follows:

- The OY range encompasses the summed ABCs of individual species for 1978-1981 (Low, et al. 1978; and Bakkala, et al. 1979, 1980, and 1981). This sum was used as an indicator of the biological productivity of the complex, although such use is not completely satisfactory because multi-species/ecosystem interactions are not taken into account explicitly. The 15% reduction from MSY reduces the risk associated with incomplete data and questionable assumptions in assessment models used to determine the condition of stocks.

The important social and economic factors may be summarized as follows:

1. The OY range is not likely to have any significant detrimental impact on the industry. On the contrary, specification of OY as a constant range helps to create a stable management environment in which the industry can plan its activities consistently, with an expectation that each year's total groundfish catch will be at least 1.4 million metric tons.
2. The OY range encompasses the annual catch levels taken in the period immediately prior to its implementation, during which the fishery operated profitably.

OY may need to be respecified in the future if major changes occur in the estimate of MSY for the groundfish complex. Likewise, OY may need to be respecified if major changes occur in the ecological, social, or economic factors governing the relationship between OY and MSY.

3.2.4 Overfishing Criteria

Overfishing is defined as any amount of fishing in excess of a prescribed maximum allowable rate. This maximum allowable rate is prescribed through a set of six tiers which are listed below in descending order

and efficient use of groundfish resources, b) adjustments of species TACs according to the condition of stocks during the fishing year, and c) apportionments.

The reserve is not designated by species or species groups and will be apportioned to the fisheries during the fishing year by the Regional Administrator in amounts and by species that s/he determines to be appropriate. The apportionment of the reserve to target species or to the “other species” category must be consistent with the most recent assessments of resource conditions unless the Regional Administrator finds that the socioeconomic considerations listed above or specified fishery operational problems dictate otherwise. Except as provided for in the National Standard Guidelines, the Regional Administrator must also find that the apportionment of reserves will not result in overfishing as defined in the guidelines. The Regional Administrator may withhold reserves for conservation reasons.

3.2.6 Apportionment of Total Allowable Catch

When the TAC for each target species and the “other species” category, except for pollock and fixed-gear sablefish, is determined, it is reduced by 15% to form the reserve, as described in Section 3.2.5.2. The remaining 85% of each TAC is then apportioned by the Regional Administrator.

Groundfish species and species groups under the FMP for which TAC has been achieved shall be treated in the same manner as prohibited species; they must be returned to the sea with a minimum of injury.

3.2.6.1 Pollock

3.2.6.1.1 Gear Allocation

The Regional Administrator, in consultation with the Council, may limit the amount of pollock that may be taken with trawls other than pelagic trawls. Prior to the Regional Administrator’s determination, the Council will recommend to him or her a limit on the amount of pollock that may be taken with other than pelagic trawl gear. The Regional Administrator shall make the Council’s recommendations available to the public for comment under the annual TAC specification process set forth under Section 3.2.5.

The following information must be considered by the Council when determining whether a limit will be recommended and what that limit should be:

- a. PSC limits established under Section 3.6.2;
- b. projected prohibited species bycatch levels with and without a limit on the amount of pollock that may be taken with other than pelagic trawl gear;
- c. the cost of the limit on the bottom-trawl and pelagic trawl fisheries; and
- d. other factors that determine the effects of the limit on the attainment of FMP goals and objectives.

3.2.6.1.2 Seasonal Allocation

The pollock TAC shall be divided into two allowances: roe-bearing (“A” season) and non-roe-bearing (“B” season). Each allowance will be available for harvest during the times specified in the regulations. The proportion of the annual pollock TAC assigned to each allowance will be determined annually during the

4. Cargo transfer/off-loading log

Operators of catcher/processor and mothership/processor vessels must record certain information in a separate transfer log. He or she must record the following information, within a time specified by regulations, for each transfer or off-loading of any fishery product in the EEZ, as well as quantities transferred or off-loaded outside the EEZ, within any state's territorial waters, or within the internal waters of any state:

- a. the time and date (GMT) and location (in geographic coordinates or if within a port, the name of the port) the transfer began and was completed;
- b. the product weight and product type, by species or species group, of all fish products transferred or off-loaded rounded to the nearest tenth of a metric ton (0.1 mt);
- c. the name and permit number of the vessel off-loading to or, if to a shoreside facility, the name of the commercial facility receiving the product; and
- d. the intended port of destination of the receiving vessel if off-loaded to another vessel.

3.9.2 Observer Program

The Council and NMFS must have the best available biological and socioeconomic information with which to carry out their responsibilities for conserving and managing groundfish resources. To address management and scientific information needs, NMFS, in consultation with the Council, will require U.S. fishing vessels that catch groundfish from the EEZ or receive groundfish from the EEZ, and shoreside processors that receive groundfish caught in the EEZ, to accommodate observers certified by NMFS. Provisions of the North Pacific Groundfish Observer Program will be developed in consultation with the Council and established in regulations. The purpose of the groundfish observer program is to verify catch composition and quantity, including those discarded at sea, and collect biological information on marine resources.

3.10 Council Review of the Fishery Management Plan

3.10.1 Schedule and Procedures for Evaluation

The Council will maintain a continuing review of the fisheries managed under this FMP through the following methods:

1. Maintain close liaison with the management agencies involved, usually the Alaska Department of Fish and Game and NMFS, to monitor the development of the fisheries and the activity in the fisheries.
2. Promote research to increase their knowledge of the fishery and the resource, either through Council funding or by recommending research projects to other agencies.
3. Conduct public hearings at appropriate times and in appropriate locations, usually at the close of a fishing season and in those areas where a fishery is concentrated, to hear testimony on the effectiveness of the management plans and requests for changes.
4. Consider all information gained from the above activities and develop, if necessary, amendments to the management plan. The Council will also hold public hearings on proposed amendments prior to forwarding them to the Secretary for possible adoption.