


MEMORANDUM

TO: Council, SSC and AP Members

FROM: Clarence G. Pautzke
Executive Director 

DATE: June 1, 1999

SUBJECT: Groundfish Amendment Issues

ESTIMATED TIME
2 HOURS

ACTION REQUIRED

- (a) Council discussion of Halibut Mortality Avoidance Program (HMAP) pilot program.
- (b) Review experimental fishery permit for AFDF bait test project.
- (c) Review NOAA GC opinion on DSR retention and reconsider previous action.
- (d) Electronic shoreside catch reporting. (This item postponed to a future meeting.)

BACKGROUND

(a) HMAP Pilot Program

In April 1999, the Council reviewed a proposal from Groundfish Forum to develop a HMAP pilot program for the 2nd quarter GOA deepwater flatfish fishery and the BSAI July 'O Flatfish' fishery. The Council initiated analysis of a regulatory amendment to implement a HMAP pilot program. Some preliminary analysis has been completed, but there are a number of issues that still need to be analyzed, especially issues dealing with implementation and monitoring. NMFS staff will be on hand to discuss these issues.

Note that the proposer requested that regulations be in place for a pilot program in the 2000 fisheries. To meet this request, initial and final review would need to occur at the October meeting. The proposal from Groundfish Forum is attached as Item D-1(a)(1).

(b) AFDF Bait Test Project

The Alaska Fisheries Development Foundation (AFDF) has applied to NMFS for an experimental fishing permit (EFP) pursuant to their ongoing project 'Development of a New, Functionally Enhanced, Longline Bait Fabricated from Alaskan Seafood Waste'. The project addresses at least two key fisheries issues - selective fishing methods and seafood waste utilization. Phase I of that project included bait development and lab testing on captive fish, while Phase 2 requires field trials under commercial fishing conditions. Because these field trials are scheduled to take place in July and September in the Central Gulf of Alaska, and cod fisheries will be closed to directed fishing at that time, a permit is required. The applicants are also seeking permits from the State of Alaska to allow for field trials in the State water fisheries (which only allow pot and jig gear currently), but are seeking the federal permit to give additional flexibility to the field trial locations. The process for NMFS to grant the EFP includes consultation with the Council. If approved by the Council there is no guarantee that the necessary paperwork can be completed in time for the July field trials (and the applicant would have to rely on a State water permit), but likely could be completed in time for the September test fishery.

Item D-1(b) is a copy of the request to NMFS, including a project description and research plan. Specific project objectives for Phase 2 are listed on page 2-3 of the plan. In addition to testing the viability and desirability of the bait under commercial fishing conditions, species selectivity of the bait is also an important factor. The timing is for one 8-day trial in mid-late July, with a 12-day trial expected in September/October. The expected requirements of the project are 10,000 to 20,000 pounds of Pacific cod (the target species), 500 to 1,000 pounds of red rockfish, and 4,000 to 12,000 pounds of halibut bycatch (this is a high estimate, noting that the contracted vessel would have halibut IFQs to cover and retain the halibut). If the halibut were not covered by IFQs, total mortality of discarded halibut would be 400 to 1,200 pounds (assuming a 10% mortality rate). The applicants are requesting retention and sale of all marketable catch under the EFP, while a State permit would require discarding of the catch (other than halibut covered by IFQ).

(c) DSR Retention

At its February 1999 meeting, the Council adopted a motion to recommend that NMFS implement a regulatory change to require full retention of demersal shelf rockfish (DSR) by federally permitted vessels in the GOA fixed gear fisheries by: (1) eliminating the maximum retainable bycatch limit for DSR; (2) requiring full retention of DSR by federally permitted vessels in the fixed gear fisheries in the GOA Regulatory Area 650; (3) permitting fishermen to sell an amount of retained DSR that is up to, but not more than, 10 percent of other retained catch; and (4) after DSR has been landed, weighed and reported on a fish ticket, requiring fishermen to surrender the excess to the State. Further, the Council noticed its intent that surrendered fish would not accrue to catch history in the event of development of a license limitation or IFQ fishery for this rockfish assemblage and that surrendered fish should be handled so as to be fit for human consumption (food grade quality).

At the time of the vote, NOAA General Counsel reported to the Council that it would provide an opinion as to whether, as stated in part (4) above, the recommended Council action, mandatory surrender of DSR in excess of the permitted amount to the State, was authorized by the Magnuson Act and consistent with other applicable law. Lauren Smoker, NOAA GC staff, will present that opinion. The Council may wish to reconsider its February 1999 decision. The public review version of the analysis is attached as Item D-1(c).

**Groundfish Forum's halibut mortality avoidance program (HMAP)
Pilot Proposal****April 8, 1999****Candidate fisheries for pilot: 2nd quarter GOA deep water flatfish fishery; July "Oflat" fishery in BS/AI**

Purpose: Pilot will allow interested participants to formally test and refine methods to lower the mortality assigned to their halibut bycatch. Currently, most trawl fisheries are achieving mortality rates that approach 70-80%. Lower mortality and additional fishing opportunities will be achieved by HMAP's procedures. Procedures include rapidly sorting halibut as the codend is emptied, counting and measuring halibut from the tow, assessing viability, and returning halibut to the sea. Participants in the pilot program will be compensated for their efforts to reduce mortality by benefiting from the halibut mortality rate assigned to participants in the pilot.

Voluntary Participation: Companies wishing to participate must sign up prior to the December 1999 NPFMC meeting and agree to follow all the procedures for deck sorting. In signing up, companies agree in writing to subject themselves to a list of both subjective and objective criteria to assess whether they are following the required procedures. Determinations of compliance with decksorting rules will be made by a committee set up by the participants in the pilot (HMAP pilot committee) prior to the start of fishing. HMAP pilot committee will be structured like the coop management boards currently in use in AFA coops. In signing up for the pilot, participants agree in writing to abide by the decisions of the committee (or its designated representative) for the duration of the pilot. Companies not wishing to participate can fish in the regular fishery on the halibut not assigned to the pilot.

Options for potential penalties for pilot participants deemed not to be following the HMAP rules listed below:

- A. Exclusion from pilot and reversion to regular fishery (if still open) during pilot.
- B. Exclusion from pilot and prohibition on participation in regular fishery for the remainder of opening (PSC apportionment to the GOA 2nd quarter deep water fishery or July "Oflat" fishery).

Potential limits or restrictions on participation: LLP or AFA sideboards may prevent or limit participation of some vessels in pilot. The HMAP pilot is not intended to serve as a means of circumventing or preempting other Council restrictions. Option: Vessels can participate in pilot up to sideboard limits of groundfish catch if they meet LLP requirements.

Halibut set aside for pilot and regular fisheries: The proportion of halibut assigned to the HMAP pilot will be pro rata based on catch history of participants in the appropriate fishery compared to total catch in that fishery. Participants' total groundfish catch in the 2nd quarter GOA deep water flatfish fishery 1996-1998 divided by total groundfish catch over the same period will determine the halibut assigned to the 2000 HMAP pilot in that fishery. The same method will be used to determine the fraction of halibut set aside for the July "Oflat" HMAP pilot. Assignment of halibut set aside for participants in the HMAP pilots will be made through the Council's annual specification process. There will not be an assignment of

groundfish TAC between pilot and regular fisheries in order to maximize incentives for reducing halibut mortality in the HMAP pilot.

Halibut mortality rate assignment to the pilot and regular fisheries: The halibut bycatch of vessels in the pilot fishery will be assessed at an estimated rate for the first one-half of the pilot fishery's halibut allocation. Viability data, averaged across all participants in the HMAP pilot during the first half of the pilot fishery, will be used to re-calculate the mortality from the first half of the fishery. This rate will also be used to determine the mortality rate for the second half of the pilot, but the overall effectiveness of the HMAP pilot will be assessed with the data from the entire pilot period. The regular fishery will receive the current IPHC/NMFS/Council halibut mortality rate.

Required procedures for HMAP deck sorting:

1. Tow duration time not to exceed two and fifteen minutes of bottom time. Bottom, time measured according current observer procedures. (Note: tow tonnage restrictions have been dropped from the proposal for practical reasons but tow time is likely to accomplish the same objective. Because participants gain additional fishing time by reducing mortality, it is anticipated they will keep codends small to keep viability high).
2. No sorting (other than for halibut) or processing of fish from a tow that is selected for observer sampling until deck sorting for that tow is complete and observer is in position and ready for species composition sampling.
3. Vessels must take observer coverage necessary to verify that deck sorting occurs on all tows. For larger vessels, this probably means two observers on board. For smaller vessels that will not fish around the clock, one observer at all times may be sufficient. Companies must submit a fishing plan with HMAP pilot application and applications will be reviewed by the HMAP pilot committee for feasibility.
4. Halibut must be counted and measured by census on sampled tows and viability must be assessed on all sampled tows (at least representative sample for viabilities and census if this will not increase mortality.)
5. Codends must be emptied as soon as possible. Setting another net or switching codends before deck sorting occurs is not allowed.
6. If weather conditions do not allow for reasonable safety during deck sorting, fishing during that period is assigned the IPHC/NMFS/Council halibut mortality rate. Viabilities assessed for halibut from tows where deck sorting was not possible will be used to "ground truth" deck sorting viability data.

Additional options for pilot:

Halibut savings:

Groundfish needed to fund July rockfish fishery will be deducted off the top and 2nd quarter deep water flatfish fishery (or July "Oflat" fishery) closes when any TAC constraint (minus reserve for July fishery) is attained. Unused halibut from HMAP pilot does not roll to any other quarterly apportionment.

GROUND FISH FORUM, INC.

Mr. Steve Pennoyer
Regional Director
NMFS-F/AKR
P.O. Box 21668
Juneau, AK 99802

4215 21ST AVENUE W. SUITE #201
SEATTLE, WA 98199
(206) 301-9504 FAX (206) 301-9508

May 5, 1999

Re: Implementation of the HMAP Pilot Program

Dear Steve,

RECEIVED
MAY 05 1999

N.P.F.M.C

Since it first proposed a Halibut Mortality Avoidance Program (HMAP) back in 1997, Groundfish Forum has been working diligently with the Council and its VBA/HMAP Committee to build a program that would provide the trawl industry with the tools and incentives to meet the Magnusen-Stevens Act mandate to reduce bycatch mortality. We are heartened by the continued support for HMAP that we've received from NMFS and the Council, which gave its final approval of the HMAP pilot project on April 26, 1999. We now face the task of effecting the regulatory changes necessary to implement our pilot program in the second and third quarters of the year 2000.

It seems that all of the involved parties are "on board" with the project at this time. The International Pacific Halibut Commission has expressed support for the project including the feasibility of in-season calculation of the halibut mortality as described in our EFP application. We recently reviewed our proposal with Dr. Karp and two of his managers, and I'm confident that we will be able to address the issues raised by the observer program to their satisfaction. And, as I've mentioned, industry is eager to get this program under way.

Groundfish Forum understands that certain regulatory changes must be made before HMAP can become a reality. We are prepared to do whatever we can to help craft the analysis for regulatory amendments implementing an HMAP pilot program. We know that the Region's and Council's current agenda and workload preclude any action on an analysis at the Council's June meeting. We therefore request your assistance in developing an HMAP analysis that will allow the Council to take final action on regulations implementing a pilot program at its October, 1999 meeting.

In order to meet this deadline, work on the analysis should begin soon. We suggest that you establish an "HMAP Implementation Workgroup". This group would consist of staff from the NMFS Regional Office, the NMFS Observer Program, the Council and Groundfish Forum, and would be charged with working out the details of the program that need to be addressed in the implementing regulations. Groundfish Forum staff is immediately available to participate in this process.

Thank you for your support of the HMAP pilot program. Please don't hesitate to call if you require any additional information. I'm looking forward to hearing from you soon.

Sincerely,



John R. Gauvin

cc: Richard Lauber, NPFMC
Bill Karp, NMFS Observer Program



AGENDA D-1(b)
JUNE 1999
UNITED STATES DEPARTMENT OF
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
P.O. Box 21668
Juneau, Alaska 99802-1668

May 21, 1999

RECEIVED

MAY 26 1999

N.P.F.M.C.

Clarence G. Pautzke
Executive Director
North Pacific Fishery Management Council
605 West 4th Avenue, Suite 306
Anchorage, Alaska 99501

Dear Clarence,

We have received an application from the Alaska Fisheries Development Foundation (AFDF) for an Exempted Fishing Permit (EFP) to test artificial longline bait fabricated from seafood wastes in the Gulf of Alaska. Issuance of EFPs is authorized by the Fishery Management Plan for Groundfish of the Gulf of Alaska and its implementing regulations at 50 CFR part 679.6, Experimental Fisheries.

Under regulations at § 679.6, we have consulted with the Alaska Fisheries Science Center, and have determined that the application contains all the information necessary to judge whether the proposal constitutes a valid fishing experiment appropriate for further consideration. We are initiating consultation with the North Pacific Fishery Management Council (Council) by forwarding the application to you as required by regulations. We understand that you tentatively scheduled Council review of the attached application on the Council's June 1999 agenda in anticipation of our review and determination that the application warrants further consideration and consultation with the Council.

Please notify Mr. Richard Drake of AFDF of your receipt of the application and invite the applicant to appear before the Council in June in support of the application if the applicant desires. We will publish a notice of the application in the Federal Register with a brief description of the proposal. Attached is a copy of AFDF's proposal.

Sincerely,

Steven Pennoyer
Administrator, Alaska Region

Attachment





Alaska Fisheries Development Foundation, Inc.

April 15, 1999

Steve Pennoyer
Regional Administrator
National Marine Fisheries Service
P.O. Box 21668
Juneau, AK 99802

Dear Mr. Pennoyer,

Alaska Fisheries Development Foundation is engaged in a two-phase project entitled "Development of a New, Functionally Enhanced, Longline Bait Fabricated from Alaskan Seafood Wastes." Phase 1 included bait development and lab testing on captive Pacific cod. Phase 2 requires field trials to test the bait under commercial fishing conditions. For this we request a federal research permit. I have spoken with Rich Marasco about this project and he directed me to send this application to you in order to begin the process.

We have scheduled three trials for these times: final week of June, third week of July, first week of September. I have been told that the permit process can be lengthy and needs to be scheduled into a NPFMC meeting. The next council meeting is the first week of June. If the permit gains that audience and is approved, will we be able to fish under that permit by the time of our first trial? We would like to make that happen. Please contact me if you see any conflicts, or need any further information. Thank you.

Sincerely,

Richard Drake
Project Manager

TO: Dr. Rich Marasco
National Marine Fisheries Service

FROM: Chris Mitchell
Alaska Fisheries Development Foundation

RE: Request for Research Permit

DATE: April 15, 1999

The following is a request for a Research Permit to conduct a study near or around Kodiak, Seward or Sitka, Alaska. This Alaska Science and Technology Foundation (ASTF) funded research is being carried out collaboratively by (1) Alaska Fisheries Development Foundation, (2) Center for Applied Regional Studies, (3) Marco Marine, and (4) Wildlife Conservation Society. Ultimate goals of this research are to develop and test an artificial-longline bait fabricated from Alaska seafood wastes.

This project has been divided into two parts: Phase 1 and Phase 2. The final report for Phase 1 was submitted to ASTF in January, 1999. During Phase 1 (and prior to Phase 1), intensive laboratory and field research was performed to develop and test a new functionally enhanced artificial bait for longline fisheries (AFDF 1999). The novel-artificial bait developed by this research team utilizes Alaska seafood processing wastes (AFDF 1999); properly digested Alaska pollock wastes are embedded into a patented matrix developed by Marco. Mini-field trials in Puget Sound and Alaska demonstrated that the texture of the matrix is acceptable to numerous fish species, including Pacific cod. In addition, Marco showed that this matrix is economical, stays on hooks better than natural baits, and is compatible with both automated baiters and hook cleaners. The attractant developed and tested during Phase 1 of this research was very attractive to captive Pacific cod, both as a liquid and embedded in the Marco matrix to form a bait (AFDF 1999). The digest out-performed the controls by a significant margin. Perhaps most important for the longline industry, the manufactured bait worked very well after an eight hour soak time. The success of the Phase 1 was rewarded by continued ASTF funding for Phase 2 (= field trials).

Research Plan - 1999

Field Testing and Further Development of a New, Functionally Enhanced, Longline Bait Fabricated from Alaskan Seafood Wastes

Submitted By

Alaska Fisheries Development Foundation
900 West 5th Ave., Suite 400
Anchorage, Alaska 99501

Background:

Alaska generates huge quantities of seafood processing wastes. There are many coastal fishing communities in Alaska which have no seafood byproduct processing capability, and others with only partial capability. In these communities, wastes generated by local processing operations are ground and pumped out to sea. Although these wastes contain a variety of oils and attractants which would suggest functionality as baits, they cannot be used because only an intact chunk of flesh will stay on the hook. However, if these wastes could be treated so as to maximize their attractant capacity and incorporated into an appropriate matrix, they could be effective and economical longline baits.

Researchers have emphasized that bait for longlining is often chosen largely on the basis of workability in automatic baiting machines. Potential baits which might be more effective and/or more species- or size-selective are passed over because their sizes or textures are incompatible with automatic baiting equipment or with staying on the hook. Yet size and texture are among the easiest characteristics to alter in processing. In an era where human foods are enriched, processed, flavor-enhanced, functionally altered and niche-marketed, it is surprising that so little work has been done on baits.

The potential benefits of using artificial baits for longline fisheries (AFDF 1997) include higher catches, enhanced species and size selectivity (i.e., lower bycatch and discard), consistent product (quality, price, and size), enhanced safety, and lower bait loss. Various artificial baits have been tested for commercial longline fisheries, including nylon bags containing minced-raw fish (Løkkborg 1991) and reinforced polyurethane impregnated with feeding attractants that occur in natural baits (Løkkborg 1990). Although results of trials designed to test these (and other) artificial baits have been promising, the binder, reinforcement, and attractant have been problematic or cost prohibitive. Nearly all commercial fishers continue to use natural baits that are imported from as far away as the Falkland Islands and Massachusetts.

Many factors affect the catching potential of baits (Løkkborg and Bjordal 1992). Bait type (i.e., chemical attractant, texture, and size) has been shown to be species and size specific (Løkkborg and Bjordal 1989; Løkkborg 1990; Løkkborg and Bjordal 1992; Woll et al 1998). Other factors that affect catching potential of baits under commercial fishing conditions are

attractant-emission rate, hook size and shape, bait loss from scavengers such as birds, hagfish, starfish, and crab, (Løkkborg and Bjordal 1992), fish loss during hauling (particularly during poor weather conditions), time of sets (Løkkborg and Pina 1997), and others. Background information concerning feeding and foraging behavior, stimuli reactions, emission intensity and rate of attenuation, etc. was described by AFDF (1997).

Phase 1 results suggest a breakthrough in artificial-bait research. The attractant obtained from pollock waste products not only elicited significant responses by Pacific cod, but these behavioral responses were prominent even after the Marco matrix had been soaked for a period of 8 hours (AFDF 1999). In addition, the Marco matrix is tough and durable, therefore, we hypothesize that bait loss will be substantially less for this product than for natural baits. These two factors suggest increased catches for Pacific cod using the artificial bait relative to using natural baits. Numerous other potential benefits were shown by AFDF (1997).

We propose a project that will combine both field and laboratory trials to compare the catchability of the artificial bait developed during Phase 1 with natural baits used by longline fishers (e.g., herring). The intent of the laboratory portion of this phase is to further refine and improve the artificial bait. The field investigation will provide information that cannot be gathered in the laboratory (e.g., utility of baits in the natural environment - application under realistic situations).

Phase 2 will be divided into two sub-phases. Phase 2a will consist of two mini-field trials; each trial will be followed by laboratory work (see AFDF 1999). Results of phase 2a-field trials will provide information necessary to refine and improve the performance of the artificial bait. If phase 2a results are positive, then a moderate-scale field project will take place (= phase 2b). Phase 2b trials will be designed to determine relative catchability between the new artificial bait and baits commonly used by commercial longline fishers.

By combining field and laboratory studies, and by bringing together the expertise of all project investigators, there is a high probability that this research will conclusively demonstrate the benefit and utility of a new artificial bait for longline fisheries.

Objectives:

The ultimate objective of this research is to develop and test the utility of a functionally enhanced longline bait fabricated from Alaskan seafood wastes. Many specific objectives were met during the past year of laboratory research (AFDF 1999). Overall objectives of this second project phase are to evaluate the effectiveness of the artificial bait developed during phase 1 for catching Pacific cod and other species by longline and continue laboratory studies to further improve and refine the catching ability of this artificial bait (see AFDF 1999). This proposed research is divided into two sub-phases. Phase 2b trials and final methodology will depend on results obtained during phase 2a.

Specific objectives of phase 2a are:

- observe Pacific cod behavior in their natural environment while approaching and ingesting artificial and natural baits attached to hooks,
- observe scavenger activity near artificial and natural baits,
- test specialized equipment (e.g., hook timers, see below),
- determine whether Pacific cod and other species will ingest the artificial bait under natural conditions,
- test field methods (i.e., bait sequence on the groundline), and
- refine and improve the artificial bait (see Appendix A).

Specific objectives of phase 2b are:

- determine catch rates (e.g., kg and number per 100 hooks) of Pacific cod and bycatch species for artificial and natural baits,
- evaluate differences in species composition of hooked fish between artificial and natural baits,
- determine the catch for Pacific cod and other species over time (hours) for both artificial and natural baits (i.e., how long do the baits fish?),
- compare bait loss between bait types,
- compare hooking location between bait types for Pacific cod (i.e., swallowed or hooked in the mouth),
- perform size-selectivity analyses for each bait type, and
- observe behavior of Pacific cod and other species while approaching and ingesting artificial and natural baits.

Methods:

Location and platform (phase 2a and 2b): Fieldwork will take place in the Gulf of Alaska on board a commercial longline vessel (< 60' overall length). Specific vessel, port and dates of operation will be decided after bids are received. We anticipate operations will take place during summer and early fall (1999) near Seward, Kodiak, or Sitka Alaska.

Fishing trials - phase 2a: Two field trials will be conducted during the summer 1999 near Seward, Kodiak, or Sitka Alaska. A longline vessel (60' or less) will be chartered for two trips; each trip will last 4 days. The vessel will be guaranteed a fixed income (= charter amount). Catches will be retained to offset charter costs.

Depending on weather and other factors, two to four sets will be made per day with four complete strings of longlines. Each string will consist of four skates and 200 hooks (see next paragraph); braided nylon snoods (12" length) will be spaced at 43" intervals. Sets will be made in the morning. Typically, longlines soak 6-8 hours. However, for this research, the majority will be fished 4-6 hours, with occasional 6-8 hour tests. It is imperative that all longlines are identical (hook type and size, snood length and color, groundline size and material, etc.). The groundline will be made of 3/8" twisted nylon or leaded polypropylene. Hook sizes will be chosen from a range of size 7 (12/0) to size 5 (14/0) circle hooks. All hooks will be hand baited with herring (approx. 1.25" cut length) or artificial bait (approx. 1.25" cut length). Ten randomly selected baits per bait type will be measured confirm bait

dimensions each set.

Herring and artificial bait will be fished on the same longline each set. Groundlines will be made of 4 skates (typically, 75 hooks are baited per skate). Bait type will be changed after every 10th hook (see Figure 1). Groundlines will include 35' of free space between different bait types (= length of groundline that normally holds 10 hooks; see Figure 1). The purpose of this space between bait types is to prevent a potential leading effect from one bait type to the next. Hence, ten hooks will hold herring, followed by a space of 35', followed by ten hooks holding artificial bait, followed by a space of 35', followed by ten hooks baited with herring, and so on. Hence, 200 baited hooks will be fished up to four times per day. The bait type for the first ten hooks will be determined using a random number table. Snap-on gear will be used; snaps will be color coded for bait identification.

Sample size for phase 2a fishing trials will be small, hence, it is unlikely that any results will be statistically significant. Achieving statistical significance is not the intent of phase 2a. Instead, the purpose of this phase is to test field methods and ensure that the bait performs as well under natural conditions as was shown by the laboratory studies. Hence, phase 2a was designed to determine whether Pacific cod and other species take the artificial bait under natural conditions, to evaluate behavioral responses of Pacific cod (and other species) to the artificial bait, and to improve the bait and the experimental design based on results of these trials. The conduct of phase 2a is essential before carrying out phase 2b (see below).

Hook timers: Hook timers are devices capable of recording up to 99-hook motions per minute over any period of time (Løkkeborg 1998). Løkkeborg (1998), using underwater video observations, found differences in hook movements between fish attacking the bait but not hooked (numerous, rapid motions for one or two minutes followed by no movements), fish being hooked, (> 50 motions per minute immediately after the fish was hooked, followed by alternating periods of no movements and 10-30 motions per minute), and scavengers taking baits (hagfish were not detected by hook timers, whereas crab caused less than 10-hook motions per minute). In addition, it is possible to discern when fish are lost from hooks using hook timers (e.g., during hauling).

Hook timers will be used with one longline set per day (long soaks only). Timers will be attached to every fourth snood per bait type for every other bait sequence (see sequencing in Figure 1). These timers will provide data to compare catch over time and hooking-success rates between bait types. Temperature-depth-time recorders (TDR's) will be placed on both ends of groundlines to determine actual fishing time on bottom. If four sets are completed during a single day, then one TDR will be placed in the center of each groundline.

Underwater video observations: In situ observations will be made to: (1) observe fish behavior relative to bait type in their natural environment and (2) interpret data recorded by hook timers. A camera frame will be designed to hold a self-contained Silicon Intensified Tube (S.I.T.) video camera approximately 1.5 m above bottom. Artificial lighting (infrared or red-filtered light) will be used. A "groundline" will be attached between two legs of the frame, and a 12" snood will be snapped onto the groundline. Hooks will be baited with either

artificial or natural bait and a hook timer will be attached to the snood. Underwater observations will be made twice per day in the area of operations. Soaking duration for these observations will be 2 hours (= approximate battery life).

Fishing trials - phase 2b: A minimum of twelve fishing/testing days are required to satisfy objectives of this project phase, that is, to determine whether bait types produce different catch rates (see power calculations below). Hence, a charter lasting approximately 16 days may produce meaningful and possibly statistically significant results. Field experiments will take place during the late summer or early fall, 1999). The process of chartering the vessel and other arrangements will be similar to those shown for phase 2a (with modifications if needed).

Two to four sets will be employed each day using four complete strings of longlines (see Figure 1). Groundlines will consist of 4 skates; baiting sequences will be similar to that described for phase 2a (see above). Soaking duration will be alternated between sets; longlines will be fished for either short (= 4 hours) or long (= 8 hours) soaks. These soaking periods represent typical short and long soaking periods in the normal commercial fishery. The sequence of soaking duration will be randomly selected each day. The design may be modified depending on results obtained during phase 2a. Four sets could be made each day, given enough time and artificial bait. Hence, at least five complete longline setups, must be available for use during this charter. If four sets are made on a given day, then the design shown in Figure 1 will simply be repeated.

Hook timers will be used with one longline set per day (long soaks only). Timers will be attached to every fourth snood per bait type for every other bait sequence (see sequencing in Figure 1). These timers will provide data to compare catch over time and hooking-success rates between bait types. Temperature-depth-time recorders (TDR's) will be placed on both ends of groundlines determine actual fishing time on bottom. If four sets are completed during a single day, then one TDR will be placed in the center of each groundline.

Underwater observations will be made during phase 2b to obtain additional observations of fish and scavenger behavior around baits and to verify interpretations of data recorded by hook timers. A design similar to that shown above will be employed (e.g., use of artificial lights); modifications are likely based on results obtained during phase 2a. It is possible that video recordings will not be necessary each day.

Data records: Immediately prior to each set, ten randomly selected baits of each type (already placed on hooks) will be measured for length and width. The following data will be recorded at the beginning of each set: vessel location, time, date, set number, set direction, beginning and ending set time, bottom depth (beginning and end of set), wind speed, swell height, chop height, presence of birds, and other pertinent information. Soaking duration will be predetermined.

General information collected while recovering gear will include: date, time, set number, beginning and ending retrieval time, wind speed, swell height, chop height, presence of birds,

and other information. Hook-specific data collected while hauling in the gear will include bait type, hook number in the sequence, presence of hook timer, bait status when nothing is caught (bait intact, bait remnant, bait loss, hook loss, snood entanglement), species captured (including length and weight), and hooking location (mouth or swallowed). Electronic data from the hook timers and TDR's will be downloaded immediately after hauling in the gear.

Sample sizes and power calculations: Given that hooks will be baited by hand, the availability of artificial bait is limited, and the time required to perform underwater observations, we anticipate a maximum of four sets each day and 200 hooks per set. Analysis of variance will be used to test for differences in CPUE (kg / 100.hooks) between bait types. Hence, power calculations to estimate the number of sets required to obtain statistical significance at the 5% level were performed assuming normal distributions (Figure 2). If the coefficient of variation is small ($< 10\%$), then it would be possible to detect 10% differences in CPUE between treatments using realistic sample sizes (i.e., less than 25 sets). However, it is likely that the coefficient of variation will be somewhat larger than 10%; CV's will probably be in the vicinity of 30% to 40% (or more). Assuming twenty-five sets represents a minimum fishing effort during phase 2b (= 12 to 13 successful fishing days and two sets per day), and if CV's are approximately 40%, then significant differences in CPUE between bait types will be detected if means differ by more than 30%. Samples will be too small to detect significant differences between means during phase 2a; however, we anticipate showing statistically significant results during phase 2b if differences between means are greater than 20% - 30%.

Statistical analyses: Rigid statistical analyses will not be performed for data collected during phase 2a. Only descriptive statistics (e.g., observed catch rates) and behavioral observations will be produced by the phase 2a trials.

Sampling will be more rigorous during phase 2b than 2a. The sampling period will be longer, and there is a chance of conducting four sets per day on certain days. Response variables for phase 2b will include: CPUE1 (kg / 100 hooks), CPUE2 (kg / 20 hooks; the middle-2 hooks for each bait type and sequence, see Figure 1), mean body length (LENGTH), hook saturation for all hooks (SAT1; number of fish / 100 hooks), hook saturation for the middle-2 hooks per bait type and sequence (SAT2), hook saturation for adjacent hooks containing different bait types (SAT3), and bait status.

Numerous designs are possible for this type of study. We propose to fish both bait types on the same groundline (Figure 1), rather than compare catches of two groundlines containing different baits. Catch of Pacific cod between longline sets are often sporadic and highly variable due to the patchy distribution of this species. Hence, variation would likely be highest if each groundline consisted of a single bait type. Higher variation requires larger samples sizes to produce meaningful results.

[Placing both treatment and control baits on the same groundline (see bait sequence in Figure 1) could result in some uncertainty because of potential bait-interaction. For instance, it is possible that bait A may release its' attractant over a longer period of time or a greater distance than bait B. If the attractant plume of Bait A overlapped that of bait B (and fish preferred the attractant of bait B when given a choice), then the catches for bait B may be positively biased

because of the presence of bait A. Conversely, the presence of bait B on the same groundline could result in reduced catches for bait A. This potential difference between baits could not be detected if baits were simply alternated every other hook (i.e., if attractant plumes completely overlap and/or both bait types were within visible range at the same time). Hence, additional analyses (CPUE2, SAT2, and SAT3) are included to test whether results change as proximity of bait type changes.]

Assuming data are normally distributed (which will be tested), analysis of variance (or General Linear Models, GLM) will be used to measure differences in CPUE1 and CPUE2 between bait types. A Fisher's least-significant-difference test (LSD) will be used to compare means (SAS 1996). Other factors will be included in the analyses (e.g., weather parameters). Mean body length between treatments will be tested using two-sample t-tests (SAS 1996), and potential differences in size selectivity will be evaluated using the SELECT approach as described by Boje et al. (1998). Hook saturation (SAT1 and SAT2) will be analyzed using nonparametric statistics (e.g., Wilcoxon Signed Rank Tests) and analysis of variance (following arc-sin transformations if the transformation results in normal distributions). Hook saturation for adjacent hooks containing different bait types (SAT3) and bait status will be analyzed using nonparametric and logistic-regression analysis (SAS 1996).

Impact to the Resource:

This field research intends to duplicate the activities of commercial longline fishers. The target species is Pacific cod. Incidental catch will likely include red rockfish and Pacific halibut. The catch is predicted as follows (ranges are based on 20 fishing days and 2 to 4 sets per day; each set will consist of 200 baited hooks):

Pacific cod: 10,400 to 20,800 lbs. - assuming 6.5 lb. avg. wgt. and 1 cod per 5 hooks.

Red Rockfish: 520 to 1,040 lbs. - assuming 5% of the cod catch.

Halibut: 4,000 to 12,000 lbs. - assuming 100 to 150 lbs. per set.

We request that all marketable catch of Pacific cod, rockfish and Pacific halibut be sold. Proceeds of the rockfish and Pacific cod catch will be used to offset charter costs. Proceeds from the halibut catch will be retained by the vessel as part of the vessels' IFQ.

Marine Mammals and Prohibited Species:

Interactions with marine mammals are not expected because of the mode and area of operations. Halibut will certainly be caught by longlining. The International Pacific Halibut Commission has reviewed the field study proposal and a letter of their consent is attached.

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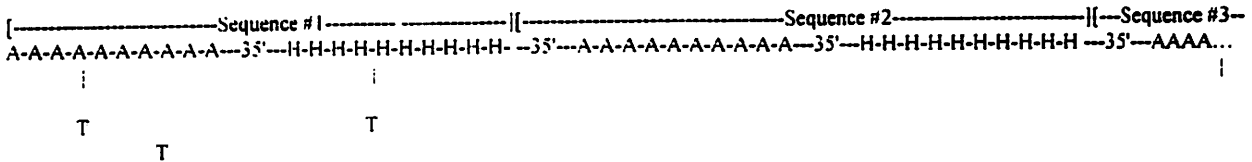
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Figure 1. Experimental design. Longlines will consist of 200 hooks. Two to four lines will be fished each day (long soak duration for all sets during phase 2a; even number of short and one long soaks will be performed each day during phase 2b). Bait type will be alternated after every 10th hook. A space of 35' will be present between hooks containing different bait types. Hence, ten hooks will consist of artificial bait (A), followed by a space of 35' containing no baited hooks, followed by ten hooks baited with herring (H), etc. This sequence will occur ten times per groundline. Data will be blocked by day. Hook timers (T) will be placed on the fourth hook of each bait type for odd sequence numbers (one long soak per day). Ten hook timers will be tested each day during phase 2a. NOTE: This design may be adjusted after interpretation of phase 2a results.

Long soak (twice per day during phase 2a, once per day during phase 2b):



Short soak (once per day during phase 2b):

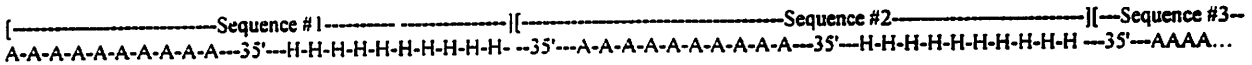
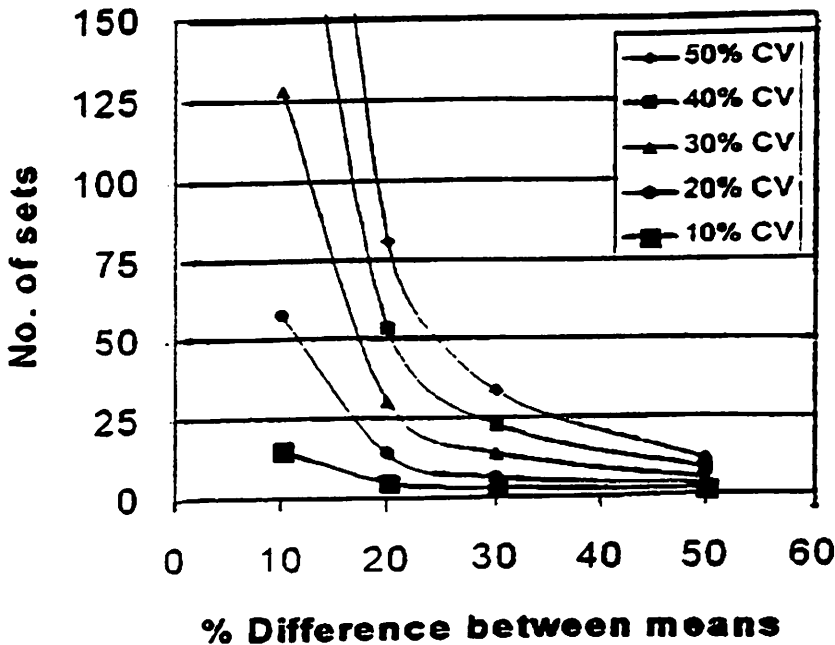
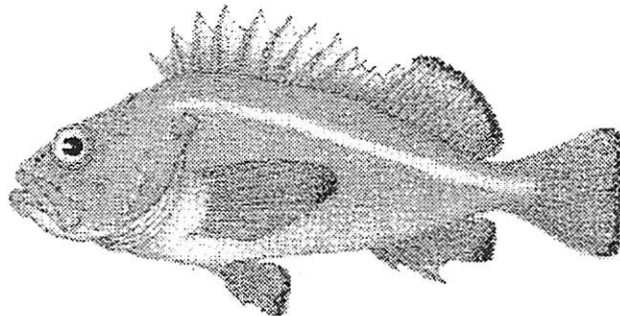


Figure 2. Sample-size calculations for two-sample tests assuming normal distributions (Brown et al. 1993). Estimated number of required longline sets (200 hooks per set) to detect a significant difference between mean catch rates (catch per 100 hooks) at the 5% probability level. Coefficient of variation and the difference between means range from 10% to 50%.



REVISED DRAFT FOR PUBLIC REVIEW

ENVIRONMENTAL ASSESSMENT/REGULATORY IMPACT REVIEW/
INITIAL REGULATORY FLEXIBILITY ANALYSIS
FOR A REGULATORY AMENDMENT
TO THE FISHERY MANAGEMENT PLAN FOR
THE GROUND FISH FISHERIES OF THE GULF OF ALASKA
FOR FULL RETENTION OF DEMERSAL SHELF ROCKFISH IN THE
FIXED GEAR FISHERIES



Prepared by

Staff of the
North Pacific Fishery Management Council
Alaska Department of Fish and Game

February 1, 1999

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EXECUTIVE SUMMARY

Total mortality of demersal shelf rockfish (DSR) in other fisheries is unknown. State and Federal fisheries managers believe a high level of unreported mortality of DSR is occurring in the directed and bycatch fisheries. Currently, the DSR MRB limits fishermen to 10 percent by weight of DSR against their halibut longline harvest. Any poundage in excess of the 10 percent limit is discarded at sea. Amending the regulations to require all DSR bycatch be landed would enhance efforts to increase the accuracy of the accounting of total bycatch mortality of these fish.

Full retention of DSR, as proposed by the Alaska Department of Fish and Game, would reduce waste and enhance estimates of total removals of DSR species for stock assessment purposes without encouraging "topping off" or waste of the resource. Additionally, the proposed action under either Alternative 2 or 3 complies with four new requirements in the Sustainable Fisheries Act of 1996.

Both Alternative 2 or Alternative 3 meet the objectives of gathering the best available data upon which to base the DSR stock assessment and reducing bycatch. The alternatives included in this analysis are:

Alternative 1: No action.

Alternative 2: Require full retention of DSR in the fixed gear fisheries in GOA Regulatory Area 650.

Option: Require IFQ registered buyers to accept deliveries of rockfish and Pacific cod as a condition of their permit.

Revised Alt. 2: Require full retention of DSR in the fixed gear fisheries in the GOA Regulatory Area 650 and the transfer of the amount of retained DSR that exceeds the 10 percent maximum retainable bycatch amount through forfeiture to the State. Sale of DSR in amounts up to the 10 percent MRB would be permitted.

Alternative 3. (a) eliminate the maximum retainable bycatch limit for DSR;
(b) require full retention of DSR by Federally-permitted vessels in the fixed gear fisheries in the GOA Regulatory Area 650;
(c) permit fishermen to sell an amount of retained DSR that is up to but not more than 10 percent of other retained catch; and
(d) after DSR has been landed, weighed and reported on a fishticket, require fishermen to surrender the excess to the State as directed.
Option 1. (d) after DSR has been landed, weighed and reported on a fishticket, require fishermen to discard DSR over 10 percent.
Option 2. (d) after DSR has been landed, weighed and reported on a fishticket, require fishermen to donate DSR over 10 percent to a non-governmental organization similar to the salmon donation program.

1.0 INTRODUCTION

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

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

NEPA, E.O. 12866 and the RFA require a description of the purpose and need for the proposed action as well as a description of alternative actions which may address the problem. This information is included in Section 1 of this document. Section 2 contains information on the biological and environmental impacts of the alternatives as required by NEPA. Impacts on endangered species and marine mammals are also addressed in this section. Section 3 contains a Regulatory Impact Review (RIR) which addresses the requirements of both E.O. 12866 and the RFA that economic impacts of the alternatives be considered. Section 4 contains the Initial Regulatory Flexibility Analysis (IRFA) required by the RFA which specifically addresses the impacts of the proposed action on small businesses.

This Environmental Assessment/Regulatory Impact Review/Initial Regulatory Flexibility Analysis (EA/RIR/IRFA) addresses the need to require full retention of demersal shelf rockfish in GOA Regulatory Area 650 to reduce waste and enhance estimates of total removals of DSR species for stock assessment purposes.

1.1 Purpose of and Need for the Action

Beginning in 1996, the GOA Groundfish Plan Team identified the high level of unreported DSR mortality associated with the halibut fishery and the uncertainty in accounting for this mortality. Anecdotal information from commercial fishermen suggested that the 10 percent maximum retainable bycatch (MRB) limits for DSR taken during directed halibut fishing operations is inadequate and that for some trips the bycatch level may be much higher than 10 percent. Many fishermen do not land or report overages because they would be in violation of directed fishing standards.

An accurate accounting system is needed to account for total bycatch mortality of DSR to require fishermen fishing east of 140° W longitude to bring in all DSR landed during fishing activities. The DSR MRB limits fishermen to 10 percent by weight of DSR against their halibut longline harvest. Any poundage in excess of the 10 percent limit is discarded at sea.

Total bycatch mortality of DSR in other fisheries is unknown. If the bycatch is significantly greater than currently estimated, the directed fishery allocation may have to be reduced. However, if the true mortality is lower than currently estimated then the directed fishery allocation may be increased. Accurate reporting from the full retention program would be used to calculate total mortality and define true bycatch rates for this assemblage.

In September 1997, the Council initiated an analysis of a groundfish proposal submitted by the Alaska Department of Fish and Game to require full retention of DSR in GOA Regulatory Area 650 to reduce waste and enhance estimates of total removals of the species for stock assessment purposes. The proposed action would allow for enhanced management of DSR within its total allowable catch (TAC): (1) without encouraging "topping off" with bycatch species and (2) wasting the resource. Topping off continues to be a concern to NMFS. The

10 percent MRB limit is an estimate applied to the fleet as a whole. The current MRB does allow fishermen to top off on trips where the natural rate of bycatch is less than 10 percent. On other trips, the 10 percent MRB is insufficient and unrecorded discarding occurs. There is no additional incentive to "top off" under full retention.

In October 1998, the Council approved releasing this EA/RIR to the public, with the following additions based on recommendations from its Advisory Panel. The Council directed that an option be added under Alternative 2 which would require IFQ registered buyers to accept deliveries of rockfish and Pacific cod as a condition of their permit. Additionally, the analysis now includes: (a) a discussion of the procedures for the surrender of overages, and (b) a discussion of how the proceeds of the sale of forfeited fish would accrue to fisheries management, research and possible use for observer coverage in the directed DSR fishery. Items (a) and (b) are addressed in Section 3.1.2.

At that meeting, the Scientific and Statistical Committee noted that under Alternative 2, DSR landings and bycatch may increase since it would be legal to retain DSR equivalent to more than 10 percent of weight of halibut or sablefish catch in the IFQ fisheries. DSR bycatch landings could increase to the point where a DSR directed fishery could be precluded. Alternatively, the proposed measure would improve total mortality estimates for DSR by accounting for a significant portion of catch that is now unrecorded. The proposed measure would reduce discard and waste.

1.2 Magnuson-Stevens Act Requirements

National Standard 9 states: "Conservation and management measures shall, to the extent practicable, (A) minimize bycatch and (B) to the extent bycatch cannot be avoided, minimize the mortality of such bycatch."

The Sustainable Fisheries Act of 1996 (SFA) added many new requirements to the Magnuson-Stevens Fishery and Conservation and Management Act. Four of these requirements are pertinent to the proposed action. Section 303(a)(11) added bycatch reporting and minimization requirements to assess the amount and type of bycatch occurring in the fishery and include conservation and management measures that, to the extent practicable, minimize bycatch. Section 313(f) requires the reduction of economic discards for a period of not less than four years. Section 313(h) added a requirement to ensure total catch measurement in each fishery under Council jurisdiction that will ensure the accurate enumeration, at a minimum, of target species, economic discards, and regulatory discards. Section 313(i) full retention by fishing vessels and full utilization by fish processors of economic discards in fisheries if such discards cannot be avoided.

1.3 Management Background

<u>Common name</u>	<u>Scientific Name</u>
canary rockfish	<i>Sebastes pinniger</i>
China rockfish	<i>S. nebulosus</i>
copper rockfish	<i>S. caurinus</i>
quillback rockfish	<i>S. maliger</i>
rosethorn rockfish	<i>S. helvomaculatus</i>
tiger rockfish	<i>S. nigrocinctus</i>
yelloweye rockfish	<i>S. ruberrimus</i>

Prior to 1987, demersal shelf rockfishes (DSR) were grouped with the "other rockfish" complex in the GOA Fishery management plan (FMP). In 1987, the "other rockfish" complex was split into three components for management purposes in the eastern Gulf. The DSR assemblage is now comprised of seven species of nearshore, bottom-dwelling rockfishes listed below. Yelloweye rockfish is the dominant species in the fishery. Prior to 1992, DSR was recognized as an FMP assemblage only in the waters east of 137°W. longitude.

In 1992, DSR was recognized in the East Yakutat Section (EYKT) and management of DSR was extended westward to 140° W. longitude. This area is referred to as the Southeast Outside (SEO) Subdistrict and is comprised of four management sections: East Yakutat (EYKT), Northern Southeast Outside (NSEO), Central

Southeast Outside (CSEO) and Southern Southeast Outside (SSEO) (Figure 1). In SEO, DSR are managed jointly by the State of Alaska and the National Marine Fisheries Service.

The history of domestic landings of DSR from SEO is shown in Table 1. The directed DSR catch in SEO increased from 106 mt in 1982 to a peak of 803 mt in 1987. Total landings exceeded 900 mt in 1993. Directed fishery landings have been constrained by other fishery management actions, such as a 6,000 lb trip limit in Southeast Alaska, except for a 12,000 lb limit in East Yakutat, where a trip limit applies to a five day period. In 1991 the GOA was closed to all longlining on July 8 when the prohibited species cap (PSC) of halibut was reached. Since 1992, there has been a separate PSC for the DSR fishery. In 1993 the fall directed fishery was canceled due to an unanticipated increase in DSR bycatch during the fall halibut fishery. Since 1995, the halibut fishery has been managed under an individual fishing quota (IFQ) program.

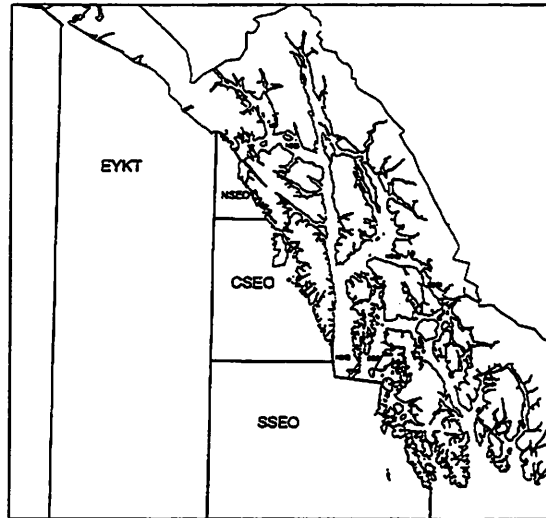


Figure 1. Eastern Gulf Regulatory Area.

DSR mortality during the halibut longline fishery continues to account for a significant portion of the total allowable catch (TAC). Estimated unreported mortality has ranged between 130 mt to 355 mt annually. Prior to the IFQ fishery, ADF&G had estimated unreported mortality of DSR during the halibut fishery based on IPHC interview data. The 1993 interview data indicates a total mortality of DSR of 13 percent of the June halibut landings (by weight) and 18 percent of the September halibut landings. Unreported mortality data has been more difficult to collect under the halibut IFQ fishery and appears to be less reliable than previous data. The allowable bycatch limit of DSR during halibut fishing is 10 percent of the halibut weight. Based on past landing data, it is estimated that approximately half of the 2C halibut quota and 1 percent of the 3A halibut quota are taken in SEO. Total bycatch is estimated using a 10 percent bycatch mortality for DSR in 2C and a 7 percent bycatch mortality in 3A. Estimated unreported mortality is the difference between the total and the reported bycatch. Based on the 1997 halibut quotas, the estimated DSR mortality for 1998 is anticipated to be 300 mt.

On a season-wide basis the total bycatch of DSR during the halibut fishery may only be 10 percent. However, on an individual trip basis the bycatch of DSR varies greatly. Halibut and yelloweye overlap in their distributions to varying degrees during the IFQ season. Depth, time of year, and habitat all influence the bycatch rate of DSR. Less easy to predict is the occurrence of yelloweye associated with patchy prey distribution. Fishermen have reported high catch rates of yelloweye in sets over mud bottom where the incidence of yelloweye is expected to be minimal. Therefore, even when fishermen intend to minimize DSR bycatch, there may be significant catches taken. Recently a fisherman made a directed halibut trip off Baranof Island. He landed 24,000 pounds of halibut and 7,800 pounds of yelloweye rockfish, far in excess of the 2,400 pounds allowed under directed fishing standards. This amount of DSR also exceeds the trip limit for DSR in the Southeast subdistrict. The fisherman said he had made an effort to move to other substrate over the course of his trip and that he caught as many yelloweye in his soft bottom sets as he did on the hard bottom sets. His logbook data substantiate these remarks. He said he refuses to throw rockfish overboard and feels it is unfair to be penalized for bringing in this catch.

Rockfish have a physoclastic, or closed, swim bladder. They are not capable of quickly adjusting to depth changes and therefore suffer embolism mortality when brought to the surface from depth. Most rockfish taken in the course of longline fishing are fatally injured. Therefore release of fish in excess of bycatch allowances results in waste.

The majority of the Eastern Gulf longline fleet are under 60 ft and therefore, unobserved. Although logbooks are required, accurate weights, by species, for discards at sea are not possible. Given that most rockfish discarded are dead, the true mortality of DSR is not accurately accounted. Fishermen, worried that they will be cited for overages, often do not bring in bycatch in excess of their allowable catch and in fact, current law prohibits retention beyond the 10 percent level. NOAA Enforcement staff, recognizing that rockfish are unlikely to survive discard at sea, currently allows voluntary forfeiture of rockfish in excess of the overfishing definitions as long as: 1) the forfeited species is not on prohibited species status or 2) the overage does not exceed 100 percent over the allowable bycatch or 1,000 pounds, whichever ever is in the fisherman's favor. The processor accepting the delivery is allowed to sell the rockfish and the fish is listed on the fish ticket as a forfeiture and a check for the revenue for this sale going to either NMFS or the State of Alaska, depending on the jurisdiction of the overage. The State of Alaska fishticket system captures these forfeitures as harvest code "18."

Table 2 lists the reported DSR forfeitures for the directed DSR fishery in excess of the trip limit and as bycatch in the halibut fishery and other groundfish fisheries for the SEO district for 1996 and 1997. It must be emphasized that the reported overages in the fishticket system reflect only a small portion of the total bycatch mortality due to under-reporting of discards, since fishermen landing in excess of the MRB are subject to a fine.

Table 2. Demersal shelf rockfish landed and confiscated in various fisheries in 1996 and 1997. (Source: ADF&G fish ticket data (in round lb.)

Year	Fishery	# lb	# Vessels	# Landings
1996	Directed DSR	3,078	13	15
1996	Directed Halibut	4,107	66	92
	<u>1996 Other*</u>	<u>3,009</u>	<u>16</u>	<u>21</u>
	TOTAL	10,194	95	128
1997	Directed DSR	3,880	26	32
1997	Directed Halibut	9,182	81	119
	<u>1997 Other*</u>	<u>307</u>	<u>7</u>	<u>7</u>
	TOTAL	13,369	114	158

*miscellaneous finfish and directed lingcod fisheries.

Although the current management plan for DSR attempts to account for total mortality of DSR and set directed fishing levels after accounting for this bycatch the true bycatch mortality of DSR is unknown. In 1998 and 1999, the overfishing level for DSR was 940 mt and the TAC was set at 560 mt. The directed fishery quotas were set for the 4 ADF&G management areas in Southeast Outside after subtracting the 300 mt estimated to be taken incidental to the halibut fishery. The total directed fishery quota for SEO is 260 mt.

The overfishing level for DSR is sufficiently higher than the TAC that it is unlikely that the overfishing level would be reached under full retention, even if the true total mortality was higher than estimated. In years of high halibut catch it is possible that bycatch in the halibut fishery would preempt the directed fishery. Conversely, it may be possible to increase the directed fishery TAC if it becomes apparent that we have over-allocated TAC to bycatch needs. Stock assessment information for this stock can be found in O'Connell et al. (1998) and is included in this EA/RIR by reference.

1.4 Alternatives Considered

1.4.1 Alternative 1: No Action.

The status quo alternative would allow the current wastage of DSR bycatch that exceeds the maximum retainable bycatch rates for this species complex to continue and not allow managers to collect the necessary data to more accurately estimate the OFL, ABC, and TAC for this assemblage.

1.4.2 Alternative 2: Require full retention of DSR in the fixed gear fisheries in GOA Regulatory Area 650.

Alternative 2 would allow full retention of DSR east of 140° W longitude. Fishermen would be required to retain all their DSR bycatch. They would be allowed to sell up to the 10 percent maximum retainable bycatch amount (MRB) (round weight equivalent of their target species weight). The remainder of the fish would be voluntarily relinquished to NMFS or ADF&G. Proceeds of the sale of forfeited fish could accrue to fisheries management, research, or enforcement.

Alternative 2 would serve a conservation need to reduce waste of the DSR resource. ADF&G managers are likely miscalculating DSR mortality in the fixed gear fisheries. The inaccuracy of mortality estimated may or may not result in additional DSR available to the directed fishery. This alternative provides the most benefits as DSR mortality is fully accounted, there is no incentive to "top off," and there is no wastage of the catch.

Option: Require IFQ registered buyers to accept deliveries of rockfish and Pacific cod as a condition of their permit.

The Council added an option to require retention of DSR and Pacific cod by IFQ buyers at the October meeting. This requirement would only affect the bycatch in the IFQ fisheries. Under this option, the retention requirement would need to be extended to shoreside processors to affect all fixed gear fisheries. NMFS has provided the following rationale rejecting this option as a viable management option.

The December 1, 1989 memorandum from the NOAA Office of General Counsel to the Council summarized the Council's authority to prohibit roe-stripping and increase retention and utilization of pollock. These arguments have also been utilized for guiding the Council in implementation of the IR/TU program and follow consistently regarding DSR retention.

Because of the desire to more effectively manage the DSR resource, it has been proposed that full retention of DSR above the MRB level be required. Requiring full retention of fish by fishermen is a legitimate action that is consistent with managing "fishing" and is consistent with the paramount purpose of the Magnuson-Stevens Act, to conserve a stock of fish. The Act also requires "conservation and management" of the resource. Requiring full retention of DSR by fishermen could result in a more accurate understanding of DSR mortality and would likely improve management of the resource and is therefore consistent with that goal.

The MSA authorized the Councils to limit wasteful practices. Controlling wasteful practices is a legitimate action. Applying a no-discard rule (i.e., full retention) to harvesters raises no legal problems of authority under the Act. There is authority to limit wasteful practices involved with fishing and authority to limit wasteful practices by requiring at-sea-processors to retain and utilize fish flesh.

There is, however, no authority to limit wasteful practices by regulating on-shore processors, because on-shore processors can be regulated only indirectly as an incidence of managing "fishing." For example, the Act authorizes the requirement for on-shore processors to produce reports that help manage the fishery, but not for requiring on-shore processors to buy or process fish. Therefore any regulations requiring on-shore processors to buy fish, would have to be implemented by the State. This has been the approach with two former actions involving roe stripping and IR/TU, where the State has implemented regulations concerning on-shore components.

To conclude, NMFS could require a no-discard rule for fishermen and processing by at-sea-processors, but has no authority to regulate on-shore processors with regard to purchasing fish and setting prices paid for such fish. This action would be appropriate for the State to consider. The Council could make this recommendation to the Joint Board of Fisheries/Council committee for discussion at their February 1999 joint meeting.

During final review of this action in December 1998, the Advisory Panel recommended that the Council adopt Alternative 2, which requires full retention of DSR in the fixed gear fisheries in GOA regulatory area 650. The AP further recommended that the Council request the State to require processors to accept and weigh deliveries of DSR. Due to the press of other Council business, final action before the Council was rescheduled for the February 1999 meeting.

Since the AP considered this issue in December, NOAA General Counsel has advised that Alternative 2 as released to the public does not propose a legal solution because it relies on the forfeiture of DSR over a certain amount, but at the same time eliminates the basis for the forfeiture action by requiring (i.e. legalizing) all retained DSR. However, forfeiture of fish is premised on the fact that the fish being forfeited are illegally retained. NMFS currently seizes and institutes forfeiture action through the use of voluntary abandonment of DSR that are landed in excess of the 10 percent MRB. NMFS can seek forfeiture of this fish because it is illegal; current regulation requires that no more than a specified amount be retained. State Department of Law Counsel has advised that Alternative 2 would not conflict with proposed federal regulation because the State law would require abandonment of the fish in excess of 10 percent MRB.

In regards to the Alternative 2 option, federal authorities do not have jurisdiction over shoreside processors as proposed. However, the Council could request the State of Alaska to regulate shoreside processors to require the purchase or forfeiture of fully retained DSR in excess of the 10 percent MRB.

A revised Alternative 2, which addresses NOAA General Counsel and Department of Law concerns, is included in the analysis. However, pending additional advice, NOAA General Counsel has also recommended adding a third alternative (listed below) for Council consideration,

Revised Alternative. 2: Require full retention of DSR in the fixed gear fisheries in the GOA Regulatory Area 650 and the transfer of the amount of retained DSR that exceeds the 10 percent maximum retainable bycatch amount through forfeiture to the State. Sale of DSR in amounts up to the 10 percent MRB would be permitted.

- 1.4.3 Alternative 3. (a) eliminate the maximum retainable bycatch limit for DSR;
(b) require full retention of DSR by Federally-permitted vessels in the fixed gear fisheries in the GOA Regulatory Area 650;
(c) permit fishermen to sell an amount of retained DSR that is up to but not more than 10 percent of other retained catch; and
(d) after DSR has been landed, weighed and reported on a fishticket, require fishermen to surrender the excess to the State as directed.
Option 1. (d) after DSR has been landed, weighed and reported on a fishticket, require fishermen to discard DSR over 10 percent.
Option 2. (d) after DSR has been landed, weighed and reported on a fishticket, require fishermen to donate DSR over 10 percent to a non-governmental organization similar to the salmon donation program.

This revised analysis also adds a new Alternative 3 to resolve the same legal concerns as expressed above. However, NOAA General Counsel informs that this alternative proposes a management regime that has not yet been implemented under the Magnuson-Stevens Act and may fall outside of the Council's and NMFS' authority under the MSA. Counsel is researching the issue and will report to the Council on the status of that opinion during Council discussion at final action.

Alternative 3 would eliminate the federal MRB for DSR and require retention of all DSR in fixed gear fisheries and place restrictions on the disposition of those fish in excess of the 10 percent. After the fish are weighed and

landed, the analysis includes three options for that disposition. Alternative 3 (d) contains the reporting requirements and would require surrender of those fish in excess of the limit to be sold by ADF&G, so that those fish would enter the marketplace. Two alternatives are offered for consideration, but are not recommended. Option 1 would not be an optimal solution because it does not reduce waste. Many of the small communities in which 'excess bycatch' DSR would be landed are physically outside food bank distribution networks and may therefore not be viable communities for NGO donations, unless local or subsistence needs can be met. Thus, Option 2 may not be a viable solution.

1.4.4 Other alternatives considered and rejected

1. Open the directed fishery concurrent with the halibut IFQ fishery and remove the DSR MRB, allowing full retention in the halibut fishery.

Several problems occur with the alternative for concurrent directed and bycatch fisheries for DSR. Currently in the central Southeast Outside Area, the directed fishery quota is taken in a matter of days (10 days in 1998). Opening concurrently with the halibut IFQ fishery would mean that halibut fishermen could also make directed landings of DSR. There would be no incentive to avoid bycatch, and in fact, there may be incentives for 'topping off' for directed fishery deliveries. Bycatch could legally be landed on a directed fishery fishticket, giving credit for participation in the directed fishery. This may result in greatly increasing the amount of DSR taken by the halibut IFQ fleet. Also, the directed harvest would no longer be limited to a portion of the TAC and would have an incentive for derby-style fishing. Once the TAC was reached, DSR would go on prohibited species status and all DSR would be discarded. This resource would be wasted and confound the purposes for creating a reliable and accurate accounting system of total mortality.

2. Observer coverage on small-boat fleet

This alternative would require discards of DSR in excess of the 10 percent MRB and require observers on vessels <60 ft. It is untenable to require observers on these small vessels. Bycatch of DSR in the halibut fishery varies considerably by area, depth, and season. Observer coverage of 100 percent would be needed to in this fishery to achieve an accurate accounting system for assessing DSR total mortality using an observer system.

Further, vessels <60 ft do not have the capability of weighing bycatch so total mortality would be based on numbers of fish. Placing observers on small vessels often results in an unsafe working environment for observers and an extreme increase in costs and liability for vessel operators.

3. Remove DSR fro the GOA FMP and have the State of Alaska assume management authority for these species.

This alternative would turn complete management authority for these seven rockfish species in Southeast Alaska (Area 650) to the State. Under this scenario, the State would require surrender of DSR in excess of 10 percent of all retained groundfish catch, in addition to its current management practices. However, this seems like an extreme solution to the stated problem when State legal counsel has advised that the proposed action is available under current federal management practices.

4. Implement an IFQ fishery for DSR.

Under current guidelines under the MSA, no new IFQ fisheries are allowed until October 2001. This could be a reasonable alternative if this ban is lifted sooner. The State of Alaska has agreed to analyze a limited entry program for DSR, as it is not currently included in the federal license limitation program scheduled for implementation in 2000. An IFQ program would be difficult to develop unless it included options for concurrent quota share fishing for halibut and DSR, similar to that which occurs for halibut and sablefish. Without such a requirement, managers may continue to be faced with attempting to account for unreported mortality.

2.0 NEPA REQUIREMENTS: ENVIRONMENTAL IMPACTS OF THE ALTERNATIVES

An environmental assessment (EA) is required by the National Environmental Policy Act of 1969 (NEPA) to determine whether the action considered will result in significant impact on the human environment. If the action is determined not to be significant based on an analysis of relevant considerations, the EA and resulting finding of no significant impact (FONSI) would be the final environmental documents required by NEPA. An environmental impact statement (EIS) must be prepared for major Federal actions significantly affecting the human environment.

An EA must include a brief discussion of the need for the proposal, the alternatives considered, the environmental impacts of the proposed action and the alternatives, and a list of document preparers. The purpose and alternatives were discussed in Sections 1.1 and 1.2, and the list of preparers is in Section 8. This section contains the discussion of the environmental impacts of the alternatives including impacts on threatened and endangered species and marine mammals.

2.1 Environmental Impacts of the Alternatives

The environmental impacts generally associated with fishery management actions are effects resulting from (1) harvest of fish stocks which may result in changes in food availability to predators and scavengers, changes in the population structure of target fish stocks, and changes in the marine ecosystem community structure; (2) changes in the physical and biological structure of the marine environment as a result of fishing practices, e.g., effects of gear use and fish processing discards; and (3) entanglement/entrapment of non-target organisms in active or inactive fishing gear.

A summary of the effects of the annual groundfish harvests on the biological environment and associated impacts on marine mammals, seabirds, and other threatened or endangered species are discussed in the final environmental assessment for the annual groundfish total allowable catch specifications (NMFS 1998).

2.2 Impacts on Endangered or Threatened Species

Background. The ESA provides for the conservation of endangered and threatened species of fish, wildlife, and plants. The program is administered jointly by NMFS for most marine species, and the US Fish and Wildlife Service (FWS) for terrestrial and freshwater species.

The ESA procedure for identifying or listing imperiled species involves a two-tiered process, classifying species as either threatened or endangered, based on the biological health of a species. Threatened species are those likely to become endangered in the foreseeable future [16 U.S.C. §1532(20)]. Endangered species are those in danger of becoming extinct throughout all or a significant portion of their range [16 U.S.C. §1532(20)]. The Secretary of Commerce, acting through NMFS, is authorized to list marine mammal and fish species. The Secretary of the Interior, acting through the FWS, is authorized to list all other organisms.

In addition to listing species under the ESA, the critical habitat of a newly listed species must be designated concurrent with its listing to the "maximum extent prudent and determinable" [16 U.S.C. §1533(b)(1)(A)]. The ESA defines critical habitat as those specific areas that are essential to the conservation of a listed species and that may be in need of special consideration. The primary benefit of critical habitat designation is that it informs Federal agencies that listed species are dependent upon these areas for their continued existence, and that consultation with NMFS on any Federal action that may affect these areas is required. Some species, primarily the cetaceans, listed in 1969 under the Endangered Species Conservation Act and carried forward as endangered under the ESA, have not received critical habitat designations.

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

Endangered

Northern Right Whale	<i>Balaena glacialis</i>
Bowhead Whale ¹	<i>Balaena mysticetus</i>
Sei Whale	<i>Balaenoptera borealis</i>
Blue Whale	<i>Balaenoptera musculus</i>
Fin Whale	<i>Balaenoptera physalus</i>
Humpback Whale	<i>Megaptera novaeangliae</i>
Sperm Whale	<i>Physeter macrocephalus</i>
Snake River Sockeye Salmon	<i>Oncorhynchus nerka</i>
Short-tailed Albatross	<i>Diomedea albatrus</i>
Steller Sea Lion ²	<i>Eumetopias jubatus</i>

Threatened

Snake River Fall Chinook Salmon	<i>Oncorhynchus tshawytscha</i>
Snake River Spring/Summer Chinook Salmon	<i>Oncorhynchus tshawytscha</i>
Steller Sea Lion ³	<i>Eumetopias jubatus</i>
Spectacled Eider	<i>Somateria fishcheri</i>
Steller's eider	<i>Polysticta stelleri</i>

Section 7 Consultations. Because both groundfish fisheries are federally regulated activities, any negative affects of the fisheries on listed species or critical habitat and any takings⁴ that may occur are subject to ESA section 7 consultation. NMFS initiates the consultation and the resulting biological opinions are issued to NMFS. The Council may be invited to participate in the compilation, review, and analysis of data used in the consultations. The determination of whether the action "is likely to jeopardize the continued existence of" endangered or threatened species or to result in the destruction or modification of critical habitat, however, is the responsibility of the appropriate agency (NMFS or FWS). If the action is determined to result in jeopardy, the opinion includes reasonable and prudent measures that are necessary to alter the action so that jeopardy is avoided. If an incidental take of a listed species is expected to occur under normal promulgation of the action, an incidental take statement is appended to the biological opinion.

Section 7 consultations have been done for all the above listed species, some individually and some as groups. Below are summaries of the consultations.

Endangered Cetaceans. NMFS concluded a formal section 7 consultation on the effects of the BSAI and GOA groundfish fisheries on endangered cetaceans within the BSAI and GOA on December 14, 1979, and April 19, 1991, respectively. These opinions concluded that the fisheries are unlikely to jeopardize the continued existence or recovery of endangered whales. Consideration of the bowhead whale as one of the listed species present within the area of the Bering Sea fishery was not recognized in the 1979 opinion, however, its range and status are not known to have changed. No new information exists that would cause NMFS to alter the conclusion of the 1979 or 1991 opinions. NMFS has no plan to reopen Section 7 consultations on the listed cetaceans for this action. Of note, however, are observations of Northern Right Whales during Bering Sea stock assessment cruises in the

¹species is present in Bering Sea area only.

²listed as endangered west of Cape Suckling.

³listed as threatened east of Cape Suckling.

⁴ the term "take" under the ESA means "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct" (16 U.S.C. §1538(a)(1)(B)).

summer of 1997 (NMFS per. com). Prior to these sightings, and one observation of a group of two whales in 1996, confirmed sightings had not occurred.

Steller sea lion. The Steller sea lion range extends from California and associated waters to Alaska, including the Gulf of Alaska and Aleutian Islands, and into the Bering Sea and North Pacific and into Russian waters and territory. In 1997, based on biological information collected since the species was listed as threatened in 1990 (60 FR 51968), NMFS reclassified Steller sea lions as two distinct population segments under the ESA (62 FR 24345). The Steller sea lion population segment west of 144 W. longitude (a line near Cape Suckling, Alaska) is listed as endangered; the remainder of the U.S. Steller sea lion population remains listed as threatened.

NMFS designated critical habitat in 1993 (58 FR 45278) for the Steller sea lion based on the Recovery Team's determination of habitat sites essential to reproduction, rest, refuge, and feeding. Listed critical habitats in Alaska include all rookeries, major haul-outs, and specific aquatic foraging habitats of the BSAI and GOA. The designation does not place any additional restrictions on human activities within designated areas. No changes in critical habitat designation were made as result of the 1997 re-listing.

Beginning in 1990 when Steller sea lions were first listed under the ESA, NMFS determined that both groundfish fisheries may adversely affect Steller sea lions, and therefore conducted Section 7 consultation on the overall fisheries (NMFS 1991), and subsequent changes in the fisheries (NMFS 1992). The biological opinion on the BSAI and GOA fisheries effects on Steller sea lions issued by NMFS on January 26, 1996 concluded that these fisheries and harvest levels are unlikely to jeopardize the continued existence and recovery of the Steller sea lion or adversely modify critical habitat. NMFS conducted an informal Section 7 consultation on Steller sea lions for this action in 1997 and concluded that the GOA groundfish fishery and the 1997 TAC amounts were not likely to affect Steller sea lions in a way or to an extent not already considered in previous Section 7 consultations (NMFS, January 17, 1997). Reinitiation of formal consultation was not required at that time. NMFS has reopened formal consultation on the 1998 fishery to evaluate new information specific to the 60 percent increase of pollock TAC in the combined W/C Regulatory Area. The 1998 biological opinion concluded that the 1998 fishery was not likely to jeopardize the continued existence and recovery of Steller sea lions or to adversely modify critical habitat.

In December 1998, a Biological Opinion on the Steller sea lion concluded with a 'jeopardy finding' relative to the pollock fisheries in the BSAI and GOA. To allow these fisheries to continue in 1999 and beyond, the Council recommended emergency action to implement measures consistent with reasonable and prudent alternatives (RPAs) recommended in the opinion. The emergency RPAs, in summary, proposed spatial and temporal distribution of the pollock fisheries as well as additional closure areas around specific rookery and haul-out sites used by sea lions.

For the BSAI, the Council's actions include: (1) separating the pollock fisheries into four seasons (A1, A2, B, and C seasons), with a limit of 30 percent of the total TAC coming from any one season; (2) reducing the overall roe season fishery to 40 percent of the annual total TAC; (3) limiting the overall A season removals from the sea lion critical habitat area/catcher vessel operational area (CH/CVOA) to 62.5 percent of the total TAC for those seasons; (4) eliminating a directed pollock fishery in the Aleutian Islands subarea; and, (5) expanding closure areas around rookery and haul-out sites.

For the GOA, the Council also created four seasons with limits on the percentage of the TAC which can be taken from any one season, expanded the closure areas around rookery and haul-out sites, and established a 300,000 pound trip limit for pollock in the Western and Central Gulf areas.

On January 22, 1999, NMFS published an emergency interim rule implementing RPAs which significantly reduced the likelihood that the pollock A season fishery off Alaska will jeopardize the continued existence of the

western population of Steller sea lions. In the Bering Sea subarea, NMFS is phasing in an exclusion zone of 10 nm around the Cape Sarichef haulout, and anticipates extending the exclusion zone to around 20 nm for 2000 and beyond. In the Gulf of Alaska, NMFS will not implement a series of 10 nm exclusion zones until 2000. To avoid determinations of jeopardy for the latter half of the year, the emergency rule must be revised and extended for the latter half of 1999 and beyond. Final action is scheduled for June 1999. Anticipated actions in that rule address: 1) spatial distribution of pollock catch in the B and C season, 2) continued reduction of the cap inside the critical habitat/catcher vessel operating area complex in the A1 and A2 seasons, 3) pollock trawl exclusion zones, 4) rollover provision of underharvested catch, 5) starting date for the B season in the Bering Sea, 6) Western/Central GOA management issues, and 7) Western/Central GOA trip limits.

Pacific Salmon. No species of Pacific salmon originating from freshwater habitat in Alaska are listed under the ESA. These listed species originate in freshwater habitat in the headwaters of the Columbia (Snake) River. During ocean migration to the Pacific marine waters a small (undetermined) portion of the stock extend into the Gulf of Alaska as far east as the Aleutian Islands. In that habitat they are mixed with hundreds to thousands of other stocks originating from the Columbia River, British Columbia, Alaska, and Asia. The listed fish are not visually distinguishable from the other, unlisted, stocks. Mortal take of them in the chinook salmon bycatch portion of the fisheries is assumed based on sketchy information on abundance, timing, and migration patterns.

NMFS designated critical habitat in 1992 (57 FR 57051) for the for the Snake River sockeye, Snake River spring/summer chinook, and Snake River fall chinook salmon. The designations did not include any marine waters, therefore, does not include any of the habitat where the groundfish fisheries are promulgated.

NMFS has issued two biological opinions and no-jeopardy determinations for listed Pacific salmon in the Alaska groundfish fisheries (NMFS 1994, NMFS 1995). Conservation measures were recommended to reduce salmon bycatch and improve the level of information about the salmon bycatch. The no jeopardy determination was based on the assumption that if total salmon bycatch is controlled, the impacts to listed salmon are also controlled. The incidental take statement appended to the second biological opinion allowed for take of one Snake River fall chinook and zero take of either Snake River spring/summer chinook or Snake River sockeye, per year. As explained above, it is not technically possible to know if any have been taken. Compliance with the biological opinion is stated in terms of limiting salmon bycatch per year to under 55,000 and 40,000 for chinook salmon, and 200 and 100 sockeye salmon in the BSAI and GOA fisheries, respectively.

Short-tailed albatross. The entire world population in 1995 was estimated as 800 birds; 350 adults breed on two small islands near Japan (H. Hasegawa, per. com.). The population is growing but is still critically endangered because of its small size and restricted breeding range. Past observations indicate that older short-tailed albatrosses are present in Alaska primarily during the summer and fall months along the shelf break from the Alaska Peninsula to the GOA, although 1- and 2-year old juveniles may be present at other times of the year (FWS 1993). Consequently, these albatrosses generally would be exposed to fishery interactions most often during the summer and fall--during the latter part of the second and the whole of the third fishing quarters.

Formal consultation on the effects of the groundfish fisheries on the short-tailed albatross under the jurisdiction of the FWS concluded that BSAI and GOA groundfish fisheries would adversely affect the short-tailed albatross and would result in the incidental take of up to two birds per year, but would not jeopardize the continued existence of that species (FWS 1989). Subsequent consultations for changes to the fishery that might affect the short-tailed albatross also concluded no jeopardy (FWS 1995, FWS 1997).

Seven albatross have been taken since 1983. Recent takes in the longline fishery include two in 1995, one in October 1996, and two in 1998. Both 1995 birds were caught in the vicinity of Unimak Pass and were taken outside the observers' statistical samples. Two birds were reportedly taken in the BSAI groundfish hook-and-line fishery for Pacific cod during September 1998. A Biological Opinion is being prepared by FWS for short-

tailed albatross for the 1999-2000 groundfish fisheries. The 1997-98 opinion has been extended into 1999 until the 1999-2000 opinion has been completed.

Seabird avoidance devices have been required in the groundfish longline fishery since 1997. The 1998 takes were by vessels employing seabird avoidance devices. The Council is scheduled to take final action on further seabird avoidance measures at its April 1999 meeting.

Spectacled Eider. These sea ducks feed on benthic mollusks and crustaceans taken in shallow marine waters or on pelagic crustaceans. The marine range for spectacled eider is not known, although Dau and Kitchinski (1977) review evidence that they winter near the pack ice in the northern Bering Sea. Spectacled eider are rarely seen in U.S. waters except in August through September when they molt in northeast Norton Sound and in migration near St. Lawrence Island. The lack of observations in U.S. waters suggests that, if not confined to sea ice polyneas, they likely winter near the Russian coast (FWS 1993). Although the species is noted as occurring in the GOA and BSAI management areas, no evidence exists that they interact with these groundfish fisheries.

Conditions for Re-initiation of Consultation. For all ESA listed species, consultation must be reinitiated if: the amount or extent of taking specified in the Incidental Take Statement is exceeded, new information reveals effects of the action that may affect listed species in a way not previously considered, the action is subsequently modified in a manner that causes an effect to listed species that was not considered in the biological opinion, or a new species is listed or critical habitat is designated that may be affected by the action.

2.3 Impacts on Marine Mammals Not Listed Under the ESA

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

None of the alternatives will affect takes of other marine mammals not listed under the ESA. Therefore, none of the alternatives are expected to have a significant impact on marine mammals not listed under the ESA.

2.4 Coastal Zone Management Act

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

2.5 Conclusions or Finding of No Significant Impact

The alternatives address the retention of DSR in the bycatch fisheries to reduce waste and enhance assessment of the resource. Neither alternative impact total mortality of the DSR resource. Therefore, none of the alternatives are likely to significantly affect the quality of the human environment, and the preparation of an environmental impact statement for the proposed action is not required by Section 102(2)(C) of the National Environmental Policy Act or its implementing regulations.

Assistant Administrator for Fisheries, NOAA

Date

3.0 REGULATORY IMPACT REVIEW: ECONOMIC AND SOCIOECONOMIC IMPACTS OF THE ALTERNATIVES

This section examines the Gulf of Alaska demersal shelf rockfish directed and bycatch fisheries. It provides information about the economic and socioeconomic impacts of the alternatives including identification of the individuals or groups that may be affected by the action, the nature of these impacts, quantification of the economic impacts if possible, and discussion of the trade offs between qualitative and quantitative benefits and costs.

The requirements for all regulatory actions specified in E.O. 12866 are summarized in the following statement from the order:

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

This section also addresses the requirements of both E.O. 12866 and the Regulatory Flexibility Act to provide adequate information to determine whether an action is "significant" under E.O. 12866 or will result in "significant" impacts on small entities under the RFA.

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

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

A regulatory program is "economically significant" if it is likely to result in the effects described above. The RIR is designed to provide information to determine whether the proposed regulation is likely to be "economically significant."

3.1 Alternatives to be considered

At its September 1997 meeting, the Council decided to initiate an analysis to require full retention of DSR when caught as bycatch in the halibut and sablefish IFQ fisheries. During initial review in October 1998, the Council modified the list of alternatives.

3.1.1 Alternative 1: Status quo.

The status quo alternative would retain the current wastage of DSR bycatch that exceeds the maximum retainable bycatch rates for this species complex. Managers would not have the opportunity to collect valuable data needed to enhance management of the DSR assemblage.

3.1.2 Alternative 2: Require full retention of DSR in the fixed gear fisheries in GOA Regulatory Area 650.

Option: Require IFQ registered buyers to accept deliveries of rockfish and Pacific cod as a condition of their permit.

Alternative 2 would allow full retention of DSR east of 140° W longitude. Fishermen would be required to retain all their DSR bycatch. They would be allowed to sell up to the 10 percent maximum retainable bycatch amount (round weight equivalent of their target species weight). The remainder of the fish would be voluntarily relinquished to NMFS or ADF&G. Proceeds of the sale of forfeited fish would accrue to fisheries management and research.

Currently the voluntary forfeiture program works as follows: NMFS and State of Alaska Fish and Wildlife Protection (FWP) both have thresholds under which they allow voluntary forfeiture of product. The processors are aware of these limits and designate the forfeiture amount under code 18 on the original fish ticket or as code 18 on a separate fish ticket. A check for the amount of the forfeiture is made out to the State of Alaska when fish are surrendered to the State. These checks have been deposited in an ADF&G commercial fisheries account and used directly by the regional groundfish project for research and management. FWP retains the check only in cases that are above the voluntary forfeiture threshold and result in prosecution.

For example, overage checks from the Chatham Strait sablefish fishery have been used by the ADF&G Region I groundfish project directly for research and management of this sablefish fishery. A budget request is submitted at the beginning of the fiscal year outlining anticipated expenditures. If Alternative 2 is implemented, a similar budget program could be set up for DSR overage checks which would be earmarked for DSR research and management. For example, this fund could pay for sea duty expenses of ADF&G employees to increase observer coverage of the DSR fishery, increased biological sampling of commercial landings, and additional vessel days for the DSR stock assessment surveys. It should be noted that most vessels in the applicable fisheries with DSR bycatch are too small in size to take observers.

Recognizing the legal concerns raised by NOAA General Counsel, the EA/RIR has been revised to include a revised Alternative 2 and a third alternative as described below.

Revised Alternative. 2: Require full retention of DSR in the fixed gear fisheries in the GOA Regulatory Area 650 and the transfer of the amount of retained DSR that exceeds the 10 percent maximum retainable bycatch amount through forfeiture to the State. Sale of DSR in amounts up to the 10 percent MRB would be permitted.

- 3.1.3 Alternative 3. (a) eliminate the maximum retainable bycatch limit for DSR;
(b) require full retention of DSR by Federally-permitted vessels in the fixed gear fisheries in the GOA Regulatory Area 650;
(c) permit fishermen to sell an amount of retained DSR that is up to but not more than 10 percent of other retained catch; and
(d) after DSR has been landed, weighed and reported on a fishticket, require fishermen to surrender the excess to the State as directed.

- Option 1. (d) after DSR has been landed, weighed and reported on a fishticket, require fishermen to discard DSR over 10 percent.
- Option 2. (d) after DSR has been landed, weighed and reported on a fishticket, require fishermen to donate DSR over 10 percent to a non-governmental organization similar to the salmon donation program.

Alternative 3 addresses the same problem as Alternative 2, but solves that problem through another regulatory mechanism. This alternative proposes to eliminate the MRB for DSR under federal regulations and impose limitations on the disposition of landed DSR.

DSR managers and assessment scientists have expressed the importance of gaining information regarding total removals of these rockfish species and recommend Alternative 3 as a practical solution to legal impediments to Alternative 2 raised by NOAA General Counsel. The State of Alaska Department of Law staff has opined that Alternative 3 is a workable solution to the problem, and anticipates no conflict between proposed state and federal rulemaking.

3.1.4 Economic Impact on Small Entities

The most recent description of the BSAI and GOA groundfish hook-and-line fisheries is contained in the SAFE Report: Economic Status of the Groundfish Fisheries Off Alaska, 1997 (Greig *et al* 1998). The report includes information on the catch and value of the fisheries, the numbers and sizes of fishing vessels and processing plants, and other economic variables that describe or affect the performance of the fisheries. Data for 1997 indicate that in the BSAI, 101 catcher vessels and 44 catcher/processors fished with hook-and-line gear, and 920 catcher vessels and 25 catcher/processors fished with hook-and-line gear in the GOA. The total number of hook-and-line catcher vessels that caught groundfish off Alaska in 1997 was 932 and the total number of hook-and-line catcher-processor vessels that caught and processed groundfish off Alaska in 1997 was 46. These numbers account for the vessels that operated in both the BSAI and GOA. A recent description of the Pacific halibut fishery is contained in IPHC's annual report (IPHC 1998). In 1998, 1768 vessels landed halibut from U.S. Convention waters off Alaska, 91 percent of which were vessels less than 60 ft (18.3 m) LOA.

Table 2 lists the number of vessels affected by the proposed action and corresponding pounds of forfeited DSR in Area 650 in 1996 and 1997. Approximately 95 vessels in DSR target, halibut bycatch, and other bycatch fisheries made 128 landings totaling a reported 10,000 lb of DSR forfeitures in 1996. In 1997, 114 vessels made 158 DSR landings of nearly 13,400 lb of forfeitures. In 1997, NMFS Enforcement did not ticket fishermen who voluntarily forfeited excess DSR. The increase in vessels and landings may be a result of NMFS Enforcement not penalizing forfeitures in 1997.

The ex-vessel price for DSR landed in the directed fishery in 1997 was \$1.34 per round weight pound. The price in the bycatch fishery was lower, at an average of \$0.52 per pound for deliveries in CSEO, SSEO, NSEO, and EYKT. The ex-vessel value of the 1997 directed DSR fishery was approximately \$827,000. The DSR bycatch fishery was worth approximately \$115,000.

It is expected that under Alternative 2 or Alternative 3, where forfeitures would be permitted with no penalties by regulation, additional fishermen may comply and forfeited DSR may continue to increase. An accurate estimate of total removals is important in managing this rockfish complex. Changing the regulations under Alternative 2 or Alternative 3 would create conformity between the regulations and current enforcement practice, further encouraging accurate reporting and a decrease in wastage of the DSR resource.

Public testimony reported that buyers in some ports did not pay the referenced ex-vessel price or would not purchase DSR at all. A Sitka fisherman responded that there was a latent market for DSR in Sitka, and most buyers readily purchased DSR.

NMFS has opined that as with the IR/IU program, it does not have the authority to require shoreside processors to purchase fish from fishermen or require buyers to purchase fish at a particular price (see Section 1.4.2). This action would be appropriate for the State to consider. The Council could make this recommendation to the Joint Board of Fisheries/Council committee for discussion at their February 1999 meeting.

3.2 Administrative, Enforcement and Information Costs

Additional administrative and enforcement monitoring is expected under Alternative 2 to track those rockfish landings in excess of the MRB for DSR species and which is forfeited. Some forfeitures will be made to the State of Alaska, while others will be forfeited to the NMFS. Processors will be required under this alternative to monitor and make forfeiture payments on behalf of affected fishermen. This program is currently underway under voluntary compliance. This program would be mandatory under Alternative 2 and expanded to all processors and fishermen in Area 650. Alternative 2 would remove inconsistencies in the regulations and simplify both enforcement, management and the commercial fisheries for these species.

4.0 INITIAL REGULATORY FLEXIBILITY ANALYSIS

The objective of the Regulatory Flexibility Act is to require consideration of the capacity of those affected by regulations to bear the direct and indirect costs of regulation. If an action will have a significant impact on a substantial number of small entities an Initial Regulatory Flexibility Analysis (IRFA) must be prepared to identify the need for the action, alternatives, potential costs and benefits of the action, the distribution of these impacts, and a determination of net benefits.

NMFS has defined all fish-harvesting or hatchery businesses that are independently owned and operated, not dominant in their field of operation, with annual receipts not in excess of \$2,000,000 as small businesses. In addition, seafood processors with 500 employees or fewer, wholesale industry members with 100 employees or fewer, not-for-profit enterprises, and government jurisdictions with a population of 50,000 or less are considered small entities. A "substantial number" of small entities would generally be 20 percent of the total universe of small entities affected by the regulation. A regulation would have a "significant impact" on these small entities if it reduced annual gross revenues by more than 5 percent, increased total costs of production by more than 5 percent, or resulted in compliance costs for small entities that are at least 10 percent higher than compliance costs as a percent of sales for large entities.

If an action is determined to affect a substantial number of small entities, the analysis must include:

- (1) a description and estimate of the number of small entities and total number of entities in a particular affected sector, and total number of small entities affected; and
- (2) analysis of economic impact on small entities, including direct and indirect compliance costs, burden of completing paperwork or recordkeeping requirements, effect on the competitive position of small entities, effect on the small entity's cash flow and liquidity, and ability of small entities to remain in the market.

4.1 Identification of the Individuals or Groups that may be Affected by the Proposed Action

Approximately 100 permit owners showing landings in the DSR target fishery may be affected by the proposed action to require retention of all DSR species harvested in the halibut and sablefish IFQ fisheries in Area 650. These vessels forfeited 10,000 lb of DSR in 1996, and 14,000 lb in 1997. The 1996 and 1997 TACs for DSR in SEO were 950 mt each year (2,093,800 lb). Additionally, 459 halibut QS owners and 146 other groundfish (primarily sablefish) permittees landed DSR as bycatch. As under other mandatory retention programs (e.g., IR/TU), fishermen may bear the extra costs of handling unprofitable fish.

In 1996, the most recent year for which vessel participation data is available, 1,508 vessels participated in the groundfish fisheries of the GOA; 1,254 longline vessels, 148 pot vessels, and 202 trawl vessels. There were 439 vessels operating in the BSAI in 1996; 158 longline vessels, 103 pot vessels, and 192 trawl vessels. The commercial groundfish catch off Alaska totaled 2.05 million mt in 1996, with an ex-vessel value of \$538 million. The value of the catch after primary processing was estimated at \$1.23 billion.

Because the number of vessels and size of the landings, compared with the total number of groundfish fleet and landings are not considered substantial, nor would they meet the criteria of "significant impact," none of the alternatives is expected to result in a "significant regulatory action" as defined in E.O. 12866.

The FRFA will be completed by NMFS after opportunity for public comment on the proposed rule and IRFA.

5.0 SUMMARY AND CONCLUSIONS

Total mortality of demersal shelf rockfish (DSR) in other fisheries is unknown. State and Federal fisheries managers believe a high level of unreported mortality of DSR is occurring in the directed and bycatch fisheries. Currently, the DSR MRB limits fishermen to 10 percent by weight of DSR against their halibut longline harvest. Any poundage in excess of the 10 percent limit is discarded at sea. Amending the regulations to require all DSR bycatch to be landed would enhance efforts to increase the accuracy of the accounting of total bycatch mortality of these fish.

The action proposed by the Alaska Department of Fish and Game would reduce waste and enhance estimates of total removals of DSR species for stock assessment purposes: (1) without encouraging "topping off" with bycatch species and (2) decreasing waste of the resource. Additionally, the proposed action complies with four new requirements in the Sustainable Fisheries Act of 1996.

The action proposed by the Alaska Department of Fish and Game would reduce waste and enhance estimates of total removals of DSR species for stock assessment purposes without encouraging "topping off" or waste of the resource. Additionally, the proposed action under either Alternative 2 or 3 complies with four new requirements in the Sustainable Fisheries Act of 1996.

Both Alternative 2 or Alternative 3 meets the objectives of gathering the best available data upon which to base the DSR stock assessment and reducing bycatch.

None of the alternatives are likely to significantly affect the quality of the human environment.

None of the alternatives is expected to result in a "significant regulatory action" as defined in E.O. 12866. However, the FRFA will be completed by NMFS after opportunity for public comment on the proposed rule and IRFA.

6.0 REFERENCES

Greig, A., Holland, D., Lee, T. and Terry, J. 1998. SAFE Report for the Groundfish Fisheries of the Gulf of Alaska and Bering Sea/Aleutian Island Area: Economic Status of the Groundfish Fisheries Off Alaska, 1997. NOAA, NMFS, AFSC, REFM Division, November 25.

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