

# Public Testimony Sign-Up Sheet

Agenda Item D-2(b) BSAI Parallel Waters

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

# Public Testimony Sign-Up Sheet

## Agenda Item D-2(e) Am 80 Vessel Replacement

|    | NAME (PLEASE PRINT) | AFFILIATION          |
|----|---------------------|----------------------|
| 1/ | Lori Swanson        | GFP                  |
| 2/ | Mike Szymanski      | Fishing Co of ALASKA |
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MEMORANDUM

TO: Council, SSC and AP Members

FROM: Chris Oliver  
Executive Director *Chris*

DATE: September 23, 2008

SUBJECT: Miscellaneous Groundfish Management

|  |
|--|
| ESTIMATED TIME<br>4 HOURS<br>ALL D-2 ITEMS |
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**ACTION REQUIRED**

- (a) Committee report on comprehensive data collection.
- (b) Discussion paper on BSAI Fixed gear parallel fisheries.
- (c) Discussion paper on BSAI bottom trawl sweep requirements.
- (d) Receive report on P. cod area split (BS and AI) and take action as necessary.
- (e) Discussion paper on Amendment 80 vessel replacement provisions.

**BACKGROUND**

(a) Comprehensive data collection

The data collection committee is scheduled to meet on Tuesday, September 30<sup>th</sup>. The committee will report to the Council on the progress achieved at that meeting.

(b) BSAI Fixed Gear Parallel Fisheries

At its April 2008 meeting, the Council asked that staff develop a discussion paper on potential Council actions regarding Federal permit and licensing requirements for vessels that participate in the parallel waters fisheries. Specifically, the Council requested that staff focus the discussion paper on hook-and-line and pot CPs participating in the BSAI Pacific cod parallel waters fishery. During 2008, 5 fixed gear CPs participated in the AI parallel waters Pacific cod fishery that do not have the Federal permits and LLP licenses needed to participate in the AI Federal waters fishery. This parallel waters activity may be circumventing the intent of previous decisions made by the Council regarding license limitation and endorsements, sector allocations, and catch reporting. The intent of this discussion paper is to explore potential management measures that could apply specifically to fixed gear CPs that participate in the BSAI Pacific cod parallel waters fishery, but could also be applied more broadly to other parallel waters fisheries. The discussion paper is attached as Item D-2(b).

The discussion paper examines the possible goals, objectives, elements, and options for revising the Federal permit and licensing requirements for vessels fishing in parallel waters. The paper begins with a brief description of the management issues and a review of the regulatory context. The background section is followed by a discussion of the possible purpose and need of this action. Finally, the paper describes the elements and options that the Council could consider, if it elects to advance this action for analysis. At this meeting, the Council's action is to review the draft problem statement and options, and

revise them as necessary for further analysis.

(c) BSAI bottom trawl sweep requirements

At the June 2008 meeting, the Council initiated an analysis to require modified trawl sweeps in Bering Sea flatfish bottom trawl fisheries. The Council requested staff to bring forward a discussion paper in October that identified the problem statement and alternatives that were originally analyzed with respect to this action as part of the June 2007 Bering Sea Habitat Conservation action, BSAI Groundfish FMP Amendment 89. The discussion paper is attached as Item D-2(c)(1).

Although the sweep modification for flatfish trawls in the Bering Sea was included in the preferred alternative for Bering Sea Habitat Conservation, the modification was not included in Amendment 89. Action was deferred because of implementation issues with regard to the practicality and enforceability of requiring the modified sweeps on all vessels participating in the fishery. The Council received a report in June 2008 from John Gauvin and Dr Craig Rose on additional field testing and research to resolve the challenges of using the modified sweeps on vessels without net reels, clamps and other methods of attaching the discs to combination rope (two-inch diameter fabric over cable material commonly used for trawl sweeps), and spacing of the discs to achieve the habitat benefits while also achieving feasibility in terms of being able to roll the modified discs onto net reels and sweep or main wire winches.

On September 8, 2008, the Council sponsored a public workshop in Seattle to discuss implementation issues for the proposed trawl sweep modification. Mr. Gauvin and Dr Rose presented their gear design and field testing results, and Melanie Brown, of NMFS Alaska Region, discussed the draft regulation that would implement the required modification. About 30 people attended, and discussed monitoring and enforcement issues arising from the draft regulation. A report from the workshop is attached as Item D-2(c)(2).

The Council's action at this meeting is described in Section 8 of the discussion paper. Primarily, the Council's task is to review the problem statement and alternatives, and amend them as necessary. Staff has requested particular clarification regarding the Council's intention for the reopened area, and who may be allowed to fish in the area (discussed in Section 7 of the discussion paper). Additionally, there has been some discussion in the past about what type of analysis is required to implement this action. It appears to staff that it would be simplest to create a new EA/RIR/IRFA for this action, which can tier off the information included in Amendment 89, and also include any new information as appropriate. Unless the Council disagrees with this course of action, staff will proceed accordingly.

Finally, as part of this amendment, staff would like to include a housekeeping change to the BSAI Groundfish FMP. The proposed change is not substantive, but would correct the description of the Crab and Halibut Protection Area, which was effectively superseded by the Nearshore Bristol Bay closure. Specific information on this change will be included in the Initial Review Draft of the analysis.

(d) Pacific cod area split

The issue of whether the BSAI P. cod stock *should* be managed separately in the Bering Sea (BS) and Aleutian Islands (AI) based on biological evidence has been of particular interest to the Council for several years. The Council, however, could select a preferred alternative to allocate Pacific cod quota between the two subareas from among four proposed allocation options under a proposed BSAI Groundfish FMP amendment *before* the TAC could be split based on P. cod biology *or other policy objectives*. For reference, the February 2007 discussion paper is attached as Item D-2(d)(1).

In February 2007, the Council tabled any further action on apportioning BSAI Pacific cod sector allocations between the two areas, pending additional information from the trawl latent license action and

ongoing BSAI Pacific cod biological research. The trawl recency action would reduce the number of BS and AI trawl licenses by approximately 10-20 percent. Staff from the NMFS AFSC presented summaries of scientific studies related to management of Pacific cod to the SSC in February 2008. The SSC requested a comprehensive review of relevant information related to stock structure Item D-2(d)(2). The attached report (Item D-2(d)(3)) summarizes existing biological information on Pacific cod that may be useful in evaluating whether to proceed with the proposed FMP amendment.

(e) Amendment 80 vessel replacement provisions

On September 14, 2007, the NMFS published a final rule implementing Amendment 80 to the Fishery Management Plan for Groundfish of the Bering Sea and Aleutians Islands Management Area. The final rule included a vessel restriction based on NMFS's interpretation of the Capacity Reduction Program (CRP), a statutory program enacted in December 2004 as part of the Consolidated Appropriations Act of 2005. The final regulations reflected NMFS's interpretation that the CRP provided not only eligibility criteria for vessel owners' participation in the sector, but also criteria regarding which vessels could be used when fishing for species covered by Amendment 80.

On May 19, 2008, the U.S. District Court for the Western District of Washington issued a decision invalidating those Amendment 80 regulation provisions that limit the vessels used in the Amendment 80 program. In *Arctic Sole Seafoods, Inc. v. Gutierrez*, the district court found the statutory language of the CRP ambiguous as to whether replacement of qualifying vessels with non-qualifying vessels was permissible, and found the agency's interpretation of the statute to be arbitrary and capricious.

At this meeting, NMFS will present a discussion paper on how the agency will comply with the court's ruling concerning replacement vessels for the Amendment 80 program. The discussion paper is attached as Item D-2(e)(1).

**Discussion Paper on BSAI Fixed Gear Parallel Waters Fishery  
North Pacific Fishery Management Council  
October 2008**

At its April 2008 meeting, the Council initiated a staff discussion paper on potential Council actions regarding Federal permit and licensing requirements for vessels that wish to participate in the parallel waters fisheries. Specifically, the Council requested that staff focus the discussion paper on hook-and-line and pot CPs participating in the BSAI Pacific cod parallel waters fishery. The intent of this discussion paper is to explore potential management measures that could apply specifically to fixed gear CPs that participate in the BSAI Pacific cod parallel waters fishery, but could also be applied more broadly to other parallel waters fisheries.

This paper examines the possible goals, objectives, elements, and options for revising the Federal permit and licensing requirements for vessels fishing in parallel waters. The paper begins with a brief description of the management issues and a review of the regulatory context. The background section is followed by a discussion of the possible purpose and need of this action. Finally, the paper describes the elements and options that the Council could consider, if it elects to advance this action for analysis.

**I. Background**

The parallel waters groundfish fisheries occur in State waters adjacent to the GOA and BSAI management areas. Each year, the ADFG commissioner opens and closes, by emergency order, parallel seasons in the GOA and BSAI that coincide with the Federal seasons in the GOA and BSAI. The same gear types that may be used in the Federal GOA and BSAI fisheries are permitted in the parallel fisheries, unless specifically prohibited under State regulations.

Currently, vessels may participate in the BSAI and GOA parallel waters groundfish fisheries without holding the Federal permits, licenses, and endorsements necessary to participate in the Federal waters fisheries. This parallel waters activity may be circumventing the intent of previous decisions made by the Council regarding license limitation and endorsements, sector allocations, and catch reporting. While this parallel waters activity could occur in numerous fisheries, it has recently occurred in the BSAI Pacific cod fishery within the pot and hook-and-line CP sectors. Specifically, the majority of this parallel waters CP activity has occurred in the Aleutian Islands, and has the potential to increase fishing pressure in the Aleutian Islands parallel Pacific cod fishery and create several management issues.

The BSAI Pacific cod TAC is currently allocated among gear and operation types under Amendment 85, but is not allocated spatially between the BS and AI management areas or between Federal and parallel waters. As a result, the proportion of catch harvested in each management area, and the proportion of catch harvested in parallel and Federal waters, varies from year to year. The BS and AI management areas are comprised of the Federal management areas shown below in Figure 1. The AI is comprised of Areas 541, 542, and 543, and the BS is comprised of the remainder of the management areas. The Council has considered options to split the BSAI Pacific cod TAC into separate BS and AI TACs, but there is not sufficient evidence at this time that the Pacific cod stocks in the BS and AI are separate. Currently, the best estimate of long-term average biomass distribution of the Pacific cod stock is 85% in the BS and 15% in the AI (Thompson, 2006).

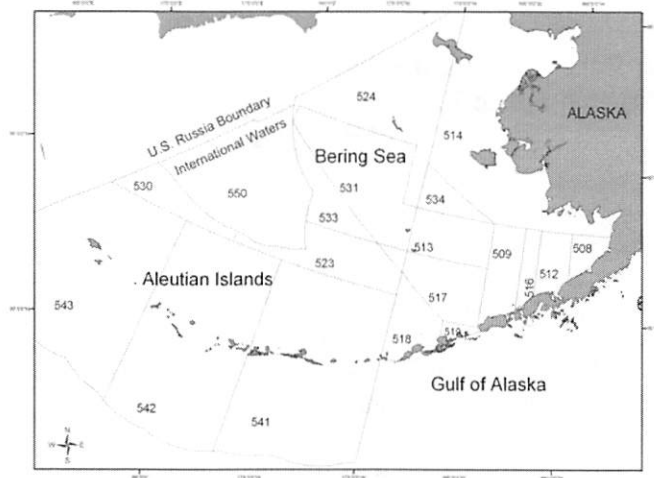


Figure 1. BS and AI Federal management areas.

Table 1. Retained catch (mt) of Pacific cod from the BSAI parallel and State waters fisheries, and total retained catch from the BSAI Pacific cod fishery during 1996-2007 (all gear types).

| Year | Aleutian Islands   |                       |                                    | Bering Sea            |                            |
|------|--------------------|-----------------------|------------------------------------|-----------------------|----------------------------|
|      | State waters catch | Parallel waters catch | State, Parallel, and Federal catch | Parallel waters catch | Parallel and Federal catch |
| 1996 | --                 | 3,662                 | 28,294                             | 4,500                 | 184,499                    |
| 1997 | --                 | 309*                  | 23,048*                            | 1,711                 | 212,406                    |
| 1998 | --                 | 3,680                 | 34,075                             | 1,682                 | 154,963                    |
| 1999 | --                 | 6,583                 | 27,203                             | 1,578                 | 131,863                    |
| 2000 | --                 | 5,503                 | 33,786                             | 1,304                 | 140,021                    |
| 2001 | --                 | 3,702                 | 32,693                             | 2,735                 | 128,835                    |
| 2002 | --                 | 5,877                 | 29,121                             | 1,594                 | 150,090                    |
| 2003 | --                 | 5,566                 | 31,859                             | 3,204                 | 161,511                    |
| 2004 | --                 | 4,634                 | 28,287                             | 4,034                 | 165,429                    |
| 2005 | --                 | 1,671                 | 21,214                             | 2,740                 | 166,324                    |
| 2006 | 3,955              | 1,290                 | 22,828                             | 1,805                 | 152,970                    |
| 2007 | 5,110              | 2,193                 | 31,478                             | 960                   | 127,066                    |

Source: Parallel and State waters retained catch data from ADFG Fish Tickets. Total retained catch data from NMFS Blend/Catch Accounting database. Aleutian Islands State waters Pacific cod fishery began in 2006. Excludes CDQ catch.

\* On May 27, 1997, NMFS placed Pacific cod on PSC status for vessels using trawl gear in the Aleutian Islands to prevent overfishing of shortraker/rougheye rockfish.

Table 1 summarizes annual retained harvests of Pacific cod from the BS and AI management areas, including harvests from the Federal, parallel, and State waters fisheries. In addition, Table 1 separately reports retained harvests from the parallel and State waters fisheries in the BS and AI. In the BS management area, all inside waters harvests are from the parallel waters fishery. In the AI management area, inside waters catch includes harvests from the parallel and State waters fisheries. The Aleutian Islands State waters Pacific cod fishery was initiated in 2006. During

2006 through 2008, the Aleutian Islands State waters Pacific cod GHl was calculated as 3% of the BSAI Pacific cod ABC.

The retained catch data reported in Table 1 is from a combination of State and Federal sources. The NMFS Catch Accounting database does not track catch by ADFG statistical area, and harvests in parallel waters cannot be distinguished from harvests in Federal waters. As a result, retained harvest data for the parallel and State waters fisheries is from ADFG fish tickets. Total retained catch data (including parallel, State, and Federal waters harvests) is from the NMFS Catch Accounting database.

During 2006 and 2007, the majority of catch in the AI State waters fishery was by trawl CVs (see Table 2). No pot CPs participated in the AI State waters fishery in 2006, but in 2007, 6 pot CPs harvested 1,194 mt. In the AI parallel waters fishery, the majority of catch has also been by trawl CVs, although fewer trawl CVs participated in 2006 than typically participate in the parallel waters fishery.

**Table 2. Retained catch (mt) from the Aleutian Islands State and parallel waters Pacific cod fisheries during 2006 and 2007.**

| Year  | Operation | Gear | Aleutian Islands     |       |                         |      |
|-------|-----------|------|----------------------|-------|-------------------------|------|
|       |           |      | State waters fishery |       | Parallel waters fishery |      |
|       |           |      | Vessel count         | Tons  | Vessel count            | Tons |
| 2006  | CP        | HAL  | 5                    | 621   | 4                       | 238  |
|       | CP        | POT  | 0                    | 0     | 1                       | *    |
|       | CP        | TRW  | *                    | *     | 2                       | *    |
|       | CV        | HAL  | 4                    | 29    | 4                       | 4    |
|       | CV        | JIG  | 0                    | 0     | 1                       | *    |
|       | CV        | POT  | *                    | *     | 3                       | 330  |
|       | CV        | TRW  | 19                   | 2,962 | 7                       | 315  |
| Total |           |      | 3,955                |       | 1,290                   |      |

| Year  | Operation | Gear | Aleutian Islands     |       |                         |       |
|-------|-----------|------|----------------------|-------|-------------------------|-------|
|       |           |      | State waters fishery |       | Parallel waters fishery |       |
|       |           |      | Vessel count         | Tons  | Vessel count            | Tons  |
| 2007  | CP        | HAL  | 0                    | 0     | 4                       | 326   |
|       | CP        | POT  | 6                    | 1,194 | 1                       | *     |
|       | CP        | TRW  | 0                    | 0     | 3                       | 51    |
|       | CV        | HAL  | 7                    | 459   | 5                       | 17    |
|       | CV        | JIG  | 1                    | *     | 1                       | *     |
|       | CV        | POT  | 5                    | *     | 1                       | *     |
|       | CV        | TRW  | 20                   | 3,069 | 22                      | 1,626 |
| Total |           |      | 5,110                |       | 2,193                   |       |

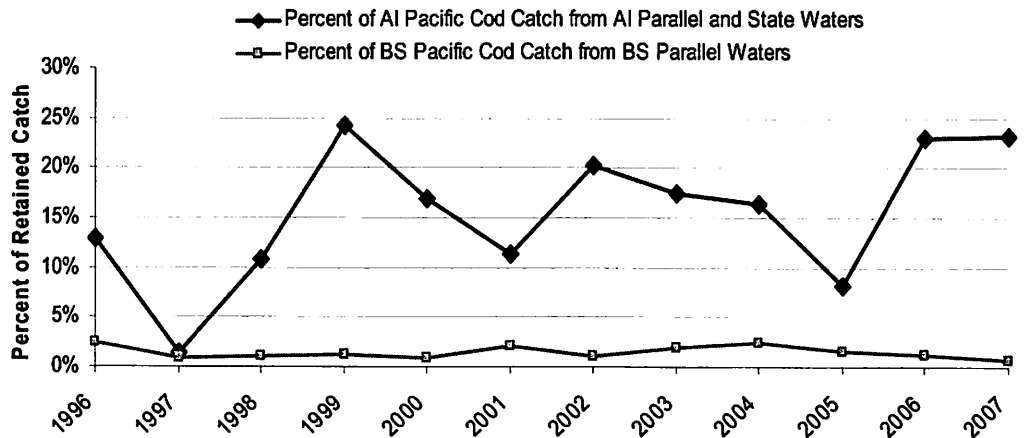
Source: ADFG fish tickets.

The percentage of BS and AI Pacific cod catch that was harvested in the parallel and State waters fisheries is shown in Figure 1. Parallel and State waters catch in the Aleutian Islands has shown substantial annual variation, ranging from 1.3% to 24.2% of total catch during 1996 through 2007. During 2006 and 2007, Pacific cod catch in the parallel and State waters fisheries comprised more than 23% of total retained catch in the Aleutian Islands. In those years, the majority of this catch was from the Aleutian Islands State waters fishery (3,955 of 5,245 mt in 2006, and 5,110 of 7,303 mt in 2007). In the Bering Sea, parallel waters catch is typically a very



small percentage of overall catch in the management area. Parallel waters catch in the BS has consistently remained between 1% to 3% of total retained catch in the management area.

The proportion of AI catch from the State and parallel waters fisheries may increase if additional catcher processors participate in the parallel waters fishery. The AI State waters GHL is currently set at 3% of the BSAI Pacific cod TAC, and was 5,280 mt in 2008. The GHL limits the annual catch in the Aleutian Islands State waters fishery. However, because the Federal BSAI Pacific cod TAC is not allocated between the BS and AI management areas or between the Federal and parallel waters fisheries, catch in the AI parallel waters fishery has the potential to increase.



**Figure 1. Percent of retained Bering Sea (BS) and Aleutian Islands (AI) Pacific cod catch from the parallel and State waters fisheries.**

Table 3 reports the number of vessels that participated in the BSAI Pacific cod fishery in each of the fixed gear sectors, and each sector's final allocation and catch. Note that vessel counts may include some vessels that only had incidental catch of Pacific cod. Also, note that the final allocations reported in Table 3 account for any rollovers to or from other sectors. During recent years, unused jig and trawl CV Pacific cod has been rolled over to several of the fixed gear sectors. Unharvested jig Pacific cod is rolled over to <60 ft hook-and-line and pot CVs. Unharvested trawl CV Pacific cod is first rolled over to jig or <60 ft LOA hook-and-line and pot CVs; second to ≥60 ft LOA hook-and-line and pot CVs; third to AFA trawl CPs and non-AFA trawl CPs; and finally to hook-and-line CPs. All of the final allocations to the pot and hook-and-line sectors have been at least 90% harvested since 2004, with the exception of the <60 ft pot and hook-and-line allocation in 2004.

Under Amendment 85, the initial allocations of the BSAI Pacific cod TAC to the sectors are:

- 48.7% hook-and-line CP
- 22.1% trawl CV
- 13.4% Amendment 80
- 8.4% pot CV ≥60 ft LOA
- 2.3% AFA trawl CP
- 2.0% pot and hook-and-line CV <60 ft LOA
- 1.5% pot CP
- 1.4% jig
- 0.2% hook-and-line CV ≥60 ft LOA

**Table 3. Final allocations (including rollover amounts) and catches (mt) in the BSAI Pacific cod fishery by the fixed gear sectors.**

| Year             |                   | Jig CV | HAL & Pot<br>CV <60 ft | HAL CV<br>≥60 ft | Pot CV | HAL CP  | Pot CP |
|------------------|-------------------|--------|------------------------|------------------|--------|---------|--------|
| 2004             | Vessel count      | 17     | 25                     | 28               | 64     | 39      | 4      |
|                  | Final allocation* | 442    | 2,961                  | 303              | 11,735 | 97,795  | 3,432  |
|                  | Catch             | 231    | 2,037                  | 289              | 12,311 | 95,095  | 3,234  |
|                  | Percent harvested | 52%    | 69%                    | 95%              | 105%   | 97%     | 94%    |
| 2005             | Vessel count      | 19     | 42                     | 24               | 51     | 39      | 2      |
|                  | Final allocation* | 166    | 2,601                  | 230              | 12,828 | 99,519  | 3,352  |
|                  | Catch             | 117    | 2,364                  | 230              | 12,274 | 100,327 | 3,339  |
|                  | Percent harvested | 70%    | 91%                    | 100%             | 96%    | 101%    | 100%   |
| 2006             | Vessel count      | 12     | 46                     | 23               | 49     | 40      | 4      |
|                  | Final allocation* | 214    | 3,242                  | 267              | 13,880 | 84,709  | 3,033  |
|                  | Catch             | 88     | 3,200                  | 245              | 13,375 | 85,109  | 3,149  |
|                  | Percent harvested | 41%    | 99%                    | 92%              | 96%    | 100%    | 104%   |
| 2007             | Vessel count      | 11     | 50                     | 17               | 45     | 37      | 3      |
|                  | Final allocation* | 126    | 2,928                  | 240              | 12,129 | 68,105  | 2,668  |
|                  | Catch             | 83     | 2,928                  | 215              | 12,061 | 69,018  | 2,758  |
|                  | Percent harvested | 66%    | 100%                   | 90%              | 99%    | 101%    | 103%   |
| 2008 A<br>season | Vessel count      | 11     | 38                     | 0                | 42     | 36      | 5      |
|                  | Final allocation* | 81     | 4,633                  | 155              | 6,496  | 37,660  | 1,160  |
|                  | Catch             | 1      | 4,595                  | 0                | 6,530  | 38,405  | 1,207  |
|                  | Percent harvested | 1%     | 99%                    | 0%               | 101%   | 102%    | 104%   |

Source: NMFS annual catch reports and NMFS Catch Accounting database (vessel counts).

\* Note that final allocations account for any rollovers to or from other sectors.

During 2008, 5 fixed gear CPs participated in the AI parallel waters Pacific cod fishery without the Federal permits, licenses, or endorsements needed to participate in the Federal waters fishery. These vessels included 3 pot CPs that fished during the A season, out of a total of 5 pot CPs that participated in the BSAI Pacific cod fishery during the A season. Catch by the 3 pot CPs cannot be reported, because it would reveal the catch by the 2 other pot CPs that fished in the BSAI during the A season. During the 2008 B season, 3 hook-and-line CPs that do not have Federal permits, licenses, or endorsements are currently (as of August 25, 2008) fishing in the AI parallel waters fishery. One of the hook-and-line CPs is expected to switch to pot gear on September 1, and a total of 3 pot CPs are expected to fish in the AI parallel waters fishery during the B season.

Currently, the number of fixed gear CPs participating in the BSAI Pacific cod parallel waters fishery, and their total catch, is a relatively small component of the BSAI Pacific cod fishery. However, the number of CPs fishing in the parallel waters fishery has the potential to increase. During 2004-2007, 2 to 4 pot CPs participated in the BSAI Pacific cod fishery and the pot CP allocation was fully harvested. During 2008, at least 6 pot CPs are expected to participate, including vessels fishing exclusively in parallel waters. Similarly, the hook-and-line CP allocation is fully harvested. Additional participants in the pot and hook-and-line CP sectors that

do not have Amendment 67 endorsements will decrease the catch shares of vessels that have historically participated in the BSAI Pacific cod fishery.

The fixed gear CPs fishing in AI parallel waters currently include:

1. Fixed gear CPs that do not hold any LLP license and/or Federal fisheries permit
2. Fixed gear CPs that hold FFPs and one or more LLP licenses, but without the required combination of BS, AI, and Amendment 67 endorsements to participate in the BSAI Pacific cod fishery in Federal waters
3. Fixed gear CPs that use pot or hook-and-line gear, or both gear types.

## **II. Regulatory Context and Management Issues**

### **Definition of a catcher processor**

If the Council chooses to advance this analysis, the options could apply specifically to catcher processors only. In order to limit the scope of the options to CPs, the Council will need to identify criteria for defining a catcher processor. As a starting point, the Council could use the catcher processor definition in 679.2:

*679.2 Catcher/processor:*

*(1) With respect to groundfish recordkeeping and reporting, a vessel that is used for catching fish and processing that fish.*

This is the definition that NMFS inseason management uses to account for BSAI Pacific cod catch under the Amendment 85 allocations. Catch is deducted from the allocation corresponding to a vessel's actual mode of operation, rather than its potential mode of operation. For example, some vessels hold Amendment 67 CP endorsements on their LLPs, but operate as CVs. Catch by these vessels is counted against the appropriate CV allocation, not to a CP allocation. The options under consideration for the proposed action could specifically apply to CPs meeting the above definition.

### **Federal Fisheries Permit (FFP) requirements**

All vessels fishing for groundfish in Federal waters of the Bering Sea, Aleutian Islands, and Gulf of Alaska are required to hold a Federal fisheries permit (FFP). Also, any vessel that fishes in Federal waters of the BSAI or GOA for any non-groundfish species (e.g., halibut, crab, salmon, scallops, herring), and that is required to retain any bycatch of groundfish must obtain an FFP. Vessels that hold a Federal fisheries permit must comply with groundfish observer program regulations (with the exception of vessels <60 ft LOA) and with NMFS recordkeeping and reporting requirements. In addition, vessels that hold Federal fisheries permits must carry a Vessel Monitoring System (VMS) if they participate in the directed Atka mackerel, Pacific cod, or pollock fisheries in Federal waters of the BSAI or GOA. Vessels that participate in these directed fisheries must also have an endorsement on their Federal fisheries permit that indicates the use of pot, trawl, or hook-and-line gear in these fisheries. Vessels using jig gear are not required to obtain this endorsement on their FFPs, and as a result, are exempt from the VMS

requirement. Starting July 28<sup>th</sup>, 2006, all vessels fishing under Federal fisheries permits in the Aleutian Islands, including State waters, must have an operational VMS.

The catch reporting, observer, and VMS requirements apply to vessels that hold FFPs regardless of whether they are fishing in Federal waters or State of Alaska waters. However, vessels that fish exclusively in the parallel and State waters fisheries do not need an FFP, and vessels that do not hold FFPs are not subject to NFMS catch reporting requirements, or Federal observer or VMS requirements.

### ***FFP Management Issues***

The primary management issue related to Federal fisheries permits that the Council may wish to address under the proposed action is placing restrictions on the ease with which vessels can surrender and reactivate their FFPs. Currently, vessels are allowed to surrender their Federal fisheries permits during a given year and have the permits reissued at a later date during the same calendar year. For example, a vessel could surrender its FFP and fish in the parallel or State waters fisheries to avoid having to comply with observer or VMS requirements, and later in the same calendar year, have the permit reissued in order to fish in Federal waters.

In the past, the Council has considered restricting vessels from surrendering and then reactivating their Federal fisheries permits during a given year. At the time, one concern that was expressed was that this restriction could potentially increase fishing pressure in the parallel and State waters fisheries by precluding vessels from re-entering the Federal waters fisheries. The potential for increased fishing pressure in parallel waters could be minimized by limiting such a restriction to vessels that hold Federal fisheries permits with catcher processor endorsements. Restricting CPs from surrendering and reactivating FFPs during a given year could potentially result in increased observer coverage of CPs if vessels choose to hold on to their FFPs throughout the year.

### **License Limitation Program (LLP)**

The License Limitation Program (LLP) limits access to the groundfish and crab fisheries in the Bering Sea, Aleutian Islands, and Gulf of Alaska. Fishing under the program began in 2000. A vessel must have a valid LLP license with the appropriate gear designation, operation type, and area endorsement in order to participate in groundfish fisheries in Federal waters. In 2003, Amendment 67 to the BSAI FMP was implemented, and created new gear and operation specific Pacific cod endorsements on groundfish LLPs. Four endorsements were created (pot CP, hook-and-line CP, pot CV, and hook-and-line CV), and licenses qualified for endorsements by meeting specific landings criteria for each gear and operation type. Vessels using fixed gear that participate in the directed Pacific cod fishery in Federal waters of the Bering Sea and Aleutian Islands are now required to hold a license with an Amendment 67 Pacific cod endorsement.

Current regulations allow license holders to transfer groundfish or crab licenses to another vessel once per calendar year (Jan 1 – Dec 31) (679.4(k)(7)). For example, if a license is transferred on Sept 1 to a different vessel, it can be transferred back to the original vessel on Jan 1 of the following year. Also, license holders can unassign a vessel from a license without assigning the license to another vessel. However, any future vessel assignment to that license, even to the former vessel, is counted as a transfer.

### ***LLP Management Issues***

There are several vessels types exempt from the LLP requirement:

1. Vessels fishing in the parallel waters fisheries.
2. Vessels less than 26 ft LOA in the GOA and less than 32 ft LOA in the BSAI.
3. Vessels less than 60 ft LOA using jig gear in the BSAI, subject to gear restrictions.
4. Vessels fishing IFQ halibut or sablefish may retain incidentally caught groundfish up to the Maximum Retainable Allowance (MRA) without an LLP.
5. Vessels less than 60 ft LOA are not required to hold an Amendment 67 Pacific cod endorsement to participate in the fixed gear BSAI Pacific cod fishery (exemption applies to both parallel and Federal waters).

Any vessel that does not have an LLP license, or does not have an Amendment 67 Pacific cod endorsement on its LLP license, may participate in the BSAI Pacific cod parallel waters fishery. In addition, <60 ft LOA vessels (either CVs or CPs) using fixed gear do not need Amendment 67 Pacific cod endorsements to participate in the BSAI Pacific cod fishery in Federal waters.

The number of Amendment 67 endorsements on CP and CV licenses is shown in Table 4. Overall, there are only 7 pot CP licenses that may be used in the directed Pacific cod fishery in Federal waters of either the Bering Sea or Aleutian Islands. These include 3 licenses with only a Bering Sea endorsement and 4 licenses with both BS and AI endorsements. There are 37 licenses with Amendment 67 hook-and-line CP endorsements, including 35 licenses with both BS and AI endorsements and 2 licenses with only BS endorsements.

As noted earlier, during the 2008 BSAI Pacific cod A season, 3 pot CPs fished in the AI parallel waters fishery that do not have LLPs with the combination of endorsements needed to fish as pot CPs in the AI Federal waters fishery (Amendment 67 pot CP endorsement and AI area endorsement). During the 2008 B season, 3 hook-and-line CPs and up to 3 pot CPs that lack one or more LLP endorsements are expected to participate in the AI parallel waters fishery. The AI parallel waters participation by these 3 pot CPs represents a substantial increase in effort in the pot CP sector. During recent years, only 2 to 4 pot CPs have participated in the BSAI Pacific cod fishery. In 2008, at least 6 pot CPs are expected to participate in the fishery, including participation during the A and B seasons.

The Amendment 85 pot CP allocation is relatively small, and is calculated as 1.5% of the BSAI Pacific cod TAC. There are currently 7 LLP licenses with Amendment 67 pot CP endorsements (see Table 4). Two of these pot CP licenses also have hook-and-line CP endorsements, and the vessels that hold these licenses have fished using both pot and hook-and-line gear during recent years. Additional parallel waters pot CP effort by vessels that do not have Amendment 67 pot CP endorsements has the potential to decrease catch shares of vessels that contributed history to the Amendment 85 pot CP allocation and depend on the BSAI Pacific cod fishery.

**Table 4. Number of Amendment 67 endorsements on licenses with BS or AI area endorsements.**

|                  | <u>Catcher Vessel</u> |               | <u>Catcher Processor</u> |               |
|------------------|-----------------------|---------------|--------------------------|---------------|
|                  | Pot                   | Hook-and-line | Pot                      | Hook-and-line |
| Bering Sea       | 49                    | 2             | 7                        | 37            |
| Aleutian Islands | 2                     | 2             | 4                        | 35            |

\* On 51 CV licenses (1 CV license has both CV pot and CV HAL)

\*\* On 48 CP licenses (2 CP licenses have both CP pot and CP HAL, 2 have CP HAL and CV pot, and one has CP pot and CV HAL)

Currently, there are two primary LLP license issues related to management of the BSAI Pacific cod fishery:

1. Fixed gear CPs that hold LLP licenses, but do not have Amendment 67 Pacific endorsements and/or the appropriate area endorsements, are participating in the BSAI Pacific cod fishery in parallel waters.
2. Fixed gear CPs that do not hold LLP licenses are participating in the BSAI Pacific cod fishery in parallel waters.

#### **Federal regulatory authority over vessels with Federal permits and licenses**

The Council and NOAA fisheries have broad authority over vessels that hold Federal permits and licenses. This authority may extend into the parallel waters fisheries. Vessels that hold Federal fisheries permits or LLP licenses may be subject to Federal groundfish regulations, even while fishing in State waters adjacent to the GOA or BSAI. For example, vessels that hold FFPs are subject to Federal recordkeeping and reporting, observer, and VMS requirements while fishing in Federal, parallel, or State waters fisheries. In 2006, sideboards were implemented that limit harvests of GOA Pacific cod by vessels that received initial allocations of *C. opilio* crab quota. The sideboard regulations were written such that vessels cannot circumvent sideboard closures by fishing in parallel waters fisheries. Vessels that hold *either* an FFP or an LLP are subject to the sideboards while participating in any groundfish fishery in the parallel waters fisheries in the GOA (680.22).

Vessels could easily surrender their FFPs to circumvent the GOA Pacific cod sideboard restrictions, and later have the FFPs reissued to the same vessels. There is no restriction on the number of times a holder of an FFP can surrender a permit and have it reissued. However, vessels that hold crab or groundfish LLP licenses would also have to surrender these licenses or transfer them to another vessel. This is less likely to occur, because LLP licenses can only be transferred once per calendar year. Vessels that transfer their crab and groundfish LLP licenses to another vessel would lose eligibility to participate in the crab and groundfish fisheries in Federal waters for the remainder of the calendar year (until Dec 31<sup>st</sup>).

The Council could potentially extend similar restrictions on vessels that hold Federal fisheries permits or LLP licenses to other parallel waters fisheries, as long as the action has an adequate conservation or management rationale.

## **Processing sector allocations not recognized in State of Alaska waters**

In the parallel waters fisheries, the State of Alaska adopts by emergency order Federal groundfish seasons, bycatch limits, and authorized gear types. However, the State does not legally recognize Federal allocations between catcher vessels and catcher processors using the same gear type to harvest fish in the same management area. For example, the BSAI Pacific cod fishery is allocated by gear type and processing sector. The State recognizes allocations by gear type, but does not recognize the separate hook-and-line CP and CV allocations.<sup>1</sup> If the directed fishery for one of the hook-and-line sectors is open in Federal waters, any vessel using that gear type and meeting any applicable vessel length restrictions is eligible to participate in the parallel waters fishery.

For example, catcher vessels using hook-and-line gear may participate in the parallel waters fishery even when the adjacent Federal waters fishery is only open to catcher processor hook-and-line vessels. In the same way, catcher processors may participate in the parallel waters fishery even if it is only open to catcher vessels in adjacent Federal waters. In practice, NMFS inseason management accounts for the parallel waters catch by gear and operation type. In the BSAI Pacific cod fishery, parallel waters catch is deducted from the appropriate Amendment 85 allocation based on the gear and operation type of the harvesting vessel. However, if one sector's season closes and vessels in that sector continue to fish in the parallel waters fishery, this would create a catch accounting problem. If NMFS continued to count that catch against the sector's allocation, this would result in an overage for that sector, and catch could potentially exceed the ABC. If NMFS counted that catch against another sector's allocation, this would effectively result in a reallocation of the TAC.

## **State waters Aleutian Islands Pacific cod fishery**

In 2006, the State of Alaska initiated a State waters Pacific cod fishery in the Aleutian Islands west of 170° longitude. The GHF for the AI State waters fishery is calculated as 3% of the Federal BSAI Pacific cod TAC. In 2008, the GHF was 5,280 mt. Several aspects of the AI State waters fishery are relevant to the proposed action, because the fixed gear CPs that have participated in the AI parallel waters fishery are also eligible to participate in the AI State waters fishery. During 2008, all of the fixed gear CPs that fished in the AI parallel waters Pacific cod fishery also participated in the AI State waters Pacific cod fishery. The AI State waters fishery is open to most gear types, with vessel length restrictions, and provides an opportunity for vessels that do not have LLPs with Amendment 67 and/or AI area endorsements to fish for Pacific cod in the Aleutian Islands. Key aspects of the fishery are summarized below:

- The A season starts on or after March 15, and only after the Federal Pacific cod trawl CV A season is closed. All parallel waters seasons are closed during the State waters season. The State waters B season starts on June 10. If the State waters B season GHF has not been taken by September 1, the State will close the State waters B season and reopen the parallel season.
- Legal fishing gear includes pot, jig, hand troll, non-pelagic trawl, and longline gear. Non-pelagic trawl and longline gear may not be used during May 1 – September 15, unless vessels are operating in the <60 ft LOA vessel size limitation areas near Adak.

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<sup>1</sup> State v. Grunert, 139 P.2d 1226 (Alaska 2006); Grunert v. State, 109 P.2d 924 (Alaska 2005). In the 2005 case, the Alaska Supreme Court ruled that the Board of Fisheries could not allocate within a single fishery. 109 P.2d at 931-32. In the 2006 case, the Court held that 'fisheries' could only be distinguished by differences in the gear that is actually used to harvest the fish. 139 P.2d at 1235-39.

- Vessel size limits are 100 ft LOA for non-pelagic trawl gear, 125 ft LOA for pot gear, and 58 ft LOA for longline and jig gear.
- Vessels must register with ADFG the type of gear to be used. Vessels may be concurrently registered to use both hook-and-line and jig gear, but may not be concurrently registered to harvest Pacific cod with any other gear types. A vessel's gear registration may be changed during a State waters season, but may not change while unprocessed fish are on board the vessel.
- The daily trip limit is 150,000 lbs of Pacific cod. A vessel may not have more than 150,000 lbs of unprocessed Pacific cod on board the vessel at any time. A vessel may not have more processed fish on board than the round weight equivalent of the fish reported on ADFG fish tickets during the AI State waters Pacific cod fishery. Participants must notify ADFG daily of the amount harvested and total amount on board.
- All Pacific cod harvested must be retained. Any overage must be reported immediately. All proceeds from the sale of Pacific cod in excess of the trip and on board amounts specified above shall be surrendered to the State.
- A maximum of 70% of the GHL may be harvested prior to June 10. A total of 30% of the GHL plus any unharvested GHL from the A season may be rolled over to the B season, up to a maximum of 70%.
- Observer coverage is not required in the State waters fishery unless a vessel has an FFP. Vessels that have FFPs are subject to observer coverage requirements while operating in the State waters fishery, and this observer coverage can be counted toward the Federal observer coverage requirements.

### III. Purpose and Need Statement

If the Council chooses to advance this analysis, it could adopt a purpose and need statement at this meeting. Based on language included in the Council's staff tasking motion, staff prepared the following draft purpose and need statement for this action. The statement attempts to incorporate elements from the Council's motion as well as issues discussed during Council deliberations at the April 2008 meeting.

*Several fixed gear CPs are participating in the parallel waters fisheries that do not hold the permits, licenses, and endorsements necessary to participate in the Federal waters fisheries, and the potential exists for participation to increase. This vessel activity may be circumventing the intent of previous decisions made by the Council regarding license limitation and endorsements, sector allocations, and catch reporting. While this vessel activity could occur in numerous fisheries, it has recently occurred in the BSAI Pacific cod fishery within the CP pot and hook-and-line sectors. An increasing number of vessels without LLPs, or without Amendment 67 Pacific cod endorsements on their LLPs, have entered the BSAI Pacific cod parallel waters fishery in recent years. Long-term participants in the fishery need protection from those who have little or no recent history and have the potential to increase their participation in the fisheries. The intent of the proposed action is to prevent fixed gear CPs which lack Federal permits and licenses from entering the BSAI parallel waters Pacific cod fishery. This action requires prompt attention to promote stability in the fixed gear sectors that participate in the BSAI Pacific cod fishery.*



#### IV. Elements and Options

The elements and options under consideration for this action should be developed to address the Council's purpose and need statement. At its April 2008 meeting, the Council identified a potential set of options for management measures that could be adopted:

- (1) Require any CP pot or hook-and-line vessel with an LLP to have an Amendment 67 Pacific cod endorsement to participate in the BSAI Pacific cod parallel waters fishery.
- (2) Require any CP pot or hook-and-line vessel with an LLP to surrender its LLP in order to participate in the BSAI Pacific cod parallel waters fishery.
- (3) Require any CP pot or hook-and-line vessel to surrender all Federal fishing permits (LLP, FFP, IFQ) in order to participate in the BSAI Pacific cod parallel waters fishery.
- (4) Other possible solutions for the Council to maintain regulatory control over Federally permitted vessels fishing in the BSAI Pacific cod fishery with CP pot and CP hook-and-line gear.
- (5) Potential actions for vessels with no Federal permits or licenses (may require Alaska Board of Fisheries action).

For Options 2 and 3, the appropriate time period for surrendering Federal permits should be discussed.

At this meeting, the Council could request an expanded analysis of one or more of these options. It is important to note that each of the options partially addresses the problem identified in the purpose and need statement, but none of the options would preclude vessels without Federal fisheries permits or LLP licenses from participating in the BSAI Pacific cod parallel waters fishery. The current set of options applies specifically to fixed gear CPs that participate in the BSAI Pacific cod parallel waters fishery. The Council could choose to expand the scope of the action to include other sectors and fisheries. The preliminary discussion below describes the potential impact of each of these preliminary options on vessel activity in the BSAI Pacific cod parallel waters fishery.

##### **Option 1: Require Amendment 67 endorsements in parallel waters**

Option 1 would require any CP pot or hook-and-line vessel with an LLP to have an Amendment 67 Pacific cod endorsement to participate in the BSAI Pacific cod parallel waters fishery.

This option would limit entry to the BSAI parallel waters fixed gear CP sectors by extending an LLP licensing requirement that currently applies only in Federal waters to the parallel waters fishery. Currently, vessels are not required to hold groundfish LLP licenses to fish in the BSAI or GOA parallel waters groundfish fisheries. Some vessels hold LLP licenses, but do not have the required combination of gear and operation designations, area endorsements, and species endorsements to participate in specific Federal waters fisheries. For example, a fixed gear CP may hold an LLP license that does not have an Amendment 67 Pacific cod endorsement, which is required if that vessels wishes to participate as a  $\geq 60$  ft LOA pot or hook-and-line CP in the BSAI Pacific cod fishery in Federal waters. That vessel is eligible to participate as a fixed gear CP in the BSAI Pacific cod parallel waters fishery.

Amendment 67 Pacific cod endorsements were established by the Council in 2003 for the purpose of limiting the number of fixed gear licenses that are eligible to participate in the BSAI directed Pacific cod fishery. The intent of creating Pacific cod endorsements was to limit access to the fixed gear allocations to those participants who contributed catch history to those allocations and qualified for Amendment 67 endorsements. New fixed gear CPs entering the parallel waters fishery without Amendment 67 endorsements have the potential to reduce the amount of the Amendment 85 pot and hook-and-line CP allocations available to historic participants in the fishery. Currently, there is no barrier preventing fixed gear CPs that do not hold Amendment 67 endorsements from entering the BSAI Pacific cod parallel waters fishery and fishing off the Amendment 85 allocations.

One partial solution to limiting entry to the BSAI Pacific cod parallel waters fishery is to require vessels that hold LLPs to also have an Amendment 67 endorsement to participate in the BSAI parallel waters Pacific cod fishery. This requirement could be extended to require that such vessels also have the appropriate area endorsements and operation type designations on their LLP licenses. The requirement could apply specifically to CPs using fixed gear (pot or hook-and-line), and would prevent vessels that hold LLPs, but not Amendment 67 endorsements, from participating in the BSAI Pacific cod parallel waters fishery. As it is currently worded, Option 1 would not prevent vessels that do not hold LLPs from fishing in the BSAI Pacific cod parallel waters fishery.

*Potential effects of Option 1*

- Three of the 5 fixed gear CPs that fished in the AI parallel waters Pacific cod fishery during 2008 have LLP licenses, but do not have both an Amendment 67 endorsement and AI area endorsement. **Option 1 would preclude these CPs from participating in the BSAI parallel waters Pacific cod fishery if Option 1 specifies that vessels must have both an Amendment 67 endorsement and the appropriate area endorsement to fish in parallel waters adjacent to the BS or AI.**
- One of the fixed gear CPs is less than 60 ft LOA, and under current regulations, <60 ft LOA vessels are exempt from the Amendment 67 endorsement requirement in Federal waters of the BS and AI. Under Option 1, this vessel would be required to have an Amendment 67 endorsement to fish in BSAI parallel waters, but would not need an Amendment 67 endorsement to fish in BSAI Federal waters, unless the <60 ft LOA exemption in Federal waters is revised.
- **The Council may wish extend Option 1 to apply to vessels that hold either LLPs or FFPs.** This would expand the scope of this option to vessels that do not hold LLPs.

**Table 5. Impact of Option 1 on fixed gear CPs that participated in the AI parallel waters fishery during 2008.**

| Vessel | FFP | LLP | LLP endorsements |    |       | <60 ft LOA | Gear used | Option 1 applies? |
|--------|-----|-----|------------------|----|-------|------------|-----------|-------------------|
|        |     |     | BS               | AI | Am 67 |            |           |                   |
| 1      |     | x   | x                | x  |       | x          | HAL       | Yes               |
| 2      |     | x   | x                |    | x     |            | Pot       | Yes               |
| 3      |     |     |                  |    |       |            | Pot & HAL | No                |
| 4      |     |     |                  |    |       |            | Pot       | No                |
| 5      | x   | x   | x                | x  |       |            | HAL       | Yes               |

**Option 2: Require CPs to surrender LLPs to participate in the parallel waters fishery**

Option 2 would require any CP pot or hook-and-line vessel with an LLP to surrender its LLP in order to participate in the BSAI Pacific cod parallel waters fishery.

This option would potentially limit entry to the BSAI Pacific cod parallel waters fishery by CPs using fixed gear by requiring those vessels to transfer or surrender groundfish and/or crab LLP licenses in order to fish in parallel waters. The Council has broad authority over vessels that hold Federal permits and licenses, and could require that CPs that elect to fish using pot or hook-and-line gear in the BSAI Pacific cod parallel waters fishery surrender their LLP, transfer the LLP to another vessel, or ‘unassign’ the vessel from the LLP (which is treated as a transfer by NMFS). This option has the potential to discourage CPs from participating in the BSAI Pacific cod parallel waters fishery. In effect, fixed gear CPs would need to revoke their privileges to fish in groundfish fisheries in Federal waters of the BSAI and GOA in order to participate in the BSAI Pacific cod parallel waters fishery.

Currently, LLP licenses may only be transferred once per calendar year (Jan 1- Dec 31). Under the current LLP transfer regulations, vessels that transferred their LLP licenses in order to fish in the BSAI parallel waters fishery would lose their privileges to fish in Federal waters for the remainder of the calendar year. However, these vessels could regain those privileges by transferring the LLP back to the original vessel on January 1<sup>st</sup> of the following year. Again, it should be noted that vessels can either transfer a groundfish or crab LLP license to another vessel or ‘unassign’ the license to a vessel. In either case, the license cannot be reassigned to the original vessel until January 1 of the following calendar year.

*Potential effects of Option 2*

- Three of the 5 fixed gear CPs that fished in the AI parallel waters Pacific cod fishery during 2008 have LLP licenses. Option 2 would provide a disincentive for these vessels to participate in the parallel waters fishery as fixed gear CPs, but would not prevent them from doing so. Under current LLP regulations, vessels may transfer LLPs to another vessel or unassign LLPs to a vessel during one calendar year, and transfer it back to the original vessel on January 1<sup>st</sup> of the following year.

**Table 6. Impact of Option 2 on fixed gear CPs that participated in the AI parallel waters fishery during 2008.**

| Vessel | FFP | LLP | LLP endorsements |    |       | <60 ft LOA | Gear used | Option 2 applies? |
|--------|-----|-----|------------------|----|-------|------------|-----------|-------------------|
|        |     |     | BS               | AI | Am 67 |            |           |                   |
| 1      |     | x   | x                | x  |       | x          | HAL       | Yes               |
| 2      |     | x   | x                |    | x     |            | Pot       | Yes               |
| 3      |     |     |                  |    |       |            | Pot & HAL | No                |
| 4      |     |     |                  |    |       |            | Pot       | No                |
| 5      | x   | x   | x                | x  |       |            | HAL       | Yes               |

### **Option 3: Require CPs to surrender LLPs, FFPs, and IFQ to participate in the parallel waters fishery**

Option 3 would require any CP pot or hook-and-line vessel to surrender all Federal fishing permits and licenses (LLP, FFP, IFQ) in order to participate in the BSAI Pacific cod parallel waters fishery.

Similar to Option 2, this option would potentially limit entry to the BSAI Pacific cod parallel waters fishery by CPs using fixed gear by requiring those vessels to surrender groundfish and/or crab LLP licenses in order to fish in parallel waters. In addition, those vessels would be required to surrender their FFPs.

**Since vessels do not hold IFQ, the Council may wish to revise Option 3 to state that IFQ permit holders would not be eligible to fish their IFQ on board any CP that fishes in the BSAI Pacific cod parallel waters fishery during a given calendar year or other time period specified by the Council.** Only Category A IFQ may be processed on board the harvesting vessel, but any class of IFQ may be harvested on board a catcher processor. The IFQ provision in Option 3 could apply specifically to Category A permit holders or could apply to any IFQ permit holder.

As with Option 2, this measure has the potential to discourage fixed gear CPs from participating in the BSAI Pacific cod parallel waters fishery. Vessels would be required to surrender their LLPs and FFPs and effectively relinquish their privileges to fish in groundfish fisheries in Federal waters of the BSAI and GOA in order to participate in the BSAI Pacific cod parallel waters fishery. In addition, these vessels would also effectively surrender eligibility to participate in any IFQ fishery during a specified time period.

#### *Potential effects of Option 3*

- Option 3 would apply to 4 of the 5 fixed gear CPs that fished in the AI parallel waters Pacific cod fishery during 2008 (see Table 7).
- Three of the 5 fixed gear CPs have LLP licenses, FFPs, or both. Option 3 would provide a disincentive for these vessels to participate in the parallel waters fishery as fixed gear CPs, but would not prevent them from doing so. Under current LLP regulations, vessels may transfer LLPs to another vessel during one calendar year, and transfer it back to the original vessel on January 1<sup>st</sup> of the following year. Under current FFP regulations, there are no restrictions on the number of times a vessel may surrender and then reactivate its FFP during a given calendar year.<sup>2</sup>
- Three of the 5 fixed gear CPs that fished during 2008 in AI parallel waters also participated in IFQ fisheries during 2008. One of these vessels does not have either an FFP or LLP.
- Vessels that surrender their FFPs in order to fish in parallel waters would not be subject to Federal observer coverage requirements. As a result, there would be no observer

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<sup>2</sup> Under a proposed rule, 679.4(a)(9) would be revised to clarify the circumstances under which a permit may be surrendered. An FFP may be voluntarily surrendered by submitting the permit to NMFS, and may be reissued in the same fishing year in which it was surrendered to the permit holder of record.

coverage of fixed gear CPs in the BSAI Pacific cod parallel waters fishery, unless those vessels voluntarily chose to carry observers.

**Table 7. Impact of Option 3 on fixed gear CPs that participated in the AI parallel waters fishery during 2008.**

| Vessel | FFP | LLP | LLP endorsements |    |       | <60 ft LOA | Gear used | IFQ participant in 2008 | Option 3 applies? |
|--------|-----|-----|------------------|----|-------|------------|-----------|-------------------------|-------------------|
|        |     |     | BS               | AI | Am 67 |            |           |                         |                   |
| 1      |     | x   | x                | x  |       | x          | HAL       | x                       | Yes               |
| 2      |     | x   | x                |    | x     |            | Pot       | x                       | Yes               |
| 3      |     |     |                  |    |       |            | Pot & HAL | x                       | Yes               |
| 4      |     |     |                  |    |       |            | Pot       |                         | No                |
| 5      | x   | x   | x                | x  |       |            | HAL       |                         | Yes               |

#### **Option 4: Other solutions to regulate vessels with Federal permits and licenses**

Under Option 4, the Council directed staff to describe any other possible solutions that would allow the Council to maintain regulatory control over Federally permitted vessels fishing in the BSAI Pacific cod fishery with CP pot and CP hook-and-line gear. One potential solution is to restrict vessels from surrendering and reactivating Federal fisheries permits within a given calendar year or other time period.

#### **Federal Fisheries Permit Issues**

**Problem:** Currently, vessels can freely surrender and reactivate their Federal fisheries permits at any time. Vessels that surrender their FFPs do not have to comply with observer, VMS, or catch reporting requirements while fishing in parallel or State waters fisheries. Any of the management measures the Council chooses to adopt to limit entry to the BSAI Pacific cod parallel waters fishery could apply to vessels that hold Federal fisheries permits or LLP licenses. However, if vessels can freely shed their Federal fisheries permits at any time, without any restrictions on reactivating the permits, any parallel waters management measures the Council adopts could be easily circumvented by vessels that only have FFPs and do not have LLPs.

**Potential solution:** Place restrictions on this ability, for example by only allowing vessels to surrender and/or reactivate the FFP once per calendar year. The restrictions could apply to a specific class of vessels, e.g. vessels with CP endorsements on their FFPs. This management measure has been considered by NMFS and the Council in the past. At the time, one concern that was expressed was that this restriction could potentially increase fishing pressure in the parallel and State waters fisheries by precluding vessels from re-entering the Federal waters fisheries. The potential for increased fishing pressure in parallel waters could be minimized by limiting such a restriction to vessels that hold CP endorsements on their Federal fisheries permits.

## **Option 5: Solutions for vessels with no Federal permits or licenses**

### **State Recognition of Processing Sector Allocations**

**Problem:** The State of Alaska recognizes sector allocations by gear type, but not by operation type. This precludes the State from specifically regulating catcher processors operating in State waters. Regulations may specify the gear type used and vessel length.

**Potential solution:** No Federal solutions.

## **V. Catch Reporting and Catch Accounting Issues**

Several fixed gear CPs that participated in the 2008 A season BSAI Pacific cod parallel waters fishery did not have FFPs. Vessels that do not have FFPs are not required to comply with NMFS recordkeeping and reporting requirements. Instead of submitting electronic Production Reports, these vessels are only required to submit paper Fish Tickets to ADFG. The catch totals on paper Fish Tickets are not available on a timely basis to NMFS inseason management. During the 2008 A season, the lack of official reporting made it difficult for inseason managers to determine appropriate closure dates for the pot CP allocation.

As an interim solution, NMFS and ADFG staff are working closely together to track vessels that are fishing in parallel waters and do not have FFPs. During the 2008 A season, these CPs voluntarily reported their catch to NMFS staff, and inseason management was able to close the pot CP allocation with only a 4% overage. During the 2008 B season, NMFS staff is continuing to work with ADFG staff to track CPs fishing in parallel waters. Some vessels are using elandings and sending NMFS electronic Production Reports. In other cases, vessels provide verbal catch reports to NMFS, and when NMFS receives ADFG fish tickets for these vessels, the catch data is entered as a Production Report into the Catch Accounting system. NMFS cannot require vessels that do not hold an FFP and that only fish in State waters to submit electronic Production Reports.

## **VI. Summary and Conclusions**

During 2008, 5 fixed gear CPs participated in the AI parallel waters Pacific cod fishery that do not have the required Federal permits and/or LLP licenses to fish in the BSAI Federal waters Pacific cod fishery. This parallel waters vessel activity may be circumventing the intent of previous Council decisions on license limitation and endorsements, sector allocations, and catch reporting requirements. As the price of Pacific cod continues to increase, the potential exists for additional fixed gear CPs to enter the BSAI Pacific cod parallel waters fishery.

There are several tools that the Council could use to preclude fixed gear CPs from participating in the BSAI Pacific cod parallel waters fishery, or to provide a disincentive for them to do so. Options 1 through 4 are summarized in Table 8, and the potential impacts of these options on the 5 fixed gear CPs that fished in the AI parallel waters fishery during 2008 are summarized in Table 9. The Council could adopt one of these options individually or could adopt a combination of options. None of the options under consideration would apply to vessels that have no Federal permits or licenses, and under all of the options, vessels could potentially surrender their Federal permits and licenses temporarily in order to fish in the BSAI parallel waters. The Council may wish to discourage vessels from surrendering Federal permits and licenses by restricting vessels from reactivating those permits and licenses within a short time frame.

**Table 8. Summary of impacts of the proposed options.**

Options could apply to fixed gear CPs that participate in the BSAI Pacific cod parallel waters fishery if they hold specific Federal permits or licenses:

| Option   | Vessels impacted by this option:  | Vessels not impacted by this option:   |
|--|---|--|
| <u>Option 1</u> Require Amendment 67 endorsements  | Vessels that hold an LLP are subject to this option   | Vessels that do not hold an LLP would be exempt from this option   |
| <u>Option 2</u> Require vessels to surrender LLPs  | Vessels that hold an LLP are subject to this option   | Vessels that do not hold an LLP would be exempt from this option   |
| <u>Option 3</u> Require vessels to surrender FFPs, LLPs, and IFQ   | Vessels that hold an LLP or FFP, or that participate in any IFQ fishery, are subject to this option | Vessels that do not hold either an LLP or FFP, and do not participate in any IFQ fishery, would be exempt from this option |
| <u>Option 4</u> Restrict vessels from surrendering and reactivating FFPs within a given calendar year or other time period | Vessels that hold an FFP are subject to this option   | Vessels that do not hold an FFP are not subject to this option   |

**Table 9. Options under consideration that apply to the fixed gear CPs that participated in the AI parallel waters fishery during 2008.**

| Vessel | FFP <sup>1</sup> | LLP <sup>2</sup> | LLP endorsements <sup>3</sup> |    |       | <60 ft LOA <sup>4</sup> | Gear used <sup>5</sup> | IFQ participant <sup>6</sup> | Options that apply <sup>7</sup> |
|--------|------------------|------------------|-------------------------------|----|-------|-------------------------|------------------------|------------------------------|---------------------------------|
|        |                  |                  | BS                            | AI | Am 67 |                         |                        |                              |                                 |
| 1      |                  | x                | x                             | x  |       | x                       | HAL                    | x                            | 1, 2, 3                         |
| 2      |                  | x                | x                             |    | x     |                         | Pot                    | x                            | 1, 2, 3                         |
| 3      |                  |                  |                               |    |       |                         | Pot & HAL              | x                            | None                            |
| 4      |                  |                  |                               |    |       |                         | Pot                    |                              | 3                               |
| 5      | x                | x                | x                             | x  |       |                         | HAL                    |                              | 1, 2, 3                         |

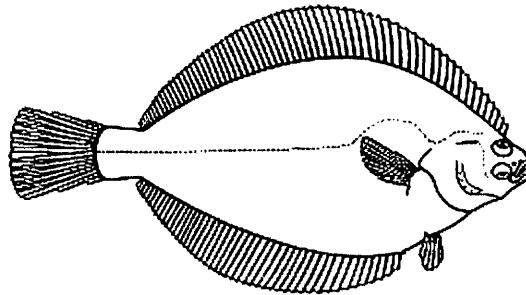
Notes on Table 9

- 1 Indicates whether the vessel held an FFP in 2008
- 2 Indicates whether a groundfish LLP license was assigned to the vessel in 2008
- 3 Indicates whether the LLP license has BS and AI area endorsements and an Amendment 67 endorsement.
- 4 Indicates whether the vessel is <60 ft LOA and therefore exempt from the Amendment 67 endorsement requirement in Federal waters of the BSAI
- 5 Indicates the gear type used during the 2008 A season in the BSAI Pacific cod fishery
- 6 Indicates whether the vessel participated in an IFQ fishery during 2008
- 7 Several of the vessels had FFPs at one point during 2008 but had surrendered them as of August 2008. Only vessel #5 had an FFP as of August 2008. Option 4 would restrict vessels from surrendering FFPs during a given calendar year or other time period.

## DISCUSSION PAPER

### Trawl sweep modifications for the Bering Sea flatfish fishery

Ensuing from BSAI Amendment 89, Bering Sea habitat conservation measures



Proposed Amendment to the Fishery Management Plan for Groundfish of the Bering Sea and Aleutian Islands Management Area

September 2008

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## **1 Introduction and Council motion, June 2008**

In June 2008, the Council received a report on research and field testing of proposed modifications to the trawl sweep as used in directed flatfish fishing in the Bering Sea. This report was requested by the Council during their deliberations on Bering Sea habitat conservation measures, adopted by the Council in June 2007 as BSAI Amendment 89, and implemented in August 2008. The proposed gear modification was endorsed by the Council in June 2007, in order to reduce contact of the trawl gear with the seafloor, but specific recommendations were deferred, pending further research and testing.

Following the 2008 report, the Council initiated an analysis of the proposed gear modification, and requested staff to compile relevant information from the Amendment 89 EA/RIR/IRFA, as well as any new information, in a discussion paper for the October 2008 meeting. The discussion paper was to include the problem statement and alternatives relevant to gear modification from Amendment 89.

Section 2 provides a history with respect to the Council's proposed action, and Sections 3 and 4 provide the problem statement and alternatives from Amendment 89. Section 5 summarizes information on research and field testing of the gear modification. Section 6 provides information on the gear modification requirement, as well as industry feedback on the regulation based on a September 2008 workshop (the workshop report is available separately), and enforcement and compliance issues with respect to the regulations. Section 7 discusses the reopening of an area closed under Amendment 89, which the Council identified as an area that may be reopened following implementation of the gear modification requirement. Section 8 identifies what the Council's action is with respect to this agenda item, for the October 2008 Council meeting. Appendix 1 contains the proposed regulatory language for this amendment. Appendix 2 excerpts those comments on the final rule for Amendment 89 which are relevant for the gear modification action.

## **2 History of the proposed action**

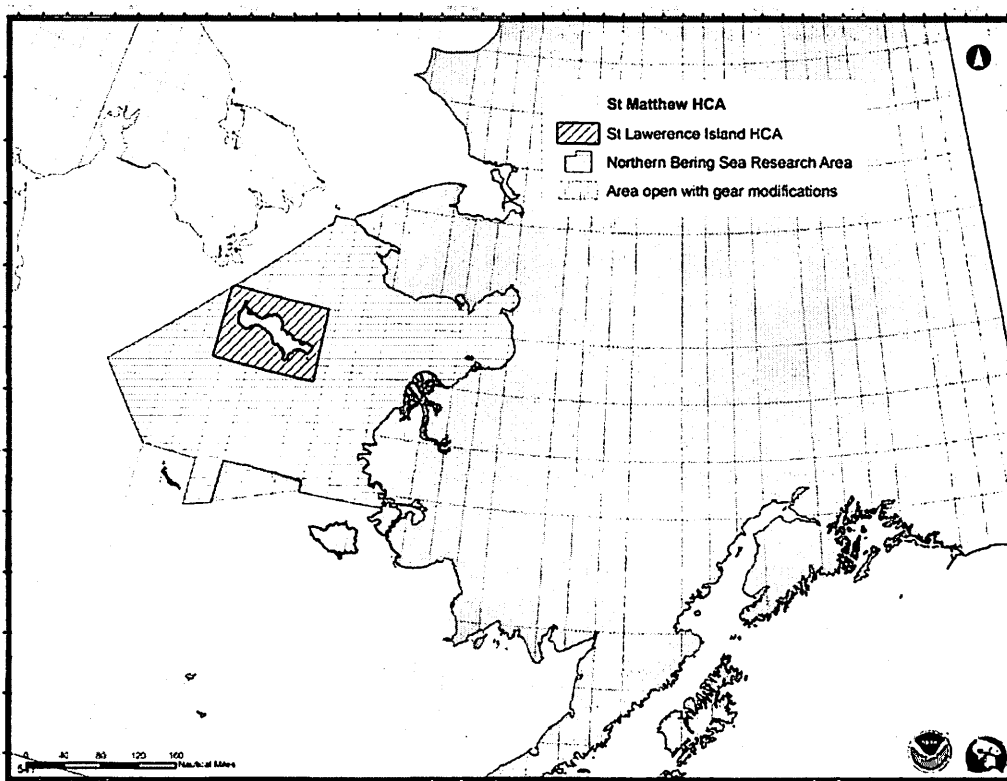
In June 2007, the Council adopted a number of actions for Bering Sea habitat conservation, implemented under BSAI Amendment 89, which was approved by the Secretary of Commerce in May 2008. The Bering Sea habitat analysis followed on from the February 2005 Environmental Impact Statement for Essential Fish Habitat Identification and Conservation in Alaska (EFH EIS; NMFS 2005), which described EFH and under the auspices of which a suite of measures were implemented to conserve EFH in the GOA and AI from potential impacts due to fishing. In 2005, the Council took no action to implement additional conservation measures in the eastern Bering Sea, as the analysis found such additional measures were neither required by law, nor necessary at that time. Subsequently, the Council initiated an analysis focused specifically on nonpelagic trawl gear issues in the Bering Sea. Trawl gear was identified with high long term effect indices (LEI) on habitat, based on the 2005 EIS evaluation, and nonpelagic trawling uses gear that fishes constantly on the bottom. The nonpelagic trawl fishery in the Bering Sea is widely distributed (i.e., has a large footprint). The extent of nonpelagic trawling effort has the potential to increase with any future increases in total allowable catch (TAC) limits for flatfish species, and the footprint may increase with the movement of fish stocks in response to global warming.

In addition to the series of area closures included in the Amendment 89 management measures, the analysis evaluated an alternative to require gear modification for the flatfish fisheries. This alternative would require all vessels engaged in directed fishing for flatfish in the Bering Sea to use a trawl sweep modification intended to raise the sweeps off the seafloor while trawling. Research to develop the appropriate type of gear modification was undertaken, and an industry workshop convened in March 2007 to discuss the necessary requirements. At the time of Council final action, in June 2007, it was determined

that further research and refinement of the specific details of the gear modification was required. The Council endorsed the trawl sweep modification requirement, but deferred a specific recommendation on gear modification for the flatfish fisheries until June 2008. The Council asked that further gear testing be undertaken in the meantime.

In the June 2007 motion, the Council also identified a roughly triangular-shaped area west of St Matthew (often referred to as the “wedge”). Although this area was closed to non-pelagic trawl fishing as part of the Northern Bering Sea Research Area (NBSRA), under BSAI Amendment 89, the Council indicated that this area may be opened following the implementation of the gear modification for flatfish fishing, discussed above.

**Figure 1** Portion of the Northern Bering Sea Research Area (colloquially known as the “wedge”) that may reopen with the implementation of gear modification requirements for the flatfish fishery.



Note: HCA = Habitat Conservation Area, areas closed to nonpelagic trawling under Amendment 89.

A representative of the flatfish trawl industry, John Gauvin, and Dr. Craig Rose, an Alaska Fisheries Science Center researcher, made presentations to the Council at the June 2008 meeting regarding the progress of the gear testing and their research. The Council subsequently directed staff to initiate analysis to implement the gear modification requirement.

### 3 Purpose and need

The purpose of this analysis is to supplement the information provided in the BSAI Amendment 89 Bering Sea Habitat Conservation Measures EA/RIR/IRFA, with respect to gear modification in the

Bering Sea flatfish nonpelagic trawl fishery. The purpose of the action is to protect Bering Sea bottom habitat from the potential adverse effects of nonpelagic trawl gear used for flatfish fishing. This would be achieved by modifying nonpelagic trawl gear used for flatfish fishing by raising the majority of the gear off the bottom. Studies have shown that elevating the trawl sweep can reduce impacts on benthic organisms, such as basketstars and sea whips. The Council endorsed this action in their final recommendation on Bering Sea habitat conservation in June 2007, but was unable to approve specific details of the gear modification component. Further research was needed in order to identify the appropriate modification that would meet the Council's desired performance standard. Field testing of the modification has now been completed, and has demonstrated that the modification is workable in the fishery. The bottom habitat is an important part of the entire Bering Sea marine ecosystem. This action is needed to ensure ecosystem-based management is incorporated into flatfish fisheries management in the Bering Sea.

As part of the June 2007 motion, the Council also stated that a portion of the now closed (under Amendment 89) Northern Bering Sea Research Area may be reopened to non-pelagic trawl fishing. The Council linked the reopening of this area, colloquially referred to as the "wedge", to the implementation of the proposed gear modification requirements for the flatfish fishery. The flatfish industry had identified the area in question, the "wedge", as important to the fishery due to purported high concentrations of yellowfin sole and low concentrations of other bycatch species. The purpose of reopening the "wedge" is to allow for efficient harvest of flatfish species while providing protection to this minimally fished area by requiring modified gear. Implementing the modified gear requirement for the flatfish trawl fishery would reduce potential impacts on bottom habitat that might result from opening this area. This action is needed to ensure fishers can efficiently harvest flatfish as flatfish stocks are likely to shift locations in the Bering Sea.

### **3.1 Council problem statement, from BSAI Amendment 89**

The Council articulated a problem statement for BSAI Amendment 89, the Bering Sea Habitat Conservation analysis, which included an examination of the gear modification alternative. That problem statement is captured below.

*The Council intends to evaluate potential new fishery management measures to protect Essential Fish Habitat (EFH) in the Bering Sea. The analysis will tier off of the 2005 EFH Environmental Impact Statement and will consider as alternatives, open and closed areas and gear modifications. The purpose of the analysis is to consider practicable and precautionary management measures to reduce potential adverse effects of non pelagic trawl fishing on EFH and to support the continued productivity of Council managed species. Any new management measures will be developed in consideration of local community use.*

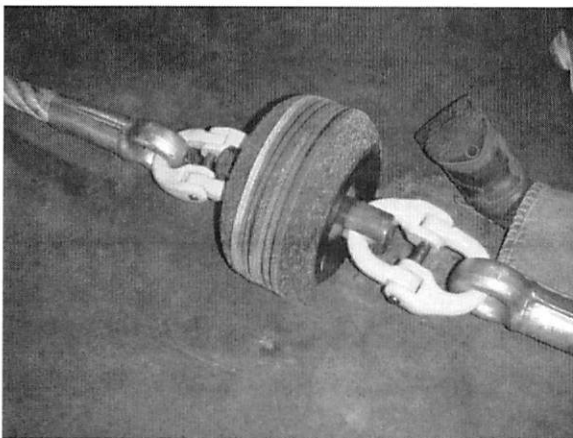
## **4 Preferred Alternatives from BSAI Amendment 89**

The Council adopted their preferred alternatives for Amendment 89 in June 2007. Two of the five components of the motion relate to the gear modification action; these are copied below. One component is to require a trawl sweep modification for directed flatfish trawl fishing in the Bering Sea, and the second is to reopen the area described as the "wedge" once the gear modification has been implemented. Sections 6 and 7 provide further discussion with respect to these two actions in the forthcoming analysis.

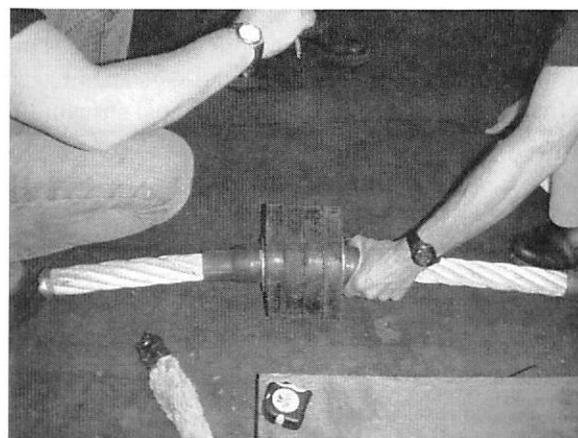
2. *The wedge area described under the suboption of Alternative 2 may be opened if the Secretary has approved, and NMFS has implemented, a gear modification for nonpelagic trawl gear for the Bering Sea flatfish fishery to reduce bottom habitat impacts (see item 3 below). Further, the Council encourages NMFS to include this area within the annual trawl survey design.*
3. *The Council endorses trawl sweep modifications that reduce the potential impacts on benthic habitat from gear contact with the seafloor, per Alternative 3. The Council will provide recommendations to NMFS for the specific gear modifications in June 2008, following additional gear testing by the flatfish trawl industry, so the agency can undertake rulemaking after that date. The Council understands that depending on the final gear modifications, such a regulatory amendment may require supplementing the EA/RIR/IRFA analysis that is currently before the Council.*

## 5 Summary of industry research and gear testing

Dr Craig Rose and scientists from the Alaska Fisheries Science Center (AFSC) Resource Assessment and Conservation Engineering (RACE) Division have been working with the fishing industry, notably John Gauvin and the Head and Gut Workgroup, to modify groundfish trawls to reduce their effects on the seafloor environment. Elevating devices were added to trawl sweeps and were tested for their effectiveness at reducing effects on sessile seafloor animals on unconsolidated (sand – mud) substrates. For most Bering Sea flatfish trawls, sweeps are so long (up to 1500 ft) that they sweep 90% of the area covered between the trawl doors (Figure 3). The proposed modifications elevate most of the sweep area 2 to 3 inches above the substrate, allowing space for animals to pass beneath. In field testing, these modifications have proven effective at reducing effects on basketstars and sea whips, and did not substantially reduce catches of target flatfish.



10 inch elevating bobbin connected to 2 inch (52mm) combination wire with hammerlocks (coupling links)

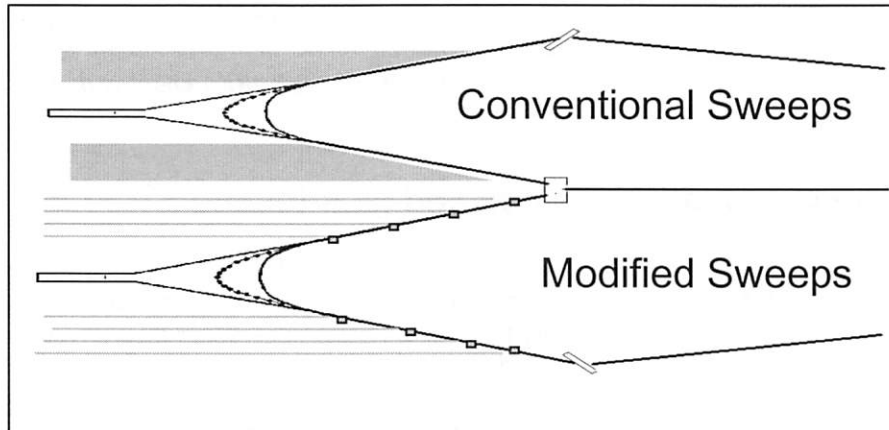


8 inch elevating discs mounted on body of 2 inch (52mm) combination wire with stopper swages each side

The information in this section is abbreviated from Dr Rose's summary of current gear research, Appendix B in the Amendment 89 EA/RIR/IRFA, and from his and John Gauvin's presentations to the Council in June 2008. During various field testing in 2006, and 2007, the researchers created parallel trawl tracks of modified and conventional sweeps. Conventional sweeps had the same diameter throughout, of either 2 inch diameter combination rope (rope including interwoven steel and fiber element, with the softer fiber on the outside), or 3 inch disks strung over steel cable, causing more continuous seafloor contact. Modified sweeps had clusters of 6 inch, 8 inch, or 10 inch diameter disks

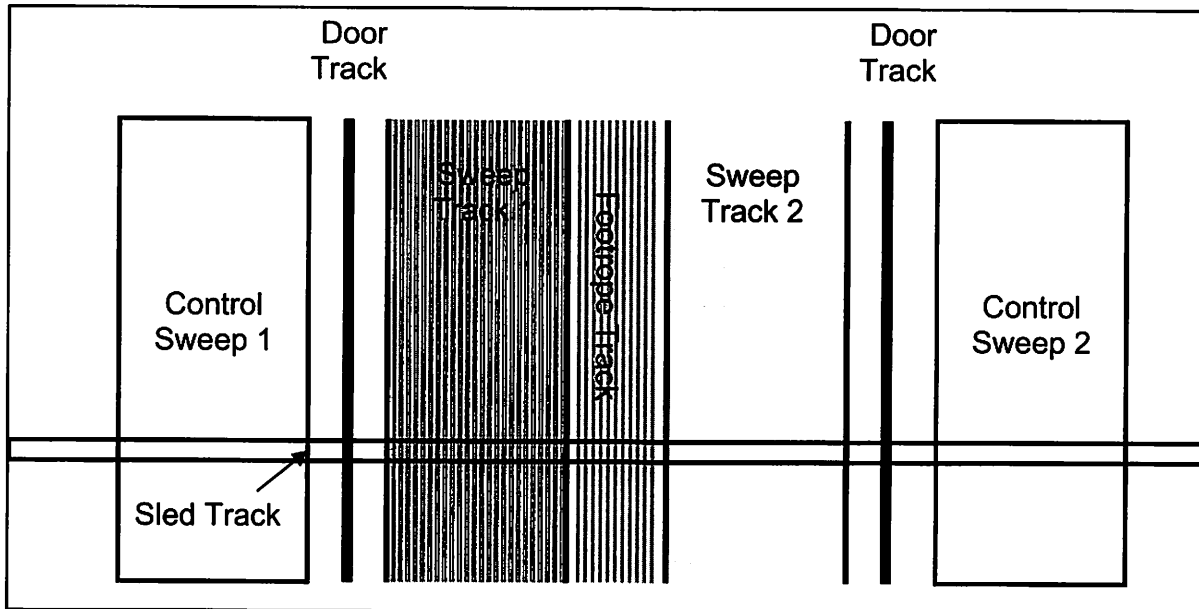
lifting the sweep cables above the seafloor, creating a nominal clearance (the space created under the sweeps adjacent to the elevating device, measured on a hard surface) of 2, 3, or 4 inches. Actual clearance is influenced by nominal clearance, the degree to which the elevating device sinks into soft sand or mud, and the degree to which the sweep sags in the span between elevating devices. The original 2006 research attached the disks at 30 ft intervals on the sweep.

**Figure 2** Schematic of a twin trawl system, showing the concept of reducing bottom contact area of sweeps by limiting contact to disk clusters (C. Rose). Figure is not drawn to scale.



A seafloor sled with both sonar and video sensors was then towed across the parallel trawl tracks at several points to compare the condition of seafloor animals in areas affected by these different gears, and in control areas between tracks. Clearance indicators were developed to measure actual clearances between the sweep material and the seafloor during operation. These indicators were installed at several points across the span between elevating devices. Indicators installed next to the elevating devices evaluated the degree of sinking (elevating devices may sink up to 0.5 inches into the mud), while those near the center of the span measured sag. The imagery was analyzed to estimate the relative effects of the alternative sweep designs on the principal structure-forming invertebrates at each site.

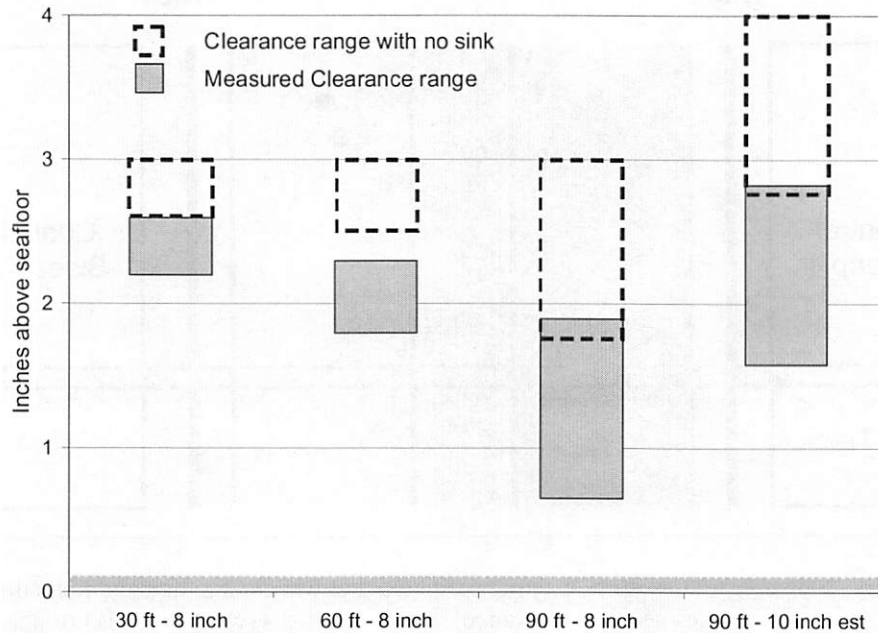
Figure 3 Illustration of the sled sampling of trawl tracks (C Rose).



The results from the 2006 research, at 30 ft spacing, indicated that while some damage reduction was seen with the 6 inch disks (with 2 inches nominal clearance), the 8 inch disks (with 3 inches nominal clearance) performed somewhat better with no detectable reduction in catch rates. Differences between the 8 inch and 10 inch modifications were minimal for basketstars and sea whips, however there was a small reduction in fish capture (5-10%) when using the 10 inch disks.

The 2007-08 field tests were trying to replicate the actual clearance from the 2006 tests, but using a longer spacing between elevating devices (intervals of 45 feet, 60 feet, and 90 feet). It was recognized that longer spacings between elevating devices would be easier for fishers to work with, and would further reduce direct contact area, providing a similar actual clearance could be maintained. Figure 4 illustrates various clearance ranges for the tested disk sizes and spacings. Dr Rose's general conclusion was that similar actual clearance to the 2006 tests could be achieved using elevating devices producing a 3 inch nominal clearance at 60 ft spacing (tested using 8 inch discs on 2 inch sweeps), and 4 inch nominal clearance at 90 foot spacing (10 inch discs on 2 inch sweeps). The 60 ft spacing achieved similar clearance to the 30 ft spacing, especially on firmer sediments (as illustrated by the boxes in dashed lines). At 90 ft spacing, the 10 inch bobbins provided significantly better clearance than the 8 inch bobbins.

**Figure 4** Clearance range of sweep at various elevation heights and spacings; also shows what clearance would be without accounting for the degree to which the elevation device (disk) sank into the seafloor (C Rose).



## 6 Gear modification alternative

The primary action that the Council is addressing in this amendment package is to implement a requirement for the flatfish trawl fishery to use elevated devices on their trawl sweeps, in order to raise the sweep off the seafloor and reduce damage to habitat. One of the challenges with implementing this requirement has been to develop a gear modification design that both reduces the gear's contact with the seafloor and yet maintains fishing productivity. This issue has largely been addressed at this point through the research and field testing of Dr Rose and John Gauvin (see Section 5). Another difficulty has been to come up with a regulatory standard that ensures that actual clearance off the seafloor is achieved, yet represents something that can be measured by both vessel operators and enforcement personnel. It is also important to provide the fleet with sufficient flexibility to allow them to use the gear modifications on the diverse vessel and gear type configurations that are currently employed in the flatfish fishery.

The gear modification requirement, as proposed, will apply to any vessel conducting directed fishing for flatfish in the Bering Sea. For the most part, vessels that fish flatfish are participants in the Amendment 80 program. There are, however, some AFA vessels which target flatfish, and they also would be required to use the modified gear when fishing for flatfish.

The action will require an FMP amendment to the BSAI Groundfish FMP under the section of the FMP that specifies target-fishery specific gear restrictions. The proposed action alternative can be restated from the BSAI Amendment 89 motion (Section 4) as follows:

Alternative: Require trawl vessels targeting flatfish in the BSAI to use elevating devices on trawl sweeps to raise the gear off the seafloor.

The regulations will describe the modification in more detail, and will combine a gear and performance standard. Vessels must employ elevating devices on the sweeps that achieve one of two options, combining a nominal clearance (the space created under the sweeps adjacent to the elevating device, measured on a hard surface), and a maximum distance between elevating devices. The draft regulation includes a figure to identify the sweep, and elevating devices may also be required on trawl door and net bridles that are longer than the standard size (90-180 feet). The draft regulation is still subject to revision, but is included in Appendix 1 for reference.

The details of the regulation were discussed most recently with federal monitoring and enforcement personnel, gear manufacturers, and the industry at a public workshop in September 2008. There was discussion about whether to include more specific detail in the regulation, for example whether to specify the height of the elevating device required to meet the standard, or whether to require spacing markers on the sweeps to indicate that the correct spacing had been met. After much discussion, the workshop participants agreed that the intent of the action would be met by regulating the clearance standard and spacing requirements, and that by leaving the other details out of the regulation, the fleet would have more flexibility to individualize the gear as appropriate to their vessel and gear type configurations. An outstanding issue with the regulation is how to define the part of the gear on which devices are required (the sweep). While everyone at the workshop understood exactly where the elevating devices were supposed to be placed, coming up with an unambiguous regulatory standard to describe this has been a challenge. Melanie Brown, of NMFS, is continuing to work on this issue by trying to design a figure that will illustrate the appropriate placement.

The implementation of a modified trawl sweep program will involve manufacturers, fishers and NMFS, the North Pacific Groundfish Observer Program, USCG, and NOAA Office of Law Enforcement (OLE) personnel. The fishers will be responsible to ensure their sweeps meet the standards, and this may be randomly checked by several methods. Agency enforcement activities will focus on complying with the prohibition regarding flatfish fishing with a modified trawl sweep. An at-sea observer may observe the deployment or retrieval of the net to determine the presence or absence of the modified sweep. The OLE would be notified if the sweep may not meet the standard or if no modified gear is detected. OLE may follow-up with a more intensive dockside inspection. The USCG may conduct at-sea inspections to determine if a modified sweep is present or absent. The details of the types of inspections, the design and use of various devices such as "wear indicators" on the bobbins to enable visual detection of worn or inadequate modified trawl gear, and the actual procedures to be used by the vessels and the monitoring bodies in undertaking an inspection of modified trawl gear will need to be developed prior to implementation of the gear modification requirement.

## **7 Clarifications regarding the reopening of the "wedge"**

The other action being considered as part of this amendment package is to reopen a part of the Northern Bering Sea Research Area. This would also require an FMP amendment, to redefine the NBSRA, and possibly to define the reopened area in the FMP, if specific constraints are placed on fishing within that area.

The NBSRA was closed to non-pelagic trawling as part of Amendment 89, the Bering Sea Habitat Conservation action, to create a research area where minimal fishing occurs, in order to facilitate the study of the potential effects on nonpelagic trawling on Bering Sea benthic habitat. The Council indicated, in their final motion on Amendment 89, that a small portion of the NBSRA, referred to in the motion as the "wedge", may be reopened following implementation of the gear modification requirement for flatfish fishing. Section 4 cites the wording of the Council motion with respect to this option, and Figure 1 illustrates the area in question.



Staff proposes to include the reopening of this area part of the Initial Review analysis that will be presented to the Council. The Council's motion is ambiguous, however, about who would be permitted to fish in the area once it is reopened. Will the area only be open to flatfish fishery participants using the modified gear; will the area open to any non-pelagic trawling using modified gear; or will the area reopen to all non-pelagic trawling with no gear requirement specified (but flatfish fishery participants will be required to use the modified gear here as elsewhere). There are three possible interpretations of the Council's wording. These have been restated below as options. The Council may indicate at the October Council meeting which option to include in the analysis, or the Council may choose to include all options in the analysis and at final action, decide which option to select.

- Option 1: Revise the boundaries of the Northern Bering Sea Research Area to exclude the area referred to as the "wedge" (see Figure 1). The "wedge" area will be designated as a "Flatfish Trawl Zone" Only vessels targeting flatfish (and subject to modified trawl sweep requirements) may fish in the area.
- Option 2: Revise the boundaries of the Northern Bering Sea Research Area to exclude the area referred to as the "wedge" (see Figure 1). The "wedge" area will be designated as a "Modified Gear Trawl Zone". Non-pelagic trawling within the area can only be conducted using modified trawl sweeps.
- Option 3: Revise the boundaries of the Northern Bering Sea Research Area to exclude the area referred to as the "wedge" (see Figure 1). Non-pelagic trawling would be permitted in the "wedge" area, although directed fishing for flatfish in the area would be subject to modified trawl sweep requirements.

The ambiguity regarding the wording of the Council's motion was raised at the industry workshop in September 2008. Workshop participants indicated that they had understood that the area would only be opened to vessels using modified gear, but that they would prefer to retain the flexibility to target more than just flatfish in that area. The primary species that could be targeted in the area other than flatfish is Pacific cod. Anecdotal evidence suggests that the area in question is not productive for Pacific cod, due to its shallow depth. While targeting Pacific cod has not been a focus for the gear modification research, Dr. Rose has indicated that there has been some research on targeting Pacific cod using modified trawl sweeps.

Another comment that was raised at the workshop was with respect to the western boundary of the "wedge". Participants commented that it had been their understanding that the boundary should extend westward to the eastern border of the St. Matthew Island closure. Staff has since confirmed that these were the maps (e.g., Figure 1) that the Council viewed at the time of final action in June 2007, however the Council may wish to confirm the shape and boundary of the 'wedge' subarea to be evaluated in this action.

## **8 Council action in October 2008**

The action before the Council at the October 2008 meeting is to approve the proposed direction for this analysis. Additionally, staff is requesting that the Council endorse inclusion of a housekeeping change to the FMP as part of the proposed amendment.

### Problem statement

The problem statement from BSAI Amendment 89 has been included in this discussion paper. The Council should determine whether the Amendment 89 problem statement is still appropriate for the gear

modification component that is being addressed in this follow-on action. If not, the Council may wish to adopt a more focused problem statement for this analysis. In particular, it may be advisable, from a NEPA perspective, for the Council to articulate a focused problem statement if the Council is only looking at two alternatives in this analysis.

### Alternatives

The discussion paper provides the alternatives that were included in Amendment 89 with respect to gear modification. Sections 6 and 7 restate these alternatives for the forthcoming analysis (for reference, the text is copied below). There is some question as to the Council's intent with regard to the reopening of a portion of the Northern Bering Sea Research Area, the subarea referred to in the Council motion as the "wedge". The discussion paper suggests three interpretations of the language; staff requests that the Council indicate which of the options should be included in the analysis, or whether they should all be included at this time.

Alternative 1: No action.

Alternative 2: Require trawl vessels targeting flatfish in the BSAI to use elevating devices on trawl sweeps to raise the gear off the seafloor.

- Option 1: Revise the boundaries of the Northern Bering Sea Research Area to exclude the area referred to as the "wedge" (see Figure 1). The "wedge" area will be designated as a "Flatfish Trawl Zone". Only vessels targeting flatfish (and subject to modified trawl sweep requirements) may fish in the area.
- Option 2: Revise the boundaries of the Northern Bering Sea Research Area to exclude the area referred to as the "wedge" (see Figure 1). The "wedge" area will be designated as a "Modified Gear Trawl Zone". Non-pelagic trawling within the area can only be conducted using modified trawl sweeps.
- Option 3: Revise the boundaries of the Northern Bering Sea Research Area to exclude the area referred to as the "wedge" (see Figure 1). Non-pelagic trawling would be permitted in the "wedge" area, although directed fishing for flatfish in the area would be subject to modified trawl sweep requirements.

### Analysis

At the June 2007 meeting, when the Council deferred a specific recommendation on the gear modification component of the Bering Sea habitat conservation measures, the Council acknowledged that the EA/RIR/FRFA analysis for Amendment 89 may have to be supplemented in order to provide sufficient and appropriate information for a final recommendation by the Council and decision by the Secretary of Commerce. Staff suggests that rather than producing a supplementary analysis, it may be simpler to create a new EA/RIR/IRFA for this action, which can tier off the information included in Amendment 89, and also include any new information as appropriate. Unless the Council disagrees with this course of action, staff will proceed accordingly.

### Timeline

Assuming the Council provides direction to staff at the October 2008 meeting, with regard to the issues identified above, staff should be able to prepare an initial review draft of the analysis for the December 2008 Council meeting. Barring other Council scheduling conflicts, this would allow the Council to take final action in February 2009, and regulations may be implemented in time for the 2010 fishing year.

Housekeeping action

As part of this amendment, staff would like to include a housekeeping change to the BSAI Groundfish FMP. As all changes to the FMP, even minor typographical changes, require an FMP amendment that is approved by the Council, this could be handled as a separate action that is implemented under this FMP amendment. The proposed change is not substantive, but would correct the description of the Crab and Halibut Protection Area, which was effectively superseded by the Nearshore Bristol Bay closure. Specific information on this change will be included in the Initial Review Draft of the analysis. The housekeeping amendments will also include the renumbering of figures in Section 3 of the FMP, which became confused with the adoption of Amendment 89.

## Appendix 1 Draft regulatory language

Several regulations in 50 CFR part 679 would need to be revised to implement a modified trawl sweep requirement. **Note, this language is a draft only, and is still subject to revision.** The requirements would apply to all federally permitted vessels in reporting areas of the Bering Sea subarea and adjacent State of Alaska waters.

1. New definitions under § 679.2 should be added for nonpelagic trawl sweeps and for directed fishing for flatfish for purposes of the gear modification requirement. The flatfish fishing definition includes any exemption from a nonpelagic trawl closures based on the use of modified gear. The definition for federally permitted vessels should be revised to include modified trawl gear for flatfish fishing in the Bering Sea.

### § 679.2 Definitions

\* \* \* \*

Directed Fishing for Flatfish means for purposes of nonpelagic trawl restrictions under § 679.22 (a) and gear modification requirements under §§ 679.7(c)(3) and 679.24(f), fishing with nonpelagic trawl gear during a fishing trip that results in a retained aggregate amount of yellowfin sole, rock sole, Greenland turbot, arrowtooth flounder, flathead sole, Alaska plaice, and other flatfish that is greater than the retained amount of any other fishery category defined under § 679.21(e)(3)(iv).

*Note: The closure area at 679.22(a) would need to be included if the wedge applies only to flatfish fishing with modified gear.*

\* \* \* \*

Federally permitted vessel means a vessel that is named on either a Federal fisheries permit issued pursuant to § 679.4(b) or on a Federal crab vessel permit issued pursuant to § 680.4(k) of this chapter. Federally permitted vessels must conform to regulatory requirements for purposes of fishing restrictions in habitat conservation areas, habitat conservation zones, and habitat protection areas; for purposes of anchoring prohibitions in habitat protection areas; **for purposes of modified gear requirements for the BS directed flatfish fishery**, and for purposes of VMS requirements.

\* \* \* \*

2. A new paragraph (s) in § 679.5 may be needed to require the fishers to provide documentation that the trawl sweeps meet the performance standards. Possible types of documentation include a manufacturer's warranty and proof of inspection. This would require Paperwork Reduction Act approval.

*Note: At the workshop, it was recommended that such a requirement not be included in the regulations.*

3. A new subparagraph (3) also would be added to § 679.7(c) to prohibit directed fishing for BS flatfish without sweeps that meet the standards specified at § 679.24(f).

§ 679.7 Prohibitions

\* \* \* \*

§ 679.7(c)(3) Conduct directed fishing for flatfish as defined in § 679.2 with a vessel required to be federally permitted in any reporting area of the Bering Sea subarea as described in Figure 1 to this part and adjacent State of Alaska waters without meeting the requirements for the nonpelagic trawl sweeps specified in § 679.24(f).

\* \* \* \*

4. A new subparagraph would be added to § 679.7(a) to reopen the “wedge” area, if fishing in that area is to be limited only to those fishing with modified non-pelagic trawl gear. If the “wedge” is to be open to all nonpelagic trawling, only the coordinate table and the Northern Bering Sea Research Area figure will need to be modified to eliminate the wedge from the NBSRA and no regulatory changes in § 679.22 would be needed.

Figures – Part 679

*The NBSRA figures and coordinate table would need to be changed.*

\* \* \* \*

679.22(a)(21) Flatfish (or Modified Gear) Trawl Zone. No federally permitted vessel may fish with nonpelagic trawl gear in the Flatfish (or Modified Gear) Trawl Zone specified at Table 46 and Figure 22 to this part, except for vessels directly fishing for flatfish using modified gear as specified in § 679.24(f).

*Note: A coordinate table and possibly a figure would be added to the regulations for this zone.*

\* \* \* \*

5. To establish standards and requirements for the use of modified nonpelagic trawl gear, add paragraph (f) to § 679.24.

§ 679.24 Gear Limitations

\* \* \* \*

§ 679.24(f) Nonpelagic trawl bottom lines for directed flatfish fishing with federally permitted vessels in reporting areas and adjacent State waters of the BS, as described in Figure 1 to this part. Vessel owner or operators using nonpelagic trawl gear for directed flatfish fishing must meet the following standards in subparagraphs (1) through (3):

(1) elevating discs, bobbins or similar devices installed on the bottom line of Section A of Figure X raise the bottom line at least 2.5 inches (6.35 cm), as measured adjacent to the elevating device when resting unsupported on a hard, flat surface, regardless of the elevating device orientation, and measured between the supporting surface and the lowest part of the line material;

(2) elevating devices secured along the entire length of the bottom line of Section A on Figure X at either

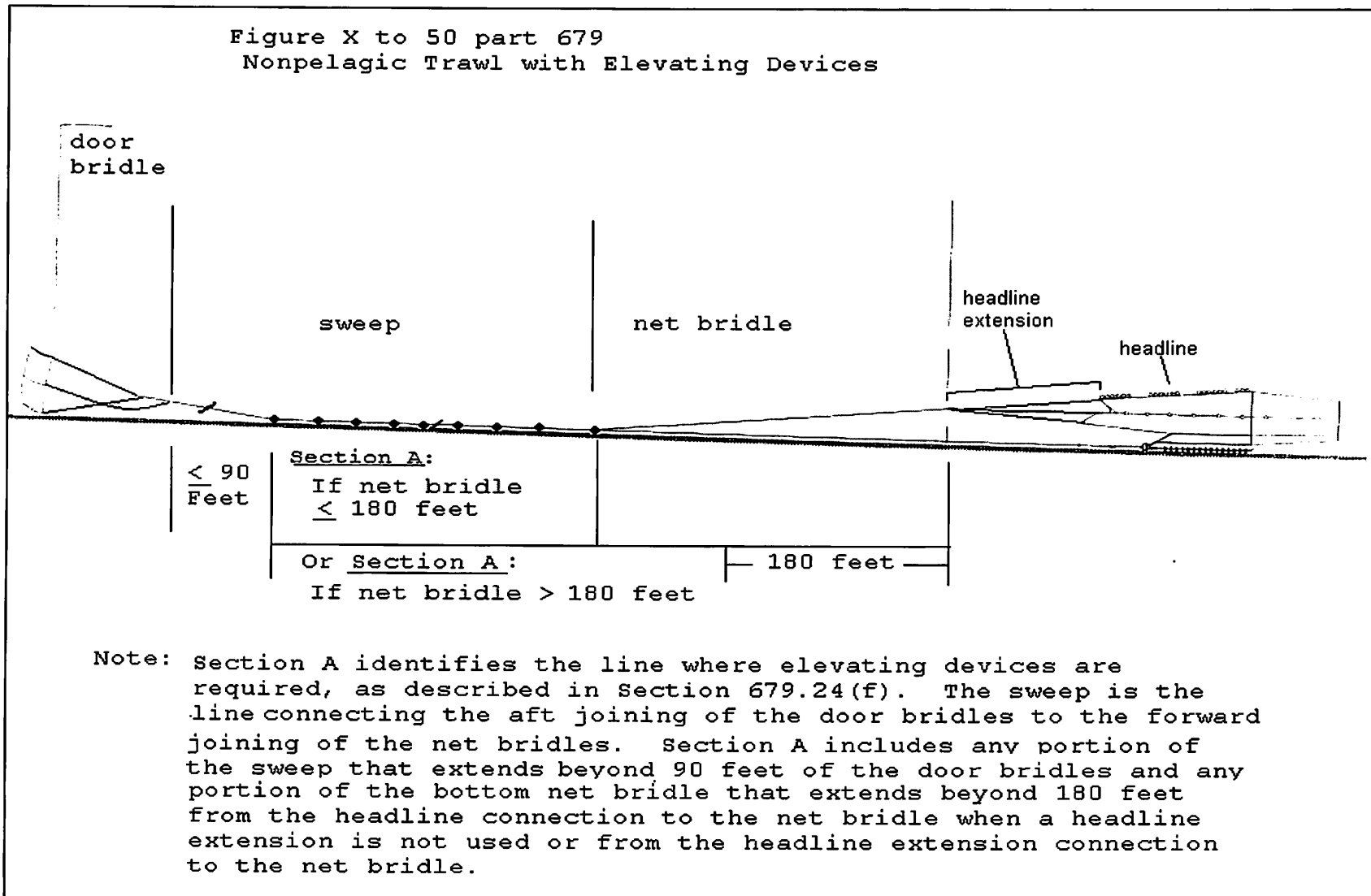
(i) no more than 65 feet (19.8 m) between elevating devices that raise the bottom line of Section A on Figure X 3.5 inches (8.89 cm) or less, or

(ii) no more than 95 feet (29.0 m) between elevating devices that raise the bottom line of Section A on Figure X more than 3.5 inches (8.89 cm); and

(3) The largest cross-section of the bottom line in Section A of Figure X between elevating devices shall not be greater than at the nearest measurement location. Wider cross-sections resulting from doubling the line back for section terminations and devices required to connect sections are exempt from this requirement. Where a device is installed over material different from the bottom line, (for example, on a chain joining two bottom line sections), that material must be at least as wide as the bottom line material.

\* \* \* \*

Figure X to 50 part 679  
Nonpelagic Trawl with Elevating Devices



## Appendix 2 Relevant public comments from BSAI Amendment 89 Final Rule

*Comment 3:* The Council submitted comments and recommends that the preamble to the final rule describe the Council's intent regarding future actions for nonpelagic trawl management in the Bering Sea. The Council intends future adjustment to the NPSRA boundary with the implementation of a modified gear requirement for the flatfish trawl fishery that would minimize potential impacts on bottom habitat. This potential future adjustment would open a portion of the NBSRA to nonpelagic trawling. The adjustment to the NBSRA boundary to open this area is shown in Figure 1. Because the area to be opened with flatfish trawl gear modification requirements may contain high concentrations of yellowfin sole and low concentrations of other bycatch species, the flatfish industry has identified this area as important to its fishery. In June 2008, the Council received a report on the progress of developing modified gear for flatfish fishing that will reduce the potential impacts on bottom habitat. Analysis supporting the gear modification requirement and adjustment to the NBSRA will supplement the existing EA/RIR/FRFA for the Bering Sea Habitat conservation measures.

*Response:* Any potential changes in the gear requirements for the flatfish fishery would require analysis of the potential environmental and socioeconomic impacts of the action. NMFS will work with the Council to ensure the appropriate information is available to inform the Council's final recommendation on gear modification. If the Council recommends a modified gear requirement for the flatfish fishery and the adjustment to the NBSRA shown in Figure 1, NMFS will include these recommendations in future proposed rulemaking for this action. The supporting analysis for this potential future action would include information from the EA/RIR/FRFA for this final rule and any relevant new information to inform the decision making.

*Comment 4:* To protect local communities' resources, we support permanent closure of the area considered for opening in connection with the implementation of modified gear for the flatfish fishery (Figure 1).

*Response:* This final rule implements the closure of the BSRA which includes the area considered for opening with the potential future implementation of modified gear for the flatfish fishery (Figure 1). The Council has expressed its intent to open this area to commercial fishing with implementation of a modified gear requirement (Comment 3). Any concerns about opening this area should be expressed to the Council while the modified gear requirement recommendation is being developed. The Council received a report on modified gear research at its June 2008 meeting (73 FR 26964, May 12, 2008). The Council recommended that staff develop an analysis of a gear modification requirement, including consideration of opening the area identified in Figure 1. The gear modification requirement and any proposed adjustments to the NBSRA boundary will require analysis and rulemaking to implement, including the public process provided by the Council in developing its recommendations to NMFS.



## Public workshop on proposed gear modifications to trawl sweeps used in the BSAI flatfish fisheries

September 8, 2008 1-4pm  
Dantrawl, 1121 NW 52<sup>nd</sup>, Seattle, WA 98107

### Report

The agenda for the workshop and a handout listing questions to be resolved, which was used at the workshop, is included as Appendix 1, on page 6. A list of the workshop attendees is included as Appendix 2, on page 10.



### Introduction

Melanie Brown introduced the purpose of workshop, to educate participants on the latest modified gear research and come up with solutions to implementation issues.

### Latest Research

Dr. Craig Rose reviewed the material presented to the Council in June 2008 on the field testing and research conducted over the last year for the modified gear. Results presented last year, assessing effects of the modification on habitat effects and catch rates, used 6, 8, and 10 inch disks over 2 inch combination rope at 30 foot intervals. Actual clearance between the sweep and the seafloor is influenced by nominal clearance (the space created under the sweeps adjacent to the elevating device, measured on a hard surface), the degree to which the elevating device sinks into soft sand or mud, and the degree to which the sweep sags in the span between elevating devices. While some damage reduction was seen with the 6 inch disks (with 2 inches nominal clearance), the 8 inch disks (with 3 inches nominal clearance) performed somewhat better with no detectable reduction in catch rates. It was recognized that longer spacings between elevating devices would be easier for fishers to work with and would further reduce direct contact area, up to the point that actual clearances are substantially reduced due to sag. The goal of this year's studies was to identify the longest spacing that achieved similar clearance characteristics to the 30 foot spacing used in initial tests.

Clearance indicators were developed to measure actual clearances between the sweep material and the seafloor during operation. These indicators were installed at several points across the span between elevating devices placed at 30, 60, and 90 foot spacings. Indicators installed next to the elevating devices evaluated the degree of sinking (elevating devices may sink up to 0.5 inches into the mud), while those near the center of the span measured sag. The general conclusion was that similar actual clearance to last year's tests was achieved over a longer spacing, using elevating devices producing a 3 inch nominal clearance at 60 ft spacing (tested using 8 inch discs on 2 inch sweeps), and 4 inch nominal clearance at 90 foot spacing (10 inch discs on 2 inch sweeps).

John Gauvin explained some of the background for the gear modification action. In the Environmental Impact Statement for Essential Fish Habitat (EFH) Identification and Conservation in Alaska, the flatfish fleet was identified as having the highest impact on EFH, of Bering Sea fisheries. This is primarily because the fleet fish over broad areas, following the movement of the flatfish, so the total area affected by the fishery is high. Consequently, when the Council began considering habitat conservation measures for the Bering Sea, they focused on the flatfish fishery. The Council's first strategy, to close areas with low catch per unit effort over a series of years, would have closed out much of the flathead sole fishing grounds (as this is a highly mobile species). As an alternative, gear modifications were proposed as a

mechanism to reduce the impact on the seafloor, without closing areas to fishing. An industry workshop was held in March 2007 to discuss implementation issues with attaching elevating devices to the sweeps, but there continued to be unresolved issues at the time of the Council's final action on Bering Sea Habitat Conservation (Amendment 89, in June 2007).

The purpose of the additional research in 2007 and 2008 was to resolve three outstanding issues: spacing, methods of attachment and wear rates, and how to work with modified gear on vessels without net reels. Extending the spacing between devices by using larger discs was successful (60 ft for main wire using 8 inches elevating devices and 90 foot for combination rope with 10 inch elevating devices). Connecting the elevating devices at the eyes, where the sections of sweep are spliced together, worked well, while clamps did not work as well as attachment between sections. Finally, testing was done on the F/V Seafisher, a vessel without a net reel, using graduated bobbins rather than discs, which was successful.

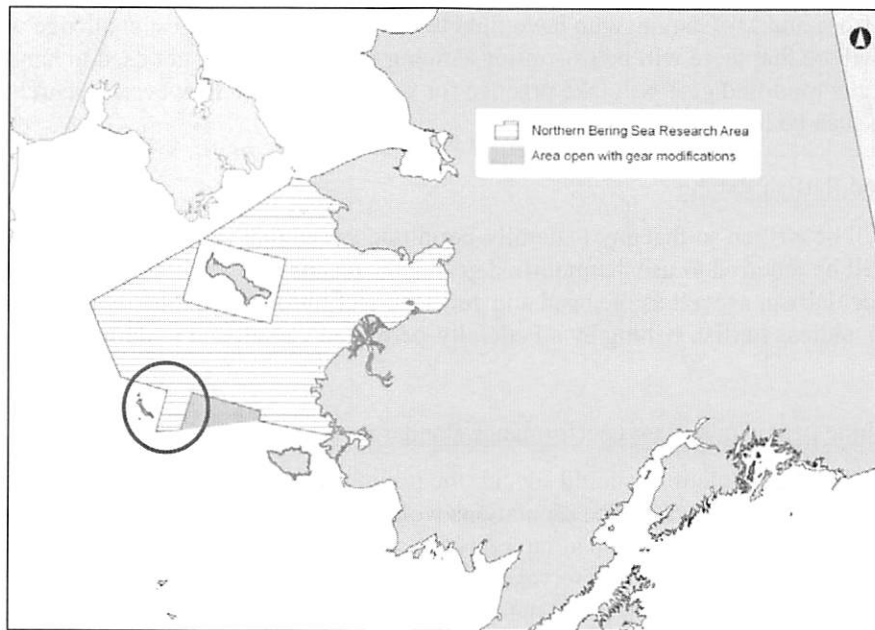
Given that these issues have been resolved, the remaining issues revolve around how to define the requirement in a regulation. Mr Gauvin strongly recommended that the regulation allow for the maximum flexibility. As people use the gear in the fishery, they will likely come up with improvements and changes, and should not be locked into a particular gear configuration as long as the gear meets the overall clearance standard. Mr Gauvin also recommended that the Council include in their final action a formal time period for reconsidering the regulatory standard, to allow any changes that may be required.

#### **Council action and reopening a closed area (the 'wedge')**

Diana Evans spoke about the Council's motions with respect to gear modification in June 2007 and June 2008, and the likely timing of an amendment. The Council is currently scheduled to take initial review of this amendment in December 2008, and final action in February 2009. Implementation would likely be for the 2010 fishing year.

Once the gear modification requirement is in place, the Council has indicated that it may reopen an area of the Northern Bering Sea Research Area, which is currently closed to non-pelagic trawling. An alternative proposing this action will be included in the Council's amendment analysis. Ms Evans noted that the wording of the Council's June 2007 motion regarding the reopening of the area is ambiguous – will the area only be open to flatfish fishery participants using the modified gear, or will the area reopen to all non-pelagic trawling. Workshop participants indicated that they had understood that the area would only be opened to vessels using modified gear, but the modified gear could be used to target more than just flatfish in that area. Ms Evans indicated that she would be asking the Council for further clarification on this matter at the October Council meeting. Dr. Rose stated that there has been some research on targeting Pacific cod using modified gear, and this may be a potential species to be harvested in the area. However, workshop participants thought it was unlikely Pacific cod in fishable quantities would occur in the reopened area.

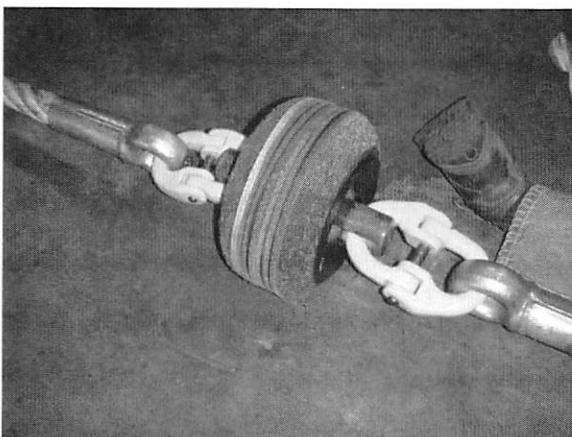
Lori Swanson and John Gauvin also noted that the figure depicting the area to be reopened, known as the 'wedge', did not look correct. They believe the western border should extend to the closure border of the St. Matthew Island closure. The figure here was included in the Federal Register notice for Amendment 89; the circle roughly indicates the disputed boundary.



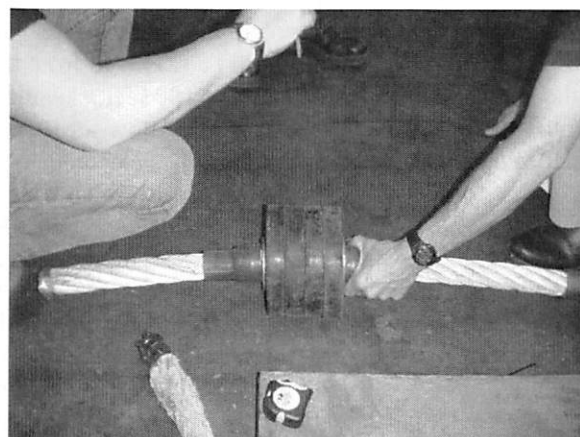
### Implementation and the draft regulation

Melanie Brown presented the draft regulation for § 679.24(f), as currently proposed, and went through the list of questions identified in the handout (Appendix 1). Overall, there was agreement that the draft regulations should establish the required clearance standard, yet leave some flexibility for how to meet the standard, for minor slippage of the elevating devices, and for various sizes of elevating devices. Research has shown that the elevating devices can be securely attached to both bare wire and combination wire.

Participants were much more comfortable with the current proposals for meeting the clearance standard than they were a year ago, and stated that 90 foot spacing with 10 inch elevating devices is a viable solution, whereas the requirement to place the devices at shorter spacing intervals was not. Manufacturers are able to produce the requisite parts to meet the standard; there were a couple of examples available at the workshop site to illustrate how the devices may be attached to combination wire and bare wire.



10 inch elevating bobbin connected to 2 inch (52mm) combination wire with hammerlocks (coupling links)



8 inch elevating discs mounted on body of 2 inch (52mm) combination wire with stopper swages each side

According to Dr Rose and Mr Gauvin, who have field tested the gear, the biggest challenge with implementation will be that there will be frustrations among the crew as they get used to handling the gear. Winding of the modified gear will take practice for vessel operators. However, research has shown that this challenge can be met.

#### Applies to directed flatfish fishing

The regulation will be written so that any Federally-permitted vessel that is directed fishing for flatfish in the Bering Sea will be required to use the modified gear. This means that it will apply to pollock vessels directly fishing for flatfish, as well as the head and gut fleet. Definitions would be revised and added to the regulations to address flatfish fishing by a Federally-permitted vessel, and to define directed flatfish fishing.

#### Regulations combine gear standard and performance standard

The group agreed that the regulations should specify the minimum nominal clearance required for an elevating device over a given spacing. The regulations would be written to require a minimum of 2.5 inches nominal clearance for devices used at intervals of a maximum of 65 ft, or a minimum of 3.5 inches of nominal clearance for devices used at intervals of a maximum of 95 ft. The details of the size or type of elevating device would not be included in the regulation, to allow flexibility for the fleet in meeting the standard.

The group discussed the wording in the regulation requiring the nominal clearance be measured adjacent to the elevating device, given that some devices may not be able to be measured immediately adjacent due, for example, to the use of graduated discs. After looking at the example devices, the Coast Guard and NOAA Enforcement representatives at the meeting felt comfortable that they would be able to interpret the word 'adjacent' appropriately under different configurations (see 'Measuring clearance' section below, also).

#### Defining what part of the gear on which the devices are required (the sweep)

The participants discussed how to identify in regulations the part of the trawl that would need to have elevating devices. The intent is to put elevating devices on the sweeps, which are usually the line between the door bridles and the net bridles. However, some trawl configurations (e.g., parallel rig for semi-pelagic trawl) have a top net bridal that extends the entire length of the bottom sweep to the door bridle, making it difficult to define what part of the sweep needs elevating devices. The participants agreed that 180 feet in front of the net should be excluded from the elevating device requirement, to prevent tangling of the gear. If the net bridle exceeds 180 feet, elevating devices would need to be put on the bottom bridle at the appropriate spacing. This would allow for flexibility in the length of the bridle yet still meet the intent of having most of the bottom lines elevated.

While everyone in the room understood exactly where the elevating devices were supposed to be placed, it was very difficult to come up with a regulatory standard to describe this. The group discussed many different ways to define 'sweep', or to define 'bridle' (the sweep then being everything in between the bridles), but was unable to arrive at an unambiguous definition. The problem is especially difficult because parts may be used differently on different trawl configurations. The group discussed the possibility of using a figure in the regulations, which could be used to identify the location where the elevating devices need to be placed. Ms Brown will continue to work on clarifying this issue.

#### Measuring spacing

The spacing of the elevating devices can be easily inspected on combination wire that is in 90 foot sections. An elevating device would be mounted at the location where sections of sweep are joined

together. For devices used with bare wire, a sleeve could be mounted on the wire at 60 foot intervals to help achieve proper spacing. The participants agreed that marking the sweeps for the elevating device spacing should not be a requirement, but would only be a convenience for crew and inspectors. Marking the vessel deck to assure correct spacing for elevating devices is not practical for the smaller vessels.

The group discussed briefly whether there was a need to specify a minimum spacing for use of the devices in the regulation (using more devices on the sweeps than necessary may increase habitat impacts). It was decided that it was very unlikely that fishermen would want to place more devices on the gear than would be necessary to meet the clearance requirements, due to the inconvenience of using the gear if so configured. Therefore, a minimum spacing requirement is not needed.

### Measuring clearance

The participants agreed that the performance standard would be measured as the nominal clearance from the deck to the elevating devices. The group discussed how to measure the nominal clearance of the elevating devices, when different methods are used to attach the devices to the sweeps. For elevating devices mounted on a shaft, the measurements could be made from the shaft to the deck surface. For devices attached over a chain connector, the chain would need to be rotated to measure the distance from where the chain contacts the inside of the elevating device (the wide part of the chain link) to the deck. The measurements could also be done from the top side of the hole through the elevating device to the top of the bobbin or disk. It is also important that the diameter of the chain or shaft passing through the elevating device have the same or greater diameter than the diameter of the sweep itself. Smaller diameters would overestimate the sweep's nominal clearance. Elevating devices that are mounted on bare wire with graduated disks (to allow even winding) could be measured using a caliper that reaches from the top of the elevating device, beyond the graduated disks, to the top of the wire.



Dantrawl has made elevating devices with a brass ring on the inside. When the device is worn down so that the brass shows, the device is no longer providing the necessary clearance, and needs to be replaced. A similar wear indicator can also be added to a home-made device, by drilling holes in the disc or bobbin. As with spacing, these indicators may be more helpful to the crew, but could also assist visual inspections by federal personnel. The workshop participants agreed that such indicators should not be required, however.

### Manufacturer's warranty or certification

The USCG will do further research into the feasibility of a program where the manufacturers could certify that the modified sweeps meet the regulatory standards. Even without such a formal program, however, the participants noted that the vessel operator could file a letter from the manufacturer and bill of sale with the ship's records indicating that the purchased gear met the requirements. This would be similar to the requirement for a manufacturer's statement for mid-water trawl gear, and could facilitate inspections by USCG and NOAA personnel. The participants agreed that this document should not be a requirement, but just something that could be done as a convenience to the gear owner and the inspection personnel.

### Accommodating gear on net reels

The vessel net reels will need to accommodate the increased bulk of the modified gear. Mr Gauvin and Dr Rose indicated that in most cases they should be able to do so, but learning to wind the gear efficiently would take practice. It was noted that this would be easier for vessels with split net reels. For other vessels, several options may have to be considered. Some net reels can be modified to increase the diameter for winding the gear. Another option is to raise the net reel to allow for more gear to be wound on the reel, however this may be a concern for the stability of the vessel and the strength of the deck. The other option is to reduce the length of the sweeps. Making changes to the net reels will be an expense to the vessels using modified gear. Decreasing the sweep lengths may impact fishing efficiency and reduce harvests.

### Council reconsideration of modified gear requirements

The participants agreed that it would be desirable to have a set date for the Council to revisit the modified gear requirement. This would ensure a place on the agenda for any needed revisions to the requirement, which can be difficult to obtain. The participants agreed that the preferred time period for reconsideration would be three years after implementation.

## Appendix 1 Agenda and Issues for Discussion

1. Introductions
2. Latest research results (Craig Rose)
3. Gear designs - bobbins, placement, rope types, net reels and without net reels; practical applications (John Gauvin)
4. Council June motion (Diana Evans)
5. Draft regulations (Melanie Brown)
6. Monitoring and enforcement issues: identify problems and suggest solutions (Melanie Brown, moderator)

### Regulation Issues:

1. Should the definition of the sweeps include all lines between the doors and the fishing line or the footrope?

Current definition:

fishing line is a length of chain or wire rope in the bottom front end of a trawl to which the webbing or lead ropes are attached.

footrope is a chain or wire rope attached to the bottom front end of a trawl and attached to the fishing line.

For purposes of establishing where to measure and attach elevating devices, we should describe whether the sweep extends to the footrope or beyond that to the fishing line.

2. What distances should be excluded in the spacing measurements for the elevating devices next to the doors and next to the trawl?

The bridles can include a substantial portion of the length of the trawl gear. Adding the length of the bridles at the door and trawl end of the sweep would increase the number of elevating devices needed. The suggested regulatory definition of the sweep excludes 90 feet closest to the doors and the 150 feet closest to the forward ends of the fishing line.

Are these exclusion distances appropriate?

Should fishing line be footrope (depends on question 1 answer)?

3. Should the regulations be written as a gear standard, performance standard, or a combination?

The draft regulations set the elevating device spacing dependent on the clearance provided by the elevating device. Clearances greater than 3.5 inches allow for greater elevating device spacing (95 feet). Research showed 10-inch diameter devices on combination wire and 8-inch devices on wire to be effective at providing the 2.5 inch clearance minimum. The following are the draft regulations which are a combination of gear and performance standards.

§ 679.24(f) Nonpelagic trawl sweeps for directed flatfish fishing with federally permitted vessels in reporting areas and adjacent State waters of the BS, as described in Figure 1 to this part. Vessel owner or operators using nonpelagic trawl gear for directed flatfish fishing must meet the following standards in subparagraphs (1) through (3):

(1) elevating discs, bobbins or similar devices installed on the sweeps that raise the sweeps at least 2.5 inches, as measured adjacent to the device when resting unsupported on a hard, flat surface, regardless of device orientation, and measured between the supporting surface and the lowest part of the sweep material;

(2) elevating devices secured along the entire length of the sweeps at either

(i) no more than 65 feet between elevating devices that raise sweeps between 2.5 and 3.5 inches (6.35 to 8.89 cm), or

(ii) no more than 95 feet between elevating devices that raise sweeps more than 3.5 inches (8.89 cm);

and

(3) The largest cross-section of the sweeps between elevating devices shall not be greater than at the nearest measurement location. Wider cross-sections resulting from doubling the line back for section terminations and devices required to connect sections are exempt from this requirement. Where a device is installed over material different from the sweeps, (for example, on a chain joining two sweeps sections), that material must be at least as wide as the sweep material.

Should the regulations be specific to the size of the disk and the type of sweep? or

Should the standard of at least 2.5 inches continue to be used but work with the manufacturer and industry to use the right size discs for the type of sweep?

**4. Should the regulations specify a range of values for the spacing of the devices and for the diameter of the devices? If so, what should that range be?**

New elevating devices are likely to be made in a standard size of either 8 inches or 10 inches in diameter. *Is this true?*

Is there a certain amount of wear that is acceptable so that a range of diameter size could be used in the regulations? The spacing of the devices is dependent on the diameter of the devices.

Understanding that some slippage may occur in one or more points of connection, can we specify an acceptable range of distances between devices? Is not more than a certain distance OK? See current draft regulation language.

**Implementation Issues:**

**1. What method is preferred to easily see if the spacing of the elevating devices is correct?**

Combination rope sweeps usually come in 100-fathom (600-foot) sections. But gear manufacturers have indicated that they can place **spliced "eyes"** at 90-foot sections. Additionally, manufacturers of combination rope may be able to produce 90-foot combination rope "shots" with spliced eyes or other such sections at 90-foot intervals for attaching disc/bobbins. The spliced eyes provide a viable means of placing shackles such as a "hammerlock" or short length of chain and shackles where elevating discs or bobbins can be attached. This method of attachment reportedly provides a reliable means of attaching the discs/bobbins to combination rope sweeps than using clamps or other approaches that fishers and gear manufacturers have tried to date.

If the regulations require spacing at 60 feet, the elevating device would need to be placed on parts of combination rope sweep sections that may or may not be where the sections are joined with spliced eyes. This may make it difficult to reliably attach the elevating discs/bobbins on combination rope sweeps.



Attachment of discs/bobbins to steel cable or chain sweeps that are covered with small (typically 2 inches in diameter) rubber discs (i.e. "cookie sweeps") does not present the same potential difficulties for disc attachment at spaced intervals.

One manufacturer has used **metal sleeves on the sweep** to mark the 60 and 90-foot intervals which would provide a quick visual method to determine spacing. **Can this method be used on any sweep material and is it economical?**

**Marking the vessel deck**, trawl alley or trawl way fence at 60-foot intervals where the sweep is brought back onto the vessel may make it easier to quickly see if the elevating devices are in the proper locations. This method **may work better for larger vessels** using forward net reels.

**Should some method of easy visuals be required** or should it be left up to the operator, knowing that hand measurements would be time consuming for all?

**2. Can the elevating devices be manufactured to easily see if they have worn to the point of not providing the elevation necessary to meet the standards?**

The goal is to provide the crew, observers, OLE, USCG, and possible industry inspectors a quick visual method to determine if an elevating device is not meeting the standard and may need replacing.

According to gear manufacturers, discs/bobbins used on the combination sweep line could be equipped with **wear indicating devices** such as the ones used on some automobile tires (tread wear indicators) such that it would indicate if wear has made the device not meet the standard. Discs could have **three evenly spaced holes** drilled into them so that reaching the holes through wear would show that the discs no longer provide the necessary elevation to meet the standard.

Are there other types of wear indicators and should this be a requirement?

**3. Are there considerations for modified sweep fitting on the reels and being wound level?**

For fishers currently using a trawl net and sweeps that fill their net reel fully, the additional load of the discs/bobbins may not be accommodated on their net reels. Some fishers facing this situation may have to modify net reels. This can usually be done by increased drum diameter of the net reel and possibly elevating the net reel to achieve necessary deck clearance. Alternatively, fishers may have to reduce the amount of sweep they use under the modified disc requirement relative to what they use currently. This may have some effect on catch rates of fishing efficiencies. Fishers who have to cut back on sweep lengths as part of this regulation may lose some fishing efficiency, which would be a cost as a result of the requirement to modify sweeps.

**4. Can modified sweeps be used on vessels without net reels?**

Field trials on industry vessels without net reels indicate that disks of graduated diameters should be attached to the sweeps where the elevating discs are installed. This apparently facilitates winding the elevating discs through the level winds. The level winds may need to be modified and require extra maintenance to allow discs to be rolled onto main winches. Sweep winches may need to be added if main winches cannot be made to work on a regular basis. The use of 8-inch disks at 60-foot spacing is expected to be the preferred set up for vessels without net reels.

**5. Should the Council do a review in 3 or 4 years, or should they wait until they are notified by the industry or the AFSC that enough additional work has been done to justify looking at new techniques?**

The lighter Spectra rope may allow for better lift than the combination rope. It may be possible that not as many elevating devices would be needed on Spectra or other lighter weight rope to achieve the same clearance as heavier gear. Additional research is needed to explore this option, and the Council may wish to review progress on this method in the future.

**6. Can the elevating devices be securely attached to the sweeps?**

Research showed that the most effective way to attach the elevating devices to combination rope is at the rope "eyes" use for connecting sections. This may be another reason why it may be desirable to use 90-foot spacing as the standard instead of 60 feet. According to industry feedback, there is no problem attaching elevating devices to cookie gear sweeps and to the wire for sweeps on vessels without net reels.

**7. Is it possible to have an industry inspection program to certify the modified sweeps meet the standard?**

It would be helpful to have an industry program to certify that new and used modified sweeps meet the standards. This would allow for documentation for a sweep to be presented during inspections and would be efficient for fixing any problems noted during inspection.

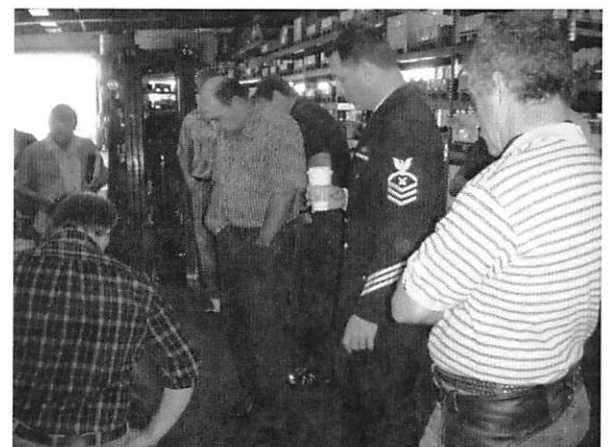
**Additional Question for the Workshop if time allows:**

**Should the Wedge be open to all nonpelagic trawl gear, or only to those using modified gear?**

The Council may want to analyze options for the wedge area with the modified gear requirement to either allow all nonpelagic trawling in the wedge area or to only allow modified gear for flatfish fishing in the area. See Figure 4. If time allows, identify the pros and cons to the options?

## Appendix 2 Gear Modification Workshop Attendees, September 8, 2008

| Name                   | Affiliation        |
|------------------------|--------------------|
| Ben Langholt           | Dantrawl           |
| Bill Hayes             | Jubilee Fish       |
| Brian Fujimoto         | Hampidjan USA      |
| Carwyn Hammond         | NOAA/AFSC          |
| Dave Wilson            | Iquique            |
| Diana Evans            | NPFMC              |
| Elias Olafsson         | Dantrawl           |
| Frank Vargas           | American Seafoods  |
| Garland Walker         | NMFS GC            |
| Jason Anderson         | BUC                |
| Jim Strickland         | US Seafoods        |
| Jody Cook              | Trawl Skipper      |
| Jody Nummer            | USCG               |
| John Adams             | NET-sys            |
| John Gauvin            | H & G Workgroup    |
| John Olson             | NMFS               |
| JR Osuga               | Cascade Fishing    |
| Keith Bruton           | O'Hara Corp.       |
| Ken Hansen             | NMFS Enforcement   |
| Kim Hampton            | US Seafoods        |
| Lori Swanson           | GFF                |
| Melanie Brown          | NMFS-SF            |
| Mitch Hull             | OP                 |
| Patti Nelson           | NMFS-AFSC          |
| Paul Ison              | Iquique            |
| Steven Patterson       | NETS               |
| Susan Robinson         | Fishermen's Finest |
| Takeo Inoue            | NET-sys            |
| Thorbjorn Finnboganson | US Seafoods        |
| Tim Meintz             | Cascade Fishing    |
| Vidir Vernhardsson     | Hampidjan USA      |



**BSAI Pacific cod: information supporting a regional management split into EBS and AI Pacific cod**  
**Prepared by Sarah Gaichas and Kerim Aydin**

In this paper, we summarize information relevant to the management of Pacific cod in the Eastern Bering Sea (EBS) and Aleutian Islands (AI) regions of the Bering Sea Aleutian Islands (BSAI) fishery management area. We present evidence of differences in exploitation rates between the EBS and AI, as well as recent work suggesting different population trajectories in the two areas. Finally, we provide analyses suggesting different ecological impacts of cod mortality in each ecosystem, which have been published in the 2007 BSAI SAFE.

*Unequal exploitation rates (new information)*

An unintentional effect of the BSAI wide Pacific cod TAC was a difference in exploitation rates for EBS and AI cod in 2007. Catches reported in the SAFE (Thompson et al. 2007) were 136,430 t in the EBS and 33,724 t in the AI and were complete through early October 2007. The assessment-estimated exploitable biomass of cod was 806,400 t in the EBS, and the AI estimate of exploitable biomass of 153,600 t was estimated in the assessment based on the assumption that the AI exploitable biomass should reflect the ratio of AI survey biomass to EBS survey biomass; 0.16. If this is correct, then the exploitation rate in the AI was 33,724 t / 153,600 t or 22% in 2007, while the EBS exploitation rate was 136,430 t / 806,400 t or 17% in 2007. The overall exploitation rate for the BSAI was 18% based on these numbers; therefore, statistics based on the BSAI are more representative of exploitation rates in the EBS than in the AI.

*Different population trajectories (new information)*

The BSAI Pacific cod SAFE models the EBS portion of the population only, and until recently, there was no separate population model for the AI portion of the population. Kinzey and Punt (in review) have developed an AI cod population model using AI data and an assessment framework developed at the AFSC (AMAK, developed by J. Ianelli). There are differences in the population trajectories estimated for each area. For example, the EBS cod stock was estimated to have been at a historic low in 1976, to have increased rapidly to a historic high in 1983-1985, and to have declined to an intermediate biomass and fluctuated within that range between the 1990s and 2000s (Figure 1; Thompson et al. 2007). In contrast, the AI cod stock was estimated to have been near a historic high in 1976, and has undergone a general decline since then with the exception of a small peak in the early 1990's (Figure 2; Kinzey and Punt in review). All AI model structures (both standard single species and experimental models including predation) suggest a decline in AI cod spawning biomass from the mid-1990's to the present, while the EBS model suggests a slight increase in spawning biomass from 1998-2003 with a decline since then.

*Different ecosystem effects (summarized from 2007 SAFE)*

The food web relationships of cod are different between the EBS and AI ecosystems, both due to spatial distribution and diet differences. Because the AI has a much smaller area of shelf relative to the EBS, the smaller survey biomass estimate of cod in this area translates into a higher density in tons per square kilometer relative to the density in the EBS (Figure 3, left panel). Cod have diverse diets in both ecosystems, but with important differences (Figure 4). Pollock account for 25% of cod diet in the EBS, and commercially important crab species such as snow crab (*C. opilio*) and tanner crab (*C. bairdi*) make up 9% of cod diets in the EBS, but less than 3% in the AI, reflecting the stronger benthic energy flow in the EBS. In contrast, pollock comprise less than 5% of AI cod diet, while Atka mackerel account for 15%. Squids make up over 6% of cod diets in the AI, but are very small proportions of diets in the EBS, reflecting the stronger pelagic energy flow in the AI. Myctophids are also found in cod diets only in the AI, reflecting the oceanic nature of the food web there. Fisheries are the most important predators of Pacific cod in both the AI and EBS (Figure 5). Simulated impacts of changing cod fishing mortality differ by ecosystem as well, with the impacts felt most strongly and with highest certainty in the AI ecosystem according to this analysis (Figure 6). In particular, limited diet data suggest an interaction between cod and (juvenile) sablefish in the AI that was not present in the EBS. The larger impact of cod mortality in the AI observed in these simulations is a combined result of different diet relationships and the higher biomass per unit area in the AI relative to the EBS; the difference in fishery exploitation rates observed above was not included in the ecosystem simulation analysis. Therefore, it seems that the cod fishery in the AI should be managed separately from that in the EBS to ensure that any potential ecosystem effects of changing fishing mortality might be monitored at the appropriate scale.

## References

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Kinzey, D., and A. Punt, in review. Multispecies and single species models of fish population dynamics: comparing parameter estimates. Submitted to Natural Resources Modeling.

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## Figures

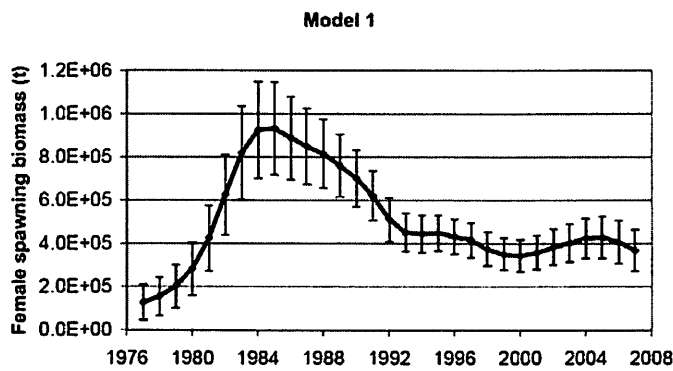


Figure 1. Model-estimated female spawning biomass (t) of Pacific cod in the EBS, reprinted from Thompson et al., 2007, Figure 2.3.

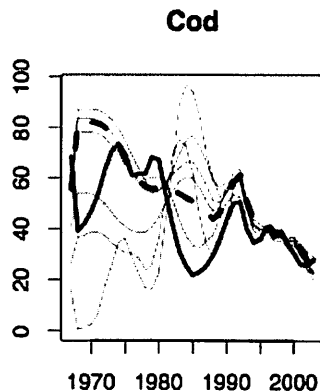


Figure 2. Model-estimated total spawning biomass (1000 t) of Pacific cod in the AI, reprinted from Kinzey and Punt, in review, Figure 4. The dashed bold line indicates the standard single species model run. The solid lines indicate multispecies model runs with predation included, with the bold line indicating the best fit of the multispecies models.

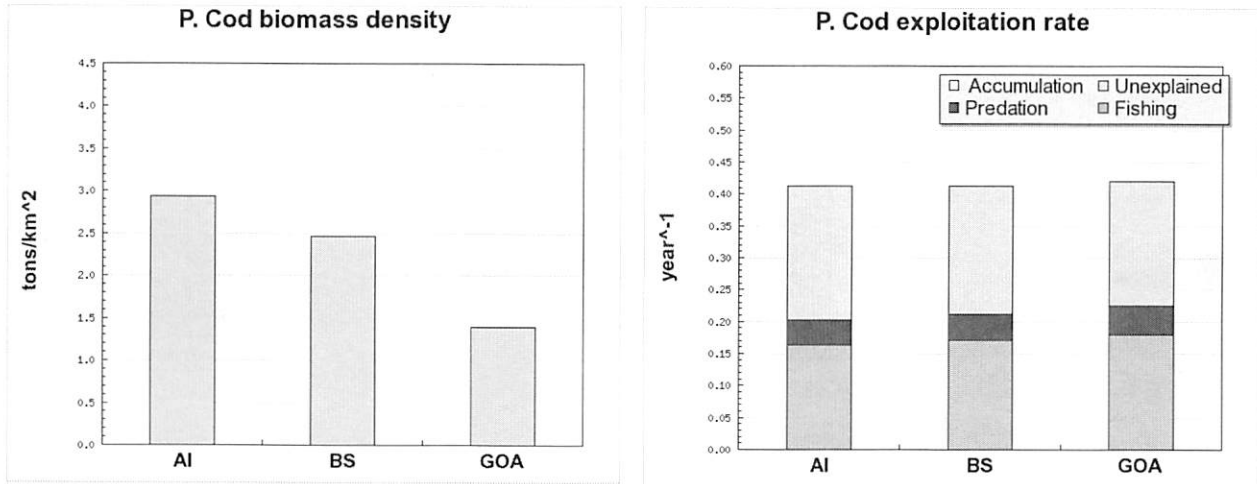


Figure 3. Comparative biomass density (left) and mortality sources (right) for Pacific cod in the AI, EBS, and GOA ecosystems. For the AI and GOA, biomass density (left) is the average biomass from early 1990s NMFS bottom trawl surveys divided by the total area surveyed. For the EBS, biomass density is the stock assessment estimated adult (age 3+) biomass for 1991 (Thompson and Dorn 2005) divided by the total area covered by the EBS bottom trawl survey. Total cod production (right) is derived from cod stock assessments for the early 1990's, and partitioned according to fishery catch data and predation mortality estimated from cod predator diet data (Aydin et al. 2007).

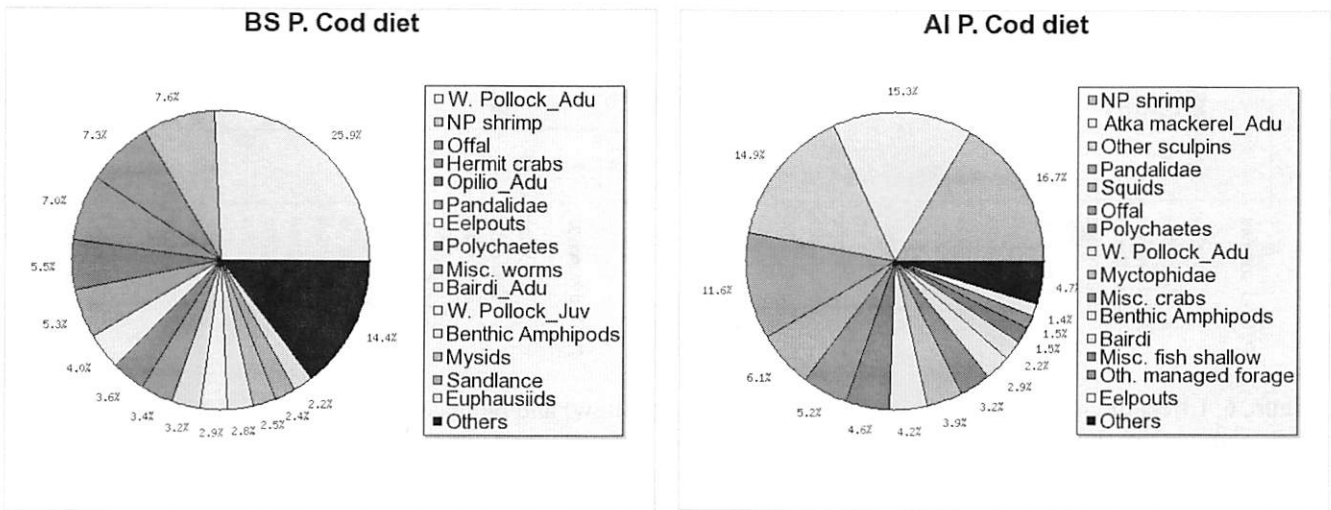


Figure 4. Comparison of Pacific cod diet compositions for the EBS (left) and AI (right) ecosystems. Diets are estimated from stomach collections taken aboard NMFS bottom trawl surveys in 1991 (EBS) and in 1991-1994 (AI).

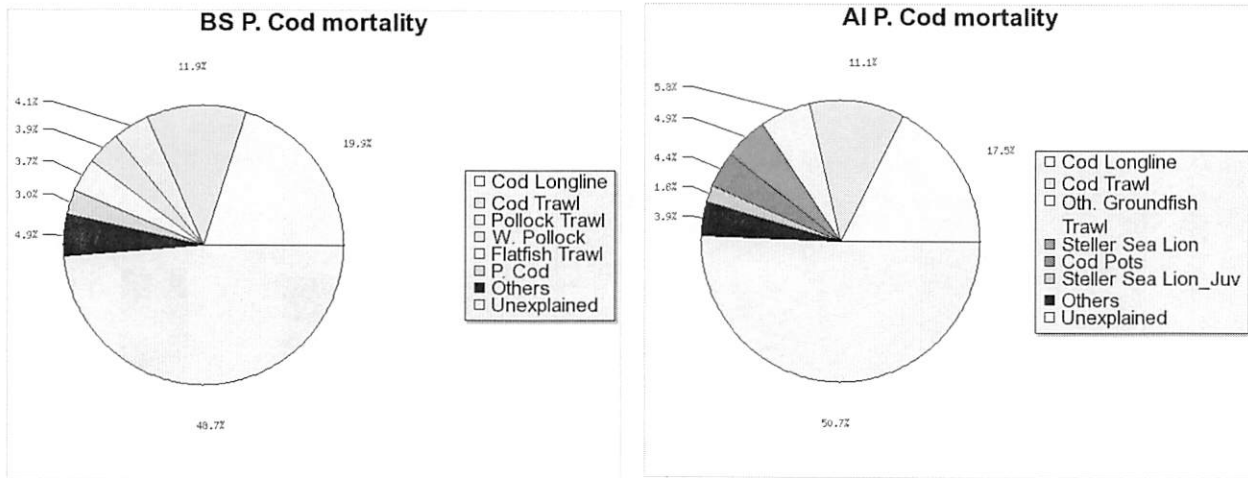


Figure 5. Comparison of Pacific cod mortality sources for the EBS (left) and AI (right) ecosystems. Mortality sources reflect cod predator diets estimated from stomach collections taken aboard NMFS bottom trawl surveys in 1991 (EBS) and in 1991-1994 (AI), cod predator consumption rates estimated from stock assessments and other studies, and catch of cod by all fisheries in the same time periods (Aydin et al. 2007).

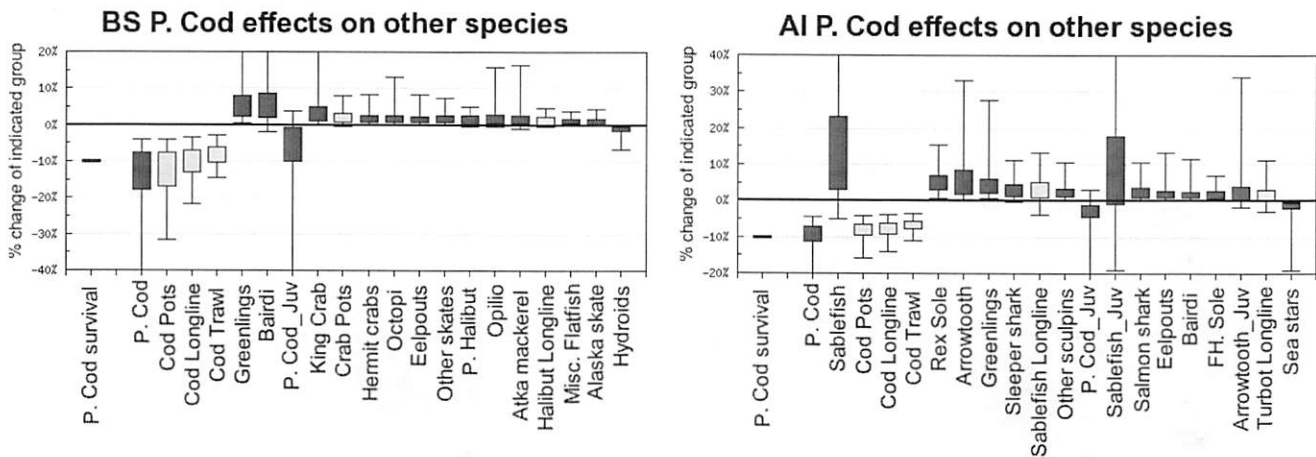


Figure 6. Effect of changing cod survival on fishery catch (yellow) and biomass of other species (dark red): EBS (left) and AI (right), from a simulation analysis where cod survival was decreased by 10% and the rest of the ecosystem adjusted to this decrease for 30 years. Note the differences in y-axis scale. Boxes show resulting percent change in the biomass of each species on the x axis after 30 years for 50% of feasible ecosystems, error bars show results for 95% of feasible ecosystems (see Aydin et al. 2007 for detailed methods).

**FEBRUARY 2008 SSC MINUTES (EXCERPT)****D-2 (d) Report on Pacific cod scientific studies**

Jane DiCosimo (NPFMC) introduced the issue, which is whether there is now sufficient biological information and rationale to split BSAI Pacific cod into separate EBS and AI components for stock status determination. Kerim Aydin (NMFS-AFSC) presented a discussion paper that reviewed regional exploitation rates, population trajectories, and ecosystem effects. Mike Canino (NMFS-AFSC) provided evidence for different genetic components between the Aleutian Islands and Unimak Pass, although there are additional genetic samples from that area that need to be examined. Olav Ormseth (NMFS-AFSC) provided information on differences in fatty acid composition. Public testimony was provided by Donna Parker (Arctic Storm), Ed Richardson (Pollock Conservation Cooperative), and Clem Tillion (Aleut Corp.).

The SSC notes that, at present, some data support the split, other data do not, and there are major information gaps related to recruitment, reproductive potential, and stock structure. The 2007 NPRB request for proposals solicited proposals to identify Pacific cod movement. The SSC anticipates that if these proposals are funded, the results may improve our understanding of mixing between regions. **What is needed is a comprehensive review of relevant information related to stock structure.** The most straightforward approach would be to include this review as an appendix to the cod chapter of the BSAI SAFE, so that it gets proper review by the Plan Team and Council family. However, the SSC emphasizes that the main priority with BSAI Pacific cod is to work on the EBS cod stock assessment model.

In the development of the comprehensive review, authors should consider the following questions.

- If there are breaks in the genetic stock structure in the BSAI, where do those occur? Is it possible that there are multiple breaks? Processing the genetic samples that have not been analyzed will be useful in this regard.
- What criteria should be used to indicate when genetic differences are large enough to necessitate management as separate stocks? That is, stocks can be defined for management purposes alone; to what extent does genetic knowledge inform management issues?
- Is there a conservation concern for cod in either the EBS or in the AI?
- Is information available for reliable assessments if a split is made?
- What implementation issues would arise with respect to the various fishery sectors if a split is made? Would the management system be able to resolve the allocations among these sectors?
- What research issues remain unresolved regarding stock structure, and are these serious enough to argue against making a split? For example, sources of recruitment of fish to the AI region appear to be unresolved.
- What model structure is needed to represent the population dynamics of Pacific cod in the BSAI? There has been some AI cod stock assessment modeling work by UW researchers Kinzey and Punt that may be useful to examine.



## **Summary of biological information regarding differences between Pacific cod in the eastern Bering Sea and Aleutian Islands**

September 2008

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### Executive summary

The NPFMC is considering action that would treat the eastern Bering Sea and Aleutian Islands separately for the purposes of Pacific cod management. This report is intended to summarize existing biological information on Pacific cod that may be useful in evaluating this action. The following conclusions may be useful and are described in greater detail in the report:

- 1) There is highly significant genetic isolation by distance in the Pacific cod stocks of North America (i.e. genetic differences among individuals increase with geographic distance; Fig. 1-2). This result, as well as several different genetic comparisons among regional groupings, suggest that Pacific cod stocks in the Aleutian Islands archipelago are distinct from those along the contiguous Alaska Peninsula.
- 2) In 2005, length at age was significantly higher in the AI than in the EBS for both female and male cod (Table 2-1, Figs. 2-2 & 2-3). This difference is present at all ages.
- 3) Commercial trawls in the AI catch bigger female and male cod than do trawls in the EBS (Figs. 3-1, 3-2 & 3-3). From 2004 to 2006, the mode for cod in the EBS occurred at 65-70 cm, while the mode for females in the AI occurred at 80-85 cm. Fish smaller than 50 cm were evident in EBS trawls, but were rare in the AI.
- 4) Estimates of age composition suggest that commercial trawls in the AI also catch older fish (Fig. 4-1). In particular, cod older than age 8 are largely absent from EBS trawls, while 8-11 year old fish were common in AI trawls. Age estimates were obtained by applying the growth models used in (2) above to the size composition in (3) above.
- 5) Length-weight relationships did not differ between the AI and EBS in 2005 (Figs. 5-1 & 5-2).
- 6) Length-specific gonad weight, a proxy for reproductive potential, was equal between the EBS and AI in 2005 (Fig. 6-1A). Length-specific fecundity (Fig. 6-1B) and egg size were significantly different between the EBS and AI in 2005, but the differences were small and may not be biologically relevant.
- 7) The fatty acid composition of egg polar lipids differed between the EBS and AI (Figs. 7-1 & 7-2). Similar differences in other fish species have been used as an indicator of genetic differentiation and stock structure.
- 8) Cod appear to spawn in several locations in the AI and throughout the EBS (Fig. 8-1).
- 9) Tagged cod have moved between the EBS and AI, but such movements are limited relative to observed cod movement within the EBS and between the EBS and the western GOA.
- 10) Fishery exploitation rates in the AI are higher than in the EBS (22% and 17%, respectively). A recently-developed AI-specific assessment model for Pacific cod suggests that cod in the AI have a different population trajectory than cod in the EBS (Figs. 10-1 & 10-2).

- 11) The density (t/km<sup>2</sup>) of Pacific cod is higher in the AI than in the EBS (Fig. 11-1). The diet composition of cod is different between the AI and EBS (Fig. 5-1), based on summer survey data from the early 1990s. Simulations of Pacific cod ecological relationships suggest that fishing impacts to the ecosystem mediated by Pacific cod are higher in the AI (Fig. 11-4).
- 12) Several research projects that will study Pacific cod genetics and movement have recently been funded and these data will be available over the next 2-3 years.

## Introduction

Pacific cod (*Gadus macrocephalus*) in Alaska are currently managed as two stocks: a Gulf of Alaska (GOA) stock and a Bering Sea/ Aleutian Islands (BSAI) stock. The North Pacific Fisheries Management Council (NPFMC) assigns a total allowable catch (TAC) of Pacific cod for the entire BSAI stock that is subsequently assigned to various gear and vessel sectors. The NPFMC is considering a proposal to further divide cod catches by assigning separate cod TACs to the Eastern Bering Sea (EBS) and Aleutian Islands (AI) subareas. The basis for this proposal is the possibility that AI cod form an independent stock or stocks within the BSAI area, and that separate TACs for EBS and AI cod may provide for more effective management.

The purpose of this paper is to synthesize the biological information currently available for cod in the EBS and AI subareas. Much of this information is recent and has not yet been published in the peer-reviewed literature. This report considers the following issues:

- 1) Population genetics
- 2) Length at age
- 3) Size composition
- 4) Estimated age composition
- 5) Length-weight relationships
- 6) Reproductive potential
- 7) Egg fatty-acid profiles
- 8) Spawning locations
- 9) Movement and migration
- 10) Population dynamics
- 11) Ecosystem effects
- 12) Ongoing and future research

### (1) Population genetics

#### *Methods*

Samples were collected from large spawning and pre-spawning aggregates of Pacific cod in eight locations across the northeastern Pacific Ocean from January-March (Fig. 1-1). Replicate samples were taken at 2-year intervals at two locations, Unimak Pass and Kodiak Island, Alaska. Two samples from the central Aleutian Islands region in 2006, Adak (AD) and Atka (AT), were in relatively close proximity (180 and 275 km, respectively) to one sample collected during a

trawl survey in 2005, Aleutian Islands (AI). Genomic DNA was extracted from pectoral fin tissue from approximately 90 individuals per sample and was screened for variation at 11 microsatellite markers.

*Results*

There was a highly significant pattern ( $r^2 = 0.83$ ) of genetic isolation by distance among coastal samples across the North American range of Pacific cod, including samples taken within Alaska (Fig. 1-2). There was no genetic differentiation between temporal replicate samples taken at Unimak Pass and Kodiak Island. Exact tests of genetic differentiation (Table 1-1) showed that Kodiak Is. was significantly differentiated from the central Aleutian Islands. Unimak Pass also was significantly differentiated from the central Aleutian Is. prior to correction for multiple pairwise tests. Kodiak Island and Unimak Pass were not significantly differentiated from each other.

|                  | Aleutian Islands  | Unimak Pass   | Kodiak Island |
|------------------|-------------------|---------------|---------------|
| Aleutian Islands | ---               | <b>0.0050</b> | <b>0.0000</b> |
| Unimak Pass      | 0.0138*           | ---           | 0.3402        |
| Kodiak Island    | <b>&lt;0.0001</b> | 0.5213        | ---           |

Table 1-1. Probability ( $P$ ) values from exact tests of genetic (above diagonal) and genotypic (below diagonal) differentiation between sample pairs in Alaska. Bolded values indicate sample pairs significantly differentiated following sequential Bonferonni correction for 21 multiple tests (initial  $\alpha = 0.0024$ ). \* significant prior to sequential correction.

Multilocus estimates of genetic divergence,  $F_{ST}$ , between sample pairs (Table 1-2) were significant between Kodiak Island and the central Aleutian Islands and significant between Unimak Pass and the central Aleutian Is. before correction for multiple tests. Estimates of  $F_{ST}$  were not significant between Kodiak Island and Unimak Pass.

|                  | Aleutian Islands | Unimak Pass | Kodiak Island |
|------------------|------------------|-------------|---------------|
| Aleutian Islands | ---              | 0.0012*     | <b>0.0023</b> |
| Unimak Pass      | 0.0007           | ---         | 0.0004        |
| Kodiak Island    | -0.0006          | 0.0025      | ---           |

Table 1-2. Estimates of  $F_{ST}$  (above diagonal) and  $R_{ST}$  (below diagonal) between sample pairs in Alaska. Bolded  $F_{ST}$  values are significant following sequential Bonferroni correction for 21 multiple tests (initial  $\alpha = 0.0024$ ); \* significant prior to sequential correction.

Within Alaska, an analysis of molecular variance (AMOVA) for regional groupings of samples showed that pooling the Unimak Pass and Kodiak Is. samples as a group compared to the Aleutian Islands resulted in the highest overall  $F_{ST}$  value, no significant between-sample variance component within regional groups, and a significant between-group variance. In contrast, pooling Unimak Pass and central Aleutian Islands samples as a group resulted in a significant between-sample variance component within the group and an insignificant between-group variance when compared with Kodiak Island. Overall, the results indicate that Pacific cod stocks in the Aleutian Islands archipelago are distinct from those along the contiguous Alaska Peninsula.

## (2) Length at age

### Methods

In January-March 2005, scientists from the Alaska Fisheries Science Center (AFSC) collected Pacific cod samples in the central and western AI and north of Unimak Island in the EBS (Fig. 2-1). Samples in the AI were collected by an AFSC scientist conducting research aboard a factory trawler during the course of normal commercial fishing operations. EBS samples were collected aboard chartered crab vessels during two pot surveys conducted by the Fisheries Interaction Team (FIT) at the AFSC. Because the collections were part of an ongoing study of cod reproduction, sexually mature females formed a greater part of the datasets in both areas (Table 2-1). Cod were selected randomly from the catch according to a schedule of length bins. Length was measured, and body and ovary (gonad) weight were measured using a motion-compensated scale. Otoliths were removed for age analysis, which was conducted by the Age and Growth laboratory at the AFSC.

Length at age was modeled using the Schnute parameterization of the von Bertalanffy growth model (Quinn and Deriso 1999):

$$Y(t) = \left\{ y_1 + (y_2 - y_1) \frac{1 - \exp[-\kappa(t - \tau_1)]}{1 - \exp[-\kappa(\tau_2 - \tau_1)]} \right\}$$

where  $Y(t)$  is the length at age  $t$ ,  $\tau_1$  and  $\tau_2$  are the youngest and oldest ages in the dataset respectively, and  $y_1$ ,  $y_2$ , and  $\kappa$  are constants. Males and females were treated separately and statistical differences between the AI and EBS areas were analyzed using likelihood ratio tests (Quinn and Deriso 1999).

### Results

Length at age was greater in the AI subarea for female and male cod (Table 2-1; Figs. 2-2 & 2-3). This difference is present at all ages.

|                 | Females |        |                 | Males   |       |
|-----------------|---------|--------|-----------------|---------|-------|
|                 | AI      | EBS    |                 | AI      | EBS   |
| $y_1$           | 43.26   | 37.79  | $y_1$           | 48.43   | 46.45 |
| $y_2$           | 116.06  | 110.57 | $y_2$           | 109.26  | 95.97 |
| $\kappa$        | 0.079   | 0.039  | $\kappa$        | 0.099   | 0.092 |
| $\tau_1$        | 3       | 3      | $\tau_1$        | 4       | 4     |
| $\tau_2$        | 12      | 12     | $\tau_2$        | 11      | 11    |
| N               | 256     | 305    | N               | 66      | 153   |
| $X^2$ statistic | 199.97  |        | $X^2$ statistic | 68.00   |       |
| p-value         | <0.0001 |        | p-value         | <0.0001 |       |

Table 2-1. Growth model parameters and test results for male and female Pacific cod from the Aleutian Islands (AI) and Eastern Bering Sea (EBS).

### (3) Size composition

#### *Methods*

The size composition of cod in the different regions was examined using data collected by the AFSC North Pacific Observer Program. Observers routinely collect length frequency data on target species and major components of the catch for selected hauls. From the observer database, we identified all of the observed hauls for which cod length frequency data were collected during the January-March cod 'A' Season in 2004, 2005, and 2006. Because pot and longline gear are known to be size-selective for larger fish, only hauls using bottom trawl gear were selected. Data from NMFS statistical area 509 (northeast of Unimak Pass) were selected to represent EBS cod. Data from each of the three AI statistical areas (eastern AI 541, central AI 542, western AI 543) were also selected.

#### *Results*

In each of the three years, there were differences in length frequency between the EBS and AI areas (Figs. 3-1, 3-2, 3-3). In each year, the mode of area 509 frequencies was between 65 and 70 cm, with a sharp drop-off above 75 cm and relatively few fish longer than 90 cm. In 2005 and 2006, there were clear secondary peaks at lengths of 35-40 and 45-50 cm, perhaps representing younger year classes. Length frequencies in the eastern AI (area 541) had modes in the 80-85 cm range, with smaller numbers of fish from 50-70 cm and a larger fraction in the 90-100 cm size range than in the EBS. Length frequencies for the central and western AI (areas 542 and 543) were similar to each other but very distinct from the EBS, with few fish under 70 cm and sizeable fractions of fish 100 cm or more.

The results show different size distributions in catches from the EBS and the AI. Because only the largest catcher-processors harvest fish in the central and western AI, it is possible that differences in gear selectivity may affect these results. Length frequencies were examined using data only from vessels classified as catcher-processors (all over 100 ft), and patterns were similar to those in the figures presented.

### (4) Estimated age composition

#### *Methods*

Section 2 of this report demonstrated significant differences in length at age among EBS and AI cod. To determine whether this growth difference alone accounted for the difference in observed length frequencies, we combined 2005 length-frequency data from section 3 with region- and sex-specific length-age curves to estimate age composition. Length-age curves for cod collected from FIT studies in the EBS in March 2005 were used to predict ages for fish from statistical area 509. Length-age curves for cod from the 2005 collection in the AI were used to predict ages for pooled length frequency data from statistical areas 542 and 542.

#### *Results*

For both sexes the estimated age frequencies differ between the EBS and the AI (Fig. 4-1). Both regions show relatively low numbers of 2 and 3 year old fish in the catch, probably due to low selectivity of these ages by trawl gear. The majority of the EBS catch is 5-8 year olds of both

sexes. Numbers of age 9 and older cod are low for both males and females in the EBS. Catches in the AI are dominated by 6-10 year olds, with a substantial fraction of females 9-11 years old. In both regions the largest specimens have an estimated age of approximately 14 years.

While variability in length at age will result in some uncertainty in these age estimates, there does appear to be a difference in age composition between the two regions. For both sexes there is a larger proportion of older fish in the AI. The relative absence of younger fish in the AI may reflect different year-class structure or may result from the fact that commercial trawl grounds in the AI are further from inshore shallows and nursery grounds. The dominance of AI samples by older fish is also consistent with a pattern where the EBS would serve as a nursery ground for both subareas, with fish migrating to the AI at some stage of their life cycle.

### (5) Length-weight relationships

#### *Methods*

The cod samples used in this analysis are identical to those used in (2) above. Somatic weight, determined by subtracting the weight of ovaries and stomach contents from total body weight, was used in the analysis of length-weight relationships. Weight and ovary weight were modeled using power curves of the form  $y=ax^{\beta}$  where  $y$  is weight or ovary weight,  $x$  is length, and  $\alpha$  and  $\beta$  are constants. Males and females were treated separately and statistical differences between the AI and EBS areas were analyzed using likelihood ratio tests (Quinn and Deriso 1999).

#### *Results*

No statistically significant differences were observed in the length-weight relationships for male and female cod or in the length-ovary weight relationship for female cod (Table 5-1; Figs. 5-1, 5-2).

|                          | length-weight, females |     |                          | length-weight, males |     |
|--------------------------|------------------------|-----|--------------------------|----------------------|-----|
|                          | AI                     | EBS |                          | AI                   | EBS |
| N                        | 69                     | 106 | N                        | 257                  | 307 |
| X <sup>2</sup> statistic | 5.35                   |     | X <sup>2</sup> statistic | 1.20                 |     |
| p-value                  | 0.15                   |     | p-value                  | 0.75                 |     |

Table 5-1. Sample size and test statistics for length-weight relationships in female and male Pacific cod.

### (6) Reproductive potential

#### *Methods*

Ovary samples were collected for a subset of the females used in the analyses in (2) and (5) above. Ovaries were weighed to the nearest gram on a motion-compensated specimen scale frozen at -20°C for subsequent analysis. Fecundity was determined using the gravimetric method, and egg samples were freeze-dried to a constant weight for determination of individual egg dry weight (used as a measure of egg size).

### *Results*

Total gonad (ovary) weight was used as a proxy for reproductive potential, which comprises fecundity and egg size, for samples collected from the AI (N = 137) and EBS (N = 44) in 2005 (see Fig. 2-1 for sampling locations). Reproductive potential increased approximately with the cube of the length, and this relationship did not differ between the AI and EBS (Figure 6-1A;  $F = 0.71$ ,  $p = 0.4918$ ). However, females from the two areas achieved equivalent reproductive potential through different means. Fecundity at length was slightly greater in the EBS (Figure 6-1B;  $F = 8.50$ ,  $p = 0.0003$ ), while average egg size (as measured by dry weight) was slightly greater in the AI (AI =  $0.103 \pm 0.001$  mg, EBS =  $0.097 \pm 0.002$  mg;  $F = 10.87$ ,  $p = 0.0012$ ). While differences in fecundity and egg size were significant, they were quite small and may not be biologically relevant.

### (7) Egg fatty-acid profiles

#### *Rationale*

The composition of fatty acids (FA) in fish egg lipids may affect hatching success and larval survival. In addition, fatty acid composition has been used to discriminate among genetically distinct stocks of several marine fish species as well as lobsters (Castell et al. 1994, Joensen and Grahl-Nielsen 2004, Joensen et al. 2000, Pickova et al. 1997). While fatty acid composition of lipids is influenced by diet, this appears to occur mainly in the neutral lipids, which are used as a source of energy. The fatty acid composition of polar lipids, which are used primarily as structural components and hormone precursors, is thought to be highly regulated and less influenced by diet (Pickova et al. 1997). As a result, differences in polar-lipid fatty acid composition may reflect local adaptation and genetic differentiation among stocks.

#### *Methods*

This analysis compared the fatty acid composition of eggs collected from the EBS in 2004 (N = 7) and the AI in 2005 (N = 21). All eggs were collected from females in spawning condition and immediately frozen in liquid nitrogen. Fatty acid analysis of the polar lipids was performed by a commercial laboratory. Principal component analysis (PCA) was used to separate individual females according to 1) a full set of 23 fatty acids and 2) a subset of 8 fatty acids that have been shown to affect egg quality.

#### *Results*

In both cases, there was a clear separation between the eggs of females from the AI and EBS, with the exception of one sample that was intermediate to the two main groups (Figure 7-1). This analysis of area effects on FA composition was complicated by maternal length effects on several fatty acids and size differences of sampled females from the AI and EBS. The fractions of three fatty acids in the polar lipids were related to maternal total length: linoleic acid ( $R^2 = 0.63$ ,  $p = 0.0001$ ),  $\alpha$ -linolenic acid ( $R^2 = 0.38$ ,  $p = 0.0051$ ), and arachidonic acid (AA;  $R^2 = 0.26$ ,  $p = 0.0242$ ). Regression analysis was conducted for only the eggs from the AI (Figure 7-2; only the results for AA are shown). Because the female cod from the EBS were smaller than those in the AI, maternal length effects could confound the analysis of area effects. For example, EBS eggs have higher AA content, smaller females have higher AA content, and the EBS females we collected were on average smaller, so it is possible that area-related variability in AA is the result

of area-related size differences. In addition, neither the AI or the EBS sample sets includes the full size spectrum of female cod in each area.

Despite age and size differences between the EBS and AI and the incomplete representation of EBS and AI cod populations, there are several reasons why the area differences in FA composition are likely due to either diet or adaptation and not maternal size. The best evidence for this conclusion is the separation of samples by the various PCAs. Separation into area groups is very distinct, and despite overlap in female size between the two areas (Figure 7-2) there is no overlap between the two areas in the PCA. The range of size-related variability in AA within the AI samples is also much smaller than the difference in AA between areas. Finally, several of the FAs that differed between areas (e.g. oleic acid) were not related to maternal length.

#### (8) Spawning locations

Very little is known about preferred spawning habitat for Pacific cod and about the spatial distribution of cod spawning in the BSAI. Spawning is known to occur in the southeast Bering Sea near Unimak Pass, and areas of high cod density (indicative of spawning aggregations) have been observed in the AI. In order to better document cod spawning locations, the FIT and the North Pacific Observer Program are conducting a special project using fishery observers to classify and record the gonad maturity of cod from selected hauls. This project is providing data regarding the date and location of hauls containing fish in ripe or near-ripe condition, which can be used to map putative spawning areas. Preliminary results suggest that cod spawn in several areas of the AI, as well as throughout the EBS (Fig. 8-1).

#### (9) Movement and migration

As part of field studies conducted in 2002-2004, FIT scientists tagged and released cod in the southeast Bering Sea between Cape Sarichef and Amak Island. These releases were primarily intended to develop methodology for spaghetti tagging of Pacific cod caught with pots and to gain some qualitative description of cod movement during and after the spawning season. The majority of the tags were released in February 2003. Tag recovery has been solely through commercial fisheries.

Out of 5935 spaghetti tags released in the Bering Sea, 2331 (39%) have been recovered as of December 2005. Of the recovered tags, the majority of the recoveries were from the Bering Sea. A total of 148 tags were recovered in the western GOA, indicating some movement of fish through Unimak Pass. Only two tags from the FIT Bering Sea releases were recovered in the AI. These results are consistent with an earlier study that demonstrated little movement of EBS cod to the AI (Shimada and Kimura 1994).

These data are difficult to interpret because the releases were not designed to look for movement between the regions. The small number of recoveries in the AI suggests that movement from the Bering Sea to the AI might be rare, but this may also be an artifact of the relatively small level of



cod fishing effort in the AI. Fish released in the EBS were also adults; no information is available on movement of juvenile cod.

#### (10) Population dynamics

##### *Unequal exploitation rates*

An unintentional effect of the BSAI wide Pacific cod TAC was a difference in exploitation rates for EBS and AI cod in 2007. Catches reported in the SAFE (Thompson et al. 2007) were 136,430 t in the EBS and 33,724 t in the AI and were complete through early October 2007. The assessment-estimated exploitable biomass of cod was 806,400 t in the EBS, and the AI estimate of exploitable biomass of 153,600 t was estimated in the assessment based on the assumption that the AI exploitable biomass should reflect the ratio of AI survey biomass to EBS survey biomass; 0.16. If this is correct, then the exploitation rate in the AI was 33,724 t / 153,600 t or 22% in 2007, while the EBS exploitation rate was 136,430 t / 806,400 t or 17% in 2007. The overall exploitation rate for the BSAI was 18% based on these numbers; therefore, statistics based on the BSAI are more representative of exploitation rates in the EBS than in the AI.

##### *Different population trajectories*

The BSAI Pacific cod SAFE models the EBS portion of the population only, and until recently, there was no separate population model for the AI portion of the population. Kinzey and Punt (in review) have developed an AI cod population model using AI data and an assessment framework developed at the AFSC (AMAK, developed by J. Ianelli). There are differences in the population trajectories estimated for each area. For example, the EBS cod stock was estimated to have been at a historic low in 1976, to have increased rapidly to a historic high in 1983-1985, and to have declined to an intermediate biomass and fluctuated within that range between the 1990s and 2000s (Figure 10-1; Thompson et al. 2007). In contrast, the AI cod stock was estimated to have been near a historic high in 1976, and has undergone a general decline since then with the exception of a small peak in the early 1990's (Figure 10-2; Kinzey and Punt in review). All AI model structures (both standard single species and experimental models including predation) suggest a decline in AI cod spawning biomass from the mid-1990's to the present, while the EBS model suggests a slight increase in spawning biomass from 1998-2003 with a decline since then.

#### (11) Ecosystem effects

The following information is summarized from the 2007 BSAI Pacific cod SAFE, and is included here so that this report can be considered separately. The food web relationships of cod are different between the EBS and AI ecosystems, both due to spatial distribution and diet differences. Because the AI has a much smaller area of shelf relative to the EBS, the smaller survey biomass estimate of cod in this area translates into a higher density in tons per square kilometer relative to the density in the EBS (Figure 11-1, left panel). Cod have diverse diets in both ecosystems, but with important differences (Figure 11-2). Pollock account for 25% of cod diet in the EBS. Commercially important crab species such as snow crab (*C. opilio*) and tanner crab (*C. bairdi*) make up 9% of cod diets in the EBS, but less than 3% in the AI, reflecting the stronger benthic energy flow in the EBS. In contrast, pollock comprise less than 5% of AI cod

diet, while Atka mackerel account for 15%. Squids make up over 6% of cod diets in the AI, but are very small proportions of diets in the EBS, reflecting the stronger pelagic energy flow in the AI. Myctophids are found in cod diets only in the AI, reflecting the oceanic nature of the food web there.

Fisheries are the most important predators of Pacific cod in both the AI and EBS (Figure 11-3). Simulated impacts of changing cod fishing mortality differ by ecosystem as well, with the impacts felt most strongly and with highest certainty in the AI ecosystem according to this analysis (Figure 11-4). In particular, limited diet data suggest an interaction between cod and (juvenile) sablefish in the AI that was not present in the EBS. The larger impact of cod mortality in the AI observed in these simulations is a combined result of different diet relationships and the higher biomass per unit area in the AI relative to the EBS; the difference in fishery exploitation rates observed above was not included in the ecosystem simulation analysis. Separate management of the cod fishery in the AI would ensure that any potential ecosystem effects of changing fishing mortality might be monitored at the appropriate scale.

#### (12) Ongoing and future research

There are several projects that are either underway or soon to begin that may provide additional information for consideration of an EBS vs. AI TAC division. All of these projects are funded by the North Pacific Research Board (NPRB); descriptions of these projects can be found on the NPRB website ([www.nprb.org](http://www.nprb.org)) using the project numbers given here. Logerwell and Neidetcher (#618) are conducting an analysis of the distribution of spawning Pacific cod, “Spatial and temporal patterns in Pacific cod reproductive maturity in the Bering Sea”, and some of the preliminary data from that project are included in this report (Fig. 8-1). Spies (#817) received funding in 2008 for a project titled “A landscape genetics approach to Pacific cod (*Gadus macrocephalus*) population structure in the Bering Sea and Aleutian Islands; investigation of ecological barriers to connectivity between potentially distinct population components”, which should provide additional information on genetic variation within the EBS and AI. Munro et al. (#815) will conduct a large-scale tagging project, “Pacific cod (*Gadus macrocephalus*) migration and distribution related to spawning in the eastern Bering Sea: a mark-recapture experiment on a large geographic scale”. While this project is focused on the EBS, it may provide additional information on movement between the EBS and AI. Hurst and Miller (#816) are conducting the project “Estimating source contribution and dispersal histories of Pacific cod recruits using otolith elemental composition”, which also deals primarily with the EBS. There are additional projects being conducted as part of the NPRB’s Bering Sea Integrated Research Program ([bsierp.nprb.org](http://bsierp.nprb.org)) that may provide useful information.

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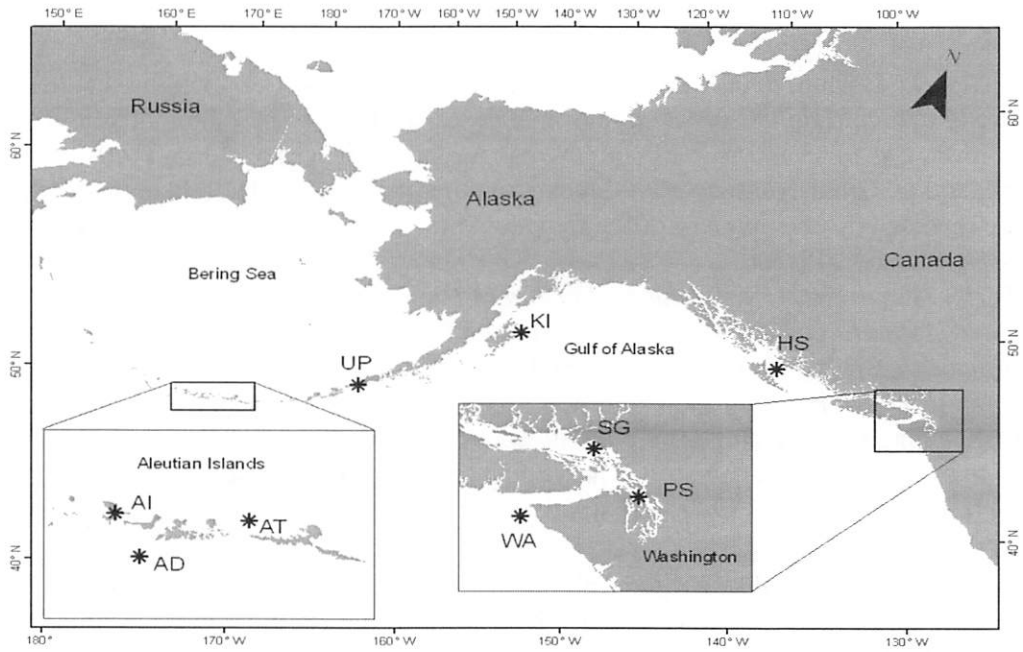


Figure 1-1. Sample locations for Pacific cod. Sample abbreviations are Unimak Pass (UP), Kodiak Island (KI), Hecate Strait (HS), coastal Washington State (WA), Puget Sound (PS), and Strait of Georgia (SG). For the central Aleutian Islands, sample labels indicate samples taken from Aleutian Islands (AI), Adak Island (AD), and Atka Island (AT).

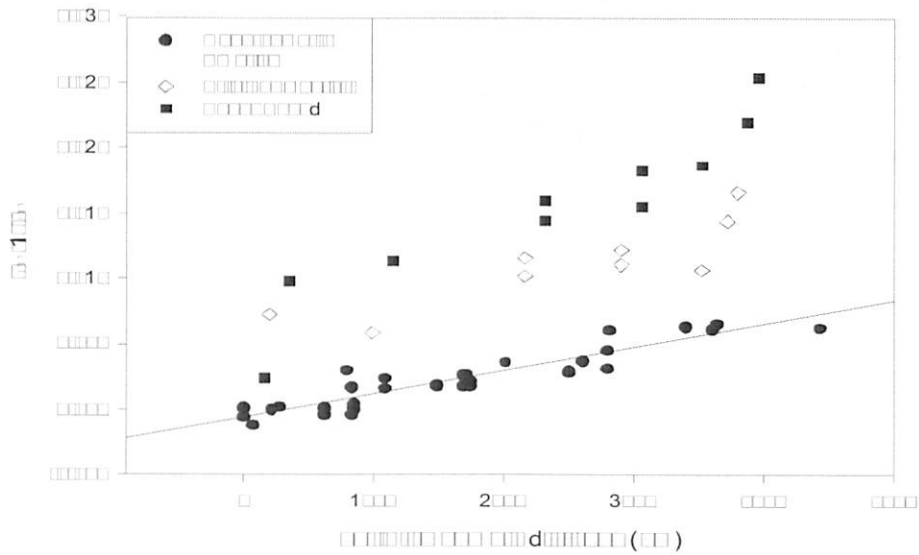


Figure 1-2. Linearized  $F_{ST}$  values versus geographic distance for Pacific cod. Regression line is fitted to data from coastal samples in North America (closed circles).

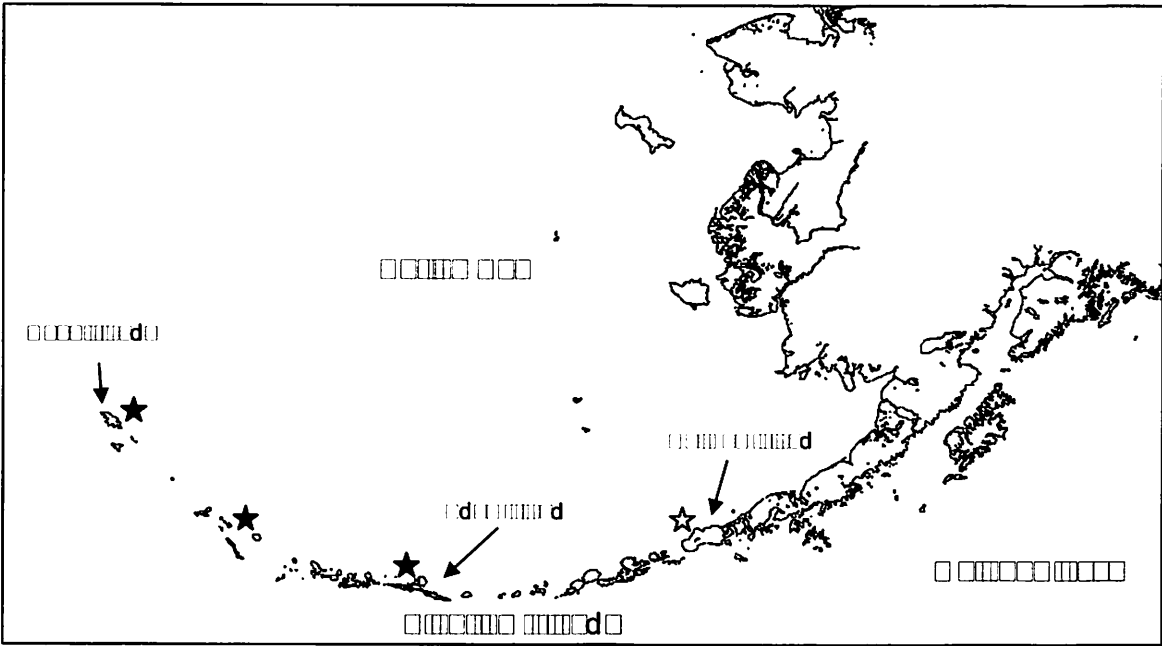


Figure 2-1. Map of the Bering Sea and Aleutian Islands. Solid stars = areas where Aleutian Islands samples were collected for analyses in sections 2, 5, 6, & 7; white star = area where Eastern Bering Sea samples were collected for analyses in sections 2, 5, 6, & 7.

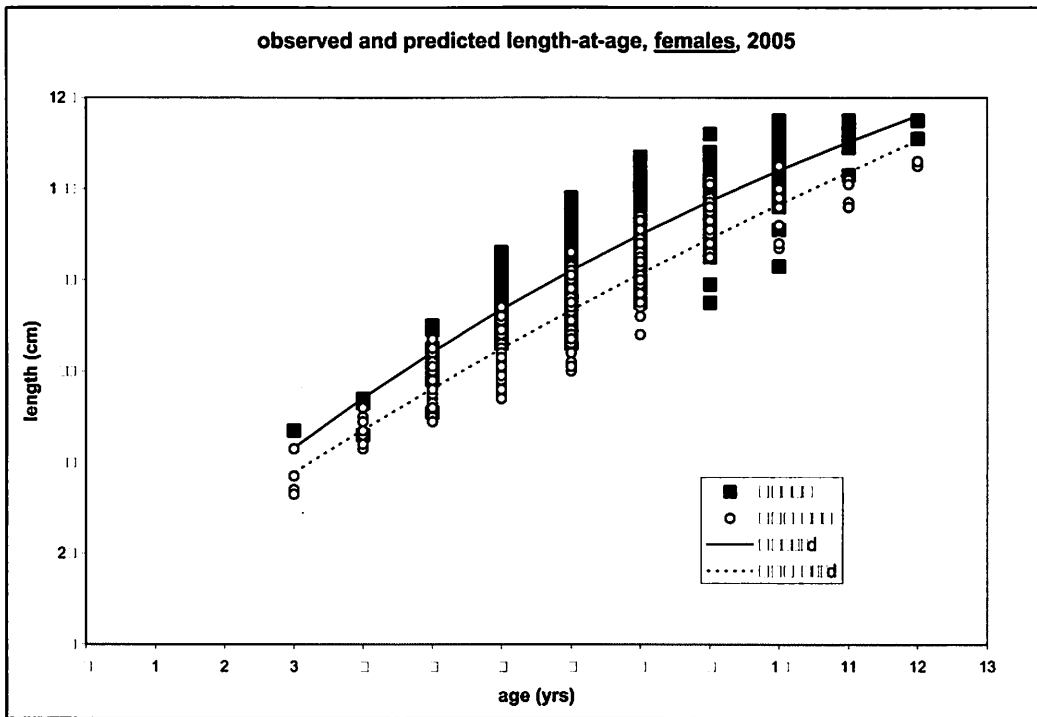


Figure 2-2. Observed and predicted length at age for female cod from the Aleutian Islands and Eastern Bering Sea.

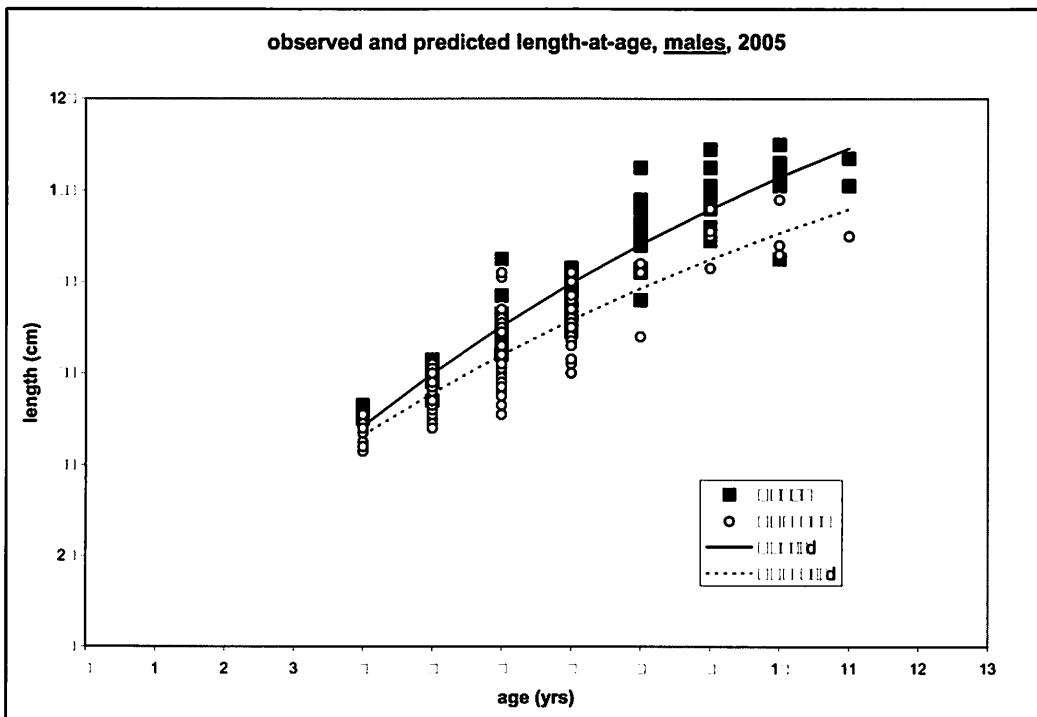


Figure 2-3. Observed and predicted length at age for male cod from the Aleutian Islands and Eastern Bering Sea.

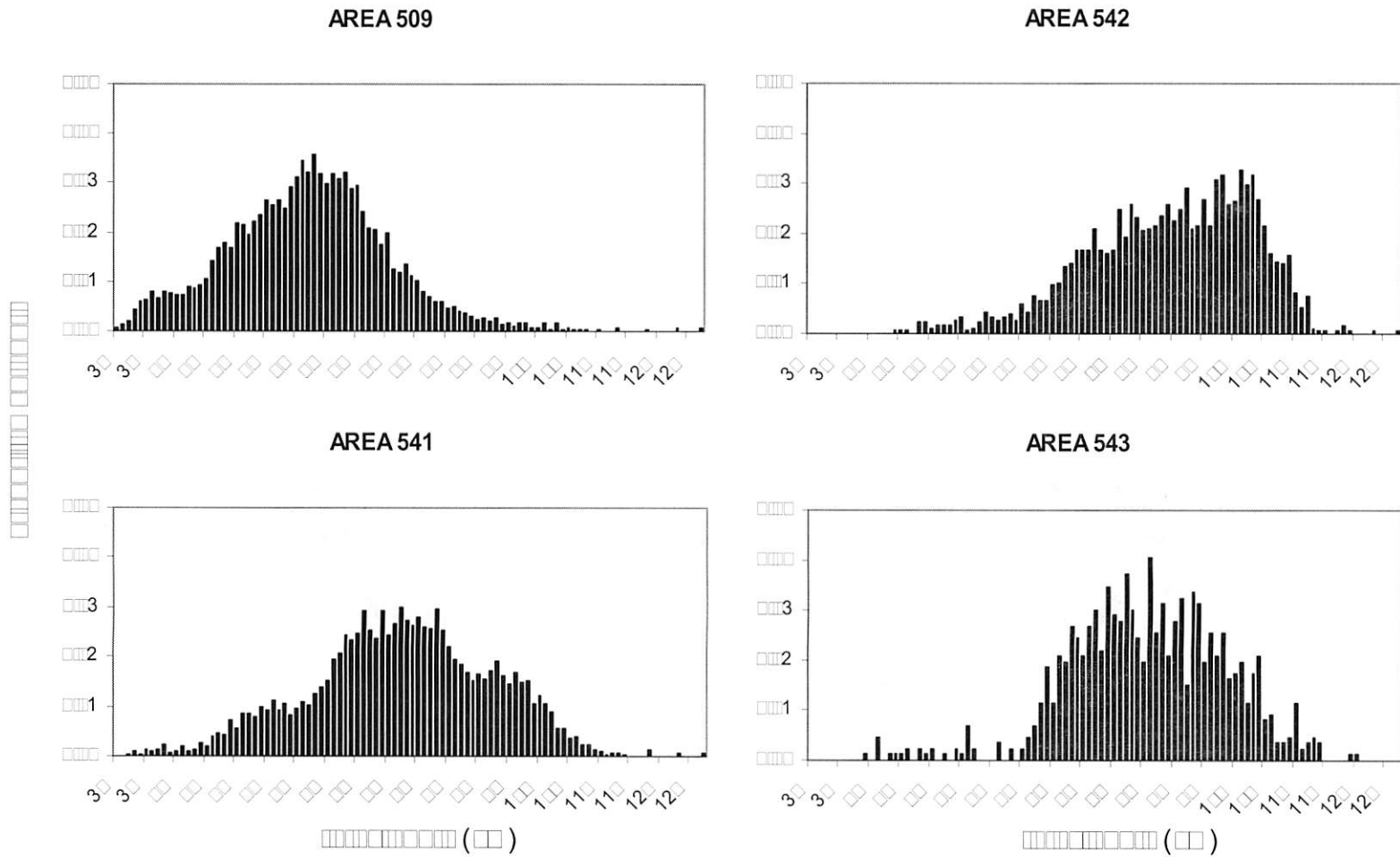


Figure 3-1. Length frequency proportions of Pacific cod from all observed hauls using bottom trawl gear, **January-March 2004**. Both sexes of cod are included. Areas are NMFS statistical reporting areas: 509 Southeastern Bering Sea, 541 Eastern Aleutian Islands, 542 Central Aleutian Islands, 543 Western Aleutian Islands.

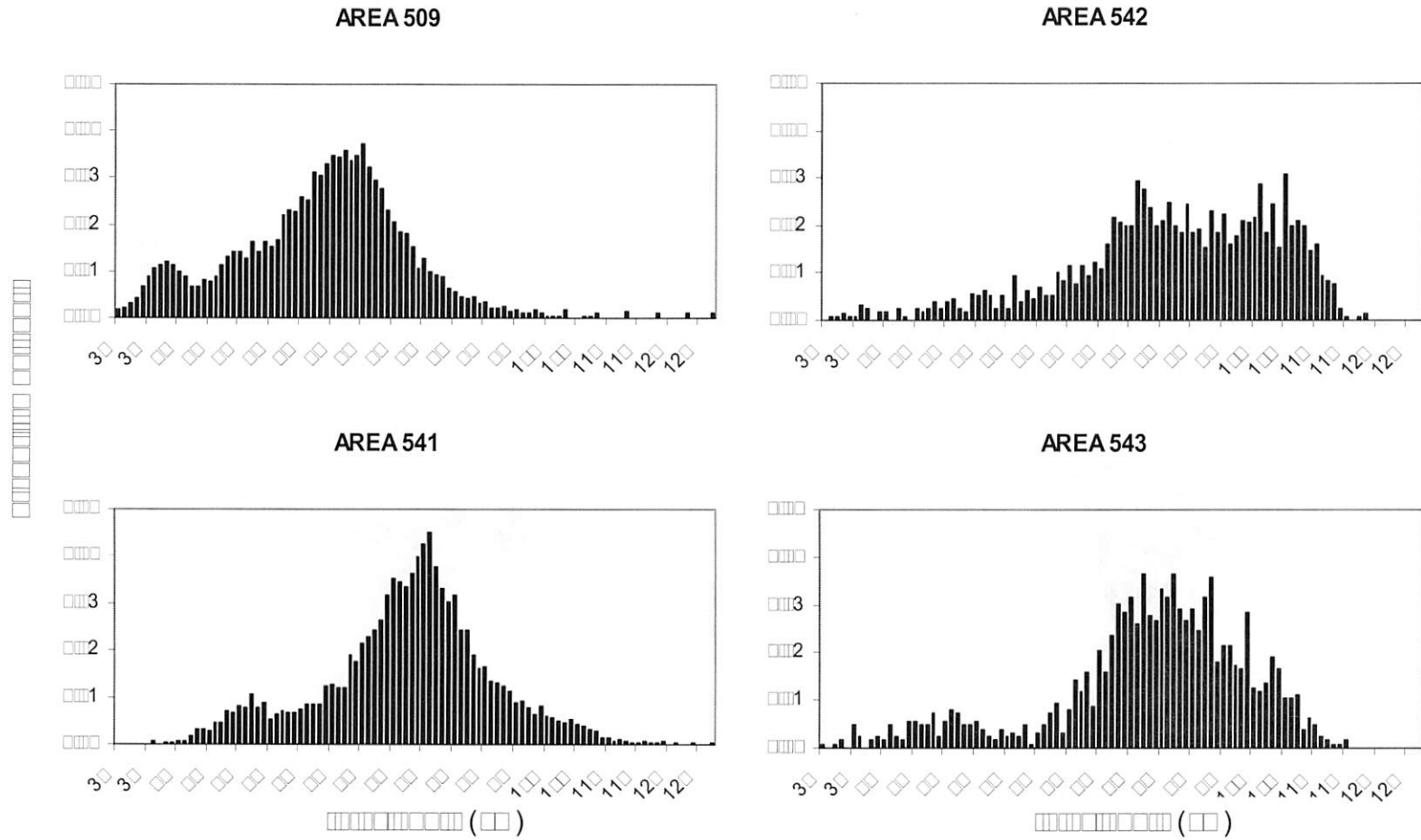
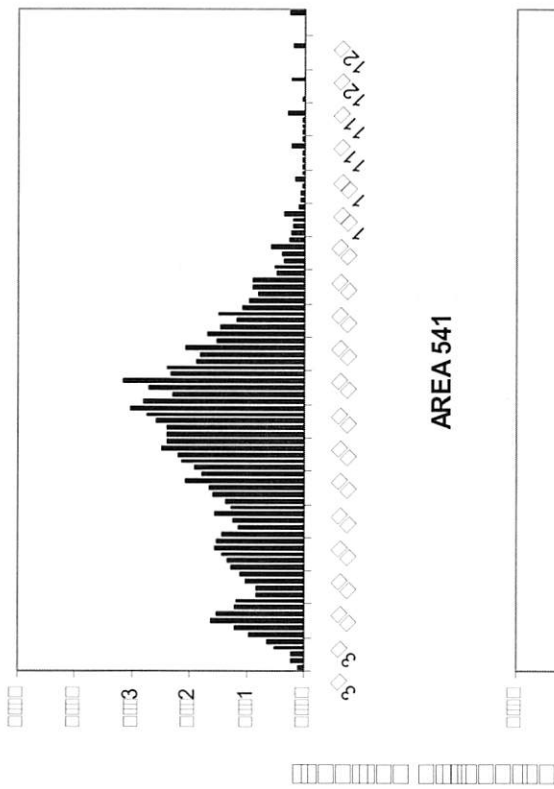


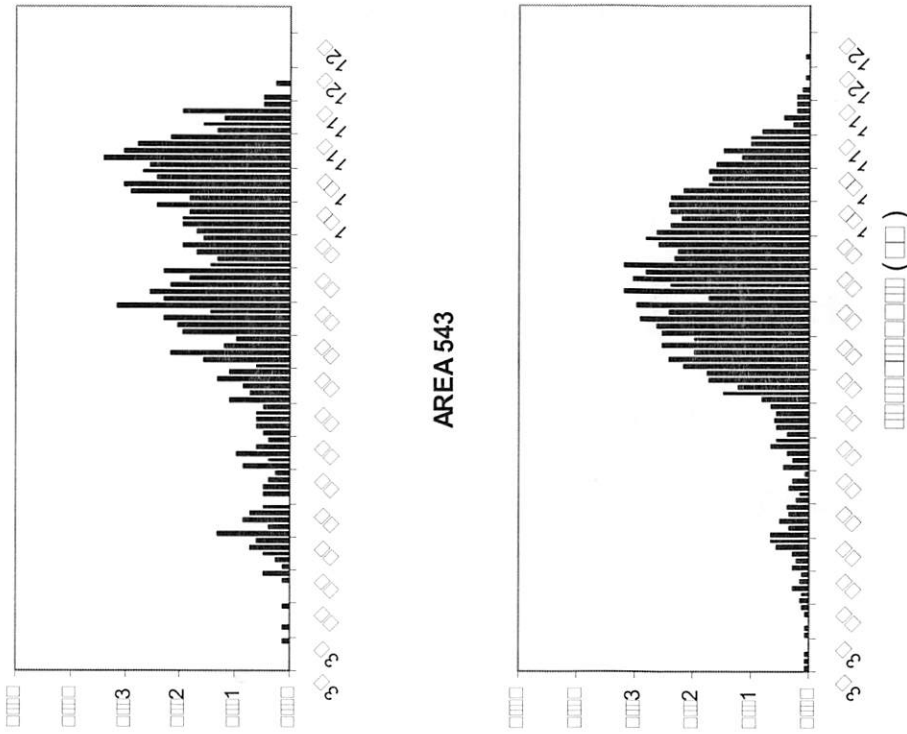
Figure 3-2. Length frequency proportions of Pacific cod from all observed hauls using bottom trawl gear, **January-March 2005**. Both sexes of cod are included. Areas are NMFS statistical reporting areas: 509 Southeastern Bering Sea, 541 Eastern Aleutian Islands, 542 Central Aleutian Islands, 543 Western Aleutian Islands



AREA 509



AREA 542



AREA 541



AREA 543

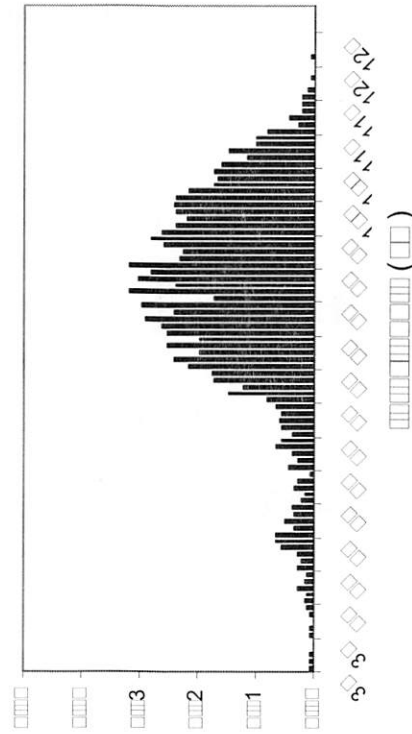


Figure 3-3. Length frequency proportions of Pacific cod from all observed hauls using bottom trawl gear, **January-March 2006**. Both sexes of cod are included. Areas are NMFS statistical reporting areas: 509 Southeastern Bering Sea, 541 Eastern Aleutian Islands, 542 Central Aleutian Islands, 543 Western Aleutian Islands

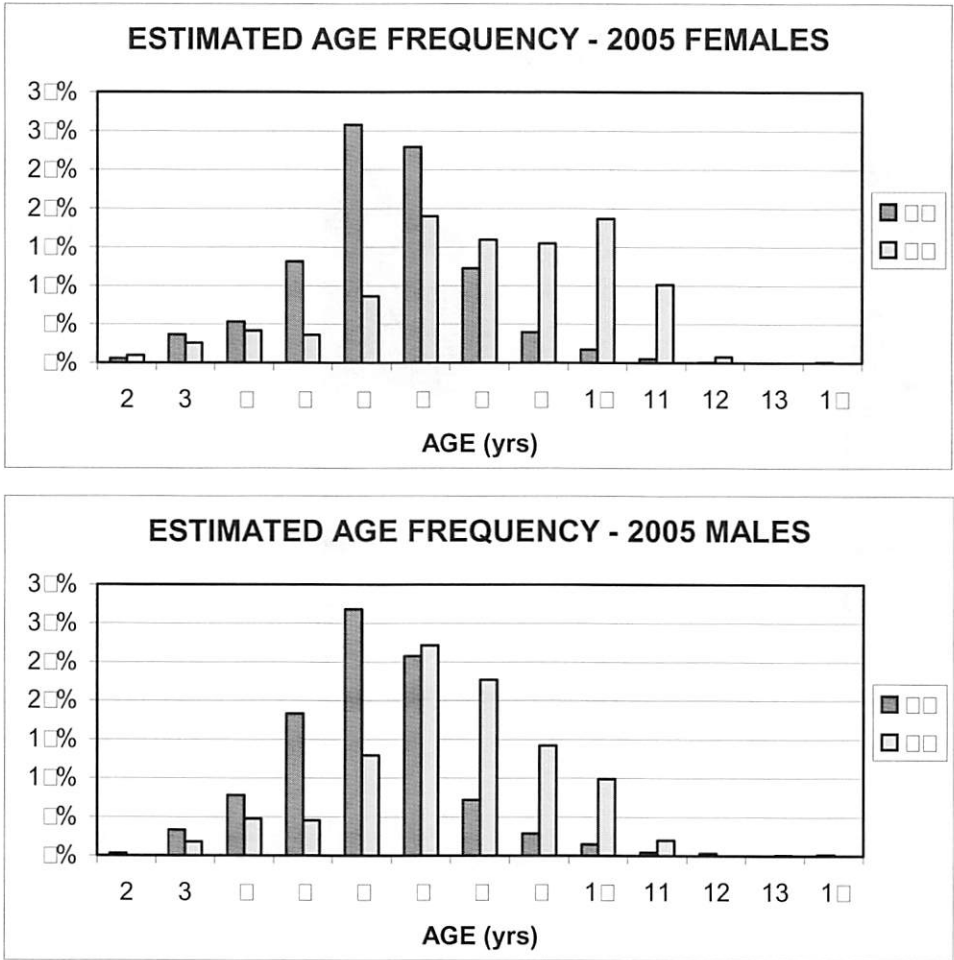


Figure 4-1. Estimated age frequency of Pacific cod by sex in the southeastern Bering Sea (area 509) and in the central and western Aleutian Islands (areas 542 and 543). Bottom trawl length frequency data for January –March 2005 was combined with length-age models fit in section 1 to produce age frequency.

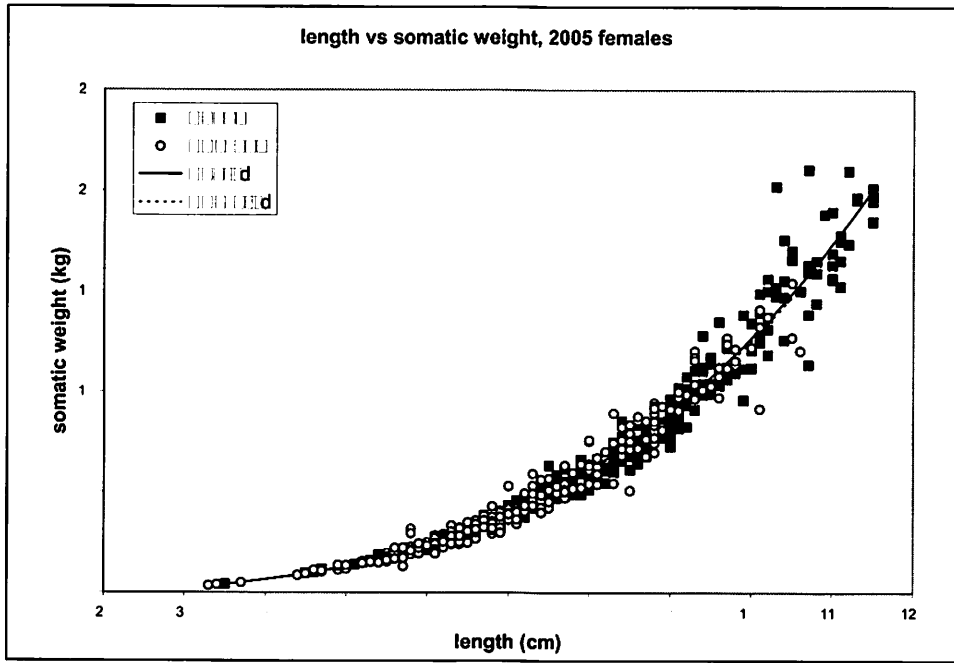


Figure 5-1. Observed and predicted somatic weight for female cod from the Aleutian Islands (AI) and Eastern Bering Sea (EBS).

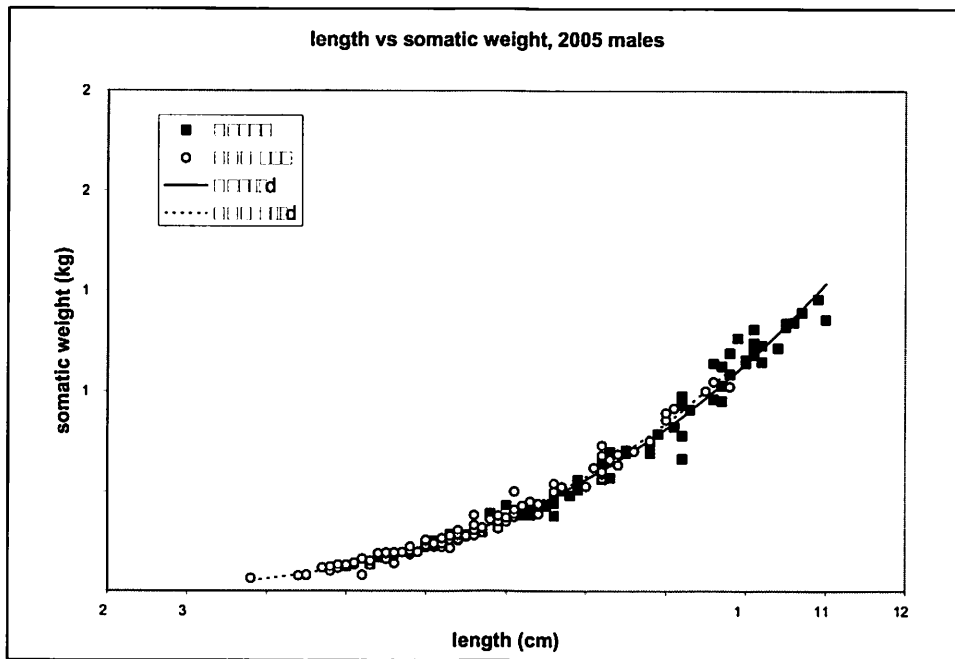


Figure 5-2. Observed and predicted somatic weight for male cod from the Aleutian Islands (AI) and Eastern Bering Sea (EBS).

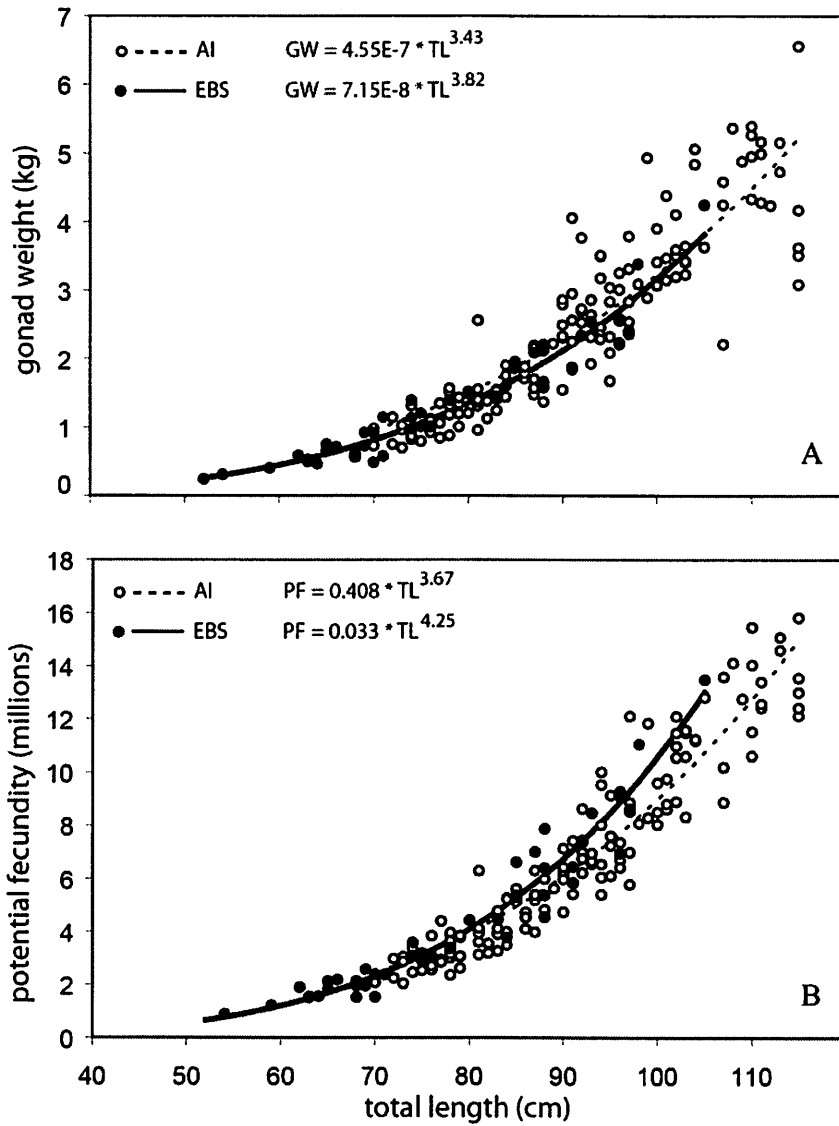


Figure 6-1. Relationship between maternal total length and A) gonad weight (GW) and B) potential fecundity (PF) of female Pacific cod from the Aleutians Islands (AI) and eastern Bering Sea (EBS) in 2005. Sample size: AI = 137, EBS = 44.

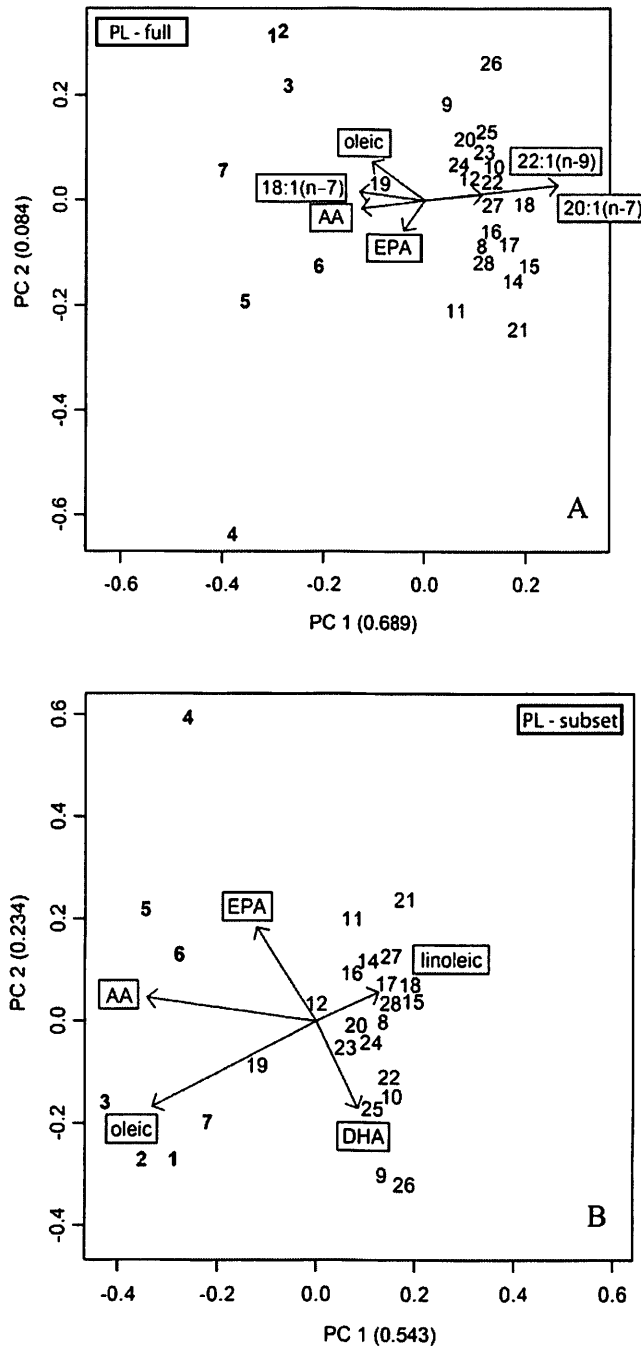


Figure 7-1. Principal component (PC) analysis for fatty acid (FA) composition in the polar lipids (PL) of Pacific cod eggs, using (A) all polyunsaturated FAs (PUFAs) and any FA contributing more than 1% of the total FA pool and (B) only the subset of FAs of potential importance to egg quality. Values following each axis label are the proportions of variability in the dataset explained by each of the first 2 two PCs. Numbers 1-7 (bold) are EBS samples; numbers 8-28 are AI samples. Text boxes indicate the four most important FAs in the first PC and the two most important FAs in the second PC. Length of arrows indicates the relative contribution of that FA in forming the PCs. Direction of arrows indicates the relative contribution of that FA to each of the two PCs. AA = arachidonic acid, EPA = eicosapentaenoic acid, DHA = docosahexaenoic acid .

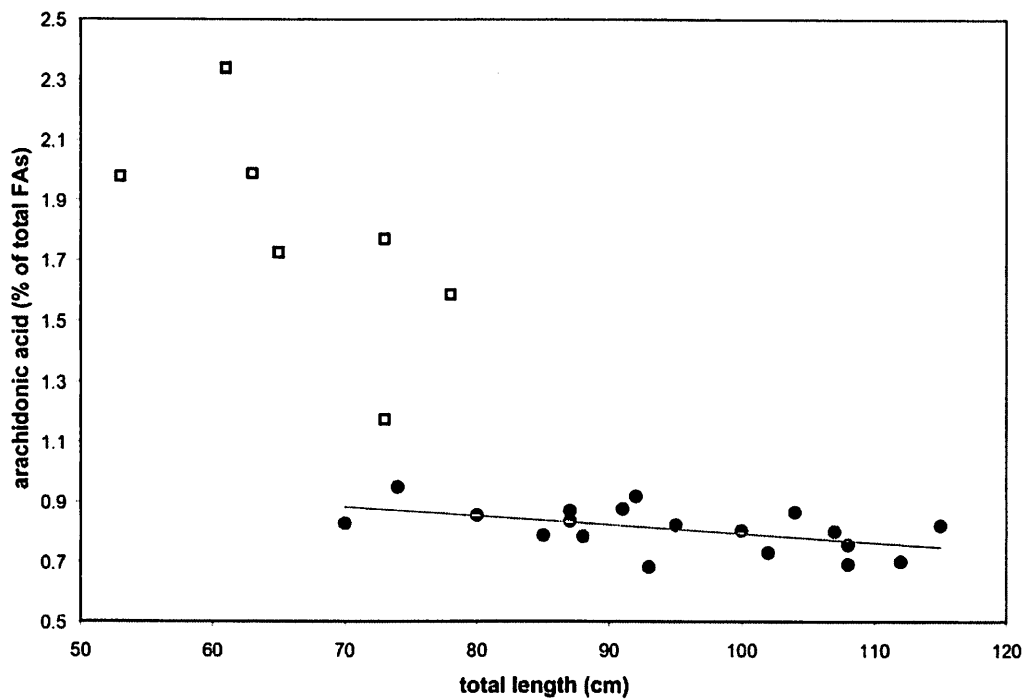


Figure 7-2. Maternal total length versus arachidonic acid , 20:4(n-6), content of polar lipids from Pacific cod eggs. Data are shown as % of total fatty acid (FA) pool in that lipid class. Open squares, EBS; solid circles, AI. Line is the result of least-squares linear regression.

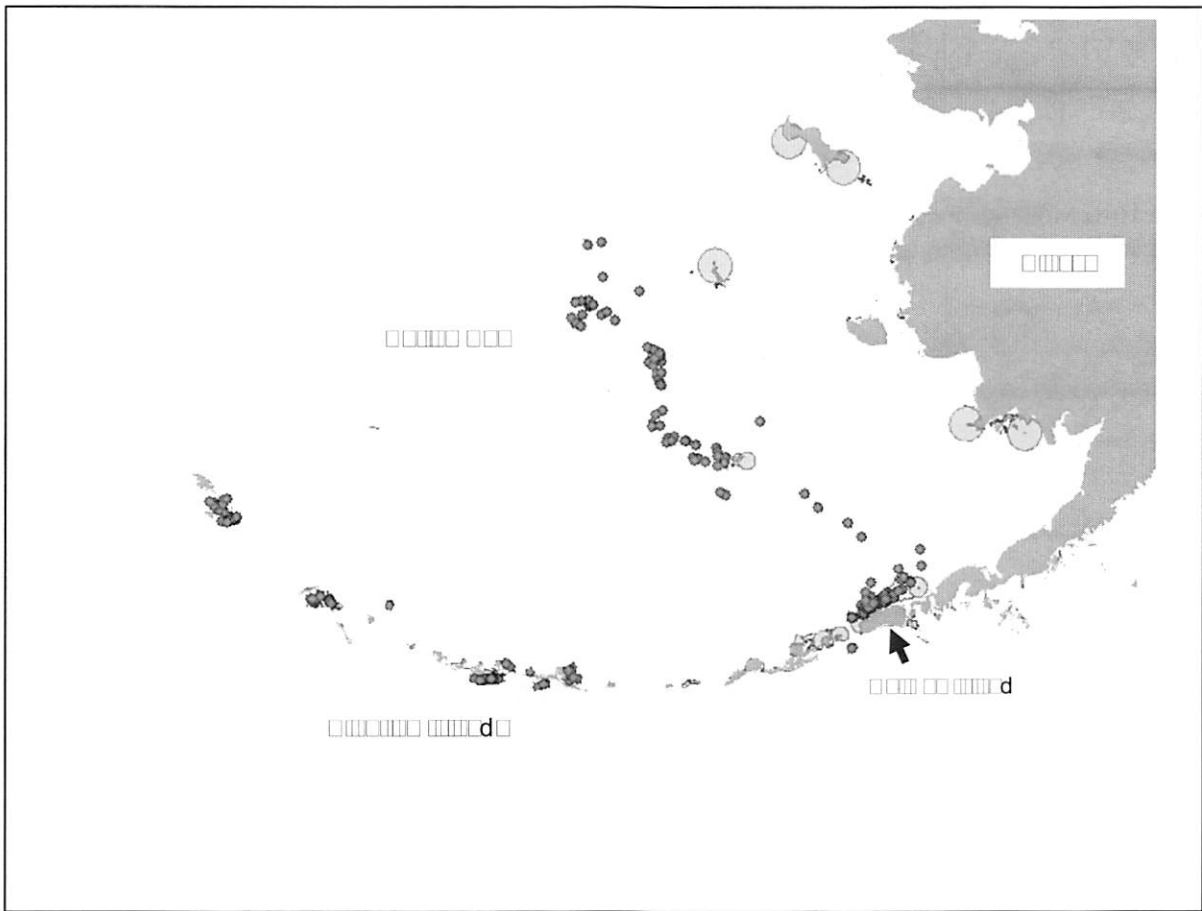


Figure 8-1. Locations in the AI and EBS where females in spawning condition have been observed in commercial fishery hauls. Red (or dark gray) dots indicate catch locations of spawning female cod.

Model 1

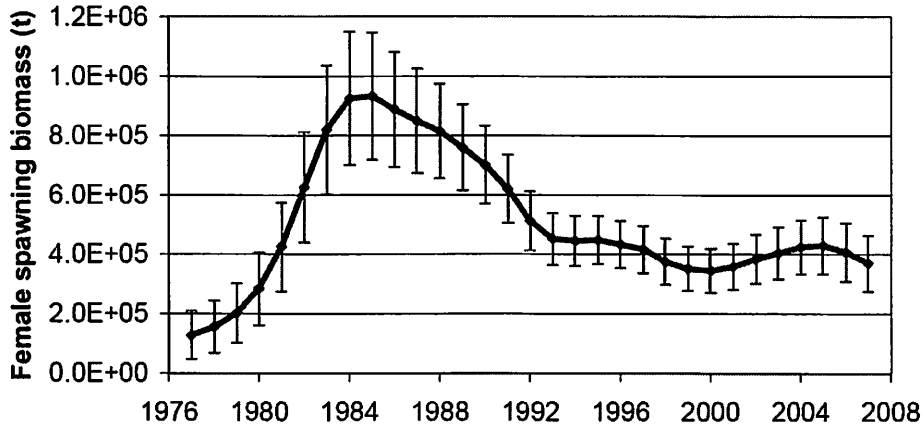


Figure 10-1. Model-estimated female spawning biomass (t) of Pacific cod in the EBS, reprinted from Thompson et al., 2007, Figure 2.3.

Cod

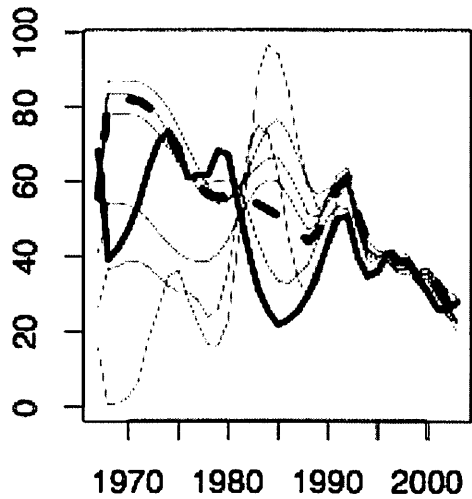


Figure 10-2. Model-estimated total spawning biomass (1000 t) of Pacific cod in the AI, reprinted from Kinzey and Punt, in review, Figure 4. The dashed bold line indicates the standard single species model run. The solid lines indicate multispecies model runs with predation included, with the bold line indicating the best fit of the multispecies models.



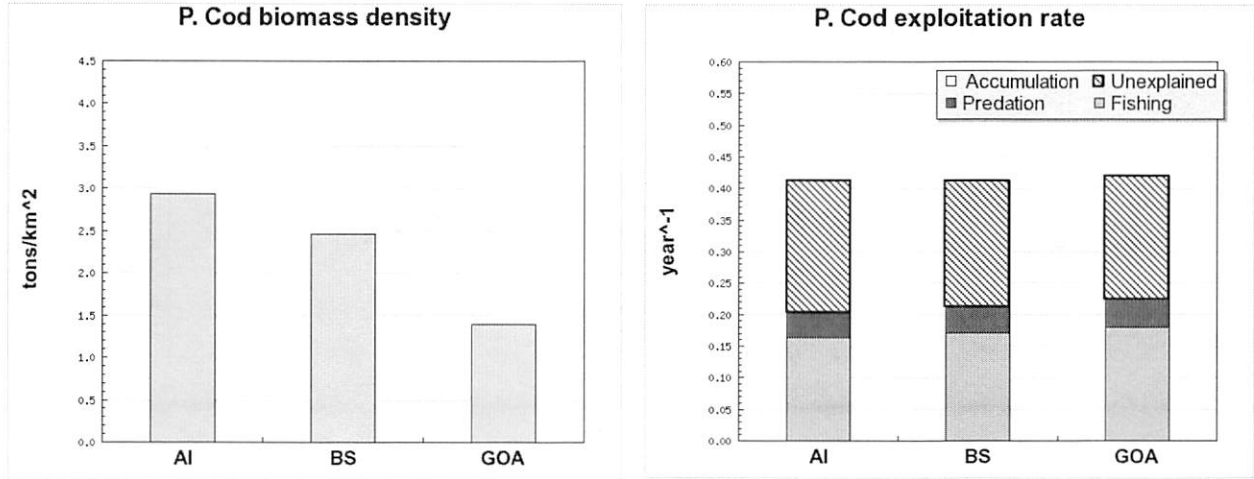


Figure 11-1. Comparative biomass density (left) and mortality sources (right) for Pacific cod in the AI, EBS, and GOA ecosystems. For the AI and GOA, biomass density (left) is the average biomass from early 1990s NMFS bottom trawl surveys divided by the total area surveyed. For the EBS, biomass density is the stock assessment estimated adult (age 3+) biomass for 1991 (Thompson and Dorn 2005) divided by the total area covered by the EBS bottom trawl survey. Total cod production (right) is derived from cod stock assessments for the early 1990's, and partitioned according to fishery catch data and predation mortality estimated from cod predator diet data (Aydin et al. 2007).

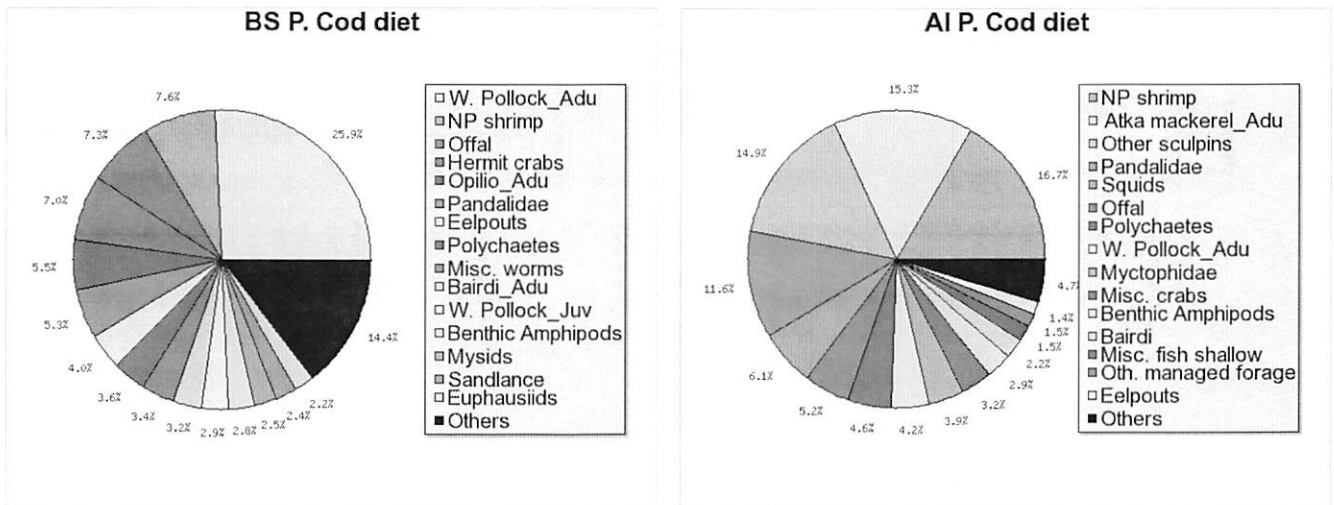


Figure 11-2. Comparison of Pacific cod diet compositions for the EBS (left) and AI (right) ecosystems. Diets are estimated from stomach collections taken aboard NMFS bottom trawl surveys in 1991 (EBS) and in 1991-1994 (AI).

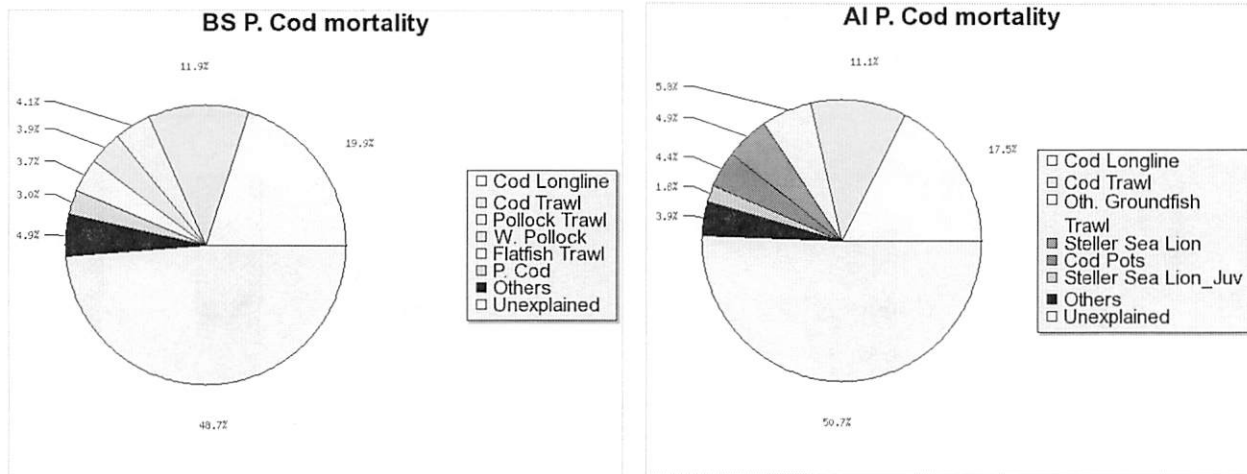


Figure 11-3. Comparison of Pacific cod mortality sources for the EBS (left) and AI (right) ecosystems. Mortality sources reflect cod predator diets estimated from stomach collections taken aboard NMFS bottom trawl surveys in 1991 (EBS) and in 1991-1994 (AI), cod predator consumption rates estimated from stock assessments and other studies, and catch of cod by all fisheries in the same time periods (Aydin et al. 2007).

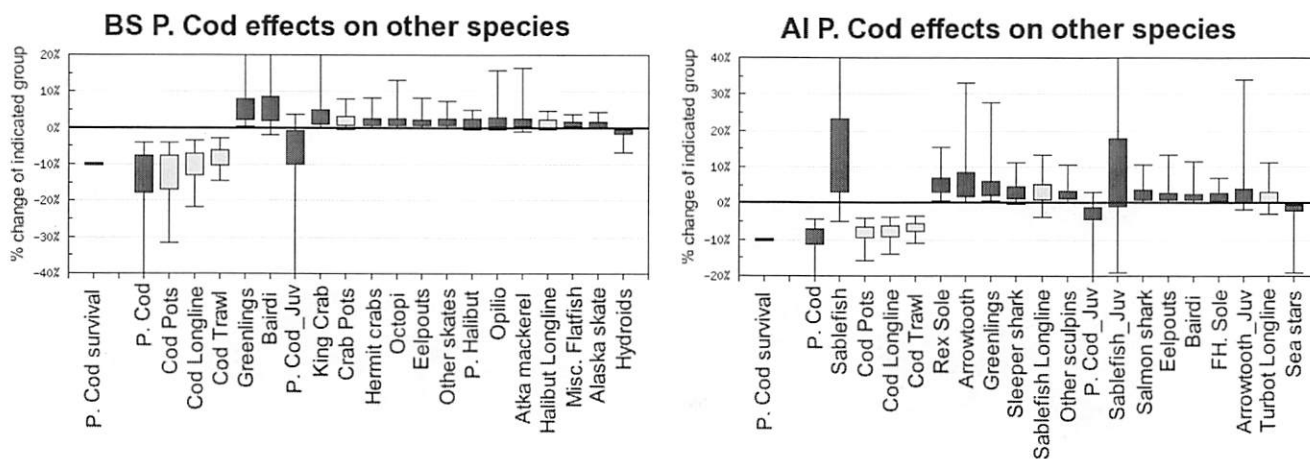


Figure 11-4. Effect of changing cod survival on fishery catch (yellow) and biomass of other species (dark red): EBS (left) and AI (right), from a simulation analysis where cod survival was decreased by 10% and the rest of the ecosystem adjusted to this decrease for 30 years. Note the differences in y-axis scale. Boxes show resulting percent change in the biomass of each species on the x axis after 30 years for 50% of feasible ecosystems, error bars show results for 95% of feasible ecosystems (see Aydin et al. 2007 for detailed methods).

**Discussion Paper on Amendment 80 Vessel Replacement Provisions  
NMFS Alaska Region  
NPFMC Meeting, October 2008**

**Summary of Court Decision in *Arctic Sole Seafoods v. Gutierrez***

On September 14, 2007, the National Marine Fisheries Service (NMFS) published a final rule implementing Amendment 80 to the Fishery Management Plan for Groundfish of the Bering Sea and Aleutian Islands (BSAI) Management Area. One aspect of the final rule identified and limited the vessels that could be used to fish for certain species of BSAI groundfish in a particular sector of the groundfish fishery. The final rule included this vessel restriction based on NMFS's interpretation of the Capacity Reduction Program (CRP), a statutory program enacted in December 2004 as part of the Consolidated Appropriations Act of 2005 (Pub. L. No. 108-447, 118 Stat. 2809 (2004)). The final regulations reflected the agency's interpretation that the CRP provided not only eligibility criteria for vessel owners' participation in the sector, but also criteria regarding which vessels could be used when fishing for the species covered by Amendment 80 (hereinafter referred to as "qualifying vessels").

Arctic Sole Seafoods is the owner of the ARCTIC ROSE, a vessel that meets the eligibility criteria in the CRP and the Amendment 80 final rule. The ARCTIC ROSE sank in 2001 and has not been recovered. Subsequent to the sinking of the ARCTIC ROSE, Arctic Sole Seafoods purchased the OCEAN CAPE, a vessel that does not meet the eligibility criteria of the CRP or the Amendment 80 final rule. Arctic Sole Seafoods asserted that the CRP did not restrict participation in the sector to qualifying vessels but instead permitted owners of qualifying vessels to use non-qualifying vessels in the sector, thus allowing replacement of a lost qualifying vessel. Because the final rule implementing Amendment 80 prohibited Arctic Sole Seafoods from using the non-qualifying OCEAN CAPE, Arctic Sole Seafoods challenged the Amendment 80 final rule, claiming that the final rule was arbitrary and capricious under the Administrative Procedure Act.

On May 19, 2008, the U.S. District Court for the Western District of Washington issued a decision invalidating those regulatory provisions that limit the vessels used in the Amendment 80 Program. In *Arctic Sole Seafoods, Inc. v. Gutierrez*, Case No. 07-1676MJP (W.D. Wash. May 19, 2008), the district court found the statutory language of the CRP ambiguous as to whether replacement of qualifying vessels with non-qualifying vessels was permissible, and found the agency's interpretation of the statute to be arbitrary and capricious. The court concluded that the inability to replace qualifying vessels with non-qualifying vessels would ultimately result in the elimination of the sector through vessel attrition, and that Congress had not intended such an outcome in the CRP. The district court ordered that "[t]o the extent that [regulations] restrict[] access to the BSAI non-pollock groundfish fishery to qualifying vessels without allowing a qualified owner to replace a lost qualifying vessel with a single substitute vessel, the regulations must be set aside...."

**Compliance with the Order for 2009**

The following paragraphs describe how NMFS will comply with the court's ruling in *Arctic Sole Seafoods v. Gutierrez* for 2009. The attached FAQs provide additional information.

NMFS will permit the owner of an Amendment 80 vessel listed in Table 31 to 50 C.F.R. Part 679 to replace that Amendment 80 vessel. An Amendment 80 vessel may not be replaced unless that vessel is no longer able to be used in the Amendment 80 Program due to actual total loss, constructive total loss, or permanent ineligibility of that vessel to receive a fishery endorsement under 46 U.S.C. 12108.

If a replacement vessel suffers an actual total loss, constructive total loss, or permanent ineligibility to receive a fishery endorsement under 46 U.S.C. 12108, that replacement vessel may be replaced by another subsequent replacement vessel. No more than one vessel may be used to replace any other vessel at the same time.

Consistent with existing regulations, the owner of an Amendment 80 vessel must provide clear and unambiguous written documentation that can be verified by NMFS that any lost vessel is no longer able to be used in the Amendment 80 Program due to the actual total loss, constructive total loss, or permanent ineligibility of that vessel to receive a fishery endorsement under 46 U.S.C. 12108. The owner of any replacement vessel must clearly identify the replacement vessel to NMFS in any Amendment 80 QS application, and annual application to participate in either an Amendment 80 cooperative or the Amendment 80 limited access fishery, as applicable.

Any vessel that replaces an Amendment 80 vessel listed in Table 31 to 50 C.F.R. Part 679, or any subsequent vessel that replaces a replacement vessel, shall be considered an Amendment 80 vessel for purposes of the Amendment 80 Program. Any replacement vessel must comply with all regulations applicable to the Amendment 80 vessel that it is replacing, except that; (1) any vessel other than an Amendment 80 vessel listed in Table 31 to 50 CFR 679 shall not have any Amendment 80 legal landings, and no Amendment 80 QS may be issued for any catch made by a vessel not listed in Table 31 to 50 CFR 679; (2) specific GOA sideboard provisions applicable to an Amendment 80 vessel listed in Table 39 to 50 CFR 679 and the F?V GOLDEN FLEECE do not apply to a vessel replacing those vessels (see FAQs for more information).

NMFS will not reissue quota share (QS) that has already been assigned to the License Limitation Program (LLP) license that was originally issued for an Amendment 80 vessel under the provisions of 50 CFR 679.91(h) to the owner of a replacement Amendment 80 vessel.

However, if the owner of an Amendment 80 vessel listed in Table 31 to 50 CFR 679 replaces that Amendment 80 vessel, NMFS has not issued QS based on the catch history of that Amendment 80 vessel, and the owner or that Amendment 80 vessel applies to, and does, receive QS for that Amendment 80 vessel under the provisions at 50 CFR 679.90, NMFS will assign that Amendment 80 QS to the vessel that is used to replace that Amendment 80 vessel.

**Frequently Asked Questions on  
Amendment 80 Vessel Replacement**

**1. What is a “lost vessel”?**

NMFS will permit the replacement of an original qualifying vessel listed in Table 31 to part 679 that has suffered an actual total loss, constructive total loss, or permanent ineligibility of that vessel to receive a fishery endorsement under 46 U.S.C. 12108.

The court’s decision uses both the terms “sunk” and “lost” when referring to qualifying vessels. In NMFS’ opinion, the court’s decision refers to the broader category of qualifying vessels that are “lost” rather than only those that sank.

**2. Who may replace a lost vessel?**

Only a “qualified owner” may replace a “lost qualifying vessel.” NMFS will not permit persons who do not currently own title to an original qualifying Amendment 80 vessel, either because title has been transferred to another person or because the vessel has been lost and no title exists for that vessel, to replace the vessel.

**3. How would I establish that a vessel has been lost and designate a new vessel?**

Any vessel owner who wishes to replace a vessel must provide NMFS with clear and unambiguous documentation in written form of the actual total loss, constructive total loss, or permanent ineligibility of that Amendment 80 vessel to receive a fishery endorsement under 46 U.S.C. 12108 and must provide NMFS with the necessary identifying information for the replacement vessel including the vessel name, USCG Documentation number, and length overall of the vessel. If NMFS is not notified that a specific Amendment 80 vessel has been replaced, then NMFS will assume that Amendment 80 vessel has not been replaced.

Note that existing regulations require a person to list the specific vessels, which would include any replacement vessels, that are participating in an Amendment 80 cooperative or limited access fishery during the annual cooperative/limited access fishery application process (see 50 CFR 679.91).

**4. Is a replacement vessel considered to be an “Amendment 80 vessel”?**

Yes, NMFS will consider any replacement vessel to be an Amendment 80 vessel subject to all prohibitions, limitations, and requirements applicable to the Amendment 80 vessel that it is replacing. These include, but are not limited to, requirements to comply with permitting, recordkeeping and reporting, groundfish retention standards, monitoring and enforcement, regulations applicable to participation in an Amendment 80 cooperative or Amendment 80 limited access fishery, and Gulf of Alaska sideboard restrictions. See the final rule for the Amendment 80 Program (September 14, 2007; 72 FR 52668) and 50 CFR 679 for all regulations applicable to Amendment 80 vessels and participation in the Amendment 80 Program.

The exceptions to this rule are: (1) NMFS will not consider the catch history of any replacement vessel that is not listed in column A of Table 31 to part 679 as eligible for generating Amendment 80 QS; and (2) GOA sideboard restrictions applicable to specific listed Amendment 80 vessels would not apply (see following Q&A).

**5. How would GOA sideboard restrictions applicable to a specific Amendment 80 vessel be applied to any vessel used to replace that Amendment 80 vessel?**

NMFS will apply GOA sideboard regulations at 50 CFR 679.92(b) to any replacement vessel. Currently, all Amendment 80 vessels are subject to this provision. However, NMFS will not permit any vessel that replaces an Amendment 80 vessel that is listed in Table 39 to part 679 to directed fish for flatfish in the GOA. Similarly, NMFS will not apply GOA sideboard regulations specifically applicable to the F/V GOLDEN FLEECE to any vessel that replaces the F/V GOLDEN FLEECE.

The Court addressed the interpretation of the CRP and whether NMFS could limit fishing for non-pollock groundfish in the BSAI to a specific list of non-AFA trawl catcher/processors. The Order indicates that any vessel replacing an original qualifying Amendment 80 listed in Table 31 to part 679 would be subject to the provisions applicable to Amendment 80 vessels generally. The Court did not indicate that specific provisions applicable to specific vessels in the GOA would be extended to the vessel replacing an original qualifying Amendment 80 vessel. For example, the Court did not specify that a vessel replacing a lost Amendment 80 vessel that is eligible to direct fish for flatfish (i.e., listed in Table 39 to part 679) would also be eligible to directed fish in the flatfish fishery in the GOA, or that a vessel replacing the F/V GOLDEN FLEECE would be subject to the sideboard restrictions applicable to the F/V GOLDEN FLEECE. Because the Court is silent on this issue, and the Council developed specific GOA sideboard criteria for specific vessels, NMFS does not intend to modify its regulations. NMFS notes that the Council may wish to address this issue in a future FMP amendment.

**6. Can a lost Amendment 80 vessel be replaced with more than one vessel?**

No, NMFS will allow only one vessel to replace an Amendment 80 vessel at a time. The Order stated that “a regulation that allowed an otherwise qualified owner to replace his or her Amendment 80 vessel with multiple vessels would also be impermissible (footnote 4, p. 15).”

**7. What happens if a replacement vessel is lost?**

NMFS would allow only one vessel to replace another replacement vessel at a time, consistent with the Court’s desire not to allow multiple replacement vessels at the same time.

The Order did not specifically address the potential to replace a replacement vessel. However, based on the text of the Order, it appears that the term “single replacement vessel” is intended to allow a person to replace a lost Amendment 80 vessel with another vessel, regardless of the number of times that vessel may be replaced. The Order supports this interpretation. Specifically, the Court noted that “an interpretation of the Capacity Reduction Program [sec. 219; Pub. L. 108-447] that limits eligibility to certain vessels but does not include a vessel replacement provision leads to absurd results – the inevitable elimination of the fishery. (p. 14).” The only way to avoid the elimination of the fishery that concerned the Court would be to allow a lost replacement vessel to be replaced if it is lost.

**8. Are there any limitations on the characteristics of a replacement vessel?**

No, the Court did not address the size or capacity of a replacement vessel relative to the qualifying vessel being replaced. However, existing regulations remain in place that may provide some practical limits on the size and capacity of a replacement vessel. Specifically, in order to be eligible to participate in the Amendment 80 fishery, a replacement vessel would still need to be designated on an Amendment 80 LLP in order to be eligible to fish in the Amendment 80 fishery (see 50 CFR 679.7(o)(2)(ii)). An Amendment 80 LLP license is defined under 50 CFR 679.2 as

- (1) Any LLP license that is endorsed for groundfish in the Bering Sea subarea or Aleutian Islands subarea with a catcher/processor designation and that designates an Amendment 80 vessel in an approved application for Amendment 80 QS;
- (2) Any LLP license that designates an Amendment 80 vessel at any time after the effective date of the Amendment 80 Program; and
- (3) Any Amendment 80 LLP/QS license.

NMFS notes that once an LLP license is assigned to an Amendment 80 vessel, that LLP license may not be used on any vessel other than an Amendment 80 vessel (see 50 CFR 679.7(o)(2)(i)). In addition, a person cannot hold an Amendment 80 QS permit assigned to an Amendment 80 vessel unless an Amendment 80 LLP license is assigned to that vessel (see 50 CFR 679.7(o)(3)(i)). Furthermore, the number of LLP licenses that may be used in the Amendment 80 Program is limited by the fact that LLP licenses with the applicable endorsements for trawl catcher/processor activity in the BSAI assigned to AFA catcher/processors may not be used on a non-AFA catcher/processors (see 50 CFR 679.4(k)(10)).

**9. What happens to QS that has been assigned to the holder of an LLP license originally issued for an Amendment 80 vessel if that vessel is subsequently replaced?**

NMFS will not reassign QS that was already issued to the holder of an LLP license listed in Column C of Table 31 to part 679 if the Amendment 80 vessel corresponding to that LLP license in Column A of Table 31 to part 679 is subsequently replaced.

For example, NMFS would not reissue the QS already assigned to the LLP license originally assigned to the lost Amendment 80 vessel the F/V PROSPERITY (LLG 1802) to the owner of the F/V PROSPERITY if the owner of the F/V PROSPERITY decided to replace that vessel.

**10. What happens if I have established that I am the owner of a lost Amendment 80 vessel, I have replaced that vessel, and I apply for QS?**

Consistent with regulations at 50 CFR 679.90(a)(2)(i) and (d)(2)(i), if the owner of a lost Amendment 80 vessel replaces that vessel, NMFS has not previously issued QS for that lost vessel, and the owner of the replacement vessel subsequently applies for QS and is eligible to receive QS, NMFS will issue an Amendment 80 QS that must be assigned to the replacement vessel.

For example, because NMFS has not yet issued QS based on the catch history of the F/V ARCTIC ROSE, a lost Amendment 80 vessel, if the owner of the F/V ARCTIC ROSE replaces that the F/V ARCTIC ROSE, NMFS will issue QS and assign that QS to the vessel that replaces the F/V ARCTIC ROSE.

**11. What happens if I hold the LLP license originally issued to a lost Amendment 80 vessel and the rights and privileges to receive QS, but I have not replaced the vessel and I wish to receive QS?**

If you apply to receive QS consistent with regulations in 50 CFR 679.90, NMFS would issue the QS derived from the lost Amendment 80 vessel to the LLP license originally issued to the Amendment 80 vessel that you hold. You are not required to replace an Amendment 80 vessel before you receive QS.

For example, the person holding the LLP license originally issued to the F/V BERING ENTERPRISE, a lost Amendment 80 vessel, is not required to replace the F/V BERING ENTERPRISE before applying to receive QS based on the catch history of that vessel. NMFS would issue any QS to the holder of the LLP license of the F/V BERING ENTERPRISE, provided all other requirements were met.

**12. What happens if I hold the LLP license originally issued to a lost Amendment 80 vessel and the rights and privileges to receive QS, I have not yet applied for QS, and the owner of the lost Amendment 80 vessel replaces that vessel and applies to receive QS before I do?**

NMFS has not yet thoroughly reviewed this situation. A brief review of the regulations suggests that the owner of an original qualifying Amendment 80 vessel has the first priority to apply for and receive QS. There is no conclusive answer at this time.

## Council Actions Necessary to Address the Order

The BSAI groundfish FMP text and NMFS regulations must be amended in light of the court's ruling. Although NMFS has not conducted an extensive review of the FMP and regulations, NMFS proposes the following draft FMP and regulatory language to bring the existing regulatory text into conformance with the court's decision. This language is subject to revision upon further review. First, NMFS proposes that a new section 3.7.5.10 be added to the BSAI groundfish FMP to state:

### 3.7.5.10 Vessel Replacement

If a vessel in the non-AFA trawl catcher/processor sector as defined in Section 219(a)(7) of the Consolidated Appropriations Act, 2005 (P.L. 108-447) suffers an actual total loss constructive total loss, or permanent inability to be used in the Program, that vessel can be replaced. Any replacement vessel may also be replaced. No more than one vessel can replace a vessel at a given time.

Second, NMFS proposes that the definition of "Amendment 80 legal landing" at 50 C.F.R. 679.2 be modified to read as follows:

*Amendment 80 legal landing* means the total catch of Amendment 80 species in a management area in the BSAI by an Amendment 80 vessel, other than an Amendment 80 vessel described in paragraph (2)(iii) of the definition of an Amendment 80 vessel, that:

- (1) Was made in compliance with state and Federal regulations in effect at that time; and
- (2) Is recorded on a Weekly Production Report from January 20, 1998, through December 31, 2004; and
- (3) Amendment 80 species caught while test fishing, fishing under an experimental, exploratory, or scientific activity permit, or fishing under the Western Alaska CDQ Program are not considered Amendment 80 legal landings.

Third, NMFS proposes that the definition of "Amendment 80 vessel" at 50 C.F.R. 679.2 be modified to read as follows:

*Amendment 80 vessel* means:

- (1) The vessels listed in Column A of Table 31 to this part with the corresponding USCG Documentation Number listed in Column B of Table 31 to this part; or
- (2) Any vessel that:
  - (i) Is not listed as an AFA trawl catcher/processor under sections 208(e)(1) through (20) of the American Fisheries Act;
  - (ii) Has been used to harvest with trawl gear and process not less than 150 mt of Atka mackerel, flathead sole, Pacific cod, Pacific ocean perch, rock sole, turbot, or yellowfin sole in the aggregate in the BSAI during the period from January 1, 1997, through December 31, 2002.; or
  - (iii) (A) Any vessel that is replaced by an owner of a vessel described in paragraph (1) of this definition provided that the vessel described in paragraph (1) of this definition is no longer able to be used in the Amendment 80 Program due to the actual total loss, constructive total loss, or permanent ineligibility of that vessel to receive a fishery endorsement under 46 U.S.C. 12108;
  - (B) Any vessel that is replaced by the owner of a vessel described in paragraph (2)(iii)(A) of this definition provided that the vessel described in paragraph (2)(iii)(A) of this definition is no longer able to be used in the Amendment 80 Program due to the



actual total loss, constructive total loss, or permanent ineligibility of that vessel to receive a fishery endorsement under 46 U.S.C. 12108.

Fourth, NMFS proposes a new regulation at 50 C.F.R. 679.7(o)(9) as follows:

(9) For a vessel owner to replace an Amendment 80 vessel with more than one Amendment 80 vessel at a time.

#### **Other Considerations for Potential Council Action**

The Court did not address several specific requirements for vessel replacement language that the Council may wish to consider. Because the FMP must be amended to be consistent with the Order, the Council may wish to address these issues at the same time that the FMP is being amended.

First, the Court's interpretation of the CRP suggests that the Council may have the discretion to allow an Amendment 80 vessel to be replaced for reasons other than actual total loss, constructive total loss, or permanent ineligibility of that vessel to receive a fishery endorsement under 46 U.S.C. 12108. The Council may wish to explore options that would define vessel replacement provisions to allow replacement to improve vessel efficiency, address safety concerns, improve compliance with the groundfish retention standards, or for other reasons.

Second, the Court did not establish a specific vessel size, capacity, or other limit on replacement vessels. This raises the possibility that a smaller vessel could be replaced with a larger vessel with additional harvesting and processing capacity (see FAQ #8 for additional detail). If the Council wishes to establish limits on the size of a replacement vessel, this would require amendment to the FMP. For example, the Council could explore alternative to limit a replacement to: (1) the size of the original qualifying Amendment 80 vessel as of a specific date; (2) the length specified as the maximum length overall on the LLP license originally derived from an original qualifying Amendment 80 vessel (shown in Column C of Table 31 to part 679); or (3) some other criteria.

Third, the Council may wish to consider defining the types of vessels that could replace an Amendment 80 vessel. As an example, under the provisions of the Order, it is possible that an Amendment 80 vessel could be replaced with an AFA catcher/processor. As with any complex program, mixing vessels from one limited access privilege program with another could create complications for both enforcement and catch accounting. As an example, if a replacement vessel is both an AFA catcher/processor and an Amendment 80 vessel, then it would appear that the regulations at 679.7(o)(1)(ii) would require that any Pacific cod caught by such a vessel while it is directed fishing for pollock would need to be attributed to an Amendment 80 cooperative, or the Amendment 80 limited access fishery allocation, and not to the allocation of Pacific cod to the AFA catcher/processor subsector as established under Amendment 85. The Council may want to clarify what type of vessels, and under what conditions replacement vessels could participate in the Amendment 80 sector.

Fourth, as noted in the response to FAQ # 5, the Court did not address the applicability of specific GOA sideboard provisions for listed Amendment 80 vessels to any replacement vessels. The Council may want to clarify if replacement vessels would be able to be used in the GOA in the same manner as the original vessels.

Finally, the Council may wish to consider incorporating FMP amendments to allow replacement vessels with the analysis of Amendment 80 cooperative standards currently scheduled for initial review in December, 2008. Proponents for modifying cooperative formation standards have indicated that one rationale for modifying the standards was to provide greater flexibility for vessel owners in the case of a vessel sinking. If vessel replacement provisions affect cooperative formation standards then integrating these two actions could improve the analysis and reduce redundant analyses. The cooperative formation standard would need to be delayed to incorporate the vessel replacement provisions.

# NPFMC meeting

October 2008

October 6, 2008

## **Public Testimony on Agenda item:**

**D2(b)**

### **Discussion paper on BSAI Fixed Gear Parallel Fisheries.**

Chairperson Olson,

Council members thank you very much for your time here today and for your consideration of the various issues surrounding the BSAI fixed gear parallel fisheries.

My Name is Kenny Down and I am here today representing the Freezer Longline Coalition (FLC). The FLC represents thirty-four of the thirty-six hook-and-line catcher processors operating in the Bering Sea and Aleutian Islands area with LLP's and cod endorsements for the Federal fishery. This is a Washington and Alaska based and owned fleet.

I am asking that the Council take into account the concerns of our members and advance this for analysis in an expedient a manner as possible. I am hopeful that we can work together to address the various issues surrounding the parallel fishery.

Our concern here is three-fold.

#### **1.) Parallel fishery as it affects the Pacific cod hook-and-line catcher processors fishing in federal waters in the BSAI**

The hook-and line catcher processors, fishing for Pacific cod, operating in federal waters in the BSAI area, began operating under Council A. 85 in January of this year. Our sectors catch has been reduced from previous levels due to a multitude of changes in the fishery. The State Waters fishery now allocates 3% off the top of the initial total allocation for Pacific cod for the Aleutian Island state fishery. As well, the CDQ allocation was raised from 7% of BSAI Pacific cod to 10.7%, concurrent with the implementation of A. 85. These regulatory changes, along with lower quota, have reduced our average catch for our fleet from the six year average 2001-2006 of 93,685 tons, to an estimated catch of 73,844 tons in 2008, a more than 20% reduction in available catch to our fleet. All Pacific cod currently caught by catcher processors in

the state parallel fishery using hook-and-line gear comes off of the A. 85 allocation. This exacerbates an already difficult situation for our fishermen. If left in its current management scheme the parallel fishery will continue to attract larger vessels being used as catcher processors and continue to harm our fisherman and owners. This situation also creates great impedence to our efforts at creating the best managed P.cod CP hook-and-line fleet possible.

## **2.) Parallel Fishery as it directly affects the Freezer Longline Coalitions buy-back fleet reduction.**

Our membership has gone through a vessel reduction act (Fishing Capacity Reduction Program for the Longline Catcher Processor Subsector of the Bering Sea/Aleutian Island Non-Pollock Groundfish Fishery) and has borrowed \$35,000,000 to reduce the size of our fleet. Our members used these funds to buy out three vessels with LLP's and P.cod endorsements and one latent LLP permit. All remaining BSAI H&L CP sector members are paying back this loan, and to date, just for fish caught in the "A" season calendar year 2008, our members have paid back \$1,611,183.00 We estimate that we will pay \$ 3, 400,000.00 in fees on this loan in calendar year 2008 alone.

Allowing additional vessels to the fleet through the unintended loophole that allows larger catcher processors to operate in state waters has an unfair and highly financially punitive effect on our group. The ability by our members to repay this federal government loan was based on full, unimpeded access to the A. 85 sectors allocation for the hook-and-line catcher processor. We are repaying the loan in the way of a fee accessed on each pound of fish caught by our sectors allocation. Vessels operating in the parallel fishery as larger catcher processors are unfairly benefiting on our fleet's capacity reduction efforts.

## **3.) Parallel fishery as it affects future fishery co-operatives.**

If our members were in the future to form a fishery cooperative one of the great benefits and one of the main intentions of theses fisheries cooperatives is to end the derby style "race for fish"— slow the fishery to decrease the incentive for dangerous risk taking behavior, increase utilization of the resource, reduce the large market fluctuations caused by flooding the market with product caught in a very short season, and improve the overall financial condition of the fisheries. Unfortunately the parallel fishery as it now stands, poses a very real threat to these efforts. As a fishery eliminates the race for fish, this extends the window that exists for further vessels to enter into the parallel fishery and simply moves the race for fish into state waters.

## **In Conclusion.**

This is a completely unregulated fishery that allows vessels to act as catcher processors in ways that intentionally thwarts previous Council actions. These vessels can operate with no observers, little catch accounting, no VMS requirements and in certain cases can simply move into state waters once the federal fishery closes and continue to fish. This is extremely frustrating for those participants doing everything they can to be good stewards of the resource and participate in a helpful way towards management and conservation.

As Jeannie Heltzel has pointed out in her discussion paper even if all five of the options she has outlined were adopted this still will not fully solve the problem. This is an issue that will take joint action by the NPFMC and BOF. The Freezer longline Coalition is working to be as much help in this joint effort as possible and currently is working with the BOF on finding a solution on the state side. We have sponsored an ACR and I am headed to the BOF work session in Fairbanks when I leave the Council meeting this week. There does not appear to be a silver bullet available here, however action by both the Council and the BOF will have the affect of containing what will otherwise undoubtedly become, or has already become another race for fish.

Thank you all once again for your time here today. I am available to answer any questions you might have.

**Kenny Down**  
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**Freezer Longline Coalition**



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