**Draft for Secretarial Review**

ENVIRONMENTAL ASSESSMENT/REGULATORY IMPACT REVIEW/
INITIAL REGULATORY FLEXIBILITY ANALYSIS

for proposed

**AMENDMENT 67**

to the Fishery Management Plan for
Bering Sea/Aleutian Islands Groundfish

# Pacific Cod License Limitation Requirements for Fixed Gear Vessels and Establishment of Species and Gear Endorsements

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North Pacific Fishery Management Council

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**TABLE OF CONTENTS**

## Executive Summary

The groundfish License Limitation Program (LLP) for vessels operating in Federal waters off Alaska's coast (BSAI Plan Amendment 39) went into effect on January 1, 2000. Since the LLP was approved by the Council, several changes have occurred which prompted action to further stabilize the different sectors of the Pacific cod fishery. Beginning in 1997, Amendment 46 to the Fishery Management Plan for the Groundfish Fishery of the Bering Sea/Aleutian Islands allocated the total allowable catch (TAC) for BSAI Pacific cod among jig gear, trawl gear, and fixed gear. The amendment also split the trawl apportionment between catcher vessels and catcher/processors 50/50. Subsequently, BSAI Amendment 64 proposed further splitting the fixed gear apportionment between longline and pot vessels. The Council adopted Amendment 64 in October 1999, and the intent is for implementation in 2001, if approved by the U.S. Secretary of Commerce.

Participants in the BSAI fixed gear Pacific cod fishery include longline and pot fishermen with extensive catch histories. However, given the current economics of the Pacific cod fishery, vessel owners with limited history in the BSAI cod fisheries may be tempted to bring vessels into the fishery. Currently there is no mechanism in place that would limit entry into the fishery by substantial numbers of vessels that hold an LLP endorsement for those areas, but have not participated, or have not participated at a level that could constitute significant dependence on the fishery, in the past. At the April 1999 meeting, a follow-up amendment was proposed to the recent fixed gear allocations to address concerns with the stability of the fishery and increased competition. Proposed Amendment 67 would add a BSAI Pacific cod endorsement to fixed gear licenses, if the vessel meets a specific recent landings criteria.

This analysis studied the impacts of adding a Pacific cod endorsement to vessels that are currently LLP qualified to participate in Bering Sea or Aleutian Islands groundfish fisheries. The analysis examined several alternatives for qualification criteria based on historical participation and landings for the various sectors of the fixed gear fleet, as listed below.

### Alternatives Considered

**Alternative 1: No Action**

The *No Action* alternative would continue to allow for entry into the BSAI Pacific cod fixed gear fisheries, within the eligibility constraints of the current License Limitation Program for the groundfish fisheries in the BSAI. No mechanism would be in place to control entry of LLP qualified vessels that have limited or no historical dependence on the fixed gear Pacific cod fishery.

**Alternative 2: Limit entry to the BSAI P. Cod fixed gear fisheries based on historical participation**

The Council selected a list of alternatives that have differential qualification criteria for freezer longline, longline catcher vessels, and pot gear vessels. The landings criteria are based on a combination of years of participation and the amount of Pacific cod landed by year. The complete suite of alternatives considered for each sector is provided below:

**Freezer Longline Vessels**

Qualification Years:

Option 1: Any one year 1996, 1997, 1998
Option 2: Any one year 1996, 1997, 1998, 1999

Minimum poundage requirement during any qualifying year:

Option 1: 100 metric tons
Option 2: 200 metric tons
Option 3: 300 metric tons

**Catcher Longline Vessels**
**(a different criteria could be applied to catcher vessels <60' and ≥60' LOA)**

Qualification Years:

Option 1: Any one year 1995, 1996, 1997, or 1998
Option 2: Any one year 1995, 1996, 1997, 1998, or 1999

Minimum poundage requirement during any qualifying year:

Option 1: A landing only (no minimum poundage)
Option 2: 7.5 metric tons
Option 3: 15 metric tons
Option 4: 25 metric tons

Suboption 1 : Allow catcher vessels less than 60' LOA to use their jig landings as part of their catch history to apply towards a minimum landing requirement.
Suboption 2 : Allow catcher vessels of any length to use their jig landings as part of their catch history to apply towards a minimum landing requirement.

**Pot Gear Vessels**
**(a different criteria could be applied to catcher vessels and catcher/processors)**
**(a different criteria could be applied to catcher vessels <60' and ≥60' LOA)**

Qualification Years:

Option 1: Any three years of 1995, 1996, 1997, 1998
Option 2: Any three years of 1995, 1996, 1997, 1998, 1999
Option 3: Any two years of 1995, 1996, 1997, 1998
Option 4: Any two years of 1995, 1996, 1997, 1998, 1999
Option 5: Any two years of 1995, 1996, 1997
Option 6: Any two years of 1996, 1997, 1998
Option 7: Any two years of 1996, 1997, 1998, 1999
Option 8: Any one year 1995, 1996, 1997, 1998
Option 9: Any one year 1995, 1996, 1997, 1998, 1999
Option 10: Any one year 1996, 1997, 1998

**AND**

Qualification landings (minimum landing requirements):

**(A)** - Minimum pounds required for delivery during each qualifying year:

Option 1: A landing only (no minimum poundage required)
Option 2: 25,000 lb. - 50,000 lb.
Option 3: 50,001 lb. - 100,000 lb.
Option 4: 100,001 lb. - 300,000 lb.
Option 5: Greater than 300,000 lb.

**OR**

**(B)** - Minimum pounds required for delivery during any of the qualifying years:

Option 1: A landing only (no minimum poundage required)
Option 2: 25,000 lb. - 50,000 lb.
Option 3: 50,001 lb. - 100,000 lb.
Option 4: 100,001 lb. - 300,000 lb.
Option 5: Greater than 300,000 lb.

**OR**

**(C)** - Minimum aggregate pounds required for delivery during the qualifying years (applies only to qualification year options numbered 3, 4, and 5)

Option 1: 200,000 lb. - 600,000 lb.
Option 2: Greater than 600,000 lb.

Suboption 1 : Allow catcher vessels less than 60' LOA to use their jig landings as part of their catch history to apply towards a minimum landing requirement.

Suboption 2 : Allow catcher vessels of any length to use their jig landings as part of their catch history to apply towards a minimum landing requirement.

The Council also considered two grandfather provisions related to the P. cod endorsement. The language outlining the proposed exemptions is provided below:

**Grandfather Provision #1**

1. Vessel that sank after June 17, 1995 that was LLP qualified with respect to Pacific cod landings prior to that sinking.
2. A sunken vessel is replaced with a qualified replacement vessel within the normal time allowed by the Internal Revenue Service (IRS).
3. Owner of replacement vessel has demonstrated continued intent to fish for Pacific cod by recent landings (as defined by any landing before December 31, 1999).
4. Consider appropriateness of either:
   A. Accepting catch history from sunk vessel
   B. Combining catch histories of sunk vessel and replacement vessel.

**Grandfather Provision #2**

Exempt from the recent participation and landings requirements for BSAI Pacific cod species and gear endorsements all catcher/processor vessels that:

1. Met the original LLP general qualifying period and area endorsement period requirements for BSAI groundfish, non-trawl, catcher/processor endorsements and designations;
2. Applied for and received an interim or transferable license for groundfish as a c/p in the BSAI;
3. Were purchased between July 1, 1997 and December 31, 1998 with the express purchaser intent of being employed in the BSAI fixed gear P. cod fishery as evidenced by
    (a) execution and delivery of a U.S. Coast Guard Bill of Sale and subsequent recording of the Bill of Sale in the U. S. Coast Guard Abstract of Title on or before December 31, 1998, and
    (b) documented processing equipment and/or vessel modification or improvement investments of not less than $100,000 that are specific to groundfish (gear purchases would not count for purposes of the $100,000 threshold); and
4. Were employed as a catcher vessel or a catcher/processor in the BSAI fixed gear P. cod fishery during 1999.

Gear designations for these vessels would be based on the gear employed during the year in which the Council's final decision is made. If both pot and longline gear were used in the P. cod fixed gear fishery, then the gear designations would be determined by the gear with the higher catch volume of Pacific cod.

There are few biological impacts of the alternatives and options considered by the Council. None of the options would change the amount of cod harvested by a particular gear type within the fixed gear sector. A more restrictive LLP for cod may create a more stable pool of vessels which participate in the directed fishery. If more experience results in better fishing practices, then reductions in bycatch may result. However, other factors impacting where and when vessels fish may further complicate the issue. Therefore, incidental catch of species such as crabs, sharks, skates, and squid may increase or decrease with changes in the number of vessels that can participate in the fixed gear sector for cod, but the totals would still be far below the level of overfishing and would not be cause for biological concern.

Summaries of cod catch in the directed fishery, bycatch of other species in the cod fishery, bycatch of cod in other fisheries, and ex-vessel and first wholesale price information is provided in Chapter 3. The number of vessels participating in the BSAI cod fishery has varied from a low of 85 to a high of 193 from 1992-99. Most of the vessels used pot gear, but they usually accounted for less than 20 percent of the total fixed gear cod harvest. Freezer longliners generally accounted for over 80 percent of the fixed gear cod harvest, and between 36 and 56 vessels participated annually. Longline catcher vessels have never accounted for more than 1 percent of the fixed gear cod harvest, and since 1995, there has never been as many as 30 vessels in the fishery.

The catch history of vessels using jig gear is also included in Chapter 3. The number of jig gear vessels ranged from 45 (1995) to 10 (1998). These vessels have never harvested their entire 2 percent allocation of the BSAI Pacific cod quota.

Ex-vessel prices in the 1998 fixed gear cod fishery were estimated to be $0.193 for catcher vessels using longline gear and $0.192 for catcher vessels using pot gear. First wholesale revenue per metric ton of round cod was estimated for each sector in BSAI Amendment 64. That analysis found that freezer longliners received $1,010, pot catcher/processors $1,166, and shorebased/inshore floating processors $923 per metric

ton of round cod. These ex-vessel and first wholesale estimates are used in Chapter 4 to approximate the average cod revenue per qualified vessel.

In general, the alternatives considered by the Council result in a wide range of qualifying vessels. Thirty-nine to 43 freezer longline vessels would qualify, and all of these vessels appear to be qualified under the LLP. Currently 67 fixed gear catcher/processors are expected to be issued a license under the current LLP, as passed by the Council. Therefore, 24 to 28 fewer freezer longliners would be allowed to participate in the fixed gear cod fishery if this amendment is implemented. Given the estimated first wholesale value per ton of round cod, the current fixed gear cod split passed by the Council, and the 2000 TAC, this translates into an average gross revenue of about $1.7 million to $1.9 million per freezer longline vessel.

Between 7 and 126 longline catcher vessels are projected to meet the recent minimum landings criteria for a Pacific cod endorsement, depending on the alternative. The number of vessels that are both LLP qualified and meet the minimum landings criteria range from 5 to 85, based on our best estimate of currently LLP qualified vessels. A total of 365 fixed gear catcher vessels are expected to qualify for the LLP as passed by the Council. Any of the alternatives (other than the *No Action* alternative) would reduce the number of longline catcher vessels eligible for the Pacific cod fishery by at least 239. The option that allows only seven vessels to qualify would decrease the pool of eligible vessels by about 98 percent. Given that range of outcomes, the average longline catcher vessel's gross revenue from BSAI cod would range between $3 thousand and $55 thousand.

Table E.1 provides a summary of the number of pot catcher vessels expected to qualify under each of the pot gear alternatives ignoring whether they hold a general LLP license for the BSAI. The number of vessels that would qualify under the most restrictive alternative (300,000 lb of landings in at least 3 different years 1995-98) is 21, yet 203 vessels would qualify under the most liberal criteria (one landing from 1995-99). The remaining alternatives allowed the Council to select almost any number of vessels between those represented by the most and least restrictive options. Table E.2 is the same as E.1 except only the vessels that appear to hold a general LLP license for the BSAI are included. Information in that table shows the maximum number of expected qualifiers decreases from 203 to 119, because it appears that 84 vessels do not hold a general BSAI license. The most restrictive alternative only decreases by two vessels when the general LLP requirements are imposed, from 21 vessels to 19 vessels.

Table E.3 provides information on the number of pot catcher/processors. Between four and twenty pot catcher/processors would qualify depending on the alternative. Table E.4 shows that the numbers decrease to between three and fourteen vessels once the requirement that the vessel is LLP qualified is included. Information on the number of vessels that are expected to qualify when the LLP requirements are included, and when they are not, have been reported for the pot catcher vessels and catcher/processors because of the uncertainty surrounding the actual number of vessels that will qualify once the LLP appeals process is completed. If the P. cod endorsement program is implemented, the actual number of qualified vessels will likely fall somewhere between the two numbers, but will likely be closer to numbers in the tables that included the LLP qualification requirements.

Detailed information for each of the alternatives may be found in Appendix A. The Council originally indicated that they may select a different qualification criteria for pot catcher vessels and pot catcher/processors. Therefore the tables were separated. The total number of pot vessels that could qualify would equal the sum of the vessels under the alternative selected from the pot catcher vessel table and the

**Table E.1: Summary of Pot Catcher Vessel Alternatives**

| Option (a)[1] | Qual. Years[4] | Years Required | A landing | 25,000+ | 50,001+ | 100,001+ | >300,000 |
|---|---|---|---|---|---|---|---|
| 1a | 95-98 | 3 | 58 | 38 | 35 | 30 | 21 |
| 2a | 95-99 | 3 | 72 | 50 | 43 | 38 | 27 |
| 3a | 95-98 | 2 | 99 | 66 | 60 | 54 | 38 |
| 4a | 95-99 | 2 | 112 | 78 | 72 | 65 | 45 |
| 5a | 95-97 | 2 | 90 | 62 | 53 | 46 | 34 |
| 6a | 96-98 | 2 | 72 | 42 | 42 | 38 | 29 |
| 7a | 96-99 | 2 | 91 | 62 | 72 | 53 | 38 |
| 8a | 95-98 | 1 | 183 | 135 | 116 | 101 | 73 |
| 9a | 95-99 | 1 | 203 | 157 | 137 | 118 | 83 |
| 10a | 96-98 | 1 | 140 | 104 | 98 | 88 | 68 |
| **Option (b)[2]** | **Qual. Years[4]** | **Years Required** | **A landing** | **25,000+** | **50,001+** | **100,001+** | **>300,000** |
| 1b | 95-98 | 3 | 58 | 57 | 57 | 55 | 49 |
| 2b | 95-99 | 3 | 72 | 72 | 72 | 71 | 61 |
| 3b | 95-98 | 2 | 90 | 91 | 85 | 77 | 64 |
| 4b | 95-99 | 2 | 112 | 105 | 101 | 92 | 76 |
| 5b | 95-97 | 2 | 90 | 83 | 79 | 73 | 60 |
| 6b | 96-98 | 2 | 72 | 67 | 65 | 59 | 53 |
| 7b | 96-99 | 2 | 91 | 91 | 88 | 80 | 69 |
| 8b | 95-98 | 1 | 183 | 135 | 116 | 101 | 73 |
| 9b | 95-99 | 1 | 203 | 157 | 137 | 118 | 83 |
| 10b | 96-98 | 1 | 140 | 104 | 98 | 88 | 68 |
| **Option (c )[3]** | **Qual. Years[4]** | **Years Required** | **200,000-600,000 lbs** | | **>600,000 lbs** | | |
| 3c | 95-98 | 2 | 74 | | 50 | | |
| 4c | 95-99 | 2 | 89 | | 59 | | |
| 5c | 95-97 | 2 | 69 | | 47 | | |

[1] Options 1-10a refer to alternatives in which the minimum poundage is required of *each* qualifying year.

[2] Options 1-10b refer to alternatives in which the minimum poundage is required of *any* qualifying year.

[3] Options 3-5c refer to alternatives in which an *aggregate* poundage is required of at least two qualifying years.

[4] Qual. Years refers to the series of qualification years associated with Options 1-10 and the (number) of years the vessel must have participated in within the series.

pot catcher/processor table.

The total ex-vessel revenue for the pot catcher vessels, as estimated based on 1998 prices and allocation percentages passed under BSAI Amendment 64, is $5.36 million. Given the number of pot vessels expected to qualify and the total ex-vessel revenue, the average revenue per vessel is expected to range between $26,000 and $255,000.

The first wholesale revenue for pot catcher/processors is estimated to be about $5.4 million per year. Therefore, depending on the alternative selected, the average revenue per vessel would range between $0.27 million and $1.35 million.

**Table E.2: Pot Catcher Vessels Qualified Under the Alternatives for the BSAI P. Cod Fishery and also Qualified Under the Original LLP[5]**

| Option (a)[1] | Qual. Years[4] | A landing | 25,000+ | 50,001+ | 100,001+ | >300,000 |
|---|---|---|---|---|---|---|
| 1a | 95-98 (3) | 48 | 32 | 30 | 27 | 19 |
| 2a | 95-99 (3) | 56 | 41 | 36 | 31 | 24 |
| 3a | 95-98 (2) | 75 | 50 | 45 | 40 | 31 |
| 4a | 95-99 (2) | 78 | 57 | 54 | 48 | 36 |
| 5a | 95-97 (2) | 72 | 49 | 42 | 38 | 31 |
| 6a | 96-98 (2) | 51 | 32 | 32 | 28 | 22 |
| 7a | 96-99 (2) | 60 | 46 | 52 | 40 | 29 |
| 8a | 95-98 (1) | 116 | 94 | 80 | 70 | 56 |
| 9a | 95-99 (1) | 119 | 98 | 86 | 76 | 61 |
| 10a | 96-98 (1) | 82 | 68 | 65 | 59 | 51 |
| **Option (b)[2]** | **Qual. Years[4]** | **A landing** | **25,000+** | **50,001+** | **100,001+** | **>300,000** |
| 1b | 95-98 (3) | 48 | 47 | 47 | 45 | 42 |
| 2b | 95-99 (3) | 56 | 56 | 56 | 55 | 51 |
| 3b | 95-98 (2) | 75 | 70 | 65 | 59 | 52 |
| 4b | 95-99 (2) | 78 | 74 | 70 | 65 | 58 |
| 5b | 95-97 (2) | 72 | 67 | 63 | 58 | 50 |
| 6b | 96-98 (2) | 50 | 48 | 47 | 44 | 42 |
| 7b | 96-99 (2) | 58 | 58 | 58 | 54 | 51 |
| 8b | 95-98 (1) | 116 | 94 | 80 | 70 | 56 |
| 9b | 95-99 (1) | 119 | 98 | 86 | 76 | 61 |
| 10b | 96-98 (1) | 82 | 68 | 65 | 59 | 51 |
| **Option (c )[3]** | **Qual. Years[4]** | **200,000-600,000 lbs** | | **>600,000 lbs** | | |
| 3c | 95-98 (2) | 57 | | 42 | | |
| 4c | 95-99 (2) | 64 | | 47 | | |
| 5c | 95-97 (2) | 55 | | 41 | | |

[1] Options 1-10a refer to alternatives in which the minimum poundage is required of *each* qualifying year.

[2] Options 1-10b refer to alternatives in which the minimum poundage is required of *any* qualifying year.

[3] Options 3-5c refer to alternatives in which an *aggregate* poundage is required of at least two qualifying years.

[4] Qual. Years refers to the series of qualification years associated with Options 1-10 and the (number) of years the vessel must have participated in within the series.

[5] The list of vessels receiving a permanent general LLP license in the BSAI has not yet been finalized by NMFS. The values in this table represent those vessels which applied for a fixed gear LLP license and have an official history in the BSAI.

**Table E.3: Pot Catcher/Processors Qualified Under the Alternatives for the BSAI P. Cod Fishery**

| Option (a)[1] | Qual. Years[4] | A landing | 25,000+ | 50,001+ | 100,001+ | >300,000 |
|---|---|---|---|---|---|---|
| 1a | 95-98 (3) | 5 | 5 | 5 | 4 | 4 |
| 2a | 95-99 (3) | 7 | 7 | 7 | 6 | 5 |
| 3a | 95-98 (2) | 9 | 9 | 9 | 8 | 7 |
| 4a | 95-99 (2) | 11 | 11 | 11 | 11 | 8 |
| 5a | 95-97 (2) | 7 | 7 | 7 | 7 | 7 |
| 6a | 96-98 (2) | 8 | 8 | 8 | 6 | 5 |
| 7a | 96-99 (2) | 10 | 10 | 9 | 10 | 7 |
| 8a | 95-98 (1) | 16 | 15 | 15 | 14 | 14 |
| 9a | 95-99 (1) | 20 | 18 | 18 | 16 | 16 |
| 10a | 96-98 (1) | 15 | 15 | 15 | 14 | 14 |
| **Option (b)[2]** | **Qual. Years[4]** | **A landing** | **25,000+** | **50,001+** | **100,001+** | **>300,000** |
| 1b | 95-98 (3) | 5 | 5 | 5 | 5 | 5 |
| 2b | 95-99 (3) | 7 | 7 | 7 | 7 | 7 |
| 3b | 95-98 (2) | 9 | 9 | 9 | 9 | 9 |
| 4b | 95-99 (2) | 11 | 11 | 11 | 11 | 11 |
| 5b | 95-97 (2) | 7 | 7 | 7 | 7 | 7 |
| 6b | 96-98 (2) | 8 | 8 | 8 | 8 | 8 |
| 7b | 96-99 (2) | 10 | 10 | 10 | 10 | 10 |
| 8b | 95-98 (1) | 16 | 15 | 15 | 14 | 14 |
| 9b | 95-99 (1) | 20 | 18 | 18 | 16 | 16 |
| 10b | 96-98 (1) | 15 | 15 | 15 | 14 | 14 |
| **Option (c )[3]** | **Qual. Years[4]** | **200,000-600,000 lbs** | | **>600,000 lbs** | | |
| 3c | 95-98 (2) | 9 | | 9 | | |
| 4c | 95-99 (2) | 11 | | 11 | | |
| 5c | 95-97 (2) | 7 | | 7 | | |

[1] Options 1-10a refer to alternatives in which the minimum poundage is required of *each* qualifying year.

[2] Options 1-10b refer to alternatives in which the minimum poundage is required of *any* qualifying year.

[3] Options 3-5c refer to alternatives in which an *aggregate* poundage is required of at least two qualifying years.

[4] Qual. Years refers to the series of qualification years associated with Options 1-10 and the (number) of years the vessel must have participated in within the series.

**Table E.4: Pot Catcher/Processors Qualified Under the Alternatives for the BSAI P. Cod Fishery and that also Appear Qualified Under the Original LLP[5]**

| Option (a)[1] | Qual. Years[4] | A landing | 25,000+ | 50,001+ | 100,001+ | >300,000 |
|---|---|---|---|---|---|---|
| 1a | 95-98 (3) | 4 | 4 | 4 | 3 | 3 |
| 2a | 95-99 (3) | 6 | 6 | 6 | 5 | 4 |
| 3a | 95-98 (2) | 7 | 7 | 7 | 6 | 5 |
| 4a | 95-99 (2) | 8 | 8 | 8 | 8 | 6 |
| 5a | 95-97 (2) | 5 | 5 | 5 | 5 | 5 |
| 6a | 96-98 (2) | 6 | 6 | 6 | 4 | 3 |
| 7a | 96-99 (2) | 7 | 7 | 7 | 7 | 5 |
| 8a | 95-98 (1) | 11 | 11 | 11 | 10 | 10 |
| 9a | 95-99 (1) | 14 | 13 | 13 | 11 | 11 |
| 10a | 96-98 (1) | 11 | 11 | 11 | 10 | 10 |
| **Option (b)[2]** | **Qual. Years[4]** | **A landing** | **25,000+** | **50,001+** | **100,001+** | **>300,000** |
| 1b | 95-98 (3) | 4 | 4 | 4 | 4 | 4 |
| 2b | 95-99 (3) | 6 | 6 | 6 | 6 | 6 |
| 3b | 95-98 (2) | 7 | 7 | 7 | 7 | 7 |
| 4b | 95-99 (2) | 8 | 8 | 8 | 8 | 8 |
| 5b | 95-97 (2) | 5 | 5 | 5 | 5 | 5 |
| 6b | 96-98 (2) | 6 | 6 | 6 | 6 | 6 |
| 7b | 96-99 (2) | 8 | 8 | 8 | 8 | 8 |
| 8b | 95-98 (1) | 11 | 11 | 11 | 10 | 10 |
| 9b | 95-99 (1) | 14 | 13 | 13 | 11 | 11 |
| 10b | 96-98 (1) | 11 | 11 | 11 | 10 | 10 |
| **Option (c )[3]** | **Qual. Years[4]** | **200,000-600,000 lbs** | | **>600,000 lbs** | | |
| 3c | 95-98 (2) | | 7 | | | 7 |
| 4c | 95-99 (2) | | 8 | | | 8 |
| 5c | 95-97 (2) | | 5 | | | 5 |

[1] Options 1-10a refer to alternatives in which the minimum poundage is required of *each* qualifying year.

[2] Options 1-10b refer to alternatives in which the minimum poundage is required of *any* qualifying year.

[3] Options 3-5c refer to alternatives in which an *aggregate* poundage is required of at least two qualifying years.

[4] Qual. Years refers to the series of qualification years associated with Options 1-10 and the (number) of years the vessel must have participated in within the series.

[5] The list of vessels receiving a permanent general LLP license in the BSAI has not yet been finalized by NMFS. The values in this table represent those vessels which applied for a fixed gear LLP license and have an official history in the BSAI.

**Preferred Alternative**

After reviewing the proposed options for Amendment 67, the Council selected different qualification criteria for freezer longline, longline catcher vessels, pot catcher/processors and pot catcher vessels, as defined below.

Freezer Longline: Vessels with a catcher/processor endorsement on their BSAI license must have made 270 mt of landings in the directed commercial BSAI Pacific cod fishery (excluding discards) in any one of the years 1996, 1997, 1998, or 1999. Approximately 40 vessels qualify under this criteria.

Longline Catcher Vessels: No action was taken for longline or pot vessels less than 60' LOA. Vessels less than 60' do not need a Pacific cod endorsement to fish cod in the BSAI, however they must meet the requirements of the LLP as passed by the Council or as currently in place. Approximately 117 longline and pot vessels less than 60' qualify for a general fixed gear groundfish license in the BSAI. Because there are no gear endorsements in place for these 117 vessels, it is possible for these vessels to fish Pacific cod using either pot or longline gear.

Longline vessels greater than or equal to 60' LOA must have made at least 7.5 mt of cod landings in the directed commercial BSAI Pacific cod fishery (excluding discards) in any one year 1995, 1996, 1997, 1998, or 1999. Landings of Pacific cod made with jig gear (by vessels of any length) would count towards qualification for the Pacific cod endorsement as if they had been made with longline gear. Approximately 3 vessels greater than or equal to 60' qualify under this criteria. The potential total number of longline catcher vessels fishing Pacific cod depends on the number of vessels <60' that choose to fish Pacific cod using longline gear. It appears that 71 vessels <60' qualify for a groundfish license and have made at least one BSAI Pacific cod landing using longline or jig gear since 1995.

Pot Catcher Vessels: No action was taken for vessels less than 60' LOA at this time. Vessels less than 60' do not need a Pacific cod endorsement to fish cod in the BSAI, however they must meet the requirements of the LLP as passed by the Council or as currently in place. Approximately 117 longline and pot vessels less than 60' qualify for a general fixed gear groundfish license in the BSAI. Because there are no gear endorsements in place for these 117 vessels, it is possible for these vessels to fish Pacific cod using either pot or longline gear.

Pot catcher vessels greater than or equal to 60' LOA must have made over 100,000 lb. of landings in the directed commercial BSAI Pacific cod fishery (excluding discards) in each of any two of the years 1995, 1996, 1997, 1998, or 1999. Landings of Pacific cod made with jig gear (by vessels of any length) would count towards qualification for the Pacific cod endorsement as if they had been made with pot gear. Approximately 47 vessels greater than or equal to 60' qualify under this criteria. The potential total number of pot catcher vessels fishing Pacific cod depends on the number of vessels <60' that choose to fish Pacific cod using pot gear. It appears that 16 vessels <60' qualify for a groundfish license and have made at least one BSAI Pacific cod landing using pot or jig gear since 1995.

Pot Catcher/Processors: Pot vessels with a catcher/processor endorsement must have made at least 300,000 lb of landings in the directed commercial BSAI Pacific cod fishery (excluding discards) in each of any two

of the years 1995, 1996, 1997, or 1998. Five pot catcher/processors qualify under this criteria: 2 are between 60-124' LOA and the remaining 3 are greater than 125' LOA.

The Council also approved the grandfather provision that allows vessels that sank after January 1, 1995, to combine the catch history of the vessel that sank with the history of the replacement vessel, per the requirements listed under the alternative for grandfather provision #1. In addition, the Council approved a general process for considering hardship provisions and provided direction on several other issues relevant to the Pacific cod endorsement. These issues are included in the Council's preferred alternative, which is discussed in detail in Chapter 5.

The Council voted to release for Secretarial review the analysis for proposed Amendment 67, which would establish a Pacific cod endorsement for fixed gear vessels in the BSAI, under the License Limitation Program. If approved by the Secretary, the program is scheduled for implementation during the 2002 fishing season.

None of the alternatives is expected to result in a "significant regulatory action", as defined in E.O. 12866. None of the alternatives is likely to significantly affect the quality of the human environment, and the preparation of an environmental impact statement for the proposed action is not required by Section 102(2)(C) of the National Environmental Policy Act or its implementing regulations. Relative to the Regulatory Flexibility Act, some of the alternatives could have a significant adverse impact on a substantial number of small entities; an assessment of the impact of the preferred alternative on small entities is made in Chapter 6.

## 1.0 INTRODUCTION

The groundfish fisheries in the Exclusive Economic Zone (EEZ) (3 to 200 miles offshore) of the Bering Sea and Aleutian Islands off Alaska are managed under the Bering Sea/Aleutian Islands Groundfish Fishery Management Plan. This fishery management plan (FMP) was developed by the North Pacific Fishery Management Council (Council) under the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act). The FMP was approved by the Secretary of Commerce and became effective in 1982.

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

NEPA, E.O. 12866 and the RFA require a description of the purpose and need for the proposed action as well as a description of alternative actions which may address the problem. This information is included in Chapter 1 of this document. Chapter 2 contains information on the biological and environmental impacts of the alternatives as required by NEPA. Impacts on endangered species and marine mammals are also addressed in this section. Chapter 3 contains information on the history of the fixed gear P. cod fishery. Chapter 4 summarizes the impacts of the alternatives including a discussion of the tradeoffs between qualitative and quantitative benefits and costs. Chapter 5 describes the Council's preferred alternative. Chapter 6 contains a Regulatory Impact Review (RIR) which addresses the requirements of both E.O. 12866 and the RFA that economic impacts of the alternatives be considered. This Environmental Assessment/Regulatory Impact Review/Initial Regulatory Flexibility Analysis (EA/RIR/IRFA) addresses alternatives for restricting the number of fixed gear vessels that would be allowed to target BSAI Pacific cod, within the existing framework of the License Limitation Program for BSAI groundfish fisheries.

### 1.1 Purpose of and Need for the Action

#### 1.1.1 History of Limited Entry Programs

At their June 1995 meeting, the Council approved the License Limitation Program (LLP) for vessels operating in Federal waters off Alaska's coast (BSAI Plan Amendment 39). The original Council analysis of the license limitation alternatives for the groundfish and crab fisheries of the North Pacific includes a discussion of license limitation programs in general, emphasizing similar programs in existence and their successes and failures (NPFMC 1994). Limited entry programs have been used to limit different features of fisheries, including the number of persons, vessels, as well as restricting gear, vessel size, areas of operation, and other physical characteristics. Based on the experience of previous programs, limited entry programs are not generally considered capable of preventing increases in fishing effort, because a fleet may bypass the intent of the restrictions and find other ways to expand effort" (NPFMC, p.59). The Council analysis indicated that while limited entry programs may not be effective in controlling fishing effort overall, because of the ability of fishermen to increase their fishing effort by increasing other inputs (such as gear and vessel upgrades , i.e., "capital stuffing"), there are several reasons to believe it can be a somewhat effective tool in fisheries management. Depending on the type of program, license limitation may be effective in limiting the number of individual vessels or entrants into the fishery, but due to the difficulties associated with limiting the other

fishing inputs, may be less effective at reducing or constraining overall fishing capacity (NRC 1999). The action approved by the Council focuses on further limiting the number of vessels that could participate in the BSAI fixed gear cod fishery, and the type of fixed gear they may use. Measures to limit the use of inputs other than gear are not proposed in this program, but are carried over from those implemented under Amendment 39.

A system such as the current LLP combines a limit on the number of vessels in the groundfish fishery with a limit on the type of gear to be used (fixed and/or trawl) and the area in which to fish (BS and/or AI). While this program limits the number of entrants in the fishery, it still leaves room for fishermen to expand their fishing effort through vessel, gear, or other upgrades. In Alaska, there may not be as much flexibility to substitute inputs and offset the limit on the number of vessels as in some other programs, since the use and type of gear is somewhat regulated, and there are limits on vessel size upgrades (NPFMC, p. 60).

Under the LLP, it is assumed that if rents exist they will be better preserved than under either an open access system or a less restrictive combination of a limited entry program and additional regulations. By adding a P. cod endorsement to fixed gear vessel licenses that have a history in the P. cod fishery, the protection of rents is further increased to that sector of the fishery. See the Council report for a more detailed discussion on the theoretical analyses that suggest that limited entry programs may preserve rents (at least in the short run), if the license limitation program is properly defined. However, the analysts do note that the remaining cod fleet will likely find ways to increase their fishing power, if they feel it makes sense for their operation.

### 1.1.2 Problem Statement

Vessels began fishing in Federal waters off Alaska under the LLP on January 1, 2000. Since the LLP was approved by the Council, changes in the fixed gear fisheries prompted industry to petition the Council to further allocate P. cod in the BSAI among the various sectors of the fixed gear fleets. Plan Amendment 64, adopted at the October 1999 meeting, encompassed these changes. (The complete Council problem statement is included in the box below.)

At the April 1999 meeting, the Council initiated an analysis to add a Pacific cod endorsement to BSAI fixed gear licenses as a follow-up amendment to the recent allocations. The proposed Amendment 67 responds to concerns that the stability of this fully utilized fishery is threatened by increased competition, driven in part by recent increases in the market value of cod products. Participants in the BSAI fixed gear Pacific cod fishery include longline and pot fishermen with extensive catch histories. However, given the current economics of the Pacific cod fishery, persons may be tempted to bring vessels into the fishery that

**Problem Statement adopted by the Council for Amendment 64 and proposed Amendment 67 to the BSAI groundfish FMP.**

The hook-and-line and pot fisheries for Pacific cod in the Bering Sea/Aleutian Islands are fully utilized. Competition for this resource has increased for a variety of reasons, including increased market value of cod products and a declining ABC/TAC.

Longline and pot fishermen who have made significant long-term investments, have long catch histories, and are significantly dependent on the BSAI cod fisheries need protection from others who have little or limited history and wish to increase their participation in the fishery.

This requires prompt action to promote stability in the BSAI fixed gear cod fishery until comprehensive rationalization is completed.

have little or no history in the Pacific cod fishery. Amendment 67 was proposed to establish a mechanism that would limit entry into the fishery by substantial numbers of fixed gear vessels that have not participated, or have not participated at a level that could constitute significant dependence on the fishery, in the past.

## 1.2 Alternatives Considered

### 1.2.1 Alternative 1: No Action

The *No Action* alternative would continue to allow for entry into the BSAI Pacific cod fixed gear fisheries, within the eligibility constraints of the current License Limitation Program for the groundfish fisheries in the BSAI. No mechanism would be in place to control entry of LLP qualified vessels that have limited or no historical dependence on the fixed gear Pacific cod fishery.

### 1.2.2 Alternative 2: Limit Entry to the BSAI P. Cod Fixed Gear Fisheries Based on Historical Participation

The Council selected a list of alternatives that have differential qualification criteria for freezer longline, longline catcher vessels, and pot gear vessels. The Council indicated in December 1999 that the list of options for pot gear vessels may be applied separately to pot catcher vessels and catcher/processors. The landings criteria are based on a combination of years of participation and the amount of Pacific cod landed in a year. The complete suite of alternatives under consideration for each sector is provided in sections 1.2.2.1 through 1.2.2.3.

#### 1.2.2.1 Freezer Longline Vessels

Qualification Years:
- Option 1: Any one year 1996, 1997, 1998
- Option 2: Any one year 1996, 1997, 1998, 1999

Minimum poundage requirement during <u>any</u> qualifying year:
- Option 1: 100 metric tons
- Option 2: 200 metric tons
- Option 3: 300 metric tons

#### 1.2.2.2 Catcher Longline Vessels (a different criteria could be applied to catcher vessels <60' and ≥60' LOA)

Qualification Years:
- Option 1: Any one year 1995, 1996, 1997, or 1998
- Option 2: Any one year 1995, 1996, 1997, 1998, or 1999

Minimum poundage requirement during <u>any</u> qualifying year:
- Option 1: A landing only (no minimum poundage)
- Option 2: 7.5 metric tons
- Option 3: 15 metric tons

Option 4: 25 metric tons

Suboption 1 : Allow catcher vessels less than 60' LOA to use their jig landings as part of their catch history to apply towards a minimum landing requirement.

Suboption 2 : Allow catcher vessels of any length to use their jig landings as part of their catch history to apply towards a minimum landing requirement.

### 1.2.2.3 Pot Gear Vessels (a different criteria could be applied to pot catcher/processors and pot catcher vessels; a different criteria could be applied to catcher vessels <60' and ≥60' LOA)

Qualification Years:

Option 1: Any three years of 1995, 1996, 1997, 1998
Option 2: Any three years of 1995, 1996, 1997, 1998, 1999
Option 3: Any two years of 1995, 1996, 1997, 1998
Option 4: Any two years of 1995, 1996, 1997, 1998, 1999
Option 5: Any two years of 1995, 1996, 1997
Option 6: Any two years of 1996, 1997, 1998
Option 7: Any two years of 1996, 1997, 1998, 1999
Option 8: Any one year 1995, 1996, 1997, 1998
Option 9: Any one year 1995, 1996, 1997, 1998, 1999
Option 10: Any one year 1996, 1997, 1998

**AND**

Qualification landings (minimum landing requirements):

Minimum pounds required for delivery during each qualifying year:

Option 1: A landing only (no minimum poundage required)
Option 2: 25,000 lb. - 50,000 lb.
Option 3: 50,001 lb. - 100,000 lb.
Option 4: 100,001 lb. - 300,000 lb.
Option 5: Greater than 300,000 lb.

**OR**

Minimum pounds required for delivery during any of the qualifying years:

Option 1: A landing only (no minimum poundage required)
Option 2: 25,000 lb. - 50,000 lb.
Option 3: 50,001 lb. - 100,000 lb.
Option 4: 100,001 lb. - 300,000 lb.
Option 5: Greater than 300,000 lb.

**OR**

Minimum aggregate pounds required for delivery during the qualifying years (applies only to qualification year options numbered 3, 4, and 5)

Option 1: 200,000 lb. - 600,000 lb.

Option 2: Greater than 600,000 lb.

Suboption 1 : Allow catcher vessels less than 60' LOA to use their jig landings as part of their catch history to apply towards a minimum landing requirement.

Suboption 2 : Allow catcher vessels of any length to use their jig landings as part of their catch history to apply towards a minimum landing requirement.

The Council also considered two grandfather provisions related to the P. cod endorsement for final action in April. The language outlining the proposed exemptions is provided below:

**Grandfather Provision #1**

1. A vessel that sank after June 17, 1995 that was LLP qualified with respect to Pacific cod landings prior to that sinking.
2. A sunken vessel is replaced with a qualified replacement vessel within the normal time allowed by the Internal Revenue Service (IRS).
3. Owner of replacement vessel has demonstrated continued intent to fish for Pacific cod by recent landings (as defined by any landing before December 31, 1999).
4. Consider appropriateness of either:
   A. Accepting catch history from sunk vessel
   B. Combining catch histories of sunk vessel and replacement vessel.

**Grandfather Provision #2**

Exempt from the "recent participation and landings" requirements for BSAI Pacific cod species and gear endorsements, all catcher/processor vessels that:

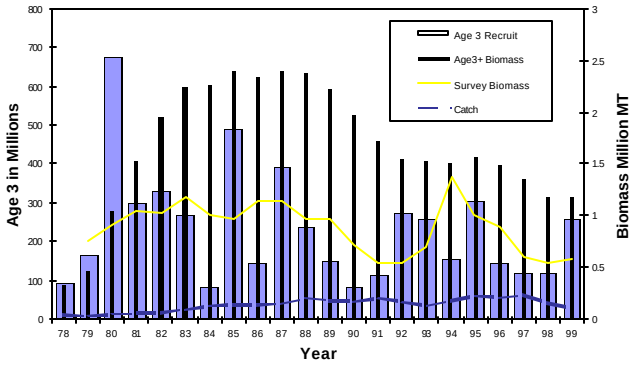
1. Met the original LLP general qualifying period and area endorsement period requirements for BSAI groundfish, non-trawl, catcher/processor endorsements and designations;
2. Applied for and received an interim or transferable license for groundfish as a c/p in the BSAI;
3. Were purchased between July 1, 1997 and December 31, 1998 with the express purchaser intent of being employed in the BSAI fixed gear P. cod fishery as evidenced by
   (a) execution and delivery of a U.S. Coast Guard Bill of Sale and subsequent recording of the Bill of Sale in the U. S. Coast Guard Abstract of Title on or before December 31, 1998, and
   (b) documented processing equipment and/or vessel modification or improvement investments of not less than $100,000 that are specific to groundfish (gear purchases would not count for purposes of the $100,000 threshold); and
4. Were employed as a catcher vessel or a catcher/processor in the BSAI fixed gear P. cod fishery during 1999.

Gear designations for these vessels would be based on the gear employed during the year in which the Council's final decision is made. If both pot and longline gear were used in the P. cod fixed gear fishery, then the gear designations would be determined by the gear with the higher catch volume of Pacific cod.

## 1.3 Status of Pacific Cod Stocks and Other Fixed Gear Target Stocks

Biological and economic impacts of the proposed action depend to some extent on current and future abundance of groundfish and crab stocks that are also targeted by these sectors. A status report on major groundfish and crab stocks targeted by fixed gear is provided below. This information is summarized from the Stock Assessment and Fishery Evaluation Reports (NPFMC 1998). Where applicable, species specific management measures (such as gear allocations) are highlighted.

**Eastern Bering Sea Pacific Cod Biomass and Recruitment 1978-99**




Pacific cod

Pacific cod (*Gadus macrocephalus*), also known as grey cod, are moderately fast growing and short-lived fish. Females reach 50% maturity at 67 cm (about 5.8 years old) and are highly fecund. A 67 cm cod will produce well over 1 million eggs. Spawning occurs January through April in the Bering Sea and February through July in the Gulf of Alaska. Annual natural mortality of adults has been estimated to be about 30% (M = 0.37). Cod prey on clams, worms, crabs, shrimp, and juvenile fish. In turn, they are eaten by halibut and marine mammals. Cod are demersal and concentrate on the shelf edge and upper slope (100 m-250 m) in the winter, and move to shallower waters (generally <100 m) in the summer. Cod begin to recruit to trawl fisheries at age 3, but are not fully recruited to all gear types until about age 7. Maximum age has been estimated at 18 years based on otolith samples.

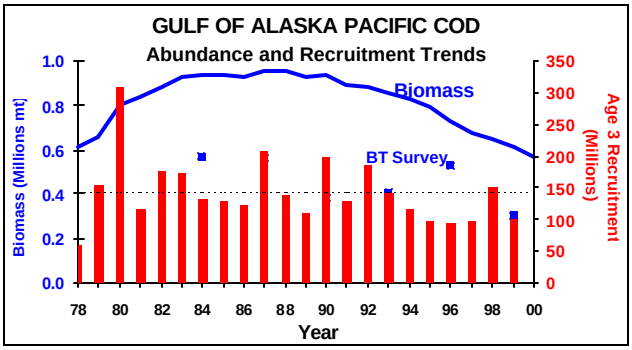
**Projected age 3+ biomass and ABC (mt) of Pacific cod in the BSAI.**

| Year | Biomass | ABC |
|---|---|---|
| 2000 | 1,300,000 | 193,000 |
| 2001 | 1,021,000 | 152,000 |
| 2002 | 1,019,000 | 145,000 |

**Biomass (mt, from survey data), pre-season catch specifications (mt), and total catches (mt, including discards) of Pacific cod in the BSAI, 1980-1999.**

| Year | EBS Biomass | BSAI ABC | BSAI TAC | BSAI Catch |
|---|---|---|---|---|
| 1980 | 905,000 | 148,000 | 70,700 | 51,649 |
| 1981 | 1,035,000 | 160,000 | 78,700 | 62,458 |
| 1982 | 1,021,000 | 168,000 | 78,700 | 56,566 |
| 1983 | 1,176,000 | 298,200 | 120,000 | 93,167 |
| 1984 | 1,001,000 | 291,300 | 210,000 | 133,160 |
| 1985 | 961,000 | 347,400 | 220,000 | 145,426 |
| 1986 | 1,134,000 | 249,300 | 229,000 | 140,887 |
| 1987 | 1,142,000 | 400,000 | 280,000 | 157,746 |
| 1988 | 959,000 | 385,300 | 200,000 | 197,891 |
| 1989 | 960,000 | 370,600 | 230,681 | 168,918 |
| 1990 | 709,000 | 417,000 | 227,000 | 171,008 |
| 1991 | 532,000 | 229,000 | 229,000 | 172,158 |
| 1992 | 547,000 | 182,000 | 182,000 | 206,129 |
| 1993 | 690,000 | 164,500 | 164,500 | 167,390 |
| 1994 | 1,368,000 | 191,000 | 191,000 | 196,572 |
| 1995 | 1,003,000 | 328,000 | 250,000 | 233,029 |
| 1996 | 891,000 | 305,000 | 270,000 | 240,590 |
| 1997 | 605,000 | 306,000 | 270,000 | 234,641 |
| 1998 | 534,000 | 210,000 | 210,000 | 195,648 |
| 1999 | 583,000 | 177,000 | 177,000 | 160,084 |
| 2000 | * | 193,000 | 193,000 | * |

The BSAI Pacific cod stock increased to high levels in the mid-1990s, then declined. The 2000 exploitable biomass was projected to be 1,300,000 mt. An $F_{40\%}$ harvest strategy (F=0.28), adjusted downward by a risk-averse optimization procedure, resulted in an ABC for 2000 of 193,000 mt, which corresponds to an $F_{40\%}$ of 0.26. The cod stock is relatively stable, but is projected to decline in the near term as a result of below average year-classes in recent years.

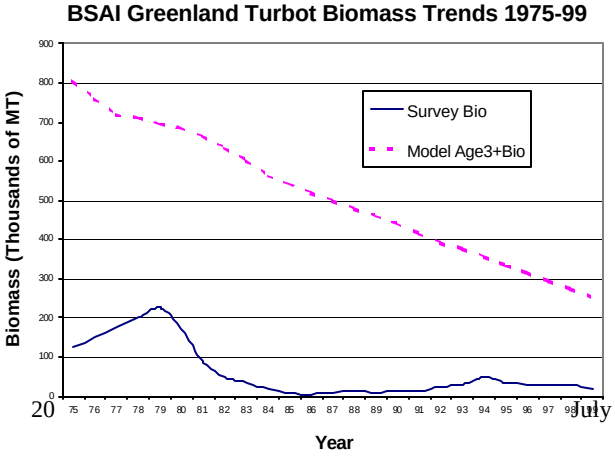



The Pacific cod stock in the GOA has also declined since peaking in the late 1980s. The 2000 exploitable biomass (age 3+) was projected to be 567,000 mt. The 2000 specifications were: ABC = 76,400 mt and TAC = 59,800 mt. The difference between TAC and ABC was that some TAC was set aside as the guideline harvest level for State of Alaska pot and jig fisheries. Pacific cod are of medium relative abundance and are fully exploited. The stock is projected to decline as a result of poor year-classes produced from 1990-1994, although preliminary evidence of the 1995 year class indicates it may be above average. Both the stock assessment model and the 1999 bottom trawl survey suggest spawning biomass is declining; the survey biomass estimate of 305,823 mt is down about 43% from the 1996 survey estimate.

The Pacific cod stock is exploited by a multiple-gear fishery, principally by trawls and smaller amounts by longlines, jigs, and pots. A State water fishery for pot and jig gear began in 1997, with a guideline harvest level set at 15% of the federal GOA quota in the Western and Central areas and 25% in the Eastern area. The State fishery ramped up to 20% in the Western Area and Kodiak and Chignik subareas of the Central area for 1999, and ramped up the Western Area again to 25% for 2000. The State GHLs are allowed to ramp up to 25% of the Federal quota when area guideline harvest levels are achieved. For trawl fisheries in the EEZ, cod harvests have been constrained by halibut bycatch limits.

In 1993, the Council apportioned 90% of GOA Pacific cod TAC to the inshore sector and 10% to the offshore sector. Beginning in 1998, the IR/IU program was implemented, requiring full retention of all Pacific cod caught.

The BSAI Pacific cod TAC is currently allocated 2 percent to jig gear, 51 percent to fixed gear, and 47 percent to trawl gear. Amendment 24 regulations allow seasonal apportionment of the Pacific cod TAC allocated to vessels using hook-and-line or pot gear. Seasonal apportionments are divided among trimesters and established through the annual specifications process. Any unused TAC from the jig gear quota becomes available to fixed gear on September 15. Under Amendment 64, 80 percent of the BSAI Pacific cod fixed gear apportionment is reserved for freezer longline vessels, 18.3 percent for pot vessels, 0.3 percent for longline catcher vessels, and 1.4 percent for



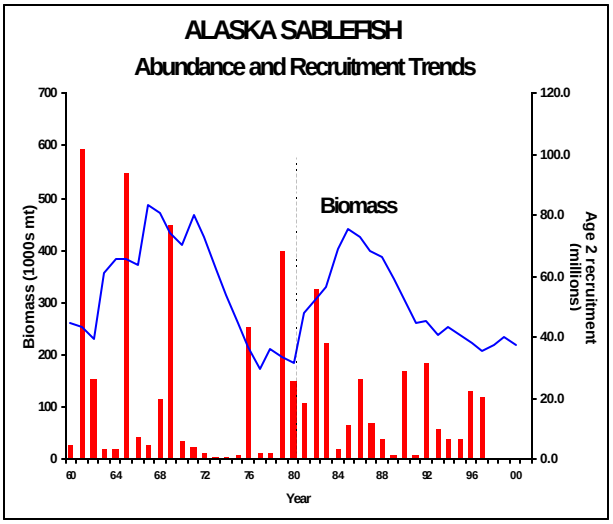
fixed gear catcher vessels less than 60' length overall.

BSAI Greenland Turbot

Unlike biomass of other flatfish species in the BSAI, biomass of Greenland turbot is at low levels and declining. Biomass has declined due to poor year classes from 1981-1997. Catch has also declined from a peak of 57,000 mt in 1981 to only about 6,000 mt in 1999. The 1999 EBS bottom trawl survey resulted in a biomass estimate of 19,797 mt, a 30% decrease relative to last year's estimate. Biomass is projected to continue declining due to poor recruitment. Greenland turbot were harvested almost exclusively (>90%) by trawl gear until the early 1990s when longlines became the dominant gear type for this species. No halibut bycatch has been apportioned for a directed trawl fishery since 1996, effectively prohibiting this gear type from targeting turbot.

BSAI Rockfish

Numerous species of rockfish inhabit the BSAI and are managed by species complex. Shortraker and rougheye rockfish are managed as one unit in the Aleutian Islands. The projected 2000 exploitable biomass of shortraker/rougheye is 41,500 mt, with an ABC of 885 mt. Northern and sharpchin are also managed together with a projected 2000 exploitable biomass of 115,000 mt and an ABC of 5,150 mt. In the eastern Bering Sea, all other species are managed together as "other red rockfish." The projected 2000 exploitable biomass of other red rockfish is 8,200 mt, with an ABC of 194 mt. The "other rockfish" complex is composed of thornyheads and other *Sebastes* species. The 2000 ABCs for "other rockfish" are 369 mt in the eastern Bering Sea and 685 mt in the Aleutian Islands area. Abundance trends for these species are not available. Amendment 53 allocated the Aleutian Islands shortraker/rougheye TAC between trawl and fixed gear fisheries. Thirty percent of the TAC is allocated to fixed gear and 70% to vessels using trawl gear.




Sablefish

The sablefish resource of the Bering Sea, Aleutian Islands, and Gulf of Alaska is considered one stock. However, the resource is managed by discrete regions to distribute exploitation throughout its range. Large catches of sablefish (up to 26,000 mt) were made in the Bering Sea during the 1960s, but have since declined. Smaller catches have been made in the Aleutian Islands area, peaking at 3,800 mt in 1987. The projected 2000 exploitable biomass is 18,000 mt in the Bering Sea, with an ABC of 1,470 mt. In the Aleutians, projected 2000 biomass is 33,000 mt with ABC specified at 2,430 mt. The GOA ABC was set at 13,300 mt. The 1999 stock assessment was revised from the previous assessment by adding about twenty years of historical data

and contemporary fishery catch rate data. According to the 1999 stock assessment, biomass of the sablefish stock off Alaska appears low and stable, which is a change from previous assessments where abundance appeared low and slowly declining. However, further years' data are needed to confirm that abundance has stabilized.

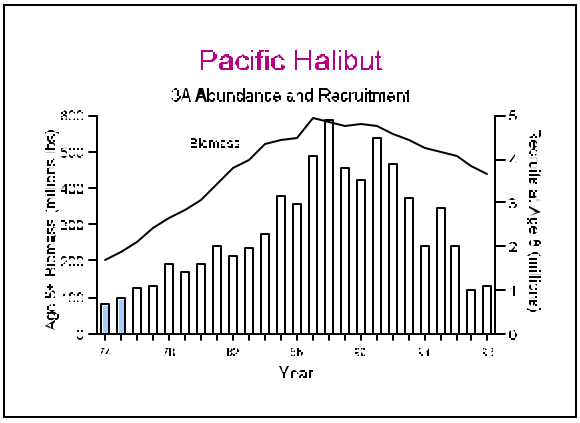
It is important to note that the TAC for sablefish is apportioned among gear types. In the Bering Sea, 50% of the sablefish is allocated to trawl gear, and 50% to fixed gear. In the Aleutians region, 25% is allocated to trawl gear, and 75% to fixed gear. Longlined pots are a legal gear type for sablefish in the Bering Sea and Aleutian Islands, but not in the Gulf of Alaska. Sablefish in the Western and Central Gulf of Alaska is allocated 80% to hook-and-line gear and 20% to trawl gear. In the Eastern Gulf of Alaska, the sablefish TAC is allocated 95% to hook-and-line gear and 5% to trawl gear. The fixed gear apportionment of the sablefish TAC is managed under an IFQ program, which began in 1995. Twenty percent of the fixed gear allocation is reserved for use by CDQ participants. Important state water sablefish fisheries occur in Chatham Strait, Clarence Strait, Prince William Sound, and the Aleutians.

Other Species

The "other species" category has been established to account for groundfish species that are currently of slight economic value and upon which there is little directed fishing. However, many of these species are important components of the ecosystem as prey for commercial species, marine mammals and seabirds. The other species category includes squids, sculpins, skates, sharks, octopi, and others. For most of these species, only minimal assessment data are available.

Although other species are taken as bycatch in most fisheries, the hook and line fishery for Pacific cod accounts for the highest share. This fishery accounts for much of the other species catch. For example, in 1996, the Pacific cod hook and line fishery took 8,927 mt of other species, or 45% of the total (19,695 mt). Skates and sculpins comprise a majority of the bycatch. Bycatch of other species in the Pacific cod target fishery, by gear type, is listed in the adjacent table. The Pacific cod pot fisheries catch a relatively high number of octopus, whereas the longline fisheries account for a high proportion of sharks and skates taken in groundfish fisheries. Though bycatch of these species may increase or decrease annually with changes in the harvest of Pacific cod by the fixed gear sector, the totals are far below the level of overfishing and currently are not cause for biological concern. Further, because the proposed amendment does not change the allocation of P. cod among the various sectors of the fixed gear fishery, and only limits the number of vessels that qualify under each of the sectors, bycatch should not be affected.

Pacific Halibut



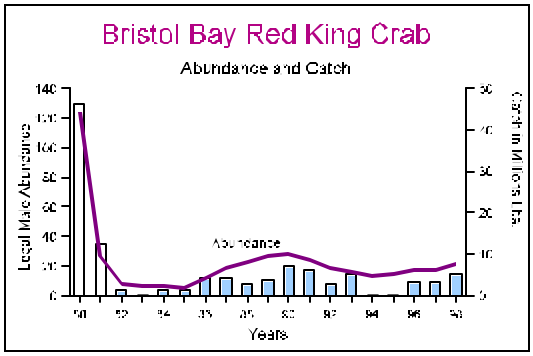

Large year-classes produced in the late 1970s and into the mid-1980s resulted in a buildup of halibut biomass to current high levels. The 2000 total exploitable biomass was projected to be 568.25 million pounds (258,000 mt). Over half of the biomass is found in areas 3A and 3B (central and western Gulf of Alaska). The stock assessment results show biomass similar to 1999 in the western portion of the stock range and a steadily declining biomass in the eastern and southern portions, as

strong year classes pass out of the stock. Recruitment in all areas appears to have fallen off after a strong 1987 year-class recruited in 1995.

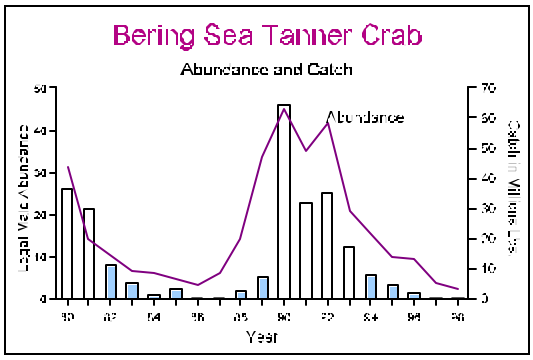
The directed halibut longline fishery is prosecuted under the halibut/sablefish individual fishing quota (IFQ) program, which began in 1995. The Pacific halibut stock is managed by the International Pacific Halibut Commission (IPHC), who sets the annual catch specifications. In conjunction with a continued decline in recruitment and analysis of setline survey data, the IPHC stock assessment produced lower catch limit recommendations for Areas 2A, 2B, 2C, and 3A in 2000. Areas 3B and 4 change relatively little from 1999. The IPHC reported that the only major change in the assessment for 2000 was a lowering of the pre-1993 IPHC setline survey catch rates to account for a bait change, which reduced the population estimates by 20-30% in the eastern and central GOA (IPHC news release, 1/14/00). The 2000 catch limit is about a 9% decrease from 1999, to 67,500,000 million pounds. The 2000 total IFQ TAC for all areas (2C to 4E) was established at 56,070,000 million pounds.

Limits are placed on halibut taken as bycatch in groundfish target fisheries. In the Bering Sea, 900 mt of halibut mortality is allocated to longline fisheries as bycatch, and 3,675 mt is allocated as trawl bycatch.

Bristol Bay Red King Crab




After declining abundance throughout the 1960s and reaching a low during the years 1970-1972, recruitment to the Bristol Bay red king crab stock increased dramatically. New all-time record landings were established in each year from 1977 to 1980. Declining recruitment, fishing pressure, and probably increased incidence of disease and predation led to an abrupt decline in the fishery in 1981 and 1982. These precipitous declines led to a closure of the Bristol Bay fishery in 1983. In 1984, the stock showed some recovery and a limited fishery was reestablished. Between 1984 and 1993, the fishery continued at levels considerably below those of the late 1970s. Throughout the 1980s and 1990s there was little sign of a large year-class in this stock. Because the abundance of female crab was below threshold, the Bristol Bay red king crab fishery was closed in 1994 and 1995, as was the fishery for Tanner crab in Zone 1 east of 163° West longitude. The fishery reopened in 1996, and catches have increased to 16.4 million pounds in 1998. The effective spawning biomass in 1999 was estimated to be 47.1 million pounds from the assessment model, and the target rebuilding level is 55 million pounds. Because the effective spawning biomass is below the target level, a 10% harvest rate was applied to the mature male abundance for the GHL, resulting in a 1999 GHL of 10.66 million pounds of legal males. While the abundance of mature males has increased recently due to a large 1990 year-class, the fishery is expected to stabilize as the 1990 year-class passes through the fishery.

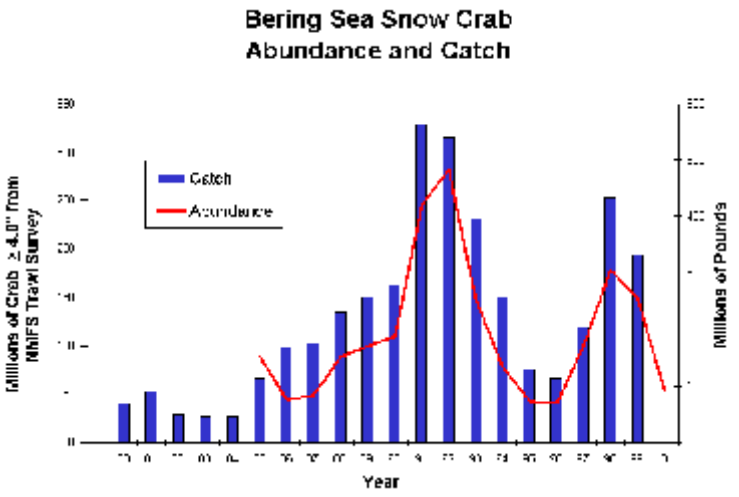



Tanner Crab

The Bering Sea Tanner stock has undergone two large fluctuations. Catches increased from 5 million pounds in

1965 to over 36 million pounds in 1980. The 1980 peak catch was followed by a collapse resulting in low landings (<0.5 million lb) from 1981-1985, and finally no fishery in 1986 and 1987. The fishery reopened in 1988, and landings increased to over 60 million pounds in 1990. A decline followed, and the fishery has been closed since 1997. ADF&G will reopen the fishery when the female biomass is above the threshold (21 million lb of female biomass) and the fishery GHL is above the minimum identified in the rebuilding harvest strategy.

This stock is currently at very low abundance. The 1998 estimates of legal males and large females were the lowest in the history of the NMFS bottom trawl survey. The survey biomass estimate declined to 36.9 million lb in 1998 and increased to 70.1 million lb in 1999. Based on overfishing definitions adopted under Amendment 7, the bairdi stock was below the established minimum stock size threshold, and was declared "overfished" in March 1999. The Council took final action on a rebuilding plan developed for this stock in October 1999, and NMFS approved that plan in June 2000. The plan bases the GHL on a harvest rate of 20% of molting mature males when the biomass of females >79mm CW is ≥ 45 million lb and a harvest rate of 10% of molting mature males when the biomass of females >79mm CW is less than 45 million lb and at least 21 million lb. Although the near-term outlook for this stock is bleak, some signs of recruitment are beginning to appear in the NMFS survey data.




Snow Crab

Catch of Bering Sea snow crab *(C. opilio)* increased from under 1 million pounds in 1974 to over 315 million pounds in 1992. The 1992 peak catch was followed by reduced landings through 1996. The stock quickly rebounded with good recruitment, however, and landings increased to 250 million pounds in 1998. The 1999 open access fishery opened January 15 with a GHL of 186.2 million pounds and was closed on March 22. A total of 241 vessels participated. The CDQ fishery harvested an additional 9.8 million pounds. The majority of the harvest and landings occurred in the EBS subdistrict, with the remainder occurring west of 173° W. longitude.

The 1999 mature biomass survey estimate (283 million lb) indicated that the stock is well below the minimum stock size threshold (460.8 million pounds) established for this stock and has declined significantly from levels observed during the 1998 survey. Therefore, a reduced exploitation rate of 22% was used to establish the 2000 GHL of 28.5 million pounds. Of this total, 7.5% or 2.1 million pounds was set aside for CDQ fishery. The abundance of this stock has peaked and is expected to remain at very low levels in the near-term. Based on length frequency data from the NMFS trawl survey, there does not appear to be any significant level of recruitment forthcoming. A rebuilding plan is being developed.

Because of the low stock abundance and substantially reduced GHL for 2000, the 2000 Bering Sea snow crab fishery season was extremely short. Season length is influenced by the GHL, number of participating vessels,

weather, and distribution of the species. Advancing sea ice and a higher probability of gear conflict, gear loss, and increased handling mortality prompted the Alaska Department of Fish & Game to delay the season until April 1, citing safety and resource considerations (ADF&G 2000b). The open access fishery closed a week later, on April 8, and preliminary processor reports indicate a harvest of 31,064,706 pounds from 302 deliveries (ADF&G 2000a). Such a short season exacerbates concerns in the fixed gear BSAI P. cod fishery, as increased pressure is expected due to the availability of pot fishermen.

## 1.4 Pacific Cod Fishery Information

### 1.4.1 Pacific Cod Catch

A history of Pacific cod catch in domestic fisheries is shown in the adjacent table. Catches from foreign trawl and longline vessels (through 1987) and joint venture trawling (1980-1990) are not included in the table. Trawl landings have ranged from 82,000 to132,000 mt per year since the late 1980s, as PSC halibut limits and later allocation decisions prohibited additional cod from being taken with trawl gear. Catches from fixed gear vessels increased as these fisheries developed. Longline fishery catch greatly increased from 1988 (2,611 mt) through 1995 (101,249 mt) and has since fluctuated around 95,000 mt. Vessels using pot gear began to make significant landings in 1990 (1,389 mt), then picked up in 1996 (32,617 mt). Pot fishery catches since 1996 have decreased in each year for which we have complete information. A much more detailed discussion of Pacific cod catch, production, and value is provided in Chapter 3.

### 1.4.2 History of BSAI Pacific Cod Allocations

Allocations of the BSAI Pacific cod TAC among gear types began in 1993. Amendment 24 to the BSAI FMP established an explicit allocation of the Pacific cod Total Allowable Catch (TAC) between gear types. The percentage allocations for the 1994, 1995, and 1996 fishing seasons were: trawl gear - 54 percent, fixed gear - 44 percent, and jig gear - 2 percent. These percentages roughly represented the existing harvest percentages of the two major sectors, trawl and longline, while explicitly allocating 2 percent to jig gear. The 2 percent allocation to jig gear was more than was being currently taken by that gear type, but was designed to allow for some growth in that sector. At that time, the Council was in the initial stages of developing its Comprehensive Rationalization Plan (CRP), and the allocations established were consistent with the 1993 Problem Statement shown below, which emphasized the allocation as a stabilizing mechanism and bridge to overall comprehensive rationalization:

**DAP catch (mt) of Pacific cod in the BSAI by gear type, 1985-1999.** 1985-97 data from November 1998 SAFE report. 1998-99 data are from NMFS Blend files. Includes 'roll-over' catch.

| Year | Trawl | Longline | Pot | Jig | Total |
|---|---|---|---|---|---|
| 1985 | 51,885 | 50 | 0 | 0 | 51,935 |
| 1986 | 38,430 | 49 | 63 | 0 | 38,542 |
| 1987 | 48,701 | 1,417 | 89 | 0 | 50,207 |
| 1988 | 95,404 | 2,611 | 329 | 0 | 98,344 |
| 1989 | 123,864 | 14,219 | 164 | 0 | 138,247 |
| 1990 | 122,425 | 47,716 | 1,389 | 0 | 171,530 |
| 1991 | 131,684 | 79,696 | 6,673 | 0 | 218,053 |
| 1992 | 90,264 | 101,249 | 13,681 | 117 | 205,311 |
| 1993 | 99,074 | 66,153 | 2,098 | 35 | 167,360 |
| 1994 | 100,542 | 87,138 | 8,254 | 730 | 196,664 |
| 1995 | 121,349 | 102,939 | 20,248 | 599 | 245,135 |
| 1996 | 113,089 | 94,701 | 32,617 | 267 | 240,674 |
| 1997 | 111,273 | 124,159 | 22,068 | 262 | 257,762 |
| 1998 | 81,903 | 99,921 | 13,632 | 192 | 195,648 |
| **1999*** | **59,954** | **58,307** | **13,203** | **98** | **131,562** |

> *The Bering Sea/Aleutian Islands Pacific cod fishery, through overcapitalized open access management exhibits numerous problems which include: compressed fishing seasons, periods of high bycatch, waste of resource, gear conflicts and an overall reduction in benefit from the fishery. The objective of this amendment is to provide a bridge to comprehensive rationalization. It should provide a measure of stability to the fishery while allowing various components of the industry to optimize their utilization of the resource.*

Because the Amendment 24 Pacific cod allocations were scheduled to expire at the end of 1996, the Council placed discussion of this issue on the December 1995 meeting agenda, with the intent that an amendment needed to be prepared to allow an allocation beyond 1996. At the December 1995 meeting, members of the Council identified significant changes which have taken place in the Pacific cod fishery since Amendment 24 went into effect on January 1, 1994. These changes were viewed as biological, economic, and regulatory in nature. In order to respond to these changes, staff was asked to incorporate these changes in the analysis, with specific focus on PSC mortality, impacts on habitat, and discards of Pacific cod by various industry sectors, under a range of possible percentage allocations to each gear type, which would be in place for another three years, through 1999. Though basic percentages were explicitly identified, the Council could choose an allocation percentage not explicitly identified, but within that range. Further, the Council also requested that the analysis examine the sub-alternatives of further dividing the trawl sector allocation between catcher and catcher/processor vessels in the Pacific cod fisheries. The range of that allocation was 60/40 and 40/60. In developing these alternatives, the Council also developed the following Problem Statement in regards to the current allocation proposals:

> *The Bering Sea/Aleutian Islands Pacific cod fishery continues to manifest many of the problems that led the NPFMC to adopt Amendment 24 in 1993. These problems include compressed fishing seasons, periods of high bycatch, waste of resource, and new entrants competing for the resource due to crossovers allowed under the NPFMC's Moratorium Program. Since the apportionment of BSAI cod TAC between fixed gear, jig, and trawl gear was implemented on January 1, 1994, when Amendment 24 went into effect, the trawl, jig, and fixed gear components have harvested the TAC with demonstrably differing levels of PSC mortality, discards, and bycatch of non-target species. Management measures are needed to ensure that the cod TAC is harvested in a manner which reduces discards in the target fisheries, reduces PSC mortality, reduces non-target bycatch of cod and other groundfish species, takes into account the social and economic aspects of variable allocations and addresses impacts of the fishery on habitat. In addition, the amendment will continue to promote stability in the fishery as the NPFMC continues on the path towards comprehensive rationalization.*

At the June 1996 meeting, the Council adopted Amendment 46 to continue allocations of the Pacific cod TAC. The Council essentially approved an agreement negotiated by affected industry groups allocating Pacific cod in the Bering Sea and Aleutian Islands. Under the agreement, 51 percent of the Pacific cod TAC is allocated to fixed gear, 47 percent to trawl gear and 2 percent to jig gear. Amendment 46 went into effect beginning in 1997. The specific provisions of the Amendment 46 as approved are shown in the box below.

**Amendment 46: Pacific Cod Allocations in the Bering Sea and Aleutian Islands**

1) TAC Apportionments:

The trawl sector will be allocated 47% of the Bering Sea and Aleutian Islands Pacific cod TAC. The trawl apportionment will be split between catcher vessels and catcher/processors 50/50.

The fixed gear sector will be allocated 51% of the Bering Sea and Aleutian Islands Pacific cod TAC.

The jig gear sector will be allocated 2% of the Bering Sea and Aleutian Islands Pacific cod TAC.

2) Roll-overs:

On September 15 of each year, the Regional Director shall reallocate 100% of any projected unused amount of the Pacific cod allocated to jig vessels to the fixed gear vessels.

If, during a fishing year, the Regional Director determines that vessels using trawl gear or hook-and-line or pot gear will not be able to harvest the entire amount of Pacific cod allocated to those vessels, then NMFS shall reallocate the projected unused amount of Pacific cod to vessels using the other gear type(s).

3) Halibut PSC Mortality Caps:

The trawl halibut PSC mortality cap for Pacific cod will be no greater than 1,600 mt.

The hook-and-line gear halibut PSC mortality cap for Pacific cod will be no greater than 900 mt.

4) Review:

There is no sunset provision, but the Council will review this agreement in four years following the date of implementation.

Following the allocation of the BSAI P. cod TAC among fixed, trawl, and jig gear in 1996, the Council initiated an analysis to examine allocation of BSAI Pacific cod among the various sectors of the fixed gear fleet. This action was proposed to promote stability in the fully utilized BSAI fixed gear cod fishery until comprehensive rationalization is completed. Amendment 64, which further split the P. cod fixed gear allocation between freezer longline, catcher longline, and pot vessels, was brought to the Council for initial review in June 1999, and at its October 1999 meeting, the Council adopted the following alternative to allocate Pacific cod among the fixed gear sectors in the BSAI:

- 80% freezer longliners
- 0.3% catcher longliners
- 1.4% pot or longline vessels under 60'
- 18.3% pot vessels

Harvests by pot and/or longline catcher vessels less than 60' LOA would only accrue against the 1.4% allocation after all pot or longline catcher vessels harvest the 18.3% and 0.3% set asides, respectively. In

addition, any unharvested portion of the catcher vessel longline and the under 60' pot and longline vessel quota that is projected to remain unused will be rolled into the freezer longline quota in September; any jig or trawl rollovers will be apportioned among the freezer longline and pot sectors according to the actual harvest of rollovers from 1996-98; and bycatch of P. cod in other fixed gear fisheries will be subtracted from the overall fixed gear allocation before allocations for the directed fisheries are set. The fixed gear P. cod allocation set forth by the Council in Amendment 64 would sunset on December 31, 2003. It is currently pending approval by the Secretary of Commerce.

At the same time the Council initiated the analysis for Amendment 64, this analysis was initiated to support a follow-up amendment (Am. 67) to add a Pacific cod endorsement to licenses held by fixed gear vessels that qualify for a BSAI endorsement under the current LLP and meet specified qualification criteria. This analysis provides information on the P. cod fishery and the resulting number of vessels that qualify under the criteria developed at the October 1999 Council meeting and adopted at the April meeting.

## 2.0 NEPA REQUIREMENTS: ENVIRONMENTAL IMPACTS OF THE ALTERNATIVES

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

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

### 2.1 Environmental Impacts of the Alternatives

The environmental impacts generally associated with fishery management actions are effects resulting from (1) harvest of fish stocks which may result in changes in food availability to predators and scavengers, changes in the population structure of target fish stocks, and changes in the marine ecosystem community structure; (2) changes in the physical and biological structure of the marine environment as a result of fishing practices, e.g., effects of gear use and fish processing discards; and (3) entanglement/entrapment of non-target organisms in active or inactive fishing gear. A summary of the effects of the annual groundfish harvests on the biological environment and associated impacts on marine mammals, seabirds, and other threatened or endangered species are discussed in the final environmental assessment for the annual groundfish total allowable catch specifications.

#### 2.1.1 Impacts on the Pacific cod Stock

No changes to the total TAC of Pacific cod are proposed by this amendment. The amendment simply further limits the number of participants in the BSAI fixed gear Pacific cod fishery, beyond those eligible under the current LLP.

Any Pacific cod harvested must be landed under IR/IU regulations (there are a few narrowly defined exceptions). The total amount of Pacific cod harvested should be about the same under any option, since there should be few unaccounted for discards at-sea. Because the TAC will not be changed and all bycatch should be counted against the TAC, no biological impacts on BSAI Pacific cod stocks are projected to result from implementing this amendment.

#### 2.1.2 Impacts on other Groundfish and Crab Stocks

There are two prohibited species taken by fixed gear in the Pacific cod fishery. Large numbers of crabs can be taken in pot fisheries for Pacific cod; longline fisheries have considerably lower crab bycatch rates. On the other hand, longlines targeting Pacific cod can have high bycatch rates of halibut, while vessels using pot gear do not. Because this amendment does not alter the relative amount of Pacific cod that will be harvested by pot and longline vessels, no biological impacts on other groundfish or crab stocks are projected to result

from implementing this amendment.

### 2.1.3 Trophic Interactions

The marine food-web of the North Pacific is complex. Numerous species of plankton, phytoplankton, invertebrates, mollusks, crustaceans, forage fish, demersal, mid-water and pelagic fish, marine mammals, seabirds, and humans combine to comprise the food web present in the BSAI and GOA. Environmental changes as well as human exploitation patterns can effect trophic interactions. Fishing causes direct changes in the structure of benthic communities by reducing the abundance of target or bycatch species; these reductions may lead to responses in non-target species through changes in competitive interactions and predator-prey relationships. Indirect effects of fishing on trophic interactions in marine ecosystems may also occur. Current debates on these topics include comparing relative roles of "top-down" (predator) or "bottom-up" (environmental and prey) control in ecosystems and the relative significance of "donor controlled" dynamics (in which victim populations influence enemy dynamics but enemies have no significant effect on victim populations) in the food web.

Pacific cod are omnivorous. Livingston (1991) characterized the diet of Pacific cod in the BSAI and GOA as follows: In terms of percent occurrence, the most important items were polychaetes, amphipods, and crangonid shrimp; in terms of numbers of individual organisms consumed, the most important items were euphausiids, miscellaneous fishes, and amphipods; and in terms of weight of organisms consumed, the most important items were pollock, fishery offal, and yellowfin sole. Small Pacific cod were found to feed mostly on invertebrates, while large Pacific cod are mainly piscivorous. Predators of Pacific cod include halibut, salmon shark, northern fur seals, sea lions, harbor porpoises, various whale species, and tufted puffin.

### 2.1.4 Impacts on Habitat

Inclusively all the marine waters and benthic substrates in the management areas comprise the habitat of all marine species. Additionally the adjacent marine waters outside the EEZ, adjacent State waters inside the EEZ, shoreline, freshwater inflows, and atmosphere above the waters, constitutes habitat for prey species, other life stages, and species that move in and out of, or interact with, the fisheries' target species, marine mammals, seabirds, and the ESA listed species.

This section contains analyses of potential fishing gear impacts on benthic substrate attributable to the Pacific cod fixed gear fishery. The habitat impacts of the Pacific cod fishery will not increase due to this proposed action because although the action is intended to decrease the intensity of effort in the BSAI and may impact the level of effort in the GOA, the overall location of the fishery will not change. The harvest will remain within the area designated as Pacific cod essential fish habitat and the harvest level and gear allocations in place for the BSAI will not be affected. Summaries and assessments of habitat information for Pacific cod are provided in the "Essential Fish Habitat Assessment Report for the Groundfish Resources of the Bering Sea and Aleutian Islands Region" and the "Essential Fish Habitat Assessment Report for the Groundfish Resources of the Gulf of Alaska Region" dated April 1, 1998 (available from the NPFMC).

Pacific cod is a demersal species that occurs on the continental shelf and upper slope from Santa Monica Bay, California, through the GOA, Aleutian Islands, and eastern Bering Sea to Norton Sound. The Bering Sea represents the center of greatest abundance, although Pacific cod are also abundant in the Gulf and Aleutian Islands. Gulf of Alaska, Bering Sea, and Aleutian Islands cod stocks are genetically

indistinguishable, and tagging studies show that cod migrate seasonally over large areas. In the late winter, Pacific cod converge in large spawning masses over relatively small areas. Major aggregations occur between Unalaska and Unimak Islands, southwest of the Pribilof Islands and near the Shumagin group in the western Gulf. Spawning takes place in the sublittoral-bathyal zone (40-290 m) near the bottom. The eggs sink to the bottom and are somewhat adhesive.

#### 2.1.4.1 Direct Impacts of Fishing Gear on Habitat

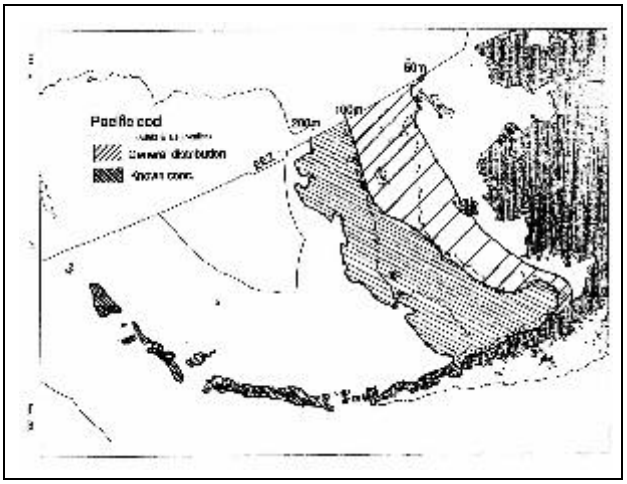
The fixed gear fishery for Pacific cod uses pot gear and longline gear. This gear type likely affects habitat during setting and retrieval of longlines and pots; however, minimal research quantifying the impacts has been conducted to date.

Very little information exists regarding the effects of longlining on benthic habitat. Observations of halibut longline gear made by NMFS scientists during submersible dives off southeast Alaska provide some information. The following is a summary of these observations: "Setline gear often lies slack on the sea-floor and meanders considerably along the bottom. During the retrieval process, the line sweeps the bottom for considerable distances before lifting off the bottom. It snags on whatever objects are in its path, including rocks and corals. Smaller rocks are upended, hard corals are broken, and soft corals appear unaffected by the passing line. Invertebrates and other light weight objects are dislodged and pass over or under the line. Fish, notably halibut, frequently moved the groundline numerous feet along the bottom and up into the water column during escape runs disturbing objects in their path. This line motion was noted for distances of 50 feet or more on either side of the hooked fish."

Whatever the direct effects of setting and pulling pot gear on the benthic environment, they appear to be small in comparison to the potentially large-scale effects of "ghost-fishing" by derelict pots. Lost by the fishery, these pots may continue to entrap animals until their netting or escape panels disintegrate. Inasmuch as they are unbaited, the primary attraction of derelict pots is their physical structure, which adds complexity and vertical relief to a generally featureless environment. No additional pot loss is expected under the proposed action.

#### 2.1.4.2 Assessment of Impacts on Essential Fish Habitat

Section 303(a)(7) of the Magnuson-Stevens Act requires all FMPs to describe and identify essential fish habitat (EFH ), which it defines as "those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity." In addition, FMPs must minimize effects on EFH caused by fishing and identify other actions to conserve and enhance EFH.




On January 20, 1999, the Council's five FMPs (BSAI groundfish, GOA groundfish, salmon, crab, and scallops) were amended to incorporate EFH provisions. These provisions include identification and description of EFH including habitat areas of

particular concern, identification of research and information needs, and identification of potential adverse effects on EFH due to fishing and non-fishing activities. Additional information on EFH can be found in the EA for Amendments 55/55/8/5/5 (NPFMC 1999 - copies of this document can be obtained from the Council office upon request). The above map shows the location of EFH for adult Pacific cod in the BSAI. The EFH definitions adopted for BSAI Pacific cod life stages are listed in the table below.

**EFH Definition for BSAI Pacific Cod, by life stage**

Eggs(duration 15-20 days) - Level $0_a$ - Areas of mud and sand on the inner, middle, and outer continental shelf and upper slope throughout the eastern Bering Sea and Aleutian Islands in winter and spring.

Larvae (duration unknown)- Level $0_a$ - Epipelagic waters throughout the eastern Bering Sea and Aleutian Islands regions in winter and spring.

Early Juveniles (up to 2 years) - Level $0_a$ - Areas of mud and sand and the water column on the inner and middle continental shelf of the eastern Bering Sea and Aleutian Islands, particularly those with mysids, euphausiids and shrimp.

Late Juveniles (2-4 years) - Level 1 -Areas of soft substrate (clay, mud, and sand) and the lower portion of the water column on the inner, middle, and outer continental shelf areas of the eastern Bering Sea and Aleutian Islands, particularly those with mysids, euphausiids, shrimp, pollock, flatfish, crab, and fishery discards.

Adults (4+ years old) - Level 2 - Areas of mud and sand along the inner, middle, and outer continental shelf up to 500m along with the lower portion of the water column of the eastern Bering Sea and Aleutian Islands. Spawning occurs in January-May near the bottom across broad areas of the shelf, but predominately along the outer shelf between 100-200 m in the eastern Bering Sea, and throughout the area<200m in the Aleutian Islands. After spawning, the mature population spreads out throughout the shelf in the eastern Bering Sea and Aleutian Islands, but with concentrations along the outer shelf northwest of the Pribilof Islands and along the outer and middle shelf areas northwest of the Alaskan Peninsula and into Bristol Bay. Feeding areas are those containing pollock, flatfish, and crab.

The Pacific cod longline gear fisheries occur in the Bering Sea and along the Aleutian Islands, concentrating just inside the shelf break in the region between the 100 meter and 200 meter contour line, north of 54°N. latitude and south of 60°N. latitude (Fritz et al. 1998). The pot gear fisheries for Pacific cod have concentrated along the north side of Unalaska Island, Unimak Island and Unimak pass, with some relatively minor effort along the Aleutian Islands (Fritz et al. 1998). According to the EA for Amendment 56/56 to the BSAI and GOA Groundfish FMPs, the fixed gear Pacific cod fisheries occur within the EFH area used by nearly every groundfish and crab species. Primary overlap would occur with the following species: pollock, flathead sole, dusky rockfish, skates, sculpins, Tanner crab, and snow crab. Insufficient data exist to determine the extent of the potential impacts on EFH, beyond the fact that the Pacific cod fixed gear fishery occurs in the species general distribution. No evidence suggests that the fixed gear Pacific cod fishery would have any impact on the EFH of salmon or scallops. The Pacific cod fixed gear fishery does not occur on any areas designated as Habitat Areas of Particular Concern (HAPC). Because this proposed action will not change the location of the fixed gear Pacific cod fisheries, none of the proposed alternatives would affect essential fish habitat or areas identified as habitat areas of particular concern in a manner different than

previously analyzed.

The action proposed by this amendment will not increase the amount of harvest or the location of harvest. The intensity of harvest may be impacted by limiting the number of vessels that can fish Pacific cod in the BSAI, thus shifting some of the effort from vessels which may be restricted by the LLP into other fisheries to attempt to make up lost revenues. Pot vessels which are qualified in the crab fisheries, and would be eliminated from the cod fishery in the BSAI, could exert additional effort in the crab fisheries or in the Gulf of Alaska cod fisheries. Effort in the GOA groundfish fisheries may be greater in years that the opilio fishery in the BSAI is only open for a short period of time, or does not overlap with the groundfish fisheries. These potential spillover impacts are discussed further in Section 6.2.

Because this action does not change the location of the fishery, the Pacific cod fixed gear TACs, or the gear allocations in either the BSAI or the GOA, it is presumed not to increase the impacts of the fishery on EFH as a whole. The action is intended to decrease the intensity of effort in the BSAI and will likely impact the level of effort in the GOA, but the harvest will remain within the area designated as Pacific cod EFH. Based on the above, this action, in the context of the fishery as a whole, will not adversely affect EFH for species managed under the five North Pacific FMPs. As a result of this determination, an EFH consultation is not required.

### 2.1.5 Biological Diversity

The concept of biological diversity is generally used to denote the variety of living things in an ecosystem. The definition of biological diversity considers three levels: genetic, species, and ecosystem diversity. The issues of unobserved mortality and other potential ecological effects of trawling, longlining, and pot fishing, have been thoroughly discussed in previous analyses (e.g., EFH amendment analyses; NPFMC 1999). Because this amendment is not expected to increase effort or total catch of any species, changes in biodiversity are not an issue.

### 2.1.6 Bycatch and Discard Impacts

Vessels in the fixed gear Pacific cod fishery catch other species, both intentionally and accidentally, when prosecuting a directed fishery. Bycatch includes prohibited species (primarily halibut and crab), other groundfish target species, and other species. Much of the bycatch is discarded. As an example, the adjacent table shows the amount of groundfish discarded in the 1994 BSAI fixed gear cod fisheries. The other species of groundfish taken in longline fisheries were mainly skates (7,568 mt), with lesser amounts of sculpins (1,327 mt), sharks, octopus, and others.

Discarded catch of allocated groundfish in the 1994 BSAI Pacific cod fishery, by gear type.

| | Longline | Pot |
|---|---|---|
| Atka mackerel | 43 | 6 |
| Arrowtooth | 1,253 | 1 |
| Yellowfin | 151 | 14 |
| turbot | 167 | - |
| rock sole | 23 | 0 |
| other flats | 192 | 1 |
| P. cod | 3,151 | 179 |
| pollock | 2,519 | 4 |
| rockfish | 94 | 1 |
| other | 9,296 | 188 |

The ecological concern with bycatch and discards is that they have the potential to alter the regular paths of energy flow and balance in the marine system. Discarded bycatch may be dead when returned to the sea, and together with offal (processing wastes), provide additional sources of food for consumption by groundfish

and scavengers. A measurable percentage of the diet of Pacific cod, pollock, halibut, and other flatfish is offal (Queirolo et al. 1995). Scavenging birds, crabs, and lower trophic level scavengers consume most of the remainder, so that the total amount of dead organic matter (detritus) that reaches the bottom is likely small relative to other natural sources.

Because this amendment does not change the amount of Pacific cod harvested by either gear type, the total amount of bycatch is not expected to change. A more restrictive LLP for cod may create a more stable pool of vessels which participate in the directed fishery, resulting in better fishing practices and reduced bycatch. However, other factors impacting where and when vessels fish may further complicate the issue. Because all allocated groundfish bycatch is counted against the TACs, and all prohibited species bycatch is counted against the PSC limits, no ecological impacts that are different than previously analyzed are projected to result from this amendment. Summaries of cod catch in the directed fishery, bycatch of other species in the cod fishery, and bycatch of cod in other fisheries is provided in Chapter 3.

## 2.2 Endangered Species Act

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

The designation of an ESA-listed species is based on the biological health of that species. The status determination is either threatened or endangered. Threatened species are those likely to become endangered in the foreseeable future [16 U.S.C. § 1532(20)]. Endangered species are those in danger of becoming extinct throughout all or a significant portion of their range [16 U.S.C. § 1532(20)]. Species can be listed as endangered without first being listed as threatened. The Secretary of Commerce, acting through NMFS, is authorized to list marine fish, plants, and mammals (except for walrus and sea otter) and anadromous fish species. The Secretary of the Interior, acting through the USFWS, is authorized to list walrus and sea otter, seabirds, terrestrial plants and wildlife, and freshwater fish and plant species. Currently, 23 marine species occurring in the GOA and/or BSAI groundfish management areas are listed as endangered or threatened under the ESA (Table 2.1). The group includes seven great whales, one pinniped, eleven Pacific salmon and steelhead, and three seabirds.

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

**Section 7 Consultations**. Because groundfish and crab fisheries are federally regulated activities, any

negative affects of the fisheries on listed species or critical habitat and any takings[1] that may occur are subject to ESA Section 7 consultation. NMFS initiates the consultation and the resulting biological opinions are issued to NMFS. The Council may be invited to participate in the compilation, review, and analysis of data used in the consultations. The determination of whether the action "is likely to jeopardize the continued existence of" endangered or threatened species or to result in the destruction or modification of critical habitat, however, is the responsibility of the appropriate agency (NMFS or USFWS). If the action is determined to result in jeopardy, the opinion includes reasonable and prudent measures that are necessary to alter the action so that jeopardy is avoided. If an incidental take of a listed species is expected to occur under normal promulgation of the action, an incidental take statement is appended to the biological opinion. Section 7 consultations have been done for all of the species listed in Table 2.1, some individually and some as groups.

Table 2.1: Species currently listed as endangered or threatened under the ESA and occurring in the GOA and/or BSAI groundfish management areas.

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

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

[1] The bowhead whale is present in the Bering Sea area only.
[2] Steller sea lions are listed as endangered west of Cape Suckling and threatened east of Cape Suckling.

**Endangered Cetaceans**. NMFS concluded a formal Section 7 consultation on the effects of the BSAI and GOA groundfish fisheries on endangered cetaceans within the BSAI and GOA on December 14, 1979, and April 19, 1991, respectively. These opinions concluded that the fisheries are unlikely to jeopardize the continued existence or recovery of endangered whales. Consideration of the bowhead whale as one of the listed species present within the area of the Bering Sea fishery was not recognized in the 1979 opinion, however, its range and status are not known to have changed. No new information exists that would cause NMFS to alter the conclusion of the 1979 or 1991 opinions. NMFS has no plan to open Section 7 consultations on the listed cetaceans for this action. Of note, however, are observations of Northern Right Whales during Bering Sea stock assessment cruises in the summer of 1997 (NMFS pers comm). Prior to these sightings, and one observation of a group of two whales in 1996, confirmed sightings had not occurred.

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

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

In 1990, NMFS designated the Steller sea lion as a threatened species under the ESA. The designation followed severe declines throughout much of the GOA and Aleutian Islands region. In 1993, NMFS defined critical habitat for the species to include (among other areas), the marine areas within 20 nautical miles (nm) of major rookeries and haulouts of the species west of 144° W longitude. In 1997, NMFS recognized two separate populations, and reclassified the western population (west of 144° W longitude) as endangered.

NMFS first began collecting information on the abundance of Steller sea lions during the 1950s and 1960s. However, the first counts based on reliable data were not available until the late 1970s; these counts reported approximately 109,800 animals. During the 1980s, a precipitous decline of Steller sea lions was observed. By 1996, the population declined by 80 percent from the late 1970s. Counts of adult and juvenile Steller sea lions have continued to decline over the last few years, but at a lower rate.

NMFS believes that multiple factors have contributed to the decline, but considerable evidence indicates that lack of available prey is a significant factor. Foraging studies confirm that Steller sea lions depend on pollock, Pacific cod, and Atka mackerel as major prey sources, and that they may be particularly sensitive to reduced availability of prey during the winter. The significance of pollock, Pacific cod, and Atka mackerel in the diet of sea lions may have increased since the 1970s due to shifts in the Bering Sea ecosystem related to atmospheric and oceanographic changes.

In accordance with the requirements of the ESA, the NMFS Office of Protected Resources issued a biological opinion on the pollock fisheries of the BSAI and GOA and the Atka mackerel fishery of the Aleutian Islands subarea, dated December 3, 1998, and revised December 16, 1998 (1998-1 BiOp). The 1998-1 BiOp concluded that the BSAI and GOA pollock trawl fisheries, as projected for 1999 through 2002, were likely to jeopardize the endangered western population of Steller sea lions and adversely modify critical habitat designated for this population. The term "jeopardize" means "to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species" (50 CFR 402.02). The phrase "adversely modify its critical habitat" means "a direct or indirect alteration that appreciably diminishes the value of critical habitat for both the survival and recovery of a listed species. Such alterations include, but are not limited to, alterations adversely modifying any of those physical or biological features that were the basis for determining the habitat to be critical" (50 CFR 402.02). The 1998-1 BiOp also concluded that the Atka mackerel fishery, as modified by recent regulatory changes (64 FR 3446; January 22, 1999), was not likely to jeopardize the endangered western population of Steller sea lions or adversely modify its critical habitat.

The 1998-1 BiOp did not prescribe a single RPA for the BSAI and GOA pollock fisheries, but rather established a framework to avoid the likelihood of jeopardizing the continued existence of the western population of Steller sea lions or adversely modifying their critical habitat. The framework consisted of three principles: (1) temporal dispersion of fishing effort, (2) spatial dispersion of fishing effort, and (3) protection from fisheries competition for Steller sea lion prey in waters adjacent to rookeries and important haulouts. For each of these principles, the 1998-1 BiOp provided guidance on the development of management measures to meet the objectives and, ultimately, to avoid jeopardy and adverse modification. The 1998-1 BiOp stated that certain conservation measures could be phased in over a 2-year period.

In December 1998, NMFS staff briefed the Council on the 1998-1 BiOp. The Council then prepared recommendations for alternative management measures based on the RPA guidelines to avoid jeopardy and adverse modification. The Council's recommendation did not contain Bering Sea subarea (BS) pollock harvest specifications for the second half of 1999. However, the Council planned to recommend these measures prior to mid-1999. The Council also recommended closing all but nine of the haulout zones specified by the 1998-1 BiOp in the BSAI and GOA. NMFS determined these recommendations to be acceptable as part of a 2-year phase-in strategy, in which equivalent or better protections would be extended for those areas for 2000 and beyond.
On December 16, 1998, NMFS adopted the measures recommended by the Council (with modifications) into the 1998-1 BiOp as part of the reasonable and prudent alternatives for the Alaska pollock fisheries. NMFS published an emergency interim rule implementing these measures in the Federal Register on January 22, 1999 (64 FR 3437), as amended on February 17, 1999 (64 FR 7814) and on February 25, 1999 (64 FR 9375), which was effective through July 19, 1999. The preamble to the emergency rule provides a detailed description of the purpose and need for the implementation of emergency measures in 1999.

The Council met again in February, April, and June 1999, to consider recommendations for extending the emergency rule for the second half of 1999, and, at its June meeting, voted to extend the emergency rule. Using the Council's recommendation, NMFS extended the emergency rule through December 31, 1999 (64 FR 39087, July 21, 1999; technical amendment 64 FR 43297, August 10, 1999), with revisions that included BS pollock harvest specifications for the second half of 1999.

In June 1999, the Council also deliberated on various management measures to implement permanently the reasonable and prudent alternatives as described in the 1998-1 BiOp for 2000 and beyond. After significant debate and public comment, the Council voted to recommend a series of conservation measures to protect Steller sea lions.

Greenpeace, the American Oceans Campaign, and the Sierra Club challenged the 1998-1 BiOp in the U.S. District Court for the Western District of Washington (Greenpeace v. NMFS, Civ. No. C98-0492Z (W.D. Wash.)). In an Order issued on July 9, 1999 (and amended on July 13, 1999), the Court upheld the no-jeopardy conclusion for the Atka mackerel fishery and the jeopardy conclusion for the pollock fisheries. However, the Court also found that "the Reasonable and Prudent Alternatives . . .were arbitrary and capricious . . . because they were not justified under the prevailing legal standards and because the record does not support a finding that they were reasonably likely to avoid jeopardy." On August 6, 1999, the Court remanded the 1998-1 BiOp back to NMFS for further analysis and explanation.

To comply with the Court's Order, NMFS conducted additional analyses and completed the Revised Final Reasonable and Prudent Alternatives (RFRPAs) on October 15, 1999. The RFRPAs describe management measures that will avoid the likelihood that the pollock fisheries authorized by regulations will jeopardize the continued existence of the endangered western population of Steller sea lions or adversely modify their critical habitat.

NMFS evaluated the measures recommended by the Council in June 1999, and determined that these measures (with modification to season dates, haulout protections, and spatial dispersion in the Bering Sea) achieved the principles identified in the 1998-1 BiOp and the RFRPAs. NMFS implemented the modified measures by emergency interim rule for the 2000 groundfish fisheries (65 FR 3892, January 25, 2000, and 65 FR 36795, June 12, 2000). Greenpeace, the American Oceans Campaign, the Sierra Club, and fishing industry representatives have challenged the adequacy of the RFRPAs in the U.S. District Court for the Western District of Washington. That judicial challenge is still pending.

In December 1998, NMFS also issued an additional biological opinion evaluating the effects of all federal groundfish fisheries in the BSAI and the GOA on endangered and threatened species and their critical habitat (1998-2 BiOp). Greenpeace, the American Oceans Campaign, and the Sierra Club also challenged the legal adequacy of the 1998-2 BiOp, resulting in a Court Order finding it too narrow in scope. (Greenpeace v. NMFS, 80 F. Supp. 2d 1137 (W.D. Wash. 2000)). On July 19, 2000, the Court issued an injunction prohibiting fishing for groundfish with trawl gear in the exclusive economic zone within Steller sea lion critical habitat west of 144° W. longitude until NMFS issued a comprehensive biological opinion adequately analyzing the full scope of the FMPs. (Greenpeace v. NMFS, 106 F. Supp. 2d 1066 (W.D. Wash. 2000)). The critical habitat areas closed by the Court's injunction were defined in regulations codified at 50 CFR 226.202, and in Tables 1 and 2 of 50 CFR part 226. Pursuant to the ESA, NMFS issued an interim final rule prohibiting fishing for groundfish with trawl gear in Steller sea lion critical habitat specified in the Court's injunction (65 FR 49766, August 15, 2000).

In response to the Court's Order that found the 1998-2 BiOp inadequate, NMFS issued the Comprehensive BiOp on November 30, 2000. The Comprehensive BiOp evaluates all authorized federal groundfish fisheries and the overall management framework established by the GOA and BSAI FMPs. After analyzing the cumulative, direct, and indirect effects of the groundfish fisheries authorized by the GOA and BSAI FMPs on listed species, NMFS concluded in the Comprehensive BiOp that the pollock, Pacific cod, and Atka

mackerel fisheries, as currently prosecuted, jeopardize the continued existence of the western population of Steller sea lions and adversely modify its critical habitat. This conclusion was reached based on information that pollock, Pacific cod, and Atka mackerel are the main prey species for which Steller sea lions compete with the fisheries, that this competition causes reduced availability of prey, that reduced availability of prey leads to nutritional stress, and that nutritional stress, especially of juveniles and to a lesser extent adult females, is the leading hypothesis to explain the continued decline of the western population of Steller sea lions. The Comprehensive BiOp included an RPA that would allow a modified fishery to occur in a manner that would avoid jeopardy to the continued existence of Steller sea lions and adverse modification to their critical habitat.

On December 21, 2000, the President signed Public Law 106-554. This law contains a one-year timetable for implementing the RPA as well as provisions affecting its implementation. In the following discussion, references will be made to these provisions whenever they affect implementation of the RPA.

Section 209 of Public Law 106-554, paragraph (c)(3) also requires that "[t]he 2001 Bering Sea/Aleutian Islands and Gulf of Alaska groundfish fisheries shall be managed in accordance with the fishery management plan and federal regulations in effect for such fisheries prior to July 15, 2000 . . . and said regulations are hereby restored to full force and effect." NMFS interprets that this statutory provision extends through 2001 the interim emergency regulations promulgated in 2000 to implement the American Fisheries Act, Public Law 105-277 (AFA). In addition, NMFS interprets that this statutory provision does not invalidate fishery management plan amendments or regulatory amendments approved or implemented after July 15, 2000, that do not directly affect measures governing the interaction of fisheries with endangered Steller sea lions, and that such amendments remain in full force and effect. These measures include: Amendments 58 (Chinook salmon bycatch controls published at 65 FR 58727, October 2, 2000) and 64 (fixed gear allocations of Pacific cod published at 65 FR 51553, August 24, 2000) to the Fishery Management Plan for Groundfish of the Bering Sea and Aleutian Islands Area; Amendment 59 to the Fishery Management Plan for Groundfish of the Gulf of Alaska that established the Sitka Sound Marine reserve (65 FR 67305, November 9, 2000); and three separate regulatory amendments that require vessel monitoring systems onboard vessels that are used to participate in the BSAI Atka mackerel fishery (65 FR 51553, August 24, 2000), an extension of the Pacific halibut donation program beyond 2000 (65 FR 78119, December 14, 2000), adjustments to observer coverage requirements established for the Community Development Quota (CDQ) Program (65 FR 69483, November 17, 2000), and an extension of regulations governing observer coverage for the Alaska groundfish fisheries beyond 2000 (65 FR 80381, December 21, 2000).

Although Steller sea lions do consume Pacific cod and pot vessels tend to fish more in critical habitat for Steller sea lions (Fritz 1998), none of the alternatives are expected to reduce the availability of cod as a prey species in any manner not previously considered.

**Short-tailed albatross**. The entire world population in 1998 was estimated as approximately 1000 birds; 400 adults breed on two small islands near Japan. The population is growing but is still critically endangered because of its small size and restricted breeding range. Past observations indicate that older short-tailed albatrosses are present in Alaska primarily during the summer and fall months along the shelf break from the Alaska Peninsula to the Gulf of Alaska, although 1- and 2-year old juveniles may be present at other times of the year (FWS 1993). Consequently, these albatrosses generally would be exposed to fishery interactions most often during the summer and fall--during the latter part of the second and the whole of the third fishing quarters.

Short-tailed albatrosses reported caught in the groundfish longline fishery include one in 1983, one in 1987, two in 1995, one in October 1996, zero in 1997, and two in 1998. Both 1995 birds were caught in the vicinity of Unimak Pass and were taken outside the observer's statistical samples.

Formal consultation on the effects of the groundfish fisheries on the short-tailed albatross under the jurisdiction of the USFWS was initially carried out in 1989. The USFWS concluded that the BSAI and GOA groundfish fisheries would adversely affect the short-tailed albatross but would not jeopardize the continued existence of that species (USFWS 1989). An incidental take of up to two birds per year was allowed. Subsequent consultations for changes to the fishery that might affect the short-tailed albatross also concluded no jeopardy and established non-discretionary reasonable and prudent measures to minimize the impact of the possible incidental take (USFWS 1995, USFWS 1997). The 1997 consultation resulted in an incidental take limit of up to 4 birds during the 2-year period 1997-1998 and limited the scope of the consultation to the groundfish hook-and-line fisheries. The most recent consultation in 1998 similarly established an incidental take limit of up to 4 short-tailed albatrosses in the BSAI and GOA groundfish hook-and-line fisheries during 1999-2000.

Because the options under consideration would allocate Pacific cod among fixed gear sectors based on historical use, no additional impacts would be expected. Under the existing PSC limits for halibut, any increase in Pacific cod allocated to longline gear would not likely be taken by this gear type anyway.

**Spectacled Eider**. Spectacled Eider (*Somateria fischeri*), a threatened seaduck, feed on benthic mollusks and crustaceans taken in shallow marine waters or on pelagic crustaceans. The marine range for spectacled eider is not known, although Dau and Kitchinski (1977) review evidence that they winter near the pack ice in the northern Bering Sea. Spectacled eider are rarely seen in U.S. waters except in August through September when they molt in northeast Norton Sound and in migration near St. Lawrence Island. The lack of observations in U.S. waters suggests that, if not confined to sea ice polyneas, they likely winter near the Russian coast (USFWS 1993).

Since 1994, NMFS has consulted with the USFWS annually on the crab FMP, which includes the winter Bering Sea *C. opilio* fishery, pursuant to Section 7 of the ESA (USFWS 1996a, 1996b). In the past, Section 7 consultations on this fishery have been formal because it was perceived that the fishery was likely to adversely affect spectacled eiders. This perception of a likelihood of an adverse effect resulted from: (1) a lack of knowledge concerning the at-sea range of spectacled eiders and; (2) a lack of knowledge of the species of eiders that have struck, or were likely to strike crabbing vessels. Beginning in 1995, observers aboard crabbing vessels received training in bird identification and reporting. Observers were instructed to report all sightings of spectacled eiders to the USFWS either directly or through ADF&G. To date, no take of spectacled eiders associated with this crab fishery or any groundfish fishery has been reported.

**Steller's Eider.** Three breeding populations of Steller's eider (*Polysticta Steller*) are recognized, two in Arctic Russia and one in Alaska. The majority of Steller's eiders breed in Russia and are identified by separate breeding and wintering distributions (Nygard et al. 1995). Neither Russian breeding population is listed as threatened or endangered; only Steller's eiders that nest in Alaska are listed as threatened under the ESA. The Alaska-breeding population is indistinguishable from the Russian populations, and during the autumn molt, winter, and spring migration staging periods, the Alaska population intermixes with the Russia populations. The Steller's eider, once considered a common breeder in the intertidal Yukon-Kuskokwim Delta in the early 1900s (Murie et al. 1924), declined rapidly and was extremely rare in that location by the 1970s. Only six nests have been found in the 1990s. While a few nesting Steller's were found in the Aleutian Islands,

Seward Peninsula, and St. Lawrence Island as recently as the 1950s, they are no longer found there. Today, Steller's eiders breed primarily on the North Slope of Alaska and in extremely low numbers on the Y-K Delta.

Determining population trends for the Steller's eider is difficult; however, their breeding range in Alaska appears to have contracted substantially, with the species disappearing from much of its historical range in western Alaska. It is unknown whether the species' breeding population on the North Slope is currently declining, stable, or improving. Observations from one study indicate that hundreds or thousands may occur on the North Slope, although it is obvious that a drastic reduction in species abundance has occurred. Similar to the spectacled eider, the ESA concern is that fisheries may have an adverse effect on the Steller's eider due to a lack of knowledge concerning the at-sea range and migration path of Steller's eiders, and a lack of knowledge of the species of eiders that have struck, or were likely to strike, crabbing vessels.

As mentioned earlier, in addition to listing species under the ESA, the critical habitat of a newly listed species must be designated concurrent with its listing to the "maximum extent prudent and determinable" (16 U.S.C. Section 1533 (b)(1)(A). The USFWS is currently in the process of designating critical habitat for the Alaska-breeding population of the Steller's eider and the spectacled eider. The proposed rules were published February 8, 2000 (65 FR 6114) and March 13, 2000 (65 FR 13262) for the spectacled eider and Steller's eider, respectively, and the public comment period for each was extended through June 30, 2000. The USFWS is also considering whether a proposed designation is prudent for critical habitat for the short-tailed albatross.

**Conditions for Reinitiation of Consultation**. For all ESA listed species, consultation must be reinitiated if: the amount or extent of taking specified in the Incidental Take Statement is exceeded, new information reveals effects of the action that may affect listed species in a way not previously considered, the action is subsequently modified in a manner that causes an effect to listed species that was not considered in the biological opinion, or a new species is listed or critical habitat is designated that may be affected by the action. If take limits are exceeded, consultation would be reinitiated to consider possible modifications of the reasonable and prudent measures established to minimize the impacts of the incidental take. Fishery closures are possible modifications that could be considered.

**Impacts of the Alternatives on Endangered or Threatened Species**. None of the alternatives under consideration would affect the prosecution of the crab or groundfish fisheries of the BSAI in a way not previously considered in the above consultations. The proposed alternatives are designed to limit the number of fixed gear vessels that can harvest the BSAI Pacific cod TAC based on historic participation. None of the alternatives should affect takes of listed species. Therefore, none of the alternatives are expected to have a significant impact on endangered or threatened species.

## 2.3 Marine Mammal Protection Act

Under the Marine Mammal Protection Act, commercial fisheries are classified according to current and historical data on whether or not the fishery interacts with marine mammals. Two groups, takers and non-takers, are initially identified. For takers, further classification then proceeds on the basis of which marine mammal stocks interact with a given fishery. Fisheries that interact with a strategic stock at a level of take which has a potentially significant impact on that stock would be placed in Category I. Fisheries that interact with a strategic stock and whose level of take has an insignificant impact on that stock, or interacts with a non-strategic stock at a level of take which has a significant impact on that stock are placed in Category II.

A fishery that interacts only with non-strategic stocks and whose level of take has an insignificant impact on the stocks is placed in Category III.

Species listed under the Endangered Species Act present in the management area were listed in the previous section. Marine mammals not listed under the ESA that may be present in the BSAI and GOA management area include cetaceans, [minke whale (*Balaenoptera acutorostrata*), killer whale (*Orcinus orca*), Dall's porpoise *(Phocoenoides dalli*), harbor porpoise (*Phocoena phocoena*), Pacific white-sided dolphin (*Lagenorhynchus obliquidens*), and the beaked whales (e.g., *Berardius bairdii* and *Mesoplodon spp.*)] as well as pinnipeds [Pacific harbor seal (*Phoca vitulina*), northern fur seal (*Callorhinus ursinus*), Pacific walrus (*Odobenus rosmarus*), spotted seal (*Phoca largha*), bearded seal (*Erignathus barbatus*), ringed seal (*Phoca hispida*) and ribbon seal (*Phoca fasciata*)], and the sea otter (*Enhydra lutris*).

Take of the above listed marine mammals in longline and trawl fisheries has been monitored through observer programs. The subject fisheries (Bering Sea/Aleutian Islands pot and longline Pacific cod fisheries) are classified as Category III. Very few marine mammals have been recorded as taken incidentally in these fisheries. However, Steller sea lion, northern fur seal, harbor seal, spotted seal, bearded seal, ribbon seal, ringed seal, northern elephant seal, Dall's porpoise, harbor porpoise, Pacific white-sided dolphin, killer whale, sea otter, and walrus were recorded as taken incidentally in the Bering Sea and Aleutian Islands groundfish trawl fisheries according to records dating back to 1990 (Hill et al 1997.)

Interaction between killer whales and longline fisheries has been an issue, as killer whale predation is a factor in the longline fisheries. However, most of the interactions have occurred with the turbot fisheries (33 deterrences in 1990-93) and sablefish fisheries (79 deterrences and one take), rather than longline fisheries for Pacific cod (13 deterrences).

None of the alternatives under consideration is likely to have any adverse impacts on endangered or threatened species of marine mammals.

## 2.4 Coastal Zone Management Act

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

## 2.5 Conclusions or Finding of No Significant Impact

None of the alternatives for Amendment 64 are likely to significantly affect the quality of the human environment, and the preparation of an environmental impact statement for the proposed action is not required by Section 102(2)(C) of the National Environmental Policy Act or its implementing regulations.

_____ _____

Assistant Administrator for Fisheries, NOAA Date

## 3.0 HISTORICAL FIXED GEAR PACIFIC COD FISHERY INFORMATION

### 3.1 Catch History in the Fixed Gear Pacific Cod Target Fisheries

Baseline information on the fixed gear Pacific cod fishery from 1992-99 is presented in Table 3.1. That table shows the number of vessels that participated in the directed Pacific cod fishery and the amount of catch they harvested by vessel type. The vessel types included in the table are pot and longline vessels subdivided by whether they were operating as catcher vessels or catcher/processors. Additional information on the number of catcher vessels that harvested cod from the BSAI with jig gear is included in Table 3.2. This additional information is important because the Council considered an option that would allow catcher vessels to count landings that were made using jig gear towards the longline and/or pot qualification criteria.

All catch from the fixed gear TAC as well as the roll-overs[2] are included in Table 3.1. The table shows that the number of vessels operating in the freezer longline sector ranged from 56 in 1992 down to 36 in 1998. In general, there has been a downward trend in the number of freezer longline vessels operating in the fishery. The exception to that rule was in 1999. That year the number of vessels increased by two from 1998 (from 36 to 38).

Longline catcher vessel participation has fallen off in recent years. Participation was greatest in 1992 and 1995, these years marked the beginning and the end of the LLP endorsement qualification period. Since 1995 the number of vessels participating in the fishery has declined. As of 1998, only nine catcher vessels targeted cod using longline gear in the BSAI. That is down from a high of 69 vessels in 1992. The amount of cod landings over this period has also varied substantially. In 1995, under 300 mt of cod were harvested. By 1998 the harvest had dropped to about 16 mt, which is less than 1 percent of the 1995 total. Most of the vessels participating in this fishery have been less than 60' LOA. However, in 1999 the number of vessels in the 60-124' class was about the same as the number of vessels less than 60' LOA.

Pot catcher vessels generally tend to enter the Pacific cod fishery after the opilio crab fishery closes in the BSAI. The number of vessels that have participated in the directed cod fishery has varied from a high of 119 in 1995 to a low of 19 in 1993. Participation in the cod fishery by pot vessels likely increased between 1993 and 1995 because of a substantial drop in opilio catch. The opilio fleet harvested about 231 million pounds of opilio in 1993 and only 75 million pounds in 1995. In 1993 the opilio fishery lasted approximately two months. In 1995, the fishery was only about one month long. This provided pot vessels a longer fishing window in the cod fishery. It should be noted that while the catch of opilio in 1995 was only one-third of the catch in 1993, the revenue generated by the fleet from opilio was actual greater in 1995 because of increased prices (NPFMC 1998)[3]. About the same number of vessels fished both years (254 in 1993 and 253 in 1995).

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[2] The portion of the TAC that was allocated to the trawl or jig sectors of the Pacific cod fishery at the beginning of the year, but was reallocated to the fixed gear sector in September because it would not have been harvested otherwise. Typically the trawl sector would not have harvested the entire allocation because they reached their halibut bycatch cap. The jig sector would not have harvested the entire allocation because they had insufficient effort to harvest their 2 percent of the BSAI TAC.

[3] NPFMC. 1998. Stock Assessment and Fishery Evaluation Report for the King and Tanner Crab Fisheries of the Bering Sea and Aleutian Islands Regions. Anchorage, AK.

The 2000 opilio fishery was delayed because of a more southerly ice edge in the Bering Sea. The fishery started at noon on April 1st and was closed at noon on April 8th. This change in starting date enabled the crab fleet to fish cod prior to fishing opilio. Therefore, the BSAI and GOA cod fisheries may realize greater effort from the pot sector this year.

The number of pot catcher/processors has not shown any specific trend over the time period included in Table 3.1. As many as 19 pot catcher/processors (1992) participated in the fishery over the time period, and as few as three (1993). Over the more recent period of time (1995-99), the number of vessels has ranged from seven in 1998 to 13 in 1999. In each year, there were more vessels over 125' participating than under 125'.

Catch from the 1999 Pacific cod fishery is included under some of the alternatives that were considered by the Council and the available data are included in Table 3.1. The analysts recognize that complete data sets for the entire fishing year were not available when this analysis was developed, especially the catcher vessel information. However the information that was available as of late December 1999 is included in the analysis. Because the information was not complete, the number of vessels presented and their total catch should be considered preliminary estimates, and changes in the number of vessels expected to qualify may be greatest under alternatives that include the 1999 fishing season.

### 3.1.1 BSAI Cod Harvests Using Jig Gear

Amendment 24 to the BSAI FMP established a 2 percent allocation of Pacific cod to vessels using jig gear. That allocation has been in place over the entire 1995-99 time period, and has provided vessels using jig gear the opportunity to harvest Pacific cod during much of the year. Even with the extended seasons, jig vessels have never harvested their entire two percent allocation of cod for a variety of reasons, including weather and profitability of the fishery.

The Council considered alternatives, for earning a longline and/or pot cod endorsement, which included catch history earned in the jig fishery. Therefore, it is important to understand the participation history of vessels in the jig fishery over the endorsement qualification period. The impacts of including this catch history, in terms of the number of longline and pot catcher vessels Pacific cod endorsements, will be discussed in more detail in Chapter 4. Information in Table 3.2 is intended to provide background information on the number of vessels that participated in the jig fishery during the 1995-99 time period and their aggregated catch.

Table 3.2 shows that in recent years the number of jig vessels participating in that fishery has declined from a high of 45 (1995) to 10 vessels in 1998. A total of 13 vessels have reported fishing with jig gear in 1999. These vessels have generally been less than 60' in length.

The total amount of cod caught with jig gear was smallest in 1999 (149 mt), and this fleet has not harvested more than 200 mt since 1996. The reader is cautioned that data for 1999 is still incomplete, and the total catch in 1999 may increase as additional data are entered into the ADF&G Fishticket file. However, substantial increases in the amounts of Pacific cod harvested with jig gear are not expected, given the catch levels reported in recent years.

**Table 3.1: Catch of Pacific cod in the BSAI fixed gear Pacific cod target fishery from 1992-99 (in mt).**

| | | Longline | | | | | | Pot | | | | | | Fixed Gear Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Catcher/Processors | | | Catcher Vessels | | | Catcher/Processors | | | Catcher Vessels | | | | |
| Year | Length | # | Catch | % | # | Catch | % | # | Catch | % | # | Catch | % | Unique # | Catch |
| 92 | 0-59 | - | - | - | 44 | 291 | 97% | - | - | - | 3 | 10 | 3% | 47 | 301 |
| | 60-124 | 22 | 29,862 | 89% | 24 | 336 | 1% | 1 | conf. | conf. | 32 | 3,445 | 10% | 74 | 33,652* |
| | 125+ | 34 | 68,663 | 86% | 1 | conf. | conf. | 18 | 9,077 | 11% | 20 | 1,975 | 2% | 67 | 79,729 |
| 92 Total | | 56 | 98,525 | 87% | 69 | 627* | 1% | 19 | 9,077* | 8% | 55 | 5,429 | 5% | 188 | 113,681* |
| 93 | 0-59 | - | - | - | 9 | 121 | 98% | - | - | - | 2 | 3 | 2% | 11 | 124 |
| | 60-124 | 22 | 18,114 | 94% | 3 | 169 | 1% | 2 | conf. | conf. | 10 | 1,065 | 6% | 34 | 19,350 |
| | 125+ | 31 | 43,412 | 97% | - | - | - | 1 | conf. | conf | 7 | 754 | 2% | 40 | 44,684 |
| 93 Total | | 53 | 61,527 | 96% | 12 | 291 | 0% | 3 | 520 | 1% | 19 | 1,821 | 3% | 85 | 64,158 |
| 94 | 0-59 | 1 | conf. | conf. | 6 | 210 | 56% | - | - | - | 6 | 161 | 43% | 13 | 371* |
| | 60-124 | 21 | 25,557 | 83% | 2 | conf. | conf. | 2 | conf. | conf. | 17 | 4,640 | 15% | 41 | 30,683 |
| | 125+ | 26 | 57,941 | 95% | - | - | - | 3 | 1,669 | 3% | 8 | 1,499 | 2% | 36 | 61,108 |
| 94 Total | | 48 | 83,502 | 91% | 8 | 210* | 1% | 5 | 1,669* | 2% | 31 | 6,299 | 7% | 90 | 92,152* |
| 95 | 0-59 | 1 | conf. | conf. | 26 | 682 | 62% | 1 | conf. | conf. | 16 | 412 | 38% | 44 | 1,003 |
| | 60-124 | 16 | 24,632 | 66% | 3 | 115 | 0% | 2 | conf. | 3% | 74 | 11,528 | 31% | 95 | 37,675 |
| | 125+ | 26 | 71,914 | 90% | - | - | - | 4 | 3,377 | 4% | 29 | 4,480 | 6% | 59 | 79,093 |
| 95 Total | | 43 | 96,546 | 82% | 29 | 797 | 1% | 7 | 3,377* | 4% | 119 | 16,419 | 14% | 198 | 117,771 |
| 96 | 0-59 | - | - | - | 14 | 86 | 50% | - | - | - | 4 | 86 | 50% | 18 | 171 |
| | 60-124 | 14 | 23,162 | 55% | 7 | 100 | 0% | 2 | conf. | 4% | 65 | 17,590 | 42% | 88 | 42,281 |
| | 125+ | 25 | 67,951 | 84% | - | - | - | 9 | 6,775 | 8% | 26 | 5,785 | 7% | 60 | 79,793 |
| 96 Total | | 39 | 91,112 | 74% | 21 | 186 | 0% | 11 | 6,775* | 7% | 95 | 23,461 | 19% | 166 | 122,245 |
| 97 | 0-59 | - | - | - | 6 | 44 | 56% | - | - | - | 3 | 34 | 44% | 9 | 122 |
| | 60-124 | 14 | 28,357 | 68% | 8 | 162 | 0% | 3 | 1,472 | 4% | 58 | 11,704 | 28% | 83 | 41,766 |
| | 125+ | 24 | 91,711 | 91% | - | - | - | 6 | 3,543 | 4% | 19 | 5,348 | 5% | 49 | 100,094 |
| 97 Total | | 38 | 120,068 | 84% | 14 | 206 | 0% | 9 | 5,015 | 4% | 80 | 17,075 | 12% | 141 | 141,982 |
| 98 | 0-59 | - | - | - | 8 | 16 | 35% | - | - | - | 3 | 30 | 65% | 11 | 118 |
| | 60-124 | 11 | 22,609 | 75% | 1 | conf. | 0% | 2 | conf. | conf. | 50 | 6,710 | 22% | 64 | 30,354 |
| | 125+ | 25 | 72,270 | 93% | - | - | - | 5 | 2,729 | 4% | 20 | 2,358 | 3% | 50 | 76,992 |
| 98 Total | | 36 | 94,879 | 88% | 9 | 16* | 0% | 7 | 2,729* | 3% | 73 | 9,098 | 8% | 125 | 107,465 |
| 99 | 0-59 | - | - | | 10 | 85 | 69% | - | - | - | 4 | 38 | 31% | 14 | 123 |
| | 60-124 | 12 | 12,066 | 60% | 9 | 75 | 0% | 3 | 154 | 1% | 65 | 7,689 | 38% | 89 | 19,984 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 125+ | 26 | 78,353 | 92% | - | - | | 10 | 2,957 | 3% | 23 | 4,072 |
| 99Total | | 38 | 90,419 | 85% | 19 | 160 | 0% | 13 | 3,536 | 3% | 92 | 11,799 |

Source: ADF&G Fishtickets and NMFS Blend data 1992-99. * excludes confidential (conf.) landings.

Table 3.2: Catcher Vessel's Participation in the BSAI Pacific Cod Jig Fishery, 1995-99

| | Vessel Length Class | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 0-59 feet | | 60-124 feet | | 125+ feet | | Total | |
| Year | # | Catch (mt) | # | Catch (mt) | # | Catch (mt) | # | Catch mt. |
| 1995 | 42 | 716 | 3 | conf. | - | - | 45 | conf. |
| 1996 | 30 | 326 | 3 | conf | - | - | 33 | conf. |
| 1997 | 17 | 171 | - | - | - | - | 17 | 171 |
| 1998 | 10 | 191 | - | - | - | - | 10 | 191 |
| 1999 | 13 | 149 | 1 | conf. | - | - | 14 | conf. |

Source: Alaska Department of Fish and Game Fishticket files, 1995-99

### 3.1.2 Distribution of Catch Within Each Fleet

Freezer Longline Vessels

In the freezer longline fleet, the vessels that qualify under the 300 mt criteria accounted for 98.6 percent of that sector's BSAI harvest of Pacific cod from 1995-99. Overall, five vessels accounted for 25 percent of the sectors catch of BSAI cod, 12 vessels 50 percent, 19 vessels 75 percent, and 28 vessels 90 percent. The remaining 27 vessels accounted for the other 10 percent of the freezer longline harvest of cod during the 1995-99 time period.

If 1995 is excluded from the calculations, the freezer longliners that qualify under the 300 mt alternative using the years 1996-99 account for almost 99.9 percent of the freezer longline sector's cod catch. Therefore, given the small amounts of cod catch history accounted for by the vessels excluded from by the recent participation requirements, the communities (primarily in Washington) where those owners reside should only be minimally impacted by this program. This conclusion is based on the information above that shows vessel owners that would not be issued a license have harvested very little cod in the BSAI fishery in the recent past, and this translates to small amounts of revenue generated from the fishery.

Longline Catcher Vessels

Five of the 126 longline catcher vessels that fished BSAI cod between 1995-99 accounted for 49 percent of that sector's total cod catch. Fourteen vessels accounted for 75 percent of the catch, and 32 vessels accounted for 90 percent of the catch. The remaining 94 vessels harvested 10 percent of the 1995-99 total cod catch. It took 37 vessels to harvest just 1 percent of this sectors total catch (about 65,000 pounds). This equates to about 1,750 lb per vessel over a five year period, or about 350 lb per year.

Pot Catcher/Processors

Four of the 20 pot catcher/processors harvested about 68 percent of that sector's total BSAI cod harvest from 1995-99. Ten of the pot catcher/processors harvested over 90 percent of the total. The remaining ten vessels accounted for only 10 percent of the sector's total catch from 1995-99.

Pot Catcher Vessels

Relatively few of the pot catcher vessels accounted for a majority of the fixed gear Pacific cod harvest from 1995-99. During that time period a total of 203 vessels reported cod harvests. Six of the 203 vessels accounted for 25 percent of the catch, 17 vessels (50 percent), 38 vessels (75 percent), and 69 vessels (90 percent). The remaining 10 percent of the cod harvest in this sector was taken by the other 134 vessels. This distribution should not be unexpected. In many fisheries a few "core" boats account for much of the harvest.

## 3.2 Vessel Participation Patterns in the BSAI Pacific Cod Fishery

In addition to the number of vessels and their aggregate total catch, information on their participation patterns is also important to consider for a limited entry program. Tables which represent each vessel's participation history are included in this section (Tables 3.3-3.8). Tables were developed for each of the four vessel classes under consideration, and the longline catcher vessels were divided into three tables. The three tables show participation patterns when only harvests using longline gear were included (Table 3.4), longline and jig gear (Table 3.5), and longline gear on all vessel sizes and jig gear on vessels less than 60' LOA (Table 3.6).

Shaded cells in the tables represent participation in that year (although these tables do not provide any information on the level of effort in the year they fished). The column on the right side of the table reports the number of vessels that are represented by that participation pattern. The column on the left side of the table is simply a sum of the years that the vessels participated in the Pacific cod fishery between 1995-99. So, if a vessel fished in all five years the Years Fished column would report 5.

Two important issues were considered by the Council that affected Pacific cod vessels during this time period. The first was LLP. Qualifying years for LLP area endorsements were January 1, 1992 through June 17, 1995. The second issue was the Pacific cod TAC split among fixed and trawl gear vessels, which was scheduled to sunset on December 31, 1996. The Council made their final decision on that amendment package during the June 1996 meeting. These two issues may have provided motivation for vessels to fish in a manner that they would not have otherwise. However, it is not possible to determine exactly how participation patterns were influenced by these amendments. It is obvious that the last year for LLP endorsement qualification was a year that a large number of vessels fishing in just one year participated. This trend is consistent across all vessel sectors.

Participation in the freezer longline sector has been fairly stable over the time period under consideration. Thirty-two of the 55 vessels participated in at least 4 of the 5 years. Ten of the vessels only participated in one year, nine of the vessels participated in only two years, and four of the vessels participated in only three years. Compared to other sectors of the cod fishery, participation in the freezer longline sector has been more stable. Vessels in this class have also exhibited the greatest fishing power in the fixed gear cod fleet. Therefore, adding only a few vessels to the fleet could have substantial impact on the harvesting potential of this sector.

Table 3.3: Participation Patterns of the Freezer Longline Fleet, 1995-99

| Years Fished | 1995 | 1996 | 1997 | 1998 | 1999 | Vessels |
|---|---|---|---|---|---|---|
| 1 | | | | | | 2 |
| 1 | | | | | | 1 |
| 1 | | | | | | 1 |
| 1 | | | | | | 1 |
| 1 | | | | | | 5 |
| 2 | | | | | | 3 |
| 2 | | | | | | 1 |
| 2 | | | | | | 5 |
| 3 | | | | | | 3 |
| 3 | | | | | | 1 |
| 4 | | | | | | 1 |
| 4 | | | | | | 3 |
| 4 | | | | | | 2 |
| 5 | | | | | | 26 |
| Total Vessels | 43 | 39 | 38 | 36 | 38 | 55 |

Source: NMFS AKR Blend data 1995-99.

Table 3.4: Participation Patterns of Longline Catcher Vessels, 1995-99.

| Gear | Years Fished | 1995 | 1996 | 1997 | 1998 | 1999 | Vessels |
|---|---|---|---|---|---|---|---|
| Longline | 1 | | | | | | 12 |
| Longline | 1 | | | | | | 5 |
| Longline | 1 | | | | | | 7 |
| Longline | 1 | | | | | | 8 |
| Longline | 1 | | | | | | 19 |
| Longline | 2 | | | | | | 2 |
| Longline | 2 | | | | | | 2 |
| Longline | 2 | | | | | | 1 |
| Longline | 2 | | | | | | 1 |
| Longline | 2 | | | | | | 2 |
| Longline | 2 | | | | | | 1 |
| Longline | 2 | | | | | | 7 |
| Longline | 3 | | | | | | 1 |
| Longline | 3 | | | | | | 1 |
| Longline | 3 | | | | | | 1 |
| Total Vessels | | 29 | 21 | 14 | 9 | 19 | 70 |

Source: ADF&G Fishticket data 1995-99.

A total of 70 unique longline catcher vessels have participated in the BSAI Pacific cod target fishery over the 1995-99 time period (Table 3.4). Fifty-one (73 %) of those vessels only fished one year, 16 fished two years, and three vessels fished three years. No vessels fished in more than three years during that time period.

Including jig gear landings increases the number of catcher vessels that participated in the fishery to 126 (Table 3.5). Eighty-five of these vessels fished in only one year, 27 fished during two years, and the remaining 12 vessels fished in three or more years.

When only jig landings for vessels less than 60' LOA are included in the calculation, the number of vessels that participated decreases to 121 (Table 3.6). Therefore, five vessels in the 60-124' LOA class reported using only jig gear during the 1995-99 time period. The distribution of participation patterns is very similar to those when the catch history of all jig vessels was included.

Table 3.5: Participation History of Longline and Jig Catcher Vessels, 1995-99.

| Gear | Years Fished | 1995 | 1996 | 1997 | 1998 | 1999 | Vessels |
|---|---|---|---|---|---|---|---|
| Longline + All Jig | 1 | | | | | | 16 |
| Longline + All Jig | 1 | | | | | | 5 |
| Longline + All Jig | 1 | | | | | | 10 |
| Longline + All Jig | 1 | | | | | | 15 |
| Longline + All Jig | 1 | | | | | | 39 |
| Longline + All Jig | 2 | | | | | | 2 |
| Longline + All Jig | 2 | | | | | | 2 |
| Longline + All Jig | 2 | | | | | | 3 |
| Longline + All Jig | 2 | | | | | | 1 |
| Longline + All Jig | 2 | | | | | | 5 |
| Longline + All Jig | 2 | | | | | | 1 |
| Longline + All Jig | 2 | | | | | | 13 |
| Longline + All Jig | 3 | | | | | | 1 |
| Longline + All Jig | 3 | | | | | | 1 |
| Longline + All Jig | 3 | | | | | | 1 |
| Longline + All Jig | 3 | | | | | | 3 |
| Longline + All Jig | 4 | | | | | | 2 |
| Longline + All Jig | 4 | | | | | | 2 |
| Longline + All Jig | 5 | | | | | | 4 |
| Total Vessels | | 63 | 50 | 31 | 19 | 30 | 126 |

Source: ADF&G Fishticket data 1995-99.

Table 3.6: Participation History of Longline Catcher Vessels and Jig Vessels <60', 1995-99

| Gear | Years Fished | 1995 | 1996 | 1997 | 1998 | 1999 | Vessels |
|---|---|---|---|---|---|---|---|
| Longline + Jig <60' | 1 | | | | | | 15 |
| Longline + Jig <60' | 1 | | | | | | 5 |
| Longline + Jig <60' | 1 | | | | | | 10 |
| Longline + Jig <60' | 1 | | | | | | 13 |
| Longline + Jig <60' | 1 | | | | | | 37 |
| Longline + Jig <60' | 2 | | | | | | 2 |
| Longline + Jig <60' | 2 | | | | | | 2 |
| Longline + Jig <60' | 2 | | | | | | 3 |
| Longline + Jig <60' | 2 | | | | | | 1 |
| Longline + Jig <60' | 2 | | | | | | 5 |
| Longline + Jig <60' | 2 | | | | | | 1 |
| Longline + Jig <60' | 2 | | | | | | 13 |
| Longline + Jig <60' | 3 | | | | | | 1 |
| Longline + Jig <60' | 3 | | | | | | 1 |
| Longline + Jig <60' | 3 | | | | | | 1 |
| Longline + Jig <60' | 3 | | | | | | 3 |
| Longline + Jig <60' | 4 | | | | | | 2 |
| Longline + Jig <60' | 4 | | | | | | 2 |
| Longline + Jig <60' | 5 | | | | | | 4 |
| Total Vessels | | 43 | 48 | 31 | 19 | 29 | 121 |

Source: ADF&G Fishticket data, 1995-99

The total number of pot catcher/processor vessels participating in the BSAI cod fishery has been fairly stable over the 1995-99 time period, as shown in Table 3.7 below. However, while the total number of vessels fishing in a year has been consistent, the boats that participate have not been as stable. Only seven of the 20 pot catcher/processors participating over the time period fished in at least three of the five years. The remaining 13 vessels fished two years or less, and three of the vessels entered the fishery for the first time in 1999.

Table 3.7: Participation History of Pot Catcher/Processors in the BSAI Cod Fishery, 1995-99

| Years Fished | 1995 | 1996 | 1997 | 1998 | 1999 | Vessels |
|---|---|---|---|---|---|---|
| 1 | | | | | | 3 |
| 1 | | | | | | 1 |
| 1 | | | | | | 1 |
| 1 | | | | | | 3 |
| 1 | | | | | | 1 |
| 2 | | | | | | 1 |
| 2 | | | | | | 1 |
| 2 | | | | | | 1 |
| 2 | | | | | | 1 |
| 3 | | | | | | 1 |
| 3 | | | | | | 1 |
| 4 | | | | | | 1 |
| 5 | | | | | | 4 |
| Total Vessels | 7 | 11 | 9 | 7 | 13 | 20 |

Source: NMFS AKR Blend data, 1995-99.

A total of 203 pot catcher vessels participated in the BSAI Pacific cod fishery from 1995-99 (Table 3.8). Almost half of these vessels (91) fished in only one year, and 40 vessels fished only in 1995. Forty vessels fished in two years, 22 vessels fished in three years, 28 fished four years, and 22 fished all five years. Therefore, only about 25 percent of the vessels fished more than three of five years.

Table 3.8: Participation History of the Pot Catcher Vessel Fleet in the BSAI cod fishery, 1995-99

| Years Fished | 1995 | 1996 | 1997 | 1998 | 1999 | Vessels |
|---|---|---|---|---|---|---|
| 1 | | | | | | 20 |
| 1 | | | | | | 12 |
| 1 | | | | | | 4 |
| 1 | | | | | | 15 |
| 1 | | | | | | 40 |
| 2 | | | | | | 6 |
| 2 | | | | | | 4 |
| 2 | | | | | | 3 |
| 2 | | | | | | 2 |
| 2 | | | | | | 2 |
| 2 | | | | | | 2 |
| 2 | | | | | | 5 |
| 2 | | | | | | 6 |
| 2 | | | | | | 10 |
| 3 | | | | | | 3 |
| 3 | | | | | | 2 |
| 3 | | | | | | 6 |
| 3 | | | | | | 3 |
| 3 | | | | | | 2 |
| 3 | | | | | | 1 |
| 3 | | | | | | 5 |
| 4 | | | | | | 7 |
| 4 | | | | | | 4 |
| 4 | | | | | | 5 |
| 4 | | | | | | 7 |
| 4 | | | | | | 5 |
| 5 | | | | | | 22 |
| Total Vessels | 119 | 95 | 80 | 73 | 92 | 203 |

Source: ADF&G Fishticket data, 1995-99

### 3.3 Ex-vessel Prices and Revenue

Ex-vessel BSAI Pacific cod prices for the fixed gear sector ranged between $0.249 and $0.342 per pound over the period 1993 through 1997 (Greig 1998). The highest price was reported in 1997. During this time period the prices paid to pot and longline vessels were similar. Some years pot catcher vessels received slightly more revenue per pound than longline vessels. Other years the longline vessels were paid a slightly higher price. According to the same report trawl vessels have historically received a lower price for their

deliveries than fixed gear vessel. However, because vessels using trawl gear will be unaffected by this amendment those differences will not be reported.

For 1998, fishticket data were used to estimate ex-vessel prices for BSAI shorebased deliveries. Prices for pot and longline catcher vessels were estimated separately. The following steps were used to estimate ex-vessel prices from fishtickets:

1. Only deliveries of BSAI caught Pacific cod in an open access fishery were selected.
2. Delivery codes for processed products and discards were deleted.
3. Fishtickets that did not include value information were deleted.
4. The records that remained were then divided into gear types.
5. Records that did not fall within two standard deviations of the mean price were deleted.
6. A weighted average price for the remaining records was then calculated for each gear type.

This method of estimating ex-vessel prices yielded $0.192 for pot gear (2,000 observations) and $0.193 for longline (60 observations). It should be noted that these values may not reflect post-season price adjustments which may have been paid to fishermen. These prices are weighted averages based on the population of deliveries for which reasonable values were reported, and not a sample, so no tests of statistical significance were performed. The distribution of prices were negatively skewed for both gear types, with the pot deliveries also exhibiting bi-modality. The bi-modal distribution resulted from geographic regions paying different prices; differences which cannot be reported because of confidentiality regulations.

Anomalously low prices ranging far from the mean of an otherwise tightly bounded distribution accounted for the wide dispersion and skewness. Deletion of these records which did not fall within two standard deviations of the mean included deliveries with calculated prices of less than $0.05/lb for longliners and $0.08/lb for pot vessels, amounts which could not reasonably be expected to sustain a directed fishery for Pacific cod. These prices may have resulted from bycatch landings of Pacific cod in other fixed gear fisheries such as the sablefish and halibut IFQ fisheries. While the upper tails of the distributions for both gear types contained data that was also dropped as a consequence of selecting two standard deviations for an acceptance rate, these records were very few relative to the observations for each distribution (one record for the longline data and ten for the pot vessel data). For each gear type, these upper values occurred to the right of natural break points in the distribution, suggesting that these sales of Pacific cod were not representative of those clustered closely around the mean. Perhaps these landings sold at a premium due to the inclusion of other more valuable species in the delivery or perhaps these records were coded erroneously.

Had all records been included for ex-vessel price computation, a mean of $0.187 and median of $0.196 would have resulted for pot vessels, whose mean and median prices after outlier exclusion were $0.191 and $0.196, respectively. An analogous comparison for longline catcher vessels yields a mean of $0.178 and median of $0.167 before the exclusion of outliers, and a mean of $0.185 and median of $0.174 after their exclusion. However, one must bear in mind that the bi-modal price distribution for the longline catcher vessels hinders the usefulness of these statistics. According to the above weighted average prices of $0.192 for pot gear and $0.193 for longline, longline catcher vessels would only generate an additional $2.2 per metric ton, compared to pot vessels.

During 1999, the ex-vessel price of BSAI cod harvested with fixed gear and delivered shoreside was reported to be about $0.30, based on discussions with members of industry. No differences in the pot and longline prices were reported during these discussions. The 1999 price is about 50 percent higher than was estimated from 1998 fishtickets. Fillet prices for pollock also increased about 74 percent between 1998 and 1999 (GAO

1999). The increases were likely due to several factors including tighter worldwide groundfish supplies and stronger demand . A stronger yen relative to the dollar has also likely increased prices. These same factors influencing pollock prices also affect the cod markets, so it is not surprising to see similar changes in cod prices over this time period.

Ex-vessel prices from 1998 will be used in Chapter 4 to generate estimates of the distributional impacts the alternatives will have on catcher vessels. General information on 1999 prices was included to provide the reader a sense of current market conditions. However, because these data were collected through informal discussions with members of industry, they will not be used to project gross ex-vessel revenues in this analysis. The most current year of available data (1998) will be used to make those projections, recognizing that prices were lower in 1998 than they were in 1997 or 1999.

## 3.4 Products Produced from Pacific Cod

Once groundfish are harvested they must be processed. The types of product produced depend on the production facilities' capabilities and the demand for specific products in the market. This section will focus on primary processing. Fish that have been processed once and are then reprocessed will not be included. Including only fish that are processed the first time will eliminate double counting problems which may arise if secondary processing was also counted. A second reason for including only primary processing is the lack of data available on secondary processing.

Production information has been compiled for the years 1992-99. These data were derived from Weekly Production Reports (WPR) submitted to NMFS AKR by all Federally managed processors. WPR's collect data on the tons of each product form that were produced by a processor. Product forms reported in the WPR data have been aggregated in this analysis. A summary table of the original product forms and those used in this analysis, listed in the aggregation columns, are included in Table 3.9.

Table 3.9: List of Product Forms Included in the Analysis

| WPR Code | Aggregation | WPR Code | Aggregation | WPR Code | Aggregation |
|---|---|---|---|---|---|
| 01-Whole/food | Whole | 17-Cheeks/chins (<90) | Other | 34-Milt | Other |
| 02-Whole/bait | Bait | 18-Chins (90+) | Other | 35-Stomachs | Other |
| 03-Bled | Bled | 19-Belly flaps (meat) | Other | 37-Split - no backbone | Other |
| 04-Gutted only | Gutted | 20-Fillets w/skin & ribs | Fillets | 39-Bones | Other |
| 06-H&G w/roe | H&G | 21-Fillets w/skin-no ribs | Fillets | 92-Whole | Whole |
| 07-H&G western | H&G | 22-Fillet w/ribs no skin | Fillets | 95-Personal use- not sold | Other |
| 08-H&G eastern | H&G | 23-Fillets - no skin/ribs | Fillets | 96-Previously caught | Disc |
| 10-H&G, tail removed | H&G | 24-Fillet - deep skin | Fillets | 97-Other | Other |
| 12-Salt & split | Salt & Split | 30-Surimi | Surimi | 98-Discarded at sea | Disc |
| 14-Roe | Roe | 31-Minced fish | Minced | 99-Discarded landed | Disc |
| 15-Pectoral girdle only | Other | 32-Fish meal | Meal | | |
| 16-Heads | Other | 33-Fish oil | Other | | |

Tables 3.10 through 3.12 report the annual production by processors using Pacific cod harvested in the directed, fixed gear fishery from the BSAI. In addition to Pacific cod harvested in the directed fixed gear fishery, the tables show the products made from all other groundfish species and fisheries for which these processors have operated, except for IFQ halibut. The first set of tables shows the amount of each product produced from various species. Within those tables are the Pacific cod products. Variations in the products produced by the different sectors can then be compared using information from the tables. This information can then be used to help illustrate changes in product mix that may result from changing the allocations to different sectors.

Freezer longline vessels primarily harvest and process Pacific cod. Between 1992 and 1998, Pacific cod products comprised anywhere from 84% to 97% of all other processed fish, averaging 93% for the seven year period. While this ratio hovered slightly above and below 95% for the years 1995 through 1997, the trend changed slightly in 1998 when increased retention for pollock under the IR/IU program likely caused the ratio to fall to about 90%. The preponderance of product, upward of 95% in most years, has taken the form of headed and gutted, frozen fish. Freezer longliners, in general, do not meet the load line requirements of the U.S. Coast Guard and are prohibited from producing fillet products, even though it is likely that many vessels may prefer to produce fillets. In recent years roe, followed by a combination of ancillary products have made up the remainder.

Pot catcher/processors, on the other hand, have consistently produced Pacific cod in excess of 99% of their total product. Much like freezer longliners, pot catcher/processors favor head and gut processing, although salted and split Pacific cod has accounted for as much as 15% of total product form in some years.

Shoreside processors purchase Pacific cod from the fixed, trawl and jig gear and other sectors. However, the resulting products cannot be tracked back to the amounts of unprocessed fish landed by each gear type, thus making it difficult to portray the exact role that fixed gear Pacific cod plays in terms of overall processed product. Since 1992, when Pacific cod accounted for about 6% of total groundfish product to shore plants, this ratio grew until culminating at 16% in 1996, and then tapered off to 13% by 1998. Pollock have dominated processing output in terms of volume with an average of almost 112,000 mt for the seven year period, followed by Pacific cod with an average of 14,000 mt.

Table 3.10: Production by Product form and Species by Freezer Longline Vessels, 1992-99

| | | Year | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Species | Products | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 |
| Atka mackerel | Bait | | | 2 | | | | | 1 |
| | H&G | 12 | | | | | | 2 | |
| Atka mackerel Total | | 12 | | 2 | | | | 2 | 1 |
| Flatfish | Bait | | | 2 | 2 | | | | |
| | H&G | 53 | 125 | 133 | 128 | 140 | 186 | 116 | |
| Flatfish Total | | 53 | 125 | 135 | 130 | 140 | 186 | 116 | |
| Greenland Turbot | H&G | 133 | 3,113 | 463 | 1,225 | 1,792 | 2,074 | 2,714 | 1,760 |
| | Roe | | | 3 | | | | | |
| | Whole | | | | | | | 3 | 1 |
| Greenland Turbot Total | | 133 | 3,113 | 466 | 1,225 | 1,792 | 2,074 | 2,717 | 1,761 |
| Other | Gutted | 22 | | | | | | 1 | 1 |
| | H&G | 32 | | | | | | | |
| | Other | 198 | | | | | | 389 | 366 |
| Other Total | | 252 | | | | | | 390 | 369 |
| Pacific cod | Bait | 21 | 40 | 44 | 15 | 18 | 5 | 36 | 3 |
| | Bled | 78 | 23 | | | | | | 15 |
| | Fillets | 776 | 471 | 288 | 79 | | | 126 | 92 |
| | Gutted | | | | 4 | | 43 | | |
| | H&G | 43,344 | 25,142 | 35,815 | 42,117 | 40,043 | 52,656 | 41,536 | 37,343 |
| | Minced | 144 | 52 | 107 | 23 | | | 41 | 8 |
| | Other | 326 | 338 | 626 | 858 | 1,084 | 1,094 | 709 | 571 |
| | Roe | 435 | 515 | 395 | 316 | 483 | 590 | 457 | 217 |
| | Whole | 17 | 14 | 1 | 75 | 171 | 4 | 22 | 44 |
| Pacific cod Total | | 45,141 | 26,594 | 37,276 | 43,487 | 41,799 | 54,392 | 42,928 | 38,294 |
| Pollock | Bait | | | | | | | 8 | |
| | Fillets | 3 | 1 | 143 | | | | | |
| | H&G | 32 | 147 | 162 | 169 | 121 | 252 | 570 | 786 |
| | Minced | | | 49 | | | | | |
| | Other | | | | | | | 45 | 14 |
| | Roe | 1 | 2 | 12 | 13 | 6 | 8 | 29 | 20 |
| | Whole | | | | | | | 49 | 60 |
| Pollock Total | | 36 | 150 | 366 | 182 | 127 | 260 | 701 | 880 |
| Rockfish | Bait | | | | | | | 1 | |
| | H&G | 240 | 267 | 126 | 80 | 58 | 38 | 140 | 56 |
| | Other | 3 | 18 | 1 | 1 | 2 | 1 | 3 | 8 |
| | Roe | | | 1 | | | | | |
| | Whole | | | | | | | 5 | |
| Rockfish Total | | 243 | 285 | 128 | 81 | 60 | 39 | 149 | |
| Sablefish | H&G | 711 | 1,269 | 808 | 424 | 372 | 225 | 800 | 233 |
| | Other | 4 | 14 | 4 | 4 | 7 | 3 | 40 | 6 |
| | Roe | 2 | 4 | | | | | | |
| Sablefish Total | | 717 | 1,287 | 812 | 428 | 379 | 228 | 840 | 238 |
| Grand Total | | 46,587 | 31,555 | 39,185 | 45,533 | 44,297 | 57,179 | 47,844 | 41,650 |

Table 3.11: Production by Product Form by Pot Catcher/Processors in Metric Tons, 1992-99

| Species | Products | Year | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 |
| Atka mackerel | Other | | | | | 1 | | | 0 |
| Atka mackerel Total | | | | | | 1 | | | 0 |
| Flatfish | Whole | | | | | | | 8 | 10 |
| Flatfish Total | | | | | | | | 8 | 10 |
| Other | Bait | 10 | | | | | | | 1 |
| | Gutted | 24 | | | | | | | 2 |
| | Whole | | | | | | | | 3 |
| | (blank) | 3 | | | | | | | |
| Other Total | | 37 | | | | | | | 6 |
| Pacific cod | Bait | 58 | | 34 | | 5 | 14 | | 1 |
| | Fillets | 6 | | | | | | | |
| | Gutted | 15 | | | | | | | |
| | H&G | 3,836 | 288 | 726 | 1,347 | 3,160 | 2,304 | 1,337 | 1,489 |
| | Minced | | | | | | | | |
| | Other | 28 | | | | 127 | 3 | 1 | 6 |
| | Salt & Split | | | 61 | 155 | 625 | 144 | 113 | 18 |
| | Whole | | | | | | | 1 | 7 |
| Pacific cod Total | | 3,943 | 288 | 821 | 1,502 | 3,917 | 2,465 | 1,450 | 1,521 |
| Grand Total | | 3,981 | 288 | 821 | 1,502 | 3,918 | 2,465 | 1,458 | 1,540 |

Table 3.12: Production by Product Form by Plants Taking Catcher Vessel Deliveries from Fixed Gear Vessels (Metric Tons), 1992-99

| Species | Products | Year | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 |
| Atka mackerel | Meal | 2 | 0 | 1 | 1 | 2 | 0 | | 0 |
| | Other | 20 | | | | | | | |
| Atka mackerel Total | | 21 | 0 | 1 | 1 | 2 | 0 | | 0 |
| Flatfish | Bait | 0 | | | | | | | 2 |
| | Fillets | 77 | | | 0 | 0 | | | |
| | H&G | 29 | | 0 | 7 | 108 | 116 | | |
| | Meal | 232 | 10 | 211 | 402 | 282 | 1,042 | 170 | 184 |
| | Other | 9 | 0 | 137 | 158 | 16 | 261 | 15 | 47 |
| | Surimi | 305 | | 484 | 532 | 6 | 1,525 | | 176 |
| | Whole | | | 1,490 | 3,865 | 3,574 | 3,865 | | |
| Flatfish Total | | 652 | 10 | 2,322 | 4,965 | 3,986 | 6,809 | 185 | 410 |
| Greenland Turbot | Bled | | | | 0 | | | | |
| | Fillets | | | | 1 | | | | |
| | H&G | 37 | 349 | 575 | 572 | 153 | 71 | 294 | 91 |
| | Meal | 3 | 0 | 16 | 51 | 0 | 0 | 2 | |
| | Other | 1 | | 3 | 17 | | | | |
| | Whole | | | | | | 0 | 2 | 4 |
| Greenland Turbot Total | | 41 | 349 | 594 | 641 | 154 | 71 | 298 | 96 |
| Other | Bait | 16 | | | 1 | | | | |
| | Gutted | | | | 4 | | | | 20 |
| | Meal | 1 | 2 | 6 | 15 | 4 | 36 | 11 | 9 |
| | Other | 0 | | | | | 0 | 2 | |
| | Whole | | 2 | 5 | 1 | | 4 | | 2 |
| Other Total | | 17 | 4 | 11 | 21 | 4 | 41 | 13 | 31 |
| Pacific cod | Bait | 185 | 738 | 469 | 905 | 699 | 443 | 1,562 | 806 |
| | Bled | 93 | 1 | 248 | 338 | 67 | 63 | 2 | 488 |
| | Fillets | 1,040 | 2,645 | 2,538 | 4,363 | 5,418 | 6,287 | 4,871 | 5,318 |
| | Gutted | 10 | | | | | | | |
| | H&G | 607 | 757 | 2,666 | 2,032 | 1,384 | 132 | 595 | 943 |
| | Meal | 816 | 1,720 | 1,808 | 3,013 | 2,808 | 3,109 | 2,273 | 2,511 |
| | Minced | 138 | 529 | 373 | 446 | 29 | 24 | 50 | |
| | Other | 190 | 162 | 395 | 1,145 | 1,670 | 1,162 | 634 | 1,648 |
| | Roe | 33 | 11 | 84 | 322 | 424 | 638 | 474 | 415 |
| | Salt & Split | 2,995 | 2,225 | 4,101 | 6,617 | 8,259 | 4,253 | 3,438 | 3,640 |
| | Surimi | 177 | | 10 | 370 | 160 | 354 | 381 | 229 |
| | Whole | 130 | 6 | 160 | 265 | 733 | 376 | 127 | 1 |
| Pacific cod Total | | 6,414 | 8,795 | 12,852 | 19,816 | 21,653 | 16,842 | 14,407 | 16,018 |

| Table 3.12 continued | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Pollock | Bait | | 16 | 32 | 22 | 3 | | 75 | 68 |
| | Fillets | 1,877 | 4,906 | 1,065 | 3,377 | 5,199 | 4,361 | 5,718 | 17,438 |
| | H&G | | | | | | | 93 | 471 |
| | Meal | 26,764 | 27,369 | 28,138 | 26,219 | 22,868 | 24,595 | 23,949 | 33,656 |
| | Minced | | 266 | 30 | 138 | 67 | 90 | 34 | 2,857 |
| | Other | 7,129 | 9,793 | 11,069 | 13,486 | 12,381 | 11,273 | 11,575 | 15,166 |
| | Roe | 4,298 | 1,377 | 2,551 | 3,668 | 3,379 | 4,127 | 2,440 | 3,898 |
| | Salt & Split | | | | | | | 933 | 265 |
| | Surimi | 62,585 | 66,292 | 77,421 | 73,172 | 68,586 | 65,155 | 62,666 | 78,204 |
| | Whole | 172 | | 41 | | 6 | 20 | 24 | 17 |
| Pollock Total | | 102,825 | 110,019 | 120,345 | 120,082 | 112,488 | 109,620 | 107,507 | 152,040 |
| Rockfish | Bait | | | | 0 | | | | |
| | Gutted | 0 | | | | | | | |
| | H&G | 34 | 29 | 23 | 75 | 25 | 23 | 19 | 20 |
| | Meal | 1 | 0 | 2 | 15 | 14 | 24 | | |
| | Other | 0 | | | 0 | | | 2 | |
| | Whole | 3 | | 3 | 1 | 22 | 92 | 189 | 7 |
| Rockfish Total | | 38 | 29 | 29 | 92 | 61 | 140 | 210 | 29 |
| Sablefish | H&G | 410 | 248 | 253 | 607 | 304 | 387 | 272 | 299 |
| | Meal | 1 | 0 | 1 | 4 | | 0 | 5 | |
| | Other | 0 | | 2 | 1 | | | | 5 |
| | Whole | 7 | | | | | 0 | | 4 |
| Sablefish Total | | 418 | 248 | 255 | 611 | 304 | 388 | 277 | 308 |
| Grand Total | | 110,427 | 119,454 | 136,410 | 146,230 | 138,651 | 133,910 | 122,897 | 169,118 |

Source: NMFS Weekly Production Report Data, 1992-99

### 3.5 Ex-processor Revenue (First Wholesale)

The amount paid to the first processors of fish for their product is first wholesale revenue. This section of the analysis will use 1998 production patterns and prices to estimate the first wholesale value of a metric ton of round Pacific cod to each sector.

Data from the 1998 COAR reports were used to estimate first wholesale price by product form and gear type where possible. NMFS Weekly Production Reports were used to estimate production. Because both data sets report similar product forms, few adjustments were needed to match product forms to prices. Currently the COAR data set cannot be used to estimate product mix, because not all of the processors are required to submit COAR reports. They were not required to do so in 1998, but should be in future years because of a regulation changes currently being developed. Table 3.13 reports the pounds and a calculated first wholesale price by product form and sector derived from the COAR. Pounds were reported to provide the reader a reference point showing the amount of product used to generate the price. The amount of product in the inshore sector is large relative to the amount of fixed gear Pacific cod they processed. This is because product forms cannot be broken out by gear used to harvest the fish. Lumping all gear types in this

calculation may underestimate the price of inshore fixed gear products. The price differences masked by including all gear types would likely have been due to the freshness and quality of the raw fish delivered to the processor.

Table 3.13: First wholesale pounds and prices by product form and processing sector, 1998.

| Product | Inshore/MS | | Pot CP | | Freezer Longliner | |
|---|---|---|---|---|---|---|
| | Pounds | $/Lb. | Pounds | $/Lb. | Pounds | $/Lb. |
| Belly flaps (meat) | 64,766 | $0.70 | - | - | - | - |
| Bled | - | $0.77 | - | - | - | - |
| Bones | 4,000 | $0.07 | - | - | - | - |
| Fillets with skin-no ribs | 208,918 | $1.86 | - | - | - | - |
| Fillets-no skin or ribs | 15,290,541 | $1.70 | - | - | - | $1.70 |
| Fish meal | 1,661,632 | $0.30 | - | - | - | - |
| Fish oil | 196,363 | $0.23 | - | - | - | - |
| Headed & gutted, eastern cut | - | $0.81 | 289,569 | $0.89 | 26,751,396 | $0.91 |
| Headed & gutted, western cut | 245,139 | $0.86 | 1,200,397 | $0.95 | 8,065,595 | $1.03 |
| H&G, tail removed | - | $0.86 | - | - | - | - |
| Milt | 16,442 | $1.24 | - | - | - | $1.24 |
| Minced fish | 49,802 | $0.25 | - | - | - | $0.25 |
| Other-specify | 65,250 | $1.58 | - | - | - | $1.58 |
| Pectoral girdle only | 212,415 | $0.75 | - | - | - | - |
| Roe only | 91,419 | $0.74 | - | - | 160,690 | $0.75 |
| Salted & split | 6,590,911 | $1.23 | 274,065 | $1.80 | - | - |
| Stomachs (internal organs) | 324 | $0.86 | - | - | 371,435 | $0.69 |
| Surimi | 1,938,693 | $0.53 | - | - | - | - |
| Whole bait | 1,014,815 | $0.35 | - | - | 25,355 | $0.48 |
| Whole fish/food fish | 169,012 | $0.75 | - | $0.75 | - | $0.75 |

Source: 1998 COAR.

Prices were calculated by dividing the total value by the total pounds. The weighted average price was calculated for each product form reported by a sector. The inshore column includes deliveries by all gear types, because it is not possible to determine the products produced by gear type used to harvest the fish. This same problem arises in weekly production report data. There are also prices reported in the table that have no corresponding poundage. These were product forms that were reported in the WPR data, but not in the COAR for that sector. In most cases a price from another sector was used as a proxy. The freezer longline sector has proxy values for whole fish, other, minced, milt, and fillets taken from the inshore sector. The pot catcher/processor sector's whole fish price was taken from the inshore sector. Inshore sector prices for bled fish were estimated by dividing the whole fish price by the PRR for bled fish. The inshore H&G eastern cut price was calculated by multiplying the western cut price by the pot catcher/processor ratio of eastern cut to western cut prices. Finally, the H&G (tail removed) price inshore was assumed to equal the inshore H&G western cut price.

The product mix information for 1998 is provided in Table 3.14. Information in that table shows that the catcher/processors produce mostly H&G products. Shorebased processors, on the other hand, produce mostly fillets. Caution must be exercised when using the product mix for inshore processors. These plants often take cod deliveries from vessels using different gear types during the same reporting period. Because processors cannot be expected to track the flow of fish through a plant by gear type, it is not possible to report production by gear type used to harvest the fish. Trawl gear deliveries have been much larger than fixed gear

catcher vessel deliveries. Therefore, the product mix information for catcher vessel deliveries may more closely represent products produced from trawl deliveries than fixed gear. Noting this problem, the analysis will still use the product mix from all gear type deliveries to shore based and inshore floating processors.

Table 3.14: Pounds of product produced by sector, 1998

| Product | Inshore/MS | Pot C/P | Freezer Longliner |
|---|---|---|---|
| Belly flaps (meat) | 497,572 | 0 | 0 |
| Bled | 5,020 | 0 | 0 |
| Bones | 404,293 | 0 | 0 |
| Fillets - no skin or ribs | 11,000,000 | 0 | 100,781 |
| Fish meal | 5,011,973 | 0 | 0 |
| Fish oil | 242,252 | 0 | 0 |
| H&G eastern | 123,799 | 1,536,871 | 63,000,000 |
| H&G western | 531,298 | 1,409,917 | 28,000,000 |
| Headed & gutted, tail removed | 657,610 | 0 | 0 |
| Milt | 170,651 | 0 | 432,875 |
| Minced fish | 109,577 | 0 | 91,229 |
| Other | 7,474 | 0 | 45,906 |
| Roe | 1,043,887 | 0 | 1,006,444 |
| Salt&split | 7,578,817 | 249,119 | 0 |
| Stomachs (internal organs) | 75,393 | 0 | 1,082,944 |
| Surimi | 839,362 | 0 | 0 |
| Whole/bait | 3,444,493 | 0 | 78,925 |
| Whole/food | 279,164 | 1,667 | 49,348 |
| Grand Total | 32,000,000 | 3,197,111 | 95,000,000 |

Source: 1998 Weekly Production Reports.

Note: Processors that did not take deliveries from fixed gear catcher vessels were excluded from the Inshore/MS column. Therefore, the overall production from these sectors are underestimated.

With the first wholesale price, the production by sector, and the product recovery rate, a measure of the first wholesale value per ton of round cod can be estimated. To make that calculation the price and product information are multiplied to generate an estimate of value. Then the product weights are converted to round weight by dividing the pounds of product by the product recovery rate. The values and round weights can then be summed. Once summed, the value can be divided by round weight to generate a weighted average first wholesale price. Table 3.15 provides estimates of this calculation in dollars per metric ton, reported in bold print at the bottom of the second part of the table. The results show that inshore deliveries generate about $923, pot c/ps $1,166, and freezer longliners $1,010 per metric ton of round fish. Recall that the inshore values are likely underestimated because they also include trawl deliveries. However, it is not possible to determine the extent to which trawl deliveries impact the price per ton estimate without tracking product through the production process from delivery to first processed sale. These first wholesale values will be used in Chapter 4 to estimate average Pacific cod revenue per vessel under the various limited entry alternatives considered by the Council.

Table 3.15: Estimates of 1998 first wholesale value per ton of round cod.

| Product | Inshore* | Pot C/P | Freezer Longliner | PRR |
|---|---|---|---|---|
| Belly flaps (meat) | $348,300 | $0 | $0 | |
| Bled | $3,842 | $0 | $0 | |
| Bones | $28,300 | $0 | $0 | |
| Fillets - no skin or ribs | $18,257,067 | $0 | $171,328 | 0.25 |
| Fish meal | $1,503,592 | $0 | $0 | |
| Fish oil | $55,718 | $0 | $0 | |
| H&G eastern | $99,743 | $1,367,815 | $57,170,493 | 0.44 |
| H&G western | $456,916 | $1,339,421 | $28,483,724 | 0.57 |
| Headed & gutted, tail removed | $565,545 | $0 | $0 | |
| Milt | $211,608 | $0 | $536,766 | |
| Minced fish | $27,394 | $0 | $22,807 | 0.5 |
| Other | $11,808 | $0 | $72,532 | 0.5 |
| Roe | $772,476 | $0 | $754,833 | |
| Salt&split | $9,321,945 | $448,416 | $0 | |
| Stomachs (internal organs) | $64,838 | $0 | $747,231 | |
| Surimi | $444,862 | $0 | $0 | |
| Whole/bait | $1,205,573 | $0 | $37,884 | 1 |
| Whole/food | $209,373 | $1,250 | $37,011 | 1 |
| Grand Total | $33,588,900 | $3,156,902 | $88,034,609 | |

| | | | |
|---|---|---|---|
| Estimated Tons Purchased | 36,376 | 2,707 | 87,138 |
| **$/Ton** | **$ 923** | **$ 1,166** | **$ 1,010** |

* Includes deliveries from all gear types: trawl, jig, and fixed gear. Therefore, the value per ton for fixed gear deliveries is likely underestimated.

### 3.6 Bycatch in BSAI Fixed Gear Pacific cod Fisheries

Fixed gear Pacific cod fisheries have bycatch of prohibited species (such as crab and halibut) as well as other groundfish species. A review of bycatch data for BSAI fixed gear fisheries is provided below. Implications are discussed in the EA section (Chapter 2).

Crabs

Crab bycatch in fixed gear fisheries is shown in Table 3.16. Virtually all of the bycatch taken by both gear types is attributable to Pacific cod fishing. Most of this bycatch is attributable to pot gear. Regardless, crab bycatch in fixed gear groundfish fisheries is relatively small compared to crab bycatch taken in directed crab fisheries and to a lesser extent groundfish trawl fisheries.

Some crabs are caught incidentally by fixed gear in pursuit of groundfish, and a portion of these crabs die. No field or laboratory studies have been made to estimate mortality of crab discarded in these

**Table 3.16: Bycatch of crabs in Bering Sea/Aleutian Islands fixed gear groundfish fisheries, 1997-1999.** Reported on NMFS Webpage 1/10/00.

| Species | Gear | 1997 | 1998 | 1999 |
|---|---|---|---|---|
| red king | longline | 4,477 | 3,019 | 7,989 |
| | pot | 21,102 | 3,993 | 979 |
| bairdi | longline | 11,442 | 5,943 | 2,813 |
| | pot | 38,775 | 40,609 | 40,567 |
| opilio | longline | 141,246 | 153,846 | 91,338 |
| | pot | 412,859 | 395,293 | 178,440 |

groundfish fisheries. However, based on condition factor information from the trawl survey, mortality of crab bycatch has been estimated and used in previous analyses (NPFMC 1993: Amendment 24 analysis). Discard mortality rates for red king crab were estimated at 37% in longline fisheries and 37% in pot fisheries. Estimated bycatch mortality rates for Tanner crab were 45% in longline fisheries and 30% in pot fisheries.rc No observations had been made for snow crab, but mortality rates are likely similar to Tanner crab. However, observer data collected on condition factor for crabs during the 1991 domestic fisheries suggested a lower mortality rate for red king crab in groundfish pot fisheries (Amendment 37 analysis, NPFMC 1996). In the analysis made for Amendment 37, a 37% mortality rate was assumed for red king crab taken in longline fisheries and an 8% rate for groundfish pot fisheries.

There are numerous laboratory studies that examine the mortality of crabs taken in crab fishery pot gear (e.g., Zhou and Shirley 1995, MacIntosh et al. 1996, Zhou and Kruse 1998, Shirley 1998). In the latest assessment of crab bycatch mortality studies, mortality rates of Bering Sea Tanner crab were estimated to be 8% in the Bristol Bay red king crab fishery, 20% in the Tanner crab fishery, and 25% in the snow crab fishery (for more information see Tanner crab rebuilding analysis, NPFMC 1999). No laboratory or field studies have assessed mortality of crabs in Pacific cod pot fisheries, based on a literature review conducted for this analysis.

Halibut

Bycatch mortality in BSAI fixed gear fisheries is limited by a prohibited species (PSC) cap of 900 mt. This cap is apportioned to the Pacific cod fishery, all other non-trawl fisheries including jig gear, and groundfish pot fisheries (exempt in recent years). The halibut mortality cap is further apportioned into three seasons. Fisheries are shut down when seasonal caps are reached and do not reopen until the next seasonal allowance becomes available. The recommendation for the preseason assumed DMRs applied to halibut in 2000 is 11% for Pacific cod longline and 9% for pot fisheries.

**Table 3.17: Bycatch mortality (mt) of halibut in Bering Sea/Aleutian Islands fixed gear groundfish fisheries, 1997-1999.** Reported by NMFS Blend estimates as of 1/10/00.

| Gear | 1997 | 1998 | 1999 |
|---|---|---|---|
| P. cod longline | 839 | 751 | 499 |
| O. Species, jig | 53 | 61 | 82 |
| Pot Gear | 14 | 43 | 3 |

Bycatch mortality of halibut in fixed gear groundfish fisheries is shown in Table 3.17. Most of the mortality is attributable to the Pacific cod target fishery. Some halibut is also taken as bycatch in directed longline fisheries for sablefish, turbot, and rockfish.

Groundfish

Bycatch of groundfish in the fixed gear Pacific cod fisheries is mainly comprised of other species, pollock, and arrowtooth flounder. Most of the bycatch is discarded. Table 3.18 shows the bycatch and discards of these species in the Pacific cod target fishery, by vessel category for the years 1995-99. Discard rates for Pacific cod were not included in the table. Currently Pacific cod are governed by provisions of the IR/IU program, which requires full retention of all Pacific cod catches.

Table 3.18: Bycatch in the Pacific cod target fishery, 1995-99.

| Species | 1995 | | 1996 | | 1997 | | 1998 | | 1999 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Discard (mt.) | Discard Rate | Discard (mt.) | Discard Rate | Discard (mt.) | Discard Rate | Discard (mt.) | Discard Rate | Discard (mt.) | Discard Rate |
| **Freezer Longliners** | | | | | | | | | | |
| Atka Mack. | 38 | 100% | 33 | 100% | 40 | 98% | 93 | 95% | 68 | 94% |
| Pollock | 3,018 | 88% | 2,882 | 90% | 4,470 | 83% | 705 | 22% | 566 | 15% |
| Y. Sole | 62 | 100% | 148 | 96% | 235 | 92% | 253 | 97% | 178 | 97% |
| Rock Sole | 33 | 32% | 60 | 96% | 35 | 97% | 52 | 99% | 30 | 95% |
| Flathead Sole | 249 | 98% | 270 | 96% | 343 | 91% | 379 | 91% | 270 | 97% |
| O. Flatfish | 10 | 100% | 21 | 93% | 27 | 98% | 32 | 100% | 94 | 98% |
| G.Turbot | 320 | 58% | 341 | 51% | 458 | 51% | 61 | 19% | 33 | 18% |
| Arrowtooth | 1,684 | 93% | 2,094 | 89% | 2,188 | 89% | 1,463 | 91% | 707 | 94% |
| POP | 9 | 100% | 2 | 95% | 0 | 100% | 1 | 73% | - | - |
| SR/RE | - | - | 116 | 41% | 55 | 100% | 168 | 83% | 95 | 92% |
| O. Rockfish | 13 | 90% | 78 | 83% | 79 | 86% | 87 | 78% | 68 | 93% |
| Sablefish | 33 | 32% | 81 | 23% | 53 | 38% | 12 | 47% | 7 | 44% |
| O. Species | 10,457 | 87% | 8,345 | 84% | 12,916 | 85% | 12,592 | 90% | 8,574 | 89% |
| **Total** | **15,926** | **87%** | **14,471** | **85%** | **20,899** | **84%** | **15,961** | **78%** | **10,813** | **70%** |

Table 3.18: Bycatch and Discards in the Pacific cod Target Fishery, 1995-99 (Continued)

| Species | 1995 | | 1996 | | 1997 | | 1998 | | 1999 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Discard (mt.) | Discard Rate | Discard (mt.) | Discard Rate | Discard (mt.) | Discard Rate | Discard (mt.) | Discard Rate | Discard (mt.) | Discard Rate |
| **Longline Catcher Vessels** | | | | | | | | | | |
| Pollock | 1 | 100% | 1 | 100% | 3 | 100% | - | - | 0 | 3% |
| O. Flatfish | - | - | - | - | 2 | 100% | - | - | 0 | 85% |
| G. Turbot | 0 | 100% | 49 | 100% | 1 | 100% | 1 | 70% | 7 | 39% |
| Arrowtooth | 1 | 100% | 38 | 100% | 3 | 100% | 12 | 100% | 8 | 70% |
| O. Rockfish | - | - | 13 | 100% | 0 | 100% | 0 | 29% | 1 | 25% |
| Sablefish | - | - | 9 | 100% | 0 | 100% | 0 | 0% | 1 | 8% |
| O. Species | 0 | 100% | 62 | 100% | 14 | 100% | 11 | 100% | 59 | 93% |
| **Total** | **2** | **100%** | **172** | **100%** | **23** | **100%** | **25** | **96%** | **76** | **71%** |
| **Pot Catcher/Processor** | | | | | | | | | | |
| Atka Mack. | 0 | 100% | 5 | 68% | 5 | 73% | 0 | 15% | 0 | 30% |
| Pollock | 0 | 100% | 8 | 100% | 12 | 100% | 1 | 55% | 8 | 76% |
| Y. Sole | 1 | 100% | 104 | 100% | 32 | 100% | 72 | 89% | 30 | 99% |
| O. Species | 72 | 100% | 138 | 70% | 48 | 58% | 31 | 74% | 67 | 80% |
| **Total** | **73** | **100%** | **255** | **83%** | **97** | **78%** | **105** | **83%** | **130** | **83%** |
| **Pot Catcher Vessels** | | | | | | | | | | |
| Atka Mack. | 72 | 100% | 48 | 100% | 45 | 100% | 14 | 100% | 11 | 99% |
| Pollock | 13 | 100% | 17 | 100% | 30 | 98% | 41 | 21% | 10 | 71% |
| Y. Sole | 61 | 100% | 148 | 100% | 39 | 100% | 30 | 99% | 39 | 99% |
| Arrowtooth | 15 | 100% | 12 | 100% | 12 | 100% | 1 | 100% | 15 | 91% |
| O. Rockfish | 3 | 100% | 3 | 100% | 3 | 100% | 2 | 100% | 2 | 100% |
| O. Species | 442 | 99% | 429 | 95% | 307 | 95% | 299 | 97% | 602 | 92% |
| **Total** | **606** | **100%** | **657** | **97%** | **436** | **96%** | **389** | **89%** | **685** | **92%** |

Note: The total rows included species groups not included in the table, therefore the total will be larger than the sum of the species groups. The only species excluded was Pacific cod and it is covered under IR/IU, so discards should be minimal. Source: NMFS Blend data 1995-99.

## 3.7 Other Sources of Pacific Cod Mortality

Another source of Pacific cod mortality is the bait fishery. Pacific cod is often used as bait by crab fishermen in the BSAI. To obtain bait, members of the crab fleet can either purchase the cod from other fishermen or harvest the cod themselves. Many vessel operators opt to harvest their own Pacific cod, however, not all of the cod caught for bait is reported to the State or NMFS. Over the 1995-98 time period a total of 507 mt of Pacific cod was reported as landed for bait by hook and line vessels. Pot vessels reported harvesting 822 mt over the same period. These amounts do not likely represent the entire amount of Pacific cod that was harvested for crab bait by the fixed gear sector.

Determining the amount of Pacific cod that was harvested for bait, but not reported, is difficult to estimate. Amendment 46 to the BSAI FMP attempted to provide a rough estimate. Two different methodologies were used to make those estimates. The first looked at bycatch of cod in crab fisheries (NPFMC 1996). It was assumed that those fish would be used as bait. Estimates indicated that 8,452 mt and 5,428 mt of Pacific cod were taken during the years 1994 and 1995, respectively. These estimates were made by assuming that the average cod taken as bycatch weighed 10 pounds, and the number of fish were multiplied by the assumed average weight.

The second method assumed that 10 pounds of bait cod were used for each pot pull that occurred in the BSAI (NPFMC 1996). During 1993, 2.7 million pot pulls were reported in the BSAI crab fishery. That equates to about 12,000 mt of bait. Fewer pots were pulled during the 1996 and 1997 BSAI crab fisheries. During those years, 1.2 and 1.3 million pots were pulled. So, less than half the amount (5,500 to 6,000 mt) of bait was calculated to have been taken. Given these estimates of the amount of bait used, it appears that much of the bait harvested by fixed gear vessels is not reported. However, the projections reported here might be regarded as an upper-bound estimate, since presumably not all bait used is P. cod.

Tracking the amount of cod taken for bait is likely becoming more important, since currently the BSAI Pacific cod ABC and TAC are set equal to each other. Prior to 1998, the TAC was often set below ABC. The gap that existed between ABC and TAC allowed the bait fishery to proceed with little concern by fisheries managers. However now that the buffer no longer exists, accounting for bait may become a higher priority. In addition, the national standard guidelines for National Standard 1 specify that all fishing mortality must be counted against the OY, including that resulting from bycatch, research fishing, and any other fishing activities. The implication of not including unreported catch is that the ABC for Pacific cod may have been exceeded unintentionally in some years.

If regulations are implemented requiring bait to be reported, those harvests may well reduce the directed catch of cod by the fixed gear sector. It is unknown if the pot or longline sectors would realize a greater negative impact if bait was accounted for in the future. The issue of bait accounting should be considered by the groundfish plan team, ADF&G, and NMFS.

The amount of cod bycatch in the halibut IFQ fishery is also currently unknown. Additional data collection programs would need to be implemented to estimate that bycatch. Recall that the majority of vessels in that fishery are small and currently observers are not required on those vessels. Therefore, accurate assessments of Pacific cod bycatch cannot be made.

Pacific Cod Discards in Other Groundfish Fisheries

Cod discards (i.e., fish that were harvested and not kept) in other fixed gear groundfish fisheries is relatively small. Table 3.19 provides a breakdown of the cod discards by longline, pot, and jig vessels from 1995-99. In 1995 cod discards reached almost 1,400 mt. Discards primarily occurred in the longline catcher vessel fisheries which accounted for about 1,300 mt. Discards never exceeded 125 mt. in any of the other years considered.

Table 3.19: Pacific cod discards in target fisheries other than cod (mt)

| | | Delivery Mode | | | |
|---|---|---|---|---|---|
| Year | Gear | Inshore | Mothership | Catcher/processor | Grand Total |
| 1995 | Hook & Line | 1,271 | - | 123 | 1,394 |
| 1995 | Pot | 1 | - | - | 1 |
| 1995 Fixed Gear Total | | 1,272 | - | 123 | 1,395 |
| 1996 | Hook & Line | 54 | - | 58 | 112 |
| 1996 | Jig | - | - | 0 | 0 |
| 1996 | Pot | 0 | 1 | 12 | 13 |
| 1996 Fixed Gear Total | | 54 | 1 | 70 | 125 |
| 1997 | Hook & Line | 46 | - | 20 | 66 |
| 1997 Fixed Gear Total | | 46 | - | 20 | 66 |
| 1998 | Hook & Line | 58 | - | 9 | 72 |
| 1998 | Pot | 0 | - | - | 0 |
| 1998 Fixed Gear Total | | 58 | - | 9 | 72 |
| 1999 | Hook & Line | 57 | | 11 | 68 |
| 1999 | Pot | 0 | - | - | - |
| 1999 Fixed Gear Total | | 57 | - | 11 | 68 |
| Grand Total | | 1,486 | 1 | 232 | 1,725 |

Source: NMFS AKR Blend data 1995-99

Pacific Cod Bycatch in Other Groundfish Fisheries

Bycatch of Pacific cod in other groundfish fisheries in the BSAI is reported in Table 3.20. Table 3.20 shows that almost 1,500 mt of cod was harvested as bycatch in other fixed gear target fisheries during 1995. In every other year the total of cod bycatch was less than 255 mt.

The amount of bycatch that was retained is the difference between Table 3.20 and 3.19. Comparing the two tables show that catcher/processors retain more of their cod bycatch than they discard, while catcher vessels seemed to discard more than they retained. With Improved Retention and Utilization requirements currently in place, any discarding of P. cod is legally prohibited by any gear group or sector.

Table 3.20: Pacific cod bycatch in target fisheries other than cod (mt), 1995-99

| | | Delivery Mode | | | |
|---|---|---|---|---|---|
| Year | GEAR | Shoreside | Mothership | Catcher/processor | Grand Total |
| 1995 | Hook & Line | 1,283 | - | 195 | 1,478 |
| 1995 | Pot | 1 | - | - | 1 |
| 1995 Fixed Gear Total | | 1,283 | - | 195 | 1,479 |
| 1996 | Hook & Line | 59 | - | 181 | 240 |
| 1996 | Jig | - | 1 | 0 | 2 |
| 1996 | Pot | 0 | 1 | 12 | 13 |
| 1996 Fixed Gear Total | | 59 | 2 | 193 | 255 |
| 1997 | Hook & Line | 52 | - | 105 | 157 |
| 1997 | Jig | 2 | - | - | 2 |
| 1997 | Pot | - | - | - | - |
| 1997 Fixed Gear Total | | 54 | - | 105 | 159 |
| 1998 | Hook & Line | 60 | - | 167 | 233 |
| 1998 | Pot | 0 | - | - | 0 |
| 1998 Fixed Gear Total | | 60 | - | 167 | 233 |
| 1999 | Hook & Line | 87 | - | 158 | 245 |
| 1999 | Pot | 1 | - | 1 | 2 |
| 1999 Fixed Gear Total | | 87 | - | 159 | 246 |
| Total | | 1,545 | 2 | 820 | 2,372 |

## 4.0 REGULATORY IMPACT REVIEW: ECONOMIC AND SOCIOECONOMIC IMPACTS OF THE ALTERNATIVES

This chapter provides information regarding the economic and socioeconomic impacts of the alternatives including identification of the individuals or groups that may be affected by the action, the nature of these impacts, quantification of the economic impacts if possible, and discussion of the trade-offs between qualitative and quantitative benefits and costs.

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

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

Chapters 3-5 also address the requirements of both E.O. 12866 and the Regulatory Flexibility Act (RFA) to provide adequate information to determine whether an action is "significant" under E.O. 12866 or will result in "significant" adverse impacts on small entities under the RFA.

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

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

### 4.1 Description of Fleet, Fishery, & Industry

Chapter 3 provides historical participation, catch, and production information for the fleet. That information indicates that approximately 375 individual vessels (61 catcher/processors and 314 catcher vessels) participated in the directed fishery for Pacific cod between 1995 and 1999. It is unclear how many of these vessels qualify under the original LLP. Because of the uncertainty in recent individual license transactions and the fact that the NMFS LLP list is not yet confirmed, it is difficult to make eligibility projections on a

vessel by vessel basis. Therefore, in determining the number of vessels that qualify for a P. cod endorsement, this analysis reports both the current fleet (the 375 vessels that fished between 1995 and 1999) and the vessels that appear to be eligible for a general groundfish license. It is estimated that 432 vessels (67 catcher/processors and 365 catcher vessels) qualify under the original LLP for fixed gear. Some of these 432 vessels did not participate in the recent (1995-99) time period. The differences between original LLP qualified vessels and current participants are described in the following sections for each sector.

## 4.2 Expected Effects of Each Alternative

The following sections will focus on the number of vessels that appear to qualify for a BSAI Pacific cod fixed gear endorsement, based on the best information currently available. Projections of revenue at the ex-vessel and first wholesale levels will be constant across each of the alternatives, since the total amount of cod allocated to each sector is fixed. Therefore, an overall revenue projection will be made and then an average revenue per qualified vessel can be calculated. Average revenue per vessel is provided to give the reader a general understanding of the impacts; however, the impact on each vessel will vary depending on their relative success in competing within their sector. No projections will be made on a vessel by vessel level due to confidentiality standards and our ability to make accurate projections.

### 4.2.1 Alternative 1: No Action (Current LLP)

In October 1998, the Council took final action on several amendments to the crab and groundfish license limitation programs, including adding trawl, fixed, or all gear designations to the groundfish licenses based on the vessel's LLP landings history. In October 1999, the Council passed Amendment 64 to further allocate Pacific cod among the fixed gear sectors operating in the BSAI. Taking no action to further restrict the number of fixed gear vessels allowed to target BSAI Pacific cod would effectively allow all fixed gear vessels eligible under the existing LLP Groundfish Program to fish for BSAI P. cod under the fixed gear allocations set in Amendment 64. Neither of these amendments has been implemented; however, this analysis assumes they will be in place when this amendment package is implemented, if approved by the Council.

One of the points raised during public testimony is that there is considerable latent capacity in the pot fleet (many pot vessels are qualified under the LLP, but to date have not participated to a great degree in the cod fishery) and freezer longline fleet. There are also longline catcher vessels which represent potential latent capacity, though the degree of that potential is relatively less than that of the pot fleet, primarily due to the limited allocation of cod. No action could result in continued entry into the P. cod fishery by vessels that currently have little or no historical participation but qualify to fish groundfish in the BSAI under LLP, since any vessel holding a BS and/or AI fixed gear endorsement can harvest from the fixed gear P. cod quota. As stated above, the potential impact would be greatest on the pot fleet, where boats with substantial past participation in the fishery would be competing for the 18.3% pot gear allocation with numerous previously latent pot vessels, and in the freezer longline sector where the number of participants could increase by 50% over current participation.

This analysis assumes that the number of vessels that qualify under the existing groundfish LLP for a non-trawl designation will be able to fish Pacific cod with fixed gear in the BSAI. The most recent information on the number of fixed gear vessels that qualify under the groundfish LLP, without specific species endorsements for each gear type, shows that there are more licenses available to fish Pacific cod in the BSAI than there are vessels that currently participate. Therefore, the *No Action* alternative allows for increased pressure in a fully utilized fishery and offers only limited economic long-term stability for those longline and pot gear fishermen who are significantly dependent on the BSAI P. cod fisheries.

Under the current LLP groundfish program, specific only to fixed gear catcher/processors and catcher vessels and not gear type, the number of catcher vessels that appear to qualify for a non-trawl gear designation is approximately 365 (Table 4.1). These vessels can potentially fish the 18.3%, 1.4%, and .3% fixed gear P. cod allocations for pot vessels, pot or longline vessels under 60', and catcher longliners, respectively. The number of qualified catcher/processors is about 67. These vessels could fish the 80% allocation for freezer longliners or the 18.3% allocated to pot vessels.

**Table 4.1: Fixed gear vessels qualified in the BSAI P. cod fishery under the no action alternative[1]**

| Length | Catcher/Processors | Catcher Vessels |
|---|---|---|
| <60' | 1 | 117 |
| 60-124' | 25 | 179 |
| 125'+ | 41 | 69 |
| **Total** | **67** | **365** |

[1]Designations under the current LLP do not differentiate by gear type. Numbers for catcher/processors include both freezer longliners and pot c/p. Numbers for catcher vessels include longline, jig, and pot vessels.

The maximum number of groundfish licenses for the BSAI is no more than 365 catcher vessels and 67 catcher/processors given the current program. This is also the maximum number of vessels that could participate in the P. cod fishery if a P. cod endorsement is not established. However, the *No Action* alternative is not accurately represented by a point estimate. The number of vessels that would participate in the P. cod fishery if a P. cod endorsement is not established is not a static point in time. It will fluctuate depending on prices in other fisheries and the P. cod fishery, and how many individual vessels decide to enter the fishery in any given year due to these changing conditions. However, we can assume that the number of vessels under the *No Action* alternative will likely be between the number of vessels that participated recently (1995-99) and the maximum number of licenses available. There is not adequate information to make a specific projection of the number of vessels that may enter the P. cod fishery if a P. cod endorsement is not established. Therefore, because the number of vessels that would participate if no action is taken cannot be determined, this analysis will use the number of LLP qualified vessels as a reference point from which to compare the other alternatives. It is not intended to imply that that would be the number of participants under the *No Action* alternative.

### 4.2.2 Alternative 2: Limit Entry to the BSAI P. Cod Fixed Gear Fisheries Based on Historical Participation

#### 4.2.2.1 Freezer Longline Limited Entry Alternatives

The proposed alternatives for limiting entry in each sector of the P. cod fixed gear fishery are outlined in Chapter 1. There are two basic alternatives relevant to vessel participation for freezer longliners: Option 1–participation in any one year 1996, 1997, 1998; and Option 2–participation in any one year 1996, 1997, 1998, 1999. The minimum tonnage requirements associated with these two options are 100, 200, or 300 mt in any one year during the qualifying period. The Council could choose any combination of the proposed participation/harvest alternatives or adopt a variation within the range of alternatives analyzed.

##### 4.2.2.1.1 Number of Freezer Longline Vessels Projected to Qualify

Qualifying vessels in each sector of the fixed gear fishery are reported in two ways in Chapter 4: the universe of vessels that comprise the current fleet, and the universe of vessels in the current fleet that also appear to have a general groundfish license for the BSAI. The list of LLP qualified vessels represents the most recent

information from NMFS, RAM Division; it includes those vessels that have applied for a license and have at least some catch history on file and excludes vessels that have applied but do not appear to have landings in the official database. The final list will not be available from NMFS until the appeals process is complete. Because of the uncertainty in recent individual license transactions, making eligibility projections on a vessel by vessel basis is only preliminary at this point. Therefore, the analysis reports both vessels with recency, and vessels with recency that also appear to be LLP qualified. The number of qualifying vessels most likely falls between the two, but it is likely to be closer to the list that are LLP qualified.

Given that the current LLP, as passed by the Council, does not differentiate among gear types within the fixed gear sector, there are 67 licenses attributable to all catcher/processors within the existing program. Therefore, *not* instituting a gear specific endorsement would allow the maximum possible number of freezer longliners eligible to fish BSAI P. cod to be 67. This scenario is possible, however, only if every catcher/processor under the LLP uses longline gear. Understanding that the 67 catcher/processors eligible under the current LLP are made up of both longline and pot gear, and that the catcher/processor fleet will likely not evolve to consist solely of freezer longliners, this comparison is made to show the maximum number of licenses available to catcher/processors qualified to fish BSAI P. cod under the *No Action* alternative.

There are 48 freezer longliners that have participated in the directed BSAI P. cod fishery since 1996. All 48 of these vessels also appear to hold a general groundfish license to fish in the BSAI. Tables 4.2 and 4.3 portray the suite of alternatives proposed for limiting the number of freezer longliners in the BSAI P. cod fishery. The number of freezer longliners projected to qualify is a range of 39-43, under both Option 1 and Option 2. Compared to the current LLP eligibility of up to 67 catcher/processors (Table 4.1), either option reduces the potential number of qualified freezer longliners by 24-28 vessels, or 36%-42%. Adding 1999 as a qualifying year in Option 2 has no effect on the number of qualified freezer longliners. This is because the criteria under both options is participation in any one year, and there were no vessels that harvested at least 100 mt that fished only in 1999.

Tables 4.2 and 4.3 show that between 5 and 9 of the existing 48 vessels fishing since 1996 do not qualify under either proposed option. As stated above, the number of qualifying vessels within the range depends solely on the minimum tonnage criteria. Overall, the number of qualified freezer longliners does not vary dramatically regardless of whether the vessel qualifies at the high or low end of the minimum tonnage requirement.

**Table 4.2: OPTION 1: Freezer longline vessels qualified any 1 year 1996-1998/minimum poundage required during any qualifying year**

| Length | 100+ mt | 200+ mt | 300+ mt |
|---|---|---|---|
| 60-124' | 13 | 12 | 10 |
| 125'+ | 30 | 30 | 29 |
| **Total** | **43** | **42** | **39** |

**Table 4.3: OPTION 2: Freezer longline vessels qualified any 1 year 1996-1999/minimum poundage required during any qualifying year**

| Length | 100+ mt | 200+ mt | 300+ mt |
|---|---|---|---|
| 60-124' | 13 | 12 | 10 |
| 125'+ | 30 | 30 | 29 |
| **Total** | **43** | **42** | **39** |

#### 4.2.2.1.2 Freezer Longline Ex-vessel Revenue

There are well documented problems associated with comparing revenues between catcher vessel and catcher/processor sectors within an industry (NMFS 1998, NPFMC et al 94). Since freezer longliners and pot catcher/processors catch and process their own fish, there is no market transaction between harvester and first processor and it is not possible to determine an ex-vessel price. This chapter will only report ex-vessel revenue for longline catcher vessels and pot catcher vessels. First wholesale revenues will be reported for catcher/processors.

#### 4.2.2.1.3 Freezer Longline First Wholesale Revenue

The amount paid to the first processors of fish for their product is first wholesale revenue. This section of the analysis will use 1998 production patterns and estimates of 1998 first wholesale price to project changes in product mix and first wholesale revenues under each alternative and option. The source and limitations of the data used to make price estimates are discussed in detail in Chapter 3. A discussion of the impacts these changes will have on communities is provided in Chapters 5 and 6.

Given that 80% of the fixed gear P. cod TAC would be reserved for freezer longliners with the approval of Amendment 64, if we were to estimate that sector's allocation in 2000 under the proposed fixed gear split, it would be about 72,840 mt (80% of the 2000 fixed gear TAC of 91,048 mt). Using an estimated wholesale price of $1,010/mt of round cod (see Table 3.15), freezer longliners would generate about $73.6 million in wholesale revenue if the full allocation was taken. Without implementation of the proposed amendment, the number of freezer longliners could potentially reach the current LLP listing of 67. However, because some of those 67 vessels have only used pot gear and/or have not notably participated in the fishery in the past five years, it is not appropriate to compare the average first wholesale revenues under the proposed alternatives for freezer longliners with that of the total qualifying catcher/processors under the current LLP. Therefore, although the current LLP allows 67 total catcher/processors, it may be more representative of the fishery to use the universe of 48 freezer longliners with recent participation to estimate average first wholesale revenues under the *No Action* alternative.

Using an estimated first wholesale revenue of $73.6 million for 2000, the average first wholesale revenue would be about $1.53 million per vessel if no action was taken to further restrict entry into the fishery. Options 1 and 2 result in the same number of qualifying vessels, and so have the same impact on average first wholesale revenues (Table 4.4). The range of average first wholesale values that correspond to the minimum tonnage requirements of 100, 200 and 300 mt in each option are $1.71, $1.75, and $1.89 million, respectively. Compared to the *No Action* alternative, restricting the number of freezer longliners under either option would increase the average first wholesale revenue by $180,000-$360,000 (or 12%-24%), depending on the minimum tonnage alternative chosen. No additional information can be provided for net revenues. Cost data that are currently unavailable would be required to make these estimates. Therefore, while this analysis does not provide an estimate of all economic impacts, it does look at gross revenue changes in the directed cod fishery based upon the best economic information currently available.

**Table 4.4: Estimates of average first wholesale revenues[1] for freezer longliners in the BSAI P. cod fishery under the proposed options (in $ millions).**

| Options | 100+ mt | 200+ mt | 300+ mt |
|---|---|---|---|
| Option 1: (96-98) | 1.71 | 1.75 | 1.89 |
| Option 2: (96-99) | 1.71 | 1.75 | 1.89 |

[1] Based on the 2000 TAC and 1998 wholesale prices.

#### 4.2.2.2 Longline Catcher Vessel Limited Entry Alternatives

Longline catcher vessels have two basic alternatives relevant to vessel participation: Option 1) any one year 1995-1998, or Option 2) any one year 1995-1999. The associated options for a minimum harvest requirement are a single landing, 7.5 mt, 15 mt, and 25 mt. In addition, the Council identified two suboptions for analysis that would allow either 1) all catcher vessels or 2) catcher vessels less than 60' LOA, to use their jig landings as part of their longline catch history to apply towards a minimum landing requirement.

The Council also reserved the right to choose a different qualification criteria for catcher vessels less than

60' and greater than 60' LOA. This option applies to the alternatives proposed for both longline and pot catcher vessels. While this analysis does not recreate all of the options possible if different qualification criteria were chosen for catcher vessels less than 60' and greater than 60' LOA, all of the information necessary to determine the total number of qualifying vessels is included in the tables. The options for each gear sector are broken out by vessel length class; therefore, it is easy to determine the total number of qualifying catcher vessels using different criteria for catcher vessels less than 60'.

#### 4.2.2.2.1 Number of Longline Catcher Vessels Projected to Qualify

The analysis first reports all 126 of the longline catcher vessels (including those vessels with only jig landings) in the BSAI P. cod fishery since 1995, since they may either qualify under the current LLP or could purchase a license from another vessel. As stated earlier, due to the uncertainty associated with individual license transactions, this assumption is made so as to avoid speculating about eligibility projections on a vessel by vessel basis. These 126 longline catcher vessels appear to represent the current fleet (our best information shows that 85 are eligible under the current LLP–50 vessels qualify and 35 are exempt because they are <32 ft); however, because the LLP does not differentiate by gear type, there are actually 365 licenses attributable to all fixed gear catcher vessels within the existing program. Therefore, *not* instituting a gear or species specific endorsement would allow the future maximum possible number of longline catcher vessels eligible to fish BSAI P. cod to be 365. Similar to the catcher/processor scenario discussed previously, this is only possible if every catcher vessel under the LLP uses longline gear. Recall that the 365 catcher vessels eligible under the current LLP are made up of both longline and pot gear, and that the catcher vessel fleet will most likely not evolve to consist solely of longliners. In addition, those 365 licenses represent some vessels that have little or no history in the directed P. cod fishery. The comparison is made to show the maximum number of licenses available to catcher vessels qualified to fish BSAI P. cod under the *No Action* alternative.

Tables 4.5 and 4.6 show the number of qualifying longline catcher vessels under each option by vessel length, including the proposed suboptions. The number of longline catcher vessels projected to qualify is a range of 7 to 58 under Option 1. Compared to the current LLP eligibility of an estimated 365 fixed gear catcher vessels (Table 4.1), Option 1 reduces the potential number of qualified longline catcher vessels by 307 to 358.

The minimum tonnage requirements have a large impact on the number of qualifying vessels: 58 vessels qualify under a harvest criterion of one landing, yet only 13 vessels meet the 7.5 mt criterion. Increasing the minimum tonnage to 15 mt or 25 mt drops out an additional 6 vessels. Allowing a vessel's jig history to count toward the minimum landing requirement greatly impacts the number of qualifying vessels. Under Suboption 1, allowing jig landings for vessels <60' LOA, 106 total vessels made at least one landing. Less significant increases occur in the number of vessels that qualify under this suboption in the higher tonnage requirements. Suboption 2, in which any length catcher vessel can use its jig history to meet the landing requirement, qualifies an additional 4 vessels (with one landing). Suboptions 1 and 2 reduce the number of potential longline catcher vessel licenses from the original LLP list of 365 to a range of 16 to 106 and 16 to 110, respectively.

Adding 1999 as a qualifying year in Option 2 changes the range of qualifying vessels to 9 to 70. Compared to the current LLP eligibility of up to 365 total catcher vessels, Option 2 reduces the potential number of qualified longline catcher vessels by 295 to 356. Again, the minimum tonnage requirements have the most significant impact: 70 vessels qualify under a harvest criterion of one landing, yet only 15 vessels meet the 7.5 mt criterion. Increasing the minimum tonnage to 15 mt or 25 mt drops out an additional 6 vessels. Allowing a vessel's jig history to count increases the number of qualifying boats slightly more than Option 1: Suboption 1 qualifies 121 total vessels with at least one landing. Less significant increases occur in the number of vessels that qualify under this suboption in the higher tonnage requirements. Suboption 2 qualifies 5 additional vessels (with one landing). Suboptions 1 and 2 reduce the number of potential longline catcher vessel licenses from the original 365 by 234 to 346 and 139 to 346, respectively.

**Table 4.5: OPTION 1: Longline catcher vessels qualified any 1 year 1995-1998/minimum poundage required during any qualifying year**

| Length | A landing | 7.5+ mt | 15+ mt | 25+ mt |
|---|---|---|---|---|
| <60' | 45 | 11 | 6 | 6 |
| 60-124' | 13 | 2 | 1 | 1 |
| **Total** | **58** | **13** | **7** | **7** |
| **Suboption 1: Longline catcher vessels <60' can use jig landings towards minimum landing requirement** | | | | |
| <60' | 93 | 34 | 21 | 15 |
| 60-124' | 13 | 2 | 1 | 1 |
| **Total** | **106** | **36** | **22** | **16** |
| **Suboption 2: Longline catcher vessels can use jig landings towards minimum landing requirement** | | | | |
| <60' | 93 | 34 | 21 | 15 |
| 60-124' | 17 | 2 | 1 | 1 |
| **Total** | **110** | **36** | **22** | **16** |

**Table 4.6: OPTION 2: Longline catcher vessels qualified any 1 year 1995-1999/minimum poundage required during any qualifying year**

| Length | A landing | 7.5+ mt | 15+ mt | 25+ mt |
|---|---|---|---|---|
| <60' | 51 | 12 | 7 | 7 |
| 60-124' | 19 | 3 | 2 | 2 |
| **Total** | **70** | **15** | **9** | **9** |
| **Suboption 1: Longline catcher vessels <60' can use jig landings towards minimum landing requirement** | | | | |
| <60' | 102 | 37 | 23 | 17 |
| 60-124' | 19 | 3 | 2 | 2 |
| **Total** | **121** | **40** | **25** | **19** |
| **Suboption 2: Longline catcher vessels can use jig landings towards minimum landing requirement** | | | | |
| <60' | 102 | 37 | 23 | 17 |
| 60-124' | 24 | 3 | 2 | 2 |
| **Total** | **126** | **40** | **25** | **19** |

Recall that the current longline and jig catcher vessel fleet is comprised of about 126 vessels that have made at least one landing since 1995. Tables 4.5 and 4.6 show that between 68 and 119 of those vessels do not qualify under Option 1. Suboptions 1 and 2 drop out between 20 and 110 and 16 and 110 vessels, respectively. Adding 1999 as a qualifying year drops out slightly fewer vessels: Option 2 excludes 56 to 117 vessels, and Suboptions 1 and 2 exclude between 5 and 107, and 0 and 107 vessels, respectively. Overall, the number of qualifying vessels depends partly on the minimum tonnage criteria and primarily on whether jig harvests are included. The number of qualified longline catcher vessels does not vary significantly between Options 1 and 2, as there are few vessels that fished in 1999, but did not participate in the fishery between 1995-1998.

Tables 4.7 and 4.8 report the longline catcher vessels which meet the proposed recency requirements for a P. cod endorsement and also appear to be qualified under the original LLP. A better estimate of the number of vessels that qualify (and hold a BSAI LLP license) is likely somewhere between the values presented in Tables 4.5-6 and 4.7-8. The list of LLP qualified vessels will be further revised as NMFS confirms the status of individual vessels through the appeals process.

An initial look, however, shows that considerably fewer vessels qualify under the proposed alternatives that are also LLP qualified. Under the most restrictive option (Table 4.7: Option 1, requiring at least 25 mt) five vessels qualify–two fewer than qualified when we evaluated vessels only by recency, regardless of their LLP qualification in Table 4.5. Under the most liberal option (Table 4.8: Option 2, requiring a landing), forty-four vessels qualify–twenty-six fewer than when we evaluated vessels only by recency.

**Table 4.7: Longline Catcher Vessels Qualified Under Option 1 and also Qualified Under the Original LLP [1]**

| Length | A landing | 7.5+ mt | 15+ mt | 25+ mt |
|---|---|---|---|---|
| <60' | 27 | 6 | 4 | 4 |
| 60-124' | 10 | 2 | 1 | 1 |
| **Total** | **37** | **8** | **5** | **5** |
| **Suboption 1: Longline catcher vessels <60' can use jig landings towards minimum landing requirement** | | | | |
| <60' | 66 | 23 | 14 | 10 |
| 60-124' | 10 | 2 | 1 | 1 |
| **Total** | **76** | **25** | **15** | **11** |
| **Suboption 2: Longline catcher vessels can use jig landings towards minimum landing requirement** | | | | |
| <60' | 66 | 23 | 14 | 10 |
| 60-124' | 11 | 2 | 1 | 1 |
| **Total** | **77** | **25** | **15** | **11** |

[1] The list of vessels receiving a permanent general LLP license in the BSAI has not yet been finalized by NMFS. The values in this table represent those vessels which applied for a fixed gear LLP license and have an official history in the BSAI.

In addition, there are significantly fewer vessels eligible under the suboptions that are also LLP qualified. Under Option 1/Suboption 1 (Table 4.7) there are a maximum of 76 vessels that qualify with jig landings (for vessels < 60' LOA) and are LLP qualified, 30 fewer vessels than qualified that don't appear to hold a groundfish license (Table 4.5). A similar pattern is shown under the other suboptions. Under Option 2/Suboption 1, which counts jig landings for vessels <60' and includes 1999 as a participation year, a maximum of 84 vessels qualify, compared to 121 vessels in Table 4.6 where LLP qualification was not checked. There is almost no difference between allowing jig landings for LLP qualified vessels <60' and greater than 60' under both Options 1 and 2. Only one additional LLP qualified vessel greater than 60' qualifies if we allow jig landings to count toward the minimum landing requirements.

**Table 4.8: Longline Catcher Vessels Qualified Under Option 2 and also Qualified Under the Original LLP[1]**

| Length | A landing | 7.5+ mt | 15+ mt | 25+ mt |
|---|---|---|---|---|
| <60' | 31 | 6 | 4 | 4 |
| 60-124' | 13 | 3 | 2 | 2 |
| **Total** | **44** | **9** | **6** | **6** |
| **Suboption 1: Longline catcher vessels <60' can use jig landings towards minimum landing requirement** | | | | |
| <60' | 71 | 24 | 14 | 10 |
| 60-124' | 13 | 3 | 2 | 2 |
| **Total** | **84** | **27** | **16** | **12** |
| **Suboption 2: Longline catcher vessels can use jig landings towards minimum landing requirement** | | | | |
| <60' | 71 | 24 | 14 | 10 |
| 60-124' | 14 | 3 | 2 | 2 |
| **Total** | **85** | **27** | **16** | **12** |

[1] The list of vessels receiving a permanent general LLP license in the BSAI has not yet been finalized by NMFS. The values in this table represent those vessels which applied for a fixed gear LLP license and have an official history in the BSAI.

Recall that jig vessels <60' in the BSAI are exempt from the general LLP requirements. Therefore, a majority of the vessels <60' that qualified for a P. cod endorsement as a longline catcher vessel, but dropped out under the second set of tables denoting LLP qualified vessels only, may be primarily jig vessels. Jig vessels <60' will continue to be able to fish P. cod in the BSAI without a species endorsement or general groundfish license, and jig vessels of any length class will continue to hold a 2% allocation of the total fixed gear P. cod quota.

Under the suboptions in the tables above, jig landings are included whether the vessel had any longline

landings at all in that year. Therefore, a number of jig vessels are included that harvested little or no P. cod using longline gear. The analysts also looked at the effect of adding jig harvest data to supplement longline landings in a given year (excluding vessels that had only jig landings and no longline), in order to see whether a substantial number of longline vessels would be bumped up and qualify under a higher minimum tonnage requirement if jig harvests were included.

Data used for this analysis show that adding jig landings to the harvest of the existing longline fleet has a minimal effect on the number of qualifying vessels. There were fourteen vessels which targeted P. cod using both longline and jig gear within a given year. Twelve of these vessels operated both gears in only one year; the other two vessels operated both gears in two years each. Only three of these fourteen vessels qualify under a higher tonnage requirement when their jig landings are added to their longline landings. One vessel which met the 7.5 mt threshold of longline landings, is able to meet the 25 mt threshold when jig harvests are added. Two vessels which only met the one landing threshold of longline landings, are also able to meet the 25 mt threshold when jig harvests are added.

#### 4.2.2.2.3 Longline Catcher Vessel Ex-vessel Revenue

Ex-vessel prices from 1998 are used to generate estimates of the distributional impacts of the proposed alternatives. As stated at the beginning of this chapter, projections of revenue at the ex-vessel and first wholesale levels will be constant across each of the alternatives, since the total amount of cod allocated to each sector is fixed. This section will focus on ex-vessel revenue for the longline catcher vessel sector and the average ex-vessel revenue per vessel from the directed P. cod fishery under the proposed alternatives.

Estimating the amount of ex-vessel revenue that the pot and longline catcher vessels will generate depends on the amount of the 1.4 percent set-aside for catcher vessels <60' LOA that each gear type will harvest. (All of the calculations in this section, of course, depend on Secretary approval of the Pacific cod fixed gear allocation percentages as proposed in Amendment 64.) Several factors will influence the harvest amount each gear type will take from the set-aside. A primary factor will be when the vessels begin fishing from the 1.4% set-aside. Recall that all pot gear vessels are allocated 18.3 percent of the BSAI fixed gear Pacific cod. While that allocation is being harvested, any catch by pot catcher vessels <60' LOA will accrue against that total. Only when that 18.3% allocation is taken will the harvests of pot vessels <60' LOA be taken off the 1.4 percent set-aside. Similarly, only when the 0.3 percent allocated to longline catcher vessels is taken will the catch of cod taken by longline vessels <60' LOA be counted against the 1.4 percent set-aside. Therefore, when the longline and pot catcher vessels start fishing the 1.4 percent set-aside depends largely on when their sectors initial allocation is harvested. A second factor influencing how much of the 1.4 percent set-aside is harvested by pot or longline catcher vessels <60', is the amount of effort each gear type contributes to the fishery. If both gear types harvest the 1.4 percent set-aside at approximately the same time, then the gear type with the highest catch rates will harvest more of the cod. Other factors influencing catches may include the time of year the set-aside is fished (if CPUE varies across gear types).

Given that there are several factors that could impact which gear types harvest the 1.4 percent set-aside, and that we currently have no information to project that distribution, we will assume that each gear type will harvest half of the 1.4 percent set-aside, or .7 percent. Given that assumption, the pot catcher vessels would harvest 13.9 percent of the total BSAI fixed gear cod allocation (this also assumes that the pot catcher vessels harvest about 72 percent of the total pot gear allocation, as they did in 1998), and longline catcher vessels would harvest the remaining 1.0 percent (.3 percent + .7 percent).

The 2000 TAC for BSAI P. cod is 91,048 mt for the fixed gear sector (this number accounts for the 7.5

percent taken off the top for CDQ fisheries and does not include bycatch of P. cod in other directed fisheries). Using the assumptions listed above, the pot catcher vessels would harvest 12,656 mt and longline catcher vessels 910 mt if they took their full allocation.

The ex-vessel price for longline catcher vessels in 1998 was $0.193 per pound (NPFMC 1999). Assuming that the maximum catch of 910 mt is harvested, the ex-vessel revenue for longline catcher vessels would be about $387,200. Without implementation of the proposed amendment, the number of longline catcher vessels could potentially reach the current LLP listing of 365. However, because many of these vessels are pot catcher vessels and/or have not significantly participated in the fishery in the past five years, it is not appropriate to compare the average ex-vessel revenues under the proposed alternatives for longline catcher vessels with that of the total qualifying fixed gear catcher vessels under the current LLP. This analysis does not speculate on how many of the 365 LLP BSAI fixed gear groundfish licenses will be held by longline catcher vessels that fish P. cod, but it is evident that relatively few additional vessels are dependent on the fishery beyond the 126 that fished in 1995-1999. Therefore, it is more realistic to use the universe of 126 vessels to estimate the average ex-vessel revenue under the *No Action* alternative. Using an estimated ex-vessel revenue of $387,200 for 2000, the average ex-vessel revenue would be about $3,075 per vessel if no action was taken to further restrict the fishery.

Table 4.9 portrays the average ex-vessel revenues associated with each of the proposed options. Recall that Option2/Suboption 2, using a minimum of one landing, also represents the *No Action* alternative and is presented in the table. Restricting the number of longline catcher vessels under Option 1 would increase the average ex-vessel revenue to between $6,680 and $55,310, depending on the minimum landing alternative chosen. Under Option 2, the range changes to between $5,530 and $43,020. Compared to the *No Action* alternative of $3,075, Option 1 increases average ex-vessel revenue by up to $52,240 under the most restrictive scenario, and by $3,600 under the least restrictive scenario.

**Table 4.9: Estimates of average ex-vessel revenue for longline catcher vessels in the BSAI P. cod fishery under the proposed alternatives, based on the 2000 TAC and 1998 ex-vessel prices (in $ thousands).**

| Options | A landing | 7.5+ mt | 15+ mt | 25+ mt |
|---|---|---|---|---|
| Option 1: (95-98) | 6.7 | 29.8 | 55.3 | 55.3 |
| Suboption 1 | 3.7 | 10.8 | 17.6 | 24.2 |
| Suboption 2 | 3.5 | 10.8 | 17.6 | 24.2 |
| Option 2: (95-99) | 5.5 | 25.8 | 43.0 | 43.0 |
| Suboption 1 | 3.2 | 9.7 | 15.5 | 20.4 |
| Suboption 2 | 3.1 | 9.7 | 15.5 | 20.4 |

Adding 1999 harvests under Option 2 increases average ex-vessel revenue by up to $39,950 under the most restrictive scenario, and by $2,460 under the least restrictive scenario. Allowing jig harvests under the suboptions for each alternative increases average ex-vessel revenues by a less significant amount and reflects the *No Action* alternative when vessels of any length are allowed to count jig landings under Option 2/Suboption 2. Similarly, Table 4.10 portrays the average ex-vessel revenues associated with each of the proposed options, except that the vessels are also LLP qualified. This

**Table 4.10: Estimates of average ex-vessel revenue for LLP qualified longline catcher vessels in the BSAI P. cod fishery under the proposed alternatives[1]**

| Options | A landing | 7.5+ mt | 15+ mt | 25+ mt |
|---|---|---|---|---|
| Option 1: (95-98) | 10.5 | 48.4 | 77.4 | 77.4 |
| Suboption 1 | 5.1 | 15.5 | 25.8 | 35.2 |
| Suboption 2 | 5.0 | 15.5 | 25.8 | 35.2 |
| Option 2: (95-99) | 8.8 | 43.0 | 64.5 | 64.5 |
| Suboption 1 | 4.6 | 14.3 | 24.2 | 32.3 |
| Suboption 2 | 4.6 | 14.3 | 24.2 | 32.3 |

[1] Based on the 2000 TAC and 1998 ex-vessel prices (in $ thousands).

table corresponds to the number of qualifying vessels shown in Tables 4.7 and 4.8. Because the number of vessels holding a groundfish license and qualifying under the proposed alternatives is less than that of vessels meeting only the recency requirements, the average ex-vessel revenues increase in Table 4.10 from those portrayed in Table 4.9.

#### 4.2.2.2.4 Longline Catcher Vessel First Wholesale Revenue

An explanation of the calculations made to determine wholesale prices for inshore deliveries, freezer longliners, and pot catcher/processors is provided in Chapter 3. The results show that inshore deliveries generate about $923; pot catcher/processors $1,166; and freezer longliners $1,010 per metric ton of round cod (Table 3.15). Recall that wholesale prices for the inshore sector include deliveries by all gear types, including trawl, jig, and fixed gear. Consequently, inshore values are likely underestimated because they also include trawl deliveries. It is not possible to determine the extent to which trawl deliveries impact the price per ton estimate without tracking product through the production process from individual delivery through first processed sale. This is not common practice in the industry and certainly not information which is compiled and reported. The calculations for wholesale prices also use product mix information. Again, since trawl gear deliveries have far exceeded fixed gear deliveries and it is uncertain how much of the product mix is influenced by trawl deliveries, the product mix information may better represent the trawl deliveries than fixed gear.

Finally, the information on product prices and output mix employed in the assessment is from 1998; the analysis assumes that the prices and the product mix from deliveries in 1999 and 2000 will not change significantly from that reported in the 1998 Weekly Production Reports. Therefore this analysis assumes that 1998 data accurately portrays current behavior. Updating the data sets could impose considerable delay without providing commensurate benefits. Furthermore, participants were aware that fishing behavior occurring after 1998 might not be used in the determinations of future limited access programs based on a control date notice issued in 1999 at the request of the Council.

Given the allocation percentages for the fixed gear sector as proposed in Amendment 64, a longline catcher vessel harvest of 910 mt (based on 2000 TAC), and an estimated wholesale price of $923/mt of round cod, the results indicate that longline catcher vessels would generate about $840,000 in wholesale gross revenue for the processors that buy their catch. This is revenue shoreside processors would expect to receive given the current allocations. Because the proposed amendment does not change the allocation to each sector, only the number of boats that fish, wholesale gross revenue from catcher vessels is not expected to vary based on the alternative chosen. However, there may be slight distributional impacts accruing to coastal communities and shoreside processors that must be considered. For example, preliminary landings data indicate that deliveries to Adak have increased in 1999. However, confidentiality restrictions preclude reporting specific catch information in this case, however, since fewer than 3 processors operate in Adak.

### 4.2.2.3 Pot Gear Vessels Limited Entry Alternatives

The pot gear sector has a complex suite of alternatives for limiting entry, as outlined in Section 1.2.2.3. The participation year qualifications are referred to as Options 1-10 in the analysis. There are ten basic alternatives relevant to participation years, ranging from the most restrictive option of any three years of 1995, 1996, 1997, 1998 to the least restrictive option of any one year 1995, 1996, 1997, 1998, 1999. The corresponding minimum harvest requirements are one landing, 25,000-50,000, 50,0001-100,000, 100,001-300,000, and >300,000 pounds. The way the minimum harvest requirements are applied to Options 1-10 also varies: the specified minimum poundage can be required in *each* of the qualifying years or *any* one of the

qualifying years. A third tier of harvest alternatives applies only to qualification year options 3, 4, and 5: the aggregate pounds required for delivery during the qualifying years must be at least 1) 200,000 lb - 600,000 lb or 2) >600,000 lb. The three tiers of harvest requirements are referred to in the analysis as **(a)**: minimum poundage required in *each* qualifying year; **(b)**: minimum poundage required in *any* qualifying year; and **(c)**: *aggregate* poundage in at least two qualifying years. Combining both the participation year and harvest requirement qualifications, pot gear vessels are subject to a comprehensive list of alternatives: 1-10a, 1-10b, and 3-5c.

In addition, the Council has identified two suboptions for analysis that would allow either 1) all catcher vessels or 2) catcher vessels less than 60' LOA, to use their jig landings as part of their catch history to apply towards a minimum landing requirement.

Recall that the Council reserved the right to choose a different qualification criteria for catcher vessels less than 60' and greater than 60' LOA. This is discussed previously under Section 4.2.2.2 for longline catcher vessels. The Council also indicated they may choose a different qualification criteria for pot catcher/processors and catcher vessels. Tables A.1 through A.6 in Appendix A show the complete suite of possible alternatives for the pot gear sector by vessel length class. This information allows different qualification criteria for pot catcher vessels and pot catcher/processors to be selected by the Council, as well as different qualification criteria for catcher vessels less than 60' and greater than 60'.

#### 4.2.2.3.1 Number of Pot Catcher/Processors Projected to Qualify

Of the 20 pot catcher/processors in the BSAI P. cod fishery since 1995, it appears that all but six vessels may qualify under the current LLP. It is unknown whether these outstanding vessels have since purchased licenses from other vessels, or whether some of the vessels that appear to initially qualify have since sold their licenses. Therefore, because of the uncertainty in recent license transactions, this analysis will report on both the recent participation of all 20 pot catcher/processors, and also on those 14 vessels that appear to be eligible under the original LLP.

Although there are only 20 pot catcher/processors that appear to represent the current fleet, because the original LLP does not differentiate by species or gear type, there are actually 67 BSAI groundfish licenses attributable to catcher/processors within the existing program. Understanding that some of those 67 catcher/processors are freezer longliners, and others may be pot catcher/processors that have not fished, or fished very little, in the directed P. cod fishery in the recent (i.e.,1995-1999) time period, the existing pot catcher/processor fleet will most likely not evolve to 67 vessels. However, this comparison is made to show the future *maximum* possible number of qualified pot catcher/processors under the *No Action* alternative.

Table 4.11 below summarizes the number of qualified pot catcher/processors under each alternative, regardless of whether they are LLP qualified. For presentation purposes, the analysis has broken out the 10 participation year alternatives by harvest requirement. Options 1-10(a) refer to alternatives in which the minimum poundage specified is required of *each* qualifying year; Options 1-10(b) refer to alternatives in which the minimum poundage specified is required of *any* qualifying year; and Options 3-5 (c) refer to alternatives which require a minimum aggregate poundage of any two qualifying years. To qualify under Options 3-5 (c), the vessel must have fished in at least two of the qualification years, but if a vessel participated in more than 2 of the qualifying years, then all of the qualifying harvest years were used to determine the aggregate poundage.

The number of pot catcher/processors projected to qualify under the limited entry alternatives ranges from

4 to 20. The most restrictive alternative is within Option 1a: pot vessels qualified in any three years 1995-1998, with a minimum poundage requirement of >300,000 lb in each qualifying year. Only 4 vessels qualify under this alternative. Compared to the current LLP eligibility, this alternative reduces the potential number of qualified pot catcher/processors by 63 (from 67 to 4). Similarly, Option 1a, with no minimum poundage requirement beyond a single landing, qualifies only one additional vessel. Hence, the most restrictive participation year qualification, regardless of harvest criteria, substantially reduces the number of eligible pot catcher/processors. The least restrictive alternative for pot catcher/processors exists within Options 9a and 9b: pot vessels qualified in any one year 1995-1999, with a minimum harvest requirement of one landing. All 20 vessels that have fished since 1995 qualify under this option, essentially negating the qualification criteria for the current fleet. However, this still indicates a reduction of 47 vessels compared to the *No Action* alternative of 67 qualified catcher/processors.

Table 4.11 shows that minimum poundage requirements make only a slight difference in the number of qualified vessels *within* any option. This is regardless of whether the minimum poundage is required of each or any qualifying year. The options with the largest range of qualification years (9a and 9b) qualify more vessels in general, and the landing requirements also have a greater effect on the number of qualifying vessels within the option. In sum, the greatest effect of poundage requirements within any option is a difference of four vessels.

The table also shows that choosing alternatives in which the minimum poundage is required of *each* qualifying year (Options 1-10a) versus *any* qualifying year (Options1-10b), does not have a substantial effect on the number of qualifying vessels. There is, in fact, no effect on Options 5, and 8-10. Note that Options 8-10 require only one year of participation to qualify, thus there is no difference in landings applying to *any* or *each* qualifying year. Since only one year of fishing history is needed, Options 8-10a result in the same number of qualifying boats as Options 8-10b. In Options 1-4, 6 and 7, however, only in the upper harvest requirements of 100,001+ and >300,000 lb, does the number of qualifying vessels vary slightly based on whether catch history is applied to *each* or *any* qualifying year. In Option 4 for example, in which a vessel must participate in any 2 years of 1995-1999, requiring a vessel to have harvested >300,000 lb in *any* qualifying year, qualifies 11 vessels (Option 4b), while requiring >300,000 lb in *each* year qualifies only 8 vessels (Option 4a). Regardless, this indicates that the number of qualifying vessels does not heavily depend on the minimum harvest required of *any* versus *each* year; the greatest factor determining the number of qualifying vessels is the participation years selected.

**Table 4.11: Pot Catcher/Processors Qualified Under the Alternatives for the BSAI P. Cod Fishery**

| Option (a)[1] | Qual. Years[4] | A landing | 25,000+ | 50,001+ | 100,001+ | >300,000 |
|---|---|---|---|---|---|---|
| 1a | 95-98 (3) | 5 | 5 | 5 | 4 | 4 |
| 2a | 95-99 (3) | 7 | 7 | 7 | 6 | 5 |
| 3a | 95-98 (2) | 9 | 9 | 9 | 8 | 7 |
| 4a | 95-99 (2) | 11 | 11 | 11 | 11 | 8 |
| 5a | 95-97 (2) | 7 | 7 | 7 | 7 | 7 |
| 6a | 96-98 (2) | 8 | 8 | 8 | 6 | 5 |
| 7a | 96-99 (2) | 10 | 10 | 9 | 10 | 7 |
| 8a | 95-98 (1) | 16 | 15 | 15 | 14 | 14 |
| 9a | 95-99 (1) | 20 | 18 | 18 | 16 | 16 |
| 10a | 96-98 (1) | 15 | 15 | 15 | 14 | 14 |
| **Option (b)[2]** | **Qual. Years[4]** | **A landing** | **25,000+** | **50,001+** | **100,001+** | **>300,000** |
| 1b | 95-98 (3) | 5 | 5 | 5 | 5 | 5 |
| 2b | 95-99 (3) | 7 | 7 | 7 | 7 | 7 |
| 3b | 95-98 (2) | 9 | 9 | 9 | 9 | 9 |
| 4b | 95-99 (2) | 11 | 11 | 11 | 11 | 11 |
| 5b | 95-97 (2) | 7 | 7 | 7 | 7 | 7 |
| 6b | 96-98 (2) | 8 | 8 | 8 | 8 | 8 |
| 7b | 96-99 (2) | 10 | 10 | 10 | 10 | 10 |
| 8b | 95-98 (1) | 16 | 15 | 15 | 14 | 14 |
| 9b | 95-99 (1) | 20 | 18 | 18 | 16 | 16 |
| 10b | 96-98 (1) | 15 | 15 | 15 | 14 | 14 |
| **Option (c )[3]** | **Qual. Years[4]** | **200,000-600,000 lbs** | | **>600,000 lbs** | | |
| 3c | 95-98 (2) | 9 | | 9 | | |
| 4c | 95-99 (2) | 11 | | 11 | | |
| 5c | 95-97 (2) | 7 | | 7 | | |

[1] Options 1-10a refer to alternatives in which the minimum poundage is required of *each* qualifying year.

[2] Options 1-10b refer to alternatives in which the minimum poundage is required of *any* qualifying year.

[3] Options 3-5c refer to alternatives in which an *aggregate* poundage is required of at least two qualifying years.

[4] Qual. Years refers to the series of qualification years associated with Options 1-10 and the (number) of years the vessel must have participated in within the series.

Finally, Options 3-5c result in fairly significant reductions in the number of eligible pot catcher/processors, up

to 56-60 vessels are eliminated compared to the *No Action* alternative and current LLP eligibility of 67 catcher/processors. Note also that Options 3-5c result in the same number of qualifying vessels regardless of the minimum aggregate poundage criteria. Only the participation years expand the number of qualifying vessels: 7 vessels qualify under Option 5c (any 2 participation years 1995, 1996, 1997); 9 under Option 3c (includes 1998); and 11 in Option 4c (includes both 1998 and 1999).

Fifteen of the 20 vessels in the existing pot catcher/processor fleet are at least 125 ft LOA, four are 60-124 ft, and one is <60 ft. More detail on the length distribution of qualifying vessels is provided in Tables A.1-A.6 in Appendix A. Those data show Options 1-10a qualify a range of 2 to 4 vessels that are 60-124 ft under any poundage requirement and the rest are over 125 ft. In addition, Options 8-10a also qualify the one vessel <60 ft under the one landing requirement. Options 1-10b maintain the same distribution. Options 3-5c each qualify two 60-124 ft vessels, and the remaining qualifying vessels are at least 125 ft.

Table 4.12 below reports the number of pot catcher/processors qualified under the proposed alternatives that also appear to qualify under the original LLP. There are a total of fourteen pot catcher/processors that appear to be LLP qualified. A better estimate of the actual number of vessels that would qualify for a P. cod endorsement (and hold a fixed gear LLP license for the BSAI) is likely somewhere between the values presented in Tables 4. 11 and 4.12. The list of LLP qualified vessels will be further revised as NMFS confirms the status of individual vessels through the appeals process. An initial look, however, shows that under the most restrictive option, Option 1a, three vessels qualify–one fewer than qualified when we evaluated vessels only by recency, regardless of their LLP qualification, in Table 4.11. Under the most liberal options, Options 9a and 9b, 14 vessels qualify–six fewer than when we evaluated vessels only by recency.

**Table 4.12: Pot Catcher/Processors Qualified Under the Alternatives for the BSAI P. Cod Fishery and that also Appear Qualified Under the Original LLP[5]**

| Option (a)[1] | Qual. Years[4] | A landing | 25,000+ | 50,001+ | 100,001+ | >300,000 |
|---|---|---|---|---|---|---|
| 1a | 95-98 (3) | 4 | 4 | 4 | 3 | 3 |
| 2a | 95-99 (3) | 6 | 6 | 6 | 5 | 4 |
| 3a | 95-98 (2) | 7 | 7 | 7 | 6 | 5 |
| 4a | 95-99 (2) | 8 | 8 | 8 | 8 | 6 |
| 5a | 95-97 (2) | 5 | 5 | 5 | 5 | 5 |
| 6a | 96-98 (2) | 6 | 6 | 6 | 4 | 3 |
| 7a | 96-99 (2) | 7 | 7 | 7 | 7 | 5 |
| 8a | 95-98 (1) | 11 | 11 | 11 | 10 | 10 |
| 9a | 95-99 (1) | 14 | 13 | 13 | 11 | 11 |
| 10a | 96-98 (1) | 11 | 11 | 11 | 10 | 10 |
| **Option (b)[2]** | **Qual. Years[4]** | **A landing** | **25,000+** | **50,001+** | **100,001+** | **>300,000** |
| 1b | 95-98 (3) | 4 | 4 | 4 | 4 | 4 |
| 2b | 95-99 (3) | 6 | 6 | 6 | 6 | 6 |
| 3b | 95-98 (2) | 7 | 7 | 7 | 7 | 7 |
| 4b | 95-99 (2) | 8 | 8 | 8 | 8 | 8 |
| 5b | 95-97 (2) | 5 | 5 | 5 | 5 | 5 |
| 6b | 96-98 (2) | 6 | 6 | 6 | 6 | 6 |
| 7b | 96-99 (2) | 8 | 8 | 8 | 8 | 8 |
| 8b | 95-98 (1) | 11 | 11 | 11 | 10 | 10 |
| 9b | 95-99 (1) | 14 | 13 | 13 | 11 | 11 |
| 10b | 96-98 (1) | 11 | 11 | 11 | 10 | 10 |
| **Option (c )[3]** | **Qual. Years[4]** | **200,000-600,000 lbs** | | **>600,000 lbs** | | |
| 3c | 95-98 (2) | 7 | | 7 | | |
| 4c | 95-99 (2) | 8 | | 8 | | |
| 5c | 95-97 (2) | 5 | | 5 | | |

[1] Options 1-10a refer to alternatives in which the minimum poundage is required of *each* qualifying year.

[2] Options 1-10b refer to alternatives in which the minimum poundage is required of *any* qualifying year.

[3] Options 3-5c refer to alternatives in which an *aggregate* poundage is required of at least two qualifying years.

[4] Qual. Years refers to the series of qualification years associated with Options 1-10 and the (number) of years the vessel must have participated in within the series.

[5] The list of vessels receiving a permanent general LLP license in the BSAI has not yet been finalized by NMFS. The values in this table represent those vessels which applied for a fixed gear LLP license and have an official history in the BSAI.

#### 4.2.2.3.2 Number of Pot Catcher Vessels Projected to Qualify

The number of pot catcher vessels projected to qualify under the limited entry alternatives ranges from 21 to all 203 that have fished since 1995. As with pot catcher/processors, the most restrictive alternative is within Option 1a: pot vessels must have fished in the BSAI cod fishery in any three years 1995-1998, with a minimum poundage requirement of >300,000 lb in each qualifying year. Only 21 vessels qualify under this alternative. Compared to the 365 BSAI groundfish licenses for catcher vessels under the current LLP, this alternative reduces the number of qualified pot catcher vessels by 334 (from 365 to 21). Option 1a with no minimum poundage requirement beyond a single landing qualifies only 37 additional vessels. Hence, the most restrictive participation year qualification, regardless of harvest criteria, substantially reduces the number of eligible pot catcher vessels.

The least restrictive alternative for pot catcher vessels exists within Options 9a and 9b: pot vessels qualified in any one year 1995-1999, with a minimum harvest requirement of one landing. All 203 vessels that have fished since 1995 qualify under this option. However, when considering that the current LLP allows up to 365 catcher vessels (pot and longline), this still represents a potential reduction of 162 pot catcher vessels

compared to the *No Action* alternative.

Table 4.13 shows that unlike catcher/processors, the minimum poundage requirements make a substantial difference in the number of qualified catcher vessels *within* each participation year option. Under Options 9a and 9b, the minimum poundage requirements have the greatest effect on the range of qualifying vessels within each option, from 83 to 203. Recall that these options have in common the largest range of qualification years, any one year of 1995-1999, so while more vessels qualify in general, the landing requirements also have a greater effect on the number of qualifying vessels within the option. Option 1b harvest requirements have the least effect, a difference of only 9 vessels qualify. In sum, the greatest effect of poundage requirements within any option is a difference of 120 vessels.

Table 4.13 also shows that the minimum harvest requirements carry more weight under Options 1-10a, in which they are required of *each* qualifying year, than they do in Options 1-10b, in which they are required of *any* one qualifying year. The greatest difference is found between Option 2a and Option 2b, in the harvest requirement of >300,000 lb. While 27 vessels harvested more than 300,000 lb in each of 3 years of 1995-99, 61 vessels qualified in those same years when 300,000 lb were required of only one participating year–a

**Table 4.13: Pot Catcher Vessels Qualified Under the Alternatives for the BSAI P. Cod Fishery**

| Option (a)[1] | Qual. Years[4] | A landing | 25,000+ | 50,001+ | 100,001+ | >300,000 |
|---|---|---|---|---|---|---|
| 1a | 95-98 (3) | 58 | 38 | 35 | 30 | 21 |
| 2a | 95-99 (3) | 72 | 50 | 43 | 38 | 27 |
| 3a | 95-98 (2) | 99 | 66 | 60 | 54 | 38 |
| 4a | 95-99 (2) | 112 | 78 | 72 | 65 | 45 |
| 5a | 95-97 (2) | 90 | 62 | 53 | 46 | 34 |
| 6a | 96-98 (2) | 72 | 42 | 42 | 38 | 29 |
| 7a | 96-99 (2) | 91 | 62 | 72 | 53 | 38 |
| 8a | 95-98 (1) | 183 | 135 | 116 | 101 | 73 |
| 9a | 95-99 (1) | 203 | 157 | 137 | 118 | 83 |
| 10a | 96-98 (1) | 140 | 104 | 98 | 88 | 68 |
| **Option (b)[2]** | **Qual. Years[4]** | **A landing** | **25,000+** | **50,001+** | **100,001+** | **>300,000** |
| 1b | 95-98 (3) | 58 | 57 | 57 | 55 | 49 |
| 2b | 95-99 (3) | 72 | 72 | 72 | 71 | 61 |
| 3b | 95-98 (2) | 90 | 91 | 85 | 77 | 64 |
| 4b | 95-99 (2) | 112 | 105 | 101 | 92 | 76 |
| 5b | 95-97 (2) | 90 | 83 | 79 | 73 | 60 |
| 6b | 96-98 (2) | 72 | 67 | 65 | 59 | 53 |
| 7b | 96-99 (2) | 91 | 91 | 88 | 80 | 69 |
| 8b | 95-98 (1) | 183 | 135 | 116 | 101 | 73 |
| 9b | 95-99 (1) | 203 | 157 | 137 | 118 | 83 |
| 10b | 96-98 (1) | 140 | 104 | 98 | 88 | 68 |
| **Option (c )[3]** | **Qual. Years[4]** | **200,000-600,000 lbs** | | **>600,000 lbs** | | |
| 3c | 95-98 (2) | 74 | | 50 | | |
| 4c | 95-99 (2) | 89 | | 59 | | |
| 5c | 95-97 (2) | 69 | | 47 | | |

[1] Options 1-10a refer to alternatives in which the minimum poundage is required of *each* qualifying year.

[2] Options 1-10b refer to alternatives in which the minimum poundage is required of *any* qualifying year.

[3] Options 3-5c refer to alternatives in which an *aggregate* poundage is required of at least two qualifying years.

[4] Qual. Years refers to the series of qualification years associated with Options 1-10 and the (number) of years the vessel must have participated in within the series.

difference of 34 vessels. Not surprisingly, there is no effect on Options 8-10 (recall that Options 8-10 require only one year of participation to qualify, thus there is no difference in landings applying to *any* or *each* qualifying year). In Options 1 through 7, however, the number of qualifying vessels varies substantially based on whether catch history is applied to *each* or *any* qualifying year, regardless of the minimum poundage requirement. This indicates that the number of qualifying vessels depends partially on the minimum harvest required within each option; whether the minimum harvest is required of *any* versus *each* year; and the participation years selected. One factor is not clearly or categorically more significant than the others.

Finally, Options 3 through 5c result in fairly significant reductions in the number of eligible pot catcher vessels. From 276 to 318 vessels are eliminated, compared to the *No Action* alternative and the current LLP of 365 catcher vessels eligible to fish groundfish in the BSAI. Note also, unlike pot catcher/processors, the minimum aggregate poundage criteria does make a difference in the number of qualifying vessels. Option 4c, which represents the most liberal participation year qualification, qualifies 30 fewer vessels if the harvest requirement is >600,000 lb, compared to 200,000 lb. Under these alternatives, the number of qualifying vessels depends more on the harvest requirement than on the participation years. Even using the most restrictive participation years (1995-97) in Option 5c, but requiring only 200,000 aggregate pounds qualifies more vessels (69) than using the least restrictive participation years (1995-99) in Option 4c and requiring >600,000 lb (59 vessels qualify).

The majority of the 203 vessels in the pot catcher vessel fleet since 1995 are 60-124 ft LOA. Twenty-five are <60 ft, 130 are 60-124 ft, and 48 are 125 ft. A more detailed look at the length distribution of qualifying vessels (Tables A.1 through A.3 in Appendix A) shows that Options 1 through 10a qualify the gamut of 0 through 25 vessels <60 ft LOA, 15 through 130 vessels that are 60-124 ft, and 6 through 48 vessels that are at least 125 ft. Options 1 through 10b maintain a similar distribution, qualifying: 0 to 25 vessels <60 ft; 35 to130 vessels 60-124 ft; and 14 to 48 vessels of at least 125 ft. Options 1a, 2a, 6a, and 7a do not qualify any pot catcher vessels <60 ft. Again, Options 1b, 2b, 6b, and 7b do not qualify any vessels under 60 ft. Options 3 through 5c qualify 1 to 2 vessels <60 ft; 36 to 65 vessels 60-124 ft; and 11 to 22 vessels of at least 125 ft.

Similar to the presentation of the pot catcher/processor sector, Table 4.14 below shows the number of pot catcher vessels qualified under the proposed alternatives that appear to also qualify under the original LLP. Because the list of LLP qualified vessels has not yet been finalized by NMFS and the appeals process is still underway, the actual number of vessels that would qualify under the alternatives (and hold a general LLP license for the BSAI) is likely somewhere between the values presented in Tables 4.13 and 4.14. At the present time, it appears that 119 pot catcher vessels are eligible under the LLP.

Although these numbers will continue to be revised by NMFS, an initial look shows that significantly fewer vessels qualify under the proposed alternatives when they also must be LLP qualified, especially under the lower poundage requirements. Under the most restrictive option, Option 1a, 19 vessels qualify–only 2 fewer than qualified when we evaluated vessels only by recency, regardless of LLP qualification, in Table 4.13. Yet under the most liberal options, Options 9a and 9b, 119 vessels qualify–a reduction of almost half of the 203 vessels that qualified under those options when we evaluated only by recency. This information indicates that a substantial number of pot vessels that are not LLP qualified have been fishing P. cod under the moratorium permits since 1995, and most have landed less than 25,000 lb. Many of these vessels may currently hold interim permits until the appeals process is completed.

**Table 4.14: Pot Catcher Vessels Qualified Under the Alternatives for the BSAI P. Cod Fishery and also Qualified Under the Original LLP[5]**

| Option (a)[1] | Qual. Years[4] | A landing | 25,000+ | 50,001+ | 100,001+ | >300,000 |
|---|---|---|---|---|---|---|
| 1a | 95-98 (3) | 48 | 32 | 30 | 27 | 19 |
| 2a | 95-99 (3) | 56 | 41 | 36 | 31 | 24 |
| 3a | 95-98 (2) | 75 | 50 | 45 | 40 | 31 |
| 4a | 95-99 (2) | 78 | 57 | 54 | 48 | 36 |
| 5a | 95-97 (2) | 72 | 49 | 42 | 38 | 31 |
| 6a | 96-98 (2) | 51 | 32 | 32 | 28 | 22 |
| 7a | 96-99 (2) | 60 | 46 | 52 | 40 | 29 |
| 8a | 95-98 (1) | 116 | 94 | 80 | 70 | 56 |
| 9a | 95-99 (1) | 119 | 98 | 86 | 76 | 61 |
| 10a | 96-98 (1) | 82 | 68 | 65 | 59 | 51 |
| **Option (b)[2]** | **Qual. Years[4]** | **A landing** | **25,000+** | **50,001+** | **100,001+** | **>300,000** |
| 1b | 95-98 (3) | 48 | 47 | 47 | 45 | 42 |
| 2b | 95-99 (3) | 56 | 56 | 56 | 55 | 51 |
| 3b | 95-98 (2) | 75 | 70 | 65 | 59 | 52 |
| 4b | 95-99 (2) | 78 | 74 | 70 | 65 | 58 |
| 5b | 95-97 (2) | 72 | 67 | 63 | 58 | 50 |
| 6b | 96-98 (2) | 50 | 48 | 47 | 44 | 42 |
| 7b | 96-99 (2) | 58 | 58 | 58 | 54 | 51 |
| 8b | 95-98 (1) | 116 | 94 | 80 | 70 | 56 |
| 9b | 95-99 (1) | 119 | 98 | 86 | 76 | 61 |
| 10b | 96-98 (1) | 82 | 68 | 65 | 59 | 51 |
| **Option (c )[3]** | **Qual. Years[4]** | **200,000-600,000 lbs** | | **>600,000 lbs** | | |
| 3c | 95-98 (2) | 57 | | 42 | | |
| 4c | 95-99 (2) | 64 | | 47 | | |
| 5c | 95-97 (2) | 55 | | 41 | | |

[1] Options 1-10a refer to alternatives in which the minimum poundage is required of *each* qualifying year.

[2] Options 1-10b refer to alternatives in which the minimum poundage is required of *any* qualifying year.

[3] Options 3-5c refer to alternatives in which an *aggregate* poundage is required of at least two qualifying years.

[4] Qual. Years refers to the series of qualification years associated with Options 1-10 and the (number) of years the vessel must have participated in within the series.

[5] The list of vessels receiving a permanent general LLP license in the BSAI has not yet been finalized by NMFS. The values in this table represent those vessels which applied for a fixed gear LLP license and have an official history in the BSAI.

Recall that in the BSAI, jig vessels <60' are exempt from the general LLP requirements. The analysis looked at the effect of adding jig harvest data to supplement pot landings (excluding vessels that had only jig landings and no pot), in order to see whether a substantial number of pot vessels would be bumped up and qualify under a higher minimum poundage requirement if jig harvests were included.

Eight vessels used both pot and jig gear in the same year. Two of these vessels were able to meet a higher poundage threshold when the jig harvest was included. A review of the harvest data for vessels which fished both gears, but not in the same year, showed that three other pot vessels gained a year of participation due to the jig harvest. Thus, adding a vessel's jig harvest to its pot harvest has a very small effect on the number of qualifying vessels in the pot fleet.

#### 4.2.2.3.3 Pot Gear Vessel Ex-vessel Revenue

Ex-vessel prices from 1998 are used to generate estimates of the distributional impacts the Council's alternatives could have on pot gear vessels. As stated at the beginning of this chapter, projections of gross revenue at the ex-vessel and first wholesale levels will be constant across each of the alternatives, since the total amount of cod allocated to each sector is fixed. Because no ex-vessel transactions occur by pot catcher/processors, only pot catcher vessels are discussed in this section.

The ex-vessel price for pot catcher vessels in 1998 was $0.192 per pound (NPFMC 1999). The distribution of the pot gear P. cod catch in 1998 was approximately 72% pot catcher vessels and 28% pot catcher/processors. The recent passage of BSAI Amendment 64 allocated the pot gear sector 18.3% of the fixed gear P. cod TAC. In addition, pot and longline vessels <60 ft LOA were allocated 1.4% of the fixed gear TAC. The analysis assumes, as discussed earlier in the chapter, that the 1.4% allocation is split evenly between longline and pot catcher vessels <60 ft. Based on this assumption, and the catch distribution between pot catcher vessels and catcher/processors, pot catcher vessels would receive 13.9% (72% of 18.3% + .7%) of the fixed gear P. cod TAC. Pot catcher/processors would receive 28% of the 18.3% allocation, which results in 5.1% of the fixed gear P. cod TAC. Assuming a fixed gear P. cod TAC of 91,048 mt for 2000 (BSAI SAFE 1999), the resulting catch for pot catcher vessels and catcher/processors is estimated to be about 12,660 mt and 4,660 mt in 2000, respectively. Assuming this is the approximate harvest, the ex-vessel revenue for pot catcher vessels would be about $5.36 million.

Without implementation of the proposed amendment, the number of qualified pot catcher vessels would remain at approximately 203. Applying an ex-vessel estimate of $5.36 million, the average ex-vessel revenue would be about $26,400 per vessel under the *No Action* alternative. Recall that the actual number of qualified catcher vessel licenses under the current LLP is 365. As with the longline catcher vessels, however, the analysis uses the current fleet of 203 vessels in order to determine a more representative impact of the alternatives on average ex-vessel revenues.

Table 4.15 on the following page shows the average ex-vessel revenues under each proposed alternative for pot catcher vessels. Recall that Options 9a and 9b, using a minimum of one landing, also represent the *No Action* alternative and are presented in the table. Restricting the number of pot catcher vessels under Option 1a would increase average ex-vessel revenue to between $92,400 and $255,200, depending on the minimum poundage alternative chosen. Under Option 1b, which requires the minimum harvest qualification in any one qualifying year instead of each qualifying year, the range changes from $92,400 to $109,400. Compared to the *No Action* alternative of leaving the current LLP in place with no further restrictions, and using an estimated current fleet of 203 catcher vessels, Option 1a increases average ex-vessel revenue by up to $228,800 under the most restrictive scenario, and by $66,000 under the least restrictive scenario. The multitude of alternatives suggests a wide range of corresponding average ex-vessel revenues, depending on both participation years and harvest requirements.

**Table 4.15: Estimates of Average Ex-vessel Revenue[1] for Pot Catcher Vessels Qualified Under the Alternatives for the BSAI P. Cod Fishery (in $ thousands)**

| Option (a)[2] | Qual. Years[5] | A landing | 25,000+ | 50,001+ | 100,001+ | >300,000 |
|---|---|---|---|---|---|---|
| 1a | 95-98 (3) | 92.4 | 141.1 | 153.1 | 178.7 | 255.2 |
| 2a | 95-99 (3) | 74.4 | 107.2 | 124.7 | 141.1 | 198.5 |
| 3a | 95-98 (2) | 54.1 | 81.2 | 89.3 | 99.3 | 141.1 |
| 4a | 95-99 (2) | 47.9 | 68.7 | 74.4 | 82.5 | 119.1 |
| 5a | 95-97 (2) | 59.6 | 86.5 | 101.1 | 116.5 | 157.6 |
| 6a | 96-98 (2) | 74.4 | 127.6 | 127.6 | 141.1 | 184.8 |
| 7a | 96-99 (2) | 58.9 | 86.5 | 74.4 | 101.1 | 141.1 |
| 8a | 95-98 (1) | 29.3 | 39.7 | 46.2 | 53.1 | 73.4 |
| 9a | 95-99 (1) | 26.4 | 34.1 | 39.1 | 45.4 | 64.6 |
| 10a | 96-98 (1) | 38.3 | 51.5 | 54.7 | 60.9 | 78.8 |
| **Option (b)[3]** | **Qual. Years[5]** | **A landing** | **25,000+** | **50,001+** | **100,001+** | **>300,000** |
| 1b | 95-98 (3) | 92.4 | 94.0 | 94.0 | 97.5 | 109.4 |
| 2b | 95-99 (3) | 74.4 | 74.4 | 74.4 | 75.5 | 87.9 |
| 3b | 95-98 (2) | 59.6 | 58.9 | 63.1 | 69.6 | 83.8 |
| 4b | 95-99 (2) | 47.9 | 51.0 | 53.1 | 58.3 | 70.5 |
| 5b | 95-97 (2) | 59.6 | 64.6 | 67.8 | 73.4 | 89.3 |
| 6b | 96-98 (2) | 74.4 | 80.0 | 82.5 | 90.8 | 101.1 |
| 7b | 96-99 (2) | 58.9 | 58.9 | 60.9 | 67.0 | 77.7 |
| 8b | 95-98 (1) | 29.3 | 39.7 | 46.2 | 53.1 | 73.4 |
| 9b | 95-99 (1) | 26.4 | 34.1 | 39.1 | 45.4 | 64.6 |
| 10b | 96-98 (1) | 38.3 | 51.5 | 54.7 | 60.9 | 78.8 |
| **Option (c )[4]** | **Qual. Years[5]** | **200,000-600,000 lbs** | | **>600,000 lbs** | | |
| 3c | 95-98 (2) | 72.4 | | 107.2 | | |
| 4c | 95-99 (2) | 60.2 | | 90.9 | | |
| 5c | 95-97 (2) | 77.7 | | 114.0 | | |

[1] Based on the 2000 TAC and 1998 wholesale prices.

[2] Options 1-10a refer to alternatives in which the minimum poundage is required of *each* qualifying year.

[3] Options 1-10b refer to alternatives in which the minimum poundage is required of *any* qualifying year.

[4] Options 3-5c refer to alternatives in which an *aggregate* poundage is required of at least two qualifying years.

[5] Qual. Years refers to the series of qualification years associated with Options 1-10 and the (number) of years the vessel must have participated in within the series.

#### 4.2.2.3.4 Pot Gear First Wholesale Revenue

##### 4.2.2.3.4.1 Pot Catcher Vessels First Wholesale Revenue

This section of the analysis uses 1998 production patterns and prices to project changes in product mix and first wholesale gross revenues under each alternative for pot gear vessels. Recall that the inshore first wholesale value is calculated using trawl, jig, and fixed gear deliveries, and is likely more representative of the trawl sector as opposed to the fixed gear sector due to a greater proportion of trawl deliveries. Noting this, the analysis continues to use the product mix and wholesale prices from all gear types to calculate first wholesale revenues for pot and longline catcher vessels. Pot catcher vessels, estimated to harvest 12,660 mt (from the 2000 TAC) with an inshore first wholesale price of $923/ton (Table 3.15), would generate a first wholesale revenue of $11.7 million.

This is revenue shoreside processors would expect to receive from deliveries from pot catcher vessels given the current allocations. Wholesale revenue from all of the sectors should remain constant across all of the

alternatives, including the *No Action* alternative. However, there may be slight distributional impacts as a result of limiting the number of vessels that make deliveries to individual shoreside processors. While we must consider the impacts of foregone deliveries on coastal communities, it is difficult to speculate where vessels will deliver on a vessel by vessel basis and whether the current distribution will be significantly altered.

#### 4.2.2.3.4.2 Pot Catcher/Processors First Wholesale Revenue

Pot catcher/processors have a higher 1998 first wholesale price at $1,166/ton. Assuming a pot gear split similar to 1998, pot catcher/processors would harvest 28% and pot catcher vessels 72% of the pot gear BSAI P. cod allocation under the allocations proposed in Amendment 64. Using the 2000 TAC, this equates to a pot catcher/processor harvest of about 4,660 mt. First wholesale revenue generated by pot catcher/processors is then $5.4 million. Using the current fleet of 20 pot catcher/processors to represent the body of vessels fishing if no further restrictions were placed on the fishery, the average first wholesale revenue is about $270,000.

**Table 4.16: Estimates of Average First Wholesale Revenue[1] for Pot Catcher/Processors Qualified Under the Alternatives for the BSAI P. Cod Fishery (in $ thousands)**

| Option (a)[2] | Qual. Years[5] | A landing | 25,000+ | 50,001+ | 100,001+ | >300,000 |
|---|---|---|---|---|---|---|
| 1a | 95-98 (3) | 1,080 | 1,080 | 1,080 | 1,350 | 1,350 |
| 2a | 95-99 (3) | 771 | 771 | 771 | 900 | 1,080 |
| 3a | 95-98 (2) | 600 | 600 | 600 | 675 | 771 |
| 4a | 95-99 (2) | 491 | 491 | 491 | 491 | 675 |
| 5a | 95-97 (2) | 771 | 771 | 771 | 771 | 771 |
| 6a | 96-98 (2) | 675 | 675 | 675 | 900 | 1,080 |
| 7a | 96-99 (2) | 540 | 540 | 600 | 540 | 771 |
| 8a | 95-98 (1) | 338 | 360 | 360 | 386 | 386 |
| 9a | 95-99 (1) | 270 | 300 | 300 | 338 | 338 |
| 10a | 96-98 (1) | 360 | 360 | 360 | 386 | 386 |
| **Option (b)[3]** | **Qual. Years[5]** | **A landing** | **25,000+** | **50,001+** | **100,001+** | **>300,000** |
| 1b | 95-98 (3) | 1,080 | 1,080 | 1,080 | 1,080 | 1,080 |
| 2b | 95-99 (3) | 771 | 771 | 771 | 771 | 771 |
| 3b | 95-98 (2) | 600 | 600 | 600 | 600 | 600 |
| 4b | 95-99 (2) | 491 | 491 | 491 | 491 | 491 |
| 5b | 95-97 (2) | 771 | 771 | 771 | 771 | 771 |
| 6b | 96-98 (2) | 675 | 675 | 675 | 675 | 675 |
| 7b | 96-99 (2) | 540 | 540 | 540 | 540 | 540 |
| 8b | 95-98 (1) | 338 | 360 | 360 | 386 | 386 |
| 9b | 95-99 (1) | 270 | 300 | 300 | 338 | 338 |
| 10b | 96-98 (1) | 360 | 360 | 360 | 386 | 386 |
| **Option (c )[4]** | **Qual. Years[5]** | **200,000-600,000 lbs** | | **>600,000 lbs** | | |
| 3c | 95-98 (2) | 600 | | 600 | | |
| 4c | 95-99 (2) | 491 | | 491 | | |
| 5c | 95-97 (2) | 771 | | 771 | | |

[1] Based on the 2000 TAC and 1998 wholesale prices.

[2] Options 1-10a refer to alternatives in which the minimum poundage is required of *each* qualifying year.

[3] Options 1-10b refer to alternatives in which the minimum poundage is required of *any* qualifying year.

[4] Options 3-5c refer to alternatives in which an *aggregate* poundage is required of at least two qualifying years.

[5] Qual. Years refers to the series of qualification years associated with Options 1-10 and the (number) of years the vessel must have participated in within the series.

Table 4.16 portrays the suite of alternatives for pot catcher/processors and the corresponding average first wholesale revenues. Under the proposed amendment, the average first wholesale revenue generated by pot catcher/processors ranges from $270,000 under Options 9a and 9b, to $1.35 million under Option 1a, a difference of $1.08 million. These estimates represent gross revenue from cod. Estimates of net revenue cannot be made due to current data limitations. These vessels would also be expected to generate revenue from the crab fisheries.

## 4.3 Cooperative Formation

Passage of BSAI Amendment 64 allocated a specific percentage of the Pacific cod available in the directed fishery to the freezer longline vessels. If passed, BSAI Amendment 67 would further restrict the number of vessels that are allowed to target Pacific cod. In combination, these two amendments may pave the way for the freezer longline vessel owners to consider forming a cooperative in the BSAI Pacific cod fishery. The major stumbling block which would then remain would be the allocation of halibut PSC. Currently halibut is apportioned to the longline fleet in the BSAI. Separate allocations to longline catcher vessels and freezer longliners would likely be needed before a freezer longline cooperative could be successful.

Two different approaches are available to the freezer longline fleet to form cooperatives. The first method is to have all members of the fleet agree to join the cooperative. This is allowed under the 1934 Fisherman's Collective Marketing Act (15 U.S.C. § 521). Even with the limited number of freezer longline vessels (approximately 40 if Amendment 67 is passed) that would be eligible, it may not be possible to get unanimous consent to form a cooperative among the fleet. In that case, the freezer longline vessels could use the approach taken by the pollock fleet. They went to Congress and had legislation passed (the American Fisheries Act) which enabled that fleet to form cooperatives without unanimous consent of the fleet. Forming a cooperative would likely increase the profitability of the freezer longline vessels by allowing them greater flexibility to manage operating costs and slow the pace at which Pacific cod are harvested. The increases in profits that might be expected under a cooperative cannot be estimated given the information that is currently available to the analysts. Another possibility (if there is not consensus among the fleet) is to have the Council set aside a specific portion of the TAC for vessels wishing to form a cooperative.

The vessel owners who have qualified vessels in the pot catcher/processor or catcher vessel sectors may also consider forming cooperatives. Their ability to do so will largely depend on the number of vessels qualified in the sector. The smaller the number of vessels that are eligible to participate, the more likely it is that they would be successful in forming cooperatives.

**Table 4.17 Pre-season apportionments of Pacific cod and halibut PSC mortality for Bering Sea and Aleutian Islands groundfish fixed gear fisheries, 1999.**

| Fisheries | Halibut mortality (mt) | P. Cod TAC (mt) |
|---|---|---|
| **Pacific cod (longline)** | | |
| Jan 1 - April 30 | 495 | 60,000 |
| May 1 - Sept 14 | 0 | 8,500 |
| Sept 15 - Dec 31 | 315 | 15,000 |
| **Other longline fisheries** | | |
| May 1 - Sept 14 | 45 | |
| Sept 15 - Dec 31 | 45 | |
| **Groundfish pot fisheries** | exempt | |
| **Total** | **900 mt** | |

## 4.4 Inseason Management Issues

Groundfish TACs, bycatch PSC limits are managed inseason by the NMFS Alaska Regional Office. Fisheries are closed when the fishery nears its TAC, or when seasonal apportionments of PSC are taken. So there are dozens of openings and closures to monitor.

Within the fixed gear sector, halibut PSC is split out into the Pacific cod fishery and all others (such as turbot and rockfish). The PSC is seasonally apportioned within the Pacific cod fishery to allow for harvest of the trimester apportionment of TAC (Table 4.17). Halibut PSC in 1999 was apportioned 495 mt to the first trimester and 315 mt to the second trimester. The initial TAC apportionments by trimester in 1999 were 60,000 mt, 8,500 mt, and 15,000 mt.

The LLP currently limits the areas a qualified vessel is allowed to fish. This amendment would further restrict the use of licenses issued for the BS and AI. Implementation of this amendment would require a vessel to carry a valid gear endorsement for the BSAI fixed gear Pacific cod fishery before they would be allowed to participate in that directed[4] fishery. The vessels would also still be subject to the original endorsement restrictions placed on the license. For example, a catcher/processor endorsement would still be required if a vessel wished to harvest and process fish at-sea, and the vessel length restrictions would still apply.

Implementing this amendment will require NMFS to determine if vessels currently qualified for a BS or AI endorsement under the LLP program (and likely a fixed gear endorsement if that portion of the LLP program passed by the Council is implemented by the Secretary of Commerce), meet the landings requirements for a cod endorsement. Vessels that met that requirement would be issued a species/gear specific (Pacific cod - pot and/or longline endorsement) endorsement for their existing license. This means that a vessel would need to hold a catcher/processor endorsement, under the original LLP, to qualify for a cod freezer longline or pot catcher/processor endorsement under the amendment. Only vessels that meet these requirements will be allowed by NMFS to harvest Pacific cod from the directed BSAI fixed gear cod allocation.

## 4.5 Other Issues

This section of the document addresses other issues requiring Council decision. They include whether to exempt vessels <32' LOA from the recent participation requirements, a brief discussion of combining catch histories, how vessels earning multiple cod endorsements should be treated, treatment of CDQ vessels, impacts of bait landings on the number of qualified vessels, other fishing opportunities for vessels that do not qualify for a Pacific cod endorsement, interactions with the IR/IU program, and grandfather provisions.

### 4.5.1 Exemptions for Vessels Less Than 32 Feet

The LLP implemented in 2000 exempted vessels less than or equal to 32' LOA when fishing in the BSAI and vessels less than or equal to 26' LOA when fishing in the GOA from the license requirements in Federal waters. It is the Council's intent that the 32' exemption also be applied to the Pacific cod endorsement amendment. Therefore, if the Council selects an alternative that imposes additional landings requirements to fish for Pacific cod, those requirements will only apply to vessels greater than 32' LOA. BSAI vessels less than or equal to 32' will continue to be exempt from the LLP requirements. Inclusion of this provision in the current action will effectively eliminate the risk of inadvertently imposing burdensome economic and operational impacts on the smallest elements of this fishery.

[4] A directed fishery in this analysis was defined as when BSAI cod comprised more than 50% of the pounds landed on a fishticket for catcher vessels and the Blend target definition for catcher/processors. Other definitions could be used to define the directed fishery. For example when cod is open, any landing that was above the MRB rate for cod.

### 4.5.2 Combining Catch Histories of Different Vessels

Three separate alternatives for combining the catch histories from different vessels were included by the Council for consideration in this analysis. The first alternative applies only to replacement vessels. In this case the analyst has assumed that the term replacement means a vessel that takes the place of a vessel that is no longer fishing ( i.e., was lost or destroyed). The complete catch history from the old and replacement vessels could then be combined as if it were harvested on a single boat. This assumes that the catch history from the old vessel had not been transferred to another person prior to the original owner bringing a new vessel into the fishery.

The second alternative applies to the stacking of licenses to obtain additional area endorsements. This option could potentially allow more vessels into the fixed gear Pacific cod fishery than would otherwise qualify. However, overall stacking would reduce the total number of groundfish licenses available. Once stacked, the licenses could either be permanently combined or the license holder could be allowed to sell the licenses separately. Given that the licenses were stacked in order to generate a Pacific cod endorsement, it may be appropriate to require that the endorsements from the two licenses be combined to form a single license. This would effectively prohibit temporary license combinations to fulfill the recency requirements of Amendment 67.

The third alternative identified would allow a vessel that was fishing under the moratorium program and met the recent participation requirements, but does not hold a BSAI groundfish license, to purchase a fixed gear BSAI license from a vessel that does not meet the recency requirements for a Pacific cod endorsement. The two histories would then be joined to generate a license with a fixed gear Pacific cod endorsement. This would potentially allow everyone that met the recency requirements to qualify for a Pacific cod endorsement, regardless of whether the vessel's catch history would have qualified it under the original program. This is because the estimated number of fixed gear BSAI groundfish licenses available in 2000 is greater than the number of vessels that have been fishing recently (1995-99). Therefore, the number of endorsed vessels that would qualify under this alternative is equal to the number of vessels reported in Tables 4.2 and 4.3 (freezer longliners), 4.5 and 4.6 (longline catcher vessels), and 4.11 and 4.13 (pot vessels). These tables reflect the number of vessels that meet the recency requirements for a P. cod endorsement, regardless of whether they met the original LLP qualification criteria.

### 4.5.3 Vessels Earning Multiple Types of Endorsements

A total of 15 catcher vessels have participated in the directed Pacific cod fishery in the BSAI with both longline and pot gear during the 1995-99 time period. Depending on the alternative selected, these vessels could qualify for both a pot and longline endorsement. Unless directed otherwise by the Council, it will be assumed that they would be issued both endorsements.

Among the catcher/processors, nine of the 61 total fished with both longline and pot gear. Two of the nine would not qualify under any of the freezer longline alternatives. One of the nine only had limited pot participation. It is likely that the remaining 6 vessels would qualify for both endorsements under most of the alternatives being considered.

### 4.5.4 CDQ Vessels

The current License Limitation Program does not treat CDQ vessels any differently than non-CDQ vessels. A CDQ vessel must have an LLP license to fish groundfish in the BS and/or AI using fixed gear. The Council has indicated that CDQ vessels will not be exempt from the proposed P. cod endorsements; those CDQ vessels harvesting BSAI P. cod with fixed gear will need to hold a P. cod endorsement in addition to their LLP area endorsement to fish either CDQ P. cod or P. cod from the directed fixed gear fishery.

### 4.5.5 Vessels Participating in the Bait Fishery

Chapter 3 describes the status of the bait fishery for Pacific cod. Currently, not all of the cod caught for use as bait is reported to NMFS. As the issue of bait accounting gains importance, the Council needs to consider how the bait fishery will be treated with respect to the proposed P. cod endorsements.

Currently, a vessel does not need a general LLP license to harvest groundfish for bait in the BSAI. The Council will need to decide whether a P. cod endorsement should be required to harvest P. cod in the bait fishery. Because the P. cod TAC has been set equal to the ABC since 1998, an increase in the removals of P. cod for bait may have conservation impacts. If regulations are implemented so that bait is required to be reported, the bait fishery harvests may reduce the directed fixed gear P. cod TAC. Therefore, it is in the interest of the Council to determine whether the LLP species endorsement should also be applied to the bait fishery in an effort to protect fishermen with a significant history in the directed P. cod fishery from the future possibility of a reduced TAC due to a potentially increasing and unlimited number of participants in the bait fishery.

If the Council does choose to apply the P. cod endorsements to the bait fishery, they must clarify whether vessels in the bait fishery must meet the same participation and harvest criteria as those participating in the directed fishery. Pot catcher vessels that have reported their P. cod bait catch in the past would at least qualify under the least restrictive harvest requirement of one landing, but many may not qualify under the next threshold harvest of 25,000 lb. Those that have not been reporting catch or do not meet the criteria would not qualify and would need to purchase P. cod from those holding a P. cod endorsement. Information in Chapter 3 indicates that a substantial number of vessels are not recording their P. cod catch in the bait fishery.

It is worth noting that due to the methodology used to determine which vessels participated in the directed P. cod fishery, several vessels that harvested P. cod for use as bait are accounted for under the alternatives summarized previously. Vessels reporting greater than 50% P. cod on a fish ticket were considered participants in the directed P. cod fishery. Therefore, if a vessel harvested and recorded only 40 pounds of P. cod for use as bait, but that 40 pounds comprised greater than 50% of the total catch recorded on the fish ticket, that vessel was included as having participated in the directed P. cod fishery and would qualify for a P. cod endorsement under the minimum harvest requirement of a landing. This may inflate the estimate of the number of qualifying boats in the directed P. cod fishery, since some of the vessels included were only targeting P. cod as bait.

Because of the potential for bait harvests to have a significant impact on the number of qualified vessels, the analysts examined the data excluding all P. cod designated as a bait delivery from an individual vessel's harvest. These data indicate how vessels' qualification standings are affected by including their bait harvests with their directed P. cod catch. While some vessels' P. cod harvests are exclusively bait, other vessels' P. cod harvests are comprised only partially of bait deliveries. Therefore, the original tables denoting qualifying vessels and Tables A. 7-12 in the appendix which exclude bait deliveries, are not mutually exclusive. Vessels whose P. cod harvest is partially bait deliveries may appear on both tables. In addition, the bait removals may or may not be harvested in the targeted bait fishery; bait harvests were excluded only on the basis that they

were designated as bait deliveries on a given fish ticket. The bait fishery is characterized further in this section.

The number of longline catcher vessels that qualify under the proposed alternatives without including bait harvests is presented by vessel class in the appendix in Tables A.7-A.10. Tables A.7 and A.8 show the number of vessels that qualify under Options 1 and 2, respectively, excluding bait harvests. These tables include all vessels that have recently participated in the directed P. cod fishery, regardless of LLP qualification. The data indicate that for some longline catcher vessels, including the bait catch increases the number of participation years, and/or bumps the vessel to a higher qualifying tonnage threshold. A maximum of six vessels fished for bait exclusively and would not qualify for a P. cod endorsement under specific qualification criteria if the bait harvests are not included as qualifying harvest. Under Option 1 (1995-98), a total of five vessels drop out under the one landing requirement, and four vessels drop to lower minimum tonnage thresholds. Including jig landings (Suboptions 1 and 2) but removing bait harvest drops out a maximum of six vessels. Option 2, which includes 1999 as a qualifying year, shows a similar effect, dropping out 6 vessels with a minimum harvest requirement of a landing (Table A.8).

Tables A.9 and A.10 also show the number of longline catcher vessels that qualify under Options 1 and 2, excluding bait harvests, with the additional requirement that the vessels must be LLP qualified. Excluding the bait harvests of LLP qualified vessels has an even lesser effect on the number of qualifying vessels. The data indicate that a maximum of three vessels drop out completely and would not qualify for a P. cod endorsement under specific qualification criteria if bait harvests are excluded. Under Option 1 (Table A.9), three vessels drop out under Suboptions 1 and 2 under one landing. Under Option 2 (Table A.10), three vessels drop out under one landing, whether jig landings are included or not. Only a couple of vessels drop to lower tonnage thresholds if bait harvests are excluded. Vessels that no longer qualify for a P. cod endorsement under the one landing requirement when bait harvests are excluded have been fishing P. cod exclusively for use as bait in other fisheries. Appendix A further breaks out the qualifying vessels by length class.

Excluding bait from the qualifying harvest has a slightly greater impact on the number of qualified pot catcher vessels. The information for pot vessels is presented similarly to that of longline vessels, with the exception that every proposed option is not analyzed. The analysts reviewed the data for a few of the most and least restrictive options for pot vessels, in order to determine the range of effects on the pot fleet. This information is presented in Tables A.11 and A.12 in Appendix A.

The number of pot catcher vessels that qualify under Options 1a, 2a, 9a/b, 1b and 2b, excluding bait harvests, is presented in Table A.11. This includes all vessels that have recently participated in the directed P. cod fishery, regardless of LLP qualification. The data indicate that for some pot catcher vessels, including the bait catch increases the number of participation years, and/or bumps the vessel to a higher qualifying poundage threshold. A maximum of ten vessels fished bait exclusively and would not qualify for a P. cod endorsement if the bait harvests are not included. Under Option 1a (participation in each of 3 years 1995-98), the most restrictive alternative, ten vessels drop out under the one landing requirement. Four fewer vessels drop out under Option 2a, which includes 1999 as a qualifying year. Recall that these options require participation in *each* of three qualifying years. Similarly, Options 1b and 2b, which require participation in any *one* of the qualifying years, drop out a maximum of ten and six vessels, respectively. The least restrictive options, Options 9a and 9b, drop a maximum of eight vessels from the one landing requirement. The number of vessels that qualify under the upper poundage requirements of (a) options, in which the minimum harvest is required of *each* qualifying year is scarcely affected. As expected, there is an effect on the number of vessels that qualify across the upper poundage requirements under the (b) options, in which the minimum harvest requirement is required of *any* qualifying year. Regardless, the greatest effect of excluding the bait harvest is clearly on vessels that harvest P. cod only for bait and qualify only under the one landing criterion.

Table A.12 also shows the number of pot catcher vessels that qualify under Options 1a, 2a, 9a/b, 1b and 2b, excluding bait harvests, with the additional requirement that the vessels must be LLP qualified. Excluding the bait harvests of LLP qualified vessels has a slightly lesser effect on the number of qualifying vessels. The data indicate that a maximum of eight vessels drop out completely and would not qualify for a P. cod endorsement under specific qualification criteria if bait harvests are excluded. Under Option 1a, eight vessels drop out under one landing and one vessel no longer meets the 50,001+ pounds threshold. Under Option 2a, four vessels drop out under one landing, and only a couple of vessels no longer meet the 25,001+ and 50,001+ poundage thresholds if bait harvests are excluded. Similarly, Options 1b and 2b, which require participation in any *one* of the qualifying years, drop out a maximum of eight and four vessels, respectively. The least restrictive options, Options 9a and 9b, drop a maximum of three vessels from the one landing requirement.

Again, it is important to note that P. cod bait deliveries may or may not have been harvested in the targeted bait fishery. A characterization of the bait fishery is necessary to determine how many vessels participate exclusively in the directed P. cod bait fishery compared to vessels that are catching bait as only a part of their

Table 4.18 Harvests of P.Cod Bait in the Directed BSAI P.Cod Fishery, 1995-1999, by Gear Type

| Year | Unique Vessels, All Gears | Total Pounds | Pot Vessels | Pot Pounds | Percent | Longline Vessels | Jig Vessels | Longline & Jig Pounds | Percent |
|---|---|---|---|---|---|---|---|---|---|
| 1995 | 21 | 907,935 | 11 | 121,003 | 13.3% | 6 | 6 | 786,932 | 86.7% |
| 1996 | 32 | 969,724 | 20 | 552,021 | 56.9% | 3 | 9 | 417,703 | 43.1% |
| 1997 | 40 | 940,927 | 27 | 503,124 | 53.5% | 2 | 12 | 437,803 | 46.5% |
| 1998 | 22 | 661,016 | 17 | 577,424 | 87.4% | 3 | 2 | 83,592 | 12.6% |
| 1999 | 30 | 437,027 | 19 | 294,499 | 67.4% | 4 | 8 | 142,528 | 32.6% |

| Period | Unique Vessels All Gears | Unique Vessels Bait Only | Unique Pot Vessels | Unique Pot Bait Only | Unique Longline Vessels | Unique Longline Bait Only | Unique Jig Vessels | Unique Jig Bait Only |
|---|---|---|---|---|---|---|---|---|
| 1995-1998 | 85 | 11 | 57 | 7 | 11 | 5 | 20 | 1 |
| 1995-1999 | 99 | 11 | 65 | 8 | 14 | 6 | 23 | 1 |

Notes: The longline and jig pounds have been combined to meet confidentiality standards.
Vessels using both jig and longline gear are counted separately in each gears' vessel total.
1999 Data are incomplete.

directed P. cod catch and are not involved in the P. cod bait fishery.

Table 4.18 shows the recorded fish ticket harvests of P. cod bait products throughout the 1995-1999 period. There have been roughly between 20 and 40 vessels with recorded landings in any given year, and 99 unique vessels with landings in the entire period. Most of the vessels with bait deliveries were in the pot fishery. The annual harvests have ranged between 661,000 and 970,000 pounds, excepting the incomplete 1999 data. It is not always obvious if P. cod bait deliveries are associated with a targeted bait fishery. For example, there were 65 pot vessels with bait landings in the years 1995-1999. Eight of these had P. cod bait deliveries only. These boats' harvests ranged from approximately 1,000 pounds to 20,000 pounds (all years combined). Fifty-three of the remaining 57 vessels had bait deliveries comprising less than twenty percent of the total P.cod harvested from the vessel. However, twenty-one had bait harvests greater than 20,000 pounds over the entire period, indicating that a high percentage of bait deliveries is not necessarily associated with a high volume of bait.

The manner in which the BSAI P.cod directed fishery is defined can change the number of eligible vessels. As stated earlier, the directed BSAI P.cod fishery for catcher vessels was defined as all fish ticket data in which the round pounds of retained P.cod recorded represented at least 50 percent of the entire ticket's retained harvest. Different numbers of vessels would be generated if the percentage of retained P.cod was changed or if the retained P.cod was calculated per day rather than per ticket. Table 4.19 below shows some of the ways in which the number of eligible vessels would change if the selection criteria were changed.

**Table 4.19 Numbers of Unique Vessels in the BSAI Pacific Cod Fishery, by Gear Type and Period**

| ALL GEAR TYPES | 1995 - 1998 | 1995 - 1999 |
|---|---|---|
| Unique Vessels in BSAI with P.cod harvests | 292 | 326 |
| Unique Vessels in BSAI withTargeted P.cod harvests | 281 | 315 |
| With Bait Landings | 85 | 99 |
| With ONLY Bait Landings | 11 | 11 |
| POT VESSELS | 1995 - 1998 | 1995 - 1999 |
| Unique Vessels in BSAI with P.cod harvests | 185 | 206 |
| Unique Vessels in BSAI withTargeted P.cod harvests | 183 | 203 |
| With Bait Landings | 57 | 63 |
| With ONLY Bait Landings | 7 | 8 |
| LONGLINE VESSELS | 1995 - 1998 | 1995 - 1999 |
| Unique Vessels in BSAI with P.cod harvests | 70 | 84 |
| Unique Vessels in BSAI withTargeted P.cod harvests | 58 | 71 |
| With Bait Landings | 11 | 14 |
| With ONLY Bait Landings | 5 | 6 |
| JIG VESSELS | 1995 - 1998 | 1995 - 1999 |
| Unique Vessels in BSAI with P.cod harvests | 65 | 72 |
| Unique Vessels in BSAI withTargeted P.cod harvests | 64 | 71 |
| With Bait Landings | 20 | 23 |
| With ONLY Bait Landings | 1 | 1 |
| LONGLINE AND JIG VESSELS | 1995 - 1998 | 1995 - 1999 |
| Unique Vessels in BSAI with P.cod harvests | 122 | 139 |
| Unique Vessels in BSAI withTargeted P.cod harvests | 110 | 127 |
| With Bait Landings | 30 | 36 |
| With ONLY Bait Landings | 6 | 6 |

### 4.5.6 Other Fishing Opportunities

BSAI fixed gear vessels that are not endorsed to participate in the directed BSAI fixed gear cod fishery will likely search out other available fishing opportunities. Given that they did not qualify for a cod endorsement, cod was not likely their primary fishery in the recent past. However, they may have been somewhat dependent on the fishery and did not meet the minimum qualification threshold. It is those vessels that have fished for cod in the past and would lose that opportunity under the proposed program, or vessels that have not fished cod but would like to in the future given changes that have taken place in other fisheries (i.e., opilio crab), that will be the focus of this section.

Two likely groundfish fishing opportunities are the GOA Pacific cod fishery and the State waters cod fishery in both the GOA and BSAI. Participation in the GOA fisheries is limited to those vessels that are licensed

and endorsed to fish specific areas of the Gulf. State waters fisheries are open to vessels whether they are LLP qualified or not.

Approximately half of the catcher vessels that fished BSAI Pacific cod between 1995-99 hold at least one GOA area endorsement for groundfish. In general, longline vessels were qualified for at least one area in the GOA. Pot vessels were much less likely to hold any GOA endorsements. Less than half of pot vessels with recent BSAI cod history also hold a interim or permanent GOA endorsement. Therefore, the opportunities in the Federal GOA Pacific cod fishery may be more available for longline vessels than pot vessels in aggregate.

Vessels looking to the State waters cod fishery to supplement their income could fish in either the GOA or BSAI. These fisheries do not require a Federal license to participate. In the BSAI there is not currently a set-aside from the Federal TAC for a State waters Pacific cod fishery. However if the number of entrants into that fishery is large enough, participants may request that the State Board of Fish create a set-aside much like was done in the GOA. Such a set-aside would benefit participants in the State water fishery to the detriment of those holding a Federal license to harvest BSAI Pacific cod.

Other groundfish fishing opportunities are quite limited for the catcher/processor fleet. Production information that is provided in Chapter 3 (Tables 3.10 and 3.11) shows that freezer longline vessels have participated in the rockfish and Greenland turbot fisheries outside of the IFQ fisheries. Pot catcher/processors have only targeted Pacific cod in the non-IFQ groundfish fisheries. They primarily rely on the various crab fisheries to generate revenue and not other groundfish fisheries.

These same trends generally hold for the catcher vessel fleets. In addition to BSAI Pacific cod, vessels that used longline gear also generated ex-vessel revenue from other groundfish, halibut, shellfish, and salmon during the combined 1996 and 1997 fishing seasons (the two most recent years that complete price information is currently available). Longline catcher vessels generated 15% of their ex-vessel revenue from the BSAI cod target fishery, 61% from other groundfish, 18% from halibut, 5% from shellfish, and 1% from salmon fisheries. Vessels that used jig gear generated 12% from the BSAI Pacific cod target fishery, 68% from other groundfish, 4% from halibut, 1% from shellfish, and 1% from herring.

Vessels that used pot gear, as expected, were much more dependent on the crab fisheries. Those vessels generated 12% of their ex-vessel revenue from the BSAI Pacific cod target fishery, 5% from other groundfish, 4% from halibut, and 79% from shellfish. However, given the current status of the crab fisheries compared to 1996 and 1997, it is likely that the pot fleet is now generating a smaller percentage of their overall income from the crab fisheries in the BSAI.

The information above indicates that the BSAI cod fishery accounts for about 12 to 15 percent of the revenue generated by catcher vessels. Longline catcher vessels rely heavily on other groundfish fisheries and the halibut IFQ fishery for the majority of their income. Pot vessels rely on shellfish fisheries for about 80% of their revenue. Currently, there is little opportunity for these vessels to expand their efforts into any of these fisheries.

### 4.5.7 Relationship Between the Improved Retention/Improved Utilization (IR/IU) and Pacific cod LLP Endorsement Programs

The IR/IU program defines rules for discarding specific species covered under the program (e.g., P.cod) when that species is open to directed fishing and when it is not (NMFS, 1997). If the directed fishery is open,

catcher vessels must retain all of an IR/IU species brought onboard the vessel. When the directed fishery for an IR/IU species is closed, all of that species covered under IR/IU that is brought onboard the vessel - up to the Maximum Retainable Bycatch (MRB) amount - must be retained. Finally, when retention of an IR/IU species is prohibited, the IR/IU species may not be retained. Therefore, catcher vessels that do not hold a valid license and Pacific cod endorsement would never operate in a directed cod fishery that is open in Federal waters. The maximum amount of cod a vessel which is not LLP qualified could retain is equal to the cod MRB amount in that directed fishery. Similar rules apply to catcher/processors and motherships, except the regulations are drafted in terms of products produced instead of species brought onboard the vessel.

### 4.5.8 Grandfather Provisions

The Council considered two grandfather provisions within Amendment 67. Under the first grandfather provision, a vessel would be exempt from the recent participation and landings requirements for BSAI Pacific cod species and gear endorsements, if the vessel:

1. met the original LLP general qualifying period and area endorsement period requirements for BSAI groundfish, non-trawl, catcher/processor endorsements and designations

2. applied for and received an interim or transferable license for groundfish as a catcher/processor in the BSAI

3. was purchased between July 1, 1997 and December 31, 1998 with the express purchaser intent of being employed in the BSAI fixed-gear Pacific cod fishery as evidenced by:

    1. execution and delivery of a U.S. Coast Guard Bill of Sale and subsequent recording of the Bill of Sale in the U.S. Coast Guard Abstract of Title on or before December 31, 1998, and

    2. documented processing equipment and/or vessel modification or improvement investments of not less than $100,000 that are specific to groundfish (gear purchases would not count for purposes of the $100,000 threshold), and

4. was employed as a catcher vessel or a catcher/processor in the fixed gear Pacific cod fishery during 1999.

Gear designations for these vessels would be based on the gear employed during the year in which the Council's final decision is made. If both pot and longline gear were used in the Pacific cod fixed gear fishery, then the gear designation would be determined by the gear with the higher volume of Pacific cod.

This grandfather provision was proposed with the expressed intent of allowing the new owners of catcher/processor vessels to recoup the vessel purchase and shipyard investments made during the 1997-99 time period. More specifically this proposal was made on behalf of two vessels, the Westward Wind and the Horizon. The new owners of these vessels requested that the Council consider a grandfather provision because they are concerned that their vessel would not qualify under all of the recent participation requirement options being considered by the Council because of business decisions made by the vessel's previous owner.

The first step in determining whether a catcher/processor vessel meets the requirements of the grandfather

provision is to check their status under the original LLP. A total of 150 vessels appear to be qualified to fish in the BS and/or AI as catcher/processors. Currently the LLP does not distinguish between vessels that would be endorsed as fixed, trawl, or both gear vessels, should that amendment to the LLP be implemented in the future. Of the 150 licensed vessels, 45 vessels participated in the 1999 fixed gear Pacific cod fishery. Ten of the 45 vessels were sold within the July 1, 1997 through December 31, 1998 time period (according to abstract of title searches of U.S.C.G. data). Therefore, ten vessels meet the strict interpretation of the grandfather provision. Of those ten vessels, three of the vessels would need the grandfather clause to qualify under some of the options being considered. Two vessels would use the grandfather clause to qualify for the freezer longline sector and one for the pot catcher/processor sector under the more stringent options for qualification.

The second grandfather provision included in the Council's list of proposed alternatives contains the following components:

I. Vessel that sank after June 17, 1995, that was LLP qualified with respect to Pacific cod landings prior to that sinking.

II. A sunken vessel is replaced with a qualified replacement vessel within the normal time allowed by the Internal Revenue Service (IRS).

III. Owner of replacement vessel has demonstrated continued intent to fish for Pacific cod by recent landings made through December 31, 1999 in the directed Pacific cod fishery.

IV. Consider appropriateness of either:
   a.) Accepting catch history from sunk vessel
   b.) Combining catch histories of sunk vessel and replacement vessel

As interpreted by staff, the second grandfather provision would provide relief from the recent participation requirements for vessels that sank after June 17, 1995, were qualified under the original LLP program in the BSAI, were replaced with a qualified vessel within the normal time allowed by the Internal Revenue Service (IRS), demonstrated an intent to participate in the Pacific cod fishery by having made a landing in the directed fixed gear Pacific cod fishery in the BSAI with the vessel that sank (between January 1, 1995 and when the vessel sank) and made an additional landing in the directed BSAI Pacific cod fishery with the replacement vessel between the time the vessel sank and December 31, 1999. Given the above criteria the Council would consider the appropriateness of exempting the replacement vessel from the recent participation requirements or allowing the vessel to combine the catch histories of the sunk and replacement vessels to qualify for a Pacific cod endorsement.

Point number four in the above list may also be considered a statement of intent regarding how the sunken vessel's catch history is treated. Option 4(a) indicates that a sunken vessel's catch history could be purchased by the owner of a vessel that meets the recent participation requirements for the BSAI Pacific cod endorsement and combine the two histories to qualify the other vessel. Option 4(b) also indicates the two histories could be combined, but does not preclude the sunken vessel's owner from purchasing a replacement vessel to combine the histories. Once combined, under either of the alternatives, the catch histories would be considered as if they had been earned on a single vessel.

To determine the impacts of the second grandfather provision, the U.S. Coast Guard was sent a list of the vessels that had participated in the directed fixed gear Pacific cod fishery between January 1, 1995 and December 31, 1999. The Coast Guard then provided information on which of those vessels had sunk and

when. The list of sunken vessels and the catch history database developed for this analysis was then used to determine if those vessels had participated in the directed fixed gear BSAI Pacific cod fishery both before and after the vessel was lost. That list of vessels represented those eligible for the grandfather provision.

A total of four pot catcher vessels and three longline catcher vessels that fished for BSAI Pacific cod sank between June 17, 1995 and December 31, 1999 according to U.S.C.G. records. Therefore, a maximum of seven vessels would be eligible for this grandfather provision. Determining if the vessels were replaced is difficult given the current data available to the analysts. The owner of one of the sunken pot vessels submitted written testimony to the Council stating that he would meet the requirements of this grandfather provision. The remaining six vessels may not have met the requirement of having made a landing with the replacement vessel before December 31, 1999. That information would need to be supplied by the vessel owner. However, two of the six remaining vessels did not sink until mid-year in 1999 (both were longline catcher vessels). The owners of these vessels may not have had time to find a replacement vessel and re-enter the fishery, and given their reported catch history, they would only qualify under the options that require a landing. Neither of the vessels made landings of 7.5 mt in any year. The third longline catcher vessel that sank only fished in 1995 and then sank in 1997. This vessel would also only qualify under the option that requires a landing in *any* year.

Two of the three remaining pot catcher vessels only had limited amount of landings in 1995. Only one of the two would qualify at the 25,000 lb level in any one year. The third pot catcher vessel fished in two years before sinking, but never had landings of more than 200,000 lb in any one year. Exempting these vessels from all recent participation requirements may reward them relative to other catcher vessels with similar participation during the years these vessels were active.

### 4.6 Summary and Conclusions

Net revenues generated from the directed fixed gear Pacific cod fishery cannot currently be estimated, given the constraints of the available data. This analysis has estimated the gross revenue by sector and the average gross revenue per vessel for each alternative. Gross revenue estimates do not provide adequate information to make informed judgements regarding the profitability of the directed cod fishery, which is the more desirable economic comparison, but it is the best information that is currently available.

The number of fixed gear vessels projected to qualify to fish BSAI P. cod drops to a potential range of 43 to 63 catcher/processors and 28 to 329 catcher vessels under the qualification alternatives set forth by the Council and evaluated in this analysis (Table 4.20). Again, this analysis assumes that all vessels with recent participation hold a valid license to fish BSAI groundfish under the original LLP, although this is very likely not the case. The analysts used this larger universe of vessels when determining which vessels would qualify under the proposed alternatives for a P. cod endorsement because a final list of LLP qualified vessels was not yet available from NMFS.

Compared to the current LLP eligibility of up to 365 catcher vessels, the least restrictive alternatives for both pot and longline catcher vessels allow in *all* vessels that have made a single landing between 1995-1999, eliminating only 36 licenses that most likely represent latent vessels. The most restrictive alternatives eliminate up to 337 catcher vessels.

**Table 4.20: Range of fixed gear vessels qualified in the BSAI P. cod fishery under the proposed alternatives to limit entry**

| Length | Catcher/Processors | | Catcher Vessels | |
|---|---|---|---|---|
| | Minimum | Maximum | Minimum | Maximum |
| <60' | 0 | 1 | 6 | 127 |
| 60-124' | 12 | 17 | 16 | 154 |
| 125'+ | 31 | 45 | 6 | 148 |
| **Total** | **43** | **63** | **28** | **329** |

Similarly, the least restrictive alternatives for freezer longliners and pot catcher/processors would eliminate only 4 total catcher/processors, and the most restrictive alternatives would eliminate 24, compared to the current list of 67 qualified catcher/processors. While this analysis focuses on Pacific cod endorsements specific to gear type, it is valuable to note the total number of catcher vessel and catcher/processor licenses available under the LLP if no action is taken, compared to the potential reduction if a set of the limited entry alternatives is adopted.

## 5.0 COUNCIL'S PREFERRED ALTERNATIVE

At the Council's April 2000 meeting, the Council approved a preferred alternative for applying Pacific cod endorsements to vessels with specific levels of recent participation in the directed BSAI fixed gear Pacific cod fishery, in addition to basic LLP qualification. Required catch history to earn a Pacific cod endorsement was defined for the freezer longline, longline catcher vessel, pot catcher/processor, and pot catcher vessel sectors. This chapter outlines each component of the preferred alternative with regard to the individual gear sectors and the related issues that were identified as decision points for the Council in Chapter 4.

### 5.1 Alternatives Selected by the Council

The estimates of the number of qualifying vessels are based on the number of vessels that appear to qualify for a general fixed gear (or fixed gear and trawl) groundfish license for the BSAI and meet the Pacific cod endorsement criteria. A vessel could qualify for the Pacific cod endorsement by making appropriate levels of Pacific cod landings in the Bering Sea or the Aleutian Islands (or both), but the Pacific cod endorsement will only apply to the area endorsement specified on the vessel's general license. The estimates of the number of qualifying vessels represent the most recent information received from the NMFS RAM Division and include those vessels that have applied for a license and have at least some catch history on file that matches the official database. The final list of qualifying vessels cannot be determined until the NMFS appeals process for LLP is complete. There is added uncertainty due to the difficulty in tracking recent individual license transactions.

This chapter focuses on the participation requirements as adopted by the Council, the number of qualifying vessels in each sector and the average ex-vessel and first wholesale gross revenue impacts of the preferred alternative. While it is recognized that an analysis of net benefits to the Nation is the appropriate method of determining economic impacts, data are currently unavailable to conduct a formal analysis of that type. In addition to gross revenue impacts, this section provides information on the impacts of the preferred alternative with regard to community linkages.

#### 5.1.1 Freezer Longline Vessels

Freezer longline vessels with a catcher/processor endorsement on their BSAI license must have made 270 mt of landings in the directed commercial BSAI Pacific cod fishery (excluding discards) in any one of the years 1996, 1997, 1998, or 1999. This criteria is a slight variation of Option 2 for the freezer longline sector as presented in previous chapters of the document. The 270 mt level was calculated using a base amount of 300 mt and allowing for a 10 percent variation in reported catch history (300 - 30 = 270).

The catch history of catcher/processors is calculated indirectly using the net product weight and product recovery rate to generate the round weight of the harvest, as opposed to the practice for catcher vessels, in which the harvest is actually weighed and reported on fish tickets. Thus, because of the methodology employed, the catch history for catcher/processors may be more susceptible to error. Public testimony at the April 2000 Council meeting indicated industry support for allowing for a slight variation in the harvest reporting data for freezer longliners due to concerns with the accuracy of the reported harvest data. The analysts also related that the data show that only two additional freezer longline vessels would qualify under the 270 mt versus the 300 mt criteria. Considering public testimony and the fact that only two participants were affected who showed historical dependence on the fishery, the Council adopted the 10% variation, resulting in a 270 mt harvest requirement during any one year 1996-1999. While the Council did not previously identify 270 mt as a distinct option for the freezer longline sector, it is well within the range of options analyzed (100-300 mt);

thus, the Council was able to evaluate the impacts and select a 270 mt requirement.

Approximately 40 vessels qualify under this criteria. Recall from Chapter 4 that about 48 freezer longliners participated in the directed BSAI P. cod fishery at some point during 1996-99 and also hold a groundfish license to fish in the BSAI. This means that under the Council's preferred alternative, approximately 8 vessels that have fished P. cod in the BSAI since 1996 would no longer be allowed in the fishery. A second comparison could be made to the current LLP eligibility of 67 catcher/processors which hold a catcher/processor endorsement on their BSAI groundfish license and would potentially be able to fish Pacific cod (with longline or pot gear) in the BSAI under the *No Action* alternative. The Council determined, based on public testimony and industry experience, that 300 mt (with the applied 10% variation) is an appropriate landing requirement to secure endorsements for those freezer longliners that have historically participated in, and significantly depend upon, the BSAI P. cod fishery. Because catcher/processors do not need to deliver to shore as often and the Pacific cod season is traditionally several months long, it was determined that 300 mt in any one year 1996, 1997, 1998 or 1999 is a fairly easy criterion to meet for a serious participant. A vessel that has not harvested at least 300 mt in any one of the qualifying years was determined not to be historically dependent on the fishery.

The freezer longline sector's allocation in 2000, had the fixed gear allocations of Amendment 64 been in place, would have been 72,840 mt. (This calculation is based on the sector's 80% allocation of the fixed gear P. cod TAC, which in 2000 was 91,048 mt). Given that allocation and the estimates of wholesale price provided in Chapter 3 ($1,010/mt in 1998), freezer longliners would generate about $73.6 million in wholesale revenue if the full allocation is taken. The Council's preferred alternative would endorse 40 freezer longline vessels to fish cod in the BSAI. Based on a wholesale revenue estimate of $73.6 million, the resulting average first wholesale revenue under the preferred alternative is $1.84 million per vessel. By comparison, the *No Action* alternative would have allowed 67 vessels currently with a fixed gear catcher/processor endorsement to potentially fish Pacific cod in the BSAI, decreasing the average first wholesale revenue to $1.1 million per vessel. This is a change of $740,000 per vessel on average.

There are also community impacts to consider, as some of the vessels from the current fleet would not meet the qualification criteria embodied in the preferred alternative and would therefore need to find other opportunities to replace the revenue lost from no longer being able to fish Pacific cod. Of the 40 vessels that qualify under the Council's preferred alternative, 7 are based (home ported) in Alaska, 1 in New York, and 32 in Washington (Table 5.1). Of the 8 vessels that have been fishing BSAI P. cod but recently for do not meet the qualification criteria set forth by the Council, one of those is from Anchorage, Alaska, one is from California, and the remaining six are from Washington. This indicates that the potential impact to the geographical communities is distributed fairly proportionate to their participation in the fishery.

**Table 5.1 Geographical Distribution of Impacts of the Preferred Alternative on the Freezer Longline Sector (1996-99)**

| Homeport Location | Number of Non-Qualifying Vessels | Number of Qualifying Vessels |
|---|---|---|
| Alaska | 1 | 7 |
| Outside Alaska | 7 | 33 |
| TOTAL | 8 | 40 |

### 5.1.2 Longline Catcher Vessels

The Council prefers to take no action for longline or pot catcher vessels less than 60' LOA at this time. Vessels less than 60' do not need a Pacific cod endorsement to fish cod in the BSAI, however they must meet the requirements of the LLP as passed by the Council or as currently in place. The preferred alternative also specifies that landings of Pacific cod made with jig gear (by vessels of any length) would count towards qualification for the Pacific cod endorsement as if they had been made with longline gear. About 85 vessels appear to have made at least one P. cod landing in the BSAI using longline and/or jig gear since 1995 and are also qualified under the BSAI LLP (50 qualify and 35 are exempt because they are <32'). About 71 of these vessels are <60', thus we can estimate that approximately 71 vessels <60' may potentially fish for BSAI P. cod using longline gear in addition to the vessels ≥60' that qualify under the Council's preferred alternative. (It is important to note, however, that not more than 26 longline catcher vessels <60' have participated in the BSAI P. cod fishery in any one season since 1995.) As another comparison, approximately 117 longline and pot vessels <60' qualify for a general fixed gear groundfish license in the BSAI. Because there are no gear endorsements in place for these 117 vessels, it is possible for these vessels to fish Pacific cod using either pot or longline gear. Therefore, although unlikely, a maximum of 117 vessels <60' could potentially fish Pacific cod in the BSAI using longline gear.

The Council continues to be concerned with the ability of small entities to compete under the current fishery management regime. Recall that Amendment 64, if approved by the Secretary, would establish a set-aside for vessels <60' of 1.4% of the fixed gear P. cod TAC. In selecting the *No Action* alternative for vessels <60', the Council wanted to ensure that this vessel class would be large enough to potentially take their entire allocation. In 1995, there were 26 longline catcher vessels and 16 pot catcher vessels <60' fishing P. cod in the BSAI. Since then, the number of vessels <60' has never exceeded that in a season, with only 10 longline and 4 pot catcher vessels <60' fishing in 1999. The fishing power of these vessels was also considered in the decision to take no action for <60' vessels; the <60' class has never harvested even close to 1.4% of the P. cod fixed gear catch. The average 1995-99 P. cod catch for vessels <60' was 0.26%, substantially lower than the recent 1.4% set aside. In 1999, the <60' class harvested only 0.12% of the total fixed gear P. cod catch. The Council considered both the small number of participating vessels and the historical effort of this sector and determined that limiting the <60' class was both unnecessary and detrimental to the small boat fleet.

Longline vessels greater than or equal to 60' LOA must have made at least 7.5 mt of cod landings in the directed commercial BSAI Pacific cod fishery (excluding discards) in any one year 1995, 1996, 1997, 1998, or 1999. Jig landings of Pacific cod (by vessels of any length) also count towards qualification for the Pacific cod endorsement as if they had been made with longline gear. This criteria represents Option 2, Suboption 2 for the longline catcher vessel sector as presented in previous chapters of the document. Approximately 3 vessels ≥60' qualify under this criteria. The potential <u>total</u> number of longline catcher vessels fishing Pacific cod depends on the number of vessels <60' that choose to fish Pacific cod using longline gear. As stated previously, it appears that 71 individual vessels <60' qualify for a groundfish license and have made at least one BSAI Pacific cod landing using longline or jig gear since 1995.

The longline catcher vessel sector's allocation in 2000, had the fixed gear allocations of Amendment 64 been

in place, would have been 910 mt. Given that allocation and the estimates of ex-vessel price provided in Chapter 3 ($0.193/lb in 1998), longline catcher vessels would generate about $387,200 in ex-vessel revenue if the full allocation is taken. The Council's preferred alternative would endorse 3 longline catcher vessels ≥60' to fish cod in the BSAI. If we estimate that approximately 71 longline catcher vessels <60' have been and will continue to be fishing cod in the BSAI, we can estimate a total of 74 qualified and participating longline vessels. How the ex-vessel revenue of $387,200 is distributed among the qualified vessels will depend on the level of effort of each individual vessel in the fishery, which is itself dependent on several factors such as capacity of the vessel, whether it is the primary fishery for the vessel, etc. We can expect, however, that the ex-vessel revenue will not be evenly distributed among the qualified vessels, as the participants are extremely diverse: three vessels are ≥60', and about half of the remaining 71 vessels are <32'. In this case, because of the diverse structure of the longline catcher vessel sector and the level of assumptions made about the number of qualified vessels <60', calculating average ex-vessel revenue is less useful for analysis.

The community impacts are not too surprising. The majority of longline catcher vessels fishing BSAI P. cod in any vessel home ported in Alaska (approximately 81% of the fleet 1995-99, current regardless of LLP qualification), with the vessels located in Washington (14%), Oregon (4%) and California (<1%). Most of the Alaska fleet is comprised of vessels <60', which all qualify under the Council's preferred alternative as long as they hold a BSAI groundfish license (the 71 vessels discussed above). However, the ≥60' fleet during 1995-99 was comprised of 13 Alaska-based vessels and 11 vessels based outside of Alaska. Ten of these vessels are not LLP qualified, and the remaining 11 do not meet the Council's qualification criteria for a P. cod endorsement, reducing the ≥60' fleet from 24 to 3.

**Table 5.2 Geographical Distribution of Impacts of the Preferred Alternative on Longline Catcher Vessels >60' (1995-99)**

| Homeport Location | Number of Qualified Vessels | Non-Qualified Vessels | <60' Total |
|---|---|---|---|
| Alaska | | | |
| Dutch Harbor | 1 | | 1 |
| Homer | | 2 | 2 |
| Kodiak | 1 | 5 | 6 |
| Seldovia | | 1 | 1 |
| Seward | | 1 | 1 |
| Unalaska | | 2 | 2 |
| **AK Total** | **2** | **11** | **13** |
| California | | 1 | 1 |
| Oregon | | 2 | 2 |
| Washington | 1 | 7 | 8 |
| **Grand Total** | **1** | **10** | **11** |

Of the 3 vessels ≥60' that qualify under the Council's preferred alternative, 2 are based in Alaska and 1 is from Washington (Table 5.2). This indicates that the impact to Alaska-based longline catcher vessels is about equal to the impact to vessels based outside of Alaska, relative to their overall participation in the fishery. Local coastal communities, however, may be more sensitive to impacts. Of the Alaskan communities, the Kodiak fleet was most affected; five of the six longline vessels ≥60' that are home ported in Kodiak no longer qualify to fish P. cod under the preferred alternative.

### 5.1.3 Pot Catcher/Processors

Pot vessels with a catcher/processor endorsement must have made at least 300,000 lb of landings in the directed commercial BSAI Pacific cod fishery (excluding discards) in ***each*** of any two of the years 1995, 1996, 1997, or 1998. This criteria represents Option 3a for the pot catcher/processor sector as presented in previous chapters of the document.

Five pot catcher/processors qualify under this criteria. Recall from Chapter 4 that about 14 pot catcher/processors have participated in the directed BSAI P. cod fishery some time during 1995-1999 and also hold a groundfish license to fish in the BSAI. This means that under the Council's preferred alternative, approximately 9 vessels that landed P. cod in the BSAI in 1995-99 would no longer be allowed in the fishery. A second comparison could be made to the current LLP eligibility of 67 catcher/processors which hold a catcher/processor endorsement on their BSAI groundfish license and would potentially be able to fish Pacific cod (with longline or pot gear) in the BSAI under the *No Action* alternative.

The Council determined, based on public testimony and industry experience, that 300,000 lb is an appropriate landing requirement to secure endorsements for those pot catcher/processors that have historically participated in, and significantly depend upon, the BSAI P. cod fishery. Considerable public testimony was heard regarding the pot vessel criteria; concern was expressed that any serious participant in the P. cod fishery could easily land 300,000 lb in one season, and that allowing a catcher/processor to qualify with any less than that annual harvest level would essentially qualify a number of vessels that participate in the P. cod fishery to supplement the income they receive from their primary fisheries. It was also noted that setting the qualification requirement as two years of a four-year period allows for legitimate, unanticipated absences from the fishery without penalizing serious participants.

Assuming that the pot sector would behave relatively similarly to 1998, under the allocations proposed in Amendment 64, pot catcher/processors would harvest 28% and pot catcher vessels 72% of the pot gear BSAI P. cod allocation in 2000 (18.3% of the 2000 fixed gear TAC), resulting in an estimated pot catcher/processor harvest of 4,660 mt. Given the estimates of first wholesale price provided in Chapter 3 ($1,166/mt in 1998), catcher/processors would generate about $5.4 million in first wholesale revenue if the full allocation is taken. The Council's preferred alternative would endorse 5 pot catcher/processors to fish cod in the BSAI, therefore the resulting average first wholesale revenue under the preferred alternative is $1.08 million per vessel. By comparison, the *No Action* alternative would have allowed 14 vessels currently with a fixed gear catcher/processor groundfish endorsement to fish BSAI Pacific cod, decreasing the average first wholesale revenue to $385,571 per vessel.

The makeup of the pot catcher/processor sector from a community perspective does not change much under the Council's preferred alternative. Of the 14 vessels that are currently LLP qualified as catcher/processors in the BSAI groundfish fisheries, twelve are home ported in Washington and two are from Alaska. Under the criteria adopted by the Council, only 5 pot catcher/processors would qualify: four are home ported in Washington and one is from Alaska (Table 5.3). The harvest data indicate that there is a substantial difference in harvest levels between the 9 catcher/processors that are LLP qualified but do not meet the Council's preferred qualification criteria, and those that do qualify under LLP and the preferred alternative. The 9 vessels that drop out reported relatively few P. cod landings by comparison over the qualifying 1995-98 time period, seven of which landed P. cod in only one of the qualifying years if at all. These 9 vessels typically landed in excess of 300,000 lb when they did participate in the fishery, but they did not participate at this level in more than one year. This indicates that these vessels were not historically dependent on the P. cod fishery and that the majority of their income likely comes from other fisheries.

### 5.1.4 Pot Catcher Vessels

The Council preferred to take no action for pot vessels <60', yet pot vessels <60' must still meet the requirements of the LLP as passed by the Council or as currently in place. About 119 vessels appear to represent the current pot fleet (made at least one landing in 1995-99) that is also qualified under the BSAI LLP. About 16 of these vessels are <60', thus we can estimate that approximately 16 vessels <60' may potentially fish for BSAI P. cod using pot gear in addition to the vessels ≥60' that qualify under the preferred Council's alternative. It is important to note, however, that approximately 117 longline and pot vessels <60' qualify for a general fixed gear groundfish license in the BSAI. Because there are no gear endorsements in place for these 117 vessels, it is possible for these vessels to fish Pacific cod using either pot or longline gear. Therefore, a maximum of 117 vessels <60' could potentially fish Pacific cod in the BSAI using pot gear.

**Table 5.3 Geographical Distribution of Impacts of the Preferred Alternative on Pot Catcher Processors (1995-99)**

| Homeport Location | Number of Non-Qualifying Vessels | Number of Qualifying Vessels |
|---|---|---|
| Alaska | 1 | 1 |
| Washington | 8 | 4 |
| TOTAL | 9 | 5 |

Pot catcher vessels ≥60' LOA must have made over 100,000 lb of landings in the directed commercial BSAI Pacific cod fishery (excluding discards) in ***each*** of any two of the years 1995, 1996, 1997, 1998, or 1999. This criteria represents Option 4a for the pot catcher vessel sector as presented in previous chapters of the document. The preferred alternative also specifies that landings of Pacific cod made with jig gear (by vessels

of any length) would count towards qualification for the Pacific cod endorsement as if they had been made with pot gear.

Approximately 47 vessels ≥60' qualify under this criteria. The potential total number of pot catcher vessels fishing Pacific cod depends on the number of vessels <60' that choose to fish BSAI Pacific cod using pot gear. As stated previously, it appears that 16 vessels <60' qualify for a groundfish license and have made at least one BSAI Pacific cod landing using pot or jig gear since 1995. The Council related that 100,000 lb was a reasonable harvest limit for pot cod catcher vessels ≥60' to establish historical dependency; vessels that could not meet this limit were likely prospecting and not serious participants. For the same reason, the Council chose to require two years out of the 1995-99 time period. A two year requirement allows time for the crab fleet to establish dependency on P. cod without qualifying only those vessels which participated in the fishery in 1999.

As discussed in Chapter 3, the pot catcher vessel sector harvested about 72% of the overall pot gear P. cod catch in 1998. Had Amendment 64 been in place for 2000, and assuming the distribution of harvest between pot catcher vessels and catcher/processors remains relatively stable, pot catcher vessels would be expected to harvest about 12,660 mt of the fixed gear P. cod TAC in 2000. Given the estimates of ex-vessel price provided in Chapter 3 ($0.192/lb in 1998), pot catcher vessels would generate about $5.36 million in ex-vessel revenue if the full allocation is taken. The Council's preferred alternative would endorse 47 pot catcher vessels >60' to fish cod in the BSAI. If we estimate that approximately 16 pot catcher vessels <60' have been and will continue to be fishing cod in the BSAI, we can estimate a total of 63 qualified and participating pot catcher vessels. How the ex-vessel revenue of $5.36 million is distributed among the qualified vessels will depend on the level of effort of each individual vessel in the fishery, which is itself dependent on several factors such as capacity of the vessel, whether P. cod is the primary fishery for the vessel, etc. We can expect, however, that ex-vessel revenue will not be evenly distributed among the fleet, making average ex-vessel revenue estimates less indicative of individual vessel performance in this sector.

The majority of community impacts resulting from the preferred alternative are attributed to the reduction in the pot catcher vessel sector. There are 119 catcher vessels that have used pot gear to land P. cod in the BSAI during the 1995-99 time period and are also LLP qualified. Recall from Chapter 3 that the number of pot vessels that participated in the directed cod fishery has varied from a high of 119 in 1995 to a low of 19 in 1993. Pot catcher vessels generally tend to enter the Pacific cod fishery after the opilio crab fishery closes in the BSAI. This sector is typically more reliant on P. cod when crab stocks are low, thus, participation in the cod fishery by pot vessels likely increased between 1993 and 1995 because of a substantial drop in opilio catch. As crab stocks continue to remain low, we would expect that the BSAI and GOA cod fisheries would realize greater effort from the pot sector this year.

The pot catcher vessel fleet is comprised of about one-third Alaska-based vessels and almost two-thirds Washington-based vessels, with a few remaining vessels registered to owners from California, Hawaii, Montana, and Oregon. Of the 47 vessels ≥60' that qualify under the Council's preferred alternative, 29 are home ported in Washington, 15 are in Alaska, and the remaining two are in California and Oregon (Table 5.4). Similarly, of the 71 vessels ≥60' that do not meet the qualification criteria set forth by the Council, almost one-third of those are based in Alaska and two-thirds are based outside of Alaska. This indicates that the impact to Alaska-based vessels is no less than the impact to vessels based outside of Alaska, relative to their overall participation in the fishery.

**Table 5.4 Geographical Distribution of Impacts of the Preferred Alternative on Pot Catcher Vessels >60' (1995-99)**

| Homeport Location | Qualified Vessels[1] | Non-Qualified Vessels | Grand Total |
|---|---|---|---|
| Alaska | | | |
| Anchorage | | 3 | 3 |
| Homer | | 3 | 3 |
| King Cove | 1 | 9 | 10 |
| Kodiak | 12 | 2 | 14 |
| Petersburg | | 1 | 1 |
| Port Alexander | | 1 | 1 |
| Sand Point | 2 | 5 | 7 |
| Unalaska | | 1 | 1 |
| **AK Total** | **15** | **25** | **40** |
| California | 1 | | 1 |
| Hawaii | | 2 | 2 |
| Montana | | 1 | 1 |
| Oregon | 3 | | 3 |
| Washington | 29 | 43 | 72 |
| **Grand Total** | **48** | **71** | **119** |

[1]One qualified vessel in this column is less than 60' and would therefore be exempt from the qualification criteria anyway, under the Council's preferred alternative of "no action" for vessels <60'.

On a local level, however, there may be less evenly distributed effects. Individual coastal communities which rely both on the income generated by vessels delivering to their communities and the income of participants which benefit their community of residence, may feel a substantial impact if the majority of the local pot fleet is no longer eligible to fish Pacific cod under the Council's preferred alternative. For example, nine of the ten pot vessels home ported in King Cove and five of the seven home ported in Sand Point would not receive a P. cod endorsement under the Council's chosen criteria. These communities may bear a greater share of the negative effects associated with limiting the P. cod fishery than, for example, Kodiak, which would lose participation from two vessels, but still have twelve qualified pot catcher vessels.

Number of participating vessels is, of course, only partially representative of the cost the community may incur as a result of the implementation of Amendment 67. The level of effort of these individual vessels is perhaps a better measure of their contribution to the communities' economic viability, yet effort in the cod fishery is dependent on several inter-related factors that change year to year, such as the viability of the crab

fisheries, season length, etc. Because of the difficulty in estimating and predicting the effort attributed to individual vessels in future years, we only assess the impact to communities on a qualitative level.

While the number of pot catcher vessels ≥60' that do not qualify seems large relative to the total number of past participants, it is important to recall from Chapter 3 that relatively few of the pot catcher vessels accounted for a majority of the fixed gear P. cod harvest during 1995-99. During that time period a total of 203 vessels reported cod harvests. Six of the 203 vessels accounted for 25% of the catch, 17 vessels (50%), 38 vessels (75%), and 69 vessels (90%). Thus, we would expect that the 47 vessels ≥60' that qualify under the preferred alternative have accounted for most of the harvest since 1995.

The BSAI vessels not qualified for the P. cod fishery, however, will likely seek out other opportunities. Given that the pot catcher fleet is largely dependent on the crab fisheries (almost 80% of total revenue) but may be somewhat dependent on the P. cod fishery or would like to fish P. cod in the future given changes that have taken place in the crab fisheries, the pot catcher fleet may comprise most of the "spillover" generated by tightening participation in the P. cod fishery. Two likely groundfish fishing opportunities for vessels who do not qualify for a P. cod endorsement are the GOA Pacific cod fishery and the State waters cod fishery in both the GOA and BSAI. Participation in the GOA fisheries is limited to those vessels that are licensed and endorsed to fish specific areas of the Gulf. State waters fisheries are open to vessels regardless of whether they are LLP qualified, as these fisheries do not require a Federal license to participate.

Chapter 4 details some of the other fishing opportunities available. Approximately half of the catcher vessels that fished BSAI Pacific cod between 1995-99 hold at least one GOA area endorsement for groundfish. In general, longline vessels were qualified for at least one area in the GOA. Pot vessels were much less likely to hold any GOA endorsements. Less than half of pot vessels with recent BSAI cod history also hold an interim or permanent GOA endorsement. Therefore, the opportunities in the Federal GOA Pacific cod fishery may be more available for longline vessels than pot vessels in aggregate.

Dependency upon Pacific cod on a general sector basis is as follows: in addition to BSAI Pacific cod, vessels that used longline gear also generated ex-vessel revenue from other groundfish, halibut, shellfish, and salmon during the combined 1996 and 1997 fishing seasons (the two most recent years that complete price information is currently available). Longline catcher vessels generated 15% of their ex-vessel revenue from the BSAI cod target fishery, 61% from other groundfish, 18% from halibut, 5% from shellfish, and 1% from salmon fisheries. Vessels that used pot gear were much more dependent on the crab fisheries, generating 12% of their ex-vessel revenue from the BSAI Pacific cod target fishery, 5% from other groundfish, 4% from halibut, and 79% from shellfish. However, given the current status of the crab fisheries compared to 1996 and 1997, it is likely that the pot fleet is now generating a smaller percentage of their overall income from the crab fisheries in the BSAI.

However, even though most of the pot vessels had relatively little dependence on the cod fishery, concern was expressed by some Council members that precluding their opportunities in the BSAI P. cod fishery would have adverse impacts on the Gulf of Alaska. These tradeoffs were discussed in some detail by the Council while crafting a preferred alternative. Tradeoffs between protecting the BSAI and GOA P. cod fleets led to the Council's selection of their preferred alternative.

### 5.1.5 Other Issues

#### 5.1.5.1 Grandfather Provision

The Council approved the Advisory Panel recommendation that vessels that sank after January 1, 1995, would be allowed to combine the catch history of the vessel that sank with the history of the replacement vessel, as long as:

1. The sunken vessel was LLP qualified.

2. The sunken vessel is replaced with a qualified replacement vessel within the normal time allowed by the IRS.

3. The owner of the replacement vessel, after combining catch histories, meets the qualifying criteria for that gear sector.

The Council recommends that no other combining of catch histories would be allowed, in order to meet the Pacific cod endorsement requirements on a license. The Council also acknowledged that if a vessel met the requirements for a fixed gear BS or AI license and the Pacific cod endorsement requirements before sinking, that vessel would be allowed to transfer the general license and Pacific cod endorsement to any vessel within the regulations of the current LLP. The Pacific cod endorsement(s) will not be severable from a general license, just as area endorsements are currently non-severable.

The grandfather provision would provide relief for vessels that sank after January 1, 1995, were qualified under the original LLP program in the BSAI, were replaced with a qualified vessel in the time allotted by the IRS, and demonstrated an intent to participate in the P. cod fishery. This provision was included so as not to penalize the owners of vessels that sank before the P. cod endorsement qualification period and made an effort and investment to re-establish themselves in the P. cod fishery with a replacement vessel. As stated in Chapter 4 (p.88), the data shows that an estimated 7 vessels sank in the required time period: 4 pot catcher vessels and 3 longline catcher vessels. Determining if the vessels were replaced within the required time period, however, is difficult–that information would have to be supplied by the vessel owner. Upon initial review it appears not all 7 sunken vessels would be eligible for this grandfather provision. Two of the seven vessels that sank during the required time period did not sink until mid-year 1999 (both were longline catcher vessels), and so their owners may not have had time to find a replacement vessel and re-enter the fishery. Regardless, the provision also states that the vessel owner must meet the qualifying criteria for their gear sector after combining catch histories of the sunken and replacement vessel. Given their reported catch histories, neither vessel would qualify under the 7.5 mt landings option selected by the Council for longline catcher vessels ≥60'.

As for the 4 pot catcher vessels, two would not qualify under the Council's preferred alternative of >100,000 lb of landings for pot catcher vessels ≥60', regardless of whether they were replaced within the required time period. The remaining two pot vessels had greater catch histories, but there is not enough information to determine whether they would meet all of the criteria for eligibility under the grandfather provision. Without more individual vessel information it is difficult to further predict which vessels replaced sunken vessels and therefore, the total number of qualifying vessels.

#### 5.1.5.2 Hardship Provision

The Council also approved the general process for considering hardship provisions as adapted from 50 CFR Section 679.4(k)(8)(iv), which applies to eligibility determinations under the original LLP program. The clause that would apply to such determinations under the LLP BSAI Pacific cod endorsement amendment would contain the following provisions:

A qualified person who holds a BSAI groundfish license issued under the LLP, but whose vessel was unable to meet all the criteria required for a BSAI Pacific cod endorsement under this amendment because of an unavoidable circumstance (i.e., the vessel was lost, damaged, or otherwise unable to participate in the license limitation groundfish or crab fisheries) may receive an endorsement if the qualified person is able to demonstrate that:

1. The owner of the vessel at the time of the unavoidable circumstance held a specific intent to use the vessel to conduct directed fishing for BSAI Pacific cod during the relevant time period(s) or to make harvests sufficient to meet the thresholds established by this amendment; and

2. The specific intent was thwarted by a circumstance that was
   a. unavoidable, and
   b. unique to the owner of that vessel or unique to the vessel, and
   c. unforeseen and reasonably unforeseeable to the owner; and

3. Under the circumstances, the owner of the vessel took all reasonable steps to overcome the circumstances; and

4. Any amount of BSAI Pacific cod was harvested on the vessel in the BSAI during the recency period for that vessel type and that such harvest of Pacific cod occurred after the vessel was prevented from participating by the unavoidable circumstance, but before April 16, 2000.

The hardship provision was included to provide for vessels that may have had an unavoidable, unique, and unforeseen hardship that kept them from qualifying for a P. cod endorsement. Similar to the hardship provision included in the LLP program, the burden is on the vessel owner to prove their intent to use the vessel in the BSAI P. cod fishery during the relevant time period. This provision is consistent with the LLP program regulations which allow for general hardships on an individual basis without defining the exact circumstance.

#### 5.1.5.3 Harvest of CDQ Pacific Cod

CDQ Pacific cod may only be harvested by CDQ vessels which hold a valid license and are endorsed to fish in that area for Pacific cod. The current LLP does not treat CDQ vessels any differently than non-CDQ vessels. In order to remain consistent with the current program, the Council indicated that CDQ vessels will not be exempt from the P. cod endorsements.

#### 5.1.5.4 Vessels Earning Multiple Pacific Cod Endorsements

The Council recommended that vessels that qualify for a Pacific cod endorsement in more than one gear sector will be issued an endorsement for each sector for which they qualify. Endorsements that are earned by a vessel will be attached to that vessel's general license. The Pacific cod endorsement(s) will not be severable from a general license, just as area endorsements are currently non-severable. It appears that only one catcher/processor and one catcher vessel have participated in the directed BSAI P. cod fishery with both longline and pot gear during the 1995-1999 time period and qualify under the Council's preferred alternative for both gear types.

#### 5.1.5.5 Vessels Less Than or Equal to 32'

Vessels less than or equal to 32' LOA are exempt from the BSAI license limitation program and Pacific cod

endorsements. These vessels will be allowed to participate in the BSAI fisheries without needing to hold a valid license.

#### 5.1.5.6 Bait Landings

Properly documented (i.e. ADF&G fishticket) commercial bait landings will count towards the landing requirements for a Pacific cod endorsement. A Pacific cod endorsement will be required to fish Pacific cod in the commercial bait fishery. A Pacific cod endorsement is not required to fish Pacific cod for personal use bait.

#### 5.1.5.7 Gulf of Alaska Issues

The Council notified industry that they will be considering rationalization options for the GOA fisheries at the June 2000 Council meeting. As part of that motion, the Council also notified industry that landings that take place after April 16, 2000 may not count in any GOA rationalization programs considered by the Council.

## 6.0 CONSISTENCY WITH OTHER APPLICABLE LAWS

### 6.1 Consistency with National Standards

Below are the 10 National Standards, as contained in the Magnuson-Stevens Act (Act), and a brief discussion of the consistency of the proposed alternatives with those National Standards, where applicable.

National Standard 1 - Conservation and management measures shall prevent overfishing while achieving, on a continuing basis, the optimum yield from each fishery

Pacific cod fisheries will be managed as they currently are, regardless of the specific number of vessels allowed to participate, to achieve the TAC without overfishing. Pacific cod stocks in the BSAI are not currently in danger of overfishing and are considered stable. Overall yield in terms of Pacific cod catch will be unaffected by the limited entry program. In terms of achieving 'optimum yield' from the fishery, the Act defines 'optimum', with respect to yield from the fishery, as the amount of fish which:

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

Overall benefits to the Nation may be affected by these trade-offs, though our ability to quantify those effects is quite limited. While distributional impacts among fishing vessels are certainly implied by the alternatives, overall net benefits to the Nation would not be expected to change to an identifiable degree between the Council's preferred alternative and other alternatives that were under consideration.

National Standard 2 - Conservation and management measures shall be based upon the best scientific information available.

Information in this analysis represents the most current, comprehensive set of information available to the Council, recognizing that some information (such as operational costs) is unavailable. All of the alternatives, including the Council's preferred alternative, were analyzed based on information that appears to be consistent with this standard.

National Standard 3- To the extent practicable, an individual stock of fish shall be managed as a unit throughout its range, and interrelated stocks of fish shall be managed as a unit or in close coordination.

The Council's preferred alternative appears to be consistent with this standard. The BSAI Pacific cod stock will continue to be managed as a single stock. Separate quotas for each sector will be monitored in-season by NMFS, and the vessels qualified for that sector will be allowed to participate.

National Standard 4 - Conservation and management measures shall not discriminate between residents of different states. If it becomes necessary to allocate or assign fishing privileges among various U.S. fishermen, such allocation shall be (A) fair and equitable to all such fishermen, (B) reasonably calculated to promote conservation, and (C) carried out in such a manner that no particular individual, corporation, or other entity acquires an excessive share of such privileges.

Pacific cod endorsements would be added to licenses that are valid for use with fixed gear in the Aleutian Islands or Bering Sea management areas. Cod endorsements would be earned based on the vessel's fishing history in the directed cod fishery. Different criteria will be used for various sectors of the fixed gear fleet, but those criteria are based on vessel characteristics. Those criteria allow for fair and equitable treatment of fishermen within the sectors. Reducing the number of participants may lead to better fishing practices, which may reduce bycatch and improve conservation of the resource. The number of vessels expected to qualify under any of the alternatives should not allow an individual or entity to acquire an excessive share of the fixed gear cod fishery in the BSAI.

National Standard 5 - Conservation and management measures shall, where practicable, consider efficiency in the utilization of fishery resources, except that no such measure shall have economic allocation as its sole purpose.

The wording of this standard was changed in the recent Magnuson-Stevens Act authorization, to 'consider' rather than 'promote' efficiency. Efficiency in the context of this change refers to economic efficiency, and the reason for the change, essentially, is to de-emphasize to some degree the importance of economics relative to other considerations (Senate Report of the Committee on Commerce, Science, and Transportation on S. 39, the Sustainable Fisheries Act, 1996). The analysis presents information relative to these perspectives, but does not point to a preferred alternative in terms of this standard. National Standard 5 recognizes the importance of various other issues in addition to economic efficiency.

National Standard 6 - Conservation and management measures shall take into account and allow for variations among, and contingencies in, fisheries, fishery resources, and catches.

Further limiting participation in the pot and longline sectors of the BSAI cod fishery will likely reduce the flexibility of fishermen to respond to variations among groundfish and crab stocks. For example, pot fishermen who traditionally rely on crab fisheries for the majority of their income, but switch to cod fishing in response to higher cod prices (or lower crab stocks), would not be able to do so if their historic participation in the cod fishery does not meet the qualification criteria for a license. On the other hand, vessels that historically rely on cod as their primary source of revenue (some freezer longline vessels for example), would be protected by a more stringent limited entry program. Fewer vessels would have the opportunity to move into the cod fishery as it becomes more attractive, in terms of profitability, relative to other fishery options under a more stringent limited entry program.

National Standard 7 - Conservation and management measures shall, where practicable, minimize costs and avoid unnecessary duplication.

The Council's preferred alternative appears to be consistent with this standard, as it builds on the limited entry program that is currently in place. Adding an endorsement to the current existing license should help to minimize unnecessary duplication and minimize implementation cost. The other option would be to develop a whole new limited access program with a new application period. Such an option would be costly and duplicative.

National Standard 8 - Conservation and management measures shall, consistent with the conservation requirements of this Act (including the prevention of overfishing and rebuilding of overfished stocks), take into account the importance of fishery resources to fishing communities in order to (A) provide for the sustained participation of such communities, and (B) to the extent practicable, minimize adverse economic impacts on such communities.

Many of the coastal communities in Alaska and the Pacific Northwest participate in the crab and groundfish fisheries in one way or another, whether it be processing, support businesses, or as the harbor/home port to fishermen and processing workers. Major groundfish and crab ports in Alaska that process catch from the Bering Sea include Dutch Harbor, St. Paul, Akutan, Sand Point, King Cove, and Kodiak. Additionally, the Seattle, Washington area is home port to many catcher and catcher/processor vessels operating in these fisheries. Summary information on 126 of these coastal communities is provided in "Faces of the Fisheries" (NPFMC 1994). In terms of potential impacts resulting from the proposed limited entry program for the fixed gear fishery, the analysts reviewed data on (1) harvest levels by vessels in each sector; (2) price and revenues resulting from that harvest; (3) where those harvests are delivered for processing or for first wholesale (in the case of catcher/processors), and (4) the home port of vessels engaged in the Pacific cod fisheries. Some of this information is detailed in Chapter 3 and summarized below, using 1998 (1996-97 for catcher vessels) as the most recent year of complete data, and linking it with delivery, home port, and date. Much of the information cannot be presented in its detailed form due to confidentiality restrictions, but is summarized qualitatively. The information presented here does not attempt to trace the full economic impact of these revenues through the communities involved, nor does this analysis attempt to predict changes in such economic activity from the proposed alternatives; rather, it is provided as a broad indicator of the relative importance of the Pacific cod fishery to vessels from these communities in the recent past. The vessels described below, particularly in the case of the catcher vessels, represent only a portion of the total number which may be qualified under the current LLP; however, these are the vessels which actually participated in the fixed gear BSAI cod fisheries in 1996 or 1997.

Adak has become more active in the Pacific cod fishery in the recent past. Concern has been expressed during public comment periods at Council meetings that further limiting the fixed gear fleet's licenses in the cod fishery would limit the Adak processor's ability to obtain cod. Specific information on the activity of that processor cannot be reported because of the confidentiality restrictions placed on the data. However, it has been reported in the local media that several gear conflicts have occurred between trawl and pot vessels fishing cod for delivery in Adak. This indicates that licensed trawl vessels, as well as licensed fixed gear vessels, are making deliveries to that processor. Gear conflicts may indicate that the limited cod fishing areas around Adak may not support a large and diversified fleet. It may also indicate that the plant will have access to adequate raw product even under a more restrictive limited entry program for fixed gear vessels, if the trawl vessels and the licensed and State water fixed gear fleets continue to make deliveries there.

Freezer Longline Fleet - Community Linkages

Revenue data for this sector was derived from information submitted on Commercial Operator Annual Reports (COAR reports), which reflect first wholesale value of cod and other groundfish and crab species, and has been linked to the vessel owner's home port. This report is not required and is not filed by all freezer longline operations in each year; for 1998 14 of the 36 freezer longliners submitted this report. Based on that information a first wholesale price of 94 cents per pound was derived, and that amount applied to all freezer longline landings which were then linked to home port information. The intent is to provide a snapshot of the revenues which might be associated with various coastal communities.

The majority of the freezer longliner sector is based in the Seattle area (29 of the 36 participating in 1998), though some of these vessels are home ported in Alaska (Kodiak and Petersburg, for example). Based on the landings and first wholesale information, the 1998 first wholesale value of Pacific cod products by vessels based in the Seattle area was over $75 million, with most of that coming from the H&G product form. To judge the importance of cod relative to other species, data from the 1998 COAR reports were examined. Based on just those reporting in the COAR data (14 of those vessels) the total value from Pacific cod was $33 million, while total value of all species to these vessels was $48 million; therefore it can be judged that

the majority of income to those vessels (about 66%) is indeed from the Pacific cod fishery.

Freezer longline vessels based in Alaska saw 1998 first wholesale value from Pacific cod on the order of $12 million–these cannot be broken out by specific community due to confidentiality restrictions. As with the rest of this fleet, H&G product is the primary revenue source.

Longline Catcher Vessel Fleet - Community Linkages

There is very little involvement in this fishery by longline catcher vessels (less than 1% of the fixed gear total), and therefore no discernable impact from the alternatives under consideration. The Council's preferred alternative allows all longline catcher vessels <60' to qualify (no action), and vessels greater than or equal to 60' are required to have made 7.5 mt of landings in one year during 1995-1999. This option will allow continued participation by any vessel <60', and any vessel that has landed at least 7.5 mt in one of the last five years. The longline catcher vessel fleet is thereby only limited in the ≥60' sector; of the 14 vessels in this sector that have fished during the qualifying period, 3 vessels qualify under the landing requirement of 7.5 mt. Two of the three qualifying vessels ≥60' are based in Alaska. Chapter 5, which outlines the Council's preferred alternative, discusses the impacts of the this action in more detail.

It is likely that any future involvement by that fleet would result in benefits to Alaskan coastal communities, through deliveries to coastal plants and through income to the participants which could benefit their community of residence. Any benefits are, of course, still limited by the Pacific cod fixed gear split approved in Amendment 64. Because the fixed gear allocations do not change under the proposed action, the only difference in implementing the proposed action is the number of boats harvesting the allocation and making deliveries and where they deliver. Data show that 19 vessels participated in the directed longline Pacific cod fishery in 1998, though these same 19 vessels also fished several other fisheries and gear types and only 14 are LLP qualified in the BSAI. Total ex-vessel value of all fisheries for these vessels was $5.3 million, with Pacific cod caught by longline gear accounting for less than $300,000, or about 6% of the total. All but three of these vessels were based in Alaska. An additional 14 vessels also fished with jig gear in 1999. All but one of these vessels were based in Alaska.

During the years 1996 and 1997 a total of 38 unique catcher boats targeted BSAI Pacific cod with longline gear. In 1996 these vessels were primarily owned by persons reporting Alaska as their state of residence in the CFEC vessel permit files. Kodiak was the only city that had more than four vessel owners, so information on other cities cannot be reported. Overall the Alaskan fleet reported over $6.3 million in ex-vessel revenue during 1996, with less than $0.2 million being attributed to the BSAI cod fishery. The Kodiak fleet accounted for about half of the State total, but only generated about $14,000 from BSAI cod.

During the years 1996 and 1997 a total of 45 unique boats targeted BSAI Pacific cod with jig gear. Thirty-three of the vessels fished in 1996 and 17 fished in 1997. Like in 1999, almost all of the vessels were owned by people based in Alaska. Thirty of the 33 vessels fishing vessels fishing during 1996 were owned by people with an Alaskan address reported in the CFEC permit files. Two of the other vessels reported the owner having a Washington address and the third vessel had an Oregon address. In 1997, 16 of the 17 were owned by people with an Alaskan address, and the remaining vessels had an owner with a Washington address.

Unalaska/Dutch Harbor was home to the owners of 18 of the 30 Alaskan owned jig vessels in 1996. These vessels reported a total of $169,000 in ex-vessel revenue from all fisheries that year (cod accounted for less than half of the total). The remaining 12 vessels came from various other cities located throughout Alaska. No more than 2 vessels came from a single city, so their total revenues cannot be reported. However, in aggregate, they accounted for about $235,000 worth of ex-vessel deliveries.

During 1997, Unalaska/Dutch Harbor and Akutan accounted for 11 of the 16 Alaskan owned jig vessels ($136,000 in ex-vessel revenue, of which $74,000 came from cod). The remaining vessels were owned by persons from Southcentral Alaska. They accounted for almost $200,000 in ex-vessel revenue ($34,000 from cod).

The above information indicates that cod plays a relatively small role in generating income for the fleets overall. However, masked in the aggregated data is information that indicates that a small group of vessels rely more heavily on cod for their income. And, while cod accounts for a small portion of these vessels' overall income, it may play an important role in some of the vessels' ability to remain viable in the fishery. Without that fishing opportunity some residents of cities like Unalaska will be disadvantaged, while the city itself will likely notice little impact from the preferred alternative. Recall that the preferred alternative only impacts the longline catcher vessel ≥60' fleet.

Pot Catcher/Processor Fleet - Community Linkages

There are but seven pot catcher/processors showing up in the data for 1998, with five of those based in Seattle and two in Kodiak. Total first wholesale value attributed to these vessels, from Pacific cod product, was $2.9 million in 1998, while those reporting on the COAR data totaled $1.9 million, with the total of all species for these same vessels totaling $8.5 million (again from the COAR data). This indicates that Pacific cod represents less of the overall income to this sector (20% to 25%) than the freezer longliner sector. Crab is the species of primary importance to this sector.

Pot Catcher Vessel Fleet - Community Linkages

This sector is much more numerous and more widely dispersed geographically than any of the other sectors involved in the Pacific cod fishery. They also exhibit a wider variety of fisheries and gear types, in addition to fishing for cod with pot gear. The 1997 data shows that 80 catcher vessels targeted Pacific cod with pot gear, with 29 of those vessels having owners from Alaska and the remainder from Washington or other states. Total revenues attributable to Pacific cod caught with pot gear for all 87 vessels was $6.4 million, while total revenues for these same vessels in all fisheries (all species and gear types) totaled $60 million, meaning Pacific cod represented about 10% of their total revenues. Crab fisheries accounted for the majority of the revenues for these vessels ($51 million), while pollock trawling accounted for another $1.2 million.

In terms of community of origin, the 29 vessels from Alaska had Pacific cod revenues of $2.1 million, while the other vessels had cod revenues of $4.3 million, during 1997. Those other vessels are widely distributed throughout the Pacific Coast. The owners of pot catcher vessels that resided in states other than Alaska lived in California (1), Oregon (5), Montana (1), and Washington (44). The vessels with owners from Washington were primarily based in Seattle (37). Overall the owners from Oregon, California, and Montana generated about $7 million from their vessels. Only about $0.9 million was derived from the BSAI cod fishery. The Washington owners generated over $41 million in total ex-vessel revenue, and just over $3.4 million came from cod. Vessels from Seattle accounted for about 75% of total ex-vessel revenue generated by pot vessels whose owners live in Washington; they also accounted for about 93% of the revenues from the BSAI cod fishery.

The Alaska-based vessels were primarily from Kodiak, King Cove, Anchorage, and Dutch Harbor. The total revenue generated in the Pacific cod target fishery (including revenue generated from bycatch) was $2.6 million. That revenue was primarily earned by vessels whose owners reside in Kodiak ($2.2 million). The communities of Homer and Kenai were reported as home for the vessel owners that accounted for almost all of the remaining $0.4 million.

Community distribution of revenues were similar in 1996 to the patterns reported for 1997. Kodiak was again the community where the vessel owners with the most ex-vessel revenue from the Pacific cod fishery reside. Their vessels accounted for 83% of the BSAI total for pot boats ($2.7 million). King Cove and Sand Point played a larger role in 1996. Owners from those two communities generated ex-vessel revenues of about $0.3 million.

The distribution of revenue among vessel owners from states other than Alaska was again primarily going to Washington residents, with Seattle accounting for about 92% of the Washington cod revenue. Only two other cities in Washington had residents that derived more than $50,000 from the BSAI pot cod fishery in 1996.

The vast majority of revenues for this sector (from Pacific cod and other species) was from vessels ≥60' in length. Only seven vessels that reported any pot cod landings during 1996 or 1997 were <60'. Those vessels also tended to have fairly limited amounts of cod landings.

Processors Taking Catcher Vessel Deliveries

Other than from trawl vessels, deliveries of BSAI cod to shorebased processors come almost exclusively from pot boats. In 1998, less than 20 mt was delivered by longline catcher vessels, while just over 9,000 mt was delivered by pot catcher vessels. The vast majority of those deliveries were to shore plants in Dutch Harbor and Akutan, with some deliveries to King Cove. These deliveries of Pacific cod contribute to the economies of the shore plants and the communities in which they are located, though these amounts are unlikely to be significant in the context of the other groundfish, pollock, and crab processing activities that occur in these same plants and communities. With the exception of the King Cove plant, they all have small purchases of Pacific cod relative to other groundfish, particularly pollock. To the extent they do purchase cod, the majority of that comes from trawl deliveries (about 28,000 mt in 1998). For the King Cove plant, Pacific cod does constitute the majority of their groundfish purchases (over half), with nearly half of that amount coming from pot vessels.

Information on pounds and ex-vessel fish purchase value was derived from fishtickets for the 1996 and 1997 fishing seasons by plants that had fixed gear cod deliveries. These years were selected because they were the last two years for which complete price information was readily available. Information from those files indicate that less than four shorebased processors purchased BSAI harvested cod with longline gear. Therefore, only the shorebased processor totals can be reported, which provided little additional insight into the community impacts of these deliveries.

Pacific cod harvested with fixed gear accounted for a small percentage of the ex-vessel purchases by shorebased processors in 1996 and 1997. Cod harvested with pot gear accounted for less than 4 percent of the payments made to catcher vessels by those processors. Longline and jig gear deliveries of cod accounted for less than 0.2 percent of purchases by these plants. Therefore, it is unlikely that a Pacific cod endorsement will have a substantial impact on the plants taking fixed gear deliveries of cod from catcher vessels. Fixed gear cod accounts for a small amount of the overall purchases by these plants, and the sectors are already limited by the cod split under Amendment 64 and the sideboard provision of the American Fisheries Act (AFA). Hence, these plants are likely to be limited to their historic levels of cod processing regardless of the proposed cod endorsement.

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

Chapter 3 presents information on historical bycatch patterns in the Pacific cod fixed gear target fisheries.

In summary, bycatch rates in the Pacific cod fixed gear fisheries are low overall. Some differences among sectors are evident, with the longline sector having higher halibut bycatch, while the pot sector has higher crab bycatch. Implementation of a more restrictive LLP should not have a substantial impact on bycatch levels, though any indirect reductions in the "race for fish" nature of the fisheries, either resulting from fewer vessels or from the development of co-ops, could result in bycatch reductions.

National Standard 10 - Conservation and management measures shall, to the extent practicable, promote the safety of human life at sea.

The Council's preferred alternative appears to be consistent with this standard. None of the changes in the LLP would substantially change safety requirements for fishing vessels. However, further limiting the number of participants in the P. cod fishery should slow the race for fish, which could potentially lead to cooperatives and may translate into safety benefits.

### 6.2 Section 303(a)(9) - Fisheries Impact Statement (Spillover Impacts)

This section of the Magnuson-Stevens Act requires that any management measure submitted by the Council take into account potential impacts on the participants in the fisheries, as well as participants in adjacent fisheries. Potential impacts to other fisheries could result from a change in the fixed gear P. cod endorsements, as vessels which may be restricted by the LLP may move into other fisheries to attempt to make up lost revenues. Pot vessels which are qualified in the crab fisheries, and would be eliminated from the cod fishery in the BSAI, could exert additional effort in the crab fisheries, or, they may exert additional effort in Gulf of Alaska or State waters cod fisheries. Effort in the GOA groundfish fisheries may be greater in years that the opilio fishery in the BSAI is only open for a short period of time, or does not overlap with the groundfish fisheries.

### 6.3 Initial Regulatory Flexibility Analysis (IRFA)

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

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

In determining the scope, or 'universe', of the entities to be considered in making a significance determination,

NMFS generally includes only those entities, both large and small, that can reasonably be expected to be directly or indirectly affected by the proposed action. If the effects of the rule fall primarily on a distinct segment, or portion thereof, of the industry (e.g., user group, gear type, geographic area), that segment would be considered the universe for the purpose of this criterion.

Currently, insufficient quantitative economic information exists on the fishery under review to determine the economic significance of this action. In the absence of such quantitative social and economic data, a qualitative-based Initial Regulatory Flexibility Analysis is conducted below to comply with the RFA.

### 6.3.1 Requirement to Prepare an IRFA

If a proposed rule is expected to have a significant adverse economic impact on a substantial number of small entities, an initial regulatory flexibility analysis must be prepared. The central focus of the IRFA should be on the economic impacts of a regulation on small entities and on the alternatives that might minimize the impacts and still accomplish the statutory objectives. The level of detail and sophistication of the analysis should reflect the significance of the impact on small entities. Under 5 U.S.C., Section 603(b) of the RFA, each IRFA is required to address:

* A description of the reasons why action by the agency is being considered;
* A succinct statement of the objectives of, and the legal basis for, the proposed rule;
* A description of and, where feasible, an estimate of the number of small entities to which the proposed rule will apply (including a profile of the industry divided into industry segments, if appropriate);
* A description of the projected reporting, recordkeeping and other compliance requirements of the proposed rule, including an estimate of the classes of small entities that will be subject to the requirement and the type of professional skills necessary for preparation of the report or record;
* An identification, to the extent practicable, of all relevant Federal rules that may duplicate, overlap or conflict with the proposed rule;
* A description of any significant alternatives to the proposed rule that accomplish the stated objectives of the Magnuson-Stevens Act and any other applicable statutes and that would minimize any significant economic impact of the proposed rule on small entities. Consistent with the stated objectives of applicable statutes, the analysis shall discuss significant alternatives, such as:

    1. The establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities;
    2. The clarification, consolidation, or simplification of compliance and reporting requirements under the rule for such small entities;
    3. The use of performance rather than design standards;
    4. An exemption from coverage of the rule, or any part thereof, for such small entities.

### 6.3.2 Definition of a Small Entity

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

Small businesses. Section 601(3) of the RFA defines a 'small business' as having the same meaning as 'small business concern' which is defined under Section 3 of the Small Business Act. 'Small business' or 'small business concern' includes any firm that is independently owned and operated and not dominate in its field of operation. The SBA has further defined a "small business concern" as one "organized for profit, with a

place of business located in the United States, and which operates primarily within the United States or which makes a significant contribution to the U.S. economy through payment of taxes or use of American products, materials or labor...A small business concern may be in the legal form of an individual proprietorship, partnership, limited liability company, corporation, joint venture, association, trust or cooperative, except that where the form is a joint venture there can be no more than 49 percent participation by foreign business entities in the joint venture."

The SBA has established size criteria for all major industry sectors in the US including fish harvesting and fish processing businesses. A business involved in fish harvesting is a small business if it is independently owned and operated and not dominant in its field of operation (including its affiliates) and if it has combined annual receipts not in excess of $3 million for all its affiliated operations worldwide. A seafood processor is a small business if it is independently owned and operated, not dominant in its field of operation, and employs 500 or fewer persons on a full-time, part-time, temporary, or other basis, at all its affiliated operations worldwide. A business involved in both the harvesting and processing of seafood products is a small business if it meets the $3 million criterion for fish harvesting operations. Finally, a wholesale business servicing the fishing industry is a small business if it employs 100 or fewer persons on a full-time, part-time, temporary, or other basis, at all its affiliated operations worldwide.

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

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

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

Small organizations. The RFA defines "small organizations" as any nonprofit enterprise that is independently owned and operated and is not dominant in its field.

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

### 6.3.3 Reason for Considering the Proposed Action

Members of the fixed gear sector have expressed concerns that structural changes in other fisheries, fluctuations in relative fish prices, and fluctuations in TACs/GHLs might disrupt the current fixed gear Pacific cod fishery. Freezing or reducing the current number of participants in regulation was considered a reasonable step to help mitigate against future potential instability among the primary participants in these fisheries.

### 6.3.4 Objectives of, and Legal Basis for, the Proposed Action

The legal basis for this action is the Magnuson-Stevens Fishery Conservation and Management Act, which authorizes the establishment of a limited entry program for fully utilized. The problem statement and objectives for this action were presented in section 1.1. In general, the objective is to protect vessel owners that have relied on the Pacific cod fishery in the recent past from increased participation by other vessels owners who have not been as reliant on cod.

### 6.3.5 Number and Description of Affected Small Entities

For purposes of the IRFA, almost all Pacific cod longline and pot catcher vessels can be considered small businesses, with annual receipts of less than $3 million. Under proposed Amendment 60 to the BSAI Groundfish FMP, a total of about 365 catcher vessels would receive licenses to participate in the Bering Sea Pacific cod fixed gear fishery (note that only about 241 vessels participated at any time from 1995-98). The pot fleet, in most cases earns most of their revenues in the crab fisheries, but supplements that income with revenues from cod. Seventy-nine of the 89 pot vessels appear to have had revenues of less than $3 million and were not owned by corporations (that would be considered large entities) in 1997. The vessels that would be considered large entities were either affiliated under owners of multiple vessels or were catcher/processors. However, little is known about the ownership structure of the vessels in the fleet. So, it is possible that this IRFA overestimates the number of small entities.

Almost all 67 fixed gear catcher/processor vessels endorsed for the Bering Sea or Aleutian Islands areas will likely be considered small entities (note that about 16 pot catcher/processors and 53 freezer longliners participated at any time from 1995-98) because they are processors and would not meet the threshold of at least 500 employees. Furthermore, based on 1998 data, it appears that about 16 of the 36 freezer longline vessels participating in the Pacific cod fishery had annual receipts of less than $3 million. This constitutes over one-third of the vessels in that sector.

Shorebased plants and floating processors operating within Alaskan waters process most of the Pacific cod harvested by pot and longline catcher vessels. Five of these processors will likely be considered small entities with fewer than 500 employees. In total they processed less than 150 mt of BSAI Pacific cod in 1998. The other five processors would be considered large entities, and they processed the vast majority of the shoreside landings in 1998 (about 9,000 mt).

Two communities are home to the primary shorebased processors of BSAI Pacific cod. Those communities are Dutch Harbor and Akutan. Other communities also are home to shorebased processors that process a limited amount of BSAI Pacific cod. These communities are King Cove, Egegik, Kenai, and Adak.

Vessels are home ported or owned by persons living throughout Alaska, the Pacific Northwest, and other states in the U.S. Each of the Alaska communities would be considered small entities, as would some of the communities in other states. A discussion of the relative importance of the cod fisheries to these communities was included in Chapter 4 under the National Standard 8 heading; however, none of the proposed actions would "directly" regulate any of these small jurisdictions.

### 6.3.6 Relevant Federal Rules that may Duplicate, Overlap, or Conflict with Proposed Action

This analysis did not uncover any existing Federal rules that duplicate, overlap, or conflict with any of the actions proposed in the alternatives.

### 6.3.7 Measures Taken to Reduce Impacts on Small Entities

The proposed action would eliminate fishing opportunities for some vessels, while enhancing fishing opportunities for the remaining vessels. As with any limited entry type measure, this represents a trade-off between those excluded from the fishery and those who remain. In this case, vessels in each group are primarily small entities representing a trade-off in terms of impacts; i.e., some small entities could be negatively impacted, and other positively impacted. Alternatives were considered and adopted that would allow categories with the smallest vessels (catcher vessels) to qualify under more lenient requirements than larger vessels with greater fishing capacity and revenue.

The Council's preferred alternative takes no action for pot and longline catcher vessels <60', meaning that the smallest vessels can continue to fish BSAI P. cod without a P. cod endorsement on their license. This action is intended to protect the small boat fleet and allow them to catch their full allocation of the fixed gear BSAI P. cod TAC (the 1.4% set-aside for vessels <60', as approved in Amendment 64). Because any vessel in this size class will be allowed to fish for BSAI Pacific cod regardless of past participation history, this provision will allow small entities entry into the fishery.

Also included in the preferred alternative is separate criteria for the freezer longline fleet and longline catcher vessels ≥60'. The freezer longline fleet, with the highest proportion of large entities, will be required to meet a much higher tonnage threshold (270 mt) for qualification than longline catcher vessels ≥60' (7.5 mt). The Council also approved using less restrictive qualification criteria for pot catcher vessels ≥60' than for pot catcher/processors. Pot catcher/processors are required to make 300,000 lb of landings to qualify, while pot catcher vessels ≥60' must land only 100,000 lb. Due to the differential qualification criteria employed, the preferred alternative benefits small entities relative to large entities in both gear sectors. This of course assumes that the smaller vessels would take a larger percentage of that fixed gear sector's allocation approved under Amendment 64.

The Council included an additional provision in the preferred alternative that would provide specific relief for small entities. Longline and/or pot catcher vessels that have used jig gear during the qualification period may use those landings to fulfill the longline and/or pot catcher vessel requirements. This enables more small vessels to meet the eligibility requirements for a Pacific cod endorsement in the BSAI. Based on preliminary estimates, allowing catcher vessels of any length class to count jig landings would increase the number of qualified boats by two to three times the number that would qualify based on only LLP landings. However,

the vast majority of the vessels that would benefit from this provision are <60' vessels, and the Council's preferred alternative already exempts vessels in the <60' class. There are no longline catcher vessels ≥60' that benefit from allowing jig harvests to count toward the qualification criteria, and there would be a very small effect, if any, on the number of qualifying vessels in the pot fleet. It is also important to note that since these vessels are fishing on a fixed allocation of cod, increasing the number of boats decreases the average revenue per vessel (i.e., other small entities are disadvantaged).

One of the points raised during public testimony is that there is considerable latent capacity in the pot fleet (many pot vessels are qualified under the LLP but to date have not participated to a great degree in the cod fisheries). The recently approved amendment freezing that sectors' share of the cod quota could disadvantage those pot vessels which do participate significantly in the cod fishery, since any vessel holding a BS or AI fixed gear license can harvest from that quota. They will have potential competition for a relatively small quota from a relatively large number of qualified vessels. The Council's preferred alternative reduces the number of vessels allowed to fish that quota, affording more protection to the vessels with substantial history in that fishery. There are also longline vessels which represent potential latent capacity and could impact that sector in the same way, though the degree of that potential is relatively less for that sector. The intent of this amendment is to eliminate the latent capacity described above, and create a more stable operating environment for the remaining vessels in each of the BSAI Pacific cod fixed gear fisheries.

### 6.3.8 Record Keeping and Reporting

Nothing in the proposed amendment would result in any changes in reporting or recordkeeping requirements, or any obvious disproportionate regulatory impacts to small entities relative to large.

### 6.3.9 RFA Conclusion

Most persons recently participating in the fishery impacted by the proposed action are small entities, as this term is defined under RFA . The ownership, affiliation, and contractual characteristics of vessels operating in the fishery have not been analyzed to determine if they are independently owned and operated or linked to a larger parent company. Furthermore, because NMFS cannot quantify the exact number of small entities that may be affected by this action, or quantify the magnitude of those potential effects, NMFS cannot make a definitive finding of non-significance under the RFA. However, because the proposed action(s) would result in 'freezing' the fleet sizes to those that have participated in the recent past, impacts would be expected to be minimal relative to the *No Action* alternative. Again, this assumes that vessels would participate in the fisheries they have in the past. Estimates of such a potential change in the absence of a limited entry program cannot be made, though indications are that given the current status of the opilio stocks, the number of pot vessels participating in the cod fishery would increase. In that case, a number of small entities could be adversely impacted by losing access to the BSAI cod fishery, though the magnitude of that impact (and whether it would be 'substantial') cannot be determined. The adverse impacts to those vessels would be offset by other small entities not having their share of the cod harvest eroded by new entrants into the fishery. The measures discussed above as part of the preferred alternative are intended to protect small entities within the fishery, and to allow for new entry and flexibility in the <60' pot and longline catcher vessel fleets.

## 6.4 303(b)(6) Limited Entry Considerations

Section 303(b)(6) of the Magnuson-Stevens Fishery Conservation and Management Act states that the Council may prepare a fishery management plan which may:

*"establish a limited access system for the fishery in order to achieve optimum yield if, in developing such system, the Council and the Secretary take into account–*

*(A) present participation in the fishery*

*(B) historical fishing practices in, and dependence on, the fishery,*

*(C) the economics of the fishery,*

*(D) the capabilities of fishing vessels used in the fishery to engage in other fisheries,*

*(E) the cultural and social framework relevant to the fishery and any affected fishing communities, and*

*(F) any other relevant considerations;"*

### 6.4.1 Present Participation in the Fishery

Chapter 3 provides baseline information on the fixed gear P. cod fishery from 1992-1999. Specifically, Table 3.1 shows the number of vessels that participated in the P. cod fishery and the amount of catch harvested by vessel type. The preferred alternative presented in Chapter 5 aims to freeze the number of participants that qualify for a BSAI Pacific cod endorsement on groundfish licenses valid for use with fixed gear. The qualifying criteria is based on a vessel's fishing history in the directed cod fishery in the years 1996-1999 for freezer longliners, 1995-1998 for pot catcher/processors, and 1995-1999 for catcher vessels. Therefore, past and present participation in the fishery is the primary consideration for further restricting the current limited access system.

### 6.4.2 Historical Fishing Practices in and Dependence on the Fishery

Chapter 3 characterizes the historical fishing practices in, and dependence on, the fishery. That chapter shows trends in the fishery and the historical reliance upon the P. cod fishery by gear sector. In addition to the number of vessels and their aggregate total catch, the participation patterns of the four sectors are considered. Tables 3.3-3.6 represent each vessel's participation history by gear type. As stated above, past and present participation in the fishery is the basis for qualifying under the proposed alternatives. The purpose of Amendment 67 is to secure to those participants who can demonstrate historical participation and significant dependence on the P. cod fishery the ability to continue that participation in an economically viable manner. This will be accomplished by restricting the entry of persons into the P. cod fishery who have little or no past participation in that fishery.

### 6.4.3 Economics of the Fishery

The changing economics of the fishery is one reason Amendment 67 was originally proposed. The amendment responds to concerns that the stability of this fully utilized fishery is threatened by increased competition, driven in part by recent increases in the market value of cod products. The current economics of the Pacific cod fishery, coupled with stock declines in other fisheries such as Bering Sea snow crab (opilio), may attract persons to enter the fishery that have little or no past history in the Pacific cod fishery. Therefore, the economics of the fishery was heavily considered both in the proposal of the amendment and the development of the alternatives.

Because the total fixed gear allocation of the fishery would not change by putting in place a mechanism that would limit entry into the fishery, we would not expect the total catch of the fishery to be significantly altered. A slight redistribution of revenues may be expected, as some vessels who may not qualify for a BSAI fixed gear P. Cod endorsement will subsequently change the pattern of deliveries to shoreside processors and catcher/processors. Chapter 3 provides historical participation, catch, production, and gross revenue

information for the fleet.

### 6.4.4 Capabilities of Fishing Vessels Used in the Fishery to Engage in Other Fisheries

Production patterns for the fixed gear sectors in the P. cod fishery show that vessels targeting P. cod do harvest other species, whether by directed fishing or bycatch. However, the option to redirect effort into other groundfish fisheries beyond what is currently available is fairly limited, and the current level of effort is minimal.

Freezer longline vessels primarily harvest and process Pacific cod. Between 1992 and 1998, Pacific cod products comprised anywhere from 84% to 97% of all other processed fish, averaging 93% for the seven year period. Table 3.10 shows that during that period, freezer longline vessels consistently harvested small amounts of Greenland turbot, pollock, and sablefish in addition to their P. cod catch. While there are limited expansion opportunities in the Greenland turbot fishery, there is virtually no option to expand in the pollock and sablefish fisheries. Bering Sea pollock is managed and allocations are established under the American Fisheries Act, which rationalizes the fishery by restricting directed fishing for BSAI pollock to eligible catcher vessels and catcher/processors that have a specified catch history in the Bering Sea. Unless the vessels whose primary fishery is P. cod are also AFA-qualified to fish pollock in the BSAI, there will not be an opportunity to engage in the pollock fishery beyond that taken as bycatch. Likewise, the sablefish fishery is limited to new entry. Sablefish is managed under an IFQ program, effectively limiting the fishery to those who hold quota shares. Therefore, there is no opportunity to increase pressure in the sablefish fishery unless vessels buy additional quota shares from other share holders.

Pot catcher/processors share similar limited potential to move into other groundfish fisheries. Pot catcher/processors have consistently produced Pacific cod in excess of 99% of their total product. Table 3.11 represents the production by product form of pot catcher/processors from 1992-1998. While a few Atka mackerel and flatfish were processed, the majority of the processed catch is P. cod. In addition, pot vessels that may have historically relied upon or anticipated fishing crab to supplement their P. cod catch, may now find that declining crab stocks preclude them from depending on, or increasing pressure in, the crab fisheries. In light of the above, the capability of fishing vessels to engage in other fisheries beyond what they are already harvesting is considered low.

### 6.4.5 The Cultural and Social Framework Relevant to the Fishery and Affected Fishing Communities

Participants in the BSAI fixed gear Pacific cod fishery include longline and pot fishermen with extensive catch histories. The purpose of the amendment is to institute a mechanism that would limit entry into the fishery by substantial numbers of fixed gear vessels that have little past participation in the fishery, effectively stabilizing the cultural, economic, and social framework surrounding the P. cod fishery.

The criteria to limit entry is based exclusively on fleet harvest characteristics. The criteria allow for fair and equitable treatment of fishermen within the fixed gear sectors, and it is expected that stabilizing the fishery will enable fishermen to fish safely, with the continued security of a place in the fishery. With this in mind, the amendment attempts to make none with substantial reliance upon the fishery worse off than before, essentially preserving the cultural and social framework relevant to the fishery. Consequently, because some vessels may not qualify under the preferred alternative, there may be a slight redistribution of effort. Yet because those vessels that do not qualify will inherently consist of vessels that lack meaningful participation in the fishery, no significant changes relevant to fishing communities are expected; those who have relied upon

the fishery in the past will likely continue to deliver to shoreside processors they have used previously.

## 6.5 Qualitative Benefit Cost Analysis

Cost data for the fishery's harvesting and processing sectors are not currently available. For this reason, we cannot complete a quantitative cost/benefit examination of the preferred alternative, nor derive comparative net benefit conclusions about the several competing alternatives and sub-options. However, because this action will not eliminate the fishery or even reduce the annual fixed gear Pacific cod TAC, we can conclude that the net benefits to the U.S. economy would not decrease by $100 million annually once costs were included in the calculation. Therefore, based on this one criterion, none of the alternatives constitute a 'significant' action under E.O. 12866, recognizing that there may be distributional economic impacts among the various participants in the industries affected by this proposed action, and also recognizing that, in general, distributional results will be substantially similar to the current situation.

None of the several other threshold criteria contained in the Executive Order with respect to "significance" appear to be triggered by the proposed action.

## 6.6 E.O. 12866 Conclusion

None of the alternatives is expected to result in a "significant regulatory action", as defined in E.O. 12866.

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