

MEMORANDUM

TO: Council, SSC and AP Members  
FROM: Clarence G. Pautzke  
Executive Director  
DATE: December 1, 1998  
SUBJECT: Improved Retention/Improved Utilization Program

ESTIMATED TIME  
2 HOURS

**ACTION REQUIRED**

- (a) Review initial performance report.
- (b) Final approval of IR/IU amendment package.

**BACKGROUND**

- (a) Performance review

In October, the Council requested that NMFS provide a preliminary performance review of the first year of the Improved Retention/Improved Utilization Program. A final report is scheduled for February to allow a more thorough review of commercial landings and discards for 1998. Then a report will be forwarded to the Secretary of Commerce to meet the requirements of the Sustainable Fisheries Act.

- (b) Final action on amendment package

Industry and NMFS have suggested several revisions to the program to increase its effectiveness and reduce several unintended impacts to sectors of the groundfish fleet. On December 4, the IR/IU Committee is scheduled to review the revised EA/RIR released for public review (Agenda item D-2 Supplemental). The committee will report to us after Kent Lind, NMFS, summarizes the following final action items in the analysis:

**ACTION 1: FMP Amendment to Allow Discards of Adulterated Fish**

- Add definition of "adulterated."
- Prohibit intentional adulteration.
- Limit the discard of adulterated fish.
- Establish recordkeeping and reporting requirements for adulterated fish.

**ACTION 2: Increase the Maximum Allowable Roe Percentage**

**Aleutian Islands Subarea:**

- Alternative 1: No action. Maximum retainable roe percentage would remain at 7 percent.
- Alternative 2: Increase the maximum retainable roe percentage to 8 percent.
- Alternative 3: Increase the maximum retainable roe percentage to 9 percent.

**Bering Sea Subarea:**

**Alternative 1: No action. Maximum retainable roe percentage would remain at 7 percent.**

**Alternative 2: Increase the maximum retainable roe percentage to 8 percent.**

**Alternative 3: Increase the maximum retainable roe percentage to 9 percent.**

**ACTION 3: Modify the List of Product Forms Against Which Pollock Roe may be Retained**

**Alternative 1: No action.**

**Alternative 2: Add kirimi to the list of product forms.**

**Alternative 3: Remove fishmeal from the list of product forms.**

**ACTION 4: Clarification of Retention and Utilization Requirements for Non-Product Uses of IR/TU Species**

**Alternative 1: No action.**

**Alternative 2: Treat bait and consumed fish as whole fish product.**

**Alternative 3: Take bait and consumed fish "off the top" before calculating utilization rates.**

U.S. Department  
of Transportation

United States  
Coast Guard



# U.S. COAST GUARD

## IR/TU ENFORCEMENT REPORT

04/01/98 – 11/30/98

### EFFORT:

- During the reporting period, on Bering Sea and Gulf of Alaska patrols, the following vessel types were checked for compliance with the IR/TU regulations:

Factory Trawler	10
Catcher vessel	38
Longliner	265
Pot Boat	6
Jig Boat	1
Motherships	2
- Coast Guard strategy has focused on detecting blatant discrepancies or disregard of the regulation and a proactive education of CG and fishers on the more subtle issues.
- During a Coast Guard boarding, boarding teams:
  - Interview the master, crew, and observers.
  - Look for variations in logs, e.g., no discards until cutter arrived on scene.
  - Verify quantity of IR/TU product in hold agrees with logs.
  - Verify vessel met utilization requirements as applicable. (Was the vessel discarding before the minimum retention caps were met?)
- Coast Guard aircraft (C-130/HH-65/HH-60) are tasked to provide low level flights to look for evidence of vessels discarding species or bleeding cod ends.
- During the reporting period, the following violations and warnings were issued:
  - F/V CLIPPER ERIC: Vessel was issued violation for failure to comply with IR/TU regulations. Master logged pollock was used for bait. However, interview with crew indicated no pollock used as bait. Boarding team observed pollock being discarded and rollerman confirmed all pollock discarded.
  - F/V CONSTELLATION: Vessel issued violation for failure to comply with IR/TU regulations.
  - F/V LONE FISHERMAN: Vessel issued warning for failure to retain IR/TU species.
  - F/V ROSE LEE: Vessel issued warning for failure to retain IR/TU species.

## ISSUES:

- NPRFTC has incorporated IR/TU into training curriculum for CG boarding teams.
- Since the IR/TU regulation went into effect some new products have been seen by CG boarding teams that are not addressed in the regulations (e.g., pollock tails). There are no product recovery rates to determine round weight equivalent to ensure utilization requirements are being met.
- Majority of vessels boarded are in compliance with IR/TU regulation with many vessels being proactive in minimizing bycatch of IR/TU species.
  - Larger mesh size
  - Square mesh vs. diamond
  - Moving locations to lower bycatch

**Improved Retention/Improved Utilization Implementation Committee Meeting  
Minutes  
December 4, 1998**

The IR/TU Implementation Committee meeting convened via teleconference on Friday, December 4, at 10:00 am to review and provide recommendations to the Council on the public review draft of the IR/TU EA/RIR dated November 1998. Members attending were Joe Kyle (Chairman), John Gauvin, John Iani, Teressa Kandianis, Paul MacGregor and Glenn Merrill for Beth Stewart. Chris Blackburn, Steve Hughes, Bob Mikol, Thorn Smith and Arni Thomson were absent. Agency staff in attendance were Jane DiCosimo, Kent Lind, and Seth Macinko.

The committee reviewed revisions to the public review draft of the analysis.

- ACTION 1. The committee recommends the four changes listed under Action 1 to allow discards of adulterated fish.
- ACTION 2. The committee recommends Alternative 2, 8% maximum retainable roe retention in the Aleutian Islands and Alternative 1, no action in the Bering Sea. The Bering Sea rate may need to be revisited at a later date as a result of the finding of jeopardy for Steller sea lions and the American Fisheries Act.
- ACTION 3. The committee recommends Alternative 2 to add a product recovery rate for kirimi. The analysis does not support removing fish meal against which pollock roe can be retained because the amount of roe retained against fish meal as a primary product is small. If the Council wishes to address meal as a primary product, it should be taken up as a separate action.
- ACTION 4. The committee recommends Alternative 3 to take bait and consumed fish off the top before calculating utilization rates.

The committee adjourned at approximately 11 am.

**Draft for Public Review**

**ENVIRONMENTAL ASSESSMENT/REGULATORY IMPACT REVIEW**

**FOR**

**FMP AMENDMENT AND REGULATORY CHANGES TO IMPROVE THE EFFECTIVENESS  
OF THE IMPROVED RETENTION/IMPROVED UTILIZATION (IR/IU) PROGRAM  
FOR THE GROUND FISH FISHERIES OFF ALASKA**

**Prepared by**

**National Marine Fisheries Service  
Alaska Regional Office**

***November 1998***

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## 1.0 INTRODUCTION

The groundfish fisheries in the Exclusive Economic Zone (EEZ) (3 to 200 miles offshore) off Alaska are managed under the Fishery Management Plan for Groundfish of the Gulf of Alaska and the Fishery Management Plan for the Groundfish Fisheries of the Bering Sea and Aleutian Islands Area. Both fishery management plans (FMPs) were developed by the North Pacific Fishery Management Council (Council) under the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act). The Gulf of Alaska (GOA) FMP was approved by the Secretary of Commerce and became effective in 1978 and the Bering Sea and Aleutian Islands Area (BSAI) FMP was approved and became effective in 1982.

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

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

This analysis addresses a suite of proposed changes to the Improved Retention/Improved Utilization (IR/IU) program adopted by the Council as Amendments 49/49 to the FMPs and implemented by NMFS by final rules published in the *Federal Register* on December 3, 1997 (62 FR 63880) for the BSAI and December 12, 1997 (62 FR 65379) for the GOA.

### 1.1 Purpose of and Need for the Action

Since IR/IU regulations took effect in January 1998 (See appendix 1 for full text of regulations), NMFS has noted dramatic reductions in the discards of pollock and Pacific cod in the groundfish fisheries off Alaska. Preliminary 1998 catch estimates show dramatic declines in discard rates for pollock and Pacific cod in most target fisheries in Alaska (see Appendix 2). In addition, many target fisheries appear to have increased their selectivity in terms of catching pollock when it is targeted and avoiding pollock when it is not targeted. Nevertheless, industry and NMFS have suggested a number of revisions to the program to increase its effectiveness and reduce several unintended impacts to sectors of the groundfish fleet. Four independent actions are proposed for analysis: (1) An FMP amendment to allow discarding of adulterated or unwholesome fish that are not fit for human consumption, (2) a regulatory amendment to adjust the allowable percentage of roe that may be retained in the Aleutian Islands Subarea, (3) a regulatory amendment to add additional product forms and recovery rates to the list of products against which pollock roe may be retained, and (4) a regulatory amendment to clarify retention and utilization requirements for fish used as bait, observer sampling, and consumed on board vessels. These four actions may be viewed independently and are not mutually exclusive. The Council may adopt any combination of these four actions as part of a package of revisions to the IR/IU program.



## 1.2 ACTION 1: FMP Amendment to Allow Discards of Adulterated Fish

At its February 1998 meeting, the Council received testimony regarding the problem of sand flea damaged fish on longline vessels and directed NMFS to proceed with a solution to the problem. Pollock and Pacific cod caught with longline gear are sometimes subject to severe predation by various species of amphipods (sand fleas) which can extensively devour fish carcasses in a short period of time. Fish which have been damaged due to sand flea predation may be unfit for human consumption and unsuitable for processing. Sand flea damage has also been reported by vessels using pot gear. In addition, fish may be crushed or damaged during fishing operations, and Pacific cod is reportedly subject to severe parasite infestations in some areas of the GOA. NMFS does not currently collect data on the condition of fish harvested on board commercial fishing vessels and consequently cannot quantify the extent to which these problems occur in various fisheries. However, industry representatives have indicated that, in some instances, dealing with fish that are unfit for human consumption may impose significant costs on catcher processors, especially smaller vessels that lack the capacity to process fishmeal. Industry has also noted that bringing unwholesome fish into food processing areas may be in conflict with the Hazard Assessment and Critical Control Point (HACCP) plans of some processors.

### 1.2.1 Definitions of Adulterated Food

Adulterated food is defined in various State of Alaska and Federal statutes and regulations. Definitions of "adulterated food" from Alaska State statutes, the Alaska Administrative Code, and the Federal Food, Drug, and Cosmetic Act are presented below for analysis and discussion.

#### Federal Statute: 21 USC 9--Federal Food, Drug and Cosmetic Act

Section 342 of the Federal Food, Drug and Cosmetic Act contains the following definition of "adulterated food"

#### Section 342. Adulterated Food

A food shall be deemed to be adulterated--

(a) *Poisonous, insanitary, etc., ingredients*

(1) If it bears or contains any poisonous or deleterious substance which may render it injurious to health; but in case the substance is not an added substance such food shall not be considered adulterated under this clause if the quantity of such substance in such food does not ordinarily render it injurious to health.<sup>1</sup>

(2)(A) if it bears or contains any added poisonous or added deleterious substance (other than one which is

(i) a pesticide chemical in or on a raw agricultural commodity;

(ii) a food additive;

(iii) a color additive; or

(iv) a new animal drug) which is unsafe within the meaning of section 346 of this title, or

(B) if it is a raw agricultural commodity and it bears or contains a pesticide chemical which is unsafe within the meaning of section 346a(a) of this title, or

(C) if it is, or if it bears or contains, any food additive which is unsafe within the meaning of section 348 of this title: Provided, That where a pesticide chemical has been used in or on a raw agricultural commodity in conformity with an exemption granted or a tolerance

prescribed under section 346a of this title and such raw agricultural commodity has been subjected to processing such as canning, cooking, freezing, dehydrating, or milling, the residue of such pesticide chemical remaining in or on such processed food shall, notwithstanding the provisions of sections 346 and 348 of this title, not be deemed unsafe if such residue in or on the raw agricultural commodity has been removed to the extent possible in good manufacturing practice and the concentration of such residue in the processed food when ready to eat is not greater than the tolerance prescribed for the raw agricultural commodity, or

(D) if it is, or it bears or contains, a new animal drug (or conversion product thereof) which is unsafe within the meaning of section 360b of this title;

(3) If<sup>2</sup> it consists in whole or in part of any filthy, putrid, or decomposed substance, or if it is otherwise unfit for food; or

(4) if it has been prepared, packed, or held under insanitary conditions whereby it may have become contaminated with filth, or whereby it may have been rendered injurious to health; or

(5) if it is, in whole or in part, the product of a diseased animal or of an animal which has died otherwise than by slaughter; or

(6) if its container is composed, in whole or in part, of any poisonous or deleterious substance which may render the contents injurious to health; or

(7) if it has been intentionally subjected to radiation, unless the use of the radiation was in conformity with a regulation or exemption in effect pursuant to section 348 of this title.

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<sup>1</sup>So in original. The period probably should be "; or".

<sup>2</sup>So in original. Probably should be "or (3) if".

The Federal Food Drug and Cosmetic Act also contains a number of prohibitions relating to the introduction of adulterated food into the U.S. marketplace that apply to the Alaska fishing industry.

### **Sec. 331. Prohibited acts**

The following acts and the causing thereof are prohibited:

(a) The introduction or delivery for introduction into interstate commerce of any food, drug, device, or cosmetic that is adulterated or misbranded.

(b) The adulteration or misbranding of any food, drug, device, or cosmetic in interstate commerce.

(c) The receipt in interstate commerce of any food, drug, device, or cosmetic that is adulterated or misbranded, and the delivery or proffered delivery thereof for pay or otherwise.

(d) The introduction or delivery for introduction into interstate commerce of any article in violation of section 344 or 355 of this title.

(e) The refusal to permit access to or copying of any record as required by section 350a, 354, or 373 of this title; or the failure to establish or maintain any record, or make any report, required under section 350a, 354, 355(i) or (k), 357(d) or (g), 360b(a)(4)(C), 360b(j), (l), or (m), 360e(f), or 360i of this title, or the refusal to permit access to or verification or copying of any such required record.

(f) The refusal to permit entry or inspection as authorized by section 374 of this title.

(g) The manufacture within any Territory of any food, drug, device, or cosmetic that is adulterated or misbranded.

### **Alaska Statute 12.20.020. Adulterated Food**

Adulterated food also is defined in Alaska Statute at AS 12.20.020. The definition of adulterated food set out in Alaska Statute is taken almost word for word from the Federal Food Drug and Cosmetic Act.

#### **AS 17.20.020. Adulterated food.**

*(a) Food is adulterated if*

(1) it bears or contains a poisonous or deleterious substance which may render it injurious to health; but in case the substance is not an added substance the food is not considered adulterated under this paragraph if the quantity of the substance does not ordinarily render it injurious to health;

(2) it bears or contains added poisonous or added deleterious substance which is unsafe within the meaning of AS 17.20.030 ;

(3) it consists in whole or in part of a diseased, contaminated, filthy, putrid, or decomposed substance, or if it is otherwise unfit for food;

(4) it has been produced, prepared, packed, or held under insanitary conditions in which it may have become contaminated with filth, or in which it may have been rendered diseased, unwholesome, or injurious to health;

(5) it is, in whole or in part, the product of a diseased animal or an animal which has died otherwise than by slaughter, or that has been fed upon the uncooked offal from a slaughterhouse;

(6) its container is composed, in whole or in part, of a poisonous or deleterious substance which may render the contents injurious to health.

*(b) Food is adulterated if*

(1) a valuable constituent has been omitted or abstracted in whole or part;

(2) a substance has been substituted in whole or part for a valuable constituent;

(3) damage or inferiority has been concealed;

(4) a substance has been added or mixed or packed with it to increase its bulk or weight, or reduce its quality or strength, or make it appear better or of greater value than it is.

### **Alaska Administrative Code 18 AAC 34.115 Adulterated Seafood Products**

The Alaska Administrative Code contains a more specific definition of “adulterated seafood products” that is not contained in Federal law that expands on the more general definition of adulterated food.

#### **18 AAC 34.115 ADULTERATED SEAFOOD PRODUCTS**

The term “adulterated seafood product” has the meaning given “adulterated food” in AS 17.20.020 and AS 17.20.030 . In addition, a seafood product is adulterated if

- (1) it is contaminated with oil or another hazardous substance;
- (2) it contains a food additive that is unsafe under 21 U.S.C. 348(a), adopted by reference in 18 AAC 34.010 , or that is prohibited by the department.
- (3) it contains a color additive that is unsafe under 21 U.S.C. 379e(a), adopted by reference in 18 AAC 34.010, or that is prohibited by the department; or
- (4) it was accidentally or intentionally subjected to radiation, unless the use of radiation was in conformity with 21 C.F.R. 179.21 - 179.45, adopted by reference in 18 AAC 34.010.

From the above definitions, it is clear that the definition of adulterated food contained in Alaska statutes is modeled after language contained in the Federal Food, Drug, and Cosmetic Act. In addition, most sections of Federal regulations dealing with adulterated food reference the definition of adulterated food contained in the Federal Food, Drug, and Cosmetic Act. For example, NMFS seafood inspection regulations at 50 CFR 260.6 contain the following definition of “wholesome”:

*Wholesome.* “Wholesome” means the minimum basis of acceptability for human food purposes, of any fish or fishery product as defined in section 402 of the Federal Food, Drug, and Cosmetic Act, as amended.

#### **1.2.2 Alternatives for ACTION 1**

**Definition of “adulterated.”** The most simple regulatory approach to defining “adulterated” fish is to reference the Federal Food, Drug and Cosmetic Act definition of adulterated food. Fish that meet the definition of adulterated food as defined in the Act would be allowed to be discarded at sea. Alternatively, regulations could be crafted to allow discarding for only certain types of adulteration (e.g., sand flea predation or parasite infestation) but not others (e.g., bruised fish).

**Intentional adulteration.** The intentional adulteration of fish must be prohibited to prevent undermining the intent of the IR/TU program. Otherwise, processors could evade improved retention requirements by simply holding fish on board the vessel until they begin to decay and then discard them as “adulterated.” Other forms of intentional adulteration such as chemical contamination also would be possible.

**Discard limits.** Limits could be placed on the percentage of IR/TU species allowed to be discarded as "adulterated." Such limits could vary by species, gear type and fishery. NMFS does not have adequate data to suggest reasonable limits by species, gear type and fishery. However, it is clear that adulterated fish are more prevalent in certain fisheries such as the longline fishery for Pacific cod than in other fisheries such as the midwater trawl pollock fishery.

**Recordkeeping and reporting requirements.** Current regulations simply require that the estimated tonnage of discards be logged in the vessels daily fishing logbook and reported in the processors weekly production logbook. NMFS would establish a new discard code for adulterated fish and this code would be used any time any fish are discarded due to adulteration. Alternatively, more restrictive requirements could be implemented to specifically require vessel operators to separate out and weigh IR/TU species that are destined to be discarded as adulterated. In some instances, observers could record and verify the weights of adulterated fish before discarding. However, in most instances, compliance would be the responsibility of the vessel. Observers are fully subscribed with monitoring and sampling unsorted catch as it enters the vessel and cannot generally be present at discard locations unless existing coverage levels or observer responsibilities are changed. The exception to this may be longline vessels where observers, when sampling, are generally positioned to view the roller and can count the fish that are retained and discarded.

### **1.2.3 Enforcement Issues**

During the development of the IR/TU program NMFS Enforcement and the US Coast Guard expressed concerns about the enforceability of IR/TU regulations that allow discarding under certain circumstances but not others. For this reason, during initial consideration of Amendments 49/49 the Council rejected alternatives that would have established a phase-in of IR/TU requirements for rock sole and yellowfin sole. These enforcement concerns were discussed in detail in the EA/RIR/IRFAs prepared for Amendments 49/49 (NMFS 1997a, NMFS 1997b) and continue to be a concern with respect to this alternative to allow the discard of adulterated fish. Under this alternative, vessels could discard wholesome IR/TU species while recording the discarded fish as "adulterated." Under such circumstances, it would be extremely difficult, if not impossible, for enforcement agents detect this activity and make cases against vessels that are discarding wholesome fish. In deciding whether to adopt this alternative, the Council must weigh whether compelling enforcement concern outweighs the costs that vessels have encountered as a result of the current requirement to retain unwholesome or adulterated fish. Unfortunately, the costs to the fleet of retaining adulterated fish are not easily quantified and can only be reported anecdotally at this time.

### **1.3 ACTION 2: Increase the Maximum Allowable Roe Percentage**

Representatives for the offshore pollock industry have suggested that the current 7 percent maximum allowable roe percentage may be too restrictive for vessels fishing in the Aleutian Islands Subarea. An increase in the maximum allowable roe percentage to 8 percent for the Aleutian Islands has been proposed. They argue that the maximum retainable roe percentage is in conflict with the intent of the IR/TU program if vessels are required to discard pollock roe due to higher than average roe recovery rates. .

The Council's IR/TU committee recommended that three alternatives be considered for Action 2. During initial consideration of this issue in October 1998, the Council requested that an alternative be added to increase the maximum allowable roe percentage in the Bering Sea as well as the Aleutian Islands.

### **1.3.1 Roe Retention Alternatives for the Aleutian Islands Subarea**

**Alternative 1 (no action):** The maximum retainable roe percentage would remain at 7 percent for the Aleutian Islands.

**Alternative 2 (8 percent):** Increase the maximum retainable roe percentage to 8 percent for the Aleutian Islands Subarea

**Alternative 3 (9 percent):** Increase the maximum retainable roe percentage to 9 percent for the Aleutian Islands Subarea

### **1.3.2 Roe Retention Alternatives for the Bering Sea Subarea**

**Alternative 1 (no action):** The maximum retainable roe percentage would remain at 7 percent for the Bering Sea Subarea.

**Alternative 2 (8 percent):** Increase the maximum retainable roe percentage to 8 percent for the Bering Sea Subarea

**Alternative 3 (9 percent):** Increase the maximum retainable roe percentage to 9 percent for the Bering Sea Subarea

An examination of NMFS weekly production data for the years 1995-1997 by area does suggest that the retained percentage of roe is significantly higher in the Aleutian Islands Subarea. Figure 1 displays the total production of pollock roe in each area of the BSAI as a percentage of the round weight equivalent of primary pollock products produced in the same area and week. In the Aleutian Islands Subarea, the aggregate roe production for the fleet sometimes reaches, but has never exceeded 8 percent during the three years analyzed. With respect to the Bering Sea Subarea, in no instance did the percentage of roe production exceed 6 percent during the same three years. NMFS does not collect production information by reporting area for onshore processors so it is not possible to provide similar data by reporting area for the onshore processors.

NMFS does not collect data on at-sea discard of product by product code. Consequently, it is impossible to distinguish roe discards from other forms of pollock discards and discern how much roe, if any, has been discarded in the Aleutian Islands to comply with existing roe stripping regulations. However, the 8 percent roe production average attained during some weeks in the Aleutian Islands Subarea does indicate that some vessels would have had to discard some roe product to comply with roe stripping regulations.

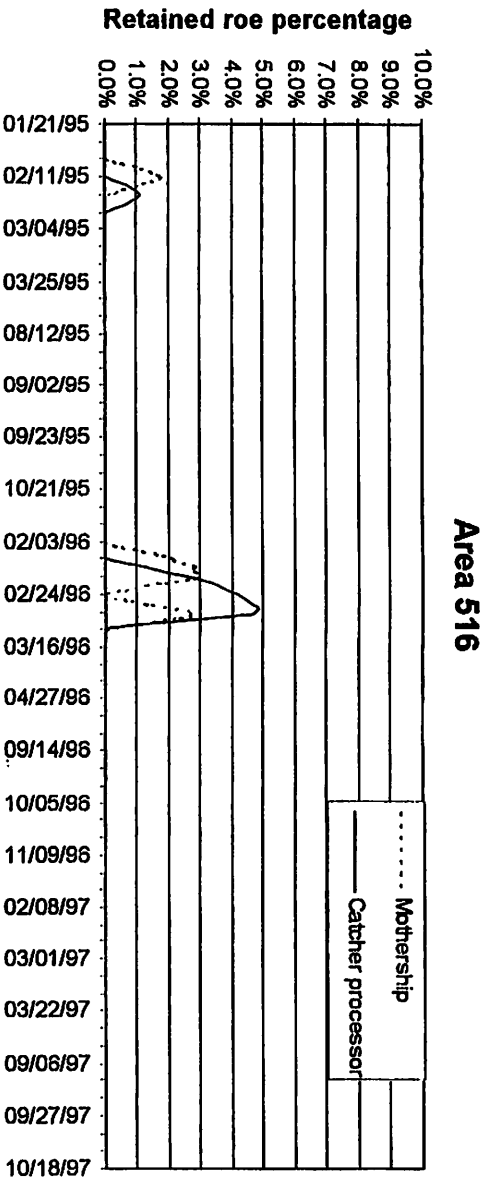
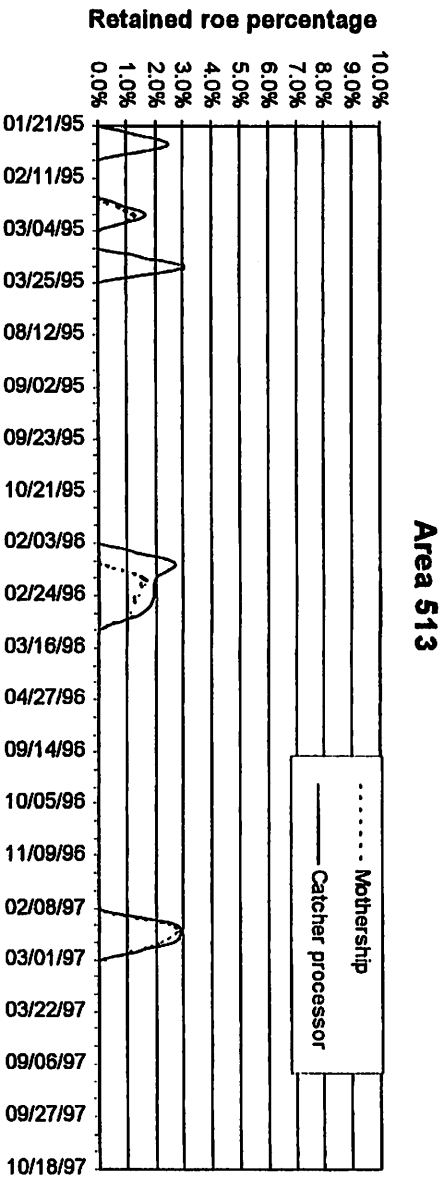
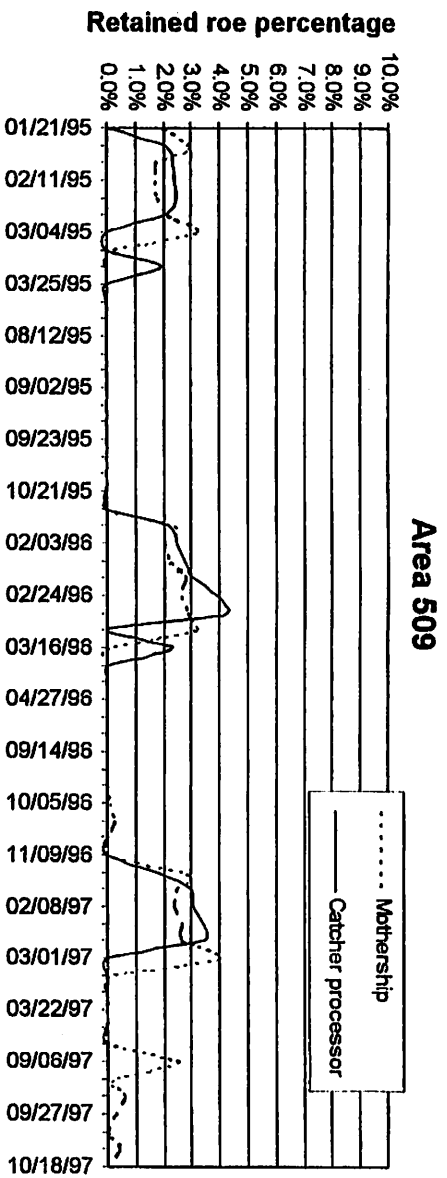


Figure 1. Pollock roe as a percentage of the round-weight equivalent of primary products produced by processor class, reporting week and area, 1995 - 1997.

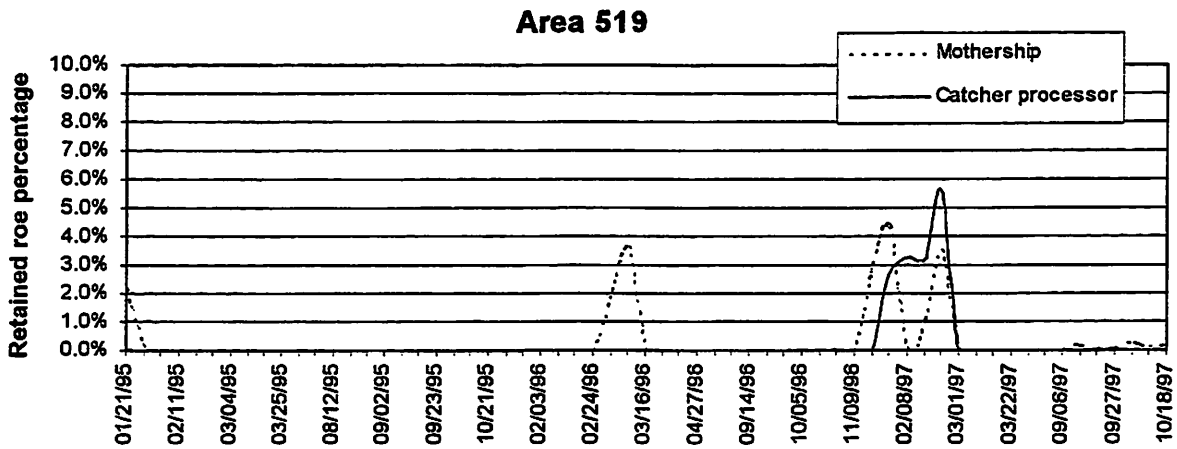
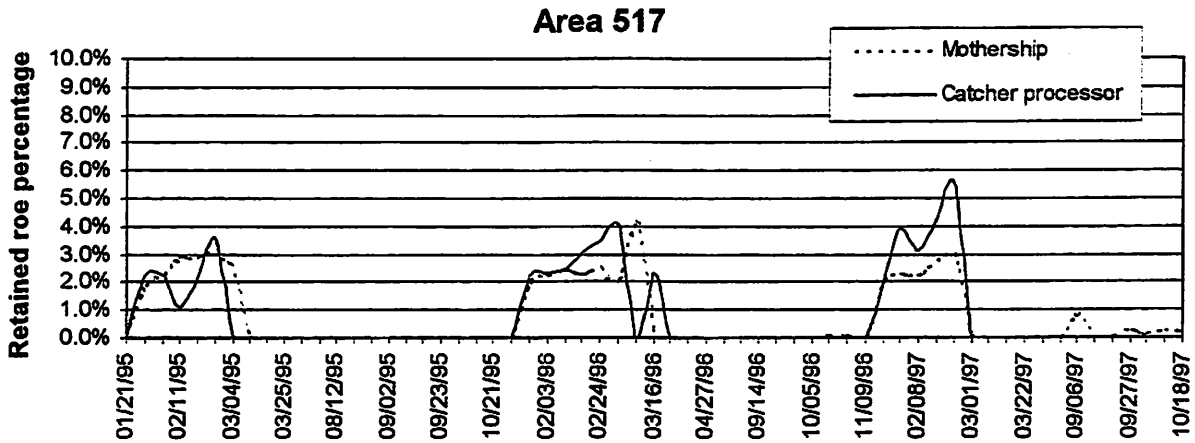


Figure 1 (Cont). Pollock roe as a percentage of the round-weight equivalent of primary products produced by processor class, reporting week and area, 1995 - 1997.



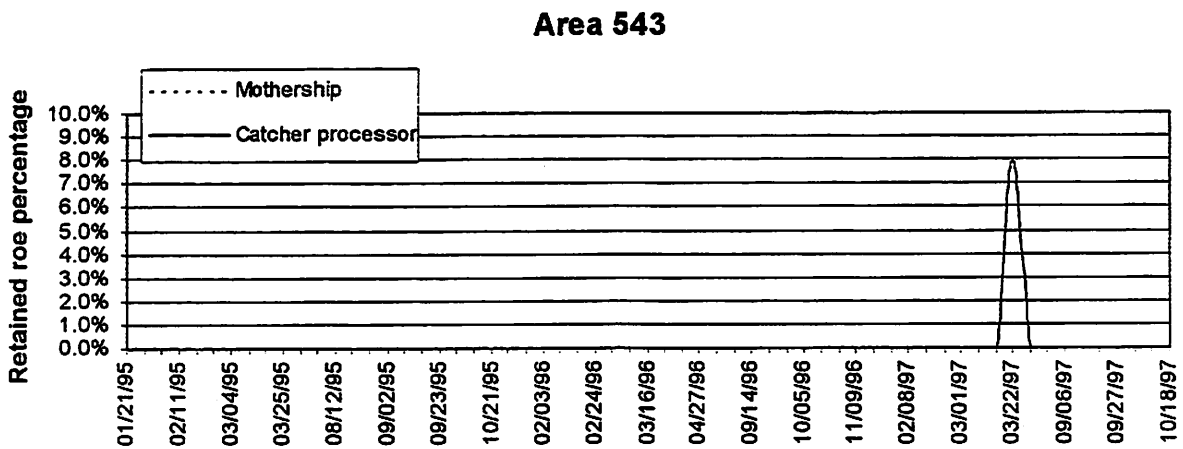
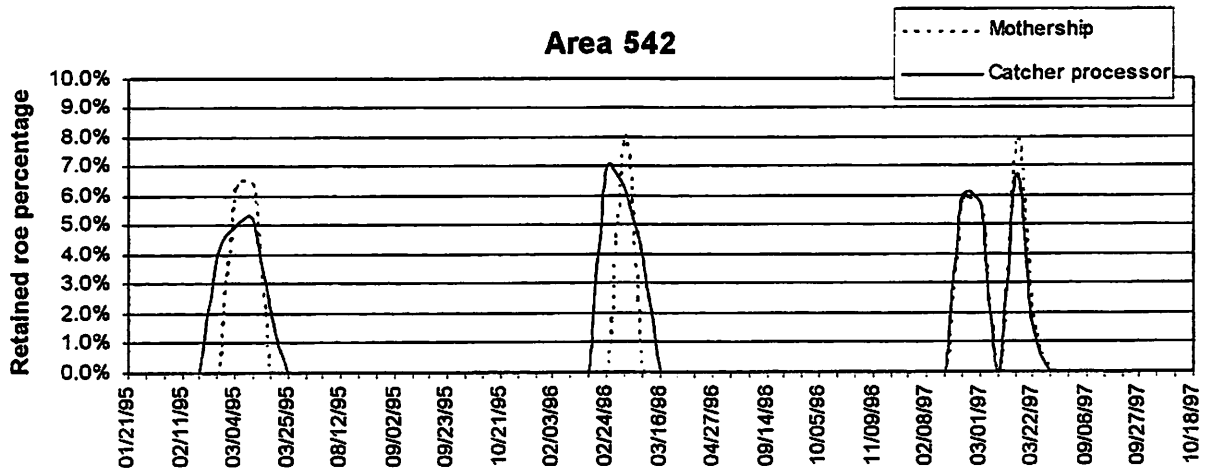
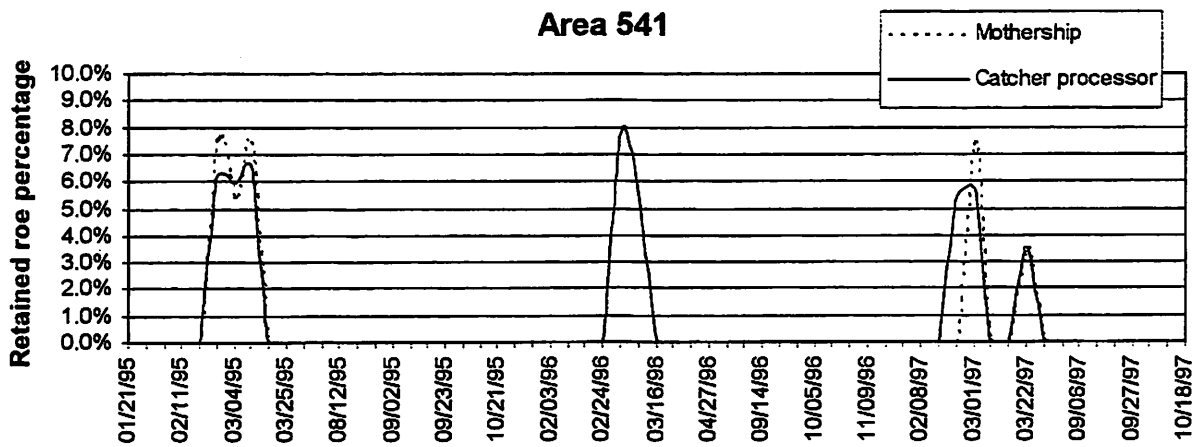


Figure 1 (Cont). Pollock roe as a percentage of the round-weight equivalent of primary products produced by processor class, reporting week and area, 1995 - 1997.

#### 1.4 ACTION 3: Modify the List of Product Forms Against Which Pollock Roe may be Retained.

Industry representatives also have indicated that the current roe stripping regulations may be too restrictive for vessels that do not target pollock and do not process pollock in traditional product forms. Industry representatives indicate that some vessels that do not target pollock, such as freezer longliners and small H&G factory trawlers, would like to retain pollock roe when it is present. However, these vessel operators have indicated that they do not produce pollock products against which roe may be retained. In addition, during initial consideration of this Action in October 1998, the Council requested analysis of removing fishmeal from the list of products against which roe may be retained. At present, only the products and PRRs listed in Table 1 may be used to calculate the allowable percentage of roe that may be on board a vessel.

Table 1. Product types and standard PRRs that may be used to calculate round-weight equivalents for pollock for purposes of determining maximum retainable roe percentages.

<i>Product code</i>	<i>Product description</i>	<i>Standard PRR</i>
7	Headed and gutted, western cut	0.65
8	Headed and gutted, eastern cut	0.56
10	Headed and gutted, without tail	0.50
20	Fillets with skin & ribs	0.35
21	Fillets with skin on, no ribs	0.30
22	Fillets with ribs, no skin	0.30
23	Fillets, skinless, boneless	0.21
24	Deep skin fillets	0.16
30	Surimi	0.16
31	Mince	0.22
32	Meal	0.17

To verify whether non-pollock catcher processors are constrained by this list of products, Table 2 was generated to display total pollock production by non-pollock catcher processors for the year 1998 (through August 31, 1998). Non-pollock catcher processors were identified as those vessels that did not report any production of pollock surimi or pollock fillets during 1998. It is assumed that all catcher processors targeting pollock produced either surimi or fillets during 1998.

Table 2. Pollock products produced by non-pollock processors off Alaska from January 1, 1998, through August 30, 1998, in metric tons.

<i>Code</i>	<i>Product</i>	<i>Total production in mt.</i>
1	whole fish	342
7	Headed and gutted, western cut	339
8	Headed and gutted, eastern cut	5,368
10	Headed and gutted, without tail	10
11	Kirimi	75
14	Roe	132
97	Other retained product	76

**Alternative 1 (no action):** No additional product forms would be added to the list of products against which roe may be retained.

**Alternative 2 (add kirimi):** Establish a standard PRR for pollock kirimi and add this product form to the list of products against which pollock roe may be retained. As indicated in Table 2, H&G product forms constitute the bulk of pollock production by non-pollock vessels. In fact, 75 mt of kirimi and 76 mt of "other retained product" is the only reported production by non-pollock vessels during 1998 of products other than H&G types or roe. This suggests that the great majority of non-pollock processors are not constrained in their ability to retain pollock roe because they are producing H&G product forms against which roe may be retained. Nevertheless, no reason exists to exclude pollock kirimi from the list of products against which roe may be retained. However, at present, NMFS has not established a standard PRR for pollock kirimi.

**Alternative 3 (remove fishmeal):** Under this alternative, fishmeal would be removed from the list of primary products against which roe could be retained. This alternative would not in any way prohibit vessels from producing fishmeal as a primary product, they would simply be unable to use fishmeal as "ballast" for the purposes of retaining roe.

To determine the effects of eliminating fishmeal as a primary product against which roe may be retained it is first necessary to identify the sector of the fleet that would be affected by such a change--namely those vessels that have the capacity to produce fishmeal. Based on a review of weekly production data from 1995-1997, 16 offshore processors were identified as fishmeal producers. Of these 16 vessels, 3 are motherships and 13 are factory trawlers, however 2 of the factory trawlers have been reflagged as Russian vessels and have left the fishery leaving 11 factory trawlers with fishmeal production capacity that currently participate in the BSAI pollock fishery.

Because roe can be retained only against fishmeal produced as a primary product and not an ancillary product, only primary product fishmeal production is of concern when considering whether to list it as a product against which roe can be retained. Table 3 characterizes the extent of primary versus ancillary fishmeal production by the 16 offshore processors with fishmeal production capacity. This table displays the aggregate primary and ancillary fishmeal production for 1995-1997 by the 16 vessels in question.

Table 3. Aggregate ancillary and primary fishmeal production during the 1995-1997 A seasons for the 16 offshore processors that have fishmeal production capacity.

<i>VESSEL</i>	<i>Fishmeal production in mt.</i>			<i>Percent</i>
	<i>Ancillary</i>	<i>Primary</i>	<i>Total</i>	<i>Primary</i>
Vessel A	1,697	163	1,860	8.8%
Vessel B	1,379	0	1,379	0.0%
Vessel C	2,264	14	2,279	0.6%
Vessel D	1,085	287	1,373	20.9%
Vessel E	1,525	152	1,677	9.1%
Vessel F	1,502	166	1,668	10.0%
Vessel G	371	109	480	22.7%
Vessel H	1,049	171	1,220	14.0%
Vessel I	723	0	723	0.0%
Vessel J	977	23	1,000	2.3%
Vessel K	862	79	942	8.4%
Vessel L	1,701	102	1,803	5.7%
Vessel M	1,136	2	1,138	0.1%
Vessel N	1,433	23	1,456	1.6%
Vessel O	1,914	69	1,984	3.5%
Vessel P	992	0	992	0.0%
<b>Grand Total</b>	<b>20,611</b>	<b>1,362</b>	<b>21,973</b>	<b>6.2%</b>

As illustrated in Table 3, the vast majority of fishmeal production by the offshore pollock fleet is in the form of ancillary products. From 1995 through 1997 a total of 1,362 mt of primary product fishmeal was produced by these 16 processors during the A season which is equal to 6.2 percent of their total A season fishmeal production. Under the 7 percent maximum retainable roe percentage, the 1,362 mt of primary product fishmeal could have served as "ballast" for a total of 560.8 mt of roe. However, in most instances, the vessels in question were not approaching the 7 percent maximum retainable roe percentage so their primary production of fishmeal did not actually lead to any increase in roe retention. Figure 2 displays the aggregate weekly retained roe percentage for the 16 vessels with fishmeal capacity with fishmeal included and excluded for the two areas of the Bering Sea and one area of the Aleutian Islands where these vessels concentrated their A season fishing activity.

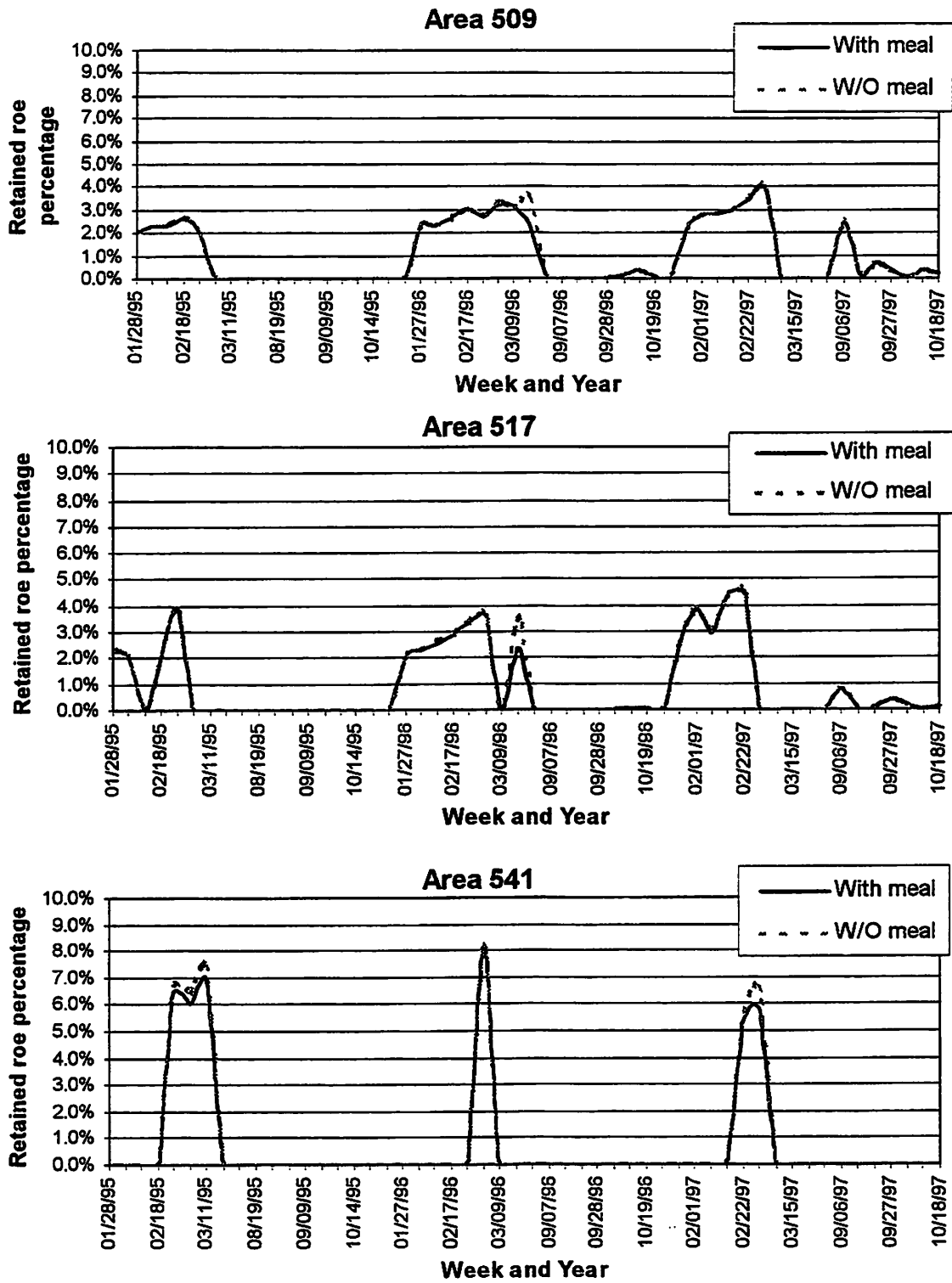


Figure 2 Pollock roe as a percentage of the round weight equivalent of primary products including and excluding fishmeal as a primary product for vessels with fishmeal processing capacity, 1995-1997.

In Areas 509 and 517 of the Bering Sea, the production of fishmeal as a primary product did not affect the retention of roe when the 16 processors with meal capacity are examined in aggregate. In no instance did the aggregate retained roe percentage exceed 7 percent when meal was excluded as a primary product. In fact, the retained roe percentage did not exceed 5 percent for these areas even when meal was not counted as a primary product. In the Aleutian Islands, the picture is a bit different. During the 1995 season in Area 541, the 16 processors in question achieved an aggregate retained roe percentage of 6.9 percent. If meal was excluded as a primary product these same processors would have achieved an aggregate retained roe percentage of 7.4 percent. In 1996 these processors achieved an aggregate retained roe percentage of 8.2 percent which would not have changed with the exclusion of meal. In 1997, these processors achieved an aggregate retained roe percentage of 5.8 percent which would have increased to 6.6 percent with the exclusion of meal. Consequently, it appears that the inclusion or exclusion of meal as a product against which roe can be retained has very little effect on the actual retention of roe by vessels with the capacity to produce fishmeal. In only one week in Area 541 in 1995 did the inclusion of meal as a primary product allow for the retention of additional roe that could not otherwise have been legally retained. Total roe production in Area 541 during that week by vessels with fishmeal capacity equaled only 61 mt so the actual difference in roe retention as a result of primary fishmeal production was less than 1 mt.

**1.5 ACTION 4: Clarification of Retention and Utilization Requirements for Non-Product Uses of IR/TU Species.**

Current regulations provide for a variety of non-product uses of IR/TU species including: (1) deployment of IR/TU species as bait, (2) consumption of IR/TU species on board a vessel, and (3) observer sampling and collection. However, existing utilization regulations address only product uses of IR/TU species and do not provide clear direction to fishermen on the utilization requirements for non-product uses of IR/TU species. Under existing regulations, vessels may deploy IR/TU species as bait, and NMFS is treating IR/TU species consumed on board a vessel as retained and utilized, however, the regulations are ambiguous with respect to the minimum utilization requirements for non-product fish. Current IR/TU utilization regulations at 50 CFR 679.27(i) state:

IF...	then your total weight of retained or lawfully transferred products produced from your catch or receipt of that IR/TU species during a fishing trip must...
(1) directed fishing for an IR/TU species is open,	equal or exceed 15 percent of the round-weight catch or round-weight delivery of that species during the fishing trip.
(2) directed fishing for an IR/TU species is prohibited,	equal or exceed 15 percent of the round-weight catch or round-weight delivery of that species during the fishing trip or 15 percent of the MRB amount for that species, whichever is lower.
(3) retention of an IR/TU species is prohibited,	equal zero.

However, these utilization regulations do not provide explicit instructions to fishermen on how to treat fish that are legally deployed as bait or consumed on board the vessel but do not generate a retained product. In addition, fish sampled by observers and rendered unsuitable for processing as a result of tissue sampling or other scientific procedures. These fish also may be treated in the same manner as bait and fish consumed on board the vessel for the purpose of compliance with improved utilization requirements.

Three alternatives are presented for clarifying the utilization requirements for non-product uses of IR/TU species.

**Alternative 1: No Action.** Utilization requirements for bait, fish consumed on board the vessel, and fish collected by observers would not be clarified.

**Alternative 2. Treat bait and consumed fish as whole fish product.** Under this option, vessel operators would record round weights for bait and fish consumed on board the vessel and would sum these round weights together with IR/TU product weights to determine if the vessel is in compliance with the 15 percent minimum utilization rate. This option would be the simple to implement and comply with. However, bait and fish consumed on board the vessel with a whole fish PRR of 1.0 would receive disproportionate utilization "credit" compared to other processed products that have lower PRRs. This might produce an incentive for vessels to favor these two uses of IR/TU species over production of processed products for food.

**Alternative 3. Take bait and consumed fish "off the top" before calculating utilization rates.** Under this option, vessels would reduce their round-weight catch of an IR/TU species by the weight of fish recorded as used for bait, consumed on board the vessel, and retained or damaged by observer sampling. Processed products would then be compared against this "adjusted" round weight catch amount to determine if the vessel is in compliance with the 15 percent minimum utilization rate. Under this alternative, bait and consumed fish would not be treated as products and would not enter into any utilization rate calculations. They would, however, be considered retained fish for the purpose of the IR/TU program and NMFS recordkeeping and reporting requirements.

## 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 6. 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 TAC amounts on the biological environment and associated impacts on marine mammals, seabirds, and other threatened or endangered species are discussed in the final environmental assessment for the annual groundfish total allowable catch specifications (NMFS 1998).

### 2.2 Impacts on Endangered or Threatened Species

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

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

In addition to listing species under the ESA, the critical habitat of a newly listed species must be designated concurrent with its listing to the "maximum extent prudent and determinable" [16 U.S.C. §1533(b)(1)(A)]. The ESA defines critical habitat as those specific areas that are essential to the conservation of a listed species and that may be in need of special consideration. The primary benefit of critical habitat designation is that it informs Federal agencies that listed species are dependent upon these areas for their continued existence, and that consultation with NMFS on any Federal action that may affect these areas is required.



Some species, primarily the cetaceans, listed in 1969 under the Endangered Species Conservation Act and carried forward as endangered under the ESA, have not received critical habitat designations.

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

### Endangered

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

### Threatened

Snake River Fall Chinook Salmon	<i>Oncorhynchus tshawytscha</i>
Snake River Spring/Summer Chinook Salmon	<i>Oncorhynchus tshawytscha</i>
Steller Sea Lion <sup>3</sup>	<i>Eumetopias jubatus</i>
Spectacled Eider	<i>Somateria fishcheri</i>

**Section 7 Consultations.** Because both groundfish fisheries are federally regulated activities, any negative affects of the fisheries on listed species or critical habitat and any takings<sup>4</sup> that may occur are subject to ESA section 7 consultation. NMFS initiates the consultation and the resulting biological opinions are issued to NMFS. The Council may be invited to participate in the compilation, review, and analysis of data used in the consultations. The determination of whether the action “is likely to jeopardize the continued existence of” endangered or threatened species or to result in the destruction or modification of critical habitat, however, is the responsibility of the appropriate agency (NMFS or FWS). If the action is determined to result in jeopardy, the opinion includes reasonable and prudent measures that are necessary to alter the action so that jeopardy is avoided. If an incidental take of a listed species is expected to occur under normal promulgation of the action, an incidental take statement is appended to the biological opinion.

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<sup>1</sup>species is present in Bering Sea area only.

<sup>2</sup>listed as endangered west of Cape Suckling.

<sup>3</sup>listed as threatened east of Cape Suckling.

<sup>4</sup> 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)).

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

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

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

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

Beginning in 1990 when Steller sea lions were first listed under the ESA, NMFS determined that both groundfish fisheries may adversely affect Steller sea lions, and therefore conducted Section 7 consultation on the overall fisheries (NMFS 1991), and subsequent changes in the fisheries (NMFS 1992). The most recent biological opinion on the BSAI and GOA fisheries effects on Steller sea lions was issued by NMFS on January 26, 1996. It concluded that these fisheries and harvest levels are unlikely to jeopardize the continued existence and recovery of the Steller sea lion or adversely modify critical habitat. NMFS conducted an informal Section 7 consultation on Steller sea lions for this action in 1997 and concluded that the GOA groundfish fishery and the 1997 TAC amounts were not likely to affect Steller sea lions in a way or to an extent not already considered in previous Section 7 consultations (NMFS, January 17, 1997). Reinitiation of formal consultation was not required at that time. The proposed alternatives would not alter the fishery in a manner not already considered in these previous consultations.

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

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

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

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

Short-tailed albatrosses reported caught in the longline fishery include two in 1995, one in October 1996, and none in 1997. Both 1995 birds were caught in the vicinity of Unimak Pass and were taken outside the observers' statistical samples.

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

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

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

biological opinion, or a new species is listed or critical habitat is designated that may be affected by the action. None of the alternatives would affect the above listed species in a manner not already considered under previous consultation. NMFS does not intend to reinitiate any consultations for this action.

### **2.3 Impacts on Marine Mammals Not Listed Under the ESA**

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

The proposed alternatives are designed to reduce the regulatory impacts of some aspects of the IR/IU program. The affects of the alternatives on Steller sea lions are addressed in section 2.3 above. None of the alternatives will affect takes of other marine mammals not listed under the ESA. Therefore, none of the alternatives are expected to have a significant impact on marine mammals not listed under the ESA.

### **2.4 Coastal Zone Management Act**

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

### **2.5 Conclusions or Finding of No Significant Impact**

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

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Assistant Administrator for Fisheries, NOAA

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Date

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

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

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

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

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

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

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

A regulatory program is "economically significant" if it is likely to result in the effects described above. The Regulatory Impact Review (RIR) is designed to provide information to determine whether the proposed regulation is likely to be "economically significant." None of the alternatives is expected to result in a "significant regulatory action" as defined in E.O. 12866.

### 3.1 Costs and Benefits of the Alternatives

Action 1 would relieve a current regulatory requirement that vessels retain all IR/TU species brought on board regardless of the condition of the fish by allowing the discarding of fish that meet the statutory definition of adulterated food. This action would provide benefits to some processors, especially longline vessels that frequently encounter fish that have been damaged or destroyed by sand flea predation. Implementation of an exemption for adulterated fish would have no negative economic impacts to the fishing fleet.

Action 2 would increase the percentage of roe that may be retained in the Aleutian Islands Subarea. NMFS data suggests that some processors operating in the Aleutian Islands may achieve roe recovery rates that exceed the 7 percent maximum retainable percentage in current roe stripping regulations. Under current regulations, any roe in excess of the 7 percent maximum retainable percentage cannot be retained and must be discarded at sea. Table 3 displays the estimated annual tonnages of roe that would have had to be discarded in the Aleutian Islands from 1995-1997.

Table 3. Estimated tonnage of roe product that exceeded the 7 percent maximum roe retention percentage in the Aleutian Islands Subarea by processor type, in metric tons.

<i>Year</i>	<i>Mothership excess roe</i>	<i>Catcher processor excess roe</i>
1995	1.7	0.0
1996	2.2	0.9
1997	6.1	8.7

If the maximum retainable roe percentage for the Aleutian Islands Subarea was raised to 8 percent, none of the tonnages listed in Table 3 would have been required to be discarded.

Action 3 would add kirimi to the list of products against which pollock roe can be retained. In 1998, only 75 mt of pollock kirimi was produced by non-pollock processors compared with nearly 6,000 mt of H&G product. Given the 1998 mix of pollock products produced by vessels non targeting on pollock, adding kirimi to the list of products against which roe may be retained would have little or no effect on the amount of roe that these vessels could retain. However, adding kirimi to the list of products against which roe may be retained would impose no costs on the fleet and would provide additional flexibility for vessels who may wish to process more kirimi product in the future.

Action 4 would simply provide a technical clarification to existing regulations and would not impose costs or benefits to the groundfish fleet.

### 3.1 Impacts to Small Entities

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

The Small Business Administration has defined all fish-harvesting or hatchery businesses that are independently owned and operated, not dominant in their field of operation, with annual receipts not in excess of \$3,000,000 as small businesses. In addition, seafood processors with 500 employees or fewer, wholesale industry members with 100 employees or fewer, not-for-profit enterprises, and government jurisdictions with a population of 50,000 or less are considered small entities. NMFS has determined that a "substantial number" of small entities would generally be 20 percent of the total universe of small entities affected by the regulation. A regulation would have a "significant impact" on these small entities if it changed annual gross revenues by more than 5 percent, total costs of production by more than 5 percent, or compliance costs for small entities by at least 10 percent compared with compliance costs as a percent of sales for large entities.

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

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

Actions 1, 3, and 4 would affect the entire BSAI and GOA commercial fishing fleet. In 1996, the most recent year for which vessel participation data is available, 1,508 vessels participated in the groundfish fisheries of the GOA; 1,254 longline vessels, 148 pot vessels, and 202 trawl vessels. There were 439 vessels operating in the BSAI in 1996; 158 longline vessels, 103 pot vessels, and 192 trawl vessels. The commercial groundfish catch off Alaska totaled 2.05 million mt in 1996, with an ex-vessel value of \$538 million. The value of the catch after primary processing was estimated at \$1.23 billion. However, as noted in Section 3.1, all of these actions are designed to relieve restrictions or clarify existing regulations. Therefore, none of the actions would significant impact a substantial number of small entities. Therefore an initial regulatory flexibility analysis was not prepared.

#### 4.0 SUMMARY AND CONCLUSIONS

Since IR/TU regulations took effect in January 1998, NMFS has noted dramatic reductions in the discards of pollock and Pacific cod in the groundfish fisheries off Alaska. Preliminary 1998 catch estimates show dramatic declines in discard rates for pollock and Pacific cod in most target fisheries in Alaska. In addition, many target fisheries appear to have increased their selectivity in terms of catching pollock when it is targeted and avoiding pollock when it is not targeted. Nevertheless, industry and NMFS have suggested a number of revisions to the program to increase its effectiveness and reduce several unintended impacts to sectors of the groundfish fleet. Four independent actions are proposed for analysis: (1) An FMP amendment to allow discarding of adulterated or unwholesome fish that are not fit for human consumption, (2) a regulatory amendment to adjust the allowable percentage of roe that may be retained in the Aleutian Islands Subarea, (3) a regulatory amendment to add additional product forms and recovery rates to the list of products against which pollock roe may be retained, and (4) a regulatory amendment to clarify retention and utilization requirements for fish used as bait, observer sampling, and consumed on board vessels. These four actions may be viewed independently and are not mutually exclusive. The Council may adopt any combination of these four actions as part of a package of revisions to the IR/TU program. All of these actions are designed to relieve current regulatory restrictions on the groundfish fleet. They may generate some economic benefits to the groundfish fleet by reducing the cost of dealing with adulterated fish that are not fit for human

consumption and preventing potential regulatory discards of pollock roe. None of these actions are expected to impose any additional costs on the groundfish fleet.



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**APPENDIX 1. Current IR/IU and Roe Stripping Regulations**

**§ 679.27 Improved Retention/Improved Utilization Program.**

(a) *Applicability.* The owner or operator of a vessel that is required to obtain a Federal fisheries or processor permit under § 679.4 must comply with the IR/IU program set out in this section while fishing for groundfish in the GOA or BSAI, fishing for groundfish in waters of the State of Alaska that are shoreward of the GOA or BSAI, or when processing groundfish harvested in the GOA or BSAI.

(b) *IR/IU species.* The following species are defined as “IR/IU species” for the purposes of this section:

- (1) Pollock.
- (2) Pacific cod.

(3) Rock sole in the BSAI (beginning January 1, 2003).

(4) Yellowfin sole in the BSAI (beginning January 1, 2003).

(5) Shallow-water flatfish species complex in the GOA as defined in the annual harvest specifications for the GOA (beginning January 1, 2003).

(c) *Minimum retention requirements--(1) Definition of retain on board.* Notwithstanding the definition at 50 CFR 600.10, for the purpose of this section, to retain on board means to be in possession of on board a vessel.

(2) The following table displays minimum retention requirements by vessel category and directed fishing status:

IF YOU OWN OR OPERATE A	AND	YOU MUST RETAIN ON BOARD UNTIL LAWFUL TRANSFER
(i) Catcher vessel	(A) Directed fishing for an IR/IU species is open	all fish of that species brought on board the vessel.
	(B) Directed fishing for an IR/IU species is prohibited	all fish of that species brought on board the vessel up to the MRB amount for that species.
	(C) Retention of an IR/ IU species is prohibited	no fish of that species.
(ii) Catcher/ processor	(A) Directed fishing for an IR/IU species is open	a primary product from all fish of that species brought on board the vessel.
	(B) Directed fishing for an IR/IU species is prohibited	a primary product from all fish of that species brought on board the vessel up to the point that the round-weight equivalent of primary products on board equals the MRB amount for that species.
	(C) Retention of an IR/IU species is prohibited	no fish or product of that species.
(iii) Mothership	(A) Directed fishing for an IR/IU species is open	a primary product from all fish of that species brought on board the vessel.
	(B) Directed fishing for an IR/IU species is prohibited	a primary product from all fish of that species brought on board the vessel up to the point that the round-weight equivalent of primary products on board equals the MRB amount for that species.
	(C) Retention of an IR/IU species is prohibited	no fish or product of that species.

(d) *Bleeding codends and shaking longline gear.* Any action intended to discard or release an IR/TU species prior to being brought on board the vessel is prohibited. This includes, but is not limited to bleeding codends and shaking or otherwise removing fish from longline gear.

(e) *At-sea discard of product.* Any product from an IR/TU species may not be discarded at sea, unless such discarding is necessary to meet other requirements of this part.

(f) *Discard of fish or product transferred from other vessels.* The retention requirements of this section apply to all IR/TU species brought on board a vessel, whether harvested by that vessel or transferred from another vessel. At-sea discard of IR/TU species or products that were transferred from another vessel is prohibited.

(g) *IR/TU species as bait.* IR/TU species may be used as bait provided that the deployed bait is physically secured to authorized fishing gear. Dumping of unsecured IR/TU species as bait (chumming) is prohibited.

(h) *Previously caught fish.* The retention and utilization requirements of this section do not apply to incidental catch of dead or decomposing fish or fish parts that were previously caught and discarded at sea.

(i) *Minimum utilization requirements.* If you own or operate a catcher/processor or mothership, the minimum utilization requirement for an IR/TU species harvested in the BSAI is determined by the directed fishing status for that species according to the following table:

IF...	then your total weight of retained or lawfully transferred products produced from your catch or receipt of that IR/TU species during a fishing trip must...
(1) directed fishing for an IR/TU species is open,	equal or exceed 15 percent of the round-weight catch or round-weight delivery of that species during the fishing trip.
(2) directed fishing for an IR/TU species is prohibited,	equal or exceed 15 percent of the round-weight catch or round-weight delivery of that species during the fishing trip or 15 percent of the MRB amount for that species, whichever is lower.
(3) retention of an IR/TU species is prohibited,	equal zero.

**Section 679.20(g)**  
**Allowable retention of pollock roe**

(1) *Percentage of pollock roe*--(i) Pollock roe retained on board a vessel at any time during a fishing trip must not exceed 7 percent of the total round-weight equivalent of pollock, as calculated from the primary pollock product on board the vessel during the same fishing trip.

(ii) Determinations of allowable retention of pollock roe will be based on amounts of pollock harvested, received, or processed during a single fishing trip.

(iii) Pollock or pollock products from previous fishing trips that are retained on board a vessel may not be used to determine the allowable retention of pollock roe for that vessel.

(2) *Primary product*-- (i) For purposes of this paragraph (g), only one primary pollock product per fish, other than roe, may be used to calculate the round-weight equivalent.

(ii) A primary pollock product that contains roe (such as headed and gutted pollock with roe) may not be used to calculate the round-weight equivalent of pollock.

(iii) The primary pollock product must be distinguished from ancillary pollock products in the DCPL required under § 679.5. Ancillary products are those such as meal, heads, internal organs, pectoral girdles, or any other product that may be made from the same fish as the primary product.

(3) *Pollock product recovery rates (PRRs)*. Only the following product types and standard PRRs may be used to calculate round-weight equivalents for pollock for purposes of this paragraph (g):

<i>Product code</i>	<i>Product description</i>	<i>Standard PRR</i>
7	Headed and gutted, western cut	0.65
8	Headed and gutted, eastern cut	0.56
10	Headed and gutted, without tail	0.50
20	Fillets with skin & ribs	0.35
21	Fillets with skin on, no ribs	0.30
22	Fillets with ribs, no skin	0.30
23	Fillets, skinless, boneless	0.21
24	Deep skin fillets	0.16
30	Surimi	0.16
31	Mince	0.22
32	Meal	0.17

(4) *Calculation of retainable pollock roe*--  
 (i) *Round-weight equivalent*. (A) To calculate the amount of pollock roe that can be retained on board during a fishing trip, first calculate the round-weight equivalent by dividing the total amount of primary product on board by the appropriate PRR.

(B) To determine the maximum amount of pollock roe that can be retained on board a vessel during the same fishing trip, multiply the round-weight equivalent by 0.07.

(C) Pollock roe retained on board from previous fishing trips will not be counted.

(ii) *Two or more products from different fish*.

(A) If two or more products, other than roe, are made from different fish, round-weight equivalents are calculated separately for each product.

(B) To determine the maximum amount of pollock roe that can be retained on board a vessel during a fishing trip, add the round-weight equivalents together; then, multiply the sum by 0.07.

(iii) *Two or more products from same fish*. If two or more products, other than roe, are made from the same fish, the maximum amount of pollock roe that can be retained during a fishing trip is determined from the primary product.

(5) *Primary pollock product*

(i) *Process prior to transfer*. Any primary pollock product used to calculate retainable amounts of pollock roe must be frozen, canned, or

reduced to meal by the vessel retaining the pollock roe prior to any transfer of the product to another vessel.

(ii) *No discard of processed product.* Any pollock product that has been processed may not be discarded at sea unless such discarding is necessary to meet other requirements of this part.

**APPENDIX 2: Catch and Discards of IRTU Species, 1995-1998**

BSAI pollock catch and bycatch expressed by pollock discard rate and the percentage of pollock contained in the total groundfish catch.

VESSEL TYPE	GEAR	TARGET	POLLOCK CATCH	1995	1996	1997	1998*
Catcher processor	Longline	Greenland turbot	Plck disc. rate	100.0%	17.4%	100.0%	87.0%
			% of total catch	0.0%	0.2%	0.1%	0.1%
		Pacific cod	Plck disc. rate	86.5%	90.3%	82.4%	19.8%
			% of total catch	2.6%	2.6%	3.1%	2.8%
	Rockfish	Plck disc. rate	100.0%	0.0%	100.0%	0.0%	
		% of total catch	0.3%	0.0%	0.1%	0.0%	
	Sablefish	Plck disc. rate	100.0%	100.0%	83.6%	28.6%	
		% of total catch	0.3%	0.1%	0.0%	0.0%	
	Pot	Pacific cod	Plck disc. rate	100.0%	96.9%	35.8%	81.3%
			% of total catch	0.0%	0.1%	0.7%	0.0%
	Trawl	Atka mackerel	Plck disc. rate	100.0%	99.5%	90.4%	13.4%
			% of total catch	0.4%	0.4%	0.2%	0.3%
		Flathead sole	Plck disc. rate	91.5%	97.4%	99.2%	45.5%
			% of total catch	17.5%	16.6%	14.5%	6.5%
		Other flatfish	Plck disc. rate	90.5%	97.5%	72.7%	40.6%
			% of total catch	17.9%	15.8%	9.4%	4.6%
		Pacific cod	Plck disc. rate	83.5%	96.3%	93.9%	64.5%
			% of total catch	18.2%	14.1%	15.4%	10.0%
		Pollock (bottom)	Plck disc. rate	4.2%	2.3%	6.1%	11.0%
% of total catch			87.4%	87.7%	88.7%	57.4%	
Pollock (pelagic)	Plck disc. rate	4.5%	2.4%	3.6%	0.6%		
	% of total catch	98.9%	98.6%	99.0%	99.5%		
Rock sole	Plck disc. rate	88.9%	96.4%	96.7%	34.2%		
	% of total catch	13.1%	17.1%	14.2%	15.4%		
Rockfish	Plck disc. rate	86.3%	99.0%	97.9%	15.6%		
	% of total catch	2.7%	1.5%	1.2%	1.4%		
Yellowfin sole	Plck disc. rate	85.8%	94.6%	93.1%	35.3%		
	% of total catch	15.9%	13.1%	9.9%	10.7%		
Mothership	Trawl	Pacific cod	Plck disc. rate	93.4%	96.7%	96.9%	51.0%
			% of total catch	23.2%	18.9%	20.5%	1.8%
		Pollock (pelagic)	Plck disc. rate	3.1%	1.5%	2.8%	0.2%
			% of total catch	98.5%	98.2%	99.0%	99.5%
Rock sole	Plck disc. rate	54.2%	26.3%	100.0%	0.0%		
	% of total catch	14.7%	13.7%	9.6%	0.0%		
Yellowfin sole	Plck disc. rate	66.6%	28.2%	55.1%	7.9%		
	% of total catch	13.5%	8.0%	14.8%	2.3%		

BSAI pollock catch and bycatch expressed by pollock discard rate and the percentage of pollock contained in the total groundfish catch (continued).

<b>VESSEL TYPE</b>	<b>GEAR</b>	<b>TARGET</b>	<b>POLLOCK CATCH</b>	<b>1995</b>	<b>1996</b>	<b>1997</b>	<b>1998*</b>
Shoreside	Longline	Pacific cod	Plock disc. rate	100.0%	100.0%	100.0%	0.0%
			% of total catch	0.3%	0.2%	0.0%	0.0%
	Pot	Pacific cod	Plock disc. rate	97.9%	98.0%	97.9%	20.3%
			% of total catch	0.1%	0.1%	0.2%	0.4%
	Trawl	Pacific cod	Plock disc. rate	96.2%	98.2%	95.4%	41.4%
			% of total catch	19.5%	18.1%	28.0%	11.5%
		Pollock (bottom)	Plock disc. rate	3.5%	2.5%	1.4%	0.0%
			% of total catch	89.4%	84.7%	93.9%	0.0%
		Pollock (pelagic)	Plock disc. rate	1.4%	1.0%	0.8%	0.1%
			% of total catch	98.8%	98.5%	98.3%	99.4%
Yellowfin sole	Plock disc. rate	27.1%	6.9%	16.4%	0.0%		
	% of total catch	10.3%	6.1%	6.4%	0.0%		

\*1998 figures include catch data through August 31, 1998



GOA pollock catch and bycatch expressed by pollock discard rate and the percentage of pollock contained in the total groundfish catch.

VESSEL TYPE	GEAR	TARGET	POLLOCK CATCH	1995	1996	1997	1998*
Catcher processor	Longline	Pacific cod	Pick disc. rate	100.0%	100.0%	100.0%	19.7%
			% of total catch	0.2%	0.2%	0.2%	0.2%
		Sablefish	Pick disc. rate	100.0%	100.0%	100.0%	96.5%
			% of total catch	0.1%	0.8%	0.0%	0.0%
	Trawl	Deep water flatfish	Pick disc. rate	100.0%	100.0%	100.0%	0.0%
			% of total catch	4.5%	0.5%	2.1%	0.0%
		Flathead sole	Pick disc. rate	99.8%	99.4%	100.0%	4.1%
			% of total catch	5.7%	2.3%	0.9%	1.3%
		Pacific cod	Pick disc. rate	99.2%	74.1%	100.0%	17.4%
			% of total catch	6.1%	7.8%	6.9%	0.6%
Rex sole		Pick disc. rate	99.6%	97.2%	98.2%	21.7%	
		% of total catch	4.1%	2.3%	2.9%	0.5%	
Rockfish	Pick disc. rate	99.1%	100.0%	96.7%	58.0%		
	% of total catch	0.8%	0.8%	1.5%	0.4%		
Shallow water flatfish	Pick disc. rate	98.4%	100.0%	100.0%	1.0%		
	% of total catch	10.3%	3.5%	1.1%	2.8%		
Shoreside	Longline	Pacific cod	Pick disc. rate	18.7%	38.1%	27.2%	7.9%
			% of total catch	1.0%	0.6%	0.9%	0.9%
		Sablefish	Pick disc. rate	100.0%	61.4%	100.0%	100.0%
			% of total catch	0.0%	0.0%	0.0%	0.0%
	Pot	Pacific cod	Pick disc. rate	99.8%	99.3%	85.6%	63.6%
			% of total catch	0.1%	0.1%	0.2%	0.0%
	Trawl	Deep water flatfish	Pick disc. rate	91.9%	71.6%	42.7%	32.0%
			% of total catch	3.3%	0.6%	1.0%	0.5%
		Flathead sole	Pick disc. rate	98.5%	87.1%	87.7%	25.1%
			% of total catch	4.8%	9.5%	3.5%	2.6%
		Pacific cod	Pick disc. rate	78.2%	85.4%	77.8%	41.6%
			% of total catch	3.4%	2.3%	4.1%	1.4%
		Pollock (bottom)	Pick disc. rate	0.2%	3.6%	7.6%	0.1%
			% of total catch	95.5%	74.5%	83.2%	80.6%
		Pollock (pelagic)	Pick disc. rate	10.2%	3.4%	4.9%	0.4%
	% of total catch		98.9%	98.9%	98.7%	99.1%	
Rex sole	Pick disc. rate	52.8%	0.5%	100.0%	65.1%		
	% of total catch	10.2%	5.2%	3.5%	0.4%		
Rockfish	Pick disc. rate	100.0%	78.9%	89.6%	59.6%		
	% of total catch	1.6%	0.7%	1.0%	0.8%		
Shallow water flatfish	Pick disc. rate	72.6%	68.6%	68.2%	64.0%		
	% of total catch	4.7%	4.2%	4.8%	4.4%		

\*1998 figures include catch data through August 31, 1998

BSAI Pacific cod catch and bycatch expressed by Pacific cod discard rate and percentage of Pacific cod in the total groundfish catch by gear type, target fishery, and year.

VESSEL TYPE	GEAR	TARGET	PCOD CATCH	1995	1996	1997	1998*
Catcher processor	Longline	Greenland turbot	Pcod disc. rate	27.94%	5.19%	3.10%	3.31%
			% of total catch	1.86%	2.31%	1.49%	0.93%
		Pacific cod	Pcod disc. rate	3.82%	3.39%	3.07%	2.96%
			% of total catch	86.00%	86.69%	85.45%	84.25%
		Rockfish	Pcod disc. rate	0.00%	69.21%	1.98%	
			% of total catch	0.38%	5.25%	2.07%	
		Sablefish	Pcod disc. rate	28.79%	48.27%	36.42%	3.15%
			% of total catch	2.76%	5.91%	1.79%	2.06%
	Pot	Pacific cod	Pcod disc. rate	1.52%	2.24%	0.44%	0.08%
			% of total catch	97.67%	96.99%	97.63%	96.60%
	Trawl	Atka mackerel	Pcod disc. rate	36.59%	24.71%	40.52%	0.32%
			% of total catch	4.93%	7.28%	2.75%	5.17%
		Flathead sole	Pcod disc. rate	50.19%	49.58%	27.85%	2.03%
			% of total catch	10.58%	8.91%	10.65%	7.02%
		Other flatfish	Pcod disc. rate	56.13%	47.39%	16.59%	0.00%
			% of total catch	9.14%	7.28%	4.85%	7.46%
		Pacific cod	Pcod disc. rate	13.12%	6.66%	8.40%	0.58%
			% of total catch	57.21%	57.06%	51.30%	61.01%
		Pollock (bottom)	Pcod disc. rate	76.84%	78.53%	70.58%	0.92%
			% of total catch	8.17%	5.05%	5.20%	9.73%
Pollock (pelagic)		Pcod disc. rate	91.46%	86.47%	90.11%	11.83%	
		% of total catch	0.72%	0.73%	0.44%	0.33%	
Rock sole	Pcod disc. rate	53.31%	47.97%	44.70%	2.81%		
	% of total catch	16.64%	15.47%	14.03%	14.09%		
Rockfish	Pcod disc. rate	44.55%	17.16%	24.66%	0.43%		
	% of total catch	1.74%	2.42%	0.95%	1.64%		
Yellowfin sole	Pcod disc. rate	55.95%	56.47%	35.94%	4.56%		
	% of total catch	7.03%	4.67%	4.33%	5.55%		
Mothership	Trawl	Pacific cod	Pcod disc. rate	14.05%	2.99%	2.59%	1.16%
			% of total catch	56.42%	63.47%	66.51%	90.60%
		Pollock (bottom)	Pcod disc. rate	81.22%	89.44%	61.94%	
			% of total catch	7.24%	5.61%	6.95%	
		Pollock (pelagic)	Pcod disc. rate	97.77%	93.62%	93.61%	0.80%
% of total catch	1.14%		1.20%	0.58%	0.48%		
Rock sole	Pcod disc. rate	42.72%	32.74%	91.24%			
	% of total catch	16.66%	15.94%	5.53%			
Yellowfin sole	Pcod disc. rate	62.55%	62.87%	95.20%	0.16%		
	% of total catch	6.61%	7.96%	3.11%	8.02%		

BSAI Pacific cod catch and bycatch expressed by Pacific cod discard rate and percentage of Pacific cod contained in the total groundfish catch (continued).

VESSEL TYPE	GEAR	TARGET	PCOD CATCH	1995	1996	1997	1998*
Shoreside	Longline	Greenland turbot	Pcod disc. rate	0.00%	100.00%	26.74%	72.16%
			% of total catch	2.40%	0.03%	0.21%	0.59%
		Pacific cod	Pcod disc. rate	17.99%	41.51%	0.62%	0.00%
			% of total catch	93.69%	45.90%	70.73%	98.00%
		Rockfish	Pcod disc. rate	100.00%	100.00%	0.00%	
			% of total catch	8.25%	5.42%	1.61%	0.00%
		Sablefish	Pcod disc. rate	99.53%	91.01%	90.62%	97.86%
			% of total catch	36.51%	3.63%	2.87%	5.21%
	Pot	Pacific cod	Pcod disc. rate	1.20%	1.21%	0.44%	0.55%
			% of total catch	95.78%	97.02%	97.17%	96.16%
	Trawl	Pacific cod	Pcod disc. rate	9.25%	4.53%	4.60%	0.18%
			% of total catch	65.96%	63.57%	58.56%	75.49%
		Pollock (bottom)	Pcod disc. rate	68.02%	4.89%	8.32%	
			% of total catch	7.31%	12.20%	1.78%	
		Pollock (pelagic)	Pcod disc. rate	26.29%	8.71%	5.68%	2.06%
			% of total catch	0.95%	0.86%	0.77%	0.46%
Yellowfin sole	Pcod disc. rate	4.76%	0.65%	1.81%			
	% of total catch	14.64%	12.81%	13.52%			

\*1998 figures includes catch data through August 31, 1998

GOA Pacific cod catch and bycatch expressed by Pacific cod discard rate and the percentage Pacific cod contained in the total catch

VESSEL TYPE	GEAR	TARGET	PCOD CATCH	1995	1996	1997	1998*	
Catcher processor	Longline	Pacific cod	P. cod disc. rate	5.3%	1.5%	3.1%	0.7%	
			% of total catch	98.1%	97.6%	97.9%	97.3%	
		Sablefish		P. cod disc. rate	88.0%	95.7%	83.1%	18.6%
				% of total catch	2.4%	4.4%	2.5%	0.9%
	Trawl	Deep water flatfish		P. cod disc. rate	71.4%	86.5%	54.1%	7.9%
				% of total catch	4.7%	3.6%	2.0%	6.4%
		Flathead sole		P. cod disc. rate	64.0%	86.5%	78.6%	45.8%
				% of total catch	15.2%	14.6%	11.0%	9.2%
		Pacific cod		P. cod disc. rate	18.1%	6.2%	22.5%	2.8%
				% of total catch	56.2%	69.8%	22.2%	62.6%
	Rex sole		P. cod disc. rate	68.6%	55.8%	40.5%	9.1%	
			% of total catch	5.0%	5.2%	8.5%	9.1%	
Rockfish		P. cod disc. rate	62.1%	82.1%	57.4%	8.7%		
		% of total catch	1.7%	1.5%	1.5%	1.8%		
Shallow water flatfish		P. cod disc. rate	65.1%	88.9%	81.1%	21.7%		
		% of total catch	12.4%	25.6%	20.1%	12.8%		
Shoreside	Longline	Pacific cod	P. cod disc. rate	0.8%	2.5%	4.4%	1.5%	
			% of total catch	77.4%	91.4%	89.4%	86.1%	
		Rockfish	P. cod disc. rate	0.3%	2.0%	0.4%	0.0%	
	% of total catch		11.5%	4.0%	8.8%	5.9%		
	Sablefish		P. cod disc. rate	45.0%	68.1%	48.2%	53.2%	
			% of total catch	1.0%	1.0%	1.7%	1.6%	
	Pot	Pacific cod	P. cod disc. rate	0.6%	0.4%	1.3%	0.2%	
			% of total catch	98.9%	98.4%	96.2%	98.3%	
	Trawl	Deep water flatfish		P. cod disc. rate	21.8%	28.5%	26.4%	27.5%
				% of total catch	5.8%	3.6%	3.3%	5.8%
		Flathead sole		P. cod disc. rate	84.0%	96.7%	70.1%	87.4%
				% of total catch	19.3%	47.3%	20.2%	25.4%
		Pacific cod		P. cod disc. rate	2.7%	1.7%	2.1%	0.5%
				% of total catch	85.7%	90.2%	83.4%	91.3%
		Pollock (bottom)		P. cod disc. rate	5.3%	19.4%	8.3%	4.1%
% of total catch				2.1%	9.5%	7.5%	10.4%	
Pollock (pelagic)		P. cod disc. rate	28.9%	39.4%	17.1%	2.7%		
		% of total catch	0.5%	0.7%	0.5%	0.5%		
Rex sole		P. cod disc. rate	15.7%	0.7%	77.1%	17.6%		
		% of total catch	6.0%	4.5%	1.5%	4.4%		
Rockfish		P. cod disc. rate	5.0%	100.0%	22.3%	9.7%		
		% of total catch	4.0%	3.1%	3.1%	7.1%		
Shallow water flatfish		P. cod disc. rate	30.9%	88.7%	68.5%	58.4%		
		% of total catch	14.4%	22.2%	26.9%	26.1%		

\*1998 figures includes total catch data through August 31, 1998

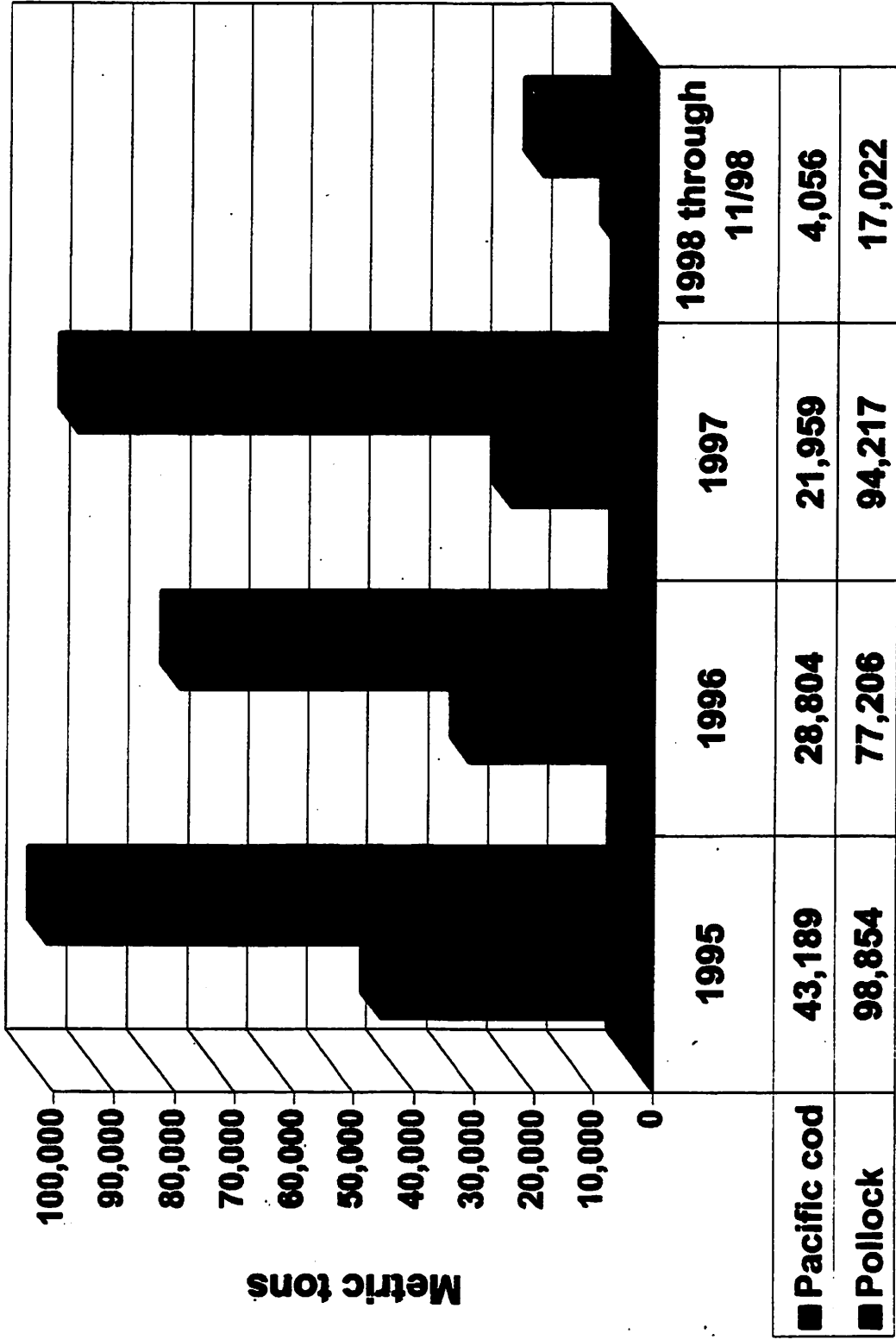
**Catch and Bycatch of Pollock  
and Pacific Cod During the First  
Year of the Improved  
Retention/Improved Utilization  
(IR/IU) Program**

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**NMFS-Alaska Region  
December 1998**

# Pollock and Pacific cod discards in the BSAI, 1995-1998



**1998 BSAI Pollock catch and discards by vessel type, gear type, and target fishery through 11/98**

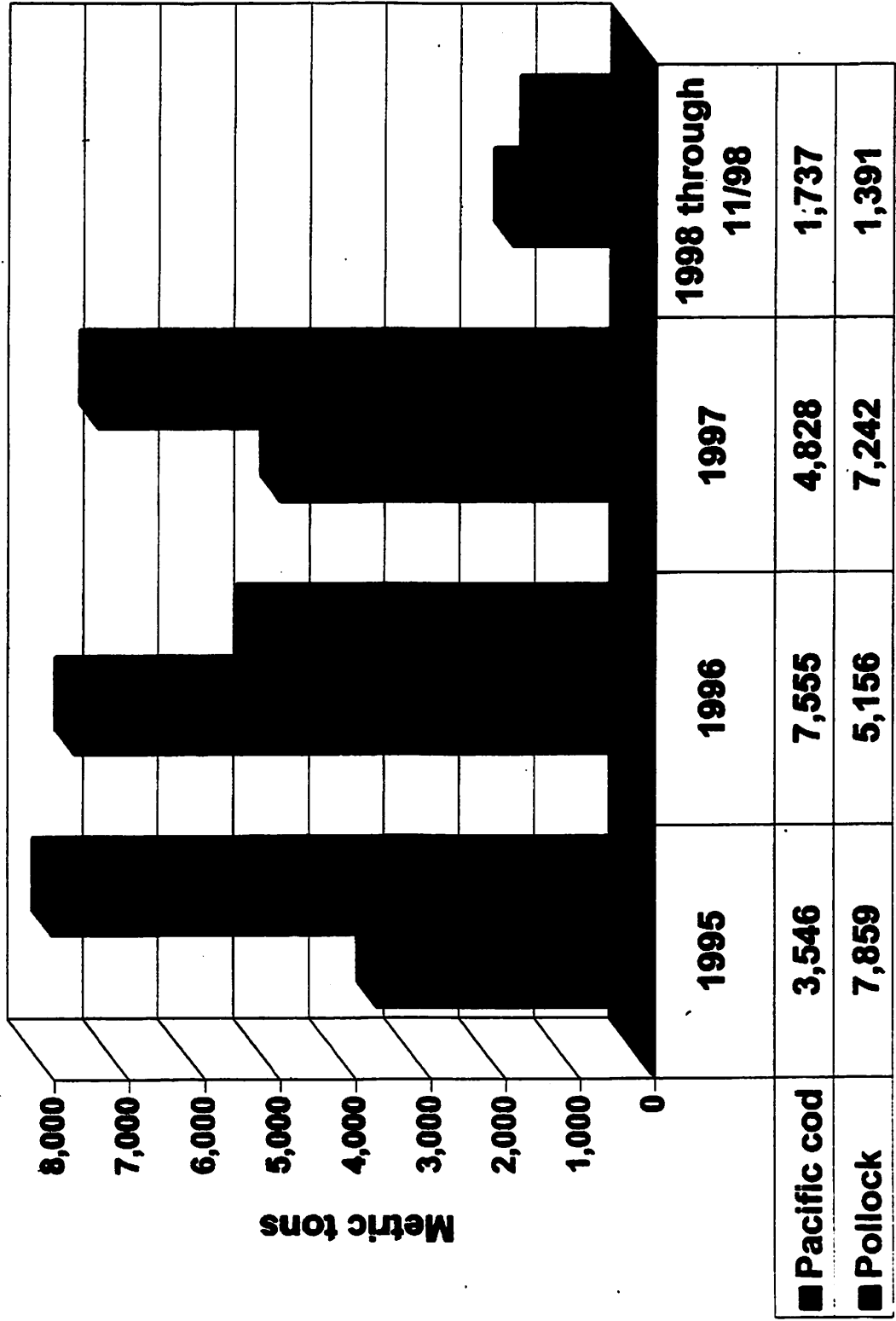
VESSEL TYPE	GEAR	TARGET FISHERY	POLLOCK CATCH		
			Disc	Ret.	Disc. rate
Catcher Processor	HAL	Cod	648	2,446	20.9%
		Greenland turbot	6	6	48.8%
		Sablefish	0	0	97.0%
	TRW	Arrowtooth flounder	67	183	26.9%
		Atka mackerel	25	273	8.5%
		Cod	1,769	953	65.0%
		Flathead sole	1,082	1,400	43.6%
		Greenland turbot	8	88	8.2%
		Other flatfish	109	266	29.2%
		Pollock (bottom)	165	24,079	0.7%
		Pollock (pelagic)	4,004	540,973	0.7%
		Rock sole	1,301	2,513	34.1%
		Rockfish	11	140	7.0%
Yellowfin sole	4,532	10,478	30.2%		
Mothership	TRW	Cod	74	71	51.0%
		Pollock (bottom)	66	1,286	4.9%
		Pollock (pelagic)	598	160,002	0.4%
		Yellowfin sole	1	45	1.3%
Shoreside	POT	Cod	9	32	21.0%
	TRW	Cod	1,882	2,664	41.4%
		Pollock (bottom)	0	1,124	0.0%
		Pollock (pelagic)	633	361,449	0.2%
	Yellowfin sole	33	7	83.4%	
<b>Grand Total</b>			<b>17,022</b>	<b>1,110,478</b>	<b>1.5%</b>

**1998 BSAI Pacific cod catch and discards by vessel type, gear type, and target fishery through 11/98**

VESSEL TYPE	GEAR	TARGET FISHERY	PACIFIC COD CATCH		
			Disc.	Ret.	Disc. rate
Catcher Processor	HAL	Cod	2,792	87,972	3.1%
		Greenland turbot	7	127	5.3%
		Sablefish	1	4	20.4%
	POT	Cod	2	3,508	0.1%
	TRW	Arrowtooth flounder	2	67	2.7%
		Atka mackerel	14	3,865	0.4%
		Cod	103	16,469	0.6%
		Flathead sole	59	2,774	2.1%
		Greenland turbot	1	21	3.7%
		Other flatfish	2	470	0.5%
		Pollock (bottom)	41	948	4.2%
		Pollock (pelagic)	260	2,777	8.6%
		Rock sole	97	3,410	2.8%
		Rockfish	1	142	0.5%
Yellowfin sole	358	9,571	3.6%		
Mothership	POT	Cod	0	525	0.0%
	TRW	Cod	85	7,292	1.2%
		Pollock (bottom)	5	43	9.7%
		Pollock (pelagic)	15	728	2.0%
		Yellowfin sole	0	53	0.0%
	HAL	Cod	1	17	5.4%
		Sablefish	50	1	98.0%
Shoreside	JIG	Cod	0	191	0.0%
	POT	Cod	50	9,396	0.5%
	TRW	Cod	53	29,684	0.2%
		Pollock (bottom)	0	15	0.0%
		Pollock (pelagic)	47	1,727	2.7%
		Yellowfin sole	0	21	0.0%
<b>Grand Total</b>			<b>4,056</b>	<b>181,825</b>	<b>2.2%</b>



# Pollock and Pacific cod discards in the GOA, 1995-1998

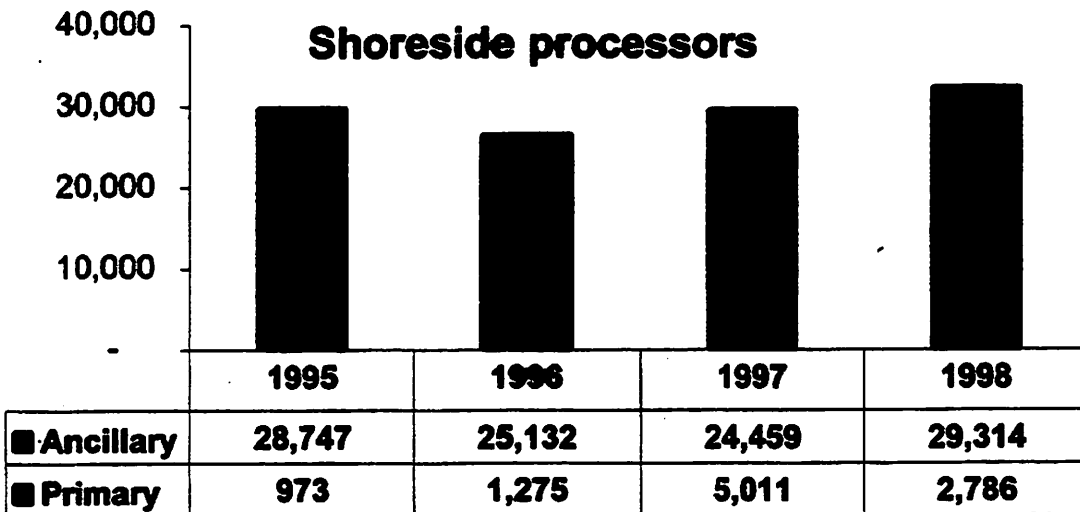
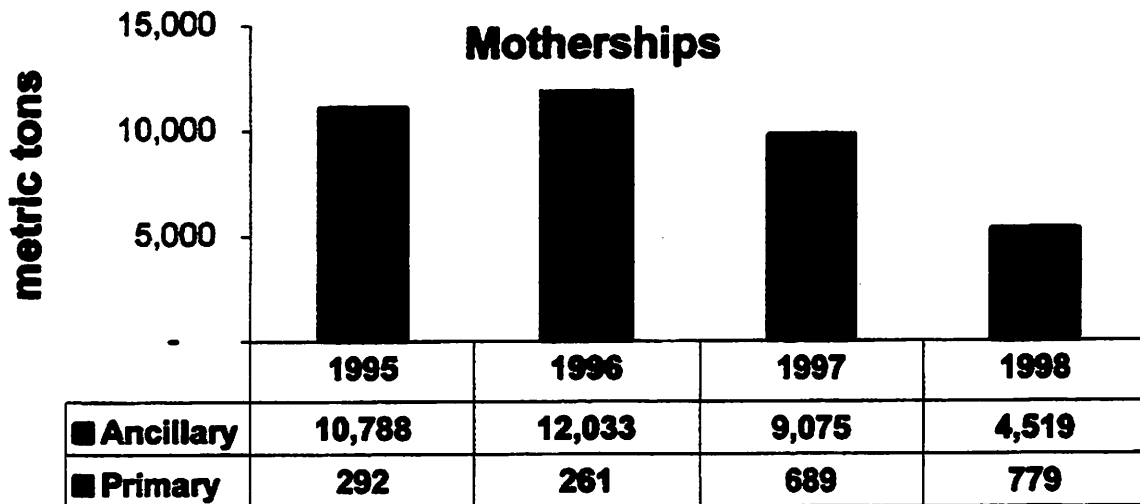
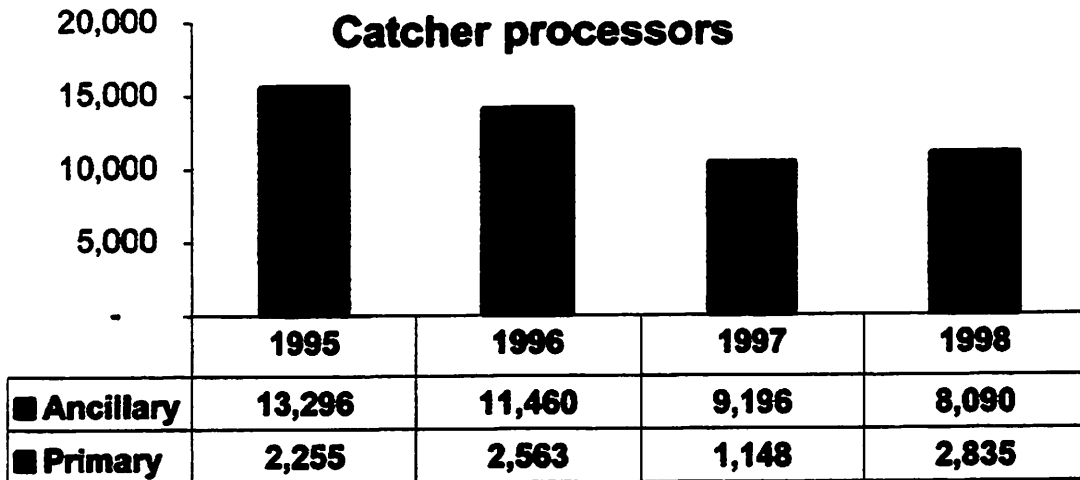


**1998 GOA pollock catch and discards by vessel type, gear type, and target fishery through 11/98**

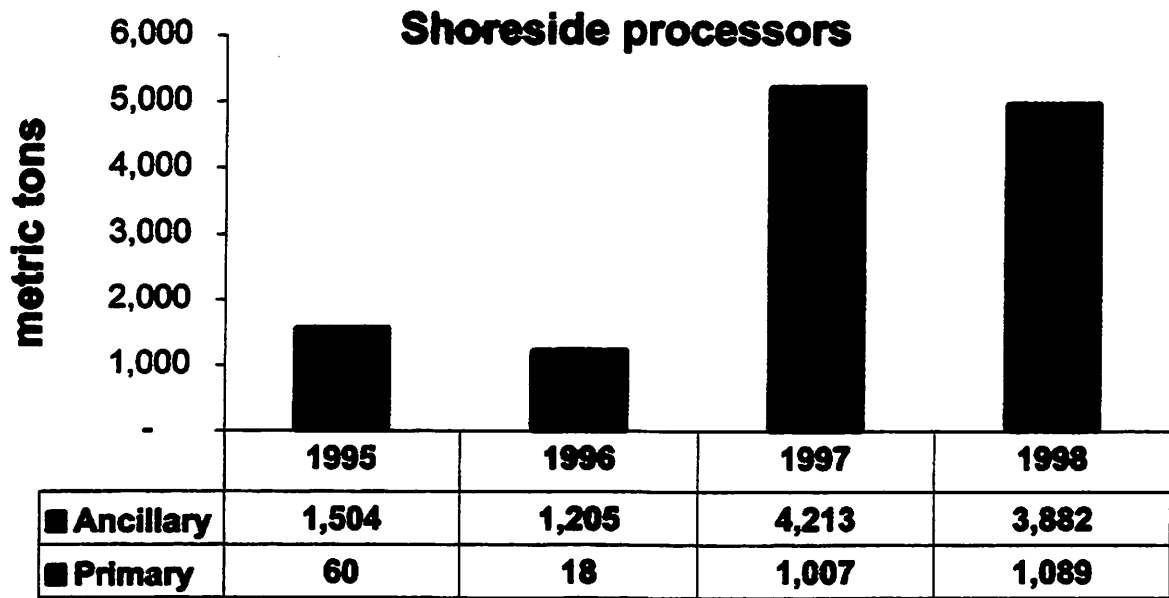
VESSEL TYPE	GEAR	TARGET FISHERY	POLLOCK CATCH		
			Disc.	Ret.	Disc. rate
Catcher processor	HAL	Cod	2	7	18.7%
		Sablefish	0	0	0.0%
	TRW	Arrowtooth flounder	33	12	73.1%
		Cod	4	45	8.5%
		Flathead sole	6	22	22.3%
		Rex sole	8	27	22.0%
		Rockfish	31	22	57.9%
Shallow water flatfish	0	6	5.7%		
Shoreside	HAL	Cod	5	60	7.9%
		Rockfish	0	0	0.0%
		Sablefish	0	0	0.0%
	POT	Cod	1	0	63.6%
	TRW	Cod	301	340	47.0%
		Deepwater flatfish	6	11	33.6%
		Flathead sole	5	27	14.5%
		Pollock (bottom)	3	2,281	0.1%
		Pollock (pelagic)	832	121,068	0.7%
Rockfish	29	19	60.6%		
Shallow water flatfish	125	61	67.2%		
<b>Grand Total</b>			<b>1,391</b>	<b>124,078</b>	<b>1.1%</b>

**1998 GOA Pacific cod catch and discards by vessel type, gear type, and target fishery through 11/98**

VESSEL TYPE	GEAR	TARGET FISHERY	PACIFIC COD CATCH		
			Disc.	Ret.	Disc. rate
Catcher processor	HAL	Cod	23	3,341	0.7%
		Sablefish	3	14	18.2%
	POT	Cod	0	32	0.0%
	TRW	Arrowtooth flounder	23	231	8.9%
		Cod	83	3,584	2.3%
		Deepwater flatfish	1	13	7.9%
		Flathead sole	58	74	44.0%
		Rex sole	67	580	10.4%
Rockfish	22	224	8.8%		
Shallow water flatfish	5	26	15.3%		
Mothership	TRW	Cod	43	344	11.1%
Shoreside	HAL	Cod	93	6,171	1.5%
		Other groundfish	0	12	0.0%
		Rockfish	0	31	0.0%
		Sablefish	215	106	66.9%
	JIG	Cod	0	25	0.0%
		Rockfish	0	4	0.0%
	POT	Cod	23	10,455	0.2%
	TRW	Cod	223	33,266	0.7%
		Deepwater flatfish	43	151	22.2%
		Flathead sole	29	44	39.2%
		Other groundfish	0	10	0.0%
		Pollock (bottom)	14	302	4.5%
		Pollock (pelagic)	29	561	4.9%
Rex sole		0	5	0.0%	
Rockfish	49	384	11.4%		
Shallow water flatfish	691	405	63.0%		
<b>Grand Total</b>			<b>1,737</b>	<b>60,400</b>	<b>2.8%</b>



**Primary and ancillary fishmeal production in the BSAI, 1995-1998**



**Primary and ancillary fishmeal production in the GOA 1995-1998**