



NOAA Technical Memorandum NMFS-AFSC-13

Comparisons Between Observed and Reported Catches of Retained and Discarded Groundfish in the Bering Sea and the Gulf of Alaska, 1990-91

by
J. D. Berger

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Alaska Fisheries Science Center

February 1993

NOAA Technical Memorandum NMFS

The National Marine Fisheries Service's Alaska Fisheries Science Center uses the NOAA Technical Memorandum series to issue informal scientific and technical publications when complete formal review and editorial processing are not appropriate or feasible. Documents within this series reflect sound professional work and may be referenced in the formal scientific and technical literature.

The NMFS-AFSC Technical Memorandum series of the Alaska Fisheries Science Center continues the NMFS-F/NWC series established in 1970 by the Northwest Fisheries Center. The new NMFS-NWFSC series will be used by the Northwest Fisheries Science Center.

This document should be cited as follows:

Berger, J. D. 1993. Comparisons between observed and reported catches of retained and discarded groundfish in the Bering Sea and the Gulf of Alaska, 1990-91. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-AFSC-13, 89 p.

Reference in this document to trade names does not imply endorsement by the National Marine Fisheries Service, NOAA.



NOAA Technical Memorandum NMFS-AFSC-13

Comparison Between Observed and Reported Catches of Retained and Discarded Groundfish in the Bering Sea and the Gulf of Alaska, 1990-91

by
Jerald D. Berger

Alaska Fisheries Science Center
7600 Sand Point Way N.E., BIN C-15700
Seattle, WA 98115-0070

U.S. DEPARTMENT OF COMMERCE
Ronald H. Brown, Secretary
National Oceanic and Atmospheric Administration
John A. Knauss, Administrator
National Marine Fisheries Service
William W. Fox, Jr., Assistant Administrator for Fisheries

February 1993

This document is available to the public through:
National Technical Information Service
U.S. Department of Commerce
5285 Port Royal Road
Springfield, VA 22161

Notice to Users of this Document

This document is being made available in .PDF format for the convenience of users; however, the accuracy and correctness of the document can only be certified as was presented in the original hard copy format.

ABSTRACT

U.S. fisheries observers and U.S. processing operations each submit a weekly record of fish catch and production. This report compares these two sets of reports from the Bering Sea/Aleutian Islands and the Gulf of Alaska Regions for 1990 and 1991.

Most observers aboard catcher/processors using trawl gear reported a discard rate similar to that reported by the vessels. For shoreside processing operations, the observed discard rate from the delivering vessels was frequently 10-20 percentage points higher than the discard rate reported by the shoreside processors. Overall, observers reported higher amounts of total catch than did their observed vessels.

THIS PAGE INTENTIONALLY LEFT BLANK

CONTENTS

	Page
Introduction	1
Methods	2
Results	4
Catcher/Processor Overall Comparison.....	4
Shoreside Plant and Mothership Overall Comparison.....	6
Comparison of Total Reported Catch to Total Observed Catch.....	8
Catcher/Processor Comparison by Target.....	8
1990	8
1991	9
Catcher/Processor Comparison by Target, Species, and Area.....	9
1990	10
1991	11
Shoreside Plant and Mothership Comparison by Target....	12
1990	12
1991	13
Shoreside Plant and Mothership Comparison by Target, Species, and Area.....	14
1990	14
1991	15
Discussion.....	16
Conclusions and Recommendations.....	20
Figures and Tables.....	22
Citations.....	89

THIS PAGE INTENTIONALLY LEFT BLANK

List of Tables

Table number	Page
1. Gear type codes and target codes.....	24
2. Catcher/processor catch comparisons by region and gear, 1990.....	27
3. Catcher/processor catch comparisons by region and gear, 1991.....	29
4. Shoreside and mothership delivery catch comparisons by region and gear, 1990.....	31
5. Shoreside and mothership delivery catch comparisons by region and gear, 1991.....	33
6. Comparison between catcher/processor reports and observer reports by gear and target in the Bering Sea and Aleutian Islands Region, 1990.....	35
7. Comparison between catcher/processor reports and observer reports by gear and target in the Gulf of Alaska Region, 1990.....	37
8. Comparison between catcher/processor reports and observer reports by gear and target in the Bering Sea and Aleutian Islands Region, 1991.....	39
9. Comparison between catcher/processor reports and observer reports by gear and target in the Gulf of Alaska Region; 1991.....	41
10. Comparison between catcher/processor reports and observer reports by NPFMC area, gear, and target in the Bering Sea and Aleutian Islands Region, 1990.....	43
11. Comparison between catcher/processor reports and observer reports by NPFMC area, gear, and target in the Gulf of Alaska Region, 1990.....	51
12. Comparison between catcher/processor reports and observer reports by NPFMC area, gear, and target in the Bering Sea and Aleutian Islands Region, 1991.....	55
13. Comparison between catcher/processor reports and observer reports by NPFMC area, gear, and target in the Gulf of Alaska Region, 1991.....	64
14. Comparison between processor reports and observer reports for shoreside/mothership delivery by gear and target in the Bering Sea and Aleutian Islands Region, 1990.....	68
15. Comparison between processor reports and observer reports for shoreside/mothership delivery by gear and target in the Gulf of Alaska Region, 1990.....	69

Table number	Page
16. Comparison between processor reports and observer reports for shoreside/mothership delivery by gear and target in the Bering Sea and Aleutian Islands Region, 1991.....	70
17. Comparison between processor reports and observer reports for shoreside/mothership delivery by gear and target in the Gulf of Alaska Region, 1991.....	72
18. Comparison between processor reports and observer reports for shoreside/mothership delivery by NPFMC area, gear, and target in the Bering Sea -and Aleutian Islands Region, 1990.....	74
19. Comparison between processor reports and observer reports for shoreside/mothership delivery by NPFMC area, gear, and target-in the Gulf of Alaska Region, 1990.....	77
20. Comparison between processor reports and observer reports for shoreside/mothership delivery by NPFMC area, gear, and target in the Bering Sea and Aleutian Islands Region, 1991.....	80
21. Comparison between processor reports and observer reports for shoreside/mothership delivery by NPFMC area, gear, and target in the Gulf of Alaska Region, 1991.....	84
22. Total reported catch and total observed catch by region and processor type, 1990.....	87
23. Total reported catch and total observed catch by region and processor type, 1991.....	88

INTRODUCTION

In 1990 and 1991, the Alaska Fisheries Science Center (AFSC) placed observers aboard U.S. fishing vessels engaged in fishing activities in the Bering Sea and waters around the Aleutian Islands (BSA) (Fig. 1) and the Gulf of Alaska (GOA) (Fig. 2). The primary target of these vessels was a group of species categorized as groundfish. A portion of the observer's sampling duties require making an estimate of the vessel's total catch, the weight of each species group that was retained for processing, and the weight of each species group that was discarded.

Observers were placed aboard the fishing vessels based upon the vessel's overall length. Vessels longer than or equal to 125 feet in overall length were required to have an observer aboard during all fishing operations (i.e., 100% coverage for the setting and retrieving of gear). Vessels shorter than 125 feet in overall length but at least 60 feet long were required to have an observer aboard for 30% of the days (in each quarter) in which the setting and retrieving of gear occurred (30% coverage). Vessels shorter than 60 feet in overall length were only required to carry an observer when it was mandated by the National Marine Fisheries Service's (NMFS) Alaska Regional Director.

Catcher/processor vessels, motherships, and shoreside processing plants were all required to send weekly reports of product and discarded whole fish (WPRs) by species group-, gear type used, and area fished to the NMFS Alaska Regional Office. Observers monitoring the sorting of catches prior to processing (and the accompanying discard of whole fish) sent weekly catch reports to the NMFS AFSC. Observer reports contain information detailing when and where fishing occurred, the gear type used, the total weight of the catch, and the retained and discarded amounts of each major species group. This report examines the WPRs and compares them to the catch information collected by observers monitoring these same operations.

Catcher/processor data were only used for those operations when an observer was aboard the vessel the entire time the vessel fished. In the BSA and GOA, most of the catcher/processor fishing activities were carried out by vessels that were required to have 100% observer coverage. Data collected by these observers should be representative of the groundfish fishing operations for catcher/processors in both areas.

The catcher boat/processing plant/mothership data used in this report came from plants and motherships where an observer sampled aboard at least one of the catcher boats delivering to the plant or mothership during the week. Many of the vessels involved in delivering catches for processing were only required to have 30% observer coverage by quarter (both in the BSA and in the GOA). The "30% coverage" class of vessels could choose when

they wanted their observers on board, so observer data from these operations may not be representative of the plant and mothership operations.

METHODS

Catcher/processor vessels, shoreside processing plants, and motherships (including floating processors) send WPRs to the NMFS Alaska Regional Office. These reports list the product weights from each species during the week and the discard weights of each species group. Standard product recovery rates for each species and product have been jointly determined by industry and NMFS scientists. Though the veracity of these rates have been occasionally 'questioned, these rates are used to expand the reported product weights to round weight of retained catch.

Catcher/processor vessels are required to report their own discards. Plants and motherships are required to report any discards made by their catcher boats as well as any additional discards that occur after delivery. If a plant or mothership doesn't accept a delivery or the haul is not landed, the catcher vessel is responsible for reporting these catches as 100% discard to the plant, which in turn is required to report this on their weekly production report. However, observer reports have documented several occasions when hauls have not been landed or accepted but no discard amount was recorded.

Observers aboard catcher/processor vessels use one of two primary methods to determine total, retained, and discarded catch. In the first method, observers estimate the total catch from the volume of fish in the vessel's storage bin or trawl cod-end. The amount of product and the species-specific product recovery rates are used to determine retained catch, with the difference between the total estimated catch and the calculated retained catch being the estimated amount of discard. This method accounts for discard which occurs both before and during processing.

The second method uses the estimate of retained catch (amount of product and product recovery rates) and the sampling of the catch by observers for species and size composition to estimate the discarded amount of catch and ultimately the total catch. Product recovery rates are applied to the amount of product to determine the retained catch. Percent species composition by weight and length/weight data from observer samples are used to calculate the discard-retained ratio of each species. Applying this percentage to the amounts of retained catch yields the amount of discard catch by species. Total catch is then the sum of the retained and discard amounts. These discarded catch calculations are based upon species composition

and fish lengths and weights. Any additional discard due to other factors (e.g., spoilage due to length of processing time or faulty equipment or processing, and loss due to fish sliding off the conveyor belt) usually can not be quantified and is not recorded. Therefore, this method only accounts for discard which occurs prior to processing.

In method one, the accuracy of the discard amount is dependant upon the accuracy of the total catch weight and the accuracy of the product recovery rates used to determine retained catch. In method two, the accuracy of all three amounts, total catch, retained catch, and discard amount, are dependent upon the accuracy of the product recovery rates. The only verifiable weight in either method is the weight of the product on board; thus, the accuracy of these methods depends upon the accuracy of the product recovery rates.

Observers aboard catcher vessels that deliver sorted catch to shoreside plants or floating processors have an even harder time in determining the amount of catch discarded. Aboard many catcher boats, observers generally have no established method of estimating total catch at sea since the net is often brought aboard in sections, or fish are pumped from the net, and the observer frequently cannot sample all of the sections. Though fish may be stored in a bin or holding tanks, the volume of fish can not be determined because of no access to the bin or the addition of unknown amounts of refrigerated sea water. When the fish arrive at the plant or floating processor for processing, the fish are off-loaded and the vessel (and the observer) generally returns immediately to the fishing grounds. The observer thus may not have the opportunity to monitor the final sorting or the additional amounts of discard. For this reason, observers are instructed to attribute everything delivered to the plant or floating processor as being retained and the observers aboard catcher boats have to use the second method described above to calculate at-sea discard amounts. The shoreside plant or floating processor provides the observer with the total delivered weight (used by the observer as retained catch), and the observer uses sampling data to determine the amount discarded. If the observer is unable to sample at sea, 100% of the catch is reported by the observer as being retained.

During early 1990, some observers only reported total catch of each species and did not differentiate between retained and discarded catch. These data have not been included in this report because catch comparisons between the fishing vessels and their observers was not possible.

In comparing observer reports to the expanded production reports, observer data and WPRs for catcher/processor vessels were pooled over time. Even though the comparisons for catcher/processor vessels were made for vessels which had an

observer aboard, daily comparisons or even weekly comparisons were not possible because processing reports are based on a production day and observer reports are based on a calendar day.

Comparisons of reports from observers with shoreside plant and mothership reported data can not be done in the same manner as for catcher/processor vessels. For the catcher/processor vessels, it was a one observer and one vessel comparison. For the plants and motherships (especially floating processors), the observed catch comes from individual vessels, but several unobserved vessels may also deliver to the same plant or mothership during the week, and these unobserved vessels may have different targets than the observed vessels. Each observed vessel has a weekly target assigned to it, based on observed catch, area, and gear. Each plant or mothership has a single weekly target assigned to it for each area and gear, based on its WPR, regardless of the number of catcher vessels. In this report, a comparison was made only when the observed fishing vessel had the same target for the week, area, and gear, as the plant or mothership (including floating processors) to which it delivered.

In comparing observed versus reported catch for catcher/processors, data were only used when the observer was aboard the vessel the entire time the vessel fished and reported the same targets and areas. Because this is a one-to-one comparison, retained catch amounts and discard amounts should each be quite similar. For processing plants (including motherships and floating processors), it was not always a one-to-one comparison. Frequently, only a portion of the catcher vessels were observed. Thus, the absolute amounts should not be similar, but the ratio of discard to retained catch should be similar.

Table 1 provides definitions of the gear type codes and target codes referred to in this report.

RESULTS

Catcher/Processor Overall Comparison

The retained, discarded, and total catches of groundfish reported in the WPRs and from observers are shown for catcher/processors by gear type for the BSA and the GOA Regions for 1990 in Table 2 and for 1991 in Table 3. As previously stated, the catches shown in these tables are only for those vessels and time periods when an observer was aboard for the entire period and was sampling for discards. Percentage of the catches retained and discarded are also provided in these tables.

Both bottom trawl and pelagic trawl gear were used in the BSA groundfish fishery in 1990 and 1991. In the bottom trawl fishery, the percentage of catch retained and discarded in the WPRs and reported by observers were similar within each year. However, the percentage of catch discarded increased from about 28% of the catch in 1990 to 40% of the catch in 1991. The increased discard was due primarily to a greatly reduced walleye pollock (Theragra chalogramma) fishery in 1991, an increased discard rate in the pollock fishery that did occur, and a substantial increase in total catch in the flatfish fishery (combined targets of rock sole, [Pleuronectes bilineatus], arrowtooth flounder [Atheresthes stomias] and Kamchatka flounder [A. evermanni] and other flatfish) along with its high discard rate. Comparison of the total amounts of catch reported in the WPRs with observer reports shows that the catch reported by observers in 1990 was about 24% greater than that reported by the vessels. In 1991, observers reported the total catch taken in the bottom trawl fishery to be about 9% greater than that reported by the vessels.

The percentages of catch reported as discarded and retained by the vessels and the observers from vessels using pelagic trawl gear were similar both within and between years. In 1990 and 1991, 92-93% of the catch was retained, while 7-8% was discarded. The pollock fishery accounts for the greatest part of the fishery conducted with pelagic trawls. In 1990, the total catch in the pelagic trawl fishery reported by observers was 44% greater than the amount reported by the observed vessels. In 1991, the difference decreased, but the catch reported by observers was still 26% greater than that reported by the observed vessels.

As in the BSA, fisheries are conducted in the GGA with both bottom trawls and pelagic trawls. In the bottom trawl fisheries, the percentage of catch retained and discarded in the WPRs and the observer's reports were similar for each year. However, the percentage of discard decreased from about 53% of the catch in 1990 to about 40% of the catch in 1991. This decrease was due to a decreased discard rate in the rockfish fishery and a sharp reduction in total catch for two fisheries that had high rates of discard (sablefish [Anonlonoma fimbrial] and miscellaneous fish). In 1990, the total bottom trawl catch reported by observers exceeded their vessel's reports by 11%. In 1991, this difference was only 4%.

Data from the GOA pelagic trawl fisheries shows a substantial reduction in the discard rate from 1990 to 1991. In both 1990 and 1991, the catches came almost exclusively from the pollock fisheries. In 1990, however, the WPRs showed a discard rate of 16.8% and the observer's reports showed a discard rate of 26.2%. In 1991, both the WPRs and the observer's reports showed a discard rate of 4.0%. In 1990, the observer's reports of total

pelagic trawl catch exceeded their vessel's reports by only 1.6%. In 1991, this difference increased to 16.1%.

The 1990 BSA pot fishery was very small, yielding only about 1,000 metric tons (t) of total catch. The WPRs showed a discard rate of only 2.5%; the observed discard rate was 6.6%. All of the catch came from vessels targeting Pacific cod (Gadus macrocephalus). In 1991, this fishery expanded to over 3,000 t. The observed discard rate shrank to 4.63, but the vessel's reported discard rate increased to 12.2%. As in 1990, all of the catch came from vessels targeting Pacific cod. The GOA pot fishery accounted for a small portion of the total GOA fishery in both 1990 and 1991.

In the 1990 BSA longline fishery, WPRs showed a discard rate (8.1%) that was 4.7 percentage points lower than that reported by the observers (12.8%). In 1991, both sets of reports showed a 2.5 percentage point increase in the discard rate when compared to 1990. This was due primarily to an increased catch of Pacific cod and its associated higher discard rate. In 1990, the total longline catch reported by observers was 9% greater than the amount reported by their vessels. In 1991, this difference was 21%.

In the 1990 GOA longline fisheries, observer's reports of retained catch were within 100 t of their vessel's reports of retained catch. However, the observer's reports of discard exceeded their vessel's discard reports by over 1,300 t. The observed discard rate for 1990 was 52.13, while the vessel's reported discard rate was 21.7%. In 1991, discard rates decreased substantially. Observer's reports of retained and discarded catch were each less than 100 t greater than their vessel's reports, yielding an observed discard rate of 5.4% versus a WPR discard rate of 3.3%. These reduced discard rates occurred for both the Pacific cod and the sablefish fisheries. In 1990, the observer's reports of total catch aboard longline vessels exceeded their vessel's reports by 55%. In 1991, this difference was only 5%.

Shoreside Plant and Mothership Overall Comparison

Tables 4 and 5 provide the retained, discarded, and total catches of groundfish reported in the WPRs and from observers for shoreside plant and mothership operations in 1990 and 1991. These data are aggregated by gear type of the delivering catcher vessels and by region. These data are for the plants and motherships and time periods for which associated observer catch reports exist. Percentage of the catches retained and discarded are also provided in these tables.

Both bottom trawl and pelagic trawl gear were used by catcher vessels in the BSA groundfish fishery in 1990 and 1991. In the 1990 bottom trawl fishery, the observed amount of discard was about 300 t less than the amount reported by the processors, but the observed amount of retained catch was 6,200 t less than the reported amount. The -observed discard rate was 26.8% but the WPRs showed a discard rate of only 17.2%. In 1991, the observed amount of discard in the bottom trawl fishery was 2,300 t less than the processor report and the observed retained was almost 20,000 t less than the processors reported. This yielded an observed discard rate of 29.6% and a processor reported discard rate of 20.9%. In 1990, the bottom trawl fishery targeted almost exclusively on Pacific cod. In 1991, the fishery with the large discrepancy in discard rates was also the Pacific cod fishery.

The percentages of catch reported as discarded and retained by the plants and the observers from vessels using pelagic trawl gear were similar both within and between years. In all cases, the discard rate was between 1.4% and 2.4%. However, in 1990, the observers' discard amount was over 100 t greater than the processors' reported amount, yet the processors' retained catch was almost 65,000 t greater than the observed retained amount. The processor discard rate was 1.4% and the observed discard rate was 2.4%.

Fisheries conducted in the GDA also used both bottom trawls and pelagic trawls. In the bottom trawl fisheries, the 1990 observer report of discard was similar to that reported by the processors (about 500 t less), but the processors' report of retained catch was 3.5 times the amount reported by the observers. The processor discard rate was 14.2% and the observed discard rate was 34.8%. Discard rates went down in 1991. The processor discard rate was 11.3% and the observed discard rate was 16.5%. This decrease was due to a decreased discard rate in the flatfish fishery in 1990, and the combined deep-water flatfish and shallow-water flatfish fisheries in 1991 and an increase in the total catch of the Pacific cod fishery and its associated lower discard rate.

Data from the GOA pelagic trawl fisheries shows a 0.8% observed discard rate and a 2.3% processor reported discard rate in 1990. In 1991, discard rates went up. The observed discard rate was 2.7% and the processor reported discard rate was 2.8%. In both years, pollock was the main target for the pelagic trawl fisheries.

No catcher vessels using pot gear were observed in the BSA in 1990 or 1991. In 1990, in the GOA, catcher vessels using pot gear reported less than 1,000 t of groundfish and had a discard rate of 0.3%. Observer reports from these vessels showed a discard rate of 8.2%. All of the catch came from vessels targeting Pacific cod. In 1991, observed catcher vessels using

pot gear reported over 2,400 t of groundfish catch. The observed discard rate shrank to 1.3% and the processors', reported discard rate was 0.1%. As in 1990, all of the observed catch came from vessels targeting Pacific cod.

In the BSA, catch by observed catcher vessels using longline gear was inconsequential in 1990 and was non-existent in 1991. In the GOA, observers reported retained catch that was only about one-sixth of that reported by their processors, but reported more than twice as much discard. The observed discard rate was 38.0% and the processor reported discard rate was only 4.6%. In 1991, the observed discard rate fell to 14.2% and the processor reported discard rate was 4.7%. In both 1990 and 1991, essentially all of the catch came from the sablefish fishery.

Comparison of Total Reported Catch to Total Observed Catch

Catcher/Processor Comparison by Target

1990--In 1990, in the BSA bottom trawl fishery, the observer-reported groundfish catches exceeded their vessels' reports by over 52,000 t (42,000 t retained and 10,000 t discarded). Table 6 shows that most of this difference came from vessels targeting pollock (targets B and P combined) (28,000 t retained and 5,000 t discarded), flatfish (target F) (5,000 t retained and 1,500 t discarded), and miscellaneous fish (target 0, which contains Pacific cod and any other species not included in the target categories defined in Table 1) (8,000 t retained and 2,000 t discard). Vessel reports from the rest of the target fisheries closely matched their observer reports (except for the Greenland turbot (Reinhardtius hippoglossoides) fishery, where the observers' discard amount exceeded the vessels' reported amount by 900 t). The pollock target fishery was the only one with a discard rate less than 20%.

In the pelagic trawl fishery, observed groundfish catches exceeded the observed vessels' reports by 290,000 t. Reports coming from vessels with almost pure ($\geq 95\%$) pollock catches (target P) accounted for almost all (288,000 t) of the difference. Vessels targeting flatfish and miscellaneous fish (generally containing large amounts of Pacific cod) had much higher discard rates than those targeting pollock. For longliners, observers reported a 2,400 t difference in discard amounts. Most of this (2,200 t) came from catches that were predominantly Pacific cod.

In 1990, in the GCA bottom trawl fishery, the observer-reported groundfish catches exceeded their vessels' reports by 4,700 t (2,400 t retained and 2,300 t discarded). The differences were evenly spread out over all the various target fisheries (Table 7). All of the target fisheries had discard

rates exceeding 20%. Observed and WPR discard rates compared closely in all fisheries except in the small pollock fishery.

In the small pelagic trawl fishery, almost all of the catch was attributed to the pollock fishery. Observed discard rates exceeded WPR discard rates by almost 10 percentage points. In the longline fishery, sablefish was the primary target (target S). Observed discard amounts exceeded the discard in the WPRs by 1,300 t.

1991--In 1991, in the BSA bottom trawl fishery (Table 8), the 19,000 t difference (13,000 t retained and 6,000 t discarded) between observed and reported total catches were spread out primarily among the pollock (4,000 t retained and 1,000 t discarded), Pacific cod (target C) (2,500 t retained and 700 t discarded), flatfish (6,400 t retained and 300 t discarded), and rock sole (target R) (2,000 t retained and 2,500 t discarded) fisheries (Table 8). Observed discard rates less than 20% occurred only for the Atka mackerel (target A) and pure (3 95%) pollock fisheries.

In the pelagic trawl fishery, the observed catch exceeded the reported catch by 150,000 t (116,000 t retained and 34,000 t discarded). The pollock fishery accounted for essentially all of the difference. Only the Pacific cod fishery had a discard rate higher than 20%.

In the longline fishery, the Pacific cod fishery accounted for practically all of the catch. In this fishery, the observed catch exceeded the vessels' reported catch by almost 12,000 t (7,400 t retained and 4,300 t discarded).

In 1991, in the GGA bottom trawl fishery, the difference between the vessel-reported and the observer-reported catches was only 1,300 t (Table 9). This difference was spread out over all the various target fisheries. The only observed discard rate less than 20% was in the Pacific cod fishery. Observed and WPR discard rates compared closely in all target fisheries.

In the pelagic trawl fishery, the only target was pollock, and the observed groundfish catch was 2,100 t (16.1%) larger than the reported groundfish catch. The observed and reported discard rate was 4.0%. In the longline fishery, the observed and reported catches were about the same.

Catcher/Processor Comparison by Target Species. and Area

Tables 10 through 13 compare the vessels reported catches of pollock, Pacific cod, and the flatfish complex (except arrowtooth flounder, Kamchatka flounder, Greenland turbot and Pacific halibut [Hippoglossus stenolepis]), both retained and

discarded, with the observers' reports. For longline vessels, the retained and discarded catches of sablefish were compared in place of the flatfish complex.

1990--In the 1990 BSA bottom trawl fishery (Table 10), observers reported that 23.7% (32,330.7 t) of the pollock catch was discarded, 13.0% (5,345.0 t) of the Pacific cod catch was discarded, and 43.3% (13,142.7 t) of the flatfish catch was discarded. WPR discard rates for these species were 27.9% (27,783.5 t), 9.2% (2,883.4 t), and 50.9% (14,501.1 t), respectively. The largest amounts of pollock discards occurred in North Pacific Fisheries Management Council area 511 (all targets) (11,686.4 t observed), in the rockfish fishery in area 540 (3,218.5 t observed), in the pollock fishery in area 521 (2,797.7 t observed), and in the miscellaneous fishery in area 517 (2,664.1 t observed). The largest amounts of Pacific cod discards occurred in the miscellaneous fisheries in area 517 (972.2 t observed) and 521 (509.3 t observed) and in the pollock fishery in area 521 (553.4 t observed). The largest amounts of flatfish discards occurred in the flatfish fisheries in area 511 (2,215.0 t observed) and 514 (3,114.6 t observed).

In the pelagic trawl fisheries, observer reports showed pollock, Pacific cod, and flatfish discard rates of 6.7% (63,102.8 t), 63.3% (4,791.2 t), and 77.6% (2,181.8 t), respectively. Vessels using pelagic gear reported similar discard rates. For all three species, the largest amount of catch and the largest amount of discard came in the pollock fishery (target P) in area 521 (observed 486,850.6 t retained and 35,874.9 t discarded).

Pot vessels fished primarily in areas 511, 517, and 521. They kept all of their Pacific cod and discarded essentially all of the other species caught. Longline vessels fished primarily in areas 517, 521, and 522. They discarded practically all of the pollock caught, and almost no Pacific cod or sablefish.

In the 1990 GOA bottom trawl fishery (Table 11), observers reported that 56.8% (2,889.5 t) of the pollock catch was discarded, 28.5% (1,125.8 t) of the Pacific cod were discarded, and 51.3% (4,335.0 t) of the flatfish were discarded. Vessel reports of discard were not as high, 54.3% (2,213.4 t), 22.8% (611.0 t), and 40.5% (2,056.3 t), respectively. Retained catches of pollock occurred primarily in the pollock fisheries in areas 610 (577.2 t observed) and 630 (843.8 t observed). Most of the pollock caught in the non-pollock fisheries were discarded. In the pollock fishery in area 630, the observers reported a pollock discard rate of 49.3% (821.9 t); the WPRs showed a pollock discard rate of 0.5% (4.0 t). Pacific cod were caught primarily by the miscellaneous fishery in areas 610 (1,847.3 t observed) and 620 (586.9 t observed). About 28% (517.0 t observed, 368.7 t on the WPR) of the Pacific cod caught in the miscellaneous

fishery in area 610 were discarded; almost none of the Pacific cod were discarded in the miscellaneous fishery in area 620. Most of the flatfish catch came from the flatfish fisheries in areas 610 (1,136.3 t observed) and 620 (4,030.5 t observed). In the flatfish fishery in area 610, retention of flatfish was almost 100%. In the flatfish fishery in area 620, the observed discard rate was 50.3% (2,025.8 t) and the WPR discard rate was 19.8% (376.1 t). Most of the flatfish caught in the non-flatfish fisheries were discarded.

For pelagic trawlers, the observed pollock discard rate was 25.2% (1,844.7 t), the vessel-reported pollock discard rate was 2.9% (180.7 t), and there were negligible amounts of Pacific cod and flatfish caught. For longliners, essentially all of the Pacific cod and sablefish were retained, and negligible amounts of pollock were caught.

1991--In the 1991 BSA bottom trawl fishery (Table 12), observers reported a discard rate of 66.8% (28,127.0 t) for pollock, 14.0% (4,414.0 t) for Pacific cod, and 38.5% (48,155.4 t) for flatfish. The vessel reports of discard were 73.1% (25,976.0 t), 10.5% (2,587.0 t), and 40.3% (48,050.7 t), respectively. Catches of pollock occurred primarily in areas 511 (34.2% of the observed catch) and 521 (23.5% of the observed catch). Most of the pollock caught in area 511 was discarded; most of the area 521 pollock catch was retained. Large amounts of pollock discard also occurred in the rock sole fisheries in areas 513 (1,147.5 t observed) and 516 (1,318.1 t observed), and in the flatfish fisheries in areas 513 (1,854.2 t observed) and 514 (3,591.4 t observed). Retention of Pacific cod occurred primarily in the pollock fisheries (target B only) in areas 511 (2,347.0 t observed) and 521 (1,510.6 t observed), in the flatfish fishery in area 514 (1,885.3 t observed), and in the Pacific cod fisheries in areas 517 (2,427.4 t observed) and 521 (9,162.6 t observed). Large amounts of Pacific cod discard occurred in the rock sole fishery in 511 (6,108.8 t observed) and in the flatfish fishery in area 514 (3,591.4 t observed). Most of the retained and discarded amounts of flatfish occurred in the flatfish and rock sole fisheries in 511 (observed 6,876.7 t retained and 6,514.6 t discarded), 513 (observed 11,743.6 t retained and 7,841.6 t discarded), 514 (observed 49,437.4 t retained and 22,995.1 t discarded), and 516 (observed 3,536.9 t retained and 5,761.0 t discarded).

In the pelagic trawl fisheries, observed discard rates of pollock, Pacific cod, and flatfish were 8.1% (56,573.0 t), 31.6% (4,383.6 t), and 90.4% (3,127.8 t), respectively. WPR discard rates for these same species were 4.5% (25,194.8 t), 31.4% (2,558.5 t), and 97.4% (3,033.8 t). Vessels targeting pollock were responsible for most of the pollock and Pacific cod discard (observed 56,040.4 t and 3,823.6 t, respectively). Vessels targeting Pacific cod retained most of the Pacific cod which they

caught. All vessels discarded almost all of the flatfish that were caught.

Pot vessels caught almost exclusively Pacific cod, and discarded almost everything else that they caught. The observed Pacific cod discard rate was 1.1% (36.7 t). The WPR discard rate was 9.4% (299.9 t). For longliners, most of the pollock were discarded, and most of the Pacific cod and sablefish were retained. Observed discard rates for Pacific cod and sablefish were 2.7% (1,529.4 t) and 2.3% (10.6 t), respectively. WPR rates for these species were 0.1% (33.0 t) and 0.5% (2.9 t).

In the 1991 GOA bottom trawl fishery (Table 13), observers reported a pollock discard rate of 80.7% (2,528.3 t), a Pacific cod discard rate of 7.7% (373.5 t), and a flatfish discard rate of 21.9% (1,020.1 t). The vessel-reported discard rates were similar (except that the Pacific cod discard rate was 4.0% (196.6 t)).

In the pelagic trawl pollock fishery, observers reported a pollock discard rate of 2.1% (315.6 t). Vessels reported a pollock discard rate of 2.5% (323.3 t). Minimum amounts of Pacific cod and flatfish were caught. Except for 0.2 t of discarded flatfish, pot vessels caught and retained only Pacific cod. For longliners, the pollock catch was minimal and essentially all of the Pacific cod and sablefish were retained.

Shoreside Plant and Mothership Comparison by Target

1990--BSA bottom trawl results for 1990 (Table 14) show that the total observed tonnage accounted for 57% of the total amount reported by the observed plants and motherships. However, the observers' reports of the discard tonnage accounted for 89.1% of the reported discard amount. In the small pollock fishery, observed and reported retained catch amounts were about the same, but the observed amount of discard was twice that reported in the WPRs. Most of the groundfish catch came from vessels in the miscellaneous fishery (primarily Pacific cod). The observed discard rate was 27.1%; the WPR rate was 17.3%.

For pelagic trawlers, the total observed tonnage accounted for only 61% of the catch reported by the observed plants and motherships, but the observed discard amount exceeded the WPR discard amount by 6.1%. Thus, the reported discard rate was only 1.43, while the observed discard rate was 2.4%. In the pure (2 95%) pollock fishery, the reported catch exceeded the observed catch by 63,500 t (63.6%), yet the discard amount was the same.

For longline vessels, the observed total catch exceeded the reported total catch by 10.5%. The observed discard rate was 62.3% (321.1 t); the plant/mothership reported discard rate was

only 0.3% (1.4 t). The observed discard was primarily Greenland turbot. No catch of Greenland turbot (retained or discarded) showed up on the WPRs at all. Sablefish was the primary target of the longline fleet.

In the GOA, the 1990 observer reports accounted for only 34.8% of the total catch reported for bottom trawl vessels, but the observer reports of discard accounted for 85.6% of the total discard amount reported by their plants and motherships (Table 15). In the miscellaneous fishery (primarily Pacific cod), observed retained fish reports were 73.3% less than the WPRs, but the discard amount was 23.4% higher. Overall, the observed discard rate was 34.8%; the plant/mothership reported discard rate was 14.2%.

Observers aboard vessels using pelagic gear reported a total catch that was 61.6% lower than the amount reported by the plants/motherships. Observers' reports of retained catch were 61.0% less than that reported by the plants/motherships and the observed amount of discard was 87.1% lower than that reported by the plants/motherships. The observed discard rate was 0.8%, and the reported discard rate was 2.3%.

Observers aboard longliners reported 74.7% less total catch than the comparable plants/motherships reported. Observers reported the retained catch to be 83.5% less than that reported by the plants/motherships, but the observed amount of discard exceeded that reported in the WPRs by 111.2%. The observed discard rate was 38.0%, and the reported discard rate was 4.6%. Sablefish was the primary target of the longline fleet. Observers reported that most of the discards were non-allocated species (prohibited species and other species not receiving a quota), a species group category not included in the WPRs.

1991--In the 1991 bottom trawl fishery in the BSA, the WPR discard rates exceeded the observed discard rates in the pollock, rock sole, and flatfish fisheries (Table 16). However, in the large Pacific cod fishery, the observed discard rate was 27.4% and the WPR rate was 15.2%.

In the pelagic trawl fishery, observers also reported higher discard rates in the Pacific cod fishery than were shown in the WPR. In the much larger pollock fishery, however, the WPR discard rate was 1.6% versus the observed discard rate of 1.2%.

In the pot and longline fisheries, there was minimal catch and negligible amounts of discard.

For the GOA, observers aboard bottom trawlers in 1991 (Table 17) reported a total catch that was 62.5% lower than the plants and motherships reported. The observed retained catch was 64.7% lower than that reported in the WPRs, and the discard amount was

45.3% lower than the reported discard amount. For each fishery except a small pure pollock fishery, the observed discard rate was higher than the WPR discard rate.

For vessels using pelagic gear, the reported and observed discard rates were similar in the pollock fishery. However, in the very small Pacific cod fishery, the WPRs showed no discard while observers reported a discard rate of nearly 50%.

Observed pot vessels retained most all of their catch. WPRs from pot vessel deliveries showed the same results.

Observers aboard longline vessels reported 78.1% less total catch than did the comparable plants/motherships. The observed retained catch was 80.3% less than the plants/motherships, but the discard amount was only 33.5% less than the reported discard amount. The observed discard rate was 14.2%, the reported discard rate was 4.7%. Sablefish was the predominant target for the longline vessels.

Shoreside Plant and Mothership Comparison by Target Species and Area

Tables 18-21 compare the plants, and motherships' reported catches of pollock, Pacific cod, and the flatfish complex (except arrowtooth flounder, Greenland turbot, and Pacific halibut), both retained and discarded, with the observer's reports. For longline vessels, the retained and discarded catches of sablefish were compared in place of the flatfish complex.

1990--In the 1990 BSA bottom trawl fishery (Table 18), observers reported that 69.6% (1,035.7 t) of the pollock catch was discarded, 1.5% (89.2 t) of the Pacific cod catch was discarded, and 92.3% (583.3 t) of the flatfish catch was discarded. The WPR discard rates were 78.9% (1,412.2 t), 2.5% (311.2 t), and 99.0% (612.0 t), respectively. Vessels targeting Pacific cod discarded minimal amounts of Pacific cod, but most of everything else. Vessels targeting pollock discarded essentially no pollock, but discarded most of the other species.

For pelagic trawlers, the observer reports showed discard rates of pollock, Pacific cod, and flatfish as 1.5% (1,477.6 t), 10.6% (41.9 t), and 43.3% (100.7 t), respectively.- The WPR discard rates were 1.0% (1,600.0 t), 6.8% (68.3 t), and 14.2% (50.3 t), respectively. These vessels targeted primarily on pollock, and caught little else. Most of the Pacific cod were caught by vessels targeting Pacific cod (538.6 t reported, 246.1 t observed). These vessels retained only Pacific cod.

The few longline vessels that operated targeted primarily on sablefish. Essentially no discard occurred.

In the 1990 GOA bottom trawl fishery (Table 19), observers reported that 64.9% (466.6 t) of the pollock catch was discarded, 0.7% (38.6 t) of the Pacific cod were discarded, and 53.1% (620.6 t) of the flatfish were discarded. Plant and mothership reports of discard were generally lower, 43.0% (630.1 t), 0.8% (172.6 t), and 40.9% (706.8 t), respectively. Most of the catch and discard occurred aboard vessels targeting miscellaneous fish (primarily Pacific cod) in areas 610 and 630.

For pelagic trawlers, the observed pollock discard rate was 0.4% and the WPR pollock discard rate was 1.6%. Observers reported negligible amounts of Pacific cod and flatfish caught. Plants/motherships reported 110 t of Pacific cod and 112 t of flatfish, essentially all of it retained (retention rate of 98.9% for Pacific cod and 97.0% for flatfish).

Pot vessels caught almost exclusively Pacific cod and kept it all. For longliners, essentially all of the catch was retained sablefish. Very little discard occurred.

1991--In the 1991 BSA bottom trawl fishery (Table 20), observers reported a discard rate of 79.0% (3,373.5 t) for pollock, 3.9% (438.4 t) for Pacific cod, and 32.6% (3,228.5 t) for flatfish. The plant/mothership reports of discard were 76.2% (3,983.3 t), 1.9% (570.4 t), and 35.3% (4,547.5 t), respectively. Most of the pollock and Pacific cod discards occurred in the Pacific cod fishery in area 517 (reported discard of 2,719.8 t of pollock and 472.9 t of Pacific cod). Most of the flatfish discards occurred in the flatfish fisheries in area 514 (2,545.2 t reported). In the roundfish fisheries, the observed discard rates were much higher than those in the WPRs. In the flatfish fisheries, WPR discard rates exceeded the observed discard rates.

For pelagic trawlers, observers reported discard rates of 1.7% (4,459.0 t), 8.2% (582.3), and 75.1% (643.7 t), for pollock, Pacific cod, and flatfish, respectively. The plant/mothership-reported discard rates were 1.7% (8,222.0 t), 5.4% (490.3 t), and 56.1% (585.5 t). Most of the differences occurred in the Pacific cod fishery in area 517.

Pot and longline vessels caught primarily Pacific cod, and discard amounts of the three species reviewed was insignificant.

In the GOA bottom trawl fishery (Table 21), observers reported a pollock discard rate of 50.6% (597.4 t), a Pacific cod discard rate of 1.5% (147.6 t), and a flatfish discard rate of 31.9% (477.8 t). The WPR rates were 51.2% (1,540.6 t), 0.6% (179.7 t), and 22.9% (959.9 t), respectively. Most of the Pacific cod catch (23,495.3 t for the WPRs) and most of the discards for all three species (2,144.9 t combined for the WPRs) occurred in the Pacific cod fishery in areas 610 and 630. In

both of these areas, the observed discard rates were higher than for the WPRs.

For pelagic trawlers, observers reported discard rates for pollock, Pacific cod, and flatfish, of 2.3% (530.9 t), 9.1% (9.5 t), and 49.0% (7.4 t), respectively. The plants/motherships reported discard rates of 2.6% (1,398.9 t), 0.2% (2.3 t), and 30.2% (11.4 t). A Pacific cod fishery in area 610 accounted for most of the Pacific cod catch (1,071.8 t for the WPRs). WPRs in this fishery reported no discards, but the minimal observer coverage that occurred reported discards for all three species groups. Minimum amounts of flatfish were caught by trawlers using pelagic gear.

Pot vessels caught and retained primarily Pacific cod. On longline vessels, essentially all of the sablefish were retained and catches of pollock and Pacific cod were minimal.

DISCUSSION

In making comparisons of observed versus reported catch for catcher/processors, data were only used for cases in which the observer was aboard the vessel the entire time the vessel fished. It was expected that the retained catch amounts and the discard amounts would each be quite similar. For processing plants (including motherships and floating processors), it was not always a one-to-one comparison. Frequently, only a portion of the catcher vessels were observed. Thus, it was not expected that the absolute amounts would be similar, but that the ratio of discard to retained catch would be similar. The expected results did not occur for either catcher/processors or processing plants. The reasons for this are not altogether clear.

Observer sampling for discards is often difficult. Crew members frequently intercept unwanted species prior to arrival in the factory, and these fish may be discarded without the observer's knowledge. Once in the factory, discard may occur at several places at once, throughout production, and it is sometimes difficult for observers to monitor all of the discarding that takes place.

Aboard catcher/processors and motherships that receive unsorted catch, discard amounts for totally non-utilized species in the catch are more easily determined than discard amounts for the species which are utilized. For totally non-utilized species, the total catch of the species equals the total amount discarded. If the observer can determine the species' total catch, then the discard amount is known. For utilized species, determination of discarded amounts is complicated by such factors

as variation from haul to haul of the size of fish used, limitations on the processing capacity of the vessel, and differences in how and what each crew member sorts during the processing of the catch.

Fishery observers use two main methods to determine retained, discarded, and total catch. In the first method, total catch and retained catch are calculated independently, and discard weight is attained through subtraction. The accuracy of the discard is dependent on the accuracy of the total catch weight and the retained catch weight estimates. In the second method, retained catch is calculated using product recovery rates and discard is calculated using species composition samples, length-weight samples, and knowledge of fish size requirements for processing, to determine a discard to retained ratio.

Product recovery rates are an integral factor in both methods, and the discard to retained ratio in method two is imprecise in that it only accounts for pre-processing discard. Thus, method one is the preferred method for calculating discard. However, study of the observer's sampling reports shows that observers are frequently unable to use volumetric calculations to get good estimates of total catch. Thus, aboard catcher/processors and motherships, method two is used more than half of the time. Method two does allow a fairly good discard to retained ratio to be determined for these vessels, but doesn't address the fish loss that occurs during processing.

For catcher vessels that deliver sorted catch to plants or floating processors, discard rates are more questionable. Observers aboard these vessels have to use method two to calculate discard, and frequently have an incomplete view of retained catch. For vessels targeting on species other than pure (³ 95%) pollock, most of the catch is sorted at sea, and a fairly good accounting can be made of the pre-delivery discards. For pure (³ 95%) pollock tows, however, all pollock are typically retained by the vessel (and counted as retained by the observer), regardless of size. Once on shore, the pollock are then sized and small pollock are sent to a fish meal plant. These pollock are labelled as retained by the reporting plant (except in Kodiak, where they are reported as discard) and are either turned into meal or are discarded by the meal plant. Typically, WPRs do not reflect discard by the meal plants.

The discard amounts reported by observers aboard catcher/processors appear to come closest to being an accurate indication of discard. Most observers aboard catcher/processors using trawl gear reported a discard rate similar to that reported by the vessels, and the observed discard amount is usually calculated as a percentage of retained catch. Conversely, observer's estimates for the catcher vessels underestimate the total amount of discard. Observers report all fish delivered to

the plant or mothership as being retained, even though a portion of these fish will later be discarded.

The above paragraph brings up an interesting point. Plant WPRs and mothership WPRs are required to include all of their own discard as well as all of the at-sea discard of their catcher vessels. Observers report all delivered fish as retained and only report at-sea discards. Additionally, observers are not on all of the vessels delivering to the plants and motherships. Thus, the discards reported on these WPRs should always exceed the observed amounts, and should usually exceed the observed discard percentages. This is not happening. Instead, an unlikely occurrence is being presented as the norm. The reported retained amounts greatly exceed the observed retained amounts (due to large numbers of unobserved vessels), but the reported discard amounts (from all vessels) and the observed discard amounts are quite similar. In many cases, the observed at-sea discard is greater than the reported total discard, at times exceeding it by 10-20 percentage points.

The WPRs appear to underestimate the amount of plant/mothership discards, but the magnitude of this underestimation is unclear. For these reasons, it is not appropriate to compare discard rates from the catcher/processor fleet with discard rates from the catcher vessels.

A major concern throughout the data reviewed, is the discrepancy between observed retained catch and the processor reports of retained catch. The data presented in Table 2 show that the observed retained catch in the 1990 BSA catcher/processor fleet exceeded the retained catch reported by the same vessels by 37.5%. Observed retained catch in the 1991 BSA catcher/processor fleet (Table 3) exceeded the reported retained catch by 19.0%. For the GOA catcher/processor fleet, the observed retained catch exceeded the reported retained catch by 6.2% in 1990, and the 1991 observed retained catch exceeded the reported retained catch by 10.1%. In most cases, product recovery rates are being used to determine the vessel's, the plant's, and the observer's report of total retained catch. WPRs give the product weights, and product recovery rates are used to convert product weight to round weight. The product recovery rates have been generated from observer reports from past years (Berger and Hare 1988), from NMFS and Alaska Department of Fish and Game scientists (Low et al. 1989), and from information and comments from industry. However, the rates being used are annual average rates, and the appropriateness of several of them are still being questioned by industry (the surimi rate is one of those in question, and the largest discrepancy between observer and catcher/processor reports appears in the mid-water pollock fishery where the primary product is surimi). Observers are instructed to use the ship's tested product recovery rates whenever possible to determine the retained groundfish catch.

Thus, if the vessels' actual product recovery rates are lower than those being used by the NMFS to convert reported product to round weight, then the observed round weight will be higher than that calculated from the vessels' reports.

Five possible scenarios could cause the differences between observed and reported retained catch. One, the vessels are under-reporting the amounts of product actually being produced. Two, observers are being given an inflated accounting of product by the vessels (probably not the cause because observers frequently count cases of products aboard the vessels or use other means to get their own measure of product). Three, inaccuracies in observer sampling are leading to erroneous results. Four, observers are using actual vessel product recovery rates which are lower than the NMFS standard rate to convert product weight to round weight. Five, the data bases themselves are still not free from error. Checking of the data bases continues, and some errors are still being found. With the WPRs, it is generally missing data (which would lead to lower reported total catch amounts. With the observer data, errors tend to be weights that are too high (leading to higher total catch amounts). Overall, these errors should have a minimum effect, but some differences will result. Additionally, in 1990, the observer discard data included non-allocated species. However, this had negligible results in all comparisons except in the Gulf of Alaska longline fishery.

For plants, motherships, and floating processors, the problem is more complex. WPRs come from the plants, motherships, and floating processors rather than from the catcher vessels, and observers are not on all catcher vessels making deliveries. Thus, there is no direct one-to-one vessel and observer report as there is for most of the catcher/processors, so direct comparisons of reported and observed retained catches can not be easily made. However, the amount of product being produced is expanded up to round weight using the same method as for the catcher/processors, so the same retained weight problem exists. Additionally, for plants, motherships, and floating processors, there is a large difference in the amount of discard being reported by observed catcher vessels as compared to the amount reported from unobserved catcher vessels. Tables 22 and 23 show the total reported and total observed groundfish catch and the associated amounts of discards. Except for 1990 in the Bering Sea, the unobserved amounts of reported discard compared to the unobserved amounts of reported retained catch is far less than what would be expected based on the observed amounts of retention and discard. This indicates that either negligible amounts of discard are being reported by unobserved catcher vessels, or else both observed and unobserved catcher vessels are reporting substantially lower amounts of discards than are being observed. Without the one-to-one comparison, it is not possible to tell which is the case.

Based on the total catch comparison for observed catcher/processors and the apparent under-reporting of discards for plants/motherships, it appears that a serious under-estimation of groundfish take (and it's associated catch of prohibited species) is occurring.

One final concern relates to the large amount of observer data that has no corresponding reported data from catcher/processors, plants, floating processors, and motherships. Tables 2 and 3 show the amounts of catcher/processor groundfish catch that have a direct one-to-one relationship between observed and reported data by processor-area-gear type-target. Tables 4 and 5 show the amounts of plant/mothership groundfish catch that have a direct one-to-one relationship between observed and reported data by processor-time period-area-gear type-target. Tables 22 and 23 show the total reported and observed groundfish catch. For the 2 years and two regions combined, 82.9% of the observed catch and 75.5% of the reported catch matched for catcher/processors, but only 50.8% of the observed catch and 66.0% of the reported catch matched for the plants and motherships. Discussions with the NMFS staff in charge of debriefing observers yielded the following explanation. Personnel responsible for filling out the production logs at the plants appear to pay little attention to area and gear type. If the vessel reports catch from two areas and/or two gear types, the likelihood exists that only one area and one gear type will show up in the production logs. Additionally, the potential exists for the catch to be attributed to areas other than the area in which the fish are actually caught. If an area is in danger of being closed, the fish have sometimes been attributed to a different area.

CONCLUSIONS AND RECOMMENDATIONS

The system that is currently used by observers and the fishing fleet to determine amounts of catch (total, retained, and discarded) has too much room for error (intentional or unintentional). The use of calculated average product recovery rates and/or rates determined by public comment to convert product weight to round weight often yields questionable results. Large differences are seen in the reporting of discards between observers and the shoreside/at-sea reports. Additionally, observers and plant personnel use different methods to determine the week, area, and gear type of the catch.

The result of this system is that it is possible that the catch of groundfish in 1990 and 1991 has been under-estimated. This affects not only the stability of the commercial groundfish

stocks, but also introduces the possibility that the estimates of prohibited species catch are also too low.

The only way to resolve this problem is to weigh or directly measure the total catch. For catcher/processors, this means weighing or measuring the total catch at sea. For catcher vessels, delivered catch is already being weighed (and plants now have the option of including total retained weight in their WPRs), but discard at sea must also be weighed or measured, including the dumping of all or parts of the codends. The total catch of each species should be our primary concern in terms of conservation of the resource. Of secondary importance should be the utilization question of how much and which species are being retained and discarded. The current system reverses this order of importance, and, as a result, makes it difficult to get an accurate measure of total catch.

If the proposal for Individual Transferable Quotas (ITQs) or some other type of individual vessel accountability is implemented, the need for accurate estimates of total catch will increase. Without better estimates, such management options probably aren't viable.

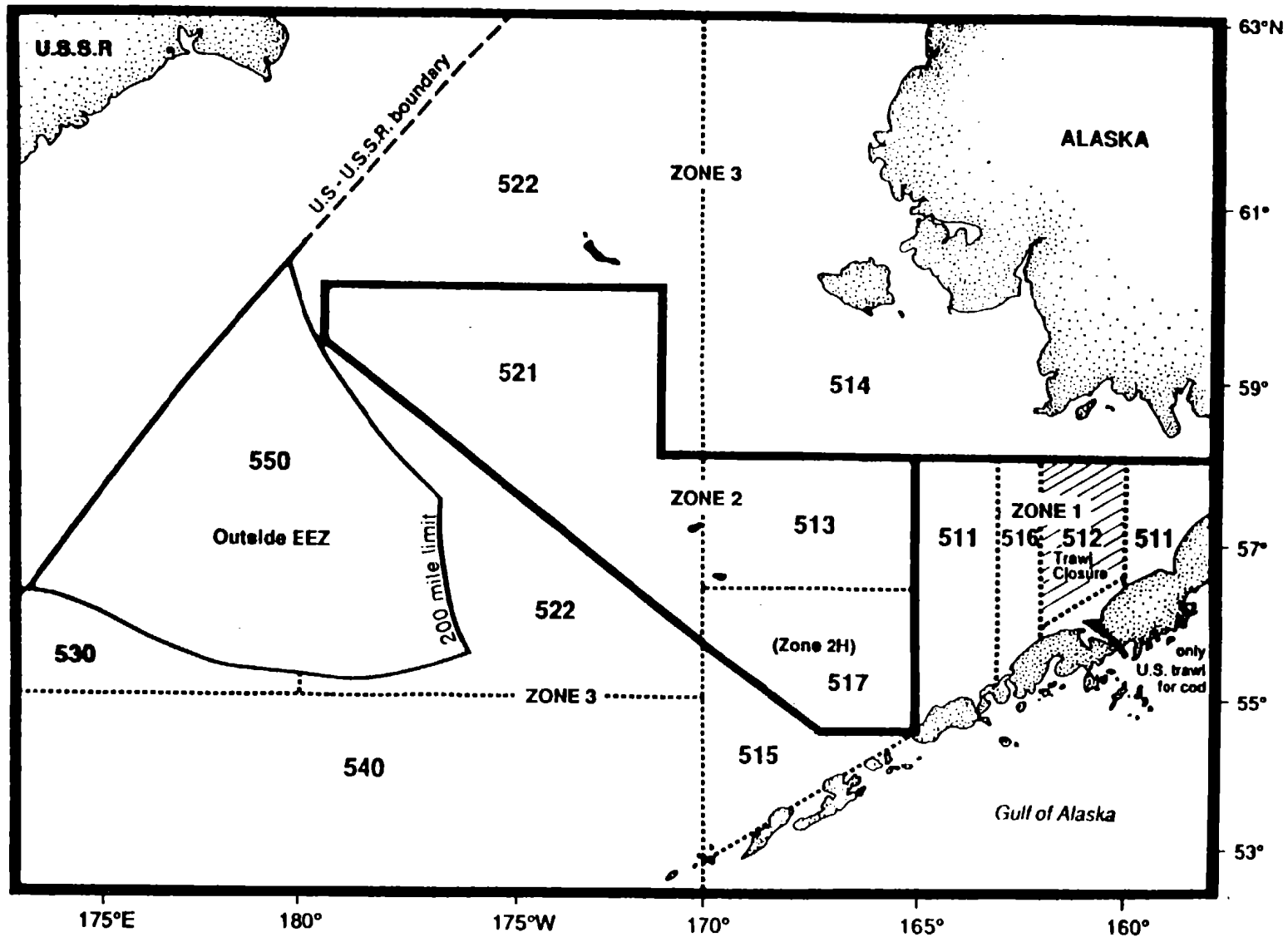


Figure 1.--North Pacific Fisheries Management Council areas in the Bering Sea and Aleutian Islands Region.

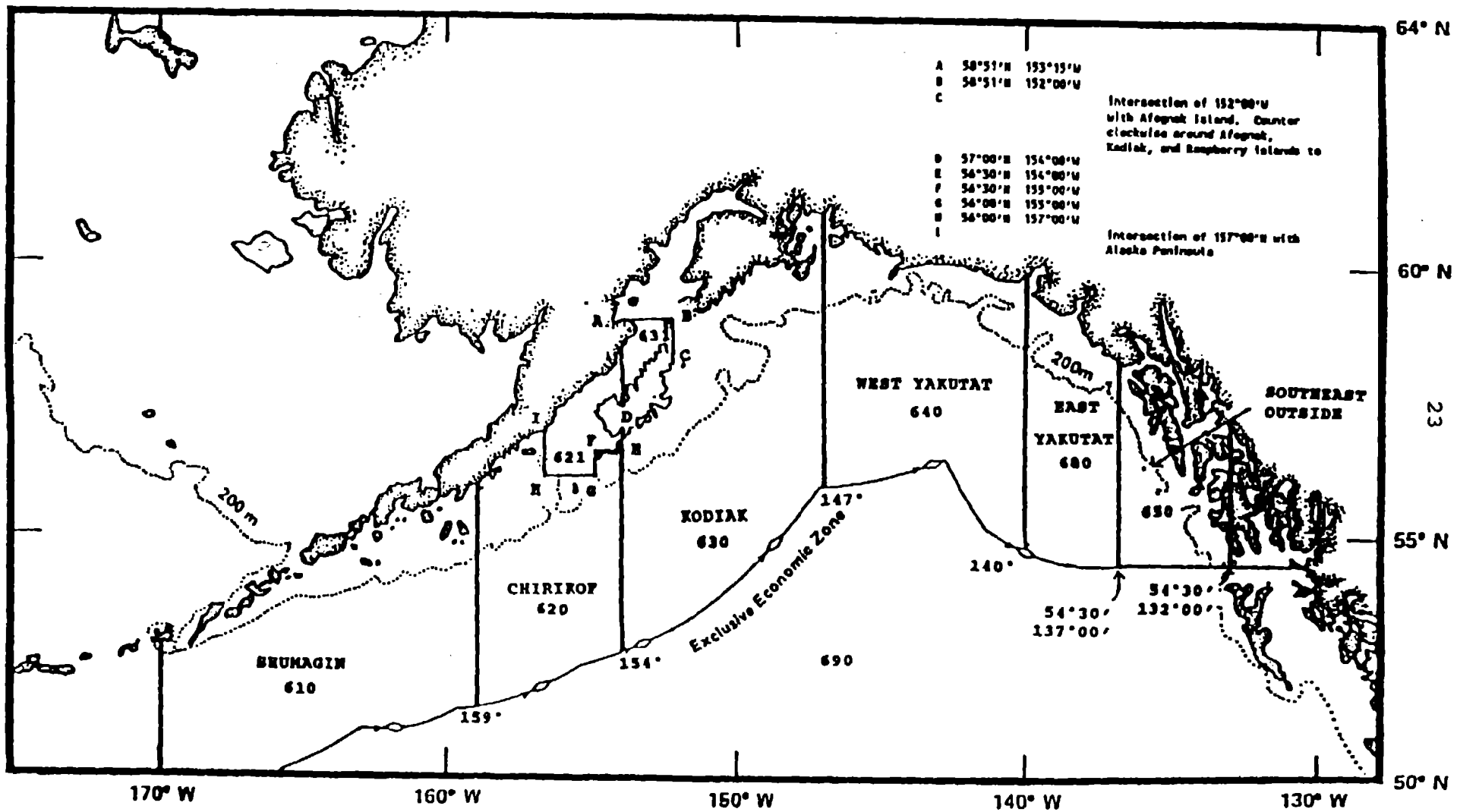


Figure 2.--North Pacific Fisheries Management Council areas in the Gulf of Alaska Region.

Table 1.--Gear type codes and target codes.

<u>GEAR CODE</u>	<u>GEAR TYPE</u>
BTR	Bottom trawl net
PTR	Pelagic or mid-water trawl net
POT	Strings of individual pots
LGL	Baited longline gear

TARGETS

1990 Bering Sea/Aleutian Islands and Gulf of Alaska Targets (based on retained catch) - targets are listed in order of determination

<u>TARGET CODE</u>	<u>% OF CATCH</u>	<u>TARGET SPECIES</u>
F	≥ 20	Flatfish (excluding arrowtooth flounder, Greenland turbot and Kamchatka flounder)
P	≥ 95	Pollock
B	≥ 50	Pollock + Pacific cod also, Pacific cod < 5% of retained catch
T	≥ 20	Arrowtooth flounder + Greenland turbot + Kamchatka flounder
S	≥ 20	Sablefish
K	≥ 20	Rockfish
O	≥ 50	Pollock + Pacific cod also, Pacific cod ≥ 5% of retained catch
A	≥ 20	Atka mackerel
0		Any catch not targeted by the above procedure (miscellaneous)

Table 1.--Continued.

1991 Bering Sea/Aleutian Islands Targets (based on total catch excluding prohibited species and other non-allocated species) - targets are listed in order of determination.

<u>TARGET CODE</u>	<u>% OF CATCH</u>	<u>TARGET SPECIES</u>
T	≥ 35	Greenland turbot
C	≥ 45	Pacific cod
R	≥ 40	Rock sole + yellowfin sole + other flatfish also, rock sole > yellowfin sole + flatfish
F	≥ 40	Rock sole + yellowfin sole + other flatfish also, rock sole ≤ yellowfin sole + flatfish
W	≥ 20	Arrowtooth and Kamchatka flounder
K	≥ 20	Rockfish
S	≥ 20	Sablefish
A	≥ 20	Atka mackerel
B	≥ 20	Pollock
P	≥ 95	Pollock

0 Any catch not targeted by the above procedure (miscellaneous)

Table 1. --Continued.

1991 Gulf of Alaska Targets (based on total catch excluding prohibited species, other non-allocated species, and arrowtooth flounder) - targets are listed in order of determination.

TARGET CODE	% OF <u>CATCH</u>	TARGET <u>SPECIES</u>
C	≥ 45	Pacific cod
K	≥ 30	Rockfish
D	≥ 20	Deep water flatfish
H	≥ 20	Shallow water flatfish + flathead sole
S	≥ 20	Sablefish
B	≥ 20	Pollock
P	≥ 95	Pollock
0	Any catch not targeted by the above procedure (miscellaneous)	

Table 2.--Catcher/processor catch comparisons by region and gear, 1990.

BERING SEA/ALEUTIAN ISLANDS

<u>GEAR*</u>		<u>VESSEL REPORTED CATCH (t)</u>	<u>%</u>	<u>OBSERVED CATCH (t)</u>	<u>%</u>
BTR	RETAINED	154,510.7	70.3	196,665.8	72.3
BTR	DISCARD	65,152.5	29.7	75,386.0	27.7
	TOTAL	219,663.2	-	272,051.8	-
PTR	RETAINED	619,547.6	93.1	881,329.2	92.2
PTR	DISCARD	46,177.6	6.9	75,033.5	7.8
	TOTAL	665,725.2	-	956,362.7	-
ALL TRAWL	RETAINED	774,058.3	87.4	1,077,995.0	87.8
ALL TRAWL	DISCARD	111,330.1	12.6	150,419.5	12.2
	TOTAL	885,388.4	-	1,228,414.5	-
POT	RETAINED	985.9	97.5	1,118.5	93.4
POT	DISCARD	25.0	2.5	79.6	6.6
	TOTAL	1,010.9	-	1,198.1	-
LGL	RETAINED	38,379.4	91.9	39,569.7	87.2
LGL	DISCARD	3,402.1	8.1	5,833.2	12.8
	TOTAL	41,781.5	-	45,402.9	-
ALL GEAR	RETAINED	813,423.6	87.6	1,118,683.2	87.7
ALL GEAR	DISCARD	114,757.2	12.4	156,332.3	12.3
	TOTAL	928,180.8	-	1,275,015.5	-

Table 2. --Continued.

GEAR*		VESSEL		OBSERVED	
		REPORTED CATCH (t)	%	CATCH (t)	%
BTR	RETAINED	19,910.6	46.8	22,352.4	47.3
BTR	DISCARD	22,626.1	53.2	24,910.5	52.7
	TOTAL	42,536.7	-	47,262.9	-
PTR	RETAINED	6,209.4	83.2	5,601.9	73.8
PTR	DISCARD	1,258.1	16.8	1,986.4	26.2
	TOTAL	7,467.5	-	7,588.3	-
ALL TRAWL	RETAINED	26,120.0	52.2	27,954.3	51.0
ALL TRAWL	DISCARD	23,884.2	47.8	26,896.9	49.0
	TOTAL	50,004.2	-	54,851.2	-
POT	RETAINED	4.9	39.5	2.6	59.1
POT	DISCARD	7.5	60.5	1.8	40.9
	TOTAL	12.4	-	4.4	-
LGL	RETAINED	1,763.6	78.3	1,670.3	47.9
LGL	DISCARD	488.7	21.7	1,819.8	52.1
	TOTAL	2,252.3	-	3,490.1	-
ALL GEAR	RETAINED	27,888.5	53.4	29,627.2	50.8
ALL GEAR	DISCARD	24,380.4	46.6	28,718.5	49.2
	TOTAL	52,268.9	-	58,345.7	-

* Gear code definitions are given in Table 1.

Table 3.--Catcher/processor catch comparisons by region and gear, 1991.

BERING SEA/ALEUTIAN ISLANDS					
<u>GEAR*</u>		<u>VESSEL REPORTED CATCH (t)</u>	<u>%</u>	<u>OBSERVED CATCH (t)</u>	<u>%</u>
BTR	RETAINED	132,017.6	59.4	145,486.7	60.3
BTR	DISCARD	90,056.8	40.6	95,923.8	39.7
	TOTAL	222,074.4	-	241,410.5	-
PTR	RETAINED	538,940.6	94.0	655,148.4	90.5
PTR	DISCARD	34,413.3	6.0	68,723.4	9.5
	TOTAL	573,353.9	-	723,871.8	-
ALL TRAWL	RETAINED	670,957.2	84.4	800,635.1	82.9
ALL TRAWL	DISCARD	124,470.1	15.6	164,647.2	17.1
	TOTAL	795,427.3	-	965,282.3	-
POT	RETAINED	2,878.2	87.8	3,293.1	95.4
POT	DISCARD	401.1	12.2	157.8	4.6
	TOTAL	3,279.3	-	3,450.9	-
LGL	RETAINED	50,689.2	89.3	58,028.8	84.7
LGL	DISCARD	6,050.2	10.7	10,448.4	15.3
	TOTAL	56,739.4	-	68,477.2	-
ALL GEAR	RETAINED	724,524.6	84.7	861,957.0	83.1
ALL GEAR	DISCARD	130,921.4	15.3	175,253.4	16.9
	TOTAL	855,446.0	-	1,037,210.4	-

Table 3.--Continued.

GEAR*		VESSEL		OBSERVED	
		REPORTED CATCH (t)	%	CATCH (t)	%
BTR	RETAINED	21,571.7	59.9	23,167.6	62.1
BTR	DISCARD	14,448.2	40.1	14,142.3	37.9
	TOTAL	36,019.9	-	37,309.9	-
PTR	RETAINED	12,676.7	96.0	14,720.9	96.0
PTR	DISCARD	534.6	4.0	611.0	4.0
	TOTAL	13,211.3	-	15,331.9	-
ALL TRAWL	RETAINED	34,248.4	69.6	37,888.5	72.0
ALL TRAWL	DISCARD	14,984.8	30.4	14,753.3	28.0
	TOTAL	49,233.2	-	52,641.8	-
POT	RETAINED	128.5	100.0	93.0	99.8
POT	DISCARD	0.0	0.0	0.2	0.2
	TOTAL	128.5	-	93.2	-
LGL	RETAINED	2,091.7	96.7	2,156.0	94.6
LGL	DISCARD	70.9	3.3	122.2	5.4
	TOTAL	2,162.6	-	2,278.2	-
ALL GEAR	RETAINED	36,468.6	70.8	40,137.5	73.0
ALL GEAR	DISCARD	15,055.7	29.2	14,875.7	27.0
	TOTAL	51,524.3	-	55,013.2	-

* Gear code definitions are given in Table 1.

Table 4. --Shoreside and mothership delivery catch comparisons'
by region and gear, 1990.

BERING SEA/ALEUTIAN ISLANDS

<u>GEAR²</u>		<u>PROCESSOR REPORTED CATCH (t)</u>	<u>%</u>	<u>OBSERVED CATCH (t)</u>	<u>%</u>
BTR	RETAINED	12,426.1	82.8	6,282.9	73.2
BTR	DISCARD	2,584.3	17.2	2,301.7	26.8
	TOTAL	15,010.4	-	8,584.6	-
PTR	RETAINED	162,297.2	98.6	98,734.9	97.6
PTR	DISCARD	2,274.6	1.4	2,412.3	2.4
	TOTAL	164,572.1	-	101,147.2	-
ALL TRAWL	RETAINED	174,723.6	97.3	105,017.8	95.7
ALL TRAWL	DISCARD	4,858.9	2.7	4,714.0	4.3
	TOTAL	179,582.5	-	109,731.8	-
POT	RETAINED	-	-	-	-
POT	DISCARD	-	-	-	-
	TOTAL	-	-	-	-
LGL	RETAINED	464.7	99.7	193.9	37.6
LGL	DISCARD	1.4	0.3	321.7	62.4
	TOTAL	466.1	-	515.6	-
ALL GEAR	RETAINED	175,188.3	97.3	105,211.7	95.4
ALL GEAR	DISCARD	4,860.3	2.7	5,035.7	4.6
	TOTAL	180,048.6	-	110,247.4	-

Table 4.--Continued.

GULF OF ALASKA		PROCESSOR REPORTED		OBSERVED	
GEAR²		CATCH (t)	%	CATCH (t)	%
BTR	RETAINED	22,691.3	85.8	6,009.9	65.2
BTR	DISCARD	3,746.0	14.2	3,206.0	34.8
	TOTAL	26,437.3	-	9,215.9	-
PTR	RETAINED	25,451.7	97.7	9,926.7	99.2
PTR	DISCARD	605.8	2.3	78.0	0.8
	TOTAL	26,057.5	-	10,004.7	-
ALL TRAWL	RETAINED	48,143.0	91.7	15,936.6	82.9
ALL TRAWL	DISCARD	4,351.8	8.3	3,284.0	17.3
	TOTAL	52,494.8	-	19,220.6	-
POT	RETAINED	955.7	99.7	491.5	91.8
POT	DISCARD	3.0	0.3	43.9	8.2
	TOTAL	958.7	-	535.4	-
LGL	RETAINED	6,484.3	95.4	1,067.0	62.0
LGL	DISCARD	309.9	4.6	654.5	38.0
	TOTAL	6,794.2	-	1,721.5	-
ALL GEAR	RETAINED	55,583.0	92.3	17,495.1	81.5
ALL GEAR	DISCARD	4,664.7	7.7	3,982.4	18.5
	TOTAL	60,247.7	-	21,477.5	-

¹ Processor reported catch should exceed observed catch, because observer coverage was less than 100%. This should not effect retained or discard percentages, however.

² Gear code definitions are given in Table 1.

Table 5.--Shoreside and mothership delivery catch comparisons*
by region and gear, 1991.

GEAR ²		PROCESSOR		OBSERVED	
		REPORTED CATCH (t)	%	CATCH (t)	%
BTR	RETAINED	38,179.2	79.1	18,432.3	70.4
	DISCARD	10,079.7	20.9	7,764.5	29.6
	TOTAL	48,258.9	-	26,196.8	-
PTR	RETAINED	478,383.0	98.0	269,980.2	97.7
	DISCARD	10,001.8	2.0	6,295.6	2.3
	TOTAL	488,384.8	-	276,275.8	-
ALL TRAWL	RETAINED	516,562.2	96.3	288,412.5	95.4
	DISCARD	20,081.5	3.7	14,060.1	4.6
	TOTAL	536,643.7	-	302,472.6	-
POT	RETAINED	-	-	-	-
	DISCARD	-	-	-	-
	TOTAL	-	-	-	-
LGL	RETAINED	-	-	-	-
	DISCARD	-	-	-	-
	TOTAL	-	-	-	-
ALL GEAR	RETAINED	516,562.2	96.3	288,412.5	95.4
	DISCARD	20,081.5	3.7	14,060.1	4.6
	TOTAL	536,643.7	-	302,472.6	-

Table 5.--Continued.

GULF OF ALASKA		PROCESSOR REPORTED		OBSERVED	
GEAR²		CATCH (t)	%	CATCH (t)	%
BTR	RETAINED	33,118.3	88.7	11,700.4	83.5
BTR	DISCARD	4,216.4	11.3	2,305.7	16.5
	TOTAL	37,334.7	-	14,006.1	-
PTR	RETAINED	53,753.5	97.2	22,267.5	97.3
PTR	DISCARD	1,524.6	2.8	616.1	2.7
	TOTAL	55,278.1	-	22,883.6	-
ALL TRAWL	RETAINED	86,871.8	93.8	33,967.9	92.1
	DISCARD	5,741.0	6.2	2,921.8	7.9
	TOTAL	92,612.8	-	36,889.7	-
POT	RETAINED	2,424.8	99.9	1,306.5	98.7
POT	DISCARD	2.8	0.1	17.3	1.3
	TOTAL	2,427.6	-	1,323.8	-
LGL	RETAINED	6,536.7	95.3	1,288.8	85.8
LGL	DISCARD	320.5	4.7	213.1	14.2
	TOTAL	6,857.2	-	1,501.9	-
ALL GEAR	RETAINED	95,833.3	94.0	36,563.2	92.1
ALL GEAR	DISCARD	6,064.3	6.0	3,152.2	7.9
	TOTAL	101,897.6	-	39,715.4	-

¹ Processor reported catch should exceed observed catch, because observer coverage was less than 100%. This should not effect retained or discard percentages, however.

² Gear code definitions are given in Table 1.

Table 6.--Comparison between catcher/processor reports and observer reports by gear and target in the Bering Sea and Aleutian Islands Region, 1990.

<u>GEAR*</u>		<u>TARGET*</u>	<u>VESSEL REPORTED CATCH (t)</u>	<u>%</u>	<u>OBSERVED CATCH (t)</u>	<u>%</u>
BTR	RETAINED	A	17,515.3	74.7	17,450.5	76.8
BTR	DISCARD		5,917.3	25.3	5,282.1	23.2
BTR	RETAINED	B	61,001.2	88.3	88,956.1	87.0
BTR	DISCARD		8,081.5	11.7	13,335.0	13.0
BTR	RETAINED	F	15,379.0	48.6	20,657.3	53.7
BTR	DISCARD		16,237.1	51.4	17,775.7	46.3
BTR	RETAINED	K	18,551.8	68.5	19,171.8	65.2
BTR	DISCARD		8,526.1	31.5	10,246.9	34.8
BTR	RETAINED	O	33,905.3	61.5	42,217.6	64.6
BTR	DISCARD		21,269.1	38.5	23,117.7	35.4
BTR	RETAINED	S	28.9	8.2	11.2	3.8
BTR	DISCARD		323.6	91.8	284.8	96.2
BTR	RETAINED	T	8,129.2	64.7	8,201.3	60.5
BTR	DISCARD		4,431.5	35.3	5,343.8	39.5
BTR	RETAINED	ALL	154,510.7	70.3	196,665.8	72.3
BTR	DISCARD		65,152.5	29.7	75,386.0	27.7
	TOTAL		219,663.2	-	272,051.8	-
PTR	RETAINED	B	3,006.6	92.1	4,148.1	84.2
PTR	DISCARD		259.3	7.9	777.4	15.8
PTR	RETAINED	F	549.8	49.0	553.5	44.2
PTR	DISCARD		571.2	51.0	699.0	55.8
PTR	RETAINED	O	4,626.2	69.1	5,191.3	67.8
PTR	DISCARD		2,071.0	30.9	2,466.2	32.2
PTR	RETAINED	P	611,365.0	93.4	871,436.0	92.5
PTR	DISCARD		43,276.1	6.6	71,090.9	7.5
PTR	RETAINED	ALL	619,547.6	93.1	881,329.2	92.2
PTR	DISCARD		46,177.6	6.9	75,033.5	7.8
	TOTAL		665,725.2	-	956,362.7	-
ALL TRAWL	RETAINED	ALL	774,058.3	87.4	1,077,995.0	87.8
	DISCARD		111,330.1	12.6	150,419.5	12.2
	TOTAL		885,388.4	-	1,228,414.5	-

Table 6.--Continued.

<u>GEAR*</u>		<u>TARGET*</u>	<u>VESSEL REPORTED CATCH (t)</u>	<u>%</u>	<u>OBSERVED CATCH (t)</u>	<u>%</u>
POT	RETAINED	O	985.9	97.5	1,118.5	93.4
POT	DISCARD		25.0	2.5	79.6	6.6
	TOTAL		1,010.9	-	1,198.1	-
LGL	RETAINED	K	10.1	90.2	5.0	68.5
LGL	DISCARD		1.1	9.8	2.3	31.5
LGL	RETAINED	O	37,586.2	92.0	38,926.2	87.8
LGL	DISCARD		3,269.5	8.0	5,429.2	12.2
LGL	RETAINED	S	498.0	82.1	411.7	56.5
LGL	DISCARD		108.3	17.9	316.9	43.5
LGL	RETAINED	T	285.1	92.5	226.8	72.8
LGL	DISCARD		23.2	7.5	84.8	27.2
LGL	RETAINED	ALL	38,379.4	91.9	39,569.7	87.2
LGL	DISCARD		3,402.1	8.1	5,833.2	12.8
	TOTAL		41,781.5	-	45,402.9	-

* Gear code and target code definitions are given in Table 1.

Table 7.--Comparison between catcher/processor reports and observer reports by gear and target in the Gulf of Alaska Region, 1990.

<u>GEAR*</u>		<u>TARGET*</u>	<u>VESSEL REPORTED CATCH (t)</u>	<u>%</u>	<u>OBSERVED CATCH (t)</u>	<u>%</u>
BTR	RETAINED	B	1,300.7	75.6	1,427.8	54.8
BTR	DISCARD		419.1	24.4	1,176.4	45.2
BTR	RETAINED	F	2,800.1	26.3	2,723.5	23.4
BTR	DISCARD		7,842.8	73.7	8,918.0	76.6
BTR	RETAINED	K	13,310.1	58.3	14,887.3	61.6
BTR	DISCARD		9,512.2	41.7	9,297.1	38.4
BTR	RETAINED	O	2,078.0	32.3	2,813.8	36.8
BTR	DISCARD		4,346.6	67.7	4,834.6	63.2
BTR	RETAINED	S	421.7	45.5	500.0	42.2
BTR	DISCARD		505.5	54.5	684.4	57.8
BTR	RETAINED	ALL	19,910.6	46.8	22,352.4	47.3
BTR	DISCARD		22,626.1	53.2	24,910.5	52.7
	TOTAL		42,536.7		47,262.9	
PTR	RETAINED	K	99.5	82.6	123.5	72.0
PTR	DISCARD		21.0	17.4	48.0	28.0
PTR	RETAINED	P	6,109.9	83.2	5,478.4	73.9
PTR	DISCARD		1,237.1	16.8	1,938.4	26.1
PTR	RETAINED	ALL	6,209.4	83.2	5,601.9	73.8
PTR	DISCARD		1,258.1	16.8	1,986.4	26.2
	TOTAL		7,467.5	-	7,588.3	-
ALL TRAWL	RETAINED	ALL	26,120.0	52.2	27,954.3	51.0
	DISCARD		23,884.2	47.8	26,896.9	49.0
	TOTAL		50,004.2	-	54,851.2	-
POT	RETAINED	O	4.9	39.5	2.6	59.1
POT	DISCARD		7.5	60.5	1.8	40.9
	TOTAL		12.4	-	4.4	-

Table 7.--Continued.

<u>GEAR*</u>		<u>TARGET*</u>	<u>VESSEL REPORTED CATCH (t)</u>	<u>%</u>	<u>OBSERVED CATCH (t)</u>	<u>%</u>
LGL	RETAINED	F	1.3	59.1	0.4	50.0
LGL	DISCARD		0.9	40.9	0.4	50.0
LGL	RETAINED	O	693.3	94.9	618.7	88.9
LGL	DISCARD		37.0	5.1	77.0	11.1
LGL	RETAINED	S	1,069.0	70.3	1,045.4	37.5
LGL	DISCARD		450.8	29.7	1,741.1	62.5
LGL	RETAINED	ALL	1,763.6	78.3	1,670.3	47.9
LGL	DISCARD		488.7	21.7	1,819.8	52.1
	TOTAL		2,252.3	-	3,490.1	-

* Gear code and target code definitions are given in Table 1.

Table 8.--Comparison between catcher/processor reports and observer reports by gear and target in the Bering Sea and Aleutian Islands Region, 1991.

<u>GEAR*</u>		<u>TARGET*</u>	<u>VESSEL REPORTED CATCH (t)</u>	<u>%</u>	<u>OBSERVED CATCH (t)</u>	<u>%</u>
BTR	RETAINED	A	21,336.3	86.3	20,304.5	82.5
BTR	DISCARD		3,401.1	13.7	4,312.3	17.5
BTR	RETAINED	B	10,448.1	47.4	14,014.7	53.7
BTR	DISCARD		11,571.9	52.6	12,101.2	46.3
BTR	RETAINED	C	13,290.4	78.5	15,832.9	78.3
BTR	DISCARD		3,637.5	21.5	4,392.8	21.7
BTR	RETAINED	F	60,415.0	60.2	66,813.3	62.5
BTR	DISCARD		39,895.5	39.8	40,168.2	37.5
BTR	RETAINED	K	2,751.6	72.4	2,681.4	64.6
BTR	DISCARD		1,047.8	27.6	1,470.6	35.4
BTR	RETAINED	P	2,352.1	98.5	2,844.1	84.6
BTR	DISCARD		35.0	1.5	519.4	15.4
BTR	RETAINED	R	14,375.1	34.8	16,176.8	35.4
BTR	DISCARD		26,924.1	65.2	29,483.1	64.6
BTR	RETAINED	T	4,079.5	82.0	4,002.5	75.3
BTR	DISCARD		896.4	18.0	1,316.3	24.7
BTR	RETAINED	W	2,969.5	52.9	2,816.5	56.6
BTR	DISCARD		2,647.5	47.1	2,159.9	43.4
BTR	RETAINED	ALL	132,017.6	59.4	145,486.7	60.3
BTR	DISCARD		90,056.8	40.6	95,923.8	39.7
	TOTAL		222,074.4	-	241,410.5	-
PTR	RETAINED	B	56,587.1	83.1	74,092.8	85.5
PTR	DISCARD		11,503.4	16.9	12,581.6	14.5
PTR	RETAINED	C	3,380.6	77.7	5,470.1	78.7
PTR	DISCARD		968.1	23.3	1,477.5	21.3
PTR	RETAINED	P	478,972.9	95.6	575,585.5	91.3
PTR	DISCARD		21,941.8	4.4	54,664.3	8.7

Table 8.--Continued.

<u>GEAR*</u>		<u>TARGET*</u>	<u>VESSEL REPORTED CATCH (t)</u>	<u>%</u>	<u>OBSERVED CATCH (t)</u>	<u>%</u>
PTR	RETAINED	ALL	538,940.6	94.0	655,148.4	90.5
PTR	DISCARD		34,413.3	6.0	68,723.4	9.5
	TOTAL		573,353.9	-	723,871.8	-
ALL	RETAINED	ALL	670,958.2	84.4	800,635.1	82.9
TRAWL	DISCARD		124,470.1	15.6	164,647.2	17.1
	TOTAL		795,428.3	-	965,282.3	-
POT	RETAINED	C	2,878.2	87.8	3,293.1	95.4
POT	DISCARD		401.1	12.2	157.8	4.6
	TOTAL		3,279.3	-	3,450.9	-
LGL	RETAINED	C	49,998.9	89.5	57,416.1	84.9
LGL	DISCARD		5,881.2	10.5	10,199.8	15.1
LGL	RETAINED	K	91.0	85.0	81.5	69.4
LGL	DISCARD		16.1	15.0	36.0	30.6
LGL	RETAINED	O	53.5	78.4	50.6	89.9
LGL	DISCARD		14.7	21.6	5.7	10.1
LGL	RETAINED	S	420.1	90.0	323.0	80.1
LGL	DISCARD		46.5	10.0	80.3	19.9
LGL	RETAINED	T	120.3	56.7	154.4	56.0
LGL	DISCARD		91.7	43.3	121.3	44.0
LGL	RETAINED	W	5.6	100.0	3.2	37.6
LGL	DISCARD		0.0	0.0	5.3	62.4
LGL	RETAINED	ALL	50,689.4	89.3	58,028.8	84.7
LGL	DISCARD		6,050.2	10.7	10,448.4	15.3
	TOTAL		56,739.6	-	68,477.2	-

* Gear code and target code definitions are given in Table 1.

Table 9.--Comparison between catcher/processor reports and observer reports by gear and target in the Gulf of Alaska Region, 1991.

<u>GEAR*</u>		<u>TARGET*</u>	<u>VESSEL REPORTED CATCH (t)</u>	<u>%</u>	<u>OBSERVED CATCH (t)</u>	<u>%</u>
BTR	RETAINED	B	695.1	64.2	749.4	56.6
BTR	DISCARD		387.9	35.8	574.6	43.4
BTR	RETAINED	C	4,258.7	81.1	3,956.5	81.0
BTR	DISCARD		990.1	18.9	929.2	19.0
BTR	RETAINED	D	4,241.1	36.2	4,626.5	40.4
BTR	DISCARD		7,489.4	63.8	6,821.7	59.6
BTR	RETAINED	H	13.1	30.3	12.2	29.4
BTR	DISCARD		30.1	69.7	29.3	70.6
BTR	RETAINED	K	12,011.5	68.5	13,535.2	70.5
BTR	DISCARD		5,511.4	31.5	5,665.4	29.5
BTR	RETAINED	O	352.2	90.0	278.8	72.8
BTR	DISCARD		39.3	10.0	104.1	27.2
BTR	RETAINED	ALL	21,571.7	59.9	23,167.6	62.1
BTR	DISCARD		14,448.2	40.1	14,142.3	37.9
	TOTAL		36,019.9	-	37,309.9	-
PTR	RETAINED	B	135.3	60.5	147.6	65.5
PTR	DISCARD		88.5	39.5	77.7	34.5
PTR	RETAINED	P	12,541.4	96.6	14,573.3	96.3
PTR	DISCARD		446.1	3.4	553.3	3.7
PTR	RETAINED	ALL	12,676.7	96.0	14,720.9	96.0
PTR	DISCARD		534.6	4.0	611.0	4.0
	TOTAL		13,211.3	-	15,331.9	-
ALL TRAWL	RETAINED	ALL	34,248.4	69.6	37,888.5	72.0
	DISCARD		14,982.8	30.4	14,753.3	28.0
	TOTAL		49,231.2	-	52,641.8	-

Table 9.--Continued.

<u>GEAR*</u>		<u>TARGET*</u>	<u>VESSEL REPORTED CATCH (t)</u>	<u>%</u>	<u>OBSERVED CATCH (t)</u>	<u>%</u>
POT	RETAINED	C	128.5	100.0	93.0	99.8
POT	DISCARD		0.0	0.0	0.2	0.2
LGL	RETAINED	C	1,450.6	97.4	1,515.2	97.4
LGL	DISCARD		39.0	2.6	40.9	2.6
LGL	RETAINED	S	641.1	95.3	640.8	88.7
LGL	DISCARD		31.9	4.7	81.3	11.3
LGL	RETAINED	ALL	2,091.7	96.7	2,156.0	94.6
LGL	DISCARD		70.9	3.3	122.2	5.4
	TOTAL		2,162.6	-	2,278.2	-

* Gear code and target code definitions are given in Table 1.

Table 10.--Comparison between catcher/processor reports and observer reports by NPFMC area, gear, and target in the Bering Sea and Aleutian Islands Region, 1990.

<u>AREA</u>	<u>GEAR¹</u>	<u>REPORTED BY</u>	<u>TARGET¹</u>	<u>POLLOCK RETAIN (t)</u>	<u>COD RETAIN (t)</u>	<u>FLATFISH RETAIN (t)</u>	<u>POLLOCK DISCARD (t)</u>	<u>COD DISCARD (t)</u>	<u>FLATFISH DISCARD (t)</u>
511	BTR	VESSEL	B	13,332.0	48.7	0.0	233.3	145.3	300.6
511	BTR	OBSERVER		21,506.8	67.8	0.0	3,315.0	242.3	372.7
511	BTR	VESSEL	F	56.0	1,365.6	2,370.2	2,499.3	244.4	2,507.7
511	BTR	OBSERVER		335.0	2,016.5	2,687.4	2,673.1	420.6	2,215.0
511	BTR	VESSEL	O	4,671.9	3,251.7	208.9	4,055.3	594.2	1,364.6
511	BTR	OBSERVER		7,155.2	3,948.3	239.8	5,698.3	770.7	1,511.7
512	BTR	VESSEL	O	50.4	48.1	0.2	20.3	77.0	48.0
512	BTR	OBSERVER		18.3	47.2	0.0	26.6	72.1	130.7
513	BTR	VESSEL	B	13,107.8	11.9	0.0	1,217.9	148.3	126.9
513	BTR	OBSERVER		17,950.3	20.1	6.6	2,091.0	199.6	133.0
513	BTR	VESSEL	F	4.3	301.9	4,145.6	930.8	27.9	1,398.3
513	BTR	OBSERVER		3.0	533.3	4,831.6	1,185.4	92.4	1,189.7
513	BTR	VESSEL	O	1,012.1	1,172.3	7.2	1,050.2	7.9	182.4
513	BTR	OBSERVER		869.4	1,382.6	10.9	1,568.2	135.3	263.7
514	BTR	VESSEL	F	0.0	273.2	5,542.3	947.8	22.1	3,149.7
514	BTR	OBSERVER		0.0	735.5	6,933.1	1,113.0	70.5	3,114.6
515	BTR	VESSEL	K	5.2	61.5	27.4	190.8	1.4	25.1
515	BTR	OBSERVER		20.4	104.1	18.7	235.9	16.5	26.7
515	BTR	VESSEL	O	30.1	489.7	3.4	49.7	0.9	16.7
515	BTR	OBSERVER		5.9	630.5	1.7	17.2	6.9	17.3

Table 10. --Continued.

<u>AREA</u>	<u>GEAR</u> ¹	<u>REPORTED BY</u>	<u>TARGET</u> ¹	<u>POLLOCK RETAIN</u> <u>(t)</u>	<u>COD RETAIN</u> <u>(t)</u>	<u>FLATFISH RETAIN</u> <u>(t)</u>	<u>POLLOCK DISCARD</u> <u>(t)</u>	<u>COD DISCARD</u> <u>(t)</u>	<u>FLATFISH DISCARD</u> <u>(t)</u>
515	BTR	VESSEL	T	6.6	40.0	83.3	148.8	0.1	170.5
515	BTR	OBSERVER		0.3	42.8	61.3	173.9	3.2	64.4
516	BTR	VESSEL	B	296.6	0.0	0.0	82.6	0.0	0.0
516	BTR	OBSERVER		130.7	0.0	0.0	19.5	0.1	0.0
516	BTR	VESSEL	F	62.4	143.7	507.8	495.9	7.3	1,025.0
516	BTR	OBSERVER		150.9	214.7	1,097.1	271.3	11.7	553.9
516	BTR	VESSEL	O	115.1	89.6	0.0	5.1	0.1	83.0
516	BTR	OBSERVER		133.2	153.4	0.1	68.8	1.7	81.3
517	BTR	VESSEL	B	7,214.4	9.2	0.0	1,625.6	218.4	96.1
517	BTR	OBSERVER		10,927.2	14.8	0.0	1,567.2	264.8	104.3
517	BTR	VESSEL	F	0.9	162.8	208.5	152.5	1.2	351.2
517	BTR	OBSERVER		52.5	234.5	247.7	163.3	53.5	586.1
517	BTR	VESSEL	K	0.0	2.9	3.2	6.8	1.2	0.0
517	BTR	OBSERVER		0.0	4.3	3.2	7.8	0.0	0.0
517	BTR	VESSEL	O	2,230.5	8,996.4	143.8	3,792.5	375.5	1,318.9
517	BTR	OBSERVER		3,253.7	10,647.0	141.8	2,664.1	972.2	914.5
517	BTR	VESSEL	S	0.0	0.7	0.0	78.5	0.0	102.1
517	BTR	OBSERVER		0.0	0.9	0.0	39.5	0.0	131.1
517	BTR	VESSEL	T	0.0	3.0	184.0	229.0	0.0	69.9
517	BTR	OBSERVER		0.0	7.4	163.0	264.4	0.0	68.0
521	BTR	VESSEL	B	26,897.5	80.7	2.2	2,914.5	356.0	168.7
521	BTR	OBSERVER		38,139.8	166.1	19.1	2,797.7	553.4	290.3

Table 10. --Continued.

<u>AREA</u>	<u>GEAR</u> ¹	<u>REPORTED BY</u>	<u>TARGET</u> ¹	<u>POLLOCK RETAIN (t)</u>	<u>COD RETAIN (t)</u>	<u>FLATFISH RETAIN (t)</u>	<u>POLLOCK DISCARD (t)</u>	<u>COD DISCARD (t)</u>	<u>FLATFISH DISCARD (t)</u>
521	BTR	VESSEL	F	8.4	3.4	3.1	0.0	0.0	2.0
521	BTR	OBSERVER		8.6	1.2	3.6	69.2	0.3	6.8
521	BTR	VESSEL	K	27.9	284.9	49.1	398.2	32.3	124.6
521	BTR	OBSERVER		65.8	290.5	43.0	283.4	52.6	100.1
521	BTR	VESSEL	O	2,459.5	7,215.0	110.2	1,992.7	449.4	1,273.3
521	BTR	OBSERVER		2,811.6	8,988.9	95.3	935.9	509.3	831.9
521	BTR	VESSEL	T	0.0	2.3	7.1	9.4	0.0	10.7
521	BTR	OBSERVER		0.0	4.6	8.0	7.2	0.0	7.4
522	BTR	VESSEL	F	1.2	6.5	131.6	1.5	0.0	89.9
522	BTR	OBSERVER		15.1	6.2	427.7	12.9	0.0	0.0
522	BTR	VESSEL	K	0.0	4.1	3.0	44.5	0.0	8.7
522	BTR	OBSERVER		0.0	8.0	4.5	79.6	0.0	4.3
522	BTR	VESSEL	O	0.7	34.9	0.0	0.0	0.0	0.9
522	BTR	OBSERVER		17.8	35.8	0.0	0.0	0.0	3.3
522	BTR	VESSEL	T	0.0	0.0	8.6	0.2	0.0	0.0
522	BTR	OBSERVER		0.0	0.0	5.4	0.4	0.0	0.0
540	BTR	VESSEL	A	0.0	2,309.9	226.9	1,737.4	117.7	73.5
540	BTR	OBSERVER		192.5	2,882.7	64.0	1,475.9	302.6	47.0
540	BTR	VESSEL	K	81.9	857.0	99.6	2,575.2	130.8	190.0
540	BTR	OBSERVER		110.8	1,097.8	117.9	3,218.5	298.4	63.1
540	BTR	VESSEL	O	0.0	966.6	3.0	124.6	5.0	14.1
540	BTR	OBSERVER		31.8	1,023.0	1.8	97.2	252.9	11.8

Table 10. --Continued.

<u>AREA</u>	<u>GEAR</u> ¹	<u>REPORTED BY</u>	<u>TARGET</u> ¹	<u>POLLOCK RETAIN (t)</u>	<u>COD RETAIN (t)</u>	<u>FLATFISH RETAIN (t)</u>	<u>POLLOCK DISCARD (t)</u>	<u>COD DISCARD (t)</u>	<u>FLATFISH DISCARD (t)</u>
540	BTR	VESSEL	T	32.1	78.4	4.2	172.6	49.8	210.2
540	BTR	OBSERVER		10.7	353.4	3.3	189.3	41.4	298.0
	BTR	VESSEL	TOTAL	71,705.5	28,316.6	14,084.4	27,783.5	2,883.4	14,591.1
	BTR	OBSERVER	TOTAL	103,917.3	35,663.9	17,237.6	32,330.7	5,345.0	13,142.7
511	PTR	VESSEL	O	18.1	2.7	0.1	6.2	0.0	4.7
511	PTR	OBSERVER		10.6	5.1	0.1	6.1	0.0	4.7
511	PTR	VESSEL	P	10,001.8	6.0	0.0	907.7	205.7	121.5
511	PTR	OBSERVER		16,017.3	1.1	0.0	1,944.5	150.7	135.0
513	PTR	VESSEL	F	0.0	1.6	8.9	0.0	0.2	23.5
513	PTR	OBSERVER		0.0	1.4	7.8	5.5	4.2	73.0
513	PTR	VESSEL	O	680.4	47.3	0.0	148.9	0.0	2.3
513	PTR	OBSERVER		757.0	76.8	0.0	510.7	2.5	1.8
513	PTR	VESSEL	P	47,270.2	86.8	0.3	1,872.5	494.6	223.1
513	PTR	OBSERVER		62,019.2	181.5	0.2	3,428.4	429.5	118.2
514	PTR	VESSEL	F	0.0	14.8	524.4	83.3	40.3	391.7
514	PTR	OBSERVER		0.0	19.2	525.1	85.9	41.4	394.2
515	PTR	VESSEL	B	1,094.6	0.0	0.0	0.0	0.8	0.5
515	PTR	OBSERVER		1,674.9	0.0	0.0	0.0	1.3	0.5
515	PTR	VESSEL	O	30.6	19.7	0.1	11.0	0.0	2.9
515	PTR	OBSERVER		15.5	6.9	0.0	14.3	0.0	1.1

Table 10. --Continued.

<u>AREA</u>	<u>GEAR</u> ¹	<u>REPORTED BY</u>	<u>TARGET</u> ¹	<u>POLLOCK RETAIN</u> (t)	<u>COD RETAIN</u> (t)	<u>FLATFISH RETAIN</u> (t)	<u>POLLOCK DISCARD</u> (t)	<u>COD DISCARD</u> (t)	<u>FLATFISH DISCARD</u> (t)
515	PTR	VESSEL	P	62,091.2	1.1	0.0	6,897.7	13.4	9.8
515	PTR	OBSERVER		110,775.2	0.1	0.1	10,380.8	0.8	2.1
517	PTR	VESSEL	B	400.5	0.0	0.0	237.1	1.0	2.5
517	PTR	OBSERVER		901.7	0.0	0.0	67.0	1.0	2.7
517	PTR	VESSEL	O	143.6	212.4	1.6	481.3	40.5	68.8
517	PTR	OBSERVER		206.4	212.2	8.4	453.3	8.5	23.8
517	PTR	VESSEL	P	31,280.2	35.9	0.0	1,959.2	351.8	96.3
517	PTR	OBSERVER		42,166.0	62.3	0.0	2,794.6	260.4	87.0
521	PTR	VESSEL	B	1,167.8	0.0	0.0	0.0	1.5	0.1
521	PTR	OBSERVER		1,208.1	0.0	0.0	691.5	1.4	0.1
521	PTR	VESSEL	O	2,958.5	383.8	3.3	623.0	1.8	270.6
521	PTR	OBSERVER		3,303.8	397.7	78.6	843.4	35.5	143.9
521	PTR	VESSEL	P	369,705.1	1,113.7	1.7	21,174.6	2,662.9	1,086.6
521	PTR	OBSERVER		486,850.6	1,690.7	7.7	35,874.9	3,659.8	1,177.9
522	PTR	VESSEL	O	0.0	0.0	0.0	0.0	0.0	0.0
522	PTR	OBSERVER		0.0	0.0	0.0	14.0	0.0	0.0
522	PTR	VESSEL	P	36,686.8	24.4	0.2	1,203.6	48.6	46.2
522	PTR	OBSERVER		53,307.9	114.1	0.1	2,209.9	166.3	15.7
540	PTR	VESSEL	P	52,462.8	0.3	0.0	1,718.2	32.5	3.2
540	PTR	OBSERVER		97,268.3	4.0	0.0	3,778.0	27.9	0.1
	PTR	VESSEL	TOTAL	615,992.2	1,950.5	540.6	37,324.3	3,895.6	2,354.3
	PTR	OBSERVER	TOTAL	876,482.5	2,773.1	628.1	63,102.8	4,791.2	2,181.8

Table 10. --Continued.

<u>AREA</u>	<u>GEAR</u> ¹	<u>REPORTED BY</u>	<u>TARGET</u> ¹	<u>POLLOCK RETAIN (t)</u>	<u>COD RETAIN (t)</u>	<u>FLATFISH RETAIN (t)</u>	<u>POLLOCK DISCARD (t)</u>	<u>COD DISCARD (t)</u>	<u>FLATFISH DISCARD (t)</u>
511	POT	VESSEL	0	0.0	479.2	0.0	0.0	0.0	13.5
511	POT	OBSERVER		0.0	641.4	0.0	0.2	0.0	6.7
512	POT	VESSEL	0	0.0	8.9	0.0	0.0	0.0	2.7
512	POT	OBSERVER		0.0	8.9	0.0	0.0	0.0	1.7
513	POT	VESSEL	0	0.0	6.5	0.0	0.0	0.0	0.0
513	POT	OBSERVER		0.0	12.1	0.0	0.0	0.0	0.0
515	POT	VESSEL	0	0.0	24.0	0.0	0.0	0.0	0.0
515	POT	OBSERVER		0.0	38.0	0.0	0.0	0.0	0.0
517	POT	VESSEL	0	0.0	222.2	0.0	0.1	0.0	0.0
517	POT	OBSERVER		0.0	125.6	0.0	0.1	0.0	0.0
521	POT	VESSEL	0	0.0	216.1	0.0	0.1	0.0	0.2
521	POT	OBSERVER		0.0	275.0	0.0	1.9	0.0	0.3
522	POT	VESSEL	0	0.0	28.4	0.1	0.0	0.0	1.7
522	POT	OBSERVER		0.0	16.8	0.0	0.0	0.0	2.8
	POT	VESSEL	TOTAL	0.0	985.3	0.1	0.2	0.0	18.1
	POT	OBSERVER	TOTAL	0.0	1,117.8	0.0	2.2	0.0	11.5

Table 10. --Continued.

<u>AREA</u>	<u>GEAR</u> ¹	<u>REPORTED BY</u>	<u>TARGET</u> ¹	<u>POLLOCK RETAIN</u> <u>(t)</u>	<u>COD RETAIN</u> <u>(t)</u>	<u>SABLEFISH</u> ² <u>RETAIN</u> <u>(t)</u>	<u>POLLOCK DISCARD</u> <u>(t)</u>	<u>COD DISCARD</u> <u>(t)</u>	<u>SABLEFISH</u> ² <u>DISCARD</u> <u>(t)</u>
511	LGL	VESSEL	O	0.0	122.2	0.0	0.3	0.0	0.0
511	LGL	OBSERVER		0.0	62.1	0.0	0.5	0.0	0.0
512	LGL	VESSEL	O	0.0	2.8	0.0	0.3	0.0	0.0
512	LGL	OBSERVER		0.0	1.6	0.0	0.3	0.0	0.0
513	LGL	VESSEL	O	0.0	55.2	0.0	0.0	0.0	0.0
513	LGL	OBSERVER		0.0	58.3	0.0	0.2	0.0	0.0
515	LGL	VESSEL	K	0.0	4.7	0.7	0.1	0.0	0.0
515	LGL	OBSERVER		0.0	1.9	0.5	0.1	0.0	0.0
515	LGL	VESSEL	O	0.0	218.6	0.8	1.1	0.0	0.1
515	LGL	OBSERVER		0.0	178.9	0.0	0.8	1.2	0.4
515	LGL	VESSEL	T	0.0	3.9	46.5	0.0	0.0	0.0
515	LGL	OBSERVER		0.0	6.3	34.4	0.0	0.0	0.0
516	LGL	VESSEL	O	0.0	6.0	0.0	0.0	0.0	0.0
516	LGL	OBSERVER		0.0	3.4	0.0	0.0	0.0	0.0
517	LGL	VESSEL	O	5.5	3,330.2	2.4	37.5	0.2	0.7
517	LGL	OBSERVER		1.6	3,172.2	2.2	42.8	0.9	0.9
517	LGL	VESSEL	S	0.0	7.1	18.0	0.2	0.0	0.0
517	LGL	OBSERVER		0.0	7.1	13.6	0.2	0.0	0.0
517	LGL	VESSEL	T	0.0	0.0	4.1	0.0	0.0	0.0
517	LGL	OBSERVER		0.0	0.0	4.0	0.0	0.0	6.1

54

Table 10. --Continued.

<u>AREA</u>	<u>GEAR</u> ¹	<u>REPORTED BY</u>	<u>TARGET</u> ¹	<u>POLLOCK RETAIN</u> <u>(t)</u>	<u>COD RETAIN</u> <u>(t)</u>	<u>SABLEFISH</u> ² <u>RETAIN</u> <u>(t)</u>	<u>POLLOCK DISCARD</u> <u>(t)</u>	<u>COD DISCARD</u> <u>(t)</u>	<u>SABLEFISH</u> ² <u>DISCARD</u> <u>(t)</u>
521	LGL	VESSEL	O	4.8	30,343.0	14.9	312.6	36.8	2.1
521	LGL	OBSERVER		13.3	31,815.9	8.6	372.7	103.0	2.0
521	LGL	VESSEL	T	0.0	53.1	0.0	0.2	0.0	1.9
521	LGL	OBSERVER		0.0	34.7	0.0	0.3	0.0	5.1
522	LGL	VESSEL	O	2.3	2,928.5	1.1	34.3	3.1	0.1
522	LGL	OBSERVER		3.8	3,145.4	0.2	38.6	6.9	0.1
540	LGL	VESSEL	O	0.0	411.0	0.0	0.0	0.0	0.0
540	LGL	OBSERVER		0.0	372.6	0.4	0.2	0.0	0.0
540	LGL	VESSEL	S	0.0	30.0	382.4	0.0	0.0	0.0
540	LGL	OBSERVER		0.0	24.3	319.0	0.0	1.7	0.0
	LGL	VESSEL	TOTAL	12.6	37,516.3	470.9	386.6	40.1	4.9
	LGL	OBSERVER	TOTAL	18.7	38,884.7	382.9	456.7	113.7	14.6

¹ Gear code and target code definitions are given in Table 1.

² For longline vessels, catches of sablefish are being listed instead of catches of flatfish.

Table 11. --Comparison between catcher/processor reports and observer reports by NPFMC area, gear, and target in the Gulf of Alaska Region, 1990.

<u>AREA</u>	<u>GEAR</u> ¹	<u>REPORTED BY</u>	<u>TARGET</u> ¹	<u>POLLOCK RETAIN (t)</u>	<u>COD RETAIN (t)</u>	<u>FLATFISH RETAIN (t)</u>	<u>POLLOCK DISCARD (t)</u>	<u>COD DISCARD (t)</u>	<u>FLATFISH DISCARD (t)</u>
610	BTR	VESSEL	B	452.4	0.0	0.0	2.0	79.0	1.9
610	BTR	OBSERVER		577.2	0.0	0.0	0.3	18.0	3.5
610	BTR	VESSEL	F	0.0	0.0	821.9	105.7	75.2	7.5
610	BTR	OBSERVER		0.0	0.0	1,081.5	123.2	72.9	54.8
610	BTR	VESSEL	K	6.9	14.6	41.2	561.8	43.9	429.7
610	BTR	OBSERVER		18.6	18.3	64.0	551.9	159.9	242.0
610	BTR	VESSEL	O	99.0	947.9	32.9	363.5	368.7	91.2
610	BTR	OBSERVER		161.9	1,330.3	20.0	256.1	517.0	82.5
610	BTR	VESSEL	S	0.0	0.0	2.9	22.1	1.0	5.7
610	BTR	OBSERVER		0.0	0.0	3.7	59.7	9.7	6.7
620	BTR	VESSEL	F	0.0	284.0	1,525.2	164.4	17.4	376.1
620	BTR	OBSERVER		0.0	356.8	2,004.7	157.5	224.9	2,025.8
620	BTR	VESSEL	K	0.0	108.1	68.7	159.7	0.0	189.5
620	BTR	OBSERVER		0.0	124.4	130.2	119.8	44.7	314.4
620	BTR	VESSEL	O	69.6	458.7	39.6	78.4	11.1	62.7
620	BTR	OBSERVER		115.5	585.0	25.3	114.3	1.9	35.5
620	BTR	VESSEL	S	0.0	30.3	2.2	7.9	0.0	0.2
620	BTR	OBSERVER		0.0	23.3	1.8	7.8	2.1	9.7
621	BTR	VESSEL	O	0.0	0.0	0.0	0.1	0.0	0.0
621	BTR	OBSERVER		0.0	0.0	0.0	0.0	0.0	0.0

Table 11. --Continued.

<u>AREA</u>	<u>GEAR</u> ¹	<u>REPORTED BY</u>	<u>TARGET</u> ¹	<u>POLLOCK RETAIN (t)</u>	<u>COD RETAIN (t)</u>	<u>FLATFISH RETAIN (t)</u>	<u>POLLOCK DISCARD (t)</u>	<u>COD DISCARD (t)</u>	<u>FLATFISH DISCARD (t)</u>
630	BTR	VESSEL	B	841.4	6.1	1.5	4.0	0.0	50.4
630	BTR	OBSERVER		843.8	6.9	0.3	821.9	14.8	27.6
630	BTR	VESSEL	F	17.3	70.2	411.2	161.4	5.7	85.0
630	BTR	OBSERVER		46.8	125.6	596.1	222.8	15.9	255.4
630	BTR	VESSEL	K	0.0	73.9	28.4	392.6	4.0	258.5
630	BTR	OBSERVER		0.4	124.4	76.8	205.1	5.8	577.5
630	BTR	VESSEL	O	377.7	60.1	2.8	0.2	0.0	14.8
630	BTR	OBSERVER		436.5	112.9	2.0	123.8	16.9	13.3
630	BTR	VESSEL	S	0.0	4.1	3.0	9.5	0.0	13.6
630	BTR	OBSERVER		0.0	9.5	3.8	4.7	0.0	3.2
640	BTR	VESSEL	K	0.0	5.3	35.7	108.7	4.6	352.2
640	BTR	OBSERVER		0.1	2.4	60.8	65.5	20.0	339.5
640	BTR	VESSEL	S	0.0	0.0	0.2	11.1	0.4	16.2
640	BTR	OBSERVER		0.0	0.1	13.7	7.7	0.3	128.4
650	BTR	VESSEL	K	0.0	0.0	0.0	43.5	0.0	87.6
650	BTR	OBSERVER		0.0	1.2	27.2	44.1	1.0	189.1
650	BTR	VESSEL	S	0.0	0.0	0.2	12.5	0.0	8.5
650	BTR	OBSERVER		0.0	0.0	0.0	1.8	0.0	18.8
680	BTR	VESSEL	K	0.0	0.0	0.1	4.3	0.0	5.0
680	BTR	OBSERVER		0.0	0.0	0.1	1.5	0.0	7.3

Table 11. --Continued.

<u>AREA</u>	<u>GEAR</u> ¹	<u>REPORTED BY</u>	<u>TARGET</u> ¹	<u>POLLOCK RETAIN (t)</u>	<u>COD RETAIN (t)</u>	<u>FLATFISH RETAIN (t)</u>	<u>POLLOCK DISCARD (t)</u>	<u>COD DISCARD (t)</u>	<u>FLATFISH DISCARD (t)</u>
	BTR	VESSEL	TOTAL	1,864.3	2,063.3	3,017.7	2,213.4	611.0	2,056.3
	BTR	OBSERVER	TOTAL	2,200.8	2,821.1	4,112.0	2,889.5	1,125.8	4,335.0
610	PTR	VESSEL	P	1,562.1	0.0	0.0	1.0	0.1	3.9
610	PTR	OBSERVER		1,051.6	2.3	0.0	0.8	0.2	1.0
630	PTR	VESSEL	P	4,537.6	7.8	16.1	158.7	0.6	15.0
630	PTR	OBSERVER		4,422.2	2.2	0.1	1,834.0	2.4	3.9
640	PTR	VESSEL	K	0.0	0.0	0.0	21.0	0.0	0.0
640	PTR	OBSERVER		0.0	0.0	0.0	9.9	0.0	0.0
	PTR	VESSEL	TOTAL	6,099.7	7.8	16.1	180.7	0.7	18.9
	PTR	OBSERVER	TOTAL	5,473.8	4.5	0.1	1,844.7	2.6	4.9

Table 11. --Continued.

<u>AREA</u>	<u>GEAR</u> ¹	<u>REPORTED BY</u>	<u>TARGET</u> ¹	<u>POLLOCK RETAIN</u> <u>(t)</u>	<u>COD RETAIN</u> <u>(t)</u>	<u>SABLEFISH</u> ² <u>RETAIN</u> <u>(t)</u>	<u>POLLOCK DISCARD</u> <u>(t)</u>	<u>COD DISCARD</u> <u>(t)</u>	<u>SABLEFISH</u> ² <u>DISCARD</u> <u>(t)</u>
610	LGL	VESSEL	O	0.0	608.7	0.0	0.0	0.0	0.0
610	LGL	OBSERVER		0.0	549.3	0.0	0.1	0.0	0.0
610	LGL	VESSEL	S	0.0	17.1	316.9	0.0	0.0	0.0
610	LGL	OBSERVER		0.0	18.9	294.8	0.1	0.0	0.0
620	LGL	VESSEL	S	0.0	4.7	63.3	0.0	0.0	0.0
620	LGL	OBSERVER		0.0	0.1	71.3	0.0	0.0	0.0
621	LGL	VESSEL	O	0.0	13.6	0.0	0.3	0.0	0.0
621	LGL	OBSERVER		0.0	19.2	0.0	1.7	0.0	0.0
630	LGL	VESSEL	O	0.0	71.0	0.0	0.3	0.0	0.0
630	LGL	OBSERVER		0.0	55.9	0.0	1.5	0.2	0.1
630	LGL	VESSEL	S	0.0	8.9	564.7	1.7	0.3	0.0
630	LGL	OBSERVER		0.0	0.6	540.8	1.1	6.6	0.0
640	LGL	VESSEL	S	0.0	0.0	23.2	0.0	0.0	0.0
640	LGL	OBSERVER		0.0	0.0	23.0	0.0	0.0	0.0
	LGL	VESSEL	TOTAL	0.0	724.0	968.1	2.3	0.3	0.0
	LGL	OBSERVER	TOTAL	0.0	644.0	929.9	4.5	6.8	0.1

¹ Gear code and target code definitions are given in Table 1.

² For longline vessels, catches of sablefish are being listed instead of catches of flatfish.

Table 12.--Comparison between catcher/processor reports and observer reports by NPFMC area, gear, and target in the Bering Sea and Aleutian Islands Region, 1991.

<u>AREA</u>	<u>GEAR</u> ¹	<u>REPORTED BY</u>	<u>TARGET</u> ¹	<u>POLLOCK RETAIN (t)</u>	<u>COD RETAIN (t)</u>	<u>FLATFISH RETAIN (t)</u>	<u>POLLOCK DISCARD (t)</u>	<u>COD DISCARD (t)</u>	<u>FLATFISH DISCARD (t)</u>
511	BTR	VESSEL	B	1,640.0	1,809.1	1,095.0	4,103.5	331.2	1,269.3
511	BTR	OBSERVER		2,600.5	2,347.0	1,369.1	4,607.3	472.9	1,018.9
511	BTR	VESSEL	C	39.9	1,060.7	58.0	161.2	34.0	56.7
511	BTR	OBSERVER		21.9	668.0	28.2	241.1	48.7	97.7
511	BTR	VESSEL	F	24.4	64.3	1,269.2	224.5	1.4	1,147.5
511	BTR	OBSERVER		79.3	180.3	1,632.2	405.8	18.2	1,175.2
511	BTR	VESSEL	P	139.0	0.0	0.0	3.0	0.0	0.0
511	BTR	OBSERVER		153.6	0.0	0.0	1.5	6.4	0.9
511	BTR	VESSEL	R	109.4	838.7	5,564.3	5,804.8	647.0	6,949.1
511	BTR	OBSERVER		150.4	1,296.3	5,244.5	6,108.8	1,132.1	7,452.9
511	BTR	VESSEL	W	7.4	1.7	3.9	4.0	0.0	8.5
511	BTR	OBSERVER		9.3	9.6	2.2	7.5	2.8	1.3
512	BTR	VESSEL	F	0.0	0.0	92.6	0.0	0.0	14.6
512	BTR	OBSERVER		0.0	0.0	105.6	0.1	0.0	26.6
513	BTR	VESSEL	B	496.3	315.8	119.2	1,147.3	50.4	161.6
513	BTR	OBSERVER		573.2	382.8	115.0	1,164.7	86.7	106.3
513	BTR	VESSEL	C	8.6	169.4	20.1	62.0	18.0	21.5
513	BTR	OBSERVER		16.1	225.9	2.8	76.8	0.0	18.0
513	BTR	VESSEL	F	651.9	618.4	8,713.4	2,113.5	149.2	4,009.1
513	BTR	OBSERVER		751.1	805.4	8,737.5	1,854.2	286.3	4,247.7
513	BTR	VESSEL	P	245.5	2.4	0.0	2.1	0.3	2.0
513	BTR	OBSERVER		658.9	0.9	0.0	0.0	10.5	3.1

Table 12. --Continued.

<u>AREA</u>	<u>GEAR</u> ¹	<u>REPORTED BY</u>	<u>TARGET</u> ¹	<u>POLLOCK RETAIN (t)</u>	<u>COD RETAIN (t)</u>	<u>FLATFISH RETAIN (t)</u>	<u>POLLOCK DISCARD (t)</u>	<u>COD DISCARD (t)</u>	<u>FLATFISH DISCARD (t)</u>
513	BTR	VESSEL	R	107.1	410.9	2,660.2	1,276.6	5.4	2,924.4
513	BTR	OBSERVER		197.6	716.2	3,006.1	1,147.5	146.6	3,593.9
514	BTR	VESSEL	F	536.3	1,517.0	43,682.5	3,697.3	874.8	22,296.7
514	BTR	OBSERVER		715.5	1,885.3	48,289.6	3,591.4	1,141.7	22,417.5
514	BTR	VESSEL	R	6.0	104.5	1,067.5	264.4	22.0	676.4
514	BTR	OBSERVER		11.2	208.5	1,147.8	507.1	45.3	577.6
515	BTR	VESSEL	T	0.0	0.0	0.0	0.1	0.0	0.1
515	BTR	OBSERVER		0.0	0.0	0.0	0.3	0.0	0.9
515	BTR	VESSEL	W	0.0	8.6	1.6	5.8	0.0	0.5
515	BTR	OBSERVER		0.0	9.2	2.8	6.3	0.2	1.0
516	BTR	VESSEL	F	54.4	55.2	567.7	150.9	10.9	844.0
516	BTR	OBSERVER		179.9	133.5	594.2	249.1	30.3	812.8
516	BTR	VESSEL	R	247.1	305.8	2,420.3	1,111.3	34.8	4,888.8
516	BTR	OBSERVER		313.2	420.1	2,942.7	1,318.1	216.8	4,948.2
517	BTR	VESSEL	B	283.6	435.9	81.4	649.0	22.1	131.4
517	BTR	OBSERVER		1,090.2	412.7	37.9	711.5	84.7	54.7
517	BTR	VESSEL	C	50.6	2,142.6	49.8	518.2	35.4	119.4
517	BTR	OBSERVER		94.3	2,427.4	44.9	438.3	115.2	84.4
517	BTR	VESSEL	F	4.1	16.1	128.7	76.6	4.3	136.6
517	BTR	OBSERVER		4.1	13.1	106.3	114.1	13.2	190.6
517	BTR	VESSEL	K	0.0	13.3	0.7	3.4	0.0	0.7
517	BTR	OBSERVER		0.0	7.0	0.5	5.3	0.0	0.0

Table 12. --Continued.

<u>AREA</u>	<u>GEAR</u> ¹	<u>REPORTED BY</u>	<u>TARGET</u> ¹	<u>POLLOCK RETAIN (t)</u>	<u>COD RETAIN (t)</u>	<u>FLATFISH RETAIN (t)</u>	<u>POLLOCK DISCARD (t)</u>	<u>COD DISCARD (t)</u>	<u>FLATFISH DISCARD (t)</u>
517	BTR	VESSEL	R	8.0	12.0	105.6	52.6	3.4	76.7
517	BTR	OBSERVER		5.9	5.6	94.3	69.9	5.6	19.9
517	BTR	VESSEL	T	0.0	2.4	52.6	19.0	0.0	9.3
517	BTR	OBSERVER		0.0	6.5	50.8	21.4	0.0	9.1
517	BTR	VESSEL	W	16.4	32.4	37.2	17.9	0.0	23.2
517	BTR	OBSERVER		10.2	34.3	39.1	11.3	0.6	7.3
518	BTR	VESSEL	T	0.0	0.2	3.2	1.9	0.0	0.3
518	BTR	OBSERVER		18.7	1.1	0.5	3.8	0.0	0.3
519	BTR	VESSEL	A	0.6	77.2	0.1	23.1	16.8	3.6
519	BTR	OBSERVER		2.2	44.3	0.1	32.3	43.7	10.0
519	BTR	VESSEL	B	7.1	32.6	2.4	50.9	8.5	0.3
519	BTR	OBSERVER		12.9	31.7	2.3	45.8	6.5	1.0
519	BTR	VESSEL	C	5.4	374.8	0.5	63.9	0.0	2.6
519	BTR	OBSERVER		8.4	273.1	0.2	6.0	26.8	4.3
519	BTR	VESSEL	T	0.0	0.3	15.3	0.7	0.0	0.5
519	BTR	OBSERVER		0.0	0.0	10.5	0.0	0.0	0.0
519	BTR	VESSEL	W	0.0	0.0	1.4	15.2	0.0	4.9
519	BTR	OBSERVER		0.0	0.0	0.1	12.8	0.7	5.0
521	BTR	VESSEL	B	1,929.6	1,161.5	373.8	1,639.2	160.6	376.1
521	BTR	OBSERVER		2,520.5	1,510.6	266.3	1,911.0	63.1	307.2
521	BTR	VESSEL	C	337.9	7,427.5	303.7	992.7	5.6	377.3
521	BTR	OBSERVER		978.5	9,162.8	400.0	1,524.0	74.6	359.1

Table 12. --Continued.

<u>AREA</u>	<u>GEAR</u> ¹	<u>REPORTED BY</u>	<u>TARGET</u> ¹	<u>POLLOCK RETAIN (t)</u>	<u>COD RETAIN (t)</u>	<u>FLATFISH RETAIN (t)</u>	<u>POLLOCK DISCARD (t)</u>	<u>COD DISCARD (t)</u>	<u>FLATFISH DISCARD (t)</u>
521	BTR	VESSEL	F	6.1	81.6	1,365.9	239.0	12.4	647.0
521	BTR	OBSERVER		10.0	59.2	1,314.1	203.4	37.1	129.5
521	BTR	VESSEL	K	12.1	321.2	83.8	276.6	6.6	24.2
521	BTR	OBSERVER		6.8	402.0	67.6	200.1	4.4	26.4
521	BTR	VESSEL	P	1,960.6	4.6	0.0	12.4	8.6	4.1
521	BTR	OBSERVER		2,005.0	25.6	0.0	464.9	12.5	6.3
521	BTR	VESSEL	R	3.9	32.7	280.2	29.7	5.5	346.4
521	BTR	OBSERVER		1.5	55.1	336.7	36.8	8.1	152.3
521	BTR	VESSEL	T	0.0	0.0	0.0	0.0	0.0	0.0
521	BTR	OBSERVER		0.0	0.0	0.0	0.4	0.0	3.5
521	BTR	VESSEL	W	5.0	209.7	83.8	83.2	15.3	130.1
521	BTR	OBSERVER		3.0	166.5	54.0	42.9	16.3	59.0
522	BTR	VESSEL	C	0.8	595.1	37.1	221.0	3.0	19.8
522	BTR	OBSERVER		3.9	634.5	53.1	117.1	4.8	29.3
522	BTR	VESSEL	F	0.0	1.5	629.3	8.0	1.1	127.4
522	BTR	OBSERVER		0.0	2.5	728.1	12.7	2.9	107.4
522	BTR	VESSEL	K	0.0	0.3	1.9	6.9	0.0	41.5
522	BTR	OBSERVER		0.0	31.8	3.6	0.4	0.2	2.2
522	BTR	VESSEL	T	0.0	0.0	1.4	0.8	0.0	0.0
522	BTR	OBSERVER		0.0	0.0	0.2	0.6	0.0	0.1
522	BTR	VESSEL	W	5.3	80.3	49.0	115.9	0.0	23.7
522	BTR	OBSERVER		4.4	119.6	84.5	94.7	1.8	19.5

Table 12. --Continued.

<u>AREA</u>	<u>GEAR</u> ¹	<u>REPORTED BY</u>	<u>TARGET</u> ¹	<u>POLLOCK RETAIN (t)</u>	<u>COD RETAIN (t)</u>	<u>FLATFISH RETAIN (t)</u>	<u>POLLOCK DISCARD (t)</u>	<u>COD DISCARD (t)</u>	<u>FLATFISH DISCARD (t)</u>
540	BTR	VESSEL	A	307.0	1,331.6	30.9	540.7	59.9	123.6
540	BTR	OBSERVER		347.3	1,764.1	44.1	505.8	222.6	46.5
540	BTR	VESSEL	B	286.1	7.9	1.1	2.5	0.0	0.0
540	BTR	OBSERVER		376.8	16.5	1.0	9.8	0.0	0.2
540	BTR	VESSEL	C	2.7	264.9	8.4	4.4	0.7	2.2
540	BTR	OBSERVER		2.1	352.8	14.3	7.8	6.4	0.4
540	BTR	VESSEL	K	0.0	87.3	0.9	98.9	13.0	3.0
540	BTR	OBSERVER		0.0	117.9	2.5	141.7	9.6	13.7
540	BTR	VESSEL	T	30.0	56.8	0.4	79.3	1.2	16.6
540	BTR	OBSERVER		15.9	68.2	0.0	78.9	5.5	4.3
540	BTR	VESSEL	W	3.0	23.8	2.8	1.0	23.6	7.4
540	BTR	OBSERVER		4.5	27.8	1.0	13.9	1.6	1.4
	BTR	VESSEL	TOTAL	9,579.2	22,110.6	71,068.8	25,976.9	2,587.0	48,050.7
	BTR	OBSERVER	TOTAL	13,958.8	27,063.3	76,978.9	28,127.0	4,414.0	48,155.4
511	PTR	VESSEL	B	1,647.8	162.4	10.6	552.2	81.4	302.7
511	PTR	OBSERVER		1,885.1	291.1	15.0	388.7	24.6	144.8
511	PTR	VESSEL	C	0.0	2.8	0.0	0.2	0.0	0.1
511	PTR	OBSERVER		0.0	1.8	0.0	0.2	0.0	0.3
511	PTR	VESSEL	P	11,816.9	35.6	31.1	591.5	24.6	20.5
511	PTR	OBSERVER		12,957.8	71.0	1.9	1,864.8	57.1	24.5
513	PTR	VESSEL	B	1,813.3	41.2	0.3	103.3	15.9	103.4
513	PTR	OBSERVER		2,855.8	51.8	69.4	90.2	100.9	60.0

Table 12. --Continued.

<u>AREA</u>	<u>GEAR</u> ¹	<u>REPORTED BY</u>	<u>TARGET</u> ¹	<u>POLLOCK RETAIN</u> <u>(t)</u>	<u>COD RETAIN</u> <u>(t)</u>	<u>FLATFISH RETAIN</u> <u>(t)</u>	<u>POLLOCK DISCARD</u> <u>(t)</u>	<u>COD DISCARD</u> <u>(t)</u>	<u>FLATFISH DISCARD</u> <u>(t)</u>
513	PTR	VESSEL	P	30,785.0	54.2	0.0	834.0	53.4	46.3
513	PTR	OBSERVER		31,225.6	119.2	77.5	2,115.8	162.4	96.3
517	PTR	VESSEL	B	4,416.1	306.5	3.6	1,050.8	87.5	353.1
517	PTR	OBSERVER		6,169.4	439.0	10.6	902.1	124.1	231.5
517	PTR	VESSEL	C	57.6	876.0	0.8	280.5	4.5	105.5
517	PTR	OBSERVER		122.4	1,384.9	6.4	217.6	158.3	54.1
517	PTR	VESSEL	P	21,800.4	36.3	0.0	1,520.4	68.2	27.6
517	PTR	OBSERVER		27,607.7	51.7	5.1	2,373.6	119.4	89.0
518	PTR	VESSEL	P	152,928.0	0.0	0.0	4,348.3	0.8	5.7
518	PTR	OBSERVER		229,947.6	0.1	0.0	18,167.6	0.8	0.2
519	PTR	VESSEL	P	6,546.4	0.0	0.0	469.9	0.1	0.6
519	PTR	OBSERVER		8,458.1	0.0	0.1	681.4	0.1	0.3
521	PTR	VESSEL	B	46,928.8	1,215.8	11.8	3,146.8	1,499.7	1,392.6
521	PTR	OBSERVER		59,625.9	2,470.8	84.0	4,215.3	1,731.6	1,449.6
521	PTR	VESSEL	C	4.1	2,437.1	0.0	291.0	0.0	188.6
521	PTR	OBSERVER		49.9	3,884.2	0.2	314.8	401.7	173.7
521	PTR	VESSEL	P	187,891.3	396.3	22.4	11,083.2	715.4	483.7
521	PTR	OBSERVER		183,845.4	693.1	58.8	20,740.4	1,489.7	796.8
522	PTR	VESSEL	P	14,279.2	26.7	0.0	550.6	6.9	3.0
522	PTR	OBSERVER		14,526.1	34.2	2.9	595.5	12.5	6.7
540	PTR	VESSEL	P	52,313.0	2.6	0.0	372.1	0.1	0.4
540	PTR	OBSERVER		65,820.1	0.1	0.0	3,905.0	0.4	0.0

Table 12.--Continued.

<u>AREA</u>	<u>GEAR</u> ¹	<u>REPORTED BY</u>	<u>TARGET</u> ¹	<u>POLLOCK RETAIN (t)</u>	<u>COD RETAIN (t)</u>	<u>FLATFISH RETAIN (t)</u>	<u>POLLOCK DISCARD (t)</u>	<u>COD DISCARD (t)</u>	<u>FLATFISH DISCARD (t)</u>
	PTR	VESSEL	TOTAL	533,227.9	5,593.5	80.6	25,194.8	2,558.5	3,033.8
	PTR	OBSERVER	TOTAL	645,940.6	9,493.0	331.9	56,573.0	4,383.6	3,127.8
511	POT	VESSEL	C	0.0	240.0	0.0	0.2	0.8	1.1
511	POT	OBSERVER		0.0	149.0	0.2	0.1	7.9	1.6
513	POT	VESSEL	C	0.0	0.5	0.0	0.0	0.0	0.0
513	POT	OBSERVER		0.0	0.1	0.0	0.0	0.0	0.0
515	POT	VESSEL	C	0.0	34.8	0.0	0.1	0.0	0.0
515	POT	OBSERVER		0.0	40.7	0.0	0.1	0.1	0.0
516	POT	VESSEL	C	0.0	15.2	0.0	0.0	0.0	1.3
516	POT	OBSERVER		0.0	16.8	0.0	0.0	0.1	0.6
517	POT	VESSEL	C	0.0	48.1	0.0	0.0	0.0	0.0
517	POT	OBSERVER		0.0	30.0	0.0	0.0	0.0	0.0
519	POT	VESSEL	C	0.0	745.4	0.0	0.0	0.0	0.0
519	POT	OBSERVER		0.0	425.2	0.0	0.1	5.0	0.0
521	POT	VESSEL	C	0.0	35.8	0.0	0.1	0.0	0.0
521	POT	OBSERVER		0.0	59.3	0.0	0.1	0.1	0.0
522	POT	VESSEL	C	0.0	2.5	0.0	0.0	0.0	0.0
522	POT	OBSERVER		0.0	2.3	0.0	0.0	0.0	0.0
540	POT	VESSEL	C	0.0	1,753.4	0.0	0.0	299.1	0.0
540	POT	OBSERVER		0.0	2,537.5	0.0	0.0	23.5	0.4
	POT	VESSEL	TOTAL	0.0	2,875.7	0.0	0.4	299.9	2.4
	POT	OBSERVER	TOTAL	0.0	3,260.9	0.2	0.4	36.7	2.6

Table 12. --Continued.

<u>AREA</u>	<u>GEAR</u> ¹	<u>REPORTED</u> <u>BY</u>	<u>TARGET</u> ¹	<u>POLLOCK</u> <u>RETAIN</u> <u>(t)</u>	<u>COD</u> <u>RETAIN</u> <u>(t)</u>	<u>SABLEFISH</u> ² <u>RETAIN</u> <u>(t)</u>	<u>POLLOCK</u> <u>DISCARD</u> <u>(t)</u>	<u>COD</u> <u>DISCARD</u> <u>(t)</u>	<u>SABLEFISH</u> ² <u>DISCARD</u> <u>(t)</u>
511	LGL	VESSEL	C	0.0	7.4	0.0	0.4	0.0	0.0
511	LGL	OBSERVER		0.0	6.7	0.0	0.0	0.0	0.0
513	LGL	VESSEL	C	0.0	4.0	0.0	0.1	0.0	0.0
513	LGL	OBSERVER		0.0	10.8	0.0	0.1	0.0	0.0
513	LGL	VESSEL	O	0.0	3.5	0.0	0.0	0.0	0.0
513	LGL	OBSERVER		0.0	0.7	0.0	0.0	0.0	0.0
515	LGL	VESSEL	C	0.0	34.4	1.4	0.1	0.0	0.0
515	LGL	OBSERVER		0.0	26.6	2.0	0.3	0.4	0.0
517	LGL	VESSEL	C	0.9	4,536.6	0.0	96.0	4.0	0.0
517	LGL	OBSERVER		0.9	4,831.4	0.5	103.1	144.2	0.2
517	LGL	VESSEL	O	0.1	17.8	0.0	0.3	0.0	0.0
517	LGL	OBSERVER		0.2	23.0	0.0	0.1	0.0	0.0
517	LGL	VESSEL	T	0.0	0.7	0.0	1.0	0.0	0.0
517	LGL	OBSERVER		0.0	0.0	0.0	1.5	0.0	0.0
517	LGL	VESSEL	W	0.0	0.0	0.0	0.0	0.0	0.0
517	LGL	OBSERVER		0.0	0.0	0.0	0.0	0.0	2.2
521	LGL	VESSEL	C	40.9	37,421.5	4.9	1,114.5	26.4	2.4
521	LGL	OBSERVER		80.2	44,471.0	2.7	1,618.5	1,219.2	1.5
521	LGL	VESSEL	S	0.0	12.9	11.3	1.7	0.0	0.0
521	LGL	OBSERVER		4.2	7.8	10.6	3.2	0.0	0.0

Table 12. --Continued.

AREA	GEAR ¹	REPORTED BY	TARGET ¹	POLLOCK RETAIN (t)	COD RETAIN (t)	SABLEFISH ² RETAIN (t)	POLLOCK DISCARD (t)	COD DISCARD (t)	SABLEFISH ² DISCARD (t)
522	LGL	VESSEL	C	35.5	5,804.1	0.0	157.3	0.6	0.3
522	LGL	OBSERVER		34.5	5,478.3	0.0	154.3	93.7	0.1
540	LGL	VESSEL	C	0.0	920.3	62.9	0.0	1.5	0.0
540	LGL	OBSERVER		0.0	1,286.2	58.8	2.2	69.4	5.2
540	LGL	VESSEL	K	0.0	28.5	22.2	0.0	0.0	0.0
540	LGL	OBSERVER		0.0	23.7	21.2	0.2	0.0	0.4
540	LGL	VESSEL	S	0.0	0.2	354.5	0.0	0.0	0.2
540	LGL	OBSERVER		0.0	0.5	251.0	0.0	0.2	0.4
540	LGL	VESSEL	T	0.0	10.7	80.6	0.0	0.5	0.0
540	LGL	OBSERVER		0.0	9.3	108.9	0.0	2.3	0.6
	LGL	VESSEL	TOTAL	77.4	48,802.6	537.8	1,371.4	33.0	2.9
	LGL	OBSERVER	TOTAL	120.0	56,176.0	455.7	1,883.5	1,529.4	10.6

¹ Gear code and target code definitions are given in Table 1.

² For longline vessels, catches of sablefish are being listed instead of catches of flatfish.

Table 13. --Comparison between catcher/processor reports and observer reports by NPFMC area, gear, and target in the Gulf of Alaska Region, 1991.

<u>AREA</u>	<u>GEAR</u> ¹	<u>REPORTED BY</u>	<u>TARGET</u> ¹	<u>POLLOCK RETAIN (t)</u>	<u>COD RETAIN (t)</u>	<u>FLATFISH RETAIN (t)</u>	<u>POLLOCK DISCARD (t)</u>	<u>COD DISCARD (t)</u>	<u>FLATFISH DISCARD (t)</u>
610	BTR	VESSEL	B	113.9	119.1	87.6	183.4	6.0	4.1
610	BTR	OBSERVER		165.6	87.7	68.0	286.9	4.1	14.4
610	BTR	VESSEL	C	51.2	1,923.6	87.3	392.8	103.2	102.7
610	BTR	OBSERVER		136.8	1,963.5	87.7	359.2	166.0	75.6
610	BTR	VESSEL	D	6.1	53.4	580.1	41.4	0.5	2.6
610	BTR	OBSERVER		0.0	35.0	588.7	89.3	5.1	219.6
610	BTR	VESSEL	K	73.7	181.2	71.5	275.5	13.4	51.3
610	BTR	OBSERVER		77.2	227.3	58.7	567.0	65.7	88.6
620	BTR	VESSEL	C	0.0	1,884.6	6.8	40.4	14.6	9.9
620	BTR	OBSERVER		0.0	1,491.0	6.3	4.3	27.3	4.9
620	BTR	VESSEL	D	0.0	83.0	564.3	12.3	13.1	237.2
620	BTR	OBSERVER		0.0	95.4	538.0	16.9	4.4	92.5
620	BTR	VESSEL	H	0.0	0.2	1.5	0.0	0.1	0.2
620	BTR	OBSERVER		0.0	0.1	1.4	0.0	0.8	0.0
620	BTR	VESSEL	K	0.0	19.7	17.4	9.2	0.0	17.3
620	BTR	OBSERVER		0.0	21.2	13.7	22.6	0.0	8.8
621	BTR	VESSEL	B	0.0	0.3	0.2	0.7	0.0	0.0
621	BTR	OBSERVER		0.0	0.5	0.2	0.7	0.0	0.0
621	BTR	VESSEL	C	0.0	29.4	0.0	0.0	0.0	0.0
621	BTR	OBSERVER		0.0	21.6	0.0	0.0	0.0	0.0

Table 13. --Continued.

<u>AREA</u>	<u>GEAR</u> ¹	<u>REPORTED BY</u>	<u>TARGET</u> ¹	<u>POLLOCK RETAIN (t)</u>	<u>COD RETAIN (t)</u>	<u>FLATFISH RETAIN (t)</u>	<u>POLLOCK DISCARD (t)</u>	<u>COD DISCARD (t)</u>	<u>FLATFISH DISCARD (t)</u>
630	BTR	VESSEL	C	0.0	173.6	27.9	25.5	0.7	1.6
630	BTR	OBSERVER		0.0	196.9	14.0	13.9	3.5	4.7
630	BTR	VESSEL	D	75.8	167.7	2,052.6	554.5	22.4	327.4
630	BTR	OBSERVER		208.8	246.8	2,055.9	826.4	51.3	176.5
630	BTR	VESSEL	H	0.0	1.2	10.2	2.2	1.5	3.0
630	BTR	OBSERVER		0.0	0.6	10.1	2.8	10.3	2.3
630	BTR	VESSEL	K	11.4	82.5	139.5	175.0	19.8	220.2
630	BTR	OBSERVER		17.1	81.8	185.7	238.3	30.5	249.9
640	BTR	VESSEL	K	0.0	1.8	5.4	136.3	0.0	60.3
640	BTR	OBSERVER		0.0	1.5	6.2	90.9	1.9	42.6
640	BTR	VESSEL	O	0.0	8.7	0.7	1.2	1.3	0.2
640	BTR	OBSERVER		0.0	18.6	0.0	3.0	0.9	3.9
650	BTR	VESSEL	K	0.0	0.5	1.0	4.2	0.0	37.2
650	BTR	OBSERVER		0.0	0.9	0.0	4.9	1.6	34.0
680	BTR	VESSEL	K	0.0	1.5	0.9	6.3	0.0	6.0
680	BTR	OBSERVER		0.0	1.2	1.7	1.2	0.1	1.8
	BTR	VESSEL	TOTAL	332.1	4,732.0	3,654.9	1,860.9	196.6	1,081.2
	BTR	OBSERVER	TOTAL	605.5	4,491.6	3,636.3	2,528.3	373.5	1,020.1
610	PTR	VESSEL	P	5,327.9	15.5	0.0	2.2	12.7	6.3
610	PTR	OBSERVER		5,089.8	42.9	0.0	13.4	14.6	14.5

Table 13. --Continued.

<u>AREA</u>	<u>GEAR</u> ¹	<u>REPORTED BY</u>	<u>TARGET</u> ¹	<u>POLLOCK RETAIN (t)</u>	<u>COD RETAIN (t)</u>	<u>FLATFISH RETAIN (t)</u>	<u>POLLOCK DISCARD (t)</u>	<u>COD DISCARD (t)</u>	<u>FLATFISH DISCARD (t)</u>
620	PTR	VESSEL	P	50.6	0.0	0.0	0.1	0.0	0.0
620	PTR	OBSERVER		72.8	0.0	0.0	0.0	0.0	0.0
630	PTR	VESSEL	B	127.0	3.3	3.9	0.0	0.0	0.0
630	PTR	OBSERVER		129.1	4.6	11.7	0.0	0.0	11.7
630	PTR	VESSEL	P	3,767.2	0.0	0.0	321.0	0.0	2.0
630	PTR	OBSERVER		3,879.1	0.0	0.0	302.2	3.0	0.8
640	PTR	VESSEL	P	3,378.0	0.0	0.0	0.0	0.0	3.8
640	PTR	OBSERVER		5,488.7	0.0	0.0	0.0	0.0	0.0
	PTR	VESSEL	TOTAL	12,650.7	18.8	3.9	323.3	12.7	12.1
	PTR	OBSERVER	TOTAL	14,659.5	47.5	11.7	315.6	17.6	27.0
610	POT	VESSEL	C	0.0	128.5	0.0	0.0	0.0	0.0
610	POT	OBSERVER		0.0	93.0	0.0	0.0	0.0	0.2

Table 13. --Continued.

AREA	GEAR ¹	REPORTED BY	TARGET ¹	POLLOCK RETAIN (t)	COD RETAIN (t)	SABLEFISH ² RETAIN (t)	POLLOCK DISCARD (t)	COD DISCARD (t)	SABLEFISH ² DISCARD (t)
610	LGL	VESSEL	C	0.0	774.0	0.0	1.7	0.0	0.0
610	LGL	OBSERVER		0.0	767.0	0.0	3.7	11.7	0.0
610	LGL	VESSEL	S	0.0	0.0	92.3	0.0	4.6	0.0
610	LGL	OBSERVER		0.0	0.2	90.7	0.0	13.6	2.4
620	LGL	VESSEL	C	0.0	676.6	0.0	0.9	0.0	0.1
620	LGL	OBSERVER		0.0	748.2	0.0	0.2	3.0	0.0
630	LGL	VESSEL	S	0.0	0.0	173.4	0.0	1.3	0.0
630	LGL	OBSERVER		0.0	0.0	165.0	0.0	2.2	0.2
640	LGL	VESSEL	S	0.0	0.0	322.2	0.0	0.0	0.0
640	LGL	OBSERVER		0.0	0.0	314.6	0.0	1.2	0.0
	LGL	VESSEL	TOTAL	0.0	1,450.6	587.9	2.6	5.9	0.1
	LGL	OBSERVER	TOTAL	0.0	1,515.4	570.3	3.9	31.7	2.6

¹ Gear code and target code definitions are given in Table 1.

² For longline vessels, catches of sablefish are being listed instead of catches of flatfish.

Table 14.--Comparison between processor reports and observer reports for shoreside/mothership delivery by gear and target in the Bering Sea and Aleutian Islands Region, 1990¹.

<u>GEAR²</u>		<u>TARGET²</u>	<u>PROCESSOR REPORTED CATCH (t)</u>	<u>%</u>	<u>OBSERVED CATCH (t)</u>	<u>%</u>
BTR	RETAINED	B	393.4	87.0	367.7	78.0
BTR	DISCARD		58.8	13.0	103.5	22.0
BTR	RETAINED	O	12,032.7	82.7	5,915.2	72.9
BTR	DISCARD		2,525.5	17.3	2,198.2	27.1
BTR	RETAINED	ALL	12,426.1	82.8	6,282.9	73.2
BTR	DISCARD		2,584.3	17.2	2,301.7	26.8
	TOTAL		15,010.4	-	8,584.6	-
PTR	RETAINED	B	1,938.6	97.8	817.6	98.0
PTR	DISCARD		43.4	2.2	16.3	2.0
PTR	RETAINED	O	572.6	93.2	246.1	55.5
PTR	DISCARD		41.8	6.8	197.4	44.5
PTR	RETAINED	P	159,786.3	98.6	97,671.2	97.8
PTR	DISCARD		2,189.4	1.4	2,198.6	2.2
PTR	RETAINED	ALL	162,297.5	98.6	98,734.9	97.6
PTR	DISCARD		2,274.6	1.4	2,412.3	2.4
	TOTAL		164,572.1	-	101,147.2	-
ALL TRAWL	RETAINED	ALL	174,723.6	97.3	105,017.8	95.7
	DISCARD		4,858.9	2.7	4,714.0	4.3
	TOTAL		179,582.5	-	109,731.8	-
LGL	RETAINED	O	41.6	96.7	36.0	78.6
LGL	DISCARD		1.4	3.3	9.8	21.4
LGL	RETAINED	S	423.1	100.0	157.9	33.7
LGL	DISCARD		0.0	0.0	311.3	66.3
LGL	RETAINED	ALL	464.7	99.7	193.9	37.7
LGL	DISCARD		1.4	0.3	321.1	62.3
	TOTAL		466.1	-	515.0	-

¹ Processor reported catch should exceed observed catch, because observer coverage was less than 100%. This should not effect retained or discard percentages, however.

² Gear code and target code definitions are given in Table 1.

Table 15.--Comparison between processor reports and observer reports for shoreside/mothership delivery by gear and target in the Gulf of Alaska Region, 1990¹.

<u>GEAR²</u>			<u>PROCESSOR REPORTED CATCH (t)</u>	<u>%</u>	<u>OBSERVED CATCH (t)</u>	<u>%</u>
<u>TARGET²</u>						
BTR	RETAINED	F	1,140.6	39.1	245.4	24.0
BTR	DISCARD		1,777.6	60.9	777.7	76.0
BTR	RETAINED	O	21,550.7	91.6	5,764.5	70.4
BTR	DISCARD		1,968.4	8.4	2,428.3	29.6
BTR	RETAINED	ALL	22,691.3	85.8	6,009.9	65.2
BTR	DISCARD		3,746.0	14.2	3,206.0	34.8
	TOTAL		26,437.3	-	9,215.9	-
PTR	RETAINED	P	25,451.7	97.7	9,926.7	99.2
PTR	DISCARD		605.8	2.3	78.0	0.8
	TOTAL		26,057.5	-	10,004.7	-
ALL TRAWL	RETAINED	ALL	48,143.0	91.7	15,936.6	82.9
	DISCARD		4,351.8	8.3	3,284.0	17.1
	TOTAL		52,494.8	-	19,220.6	-
POT	RETAINED	O	954.7	99.9	490.5	91.8
POT	DISCARD		0.7	0.1	43.6	8.2
	TOTAL		955.4	-	534.1	-
LGL	RETAINED	O	42.9	100.0	0.0	-
LGL	DISCARD		0.0	0.0	0.0	-
LGL	RETAINED	S	6,441.4	95.4	1,067.0	62.0
LGL	DISCARD		309.9	4.6	654.5	38.0
LGL	RETAINED	ALL	6,484.3	95.4	1,067.0	62.0
LGL	DISCARD		309.9	4.6	654.5	38.0
	TOTAL		6,794.2	-	1,721.5	-

¹ Processor reported catch should exceed observed catch, because observer coverage was less than 100%. This should not effect retained or discard percentages, however.

² Gear code and target code definitions are given in Table 1.

Table 16.--Comparison between processor reports and observer reports for shoreside/mothership delivery by gear and target in the Bering Sea and Aleutian Islands Region, 1991¹.

<u>GEAR²</u>		<u>TARGET²</u>	<u>PROCESSOR REPORTED CATCH (t)</u>	<u>%</u>	<u>OBSERVED CATCH (t)</u>	<u>%</u>
BTR	RETAINED	B	12.8	38.8	11.2	39.2
BTR	DISCARD		20.2	61.2	17.4	60.8
BTR	RETAINED	C	28,769.1	84.8	10,847.1	72.6
BTR	DISCARD		5,138.8	15.2	4,102.7	27.4
BTR	RETAINED	F	9,338.7	67.8	7,422.0	69.4
BTR	DISCARD		4,431.5	32.2	3,266.3	30.6
BTR	RETAINED	R	58.6	10.7	152.0	28.7
BTR	DISCARD		489.2	89.3	378.1	71.3
BTR	RETAINED	ALL	38,179.2	79.1	18,432.3	70.4
BTR	DISCARD		10,079.7	20.9	7,764.5	29.6
	TOTAL		48,258.9	-	26,196.8	-
PTR	RETAINED	B	3,082.3	81.3	2,724.5	85.1
PTR	DISCARD		710.6	18.7	475.9	14.9
PTR	RETAINED	C	7,277.7	82.4	5,340.5	67.9
PTR	DISCARD		1,555.3	17.6	2,523.9	32.1
PTR	RETAINED	P	468,023.0	98.4	261,915.2	98.8
PTR	DISCARD		7,735.9	1.6	3,295.8	1.2
PTR	RETAINED	ALL	478,383.0	98.0	269,980.2	97.7
PTR	DISCARD		10,001.8	2.0	6,295.6	2.3
	TOTAL		488,384.8	-	276,275.8	-
ALL	RETAINED	TOTAL	516,562.2	96.3	288,412.5	95.4
TRAWL	DISCARD	TOTAL	20,081.5	3.7	14,060.1	4.6
	TOTAL		536,643.7	-	302,472.6	-
POT	RETAINED	C	10.4	100.0	25.5	98.8
POT	DISCARD		0.0	0.0	0.3	1.2
	TOTAL		10.4	-	25.8	-

Table 16.--Continued.

<u>GEAR</u> ²	<u>TARGET</u> ²	<u>PROCESSOR REPORTED CATCH (t)</u>	<u>%</u>	<u>OBSERVED CATCH (t)</u>	<u>%</u>
LGL	RETAINED C	31.3	100.0	35.8	89.3
LGL	DISCARD	0.0	0.0	4.3	10.7
LGL	RETAINED T	0.7	63.6	0.4	19.0
LGL	DISCARD	0.4	36.4	1.7	81.0
LGL	RETAINED ALL	32.0	98.8	36.2	85.8
LGL	DISCARD	0.4	1.2	6.0	14.2
	TOTAL	32.4	-	42.2	-

¹ Processor reported catch should exceed observed catch, because observer coverage was less than 100%. This should not effect retained or discard percentages, however.

² Gear code and target code definitions are given in Table 1.

Table 17. --Comparison between processor reports and observer reports for shoreside/mothership delivery by gear and target in the Gulf of Alaska Region, 1991¹.

<u>GEAR²</u>			<u>PROCESSOR REPORTED CATCH (t)</u>	<u>%</u>	<u>OBSERVED CATCH (t)</u>	<u>%</u>
BTR	RETAINED	B	792.9	78.5	73.1	37.2
BTR	DISCARD		217.0	21.5	123.3	62.8
BTR	RETAINED	C	28,372.9	90.9	9,960.1	87.3
BTR	DISCARD		2,838.2	9.1	1,447.4	12.7
BTR	RETAINED	D	2,921.9	74.7	1,045.8	62.8
BTR	DISCARD		988.4	25.3	620.3	37.2
BTR	RETAINED	H	479.4	80.9	356.3	75.7
BTR	DISCARD		113.3	19.1	114.1	24.3
BTR	RETAINED	P	551.2	90.3	265.1	99.8
BTR	DISCARD		59.5	9.7	0.6	0.2
BTR	RETAINED	ALL	33,118.3	88.7	11,700.4	83.5
BTR	DISCARD		4,216.4	11.3	2,305.7	16.5
	TOTAL		37,334.7	-	14,006.1	-
PTR	RETAINED	C	1,071.8	100.0	32.0	51.1
PTR	DISCARD		0.0	0.0	30.6	48.9
PTR	RETAINED	P	52,681.7	97.2	22,235.5	97.4
PTR	DISCARD		1,524.6	2.8	585.5	2.6
PTR	RETAINED	ALL	53,753.5	97.2	22,267.5	97.3
PTR	DISCARD		1,524.6	2.8	616.1	2.7
	TOTAL		55,278.1	-	22,883.6	-
ALL TRAWL	RETAINED	ALL	86,871.8	93.8	33,967.9	92.1
	DISCARD		5,741.0	6.2	2,921.8	7.9
	TOTAL		92,612.8	-	36,889.7	-
POT	RETAINED	ALL	2,424.8	99.9	1,277.2	98.7
POT	DISCARD		2.8	0.1	16.7	1.3
	TOTAL		2,427.6	-	1,293.9	-

Table 17 .--Continued.

<u>GEAR²</u>			<u>PROCESSOR REPORTED CATCH (t)</u>	<u>%</u>	<u>OBSERVED CATCH (t)</u>	<u>%</u>
LGL	RETAINED	C	24.9	100.0	52.3	97.9
LGL	DISCARD		0.0	0.0	1.1	2.1
LGL	RETAINED	S	6,511.8	95.3	1,236.5	85.4
LGL	DISCARD		320.5	4.7	212.0	14.6
LGL	RETAINED	ALL	6,536.7	95.3	1,288.8	85.8
LGL	DISCARD		320.5	4.7	213.1	14.2
	TOTAL		6,857.2	-	1,501.9	-

¹ Processor reported catch should exceed observed catch, because observer coverage was less than 100%. This should not effect retained or discard percentages, however.

² Gear code and target code definitions are given in Table 1.

Table 18.--Comparison between processor reports and observer reports for shoreside/mothership delivery by NPFMC area, gear, and target in the Bering Sea and Aleutian Islands Region, 1990¹.

<u>AREA</u>	<u>GEAR²</u>	<u>REPORTED BY</u>	<u>TARGET²</u>	<u>POLLOCK RETAIN (t)</u>	<u>COD RETAIN (t)</u>	<u>FLATFISH RETAIN (t)</u>	<u>POLLOCK DISCARD (t)</u>	<u>COD DISCARD (t)</u>	<u>FLATFISH DISCARD (t)</u>
511	BTR	PROCESSOR	B	284.7	6.7	4.1	1.4	15.9	24.3
511	BTR	OBSERVER		259.6	6.8	6.5	0.0	29.0	19.6
511	BTR	PROCESSOR	O	0.0	2,007.2	0.0	745.4	74.8	211.8
511	BTR	OBSERVER		0.0	963.7	0.0	366.6	56.5	287.6
515	BTR	PROCESSOR	O	0.0	1,196.2	0.0	216.9	62.7	69.8
515	BTR	OBSERVER		0.8	205.3	0.5	14.5	0.2	5.4
517	BTR	PROCESSOR	B	91.7	0.2	1.5	0.0	5.9	5.7
517	BTR	OBSERVER		93.1	0.0	0.0	0.0	2.6	4.9
517	BTR	PROCESSOR	O	0.4	5,562.1	0.2	393.4	111.9	183.3
517	BTR	OBSERVER		84.3	2,460.3	41.7	453.8	0.9	190.4
521	BTR	PROCESSOR	O	0.0	3,129.8	0.2	15.6	32.9	25.0
521	BTR	OBSERVER		15.2	2,061.2	0.0	177.9	0.0	67.8
540	BTR	PROCESSOR	O	0.0	85.8	0.0	39.5	7.1	92.1
540	BTR	OBSERVER		0.0	75.1	0.0	22.9	0.0	7.6
	BTR	PROCESSOR	TOTAL	376.8	11,988.8	6.0	1,412.2	311.2	612.0
	BTR	OBSERVER	TOTAL	453.0	5,772.4	48.7	1,035.7	89.2	583.3
511	PTR	PROCESSOR	P	9,050.8	17.9	11.4	202.9	8.8	0.6
511	PTR	OBSERVER		8,345.0	23.4	28.8	115.2	5.0	19.1

Table 18. --Continued.

<u>AREA</u>	<u>GEAR²</u>	<u>REPORTED BY</u>	<u>TARGET²</u>	<u>POLLOCK RETAIN (t)</u>	<u>COD RETAIN (t)</u>	<u>FLATFISH RETAIN (t)</u>	<u>POLLOCK DISCARD (t)</u>	<u>COD DISCARD (t)</u>	<u>FLATFISH DISCARD (t)</u>
513	PTR	PROCESSOR	P	2,571.6	1.1	2.2	18.3	3.6	0.2
513	PTR	OBSERVER		2,493.4	4.2	0.3	41.1	3.3	0.5
515	PTR	PROCESSOR	B	901.2	0.0	0.2	25.0	0.1	0.6
515	PTR	OBSERVER		394.5	0.2	0.2	14.1	0.0	0.5
515	PTR	PROCESSOR	P	81,368.7	167.6	108.4	614.7	8.0	13.8
515	PTR	OBSERVER		37,106.3	8.9	18.0	484.2	4.0	12.6
515	PTR	PROCESSOR	O	0.0	34.1	0.0	7.0	0.0	10.1
515	PTR	OBSERVER		0.0	0.0	0.0	0.0	0.0	0.0
517	PTR	PROCESSOR	B	984.8	0.2	0.7	3.2	0.8	0.0
517	PTR	OBSERVER		159.3	0.0	0.0	0.0	0.5	0.4
517	PTR	PROCESSOR	O	0.0	538.6	0.0	10.6	0.0	5.6
517	PTR	OBSERVER		0.0	246.1	0.0	93.6	2.4	36.8
517	PTR	PROCESSOR	P	62,081.5	177.7	180.7	618.3	47.0	19.4
517	PTR	OBSERVER		47,040.7	68.5	84.7	729.4	26.4	30.8
540	PTR	PROCESSOR	P	3,691.6	2.8	0.0	100.0	0.0	0.0
540	PTR	OBSERVER		2,252.2	1.7	0.0	0.0	0.3	0.0
	PTR	PROCESSOR	TOTAL	160,650.2	940.0	303.6	1,600.0	68.3	50.3
	PTR	OBSERVER	TOTAL	97,791.4	353.0	132.0	1,477.6	41.9	100.7

Table 18. --Continued.

<u>AREA</u>	<u>GEAR</u> ²	<u>REPORTED</u> <u>BY</u>	<u>TARGET</u> ²	<u>POLLOCK</u> <u>RETAIN</u> <u>(t)</u>	<u>COD</u> <u>RETAIN</u> <u>(t)</u>	<u>SABLEFISH</u> ³ <u>RETAIN</u> <u>(t)</u>	<u>POLLOCK</u> <u>DISCARD</u> <u>(t)</u>	<u>COD</u> <u>DISCARD</u> <u>(t)</u>	<u>SABLEFISH</u> ³ <u>DISCARD</u> <u>(t)</u>
515	LGL	PROCESSOR	O	0.0	29.2	0.0	0.0	0.4	0.0
515	LGL	OBSERVER		0.0	18.2	0.0	0.0	0.0	0.0
515	LGL	PROCESSOR	S	0.0	134.2	210.0	0.0	0.0	0.0
515	LGL	OBSERVER		0.0	2.1	100.6	0.2	0.0	0.0
517	LGL	PROCESSOR	O	0.0	12.3	0.0	0.0	0.0	0.0
517	LGL	OBSERVER		0.0	17.8	0.0	0.0	0.0	0.0
517	LGL	PROCESSOR	S	0.0	4.6	30.3	0.0	0.0	0.0
517	LGL	OBSERVER		0.0	5.2	36.9	0.1	0.0	0.0
	LGL	PROCESSOR	TOTAL	0.0	180.3	240.3	0.0	0.4	0.0
	LGL	OBSERVER	TOTAL	0.0	43.3	137.5	0.3	0.0	0.0

¹ Processor reported catch should exceed observed catch, because observer coverage was less than 100%.

² Gear code and target code definitions are given in Table 1.

³ For longline vessels, catches of sablefish are being listed instead of catches of flatfish.

Table 19. --Comparison between processor reports and observer reports for shoreside/mothership delivery by NPFMC area, gear, and target in the Gulf of Alaska Region, 1990'.

<u>AREA</u>	<u>GEAR</u> ²	<u>REPORTED BY</u>	<u>TARGET</u> ²	<u>POLLOCK RETAIN (t)</u>	<u>COD RETAIN (t)</u>	<u>FLATFISH RETAIN (t)</u>	<u>POLLOCK DISCARD (t)</u>	<u>COD DISCARD (t)</u>	<u>FLATFISH DISCARD (t)</u>
610	BTR	PROCESSOR	O	0.0	12,180.4	0.2	261.6	123.5	191.0
610	BTR	OBSERVER		0.0	2,928.3	2.0	172.2	33.7	238.0
620	BTR	PROCESSOR	O	0.0	686.0	0.0	147.9	2.0	121.6
620	BTR	OBSERVER		0.0	211.8	0.0	48.8	1.4	21.8
630	BTR	PROCESSOR	F	24.2	1,027.7	899.2	40.9	10.2	153.0
630	BTR	OBSERVER		48.4	131.0	487.1	41.2	0.7	74.5
630	BTR	PROCESSOR	O	591.7	7,553.1	122.9	178.3	36.7	240.5
630	BTR	OBSERVER		178.9	2,270.6	56.5	167.7	2.7	269.5
621	BTR	PROCESSOR	O	0.0	117.5	0.0	0.0	0.0	0.3
621	BTR	OBSERVER		0.0	68.3	1.2	19.9	0.0	12.3
631	BTR	PROCESSOR	O	220.0	178.3	0.0	1.4	0.2	0.4
631	BTR	OBSERVER		25.5	67.9	1.4	16.8	0.1	4.5
	BTR	PROCESSOR	TOTAL	835.9	21,743.0	1,022.3	630.1	172.6	706.8
	BTR	OBSERVER	TOTAL	252.8	5,677.9	548.2	466.6	38.6	620.6
610	PTR	PROCESSOR	P	3,924.9	0.0	0.5	15.0	0.3	0.1
610	PTR	OBSERVER		2,805.5	0.2	0.0	0.0	0.2	0.2
621	PTR	PROCESSOR	P	94.8	0.0	0.0	0.9	0.0	0.0
621	PTR	OBSERVER		105.6	0.1	0.0	0.0	0.0	0.1
630	PTR	PROCESSOR	P	17,958.3	87.9	91.0	262.3	0.8	2.9
630	PTR	OBSERVER		5,816.4	14.2	0.8	44.5	0.2	0.6

Table 19. --Continued.

<u>AREA</u>	<u>GEAR²</u>	<u>REPORTED BY</u>	<u>TARGET²</u>	<u>POLLOCK RETAIN (t)</u>	<u>COD RETAIN (t)</u>	<u>FLATFISH RETAIN (t)</u>	<u>POLLOCK DISCARD (t)</u>	<u>COD DISCARD (t)</u>	<u>FLATFISH DISCARD (t)</u>
631	PTR	PROCESSOR	P	3,364.9	20.8	16.7	143.3	0.1	0.3
631	PTR	OBSERVER		1,175.3	6.6	0.0	0.0	0.0	2.7
	PTR	PROCESSOR	TOTAL	25,342.9	108.7	108.2	421.5	1.2	3.3
	PTR	OBSERVER	TOTAL	9,902.8	20.8	0.8	44.5	0.4	3.6
630	POT	PROCESSOR	O	0.0	713.0	0.0	0.0	0.0	0.0
630	POT	OBSERVER		0.0	418.1	0.0	0.1	0.0	0.0
631	POT	PROCESSOR	O	0.0	241.7	0.0	0.0	0.0	0.0
631	POT	OBSERVER		0.0	72.4	0.0	0.0	0.0	0.0
	POT	PROCESSOR	TOTAL	0.0	954.7	0.0	0.0	0.0	0.0
	POT	OBSERVER	TOTAL	0.0	490.5	0.0	0.1	0.0	0.0

Table 19. --Continued.

AREA	GEAR ²	REPORTED BY	TARGET ²	POLLOCK RETAIN (t)	COD RETAIN (t)	SABLEFISH ³ RETAIN (t)	POLLOCK DISCARD (t)	COD DISCARD (t)	SABLEFISH ³ DISCARD (t)
610	LGL	PROCESSOR	S	0.0	0.0	146.4	0.0	0.0	0.0
610	LGL	OBSERVER		0.0	0.0	74.6	0.0	0.0	0.0
620	LGL	PROCESSOR	S	0.0	0.0	61.1	0.5	0.7	0.0
620	LGL	OBSERVER		0.0	0.0	33.3	0.0	0.0	0.0
630	LGL	PROCESSOR	O	0.0	42.9	0.0	0.0	0.0	0.0
630	LGL	OBSERVER		0.0	0.0	0.0	0.0	0.0	0.0
630	LGL	PROCESSOR	S	0.0	24.9	4,041.2	0.0	22.7	20.6
630	LGL	OBSERVER		0.0	2.0	689.3	0.4	33.8	0.0
640	LGL	PROCESSOR	S	0.0	0.0	722.6	0.0	0.0	7.9
640	LGL	OBSERVER		0.0	0.2	141.4	0.0	0.0	0.0
650	LGL	PROCESSOR	S	0.0	0.0	1,264.0	0.1	0.0	1.0
650	LGL	OBSERVER		0.0	0.0	87.6	0.0	0.2	0.0
	LGL	PROCESSOR	TOTAL	0.0	67.8	6,235.3	0.6	23.4	29.5
	LGL	OBSERVER	TOTAL	0.0	2.2	1,026.2	0.4	34.0	0.0

¹ Processor reported catch should exceed observed catch, because observer coverage was less than 100%.

² Gear code and target code definitions are given in Table 1.

³ For longline vessels, catches of sablefish are being listed instead of catches of flatfish.

Table 20. --Comparison between processor reports and observer reports for shoreside/mothership delivery by NPFMC area, gear, and target in the Bering Sea and Aleutian Islands Region, 1991'.

<u>AREA</u>	<u>GEAR</u> ²	<u>REPORTED BY</u>	<u>TARGET</u> ²	<u>POLLOCK RETAIN (t)</u>	<u>COD RETAIN (t)</u>	<u>FLATFISH RETAIN (t)</u>	<u>POLLOCK DISCARD (t)</u>	<u>COD DISCARD (t)</u>	<u>FLATFISH DISCARD (t)</u>
511	BTR	PROCESSOR	B	0.0	12.8	0.0	15.6	0.5	2.7
511	BTR	OBSERVER		0.0	11.2	0.0	15.5	0.0	0.6
511	BTR	PROCESSOR	C	0.0	1,207.6	0.0	145.2	37.0	49.9
511	BTR	OBSERVER		4.5	790.2	0.0	362.1	40.0	97.3
511	BTR	PROCESSOR	F	0.0	2.7	189.0	32.3	7.7	232.4
511	BTR	OBSERVER		0.8	0.7	87.2	15.8	6.9	211.0
511	BTR	PROCESSOR	R	0.0	4.3	54.3	167.2	4.4	234.8
511	BTR	OBSERVER		0.0	11.3	140.7	158.4	38.1	163.9
512	BTR	PROCESSOR	F	0.0	0.0	58.3	0.0	0.0	1.9
512	BTR	OBSERVER		0.0	0.0	45.1	0.0	0.0	15.7
513	BTR	PROCESSOR	F	472.9	195.5	6,104.9	462.8	14.9	681.8
513	BTR	OBSERVER		488.2	278.9	3,790.6	387.6	72.5	404.4
514	BTR	PROCESSOR	F	0.0	0.0	2,139.3	190.8	8.1	2,545.2
514	BTR	OBSERVER		0.0	0.0	2,636.2	22.8	5.7	1,923.7
515	BTR	PROCESSOR	C	40.0	750.3	0.0	6.1	0.0	1.2
515	BTR	OBSERVER		0.0	166.6	0.0	6.9	2.2	2.9
516	BTR	PROCESSOR	F	0.0	0.0	5.4	5.9	0.8	32.1
516	BTR	OBSERVER		0.0	0.0	8.8	1.1	0.3	58.9
517	BTR	PROCESSOR	C	18.4	22,237.2	3.8	2,719.8	472.9	580.9
517	BTR	OBSERVER		13.2	7,628.1	4.4	2,264.1	191.8	318.9

Table 20. --Continued.

<u>AREA</u>	<u>GEAR²</u>	<u>REPORTED BY</u>	<u>TARGET²</u>	<u>POLLOCK RETAIN (t)</u>	<u>COD RETAIN (t)</u>	<u>FLATFISH RETAIN (t)</u>	<u>POLLOCK DISCARD (t)</u>	<u>COD DISCARD (t)</u>	<u>FLATFISH DISCARD (t)</u>
519	BTR	PROCESSOR	C	839.3	3,197.3	217.1	227.5	12.3	183.1
519	BTR	OBSERVER		240.6	1,663.6	0.0	137.1	63.6	25.7
521	BTR	PROCESSOR	C	6.0	57.2	5.1	0.4	0.0	0.0
521	BTR	OBSERVER		0.5	67.3	0.0	2.1	0.0	4.0
540	BTR	PROCESSOR	C	0.0	152.2	0.3	9.7	11.8	1.5
540	BTR	OBSERVER		0.0	177.5	0.3	0.0	17.3	1.5
	BTR	PROCESSOR	TOTAL	1,376.6	27,817.1	8,777.5	3,983.3	570.4	4,547.5
	BTR	OBSERVER	TOTAL	747.8	10,795.4	6,713.3	3,373.5	438.4	3,228.5
511	PTR	PROCESSOR	B	1,114.0	289.7	0.0	242.2	0.0	98.8
511	PTR	OBSERVER		1,164.1	268.6	0.0	227.1	1.5	85.4
511	PTR	PROCESSOR	C	0.0	262.5	0.0	24.3	2.0	16.4
511	PTR	OBSERVER		0.0	467.6	0.0	170.9	1.3	50.4
511	PTR	PROCESSOR	P	49,075.3	34.2	16.3	861.7	149.2	8.0
511	PTR	OBSERVER		32,519.6	126.8	28.0	655.5	202.1	16.5
513	PTR	PROCESSOR	P	15,792.0	27.0	1.8	238.8	9.7	2.4
513	PTR	OBSERVER		12,176.3	46.0	2.1	0.0	13.0	5.3
517	PTR	PROCESSOR	B	0.0	118.2	0.0	179.2	5.3	32.6
517	PTR	OBSERVER		0.0	18.6	0.0	36.6	0.0	1.1
517	PTR	PROCESSOR	C	203.3	6,472.8	0.0	863.8	100.6	316.2
517	PTR	OBSERVER		38.5	4,723.8	0.0	1,478.2	182.4	389.4

Table 20. --Continued.

AREA	GEAR ²	REPORTED BY	TARGET ²	POLLOCK RETAIN (t)	COD RETAIN (t)	FLATFISH RETAIN (t)	POLLOCK DISCARD (t)	COD DISCARD (t)	FLATFISH DISCARD (t)
517	PTR	PROCESSOR	P	242,214.3	744.4	384.4	1,692.3	90.9	47.0
517	PTR	OBSERVER		93,727.1	450.2	145.4	897.1	85.4	33.4
518	PTR	PROCESSOR	P	8,455.8	4.0	0.5	95.0	0.0	0.0
518	PTR	OBSERVER		11,832.5	1.1	0.3	14.3	0.0	0.0
519	PTR	PROCESSOR	C	0.0	330.9	0.0	0.6	63.3	0.1
519	PTR	OBSERVER		0.0	109.8	0.0	4.5	0.9	1.7
519	PTR	PROCESSOR	P	76,700.1	28.0	53.1	417.3	33.4	20.3
519	PTR	OBSERVER		39,421.4	22.0	37.6	640.3	11.6	18.5
521	PTR	PROCESSOR	B	1,438.7	121.6	0.0	0.5	0.0	22.2
521	PTR	OBSERVER		1,182.9	86.1	0.0	43.3	0.3	8.0
521	PTR	PROCESSOR	P	68,190.2	89.5	2.8	3,606.3	35.9	24.5
521	PTR	OBSERVER		66,288.7	189.1	0.4	156.2	83.8	34.0
540	PTR	PROCESSOR	P	6,063.7	0.0	0.0	0.0	0.0	0.0
540	PTR	OBSERVER		4,618.2	0.0	0.0	135.0	0.0	0.0
	PTR	PROCESSOR	TOTAL	469,247.4	8,522.8	458.9	8,222.0	490.3	585.5
	PTR	OBSERVER	TOTAL	262,969.3	6,509.7	213.8	4,459.0	582.3	643.7
519	POT	PROCESSOR	C	0.0	10.4	0.0	0.0	0.0	0.0
519	POT	OBSERVER		0.0	24.6	0.0	0.0	0.1	0.0

Table 20. --Continued.

<u>AREA</u>	<u>GEAR</u> ²	<u>REPORTED</u> <u>BY</u>	<u>TARGET</u> ²	<u>POLLOCK</u> <u>RETAIN</u> <u>(t)</u>	<u>COD</u> <u>RETAIN</u> <u>(t)</u>	<u>SABLEFISH</u> ³ <u>RETAIN</u> <u>(t)</u>	<u>POLLOCK</u> <u>DISCARD</u> <u>(t)</u>	<u>COD</u> <u>DISCARD</u> <u>(t)</u>	<u>SABLEFISH</u> ³ <u>DISCARD</u> <u>(t)</u>
511	LGL	PROCESSOR	C	0.0	0.7	0.0	0.0	0.0	0.0
511	LGL	OBSERVER		0.0	0.8	0.0	0.0	0.0	0.0
517	LGL	PROCESSOR	T	0.0	0.1	0.6	0.0	0.0	0.0
517	LGL	OBSERVER		0.0	0.0	0.4	0.0	0.0	0.0
519	LGL	PROCESSOR	C	0.0	9.1	0.0	0.0	0.0	0.0
519	LGL	OBSERVER		0.0	6.4	0.0	0.0	0.0	0.0
521	LGL	PROCESSOR	C	0.0	21.5	0.0	0.0	0.0	0.0
521	LGL	OBSERVER		0.0	28.6	0.0	0.0	0.0	0.0
	LGL	PROCESSOR	TOTAL	0.0	31.4	0.6	0.0	0.0	0.0
	LGL	OBSERVER	TOTAL	0.0	35.8	0.4	0.1	0.0	0.0

83

¹ Processor reported catch should exceed observed catch, because observer coverage was less than 100%.

² Gear code and target code definitions are given in Table 1.

³ For longline vessels, catches of sablefish are being listed instead of catches of flatfish.

Table 21.--Comparison between processor reports and observer reports for shoreside/mothership delivery by NPFMC area, gear, and target in the Gulf of Alaska Region, 1991'.

AREA	GEAR ²	REPORTED BY	TARGET ²	POLLOCK RETAIN (t)	COD RETAIN (t)	FLATFISH RETAIN (t)	POLLOCK DISCARD (t)	COD DISCARD (t)	FLATFISH DISCARD (t)
610	BTR	PROCESSOR	B	383.2	319.6	0.0	169.5	0.2	45.0
610	BTR	OBSERVER		0.2	69.8	0.6	97.2	0.6	11.0
610	BTR	PROCESSOR	C	59.5	17,253.6	7.7	1,240.9	94.7	574.4
610	BTR	OBSERVER		20.7	6,177.0	115.6	429.3	115.1	320.9
620	BTR	PROCESSOR	C	0.0	3,637.9	5.2	4.7	67.9	26.3
620	BTR	OBSERVER		0.0	1,114.6	5.4	2.1	10.2	18.3
620	BTR	PROCESSOR	D	14.8	33.5	249.4	1.8	1.0	3.2
620	BTR	OBSERVER		27.9	47.9	175.9	2.7	4.1	0.2
621	BTR	PROCESSOR	P	547.6	3.6	0.0	55.2	0.0	1.3
621	BTR	OBSERVER		264.6	0.5	0.0	0.0	0.0	0.0
630	BTR	PROCESSOR	B	52.8	19.9	0.0	0.2	0.0	0.3
630	BTR	OBSERVER		1.1	0.2	0.0	0.0	0.0	0.0
630	BTR	PROCESSOR	C	152.9	6,131.7	901.5	51.7	15.3	167.9
630	BTR	OBSERVER		106.2	2,288.2	115.0	34.3	17.4	120.5
630	BTR	PROCESSOR	D	172.5	369.1	1,814.1	14.4	0.3	124.3
630	BTR	OBSERVER		92.6	87.7	420.9	14.2	0.0	1.8
630	BTR	PROCESSOR	H	83.7	93.3	255.0	2.2	0.3	17.2
630	BTR	OBSERVER		68.8	57.6	188.3	17.6	0.2	5.1
	BTR	PROCESSOR	TOTAL	1,467.0	27,862.2	3,232.9	1,540.6	179.7	959.9
	BTR	OBSERVER	TOTAL	582.1	9,843.5	1,021.7	597.4	147.6	477.8

Table 21. --Continued.

<u>AREA</u>	<u>GEAR²</u>	<u>REPORTED</u> <u>BY</u>	<u>TARGET²</u>	<u>POLLOCK</u> <u>RETAIN</u> <u>(t)</u>	<u>COD</u> <u>RETAIN</u> <u>(t)</u>	<u>FLATFISH</u> <u>RETAIN</u> <u>(t)</u>	<u>POLLOCK</u> <u>DISCARD</u> <u>(t)</u>	<u>COD</u> <u>DISCARD</u> <u>(t)</u>	<u>FLATFISH</u> <u>DISCARD</u> <u>(t)</u>
610	PTR	PROCESSOR	C	0.0	1,071.8	0.0	0.0	0.0	0.0
610	PTR	OBSERVER		0.0	32.0	0.0	7.9	4.7	3.6
610	PTR	PROCESSOR	P	27,411.1	65.7	14.5	15.5	1.6	2.1
610	PTR	OBSERVER		9,386.4	38.8	5.2	0.2	0.1	1.5
621	PTR	PROCESSOR	P	3,593.6	3.7	0.0	252.5	0.0	1.4
621	PTR	OBSERVER		1,268.3	1.6	0.0	75.9	0.0	0.0
630	PTR	PROCESSOR	P	21,566.9	8.9	11.8	1,130.9	0.7	7.9
630	PTR	OBSERVER		11,465.2	22.3	2.5	446.9	4.7	2.3
	PTR	PROCESSOR	TOTAL	52,571.6	1,150.1	26.3	1,398.9	2.3	11.4
	PTR	OBSERVER	TOTAL	22,119.9	94.7	7.7	530.9	9.5	7.4
620	POT	PROCESSOR	C	0.0	5.5	0.0	0.0	0.0	0.0
620	POT	OBSERVER		0.0	8.1	0.0	0.0	0.0	0.0
621	POT	PROCESSOR	C	0.0	806.3	0.0	0.2	0.0	0.1
621	POT	OBSERVER		0.0	322.4	0.0	0.4	1.2	0.0
630	POT	PROCESSOR	C	0.0	1,603.0	0.0	0.0	1.7	0.0
630	POT	OBSERVER		0.4	937.2	0.0	0.2	4.7	0.1
	POT	PROCESSOR	TOTAL	0.0	2,414.8	0.0	0.2	1.7	0.1
	POT	OBSERVER	TOTAL	0.4	1,267.4	0.0	0.6	5.9	0.1

Table 21. --Continued.

<u>AREA</u>	<u>GEAR</u> ²	<u>REPORTED BY</u>	<u>TARGET</u> ²	<u>POLLOCK RETAIN</u> <u>(t)</u>	<u>COD RETAIN</u> <u>(t)</u>	<u>SABLEFISH</u> ³ <u>RETAIN</u> <u>(t)</u>	<u>POLLOCK DISCARD</u> <u>(t)</u>	<u>COD DISCARD</u> <u>(t)</u>	<u>SABLEFISH</u> ³ <u>DISCARD</u> <u>(t)</u>
610	LGL	VESSEL	S	0.0	18.1	422.3	0.0	1.3	0.0
610	LGL	OBSERVER		0.0	0.0	190.3	0.0	0.2	5.1
620	LGL	VESSEL	S	0.0	0.0	404.8	0.5	3.6	0.0
620	LGL	OBSERVER		0.0	0.0	209.4	0.0	0.4	2.9
630	LGL	VESSEL	C	0.0	24.9	0.0	0.0	0.0	0.0
630	LGL	OBSERVER		0.0	52.2	0.0	0.3	0.0	0.0
630	LGL	VESSEL	S	0.0	10.4	3,385.3	1.6	68.2	13.4
630	LGL	OBSERVER		0.0	1.2	513.6	0.5	30.8	7.6
640	LGL	VESSEL	S	0.0	0.3	1,398.3	0.0	0.6	5.5
640	LGL	OBSERVER		0.0	0.0	218.0	0.0	0.0	4.3
650	LGL	VESSEL	S	0.0	0.0	698.7	0.0	0.0	0.0
650	LGL	OBSERVER		0.0	0.0	20.0	0.0	0.0	0.1
680	LGL	VESSEL	S	0.0	0.0	3.6	0.0	0.0	0.0
680	LGL	OBSERVER		0.0	0.0	22.4	0.0	0.0	0.0
	LGL	PROCESSOR	TOTAL	0.0	53.7	6,313.0	2.1	73.7	18.9
	LGL	OBSERVER	TOTAL	0.0	53.4	1,173.7	0.8	31.4	20.0

¹ Processor reported catch should exceed observed catch, because observer coverage was less than 100%.

² Gear code and target code definitions are given in Table 1.

³ For longline vessels, catches of sablefish are being listed instead of catches of flatfish.

Table 22.--Total reported catch and total observed catch
by region and processor type, 1990¹.

BERING SEA/ALEUTIAN ISLANDS								
PROCESSOR		RETAINED	DISCARD	TOTAL	VESEL/PLANT REPORTED CATCH (t)	%	OBSERVED ² CATCH (t)	
CATCHER/ PROCESSOR		1,034,805.7	162,423.9	1,197,229.6	1,034,805.7	86.4	1,279,557.0	87.3
					162,423.9	13.6	186,971.9	12.7
					-	-	1,466,528.9	-
SHORESIDE/ MOTHERSHIP ³		474,238.0	35,496.4	509,734.4	474,238.0	93.0	407,445.7	95.3
					35,496.4	7.0	20,106.5	4.7
					-	-	427,552.2	-
GULF OF ALASKA								
CATCHER/ PROCESSOR		52,232.3	30,144.5	82,376.8	52,232.3	63.4	39,182.8	51.9
					30,144.5	36.6	36,376.5	48.1
					-	-	75,559.3	-
SHORESIDE/ MOTHERSHIP ³		150,656.3	11,512.9	162,169.2	150,656.3	92.9	39,155.3	75.4
					11,512.9	7.1	12,770.9	24.6
					-	-	51,926.2	-

¹ These totals are higher than the amounts shown in Tables 2 and 4, because those tables show only direct comparisons (same vessel or plant, etc.), and this table shows all the reported and observed catches, whether there is a match or not.

² At the start of 1990, some observers did not differentiate between retained and discarded catch, but only reported the total catch. These data are not included in this report. Observers actually reported the following total catches in 1990:

Bering Sea catcher/processors - 1,543,549.0 tons
 Bering Sea shoreside/motherships - 439,835.1 tons
 Gulf of Alaska catcher/processors - 81,648.1 tons
 Gulf of Alaska shoreside/motherships - 55,447.0 tons

³ Reported catch should exceed observed catch, because observer coverage was less than 100%. This should not effect retained or discard percentages, however.

Table 23.--Total reported catch and total observed catch
by region and processor type, 1991.

<u>PROCESSOR</u>		VESSEL/PLANT REPORTED		OBSERVED CATCH (t) ¹	
		C A T C H	%		%
CATCHER/ PROCESSOR	RETAINED	980,179.5	85.1	1,081,119.4	82.5
	DISCARD	171,817.3	14.9	229,988.8	17.5
	TOTAL	1,151,996.8	-	1,311,108.2	-
SHORESIDE/ MOTHERSHIP²	RETAINED	600,947.7	94.8	368,177.0	93.0
	DISCARD	32,831.8	5.2	27,814.8	7.0
	TOTAL	633,789.5	-	395,991.8	-
GULF OF ALASKA					
CATCHER/ PROCESSOR	RETAINED	47,588.9	69.7	50,628.7	70.6
	DISCARD	20,687.9	30.3	21,071.3	29.4
	TOTAL	68,276.8	-	71,700.0	-
SHORESIDE/ MOTHERSHIP²	RETAINED	162,344.3	94.1	50,319.8	88.6
	DISCARD	10,218.9	5.9	6,483.1	11.4
	TOTAL	172,563.2	-	56,802.9	-

¹ These totals are higher than the amounts shown in Tables 3 and 5, because those tables show only direct comparisons (same vessel or plant, etc.), and this table shows all the reported and observed catches, whether there is a match or not.

² Reported catch should exceed observed catch, because observer coverage was less than 100%. This should not effect retained or discard percentages, however.

CITATIONS

- Berger, J., and S. Hare. 1988. Product recovery rates obtained aboard foreign fishing vessels operating in the northeast Pacific Ocean and eastern Bering Sea, 1983-85. U.S. Dep. Commer., NOM Tech.Memo. NMFS F/NWC-129, 81p.
- Low, L-L., J. Smoker, L. Watson, J. Berger, and W. Eklund. 1989. A review of product recovery rates for Alaska groundfish. U.S. Dep. Commer., NOM Tech.Memo. NMFS F/NWC-175, 22p.

RECENT TECHNICAL MEMORANDUMS

Copies of this and other NOAA Technical Memorandums are available from the National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22167 (web site: www.ntis.gov). Paper and microfiche copies vary in price.

AFSC-

- 12 HARRISON, R.C. 1993. Data report: 1991 bottom trawl survey of the Aleutian Islands area, 144 p. NTIS No. PB93-186237.
- 11 LIVINGSTON, P. A., A. WARD, G. M. LANG, and M-S. YANG. 1993. Groundfish food habits and predation on commercially important prey species in the eastern Bering Sea from 1987 to 1989, 192 p. NTIS No. PB93-184703.
- 10 KINOSHITA, R. K., and J. M. TERRY. 1993. Oregon, Washington, and Alaska exports of edible fishery products, 1991, 47 p. NTIS No. PB93-159101.
- 9 KARINEN, J. F., M. M. BABCOCK, D. W. BROWN, W. D. MACLEOD, JR., L. S. RAMOS, and J.W. SHORT. 1993. Hydrocarbons in intertidal sediments and mussels from Prince William Sound, Alaska, 1977-1980: Characterization and probable sources, 69 p. NTIS No. PB93-159093.
- 8 WING, B. L. 1993. Winter oceanographic conditions in the eastern Gulf of Alaska, January-February 1986, 53 p. NTIS No. PB93-158335.
- 7 ARMISTEAD, C. E., and D. G. NICHOL. 1993. 1990 bottom trawl survey of the eastern Bering Sea and continental shelf, 190 p. NTIS No. PB93-156677.
- 6 WOLOTIRA, R. J., JR., T. M. SAMPLE, S. F. NOEL, and C. R. ITEN. 1993. Geographic and bathymetric distributions for many commercially important fishes and shellfishes off the West Coast of North America, based on research survey and commercial catch data, 1912-84, 184 p. NTIS No. PB93-167682.
- 5 GUTTORMSEN, M., R. NARITA, J. GHARRETT, G. TROMBLE, and J. BERGER. 1992. Summary of observer sampling of domestic groundfish fisheries in the northeast Pacific Ocean and Eastern Bering Sea, 1990, 281 p. NTIS No. PB93-159085.
- 4 GUTTORMSEN, M., R. NARITA, and J. BERGER. 1992. Summary of U. S. observer sampling of joint venture fisheries in the northeast Pacific Ocean and Eastern Bering Sea, 1990, 78 p. NTIS No. PB93-127546.
- 3 JOHNSON, P. A., S. D. RICE, and M. M. BABCOCK (compilers). 1992. Impacts of oil pollution and Prince William Sound studies: Bibliography of 1960-91 publications and reports, Auke Bay Laboratory, 98 p. NTIS No. PB93-114064.
- 2 KAJIMURA, H., and E. SINCLAIR. 1992. Fur seal investigations, 1990, 192 p. NTIS No. PB93-109080.
- 1 MERRICK, R. L., D. G. CALKINS, and D. C. MCALLISTER. 1992. Aerial and ship-based surveys of Steller sea lions (Eumetopias jubatus) in southeast Alaska, the Gulf of Alaska, and Aleutian Islands during June and July 1991, 41 p. NTIS No. PB92-235928.