

**STATUS OF THE PACIFIC COAST
GROUNDFISH FISHERY THROUGH 1994
AND
RECOMMENDED ACCEPTABLE
BIOLOGICAL CATCHES FOR 1995**

Stock Assessment and Fishery Evaluation



**Pacific Fishery Management Council
2130 SW Fifth Avenue, Suite 224
Portland, OR 97201**

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ACKNOWLEDGEMENTS

This is the eleventh in a series of documents which review past years' fishery performance and Council management actions, in addition to assessing the status of a number of groundfish stocks off Washington, Oregon, and California.

Several of the appendices to this document were prepared by scientists other than Groundfish Management Team members. The Groundfish Management Team and Council are deeply indebted to these individuals and gratefully acknowledge the excellent cooperation and diligent efforts that resulted in these documents.

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- Appendix C Status of West Coast Dover Sole in 1994
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- Appendix K Update of Widow Rockfish Assessment

LIST OF ACRONYMS

ABC	acceptable biological catch
Council	Pacific Fishery Management Council
CPUE	catch per unit effort
DTS	Dover sole/thornyhead/rawl-caught sablefish complex
EEZ	exclusive economic zone
EFP	experimental fishing permit
FMP	fishery management plan
GMT	Groundfish Management Team
GNP	gross national product
GSG	Groundfish Select Group
INPFC	International North Pacific Fishery Commission
MFCMA	Magnuson Fishery Conservation and Management Act
MSY	maximum sustainable yield
mt	metric ton
NMFS	National Marine Fisheries Service
ODFW	Oregon Department of Fish and Wildlife
OY	optimum yield
PacFIN	Pacific Coast Fisheries Information Network
PSMFC	Pacific States Marine Fisheries Commission
Secretary	Secretary of Commerce
WDF	Washington Department of Fisheries

INTRODUCTION

This is the eleventh annual status of the Pacific coast groundfish fishery document prepared for the Pacific Fishery Management Council. The purpose of this report is to briefly summarize the development of the fishery management plan (FMP) and to describe the history of the fishery and its management since the enactment of the Magnuson Fishery Conservation and Management Act (MFCMA) in 1976.

Included in this report are a description of landings, fishing patterns, estimates of the status of stocks (including appended status of stocks analyses for major species) and acceptable biological catches (ABC) for 1983-1994, as well as those proposed for 1995.

HISTORY OF THE FISHERY

Prior to 1990

Domestic groundfish landings in the Pacific region (Washington, Oregon and California) are reported by International North Pacific Fishery Commission statistical areas (Figure 1 on page 57). Landings were relatively stable until the early 1970s, averaging about 30,000 metric tons (mt) per year. Pacific ocean perch stocks were depleted in the late 1960s by foreign fishing, but other groundfish stocks were apparently healthy. By 1977, when work on the FMP was initiated, domestic landings had increased to 60,000 mt and by 1982 they peaked at 116,000 mt (Figure 2 on page 58).

During the 1980s, there were major changes in the fishery. The fishery matured and landings of several species reached or exceeded maximum sustainable production levels. Although landings increased in several management areas, the greatest and most rapid growth occurred in the large Columbia area (Figure 1 and Tables 1 through 6 on pages 59 through 64). Annual domestic landings of groundfish in the Columbia area were approximately 14,000 mt in 1977 and by 1982 had increased to about 47,000 mt, an increase of 33,000 mt (Figure 2). Subsequent landings have remained in the 27,000 to 42,000 mt range.

During this growth period, the species composition of landings changed notably. Rockfish landings increased from 42 percent of total landings to 70 percent; flatfish landings increased, but decreased as a percentage of total landings; and roundfish (e.g., lingcod, Pacific cod, sablefish) landings doubled, although they too decreased as a percentage of the total.

While the rockfish group provided most of the increased landings, widow, canary and yellowtail rockfishes were the major contributors. By 1982, widow and yellowtail rockfishes appeared to be overharvested in some areas, and the Groundfish Management Team (GMT) declared these species biologically stressed.^{1/} The GMT predicted continued biological stress in 1983 and

1/ GMT report to the Groundfish Task Group. January 1983.

recommended that landings of these species be reduced. An analysis by the GMT indicated canary rockfish landings also should be reduced in 1983 as the annual catch exceeded the ABC in the Columbia area.

Fishing fleet harvesting capacity that far exceeded the sustainable production capacity of the groundfish resource taken in traditional fisheries contributed to increased total groundfish landings. As early as 1980, the draft FMP contained the following statements.

. . . recently a series of events have occurred which are creating dramatic changes and are threatening the efficacy of the existing management regime. Regulatory and economic displacement of vessels from other fisheries and new vessels entering the fishery during the past years have resulted in substantial increases in fishing effort in the Washington, Oregon, and California groundfish fisheries. . . . New technology, improved electronic navigating, and fish-finding equipment have tended to increase harvesting ability

In addition, a 1982 report on the development potential of the West Coast groundfish industry^{2/} concluded that:

. . . the groundfish resources in the West Coast region, with exception of Pacific whiting and shortbelly rockfish, are already heavily utilized and there is little room for expansion

In summary, during the 1980s the Pacific coast groundfish fishery expanded from a relatively small fishery harvesting surplus production from generally healthy or underharvested stocks of fish to one with excessive effort with limited room for long-term expansion of the traditional fisheries.

1990 to Present

In response to the conditions of excessive effort that developed during the 1980s, members of the fishing industry asked the Council to develop a plan for limiting access to the groundfish resource, i.e., a limited entry program. After several years of development, a license limitation plan was approved and became effective on January 1, 1994. Details of the program are provided in Amendment 6 to the FMP.

In the late 1980s, joint venture operations for Pacific whiting expanded, leading to elimination of all foreign harvesting in 1989. Beginning late in 1990, U.S. catcher-processor (factory trawler) vessels conducted exploratory fisheries to determine if whiting might provide a viable fishery for U.S. at-sea processing. This at-sea fishery by American vessels immediately preempted the joint venture fishery; in 1991, for the first time in roughly 30 years, the entire groundfish fishery was conducted by American operations. At the same time, shore-based

2/ West Coast Ports and Development of the Groundfish Fishery. July 1982. A consultant's report prepared by Kramer, Chin and Mayo, Inc., Seattle, Washington.

processing of Pacific whiting expanded as processors of more traditional groundfish species rushed to carve out their portion of the market. Thus, West Coast groundfish landings reached a new peak in 1991, more than doubling the previous high established in 1982. Landings in 1992 declined slightly as the whiting harvest guideline was reduced, and landings in 1993 declined more as strong whiting year classes passed out of the population.

HISTORY OF MANAGEMENT

Prior to Fishery Management Plan Implementation

Prior to implementation of the FMP in September 1982, management of domestic groundfish fisheries was under the jurisdiction of the states of Washington, Oregon and California. State regulations have been in effect on the domestic fishery for about 80 years and each state acted independently in both management and enforcement. However, many fisheries overlapped state boundaries and were participated in by citizens of two or more states. Management and uniformity of regulation became a difficult problem which stimulated the formation of the Pacific States Marine Fisheries Commission (PSMFC) in 1947. PSMFC had no regulatory power but acted as a coordinating entity with authority to submit specific recommendations to states for their adoption.

Early regulations took the form of area closures (e.g., San Francisco Bay was closed to trawling in 1906) because of concerns about stock depletion. Minimum trawl mesh sizes were adopted in the early 1930s in California as the production of flatfish decreased. During 1935-1940, voluntary mesh size limits were adopted by the trawl industry after markets imposed minimum size limits on certain flatfishes and gear-saving studies demonstrated that a larger mesh size (5 inches) caught fewer unmarketable fish. Shortly thereafter, mandatory minimum mesh sizes were adopted by California. Since this time, mesh regulations have been in effect in all three coastal states.

Between the implementation of the MFCMA in 1977 and the implementation of the FMP in 1982, state agencies worked with the Council to address conservation issues. Specifically, in 1981, the Council proposed a rebuilding program for Pacific ocean perch. To implement this program, the states of Oregon and Washington established landing limits for Pacific ocean perch in the Vancouver and Columbia areas. These limits were revised in January 1982, prior to enactment of the FMP in September, but the 20-year rebuilding program remained unchanged.

Under Fishery Management Plan Jurisdiction

The FMP became effective September 30, 1982. On January 1, 1991, Amendment 4 to the FMP was implemented, updating the descriptive portions of the document and substantially increasing management flexibility to respond to a wide variety of changing fishery and resource conditions. The six specified numerical optimum yields (OY) were replaced by a single non-numerical OY for all species and a procedure to establish harvest guidelines or quotas for any species in need of management attention. The amendment established a procedure for setting and adjusting management measures to achieve the specified harvest targets, including classification of certain measures as "routine" so they may be adjusted as needed at any single Council meeting.

Management actions recommended by the Council and implemented by the National Marine Fisheries Service (NMFS) from September 1982 through October 1993 are summarized in Table 7 on pages 65 through 84. Those management actions included establishing final OYs for the six species originally designated for numerical OY management (1982-1990), which are listed in Table 8 on page 85.

1983 Fishery

For all practical purposes, full-time active management of the Pacific coast groundfish fishery under the FMP began in 1983. The Council approved ABCs (Table 9 on page 86); established regulatory management regimes for widow rockfish and sablefish for the entire region, as well as the Sebastes complex and rockfish in the Vancouver and Columbia areas; and continued the rebuilding program for Pacific ocean perch.

A coastwide OY of 10,500 mt was set for widow rockfish and a vessel trip limit of 30,000 pounds was imposed in an attempt to prevent an early closure of the fishery. A harvest guideline of 14,000 mt was established for the Sebastes complex in the combined Vancouver and Columbia areas. The Council set an ABC of 9,500 mt as the GMT recommended. The Sebastes landings in this area in 1982 were 18,500 mt. In choosing a 14,000 mt harvest guideline, halfway between the 1982 landings and the 1983 ABC, the Council acted to bring production down gradually without creating undue economic hardship. In an attempt to spread the landings over the entire year, coastwide vessel trip limits of 40,000 pounds were imposed.

The fishery for the Sebastes complex in the Vancouver and Columbia areas and for widow rockfish in the entire region quickly adjusted to the new trip limits by changing traditional fishing patterns. In June, the GMT projected that the Sebastes complex landings would reach the 14,000 mt harvest guideline by early August unless action was taken. The Council increased the harvest guideline to 18,500 mt (almost twice the 9,500 mt ABC) and limited vessels to one trip per week, effective June 13. Landings declined somewhat, but not to levels that would allow the fishery to continue for the entire year. In September, the Council recommended the trip limit be reduced to 3,000 pounds, effectively eliminating the directed fishery, and announced that all landings of Sebastes complex caught in the Vancouver and Columbia areas would be prohibited if the 18,500 mt harvest guideline was reached. This action drastically reduced the rate of landings; total 1983 Sebastes complex landings in the Vancouver and Columbia areas were nearly 18,000 mt.

Widow rockfish landings also proceeded at a rapid pace. The directed (target) fishery was closed on September 10 but a 1,000 pound incidental catch per trip was permitted. Total 1983 widow rockfish landings were over 10,300 mt, about 1 percent below the OY.

Pacific ocean perch landings in the Columbia area exceeded the 950 mt OY level in November and the fishery was closed beginning December 6. Total 1983 Pacific ocean perch landings in the Columbia area were 1,205 mt.

Because it was feared that excessive amounts of juvenile sablefish were being landed, a 22-inch minimum size limit was imposed on sablefish caught north of Point Conception (except Monterey Bay). About 14,500 mt of sablefish were harvested in 1983, about 1,100 mt above the 13,400 mt ABC and 2,900 mt below the 17,400 mt OY. A much reduced market in Japan during 1983 helped to reduce the 1983 catch below the 1982 catch.

1984 Fishery

The ABCs for the 1984 fishery were approved by the Council at its November 1983 meeting (Table 10 on page 87). Management actions in 1984 (Table 7) involved widow rockfish, the *Sebastes* complex (rockfish) and Pacific ocean perch. The size and trip limits set for sablefish in 1983 continued throughout 1984.

The OY for widow rockfish was reduced from 10,500 mt in 1983 to 9,300 mt in 1984. On January 1, 1984, the trip limit was set at 50,000 pounds. In addition, a trip frequency limit was set allowing only one landing of widow rockfish above 3,000 pounds in a week. In early May, the trip limit for widow rockfish was reduced to 40,000 pounds and the trip frequency restriction (one landing per week above 3,000 pounds) was maintained. The Council announced in July that when 9,200 mt of widow rockfish were landed, a trip limit of 1,000 pounds would be imposed (with no frequency restriction) for the remaining 100 mt of the quota. In early September, the 1,000 pound trip limit was imposed, and all landings of widow rockfish were prohibited on November 28 when the quota was expected to be reached.

After having been closed the last two months of 1983 in the Columbia area, the Pacific ocean perch fishery resumed January 1, 1984 in both the Vancouver and Columbia areas under the 5,000 pounds or 10 percent by weight (whichever is greater) trip limit established in the FMP. Projections made in July indicated landings under this limit would exceed the 950 mt Columbia area OY by the first week of August if current landing rates continued.

On July 16, the states of Oregon and Washington changed the Pacific ocean perch trip limits to 20 percent of all fish on board (by weight), not to exceed 5,000 pounds. Despite these restrictions, landings were not adequately slowed. The Columbia area was closed for Pacific ocean perch on August 16 when OY was reached. The Vancouver area OY, however, was not reached before year end.

Management of the *Sebastes* complex of rockfish was the most complicated groundfish issue facing the Council in 1984. South of the Columbia area, the species' ABCs were unchanged from 1983 and the 40,000 pound trip limit (with no trip frequency restriction), the same as in 1983, remained constant throughout 1984. However, in the Vancouver and Columbia areas, the summed ABCs were lower in 1984 and trip limit and trip frequency restrictions changed twice during the year. The way these limits were applied changed three times.

The sum of the ABCs for the Sebastes complex in the Vancouver and Columbia areas was set at 9,200 mt. The Council acknowledged the industry's difficulty in adjusting to such a sharp decline (from 1983) and set a harvest guideline of 10,100 mt as the goal for 1984 landings from the Vancouver and Columbia areas. On January 1, 1984, a trip limit of 30,000 pounds was imposed and allowed only one landing per week above 3,000 pounds for the Sebastes complex in the Vancouver and Columbia areas. The trip limit was reduced by half in May and again in August in an attempt to keep landings from exceeding the harvest guideline in 1984. To soften the impact of these severe restrictions, fishers were given the choice of reducing either the size or the frequency of their Sebastes landings. (Throughout the year, landings less than 3,000 pounds were not counted toward trip frequency limits to minimize discards of rockfish caught incidentally while targeting other species.) No further regulations were promulgated for the Sebastes complex in the Vancouver and Columbia areas.

1985 Fishery

The ABCs for the 1985 fishery were approved by the Council at the November 28-29, 1984 meeting in Seattle, Washington (Table 11 on page 88). OY levels were set equal to ABC for all species except widow rockfish and sablefish. The coastwide widow rockfish OY was set at 9,300 mt, compared with an ABC of 7,400 mt, and the sablefish OY was set at 13,600 mt, or approximately 10 percent above the 12,300 mt ABC.

Vessel trip limits were once again the basic regulatory mechanism preferred by fishing industry representatives advising the Council. Accordingly, the Council adopted trip limits (Table 7) in an effort to extend the fishery throughout the year without exceeding quotas or harvest guidelines.

Coastwide widow rockfish trip limits were set at 30,000 pounds once per week with an option to land 60,000 pounds once every two consecutive weeks (biweekly). The biweekly trip limit option was rescinded by the Council effective April 28, 1985 in an attempt to reduce the rate of landings. Effective July 21, 1985, the trip limit for widow rockfish was reduced to 3,000 pounds, with no limit on the frequency of landings. The trip limit was imposed to discourage directed fishing while permitting retention and sale of fish caught incidental to fishing for other species. Total landings of widow rockfish for 1985 were 9,087 mt, slightly below the 9,300 mt quota.

In 1985, management of the Sebastes complex was again the most complicated groundfish management issue. In the Vancouver and Columbia areas, more restrictive trip limits were implemented to reduce yellowtail rockfish landings and encourage landings of "remaining rockfish." A Sebastes complex trip limit of 30,000 pounds once per week was imposed, of which no more than 10,000 pounds could be yellowtail rockfish. An option of one landing every two consecutive weeks of double the amount also was adopted, but the fishers were required to notify the state in which landings would occur in writing seven days prior to fishing.

Effective April 28, 1985, the Council reduced the weekly trip limit to 15,000 pounds, of which no more than 5,000 pounds could be yellowtail rockfish. The biweekly landing option of double the amount was again adopted, as was a third option to land 7,500 pounds twice each week (semiweekly) of which no more than 3,000 pounds in each landing could be yellowtail rockfish.

By early September, GMT projections indicated that yellowtail rockfish landings would approximate the ABC and that Sebastes complex landings as a whole would fall about 1,000 mt below the harvest guideline. Effective October 6, the Sebastes complex trip limits were increased to 20,000 pounds per trip with respective biweekly and semiweekly adjustments. Yellowtail rockfish trip limits were not changed.

The size and trip limits specified for sablefish in 1984 continued until November 25. At that time, it was determined that 90 percent OY had been reached by October 21. As specified in the FMP, the remaining portion of the OY was allocated on a 50:50 basis to the fixed gear and trawl fleets (680 mt to each gear type). The trawl fleet was put on a trip limit of 13 percent total round weight on board. By December 6, the OY had been reached and all landings of sablefish were prohibited.

Pacific ocean perch landings in the Columbia area exceeded the 950 mt quota in 1983 and 1984 under a trip limit of 5,000 pounds or 10 percent of the total weight of fish on board, whichever was greater. Landings of Pacific ocean perch were prohibited during the latter part of both years. Beginning in 1985, the trip limits were changed to a maximum of 20 percent of the total weight of the fish on board in an effort to discourage targeting and thus reduce landings. The regulation was effective in the Columbia area, but not in the Vancouver area. Effective April 28, 1985, the Council modified the Pacific ocean perch trip limit regulation to 5,000 pounds or 20 percent of the total weight of the fish on board, whichever was less, thus prohibiting large landings of these species. This regulation was effective in reducing landings, and total landings of Pacific ocean perch were 424 mt in the Vancouver area and 886 mt in the Columbia area. The 1985 landings of Pacific ocean perch were below OY in both areas.

On September 1, 1985, the management boundary line separating northern and southern trip limits for the Sebastes complex was shifted approximately 30 miles northward to the jetty on the north side of Coos Bay, Oregon. The move was approved by the Council to minimize management and catch reporting problems which arose earlier when the management line was moved to Cape Blanco, Oregon. Coos Bay fishers testified that moving the line to the north jetty of Coos Bay would simplify and enhance the operations of fishers who were required to contend with two different trip limits and trip frequencies adjacent to their port of landing.

In March 1985, the Council provisionally approved issuance of up to 18 experimental setnet permits for sablefish. Two permits were issued by NMFS in 1983 and three in 1984 despite recommended denial by the Council. The expanded experimental fishery was intended to evaluate gear conflicts and the effects of the setnet fishery on fully utilized stocks of fish. Twelve vessels actually fished in 1985 with most of the effort centered off northern Washington.

1986 Fishery

The ABCs for the 1986 fishery were approved by the Council at the November 13-14, 1985 meeting in Seattle, Washington (Table 12 on page 89). As in previous years, the OY was set equal to ABC except for widow rockfish and sablefish. The coastwide widow rockfish OY was set at 10,200 mt compared with an ABC of 9,300 mt. The coastwide OY for sablefish was set at 13,600 mt, about 30 percent above the 10,600 mt ABC.

Management measures established by the Council (Table 7) were similar to those of the past three years. Industry advisors to the Council reaffirmed their support of vessel trip limits for the few species which required regulations to prevent overexploitation. It was their view that vessel trip limits are more likely to achieve the objective of extending the fishery throughout the year without exceeding quotas or harvest guidelines.

Coastwide domestic commercial groundfish landings were projected to be down slightly from 1985. A decline in Dover sole landings accounted for the majority of the decrease, but rockfish and lingcod landings also were down. The decrease in rockfish landings was attributed to regulatory actions. Directed effort for Dover sole decreased in 1986 as many trawlers shifted to the rapidly improving coastal pink shrimp fishery. Lack of availability was a factor in the Vancouver area with many fishers reporting poor success for Dover sole.

A coastwide widow rockfish trip limit was set at 30,000 pounds once per week. The option to permit one 60,000 pound landing every two consecutive weeks was rejected because industry advisors and the Council concluded this option would increase landings early in the season and result in a premature closure of the fishery. Good fishing during the early part of the year precluded the intent to extend the fishery throughout the year. GMT landing projections in early April indicated that ABC would be reached by late summer or early fall. After hearing industry testimony that smaller trip limits were not practicable, the Council opted to retain the 30,000 pound trip limit until ABC was reached. At that time, the trip limit would be reduced to 3,000 pounds per trip without a limit on the frequency of landings. The Council reaffirmed the regulation at its September 17-18 meeting, and the 3,000 pound trip limit was imposed on September 28.

In contrast to previous years, management of the *Sebastes* complex presented no major problems. Trip limits south of the Columbia area were set at 40,000 pounds for the third consecutive year, with no limit on the frequency of trips. The Vancouver and Columbia areas harvest guideline was set at 10,200 mt. Weekly trip limits were set at 25,000 pounds of which no more than 10,000 pounds could be yellowtail rockfish. Biweekly and semiweekly options in the same proportions also were set to provide fishers with additional options. From the start of the year, landing rates were down from previous years. Reasons included a more normal weather pattern than the excellent weather encountered early in 1985, poorer availability of rockfish early in the year and less directed rockfish effort later in the spring because many vessels converted to shrimp fishing or entered the joint venture fishery for whiting. On August 31, after the GMT reported the harvest guideline would not be achieved with the lower trip limits, the Council increased trip limits to 30,000 pounds once per week of which no more than 12,500 pounds could be yellowtail rockfish. Similar adjustments were made to biweekly and semiweekly options.

Several different management measures had been tried for Pacific ocean perch since 1983. The regulations implemented during the past few years had either resulted in exceeding the OY and closing one area while taking less than the OY in the other, or underharvesting in both areas. The 1986 Pacific ocean perch trip limit was set at 10,000 pounds per trip or 20 percent of the weight on board, whichever was less. This regulation apparently resulted in landings less than the OY in the Columbia area. In the Vancouver area, where large landings of other species of groundfish are common, many vessels targeted Pacific ocean perch to bring their catches up to the maximum allowed under the regulation. As a result, the OY was expected to be reached in

mid-November and landings of Pacific ocean perch from the Vancouver area were prohibited for the remainder of the year. It was apparent from the experiences of the past four years that a single trip limit regulation for both the Vancouver and Columbia areas cannot meet conservation and harvest goals for each area. Conversely, regulations which differ between areas may meet the desired objective for each area but cannot be effectively enforced because some vessels commonly fish both areas on a single trip.

The initial 1986 sablefish regulations were unchanged from the past three years. The fishery was unrestricted except that landings of fish less than 22 inches were limited to 5,000 pounds per trip. During the early part of the year, landings were similar to 1985 and it was evident that the 13,600 mt quota could be reached before the end of the year. In early April, both trawl and fixed gear fishers expressed an interest in revising the management regime in the FMP, which required that the catch be allocated between fixed and trawl gear when 90 percent of the quota was reached and established trip limits for trawlers by a predetermined formula. There was a common desire to establish shares earlier in the year to permit fixed gear fishers adequate time to plan vessel operations and to set trip limit regulations for trawlers that would be significantly greater than those set under the FMP scenario. In July, the Groundfish Select Group (GSG) recommended to the Council that the remaining unharvested balance of the 1986 OY be allocated between trawl and fixed gear based on the share of total sablefish landings for a five-year (1981-1985) average. The GSG further proposed that fixed gear landings continue without restriction until the fixed gear allocation was reached, and that trawl trip limits be set at levels which would allow trawl fishers to continue to land sablefish for the remainder of the year without exceeding the trawl allocation. Either gear would be prohibited from further sablefish landings after the gear allocation was reached, and all landings would be prohibited when the OY was reached. The rationale for the proposals was that fixed gear fishers landed only sablefish, had no alternative fishery and could not operate economically under trip limits. Conversely, sablefish are primarily an incidental species in the multispecies trawl fishery, and wastage would occur if landings were prohibited and catches were discarded at sea.

The allocation proposal was adopted by the Council and implemented on August 22. GMT landing projections developed in early October indicated that trawl landing rates were at a level which might not reach the trawl allocation by the end of the year. The fixed gear allocation, however, was projected to be reached by late October, at which time landings of sablefish by this gear would be prohibited for the remainder of the year.

The FMP prohibits the use of setnet gear for groundfish north of 38° N latitude. In an effort to evaluate the impacts and success of a setnet fishery, the director of NMFS Northwest Region issued experimental permits to harvest groundfish with setnets in the exclusive economic zone (EEZ) adjacent to Washington, Oregon and California each year from 1982-1985. In March 1986, the Council reviewed the results of the experimental fishery and the implications of legalizing setnet gear in the prohibited area. The Council reaffirmed its position that setnets should be prohibited north of 38° N latitude and recommended that no experimental permits be issued in 1986. NMFS concurred with the recommendation and the experimental fishery was terminated.

1987 Fishery

For each species managed by a numerical OY, the 1987 OY was set equal to the estimated ABC (Table 13 on page 90). An interim coastwide ABC/OY for sablefish was set at 12,000 mt until a review of all stock assessment data could be completed by an ad hoc stock assessment work group.

Management measures established by the Council were similar to those of the past four years (Table 7). Industry advisors to the Council reaffirmed their support of vessel trip limits for species that required regulation to prevent overexploitation. It was their view that vessel trip limits were likely to achieve the objective of extending the fishery throughout the year without exceeding quotas or harvest guidelines. No abnormal or extreme environmental conditions were encountered in 1987, and fishing patterns, fluctuations in landings and fleet size were well within expectations.

The increased Pacific cod landings in the northern areas and reports of small cod as far south as northern California were encouraging and indicated that cod abundance might be increasing after several years of apparent low abundance.

The decline in Dover sole landings for the second year in a row could be attributed primarily to decreased directed effort, but a lack of availability in the northern areas also impacted the total landings. The reasons for decreases in the other species were less clear, but were probably a result of decreased abundance.

Increased widow rockfish landings were directly related to the 3,200 mt increase in OY for 1987. Trip limits were once again set at 30,000 pounds once per week. Fishing was good coastwide and many vessels consistently landed limits each week until early May when widow rockfish became less available to trawls. At the September Council meeting, the GMT projected the 12,500 mt OY would be reached in late November. The Council approved a 5,000 pound weekly trip limit when 95 percent of the OY (11,875 mt) was landed. The lower trip limit was not effective and landings were prohibited on November 25.

Management of the Sebastes complex was similar to 1986. South of the Columbia area, trip limits were set at 40,000 pounds for the fourth consecutive year, with no limit on the frequency of trips. The Vancouver and Columbia areas harvest guideline was set at 10,200 mt. Weekly trip limits were set at 25,000 pounds of which no more than 10,000 pounds could be yellowtail rockfish. Biweekly and semiweekly options in the same proportions also were set to provide fishers with an option that best fit into their overall fishing operations.

Fishing success for the Sebastes complex in 1987 was improved over 1986. It was reported that, because of good catch rates, some fishers targeted the Sebastes complex early in the year rather than fishing for widow rockfish. The greatest improvement was noted early in the year in the Vancouver area where fishers reported excellent availability of yellowtail rockfish and

complained that they discarded fish to prevent exceeding the landing limit. In late July, the Council reduced the weekly yellowtail rockfish landing limit from 10,000 to 7,500 pounds in an attempt to prevent landings from exceeding the ABC for this species in the Vancouver and Columbia areas.

The 1987 ABC for Pacific ocean perch in the Vancouver and Columbia areas was set at 0 mt because stocks were stressed and had not recovered since being overexploited in the late 1960s. The OYs were set at 500 mt for the Vancouver area and 800 mt for the Columbia area to permit retention of fish harvested incidentally while fishing for other species. To discourage directed fishing, the Council established a trip limit of 20 percent of the total weight of legal fish on board, not to exceed 5,000 pounds per trip. Landings of Pacific ocean perch were well below the OY.

Difficulties with sablefish stock assessment and management continued to plague the Council in 1987. Efforts to develop scientifically credible estimates of coastwide sablefish abundance and ABC were unsuccessful, primarily because of the lack of an adequate and comprehensive historical data base. The Council established an interim 1987 ABC/OY of 12,000 mt based on the best information available. Despite several efforts by the GMT and an ad hoc stock assessment work group, no better estimate was developed and the 12,000 mt OY was not revised during the year. Trawl gear was allocated 52 percent of the OY and nontrawl gear 48 percent to assure historical and equitable sharing of the harvest. Landing by both gear types lagged behind 1986. Decreased effort early in the year by nontrawl gear and decreased trawl effort were undoubtedly major factors in decreased landings. Nontrawl fishers, however, reported fewer large sablefish and indicated that fishing success was generally poorer than in previous years. Although landings were lower, both gear types were projected to achieve their allocation before the end of the year. A trip limit of 6,000 pounds or 20 percent of the total weight of legal fish on board was implemented for trawl gear on October 2 in an attempt to extend the fishery and to prevent discards. In October, the nontrawl fishery was projected to reach its allocation in mid-October, at which time sablefish landings by nontrawl gear would be prohibited for the remainder of 1987. The trawl fishery for sablefish was closed October 22.

1988 Fishery

The ABCs and numerical OYs for the 1988 fishery were approved by the Council at the November 18-19, 1987 meeting in Portland, Oregon (Table 14 on page 91). Most management measures established by the Council (Table 7) were similar to those of recent years. Nonetheless, for the first time, trawl trip limits for sablefish were implemented on January 1 in order to prevent the trawl fleet from exceeding its allocation quota. Industry advisors to the Council reaffirmed their support of vessel trip limits for the few species that require additional regulation to prevent overexploitation. Vessel trip limits were implemented with the objective of extending the fishery throughout the year without exceeding quotas or harvest guidelines. No abnormal or extreme environmental conditions were encountered in 1988. Nonetheless, unsteady fishing patterns and landings fluctuations resulted from erratic market conditions. Fleet size was well within expectations.

One major management problem in 1988 was the temporary loss of Pacific Coast Fisheries Information Network (PacFIN) funding for port samplers and data processors, impairing the accuracy of landings projections and future stock assessments which rely on biological sampling.

The continued increase in Pacific cod landings in the northern areas and reports of cod as far south as northern California were encouraging and indicated that cod abundance may have increased after several years of apparent low abundance.

Widow rockfish landing rates varied greatly through the season as a result of unstable market factors. Trip limits were once again set at 30,000 pounds once per week. Fishing was good coastwide and many vessels consistently landed limits. At the July 13-14 Council meeting, the GMT projected the 12,100 mt OY would be reached in early October. The Council approved a 3,000 pound trip limit to go into effect when just enough of the OY remained to allow this trip limit to remain in effect until December 31. The intent of the Council was achieved.

Management of the Sebastes complex presented no major problems in 1988. South of Coos Bay, trip limits were set at 40,000 pounds for the fifth consecutive year, with no limit on the frequency of trips. North of Coos Bay, the harvest guideline was set at 10,200 mt. Weekly trip limits were set at 25,000 pounds of which no more than 10,000 pounds could be yellowtail rockfish. Biweekly and semiweekly options in the same proportions also were set to provide fishers with an option that best fit into their overall fishing operations.

Fishing success for the Sebastes complex was similar to 1987. Increased landings were noted primarily in the Vancouver area where fishers reported excellent availability of yellowtail rockfish and complained that they discarded fish to prevent exceeding the landing limit. GMT projections in July indicated the ABC would be reached in mid-August unless effort was reduced. Preliminary assessment results indicated the ABC could increase significantly and management action was postponed pending review and approval of the new stock assessment. However, the completed assessment indicated the ABC should be increased by only 300 mt. Subsequent to receiving the assessment, the Council reduced the weekly yellowtail rockfish landing limit from 10,000 to 7,500 pounds. The Council's intent was to reduce targeted fishing on yellowtail rockfish in the Vancouver and Columbia areas without forcing a significant increase in discards. Despite trip limit reductions, yellowtail rockfish landings exceeded ABC.

The 1988 ABC for Pacific ocean perch in the Vancouver and Columbia areas was set at 0 mt because stocks were stressed and had not recovered since being overexploited in the late 1960s. As in 1987, the OYs were set at 500 mt for the Vancouver area and 800 mt for the Columbia area to permit retention of fish harvested while fishing for other species. To discourage directed fishing, the Council established a trip limit of 20 percent of the total weight of fish on board, not to exceed 5,000 pounds per trip. Landings of Pacific ocean perch were again below OY.

Difficulties with sablefish stock assessment and management continued to plague the Council in 1988. Efforts to develop scientifically credible estimates of coastwide sablefish abundance and ABC were unsuccessful until late in the year, primarily because of lack of an adequate model to analyze the diverse historical data base. The Council established an ABC of 10,000 mt and an OY range of 9,200 to 10,800 mt based on the best information available. Trawl gear was allocated 5,200 mt and nontrawl gear was allocated 4,800 mt in an attempt to maintain an

equitable sharing of the harvest. An additional 800 mt was held in reserve in case the trawl fishery unavoidably exceeded its allocation. To achieve the 5,200 mt allocation, a trawl trip limit of 6,000 pounds or 20 percent of the fish on board, whichever was greater, was implemented on January 1. Because of a lack of PacFIN data, landings were difficult to monitor. Early in the year, trawl landings were high in spite of the trip limit. The trip limit was reduced to 2,000 pounds once per week on August 3 and the 800 mt reserve was released to the trawl quota to extend the fishery throughout the year. While this trip limit substantially impacted the landing rate, fishers reported that discards also increased significantly. Projections by the GMT in September indicated that the 2,000 pound weekly trip limit had slowed landings to the extent that the original 5,200 mt allocation would not be achieved. The Council removed the trip frequency restriction in early October in an attempt to reduce the amount of forced discarding. Nontrawl landings also were substantially above the 1987 rate and the fishery was closed on August 25.

1989 Fishery

The ABCs and numerical OYs for the 1989 fishery were approved by the Council at the November 16-18, 1988 meeting in Portland (Table 15 on page 92). For those species requiring a numerical OY, levels were set at the estimated ABC, except for Pacific ocean perch and sablefish. Most management measures established by the Council were similar to those of recent years (Table 7). Industry advisors to the Council reaffirmed their support of vessel trip limits for the few species which require additional regulation to prevent overexploitation. Vessel trip limits were implemented with the objective of extending the fishery throughout the year without exceeding quotas or harvest guidelines.

No abnormal or extreme environmental conditions were encountered in 1989. Nonetheless, there were some periods of landing fluctuations caused by erratic market conditions. Fleet size was within expectations.

Coastwide domestic commercial groundfish landings were 88,282 mt, down slightly from 1988. Landings of Dover sole decreased in 1989, 17,123 mt as opposed to 18,000 mt in 1988, but in the Columbia area a new catch record was established at 8,226 mt (based on logbook adjusted data). Landings of arrowtooth flounder also increased in 1989 to 3,540 mt, even though regulations inhibited some activity on this species. Thornyhead landings increased in 1989 as the deepwater fishery for longspine thornyheads continued to increase. Landings in 1989 were 6,244 mt for both species as opposed to 5,591 mt in 1988. Again in 1989, there was no foreign fishery allocation for Pacific whiting. Joint venture requests exceeded the available supply, thus no total allowable level of foreign fishing was granted.

Widow rockfish landing rates varied somewhat through the season as a result of erratic market factors. At the beginning of the fishing year, trip limits were again set at 30,000 pounds per week. Fishing was good coastwide, especially in January and February. The GMT projected in March that a 51 percent reduction in the rate of landings would be required to extend the fishery to the end of the year. On the advice of the GSG, the Council approved a reduction in the trawl trip limit to 10,000 pounds per week or 20,000 pounds per two weeks, effective April 26. On October 11, 1989, the trawl trip limit was further reduced to 3,000 pounds per week to avoid a

fishery closure. Subsequently, the GMT projected that the quota would be reached on December 13, and beginning on that date no further landings of widow rockfish were allowed. Final landings were 12,523 mt, 101 percent of the OY.

Management of the Sebastes complex was similar to previous years. South of Coos Bay, trip limits were set at 40,000 pounds per trip. North of Coos Bay, trip limits were set at 25,000 pounds once per week of which no more than 7,500 pounds could be yellowtail rockfish. There were biweekly and semiweekly options available upon written notification. At the July 12–13 Council meeting, the GSG recommended the trip limit on yellowtail rockfish be reduced to 3,000 pounds or 20 percent of the Sebastes complex on board, whichever was greater, to keep the annual harvest near the ABC of 4,300 mt for the Vancouver and Columbia areas. This restriction became effective on July 26.

Management of Pacific ocean perch in 1989 presented the Council with a challenge. The ABCs were set at 0 mt but the OYs were set at 500 mt for the Vancouver area and 800 mt for the Columbia area to allow for incidental catch. In July, the GMT alerted the Council that the Columbia area OY would be met July 31 at the current landing rate. The Council recommended the trip limit be reduced to 2,000 pounds or 20 percent (by weight) of all legal fish on board, whichever was less, from 5,000 pounds or 20 percent (by weight) of all legal fish on board, whichever was less. Concurrently, the OY in the Columbia area was increased by 30 percent with the intent of preventing a fishery closure. The intent of the revised trip limit, which went into effect on July 26, was to accommodate incidental catches of Pacific ocean perch. The reduction in the trip limit was insufficient to keep landings within the OY of 1,040 mt in the Columbia area and the fishery closed on November 13. Landings for the year in the Vancouver and Columbia areas were 1,443 mt, 94 percent of the sum of the two OYs.

Sablefish presented the Council with its greatest groundfish challenge in 1989. The stock assessment indicated the ABC should be 9,000 mt. Because the stock was still above its maximum sustainable yield (MSY), the OY was set at 10,400 to 11,000 mt. The intent was to gradually fish the stock down to the level that produces MSY by managing for the low end of the OY, but if landings exceeded 11,000 mt, further landings would be prohibited for all gear types.

The initial allocations, excluding 22 mt for the Makah Indian Tribe, were 5,397 mt (52 percent) for trawl gear and 4,981 mt (48 percent) for nontrawl gear. A 600 mt reserve was established for uncertainties in landing projections, incidental catches and continuation of small nontrawl fisheries that operate later in the year. The trawl fishery began the fishing year with a trip limit of 1,000 pounds or 45 percent, whichever was greater, of the deepwater complex. The deepwater complex was defined as sablefish, Dover sole, arrowtooth flounder and thornyheads. At its April 4–7 meeting, the Council was informed that sablefish landing rates were such that an early fishery closure would occur June 27 for nontrawl and September 21 for trawl. To minimize discards of sablefish in the trawl fishery and avoid large-scale disruption of the fishery, the Council recommended the trawl quota be increased by 1,000 mt (400 mt from nontrawl plus the 600 mt reserve) and altered the trawl trip limit. The new trip limit placed a once per week 30,000 pound limit on the deepwater complex of which no more than 1,000 pounds or 25 percent, whichever was greater, could be sablefish. There were also biweekly and twice weekly options available. The deepwater complex limit and trip frequency restriction were

removed October 4, but the separate limit on sablefish remained in place. Directed fishing by nontrawl gear ended on July 17, when an incidental trip limit of 100 pounds per trip was implemented. On October 4, this limit was relaxed to 2,000 pounds or 20 percent of all groundfish on board, whichever was less. By year end, trawl landings were 5,697 mt, 89 percent of the revised trawl allocation. The nontrawl fishery landed 4,417 mt, 96 percent of the nontrawl allocation.

1990 Fishery

The Council approved the ABCs and OYs for the 1990 fishery at the November 15-17, 1989 meeting in Portland, Oregon (Table 16 on page 93). For those species requiring a numerical OY, landing limits were set equal to the estimated ABC with the exception of Pacific ocean perch and widow rockfish.

The initial and subsequent changes in management measures are shown in Table 7. Most management measures were similar to the previous two years. Trip limits were again used as the primary means of limiting landings of managed species. At present levels of fishing effort, trip limits offered the most viable method of meeting the Council objective of a year-long groundfish fishery.

Landings in 1990 may have been reduced in part to adverse weather conditions which prevailed for much of January and February. Lower landings were anticipated for Dover sole, which set record landings in the Columbia area in 1989. The coastwide landing was 15,795 mt. Landings of thornyheads were nearly 7,000 mt through August and were 10,126 mt by year end, a substantial increase over previous years.

Fleet size was similar to that of 1989 except that substantial effort from the shrimp fishery entered the groundfish fishery in August and September. This caused an increase in the deepwater complex fishery where effort targeted thornyheads. However, the landings of trawl-caught sablefish also increased, and in September the GMT informed the Council that sablefish would become a prohibited species as early as November 8 if sablefish landings were not reduced by 50 percent during the last quarter. The Council responded by changing the definition of the deepwater complex (removing arrowtooth flounder) and placing a 15,000 pound trip limit on the deepwater complex while retaining the sablefish restriction. Removing arrowtooth flounder from the complex was justified by an analysis performed by Washington Department of Fisheries (WDF) on Washington and Oregon trawl logbook data.

Nontrawl sablefish management also underwent several changes in 1990. In November 1989, the Council recommended the trawl:nontrawl allocation be revised from 58:42 to 62:38 and the nontrawl season opening date be delayed until April 1. NMFS did not approve the Council's recommended management measures before the fishery opened on January 1. Therefore, the nontrawl trip limit in effect at the end of 1989 (the greater of 2,000 pounds or 20 percent of all fish on board) remained in effect until NMFS formally disapproved the Council's management recommendations. On January 31, the trip limit was rescinded and nontrawl fishing was unrestricted. NMFS stated that the anticipated Indian tribal catch (300 mt) would be subtracted from OY, and reaffirmed that the remaining 8,600 mt would be allocated according to the 58:42 ratio established in 1989. On March 21, the nontrawl restriction on sablefish less than

22 inches (the greater of 1,500 pounds or 3 percent), which had been inadvertently dropped in the NMFS disapproval, was reinstated. The GMT projected that only 300 mt of the nontrawl quota would remain on June 24, and a 500 pound trip limit went into effect on that date. Further adjustments were made in July and again in September (Table 7). The September action, which increased the trip limit to 2,000 pounds per trip, was taken so the nontrawl allocation could be fully utilized.

In November 1989, the GMT advised the Council that widow rockfish landings should be reduced substantially in 1990. The GMT recommended the 1990 ABC be set at 7,900 mt, down from the 12,400 mt ABC for 1989. The Council set ABC at 8,900 mt and OY at 9,800 to 10,000 mt, with the intention of managing for 9,800 mt. Landings of widow rockfish were projected to reach nearly 9,800 mt by year end. Trip limits in 1990 were the most restrictive ever, 10,000 pounds per week or 25,000 pounds per two weeks. The quota was reached and the fishery was closed on December 12.

Management of the Sebastes complex south of Coos Bay Oregon in 1990 was unchanged from 1989 with a limit of 40,000 pounds per trip and no trip frequency restrictions. North of Coos Bay, the trip limits were 25,000 per week of which no more than 7,500 pounds could be yellowtail rockfish. The GMT projected in July that additional restrictions for yellowtail rockfish would be necessary to stay within the harvest guideline. Subsequently, the Council recommended a reduction in the trip limit on yellowtail rockfish to 3,000 pounds per week or 20 percent of all Sebastes on board, whichever was greater. At the meeting in September, the Council was advised by the GMT that landings of yellowtail rockfish would exceed the harvest guideline. Because of a new stock assessment on yellowtail rockfish, the GMT advised the Council that an overage of 575 mt would not cause stress and no additional action was taken. The Columbia and Vancouver (U.S.) area landings were 4,026 mt.

Management of Pacific ocean perch was not a problem in 1990. The trip limit implemented at the beginning of the year (3,000 pounds per trip or 20 percent of all fish on board, whichever was less) kept landings well within the quotas for both the Columbia and Vancouver areas.

1991 Fishery

The ABCs for 1991 were approved by the Council at the November 14-16, 1990 meeting held in Seattle, Washington (Table 17 on page 94). Three species were designated as quota species in 1991: Pacific whiting, shortbelly rockfish and jack mackerel. Quotas were set equal to the respective ABCs. For all other species, the Council adopted the harvest guideline approach recommended by the GMT. Harvest guidelines were set equal to ABCs except for the species discussed in the following sections.

Effort levels in 1991 were higher than in 1990, but quantitative estimates are not available. The largest increase in effort occurred in the trawl fishery when thirteen factory trawlers and three motherships from Alaska arrived to fish for whiting. There was also a large influx of displaced salmon trollers that fished for groundfish in 1991 because of shortened salmon seasons.

Shoreside landings of Pacific whiting increased substantially in 1991, reaching a new high of 20,600 mt. This brought shoreside total groundfish landings to 102,740 mt, roughly 10 percent greater than in 1990. At-sea processing of whiting added another 196,905 mt to the landings (including discards). Overall, domestic landings in 1991 set a record of 286,400 mt.

An allocation scheme for Pacific whiting was approved for the three entities (factory trawlers, motherships and shoreside processing) prior to the arrival of the at-sea processing fleet. It was implemented on August 29, at which time further fishing by catcher-processors was prohibited because they had already exceeded their quota. All at-sea processing in federal waters was prohibited on September 6 and the remaining portion of the harvest guideline was available for deliveries to shore-based processors only.

Incidental catch by the offshore fleet was of special concern to the Council because of severe cut-backs to salmon fisheries off southern Oregon and northern California. The number of salmon tallied was 6,280 fish for an incidence rate of 0.032 fish per mt of whiting. On the average, this was less than the agreed to rate of 0.05. The incidental catch of rockfish was 1,536 mt, nearly all of which was discarded.

Sablefish management in 1991 was similar to 1990. The tribal set aside of 300 mt was taken from the harvest guideline of 8,900 mt. Landings during the January through March period were 423 fish. The remaining 8,600 mt was allocated between trawl (58 percent) and nontrawl (42 percent). The nontrawl season opened January 1 with a 1,500 pound trip limit and on April 1 unrestricted fishing commenced. The April 1 opening was meant to coincide with the season opening in Alaska, but the Alaska season opened on May 15. Nontrawl landings in April were four times the average April landings. This pulse shortened the season substantially, and the nontrawl season was closed on July 1. At its July meeting, the Council recommended an emergency action to allow incidental and low level catch to continue under a 300 pound daily trip limit which was implemented on September 30.

Sebastes management north of Coos Bay, Oregon was via trip poundage and frequency limits and was unchanged from 1990. The fishery year began with a weekly trip limit of 5,000 pounds on yellowtail rockfish. In April, the trip limit was reduced to 5,000 pounds every two weeks. Landings of yellowtail rockfish under 3,000 pounds were exempt from frequency restrictions. Because of the lower trip limit and expected increased discard that would occur, the GMT recommended a discard factor of 16 percent be applied to the landed weight to account for the catch at sea. The offshore processing fleet caught 314 mt of yellowtail rockfish.

South of Coos Bay, the Council recommended a 25,000 pound trip limit with no trip frequency restriction. The Council also recommended a trip limit of 5,000 pounds on bocaccio because of declining recruitment. The ABC for bocaccio was set at 800 mt, but the Council recommended a harvest guideline of 1,100 mt after hearing public testimony. The harvest guideline is within the range of estimates of equilibrium yield and less than the fishing rate that would trigger an overfishing review.

Widow rockfish trip limits in 1991 were 10,000 pounds per trip per week or 20,000 pounds per two weeks. On September 25, a 3,000 pound trip limit was implemented. This amount was intended to discourage directed fishing but allow for incidental catch.

Landings of Pacific ocean perch were projected to be 1,438 mt, 30 percent greater than the harvest guideline. The ABC for Pacific ocean perch was set at 0 mt, but to allow for incidental catch a harvest guideline of 1,000 mt was set for 1991. Even at the lower trip limit in 1991, 3,000 pounds or 20 percent of all fish on board, whichever was less, some fishers still targeted for the trip limit.

The deepwater complex in 1991 was managed by trip poundage and frequency limits. The deepwater complex is defined as Dover sole, sablefish and thornyhead. The GMT recommended a thornyhead ABC of 5,900 mt based on a first-time assessment of *Sebastes* species. The Council set the ABC at 7,900 mt and proposed a weekly trip limit of 7,500 pounds which was low enough to substantially reduce landings. At its July meeting, the Council recommended an increase in the trip limit to 12,500 pounds, but even at this rate the projected landings were less than the original ABC of 5,900 mt recommended by the GMT.

The sablefish component of the deepwater complex was managed by a trip limit of 1,000 pounds or 25 percent of the deepwater complex, whichever was greater. Projected landings were expected to be 4,820 mt, about 3 percent less than the trawl allocation.

1992 Fishery

The ABCs for 1992 were approved by the Council at the November 20–22, 1991 meeting in Millbrae, California (Table 18 on page 95). A harvest guideline or quota may be established for any species needing attention under the framework procedures established by Amendment 4. For 1992, the Council set harvest guidelines for sablefish, Pacific ocean perch, widow rockfish, bocaccio, yellowtail rockfish, the *Sebastes* complex, thornyheads, Dover sole, Pacific whiting, shortbelly rockfish and jack mackerel. Harvest guidelines were adopted for the last three species because only U.S. companies were to be involved during 1992. Harvest guidelines were set equal to the respective ABCs in most cases. For yellowtail rockfish, a 4,300 mt harvest guideline was applied only to the Columbia and Vancouver areas. This ABC was later increased to 4,700 mt to correct a rounding error which occurred during 1991.

Harvest guidelines were not set equal to the respective ABCs for jack mackerel, Pacific ocean perch, bocaccio, thornyheads and yellowtail rockfish. The jack mackerel harvest guideline was less than the ABC of 52,600 mt and equal to the 1991 quota of 46,500 mt. That quota was set based on anticipated harvest outside of the management area (i.e., south of 39° N latitude and outside 200 miles). To account for the unavoidable bycatch of Pacific ocean perch, the coastwide harvest guideline was set at 1,550 mt. The Council recognized that even severe management restrictions would not keep bocaccio fishing mortality within the ABC of 800 mt. Accordingly, the harvest guideline was set at 1,000 mt (ABC = 0 mt). Because the two species of thornyheads (longspine and shortspine) are difficult to distinguish, a harvest guideline was set for both species combined. In many landings, these two species occur in roughly equal proportions, so a harvest guideline was determined that would exceed the ABC for shortspine thornyhead but remain below the overfishing level. The Council set the harvest guideline for yellowtail rockfish at 5,400 mt

for the Vancouver, Columbia and Eureka areas. In a related action, the subarea boundary was moved from the north jetty at Coos Bay to Cape Lookout. The subarea harvest guideline for the area south of Cape Lookout was set at 1,400 mt, and the remaining 4,000 mt was set for the subarea north of Cape Lookout. The *Sebastes* complex harvest guideline for the area north of Cape Lookout was set at 8,000 mt to account for the increase in the yellowtail rockfish harvest guideline.

The 1992 Pacific whiting harvest guideline was set at 208,800 mt, 90 percent of the coastwide (U.S. plus Canada) ABC. An allocation among U.S. participants was again established which

- put an initial limit of 98,000 mt on at-sea processing,
- provided an 80,000 mt allocation for shoreside processing,
- put 30,000 mt into a reserve with priority given for shoreside processing,
- required shoreside processors to have taken 48,000 mt (60 percent of initial allocation) by September 1, 1992 or the reserve would be made available to the at-sea processor fleet and
- required any amount of whiting not needed by shoreside processors to be released to the at-sea processor fleet on October 1, 1992.

The Council also recommended that the opening of the whiting season be delayed until April 15, 1992 to reduce the bycatch of salmon and rockfish (particularly in the Monterey area). To further reduce bycatch in the whiting fishery, the Council recommended the following regulations:

- No processing at sea south of 42° N latitude
- No fishing between 0001 hours and one-half hour after official sunrise
- No fishing in the Klamath River salmon conservation zone
- No fishing in the Columbia River salmon conservation zone
- In the Eureka area, a 2,000 pound trip limit inside of 100 fathoms

The Pacific whiting allocation, season opening date and fishing restrictions were all approved by NMFS via emergency regulation.

Sablefish management in 1992 was similar to 1991, but with greater attention to the level of trip limits that could be set given the large increase in vessels participating in the nontrawl fishery. The Council adopted a framework which allowed the unrestricted sablefish fishery to begin three days prior to the opening of the Alaska sablefish fishery. The West Coast fishery opened May 12, 1992.

Beginning January 1, 1992, a 500 pound daily trip limit (no more than one landing per day) was allowed for incidental and small directed sablefish fisheries. The trip limit was set to increase to a 1,500 pound daily trip limit beginning March 1, which would run until the opening of the unrestricted fishery or until 440 mt of the nontrawl sablefish harvest guideline had been taken. By March 21, 1992, the 440 mt limit was reached and the trip limit was reduced to 500 pounds. A much higher than anticipated level of effort stayed in the fishery after the 1,500 pound trip limit was reduced to a 500 pound trip limit, and as a result, the trip limit was further reduced to 250 pounds on April 17, 1992. The unrestricted fishery began May 12, 1992 following hold

inspections by the states. To insure enough sablefish to continue with a 250 pound trip limit through the remainder of the year (300 mt), the unrestricted season was closed at 0001 hours May 27, 1992 and the 250 pound trip limit was re-implemented.

The Washington coastal treaty Indian sablefish fishery was managed by tribes to a quota of 300 mt. The fishery opened January 1, 1992 and closed July 10, 1992, with a total harvest of 337 mt. Most of the weekly trawl trip limits (biweekly, weekly and twice weekly) were changed to cumulative vessel limits on January 1, 1992 in an attempt to reduce discards and lower the occurrence of trip limit violations. Cumulative two-week limits were enacted for the Sebastes complex (including bocaccio and yellowtail rockfish) and the deepwater complex (Dover sole, sablefish and thornyheads). The fishery began with a 50,000 pound two-week cumulative limit for Sebastes complex, of which no more than 8,000 pounds could be yellowtail rockfish caught north of Cape Lookout and no more than 10,000 pounds could be bocaccio caught south of Cape Mendocino. For the deepwater complex, the two-week cumulative limit began at 55,000 pounds of which no more than 25,000 pounds could be thornyheads, and no more than 25 percent or 1,000 pounds per trip (whichever is greater) could be sablefish. A cumulative four-week limit was set at 30,000 pounds for widow rockfish. In general, these cumulative limits significantly reduced violations. However, by mid-season, thornyheads, yellowtail rockfish and widow rockfish all required inseason adjustment.

The Sebastes subarea boundary line was moved south to Cape Lookout in an attempt to make more yellowtail rockfish available (the trip limit was the same as the Sebastes limit south of the line) in areas where it was believed that targeting would not occur and discards would be reduced. By July, it was clear that this approach allowed too much harvest early in the season and the 1,400 mt harvest guideline would be exceeded. Accordingly, on July 29, 1992, the line was moved back to the north jetty at Coos Bay and the trip limit north of the line was reduced to 6,000 pounds.

Thornyheads and widow rockfish also were identified as needing trip limit reductions. The cumulative two-week thornyhead trip limit was reduced to 20,000 pounds on July 29, 1992, and the widow rockfish trip limit was reduced to 3,000 pounds per trip on August 12, 1992. During the September Council meeting, it was determined that further curtailment of the thornyhead trip limit was needed. On October 7, 1992, the thornyhead limit was reduced again to 15,000 pounds, and the deepwater complex limit was reduced to 50,000 pounds.

Shoreside landings in 1992 reached 132,457 mt, about 30 percent greater than landings in 1991. Expansion of shoreside processing of Pacific whiting was the primary reason for this increase. Shoreside landings of Pacific whiting reached 56,127 mt, and total at-sea processing landings were 152,943 mt. Continued influx of displaced salmon trollers and other interested fishers continued to increase effort in the line gear fisheries.

1993 Fishery

The ABCs for 1993 were approved by the Council at the November 17–20, 1992 meeting held in Seattle, Washington (Table 19 on page 96). A harvest guideline or quota may be established for any species needing attention under the framework procedures established by Amendment 4. For 1993, the Council set harvest guidelines for bocaccio, Dover sole, jack mackerel, Pacific ocean perch, sablefish, *Sebastes* complex, shortbelly rockfish, thornyheads, widow rockfish, yellowtail rockfish and Pacific whiting.

Harvest guidelines were set equal to the respective ABCs and applied coastwide with the following exceptions: (1) the 1,540 mt harvest guideline for bocaccio applied only to the Eureka, Monterey and Conception areas; (2) the 17,900 mt coastwide harvest guideline and 6,000 mt Columbia area harvest guideline for Dover sole were both set 2,000 mt above the respective ABCs with the intent to "step down" from the recent catch level of approximately 8,000 mt to the 4,000 mt ABC in the Columbia area; (3) the jack mackerel harvest guideline was raised from 46,500 to 52,600 mt to match the ABC (during 1992, it was set lower than the ABC to account for anticipated catches outside the management area, i.e., south of 39° N latitude or outside 200 miles); (4) as in 1992, a 1,550 mt harvest guideline was set for Pacific ocean perch to account for bycatch even though the ABC continued to be 0 mt; (5) the 7,000 mt sablefish harvest guideline was set at the upper end of the 5,000 to 7,000 mt ABC range to soften the impact of the reduction from the previous 8,900 mt ABC; in addition, an ABC of 425 mt was established for the Conception area; (6) the *Sebastes* complex harvest guideline of 11,200 mt applied only to the Columbia and Vancouver areas; (7) the thornyhead harvest guideline applied only to the Monterey, Eureka and Columbia areas; (8) the yellowtail rockfish harvest guideline of 4,400 mt applied to the Vancouver and Columbia areas and the remaining 300 mt of the 4,700 mt ABC was intended to accommodate yellowtail rockfish catch in the Eureka area; and (9) the 142,000 mt harvest guideline for Pacific whiting represented 80 percent of the 177,000 mt coastwide ABC which includes the Canadian area.

Cumulative two–week and four–week (for widow rockfish only) trip limits, which worked well to reduce discards during 1992, were supported by industry as a more flexible means to operate under and reduced the frequency of observed violations. The Council chose to utilize cumulative landing limits again during 1993 with the following coastwide cumulative limits per specified period in effect beginning January 1, 1993: (1) the coastwide cumulative two–week limit for the *Sebastes* complex (including bocaccio and yellowtail rockfish) was set at 50,000 pounds of which no more than 8,000 pounds could be yellowtail rockfish caught north of the north jetty at Coos Bay, Oregon (43°21'34" N latitude), and no more than 10,000 pounds could be bocaccio caught south of Cape Mendocino, California (40°30'00" N latitude); (2) the cumulative two–week limit for the deepwater complex (defined as including Dover sole, sablefish and thornyheads) was set at 45,000 pounds coastwide of which no more than 20,000 pounds could be thornyhead; in any deepwater complex landing, no more than 25 percent of the deepwater complex or 1,000 pounds, whichever was greater, could be sablefish and no more than 5,000 pounds of sablefish could be smaller than 22 inches (total length); and (3) the cumulative four–week limit for widow rockfish was set at 30,000 pounds, to be replaced by a 3,000 pound per trip limit when only enough of the widow rockfish harvest guideline remained to cover bycatch needs for the remainder of the year.

The specified two-week and four-week periods were set as follows:

Two-week Periods			
1/1-1/12	4/7-4/20	7/14-7/27	10/20-11/2
1/13-1/26	4/21-5/4	7/28-8/10	11/3-11/16
1/27-2/9	5/5-5/18	8/11-8/24	11/17-11/30
2/10-2/23	5/19-6/1	8/25-9/7	12/1-12/14
2/24-3/9	6/2-6/15	9/8-9/21	12/15-12/31
3/10-3/23	6/16-6/29	9/22-10/5	
Four-week Periods			
1/1-1/26	4/21-5/18	8/11-9/7	12/1-12/31
1/27-2/23	5/19-6/15	9/8-10/5	
2/24-3/23	6/16-7/13	10/6-11/2	
3/24-4/20	7/14-8/10	11/3-11/30	

Other trips limits which became effective January 1, 1993 were (1) the per trip limit for Pacific ocean perch was again set at the lesser of 20 percent of all the legal fish on board (by weight) or 3,000 pounds; (2) the per trip limit for the nontrawl sablefish fishery was 250 pounds until six days before the first 1993 Alaska longline fishery opened or until March 31, if the new opening date in May was not approved in time; (3) the per trip limit for Pacific whiting was set at 10,000 pounds to accommodate bycatch and bait fishing before and after the large scale directed fishery; and (4) the black rockfish trip limit was set at 100 pounds or 30 percent by weight of all fish on board (including salmon), whichever was greater, for commercial fishing vessels using hook-and-line gear in Washington between the U.S. border and Cape Alava, and between Destruction Island and Leadbetter Point.

In addition to accepting recommended ABCs for 1993 and setting appropriate harvest guidelines and trip limits, the Council reviewed (and forwarded recommendations to NMFS) five other preseason management actions at the November 1992 meeting. These actions were as follows.

1. The Council recommended that NMFS adopt a Pacific whiting trip limit of 10,000 pounds from January 1 until the fishery opened April 15, for catches inside the 100 fathom contour in the Eureka area, and at the end of the season when just enough of the harvest guideline remained to allow for bycatch the remainder of the year (effective February 26, 1993).
2. Northern California fishers requested an experimental fishing permit (EFP) to harvest Pacific whiting in 1993 before the season opened April 15, including exemption from the closed area in the Eureka and Monterey areas inside of 100 fathoms. They offered to maintain 100 percent observer coverage during all fishing operations. However, the Council recommended that NMFS not grant the permit because of the potential for impact on stressed salmon stocks.

3. A preferred "sliding scale" Pacific whiting allocation option was forwarded to the Department of Commerce for approval. The preferred option was to

- a. allocate the first 50,000 mt of whiting to vessels delivering to shore-based processors;
- b. hold the next 30,000 mt in a reserve with shore-based priority;
- c. allocate the next 30,000 mt to the at-sea processing sector;
- d. allocate whiting at harvest guidelines levels between 110,000 and 210,000 mt between shore-based and at-sea processing sectors using a sliding scale: The first 10,000 mt beyond 110,000 mt harvest guideline would be allocated 90 percent shoreside and 10 percent at-sea (90:10) and the next 10,000 mt would be allocated 80:20, then 70:30, etc., until 210,000 mt; and
- e. allocate 100 percent of the harvest guideline above 210,000 mt to the at-sea processing sector.

On April 15, 1993, the Secretary of Commerce (Secretary) partially disapproved the Council's whiting allocation proposal and replaced it with regulations intended to provide roughly the same harvest shares as in 1992. This rule provided 112,000 mt to vessels regardless of where they delivered their catch (i.e., an Olympic fishery), and a 30,000 mt reserve for vessels delivering to onshore processing plants. On May 4, the Secretary issued an emergency interim rule prohibiting further at-sea processing of Pacific whiting when 100,000 mt was projected to have been caught by that sector. This action had the effect of making 42,000 mt available to the shoreside processing sector. During June through August, shoreside processing continued at a rate of about 11,000 mt per month leading to a closure of the large-scale fishery September 3. The 10,000 pounds per trip limit was reimposed September 4.

4. The Council approved Amendment 7 to the groundfish FMP which gives the Council and NMFS the authority to establish management measures to control bycatch of salmon and other non-groundfish species. Regulations developed to implement these management measures may be applied to any portion of the groundfish fishery or the entire fishery. For the 1993 Pacific whiting fishery, the Council approved the following salmon bycatch restrictions (effective April 15):

- a. No processing at sea south of 42°00' N latitude
- b. No fishing for whiting at night (midnight to one-half hour after official sunrise) south of 42°00' N latitude
- c. No fishing for whiting shoreward of 100 fathoms in the Eureka area (43°00' to 40°30' N latitude) except for a small 10,000 pound trip limit to accommodate bycatch and bait fisheries
- d. No fishing for whiting in the Columbia River and Klamath River salmon conservation zones
- e. Starting in 1994, the large scale target season for whiting off northern California would begin March 1 for vessels delivering whiting to shore-based processors

5. On March 25, NMFS approved a framework regulation to set the season opening date for the unrestricted sablefish season as three days prior to the opening of the first Alaska longline season, with a three-day closed season immediately before and after the unrestricted season.

The preseason closed period was May 8 to May 11, and the unrestricted fishery ran from May 12 to June 1. After the postseason three day closed period, the fishery resumed under a 250 pound daily trip limit on June 5.

Sablefish management during 1993 was similar to 1992, with the trawl and nontrawl allocation shares remaining at 58 percent and 42 percent, respectively. Unlike 1992, the Council set a single nontrawl trip limit of 250 pounds and did not adjust it prior to the unrestricted season. (Trip limits of 500 and 1,500 pounds in 1992 attracted too much target fishing, leaving insufficient harvest guideline to accommodate a reasonably long unrestricted season.) Landings under the 250 pound trip limit totalled 74 mt. Of the 2,740 mt nontribal/nontrawl sablefish harvest guideline remaining, 250 mt were reserved for the small-scale 250 pound trip limit fishery after the regular season. Washington and Oregon conducted hold inspections on May 11, the day before the unrestricted season opening. The remaining 2,490 mt allowed the unrestricted fishery to last until June 1, 1993 when it was projected that at least 2,414 mt had been caught. After the three-day closed period, the fishery resumed on June 5 under a 250 pound trip limit.

As in 1992, the 1993 Washington coastal treaty Indian sablefish fishery was managed by the tribes to a quota of 300 mt. The tribal fishery opened January 1 and ran continuously through July 6. The fishery was then reopened with trip limits July 8 to July 11 and July 15 to July 18. Three tribes participated in the fishery, taking a total of 312.8 mt. Approximately 209 mt was taken by the Makah Tribe, 33 mt by the Quileute Tribe, and 71 mt by the Quinault Tribe.

On April 21, the deepwater complex trawl trip limit was reduced to 60,000 pounds per specified four-week interval in an attempt to reduce the catch of sablefish without increasing the potential for discard (a reduction in the 25 percent sablefish rule could increase discards). This reduced trip limit had little effect on the rate of sablefish landings. In mid-August, the GMT projected that the trawl catch would reach 4,367 mt and exceed the trawl harvest guideline by 481 mt (12.4 percent). The NMFS northwest regional director reviewed several options to reduce the landings rate and, after consulting with the Council, imposed a 3,000 pound per trip cap for trawl sablefish effective September 8. The trawl allocation was reached about October 12. Harvest rate of thornyheads during early 1993 was about the same as during 1992. In spite of tighter landing restrictions imposed on April 21, the landings rate increased substantially, however, fueled by increasing prices, and the harvest guideline was reached about November 9. Because the trawl sablefish harvest guideline was also exceeded, the Council imposed a trip limit of 5,000 pounds for the Dover sole/thornyhead/trawl-caught sablefish (DTS) complex, with no more than one trip per week.

In 1993, as in 1992, an EFP was approved to establish an observation program to monitor salmon bycatch in the shoreside whiting fishery. The observation program and EFP were expanded to include observation of unrestricted catches of other species (e.g., widow and yellowtail rockfishes), specifying that bycatch exceeding cumulative groundfish trip limits would be forfeited to the states.

Bocaccio catch through early September was 78 percent of the catch-to-date in 1992, and the harvest was projected to be 88 percent of the harvest guideline. The Council increased the bocaccio trip limit within the Sebastes trip limit from 10,000 to 15,000 pounds per specified two-week interval effective October 6, 1993.

The yellowtail rockfish trip limit was reduced from 8,000 to 6,000 pounds cumulative per specified two-week period on April 21, but the catch rate continued at a higher rate than 1991 and 1992 when similar to more liberal trip limits were in place. Fishers reported high encounter rates and a new stock assessment indicated a much higher ABC for 1994. No additional management action was taken. In April, southern Oregon fishers requested the Council change the rule prohibiting any fishing north of the Coos Bay management line once a given vessel has achieved the northern yellowtail rockfish limit for a given cumulative period because it restricted their ability to pursue other fishing strategies (e.g., deepwater complex) north of the line. The change from a two-week to four-week cumulative period for the deepwater complex eased the situation for these fishers somewhat. The Council chose not to take action in April to change the current yellowtail rockfish regulation language, but agreed to include yellowtail rockfish line management as an agenda item for managing the 1994 trawl fishery.

Widow rockfish harvest reached the 7,000 mt harvest guideline about November 6. Although the Council stated its intention in September to allow the fishery to continue, it responded to the unanticipated surge in landings by imposing a 3,000 pound trip limit beginning December 1.

On September 4, 1992, NMFS approved Amendment 6 (license limitation) to the FMP. It was announced that beginning in January 1994 only vessels acquiring limited entry permits would continue to be allowed to fish groundfish trawl, longline and fishpot gear under the limited entry quota and regulation system. Longline and fishpot vessels without permits, along with all other gears (except trawl), would be allowed to continue fishing in an open access fishery. NMFS set up an administration office and announced that applications for limited entry would need to be received by June 30, 1993. Because of unavoidable delays in setting up an administrative office and distributing applications, NMFS extended the application period (through an announcement on September 20) to October 15, 1993 to be consistent with the six-month application period specified in the amendment. At its April and September meetings, the Council reviewed a NMFS proposal for a fishing power formula that would govern the combining of smaller vessel permits into single permits for larger vessels. There was substantial discussion regarding the potential impact on catcher-processors larger than 200 feet.

1994 Fishery

The ABCs for 1994 were approved by the Council at the November 15-19, 1993 meeting held in Millbrae, California (Table 20 on page 97). A harvest guideline or quota may be established for any species needing attention under the framework procedures established by Amendment 4. For 1994, the Council set harvest guidelines for bocaccio, Dover sole, jack mackerel, lingcod, Pacific ocean perch, sablefish, Sebastes complex (northern area), Sebastes complex (southern area), shortbelly rockfish, thornyheads, widow rockfish, yellowtail rockfish (north of Cape Lookout), yellowtail rockfish (south of Cape Lookout) and Pacific whiting.

Harvest guidelines were set equal to the respective ABCs and applied coastwide with the following exceptions: (1) the 1,540 mt harvest guideline for bocaccio applied only to the Eureka, Monterey and Conception areas; (2) the 16,900 mt coastwide harvest guideline and 5,000 mt Columbia area harvest guideline for Dover sole were both set 1,000 mt above the respective ABCs with the intent to "step down" from the recent catch level of approximately 8,000 mt to the 4,000 mt ABC for the Columbia area; (3) as in 1992-1993, a 1,550 mt harvest guideline was

set for Pacific ocean perch to account for bycatch even though the ABC continued to be zero; (4) the 7,000 mt sablefish harvest guideline was applied only to the Vancouver through Monterey areas; an additional ABC of 425 mt was applied to the Conception area but no harvest guideline was set; (5) northern and southern Sebastes complex harvest guidelines were created with 13,240 mt applied to the Columbia and Vancouver areas (northern harvest guideline), and 13,440 mt applied to the Eureka through Conception areas (southern harvest guideline); (6) the thornyhead combined species harvest guideline of 6,440 mt was set lower than the 7,000 mt 1993 harvest guideline to account for an 8 percent discard factor and applied only to the Monterey, Eureka and Columbia areas; (7) northern and southern yellowtail rockfish harvest guidelines were created with 4,160 mt applied to the Vancouver area and Columbia area north of Cape Lookout (northern harvest guideline), and 2,580 mt applied to Columbia area south of Cape Lookout and Eureka areas (southern harvest guideline); and (8) the 260,000 mt harvest guideline for Pacific whiting represented 80 percent of the 325,000 mt coastwide ABC which included the Canadian area.

Implementation of the license limitation program on January 1 began substantial changes in the groundfish fishery. Annual harvest guidelines were allocated between the limited entry fleet and the open access fleet, and separate trip limits were established for each sector. Because the permit combination criteria (for upgrading to larger vessels) were not yet in effect, the size endorsement requirement was delayed until mid-April, just in time for the at-sea whiting fishery. No factory trawl vessels initially qualified for "A" permits, but seven vessels purchased and combined enough smaller permits so they could fish during the whiting season. This reduced the total number of trawl permits to about 300, not enough to cause a significant improvement to the trawl trip limits. The Council expanded the use of cumulative landing limits by eliminating biweekly options and applying the limits to calendar months for 1994.

The following trip limits for the limited entry fishery were in effect during 1994:

1. Pacific ocean perch continued with a per trip limit of 3,000 pounds or 20 percent of the legal groundfish on board, whichever was less.
2. On January 1, the cumulative limit per calendar month for Sebastes complex (including bocaccio and yellowtail rockfish) was set at 80,000 pounds coastwide, of which no more than 14,000 pounds could be yellowtail rockfish north of Cape Lookout, Oregon (45°20'15" N latitude); no more than 30,000 pounds could be yellowtail rockfish south of Cape Lookout; and no more than 30,000 pounds could be bocaccio south of Cape Mendocino, California (40°30'00" N latitude).

State fishery agencies implemented a Cape Lookout declaration procedure endorsed by the Council to accommodate vessels that fished both north and south of Cape Lookout. Declarations identified trips that involved fishing or transiting the area both north and south of Cape Lookout, and all such trips for a given vessel were restricted to the 14,000 pound northern yellowtail rockfish cumulative limit. On September 1, the cumulative limit south of Cape Mendocino was increased to 100,000 pounds per month.

3. Beginning January 1, the cumulative calendar month DTS complex (previously called the deepwater complex and defined as including Dover sole, sablefish and thornyheads) limit was 50,000 pounds coastwide of which no more than 12,000 pounds could be trawl-caught sablefish and no more than 30,000 pounds could be thornyheads. In any landing, no more than 5,000 pounds of sablefish could be smaller than 22 inches (total length). High thornyhead prices attracted much greater effort than anticipated, and on July 1, the DTS limit was reduced to 30,000 pounds, of which no more than 6,000 pounds could be trawl-caught sablefish and 8,000 pounds could be thornyheads. Landings of both species are expected to reach the harvest guideline near the end of the year.
4. The cumulative calendar month widow rockfish limit was set at 30,000 pounds. A 3,000 pound trip limit was anticipated to take effect November 1.
5. A Pacific whiting per trip limit of 10,000 pounds for shore-based vessels was applied prior to the regular season and is intended to apply following the close of the season.
6. A nontrawl sablefish daily per trip limit of 250 pounds was in effect before and after the open season which began May 15.
7. The black rockfish per trip limit for commercial fishing vessels using hook-and-line gear in Washington between the U.S. border and Cape Alava, and between Destruction Island and Leadbetter Point, was 100 pounds or 30 percent by weight of all fish on board (including salmon), whichever was greater.

The Council approved a regulatory amendment to establish a black rockfish per trip limit of 200 pounds or 65 fish, whichever was greater, for all commercial fishing vessels (except trawl) fishing for any species in specified zones off Oregon. Although the federal regulation was not implemented, the Oregon Fish and Wildlife Commission made this limit effective inside state waters beginning August 1, 1994.

The restricted black rockfish zones in Oregon state waters were:

- a. Tillamook Head (45°56'45" N latitude) to Cape Lookout (45°20'15" N latitude)
- b. Cascade Head (45°03'50" N latitude) to Cape Perpetua (44°18' N latitude)
- c. 43°30' N latitude to 43°10' N latitude
- d. Mack Arch (42°13'40" N latitude) to the Oregon-California border (42°00' N latitude)

Beginning January 1, the recreational bag limit for rockfish in Oregon was changed to create a sub-bag limit of 10 black rockfish. The new limit is 15 rockfish of which no more than 10 may be black rockfish.

Open access trip limits were established for rockfish (including *Sebastes* complex, bocaccio, Pacific ocean perch, shortbelly rockfish, thornyheads, yellowtail rockfish and widow rockfish), sablefish, and, in certain cases, "all groundfish." Separate trip limits were established for pink shrimp trawl gear, spot and ridgeback prawn fisheries, and California halibut and sea cucumber trawl fisheries. No open access trip limit may exceed a limited entry trip limit. The open access trip limits established were:

1. For rockfish (all gears except shrimp trawl and all fisheries except spot and ridgeback prawn, California halibut and sea cucumber), the per trip limit was set at 10,000 pounds and the cumulative calendar month limit was set at 40,000 pounds. On May 1, the 10,000 pound per trip rockfish limit was removed from the California setnet fishery. This action was taken in an effort to reduce discard in that fishery.
2. For sablefish (all gears except shrimp trawl and all fisheries except spot and ridgeback prawn, California halibut and sea cucumber), the daily per trip limit was set at 250 pounds for the Vancouver through Monterey areas and 350 pounds for the Conception area.
3. For pink shrimp gear, the per trip limit for all groundfish species was set at 1,500 pounds per day of fishing.
4. For the spot and ridgeback prawn fisheries, the per trip limit for all groundfish was set at 1,000 pounds per trip.
5. For the California halibut and sea cucumber trawl fisheries, which were classified as non-groundfish trawl fisheries (exempt), an all groundfish bycatch trip limit was set at 500 pounds.

The Cape Lookout declaration procedures proved to be unnecessary in some situations and overly burdensome in others. Accordingly, the Council endorsed several changes recommended by the states which did not jeopardize the intent of requiring declarations. These changes were: (1) vessels originating trips north of Cape Lookout no longer were required to file declarations as long as the cumulative monthly yellowtail rockfish catch did not exceed the cumulative northern yellowtail rockfish limit of 14,000 pounds; (2) vessels operating in the pink shrimp fishery, and vessels operating in the shore-based Pacific whiting fishery under an experimental fishing permit, were exempt from declaration requirements as long as they did not exceed the northern cumulative yellowtail rockfish limit was not exceeded; and (3) the 12-hour waiting period was removed and filing declarations via mail or facsimile was allowed.

Pacific whiting fishery salmon bycatch restrictions were implemented as emergency regulations during 1992 and as permanent regulations during 1993; therefore, they applied during 1994. These restrictions were:

- a. No processing at sea south of 42°00' N latitude.
- b. No fishing for whiting at night (midnight to one-half hour after official sunrise) south of 42°00' N latitude.

- c. No fishing for whiting shoreward of 100 fathoms in the Eureka area (43°00' to 40°30' N latitude) except for a small 10,000 pound trip limit to accommodate bycatch and bait fisheries.
- d. No fishing for whiting in the Columbia River and Klamath River salmon conservation zones.

On April 8, NMFS approved the Council's proposal to allocate Pacific whiting between onshore and offshore processors during 1994–1996. Under this allocation framework, all vessels would compete for the first 60 percent of each year's Pacific whiting harvest guideline. When this amount was taken, further at-sea processing would be suspended and the remaining 40 percent reserved for catcher vessels delivering to shore-based processors. Any unused portion of the shore-based reserve would be made available for at-sea processing later in the year.

The shore-based Pacific whiting season began March 1 off California and opened April 15 for at-sea processing and shore-based processing (north of California). At-sea processing was suspended on May 13, when 60 percent of the harvest guideline (156,000 mt) was projected to have been reached. A decision to release a portion of the remaining shore-based harvest guideline was delayed from mid-August until October 1 due to uncertainty about how much shore-based processors would utilize. On October 1, NMFS released 16,000 mt for at-sea processing, leaving 22,000 mt for shore-based operations.

For a third year, an observation program to monitor salmon bycatch in the shore-based whiting fishery was conducted under an EFP. The observation program and EFP included provisions to deliver unrestricted catches of other species (e.g., widow and yellowtail rockfish), specifying that bycatch exceeding cumulative groundfish trip limits would be forfeited to the states. Preliminary results from this year's program are generally consistent with results from the previous two years. Initial salmon bycatch rates during April and May approached the 0.5 salmon per mt of whiting catch level, but by the end of the season all three years (1992–1994) cumulative salmon bycatch rates were approximately 0.1 salmon per mt of whiting. Another notable result is the occurrence of fairly high yellowtail rockfish bycatch in the northern portion of the fishery (Astoria north) during the later part of the season (August and September). Cumulative yellowtail rockfish bycatch rates have ranged from 1.7 to 11.8 pounds of yellowtail rockfish per mt of whiting.

During 1992 and 1993, the nontrawl unrestricted sablefish season opened on May 12 and lasted 15 and 21 days respectively. With the implementation of groundfish limited entry, there were high expectations for a longer season (perhaps an additional week) because vessels without fishpot or longline endorsements could not participate in the unrestricted season. Rumors of vessels purchasing additional gear appear to have been confirmed by a shorter season of only 20 days. The season opened May 15 and closed at 0001 hours June 4 with the nontrawl harvest guideline exceeded by about 500 mt.

Agency scientists and managers met with industry members at a series of workshops held during late January through April.

Participants discussed ways of improving communications, ways to collect and utilize additional information from the fleet, and developed recommendations for four pilot projects to implement the ideas as quickly as possible:

1. Conduct a "mini" observer program of the deepwater bottom trawl fishery with a focus on trip limit induced discard and discard mortality.
2. Implement industry port sampling. For example, processors voluntarily conduct yellowtail rockfish species composition sampling which then creates time for agency port samplers to pursue other sampling tasks.
3. Design an enhanced logbook which could be used in conjunction with observer information to calculate bycatch and discard rates. Information such as average weight by species, fishing strategy, gear deployment etc. would also provide valuable information. Implement use of this logbook on a voluntary basis first.
4. Create an informal state-level groundfish advisory board which concentrates on moving fishery information in both directions. The views and observations of a larger segment of industry could be facilitated, results of scientific or management analysis could be presented and critiqued by industry, and overall the process could foster a sense of working together. Each state "board" would be attended by the state's GMT representative and at least one Groundfish Advisory Subpanel representative to provide an official avenue into the Council process.

FOREIGN AND JOINT VENTURE FISHING, 1977-1990

Two types of fishing operations involving foreign vessels have been conducted off Washington, Oregon and northern California since implementation of the MFCMA in 1977: the foreign trawl fishery (sometimes called the "directed fishery") in which fish are both caught and processed by foreign vessels, and the joint venture fishery, a domestic fishery in which U.S. trawl vessels deliver their catch to foreign processing vessels at sea. Foreign vessels are managed according to the groundfish FMP's regulations at 50 CFR 611.70 and the conditions and restrictions attached to individual foreign vessel permits issued by NMFS. The U.S. catcher vessels in the joint venture have been managed according to the regulations at 50 CFR 663, the same as U.S. vessels delivering shoreside.

Consistent with the intent of the MFCMA to encourage development of domestic fisheries, joint venture and shore-based landings of whiting generally increased since 1978 (Table 20 on page 97). Although shore-based deliveries of whiting grew, they comprised less than 5 percent of the total foreign and domestic harvest of whiting each year from 1978-1990. However, with the introduction of the domestic at-sea processing fleet in late 1990, U.S. processors took 7 percent of the whiting quota (8,115 mt by shore-based plants and 4,713 mt by at-sea processing vessels). By 1991, U.S. processors had completely displaced joint venture foreign processing.

In spite of the opportunities for joint venture and foreign fisheries, only 64 percent of the total whiting quota between 1978–1990 was landed. However, since 1989, more than 90 percent has been taken annually.

Foreign performance is perhaps more meaningful when compared with domestic landings of *all* groundfish species (Figure 3 on page 99), not just whiting. The last year of foreign domination of groundfish landings was 1979. Since 1980, domestic landings (joint venture and U.S.–processed) annually contributed at least two–thirds of the total groundfish landings, over 90 percent in 1982, 1983, 1984 and 1988. In 1985, because of the resurgence of the Polish directed fishery and diminished Soviet joint venture, about 70 percent of the total groundfish landings were made by domestic vessels. This percentage was maintained in 1986; although joint venture landings increased in 1986, foreign trawl landings also increased and shore–based landings declined, probably because U.S. fishers turned to the more lucrative shrimp fishery that year. The proportion of domestic landings of groundfish increased to 80 percent in 1987 and 93 percent in 1988. In 1989 and 1990, with no foreign trawl fishery for whiting, the groundfish fishery off Washington, Oregon and California was 100 percent domestic, as intended by the authors of the MFCMA. By 1991, foreign processing of whiting at sea by joint ventures was replaced by the expanding domestic processing industry, predominantly the at–sea processing fleet that previously concentrated on pollock in Alaska.

U.S. processing of groundfish caught off Washington, Oregon and California generally increased until 1983 when the full impact of regulations to limit landings of certain species began to be felt. Even though U.S. processing of groundfish has not returned to the peak level of 1982, it has been higher than in the years before implementation of the MFCMA.

From its inception in 1978 until 1984, the joint venture for whiting grew steadily, and in 1984 accounted for almost half (47 percent) of the domestic landings of *all* groundfish species. However, in 1985, only 26 percent of the domestic groundfish landings were attributed to joint ventures. This decline occurred because of reduced Soviet participation. (When the Soviets were "certified" by the Secretary for excessive harvest of minke whales, their potential allocations were cut in half. The Soviets responded by not accepting any allocation for directed fishing in 1985 and reducing their joint venture contracts by half.) The trend of increasing proportions of joint venture landings in the domestic groundfish fishery resumed in 1986 and continued until displaced by U.S. processors in 1991. In 1986, joint venture landings virtually equaled shore–based landings of all groundfish species (including whiting) taken off Washington, Oregon and California. In 1988, 1989 and 1990, joint venture landings contributed 59, 68 and 64 percent, respectively, of the domestic groundfish landings off Washington, Oregon and California.

Considering *all* groundfish (foreign and domestic) landed off Washington, Oregon and California, the joint venture accounted for 43 percent in 1983, 1984 and again in 1987. The proportion increased to 54 percent by 1988, peaked at 68 percent in 1989, and dropped to 64 percent in 1990 before being eliminated in 1991.

Some species that are fully utilized by domestic processors are caught unavoidably in the foreign and joint venture fisheries. These catches are not counted against quotas imposed on U.S. landings, and only small allowances are permitted in order to discourage their harvest. Only once did incidental species account for more than 2 percent of the annual catch in the foreign trawl

fishery, in 1980 when 6 percent was taken. In the joint venture, less than 5 percent of the annual U.S. catch delivered to foreign processing vessels (including species that subsequently were discarded) consisted of incidental species, and generally less than a quarter of these were retained by the foreign vessels.

Salmon and Pacific halibut are prohibited species, which means they must not be retained by any vessel involved in the directed foreign or joint venture fishery. Between 1977–1988, the average catch rate of salmon in the foreign fishery was 1 salmon per 12 mt of whiting (0.086 salmon per mt of whiting (Table 21 on page 100)). Between 1978–1990, the joint venture vessels averaged about 1 salmon per 9 mt of whiting received (0.110 salmon per mt of whiting). Interception of salmon in joint ventures was unusually high in 1986. Although the whiting quota was at its highest level in 1986, joint venture trawlers had difficulty finding fishable concentrations. In the areas where they operated, the abundance and availability of some salmon stocks were quite high, contributing to the unusually large interceptions of salmon in 1986. Since 1987, the catch and catch rate of salmon in both the foreign and joint venture fisheries have been lower than in 1986. In 1990, the joint venture catch of salmon was slightly higher than in the previous year, and the catch rate was about half (1 salmon per 18 mt of whiting) the 1978–1990 average (1 salmon per 9 mt of whiting).

Generally, over 90 percent of the salmon taken in these fisheries are chinook. In the joint venture in 1990, 98 percent of the salmon were chinook, averaging 55.3 cm (21.77 inches) in fork length and 2.23 kg (4.9 pounds) in weight. Only 1.4 percent were chum, averaging 51.5 cm (20.3 inches) in fork length and 1.86 kg (4.1 pounds) in weight. Less than 0.4 percent were coho salmon in the 1990 joint venture.

Between 1977 and 1990, small numbers of Pacific halibut were taken in these fisheries, averaging about 1 halibut in 1,100 mt of whiting in the foreign fishery, and 1 halibut in 1,700 mt of whiting in the joint venture. The joint venture took 1 halibut in approximately 2,300 mt of whiting in 1990, well below the 13–year average.

"AMERICANIZATION" OF THE PACIFIC WHITING FISHERY

The following summarizes activities in the Pacific whiting fishery since 1990, characterized most notably by the shift from foreign processing at sea (joint ventures) to U.S. processing (Figure 4 on page 101) and the allocation of whiting among domestic user groups.

1990

In 1990, three domestic at-sea processing vessels (all catcher-processors) conducted exploratory fisheries late in the year to determine if Pacific whiting might provide a viable fishery for at-sea processing in the future. (Another at-sea processor operated briefly but was not targeting whiting.) Approximately 4,713 mt were taken by the at-sea processing fleet, compared with 8,115 mt by shoreside processors, for a total of 12,828 mt processed domestically in 1990. An additional 170,972 mt of whiting were caught by U.S. fishers in joint venture operations (U.S. caught, foreign processed). There was no foreign fishery in 1990. Therefore, as in 1989, the entire whiting harvest was taken by U.S. fishers. About 94 percent of the whiting quota was taken in 1990.

1991

In 1991, interest in Pacific whiting by the domestic at-sea processing fleet (catcher-processors, motherships and catcher vessels that deliver to motherships) was well established, resulting in *no* joint venture fishery and explicit allocation of the 228,000 mt quota among the domestic user groups. Behind the allocations was the fear by shore-based processors that they would be totally preempted by the high capacity at-sea processing fleet. Shore-based processors also were concerned that they would lose their potential for expansion. The initial allocation in 1991 was 104,000 mt for fishing vessels that process (catcher-processors), 88,000 mt for fishing vessels that do not process (whether delivering shoreside or to motherships at sea), and 36,000 mt held in reserve for later release. This allocation was adopted only for 1991.

The whiting fishery started late in March. At-sea processors operated primarily from March to late May, leaving for the pollock "B" season which opened June 1 in Alaska. However, one catcher-processor and one mothership continued fishing for whiting off Washington, Oregon and California. The allocation did not become final until late August, which enabled catcher-processors to exceed their allocation by about 13,000 mt (for a total of almost 117,000 mt) before leaving the fishery in early August. To make sure effort did not resume, further operations by catcher-processors were prohibited on August 28, 1991, immediately after the allocation became effective. Further processing at sea (by motherships) was prohibited on September 6, 1991, after taking almost 78,000 mt, to make sure adequate amounts of whiting remained for shore-based processing needs. Shoreside processors confirmed their intent to use 26,000 mt in 1991 (earlier in the year, they had thought they would need 36,000 mt), and an additional 7,000 mt surplus to shore-based needs was made available to mothership operations on November 17. Only about 4,000 mt was taken, in part the effect of bad weather that coincided with the release and operational difficulties from catcher-processors trying to adapt to mothership operations by receiving codends from other vessels.

Eighteen at-sea processing vessels operated in the 1991 whiting fishery: fifteen catcher-processors (one very briefly) and three motherships. In addition, 24 catcher vessels delivered to motherships. Catcher-processors caught 117,102 mt and catcher boats caught 79,803 mt for delivery to motherships, for a total of 196,905 mt of whiting processed at sea. (Over-the-side deliveries by catcher vessels to catcher-processors are counted as "mothership" deliveries.) Approximately 6,331 salmon were taken, resulting in a ratio of 0.032 salmon per mt of whiting (or 1 salmon in 31 mt of whiting), well below the recommended level of 0.05. Approximately 2,048 mt (1 percent) of all groundfish taken were bycatch, similar to levels seen in the joint venture fishery. NMFS-certified observers were on board all at-sea processing vessels to monitor catches in the whiting fishery.

Catcher vessels delivering to shore-based processors caught approximately 20,600 mt in 1991. Therefore, a total of 217,505 mt (95 percent) of the 228,000 mt quota was caught and processed domestically in 1991.

Note: Catch figures in this section may differ from those found elsewhere in this document. The catch data in this section include approximately 13,000 mt of whiting discarded from at-sea processors in 1991. These discards were counted against the allocations and quota. There is no estimate for discards from catcher vessels delivering shoreside or to at-sea processors.

1992

In 1992, as in 1991, whiting was not made available for foreign or joint venture operations because domestic processors were capable and interested in taking the entire harvest guideline (208,800 mt). Whiting again was allocated between user groups, but the user groups were defined differently. Instead of dividing the resource between vessels that process (catcher-processors) and vessels that do not (catcher vessels delivering to motherships and shore-based processors) as in 1991, the 1992 allocation distinguished between onshore and offshore processing operations (the latter combining motherships with catcher-processors). The 1992 allocation was implemented by an emergency regulation which was in effect from April 15 through October 14. The 1992 allocation initially limited the amount of the 208,800 mt whiting harvest guideline to 98,800 for at-sea processing, 80,000 mt for shoreside processing, and the remaining 30,000 mt set aside as a reserve.

A second emergency regulation (effective April 16 through October 19, 1992) was designed to minimize the bycatch of salmon and rockfish in the whiting fishery. This rule prohibited (1) fishing for whiting between midnight and one-half hour after official sunrise, (2) fishing for whiting in the Columbia River and Klamath River salmon conservation zones, (3) at-sea processing operations south of 42° N latitude (the Oregon/California border) and (4) large-scale target fishing for whiting shoreward of the 100-fathom contour in the Eureka area, by allowing only small landings of 2,000 pounds per trip.

Twenty-one at-sea processors (twelve that acted only as catcher-processors, three that acted only as motherships, and six that did both) participated in the spring fishery that lasted only three weeks, from April 15 through May 5, 1992. During this opening, 98,719 mt were taken by at-sea processors. During this spring fishery, about 1,359 salmon were taken, for a ratio of 0.014 salmon per mt of whiting (or 1 salmon in 73 mt of whiting), much lower than in 1991. About 589 mt of groundfish species were taken as bycatch, less than 1 percent of the total catch, consistent with the rate in 1991 and during the last seven years (1984-1990) of joint venture operations.

The 30,000 mt reserve was made available for at-sea processing on September 4, 1992 because shoreside processors had not used 48,000 mt (60 percent of their initial allocation) by September 1, 1992, as provided in the emergency rule. This second fishery for at-sea processors was closed on September 12, 1992 when the reserve was projected to have been reached. Seventeen at-sea processing vessels participated (fourteen that acted only as catcher-processors, two that acted only as motherships, and one that did both), taking about 28,123 mt of the 30,000 mt reserve.

The third opening for at-sea processors occurred on October 1 for the 24,000 mt determined to be surplus to shore-based processing needs, increasing the limit for at-sea processing to 152,800 mt. Fifteen at-sea processing vessels participated (eleven that acted only as catcher-processors, two that acted only as motherships, and two that did both), and this fishery continued through October 7. During this opening, 25,606 mt was taken by the at-sea processing sector.

The emergency rule allocating whiting in 1992 expired on October 15. Nonetheless, fishing continued after the allocation limits expired. One catcher-processor and one mothership continued until October 21 when the 152,800 mt at-sea allocation was projected to be reached. Even though the emergency rule had expired and the at-sea fleet legally could have continued operating until the harvest guideline was reached, they agreed to stay within the limit announced under the emergency rule. Vessels delivering shoreside continued until October 31 when the harvest guideline was projected to be reached, at which time a 3,000 pound trip limit was imposed to accommodate incidental catches as well as small bait and fresh fish markets for whiting.

By year end, 152,448 mt had been taken for at-sea processing (116,277 mt by catcher-processors and 36,172 mt by motherships), 73 percent of the whiting harvest guideline and slightly below the 152,800 mt limit for at-sea processing. Approximately 5,071 salmon were taken, resulting in a ratio of 0.033 salmon per mt of whiting (or 1 salmon in 30 mt of whiting), well below the recommended level of 0.05. Approximately 2,844 mt (1.8 percent) of all groundfish taken were bycatch, higher than the 1 percent level seen in 1991 and during the last seven years of the joint venture fishery. However, 855 mt were jack mackerel which is an underutilized species and usually much less prevalent. If jack mackerel were excluded, the bycatch of groundfish would have been much closer to historical levels. NMFS-certified observers were on board all at-sea processing vessels to monitor catches in the fishery.

Catcher vessels delivering shoreside caught approximately 56,127 mt in 1992, 27 percent of the whiting harvest guideline and slightly above the final shoreside allocation of 56,000 mt. Bycatch of salmon in the shoreside fishery (covered under the EFP that allowed salmon to be landed shoreside) was about 0.014 salmon per mt of whiting (or 1 salmon in about 70 mt of whiting). For the first time, observers were carried on board whiting vessels delivering shoreside, primarily for the purpose of monitoring the bycatch of salmon in the shore-based fishery.

A total of 208,575 mt of whiting was harvested in 1992, virtually all of the 208,800 mt harvest guideline.

Note: Catch figures in this section may differ from those found elsewhere in this document. The catch data in this section are preliminary and include approximately 7,873 mt of whiting discarded from at-sea processors in 1992. These discards were counted against the allocations and harvest guideline. There is no 1992 estimate for discards made at sea by catcher vessels delivering shoreside or to at-sea processors.

1993

In 1993, whiting continued to be fully utilized by domestic catcher vessels and processors. As in 1992, the resource was allocated between at-sea and shoreside processing sectors. The season started on April 15. The first 112,000 mt of the 142,000 mt harvest guideline was to be taken in open competition (Olympic fishery), with the remaining 30,000 mt to be held in reserve for shoreside processing. This assumed that vessels delivering shoreside would harvest about 12,000 mt during the Olympic fishery, for a total of 42,000 mt for the year. When it became apparent that shoreside deliveries were substantially lower during the Olympic fishery, an emergency rule was filed that prohibited processing at sea when 100,000 mt was taken by that sector. Therefore, 42,000 mt was guaranteed to be available for vessels delivering shoreside in 1993. The regulations also included a provision for releasing any unneeded portion of the shoreside allocation on September 1 to assure the harvest guideline would be fully utilized.

Eighteen at-sea processors (fourteen that acted as catcher-processors only, two that acted only as motherships, and two that did both) participated in the regular season that started on April 15. The 100,000 mt allocation was projected to be reached, and further at-sea processing was prohibited at noon on May 5. A total of 99,103 mt was taken by the at-sea fleet (84,588 mt by catcher-processors and 14,515 mt by mothership operations). About 8,373 salmon were taken, of which 4,843 were chinook salmon, for a ratio of 0.049 chinook salmon per mt of whiting (or 1 chinook per 20 mt of whiting). This was an unusual year in that chinook salmon, which usually comprise more than 90 percent of the salmon bycatch, accounted for only 58 percent in 1993. Most of the non-chinook species were pink salmon. About 595 mt of groundfish were taken as bycatch, less than 1 percent of the total groundfish catch and similar to the rate in 1991 and during the last seven years of the joint venture fishery.

Shore-based processors operated until September 4 when the remaining harvest guideline was projected to be reached. Shore-based landings were about 41,859 mt in 1993, almost all of the 42,000 mt allocation and 30 percent of the catch. Complete data on bycatch of groundfish and prohibited species in the shoreside whiting fishery were not available at the time this document was written.

In total, 140,962 mt of whiting were caught in 1993, over 99 percent of the 142,000 mt harvest guideline. In 1993, as in 1991 and 1992, NMFS-certified observers were on board all at-sea processors. Observers also were carried on board some whiting vessels delivering shoreside to monitor the bycatch of salmon and groundfish. In both the at-sea and experimental shore-based fishery, 40 to 60 percent of the hauls were observed.

Regulations to minimize bycatch, most notably of salmon, became effective on April 15, 1993. These regulations were much the same as those implemented by emergency rule in 1992 except at-sea processing at night was prohibited only south of 42° N latitude (not coastwide as in 1992), and the whiting fishery between 42° N and 40°30' N latitude was allowed to begin as early as March 1 starting in 1994. As in 1992, fishing for whiting was prohibited in the Columbia and Klamath river salmon conservation zones, at-sea processing of whiting was prohibited south of

42° N latitude (the Oregon–California border), and a small trip limit was imposed on the catch of whiting taken shoreward of the 100–fathom contour in the Eureka area (10,000 pounds per trip in 1993). In addition, whiting trip limits were established before and after the large–scale "regular" season to minimize the need for discarding incidental catches of whiting in other fisheries and to accommodate small, traditional fresh fish and bait fisheries for whiting.

Note: Catch figures in this section may differ from those found elsewhere in this document. The catch data in this section are preliminary and include approximately 3,295 mt of whiting discarded from at–sea processors in 1993. These discards were counted against the allocations and harvest guideline. There were virtually no discards from shore–based vessels participating in the 1993 experimental fishery (predominantly in Oregon) because these vessels were not allowed to discard groundfish or salmon at sea. There is no estimate for discards from catcher vessels delivering to at–sea processors or for the catcher vessels delivering shoreside that did not participate in the EFP program.

1994

In 1994, whiting continued to be fully utilized by the domestic industry. As in 1992 and 1993, the resource was allocated between at–sea and shoreside processing sectors. However, 1994 was the first year of a three–year allocation plan which reserves 40 percent of the annual harvest guideline for shore–based processing after the first 60 percent has been taken in open competition (first come, first served). A provision was included for making surplus whiting available for at–sea processing on August 15, or a later date, if the shore–based industry does not need the remainder of the harvest guideline.

This also was the first year of implementation of a license limitation program in the Pacific groundfish fishery. Catcher vessels were required to possess a permit to operate in the fishery. Vessels that did not initially qualify for a permit had to buy or lease one or more permits from qualifying vessels to gain access to the fishery. This changed the composition of the at–sea processing fleet considerably, increasing the number of motherships because permits were not required for vessels that only process. Nine vessels operated as motherships in the spring 1994 fishery, including six that in previous years had operated as catcher–processors. No catcher–processors initially qualified for a permit, but seven purchased permits in time to operate in the spring fishery.

The large–scale season started on March 1 south of 42° N latitude (the Oregon–California border) for shore–based operations and on April 15 north of 42° N latitude for both at–sea and shore–based operations. The first 60 percent (156,000 mt) of the 260,000 mt harvest guideline was projected to be reached on May 13, at which time further processing at sea was prohibited. The catch was higher than projected, about 166,000 mt for both the at–sea and shore–based sectors combined. The remaining 94,000 mt of the harvest guideline was reserved for shore–based processing.

During the 1994 spring fishery by the at–sea processing fleet, a total of 162,746 mt was taken (75,803 mt by catcher–processors and 86,943 mt by mothership operations). For the first time since domestic vessels started processing whiting at sea in 1990, the mothership fleet took a higher percentage and tonnage of whiting than catcher–processors. In this fishery, about

3,561 salmon were taken, of which 3,332 were chinook salmon, for a ratio of 0.020 chinook salmon per mt of whiting (or 1 chinook per 39 mt of whiting). This is about one-fifth the 0.11 average rate for the joint venture in 1978-1990 (Table 22 on page 102) and two-thirds the 0.03 average rate for the at-sea processing sector in 1991-1993. About 1,045 mt of groundfish were taken as bycatch by the at-sea processing fleet in the spring 1994 fishery, less than 1 percent of the total catch in that fishery. This is about 60 percent of the average percentage in the joint venture (1.15 percent) and half the average percentage in the 1991-1993 at-sea processing fishery (1.22 percent).

Progress of the shore-based fishery was evaluated in early August. No additional whiting were made available for at-sea processing on August 15 because it appeared that the shore-based industry could use the remainder of the harvest guideline. Shore-based production was reevaluated in late September. Shore-based landings were about 59,300 mt through September 25. Of the 38,000 mt of the harvest guideline remaining after September 25, 16,000 mt was determined to be surplus to shore-based needs and was released for at-sea processing on October 1. The remaining 22,000 mt is in reserve for the shore-based sector until the end of the year, or until the harvest guideline is reached, whichever comes first. Because the fishery is ongoing, complete data on bycatch of groundfish and prohibited species in the shoreside whiting fishery were not available at the time this document was written.

As of September 25, 1994, a total of 220,090 mt of whiting had been caught by both the at-sea and shore-based sectors, over 85 percent of the 260,000 mt harvest guideline. In 1994, as in 1991-1993, NMFS-certified observers were on board all at-sea processors. Observers also monitored most vessels delivering shoreside.

Regulations implemented in 1993 to minimize bycatch, most notably of salmon, continued in 1994. Also as in 1993, a whiting trip limit of 10,000 pounds was implemented before the large-scale "regular" season. This trip limit was designed to reduce the need for discarding incidental catches of whiting in other fisheries and to accommodate small, traditional fresh fish and bait fisheries for whiting. A 10,000 pound trip limit will also be imposed if the harvest guideline is reached in 1994.

Note: Catch figures in this section may differ from those found elsewhere in this document. The catch data in this section are preliminary and include approximately 3,241 mt of whiting discarded from at-sea processors in the 1994 spring fishery. These discards were counted against the allocations and harvest guideline. There were virtually no discards from shore-based vessels participating in the 1994 experimental fishery (predominantly in Oregon) because these vessels were not allowed to discard groundfish or salmon at sea. There is no estimate for discards from catcher vessels delivering to at-sea processors or for the catcher vessels delivering shoreside that did not participate in the EFP program.

PRELIMINARY ABCS AND HARVEST GUIDELINES FOR 1995

Stock assessments for West Coast groundfish have been conducted by the California Department of Fish and Game, Oregon Department of Fish and Wildlife (ODFW), Oregon State University, Washington Department of Fisheries and Wildlife, NMFS Southwest Fisheries Science Center and NMFS Alaska Fisheries Science Center. Preliminary stock assessments were reviewed by an ad hoc group in June 1994. Revised assessments were reviewed by the GMT at its July 1994 meeting. At that meeting, the GMT developed recommendations for preliminary levels of ABC. The Scientific and Statistical Committee and Groundfish Advisory Subpanel reviewed these preliminary assessments at the August meeting, and the Council adopted preliminary ABCs at that time. The GMT reviewed the final versions of the stock assessments at its September meeting and developed its final ABC recommendations (Table 23 on page 105). In addition, comparison of MSY, ABC, landings, stock conditions and abundance trends for various groundfish stocks are summarized in Table 24 on page 108. Final ABCs and resultant management measures will be adopted by the Council in October. Following is a synopsis of ABC estimates for each principal species. New or updated stock assessments were available for Pacific whiting, bank rockfish, splitnose rockfish, canary rockfish, black rockfish, Dover sole, sablefish, thornyheads and lingcod. Some stocks' assessments are updated only about every third year. Where appropriate, ABCs for these stocks are based on average potential yields for 1995-1997.

General Features

Assessment Model

Assessments of West Coast groundfish stocks have generally been conducted through use of stock synthesis.^{3/} This tool is similar to other stock assessment tools in its handling of the interaction between a fishery and the exploited stock, but it provides greater flexibility in the types of survey data that can be examined. Perhaps more importantly, synthesis provides a bridge between strictly biomass-based models (like Stock Reduction Analysis) and strictly age-structured models (like cohort analysis) and also provides the capability to examine size composition data. The model is structured to simultaneously analyze catch biomass, age and length composition and effort from multiple fisheries, and abundance and age and length composition from multiple surveys. This flexibility has allowed quantitative examination of stocks and fisheries that could not be analyzed by other techniques. The model has provided a useful tool for organizing the available data and exploring the limits of our knowledge with regard to the history and current status of each stock, although the nature of the available information often does not provide narrow constraints on the range of feasible model results.

3/ Methot, Richard D. 1990. Synthesis Model: An Adaptable Framework for Analysis of Diverse Stock Assessment Data. INPFC Bulletin Number 50: 259-277.

Exploitation Rate

The GMT generally recommends that a fixed fraction of the exploitable stock be harvested each year by applying a constant fishing mortality rate (F). The level of exploitation is designed to achieve a large fraction of MSY while protecting the spawning potential of the stock. This standard level of exploitation is labeled $F_{35\%}$, and is the fishing mortality rate that would reduce average egg production per female to 35 percent of its unfished level (Figure 5 on page 103). This standard was reviewed in the analysis for the overfishing definition (FMP Amendment 5). $F_{35\%}$ is intended as a proxy for the harvest rate that may produce MSY, F_{msy} , and it replaces other standards such as $F_{0.1}$. The short coming of $F_{0.1}$ is that it examines only the marginal increase in yield per recruit as fishing mortality is increased and can cause large decreases in spawning biomass if fish recruit to the fishery before they become mature (e.g., trawl-caught sablefish). The problem with F_{msy} is that it is tightly linked to an assumed level of density-dependence in recruitment. For no stock do we have sufficient information to determine the level of density-dependence in recruitment. $F_{35\%}$ strikes a balance between obtaining a large fraction of the MSY if recruitment is highly insensitive to reductions in spawning biomass, and preventing a rapid depletion in stock abundance if recruitment is found to be extremely sensitive to reductions in spawning biomass.

The long-term expected yield under an $F_{35\%}$ policy depends upon the unknown level of density-dependence in recruitment (Figure 6 on page 104). The recommended level of harvest will reduce the average, lifetime egg production by each female entering the stock to 35 percent of the lifetime egg production for females that are unfished. If this reduction in total egg production causes no reduction in recruitment, the long-term average female spawning stock level will be 35 percent of its unfished level and a large long-term average yield will be obtained. However, if the reduction in total egg production causes some reduction in average recruitment, future female spawning stock levels will be less than 35 percent of the virgin level and future yields will be reduced as well. Thus, the expected, long-term average level of female spawning biomass, relative to the virgin level, is between 35 percent on the upper end and probably no lower than about 25 percent on the lower end. In some cases, MSY is calculated under the assumption that recruitment declines to 90 percent as spawning biomass is fished down to 50 percent of its virgin level. This is just one of several plausible levels of MSY, depending on the true level of density-dependence in recruitment, and is included for reference and continuity with past reports.

The short-term yield under an $F_{35\%}$ policy will vary as the abundance of the exploitable stock varies. This is true for any fishing policy that is based on a constant exploitation rate. The abundance of the stock will vary because of the effects of fishing and because of natural variation in recruitment. When stock abundance is high (i.e., near its average unfished level), short-term annual yields can be approximately two to three times greater than the expected long-term average annual yield. For many of the long-lived groundfish species common on the West Coast, this "fishing down" transition can take decades. Many of the declines in ABC that occurred during the 1980s were the result of this transition from a lightly exploited, high abundance stock level to a fully exploited, moderately abundant stock level.

Discard Mortality

Stock assessments must account for total mortality in order to be accurate. The GMT's recommendations on dealing with discard mortality were submitted to the Council in April 1990. Discards of commercial species are usually related to fish size, lack of immediate market (e.g., bycatch in the at-sea whiting fishery), and trip limits. Trip limits cause discard when a fisher catches more than an intended amount when making a targeted tow, and when bycatch occurs after a species' monthly cumulative limit has already been taken. Generally, the recommended harvest guideline is set below the ABC to account for the expected discard. However, discarded bycatch in the whiting fishery is always counted towards the harvest guideline inseason because this source of discard is measured accurately and is variable from year to year. Assumed levels of discard in other fisheries are generally based on field observations,^{4/} but there is no monitoring to verify the current level of discard. The measured level of discard for widow rockfish was 16 percent of landed catch annually in 1985-1987, and this level is used for all rockfish fisheries constrained by trip limits, except a lower level of 8 percent is used for the deepwater fishery for thornyheads. The discard rate in the trawl sablefish fishery is set at 25 percent of landed catch.

Slope Surveys

Assessments for sablefish, Dover sole and thornyheads must rely upon information from the trawl surveys conducted on the continental slope (100 to 700 fathoms). Because the coastwide area has been covered only once (except the central Columbia area), these surveys do not yet provide direct information on trends in relative abundance. However, by considering a range of potential values for the survey's catchability (Q), the assessment model can use the survey, in conjunction with the measured fishery removals, to infer the stock's trend and current level. Industry members have expressed substantial concerns regarding performance of the trawl in these surveys. In particular, the tow speed is only 2 knots and the net, at times, is retrieved with more mud than occurs in commercial tows. These concerns support use of Q values that are less than 1.0. On the other hand, experiments with similar trawls in the Bering Sea indicate that herding by the doors and bridles could cause survey gear to overestimate the abundance of some species. Differences between species' behavior in response to a trawl and differences between species in distribution across trawlable and untrawlable habitat can lead to different Q values for different species. It will be difficult to achieve a survey tool that simultaneously performs well for both Dover sole and sablefish. Although replication of slope trawl surveys is urgently needed in some areas (particularly for Dover sole in the Eureka area), the 1994 field season will be used for an evaluation of the performance of the survey gear and deployment methods. At this time, a slope Q near 0.6 is concluded in the sablefish assessment (see below) and in the Eureka Dover sole assessment, but a slope Q that is at least 1.0 provides the best fit for Dover sole in the Columbia area.

4/ Pikitch, Ellen, K., Daniel L. Erickson and John R. Wallace. 1988. An evaluation of the effectiveness of trip limits as a management tool. NWAFC Processed Report 88-27, 33 p.

Roundfish

Pacific Whiting

The GMT recommends a coastwide (U.S. plus Canada) ABC in 1995 of 223,000 mt. This decrease from the 325,000 mt level in 1994 is due to the anticipated decline in stock level following the very large year classes produced in 1980 and 1984. The total harvest of Pacific whiting by the U.S. and Canada in 1993 was 199,994 mt, which exceeded the 1993 ABC of 178,000 mt because of lack of agreement between the U.S. and Canada regarding allocation of the total available yield. Again in 1994, the yield is expected to be above the 1994 ABC of 325,000 mt.

The stock assessment conducted in 1994 is an update of the substantially revised assessment in 1993. The hydroacoustic survey in 1992 utilized new, more sensitive equipment, and extended further offshore and further north to better encompass the range of Pacific whiting. The result of these changes was a biomass measurement that was more than double the projected amount. A geographic version of synthesis that modeled the division of the population into U.S. and Canadian components was used to assess the Pacific whiting population. The new biomass estimate in 1992 was consistent with past survey biomass estimates only if they are interpreted as an index of total stock biomass. The biomass of age-3 and older fish in 1993 is estimated to have been 2.871 million mt. The recruitment abundances of the 1987, 1988 and 1990 year classes were estimated to be close to the average 1977-1992 recruitment, but much below the very strong recruitments of the 1980 and 1984 year classes. The 1989, 1991 and 1992 year classes appear to be much weaker. An age-structured model was used to forecast yields for 1995-1997. Several harvesting strategies are presented and are ranked according to the percentage of years that female spawning biomass will fall below a level of 623,000 mt in long-term simulations of the population. When the harvest rate used in 1994 is applied to the projected numbers at age in 1995, the potential yield (U.S. plus Canada) is 223,000 mt with declines to 159,000 mt in 1996 as the stock abundance declines below its expected long-term average level. Continuation of this conservative harvest policy is recommended at least until another hydroacoustic biomass estimate can be made.

Sablefish

On the basis of a stock assessment conducted in 1994, the GMT recommends the ABC (for landed catch plus about 900 mt of discard) be increased to 8,700 mt for the Monterey through U.S. Vancouver International North Pacific Fisheries Commission (INPFC) areas. The Conception area was explicitly excluded because of the smaller size-at-age and delayed maturity in that area. An ABC of 425 mt is recommended for the Conception area (including Morro Bay) on the basis of average annual landings since 1985.

The sablefish stock in the Monterey through U.S. Vancouver INPFC areas is assessed in 1994 through application of the synthesis model to fishery size and age composition data from 1986-1993 and trawl and pot survey data. Pot surveys conducted during 1979-1991 indicate a substantial decline in sablefish abundance, especially for medium and large fish in the 225 to 450 fathom depth zone. No pot surveys have been conducted since 1991. Slope trawl surveys during 1990-1993 have measured the biomass in the 100 to 700 fathom depth zone between

Pt. Conception and the U.S.–Canada border to be 61,409 mt, which represents approximately the age-2+ biomass with a reduced availability for the larger females. Survey biomass in the Monterey through Vancouver areas is estimated to be about 51,000 mt. The triennial shelf trawl survey in 1992 measured a record high 55,021 mt of young sablefish in the 30 to 200 fathom depth zone of the Monterey through Vancouver INPFC areas.

The synthesis model was configured to explore tradeoffs in fitting the biomass levels measured in the slope trawl surveys, the trend in numbers of sablefish in the pot survey, and the trend in recruitments from the shelf trawl surveys. No conventional model scenario could be found that fit all well. The slope trawl surveys indicate that about 30 percent of the biomass is in waters deeper than 500 fathoms, and all sources of information indicate that sablefish in these deep waters are old. A preliminary model with an emigration rate of about 3 percent per year, beginning at about age 4, from the <500 fathom depth zone to the >500 fathom depth zone can explain this pattern. When this emigration rate is incorporated as an extra amount of natural mortality in a model of only the <500 fathom portion of the stock, the model can achieve a reasonable fit to the decline in the pot survey while estimating that the catchability coefficient for the slope trawl survey (Q) is near 1.0 for 50 cm sablefish (medium and large sablefish would have a Q that is only 30 percent of this level). This result substantially narrows the range of plausible model results. Previously, values of slope Q near 2.0 were necessary to fit the trend in the pot survey.

An optimistic model scenario indicates that the slope trawl survey has a Q of 0.53 (relative to the Monterey through Vancouver biomass of 51,000 mt), fits trends in the shelf trawl surveys and the fishery size and age composition data well, but provides a degraded fit to the trend in the pot survey, even in the shallow zone model with enhanced mortality. This scenario indicates that fishing mortality over the past eight years has been close to the target level of $F_{35\%}$ (7.5 percent exploitation rate on the age-2+ biomass) and that the female spawning biomass recently increased to slightly above its long-term target level. Under this scenario, the annual catch plus discard could be 11,107 mt during 1995–1998, and MSY may be 8,535 mt. A pessimistic model scenario has a slope survey Q of 0.94 and provides a reasonable fit to the trend of the pot survey if migration to deep water is accounted for. This scenario indicates that harvests during 1986–1992 were nearly at the overfishing level, that spawning biomass during 1990–1993 was nearly stable at a level below the target, and that annual catch plus discard at $F_{35\%}$ should decline to 6,281 mt during 1995–1998 and MSY may be 7,216 mt. Under an intermediate scenario ($Q=0.68$) the annual total catch could be 8,689 mt during 1995–1998 and MSY may be 7,831 mt.

Pacific Cod

The GMT recommends no change in the coastwide ABC for Pacific cod from the previous level of 3,200 mt which was set in 1989 at the highest catch of record. The coastwide catch reported by PacFIN was 1,065 mt for 1990, 1,796 mt for 1991, 1,776 mt for 1992 and 1,367 mt for 1993. No quantitative assessment is attempted for Pacific cod off Washington, Oregon and California because changes in stock abundance in this area are probably dominated by environmental factors which influence the contribution of fish from the north.

Lingcod

The GMT recommends reduction in the lingcod ABC on the basis of new stock assessments conducted in 1994. In the area between Cape Falcon, Oregon and 49° N latitude off Vancouver Island, Canada a comprehensive assessment based on fishery and survey data from 1979–1993 indicates that this stock has been heavily exploited by the U.S. and Canadian fisheries. The population biomass in this area is estimated to be 13,765 mt based on the synthesis model fit to trends in fishery effort, relative abundance in a nearshore tagging survey, and relative abundance in the NMFS triennial trawl survey. The average yield of 2,736 mt during 1989–1993 is just below the overfishing level. Application of an $F_{35\%}$ fishing mortality rate in 1995–1997 indicates that total U.S. plus Canada catch should be reduced to 1,800 mt in the assessment area.

The GMT recommends that the potential yield for the U.S. portion of the assessment area be set at 900 mt based on 50 percent of the calculated $F_{35\%}$ yield (52 percent of 1989–1993 landings in this area were from U.S.). Canadian catch has averaged 1,320 mt during 1989–1993 and we understand that their ABC has been increased to 2,100 mt. Thus, Canadian catch alone could exceed the $F_{35\%}$ yield level for both nations in 1995. International coordination on assessment and management of this species is necessary. In the areas south of Cape Falcon, the GMT recommends setting the ABCs at 63 percent of the average catch during 1989–1993 where 63 percent is the proportional reduction in catch (from 1989–1993 average levels) recommended for the area north of Cape Falcon. In the portion of the Columbia area south of Cape Falcon, the ABC contribution would be 288 mt (63 percent of the 457 mt average commercial catch for 1989–1993) plus 142 mt (63 percent of the 226 mt average recreational catch for 1985–1989). The ABC for the combined Columbia and U.S.–Vancouver areas should be reduced from the current 5,000 mt to 1,330 mt for combined commercial and recreational catch in 1995–1997. The U.S. commercial catch from this area was 1,446 mt in 1993. In addition, approximately 200 mt of recreational catch occurs annually.

Port sampling of lingcod was extended to Oregon and California in 1992 and provides information on the biological characteristics of the catch in 1992 and 1993. In the Monterey through Columbia areas, the commercial catch is dominated by age–2 through age–4 fish and about 50 percent of the females are immature. The size composition is shifted to smaller sizes than were observed in limited samples from the 1978–1983 period. Although the triennial trawl surveys do not exhibit a noticeable decline until 1992, there is concern that the young mean age in the catch indicates a substantial level of fishing mortality. The current ABC levels in the Eureka, Monterey, and Conception areas are 500, 1100 and 400 mt, respectively. Although these levels were previously set on the basis of commercial catch, it may be more appropriate to consider a reduction from these levels as an interim measure of potential yield for combined commercial and recreational fisheries. Commercial catch from 1989–1993 and recreational catch from 1985–1989 have averaged:

Area	Commercial	Recreational	63 percent of total
Eureka	272 mt	196 mt	294 mt
Monterey	635 mt	510 mt	721 mt
Conception	50 mt	150 mt	126 mt

The GMT recommends reducing the ABCs to 1,300 mt for the Vancouver and Columbia areas combined, 300 mt for the Eureka area, 700 mt for the Monterey area, and 100 mt for the Conception area.

Jack Mackerel

The jack mackerel ABC was revised in 1990. Available data indicated that the current, nearly unfished spawning biomass is about 1.5 million short tons, the natural mortality rate is in the range of 0.1 to 0.2, a fishery located north of 39° N would harvest fish that are mostly older than age-16, and the long-term potential yield for this age range is 19,000 mt. The GMT recommends continuation of the 52,600 mt ABC on the basis of a constant exploitation rate (equal to natural mortality) applied to estimates of current biomass of ages 16+. Biomass and short-term yield are expected to slowly decline under this level of exploitation. If this level of exploitation reduces long-term biomass to approximately 30 to 50 percent of the current biomass, the long-term average yields for this age range would be near 19,000 mt. The GMT recommends close tracking of this fishery, especially with regard to catches outside the EEZ and to the age composition of the harvested fish.

Rockfish (alphabetical order)

Bank Rockfish

This is a new assessment in 1994. Catch estimation of this, and some other, rockfish species in California is difficult because of the low level of species composition sampling for some gear types and market categories, and because of lack of sampling south of Morro Bay in some years. At this time it appears that during 1986-1990 total catch was about 1,100 mt, setnet and trawl had similar catch levels, and the Monterey and Conception areas had similar catch levels. There have been declines in the mean size of fish landed by the trawl and setnet fisheries, but a quantitative assessment is hindered by the low incidence of bank rockfish in the trawl surveys. No ABC recommendation is made at this time, and the GMT is concerned about our ability to provide advice on management of species for which there is such a small amount of information. This assessment is intended to contribute in 1995 to a review of management of the Sebastes complex, particularly the deeper living species.

Black Rockfish

An assessment of black rockfish off northern Oregon was conducted in 1993 using age composition and catch per unit of effort (CPUE) data from the recreational fishery during 1984-1991. The data were examined with cohort analysis, CAGEAN, and synthesis. The results indicated that the 1991 fishing mortality rate was half the $F_{35\%}$ level (cohort and synthesis) to near this level (CAGEAN). Although the results cannot be extrapolated to other areas to develop an ABC estimate, the assessment concluded that the fishery is impacting the stock in the northern Oregon area. Controls on fishing effort could reduce future declines in recreational CPUE in this area.

An assessment of black rockfish off Washington was conducted in 1994 using age composition data from the recreational, jig, and trawl fishery during 1980–1993 and CPUE data from the sport fishery (1984–1993) and from a nearshore jigging survey (1987–1990). Recent catch is dominated by the sport fishery (307 mt per year in 1991–1993) followed by the handline jig (80 mt), trawl (54 mt) and salmon troll (47 mt). The synthesis model fit to available data indicates that the biomass in 1994 is 7,460 to 9,283 mt and that the female potential egg production in 1994 is about 43 percent of its unfished level. The assessment indicates that expected long-term yield under a $F_{45\%}$ strategy would produce about 500 mt per year while a $F_{35\%}$ strategy would produce about 600 mt per year but result in lower biomass and, potentially, lower CPUE for the recreational fishery. The GMT does not have a recommendation for an ABC in 1995 because current catches are slightly below the levels of potential yield calculated in the assessment.

Bocaccio

The GMT recommends that the ABC for bocaccio in the Eureka, Monterey and Conception INPFC areas combined remain at 1,700 mt and apply to all commercial and recreational harvest. The 1992 assessment incorporated improved estimates of historical catch, including trawl, setnet, hook-and-line and recreational. Analyses using the synthesis model indicated that biomass has declined substantially since 1980 and is approaching 20 percent of its estimated unfished level. This result was in agreement with trends in both recreational catch and effort, a research survey index of abundance, and year class patterns in all data sources. The estimated total landed catch in 1991 (about 1,700 mt) was a substantial decline from the level that occurred prior to imposition of trip limits and was near the target catch level now indicated by application of the $F_{35\%}$ harvest policy. There is some risk in maintaining harvests at this level, because weak recruitments since 1979 will cause the stock to continue to decline unless the total harvest is kept closer to 1,100 mt. However, reported commercial catch in 1993 totaled only 1,260 mt.

Canary Rockfish

A new assessment of canary rockfish in 1994 indicates that the stock has undergone a substantial decline and that continuation of current catch levels, which are at the ABC levels set in 1990, would be overfishing. The trawl survey in 1992 detected a drop in biomass and a decrease in the mean size of surveyed canary rockfish. The new assessment, which includes survey and fishery data from the Columbia and U.S. Vancouver areas, tracks this decline and even the optimistic scenario indicates that spawning biomass has declined about 50 percent since 1977. The GMT's recommendation is that the ABC for canary rockfish in the Columbia and U.S. Vancouver area be reduced from 2,300 to 1,000 mt; the catch in 1993 was 2,463 mt. The previous assessment indicated that the low end of the ABC range for the Columbia area alone was 1,050 mt. Exceeding this level in 1991–1993 has contributed to, but not necessarily caused the observed stock decline. Because the survey trend in the Eureka area is even more sharply downward than in the northern areas, the GMT recommends that the ABC for the Eureka area be reduced from 600 to 250 mt, which is close to the recent average catch from this area. However, the GMT believes that total commercial plus recreational catch of canary rockfish in the Eureka area probably is greater than recent catch reports. The GMT recommends a review of total canary rockfish catch and development of an ABC estimate for the Monterey area.

The ABC for the *Sebastes* complex in the Vancouver and Columbia areas should be reduced by 1,300 mt and the ABC for the *Sebastes* complex in the southern area should be reduced by 350 mt to reflect the changes in the canary rockfish ABC.

Chilipepper Rockfish

The ABC for chilipepper rockfish was increased from 3,600 to 4,000 mt in 1994 on the basis of an assessment conducted in 1993. Most catch comes from the Conception, Monterey and Eureka areas. The catch in 1991 was 3,906 mt. Catch in 1992 fell to 2,895 mt (trawl 1,207 mt, setnet 276 mt, hook-and-line 1,104 mt and recreational 308 mt).

The 1993 assessment used synthesis to analyze size composition data from the four fisheries, age composition from the trawl fishery, and trends in relative abundance indicated by CPUE in the triennial bottom trawl survey and in the recreational fishery. Both trend indicators showed an increase in 1988–1989, and the 1992 trawl survey value was double the level observed in 1980, 1983 and 1986. The analysis indicated that this increase was due to a very strong 1984 year class and that the stock is now at a level above that expected under the recommended level of exploitation. With the best-fitting model, the estimated biomass in 1992 is 76,000 mt, the long-term average yield is in the range 4,988 to 6,516 mt, and the 1994–1996 average yield is 9,709 mt. With a more conservative scenario, the long-term average yield is in the 3,025 to 3,941 mt range and the 1994–1996 average yield is 4,919 mt.

Although even higher levels seem possible from the assessment result, the assessment author recommended caution and higher catches of chilipepper are likely to have increased bycatch of bocaccio which is at a low stock level.

Darkblotched Rockfish

The GMT intends to develop a plan for management of the deepwater rockfishes on the basis of the 1993 assessment and a review in 1991 of declining mean size in several rockfish species off California. The coastwide catch of darkblotched rockfish was 1,073 mt with 732 mt coming from the Columbia INPFC area. Other members of the deepwater rockfish assemblage off Oregon and Washington are splitnose, yellowmouth and Pacific ocean perch.^{5/}

The assessment examined life history information and determined that, like many deepwater rockfish species, the natural mortality rate of darkblotched rockfish is low and the annual harvest should only be 4 to 6 percent of the stock. There is insufficient fishery or survey data to determine the current stock abundance or the current rate of exploitation. However, declining trends in mean size suggest that recent exploitation rates have been greater than the overfishing exploitation rate of 7 to 11 percent.

5/ Rogers, J.B. and E.K. Pikitch. 1992. Numerical definition of groundfish assemblages caught off the coasts of Oregon and Washington using commercial fishing strategies. *Can. J. Fish. Aquat. Sci.*, 49: 2648–2656.

Pacific Ocean Perch

Based on a stock assessment in 1992, the Pacific ocean perch ABC in the Columbia and Vancouver areas remains at zero. A rebuilding program was established for Pacific ocean perch in 1981 following depletion of this stock during the 1960s and early 1970s. The 1992 comprehensive review of fishery and survey data did not indicate any significant rebuilding. The stock abundance is estimated to be about 50 percent of its target level and the recent harvests of about 1,000 mt are near the level of overfishing. If the stock recovers to its target level, then annual yields of about 1,400 mt may be possible. The review also indicated that strong year classes, which are necessary to rebuild the stock, occur infrequently so the lack of rebuilding is not unexpected. Incidental catches occur and trip limits are set to discourage targeting while allowing landing of incidental catches. In recent years, the trip limit was 3,000 pounds per trip or 20 percent of all groundfish on board, whichever is less, and the total landed catch reported by PacFIN was 1,054 mt. With respect to other areas, Pacific ocean perch are neither common nor important and are included in the "Remaining Rockfish" category.

Shortbelly Rockfish

The potential yield of shortbelly rockfish was last examined in 1989. Shortbelly rockfish remains an unexploited stock at present, thus is difficult to quantitatively assess. The extremes of the MSY estimates from two alternative yield calculations were 13,900 to 47,000 mt, and a value of 23,500 mt is the midpoint of recently revised estimates.^{6/} In addition, the short-term yield of an unexploited stock may be about three times as high as the long-term potential yield (MSY). The GMT recommends continuation of the 23,500 mt ABC and the harvest guideline in the 13,000 to 23,500 mt range until more is known about this stock.

Splitnose Rockfish

An initial assessment of splitnose rockfish was made in 1994 to prepare for a review in 1995 of *Sebastes* complex management, particularly the deepwater rockfish species. Landings of splitnose rockfish since 1980 have been about 170 mt per year in Oregon and Washington, and about 420 mt per year in California. Like many rockfish species, splitnose has a low rate of natural mortality (0.05) so is not able to sustain a high rate of exploitation. However, most of the catch is of individuals that are above the size at 50 percent maturity, so this species may be less vulnerable to overfishing than later-maturing species. Biomass estimates from four different types of surveys did not show any consistent downtrend in abundance over time, particularly when the imprecision of the estimates was considered. There was also no consistent downtrend in the estimated body size of fish in the commercial landings and surveys, although these estimates were also imprecise. The GMT has no ABC recommendation at this time.

6/ Pearson, D.E., J.E. Hightower, and J.T.H. Chan. 1991. Age, growth, and potential yield for shortbelly rockfish *Sebastes jordani*. Fish. Bull., U.S. 403-409.

Thornyhead Rockfish

The GMT recommends that single species ABC levels be reduced from 1,900 to 1,000 mt for shortspine thornyheads and from 10,100 to 7,000 mt for longspine thornyheads on the basis of the 1994 stock assessment. These new ABC levels apply to the entire area between Pt. Conception (34°30' N latitude) in the south and the U.S.–Canada border in the north, whereas the previous ABC levels applied only to the Monterey, Eureka and Columbia areas. In 1993 the landed catch in the Monterey, Eureka and Columbia areas combined was 7,024 mt and the total West Coast catch was 9,044 mt. Shortspine thornyheads constituted 41 percent of the coastwide landed catch in 1993, following a low of 32 percent in 1991. There are two significant changes in the availability of information for thornyheads. First, the set of slope trawl surveys has been extended to cover the entire area between Pt. Conception and the U.S.–Canada border. Analysis of these surveys indicates that biomass extrapolations necessary in the previous assessment resulted in an overestimate of coastwide biomass, especially for shortspine thornyheads. The estimate for shortspines has declined from 97,000 mt survey biomass for the Monterey, Eureka and Columbia areas combined to 28,000 mt in 1993. The estimate for longspines has declined from 128,000 mt for the Monterey, Eureka and Columbia areas to 84,000 mt in 1993. The second major change is in age validation for shortspine thornyheads. Radiometric examination of otoliths with ring counts near 147 indicate an age in the range of 50 to 100 years. This uncertainty in age determination introduces substantial uncertainty in estimates of natural mortality and growth rate.

The assessment uses the synthesis model to examine the time series of fishery and survey data under a broad range of possible values for the important biological parameters. The great uncertainty in biological parameters forced an assumption of survey Q equal to 1.0. For longspine thornyheads, the best model fits occurred at M values near 0.10. The $F_{35\%}$ rate is 0.247 because only larger individuals are targeted, and the stock is still being fished down. The average yield during 1995–1997 can be approximately 7,000 mt while long-term yield may be closer to 5,000 mt. For shortspine thornyheads, examination of the data under a range of values for maximum size, growth rate, and natural mortality indicates that M probably is at least 0.07, but values above 0.10 would be inconsistent with the radiometric estimate of longevity. At $M=0.07$, the estimated $F_{35\%}$ rate is only 0.056 because this species continues to grow after it enters the fishery. This species is fully exploited and the female spawning biomass in 1994 is estimated to be at 27 percent of its initial level. Average yield during 1995–1997 can be 1,000 mt.

Widow Rockfish

In 1994 the ABC for landed catch of widow rockfish was reduced from 7,000 to 6,500 mt based on the stock assessment conducted in 1993. The GMT recommends revising the ABC to 7,500 mt for total catch to account for expected discard with the harvest guideline set lower.

The 1993 assessment used the stock synthesis model to analyze fishery age composition data from 1980–1991. In this assessment, fishery data are stratified into midwater and bottom trawl components, north (Vancouver and Columbia) and south (Eureka through Conception) areas, and male and female data are kept separate. More importantly, the bycatch of widow rockfish in the at-sea Pacific whiting fishery is introduced as an index of widow rockfish abundance. Previous assessments relied solely on trends in the fishery age composition.

The new model achieves its best fit to the data at essentially the same stock abundance level as the previous assessment. The stock in 1994 is estimated to be at 76,000 mt, about one-third of the stock level in 1980 and near the long-term average level that is expected under the $F_{35\%}$ level of exploitation. If recent recruitments remain near the average level, stock abundance is expected to remain nearly constant under 1994–1996 annual harvests of 8,150 mt (7,000 mt landed). However, a plausible alternative with lower stock abundance and recent recruitments at a lower, median level would support only a 5,000 mt landed catch during 1994–1996.

Yellowtail Rockfish

The GMT recommends continuation of the ABCs established for 1994. The 1994 ABC was increased to 6,740 mt for the U.S. Vancouver, Columbia and Eureka areas combined on the basis of an updated assessment conducted in 1993. The previous ABC for these areas was 4,700 mt and the catch in 1992 was 6,029 mt. The increased ABC was due to evidence from trawl surveys that biomass has not declined in recent years, and evidence in fishery age composition data of strong year classes in 1983–1984. The ABC is based on assessments in three independent areas (Eureka and Columbia south of Cape Falcon, Columbia north of Cape Falcon, and Vancouver south of 49° N in Canada):

Area	Previous ABC	1994–1996 ABC
Eureka–South Columbia	1,350 mt	2,580 mt
North Columbia	2,085 mt	2,970 mt
U.S.–South Vancouver	1,226 mt	1,190 mt

Previously, 300 mt of the ABC was set aside for the Eureka area and a harvest guideline was set for the combined Columbia and U.S. Vancouver area. The Council endorsed the GMT's recommendation that the management areas be aligned with the assessment areas which, in turn, correspond to evidence for stock delineation. ABCs of 2,580 mt for the Eureka and South Columbia area and 4,160 mt for the combined northern areas were established.

This assessment used synthesis to examine fishery age composition data through 1991 and trends in relative abundance indicated by CPUE in the triennial bottom trawl survey (1977–1992). The previous assessment identified that natural mortality probably increases for older females, i.e., the same pattern that was identified for canary rockfish. New age composition data for yellowtail rockfish are consistent with this pattern.

In the Eureka and South Columbia area, the stock is estimated to have recently increased because of strong year classes in 1983–1984. Biomass at the beginning of 1993 was estimated to be 25,000 mt. Current spawning biomass in this area was estimated to be 93 percent of the unfished level. The projected average yield for 1994–1996 is 2,580 mt with a declining trend as the strong year classes move through the stock. This level is near the total catch in 1992 when trip limits in this area were removed for part of the year, but substantially above the approximately 1,100 mt average yield from previous years. Some caution should be attached to this optimistic assessment because the trawl survey in the Eureka area shows a declining trend that is not well matched by the assessment.

In the North Columbia area, the fishery age composition data and the nearly constant survey CPUE are consistent with a stock that is only slowly declining and in 1993 is at about 30,000 mt. The recommended average yield for 1994–1996 is 2,970 mt, but future declines are expected as large year classes in 1983 and 1984 move through the stock. This level of ABC is above the 1992 catch of 2,476 mt and similar to average catch levels during 1986–1989.

In the South Vancouver area, which extends into Canadian waters to near the middle of Vancouver Island, there are contrary indicators of stock condition. The trawl survey indicates no trend during 1980–1992 and is consistent with a healthy stock and a 1994 yield of 2,200 to 4,300 mt (U.S. plus Canada). However, the fishery age composition data do not indicate a particularly strong 1983–1984 year class, as in southern areas, and are most consistent with a steeply declining stock and a 1994 yield of only 250 to 800 mt. The GMT based its recommendation on the lower end of the optimistic scenario, prorated to 1994–1996 according to the trend in the North Columbia area. The recommended harvest in the U.S. portion of the South Vancouver area during 1994–1996 is 60 percent of the total or 1,190 mt.

Remaining Rockfish

Remaining rockfish in the Vancouver and Columbia areas are defined as all rockfish except Pacific ocean perch, yellowtail rockfish, canary rockfish, widow rockfish and shortbelly rockfish. In the Eureka, Monterey and Conception areas, bocaccio and chilipepper rockfish are excluded from this category but yellowtail and canary rockfishes are included. In 1991, thornyheads were removed from this category in the Monterey, Eureka and Columbia areas. In 1994, the ABCs for remaining rockfish were changed for the first time since about 1983. The ABC levels set in 1983 had been: Vancouver – 800 mt; Columbia – 3,700 mt; Eureka – 1,900 mt; Monterey – 4,300 mt; and Conception – 3,300 mt. The ABCs in the three southern areas (Conception, Monterey and Eureka) were set simply at 1.2 times the 1977 catch, 9,500 mt for the combined area. During 1983–1992, the catch of remaining rockfish in this area has ranged from 5,100 to 7,200 mt with a mean of 6,600 mt (values calculated by subtracting bocaccio and chilipepper catch, as documented in stock assessment documents, from the summed *Sebastes* complex and unspecified rockfish catch as documented in PacFIN). Although annual catches have never achieved the 9,500 mt ABC level, an examination of declines in mean length for several rockfish species in the Conception, Monterey and Eureka areas suggests that the fishery removals are having a noticeable impact on these stocks. Although there is insufficient information to conduct a quantitative stock assessment for the remaining rockfish in this southern area, the GMT recommends reduction of the ABC to 7,000 mt, near the upper end of the range of realized harvests during 1983–1992. During 1990–1992, the remaining rockfish catch in the Conception, Monterey and Eureka areas combined has averaged 6,060 mt. The GMT recommends no change for 1995.

Flatfish

Arrowtooth Flounder

A new stock assessment conducted in 1993 resulted in maintaining the ABC in U.S. waters at 5,800 mt (equal to peak catch in 1990). The assessment author recommended conservative management, especially until new data and models can estimate absolute biomass and exploitation

rates. However, the GMT recommended no change in ABC because there was no decline in fishery CPUE during 1987–1992 and no trend in triennial bottom trawl survey CPUE during 1977–1992, although survey CPUE fluctuated over a three-fold range. Future work on this assessment probably should include the Canadian zone. Fishery logbook data indicate that most of the U.S. catch occurs near the U.S.–Canada border. The survey indicates that the biomass is about two times higher in the surveyed portion of the Canadian zone than in U.S. waters. Catch in Canada increased greatly in 1990 and was nearly 50 percent of the U.S. catch in 1992.

Dover Sole

The GMT recommends reducing ABC levels from 3,500 to 2,900 mt in the Eureka area and from 4,000 mt to the range of 1,700 to 3,700 mt in the Columbia area on the basis of assessments conducted in 1994. The coastwide ABC would be reduced from 15,900 mt to no more than 15,000 mt, which is above the 1993 catch of 14,300 mt.

In the 1994 assessment, size and age composition data from the INPFC Eureka and Columbia areas were analyzed by stock synthesis. The analyses for each area were conducted independently because tag return data indicate little coastwise movement of adult Dover sole. The fishery data are influenced by changing market conditions and by changing depth distribution of the fishing effort. In each area, separate fishery selectivities were estimated for several time periods to track these changes. In both areas, the model was run at various levels of initial biomass to generate a range of fits to the biomass measured in the slope trawl surveys. Runs with the slope survey catchability (observed slope survey abundance divided by the population biomass after survey selectivities are applied) between 0.5 (high population biomass) and 1.0 (lower population biomass) were taken as a plausible range of biomass levels.

In the Eureka area, the results with survey Q at 0.59 indicate that the biomass has declined to a low level because of declining recruitment. Female spawning biomass is estimated to be only 18 percent of its unfished level. Catch has declined from 5,000 to 6,000 mt during the early 1980s to only 3,062 mt in 1993. These catches have been near the $F_{35\%}$ exploitation level for this declining stock, and a further reduction to 2,900 mt is recommended for 1995. If recruitments return to historical average levels, a long-term average yield of 6,000 mt may be possible.

In the Columbia area, the stock appears to have been near equilibrium during the late 1970s at an average annual catch of 2,020 mt. The biomass declined as the catch increased to a peak of 9,000 mt in 1989 and declined to 5,600 mt in 1992–1993. The best model fits occur at a survey Q level of at least 1.0 (survey overestimates biomass). At survey Q = 1.0, the model indicates that harvest during the past six years has been at the overfishing level, and that the annual catch needs to decline from 5,600 mt in 1992–1993 to only 1,670 mt in 1995. At this time, the GMT recommends a less conservative approach because it is unlikely that the survey Q is greater than 1.0, especially because the survey did not extend nearshore of 100 fathoms. An optimistic, but unlikely, assessment with survey Q = 0.48 and an ABC of 3,700 mt could be considered as a risky, upper end estimate. At an intermediate level (survey Q = 0.59, same as in the Eureka area) the yield in 1995 could be about 3,000 mt and the long-term potential yield may be 3,600 mt. An ABC of 3,000 mt may be a realistic upper end, and 1,700 mt would provide cautious management of Dover sole in the Columbia area.

English Sole

For 1994, the coastwide ABC of 1,900 mt was changed to an ABC of 1,100 mt for the Eureka through Conception areas, and 2,000 mt for the Columbia and Vancouver areas. The coastwide landed catch during 1983–1991 averaged 2,113 mt. The GMT recommends continuation for 1995.

The age-structured version of the stock synthesis program was used to assess the status of the stock of female English sole occurring off Oregon and Washington (Columbia and Vancouver INPFC areas). The analysis used age composition data from the Oregon and Washington trawl fisheries, and estimates of relative abundance and length composition from the 1977–1992 triennial bottom trawl surveys. The survey CPUE increased ten-fold over this period. The assessment indicated a large and steady increase in the biomass to about 133,000 mt of age-4 and older females in 1992. The increase is attributed to high recruitment during the period examined. A specific ABC was not estimated, but the early age at maturity, which allows a high exploitation rate, and the large biomass suggests that a ten-fold increase in short-term yield may be possible in the Columbia and Vancouver areas. The 2,000 mt ABC is equal to a doubling of the average catch during 1983–1991.

The Monterey and Conception areas contributed 52 percent of the total catch during 1983–1991 but there has been no recent assessment for these areas. The survey CPUE in the Monterey and Eureka areas has been without trend during 1983–1992. The ABC for these areas was set equal to the 1983–1991 average yield of 1,100 mt.

Petrale Sole

Based on the 1993 stock assessment for the Vancouver and Columbia areas, the combined ABC for these areas was reduced from 1,700 mt to 1,200 mt. The GMT recommends continuation of this ABC and the ABCs in the southern areas: Eureka – 500 mt; Monterey – 800 mt; and Conception – 200 mt. However, recent catch in the southern areas has been only about 800 mt per year and these ABC levels should be reviewed.

The 1993 assessment in the Columbia and U.S. Vancouver areas used the size-structured version of stock synthesis to analyze fishery size and age composition and CPUE since 1966, ODFW flatfish trawl surveys conducted in the mid 1970s, and NMFS triennial multispecies bottom trawl surveys conducted during 1977–1992. The assessment tracks a two-fold decline in fishery CPUE from the mid-1970s to the mid-1980s, and also tracks a gradual increase in biomass during 1980–1992 as indicated by the triennial survey. The assessment indicated that the stock in this area is essentially at the expected long-term average level of abundance and recent yields are slightly below the potential. The projected average available yield for 1994–1996 is 1,230 mt under the higher biomass scenario and 1,100 mt under the lower biomass scenario. The long-term expected yield is 1,070 to 1,390 mt under the higher biomass scenario, and 980 to 1,280 mt under the lower biomass scenario. The current ABC of 1,200 mt is based on the higher biomass scenario, which achieves a much better fit to the fishery size composition data, although the lower biomass scenario achieved a better fit to all the trend indicators.

Other Flatfish

Arrowtooth flounder was removed from this group of species in 1991 and there was no change in the ABC for the remaining species: Vancouver – 700 mt; Columbia – 3,000 mt; Eureka – 1,700 mt; Monterey – 1,800 mt; and Conception – 500 mt. These ABC levels were originally set on the basis of historical catch levels prior to the development of the arrowtooth flounder fishery, and current catch levels remain well below the level of ABC.

Other Groundfish

The GMT recommends no change in the coastwide ABC of 14,700 mt.

GMT RECOMMENDED HARVEST GUIDELINES AND QUOTAS FOR 1995

The GMT recommends harvest guideline management for shortbelly rockfish, and jack mackerel unless there are potential joint venture fisheries that should be managed with quotas. Harvest guidelines are recommended for Pacific whiting, Pacific ocean perch, widow rockfish, yellowtail rockfish, sablefish, Dover sole, thornyheads, lingcod, bocaccio and the Sebastes complex in the Columbia and Vancouver areas, and the Sebastes complex in the Conception, Monterey and Eureka areas. A harvest guideline for canary rockfish is recommended for the first time in 1995. The recommended level of each harvest guideline is equal to the coastwide ABC minus expected discards with the following exceptions:

Pacific Whiting

The GMT has no recommendation with regard to U.S.–Canada allocation of the whiting ABC. In 1993 and 1994, the U.S. harvest guideline was set at 80 percent of the ABC. This procedure would produce a revised harvest guideline of 178,000 mt in 1995. The Canadian total allowable catch was set so that the Canadian catch would be 30 percent of the combined U.S. plus Canada catch. This results in a total catch that is 14 percent above the ABC.

DTS Complex

This complex includes the two thornyhead species, Dover sole and trawl-caught sablefish. The GMT anticipates continuing to manage these species as a complex in 1995. No combined species harvest guideline is recommended, however trip limits for the entire complex are likely to continue.

Thornyheads

Until now it has been considered impractical to separate longspine thornyheads from shortspine thornyheads on each trip, so the harvest guideline was set for the combined species. However, it now appears desirable to consider separate harvest guidelines for these species because of the large difference between the ABCs (7,000 mt for longspine, 1,000 mt for shortspine), increased information on the fleet's ability to target longspines in deep water and the fleet's willingness to

sort at sea. The GMT recommends a harvest guideline of 6,000 mt for longspine and 1,500 mt for shortspine thornyheads. The longspine harvest guideline is less than its ABC in order to ease management of shortspines and because of expected future declines in longspine ABC. The shortspine harvest guideline is set above its ABC because of the uncertainty in the assessment. A 1,500 mt harvest guideline is less than the overfishing level under the preferred assessment scenario, and is similar to the ABC level that would result from plausible assessments with higher levels of natural mortality or lower levels of survey catchability. These harvest guideline levels will allow a small increase in longspine catch (which was 5,300 mt in 1993) and greatly decrease shortspine catch (3,750 mt in 1993). In recent years, an 8 percent discard factor has been assumed to occur in trip limit management of thornyheads. The harvest guideline levels recommended above do not yet account for this expected discard, but expected discard should be taken into account when setting trip limits for one or both of these species.

Dover Sole

The GMT recommends a revised coastwide harvest guideline equal to the sum of the ABC levels minus 5 percent expected discard, with a separate harvest guideline for the Columbia area. The ABC range for the Columbia area is 1,700 to 3,700 mt, so the harvest guideline range for this area is 1,600 to 3,500 mt. The coastwide ABC range is 13,000 to 15,000 mt, so the coastwide harvest guideline range is 12,400 to 14,200 mt. The GMT considers the upper end of the Columbia area ABC range to be risky because the stock has not displayed the ability to sustain catch levels above about 2,000 mt. The upper end of the range would be overfishing if the lower end is truly correct.

Sablefish

The GMT recommends that the sablefish harvest guideline be increased to 7,800 mt for retained catch in the Monterey through Vancouver INPFC areas. The harvest guideline was set with an expectation of about 900 mt of size and trip limit induced discard. The GMT recommends that the open access, trawl and fixed gear sablefish allocations each be set as harvest guidelines.

Sebastes Complex

The Sebastes complex harvest guidelines are revised to reflect changes in canary rockfish and bocaccio harvest guidelines. In the Columbia and Vancouver areas, the 11,750 mt harvest guideline is composed of 6,740 mt from the yellowtail rockfish ABC, minus 300 mt of yellowtail rockfish expected to be caught in the Eureka area, plus 850 mt from the canary rockfish harvest guideline, plus 4,500 mt from the remaining rockfish ABC.

In the Conception, Monterey and Eureka areas, a Sebastes complex harvest guideline of 13,200 mt is composed of 1,700 mt of bocaccio, 250 mt of canary rockfish in the Eureka area, 4,000 mt of chilipepper, 300 mt of yellowtail rockfish in the Eureka area, and 7,000 mt of remaining rockfish.

Bocaccio

The GMT recommends a revised harvest guideline equal to the Conception, Monterey and Eureka areas' ABC of 1,700 mt. A reduction to account for discard is not recommended in 1995 because few trips were impacted by the limits in 1994 and this discard should be minimized.

Canary rockfish

The GMT recommends a new harvest guideline of 850 mt for landed catch in the Columbia and Vancouver areas. This level is below the 1,000 mt ABC. The GMT anticipates that trip limits will be imposed in 1995 to delay attainment of the canary rockfish ABC, and therefore 150 mt is deducted from the ABC to account for discard.

Pacific Ocean Perch

The GMT recommends continuation of a Vancouver and Columbia harvest guideline of 1,300 mt (which is the 1,550 mt level of harvest anticipated in the 20-year rebuilding plan minus 16 percent estimated trip limit discard). This harvest guideline for retained catch (plus discarded bycatch in the whiting fishery) is not a target and is established simply as a reference point. The GMT recommends continuation of an incidental trip limit for this species.

Yellowtail Rockfish

The GMT recommends continuation of a harvest guideline equal to 2,580 mt for the Eureka and South Columbia area and 4,160 mt for the U.S. Vancouver and north Columbia area. The division between these two management areas is Cape Lookout, which is practical from the perspective of distribution of fishing fleets and only 26 miles south of Cape Falcon, the dividing line in the stock assessment. No trip limit discard was accounted for in the ABC calculations and a 16 percent factor should be applied to bottom-trawl-caught yellowtail rockfish. Because of the variable contribution of yellowtail rockfish catch by shrimp trawl, hook-and-line and bycatch in the whiting fishery, trip limit discard in the bottom trawl fishery will be calculated inseason at the 16 percent rate and applied towards the harvest guidelines.

Widow Rockfish

The GMT recommends continuation of a harvest guideline equal to 6,500 mt which accounts for the 16 percent expected trip limit induced discard.

Lingcod

The GMT recommends a new coastwide harvest guideline set equal to the sum of the coastwide ABCs (2,400 mt). Several commercial gear types and recreational fishers impact the lingcod resource. The optimal allocation among these groups is not known at this time, so the GMT recommends proportional (22 percent) reduction from each group. On this basis, the GMT recommends an allocation of 1,700 mt for all commercial gears.

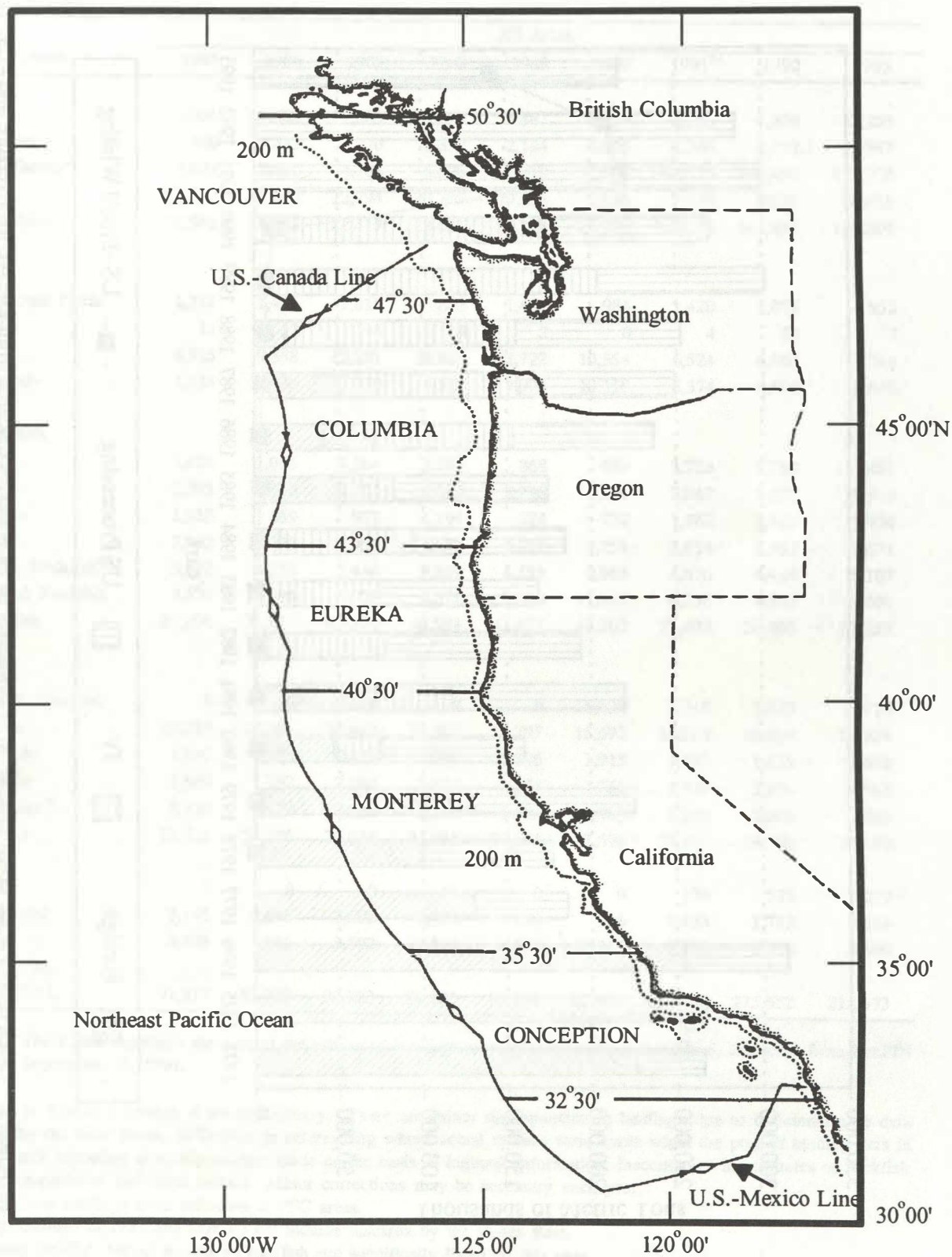


FIGURE 1. INPFC statistical areas in the U.S. EEZ seaward of Washington, Oregon and California.

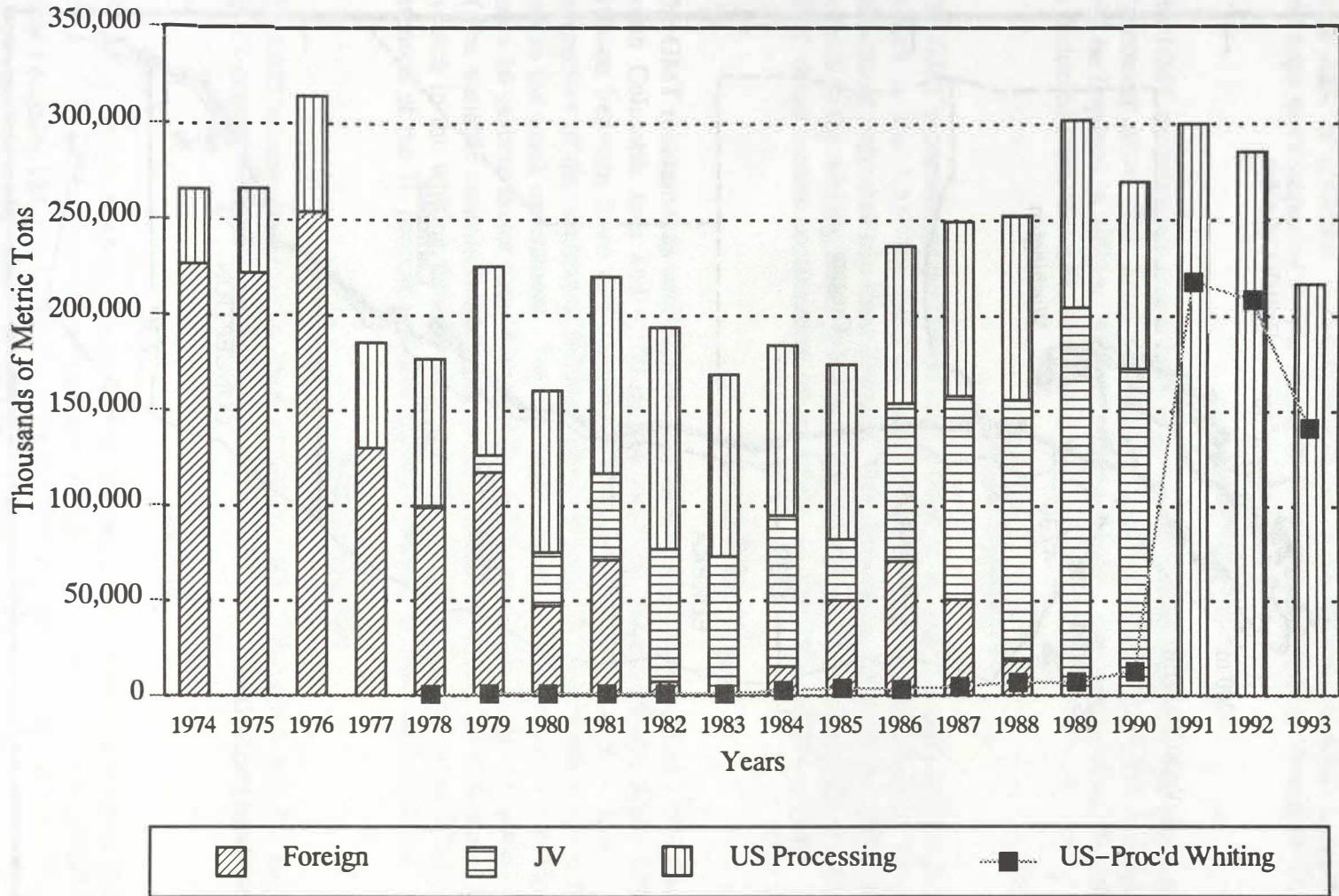


FIGURE 2. Catch of all Pacific coast groundfish in thousands of mt, includes discards from foreign, joint venture and U.S. at-sea processors. Source: NWR, NMFS, PacFin August 25, 1994.

TABLE 1. Estimated commercial groundfish landings (mt) for all INPFC areas, 1985–1993.^{a/} (Excludes joint venture and foreign catches.)

Species	All Areas								
	1985	1986	1987	1988	1989	1990	1991 ^{b/}	1992	1993
Roundfish									
Lingcod	3,906	1,882	2,585	2,628	3,447	2,929	3,182	1,920	2,203
Pacific Cod	460	333	2,270	3,332	2,184	1,065	1,796	1,779	1,367
Pacific Whiting ^{c/}	3,893	3,462	4,768	6,876	7,418	12,825	204,323	198,856	137,916
Sablefish	14,283	13,144	12,794	10,789	10,255	8,996	9,470	9,298	8,121
Total Roundfish	22,542	18,821	22,417	23,625	23,304	25,815	218,771	211,853	149,607
Rockfish									
Pacific Ocean Perch	1,273	1,431	1,010	803	1,456	984	1,420	1,078	852
Shortbelly	11	2	0	0	2	0	4	53	7
Widow	8,915	9,358	12,231	10,887	12,722	10,554	6,524	6,063	7,044
Thornyheads	4,113	3,638	3,739	5,592	7,925	10,118	6,374	8,606	8,645
Other Rockfish									
Bocaccio	1,421	1,033	1,264	1,307	868	689	1,723	1,789	1,451
Canary	2,245	1,910	2,751	1,699	2,230	1,334	2,847	2,802	1,940
Chilipepper	1,315	669	971	1,194	724	732	1,962	1,425	1,434
Yellowtail	3,062	3,970	3,950	4,652	4,217	4,251	3,614	5,962	3,671
Remaining Rockfish ^{d/}	5,872	4,232	5,446	9,889	4,593	2,983	4,876	4,444	5,107
Unspecified Rockfish	9,579	10,686	9,008	4,571	9,140	11,557	6,258	4,581	8,081
Total Rockfish	37,806	36,929	40,370	40,594	43,877	43,202	35,602	36,803	38,231
Flatfish									
Arrowtooth Flounder	0	0	0	0	0	5,824	4,945	3,573	2,713
Dover Sole	20,719	17,286	18,442	18,002	18,797	15,693	18,223	16,014	14,324
English Sole	1,947	2,029	2,472	2,094	2,396	1,913	2,185	1,615	1,602
Petrals Sole	1,869	1,732	2,204	2,131	2,135	1,765	1,927	1,550	1,503
Other Flatfish ^{e/}	3,486	3,279	2,916	2,711	6,513	2,503	3,236	2,006	1,926
Total Flatfish	28,021	24,326	26,034	24,938	29,841	27,698	30,516	24,758	22,069
Other Fish									
Jack Mackerel	3,448	2,646	3,502	2,499	694	906	1,433	1,713	2,114
Others	3,448	2,646	3,502	2,564	694	906	1,572	2,238	2,390
Total Other Fish	0	0	0	65	0	0	139	525	277
GRAND TOTAL	91,817	82,722	92,323	91,721	97,716	97,621	286,461	275,652	212,573

Data Source: These data represent the sum of the estimated landings reported on Tables 2 through 6, extracted from PacFIN September 12, 1994.

- a/ The data in Tables 1 through 6 are preliminary. There are minor discrepancies in landings due to deficiencies in data supplied by the three states, difficulties in determining where actual catches were made when the port of landing was in another catch reporting area, adjustments made on the basis of logbook information, inaccuracies in estimates of rockfish species composition, and other factors. Minor corrections may be necessary each year.
- b/ Totals include landings from unknown INPFC areas.
- c/ Whiting landings in 1991 and later do not include discards by the at-sea fleet.
- d/ Remaining rockfish are all species of rockfish not specifically listed on this page.
- e/ Arrowtooth flounder landings are included with "Other Flatfish". Prior to 1989, arrowtooth flounder landings were recorded under "Other Fish".

TABLE 2. Estimated commercial groundfish landings (mt) for the U.S. portion of the INPFC Vancouver area, 1985–1993. (Excludes joint venture and foreign catches.)

Species	Vancouver Area								
	1985	1986	1987	1988	1989	1990	1991	1992	1993
Roundfish									
Lingcod	1,854	569	713	459	808	846	1,097	577	705
Pacific Cod	359	297	1,384	1,474	917	718	1,165	1,300	905
Pacific Whiting ^{a/}	0	0	0	0	0	0	5,741	33,311	10,349
Sablefish	2,968	1,700	1,772	1,640	1,653	1,381	1,682	1,494	1,589
Total Roundfish	5,181	2,566	3,869	3,573	3,378	2,945	9,685	36,682	13,547
Rockfish									
Pacific Ocean Perch	420	681	349	122	338	303	572	523	280
Shortbelly	0	0	0	0	0	0	1	0	0
Widow	449	574	501	304	603	1,193	749	915	1,139
Thornyheads	89	64	71	66	111	193	315	575	905
Other Rockfish									
Bocaccio	130	84	107	47	162	101	380	178	49
Canary	963	850	934	154	796	373	777	908	281
Chilipepper	0	0	0	0	0	0	8	0	0
Yellowtail	942	1,537	1,188	1,305	1,077	1,374	831	1,120	724
Remaining Rockfish ^{b/}	925	683	548	1,353	639	203	975	547	936
Unspecified Rockfish	545	598	585	138	297	669	249	353	3,268
Total Rockfish	4,463	5,071	4,283	3,489	4,023	4,409	4,857	5,119	7,583
Flatfish									
Arrowtooth Flounder	0	0	0	0	0	3,738	3,082	2,333	1,852
Dover Sole	2,577	1,593	1,305	1,261	1,519	1,647	1,914	1,413	1,795
English Sole	303	293	398	287	429	432	373	249	318
Petrale Sole	267	238	271	185	183	174	163	156	352
Other Flatfish ^{c/}	390	683	115	102	2,215	84	163	69	65
Total Flatfish	3,537	2,807	2,089	1,835	4,346	6,075	5,695	4,220	4,382
Other Fish									
Jack Mackerel	0	0	0	0	0	0	15	25	0
Others	1,977	1,151	2,074	1,351	360	520	931	1,157	1,392
Total Other Fish	1,977	1,151	2,074	1,351	360	520	946	1,182	1,392
GRAND TOTAL	15,158	11,595	12,315	10,248	12,107	13,949	21,183	47,203	26,904

Data Source: PacFIN data extracted September 12, 1994.

a/ Whiting landings in 1991 and later do not include discards by the at-sea fleet.

b/ Remaining rockfish are all species of rockfish not specifically listed on this page.

c/ Arrowtooth flounder landings are with "Other Flatfish". Prior to 1989, arrowtooth flounder landings were recorded under "Other Fish".

TABLE 3. Estimated commercial groundfish landings (mt) for the INPFC Columbia area, 1985–1993. (Excludes joint venture and foreign catches.)

Species	Columbia Area								
	1985	1986	1987	1988	1989	1990	1991	1992	1993
Roundfish									
Lingcod	1,257	734	905	1,183	1,431	900	1,250	691	741
Pacific Cod	30	36	794	1,843	1,267	346	630	478	461
Pacific Whiting ^{a/}	881	480	250	335	116	6,973	69,706	143,320	124,467
Sablefish	5,165	4,937	6,110	5,153	4,284	3,501	4,022	3,670	3,610
Total Roundfish	7,333	6,187	8,059	8,514	7,098	11,720	75,608	148,159	129,280
Rockfish									
Pacific Ocean Perch	756	714	559	650	1,104	675	835	534	556
Shortbelly	11	2	0	0	2	TR	2	53	6
Widow	5,104	6,142	9,304	8,628	10,250	7,121	4,525	3,903	4,539
Thornyheads	876	521	578	713	1,661	3,578	2,938	3,447	3,315
Other Rockfish									
Bocaccio	476	272	234	191	289	142	223	134	141
Canary	1,078	892	1,475	1,368	1,319	837	1,800	1,512	1,452
Chilipepper	3	1	0	0	4	2	7	17	6
Yellowtail	1,824	2,336	2,592	3,182	2,886	2,628	2,380	4,140	2,657
Remaining	3,080	2,304	2,296	2,808	3,145	2,045	2,723	2,118	2,616
Unspecified Rockfish	790	1,206	1,712	2,678	943	842	696	694	1,705
Total Rockfish	13,998	14,390	18,750	20,218	21,603	17,870	16,129	16,552	16,992
Flatfish									
Arrowtooth Flounder	0	0	0	0	0	2,016	1,679	1,127	785
Dover Sole	4,780	3,976	5,571	7,953	9,016	6,774	8,148	5,665	5,356
English Sole	513	641	705	708	907	569	993	795	773
Petrale Sole	617	720	979	1,111	1,085	801	969	819	625
Other Flatfish ^{b/}	1,182	892	1,058	904	2,566	1,016	1,713	1,066	890
Total Flatfish	7,092	6,229	8,313	10,676	13,574	11,176	13,502	9,472	8,429
Other Fish									
Jack Mackerel	0	0	0	48	0	0	104	499	277
Others	904	790	928	841	49	93	253	219	180
Total Other Fish	904	790	928	889	49	93	357	718	457
GRAND TOTAL	29,327	27,596	36,050	40,297	42,324	40,859	105,596	174,901	155,434

Data Source: PacFIN data extracted September 12, 1994.

a/ Whiting landings in 1991 and later do not include discards by the at-sea fleet.

b/ Arrowtooth flounder landings are included with "Other Flatfish". Prior to 1989, arrowtooth flounder landings were recorded under "Other Fish".

TABLE 4. Estimated commercial groundfish landings (mt) for the INPFC Eureka area, 1985–1993. (Excludes joint venture and foreign catches.)

Species	Eureka Area								
	1985	1986	1987	1988	1989	1990	1991	1992	1993
Roundfish									
Lingcod	239	207	324	316	378	420	200	155	184
Pacific Cod	0	0	82	15	0	0	TR	0	1
Pacific Whiting ^{a/}	3,009	2,978	4,508	6,527	7,292	5,852	70,839	22,218	3,099
Sablefish	2,530	2,534	1,930	1,558	1,643	1,961	1,731	2,071	1,514
Total Roundfish	5,778	5,719	6,844	8,416	9,313	8,233	72,770	24,444	4,798
Rockfish									
Pacific Ocean Perch	97	34	101	31	14	5	9	18	16
Shortbelly	0	0	0	0	0	0	0	0	1
Widow	2,308	1,683	1,572	1,315	1,299	1,152	572	726	1,042
Thornyheads	1,502	1,670	1,659	3,832	4,398	4,142	1,942	2,463	2,548
Other Rockfish									
Bocaccio	181	90	126	91	52	96	56	61	117
Canary	182	139	195	91	71	83	111	298	154
Chilipepper	75	79	82	81	43	57	248	28	293
Yellowtail	273	76	90	87	125	151	224	303	199
Remaining Rockfish ^{b/}	844	367	1,820	719	315	267	370	721	625
Unspecified Rockfish	606	542	572	959	928	1,689	873	262	228
Total Rockfish	6,068	4,680	6,217	7,206	7,245	7,642	4,405	4,880	5,222
Flatfish									
Arrowtooth Flounder	0	0	0	0	0	71	184	113	77
Dover Sole	5,924	5,110	5,098	4,545	3,789	3,887	3,403	3,526	3,071
English Sole	408	340	623	399	304	200	126	95	116
Petrale Sole	386	241	400	322	317	283	280	204	212
Other Flatfish ^{c/}	744	571	755	565	542	368	285	187	268
Total Flatfish	7,462	6,262	6,876	5,831	4,952	4,809	4,278	4,125	3,743
Other Fish									
Jack Mackerel	0	0	0	17	0	0	20	0	0
Others	143	123	324	174	107	118	75	134	283
Total Other Fish	143	123	324	191	107	118	95	134	283
GRAND TOTAL	19,451	16,784	20,261	21,644	21,617	20,802	81,548	33,583	14,046

Data Source: PacFIN data extracted September 12, 1994.

a/ Whiting landings in 1991 and later do not include discards by the at-sea fleet.

b/ Remaining rockfish are all species of rockfish not specifically listed on this page.

c/ Arrowtooth flounder landings are included with "Other Flatfish". Prior to 1989, arrowtooth flounder landings were recorded under "Other Fish".

TABLE 5. Estimated commercial groundfish landings (mt) for the INPFC Monterey area, 1985–1993. (Excludes joint venture and foreign catches.)

Species	Monterey Area									
	1985	1986	1987	1988	1989	1990	1991	1992	1993	
Roundfish										
Lingcod	492	355	625	654	807	742	560	432	501	
Pacific Cod	1	0	10	0	0	0	TR	1	0	
Pacific Whiting ^{a/}	3	3	9	14	0	0	58,033	6	0	
Sablefish	3,221	3,570	2,807	2,428	2,606	2,104	1,641	1,525	1,021	
Total Roundfish	3,717	3,928	3,451	3,096	3,413	2,846	60,234	1,964	1,522	
Rockfish										
Pacific Ocean Perch	0	2	1	0	0	1	3	2	0	
Shortbelly	0	0	0	0	0	0	1	0	0	
Widow	1,050	953	849	634	547	1,087	649	515	310	
Thornyheads	1,247	1,284	1,373	980	1,731	2,199	660	1,049	1,032	
Other Rockfish										
Bocaccio	569	490	761	953	323	350	827	765	614	
Canary	21	28	138	81	29	41	147	78	46	
Chilipepper	1,027	524	872	1,096	652	673	1,529	1,257	977	
Yellowtail	22	9	79	75	127	99	164	390	61	
Remaining Rockfish ^{b/}	882	609	573	4,108	320	372	606	752	590	
Unspecified Rockfish	5,182	5,721	4,200	678	6,002	7,277	2,561	1,720	1,768	
Total Rockfish	10,000	9,620	8,846	8,605	9,731	12,099	7,147	6,528	5,399	
Flatfish										
Arrowtooth Flounder	0	0	0	0	0	0	1	0	0	
Dover Sole	5,544	6,125	6,323	4,239	4,464	3,377	3,285	3,573	2,885	
English Sole	654	713	697	675	741	711	653	456	378	
Petrals Sole	454	439	500	506	537	503	452	332	281	
Other Flatfish ^{c/}	960	1,040	930	1,108	1,165	1,019	876	603	547	
Total Flatfish	7,612	8,317	8,450	6,528	6,907	5,610	5,258	4,964	4,090	
Other Fish										
Jack Mackerel	0	0	0	0	0	0	0	0	0	
Others	119	85	79	68	85	97	81	88	173	
Total Other Fish	119	85	79	68	85	97	81	88	173	
GRAND TOTAL	21,448	21,950	20,826	18,297	20,136	20,652	72,720	13,544	11,185	

Data Source: PacFIN data extracted September 12, 1994.

a/ Whiting landings in 1991 and later do not include discards by the at-sea fleet.

b/ Remaining rockfish are all species of rockfish not specifically listed on this page.

c/ Arrowtooth flounder landings are included with "Other Flatfish". Prior to 1989, arrowtooth flounder landings were recorded under "Other Fish".

TABLE 6. Estimated commercial groundfish landings (mt) for the INPFC Conception area, 1985-1993. (Excludes joint venture and foreign catches.)

Species	Conception Area								
	1985	1986	1987	1988	1989	1990	1991	1992	1993
Roundfish									
Lingcod	21	16	17	16	21	21	72	64	71
Pacific Cod	0	0	0	0	0	TR	TR	0	0
Pacific Whiting	0	1	1	0	8	0	3	1	1
Sablefish	269	359	64	10	29	49	393	536	386
Total Roundfish	290	376	82	26	58	70	468	601	457
Rockfish									
Pacific Ocean Perch	0	0	0	0	0	0	0	1	0
Shortbelly	0	0	0	0	0	0	0	0	0
Widow	4	5	0	6	14	2	29	4	15
Thornyheads	399	98	44	1	11	6	518	1,068	843
Other Rockfish									
Bocaccio	65	97	34	25	39	0	235	652	528
Canary	1	1	9	5	13	1	13	6	7
Chilipepper	210	65	16	17	24	0	168	123	158
Yellowtail	1	12	0	3	2	1	16	10	29
Remaining Rockfish ^{a/}	141	236	209	901	164	96	202	309	340
Unspecified Rockfish	2,112	2,575	1,909	118	932	1,080	1,857	1,515	1,089
Total Rockfish	2,933	3,089	2,221	1,076	1,199	1,186	3,038	3,688	3,010
Flatfish									
Arrowtooth Flounder	0	0	0	0	0	0	0	0	0
Dover Sole	1,576	480	134	4	5	8	1,474	1,834	1,213
English Sole	40	42	49	25	15	2	39	21	17
Petrale Sole	88	94	54	7	13	4	64	38	34
Other Flatfish ^{b/}	143	93	57	32	23	16	209	83	156
Total Flatfish	1,847	709	294	68	56	30	1,786	1,976	1,419
Other Fish									
Jack Mackerel	0	0	0	0	0	0	0	0	0
Others	116	91	91	65	80	78	93	115	85
Total Other Fish	116	91	91	65	80	78	93	115	85
GRAND TOTAL	5,186	4,265	2,688	1,235	1,393	1,364	5,385	6,380	4,972

Data Source: PacFIN data extracted September 12, 1994.

a/ Remaining rockfish are all species of rockfish not specifically listed on this page.

b/ Arrowtooth flounder landings are included with "Other Flatfish". Prior to 1989, arrowtooth flounder landings were recorded under "Other Fish".

TABLE 7. Council groundfish management/regulatory actions since FMP implementation in 1982.

Regulations in a given year continue until modified, superseded or rescinded.

Effective October 13, 1982

- Established a 75,000 pound trip limit on widow rockfish for remainder of 1982 (coastwide OY = 26,000 mt).
- Sablefish OY exceeded; 3,000 pounds trip limit imposed (coastwide OY = 13,400 mt).

Effective November 30, 1982

- Extended 75,000 pound widow rockfish trip limits to January 31, 1983 (effective January 1, 1983).
- Extended sablefish trip limit of 3,000 pounds for remainder of 1982.
- Increased sablefish OY 30 percent to 17,400 mt for 1982 and recommended this be the preliminary specification for 1983 (ABC = 13,400 mt).

Effective January 1, 1983

- Extended widow rockfish trip limits of 75,000 pounds until superseded.
- Adopted policy to continue groundfish fishery over the entire year.
- Established coastwide trip limit of 30,000 pounds on widow rockfish, to be adjusted in midseason as necessary so that 10,500 mt OY is not reached prior to year end (the coastwide widow rockfish ABC and OY were 10,500 mt in 1983).
- Established a 40,000 pound coastwide trip limit on Sebastes complex, to be adjusted as necessary in midseason so that annual catch in the Vancouver and Columbia areas falls about halfway between the 1982 catch and 1983 aggregate ABC (about 14,000 mt). (Vancouver and Columbia areas ABC = 9,500 mt.)
- Established a 22-inch total length size limit on sablefish in all areas north of Point Conception (excluding Monterey Bay), with an incidental trip limit for fish smaller than 22 inches of 333 fish, 1,000 pounds or 10 percent of weight of all sablefish on board, to be adjust as necessary to stay within the 17,400 mt OY (ABC = 13,400 mt).

Effective June 28, 1983

- Increased Sebastes complex harvest guideline in Vancouver and Columbia areas for 1983 from 14,000 to 18,500 mt; retained 40,000 pound trip limit; trip frequency in Vancouver and Columbia areas set at one per week; when 18,500 mt quota is achieved, fishery closes (Vancouver and Columbia areas ABC = 9,500 mt).
- Harvest guidelines for the Vancouver and Columbia areas Sebastes complex and all flatfish managed under the FMP shall not be permitted to exceed 130 percent of the respective summed ABCs in 1984.
- Retained the 22-inch size limit on sablefish as before, but set incidental allowance of small fish (<22 inches) at 5,000 pounds per trip.

Effective September 10, 1983

- Established a 1,000 pound trip limit on coastwide widow rockfish to avoid reaching OY, with stipulation that if 10,500 mt OY reached, fishery closes.
- Established a 3,000 pound trip limit on Sebastes complex in Vancouver and Columbia areas, with stipulation that if 18,500 mt quota is reached, fishery closes. Removed once per week trip frequency limit.
- Continued 40,000 pound trip limit on Sebastes complex south of 43°N; no limit on number of trips.

Effective November 10, 1983

- Closed Columbia area to Pacific ocean perch fishing until the end of the year, as 950 mt OY for this species has been reached; retained 5,000 pound trip limit or 10 percent of total trip weight on landings of Pacific ocean perch in the Vancouver area.

TABLE 7. Council groundfish management/regulatory actions since FMP implementation in 1982.

Effective January 1, 1984

- Established coastwide widow rockfish trip limit of 50,000 pounds; trip frequency limited to once per week; if OY of 9,300 mt is reached, fishery closes.
- Harvest guideline for Sebastes complex in the Vancouver and Columbia areas established at 10,100 mt (110 percent of the summed ABCs).
- Established 30,000 pound trip limit on Sebastes complex from Vancouver and Columbia areas; 1 trip per week north of 43°N (changed to Cape Blanco, 42°50', on February 12, 1984).
- Continued 40,000 pound trip limit on Sebastes complex south of 43°00' (changed to 42°50' on February, 12, 1984); no limit on trip frequency.
- Continued 22-inch size limit on sablefish as in 1983; retained 5,000 pounds incidental allowance of small fish (<22 inches); fishery closes when coastwide OY of 17,400 mt is reached (ABC = 13,400 mt).
- Continued 5,000 pound trip limit or 10 percent of total trip weight on Pacific ocean perch as specified in FMP. Fishery to close when area OYs are reached (see action effective November 10, 1983 above).

Effective February 12, 1984

- Southern boundary of Vancouver and Columbia areas shifted south, from 43°00' to 42°50' for management of Sebastes complex; application of Sebastes complex regulations clarified.

Effective May 6, 1984

- Reduced coastwide widow rockfish trip limit from 50,000 pounds once per week to 40,000 pounds once per week.
- Reduced Vancouver and Columbia areas Sebastes complex from 30,000 pounds once per week to 15,000 pounds once per week, with stipulation that fishers have option to land 30,000 pounds once every 2 weeks with appropriate advance declaration of intent.
- Specified that fishing for groundfish on a Sebastes complex trip may occur on only one side of Cape Blanco (42°50') which allows southern caught fish to be landed north of Cape Blanco using the southern trip limit of 40,000 pounds with appropriate declaration of intent.
- Recommended no change in Sebastes complex trip limit of 40,000 pounds in the Eureka, Monterey and Conception areas.

Effective August 1, 1984

- Closed directed fishery for widow rockfish when 9,200 of the 9,300 mt OY was landed. Remaining 100 mt is a quota for incidental landings, to be taken in incidental landing limits of 1,000 pounds per trip. The fishery for this species to close when the 9,300 mt quota is taken.
- Reduced trip limit for Pacific ocean perch in the Vancouver and Columbia areas to 20 percent by weight of all fish on board, not to exceed 5,000 pounds per vessel per trip. Recommended that when OY is reached in either area, landings of Pacific ocean perch will be prohibited in that area (Oregon and Washington implemented Pacific ocean perch recommendation in mid-July).
- Reduced Sebastes complex trip limit in Vancouver and Columbia areas to 7,500 pounds once each week or 15,000 pounds once every 2 weeks with appropriate advance declaration of intent. Recommended that when the 10,100 mt harvest guideline is reached, a 3,000 pounds trip limit will be imposed.
- Vessel operators on combined groundfish/Sebastes complex trips allowed to fish on both sides of a line at 42°50'N (Cape Blanco), but landings of Sebastes complex in excess of 3,000 pounds controlled by the trip limit/trip frequency in effect north of the line (Vancouver and Columbia areas). Appropriate advance declaration of intent required.

TABLE 7. Council groundfish management/regulatory actions since FMP implementation in 1982.

Automatic Closure (effective August 16, 1984)

- Commercial fishing for Pacific ocean perch in the Columbia area closed for remainder of the year. (See items regarding this species effective January 1 and August 1, 1984 above.)

Automatic Action (effective September 9, 1984)

- Closed directed fishery for widow rockfish; incidental catch trip limit reduced to 1,000 pounds (based on action effective August 1, 1984); fishery for this species closed on November 28.

Effective January 10, 1985

- Established coastwide widow rockfish trip limit of 30,000 pounds; trip frequency limited to once per week (or 60,000 pounds once every 2 weeks with appropriate declaration to state in which fish are landed); to be adjusted after first trimester, as necessary (OY = 9,300 mt).
- Harvest guideline for Sebastes complex in Vancouver and Columbia areas fixed at 10,100 mt.
- For Sebastes complex north of Cape Blanco (42°50'N), established a 30,000 pound weekly trip limit of which no more than 10,000 pounds may be yellowtail rockfish (or 60,000 pounds once every 2 weeks of which no more than 20,000 pounds may be yellowtail rockfish with appropriate declaration to state in which fish are landed).
- For Sebastes complex south of Cape Blanco, established a 40,000 pound trip limit without a trip frequency.
- If fishers fish on both sides of the Cape Blanco line during a trip, the northern (more restrictive) limit on Sebastes complex applies.
- Landings of Sebastes complex and widow rockfish smaller than 3,000 pounds unrestricted.
- Continued 22-inch size limit on sablefish in all areas north of Point Conception (abolished Monterey Bay exclusion); retained 5,000 pounds incidental landing limit for sablefish less than 22 inches.
- Established Vancouver and Columbia areas Pacific ocean perch trip limit of 20 percent by weight of all fish on board (no 5,000 pound limit as specified in last half of 1984).

Effective April 28, 1985

- Continued the coastwide widow rockfish trip limit of 30,000 pounds once per week, but rescinded the option to land 60,000 pounds once every 2 weeks.
- The coastwide widow rockfish trip limit will be reduced to 10 percent by weight of all fish on board not to exceed 3,000 pounds if 90 percent of the OY (about 8,400 mt) reached before the Council's July meeting (under this incidental limit, landings of widow rockfish less than 1,000 pounds will be unrestricted).
- For the Sebastes complex north of Cape Blanco (42°50'N), reduced the trip limit to 15,000 pounds once per week of which no more than 5,000 pounds may be yellowtail rockfish (or 30,000 pounds once every 2 weeks of which no more than 10,000 pounds may be yellowtail rockfish). Added a third option to land 7,500 pounds twice each week of which no more than 3,000 pounds in each landing may be yellowtail rockfish; landings declaration applies.
- Reduced the Vancouver and Columbia areas Pacific ocean perch trip limit to 5,000 pounds or 20 percent by weight of all fish on board, whichever is less. Landings of Pacific ocean perch less than 1,000 pounds will be unrestricted. The fishery for this species will close when the OY in each area is reached.

Effective June 10, 1985

- Landings of Pacific ocean perch up to 1,000 pounds per trip will be unrestricted regardless of the percentage of these fish on board.

TABLE 7. Council groundfish management/regulatory actions since FMP implementation in 1982.

Effective July 21, 1985

- Reduced the coastwide widow rockfish trip limit to 3,000 pounds per trip without a trip frequency.

Effective July 25, 1985

- Prohibit the use of "tickler chains," which contact the sea floor ahead of the rollers, in roller and bobbin trawls.

Effective September 1, 1985

- Changed the management boundary line separating northern and southern trip limits for the Sebastes complex from Cape Blanco (42°50'N) northward 30 miles to the north jetty at Coos Bay (43°22'N).

Effective October 6, 1985

- Increased the Vancouver and Columbia areas Sebastes complex trip limit to 20,000 pounds once per week except that no more than 5,000 pounds may be yellowtail rockfish (or one landing once every 2 weeks of 40,000 pounds of which no more than 10,000 pounds may be yellowtail rockfish, or 2 landings per week of 10,000 pounds each of which no more than 3,000 pounds per landing may be yellowtail rockfish; landings declaration apply).

Effective November 25, 1985

- Established that 90 percent of sablefish quota had been reached and established a trip limit of 13 percent sablefish in all trawl landings containing sablefish.

Effective December 6, 1985

- Established that sablefish quota (OY) had been exceeded on November 22, 1985, and prohibited further landings of sablefish until January 1, 1986.

Effective January 1, 1986

- Established coastwide widow rockfish trip limit of 30,000 pounds per week with no biweekly option (coastwide OY = 10,200 mt; ABC = 9,300 mt).
- Harvest guideline for Sebastes complex north of Coos Bay, Oregon (43°22'N) fixed at 10,100 mt.
- For Sebastes complex north of Coos Bay, established 25,000 pound weekly trip limit of which no more than 10,000 pounds may be yellowtail rockfish (or 50,000 pounds biweekly of which no more than 20,000 pounds may be yellowtail rockfish, or 12,500 pounds twice per week of which no more than 5,000 pounds may be yellowtail rockfish; biweekly and twice weekly landings require appropriate declaration to state in which fish are landed).
- For Sebastes complex south of Coos Bay, established 40,000 pound trip limit; no trip frequency.
- Landings of less than 3,000 pounds of Sebastes complex and widow rockfish unrestricted.
- Fishers fishing the Sebastes complex on both sides of the Coos Bay line during a trip must conform with the northern (more restrictive) trip limit.
- Continued the 22-inch size limit on sablefish in all areas north of Point Conception; retained 5,000 pound incidental landing limit for sablefish smaller than 22 inches; coastwide OY = 13,600 mt; ABC = 10,300 mt.
- Established the Pacific ocean perch trip limit north of Cape Blanco (42°50'N) at 20 percent (by weight) of all fish on board or 10,000 pounds whichever is less; landings of Pacific ocean perch unrestricted if less than 1,000 pounds regardless of percentage on board; Vancouver area OY = 600 mt; Columbia area OY = 950 mt.
- Established ABC and OY of 227,500 mt for Pacific whiting.
- Established ABC of 3,900 mt for yellowtail rockfish.

TABLE 7. Council groundfish management/regulatory actions since FMP implementation in 1982.

Effective April 11, 1986

- Increased the Pacific whiting ABC and OY to 295,800 mt, up 30 percent from 227,500 mt established at the beginning of 1986.
- Increased the yellowtail rockfish ABC to 4,000 mt, up 100 mt from 3,900 mt established at beginning of 1986. (Yellowtail rockfish is in the multispecies *Sebastes* complex and does not have a numerical OY.) The 100 mt increase assigned entirely to the Columbia area north of Coos Bay.

Automatic Action (see September 28, 1986 below)

- A 3,000 pound trip limit without a trip frequency will be implemented when the widow rockfish ABC is reached.

Effective August 22, 1986 (Emergency Regulation)

- Allocated the estimated remaining sablefish OY between trawl and fixed gear at 55 and 45 percent, respectively.
- Established an 8,000 pound sablefish trip limit on trawl gear.
- Retained the current regulation of a 5,000 pound trip limit on sablefish smaller than 22 inches.
- Any further landings of sablefish by trawl gear to be prohibited after trawl quota is reached.
- Any further landings of sablefish by fixed gear to be prohibited after fixed gear quota is reached.
- Any further landings of sablefish to be prohibited after the coastwide OY is reached.

Effective August 26, 1986 (see August 22, 1986 Emergency Regulation)

- Announced amounts of sablefish quota under emergency regulations (2,915 mt trawl; 2,385 mt fixed gear).

Effective August 31, 1986

- For *Sebastes* complex north of Coos Bay, Oregon, increased trip limits as follows: weekly = 30,000 pounds of which no more than 12,500 pounds may be yellowtail rockfish; biweekly = 60,000 pounds of which no more than 25,000 pounds may be yellowtail rockfish; and twice weekly = 15,000 pounds of which no more than 6,500 pounds may be yellowtail rockfish.

Effective September 28, 1986

- Widow rockfish ABC reached; coastwide 3,000 pound trip limit without trip frequency imposed (see Automatic Action above).

Effective October 23, 1986 (see August 22, 1986 Emergency Regulation)

- Fixed gear sablefish quota reached; fixed gear fishery closed.
- Trawl gear trip limit increased to 12,000 pounds for remainder of year or until trawl quota is reached.
- Sablefish quotas revised (2,800 mt trawl; 2,300 mt fixed gear).

Effective November 20, 1986 (see August 22, 1986 Emergency Regulation)

- Extended sablefish emergency regulation until the end of the year.

Effective December 1, 1986

- OY quota for Pacific ocean perch reached in the Vancouver area; fishery closed until January 1, 1987.

TABLE 7. Council groundfish management/regulatory actions since FMP implementation in 1982.

Effective January 1, 1987

- Established a coastwide widow rockfish trip limit of 30,000 pounds per week with no biweekly option. Only 1 landing per week above 3,000 pounds (coastwide OY = 12,500 mt; ABC = 12,100 mt).
- Harvest guideline for Sebastes complex north of Coos Bay, Oregon (43°21'34"N) set at 10,200 mt.
- For Sebastes complex north of Coos Bay, established 25,000 pound weekly trip limit of which no more than 10,000 pounds may be yellowtail rockfish (or 50,000 pounds biweekly of which no more than 20,000 pounds may be yellowtail rockfish, or 12,500 pounds twice per week of which no more than 5,000 pounds may be yellowtail rockfish; biweekly and twice weekly landings require appropriate declaration to state in which fish are landed); no restriction on landings less than 3,000 pounds.
- For Sebastes complex south of Coos Bay, established 40,000 pound trip limit; no trip frequency limit.
- Allocated the sablefish OY between trawl and fixed gear at 52 (6,200 mt) and 48 percent (5,800 mt), respectively; if the quota for either gear type is reached, sablefish becomes a prohibited species for that gear; coastwide OY and ABC = 12,000 mt.
- Established 5,000 pound trawl and 100 pound fixed gear trip limits (round weights) for sablefish smaller than 22-inches total length (16-inches dorsal total length), coastwide.
- Established coastwide Pacific ocean perch limit at 20 percent of all legal fish on board or 5,000 pounds whichever is less (in round weight); landings of Pacific ocean perch unrestricted if less than 1,000 pounds regardless of percentage on board; Vancouver area OY = 500 mt; Columbia area OY = 800 mt.
- Established ABC and OY of 195,000 mt for Pacific whiting.
- Established ABC of 4,000 mt for yellowtail rockfish.

Effective April 5, 1987

- Changed the size limit for processed sablefish from 16.0 to 15.5 inches (dorsal total length).

Effective April 27, 1987

- Increased the trip limit for sablefish smaller than 22 inches (total length) caught by fixed gear from 100 to 1,500 pounds coastwide.

Effective May 3, 1987

- Changed the definition of fishing week from Sunday through Saturday to Wednesday through Tuesday for Sebastes complex and widow rockfish.

Effective July 22, 1987

- Reduced the weekly trip limit for yellowtail rockfish caught north of Coos Bay to 7,500 pounds (or 15,000 pounds biweekly, or 3,750 pounds twice weekly).

Effective August 14, 1987

- Coastwide ABCs for widow and chilipepper rockfishes increased to 12,500 and 3,600 mt, respectively.

Effective October 2, 1987

- Established trawl trip limit for sablefish at 6,000 pounds or 20 percent of the legal fish on board, whichever is greater, including no more than 5,000 pounds of sablefish under 22 inches.

TABLE 7. Council groundfish management/regulatory actions since FMP implementation in 1982.

Effective October 14, 1987

- Reduced the weekly trip limit for widow rockfish from 30,000 to 5,000 pounds when 95 percent of the widow rockfish OY was projected to be reached (i.e., at 11,875 mt). Closed the nontrawl (fixed gear) sablefish fishery because the nontrawl allocation of 5,800 mt was reached.

Effective October 22, 1987

- Closed the sablefish trawl fishery because the trawl allocation of 6,200 mt was reached.

Effective November 25, 1987

- Closed the widow rockfish fishery because 12,500 mt was reached.

Effective January 1, 1988

- Established coastwide widow rockfish trip limit of 30,000 pounds per week. Only 1 landing per week above 3,000 pounds. No restriction on landings less than 3,000 pounds (coastwide OY/ABC = 12,100 mt).
- Harvest guideline for *Sebastes complex* north of Coos Bay, Oregon (43°21'34"N) fixed at 10,200.
- For *Sebastes complex* north of Coos Bay, established a 25,000 pound weekly trip limit of which no more than 10,000 pounds may be yellowtail rockfish (or 50,000 pounds biweekly of which no more than 20,000 pounds may be yellowtail rockfish, or 12,500 pounds twice per week, of which no more than 5,000 pounds may be yellowtail rockfish; biweekly and twice weekly landings require appropriate declaration to state in which fish are landed). No restriction on landings less than 3,000 pounds.
- For *Sebastes complex* south of Coos Bay, established a 40,000 pound trip limit; no trip frequency restriction.
- Allocated the sablefish OY between trawl and nontrawl (fixed gear) at 5,200 and 4,800 mt, respectively; if the quota for nontrawl gear is reached, sablefish becomes a prohibited species for that gear; manage the trawl fishery to achieve the trawl allocation, provided that up to an additional 800 mt may be added to the trawl allocation for unavoidable incidental catch; coastwide OY = 9,200 to 10,800 mt; ABC = 10,000 mt.
- For trawl-caught sablefish, established a trip limit of 6,000 pounds or 20 percent of legal fish on board, whichever is greater, with only 2 landings above 1,000 pounds allowed per vessel per week; no restriction on landings less than 1,000 pounds.
- Continued the 22-inch total length size limit (15.5-inch dorsal length) on sablefish in all areas; 5,000 pound trawl and 1,500 pound nontrawl incidental landing limits for sablefish smaller than the minimum size limit.
- Established the coastwide Pacific ocean perch trip limit at 20 percent (by weight) of all fish on board or 5,000 pounds, whichever is less; landings of Pacific ocean perch unrestricted if less than 1,000 pounds regardless of percentage on board; Vancouver area OY = 500 mt; Columbia area OY = 800 mt.
- Established ABC and OY of 232,000 mt for Pacific whiting.
- Established ABC of 4,000 mt for yellowtail rockfish.

Effective August 3, 1988

- Increased the trawl sablefish allocation to 6,000 mt; reduce the trawl trip limit to 1 landing per week, not to exceed 2,000 pounds (including sablefish smaller than 22 inches).
- Changed the nontrawl trip limit for sablefish smaller than 22 inches to 1,500 pounds or 3 percent of all sablefish on board, whichever is greater.

Effective August 26, 1988

- Closed the nontrawl sablefish fishery because the nontrawl allocation of 4,800 mt was reached.

TABLE 7. Council groundfish management/regulatory actions since FMP implementation in 1982.

Effective September 21, 1988

- Reduced the trip limit for widow rockfish to 3,000 pounds (with no restriction on the number of landings per week) on September 21, the date when just enough of the OY remained to allow continuation of this trip limit through the end of the year.

Effective October 5, 1988

- Removed the restriction that no more than 1 landing of sablefish by trawlers may be made during any week; reduced the weekly trip limit for yellowtail rockfish north of Coos Bay from 10,000 to 7,500 pounds (biweekly and twice weekly options to remain in effect).

Effective January 1, 1989

- Established a coastwide widow rockfish trip limit of 30,000 pounds per week. Only 1 landing per week above 3,000 pounds. No restriction on landings less than 3,000 pounds (coastwide OY/ABC = 12,400 mt).
- Harvest guideline for *Sebastes complex* north of Coos Bay, Oregon (43°21'34"N) set at 10,200 mt.
- For *Sebastes complex* north of Coos Bay, established a 25,000 pound weekly trip limit of which no more than 7,500 pounds may be yellowtail rockfish (or 50,000 pounds biweekly of which no more than 15,000 pounds may be yellowtail rockfish, or 12,500 pounds twice per week, of which no more than 3,750 pounds may be yellowtail rockfish; biweekly and twice weekly landings require appropriate declaration to state in which fish are landed). No restriction on landings less than 3,000 pounds.
- For *Sebastes* south of Coos Bay, established a 40,000 pound trip limit; no trip frequency restriction.
- For coastwide sablefish, management measures designed to achieve the low end of the OY range (10,400 to 11,000 mt). After 22 mt set aside from the 10,400 mt harvest guideline for the Makah Indian fishery, the remaining 10,378 mt allocated 5,397 mt (52 percent) for trawl gear and 4,981 mt (48 percent) for nontrawl (fixed) gear.
- Established a coastwide trawl trip of 1,000 pounds or 45 percent of the deepwater complex (consisting of sablefish, Dover sole, arrowtooth flounder and thornyheads), whichever is greater. Within the 45 percent trawl limit, no more than 5,000 pounds of sablefish smaller than 22 inches (total length) may be taken per trip. If fishing under the 1,000 pound limit, all sablefish may be smaller than 22 inches. The coastwide nontrawl trip limit for sablefish smaller than 22 inches set at the greater of 1,500 pounds or 3 percent of all sablefish on board.
- The harvest guideline may be increased by up to 600 mt to enable small fisheries to continue operating after a gear allocation is met and to allow for landings of sablefish caught incidentally while fishing for other species. If the upper end of the OY range (11,000 mt) is reached, all further landings will be prohibited (coastwide ABC = 9,000 mt; OY = 10,400 to 11,000 mt).
- Established the coastwide Pacific ocean perch trip limit at 20 percent (by weight) of all fish on board or 5,000 pounds whichever is less; landings of Pacific ocean perch unrestricted if less than 1,000 pounds regardless of percentage on board (Vancouver area OY = 500 mt; Columbia area OY = 800 mt).
- ABC and OY set at 225,000 mt for Pacific whiting.
- ABC set at 4,300 mt for yellowtail rockfish.

Effective April 26, 1989

- Established coastwide weekly trip limit on the deepwater complex (consisting of sablefish, Dover sole, arrowtooth flounder and thornyheads) of only 1 landing above 4,000 pounds per week, not to exceed 30,000 pounds. No limit on the number of landings of deepwater complex less than 4,000 pounds. For each landing of the deepwater complex, no more than 1,000 pounds or 25 percent of the deepwater complex, whichever is greater, may be sablefish. If fishing under the 25 percent limit, no more than 5,000 pounds may

TABLE 7. Council groundfish management/regulatory actions since FMP implementation in 1982.

be sablefish under 22 inches (total length). If fishing under the 1,000 pound limit, all sablefish may be under 22 inches. Biweekly and twice weekly trip limit options for trawl-caught sablefish are available but require appropriate declaration to state in which fish are landed.

- Revised the gear quotas for the remainder of the year by reducing the nontrawl quota 400 mt (to 4,581 mt) and increasing the trawl quota by 1,000 mt (400 mt from nontrawl gear plus the 600 mt reserve) so it totals 6,397 mt. If either gear quota is reached, further landings by that gear will be prohibited for the remainder of the year.
- Reduced the coastwide weekly trip limit for widow rockfish to 10,000 pounds.

Effective July 17, 1989

- Established a coastwide nontrawl sablefish trip limit of 100 pounds with no frequency limit for the remainder of the year, until the nontrawl allocation is reached, or until OY is reached, whichever occurs first. Because the trip limit is smaller than the limit on fish less than 22 inches, the 22-inch minimum size provision is rescinded.

Effective July 26, 1989

- Reduced the trip limit for yellowtail rockfish to 3,000 pounds or 20 percent of the *Sebastes* complex, whichever is greater.
- Reduced the coastwide trip limit for Pacific ocean perch to 2,000 pounds or 20 percent of all fish on board, whichever is less, with no trip frequency restriction.
- Increased the Columbia area Pacific ocean perch OY from 800 to 1,040 mt.

Effective October 4, 1989

- Removed the overall trawl poundage and trip frequency limits for the deepwater complex, while retaining the separate trip limit for sablefish at 25 percent of the deepwater complex or 1,000 pounds, whichever is greater.
- Increased the nontrawl trip limit to 2,000 pounds or 20 percent of all groundfish on board, whichever is less, when more than 100 pounds of sablefish on board. Because the trip limit remains small, the entire landing may be made up of sablefish less than 22 inches.

Effective October 11, 1989

- Reduced the trip limit for widow rockfish to 3,000 pounds (with no restriction on the number of landings per week) on October 11, the date when just enough of the OY remained to allow continuation of this trip limit through the end of the year.

Effective December 13, 1989

- Closed the Pacific ocean perch fishery in the Columbia area because 1,040 mt OY reached.

Effective January 1, 1990

- Established a coastwide widow rockfish trip limit of 15,000 pounds per week, or 25,000 pounds per 2 weeks. Only 1 landing per week above 3,000 pounds. No restriction on landings less than 3,000 pounds (coastwide ABC = 8,900 mt; OY = 9,800 to 10,000 mt).
- Harvest guideline for *Sebastes* complex north of Coos Bay, Oregon (43°21'34"N) set at 10,200 mt.
- For *Sebastes* complex north of Coos Bay, established the weekly trip limit at 25,000 pounds of which no more than 7,500 pounds may be yellowtail rockfish (or 50,000 pounds biweekly of which no more than 15,000 pounds may be yellowtail rockfish, or 12,500 pounds twice per week of which no more than 3,750 pounds may

TABLE 7. Council groundfish management/regulatory actions since FMP implementation in 1982.

be yellowtail rockfish; biweekly and twice weekly landings require appropriate declaration to state in which fish are landed). No restriction on landings less than 3,000 pounds.

- For Sebastes south of Coos Bay, established the trip limit at 40,000 pound; no trip frequency restriction.
- Established the coastwide Pacific ocean perch trip limit at 20 percent (by weight) of all fish on board or 3,000 pounds whichever is less; landings of Pacific ocean perch be unrestricted if less than 1,000 pounds regardless of percentage on board. (Vancouver area OY = 500 mt; Columbia area OY = 1,040 mt).
- The ABC and OY for Pacific whiting set at 225,000 mt.
- The ABC for yellowtail rockfish set at 4,300 mt.
- The ABC and OY for sablefish set at 8,900 mt.
- [NMFS did not approve the Council's recommendations for sablefish management. The trawl and nontrawl restrictions in effect at the end of 1989 continued in effect on January 1, 1990. Specifically, the nontrawl trip limit remained at 2,000 pounds or 20 percent of all fish on board, whichever is greater, for all landings greater than 100 pounds. The trawl trip limit remained as the greater of 1,000 pounds or 25 percent of the deepwater complex.]

Effective January 31, 1990

- NMFS disapproved the Council's recommendations to modify the trawl/nontrawl sablefish allocations and management measures to achieve them.
- The nontrawl sablefish trip limit was rescinded as a result of NMFS' disapproval of the Council's recommendations. Thus, the nontrawl fishery was unlimited by any catch restrictions. The limit on sablefish less than 22 inches was not reinstated. A nontrawl trip limit of 500 pounds will go into effect when 300 mt of the nontrawl quota remains.
- The estimated tribal sablefish catch to the end of the year (300 mt) subtracted from the OY of 8,900 mt.
- The remaining 8,600 mt was allocated 58 percent (4,988 mt) to trawl gear and 42 percent (3,612 mt) to nontrawl gears.
- Continued in effect the coastwide trawl trip of 1,000 pounds or 25 percent of the deepwater complex (consisting of sablefish, Dover sole, arrowtooth flounder and thornyheads), whichever is greater. Within the 25 percent trawl limit, no more than 5,000 pounds of sablefish smaller than 22 inches (total length) may be taken per trip. If fishing under the 1,000 pound limit, all sablefish may be smaller than 22 inches.

Effective March 21, 1990

- Reestablished the nontrawl trip limit for sablefish less than 22-inches total length at 1,500 pounds or 3 percent of all sablefish on board, whichever is greater.

Effective June 24, 1990

- Established a nontrawl sablefish trip limit of 500 pounds when 300 mt of the nontrawl quota remained. The 500 pound limit replaces the trip limit for sablefish smaller than 22 inches.

Effective July 25, 1990

- Reduced the weekly trip limit for yellowtail rockfish caught with any gear north of Coos Bay to 3,000 pounds or 20 percent of the Sebastes complex, whichever is greater. Biweekly and twice weekly landing options remain in effect.

TABLE 7. Council groundfish management/regulatory actions since FMP implementation in 1982.

- Reduced the nontrawl sablefish trip limit to 200 pounds because GMT projections indicate the quota has been nearly reached.

Effective October 3, 1990

- In order to reduce trawl sablefish landings so the trawl quota would not be exceeded, established a 15,000 pound trip limit on the deepwater complex (sablefish, Dover sole and thornyheads); allowed only 1 landing per week of the deepwater complex above 1,000 pounds; and maintained the current sablefish trip limit of 1,000 pounds or 25 percent of the deepwater complex, whichever is greater. Biweekly and twice weekly landing options are provided. The 5,000 pound trip limit for sablefish smaller than 22 inches remained in effect for landings made under the biweekly option.
- Relaxed the nontrawl sablefish trip limit to 2,000 pounds per trip to enable the entire nontrawl quota to be taken. Reinstated the limit on sablefish less than 22 inches of 1,500 pounds or 3 percent of all sablefish on board.

Effective December 12, 1990

- Closed widow rockfish fishery.

Effective January 1, 1991

- FMP Amendment 4 combined all species into a single, multispecies OY, with Council authority to establish a quota or harvest guideline for any species in need of individual management attention; established framework procedures for making adjustments to management measures, including routine actions intended to achieve a quota or harvest guideline.
- Established a coastwide widow rockfish trip limit of 10,000 pounds per week, with only 1 landing per week above 3,000 pounds. Biweekly option of 20,000 pounds with only 1 landing above 3,000 pounds in that 2 week period. No restriction on landings less than 3,000 pounds (coastwide ABC = 7,000 mt; harvest guideline = 7,000 mt).
- Harvest guideline for Sebastes complex north of Coos Bay, Oregon (43°21'34"N) set at 11,100 mt; harvest guideline for yellowtail rockfish set at 4,300 mt.
- For Sebastes complex north of Coos Bay, the weekly trip limit remains at 25,000 pounds of which no more than 5,000 pounds may be yellowtail rockfish (or 50,000 pounds biweekly of which no more than 10,000 pounds may be yellowtail rockfish, or 12,500 pounds twice per week of which no more than 3,000 pounds may be yellowtail rockfish; biweekly and twice weekly landings require appropriate declaration to state in which fish are landed). No restriction on landings less than 3,000 pounds.
- For Sebastes south of Coos Bay, the trip limit established at 25,000 pound, including no more than 5,000 pounds of bocaccio; no trip frequency restriction; harvest guideline for bocaccio set at 1,100 mt (ABC = 800 mt).
- Established the coastwide Pacific ocean perch trip limit at 20 percent (by weight) of all groundfish on board or 3,000 pounds whichever is less; landings of Pacific ocean perch be unrestricted if less than 1,000 pounds regardless of percentage on board (harvest guideline for combined Vancouver and Columbia areas = 1,000 mt).
- Established a coastwide weekly trawl trip for the deepwater complex (sablefish, Dover sole and thornyheads) of 27,500 pounds (including no more sablefish than 1,000 pounds or 25 percent of the deepwater complex, whichever is greater, and no more than 7,500 pounds of thornyheads). Only one landing above 4,000 pounds of deepwater complex per week. Biweekly and twice weekly options available. Of those sablefish taken under the weekly and biweekly trip limits, no more than 5,000 pounds of sablefish smaller than 22 inches (total length) may be taken per trip. All sablefish taken under the twice weekly limit may be smaller than 22 inches.
- Established a nontrawl trip limit of 1,500 pounds from January 1 through March 31.
- The harvest guideline for Pacific whiting set at 228,000 mt.

TABLE 7. Council groundfish management/regulatory actions since FMP implementation in 1982.

Effective April 1, 1991

- Revised nontrawl sablefish trip limit to a limit only on sablefish smaller than 22 inches (1,500 pounds or 3 percent of all sablefish on board, whichever is greater, effectively opening the nontrawl sablefish season.

Effective April 24, 1991

- Reduced the trip limit for yellowtail rockfish north of Coos Bay from 5,000 pounds per week to 5,000 pounds once per 2 weeks.

Effective May 24, 1991

- Established a nontrawl trip limit of 500 pounds of sablefish.

Effective July 1, 1991

- Closed the nontrawl sablefish fishery because the nontrawl quota had been exceeded.

Effective July 31, 1991

- Increased the weekly trip limit for thornyheads to 12,500 pounds within the deepwater complex trip limit. The overall deepwater complex trip limit remained at 27,500 pounds.
- Oregon and Washington agreed to no longer require fishers to declare their intent to use biweekly or twice weekly trip limit options. Instead, fishers are allowed to decide at sea which option to use without prior declaration.

Effective August 28, 1991

- Established a Pacific whiting allocation system with a quota of 104,000 mt for catcher-processors; a quota of 88,000 mt for vessels that catch but do not process, whether they deliver to shore-based or at-sea processors; and a reserve of 36,000 mt which could be released to either group, with priority for deliveries to shore-based processors. Prohibited further taking and retention of whiting by catcher-processors because their allocation had been exceeded.

Effective September 6, 1991

- Prohibited further at-sea processing of Pacific whiting for the remainder of the year.

Effective September 25, 1991

- Reduced the trip limit for widow rockfish to 3,000 pounds (with no restriction on the number of landings per week) on September 25, the date when just enough of the harvest guideline remained to allow continuation of this trip limit through the end of the year.

Effective September 30, 1991

- Established (by emergency regulation) a daily sablefish trip limit of 300 pounds for nontrawl gears.

Effective November 17, 1991

- Allowed resumption of at-sea processing by mothership vessels for up to 7,000 mt of Pacific whiting.

TABLE 7. Council groundfish management/regulatory actions since FMP implementation in 1982.

Effective January 1, 1992

- Established a coastwide widow rockfish cumulative landing limit of 30,000 pounds per specified 4-week period. All landings apply toward the 30,000 pound limit. (coastwide ABC = 7,000 mt; harvest guideline = 7,000 mt).
- Harvest guideline for the Sebastes complex in the Vancouver and Columbia areas north of Cape Lookout, Oregon (42°20'15"N latitude) set at 8,000 mt; harvest guidelines for yellowtail rockfish north of Cape Lookout set at 4,000 mt and 1,400 mt for the Eureka and Columbia areas south of Cape Lookout (Vancouver, Columbia and Eureka ABC = 4,700 mt).
- For the Sebastes complex, established a cumulative landing limit per specified 2 week period of 50,000 pounds. Within this 50,000 pounds, no more than 8,000 pounds cumulative may be yellowtail rockfish landed north of Cape Lookout and no more than 10,000 pounds cumulative may be bocaccio landed south of Cape Mendocino, California (40°30'00"N latitude). All landings count toward the 50,000 pound limit.
- For Pacific ocean perch, established the coastwide trip limit at 20 percent (by weight) of all groundfish on board or 3,000 pounds whichever is less; landings of Pacific ocean perch be unrestricted if less than 1,000 pounds regardless of percentage on board (harvest guideline for combined Vancouver and Columbia areas = 1,550 mt).
- For the deepwater complex (sablefish, Dover sole and thornyheads), established a cumulative landing limit per specified 2-week period of 55,000 pounds of which no more than 25,000 pounds may be thornyheads. In any landing, no more than 25 percent of the deepwater complex may be sablefish, unless less than 1,000 pounds of sablefish are landed, in which case the percentage does not apply. In any landing, no more than 5,000 pounds of sablefish may be smaller than 22 inches (total length).
- For the nontrawl sablefish fishery, established a daily trip limit of 500 pounds from January 1 through February 29.
- The harvest guideline for Pacific whiting set at 208,800 mt.

Effective January 17, 1992

- Established the opening date for the Pacific whiting season as April 15.

Effective March 1, 1992

- For the nontrawl sablefish fishery, establish a daily trip limit of 1,500 pounds from March 1 through March 31. However, if 440 mt is projected to be reached during this period, the daily trip limit may be reduced to 500 pounds through March 31.

Effective March 21, 1992

- For the nontrawl sablefish fishery, reduce the daily trip limit to 500 pounds.

Effective April 1, 1992

- Delay the opening of the nontrawl sablefish fishery until May 12 (Emergency Rule).

Effective April 15, 1992 through October 14, 1992

- Established (by emergency regulation) a Pacific whiting allocation system with an initial limit of 98,800 mt on at-sea processing, an initial allocation of 80,000 mt for vessels that deliver to shoreside processors, and the remaining 30,000 mt set aside as a reserve with priority for deliveries to shore-based processors. If less than 48,000 mt (60 percent of the initial shoreside allocation) is processed shoreside by September 1, the 30,000 mt reserve will be made available for at-sea processing on September 1 or as soon as practicable thereafter. Any amount of the harvest guideline the regional director determines will not be needed by shoreside processors may be made available for at-sea processing on October 1.

TABLE 7. Council groundfish management/regulatory actions since FMP implementation in 1982.

Effective April 16, 1992 through October 19, 1992

- Established (by emergency regulation) restrictions on the Pacific whiting fishery to reduce by-catch of salmon and rockfish: no at-sea processing south of 42°N latitude; a trip limit of 2,000 pounds of whiting caught inside the 100 fathom contour; no fishing for whiting between midnight and one-half hour after official sunrise; no fishing for whiting in the Klamath River salmon conservation zone bounded on the north by 41°38'48"N latitude (approximately 6 nm north of the river mouth), on the west by 124°23'00"W longitude (approximately 12 miles from shore), and on the south by 41°26'48"N latitude (approximately 6 nm south of the river mouth); and no whiting fishing in the Columbia River salmon conservation zone bounded by a line extending for 6 nm due west from North Head along 46°18'00"N latitude to 124°12'18"W longitude, then southerly along a line of 167 True to 46°11'06"N latitude and 124°11'00"W longitude (Columbia River Buoy), then northeast along Red Buoy Line to the tip of the south jetty.

Effective April 17, 1992

- For the nontrawl sablefish fishery, reduced the daily trip limit to 250 pounds until the opening of the "regular" nontrawl sablefish season.

Effective May 9, 1992

- Increased the minimum legal codend mesh size for roller trawl gear north of Point Arena, California (40°30'N latitude) from 3.0 to 4.5 inches; prohibited double-walled codends; removed provisions regarding rollers and tickler chains for roller gear with codend mesh smaller than 4.5 inches.

Effective May 12, 1992

- Established (by emergency regulation) the opening date of the "regular" nontrawl sablefish fishery.

Effective May 27, 1992

- Established a nontrawl daily trip limit of 250 pounds of sablefish.

Effective June 10, 1992

- For black rockfish, established a trip limit for commercial fishing vessels using hook-and-line gear between the U.S. border and Cape Alava (48°09'30"N latitude), and between Destruction Island (47°40'00"N latitude) and Leadbetter Point (46°38'10"N latitude), of 100 pounds or 30 percent by weight of all fish on board (including salmon), whichever is greater.
- Harvest guidelines for commercial harvests of all species of rockfish by members of the Makah, Quileute, Hoh, and Quinault Indian tribes will be set annually and reviewed and adjusted as necessary. For 1992, established harvest guidelines of 51,000 pounds between the U.S.-Canada border and Cape Alava and 10,000 pounds between Destruction Island and Leadbetter Point.
- For the recreational fishery, reduced the bag limit of all species of rockfish from 15 to 12 between the U.S.-Canada border and Leadbetter Point.

Effective July 29, 1992

- Reduced the cumulative 2-week landing limit for thornyheads from 25,000 pounds to 20,000 pounds.
- Reduced the cumulative 2-week landing limit of yellowtail rockfish north of the north jetty of Coos Bay, Oregon from 8,000 to 6,000 pounds. If a vessel fishes north of the boundary during the 2-week period, the northern limit applies.

TABLE 7. Council groundfish management/regulatory actions since FMP implementation in 1982.

Effective August 12, 1992

- Established a 3,000 pound trip limit for widow rockfish coastwide (with no restriction on the number of landings per week) on August 12, the date when just enough of the harvest guideline was projected to remain to allow continuation of this trip limit through the end of the year.

Effective September 4, 1992

- Released the 30,000 mt Pacific whiting reserve and allowed resumption of at-sea processing until September 12 at 2 p.m.

Effective October 1, 1992

- Released 25,000 mt of the shore-based whiting allocation for at-sea processing and allowed resumption of at-sea processing through October 7.

Effective October 7, 1992

- Reduced the cumulative 2-week landing limit for thornyheads from 20,000 pounds to 15,000 pounds, and the cumulative 2-week landing limit for the deepwater complex from 55,000 pounds to 50,000 pounds.

Effective October 31, 1992

- Established a 3,000 pound trip limit for Pacific whiting on October 31, the date when the harvest guideline was projected to be reached.

Effective December 2, 1992

- Re-established the coastwide widow rockfish cumulative landing limit of 30,000 pounds for the remainder of 1992. All landings apply toward the 30,000 pound limit.

Effective January 1, 1993

- Continued the coastwide widow rockfish cumulative landing limit of 30,000 pounds per specified 4-week period. All landings apply toward the 30,000 pound limit. (coastwide ABC = 7,000 mt; harvest guideline = 7,000 mt).
- Harvest guideline for Sebastes complex north of Coos Bay, Oregon (43°21'34"N) set at 11,200 mt; harvest guideline for yellowtail rockfish set at 4,400 mt.
- For Sebastes complex north of Coos Bay, established a cumulative landing limit per specified 2-week period of 50,000 pounds. Within this 50,000 pounds, no more than 8,000 pounds cumulative may be yellowtail rockfish caught north of Coos Bay and no more than 10,000 pounds cumulative may be bocaccio caught south of Cape Mendocino, California (40°30'00"N latitude). All landings count toward the cumulative limits. If a vessel fishes in the more restrictive area at any time during the 2-week period, the more restrictive limit applies for that vessel.
- For Pacific ocean perch, continued the coastwide trip limit at 20 percent (by weight) of all groundfish on board or 3,000 pounds whichever is less; landings of Pacific ocean perch be unrestricted if less than 1,000 pounds regardless of percentage on board (harvest guideline for combined Vancouver and Columbia areas = 1,550 mt).
- For the deepwater complex (sablefish, Dover sole and thornyheads), established a cumulative landing limit per specified 2-week period of 45,000 pounds of which no more than 20,000 pounds may be thornyheads. In any landing, no more than 25 percent of the deepwater complex may be sablefish, unless less than 1,000 pounds of sablefish are landed, in which case the percentage does not apply. In any landing, no more than 5,000 pounds of sablefish may be smaller than 22 inches (total length).

TABLE 7. Council groundfish management/regulatory actions since FMP implementation in 1982.

- For the nontrawl sablefish fishery, established a daily trip limit of 250 pounds from January 1 through May 12.
- The harvest guideline for Pacific whiting set at 142,000 mt.
- For black rockfish, established a trip limit for commercial fishing vessels using hook-and-line gear between the U.S. border and Cape Alava (48°09'30"N latitude), and between Destruction Island (47°40'00"N latitude) and Leadbetter Point (46°38'10"N latitude), of 100 pounds or 30 percent by weight of all fish on board (including salmon), whichever is greater.
- Harvest guidelines for commercial harvests of all species of rockfish by members of the Makah, Quileute, Hoh, and Quinault Indian tribes will be set annually and reviewed and adjusted as necessary. For 1992, established harvest guidelines of 51,000 pounds between the U.S.-Canada border and Cape Alava and 10,000 pounds between Destruction Island and Leadbetter Point.

Effective February 25, 1993

- Established a 10,000 pound trip limit for Pacific whiting coastwide (all landings were prohibited beginning January 1).

Effective April 1, 1993 (Approved by NMFS on March 25, 1993)

- Established a flexible starting date for the "regular" season for the fixed gear (nontrawl) sablefish fishery, including 72-hour closed periods both immediately before and immediately after the regular season. The flexible starting date will precede by 3 days the earliest sablefish fixed gear season in the Gulf of Alaska. For 1993, the season opened May 12.

Effective April 15, 1993

- Established a reserve of 30,000 mt of Pacific whiting for vessels delivering whiting to on-shore processing plants.
[NOTE: In November 1992, the Council recommended a multi-year framework for allocating the whiting harvest guideline between vessels delivering onshore and those delivering at sea, including factory trawlers. This formula would have allocated the first 50,000 mt shoreside, reserved the next 30,000 mt with priority to shoreside needs, allocated the next 30,000 mt at sea, and any additional amounts would be allocated according to a sliding scale. This recommendation was disapproved by the Commerce Department, and only the 30,000 mt reserve was implemented, as noted above.]

Effective April 15, 1993

- Established restrictions on the Pacific whiting fishery to reduce by-catch of salmon and rockfish: no at-sea processing south of 42°N latitude; a trip limit of 2,000 pounds of whiting caught inside the 100 fathom contour; no fishing for whiting at night (midnight to one-half hour after official sunrise) south of 42°00'N latitude; no fishing for whiting in the Klamath River salmon conservation zone bounded on the north by 41°38'48"N latitude (approximately 6 nm north of the river mouth), on the west by 124°23'00"W longitude (approximately 12 miles from shore), and on the south by 41°26'48"N latitude (approximately 6 nm south of the river mouth); and no whiting fishing in the Columbia River salmon conservation zone bounded by a line extending for 6 nm due west from North Head along 46°18'00"N latitude to 124°12'18"W longitude, then southerly along a line of 167 True to 46°11'06"N. latitude and 124°11'00"W longitude (Columbia River Buoy), then northeast along Red Buoy Line to the tip of the south jetty.
- Starting in 1994, the whiting regular season will begin March 1 off northern California (42°00' to 40°30'N latitude) and remain April 15 elsewhere along the coast.

TABLE 7. Council groundfish management/regulatory actions since FMP implementation in 1982.

Announced April 19, 1993

- Under the provisions of Amendment 6, applications for groundfish limited entry permits must be submitted by June 30, 1993 for each vessel qualifying vessel. Permits will be issued based upon the fishing history of qualifying fishing vessels. Each permit will be endorsed for one or more of three gear types (trawl, longline, and fish trap or pot) and in addition, for each gear type, one of four possible types of endorsements ("A", "Provisional A", "B", and "Designated Species 'B'").

Effective April 21, 1993

- Reduced the 2-week cumulative trip limit for yellowtail rockfish caught north of Coos Bay, Oregon (43°21'34"N latitude) from 8,000 to 6,000 pounds (no change to the Sebastes complex limit).
- Reduced the cumulative trip limit for the deepwater complex from 45,000 pounds per 2-week period to 60,000 pounds per 4-week period, while maintaining the trawl-caught sablefish limit at 25 percent of the deepwater complex per landing. Also reduced the thornyhead trip limit from 20,000 pounds cumulative per 2-week period to 35,000 pounds cumulative per 4-week period

Effective May 4 – August 9, 1993 (Emergency Rule)

- Prohibit further at-sea processing when 100,000 mt had been processed in order to provide 42,000 mt for processing by shoreside processors. Release the 30,000 mt reserve for vessels delivering to shoreside processors.

Effective June 2, 1993

- Closed the "regular season" for sablefish caught with nontrawl gear. On June 5, 1993, the 250 pound daily trip limit for sablefish caught with nontrawl gear was reimposed.

Effective September 4, 1993

- Closed the shore-based whiting fishery by reimposing the 10,000 pound trip limit coastwide for Pacific whiting.

Effective September 8, 1993

- Reduced the trip limit for trawl-caught sablefish to the greater of 1,000 pounds, or 25 percent of the deepwater complex not to exceed 3,000 pounds.

Announced September 20, 1993

- Extended the deadline for submitting applications for groundfish limited entry permits from June 30, 1993 to October 15, 1993.

Effective October 6, 1993

- Increased the cumulative trip limit for bocaccio caught south of Cape Mendocino, California from 10,000 pounds to 15,000 pounds per 2-week period.

Effective December 1, 1993

- Reduced the cumulative trip limit for widow rockfish from 30,000 pounds per 4-week period to no more than 3,000 pounds per vessel per trip, with no limit on the number of trips.

TABLE 7. Council groundfish management/regulatory actions since FMP implementation in 1982.

- Reduced the cumulative trip limits for the Dover sole/thornyhead/trawl-caught sablefish (DTS) complex. The previous limit was 60,000 pounds per 4-week period, of which no more than 35,000 pounds could be thornyheads and, in any trip, the limit for trawl-caught sablefish was the greater of 1,000 pounds or 25 percent of the complex up to 3,000 pounds. The new limit allows no more than 5,000 pounds of species in the DTS complex to be taken, retained, possessed or landed per vessel per trip, of which no more than 1,000 pounds may be sablefish. Only one landing of fish in the DTS complex may be made in any 1-week period.

Effective January 1, 1994

- Divided the commercial groundfish fishery into two components: the limited entry fishery and the open access fishery. A federal limited entry permit is required to participate in the limited entry segment of the fishery. Permits are issued based on the fishing history of qualifying fishing vessels. Each permit will be endorsed for one or more of three gear types (trawl, longline, and fish trap or pot) and in addition, for each gear type, one of four possible types of endorsements ("A", Provisional "A", "B", and "Designated Species B"). Vessels without valid limited entry permits may participate in the open access fishery with any legal groundfish gear except groundfish trawl, subject to any open access trip limits, quotas and harvest guidelines in effect.
- Adopted the following management measures for the limited entry fishery in 1994:
 - Sebastes Complex (Including Yellowtail Rockfish and Bocaccio):** cumulative limit of 80,000 pounds per calendar month, of which no more than 14,000 pounds may be yellowtail rockfish caught north of Cape Lookout, Oregon (45°20'15"N latitude), no more than 30,000 pounds may be yellowtail rockfish caught south of Cape Lookout, and no more than 30,000 pounds may be bocaccio caught south of Cape Mendocino, California (40°30'00"N latitude).
 - Black Rockfish:** established a trip limit for commercial fishing vessels using hook-and-line gear between the U.S. border and Cape Alava (48°09'30"N latitude), and between Destruction Island (47°40'00"N latitude) and Leadbetter Point (46°38'10"N latitude), of 100 pounds or 30 percent by weight of all fish on board (including salmon), whichever is greater.
Harvest guidelines for commercial harvests of all species of rockfish by members of the Makah, Quileute, Hoh, and Quinault Indian tribes will be set annually and reviewed and adjusted as necessary. For 1992, established harvest guidelines of 51,000 pounds between the U.S.-Canada border and Cape Alava and 10,000 pounds between Destruction Island and Leadbetter Point.
 - Widow Rockfish:** cumulative limit of 30,000 pounds per calendar month.
 - Pacific Ocean Perch:** trip limit of 3,000 pounds or 20 percent of all fish on board, whichever is less, in landings of Pacific ocean perch above 1,000 pounds.
 - Sablefish:** for management of the sablefish fishery north of the 36°00'N latitude (the northern boundary of the Conception area), deduct 300 mt from the 7,000 mt harvest guideline for the northwest Washington treaty Indian tribes and allocate the remaining 6,070 mt between the limited entry and open access fisheries. The limited entry portion is allocated 3,520 mt (58 percent) to trawl gear and 2,550 mt (42 percent) to pot and longline gears.
 - DTS Complex:** cumulative limit of 50,000 pounds per month, of which no more than 30,000 pounds may be thornyheads and no more than 12,000 pounds may be trawl-caught sablefish. Sablefish trip limit is 1,000 pounds or 25 percent of the DTS complex, whichever is greater, and applies to each trip. In any landing, no more than 5,000 pounds of sablefish may be smaller than 22 inches.
 - Nontrawl sablefish:** daily trip limit of 250 pounds north of 36°00'N latitude and 350 pounds south of 36°00'N latitude through May 11, 1994. Only one landing of sablefish caught with nontrawl gear may be made per day, coastwide. (The regular season started May 15, following a 72-hour closure May 12-14.)
 - Pacific Whiting:** trip limit of 10,000 pounds taken before and after the regular season, which begins on March 1 between 42°00' and 40°30'N latitude and on April 15 north of 42°00'N latitude.
- Adopted the following management measures for open access gear except trawls in 1994:
 - Rockfish:** limit of 10,000 pounds per vessel per trip, not to exceed 40,000 pounds cumulative per month, and the limits for any rockfish species or complex in the limited entry longline or pot fishery must not be exceeded.

TABLE 7. Council groundfish management/regulatory actions since FMP implementation in 1982.

Sablefish: daily limit of 250 pounds north of 36°00'N latitude and 350 pounds south of 36°00'N latitude. Limit of one landing of sablefish per vessel per day.

- Adopted the following management measures for non-groundfish trawls in 1994, in addition to the limits for any groundfish species or complex in the limited entry trawl fishery:
Pink Shrimp: cumulative trip limit of 1,500 pounds (multiplied by the number of days of the trip) of groundfish species for any vessel engaged in fishing for pink shrimp.
Spot and Ridgeback Prawns: limit of 1,000 pounds of groundfish species per trip for any vessel engaged in fishing for spot and ridgeback prawns.
California Halibut and Sea Cucumber: limit of 500 pounds of groundfish species per trip for vessels engaged in fishing for California halibut or sea cucumbers south of Point Arena, California (38°57'30" N latitude). All fishing during the trip must occur south of Point Arena. Landings must contain California halibut or sea cucumbers taken in accordance with California fishing and permit restrictions.
- Adopted the following management measures for the recreational fishery in 1994.
California: bag limit of 5 lingcod, no smaller than 22 inches, and 15 rockfish per person per day. Multi-day limits are authorized by a valid permit issued by the State of California and must not exceed the daily limit multiplied by the number of days in the trip.
Oregon: bag limit of 3 lingcod and 15 rockfish per person per day, of which no more than 10 may be black rockfish.
Washington (South of Leadbetter Point (46°38'10"N latitude)): bag limit of 3 lingcod and 15 rockfish per person per day.
Washington (North of Leadbetter Point): bag limit of 3 lingcod and 12 rockfish per person per day.

Effective April 1, 1994

- Extended for an additional 14 days, from April 1, 1994 to April 15, 1994, the 3-month suspension of the vessel size endorsement requirement for vessels operating in the limited entry fishery for Pacific groundfish.

Effective April 8, 1994

Allocated the Pacific whiting harvest guideline between fishing vessels that either catch and process at sea or catch and deliver to at-sea processors, and fishing vessels that deliver to processors located on shore. In 1994, 1995 and 1996, after 60 percent of the annual harvest guideline is taken, the at-sea whiting fishery will be closed. The remaining 40 percent (104,000 mt in 1994) will be reserved initially for fishing vessels delivering to shore-based processors. On or about August 15, any amount of the harvest guideline not needed by the shoreside sector during the remainder of the year will be made available to the at-sea sector.

Established requirements for combining two or more limited entry permits endorsed with vessel lengths from smaller vessels into a single limited entry permit endorsed with a larger length for use with a single vessel.

Effective May 1, 1994

- Changed trip limit for rockfish taken with setnet gear off California. The 10,000 pound trip limit for rockfish caught with setnets, which applied to each trip, was removed. The 40,000 pound cumulative limit that applies per calendar month remains in effect.

Effective May 13, 1994

- After noon on May 13, 1994, closed the at-sea whiting fishery.

TABLE 7. Council groundfish management/regulatory actions since FMP implementation in 1982.

Effective May 15, 1994

- Opened regular season for the nontrawl sablefish fishery off Washington, Oregon and California for limited entry permitted vessels with longline and/or pot endorsements. Current trip limits continued until 0001 hours (local time) May 12, 1994, which marked the beginning of a 72-hour closure of the fishery for vessels operating in the regular season. Effective May 15, 1994 at 0001 hours (local time), the only trip limit in effect for sablefish caught with nontrawl gear is 1,500 pounds or 3 percent of all legal sablefish on board, whichever is greater, for sablefish smaller than 22 inches. Sablefish trip limits for open access gears did not change.

Effective June 4, 1994

- Closed nontrawl sablefish limited entry fishery off Washington, Oregon and California with a 72-hour closure beginning at 0001 hours (local time) June 4 and ending at 2400 hours (local time) June 6. During the closure, the taking and retaining, possessing or landing of sablefish taken with nontrawl gear by a vessel operating in the limited entry fishery was prohibited.

Effective July 1, 1994

- Reduced the trip limits for Dover sole, thornyheads and trawl-caught sablefish (DTS complex) in the groundfish fishery off Washington, Oregon and California. The new cumulative limit is 30,000 pounds of the DTS complex per vessel per calendar month, of which no more than 8,000 pounds may be thornyheads and no more than 6,000 pounds may be trawl-caught sablefish. In any trip, no more than 1,000 pounds or 33.333 percent of the legal thornyheads and Dover sole, whichever is greater, may be trawl-caught sablefish smaller than 22 inches. (This is the equivalent of 25 percent of the DTS complex.)

Effective September 1, 1994

- Increased the cumulative trip limit for the Sebastes complex caught south of Cape Mendocino, California (40°30'00"N latitude) in the limited entry groundfish fishery from 80,000 to 100,000 pounds per calendar month.
-

TABLE 8. Final OY and ABC specifications made under the FMP, 1982-1990. (Includes inseason adjustments, if any, in thousands of mt. Beginning in 1991, all species were combined into a single non-numerical OY, with some species managed under a harvest guideline or quota.)

	1982	1983	1984	1985	1986	1987	1988	1989	1990
Pacific Whiting									
OY	175.5	175.5	175.5	175.0	295.8	195.0	232.0	225.0	196.0
ABC	175.5	175.5	175.5	175.0	295.8	195.0	232.0	225.0	196.0
Sablefish									
OY	17.4	17.4	17.4	13.6	13.6	12.0	9.2-	10.4-	8.9
ABC	13.4	13.4	13.4	12.3	10.6	12.0	10.0	9.0	8.9
Pacific Ocean Perch									
OY	1.55	1.55	1.55	1.55	1.55	1.3	1.3	1.54	1.54
ABC	0.00-	1.55	1.55	1.55	1.55	0.0	0.0	0.0	0.0
Shortbelly Rockfish									
OY	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	13.0
ABC	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	13.0
Widow Rockfish									
OY	26.0	10.5	9.3	9.3	10.2	12.5	12.1	12.4	9.8-
ABC	18.3	10.5	9.3	7.4	9.3	12.5	12.1	12.4	8.9
Jack Mackerel									
OY	NA	NA	12.0	12.0	12.0	12.0	12.0	12.0	12.0
ABC	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0

Sources: 1982 - 47 FR 43964 (October 5, 1982) and 48 FR 8542 (February 14, 1983)
 1983 - 48 FR 6715 (February 15, 1985)
 1984 - 49 FR 1060 (January 9, 1984) and 49 FR 27518 (July 5, 1984)
 1985 - 50 FR 471 (January 4, 1985)
 1986 - 51 FR 1255 (January 10, 1986) and 51 FR 12622 (April 14, 1986)
 1987 - 52 FR 682 (January 8, 1987) and 52 FR 31034 (August 19, 1987)
 1988 - 53 FR 248 (January 6, 1988)
 1989 - 54 FR 32 (January 3, 1989)
 1990 - 55 FR 1036 (January 11, 1990)

TABLE 9. ABCs for 1983 (mt) for the Washington, Oregon and California region by INPFC areas.

Species	Vancouver	Columbia	Eureka	Monterey	Conception	Total
Roundfish						
Lingcod	1,000	4,000	500	1,100	400	7,000
Pacific Cod	2,200	900	a/	a/	a/	3,100
Pacific Whiting	-	-	-	-	-	175,500 ^{b/}
Sablefish	-	-	-	2,500 ^{c/}	-	13,400 ^{b/}
Rockfish						
Pacific Ocean Perch	600	950	a/	a/	a/	1,550
Shortbelly	-	-	-	-	-	10,000 ^{b/}
Widow	400	<i>N 1,600*</i> <i>S 4,900</i>	1,500	2,100	d/	10,500
Other Rockfish^{e/}						
Bocaccio	a/	a/	a/	4,100	2,000	6,100
Canary	800	1,300	600	a/	a/	2,700
Chilipepper	b/	b/	b/	1,300	1,000	2,300
Yellowtail	1,400	1,500	300	a/	a/	3,200
Remaining Rockfish	2,000	2,500	1,900	4,300	3,300	14,000
Flatfish						
Dover Sole	1,000	4,000	8,000	5,000	1,000	19,000
English Sole	600	2,000	800	900	200	4,500
Petrals Sole	600	1,100	500	800	200	3,200
Other Flatfish (Except Arrowtooth Flounder)	700	3,000	1,700	1,800	500	7,700
Other Fish^{f/}						
Jack Mackerel	-	-	-	-	-	12,000 ^{g/}
Others	3,000	7,000	2,000	2,000	2,000	16,000

* Split into northern and southern Columbia subareas. *Italics denotes changes.*

a/ These species are not common nor important in the areas footnoted. Accordingly, for convenience, Pacific cod is included in the "Others" category for the areas footnoted and rockfish species are included in the "Remaining Rockfish" category for the area footnoted only.

b/ Total all areas.

c/ Monterey Bay only.

d/ There are insufficient data to calculate an ABC.

e/ "Other Rockfish" means rockfish species which do not have a numerical OY.

f/ Includes sharks, skates, rays, ratfish, morids, grenadiers, jack mackerel, and arrowtooth flounder.

g/ All areas north of 39°N latitude.

TABLE 10. ABCs for 1984 (mt) for the Washington, Oregon and California region by INPFC areas.

Species	Vancouver ^{a/}	Columbia	Eureka	Monterey	Conception	Total
Roundfish						
Lingcod	1,000	4,000	500	1,100	400	7,000*
Pacific Cod	2,200	900	b/	b/	b/	3,100*
Pacific Whiting ^{c/}	-	-	-	-	-	175,500*
Sablefish	-	-	-	2,500 ^{d/}	-	13,400*
Rockfish						
Pacific Ocean Perch	600	950	b/	b/	b/	1,550*
Shortbelly ^{c/}	-	-	-	-	-	10,000*
Widow	300	5,400	1,800	1,800	b/	9,300
Other Rockfish						
Bocaccio	b/	b/	b/	4,100	2,000	6,100*
Canary	800	1,300	600	b/	b/	2,700*
Chilipepper	b/	b/	b/	1,300	1,000	2,300*
Yellowtail	1,400	1,500	300	b/	b/	3,200*
Remaining Rockfish	500	3,700	1,900	4,300	3,300	13,700
Flatfish						
Dover Sole	2,400	7,200	8,000	5,000	1,000	23,600
English Sole	600	2,000	800	900	200	4,500*
Petrale Sole	600	1,100	500	800	200	3,200*
Other Flatfish	700	3,000	1,700	1,800	500	7,700*
Other Fish^{e/}						
Jack Mackerel ^{f/}	-	-	-	-	-	12,000*
Others	2,500	7,000	1,200	2,000	2,000	14,700

* No change from 1983.

a/ U.S. portion.

b/ These species are not common nor important in the areas footnoted. Accordingly, for convenience, Pacific cod is included in the "Others" category for the areas footnoted and rockfish species are included in the "Remaining Rockfish" category for the area footnoted only.

c/ Total all areas.

d/ Monterey Bay only.

e/ Includes sharks, skates, rays, ratfish, morids, grenadiers, jack mackerel, and arrowtooth flounder.

f/ All areas north of 39°N latitude.

TABLE 11. ABCs for 1985 (mt) for the Washington, Oregon and California region by INPFC areas.

Species	Vancouver ^{a/}	Columbia	Eureka	Monterey	Conception	Total
Roundfish						
Lingcod	1,000	4,000	500	1,100	400	7,000
Pacific Cod	2,200	900	b/	b/	b/	3,100
Pacific Whiting ^{c/}	-	-	-	-	-	175,000
Sablefish	-	-	-	2,500 ^{d/}	-	12,300
Rockfish						
Pacific Ocean Perch	600	950	b/	b/	b/	1,550
Shortbelly ^{c/}	-	-	-	-	-	10,000
Widow	-	-	-	-	b/	7,400
Other Rockfish						
Bocaccio	b/	b/	b/	4,100	2,000	6,100
Canary	800	2,100	600	b/	b/	3,500
Chilipepper	b/	b/	b/	1,300	1,000	2,300
Yellowtail	600	2,100	300	b/	b/	3,000
Remaining Rockfish	800	3,700	1,900	4,300	3,300	14,000
Flatfish						
Dover Sole	2,400	11,500	8,000	5,000	1,000	27,900
English Sole ^{c/}	-	-	-	-	-	1,500
Petrals Sole	600	1,100	500	800	200	3,200
Other Flatfish	700	3,000	1,700	1,800	500	7,700
Other Fish^{e/}						
Jack Mackerel ^{f/}	-	-	-	-	-	12,000
Others	2,500	7,000	1,200	2,000	2,000	14,700

a/ U.S. portion.

b/ These species are not common nor important in the areas footnoted. Accordingly, for convenience, Pacific cod is included in the "Others" category for the areas footnoted and rockfish species are included in the "Remaining Rockfish" category for the area footnoted only.

c/ Total all areas.

d/ Monterey Bay only.

e/ Includes sharks, skates, rays, ratfish, morids, grenadiers, jack mackerel, and arrowtooth flounder.

f/ All areas north of 39°N latitude.

TABLE 12. ABCs for 1986 (mt) for the Washington, Oregon and California region by INPFC areas.

Species	Vancouver ^{a/}	Columbia	Eureka	Monterey	Conception	Total
Roundfish						
Lingcod	1,000	4,000	500	1,100	400	7,000
Pacific Cod	2,200	900	b/	b/	b/	3,100
Pacific Whiting ^{c/}	-	-	-	-	-	300,000
Sablefish ^{c/}	-	-	-	-	-	10,600
Rockfish						
Pacific Ocean Perch	600	950	b/	b/	b/	1,550
Shortbelly ^{c/}	-	-	-	-	-	10,000
Widow ^{c/}	-	-	-	-	-	9,300
Other Rockfish						
Bocaccio	b/	b/	b/	4,100	2,000	6,100
Canary	800	2,100	600	b/	b/	3,500
Chilipepper	b/	b/	b/	1,300	1,000	2,300
Yellowtail	1,100	2,600	300	b/	b/	4,000
Remaining Rockfish	800	3,700	1,900	4,300	3,300	14,000
Flatfish						
Dover Sole	2,400	11,500	8,000	5,000	1,000	27,900
English Sole ^{c/}	-	-	-	-	-	1,500
Petrale Sole	600	1,100	500	800	200	3,200
Other Flatfish	700	3,000	1,700	1,800	500	7,700
Other Fish^{d/}						
Jack Mackerel ^{e/}	-	-	-	-	-	12,000
Others	2,500	7,000	1,200	2,000	2,000	14,700

a/ U.S. portion.

b/ These species are not common nor important in the areas footnoted. Accordingly, for convenience, Pacific cod is included in the "Others" category for the areas footnoted and rockfish species are included in the "Remaining Rockfish" category for the area footnoted only.

c/ Total all areas.

d/ Includes sharks, skates, rays, ratfish, morids, grenadiers, jack mackerel, and arrowtooth flounder.

e/ All areas north of 39° N latitude.

TABLE 13. ABCs for 1987 (mt) for the Washington, Oregon, and California region by INPFC areas.

Species	Vancouver ^{a/}	Columbia	Eureka	Monterey	Conception	Total
Roundfish						
Lingcod	1,000	4,000	500	1,100	400	7,000
Pacific Cod	2,200	900	b/	b/	b/	3,100
Pacific Whiting ^{c/}	-	-	-	-	-	195,000
Sablefish	-	-	-	-	-	12,000
Rockfish						
Pacific Ocean Perch	0	0	b/	b/	b/	0
Shortbelly ^{c/}	-	-	-	-	-	10,000
Widow ^{c/}	-	-	-	-	-	12,500
Other Rockfish						
Bocaccio	b/	b/	b/	4,100	2,000	6,100
Canary	800	2,100	600	b/	b/	3,500
Chilipepper ^{c/}	-	-	-	-	-	3,600
Yellowtail	1,100	2,600 ^{d/}	300	b/	b/	4,000
Remaining Rockfish	800	3,700	1,900	4,300	3,300	14,000
Flatfish						
Dover Sole	2,400	11,500	8,000	5,000	1,000	27,900
English Sole ^{c/}	-	-	-	-	-	1,900
Petrals Sole	600	1,100	500	800	200	3,200
Other Flatfish	700	3,000	1,700	1,800	500	7,700
Other Fish^{e/}						
Jack Mackerel ^{f/}	-	-	-	-	-	12,000
Others	2,500	7,000	1,200	2,000	2,000	14,700

a/ U.S. portion.

b/ These species are not common nor important in the areas footnoted. Accordingly, for convenience, Pacific cod is included in the "Others" category for the areas footnoted and rockfish species are included in the "Remaining Rockfish" category for the area footnoted only.

c/ Total all areas.

d/ Includes 100 mt allocated to southern most portion of Columbia area not subject to trip limit regulations.

e/ Includes sharks, skates, rays, ratfish, morids, grenadiers, jack mackerel, and arrowtooth flounder.

f/ All areas north of 39° N latitude.

TABLE 14. ABCs for 1988 (mt) for the Washington, Oregon, and California region by INPFC areas.

Species	Source ^{a/}	Vancouver ^{b/}	Columbia	Eureka	Monterey	Conception	Total
Roundfish							
Lingcod	FMP	1,000	4,000	500	1,100	400	7,000
Pacific Cod	FMP	2,200	900	c/	c/	c/	3,100
Pacific Whiting ^{d/}	FMP	-	-	-	-	-	327,000
Sablefish ^{e/}	1987	-	-	-	-	-	10,000
Rockfish							
Pacific Ocean Perch	1987	0	0	c/	c/	c/	0
Shortbelly ^{e/}	FMP	-	-	-	-	-	10,000
Widow ^{e/}	1987	-	-	-	-	-	12,100
Other Rockfish							
Bocaccio	FMP	c/	c/	c/	4,100	2,000	6,100
Canary		800	2,100	600	c/	c/	3,500
Chilipepper ^{e/}	1986	-	-	-	-	-	3,600
Yellowtail	1985	1,100	2,600 ^{f/}	300	c/	c/	4,000
Remaining Rockfish	1984	800	3,700	1,900	4,300	3,300	14,000
Flatfish							
Dover Sole	1984	2,400	11,500	8,000	5,000	1,000	27,900
English Sole ^{e/}	1986	-	-	-	-	-	1,900
Petrale Sole	1987	600	1,100	500	800	200	3,200
Other Flatfish	FMP	700	3,000	1,700	1,800	500	7,700
Other Fish^{g/}							
Jack Mackerel ^{h/}	FMP	-	-	-	-	-	12,000
Others	1984	2,500	7,000	1,200	2,000	2,000	14,700

a/ Date refers to the date of the Council status of stocks document.

b/ U.S. portion.

c/ These species are not common nor important in the areas footnoted. Accordingly, for convenience, Pacific cod is included in the "Others" category for the areas footnoted and rockfish species are included in the "Remaining Rockfish" category for the area footnoted only.

d/ Total U.S and Canada all areas.

e/ Total all areas.

f/ Includes 100 mt allocated to southern most portion of Columbia area not subject to trip limit regulations.

g/ Includes sharks, skates, rays, ratfish, morids, grenadiers, jack mackerel, and arrowtooth flounder.

h/ All areas north of 39° N latitude.

TABLE 15. ABCs for 1989 (mt) for the Washington, Oregon and California region by INPFC areas.

Species	Source ^{a/}	Vancouver ^{b/}	Columbia	Eureka	Monterey	Conception	Total	1988
Roundfish								
Lingcod	FMP	1,000	4,000	500	1,100	400	7,000	7,000
Pacific Cod	FMP	-	-	c/	c/	c/	3,200	3,100
Pacific Whiting ^{d/e/}	FMP	-	-	-	-	-	300,000	327,000
Sablefish ^{d/}	1988	-	-	-	-	-	9,000	10,800
Rockfish								
Pacific Ocean Perch	1987	0	0	c/	c/	c/	0	0
Shortbelly ^{d/}	FMP	-	-	-	-	-	10,000	10,000
Widow ^{d/}	1988	-	-	-	-	-	12,400	12,100
Other Rockfish								
Bocaccio	FMP	c/	c/	c/	4,100	2,000	6,100	6,100
Canary		800	2,100	600	c/	c/	3,500	3,500
Chilipepper ^{d/}	1986	-	-	-	-	-	3,600	3,600
Yellowtail	1988	1,100 ^{f/}	2,900 ^{g/}	300	c/	c/	4,300	4,000
Remaining Rockfish	1984	800	3,700	1,900	4,300	3,300	14,000	14,000
Flatfish								
Dover Sole	1984	2,400	11,500	8,000	5,000	1,000	27,900	27,900
English Sole ^{d/}	1986	-	-	-	-	-	1,900	1,900
Petrale Sole	1987	600	1,100	500	800	200	3,200	3,200
Other Flatfish	FMP	700	3,000	1,700	1,800	500	7,700	7,700
Other Fish^{h/}								
Jack Mackerel ^{i/}	FMP	-	-	-	-	-	12,000	12,000
Others	1984	2,500	7,000	1,200	2,000	2,000	14,700	14,700

a/ Date refers to the date of the Council status of stocks document.

b/ U.S. portion.

c/ These species are not common nor important in the areas footnoted. Accordingly, for convenience, Pacific cod is included in the "Others" category for the areas footnoted and rockfish species are included in the "Remaining Rockfish" category for the area footnoted only.

d/ Total all areas.

e/ Combined U.S. and Canadian waters. About 75 percent of the harvestable stock or 225,000 mt is expected to occur in U.S. waters in 1989.

f/ U.S. portion of the Vancouver area, based on 50 percent of the total area stock.

g/ Includes 100 mt designated for southern most portion of Columbia area and subject to different trip limit regulations.

h/ Includes sharks, skates, rays, ratfish, morids, grenadiers, jack mackerel, and arrowtooth flounder.

i/ All areas north of 39° N latitude.

TABLE 16. ABCs for 1990 (mt) for the Washington, Oregon and California region by INPFC areas.

Species	Source ^{a/}	Vancouver ^{b/}	Columbia	Eureka	Monterey	Conception	Total	1989
Roundfish								
Lingcod	FMP	1,000	4,000	500	1,100	400	7,000	7,000
Pacific Cod	FMP	-	-	c/	c/	c/	3,200	3,100
Pacific Whiting ^{d/e/}	1989	-	-	-	-	-	245,000	300,000
Sablefish ^{d/}	1989	-	-	-	-	-	8,900	9,000
Rockfish								
Pacific Ocean Perch	1987	0	0	c/	c/	c/	0	0
Shortbelly ^{d/}	1989	-	-	-	-	-	13,000 ^{f/}	10,000
Widow ^{d/}	1989	-	-	-	-	-	8,900 ^{g/}	12,400
Other Rockfish								
Bocaccio	FMP	c/	c/	c/	4,100	2,000	6,100	6,100
Canary		800	2,100	600	c/	c/	3,500	3,500
Chilipepper ^{d/}	1986	-	-	-	-	-	3,600	3,600
Yellowtail	1988	1,100 ^{h/}	2,900 ^{i/}	300	c/	c/	4,300	4,300
Remaining Rockfish	1984	800	3,700	1,900	4,300	3,300	14,000	14,000
Flatfish								
Dover Sole	1984	2,400	11,500	8,000	5,000	1,000	27,900	27,900
English Sole ^{d/}	1986	-	-	-	-	-	1,900	1,900
Petrale Sole	1987	600	1,100	500	800	200	3,200	3,200
Other Flatfish	FMP	700	3,000	1,700	1,800	500	7,700	7,700
Other Fish^{j/}								
Jack Mackerel ^{k/}	FMP	-	-	-	-	-	12,000	12,000
Others	1984	2,500	7,000	1,200	2,000	2,000	14,700	14,700

a/ Date refers to the date of the Council status of stocks document.

b/ U.S. portion.

c/ These species are not common nor important in the areas footnoted. Accordingly, for convenience, Pacific cod is included in the "Others" category for the areas footnoted and rockfish species are included in the "Remaining Rockfish" category for the area footnoted only.

d/ Total all areas.

e/ Combined U.S. and Canadian waters. About 70 to 80 percent of the harvestable stock or 172,000 to 196,000 mt is expected to occur in U.S. waters in 1989.

f/ The FMP limits ABC increases to 30 percent per year; 13,000 mt is below the ABC of 13,900 to 43,000 mt recommended by the GMT.

g/ GMT recommended 7,900 mt; the Council set ABC at 8,900 mt and OY at 9,800 to 10,000 mt.

h/ U.S. portion of the Vancouver area, based on 50 percent of the total area stock.

i/ Includes 100 mt designated for southern most portion of Columbia area and subject to different trip limit regulations.

j/ Includes sharks, skates, rays, ratfish, morids, grenadiers, jack mackerel, and arrowtooth flounder.

k/ All areas north of 39° N latitude.

TABLE 17. ABCs, harvest guidelines and quotas for 1991 (mt) for the Washington, Oregon and California region by INPFC areas.

Species	Vancouver ^{a/}	Columbia	Eureka	Monterey	Conception	Total	Harvest Guideline/Quota ^{b/}
Roundfish							
Lingcod	1,000	4,000	500	1,100	400	7,000	-
Pacific Cod ^{c/}	-	-	d/	d/	d/	3,200	-
Pacific Whiting ^{e/}	-	-	-	-	-	253,000	228,000
Sablefish ^{c/}	-	-	-	-	-	8,900	8,900
Rockfish							
Pacific Ocean Perch	0	0	d/	d/	d/	0	1,000 ^{f/}
Shortbelly ^{c/}	-	-	-	-	-	13,000	13,000
Widow ^{c/}	-	-	-	-	-	7,000	7,000
Other Rockfish							
Bocaccio	-	-	800 ^{g/}	800 ^{g/}	800 ^{g/}	800	1,100
Canary	800	1,500	600	d/	d/	2,900	3,500
Chilipepper ^{c/}	-	-	-	-	-	3,600	3,600
Yellowtail	1,200	3,100 ^{h/}	300	d/	d/	4,600	4,300 ^{i/}
Thornyhead	d/	3,200	1,300	1,400	d/	7,900 ^{i/}	-
Remaining Rockfish	800	3,700	1,900	4,300	3,300	14,000	14,000
Sebastes Complex	2,800	8,300	-	-	-	11,100	11,100
Flatfish							
Dover Sole	2,400	6,100	8,000	5,000	1,000	22,500	22,500
English Sole ^{c/}	-	-	-	-	-	1,900	-
Petrale Sole	600	1,100	500	800	200	3,200	-
Other Flatfish	700	3,000	1,700	1,800	500	7,700	-
Other Fish^{j/}							
Jack Mackerel ^{k/}	-	-	-	-	-	52,600	46,500
Others	2,500	7,000	1,200	2,000	2,000	14,700	-

a/ U.S. portion.

b/ All are harvest guidelines except Pacific whiting, shortbelly rockfish and jack mackerel, which are quotas.

c/ Total all areas.

d/ These species are not common nor important in the areas footnoted. Accordingly, for convenience, Pacific cod is included in the "Others" category for the areas footnoted and rockfish species are included in the "Remaining Rockfish" category for the area footnoted only.

e/ The ABC is coastwide, including Canadian waters. The quota designated for all U.S. waters is based on 90 percent of the coastwide ABC.

f/ The harvest guideline is for the combined Columbia and Vancouver areas.

g/ Includes Eureka area, but its contribution is small, and recreational catch.

h/ Includes 100 mt designated for southern most portion of Columbia area and subject to different trip limit regulations.

i/ The Council set ABC above the GMT recommendation of 5,900 mt coastwide due to uncertainty in the assessment.

j/ Includes sharks, skates, rays, ratfish, morids, grenadiers, and jack mackerel.

k/ All areas north of 39° N latitude. The quota was reduced to account for catches outside the management area.

TABLE 18. Council ABCs and harvest guidelines for 1992 for the Washington, Oregon and California region by INPFC areas (in thousands of mt).

Species	Vancouver ^{a/}	Columbia	Eureka	Monterey	Conception	Total	Harvest Guidelines
Roundfish							
Lingcod	1.0	4.0	0.5	1.1	0.4	7.0	-
Pacific Cod ^{b/}	-	-	c/	c/	c/	3.2	208.8
Whiting	-	-	-	-	-	232.0	d/
Sablefish ^{b/}	-	-	-	-	-	8.9	8.9
Rockfish							
Pacific Ocean Perch	0.0	0.0	c/	c/	c/	0.0	1.55 ^{e/}
Shortbelly ^{b/}	-	-	-	-	-	13.0	13.0
Widow ^{b/}	-	-	-	-	-	7.0	7.0
Other Rockfish							
Bocaccio	-	-	f/	f/	f/	0.8	1.1
Canary	0.8	1.5	0.6	c/	c/	2.9	-
Chilipepper ^{b/}	-	-	-	-	-	3.6	-
Yellowtail	1.2	3.1	0.3	c/	c/	4.6	4.3 ^{e/}
Remaining Rockfish	0.8	3.7	1.9	4.3	3.3	14.0	-
Sebastes Complex	2.8	8.3	-	-	-	11.1	11.1
Thornyhead	-	-	-	-	-	-	7.0 ^{g/}
Shortspine	-	f/	f/	f/	-	1.9	-
Longspine	-	f/	f/	f/	-	10.1	-
Flatfish							
Dover Sole	2.4	6.1	4.9	5.0	1.0	19.4	19.4
English Sole ^{b/}	-	-	-	-	-	1.9	-
Petrale Sole	0.6	1.1	0.5	0.8	0.2	3.2	-
Arrowtooth	-	-	-	-	-	5.8	-
Other	0.7	3.0	1.7	1.8	0.5	7.7	-
Other Fish^{h/}							
Jack Mackerel ^{i/}	-	-	-	-	-	52.6	46.5
Others	2.5	7.0	1.2	2.0	2.0	14.7	-

a/ U.S. portion.

b/ Total all areas.

c/ These species are not common nor important in the areas footnoted. Accordingly, for convenience, Pacific cod is included in the "Others" category for the areas footnoted and rockfish species are included in the "Remaining Rockfish" category for the area footnoted only.

d/ Coastwide ABC including Canadian waters; harvest guideline for U.S. waters only.

e/ Vancouver and Columbia areas combined.

f/ The ABC is for these areas combined. For bocaccio, the Eureka area contribution is small.

g/ The thornyhead preliminary harvest guideline applies coastwide for the 2 species combined.

h/ Includes sharks, skates, rays, ratfish, morids, grenadiers and jack mackerel.

i/ All areas north of 39° N latitude. The 1991 quota was reduced to 46,500 mt to account for anticipated catches outside the management area.

TABLE 19. Council ABCs and harvest guidelines for 1993 for the Washington, Oregon and California region by INPFC areas (in thousands of mt).

Species	Acceptable Biological Catch					Total	Harvest Guideline
	Vancouver ^{a/}	Columbia	Eureka	Monterey	Conception		
Roundfish							
Lingcod	1.0	4.0	0.5	1.1	0.4	7.0	-
Pacific Cod	-	-	b/	b/	b/	3.2	-
Whiting ^{c/}	-	-	-	-	-	177.0	142.0
Sablefish ^{d/}	-	-	-	-	-	5.0-7.0	7.0
Jack Mackerel ^{e/}	-	-	-	-	-	52.6	52.6
Rockfish							
Pacific Ocean Perch	0.0	0.0	b/	b/	b/	0.0	1.55 ^{f/}
Shortbelly ^{g/}	-	-	-	-	-	13.0	13.0
Widow ^{g/}	-	-	-	-	-	7.0	7.0
Sebastes Complex	2.9	8.3	-	-	-	11.2	11.2 ^{h/}
Bocaccio	-	-	i/	i/	i/	1.54	1.54 ^{i/}
Canary	0.8	1.5	0.6	b/	b/	2.9	-
Chilipepper ^{g/}	-	-	-	-	-	3.6	-
Yellowtail	1.3	3.1	0.3	b/	b/	4.7	4.4 ^{h/}
Remaining Rockfish	0.8	3.7	1.9	4.3	3.3	14.0	-
Thornyheads							
Shortspine	-	i/	i/	i/	-	1.9	-
Longspine	-	i/	i/	i/	-	10.1	-
Flatfish							
Dover Sole	2.4	4.0 ^{j/}	3.5	5.0	1.0	15.9	17.9 ^{j/}
English Sole ^{g/}	-	-	-	-	-	1.9	-
Petrale Sole	0.6	1.1	0.5	0.8	0.2	3.2	-
Arrowtooth	-	-	-	-	-	5.8	-
Other	0.7	3.0	1.7	1.8	0.5	7.7	-
Other Fish^{m/}							
Others	2.5	7.0	1.2	2.0	2.0	14.7	-

a/ U.S. portion.

b/ These species are not common nor important in the areas footnoted. Accordingly, for convenience, Pacific cod is included in the "Others" category for the areas footnoted and rockfish species are included in the "Remaining Rockfish" category for the area footnoted only.

c/ Coastwide ABC including Canadian waters. Preliminary harvest guideline for 1993 is 80 percent of coastwide value.

d/ Total all areas except Conception; the ABC for that area is 425 mt, with no harvest guideline.

e/ All areas north of 39° N latitude.

f/ The 1,550 mt harvest guideline applies to the Vancouver and Columbia areas combined.

g/ Total all areas.

h/ The harvest guideline applies to the Columbia and Vancouver areas.

i/ The ABC is for these areas combined. For bocaccio, the Eureka area contribution is small.

j/ The 1,540 mt harvest guideline applies to the Eureka, Monterey and Conception areas.

k/ The thornyhead harvest guideline includes both species in the Monterey, Eureka and Columbia areas.

l/ The Council adopted a 6,000 mt harvest guideline for the Columbia area in 1993. The 17,900 mt harvest guideline applies coastwide.

m/ Includes sharks, skates, rays, ratfish, morids, and grenadiers.

TABLE 20. Council ABCs and harvest guidelines for 1994 for the Washington, Oregon and California region by INPFC areas (in thousands of mt).

Species	Acceptable Biological Catch ^{a/}					Total	Harvest Guideline a/
	Vancouver ^{b/}	Columbia	Eureka	Monterey	Conception		
Roundfish							
Lingcod	1.0	4.0	0.5	1.1	0.4	7.0	4.0
Pacific Cod	-	-	c/		-	3.2	
Whiting	-	-	-	-	-	325.0	260.0 ^{d/}
Sablefish ^{e/}	-	-	-	-	-	7.0	7.0
Jack Mackerel ^{f/}	-	-	-	-	-	52.6	52.6
Rockfish							
Pacific Ocean Perch	0.0	0.0	c/		-	0.0	1.3 ^{g/}
Shortbelly ^{h/}	-	-	-	-	-	23.5	23.5
Widow ^{h/}	-	-	-	-	-	6.5	6.5
Sebastes Complex							
Northern area	-	-	-	-	-		13.24 ^{i/}
Southern area	-	-	-	-	-	13.44 ^{j/}	13.44 ^{j/}
Bocaccio	c/		1.54 ^{k/}		-	1.54	1.54 ^{k/}
Canary	0.8	1.5	0.6	c/		2.9	
Chilipepper	-	-	-	-	-	4.0	
Yellowtail	1.19	2.97 ^{l/}	2.58 ^{l/}	c/		6.74	l/
Remaining Rockfish	0.8	3.7	7.0		-	11.5	
Thornyheads							
Shortspine	-	1.9		-	-	1.9	
Longspine	-	10.1		-	-	10.1	
Flatfish							
Dover Sole	2.4	4.0	3.5	5.0	1.0	15.9	16.9 ^{n/}
English Sole	2.0		1.1		-	3.1	
Petrale Sole	1.2		0.5	0.8	0.2	2.7	
Arrowtooth ^{h/}	-	-	-	-	-	5.8	
Other flatfish	0.7	3.0	1.7	1.8	0.5	7.7	
Other Fish ^{o/}	2.5	7.0	1.2	2.0	2.0	14.7	

- a/ ABCs for sablefish, widow rockfish, and bocaccio are calculated after regulation-induced discard has been deducted, and therefore apply to landed catch and observed incidental catch in the whiting fishery. Harvest guidelines for these species are set equal to the ABCs. Discard factors for Pacific ocean perch, yellowtail rockfish, and thornyheads are explained below in their harvest guideline notes.
- b/ U.S. portion.
- c/ These species are not common nor important in the areas footnoted. Accordingly, for convenience, Pacific cod is included in the "Other Fish" category for the areas footnoted and rockfish species are included in the "Remaining Rockfish" category for the areas footnoted only.
- d/ Coastwide ABC including Canadian waters. The harvest guideline is 80 percent of the coastwide ABC.
- e/ Total all areas except Conception; the ABC for that area is 425 mt, with no harvest guideline.
- f/ All areas north of 39°N latitude, and includes the area beyond the EEZ (200nm).
- g/ The Pacific ocean perch harvest guideline applies to the Vancouver and Columbia areas combined. A discard factor of 16 percent was deducted from the 1993 harvest guideline to determine the 1994 harvest guideline.
- h/ Total all areas.
- i/ The Sebastes north harvest guideline applies to the Vancouver and Columbia areas and equals the sum of the ABCs in those areas: canary (2,300 mt), yellowtail (6,740 - 300 mt) and remaining rockfish (7,000 mt). The 300 mt subtracted from the yellowtail rockfish harvest guideline applies to the Eureka area.
- j/ The Sebastes south ABC and harvest guideline for the Eureka, Monterey and Conception areas is the sum of the ABCs in those areas: bocaccio (1,540 mt), canary (600 mt), chilipepper (4,000 mt), yellowtail (300 mt), and remaining rockfish (7,000 mt). The bocaccio harvest guideline for commercial fisheries will be reduced 200 mt to account for anticipated recreational harvest.
- k/ The 1,540 mt bocaccio harvest guideline applies to the Eureka, Monterey and Conception areas.
- l/ The yellowtail rockfish assessment addresses three separate areas: Vancouver, Columbia north of Cape Lookout, and Columbia south of Cape Lookout plus Eureka. For this table, the Columbia ABC applies to north Columbia only, and the Eureka ABC applies to Eureka plus south Columbia. The total yellowtail rockfish ABC is divided into two harvest guidelines: 4,160 mt for Vancouver plus Columbia north of Cape Lookout, and 2,580 mt for Eureka plus Columbia south of Cape Lookout. Separate harvest guidelines are established for the Sebastes complex north and south of the Eureka-Columbia border. Therefore, 300 mt of the yellowtail rockfish southern harvest guideline is included in the southern Sebastes complex harvest guideline and the remainder of the yellowtail rockfish southern harvest guideline is included in the northern Sebastes harvest guideline. A 16 percent discard factor will be added to certain landings inseason. This will affect inseason landings estimates for Sebastes complex also.
- m/ The thornyhead harvest guideline includes both species in the Monterey, Eureka and Columbia areas. A discard factor (8 percent) has been subtracted from the previous harvest guideline.
- n/ The reduction in the harvest guideline for Dover sole in the Columbia area to 5,000 mt in 1994 is the second step towards the 4,000 mt ABC in 1995. The 16,900 mt Dover sole harvest guideline applies coastwide.
- o/ Includes sharks, skates, rays, ratfish, morids, grenadiers and other groundfish species noted above in c/.

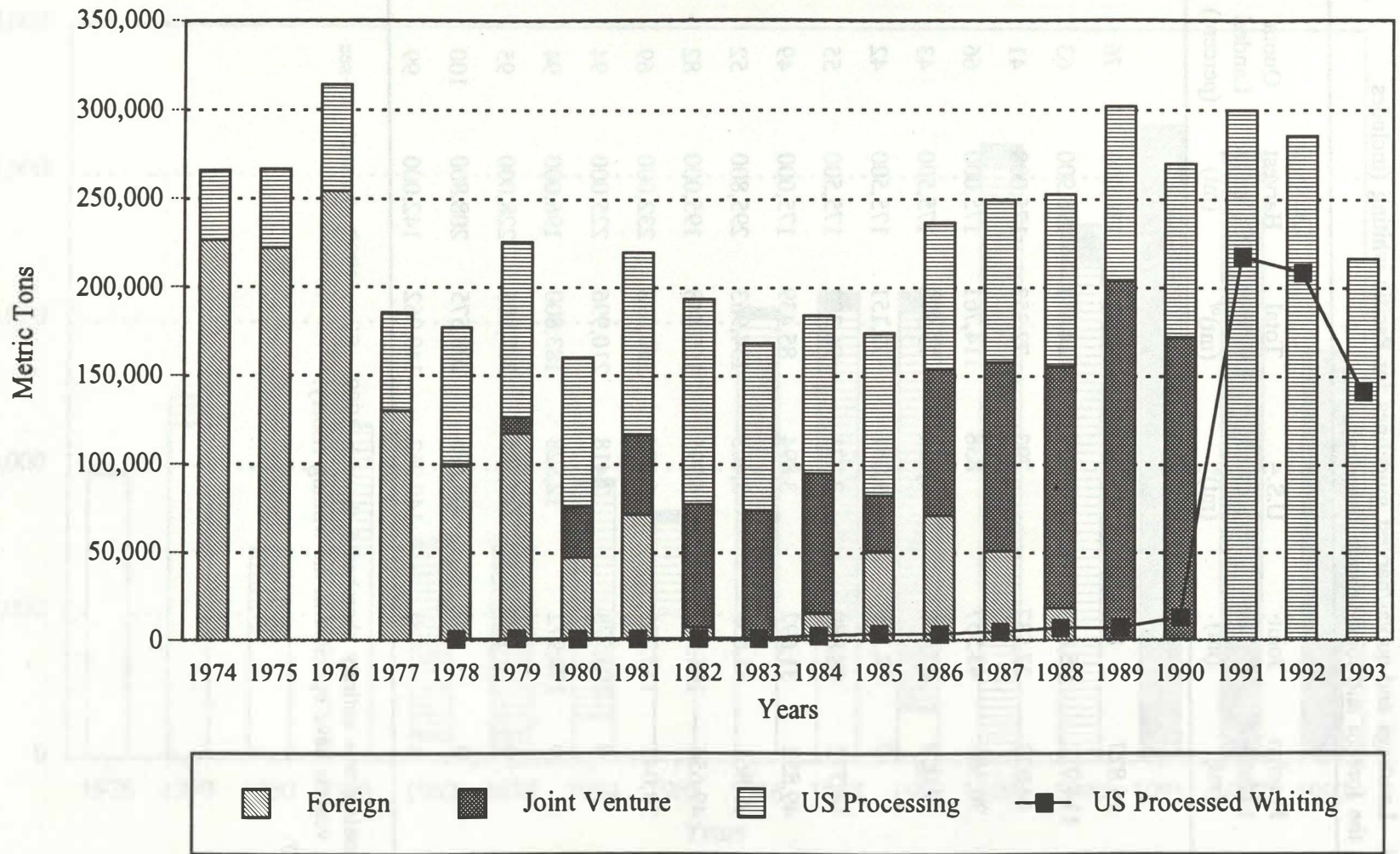


FIGURE 3. Catch of all Pacific coast groundfish in thousands of metric tons. Includes discards from foreign, joint venture and US at-sea processors. Source: National Marine Fisheries Service, Northwest Region, August 25, 1994.

TABLE 21. Landings and quotas/harvest guidelines for Pacific whiting (includes discards in the foreign and joint venture fisheries).

Year	Foreign Fishery (mt)	Joint Venture (mt)	U.S.- Processed (mt) ^{a/}	Total Landings (mt) ^{b/}	Quota or Harvest Guideline (mt)	Quota Landed (percent)
1978	96,827	856	689	98,372	130,000	76
1979	114,910	8,834	937	124,681	198,900	63
1980	44,023	27,537	793	72,353	175,000	41
1981	70,366	43,557	838	114,761	175,000	66
1982	7,089	67,465	1,024	75,578	175,500	43
1983	0	72,100	1,051	73,151	175,500	42
1984	14,772	78,889	2,721	96,382	175,500	55
1985	49,853	31,692	3,894	85,439	175,000	49
1986	69,861	81,639	3,463	154,963	295,800	52
1987	49,656	105,997	4,795	160,448	195,000	82
1988	18,041	135,781	6,876	160,698	232,000	69
1989	0	203,578	7,418	210,996	225,000	94
1990	0	170,972	12,828	183,800	196,000	94
1991	0	0	217,505	217,505	228,000	95
1992	0	0	208,575	208,575	208,800	100
1993 ^{b/}	0	0	140,962	140,962	142,000	99

a/ U.S. processing was entirely shorebased through 1989. Since 1990, domestic at-sea processing vessels have operated in the whiting fishery.

b/ Preliminary.

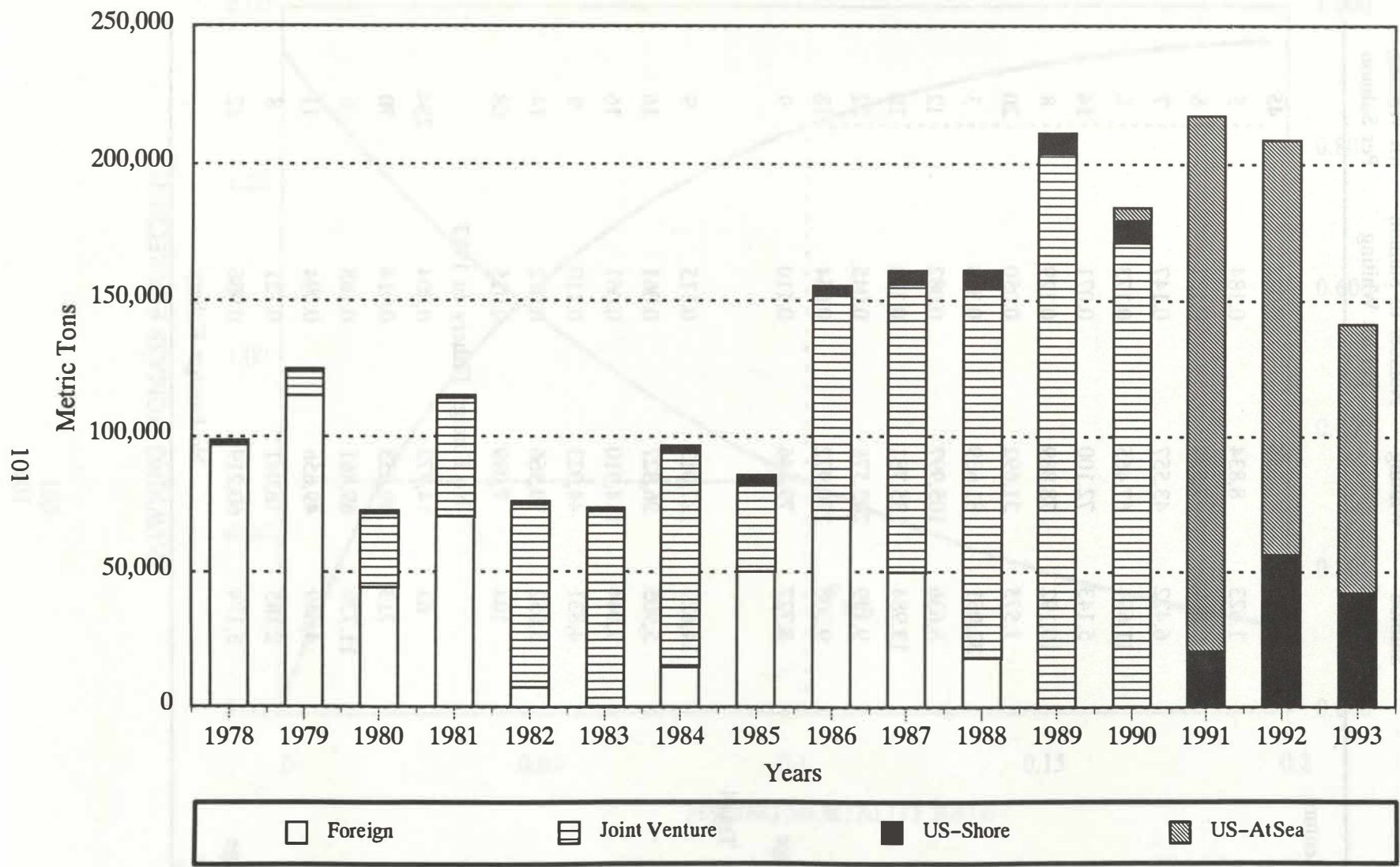


FIGURE 4. Catch of Pacific whiting. Includes discards by foreign, joint venture and US at-sea processors. Source: National Marine Fisheries Service, Northwest Region, August 25, 1994.

TABLE 22. Catch of salmon in joint venture and foreign trawl fisheries for Pacific whiting.

	Salmon (number)	Whiting (mt)	Number of Salmon Per Mt Whiting	Mt Whiting Per Salmon
Joint Venture				
1978	19	856	0.022	45
1979	1,623	8,834	0.184	5
1980	3,602	27,537	0.131	8
1981	6,422	43,557	0.147	7
1982	11,694	67,465	0.173	6
1983	5,143	72,100	0.071	14
1984	10,192	78,889	0.129	8
1985	1,575	31,692	0.050	20
1986	32,051	81,639	0.393	3
1987	8,636	105,997	0.082	12
1988	13,984	135,781	0.103	10
1989	9,199	203,578	0.045	22
1990	9,308	170,972	0.054	18
Average	8,727	79,146	0.110	9
Foreign Trawl				
1977	14,627	127,013	0.115	9
1978	5,905	96,827	0.061	16
1979	7,044	114,910	0.061	16
1980	4,831	44,023	0.110	9
1981	5,052	70,366	0.072	14
1982	104	7,089	0.015	68
1983		No Foreign Fishery In 1983		
1984	63	14,772	0.004	234
1985	713	49,853	0.014	70
1986	11,739	69,861	0.168	6
1987	4,649	49,656	0.094	11
1988	2,185	18,041	0.121	8
Average	5,174	60,219	0.086	12
1989		No Foreign Fishery		

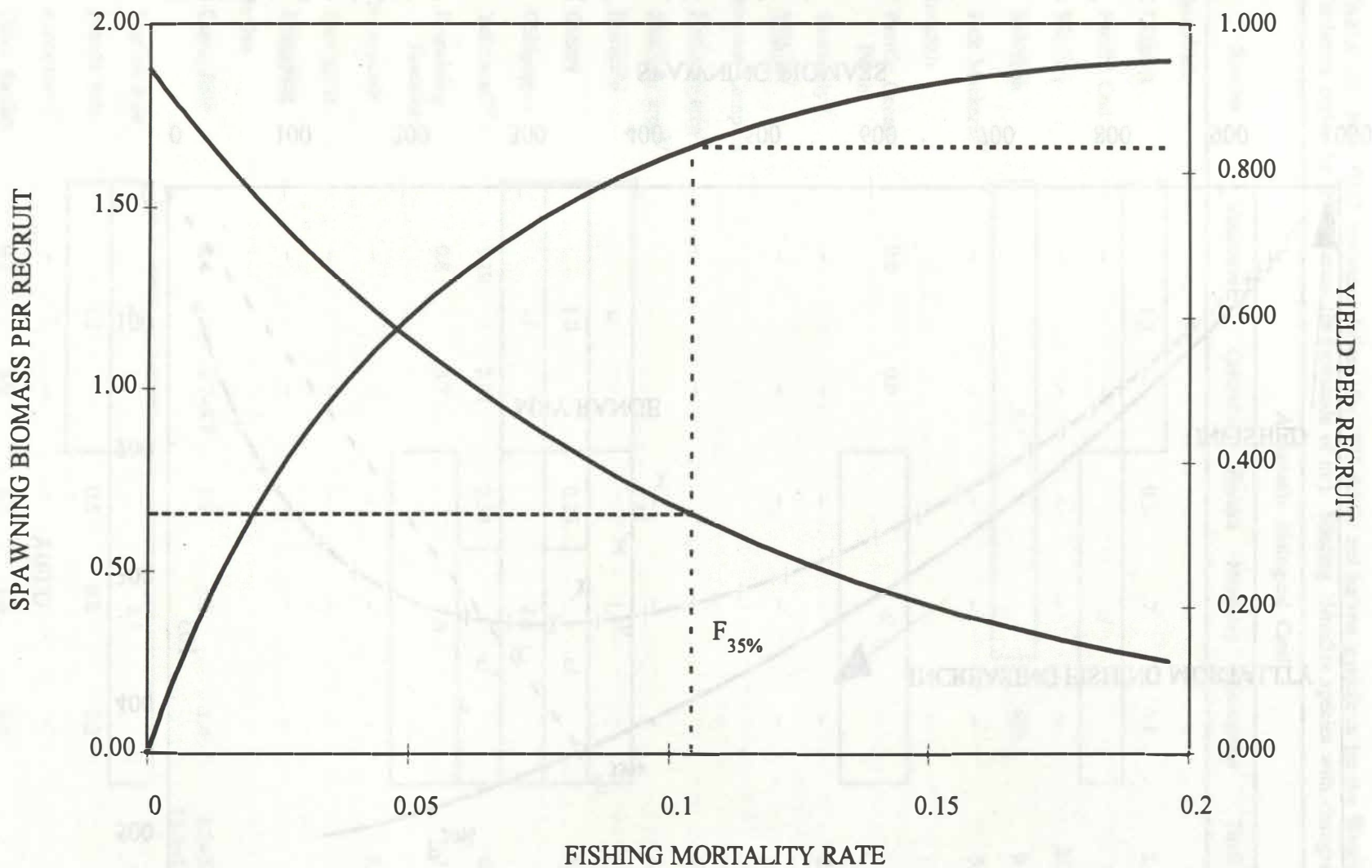


FIGURE 5. Expected relative yield per recruit and spawning biomass per recruit as a function of the rate of fishing mortality. Spawning biomass per recruit is equivalent to the expected lifetime egg production by a female entering the population. The level of fishing mortality indicated by $F_{35\%}$ will reduce spawning biomass per recruit to 35 percent of its unfished level.

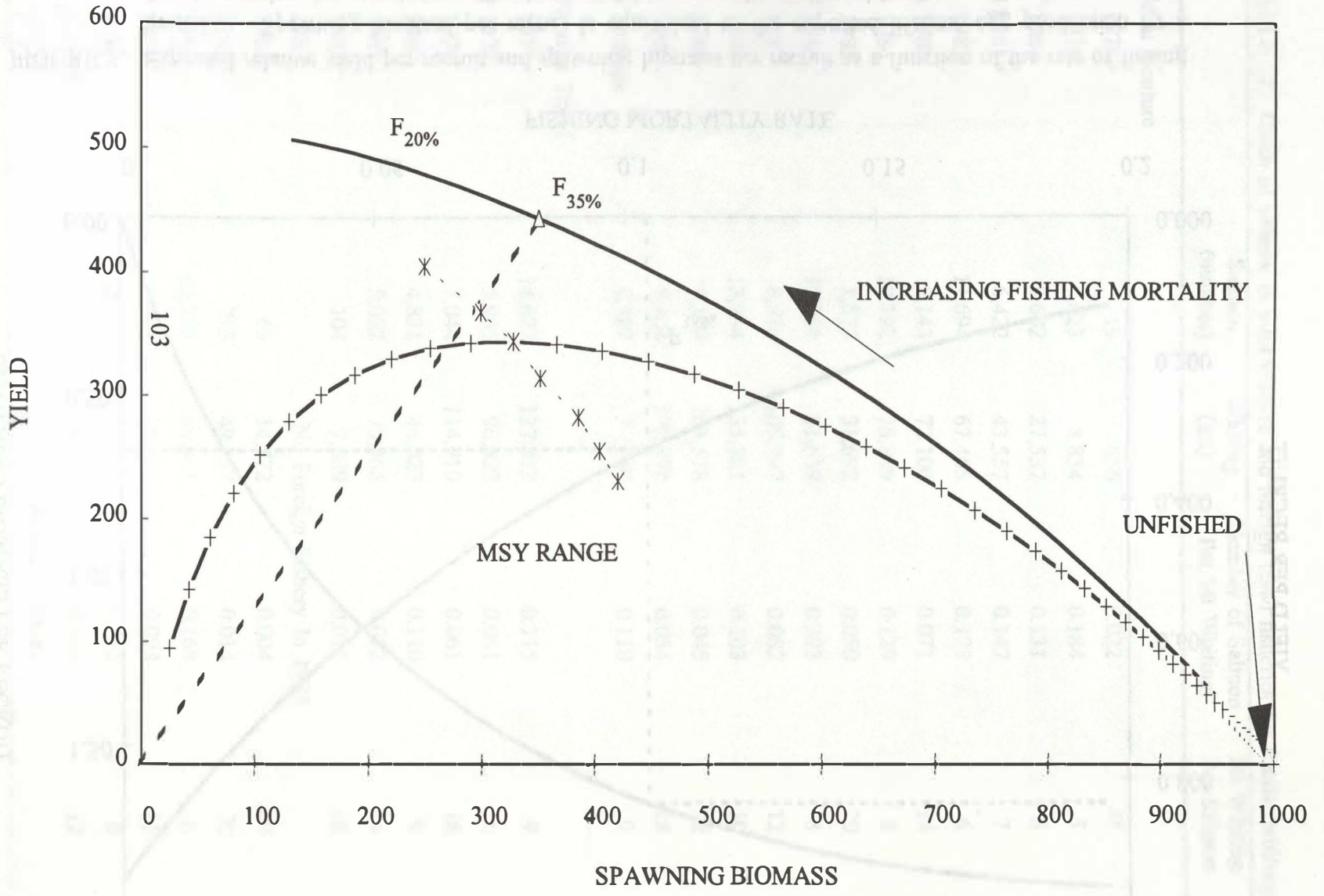


FIGURE 6. Relationship between equilibrium yield and female spawning biomass is displayed by the two curves, with tic marks indicating levels of fishing mortality at which these curves were evaluated.

TABLE 23. Final GMT recommendations for 1995 ABCs and harvest guidelines for the Washington, Oregon and California region by INPFC areas (in thousands of mt). Shading identifies species with changes from 1994. Page 1 of 3.

Species	Acceptable Biological Catch					Total	Harvest Guideline	1994 ABC
	Vancouver ^{a/}	Columbia	Eureka	Monterey	Conception			
Roundfish								
Lingcod	1.3		0.3	.7	0.1	2.4 ^{b/}	2.4	7.0
Pacific Cod	-	-	c/			3.2		
Whiting	-	-	-	-	-	223.0	178.4 ^{d/}	325.0
Sablefish	8.7				.425	9.1 ^{e/}	7.8	7.0
Jack Mackerel ^{f/}	-	-	-	-	-	52.6	52.6	52.6
Rockfish								
Pacific Ocean Perch	0.0	0.0	c/			0.0	1.3 ^{g/}	0.0
Shortbelly ^{h/}	-	-	-	-	-	23.5	23.5	23.5
Widow ^{i/}	-	-	-	-	-	7.7	6.5 ^{i/}	6.5
Sebastes Complex								
Northern area ^{j/}	-	-				11.9	11.8	(13.24)
Southern area ^{k/}			-	-	-	13.2	13.2	13.44
Bocaccio	c/		1.7 ^{l/}			1.7	1.7	1.54
Canary	1.0		0.25	c/		1.25	.85 ^{m/}	2.9
Chilipepper	c/		4.0			4.0		
Yellowtail ^{n/}	1.19	2.97	2.58	c/		6.74	4.16, 2.58	6.74
Remaining Rockfish	0.8	3.7	7.0			11.5		
Thornyheads								
Shortspine	-	-	-	-	-	8.0 ^{o/}	o/	12.0
Longspine	-	-	-	-	-	1.0	1.5	1.9
Flatfish								
Dover Sole	2.4	1.7-3.7	2.9	5.0	1.0	1.7-3.7; 13.0-15.0	1.6-3.5; ^{p/} 12.4-14.2	15.9
English Sole	2.0		1.1			3.1		
Petrale Sole	1.2		0.5	0.8	0.2	2.7		
Arrowtooth ^{h/}	-	-	-	-	-	5.8		
Other flatfish	0.7	3.0	1.7	1.8	0.5	7.7		
Other Fish ^{q/}	2.5	7.0	1.2	2.0	2.0	14.7		

a/ U.S. portion.

TABLE 23. Final GMT recommendations for 1995 ABCs and harvest guidelines for the Washington, Oregon and California region by INPFC areas. Page 2 of 3.

- b/ The lingcod assessment is for the entire Vancouver area, including Canada, and the Columbia area north of Cape Falcon. The U.S. ABC is based on 50 percent of the ABC for this area plus 400 mt for the Columbia area south of Cape Falcon. The coastwide harvest guideline equals the sum of the ABCs and includes recreational harvest. The team recommends an allocation of 1,700 mt for all commercial gears.
- c/ These species are not common nor important in the areas footnoted. Accordingly, for convenience, Pacific cod is included in the "Other Fish" category for the areas footnoted and rockfish species are included in the "Remaining Rockfish" category for the areas footnoted only.
- d/ Total whiting ABC for U.S. plus Canada. The 1995 U.S. harvest guideline is 80 percent of the total ABC.
- e/ Estimated discard mortality (1,200 mt) was subtracted in calculating the 1994 ABC. The 1995 ABC was calculated using a reduced estimated discard (900 mt), which is subtracted along with the Conception area ABC to obtain the harvest guideline. The harvest guideline applies to all areas except Conception; the ABC for that area is 425 mt.
- f/ All areas north of 39°N latitude, and includes the area beyond the EEZ (200nm).
- g/ The Pacific ocean perch harvest guideline applies to the Vancouver and Columbia areas combined. It is intended to allow landing of incidental and small directed catches, and includes an assumed discard factor of 16 percent.
- h/ Total all areas.
- i/ In 1994, the ABC was calculated after regulation-induced discard (16 percent) was deducted. For 1995, the discard factor is included in the ABC and subtracted out to obtain the harvest guideline.
- j/ The 1995 Sebastes north harvest guideline, which applies to the Vancouver and Columbia areas, is established by summing the ABCs (except for canary rockfish, where the harvest guideline is used) in those areas: canary (850 mt), yellowtail (6,740 minus 300 mt) and remaining rockfish (4,500 mt). The 300 mt subtracted from the yellowtail rockfish harvest guideline applies to the Eureka area. All discard is counted toward the harvest guideline.
- k/ The proposed 1995 Sebastes south harvest guideline is calculated as in 1994; it applies to the Eureka, Monterey and Conception areas and equals the sum of the ABCs in those areas: bocaccio (1,700 mt), canary (250 mt), chilipepper (4,000 mt), yellowtail (300 mt), and remaining rockfish (7,000 mt). Anticipated recreational harvest of bocaccio will be deducted before limited entry/open access allocations are calculated.
- l/ The 1994 bocaccio harvest guideline of 1,540 mt for the Eureka, Monterey and Conception areas was calculated by subtracting a discard factor from the ABC. It included 200 mt of anticipated recreational harvest. For 1995, the team recommends no discard deduction, but setting the harvest guideline equal to the sum of the three ABCs because few trips were impacted by the limits in 1994. As in 1994, anticipated recreational harvest will be subtracted before determining open access and limited entry allocations.
- m/ The 1994 canary rockfish ABC included separate ABCs for the Vancouver and Columbia areas (800 mt and 1,500 mt, respectively). The proposed 1995 ABC for the 2 areas combined (1,000 mt) represents a 56 percent reduction. That reduction was also applied to the Eureka area ABC, reducing it from 600 mt to about 250 mt. The 850 mt harvest guideline for Vancouver plus Columbia reflects a 150 mt reduction for discard because the team anticipates that trip limits will need to be imposed in 1995 to delay attainment of the ABC.
- n/ The 1993 yellowtail rockfish assessment addressed three separate areas: Vancouver, Columbia north of Cape Falcon, and Columbia south of Cape Falcon plus Eureka. For this table, the Columbia ABC applies to north Columbia only, and the Eureka ABC applies to Eureka plus south Columbia. As in 1994, the total 1995 yellowtail rockfish ABC is divided into two harvest guidelines: 4,160 mt for Vancouver plus Columbia north of Cape Lookout (close to Cape Falcon), and 2,580 mt for Eureka plus Columbia south of Cape Lookout. Separate harvest guidelines are established for the Sebastes complex north and south of the Eureka-Columbia border. Therefore, 300 mt of the yellowtail rockfish southern harvest guideline was included in the southern Sebastes complex harvest guideline and the remainder of the yellowtail rockfish southern harvest guideline was included in the northern Sebastes harvest guideline. As in 1994, a 16 percent discard factor will be added to certain landings inseason. This will affect inseason landings estimates for Sebastes complex also.
- o/ The proposed 1995 ABCs and harvest guidelines for the 2 thornyhead species are coastwide north of Pt. Conception, whereas the previous ABCs excluded the Vancouver and Conception areas. The single 1994 harvest guideline for the 2 species also excluded those areas and was calculated based on a 50:50 ratio of the 2 species in the catch, with the total resulting in a harvest just less than overfishing shortspines. The proposed 1995 shortspine harvest guideline is above its ABC but below its overfishing level. The longspine harvest guideline

TABLE 23. Final GMT recommendations for 1995 ABCs and harvest guidelines for the Washington, Oregon and California region by INPFC areas. Page 3 of 3.

- p/ is less than its ABC in order to ease management of shortspines and because of expected future declines in longspine ABC. A discard factor will be added to landings inseason, depending on what trip limits are adopted. The 1994 harvest guideline for Dover sole in the Columbia area is 5,000 mt, and the Council previously stated its intent to reduce it to the ABC in 1995. The GMT proposes reducing the ABC for the Columbia area to 1,700 to 3,800 mt in 1995 and the Eureka ABC by 1,000 mt from 3,500 mt to 2,500 mt. The proposed 1995 Columbia area harvest guideline (1,600 to 3,500 mt) reflects a 5 percent deduction to account for discard, which is also applied in computing the coastwide harvest guideline of 12,400 to 14,200 mt.
- q/ Includes sharks, skates, rays, ratfish, morids, grenadiers and other groundfish species noted above in c/.

Area	Species	1994 ABC	1995 ABC	1994 HG	1995 HG	Notes
Washington	Longspine	10,000	10,000	10,000	10,000	
	Shortspine	10,000	10,000	10,000	10,000	
	Other	10,000	10,000	10,000	10,000	
	Groundfish	10,000	10,000	10,000	10,000	
	Sharks	10,000	10,000	10,000	10,000	
	Skates	10,000	10,000	10,000	10,000	
	Rays	10,000	10,000	10,000	10,000	
	Ratfish	10,000	10,000	10,000	10,000	
	Morids	10,000	10,000	10,000	10,000	
	Grenadiers	10,000	10,000	10,000	10,000	
Oregon	Longspine	10,000	10,000	10,000	10,000	
	Shortspine	10,000	10,000	10,000	10,000	
	Other	10,000	10,000	10,000	10,000	
	Groundfish	10,000	10,000	10,000	10,000	
	Sharks	10,000	10,000	10,000	10,000	
	Skates	10,000	10,000	10,000	10,000	
	Rays	10,000	10,000	10,000	10,000	
	Ratfish	10,000	10,000	10,000	10,000	
	Morids	10,000	10,000	10,000	10,000	
	Grenadiers	10,000	10,000	10,000	10,000	
California	Longspine	10,000	10,000	10,000	10,000	
	Shortspine	10,000	10,000	10,000	10,000	
	Other	10,000	10,000	10,000	10,000	
	Groundfish	10,000	10,000	10,000	10,000	
	Sharks	10,000	10,000	10,000	10,000	
	Skates	10,000	10,000	10,000	10,000	
	Rays	10,000	10,000	10,000	10,000	
	Ratfish	10,000	10,000	10,000	10,000	
	Morids	10,000	10,000	10,000	10,000	
	Grenadiers	10,000	10,000	10,000	10,000	

TABLE 24. Comparisons of MSY, ABC, domestic shore-based landings, stock condition, and abundance trends for major Pacific coast groundfish stocks coastwide, 1993-1995.

Species	MSY	Assessment		1993	1993	1994	1995	Stock Condition	Abundance Trend
		Year	Status	ABC	Landings	ABC	Proposed ABC		
Flatfish									
Arrowtooth flounder	Unknown	1993		5,800	2,713	5,800	5,800	Unknown	Stable
Dover sole	16,300	1994	Needed	15,900	14,324	15,900	13,000	Below MSY	Declining
English sole	3,100	1993		1,900	1,602	3,100	3,100	Above MSY	Increasing
Petrале sole	2,700	1993		3,200	1,503	2,700	2,700	Above MSY	Stable
Remaining flatfish a/	Unknown			7,700	1,926	7,700	7,700	Unknown	Unknown
Rockfish									
Bocaccio	>= 1,800	1992	Needed	1,540	1,451	1,540	1,700 i.	Below MSY	Declining
Canary rockfish		1994		2,900	1,940	2,900	1,250	Below MSY	Stable/Declining
Chilipepper	5,000	1993		3,600	1,434	4,000	4,000	Above MSY	Increasing
Yellowtail rockfish c/	<= 6,740	1993		4,700	3,671	6,740	6,740	Above MSY	Declining
Remaining Rockfish b/	Unknown		Planned	14,000	5,107	11,500	11,500	Unknown	Unknown/Declining
Unspecified rockfish					8,081			N/A	
Other Rockfish									
Pacific Ocean perch	1,100	1992		0	852	0	0	Below MSY	Stable
Shortbelly rockfish	23,500	1989		13,000	9	23,500	23,500	Above MSY	Unknown
Widow rockfish	6,700	1993		7,000	7,044	6,500	7,700 i/	Near MSY	Stable
Thornyheads e/	6600	1994			8,645				
Shortspine	1400			1,900	--	1,900	1,000	Near MSY	Stable/Declining
Longspine	5200			10,100	--	10,100	7,000	Above MSY	Declining
Other Species									
Jack mackerel	12,000			52,600	277	52,600	52,600	Above MSY	Unknown
Lingcod	3100	1994		7,000	2,203	7,000	2,600	Below MSY	Stable
Pacific cod d/				3,200	1,367	3,200	3,200	Unknown	Unknown
Pacific whiting f/	336,000	1994	Annual	177,000	137,916 g/	325,000	223,000	Near MSY	Declining
Sablefish	7800	1994		7,000	8,121	7,000	8,700 i/	Near MSY	Declining
Others h/	Unknown			14,700	2,390	14,700		Unknown	Unknown

Data Source: PacFIN data extracted September 12, 1994

a/ Remaining flatfish consists of all flatfish except arrowtooth flounder, Dover sole, English sole, and petrale sole.

b/ Landing estimates do not include substantial landings of this species which are included under "Unspecified rockfish".

c/ ABC is for Eureka, Columbia and Vancouver areas only.

d/ MSY and/or ABC based upon historical landings.

e/ 1993 and 1994 ABC and 1993 landings are for the Monterey, Eureka and Columbia areas; 1995 ABC is coastwide.

f/ ABC and MSY include Canada.

g/ Total coastwide removals were 199,994 mt, including U.S. discards and Canadian landings.

h/ Includes sharks, skates, rays, morids and grenadiers.

i/ ABC prior to 1995 did not include discard

1992 1993 Percent Change

ECONOMIC STATUS OF THE WASHINGTON, OREGON AND CALIFORNIA GROUND FISH FISHERIES

	1992	1993	Percent Change
Domestic Catches/Processing (M)	140,200	81,379	-41.4
Total WQC Landings (M)	275,264	212,094	-22.9
Domestic Value (\$)			
Current	12,246,000	85,716,000	-90
Real ^a	12,008,000	85,716,000	-11.3
Domestic Marketing Procedures (M)			
Current	2,433,000	3,433,000	-35.8
Real	2,433,000	2,433,000	-37.2
Domestic Catches/Processing (M)			
Current	11,974,000	10,407,000	-48.9
Real	12,008,000	14,380,000	-16.0
Total WQC Catch/Value			
Current	14,679,000	96,123,000	-85.0
Real	14,441,000	88,147,000	-83.8

Compiled by
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**Southwest Region
National Marine Fisheries Service
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Source: NMFS Groundfish Report Series, March 1993 for 1992 data and March 1994 for 1993 data.

^a Real values include landings of fish caught in Puget Sound, Alaska, Canada, Mexico, as well as those caught in the WQC of Washington, Oregon and California.

^b Real values and percent values adjusted for inflation by deflating the equivalent base price index by 1982=100. Data for the current year (1993) include price indexes, and values for 1992 and 1993 are based on 1992 and 1993 prices.

September 1994

TABLE EC-1. Quantity and exvessel value of groundfish landings in Washington, Oregon and California, including fish delivered to foreign and domestic floating processors in waters off these states, 1992-1993.^{a/}

	1992	1993	Percent Change
Shoreside (mt)	132,506	116,624	-12.0
Domestic Floating Processor (mt)	34,092	14,507	-57.4
Domestic Catcher/Processor (mt)	108,982	81,319	-25.4
Total WOC Landings (mt)	275,581	212,450	-22.9
Shoreside Value (\$)			
Current	72,246,000	65,716,000	-9.0
Real ^{b/}	74,098,000	65,716,000	-11.3
Domestic Floating Processors (\$)			
Current	3,816,000	2,459,000	-35.6
Real	3,914,000	2,459,000	-37.2
Domestic Catcher/Processors (\$)			
Current	11,978,000	14,007,000	+16.9
Real	12,285,000	14,007,000	+14.0
Total WOC Groundfish			
Landed Value (\$)			
Current	88,040,000	82,182,000	-6.7
Real	90,297,000	82,182,000	-9.0

Sources: PacFIN Groundfish Report Series, March 1993 for 1992 data and March 1994 for 1993 data.

- a/ Does not include landings of fish caught in Puget Sound, Alaska, Canada, Mexico, or other waters not in the EEZ off Washington, Oregon and California.
- b/ Real values are current values adjusted to eliminate the effects of inflation. This adjustment has been made by dividing current values by the current year GNP implicit price deflator, with a base year of 1993. The GNP deflators are 0.975 for 1992 and 1.00 for 1993.

TABLE EC-2. Average annual exvessel prices (price per pound) paid for some commercially important species, 1992-1993.^{a/}

	1992	1993
Sablefish		
Current	0.662	0.556
Real ^{b/}	0.679	0.556
All Rockfish		
Current	0.391	0.387
Real	0.401	0.387
Widow Rockfish		
Current	0.291	0.287
Real	0.298	0.287
Dover Sole		
Current	0.290	0.284
Real	0.297	0.284
English Sole		
Current	0.337	0.327
Real	0.346	0.327
Petrals Sole		
Current	0.818	0.801
Real	0.839	0.801
Lingcod		
Current	0.385	0.380
Real	0.395	0.380
Arrowtooth Flounder		
Current	0.109	0.100
Real	0.112	0.100
Pacific Whiting		
Current	0.049	0.064
Real	0.050	0.064
Thornyheads		
Current	0.474	0.486
Real	0.486	0.486

Sources: PacFIN, Groundfish Report Series, December 1993 and March 1994.

a/ This report includes only data for INPFC Areas: Vancouver, Columbia, Eureka, Monterey and Conception.

b/ Real prices are current prices adjusted for inflation using the GNP implicit price deflator, where 1993 = 100.

TABLE EC-3. Washington, Oregon and California shoreside commercial groundfish landings (mt) and exvessel value (thousands of dollars), 1980-1993.^{a/}

Year	California		Oregon		Washington		Coast	
	mt	\$	mt	\$	mt	\$	mt	\$
1980	36,862	16,551	28,515	11,425	22,514	9,119	87,891	37,095
1981	42,578	21,448	37,502	14,721	23,093	10,100	103,173	46,269
1982	52,608	27,795	41,023	20,445	25,368	11,405	118,999	59,645
1983	39,498	21,984	35,158	18,345	22,970	11,257	97,626	51,586
1984	40,570	22,914	28,209	15,234	21,080	10,474	89,859	48,622
1985	43,062	26,516	29,023	17,095	19,229	12,449	91,314	56,060
1986	41,246	28,552	24,931	16,813	16,081	10,905	82,298	56,240
1987	41,410	30,682	30,626	24,328	20,292	16,872	92,329	71,881
1988	39,420	28,213	31,845	23,748	20,371	15,686	91,635	67,646
1989	42,315	29,951	36,843	25,218	20,103	13,589	99,261	68,757
1990	39,149	28,919	35,514	23,343	18,396	11,478	93,058	63,740
1991	35,806	27,189	49,329	29,856	17,047	14,073	102,182	71,118
1992	34,478	28,223	82,238	32,428	15,790	11,595	132,506	72,246
1993	27,933	23,511	71,439	30,205	17,251	12,001	116,624	65,716

Source: PacFIN, Groundfish Report Series, March 1994.

a/ Does not include landings of fish caught in Puget Sound, Alaska, Canada, Mexico, or other waters not off Washington, Oregon and California.

TABLE EC-4. Commercial shoreside landings^{a/} (mt) of individual groundfish species by state, 1990-1993.

Species	California		Oregon		Washington	
	1992	1993	1992	1993	1992	1993
Lingcod	604	686	740	833	574	681
Pacific Cod	1	-	416	489	1,358	878
Pacific Whiting	4,930	3,100	48,961	35,820	2,237	3,188
Sablefish	3,653	2,570	3,851	3,835	1,765	1,710
Pacific Ocean Perch	13	6	615	811	392	457
Widow Rockfish	1,102	1,181	3,917	5,317	986	1,224
Thornyheads ^{b/}	4,328	4,101	4,277	4,459	0	485
Unspecified Rockfish	3,524	3,169	266	806	812	2,449
Other Rockfish	5,325	4,148	8,247	7,915	2,858	1,569
Arrowtooth Flounder	99	57	2,061	1,659	1,938	997
Dover Sole	8,619	6,540	6,078	6,478	1,312	1,302
English Sole	564	470	628	718	423	411
Petrale Sole	528	457	771	775	251	265
Other Flatfish	861	935	881	839	264	145
Other Groundfish	327	514	527	685	1,161	1,463

Source: PacFIN, Groundfish Report Series, December 1993 and March 1994.

a/ Does not include landings of fish caught in Puget Sound, Alaska, Canada, Mexico, or other waters not in EEZ off Washington, Oregon and California.

b/ Thornyheads were landed in Washington in 1992 but entered report as "Other Rockfish."

TABLE EC-5. Shoreside landings and exvessel value (thousands of dollars) of individual groundfish species landed in Washington, Oregon and California, 1992-1993.^{a/}

Species	1992		1993		Percent Change	
	mt	\$	mt	\$	mt	\$
Lingcod	1,928	1,638	2,200	1,845	-39.4	-33.4
Pacific Cod	1,779	1,284	1,367	976	-0.1	+8.0
Pacific Whiting ^{b/}	56,128	6,015	42,108	2,952	+172.5	+151.4
Sablefish	9,304	13,609	8,115	9,940	-1.6	-5.0
Pacific Ocean Perch	1,045	702	1,274	851	-25.8	-24.3
Widow Rockfish	6,075	3,902	7,722	4,887	-4.6	-0.1
Thornyheads	8,654	9,047	9,045	9,682	+35.9	+41.2
Unspecified Rockfish	4,141	5,052	6,424	6,735	-39.9	-33.1
Other Rockfis	17,060	13,247	13,659	10,635	+5.6	+15.9
Arrowtooth Flounder	3,573	858	2,713	594	-27.7	-31.4
Dover Sole	16,038	10,236	14,320	8,967	-12.0	-15.3
English Sole	1,627	1,211	1,599	1,152	-25.5	-26.9
Petrals Sole	1,554	2,801	1,497	2,643	-19.4	-20.1
Other Flatfish	2,014	1,788	1,918	1,771	-37.7	-35.5
Other Groundfish	1,961	1,258	2,662	2,088	+48.3	+93.8

Source: PacFIN, Groundfish Report Series, December 1993 and March 1994.

a/ Does not include landings of fish caught in Puget Sound, Alaska, Canada, Mexico, or other waters not in EEZ off Washington, Oregon and California.

b/ Reflects a shift out of foreign (joint venture) production to domestic production. Does not include joint venture or at-sea production.

TABLE EC-6. Percentage contribution of Washington, Oregon and California landings and offshore deliveries to the total exvessel value (thousands of dollars) of West Coast marine fish landings, 1992-1993, by fishery.^{a/}

Fishery	1992 Exvessel Value of Landings	Percent	1993 Exvessel Value of Landings	Percent
Tuna	21,818	7.3	25,024	8.7
Groundfish	83,111	27.8	70,221	24.4
Crab	43,314	14.5	46,555	16.2
Salmon	29,726	9.9	33,029	11.5
Shrimp	27,403	9.2	16,574	5.8
Coastal Pelagics ^{b/}	18,892	6.3	15,108	5.2
Other	<u>74,853</u>	25.0	<u>81,614</u>	28.3
Total	299,117		288,125	

Sources: PacFIN, Groundfish Report Series, December 1993 and March 1994.

a/ This value exceeds that reported for groundfish in Table 1 because they include fish caught in Puget Sound, outside of the U.S. EEZ, and in waters off Alaska.

b/ Coastal pelagics include Pacific mackerel, jack mackerel, Pacific sardines, northern anchovy, market squid herring and Pacific bonito.

TABLE EC-7. Washington, Oregon and California combined landings and exvessel value (thousands of dollars) of sablefish by gear, 1992-1993.^{a/}

	1992				1993			
	mt		\$		mt		\$	
Groundfish Trawl ^{b/}	5,213	(56.0)	5,612	(41.2)	4,759	(58.6)	4,426	(44.5)
Fish Pot	725	(7.8)	1,173	(8.6)	845	(10.4)	1,172	(11.8)
Hook and Line	3,067	(33.0)	6,518	(47.9)	2,304	(28.4)	4,207	(42.3)
Other Net ^{c/}	146	(1.6)	127	(0.9)	151	(1.9)	79	(0.8)
Other	154	(1.7)	178	(1.3)	62	(0.8)	64	(0.6)
Total	9,305		13,608		8,121		9,946	

Source: PacFIN, Groundfish Report Series, December 1993 and March 1994.

- a/ Figures in parentheses are the percentages each gear group contributed to the total sablefish landed catch or exvessel value.
- b/ Includes California groundfish landings with shrimp nets.
- c/ Includes Oregon and Washington landings with shrimp nets, and all landings with set nets and purse seine nets.

TABLE EC-8. Washington, Oregon and California groundfish shoreside landings (mt) by gear group, 1981-1993.

	Trawl	Trap/Pot	Hook and Line ^{a/}	Gill Net/Setnet ^{b/}	Other/Misc. ^{c/}
1981	90,797	3,956	3,997	1,632	2,791
1982	103,299	6,530	4,384	2,077	2,709
1983	81,668	5,423	2,191	2,243	6,101
1984	72,693	3,854	1,989	2,199	9,124
1985	75,352	3,703	4,603	3,918	3,737
1986	61,249	2,216	5,894	4,205	8,734
1987	74,713	2,082	6,953	3,952	4,614
1988	73,460	2,186	5,679	2,864	7,487
1989	84,421	2,004	5,962	2,965	3,909
1990	78,785	1,513	5,766	2,874	4,120
1991	88,984	1,079	8,247	1,790	2,082
1992	118,881	752	9,114	1,722	2,410
1993	104,311	871	7,529	1,124	2,913

Source: PacFIN, Groundfish Report Series, PFMC Gear Reports, September 1994

a/ Does not include jig, troll or other hook and line gear prior to 1991.

b/ Includes gill net, setnet and other net, but not dip, trammel, seine or miscellaneous nets.

c/ Includes jig, troll and other hook and line gear prior to 1991.

TABLE EC-9. Exvessel value (thousands of dollars) of Washington, Oregon and California groundfish shoreside landings by gear group, 1981-1993.

	Trawl	Trap/Pot	Hook and Line ^{a/}	Gill Net/Setnet ^{b/}	Other/Misc. ^{c/}
1981	37,855	2,081	3,696	1,468	2,169
1982	46,987	4,863	4,551	1,814	1,430
1983	40,578	3,598	2,091	1,742	3,578
1984	36,885	2,338	2,083	1,955	5,361
1985	41,264	3,154	5,329	3,367	2,946
1986	36,916	2,171	6,811	3,715	6,627
1987	52,162	2,347	9,527	3,806	4,032
1988	48,010	2,797	8,573	2,709	3,928
1989	52,576	2,284	8,265	1,723	3,909
1990	47,579	1,658	8,408	2,765	3,330
1991	51,521	1,701	14,565	1,720	1,611
1992	53,387	1,222	14,119	1,672	2,247
1993	49,130	1,216	11,071	1,180	3,263

Source: PacFin, Groundfish Report Series, PFMC Gear Reports, September 1994.

a/ Does not include jig, troll or other hook and line gear prior to 1991.

b/ Includes gill net, setnet, and other net, but not dip, trammel, seine or miscellaneous nets.

c/ Includes jig, troll and other hook and line gear prior to 1991.

TABLE EC-10. Number of shoreside vessels in Washington, Oregon and California commercial groundfish fleets, 1981-1993.

Year	Otter Trawl	Pot/Trap ^{a/}	Longline ^{a/}	Hook & Line ^{b/}
1981	408	66	191	n/a
1982	444	82	208	n/a
1983	436	59	185	n/a
1984	397	34	96	n/a
1985	358	32	129	n/a
1986	307	30	190	n/a
1987	330	30	186	n/a
1988	345	26	156	n/a
1989	342	n/a	n/a	n/a
1990	369	37	196	n/a
1991	366	30	175	2,681
1992	347	23	n/a	2,712
1993	354	20	n/a	2,466

Source: PacFIN data extracted on April 14, 1994.

- a/ Vessels landing fish caught with this gear type in two or more states are counted in each state for years 1981-1983. Therefore, these numbers are an upper bound for the true number of vessels using this gear type.
- b/ Due to the inability to separate longline gear from other hook and line gear in the California data, the hook and line category contains longline, jig, troll, sole, and other hook and line gear beginning in 1991.