
PART 4:
APPENDICIES

Appendix A: References

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Appendix B: Regional Perspectives

Pacific Region

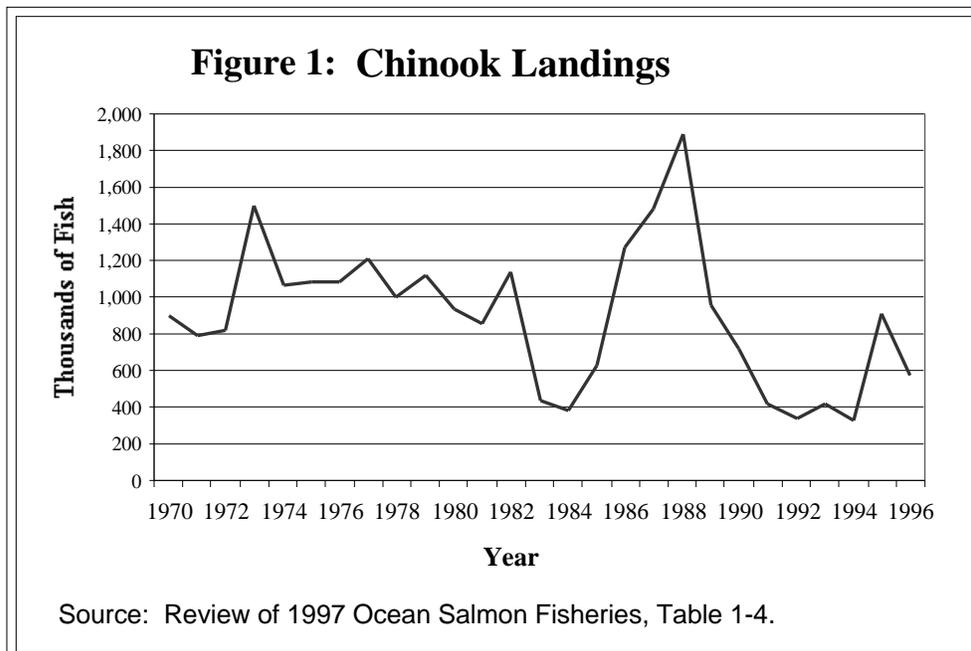
The term Pacific Region, used here, corresponds to the area governed by the Pacific Fishery Management Council. The Pacific Region is limited to the area off shore from California, Oregon, and Washington. There are currently several primary fisheries in the Pacific Region, these include: Salmon, Groundfish, Pink Shrimp, Dungeness crab, Albacore tuna, Squid and Coastal Pelagic. There are also numerous smaller fisheries including Herring, Pacific halibut, Spot prawns, Swordfish, Urchins, Sea Bass and others. Until the mid-1980's the Yellowfin/Skipjack tuna fishery was based out of Southern California. In many cases these fisheries involve several gear types and a high degree of cross participation.

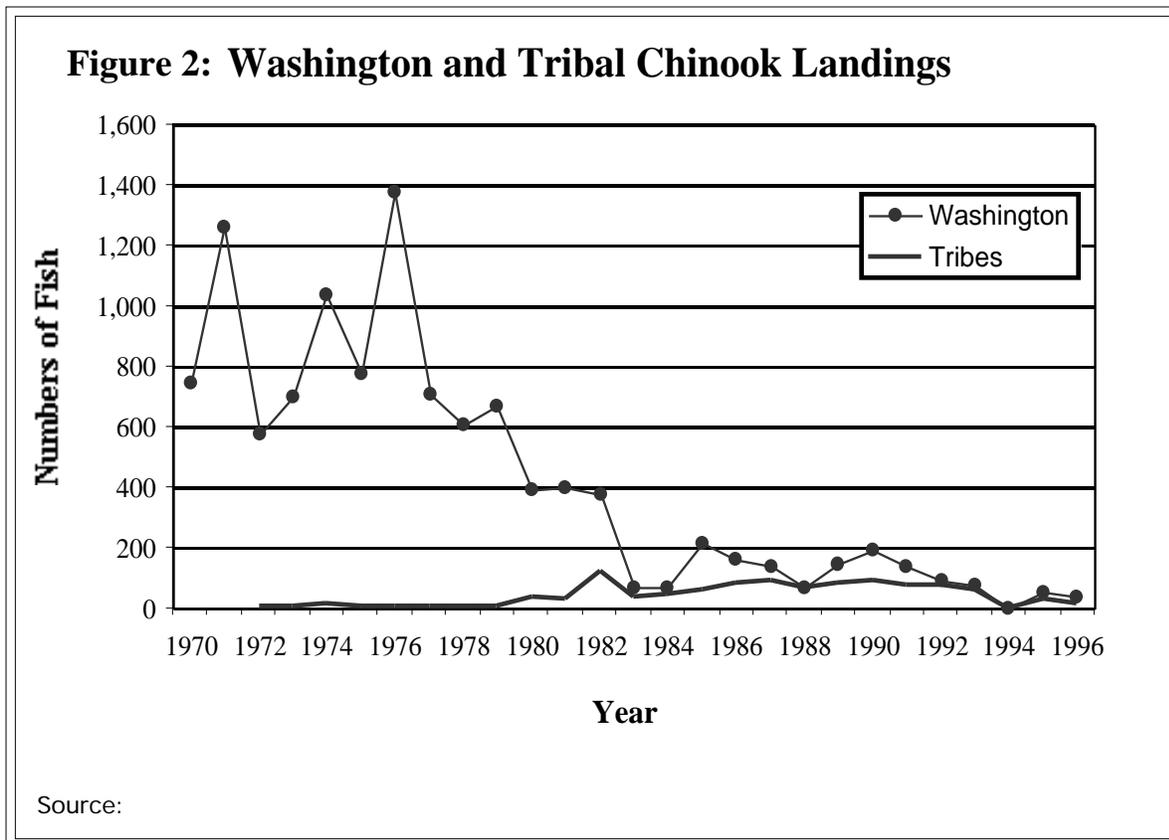
Federal programs and actions have had impacts that have increased both the level of capitalization and the capacity of these fishing fleets. Often actions that have had direct impacts on one fishery have resulted in an impact on another fishery. The intent of this section is to describe the changes in the Pacific Region that have occurred as a result of federal actions within this region that did not occur on a national level.

Pacific Salmon

The single most important event impacting fishery capacity and capitalization that occurred on the West Coast was the "Boldt decision" in 1974. Judge George Boldt was the federal judge who ruled that treaties

between the United States and Indian tribes entitled treaty fishermen to receive up to 50% of the available salmon within their usual and accustomed fishing areas. This ruling continues to impact fisheries management





today.

The immediate impact reduced the available resource to the existing fleet by one half. In other words, the capacity of the traditional fleet doubled in relationship to the available resource. This action in turn forced many non-treaty salmon fishermen into other fisheries particularly groundfish, shrimp, and dungeness crab. The principle of this decision is now also being applied to other fishery resources including dungeness crab and groundfish. The State of Washington must ensure tribal access to 50% of the crab resource and the Pacific Fishery Management Council allocates Sablefish, whiting, and several species of rockfish to the Washington tribes.

Groundfish

The Groundfish fishery is managed by the federal government. Many participants in the

groundfish fishery began fishing in the Salmon fishery in the late 1970s as a result of the “Boldt decision” and a general climate that encouraged fisheries development. A combination of Investment tax credit, FOG, and Capital Construction Fund aided in this expansion.

Two types of fishing operations involving foreign fishing vessels have been conducted on the West Coast. There was direct fishing and Joint Venture (JV) fishing. A variety of countries have fished off the West Coast since the mid-1960s. Following the passage of the M-SFCMA, foreign fishing was limited to pacific whiting. A directed foreign whiting fishery existed through 1988. Beginning in 1989 the fishery was limited to U.S. fishermen only.

In joint ventures with foreign processing vessels, American fishermen harvested product and transferred the fish at sea to foreign

processing vessels. The first of these fisheries was for Pacific whiting. The foreign partner was the Soviet Union. Through the 1980's the number and size of joint venture fisheries grew on the West Coast to include Poland, Bulgaria, Japan, and Korea. This new market opportunity lead to the construction and reconstruction of many vessels. In 1978 there were two catcher boats involved in the fishery. The following year there were eleven. The fishery reached its peak in 1989 when 65 catcher boats participated. Between 1986 and 1990, the last year of a joint venture fishery, 94 different catcher boats had participated in the fishery.¹

With the development of surimi technology within the United States, a domestic fishery for pacific whiting began to increase beginning in 1990. Surimi is a manufactured fish paste that is used as a base for making fish products. The following year the available catch was allocated entirely to U.S. fishermen. This was the first year that no foreign fishing or joint

venture processing occurred along the coast. Beginning in 1992, the whiting catch was allocated between U.S. shore-based and at-sea fishing operations.

The groundfish fishery is managed by the Pacific Fishery Management Council (PFMC). The Pacific Groundfish Plan was implemented in 1983. A central goal of this management plan is to provide year round fishing and marketing opportunities. To achieve this goal and ensure conservation of the resource, the management of groundfish has taken the form of annual quotas and "trip limits."

In July of 1987, the PFMC set a control date as the first step to implement a limited entry system. Over the months following this action, many fishermen entered the groundfish fishery with the belief that ultimately an exception would be made and they would be issued limited entry permits. In July 1988, the National Marine Fisheries Service informed the Council that the agency failed to publish the

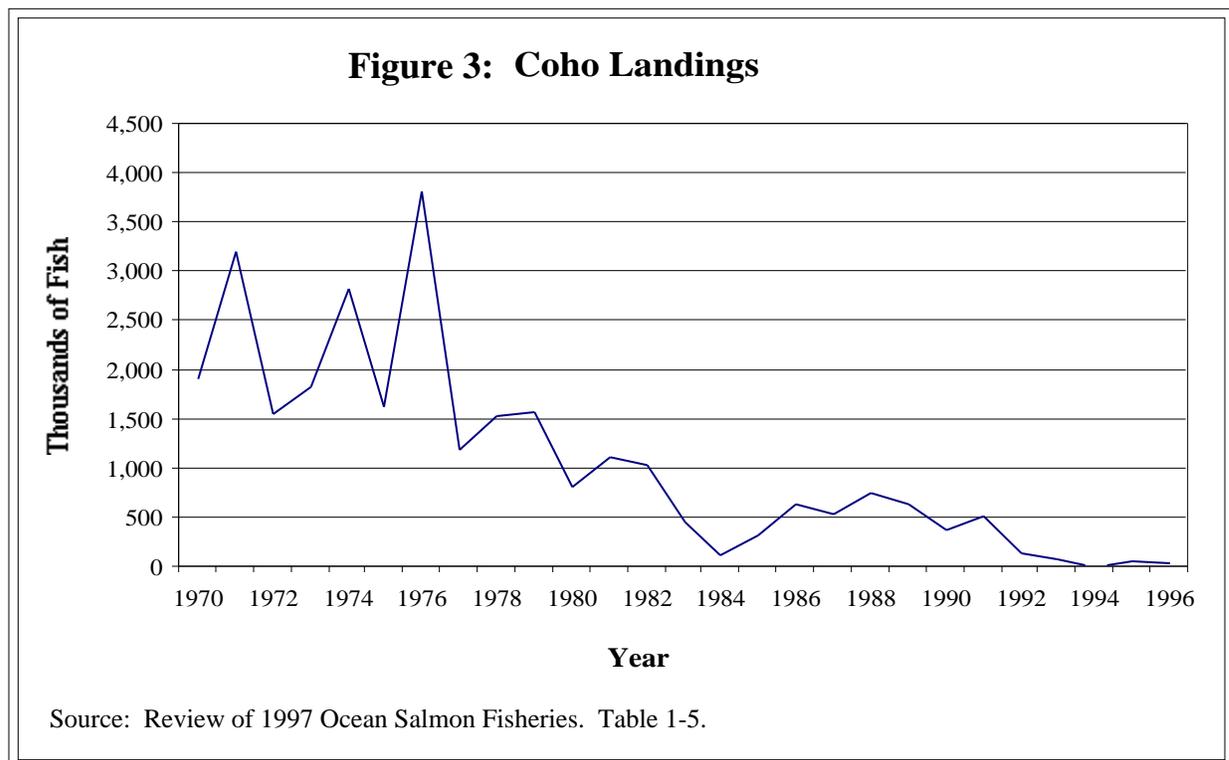
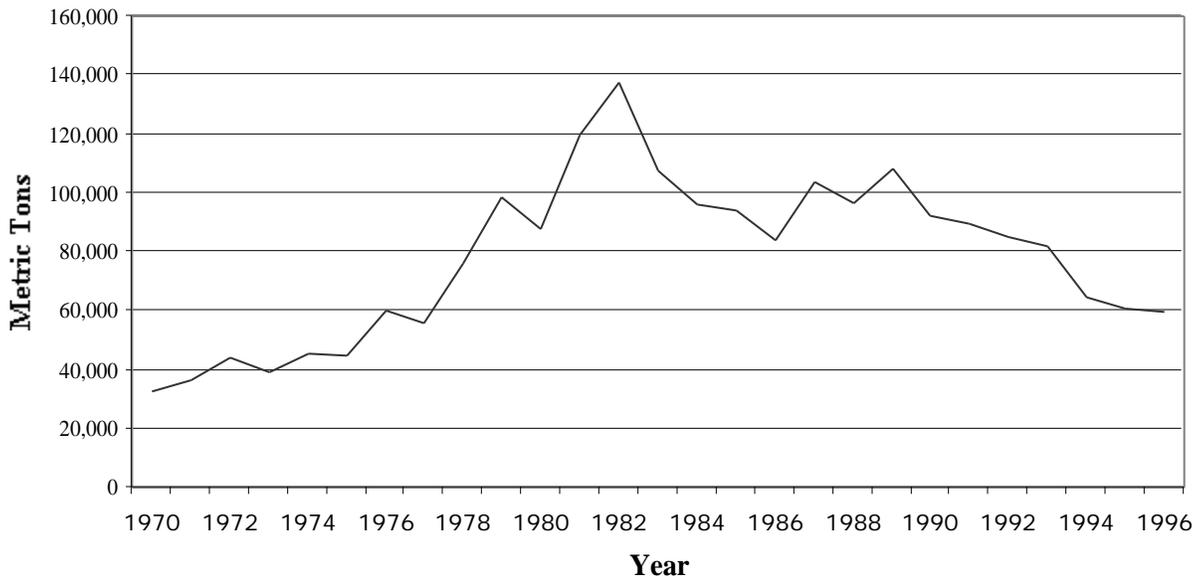


Figure 4: Groundfish Landings (excluding Pacific whiting)



Sources: 1970-1980, Historical Annotated Landings (HAL) Database. NOAA Technical Memorandum NMFS F/NWC-103; 1981-1996, Pacific Fisheries Information Network.

control date in the **Federal Register**. The Council was advised by NOAA attorneys to select a new control date. This delay in establishing the control date led to more participants in the groundfish fishery before the Council could re-adopt the program in 1992.

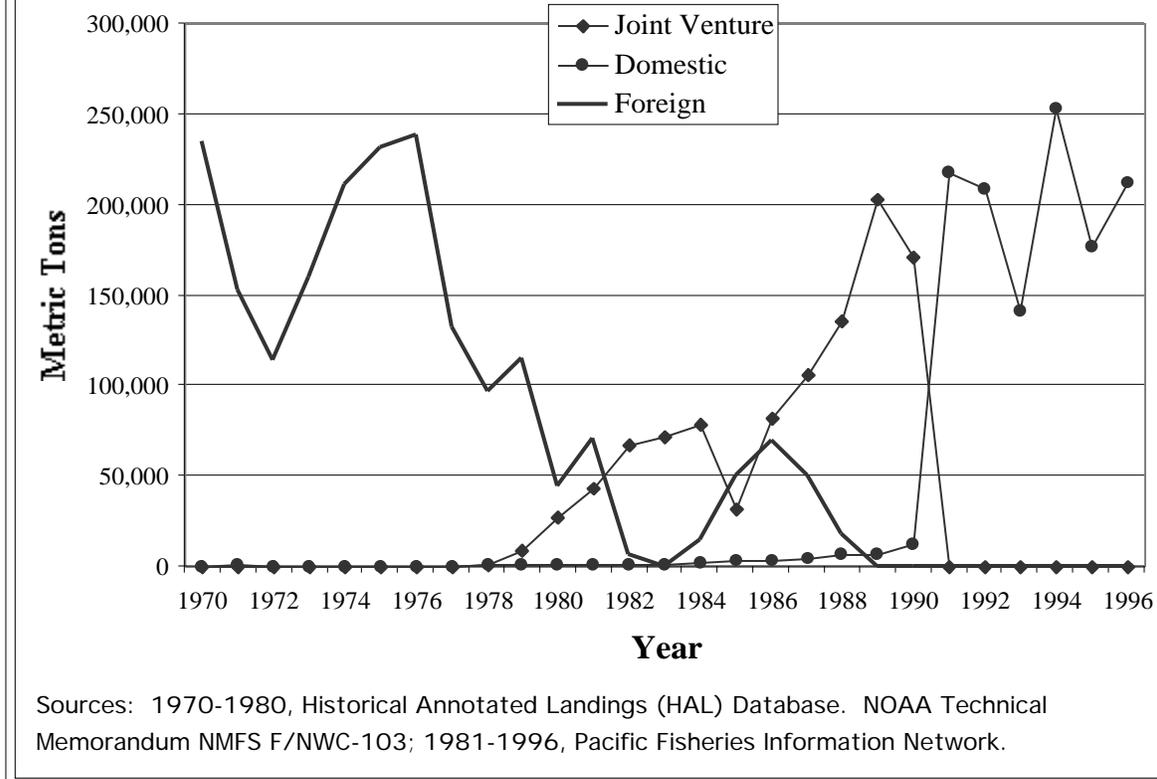
This increased number of participants brought political and legal pressure to include a greater number of permits to be issued. Because of the great number of new participants, an amount of quota was set aside for an “open access” fishery. This open access fishery continues to attract more participants into the fishery.

The mistake in publishing the control date by NMFS increased the number of permits issued for the trawl fishery by 18 permits, including 3 factory trawlers. This mistake also resulted in an additional 3 pot permits and 41 longline permits. Many other fishermen entered the fishery but did not achieve the minimum landing requirements to receive a

permit. This group included 35 trawlers, 64 pot boats, and 600 longliners². This situation resulted in the creation of an open access fishery as part of the limited entry system to accommodate fishermen not receiving permits.

One feature of the limited entry program for Pacific groundfish is a process that allows the combination of two or more limited access permits to be used on a larger vessel. The PFMC discussed the issue and agreed that some exponential relationship should be used. The PFMC adopted a preferred combination formula. However, NMFS rejected the Council’s formula and approved its own. For factory trawlers interested in fishing for Pacific whiting, the NMFS formula generally required one half of the number of permits to be consolidated compared to the Council formula. This action by NMFS made it easier for large vessels to enter the fishery³.

The groundfish limited entry program attempted to address the situations of

Figure 5: Whiting Landings

individuals who were in transition from one vessel to another or in the process of conversion into the fishery. Criteria were established for these types of events. It was anticipated that some individuals would apply for permits and have their request denied. Therefore, an industry review panel was established to hear appeals from fishermen that had their permit application denied.

The owner of the 150-foot vessel AJ was denied a permit. He appealed and the Review Panel recommended denial of a permit. NMFS refused to issue the permit. This fisherman had fished with another boat the 75-foot Ronnie C for many years. He then purchased the AJ to fish for pacific whiting and to be used in Alaska. Before the permits were issued, the Ronnie C sank. The sinking did not effect the qualification of the Ronnie C for a permit; the

owner of the Ronnie C received a 75-foot permit when the permits were issued. The owner wanted to receive a larger 150-foot permit.

Because of the provision allowing fishermen to combine permits to be used on larger boats, a market has developed for permits. This was driven by factory trawlers wishing to participate in the Pacific whiting fishery. A point system was established to calculate the relative value of the length of each permit. Larger permits had greater point values. A 75-foot vessel qualified for approximately 30 points, while a 150-foot vessel qualified for approximately 150 points. The peak of the market was a little over \$7,000 per point. For the owner of the Ronnie C the difference in receiving a 75-foot permit and a 150-foot permit was the difference between

\$210,000 and \$1,050,000.

This fisherman and his family embarked upon a campaign to acquire the larger permit. They visited the officials in NMFS, NOAA, and the Commerce Department. After intervention by a U.S. Senator, the Commerce Department reversed its decision. A permit was issued for the larger size in 1995.⁴ Within one year, the AJ and its permit were both sold to an offshore whiting interest.

This involvement by one Senator increased the fishing capacity of the groundfish fleet by the equivalent of seven average vessels.

Pink Shrimp

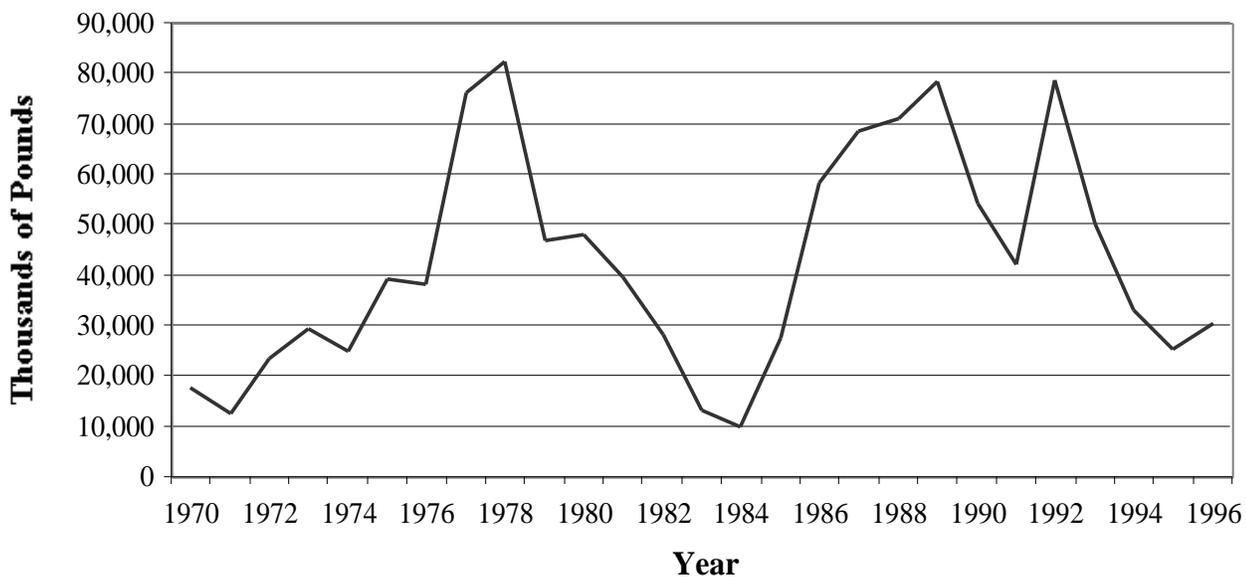
The pink shrimp fishery is managed by the states of Washington, Oregon and California. Much of the growth in fishing vessels, which occurred on the Pacific coast, occurred in the shrimp fishery. In the mid-1970s, the

development of machinery to cook and peel pink shrimp sparked growth in this fishery. Through the late 1970s and early 1980s, the Fishing Vessel Obligation Guarantee program, Capital Construction Fund, and Investment Tax Credit played a roll in the financing of many new vessels in this fishery. During the El Niño event of 1982-1983, the majority of vessels in the shrimp fishery entered the groundfish fishery for the first time. This shift from shrimp to groundfish contributed significantly to the over-capitalization problem in the groundfish fishery.

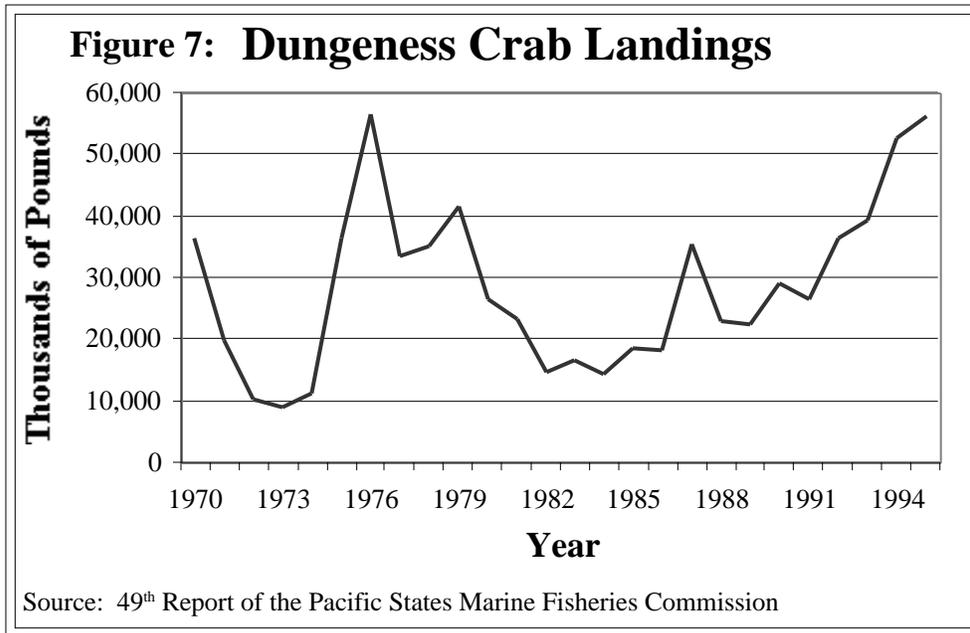
Dungeness Crab

The Dungeness crab fishery, like shrimp, is a state-managed fishery. The crab fishery may have been over-capitalized for many years, but as other fisheries on the West Coast began to move toward limited entry systems, there also was a rush to also enter the crab fishery. Problems with the crab fishery increased

Figure 6: Pacific Region Pink Shrimp Landings



Source: 49th Report of the Pacific States Marine Fisheries Commission.



pelagic species management plan governing p a c i f i c mackerel, Jack mackerel, P a c i f i c sardine, and n o r t h e r n anchovies. This fishery management plan contained provisions for t h e implementation of a limited entry program,

when the federal courts ruled that the Washington treaty tribes are entitled to up to 50% of the crab resource on the Washington coast.

Albacore tuna

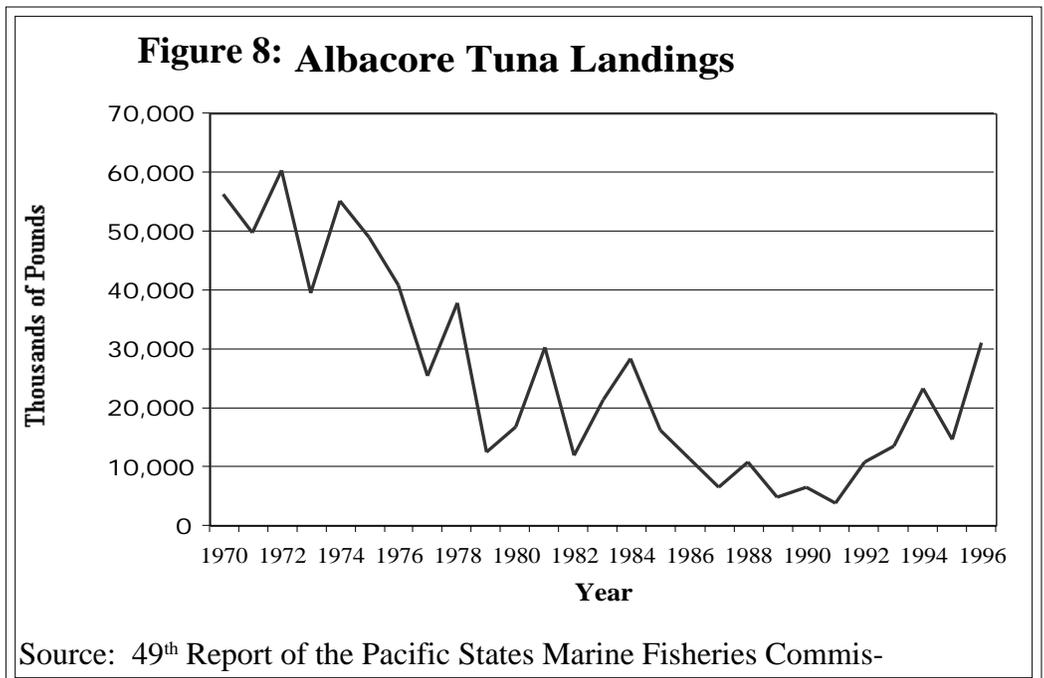
The participation of the United States in the United Nations action to ban high seas drift nets resulted in reduced take of Albacore tuna.

This has allowed the Albacore stock to increase, which has resulted in vessel conversion and new construction to participate in this fishery over the past four years.

Coastal Pelagic

In the early 1990's the PFMC prepared a coastal

which included squid landings for qualification. The fishing industry supported the management plan. The PFMC approved the plan in 1995. However, NMFS disapproved the plan citing cost and lack of need. In 1998 the PFMC is again developing a coastal pelagics plan which contains a limited entry program. The fleet of seine vessels which land



the majority of the fish are those which fish for both fin fish and squid. The number of these vessels jumped from 85 in 1995 to 114 in 1997. This change in fleet size represents a 34% increase.⁵

– Ralph W. Brown
Peter P. Leipzig

North Pacific Region

The North Pacific Fishery Management Council (NPFMC) has primary management for the groundfish fisheries in the 900,000 square mile Exclusive Economic Zone (EEZ) off Alaska. These fisheries are managed under two fishery management plans, one for the Gulf of Alaska and one for the Bering Sea and Aleutian Islands (BSAI). They manage fisheries for cod, pollock, flatfish, mackerel, sablefish, and rockfish species, harvested by trawlers, hook and line longliners, jig and pot fishermen. The NPFMC has three additional fishery management plans; for salmon, scallops and Bering Sea and Aleutian Islands king and Tanner crab, that defer most management decisions to the State of Alaska. The State also has primary jurisdiction over groundfish fisheries within three miles. A sixth major fishery, for Pacific halibut, is managed jointly by the Council and the U.S. - Canada International Pacific Halibut Commission (IPHC). The NPFMC makes allocative and limited entry decisions for the halibut fishery, but the IPHC is responsible for biological decisions that ensure conservation of the resource. None of the species under the Council's jurisdiction is considered "overfished" as of the latest NMFS report on overfishing for September, 1998. With ongoing revisions of overfishing definitions, C. Bairdi Tanner crab in the BSAI likely will be deemed overfished in 1999, and the Council has already

begun developing a rebuilding plan for the species in cooperation with the State of Alaska.

The groundfish fishery off Alaska has become an important segment of the U.S. fishing industry. With a total catch in 1996 (the last year for which full data are available) of 2.05 million metric tons (mt), and a retained catch of 1.77 million mt and ex-vessel value of \$538 million, it accounted for 40.8% of the catch and 15.6% of the ex-vessel value of the catch off U.S. shores. The value of the 1996 catch after primary processing was estimated at \$1.23 billion. An additional \$641 million in ex-vessel value in 1996 was contributed by Alaska's fisheries for shellfish (\$175.2 million), salmon (\$346.5 million), herring (\$44.8 million), and halibut (\$74.2 million). All-in-all, Alaska accounts for over half the fisheries harvest of the United States.

The total allowable harvest from the groundfish biomass of the BSAI in any year is capped at two million metric tons, and allocation of tonnage within the various groundfish fisheries is subject to this cap. The BSAI pollock fishery typically takes more than half of this tonnage, although catches have been declining somewhat in recent years. Quotas are set annually after stock assessment surveys and stock modeling protocols have been met, and are published in the Stock Assessment and Fisheries Evaluation (SAFE) document for the year. Prohibited species caps, which limit the incidental take of bycatch species taken in fisheries that are not allowed to retain the bycatch (such as salmon, herring and crab species taken in groundfish trawl fisheries) are set by the NPFMC. They result in closure of the directed fisheries that they are allocated to, upon attainment of the cap, even though the quotas for the directed fisheries may not have been met. Bycatch allocation is part of the annual specification process. Some stocks (such as Pacific cod) are fished by several gear

types or delivered to distinct processing sectors. Allocations between these user groups are always contentious, and are typically governed by agreements negotiated between the parties for multiple years and ratified by action of the NPFMC.

Identification of essential fish habitat and its protection; measures taken to protect marine mammals and birds (particularly Stellar Sea Lions, which are listed as endangered in western Alaska and the Aleutian Islands and the Short-tailed Albatross, endangered throughout its range); the requirements of observer programs and measurement and reporting of catch are vital concerns that continue to engage the Council.

The Development of Alaskan Fisheries

Exploitation of the marine resources of Alaska for export and trade began shortly after the survivors of Bering's crew arrived in Kamchatka in August, 1742, with news of Bering Island and its riches of furs. The Kapiton, reached Bering Island in 1743; by 1747 it was joined in voyages to the western Aleutian Islands by at least three other companies. The Rat Islands were reached by 1753, and further expansion of activity was rapid, with many companies forming to undertake expeditions.

By 1781, the consolidation of trading companies had resulted in only five companies remaining; one of these was the American Northeastern Company. In 1783, one partner, G.I. Shelikof, began to build community infrastructure through establishment of permanent trading settlements. The first of these artels was at Three Saints Bay on Kodiak Island. This not only increased the commerce

of the company, it also earned a citation from Empress Catherine II in 1788. The Imperial approval promoted expansion of Shelikof's company, and in 1799 its descendant, the Russian -American Company, was granted a monopoly on trade. In return, the Company was charged with the support of communities, education, care of orphans, aid of the Russian Church, and the expansion of Russian Imperial interests in the territory.

Communities are isolated within the splendid immensity of Alaska. A pattern that has persisted was established at this time. The structures developed to enable resource use by fishing companies enmesh with new infrastructure for the fishing community. The exploitation of fisheries stocks creates geographically localized depletions, which become a series of depletions when new activity is sought to replace the depleted stocks. As infrastructure builds up to support expanded effort, generalized depletion of stocks occurs.⁶ Sustainable fisheries will require community infrastructure which is distinct from outside fishing interests.

During the Russian Imperial government, the take of sea otters exceeded the ability of the resource to regenerate; this led to expansion of effort (under Baranof) into Southeast Alaska, and southward along the mainland West Coast. At the same time, other species (including the fur seal, from rookeries discovered in the Pribilof Islands and the Near Islands) became more important elements in the trade of the settled regions. After the establishment of the monopoly, gains in efficiency led to an increased take of otters for the short term. Shareholders received an annual return of 55%, on average, for the first five years of the company. This was followed by collapse of the resource: a 5% return, on average, prevailed for the following 14 years, and then profits disappeared completely. In 1805, N.P.

Rezanof, on a tour of inspection as Chamberlain to Alexander I, found that sea otter were being "overkilled," and began a policy of conservation for the Pribilof Islands.⁷ Exploitation of the fur seal population in the Pribilofs continued after transfer to America in 1869, under two successive twenty-year American government monopoly concession agreements, until 1910, and then directly under the control of the of the fisheries commission, and its successor, NMFS, until cessation of the commercial harvest in 1983/4.

American whalers were of sufficient competitive presence to defeat the subsidized Russian-Finnish Whaling Company in the mid-1850s. An interesting footnote occurs in the latter epoch of this industry: "By 1911 Norwegian whalers had decimated the Atlantic whale population. They then looked to the North Pacific and Bering Sea, where whales were plentiful. As the Norwegians entered these new grounds, American whalers worried about competition and the record of the Norwegians hunting whales to near extinction. To hide the Norwegian connection, an American firm, with an American name, the Alaska Whaling Company, was established [at Akutan]." In 1913, President Taft created the Aleutian Islands wildlife preserve by Executive Order, and the station operated under appeal, until 1916, when President Wilson formalized its operation. The Akutan station closed due to depleted resources, after 1939.⁸

The development of the halibut, cod and sablefish fisheries began in earnest with distant water fleets primarily operating from Seattle. The halibut schooners built between the 1890s and the 1930s delivered durable iced product into national markets by rail. They survived the era of foreign trawling and lean resources in the 1960s, and many are operating today. The distant water cod fleet of the times operated from large sailing vessels that salted catch, and

collapsed under economic pressures of the 1920s. Due to competition brought by new steel trawlers operating on the Icelandic grounds. The sablefish fishery began on the Pacific coast and in Alaska prior to the large - scale salmon fisheries, because of the quality and durability of the smoked and salted product. However, this excess was soon eclipsed by the development of the salmon cannery system.

Salmon fisheries followed the development of canneries, which in turn resulted from rising demand and depleted runs along the Pacific Coast of the mainland. The first cannery in Alaska was built at Klawock in 1878, followed in the same year by one near Sitka; the first cannery in Cook Inlet in 1882; the first in the Bristol Bay region was built at Kanulik (Nushagak Bay) in 1883 and on Kodiak in 1885, when there were a total of five canneries in the Alaska. By 1890, there were five at the Karluk river on Kodiak alone. In 1896, thirty-five canneries were in operation in Alaska, in 1909, there were forty-five, and 135 by 1918. In 1918, Alaska salmon canneries with boats and equipment, represented an investment of \$63.9 million, and delivered a pack valued at \$51 million. Fish were taken with 552 traps and by fishermen utilizing 838 seines and 4,367 gillnets and trollers. Other salmon (not canned) totalled about \$2.25 million and other fisheries - halibut, herring, cod, whales, clams, crabs, shrimp, and miscellaneous fish totalled \$5.6 million.

"Fishing continued at an accelerated rate, and by the end of the decade depletion was sufficiently evident that it was generally admitted."⁹ The number of canneries throughout the territory declined as localized depletion of runs occurred. In 1923, no canneries operated in the Bristol Bay region, nor in Kodiak - about 40% of the former grounds were closed. The operation of fish

traps was abolished in Bristol Bay in 1923,¹⁰ but the number continued to grow elsewhere, reaching 799 in 1927. Traps were outlawed shortly after Statehood (except one trap, still operated by special permit by the community of Metlakatla), and the systematic rebuilding of depleted salmon runs was initiated.

King crab were canned and sold as early as 1892 by Japanese companies. Japanese floating canneries routinely operated in the Bering Sea and Bristol Bay beginning in the late 1920s, and Russia entered the fisheries here in 1928. Fisheries were primarily conducted with tangle-net gear. WWII interrupted this effort, which did not resume until 1958-59. The Japanese and Russian effort in king crab within the future EEZ began to be limited in 1964, with the Convention of the Continental Shelf, and culminated in the adoption of the Magnuson Act in 1976, which resulted in displacement of all foreign fishing effort in the EEZ. By 1975, total foreign fishing effort in the EEZ had grown to massive proportions; Russian effort in the mid-60s had been sufficient to decimate the Bering Sea yellowfin sole stocks (which have since recovered) and shrimp stocks near the Pribilof Islands, which have not recovered.

Domestic commercial king crab fishing began in 1947, when Lowell Wakefield began to operate the Deep Sea in the Bering Sea, trawling for king crab and freezing picked meat and meat in the shell. In 1949, Pete and Fred Deveau and Robert Resoff began operating a floating cannery to process king crab in the Kodiak area. The king crab fisheries were depleted serially around the State, in SE, Prince William Sound, Cook Inlet and the Aleutians, peaking in Kodiak in 1966, and in the Bering Sea and Aleutians in 1980. In 1966, there were 36 seafood plants processing king crab around Kodiak and in the Aleutians, with another four to six under development; today there are

approximately 13 shoreplants operating in crab and groundfish within the same area. Other shellfish fisheries, including shrimp and Tanner crab, later followed suit. Stock rebuilding efforts have met with limited success in some areas, particularly in Bering Sea king crab, but have not produced results in many others, and the amount of fishing capacity in the remaining fisheries far exceeds the reproductive capabilities of the resources.¹¹

Collapse of the king crab stocks in the Bering Sea left many relatively new vessels looking for employment. Simultaneously, the Pacific Council began to manage widow rockfish. Displaced vessels then spurred the development of domestic groundfish fisheries. Initially, joint ventures of American catcher vessels and foreign processing ships fished yellowfin sole and cod. A small pilot surimi plant, funded by the Alaska Fisheries Development Foundation, ran for two months in the early 1980s at Unalaska. Product was supplied by a locally contracted vessel using purse seine gear. Development of shoreside and domestic offshore trawl fishing and processing effort sufficient to take more than twice the available pollock resource occurred between 1985 and 1995. Most of the shoreside pollock processing capacity was built and is owned by Japanese seafood companies.¹² During one six-month window leading to implementation of the Anti-reflagging Act, sixteen very large groundfish catcher-processors were qualified for entry into the fisheries. Taking advantage of Norwegian lending and shipbuilding programs, and positioning aggressively within evolving management structures, one Norwegian-owned firm, American Seafoods, came to dominate the offshore sector.

After achieving statehood in 1959, Alaska promoted fishery conservation. Legislation abolished fish traps statewide, made pots the

only legal gear for crab, created programs to rebuild salmon stocks, and removed control of fishery resources from the canneries. The cannery system limited the development of local economies, through cannery control of infrastructure. The most cogent response of the new state in this regard was the creation of a limited entry system, which placed fishing privileges with vessel operators who were required to fish, or at least to be physically present during the taking and delivery of fish. This requirement is a feature of all of the limited entry licensed fisheries of the state system, to date.

The federal fisheries management system, through the NPFMC, is only now coming to grips with limited entry, and the responses are varied. The largest fisheries in the United States that operate under Individual Transferable Quotas are the halibut and sablefish longline hook fisheries of this region. These ITQ systems retain the preference found in the State limited entry system for independent, small-scale, owner-operator harvesters. There are caps on the amount of quota an individual may own (1/2 of 1% of the total for halibut and 1% for sablefish) and requirements that most shareholders must be aboard vessels fishing and delivering catch, as well as restrictions on leasing of quota and transfers, designed to limit the degree of consolidation in the fisheries.

Despite these measures, the institution of ITQs in the fisheries proved so unpopular that a nationwide prohibition on the development of new ITQ programs was written into the Sustainable Fisheries Act (SFA). The various fisheries of the BSAI are subject to a moratorium on new entry, and the Secretary of Commerce has promulgated a License Limitation Plan (LLP), which may become implemented in 2000. The NPFMC recently has been working on tightening up the

provisions of this LLP, which is conceived as a step toward "Comprehensive Rationalization," understood by most participants to be a future system of ITQs.

Vessel owners engaged in crab fisheries of the BSAI are working through requirements for implementation of an industry-funded buyback of licenses as authorized in the SFA, in order to reduce some of the excess capacity in the crab fisheries. If successful, approximately 200 vessels will be licensed to participate. Most of the owners of these vessels, own only one vessel, and the fleet is characterized by this small-business aspect. The development of this program is impacted by increased effort which may result from vessels made surplus by an effort limitation measure designed and implemented this summer for the BSAI pollock fishery.

The BSAI pollock industry, in contrast to the crab industry, has relatively few participants, and the number of participants has been strictly limited, by the American Fisheries Act (AFA), Pub.L. 105-277. The provisions of the AFA provide for completion of the vertical integration of this industry from catch through finished product. The NPFMC may limit market share of any entity to 17.5% or less, provided that those with market shares in excess of such a cap, will be allowed to continue at current levels. The AFA provides for development of cooperatives involving catcher boats under the control of the shoreside processors, and co-ops under differing terms for each of the other defined sectors. Co-op agreements will include elements which behave as ITQs, without being subjected to the taxes, fees and restrictions upon the existing ITQ systems. The AFA includes a \$90 million federally-funded buyback of nine factory trawlers; and a \$5 million payment to compensate for the loss of market share resulting from changes in a reduced offshore

allocation. Much of the catch formerly taken by these vessels is reallocated to the shoreside component, and \$75 million is to be repaid by the shoreside industry over a term of 25 years, while twenty million dollars is offered from the U.S. treasury in mitigation of damages created through improper federal implementation of the Anti-reflagging Act.¹³

The limitation on entry of new processors, in particular, is seen as a radical step away from the pattern of preference for independent owner-operator harvesters characteristic of the Alaska region. Many harvesters and processors in other sectors of the industry are fearful that this restructuring of the largest fishery in the region will create spillover effects that will unfairly advantage pollock companies and result in the consolidation of the remainder of the regional seafood industry by the pollock players. The NPFMC is tasked with "to see to it that the Bering Sea benefits are realized, but the benefits do not come at the expense of other fisheries and fishermen."¹⁴ The increased flexibility afforded to pollock catcher vessels by the creation of co-ops leads to increased opportunity for these vessels in other fisheries; increased effort in other fisheries would create benefits at the expense of other fisheries. The resolution of the tensions manifest in the bill and the very short time frame before implementation assure that much of the energy of the NPFMC will be devoted to this program for the foreseeable future.

One of the elements of the American Fisheries Act is an increase in the allocation of pollock to the Community Development Quota (CDQ) programs of western Alaska, from 7.5% to 10%. The CDQ began with efforts to negotiate a division of the pollock allocation between offshore and inshore processors, eight years ago. The program has since grown to encompass allocations from all the FMP fisheries of the BSAI, and became formalized

in the Sustainable Fisheries Act. Fifty-six CDQ Communities are identified from among the communities which border the Bering Sea. Income from allocations, invested according to strict standards, serves to develop the infrastructure of these communities. The CDQ program manifests a recent concerted effort to balance the interests of outside fishing companies with the needs of local communities for infrastructure, and to provide for the long-term sustainability of the fisheries resources of the region.

– Gordon Blue

Western Pacific

Introduction

The American Pacific islands stretch in an expansive arc across the northern tropical Pacific, from the western Micronesian island territories of Guam and the Northern Marianas, to the State of Hawai'i, and south to American Samoa in the center of Polynesia. They include the atolls of Jarvis, Howland, Baker, Palmyra, Johnson, and Wake Islands and Kingman Reef. The Western Pacific Fishery Management Council (WPFMC) is the policy-making organization for the management of fisheries in the EEZ around the islands, a zone of nearly 1.5 million square miles.

Fisheries in the American Pacific Islands

AMERICAN SAMOA

American Samoa is home to an established and productive tuna canning industry. This industry processes the tuna harvest of mostly

foreign fishing vessels. Cannery landings have averaged about 175,000 short tons over the past eight years. Most of these fish were caught in distant water fisheries, mainly in the western tropical Pacific. In recent years, Pago Pago has ranked at or near the top of American ports in total fish landings.

A smaller, local pelagic fishery continues to grow. Prior to 1995, the pelagic fishery was mainly a troll industry, but four vessels began longlining that year and since then, 10 additional vessels have applied for longline permits. The local fishing industry was a fraction of the size of the foreign cannery industry, totaling 500,000 lbs. of pelagic landings, in 1996. Pelagic landings in this fishery have increased by five-fold since 1993, due mainly to the developing longline industry. This fishery employs twin-hulled vessels and targets mainly albacore. The rapid expansion of this industry raises some concern as to whether it will prove to be sustainable.

The local bottomfish industry in American Samoa has advanced and regressed over the past thirty-five years. Several fisheries development programs have influenced this evolution. Boat building projects, low interest boat loans, training in navigation, outboard engine repair, and a variety of fishing techniques have had a large impact on the local industry.

In 1961, the NMFS reported no local commercial or sport fishing vessels active in American Samoa. Competition from inexpensive "by-catch" fish from the foreign fleet hampered development of a local commercial industry. A bottomfish survey and the Oregon Dory Boat construction project in the late sixties and early seventies led to the development of a small, commercial bottomfish industry. These programs were heavily subsidized, but fostered a reasonably

active local bottomfish industry from 1972 to 1978.

In 1978, the South Pacific Commission conducted surveys of deeper fishing grounds and developed a "Samoan" handreel for trolling. In 1981, an American boatbuilder began production of catamaran fishing vessels. These vessels were popular through the early 1980s and led to a successful export program, marketing Samoan fish through Hawai'i. Since 1985, however, few of these fishers remained active.

GUAM

Guam has fostered and enjoyed substantial development of its fisheries and supporting industries since the mid-1980s. Pelagic fisheries, including purse-seine, longline, and troll vessels have all expanded. Bottomfish landings have fluctuated widely over this period, but have shown steady increases since 1993. In addition, Guam has developed productive "port-of-call" industries, including transshipment of fish, and vessel supply and repair industries.

Pelagic fisheries in Guam include both distant-water and local fisheries. Distant-water purse-seiners and longliners fish primarily outside of Guam's exclusive economic zone, but land their catch and transship through Guam. Smaller, local, trolling vessels fish closer to shore, within Guam's exclusive economic zone and the adjacent exclusive zone of the Northern Mariana Islands.

The mostly foreign distant-water purse-seine fishery has been very productive in recent years. During 1994 and 1995, an estimated 44,000 metric tons of containerized fish, with an ex-vessel value of approximately \$35.2 million, was transshipped through Guam.

Foreign longline vessels have also been very active. In 1996, 421 longliners made 1,253 port calls in Guam and transshipped 9,460 tons of fish. These consisted mainly of yellowfin and bigeye tuna, but also included marlin, albacore tuna and swordfish. A significant portion of these fish were shipped fresh by air to the Japanese market.

The local troll fishery has shown steady growth, increasing from 119 vessels in 1980 to 482 in 1996. Estimated landings vary widely from year to year among the five major pelagic species, mahimahi, skipjack and yellowfin tuna, wahoo and blue marlin. Since 1985, mahimahi has supplanted tuna as the predominant target species in Guam's troll fishery. In 1996 the estimated total pelagic landings by the local fleet was 866,000 lbs.

Bottomfish landings on Guam increased substantially during the period 1992-1996. Total landings have risen from approximately 50,000 lbs. in 1992, to nearly 138,000 lbs. in 1996.

Most importantly, Guam has developed successful fisheries distribution and support industries. Guam's location between productive Pacific fishing grounds and major Asian markets for fish products have allowed it to become a regional transshipment center. Its good port facilities, competitively-priced fuel supplies and commercial development have resulted in profitable fishing vessel supply and repair industries. It is estimated that the distant-water purse-seine and longline fishing fleets, together made nearly 2000 port calls and spent \$144 million on goods and services in Guam in 1995. The Government of Guam is expanding the port at Apra Harbor and encouraging bait production businesses in the hopes of attracting more fishing vessels.

COMMONWEALTH OF THE NORTHERN MARIANA ISLANDS

American armed forces invaded the Northern Mariana Islands and liberated them from Japan during World War II. Prior to the war, the Japanese maintained a substantial fishery in the islands. One hundred eighty-three vessels fished out of Saipan alone in 1940. Large installations for handling the catch and maintaining the fleet supported these vessels. After the war, the United States governed the archipelago pursuant to a United Nations Trusteeship Agreement. Immediately after the war, while a large contingent of U.S. military forces occupied the islands, an active pole-and-line fishing fleet of approximately 50 vessels supplied fish for military personnel and the local population.

After the U.S. military left the islands in the sixties, local commercial fisheries virtually disappeared for want of a market. Japanese vessels continued to fish in the waters surrounding the Northern Mariana Islands, but little is known of the catch and effort of those vessels.

Enactment of the Fishery Conservation and Management Act of 1976 had little, if any, discernible effect on the local industry. Exclusion of tuna and other "highly migratory species" from management jurisdiction under the Act meant that the new law did nothing to protect local stocks of pelagic fish or, for that matter, to protect local fishermen. Indeed, the Magnuson Act initially had a negative effect on local fisheries development. In 1979, the National Marine Fisheries Service (NMFS) boarded the F/V Olwol, a locally-owned and registered skipjack tuna vessel of Japanese manufacture. This vessel was chartered to a local, non-profit fishing company by the government to promote local fishing. Because the vessel was of foreign manufacture,

however, the NMFS deemed her to violate the Magnuson Act. The local fishermen were sent ashore and prevented from using the Olwol in their traditional waters. Although the case was litigated and the vessel eventually awarded a U.S. license by Presidential Proclamation, the Olwol incident discouraged fisheries development.

The Commonwealth currently has an active, local small-craft pelagic trolling fishery. One hundred one full-time fishing vessels, 62 part-time vessels, and nine full-time charter vessels landed 224,963 pounds of fish in 1996. This represents an increase of about 40% over the previous year. The number of vessels had remained relatively steady during the period 1988-1991 at about 75 full-time vessels. In 1992, however, the number increased dramatically to 105 vessels. Repeal of the Magnuson Act exclusion of tunas and other “highly migratory species” may have contributed to this increase. Some of the increase was no doubt due to increasing economic prosperity in the Commonwealth.

The Commonwealth is also home to a small-scale, but developing bottomfish fishery. Most vessels are of small size (less than 25’), fish in shallow-water (less than 500’), and are partly engaged in subsistence fishing. These vessels usually operate without fathometers or navigational equipment. Three larger vessels (35’-50’) have entered the fishery in recent years and engage in deep-water commercial fishing.

The number of bottomfish vessels declined during the early 1980s, and then stabilized at about 30 vessels from 1988 to 1995. Two larger vessels entered the fishery in 1994 and the total number of vessels more than doubled in 1996. Landings have increased since 1992 and the number of recorded trips has more than doubled since 1993. The population of the

Northern Marianas has more than doubled since 1980 and the tourism industry has become very successful in recent years. The increased level of fishing activity has been in large part necessary to satisfy increased local demand.

For a period in the late 1980s and early 1990s, the Northern Mariana Islands hosted a thriving transshipment industry. In 1993, for example, the ports of Saipan and Tinian together ranked fourth among the most valuable U.S. fishing ports, with some \$97 million of fish landed. The recent troubles of the Zuanich Group’s purse-seine operations in the area has substantially reduced this volume.

Fishery Management Plans

In February 1983, the Crustacean Fishery Management Plan was implemented. Species targeted by the crustacean fishery are spiny and slipper lobsters, primarily in the NWHI. Highlights of the FMP in current form include:

- Require federal permit, maintenance of logbooks, and vessel and gear identification;
- Close areas known to be frequented by Hawaiian monk seals;
- Require reporting by shoreside processor;
- Limited entry system;
- Observer coverage;
- Reconfigure traps to prevent drowning of monk seals and to provide escape by undersized lobsters;
- Require notification by participants 24 hours prior to arrival in port so that the

catch can be inspected prior to any off-loading activity;

- Define over-fishing in terms of spawning potential ratio (SPR) values;
- Establish a closed season (January 1st to June 30th);
- Impose a fleetwide annual quota, varying from year to year, and based upon logbook data and an annual scientific cruise;
- Emergency closure of the fishery in 1991 due to low CPUE values (subsequent scientific inquiry determined that the low CPUE values were attributable to climactic changes and did not indicate over-harvesting); and
- Establish a “retain all” fishery to reduce mortality of discarded undersized lobsters.

Presently, there are 15 permitted vessels in the lobster fishery. In 1997, of the 15 permitted vessels, nine made a single trip averaging 20 fishing days per vessel before the annual quota was reached and the fishing season terminated.

In September of 1983, the Precious Coral Fishery Management Plan was implemented. Black, pink and gold coral are the primary targets of the fishery. Highlights of the FMP include:

- Classify fishing areas as “established”, “conditional”, “exploratory” and “refuge”;
- Require federal permit and the maintenance of logbooks;
- Establish bi-annual quota in the established beds.
- Encourage selective harvesting methods,

over non-selective methods, such as tangle net dredging; and

- Require an Experimental Fishing Permit (EFP) to harvest coral in exploratory areas.

At present, there is little or no harvesting of precious corals, ostensibly due to a glut of corals in the world market.

In February of 1987, the Pelagic Fisheries Fishery Management Plan was implemented. Highlights of the FMP in current form include:

- Prohibit foreign gill netting and domestic gill netting (except for experimental fishing, after a permit has been obtained);
- Require log books and data reporting by, and observer coverage of foreign longliners;
- Define overfishing by establishing SPR values to the various pelagic species;
- Require domestic longliners and transshipment vessels to obtain a federal permit, maintain logbooks, identify/mark their gear and observer coverage;
- Establish closed areas where Hawaiian monk seals are known to frequent;
- Mandatory vessel monitoring system;
- Area closures near areas frequented by smaller vessels, which are primarily engaged in recreational fishing;
- Moratorium on further entry to the longline fishery; and
- Limited entry system.

In the mid-to-late 1980s, Hawai'i

experienced an unprecedented influx of fishing vessels entering the pelagic longline fishery. The fishery went from about 15 basket-and-line small boats to 164 larger vessels, each equipped with hydraulic reels loaded with 30 miles of monofilament per reel, before a moratorium on further entry into the fishery was imposed. Substantial numbers of vessels in this fishery came from the Atlantic and Gulf coasts. In 1996, 103 vessels operated in the fishery and landed more than 30 million lbs. of pelagic fish. The latent capacity in this fleet is formidable.

In Guam during 1996, 421 foreign longliners made 1,253 port calls and transshipped nearly 19 million lbs. of fish, mostly tunas. In the same year, the domestic troll fleet of 482 boats landed 865,967 lbs. of pelagic fish.

In August of 1987, the Bottomfish and Seamount Groundfish FMP was implemented. In Hawai'i, the bottom-fishing grounds are divided into three management zones, i.e. the Main Hawaiian Islands (MHI), the Mau Zone (between the MHI and the Hoomalu Zone), and the Hoomalu Zone (furthest from the MHI). The primary target species of the NWHI bottomfish fishery are high priced, deep-water snappers and groupers. Highlights of the FMP include:

- Require federal license with reporting of catch and effort;
- Limited entry system in the Hoomalu Zone;
- Define overfishing based upon an SPR value of 20%;
- Close areas and corridors that are known to be frequented by the Hawaiian monk seal;

- Observer coverage on vessels; and
- Ban the use of bottom trawl gear and gill nets.

Based upon 1996 data, total landings of bottomfish in Hawai'i was about 747,000 lbs. (MHI - 421,000 lbs., Mau Zone - 135,000 lbs., and Hoomalu Zone - 176,000 lbs.). The Hoomalu Zone landings were accomplished by three vessels.

In Guam, bottomfish landings, which in 1980 were 37,400 lbs. landed by 24 boats, increased by 1996 to 137,000 lbs. landed by 400 boats. Although commercial landings generally decreased during this time period, the fishery experienced a substantial increase in recreational and subsistence-type boat participation.

The U.S. South Pacific Purse-seine Fishery

Foreign fishing fleets from many nations pursue pelagic species, especially tunas and billfish, in the central and western Pacific. Fleets come to these waters from the United States, Japan, China, Taiwan, Korea, the Philippines, Australia, and New Zealand. The fleets operate on the high seas and within the exclusive economic zones of most Pacific island nations and of a variety of territorial insular areas. They employ purse seine, longline, troll, and pole and line gear to harvest many different species. The fisheries in the region are very productive, with the tuna fishery alone estimated to gross \$1.6 billion annually. The region supplies half the world's canned tuna.

THE AMERICAN PURSE-SEINE FLEET

The United States purse-seine fleet is prominent in the region. Until recently, it was the largest purse-seine fleet, with 46 vessels out of 150 purse seine vessels licensed to fish in the region. The U.S. vessels are licensed under the U.S./South Pacific Tuna Treaty to fish in the largest area of any fleet operating in the region, some 10 million square miles. For the most part, this fleet does not fish in the exclusive economic zones surrounding the American Pacific islands.

The U.S. purse-seine fleet in the central and western Pacific developed shortly after enactment of the Magnuson Fisheries Conservation and Management Act. Development of this fishery was supported by a variety of federal policies and programs. Saltonstall-Kennedy grants helped fund exploratory fishing in the region beginning in 1976. When ample stocks of tuna were identified, the purse-seine fleet entered the region. With assistance from the Fisheries Obligation Guarantee program (FOG), the fleet expanded rapidly in the early 1980s. Sixty vessels operated in the area by 1984. This "increase was due to abundant tuna resources in the area and to the adverse effects of El Nino on tuna in the eastern tropical Pacific and continuing problems of access to traditional fishing grounds in that region." Initially, the fleet fished without licenses, asserting – as did the United States at the time -- that tunas and other highly migratory species were exempt from unilateral coastal state jurisdiction. Problems with access soon developed, however, and island nations in the region arrested several U.S. vessels.

THE SOUTH PACIFIC TUNA TREATY

In 1987, the access problems of the purse-seine fleet were resolved by the South Pacific

Tuna Treaty between the United States and the member nations of the South Pacific Forum Fisheries Agency. The Treaty was extended in 1991 to provide access for up to fifty-five American purse-seine vessels to the vast treaty area in exchange for \$4 million in annual vessel licensing fees and \$14 million in annual economic development assistance to the Forum states. (A further extension announced earlier this year reduces the authorized vessels to 50 over the next five years).

These purse-seiners target skipjack and yellowfin tunas. These species, especially skipjack, are not thought to be currently over-exploited, and the fleet is not thought to have excess capacity. The recent collapse of the Zuanich purse-seine fleet, however, indicates that some attention should be paid to whether the fleet is overcapitalized.

COLLAPSE OF THE ZUANICH TUNA FLEET

For some years the "Z" fleet, owned and operated by the Zuanich family of San Pedro, California, was one of the largest components of the U.S. South Pacific purse-seine tuna fishery. During the early 1990's the "Z" fleet included at least 12 superseiners and a freezer facility on Tinian Island in the Northern Marianas. In its heyday, "Z" was a high-line producer, estimated to have landed as many as 82,000 tons annually.

During 1995 and 1996, low tuna prices and over expansion caused grave financial difficulties. The firm invested in a cannery project in Papua New Guinea that proved unsuccessful. Eventually, 11 of the 12 vessels were subject to foreclosure or judicial seizure. Mortgages on six of the 11 insolvent vessels had been guaranteed by the federal government under the National Marine Fisheries Service's Fisheries Obligation Guarantee program. The

loan guarantees totaled approximately \$21 million. Auction of the vessels realized some \$26.2 million. It appears that the collapse of the “Z” fleet will not result in the loss of mortgage principal under the federal loan guarantee.

The “Z” fleet difficulties have, however, contributed to a reduction in capacity of the U.S. purse-seine tuna fleet. Sale of the 11 “Z” vessels resulted in the majority, seven of the eleven, retiring from the South Pacific treaty tuna seine fishery. At present, only 38 American vessels, out of 50 authorized licenses, operate under the access provisions of the treaty. Although the fishery has benefited from substantial assistance from a variety of federal programs, it appears to be operating successfully at a sustainable level.

Other Federal Acts, Regulations and Programs

Examples of other federal actions having potential effects on participation and capacity in Western and South Pacific fisheries are:

- Marine Mammal Protection Act (MMPA);
- Endangered Species Act (ESA);
- NOAA Whale Sanctuary Program;
- Hazard Analysis Critical Control Point (regulations promulgated by the Food and Drug Administration);
- Vessel buy-back programs when vessels are allowed to be re-fitted and enter other fisheries;
- Inclusion of tuna in the MFCMA; and

- Pacific Insular Areas Fishing Agreements, which allow the various Pacific island states to negotiate access fees and retain some of the proceeds for their fisheries programs, subject to federal oversight.

– Don Woodworth
Ed Ebisui

Gulf of Mexico

Harvest of fisheries in Florida by European settlers began in the late 1500s.¹⁵ Offshore shrimping, the Gulf of Mexico’s most valuable fishery, began in Fernandina Beach, Florida in the early 1900s. The first annual landing statistics for the Gulf of Mexico were compiled in 1890 by the U.S. Department of the Interior.¹⁶ A fishery for menhaden has existed in the northern Gulf of Mexico since the late 1800s.¹⁷ Red snapper, grouper and other reef fishes have been harvested commercially for well over 100 years in the Gulf of Mexico. Other major fisheries include blue crab, oysters, tuna, shark and a multitude of other species that are dependent on the estuaries for sustainability.

World War II greatly impacted the fishing industry. “In 1930, the Gulf of Mexico accounted for only 4% of the total US catch but after the war and with further development of the shrimp and menhaden fisheries, the harvest reached 41% of the US total by 1971. Recreational fishermen were catching 300 million pounds of fish in 1970”.¹⁸

Several major shrimp resources were discovered in the 1950s. This coincided with a major increase in the construction of offshore shrimping vessels in the Gulf of Mexico and

Table 1. Harvest levels and value of all species landed by the Gulf states over time.

State	1976 Catch (000's)	1976 Value (000's)	1996 Catch (000's)	1996 Value (000's)	1976 real \$s
Florida (West Coast)	110, 000	69, 449	81, 799	138, 785	235, 432
Alabama	31, 849	33, 631	26, 579	38, 342	114, 009
Mississippi	288, 160	21, 008	160, 283	32, 782	71, 217
Louisiana	1, 218, 000	135, 188	1, 130, 639	267, 286	458, 287
Texas	93, 487	127, 156	94, 674	198, 876	431, 059

Source: Fisheries of the United States, U.S. Department of Commerce, NMFS

the expansion of the distant water shrimp fleet.¹⁹ By 1965, there were over 500 U.S. shrimp vessels fishing in South America, Central America, Trinidad and the Barbados. It has been estimated that 1,400 U.S. shrimp vessels were fishing off Mexico by 1976; and were phased out over a multi-year arrangement between the United States and Mexico.

There were active distant water snapper/grouper fisheries, which are part of the reef fish assemblages, as well as a spiny lobster distant water fishery in 1976. All these vessels had to return to Gulf ports as a result of other nations extending their fisheries jurisdiction out to 200 miles.

Since the enactment of FCMA in 1976, and the implementation of other harvesting

restrictions, there has been a decrease in landings of 247,522,000 pounds through 1996 while the total value has increased to \$289,639,000.²⁰ In 1976 dollars, the value would be \$ 1,310,004,000.²¹

The perception that commercial fisheries in all regions of the country increased their harvest is incorrect. In the Gulf of Mexico, there had been no large foreign fishing presence, and many in the fishing industry did not favor the new law. Part of the decline in landings can be attributed to net ban legislation in Texas.²² In addition, the voters in Florida in 1997 approved a state constitutional amendment that banned all gillnets and reduced the size of other type nets that can be used.²³

Most other declines in landings have come as a result of quota management contained in the Fishery Management Plans of the Gulf of Mexico Fishery Management Council or regulations by NMFS in the Highly Migratory Species Management regime.²⁴ The initial setting of total allowable catch (TAC) marked the beginning of the downward spiral in landings for many Gulf of Mexico commercial fisheries. Many fishermen

Table 2

Year	# Vessels	Metric tons landed	# of Reduction Plants
1966	92	381	14
1984	81	983	11
1997	47	611	5

believed that historical catches didn't appear to be fully considered when making the original stock assessments. Fish landings and trends from the 1960s, 1970s and early 1980s, did not seem to be considered in the base information on harvest levels. By 1985, Florida's landings were reduced to 181,000,000 pounds, from a high of 215,000,000 pounds in 1981. Little did the Florida commercial fishing industry realize there would be an additional 50% reduction between 1985 and 1998; most of which occurred as a result of the Florida net ban.

The Menhaden Industry²⁵

Aside from fisheries regulations, according to a menhaden industry leader, "Laws governing age of workers allowed on vessels, welfare program and publicly-funded trade schools have shifted traditional seafaring labor toward land-based employment."²⁶

There are only four species of fish that have been identified by NMFS as overfished in the Gulf of Mexico. Most of the commercial fishing survivors ask one simple question: Are any additional government restrictions necessary in federal waters?

– Robert P. Jones

South Atlantic Region

The Region

The South Atlantic area includes waters from the North Carolina, Virginia border to the east coast of Florida and east and south in the waters of the Atlantic and Florida Straits, along the Florida Keys out to Ft. Jefferson on the Dry Tortugas. The region is defined by the biogeographic areas between the Outer Banks and Cape Canaveral and the tropical region to the south. The region has a great diversity of species. Most are part of assemblages where no one species accounts for large yields. The term "boutique fisheries" has been used to describe their low yield/high value nature. The major assemblages include penaeid shrimp, reef fish (snapper/grouper species) and coastal pelagic species. There are significant commercial and recreational fisheries in the south Atlantic which often compete for allocation in state and federal waters.

Based on the NMFS statistics, commercial fishermen harvested over 250 million pounds of seafood in each of the last two years, 1995 and 1996 (Table 3). Those landings represented over \$200 million in ex-vessel value in each year. During 1973, NMFS reported that 240 million pounds of fish and shellfish were landed regionally, exclusive of Monroe County, Florida. The top landings (in pounds) in 1973 were from menhaden (85 million), blue crab (32 million), shrimp (24 million) and catfish (16 million) (NMFS, annual). Inshore and nearshore fisheries have always been a significant component of regional landings.

EEZ Fisheries

Fishermen in the south Atlantic region usually target several species and may use a

variety of gear types during the annual fishing cycle. These could range from hook-and-line gears, different nets, and traps or pots. This multispecies and multigear activity is illustrated by the more than 2,600 pelagic fishermen who also held snapper-grouper permits during 1996. Also, about 1,600 fishermen held snapper-grouper, mackerel, and shark permits at the same time.

Information on the level of participation in the commercial fisheries in the South Atlantic region is largely based on permits. However, logbooks and surveys are being analyzed in certain fisheries to better determine effort, latent effort, tenure and profitability. Federal permits are issued for the shark, swordfish, rock shrimp, snapper grouper, coastal pelagics, spiny lobster, golden crab and the charter boat fisheries. Vondruska (1997) indicates that over 2,090 permits were issued in 1996 to vessels with home ports in the south Atlantic region. Approximately 1,400 vessels held commercial mackerel (coastal pelagics) permits. About 1,245 vessels held commercial snapper-grouper permits, while 709 vessels held charter

boat permits (coastal pelagics and/or snapper-grouper). It is instructive to note that most of these vessels held multiple permits. A total of 199 vessels held rock shrimp permits of which 77 were registered with home ports in the South Atlantic region. There were 35 vessels with golden crab permits in 1996.

A caveat, regarding permit information, is that although a vessel may have a permit, it does not mean the vessel ever participated in that fishery. Permit qualification, based on reported fishing income, is not specific to any managed species. Analysis of landings data, during development of Snapper-Grouper Amendment 8, showed that the majority of snapper-grouper permit holders did not report substantial landings and some reported no landings. During public hearings, fishermen in the Florida Keys indicated that they held permits as a sort of “insurance” to use when other fisheries become less profitable. A study of Gulf of Mexico federal reef fish permit holders compared 2,291 permitted vessels (Vondruska, 1998) with landings from 243 high volume and 684 low volume producers.

Table 3. U.S. Domestic Commercial Fish Landings

Region	1995 Landings		1996 Landings	
	1, 000 lbs.	\$1, 000	1, 000 lbs.	\$1, 000
New England	592, 665	580, 957	641, 821	564, 169
Mid-Atlantic	240, 413	179, 747	241, 936	181, 869
Chesapeake	845, 632	174, 229	728, 830	158, 736
South Atlantic	277, 035	238, 112	268, 990	209, 407
Gulf of Mexico	1, 464, 718	724, 619	1, 496, 875	680, 304

Source: NMFS.

A detailed analysis of king mackerel landings, using the Florida trip ticket system was performed between 1991 and 1995. An average of 1,661 license holders reported landings on a statewide basis. This compares with 1,614 federal permits held in Florida. The numbers are surprisingly comparable because the Florida license allows either a vessel or an individual license designee, whereas the federal permit is tied to the vessel. Levels of participation, derived from reported trips and landings vary considerably. For example, an average of 127 license holders reported less than ten pounds during the year, 760 license holders reported less than 100 pounds landed, 1,125 license holders reported less than 1,000 pounds and 1,269 license holders reported less than 5,000 pounds. The majority of production came from the 30 to 35 licenses reporting from 10,000 to over 100,000 pounds in annual landings (O'Hop, 1996).

Historical Landings and Value

Figure 1 provides historical landings of coastal pelagic and snapper-grouper species. The Figure also combines the ex-vessel value of the landings; the dollar values are equivalent to real 1990 values. Coastal pelagic species include bluefish, bonito, cobia, dolphin fish, king and cero mackerel, and Spanish mackerel. Snapper-grouper species include all species in the snapper-grouper complex. Landings of coastal pelagic species peaked in 1980 at around 22 million pounds. The majority of fish were Spanish mackerel; significant declines in landings occurred after 1984 with the advent of quota management. Since then, landings have fluctuated between 10 million pounds and 19 million pounds. The highest landings of snapper-grouper species (13.7 million pounds) were reported in 1990. No clear trend is apparent in this data. However, landings of snapper-grouper species in the south Atlantic

region seem to have been between 7.0 and 10.0 million pounds in the last six years. Total landings (coastal pelagics and snapper-grouper species) in the south Atlantic region peaked in the early 1980s, at just under 29 million pounds.

Management Regimes including Open Access, Limited Entry and Individual Transferable Quotas

The NMFS report to Congress on the status of the fisheries of the United States lists 15 fish species in the south Atlantic region as overfished, five species as not overfished and 65 species with status unknown. Fishery management plans are under implementation for the following fisheries: shrimp, red drum, snapper-grouper, coastal migratory pelagics (mackerels), golden crab, spiny lobster and coral, coral reefs, and live/hard bottom habitat. The FMPs and amendments provide information on management measures currently under implementation. A recently approved amendment to the snapper-grouper FMP will establish a limited entry system for the fishery. A permit moratorium is already in place for the coastal migratory pelagics fishery. The golden crab fishery is a limited access fishery. There is total prohibition on the harvest of corals and live rock.

NMFS Financial Programs in the Southeast

The Task Force has heard testimony that certain federal programs have influenced competition in fisheries and include: production credit and small business loans, the investment tax credit, and the NMFS Fishing Vessel Obligation Guarantee (FOG) and Capital Construction Fund (CCF) programs. However, aside from the Tettey, *et al.* paper

(1986), the Task Force is unaware of any formal analysis of the effects of such programs on income or capacity. The Task Force received FOG program information during the September 1998 meeting, which indicated that \$5.1 million has been obligated to vessels listing the south Atlantic as the primary fishing

area. Southeastern states (including the Gulf of Mexico) accounted for \$98 million of the \$594 million attributable to states; the majority financed shrimp boat construction and renovation. The loans occurred between 1973 and 1986 and the vessels averaged 67 feet in length, ranging between 40 and 110 feet. The

Figure 9:

average gross tonnage was 83.

Management Plans and Case Studies

The Task Force considered a few case studies from the South Atlantic to highlight some of the issues in the region as they relate to capacity and capitalization. The first case study, wreckfish, was commercially exploited only recently. The participants in the fishery and the South Atlantic Fishery Management Council (SAFMC) worked together in an attempt to resolve conservation and economic concerns and a quota system, combined with limited entry, resulted. In contrast, the pelagic fishery, largely defined by king and Spanish mackerel provides the second case study. These species have been exploited commercially in Florida since 1822, and bone fragments have been uncovered from pre-contact native sites. A substantial commercial and recreational fishery predates M-SFCMA and was the basis of early allocation conflicts both between recreational and commercial fishermen and between commercial user groups.

THE WRECKFISH FISHERY

Wreckfish (*Polyprion americanus*) is a species within the snapper-grouper complex in the south Atlantic region. Since the 1992-93 fishing season, the fishery has operated under a system of individual transferable quotas (ITQs). This provides shareholders with an allocation of total allowable catch (TAC) and established a catch reporting system with coupons and logbooks (SAFMC 1991). Under ITQ systems, timing of trips and fishing activity by shareholders may differ from patterns observed during open access, since the incentive of a derby fishery has been removed.

Shareholders may exercise their interests in the fishery at any time during the season; they may sell or trade seasonal total allowable catch (TAC) coupons or long-term shares in the fishery.

Fleet size has declined under the ITQ program. Forty-nine individuals were granted shares in the wreckfish fishery at the inception of the ITQ program in 1992. The shares are represented by a coupon system. Consolidation of shares began immediately. The number of shareholders declined to 37 by August 15, 1992, to 31 by June 17, 1993, and to 26 by May 26, 1994. Currently, there are 25 shareholders in the fishery, of which seven actively landed wreckfish during the 1997-98 season. No shares have been bought or sold since February 1995. The number of vessels that reported landing wreckfish was 38 in 1991, 20 in 1992, 19 in 1993, 17 in 1994, 13 in 1995, 9 in 1996, and 7 in 1997 (Table 4). Anecdotal information suggests that some of the vessels that previously harvested wreckfish are now involved in other fisheries in the Gulf and other regions.

A study by Brod and Shobe (1996) looked at the demand for ITQs and investigated the reasons for shareholders not utilizing their quotas. The authors evaluated the possibilities that wreckfish shareholders are withholding their ITQs in order to improve a depleted stock; and that a combination of fixed costs and opportunities in other fisheries have created an excess supply of ITQs. They concluded that the first explanation is inconsistent with the observed facts of the wreckfish fishery but that the second provides some explanation. Their conclusion also provides some discussion on the implications for ITQ management.

From April 16, 1997, through January 15, 1998, the coupon system shows 55 trips and landings of 248,084 pounds whole weight by

seven individual vessels. Commercial wreckfish landings (in whole weight) by fishing year are presented in Table 4. Effort has been trending down in recent years: from 308 trips in 1991, gradually decreasing to 55 trips in 1998. The average trip lasted 7.1 days during the 1997-98 fishing year. Fishermen indicated that the reduced effort and total landings are due, in part, to unusual weather patterns and increased participation in other fisheries by permitted vessels (Mackness and Polston 1998, personal communication).

Mean catch per trip in 1997-98 was 4,511 pounds compared to the previous six fishing years which averaged 4,178 pounds per trip in 1996-97, 4,607 pounds per trip in 1995-96, 5,986 pounds per trip in 1994-95, 5,451 pounds per trip in 1993-94, 5,723 pounds per trip in 1992-93 and 6,254 pounds per trip in 1991-92.

The FAO yearbook of fishery statistics showed total catches of wreckfish reported in the eastern Atlantic was 967 metric tons in 1995, down from 1,133 metric tons in 1994. This was a deviation from the increasing trend in landings reported between 1986 and 1994 (FAO 1995).

SAFMC staff conducted a survey of wreckfish fishermen and results were included in Amendment 3 (Wreckfish) to the Snapper Grouper Fishery Management Plan (SAFMC 1990), and in the 1992 Stock Assessment Panel Report (SAFMC 1992). An economics survey of fishermen was conducted during 1993 (Richardson Associates, 1994).

A brief analysis of logbook data indicated that annual catches of wreckfish for the 1992-1997 seasons were highly correlated with total number of wreckfish trips and that recent decreases in industry catches are the result of reductions in trips. Hardy (1998) indicates that

the average price reported paid to fishermen for wreckfish in the 1997-1998 season was \$2.17 per pound (gutted weight). This represents a 3% increase from the \$2.11 of the previous season and an almost 11% increase above the \$1.95 average for the 1995-96 season. Ex-vessel prices have increased over time in response to generally declining landings. An inverse relationship between average monthly ex-vessel prices and monthly landings was estimated, and suggested the ex-vessel demand for wreckfish was price elastic.

The activities of 91 vessels that held wreckfish permits in 1991 were tracked through three logbook programs to determine whether these vessels have been involved in other fisheries. Table 5 provides a breakdown of the number of vessels that were tracked and the fisheries they participated in.

Results indicate that fishermen are continuing to adapt to operating under an ITQ system, as evidenced by the absence of a derby fishery and consolidation of shares. Biological studies by National Marine Fisheries Service, South Carolina Department of Natural Resources, and Brazilian and Portuguese scientists are continuing. These studies will provide additional information on stock identity, maturation schedule, fecundity, age/growth, distribution, and other fishery information.

Concern about the effects of harvesting wreckfish in other fisheries on the wreckfish stock on the Blake Plateau has been expressed. For example, the fishery in the Portuguese Atlantic islands (Azores and Madeira) is at least as large as the U.S. fishery. Exploratory fishing for wreckfish and other species is occurring on the Mid-Atlantic Ridge and increased fishing pressure can be expected on the North Atlantic stock in the future.

Table 4. 1988-1997 Wreckfish Season Comparisons.

Season	# of Vessels	# of Trips	Days at Sea	Pounds Landed	Mean Catch Per Trip
1988				617,662	
1989				4,161,965	
1990				1,970,299	
1991	38	308	2164	1,926,088	6,254
1992	20	222	1516	1,270,557	5,723
1993	19	210	1531	1,144,729	5,451
1994	17	201	1602	1,203,265	5,986
1995	13	140	946	644,997	4,607
1996	9	95	762	396,868	4,178
1997	7	55	400	248,084	4,511

Source: Linda Hardy, NMFS, Beaufort Laboratory, North Carolina

THE KING AND SPANISH MACKEREL FISHERY

The management unit for Spanish mackerel extends north to the New York/Connecticut line and south to the Yucatan Peninsula. The king mackerel management unit ranges from the south Atlantic to Brazil. The commercial pelagic fishery in the southeast was for both king and Spanish mackerel and bluefish. The traditional fishery was primarily in Florida and that continues to be true today. The nature of these fish stocks requires that management occur through a joint plan of the South Atlantic and Gulf of Mexico Fishery Management Councils. The Coastal Pelagic Fishery Management Plan can be seen as a prototype effort of the NMFS and the Councils. Two studies provide a comprehensive review of the fishery from 1920 to 1980 (Centaur 1978 and 1981).

The 1960s was a watershed era in commercial fisheries: electronic fish finders, fiberglass hull construction, power reels and

monofilament gill netting came into widespread use. Gill net boats increased in size, and power rollers for the retrieval of larger, deeper gill nets allowed the growth of the large gill net fleet. This same time period saw the use of spotter air planes in order to minimize steaming time. The mackerel fishery had both a recreational and commercial component. The commercial user groups included the three categories shown in Table 4, while the recreational fishery included commercial fishing piers, the for-hire fishery and individual beach and boat anglers.

Landings of Spanish mackerel from the south Atlantic grew with the growth in fleet size, averaging three million pounds for the five years from 1965 to 1969, and six million pounds from 1973 to 1977, culminating in the landings of 9.8 million pounds. During the same period, landings of Spanish mackerel grew to over 8 million pounds in the Gulf of Mexico region. Commercial landings of king mackerel followed a similar trend, averaging

2.5 million pounds from south Atlantic waters during the sixties and growing to a 4.5 million pound fishery during the seventies. Stocks in the south Atlantic and Gulf of Mexico were not viewed as distinct until after 1985. Unfortunately, estimates of recreational

landings were neither consistent nor continuous until after 1980. During the period of the early eighties it was estimated that 52 percent of Spanish mackerel and 84 percent of king mackerel were caught in federal waters. Both species could be caught with either hook and line or nets in state waters until Florida prohibited the netting of king mackerel in state waters, in 1984.

Increased landings of both species, prior to regulation, was due to the development of the large gill net vessel fleet which encircled schools of fish during the migration between Cape Canaveral and Miami. The fishery changed from supplying fresh whole fish to east coast and local markets to a year-round frozen fillet market supplying predominantly regional markets. The small boat gill net fleet (Table 6) expanded in response to changes in relative species prices and availability from season to season by changing its targeting behavior.

One result, was that between 1972 and 1979, landings from the commercial hook and line fishery declined from 800,000 to 24,000 pounds of Spanish mackerel, with a similar

Table 5. Cross tabulation of wreckfish vessels with permits in other fisheries.

TYPE OF FISHERY	NUMBER OF VESSELS				
	1993	1994	1995	1996	1997
Wreckfish trips only	9	7	2	1	1
Snapper Grouper trips only	14	8	12	13	10
Large Pelagis trips only	-	-	-	6	8
Wreckfish + Snapper Group trips	10	10	11	6	5
Wreckfish + Pelagics trips	-	-	-	1	1
Snapper Grouper + Pelagics trips	-	-	-	5	1
Trips in all 3 Fisheries	-	-	-	1	-
TOTAL	33	25	25	33	26

order of magnitude decline in king mackerel landings by the same gear. The latter species had provided 70% of that fleet's revenues. That change was indicative of the competition for fish which existed both before and after federal management. An initial impact of federal management was to encourage the expansion of fishing due to an incorrect estimate of maximum sustainable yield (MSY).

Early attempts at allocating to commercial user groups, in the 1983 fishery management plan, were abandoned until 1992. During the interim, the State of Florida attempted to allocate between commercial users with landings based on trip limits; these regulations were overturned in 1991 when they were found to be incompatible with the M-SFCMA.

South Atlantic king mackerel has been defined as overfished and South Atlantic Spanish mackerel has been considered overfished and overfishing occurred on both species during several periods. The Plan initially established a 76% commercial and 24% recreational allocation for Spanish mackerel based on the recent catch history of

Table 6. The Southeastern mackerel fleet centered in Florida

Year	Fleet	Large gill net	Small gill net	hook and line
1969	vessels	12	0	203
1997	vessels	67	250	315
	length (feet)*	47	28	28
	horsepower*	620	175	239
	Hold capacity (lbs.)*	40, 000	9, 300	2, 000

* survey averages

but resulted in large declines in the number of large vessels and the hook and line fleet. Nevertheless, the majority of catches continued to accrue to the remaining large gill net vessels in the fleet. Whether the loss of markets or the loss of catches came first is still a hotly debated question. However the essence of the history is one where open access, combined with a migratory window, prompted a derby fishery. This is often a characteristic said to be caused by quota management. However,

efficient gears. A later amendment phased in a 50%/50% allocation. King mackerel has remained at the same allocation established in Amendment 2.

that characteristic predated quota management based on the gear competition for fish.

– Theo Brainerd
Robert Palmer

The history since 1987 has been one of quota allocations and gear restrictions which attempted to maintain shares to all the commercial user groups and recreational users

TABLE 7. Initial estimates of MSY and landings for king and Spanish mackerel in the Southeast

Year	Spanish mackerel			king mackerel		
	MSY	commercial	recreational	MSY	commercial	recreational
1970	45	11.9	23.6	83.6	6.7	62.7
1975	27	11.8	7.9	36.8		
1980	27	11.8	5.7	26.2		
1987	18	2.2	0.7		3.59	6.09

NOTES: The FMP was adopted in 1982, Amendment I in 1985. The data used in the FMP included the 1970 and 1975 recreational surveys, whereas the 1985 Amendment included the first two years of MRFSS. All values are in millions of pounds and include both the south Atlantic and Gulf of Mexico. The decision to split each species into south Atlantic and Gulf stocks was not made until 1985 (king mackerel) and 1987 (Spanish mackerel). Amendment 2 (1987) reduced to total MSY for Spanish mackerel: the allocations shown is the 76% / 24% TAC division for Spanish and the 37.1% / 62.9% TAC division for king mackerels.

Mid-Atlantic Region

A few fisheries that are important to the Mid-Atlantic area, currently managed by the Mid-Atlantic Fishery Management Council (MAFMC), are: 1) Surf Clams and Ocean Quahogs; 2) Atlantic Mackerel, Squid and Butterfish; and 3) Summer Flounder, Scup and Black Sea Bass.

Surf Clams and Ocean Quahogs

The surf clam fishery as we know it today started after World War II on small boats that were for the most part, day fishing boats in the 50-foot range using dredges of 24 to 30 inches wide. These boats were working on a virgin stock and it was possible for a 50-foot boat to catch 350 to 400 bushels per day. As the fishery progressed on through the early 1950s, the stocks decreased somewhat and larger dredges, 40 to 60 inches, were required to maintain decent catches. Larger dredges required larger vessels and the expansion race was on. Most of the vessels that entered the fishery during this period were in the 60- to 65-foot range. As the fishery proceeded into the 1960s, vessel size continued to increase with dredges reaching 72 to 84 inches, and vessels reaching 80 to 90 feet. By the time the 1970s rolled around and the vast beds off the Virginia Capes were discovered, there were several vessels well in excess of 100 feet towing dredges in excess of 120 inches.

With the collapse of the Virginia Capes fishery in 1975 and the implementation of the original Fishery Conservation Management Act of 1976, it was very apparent that something had to be done to save the clam fishery. As catches declined with a well established market, ex-vessel prices naturally began to climb. Ex-vessel prices rose from

approximately \$3 per bushel in mid-1976 to a record \$12 per bushel by the end of the year. Several members of the clam industry had started meeting to discuss measures to prevent overfishing and stock collapse under the auspices of the state-federal management program. The Mid-Atlantic Fishery Management Council (MAFMC) wasted little time in getting a Fishery Management Plan (FMP) in place. The Surf Clam/Ocean Quahog FMP was the first fishery management plan implemented in the United States under the new law.

The initial surf clam/ocean quahog plan accomplished two things: it established a moratorium on new entrants, and it set an annual quota to protect the severely diminished stocks from additional overfishing. The FMP was designed to maintain fishing on a year-round basis and did so by regulating hours fished by the participants. Under the moratorium, there were approximately 182 vessels with permits to catch surf clams. Ocean quahog vessels were not affected by the moratorium, thereby maintaining an open fishery for the species.

In 1976, at the same time as the collapse of the Virginia surf clam stocks, fishermen were looking for another substitute for surf clam meat and started exploring the possibilities of marketing the vast ocean quahog resource found offshore in deeper waters from Virginia to Maine. The quahog was a much less desirable clam; however, its abundance was something that could not be overlooked. Processors quickly found a method of washing the meat to rid it of its strong taste. With the 1978 surf clam quota set at 30 million pounds of meat, down from 98 million pounds landed in 1976, ocean quahogs quickly found a niche. The stronger taste was accepted by the consumer and the ocean quahog fishery was up and running. The early quotas of 4 to 6

million bushels set for ocean quahogs were not restraining and the fishery flourished. Fishermen were encouraged to fish on the then plentiful quahogs.

Things were going well under the early management plan until fishermen realized that by increasing dredge size and pump size they could produce more in their allocated hours. As this happened, catches went up, and hours went down. Hours dropped from the original 96 hours per week, to 48 hours per week, then to 24 hours per week, and then to 12 hours per week. Just when the industry believed that things could not get worse, the hours went to 12 hours every other week, and finally, by 1985, to 6 hours every other week. In an effort to ease this burden, the National Marine Fisheries Service (NMFS) allowed the fishermen to take an entire quarter's allotment of 6 hour trips whenever they so desired. The first quarter the fishermen were allocated six 6-hour trips, the next quarter the fishermen were allocated four 6-hour trips and so on for a year's total of 17 six-hour trips. This reduction in hours was a disaster to the fishermen as well as the vessel owners.

In October of 1990, the MAFMC adopted an Individual Transferable Quota (ITQ) system for surf clams and ocean quahogs. The established fishermen that were in the fishery were allocated a share of the total allocation based on their catch histories. Quota shares were freely transferable and consolidation began immediately. The initial allocation was distributed to approximately 150 vessels. Most vessels received both surf clam and ocean quahog allocations. The moratorium on entry was lifted and today there are more than 2,000 surf clam/ocean quahog permits that have been issued.

The clam fleet and the number of allocation owners have declined drastically. The 1998

list of allocation owners lists 108 owners for surf clams and 66 owners for ocean quahogs. Several of these owners, however own more than one allocation share and the list of owners actually consolidates to 43 surf clam owners and 31 ocean quahog owners.

There are also inshore state water stocks of surf clams located in New Jersey and New York. These stocks are controlled by these states and both have a moratorium on entry. New Jersey has a license system that is transferable and New York has a quota system limited to 22 vessels and is not transferable.

Summer Flounder, Scup and Black Sea Bass

The three species discussed below are important components of the Mid-Atlantic commercial fishery. There are approximately 1970 permits issued and approximately two thirds of these permits are actually fished (Amendment 12, Summer Flounder, Scup and Black Sea Bass FMP).

SUMMER FLOUNDER

Prior to the M-SFCMA, summer flounder were landed in almost all ports from eastern Long Island to Wanchese, North Carolina. Landings were seasonal and flounder was considered to be one of the mainstays of the small dragger fleet. Cape May, New Jersey, Hampton, Virginia, and Wanchese, North Carolina were major ports for landings. The vessels from North Carolina accounted for a large portion of the Virginia landings as well as most of the Massachusetts landings.

Following the implementation of the MSFCMA, flounder was one of the first

species to be considered for management. The MAFMC worked with the Atlantic States Marine Fisheries Commission (ASMFC) to prepare the original plan, which was implemented in 1988, and has been amended many times since. Under the current program, annual quotas are allocated on a state-by-state basis related to past catch history. The 1998 commercial quota is 10.5 million pounds, with Virginia and North Carolina receiving approximately 50%. States with little or no history of participation receive low quotas as shown in Table 8.

There is also a large recreational fishery for summer flounder and the traditional split has been 60% commercial, 40% recreational. In the last two years, however, the split has been closer and, in addition, the recreational fishery has over caught the quota by up to 100%, as shown in Table 9.

The MAFMC and ASMFC consider the summer flounder stock to be rebuilding and hopefully soon there will be a biomass large enough to support a fishery as experienced in the early 1980s.

SCUP

Scup landings have declined in the last few years from a peak in the 1950's. Scup have traditionally been a very important fish for party and charter boats in the Mid-Atlantic region. There is a large party-charter fleet in New Jersey and New York that consider scup to be a mainstay. The commercial fishery is made up of mostly druggers who fish on scup when they are offshore in the winter months. There is also a much smaller pot fishery in New England waters that fishes in the summer months when the fish are inshore. In addition, there is a pound net fishery that lands a

considerable amount of scup in state waters.

BLACK SEA BASS

Black sea bass is a much smaller fishery than either flounder or scup but still important to the Mid-Atlantic region. Black sea bass are caught commercially in large unbaited traps to which they swim for refuge. There is also a fairly large winter trawl fishery that takes place as they go offshore and south in cold weather.

The recreational fishery is small and taken mostly on party and charter boats fishing near wrecks or rough bottom.

Table 8. 1998 State Summer Flounder Quota Allocation

State	1998 Quota
Maine	4, 791
New Hampshire	51
Massachusetts	721, 899
Rhode Island	1, 742, 583
Connecticut	250, 457
New York	788, 282
New Jersey	1, 858, 363
Delaware	(14, 534)
Maryland	199, 876
Virginia	2, 357, 377
North Carolina	2, 649, 849
Total	10, 558, 994

Source: Weekly Summer Flounder Report. (31)

Table 9. Commercial and recreational landings of summer flounder (1,000 lbs.) from Maine to Cape Hatteras, NC, 1984-1997.

Year	Commercial Landings	Commercial Discards	Percent Discards	Recreational Landings	Recreational Discards	Percent Discards	Total Catch
1984	37,765	N/A	N/A	18,766	2,286	11	58,817
1985	32,353	N/A	N/A	12,489	505	4	45,347
1986	26,866	N/A	N/A	17,862	3,183	15	47,911
1987	27,053	N/A	N/A	12,167	2,881	19	42,102
1988	32,377	N/A	N/A	14,844	1,889	11	49,110
1989	17,913	1,563	8	3,164	251	7	22,891
1990	9,257	2,676	22	5,135	1,294	20	18,362
1991	13,722	2,319	14	7,961	2,368	23	26,369
1992	16,599	1,521	8	7,147	1,894	21	27,161
1993	12,599	1,865	13	7,681	4,057	35	26,202
1994	14,524	1,997	12	9,063	3,179	26	28,764
1995	15,382	679	4	5,503	3,935	42	25,499
1996	12,721	1,021	7	10,371	3,602	26	27,714
1997	8,975	582	6	11,074	3,646	25	24,277

Source: 1984 - 1996 SAW, 25th, 1997 and SAW 27th.

Atlantic Mackerel, Squid and Butterfish

ATLANTIC MACKEREL

Atlantic Mackerel have been fished heavily in the past. In the early 1970's, when the foreign distant water fleets fished freely off our East Coast, landings reached a peak of 400,000 metric tons. With the implementation of the Magnuson Act and the phasing out of foreign fishing, landings were reduced to 30,000 mt by the late 1970s (Table12)

The stock biomass has increased steadily

throughout the 1980s and in 1990 the level was approximately 3 million mt. (Amendment 8 Atlantic Mackerel, squid and Butterfish FMP, p.18).

There is very little demand for Atlantic Mackerel as a food product in the U.S. and most of the domestic production is frozen for export to third world countries as a very good source of protein. There is no major port where Mackerel plays a significant role. In 1997, there was a joint venture initiated to buy mackerel from domestic vessels for processing on foreign vessels that had been chartered and brought to the United States to process only. This venture was mildly successful and the U.S.

Table 10. Commercial and recreational landings of scup (1,000 lbs.) from Maine to Cape Hatteras, North Carolina, 1984 - 1997.

Year	Commercial Landings	Commercial Discards	Percent Discards	Recreational Landings	Recreational Discards	Percent Discards	Total Catch
1984	17, 123	4, 758	22	4, 216	66	3	24, 363
1985	14, 822	9, 224	38	6, 094	119	2	30, 258
1986	15, 252	4, 420	22	11, 605	192	2	31, 469
1987	13, 382	5, 593	29	6, 196	84	1	25, 245
1988	12, 624	3, 653	22	4, 268	68	2	20, 613
1989	8, 181	4, 914	38	5, 558	86	2	18, 739
1990	9, 520	8, 618	48	4, 140	84	2	22, 361
1991	15, 141	7, 782	34	8, 087	172	2	31, 182
1992	13, 230	12, 496	49	4, 411	104	2	30, 241
1993	9, 839	3, 166	24	3, 197	62	2	16, 264
1994	9, 149	1, 779	16	2, 628	82	3	13, 638
1995	6, 378	4, 535	42	1, 314	73	5	12, 300
1996	5, 926	3, 355	36	2, 238	104	4	11, 623
1997	4, 804	3, 953	45	1, 056	55	5	9, 868
Mean	11, 098	5, 589	33	4, 514	96	2	21, 297

Source: SAW 27th

partner approached the MAFMC to ask permission for the foreign vessel to fish when the weather was bad and the catcher boats could not deliver fish. This request was denied because the MAFMC felt it was not appropriate to start foreign fishing in U.S. coastal waters again.

The U.S. partner has filed another joint venture application and is in the process of finding willing participants to supply fish when the processing ships arrive.

There is a large recreational sector that fishes for mackerel, especially in the spring when the stocks are moving up the coast. The weather plays a significant role in this fishery and some years the fish migrate north very

close to shore thereby making for large recreational landings. If, on the other hand, the fish migrate well offshore and are harder to find for recreational boats, the catch is significantly lower. This has nothing to do with biomass, only availability.

With a possible allowable catch for 1999 of 383,000 mt, fears have surfaced among many East Coast fishermen and processors that there will be an invasion by the factory trawler fleet from the West Coast. In order to forestall this, a rider was attached to last year's Senate Appropriations Bill to prohibit any vessel from fishing for mackerel if over 165 feet in length or 750 GRT or over 3000 horsepower. At the last meeting of the MAFMC, this language was added to Amendment 8 of the FMP to be taken

Table 11. Commercial, recreational and foreign landings of black sea bass (1, 000 lbs.) from Maine to Cape Hatteras, NC, 1984 - 1997.

Year	Foreign Landings	Commercial Landings	Commercial Discards	Percent Discards	Recreational Landings	Recreational Discards	Percent Discards	Total Catch
1984	40	4, 332	386	8	1, 470	75	5	6, 232
1985	73	3, 419	278	7	2, 319	146	6	6, 162
1986	22	4, 191	315	7	12, 394	324	3	17, 225
1987	9	4, 167	311	7	1, 986	146	7	6, 609
1988		4, 142	300	7	2, 736	302	10	7, 480
1989		2, 919	234	7	3, 327	152	4	6, 632
1990		3, 501	218	6	2, 795	298	10	6, 812
1991		2, 804	121	4	4, 160	315	7	7, 401
1992		3, 007	324	10	2, 634	337	11	6, 312
1993		3, 113	152	5	4, 478	212	5	7, 954
1994		1, 975	152	7	2, 976	247	8	5, 351
1995		2, 039	29	1	5, 714	452	7	8, 234
1996		3, 245	35	1	5, 814	364	6	9, 458
1997		2, 458	278	10	3, 153	N/A	N/A	N/A
Mean ('84-'96)	11	3, 297	220	6	4, 063	259	7	7, 838

Source: 1984-1996 SAW 25, 1997 SAW 27th.

to public hearings.

Figure 10 shows landings and biomass of Atlantis Mackerel. Note the peak that occurred in the early 1970's, before Magnuson.

SQUID

There are two squids that are important to the Mid-Atlantic region, Illex and Loligo. The loligo, or long finned squid, are caught mostly in the winter and the illex are a summer fishery. The domestic production for both of these squids is a direct result of the Magnuson Act. Prior to 1976, the domestic squid fishery was primarily a bait fishery. The fisheries began to develop as a result of joint ventures with foreign partners. The domestic catch of loligo

squid tripled in one fishing year, 1982-83 to 1983-84. The foreign allocation was reduced at the same time and a new fishery was created. Likewise, illex were being landed by the foreign fleets at an average level of 18,000 mt per year from 1973-1982 while domestic landings were 1,100 mt per year. The U.S. production of illex squid was a result of withholding from the foreign fleets.

Tables 13 and 14 represent the specifications and landings for the squids as presented to the MAFMC.

BUTTERFISH

Butterfish are not an important commercial fish and were fished heavily by the foreign

Table 12.
Recreational catch statistics for Atlantic mackerel

Year	Catch (A+B1+B2)	Landings (A+B1)	Released (B2)	Percent Released
1982	1, 542, 831	1, 533, 059	9, 771	0.6
1983	4, 119, 384	3, 995, 716	123, 668	2.9
1984	3, 825, 235	3, 448, 940	376, 296	9.8
1985	7, 824, 540	7, 169, 547	654, 993	9.8
1986	5, 387, 971	5, 275, 651	112, 320	2.1
1987	7, 733, 394	6, 399, 972	1, 334, 022	17.2
1988	5, 999, 285	5, 548, 553	450, 732	7.5
1989	4, 035, 088	3, 613, 474	421, 614	10.4
1990	3, 991, 241	3, 688, 023	303, 218	7.6
1991	5, 455, 187	5, 235, 308	219, 879	4.0
1992	1, 038, 744	809, 137	229, 607	22.1
1993	2, 305, 073	2, 119, 621	185, 452	8.0
1994	4, 860, 101	4, 567, 433	292, 669	6.0
1995	4, 008, 473	3, 200, 846	807, 627	20.1
1996	3, 649, 802	3, 241, 544	408, 258	11.2
1997	5, 192, 168	458, 338	643, 830	12.4

Source: MRFSS Survey, 1982-1997.

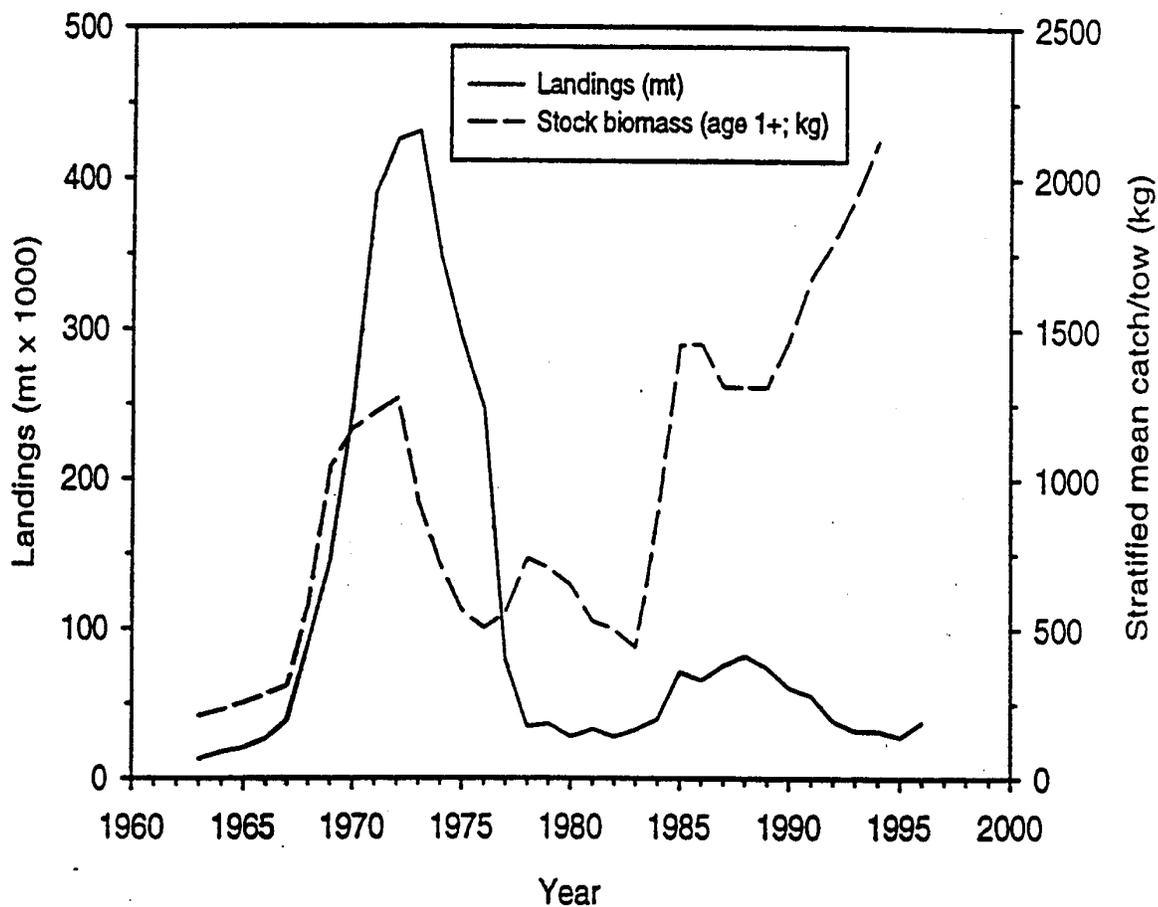
fleets until they were displaced by the Magnuson Act. Foreign landings increased to approximately 15,000 mt in 1969 and to 18,000 mt in 1973. Foreign landings were phased out by 1987, and since then have only been approximately 1 mt. For the period 1977-1987, butterfish landings doubled to over 5,000 mt. Since 1988, butterfish landings have averaged approximately 2,500 mt. Recent reductions in Japanese demand for butterfish have had a negative effect on butterfish landings.

Overview

In all, there has been a dramatic change in the fisheries of the Mid-Atlantic region since the implementation of the Magnuson Act in 1976. Prior to that time, there was freedom to switch from fishery to fishery as stocks increased or declined. A single vessel might have been involved in two of three fisheries in one year. Several vessels went freely from dragging to clamming to scalloping as easy as changing the gear. Today with access limited in most fisheries, there is very little change, especially in the larger vessels. A quahog vessel is a quahog vessel and nothing else. The vessels are very specialized and very costly to rig. Therefore they tend to stay in the fishery for which they were designed.

– Ricks E. Savage

Figure 10. U.S. commercial landings and stock biomass of Atlantic mackerel from Labrador to North Carolina.



Source: Studholme, et al., 1998.

Table 13. Summary of specifications and landings for *Loligo*

	1995	1996	1997	1998	1999 (proposed)
Max OY	44, 000	44, 000	36, 000 ¹	26, 000	26, 000
ABC	36, 000	30, 000	21, 000	21, 000	21, 000
IOY	36, 000	25, 000	21, 000	21, 000	21, 000
DAH	36, 000	25, 000	21, 000	21, 000	21, 000
DAP	36, 000	25, 000	21, 000	21, 000	21, 000
JVP	0	0	0	0	0
TALFF	0	0	0	0	0
Landings (mt)	18, 008	12, 459	16, 202	11, 292 ²	-
Value (millions \$)	23.1	18.6	26.5	-	-

¹ 26, 000 mt when overfishing threshold in Amendment 6 was adopted

Table 14. Summary of specifications and landings for *Illex*

	1995	1996	1997	1998	1999 (proposed)
Max OY	30, 000	30, 000	30, 000 ¹	24, 000	24, 000
ABC	30, 000	30, 000	19, 000	19, 000	19, 000
IOY	30, 000	21, 000	19, 000	19, 000	19, 000
DAH	30, 000	21, 000	19, 000	19, 000	19, 000
DAP	30, 000	21, 000	19, 000	19, 000	19, 000
JVP	0	0	0	0	0
TALFF	0	0	0	0	0
Landings (mt)	14, 052	16, 969	13, 632	7, 673 ²	-
Value (millions \$)	8.0	9.7	8.1	-	-

¹ 26, 000 mt when overfishing threshold in Amendment 6 was adopted

² Preliminary data, landings as of July 20, 1998.

Table 15. Summary of specifications and landings for butterflyfish

	1995	1996	1997	1998	1999 (proposed)
Max OY	16, 000	16, 000	16, 000	16, 000	16, 000
ABC	16, 000	7, 200	7, 200	7, 200	7, 200
IOY	10, 000	5, 900	5, 900	5, 900	5, 900
DAH	10, 000	5, 900	5, 900	5, 900	5, 900
DAP	10, 000	5, 900	5, 900	5, 900	5, 900
JVP	0	0	0	0	0
TALFF	0	0	0	0	0
Landings (mt)	2, 013	3, 489	2, 798	1, 148 ¹	-
Value (millions \$)	2.5	5.1	4.7	-	-

¹ Preliminary data, landings as of July 20, 1998

New England Region

The New England Fishery Management Council

The New England Fishery management Council (NEFMC) is one of eight fishery management councils established in accordance with the Magnuson Fishery Conservation and Management Act of 1976. It consists of the States of Maine, New Hampshire, Massachusetts, Rhode Island, and Connecticut. The NEFMC has management authority over the fisheries and living marine resources in the federal waters of the U.S. exclusive economic zone (EEZ) seaward of those states (from 3 to 200 miles offshore). This area is bordered by the Canadian waters in the north and the Mid-Atlantic Council's region in the south. (The Council's authority

does not include management of highly migratory species within those waters). The NEFMC has 17 voting members as well as 4 non-voting members representing the Atlantic States Marine Fisheries Commission, U.S. Fish and Wildlife Service, the U.S. State Department, and the U.S. Coast Guard. The NEFMC along with the Mid-Atlantic Fishery Management Council (MAFMC) comprise the Northeast Region.

Magnuson-Stevens Fishery Conservation and Management Act

The original Fishery Conservation and Management Act of 1976 was intended to end foreign overfishing, and to promote and develop the domestic fishery. Among Sustainable Fisheries Act (SFA) amendments to the Magnuson-Stevens Fishery Conservation

and Management Act (MSFCMA) was the addition of several new National Standards. However, the most significant change from the New England region's perspective was the requirement to amend all Fishery Management Plans (FMP) and FMP regulations to be consistent with the mandates and definitions of the SFA. The NEFMC has amended its 5 current FMPs and will submit them for approval in October 1998, as well as two new plans being submitted for initial approval.

The Fisheries, Fishery Management Plans

Currently the NEFMC has 5 FMPs in effect. These are for: Northeast Multispecies (Groundfish); Sea Scallops; American Lobster; Atlantic Herring; Atlantic Salmon.

MULTISPECIES (GROUND FISH)

The original multispecies FMP was initiated in 1986, and it has been amended eight times along with twenty-six framework adjustments. Amendment 9 and framework twenty-seven have been submitted for Secretarial approval. While the NEFMC has the management responsibility for the multispecies FMP, the Mid-Atlantic Council participates at the committee level. Because it is a mixed fishery (meaning that other species are invariably caught when fishing for one or more of the other species), the FMP consists of 13 different species.

SEA SCALLOPS (PLACOPECTAN MAGELLANICUS)

While sea scallops are found throughout the waters from Maine to the Carolinas, the primary fishery for them has traditionally existed in New England. As such, the responsibility for the management of the sea

scallop resource has been with the NEFMC. The Mid-Atlantic Council participates with the NEFMC in formulating the scallop FMP at the committee level. Management of the scallop resource began in 1982. Management measures at that time were based upon age-at-entry (meat count) controls which required a maximum number of shucked scallop meats per pound. Unshucked scallops landed in the shell required (and still do) a minimum shell height (shell diameter) standard. These age-at-entry measures were based on how large and therefore how old a scallop was before it was legally harvestable. Amendment 4 changed the primary management strategy to an effort control program for all resource areas. The primary tools for effort control utilize days-at-sea (DAS) and maximum crew size. There have been six amendments and nine framework adjustments to date. Amendment 7 has been submitted for Secretarial approval.

AMERICAN LOBSTER (HOMARUS AMERICANUS)

The American lobster FMP was implemented in 1983 as a cooperative agreement between the NEFMC, National Marine Fishery Service (NMFS), and the Atlantic Marine Fisheries Commission (ASMFC). It was based upon using management efforts of the states as a unified regional program in federal waters. The current plan is to be replaced by a new plan that is under development by the ASMFC, assuming Secretarial approval. Since the adoption of this FMP there have been six amendments and four framework adjustments

ATLANTIC HERRING (CLUPEA HARENGUS)

Atlantic herring in the EEZ is currently managed under a National Marine Fisheries Service Preliminary Management Plan and establishes conditions for joint venture (JV)²⁷ activities only. The Atlantic States Marine

Table 16. Multispecies complex:

American cod (<i>Gadus morhua</i>)	Haddock (<i>Melanogrammus aeglefinus</i>)
Yellowtail flounder (<i>Pleuronectes ferruginea</i>)	Witch flounder (<i>Glyptocephalus cynoglossus</i>)
Winter flounder (<i>Pleuronectes americanus</i>)	Windowpane flounder (<i>Scophthalmus aquosus</i>)
Ocean pout (<i>Macorzoacres americanus</i>)	Pollock (<i>Pollachius virens</i>)
Silver hake (<i>Merluccius bilinearis</i>)	Red hake (<i>Urophycis chuss</i>)
White hake (<i>Urophycis tenius</i>)	Redfish (<i>Sebastes faciatus</i>)
American plaice (<i>Hippoglossoides platessoides</i>)	

Fisheries Commission (ASMFC) Herring Plan, which was implemented by the New England states in 1994, includes three management areas, an allocation process for Internal Waters Processing (IWP)²⁸ activities and spawning closures. Recent stock assessments and increased commercial interest in the fishery have led the Council -- working closely with ASMFC -- to begin development of an FMP. (NEFMC, Atlantic Herring Fishery Management Plan Summary)

ATLANTIC SALMON (SALMO SALMAR)

The Fishery Management Plan for Atlantic Salmon (*Salmo salmar*) was implemented by the National Marine Fisheries Service on March 17, 1988. This FMP established explicit U.S. management authority over all Atlantic salmon of U.S. origin to complement state management programs in coastal and inland waters and federal management authority over salmon on the high seas conferred as a signatory nation to the North Atlantic Salmon

Table 17. Management measures for the multispecies FMP:

Moratorium on vessel permits	Days at sea (DAS) ²⁹
Minimum mesh size regulations	Area closures (spawning and marine mammal)
Possession limits	Trip and possession limits
Mimimum fish sizes	Square mesh requirements
Groundfish pair-trawling ban	Bycatch and finfish excluders
Gear conflict measures	Gillnet restrictions
Mandatory vessel trip reports	Mandatory landing reports for vessels and fish processors
Operator's permit	

Table 18. Management measures for the sea scallop FMP

Moratorium on vessel permits	Days at sea (DAS) ³⁰
Vessel tracking system (VTS)	Area closures ³¹
Maximum dredge size (dredge vessels)	Maximum sweep size (net vessels)
Mimumum ring size (dredge vessels)	Minimum mesh size (net vessels)
Maximum crew size (7 persons)	Chaffing gear restrictions
Gear configuration restrictions	Mandatory vessel trip reports
Operator's permit	

Conservation Organization (NASCO). Specifically, this FMP disallows any commercial fishery for Atlantic salmon, directed or incidental, in federal waters (3 - 200 miles) and prohibits the possession of Atlantic salmon from federal waters. The federal management program for Atlantic salmon within the EEZ complements the management regime under NASCO and the management programs of the states. By this action, the federal government safeguards the very substantial investment embodied in the ongoing state/federal stock restoration programs and strengthens its negotiating position with respect to U.S. proposals placed before NASCO. There are no existing amendments or framework adjustments to this FMP. (NEFMC, Atlantic Salmon Fishery Management Plan Summary)

Status of Stocks under NEFMC Geographical Area of Authority

During 1995-96, landings declined in 16% of the stocks, and were unchanged in 50%. Three groundfish stocks showed major increases (>25%) in landings during 1995-96 (haddock, winter flounder, and yellowtail on Georges Bank) as did 3 pelagic stocks (Atlantic herring, Atlantic mackerel, and butterfish). Landings for skates, northern shrimp, northern shortfin squid and striped bass also increased notably. During 1992-1996, landings decreased in 59% of the stocks, increased in 25%, and were unchanged in 16%. Increased abundance was noted for 18% of the stocks while 25% decreased in 1996 compared to 1995. However, during the past 5 years, 26%

Table 19. Management measures for the American lobster FMP

Moratorium on federal vessel permits (5 years)	Escape vent requirement
Mandatory logbook	Mimumum carapace length (3-1/4 inches)
Prohibition on possession of "V"-notched lobsters	Prohibition on landing or possession of berried (egg bearing) female lobsters
Prohibition of landing or possession of lobster parts	Operator's permit
Gear marking requirements	Degradable escape panels

of the stocks declined, 36% exhibited no significant change, and 38% increased. (Murawski and Almeida n.d.)

New England Commercial Landing Figures

The following tables show the New England commercial landing figures for the years of 1994 through 1997. The summaries are depicted in metric tons, pounds, and ex-vessel dollar values.³² The 1997 landing figures are preliminary and subject to change. The missing 1997 data is estimated to be 16 million pounds with a value of \$46 million.

marked reductions in fishing mortality rates for four of the main New England groundfish stocks (Georges Bank cod, Georges Bank haddock, Georges Bank yellowtail flounder and Southern New England yellowtail flounder). The exploitation status of the latter three stocks has recently changed from overexploited to fully exploited. Obviously, other overfished components of the groundfish resource are benefiting as well. Monkfish and spiny dogfish, the objects of increased fishing activity in recent years, will be regulated under provisions of new FMPs being developed cooperatively by the New England and Mid-Atlantic Fishery Management Councils. (Murawski and Almeida n.d.)

Table 20. Principal management measures being considered for the herring FMP

Definitions for optimum yield & overfishing	Effort controls
Vessel and dealer permits	Establishment of a total allowable catch (TAC)
Vessel size restrictions	Spawning area closures
Mandatory records and reporting requirements	Four management areas (including an inshore & offshore Gulf of Maine area)
Restrictions on mealing or rendering	Restrictions on directed roe fishing

GROUND FISH

Improvements noted for some resource components in recent years reflect recent management actions by the New England and Mid-Atlantic Fishery Management Councils and the Atlantic States Marine Fisheries Commission. Amendment 5 to the Multispecies FMP was implemented in 1994 to decrease fishing effort by 50% over 5-7 years. Amendment 7 (implemented in 1996) permanently closed large areas of fishery habitat and accelerated days-at-sea effort reductions. These measures have resulted in

SEA SCALLOPS

Amendment 4, and then Amendments 5, and 6 to the Sea Scallop FMP dramatically changed the fishery with a new approach to the management scheme. They eliminated the meat count management controls (age-at-entry) and replaced them with effort control measures that created the limited access fleet. Limited access permits are divided into three separate permit categories: Full-time, Part-time, and Occasional. The primary difference between each category is the amount of allocated Days-at-Sea each permit holder received. Open access permit holders have a general category

permit that allows them to land no more than 400 pounds of shucked scallop meats per trip.

Scallop landings reached a peak in 1991, when 37 million pounds of scallop meats were landed. Scallop landings by the limited access fleet has remained steady since the implementation of Amendment 4 in March 1994, but at a lower level. This drop in landings

coincided with the closure of about one-half of the Georges Bank scallop beds at the beginning of 1995³³, the implementation

of a minimum 3 - inch dredge ring size, and the 7- man maximum crew size at the start of 1996. The reduction in DAS began in 1994, with full-time boats receiving 204 days. The DAS were reduced to 182 days for both 1995 and 1996, and to 164 days in 1997.

MONKFISH

At one time goosefish (monkfish) were primarily harvested as a by-catch by the mobile gear fishermen (scallopers & draggers) of New Bedford, Massachusetts. The demand

and prices for goosefish did not attract many entrants into that fishery until the market became more developed, mainly due to the efforts of the New Bedford scallop fleet. What

was once a by-catch of opportunity soon became a directed by-catch, and following that, a directed fishery. It didn't take the trawl fleet long to direct onto goosefish, and later the gillnet fishers began to target the goosefish in earnest also. It now represents a major fishery with its own FMP awaiting Secretarial approval.

During the early stages of designing the monkfish FMP, it was expected that monkfish would become another species within the multispecies complex. Because of the range of the species, and the growth of the directed fishery as far south as the Carolinas, it was decided that this management plan would be a joint effort between the NEFMC and the MAFMC. Due to this decision to manage it

Table 21. Status of NEFMC stocks

Number of stocks	Overfished	Not Overfished	Approaching Overfished	unknown
27	12	7	2	5

Source: NMFS Status of Fisheries of U.S.

Table 22. All species combined: 1994-1997*

Year	Metric tons	Pounds	Dollars
1994	250,793.5	552,899,331	\$551,583,340
1995	274,268.0	604,651,295	\$572,980,557
1996	292,228.2	644,246,217	\$566,844,546
1997*	284,447.6	627,093,137	\$529,182,271
TOTAL	1,101,737.3	2,428,889,980	\$2,220,590,714

jointly, it became a FMP of its own.

LOBSTERS

Although American lobster is technically managed by the NEFMC, a new FMP will be submitted for Secretarial approval by the NEFMC and the Atlantic States Marine Fisheries Commission (ASMFC).

is for bait, while the foreign markets utilize it for human consumption, and rendering it for fishmeal.

Economic Trends Within The Major Gear Sectors of New England

NEW ENGLAND OTTER TRAWL

In 1996, the total revenue for New England otter trawlers was derived primarily from goosfish (14%), cod (12%), Loligo squid and American plaice (both 10%), winter flounder (8%), and witch flounder and lobster (both 6%). The total number of vessels using this gear in New England increased in 1994, 1995 and 1996 for the first time since

1988, even after allowing for the addition of Tonnage Class 1 vessels to the database.³⁴ In 1996, the fleet was comprised of 934 vessels, with the greatest increase occurring among Tonnage Class 2 vessels, which comprise 55% of the total. This may be related to Multispecies FMP regulations in effect during 1994-1996 which exempted smaller vessels from certain effort restrictions. Total revenue (in actual dollars) and effort measures increased for all

Table 23. Groundfish (Multispecies): 1994-1997

Year	Metric tons	Pounds	Dollars
1994	52,488.6	115,716,555	\$99,377,726
1995	44,653.8	98,444,689	\$90,178,104
1996	45,758.0	100,877,662	\$86,740,326
1997*	44,891.3	98,967,800	\$86,429,116
TOTAL	187,791.7	414,005,706	\$372,725,272

ATLANTIC HERRING

Recent stock assessments, have shown large abundances of herring on Georges Bank and in the Gulf of Maine. This has led to a major commercial interest in this resource, often where there had been little or none earlier. In light of the current market prices, large amounts of herring are necessary in order for this to be a profitable fishery for either the fishing vessels or the processors. (It is often spoken of, as being a nickel fish i.e. 5 cents per pound). Even so, the landings and ex-vessel prices in New England have more than doubled since 1994. Much of the domestic demand at this time

Table 24. Sea Scallops: 1994-1997

Year	Metric tons	Pounds	Dollars
1994	3,517.8	7,755,434	\$43,323,289
1995	4,029.7	8,883,983	\$48,073,839
1996	4,523.7	9,973,024	\$58,837,359
1997	3,792.0	8,359,869	\$56,250,841
TOTAL	15,863.3	34,972,310	\$206,485,337

NORTHEAST SCALLOP DREDGE

There was a dramatic increase in the number of Tonnage Class 2 vessels, partly due to part-time scallopers who did not use their permit in 1995 but did so in 1996. Total revenue (in actual dollars) rose over all three years in all size categories of vessels. Among Tonnage Class 2 and 4 vessels, revenue per day absent dropped off in 1996 while it rose slightly for Tonnage Class 3. Landings per day absent increased in 1996 for Tonnage Class 3 and 4 vessels.

NORTHEAST GILLNET

This gear category excludes data for trips using large mesh drift net gear in the large pelagic fishery. In 1996, total revenue for small

Table 25. Monkfish (Goosefish): 1994-1997

Year	Metric tons	Pounds	Dollars
1994	20,536.4	45,274,653	\$23,667,234
1995	22,711.6	50,070,065	\$31,555,976
1996	22,050.5	48,612,634	\$27,397,933
1997	22,005.3	48,512,858	\$27,401,227
TOTAL	87,303.8	192,470,210	\$110,022,370

NORTHEAST SHRIMP TRAWL

The northern shrimp fishery is a seasonal (winter/spring) fishery. In 1996, 98% of shrimp landings were made by vessels using shrimp trawls and 94% of the fleet consisted of Tonnage Class 2 or 3 vessels. The principal gears used by shrimp vessels during the six month off-season are otter trawls, gillnets, and lobster traps.

mesh drift and sink gillnets was derived primarily from cod (24%), goosefish (24%), spiny dogfish (16%), and pollock (10%). Gillnet vessels are for the most part Tonnage Class 2 vessels, which employ other gear (usually otter trawls and shrimp trawls) for approximately 15% of the year on average.

The total number of vessels in this fishery increased from 367 in 1994 to 472 in 1996. However, this reflects the changes in reporting systems as mentioned above. For the fleet as a

Shrimp trawl gear was used during 61% of the days spent at sea, and contributed 45% to the total fleet revenues. In 1996, revenue and landings per day absent declined.

Table 26. American lobster: 1994-1997

Year	Metric tons	Pounds	Dollars
1994	29,679.0	65,430,281	\$192,050,520
1995	26,464.7	58,344,115	\$175,522,651
1996	27,162.5	59,882,377	\$200,600,432
1997	26,919.7	59,347,109	\$181,944,834
TOTAL	110,225.8	243,003,882	\$750,118,437

Table 27. Atlantic herring:

Year	Metric tons	Pounds	Dollars
1994	44,740.8	98,635,537	\$5,659,958
1995	68,277.2	150,524,011	\$8,794,222
1996	88,307.9	194,683,580	\$10,981,703
1997	95,176.4	209,825,995	\$11,432,613
TOTAL	296,502.4	653,669,123	\$36,868,496

small portion of lobsters taken offshore is caught as bycatch by the otter trawl fleet. The offshore lobster fleet is dominated by Tonnage Class 2 and 3 vessels. Activity by Tonnage Class 1 and 4 vessels is

whole, average revenue per day absent and landings per day absent decreased in 1996 compared to 1995 levels.

HOOK

This category of gear includes longlines, setlines, and line trawls. In 1996, 83% of the total revenue from these related gears was attributed to swordfish (26%), bigeye tuna (20%), cod (15%), yellowfin tuna (12%) and tilefish (10%).

Participation in this fleet increased from 316 vessels in 1994 to 362 vessels in 1995, before dropping to 278 vessels in 1996. Revenue per day absent for Tonnage Class 2 vessels increased over 1995 levels, although total revenue declined for Tonnage Classes 1, 2, and 3.

OFFSHORE LOBSTER TRAPS/POTS

The delineation between offshore and inshore lobster fisheries is not precise, as many vessels fish both sides of the three mile line which divides inshore from offshore. Roughly 20% of the lobster revenue in 1996 was from offshore trips, while 80% was from inshore. A

limited. The inshore fleet is dominated by Tonnage Class 1 and 2 vessels. Total revenue (and landings) of offshore lobster increased in 1996, but revenue per day absent fell for the smaller vessels. Both Tonnage Class 2 and 3 vessels relied heavily on offshore lobster pots; it apparently was not worthwhile for these vessels to diversify to other gear types.

PROCESSING

Fish processing in the Northeast Region utilizes both domestic landings and, increasingly, imported products. Processing is defined as any activity that adds value to raw products, for example, filleting, cooking, breading, canning, or smoking. The most important processed products, by value, are fresh or frozen fish fillets, and breaded, cooked fish. In 1995, New England plants produced most (92%) of the fresh and frozen fish fillets, steaks, or other processed portions produced in the Northeast, while Mid-Atlantic plants produced 73% of the canned products and 91% of the cured products.

The number of plants and their average annual employment levels, as identified in the annual processed product surveys during 1990-1995, are shown in Table 13. In New England,

the number of employees in processing plants increased in 1995, after two particularly low years in 1993 and 1994. The number of processing firms throughout the Northeast region has declined steadily through 1995, reflecting the shrinking supply of fresh domestic fish as well as the lack of substitution of imported product. The average number of employees per plant has increased, since the number of processing plants in the region is at a new low. The level of plants and employees in wholesaling establishments in the region (both New England and Mid-Atlantic) showed a dramatic rise in 1995 (61% for number of employees; 42% for number of plants).

AQUACULTURE

Although aquaculture is growing and has potential for supplementing wild-catch fishery products in many seafood markets, aquacultural activities in the Northeast are mostly experimental. The success of Atlantic salmon farms, however, has sparked interest in the potential of raising alternative species. Salmon production in Maine rose substantially in 1995, as growers concentrated strictly on Atlantic salmon, while production of steelhead trout declined. The rate of growth of domestic farm-raised-salmon in the Northeast has since

slowed, due to the lack of high quality sites and the cost of obtaining new farming permits. Almost all of the increase in production in the last several years has been at existing leases, as opposed to additional lease sites.

Considerable effort is in progress to examine the possibility of farm-raising a number of species that previously were only available in the wild. Recent restrictions on traditional fishing practices have greatly increased interest in raising cod, haddock, and summer flounder experimentally in the Northeast. Surf clams, soft-shell clams, mussels, oysters, bay scallops and sea scallops are also emerging as viable aquaculture shellfish projects.

FOREIGN FISHING AND JOINT VENTURES

Foreign fishing operations in the U.S. Atlantic EEZ came under direct control of the U.S. with the passage of the Magnuson Act in 1976, and joint venture arrangements started in 1982. Since that time, directed foreign fishing has been phased out; and from 1992-1996, there were no joint ventures within this region.

Table 28. Processing Sector

Year	Processing		Wholesaling		Total	
	Plants	Empoloyees	Plants	Employees	Plants	Employees
1990	247	5,832	689	2,928	936	8,760
1991	245	5,530	685	2,976	930	8,506
1992	232	5,367	698	2,912	932	8,279
1993	221	4,727	670	3,041	891	7,768
1994	206	4,794	614	3,471	820	8,265
1995	194	4,952	625	5,043	819	9,995

IWPs (Internal Waters Processing) arrangements have been successful, stable operations for over 10 years. These programs are administered by the states (Maine, Massachusetts, Rhode Island, New York, and New Jersey in particular) which allow U.S. vessels to fish for herring (and some mackerel) in state waters and offload to foreign ships (Russian) for processing. In 1994, 1995, and 1996, a handful of vessels were involved and about 3,000, 9,000, and 11,000 metric tons of herring were landed, respectively, in each year under these agreements. (Fishery Economic Trends. Status of the Fishery Resources off the Northeastern United States. NOAA. B. Pollard Roundtree, P. Clay, S. Steinback, J. Walden)

The New England Groundfish Buyout Program

The New England groundfish buyout program, also known as “The Fishing Capacity Reduction Initiative Program” was an attempt to remove some of the excess capacity from within the New England groundfish fishery . It was done in two phases, beginning with a \$2 million pilot program in June 1995, following a series of meetings with fishing vessel owners, and associated industry representatives. NOAA’s Office of Sustainable Development received nearly 100 applications from vessel owners who wanted to take part in the bidding process that would ultimately remove them from the fishery. The pilot program ended in February 1996, with the purchase of 11 groundfish vessels and all of their associated permits. For the most part, it was mandatory that the vessels were to be scrapped as part of the buy-out agreement. There were a few exceptions made for approved charitable or educational non-commercial fishing endeavors. While it seems that this was a fairly

quick process, it had actually taken nearly 3 years to consider, plan, design and complete the first part of the program.

The second part of the buy-out was to receive an additional \$25 million with \$2 million set aside to help fund a healthcare program for the fishing industry families of New England. With the remaining \$23 million, they were able to remove an additional 68 vessels and all of their permits. It is believed that this program was able to remove nearly 23% of the effort on the New England groundfish stocks.

The Atlantic sea scallop industry finds itself with a similar need to reduce the overall capacity and effort on the scallop resource if any are to survive beyond the immediate future. The initial steps have been taken, with a request to the Secretary of Commerce that he initiate a similar buyout program for the sea scallop industry. It is expected that given the overall higher value of a scallop vessel, as compared to the average New England groundfish vessel, that it will take \$100 million to accomplish the needed reductions. The source of these funds, whether federal, private, or some combination of the two, needs to be recognized before the next steps can be taken.

The Fishing Partnership Health Plan

One of the few bright spots that many fishing families in the New England can point to is the \$2 million that was appropriated from the buyout money to help subsidize a healthcare program. This money was not an entitlement, but it was used to try and make comprehensive healthcare affordable. The plan while not yet available throughout New England has nearly 1500 members from Massachusetts, Rhode

Island, and New Hampshire. The plan is available to any person or family who works within the fishing industry (shoreside processing, infrastructure, or actually as a fisherman). Massachusetts, feeling that preventative healthcare would be cost effective for the state, appropriated \$2 million for each of the next 5 years to further assist Massachusetts' plan members.

industry families are the retraining programs that have done well, particularly in Massachusetts. The retraining has enabled many to find their way away from fishing, or from the shoreside business that are suffering proportionately. It has also enabled many of their spouses to learn a trade or retrain for a better paying position that allows them to augment their family incomes when it is most needed.

Retraining Programs

– Jim Kendall

A second bright spot for many fishing

Endnotes

- 1 Amendment 6 (Limited entry) to the Fishery Management Plan For Pacific Coast Groundfish. Table 5-30.
- 2 Amendment 6 (Limited entry) to the Fishery Management Plan For Pacific Coast Groundfish. Tables 7-1 through 7-5.
- 3 Council News. PFMC. Volume 18, Number 1. Page 5. Council reaffirms position on combination of permits.
- 4 Peter Leipzig, personal communication.
- 5 Draft Amendment 8 (Conversion to Coastal Pelagic Species) to the Northern Anchovy Fishery Management Plan.
- 6 For a thorough description of these phenomena as encountered in the crab and shrimp fisheries of the region, see "Crustacean resources are vulnerable to serial depletion - the multifaceted decline of crab and shrimp fisheries in the Greater Gulf of Alaska" J.M. (Lobo) Oresanz, Janet Armstrong, David Armstrong and Ray Hilborn, *Reviews in Fish Biology and Fisheries* 8, Chapman & Hall, 1998, pp117-176.
- 7 See "Documents on the History of the Russian-American Company", edited by Richard A. Pierce, 1976, The Limestone Press, Kingston, Ontario, Canada; "A Chronological History of the Discovery of the Aleutian Islands or The Exploits of Russian Merchants", by V.N. Berkh, edited by Richard A. Pierce, 1974, The Limestone Press, Kingston, Ontario, Canada; "Atka, an Ethnohistory of the Western Aleutians", by Lydia Black, edited by Richard A. Pierce, 1984, The Limestone Press, Kingston, Ontario, Canada.
- 8 See "The Akutan Whaling and Naval Fueling Station, A History", D. Colt Denfield, Ph.D., Alaska District, U.S. Army Corps of Engineers, November, 1996.
- 9 "The State of Alaska", Ernest Gruening, Random House, New York, 1968, p. 210.
- 10 See "The Last of Yesterday, a History of Dillingham and Nushagak Bay", John B. Parker and students, Dillingham City Schools, June, 1974; "Writing Alaska's History, A Guide to Research", Ed. Robert A. Frederick & Patricia A. Jelle, Alaska Historical Commission, Anchorage, Alaska, 1974.

- 11 See "Koniag to King Crab", Yule Chaffin, Chaffin Incorporated, Kodiak, Alaska, 1967 and "Westward Region Annual Reports to the Industry", Alaska Department of Fish and Game, Juneau, Alaska, serially published on an annual basis.
- 12 Pacific Fishing
- 13 See "Bering Sea pollock season's end ushers in new era", Jim Paulin, Associated Press, Anchorage Daily News, Oct. 19, 1998.
- 14 "Remarks of Senator Ted Stevens to the North Pacific Fishery Management Council," Nov. 11, 1998, Anchorage, Alaska
- 15 St. Augustine Historical Society archives.
- 16 C.F.S. 4149, Bureau of Commercial Fisheries, US Dept. of Interior.
- 17 Gulf States Marine Fisheries Commission Menhaden Regional Management Plan 1995.
- 18 Gusey, W.F. and Zenaida D. Matrugo, Petroleum Productions and Fish and Wildlife Resources, the Gulf of Mexico, Environmental Affairs Shell Oil Company, page 21.
- 19 The pink shrimp fishery of Florida known as the "Tortugas fishery" was discovered by Felix Salvador of St. Augustine in 1949. The offshore shrimp fisheries in South America were discovered by the BCF vessel R/V Oregon in 1958. Both discoveries can be found in numerous government publications.
- 20 Fisheries of the United States, US Department of Commerce, NMFS.
- 21 Conversion formula furnished by Bob Palmer, Florida Marine Fisheries Commission Economist.
- 22 Redfish & trout landing statistics, Texas Parks & Wildlife Commission
- 23 FMRI Landing statistics based on Trip Ticket Information system
- 24 FMP's for fisheries under GMFMC authority.
- 25 Borden Wallace, pers. comm.
- 26 Ibid.
- 27 Joint venture (JV) means any operation by a foreign vessel which assists the fishing activities of U.S. vessels; this includes catching, scouting, processing and/or support (a JV generally entails a foreign vessel processing fish received from U.S. fishing vessels, and conducting associated support activities.
- 28 Internal waters processing are JV transfer activities that take place within state territorial waters.
- 29 Days-at-sea (DAS) were allocated to vessels either as fleet days or as individual days. DAS for the groundfish vessels are currently regulated through a vessel call-in system that requires a vessel to call in, and report departure and arrival. It is expected that this call-in system will be supplemented with a mandatory vessel tracking system (VTS) or vessel monitoring system (VMS).
- 30 DAS reporting for full-time permit holders was originally done via the call-in system. They now must use the mandatory VTS.
- 31 Scallopers are prohibited from fishing in the groundfish area closures as well as the scallop area closures.
- 32 Ex-vessel dollar values are the prices paid to the vessel at point of landing or first transaction.

³³ While the closures affected some of the most prolific scallop bottom, it was not closed to fishing because of scallop conservation, but to protect aggregate concentrations of spawning groundfish.

³⁴ Tonnage Class (TC) vessels are divided into 4 classes: TC1: <5 Gross Registered Tons (GRT); TC2: 5-50 GRT; TC3: 51-150 GRT; and TC4: >150 GRT.

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Appendix C: Public Comments

Letters to the Task Force