Responsible Fisheries Management into the 21st Century

a report from
the North Pacific Fishery
Management Council

August 2002

2002 Council Members

We in Congress consider the fishery management council as a pivotal mechanism in our national fisheries management program...you are to be the decision makers, you are the policy planners, you must evaluate past performance and make changes if necessary for the better, but you alone will be responsible to the fishermen and to the nation, all people, all of us, for the proper management of these fisheries resources...

Senator Warren Magnuson
at first National Conference of Councils,
September 1976

I think the Magnuson Stevens Act is the most successful federal-state management program that's been devised. The Act was not an Act for fishermen; it was not an Act for processors; it was not an Act for consumers; it was an Act to protect the basic reproductive capacity of our fisheries. What Senator Magnuson and I tried to do was recognize that fisheries off the various portions of our coast require different management and that is why we regionalized the concept. To nationalize it again, would result in destroying our fishery.

Senator Ted Stevens
to the Senate Commerce Committee,
May 2002

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Cover photos:
C/P Arctic Storm: Arctic Storm
Walleye Pollock: ASFC
Sea Urchins: ASFC

Message from the Chairman...

David Benton, Chairman

Our oceans, and the fisheries that thrive there, represent one of the Nation's most important natural resources, providing food, livelihoods, and recreation opportunities for all citizens. The management process responsible for the stewardship of these resources has been in place for 26 years, since passage of the Magnuson-Stevens Fishery Conservation and Management Act in 1976. That process, and the status of our marine resources, is rightfully under intense public scrutiny. Environmental organizations, government agencies, fishermen, other public constituents, and the U.S. Congress are all concerned for the sustained viability of commercial and recreational fisheries, and other components of the marine environment. A Presidential Ocean Commission is currently evaluating all aspects of the Nation's policies on stewardship of the oceans, including how our fisheries are managed. Some are even calling for a complete overhaul of the current fisheries management process established under the Magnuson-Stevens Act.

We believe that the North Pacific is an example of how the current process, which recognizes and accommodates both national and regional interests, can result in responsible stewardship of these precious resources. When it is carried out properly, this process has all the ingredients for responsible decision-making. It is based on science, it is deliberative, it is transparent, and it is representative of all user groups and the general public. Driven by the underlying science provided by NOAA Fisheries, the State of Alaska, universities, and other independent scientists, with consideration of all regional and national constituencies, and through the review and approval process by NOAA Fisheries and the Secretary of Commerce, this process allows for successful stewardship of our fisheries. The North Pacific Fishery Management Council is rightly proud of its record. None of our groundfish stocks are listed as overfished. Our Council has set aside over 98,000 square nautical miles of ocean for protection of habitat or other important biological resources. Two Bering Sea crab stocks, affected by changing environmental conditions, are under rebuilding plans which protect crab habitat and restrict harvests to zero. And, we have taken steps to significantly reduce waste and bycatch in our fisheries. Even so, our Council also recognizes that there is always room for improvement, and we are aggressively pursuing additional measures to reduce bycatch, protect habitat, and incorporate ecosystem considerations into our management programs. This leads us to the conclusion that in those cases around the country where fishery management has failed to meet the conservation test, it is not because of the structure of the process, but because of a failure to properly utilize that structure.

While our fisheries management process is rightfully under the eye of public scrutiny, often only the negative aspects of fisheries management, the 'gloom and doom' stories, make the headlines. It is time for the public and our national policy makers to be better informed about the positive aspects of fisheries management in the North Pacific – the success stories deserve to be recognized. This publication summarizes the overall management philosophy of the North Pacific Fishery Management Council, and provides specific examples of our precautionary approach to management, our reliance on scientific advice, what we are doing to conserve fish stocks, protect habitat, manage and reduce bycatch, and incorporate ecosystem considerations into fishery management decisions. We are very proud of our record in meeting conservation goals and maintaining healthy fisheries resources. Half of the Nation's annual fish landings come from waters off Alaska, and all of the groundfish stocks are in a healthy, sustainable status. While we want to highlight these success stories, we also recognize the importance of ongoing concerns regarding habitat degradation, protection of non-fisheries resources including marine mammals, bycatch reduction, and overall ecosystem protection. Our current process, and our partnerships with the National Marine Fisheries Service and the State of Alaska in this stewardship mission, provide us with the tools to responsibly address these challenges. Our Council is committed to maintaining the healthy fisheries we currently enjoy, sustaining them for future generations, and managing these resources in a manner which incorporates all components of the marine environment.

Thank you for taking the time to learn more about fisheries management in the North Pacific.

North Pacific Fishery Management Council

The Council's mission

is to wisely manage fisheries off Alaska to provide benefits today and in the future.

Alaska's fisheries are valued at over $ 1billion per year and provide over half the volume of fish landings in the United States. The fisheries are a powerful economic engine for over a hundred coastal communities, thousands of vessels, and tens of thousands of workers in the fishing and processing industries throughout Alaska and the Pacific Northwest. This national treasure demands responsible stewardship and can be managed to provide sustained benefits to all users.

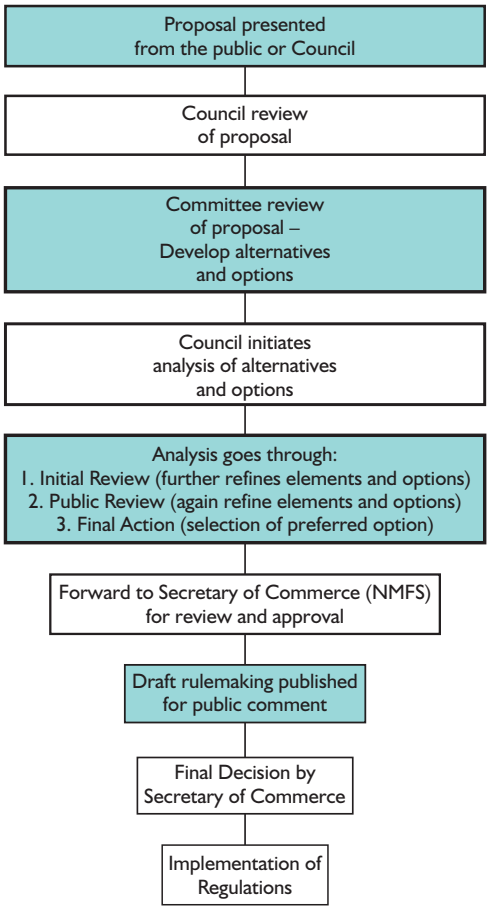
The North Pacific Fishery Management Council is one of eight regional councils established by the Magnuson-Stevens Fishery Conservation and Management Act in 1976 to manage fisheries in the 200-mile Exclusive Economic Zone (EEZ). The Council primarily manages groundfish in the Gulf of Alaska, Bering Sea, and Aleutian Islands, including cod, pollock, flatfish, mackerel, sablefish, and rockfish species harvested by trawl, longline, jig, and pot gear. The Council also makes allocation decisions for halibut, in concert with the International Pacific Halibut Commission that biologically manages the resource for U.S.-Canada waters. Other large Alaska fisheries such as salmon, crab, and herring are managed jointly with the State of Alaska.

The Council has eleven voting members representing state fisheries agencies, industry, fishing communities, and academia. Six are from Alaska, three are from Washington, one from Oregon, and there is a representative from the National Marine Fisheries Service (NMFS). The Council's four non-voting members represent the U.S. Coast Guard, U.S. Fish and Wildlife Service, Department of State, and the Pacific States Marine Fisheries Commission. The Council's offices and staff are located in Anchorage, Alaska. The Council receives advice at each meeting from a twenty-two member Advisory Panel (representing user groups, environmentalists, recreational fishermen, and consumer groups), and from a thirteen-member Scientific and Statistical Committee of highly respected scientists who review all information brought to the Council.

Each Council decision is made by recorded vote in a public forum after public comment. Final decisions then go to the Secretary of Commerce for a second review, public comment, and final approval. Decisions must conform with the Magnuson-Stevens Act, the National Environmental Policy Act, Endangered Species Act, Marine Mammal Protection Act, Regulatory Flexibility Act, and other applicable law including several executive orders. Regulatory changes may take up to a year or longer to implement, particularly if complex or contentious.

Changes to fishery regulations require a number of steps including proposal, development of alternatives, analysis and review, decision, and rulemaking. There are opportunities for public input into the process at each step, as indicated in blue boxes of the flow chart.

Council Process



The Council prepares and modifies fishery management plans (FMPs) for fisheries under its jurisdiction. Each FMP contains a suite of management tools that together characterize the fishery management regime. These management tools are either framework measures, (which allow for annual or periodic adjustment using a streamlined notice process), or are conventional measures that are fixed in the FMP or its implementing regulations and require a formal plan or regulatory amendment to change. Amendments to the FMP or its regulations are considered at each meeting by the Council, with proposed amendments submitted by both the resource agencies and the public. As a result, the FMPs and fishery regulations are dynamic and are continuously changing as new information or problems arise.

Fishery Management Plans

The North Pacific Council has prepared and implemented five fishery management plans (FMPs) for fisheries off Alaska.

Bering Sea/Aleutian Islands Groundfish FMP: This FMP includes all species of groundfish (pollock, cod, flatfish, sablefish, rockfish, etc.) and management measures for vessels using trawl, longline, pot, and jig gear. Inseason management of these fisheries is conducted by NMFS in Juneau.

Gulf of Alaska Groundfish FMP: The GOA Groundfish FMP also includes the major groundfish target species except for a few that are managed by the State of Alaska. Many management measures mirror the BSAI groundfish FMP.

Bering Sea/Aleutian Islands King and Tanner Crab FMP: This FMP includes all species and fisheries for king and Tanner crab (red, blue, and brown king crab, Tanner crab, and snow crab). Inseason management of these fisheries is provided by ADF&G in Kodiak.

Alaska Scallop FMP: This FMP was developed to control fishing effort in the weathervane scallop fishery. Only 9 vessels are permitted under a license limitation program. Inseason management of the fishery is provided by ADF&G in Kodiak.

Alaska Salmon FMP: The Salmon FMP was developed to prohibit fishing for salmon in the EEZ except by a limited number of vessels using troll gear in Southeast Alaska. All other salmon fisheries are conducted in State waters and are managed by the State of Alaska.

National Standards of the Magnuson-Stevens Fishery Conservation and Management Act.

1. Conservation and management measures shall prevent overfishing while achieving, on a continuing basis, the optimum yield from each fishery for the United States fishing industry.

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

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

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

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

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

7. Conservation and management shall, where practicable, minimize costs and avoid unnecessary duplication.

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

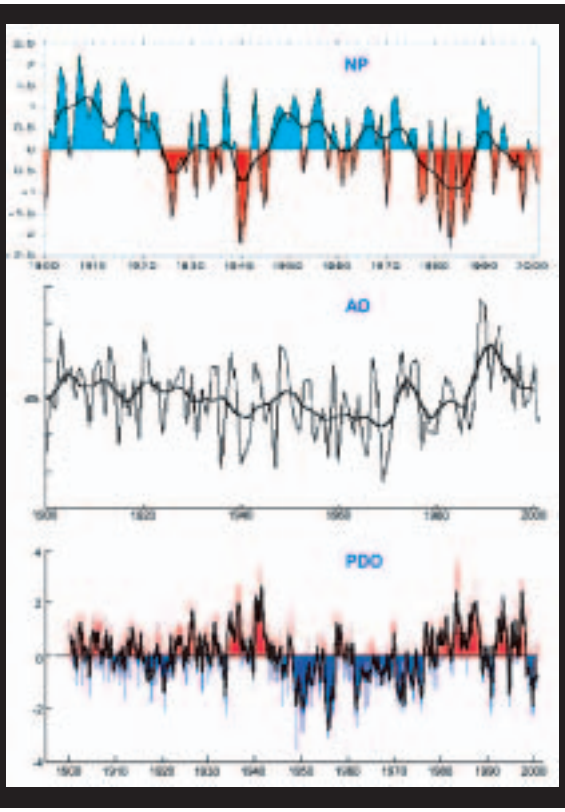
9. Conservation and management measures shall, to the extent practicable, (A) minimize bycatch and (B) to the extent bycatch cannot be avoided, minimize the mortality of such bycatch.

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

North Pacific Ecosystem

Some people assume that fish stocks should always be at the same high abundance level, year after year. Conservation groups sometimes blame fishing for stock declines, and fishery managers sometimes take credit when stocks increase. Yet off Alaska, where only a small portion of the fish are removed from the ocean each year, changes in abundance are primarily due to fish populations responding to favorable (or unfavorable) environmental conditions.

The North Pacific marine ecosystems include the Bering Sea, Aleutian Islands, and Gulf of Alaska. These near-Arctic ecosystems are dynamic – that is, environmental conditions as well as the abundance of biological resources change from year to year. Natural factors forcing change include physical and climate changes (such as temperature, winds, currents, etc.) and biological changes (such as fluctuations in production of plankton and other organisms). Human-induced factors that influence change include removal of resources and physical habitat changes due to fishing, as well as modifications to the physical, chemical, and biological environment due to non-fishing activities. The overarching goal of the Council is to manage such that fisheries do not drive the system, but rather allow management measures to adapt quickly to changes in the ecosystem.



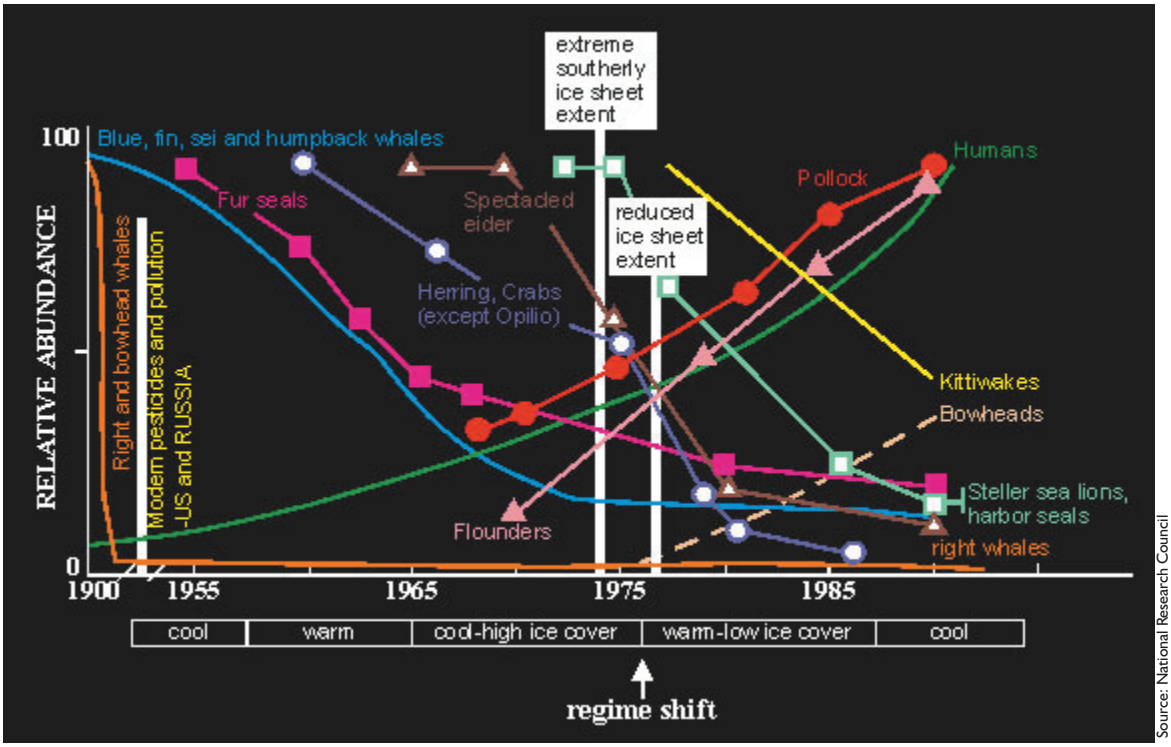
Indicators of oceanographic and atmospheric change in the North Pacific

Top: The North Pacific Index (NPI) from 1900 through 2001 is the sea-level pressure averaged for January through February. **Middle:** Monthly and smoothed (black line) relative values of the Arctic Oscillation (AO) index, 1900-2001. **Bottom:** Monthly and smoothed (black line) values of the Pacific Decadal Oscillation (PDO) index, 1900-2001 (updated from Mantua et al. 1997).

Natural environmental changes can cause major changes to Alaska marine ecosystems. It is well documented that atmospheric forcing caused a major regime shift in the North Pacific Ocean after 1976. Ocean circulation changed, causing changes in ocean upwelling and temperature, resulting in different levels of ocean productivity and biodiversity. Some fish populations fared poorly under the post 1976 conditions (e.g. shrimp, red king crab), whereas other populations flourished (e.g., sockeye salmon and most species of flatfish). In addition to long-term changes, there are large amounts of annual variability in ocean conditions (ice cover, storms, temperature), which in turn affect the survival of fish larvae. For example, in some years lots of pollock larvae survive to become juvenile pollock, but in other years the ocean conditions dictate poor survival of larval pollock.

Major biological changes occurred in the North Pacific prior to development of commercial fisheries. Sediment cores have shown that Alaska sockeye salmon populations likely fluctuated quite a bit over the past 500 years, despite the absence of commercial fishing in the first 400 years. Humans impacted the Alaska marine ecosystems with the removals of otters beginning in the mid-1700s, and fur seals and great whales beginning in the mid-1800s. In the period 1950-1976 alone, total catches of whales off Alaska exceeded 5,700 blue whales, 26,000 fin whales, 74,000 sei whales, 30,000 humpback whales, and 210,000 sperm whales. The removal of these whales caused major cascading effects that are still being felt today. Some scientists have concluded that the current high abundance of pollock is in part a result of whale removals – the food of baleen whales (zooplankton) is now more available for young pollock, which in turn has increased their survival.

Ideally, fishery management decisions would be made with a full understanding of the impacts of fish harvesting on all components of the marine ecosystem. Because additional research is necessary to understand all potential impacts, the Council works to minimize unforeseen impacts by incorporating a precautionary approach to all fishery management decisions.



Source: National Research Council

Temporal changes in abundance in selected species in the Bering Sea in relation to ocean conditions.

Precautionary Approach

The North Pacific Council has approached fisheries management with an eye towards long-term sustainability of marine resources. Management decisions incorporate extra conservatism so that commercial fisheries do not inadvertently cause irreversible damage to the environment. Our formula for sustainable fisheries involves strong science and research programs, an effective reporting and inseason management program, a comprehensive observer program, limitations on fishing capacity, precautionary and conservative catch limits, strict limits on bycatch and discards, habitat protection measures, incorporation of ecosystem considerations, and an open public process that involves stakeholders at all levels.

Over the past several years, this precautionary approach has developed into a more comprehensive ecosystem-based approach. The Council's approach closely mirrors the recommendations of the National Research Council for sustaining marine fisheries, with the goal "to rebuild and sustain populations, species, biological communities, and marine ecosystems at high levels of productivity and biological diversity, so as not to jeopardize a wide range of goods and services from marine ecosystems, while providing food, revenue, and recreation for humans." While we have yet to develop explicit fishery ecosystem plans because of the paucity of data and lack of scientific based ecosystem models, our strategy is to minimize potential ecosystem effects while allowing for sustainable fish removals as we gain the knowledge necessary to implement more specific measures.

In fisheries, the Precautionary Approach is about applying judicious and responsible fisheries management practices, based on sound scientific research and analysis, proactively rather than reactively, to ensure the sustainability of fishery resources and associated ecosystems for the benefit of future as well as current generations.

Measures used to manage the Alaska Groundfish Fisheries:

Management Areas
Quotas or Catch Limits
Seasons
Limited Entry
Closed Areas
Gear Restrictions
Bycatch Limits
Observer Requirements
Reporting Requirements
Allocations

Our management program relative to the National Research Council's recommendations for achieving sustainable marine fisheries.

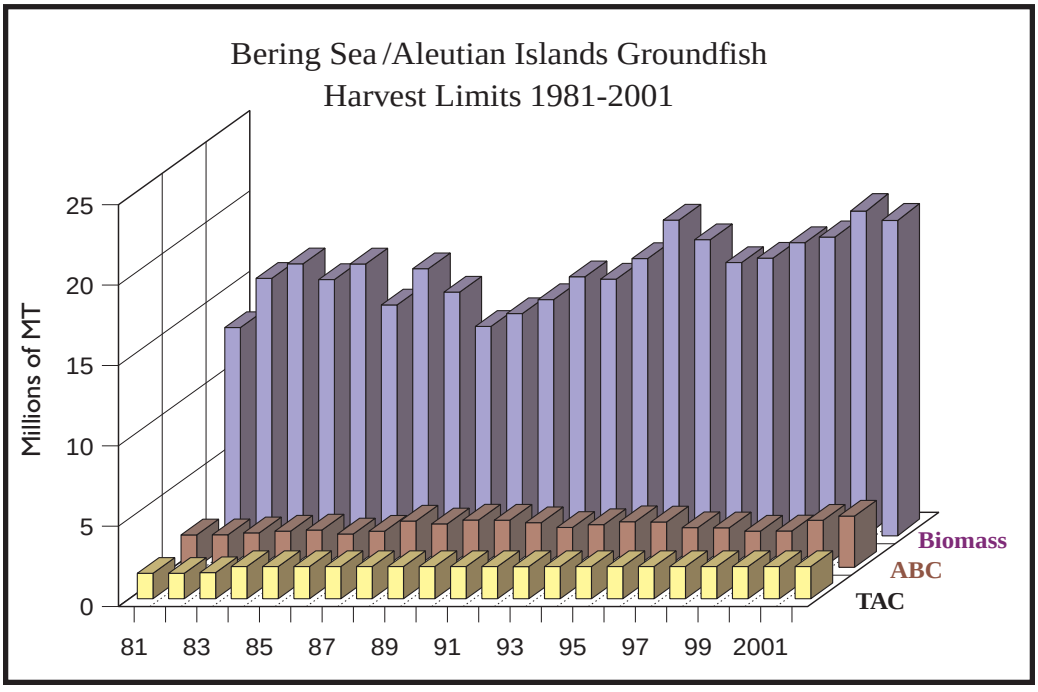
National Research Council's Recommendation	In Existing Program?
• Adopt conservative harvest levels for single species fisheries	Yes
• Incorporate ecosystem considerations into management decisions	Yes
• Adopt a precautionary approach to deal with uncertainty	Yes
• Reduce excess fishing capacity and assign fishing rights	Yes
• Establish marine protected areas as a buffer for uncertainty	Yes
• Include bycatch mortality in TAC accounting	Yes
• Develop institutions to achieve goals	Yes
• Conduct more research on marine ecosystems	Yes

Conservative Catch Limits

Strict annual catch limits for every target fishery are a basic tenant of sustainable fisheries management. In the North Pacific, a rigorous process in place for 25 years ensures that annual quotas are set at conservative, sustainable levels. Beginning with scientific, annual groundfish abundance surveys, stock assessment scientists recommend acceptable biological catch (ABC) levels for each species. These are reviewed by the Council's Groundfish Plan Teams, then further reviewed by the Council's Scientific and Statistical Committee (SSC), prior to the Council's setting of the Total Allowable Catch (TAC), which is always set at or below the ABCs recommended by the SSC, and far below the designated overfishing level. Recently, the Council commissioned an independent review of basic exploitation strategies by a panel of internationally recognized scientists. Their report is due in the fall of 2002.

North Pacific fisheries are managed with strict annual catch limits for each species. The catch of all species – whether targeted or taken as bycatch, whether retained or discarded – count toward the limit. Fisheries are closed when these limits are attained.

As an additional precautionary measure, the Bering Sea and Aleutian Islands quotas, for all groundfish combined, are capped at a maximum of 2 million metric tons (mt) annually, regardless of the maximum recommended ABC levels. For example, ABCs for 2002 totaled well over 3 million mt, yet TACs were reduced to stay within the 2 million mt cap. Due to the complex array of regulations governing these fisheries (including seasonal and area allocations, allocations by gear type, closed areas, gear restrictions, and bycatch caps for certain species), actual harvests average about 90% of TAC and 65% of ABC. For the past 28 years, groundfish harvests have been sustained in the 3 to 5 *billion* pound range, and **no groundfish stocks are considered overfished.** Two crab stocks are considered overfished (though climatic factors are the likely reason, rather than fishing) and these stocks are currently subject to aggressive rebuilding plans, including zero fishing allowance.



Pollock biomass is currently near all-time high levels, with a 2002 overfishing level of 3.54 million metric tons and an acceptable biological catch level of 2.1 million mt. The Council set the 2002 total allowable catch at a conservative 1.5 million metric tons.

A comparison of the annual catch limits (TAC) established for BSAI groundfish with the level of harvest that would be biologically acceptable (ABC) and the biomass of adult groundfish (exploitable biomass).

Effective Monitoring and Enforcement

A frequent criticism of fisheries management is that total catch and bycatch may not be fully and accurately accounted. Strict catch and bycatch limits are only as effective as our ability to stay within those limits. A combination of reporting requirements, observer coverage, and real-time in-season monitoring ensures that annual catch and bycatch quotas are not exceeded. Processors and catcher/processors are required to report their catch and processing totals on a weekly basis (including target, non-target, and prohibited species), while catcher vessels delivering their harvest to shore plants are required to record all harvest on State fish tickets after each trip. Coupled with observer reports, this system allows fisheries managers at NMFS to:

1. Closely monitor overall catch levels, as well as seasonal and area apportionments.
2. Close designated areas, or fisheries, if bycatch limits for prohibited species (halibut, crab, salmon, herring) are attained.
3. Monitor the take of any ESA listed mammals or seabirds.
4. Provide a database for predicting consequences of future management actions.

At the core of the monitoring system is a comprehensive, industry-funded, on-board observer program. **Except for small vessels less than 60 feet, all vessels fishing for groundfish in federal waters are required to carry observers, at their own expense, for at least a portion of their fishing time.** The largest vessels, those over 125 feet, are required to carry observers 100% of the time, with multiple observers required on catcher/processors and in certain fisheries. Scales to weigh catch are also required on the larger vessels. Shoreside processing plants are also required to have observers at all times. Observers measure total catch, catch composition, and discards, and collect biological information critical to stock assessment. In excess of 36,000 observer days, by nearly 500 observers, are logged in these fisheries each year.

In the huge pollock fisheries off Alaska, nearly 85% of the total catch is sampled by federal fisheries observers – the catcher/processor, or 'factory trawler,' fleet is required to carry multiple observers, resulting in 99% of their catch being sampled by observers.

Photo: USCG

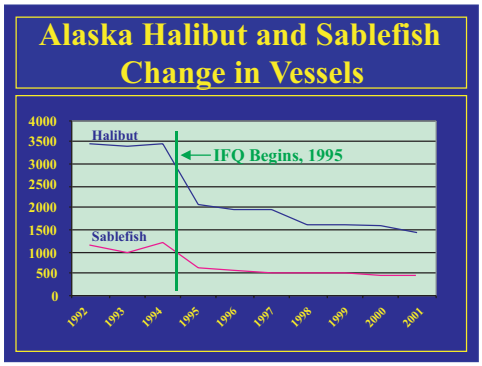
KODIAK, Alaska – The Coast Guard cutter Storis patrols along the Aleutian Island Chain during a recent February 2002 patrol. (Official) U.S. Coast Guard cutter Storis photo.

NMFS and State enforcement, and the U.S. Coast Guard, provide complementary efforts in monitoring regulatory compliance, both on the grounds and dockside. As part of their patrol activities, the Coast Guard enforces a complex array of domestic regulations and international treaties, including enforcement of the maritime boundary and high seas driftnet violations. NMFS Alaska Enforcement Division also conduct patrols and investigations throughout coastal Alaska to enforce fisheries regulations and total catch limits. Recently, vessel monitoring system (VMS) requirements have been imposed on many of the fisheries off Alaska, to enforce complex time and area closures resulting from management measures to further protect Steller sea lions.

Fisheries off Alaska are subject to the most intense system of monitoring and accounting to be found anywhere in the world.

Reducing Overcapacity and Increasing Safety

While the North Pacific fisheries are managed with strict overall catch quotas for each species, overcapacity can still compromise management effectiveness, and certainly compromises the economic viability of the fisheries. Since full Americanization of the fisheries off Alaska in about 1990, the Council has actively and aggressively pursued capacity limitations in all managed fisheries. In 1992, the Council approved the largest IFQ program in the nation, transforming the dangerous 24 hour halibut and sablefish derby fisheries into orderly eight month fisheries prosecuted with 50% fewer vessels, less gear on the fishing grounds, and an increased safety factor. A moratorium on new vessel entry into the remaining groundfish and crab fisheries became effective in 1996, with a further, more restrictive, license limitation program in place by 2000. Further reductions are pending which specifically reduce the number of Pacific cod license endorsements in the Bering Sea.



In 1998, the American Fisheries Act was passed by Congress, and implemented by the Council the following year. Under this Act, access to the Bering Sea pollock fisheries was limited to a specific number of qualifying vessels and processors, and a system of fishery cooperatives was put in place which allows the fleet to effectively assign individual vessel catch and bycatch accountability. The results of this 'rationalized' fishery include: a 50% reduction in the number of large catcher/processors operating in the fisheries; more effective monitoring of pollock quotas, particularly numerous time and area closures to protect sea lions; reduced bycatch of non-target species; and, significantly higher utilization rates (pound of product per pound of raw fish caught). Similar programs are currently under consideration by the Council for other fisheries.

All federal groundfish and crab fisheries under the Council's jurisdiction are managed under limited entry programs which limit the number of active licenses, and restrict each vessel to specific area and gear endorsements.

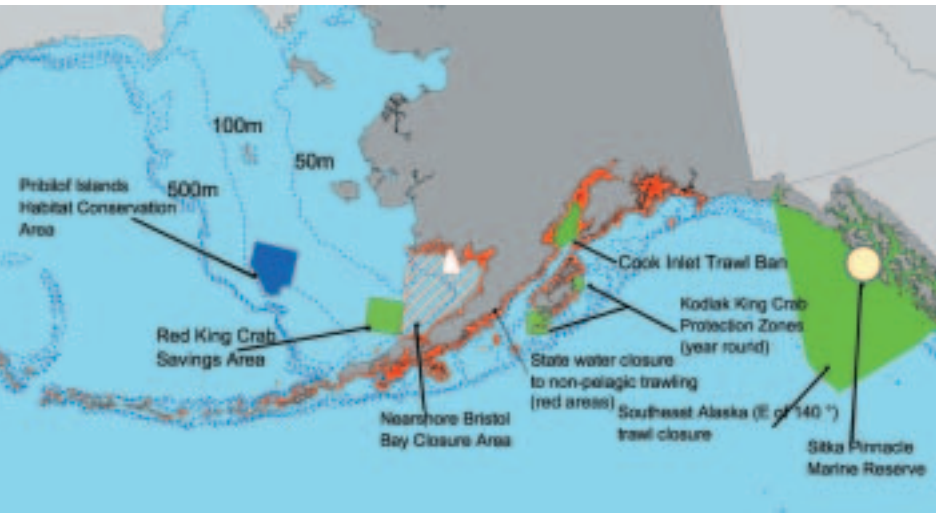
Photo: USCG

F/V Alaska Monarch and Coast Guard helicopter in preparation for rescue, 1990.

In June 2002, the Council selected a preferred alternative to rationalize the Bering Sea/Aleutian Islands crab fisheries. The program will reduce capacity in both the harvest and processing sectors through the allocation of harvest shares and processing shares. To mitigate potential impacts on fishing communities and crew, the program includes regional landing requirements and allocates a portion of the harvest shares to captains. This rationalization program is expected to improve safety in a fishery regarded as the most dangerous in the world.

The Council is also evaluating options for rationalizing the Gulf of Alaska groundfish fisheries.

Habitat Protection



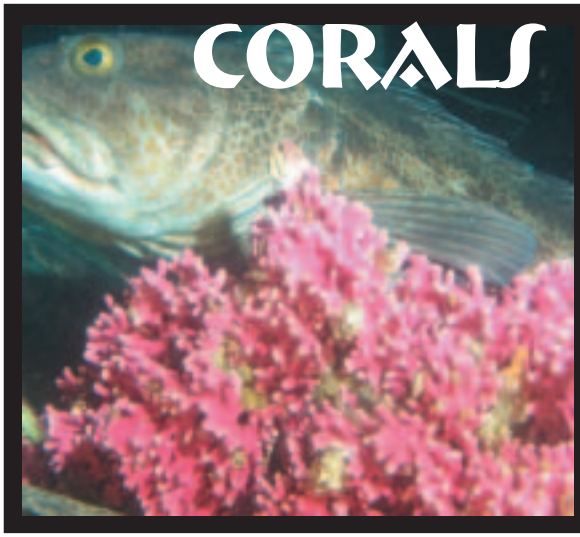
Location of marine protected areas off Alaska where bottom trawling is prohibited year-round to protect fish and crab habitat.

Ocean habitat is essential for maintaining productivity of fishery resources, and is a key component of an ecosystem-oriented management approach. Habitat that provides structural relief on an otherwise featureless bottom can be particularly important to fish for food, reproduction, and shelter from predators. Structural habitat includes boulders, corals, anemones, kelp, and other living organisms attached to the ocean bottom.

Because structural habitat has the potential for being disturbed by fishing gear, regulations have been implemented to protect areas where this habitat type is known to occur. Vast areas of the North Pacific have been permanently closed to groundfish trawling and scallop dredging to reduce potential adverse impacts on sensitive habitat and to protect juvenile crab. A vulnerable nearshore pinnacle off Cape Edgecumbe in southeast Alaska has been closed to fishing with all gear types.

These marine protected areas comprise a relatively large portion of the continental shelf, and in many respects, serve as marine reserves. In the Bering Sea, the year-round bottom trawl closures encompass about 30,000 square nautical miles. This is an area larger than Indiana or Maine and more than twice the size of Georges Bank off the east coast of the United States. The Gulf of Alaska trawl closures encompass over 60,000 square nautical miles. In addition, fishery closures established in nearshore areas to reduce interactions with Steller sea lions have ancillary benefits of reducing habitat impacts as well.

All fishery management plans include a description and identification of essential fish habitat, adverse impacts, and actions to conserve and enhance habitat. Maps of essential fish habitat areas are useful for understanding potential effects of proposed development and other activities. The Council is currently working to develop and implement alternatives to improve the essential fish habitat protection program off Alaska. Impacts of fisheries are being evaluated, and additional measures will likely be taken to further protect habitat.

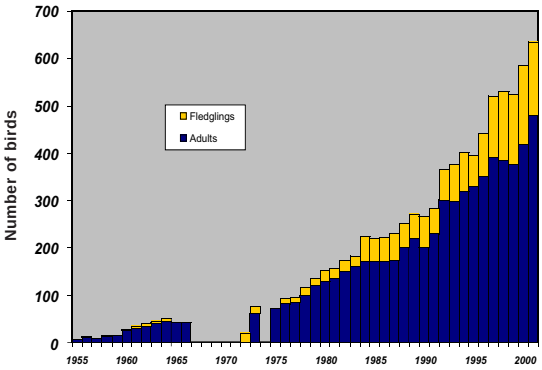


Many people are surprised to learn that large brightly colored corals are found in the deep waters off Alaska. Gorgonian corals are colonies of animals composed of individual polyps which deposit a tree-like skeleton. Common gorgonians off Alaska include red tree coral (Primnoa willeyi and P. resedaeformis), bubble gum coral (Paragorgia arborea), and other sea fans (Calligorgia sp.). The red tree corals (some grow up to 9 feet high) are slow growing and may live over 100 years. The colonies are attached to rocks and generally occur in discrete aggregations (like groves of trees) in deep water characterized by fairly strong currents and low turbidity. These corals have been shown to be shelter for rockfish and other fish species, but are vulnerable to damage by fishing gear. Vast areas have already been closed which help to protect these coral habitats in the Gulf of Alaska, and additional measures are being considered. Large closures related to Steller sea lions provide additional protection for these corals.

Seabird Protection

The short-tailed albatross is a very large seabird with a seven foot wing span, adapted for soaring low over the ocean. As a result of hunting of short-tailed albatrosses in the 1880s for their feathers, the population was believed to be extinct. But in 1950, 10 birds were found to be breeding on Torishima Island off Japan. Since then, the population has been rapidly increasing, with about 500 birds nesting in 2001.

Laysan Albatross
Photo: Shane Capron, NOAA Fisheries



Seabirds are frequent companions to commercial marine fishing vessels, attracted to the churning waters of a boat's wake to feed on escaping fish from trawl nets, seines, and other fishing gear, and on baited hooks of hook-and-line vessels. Some seabirds are incidentally caught during fishing operations, with most caught on baited hooks set by hook and line gear in pursuit of halibut, sablefish, and cod. In previous years, an estimated 20,000 seabirds (primarily northern fulmars and gulls) were incidentally killed in fishing operations. A total of 5 short-tailed albatross were reported caught in longline fisheries since 1990.

To reduce this incidental take, the Council has initiated a comprehensive seabird bycatch reduction program, which includes education, outreach, regulatory compliance, and enforcement to improve the effectiveness of seabird avoidance measures and reduce incidental take of the endangered short-tailed albatross and other seabird species. In 1996, the Council established mandatory seabird avoidance measures to reduce the incidental take of seabirds in hook-and-line fisheries. Through collaboration with researchers and the hook and line fishing industry, the Council approved more stringent requirements in 2001. Seabird deterrent devices are required on all groundfish vessels over 26 feet long (small vessels catch relatively few seabirds).

A substantial reduction in the number of seabirds taken is anticipated once these stricter regulations are implemented. A vast majority (93%) of incidental seabird catch is taken in Bering Sea/Aleutian Islands longline fisheries, which is prosecuted almost exclusively (98%) by vessels larger than 55 feet. Because the use of paired streamer lines (required on vessels > 55') has been found to reduce seabird bycatch by 88%-100%, the total incidental take of seabirds by longliners off Alaska may be reduced by 80% or more in coming years.

Proposed regulations to reduce incidental capture of seabirds.

- Longline vessels >55' in length must use paired streamer lines.
- Longline vessels 26-55' in length must use a buoy bag line or single streamer line.
- Discharge of residual bait or offal while setting gear is prohibited.
- All vessels must have onboard a Seabird Avoidance Plan.

Marine Mammal Protection

There are an estimated 22 billion pounds of pollock swimming in U.S. waters off Alaska. Fisheries take less than 15% of this biomass each year.

Fisheries can potentially affect marine mammals through competition for prey, direct mortality, and disturbance. For most species in the North Pacific (such as seals, whales, and otters), interactions with fisheries are thought to be minimal or nonexistent. To reduce any potential effects of fisheries on Steller sea lions and Pacific walrus, the Council has implemented numerous measures over the years (see adjacent box). In addition, the Council adopted a regulation in 1997 that prohibits directed fishing for forage fish species such as capelin and a host of other forage species including euphausiids (krill), which are important prey for fish, seabirds, and marine mammals.

In October 2001, the Council adopted a more stringent suite of fishery management measures for pollock, Pacific cod, and Atka mackerel fisheries, to minimize any potential competition for prey with the endangered western stock of Steller sea lions. These management measures, which were implemented in January 2002, include fishery and gear-specific closed areas around Steller sea lion rookeries and haulouts, and seasonal apportionments of the total allowable catch limits for pollock, Pacific cod, and Atka mackerel. The National Marine Fisheries Service has determined that fisheries prosecuted under these measures will not jeopardize Steller sea lions or adversely modify their habitat.

Steller sea lions at Benjamin Island haulout. Photo by Amy Van Atten, NOAA Fisheries

Management Measures

No shooting: In 1990, shooting at or within 100 yards of Steller sea lions was prohibited. Before then large numbers of sea lions were thought to have been intentionally shot by fishermen and others.

Limits on incidental kills: When Steller sea lions were listed as threatened, the number that could be killed incidental to commercial fishing was reduced from 1,350 to 675 animals. In recent years however, mortality due to commercial fishing has averaged about 35 animals per year.

No entry buffer zones: In 1990, vessels were prohibited from operating within 3 nautical miles of principal rookeries east of 141° W longitude. Limits on approach by land (1/2 mile around the rookeries) were also instituted.

No-trawl zones: In 1992, trawling was prohibited year-round within 10 nautical miles of 27 rookeries, and some extend to 20 miles during the pollock A-season.

No-pollock fishing zones: In 1999, trawling for pollock within 10 or 20 nautical miles around most major haulout areas for Steller sea lions was prohibited. All pollock fishing has been prohibited in the Aleutian Islands since 1998.

Seasonal dispersion of fisheries: In 1991, pollock roe stripping was banned, and the Bering Sea pollock fishery was split into a winter fishery (A-season) and a late summer fishery (B-season). In 1998, Atka mackerel was seasonally apportioned in the Aleutian Islands. In 1999, the pollock fishery in the Gulf of Alaska and Bering Sea was split into four separate seasons, with limits on the amount that can be taken in each of those seasons.

and Steller Sea Lions

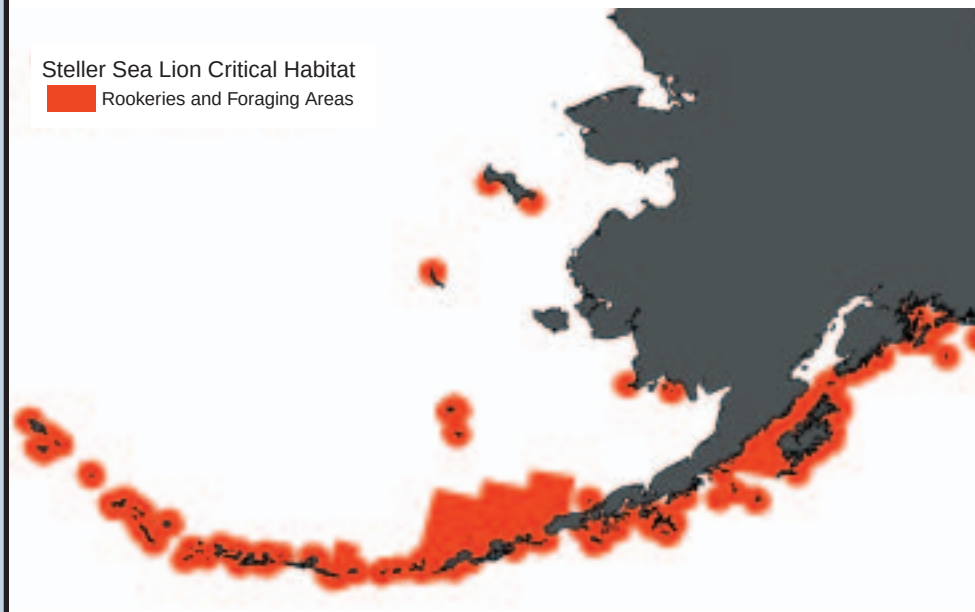
Spatial dispersion of fisheries: Beginning in 1994, the Atka mackerel harvest limit was apportioned among smaller subareas of the Aleutian Islands area to prevent localized depletion. In 1998, Atka mackerel catch limits were established within critical habitat areas. In 1999, regulations were imposed to disperse the pollock fishery outside of Steller sea lion critical habitat in the Gulf of Alaska and Bering Sea.

Precautionary harvest limits on Steller sea lion prey: Concerns for sea lions have resulted in explicitly conservative harvest rates for pollock, Atka mackerel, and other known prey species. For example, the maximum acceptable biological catch (ABC) for Bering Sea pollock in 2002 was 2,110,000 mt, but the total allowable catch (TAC) limit was set at only 1,485,000 mt. While all groundfish stocks off Alaska are considered to be healthy, the concern for sea lions and a greater focus on multi-species, ecosystem oriented management has reinforced the Council's already conservative approach to the quota setting process.

Prohibition on directed fishing on forage fish: In 1997, the Council adopted an amendment that prohibits directed fishing for forage fish, which are prey for groundfish, seabirds, and marine mammals. Under this amendment, protection is provided for forage fish species such as capelin, sand lance, myctophids, and a host of other forage species.

Area and fishery specific measures: In 2001, the Council adopted a comprehensive plan to mitigate potential effects of pollock, mackerel, and cod fisheries on Steller sea lions.

Map showing Steller sea lion critical habitat. Pollock, cod, and mackerel fisheries have been prohibited or severely restricted throughout most of this habitat.



Steller sea lion populations have been declining in the western portion of their range since the late 1970s. There does not appear to be a single cause for this decline, and a number of factors may be involved including but not limited to intentional shooting in past years, disease, predation, and food limitation. Sea lions are not only important to the ecosystem as top level predators, but also are an important food source for native peoples of the Pribilof Islands and Aleutian Islands. Steller sea lions were declared threatened under the Endangered Species Act in 1990 and the western sea lion stock was listed as endangered in 1997. Interactions of sea lions with fisheries may potentially occur through competition, disturbance, and direct and incidental mortality. Because fish are prey for Steller sea lions, fishery regulations have focused on reducing potential impacts of competition and localized depletion of their prey. Recent studies have shown major food items for Steller sea lions to include pollock, Pacific cod, Atka mackerel, salmon, and octopus. Octopus, squid and capelin were also observed to be an important prey in years prior to the 1978 regime shift.

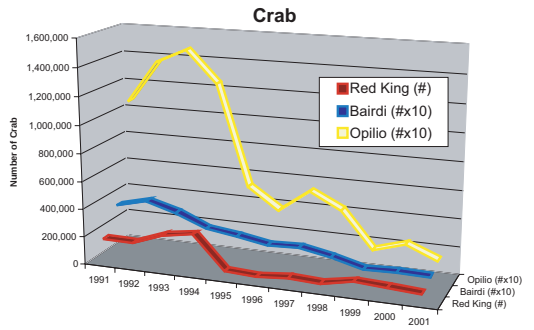
Reduced Bycatch

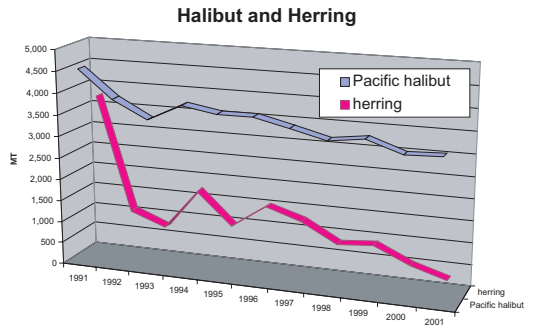
Bycatch of prohibited species such as halibut, salmon, herring and crab average less than 1% of the biomass of those species.

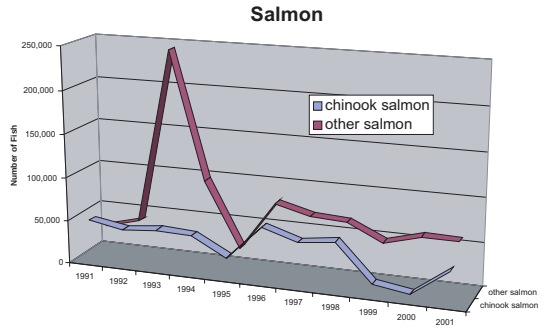
"Bycatch" is the term used to describe fish that are caught incidentally while fishing for other species.

Although fishermen try to catch only fish that can be sold, fishing gear is not 100% selective, and some undesirable fish and other organisms are caught incidentally in the course of fishing operations. These non-target organisms are considered bycatch. Many people are concerned about environmental and allocative effects of catching fish that are not targeted and may be discarded. Fish are discarded for two reasons: either they are required to be thrown back due to regulations (prohibited species), or they are unwanted because they are not economically profitable to be retained (not a preferred species or size for the markets).

Limits on the bycatch of prohibited species (crab, herring, halibut, and salmon) have been established to reduce the impacts on these species traditionally harvested by other gear types. When bycatch limits are reached, fisheries responsible for the bycatch are closed for the rest of the season or are prohibited from fishing in areas with historically high bycatch rates. Bycatch limits for 2002 Bering Sea and Aleutian Island groundfish trawl fisheries included 3,675 mt of halibut mortality, 1,526 mt of herring, 97,000 red king crabs, 3,950,000 *C. bairdi* crab, 4,350,000 *C. opilio*_crab, 33,000 chinook salmon, and 42,000 other salmon. These bycatch limits equate to less than about 1% of the halibut, crab, herring, and chum salmon populations. Bycatch of chinook salmon is slightly larger, in the order of 2% to 3%, and the Council and industry are pursuing several initiatives to further reduce this level.







Bycatch of prohibited species in Bering Sea trawl fisheries, 1991-2001

In addition to bycatch limits, gear restrictions and other regulations have been implemented to reduce bycatch. Biodegradable panels are required for pot gear to minimize bycatch associated with so-called ghost fishing of lost gear. Tunnel openings for pot gear are limited in size to reduce incidental catch of halibut and crabs. Gillnets for groundfish have been prohibited to prevent ghost fishing and bycatch of non-target species. With the implementation of an individual fishing quota system for halibut and sablefish longline fisheries in 1995, bycatch and waste were reduced because the race for fish was eliminated, allowing for more selective fishing practices and significant reductions in actual gear deployment/loss. In 1999, the use of bottom trawl gear was prohibited for vessels targeting pollock in the Bering Sea, to reduce crab and halibut bycatch.

Reduced Discards and Waste

"Discards" are those fish that are caught but not kept.

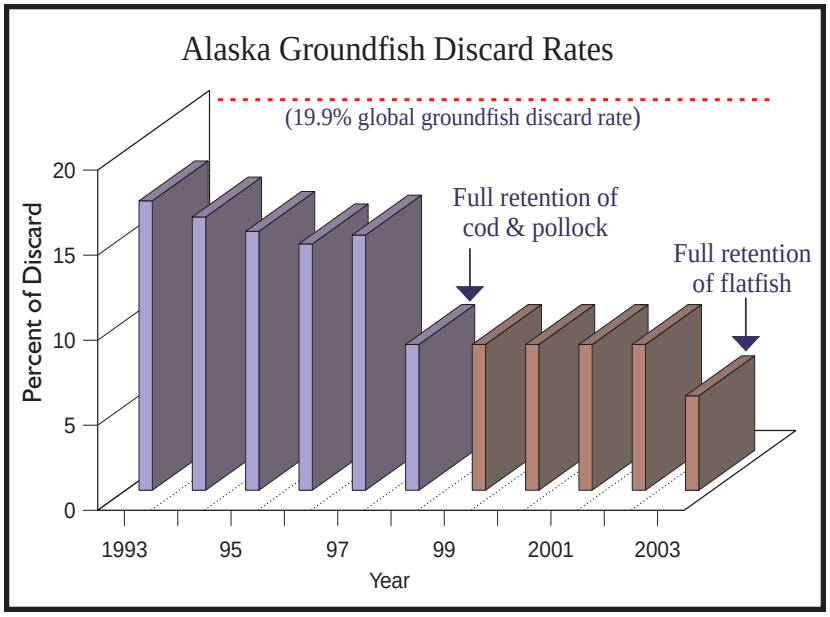
Waste of salmon and halibut bycatch has been reduced by allowing bycatch to be donated to food banks. The food banks in turn distribute the fish to needy people in the northwestern United States. Alaska seafood processors voluntarily donated 85,000 pounds of salmon and 14,000 pounds of halibut providing over 300,000 meals for hunger-relief programs under the NMFS Prohibited Species Donation Program in 2000.

Some fish taken incidentally as bycatch are not profitable to retain – simply put, no one wants to buy small flatfish, sculpins, or some other fish – so they are discarded back to sea. The Council has made considerable progress in reducing this type of bycatch. For example, in 1993, over 17% of the groundfish caught off Alaska were discarded. By 2001, less than 7% of the catch was discarded. This reduction was due, in part, to implementation of full retention requirements – you catch it, you keep it – for pollock and cod. The fishing industry has also worked to reduce bycatch in a voluntary manner by sharing catch information and modifying gear to allow unwanted fish to escape. Implementation of an individual fishing quota system for halibut and sablefish fixed gear fisheries, and the formation of cooperatives in the Bering Sea pollock trawl fisheries, have also resulted in reduced bycatch and waste. The race for fish was eliminated, which then allowed for more selective fishing practices and development of additional markets for lower valued species, and significantly increased utilization rates (pound of product per pound of fish harvested).

Additional reductions would occur with similar requirements in flatfish fisheries, currently scheduled for implementation in 2003.

A clean haul of Pacific Ocean Perch

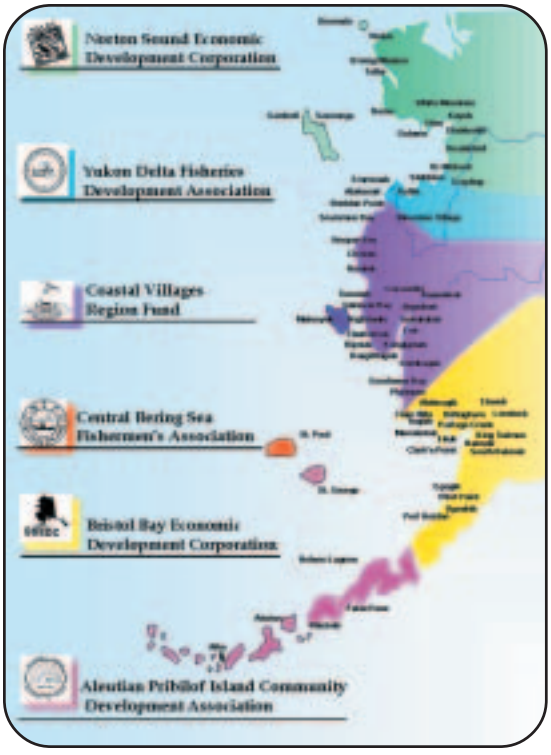
Photo: ASFC Photo Gallery



Protecting Coastal Communities

City of Unalaska, International port of Dutch Harbor.
Gretchen Harrington, NOAA Fisheries

The western Alaska CDQ program supports a variety of development projects, with the ultimate goal of creating an independent, fisheries-based economy in remote coastal villages.



The North Pacific Council is proud of its long history of considering coastal community needs in its management decisions. One of its flagship programs, the western Alaska Community Development Quota (CDQ) program, began in 1992 as part of two major management initiatives. As part of the halibut and sablefish IFQ program, percentages of the Bering Sea and Aleutian Islands quotas were set aside for this program. In that same year as part of the inshore/offshore pollock allocations, the Council also set aside 7.5% (since increased to 10%) of the pollock quota, for exclusive use by 66 remote, coastal communities along the Bering Sea with limited, alternative economic infrastructure. The program was expanded to include 7.5% of all groundfish and crab in 1995.

Other management programs developed by the Council have explicitly included coastal community considerations. As part of the design of the halibut and sablefish Individual Fishing Quota (IFQ) program, numerous provisions were included to safeguard the importance of these fisheries to numerous small, coastal communities throughout Alaska and the Pacific Northwest. These include categories of quota share based on geographic region, vessel size, and other characteristics which help maintain the owner/operator nature of the fisheries and keep the quota shares in the hands of local fishermen. The Council recently amended the program to allow coastal communities in the Gulf of Alaska to purchase and hold quota share for use by local fishermen, further enhancing the ability of these communities to remain active participants in these fisheries. In 2001, the Council developed regulations to fully recognize and authorize halibut subsistence fishing activities by certain rural residents of Alaska and native tribes with customary and traditional practices of using halibut to feed their families, which have occurred for thousands of years.

Over the past three years, the Council crafted a balance of regulatory measures that protect near shore sea lion rookeries and haulouts, while minimizing the burden on certain coastal communities by allowing limited fishing in areas critical to the small boat fleets based in those communities. Likewise, in its current development of rationalization programs for crab and Gulf of Alaska groundfish fisheries, the Council has included provisions which explicitly accommodate the needs and concerns identified by numerous communities who depend on seafood harvesting and processing for their continued survival.

Jobs and Food

Seafood worker preparing red king crab for processing.
Gretchen Harrington, NOAA Fisheries

Fishing vessels in the Kodiak harbor. NOAA Fisheries

Fisheries are one of the most important industries in Alaska, providing employment for thousands of people who work in the commercial fishing industry as skippers, fishing crew, and processing crew, as well as company managers and staff. Over 10,000 people are involved in groundfish fishing and processing alone; thousands more work in the salmon, crab, scallop, and other fisheries. In addition, thousands of people work in other fisheries and fishing support industries, such as sport fishing guides, gear and fuel suppliers, restaurants, hotels, airlines, and others. The Alaska Department of Fish and Game noted that the Alaska fishing industry leads the state in providing 47% of the private sector jobs, and is second only to the oil industry in providing revenue to the state.

Preparing to unload the day's catch of red king crab.
Gretchen Harrington, NOAA Fisheries

Alaska fisheries also are an important source of food for the U.S. and the rest of the world. About one-half of the total U.S. fish catch each year comes from Alaska. In 2001 for example, the fish catch off Alaska consisted of more than 1,834,000 metric tons of groundfish (over 4 billion pounds). Over 93% of this catch was retained for processing. With a 30% utilization rate (portion of the fish used for human food), and an average meal portion of 6 oz., this catch translates into nearly 4 billion meals. Together with salmon, crab, scallops, and other fishery resources, delicious and healthy Alaskan seafood is available to every person, every year. In addition, much of the fish not directly utilized for human consumption is turned into fishmeal and fertilizer to provide additional food in the form of chicken, pork, farmed fish, and vegetable crops.

Processing halibut in Mekoryuk, Alaska.
Photo: Sally Bibb, NOAA Fisheries

Public Participation and Agency Cooperation

One of the keys to successful fishery management is incorporating diverse views into decision making through a transparent public process. The Council system was designed so that fisheries management decisions were made at the regional level to allow input from affected stakeholders. Council meetings are open, and public testimony – both written and oral – is taken on each and every issue prior to deliberations and final decisions. Public comments are also taken at all Advisory Panel and Scientific and Statistical Committee meetings. The Council also appoints a number of working Committees with representation from industry sectors, environmental organizations, and other constituents to provide recommendations on specific issues.

Another key to our success is the continued cooperation with other agencies. A summary of how these agencies assist the Council and the overall goal of successful stewardship of marine resources is shown below.

www.fakr.noaa.gov — National Marine Fisheries Service (NMFS) provides the Council with research information, environmental modeling, stock assessment advice, analytical assistance, restricted access management, regulatory implementation, and inseason monitoring and management of the fisheries. NMFS also reviews and approves recommendations through the office of the Secretary of Commerce.

www.state.ak.us/adfg/adfghome.htm — Alaska Department of Fish and Game (ADF&G) conducts research and management of groundfish, crab, scallop, and salmon fisheries in cooperation with the NMFS and Council.

www.state.ak.us/adfg/boards/fishinfo — Alaska Board of Fisheries (BOF) sets management policies for State of Alaska managed fisheries, and works closely with the Council on issues of mutual concern or where cooperative management is needed.

www.iphc.washington.edu — International Pacific Halibut Commission (IPHC) establishes the annual catch limits for halibut, conducts biological research on halibut, and provides biological information to the Council for allocative decisions such as IFQs, bycatch, subsistence and guided sportfish fisheries.

www.psmfc.org — Pacific States Marine Fisheries Commission (PSMFC) coordinates fishery research, data, and management among the Pacific region.

www.uscg.mil/d17 — U.S. Coast Guard (USCG) is responsible for enforcement of laws and regulations pertaining to fisheries, pollution, and safety. They provide the Council with advice on fisheries enforcement and safety.

www.fws.gov — U.S. Fish and Wildlife Service (USFWS) conducts research and management activities for seabirds, freshwater fish, sea otters, walrus, polar bears, and other animals. They provide advice on how to minimize the effects of fisheries on these and other ecosystem components.

Looking to the future

Message from the Executive Director

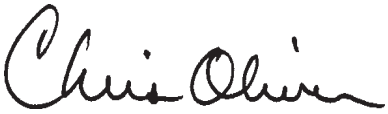
Chris Oliver, Executive Director

The purpose of this publication is to highlight the fisheries management success story in the North Pacific. By no means does this imply that there is room for complacency, that we can rest on these laurels, or that there are no improvements to be made. We are blessed with one of the most productive marine ecosystems in existence, comprising one of our Nation's greatest natural resources. A complete understanding of the processes of mother nature is beyond our grasp, so we have to rely on the knowledge we do have, and take a precautionary approach to our stewardship mandate. We cannot duck the recent, elevated scrutiny of our fisheries management process; rather, it underscores the importance of our stewardship mission and rightfully holds us accountable to protect and sustain these precious resources. We need to embrace that scrutiny and use all of the information available to us to garner the public trust that we are indeed managing fisheries in a responsible manner. We also need to be proactive in informing the public about this process, letting them know where we are fulfilling our responsibilities, and recognizing where we can do a better job. We share the very same conservation goals with most of those who have recently criticized our process.

With a management philosophy solidly grounded in the precautionary approach, and a fishing industry genuinely dedicated to the long-term health of the resource, I believe that we are well-positioned in the North Pacific to meet the other challenges that lie ahead. Pollock, halibut, and other flatfish stocks are currently at all-time high levels – decreases in those stocks, due to natural fluctuation, are likely to occur in the future, and we have to be ready to accept those decreases and respond gracefully. While bycatch and discards may not be a conservation issue per se in our region, where all catch counts against the quotas, they continue to be important management issues for a variety of other reasons. Incidental catch of non-fish species may need to be more directly addressed in our management plans. We need to remain at the forefront of incorporating ecosystem information into our management approach, and strive to do so even more explicitly. Protection of fish habitat is indeed essential, and we all need to be careful not to let these efforts be compromised by 'gear wars.'

Major actions are currently under development which will significantly guide the direction of our overall management regime. These include amendments to all of our FMPs to implement Essential Fish Habitat protection; rationalization of the Bering Sea crab fisheries; development of rationalization options for Gulf of Alaska groundfish fisheries; and, perhaps most importantly, development of a programmatic Supplemental Environmental Impact Statement for our groundfish FMPs. This latter effort will result in the approval of an overarching policy framework which will guide future, specific management measures to improve the conservation and management of our marine resources.

The current process of fisheries management provides us with the ability to address National and regional concerns, while protecting both National and regional interests. Critical to this process is the Council partnership with NOAA Fisheries. This partnership, as envisioned by the drafters of the Magnuson-Stevens Act, provides a synergy and a balance to management decisions, and provides ample opportunities for public involvement at several stages in that decision making process. Together we can work successfully to ensure that our process is based on sound science and responsible public policy, with the input of all constituents, rather than on litigation and rhetoric. Our collective ability to continue successful fisheries management into the 21st Century is critically dependent on this partnership, and on the recognition of both our successes and our failures. We are proud of our successes and we look forward to meeting the challenges that remain.



SEABIRDS

Short-tailed albatross
- increasing at maximum rate

Black-legged kittiwakes
- increasing at most sites

Storm petrels
- increasing at all sites

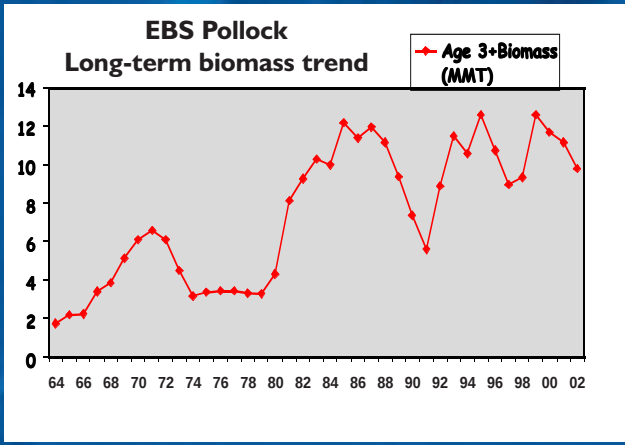
MAMMALS

Gray whales:
- fully recovered

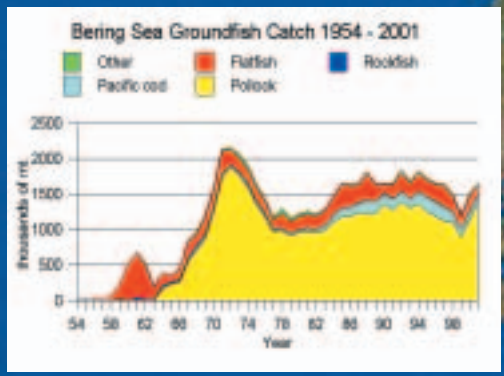
Bering Sea right whales:
- more seen every year

Southeast Alaska Steller sea lions
- increasing at 4% per year

Bering Sea walrus
- at high population sizes



Bering Sea pollock:
- near historically high biomass level



Bering Sea rock sole
- INCREASED significantly from 1980-1997
- near historically high biomass level

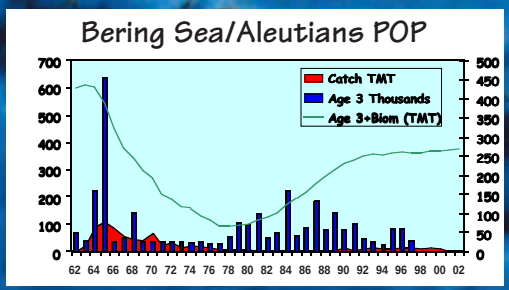
Bering Sea bairdi crab:
- rebuilding plan implemented
- INCREASED significantly since 1998

Bering Sea opilio crab:
- rebuilding plan implemented
- INCREASED significantly since 1999

Bering Sea flathead sole
- INCREASED significantly from 1977 to 1995
- near historically high biomass level

Bering Sea yellowfin sole
- INCREASED significantly from 1975 to 1995
- at historically highest biomass level

Bering Sea arrowtooth flounder
- INCREASED significantly from 1975 to 1995
- near historically high biomass level



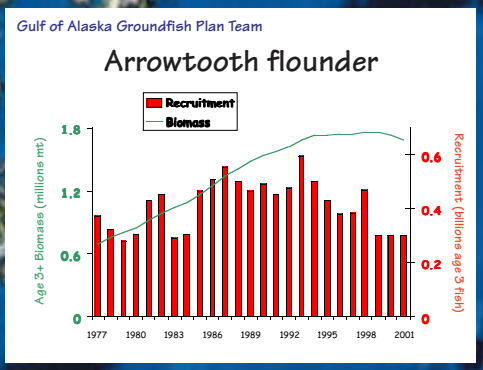
Aleutian Island Ocean Perch: rebuilt from foreign overfishing in the 1960s

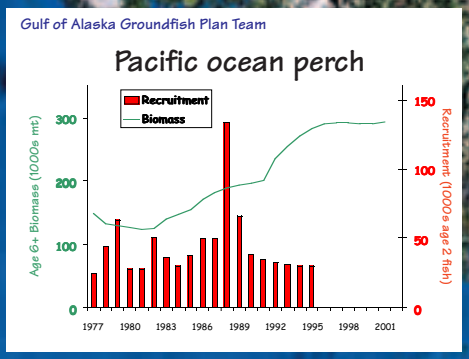
North Pacific Groundfish Species

None of the groundfish stocks are "overfished," meaning that they are all considered to be at healthy stock sizes.

Gulf of Alaska arrowtooth flounder

- INCREASED significantly from 1977 to 1998
- near historically high biomass level





Gulf of Alaska Pacific ocean perch:

- rebuilding plan implemented
- INCREASED significantly since 1981

Gulf of Alaska shrimp:

- showing signs of increase

Gulf of Alaska bairdi crab:

- showing signs of increase

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