

BREAKING POINT IN THE BERING SEA

CAN COLLAPSING WILDLIFE WITHSTAND AMERICA'S BIGGEST FISHERY?

By Paul Koberstein

St. Paul, Pribilof
Islands, Alaska —

Shaped like a diamond and perched on top of the Pacific Ocean, the Bering Sea is one of the richest cold water ecosystems in the world, if not the very richest. Deep ocean currents gathering in far regions of the globe terminate in the Bering Sea after traveling for centuries, with a vast accumulation of nutrients in tow.

The Bering Sea is where America gets half its seafood, and yet this wealthy ecosystem may be approaching the point of collapse.

In the 1980s and 1990s, the population of Steller sea lions crashed in the Bering Sea. Today, its population remains close to its all-time low. For years, the northern fur seal in the Bering Sea has been headed in a similar direction. Its collapse has accelerated since 2000.

These are just two of the many species that have suffered major population losses since the U.S. commercial fishing industry set up shop in the Bering Sea in the 1970s.

The North Pacific Fishery Management Council and NOAA Fisheries — two federal entities within the U.S. Department of Commerce that regulate the Alaska commercial fishing industry — say they are not at fault for the ecosystem's troubles. Instead, they claim to have the finest system for managing fisheries in the world, and point fingers



ON THE ROCKS — Since 1976, the number of newborn northern fur seal pups (like the one above) in the major breeding areas on the Pribilof Islands has dropped by more than 57 percent. In 2004, the decline exceeded 15 percent. The global population of northern fur seals, of which about 74 percent breeds in the Pribilofs, has dropped more than 40 percent since 2000, according to a new report from NOAA Fisheries. Photo by Paul Koberstein/Cascadia Times

elsewhere. But the fishery managers are so intertwined with the industry they regulate, it's sometimes difficult to tell them apart.

Some scientists also blame factors other than fishing for the Bering Sea's problems. But their opinion is not unanimously shared, and there are questions about the independence of some of those scientists, given the industry's control over their funding and influence over their work.

Other scientists not funded by the industry say federal fishery man-

agers have largely ignored fishing's effects on the ecosystem. These other scientists' call to slow down the fishing as a means to stop the crash of species has been controversial, contentious and largely unheeded by fishery managers.

How much of the Bering Sea's resources can be removed by humans without causing the ecosystem to significantly degrade? No one knows, says Timothy Ragen, Ph.D., of the U.S. Marine Mammal Commission and a former scientist with NOAA Fisheries in Alaska. "Fisheries scientists and managers have failed to examine the fundamental question of whether such reductions are safe for marine ecosystems."

In this special report, *Cascadia Times* investigates the growth of fishing and the collapse of species in the Bering Sea, and asks these questions: Has this rich but fragile marine ecosystem reached the breaking point? And if so, what can be done about it?

"We do not know the full effects of commercial fishing on the environment, nor do we understand the effects of fishing on the ecosystem and its processes." — NOAA Fisheries

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Conflicts and Interests

The North Pacific Fishery Management Council plays two roles in Alaska's oceans: regulate the commercial fishing industry, and promote it. In reality, it is constantly under pressure to do less of the former and more of the latter.

And who is the North Pacific Fishery Management Council? Simply put, it is the fishing industry itself. Its roots go back to 1976, when Congress passed the Magnuson Act giving the fishing industry the authority to help regulate itself in all U.S. waters. To help run Alaska fisheries, Congress created the Council, an 11-member federal advisory panel that today includes four seafood industry lobbyists and executives, two commercial fishing vessel owners, one executive of an Anchorage bank that makes loans to commercial fishers, and four state government officials. Governors have the authority to appoint seven of the 11 members, but they have not picked anyone who is not financially vested in the seafood industry, including a conservation advocate.

The Council's loyalty to the industry is readily apparent from its roster. All but one of the 11 Council members owe their livelihoods to the industry. The one who doesn't is president of a bank that has a strong business interest in the industry.

Council chair Stephanie Madsen, for instance, is also a lobbyist for the Pacific Seafood Processors Association, a trade group that represents eight Japanese-owned fish processors in addition to one Canadian subsidiary and two domestic companies. Council Member Dave Benson works for Trident Corp., a Seattle-based company that operates a fleet of factory trawlers and more than 10 processing plants on shore. John Bundy is president and part owner of Glacier Fish Company, a Seattle-based company that operates two factory trawlers and a longline vessel. Doug Hoedel, the Council's newest member, owns one bottom trawler, the Peggy Jo, with a reputation for destroying large amounts of halibut in its pursuit of other fish. In September, the Peggy Jo netted 127 pounds of halibut for every 100 pounds of Pacific cod in its nets, the worst bycatch in the Kodiak groundfish fleet. By law he was required to toss the halibut back to sea, presumably all dead.

The seafood processors that employ Madsen, Benson and Bundy are doing particularly well from this Council. The Council has kept the groundfish haul at record high levels, and plans to expand it. And the Council has given the processors exclusive rights to process and sell Bering Sea crab despite antitrust concerns voiced repeatedly by the U.S. Department of Justice.

While council members provide useful insights on complicated fishery matters, council members do vote their own company's financial self interest at times at the expense of conservation and less



PIT STOP — The catcher vessel Vanguard pulls into the St. Paul Island harbor in the Pribilofs. The port is known in the industry as the "gas station of the Bering Sea." Below trawl gear aboard the vessel American Beauty as it docks in St. Paul Harbor. Photos by Paul Koberstein/Cascadia Times

politically powerful participants in the fishery. Congress specifically exempted Council members from "conflict of interest" laws that apply to all other government officials.

Its members find it hard to believe anyone would think the Bering Sea fishery isn't sustainable. "We are very proud of our record in the North Pacific," Madsen told the Senate Subcommittee on Oceans, Fisheries and the Coast Guard at a hearing on September 14.

Madsen held up Alaska fisheries as a model for how things should run.

"Our formula for sustainable fisheries," Madsen told "involves strong science and research programs, an effective reporting and in-season 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."

But Madsen did not tell the subcommittee about the steep decline in species that has occurred since the Council began managing fisheries in the Bering Sea. Nor did she bring up her loyalty to the seafood processing industry, her other employer, or the seafood companies that have a keen financial stake in what she does at the Council.

The industry has amassed an aggressive public relations campaign to defend

the North Pacific Council from the charge that it is damaging the Bering Sea ecosystem. At the forefront of this effort is the Marine Conservation Alliance, led until recently by Ron Clarke. Clarke wrote in the *Anchorage Daily News* in May 2004 that Bering Sea stocks are "amazingly abundant" and "hardly dented" by the "scientifically managed" annual harvests. "If other regions can learn from our success, there will be enough fish, and enough seafood, for generations to come," he added.

The Marine Conservation Alliance was formed in 2001 by Trevor McCabe and other industry leaders to try to give the industry a single voice on environmental issues. McCabe, the former fisheries aide to Sen. Ted Steven, was director of the At-Sea Processors Association, a group of politically powerful factory trawlers based in Seattle.

The MCA's name implies a conservation mission, but it has strenuously opposed numerous measures to protect the endangered Steller sea lion, saying they are not necessary. The MCA has fought protection for habitat used by fish and other marine life. And in 2004, it filed a protest against a proposal to protect the collapsing population of northern sea otters in the Bering Sea under the Endangered Species Act.



In all, 37 entities are members of the MCA, including virtually all seafood processors, and many commercial fishing companies, cooperatives, consultants and community development quota groups.

How close are the MCA and the Council? They are connected by a revolving door: the MCA is now headed by David Benton, the former North Pacific Council Chair who left that post in 2003. And in December 2004, the At-Sea Processors hired Council member Kevin Duffy as their new CEO.

The Crash of Species

Under the watch of the North Pacific Council and NOAA Fisheries, whole groups of species are declining in the Bering Sea.

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The steepest declines have occurred in areas with the greatest concentrations of commercial fishing.

Consider the Bering Sea's marine mammals. The commercial fishery removes more than 4 billion pounds of fish from waters surrounding these three marine mammal species every year, placing them at ground zero in the largest fishery in the United States, and the second largest in the world.

Since 1979, the western Alaska stock of the Steller sea lion dropped from about 109,000 animals to a current population of 20,000, an 81 percent decline. The start of the decline coincided with the initial buildup of the U.S. pollock fishery in the Bering Sea (although foreign fleets had been operating there since the 1930s). In 1997, the federal government listed the western Alaska stock of Stellers as "endangered" on the Endangered Species List.

The northern fur seal appears to be tumbling down the same path as the sea lion, but from far loftier heights. For up to six months every year, three-fourths of the world's population of northern fur seals come to the Pribilof Islands to breed. This population peaked at about 2.1 million in 1950, dropped to about 1 million in 2000 and is now estimated at 688,000.

Since 1994 the northern fur seal in the Eastern Pacific has lost 33 percent of its population, according to a preliminary draft report from the National Marine Mammal Laboratory in Seattle. Since 1975, the number of fur seals born each year has plummeted 57 percent. Since 2000, the pup decline has exceeded 22 percent, and in 2004 alone the number dropped 15 percent.

From 1975 to 1995, harbor seals were down 80 percent in the Bering Sea

The sea otter in the Aleutian Islands has suffered one of the steepest drops, losing 70 percent of its population between 1992 and 2000, and a further 68 percent from 2000 to 2003. In 2004 the Interior Department proposed to

list the Aleutian sea otter under the Endangered Species Act as "threatened."

What's behind these crashes? NOAA Fisheries has spent \$130 million on Steller sea lion research since 2000, but has starved any research on the other species. The federal northern fur seal research budget was slashed from \$100,000 in 2003 to \$0 in 2004. There's been little research and no published data on Bering Sea harbor seal populations since 1995. And there is little research showing whether commercial fishing played any role in the sea otter's decline, though most experts believe the impact has been small. The U.S. Marine Mammal Commission is calling for further study.

The Bering Sea's crab stocks have been reduced to a mere shadow of their former prominence. All seven major commercial stocks have fallen sharply in recent years. Fishing is closed on five of these stocks, and four have been declared "overfished." The crabs live on the Continental Shelf in areas that are heavily dragged with bottom trawl gear.

Some fish-eating seabirds nesting in the Pribilof Islands forage on the same species caught in the Bering Sea fishery. These colonies are among the largest in the Pacific Ocean. Since 1977, the U.S. Fish and Wildlife Service has measured significant population declines for kittiwakes and murre, but has only limited data on many other species, such as puffins. The red-legged kittiwake is down 38 percent, while the black-legged variety has lost 57 percent of its population. The thick-billed murre is down 40 percent, and the common murre is down 67 percent. Since 1983, at least seven large wrecks - major bird die-offs - have decimated murre, kittiwakes, and shearwaters. Five of these wrecks have been blamed on starvation. The most recent wreck, in 2004, hit the parakeet auklet population in the Pribilofs.

At least four of the commercially valuable fish species in the Bering Sea are losing population, including the Greenland turbot, down 74 percent since 1980; sablefish (or black cod), down 48 percent since 1985; Aleutian Island Atka Mackerel, down 44 percent since 1992; and

roughey rockfish, down 62 percent since 1980, according to stock assessments by NOAA Fisheries.

The sharp decline in roughey rockfish stocks in the Aleutians is particularly troubling. These fish live up to 205 years, rarely reproduce and are considered one of the longest-lived marine species on the planet. A roughey rockfish born right after the Declaration of Independence was signed might still be alive today. Under NOAA Fisheries' management, rockfish have sharply declined throughout the West Coast, a fact that is seen by critics as evidence that federal fishery management is fundamentally flawed.

Of the 121 stocks managed by the North Pacific Fishery Management Council, 13 are not overfished or approaching an overfished condition, including those four species. As for the remaining 108 stocks, their status is

unknown, despite millions of dollars spent on fisheries research in the Bering Sea every year.

One stock that appears to be doing quite well is the walleye pollock, Alaska's biggest money fish. The pollock stock in the Bering Sea remained steady from 1983 to 2003. However, in the Gulf of Alaska, the size of the pollock stock fell 70 percent over that period. In the Aleutian Islands, pollock declined 80 percent from peak levels from the 1980s to the 1990s. The fishery was closed in 1998, and appears to have recovered somewhat since then, although the quality of this data is poor, according to NOAA Fisheries. The North Pacific Council plans to reopen the Aleutian Islands pollock fishery in 2005, near Steller sea lion haulouts and rookeries.

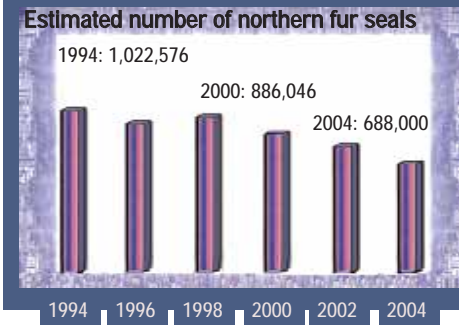


TWO ON THE DECLINE — The northern fur seal, shown above on a St. Paul Island rookery in the Pribilofs, has experienced a 40 to 50 percent decline since 2000. Photo by Paul Koberstein/Cascadia Times. The below photo is of a large male Steller surrounded by females and pups at Cape Sarichef, on Unimak Island, overlooking Unimak Pass. Since 1979, the population of Steller sea lions has declined by 81 percent in the western Gulf of Alaska, Bering Sea and Aleutian Island region. The start of the decline coincided with the initial buildup of the U.S. pollock fishery in the Bering Sea. Photo by Ward Testa of the National Marine Mammal Laboratory in Anchorage.



FUR SEAL FALLS 33% IN DECADE

In 1994 there were more than 1 million northern fur seals in the Eastern Pacific. In 2004, there were less than 700,000. Source: National Marine Mammal Laboratory, Preliminary Data, 2004 Stock Assessment Report



Since 1999, the North Pacific Council has permitted the pollock catch to quadruple in Steller sea lion critical habitat. And near an important northern fur seal breeding area in the Pribilofs, the Council increased the catch tenfold.



The Big Gamble

Commercial fishing in the Bering Sea is the nation's most dangerous and deadly occupation, yet the annual production of \$1.5 billion worth of seafood products apparently makes it all worthwhile. This is an industry that takes high risks in the normal course of business — risks that it passes off not just to its workers, but to the entire ecosystem.

NOAA Fisheries and the North Pacific Council are the key players in the federal system that is supposed to protect the ecosystem. Many praise the Council for its "conservative" approach to managing the so-called "money fish" — chiefly walleye pollock, a type of cod — that produce wealth and jobs for the industry, communities and workers.

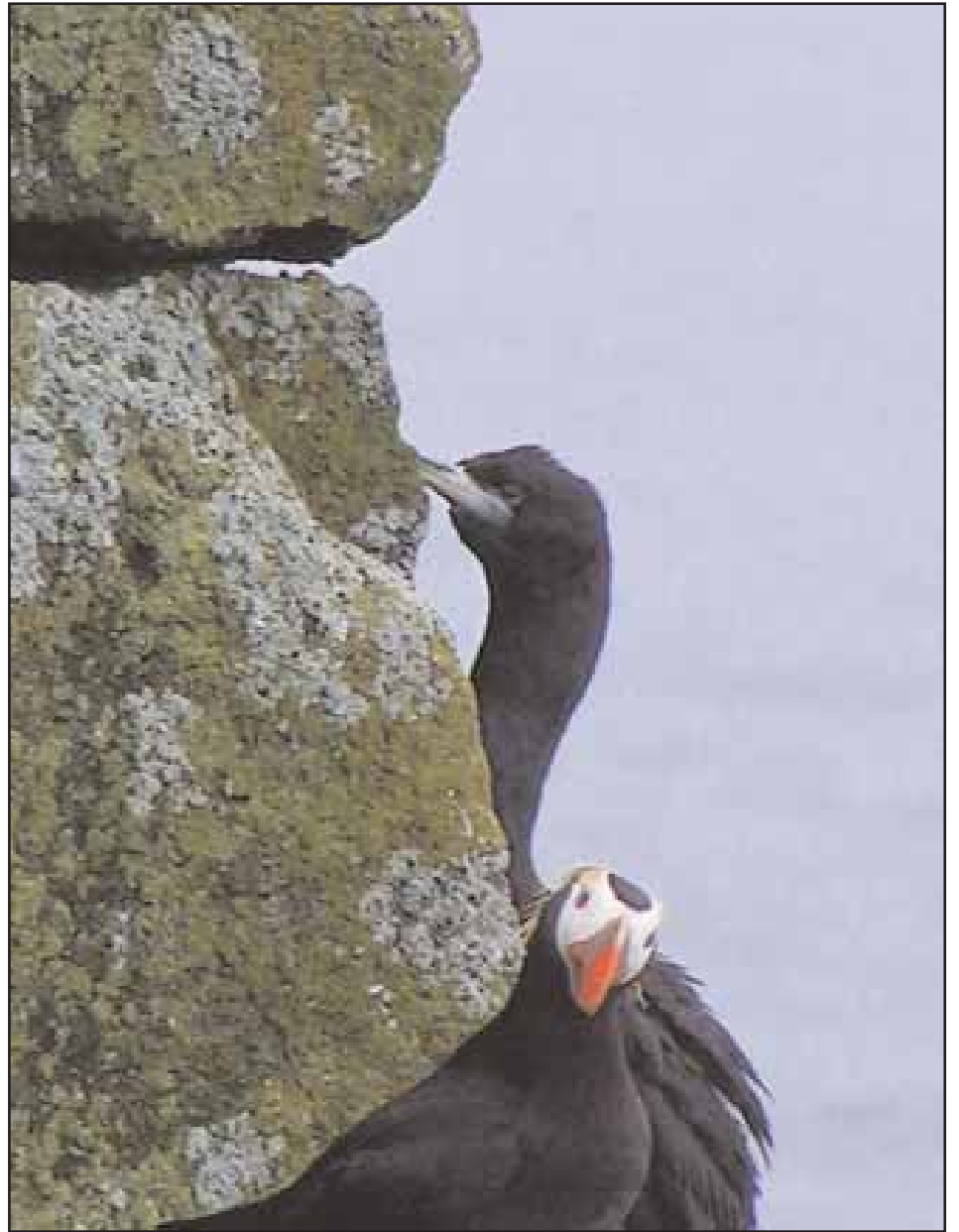
By the the two entities' own standards, most of these "money fish" apparently are doing fine, but other species are not, leading some to contend that they have been blind to the Bering Sea's growing problems.

NOAA Fisheries, which has final authority over Bering Sea fisheries, has failed in its obligation to protect marine ecosystems as required by the nation's primary fisheries law, the 1976 Magnuson-Stevens Sustainable Fisheries Act, says Timothy Ragen of the U.S. Marine Mammal Commission and a former marine mammal scientist in Alaska with NOAA Fisheries. He says the agency has also failed to protect habitat under the Endangered Species Act and the Marine Mammal Protection Act.

Jim Balsinger, director of the NOAA Fisheries regional office in Alaska, acknowledges that in the past the agency has at times ignored legal requirements to protect endangered Steller sea lions. As Balsinger said in testimony in 2002 before the U.S. Commission on Ocean Policy, "With some 140 lawsuits against us now we've learned that it doesn't work not to follow the law. So that part of it is fixed."

Critics doubt it's been fixed. The agency has always assumed that the amount of fishing in the Bering Sea is safe for other species, but it acknowledges that it has no proof to back that up. In its most comprehensive review ever of Alaska fisheries — an Environmental Impact Statement issued in July 2004

CROWDED CLIFF — Thick-billed murres at left forage for fish from a rocky cliff on St. Paul Island. Populations of thick-billed murres have declined by 40 percent in the Pribilofs since the 1970s. The number of common murres in the islands is down 67 percent. *Photo by Paul Koberstein/Cascadia Times*



SAGGING SEABIRD NUMBERS — Four prominent species of fish-eating seabirds in the Pribilof Islands suffered declines of 38 percent to 67 percent. The status of others, like the tufted puffin (with the orange beak, above) and the red-faced cormorant (top) is unknown. *Photo by Paul Koberstein/Cascadia Times*

— NOAA Fisheries left many key questions unanswered, despite 7,000 pages of data and analysis.

For example, the EIS warned that federal policies are having "largely unknown" effects on the ecosystem. Federal decisions are riddled with uncertainty, key information simply doesn't exist, and operating hunches have never been verified. "We do not know the full effects of commercial fishing on the environment, nor do we understand the effects of fishing on the ecosystem and its processes," NOAA Fisheries said.

And so, if you wanted to know how many fish can be removed without harming northern fur seals or Steller sea lions, you would not find the answer in the EIS. If you asked whether the traditional species-by-species management system used by the North Pacific Council is compatible with maintaining healthy ecosystems, the EIS will not give you an answer.

Nor would you find any definitive description of what is tearing the Bering Sea ecosystem — the exorbitantly rich Bering Sea ecosystem — to shreds.

Mostly, you would find speculation that suggests something else is to blame.

In 2005, Congress will debate a new National Ocean Policy. It will hear the industry urge it to use Alaska as the model for how things should be run for all the nation's fisheries in the future. If the Bering Sea's troubles have been prompted by decisions made by both North Pacific Council and NOAA Fisheries, Congress needs to know that before it builds a new system for managing oceans with a blueprint for ecological disaster.

The Junk Food Theory

It's tempting to blame the North Pacific Council or NOAA Fisheries for the Bering Sea's sad condition. But the industry is looking hard for other plausible explanations. Climate change has made the Bering Sea slightly warmer, and some scientists say the change has helped certain species do better, while others have done worse. But over time these changes in sea temperatures and other ocean conditions have been shown to swing back in the opposite directions at regular intervals of about once a decade. The industry and some scientists also blame killer whales or an over-abundance of suppos-

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edly low-nutrition pollock in marine mammal diets.

Former Council Chair David Benton (now the head of the MCA) told the U.S. Oceans Commission in 2002, "The marine ecosystems off Alaska are

dynamic, and fish stocks increase or decrease in response to environmental changes, and generally not in response to the levels of fishing mortality found in our fisheries today."

But in 1996 the National Research Council found it "extremely unlikely that the productivity of the Bering Sea ecosystem can sustain current rates of human exploitation, as well as the large population of marine mammals and bird species that existed before known exploitation — especially recent exploitation — began."

And Dr. Vera Alexander, retired dean of the School of Fisheries and Ocean Sciences at the University of Alaska



Fairbanks, said at a recent science conference, "Our knowledge of the region's resources is inadequate for understanding the ecological impact of removing large numbers of a single species."

While the ecosystem is exceedingly complex, the Council's system for deciding how many fish the industry can remove in the harvest is remarkably simple. Entire food webs can be affected by a single Council decision pertaining to a single species of fish, but the Council

considers only the fish. "Effects on the ecosystem are largely ignored," says Ragen.

Neither NOAA Fisheries or the North Pacific Council sees any reason to make any significant changes in the way Alaska fisheries are managed.

"I believe that our level of removals in the EBS (Eastern Bering Sea) are sufficiently conservative," says Council member Arne Fuglvog, a halibut long-liner from Petersburg, Alaska. "We are



NO PROTECTION — The North Pacific Council has failed to sufficiently protect important habitat areas for deep sea coral, sponge and other marine life from damage caused by bottom trawling. Oceana, The Ocean Conservancy and the Alaska Marine Conservation Council are among groups working to protect deep sea habitat like this coral forest in the Aleutian Islands. Photo Courtesy NOAA Fisheries.

Four fish stocks decline sharply, others head in unknown directions

By its own definition, the North Pacific Fishery Management Council says none of the groundfish stocks under its watch are "overfished." The Council, however, is only referring to the 13 groundfish stocks for which it has enough data to assess their condition. And of these, three have suffered steep declines in the Bering Sea, sablefish, Aleutian Atka mackerel and Greenland turbot.

Another group of fish, known as rockfish, may also be in trouble. Data on the roughey rockfish shows a long, steep decline. The council has too little

data to assess more than 100 other species under its authority.

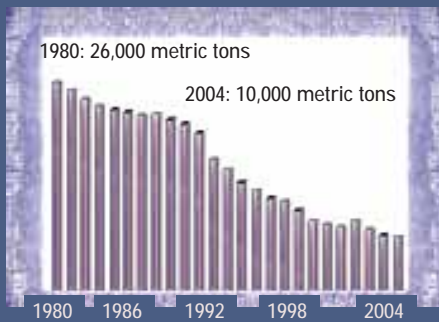
Another 1,000 species are pulled from the sea and discarded. These discards, called bycatch, exceed 300 million pounds a year. Because the target catch is so huge in the Bering Sea, even 300 million pounds represents a relatively small 8-9 percent. But 300 million pounds of wasted marine life can hardly be characterized as "minimized" as required by federal law. And this number doesn't include the corals and other seafloor life that is also destroyed as bycatch. Source: NOAA Fisheries Stock Assessments

Roughey Rockfish



In the Bering Sea more than half of the rockfish catch is discarded. **Roughey rockfish** are of great concern. The population dropped an estimated 61 percent from the early 1980s to 2004, as shown below. The Council's own data shows that rough-eye rockfish in the Aleutian Islands are being overfished, but the Council does not acknowledge that. Another 28 rockfish species may be at risk.

SIZE OF ROUGHEY ROCKFISH STOCK

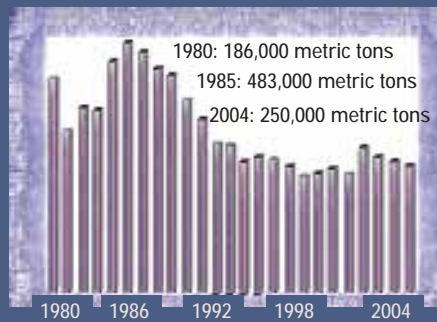


Sablefish (Black Cod)



The **Sablefish**, or black cod, is a prized commercial species that spawns near the Continental Shelf. The Bering Sea population has dropped to 40 of its unfished level in 2004. The size of the stock has declined 48 percent since the peak in 1985, as shown below. The catch has been reduced by 61 percent since the peak in 1988 because of declines.

SIZE OF SABLEFISH STOCK

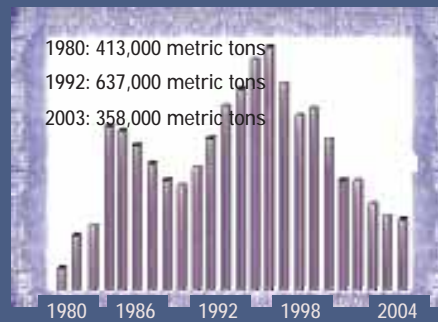


Aleutian Atka Mackerel

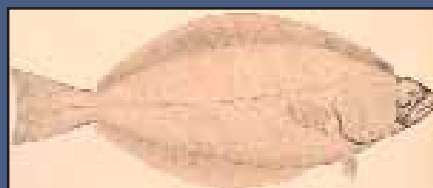


A type of greenling, **Atka Mackerel** grows to about 2 pounds. Since its peak population size in 1992, the Atka mackerel has declined nearly 44 percent, as shown below. Along with pollock and cod, Atka mackerel in the Aleutians is a main prey for Steller sea lions. The stock size has dropped below the level necessary to sustain the sea lion.

SIZE OF ATKA MACKEREL STOCK

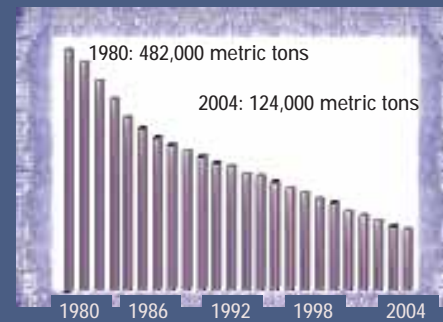


Greenland Turbot



Greenland Turbot (also known as Greenland halibut) has declined by nearly 82 percent since 1972, and has dropped by more than half since 1990, as shown below. Nevertheless, the North Pacific Council refuses to declare the stock overfished, and has increased the harvest level relative to the original size of the stock several times in recent years.

SIZE OF GREENLAND TURBOT STOCK



"Considerable overlap" in the size of walleye pollock and Atka mackerel taken by Steller sea lions and the sizes caught by the commercial trawl fishery were demonstrated.



taking a small fraction of the fish and using very conservative harvest rates. I listen to our scientific advisors when it comes to this and I believe that we have a 25-year history of conservative pollock management. That stock is in very good shape. None of our groundfish stocks are overfished and all are managed very conservatively."

The Council's policies are based on a design created by Congress, but in the last two years roundly criticized by the U.S. Commission on Ocean Policy and the Pew Oceans Commission. Both panels found that U.S. ocean policies are not based on principles of ecosystem health and integrity, sustainability and precaution. Both recommended a new ocean policy that gives scientist a stronger role in making decisions about for conservation of marine resources.

The North Pacific Council strongly opposes these recommended changes. Instead, the Council has shown considerable interest in research conducted by scientists whose work is partially or wholly funded by the commercial fishing industry. The results of this research often absolves the industry for any blame for causing these declines. These theories, however, are being undermined by results from new studies.

For many years, scientists that advise the Council thought that marine mammals ate young, tiny pollock, and the commercial fisheries took the older and bigger pollock. Because the scientists thought the mammals and the fishery took fish of different sizes, they speculated that the fishery did little harm to the sea lion. This theory helped the fishing industry and others justify the large pollock harvests in or near sea lion habitat. Results from major studies by the National Resource Council in 2003 and the Marine Stewardship Council may have been skewed for failing to accurately identify the size of fish eaten by the mammals. With this new data, it appears findings in both studies are in need of updating.

Dr. Dayton "Lee" Alverson, a professor at the University of Washington and an influential consultant to Alaska's seafood industry, has been one of the leading advocates of the discredited theory.

"Pollock fisheries do not compete

with Steller sea lions for pollock," Alverson wrote in a paper published on the web site of the At-Sea Processors (www.atsea.org).

But two studies released in 2004 show that Steller sea lions do in fact eat the same big fish favored by the fishery. The studies are: *Sizes of walleye pollock and Atka mackerel consumed by the western stock of Steller sea lions in Alaska from 1998 to 2000*, by Tonya K. Zeppelin, et. al.; and *Sizes of walleye pollock consumed by the eastern stock of Steller sea lions in Southeast Alaska from 1994 to 1999*, by Dominic J. Tollit et. al. Both are published in *Fishery Bulletin*, Vol. 102, No. 3, U.S. Department of Commerce, July 2004.

"Considerable overlap ... in the size of walleye pollock and Atka mackerel taken by Steller sea lions and the sizes of these species caught by the commercial trawl fishery were demonstrated," the Zeppelin paper states.

Studies show that the fishery is reducing the number of adult pollock. If the three marine mammals continue to crash, the Council may be called upon to reduce those harvests. Even Alverson, the industry consultant, recognizes the potential value in reducing pollock harvests.

"Reducing pollock fishing results in a larger adult population and a smaller juvenile pollock population," Alverson states on the At-Sea Processors web site.

The Council also embraces the controversial conclusions reached by scientists — many funded by the fishing industry — who attribute the declines to the mysterious effects of changing ocean conditions, on the rapacious appetites of killer whales, or on some other cause not related to commercial fishing. Although these theories contain nuggets of truth, they have never been verified, and increasing evidence suggests they cannot explain the crash of species in the Bering Sea.

It is true, for instance, that some killer whales do consume marine mammals. But scientists have no evidence they eat enough of them cause an entire species to collapse. And there are more marine mammal-eating killer whales in

Southeast Alaska, even though that area is seeing an increase in sea lion numbers. Southeast Alaska lacks the intensive trawl fisheries that are prevalent near sea lion rookeries in the Aleutian Island and the Bering Sea. Even proponents of the "killer whale theory" acknowledge it is entirely speculative.

The industry also blames changing ocean conditions for the decline of Bering Sea species. In about 1977, a series of climactic measurements in the Bering Sea suddenly changed. Some industry-funded scientists say that these changes led to an increase in some species such as pollock, and declines in other species like herring. They also say the changes forced the Steller sea lion to switch from a high-calorie diet dominated by herring to a less-nutritious diet featuring pollock.

Proponents of this theory, led by Dr. Andrew Trites of the University of British Columbia, speculate that the sea lions are dying from eating too much pollock, which he dismisses as a "junk food." The pollock catchers, in other

PRIBILOF CHORALE — Three female northern fur seals appear to have joined together in song on a St. Paul Island rookery, above. In the photos at left and at the top of the opposite page, northern fur seal adult females and their pups. Photos by Paul Koberstein/Cascadia Times

words, are doing the sea lions a favor by removing a relatively worthless fish from their diets. Presumably the sea lion would be most pleased to see the pollock wiped out altogether.

In the light of recent research, however, the "junk food" theory is looking less likely. While true that ocean conditions regularly shift in the North Pacific, and that the changes seen in 1977 were the most significant in 50 years, conditions reversed themselves in 1989 and again in 1998. Lowell Fritz, director of the National Marine Mammal Laboratory in Seattle, a federal agency, has found serious inconsistencies by re-constructing historical data. Pollock has always been abundant in the Bering Sea — always far more abundant than herring, and always a major part of the sea lion diet. Fritz presented these results at a conference in September 2004.

New data from the National Marine Mammal Lab shows that pollock has an energy content similar to other fish (see chart at left), a fact that raises further questions about whether pollock is any more of a "junk food" than other fish. Other than herring and eucalon, most range from 1 to 2 kilocalories per gram. Evidence that marine mammal food is low on nutrition "is not really that strong," Fritz says.

The question is whether there's enough food, when the animals need it, in a location where they can get it.

If Fritz is correct, then the Council's pollock fishery may be pushing marine mammals further into harm's way. As for the effects on the rest of the ecosystem, it seems nobody really knows.

What's a junk food? Some scientists say pollock is just "junk food" to sea lions, but this chart shows pollock has as many calories as most other fish in the sea lion diet. The number of calories in each fish can vary, depending on age, region and time of year.

