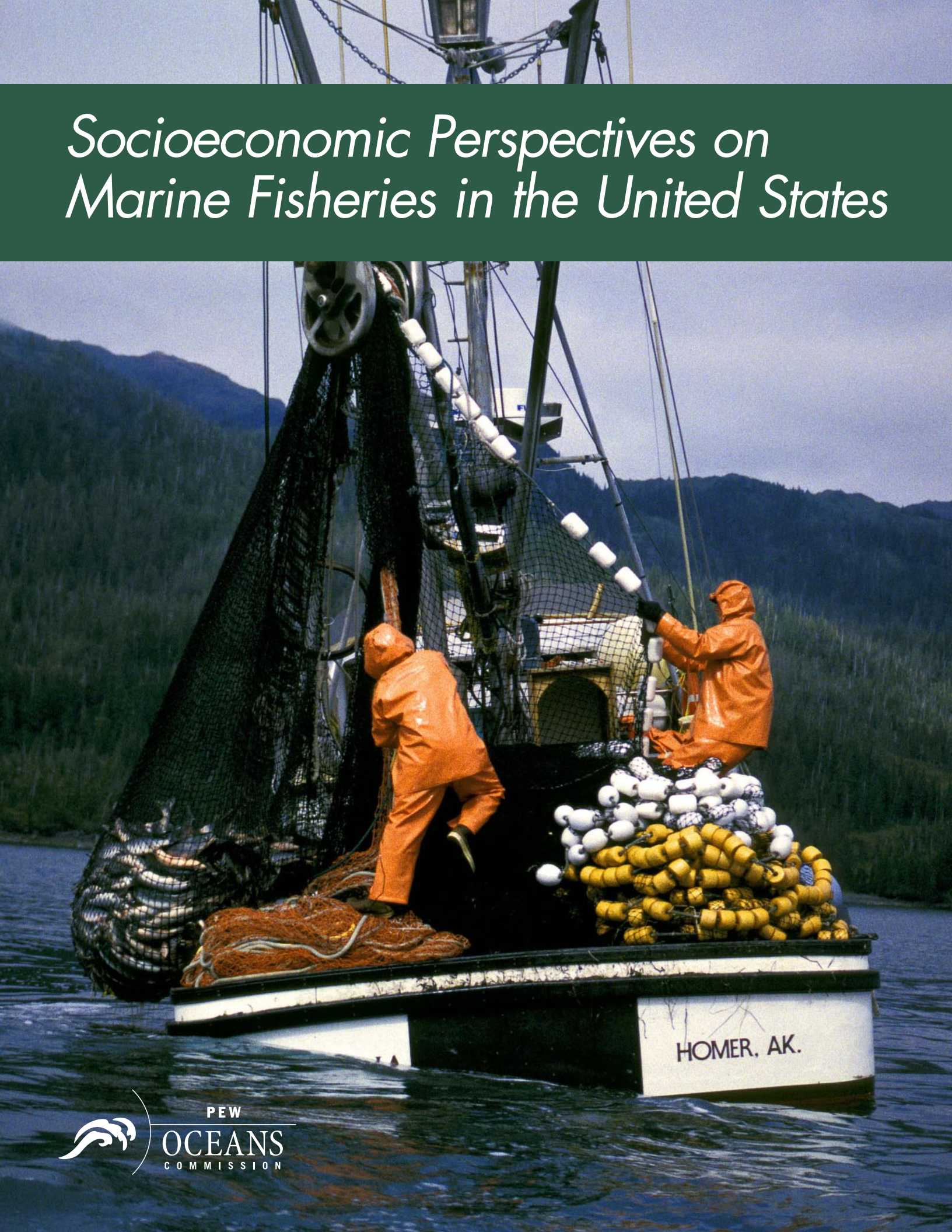
Socioeconomic Perspectives on Marine Fisheries in the United States



PEW OCEANS COMMISSION

Cover photo: Ron Niebrugge/wildnatureimages.com

Socioeconomic Perspectives on Marine Fisheries in the United States

A STAFF PAPER[1]

Abstract

The economic status of U.S. commercial marine fisheries is declining. Excess competition and poor management are dissipating value in today's fisheries, costing tens of thousands of jobs, harming the economies of our coastal communities, and placing a valuable natural and cultural heritage at risk. The decline in fishery productivity below its potential has worsened in the last decade. There appears to be scope for more than doubling current catches if conservative policies are pursued and depleted fish populations are rebuilt. Increasing annual catches to long-term sustainable levels could add at least $1.3 billion to the U.S. economy. Rebuilding U.S. fisheries has the potential to restore and create tens of thousands of family wage jobs and to substantially boost local and regional fishing economies. Restoring marine ecosystems and fish populations to a status capable of supporting higher but sustainable yields will require an era of transition en route to a more sustainable future.

The world famous Pike Place Fish Market in Seattle, Washington.

[1] Staff for the Pew Oceans Commission prepared this paper. Although the paper was reviewed by individual members of the Commission before distribution, it has not been formally adopted and, therefore, should not be cited as the findings and conclusions of the Commission.

INTRODUCTION

"Fishing requires unique levels of commitment (extended periods of absence from home and community, long hours of demanding labor, and the acceptance of risk), attracts a unique set of character traits and values (independence, solitude, self-reliance), and for many has been a matter of family involvement for generations."

Mederer and Barker (2001)

Fishing is America's oldest industry. It played a central role in the European settlement of North America and continues to enrich the social, cultural, and economic heritage of our nation today. A "Sacred Cod" — the symbol of the early fishing economy of Massachusetts Bay — hangs in the chamber of the commonwealth of Massachusetts House of Representatives. Salmon are a cultural icon of the Pacific Northwest. For many, fishing is not just a job; it is a way of life. People fish because of the continuity of tradition. They like the freedom, the sea, and the lifestyle.

American fishermen ply waters that boast some of the most diverse and productive ocean habitats of any nation on earth. These range from the productive high relief areas of Georges Bank off New England to the vast open ocean waters that characterize the U.S. footprint in the Central and Western Pacific Ocean. They include warm water coral reef ecosystems that support reef fish assemblages of the South Atlantic, U.S. Caribbean, and Gulf of Mexico, and the globally significant and extremely productive continental shelf ecosystem of the colder North Pacific Ocean off Alaska. Vital nearshore habitats where many commercially valuable species spend part of their lives extend from the fishery significant estuaries and inlets of the Mid-Atlantic region to the kelp forests, submarine canyons, rocky reefs, and coral communities off the shores of California, Oregon, and Washington.

These diverse ecosystems give rise to distinct differences in marine life, regional fisheries, cultures, and communities. Across the regions, fishermen employ a variety of different fishing gear and vessels to catch different species. The character of fishing operations runs the gamut from small, family-owned businesses to multi-national conglomerates. Fisheries range from the highly industrialized Alaska offshore pollock trawl fleets to the day-boat lobster fleets of Maine to the traditional indigenous salmon fisheries of Washington, Oregon, and California. American fishing communities range from truly remote fishery-dependent areas such as St. Paul Island, Alaska — where 85 percent of the tax revenues come from fishing — to communities closer to urban population centers with a more diversified economic base. Though fishing occurs off the shores of every U.S. coastal state, diversity is the defining characteristic of U.S. fisheries.

Unfortunately, we know all too well that the valuable natural, cultural, and economic diversity of our fisheries can be lost. From the 1930s to 1940s, Pacific sardines were the biggest fishery in North America. The fishery peaked in 1936, with a catch of more than 700,000 tons (Figure 1) (California DF&G, 2001). It employed thousands of workers in canneries from San Francisco to San Diego. Monterey, California, was the heart of this action, immortalized in John Steinbeck's novel *Cannery Row.* At its peak, Cannery Row supported 16 canneries (Holbrook, 2002).

THE NATURE AND CHARACTER OF THE COMMERCIAL SEAFOOD BUSINESS

"If we lose our communities, we will lose our heritage. We need to plan and manage for fishing communities we want instead of ending up with the communities we get."

Pietro Paravanno, Pew Oceans Commission meeting
March 2001, Charleston, S.C.

Participants in both the catching and the processing-wholesale sectors of the commercial industry range from independent, family-owned businesses to vertically integrated multi-national corporations. From a social and economic standpoint, there are several differences of note between smaller-scale community-based fishing operations and large-scale industrial seafood companies. Whereas both likely have the capacity to catch the available fish, differences between the two are found in terms of employment and social implications. Larger-scale operations can typically require more capital, accrue greater debt and are known more for volume of fish catch. Smaller, community-based fishing operations are typically looked upon as the mainstays of coastal communities, providing diverse jobs in local economies.

Small and large-scale operators are both clearly valuable. Prosperous and organizationally diverse fishing communities are likely to be the most adaptive, resilient and stable. With this in mind, it is interesting to note that many observers of U.S. fisheries increasingly see the fishing industry trending toward consolidation, specialization, and industrialization. If such a trend is actually underway, it could have important implications for jobs, fishery values, and the diversity and stability of coastal communities. Many U.S. fishermen feel the people involved in fishing and coastal economies are facing trends similar to those already played out in the dynamic between family farms and industrialized agribusiness, and in the reductions in timber employment as forestry operations industrialized and mechanized in the face of declining supply of raw resource material.

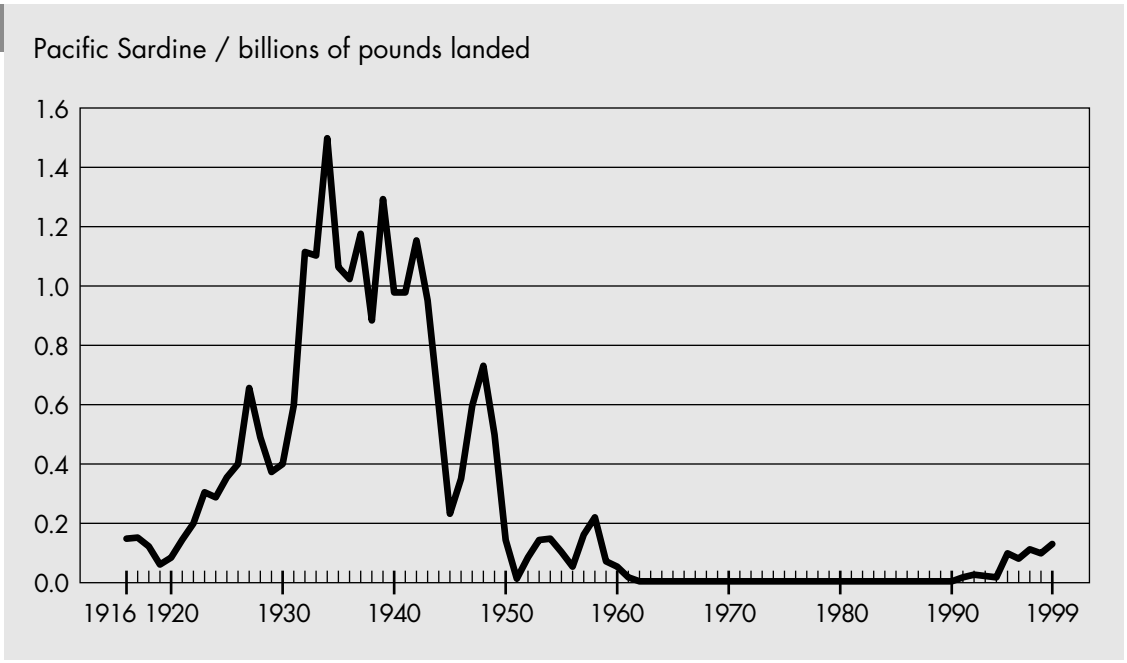
"Is there any hope for traditional fishing communities? The drive toward efficiency, increasing globalization of markets, and gentrification of the coast are all real trends. It may in fact be a good thing to have traditional fishing communities, but the free market at work alone won't do that."

Jack Dunnigan, Pew Oceans Commission meeting
April 2001, Baltimore, Md.

FIGURE 1.

COMMERCIAL LANDINGS 1916-1999, PACIFIC SARDINE

Source: DFG Catch Bulletins and commercial landing receipts. Data includes sardines caught for reduction fishery between 1916 and 1969.



However, within a decade of the fishery peak, catches plummeted by 85 percent to below 100,000 tons. By the 1960s and 1970s, surveys detected virtually no sardines (Scripps, 2002). The collapse was part of a natural oscillation, worsened by overfishing. Without sardines, Cannery Row underwent a transition to a tourist-based economy. Today, sardine fishing is coming back, but the scene is vastly different, with only one cannery business remaining (Holbrook, 2002).

The social and economic crisis precipitated by the Pacific sardine collapse revealed that fisheries are as much about people as fish. Marine ecosystems support complex social, economic, and cultural human systems, and the two are interdependent. The health of ecosystems and fish populations directly affects the health of fishing economies, and the economic imperatives of fishing directly affect the health of fish populations because they dictate the behavior of fishermen and fishing communities (Hanna et al., 2000).

This relationship implies that in order to provide for healthy ecosystems and viable fisheries and economies over the long-term, it is necessary to maintain the sustainability of both natural and human systems. We need to know as much about social and economic systems as we do about the dynamics of fish populations. We need to match the scale and capacity of our fishing economies to the health of marine ecosystems and gear them to long-term catches that are ecologically sustainable. Fishing economies and effort need to be flexible and adaptive given the natural variability of fish populations and marine ecosystems.

This white paper provides some insight into the social and economic status and health of U.S. marine fisheries. Though confounded by severe information limitations, a characterization of the economic status of our fisheries can be gleaned from trends in economic indicators such as fishery landings, values, and employment; information on the biological condition of valuable fish populations; and case studies that reveal the profound social and economic consequences that accompany the loss of vital fisheries as well as the significant economic benefits of restoring depleted populations to abundance. The information in this paper provides a sense of the direction and magnitude of the costs of mismanagement and the benefits of restoration.

The State of the U.S. Fishing Economy

American fisheries landed four percent of the total world catch in 2000, maintaining the nation's rank as the world's fifth largest seafood producer after China, Peru, Japan, and India (NMFS, 2002a). The industry accounting for that production begins with fishermen catching fish. Seafood processors then buy raw fish from fishermen and convert it into products. The wholesale sector distributes final processed seafood products to the retail sector, which ultimately markets them to consumers. By catching, processing, and marketing fishery products, the commercial fishing industry contributed $28.6 billion (in value added) to the U.S. Gross National Product in 2001, continuing an upward trend (Figure 2; NMFS 2002a).

FIGURE 2.

COMMERCIAL FISHING INDUSTRY CONTRIBUTION TO U.S. GROSS NATIONAL PRODUCT

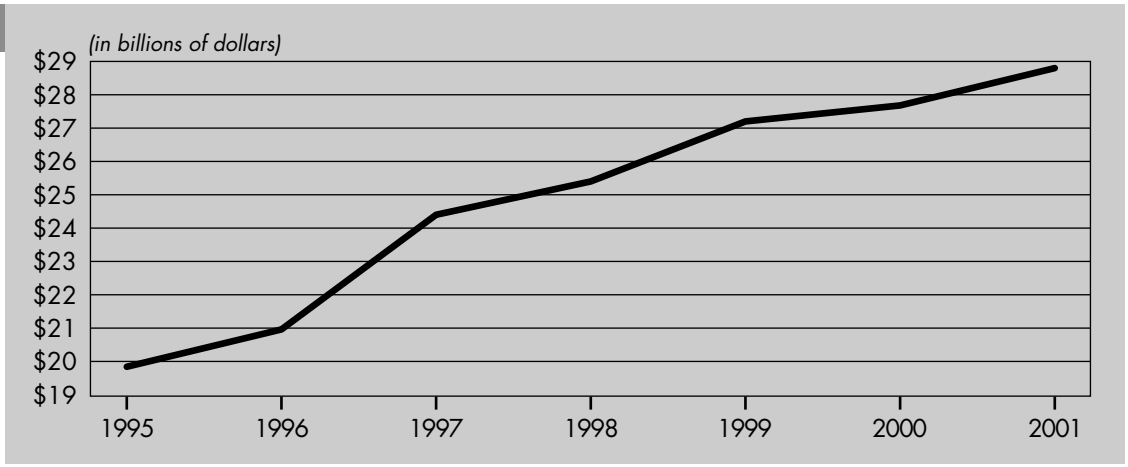
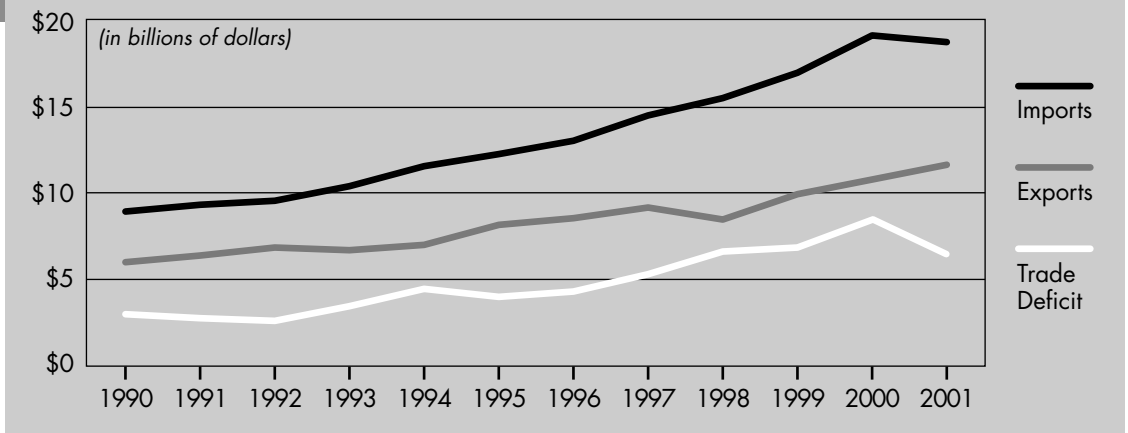


FIGURE 3.

SEAFOOD TRADE DEFICIT

U.S. fishery imports, exports, and balance of trade deficit (1990-2000)



"Fishing is an inherently uncertain occupation: the risks are high and the catch is relatively unpredictable in the short term."

Mederer and Barker (2001)

The U.S. is active in international trade of fish and fishery products, ranking second in value for world imports and third in world exports (NOAA, 1999). Though both imports and exports of seafood products have grown in the last decade, the U.S. has a negative and declining balance of seafood trade. Eighteen and one half billion dollars worth of imported products almost doubled the $9.9 billion value of U.S. seafood exports in 2001 (Figure 3; NMFS, 2002a). This trend has important implications for the economic status of U.S. fisheries. For example, increasing reliance on farmed shrimp and salmon products from overseas is causing notable adverse price and marketing problems for Gulf shrimp fishermen and West coast wild salmon fishermen (Pew Oceans Commission, 2003).

Fishing in the U.S. is more important in specific regions and local areas than it is nationally. For example, commercial fishing is the number one employer in Alaska, which typically leads all states in volume of landings with close to half the total annual U.S. commercial landings (Tables 1 and 2). Fishing also tends to concentrate on a relatively small number of species, with over 50 percent of the total annual domestic catch composed of just Alaska pollock and menhaden (Table 2) (NMFS, 2002a).

TABLE 1.

TOP FIVE STATES BY VOLUME AND VALUE OF MARINE FISH CATCH IN 2001

State	Volume (pounds)	Rank	State	Value
Alaska	5.0 billion	1	Alaska	$869.9 million
Louisiana	1.2 billion	2	Louisiana	$342.7 million
Virginia	561.7 million	3	Massachusetts	$281.1 million
California	526.0 million	4	Maine	$251.4 million
Washington	377.2 million	5	Texas$	218.0 million

Source: NMFS, 2002a

TABLE 2.

TOP TEN U.S. MARINE FISH SPECIES COMMERCIALLY HARVESTED IN 2001

Ranked by volume and value of catch; numbers in thousands.

Species	Pounds	Rank	Species	Dollars
Pollock (walleye)	3,188,465	1	Shrimp	568,547
Menhaden	1,741,430	2	Crabs	381,667
Salmon	722,832	3	Lobsters	275,728
Cod	504,922	4	Pollock (walleye)	236,923
Hakes	497,152	5	Salmon	208,926
Flounders	352,363	6	Scallops	175,416
Shrimp	324,481	7	Clams	161,992
Herring (sea)	300,488	8	Cod	150,157
Crabs	272,246	9	Halibut	115,169
Squid	231,699	10	Flounder	105,240

Source: NMFS, 2002a

FIGURE 4.

COMMERCIAL LANDINGS DECLINE IN LAST DECADE

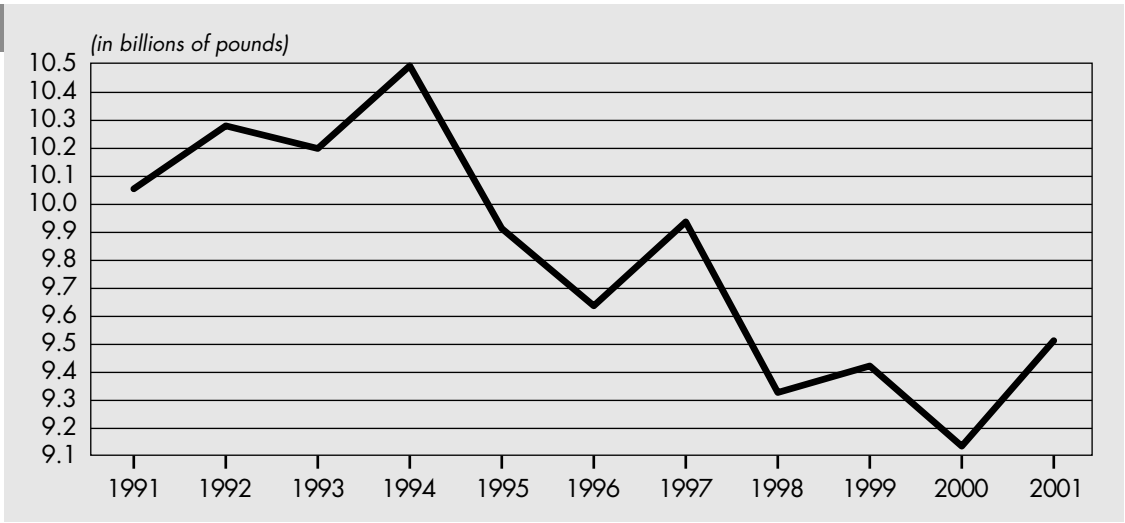
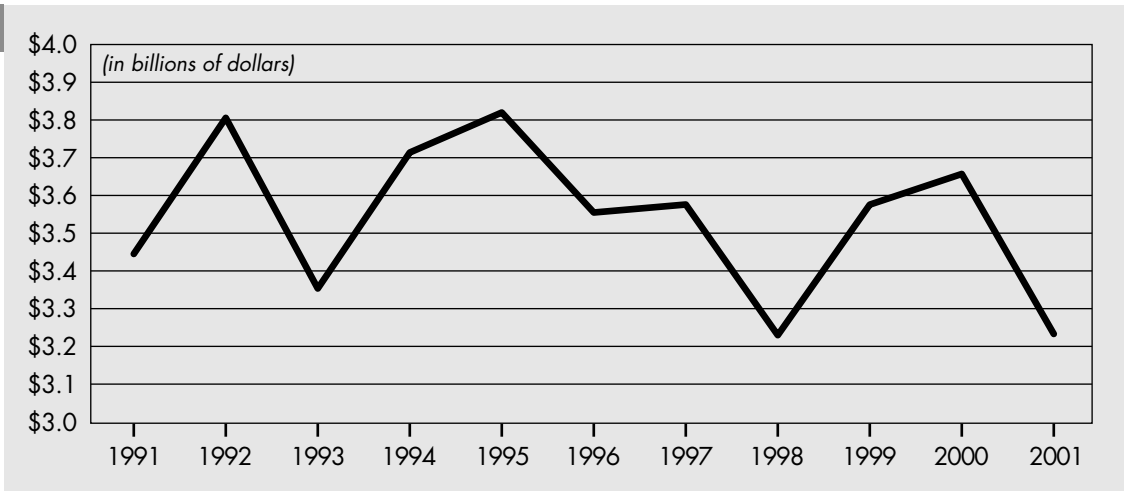


FIGURE 5.

EX VESSEL VALUE DECLINE IN LAST DECADE



The fact that U.S. fishermen largely depend on a few key geographic areas and a relatively small number of species tends to increase economic vulnerability for the industry. Dynamic fish populations fluctuate, yet fishing infrastructure tends to follow the increases without an eye toward weathering population troughs. In the late 1990s, some salmon runs in Alaska dropped from record highs to levels equivalent to 20-year average catch levels. The industry remained structured for record runs and suffered accordingly. Many lobster fishermen and managers are worried about a parallel pattern now in Maine. Lobster catches in recent years have peaked at all time highs. Long time fishermen realize that these won't last but many newcomers are blind to this.

TRENDS IN FISHERY LANDINGS AND VALUE

From 1935 until the enactment of the Magnuson Act in 1977, U.S. commercial landings were relatively stable at about 4 billion pounds per year (NRC, 1999). Since 1977, U.S. landings more than doubled, peaking at 10.5 billion pounds in 1994. The displacement of foreign fishing for Alaska pollock by domestic fleets in the late 1980s accounts for a significant majority of this increase (NMFS, 1996). Since peaking, landings have declined 10 percent from their peak to 9.5 billion pounds in 2001. In the last decade, commercial fishery landings have declined five percent overall (Figure 4). Over this same period, the ex-vessel — or point of first sale — value of these landings declined six percent overall and 16 percent from a peak in 1995 (Figure 5).

OVERCAPITALIZATION

Recent estimates indicate more than half of all federally managed fisheries that have been assessed can be characterized as overcapitalized — with too much fishing power.

Free and open access to fisheries, aggravated by government development policy and subsidies, caused over-investment in fishing capacity. The amount of capital and labor in many U.S. fisheries now exceeds that needed to take ecologically sustainable catches *and* provide economically viable fishing operations for many fishery participants. This situation is not merely one of "too many boats chasing too few fish." U.S. fishing fleets have too much catching capacity, or fishing power, which is a function of the number of boats, the size of boats, and the increasing effectiveness of their fishing technology. Too much fishing power accelerates competition for increasingly scarce resources, which in turn produces chronic economic instability and lowers fishermen's net incomes. These problems cloud the future of fishing and contribute to the weakened economic status of U.S. fisheries.

A recent analysis of just five U.S. fisheries indicated that the catching capacity of those fleets was 2.4 times higher than necessary to catch sustainable yields (McCallum, pers. comm.). Approximately $1 billion in excess capital that could be redeployed more productively in the economy is currently languishing in these five fisheries alone. Other recent estimates suggest that to achieve fishing levels commensurate with long-term sustainable catches, the fishing capacity of the New England groundfish fleet would need to be reduced by 70 percent, the Gulf shrimp fleet by 67 percent, the Alaska crab fleet by almost 80 percent, and the Pacific Coast groundfish fleet by 50 percent.

Commercial fishery landings have remained relatively stable since World War II (excluding the Americanization of Alaska groundfish), despite tremendous advances in technology and a domestic fishing industry that has burgeoned in terms of absolute numbers of vessels, catching capacity, and fishing effort. Since 1930, the number of commercial fishing vessels working U.S. waters has more than quadrupled (NMFS, 1996). Improvements in technology vastly increased the catching power of the growing industry. From increases in vessel size and speed, through improvements in fishing gears, to changes in the wheelhouse that brought about sophisticated electronics for navigation and location of fishing grounds and fish, these changes have dramatically increased our capability to find and catch fish.

Relatively stable landings in spite of these trends reveals that the industry is increasingly landing more new species as the highest value stocks become harder to catch (See

New England case study on page 14). Indeed, the National Marine Fisheries Service (NMFS) reports that increasingly lower-valued species are being caught and sold (NMFS, 1996) — a progression consistent with evidence of "fishing down the food web" (Pauly et al., 2002). This trend suggests that the health of the resource base sustaining the U.S. fishing economy may be worsening with potentially dire consequences for the economic health of fishing families and communities.

BIOLOGICAL STATUS OF FISHERY RESOURCES

U.S. fishermen depend on fish, which in turn depend on healthy ecosystems and habitat that are increasingly under siege. Every eight months, nearly 11 million gallons of oil runs off our streets and driveways into our waters — the equivalent of the *Exxon Valdez* oil spill (NRC, 2002).

More than 60 percent of our coastal rivers and bays are moderately to severely degraded by nutrient runoff (Boesch et al., 2000). Invasive species that crowd out native species and alter habitat and food webs are regularly finding new homes around our coastlines (Carlton, 2001). More than 20,0000 acres of coastal wetlands are disappearing each year (Beach, 2002), and gentrification of the coast is replacing fishing infrastructure with condominiums and beach houses (Pew Oceans Commission, 2003). These problems threaten coastal areas that serve as essential spawning, feeding, and nursery areas for the majority of commercially valuable fish species.

The status of fish stocks relative to fishing pressure is also of concern. Of the federally managed fish stocks that have been assessed, one-third are either overfished or are being fished unsustainably (NMFS, 2002b). Fifty-three of 81 populations (65 percent) that are already overfished are still being fished unsustainably, frustrating restoration efforts. Since 1991, the NMFS reports that losses in potential productivity have increased as increasing numbers of targeted fish populations fall below levels that would produce long-term potential yields, or LTPY (NOAA, 1991; NOAA, 1992; NOAA, 1994; NOAA, 1996; NOAA, 1999).By 1999, LTPY was conservatively estimated to be 64 percent greater than recent yields, compared to 38 percent greater than recent yields in 1991 (Figure 6). New assessments will likely show this trend is more pronounced because additional stocks are below LTPY levels. We currently do not know the status of two-thirds of our managed populations, including many that are the basis of major fisheries (NMFS, 2002b).

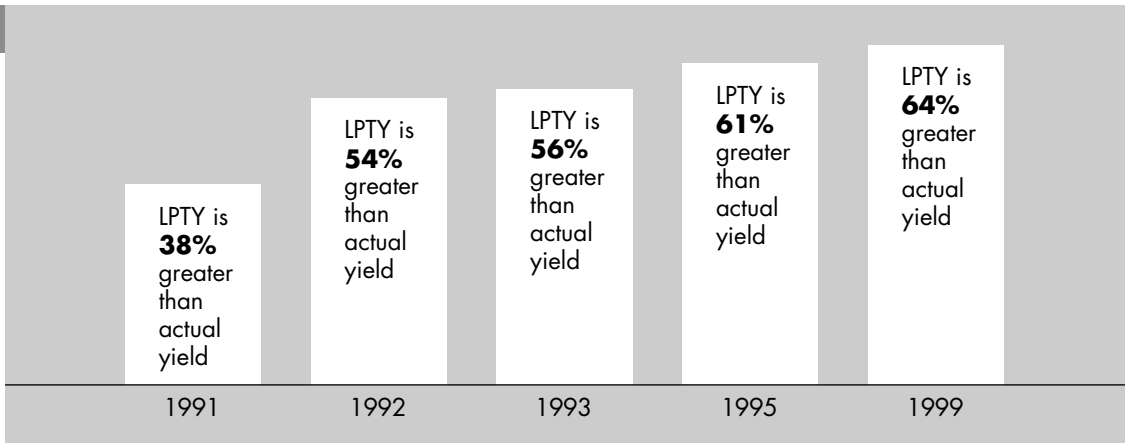
ECONOMIC COSTS OF DEPLETION

Depleted fish stocks support fewer fishermen. Recent estimates suggest the number of Americans employed in the catching sector of the commercial seafood industry has declined

FIGURE 6.

POTENTIAL PRODUCTIVITY LOSSES IN LAST DECADE

LPTY = long-term potential yield.



20 percent to 166,000 from a peak of 210,000 in 1986 (pers. comm. P. Fricke). Because of great difficulty obtaining accurate information on fishing employment, most observers believe these absolute numbers are low but the overall trend is accurate. In addition to stock depletions, mechanization and industry consolidation in some fisheries have likely contributed to the decline in fishing employment. Adding in 86,000 people believed employed in seafood processing brings total employment in the U.S. commercial seafood industry to 252,000 (pers. comm. P. Fricke). Many of those employed in processing are migrant laborers who work intermittently between farms and fisheries, particularly in Alaska, the Pacific Northwest, and even the Carolinas, Maryland, and New Jersey.

When fishing incomes decline, entire communities suffer. A variety of socioeconomic impacts resulting from depleted fish stocks ripple through local, regional, and national fishing economies. Gear stores, fish processors and brokers, fuel depots, and haul-out and repair facilities can go under. Local businesses that benefit from fishing income also suffer. A host of less visible social problems often accompanies such economic distress. Significant everywhere, these problems are most acute in isolated rural fishing communities where, even in some areas of the fairly diversified Pacific Northwest, fishing can generate up to 25 percent of total earned income in coastal counties.

POTENTIAL ECONOMIC BENEFITS OF RESTORATION

The potential economic benefits of rebuilding depleted fish populations are significant. In 1999, the NMFS conservatively estimated the nation could increase overall catches by 64 percent — approximately 6.9 billion pounds — by restoring stocks to levels capable of producing long-term potential yields (NOAA, 1999). These increased catches could add at least $1.3 billion to the U.S. economy (McCallum, pers. comm.). The NMFS further estimated that catches of just those depleted fish populations under purely domestic management (excluding tunas and billfish) could increase 136 percent if populations were restored to healthy levels (NOAA, 1999). These depleted populations include some of the most valuable commercial species in the nation, such as New England groundfish. For that fishery alone, the New England Fishery Management Council estimates that recent catches of 120 million pounds valued at $105 million could increase fourfold to 425 million pounds with a value near $425 million if the fishery were fully rebuilt (NEFMC, 2002).

Restoring fisheries is a matter of choosing a goal and allowing time for recovery to occur. The "shifting baselines" syndrome often confounds choosing a goal for population abundance and an ecosystem baseline for restoration. As more scientific studies reveal the former bounty of many valuable marine species, it is clear that chronic depletions over the past century have led us to underestimate potential biomass targets for many of the populations we need to restore. This realization suggests the projected benefits of restoration presented in this white paper may be conservative because our estimates of long-term sustainable yields may be based on rebuilding populations back to only a fraction of their former and, in principle, sustainable bounty.

Selecting a population and ecosystem baseline as a restoration goal in turn informs how long recovery will take and also what benefits one can expect from the restored system. The amount of time required to restore fish populations depends on the biology of the fish, the ecology of the ecosystem in which species live, and the restoration target. Restoration to greater abundance will require a longer period of restricted fishing, and the greater the abundance the higher the catches the ecosystem can sustain. Ultimately this is a question of the size of the investment that society wishes to make in restoration and future productivity of our fisheries.

ECONOMIC HARDSHIP DURING RESTORATION

A ten-year rebuilding timeline for overfished stocks may work fine for the fish, but to a fishing community, it may mean a foreclosed home, no money for a child's education, a family on the brink, and a broken future."

Bonnie Brady, Long Island Commercial Fishing Association

Society must decide how to handle the inevitable economic hardship of restricted fishing while rebuilding fish populations and restoring marine ecosystems.

Precedent exists for monetary compensation in both fisheries and agricultural policy. Whereas these approaches appeal to our sense of fairness and often reduce political opposition to necessary conservation measures, they can be plagued with problems. For example, farm payments stimulate extra planting, which pushes farm prices down and leads to more payments. The amount of farm payments made conditional on the adoption of conservation measures has been cut in half in recent years, with the vast majority of payments going to a small number of large farmers, placing smaller operations at a competitive disadvantage.

If fishermen are to be compensated during rebuilding periods, the mistakes of U.S. agricultural adjustment payment policy should not be repeated. Compensation could be made conditional on a set of principles such as an independent determination that compensation will not increase the size or scope of the depletion in the fishery, other fisheries or regions; time limits (for the rebuilding period only); and fair and equitable total payment limits to protect smaller operators.

Preferences could be awarded to fishermen willing to adopt additional conservation measures. For example, compensation could be offered as an incentive for fishermen to develop innovative ways of selectively targeting healthy fish populations and avoiding depleted populations. Allowing fishermen to still fish for healthy co-occurring fish without compromising restoration of depleted stocks might lessen the hardships of rebuilding.

There are undoubtedly also fisheries where the degree of economic hardship from excess fishing capacity and depletions is so great it will be necessary to immediately implement programs to buy people out of the fisheries. Mixed experience with government-sponsored buyback programs in the U.S. suggests the success of future programs hinges on permanently retiring capacity rather than allowing it to shift to other fisheries, restricting activation of latent fishing capacity in the buyback fishery, and developing measures to reduce the incentive (and subsidies) for remaining fishery participants to increase the capacity that remains in the buyback fishery. Evaluation of the efficacy of any new buyback schemes should also be built into program design.

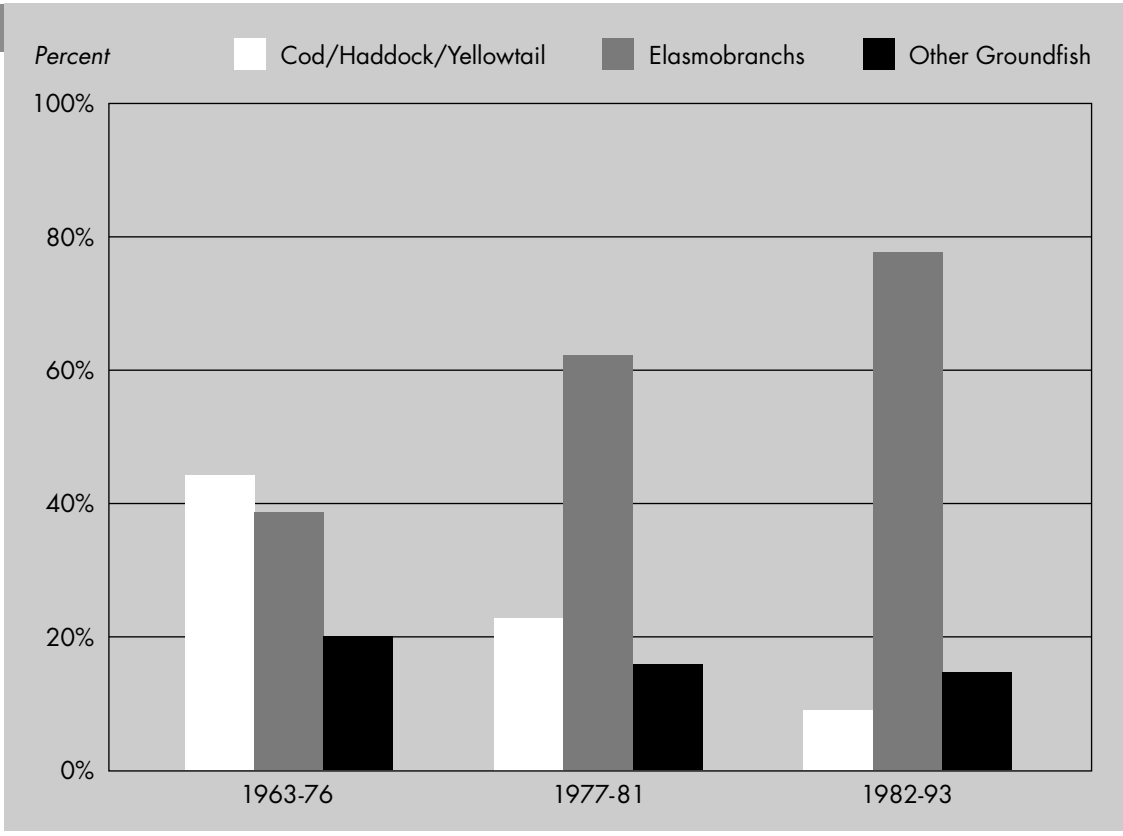
Case Studies: The Loss of Vital Fisheries – The Benefits of Restoration

NORTHEAST GROUNDFISH AND SEA SCALLOPS: A TALE OF TWO FISHERIES

The productive waters of Georges Bank off New England have supported commercial fishing for centuries. Historically, Atlantic cod, haddock, and yellowtail flounder have been the bread-and-butter species for the region's industry. However, from the time distant water fleets arrived on the Banks in the 1960s through the early 1990s, severe overfishing of these highly valued species depleted their populations to record lows (NOAA, 1999). Cod catches that peaked at over 115 million pounds in 1980 dropped to 30 million pounds in 1994 (NEFSC, 2002). These depletions led to large population increases in species of low commercial value, such as spiny dogfish, and to shifts in fishing effort onto the newly abundant species (NMFS, 1996) (Figure 7). By 1999, what were once the most valuable fisheries in this fishing rich region of the nation accounted for only four percent of the regions total catch by value and just three percent by weight (NEFSC, 2002).

FIGURE 7.

RELATIVE ABUNDANCE OF DEMERSAL FINFISH RESOURCES ON GEORGES BANK



FISHERMAN'S PERSPECTIVE

RODNEY AVILA, MASSACHUSETTS

Rodney Avila, 60, retired from groundfishing out of New Bedford in 1996 to take a shoreside job running one of the state's three Family Fishing Assistance Centers. Avila is the fourth generation in his family to fish from the historic port since his great-grandfather came over from the Azores on a whaling ship. He grew up on the water and learned how to mend twine and knit lobster pot heads before he entered high school.

Avila worries that when the Gulf of Maine and Georges Banks groundfish stocks are fully rebuilt, there won't be any infrastructure left to catch and process them. Since 1995, Avila has seen southern New England lose 169 fishing vessels, 20 shoreside plants, an insurance company, an icehouse, and a marine railway.

"At least 2,087 people have directly lost their jobs here," said Avila. "That doesn't count the people they touch." Besides, he adds, no young people are entering the fishing industry. Avila's 37-year-old son is one of the exceptions. Avila gave his son one of his two 70-foot trawlers, Trident, built in 1969. "I saw this coming, so I didn't build a new boat in the '80s when everyone else did. I just kept the two old boats in good shape so I wouldn't go into debt."

The three Massachusetts family assistance centers have helped more than 3,100 fishermen and fisheries workers leave the industry so far, said Avila. "There will be more" if Amendment 13 goes through as planned, cutting fishing days by more than half and closing many near-shore fishing areas. "The management process has overlooked the people. It's supposed to be a process which gets public input, but I think they overlook the public input when they get it."

Whereas Avila wants to see the environment and the fish stocks protected, he wants equal consideration for fishing communities. Like many in New England, he says fish population surveys done in fall and spring by federal research vessels are not good enough. "Two snapshots a year don't give you an accurate picture. I believe strongly in regulations, but we need a balance."

– NANCY GRIFFIN

One government report estimates that the crash of New England cod stocks cost at least 20,000 regional fishing-related jobs as well as an estimated $349 million in annual revenues (Weber, 1994; McGinn, 1998). Georges Bank has also been a prime scalloping ground through the years[2]. Scallop catches averaged 32.5 million pounds from 1987 to 1992 but declined sharply to less than 15 million pounds in 1993 leaving the fishery dangerously stressed. Unlike groundfish however, scallops have rapidly

grown in size and number in areas closed to fishing to protect groundfish spawning. Between 1994 and 2000, scallop biomass increased over twenty fold in the groundfish closed areas of Georges Bank. The fishery was slowly reopened under improved conservation and management, putting as much as $40 million into Southeast New England fishing communities in the first new season. Between 1998 and 1999, landings of sea scallops nearly doubled from 12.2 million pounds to 22.4 million pounds — the highest level since 1992. Revenues increased from $75.6 million to $123 million. Fully recovered, sea scallops are now the second most valuable fishery in the Northeast.

PACIFIC SALMON AND GROUNDFISH: CRISIS ON THE WEST COAST[3]

Salmon have been integral to the culture of Pacific Northwest people for more than 10,000 years. They are central to the spiritual lives of Native Americans. An elaborate First Salmon Ceremony greets the first returning fish each year. They provide a way of life and sense of heritage for today's remaining fishing dependent communities. For the rest of us, they are an exceptionally healthy source of protein and a regional symbol. People of the Pacific Northwest take enormous public pride in the region's world famous salmon runs. The identity and lifestyles of this region are forever intertwined with the species.

But Pacific salmon populations are in trouble. When settlers first arrived in the Columbia River basin an estimated 10 to 16 million adult salmon returned to their spawning grounds each fall. Average annual returns have plummeted to fewer than one million in the last decade. Across California, Oregon, Washington, and Idaho, Pacific salmon have disappeared from approximately 40 percent of historical breeding ranges and current run sizes are roughly five percent of historic levels. Twenty-three populations have been listed as threatened or endangered with more likely in the near future. Logging, pollution, overfishing, and, most importantly, hydropower dams have simply been more than these species can withstand.

Salmon declines have devastated the economies and social structure of salmon fishing dependent communities. Commercial landings that had been as high as 2.1 million fish in 1941 had fallen to 68,000 fish by 1995. Fishing income followed the decline down from $41 million in 1976 to $4 million in 1998. Over the last 20 years, approximately 9,800 commercial salmon trollers have gone out of business or no longer make landings — 88 percent of the West Coast commercial salmon fleet. One estimate suggests the declines are associated with the loss of up to 60,000 fishing-related jobs. Another suggests that salmon declines have cost regional economies over $500 million dollars per year and up to 72,000 jobs.

The staggering costs of the declines suggest the magnitude of economic benefits to be gained from restoring world-class salmon runs. The NMFS conservatively estimates that Pacific salmon catches could double from recent yields if stocks are rebuilt to healthy levels. The Columbia River Inter-Tribal Commission estimates restoring salmon runs would generate $98 million in annual income for tribal communities alone.

[2] Information sources for this paragraph: NEFSC, *Status of Fishery Resources off the Northeastern United States. (http://www.nefsc.noaa.gov/)* and *Atlantic Sea Scallop Fishery Management Plan Stock Assessment and Fishery Evaluation Report 2000* (www.nefmc.org).

[3] Information sources for this case study: Weber, 1994; Weber, 2002; McLellan, undated; Hanna, 2000; PCFFA, undated; PFMC, 2000a; PFMC 2000b; NMFS, 2002; NOAA, 1999;

The West Coast Groundfish Crash

West Coast fishermen have always sought rockfish and other groundfish. But these species came under increasing pressure as a result of salmon declines in the last decade — with disastrous results. Nine long-lived rockfish species are now considered severely depleted. Three species have dropped below 10 percent of their historic numbers. Rebuilding those populations will require just over 50 to more than 100 years. Since the mid-1990s, West Coast groundfish catches plummeted from a 20-year average of 74,000 tons to less than 36,000 tons in 1999 with landings projected to continue declining in the near future. Ex-vessel value of landings correspondingly dropped from $90 million in 1994 to $50 million in 1999, with projections for further decline below $30 million. It is estimated that fishing capacity in the fishery is more than twice that needed to catch sustainable yields.

In light of this evidence, the federal government declared a disaster in the West Coast groundfish fishery during 2000 and appropriated $5 million for disaster assistance. In September 2002, the Pacific Fishery Management Council banned bottom fishing on most of the continental shelf from Canada to Mexico. This action will profoundly affect 1,200 to 1,800 commercial fishing boats along the coast as well as an untold number of recreational fishermen. Once a refuge for displaced salmon fishermen, the Pacific Coast groundfish fishery has joined the salmon fishery in crisis[4].

Conclusion

Our nation needs a sustainable fishing industry. America's fishermen put food on our tables. They contribute to the economic health of our coastal communities. They possess generations of knowledge and experience gained from many long days at sea. They are a source of knowledge, legend, and heritage.

Unfortunately the nation has allowed the biological and economic status of our fisheries to deteriorate, placing communities, a valuable industry, and a national heritage at risk. It is time to reverse that trend. The single best thing that can be done for current and future generations of fishermen is to increase the economic productivity of U.S. fisheries. Of necessity this requires time to rebuild fish populations and restore healthy, resilient and productive marine ecosystems. Over the longer-term, rebuilding U.S. fisheries is an economic engine with the potential to more than double annual catches, restore and create tens of thousands of family wage jobs, inject millions of dollars into local and regional fishing economies, and contribute over $1 billion in added value annually to the national economy.

[4] It should also be noted that the Pacific groundfish fishery has shifted from high value species to lower value species (such as whiting that is largely sold as a low value bulk product-surimi). This shift has masked declines in landings, and only a few large boats actually benefit from the new whiting fishery, so the real decline in the traditional groundfish fishery is even more severe than indicated by the recent declines described here.

Works Cited

Beach, D. 2002. *Coastal Sprawl: The Effects of Urban Design o Aquatic Ecosystems in the United States.* Prepared for the Pew Oceans Commission. Arlington, VA.

Boesch, D.F., R.H. Burroughs, J.E. Baker, R.P. Mason, C.L. Rowe, and R.L. Siefert. 2001. *Marine Pollution in the United States*. Prepared for the Pew Oceans Commission. Arlington, VA.

California Department of Fish and Game. 2001. *California's Living Marine Resources: A Status Report.*

Carlton, J.T. 2001. *Introduced Species in U.S. Coastal Waters: Environmental Impacts and Management Priorities*. Prepared for the Pew Oceans Commission, Arlington, Virginia.

Fricke, P., personal communication, December 2002.

Hanna, S. 2000. *Setting the Fishery Management Stage: Evolution of West Coast Groundfish Management.* In Proceedings of the International Institute of Fisheries Economics and Trade Conference, 2000. Oregon State University, Corvallis, OR.

Hanna, S., H. Blough, R. Allen, S. Iudicello, G. Matlock and B. McCay. 2000. *Fishing Grounds: Defining a new Era for American Fisheries Management.* Island Press.

Holbrook, Stett. 2002. Return of the Sardine: Boats Prowl Monterey Bay. *Monterey Herald,* August 4, 2002.

McCallum, J., personal communication, December 2002.

McGinn, A.P. 1998. *Rocking the Boat: Conserving Fisheries and Protecting Jobs*. Worldwatch Paper 142. Worldwatch Institute, Washington, D.C.

McLellan, E. Undated. *The Geography of Hope: A Regional Stewardship Strategy for Pacific Salmon*. A White Paper prepared for Will and Carlson, Washington, D.C.

Mederer, H.J. and C. Barker. 2000. Reconstructing Identities, Families, Communities, and Futures in the Wake of Fisheries Regulation. In *Change and Resilience in Fishing* eds. Hanna, S and M. Hall-Arber, 2002.

NEFMC. 2002. Frequently Asked Questions (http://www.nefmc.org).

NEFSC. 2002. *Status of Fishery Resources off the Northeastern United States.* (http://www.nefsc.noaa.gov/)

NRC. 1999. *Sustaining Marine Fisheries*. National Academy Press, Washington, D.C.

NRC. 2002. *Oil in the Sea Update: Inputs, Fates, and Effects*. National Academy Press, Washington, DC.

NMFS. 2002a. Fisheries of the United States, 2001. U.S. Department of Commerce, National Oceanic and Atmospheric Administration. Washington, D.C.

NMFS. 2002b. *Report to Congress: Status of Fisheries of U.S.—2001.* U.S. Department of Commerce, National Oceanic and Atmospheric Administration. Washington, D.C.

NMFS. 2002c. West Coast Salmon Harvest Draft Programmatic Environmental Impact Statement. NMFS/Sustainable Fisheries Division, Seattle, WA.

NMFS. 1996. *Economic Status of U.S. Fisheries, 1996.* U.S. Department of Commerce, National Oceanic and Atmospheric Administration. Washington, D.C.

NOAA. 1999. *Our Living Oceans: Report on the Status of U.S. Living Marine Resources, 1999*. U.S. Department of Commerce. Washington, D.C.

NOAA. 1996. *Our Living Oceans: Report on the Status of U.S. Living Marine Resources, 1995*. U.S. Department of Commerce. Washington, D.C.

NOAA. 1994. *Our Living Oceans: Report on the Status of U.S. Living Marine Resources, 1993*. U.S. Department of Commerce. Washington, D.C.

NOAA. 1992. *Our Living Oceans: Report on the Status of U.S. Living Marine Resources, 1992*. U.S. Department of Commerce. Washington, D.C.

NOAA. 1991. *Our Living Oceans: Report on the Status of U.S. Living Marine Resources, 1991*. U.S. Department of Commerce. Washington, D.C.

Pauly, D., V. Christensen, S. Guenette, T.J. Pitcher, U. Rashid Sumaila, C.J. Walters, R. Watson and D. Zeller. *Towards Sustainability in World Fisheries*. Nature (418): 689-695.

Pew Oceans Commission. 2003. *A National Dialogue on American Fisheries, Featuring Summaries of the Pew Oceans Commission Focus Groups on Fisheries Management.* Arlington, VA (www.pewoceans.org)

PFMC. 2000a. *Groundfish Fishery Strategic Plan: Transition to Sustainability.* Portland, OR. (http://www.pcouncil.org/).

PFMC. 2000b. *Overcapitalization in the West Coast Groundfish Fishery: Background, Issues and Solutions.* Portland, OR. (http://www.pcouncil.org/).

Scallop Plan Development Team. 2000. *Atlantic Sea Scallop Fishery Management Plan Stock Assessment and Fishery Evaluation Report 2000* (www.nefmc.org)

Scripps Institution of Oceanography. 2002. (http://www.sio.ucsd.edu/)

Weber, M. 2002. *From Abundance to Scarcity: A History of U.S. Marine Fisheries Policy.* Island Press, Washington, D.C.

Weber, P. 1994. *Net Loss: Fish, Jobs, and the Marine Environment.* Worldwatch Paper 120. Worldwatch Institute, Washington, D.C.

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