The Continued Danger of Overfishing

Carl Safina

New studies continue to chronicle how overfishing and poor management have severely hurt the U.S. commercial fishing industry. Thus, it makes sense to examine the effectiveness of the Sustainable Fisheries Act of 1996, which overhauled federal legislation guiding fisheries management. At the time, I predicted that, if properly implemented, the act would do much to bolster recovery and sustainable management of the nation's fisheries. Today, I see some encouraging signs but still overall a mixed picture.

The 1996 legislation amended the Fisheries Conservation and Management Act of two decades earlier. The original law had claimed waters within 200 miles of the coast of the United States and its possessions (equivalent to some two-thirds of the U.S. continental landmass) as an "exclusive economic zone." In so doing, it set the stage for eliminating the foreign fishing that had devastated commercially important fish and other marine life populations. Although it set up a complicated management scheme involving regional councils, the original legislation failed to direct fishery managers to prohibit overfishing or to rebuild depleted fish populations. Nor did it do anything to protect habitat for fishery resources or to reduce bycatch of nontarget species. Under purely U.S. control, many fish and shellfish populations sank to record low levels.

The 1996 act addressed many of those management problems, especially the ones connected with overfishing and rebuilding. In the previous reauthorization of the earlier act, for example, the goal of "optimum yield" had been defined as "the maximum sustainable yield from the fishery, as modified by any relevant social, economic, or ecological factor." A tendency of fishery managers to act on short-term economic considerations had often led to modifications upward, resulting in catch goals that exceeded sustainable levels and hence in overfishing, depletion, and the loss of economic viability in numerous fisheries.

The Sustainable Fisheries Act changed the word "modified" to "reduced." In other words, fishery managers may no longer allow catches exceeding sustainable yields. Other new language defined a mandatory recovery process and created a list of overfished species. When a fish stock was listed as overfished, managers were given a time limit to enact a recovery plan. Because undersized fish and nontarget species caught incidentally and discarded dead account for about a quarter of the total catch, the law enabled fishery managers to require bycatch-reduction devices.

Although I had high hopes for the act when it was passed, its actual implementation, which began only in 1998, has been less than uniform. Fishery groups have sued to slow or block recovery plans, because the first step in those plans is usually to restrict fishing. Meanwhile, conservation groups have sued to spur implementation.

In that contentious climate, progress has been somewhat halting. On the one hand, overfishing continues for some species, and many fish populations remain depleted. One of the most commercially important fish—Atlantic cod—has yet to show strong increases despite tighter fishing restrictions.

On the other hand, in cases in which recovery plans have actually been produced, fish populations have done well. For example, New England has some of the most depleted stocks in U.S. waters. But remedies that in some cases began even before the law was reformed—closures of important breeding areas, regulation of net size, and reductions in fishing pressure—have resulted in encouraging upswings in the numbers of some overfished species. Not least among the rebounding species are scallops, yellowtail flounder, and haddock. Goals have been met for rebuilding sea scallops on Georges Bank and waters off the mid-Atlantic states. There has even been a sudden increase in juvenile abundance of notoriously overfished Atlantic swordfish. That is because federal managers, responding to consumer pressure and to lawsuits from

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conservation groups, closed swordfish nursery areas where bycatch of undersized fish had been high and cut swordfishing quotas. Some other overfished species, among them Atlantic summer flounder, certain mackerel off the Southeast, red snapper in the Gulf of Mexico, and tanner and snow crabs off Alaska, are rebounding nicely.

The trend in recovery efforts is generally upward. The number of fish populations with sustainable catch rates and healthy numbers has been increasing, and the number that are overfished declining. And rebuilding programs are now finally in place or being developed for nearly all overfished species.

The only sensible course is to move forward: to eliminate overfishing, reduce bycatch, and protect and improve habitat.

Maintaining healthy fish populations is not just good for the ocean, of course, but also for commerce: Fish are worth money. Ocean fishing contributes $50 billion to the U.S. gross domestic product annually, according to the National Oceanic and Atmospheric Administration. But because fish are worth money only after they are caught, not everyone is pleased with aggressive efforts to ensure that there will be more fish tomorrow. Some people want more fish today. Restrictions designed to rebuild depleted stocks are costing them money in the short term.

For that reason, various amendments have been introduced in Congress that would weaken the gains of the Sustainable Fisheries Act and jeopardize fisheries. In particular, industry interests have sought to lengthen recovery times. Currently, the law requires plans for rebuilding most fish populations within a decade, with exceptions for slow-growing species. (Many fish could recover twice as fast if fishing was severely limited, but a decade was deemed a reasonable amount of time: It is practical biologically, meaningful within the working lifetime of individual fishers, and yet rapid enough to allow trends to be perceived and adjustments made if necessary.) Longer rebuilding schedules make it harder to assess whether a fish population is growing or shrinking in response to management efforts. The danger is that overfishing will continue in the short term, leading to tighter restrictions and greater hardship later on.

Recovered fish populations would contribute substantially to the U.S. economy and to the welfare of fishing communities. In just five years since the Sustainable Fisheries Act went into effect, the outlook for U.S. fisheries has improved noticeably, for the first time in decades. The only sensible course is to move forward: to eliminate overfishing, reduce bycatch, and protect and improve habitat. It would be foolish to move backward and allow hard-gotten gains to unravel just when they are gaining traction. Yet the debate continues.

Alternative routes

The Sustainable Fisheries Act is not the only defense against overfishing. There are two promising alternatives: marine protected areas and consumer seafood-awareness campaigns. Although traditional fishery management regulations have led to the closure of some areas to certain types of fishing gear, conservation groups in the past five years have pushed for a complete prohibition on fishing in certain spawning or nursery areas. They argue that fishing methods such as dragging bottom-trawl nets are inherently destructive to seafloor habitats and that vulnerable structures such as coral reefs need to be left alone to regenerate healthy marine communities.

On one tenet of that approach, the science is clear: Fish do grow larger and more abundant in areas where there is no fishing, and larger fish produce disproportionately more offspring than smaller fish. A single 10-year-old red snapper, for example, lays as many eggs as 212 two-year-old red snappers.

But on another score—the idea that fishing improves outside protected areas as a result of "spillover"—the evidence is less conclusive. Studies in different countries have produced contradictory

results. Only a fraction of one percent of U.S. waters have been designated no-take reserves, and not enough time has passed to show whether or how much people fishing outside reserve boundaries will benefit. New studies specifically designed to answer that question are now being conducted.

Recreational fishing groups have generally fought attempts to put areas off limits. Their opposition has resulted in the introduction of a bill in Congress called the Freedom to Fish Act, which has ardent supporters. Recently, though, conservation and recreational fishing groups have begun a new dialogue to explain their respective positions on the science and the sensitivities of closing marine areas to fishing. I predict that the outcome will be a "zoning plan" that specifies what kinds of fishing should be allowed where, guaranteeing access to certain areas in exchange for putting other areas off limits.

The other major conservation alternative is to promote best fishing practices by harnessing consumer purchasing power. One such market approach is ecolabeling, as in "dolphin-safe" tuna. The Marine Stewardship Council—founded originally as a partnership between the corporate giant Unilever and the World Wide Fund for Nature—is leading a global effort to encourage fishing establishments to apply for certification. Certified products receive a logo telling consumers that the product is from a sustainable fishery.

Another market approach is a campaign to raise public awareness through wallet cards, books, and Web sites that help consumers choose well-managed, sustainably caught seafood. That effort has been carried out mainly by conservation groups, often in partnership with aquariums and other institutions, and has been aided by prominent chefs. Some specific goals of these campaigns have been a swordfish recovery plan, effective protection of endangered sturgeon, and better policing against illegal catches of Chilean seabass.

Although results are mixed, a new awareness about seafood has developed among consumers. Boycotts of Atlantic swordfish, Beluga caviar, and Chilean seabass have spread, and some seafood sellers are beginning to market toward this more sensitized consumer niche. I predict that over the next few years, consumer education will become the largest area of growth and change in the toolbox of ocean conservation strategy.

Whither the U.S. Climate Program?

Robert M. White

Approximately 50 years ago, the first contemporary stirring within the scientific community about climate change began when Roger Revelle and Hans Suess wrote that "human beings are now carrying out a large-scale geophysical experiment." Since that time, the scientific community has made remarkable progress in defining the effect that increased concentrations of greenhouse gases could have on the global climate and in estimating the nature and scale of the consequences. The political discussion about how to respond to this threat has been less successful.

Although a small vocal group of scientists continues to raise important questions about whether the data and the theory validate the projected trend in the climate, these views have been more than counteracted by the overwhelming consensus of scientists that the case for the projected climate change is solid. The 2001 assessment by the Intergovernmental Panel on Climate Change of the World Meteorological Organization projects that by the year 2100, there will be a global temperature increase of 1.4 to 5.8 degrees centigrade, a global sea level rise of 9 to 88 centimeters, and a significant increase in the number of intense precipitation events. The wide range of these estimates reflects differences in assumptions about population projections, technological developments, and economic trends that are used in constructing the scenarios.

As the consensus on the likelihood of climate change became more robust, the world's political

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