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An Alternate Framework to the U.S. Commission on Ocean Policy

By Michael DeAlessi

The state of the oceans in the United States and around the world is in sore need of attention. For example, despite the value of the oceans as a resource for both commercial and recreational activities, overfishing and habitat destruction are widespread.

- An April 2003 report by the National Marine Fisheries Service identified over one-third of our nation's fisheries as 'overfished'.
- A 2003 study in the journal *Science* found that throughout the Caribbean, including Florida, coral reef cover has dropped by 80 percent in the last 30 years.

To address some of these important issues, Congress passed the Oceans Act of 2000, which set up a 16-member U.S. Oceans Commission, whose preliminary report will be released on April 20, 2004. The Commission is modeled on the Stratton Commission, another oceans commission formed by Congress in 1966, whose findings and recommendations led to the creation of the National Oceanic and Atmospheric Administration (NOAA).

The current U.S. Oceans Commission is an important and timely acknowledgement of the environmental, commercial, and recreational importance of the oceans to the United States. No doubt the Commission will succeed in many of its goals, which include raising the awareness of the oceans, elevating the level of interest and oceans-related appointments within the Administration, and pushing for more federal funds for oceans-related research.

The Commission's lengthy report,

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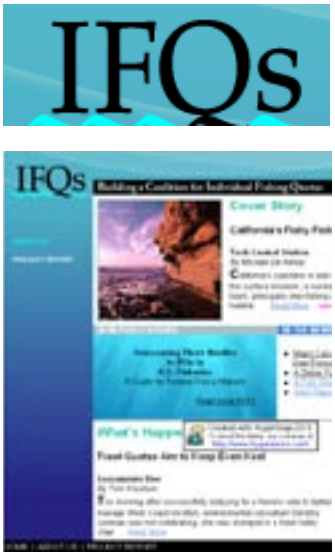

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however, will fall far short of its primary goal of establishing a 'comprehensive and coordinated approach' to managing and protecting our coastal heritage. Instead, the report focuses on creating more administrative offices of ocean affairs, such as a Council of Oceanic Advisors—modeled on the President's Council of Economic Advisors—and an Office of Ocean Policy within the Executive Office.

This approach of coordinating activities across disciplines and departments is an outdated and ungainly one, especially in these times of budget crisis and mandates for leaner, more effective governance. The ocean environment and ocean commerce do not need more levels of bureaucracy, no matter how high they reach or how small the minutiae they address.

At all levels, the heart of the problem that plagues our coasts and oceans is what is commonly referred to as the "tragedy of the commons." Coined by the ecologist Garrett Hardin in 1969, the tragedy of the commons describes a situation where resources are depleted because they are free for the taking. In Hardin's words, when the individual captures the rewards but the costs are borne by the group, "ruin is the destination toward which all men rush." Hardin used the examples of a pasture and an ocean fishery to make his point, but it applies equally well to pollution (where the 'good' that is free for the taking is waste disposal), habitat destruction (which is analogous to overharvesting a resource), and congestion and limited port facilities for commercial traffic.

Regulatory policy, bureaucracy, and research budgets—the core of the Commission's recommendations—do not address the tragedy of the commons, and therefore are doomed to achieve expensive, piecemeal success at best.

Interestingly, one real marine management success story is the federal management of offshore oil and gas exploration and development. This program, managed by the Minerals Management Service (MMS), is based on a system of offshore leasing. In other words, the program is based on a clear definition of property rights. If the Commission were really looking for a comprehensive framework to apply, this is where it should start.

THE FIRST PRINCIPLE: OWNERSHIP AND STEWARDSHIP ARE DIRECTLY RELATED

The key to managing the oceans sustainably is recognizing that stewardship and ownership are intimately related. Just as homeowners tend to maintain their property because such treatment maintains and creates value, so ownership begets responsible stewardship. Ownership is also the most effective remedy for the tragedy of the commons

The first thing the Commission should have done in its report was to apply "Occam's razor," that is, to look for the simplest explanation for the problems that exist, and the simplest solution. The problems of the medieval English "grazing commons," or overgrazing of public lands, were solved by enclosure movement, so why not propose an oceanic enclosure movement?

Looking to the Past

Using tenure and ownership to protect marine resources is nothing new. In fact, before Westerners arrived, traditional societies in the Pacific Northwest and the Hawaiian Islands used communal institutions of property to protect marine resources. Native Americans in the Pacific Northwest, for example, often had complex arrangements within and between tribes to allow salmon to move up and downstream in order to maintain the spawning runs and ensure a future supply of fish. According to economic historian Robert Higgs, "Indian regulation of the fishery, though varying from tribe to tribe, rested on the enforcement of clearly understood property rights. In some cases these rights rested in the tribe as a whole; in other cases in families or individuals."

In Hawaii, native Hawaiians understood how interconnected their environment was, from the top of the volcano,

to the watersheds below, to the reefs that spread out to sea. And so they recognized what they called "ahupua'a," which was essentially a triangular strip of property running from mountaintop out to sea. According to a Hawaii Sea Grant study of indigenous ocean rights in Hawaii, this system was set up "to sustain the pattern of Hawaiian life", and included strict limits on harvests of "species, types, sizes, and portions of fish."

Unfortunately, the Europeans who settled on the West Coast and in Hawaii had different ideas. Based partly on their desire to expropriate the resources of indigenous peoples, and partly on the European tradition of free access to the seas, traditional tenure systems were undermined both by force and by law. The result, as coastal populations increased and fishing technologies improved, was widespread overfishing and depletion.

Regulations aimed at preventing overfishing have generally failed because they do not take the tragedy of the commons into account. That is, they don't address what motivates people to overfish, and so, despite making it much more difficult to catch fish, human ingenuity triumphs and overfishing takes place anyway. One of the most dramatic examples of this was the Alaskan halibut fishery, which saw its annual season decreased from almost ten months to 72 hours with no real decrease in harvest levels.

The Alaskan halibut fishery is now a success story, because it is one of the few fisheries in the United States managed on a property rights model. Fishermen were assigned Individual Fishing Quotas (IFQs), which allocate the right to catch a specific percentage of the scientifically determined total allowable catch. IFQs not only end the race to fish, they create a tangible asset whose value depends on the health of the fishery, giving fishermen both the incentive and the means to care more about stewardship.

Of course, there is far more to managing ocean resources than fishing, but because the fishery dynamic applies to every facet of oceans management, and because it is such an obvious example of the tragedy of the commons, preventing overfishing and protecting marine habitat should have formed the core of the Oceans Commission report. After all, most Americans are far more concerned with the price and quality of the fish at their local supermarket or the health of their favorite fishing holes or birdwatching marshes than they are about deep sea topography or federal agency hierarchies.

The Oceans Commission report does pay some attention to property rights and to IFQs, but fails to see the bigger picture. In the eyes of the Commission, property rights approaches are valuable tools for solving specific problems, such as overfishing in the Alaskan halibut case, but not as an overall framework for oceans policy.

This is a mistake. As the following examples show, from preventing overfishing, marine pollution, coastal habitat degradation, and conflicts between recreational and commercial fishing, to financing research and port facilities, to protecting marine biodiversity and ecological health, the property rights framework applies. And not just to specific cases, but to the coordinated, integrated, ecosystem-wide approach which the Commission parses out into separate affairs.

FISHERIES

Oyster Beds

One of the few empirical studies of privately managed marine resources compared oyster beds managed by state regulators to those leased privately in the Chesapeake and the Gulf of Mexico (in the Chesapeake, leased beds are common only in Virginia). This study found that the leased oyster beds were healthier, better maintained, and produced larger, better quality oysters.

Commercial Fisheries

One of the most encouraging developments in fisheries management around the world has been the use of transferable fishing rights such as those used in the Alaska halibut fishery. Total catches are still determined by fisheries scien-

tists, but after that, who can catch what is clearly defined. And if fish stocks increase, so does the quota share.

New Zealand has the most extensive system of these rights, referred to as either individual fishing quotas (IFQs) or individual transferable quotas (ITQs). When they were introduced in New Zealand in the 1980s, one of the first things the hoki fishing fleet did was to get together and agree to catch less than the total determined by the government. As anyone who's heard a fishermen complain about regulation knows, that was a radical change.

IFQs are not widely used in the United States because of politics and infighting over how they should be allocated. But in those few fisheries where IFQs are in place, the results are encouraging. The Mid-Atlantic Surf Clam and Ocean Quahog Fishery has been declared the "best managed fishery" in the United States by a senior scientist at the National Marine Fisheries Service. And the once-dangerous, chaotic Alaska halibut fishery has changed dramatically as well. A letter from a small boat halibut fisherman to the Alaska Fisherman's Journal in 1998 summed up the ITQ program there: "We fish better weather, deliver a better product, and have a better market. This is a better deal."

Fisheries Research and Multi-species Management

In New Zealand, where the ITQ system is widespread and well established, quota owners have organized management companies to pool their resources, to invest in scientific research, and to coordinate management of different species. ITQs are often faulted for focusing on one specific species to the detriment of other species, but not in New Zealand. On the north end of the South Island, the Challenger Scallop Enhancement Company not only invests in re-seeding scallop beds, it has management contracts with the owners of oyster fishing rights and inshore finfish fishing rights to integrate catches and harvesting methods for all three fisheries.

Recreational Fishing

Rights to fish commercially may also help solve recreational/commercial fishing disputes. Angling for salmon, for example, is popular in the North Atlantic, especially in Iceland and the British Isles. This led one entrepreneurial angler, Orri Vigfusson from Iceland, to raise money through an association of anglers—the North Atlantic Salmon Fund (NASF)—to successfully buy out the entire offshore salmon fisheries of Greenland and the Faroe Islands. By doing so,

NASF ensured that approximately 400,000 additional salmon returned to home waters in Europe and North America between 1992 and 1995. For this reason Vigfusson strongly supports the extension of private rights into the fisheries—so he has an opportunity to buy them out.

Although not as widespread, rights to fish for salmon in rivers and streams exist in Canada. And where these rights do exist, Canadian journalist Philip Lee describes the different approach that yields results: 'Riparian owners in New Brunswick have taken action to protect their waters when the federal government seemed to be overseeing the extinction of the Atlantic Salmon.'

HABITAT PROTECTION

Marine Reserves

Marine reserves are off limits to commercial activities such as fishing and oil and gas exploration. Numerous studies have shown that at least within the boundaries of marine reserves, marine life is more plentiful and diverse, and so they offer real promise as one piece of the marine management puzzle.

Jim Bohnsack, one of the leading marine reserve scientists at the National Marine Fisheries Service, has described reserves as "civilizing the oceans" by "putting fences in the oceans". He's definitely on to something here. Good fences do make good neighbors by clearly defining who owns what, and therefore who can use, harvest, or simply protect the resource. Thus, marine reserves will be ineffectual as long

as it remains unclear who has the right to fish, and where.

In the Philippines, for example, the Apo Island Marine Sanctuary has been a success because the surrounding communities feel a sense of ownership over the reefs, and therefore are willing to invest in enhancing and protecting the marine environment where they make their living. In other words, marine reserves are only as effective as the respect given to their boundaries, and once the boundaries of marine reserves and fishing areas are well established, ocean advocates of all stripes are far more likely to act like good neighbors.

Coral Reefs

Coral reefs in the South Pacific have suffered in recent years from destructive fishing practices such as fishing with dynamite or cyanide. The World Wildlife Fund's Hong Kong office investigated the problem and found that reef fisheries in Southeast Asia 'work in a sustainable way only in those few places where the rights to fish a particular reef are clearly established.' Australian biologist Robert Johannes, who studied coral reef conservation throughout the Pacific, also found that village control over local marine resources was the surest indicator of reef health.

Artificial Reefs

In the Gulf of Mexico, another, somewhat controversial example of habitat enhancement is the building of artificial reefs. Reef building is controversial because in many cases, it is not clear how much of the marine life on a reef is produced or simply attracted (in other words, marine life that would have settled somewhere else if there had been no artificial reef).

Nevertheless, because the location of an artificial reef can often be kept secret for a year or two, there has been a tremendous amount of private reef creation in places like Alabama and Florida where it is legal. Unfortunately, because the 'tenure' over these reefs is so short, the materials used to make them often start disintegrating after about one year.

One way to address this problem would be to lease artificial reef grounds just like oyster beds. That may not immediately clear up the attraction vs. production issues, but can there be any doubt that a private or communally owned reef would be better protected than an open-access one?

Artificial Kelp Forests

In California, kelp forests are havens of biodiversity, but according to the California Department of Fish and Game, they have been in decline since at least the late 1960s, especially in Southern California. The Marine Forests Society, a non-profit based in Newport Beach, has tested an artificial kelp reef, or 'marine forest', to clean the water and provide shelter, food and spawning ground for fish and other marine life. Despite support from the city of Newport, the Society's efforts have been stymied by the California Coastal Commission, which deemed the experiment 'unpermitted development' and refused to issue a retroactive permit.

The artificial substrate that the kelp latch onto are low tech—mostly PVC, ropes, and used tires—but the marine

growth that results is incontrovertible. Of course, efforts such as the marine foresters should be held to a high standard of proof that their efforts are not harmful to the marine environment, but it would be far more useful for regulators to concentrate on environmental performance rather than procedural compliance. In addition, if the marine foresters were able to lease the seabed for their kelp forests, they could help pay for their efforts through arrangements with local anglers, improving habitat through private action rather than regulation.

Aquaculture

Aquaculture has grown by leaps and bounds in recent years, and currently accounts for more than one third of the world's marine fish production. The reason aquaculture is booming while marine fish catches are flat or in decline is because aquaculture effectively channels human ingenuity into finding ways of producing more fish instead of finding ways around regulations meant to stop overfishing. Aquaculture does this by literally fencing the oceans.

Of course, while it is clear who owns the fish inside of an aquaculture facility, it is not clears who owns the natural resources outside of the fence, and so pollution has plagued some aquaculture operations, especially in developing countries.

Marine Pollution

Fisheries are overharvested because individual harvesters reap all the rewards of overfishing (the extra fish they land), but bear only a fraction of the costs they impose on the entire fishery. In just the same way, marine pollution typically occurs because polluters bear only a fraction of the costs they impose, but get all of the benefits of waste disposal. The property rights framework addresses this problem as well, even when property rights only exist at the margin.

Washington State, for example, has some of the cleanest estuaries and waterways in the country because the oyster beds there are privately owned. Because their livelihoods depend on clean water, the oyster growers who own tidelands in Washington have been, for almost a century, the staunchest defenders of water quality in that state.

Japanese Cooperatives

In Japan, Fishery Cooperative Associations (FCAs) frequently hold the rights to coastal marine resources. These

FCAs impose strict conservation measures on their members and coastal marine resources in Japan are healthier because of it. Cooperative ownership in Japan is so strong that FCAs have been able to block potentially harmful or polluting coastal development because of the possible damage to their fisheries. As described by Kenneth Ruddle and Tomoya Akimichi, "Because fisheries rights have a legal status equal to land ownership under Japanese law, ... a private developer must ... either purchase all of the fisheries rights ... or compensate for any reduction in the quality of the rights".

Angler's Cooperative Association

In England and Wales, private, riparian (streamside) rights to fish for salmon in rivers and streams are common. As a result, riparian owners have a legal recourse when pollution harms these fisheries, just as an owner of a house has a legal recourse when someone breaks his windows.

As a result, many riparian owners are members of the Angler's Cooperative Association (ACA), which, since its formation in the 1950s, has prosecuted "more than fifteen hundred cases of pollution and recovered hundreds of thousands of pounds in damages to enable riparian owners to restore their fisheries". Interestingly, these suits have often been directed at the same local authorities responsible for enforcing anti-pollution statutes.

One of the biggest pollution problems facing the United States is the dead zone in the Gulf of Mexico. This dead zone forms seasonally when nutrient runoff causes large algal blooms. It forms in the middle of one of the most important commercial and recreational fisheries in the United States, and has grown as large as 18,000 km^2 after the Mississippi River

flood of 1993. Without rights to fish, however, fishermen in the Gulf have far fewer legal recourses with which to fight.

Scientific Research

In countries like New Zealand and Iceland with strong fishing rights, the fishing industry pays for the fisheries science and research that it uses. As a result, there is far greater cooperation between the scientific community and the fishing industry than there is in the United States. Non-commercial research is still funded by government grants, but there is no reason that commercial research should not be funded by the beneficiaries of that research. If NOAA could reduce its expenditures on commercial research, there wouldn't be the budget shortfalls that there are today, or the need to clamor for more federal marine research dollars.

CONCLUSIONS

The Oceans Act of 2000 instructed the commission to make recommendations to foster protection of life and property, marine conservation and stewardship, scientific research, marine commerce, technological development, agency cooperation, and U.S. leadership, among others. Unfortunately, the Commission's recommendations for increasing federal research dollars, bureaucracy, and security for shipping and oil and gas activities fall far short of this goal (but are hardly surprising considering the Commission consists primarily of academics, federal agency representatives, and the oil and gas industry).

Of course there is no single answer as to how to conserve the ocean's resources, but the guiding principle in building a framework should reflect what we know by experience. And that is, when the people who benefit most from conserving and maintaining marine resources—those whose livelihoods depend on them—are granted rights and responsibilities to that resource, they generally will protect and conserve that resource.

Conservation is not happenstance; it is a rational response to a given situation. Institutional constraints determine these responses, and are intrinsically bound to the question of who owns the rights to do what with a resource. Unfortunately, clearly defined and readily enforceable property rights to marine resources are rare, but those examples that do exist strongly support the use of a property rights framework to improve the management of the oceans.

To give people the opportunity to be better stewards of the marine environment, there must be a dramatic shift in the way oceans are managed, away from many current regimes that all too often encourage the profligate waste of resources, time, effort and capital, including overfishing, marine habitat destruction, and marine pollution. Private ownership institutions cover a wide spectrum ranging from communal to individual ownership. Both private communal and private individual property rights create positive conservation incentives by allowing harvesters to directly benefit from conservation, and both allow owners to exclude others, decide how to manage resources, and bear the consequences of these actions.

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