

Saving Fisheries



with
Free Markets



At long last, Mark Lunsten, captain of the fishing boat *Masonic*, could relax a little. He had spent hours navigating his vessel through heavy seas to get to the halibut grounds in time for their opening, then pushed himself and his crew hard in an all-out effort to catch as many halibut as possible in the government-allotted 24-hour window. Thankfully, the *Masonic* suffered no casualties. But in years past, numerous boats had capsized in the mad dash to reap the time-limited riches in the frigid waters of the Bering Sea.

Lunsten was looking forward to the following year, 1995, when the Alaska halibut fishery would come under a revolutionary approach to fishery management called individual fishing quotas – a move he would later argue made the fishery “sensibly sustainable.” Under this approach, qualified fishermen are each

By Donald R. Leal

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allotted a maximum catch for the year, to be caught whenever they choose, so pressure on the fishery can be controlled without resorting to drastically short fishing seasons.

The evolution of Pacific halibut fishing is a cautionary tale of the futility of misdirected regulation. Halibut is a highly prized fish once found in enormous numbers off the coast of the Pacific Northwest. Perhaps it was not surprising, then, that during the 1980s, technological improvements ranging from faster boats to more-efficient hooks to power winches for hauling up miles of “long-line” gear in minutes transformed the halibut fleet into a formidable killing machine. A process that used to take several months for the fleet to land the annual catch of some 50 million pounds soon took less than a week.

In an effort to prevent unsustainable overfishing, government-sanctioned managers reduced the season from several months to just two or three 24-hour periods in the spring

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and summer. Each period came to be known as a “derby” because, with 3,000 boat owners and crew members hoping for a big payday, vessels had to race to the fishing grounds regardless of the weather or the risk of collisions. Then the process of paying out miles of long-line and retrieving it along with the fish was carried out again and again, until the 24-hour legal-fishing period was up. Halibut too small to be sold legally would be unhooked and tossed overboard. The released fish could survive if handled carefully, but the hectic conditions were not conducive to such coddling. All the while, no one slept.

Safety was hardly a priority. Fishermen had to handle heavy machinery, knives and thousands of hooks in rough seas and sub-freezing weather without benefit of rest. Carelessness often led to losses of fingers and eyes. Worse, sleep-deprived fishermen were prone to falling overboard in heavy seas, often drowning or succumbing to hypothermia before they could be rescued. The Coast Guard averaged more than two dozen search-and-rescue missions per year.

Halibut, as well as people, were wasted.



Crews usually were not able to clean and ice down all their fish, given the huge quantities onboard and the hectic pace of the work. More than half of the total halibut landed was never iced, and about a third of it was not even gutted during the 24-hour mini-season in May of 1991. In addition, miles of fishing gear would become tangled on the crowded fishing grounds, and much of it had to be abandoned. This gear would still snag fish, however, even though no one was there to retrieve the prize.

What's more, squeezing the season into a matter of hours didn't even accomplish its primary goal. For, in spite of the short fishing periods, the actual catch frequently exceeded the overall target set for sustainability because fishermen would invariably devise new ways to land fish faster.

The approach also left fishermen to cope with markets in glut. Imagine a fleet of 3,000 vessels delivering 15 million pounds of halibut – a third of a year's catch – to the dock in a day or two. Processors were free to say, "take it or leave it," and few fishermen could quibble. Moreover, with all that tonnage entering

the market at one time, only a small portion could be sold as fresh fish. The rest would have to be frozen for future sale at a lower price.

HOW DID THIS HAPPEN?

The Pacific halibut fishery started out like most ocean fisheries, with few restrictions on who fished, or when, or how. While this gave fishermen the freedom to do business as they saw fit, it opened the fisheries to what the ecologist Garret Hardin dubbed the "tragedy of the commons."

For centuries, ocean fish have been treated as common property, available to whoever dropped a hook or a net in the water. The tragedy is that while each fisherman would like to conserve enough live fish to ensure sustainable catches (and income) in the future, individuals have no incentive to act in the long-term collective interest. An additional fish caught is money in the individual's pocket, but the cost of one less fish available to breed or to be caught another day is spread among all fishermen. Such a disparity between the private benefits and social costs of fishing almost inevitably results in too many fish



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being taken.

Evidence of overfishing appeared a number of times in the early history of the Alaska halibut fishery. Hence, beginning in the late 1970s, restrictions on the duration of fishing and the technology that could be used to catch these fish were put in place to combat depletion. The regulations became more restrictive – shorter and shorter seasons – as fishermen found new ways to catch fish faster. By the early 1990s, the system had deteriorated into a dangerous, wasteful spectacle.

Detailed government regulations have long been the primary weapon against the depletion in ocean fisheries. At one time or another, restrictions have been placed on the size and power of fishing vessels, the types of fishing gear, the times and areas in which fishing is allowed, the number of trips a vessel can make during a season, the amount of fish a vessel can land per fishing trip, the size of fish that can be legally landed and so forth. A more-recent initiative – one that especially rankled traditionalists – has been to limit the number of participants allowed in the fishery.

But these restrictions rarely worked as hoped. The agency in charge of fishery management in America's coastal waters, the National Marine Fisheries Service, recently reported that one-third of commercial fish stocks are either overfished or well on the way to being overfished. Gulf of Mexico red snapper, initially declared overfished in the mid-1980s, is still overfished, despite a host of measures to limit catches. Boccacio, a popular fish found in Pacific waters, has become so depleted that scientists say it could take a century to recover.

Overcapacity in boats and gear is both a symptom and consequence of regulation. In 2000, just 9 percent of the vessels currently available could harvest the total sablefish allocation, while just 12 percent of the vessels could harvest the sustainable catch in all other groundfish species in the waters off the coast of California, Oregon and Washington. Similarly, just 87 of the 387 vessels now committed to red snapper fishing in the Gulf of Mexico are needed to harvest a sustainable catch.

Complication breeds complication. In an effort to prevent overfishing, the length of the



snapper season in the Gulf has been steadily reduced. Before the truncated seasons, commercial fishermen caught red snapper and other reef species together in the multispecies fishery throughout the year. Now, fishery closures on snapper last from 9 to 10 months each year. So otherwise-idle fishermen aggressively turn their attention to other reef fish species, endangering the viability of other fish.

Wait; it gets worse. During the long closure on red snapper, fishermen are not able to avoid them as they seek other species. Thus, an extraordinary number of snapper are thrown back because they are caught out of season – and many are thrown back dead, killed by the radical change in pressure when they are brought up from extreme depths.

Within the snapper season, the 2,000-pound catch limit for snapper per vessel per trip results in still more snapper being wasted when the limit is exceeded. Like season length, the allowable poundage per trip has been steadily shrinking – again forcing fishermen to throw back snapper that aren't likely to survive long enough to be caught again. Additional snapper are discarded because they do

not meet minimum size requirements. These minimums have been raised several times in recent years in an effort to extend the season.

All told, regulation-induced snapper discards amount to more than two million pounds each year – a huge amount in a fishery that brings just 4.5 million pounds a year to market.

THE MARKET FIX

The good news here is that what direct regulation is unable to accomplish, market-based regulation can. Individual fishing quotas have proven quite effective in ending wasteful “zero-sum-game” fishing, with its arms-race-like incentives to buy ever-more-expensive equipment and take ever-greater risks in landing the catch. These quotas have also been helpful in addressing ecological problems that festered under traditional regulation.

With individual fishing quotas, a quota holder is entitled to catch a specified percentage of the total allowable catch set each season by fishery managers. Thus, a fisherman who holds a 0.1 percent share in the Alaska halibut fishery is entitled to catch 50,000

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pounds of halibut if the total allowable catch is 50 million pounds. Because the quotas are transferable, quotaholders can adjust the size of their operations by buying and selling rights. Those wishing to enter an individual fishing quota fishery can buy or lease quotas from current holders.

Worldwide, at least 100 marine species are now under individual fishing quota management. New Zealand and Iceland use such quotas in nearly all of their fisheries, while Canada and Australia use them in most. The United States, Greenland and the Netherlands all use transferable quotas for some species, but still depend for the most part on regulation-as-usual.

Experience with individual quotas confirms their considerable benefits. With their adoption in the Alaska halibut fishery in 1995, fishery managers were able to extend the season from a few one-day openings to fully eight months a year. The long season has allowed fishermen to stagger their catches, making it possible to sell fresh halibut at premium prices most of the year. Safety has im-

proved markedly as fishermen no longer have potent incentives to go out in bad weather. The total allowable catch is no longer routinely exceeded, a lot less gear is lost, and fewer halibut are destroyed between hook and dock.

Individual quotas eliminated other problems as well. Before their implementation, large quantities of halibut were caught and discarded in the process of catching sablefish – another species subject to short seasons. Halibut and sablefish boats use similar gear and have overlapping fishing grounds. Thus, with halibut fishing legal only a few days a year, a lot of halibut caught during the sablefish season had to be discarded.

The situation improved dramatically when individual quotas were adopted in both fisheries in 1995. The two seasons now largely coincide, making it worthwhile to purchase quotas for halibut while fishing for sablefish. As a result, Greg Williams, a biologist with the International Pacific Halibut Commission, estimates that the inadvertent mortality of halibut discarded in the sablefish fishery has fallen by nearly 80 percent.

The consequences of creating individual



vessel quotas (individual fishing quotas by another name) in the fisheries off the coast of British Columbia have been similar to the Alaskan experience. Along with reducing waste and improving safety, the new system has also markedly improved species-conservation. Before individual quotas, fishery managers were unable to manage groundfish species individually, and as a result many were overfished. Today, with individual quotas in place for 55 species, none of the targets are being exceeded.

The elimination of the derby has allowed fishermen to share information that reduces discard mortality significantly. For instance, fishermen have adopted the practice of making short, sample tows to assess the mix of species in a new area. If the sample indicates the need for high rates of discard, boats avoid the area. Investments in equipment aimed at winning the derby have been replaced by investments that allow for selective harvesting.

There is also evidence that individual quotas are instilling a longer-term view of the fishery. In 1986, Canada adopted a system of enterprise allocations – percentage shares of

the total allowable catch allocated to various fishing companies – in its Atlantic sea scallop fishery located off Nova Scotia. Today, if surveys indicate low levels of immature scallops, fishery managers, with the full support of the companies, reduce the total allowable catch. Canadian scallop fishermen have opted for this approach because, as quotaholders, they will proportionately capture the benefits down the road. And they have succeeded in rebuilding the scallop stock from depressed levels in the early 1980s.

In contrast, the nearby scallop fishery in U.S. waters is subject to traditional regulation. Every year amounts to a free-for-all, in which individuals grab for a share of the total allowable catch. U.S. scallop fishermen typically oppose reductions in the total allowable catch needed to rebuild the scallop stock. It shouldn't be surprising, then, that the Canadian scallop fishery enjoys larger stocks, better balance in age classes, smaller fluctuations in harvests and greater profitability.

In New Zealand, where individual quotas are formally considered private property, fishermen play an active role in rebuilding fish



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stocks. For example, before these quotas, the East Gisborne rock-lobster fishery was suffering from an inability to control harvests, which, along with other management problems, resulted in severe depletion of stocks. In 1990, fishermen were allocated individual fishing quotas. Following a familiar pattern, they did what previously seemed impossible, preventing the actual catch from exceeding the total allowable catch.

The total allowable catch, however, had to be significantly reduced if the lobster stock was to recover fully. And in 1992, holders of individual quotas decided on their own to cut the total catch by 50 percent and to remove lobster traps during spawning periods.

The industry also imposed on itself a minimum-size restriction for male lobsters. This raised the price of the catch, softening the near-term economic hardship associated with the reduction in the total allowable catch. In any case, management initiatives to sustain the health of the fishery can pay off immediately by increasing the market value of transferable quotas. The quota shares, after all, are highly

liquid assets, whose market value reflects the value of future earnings from the resource. Hence the payoff from long-term efforts to manage the resource efficiently can be seen in the prices of quotas changing hands today.

Despite the success of individual quotas, they face stiff opposition from various stakeholders in the United States. Locally managed federal fisheries – the Mid-Atlantic surf-clam fishery, the South Atlantic wreckfish fishery, the Alaska halibut fishery and the Alaska sablefish fishery – did adopt individual fishing quotas between 1990 and 1995. However, in 1996, Congress succumbed to pressure from some fishing interests and environmental groups and imposed a moratorium on using those quotas elsewhere. The moratorium expired three years ago, but debates continue over what constraints should be imposed on individual fishing quota initiatives.

One concern is that unrestricted transfers could result in a large amount of individual quotas in the hands of a few fishing companies. Such a concentration could conceivably result in monopoly control, leading to restrictions on catches below those needed to sus-



tain the fishery – and, as a result, to higher prices for consumers. But this concern appears overblown. Fish buyers have ready access to a variety of domestic and foreign fish, so competition from close substitutes makes it very difficult to exert monopoly power. In any case, the concern over quota concentration has been addressed in most fisheries by capping the legal allowable percentage that can be held by individuals and corporations.

Another concern is over who can own these quotas. When they are transferred, the new holders might not reside in the community closest to the ocean fishery or land their fish there. As a result, towns dependent on fish processing could lose employment. But this concern, too, could be addressed without severely restricting quota transferability. For example, a portion of the individual quotas could be given to communities. In turn, these communities could allocate portions to community members.

The chief ecological objection to individual quotas is the claim that they will encourage “high-grading” (throwing out less-valuable fish), which can result in significant mortality.

By giving fishermen more time to fish, the argument goes, they will have more time to be choosy about what they keep. However, there is little indication that high-grading in individual fishing quota fisheries is any more of a problem than it is in traditional programs. After all, traditional restrictions on catches can just as easily force discards through minimum size limits and trip limits. In any event, high-grading most commonly occurs where monitoring and enforcement have been weak. And in the few U.S. fisheries with individual quotas, high-grading is insignificant.

Yet another concern is that individual quotas allocated for single species may make it more difficult to address broader ecological issues. The allocations “do not consider the needs of the ecosystem (for example, food for predators),” warns the Marine Fish Conservation Network. However, all managed fisheries are now required to take into account ecological factors when setting the total allowable catch for a species targeted in a fishery. If new information proves that the allowable catch is too high and that more fish should be available for prey (or for some other ecological



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purpose), the managers of individual quotas face less resistance to lowering allowable catches than do the managers of traditionally regulated fisheries.

The more species covered by these quotas, the more likely fishermen will take into account the multi-species effects of fishing. In New Zealand, where individual quotas now cover 93 species, fishermen are working together to conserve overlapping habitat. In Tasman Bay, for example, scallop, oyster and finfish fishermen coordinate the timing, location and size of their harvests. This approach has reduced the deleterious consequences of fishing, like disturbance to the sea floor from oyster dredging.

Those who question the ecological value of individual quotas often argue that marine reserves are a better way to protect fish and their habitat. Closing an area to fishing, in theory, can provide a number of benefits – among them, conservation of biodiversity and habitat, improvement of scientific knowledge, education and enhancement of recreational-fishing opportunities.

In practice, however, closing areas is less effective than might be expected because fishermen increase their fishing around the perimeter. Thus, while marine reserves are an important tool in attaining ecosystem health, they do not resolve the tragedy of the commons plaguing ocean fisheries – they simply force fishermen to relocate and concentrate their effort nearby. Individual quotas, combined with strategic use of marine reserves, offer a more formidable tool for ensuring a healthy environment.

In the final analysis, the best case for individual quotas is the abject failure of the alternatives. Traditional regulation has led to poor product quality, rising fishing costs and greater danger to crews – not to mention an enormous waste of fish. Individual quotas deserve a chance because they fundamentally alter fishing behavior, internalizing the external costs and benefits of fishing that lead to the tragedy of the commons. Indeed, in an era in which markets have proved their superiority over intrusive regulation, it is ironic that the United States – the champion of free markets – is lagging in their adoption. **M**

