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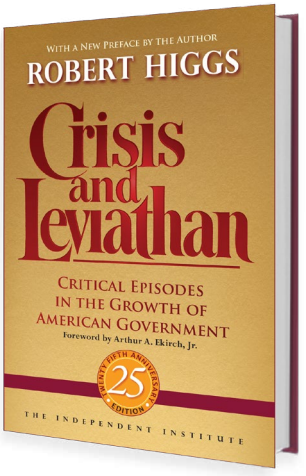

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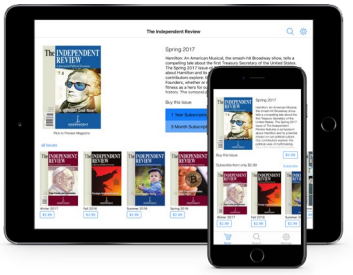

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Antitrust and the Commons

Cooperation or Collusion?

BRUCE YANDLE

Long before Garrett Hardin (1968) explained the "tragedy of the commons," ordinary people were aware that unbridled access to fisheries and other natural resources could result in ruin for all. Whether by custom, kinship, or outright ownership, people found ways to assign limited rights for the sharing of pastures, streams, and hunting grounds. Indeed, the story of property rights, whether common, public or private, is itself a story about limiting access to otherwise common-access resources. Efforts to sustain stocks of species and to increase the productivity of natural resources inevitably lead to restriction of access. In the absence of rules for managing common-access resources, output will be higher and prices lower initially, but eventually the unbridled use will destroy a pasture, fishery, or wildlife population. Imposed systematically and competitively, access restrictions assure long periods of sustained environmental use, allowing us to avoid the tragedy of the commons.

In the minds of some, rules, customs, and property rights that limit access and production raise the specter of monopoly control. As Adam Smith ([1776] 1937) reminds us, "People of the same trade seldom meet together, even for merriment and diversion, but the conversation ends in a conspiracy against the public, or in some contrivance to raise prices" (128). But the perception of monopolizing is a different matter from the fact of monopoly. In any event, we live in a world with antitrust statutes, which can make socially beneficial conservation efforts a risky business (Milliken 1994; Johnson and Libecap 1982, 1008). For example, a community of oystermen and shrimpers aware of the effects of overfishing may form an association, meet together, and coordinate their actions to limit the catch.[1] In doing so, they run the risk of violating federal and state antitrust laws, whose broad language prohibits collusion

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and other anticompetitive behavior. To illustrate, section two of the Sherman Antitrust Act (1890) states in part that "every person who shall monopolize, or attempt to monopolize, or combine and conspire with any other person or persons to monopolize any part of the trade or commerce among the several States . . . shall be deemed guilty of a felony" (15 U.S.C.A.). Interpreted literally, the statute precludes a meeting of competing fishermen who seek to coordinate and limit production activity.

Conservationists find themselves caught between the pit of natural resource tragedies and the swinging pendulum of antitrust enforcement. Actions taken to avoid a tragedy of the commons can and do trigger antitrust investigations. The mere possibility of felony conviction suffices to discourage sound natural resource management.

Although restrictions on overfishing to conserve a natural resource may be difficult to distinguish from blatant efforts to raise price and gain monopoly profits, the underlying logics of the two actions are entirely different. Successful cooperative efforts to conserve a common-access resource yield an increase in wealth and social well-being whereas it is widely argued that collusive efforts to monopolize markets yield a net reduction in social well-being while redistributing wealth from consumers to producers.

In their discussion of the twin problems created by overfishing and by cooperative efforts to prevent it, Terry L. Anderson and Donald Leal (1995, 166–167) and Ronald N. Johnson and Gary D. Libecap (1982, 1008) refer to a 1950s antitrust action affirmed on appeal in the U.S. District Court. The case, *Gulf Coast Shrimpers and Oystermans Association v. United States* (236 F. 2d 658, 1956) involved an association of Gulf Coast shrimpers and oystermen that had operated across five major Mississippi ports since the 1930s. The association's price committee did indeed set floors under the prices to be charged dealers by all members. Many dealers were also owners of boats that operated in the association. Gulf Coast dealers who sought to purchase oysters and fish from nonmembers were boycotted by cooperating members of the association.[2] Viewed as an attempt to monopolize, the association's action was simply an effort to raise fish prices and limit the entry of competing fishermen—a naked effort to gain market power. Seen instead as a device for managing a commons,

1. Provisions of federal legislation allow fishermen to form marketing and production associations for setting production quotas and prices, but collusive arrangements by associations with onshore dealers and processors or forcing dealers by means of boycott or strike to trade exclusively with association members can void the protection against antitrust law provided by the statutes. For discussion of the federal Fishermen's Collective Marketing Act, see *Gulf Coast Shrimpers and Oystermans Association v. United States* (1956), 665.

2. At trial, the fishing association based its defense on provisions of antitrust law that give immunity to labor and labor organizations. The Clayton Act (1914) basically declares that labor is not a commodity, allowing associations of workers to collude and raise wages. The fishermen's in-kind wages were based on the catch. However, the court ruled that each fishing vessel was an independent business. Therefore, meetings of the association's price committee were viewed as a conspiracy of independent businesses seeking to raise price and limit competition, which is a per se violation of antitrust law. It should be noted that there is no viable defense against per se violations of law, even if collusion is ineffective or serves some larger interest. The association could not base its defense on efforts to avoid a tragedy of the commons.

the association's intent was to ration the harvest, thereby maintaining an otherwise depletable natural resource. In affirming the lower court's antitrust decision, the appellate judge referred to the Fishermen's Collective Marketing Act, which states: "A cooperative association of boat owners is not freed from the restrictive provisions of the Sherman Antitrust Act . . . because it professes, in the interest of conservation of important food fish, to regulate the price and the manner of taking fish unauthorized by legislation and uncontrolled by proper authority."[3] We are left with the question: Is it better to ravish a commons than to form an association that limits access and thereby preserves a fishery?

In recent years, policy analysts have again reviewed the evolution of property rights as they have searched for appropriate institutions for managing environmental use. Rather than relating to overfishing or overhunting—the traditional natural resources issues—the newer problems have to do with the unrationed discharge of wastes into streams of water and air, yet another common-access management challenge. River-basin associations and government-sponsored airshed management schemes now offer market-based alternatives to command-and-control regulation of each and every discharger by centralized authority, which in truth yields the ultimate form of monopoly control.[4] Were they not sanctioned by government, the new institutional counterparts to fishing associations would trigger an antitrust response. But, should we incur the political and administrative cost of building government-managed institutions that inevitably involve monopoly restrictions enforced by federal authorities when common-sense actions taken by ordinary people can deal with resource problems in ways less likely to impose systematic monopoly costs on the economy? Should timber owners who join together to limit cutting for the purpose of maintaining the habitat of the red-cockaded woodpecker be forced to defend themselves in an antitrust investigation? Should a group of bison ranch operators who seek to expand the bison population avoid meetings where price and management of herd size are discussed? Cooperative arrangements can be collusive, but they can also form the basis of sound conservation.

I argue here that the tragedy of the commons represents a real problem in many areas of natural resource and environmental protection and that current antitrust laws

3. 15 U.S.C.A., sec. 522. We find similar antitrust logic applied in *Local 36 of International Fishermen and Allied Workers of America et al. v. United States,* 177 F. 2d 320 (1949), which involved a labor-managed fishing association operating off Southern California and the west coast of Mexico. The judge's opinion cites the allegations brought against Local 36 and states: "Except for the illegal restraints described hereinafter, a much greater volume of fresh fish and crustaceans would have been brought to the fishing ports . . . and sold, processed and distributed" (325). Larger catches in the short run can lead to no fishery at all in the long run. For discussion of this problem, see Anderson and Leal 1995, 161–83.

4. On market-based approaches, see Yandle 1991. Command-and-control regulation, which typically sets higher performance standards for new versus old sources of pollution, clearly limits competitive entry and yields monopoly-like profits. Any effort to manage the commons will result in an output restriction, at least in the short run (Yandle 1987). *Editor's note:* Market-based environmentalism is debated by Roy E. Cordato and Peter J. Hill in *The Independent Review* 1 (Winter 1997): 371–96.

inhibit society's ability to resolve those problems efficiently and creatively. At a minimum, antitrust authorities should become aware of the conflict between the two policy areas and be more receptive to environmental reasons for organizing cooperative access restrictions. Barring more fundamental changes in antitrust law, exemptions should be provided to cooperative endeavors undertaken for the purpose of conservation and pollution control. These exemptions should be similar to those now granted to labor arrangements, research and development ventures, baseball, and many other activities in the economy. The threats of wasted and destroyed fisheries, extinguished species, and diminished water quality in rivers are real, but the possibilities that associated monopoly restrictions will impose significant costs on the economy are purely speculative and, if realized, are apt to be small and fleeting.

Counterbalancing the real with the speculative provides a motivating principle for reviewing the twin problems: The nation's natural resource management policies should avoid antitrust enforcement actions that are purely speculative when users of natural resources seek to avoid real losses from a tragedy of the commons. The nation will never be able to afford enough environmental police to manage the problem. The natural and logical incentive for users of natural resources to conserve resources by informal means should be fortified, not chilled by antitrust authorities who intervene when cooperative plans are under way.[5]

I proceed as follows. First, drawing on economic principles, I discuss briefly the common-access problem and how avoidance of overuse of an environmental asset leads logically to access restrictions. I explain how the search for efficient use of a commons actually provides the basis for firms and all other economic organizations. Considered in the most restrictive way possible, every firm, fishing community, even every family imposes restrictions on the use of inputs and hence on output. I conclude this part of the argument with a discussion of the rare circumstances that might cause some such restrictions to impose a monopoly deadweight loss on society. Next, I discuss more fully the development of cooperative institutions for managing environmental assets. Examples of cooperative arrangements illustrate how access restrictions logically follow. I identify a small set of conditions that must be met before one concludes that an antitrust risk exists. In that section, antitrust concerns are largely put to rest.

Avoiding the Tragedy of the Commons

The Shepherd Story

In the classic account of the tragedy of the commons, Garrett Hardin tells of shepherds who move their sheep to a common pasture.[6] An unstated but critical assumption undergirds the story: Each shepherd acts independently and is totally indifferent

5. Discussions of such cooperative efforts appear in Anderson and Leal 1991, Ostrom 1990, Hanna, Folke, and Maler 1996, and Libecap 1989.

to the well-being of every other shepherd. No kinship relations, customs, rules, or prospects of reciprocal dealing affect their actions. Caught in a prisoner's dilemma, each shepherd seeks to maximize the weight gained by his sheep, disregarding the effect of expansion on the total grazing flock; each shepherd tends to expand his personal flock.[7] Uncoordinated expansion can lead ultimately to denuded fields and the necessity for all to seek greener pastures. Hardin (1968) writes:

> Therein lies the tragedy. Each man is locked into a system that compels him to increase his herd without limit—in a world that is limited. Ruin is the destination toward which all men rush, each pursuing his own best interest in a society that believes in the freedom of the commons. (1244)

Hardin's story is of a pasture used in an uncoordinated way by a community of shepherds, but its logic applies as well to a fishery and competing fishers, to oil fields and uncoordinated drillers of oil, or to rivers that receive polluted waters and a group of separately operated waste dischargers.

Each prospective user of the natural resource, be it pastures, a pool of oil, or a fishery, recognizes the productive value of the resource (Libecap 1989). Each user learns that successive expansions of grazing, drilling, or dumping lead to smaller additions to total output. In short, the average yield falls with increased use. With few sheep on a fixed-size pasture, the average weight gained is high. As the pasture becomes crowded, the average weight gained declines. Indeed, if uncoordinated crowding continues, the total weight gained on the pasture will reach a peak and decline—the onset of a tragedy of the commons.

Consideration of the average gain motivates expansion by uncoordinated resource users, but, for overall efficiency, it is the marginal gain that really matters. What is the gain in weight for all sheep taken together when one additional sheep is added to the collective flock? How much does total oil production increase for the field when one additional well is drilled to the common pool? How much does ambient water quality change when one additional unit of waste is discharged to the river? If the pasture, pool of oil, or river had a single wealth-maximizing owner, he would be sensitive to marginal relationships rather than to the average gained by each isolated unit. The single owner would seek to extend use only up to the point at which additions to total output were equal to additions to the total cost of that output.

Consider a shepherd deciding whether to add one sheep to his small flock now grazing on the common pasture. The one additional sheep will crowd, just slightly, every other sheep that uses the resource. An additional sheep will place additional

6. For a useful reinterpretation of Hardin's story that explains some of the perverse implications of regulatory solutions, see Simmons, Smith, and Georgia 1996.

7. A prisoner's dilemma occurs when a well-defined group of people would gain collectively through cooperative agreement, but each person would gain more individually, forcing others to lose, if he or she defected from the agreement. Each person, making separate calculations of personal benefits and costs, is prone to defect. When all defect, none can gain; thus the dilemma.

demands on the pasture. The incremental gain for the entire flock is positive over part of the range of use but eventually becomes negative as the aggregated effect of additional sheep becomes large. But the individual shepherd working in isolation from the rest lacks knowledge of the aggregate impact of his decision to expand his flock. He knows only the effect on his smaller flock. Even if he knew, incentives on the commons prompt further expansion of the shepherd's personal flock. So long as uneaten grass remains, the individual shepherd's choice is to use it or lose it.

Now suppose the shepherds begin to coordinate their use of the pasture. They may gather information on the full effect of flock expansions and recognize reciprocal relationships, agree to pay one member of the community to monitor entry and use, or join together to form a sheep-raising association. Suppose a number of restricted grazing units is assigned to each user. If coordination were perfect and costless, the pasture would be used to the point at which the benefits of adding one more sheep equal the costs it imposes. At that point, with marginal output equal to marginal cost, total weight gained would be maximized. This is the efficient solution in a zero-transaction-cost world, one that sustains both the pasture and the shepherd community.

Who will get the benefits of the fatter sheep? Consumers of sheep will gain by being assured of a sustained supply. Most likely the monitor or association manager will receive some of the gain, and sharing arrangements can distribute some to the other shepherds. Notably, although the shepherds have colluded and restricted access, the gain to society is positive. If the shepherd community restricted use even further, then total gains would fall; the wealth gained by society would decline. However, even that situation would have to be judged by taking into account the benefits of having escaped a tragedy of the commons. Collusion in this context is beneficial.

But why would the shepherd community or firm impose restrictions on output beyond the amount needed to maximize weight gain? Further output reductions may raise the average and marginal gains from the pasture, but will also lead to a smaller total weight produced on the pasture. Price is the relevant consideration. If output from the shepherd community constitutes a small part of a competitive market for sheep, then restrictions on output by one community will be folly. Reductions in output will reduce income. However, if the community produces a unique variety of sheep or occupies a separate market niche insulated from competitive entry, then higher prices may accompany output restrictions, more than offsetting the reductions in total weight gained. The traditional antitrust concern revolves around the degree to which a community of shepherds, fishers, dischargers of waste, or other users of a commons can affect market prices and maintain a durable monopoly.

The Generalized Case for Restrictions

It is costly to organize fishing associations, unitize oil fields, or form river-basin associations, just as it is costly to organize firms or to establish families and rules for sharing

wealth. Yet most institutions that organize production within the envelope of a firm, club, or any other economic unit can be described as working to avoid a tragedy of the commons (Coase 1988, esp. 33–55). Indeed, all contracts defining exclusive arrangements can be seen as tragedy-avoiding devices of some sort; in each case, parties have colluded and restrained trade. As Ronald H. Coase has taught us, every firm is a transaction-cost minimizer, an example of supplanting the market. Owners and managers of firms snuff out competitive bidding within the borders of the firm; long-term agreements are struck regarding hours of work, division of labor, sharing of output, and levels of production to be attained. Firms conserve resources by restricting competition within the firm. As a result, competition among firms becomes more intense. Consumers gain when firms become more efficient competitors. One would hardly recommend that antitrust authorities look over the shoulders of all entrepreneurs who organize firms in such a way as to minimize unwanted competition and transactions among employees of the firm. Why, then, would antitrust authorities penalize the formation of fishing associations that seek to do the same thing?

Community Efforts to Avoid the Tragedy of the Commons

Grazing, Fishing, and Whaling

History reveals that uncoordinated use of commons rarely occurs within stable communities, because there the conditions required for a prisoner's dilemma seldom exist. Strangers entering a busy expressway may struggle as they place one more car on the highway and in doing so impose costs on others far greater than the benefit they themselves gain. Shepherds and fishermen who repeatedly work the same areas are a different story. For example, written records dating from 1224 describe arrangements by which Swiss farmers moved cattle to commonly owned pastures after the snow had melted (Ostrom 1990, 61–65).The Swiss farmers restricted access to the pastures on the basis of kinship and ownership of homes and land in the same communities. Stories from the Middle Ages tell of stints defining a fixed number of grazing units—sheep, cattle, or goats—permitted to use to community pastures. Matt Ridley (1996) describes English resource management this way:

> In practice, an English medieval common was a complex spider's web of jealously guarded property rights held under the supposedly benevolent umbrella of the lord of the manor, who owned the common but only on condition that he did not interfere with the rights of the commoners. There were rights of common of pasturage, estovers, turbary, pannage, piscary and common in soil. Translated, these were rights to graze, cut wood, dig turf, turn out pigs to eat acorns, catch fish, or take gravel, sand or stone. And these rights were privately held by individuals. . . . Commons were never free-for-alls. (232)

Bag limits, fishing licenses, and community-enforced rules for managing hunts for elephants and rhinos in Zimbabwe, Namibia, Botswana, and South Africa represent modern counterparts of medieval stints. Access restrictions are the common element in all these schemes, and recovery and protection of species are the result (Anderson and Hill 1995). Consider the elephant's situation. In 1989 the Convention on International Trade in Endangered Species (CITES) listed the African elephant as approaching the condition of a threatened species (*Economist,* May 31, 1997, p. 44). When the CITES met in 1997, however, Zimbabwe, Namibia, and Botswana, countries whose elephant herds have more than recovered, requested that their elephants be removed from the protected list and that the associated ban on the sale of ivory be lifted. Systems of community-supported access control, which give community members a financial stake in avoiding a tragedy of the commons, have been implemented in those countries with significant success.

Anderson and Leal (1995) tell how Native Americans established customary rules and then forged intertribal agreements to maintain viable populations of salmon along what later became known as the Columbia River in the Pacific Northwest. Collusion among competing tribes avoided the tragedy of the commons, at least until the arrival of Europeans and the intervention of statute law. As Anderson and Leal put it, "Unfortunately, state and federal governments allowed newcomers to circumvent these rights by placing nets at the mouth of the Columbia, ultimately decimating salmon populations" (165). The output constraint was broken; the fishery was destroyed.

A more recent case concerns the Makah, a tribe living on the northwestern tip of Washington state's Olympic Peninsula, where their ancestors have lived for two thousand years (De Alessi 1996, 47). For most of those years the Makah enjoyed a whale-based economy centered on the grey whale species, supplemented by fishing in the Pacific waters. Anthropologist Ann Renker reported that the tribe had a centuries-old legacy of property-rights protection for whales and fish, supported by informal law and custom. Recently, the property rules of the Makah were overridden by national and international law implemented by the International Whaling Commission. The new formal arrangement nullified earlier claims and gave access to commercial whalers and fishermen from the United States, Japan, Russia, and elsewhere. Competition entered the Makah's collusive ring. The whale population suffered, and the grey whale was placed on the endangered species list. Formal law led to a tragedy of the commons, whereas informal collusion had conserved the resource.

Referring to the "fragility" of informal rules for controlling access, Elinor Ostrom (1990, 173–78) tells a similar story about a Nova Scotian inshore fishery. Her concern over fragility has little to do with the informal nature of custom and tradition but everything to do with government takeover of informal management systems. For generations, fishermen in the Port Lameron Harbour area operated in well-defined fisheries based on long-established relations of kinship and land ownership.

Fishermen from the same communities watched for poaching by outsiders. Using radios with shared channels, they sounded an alert when the informal property arrangements were violated. Outsiders who failed to heed the collective warnings sometimes found their lines cut. Sustained production was maintained by informal means and supported by the Nova Scotia government, which simply provided a neutral arena for settling boundary disputes. The state's formal order recognized the informal arrangement.

Unfortunately, the national Canadian government saw the entire eastern coast (inshore and deep seas) as a commons. Assuming that ordinary fishermen could not manage a fishery, the national government spelled out two options: private property rights, which were ruled out, and command-and-control regulation, which obviously carried the day. Taking a "one size fits all" approach to the fisheries problem, the Canadian government announced a licensing system for equipment and boats. People who thought they might someday wish to enter the fishing business rushed to buy boats and obtain permits. Regulation intended to do just the opposite turned the inshore fisheries into common-access resources.

Elinor Ostrom (1990) describes the outcome this way:

> Instead of finding means for strengthening locally evolved rules systems to ensure that access and use patterns would continue to be controlled in those territories where effective rule systems had already been devised to match local environmental and technological systems, Canadian policy has been to develop one standard set of regulations for the entire coast. If future Canadian policies produce still further counterproductive reactions on the part of the fishers, they may fail to gain control of the open-access deep-sea fishery and lose control of some inshore fisheries previously subject to entry controls. (177)

Efforts sponsored by the U.S. Department of Commerce to limit access to Alaskan fisheries illustrate a more successful approach to avoiding a tragedy of the commons (*U.S. News and World Report*, November 4, 1996, pp. 57–58). This case pertains to black cod and halibut in the Sitka region, where reductions of fish populations led to state regulations compressing the entire fishing season to a two-day period. Size and speed of the boat and length of the fishing lines became increasingly important as the fishers attempted to beat the system. Finally, the state-sponsored "fishing derby" was replaced with marketable property rights to fish, which were distributed to all owners of fishing vessels based on their average catch over the last several years. The marketable quotas were adjusted to assure that the fishery will be sustained. As one would expect, the marketable quotas—the fishing counterpart of New York City taxicab medallions—are valuable. Indeed, local banks accept the certificates as collateral for loans. Now, fewer and larger fishing vessels are employed, and the ones that operate

are technically efficient. Mile-long lines and high-speed races have been eliminated by market forces.

To the dedicated antitruster, the government has fostered a collusive ring under the protection of statute law. The Alaskan quota program for halibut and black cod emerged from the North Pacific Fishery Management Council, one of several such regional councils established to help avoid overfishing in U.S. waters (Cloutier 1996). The councils, authorized by 1976 legislation, are sponsored and supervised by the U.S. Department of Commerce, which helps to immunize them against antitrust actions.

At first blush, the Alaskan story seems to offer the best solution for managing a fishing commons, but it has a downside, too. Marketable permits instituted by government and held by private fishermen become important balance-sheet items. Future withdrawal of permits could mean bankruptcy. But what if the permit system is so successful that the fish population expands far beyond the number needed to sustain the fishery? Permit holders will fight to prevent an expansion of permits—after all, the fish population may decline later. Underfishing, instead of overfishing, may then result.

In contrast, management of the fishery by informal means, with the encouragement or forbearance of government, provides a more responsive system for controlling fishing effort. If the market price is held constant, an increase in the stock of fish will generate increased fishing activity, and vice versa. But antitrust enforcement discourages this approach.

Managing Water Quality

Prohibitions against collusion may also impede cooperative approaches to pollution control. Consider the formal management approach adopted by North Carolina's Tar-Pamlico River Basin Association, which was formed in 1989, with agreement by state and federal regulators, to manage water quality in the Tar River's 4,300-square-mile basin (Riggs 1993; Yandle 1993). The Tar and its tributaries form 2,300 miles of stream that ultimately discharge into the Pamlico Sound and the Atlantic Ocean. Heavy phosphorus and nitrogen discharges by agricultural and, to a lesser degree, point sources led to oxygen depletion and a series of fish kills in the Pamlico Sound, one of the most productive fisheries on the Atlantic coast.

North Carolina citizens, both on their own initiative and prompted by federal requirements, earlier had passed statutes and employed people to manage water quality. After the fish kills, the affected fishermen, instead of bringing suit at common law against a vast number of poorly identified parties, petitioned North Carolina's Environmental Management Commission to designate the Tar River and Pamlico Sound as nutrient-sensitive waters. The designation brought with it a binding constraint on nutrient discharge well below the current levels. Achieving the goal required a reduction of phosphorus and nitrates discharged into the Tar River, hence a reduction of services by sewage treatment plants and other dischargers. Because all of the direct

dischargers were already regulated, additional controls would have been extremely costly. Yet even then the problem would not have been solved, because approximately 80 percent of the uncontrolled pollution came from non-point-source polluters. Thus, state water-quality officials gave the polluting community the option of finding an alternative solution.

Some of the managers of treatment works and industry in the area took the initiative to hold meetings attended by other dischargers, environmentalists, and government officials. After debating alternatives, the group formed a river-basin association made up of direct dischargers who could either join the association or face stricter EPA standards. Membership would require payment for discharge based on the level of nutrients in the discharge. In addition, each new member would pay a fee to fund a computerized model of the workings of the entire basin. Failure to join would be a costly option for dischargers. Recognizing that command and control would not get the job done, the U.S. EPA agreed to the Tar-Pamlico concept.

To accommodate the association's new beginning, federal and state regulators agreed to relax the individual permit requirements for members. A polluter could discharge untreated waste provided the river improved. This condition implied that if one discharged more waste, some other discharger would have to cut back even more. The potential for a market emerged. Newly defined rights to pollute became transferable among sources.

The association then began to operate. At one of the early meetings, the members agreed to hire a consulting firm to inspect all facilities, tighten controls, and fine-tune the discharges. For the first time, complete information for all river users became available. The prior approach had provided no incentive for polluters to share information, because each had to meet an individual standard regardless of treatment costs. In a sense, they resembled uncoordinated shepherds entering a common pasture. After the consultants completed their work, the first target for pollution reduction was met. Dischargers with high treatment costs cut back on treatment; lower-cost operators expanded their treatment; and faulty equipment and leakages were repaired. Under the new system, it paid to keep all operating systems in good repair. Consideration of systemwide marginal costs and benefits guided the decision makers. Under the old system, an operator had no problem so long as his discharge stayed with the limits of his own discharge permit.

The second phase of the project involved using the fees paid by association members, supplementing grants to farmers from state and federal programs, to pay farmers to alter their farming practices. Contracts enforceable under common law were written between the coordinating state agency and farmers who built settlement ponds, planted buffer strips, and took other steps to reduce nutrient runoff. The cost estimate for solving the pollution problem through the association collectively came to $11.7 million, far less than the $50–$100 million that would have been required under traditional rules.

Today, the Tar-Pamlico River Basin Association is the only water-pollution rights trading community in North America. Crude trading arrangements are being worked out between the association and farmers. The association limits the discharge of phosphorus and nitrogen. Discharge property rights have been defined. Common-law rules supplement regulation and cooperation. Since 1989 the tragedy of the commons has been averted.

Comparing Tar-Pamlico with Monterey Sardine

Compare Tar-Pamlico with Monterey Sardine Industries, Inc., a cooperative association of boat owners who in the 1940s fished in the Bay of Monterey, California, a location famous for its fisheries. Monterey Sardine Industries had organized an association that limited the catch and sale of sardines and other fish from Monterey Bay. To sustain the fishery and their profits, members of the association maintained a fixed number of fishing vessels during the season, reducing proportionately the number of vessels if a nonmember vessel was hired by a canning firm. Like Tar-Pamlico, which limits the amount of pollution to a fixed level, the fishing association limited the catch. And like Tar-Pamlico, Monterey Sardine had to offset the actions of nonmembers. In each case, the association sought to reduce the impact on the commons through cooperative management.

Unlike Tar-Pamlico, however, the Monterey association had no exemption from antitrust action. In 1941, Monterey Sardine Industries was the defendant in a federal antitrust suit brought by Frank Manaka, a fishing-vessel operator who failed to join the association and therefore was not a part of the seasonal assignment of vessels (*Manaka v. Monterey Sardine Industries, Inc., et al.*, 41 F. supp. 531, 1941). The association marketed all the fish caught by its members that came into the Port of Monterey and negotiated with canners and labor unions to set the selling price of fish. By contract, the canners and processors agreed to purchase sardines from the association. In this way the association attempted to control the catch in Monterey Bay. Boat ownership formed an essential part of the control mechanism. Output was restricted by the assignment of particular boats to specific canners and processors during each year's contract negotiations. If a canner contracted with a nonmember, then the number of boats assigned to the canner by the association was reduced proportionately. When Manaka contracted with a local packer to fish for sardines, the association reduced the number of member vessels assigned to that packer.

Obviously referring to the association arguments that it was attempting to sustain the fishery, the appellate court judge quoted from *Columbia River Packers Association v. Hinton:*

> Such an association as that of the boat owners is not freed from the restrictive provisions of the anti-trust act, because they profess in the interest of conservation of important food fish to regulate the price and the manner of

> taking such fish "unauthorized by legislation and uncontrolled by property authority. . . . If an exclusive and monopolistic arrangement can be legally made as to fish, it can be made as to milk, as to meat, and as to other necessities of life."[8]

Treating Monterey Sardine Industries as a conspiracy to restrain trade, the court found for Manaka. Years later, environmental factors and unconstrained fishing practically destroyed the Monterey Bay sardine fishery. State statutes limiting the catch have since contributed to its recovery.

Does a Pressing Antitrust Problem Exist?

The efforts by milk or beef producers to restrict output and the efforts by fishermen to manage a common-access resource differ in important respects. A herd of cattle is not a commons, nor is a privately owned pasture. Collusive actions by cattlemen to restrict sales and raise price serve no interest but their own. In contrast, cooperative efforts by fishermen to restrict access to a commons, thereby sustaining a fishery, serve the joint interests of the fishermen and consumers. In the absence of government sanctions that block competitive entry, it is difficult to see how regional fishing associations or associations of cattlemen could effectively cartelize major product markets. Higher prices and profits will attract resources to produce beef, fish, and every other consumer product.

But what about river-basin associations that seek to restrict pollution discharge? Could private associations built on the Tar-Pamlico model raise antitrust concerns? Because all the dischargers involved in Tar-Pamlico are publicly owned sewage-treatment plants—monopoly suppliers of treatment services—and the restrictions primarily affect discharge rather than production, it is hard to conceive of a traditional antitrust concern. But what if the treatment works were paper mills selling their products in the same specialized market? An examination of Wisconsin's Fox River, where another basin association attempted to function, suggests the idea is not far-fetched.[9] More than a dozen paper mills were located on the river, and each of them discharged similar effluent into the river. In an effort to improve water quality, the Wisconsin Natural Resources Division announced a binding constraint on discharge to the Fox and then called on the collective group of mills and other dischargers to achieve an overall water-quality goal. An output restriction followed; water quality improved. But what if the dischargers had chosen to form an association like Tar-Pamlico to deal with the problem before the state intervened? Suppose those competitors had decided to meet and restrict output in order to protect water quality.

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8. 41 F. supp. 531, 534, citing *Columbia River Packers Association v. Hinton,* 34 F. supp. 970, 975.

9. Reference to Wisconsin's Fox River relates to a highly stylized effort undertaken there to institute river-association pollution permit trading within existing U.S. EPA command-and-control regulation. The expectations for the system were not met. See Maloney and Yandle 1983, 283–320. An update and example of a successful water-quality river-basin association appear in Riggs and Yandle 1997, 147–66.

Sufficient product information is not available to allow one even to speculate on the potential for Fox River monopolization through pollution control, but the possibility can be considered. However, one should note the necessary condition for a significant monopoly restriction to occur. The mills along the Fox would have to command a sufficiently large share of a specialized paper market to affect world market prices, and competitive entry would have to be blocked. Collusion to restrict pollution could then be converted to monopolization of a product market. In a world of global paper supply, however, the very idea of a few mills forming a durable monopoly of a significant market seems far-fetched.

The Antitrust Question

Traditional antitrust advocates might raise two antitrust concerns when a community of shepherds, fishers, or even industrial dischargers meet to discuss access restrictions and then organize to accomplish the same goal. First, the Sherman Act in broad language prohibits collusion, conspiracies, and contracts in restraint of trade. These per se violations, which cannot be offset by public-interest considerations, include concerted actions to boycott or harass those who might seek to break a cartel. Unless shielded by statute, as when the U.S. Department of Commerce sponsors the organization of a fishing community or the U.S. EPA sponsors coordinated restrictions on sulfur dioxide emissions, *the very act of getting together can signal a violation of the Sherman Act.* The second concern, assuming the first is somehow avoided, relates to the probability that a merging of interests by formation of an association or a single firm will lead to a monopoly restriction. This concern has to do with entry, contestable markets, and the overall magnitude of the colluding or cooperating group relative to the relevant market for the group's product. Defining the relevant market is crucial here. The narrower the definition, the more likely that antitrust authorities will threaten the merging group.

Statutory shields can prevent antitrust investigation of colluding polluters and watermen. When Congress or state legislatures designate administrative agencies to oversee coordinated efforts to limit the use of a resource, participants in the scheme may enjoy protection from antitrust scrutiny. However, if polluters or fishers attempt to coordinate the use of a commons on their own, they run the risk of provoking antitrust investigations. When considering the possibility of a monopoly-based output restriction by users of a natural-resource commons, antitrust authorities should balance any presumed monopoly loss against the gain from avoiding the tragedy of the commons. Even if we accept the traditional case for vigorous antitrust enforcement, a small and probably temporary monopoly restriction could be considered a minute price to pay for maintaining a viable fish population.

The mere threat of antitrust investigation adds another chilling breeze to the already challenging climate for forming community organizations to conserve natural resources. But the threat can easily be removed. Antitrust exemptions are common.

William F. Shughart (1997, 333–34) lists more than forty statutes and court decisions, some reaching back to 1887, that effectively shield specific industries and activities from antitrust actions. The business of insurance, the marketing of agricultural products, certain bank mergers, firms involved in certain export activities, competing auto dealers colluding to bring suit against auto manufacturers, textile and apparel producers engaged in meeting fabric flammability standards, labor unions restricting the supply of labor, aspects of research and development related to pollution-control devices and microchips, and the business of baseball—all have enjoyed exemptions from antitrust rules. In each case, public-interest arguments as well as special-interest lobbying justified the exemptions. Avoiding recognized natural resource tragedies is surely as laudable as sharing actuarial data among insurers or hastening the development of auto pollution-control devices. And avoiding a tragedy of the commons must surely be more laudable than maintaining the noncompetitive structure of major-league baseball or keeping food off the market to prop up the prices of agricultural commodities.

Conclusion

Rather than actively discouraging cooperative efforts to conserve and sustain natural resources, policy makers should encourage such voluntary efforts. The risk of incurring the wrath of antitrust authorities should be eliminated or at least minimized. To smooth the way for more, rather than less, community action, antitrust authorities could at least make it clear that cooperative efforts for sustaining a natural resource will receive their blessings provided the cooperating parties do not unduly restrict the supply of a specialized product headed to a niche market. How will they know when a restriction exceeds the amount necessary to avoid a tragedy of the commons? This knowledge problem is insurmountable. Antitrust authorities cannot know; they can only speculate and estimate.

Following the precept "first, do no harm," Congress should instruct the antitrust authorities to look the other way unless the cooperative group expands to such an extent that broader—national or even global—markets are significantly affected. Multinational agreements that seek to reduce the amount of carbon burned worldwide present the possibility of true restraint of trade. By comparison, fisheries, pastures, and river basins are small fry. They should be left alone.

References

Anderson, Terry L., and Peter J. Hill, eds. 1995. *Wildlife in the Marketplace.* Lanham, Md.: Rowman and Littlefield.

Anderson, Terry L., and Donald R. Leal. 1991. *Free Market Environmentalism.* San Francisco: Pacific Institute for Public Policy Research.

———. 1995. Fishing for Property Rights to Fish. In *Taking the Environment Seriously,* edited by Roger E. Meiners and Bruce Yandle, pp. 161–83. Lanham, Md.: Rowman and Littlefield.

Coase, Ronald H. 1988. *The Firm, the Market, and the Law.* Chicago: University of Chicago Press.

Cloutier, Teresa M. 1996. Conflicts of Interest on Regional Fishery Management Councils: Corruption or Cooperation? *Ocean and Coastal Law Journal* 3:101–49.

De Alessi, Michael. 1996. Tender Loving Hunters. *New Scientist,* June 22, 1996, p. 47.

Hanna, Susan S., Carl Folke, and Karol-Goran Maler, eds. 1996. *Rights to Nature.* Washington, D.C.: Island Press.

Hardin, Garrett. 1968. The Tragedy of the Commons. *Science* 162: 1243–48.

Johnson, Ronald N., and Gary D. Libecap. 1982. Contracting Problems and Regulation: The Case of the Fishery. *American Economic Review* 21: 1005–22.

Libecap, Gary D. 1989. *Contracting for Property Rights.* New York: Cambridge University Press.

Maloney, M. T., and Bruce Yandle. 1983. Building Markets for Tradable Pollution Rights. In *Water Rights,* edited by Terry L. Anderson. San Francisco: Pacific Institute for Public Policy Research.

Milliken, William J. 1994. Individual Transferable Fishing Quotas and Antitrust Law. *Ocean and Coastal Law Journal* 1: 35–55.

Ostrom, Elinor. 1990. *Governing the Commons.* New York: Cambridge University Press.

Ridley, Matt. 1996. *The Origins of Virtue.* New York: Penguin.

Riggs, David W. 1993. *Market Incentives for Water Quality: A Case Study of the Tar-Pamlico River Basin, North Carolina.* Clemson, S.C.: Clemson University, Center for Policy and Legal Studies.

Riggs, David W., and Bruce Yandle. 1997. Environmental Quality, Biological Envelopes, and River Basin Markets for Water Quality. In *Water Marketing: The Next Generation,* edited by Terry L. Anderson and Peter H. Hill. Lanham, Md.: Rowman and Littlefield.

Shughart, William F. 1997. *The Organization of Industry.* Houston: Dame.

Simmons, Randy T., Fred L. Smith, Jr., and Paul Georgia. 1996. *The Tragedy of the Commons Revisited: Politics vs. Private Property.* Washington, D.C.: Competitive Enterprise Institute.

Smith, Adam. [1776] 1937. *The Wealth of Nations.* New York: Modern Library.

Yandle, Bruce. 1987. *The Political Limits of Environmental Quality Regulation.* Westport, Conn.: Quorum.

———. 1991. A Primer on Marketable Permits. *Journal of Regulation and Social Costs* 1: 25–41.

———. 1993. Community Markets to Control Agricultural Nonpoint Source Pollution. In *Taking the Environment Seriously,* edited by Roger E. Meiners and Bruce Yandle. Lanham, Md.: Rowman and Littlefield.

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