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The Ocean Commons and Community¹

Introduction

The human ecology of the oceans can be thought of as a common property system of resource use and management, as indicated in terms like "ocean commons" and even "global commons." The term "commons" often brings to mind the longer phrase and powerful idea of "the tragedy of the commons." Popularized by the biologist Garrett Hardin but long entrenched in Western thought, this recognizes situations in which individual self-interest leads to behavior that works against collective interest. One of the messages I hope to leave you with in this talk is that the term "commons," which has come to represent Hardin's analysis, can and should connote other ideas. In particular, like agrarian communal land-use systems, marine "commons" can be complex, variable, and changing systems of patterns of use, property rights, and conflict.

The idea of the tragedy of the commons is that people who use the commons—whether pastures, fishing grounds, ozone layers, or public parks—cannot be trusted to take care of them. As Aristotle noted awhile ago, "what is common to the greatest number has the least care bestowed upon it. Everyone thinks chiefly of his own, hardly at all of the common interest" (Ostrom, *Governing* 2). Consequently, the only solutions are management by some outside governing body or changing the system to one of private property rights—also known as enclosure of the commons.

The second idea I hope to leave with you is the notion that there are other possibilities, including the possibility that people who use the

commons can also take care of the commons. Hence, preventing or remedying tragedies of the commons can involve attempts to create, restore, or strengthen the conditions under which this might happen.

Although the ocean commons have many uses, resources, and values, fishing is the main focus of this talk. Fisheries have long been the classic case for analysis of "tragedies of the commons." In turn, the tragedy of the commons model, and more recent criticisms of it, have had direct effects on how we think about and manage fisheries, and, by extension, other resources and environments.

Tragedies of the Commons

To make his point about the workings of the tragedy of the commons, Garrett Hardin offered the image of the old English village common pasture. The animal owners in the village have to decide how many animals to put on the pasture, and, Hardin argues—following the early nineteenth-century essayist William Forster Lloyd—that each will be inclined to put more animals on the pasture than the pasture can sustain, because the immediate benefit of doing so for each animal owner is higher than the immediate costs, which are spread among all pasture users (and, we might add, into the next year). Forster Lloyd offered this image in 1832 as an analogy to the over-breeding of the poor, and Hardin offered it in 1968 in the same vein, but both were also thinking of the actual situation as the rationale for enclosure, the abandonment of the commons in favor of private property in England.

The English village commons was the model used by Hardin and, back in 1832, his source, William Forster Lloyd, but the more formal thinking about the dilemma of the commons is derived from studies of fisheries. Back in the 1950s economists looked at fisheries as cases of "common property" resource systems with the peculiar feature of a tendency toward depletion of resources and dissipation of profits, which they traced to open access. But the phenomenon is extremely general and a central focus of public choice, rational action, and game theories (Schelling; Bates; Gardner; McCay and Acheson *Question*). For fishes and other renewable living resources there are relationships between mortality and production that result in a classic "maximum sustained yield" curve, an upside-down "U," with the point of maximum sustained yield at the peak. In theory there is a level of mortality that results in

maximum sustained yield (MSY). Those using this model assumed that management involved government rules which kept fishing mortality at the MSY level, more or less, and important fisheries today are managed with a view toward MSY.

Economists such as H. Scott Gordon and Anthony Scott added to the biologists' concern with maximum sustained yield the economists' concern with maximum net economic yield (MNEY), or profitability, and showed how open access affects both. The point of marginal returns to capital, where money made from fishing is no greater than the cost of fishing, is the point at which people will stop, but that is far beyond both MSY and MNEY, or the point of maximum sustained profitability. This is the basis for a long-standing argument for limiting access to fisheries that, in the past decade, has become an enthusiastic chorus for creating exclusive rights to fish, i.e. privatization, which I will discuss later. The bio-economic model contributed to science and helped define human ecology. Humans are exogenous to the abstract models otherwise used to estimate sustained yield in fish stocks and forests; here, however, people become a variable, along with fish or trees, in what H. Scott Gordon called a "system of mutual interdependence" (Gordon 136). The bio-economic model emphasizes the role of human institutions in creating environmental problems but also as the source of solutions. However, those institutions are extremely narrowly defined: open access, limited access.

Building the Human Dimension into the Model

The model can be tweaked to include other more realistic dimensions, including a more dynamic view of the system and important dimensions of human valuation, such as how the future is valued, or discounted and how much people value their work and the communities which their work allows them to live in and build, as reflected in job satisfaction studies of fishers. People who really like what they do may respond very differently to economic and biotic signals than those who don't (see C. Smith; Gatewood and McCay). Almost always, the models used to understand the interactive dynamics of fisheries stop before this point, wedded, as most of us in North America are, to two paradigms: conservation and rationalization (Charles 384-85). The first is concerned with taking care of the fish (or birds or forests); the second with the pursuit of

economic returns. Conservation in North America has long been marked by tension between the two. There is a third paradigm, what Tony Charles recently called "the social/community paradigm," involving questions about distributional equity, community welfare, and other social and cultural benefits, including but going far beyond job satisfaction. The tragedy of the commons model has no place at all for this paradigm, because in those models "each herdman (entrepreneur) acts essentially alone for his own good without regard for the good of others; there is no community" (Fife 76).

The Tragedy of Poor History

Few would disagree with the proposition that open access can generate resource abuse and economic losses. This is really what Garrett Hardin was modelling in his sketch of the tragedy of the commons in 1968 and, in 1954, what H. Scott Gordon meant by common property fishing in his seminal article on the dynamics of overfishing. But using common property or the commons as synonyms for open access, even if metaphorical, is historically inaccurate and, for policy, very misleading. Both Hardin and Forster Lloyd put a certain spin on English agrarian history to make their arguments that enclosure was a necessary response to tragedies of the commons. The traditional English commons was very different: it was "community property subject to community control" (Hanna 159), and matters such as the number of animals one could put on the common grazing land, or on the fields after harvest, were often strictly controlled by community regulations such as stinting rules. It was a prime example of exactly what Hardin said is needed to better manage both population and natural resources: "mutual coercion, mutually agreed upon" (see also Cox) except that the resource users were more directly involved in those agreements, and their enforcement, than the tragedy of the commons model supposes. The demise of the commons took place through internal agreements within communities but also with the help of Parliament, responding to the pleas of landlords, over many centuries. The evidence suggests that, despite the rhetoric of landlords like Forster Lloyd, the reasons had nothing to do with the inability of the community to control individual use (Hanna 163).

The view of the commons as free and open access is not only historically inaccurate, it is profoundly misleading to attempts to

understand environmental problems and propose solutions. Reinterpreting the rich experience of common property management as little more than open access, even to make an analytic point, has the effect of narrowing possible solutions. Hardin and others usually talk of only two possible solutions to the problems of open access: strong, centralized government imposition and enforcement of rules; or, where possible, changing the system to one of exclusive property rights. In practice, this has meant, for example, nationalization of forest lands in Nepal, Thailand and elsewhere (Thomson; Arnold), attempts to create individual ranches where pastoralists had wandered in southern Africa (Peters), and destruction of local systems of marine fisheries management (McCay and Acheson, *Question*; Berkes et al). The tragedy is that such actions have often undermined or destroyed the option of communal management of common property while worsening or doing little to help processes of resource decline and impoverishment.

Assumptions

The tragedy of the commons way of looking at things is thoroughly grounded in neo-classical economics, the rationalization paradigm mentioned earlier. Accordingly, it shares the following powerful assumptions, some of which are by now so thoroughly integrated into our culture that we take them for granted (McCay and Acheson, *Human 7*): the people involved, let us call them commoners, are selfish, autonomous decision-makers interested first and foremost in maximizing short-term gains. They have perfect or nearly perfect information and are unaffected by social norms beyond that of competitive withdrawal from a common resource. There are also powerful assumptions about human ecology (Berkes, *Common Property Resources*; "Common Property"), including the assumption that human action is the cause of particular cases of decline in environmental quality or natural resources and that humans can do something to improve the system. I do not have to belabor the obvious: a major recent contribution by anthropologists, political scientists, and others working on common property problems is to show that sometimes these assumptions hold and sometimes they do not, in numerous case studies of people engaged in common property interactions on land and at sea (McCay and Acheson, *Question*; Berkes, *Common Property Resources*; Ostrom, *Governing*; Bromley). Where these

assumptions do not hold, or where the conditions of the model are different, the outcomes are not necessarily tragic. Let me turn to another way of viewing the problem, "the fisherman's problem."

The Fisherman's Problem

In an otherwise superb study of common property fisheries in California, the lawyer and historian Arthur McEvoy called the tragedy of the open access commons the fisherman's problem (McEvoy). The phrase, the fisherman's problem, is problematic in ways that McEvoy surely did not intend but that serve my purposes. It will be my linguistic strawman for a review of some of the biases of the tragic way of looking at common resource problems.

1. Singular: Fisherman

The use of the singular, "fisherman," reflects the practice of viewing the problem as caused by individuals acting out of self-interest. Resource depletion is the aggregate consequence of the actions of individuals. There is no collective action, there are just collective consequences. From this perspective the commons is seen as part of a class of interesting situations, often depicted by the game of the prisoner's dilemma, where each individual, looking out for her or his own interests, is likely to defect from co-operative action even where that would be better for everyone (Schelling). It is most evident in public choice thinking in political science and sociology, where the key issue is how the interests of autonomous individuals relate to collective decisions and welfare (e.g. Buchanan; Olson; Bates). There and in evolutionary biology a great deal of work has gone into understanding conditions under which co-operative action will and will not take place. In models, simulations, and laboratory experiments with people—usually students—game theoreticians and others have shown that even radical individuals can find it in their interests to co-operate, to become social beings, under various conditions of knowledge, uncertainty and interdependence (Axelrod and Hamilton; Runge; Ostrom; Gardner et al.; Simon).² This raises the theoretical possibility, at least, that fishers and others confronted with possible tragedies of the commons can act so as to avert the worst consequences.

Note that this is radical, ontological individualism, not just methodological individualism. A more anthropological approach would call into question the possible ethno-centricity of such individualism. It would also call for attention to the larger context, the historical, social, and cultural specificity of the situation, and a view of people as members of groups.

Once we move beyond the micro-sociology of small groups the models of individuals in relation to collective action may be inadequate, as Pauline Peters has argued in her study of property rights, politics, and rangelands in Botswana. A more anthropological approach emphasizes not just interdependence but structures of relations, which include the individual commoners, but also differentiation among groups and shared and competing meanings and values associated with a particular commons and its use. The "dilemmas" of a commons emerge not from an absence of social ties between the individual user and others, but from competing rights and claims to legitimate use" (Peters 178).

A case in point. The "damned if you do and damned if you don't" commons dilemma is very familiar in fishing. For example, a large number of U.S. commercial and recreational fishermen try to catch a valuable species known as summer flounder. When I interviewed commercial fishermen in New Jersey a few years back, the fish were getting scarcer and it was harder to find the larger, more valuable ones. So each of the fishing crews put more effort into fishing (more time, more tows of the net) and most had started using nets with a smaller mesh size, to catch the smaller fish. This may have reduced the size of the spawning population and furthered decline in the species.

Most, let's say all, of the people involved knew what was happening, and some were heard by this anthropologist to say, "This is crazy, we should be using large-mesh nets." Why didn't they? Because each of them will make more money in the short term by continuing the destructive path. Any who switch to large-mesh nets will not only suffer declining incomes but also the risk of being seen as "suckers," because smaller flounders that wriggle through the meshes of their nets are probably going to be caught in the nets of those who stick with small mesh. In addition, if it works this year there is little to prevent a lot of other people from coming into this fishery next year.

You are damned if you do, by yourself, and you are all damned in the longer run if you don't, collectively. This situation—the dilemma of the

commons—has led some to follow Thomas Hobbes in arguing for the intervention of government, and others, following Adam Smith, to argue for privatization so that the market can work properly to restore a match between individual interests and the collective good. Recognizing the difficulty of privatizing some resources, Garrett Hardin argued for government intervention, albeit a democratic government: what is needed is "mutual coercion, mutually agreed upon" (26). As the fishermen of Point Pleasant, New Jersey, said, "We can't do it unless the others do," and government, in this case the U.S. government through the National Marine Fisheries Service, came up with fisheries management rules, including a minimum mesh size, in 1992. Enough said? Hardly. Given the participatory, democratic nature of the management system, the fishers, among others, had some say in the creation of those regulations.

But it took several years, during which the summer flounder populations got smaller and smaller. The major problem at this point was not the "prisoner's dilemma" but a long-standing conflict between commercial fishers and people in the sports fishing industry. Commercial fishers suspected that regulations were intended to disadvantage them in favor of sports fishers, as had happened many times in the past, and it took a long time for representatives of both groups to recognize their common interest in getting a workable management plan through.

Commons debates and conflicts are often about the allocation of rights, and underlying clashes in values, but the tragedy of the commons model says nothing about that. Let us take the Columbia River basin, in Oregon, Washington, Idaho, British Columbia and Utah, as another example. It does not contribute very much to our understanding of either problems or solutions to impose a tragedy of the commons model, to imagine the individual users of the salmon, hydro-power, forest, or grazing resources of this great Western region as commoners trying to decide whether to add more demands on what they use. For one thing, access is not, and long has not been, open for fishers, foresters, and ranchers, nor have their actions been unregulated. And the industries that rely on cheap hydro-power are clearly not autonomous individuals.

We would learn more by exploring the complex and changing political economy and policy processes that affect the Columbia Basin and the larger realm of the salmon (including U.S.-Canada relations). We would learn more by looking at the competing rights and claims to legitimate

use, as well as contested values, that make the problem of protecting and restoring critical habitats and endangered species in the basin so "wicked" (see Lee for an overview).

2. Possessive: "fisherman's problem"—Misplaced blame, misplaced responses.

The possessive form, fisherman's problem, suggests that the problem somehow belongs to the fishermen either in the sense that they caused it or in the sense that they suffer most from it. "Too many fishermen after too few fish" is the *cri de guerre* in fisheries management today, just as "Too many people, too few resources" is a popular definition of global problems. Both may be true, or they may not, and the result of misanalysis can be policies that have dire social and economic consequences without necessarily promoting sustainable resource use.

It can be yet another case of blaming the victim, like calling enclosure of the commons in rural England a necessary step because of declining productivity due to the tragedies of the commons, when in fact the problems of the commons were due to competing claims (i.e. landlords hoping to make more money by raising sheep versus the needs and rights of tenants for subsistence use), declining rural institutions, and other factors. The consequence was, in any case, a tragedy of the commons for tens of thousands of people who lost access to critical resources. This seventeenth-century English verse is one comment on the matter:

The law locks up the man or woman
Who steals the goose from off the common
But the greater villain the law lets loose
Who steals the common from the goose

Closer to home and our time is the fisheries case, where seeing the problem as caused by fishermen, thus requiring regulation of their behavior, is usually inadequate and sometimes woefully inappropriate and tragic. I noted the complexity of the causes of declining salmon runs in the Pacific northwest, which should also include the El Niño system. A similar analysis could be made of the Atlantic northeast. In both regions the commercial fishers have borne the brunt of regulation. The usual argument is: "We have to start somewhere." The argument is left

incomplete, though; the regulatory agency may not have the authority to deal with habitat and other issues, or with political pressures to protect logging, grazing, industry, sports angling, while other users are too numerous.

Blaming the victim and its consequences are transparent in Newfoundland. When I first went to Newfoundland in the early 1970s, the scarcity of fish and the poverty of residents of the coastal outports was interpreted by Parcival Copes and other economists as caused by open access: people could move in and out of the fisheries as they pleased. Totally ignored in that analysis was the failure of international fisheries regulation through the International Commission for the Northwest Atlantic Fisheries (ICNAF) and the depredations of foreign fishing fleets, as well as the longer history placing fishers and their families in a position of very little bargaining power vis-a-vis a merchant class. When Canada claimed its 200-mile limit in 1977 and began to sharply restrict foreign fishing, things looked better for codfish and fishers, at least until domestic fishing power was able to seek and find spawning aggregations of northern cod.

The vast majority of Newfoundland's fishers were in the inshore fisheries. (I use the past-tense because so much has ended as of 1992.) They used very small- to moderate-sized fishing vessels and passive fishing gear, such as the Newfoundland cod trap, during a short season when northern cod migrated towards Newfoundland's rocky shores. The offshore fishery, which grew after 1977 to replace foreign fishing in the region, was controlled by a few large corporations. It involved huge expensive dragnets, took over 50% of the fish, and employed fewer than 10% of the fishers (7.7% in 1990) (Program Coordination and Economics Branch, Fisheries and Oceans).

Some of those dragnets were able to fish in ice-ridden waters in the wintertime on the Hamilton Bank offshore spawning aggregations of northern cod. Not long after this offshore fishery began, in the late 1970s and early 1980s, inshore fishers began complaining about declining catches and asked for control of the offshore winter fishery. Nothing came of this request, the scientists assuring everyone that there were enough fish to sustain both inshore and offshore fisheries. The situation worsened (see Steele et al.). By the mid-1980s the inshore fishers were asking for reductions in the total allowable catch, not just the offshore

fishery, but even then scientists dismissed their perceptions of the problem.

After some years of increase and then steady catches, catches of northern cod began to decline, in each year to levels below what the government had estimated as Total Allowance Catch (TAC). Surveys are used to generate an estimate of the actual biomass of fish; the biomass index shows that the situation was even worse: the 1992 biomass was about 15% of the 1988 level, and the 1994 far lower. On "Black Thursday," July 2, 1992, John Crosbie, then Minister of Fisheries and Oceans, responded by imposing a two-year moratorium on all northern cod fishing, which has been extended for an indefinite period of time. As you all know, the Canadian government has come up with a costly scheme to provide income supplements and training opportunities for the 35,000 or so displaced northern cod fishers and fish plant workers as well as those affected in Nova Scotia and other parts of the Maritimes. The problem has spread to other species and has come south, even now to Georges Bank and New England.

In Newfoundland the problem was not just the tremendous catching power of the offshore fishing vessels and the political power of the corporations that owned them, nor was it just the growth of fishing capacity in the inshore fishery. Nor was it just the predations of the EC fishing nations on the Nose and Tail of the Grand Banks. The problem included the behavior, culture, and models used by government scientists and administrators. Against a great deal of contrary evidence they continued to project overly optimistic assessments of fish stocks, and hence overly high recommendations of total allowable catch (Finlayson; Steele et al). The story is well known and has been captured and interpreted in Chris Finlayson's book, *Fishing for Truth*.³

There are other reasons for decline in natural resources and environmental quality, including all that goes into the destruction and pollution of critical habitats and food webs. We cannot forget the workings of "chaos," stochastic and temporal processes of environmental change that certainly challenge the linear-models used in resource management (Wilson et al.). In the Newfoundland case, there are the arguments about seals, and about exceptionally cold water, and enduring ice that may have played a role in the disappearance of 500,000 tonnes of northern cod (Coady). Throughout all of this are the problems of uncertainty and

ignorance, and how to make decisions with high levels of both (Ludwig et al).

Thus, these problems are clearly not *just* the fishermen's problems, excepting that the fisher and the fisher's family and community are the ones most likely to suffer. As the sociologist Patricia Marchak has argued in *Uncommon Property*, what looks like a tragedy of the commons may very well be a tragedy of government mis-management of the commons. It may also be a tragedy of scientific hubris in the face of a situation that was best characterized as one of scientific uncertainty and ignorance.

Yet, the problem is defined as one of common property, meaning it is too easy for people to enter the fisheries. The main answer, then, to the question of how to have a fishery in the future, if and when the cod (and the turbot and the flounder) come back, is that fishing must be "rationalized," so that the numbers of people and boats and fish plant workers will be reduced to make use of resources more efficient. The number being proposed in Newfoundland is about 7,000 people, out of the 35,000 recently engaged in cod fishing.

Such rationalization has very little directly to do with the environmental problem or the conservation problem. It is social policy, not environmental policy, and concerns the high level of dependence on the welfare state. But the language of common property and its corollaries, like limited entry and individual quotas, appears in the debates in Atlantic Canada and now New England, serving to provide a misleading conflation of economic rationalization with conservation objectives. In effect, this policy profoundly affects community, and with that, the capacity for both meaningful ways of life in coastal communities and collective action to improve fisheries management.⁴

3. "Fisherman" and "Fisherman": Community and the Commons

This brings us back to the question of community and the fisherman's problem. Reducing the numbers of people engaged in fishing will transform culture, community, and family throughout the region. Analytic models associated with the idea of the tragedy of the commons have little to offer except blinders to this fact.

Continuing in our linguistic deconstruction, the term *fisherman* reveals a "productionist" bias (Neis), excluding the larger community from

consideration of either causes or consequences. And most obviously, *man* reveals the androcentric bias in models and policy and practice.

The bio-economic model of fisheries and related models in fisheries management usually focus only on boats, perhaps gear, as measures of effort, and on landed value of fish as measures of value. Non-harvesters in a fishery-dependent community, such as welders, suppliers, truck-drivers, secretaries, fish-plant workers, spouses, children, also have interests in the commons but are not included in the models and are not always included in public policy and public debate.

In Newfoundland, where all members of coastal communities are ultimately dependent on fishing, the only non-fishing members of the community receiving support during the northern cod moratorium of 1992-94 are fish-plant workers, and the only women are those who were fish plant workers or fishers. Moreover, the majority of female fish-plant workers were among the lowest paid, and hence the lowest compensated, members of the work force. What will their future be when and if the fishery is "rationalized"? What will happen to coastal communities when and if the fisheries work force, both harvesters and processors, is reduced by more than half?

As important in all of this is the political question: common property rights can also include the rights to make decisions about the commons (Schlager and Ostrom; Pinkerton, "Intercepting"). The social/community paradigm includes the idea that members of the local community should play a much stronger role in making those decisions.³

Comedies of the Commons

The tragedy of the commons approach leads to arguments for strong, centralized governance or privatization, letting the market do the job. If we change our point of view, a broader, more complex range of alternatives comes into view that includes a stronger emphasis on the potentials of people as social actors to manage their affairs. It includes the possibility of more decentralized and co-operative management.

The perspective entails switching from the metaphor of tragedies of the commons (Hardin) to that of comedies of the commons (see M. Smith; Rose). Comedy, in the classic Greek sense, is contrasted with the tragic drama of an individual with a tragic flaw, inevitably propelled to some tragic destiny. Instead in a comedy, people recognize that some-

thing is wrong and try, for better or worse, often comically, to do something about it. The funny part of comedy may be that we recognize ourselves in these situations only too well, and that we see their irony, given the very real difficulties of knowing what we are doing and getting people to go along.

Communal Management

Res nullius best depicts the open access nature of many marine resources, whereby the resources are owned by no one until captured; this is the situation modelled in notions of tragedies of the commons. However, there is also *res publica*, where the state exercises its authority, based on a notion of ownership or jurisdiction, and regulates how the resources are captured and by whom, even to the extent of determining how much can be captured. That is essentially the model advocated by Garrett Hardin and others: strong government intervention. At the other end would be *res privatum*, private property.

Res communes is a reminder that there are other models. Chiefs, elders, town councils, shamans and other ritual specialists, irrigation committees, boards of directors of co-operatives, *cofradías*, unions, and others have in fact been involved in the management of common property resources. It is not the exclusive provenance of centralized government. In the rest of this talk I will discuss three of these: communal management, co-management, and privatization.

The wider domain of citizen involvement in environmental and social issues (Hance et al; Arnstein) provides a useful schema. As I have adapted it (Figure 1), the extremes of fisher (user/public) participation in public policy would be, at one end, *Government Power*, and at the other end, *Fisher Power*. Either the government acts unilaterally, as it seems to do from time to time—for example in the U.S. State Department's relations with foreign countries affecting fish markets or in closures of fisheries due to public health concerns—or the fishers completely ignore government, creating their own systems of resource allocation and management or subverting government programs. This "fisher power" end is what we often refer to as communal management or self-governance.

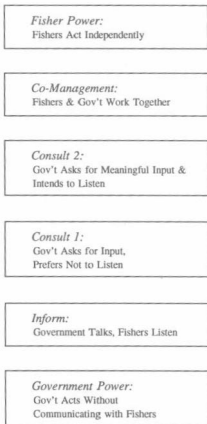


Figure 1. "Ladder" of Relations between Fishers and Government

Resources of the sea may be claimed and managed by local communities or specialized communities of users, as is done by the fishing cooperatives of Japan (Ruddle, "Solving"). The regime can be formal, legitimized by the state, as in the Japanese case, or it can be informal, as is the case for territoriality among East-coast lobstermen (Acheson). It could even apply to situations where some resource rights are privatized but under communal control, as with many oyster fisheries, involving private leaseholds, but with collective harvest of wild oysters and communal determination of the rules; and also so-called ITQ (individual transferable quota) fisheries, where rights of access may be privatized by the government or the community of fishers, or both, make collective arrangements about the rules and overall quotas.

Comparative research is leading to an appreciation of the characteristics of communal management systems, past and present, which may be applicable to the design of new common property management regimes. For example, Margaret McKean recently compared what she has learned about common property land management over two centuries on the north slope of Mount Fuji, Japan, with what others have learned from studying landed commons in medieval England, Nepal, Switzerland, Morocco, Nepal, India, and the Andean highlands, as well as some irrigation and fisheries management cases, to find out what makes for successful communal management (McKean 258-61; see also Ostrom, "Institutional"; "Governing"):

1. Clear understanding of who is and is not eligible to use the commons;
2. Some way that the eligible users, or their representatives, regularly meet to air grievances, adjudicate problems, and make decisions and rules;
3. Jurisdiction mostly independent of larger government powers;
4. Limited transferability of common property;
5. Ability of the system to handle social and economic differences; and,
6. Close attention to monitoring and enforcement.

In addition, "community" is central to the ability of a group of people to come up with solutions to their common property problems (Singleton and Taylor; Ostrom, "Community"). Community can have many different meanings; in this case it refers to social situations made up of a more-or-

less stable set of members who expect to continue interacting with each other, who have direct and multiple relationships with each other, and who have some shared beliefs and preferences (Singleton and Taylor 315).⁶

A good example can be found in New Jersey, studied in the late 1970s and early 1980s (McCay, "Fisherman's Cooperative"). The Fishermen's Dock Co-operative of Point Pleasant had developed a complex system of catch limits for two species, whiting and ling, that were critical to the fishery during the winter months and were subject to sharp price declines when the market was glutted. The system met all of the criteria emphasized by McKean: only members of the co-operative were eligible; they met regularly to make decisions and air grievances; rights to sell through the co-operative were not transferable; complex ways of administering the catch rules were created to handle differences in capital and skill while rewarding both and yet maintaining a sense of fairness; and both monitoring and enforcement were relatively easy. The boats had to land their catches and follow the rules to stay in the co-op.

In addition—speaking to a question not handled very well by most scholars of common property management—the Point Pleasant fishermen were capable of expanding the boundaries of their self-regulation to others within the larger region when it seemed important and necessary. Many of the attributes of community noted above were present, as well; the co-operative was founded by Scandinavian immigrants who knew each other well and shared many values and beliefs; they expected to work together for a long time, and although there have been many changes in membership and ethnic background, there are still no great amounts of inequality and heterogeneity.

Some might say the system—which endures, despite difficulties with "free rider" problems and decline in whiting and ling landings—was too specific and limited to be applicable elsewhere and therefore to be of interest to fisheries managers in government agencies. However,

this very same factor may also be used to suggest that a reasonable alternative or adjunct to centralized, large-scale systems of fisheries management does exist. Some management systems may persist and work best where they remain on a scale small and flexible enough to be adjusted to the particular problems and circumstances of the people

inherent in them, and yet capable at times of being extended to a regional level. (McCay, "Fisherman's Cooperative" 36)

There are many other systems of communal management, including some that are relatively new. A general notion arising from the case studies is that if a group of people has some sort of territorial or jurisdictional claim to a valuable resource, they will be motivated and empowered to manage it better. This is critical where government resources and the political will required for enforcement of regulations are scarce. Some systems are experiments introduced by outsiders. Experiments have begun in some areas of the Philippines to create or restore self-governance of coral reefs in admittedly desperate attempts to find ways to motivate people to stop, or dare to make others stop, destructive practices like dynamiting of the reefs (Christie et al). Others have developed locally. In the wake of fish wars between commercial fishers and local subsistence users of the great floodplain lakes of the Amazon, communities there have developed local management programs. Research in Nepal on systems of managing irrigation suggests that locally generated systems are more likely to be effective and equitable than even well-meaning systems planned by government agencies and World Bank sorts of outsiders (Ostrom, "Crafting").⁷

Co-Management and "Consultative Management"

Clearly there are limits and drawbacks to self-governance, including the migratory or fugitive nature of some resources, overlapping jurisdiction, and competing claims (such as the special rights of local people who depend on a particular resource, versus the rights of citizens or the public to the use of the resources). Put another way, the question is about the power of the state, and the ways that common pool resource users (and members of other interest groups) interact with the state in developing and changing systems of governance. Like it or not, the fact remains that central governments are major actors with respect to common pool resource use and management. Thus, the intermediate rungs of the ladder are where much of the action really is, at least in democratic politics.

The intermediate steps are: Inform, Consult 1, Consult 2, and true Co-Management. They represent situations where members of the community are allowed to listen to what is happening and perhaps to have a voice,

but their power is weak. At the *Inform* level of fisher participation, the government agency talks, the fishers listen. This is what many officials believe to be the most appropriate way of involving citizens because they view the problem as one of education and the means to education as one-way communication. Press releases and newsletters are vehicles, as are many public hearings and other meetings held by fishery management agencies, councils and committees. This style of interaction is promoted by bringing people in at a late stage in planning, so that people have little opportunity to influence the plans. One-way communication is also promoted at meetings that are supposed to be more consultative by "the simple device of providing superficial information, discouraging questions, or giving irrelevant answers" (Arnstein 219; see M. E. Smith for a fisheries case study).

People quickly become frustrated and angry when restricted to the *Inform* level of citizen-government interaction over a matter that concerns them, such as developing new mesh sizes and closed seasons for a fishery. They demand at least the right to be heard, and they often are accorded that right. In Canada, the system that has evolved in recognition of this is called consultative management. In the U.S., the Magnuson Act system of regional fisheries management councils is similar. In *Consult 1*, the government agency asks for limited input but seems to prefer not to listen. In *Consult 2*, members of the fishery community are asked for meaningful input and the agency indicates that it intends to listen and take what it hears into account in developing policy.

Many advisory committees are run on the assumption that the government agency or management council with the mandate to manage fisheries is genuinely concerned to get advice from the industry. This kind of consultation is usually best nurtured at more informal meetings, where people feel freer to express themselves and there can be ongoing dialogues. However, people are rightly suspicious even when the meeting becomes open and communication appears to be two-way (or more). They may be confused about whether they are in a *Consult 1* or *Consult 2* situation, depending on their expectations about whether the government officials really will listen. Those expectations are affected by a longer history of interactions that affect credibility and trust.

Another rung in the ladder, not shown in the diagram, represents the situation in which citizens are brought into the decision-making process

as members of advisory and planning committees. It can be a style of non-participation (Arnstein), used to legitimize programs that are required to have public participation but without actually granting any power or authority to members of the public. Consequently, it can be a very empty gesture, a fact that can embitter participants, who leave the system (see Hanna's portrayal of the risks of exit from the system including non-compliance, and hence the importance of ensuring loyalty to the system by giving fishers voice). If, on the other hand, participation is structured so that the advice and expertise of fishers is used in and actually influences the decision-making process, this can be a step toward full participation, even co-management.

Co-Management entails a power-sharing partnership between government agencies and citizens with a stake in the common pool resource. Examples of co-management would be situations in which meetings are called jointly by fisher organizations and government officials; where fishers have oversight and monitoring powers in relation to a specific fishery management system; and where fishers are funded to hire technical consultants (see Hance et al, for parallels in environmental protection matters; see Pinkerton for specific cases and a thorough introduction to co-management).

Successfully co-managed fisheries that are now well documented include some with historical depth, like the inshore fisheries of Japan, managed by co-operatives (Ruddle) and the Lofoten winter cod fisheries of Norway, managed and enforced by groups of fishers (Jentoft and Kristoffersen). Newer examples include the use of European Community producer organizations as vehicles for allocating quotas among fishers in the U.K. (Jentoft and Kristoffersen; see also Meltzoff and Broad) as well as a variety of arrangements between state agencies and tribal groups in North America, where courts have upheld the sovereignty of the tribes (Cohen).

Co-management promises an institutional solution to the "commons" problem, which is essentially the question of how private interests can better intermesh with collective interests. In theory (Jentoft; Pinkerton), co-management will improve both the effectiveness and the equitability of fisheries management. Co-management may also improve compliance with agreed-upon rules. If decisions are made by fishers themselves, i.e., by majority rule or consensus, then there is internal coercion to follow the

rules, versus top-down rule-making which often results in rampant and gleeful violation. Once rules become the government's, even the fishers who asked for them or agreed to them may be compelled to find ways to break them (for a telling case in Iceland, see Durrenberger and Pálsson). However, if fishers have a clear and important role in making and implementing the rules, and if a majority agree to them, they are more likely to follow them and to coerce others to do the same.

Effectiveness is partly a question of accurate appraisal of the situation and the effects of changing the rules. Resource assessment is critical. It seems logical that under a co-management system, resource users would be more likely to share accurate information than they are under other systems. This would reflect more fundamental changes in behavior and attitudes as fishers become, and are treated as, responsible co-managers. The recent disaster in Newfoundland, where one of the major cod stocks has come close to extinction, is traceable in part to faulty science, and in part to the failure to take into account the knowledge, experience, and catches of inshore fishers (Steele et al). Co-management is one of the ways that "indigenous" and non-expert knowledge and interests can be meaningfully brought into management.

There are other arguments for co-management systems, such as the likelihood that they will be more equitable, based on the premise that resource users are more familiar with the intricacies of local social and economic situations and therefore are more able to respond to the special needs and interests of different groups or individuals than are governments, which usually try to treat everyone alike (but see McCay, "Muddling," where an experiment in co-managed resource enhancement failed to meet local criteria of equity). In addition, a co-managed regulatory process may be more responsive to changing conditions. The organizations of resource users involved may be able to change rules more quickly, and are in general more flexible and responsive than government (Jentoft; see McCay, "Fisherman's Cooperative" and above).

Co-management can be part of the creation and implementation of the privatization approach to common pool resource problems. In 1990 members of the U.S. surf clam and ocean quahog fishery agreed to ITQs after a long period of argument and deliberation that at least some people see as co-management: the industry was told to work it out amongst themselves. Closer to Nova Scotia, after the Minister of Fisheries decided

to deal with problems in the small dragger fishery of the Scotia-Fundy district by going to ITQs, members of the industry, together with DFO personnel, had the responsibility and authority to work out many of the details of the system, in what today is known as "the IQ Group" (Apostle et al, "Overcapacity"; Apostle et al, "Centralization").

There is a lot of excitement about and even official acknowledgement of co-management. However, it is no panacea for larger social concerns. Nor is it always what it seems. In the surf clam and ocean quahog case, the "co-managing" outcome was manipulated by people in government interested in using the ITQ method of management. Very few people in the industry understood that there was a T in the middle of IQ: that these would be freely transferable shares. They did not understand this until it was too late to turn back. Moreover, as elsewhere, the definition of who was part of the community of co-managers was very narrow: vessel owners. A lot of people were left out of the co-management process, including crew-members and members of families and communities, despite the fact that a clear goal of this kind of system was to reduce boats and crew.

In comparative research being done with faculty and students at Dalhousie, we are looking at these issues. The main question we ask concerns how co-management works, given privatization, and the extent to which community concerns are met. We are also asking whether this kind of ownership makes people, individually and collectively, better stewards. It is already evident that it creates sharp socio-economic distinctions.

Conclusion: Tragedy or Comedy?

A shift in metaphor, from tragedy to comedy, underscores the importance of thinking about fishers and other people not just as competitive, greedy individuals—which they are and can be in many contexts—but also as social beings, capable of and interested in collective action on behalf of the resources and habitats upon which they depend—which they are and can be in many contexts. If the property rights they hold are common property, they are not necessarily, inextricably, destined to create tragedies of the commons. Self-governance, co-management, and a variety of other systems of collective action are and can be used. They—and our ethnographic narratives about them—may provide comic relief and,

potentially, happy outcomes. Or they may be romances structured around conflict and opposition—between the individual and the collective, among interest groups, communities, classes; or within the individual struggling to do what seems right. We might also consider tragicomedy, which was invented in 1585 by the Italian writer Guarini in order to "purge the mind of the evil affliction of melancholy".

If you are yet unwilling to switch metaphors, consider the possibility that there are many potential sources of tragedy affecting people in relation to their environments. We should at least try to be more specific when talking about environmental problems. Are they tragedies of the commons—of ineffective or incomplete communal management? Or tragedies of open-access and laissez-faire management? Are they tragedies of government mis-management (Marchak) and inadequate science (Steele et al)? Or tragedies of the non-commons, of privatization? Are they tragedies of the loss of communal institutions? Or are the tragedies really beyond the scope of human cause and response, tragedies caused by the vengeance of fate and the gods, or by uncaring and chaotic natural systems?

NOTES

1. Parts of this talk were also given as The Stephen Manley Lecture, University of California, Santa Barbara, 20 April 1993, and are being published as "Common and Private Concerns," in *Advances in Human Ecology* (Lee Freese, ed.), 1995. I am indebted to numerous people who commented on the talk, as well as subsequent presentations of similar ideas at the American Fisheries Society, and at seminars at Yale University, Harvard University, and the University of California, Berkeley.
2. Herbert Simon goes the farthest, attacking the selfishness assumption that underlies much of this work by posing the possibility that docility and hence altruism are even more fundamental for biological organisms.
3. The situation seemed to get out of hand in the late 1980s when that problem was enhanced by conflicts over international boundaries between Canada and France (centred on the French territory of St. Pierre et Miquelon just off Newfoundland's southern coast) and the entry of Spain and Portugal into the European Community. Both conflicts meant impressive increases in foreign fishing effort, particularly in a region of Newfoundland's Grand Banks just outside of the 200-mile limit, subject only to weak international control.

4. I am not saying that fishers were not part of the cause; what I am saying is that it is important to recognize which fishers and what incentives were in operation, to recognize other causes, and to avoid simplifying the analysis so that the solution requires burdens borne almost entirely by fishers and their communities.
5. That this happens is not automatic. When doing interviews in Nova Scotia a couple of years ago, we were surprised to find that, according to informants, the meetings of the advisory committees of the Department of Fisheries and Oceans never included members of communities as such.
6. Community plus mutual vulnerability to the consequences of failing to co-operate are critical variables (Singleton and Taylor).
7. Major obstacles exist to the self-governance way of managing the commons. It may be impractical where resources are migratory or overlap jurisdictions, as in the Newfoundland fisheries and most of the other temperate and northern fisheries of the world. The situation in Atlantic Canada is telling. It is impossible for even the individual provinces, much less local communities of fishers, to claim and exercise management jurisdiction because of the broader claims of the nation, and of foreign countries that have "historic" and other rights. The situation is the same in the United States, where the Constitution protects the rights of citizens to travel and engage in commerce among the states, making it difficult for individual states to use residency requirements as a tool in fisheries management.

In addition, self-governance may be unacceptable where it excludes people with claims to common-use rights based on historical use or other notions of right. For example, it is possible to interpret New Jersey's system of giving municipalities the power to regulate access to coastal beaches as a good example of self-governance; people who go to the beach must pay for beach badges and/or parking, and that money is used by the towns to maintain the beaches. Very little of the coast is a state or federal park. However, courts have accepted that the intent and consequence is often exclusionary, favoring local residents, and they have delimited the power of the towns because under public trust law all citizens have common rights of access to the tidewaters and oceans. Similarly, but back at the smaller scale that we normally think of as self-governance, the Amazonian *varzea* or floodplain communities that come up with self-governance are doing so illicitly because of national laws that protect the rights of citizens to fishery resources (Stocks).

There are also questions about whether, how and to what extent what is being learned about the workings of the smaller-scale systems is applicable to the design of improved systems at the national and international levels. Oran Young, whose expertise is in the politics of international environmental management in the North Pacific and the Arctic, is doubtful. However, the resource economist Susan Hanna presented information about the eighteenth-century English commons as an example of a successful resource management institution, and then posed challenges to the design of ocean management institutions that could, like many of the eighteenth-century English village or manorial commons, co-ordinate multiple resource uses, be flexible to changing environmental conditions, and embody community control.

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