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### **Community Ownership and Natural Resource Management: Fisheries\***

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#### **Introduction**

Ocean fisheries are a quintessential example of the so-called "tragedy of the commons", in which a lack of specified property relationships is said to result in overexploitation of the fish population (Gordon, 1954; Hardin, 1968). In a liberal capitalist political system, open access to nearshore fisheries and a lack of international agreements on straddling and high seas fisheries have led to excessive investment in fishing capacity, too little conservation of fish populations, and resultant political crises.[1] A central problem is the difference between what might be conceived as the public trust and the interests of the individuals and communities who utilize a natural resource. O'Connor (1988) argues that this dichotomy leads to a range of conflicts over social decisions concerning the use and conservation of these resources. The regulatory regime which developed in the period before and following World War II extended the role of the state into the operations of individual enterprises (Eisner, 1994). Government attempted to mediate the relationship between capital and nature (O'Connor, 1988), but this societal regulatory regime generated a whole range of new operational inefficiencies while at the same time still failing to meet conservation standards. These failures led to a search for alternative natural resource management regimes whose general form was termed "the efficiency regime" (Eisner, 1994).

In fisheries, these alternatives are increasingly based on a bioeconomic framework which has become the dominant economic paradigm for natural resource management. It is premised on the foundations of neoclassical microeconomic theory and includes assumptions of individual maximization by well-informed economic agents (e.g., fishing vessel owners) and the social optimality of the market in equilibrium. Public policy has emphasized more complete specification of individual property rights which appear in fisheries in the form of *individual transferable*

*quotas* (ITQs)[2], although this specification is incomplete because of the prevailing fisheries management statutes in the U.S.[3]

There are at least three important reservations with this approach: 1) equity in the monetization of fisheries access; 2) the political forces which constrain and affect the implementation of such programs; and 3) the impact of the uncertainties in setting and maintaining quotas. These reflect the impact of the natural variabilities of population dynamics in fisheries and the incomplete information upon which fishers and managers must act.

First, issues of equity (frequently addressed as *access*) often generate more voice than the economists' preference for the efficiency criterion, even as the inefficiencies of poorly designed regulation generate distrust of government. As Goldman points out, the "tragedy of the commons" approach upon which the bio-economic model implicitly sets usually fails to situate [participants] within conflicting social groups and classes, and as individual capitals extending or socializing costs while privatizing profits (Goldman, 1993, p. 55).

Second, problems of uncertainty are exaggerated by the separation of the regulated and the regulators. The idea of central government control of natural resource utilization has been attacked on many sides of the political spectrum.[4] The problem is summed up as one of incomplete information available to any type of government regulatory body, rent-seeking by both regulators and the regulated, and unrealistic incentives for resource users, i.e., the Hayekian critique of government. Most, if not all, conservation groups believe that only government can effectively guarantee resource conservation and environmental protection.[5] This raises the importance of conservation standards which are included in the community ownership model outlined in this paper.

Townsend (1995) and Townsend and Pooley (1995b) suggested "distributed governance" in marine fisheries as a way to place the practical elements of rights-based management into a regulatory and governance continuum relevant to conditions in particular communities. The existing ITQ and CDQ systems maintain government centrality in the conservation and management decision process and thus maintain the alienation of many users from the difficult decisions concerning regulation of natural resource uses. Alternatives to this approach include co-management, cooperative and corporate institutions that might be ceded the right -- or some of the rights -- to make management decisions within a conservation and ecological framework monitored by government (the conservation standard). This would redirect many management functions from the government to the community, reducing regulatory alienation and increasing the level of information upon which complex fishery management decisions rely. However, the choice of management structure for a community-used natural resource, particularly a fishery with heterogeneous users, is not obvious. What should also be obvious is that agency costs currently inherent in a government-centered approach to fisheries management can be reduced. Community ownership is one of several alternatives, and its advantages should be weighed along with those of other co-management alternatives.

In some cases, local communities can simply manage their resources by controlling access to them. But one must differentiate common use resources that are or can be under the effective

control of a local community where social norms can regulate use of the resource. An example is New England's near-shore lobster fisheries. However most off-shore fisheries (as well as a number of other non-fishery ocean use situations) and most multi-use resource use settings (e.g., commercial and recreational fisheries utilizing the same fish stocks or the same fishing grounds) do not have the same potential for localized social control due to their permeable boundaries, and heterogeneous participants.[6] However these fisheries may be amenable to a co-management alternative, including cooperative and corporate management.

Since the globalization of capital tends to commodify resource values, we cannot expect that restoration of traditional community models will generally be effective when confronted with the weight of market-based development. Changes in resource management regimes will have to begin in the same time-space continuum, although it is conceivable (although relatively difficult in industrial and urban settings) to rebuild some sense of community norms for common use resource management. One concern involving any kind of "distributed governance" is the balance between the community governance institution and those outside the governance community, including the central government. Many observers of small-scale development throughout the world have pointed to the problems of vulnerability of the local community to external forces (e.g., speculative investment, environmental degradation, etc.) and to the limited governance resources (e.g., scientific research, monitoring, compliance & enforcement, etc.) which these smaller communities possess. "Institution-building" resources may well be needed to insure that the new management authority has the capability to meet the terms of its governance covenant.

One model of a community-based society is dispersion of industrial ownership through popular shareholding (Roemer, 1994). This approach posits significant roles for state-sanctioned investment banks, pension funds, etc. in terms of providing investment resources and controlling the social behavior of firms. Here too ownership (and potentially control) is removed from the site of production, although ESOPs and workers cooperatives might be viewed as an variant of the Roemer model. A development of the Roemer model has been introduced recently taking as its starting point an egalitarian market society.

The project of an egalitarian market economy combines the moral argument for spreading rights of ownership more widely on the grounds of social justice and individual autonomy with the economic argument that the way in which property rights are distributed has economic consequences for efficiency and equality (Gamble and Kelly, 1996, p. 81).

This model combines dramatic measures to reduce inequality in wealth with a much wider distribution of ownership rights (and stakes) with collective action in the management of productive assets. But its chief argument is that community-based private ownership of productive resources might be a viable alternative to an individualist corporate society.

Such an approach might be consistent with an alternative conception of common use resource management which was developed within the context of *actually existing capitalism*: the idea of corporate control, whether as a for-profit commercial corporation or as a non-profit community corporation, depending on the circumstance. In these conceptions the state retains a *public trust*

oversight responsibility for the natural resource (termed a conservation covenant[7] ), while the corporation manages the actual use of the resource.

The corporate model appears to violate democratic and community-based standards since it is a restricted membership organization with unequal voting rights (voting by share ownership). Cooperatives and co-management are the typical alternative (Jentoft and McCay, 1995; Pinkerton, 1994). However co-management makes strong assumptions about the government's long-term willingness to give up control. The typical co-management alternative of local government control of common use resources maintains many of the inefficiencies of separation between the governed and the governors.[8]

Cooperatives have limitations in the long-term preservation of capital[9] which may be important in a fisheries management setting. As Bonin, et.al. note, "The basic difference [between corporate and cooperative firms] is the inability of the individual worker to capture returns to assets upon leaving the [cooperative] firm." (Bonn, 1993, p. 1308). The advantage of the corporate form is in retaining a long-term perspective (foregoing current returns for future returns). The reason is that a cooperative's one-person, one-vote rule means that there is no assurance that near-term sacrifice (and costs) will not be eroded by increased use in future periods.[10] It is also sometimes argued that democratic decision processes in the local governance setting would promote education of all participants concerning the advantages of near-term sacrifices for long-term gains. But there is a limited incentive structure under *actually existing capitalism* to support this perspective.

A corporate model (for-profit or non-profit) addresses the incentive situation directly. It is a business model that emphasizes financial equity in fisheries optimization. Those with a long-term interest in a fishery (which could include any of the stakeholders, including conservation groups) would have the opportunity to bid current resource use away from those with just short-term interests. Conservation of the natural resource in the short-term would represent a long-term investment in that resource, to the benefit of those with a higher valuation of the future. And it is not inherently undemocratic to suggest corporate control as an alternative model. The corporate model must have controls on capital consolidation and protection of minority ownership interests, and a means for maintaining the *public trust*. The latter is relatively simple, at least in terms of insuring that the resource is utilized in an environmentally friendly manner.[11] The former -- controls on capital consolidation -- may be the gist of the problem.

Stakes in any enterprise, in any resource, and any particular aspect of life, are not equal. They are relative and frequently appear incommensurate.[12] People who depend on a resource for their livelihood have a greater immediate stake than most people whose use is occasional or episodic. People who have strong cultural or historical relationship to a natural resource[13] have a greater stake than people who have just arrived on the scene do. People who have less mobility have a greater stake than those with more mobility do. The *weighing* of these stakes is inherently political and is inherently inexact. Does a person who depends on a resource for their livelihood have a greater, equal, or lesser stake than someone who has the strong cultural and historical tie to the resource? Does lack of mobility (e.g., people in isolated communities) give a greater stake, and how is that stake mediated if people have chosen to move to that community (e.g., the

conflict between conservationists who have moved to western rangelands and the original ranchers)? Who gets to claim *conservation*?

One way to deal with the issue of stakes is to apply the Roemer model under *actually existing capitalism* and provide everyone in society with an equal number of *coupons*, which represent rights to acquire stakes in assets. These coupons represent non-monetized ownership rights to resources in general: coupon holders must decide where to apply their coupons and thus exert their ownership stake. People who value a particular use of a resource more would spend or bid more of their coupons on that resource, while those with a weaker interest would allocate their coupons to other uses. (Remember that use rates of the natural resource, in this case the fishery, would still be subject to a binding conservation covenant with the government.)

For example, imagine that everyone in society has 100 natural resource coupons each. These represent potential non-monetized ownership of a clearly delineated portion of the society's natural resources. The twenty (20) fishermen in a coastal community could bid all 2,000 of their coupons on the right to harvest their local fish.[14] While one hundred (100) fishermen from surrounding communities might outbid them, it would be at the cost of 20 coupons each, reducing their own coupons which might be needed to access other fisheries where there might be more competition. The people who operate a shoreside fishery facility in the local community might also bid some of their coupons for use of the local fish, and then confer or lease the right to harvest the fish only to their neighboring fishermen. Their coupons, combined with their local fishermen, would raise the cost of access to this resource to the fishermen from the surrounding community. It would inherently "price" the resource, although in non-monetary terms, something which has heretofore been unpriced and hence over-utilized, in a traditional open access fishery.

Alternatively, conservationists from a distant city might allocate some of their coupons to protect these fish (at a resource level higher than the government's standard). Just 2,000 conservationists who allocated one coupon each to preserve these fish would obtain an equal stake as the local fishing community. While this would be a trivially small allocation to them, if there were 100 coastal fisheries, then conservationist decisions might need to be made more strategically. And conservationists might be equally interested in preserving access to recreational opportunities (e.g., against ranchers and miners), so that these decisions would be even more difficult to make. (It has been argued that the U.S. political system operates like this: a plurality of interests causing government legislation to come down on one side. Of course it has also been argued that these interests are inherently uneven, with the corporate sector having the privilege and with community interests having to expend tremendous political capital to balance that of the corporate sector.)

If we believed that the coastal communities had a greater initial stake in their own fishery resources, then they might have a "reserved" share in the fishery (compared to "outsiders"). Half of all coupons might be allocatable to the community and the remaining half might be allocatable to all other interests. In this case, if the local fishermen allocated all 2,000 of their coupons to the resource, the worst they would get is the right to harvest half the resource if the conservationists allocated 2,000 coupons to fully conserve their share of the resource (if they believe the government responsible for establishing the conservation covenant for the fishery had been *captured* by local fishing interests). Or some of the coupons might be allocated to a community

organization (e.g., the local city government) which would give the wider community an explicit voice in the use of the resource. Or 100 coupons might be allocated to each current participant in natural resource harvesting and only 1 coupon each to everyone else in society, thus giving greater weight (although not necessarily majority weight) to the current participants. Any allocation is possible: the political problem is deciding on this initial allocation and the rules for transfer of these coupons (rights).

Would any of these coupons be freely tradable? (Recall that these are non-monetized coupons and thus not saleable for currency.) Could local fishermen be "bribed" by conservationists or by large-scale fish processors to give up their coupons? Could half the local fishermen sell their coupons to off-shore fishermen who would then have the right to harvest that share of the fish? The market (neoclassical economic) solution to these decisions is clear and it would argue for unfettered transferability of coupons. A non-market solution is less clear, but it might restrict transfer of coupons within *classes* of coupon holders (e.g., local fishermen could sell or lease their coupons to other local fishermen but not to off-shore fishermen or to conservationists). Such restrictions on transfer of coupons might reduce the "efficiency" characteristics of the allocation mechanism, but restrictions might preserve important "equity" characteristics. It would be a political decision whether these kinds of stakes should be regulated or not.

If this natural resource coupon system "defines" ownership of a natural resource and are exercised through a community management corporation, what decisions could the community corporation make and how are they to be made? The obvious presumption is that he (she) who has the shares makes the rules.[15] To be more specific, the coupon-holders of the community would vote a board of directors with votes allocated to each coupon. As with current corporate elections, there might also be coupon-holder initiatives and proxy battles. A person or community who had accumulated shares in the community corporation would have a larger voice in operations of the corporation than those who had only single shares, and all of these had more voice than those who had no shares. The *public interest* in the long-term preservation of the resource would be guaranteed by the conservation covenant with government, if not insured by the long-term financial interests of the participants and their interest in residual valuation.

A primary purpose of a resource management corporation would be to determine the conditions of access to a natural resource, not necessarily to consolidate all activities (e.g. harvesting) into a single operational entity. In other words, individual producer units (fishing vessels) might still be responsible for harvesting the resource, under their own form of enterprise control, with their own direct costs, revenues, and incomes (or in the case of recreational fishers, with their own sense of enjoyment), while the resource management corporation would set the conditions for this harvest. The board of directors might annually vote the size of the overall total allowable catch for a fishery and allocate that catch amongst vessels. Or it might set limits on the technology the vessels could use (e.g. gear configurations). Or it might set seasons for fishing, etc.

The presumption is that this board of directors would have more direct knowledge of the operational interests of its members (the resource users) than any government body because it would be voted by participants in the fishery and would often include present or previous participants. This knowledge of fishery operations would limit the level of inefficiency in

regulating resource use that is generally caused by government management. But in order to meet its conservation covenant with the government, the resource Management Corporation would have to balance the short-term interests of its members with long-term conservation needs. This might well lead to business operations with less intense fishing methods, higher value-added product, and a more stable economic environment. The community corporation, perhaps in league with government, would be responsible for all the other normal resource management functions currently carried out by government alone: monitoring, compliance, and research, and it might well be expected to emphasize education and coordination, much as health maintenance organizations are expected to emphasize preventive health care relative to the old fee-for-service medical model.

The resource management corporation would need to finance its own operations. Many fishery cooperatives currently charge their members a fee on each ton of fish landed. We might expect a similar situation for a resource management corporation, although in some cases, e.g., recreational fishing, the fee might be charged as an annual access fee or a launching fee or some other method of accounting. The corporate board would determine the structure and level of fees, as well as their expenditure.

Perhaps the biggest problem for the community corporation model when applied in a multi-use setting (e.g., where there is both a commercial and a recreational fishery, or two competing commercial fisheries) is equitable balance of the different interests. Current individual transferable quota (ITQ) models of commercial fisheries provide one kind of solution: percentages of total allowable catch are allocated to each participant in the fishery. A corporate model might delineate that use-rights to the resource would be proportionate to shares owned. Although recreational participants might place a different per unit value on catch than commercial participants (and not necessarily a lower value), it would be the responsibility of the board to find a mechanism for balancing these interests. It might be that the recreational participants would trade volume of fish for preferable fishing seasons, or for closed areas, or other restrictions on the mobility of the commercial sector.

It is possible that the resource management corporation would find it advantageous to "buy back" some shares of the resource from its stakeholders. This would allow it to hold back some resource to enhance per unit values for the remaining shareholders, or to more carefully "rationalize" production, or any other centralized operational function more typical of industrial corporations. It might also choose to "lease" these shares to fishermen and use the lease fees to enhance its operations, to support community projects, or whatever it chose to do.

The essence of a typical corporation is that it enjoys certain legal protections and its shareholders are the *residual claimants* of corporate revenues.[16] The natural resource management corporation may choose to be for-profit or non-profit (or this choice may be made by government in the creation of the corporation). In the for-profit model, a net on annual operations could be returned to shareholders, based on share ownership.[17] In some situations the natural resource management corporation might have higher per unit awards because of less patronage (i.e., because members chose not to fish). Their reward would be higher per share dividends at the end

of the period. In multi-use circumstances, we expect that the non-profit model might be preferable, but this is not a foregone conclusion.

This paper has attempted to address three important reservations to the property-rights approach to fisheries management -- equity and monetization, politicization, and uncertainty -- by developing a localized resource management structure which mimics a corporation but which does not rely on private capital. It extends some earlier work on distributed governance and it is probably amenable to the co-management perspective. Initial applicability would probably require a specific -- and perhaps isolated -- local governance setting, as has been the case for a number of producer cooperatives. But in many cases local residents, particularly in heterogeneous communities which include both resource users and conservationists, might find this approach preferable to the on-going political struggles under the current societal regulatory regime or to the distributional prospects promised by the efficiency regime.

### **Endnotes:**

[1] A typical example in fisheries is that open access conditions allow over-capitalization, which encourages over-fishing (and resource depletion). Because the fish are not owned, they are a free input into production by individual harvesters. Being free, economic incentives encourage over-use of the fish.

[2] See Neher (1989) for a comprehensive presentation of the mainstream approach.

[3] The Magnuson-Stevens Act includes the following reservation: An individual fishing quota or other limited access system authorization ... (B) may be revoked or limited at any time in accordance with this Act; (C) shall not confer any right of compensation to the holder of such individual fishing quota or other such limited access system authorization if it is revoked or limited; and (D) shall not create, or be construed to create, any right, title, or interest in or to any fish before the fish is harvested (Magnuson-Stevens Act, Section 303 (d)).

[4] This is not restricted to common use resource management, as illustrated by the following quotation concerning an egalitarian market society: "The notion that the state can act as a benign, impartial, and wise arbiter makes assumptions about its capacities, organization, and knowledge which no-one believes any longer" (Gamble & Kelly, 1994, p. 83).

[5] Within the current regulatory regime, these groups at least have some voice, while they are excluded from the individual and corporate structures, which utilize common property resources. But even in a neo-liberal political setting, the inefficiencies which current regulatory policy fosters and the perverse incentives it generates are seen as endemic. Thus many conservation groups are reconsidering their perspective on government controls.

[6] Ostrom (1995) provides an excellent review of these conditions.

[7] We have viewed the conservation standard as a long-term renewable contract between the resource management corporation and the government, with clear conservation standards and contractual stipulations for terminating the contract upon failure to meet those standards (Townsend and Pooley, 1995).

[8] In our experience, local government frequently has fewer resources, and is more subject to local development pressures, than national government. Which is not to say that national governments are exempt from interest group pressures.

[9] A comprehensive review of producer cooperatives makes clear that many of the inefficiencies attributed to cooperatives by neo-classical theorists have not proven to hold in real life. However, "[producer cooperatives] tend to operate with lower capital-labor ratios than comparable [conventional firms]." (Bonn, Jones, and Putterman, 1993, p. 1316) We are viewing the stock of fish as a substantial part of the community's capital assets.

[10] "There are important differences between the incentives under cooperative governance and under corporate governance. These differences are most pronounced when looking at long-run incentives for owner/members. The decision structure under democratic, cooperative governance generates a greater financial stake in current income and lesser financial stake in future income, as compared to the financial interests of a shareholder in a corporation." (Townsend, 1995, p. 42.)

[11] See Townsend and Pooley (1995) for proposals in fisheries, which include an explicit legal contract or covenant binding the operations of the fishery management corporation to resource conservation standards.

[12] That is not to say that people in a more democratic society would not have an equal stake in the society as a whole. Their stake in society is not a function of their income, political beliefs, who they know, where they live, their gender or ethnic background, nothing. Their stake is universal and inalienable. And it is a basic function of government to protect rights and equality of opportunity. But this is different from asserting that everyone has an equal stake in everything (which is what many democratic and cooperative concepts suggest).

[13] Native peoples may no longer have a subsistence reliance on a fishery, but it may play a critical *ceremonial* role in sustaining (or rebuilding) their community.

[14] The coupons could be used to establish a natural resource management corporation, which would determine access to the fishery. Whether the coupons would confer any residual benefits to individuals is another question.

[15] See Easterbrook and Fischel (1983) for a discussion of shareholder voice.

[16] Romano (1993) contains discussion of the microeconomics and principal-agent relationships involved in limited liability corporations (thus while residual in one sense, their risk is ameliorated by the state).

[17] This contrasts with cooperatives which generally return dividends to members based on patronage.

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