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WHEN COMMUNITIES COLLIDE: SORTING OUT THE PARTNERS IN CO-MANAGEMENT OF BRITISH COLUMBIA FISHERIES

Stream: Aboriginal Territory and Management Rights
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Introduction

In a presentation reported in the July 1997 issue of *The Common Property Resource Digest*, Dr. Margaret McKean urged researchers concerned with common pool resource issues to advance the research agenda by paying more "systematic attention to the relationships between successful systems and their surroundings" (McKean, 1997:3). She suggests that one focus of this attention should be the relationships between common pool resource use and government, including what is generally referred to as "co-management", i.e. arrangements that share power and responsibility for resource management between government(s) and other stakeholders. The "other stakeholders" most commonly referred to in definitions of co-management are "local resource users", or "local communities", but these by no means define the full array of possible partners in co-management arrangements. (The Government of British Columbia refers to an understanding between the provincial and Canadian governments concerning management of the salmon fishery as a "co-management" agreement, thus extending the term to arrangements between different levels of government, as well as between governmental and non-governmental entities.)

"Co-management" is a pervasive theme in current debates about appropriate institutional arrangements for managing fisheries in British Columbia, as elsewhere in Canada - and the world. This paper addresses a question that is central to the co-management debate in this and other complex, industrialized fisheries: When there are many claimants to rights in the fishery, how are the legitimate claimants to be selected and how are their rights to be defined?

In much of the literature on common pool resource management, the question of conflict *among* groups of claimants as opposed to conflicting interests *within* groups is avoided either explicitly (e.g. Ostrom, 1990) or implicitly (in many of the studies of small-scale, traditional resource use situations). In British Columbia fisheries, however, such conflict is endemic. Not only are the "boundary rules" (in Ostrom's terms) unclear, but there are no agreed upon principles for *devising* boundary rules. The highly centralized nature of Canadian fisheries law, policy and administration has created a world in which the formally recognized players are largely restricted to individual resource users and the federal government. The clearest exception in British Columbia pertains to the evolving, but still limited, affirmation of collective rights on the part of Aboriginal peoples. Among the cast of “usual suspects” in the extremely active fishery debate in B.C., however, are entities organized around species, sector (recreational versus commercial) gear type, nature of participation in the industry (e.g. processors, vessel owners,

crew (unionized or not), shoreworkers, etc.), coastal (and upstream) geographic communities and groups of communities, and groups engaged in fisheries enhancement and conservation, including habitat protection.

The problem of sorting out the players who might legitimately enter into co-management arrangements is complicated, not only by this policy vacuum, but by the intense distributional conflicts characteristic of most British Columbia fisheries. As a 1996 report on intersectoral allocations of salmon observed, "given the existing balance between resource availability and capacity to exploit, there is no set of policies that can avoid negative consequences somewhere (May, 1996:ix)", and hence, very little likelihood that rules for redistributing an oversubscribed fishery will ever be agreed upon by the various groups involved. A recent report by Samuel Toy concerning the implementation of the intersectoral allocation recommendations reached similar conclusions about entrenched divisions of opinion on this issue. Added to the problem of inter-group conflict among direct users of the resource are the demands of those who benefit in less tangible ways from healthy fisheries and marine environments, not to mention all the explicit or implicit demands of those who benefit by *negatively* affecting fisheries and fisheries habitat through pollution or otherwise.

When resources and resource systems are so heavily oversubscribed, it is unlikely that natural or obvious communities with natural or obvious rights in the fishery will emerge as natural or obvious partners in co-management, except in situations where the circumstances that otherwise characterize B.C. fisheries are very much attenuated for one reason or another. This paper examines three situations in which biophysical, technical, market, social and institutional factors have combined to produce circumstances that are atypical of British Columbia fisheries and in which groups have emerged as partners in formal or informal co-management arrangements, with more or less uncontested claims to this position. These three situations comprise two examples of institutional innovation in the intertidal clam fishery - both of which involve aboriginal communities as principal participants - and a fishery based upon a large subtidal clam - the geoduck (*Panopea abrupta)*. Factors which have contributed to the emergence of relatively uncontested claimant groups include geographic isolation; lack of competition from other groups for a particular species or harvesting area; legal recognition of specifically "communal" aboriginal rights in fisheries; favourable market conditions; ethnic homogeneity; the existence of a common "outside threat"; and the prior implementation of fishery management rules which in one way or another left the field open to a comparatively small group of potential claimants.

After discussing the factors that have enabled these particular fisheries to rather readily develop co-management arrangements, the paper briefly reviews the potential and actual principles and practices for determination of legitimate claimants groups and the nature of their rights. The paper also considers some of the implications of shifting the emphasis in allocation of the benefits of a fishery away from rights to share in *access* and toward rights to share in *output*.

Three Fisheries

The observations in this paper are based primarily upon three case studies carried out for my Ph.D. dissertation (Mitchell, 1997). Each of these studies explored a situation in which

commercial shellfish harvesters in British Columbia engaged with government in some form of joint planning or management of a shellfish resource. Following is a brief description of the development of the fisheries management arrangements and in each of these cases and the "communities" involved.

Cases One and Two - Manila Clams

The first two cases concern the manila clam fishery. The manila clam was accidentally imported to British Columbia with Japanese oyster seed in the 1930's. Manila clams flourished in B.C. waters and, by 1983, had become the dominant species in the commercial clam fishery.

Rapid expansion of the intertidal clam fishery began in the recession years of the early 1980's, when limited alternative employment opportunities led to increased participation in the clam harvest, especially by itinerant harvesters, many of them new Canadians of Southeast Asian origin. Rising prices - reflecting an increased popularity of steamer clams in the marketplace - further increased competition for the clam harvest, while older accumulated stocks on many beaches attracted harvesters with the prospect of high catch per digger ratios. It is now believed that the accumulated clam stocks in southern British Columbia have been exhausted, and that future harvests will largely depend on annual recruitment. Total landings and landed values peaked in 1988, followed by dramatic declines.

Until 1989, there was no limit placed on the number or geographic scope of licenses issued for the commercial clam harvest. Since that time, licensing areas have been implemented and, as of January 1, 1998, commercial access to the fishery has been limited to those individuals who have held licenses in five of the six years between 1989 and 1994 (Fisheries and Oceans: April 22, 1997). The Department of Fisheries and Oceans has also embarked on a plan to implement local community management boards in the intertidal clam fishery.

1. Area C Clam Management Project

The Area C Clam Management Project, which is located on British Columbia's Sunshine Coast (some 130 kilometres north of Vancouver) originated in two sets of events: 1) the decision by the Federal Department of Fisheries and Oceans to re-open the Savary Island manila clam fishery on condition that a small, controlled commercial fishery could be implemented and 2) discussions with and proposals submitted by the Area C Clam Harvesters Association and the Sliammon First Nation during a consultation process jointly sponsored by the Federal and Provincial governments concerning reform of the clam fishery in British Columbia. Both the Sliammon Nation and the Area C Clam Harvesters Association supported a community-based management project with a limited number of harvesters and, perhaps more significantly, both groups agreed that, for the purposes of a pilot project, 50% of harvesting opportunities should be ensured to Aboriginal harvesters. At the time the pilot project was suggested, the Savary Island clam fishery (once the single most productive manila clam fishery in B.C.) had been closed for conservation reasons since late 1989. With the closure of Savary Island, many harvesters - especially those from outside the area - elected to buy licenses in other clam management areas, and the number of Area C licenses dropped from 400 in 1989 to fewer than 200 in subsequent years.

The project was launched in early 1994 at a meeting attended primarily by Aboriginal

and non-Aboriginal harvesters from the Powell River area and representatives of the Department of Fisheries and Oceans. Those present supported the restriction of licenses in 1994 to individuals who had held licenses in two of the years between 1991 and 1993. A number of so-called "make-up" licenses were issued to First Nations for distribution to their members, in order to bring the proportion of Aboriginal participation to 50%. As a result of the licensing criterion chosen, few if any, non-resident harvesters qualified for licenses in 1994. This result achieved one of the principal objectives of the local harvesters, both Aboriginal and non-Aboriginal, i.e. to limit access to the commercial fishery to local residents. In the second and third years of the pilot project, the number of licenses issued increased by almost 30%, largely to provide for an increased allocation of licenses to the three First Nations involved in the fishery. At the end of 1995, First Nations harvesters held 60% of licenses in the Management Area.

The Area C project also involved the creation of a community management board, which, in the pilot project phase, had very limited powers, there being neither policy nor legislative mandate to endow the Board with anything beyond an advisory role. The Board did, however, provide a forum for discussion of local commercial fishery issues and a forum for individual members to press for increased participation by their particular constituencies in the clam fishery.

Except for an observer from the B.C. government, membership on the Clam Management Board included only commercial harvesters (one of which informally represented the views of clam harvesters) and First Nations. Neither clam tenure holders, recreational clam diggers, local governments, environmental organizations, nor the "general public" were represented. Sports fishing interests and Savary Island residents were invited to send participants, but declined to do so. Former license holders and aspiring license holders from outside the Management were not included; nor were representatives from regions that are within Area C (i.e. south from the Sunshine Coast to the American border) but are currently closed to clam harvesting, primarily because of municipal and industrial contamination.

2. Heiltsuk Commercial Clam Fishery

In 1992, a commercial fishery for intertidal clams was initiated by the Heiltsuk Tribal Council (HTC) in the vicinity of Bella Bella on the Central Coast of British Columbia. This undertaking, which was negotiated under the federal Aboriginal Fisheries Strategy, is the first off-reserve commercial fishery managed by a Band or Tribal Council in cooperation with the Department of Fisheries and Oceans in which access to the fishery is limited to Band members.

About 90% of the population of the Bella Bella area are members of the Heilstuk Indian Band. This area of the Coast is sparsely populated and can be reached only by air or water transportation.

Commercial clam fisheries on B.C.'s Central and Northern Coast (north of Cape Caution) were closed in the early 1960's, due to concerns about chronic paralytic shellfish poison (PSP). In 1987, the Heiltsuk Tribal Council commissioned a consultant to explore the feasibility of initiating a fishery in parts of the First Nation's traditional territory. Although this report did not make reference to manila clams as a possible target species in the proposed fishery, it had been known since the early 1980's that populations of manila clams extended to just north of Bella

Bella. A DFO survey in 1990 found substantial populations of manila clams, but it was believed that recruitment in these northerly populations might well be sporadic.

In 1992, a commercial fishery was opened under an experimental permit. The following year, DFO and the HTC signed a Clam Fishery Agreement that established detailed roles and responsibilities for the management of the new fishery. Since that time, the new fishery - which relies almost exclusively on manila clams - has proceeded under an Aboriginal Communal License issued annually to the HTC under authority of the *Aboriginal Communal Fishing Licenses Regulations* and the *Fisheries Act.* The Heiltsuk project is the only commercial intertidal clam fishery north of Cape Caution.

The HTC license authorizes the Tribal Council to issue permits to up to 75 harvesters, with an maximum of 50 in the manila clam harvest and 25 in the litttleneck harvest. Any harvester may fish butter clams. Names may be changed at the discretion of the Tribal Council, so long as the maximum number is respected. After an initial period of time in which many members of the community tried their hand, there quickly emerged a "core group" of about 35 - 38 individuals who are responsible for the majority of the harvest.

Harvesters rent the facilities of a fish processing plant owned by the HTC and process their own catch. All clams taken in the fishery are sold to a single buyer.

The HTC, through its Heiltsuk Fisheries Program, is responsible for monitoring and enforcing DFO clam harvesting regulations, carrying out PSP and sanitary surveys, and monitoring clam deliveries, processing and packing. Individuals who are in breach of either harvesting or processing rules and requirements jeopardize not only their own participation in the fishery, but the participation of all those who are governed by the communal license. The Heiltsuk Shellfish Committee, which is composed of both commercial and subsistence harvesters, plays an active part in decisions about the commercial harvest.

The Heiltsuk Fisheries Program (HFP) clam management activities are funded through a combination of federal government funds, fees collected from harvesters**,** and other revenues and in-kind contributions provided by the Heiltsuk Tribal Council. Compared with DFO activities elsewhere on the coast, the HFP provide much more extensive monitoring, enforcement and other management effort. Every clam opening and every delivery and processing operation supervised by HFP staff.

Case 3 - Geoducks

3. The British Columbia Geoduck Fishery (Underwater Harvesters' Association)

The geoduck is one of the largest burrowing clams in the world, and may attain a live weight of more than 3 kilograms. They are extremely long-lived , often reaching ages in excess of 100 years. Geoducks, which are found only in Pacific coastal waters from Alaska to Baja California, are harvested by divers equipped with high pressure hydraulic hoses equipped with a special nozzle, known as "stingers". The largest commercial fisheries for the species occur in Puget Sound in the State of Washington and in British Columbia.

The commercial geoduck fishery is relatively new. It began in Washington State in the early 1970's and the first harvest permits were issued in BC by DFO in 1976. Within the next few years, landings rose to more than 2,000 tonnes and 95 licenses were issued. Alarmed by the explosive growth in the fishery (particularly in light of very sparse information concerning the status of stocks, spawning success, and recruitment), DFO announced a license moratorium effective June 1979. In the same year, aggregate quotas were established. In 1981, DFO restricted geoduck licenses to those with landings of more than 136 tonnes in either 1978 or 1979. This decision resulted in a total of 55 licenses, the same number now in existence.

Rapid growth in geoduck landings was accompanied by rising prices. The average price in 1977 was $.37 per kilogram; this climbed to $.81 per kilo in 1980. The reported landed value of geoducks rose from $90,000 to $3 million in a three-year period, and the geoduck fishery rapidly became one of the largest employers of commercial divers on the B.C. coast.

Between the late 1970's and the mid-1980's, the fishery followed a consistent pattern: increased harvest efficiency; landings in excess of quota by as much as 80% despite shorter and shorter openings; and relatively stable prices. By the mid-1980's both harvesters and DFO were fully aware of the extent and severity of problems in the geoduck fishery. About this time, prices began to rise, and license holders who fished mainly in the Strait of Georgia began to focus on supplying the lucrative live market, but were hampered in this process by short-lived “shotgun” openings in the heavily fished South Coast. Under the leadership of a new president, the Underwater Harvesters Association (the geoduck harvesters’ group that had been founded in 1981) began to seriously debate the idea of individual vessel quotas. In the spring of 1988, the Association presented DFO with a formal proposal recommending individual quotas in the fishery, with equal shares of the coastwide quota to be allocated to each license.

Support for the proposal was strongest among license holders with smaller vessels and histories of smaller landings. Opposition came from “highliners”, that is, harvesters with a history of very high landings, whose annual harvest would be much reduced under the proposed allocation of quota. Most of the ‘highliners” were active in the North Coast fishery.

Despite this internal opposition, however, and in the face of a rather lukewarm response by DFO, Individual Vessel Quotas (IVQ’s) combined with area licensing were implemented in the summer of 1988 on a pilot basis. The new arrangements committed license holders to pay for independent dock-side monitoring and validation of catch. (As a small number of license holders continued to refuse to support the proposal, the others contributed additional funds to pay for the required activities.)

Since the implementation of IVQ’s, prices for geoduck have increased dramatically and the catch is now sold almost exclusively into live markets in Asia. Fewer divers were employed in the fishery due to a reduction in the number of vessels, a drop in the average crew size, and a decrease in the Total Allowable Catch (TAC). The financial benefits of new regime have been captured mainly by license holders, although divers who remain in the fishery are employed for more days per year under improved working conditions. Absolute returns to crew have almost certainly increased. Landings have been less than, or very close to, the TAC in every year since

the implementation of vessel quotas. License holders, through the UHA, pay for a large part of the costs of fisheries management, including research and enforcement, and are currently testing approaches to enhancing geoduck stocks.

By 1995, the landed value of the fishery had grown to more than $40 million, divided among 55 licenses. Not surprisingly, the distribution of rents in this fishery generates debate. While license holders argue that a large proportion of the rents are remitted to the Canadian public through the income tax system, others argue for an increase in the number of licenses (as a way of sharing the wealth) or, more specifically, as an element of treaty settlements with coastal First Nations. The initiation of geoduck aquaculture may also have significant implications for an industry that has benefitted from fairly rigorous supply management and closely held, closely coordinated access to the fishery.

Confirming Communities and Creating Co-Management - Key Factors in the Three Cases:

The Area C Clam Management Project

The principal factors that encouraged the emergence of a group of stakeholders that were prepared to co-operate to at least some extent in the clarification of rights to the Area C fishery and the development of co-management arrangements to exercise those rights are as follows:

1. A pre-existing management decision by DFO to close the most productive fishery in the area. Without Savary Island, Area C was not an attractive harvesting destination for non-resident clam diggers. By establishing limited entry criteria based on recent participation in the fishery, DFO and local harvesters were able to achieve the exclusion of non-resident harvesters without having to deal explicitly with the issue of qualification by area of residence.

2. Extreme spatial heterogeneity of productive clam beaches. In Area C, clam harvesting areas consist of Savary Island, and everywhere else. Savary Island provided a focus for co-operative effort among several communities, and across ethnic lines, that might not have been forthcoming (or seen as necessary) if the clam resource were more evenly distributed throughout the region.

3. The evolution of law and policy concerning the status of aboriginal rights to fishery resources in British Columbia. As this factor is common to both of the intertidal clam fisheries cases, I will defer its discussion to my comments on the Heiltsuk Commercial Clam Fishery.

4. The absence of organized and committed competition for harvesting opportunities in the Area C fishery permitted an arrangement that would have been much more difficult to achieve in other circumstances. The particular situation in Area C permitted DFO to respond to First Nations demands and to test the concept of limited entry with relatively little risk of provoking waves of outrage from the B.C. fishing community. In contrast, one can imagine the response if DFO had agreed to allocate 50% (and later 60%) of licenses to First Nations in a salmon or herring fishery, even with the agreement of local license holders. Officials, as well as clam harvesters, anticipated gains from institutional

innovation in Area C, and acted accordingly.

Although there was little explicit articulated resistance to the basic criteria for licenses limitation, it must be recalled that: a) clam harvesters are not well-organized as interest groups; b) many of the non-local harvesters are new Canadians (and may not have been able or willing to express their concerns); and c) in the absence of license limitations elsewhere on the South Coast, excluded harvesters were able to acquire clam licenses in other management areas, even if those areas offered poorer harvesting opportunities. Widespread poaching in the clam fishery - which is difficult and expensive to monitor - also provides a "safety valve", as it were, for excluded harvesters.

Among the principal factors that limited the extent of co-operation among stakeholders and encouraged ongoing conflict about allocation of rights to the resource are as follows:

1. Ethnic and geographic heterogeneity among sub-groups in the fishery contributed to communication and other difficulties in developing a coherent community of resource user, particularly as groups saw the new regime as a forum for achieving gains for "their" group.

2. Government legal, policy and other arrangements must permit, if not promote, the pursuit of gains to cooperative action. In this project, it was legally impossible for harvesters to levy landing taxes or raise other revenues from harvesters for monitoring, enforcement or other purposes; to establish individual or joint harvesting areas; to enhance the fishery; to establish rules for selling or otherwise transferring property rights in the fishery; or to sanction non-compliance. The only clear and possible gain to collective action was to exclude non-resident harvesters from the local fishery. In the absence of markets for licenses, or any other provisions for entering and exiting the fishery, the only avenue open to aspiring harvesters was to exert political pressure on the Clam Management Board and DFO, or, in the case of licenses distributed to First Nations, upon Band governments. The absence of a clear, transparent, widely accepted method for allocating and transferring clam licenses contributed to persistent conflict both within and between groups of clam harvesters.

3. The clam harvest has traditionally been an employer of last resort, and is often one of the few ready sources of cash income for marginally employed individuals in coastal communities, especially during the winter months. The nature of the industry - which requires low capital investment, and little training or specialized knowledge - does not create many incentives for individuals (or governments) to invest in an industry which is seen primarily as a source of supplemental income and an "economic safety valve" (Pinkerton and Weinstein, 1995:104).

Even with the reduced numbers of harvesters that resulted from license limitation, there are still far too many licensed harvesters relative to annual harvesting quotas to provide full-time incomes, and, in the absence of any sort of tenure, individual or group quota or other secure claim upon the fishery, few incentives to invest for the future.

Heiltsuk Commercial Clam Fishery

Factors which contributed to the uncontroversial (indeed almost unnoticed) implementation of an exclusively Aboriginal, communal clam fishery on B.C.'s Coast include the following:

1. There had been no commercial clam fishery in the area for more than twenty years; there had never been a fishery for manila clams. Thus, there were no individuals or groups whose interests were **directly** affected by the allocation of exclusive access to this particular fishery.

2. The population of the area is predominantly of Aboriginal ancestry and most belong to the same First Nation. This high degree of cultural and political homogeneity certainly contributed to the ease with which the Heiltsuk First Nation was acknowledged as the legitimate partner in the Clam Management Agreement. There was no other obvious community of stakeholders. Further, the Heilsuk Tribal Council is legally constituted to negotiate on behalf of a community of potential resource users. Thus, a legally binding co-management contract could be signed between two governments, rather than between a government and an association or coalition of individuals and interests that might or might not endure.

3. Policy and legislative provision for communal licensing. As a result of the communal license, each permit holder is, to some degree, a hostage for the good behaviour of others. Monitoring and enforcement are facilitated by the communal nature of the fishery (which tends to encourage harvesters to monitor their peers), the small number of harvesters involved, the limited geographic extent of the fishery and its relative isolation. It is probably not economically feasible to market the clam harvest except as a "package" large enough to justify a processor's dispatching a packer boat from northern Vancouver Island.

4. Comparatively little competition for harvesting rights. While this fishery has no formal provisions for individual quotas, the HFP initially established a per-harvester limit to encourage the broadest possible participation of Heiltsuk band members in the fishery. This quota system has not been enforced, however, as the core group of harvesters is small enough, and the aggregate quota large enough, that a "ceiling" on individual harvests has not been necessary as a rationing device. There is, however, competition for the clam harvest in areas closest to the communities, and this competition has resulted in the need for close monitoring to prevent poaching in areas closed for conservation or human health reasons.

5. The Aboriginal Fisheries Strategy, the treaty negotiation process, and the evolution of legal clarification of Aboriginal rights in lands and resources have provided incentives, mandates and mechanisms for the recognition of, or allocation to, First Nations of rights to fishery resources. These processes have also enabled substantial funding to flow to First Nations management and co-management arrangements, funding which likely provides for considerably more intensive management activities than are delivered by DFO or other federal or provincial agencies.

Even within a small, apparently homogenous group, however, incentives to underinvest and overexploit persist in the Heiltsuk fishery and have, so far, been dealt with only by punitive regulatory approaches. To overcome these problems, specification of property rights at the individual or family/crew level may be required. The latter may be quite consistent with traditional Aboriginal systems of allocating rights to natural resources on a family or "house" basis.

B.C. Geoduck Fishery

Several contextual and institutional variables have contributed to the emergence of a relatively cohesive community of resource users and the development of extensive participation of harvesters in the management of the geoduck fishery:

1. Biophysical, technological and market attributes. As a slow-growing, long-lived sedentary species, geoducks are, on the one hand, vulnerable to being "mined" and, on the other hand, well suited to supporting a conservative, long-term, sustainable harvest. The species is abundant within its range, which allows for a coastwide harvest to be widely dispersed so as to reduce pressure on the most accessible stocks. At the same time, the species is not found outside the Pacific Northwest, which enhances the gains to be achieved from supply management. High and rising prices have muted harvester resistance to declining quotas, permitted substantial sums to be devoted to fishery management and investment, and increased the incentives for individual harvesters to monitor and sanction 'quota busting' by other license holders and poaching by illegal harvesters.

2. User attributes and institutional arrangements. The commercial geoduck harvest is little more than two decades old, and has never had more than 100 participants. Limited entry was introduced into the fishery in 1981, and an IVQ system was introduced within 10 years of limited entry. In fisheries policy terms, the institutional transformation of the fishery took place a breakneck speed, and resulted in the creation of a small, relatively homogeneous group of harvesters whose history of joint action began within five years of the initiation of the fishery.

3. The current management arrangements were established at a time when there was little competition for the fishery resource outside the small group of existing commercial harvesters. Thus, there were no serious conflicts over the *distribution* of benefits to collective action. The small size of the group minimizes costs of organizing the fishery to distribute effort and to minimize the number of landing ports for monitoring and validation of the catch.

However, the success of the fishery - especially in the absence of any pre-existing arrangements for distributing economic rents outside the group of license holders - is generating its own instability. As noted above, pressure for the issuance of new licenses and the development of a potential geoduck aquaculture industry may both undermine the perceived legitimacy of the current "community" in the fishery and fragment the co-management arrangements that have developed over the past several years.

Meanwhile, in another part of the B.C. fishery

The development of meaningful co-management arrangements in B.C.'s most famous and controversial fishery is severely handicapped by the absence of authoritative allocation of rights in the fishery. The following extract from the report of Dr. Arthur May, who was commissioned by the Federal government to recommend principles and processes for allocation, summarizes the positions of key stakeholders in the allocation debate:

> Divisions about how to set 'initial allocations' and even about the interpretation of that term, were widespread and sharp. Some First Nations' groups were concerned that any statement regarding initial allocations could prejudice their land claims and treaty negotiations. Recreational groups generally argued that allocation priority, after conservation that Section 35 fish, should be accorded to the highest economic value....the recreational representatives argued that recreational use of the salmon should take priority over the commercial sector. Commercial harvesters were largely of the opinion that historical catch shares should be the starting point for initial allocations. Within the commercial harvesting group there were a variety of suggestions for what the actual historical period should be. On the other hand, the processing sector placed emphasis on their future requirements as opposed to history. Communities expressed opinions that the setting of initial shares should take into account the implications for their economies and the degree to which they were dependent on that resource (May, 1996:11-12).

May's conclusion - not surprisingly - is that:

> there is no possibility of building consensus among all interested parties on principles or policy frameworks to guide the conservation and utilization of Canada's Pacific salmon fisheries... and given the existing balance between resource availability and capacity to exploit, there is no set of policies that can avoid negative consequences somewhere. (May, 1996:ix).

Without an imposed solution - which governments are notoriously loath to implement - it is difficult to foresee how successful collective action, including co-management, can be achieved with respect to either resource extraction or investment. (The above distributional conflicts do not include land-based interests who are concerned that conservation policies, such as setbacks from fish-bearing streams, will infringe on their perceived property rights.) Compared with the clam and geoduck cases described above, the salmon fishery has few of the biophysical, technological, economic, social, or historical attributes that are likely to facilitate "obvious" solutions to distributional conflicts. Such resolution may only come at the second of the two likely points for institutional reform described by Libecap (1989) - when the resource is so badly depleted, and so few users are still in operation, that the benefits of collective action grossly outweigh the distributional impacts. If this is the case, it is to be hoped that this point is reached before the resource is irretrievably damaged.

Potential bases for participation

In principle, there are a number of criteria which could be established for determining the most appropriate community or communities to which property rights in a fishery could be

allocated and with which government could enter into co-management arrangements. ("Communities" is used broadly here to denote groups of individuals with common interests). Criteria could be applied singly or in combination with each other:

. Individual history of participation in the fishery;

. Family, including extended family or clan, history of participation in the fishery;

. Nature of participation in the fishery (e.g. as vessel owner, plant owner, crew, shoreworker);

. Extent of capital investment in the fishery;

. National citizenship;

. Membership in a First Nation;

. Residence in a coastal (or upstream) resource-dependent community;

. Likelihood of making the best financial use of the resource;

. Likelihood of maximizing the economic value of the resource over the long term; or

. Likelihood of maximizing all values of the resource and its ecosystem

Not surprisingly, stakeholders in B.C. fisheries generally adopt those principles or criteria which best support the retention and aggrandizement of their particular position in the fishery (see extract from Dr. May's report, above). The federal government avoids explicit criteria and has attempted historically to respond (in varying degrees) to economic, social and conservation concerns. The costs of attempting to please all stakeholders, at least a little, and to avoid making explicit choices among priorities, can be seen in the collapse of the Atlantic cod fishery and in the over-capacity and over use of nearly every other commercial fishery in Canada.

Would sharing output rather than sharing access make a difference?

With the exception of recognized, although still incompletely defined, aboriginal rights to the fishery resource, fishery resources in Canada belong to the people of Canada as a whole. One of the commonly-stated grounds upon which individuals and organizations base their opposition to the creation of new - or different - property rights in the fishery is the assertion that such action amounts to "privatization" of a public resource and thus denies the public its rights to a commonly-owned benefit. Those who make these assertions do not, however, suggest that there should be no limit to the number of individuals who may (legally) harvest fish, nor to the number of fish they may take. Everyone - or almost everyone - recognizes that limits must be placed on the number of people who can physically take part in a fishery, and that limits must be placed on the extent of that participation.

If the people of Canada are, in fact, the owners of the resource, then they ought, by rights,

to receive all of the economic rents in a fishery which is pursued in the most efficient manner possible. From this perspective, those who actually harvest fish are no more than the agents of the owners of the resource, and have no special claim to other than normal returns to labour or investment, adjusted for risk.

Even if it were argued that certain individuals, organizations or communities merit a larger share of the rents, an approach that emphasized *first* maximizing returns (including non-financial returns) and *then* distributing the rents might offer some advantages in resolving allocational disputes over fisheries, and in identifying and supporting the most appropriate "communities" to assume management responsibilities. As Lueck (1993) observes, the incentives created under arrangements for sharing *access* to a resource are different from those created by sharing the *output* of a resource. Consider a choice among rules that a) create private ownership (as in the form of fixed payment contracts); b) share access to common property; or c) share output from common property:

> Fixed payment contracts precisely ration input use by explicit unit pricing. Common property contracts ration by making each group member a partial residual owner, thus avoiding the costs of monitoring and pricing input units. In particular, output sharing contracts take advantage of cooperative production, but require shared output measurement, while access sharing ignores co-operative production and avoids output measurement (Lueck, 1993:45-46).

As between access sharing and output sharing,"...(with) output sharing, group members shirk when providing effort. With access sharing, members overuse the asset" (Lueck, 1993:49).

Given that most fisheries are characterized by overuse of the asset (not by shirking of effort), does it not seem reasonable to alter ownership rules, and thus incentives, by shifting away from attempts to fairly divide access to a common pool resource, and toward attempts to divide output? Fish are, after all, readily divisible either "in the flesh" or once converted to cash. Insufficient effort is not the problem in fisheries; indeed, one might well embrace incentives for harvesters to be "lazy". Individual harvesters would have incentives to press their colleagues to increase fishing effort so as to maximize joint returns, but given that individuals would receive only a portion of the returns to other harvesters' efforts, such pressure would be mitigated by the costs of monitoring and enforcing the behaviour of all other harvesters. If rights to output were fully transferable, it would be possible, of course, for more efficient harvesters to buy out less efficient harvesters, thus increasing the total amount of effort and the size of each individual share. If, however, harvesters are entitled only to normal profits, and not to economic rents, this incentive, too, would be muted.

The allocation of right suggested above would not be appropriate for investment as opposed to extraction activities. It is difficult, if not impossible, to divide the output of habitat restoration, research, and so forth into individual shares, and reduction of effort, in these cases, is not the objective. It would be preferable for these activities to be undertaken by governmental or quasi-governmental organizations that are endowed with a share of the rents from the fishery (and perhaps from other activities that negatively affect fisheries, such as municipal development and logging) that are then applied to research, management, enhancement and other types of

investments.

Who should be the players under arrangements that a) allocate rents to the public, rather than to harvesters; b) share output from the fishery, rather than access to the fishery; and c) allocate the benefits of the fishery to those who are most likely to maximize the long-term well-being of the resource, including its non-financial values?

Community governments (municipal, regional, and Aboriginal) may be strong contenders as central players in co-management arrangements for B.C. fisheries, for at least three reasons:

1. If spread among all the "owners" (i.e. all Canadians), the individual share of economic rents from fisheries would be too small to be noticeable, let alone to encourage individuals to exert effort to maximize their tiny share. Aggregated at the community level, however, the share of rents could be quite significant. As Hannesson (1997:243) observes,

> When it is deemed inequitable to let the fishing rents accrue to the industry, we need to look for a community that is 'worthy' of receiving those rents and at the same time small enough that these rents make a difference so as to provide incentives to husband the resource properly. Vesting the ownership in institutions representing the coastal communities of which the fishing industry is a part is one option.

2. Many, though not all, of the externalities generated by decisions made in a fishery may be internalized at the community level. Better management decisions may result from processes that are influenced by a broad spectrum of community interests, especially if these decisions have significant financial and other consequences for many members of the community (including those who have no direct stake in fishing). There is no more innate virtue in local communities than anywhere else, of course, so institutional arrangements would need to include provisions for limiting the expenditure of newly acquired resources in the pursuit of political goals or personal enrichment of public officials (Hannesson, 1997). By nesting community management within rules established by more senior governments, it ought to be possible to limit the risk of locally-concentrated interests jeopardizing the long-term well-being of fisheries and ecosystems and to ensure that resources are devoted to serving interests that extend beyond the boundaries of the community government.

3. Community governments are legally constituted entities, with established rules and capacities. Such governments represent a substantial pool of social capital. Rather than "re-invent" management organizations, perhaps we should seek out ways of making community governments more knowledgeable, capable and motivated in the exercise of resource management.

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