ALLOCATION OF CATCHES AMONG FISHING SECTORS: OPPORTUNITIES FOR POLICY DEVELOPMENT

by

Peter H. Pearse

Prepared for a Keynote address at the

SHARING THE FISH CONFERENCE 06
Allocation Issues in Fisheries Management, Perth, Australia
February 26 to March 2, 2006
Introduction

The theme of this conference — the allocation of fish resources — refers to a pervasive challenge in fisheries management. Traditionally, it has also been a contentious subject, and for centuries it has preoccupied fishers and fisheries managers. I have been asked to comment on a narrow slice of the broad allocation problem; that is, the question of allocating catches among the distinct groups or sectors of fishers that often share access to a fishery.

In preparing this paper I found that although there is now a wealth of literature on fisheries allocation issues, there is not much on allocation among sectors. But I also found that some new problems associated with sectoral allocations are emerging, and there is growing interest in solutions. Devoting a session of the conference to this subject is timely.

To introduce this subject, I thought it would be most useful to begin with a brief outline of the issue of inter-sectoral allocation and the arrangements fishing nations have usually adopted to deal with it. I will suggest that the reason why this is so much more onerous an issue in fisheries than it is in the management of other resources is not because fish are common property but because of the way governments grant rights to the harvest. Then I will turn to recent innovations in fishing rights, notably individual quotas, some new pressures these are putting on sectoral allocation arrangements, and opportunities to improve them. Throughout, I want to emphasize the link between the form of fishing rights held by fishers and their ability to manage their fisheries, and draw attention to policies that will enable self governance.
Fishing Sectors and Inter-Sectoral Allocation

I do not intend to focus my remarks on any particular country but, to begin, I want to illustrate how my discussion fits into the general issue of allocation with reference to a fishery I know quite well — Canada’s Pacific salmon fishery. This fishery is based on five species of salmon and hundreds of separate stocks that sweep down from the northeast Pacific along the coast of British Columbia on their way to spawn in their natal rivers and streams.

Each year, with only meager advance information about the abundance of the stocks, fisheries managers plan fishing operations to achieve a number of allocation targets. First, they allocate the stock between the escapement needed to sustain the resource and the total allowable catch. The allowable catch is then allocated between Canada and the United States according to a formula prescribed in a treaty between the two countries. Next, from Canada’s allocation, the managers subtract the estimated requirements of the aboriginal ‘food fishery’. The remainder is allocated between the recreational and commercial fisheries. The commercial allowable catch is then allocated among the three sectors of the commercial fishing fleet — the seine, gillnet and troll sectors — according to established policies.

Finally, these allocations are broken down among the several species of salmon and distributed among several fishing areas, to provide a ‘target’ allocation for each gear sector in each fishing area.

As the salmon approach, information accumulates about the size of the runs, and estimates are made of the potential catches for each sector in each area. The managers must regulate fishing to allocate the fish among all the competing demands on them promptly and progressively as the salmon pass through a succession of fishing areas.

To complicate matters further, the order of priority assigned to these demands is exactly opposite to the order in which the fish pass through the fisheries. First, the stocks pass
through commercial and recreational fishers, mainly at sea; but these are the Department of Fisheries’ lowest priority. A higher priority, a constitutional requirement, is to provide for aboriginal catches for food and cultural purposes, mostly in rivers and estuaries. And its top priority, prescribed by statute, is to ensure enough spawners of each stock escape through the fisheries and reach their spawning grounds in the headwaters of rivers and tributaries. So managers must plan in reverse, providing for each of the main fishing sectors in anticipation of higher priority demands on the fish further along their migration path.

This allocation procedure is admittedly an extreme example of the challenge faced by policy-makers and fisheries managers, but it illustrates a number of general issues that I refer to later. One is that the task of allocating stocks can arise at several levels, from allocations among individual fishers to allocations among nations, both of which are subjects of other sessions at this conference. Our session is concerned with allocation among sectors, which I define as separately identifiable, and usually separately managed, groups of fishers sharing the catch in a fishery.

A second observation is that sectors are identified in a variety of ways. Some are distinguished by the gear they use, such as a seine sector and a gillnet sector that share the catch. Sometimes sectors are identified by where they fish, such as an inshore sector and an offshore sector. Others are distinguished by their purpose in fishing, such as the commercial, recreational and aboriginal sectors. The task of allocating among commercial and non-commercial sectors raises particularly challenging legal, social and practical questions.

Third, sectors are often subdivided into sub-sectors. A commercial fleet may be divided into gear sectors. The recreational sector may consist of a commercial charter-boat sector and an independent fisher sector. Moreover, a sector is often split into areas or management units.
And, as my salmon example illustrates, these various sub-sectors may call for separate allocations.

Fourth, allocation policies rest on a variety of policy instruments — constitutional rights, statute law, treaties and administrative policies and practices.

Fifth, allocations among sectors vary widely in terms of their specificity, from one extreme of no deliberate allocations at all between competing sectors, to a specific number or weight of fish at the other. Intermediate arrangements include a general priority assigned to one sector over another, the ‘target’ shares I referred to in the salmon fishery which are not binding on either the fishers or the managers, and percentage entitlements for each sector.

The important point for this discussion is that sectoral allocations are often loosely defined and lack a secure legal or institutional foundation, which makes the rights of fishers more uncertain. Later, I draw attention to commercial fishers’ individual quotas, which often give their holders a secure share of the commercial allocation. But where they share the catch with non-commercial fishers and the allocation between them is not defined, the security of their individual quotas is undermined.

The salmon example also illustrates certain difficulties governments face in allocating catches among sectors. A major constraint is the differing legal foundation for claims on the catch among sectors. Typically, aboriginal and treaty rights are accorded some priority. This, and pressure from all fishing groups to protect their historical patterns of use, constrain managers’ scope for reallocating catches among sectors.

Another complexity, where individual fishers’ entitlements are not quantified, is that managers cannot directly control the sector’s catch. Under traditional open access or limited licensing regimes, fishers have the right to as many fish as they can catch. To implement allocations, governments must resort to manipulation of fishing effort through restrictions on
fishing times, places and gear. This makes it difficult to precisely achieve allocations. It also aggravates the politicization and contentiousness of allocation decisions, and the likelihood that they will not reflect any consistent economic or other criteria.

Finally, fishing sectors benefit in different ways from the fish they harvest and so value them differently. Across the commercial, recreational and aboriginal sectors there is no common denominator for the value of fish and no way of comparing the values of fish caught in the various sectors. This makes allocation difficult if the objective is to allocate the fish among sectors in order to realize the highest possible value.

This is not to say that the objective of fisheries management should necessarily be to maximize the value of the catch; other social and legal considerations may call for priority in managers’ decisions. But economic benefit is usually at least one of the objectives of fisheries policy. For the purposes of this discussion I will assume that the policy objective is to maximize the value realized from the resource, bearing in mind that the economic benefits generated, especially in non-commercial fisheries, are often difficult to measure.

**Allocation and the Evolution of Fishing Rights**

The task of allocating catches in a fishery is inextricably linked to the form of fishing rights held by those who fish. To understand the opportunities for improving allocation arrangements it is helpful to bear in mind the way fishing rights have been changing and are likely to change further.

My colleague at the University of British Columbia, Anthony Scott, has traced the origin and development of fishing rights in England and other western countries (Scott, 2004). A major turning point was the signing of the Magna Carta in 1215. At that time most fisheries were in rivers and estuaries, involving fixed gear such as weirs and traps attached to stream
banks and beaches. Consistent with this link to the land, rights to fisheries were held by the owner of the bordering land. Landowners became upset when King John of England began overriding their property by granting fishing rights to outsiders. So the barons inserted a clause in the Magna Carta which committed the king to desist from granting exclusive fishing rights in the Thames and other rivers and, with drawn swords at Runnymede, persuaded him to agree.

Gradually, the courts expanded this to mean that neither the king nor anyone else could grant exclusive fishing rights to anyone in any tidal waters. Therefore no one could hold exclusive rights or exclude anyone else from fishing, which led to the doctrine of a general public right to fish in tidal waters.

Two other legal concepts contributed to the demise of proprietary interests in fisheries. One was the ancient ‘rule of capture’, which held that no one could own wild animals or fish until they were caught. The other was the doctrine of the freedom of the seas articulated by the Dutch jurist Hugo Grotius in 1609, which meant that no one, and no nation, could own the high sea or restrict anyone from fishing.

These three legal principles — the public right to fish, the law of capture, and the freedom of the sea — together left almost no scope for property rights in marine fisheries.

For centuries there appeared to be no need to ration access to ocean fisheries because they were believed to be inexhaustible. It was not until the 20th century, with convincing evidence of decline of heavily fished stocks, that the threat of overfishing was widely acknowledged.

However, although governments had lost the power to grant fisheries as property, they still had the power to regulate fishing, and the second half of the 20th century saw an
explosion of regulatory activity, mostly directed toward protecting stocks from overfishing by burgeoning fishing fleets and free-for-all fishing pressure.

Some of the new regulations changed the allocation process, notably the limitation of fishing licenses which spread quickly through western fishing nations in the 1970s to help control the overexpansion of fishing fleets and excessive fishing pressure. Once licenses were limited, license holders, collectively, held an exclusive right to the catch. The licenses took on a market value, and the allocation of rights of access began to be influenced by market transfers of licenses. But governments still had no direct way of allocating catches among individual fishers, and their allocation among sectors in a fishery could be accomplished only indirectly, by manipulating gear and fishing effort.

Almost any regulation of fishing gear, seasons or locations affects commercial, recreational and aboriginal fishers differently. To achieve objectives of equity as well as conservation as they expanded their regulatory control, governments were forced to adopt different regulations for each sector. Doing so undoubtedly had the effect of defining, and in some degree creating, separate sectors and sub-sectors, each with its own permitted methods of fishing and regulatory regime.

These events, coupled with the common property character of fisheries and the difficulty of measuring the value of fish in alternative uses, left governments with the increasingly onerous task of allocating catches among sectors. Contention is inevitable because more to one sector means less to others. It has sometimes proven so difficult that governments have acceded to pressure to increase the allocation to one without offsetting reductions in others, leading to overfishing, stock depletion and ultimately losses for all. The dismal state of many of the world’s ocean fisheries owes much to this difficulty.
The introduction of individual quotas in the late 1970s and 1980s was a new turning point. The economic effects of defining fishing rights quantitatively have been profound, because the specification of each fisher’s entitlement to the catch eliminates the wasteful competitive race for the fish and the associated overexpansion of fishing capacity, high costs and dissipation of resource rents.

Moreover, individual quotas have increased the value of catches by enabling fishers to take the time and effort to clean and process fish for higher prices. And perhaps most important in the long run, they have created strong economic incentives for fishers to cooperate in conserving and enhancing stocks and in managing fishing, as these measures all increase the value of their fishing rights. Increased profitability has also facilitated cost recovery which, coupled with fishers’ participation in managing their fisheries, has improved administration and management through increased transparency, outsourcing, and pressure for cost efficiency.

The individual quota management system, pioneered by New Zealand, Iceland, Australia and Canada is now an important element of fisheries organization in many western countries and in hundreds of fisheries, and is associated with widespread improvement in both the management of stocks and the economic performance of commercial fisheries (Arnason, 1996).

Through this evolution, rights to fish have gradually acquired the attributes of property, with increasing duration, security, exclusivity, transferability, divisibility and flexibility. Back when anyone could fish, fishers held no property rights because their rights were no different from those of everyone else. When they were required to hold licenses, and licenses were restricted in availability, these fishing rights began to take on these characteristics of property, and they have been progressively strengthened in some of the more advanced fishing regimes.
through longer duration, even perpetual terms, greater transferability and divisibility (especially under individual quotas) and increased security against interference from outsiders.

Often, in the face of anxieties about “privatization” of the fisheries, governments have denied that they were creating property rights, and there has been a good deal of analysis of the law on this question (Department of Fisheries, 2005). The legal issue varies among jurisdictions, but governments everywhere claim the right to regulate fishing and, as Anthony Scott has explained, it was their progressively restrictive regulation to protect stocks from overfishing that led to restrictive licensing, individual quotas and other forms of fishing rights that, incidentally, have the attributes of property needed for efficient organization of economic activity.

**Inter-Sectoral Allocation and Transferability**

In the multi-sectoral fisheries I know, the distribution of the catch among sectors, whether they employ individual quotas or not, is not highly systematic, precise or logical. Allocations among sectors are often based on vague criteria, influenced more by established positions than by analysis of the benefits of alternative ways of utilizing resources; and they offer little security to the fishers involved. Moreover the rights held by fishers are limited in important respects. Some are not transferable, or their transferability is restricted. Where individual quotas are employed, they typically deal only with allocation of the catch within the commercial sector. Transferability rarely extends to transfers from one sector to another, even between sectors of commercial fishers, and even when they all employ individual quotas.
Today, the arrangements for allocating catches among sectors are becoming strained in a number of countries, and there is growing interest in methods of redistributing allocations. Pressure to change catch shares is not a new phenomenon, of course; it is to be expected wherever there are two or more sectors in a fishery. But particularly notable today — and the issue worth noting — is the increasing difficulty in reconciling the individual quotas of commercial fishers with the demands of aboriginal and recreational fishers.

Thus, in New Zealand, expanding recreational catches in some fisheries, and the resulting erosion of commercial fishers’ quotas, has become an urgent issue (Edwards, 2000). Similar concerns are developing in Australia, Canada and the United States. Both New Zealand and Western Australia have recently launched major reviews of their policies on allocation among sectors. Other jurisdictions are examining ways of transferring fishing rights among commercial sectors, and a number have been developing arrangements for transferring rights from commercial to aboriginal fishers.

The new pressures being felt in a number of countries arise from the conflicting interests of commercial fishers operating under individual quotas and non-commercial fishers which do not. The general problem is that the allowable catch available to the commercial sector, to be allocated among the individual quota-holders, is determined by subtracting from the total allowable catch, an allowance for the non-commercial sectors. These allowances are not fixed, and the criteria for determining them are more or less vague. Commonly, the demands of both the aboriginal and recreational fishers have been growing, and so have their catch allocations. As they grow, the residual catch available to the commercial fishers shrinks, undermining the security of their fishing rights.

The contribution of the individual quota system to this conflict is the increase in value it has generated for the commercial sector; the substantial value capitalized in fishing rights has
raised the stakes in this erosion of commercial access to resources. Otherwise secure individual quotas are rendered insecure by the uncertainty about sector shares. This problem is particularly acute: where the catch is shared and highly valued by both commercial and non-commercial fishers but the entitlements of each sector are not defined; where only the commercial sector employs individual quotas and; where the recreational catch is growing—such as snapper in New Zealand and Western Australia, and halibut in the United States and Canada.

This conflict between the sectors with individual quotas and those without has led some commentators to suggest that when quota systems are adopted all sectors should be included. This advice comes too late, of course, wherever individual quotas are already in place for commercial fishers. And, as a more general matter, if the quota system had to be acceptable to all sectors before being introduced, there would probably be few in place today.

Moreover, there might be some confusion about the root of the problem. It is not due to the lack of individual quotas in all sectors — it is due to the lack of a clear definition of each sector’s share in the total catch. The difference is important; the solution requires only a clear specification of each sector’s share of the catch.

**Improving Inter-Sectoral Allocations**

There are two broad avenues for improving allocation methods: build on the governmental model and provide for market mechanisms. The governmental approach leaves the determination of sectoral shares to political or administrative decision-making. The advantage is that it builds on existing processes, has structural simplicity, and is responsive to values and interests other than economic ones. But it preserves all the shortcomings of governmental decision-making, especially insofar as it does nothing to encourage utilization
of the resource to best economic advantage; it aggravates competitive lobbying among groups with the governmental authority at the centre of contention; and it maintains a competitive barrier to cooperation and collective action among those who share the rights to fish in a fishery.

An efficient inter-sectoral allocation system must meet two requirements: certainty about catch shares so fishers can organize their operations efficiently, and some means of redistributing the shares to ensure the most beneficial utilization as conditions change. Governmental decision-making does not lend itself well to reconciling these needs. To calculate the optimal sectoral allocations governments would need enormous amounts of information and they would inevitably have difficulty altering sectoral shares. But this is a role markets play often and effectively, as demonstrated in the allocation of individual quota rights among commercial fishers. With minimal information other than the price of fishing rights, fishers can bargain with other fishers to solve these problems, which governments cannot do.

The present obstacle to harnessing market forces is that the rights held by fishers in one sector are typically not transferable to other sectors and, even if they were, market trading among sectors would be frustrated wherever the catch share of any sector isn’t clearly defined. To correct this; well-defined initial shares in the catch must be established for each sector in the fishery, and these shares must be divisible and transferable.

**The Need for Defined Sectoral Shares**

For markets to function efficiently in allocating fishing rights among sectors to best advantage, the rights must be well-defined and secure in all sectors. This calls for an initial allocation for each sector. Establishing starting positions has often proven to be the most
difficult step in introducing individual quotas, but for sectoral allocations there are usually established positions, priorities or targets of some sort already in place. The problem is that they are typically vague, often encumbered by policies giving preferential treatment to one sector over another, and for other reasons unreliable and insecure. The need is for a clearly-defined share of the catch for each sector, secure enough to serve as a basis for bargaining and trading in fishing rights.

The benefits of well defined shares for each sector extend beyond their stimulus to trade. They also sharpen incentives to invest in stock rebuilding and enhancement, otherwise blunted by uncertainty about how much of the increased yield may be taken by others. They will facilitate treaty settlements with First Nations who, in treaty negotiations in Canada at least, have sometimes been reluctant to accept fishing rights to be transferred to them from commercial fishers because the commercial rights, being calculated net of growing recreational allowances, are seen as too uncertain. And defined shares focus the incentives and effort of fishers in all sectors of the fishery on opportunities to improve their resource base and management efficiency.

It should be emphasized that clear specification of each sector’s share of the catch will be beneficial, whether the sectors employ individual quotas or not, though the financial implications will be greater for fishers holding individual quotas. Moreover, defined sectoral shares will be beneficial whether market trading is to be adopted or not, though their implications for long-term efficiency will be much reduced with subsequent trading.

**The Need for Inter-sectoral Transferability**

Defining each sector’s share of the catch will alleviate the uncertainty and conflict where one sector could otherwise expand at the expense of another. But to enable market
processes to effectively provide for reallocations to rationalize fishing among sectors the shares must be divisible and transferable between sectors.

There are varying constraints on meeting this need.

The communal ownership and non-transferability of aboriginal and treaty rights to fish inhibit redistribution, though such rights can often be transferred temporarily. Usually, customary and subsistence fisheries are accorded some priority over other fishing, and in countries such as New Zealand and Canada recreational fishers also claim they have, or should have, a general priority over the commercial sector. Not surprisingly, groups enjoying a priority resist any disturbance to their position.

Nevertheless, there is plenty of scope for markets in fishing rights to function in reallocating shares in the catch among sectors to best advantage. The provisions needed depend on whether individual transferable quotas are already in place. If they are in place for all sectors, the problem is relatively simple: government must ensure that there are no impediments to the divisibility and transferability of the quota rights among sectors, as well as within them. The allocation among sectors will then be determined by the purchases and sales of quota among individual quota-holders in different sectors.

Many fisheries involve only commercial sectors, distinguished by the gear they use or the areas fished. Here, market transfers between commercial sectors can be accommodated relatively easily, as illustrated by the legislative provisions to do so in Australia and Iceland (Kaufmann et al., 1999; Runolfsson, 1999).

A couple of caveats to this simple facilitation of trade are needed. To ensure that transfers of fishing rights to vessels that use different gear, or fish in a different location, do not frustrate management of the stock, inter-sectoral transfers should, in general, be subject to regulatory approval, as provided for in Australia’s legislation. In addition, all individual
quotas must be denominated in terms of the same base — that is, as shares of the total allowable catch (and not shares of a sectoral allocation as is often the case at present).

In the more challenging case in which one or more sectors in a fishery does not employ individual quotas, fishers have no individual entitlement to any part of the catch, so they cannot trade in fishing rights. To adjust their allocation through trading the fishers in such sectors need an organization with authority to represent them, hold their sector’s total allocation, raise and hold money, and buy and sell fishing rights on their behalf.

These changes are currently underway in Canada’s Pacific halibut fishery, which is dominated by a commercial sector organized under individual quotas. The expanding recreational sector has recently been assigned a percentage share of the allowable catch and the Minister of Fisheries has declared that he expects recreational fishers to turn to the market to acquire more quotas if they want to increase their share in future. Meanwhile, the recreational sector’s initial allocation exceeds its catch, and the commercial sector has leased the recreational sector’s uncaught surplus in return for cash.

Thus rights to fish can be made transferable between sectors in a fishery through market mechanisms even where fisheries are not organized around individual quotas. But individual quotas will undoubtedly facilitate inter-sectoral transfers. A prominent example is the way New Zealand’s quota management system has facilitated the transfer of fishing rights to Maori to settle aboriginal claims. Soon after the system was introduced, it was found to be in breach of the treaty with New Zealand’s aboriginal people and thus triggered a Maori claim. But the quota management system also provided the government with a mechanism for satisfying the claim, by purchasing quota from commercial fishers for redistribution to Maori — a direct transfer of rights to the catch which would not have been possible under the earlier open-access fishing regime. Through these governmental reallocations and further purchases
of quotas by Maori themselves, the Maori have become major players in New Zealand’s fishing industry and their fishing rights have been integrated with the commercial sector’s quota management system (Nelson, 1995).

In Canada, recommendations a colleague and I recently made to the governments of Canada and British Columbia would introduce individual quota licenses in the salmon fishery and similarly accommodate treaty settlements with First Nations by enabling direct transfer of shares in the catch from commercial to aboriginal fishers (McRae and Pearse, 2004).

Individual quotas can be expected to facilitate inter-sectoral transfers in other ways as well. With individual quotas in all sectors, fishers do not have to depend on an organization to carry out their trading; individual fishers can transact directly themselves. Further, where individual quotas are employed in all sectors, they provide the sectoral shares with an underpinning of entitlements, making the quota rights more secure and marketable.

Recent developments in recreational and aboriginal fisheries suggest that the path of development in the non-commercial sectors is likely to be opposite to the one we have witnessed in the commercial fisheries. In commercial fisheries, adoption of defined allocations to individual fishers has provided the stimulus for them to organize themselves into sectoral organizations to advance their collective interests and enable them to participate in management. In the recreational and aboriginal sectors, the sectoral organization might have to come first, and when the organizations have become sufficiently developed they might take responsibility for determining how their share of the catch should be distributed among their members and how their fisheries should be managed.

Thus the Nisga’a people, a large tribal group in Canada, having recently reached a comprehensive treaty settlement including substantial provisions for fisheries, quickly organized their own fisheries management arrangements and introduced their own individual
quota system, all well integrated within the wider governmental management arrangements. This example illustrates both the capability of an established organization to organize fishing among its members and the effect of a clear and secure share of the catch on incentives to participate in management.

Aboriginal groups, once equipped with a defined share of the catch, can relatively easily take the further step of participating in a fishery-wide individual quota scheme, as the aboriginal organization holding the entitlement can, like a fishing corporation, be treated as one ‘individual’ quota holder and organize its fishing as it sees fit. Locally-based recreational groups might similarly seek an allocation of the recreational sector’s share and participate in an individual quota system.

This “bottom-up” organization implies a reduced role for government in initiating and administering allocations within recreational and aboriginal sectors, but it also suggests that governments wanting to encourage fisheries self-government should give high priority to helping these groups to organize themselves. Aboriginal people typically have organizations already, based on tribal or other traditional groupings, and in Canada, United States, New Zealand and Australia these organizations are taking increasing responsibility for managing ‘their’ fisheries. Recreational fishers also appear to be trying to organize themselves in many jurisdictions, often in reaction to the strengthening position of commercial fisheries.

Recreational fishers undoubtedly face the most daunting organizational task, because they are usually so numerous, disparate, dispersed and varying in their interests and commitment to fishing. Often, they have little enthusiasm for participation in management, preferring to rely on government.

Most urgent, where recreational fishers share the catch, is the resolution of their allocation. As noted earlier, recreational fishers often resist defined catch shares, viewing
them as restrictive of their opportunities. Whether this is an accurate perception or not depends, of course, on their potential allocation relative to their present position. In the Canadian halibut example mentioned earlier, the recreational sector benefited from an allocation that exceeded its catch, the opportunity to sell their surplus and build an endowment fund, and the opportunity to acquire a larger allocation in the future. There are many other possible ways to make a sharing arrangement attractive, such as provisions for sharing the increase in catch resulting from investments in stock rebuilding and enhancement.

Defined shares will encourage organization, but organizations of recreational fishers, particularly, need support to get started, at least. Most importantly, they need to be empowered to take on management responsibilities, including the right to organize themselves and to require everyone they represent to become members to protect against free riders, to levy fees to finance their activities, and to make rules and enforce them. In addition, most need help with capacity development, finance and other resources.

**Property Rights and Self-government**

The extent to which fishers, responding to economic incentives, can be relied upon to allocate catches and manage their fisheries for maximum value depends critically upon their ability to control their supply of fish, which in turn depends upon the scope of their fishing rights. In my opinion, this link between the rights of fishers and their ability to manage is key to the successful development of market-based fisheries management regimes. At the risk of oversimplification, I can summarize my comments in terms of this relationship.

For centuries, fishers had no rights and no control over other fishers or potential fishers. This was appropriate as long as the supply of fish exceeded demands and fish were (or were
perceived to be) inexhaustible. In these circumstances, fishers had neither the means nor the incentive to organize themselves and participate in management.

Gradually, demands grew. To protect the stocks from overfishing, governments, lacking the power to grant exclusive property in fisheries, applied restrictions on fishing methods. They also prohibited everyone from fishing except those issued a license or other authorization, who thereby acquired collective exclusivity of access. Fishers now had rights, but the rights were too weak to assure them of a secure supply of fish in the face of increasing competition for the catch (Scott, 2000).

A solution was found in individual quotas, which have substantially strengthened the rights of fishers and restored their control over their catches. Their right to a defined harvest has eliminated the wasteful competition and interference from others. The right to transfer their rights has enabled them to rationalize their operations. And their proportionate interest in the catch has given them an incentive to cooperate with each other to manage their fishery and the resources they depend upon.

These rights, providing they are well crafted, are sufficient to enable fishers to manage their fisheries effectively in the simplest case where the fishery consists of only one sector and is not affected by other fisheries or external activities.

But the control afforded by individual quotas is not sufficient where two or more sectors are involved — unless the entitlement of each sector is clearly defined. If not, the rights of fishers in all sectors are at risk. In that case the solution parallels the prescription for individual transferable quotas: assign each sector an explicit, initial share of the catch to restore certainty and establish starting positions, and; make the shares divisible and transferable among sectors to enable fishers to realize the gains from rationalizing fishing among sectors. Defined shares can be expected to sharpen fishers’ incentives to cooperate in
management, and trade in catch shares will tend to reduce the barriers between sectors and broaden the ambit of management organization from sectors to whole fisheries.

Other circumstances call for developing fishers’ rights in different ways. Where two or more fisheries are interdependent — that is, where one stock is linked to another by a predator-prey relationship, where two or more species compete for common food or where one is affected by the process of fishing for another — there will almost certainly be opportunities to increase the aggregate value of production from the fisheries combined by increasing production of higher-valued species at the expense of lower-valued species. Fishers will be able to effect such trade-offs and maximize the aggregate value of production only if their rights extend to negotiating the size and catch of their stock with the fishers in related fisheries.

Thus, in New Zealand, the Challenger scallop and the Nelson dredge oyster fisheries occupy overlapping areas and the harvesting and enhancement activities of each affects production in the other. In this case, many of the fishers hold quota in both fisheries, and they have joined in an effort to maximize the return on the two fisheries combined.

Such arrangements can be extended to respond to the growing pressure in advanced fishing nations to shift the focus of management from individual fisheries to whole aquatic ecosystems (McClurg, 2002). Where many interdependent species and fisheries are involved a management plan designed to maximize the economic return from the whole ecosystem may involve a large number of trade-offs, costly biological and economic information, and complicated compensatory payments among quota holders. In these circumstances fishers are likely to seek efficiency in a single enterprise or cooperative to hold the fishing rights for all the interactive species and internalize the benefits and costs of all the adjustments needed to maximize aggregate returns (Arnason, 1999). Such an organization could accommodate
non-commercial interests, such as sport fishers wanting to purchase quota for certain species from the enterprise for their own recreation, or environmental organizations who wished to acquire but not exercise rights to the catch, to reduce exploitation of the species.

A step in this direction is being taken by fishers in a cluster of groundfish fisheries on the coast of British Columbia. Hitherto, the fisheries have been separately organized and managed, most under individual quotas, but the fishers in each fishery incidentally take significant quantities of the other species which they have been obliged to discard. They have recently formed an umbrella organization and negotiated amendments to their fishing rights to allow them to trade quota among fisheries — one species for another — thus improving the efficiency of operations and eliminating waste (Diamond Management Consulting Inc., 2005).

These examples are intended to illustrate the strengthening of fishing rights needed to cope with progressively broader sources of interference with fishers’ control over their fish supplies — from other fishers, other sectors, and other fisheries. Although this leads beyond the terms of reference for this discussion, I should add, for completeness, the challenge of allocating ocean space among fish production and other competing uses of the sea, such as navigation, mining, aquaculture, waste disposal and preservation of the natural environment as well as fisheries.

Where fish production competes with other uses of ocean space or marine environments, market mechanisms can determine the most beneficial use or combination of uses only if the rights held by each interest group include the right to make trade-offs in their demands on the ocean. This may call for a super-organization of fisheries groups capable of bargaining over fisheries production with parallel organizations of industrial, environmental and other interests with demands on the same ocean space (Scott, 2006).
The Essential Role of Government

Throughout this presentation I have emphasized the scope for harnessing market forces and the resources of those who hold the rights to fish to manage fisheries. I will conclude with a comment on the role of government.

Much has been written about the shortcomings of the traditional regulatory approach to fisheries management in terms of its inflexibility in the face of changing conditions, its unresponsiveness to differing circumstances, its demands for information, its conflict with the incentives of fishers and its costliness. And it has now been widely demonstrated that the development of new forms of fishing rights, notably individual quotas, by aligning fishers incentives with the public interest, has enabled wholesale shifts in responsibilities for fisheries management from government to the fishers themselves, with generally beneficial effect.

However, while experience shows that the holders of fishing rights, under suitable institutional conditions, can safely be given wide responsibility for managing fishing, some responsibilities must remain governmental. As governments shed their traditional roles in regulating fishing and allocating catches the onus on government actually increases in respect of two responsibilities in particular.

One is establishing a clear and comprehensive framework of policy and administration within which those who depend on fish can conduct their affairs efficiently and with certainty. Fisheries jurisdictions vary widely in their response to this need. Australia’s fisheries policy, introduced 15 years ago, is a model of clarity and rigor with its legislated statement of objectives for the fisheries, specification of management organization and of the responsibilities of the various parties and agencies, and clarification of the fishers’ legal rights, and financial and other obligations.
At the other extreme are Canada’s vague and inconsistent arrangements, based on antiquated legislation and developed piecemeal in response to more than a century of pressures and crises, and which lack the clarity and security needed to support modern fisheries management (Burke D.L. and G.L. Brander 2000).

Significantly, the countries that have led the reorganization of fisheries and have benefited most from it — notably Australia, New Zealand and Iceland — have all adopted new legislation and administrative structures to accommodate their new regimes.

A carefully crafted, clear policy framework is especially important for a management regime that depends on efficient participation of fishers and non-governmental parties. Given the opportunities for self-government in fisheries, the most critical function of government might ultimately be in maintaining the legal and institutional framework to enable those with rights to fish to govern themselves.

The other increasingly important function is to protect the broad public interest in the face of harvesting and management of fish by those having a primary interest in the catch. This is largely an environmental responsibility, calling for basic rules to protect aquatic habitats and sea life which may be endangered by fishing activity, to control pollution and preserve aesthetic values. These are true public goods; the benefits accrue to society as a whole, not just to those who harvest or consume fish, so they must be provided for, if at all, by government. The governmental task is to articulate and enforce the public’s long-term conservation objectives and standards of performance to be achieved. These basic requirements can be expected to leave wide scope for the holders of fishing rights to manage their fisheries for maximum economic benefit.
Literature cited


