Sharing the Fishery Resources of the North Pacific for Mutual Advantage: Toward an International Management Regime

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February 2000

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SHARING THE FISHERY RESOURCES OF THE NORTH PACIFIC FOR MUTUAL ADVANTAGE: TOWARD AN INTERNATIONAL MANAGEMENT REGIME

By Parzival Copes

This paper was presented as the keynote address to the International Conference on Impacts of Population and Markets on the Sustainability of Ocean and Coastal Resources in the North Pacific, held in Seattle on 3 June 1999.

This gathering has been assembled to meet an important challenge. It is our task to address the critical problems that are developing in the marine environment of the North Pacific. There is unmistakable evidence of increasing pressure and gradual depletion of the ocean resources that our countries share, at the same time that population growth and market expansion exert pressure for ever greater outputs from this stressed resource base. We need to consider the nature of the measures required to conserve our resources so as to optimize sustainable yields. Along with that we need to advance an approach to equitable resolution of the contest among nations competing for shares of the naturally limited output from our common-use resource base; for in the absence of an effective agreement on sharing there can be no discipline to limit exploitation to levels compatible with high sustainable yields.

THE THREAT TO MARINE FISH STOCKS IN THE NORTH PACIFIC

The North Pacific fisheries serve as a strong and visible indicator of the state of our ocean environment. The North Pacific is a veritable treasure house of fish resources. It yields about one-third of the world marine fish catch, making it by far the most productive ocean area on the globe. Let us now consider the source and nature of the threat to the highly valuable fish resources of the North Pacific, which are the common heritage of the countries represented at this gathering.

The North Pacific has a natural ecosystem. Human intervention is capable of inflicting significant damage on this system, notably through overfishing, pollution and habitat destruction. But, in practical terms, relatively little can be done to stretch the productive capacity beyond natural limits.

An obvious source of pressure on fish stocks is the general increase in the demand for protein foods stemming from population increases and higher incomes. Dietary findings, suggesting that fish protein is generally superior to other animal protein from a health standpoint, have also been a factor in stimulating demand, notably so in North America. This has also helped to raise the culinary prestige of fish. In conjunction with greater affluence this has significantly increased the demand for fish in the restaurant trade.

Increased demand has put upward pressure on fish prices, inducing increased investment in fishing operations. Aided by advancing fishing technology, both harvesting capacity and effective fishing effort have greatly expanded. This has put further pressure on fish stocks.

It is important to recognize that excessive fishing pressure may be relieved in a number of ways.
Some effort may be diverted to fish stocks that have been unfished or under-utilized, because of low market value, high cost of exploitation, or insufficient knowledge regarding their existence, location or market appeal. In some fisheries better handling, processing and marketing may reduce post-harvest losses, providing more fish for consumption without increasing catches.

Protection and restoration of fish habitat may prevent stock losses and increase exploitable biomass. Some fish stocks, such as those of salmon, may be enhanced, for instance by creating additional spawning habitat, or by hatchery cultivation during the earlier, most vulnerable stages of life. Of course, we have become increasingly skilled in aquacultural techniques, enabling us to farm fish outside their natural environment, though often not without adverse impacts on that environment. On a large scale, aquacultural production may lower market demand for the product of capture fisheries significantly and thereby relieve fishing pressure.

Most importantly, much still needs to be done to improve the effectiveness of fishery management, both in national and international waters. Particularly in respect of the latter, very little effective management is in evidence. However, progress has been made under the auspices of FAO to secure agreement in principle on policy guidelines that have been elaborated in documents entitled Code of Conduct for Responsible Fisheries, Technical Guidelines for Responsible Fisheries, a Precautionary Approach to Fisheries, and the Final Act of the United Nations Conference on Straddling Fish Stocks and Highly Migratory Fish Stocks. While these documents set standards and rules of conduct, they do not establish any actual management regimes, while adherence remains voluntary. At the national level, governments generally have both the authority and the incentive to work for improved management. It is a different matter at the international level, where there is no central authority to orchestrate, implement and enforce management measures on the high seas. Here we face the great challenge of developing, through international action, highly needed conservation measures within a management regime that is rational, productive, equitable and enforceable.

Let me now comment briefly on FAO fish harvest statistics at global and North Pacific levels. We may feel encouraged by the fact that at both levels, after a brief and modest decline during the early 1990s, total annual harvests have resumed their upward trend. This masks the fact that catches for some of the more valuable component stocks have declined; no doubt because those stocks have been more heavily targeted. The expansion of the total catch has been made possible by accessing additional stocks of lower value and/or higher exploitation cost. This is a process with obviously declining potential, that will come to an end sooner rather than later. We must also take into account the hidden effects of fish population dynamics. Much of the initial catch from a newly targeted stock consists of equilibrium biomass that is being fished down and that is usually not available as a production surplus on a sustainable basis. Exploitation levels in the North Pacific are high and less valuable species are making up an increasing proportion of the catch. To keep up the value of the catch, or enlarge it, we must rely increasingly on improved management that is conservation-sensitive, species-selective and effort-limited.

MANAGEMENT SYSTEMS AT THE NATIONAL LEVEL
In these times it is usually at the national level where the authority is exercised to define, apply and administer a fishery management regime. However, in several countries there is increasing sensitivity for the need to share the responsibilities of management and resource stewardship with authorities and stakeholder groups at the local or regional level. The latter may then be more highly motivated to contribute their local insights and knowledge in collaboration with the management authority. Various forms of "co-management" have been used or proposed in this context (Pinkerton 1989).

It is noteworthy that fishery policy statements by government repeatedly put forward objectives in three general areas, namely those of biological sustainability, economic efficiency and social equity. These areas are indeed the three pillars of fishery policy. They are interdependent, but differently affected by various management measures. It is a delicate task to balance management measures so as to get the best combination of impacts in the three areas. Unfortunately, a government at any one time may be preoccupied with a problem in one of these areas and single-mindedly concentrate on solving it through an applicable measure, regardless of how adversely it affects the other areas. Thus the overall outcome may be counter-productive.

The approach to fishery management that is now being promoted most vigorously by a majority of fishery economists in western industrialized countries, is referred to as one of "privatization" of the fishery resource. It is strongly market-oriented and involves the issuance to persons or companies of transferable (i.e., freely marketable) rights to quantitatively defined shares in a fish harvest (Christy 1973, Moloney and Pearse 1979, Scott 1986). These shares are generally referred to as individual transferable quotas, or ITQs. This system has been designed following a neoclassical economic model that optimizes outcomes according to a narrow concept of economic efficiency (Arnason 1995). It tends to ignore socioeconomic considerations and all but a few biological realities. It is therefore not surprising that it has often been found to be harmful in respect of appropriate biological conservation (Copes 1996) and almost invariably to be in conflict with social equity considerations (Copes 1994 and 1997a, Pálsson and Helgason 1996, Pálsson and Pétursdóttir 1997). It has been characterized by a geographical and corporate concentration of access rights to the detriment of the independent owner-operator sector and the smaller communities from which much of that sector operates. ITQ allocation has also been noted for the gifting of often very substantial windfall gains to particular groups of individuals, which is being contested in court with some signs of potential success (Pálsson 1999, Copes 1999). The ITQ system does offer short-term economic advantages through rationalization of fishing effort, though in some instances they may be dissipated in the long run through adverse conservation and socio-economic effects.

Many advocates of fishery "privatization" look on ITQs as certificates of individual ownership rights within the fishery and consider their implementation tantamount to abolition of fish stocks as common-property resources. However, even in countries where ITQs are used on a significant scale, courts and governments have frequently emphasized that fish resources and the ecology supporting them remain common-property resources, administered by the state on behalf of all of the people (Copes 1999).

The belief or contention that ITQs abolish the common-property status of fish stocks and endow the
fishery with the efficiency advantages of individualized private enterprise is quite naive. It ignores the critical difference between terrestrial and marine circumstances. Fish in the ocean are fugitive and cannot be physically segregated, identified and assigned to different owners. The ecology that nurtures them is the seamless multi-use ocean environment used for fishing, recreation, transportation and many other purposes. Fish stocks and the ocean environment that sustains them, by their very nature are common-use or common-property resources. Neither the stocks, nor the natural environment that produces them, can be divided into physically self-contained and separately managed units to which adequately specified private property rights may be attached to avoid negative externalities and produce high social efficiency. Transferable quotas generally do offer the advantage of helping to rationalize fishing capacity. However, they are distinctly vulnerable to a host of unique external diseconomies by giving incentives to quota owners to engage in collectively harmful actions. These include high-grading and other forms of discarding of marketable fish, the black-marketing of catches in excess of often difficult to enforce quotas (quota busting), false reporting of catches and discards (data fouling) that hide transgressions and invalidate stock estimates on which management depends, the misjudgement in advance-estimation of allowable quotas, and several others (Copes 1986 and 1995).

Another feature of the push for privatization of fish resources deserves attention. Where advocates of fisheries privatization have recognized that it is impossible to divide fish stocks into units that are owned and managed independently by private individuals or companies, they have sometimes suggested that stock complexes could be handed over to a corporation of ITQ holders to manage the stocks to the advantage of their members. This raises the specter of a clash of private and public interests. Corporations and wealthy individuals have already demonstrated considerable interest in the acquisition of large holdings of quotas in a number of fisheries, often in a speculative mode. They are likely to have high private discount rates reflected in expectations of high profit levels. Economic calculations demonstrate clearly that in some fisheries, particularly of long-lived slow-growing species, high target profit levels can be obtained only by fishing the stock to collapse or extinction, while reinvesting the profits in alternative industries (Clark 1985). This is evidently incompatible with a public policy devoted to maintenance of a sustainable environment. It speaks against the alienation of marine resources from the public domain that occurs when control is transferred to private interests.

The greatest general deficiency of the ITQ system, in my opinion, is one its supporters hail as a badge of merit—the degree of independence the system gives to operators in how they interface with the resource. As already indicated, ITQ systems have created new categories of negative externalities (high-grading, quota-busting, data fouling, etc.) that waste resources and weaken management when quota holders follow their private interests, unconstrained by management authority. By favoring private profit-making decisions over collective ecological considerations at the overall management level, ITQ systems are moving in the opposite direction of where scientists increasingly recognize we must go—towards holistic ecosystem management.

Fishery management is a difficult multi-faceted process, calling for skillful balancing of objectives and means, with rarely an ideal outcome. While I am critical of naive acceptance of ITQs that have been touted as a panacea, I recognize that alternative systems also have deficiencies and that ITQs
in some circumstances, if carefully applied, may offer the least imperfect solution to a management problem. As a general proposition, however, I would recommend, particularly for small-scale fisheries, that limited-entry licensing systems with non-transferable licences and effective buy-back provisions be given closer consideration as alternatives. They are generally more amenable to conservation-oriented and socially-sensitive management (Copes 1997b and 1998a).

THE CHALLENGE OF INTERNATIONAL MANAGEMENT

The establishment and acceptance in international law of 200-mile Exclusive Economic Zones for coastal states which effectively took place in 1977 brought by far the greater part of the world's marine fish resources under the jurisdiction of individual states. Within their EEZs coastal states now are able to install management regimes; and many have done so with varying degrees of success.

The 1982 Law of the Sea (United Nations 1983) unfortunately has left conditions for the installation of management regimes in the remaining international waters the high seas in an unsatisfactory state. All states are entitled to access high-seas fish resources, while being admonished to cooperate in conservation and management and, where appropriate, jointly to establish sub-regional or regional fishery organizations to this end. However, the Law of the Sea so far has not proven to be effective in compelling cooperation or enforcing conservation and management. Some regional fishery organizations have been established, but their records of achievement, generally, are unimpressive. In the absence of effective rules on conservation, access rights, division of the catch, and enforcement, no substantial degree of success is likely. We do now have a new international agreement on straddling and highly migratory fish stocks that is out for ratification. It proposes tougher measures to secure compliance, but it falls short of a mandatory international management regime.

Though the proportion of the world's exploitable fish stocks outside 200-mile limits is relatively modest, the total volume of fish in the high seas is still considerable. Certainly, the high-seas areas of the highly productive North Pacific contain substantial fish resources that are of considerable value. Moreover, in the North Pacific there are many stocks that straddle the outer boundaries of EEZs or that migrate widely through the EEZs of a number of countries and/or the high seas. This applies notably to the large and valuable salmon stocks of the region. Trans-boundary and highly migratory stocks cannot be managed satisfactorily without effective international agreement of all states accessing the resources concerned.

Considering the great value of North Pacific high-seas and trans-boundary stocks, and the likelihood of continuously increasing fishing pressure on them, it is important that a strong and serious effort be made to establish a North Pacific Fisheries Organization with effective jurisdiction over fisheries conservation and management in the area's high seas. This is a daunting task considering the reluctance of most countries to subject themselves to the authority of an international organization. Yet, failure to establish effective international management will likely result in serious depletion of North Pacific stocks as fishing pressure mounts.
Establishment of a truly effective international management regime, no doubt will require an extension of international law to give firm powers of regulation, allocation and enforcement to regional fisheries organizations. To many, such a development may seem unthinkable now. Nevertheless, it is the kind of development that the future must hold if we are to avoid escalating overfishing and eventual depletion of high-seas resources. We should remember that 30 years ago 200-mile limits were unthinkable. Rapid escalation in the depletion of coastal zone stocks suddenly turned the tide of opinion at the third Law of the Sea Conference and in 1977, long before the end of the conference, coastal states rushed to proclaim and implement their 200-mile fishing zones.

Should the North Pacific lead the way in pushing for an international management regime? As the region with the most valuable set of fish stocks, we have most to lose from not acting. Assuming the lead in developing a regional management regime should fall to the countries located in the region, negotiations should be helped by the relatively small number of countries in the North Pacific, all represented at this gathering. While we do have some political differences to complicate matters, we have also developed some practical skills in negotiating around our differences to achieve economic results of mutual benefit.

A difficult question concerns the extent to which countries from outside the region should have access to North Pacific stocks. As all fishing countries belong to at least one region, one may suggest that a principle of access priority for regional countries to regional stocks has merit in distributing access rights. On the other hand, there are problems of differentials in regional fish productivity and differentials in dietary and economic needs that may have to be considered, as well as historical access patterns. The question of cross-regional access rights probably needs to be resolved at the highest international level; likely at another Law of the Sea conference.

What principles should underlie a management regime for the North Pacific? I suggest that the "three pillars paradigm" I put forward with respect to national fisheries policy is generally valid at the international level as well. Obviously, biological sustainability of the fish stocks has to be a major consideration. Economic efficiency is important in ensuring tangible benefits for participating countries. We do need to realize that value perceptions, as well as the economic patterns of production and consumption take on different forms in different countries. This leaves room for enhancing the value of fish catches by negotiating allocations that give each country a measure of priority access to stocks that have relatively high net value to them. The process may be aided by allowing countries to trade allocations after initial assignments have been made.

Social equity is about allocation and reallocation of benefits. Applying social equity considerations at the international level is difficult and has to be based on inter-country considerations, touching on different spheres from those that are relevant to interpersonal and intergroup considerations applied at the national level. One has to be realistic about the limits to flexibility in inter-country allocations. States will hold on to what is theirs under current international law. Stocks permanently within their EEZs are beyond consideration in the allocation process, though a country may be prepared to trade some catches from those stocks for other catches outside their zone. The Law of the Sea (Article 66) also makes special provision with respect to anadromous stocks (most notably of salmon), giving priority of access to states of origin in consideration of the (direct or indirect) costs they bear in
protecting critically important spawning and rearing habitat.

There is an interesting challenge to come up with a set of principles that will provide guidelines to fish allocations in international waters. A number of criteria for priority allocation, that have been used in relevant contexts come to mind. Priority allocations may be made on the basis of resource-adjacency, which was an apparent consideration in setting 200-mile limits. Historical catches by national fleets parallel catch history considerations for individual fishing allocations when limited entry or ITQ regimes are introduced. They also relate to the abstention principle, which holds that when a fish stock is fully exploited no new claimants should join the fishery. Claims based on economic dependency of fishing communities, particularly those with few alternative means of subsistence, are finding increasing support, though most often those claims apply to inshore areas (Copes 1997c and 1998b). A related consideration is the allocation of community development quotas (CDQs) in Alaska, recognizing historical rights of needy indigenous populations to their adjacent resource base, even where for technological reasons they have not made significant use of the particular resources concerned in the past.

It is instructive to step back from the allocation issue for a moment and consider the nature of the resource base of the North Pacific into which we must fit an allocation system. After all, the stocks to be allocated are utterly dependent on a vast and complex ecosystem that nourishes them. In this context it is particularly interesting to examine that large part of the North Pacific that contains the North Pacific gyre of circulating currents, carrying and mixing nutrients to generate the micro-biota of the food-web on which fish stocks depend (Figure 1). Fed by the warm Kuroshio Current and the cold Oyashio Current, the system sweeps across the North Pacific to feed the Californian Current and the Alaskan Gyre. While the waters of bordering states all contribute to the system, the bulk of it belongs to the high-seas complex that is the common heritage of states with a legitimate regional interest in this part of the North Pacific. This underlines the common interest in and entitlement to shares in the catch.

**CONCLUSION**

Let me now summarize my major conclusions. At a basic level we need to recognize the three pillars of good fisheries policy, requiring a balance of measures to satisfy the needs of biological sustainability, economic efficiency and social equity. We must then seek to avoid those forms of privatization that induce individuals to exploit externalities in the pursuit of personal profit at the expense of the environment, of social equity, and of collective economic benefit. Contemplating the nature of the ocean environment we have to accept that, contrary to current tendencies in western industrialized countries, fishery policy needs to be redirected toward a holistic ecosystem approach. If the global changes in the North Pacific that carry an increasing danger of marine resource depletion are to be addressed seriously, action must come soon to impose effective management regulation both within national waters and in the high seas. We must insist that the management systems respect and adapt to the holistic nature of the North Pacific ocean environment and the complex of fish stocks that it contains.
We face our greatest challenge at the international level, where effective management will require difficult to achieve extensions of the Law of the Sea. These must endow regional organizations with the authority to impose conservation and management regulations, and to govern access in conjunction with harvest allocations.

In closing let me say the following. To this meeting of knowledgeable and concerned citizens from the countries of the North Pacific falls the task of carrying home an important message regarding the state of our ocean environment and the dangers of resource depletion. We must band together to articulate a collaborative strategy for the restoration of full health and productivity to the ocean resources that constitute our common heritage. We must persuade our governments of the need for concerted international action to ensure productive use at sustainable levels of our living marine resources, with an equitable sharing of the harvest. We may not rest until our goals have been achieved.

ACKNOWLEDGMENTS

In respect of work on this paper, the author gratefully acknowledges financial support from the Social Sciences and Humanities Research Council of Canada, and research assistance from P. Panek.

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Resource Digest: No. 48, 1-4.


NOTES

1. I am drawing on FAO statistics. The North Pacific in this context consists of statistical fishing areas 61 (NW Pacific) and 67 (NE Pacific). The former comprises an area off the Asian Coast bounded by 20° N and 175° W, while the latter comprises an area off the North American Coast bounded by 40° N and 175° W. By far the larger part of the North Pacific catch (up to 90% in some years) comes from area 61. However, Area 67 understates the area and catch of what might more generally be considered to be the NE Pacific, as it reaches only as far south as Cape Mendocino in Northern California.

2. In the economics literature the term "common-property resource" is usually applied to marine fish stocks, which form a common pool from which harvesters extract their catches. This may be appropriate where the stocks occur in the Exclusive Economic Zones (EEZs) of states that have sovereign rights to those stocks under the provisions of the Law of the Sea. For within the waters of those countries ownership rights may be exercised by the government on behalf of all of its citizens. However, on the high seas outside EEZs the resources are unowned (*res nullius*) rather than owned in common (*res communes*) (Ciriacy-Wantrup and Bishop 1975). Nevertheless, the stocks are used in common and may therefore be referred to as "common-use resources". As a more inclusive term the latter may be used to refer both to high-seas resources and those in waters under coastal state jurisdiction (Copes 1998c).
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