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# **How Legislated Criteria for Individual Transferable Quotas Could Defeat the Purpose of Transforming Fishermen from the Fox Raiding the Henhouse into the Farmer Guarding the Henhouse**

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Abstract: This paper examines the ways in which proposed national standards might affect the results of individual transferable quota (ITQ)<sup>2</sup> management by modifying the characteristics that make ITQs effective. The paper also responds to the conference organizers' question concerning other forms of "dedicated access privileges" that might provide similar (or superior) benefits. Whereas the debate over IFQ criteria requires reference to the fundamental concepts on which IFQs are built, I have divided this paper into two sections. Section 1 deals directly with proposed IFQ criteria and my conclusions concerning the impacts of those criteria on the ability of ITQ programs to deliver the benefits that are expected of them. Section 2 provides more details on the conceptual and theoretical foundations for ITQs, which help in understanding how proposed IFQ criteria might affect their performance. Section 2 of the paper attempts to lay out a logical progression of arguments that support some set of "ownership" rights to fish as a means to obtain "the greatest overall benefits to the Nation from our fishery resources." I will also introduce a powerful argument in favor of secure, long-term property rights that has not previously been considered in the context of fishery management. Without property rights, fish are just fish; with property rights, fish become capital that can contribute to economic growth beyond the fisheries. The capital value of fish also creates an incentive to conserve the capital stock, rather than simply using the fish for its consumptive value. Our task in this session of this conference is to consider whether existing and proposed national standards for IFQs will increase the benefits to the Nation from our fishery resources, or will serve as another example of well-meaning but counter-productive fishery policy. Specifically, the public policy question that we are addressing today is whether Congress should place additional bounds on the characteristics of each and every future ITQ program, or whether we should continue to give the regional fishery management councils the flexibility to design ITQ programs that fit their fisheries.

## **Section 1. – Comments on Proposed National IFQ Standards**

### **Introduction**

U.S. fishery stakeholders are having this discussion about IFQ criteria because traditional approaches to fishery management have produced results that are not generally considered to be satisfactory. Our collective dissatisfaction with the traditional approach does not arise solely from stock depletion. Even where fish stocks are not overfished, concerns for fishing vessel safety and for needless economic waste stimulate calls for change. Our fishery management system also faces continuing controversy surrounding the allocation of fish among sectors of the commercial fisheries, between recreational and commercial interests, and between consumptive users and non-consumptive users. The potential for dealing with many of these issues through market-based approaches will depend on the restrictions that are placed on transferable fishing rights.

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<sup>2</sup> I will generally refer to ITQs rather than IFQs, in the belief that individual quota systems will generally be transferable. I don't imply any distinction between the two by using one term or the other. I will refer to IFQs in situations where common usage seems to prefer that term, such as the proposed IFQ criteria.

The question of whether the U.S. will continue to use individual fishing quotas as a fishery management tool has been answered in the affirmative after more than ten years of debate, a Congressional moratorium, and numerous studies. The President's Ocean Action Plan has responded to the report of the U.S. Ocean Policy Commission by directing NOAA to "Work with Regional Fisheries Councils to Promote Greater use of Market-based System for Fisheries Management. The Administration continues to support and will promote the use, as appropriate, of dedicated access privileges, such as individual fishing quotas (IFQs), for improving fisheries management."

The question we face now is whether the opponents of ITQs will try to legislate IFQ standards that will essentially strip them of the characteristics that make them effective in conserving fisheries in an economically sensible way. And perhaps more importantly, whether legislated national standards will actually prevent the real discussion of these issues that needs to take place at the local level. Readers may recall that language in an appropriation act was once interpreted to mean that ITQs could not be discussed at any fishery management council meeting. Legislated national standards would place similar bounds on local discussions of key issues.

We also need to consider whether ITQs are the ultimate fishery management tool, or whether "stewardship rights" to uncaught fish hold even more promise for achieving the greatest overall benefits from our fishery resources. In response to the conference organizers request for other forms of dedicated access privileges, I offer one promising extension of the IFQ concept in an appendix that describes "Population Stewardship Shares."

### **Implications of IFQ Criteria**

Each of the characteristics that create the conservation incentives associated with ITQs will be modified by legislative standards. For that reason, those of us who believe that strong ownership characteristics lead to improved stewardship are afraid that the opponents of ITQs will insist on IFQ criteria that destroy most of the positive incentives that would otherwise be expected. We also believe that a number of the proposed standards are internally inconsistent. That is, they conflict with other proposed standards or with other concerns that their proponents express. I will comment on the troubling elements of the proposed standards.

### **Sensitivity to "Rights" and "Ownership"**

The most contentious of the proposed IFQ standards is already incorporated in the law and is included in every proposed piece of legislation related to IFQs. The law specifically states that IFQs "shall not create, or be construed to create, any right, title, or interest in or to any fish before the fish is harvested." The law also defines an IFQ or other limited access system authorization as a permit subject to revocation at any time without compensation to the holder.

It's worth considering the implications of specifically defining IFQs as not being property rights. The specific prohibition against creating any right, title, or interest in or to any fish before the fish is harvested is counterproductive because the cause of overfishing is often attributed to the fact that no fisherman has any incentive to leave fish in the water if they will be taken by others. In effect, the law says that we may allow you to catch fish, but we won't allow you to conserve fish. The essence of conservation is leaving fish in the water, but the incentive to leave fish in the water is diminished if those who leave the fish have no future claim to them.

It is ironic that the legislative prohibition against property rights to uncaught fish coincided with the publication of an innovative conservation proposal that is based on creating value in uncaught fish – shares of the fish stock, rather than shares of the catch. As if to flaunt a law that he surely had no knowledge of, in 1996 Canadian fishery scientist Stratis Gavaris published an article titled "Population stewardship rights, decentralized management through explicit accounting of the value of uncaught fish" (Gavaris 1996). Gavaris and other fishery scholars have suggested that

fishermen or groups of fishermen would have more ability and incentive to invest in conservation if they had secure property rights to a portion of the fish stock. If fishermen were responsible and accountable for the underlying biomass that produces the catch, rather than simply being told how much to catch, they would exercise stewardship over that stock. Gavaris' shareholders would build value by building the biomass of their stock. The prohibition against creating right, title, or interest in uncaught fish is one of those self-defeating policy provisions that have plagued fishery management. More details on this innovative form of dedicated access privileges is provided in Appendix I.

### **New Entrants and Small Boat Owners**

Those who insist that quota shares must be defined so as not to create any long-term, secure property right seem to ignore the effect of that definition on the ability of new entrants and small boat owners to acquire quota shares in competition with those who have more access to capital. Access to capital for those without deep pockets is provided by lending institutions. Lending institutions will loan money to anyone who demonstrates their ability to pay the money back, but they also like to have some security for their loans. A quota share, or limited license, that is designed not to be a secure asset won't provide acceptable security for a loan. By defining IFQs as insecure permits, the law plays into the hands of those with deep pockets, to the disadvantage of new entrants and small boat owners.

Canadian fisherman and scholar Stuart Beaton has studied this issue as it relates to generational succession in the Canadian lobster fishery. Beaton has come to the conclusion that increasing control over lobster licenses by lobster dealers (through trust agreements) is a result of the inability to finance expensive lobster licenses through normal financing channels (Beaton 2004). The inability to finance Canadian lobster licenses results from their legal status as annual permits in which the fisherman has no long-term security. This is fine for those who have plenty of cash and faith in the longevity of the system, but not so good for young people whose energy and skill might make it possible for them to outbid an absentee owner if the fishing license could be financed through traditional means.

The Magnuson-Stevens Act currently includes a provision under which 25% of the fees collected in IFQ programs may be used to aid in financing the purchase of individual quota by fishermen who fish from small vessels and for the first time purchase of quotas by entry level fishermen. One has to ask, however, whether a government loan program for an insecure asset passes the due diligence test. Or, does the fact that a government loan program will make loans on quota shares mean that the government really does consider a quota share to be a secure asset?

I understand the concern for new entrants and small boat fishermen, but I don't understand where the fish will come from to allocate to these folks when the primary problem for most fisheries is too many boats chasing too few fish. If the fishery is in the process of buying out its excess capacity through quota trading, adding new entrants and more small boat fishermen makes the problem worse. The success of fishery management for the public is not measured by the number of new entrants into a fishery, or the number of small boats in the fishery, but whether the fishery is being sustainably managed at the least cost and least impact to the public and to other public resources.

### **Sunset Provisions**

Sunset provisions are another contentious issue. Here again, a sunset requirement for ITQ programs would contradict the prevailing wisdom that fishery conservation has suffered because fishermen's time horizons are too short. Eggertsson (in Acheson 2003) tells us that "short-term control shortens the time horizon," a conclusion that is implied by the observations of eighteenth Century agricultural researcher and political reformer Arthur Young concerning land reform in

France: "give a man the secure possession of a bleak rock, and he will turn it into a garden; give him a nine years' lease of a garden, and he will convert it into a desert" (Young 1909).

Jim Acheson stresses the long time horizon of Maine's lobster fishing communities in his explanations of the relative success of lobster management in Maine:

"I see little to distinguish what in the literature is called a conservation ethic from a low discount rate. The first stresses a culture of conservation; the second places value on future rewards. The essence of both is the willingness to sacrifice present gains for future rewards. The data on the Maine lobster industry lead to two observations concerning these concepts. First, a conservation ethic or low discount rate is crucial for the development of institutions to conserve resources. Second, the higher the probability that people will be able to harvest all or most of a resource in the future, the more willing they will be to devise rules to conserve those resources" (Acheson 2003).

Anthony Scott (2000) explains the importance of long-term rights in this way:

"*Duration* is valued because it allows the right holder to get the pay-off in later years from the investments he has made in the earlier years. Indeed, if a right's duration is short, and is not necessarily renewable, the holder will avoid any long-run improvements or investments. In a fishery, it (long duration) encourages the right-holder to make costly changes in the size and age structure of the fishstock that may result in larger and more profitable catches even if there must be an extended waiting period."

If those who believe that fishery conservation is enhanced by a long time horizon are correct, sunset provisions detract from the conservation incentive.

### **Auctioning Fishing Opportunity**

My belief in the conservation incentive that is created by a long time horizon also affects my position on using auctions as a means of allocating fishing rights. I don't see how an auction system can create that long time horizon.

My initial resistance to auctions was based on my feeling that auctions would be too disruptive to fishing families and fishing communities. An auction might be appropriate as an initial allocation mechanism in an underutilized fishery in which there has not been any significant investment and the offer of exclusivity might attract investors. But it would not be appropriate for Congress to require auctions in the bulk of fisheries where capital is already over-invested in harvesting capacity.

I am also concerned that auctions would drain fishing revenue from local communities into the federal treasury, although the auctions could be run by, and the revenue distributed to, local communities (Macinko, personal communication). I also have a fundamental belief that the private sector can use the economic rent from fishery resources in ways that will provide more benefit to the public than will the government.

Those who have proposed auctions as the appropriate method of distributing fishing allocations should be challenged to point out examples where auctions have been successful in obtaining the greatest overall benefits from the sustainable harvesting of fishery resources. Alternatively, they should put forth a detailed proposal that might reasonably achieve that objective.

I would expect that an auction that was designed to be sensitive to social concerns would be so twisted by regulatory restrictions and interest group capture that the result would be worse than the present situation and worse than other allocation alternatives based upon existing participation in the fishery.

Most importantly, I don't believe that auctions would allow the asset value of fishery resources to assume their life as capital that would contribute to broader economic development of fishing communities and coastal regions, as is explained in the more detailed basis for my arguments in Section 2 of this paper.

### **Excessive Share**

Attempts to define "excessive share" are also troublesome. The law as it is written requires IFQ plans to "prevent any person from acquiring an excessive share of the individual fishing quotas issued, and consider the allocation of a portion of the annual harvest in the fishery for entry-level fishermen, small vessel owners, and crew members who do not hold or qualify for individual fishing quotas." NMFS is apparently working on more specific guidelines as to what constitutes an excessive share.

Any excessive share determination depends on the specific fishery. Some fisheries might naturally have only have one or two boats without any limited entry or ITQ system if the bio-economics of the fishery dictates that level of effort. We have fisheries on the Atlantic coast that come and go, sometimes supporting a few boats, sometimes not. During that ebb and flow, there are periods when a fishery will only have one boat. That's not a problem in and of itself. An artificial concentration limit could be harmful, particularly in cases where a fishery is overcapitalized when the rule goes into effect, and the appropriate number of participants is not obvious. Excessive share is an issue that should be left to the Councils and to the Justice Department. For most fishery products, the producers can't affect the price to consumers because their product competes with so many similar products. In the case where monopolistic practices are a potential problem, I favor letting the anti-trust folks in the Justice Department take care of it.

Excessive share has another interesting aspect that runs against the popular point of view. By any measure, the allocation of quota shares or limited entry permits to active fishermen will result in a high degree of concentration of those access privileges when compared to the public ownership that most people accept as the current status.

For example there are currently about 300 million Americans and about 300 limited access scallop permits. For 300 million Americans the 300 limited access vessels are a statistically small number of participants harvesting a fixed public resource. What difference to 300 million Americans does it make if there are 300 owners, 30 owners, or 3 owners harvesting the fixed scallop resource – all of them are infinitesimally small number of participants compared to the total public. What matters to the 300 million Americans is whether the resource is being managed renewably and whether the use of nonrenewable resources (fuel) and other public inputs (paint, steel, dock space, etc.) are being minimized by maximizing efficiency so the costs to the public (both for the finished product and public inputs) are minimized to the extent possible. Only by allowing Regional Management Councils the flexibility of designing ITQ plans that will maximize efficiency while respecting fishery mortality can these objectives for 300 million Americans be met. Excessive share concerns would seem to be based more on jealousy than on concern for the public interest.

One way to achieve the goals of efficiency, while having wide spread ownership in a fishery may be to rethink the antipathy of some (i.e. Greenpeace) to public corporate ownership of harvesting vessels and harvest rights. Rather than discouraging corporate control of fishing privileges, one way to maintain broad ownership of those privileges would be to encourage publicly owned corporations to get into the fisheries. That would combine the conservation incentive of ownership with a continuing ability for the public to participate in that ownership and with returns from the resource being reflected in corporate dividends.

## **Cost Recovery and Collection of Resource Rent**

I agree with cost-recovery for fishery management services in all fisheries, not just those with ITQ programs. Fishery participants should pay the cost of fishery management services that contribute to their profitability. Cost recovery should be accompanied by competition in the provision of fishery management services between the private sector and government agencies. Most countries that require cost recovery also allow competition in the provision of fishery management services.

There is some likelihood that the total costs of management for an ITQ fishery will be less than they would be under a different management system, particularly after the fishery rationalizes. ITQ fisheries tend to require less continuing management activity by the government. ITQs let the industry manage its business under a program that assures conservation while relieving the government of the cost of constant allocation battles disguised as conservation.

I see the collection of resource rent, meaning fees beyond those that would cover the cost of management, as being likely to drain fishing revenue out of fishing communities and into the federal treasury. Even if the fees were shared with the states or localities, I question whether the government will spend fishing revenue in ways that will benefit the public more than they would benefit by leaving the economic rent in the local economy to be invested and spent on goods and services.

## **Referenda**

I don't believe that ITQ systems should be subject to any referendum unless all fishery management plans are subject to referenda, and I don't believe that would be good public policy. There is a tendency to think of ITQ programs as fundamentally different from fishery management plans that are thought to be conservation oriented. People with experience in the management system recognize that many existing fishery management plans are the result of using conservation measures to allocate fishery resources. In *Capturing the Commons*, James Acheson writes that: "virtually every lobster conservation or management rule came about as the result of a fight between various factions over control over the resource." (Acheson 2003)

Whereas ITQ plans make allocation explicit, we can expect individuals to use their referendum vote to become, in essence, "judges in their own cause" (Madison 1787). Fisheries tend to follow the 80-20 rule, under which we would expect 20% of the fishermen to catch 80% of the fish. For that reason, we can expect referenda to result in the "tyranny of the majority" -- the 80% will vote down any ITQ proposal that does not redistribute catch shares from the highly productive 20% to the less productive 80%. Unless referenda votes are weighted by catch, ITQ plans may be held hostage by those who seek to obtain a larger share of the catch through the allocation process.

Acheson also points out another truism that is important to keep in mind when considering referenda: fishermen fight almost every new fishery management measure, but after a few years they are likely to defend it as the savior of their fishery. Certainly this has been the case with the ITQ programs that are already in place in the U.S. -- many of those who fought against the surf clam and halibut programs are now ITQ advocates.

From a public policy perspective, the most damning attribute of referenda is that they ignore the public interest in a fishery management system that produces the greatest overall benefits to the Nation. There is no reason to expect that fishery participants will necessarily vote for an ITQ system that will best serve the public interest. Prior to the allocation of fishing rights, fishery participants can be expected to use the plan development process for "rent-seeking." The characteristics of ITQs that meld the individual interest with the public interest become operative after the allocations are made, not before.

## **Quota Shares Held for Conservation**

The question of holding quota shares and not catching the fish that the quota would allow is an interesting one from both a legal standpoint and a practical one. Some would argue that the requirement to obtain optimum yield precludes someone from leaving their allowed catch in the water. Under this reasoning, the government would have some obligation to ensure that all quota holders caught their allotment. Obviously, this would eliminate the possibility of conservation groups buying quota for the purpose of conserving the stock by not taking their quota share. But could they contract with a quota holder not to take his share?

Senate bill 1106, the Fishing Quota Act of 2003 appeared to prohibit the holding of shares for conservation purposes with language that required fishing quota plans to “contain criteria that would govern limitation, revocation, renewal, reallocation, or reissuance of fishing quota, including: ... (ii) revocation and reissuance of fishing quota if the owner of the quota cease to substantially participate in the fishery.”

It isn't clear, however, that a legitimate calculation of optimum yield would conclude that fish left in the water by someone who had paid for their quota share prevented the realization of optimum yield. If a quota holder valued conservation as highly as someone else valued consumption, it would be hard to make a case that optimum yield was not being achieved.

The practical question is whether any quota holder could have much of a long-term impact by not taking his share. The fish left in the water would show up in the next stock assessment as a lower fishing mortality rate and a higher biomass, which would increase the total allowable catch. That larger TAC would be distributed to all of the shareholders in a catch share system. (Although not in a system based on biomass allocations, as is explained in Appendix I.)

## **Transferability**

Divisibility and transferability are key features of ITQs that give them the potential to resolve many troublesome issues in fishery management. The ability for an overcapitalized fishery to restore profitability while conserving the stock is just a starter. By-catch problems, sector allocation disputes, and the interests of non-consumptive users can all be more easily addressed with freely transferable quotas. Restrictions on transferability would eliminate many of these opportunities.

## **Conclusions**

Clearly the discussions of ITQs have followed the almost universal adoption of limited access fishery management plans (both abroad and now in the US). If open access to fisheries is no longer an acceptable fishery management option, all limited access programs should be considered on their merits. Currently, IFQ programs are in the spotlight, while less effective and more troublesome limited access programs escape the same scrutiny. Many of the criticisms of ITQs apply equally or more so to all limited access programs, yet the proposed national standards for IFQ programs apply only to fishing quota programs. All fishery stakeholders should demand a comparative evaluation of limited access options. It is now well-documented that ITQs lead to many benefits in safety, efficiency of harvest, freedom of action, and wise use of capital and financial assets.

Until recently, the broadest public policy question related to ITQs has been whether the public can rely on the government, working through a command and control system, to obtain the greatest overall benefits from its fishery resources. Public policy is clearly moving toward the view that the public will obtain more benefits from these resources, at lower cost, by sharing ownership with those who naturally have more of a direct interest in, and a greater reliance on,

the sustainability of those resources. We must now assure that the potential benefits of this policy shift are not jeopardized by misguided national standards.

## **Section 2. – The Conceptual and Theoretical Basis for a Minimum of National IFQ Standards**

### **The Nature of the Problem**

Many economists and industry observers believe that the “fisherman’s problem” (McEvoy 1986) stems from the fact that no one owns the fish in the ocean. Fishery resources have not been conserved, they say, because no fisherman has the ownership rights that would allow him to leave fish in the water as they become scarce – others will simply take the fish that he leaves. In contrast, when privately owned resources become scarce, their price goes up, reducing demand. Private owners also take steps to conserve those resources when they expect their possession to become even more valuable in the future. Harvard economist Robert Stavins has noted that, contrary to what one might expect: the so-called non-renewable resources seem to be better conserved than many renewable resources. He writes that: “the reason why some resources -- water, forests, fisheries, and some species of wildlife -- are threatened while others – principally minerals and fossil fuels -- are not is that the scarcity of nonrenewable resources is well reflected in market prices. This is much less the case for the renewable resources, which, in fact, are characterized by being open access or common property resources.” (Stavins 1992)

One of the best descriptions of the basic causes of overfishing and the poor economic performance of fisheries was published in the 1969 report of the Commission on Marine Science, Engineering and Resources, titled “Our Nation and the Sea, A Plan for National Action.” (Stratton 1969) The fact that we have not addressed many of these fundamental concerns some 35 years later is testimony to their contentious nature.

Not all scholars subscribe to the hypothesis that lack of ownership rights is at the root of the overfishing problem. Seth Macinko and Daniel Bromley provide a comprehensive explanation of the contrarian view in their report to the Pew Charitable Trusts, titled “Through the Looking Glass” (Macinko and Bromley 2001). Macinko and Bromley assert that the public has owned the fishery resources within the 200-mile limit since 1976. If they are correct, we have to ask why the owners of these resources have not managed them better.

Macinko and Bromley’s answer to that question serves as the guiding principle behind much of the political pressure that is focused on fishery management reform by environmental organizations -- the fundamental problem with fishery management over the last 28 years, they conclude, has been the “inability of fisheries managers to resist political pressure from several sources.” With more political will, they imply, we could have avoided the fishery management failures that created this debate. Most environmental organizations believe that stronger laws are the answer to fishery management failure. This reliance on forceful regulation is what political scientists and economists call the “command and control” approach, as contrasted with market-based solutions to public policy issues.

In fairness to Drs. Macinko and Bromley, their recommendations go far beyond giving the government more will power. They agree, for example, that: “zero-priced inputs (in this case fish) in an industry will always result in distorted levels of investment in that industry.” This is, in essence, a different way to phrase the case made by Stavins that non-renewable resources have been better conserved because their scarcity is reflected in market prices. The extent to which the consumption market reflects the true value of resources can be debated, but the creation of a market for harvest rights would at least move fishery resources away from the zero-price category and eliminate that source of overcapitalization. If non-consumptive users were also allowed to

participate in the market for quota shares, the market would also reflect the value of fish for non-consumptive uses.

“Through the Looking Glass” provides a useful foil because it questions many of the popular ideas concerning ITQs, while supporting variations on the theme. For example, Macinko and Bromley don’t dispute the desirability of a market for harvest shares; they propose a government-run auction of catch shares as the appropriate form for the market. In essence however, their report to the Pew Charitable Trusts is a call for greater command and control by government – if the publicly owned aquatic resources of the United States are managed badly, they write, “the fault does not lie with the lack of property rights, but rather with flawed management objectives and processes.” Aristotle may have had a better grasp of the problem when he wrote: “that which is owned by everyone is taken care of by no one.”

Stronger laws and more political will may be helpful in preventing the depletion of fish stocks, but fisheries where political will was not lacking have still suffered from economic and social problems, notably safety concerns and tremendous waste of capital, labor, and other inputs. The halibut derby was probably the best example of a poorly performing fishery based on a healthy stock. There is little doubt that halibut and sablefish conservation were improved by the ITQ system, but conservation was not the driving force behind it. Command and control systems cannot deal effectively with problems that are essentially economic and social in nature. The political will to conserve that has been evident in New England in recent years has led to stock rebuilding, but has not eliminated our fishery management problems. More abundant stocks have simply created new and different fishery management problems. Command and control approaches are not likely to lead to the best resolution of these problems.

Looking at the question another way, we can ask whether the interests of the public owners of the resource can best be served by giving fishermen more of an ownership interest in those resources. It’s an idea that is widely accepted in all aspects of our lives, including the fishing industry. We expect private homes to be taken care of better than public housing, and owner/captains to take better care of boats than hired captains. Harvard president Lawrence Summers captured the essence of the ownership argument when he remarked that: “no one has ever washed a rented car.”

There is no denying the fact that fishermen without ownership rights have approached fishery resources with a Robin Hood spirit, leading to skepticism concerning fishermen as trustees of public resources. But we must ask whether the conflict of interest that leads to accusations of the fox raiding the henhouse can be transformed into a confluence of interests that will be seen as the farmer guarding the henhouse? I believe that we can, and I believe that ITQs are a proven way to do that. My conclusions are not based solely on academic theory and platitudes - I’ve listened to fishermen in pubs in Australia talk about the importance of conservation in protecting the value of their quota shares, a clear indication of the mindset that accompanies secure, long-term fishing rights. The fact that we are here today is an indication that more and more people in this country share that belief.

Now we have to ask, if ITQs can create a conservation incentive, what are the characteristics of an ITQ program that will accomplish that objective? Will ITQs be more successful in producing benefits for the Nation if we strengthen their ownership characteristics, or if weaken those attributes? Whatever the apparent purpose of national IFQ standards, their effect will be to modify the incentives that guide the actions of ITQ holders.

The characteristics of ITQs that are the most important to their success are also the most controversial. This is because they revolve around the central issue of ownership, and the degree to which the public owners of the resource are willing to delegate or devolve some of their ownership rights to private entities, in the belief that such an arrangement will produce greater

overall benefits. Ownership, of course, has become a hot-button issue in a broader realm than fisheries. It's one of those seemingly positive words that now make a lot of people cringe, like efficiency, or profits. David Boaz does a good job of explaining the traditional admiration for ownership in an article on the Cato Institute web site (Boaz 2005). Boaz writes that:

“People have known for a long time that individuals take better care of things they own. Aristotle wrote, “What belongs in common to the most people is accorded the least care: they take thought for their own things above all, and less about things common, or only so much as falls to each individually.” And we all observe that homeowners take better care of their houses than renters do. That's not because renters are bad people; it's just that you're more attentive to details when you stand to profit from your house's rising value or to suffer if it deteriorates.

Just as homeownership creates responsible homeowners, widespread ownership of other assets creates responsible citizens. People who are owners feel more dignity, more pride, and more confidence. They have a stronger stake, not just in their own property, but in their community and their society....

The many benefits of an ownership society are not always intuitively obvious. The famous Harvard economist John Kenneth Galbraith wrote a bestselling book in 1958 called *The Affluent Society*, in which he discussed the phenomenon of “private opulence and public squalor”—that is, a society in which privately owned resources were generally clean, efficient, well-maintained, and improving in quality while public spaces were dirty, overcrowded, and unsafe—and concluded, oddly enough, that we ought to move more resources into the public sector.”

Even anthropologist James Acheson, while claiming that: “market solutions cannot be used to govern common-pool resources, including the lobster,” nevertheless writes that “secure property rights give the ‘owners’ of resources incentive to conserve them and use them efficiently. Many of the rules devised for the lobster industry give fishermen property rights over the resource (such as territorial rules), and thus motivate fishermen to conserve” (Acheson 2003). Acheson has made a career out of documenting the extralegal system of property rights that exists in the Maine lobster fishery, and he isn't bashful about expressing his admiration for that system: “For the present,” he writes, “we are witnessing the unparalleled success of an industry in which people are determined to capture the lobster commons for themselves and future generations.”

So the ITQ issue first focused on the question of whether more and better government regulation could produce the greatest overall benefits to the Nation from its fishery resources, or whether private property rights and a market for harvesting rights could do a better job. In terms of national policy and popular opinion, there is an emerging preference for explicit, market-based fishery allocation systems over indirect allocation by regulation. The reasons include better conservation, improved economic benefits, and enhanced crew safety.

With more general acceptance of the basic idea of market allocation systems, the debate has now become more focused on the details of such a system. All ITQ systems are not created equal. The contrast between the details of the surf clam ITQ plan and the halibut ITQ program demonstrate the range of possibilities that exist within the ITQ framework. The big public policy question that we are addressing today is whether Congress should place additional bounds on the characteristics of each and every future ITQ program, or whether we should continue to give the regional fishery management councils the flexibility to design ITQ programs that fit their fisheries.

We also have continuing questions about both the degree to which the public should be compensated for the use of its resources, or for its management of those resources, and the

mechanism through which that compensation should be collected. The law already specifies fees for ITQ fisheries; others have suggested auctions of specified fishing opportunities.

### **Fish as Assets and Capital**

The ITQ debate has not touched at all on the potential for secure fishing rights to stimulate the economies of coastal communities in ways that are not at all connected to fishing. The most valuable asset potentially available to fishing communities is the fishery resource. If fishermen do not have secure title to the fishery resource, they are in essentially the same position as the shantytown squatters that are of such concern to economic development researchers like Hernando de Soto. De Soto explains the poor economic conditions in developing and former communist countries as resulting from a lack of “access to a legal property rights system that represents their assets in a manner that makes them widely transferable and fungible, that allows them to be encumbered and permits their owners to be held accountable. So long as the assets of the majority are not properly documented and tracked by a property bureaucracy, they are invisible and sterile in the marketplace” (de Soto 2000).

De Soto documents the huge dollar value of assets held by the poor in developing countries. He calls those assets “dead capital” because the lack of secure property rights does not allow those assets to spur economic development. The capital that is inherent in an asset “requires a process for fixing an asset’s economic potential into a form that can be used to initiate additional production.” “Assets in developing and former communist countries primarily serve only their immediate physical purpose,” de Soto writes, because the lack of a formal property system prevents those assets from being used to produce surplus value over and above their physical use. “In the West, however, the same assets also lead a parallel life as capital outside the physical world. They can be used to put in motion more production by securing the interests of other parties as ‘collateral’ for a mortgage, for example, or by assuring the supply of other forms of credit and public utilities.”

DeSoto’s thesis is that the titling of previously untitled assets is the key to promoting economic development of society as a whole. De Soto’s examples from developing countries bring to mind the poor counties of eastern Maine, whose leaders resist turning their sizable fishery assets into productive capital, all the while struggling to find an economic engine to improve their standard of living. De Soto explains that:

“Secure property rights... encourage holders to invest in their property because of their certainty that the property will not be usurped. From a strictly economic standpoint, therefore, the true purpose of property rights is not to benefit the individuals or entities holding those rights, but to give them the incentive to increase the value of their assets by investing, innovating, or combining them advantageously with other resources, something which would have beneficial results for society.”

Although he never mentions fish, de Soto’s books can be read as a rebuttal to those, like Jim Acheson, who believe that traditional, extralegal property arrangements are preferable to more formalized property rights. De Soto traces the development of property rights in the western world and specifically addresses the need for a transition from localized extralegal arrangements to a more formal system:

“Shifting the recognition of ownership from local arrangements into a larger order of economic and social relationships made life and business much easier. People no longer needed to rely on burdensome parochial politicking to protect their rights to assets.

Formal property freed them from the time-consuming local arrangements inherent to closed societies. They could now control their assets. Even better, with representations in hand, they could focus on their assets' economic potential."

Ironically, modern governments have often torn down traditional systems of property rights in fisheries, however imperfect, without bringing fisheries into the broader formal property system. Property rights are not an alien concept in many fishing communities. The question is whether formal property rights are better than the existing extralegal arrangements.

### **Greatest Overall Benefits to the Nation**

De Soto stresses the fact that property rights benefit the overall society, not simply the individual who holds the rights at a particular point in time. He calls ownership "the architecture upon which the market economy is built" (de Soto 2004). Anthony Scott alludes to the same point when he says that "fishermen (and fishery managers) have given little thought to the losses of the *rest of the economy* arising in the wasteful and costly ways that competing fishermen have been induced to adopt." And Eggertsson (in Acheson 2003) cautions that uncertain control (insecure rights) discourages potentially profitable projects, implying that the standard of living of the public owners of the resource will be lower than it would be if those profitable projects could be carried out.

The impact of wasteful fishery management programs on the rest of society is an issue that demands particular consideration as policy makers contemplate referenda requirements for IFQ programs.

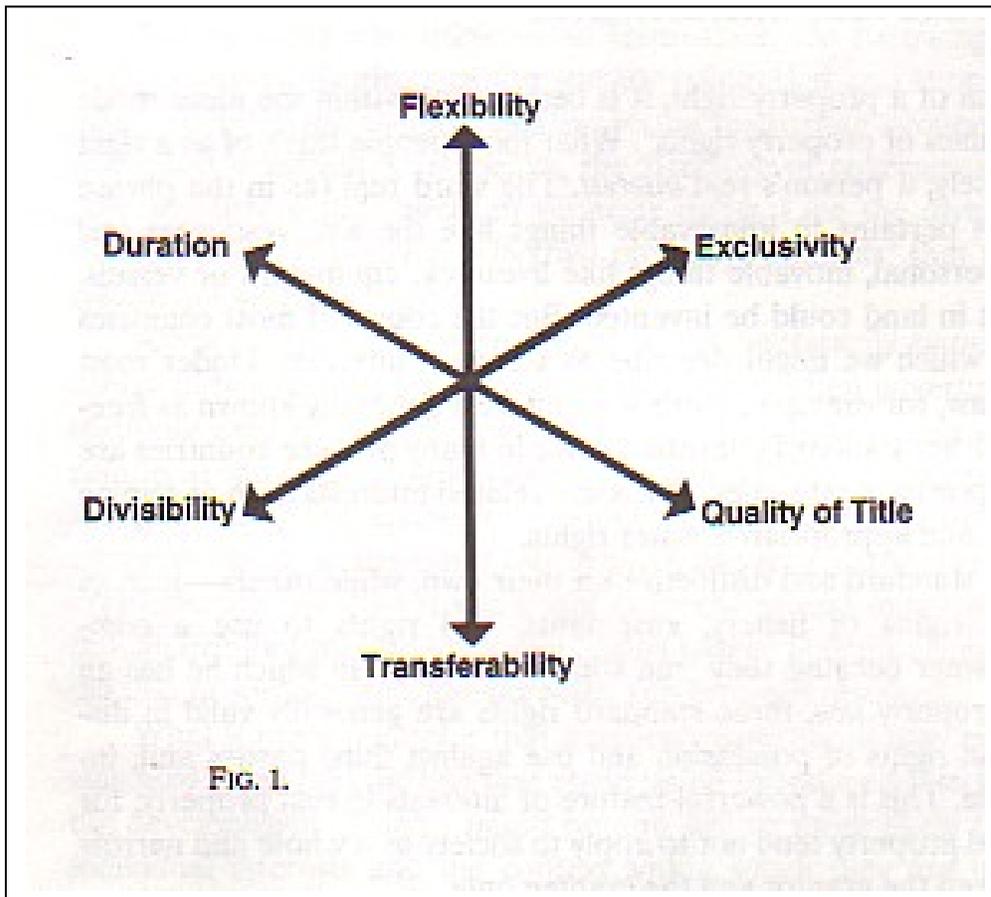
The impacts of wasteful fishery management systems on the rest of society are easy to ignore, because they appear to be costs borne solely by fishermen. But they have the result of draining fishing revenues away from coastal communities that desperately need to retain as much fishing income as they can. New Bedford sea scallop permit-holders are sending millions of dollars to Gulf of Mexico shipyards to build new boats, while New Bedford harbor is filled with existing boats that are fishing less than 100 days per year. Clearly, those millions of dollars could be invested more productively at home in New Bedford. The boat owners are still making attractive returns, but the fishery is not making the contribution that it could to the regional economy.

The waste required by inefficiency regulations is insidious, because it tends to be seen as a positive contribution to coastal communities, rather than the drain that it really is. For example, Maine residents know that the working waterfront is being taken over by outsiders, but they don't question why that is happening at a time when the lobster fishery is producing record landings. The inability to use valuable fishery assets as capital explains why the residents of fishing communities have not remained competitive with people from "away" who have had the opportunity to accumulate assets in their businesses (upon which to finance the acquisition of Maine real estate) while Maine commercial fishermen have not been able to accumulate fishing assets in the course of their business (as a basis for financing other investments).

### **What is a Property Right?**

Property is obviously more complex, and has a greater role in our society, than is indicated by Macinko and Bromley's definition of property as the "income (or benefit) stream that can be associated with a particular setting or circumstance." Anthony Scott (Scott 1988) and Ragnar Arnason (Arnason 2000) provide a much richer description of property and ownership. In his 1988 description of the "Conceptual Origins of Rights Based Fishing," Scott lists six characteristics of ownership, including duration, divisibility, transferability, quality of title, exclusivity, and flexibility (Fig 1.). He portrays these characteristics as arrows whose length depends on the strength of the characteristic.

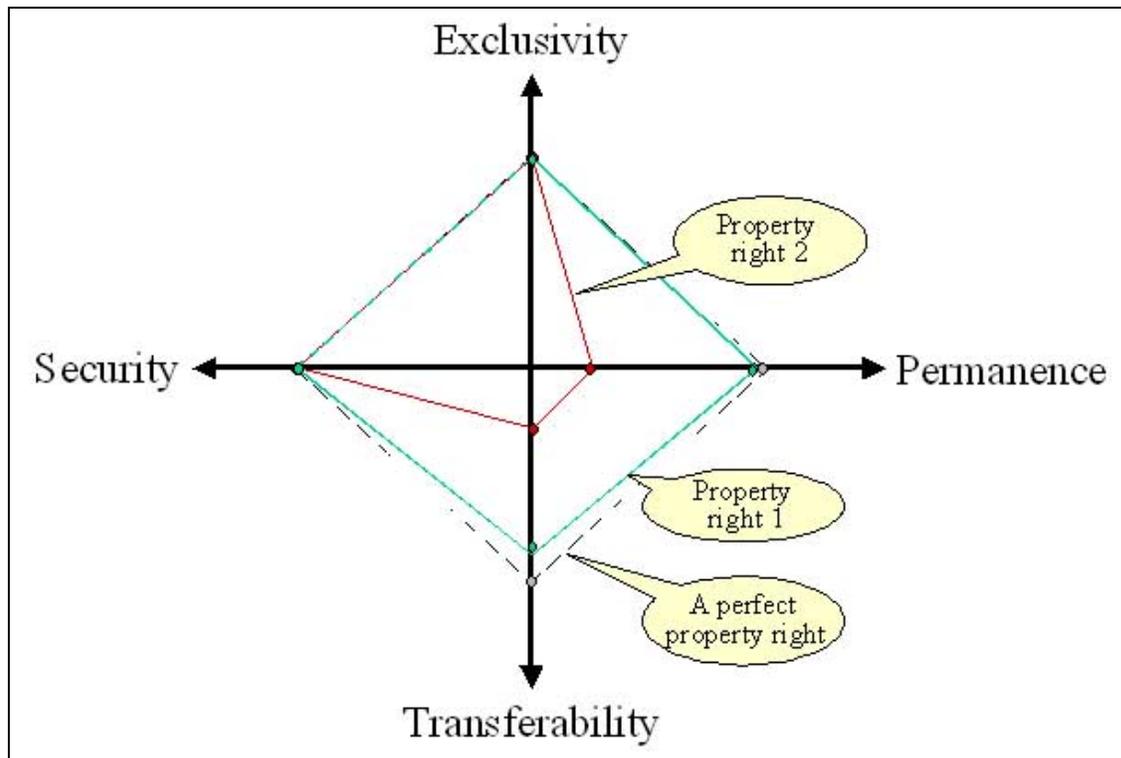
In a more recent discussion of property rights, Scott focuses on the powers that generally attach to property rights. He identifies (a) the power to use the thing (or manage it); (b) the power to dispose of it (to sell it or grant it); and (c) the power to take its yield (e.g. as a crop, rent or



**FIG. 1.** From Scott, Anthony. "Conceptual Origins of Rights Based Fishing." NATO Advanced Research Workshop on Scientific Foundations for Rights Based Fishing Ed. P. A. Heher, R. Arnason, and N. Mollett Reykjavik, Iceland: Kluwer Academic Publishers, 1988. 11-38.

royalty) (Scott 2000). He then asks us to “consider the fisherman in his role as the owner of a fishing vessel. He has all three powers over it: he can run it, sell it and take the profit from doing these things. But now consider the same fisherman in his role as occupier of the fishery itself. This role does not give him powers to manage it or dispose of it. All he has is the third power, the law of capture: the power to take and keep the fish he catches. The absence of the first two powers deprives him of any incentive [or power] to look after the fishery.”

Arnason simplifies the ownership characteristics somewhat, identifying four: exclusivity,



**Figure 2** Arnason, R. "Property Rights as a Means of Economic Organization." *FishRights99: Conference on the Use of Property Rights in Fisheries Management* Ed. Shotton, R. Fremantle, Australia: FAO. 1999.

security, permanence, and transferability (Figure 2). Other authors have similarly identified multiple characteristics of what we think of as ownership. The more sophisticated description of ownership makes it clear that fishing rights such as ITQs can't simply be classified as being property rights or not being property rights. Any individual fishing quota, "individually specified catching opportunity," (Macinko and Bromley 2001) or "dedicated access privilege" (U.S. Commission on Ocean Policy 2004) confers one or more of the characteristics of property rights and ownership to some extent. Any of these allocations creates "the legal ability to command the collective authority of the state to protect one's interest in a particular stream of benefits arising from specific settings and circumstances" – the Macinko/Bromley definition of a property right. The fact that the claim may be a subsidiary claim of shorter duration than the public ownership claim from which it emanates does not diminish its status as an enforceable property right. Neither does the method by which the claim is obtained, whether by administrative due process or public auction.

The nature of a property right is important to the incentives that are created for the holder of those rights. In his book *"Capturing the Commons,"* anthropologist James Acheson quotes economist Thrainn Eggertsson on the incentives created by the characteristics of ownership rights: "short-term control shortens the time horizon; uncertain control discourages potentially profitable projects; lack of control incites costly races for possession; restricted control allocates assets to inferior uses" (Acheson 2003).

Other than the fact that some people just don't take care of things whether they own them or not, the most serious challenge to the assumption that property rights to fish may not assure their conservation arises from "the iron law of the discount rate," which Macinko and Bromley stress

in their paper. The theoretical demonstration that a private owner might find it more advantageous to liquidate a renewable resource rather than conserve it is generally attributed to Colin Clark's 1973 paper titled "Profit maximization and the extinction of animal species" (Clark 1973). Harvard ecologist E. O. Wilson has gotten considerable mileage out of Clark's conclusion concerning the economics of harvesting whales – "The disconcerting answer for annual discount rates of more than 21 percent: Kill them all and invest the money" (Wilson 2002).

It is certainly true that a profit-maximizing owner of a fish stock might consider liquidating the stock and putting the money into a more lucrative investment if the growth rate of the fish stock did not match the interest rate on other investments. But Clark's conclusion should actually lead to much more optimism. Most fishery resources have growth rates that exceed any imaginable alternative investment. Frisk, Miller and Fogarty (2001) provide a list of potential population increase values for North Atlantic and North Sea groundfish that demonstrate the attractiveness of an investment in fishery conservation. Table 1 contrasts the return on investment from sustainable harvesting of a fishery resource compared to liquidating the fish stock and investing

r=0.3		K= 100000		F=0.150		Rate of Return	
						On Altern. Invest. 0.06	
Year	Biomass	Catch	Price	Annual Fishing Revenue	Liquidation Value	Alternative Return	
0	50000	7500	\$2,000.00	\$ 15,000,000	\$ 100,000,000	\$ 6,000,000	
1	50000	7500	\$2,000.00	\$ 15,000,000		\$ 6,000,000	
2	50000	7500	\$2,000.00	\$ 15,000,000		\$ 6,000,000	
3	50000	7500	\$2,000.00	\$ 15,000,000		\$ 6,000,000	
4	50000	7500	\$2,000.00	\$ 15,000,000		\$ 6,000,000	
5	50000	7500	\$2,000.00	\$ 15,000,000		\$ 6,000,000	
6	50000	7500	\$2,000.00	\$ 15,000,000		\$ 6,000,000	
7	50000	7500	\$2,000.00	\$ 15,000,000		\$ 6,000,000	
8	50000	7500	\$2,000.00	\$ 15,000,000		\$ 6,000,000	
9	50000	7500	\$2,000.00	\$ 15,000,000		\$ 6,000,000	
				\$150,000,000	Ten-Year Return		\$60,000,000

**Table 1. Comparison of return on fish stock investment from sustainable harvesting compared to liquidating the fish stock and putting the proceeds in an alternative investment at six percent return.**

the proceeds in an alternative investment paying six percent, the upper bound of Treasury notes and corporate bonds on February 25, 2005. The example uses a fish stock with an intrinsic growth rate (r) of 0.3, which is the lower bound of the comparable potential population increase (r') values for teleost fish listed by Frisk, Miller and Fogarty (2001).

Of particular interest is the fact that the potential to increase stock productivity is greater when fish stocks are depleted, making it more and more likely that a private investor would step in to conserve a depleted stock if its current owner did not recognize the higher value that could be obtained through conservation. The noteworthy aspect of this conclusion is that the fishery management structure would have to be structured to allow a private investor to buy rights to fish, and to have the choice of leaving his fish in the water, in order for the conservation incentive to be realized. The "iron law of the discount rate" would seem to assure the sustainable management

of most fishery resources in private hands, contrary to what we have seen under government control.

It would be a mistake, however, to assume that prevailing investment returns alone determine an individual's discount rate. Columbia Business School professor and Pew Oceans Commission member Geoffrey Heal (2001) points out that we choose a discount rate, rather than calculate it. Similarly, in his discussion of the connection between a conservation ethic and a low discount rate, Acheson (2003) enumerates a number of factors that make people more or less willing to invest in conservation rules, all focused on their expectations of receiving benefits in the future. Willingness to conserve is directly related to one's expectation of continuing benefits. Conversely, uncertainty about the future flow of benefits makes one less willing to invest in conservation.

Heal summarizes his philosophy with the statement that: "America needs a new generation of environmental policies explicitly recognizing the economic value of the environment and drawing on this, where appropriate through markets, to provide conservation incentives. These will supplement and eventually substantially replace our current reliance on command and control systems" (Heal web site). The extent to which ITQs will be used to create market incentives to replace our current command and control system of fisheries management is the crux of the IFQ standards debate.

Readers may also be interested in a series of articles on ITQs that was written by James O'Malley and me and published in Commercial Fisheries News in 2001. Those articles can be accessed at <http://www.lobsterconservation.com/ifqcolumn1/>. More information on stock stewardship shares can be found in Appendix I or at <http://www.lobsterconservation.com/introductiontoiss/>.

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## **Appendix I** **Beyond ITQs -**

### **Conceptual Partial Populations and Population Stewardship Shares**

#### **Conceptual Partial Populations and Population Stewardship Shares Can ...**

1. Replace the “race for fish” with a “race to conserve;”
2. Transform group punishment into community incentive;
3. Eliminate Lowest-Common-Denominator management;
4. Convert “winner-take-all” political battles into win-win scenarios;
5. Create both responsibility and accountability among fishery participants;
6. Make fishery conservation a worthwhile investment.

#### **Why Fisheries Fail**

Failures in resource management, including fisheries, are often attributed to the presence of “externalities” – the fact that the cost of one person’s actions are often spread out among many other people, while the person that imposes the cost gets all the benefit. When one person increases his fishing effort, for example, that person gets all the benefits of catching more fish, but all of the other harvesters share in the cost associated with having less fish in the ocean.

In searching for solutions to environmental problems, economists seek to internalize the costs and benefits associated with the use of natural resources. If resource harvesters pay the full costs associated with their activities, and reap the full benefits, they will attempt to minimize costs and maximize benefits. Population stewardship shares and conceptual partial populations have the potential to simplify and improve fishery management, in part because they internalize costs and benefits associated with fishing.

#### **Stratis Gavaris, Conceptual Partial Populations, and Elementary Management Units**

In a 1996 article in the Canadian Journal of Fishery Science, Stratis Gavaris suggested that the fish stock could be partitioned into “conceptual partial populations” that are “entrusted to the care of individuals or groups of fishers operating under common rules...” He called these groups of fishers elementary management units or EMUs. According to Gavaris, EMUs would “earn a share of recruiting year-classes according to the relative magnitude of the spawning potential of their partial population, which reflects their success at stewardship of the population share entrusted to their care.” Thus the term population stewardship shares.

The difference between an individual or state-by-state quota or a sector TAC (Total Allowable Catch) and a population stewardship share is that a population stewardship share is a share of the population itself, not a predetermined catch share of an overall TAC for the stock. The holder of a stock stewardship share would be responsible for the impact of his catch on his share of the resource, and his population share would be tracked like a bank account. Under an ITQ system, the quota holder is only responsible for keeping his catch within his share of a TAC that is centrally determined. No ITQ holder can conserve more than is required by the universal standard.

#### **Eliminating the “Lowest Common Denominator” Approach**

Individual and state by state quotas and sector shares of an overall TAC do not provide an incentive for the quota holder to be more conservative than the standards that went into the calculation of the TAC. With apportioned TACs, if one share holder were to leave a portion of

his share in the water to conserve, the benefits of that conservation would be distributed among all share holders, diluting the benefits to the share holder that did the conserving. By basing each share holder's future share of the recruitment into the fishery on the spawning potential of its conceptual partial population, Gavaris creates a "race to conserve" rather than the "race for fish" that is generally associated with TAC management. Each quota holder would reap the benefits of his success and pay the price for his failure. This contrasts with the "group punishment" character of the present system, which requires all fishery participants to cut back when stock assessments demonstrate that "someone" is catching too much and conserving too little.

### **More or Less Complex?**

Given the unmanageable complexity of our current approach to fishery management, the question immediately arises whether a system of population stewardship shares would be more or less complex. In fact, population stewardship shares could simplify fishery management.

Much of the complexity of the current system arises from a mismatch between the natural complexity of the fishery and the artificial complexity of the fishery management system. Gavaris attributes part of the failure of the Canadian system to "limited scope and flexibility to accommodate local circumstances or to permit diverse implementations of the strategy."

### **Fishery Models, Stock Assessments, and Management Guidance**

The first step in simplifying fishery management is to recognize that there are two distinct scientific components of fishery management. One (stock assessment) is essentially backward-looking and the other (characterized by egg- and yield-per-recruit models) is forward-looking. The management system generally fails to make a distinction between these two components, as is reflected in statements to the effect that a decision on a management strategy must wait for the latest stock assessment. The problem with this approach is that management is always behind the curve, responding to what has already happened, rather than planning in advance how to best use the available fish.

### **Political Advantages**

Population stewardship shares do not require artificial lines in the ocean and they do not require complete agreement on management policies. They can apply to any level of allocation, from individuals to sectors to states to nations. Fisheries that currently use catch shares of one form or another could simply convert catch shares into population stewardship shares. Even in situations where the TAC is allocated to large groups, the use of population stewardship shares would make the impact of the fishery more apparent. Catch reporting provides information on how a share holder is managing its conceptual partial population. The management unit can choose whether to use quotas, trip limits, days at sea, or other management tools, but its success will be measured by the quantity and size distribution of its removals from its partial population. Rather than the current "winner-take-all" approach to management, competing management philosophies need not fight to the finish – each can demonstrate its benefits as a distinct management unit, without drawing more lines in the ocean.

Everyone understands why banks don't debit the accounts of all customers when one has an overdraft. And everyone doesn't get a credit when one person makes a deposit. Some folks let their interest accumulate and compound, while others don't. Why shouldn't fish be managed with the same logic?