Testimony Before the House Subcommittee on Fisheries Conservation, Wildlife and Oceans Washington, D.C. February 13, 2002

Dr. Daniel W. Bromley
Anderson-Bascom Professor of Applied Economics
University of Wisconsin-Madison

I have been asked to address a number of questions concerning Individual Fishing Quotas and I will do so in strict accord with the letter of invitation sent by Congressman Gilchrest on October 12, 2001.[(1)] I provide a brief biosketch at the end of this testimony.

The letter of invitation states that: "The Subcommittee is interested in your views on whether and when IFQs should be used as a management tool, and your recommendations for the development of guidelines that will address issues associated with the development and implementation of IFQ fishery management plans." A number of specific questions are then detailed. To facilitate clarity I shall start by responding to this general programmatic question. I will then turn to the specific questions posed. My answers to the general questions are based upon the detailed points raised in response to the specific issues of interest to the Subcommittee.

THE GENERAL QUESTION:

Whether and when IFQs should be used as a management tool, and guidelines that will address issues associated with the development and implementation of IFQ fishery management plans.

A useful response to this question first requires some contextual clarification. In that regard, I insist that coherence will come to American fisheries policy if and only if the following five conditions are met:

A. RECOGNIZE PUBLIC OWNERSHIP

There must be clear recognition that the wealth of ocean resources¾but especially the fish stocks¾are the exclusive property of the citizens of the United States. This reality for the Exclusive Economic Zone would put fisheries on the same legal basis as grazing on BLM lands, as grazing and timber harvests on U.S. Forest Service lands, and as petroleum extraction from the Outer Continental Shelf.

Recognition of ownership by all of us carries with it the correlated obligation that some government agency be given a clear and non-negotiable mandate to protect¾not just "manage"¾the wealth of ocean resources for the long-run benefit of all of its owners. This means that fisheries policy would suddenly be driven not by the wishes and priorities of the industry in pursuit of our fish, but in the interests of those of us who are the owners of the ocean ecosystems and all that is contained therein. After all, the fishing industry is merely the first step in a long and elaborate process of converting nature's gift into a valuable product for our consumption. Fishing firms stand on the same foundation as firms engaged in petroleum extraction, timber harvesting, livestock grazing, and mineral extraction. All of these firms exist with but one purpose in mind¾to serve us as they collect nature's bounty for our benefit. As long as there is a demand for the product they deliver, we need not worry that there will be clever and hard-working entrepreneurs standing in line seeking the opportunity to serve our cravings. That is, after all, the essence of capitalism and the associated markets we claim to revere.

B. ASSURE SUSTAINABLE HARVESTS

With public ownership clarified, and with the long-run sustainability of the wealth of ocean fisheries assured by the aggressive management protocols of a committed government agency (said responsibility currently residing in the National Marine Fisheries Service), we may turn our attention to the essential matter of assuring the long-run sustainability of the valuable assets of the EEZ. Notice that safe harvests must remain the exclusive province of some government agency. Notice, as well, that the determination of this harvest level¾often called the Total Allowable Catch (TAC)¾must be resolutely situated beyond a robust firewall that offers absolute protection to government scientists and their technical advisors from local political pressure to push the TAC up beyond what the scientists insist is the safe harvest. In those fisheries without a formal TAC there must be a resolute commitment to follow management advice about closures when stocks are threatened

Having said that, we must recognize that part of the difficulty in many fisheries is that they are managed on the dubious metaphor¾and models¾of "surplus production." These models presume that nature produces "extra" stuff that can freely be taken out of the ecosystem without serious implications for other parts of those ecosystems which are either predators of, or prey for, the allegedly "surplus production." When simplistic models of surplus production are built for single species¾and unfortunately this seems to be the norm¾then it should not surprise us when seemingly "safe" harvests turn out to hold serious implications for a number of fish stocks. In such cases it is not political pressure that constitutes the primary threat to sustainability, but bogus science. If the Congress really is interested in the application of good science to fisheries policy then a major research initiative to advance the primitive art of fishery population dynamics would offer enormous payoffs.

C. ALLOCATION OF HARVESTS

With individual stocks in each fishery protected from both bad science and political manipulation, the question then turns on how the safe (sustainable) annual harvest from particular fisheries shall be allotted to those who seek to participate. Before answering this question, I must briefly offer a slight but fundamental economic digression. Specifically, the capture of the living resources of the oceans is currently free to all who wish to earn income from that pursuit. It constitutes intellectual dishonesty for an economist to fail to point out that this simple fact leads to an artificial inducement for too many factors of production¾boats and labor¾to be devoted to that particular pursuit. That is, too much labor and capital will be devoted to catching fish in comparison to other avenues of gainful employment. We know that in other economic pursuits the necessary inputs are priced through markets that ostensibly reflect the value that society attaches to those inputs. Of course fishing is not a costless activity¾boats, gear, licenses, fuel, and insurance represent formidable costs. However, only in the fishery is the valuable product (the fish themselves) freely given away. Not only is this zero price a false reflection of the true social value of the harvested fish, this zero price results in fishing being artificially cheap compared to other possible avenues of making a living. It follows that there will therefore be too much labor and capital devoted to fishing.

We see that economic efficiency¾and equity with other sectors involved in natural resource extraction¾demands that those who seek to make a living from fishing must offer payments to the owners of those fishery resources for the opportunity to profit from that activity. This requires that any allotment of fishing opportunities to the private sector must be predicated upon some scheme in which the U.S. government receives a payment for fish caught. These schemes could be structured in a variety of ways. But the receipt of payments to the U.S. Treasury assures that economic efficiency and equity across resource

sectors has finally arrived in U.S. fisheries policy.

D. IFQs AS A MANAGEMENT TOOL

We now have public ownership firmly established, we have safe and sustainable harvests assured, and we have sound economic principles in place to make sure that the current subsidies to excessive entry and landings have been reduced, if not entirely eliminated.[(2)] From this auspicious foundation I can now address the core question: whether and when (that is, under what circumstances) IFQs should be seen as a feasible management tool in U.S. fisheries?

The answer to this question first requires clarity as to what is meant, precisely, by the concept of an "IFQ." There are four components that are pertinent here:

· A total allowable catch (TAC) is set for a particular fish stock;
· That TAC is then divided into shares (called "quotas") among some subset of all vessels with a creditable "catch history;"
· Permits to catch and land those quotas are then issued free of charge to all with a creditable catch history;
· Those permits to a quota share constitute "individual fishing quotas" (IFQs)

The question therefore concerns which of these attributes alone, or in concert, offer a feasible and prudent "management tool" for fisheries? Notice that mere feasibility is not sufficient. Of course IFQs are feasible¾they exist in 6 U.S. fisheries (one is a state fishery in Wisconsin, while the other 5 are federal programs). So I will answer in terms of the sufficient condition¾are IFQs a prudent management tool?

IFQs can be a prudent management tool for particular fisheries if certain conditions are met. These conditions are:

· If there is assurance that harvest levels will not drive stocks to economic or biological extinction (that is, there must be a coherent and safe TAC);
· If there is local pressure to force some labor and capital to exit a particular fishery;
· If it is clear that the subsequent purchase of petty shares will accomplish the necessary exit of labor and capital
· If there is a realistic annual fee structure for those wishing to remain in a particular fishery;
· If those remaining in a particular fishery and seeking quota shares are made to offer bids for royalty payments on landings (with only some subset of the highest bidders receiving quota shares);
· If it is clearly understood that the legal nature of the IFQ (as a permit) stands on the same ground as all commercial contracts and agreements and bears no relation whatsoever to Constitutional notions of "property rights" (that is, the legal content of IFQs is situated in contract law among other holders of IFQs and bears no relation to the citizens of the U.S. as owners of the wealth of ocean fisheries or the U.S. Treasury);[(3)] · If it is clearly understood that IFQs will do nothing at all to turn fishers or fishing firms into good and beneficent stewards of our wealth of ocean fisheries;
· If it is clearly understood that monitoring and enforcement costs in an IFQ fishery are not less¾and stand a very good chance of being greater¾than those costs in a non-IFQ fishery.

E. THE NATIONAL INTEREST IN LOCAL AND REGIONAL FISHERIES

The final piece in this challenging policy puzzle concerns the relation between the local/regional level and the national interest in U.S. ocean ecosystems. The idea behind the various fishery management councils is that the councils will assure us that fishery policy is formulated by those closest to the resource and the implications of various policy choices. However, as the Pacific Northwest recently learned about timber harvesting practices, local interests can often conflict with the larger national ownership interest of precious natural assets.

Local issues and priorities of course warrant careful consideration in national fishery policy. At the same time, we must be very clear that the ultimate health of marine fisheries is too important to be left to local pressures and wishes. It may be acceptable for regional councils to have the option of implementing an IFQ system in one or more particular fisheries, but that implementation must be consistent with the conditions spelled out immediately above. To summarize briefly here, as long as that implementation were consistent with: (1) clear recognition of the public ownership of the wealth of ocean fisheries; (2) absolute assurance for protection of

each fish stock¾and recovery of depleted stocks; and (3) a pricing scheme for fish that assures a return to the U.S. Treasury for the opportunity to participate in the fishery.

We see here a necessary blending of national and regional interests. Regional interests have a stake in the ocean's resources, and there is certainly special knowledge at the regional/local level. But the wealth of ocean fisheries is most assuredly not the fee simple estate of local or regional interests. Rather, that estate is an asset belonging to all citizens of the U.S. The obligation here is that local/regional priorities and interests must always be subordinated to the larger national interest in the sustainability of the fishery resource.

SUMMARY:

These five principles, if assiduously adhered to, offer a plausible chance of rescuing U.S. fishery policy from the incoherence into which it has slowly settled over the past decades. And if IFQs are thought to be a prudent management tool then they must only be introduced under the more expansive list of 8 conditions elaborated under item D above.

I now turn to the more specific issues in Congressman Gilchrest's letter of invitation. In doing so I will draw upon--and reinforce¾some of the comments from above.

SPECIFIC ISSUES:

1. Initial allocation among fleet sectors and individuals

One of the major flaws in IFQs as we know them is that the receipt of an IFQ permit represents a gifting of public wealth to private individuals. As a citizen I am offended¾and as an economist I am outraged¾by this unnecessary enrichment of an industry that is proud of its commitment to what many of its members are pleased to call the wonders of American free enterprise. Unfortunately, the adjective "free" has an insidious double meaning in fisheries policy. I very much doubt that this practice is what most people have in mind when they pronounce on the manifold virtues of a market economy. Indeed, one could make a plausible argument that much of the observed¾and much lamented¾"excessive entry" afflicting many fisheries is less motivated by the desire to catch fish than it is to acquire some catch history by which firms might then receive one of these wondrous gifts. We call this, with deep irony, "fishing for quota." Notice that the mere expectation that IFQs will be introduced in a number of fisheries has precipitated the "race for catch history"¾such racing then providing part of the alleged need and "justification" for IFQs. In an ironic twist, we may fairly observe that the "disease" is caused by the promise of "medicine." And the more likely the prospects of medicine, the worse the disease becomes. This is bizarre in the extreme.

If Congress is intent on gifting public wealth to the private sector then there must first be a clear set of criteria whereby that gifting can be justified and explained to the American people¾and to the U.S. Supreme Court.

It is clear that if IFQs are to be introduced then the only economically rational way for that to be done is on the basis of the willingness of fishing firms to pay for the opportunity to pursue that particular income stream. It would seem odd, I suggest, were oil companies to be given free access to the deposits in the Outer Continental Shelf. It would be odd, as well, were logging firms and sawmills to be given free access to the timber growing on public lands in America. And indeed we know just how much controversy exists over the allegedly low grazing fees paid by western ranchers for access to forage on the public lands. One thing that can be said for the ranchers¾at least they are paying something for what they receive from the public domain. The same cannot be said for America's fishing fleet.

I have earlier (item C above) pointed out that pursuing fish is artificially cheap. All fishing firms should be required to pay substantially more than at present to pursue our fish. That alone would solve much of the alleged problem of "excessive capital" in (or lurking near) many fisheries. I also insist that if an IFQ system is instituted, access to an IFQ permit should be contingent on submitting bids (royalty payments) for each fish landed. Such auctions are common in natural resource policy and must be part of any IFQ program [Macinko and Bromley, 2001].

This is not the place to articulate the details of several feasible auction systems. It is, however, the place to insist that only auctions can uncover the market's assessment of the economic value of fishing. And, only through auctions will we finally bring the proper economic incentives to an industry that has, for too long, had free access to the wealth of ocean fisheries. To those who worry that auctions would eliminate small firms I wish to point out that auctions could be designed in a way that would partition the allowable

catch in a way that would reflect local characteristics, culture and concerns. In addition, the auction systems would lead to fishing permits for set periods of time¾ranging from 2-10 years¾depending on the circumstances of each fishery. This would facilitate management flexibility as conditions change. Finally, there could be limits on maximum share of any fishery that could be controlled by a single firm¾or by a combine of firms. Notice that the proceeds from this system of auctions could, in the beginning, be dedicated to programs that would ease the transition of firms unwilling to continue to fish. The proceeds could also serve to ease transition costs in particular communities hit hard by the transition to the new fishery regime.

2. Should processors receive quotas?

It is important to point out that the excessive and quite unnecessary controversy about whether or not processors should receive quota shares arises from the fact that there is an expectation that the quota shares¾and the immoderate income streams associated with said permits¾will be given away free. In rather blunt terms, those who fish seek to make sure that they are the only ones to benefit from this wondrous wealth transfer and the associated income stream. Members of this House know all too well that there is an unlimited demand for income streams given away free of charge by the government.

But, under my proposal, anyone who seeks to acquire an opportunity to earn a living from fishing must first agree to pay higher fees for the opportunity to fish, and they must participate in an auction where they would bid for royalty payments on the fish caught and landed. Notice that structuring the initial allocation in this way would immediately truncate the very long line of supplicants who would otherwise appear before you at frequent intervals claiming to be much in need of a government handout.

3. Impact of IFQs on conservation and management of fisheries resources

We come now to the basis of most, if not all, of the bogus dogma concerning IFQs. This dogma appears in many forms but the most blatant form seems to be:

Major Premise: IFQs are private property rights

Minor Premise: Private property rights cause good stewardship

Conclusion: IFQs will bring forth good stewardship of the public's wealth of ocean fisheries.
Notice several things about this chain of reasoning. First, IFQs are assuredly NOT private property rights. Hence the major premise is patently false. The Congress [Magnuson-Stevens Act, Sec. 3 (21)] has defined an IFQ

…a Federal permit under a limited access system to harvest a quantity of fish, expressed by a unit or units representing a percentage of the total allowable catch of a fishery that may be received or held for exclusive use by a person. (emphasis added)

In fact, Congress went on to provide further clarity regarding property rights and permit-based limited access systems generally [Magnuson-Stevens Act, Sec. 303 (d)(3)]:

An individual fishing quota or other limited access system authorization--

(A) shall be considered a permit for the purposes of sections 307, 308, and 309;
(B) may be revoked or limited at any time in accordance with this Act;
(C) shall not confer any right of compensation to the holder of such individual

fishing quota or other such limited access system authorization if it is

revoked or limited; and

any fish before the fish is harvested.
(D) shall not create, or be construed to create, any right, title, or interest in or to

Unfortunately the fishery literature¾including that emanating from the National Marine Fisheries Service¾is replete with incoherent claims that an IFQ fishery is a "rights-based fishery." Let us be clear about one fundamental point: the Exclusive Economic Zone (EEZ) represents nothing if not the reach of the sovereign authority of the U.S. Government over the entirety of economically important natural assets within the EEZ. It is therefore patently false to claim that the American fishery in the EEZ is a "common

property resource." It is also false to claim that no one "owns" the fish until they are captured by the fishing firm. The American people own the fish in the EEZ and all of the associated natural systems central to the health of the oceans [Bromley, 1991]

What of the minor premise¾the quite extravagant claim made for the wonderful stewardship properties of private owners? Economic theory is quite clear on this point. If the rate of time preference of a private owner is greater than the rate of reproduction of a living resource (i.e. fish) then it follows that the owner will find it preferable to drive the resource stock to extinction and consume the proceeds. Or, if interest rates are favorable, the private owner will invest the proceeds where they will grow faster than if the resource had been managed conservatively to yield an income over time. We call this the iron law of the discount rate [Macinko and Bromley, 2001]

There is other evidence of the flawed story about private ownership and stewardship. Specifically, public policy has clearly recognized¾at least since the days of Theodore Roosevelt¾that private individuals suffer from a "faulty telescopic faculty" when it comes to the treatment of nature. There is only one entity whose time horizon gives proper account of the future. That entity is the collective authority of government, looking not to the present value of future earnings, but looking instead to the future value of present actions. One can only imagine what would have become of the Grand Canyon had this magnificent jewel not been taken firmly into the public domain. One can almost see the roller-coasters racing from rim to rim over the Colorado River. Just imagine¾the world's largest water slide at Yosemite.

The question therefore, restated from above, is: what is the "impact of IFQs on conservation and management of fishery resources?" The simple answer is that there is nothing in IFQs that assures "conservation" of fishery resources. The evidence from several international fisheries with long histories of IFQs systems, when stripped of all the propaganda, is that conservation remains a fundamental problem. Indeed, several fisheries in New Zealand have begun to practice "shelving"¾a practice in which quotas are not taken back from fishers but merely "shelved" as the allowable harvest is reduced under continued overfishing. There is, in other words, an explicit agreement between the government and the industry not to pursue the entirety of the TAC. The extra TAC not taken is simply "left on the shelf" so as not to alert too many people¾but especially the bankers who have extended credit to IFQ-dependent fishing firms.

The obvious question becomes, if IFQs are a credible management tool then why are several New Zealand fish stocks still threatened after more than a decade of IFQs? In fact, we see that the government has encountered fierce resistance from the fishing industry to make necessary reduction in the TAC in several fisheries. The record in Iceland is also far from encouraging. So much for the magic of IFQs [Macinko and Bromley, 2001].

4. Costs of implementing and enforcing IFQ programs

You will probably hear from witnesses who will have a better answer to this question than I might provide. But I must point out that IFQs do nothing to reduce enforcement costs in the fishery. Indeed, with a strict limit on allowable landings it is plausible that the incentive for dumping and high grading is exacerbated in an IFQ fishery. A great bit of the received dogma has it that the IFQ fishery is a self-enforcing fishery. Do not believe it for a minute.

This skepticism will be well rewarded by the realization that IFQ permit holders remain exposed to the same externalities that afflict all fisheries¾these externalities have been identified in the fisheries literature as stock, mesh, and crowding externalities. In short, what possible incentive does one fisher have to relinquish a promising fishing ground to a competitor who also holds an IFQ permit? Moreover, there are absolutely no incentives in an IFQ fishery to discourage permit holders expending time and money to lobby for higher total allowable catch limits (TACs). Indeed, the economic literature on rent seeking behavior is very clear that the opposite is to be expected. Does a smaller group of fishing firms increase the possibility of supply manipulation? This remains an open question. But the smaller the group of firms, the greater are the prospect for such behavior¾and the further the fishery moves away from the competitive ideal most economists find so compelling.

Obviously, if future TAC levels are reduced because of excessive harvest in the current season then the value of a unit of quota goes down¾and conversely. This is the basis of the contention that IFQ permits are necessary and sufficient for cautious stewardship of the fishery resource. But, as I insist above, the logic here is utopian for the simple reason that no single holder of a permit can control the fishing behavior of other permit holders. And unless each vessel owner can be assured of complete reciprocity on the part of all others in a fishery, there is little that one fisher can do to buttress the future value of quota shares. We are, in other words, back to the free riding problem that is allegedly solved by "ownership" of a quota. The absence of complete control by each individual over the precise behavior of the rest of those harvesting means that no permit holder can control: (1) the economic value of what is held (the quota share); (2) the fugitive resource (fish); and (3) the ecosystem(s) affecting that fugitive resource. To call this "ownership" is a

contradiction in terms.

The practical effect is that by themselves IFQs provide little in the way of savings on enforcement costs. Of course if a large share of the firms are removed from a particular fishery¾via IFQs, via entry fees, or by license limitation schemes¾then enforcement costs might fall by the simple logic that it is cheaper to monitor 25 vessels than 150. But this reminds us that enforcement costs are a function of the incentive structure operating on the firms under scrutiny, and on the number of firms that must be watched. Since IFQs do not materially change the income incentive structure of fishing firms then the only impact on enforcement costs must arise because of the reduced number of fishing firms. However, that reduction cannot be credited to IFQs but rather to the fact that there are now fewer firms in a fishery. If we wish to design fishing schemes to reduce enforcement costs then there are other policy instruments at our disposal.

5. Impacts on individuals and communities who do not receive IFQs

The frequent call to "rationalize" the fishery is predicated on the assertion that there are "too many boats chasing too few fish." From this blanket indictment it follows that the proper policy is to reduce¾often dramatically¾the number of firms (vessels) in each particular fishery. Leaving aside for the moment the truth content of the premise about too many boats chasing too few fish, this policy prescription guarantees that there will be a number of firms denied access to the fishery, and therefore it is plausible that there will be a number of fishing communities that will be adversely affected by the loss of fish landings and jobs.

By definition, IFQs will reduce the number of fishing firms; that is precisely their justification. The experience of IFQ implementation is that there is far too much catch history to be sustained and so the alleged "need" for rationalization is exacerbated by the speculative chase for catch history. When it is time to allocate an unsustainable total catch history it often happens that those firms most responsible for adding investment into the fishery have large qualifying catch histories. Most other firms will have qualifying catch histories that likely bear little relation to their recent catch levels. Then, when quota shares are allocated many fishing firms, even those with a catch history, will receive quota shares that are below the level required to maintain a viable going concern. Those firms unable to acquire additional quota shares to bring their landings back to their former level will have no choice but to sell their minimal share. This large number of forced sellers has the practical effect of suppressing the quota sale price, bestowing yet a second windfall on those who received, free of charge, larger quota shares. It is these initial large holders who will eventually control a larger portion of the total allowable catch in an IFQ fishery. The recipients of large initial allocations are thus advantaged twice--once from the windfall from the citizens of the United States, and then again when they enter the market for additional quota shares. We may fairly regard this as consolidation under duress. Of course no one is forced to sell their petty quota share. But if it is too small to be of any possible benefit then it is economically irrational to hold it. In economics we have the concept that the poor will always sell out first (or at a lower price). Why is this? Because their preference for liquidity is higher than it is for those with rather more ample money in their pocket (or in the bank).

Quite obviously, ridding fisheries of allegedly redundant firms will hold serious implications for those firms forced out of the fishery, and to those communities inordinately dependent upon fishing activity. The more aggressive economics literature is inclined to dismiss these dislocations with the utopian palliative that we should not worry about such things because the labor and capital suddenly "liberated" from the fishery will then be free to move to some other location and find its next best employment. The story will then be advanced that the nation as a whole will be better off since those newly liberated factors of production can suddenly be deployed elsewhere in the economy. Such theoretical niceties cannot be expected to find much sympathy in the fishing firms¾and fishing communities¾suddenly "liberated" from the fishery. The problem here transcends the allegedly simple task of "rationalizing" the fishery. The problem becomes one of economic and social strategies for individuals and communities that have long depended on the fishery.

6. Windfall profits to initial recipients

I have previously commented on the windfall accruing to those who manage to acquire a large initial allocation of IFQ shares. The issue, however, goes beyond windfall "profits." Indeed, the proper way to consider the matter is to understand that the initial allocation of IFQ permits represents an enormous wealth transfer from the citizens of the United States to the private sector. The holder of an IFQ permit suddenly acquires a license to reap large income and wealth from the public's oceans resources. There can be no justification for such windfalls and the auction scheme advocated here would eliminate those egregious gifts of wealth to the private sector.

7. Limiting duration of IFQ permits

All future fishing permits should be awarded only to those who are the successful bidders for the opportunity to catch fish¾that is, those firms that submit winning bids to pay royalties for fish caught. The duration of this system of purchased opportunities to pursue and catch fish should be crafted to local fishery conditions, but there is no basis for having a time period that extends beyond a 10-year period.

8. Other limited access systems (cooperative fishing agreements)

The recent interest in so-called "cooperative fishing agreements" warrants but brief mention here.

At first blush, the term "cooperatives" conjures ideas about alternative business arrangements where members are also regarded as "owners" in a loose sense of that term. However a close look at what passes for "cooperatives" seems to reveal a very different picture indeed. Is this not the deployment of cunning language to conceal what is at work? If such arrangements were called by their proper name¾cartels¾we might well be less enamored of this latest fad.

While I may be mistaken, the idea of fishing cooperatives is that members agree to act in a particular fashion in order to avoid some allegedly undesirable circumstance. Is "derby fishing" a problem? Perhaps a cartel can result in the pacing of fishing activity so that the worst aspects of a derby are alleviated. Isn't cooperation better than cutthroat competition and racing?

My only caution here is that a small group of fishers who can coordinate their activities to avoid derby fishing can as easily coordinate their activities in the interest of influencing price. That is, perhaps deliveries to processors can be timed in a particular fashion to benefit one segment of the industry?

It is, therefore, imperative that we be clear as to the social benefits produced by "fishing cooperatives." At the moment I remain dubious.

REFERENCES

Becker, Lawrence C. 1977. Property Rights: Philosophic Foundations, London: Routledge and Kegan Paul.

Bromley, Daniel W. 1991. Environment and Economy: Property Rights and Public Policy, Oxford: Blackwell.

Macinko, Seth and Daniel W. Bromley. 2001. Through the Looking Glass: Marine Fisheries Policy for the Future, report to the Pew Charitable Trusts, September 22. (mimeo).

NRC (National Research Council). 1999. The Community Development Quota Program in Alaska Washington, D.C.: National Academy Press.

Daniel W. Bromley

Daniel W. Bromley is Anderson-Bascom Professor of applied economics at the University of Wisconsin-Madison. Professor Bromley has published extensively on: (1) the institutional foundations of the economy; (2) legal and philosophical dimensions of property rights; (3) economics of natural resources and the environment; and (4) economic development. He has been editor of the journal Land Economics since 1974.

He has been a consultant to the Global Environment Facility; the World Bank; the Ford Foundation; the U.S. Agency for International Development; the Asian Development Bank; the Organization for Economic Cooperation and Development; and the Ministry for the Environment in New Zealand. He has worked and lectured in Russia, Denmark, Finland, Norway, Sweden, France, Germany, Italy, England, South Africa, Pakistan, Indonesia, the Dominican Republic, the Philippines, New Zealand, Thailand, Haiti, India, and Sudan.

Professor Bromley has written and edited eleven books, the most recent of which are: Economic Interests and Institutions: Conceptual

Foundations of Public Policy (Blackwell, 1989); Environment and Economy: Property Rights and Public Policy (Blackwell, 1991); The Social Response to Environmental Risk (Kluwer, 1992). (with Kathleen Segerson); Making the Commons Work: Theory, Practice, and Policy (ICS Press, 1992); The Handbook of Environmental Economics (Blackwell, 1995); Sustaining Development: Environmental Resources in Developing Countries (Elgar, 1999); and

Economics, Ethics, and Environmental Policy (Blackwell, 2002). (with Jouni Päävola).

He is now writing Sufficient Reason: The Theory of Economic Institutions

1.Many of the ideas expressed here have been developed¾and are much elaborated¾in Macinko and Bromley [2001].

2.There are other subsidies, introduced to "develop the American fishing fleet" in the 1970s, that continue to plague and stifle economically rational fishing policy. This does not seem the place to discuss such practices.

3.See Becker [1977, p. 13] for the important distinction between "claim rights held against other individuals"¾in this case other IFQ holders¾"from those held against institutions"¾in this case the NMFS or the U.S. Treasury.

####