

REJOINDER:

The Crisis in Ocean Governance: Clarifications and Elaborations¹

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Abstract Comments on my original paper have exposed areas in need of clarification, and evinced resistance to the use of auctions in artisanal fisheries. Here I offer necessary elaborations to my earlier paper, paying particular attention to how fisheries economists, through their failure to be honest concerning the concept of 'rent', have managed to mislead policy makers concerning the core problem in fisheries. Programs to restrict entry in order to avoid 'rent dissipation' brought on by new entrants are in fact agendas to make sure that a restricted class of entrants – often gifted with perpetual ITQS – can fish and earn extra-normal (quasi-monopoly rents) and then, when tired of fishing, these fortunate recipients can sell their ill-gotten gifts for small (or large) fortunes to other aspiring individuals. This privatization of the oceans is advocated under the false banner of restoring dissipated rents. I also make clear that an auction system is not appropriate for artisanal fisheries in the smaller latitudes.

Preamble

The observations on my 'Crisis' paper are insightful, pertinent, and suggestive. I shall address Professors Mansfield and Failler together, respond to the points raised by Blake Ratner and Eric Baran, and close with some reflections on the brief comments of Daniel Pauly.

The Politics of Policy

Professor Mansfield raises several concerns about the prominent role of flawed concepts of property in the dominant fisheries-policy narrative. She wants to hear more about the conceptual confusion on property, about the spurious claims linking private property to solutions of problems in ocean governance, and about the inherently political character of our relationship to nature. More important, she is dissatisfied with my advocacy for auctions because she believes that auctions do not '...address the issues raised by these investigations into what property is, how it works, and the purposes to which it is put.' More to the point, she sees auctions as part of an effort to enclose particular fisheries for the benefit of some and the correlated dispossession of other. According to Professor Mansfield, '...auctions

appear not as a real alternative to ITQS and MPAS, but as a kinder and gentler way to impose neo-liberal forms of property and markets.'

Starting with the conceptual confusion, Professor Mansfield insists that the enduring confusion over concepts of property does not arise from laziness or theoretical innocence on the part of many contributors to the flawed policy canon. Rather, it springs from their blatant political agenda. I will suggest that a useful start on that issue is to separate the dominant narrative into its creators and those who find that particular narrative congenial to their personal ('political') agendas. In this regard, I readily acknowledge the political agenda of such groups as the Environmental Defense Fund (EDF) and the Property and Environment Research Center (PERC), but it is important to recognize that these players are mere opportunists selectively drawing on those aspects of particular literatures that serve to advance their political ends. For the most part I still wish to focus attention on those responsible for creating and advocating a flawed conceptualization of the fisheries problem.

I have been reluctant to attribute a 'political' agenda to my colleagues in economics because the vast majority of them have been trained (socialized also comes to mind) to believe that economics is politically neutral, scientifically objective, and – as economists are wont to say – 'positive not normative.' None of these beliefs is true, but that is a debate best left for internal disciplinary debate (Bromley, 1990, 2006a, 2008). But it is essential to point out here that received economic theory is individualistic in all of its epistemic commitments, and therefore it cannot be a surprise that policies to emanate from the application of economics to nature end up celebrating individualism all the way down. Economists have not sought to take our models to the natural world we study, but to force the natural world into our atomized heuristic algorithms and their derived 'truths' (Bromley, 2008). The major flaw of my discipline is that it is evolutionarily implicated in the entire modernist epistemology of logical positivism (Bromley, 1989, 1990). The political essence of contemporary economics is at one with the political *zeitgeist* of the age – and this continuity renders it impossible for economist to see, to understand, and to admit that their policy conclusions are 'political' or prescriptively tendentious. Since the reigning economic and political system celebrates what it is that economics holds to be true, economics cannot be 'political' except to the extent that it reflects the reigning vision of how to organize an economy. But of course this makes economics supremely political. Contemporary economics has been naturalized by the economic system it has wrought.

Turning to the eager consumers of our flawed models, these epistemologically naïve policy prescriptions are just what the organized political community wants in order to further its preferred political agenda. And so the *a priori* policy desires of the Environmental Defense Fund (and its politically affine organizations) are supported by the standard catechism. An eager consumer, quite incurious about the conceptual incoherence at the core of its desired policy advice, gets just what it wants. Then when the Environmental Defense Fund undertakes its concerted efforts to advance privatization of the oceans through ITQS it is doing so for its own political reasons – and it is using the fisheries economics literature

as an instrument of its own desires. On this tack fisheries economics is but an innocent producer of flawed but quite instrumental prescriptive 'truths.'

But it would be too kind to stop here. Most fisheries economists are guilty of more than conceptual innocence concerning the flaws in their own theories. And here I do not refer to their confusion about property concepts. That particular sin is simple intellectual arrogance in believing that there is no need to consult legal scholars to acquire passable working knowledge of the concept of property. Most fisheries economists simply make it up as they go along. When they wish for something to be called a 'right' they just call it that – never mind what the legal scholars might say. Where fisheries economists *are* willfully deceitful is in their propagation of confusion about the essential *economic* concept at the core of the standard bio-economic model – *rent*.

Most of us consider rent to be what we pay to a landlord. In economics, it is important to understand that there are several quite distinct 'rents.' The standard bio-economic model of fisheries laments the dissipation of rent in an open-access fishery. The ready prescription is that entry must be limited in order that fishing firms stop this wasteful dissipation of rent. And, by the convenient magic of the Schaefer-Gordon model, this perfect convergence will maximize rent in the fishery and lead to maximum sustained economic yield into the far-distant future. Dr. Pangloss lives.

But notice that the standard narrative fails to tell us whether or not fishing firms are actually paying the owner of the fish for the benefits received by firms harvesting our fish and then selling them on the market. Of course fisheries economists feel no need to raise this little detail because they apparently believe – after approximately three decades of state property under the EEZ – that no one owns the fish until those critters have been captured (Anderson and Holliday, 2007). And so from conceptual confusion about ownership there is a more serious conceptual confusion (and correlated linguistic trickery) about 'rent dissipation.' When devotees of the standard bio-economic model lament the dissipation of rent in an open-access fishery what they should be telling us is that all *extra-normal profit* has been correctly squeezed out of the fishery by virtue of entry of more firms. Terminology is everything. Extra-normal profit (also, unfortunately, often referred to as economic rent) is *that revenue to a firm that is in excess of what would be necessary to keep the firm engaged in its current activity*. The dissipation of this extra-normal return (excess profit, economic rent) is what most fisheries economists wish for us to lament. Notice that it must be lamented because doing so then justifies limiting entry so that this rent is no longer dissipated.

Inconveniently for this story line, the open-access fishery, after all of this *extra-normal profit* (this pure economic rent) has been squeezed out by new entrants, is precisely the economically optimum state that must exist in a competitive economy. Firms in a competitive economy earn gross revenue that is used to pay for the raw materials they need, to pay the workers they require, to pay the rent (there is that word again) on their facilities (or to service the debt if they own those necessary facilities), and requisite taxes. Then owners must pay themselves a market return for the time and mental effort they devote to the enterprise. In a competitive economy the payments made to all of those factors of production can-

not be greater than the market will bear. Workers must receive no more than the market wage, necessary raw materials must be bought at market prices, and owners cannot pay themselves above market returns or their total and average costs of doing business will be above market rates and their firm will not survive because it cannot compete in their particular industry. That is what it means to have (and to be in) a competitive (market) economy.

After all of the requisite payments have been made, *if* there is any surplus left that surplus represents *pure profit* – economic rent. But notice that the existence of this economic surplus is the very thing that will draw the attention of potential competitors and soon new entrants will compete away that extra-normal return. Once that surplus has been competed away, all firms in this competitive industry will earn *normal rates of return* – and nothing more. The term *profit* might be applied to that share taken by the owner – understood as the necessary payment for her time and mental effort. But this amount (this profit) can be no greater than what owners justifiably must earn. Anything in excess of that rate will be the attractant that entices new entrants who will, through their contribution to total supply on the market, cause prices to fall thereby leading to a gradual dissipation of the former extra-normal returns in the industry.

Fisheries economists have misled policy makers and fisheries managers in their failure to be honest about the above story. An open-access fishery is a fishery in competitive equilibrium – it is precisely what the market expects and demands. All of the heart-wrenching accounts of how poor fishermen are suffering in an open access-fishery because there is no rent are nothing but elaborate deceptions. If fishermen are poor in an open-access fishery it is no different from a farmer in North Dakota who is poor because he is trying to subsist on 12 hectares of wheat. Nor is it different from an artisanal fisherman off the coast of Senegal. There is simply not enough underlying wealth in the resource base to yield an income above what is now available. Of course if entry to wheat farming could somehow be restricted, so that instead of millions of hectares being planted to wheat only a fortunate few were allowed to be the sole producers of wheat on a much-restricted area (rather like the infamous tobacco-allotment program), the supply of wheat would be dramatically reduced, and we would not be surprised if wheat fetched 3,000 u.s. dollar a bushel. Under that regime our North Dakota fellow on 12 hectares would no longer be poor.

In fisheries, the standard narrative has it that poor suffering fishers must be excluded so that they can escape the impoverished servitude of rent-dissipated fishing, and thereby be much happier as drivers of school buses, electricians, or school teachers. Apparently those who fish cannot be trusted with their own occupational choices. One would imagine that those folks already have the opportunity to drive school buses, to be electricians, or to teach school. One might therefore imagine that they prefer to fish.

As in my original paper, if the owner of the fish (us) would begin to receive an income for the capture and sale of what it is we own, net returns in the fishery would be reduced somewhat, and this would lead to less effort in all fisheries. In terms of the open-access model, the standard ‘total cost’ curve would rotate in a counter-clockwise direction (since costs are now higher), and the new equilibrium

would occur at a lower level of total effort than now being observed. This is what the standard story seeks to accomplish through mis-information – that they are merely seeking to restore dissipated ‘rent.’ What they wish to bring about by this deceit, though you could not tell it by a careful reading of the literature, is quasi-monopoly income for those who are not excluded. The standard story wishes for extra-normal incomes – incomes greater than competitive returns – in the fishery.

Professor Mansfield is therefore correct – the literature in fisheries economics is blatantly political. As I said, economists are immunized against recognition of this fact by virtue of the market economy in which all of us live and seek to understand. Economists can explain the system because it is a system of our own creation. The reality out on the ground is precisely the manifestation of our textbooks. And it is no accident. Economists like to imagine that our theories explain the world out there. It is easier than that. The world out there was created by a political process with the explicit purpose being to mimic our theories of it. Physicists must be jealous.

I now turn to comments from both Professors Mansfield and Failler concerning auctions. Professor Mansfield complains that an auction does nothing to address the underlying conceptual confusion about property, and that auctions merely support dispossession and a different form of privatization. I hope that the previous discussion goes most of the way to demonstrate precisely why those who benefit (I am reluctant to say ‘profit’) from access to a nation’s fisheries must begin to pay for that opportunity to make a living from our fish. The adoption of an auction system – with limited-term permits to a share of the annual TAC – would indeed address the incoherence in the standard flawed property story precisely because that literature has willfully misled those innocent of the many different ‘rents’ in economics. Auctions are one – and just one – way to make those who benefit from our fish pay for those fish. Those payments represent ‘resource rents’ to the owner. Just as the owner of agricultural land is paid rent by a tenant, the owner of the wealth of ocean fish must be paid for surrendering those fish to the private sector.

However, Professor Mansfield is concerned less about owners receiving their due via an auction than she is about any means whereby some individuals gain access to nature’s publicly held bounty while others do not. I too am concerned with that and I hope that the above account, in which I debunk the standard catchism that justifies excluding participants in order to enrich the remainder with extra-normal profits (pure economic rent), is responsive to her concerns. Whatever else ITQ fisheries may accomplish, they most assuredly enrich the very few to the exclusion of a large number of historic participants. But, as above, if commercial fishing firms were suddenly to pay for the fish they take (fish that we own) then I see no good reasons to prohibit anyone who wishes to fish to do so – subject to the overriding objective of protecting fish stocks from depletion. If individuals find themselves better off fishing than driving a school bus, so be it.

The reason why auctions make sense is that they disabuse the industry (and some of their political and academic allies) that they are somehow ‘owners’ of anything. When ITQs are handed out for free to those with a history in a particular fishery, it is easy for the lucky recipients to regard this as ‘just desserts.’ And

then, when those ITQs can be bought and sold into perpetuity it would be well to notice that the fishery has, in effect, been alienated (handed over to) the holders of ITQs. While a management agency may still control TAC, it shall control little else. In contrast, those who bid for and acquire multi-unit auctions – giving a large number of aspirants ample shares of a future TAC for a fixed period of time into the future – cannot be in doubt that they are lessees and not owners. And the bugaboo that only the rich can win auctions is impertinent. An auction mechanism (protocol) can be created (as I indicated in my paper) so that small vessel owners are competing in a multi-unit auction with other similar firms. There is not a single winner – there are many winners, each entitled to a proportionate share of a sector's TAC. The essential aspect of auctioning off catch shares on a regular basis is to drive home the point to everyone that those who fish hold a lease – not an ownership interest. And the limited duration of the acquired permits means that at some interval, say every ten years, there is a chance for new entrants. More profoundly, a system of rolling-horizon fixed-term permits would mean that some fraction of permits becomes available for acquisition *every* year.

Professor Failler claims that the TAC auction does not offer management flexibility that trumps that in an ITQ fishery. I will contest that claim below. For now, please also note that the auction results in a landings fees payable *if and only if* fish are caught. In an ITQ fishery aspiring fishers must first purchase quota shares – an act that inevitably brings bankers into the policy mix. Magnuson-Stevens and the courts can be abundantly clear that an ITQ is *not* an ownership interest in anything at all, and yet the bankers will be sure to insist that they lent money to someone to purchase ITQs on the assumption that they are 'like' a property right. This aspect has led a few economists to declare, approximately, 'If it walks like a duck it is a duck.' What such commentators apparently have in mind is that if a banker will loan money on it, it 'must' be a property right. The incurious are satisfied with this deep analytical exercise and never bother to read the Magnuson-Stevens Act or court cases in which the record is clear (Macinko and Bromley, 2004). Or, since they have a long history of making up whatever suits them about the concept of property and property rights, perhaps they now imagine that Congress and the various courts are equally confused and flexible about the terminology they employ.

The essential concern raised by Professor Mansfield is that all efforts to exclude people from fisheries are acts of coercive dispossession. Given what I have said above about making sure that owners receive payments for resources taken for the benefit of individuals (be they poor or otherwise), and assuring the absence of external effects on others (in this case the destruction of fish stocks), I agree with her that action by the state to prevent entry into *any* line of work is an act that demands good reasons. Prostitution, growing and selling of opium, and making 'moonshine' (illicit whiskey) for resale are but three examples where compelling reasons have been advanced and accepted by the body politic. Unfortunately, the fisheries economics literature would have a hard time justifying limiting entry – or the gifting of enormous income and wealth to the few – if it spoke honestly about its reasons. Preventing 'rent dissipation' sounds like an arcane though rather good idea to the innocent. Locking in quasi-monopoly income to a subset of an

existing industry would seem to require further justification. Possible rejoinders might resemble the following 'And why, exactly, does a subset of historic fishing firms deserve this extraordinary assurance of income above what market conditions would justify?' Another rejoinder might be: 'Please tell me again why the commercial fishing industry deserves to given, for free, perpetual access to the wealth of *our* fisheries?' Yet another possible curiosity might run as follows: 'Can you please tell me why the fortunate recipients of this gift from the taxpayers should then be allowed to sell their gift to others in the industry, virtually assuring that any subsequent policy initiative to introduce a fee (a royalty) on future landings would be resisted on the grounds that those now in the industry have 'already paid' for their fish?'

Professor Failler raises a concern about the practical feasibility of an auction. While Professor Mansfield worries about the equity aspects of this – a point I have addressed and will elaborate below for artisanal fisheries – Professor Failler worries that scientific uncertainty and the absence of reliable information will make it impossible for aspiring participants to know how much to bid. From this I fear that perhaps my earlier explanation of the auction was not clear. Please note that this is a 'bonus-bid' auction, and therefore those who bid know that they will not pay a single penny, even if they are a winner. And as I said above in response to Professor Mansfield, there can be many winners. Indeed there can be as many winners as the management agencies wishes for there to be. Note that what is acquired by a 'winner' in the TAC-share auction is the opportunity to put to sea in search of a particular species (or several species) and to bring to port some known share of the total TAC in the current season as well as over the life of the fixed-term permit. If there are 500 'winners' out of 520 bidders then those 500 winners acquire a permit entitling them to land and sell 1/500th of an agency-specified TAC each year over the life of the permit. Of course other allotments are possible, depending on local circumstances. The available TAC can be partitioned in various ways to offer small vessels entry prospects, and also to control consolidation by placing limits on shares of the TAC that could be held by individual firms.

Note that bidders are not being asked to conjure a bid based on their future profits since that is a number that will be impossible to compute. Rather, bidders are being asked to submit a bid based on the expected value of their gross landings. Since these individuals have been active in the fishery, and since they have prior knowledge of exactly how many others will share in the TAC, they are certainly in a reasonable position to estimate future landings, and to assign probable prices to those landings. It bears pointing out that virtually all contracts for retail space in malls/shopping centers is a combination of an annual fixed fee, plus a share of gross sales over the course of a year. Tenants do not necessarily bid for space in such complexes, but they certainly better have some sense of their willingness to hand over a small percentage of their unknown gross receipts to the owners of the complex. Is fishing more stochastic than owning a small shop in a retail mall? Existing turnover rates in shopping malls suggest that the risks might be somewhat similar.

The central point of the auction is to determine who among all aspiring fishers most highly values the opportunity to fish. Those individuals will express

a willingness to pay. If one is indifferent between fishing and driving a school bus we can expect a low bid. If one is dedicated to a life on the water we can expect a rather higher bid from such a person. An auction is simply one means to allocate access. We could always draw numbers from a dry purse seine. Having done that, we would still need some means to determine how much resource rent shall be paid to the owners by way of a royalty on the value of landings. Auctions avoid the arbitrariness of lotteries, and they yield – via the highest losing bid – a plausible way to arrive at a ‘fair’ payment to the owners of the fish that are to be caught and sold by those who harvested them. It is not important if there are only 300 aspiring fishers and a particular fishery can accommodate all of them. But we must find some means to arrive at a plausible price to be paid for the fish that are landed. If the political process can arrive at a number – say three percent of the ex vessel value of landings of all 300 fishing firms – then that is fine. It is getting started down this road that matters.

I do wish to question Professor Failler’s claim that the TAC auction with fixed-term harvesting permits is not a flexible system that can allocate fishery resources. I object because it is inherent in any TAC program that the management agency can, for reasons of depressed stocks, announce that next year the TAC will be just forty-five percent of what it was in the current year. There is direct control over harvest levels, and notice that under the TAC-share auction there can be no whining fishers and bankers claiming that ITQs were just bought at some enormous sacrifice – only now to be ‘de-valued.’ There is nothing in my auction to be devalued. Harvesters do not pay for fish until the fish are sold at the dock. No fish, no payment. If landings are reduced next year by thirty percent compared to this year, the amount owed to the management agency falls by the reduced ex vessel value of those reduced landings.

One more aspect of flexibility that is missing in the standard ITQ fishery is that each year the management agency could release new TAC-share permits to aspiring fishers. Some current permit holders may decide that they no longer wish to fish. In contrast to the ITQ model, these individuals are not free to sell those unwanted permits to others. Notice that under an ITQ scheme the management agency has indeed lost all management flexibility. In the auction fishery, unused permits go into a reversion pool to be issued at the discretion of the management agency. The agency could hold those permits back – thereby slightly increasing the share of TAC available to existing participants (given the exit of one or two participants). Or, the agency could let those retired permits out again in a new auction thereby preserving the share content of existing permits. Think of the TAC-share permit as ‘shares’ issued by a commercial company on a stock exchange. The more shares there are in circulation the lower the economic content of each one. So I disagree with Professor Failler concerning the flexibility of a TAC-share auction compared to the ITQ fishery. Indeed, ITQ fisheries are exemplars of the loss of management flexibility – let alone ability – for the agencies responsible for their management.

Indeed this brings me to Professor Failler’s wonderful Benthamite *pan-opticon*. As he says, fisheries managers now reassure us that they are ‘managing’ fisheries by handing them over to the industry, from which point forward there

will be no management required. After all, we have been assured that owners cannot help but be good stewards and, by extension, ideal managers. Bentham's prisoners could not tell if they were being watched – but of course they were known crooks. Once commercial fisheries have been handed over to the virtuous industry those various government buildings identified as concerned with fisheries management can happily remain empty – thereby saving taxpayers the burden of quite unnecessary salaries. As with the so-called 'Stealth Bomber' near the end of the Cold War, if the bomber was as 'stealthy' as claimed, there was obviously no need for the U.S. to build them. It was only necessary to tell the Soviets that several hundred of them were, at this very moment, aloft.

Professor Failler is also prescient in his criticisms of the standard bio-economic model of the fishery. Indeed the Beverton-Holt-Schaefer model that underpins the bio-economic model of fisheries confirms the observation of the German physicist Georg Lichtenberg: 'Delight at having understood a very abstract and obscure system leads most people to believe in the truth of what it demonstrates (G. C. Lichtenberg, 1789. Notebook J).' While fisheries biology has moved beyond the simplicity of the basic open-access model that is required reading in every beginning course in natural resource economics, it cannot be an accident that the simple comparison between an (overexploited) open-access fishery and an 'optimized' fishery under a sole owner leads directly to the conclusion that privatization is the only option. There is nothing quite as seductive as sophomore (blackboard) economics.

The single-species, surplus-production model stands as one of those beguiling heuristics that continues to inform all mental processes in fisheries policy. Professor Failler introduces the idea of 'the illusion of control' and I find this a fitting metaphor for the bizarre world of the standard model. Indeed this model is not confined to the rarified academic discourse of sophomore economics. Both Hilborn (2007) and Beddington, *et al.* (2007) offer it up as the essential teaching tool to advance their quite assured policy prescriptions concerning how to understand the fisheries 'problem' and therefore how to 'fix' that problem. Indeed Ray Hilborn finds the vertical axis so wonderfully versatile that it can be renamed 'benefits' – thereby inviting all manner of interested parties to find something charming about it. While economists are often criticized for our reductionist models, we have few constructs that can approach the multifarious fictions associated with this 'model' of fisheries management.

Let me now turn to the comments by Blake Ratner and Eric Baran. I am particularly pleased that two individuals so knowledgeable of the fishing scene in the smaller latitudes have had a chance to register their views. I shall start by expressing regret that I was not more explicit in my discussion of the TAC-share auction as an approach suited to commercial fisheries and not artisanal fisheries. The reasons for this exclusive application to commercial fisheries have been amply adduced by Ratner and Baran. I want to expand on several of their points, but first it seems worthwhile to discuss commercial fishing in those parts of the world of concern to Ratner and Baran.

In my original paper I made the observation that artisanal fisheries are the last and final refuge of those too poor – or encumbered by caste and creed – to

provision themselves and their families from the land. And that is precisely why I offered the observation, repeated here by Ratner and Baran, that ‘Of course nature is important, but so too are they whose very survival depends on nature.’ What I had in mind here, though it may have been a bit too subtle, is that some efforts by the global environmental community to dispossess artisanal fishers from their historic livelihoods must often be tempered by the very issues of justice that concern Professors Mansfield and Failler. If those dependent on low-income subsistence fishing are dispossessed in the interest of preserving charming habitats for eco-tourists from abroad then hard and inconvenient questions need to be asked.

Those familiar with artisanal fisheries are also aware that in certain parts of the world, and perhaps Latin America and Southeast Asia are the most extreme cases, artisanal fishers are caught between the above-mentioned dispossession and marginalization from the land, and an ever-more aggressive commercial sector that invades their limited habitats from the EEZ. To the extent that the commercial sector is making life even more difficult for marginalized artisanal fishers, forcing the commercial sector into a TAC-share auction regime would avoid all of the pitfalls of an ITQ fishery, and it could produce the resource rent (the royalty on landings) that could be used to mitigate the economic hardship already bearing down on the artisans. As indicated in my original paper, broader economic development initiatives could pay a double dividend. Such initiatives could provide enhanced livelihood alternatives for the offspring of current artisans, and this fact alone would – over time – provide plausible relief to the relentless fishing pressure evidenced in many artisanal regimes. For commercial fisheries in the wealthy countries, those who decide not to fish can always drive school buses, do electrical work, or teach school. In the agrarian world those options do not exist. One fishes or one starves.

Professor Mansfield will surely approve of the suggestion by Ratner and Baran that reinventing small-scale fisheries management in the developing world ‘requires that local stakeholders – with poor fisherfolk principally among them – define locally-specific goals of management based on locally-defined needs.’ While this is indeed an appealing vision, the ecological and economic spillovers from artisanal fishing cannot be wished away by the desire to ennoble local people struggling against all odds. Some activities of artisans – the use of dynamite, for example – hold implications beyond their confined impoverished world. But again, locals may be left with no alternative when the commercial sector harries them on the water, and the landlords evict them with alacrity. Ratner and Baran acknowledge that new sustainable institutional arrangements for artisanal fishers will require collaboration among the local community, government authorities, and other political and economic elites who can make life better for the poorest of the poor, while assuring the survival of compelling local ecosystems.

Ecology and Economy Again

In these few final comments I shall reflect on Daniel Pauly’s brief observations. Pauly points to the core of the problem – a flawed conceptualization of how hu-

man systems (the economy and its imperatives) connect to the ecosystem. In my original paper I made brief reference to work on the economic history of commercial whaling as recapitulating a common evolutionary pathway in virtually all human engagements with nature. The general issue concerns the dynamic nexus between the gradual intensification of human interaction with – and extraction from – nature and the inevitable biological response to that activity. I talked of this as an instance of co-evolutionary adaptation in which biological processes undergo transformation in the face of extensive human exploitation (high-grading), and human processes (and associations) in turn undergo transformation in the face of biological feedback onto human communities that have been organized and structured around this very interaction. Much of the literature in this general area concerns the first phenomena – humans bringing about generally destructive effects on natural systems. The feedback from natural systems to human systems is much less explored. I insist that both aspects of this nexus must be understood if we are to gain a plausible understanding of why many natural resources are so often over-exploited. With that understanding in hand, we may gain insights into the ways in which human interaction with nature might be modified and mediated such that timely adjustment of exploitation trajectories is both possible and feasible.

That co-evolutionary model entails four phases: (1) emergence of the idea of a resource; (2) elaboration (reconstitution) of the use of that natural resource; (3) naturalization of that elaborated activity; and (4) apologetics concerning the naturalized and elaborated enterprises now dependent upon nature (Bromley, 2006b). With respect to the commercial fisheries, we see this evolutionary model in full flower. Small-scale (artisanal) fishing emerged to capture the benefits of a desirable constituent of nature. This natural bounty soon becomes *commoditized* by those who acquire it. Perhaps they can trade it for something else in short supply? As the focus on this constituent of nature intensifies the activity associated with its acquisition, consumption and disposition becomes elaborated and internalized. Following on the heels of this elaboration we find a process of naturalization. That is, whatever it is that the local groups are doing with this aspect of nature comes to be seen as right, correct, justified, and perhaps even noble and ennobling. And this leads to apologetics about those activities so construed.

It is in this co-evolutionary model that we find the political appeal of giving away ITQS and the fish they implicate to the industry. In a sense, the industry has come to imagine that it deserves this public gift by virtue of having navigated its way through the four stages of my co-evolutionary model – from small-scale harvesting to industrial elaboration to naturalization and finally apologetics. Now, by virtue of having become naturalized, the public must either pay the industry to reduce its dependence on a public resource, or give that resource away to the industry on the twin deceptions that it now deserves this gift, and – by the way – it will henceforth be stewards of it.

In the light shed by the above co-evolutionary model there can remain no mystery why fisheries policy has arrived at this sorry state. The becoming industry was always one step ahead of the necessary managerial structures and processes that were responsible for its behavior. This emergence goes beyond the mere story

of 'regulatory capture' in economics. In that model the regulators and the industry remain distinct by virtue of their employment, while their originally distinct worldviews gradually merge into a shared vision of the ideal role of big business in a society that is itself industrial and capitalist all the way down.

In the fisheries realm the lines between industry and regulator are not nearly so well defined. Indeed, the situation of the National Marine Fisheries Service in the U.S. Department of Commerce offers a plausible hint as to the underlying political and economic message.² The purpose of the National Marine Fisheries Service is to put at the disposal of the commercial fishing sector the full services of the Federal government – research, data collection, monitoring, safety, detection and prosecution of foreign vessels in the EEZ, and of course the creation of the regional fisheries management councils to make sure that there are few 'surplus' fish left in the water, and that when it comes time to bargain over which interests shall get those fish, to make sure that there are 'no fish left on the table.' Indeed the North Pacific Fisheries Management Council, responsible for Alaska's fisheries, finds itself in a difficult spot. It has previously awarded ITQs for halibut (and sablefish) to the commercial sector, now to be confronted by the charter sector demanding more of nature's bounty. 'But wait, we have already given it away to the commercial sector.'

Like Daniel Pauly, I despair that we do not know how to extricate ourselves from this mess. And there I must stop.

Notes

- 1 I thank Seth Macinko for comments on an earlier draft.
- 2 I cannot speak about the governmental location of fisheries management agencies around the world.

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