

Abdicating Responsibility: The Deceits of Fisheries Policy

ABSTRACT: The imperiled status of global fish stocks offers clear evidence of the comprehensive failure of national governments to provide coherent management to protect those stocks. The universal policy response to this failure seems to consist of nothing more imaginative than the free gifting to the commercial fishing sector of permanent endowments of income and wealth under the utopian claims associated with individual transferable quotas (ITQs). It now seems that the fishing industry is to be entrusted to become exemplary stewards, to become efficient, to maximize resource rent, to stop racing for fish, and to make society better off. These exultant promises are rendered false by the incoherent models from fisheries economics that are confused about the essential concepts of:

1. Efficiency;
2. Economic rent;
3. Resource rent;
4. Ricardian rent;
5. Average costs and average revenue among firms and across an industry;
6. Extra-normal profits;
7. Stewardship;
8. Property;
9. Rights;
10. Privileges; and
11. Property rights.

This spurious and misguided embrace of ITQs can only compound the tragedies of past malfeasance by the dangerous endorsement of this bundle of confusions, contrivances, and deceits.

Abandono de responsabilidades: el engaño de las políticas pesqueras

Resumen: El estado precario de los recursos pesqueros a nivel mundial representa una clara evidencia del total fracaso de los gobiernos nacionales en brindar un manejo coherente para proteger dichos recursos. Ante esta situación, la respuesta política universal parece consistir en nada más imaginativo que donaciones permanentes al sector de pesca comercial bajo el utópico reclamo de las cuotas individuales transferibles (CIT). Pareciera que la industria pesquera tuviese la encomienda de convertirse en la administradora ejemplar, eficiente, que maximiza la renta, que pone fin al acaparamiento de los recursos pesqueros y que se encarga de crear una sociedad mejor. Aunque entusiastas, estas falsas promesas provienen de modelos bio-económicos inadecuados en los que se confunden conceptos básicos como:

1. Eficiencia;
2. Rentabilidad económica;
3. Rentabilidad del recurso;
4. Renta Ricardiana;
5. Réditos y costos promedio tanto entre empresas como a través de una misma industria;
6. Utilidades extra-normales;
7. Administración;
8. Propiedad;
9. Derechos;
10. Privilegios; y
11. Derechos de propiedad.

Tal apego al falso y erróneo concepto de CIT, solo servirá para acumular las tragedias de malos manejos en el pasado, propiciados por la aprobación de este manojito de confusiones, estratagemas y engaños.

INTRODUCTION

The economic crisis now sweeping the world has been attributed to the abandonment of governments' necessary oversight responsibilities whose purpose is to reassure citizens that economic processes conduce to the enhancement of public well being. For several decades, the prevailing *Zeitgeist* has celebrated the wisdom and prudence of the widest possible scope for individual autonomy in matters of creating income and accumulating wealth. These attitudes have flourished in an evolving culture that willingly accepted a falsely dichotomized polity—there is the “economy” and then there is “government.” The resultant, encouraged by the profound ascendancy of globalization throughout the 1990s, was an imperative that government (the realm of collective action—“politics”) must not be allowed to interfere with the economy (the realm of alleged individual “freedom”). The currency crisis to strike Southeast Asia in 1997 was an early warning of what happens when wealth creation is unhitched from what might be thought of as proper adult supervision.

National fisheries policy since the advent of the exclusive economic zones (EEZs) seems small stuff indeed compared to the economic trauma that began in the summer of 2008. However, the central argument advanced here is that widespread abdication of

due diligence on the part of national governments with respect to their fisheries resources arises from the same Zeitgeist that has brought us the worst economic scenery since the worldwide depression of the 1930s.

In national financial affairs the debate is cast in terms of “free markets” versus government “interference” in the market. In fisheries policy the debate is cast in terms of the documented failure of national governments to manage—assure the sustainability of—fish stocks versus the utopian vision of so-called “privatization” and the implied abdication of management. The advocacy of individual fishing quotas—known as IFQs or ITQs—is the natural resource equivalent of economic deregulation dating back to the triumphalism of the 1990s when the Soviet Union collapsed and it was happily announced that “markets had won.” In contrast to the emerging understanding in world financial affairs that “the market” and its self-interested players cannot be trusted with the greater public good, quite the opposite ideology persists in fisheries policy—just leave it to the industry to bring about efficiency and rent maximization.

This faith in the universal beneficence of individual maximizing behavior underwrites the several deceptions of contemporary fisheries policy and the bewitching allegories advanced on their behalf. I will discuss the five core deceptions that authorize utopian claims about the beneficial outcomes to arise from an introduction of IFQs. These deceptions are:

1. Overfishing can be blamed on missing property rights;
2. Private ownership is necessary and sufficient for socially beneficial stewardship;
3. IFQs must be of infinite life and freely tradable in order to produce the desired efficiency and stewardship properties;
4. IFQs are private property; and
5. IFQs are necessary and sufficient to produce efficiency, and to maximize resource rent, in a fishery.

I will show each of these claims to be incoherent. I will then offer a brief outline of a national fisheries policy that acknowledges the clear need for allotted catch shares, but that rejects the common myth that an IFQ fishery is one that will not require careful and attentive management by governments. I will also explain the economic logic that underpins the imperative that fishing firms must pay a royalty share (resource rent) on the fish they catch and sell.

Before proceeding, the term “IFQ” is generally used to connote a particular set of attributes. In particular, an IFQ fishery has all of the following attributes:

- Catch shares—portions of a fixed total allowable catch (TAC)—are given away free (gifted) to members of a specific fishery based on certified catch history over a politically determined time period;
- This allotment is a gift in perpetuity and the gift may be leased or sold to others;
- There is no attempt by governments to capture the resource rent in a fishery.

THE FIVE DECEPTIONS

The Ownership Fetish

From an economic theory point of view, the major source of the overfishing problem is the lack of property rights. (Anderson and Holliday 2007:9)

To those not indoctrinated by the fisheries literature dating back to Scott Gordon’s article in 1954, this assertion will be quite incomprehensible. To be as clear as possible, the unique “source” of overfishing is that the annual rate of human-induced mortality on a renewable fish stock induces a decrease in future stocks and their productivity. Overfishing, like overhunting and overgrazing, is straightforward biology, taught to countless undergraduate students exposed, for the first time, to the elegance of a Lotka or a Volterra.

Why do people fish? They fish to gain control of a future value—fish that can be eaten or sold. Fishing is explained by a quest for future value. Why do people overfish? They overfish because their desire for the control of future value exceeds the rate at which a renewable natural resource can produce future value. How does one prevent fishing? You do not allow fishing. How does one prevent overfishing? You constrain the quest for control over future value to the rate at which nature can yield up future value today—and for evermore. If people are caught in the act of overfishing, penalties are imposed. Human societies, over a rather long history, have figured out how to prevent all manner of unwanted activities and outcomes—from child pornography to organized dog fighting. It is no great mystery, and ownership plays no part in the story. Only fisheries economists—and ideologues—believe that property rights (or the lack thereof) explain overfishing.

Is it possible to stop overfishing? Departments of natural resources in approximately 50 states seem to have figured this out. Overfishing in federally-managed fisheries occurs because the government agency charged with preventing overfishing has failed to do so. Does it matter that the National Marine Fisheries Service is in the U.S. Department of Commerce, rather than in a government department concerned with natural resource conservation? Does it matter that the regional fisheries management councils contain locally prominent representatives of the commercial fishing industry (Okey 2003)? Does it matter that regional politicians interfere with the findings and recommendations of fisheries scientists?

If fisheries economists wish to offer up plausible hypotheses about overfishing, it will be necessary to develop comprehensive explanatory models as opposed to trivial ones. The act of overfishing has become elaborately obfuscated by bogus claims about ownership. Those bogus claims are then magnified in fallacious ways.

Property Rights and Stewardship

A key to creating incentives for more sustainable behavior is to provide fishers with more secure harvesting or territorial rights to fish. Such rights enable fishers to enjoy a sustainable flow of benefits from fishing with an enforceable right to exclude others from those benefits but generally do not give ownership over the resource stock....

...a key to generating appropriate incentives is for fishers to have the ability to exclude others from fishing, thereby reaping both the pain of overexploitation and the gains from conservation. Exclusive property rights, however, do not guarantee sustainability....

The key to IAFs (incentive-based approaches to sustainable fisheries) is to provide harvesters with long-term secure rights (Hannesson 2004) that are legally enforceable, along with corresponding duties by non-owners to not interfere with these

rights (Cole and Grossman 2002). In practice, individual harvesting rights are often specified as a revocable privilege... However, these privileges are de facto economic property rights, provided that adequate monitoring and surveillance exists. (Grafton et al. 2006:701)

These quotes are consistent with the tradition in fisheries economics. Sadly, they are also consistent with the deep and chronic conceptual confusion in that literature (Bromley 1989, 1991, 2006). We see here that revocable privileges are long-term secure rights, that such privileges are de facto economic property rights, and that these revocable privileges protect the holder from non-owners. Those who understand legal matters will tell us that it is quite impossible to believe that “revocable privileges” are “secure rights.” They would also point out that it is impossible to believe that such “privileges” are “de facto economic property rights.” These dual impossibilities spring from the legal reality that “privileges” cannot be “rights,” that there is no such thing as “de facto rights,” and that there is surely no such thing as “economic property rights.” Finally, since those holding “revocable privileges” are not owners, it is logically impossible to claim that these revocable privileges protect the holder from “nonowners.” Only owners can be protected from non-owners (Hohfeld 1913; Becker 1977).

Some fisheries economists have acquired the habit of using terms—concepts—to mean anything they want, and very often to mean nothing at all. Robert Brandom (2000:6) reminds us that “Grasping a concept is mastering the use of a word.” Fisheries biologists must come to a shared understanding about concepts such as *recruitment* and *age class* before they can write down models of population dynamics. Ecologists must do likewise with concepts such as *succession* and *resilience*. Physicists are not free to define *entropy* to mean whatever they wish—for it to mean. In contrast, many fisheries economists seem under no obligation to adhere to the precise legal meaning of the legal concepts they invoke. Fisheries economists are not at liberty to deploy legal concepts as if seen through a “looking glass.”

Ignoring the above legal mumbo-jumbo for the moment, notice that the authors regard “exclusive property rights” as necessary but not sufficient for stewardship. This hedge is problematic for the simple reason that the claim of necessity is itself bogus.

As above, a necessary condition for sustainability—the only condition—is that a renewable resource will be used (“drawn down”) at a rate that does not diminish its capacity to reproduce itself in subsequent time periods. Those who claim that exclusive property rights are necessary (but not sufficient) for sustainability commit a logical fallacy that pervades public perceptions about private ownership and socially-beneficent behavior. This fallacy draws on political ideology—and nothing more than such ideology—that sanctifies the individual as the sole decision maker who can produce “optimal” outcomes. But its core flaw is that it reflects the same incoherence exposed in the previous section—the desire to embed overfishing in the realm of property rights rather than in the realm of biology and how humans act with respect to nature.

Notice that if private ownership were necessary for stewardship, as the above quote implies, it would be impossible for there to be good stewardship in the absence of individual property

rights. Of course this is nonsensical. The stewardship properties of Yosemite National Park, or the Grand Canyon, do not seem defective by the absence of exclusive private property rights therein. The timber resources on federal lands in the United States do not seem under threat by the absence of private property. Indeed there are plausible arguments that timber resources are bounteous precisely because they are protected by public ownership rather than by private ownership. This brings us to the sufficiency argument.

The state of Washington passed the Forest Practice Act in 1945 to require that private landowners replant trees on land from which they had harvested trees, or leave a certain number of trees per acre to enhance regeneration of the stock. If private property were so salubrious for stewardship, this law in the state of Washington would, quite obviously, be unnecessary. The Soil Conservation Service was created in the U.S. Department of Agriculture following the Dust Bowl because farmers—obviously the owners of the land they farmed—were destroying their top soil by practices giving rise to soil loss in the neighborhood of 15 tons per acre per year. If private ownership of land were sufficient for stewardship, the Soil Conservation Service would be redundant. Virtually every city in the United States has local ordinances requiring that private dwellings (and surrounding landscaping) be kept in some plausible state of repair. Owners who ignore such ordinances are subject to fines. If owning private property were a sure guarantee that an asset—a house and a yard—would be kept neat and tidy then such laws would be redundant.

These examples remind us that private (individual, exclusive) ownership and control not only fails the sufficiency claim, it cannot even survive the necessity claim. While this fact is well known among economic theorists, it seems to have gone unnoticed by many who contribute to the fisheries literature. To be precise about the matter, if the “time preference” of a private owner is such that income now trumps income in the future, then private owners will be quite intent on liquidating (destroying) a renewable natural resource in order to spend the proceeds—or invest them elsewhere (Smith 1969; Clark 1973; Page 1977). It is surprising that so many fisheries economists remain innocent of this work. Perhaps they have been smitten by the utopian claims for IFQs.

On Perpetuity

...ITQ fishers may often be expected to favor management actions that protect and enhance fish populations, because the value of a quota share increases as stocks become more abundant. Problems that may arise, such as misreporting or high-grading of catches, have been successfully countered by the use of observers, required by the management system but paid for by the industry... Experience with ITQ systems shows that many fishers willingly support and adhere to conservative management strategies and may also avoid fishing practices that endanger habitat or threaten other species, so long as they are guaranteed long-term rights. But this does not mean that enforcement and scientific monitoring are unnecessary in ITQ systems; both are essential unless catch levels are set at precautionary low levels. It is thus unsurprising that the two countries with perhaps the most fully developed ITQ systems, New Zealand and Iceland, have some of the highest costs of management per fishing vessel. (Beddington et al. 2007:1714; emphasis added)

Here we see yet another rendering of the optimistic speculations concerning how IFQ (ITQ) programs are alleged to work—fishers “may often be expected,” “problems that may arise ... have been successfully countered,” “may also avoid.” Notice that all of these promising results are strictly conditional: “...so long as they are guaranteed long-term rights.” It seems that fishing firms can be expected to act in socially optimal ways—except when they decide not to. We need government observers—and fishing firms need “guaranteed long-term rights.” The cynic might speculate that this resembles a threat—give us long-term rights or we will not be good stewards. More curiously, the necessity of observer coverage, and high “management costs,” suggest that even with the “most fully developed ITQ systems,” fishing firms—like teenagers—cannot be trusted out alone. If IFQs are so salubrious for stewardship and enlightened management, why is there a need for on-board observers? Why can’t these firms with IFQs be trusted? For example, Branch and Hilborn (2008) seem to praise the British Columbia groundfish trawl fishery where individual transferable quotas and “100% observer coverage” produced “optimal” results.

The common assertion (as above) is that IFQs must bestow “long-term rights” and that the IFQs must be fully transferable. It is claimed that only in this way can the holder of an IFQ (I refuse to call such a person an “owner”) capture the future value of his/her beneficent stewardship over time. We see that an IFQ program is intended to allow the lucky recipients of these government handouts to make money two ways—either by fishing or by selling the gifted IFQs.

Of course reality undermines such optimistic speculation. Since an IFQ is for a share of an unknown future TAC, there is sweeping uncertainty concerning what, exactly, the empirical content will be of a share of an unknown TAC in 5 or 10 years. What exactly is the value in 10 years of a share of an unknown TAC if the buyer has no idea whether or not the fish stock will crash because of increased ocean temperatures? It is not in doubt that a seller and a buyer of an IFQ could conjure some price that both would find compelling. However, that is not the economically pertinent question. The only question that matters is whether or not that eventual and highly speculative market provides a sufficient incentive for current holders to practice good stewardship each and every season they fish—that is, until the current holder decides to cash out. The requisite incentive properties are vanishingly small.

It will be claimed (as above) that IFQs must be granted in perpetuity so that holders will have a long-run motivation for stewardship. Perpetuity induces stewardship, unless it fails to—see Clark (1973), Page (1977), and Smith (1969). Apparently it is possible to believe most anything. The argument for perpetual IFQs fails. Does “tradability” matter for long-run efficiency? It cannot matter for the reasons above. The only situation in which trades among holders of IFQs (catch shares) might conduce to efficiency is within a single fishing season. That is, if one holder ends up with excess landings no great harm is perpetrated by a consensual bargain that transfers all or a portion of that overage to others. No great harm would result, as well, from ex ante swaps of shares before a season starts. However, these trades enhance efficiency within a single season only.

IFQs and Property Rights

[I]ndividual permanent catch quotas of a regulator-determined TAC are only a stage in the development of management from licensing to private rights. This evolution can be expected to continue until the owner has a share in management decisions regarding the catch; and, further still, until he has an owner's share in management of the biomass and its environment.... (Scott 1989:33)

[A]nother important issue is the quality of the property right in what really counts, i.e., the resource itself and its environment. (Árnason 2000:23)

The so-called public goods, of which roads, public parks and national defense are often-quoted examples, are by definition non-amenable to private property rights. But, on closer inspection it turns out that there are ways to turn public goods into private goods. (Árnason 2000:24)

The solution to the current wasteful race to fish involves establishing property rights. Individual transferable quotas represent a positive step toward private property rights, and they have stopped excessive exploitation and improved fisher profitability. With the exception of New Zealand, however, current ITQs still rely heavily on political management of the resource. The ultimate solution is full-fledged property rights. (Leal 2000:27)

These quotes capture the standard deceit—that IFQs are private property rights. There are two genres of literature to which we might turn for an answer to this important legal matter. We could consult some fisheries economists whose grasp of the relevant legal literature—as above—is seriously defective. For instance, Cole and Grossman (2002) discuss how economists are often confused about legal concepts such as property rights. Or, we could consult the U.S. Congress. The Magnuson-Stevens Fishery Conservation and Management Act states:

SEC. 303A. LIMITED ACCESS PRIVILEGE PROGRAMS.

- a. In General.—After the date of enactment of the Magnuson-Stevens Fishery Conservation and Management Reauthorization Act of 2006, a Council may submit, and the Secretary may approve, for a fishery that is managed under a limited access system, a limited access privilege program to harvest fish if the program meets the requirements of this section.
- b. No Creation of Right, Title, or Interest.—Limited access privilege, quota share, or other limited access system authorization established, implemented, or managed under this Act—
 1. Shall be considered a permit for the purposes of sections 307, 308, and 309;
 2. May be revoked, limited, or modified at any time in accordance with this Act, including revocation if the system is found to have jeopardized the sustainability of the stock or the safety of fishermen;
 3. Shall not confer any right of compensation to the holder of such limited access privilege, quota share, or other such limited access system authorization if it is revoked, limited, or modified;

4. Shall not create, or be construed to create, any right, title, or interest in or to any fish before the fish is harvested by the holder; and
5. Shall be considered a grant of permission to the holder of the limited access privilege or quota share to engage in activities permitted by such limited access privilege or quota share.

IFQs are permits and nothing more (Macinko and Bromley 2002, 2004; Bromley 2005). Of course this legal clarity does not deter the issuance of contrary opinions among those who write about IFQs. Many authors claim that because IFQs can be transferred (leased or sold) they thereby become a property right. The fact that they can be (and have been) contested in divorce proceedings is also claimed to make them a property right. The fact that bankers will loan money to purchase IFQs seems adequate to these observers to render IFQs a property right. In this latter regard, recent financial difficulties remind us that U.S. bankers have shown themselves quite eager to lend money on a wide variety of instruments of dubious credibility and provenance. Apparently one could obtain a mortgage without a credit history, without a down payment, and without an income to service the debt.

I now turn to a recent effort to document the alleged salubrious stewardship outcomes of IFQs (Costello et al. 2008). To set the stage, the authors wish to describe a fishery without IFQs:

Because individuals lack secure rights to part of the quota, they have a perverse motivation to “race to fish” to outcompete others. This race can lead to poor stewardship and lobbying for ever-larger harvest quotas, creating a spiral of reduced stocks, excessive harvests, and eventual collapse.
(Costello et al. 2008:1679)

Notice once again the conventional catechism that overfishing is inevitable in the absence of “secure rights.” And from this false encomium to something called “rights,” the story glides immediately to IFQs—we are put on notice that in a fishery without IFQs there is a good chance of an “eventual collapse.” From this inauspicious start the authors set about to test the following proposition: “Can catch shares prevent fisheries collapse?” (Costello et al. 2008:1679).

However, their findings are comprehensively spurious because they failed to make the essential distinction between the effects of a binding total allowable catch (TAC) as opposed to the effects of IFQs (catch shares). Notice that it is impossible to make this distinction because an IFQ is *simply a share of a TAC*. So when they tell us that they found 121 fisheries using “catch shares” they should have told us that they found 121 fisheries in which TAC limits had been introduced. Notice that this correct specification of the research question undermines the celebration of IFQs (and catch shares) as solving the overfishing problem. Since a “catch share” is a portion of an annual TAC, this would seem to suggest that prior to the introduction of catch shares there were no limits on total catch in these 121 fisheries. Could it be that all of these fisheries were crashing not because of the absence of IFQs (catch shares) but because of the absence of binding TAC limits? Is it possible that the authors have captured the effects of the introduction of catch limits (TACs) but have chosen to attribute the reversal of “eventual collapse” to catch shares (IFQs)?

It would seem that their IFQ cases are simply TAC cases. We have an attribution problem here.

Not only are catch shares and TAC limits locked together as “one thing” managerially, there is a good chance that they are linked in the mind of those who fish. The linguistic charade of “rights-based” fishing over the past decades has induced those who fish to believe that they are gaining “rights” (rather than a revocable permit under the control of fisheries managers) when they receive the marvelous free gifting of catch shares under IFQs. Having received this enormous free income stream, embodied in something they imagine to be a “right,” renders them more willing to accept hard TACs. We might, to good effect, understand this to be a form of bribery: “We will give you, for free, all of that wealth and all we ask in return is that you now behave better than you have heretofore.” Of course, the large management costs in New Zealand and Iceland, and the need for elaborate observer coverage in many fisheries, suggests that many governments have been duped.

If one wished to test the stewardship properties of catch shares (IFQs), the careful researcher must analyze a large number of TAC-controlled fisheries and then find some that have introduced IFQs. The pertinent research question would then become—have catch shares enhanced the stewardship properties of a fishery already under coherent and binding TAC management? Only then could the researcher be sure whether the claim of stewardship is correctly attributed to catch shares and not to the existence of a firm TAC. After all, it is binding TACs that explain the absence of overfishing. Catch shares stifle racing, but their contribution to stewardship across seasons is nugatory.

Recall that the purpose of a TAC is to prevent overfishing, while the purpose of allotted catch shares is to preclude racing for fish in a given season. It is precisely here that we encounter the fount of so much conceptual and policy mischief. The advocates for IFQs have violated the first “law” of coherent economic policy—*one policy instrument for one policy problem*. If overfishing is a problem, then address that problem with a single coherent policy instrument. This is the purpose of a TAC, and the dreary record of fisheries management suggests that TACs are not taken seriously, nor rigorously enforced, in many fisheries. If racing is a problem, then address that with a single coherent policy instrument. That is the purpose of allotted catch shares.

With overfishing addressed by a meaningful and binding TAC, and with racing addressed by the allotment of catch shares, what possible reason can there be for the free gifting of allotted catch shares into perpetuity to the members of an industry—without any obligation to return resource rent to the nominal owner of the valuable fish in the EEZ? The only possible reason can be yet another deceit—that by handing over the public’s wealth in the EEZ fisheries to the private sector, members of the industry will then buy and sell these gifted quota shares in an elaborate exercise of consolidation until decentralized “rationalization” has created a closed class of vessels earning excess (extra-competitive) profits.

We now encounter the final conjuring—that the creation of this extra-competitive income constitutes the maximization of resource rent, thereby bringing about “efficiency” in the fishery which will “make society better off.”

Resource Rent and Efficiency

One can interpret the arguments over ITQ programs primarily as a debate over objectives: proponents of economic efficiency against those more concerned about jobs, social equity, and community impacts. (Hilborn 2007:155)

This quote captures yet another conceptual confusion that has plagued fisheries policy for decades—achieving efficiency versus something else vaguely called “jobs, social equity, and community impacts.” The problem here is the false choice on offer—you can have an “efficient” fishery, or you can have those other things. This framing puts managers and public officials on notice—if they decide in favor of jobs, social equity, and communities it signals that they do not care about “efficiency.” Of course this then reinforces the worst (or the best, depending) anecdotes about managers and politicians—given a choice, they favor “inefficiency.”

The incoherence of this approach does not preclude its wide acceptance—as revealed here in its repetition by an esteemed fisheries biologist. This particular incoherence has its origins in the failure of most fisheries economists to comprehend the concept of efficiency, and then to pass on that failure to non-economists where it can do mischief. Very soon it has been repeated often enough that it comes to be thought true. We can set the record straight with a few tight paragraphs (Bromley 1990).

Efficiency is a property that concerns economic decisions at the margin. *Technical efficiency* is attained when all factors of production are allocated precisely in accord with their respective marginal contribution to the desired output. *Price efficiency* is attained when that allocation also brings the marginal value of the contribution of those factors to total output precisely in accord with their marginal cost. *Top level efficiency* means that both technical and price efficiency prevail, and that the final product is traded in a market where its price is perfectly in accord with the marginal valuation of the consumer of the product. In contrast to this quite elaborate theoretical idea, efficiency in the fisheries literature has become thoroughly mongrelized to mean that resource rent has been maximized. The deceit is then compounded by the fact that most authors are confused about the concept of “rent.”

The concept of efficiency has a profound bearing on public policy—what we call welfare economics. Every economist is presumed to understand the two fundamental theorems of welfare economics for the simple reason that these two theorems underwrite any possible prescriptive claim/policy recommendation. The indirect theorem tells us that for any possible set of initial conditions—factor endowments, income and wealth position, institutional arrangements (legal structure)—there is an allocation of resources that is Pareto optimal. This means that the particular allocation cannot be improved upon and it is, therefore, Nash efficient. The direct theorem tells us that this efficient allocation of resources can be sustained by competitive markets that assure equilibrium across all margins (Bromley 1990). Both confusions—efficiency and resource rent—can be exposed with reference to Figure 1.

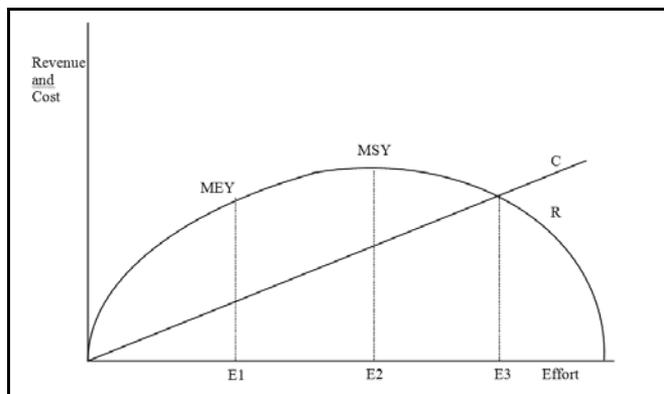


Figure 1. Fishing effort vs. revenue and cost.

Though we could draw on a large number of accounts of this iconic figure, I will use the one that was presented to the Pacific Fishery Management Council in a report pertaining to the proposed introduction of an IFQ fishery. The authors wrote:

To explain how sustainable and economically desirable resource rents arise it is useful to look at a simple fishery model (Figure 1) that includes: fishing effort; revenue and costs; and a biological optimum called maximum sustainable yield (MSY). MSY is a standard reference point for the biologically optimum level of catch. In Figure 1 MSY is reached at point E2—beyond this point revenue begins to fall as catches fall and costs continue to rise due to the increased effort needed to catch fewer fish. Resource rent is the vertical difference between the revenue curve R and cost line, C. The difference is largest at point E1. This point is referred to as the Maximum Economic Yield (MEY). At MEY the resource rent is greatest, the fishing effort is at its lowest, and the total catch at E1 is equal to that at E3, the point at which revenue equals cost, only normal profits are earned, and a depletion of fish stocks results. MEY is therefore a desirable ecological and economic goal for the management of a sustainable fishery. The resource rent accrued at MEY would generate the highest net revenue and result in the largest return to society.

Most fisheries do not operate at E1 and fail to maximize rents. They operate at E3. This is because the cost line C includes an allowance for normal profits. New entrants will continue to enter an unrestricted fishery until E3 is reached and a profit can no longer be made. At E3 all rent has been dissipated and the stock is being over-fished by the difference between E3 and E2. Even if regulations restrict fishing to MSY and some rents are generated this is still economically inefficient compared to E1. Over time rents can be increased through incentives and entrepreneurial behavior by improving output markets (increasing the height of the revenue curve) or improving technologies (decreasing the angle of the cost line). (Sylvia et al. 2008:2-3)

Notice that the vertical distance in Figure 1 is referred to as resource rent and it is claimed that this magnitude must be maximized in order to produce the “largest return to society.” The reader is then told that fishing effort must be restricted from E3 or E2 back to the “efficient” level of effort—E1. It is also claimed that all of us (“society”) are suddenly made better off when effort is driven back to E1 because it is here that

“resource rent is maximized.” It is said that here the fishery will be efficient. If resource rent is maximized in an efficient fishery, and if society is alleged to be better off at E1 as opposed to E3, the question worth asking is what sort of magic has transpired to bring about this happy result? The magic is that firms are evicted or bought out—it is called “rationalization”—in order to generate extra-competitive profits in an exercise reminiscent of a quest for a “sole owner” (Scott 1955). A sole owner is a monopolist.

Scott denies that a sole owner is a monopolist (1955:117). However, for a single fishery—say the Alaskan halibut/sablefish fishery—it seems difficult to maintain that having that particular fishery exploited by a single owner is not a situation of a single (monopoly) supplier of halibut/sablefish into the market. The same reasoning applies to the Bering Sea/Aleutian Island crab fishery, or indeed the Bering Sea pollock fishery.

I will return to this matter, but it is first necessary to focus attention on the common assertion that a fishery with effort level E3 is inefficient. The standard account refers to “rent dissipation” when aggregate effort is at E3 rather than at E1. The idea of rent dissipation seems wasteful—as if something important is disappearing or being squandered. The problem is that the term *rent* has a very distinct meaning in economics, and a different meaning in the fisheries literature. Rent (correctly speaking, “economic rent”) is the net revenue to a firm that is in excess of what would be necessary to keep the firm engaged in its current activity. Economic rent is extra-competitive (excess) profit. Industries with blocked entry, or with some other means to prevent competitive pressure, earn economic rent. The point of a competitive market economy—see the above first and second theorems of welfare economics—is to provide opportunities for entry so that supply is increased and prices are thereby “pushed down” to their competitive (lowest possible) level. Consumers gain from lower prices. That is the sole justification for a competitive market economy.

The standard account of Figure 1 invites the unsuspecting reader to believe that something horrible is happening when effort E3 is observed. It is said that “rent dissipation” has occurred and the fishery is “inefficient.” But which rent do fisheries economists have in mind here—economic rent or resource rent? The common lament seems to be that resource rent is being dissipated as the fishery moves toward E3—but this is incorrect. As effort expands from E1 to E3 it is the economic rent that is being dissipated—and this is not to be lamented. In fact, the dissipation of this economic rent is precisely what happens in a competitive economy. It *must* happen if the industry is to be competitive rather than monopolistic (or oligopolistic). At E3 all fishing firms are earning competitive profits—what all firms earn in a competitive market. If firms were not earning competitive profits, they would exit the fishery to realize a greater return for their labor and management skill in other lines of work. Notice that when aggregate effort is less than E3, there are extra-competitive returns (excess profits) to be made in the fishery as evidenced by the vertical distance between R and C in Figure 1. We see that these excess profits serve as the attractant (the “economic pheromone”) that draws entrants in pursuit of these artificially high returns. Firms will enter—capturing some of that excess profit—until all firms are earning no more than competitive returns (normal profit). We now see that this thing called “rent dissipation” is nothing but the elimination of excess

profit that would otherwise accrue to firms when aggregate effort is less than E3.

Notice how the authors of the above quote describe this process—“New entrants will continue to enter an unrestricted fishery until E3 is reached and a profit can no longer be made” (Sylvia et al. 2008:2-3). However, these authors have already told us that “the cost line C includes an allowance for normal profits.” The reader is therefore induced to believe that firms which are actually making normal (competitive) profits are unable to make any profits at all. From this deceit emerges the standard prescription that these fishing firms, because they are “not making any profit” would actually be better off if they were evicted or bought out of the fishery so that they might escape the impoverished servitude of rent-dissipated fishing. After all, wouldn’t they be much happier as electricians or school teachers (Bromley 2008)? Apparently those who fish cannot be trusted with their own occupational choices.

In a serious theoretical faux pas, Gordon lamented this situation by saying:

This is why fishermen are not wealthy, despite the fact that the fishery resources of the sea are the richest and most indestructible available to man. (Gordon 1954:132)

The flaw I have in mind is not his claim of fisheries as “indestructible” but rather the observation about poor fishermen. His assertion is akin to lamenting that an Iowa family farmer is not wealthy despite being settled in the middle of the most bounteous agricultural land in the world.

It is now apparent that the “rent” fisheries economists wish to maximize is not resource rent at all but is, instead, economic rent—excess profits accruing to the lucky firms not excluded from the fishery. The pursuit here is simply to maximize the income that would accrue to the sole owner (a monopolist or a “near” monopolist).

The slippery nature of “profit” shows up in yet another curious claim:

Even when management sets harvest quotas that could maximize profits, the incentives of the individual harvester are typically inconsistent with profit maximization for the fleet. (Costello et al. 2008:1679)

The abiding problem here is that the job of fisheries managers is to protect fish stocks—not to try to maximize the profits of the fleet. Only a sole owner (of the entire fleet) in a particular fishery would be concerned with maximizing profits of the fleet. The above quote seems to suggest that individual fishing firms should be treated as mere pieces of capital (vessels) to be deployed or shunted aside so that aggregate fleet profit can be maximized. It is rather like General Motors or Ford closing assembly plants in order to increase corporate profits. Except here the “plants” to be closed (removed from the fishery) are individual firms. Are individual fishing firms—many of them family firms—nothing but pieces of capital to be used or banished as government fisheries managers seek to “maximize profit for the fleet?”

I am not aware of another setting in which economists would seriously claim that “maximizing industry profits” represents the pertinent objective function. *Firms* seek to maximize profits—*industries* do not and cannot because an “industry” is not a plausible decision-making entity (unless the “industry” is

a monopolist). An industry is merely the sum of the firms in it, and economic theory regards a perfectly competitive industry as one in which each firm in that industry is making normal profits. Talk of “maximizing industry profits” is incoherent. No economist would talk of maximizing the profits of a group of farmers growing Granny Smith apples—increasing or decreasing the number of apple producers until aggregate industry profits were somehow maximized. The only thing that matters is whether or not each firm in an industry is earning a competitive return on its investment. The U.S. Forest Service, when it provides timber to the private sector, is certainly not motivated by the mandate to maximize the aggregate profits of those firms harvesting federal timber. The Minerals Management Service is under no obligation to lease oil and gas resources in the Outer Continental Shelf in order to “maximize industry profits” for the oil sector.

This brings us back to the persistent problem concerning resource rent. The confusion is about to get worse by the introduction of yet another rent—this one called *Ricardian rent*. Ricardian rent is the differential income earned by the most productive fixed asset (land) in comparison to all other parcels of lesser quality in the same “local market.” He who owns superior land in a particular market earns Ricardian rent. In fact there is a continuum of Ricardian rents from the very best land ranging all the way down to a parcel that is just slightly better than the worst. The worst parcel earns zero Ricardian rent, but each of the other parcels earns “infra-marginal” (Ricardian) rent. Henry George suggested that all of this differential surplus (Ricardian rent) could be taxed away without altering the uses to which each parcel of land would be put. After all, Ricardian rent is a species of economic rent in that it is a surplus over and above what is required by way of income in order to keep that parcel of land in its current use. Since it is excess (infra-marginal) income, why not tax it away? Why should an owner get to keep all of the surplus value created by the fortuitous gifts of nature (superior land), or the public’s investment in roads, busy inter-sections, schools, and parks?

Scott Gordon (1954) got fisheries economics off to a rather bad start by speaking of two fishing “grounds” as if discussing two agricultural parcels. He insisted that fishing firms will overfish the superior ground and underfish the inferior ground—and Gordon called this the dissipation of “resource rent” (even though it is Ricardian rent). Gordon wanted an owner of the fishing grounds so that effort would be optimally allocated across grounds of differential quality. All of Gordon’s fish were seriously demersal and stayed close to home.

Gordon recognized the limiting nature of his model but few fisheries economists seem to have noticed. He wrote:

Other species, such as herring, mackerel, and similar pelagic or surface dwellers migrate over very large distances, and it is necessary to treat the resource of an entire geographic region as one. The conclusions arrived at below are applicable to such fisheries, but the method of analysis employed is not formally applicable. The same is true of species that migrate to and from fresh water and the lake fishes proper. (Gordon 1954:129)

And so the underwater version of “Ricardian rent” soon lost its differential-quality component and became “resource rent” in any fishery of any size or species composition. Gordon wanted to maximize this “wet” Ricardian rent. Interestingly, if fisher-

ies economists insist on maximizing this “resource rent” for an entire fishery, then there is no good reason why the entirety of it should not be taxed away. If effort is restricted to E1 in the hope of maximizing “resource rent” then the government should tax away that excess profit and return it to the owner of the fish in the EEZ. Doing so would allow all fishing firms to capture their full competitive return, and it would have no effects upon fishing effort.

There are no coherent reasons to maximize economic rent in a fishery. The single policy innovation that will induce efficiency in the fishery is to require fishing firms to pay for the fish they catch. A market economy requires that all owners of factors of production—and fish in the EEZ are a factor of production to fishing firms—must receive a payment for their relative contribution to the value of the total product of the firm using those factors. In this case, fish are the raw material (similar to gold, silver, timber, and oil) gathered up by the private sector and delivered to the market ready for further processing. Payment for this raw material is correctly understood to be *resource rent*.

Very few managed fisheries require firms to pay for the fish they extract from the ocean. Moreover, rationalization programs to reduce effort from E3 to E1 do not require the remaining firms to pay for what they catch and sell. They do not pay any resource rent. Starting again at effort E3, if firms were made to pay for the fish they catch, then the cost ray C in Figure 1 would rotate in a counter-clockwise direction and would then intersect R to the left of its current point (E3). This payment of resource rent is necessary to establish both technical and price efficiency—and it would result in a reduced level of aggregate effort. Effort would be reduced because when firms must pay for the fish they catch, their average and marginal costs rise somewhat, leading to profit maximization at a slightly reduced level of effort.

The standard fisheries story fails to grasp this point and insists that aggregate effort must be reduced in a bogus and chimerical quest to reach E1—at which point fishing firms who manage to remain in the fishery get to keep all of the resource rent, plus they reap excess profits made possible by the exclusion of most of their former competitors. We now see that avoiding “rent dissipation” is nothing but the creation of excess profits for the fortunate firms not evicted under rationalization schemes. These extra-normal profits are then bolstered by using gifted IFQs as leverage to acquire additional quota shares, thereby augmenting these excess profits into perpetuity. This flawed model—and the conceptual and linguistic conjuring attendant to it—are deployed to offer ersatz indictments concerning the lack of “efficiency” in the fishery. Effort at E3 is said to produce a situation in which:

...the so-called economic rents (total revenue minus total costs) from the fishery will equilibrate at zero, resulting in minimal overall economic efficiency. (Beddington et al. 2007:1713)

And, as we saw above:

New entrants will continue to enter an unrestricted fishery until E3 is reached and a profit can no longer be made. (Sylvia et al. 2007)

These authors seem unaware that a competitive industry is precisely one in which the difference between average revenue and average cost, both at the individual level of the firm, and aggregating across all firms, *must be zero*. A competitive indus-

try is one in which total industry revenue is precisely exhausted (used up) by total industry costs (when all factors of production—including the fish from the EEZ—have been paid their competitive return). There can be—must be—no economic rent (excess profit) in a competitive industry. That is precisely the point of a competitive market.

At effort level E3, each fishing firm is covering all necessary costs, and also realizing enough of a net return (profit) to make fishing the preferred occupational choice. Also, as long as landings are on the sustainable curve R it cannot be claimed that the fish stock is in danger of overexploitation. Sustainability is assured. The curious reader might therefore be justified in asking: “Please tell me again what is wrong with effort level E3?” The only honest answer to this pertinent question is that those firms comprising aggregate effort E3 are not required to pay anything for the fish—the owners of the fish are not receiving any resource rent.

We see that the advocacy for IFQs is based on this flawed understanding of efficiency and resource rent. When IFQs are gifted to those with a history in a particular fishery, there is an after-market for quota as consolidation occurs. This after-market fails to produce any resource rent (payments for fish landed) for the owners of the resource (the U.S. Treasury acting as the repository for the government’s trust responsibility as manager of the fishery). Payments for additional quota shares by those who wish to expand are received by others who were similarly gifted, but who now wish to cash out and do something besides fish for a living. Commercial fishing firms stand to the fish they seek to catch in exactly the same relationship as those who seek to harvest timber from federal lands, or those who wish to extract oil and gas from federal lands (or from the outer continental shelf). In the absence of payments to the owners of the fishery resource, we see that the “rent-maximizing” level of effort in Figure 1 (E1) represents nothing but the creation and maintenance of excess profits accruing to those fortunate enough to remain in the fishery after all others have been excluded through consolidation of the initial free gifting of IFQs. And it means that the firms are not paying for the fish they catch. The free gift of IFQs has an added bonus—free fish. It is impossible to assert that efficiency has been achieved when a fishery is being exploited at effort E1.

BRINGING MANAGEMENT BACK IN

The decades-long accretion of deceptions, confusions, conjurings, and contrivances conspire to yield up a conceptually incoherent diagnosis of the “fisheries problem.” This bogus diagnosis then underwrites a plethora of counterfeit justifications for the introduction of IFQs. Fisheries policy makers have been deceived to believe that IFQs are private property rights, that private property is a reliable engine of stewardship, that fishermen cannot make money in the absence of IFQs, and that economic efficiency will be realized if some fishing capacity can be restricted in order to maximize the difference between total revenue and total cost in an industry. This is said to be consistent with “maximizing resource rent” in the fishery. It is fantasy—all the way down.

I was reminded to re-visit my Ph.D. dissertation, which was published by the U.S. Bureau of Commercial Fisheries over 40 years ago (Bromley 1969). While all dissertations, even when

finished, are “rough drafts,” my arguments then seem as pertinent today as they did back then.

Drawing on this ersatz picture, the inevitable impression to arise from the phony claims for IFQs is that management is no longer necessary—IFQs can be handed out as gifts to those firms with a history in a particular fishery, and then the after-market can be relied upon to bring about “efficiency” in terms of who will remain in the fishery. Fishing effort will automatically equilibrate at the efficient level, and resource rent will be maximized. It all sounds too good to be true—and of course it is. Indeed, as Beddington et al. (2007) point out, the most thoroughly “privatized” fisheries—New Zealand and Iceland—have some of the highest management costs in the industry. If IFQs accomplish so many desired results—enlightened stewardship, economic efficiency, rent maximization—why are management costs so high?

If we can escape the extravagant claims for IFQs, is there a plausible path forward? Imagine fisheries policy motivated by the following objectives:

1. Assure sustainable fish stocks;
2. Produce resource rent for return to the owners of the stocks;
3. Reduce racing (derbies); and
4. Offer entry opportunities for aspiring firms.

From these four central principles, other objectives—contribute to enhanced product quality, revitalize small fishing ports, offer tourist attractions to coastal communities—can be appended where appropriate.

The first objective is met by honest science-based limits on total annual catch. While the science is indeed difficult at times, the principle of listening to the scientists is quite unimpeachable. Science-based TACs—assiduously enforced—are the necessary and sufficient condition for sustainability in fisheries.

The second objective is met by requiring fishing firms to pay the owners of the fish they catch a royalty for the privilege of being able to make a living off of the public’s endowment of fisheries wealth in the EEZ. The best way to accomplish this is to require those who seek to participate in a particular fishery to submit a royalty bid indicating what fraction (the royalty bid) of annual gross landings receipts they are willing to pay the government in order to gain income and wealth from catching our fish. See Bromley (2005, 2008) and Bromley and Macinko (2007) for a discussion of the royalty auction.

The third objective is met by abandoning the practice of giving away catch shares (IFQs) into perpetuity—a practice that restricts all future management options to the blunt instrument of raising and lowering TACs. All permits must be for fixed time periods—say 5 or 10 years—so that fisheries managers can also control the number of vessels participating in a particular fishery without having to devote the public’s money to buyback that which was recently given away to the industry for free. This will solve the derby fishery, and it will enable accomplishment of the fourth objective. New Zealand seems to have learned this lesson the hard—and expensive—way (NRC 1999).

The fourth objective is achieved by virtue of having accomplished the second and third objectives. That is, the existence of limited-term permits assures everyone that at frequent intervals (perhaps annually, perhaps every five years, depending on the design of the allotment-share program), some portion of the existing permits in a fishery will come open for acquisition by

new entrants. Those firms holding permits could bid once again to retain them, but new entrants would also have an opportunity to enter the fishery through submitting a higher qualifying bid.

It is here that we find a profound difference between an allotment-share fishery (ASF) and the standard IFQ fishery. In an IFQ fishery, quota shares are controlled by a closed class of vessels who are able to block new entrants by trading shares among themselves, but not selling to new entrants. With the entire TAC obligated in perpetual gifts to the industry, the management agency loses the ability to offer fishing opportunities to new entrants. Moreover, in an IFQ fishery, entry requires the up-front purchase of quota from those who now hold it. Notice that this cost represents an entry barrier that can be overcome only through a contractual arrangement with the current holder of the IFQ (paying for the quota shares at the end of the season), or through entering the credit market in search of liquidity. Either route exposes the entrant to virtually all of the stochastic variation in the next year's TAC, as well as to the endemic risks in a highly variable economic activity.

The allotment-share fishery (ASF) requires no such ex ante financial maneuvers. If the aspiring fishing firm submits a winning royalty bid, there is no prior financial obligation required. The royalty is simply deducted from the proceeds due the fishing firm upon sale of the product at dockside. No fish, no fee.

Notice that I have left aside many of the possible refinements—two classes of permits (5-year, 10-year), staggered terms for permits so that a portion of them come up for renewal each year, size-class permits so that small vessels are not bidding against large vessels, concentration caps so that a few firms are

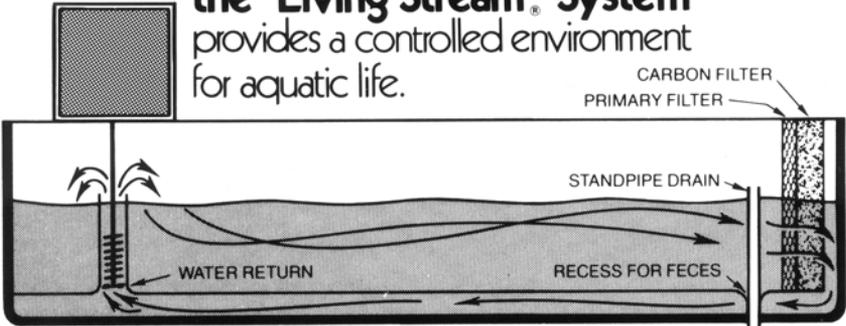
not allowed to gain control of a fishery. I have elsewhere spelled out a number of refinements to this basic model (Bromley 2005, 2008; Bromley and Macinko 2007).

SUMMARY

The manifold contrivances under discussion here have given rise to a perception that management will be virtually unnecessary in an IFQ fishery. The magic of IFQs is alleged to produce a setting in which fishing firms will become exemplary stewards, they will become efficient, the fishery will become efficient, resource rent will be maximized, there will be no more racing for fish, and society will be better off.

The foregoing discussion reveals that those who offer this utopian vision are themselves confused about the necessary concepts they deploy to support their optimistic allegories. Among the key concepts they have wrong are:

1. Efficiency;
2. Economic rent;
3. Resource rent;
4. Ricardian rent;
5. Average costs and average revenue among firms and across an industry;
5. Extra-normal profits;
6. Stewardship;
7. Property;
8. Rights;
9. Privileges; and
10. Property rights.



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This is not auspicious ground on which to construct a coherent case for anything at all. In the wake of this dismal account, the only possible reaction to their over-confident policy offerings concerning IFQs is comprehensive incredulity. At a practical level, empirical evidence from New Zealand and Iceland reveals the deceit that IFQs will bring us a self-regulating fishery.

The world's fisheries are in desperate condition precisely because fisheries management over the past several decades has been one of rather complete malfeasance on the part of national governments and their fisheries management agencies. The advocates of IFQs have managed to exploit this tragedy by offering up the canard that if only their roseate policy instrument could be introduced there would be no need for management in the first place.

Adopting this spurious advice would compound the tragedies of past malfeasance by the foolish embrace of confusions, contrivances, and deceptions.

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LETTERS: TO THE EDITOR

Comment on "Abdicating Responsibility: The Deceits of Fisheries Policy"

Bromley (2009) brings an "outside" perspective to the challenges of fisheries policy. His views about what he perceives to be the prevailing zeitgeist of market "fundamentalism" in fisheries require a response. Our intent is to correct errors of commission and omission that might otherwise leave readers with a mistaken view of fisheries economics, the usefulness of individual fishing quotas (IFQs), and what should be the desirable biomass levels in fisheries. We limit our response to:

1. Defining an IFQ;
2. Bromley's so-called five deceits of contemporary fisheries policy that we rephrase as questions;
3. His remarks on catch shares and collapse;
4. The concepts of resource rent and efficiency; and
5. Fisheries policy.

Bromley defines IFQs as harvest shares that require all of the following characteristics:

1. They are given away for free,
2. Granted in perpetuity, and
3. Involve no capture of rent.

We contend that IFQs are much broader than his definition, and that there are individual transferable quotas that we would call IFQs that do not satisfy Bromley's three characteristics.

Can overfishing be blamed on missing property rights? There is both theoretical and empirical evidence that inappropriate incentives can lead to economic overfishing. Thus, contrary to Bromley's claim, economic overfishing can be blamed on missing rights. Unfortunately, Bromley goes a step too far by seeking to claim that fisheries economists believe that this is the *only* reason for overfishing. This is simply untrue.

Is private ownership necessary and sufficient for sustainable resource use? Private ownership is neither necessary nor

sufficient for sustainable resource use. Even the authors of the paper Bromley cites repeatedly make it clear that private ownership is not sufficient for socially beneficial ownership. They state:

Exclusive property rights, however, do not guarantee sustainability. In extreme cases, it may be economically rational to mine a fishery (Clark 1973).

(Grafton et al. 2006:701)

Grafton et al. (2006a) further show that private ownership is not necessary for sustainable resource use and describe how both individual and also group incentives (in the form of group and collective rights) can be successful at improving outcomes in fisheries.

Must IFQs be granted in perpetuity? And must they be transferrable to produce desired efficiency and stewardship?

Durability and transferability are desirable properties of harvesting rights in fisheries (Devlin and Grafton 1998) but they are not an absolute requirement to produce the desired efficiency and stewardship properties of IFQs. Many IFQ fisheries do not have these "perfect" criteria, yet function well compared to traditional and so-called "command and control" fisheries management. Further details are available in Scott (2008), who describes the historical origins and different characteristics of property rights in fisheries, and the outcomes they generate. There is also a substantial and valuable literature developed by economists that documents and analyzes how changes in design criteria (property characteristics) affect incentives for stewardship (see Costello and Kaffine 2008).

Are IFQs private property? We contend that IFQs are property. Bromley cites Cole and Grossman (2002) to show how economists confuse legal concepts as

property rights. Cole and Grossman define property rights as:

...property relations between owners and non-owners...

and more precisely as

...if one person holds a "right" to something, at least one other person must have a corresponding duty not to interfere with her possession and use...

(Cole and Grossman 2002:318)

They further state that a property right only arises

...when it is socially or legally recognized as such, signifying the voluntary acceptance and enforcement of concomitant duties or noninterference.

(Cole and Grossman 2002:325)

The definition of Cole and Grossman of a property right, in our opinion, matches the nature of IFQs in jurisdictions such as New Zealand, Australia, and Iceland.

Are IFQs necessary and sufficient to produce efficiency and maximize resource rent? IFQs are neither necessary nor sufficient to maximize rent in a fishery. However, contrary to Bromley's claim, it is fisheries economists who have shown this result (see Boyce 1992; Costello and Deacon 2007). Fisheries economists have also given the conditions under uncertainty in which total effort control may be preferred to total harvest control (Kompas et al. 2008). We contend that no single fisheries management policy or tool, including Bromley's allotment shares, will maximize economic efficiency or rent in a fishery. This, however, is not the point. Namely,

If IFQs do not, in general, lead to a first-best outcome they may be, nevertheless, a desirable management tool if they result in a superior

outcome to that arising from current practice
(Grafton 1996a:7)

Bromley contends that Costello et al. (2008) failed to test for the effects of IFQs separate from TAC limits on reducing the probability of stock collapse. However, in many fisheries, IFQs have been implemented subsequent to rather than simultaneously with the introduction of TAC limits. Indeed, it has been the failure to adequately implement TAC limits in so-called "race to fish" fisheries, where fishers have actively lobbied against lower harvests, that has encouraged the introduction of IFQs by managers. The hypothesis tested by Costello et al. (2008) was that IFQs reduce the likelihood of stock collapse. They accounted for changes for differences both across time (before/after IFQs) and across fisheries (those that have adopted IFQs, and those that have not).

Bromley's understanding of efficiency is confused. The various concepts of efficiency (technical, allocative, scale, and economic) are appropriately defined in a fisheries context in Grafton et al. (2006b). A necessary condition for a firm (or fisher) to be economically efficient is to be both allocative efficient and technically efficient. In a fishery context it cannot be the case, as shown in Bromley's Figure 1 (which has dollars on the vertical axis and

fishing effort on the horizontal axis), for a level of fishing effort at E3 where the total revenue from fishing equals total cost (the so-called bionomic equilibrium) to be economically efficient. Indeed, any level of effort on the downward sloping side of the sustained revenue curve in his figure is technically inefficient because less effort can be applied to catch the same or greater harvest (and revenues; Grafton et al. 2006b). It is also true that at any level of fishing effort greater than E1 (the effort that maximizes the rent in the fishery) that the marginal cost of additional unit of effort is less than its marginal benefit from the perspective of the fishery.

A concern from a sustainability perspective is that Bromley appears to advocate a high-effort, low-stock state of the world (given by E3). From an economic perspective, why would any resource owner (the state) wish to produce a technically inefficient point given by E3 such that the same revenue (harvest) is generated with twice the level of fishing effort? Bromley asks, "What is wrong with E3?" Apart from the fact that low stocks and high fishing effort are associated with lower resilience and greater risk of stock collapse, the economic answer is that fishing inputs (labor and capital) that generate fishing effort in excess of E1 could be used for other productive activities (such as building hospitals or schools). Moreover,

the maximum rent from fishing at E1 can and should be used to benefit society as a whole by using this surplus for productive public investments. Far from ignoring the issues of rent capture, there is a substantial literature by fisheries economists on how this rent could be captured in the presence of IFQs (see Grafton 1995, 1996b).

Bromley's confusion about resource rent appears to arise from his insistence of focusing on rent from the individual fisher perspective while for fisheries economists the unit of analysis is the fishery. In the absence of IFQs, where a market price for the right to harvest fish arises, or when a landings royalty or charge is imposed, the price of fish in the sea will not be priced by those harvesting fish to take into account the costs on others. Consequently, fishers will continue to harvest if their expected individual return exceeds the expected cost, or until the bioeconomic equilibrium at E3. This is a market failure.

How can the market failure of fisheries be corrected? It can be remedied by the imposition of a landings charge, as proposed by Bromley and others (see Clark 1985:157-171), but it can also be corrected by IFQs where the fish in the sea have a price determined by the market price for IFQs. Whether IFQs are allocated gratis or auctioned, they are not "free" in the sense they represent a cost (explicit or

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implicit) and can help correct the market failure of economic overfishing.

Despite the differences we have with Bromley, we have little to disagree with in terms of his objectives for fisheries policy. Yet again, however, Bromley fails to recognize the fisheries economics literature. For instance, an approach similar to his allotment-share fishery has already been implemented in New South Wales fisheries based on the advice of fisheries economists (Young 1999). Hannesson (2004:59) also describes how the fishing rights system in Estonia was established (late discontinued) whereby 10% of all fishing rights were auctioned off annually, with the remaining shares allocated on the basis of recent catches.

Far from confusing fisheries managers or perpetuating deceptions or misinterpreting concepts, the advice offered by many fisheries economists has proven to be helpful and, in some cases, instrumental, in improving a whole range of fisheries outcomes. We summarize our viewpoint by quoting from the last sentence of a paper much cited by Bromley:

Evidence from more than a dozen natural experiments of commercial, developed fisheries supports our conclusion: incentive-based approaches that better specify individual and group harvesting rights and (or) territorial rights, as well as price ecosystem services, promote both economic and ecological sustainability.
(Grafton et al. 2006:706).

This is neither a utopian vision nor a canard.

—R. Quentin Grafton,
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Flinders University;
Christopher Costello,
University of California Santa Barbara;
Ray Hilborn,
University of Washington;
Tom Kompas,
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- The article “Abdicating Responsibility: The Deceptions of Fisheries Policy” published in *Fisheries* does a three-fold disservice. First, it overgeneralizes the arguments put forward in the economic and fisheries management literature about the theory and application of individual fishing quotas (IFQs). Second, it devalues the significant achievements of fisheries managers around the world who have designed and implemented many types of IFQ programs. Third, without empirical evidence, it unfairly discredits an effective fisheries management tool at a time when we need to use a full range of management tools to achieve sustainable fisheries.
- Some 36 years after Francis T. Christy, Jr., the intellectual parent of IFQs, presented his seminal paper to the Law of the Sea Institute in 1972 (Christy 1973), fisheries management has moved beyond rhetoric about the theoretical disadvantages and advantages of IFQ systems. More than 20 developed and developing countries have implemented some variation of an IFQ system for hundreds of individual fisheries (Shotton 2000; Arnason 2002; Costello et al. 2008; Branch 2009). IFQ systems are to be found in many variations because of the particular social, economic, institutional, and biological context of the fishery being managed. Common to all IFQ systems is the distribution of a share of the total allowable catch (or effort) as quota. In most IFQ systems, participants are permitted to sell or lease this quota (Branch 2009).
- IFQs are a tool for improving economic performance of commercial fisheries. Economists have played an influential role in the design and implementation of IFQ systems around the world, from Iceland (Arnason 2008) to New Zealand (Batstone and Sharp 1999; Bess and Harte 2000) to the Falkland Islands (Harte and Barton 2007). As a component of a harvest quota-based system, IFQs establish market-based incentives that encourage participants to reduce fishing costs and sustain fish stocks. The details concerning security, transferability, duration, and exclusivity of IFQs vary widely among various programs (see, for example, Scott 2000 and Anderson 2005). Twenty-first century fisheries management profes-

sionals understand that clarity, appropriateness, and enforceability of fishing entitlements and responsibilities go hand in hand with overall harvest limits to reinforce public and private incentives for sustainable fisheries.

That the immediate cause of overfishing is the human-induced mortality on fish stocks is not disputed. To prevent overfishing, however, it must also be viewed from a societal and economic perspective (Costello et al. 2008). Overfishing is an example of Hardin's (1968) famous "tragedy of the commons" principle that applies to common pool resources. Allocating individuals a specified share of allowable catch or effort is one of several possible solutions to overfishing and excessive capital investment that are characteristic of many common pool fisheries (Wilen 2006). Branch (2009), a fisheries biologist, explored the effects of IFQs on marine ecosystems and found that aggregate catches in IFQ fisheries were generally below the total allowable catch (TAC) while, in the same fisheries pre-IFQ, they were generally above the TAC. In the 20 IFQ fisheries studied by Branch, fleet size declined in every fishery after the introduction of IFQs.

On the introduction of IFQs to the British Columbia sablefish fishery, TAC overages disappeared and catches have been below the TAC since then (Sporer 2008). The length of the fishing season

increased from a few days to all year-round and the value of the catch increased dramatically (Sporer 2008). This pattern has been repeated in many IFQ fisheries in North America including Pacific halibut (Hilborn et al. 2005), British Columbia geoduck (James 2008), and British Columbia red sea urchin (Featherstone and Rogers 2008). Efficiency gains and benefits to fisheries management may, however, come with social and cultural costs as fewer people and vessels are engaged in fishing and IFQs become concentrated in the hands of fewer fishing interests (Pinkerton and Edwards 2009). These effects may have a detrimental impact at a local or regional level, even as the economy as a whole benefits. As McCay (2000) notes, there are often no free lunches in fisheries management.

IFQs and other forms of rights-based (or privilege-based) management are not a panacea for all that ails fisheries management. Many challenges, including overfishing; the bycatch of non-target fish stocks; the incidental mortality of seabirds, marine mammals, and reptiles; and the adverse impact of fishing gear on benthic communities are examples of what economists term "negative externalities" (Hughey et al. 2000). The assignment of IFQ-type entitlements and responsibilities can promote a reduction in these externalities (see, for example, Hughey et al. 2000; Holland 2007; Ning et al. 2009)

but they do not take the place of government oversight of a public resource. To reduce externalities and achieve politically-determined social objectives, governments need to choose an appropriate mix of management tools. These tools include command and control regulations (e.g., season and gear restrictions), the establishment of minimum performance standards (e.g., bycatch rates), and the creation of collective management institutions (e.g., fishing cooperatives) as well as IFQs (Sylvia et al. 2006).

IFQ holders have an enhanced incentive to take a long-term interest in fisheries. Conservation actions taken today will directly benefit IFQ holders through larger future harvests and the increased value of catch shares (Hilborn et al. 2005; Anderson and Holliday 2007). In open and limited-access competitive fisheries, individual firms have no secure claim on future catches. If future entitlements to a share of a fishery are secure under an IFQ system, then harvesters can more confidently make long-term capital investment decisions. Greater certainty also helps the processing sector make long-term investments that can improve product quality and diversify market channels (Larkin and Sylvia 1999, 2004.). In addition, Beddington et al. (2007) and Branch (2009) report examples of stewardship behavior in IFQ fisheries including the recommendation of TAC reductions and



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development of environmental codes of practice. Townsend and Shotton (2008) note many examples from New Zealand, Canada, and Europe where holders of IFQ type privileges have formed self-governance associations that have funded and actively carried out research and then have either voluntarily undertaken or advocated for government to implement conservation measures. Voluntary measures such as quota shelving, where IFQs are temporarily retired from the fishery, and increased research and biological sampling can have significant short-term costs but long-term benefits. Though clearly not exclusive to IFQ fisheries, stewardship activities appear to occur more frequently in IFQ fisheries than in fisheries managed under alternative arrangements (Branch 2009).

IFQs do not operate in a social or political vacuum. Government often seeks a myriad of potentially conflicting social, economic, and environmental objectives for fisheries management. For this reason no IFQ fishery in place anywhere in the world has IFQs that are both of infinite duration and are freely tradable. Restrictions are placed on who can own IFQs and how much can be owned. For example, the Falkland Islands IFQ system has quota eligibility registers and there are various restrictions related to local ownership, efficient use, and active involvement (Harte and Barton 2007). The proposed IFQ system for the U.S. West Coast groundfish fishery places limits on IFQ ownership that, with a few exceptions, range from between 3% and 15% of the total available IFQ for non-whiting groundfish stocks (PFMC 2008). Most countries restrict the duration of IFQs. For example, in the United States and Australia, IFQ duration is tied to the length of the management plan in place for the fishery, although IFQs are generally reallocated to existing holders upon the establishment of a new fishery plan (Arnason 2002). Individual efficiency and stewardship incentives can be undermined by the many conditions set on IFQ ownership, but benefits are still apparent in most IFQ fisheries (Branch 2009; Beddington et al. 2007; Costello et al. 2008).

Recent research by Costello and Kaffine (2008) shows that the value,

growth characteristics, and duration of a harvest privilege all impact incentives for resource stewardship and economic efficiency. Modeling the abalone and spiny lobster fisheries in Baja California, Mexico, the authors demonstrate how limited-duration privileges could induce resource stewardship. However, for slower growing stocks, either a long tenure period or high certainty of renewal is required to induce stewardship. They also argue that a longer tenure of harvest privileges will encourage stewardship depending on the tenure length, the probability of renewal (as a function of the probability of achieving a predetermined "escapement" level), and the economic and biological characteristics of the fishery. Although carried out with high-value single species fisheries, this work demonstrates the context-specific nature of the complex relationship between stock characteristics, duration of fishing privileges, and the certainty of privilege renewal.

Unlike many other fisheries management tools, IFQs can simultaneously encourage harvest sustainability and wealth. First, they encourage lower harvests and higher fish stocks because economic returns in a sustainable fishery are often greater at larger stock levels. In addition, reduced fishing effort associated with IFQ fisheries can induce "positive externalities" by reducing habitat impacts, lowering bycatch, and reducing incidental mortality of mammals, seabirds, and marine reptiles. Second, IFQ-based systems tend to create wealth through efficient harvesting practices and marketing efficiency (Asche et al. 2008; Wilen and Richardson 2008). A study by Wilen (2005) suggests that the world's fisheries should be making \$80 billion a year in resource rents rather than losing \$30 billion per year. This loss is due to the inefficiency of fisheries management systems that work against rather than for the efficient use of resources and wealth creation.

The public has a clear interest in the wealth generated from the efficient use of a well-managed common pool resource (Grafton 1995; Anderson 2000; Anderson and Holliday 2007). Whether or not governments choose to recover rents, and if so at what level and how, is a political

decision to be informed, but not decided, by economics. Untangling resource rent from normal profit and entrepreneurial rents is often an accounting quagmire. Renewable resource rent is properly viewed as a dynamic rather than a static concept (Larkin et al. 2002). The issue is further complicated by non-economic social objectives, and the regulatory costs of science and management. While it can be difficult to establish the extent to which society should be paid for a right to access a resource, there are a variety of methods for allocating rent to the public treasury. These range from ex-vessel taxes to annual license fees to public auctions of IFQs (Grafton 1995; Huppert 2007). Each method has different administrative and economic costs and benefits. The economic consequences also depend on the amount of rent extracted from the fishery. Leaving some rents with industry enhances stewardship incentives, assists in generating capital to invest in the fishery, and encourages the generation of new wealth through innovation. Total returns accruing to both the public (through general taxation and reinvestment in the economy) and the private sector will then increase. If government attempts to extract all forms of rent, then long-term incentives to invest in the fishery may be greatly reduced.

IFQs are only one, albeit successful, tool that can be used to combat our fisheries crises. They are part of the management solution and are not a replacement for government oversight of fisheries. Indeed IFQ systems as creations of public statute require government involvement for their effectiveness. They take on many forms to address a variety of politically-determined management objectives. Together with science-based catch limits and effective enforcement of regulations, IFQs can help achieve ecological sustainability and increase the economic performance of fisheries. When fisheries are profitable and generate rents, government is able to use a range of financial mechanisms to help ensure that both the public and industry benefit from wealth-generating fisheries.

The recent reauthorization of the Magnuson Stevens Fisheries Conservation and Management Act provides the Secretary of Commerce (and the fisher-

ies management councils) with the ability to establish a system of limited-access privileges that include IFQs. The empirical evidence from over 20 countries suggest that IFQs in all their various forms have improved economic efficiency and profitability, reduced discard, increased safety, and perhaps helped prevent fishery collapses. To sweep these benefits under a threadbare rug of rhetoric would be the biggest deceit of all. We challenge those who believe that IFQs are inherently antithetical to good fisheries management to roll up their sleeves and get to work providing rigorous empirical evidence for their case.

—Michael Harte,
Oregon State University
Sherry Larkin, University of Florida;
Gil Sylvia,
Oregon State University;
Dan Huppert,
University of Washington;
George Kailis,
University of Notre Dame—Australia;
Mike Arbuckle,
World Bank;
Laura Jodice,
Clemson University

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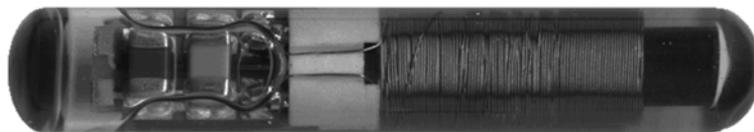
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...hallprint fish tags are the best in the industry.

The author replies—

In contemplating the above comments—11 authors, 6 acknowledgements gratefully extended, over 50 citations encompassing hundreds (?) of authors (allowing for some repetition)—I am put in mind of Odysseus returning home after 20 years, only to face hordes of unpleasant suitors pursuing good Queen Penelope. Scholarship by gathering signatures has much the same feel to it. The difference is that Odysseus had the help of grey-eyed Athena to dispatch the hordes.

Grafton et al. observe that I have brought an “outside” perspective to the role of economic theory in fisheries policy. Usually an “outside” view might be thought to bring freshness to an old debate. But in this case the epithet “outside” is not intended to be welcoming. I am branded an outsider to alert the reader that I cannot possibly understand the received catechism of the church into which I have—at evident peril—wandered. The allusion to doctrinal hegemony is not accidental. There is serious vested interest in the catechism. Indeed, our disagreements concern nothing else. Fisheries economists—insiders—have crafted their own idiosyncratic bag of legal and economic tricks that are then invoked to rationalize their favored policy prescriptions. From Grafton et al., we see that I am confused. The reader should understand this to mean that, as an outsider, I have the inconvenient habit of drawing on legal and economic concepts that have not suffered artful mongrelization at the hands of fisheries economists. Let us now dig into their conjurer’s bag of tricks.

Grafton et al. first claim that IFQs are “much broader” than my three characteristics—

1. Free gifting,
2. In perpetuity, and
3. No capture of rent.

They note that there are “individual transferable quotas that we would call IFQs that do not satisfy Bromley’s three characteristics.” This is fine, but I should like to know something of the properties (instrumental attributes) of those things they wish to call IFQs. Those who are so sure that IFQs hold salutary effects for fisheries management need to let the rest of us in on which specific traits are responsible for the alleged good effects. Notice that something called an “IFQ” cannot explain—account for—anything at all. It is the *properties* of what we (or Grafton et al.) call “IFQs” that will do the work of rectifying what is wrong with fisheries that now lack IFQs. Scholarship demands conceptual clarity. If unknown or variable attributes of something called “IFQs” are alleged to produce good effects, we need to know what those traits are.

In a section entitled “*Can overfishing be blamed on missing property rights?*” Grafton et al. allege that there is “both

theoretical and empirical evidence that *inappropriate incentives* can lead to economic overfishing” (emphasis added). Of course, but notice the artful slip from *incentives* to *property rights*—“...contrary to Bromley’s claim, economic overfishing can be blamed on missing rights.” What are we to make of the term “blamed on?” The point of science is to provide solid support for causal assertions. One can readily agree that overfishing arises from “inappropriate incentives” without then agreeing that “missing rights” provide the pertinent incentive structure. I was clear that overfishing—economic or biological—is indeed the result of inappropriate incentives. However, the incentives I have in mind arise when fisheries managers (and the regional councils) fail to provide incentives for fishers to abide by a hard TAC. Or the incentives on regional fisheries management councils are strongly weighted in favor of ignoring science-based TACs in favor of aggressive harvesting regimes. Property rights must not be confused with incentives.

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Sadly, the fisheries literature has long been obsessed, indeed crippled, by this fetish.

In their discussion of whether private ownership is necessary or sufficient for sustainability, I am happy to see that Grafton et al. have now come over to my side. They agree that property rights are not decisive in explaining overfishing. But they prevaricate. In the previous paragraph they blame property rights. One is entitled to know what they really believe. Having secured their agreement here, I am not inclined to let them off the hook. Perhaps we have finally expunged the flawed “property rights” arguments associated with Gordon, Scott, Hardin, and many others. Perhaps now that Grafton et al. accept the point, they will help to spread the word.

Attention then turns to the “durability and transferability of harvesting rights.” Grafton et al. claim that durability and transferability are desirable but that “... they are *not* an absolute requirement to produce the desired efficiency and stewardship properties of IFQs.” This is welcome news indeed since most of the literature celebrating the stewardship properties of IFQs seems to insist that permits (IFQs) must be given out (for free I might note) into perpetuity, and these permits must be transferable. Perhaps Grafton et al. will help to dispel that myth as well.

Turning to the discussion of IFQs as property rights, we see Grafton et al. offer the alarming legal opinion: “We contend that IFQs are property” (emphasis added). We contend? On whose authority do they contend? It cannot be theirs, for in this legal matter they have none. We must understand, therefore, that what is meant by their contention is simply that their prescription of how to fix fisheries *requires* that IFQs be thought of as property (because they want fishers to be able to buy and sell quota share once it has been given to them for free by the government). This artful wish is the *sine qua non* of their story. Their contention is instrumental—purposefully opportunistic. I should think that legal assertions pertinent to fisheries policy would be informed by reference to the Magnuson-Stevens Act, and to recent case law.

I should further imagine a lawyer, approached by a fishing firm seeking compensation for a reduction in TAC, would start her legal work not by consulting the vacuous contentions of fisheries economists, but by scrutinizing the Magnuson-Stevens Act, as well as by consulting recent jurisprudence. Were she to do so, she would then report back to her aggrieved client that fishing permits cannot be property because they are not compensable. That is, they are not protected under the Fifth Amendment to the U.S. Constitution (the “property clause”). A recent ruling seems apposite (*Palmyra Pac. Seafoods, LLC v. United States*, 2009, U.S. App. LEXIS 7447 [Fed. Cir., 9 April 2009]). The lawyer might further add that perhaps such permits are covered under contract law and due process. Elaborating their legal grip on things, Grafton et al. appear reassured by citing what seems to be the case in New Zealand, Australia, and Iceland. A lawyer of even average acuity would readily point out that New Zealand—or Australian or Icelandic—law is not exactly pertinent to the case

at hand. There is this minor inconvenience known as legal jurisdiction.

Turning to my challenge of the attribution of stewardship to IFQs, the authors observe that:

...in many fisheries, IFQs have been implemented subsequent to rather than simultaneously with the introduction of TAC limits. Indeed, it has been the failure to adequately implement TAC limits in so-called ‘race to fish’ fisheries where fishers have actively lobbied against lower harvests that has encouraged the introduction of IFQs by managers.

I raised precisely this point in my discussion of the Costello et al. (2008) paper. The point in raising this sordid history is that catch shares were touted in Costello et al.—and in all of the breathless press coverage—as the explanation for averting fisheries collapse. Grafton et al. do nothing to contradict my basic point: a properly enforced TAC gets to carry the explanatory burden, not catch shares. Once a TAC is introduced, allotted catch shares designated as limited-term permits issued via rent-capturing auctions will bring compliance with catch limits (TAC) without giving away all that wealth to the private sector. Management agencies retain control of limited-term permits—all of which revert to the agency when they expire. Renewals can give existing holders a chance to re-bid for a permit, or some permits can be set aside for new entrants. Auctions will bring forth the necessary (and efficient level of) resource rent. Why are fisheries economists so afraid of this policy? Why do fisheries economists defend the free gifting of enormous income and wealth under IFQs? Most economists believe that efficiency is served by having people pay for what it is they wish to acquire.

Grafton et al. continue to show confusion over the matter of firms and industries. They persist in their curiosity of a sole owner deciding how many vessels (firms) would be “optimal” in a fishery. We are told that a sole owner would never allow too many firms when it could evict most of them—thereby liberating workers to build “hospitals and schools.” Would this bizarre policy be as charming if the evicted labor were engaged in building taverns, massage parlors, and pool halls? This ersatz economic strategy is justified on the grounds that fisheries economists treat the entire fishery as “their unit of analysis.” Since this violates all we teach undergraduates about the virtues of a competitive market, they owe us an explanation as to why this makes economic sense.

Most egregiously, it allows fisheries economists to hide behind the deceit that having got efficiency right in the fishery, they can then disregard the ensuing social and cultural problems as “not economic” and thus best left to others. Perhaps sociologists and anthropologists can be brought into the conversation. In the jargon of our craft, the displaced labor is a mere distributional matter on which hard-nosed (“objective”) economists must remain silent.

There cannot be a serious economist—a non-fisheries economist, I must add—who could, without smiling, sug-

gest that maximizing economic rent (not resource rent) in an industry is a defensible policy goal. The opportunity for new entrants brings about the dissipation of economic rents—excess returns—in an industry. That is what competition means. Economic rent in a competitive industry is and must be, by definition, zero.

Grafton et al. do not have a disagreement with me. Instead, they have alarming disregard for economic theory. If they wish to argue that managing the fishery as a rent-maximizing quasi monopoly is a desirable social goal then they owe it to the rest of us to justify that surprising break with economic theory. Their excuse seems to amount to nothing more than:

...the maximum rent from fishing at E1 can, and should, be used to benefit society as a whole by using this surplus for productive public investments

It seems we are back to schools and hospitals.

I now turn to Harte et al. who complain that it is unfair of me to criticize all of the dedicated fisheries managers who are doing a marvelous job. They offer endless citations claiming, once again, that IFQs “are successful.” It is surprising to see that the authors did not bother to discuss the flawed conceptual models that underwrite fisheries policies. In Figure 1, I called attention to a mythical account of a fishery said to be in need of “rent maximization” because “a profit can no longer be made.” This model was not presented in some obscure academic journal. Rather, it is the core of a consultant’s report prepared for the Pacific Fisheries Management Council to justify the introduction of IFQs into the West Coast groundfish fishery. Do the authors acknowledge the profound deceptions in this model? Do they defend the model by showing that I am mistaken in my indictment of it? Neither.

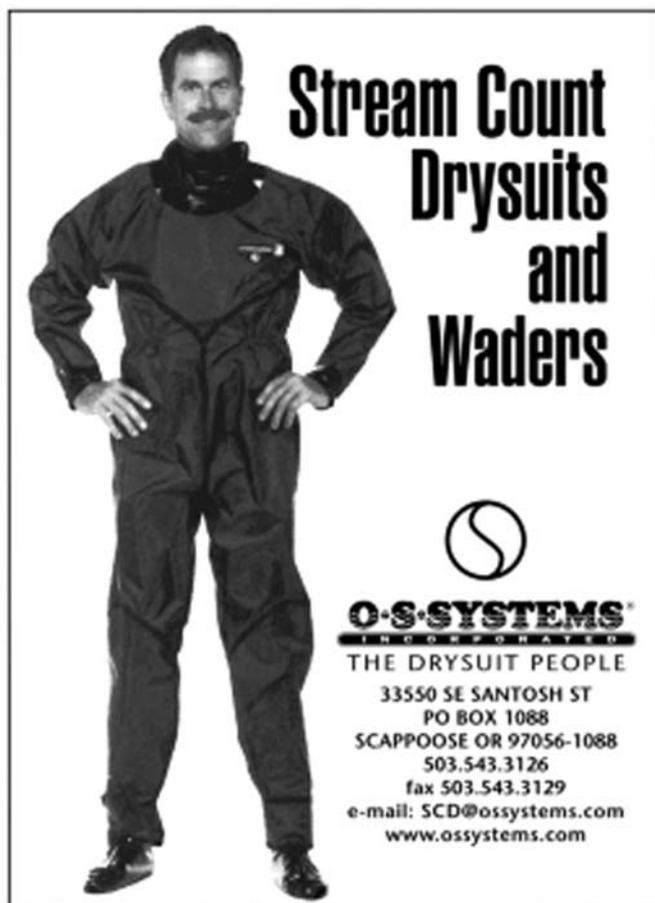
My article concerns the flawed and incoherent legal and economic arguments—that IFQs (catch shares) are property rights, that ownership is necessary and sufficient for stewardship, that quota shares must be gifted to the industry for free (and into perpetuity), that these quota shares must be freely transferable once handed out, that quota shares prevent fishery collapse, and that efficiency arises when “resource rent” is maximized. None of these claims is true. I was motivated in this work not by the desire to pick a fight with this enormous community now arrayed in an elaborate defensive crouch—some of whom I still count as friends (let them now argue over whom is implicated). Rather, I was moved by a particular vision of economic science in the service of public policy. Taxpayers provide financial support to members of scientific communities—professors, researchers on the federal payroll—because there is, from time to time, a need to hear what the experts believe to be the case. Public policy is driven by the need to solve problems, and in the course of doing so, the new institutional arrangements that are the empirical manifestations of public policy will necessarily advantage some members of the community and disadvantage others. That is what public policy does. Because of these differential entailments of policy, public

officials deserve and expect that they will be given theoretically correct concepts—and honest empirical claims—that underwrite particular policy prescriptions. They must know who is being advantaged and disadvantaged—and why. They deserve not to be misled. They must have intellectually honest reasons for the policy advice they receive. The reigning catechism leads fisheries economists to violate that trust.

Public policy is often subjected to scathing attacks because there is no economic rationale for much of it. Those well served by these strange policies marshal facile rationalizations to solidify their current advantage. Few scholars can be found to endorse those self-serving claims. When it comes to fisheries, things work differently. Here, fisheries economists have their own idiomatic theory that celebrates a few winners for bringing “efficiency” to the fishery, and then informs everyone else that they are better off building schools and hospitals.

Reading through the litany of good effects adduced by Harte et al., one is struck by the conditional nature of it all—favorite qualifiers seem to be *can, could, possible, generally, are not a panacea*, etc. This is not the normal caution of scientists averse to certitude. These authors wish to have it both ways—IFQs will bring marvelous policy outcomes, except when they fail to.

Two of the most egregious notions advanced by Harte et al. warrant comment. The authors note that:



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Efficiency gains and benefits to fisheries management may, however, come with social and cultural costs as fewer people and vessels are engaged in fishing and IFQs become concentrated in the hands of fewer fishing interests. These effects may have a detrimental impact at a local or regional level, even as the economy as a whole benefits. As McCay (2000) notes, there are often no free lunches in fisheries management.

The reader is invited to wonder if there are “free lunches” elsewhere in the economy. The answer is no. So what is the point of saying that there are no free lunches in fisheries management? It is to suggest that the losers of fisheries “rationalization” programs get over it and move on to other lines of work. Harte et al. dismiss the reality of “social and cultural costs,” and the concentration of fishing in the hands of fewer fishing interests, as the necessary price to be paid for gaining “efficiency.” They seem not to understand that the efficiency gains they celebrate are deceptions. Even the much-touted claim of higher prices for improved fresh product when derby fisheries are eliminated is tendentious. It is true that eliminating derby fishing can bring gains in product quality, thus leading to higher prices for fresh (as opposed to frozen) product. However, higher prices for fresh product—what fisheries economists wish to call “efficiency gains”—is a mere transfer

away from other food consumption expenditures and thus claims of large benefits to the economy as a whole cannot be believed.

Finally, we come once again, to the recovery of resource rent. Here exquisite obscurantism is the tactic of choice:

Whether or not governments choose to recover rents, and if so at what level and how, is a political decision to be informed, but not decided, by economics. Untangling resource rent from normal profit and entrepreneurial rents is often an accounting quagmire. Renewable resource rent is properly viewed as a dynamic rather than a static concept.

So rent recovery is informed but not decided by economists. Rent recovery cannot be informed by economists if they are confused about the concept. What they erroneously call “resource rent” is nothing but excess economic return to those fortunate enough to remain in a fishery. Fisheries economists seem unable to grasp this fundamental economic point—and they show little interest in figuring it out. So it is a bit jarring to see talk of *informing* policy makers and managers. A better characterization is *misinforming*.

In order to emphasize just how difficult this matter is, we are told that it is “dynamic” in nature as opposed to “static.” More seriously, we see that “untangling resource rent from normal profit and entrepreneurial rents is often an accounting quagmire.” This is yet more deceit. An auction, in which firms are asked to reveal their willingness to pay to have access to the wealth of ocean fisheries, is the proper revelation mechanism that would cut through the alleged “accounting quagmire.” Firms would bid their value for fish, and this is precisely the payment due to the owner of the resource (us). It is the proper resource rent.

Harte et al. close by accusing me of having swept all of the beneficial effects of IFQs under a “threadbare rug of rhetoric.” This is rather precious. I challenge the advocates for IFQs to justify their use of bogus rationalizations. I make the nature of that necessary justification explicit, and I demonstrate how economic theory has been routinely distorted to serve the policy agenda of this incestuous community. Public policies with respect to fisheries would be the clear winner if there could be a serious discussion of these foundational conceptual issues. Unfortunately, the reader is not treated to such a discussion. One attack is that as an outsider I could not possibly understand. The other is that I have employed a rhetorical rug. Both are yet more deceptions.

Contrary to appearances, I am enormously grateful to both groups of protagonists. They have, unwittingly I must assume, reinforced my point that fisheries economics is in the grip of comprehensively bogus concepts and policy recommendations. It has been since Scott Gordon’s dubious contrivance in 1954.

—Daniel W. Bromley

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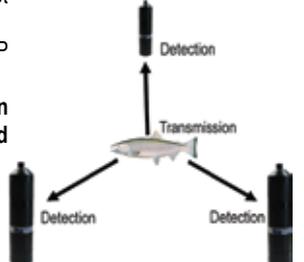
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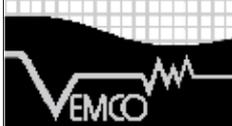
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