Marine Policy 72 (2016) 231–236

Contents lists available at ScienceDirect

Marine Policy

journal homepage: www.elsevier.com/locate/marpol

Rights-based fisheries and contested claims of ownership: Some necessary clarifications

Daniel W. Bromley

Anderson-Bascom Professor of Applied Economics (Emeritus), University of Wisconsin, Madison, United States

ARTICLE INFO

Article history:
Received 25 April 2016
Received in revised form
1 July 2016
Accepted 2 July 2016

Keywords:
Rights-based fisheries
Property rights
Property

ABSTRACT

The fisheries literature is undermined by incorrect use of essential legal concepts: (1) property; (2) rights; and (3) property rights. These three ideas are often conflated when the term "rights-based" is applied to fisheries in which individual transferable quotas (ITQs) have been gifted to fishing firms. The confusion then leads to misleading suppositions concerning fishing behavior. For instance, it is often presumed that a "right to fish" (alleged to be represented by an ITQ) is behaviorally analogous to an ownership interest in fish still in the water. This erroneous extension from alleged "ownership" of a quota share to alleged "ownership" of fish stocks gives rise to confusion about how to assure sustainable fisheries governance. Talk of "perfect property rights" associated with an ITQ adds to the conceptual confusion. It is imperative that policy makers understand the difference between an alleged *right* to hunt for fish (such as a fishing permit or an ITQ) and a *property right* with respect to fish remaining in the water. The necessary implication for public policy is that private ownership of a natural resource offers no assurance that the resource will be managed sustainably. In fact, the existence of public parks and wilderness areas is evidence that private interests cannot be counted on to align with public interests.

1. Introduction

Current debates within fisheries policy tend to focus attention on the success or failure of various "rights-based" approaches. A recent testimonial for rights-based fisheries management notes that:

> With the intent of aligning economic and ecological goals, RBFs (also called "catch shares" in the United States) assign fishers and communities secure tenure rights to a fishery. By protecting those rights, environmental stewardship can be incentivized…Two common RBF strategies include assigning rights to harvest a given fraction of the scientifically determined total allowable catch (e.g., individual transferable quotas, ITQs) or assigning spatial rights to harvest in a specific region (e.g., territorial use rights in fisheries, TURFs). Either approach can be allocated to individuals or groups, such as communities and cooperatives. Encouragingly, when properly designed … RBF management strategies show success in preventing fisheries collapse …, improving compliance with catch limits …, stabilizing catches… and reversing some of the damage of overfishing [[2], p. 253].[1]

I am not here interested in the performance of ITQs or TURFs in fishery management. I have addressed that topic elsewhere [10,12–14]. Rather, I focus analytical attention on the profusion of confusions attendant to the rather elaborate discourse concerning "rights-based fisheries." The major confusions in this literature center around the precise ownership claims associated with Individual Transferable Quotas (ITQs).[2] Some writers are sure that an ITQ bestows the stewardship that private ownership is—incorrectly—presumed to bestow [1,3,16,17]. Here one encounters vagueness about what, exactly, is owned. Is it just the ITQ? Or does the ITQ bestow ownership over fish in the ocean to which the ITQ stands as an aspirational claim? Is an ITQ a contract *with* a fishery management authority, or is it simply a gifted (or purchased) contractual claim *against* other fishing firms seeking fish in the same jurisdiction? If "ownership" is confined to the quota permit (the ITQ) then there is no connection between owning a permit and acting like an owner towards fish in the water. If ownership of the quota share (the ITQ) extends to ownership of fish still in the water, then it is necessary to establish the theoretical and practical linkage between an ITQ and future-regarding behavior of fishing firms—specifically, the allegedly inevitable force of stewardship

E-mail address: dbromley@wisc.edu

[1] Notice the problematic "secure tenure rights to a fishery." It would be reasonable to be confused as to precisely what the authors have in mind by this phrase.

[2] The use of territorial use rights in fishery management (TURFs) carries with it entirely different legal, cultural, and socio-economic considerations. These matters must be left to another paper.

http://dx.doi.org/10.1016/j.marpol.2016.07.002
0308-597X/

that is thought to attach to an ITQ. Finally, it warrants mention that a number of national governments will insist that fish still in the water belong to the national jurisdiction of the EEZ. In other words, it is likely that for the vast majority of coastal nations, fish in the water are *already owned*.[3] If that is indeed the case, then claims that ITQs bestow ownership over fish in the water are incoherent.

In addition to confusion over the precise empirical content of what is *owned* when one has acquired an ITQ, there are assertions in the literature about "perfect property rights." One encounters text—and graphical depictions—identifying just how closely ITQs approach perfection. Prominent here are multi-attribute measures of how perfect such quota permits are with respect to exclusivity, transferability, security, and period of validity [1,23].

Motivating much of this confusion over what is or is not owned is the false belief that private ownership is necessary and sufficient for much-desired stewardship and sustainability. Throughout the literature on rights-based fisheries there is the presumption that such schemes give rise to conservation and stewardship precisely *because* these schemes bestow "ownership" on the holder of an ITQ or some related "right" to fish. In other words, it is believed that ownership brings with it an unavoidable—an inevitable—commitment to everlasting stewardship of what is owned. There is no credible scientific support for this declaration of faith.

The canonical literature in natural resource economics is very clear that the "iron law of the discount rate" offers the best explanation for observed individual behavior with respect to nature. When considering a non-renewable resource (asset), attention is focused on the present value of all future earnings from ownership of that stock—perhaps oil or minerals in the ground. If the present value of all future earnings falls below that available from owning other assets, it is economically optimal in the eyes of the owner to liquidate (exhaust) that natural asset and invest the proceeds in a more lucrative alternative (or consume the proceeds). It is here that we find the necessary theoretical support for the eloquent lamentations of Aldo Leopold as he watched private landowners destroy the natural assets on which their livelihoods depended. The "land ethic" of Leopold was not, like the conservation commitments of John Muir, concerned with locking up areas of overarching natural beauty in order to save them for future generations. Leopold's land ethic targeted *private owners* who were destroying *their own land* [22] If those individuals advancing the ineluctable stewardship properties of private ownership were correct, Aldo Leopold would not have found a market for his book and for his profound ideas. Leopold did not rely on theoretical niceties. He had first-hand experience with private plunder in the forests and central-sands farming region of Wisconsin.

When we turn our attention to renewable natural resources—fish stocks—the incoherent claims for ownership bring us to a slightly more refined version of the same problem. With renewable resources, if the rate of growth (regeneration) of an asset—a fish stock, a pasture, a timber stand—is less than the rate of time preference (discount rate) of the owner, then it is economically optimal for the owner to over-harvest that renewable resource, perhaps driving it to extinction, in order to consume the proceeds or invest them elsewhere [25–27]. The empirical and theoretical literature is abundantly clear—private ownership is neither necessary nor sufficient for conservation and stewardship. If that were not the case, few nations in the world would have created large protected areas managed under varying forms of national stewardship. The empirical evidence speaks for itself.

Dispensing with the alleged link between private ownership and stewardship of nature allows us to turn our attention to an equally challenging task. That is, we can now set about to clarify the many confusions of ownership, rights, property rights, property, and so-called "rights-based" fisheries.

2. On rights and duties

> Grasping a concept is mastering the use of a word [[4], p. 6].
>
> *The beginning of wisdom is to call things by their proper name* [Confucius]

Words matter because words are concepts. The word "right" is a legal concept, though its use in the fisheries literature suggests that the word is a mere label to be applied when the writer is in need of a conversation stopper. Clarity starts by recognizing that the substantive component of a *right* is the correlated *duty* on others that gives one's right its legal and empirical meaning. To have a right—a civil right, a contractual right, or a property right—is to have the capacity to *compel* some authority system to come to the defense of the specific interest associated with that right. Indeed, when the state—an authority system—grants a right *to someone against all others with respect to a valued outcome*, that grant of a right is at the same time a promise on the part of the authority system to enforce duties on all others not being given that right. To have a civil right is to know that the state is there for you when you wish to eat in a particular restaurant, enroll in a particular school, or stand on a street corner and offer a speech critical of the government of the day. To have a right is to have the assurance that agents of government (or a similar authority structure) will come to your aid when it is found necessary to do so. Indeed, a right holder can *command*—not merely ask—agents of government to act in certain ways with respect to the settings and circumstances covered by the right. That is what it means to have a right. To have a right means that you do not need to enforce your own interests in particular situations—the authority system does that for you. In that sense, democracy bestows on citizens certain capacities over their own government [5,6,11].

That protection from the state is codified in its institutional architecture. Because institutions are collective rules that define socially acceptable individual and group behaviors, institutions are, *ipso facto*, sets of *dual expectations*. Institutions are always sets of correlates (of dualities)—a right to a smoke-free dining experience is, at the same time, a duty on those who would wish for a cigarette or cigar while taking their cognac. Drawing on the legal scholarship of Wesley Hohfeld [19,20], institutions are collectively determined rules indicating what:

> …individuals *must* or *must not* do (compulsion or duty), what they *may* do without interference from other individuals (privilege or liberty), what they *can* do with the aid of collective power (capacity or right), and what they *cannot* expect the collective power to do in their behalf (incapacity or liability) [[15], p. 6].

Imagine two individuals, Alpha and Beta. Recall that since legal relations are also group specific, imagine Alpha to be a person (an individual) and Beta to be all other persons; one social entity (Alpha) may be an individual or a group against another social entity (Beta) which may be an individual or a group. The four fundamental legal relations are shown in Table 1, with slight modification from the Hohfeld terminology.

In the Hohfeld scheme a *right* means that Alpha has a state-sanctioned and enforced expectation *and assurance* that Beta will

[3] Different nations will regard this "ownership" differently. The most reasonable interpretation is that national governments regard themselves as stewards of, managers of, indeed trustees over, fish and other natural resources in their respective EEZs. If they did not hold such views, it defies logic that coastal states would have undertaken the elaborate legal and political machinations required to embrace and adopt the idea of an "exclusive economic zone." What did they imagine they were doing if not bringing those formerly open-access assets under their exclusive control?

Table 1
The legal correlates.

	ALPHA ← → BETA
Static Correlates	Right ← → Duty Privilege ← → No right
Dynamic Correlates	Power ← → Liability Immunity ← → No power

[11], p. 53.

behave in a certain way toward Alpha. Alpha has an expectation that Beta will not act against Alpha's interests. A *duty* means that Beta must behave in a specific way with respect to Alpha. This means that Beta must not act contrary to Alpha's interests. Notice that the dual of Alpha's legal position is Beta's legal position; Alpha has the *right*, Beta has the *duty*.

The second correlate is that of *privilege* and *no right*. If Alpha has *privilege* with respect to Beta then she (Alpha) is free to act without regard for the implications that may befall Beta from that action. For instance, Alpha is free to discharge toxic pollutants into a river in which Beta seeks to catch fish. Beta, by standing in a position of *no right* to Alpha's *privilege*, is unable to gain relief from this unwelcome act. If Beta should seek relief he would be told that there is "no law" against Alpha's actions. Beta has no rights.

Turning to the dynamic aspect, to have *power* is to have the ability to force other individuals into a new legal situation against their will. If Alpha has *power* then she may put Beta in a new legal situation not of Beta's choosing. This ability springs from the capacity of Alpha to enlist the coercive power of some authority (the state) to impose her will on Beta's choice domain (field of action). The state becomes an essential participant in the exercise of Alpha's *power* with respect to Beta. When Alpha has *power*, Beta suffers from a *liability* to the capacity of Alpha to force Beta into a new and unwanted legal situation. If Beta is not exposed to Alpha's attempt to create a new legal relation inimical to Beta's interests, then we say that Beta enjoys *immunity* in the face of Alpha's efforts to put Beta in an unwanted legal position. And in the face of Beta's *immunity* we would say that Alpha has *no power*. To have *no power* means that Alpha is unable to put Beta in a new legal situation that is not to Beta's liking.

The Hohfeldian scheme is symmetrical with respect to the position of Alpha and Beta. That is, the legal relation is identical regardless of the position from which the relation is viewed (Alpha or Beta). The difference lies "…not in the relation which is always two sided, but in the positions and outlook of…. (Alpha and Beta) …which together make up the two converses entering into the relation [[18], p. 955]."

3. Property rights

> *Only those economic advantages are rights which have the law back of them…whether it is a property right is really the question to be answered.*

Justice R. Jackson, *Willow River Power Co*. 324 US 499, 502 (1945).

With a clear understanding of these fundamental concepts (words) of *right, duty, privilege*, and *no right*, it is straightforward to extend these legal correlates to situations that represent the prospect for monetary gain or loss. To have a right with respect to a stream of future benefits is to have the capacity to compel the state to protect—and perhaps to indemnify if necessary—your control over that benefit stream.[4] We call this a property right. A trademark, a patent, or a copyright protects against use or infringement on a thing of value—a written work, a song, or an idea. The protection of that future income stream is guaranteed for the holder of those rights through the correlated duties against anyone who would infringe that income stream. These same protections often apply to a parcel of land.

As we saw earlier, property rights obtain their empirical content from the imposition by the state of a duty on all others to forbear from interfering with the income stream accruing to the owner of the object or circumstances so protected. It is important to resist the temptation to cast these relations in dyadic terms—the owner against an all-powerful and meddling government. Clarity is possible only if we understand that property relations are not dyadic—a person (usually called an "owner") against government. Rather, property relations must be seen as triadic. That is, property relations must be understood as social arrangements that define the relations among: (1) one person (or several persons) whom we will call the "owner(s)"; (2) an object or circumstance of value to the owners as well as to others; and (3) all other persons in the polity.

The empirical reality of property relations is that they situate all members of a polity in a particular position with respect to valuable assets and circumstances. The essence—the empirical content—of ownership is the socially sanctioned ability to exclude others. A copyright prevents others from benefiting at the expense of the creator. A patent gives temporary protection to the inventor. Private property in land and other related assets sanctions exclusion of others.

The essence of *property* is an income or benefit stream [6,24]. Property is a benefit stream that individuals (or a group of individuals) hope to be able to capture and control into the future. On this understanding, property relations entail the constellation of entitlements that give that benefit stream its empirical content. When I acquire a *property right* (a legally sanctioned property interest in something) it means that I can rely on the authority system of the polity in which I live to protect my claim to that benefit stream—to my "property." Indeed, as we have seen, I can *demand* that protection from the authority system. Property rights concern expectations that are sanctioned by the collectivity and enforced by the collectivity at the *will and command of the holder of the right*. Notice that there is no guarantee of an income associated with a trademark or a copyright. Such legal rights merely protect the owner of the copyright (or trademark) from having an income stream encroached upon (diminished) by others. There is a known *duty* falling on all other possible encroachers on that income stream. The same idea is at work in patent law.

In one sense therefore, an ITQ is somewhat like a copyright or trademark. An ITQ is a claim against all other fishing firms that they may (*must*) not prevent the holder from catching a certain quantity of fish. In that sense, there is an element of selective exclusivity that attaches to an ITQ. The ITQ is an *aspirational claim right* on a potential income stream. Unlike a copyright or trademark in which the owner holds a secure claim to an unknown—yet likely variable—income stream into the future, the holder of an ITQ must actively undertake prescribed activity if that potential income stream is to be realized. And, in some years there might be much "activity" (hunting for fish) associated with the claim right and yet very little income arising from the holding of that claim

[4] It is here that many nations seek to protect a certain class of property rights through compensation.

right. We see that an ITQ is a very special sort of right. What, exactly, is the ownership content of an ITQ?

4. On full ownership

To most observers, the word (concept) ownership is clear—it means the full rights left to an individual after certain governmental restrictions and reservations are taken into account. We can agree that individuals (and groups) own land and related assets, and we know that the market price of such assets is a function of the covenants placed on it by previous owners, as well as the working rules (regulations) set down by the community in which it is situated. Ownership implies a degree of limited and constrained sovereignty of (for) the owner. But, as above, that limited sovereignty for the owner represents liberty for the neighbors. An owner's duty to refrain from undertaking the extraction of sand and gravel from her backyard is the neighbors' right to a quiet dust-free future. An owner's duty not to build a tavern on an urban parcel is the neighbors' right to quiet evenings. An owner's privilege to paint his house some bizarre color is his neighbors' inability (*no*-right) to object to the attendant surprise. In other words, ownership means the state-sanctioned capacity to exercise (carry out) specific actions with respect to an object or circumstance said to be owned by an individual. But ownership is also a set of proscriptions that rule out other considerations.

Because many writers insist that ITQs bestow something called "ownership" on the holder of an ITQ, it is now necessary to explore the precise content of ownership. The legal scholar A.M. Honoré [21]. compiled the eleven standard incidents of ownership—to have all eleven of these is to imply *full ownership*.[5] It will be noticed that most incidents of ownership are expressed as a *right.* The earlier discussion of rights and duties is a useful reminder that any right—to be meaningful—is associated with a correlated duty. A *right* is only as good as the correlated *duties* on others who may wish to interfere with that right. Specifically, ownership entails:

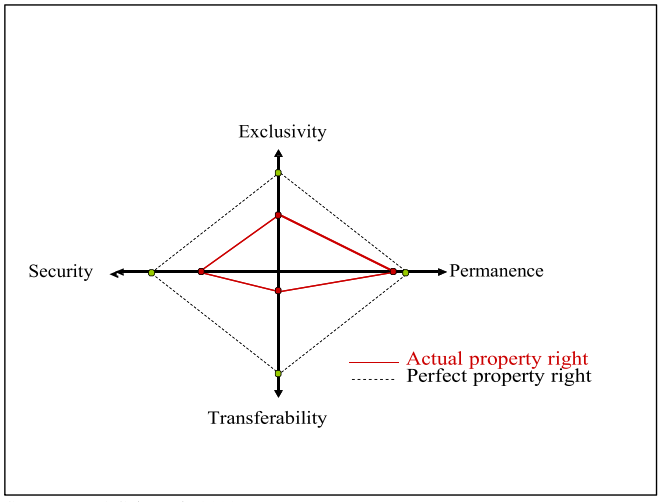
1. The right to possess: the core idea here is exclusivity—ownership is the state-sanctioned ability to exclude non-owners (who bear a duty to respect the owner's rights);
2. The right to use: the idea here is the personal right to enjoy the fruits of what is owned;
3. The right to manage: here we have decisions about how the owned thing shall be used;
4. The right to the income: here we encounter a monetary stream that unquestionably belongs to the "owner;"
5. The right to the capital: this concerns the power to sell the owned thing, but also to consume it, or to waste or destroy it;
6. The right to security: this pertains to the duration of the ownership interest in the thing. Running into perpetuity is generally implied unless the owner breaks some law associated with the thing owned;
7. The Incident of transmissibility: here we encounter two ideas —transmission forward in time of the interest in the thing owned, and the absence of term of the thing owned.
8. The incident of absence of term: as alluded to under transmissibility, the idea here is ownership without end;
9. The prohibition of harmful use: here we see that the thing owned may not be used to harm others. Nuisance law, and recent environmental legislation demanding protection of habitat for endangered species, are instance in which overly broad perceptions of "ownership" are found to be defective;
10. Liability to execution: here we see that an owner may not use her ownership of a valuable asset to hide income from legally empowered creditors;
11. Residuary character: this trait addresses a situation in which ownership rights may have lapsed or been removed over long periods of time.

5. What is a "rights-based" fishery?

I now turn attention to the specifics of what is usually considered to be the essence of a "rights-based" fishery. I am not interested here in whether or not such fisheries are economically or politically coherent. Rather, I seek clarity concerning the ownership attributes of so-called rights-based fisheries. The challenge for marine policy is to understand what a rights-based fishery means in the law—and in actual practice.

5.1. On rights

As above, rights-based fisheries have been advanced as ideal institutional forms to induce good stewardship. Central to this presumption is what have come to be called "perfect property rights" associated with ITQs [1,23]. In Fig. 1 we see that four distinct aspects of *contractual rights* have been erroneously transformed into so-called perfect *property rights*. Leaving aside the problematic conceptual and empirical matter of "perfection," perfect contractual rights are *not* perfect property rights. We have seen above that "property" is an income (or benefit) stream. That is what is acquired when one declares, with evident pride, that she has just purchased a "piece of property." The person acquired a parcel of land, to be sure. But the value of what was purchased is nothing but the future stream of tangible (monetary) and intangible (joy and satisfaction) benefits associated with that new ownership. This is the *property*, and the bundle of property *rights* —as we have seen from Honoré—is simply the constellation of rights and duties associated with that parcel of land. In other words, a property right signifies degrees of *ownership of an income (or benefit) stream* arising from a valuable asset.[6] Apartment



Source: MRAG (Part I), 2009

Fig. 1. Attributes of permits in right-based fisheries. Source: MRAG (Part I), 2009.

[5] These are listed and discussed in Ref. [5], pp. 187-89. Notice there is no allusion here to "perfect" ownership—a phrasing (a concept) that is meaningless.

[6] That property rights are limited to the monetary value of the income stream is clear from compensation cases where intangible aspects of ownership—emotional attachment—receive no consideration. Compensation is limited to the monetary value of what has been relinquished.

tenants have a set of rights in a lease contract, but there is *no property right* associated with such a lease. Season-ticket holders for an opera company have a set of rights and duties attaching to those tickets, but that constellation of rights (and duties) bestows nothing in the way of ownership in the opera company. They may "own" the tickets for the season, but it is a very limited idea of ownership.

In Fig. 1 we see that exclusivity, permanence, transferability, and security are the rights that are thought to matter in a rights-based fishery. It is asserted that the more perfect these rights (whatever "perfection" might be taken to imply), the higher the "quality" of the ITQ, and thus the closer will the behavior of fishing firms conform to the ideals of an owner. But of course we know that owners are not necessarily socially responsible stewards of nature. They may be, but they might not be. Private owners are nice to nature until they decide not to be. After all, as "owners" they are entitled to do as they please with what they own. We are back to Leopold's Lament.

Exclusivity is the ability to prevent others from interfering with what is "yours." Notice that a recipient (or a purchaser) of an ITQ is the exclusive claimant on the allowable harvests (tonnage or quota share) of fish associated with the ITQ. Possession of the ITQ is a contract *against* all other aspiring fishing firms. Others bear a legal duty not to interfere with the pursuit of that specific quantity of fish. It is now apparent that an ITQ is *not* a contract with the government promising to be a responsible steward of current and future fish stocks. In the limit, to be in possession of an ITQ is to be able to play keep-away from others. If you do not want your competitor to catch too many fish, you may fish your quota, or you may relax and pretend to be fishing it. You can use it as collateral, and of course you may sell it when you decide you prefer income now to income (from fish) in the future. There is some agreeable comfort in being able to decide—or at least have influence over—how many competitors you will have for fish in the water.

The second attribute, permanence, offers the holder of the ITQ the ability to make long-run plans. An ITQ that has been granted into perpetuity is thought to be more valuable than an ITQ that expires after 15 years. Of course most ITQ programs—perhaps all of them—qualify the content (value) of the ITQ by denoting it as a *share* of an allowable catch. If a particular stock crashes, or a fishery is closed for some reason, the total allowable catch might drop to zero. A permanent ITQ, one that is "perfect" on this attribute, may imply nothing to the holder of the ITQ.

The third attribute is transferability—the ability to sell or bequeath the ITQ to others. I have touched on this briefly above. So-called "perfection" on this score means that the holder is in complete control of to whom the ITQ can be transferred. This trait is thought to encourage ideal stewardship of the thing owned so as to be able to reap the largest possible income from its transfer. In a market economy, values are determined by exchange—the greater the range of possible buyers or recipients, the greater is the economic value of the thing owned. If an ITQ has conditions on its transferability then it is claimed to be less "perfect." The final attribute—security—is ordinarily considered to be the key incident of ownership. The holder of the ITQ is secure in knowing that it cannot be taken away. But of course every society retains the capacity (ability) to "take" what individuals insist they own. Sometimes compensation will be forthcoming, sometimes not [7–9].

Notice that the exchange value of an ITQ—or its value as collateral to a banker—is a function of the perceived traits of the ITQ. Those who equate a perfect ITQ (a perfect right to pursue and bring to port a certain quantity of fish) with these four components of full ownership claim that if these components can be made more perfect then the behavior of fishers will more perfectly conform to the idealized narrative about how private owners can be relied upon to be good stewards of what they own. But of course that endearing tendency toward stewardship has no basis in theory or in practice.

We now turn to the nature and extent of property rights associated with an ITQ.

5.2. On property rights

We have seen above that rights are *not* property rights. Rights (and duties) parameterize acceptable actions with respect to specific settings and circumstance. Property rights, on the other hand, create an ownership interest in a future stream of benefits (and costs). The question requiring clarification is to what extent rights—perfect or imperfect—in an ITQ are also *property rights* in the underlying asset to which the ITQ stands as a limited entitlement. In practical terms, are "owners" of ITQs also "owners" of the fish in the water that are associated with that ITQ?

It is not possible (or meaningful) to answer this question for all jurisdictions since each nation will present a quite specific (and likely different) legal interpretation of the property rights inhering in an ITQ issued by its government. Regardless of how that prior question is answered, an ITQ is simply an *aspirational claim right* entitling the holder to look for, capture, and deliver to dock (or to a buyer) a specified quantity of fish. The holder of such a permit is not legally *entitled* to any specific (definite) quantity of fish because there is no *duty bearer* to make that quantity available to the holder of an ITQ. A government agency is certainly not obligated to provide that quantity of fish to the holder of an ITQ. The ITQ merely assures the holder of the opportunity to try to capture said quantity. It is no different from a "deer tag" or a fishing permit for trout from a clear mountain stream. The obvious difference—unlike deer tags and fishing licenses—is that most ITQs are associated with rather substantial income streams, they have been

Table 2
The nature and extent of property rights for the holder of an IFQ in a U.S. fishery[a].

The asset (fish stock)	Have a right	Comments
Possess	No	An IFQ does not bestow an exclusive claim to any specific fish in the EEZ
Use	No	Since an IFQ is not ownership of fish in the EEZ there is no right to use those fish while they are in the water
Manage	No	An IFQ bestows no managerial rights over individual fish or collections of fish (stock).
Receive income	Conditional	An IFQ entitles the holder of an IFQ to the income from the sale of fish associated with that IFQ. But since the IFQ is a conditional permit, the income derivable from that conditional permit is contingent.
Capital	No	There is no underlying asset (capital) owned by the holder of an IFQ.
Security	No	There is no security (longevity) of ownership in the asset (the fish stock).
Transmissibility	No	There is no ownership in the fish stock that can be transmitted to others. Only the IFQ can be transmitted (transferred).
Absence of term	No	Since there is no ownership interest in the fish stock, the idea of "term" is incoherent.
No harmful use	No	The holder of an IFQ owns nothing that might be used to harm others.
Liability to execution	No	There is no such liability.
Residual character	No	There is no stock of an asset capable of generating a residual.

[a] The specificity for U.S. law is for illustrative purposes and conveys no implication for other political jurisdictions.

given away for free into perpetuity, and then these gifted permits became transferable in a secondary market. These are profound differences. While national laws differ, U.S. law is very clear that the holder of an IFQ has no security, no right to compensation if the quota is diminished or revoked, and "no right, title, or interest in or to any fish before the fish is harvested." There is little ambiguity here about alleged "property rights" in fish stocks. The legal situation in most other countries with ITQ programs is likely to be similar.

We can now take this legal clarity and relate it to Honoré's incidents of ownership (Table 2). Reference to U.S. law is for illustrative purposes only. A similar cataloguing will be necessary for other jurisdiction.

We see that the holder of an IFQ under U.S. jurisdiction has virtually none of the incidents of ownership in the asset—the fish stock—associated with that IFQ.

6. Implications

Persistent confusion between rights and duties associated with rights-based fisheries—especially ITQ fisheries—and property rights over fish stocks in coastal (EEZ) fisheries, continues to cause confusion among those who care about the sustainable governance of global fisheries. Claims that more perfect property rights will produce exemplary stewardship behavior in fishing firms cannot be taken seriously for the simple reason that the relevant attributes of rights in such fisheries do not automatically transfer into property rights over the fish stock associated with those permits. This false mapping between attributes of rights and attributes of property rights in the underlying fish stock accounts for the continued contestation over rights-based fisheries policy. Advocates for rights-based fisheries remain conceptually confused about what they are advocating (and what others are resisting). The greater problem for those who advocate the salubrious effects of ownership is that there is no durable evidence—theoretical or empirical—that owners can be relied upon to be good stewards of nature.

Acknowledgments

I am grateful to Quentin Grafton, Thorolfur Matthiasson, and journal reviewers for helpful comments on an earlier version.

References

[1] R. Arnason, Property rights as a means of economic organization. In Ross Shotton, ed. Use of Property Rights in Fisheries Management: proceedings of the FishRights99 Conference, Freemantle, Western Australia, 11–19 November 1999. FAO Fisheries Technical Paper 404/1, 2000.
[2] A.K. Barner, J. Lubchenco, C. Costello, S.D. Gaines, A. Leland, B. Jenks, S. Murawski, E. Schwaab, M. Spring, Solutions for recovering and sustaining the bounty of the ocean: combining fishery reforms, rights-based fisheries management, and marine reserves, Oceanography 28 (2) (2015) 252–263.
[3] Trevor A. Branch, Ray Hilborn, Matching catches to quotas in a multi-species trawl fishery: targeting and avoidance behavior under individual transferable quotas, Can. J. Fish. Aquat. Sci. 65 (7) (2008) 1435–1446.
[4] Robert B. Brandom, Articulating Reasons, Harvard University Press, Cambridge, MA, 2000.
[5] Daniel W. Bromley, Economic Interests and Institutions: The Conceptual Foundations of Public Policy, Blackwell, Oxford, 1989.
[6] Daniel W., Bromley, Environment and Economy: Property Rights and Public Policy Oxford: Blackwell, 1991.
[7] Daniel W. Bromley, Regulatory takings: coherent concept or logical contradiction? Vt. Law Rev. 17 (3) (1993) 647–682 (Spring).
[8] Daniel W. Bromley, Constitutional political economy: property claims in a dynamic world, Contemp. Econ. Policy 15 (4) (1997) 43–54.
[9] Daniel W. Bromley, Property Rights: Locke, Kant, Peirce and the Logic of Volitional Pragmatism, in: Harvey M. Jacobs (Ed.), Private Property in the 21st Century, Elgar, Cheltenham, UK, 2004, pp. 19–30.
[10] Daniel W. Bromley, Purging the Frontier From Our Mind: Crafting a New Fisheries Policy, Rev. Fish. Biol. Fish. 15 (2005) 217–229.
[11] Daniel W. Bromley, Sufficient Reason: Volitional Pragmatism and the Meaning of Economic Institutions, Princeton University Press, Princeton, 2006.
[12] Daniel W. Bromley, The crisis in ocean governance: conceptual confusion, spurious economics, political indifference, MAST: maritime, Studies 6 (2) (2008) 7–22.
[13] Daniel W. Bromley, Abdicating Responsibility: The Deceits of Fisheries Policy, Fisheries 34 (6) (2009) 280–290.
[14] Daniel W. Bromley, Correcting the Whimsies of U.S. Fisheries Policy, Choices 30 (4) (2015) 1–8.
[15] John R. Commons, Legal Foundations of Capitalism London: Macmillan, 1924.
[16] Christopher Costello, Steven D. Gaines, John Lynham, Can Catch Shares Prevent Fisheries Collapse? Science 321 (19 September) (2008) 1678–1681.
[17] R. Hannesson, The Privatization of the Oceans, MIT Press, Cambridge, MA, 2004.
[18] E. Adamson Hoebel, Fundamental Legal Concepts as Applied in the Study of Primitive Law, Yale Law J. 51 (1942) 951–966.
[19] Wesley N. Hohfeld, "Some Fundamental Legal Conceptions as Applied in Judicial Reasoning, Yale Law J. 23 (1913) 16–59.
[20] Wesley N. Hohfeld, Fundamental Legal Conceptions as Applied in Judicial Reasoning, Yale Law J. 26 (1917) 710–770.
[21] A.M. Honore, Ownership, in: Oxford Essays in Jurisprudence, ed. By A.G. Guest, Oxford: Oxford University Press, 1961. (chapter 5).
[22] Aldo Leopold, A Sand County Almanac, Oxford University Press, Oxford, 1966.
[23] MRAG, An Analysis of Existing Rights-Based Management (RBM) Instruments in Members States and on Setting up Best Practices in the EU, Studies and PILOT Projects fOR Carrying oUT tHE CommON Fisheries Policy No fish/2007/03, Final Report: Part II, 2009.
[24] C.B. Macpherson, Democratic Theory: Essays in Retrieval, Clarendon Press, Oxford, 1973.
[25] Talbot Page, Conservation and Economic Efficiency Baltimore, Johns Hopkins University Press, 1977.
[26] Todd Sandler, Tropical Deforestation: Markets and Market Failures, Land Econ. 69 (3) (1993) 225–233.
[27] Vernon L. Smith, The Economics of Production From Natural Resources, Am. Econ. Rev. 58 (3) (1968) 409–431.