

An International View on “Correcting the Whimsies of U.S. Fisheries Policy”

Viktoria Kahui, Claire W. Armstrong, and Naomi S. Foley

JEL Classifications: H1, H4, Q01, Q22, Q28

Keywords: Fisheries Policy, Individual Transferable Quotas, Natural Resources, Property Rights

Daniel W. Bromley’s (2015) recent opinion piece in *Choices* raises some issues which we believe requires a response on behalf of the international fisheries economist profession. Bromley identifies some key problems with the U.S. fisheries policy, and the Individual Transferable Quota (ITQ) system in particular, which are not unique to the United States. In fact, the introduction of ITQs has occurred relatively recently in the United States, while other countries such as New Zealand have over time gained institutional experience with some of the issues raised by Bromley. As fisheries economists from New Zealand and Norway, we may be able to offer some insights.

Fishing Rights are Given Away for Free

Bromley questions the ‘*coterie of fisheries economists*’ who are the ‘*architects of this bizarre give away of the nation’s wealth of ocean fisheries*’. In the United States, the European Union (EU), Norway, New Zealand and most other developed countries, fishing lobbies are powerful and play a pivotal role in the success or failure of catch share systems.

For example, in New Zealand, ITQs were allocated on the basis of historic catch (Clark, Major, and Mollet, 1988). The success of an ITQ system hinges critically on the acceptability of its allocation system, and the New Zealand government consulted widely before implementing the allocation process (Lock and Leslie, 2007). Industry and community support were considered the key factors for the allocation of quota and in 1985 fishers received their ITQ allotment based on an average of the best two years out of a three-year period. Fishers had the right to formally lodge objections against their recorded catch histories on the grounds of statistical error, changed fishing patterns, or distortions of their normal catch record due to vessel breakdowns or bad health. 1,400 objections—out of 1,800 individuals—were lodged. Provisions and adjustments were made accordingly but fishers had the right to further appeal to a Quota Appeal Authority, resulting in 1,100 appeals. The staggering number of appeals hints at the complex and politically charged battleground of incumbent fishers, who have been fishing for generations and carry a sense of entitlement to be able to continue fishing in ‘their’ waters. The same cannot be said about offshore drilling or commercial logging.

Another example includes Denmark—an EU member state—which moved towards an ITQ system to manage its herring fishery in 2003 and extended the ITQ system to the entire fishery in 2007 (Andersen, Andersen, and Frost, 2010; Strauss, 2013). Allocation was based on a weighted catch history for the years 2003, 2004, and 2005, the driving principle of which was to ensure that fishers broadly accepted the allocation of shares (Strauss, 2013).

The examples from New Zealand and Denmark show that governments had to be sensitive to incumbent interests in order to gain political acceptance for the introduction of a radically different system of fisheries management. Similar arguments are now made for the introduction of cap-and-trade systems to control pollution. Political acceptability will hinge critically on the initial distribution of allowances to compensate incumbent players for the increased costs of production under climate policy (Stavins, 2014; Ministry for the Environment, 2014).

The goal of political acceptability, however, does not justify the continued give-away over time, as is the case in most ITQ fisheries worldwide, where grandfathering and increased efficiency has led to resource rent being limited

to a fortunate few. When economists consider only the fisheries market in addressing the question, this rent may be used as efficiently by a vessel owner as by the state. However, when economists consider the question from the perspective of all markets in the economy, a resource rent tax is highly non-distortive compared to many other taxes, hence there is a strong argument for implementing it. The reason why resource rent in fisheries is not taxed in most countries, is mostly political, rather than economic. Blaming the *'coterie of fisheries economists'* ignores the political reality, but Bromley's article raises the need for readdressing the give-away of resource rent once acceptability has been achieved.

Misuse of the Terms 'Common Property' and 'Open Access'

Bromley (2015) writes: *"Like Gordon and Scott before him, Garrett Hardin showed comprehensive ignorance of 'common property' regimes throughout history, and he failed to grasp the fundamental difference between common property and an unowned free-for-all (open access)."*

The authors in question may have inappropriately used the term 'common property' but it is very clear from their writing that they did, in fact, mean 'open access'. For example, Gordon (1954) writes *"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. By and large, the only fisherman who becomes rich is one who makes a lucky catch or one who participates in a fishery that is put under a form of social control that turns the open resource into property rights."* Garrett Hardin (1968) in his work 'Tragedy of the Commons' referred to the old village 'commons' as a metaphor for unregulated open access—*"Picture a pasture open to all..."*. The term commons has thereafter, confusingly, become synonymous to open access, until a clear distinction was made between open access, common property and private property. Ostrom (1990) stayed clear of the terminology by referring to 'common-pool resources' which are defined in terms of their physical attributes of being rival and non-exclusive. She further distinguished between open access and limited access in terms of institutional arrangements, the latter giving rise to her seminal work on grass-root common property institutions.

The important point is that Gordon (1954), Scott (1955), and Hardin (1968) did not fail to 'fundamentally grasp' the difference between open access and common property, rather it is a question of semantics. From reading their work it is clear that they had an open access resource in mind, which is the term now used by scholars, and which also fits Bromley's description of what went wrong in U.S. fisheries where the *"race was on, and soon there was too much 'fishing power' pursuing limited stocks."*

The Tragedy of the Commons is a Morality Tale

Bromley (2015) writes *"The term 'tragedy' also reminds us of the conceptual mischief and incoherence still in play from Garrett Hardin's deeply flawed allegorical tale about population growth that was then turned into a morality tale for natural resource management."*

Hardin (1968) used the term "tragedy" in the same way the philosopher Whitehead used it: *"The essence of dramatic tragedy is not unhappiness. It resides in the solemnity of the remorseless working of things."* Hardin's tragedy refers to the inherent mechanism of rational self-interest, which is contrary to the common good. Rather than being flawed, Hardin's analysis is but one way to explain the underlying drivers of overexploitation of open access resources.

Gordon's (1954) Assumption of a Fishery in a Defined Space

Bromley (2015) writes on the second page: *"That was Gordon's second mistake – few fish, even demersal ones – stick that close to such a defined space. Gordon warned that his model did not apply to most fisheries. Few fisheries economists bothered to notice"*.

Most fisheries scientists and economists—not to mention the general population—are acutely aware of the fact that fish are mobile. The simplicity of Gordon's 'stick-figure' has two implications—it is a powerful, clear exposition of why open access resources are overexploited. But it is this very simplicity that is its biggest weakness in terms of failing to reflect the complexities of the biological and human world (Ostrom, 2008; Clark, 2006). We would like the

reader to be mindful of the fact that Gordon published his work over half a century ago, which at its time provided a fundamental shift in thought. The literature on fisheries science and management has since grown tremendously in complexity and application. For example, stock assessments by the National Institute of Water and Atmospheric Research (NIWA) in Wellington, New Zealand, use state-of-art statistical techniques to estimate the Maximum Sustainable Yield of fish stocks in areas that are sufficiently large to account for seasonal migration patterns, but small enough to be manageable. Other examples include bio-economic models that address the complexities of spatial abundance and exploitation.

Models are in their essence simplifications, like maps that identify one or a few focal points. One-to-one maps are useless, while maps that identify geological information, tourist sights, or just roads, can be exceedingly handy in some situations. Gordon's simple fisheries model has a powerful message regarding the dangers of open access, in the same way that a map of population densities can give important information about environmental pressures or other impacts. Neither is dynamic in any way, but both have an important story to tell.

Privatization as the Only Way

Government regulation, or privatization, as the only way to overcome the overexploitation of open access resources has been successfully challenged by Ostrom (1990) but should also be understood in context. Witnessing the repeated failures of open access management—the effectively open access case of the Newfoundland Grand Banks cod fishery collapse, for example—has highlighted the importance of incentives in devising and enforcing natural resource management. Providing the right incentives is especially important in an environment that is under pressure from population growth and the infusion of outsiders, which can undermine collective cohesion. Economists managed, at least in theory, to advance our understanding of economic behaviour (Clark and Munro, 1975), but knowing *how* to incentivise efficiency implied a steep learning curve. Wilen (2000) provides a poignant account of the co-evolution of fisheries economics and policy over the last century. Regulating fishing gear and effort directly—which was driven primarily by biologists—leads to excessive investment in capital (or so-called capital stuffing) and overexploitation, we now know. Privatization can, in principle, solve the problem of excessive effort but the devil is in the detail. New Zealand's ITQ system has gone through rapid institutional learning since its introduction in the 1980s. For example, smart policy making was needed to discourage discarding: fishing nets are somewhat indiscriminate and hauling up tons of fish you do not have quota for will incentivise discarding. The New Zealand government introduced a 'deemed value' system, which delicately balances incentives for fishers to land the catch despite having to pay a financial penalty. In the Norwegian ITQ system, transferal of quota is limited geographically and within vessel groups, based on the political goals of coastal habitation and a diversified fleet (Armstrong et al., 2014). The number of quotas per vessel is also limited, though steadily increasing in line with technological development. In Denmark, the ITQ system includes features to support a competitive coastal fishery and improve entrance for young fishers (Schou, 2010; Strauss, 2013).

In this sense we whole-heartedly agree with Bromley (2015) that thinking "*policy problems get fixed and remain that way*" is flawed. The introduction of an ITQ system is the beginning of an institutional process of learning, adaptation and flexibility. Every catch share system is different, just like every democratic government is different, but they share an underlying set of principles.

Fishing Firms with ITQs are 'Bad' Stewards

Bromley (2015) criticizes the concept of ITQs ensuring good stewardship, but interestingly he mentions no economist who claims it—though we have no doubt there have been some. Indeed, we do not necessarily disagree with Bromley. ITQs are not a panacea for fisheries management, and ITQs as a way to conserve fish stocks has been criticized (Acheson, Spencer, and Wilson, 2015). ITQs are essentially a mechanism for ensuring that the most efficient fishers get to harvest most fish. As long as the number of fishers involved is large enough, there will be incentives for free riding and cheating. However, save throwing the baby out with the bath water, catch shares can be a first step to integrated stewardship, as the evolution of ITQ based self-governance has started to show for some fisheries in New Zealand (Townsend, Shotton, and Uchida, 2008). Clearly, however, stewardship is not secured by ITQs, but requires a number of additional measures, such as sustainable Total Allowable Catch (TAC), ecosystem-based fisheries management that secures more than just the targeted stocks, as well as norms, regulations, monitoring and surveillance.

Small Family Firms are Excluded by ITQ Programs

Bromley (2015) writes “*Current fisheries policy is a tragedy for the thousands of small family firms excluded from the fishery by ITQ programs. Fisheries policy is also a tragedy for the thousands of small coastal communities now bereft of local economic activity.*” We would like to point to the aforementioned example of the Newfoundland Grand Banks cod fishery collapse in 1992, which led to loss of employment for over 35,000 fishers and plant workers from over 400 coastal communities. Would a catch share system have prevented this devastating collapse? We do not know, but the fishery may have stood a better chance.

Though there are studies arguing the marginalisation of coastal communities as a result of ITQs in, for instance, Iceland (Eythorsson, 1996), the number of Norwegian fishers showed a substantially faster decline prior to the implementation of ITQs (Armstrong et al., 2014). Indeed, the largest impact on coastal populations are often from so called pull factors, such as higher wages or more interesting careers from alternative employment in the cities (Bjarnason, 2014; Hersoug, 2005).

Furthermore, small coastal communities need not necessarily be excluded from a catch share system. Again, the devil is in the detail. For example, in New Zealand, ITQ holders lease out their annual catch allowance—called annual catch entitlement (ACE)—enabling a competitive and fluid market for small and large fishers as Newell, Sanchirico, and Kerr (2005) have shown. The Danish system strives to maintain a competitive coastal fishery with stipulations such as a required minimum of three years in the fishery to obtain a premium, a maximum vessel size of less than 17 meters and maximum length of days at sea (Strauss, 2013; Schou, 2010). Under the ITQ system, the Danish coastal fisher has, in fact, recouped an increased share of the catch (Strauss, 2013). Local municipalities in Iceland have had access to quota rights via ownership of vertically integrated companies (Eythorsson, 1996), though this ownership has been strongly declining. As stated by one of the central ITQ proponents (Arnason, 2005); “*...the allocation of exclusive fisheries property rights to communities may actually be the best option in many situations where the implementation of individual quota property rights are simply not feasible.*”

Suggestions for Improved Policy Making

Bromley (2015) suggests a bidding procedure to derive a “*plausible resource rent*” from fisheries for the public. Quota constraints would control concentration and acquired permits would be for a fixed period thereby “*allowing fisheries managers to control the number of vessels*”.

Bromley highlights some important deficiencies in the current fisheries policy making in the United States. The quota market has significant barriers to entry, for example, control by a closed class of vessel owners and large cost of quota purchase. A well-functioning competitive market is essential for the maximization of welfare as we all know. However, we also know that limited property rights—such as catch shares that are only valid for a fixed period—discourage investment. We also know that controls on effort in the absence of property rights—such as controlling the number of vessels—leads to capital stuffing.

In New Zealand, barriers to entry have been lowered by the introduction of an online ACE system, which has significantly reduced transactions costs and facilitated trading (Newell et al., 2005). There are restrictions on quota holdings to control concentration, but these are effectively circumvented in deep water fisheries where shareholders have organised themselves into a single management company—The Deepwater Group—representing over 90% of deep water fisheries quota owners. While this is not necessarily a bad thing for a capital intensive fishery, problems with bycatch and ecosystem impact remain.

Bromley’s suggested auction only solves the issue of resource rent allocation, because an auction and a taxed ITQ system are in principle the same, resulting in the most efficient fishers being willing to pay the most for quota. Broad-scale issues of stewardship and community marginalisation will not be addressed by a simple auctioning system alone.

ITQs are a Building Block for Fisheries Management

While we disagree with many of Bromley's assertions, he raises some important points. Bromley's main concerns can be summarised as follows:

1. ITQs do not secure fish stocks
2. ITQs do not secure economic rent for the public
3. ITQs can lead to the disappearance of coastal communities

The first point, which Bromley (2015) himself addresses by stating that the "*goal must be strict assurance of the sustainable management of valued fish stocks*" is a biological requirement. The total allowable catch (TAC) has to be set according to sound biological research. The second point may be addressed by auctions, as Bromley suggests, or alternatively taxes. However, the problem of political acceptance, which is crucial for the success of any given institutional arrangement, remains. And thirdly, limitations on geographical allocations, sales and concentrations can be a way to secure coastal communities, but have to be traded off against efficiency losses. A lease system, as in New Zealand, may provide a more efficient alternative to lower barriers to entry.

Catch shares are not the panacea for fisheries management. Given a competitive market, ITQs are simply extremely good at securing that the most efficient fishers get to fish the fish. Catch shares do also not automatically ensure good stewardship. In a utopian world where all our marine resources are managed effectively and fairly, we would likely see fishers as the managers of marine systems, where all negative and positive flow-on effects are integrated in all commercial decision making. The elusive paradigm of ecosystem-based management comes to mind. Ostrom's (1990) analysis of successful collective decision-making provides a step forward but the challenge remains how to build institutions that can handle population pressure and technological development. Catch shares are a promising-looking building block.

For More Information

Acheson, J., A. Spencer, and J. Wilson. 2015. "Individual Transferable Quotas and Conservation: A Critical Assessment." *Ecology and Society* 20 (4).

Andersen, P., J.L. Andersen, and H. Frost. 2010. "ITQs in Denmark and resource rent gains." *Marine Resource Economics* 25: 11-22

Armstrong, C.W., A. Eide, O. Flaaten, K. Heen, and I.W. Kaspersen. 2014. "Rebuilding the Northeast Arctic Cod Fisheries – Economic and Social Issues." *Arctic Review on Law and Politics* 5 (1)

Arnason, R. 2006. "Property Rights in Fisheries: Iceland's Experience with ITQs." *Reviews in Fish Biology and Fisheries* 15 (3):243-264.

Bjarnason, T. 2014. "Adolescent Migration Intentions and Population Change: A 20-Year Follow-Up of Icelandic Communities." *Sociologia Ruralis* 54 (4):500-515.

Bromley, D.W. 2015. "Correcting the Whimsies of U.S. Fisheries Policy". *Choices*. Quarter 4. Available online: <http://choicesmagazine.org/choices-magazine/submitted-articles/correcting-the-whimsies-of-us-fisheries-policy>

Clark, C.W., and G.R. Munro. 1975. "The Economics of Fishing and Modern Capital Theory: A Simplified Approach." *Journal of Environmental Economics and Management*, 2: 92-106.

Clark, I.N., P.J. Major, and N. Mollet. 1988. "Development and Implementation of New Zealand's ITQ System." *Marine Resource Economics* 5:325-49.

- Clark, C. 2006. *The Worldwide Crisis in Fisheries: Economic Models and Human Behavior*. Cambridge: Cambridge University Press.
- Costello, C., S.D. Gaines and J. Lynham. 2008. "Can Catch Shares Prevent Fisheries Collapse?" *Science* 321:1678-1681.
- Gordon, H.S. 1954. "The Economic Theory of a Common Property Resource: The Fishery." *Journal of Political Economy* 62:124-42.
- Hardin, G. 1968. "The Tragedy of the Commons." *Science* 162:1243-48.
- Hersoug, B. 2005. *Closing the Commons. Norwegian Fisheries from Open Access to Private Property*. Eburon, Den Haag, Netherlands.
- Lock, K. and S. Leslie. 2007. "New Zealand's Quota Management System: A History of the First 20 Years." *Motu Working Paper* 07-02; Motu Economic and Public Policy Research.
- Ministry for the Environment (MFE). 2014. "Chapter 5: How Emission Units are Allocated" Available online: <http://www.mfe.govt.nz/publications/climate-change/framework-new-zealand-emissions-trading-scheme/5-how-emission-units-are>
- Newell, R.G., J.N. Sanchirico, and S. Kerr. 2005. "Fishing Quota Markets." *Journal of Environmental Economics and Management* 49:437-462.
- Ostrom, E. 1990. *Governing the Commons: The Evolution of Institutions for Collective Action*. Cambridge University Press.
- Ostrom, E. 2008. "Institutions and the Environment." *Institute of Economic Affairs*, Blackwell Publishing, Oxford.
- Scott, A. 1955. "The Fishery: The Objectives of Sole Ownership." *Journal of Political Economy* 63:116-24.
- Schou, M. 2010. "Sharing the Wealth." *SAMUDRA* 55: 18-23.
- Stavins, R. 2014. "Cap and Trade is the only Feasible Way of Cutting Emissions." *The New York Times*.
- Strauss, K. 2013. *Catch Shares in Action: Danish Pelagic and Demersal Individual Transferable Quota Programs*. Environmental Defence Fund.
- Townsend, R., R. Shotton and H. Uchida. 2008. "Case Studies in Fisheries Self-Governance." *FAO Fisheries Technical Paper* 504.
- Wilens, J.E. 2000. "Renewable Resource Economists and Policy: What Difference Have We Made?" *Journal of Environmental Economics and Management* 39:306-327.

Author Information

Viktoria Kahui (*Viktoria.kahui@otago.ac.nz*) is Senior Lecturer, Department of Economics, University of Otago, Dunedin, New Zealand.

Claire W. Armstrong (*claire.armstrong@uit.no*) is Professor, UiT The Arctic University of Norway, Tromsø.

Naomi Foley (*naomifoley@gmail.com*) is Researcher, UiT The Arctic University of Norway, Tromsø.

©1999–2016 CHOICES. All rights reserved. Articles may be reproduced or electronically distributed as long as attribution to Choices and the Agricultural & Applied Economics Association is maintained. Choices subscriptions are free and can be obtained through <http://www.choicesmagazine.org>.