Comment on “What Restoration Schemes Can Do. Or, Getting It Right Without Fisheries Transferable Quotas”

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The recently published paper by Peter Orebech (2005) in this journal uses secondary sources, and primarily a paper by Grafton, Squires, and Fox (2000), to claim that the high price for individual transferable quotas (ITQs) in fisheries creates a financial burden on new entrants that leads to illegal fishing and excessive pressure on stocks. We refute much of what is claimed by Orebech (2005) using the very same sources.

The central tenets of Orebech’s argument are that: (1) ITQs are akin to a “robbery” (Orebech, p. 166) and “privatize” what was once a resource open to all, thereby benefitting the initial quota holders that receive the individual harvesting rights \textit{gratis}. (2) The enclosure of the commons with ITQs forces some fishers to exit, which then allows the lucky few who remain to enjoy increased profits. These returns are then removed from traditional fishing communities and are “part of a gigantic project of moving resource rents from the coast and into global financial centers” (Orebech, p. 170). (3) The increased investment costs associated with purchasing ITQs negate any benefits of individual harvesting rights and result in “illegal fishing and excessive pressure on fish stocks” (Orebech, p. 167), and (4) with ITQs “no economic efficiency gains were measured” (Orebech, p. 167) and the claim by Grafton, Squires, and Fox that ITQs are superior to traditional methods “is without valid foundation” (Orebech, p. 171). All of these claims are refuted below.

\textbf{Claim (1): The Robbery}

First, the British Columbia (B.C.) halibut fishery was \textit{not} an open access fishery prior to the introduction of ITQs in 1991, but was rather a limited-entry and input-controlled fishery and had been so since 1979. In other words, in this fishery and indeed in every fishery of which we are aware, free public access to the resource had \textit{already been stopped} prior to the introduction of ITQs. Thus, the only way anyone could fish commercially for...
halibut in British Columbia was to purchase a halibut licence, plus a vessel, gear, etc. In other words, for all intents and purposes, as of 1979 the 435 licence holders in the fishery had privileged access to the resource. In 1991 the ITQs that were allocated were simply superimposed onto the existing licensing structure and historical participation in the fishery. Under this allocation, based 70% on catch history, no fisher with a history of catching halibut with a license was denied ITQs. This was supported by a majority of fishers. Simply put, there was no “robbery.”

It is worth explaining why limited entry (restricting the number of vessels) in a fishery was initiated in 1979 in the B.C. halibut fishery and in most other jurisdictions over the past few decades. Figure 1 illustrates a typical relationship between total revenue (TR) and total cost (TC) in a fishery, assuming sustainable harvesting. For illustrative purposes, costs are assumed to be increasing and proportional to fishing effort. Sustainable revenue is initially increasing, reaches a maximum, and then declines because of density-dependent growth, a characteristic in many fisheries. In open access (free entry and exit of vessels), and given sufficient time, the existence of resource rents encourages fishers to increase effort until TR = TC, the so-called bionomic equilibrium. This is desirable neither biologically (results in smaller sustained yield from a lower, and also a less resilient, stock) nor economically (the fishery has zero economic profits).

Limited-entry, as previously practiced in the B.C. halibut fishery and elsewhere, seeks to limit fishing effort to $E_{MSY}$ to ensure a higher sustainable yield and also to avoid unsustainable harvesting that can arise with open access. Traditional limited-entry management involves limiting the number of vessels, gear, and also the fishing season to prevent effort going beyond $E_{MSY}$. This is what happened in the B.C. halibut fishery in the 1970s and 1980s.

![Figure 1](image-url)  
**Figure 1.** Fishing effort and the maximum economic yield (MEY) and maximum sustainable yield (MSY).
The ideal, in this static case, however, is to move to $E_{\text{MEY}}$ rather than $E_{\text{MSY}}$ because the former maximizes the rents in the fishery while the latter maximizes the sustained yield. In general, but not always, this will result in a larger stock than the biological objective of maximizing the sustained yield. Effort levels larger than $E_{\text{MEY}}$ would imply more boats, days at sea, gear, crew, bait, and all of the other inputs used in fishing—resources that could be used instead in alternative employment.

Apart from the fact that the goal of $E_{\text{MSY}}$ is less desirable than $E_{\text{MEY}}$ from the perspective of maximizing returns from fishing, the limited-entry approach practised in the B.C. halibut fishery until 1991 also fails to recognize that fishers still have the incentive to catch as much fish as it is profitable to do before the season ends. In the B.C. halibut fishery this incentive was accentuated by a successively shorter fishing season over the 1980s (falling from 65 days in 1980 to 6 days in 1990) that was reduced by the regulator to prevent the total allowable catch from being exceeded because only the inputs, and not the catch of fishers, were controlled. This process leads to a downward spiral in fisheries management with a successively shorter fishing season (to protect the resource) that stimulates even greater fishing inputs by fishers to catch a large amount of fish in a shorter period of time. Thus, in terms of Figure 1, attempting to target $E_{\text{MEY}}$ or $E_{\text{MSY}}$ can only be successful in the very short run, with effort “creep” moving the fishery to the right and thus dissipating profits, or decreasing the distance between total costs and revenues. This is exactly what happened in the B.C. halibut fishery such that prior to the introduction of ITQs the season length was effectively 6 days and expected to be just 2 days in 1991 without ITQs. The ultimate outcome would have been no profitable access to the fishery.

The critical point is that, without implementation of ITQs in 1991, there would have been no fishery worth accessing by anybody. Thus, contrary to the claim of Orebech, ITQs have actually helped to maintain access to fishers by ensuring both a sustainable and profitable fishery.

**Claim (2): Fishers Are Excluded from Fishing**

In an ITQ fishery no one is under any obligation to sell quota or to exit the fishery. This is in stark contrast to a number of buyback schemes in input-controlled fisheries where fishers are forced to surrender fishing rights or vessels. If adjustment takes place it is because fishers with ITQs voluntarily choose to sell or lease their quota to somebody else. This can lead to a reduction in the number of vessels fishing, and also crew, but this is only because the initial level of effort was too high in the first place (effort exceeds $E_{\text{MEY}}$) and not because of any inherent characteristic of ITQs. In other words, the fact that the B.C. halibut fishery consolidated after the implementation of ITQs is because the previous management regime allowed excess fishing effort to build up (or to a point greater than $E_{\text{MEY}}$). To emphasise this point, in some fisheries (squid fisheries in New Zealand, for instance) the number of vessels increased following the introduction of ITQs because the initial effort was below $E_{\text{MEY}}$.

If regulators wish it, they can also impose controls on quota trading to achieve social objectives, but at the cost of lower economic returns from the fishery. For instance, Iceland placed controls on quota trading away from certain regions, and in Canada in the B.C. trawl fishery, 10% of quota is reserved for community development and not directly allocated to vessels (Grafton, Nelson, & Turris, 2004). Such approaches, coupled with ITQs, have been extensively discussed in the fisheries literature, but are ignored by Orebech and offer a way to address social or equity issues while also increasing the profitability from fishing.
Claim (3): Missing Investment Costs

Contrary to what is claimed by Orebech (see pp. 166–167), Grafton, Squires, and Fox do carefully consider costs and benefits associated with the price of ITQs. In their analysis they measure the producer surplus and also unit quota rent price, and then analyze the effects of ITQs on these measures. Indeed, their study is one of the very few to actually measure rents and test for the affect of ITQs.

It is worth stating that the existence of resource rents in the B.C. halibut fishery will be reflected in a positive price for ITQs. Thus, the greater the resource rents, all else being equal, the higher the price. Rather than lamenting this outcome, this should be viewed as a good result because it implies fishers are better off. For equity reasons a share of these rents can be captured by a regulator (Grafton 1995) which can reduce the ITQ price and, hence, entry costs for fishers who wish to purchase ITQs (Grafton, 1996).

The point is that just as constraints on quota concentration or transfers across regions can be imposed for social considerations, rent capture can also be used to reduce entry costs of future fishers. In other words, it is not necessary to reduce economic efficiency by moving to a management regime other than ITQs in order to lower the entry price to prospective fishers.

Claim (4): ITQs Diminished Economic Efficiency

Contrary to what is claimed by Orebech (see p. 167), Grafton, Squires, and Fox (2000) found statistically significant technical and allocative efficiency gains over the period 1991–1994 for small vessels, and short-run gains in economic efficiency for large vessels over the same period. This evidence is summarized in Table 8 on p. 701 of Grafton, Squires, and Fox. They also observe in their footnote 61 on p. 706 that there exists substantive evidence of short-run gains between 1991 and 1994 in almost all of their efficiency measures for small and large vessels.

As they explain in detail on pp. 705–707, the B.C. halibut fishery suffered an almost 50% decline in the total allowable catch from 1988 to 1991, and the property rights were neither transferable nor divisible in 1991 and 1992. As a result, there were no statistically significant and positive gains in efficiency over the period 1988 to 1991. However, as the dimension of the property rights improved in 1993, quota trading increased, and so did efficiency. Other empirical evidence that shows efficiency gains in fisheries with ITQs include Dupont et al. (2002) and Fox et al. (2003) while the FAO has numerous case studies showing the payoffs of ITQs in fisheries benefits that include more sustainable fishing practices (Shotton, 2001). Equally important, there are studies that show that input controls alone result in substitution to unregulated inputs in fisheries, which reduces efficiency (Kompas, Che, & Grafton, 2004).

In closing, few remarks are in order about the connection made by Orebech on ITQs to Sen’s noteworthy work on entitlements (Sen, 1982). Free and open access to common-pool resources almost invariably results in overexploitation and ultimately very low returns for harvesters, the proverbial “tragedy of the commons.” This arises because the cost imposed on others from fishing are not taken into account by fishers when they make their harvesting decisions. The solution is to provide incentives either collectively or individually for harvesters to take into account the costs of their actions on others. This is what occurs with successful community-based rights or with properly managed ITQs. The increased returns from better management can be left with the fishers or captured by society as a whole. If the latter, then this can be used for any worthy purpose, including helping have-nots.
References


