

POINTS OF VIEW

ITQ: the assumptions behind a meme

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The four papers on individual transferable quotas (ITQs) in this issue jointly present a comprehensive review of an approach to fisheries management which could be described by Thomas Kuhn's concept of a 'paradigm shift', had it not been so overused as to end up drained of meaning.

ITQs, bursting as they did from the periphery to the centre stage of fisheries management, and from small countries such as Iceland and New Zealand, invite in any case a different, evolutionary, kind of metaphor, even though we are not dealing here with the emergence and spread of a new gene, but with one of Richard Dawkins' 'memes', an idea competing with other ideas for our attention and space in our brains. I shall return to this metaphor, following a discussion of some implicitly held assumptions of critics and proponents of ITQs, which I believe should be made explicit.

Grafton (1996) tells us, in a concise review of the theory and practice of ITQs, that this idea originated in the 1960s, with the 'pollution quotas' now widely used by power utilities, to rationally allocate the resources they have for reducing the amounts of pollutants they emit. Crediting Francis Christy with being one of the first to have looked through the clouds of indignation these quotas generated, and to have seen their potential for fisheries management, Grafton then goes on telling us how ITQs, by making fishers the owners of the harvestable part of a fish resource, can help overcome the perennial problems of fisheries: the 'race to fish', the resulting overcapitalization, and the assault on the resource which usually ensues. The case for ITQs – and Grafton's case – seems clear cut and would be convincing to anyone, were it not for various, and generally unstated assumptions which, at least in my limited experience, tend to poison discussions about ITQs.

The most common, and the most toxic of these assumptions is that ITQs are part of some right-wing plot to privatize the sea by handing over its fish resources to big corporations. That this view should be commonly held is not only because we live in an age when belief in conspiracies is rampant, but because big corporations already own big chunks of the natural resources of the Earth. To imagine that they should be able to skew to their advantage, and to the detriment of say, deckhands or even small owner-operators, the process by which ITQs are initially allocated, does not require much fantasy. Not explicitly addressing this issue is glib, and likely to justify the fear behind the assumption.

A related concern is concentration of quotas following their initial allocation. Grafton addresses this issue by noting that "whether such an adjustment takes place . . . is

entirely dependent on the characteristics of the fishery”, adding for example that “in a study of the British Columbia sablefish fishery, the generally smaller and older longline vessels [of small owner-operator fishers] were found to have a higher profit per unit of sablefish landed than the larger trap vessels”.

Arnason (1996), in his description of the evolution of Iceland’s ITQ system, also mentions factors – some implicit, due to the structure of the Icelandic economy, some explicit, in form of legislative acts – which should prevent concentration of ITQs in that country.

Indeed, in any democratic society, it is ultimately the electorate which must decide to whom common-property resources should be handed over, and with what restrictions. Thus advocates of ITQs should stress the right of the electorate to effectuate such transfers of property, through elected governments, rather than limit their case to restating their economic-efficiency mantra.

An assumption related to the one above, and almost equally toxic, is the claim that communities of small-scale fishers, or of other marginalized groups with claim to fisheries resources, cannot be owners of ITQs, as seemingly implied by the ‘I’ of ITQ. But, in truth, they can, and this is well illustrated by the case of New Zealand, where the Maori community, which otherwise does not seem to own much of what was once their country, now reportedly controls 40% of the ITQs.

The ability of communities to become, through ITQs, significant owners of fisheries will depend obviously on their share in the initial allocation process, and on their ability not only to hold onto their initial ITQ (which may be mandated), but also to concentrate their resources – meagre as they might be – on the acquisition of further ITQs. Indeed, one can even imagine a situation wherein such communities, e.g. because of a strong fishing tradition, might decide to acquire ITQs at prices which corporations without such tradition, and with only short-term returns in mind, might be unwilling to consider. It is unfortunate that so little of the attention of ITQ advocates appears to be devoted to issues of this sort, although they might well determine the acceptability of ITQs in areas where the voice, electoral or otherwise, of small-scale fishers and/or of marginalized groups is strong enough to tip the balance of the decision.

Another series of assumptions around ITQs stems from their emergence at a time in which governments are not only supposed to privatize the natural resources they control, but also to ‘down-size’ themselves, i.e. to reduce their role in managing resource exploitation by the private sector. New Zealand is here the country that most readily comes to mind.

The irony is, obviously, that output-based regimes, such as those relying on ITQs, turn out to be far more management-intensive than the input-based (i.e. effort control) regime they are meant to displace, and that government scientists can be expected to be the ones performing most of the stock assessments needed to generate the total allowable catches (TACs) upon which the whole ITQ system rests. Reading Annala (1996) makes this point very obvious, although various tricks are used, in New Zealand, to make stock assessment scientists look like they are not working for the government.

The requirement for “much more accurate and timely stock assessment” is the aspect of ITQs which Walters and Pearse (1996) chose to emphasize, because in the absence of reliable data, “quotas may need to be so conservative that foregone catches could wipe out the economic gains from quota management.” They then go on to present a highly original approach to define optimum fishing mortality such as to

incorporate uncertainty about stock size and reproductive capacity, and showing, *en passant* that the TAC for the northern cod of eastern Canada was far too high, making its collapse inevitable.

Turning around the argument of Walters and Pearse, one can thus conclude that an ITQ-based regime will not protect stocks more than input-based regimes if governments (or quota owners) do not invest in more and better fisheries science.

Further, even good science is not going to help in the absence of comprehensive monitoring schemes (including on-board observer programmes) to suppress quota-busting, high grading and other nefarious practices. Annala's description of this, and of the specialized government accountants who, in New Zealand, audit the accounts of ITQ holders, should convince anyone that assuming ITQs will reduce the role of governments would not be realistic.

Having, through the above discussions of some assumptions pertaining to ITQs, demonstrated my close reading of the four key papers in this issue, I would now like to turn to a looser reading of these same papers, which I view, as stated above, as describing the evolution of the ITQ meme.

Warren (1995), rightly noting that "in practice, the United States is a tough place to tell somebody he or she can't go fishing while the rest of the fleet is still grinding away on the grounds" suggested that to institute access-based schemes such as ITQs, "you need a fishery where nobody has recourse to the US courts to challenge the new system." Clearly, this is similar in the other large political entity with major fisheries, the European Union, where every potentially effective plan for reducing fishing effort and/or limiting access is countered by nationalistic lobbying coupled with threats of leaving the Union, or demonstrations that often turn violent, or both. Thus the meme for ITQ did not initially spread in a core area such as the USA, although that is where it originated.

Rather, for a meme such as ITQ to establish itself as dominant, a relatively small, isolated community was required, in which a rational debate about issues could occur, and in which the risk of failure was understood by most, a risk, moreover, which had to be borne by the entire community. Arnason (1996) puts it simply: "the Icelanders simply cannot afford to run an inefficient fishing industry." (The USA can, and so does the EU). Evolutionary biologists will appreciate the similarity, in this context, between Iceland and a small vicariant community, in which a meme could establish itself that could not expand into a larger population (here the USA, or the EU) – a similarity which becomes stronger when one appreciates that Iceland became able to consider the utility of ITQs only after she had, rather militantly, expelled all foreign fishers from her 200 nautical mile exclusive economic zone (then another new meme, which, as an instant of reflection will suggest, probably co-evolved with the ITQ meme).

From its present, strong base in Iceland, New Zealand, and gradually, Australia as well, the meme for ITQs now stands poised to spread into the core population of fisheries managers in temperate zones, in Europe and North America, through media such as this issue of *Reviews in Fish Biology and Fisheries*. Yet, as would be true for any gene, its victory is never assured: Arnason (1996) tells us, for example, that in Iceland, partisans of the old, input-control meme still hope for a reversal of their fortune.

I conclude with what may be an expected pitch for the (sub)tropical multispecies fisheries which nowadays contribute about half of the world's catch. In spite of Francis

Christy's early forays in this area (e.g. Christy, 1982), I have never seen or heard an argument, by an ITQ advocate, on how to apply this tool to these species-rich but data-poor fisheries. What may be the implicit assumption behind this, that these fisheries are somehow irrelevant? Fortunately, the answer – whatever it might be – does not matter, because, in fact, ITQ-based management systems should have a hard time with such fisheries, and in countries the developing status of which is largely defined by the absence of the strong administrative and research infrastructure required for output-controlled management.

Thus, marrying my two themes, the implicit assumptions of ITQs, and their metaphoric interpretation as meme, I predict that the ITQ meme does not tolerate warm water.

Acknowledgements

I thank Trevor Hutton for reading the draft of this contribution, and for suggestions which much improved it.

References

- Annala, J.H. (1996) New Zealand's ITQ system: the existence and lessons of the first eight years. *Rev. Fish Biol. Fish.* **6**, 43–62.
- Arnason, R. (1996) On the ITQ fisheries management system of Iceland. *Rev. Fish Biol. Fish.* **6**, 63–90.
- Christy, F.T. Jun. (1982) Territorial use rights in fisheries: definitions and conditions. Rome: FAO, *FAO Fish. tech. Pap.* No. 227. 10 pp.
- Grafton, R.Q. (1996) Individual transferable quotas: theory and practice. *Rev. Fish Biol. Fish.* **6**, 5–20.
- Walters, C. and Pearse, P.H. (1996) Stock information requirements for quota management systems in commercial fisheries. *Rev. Fish Biol. Fish.* **6**, 21–42.
- Warren, B. (1995) Bycatch strategies: success stories, promising approaches and role of the third sector. In Pitcher, T.J. and Chuenpagdee, R., eds. *Bycatches in fisheries and their impact on the ecosystem*. Vancouver: University of British Columbia, *Fisheries Centre Res. Rep.* **2**(1), 61–4.

Accepted 2 October 1995