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The bioeconomics of high seas fishing: new entrants and the tragedy of the commons

A Introduction and overview

It is no longer as true as it once was that, as Johnston put it, "In a positive doctrinal sense, there is no international law of fisheries."[1] For this kind of underpinning we now have not only the United Nations Convention on the Law of the Sea[2] (hereinafter UNCLOS) and the related Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks[3] (hereinafter the UN Fish Stocks Agreement), but also to a lesser extent the Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas.[4] These are supplemented by a far larger number of treaties than existed in Johnston's day, regulating either all or certain fisheries within a defined area, as well as a small number of treaties dealing with particular species, sometimes only a single species, wherever they may be found. Most of these treaties establish what Article 8 of the UN Fish Stocks Agreement calls "regional and subregional fisheries management organizations", of which there are now around twenty.[5] Not all such bodies are uniformly

[1] D.M. Johnston, *The International Law of Fisheries: A Framework for Policy-Oriented Inquiries* (New Haven: Yale University Press, 1965), at xv.
[2] Montego Bay, 10 December 1982; 1833 United Nations Treaty Series (UNTS) 3.
[3] New York, 4 December 1995; 2167 UNTS 3.
[4] Rome, 24 November 1993; 2221 UNTS 93.
[5] The FAO lists exactly twenty "[b]odies with a management mandate" on the relevant page of its website, www.fao.org/fishery/rfb/search/en (accessed on 19 January 2013). There may be an issue as to whether any commission of the latter type can actually be a "regional or subregional fisheries management organization" given that it applies to the species wherever in the world it is found; contrast UNCLOS Article 64 which refers only to "appropriate international organizations"), and note that Japan is on record as assuming the Commission for the Conservation of Southern Bluefin Tuna (CCSBT) is included within this phrase: "Japan's Opening Statement" (Attachment A to CCSBT, *Report of the Fourth Annual Meeting Second Part, 19–22 January*

worthy of investigation in this book. An example of one not considered is the Asia-Pacific Fisheries Commission (formerly the Indo-Pacific Fishery Council) – since, although main objectives as set out in its constitutive treaty[6] give it a broad mandate to formulate and recommend conservation and management measures, it has no regulatory powers.[7] Nor is it necessary to dwell on treaties of environmental significance impinging not just on fisheries but on a great many other activities besides, such as the Convention on Biological Diversity.[8] In this case it is because, while severe overfishing may well put the State responsible for it in breach of the generally worded obligation under Article 8(f) of that Convention to "promote the recovery of threatened species, *inter alia*, through the development and implementation of plans or other management strategies", a much lesser degree of overfishing will already be in breach of the many more specific obligations discussed in this work, and with far more concrete legal consequences. Similarly, despite the theoretical possibility that commercial fish species could be listed under the Convention on International Trade in Endangered Species of Wild Fauna and Flora[9] or the Convention on the Conservation of Migratory Species of Wild Animals,[10] these remain at the periphery of international fisheries law as, even when depleted, a fish stock still typically consists of several hundred thousand individuals and is thus not in any pressing danger of extinction.

Despite this proliferation of legal texts affecting international fisheries, for the past thirty years they have been in a deepening crisis, manifested in the unconcealed reluctance with which existing participants act to reduce their catch despite obvious signs that the stocks are being overfished. This

1998, Canberra, Australia, www.ccsbt.org/userfiles/file/docs_english/meetings/meeting_reports/ccsbt_04/report_of_ccsbt4_part2.pdf (accessed on 3 June 2013)). A curiosity here is that Australia's delegated legislation implementing domestically its national allocation from the CCSBT applies not to the whole world but only to the part of the southern hemisphere north of 60°S and between 50°W in the west and 140°W in the east: *Southern Bluefin Tuna Fishery Management Plan 1995* (Cth), made pursuant to s. 17(1) of the Fisheries Management Act 1991 (Cth), cl 3.1, definitions of "high seas fishing zone" and "SBT Fishery area".

[6] Agreement Establishing the Indo-Pacific Fishery Council, Baguio (Philippines), 26 February 1948; 120 UNTS 59.

[7] See the main objectives set out in Article IV of the Agreement. It covers all living marine and living inland aquatic resources in an Area of Competence specified by Article VI as "the Asia-Pacific Area", not giving any precise definition by lines of longitude and latitude.

[8] Rio de Janeiro, 5 June 1992; 1760 UNTS 79.

[9] Washington, 3 March 1973; 993 UNTS 243.

[10] Bonn, 23 June 1979; 1651 UNTS 333.

in turn is attributable at least in part to the absence of a mechanism to prevent the entry of new participants into the fishery. What the Secretariat of the Food and Agriculture Organization of the United Nations (hereinafter FAO) described in 1992 as "The Fundamental Problem of Open Access" remains true today:

> The single most important issue that must be resolved to deal with the current massive waste in fisheries, is controlling open access. The extension of jurisdiction was a necessary, but insufficient, step in this process.[11]

The residual freedom of fishing on the high seas is also an obstacle to the efficacy of any intergovernmental entity that its member States may wish to endow with regulatory jurisdiction over the particular area of ocean or fish stocks concerned. Voluntary acceptance of regulation by some States through a fisheries commission suffers from the defect that those remaining outside the commission are, under the basic law of treaties principle *pacta tertiis nec nocent nec prosunt*[12] – that States absent their consent are not bound by treaties to which they are not party – at liberty to disregard any regulation, gaining the advantage of the member States' restraint and thus creating a disincentive for the latter to accept that very restraint at all.[13] As the Special Rapporteur on the High Seas of the International Law Commission (hereinafter ILC) put it:

> La protection des richesses de la mer fait l'objet d'un grand nombre de conventions entre les États intéressés . . . Cette manière de légiférer présente le grave inconvénient qu'un accord survenu entre deux ou plusieurs États intéressés risque de devenir inefficace au cas où un seul ou plusieurs autres États refusent de s'y conformer. Généraliser les mesures prévues dans les traités bilatéraux ou multilatéraux en les appliquant à des États qui ne seraient pas parties à ces conventions et se trouveraient ainsi liés par

[11] FAO, *Marine Fisheries and Law of the Sea: A Decade of Change* (FAO Fisheries Circular No 853; Rome: FAO, 1993), at 31 (the quotation is the heading under which the extracted text appears).

[12] The principle is embodied in Article 34 of the Vienna Convention on the Law of Treaties (Vienna, 23 May 1969; 1155 UNTS 331).

[13] A practical example is the anecdotal reports of Taiwanese vessels moving onto SBT fishing grounds vacated by Japanese vessels after the closure of the fishery for the latter when the quota was filled: A.E. Caton, "Commercial and Recreational Components of the Southern Bluefin Tuna Fishery", in R.S. Shomura, J. Majkowski and S. Langi (eds.), *Interactions of Pacific Tuna Fisheries: Proceedings of the First FAO Expert Consultation on Interactions of Pacific Tuna Fisheries, 3–11 December 1991, Nouméa, New Caledonia, Vol 2* (FAO Technical Paper No 336/2; Rome: FAO, 1994), 344 at 361.

> des stipulations *inter alios*, ne semble pas compatible avec les principes généraux du droit.[14]

If all States were bound to abide by a commission's measures, the problem would be largely solved. Yet the desire of States within a commission to exclude new entrants irrespective of their political and legal claims to a share in the fishery explains why the law has neither progressed to this point, nor is likely to do so without significant qualification.

How the law governing States' efforts to overcome this dilemma has affected the fisheries concerned is the subject of this book. It will canvass the legal problems to which the tragedy of the commons phenomenon that characterises high seas fisheries has led among the States whose nationals and vessels exploit the species, and venture some suggestions as to how these problems might be resolved or reduced in significance.

A purely legal approach to such questions, however, relying on abstract exegesis of the pertinent treaty texts, would probably not be fruitful. International fisheries law can only be fully understood against the background of the combined effect of the biological and economic factors operating on international fisheries. It is not possible to define these problems away by, for example, simply mandating that States must follow scientific advice in setting catch limits, as that offers them no guidance on to how to act when scientists disagree with each other, as often occurs, or when the scientific advice itself proves over-optimistic. Equally, failure to take account of economic forces is one of the main reasons for the legal regime having repeatedly shown itself inadequate to prevent stock collapses. In short, for any legal argumentation to make a worthwhile contribution to the policymaking of States and the international institutions through which they operate, the lawyer offering it must first master the necessary scientific and economic briefs. Accordingly, the second section of this first chapter introduces the factors at work in the fisheries, and how they interrelate. From maximum sustainable yield (MSY) as a construct of the surplus production model of fisheries science, together with its shortcomings, it moves to the economic concept known as the tragedy of the commons: under open access (hitherto the rule in high seas fisheries) depletion of the stock is inevitable even though it is contrary to the collective interest, because, owing to two further complicating factors – the notions of discounting of future earnings and game theory – that is rational behaviour

[14] UN doc A/CN.4/42 (10 April 1951), *Deuxième rapport sur la haute mer par J.P.A. François, rapporteur spécial*, reprinted in UN, *Yearbook of the International Law Commission 1951*, Vol. II (hereinafter ILC Yearbook 1951/II) (New York: UN, 1957), 75 at 88 (paragraph 78).

for each individual participant in the fishery. At the national level the most successful antidote to this has been in the form of introducing property rights, most fully through individual transferable quotas (ITQs), which is how some or all domestic fisheries are managed in several States, an account of which completes the chapter.

Chapter 2 places the new entrants problem in the context of the principles guiding the allocation of access rights to fisheries in successive legal instruments, culminating in the UN Fish Stocks Agreement. Beginning with the very sketchy treatment accorded to the subject in the two relevant treaties that emerged from the (first) United Nations (UN) Conference on the Law of the Sea – the Convention on the High Seas[15] and the Convention on Fishing and Conservation of the Living Resources of the High Seas[16] – it moves on to consider the more elaborate provisions of UNCLOS, namely Articles 63, 64 (along with Annex I) and 116–19, and then those of the UN Fish Stocks Agreement. There follows an examination of the first attempt at solving the new entrants problem – the abstention doctrine of the 1950s – and the reasons for the concerted and ultimately successful opposition it provoked. This is then compared with the more balanced provisions of the UN Fish Stocks Agreement, which have nonetheless prompted the Northwest Atlantic Fisheries Organization (NAFO) and later also other fisheries commissions to purport to exclude non-members peremptorily from access to stocks asserted to be "fully fished". Procedural considerations have made some non-members already fishing reluctant to join the commissions, but the analysis here reveals that States wholly new to the fisheries have largely accepted their exclusion. It is concluded that the reason for this, in contrast to the failure of abstention, is that enough of them now have a stake in some international fishery somewhere for a subconscious property rights mentality to have developed. That is, the benefit of ensuring that newcomers cannot perturb a fishery in which the State already participates is perceived to outweigh the burden of exclusion from all other fisheries in which it does not.

This has led to a wrong turning in international fisheries law, the subject of Chapter 3, with much of the effort that ought to be devoted to making the institutions work distracted by the excessive attention being paid to illegal, unreported and unregulated (IUU) fishing, an acronym that over the past few years has permeated not just UN General Assembly and fisheries commissions' resolutions but even some newer treaty texts. Treating

[15] Geneva, 29 April 1958; 450 UNTS 11. [16] Geneva, 29 April 1958; 559 UNTS 285.

what are three (or more) separate problems as one, it inevitably obscures the fact that they require three (or more) different solutions. Its appeal to governments seems twofold: not only does it conveniently remove the spotlight from authorities failing to manage their fisheries sustainably, diverting blame onto others and political attention to a second-order issue at the expense of the unresolved first-order need to make the hard choices necessary to put their own fisheries houses in order, but it also offers promise, through the fundamental misconception of assimilating unregulated fishing to illegal fishing as something to be combated, of excluding newcomers from the fishery by the backdoor introduction of high seas property rights. The latter is not necessarily a bad outcome, but one that ought to be adopted openly after full debate and compensation for those States whose rights are made worthless. Instead, this chapter highlights how the composite IUU concept is another manifestation of the tendency of States established within a fishery to claim a right to exclude others without bothering to lay the proper legal groundwork for this. It also details how the critique of one State, though elements of it are sound, has been too idiosyncratic to gain any real support or influence.

Chapter 4, a case study of the southern bluefin tuna (SBT) fishery, opens with an account of how the trilateral (Australia/Japan/New Zealand) management mechanism that governed the SBT fishery from 1983 to 1994 came into being, and thereafter is devoted to cataloguing and discussing the issues that arose in that period surrounding new entrants into the fishery from outside these States. Having established and then reduced quotas under the trilateral arrangements because the SBT stock was being overfished, as well as settled on a formula for adjusting their catch shares as the stock recovered, the three States found their expectations of that recovery frustrated, due in part to the appearance on the scene of these newcomers. Examination of the unpublished documents of the period reveals the new entrants as a principal motivating factor behind the creation by the Convention for the Conservation of Southern Bluefin Tuna (hereinafter the 1993 Convention)[17] of an international organisation, the Commission for the Conservation of Southern Bluefin Tuna (CCSBT), to manage the fishery. It was at this stage also that the three States developed a rudimentary policy on new entrants aimed at limiting their catch; the reasons for its ineffectiveness are canvassed. This section also deals with the negotiation of the 1993 Convention and assesses what difference it made to the management of the fishery. The next part of the chapter

[17] Canberra, 10 May 1993; 1819 UNTS 359.

relates, on the basis of the reports of its meetings over the years, the legal history of its dealings with non-members in an attempt to reduce their catch of SBT. Initially a formula was adopted without consultation with them which they ignored, allowing their catches to grow further, followed by fitful and then sustained negotiations backed by the threat of trade restrictions by CCSBT members to enforce non-member cooperation. This yielded the desired results in 2001 and 2002 in the case of Korea and Taiwan who accepted quota offers and joined the Commission (a matter vastly complicated in Taiwan's case by its unique international status, which required a detailed arrangement to overcome), but Indonesia took much longer, and its membership dates only from 2008. The position of the remaining significant non-members (South Africa, the Philippines and the European Union (EU)) is also considered, including a discussion of what South Africa might expect if it were to pursue the route of litigation as a means of achieving an allocation greater than the CCSBT has been prepared to offer it, as are resolutions the CCSBT has adopted on flags of convenience and on a new category of participants also seen in other commissions, "Cooperating Non-Members". There then follows a broader examination of legal aspects of documentation of trade in SBT, namely the Trade Information Scheme the CCSBT has run since 2000 and its relationship with the General Agreement on Tariffs and Trade (GATT),[18] before the chapter concludes with an analysis of how the arguments made by members and non-members of the CCSBT fit into the context of the wider debate in other fishery commissions as part of the trend towards exclusion of the latter from the fisheries.

By way of a possible solution to the problems addressed thus far, Chapter 5 introduces and analyses the idea of trading in fisheries commission quota. First, national allocations are found in the context of the residual freedom of fishing rule not to be tradable assets but limiting obligations owed to every other member of a commission, so that (unless there are only two members) simple agreement between "vendor" and "purchaser" is not sufficient; rather, a generalised waiver mechanism is needed. It is found that the treaties governing specific marine living resources do not in general place any obstacles in the way of such a mechanism, although there is one prominent exception. In fact several fisheries commissions permit trading already, by either ad hoc or blanket advance

[18] Since 1995 GATT has been maintained in force among members of the World Trade Organization pursuant to the Agreement Establishing the World Trade Organization (Marrakech, 15 April 1994; 1867 UNTS 3).

approvals; these are analysed. The focus then moves to the recent consideration of quota trading by some of the newer commissions, which have led to strikingly disparate outcomes, with a number of significant documents having been generated and a debate of sorts having taken place in one commission, although it did not lead to any concrete outcome, and a new and perhaps more promising debate again underway in a second body. Since placing quota trading onto a systematic basis would raise the matter of accounting for catches to a more sophisticated level than has been necessary to date, the rules for the treatment of overcatch and undercatch are considered, along with the potential for abuse of any trading system to avoid the legal consequences of overcatch; other foreseeable issues canvassed are the problem of bycatch and States' reluctance to use their concurrent jurisdiction over fishing by their nationals using vessels flagged to other States. It is suggested that if national allocations expressed as a proportion of the total allowable catch (TAC) were to become permanent, even in the absence of trading this would reinforce the trend towards property rights in high seas fisheries.

Finally, conclusions are offered in Chapter 6. These can be summarised by saying that, with one possible exception – a reinvigorated application of the disciplines of State responsibility to international fisheries – any solution to the new entrants problem will have to rely on legal policy rather than principle. Since various allocative rules are possible, the choice among them, as well as of the level of risk to be run in setting a TAC, are inevitably decisions of a political and therefore management character. Even in the absence of a substantive rule on allocation, the procedural device of dispute settlement, or more precisely its compulsory availability, can act as the necessary incentive to political compromise. Although economists argue in favour of ignoring the history of the fishery and closing it to new entrants unwilling to buy their way in, the applicable legal principles nonetheless require that the full history be taken into account. The CCSBT exemplifies this: at one point in its management of the SBT stock, the members were collectively no longer seriously attempting to comply with the UNCLOS obligation to restore depleted stocks to the level that can generate the MSY.[19] Here the various facets of State responsibility – especially the trend towards attribution of all high seas fishing to the flag State itself, and the rules on reparation for damage to injured States, which is argued to include any State that could profitably fish a stock restored to the level capable of generating the MSY – are the way

[19] The concept of MSY is explained *infra*, subsection B2(a).

forward. Despite the freedom of fishing on the high seas being at the root of the new entrants problem, therefore, it would be undesirable to act on calls to abolish the freedom, since paradoxically the residue of that freedom turns out to be a necessary element of any solution.

The law is stated as at 1 November 2013, with the technical exception that any developments evidenced though reports of the meetings of fisheries commissions must reckon with the delay, typically of several months, in their publication. No account is therefore taken of meetings whose reports were at that date not yet in the public domain, which, given their annual meeting cycles, means any meeting held after 30 June 2013.

With that, it is possible to turn to the influence that the biology of fishes, and in turn the economics of the fisheries targeting them, have had on modern international fisheries law. The essential point to be borne in mind is that, once the numbers of a sought-after fish are depleted by overexploitation, they would not – except in the case of short-lived species – be expected to recover until some time after reduction in fishing effort.[20] As this study shows, just such a depletion of several stocks has been the driving factor behind much of the effort to resist entry of newcomers into the fisheries that are its focus. The next section demonstrates that

[20] J. Majkowski, "Global Resources of Tuna and Tuna-like Species", in FAO, *Review of the State of World Fishery Resources: Marine Fisheries* (FAO Fisheries Circular No 920; Rome: FAO, 1997), 118 at 125; see also *infra* subsection B2(a). For example, the Norwegian spring-spawning herring stock, fished almost to extinction before a moratorium on harvesting in the late 1960s, took over twenty years to recover: T. Bjørndal and G.R. Munro, "The Economics of Fisheries Management: A Survey", in T. Tietenberg and H. Folmer (eds.), *The International Yearbook of Environmental and Resource Economics 1998/1999: A Survey of Current Issues* (Cheltenham: Edward Elgar, 1999), 153 at 161, while the Grand Banks (Flemish Cap) cod stock, despite being under moratorium since 1992, did not begin to show the first signs of recovery until 2008 (see NAFO doc FC Doc. 08/22, *Report of the Fisheries Commission 30th Annual Meeting, 22–26 September 2008, Vigo, Spain*, in NAFO, www.nafo.int/publications/meetproc/2009/fc-sep08.pdf (accessed on 21 January 2013), agenda item 10), and the central Bering Sea pollock stock has yet to attain the level necessary for the reopening of the fishery under the Convention on the Conservation and Management of Pollock Resources in the Central Bering Sea (Washington DC, 16 June 1994), (1995) 34 *International Legal Materials* (hereinafter *ILM*) 67: see *Report of the 17th Annual Conference of the Parties to the Convention on the Conservation and Management of Pollock Resources in the Central Bering Sea, 12 November–21 December 2012*, www.afsc.noaa.gov/REFM/CBS/Docs/17th%20Annual%20Conference/Final%20Conference%20Report%202012.pdf (accessed on 5 June 2013), paragraph 6.3.1. Stocks of shorter-lived species, including some species of tuna, recover much faster from depletion, such as yellowfin and skipjack tunas – these reach maturity at a young age (under two years) and are highly productive: A.E. Caton, K. McLoughlin and M.J. Williams, *Southern Bluefin Tuna: Scientific Background to the Debate* (Canberra: Australian Government Publishing Service, 1990), at 10.

the weak legal and institutional disciplines on high seas fishing made this depletion almost inevitable.

B The tragedy of the commons and its solutions

1 The core of the problem: open access

To the extent that a given stock is fished on the high seas, it is subject to the economic phenomenon known as the tragedy of the commons, which is a consequence of the absence of property rights concomitant with the freedom of fishing on the high seas[21] – in other words, of the open access to the fishery. Hardin, the originator of the phrase, illustrated the tragedy by way of a pastoral example, in which a rational newcomer considering keeping cattle (or owner of an existing herd) would calculate that there were benefits to be gained from adding an extra beast. Even if these benefits were outweighed by the marginal costs of doing so in terms of degradation of the land, those costs would be distributed among all users of the commons, and the newcomer's own share of them would be less than the benefits. Thus the decision would inevitably come down in favour of adding the extra beast. The same incentive would lead all existing and potential users to keep adding animals irrespective of the carrying capacity of the land. Hardin concluded:

> Each man is locked into a system that compels him to increase his herd without limit – in a world that is limited. Ruin is the destination toward which all men rush, each pursuing his own interests in a society that believes in the freedom of the commons. Freedom in a commons brings ruin to all.[22]

In the international or even domestic fisheries context, it suffices to substitute "catch" in the first sentence of the above quotation for "herd". Until the emergence of the exclusive economic zone (EEZ) in the 1970s – a wide band of ocean whose outer limit as laid down in Article 57 of UNCLOS cannot exceed 200 nautical miles from the coastal State's territorial sea baseline – fishery resources beyond the territorial sea and a narrow band of exclusive fisheries jurisdiction were, in the economic sense, common property. From the point of view of the coastal State's regulators, new operators, and from that of international law, new States could continue to enter a fishery, and those already in it could continue to increase their

[21] The freedom of fishing on the high seas is set out in Articles 87 and 116 of UNCLOS, reproduced *infra* Chapter 2, subsection B2(b).
[22] G. Hardin, "The Tragedy of the Commons", (1968) 162 *Science* 1243 at 1244.