

Management Options for High Seas Fisheries: Making Regime Complexes More Effective

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1. INTRODUCTION

WHAT ARE THE most promising options for improving the management of the world's high seas fisheries? Here, a 'management option' refers to any institutional measure that States or other actors may take to improve the balance between the use and the conservation of marine living resources. High seas fisheries management involves all the challenges that any common property poses for States seeking to coordinate their actions to achieve such a balance, with the additional challenge that only the flag State has extensive jurisdiction over the vessels that engage in fishing or fishing-related activities, such as provisioning of fuel, water etc., and transshipment of catch.

This near-monopoly of the flag State on regulatory and enforcement action is one important reason why effective high seas fisheries management generally requires coherent operation of several public/State institutions as well as private ones, at the national, regional and global levels of governance. Each component institution in such regime complexes has distinctive capacities relevant to one or more of three tasks that governance systems for resource management must attend to. One task is cognitional: building a shared, well-founded understanding of what measures will best balance use and conservation. Another is regulatory: translating this shared understanding of means-ends relationships into agreed commitments. The third governance task is to ensure that actual fisher behaviour complies with those commitments. Each task poses distinctive challenges which must be overcome if high seas fisheries management is to succeed over an extended period of time. The performance of the regime complex for managing high seas fisheries depends crucially upon institutional coherence; namely, the extent to which component institutions are well aligned,

providing complementary or synergistic capacities for each of these tasks and promoting the same governance policy objectives.

This chapter first briefly examines the nature of the problem posed by the availability of commercially lucrative fish stocks on the high seas. That problem is defined primarily by the configurations of interests among governmental players such as flag States, coastal States and port States, but also by the goals and strategies of transnational industry and environmental organizations active in the policy area. The chapter then outlines the institutional complex that has evolved for managing this problem, highlighting not only national fisheries agencies and regional fisheries regimes but also global institutions specializing in areas other than resource management, such as international trade or the combat of trafficking in persons or drugs, or money laundering, as well as private governance initiatives like fisheries certification schemes. The substantive core of the chapter examines the coherence of these various contributions to solving the cognitional, regulatory and behavioural tasks of fisheries management, including whether such coherence requires explicit coordination among the component institutions. Empirically, the chapter focuses on several regional regime complexes, including those aiming to govern high seas fisheries in the Barents Sea, the Norwegian Sea and the Southern Ocean.

2. THE PROBLEM OF HIGH SEAS FISHERIES MANAGEMENT

Stocks available in commercially lucrative amounts in high seas waters pose a particularly malign management problem. They entail several challenges associated with any scarce common property resource, plus two others: international coordination, and the limited jurisdiction and leverage for regulation and enforcement by actors other than the flag State.

In general, resource management involves making and implementing authoritative decisions on use and conservation. ‘Use’ refers here to resource exploitation and allocation of benefits among harvesters, whereas ‘conservation’ is about ensuring future availability.¹ The root problem of common property resources is that they generate individual incentives that, if unchecked, are likely to prove collectively disruptive. That is because some of the costs associated with resource use disappear from the user’s cost-benefit calculus, and such ‘externalities’ tend to generate more extensive use than is collectively desirable.² Whereas each fisher enjoys the full benefit from the catch hauled on board, the costs associated with reduced future availability must be shared by many. Conversely, if some fishers exercise restraint, that will only leave more for the others to catch.

¹ OS Stokke “Fisheries and Whaling” in *Encyclopedia of Global Environmental Governance and Politics* (Cheltenham, Edward Elgar: 2015) 364–373.

² A Underdal “International Cooperation: Transforming ‘Needs’ into ‘Deeds’” (1987) 24 *Journal of Peace Research* 167–183.

So, unless also those others are prepared to join the programme, the sensible course of action would seem to be to take as much fish as possible. For hundreds or even thousands of years, breaking this tragedy-of-the-commons link between individual rationality and collective ruin is precisely what national institutions for fisheries management have sought to achieve.³

When a common property resource is shared by two or more States, additional problems arise; notably that international management institutions tend to be much weaker than those at domestic levels. Inside their maritime zones, coastal States can require all vessels – their own as well as foreign – to submit detailed fisher reports and adhere to whatever management rule they see fit, and may take any enforcement action deemed necessary for ensuring compliance. By contrast, their means for influencing foreign vessels operating beyond their maritime zones are far more limited, despite the regional management commissions that have been established, especially after World War II. Such international fisheries regimes provide indirect means for influencing foreign vessels, working through the regulatory competence of the flag State Members of the regime. The inability of these institutions to prevent the collapse of several major commercial fish stocks was one of the drivers of extended coastal State fisheries jurisdiction in the 1970s, codified in the LOS Convention.⁴ Although the emergence of exclusive economic zones (EEZs) served to reduce transboundary fish stocks in terms of numbers, such stocks remain commonplace in world fisheries. International cooperation therefore continues to be required for solving the common property problem.

Among the transboundary fish stocks, shared ones remain within the jurisdictional waters of two or more coastal States and pose a somewhat less malign cooperation problem than straddling stocks, i.e. those occurring both in high seas waters and in coastal State maritime zones.⁵ That is in part because management of shared stocks requires agreement among fewer States: the set of coastal States only. Effective management of straddling stocks, in contrast, typically involves more distant user States as well, frequently with the additional complication that some are non-Members of the relevant regional fisheries management organization or arrangement (RFMO/A). Under such circumstances, the near-monopoly on regulation and enforcement that flag States retain on the high seas considerably narrows the range of measures available for inducing compliance with national and international regulations.

³G Hardin “The Tragedy of the Commons” (1968) 162 *Science* 1243–1248.

⁴United Nations Convention on the Law of the Sea of 10 December 1982 (1833 UNTS 3). See OS Stokke “International Fisheries Politics: From Sustainability to Precaution” in EL Boasson, G Hønneland and S Andresen (eds.) *International Environmental Agreements: An Introduction* (Routledge, London: 2012) 97–116.

⁵On the malignancy of governance problems, see A Underdal “One Question, Two Answers” in A Underdal, EL Miles, S Andresen, J Wettestad, JB Skjærseth and EM Carlin (eds.) *Environmental Regime Effectiveness: Confronting Theory with Evidence* (MIT Press, Cambridge, MA: 2002) 3–45.

The problem faced in high seas fisheries management, therefore, is the generic common property problem, plus that of achieving international coordination with a potentially large number of participants, some of which are not Members of the relevant RFMO/A. Such narrow jurisdictional basis for regulation and enforcement is a major reason why the institutional complex for managing high seas fisheries has expanded considerably during the past two decades. That is the subject of the next section.

3. INSTITUTIONAL COMPLEXES, VALUE CHAINS AND HIGH SEAS FISHERIES

Alongside the rising density of institutional arrangements in global governance, scholars have deepened our understanding of how separate institutional arrangements interact, overlap, complement, or interfere with each other in various ways. Frequently, governance of specific issue-areas, such as fisheries, derives from the interplay within a complex of institutions. This section explains why the concept of ‘institutional complexes’ is particularly helpful when examining high seas fisheries management, and how the number of institutions capable of influencing such management has grown in recent years.

3.1. Complexity, Coherence and Institutional Effectiveness

Institutional interplay involves interactions among institutions that are distinct in terms of membership and decision-making, but deal with the same activity, or aspects of the same activity, usually in a non-hierarchical manner.⁶ Taking an aggregate view of institutional interplay can direct attention to the distinctive capacities of each institution and to the ways in which several may complement one another in the overall governance of an issue-area.⁷

In high seas fisheries management, the institution best placed to generate scientific knowledge about the effects of various management programmes may not be the one empowered to establish such programmes or enforce their regulations. For instance, as elaborated below, two distinctive institutional properties render the International Council for the Exploration of the Sea (ICES) particularly well suited to providing scientific advice on the management of high seas

⁶This formulation is compatible with Raustiala and Victor’s often-cited definition of a regime complex as a set of “partially overlapping and nonhierarchical institutions governing a particular issue-area”, but it does not preclude normative hierarchy (K Raustiala and DG Victor “The Regime Complex for Plant Genetic Resources” (2004) 58 *International Organization* 277–309, at 279).

⁷OS Stokke and OR Young “Integrating Earth Observation Systems and International Environmental Regimes” in M Onoda and OR Young (eds.) *Satellite Earth Observations and Their Impact on Society and Policy* (Springer, Singapore: 2017) 179–203.

fisheries in the North-East Atlantic. Those properties are its membership – comprising the national marine science organizations of regional coastal States – and certain procedures that insulate its operations from political pressure without diminishing its relevance for sustainable use and conservation. In contrast, the actual regulation of high seas fisheries in the region generally rests with narrower bodies whose membership typically reflects the pattern of historic fishing as well as the zonal attachment of the stocks in question.⁸ Typically, such regional bodies are reticent to admit new entrants, which may impinge on their ability to respond to changes in the availability of fish stocks on the high seas.⁹ Effective compliance control may require yet another institution, for instance because catches taken on the high seas are landed in States that are non-Members of the regulatory body. Each of the institutions involved in this institutional complex retains its operational autonomy, but interactions are managed in ways that enhance the combined contributions to overall fisheries governance.

The ‘effectiveness’ of any international regime is straightforwardly defined as the extent to which it contributes significantly to solving the problem it was set up to address.¹⁰ When an individual regime is examined as part of an institutional complex, this definition still applies, but it invites additional analysis of how the regime contributes to the operation of other regimes. An important part of that analysis involves clarifying which institutions in the larger complex have distinctive contributions to offer each of the governance tasks examined in this chapter: the cognitional, the regulatory and the behavioural.

‘Coherence’ here means that the activities conducted under each institution in the relevant governance complex align well.¹¹ A minimum requirement for coherence is that the institutions active in a given government task do not disrupt the positive contributions that other institutions make to each of the governance tasks. High-level coherence applies if the institutions clearly support each other’s effectiveness; and full coherence implies that they do so by reaping any synergies derivable from complementary institutional capabilities.

3.2. Value Chains and Profitability

Institutional complexity is increasingly relevant to high seas fisheries because States and other actors have sought to circumvent the narrow jurisdictional basis in international fisheries law for regulating high seas fisheries, and for enforcing

⁸ OS Stokke “Trade Measures and the Combat of IUU Fishing: Institutional Interplay and Effective Governance in the Northeast Atlantic” (2009) 33 *Marine Policy* 339–349.

⁹ See Chapter 6 of this volume (Molenaar).

¹⁰ A Underdal “The Concept of Regime ‘Effectiveness’” (1992) 27 *Cooperation and Conflict* 227–240.

¹¹ See also Chapter 5 of this volume (Harrison).

agreed regulations. They have done so by developing supplementary measures, targeting links in the seafood value chain that occur either prior or subsequent to the harvesting at sea. As this section shows, fisheries management institutions have important roles to play in the implementation of such measures, but so do several other institutions.

Some vessels operating on the high seas do so with licences granted by Members of RFMO/As; others have no such licences. Some licensed vessels report all their catches to national authorities, whereas others do so only for part of their catch or not at all. Quite a few vessels fly flags of convenience – implying that their State of registry has not assumed any commitment to constrain harvesting operations – and lacks the inclination as well as the capacity to exercise meaningful control over fishing and fishing-related activities by its vessels.¹² Among the things this diverse set of actors have in common, however, is their placement in a chain of economic transactions – at arm’s-length or otherwise – involving suppliers of various goods and services as well as recipients of catches.

The actual harvesting of fish is only one link in a chain of actions, each contributing to the value of the seafood product acquired by the final consumer, and each offering a potential target for influencing harvesting. Efforts to manage fisheries by targeting either the inputs to harvesting operations or the subsequent transshipment, landing, processing or distribution, serve to broaden the set of institutions that could potentially contribute to problem-solving.

Links prior to harvesting include those involving vessel or crew brokerage, liability insurance, fisheries gear and equipment, as well as bunkering.¹³ Companies providing such inputs to the harvesting operations are subject to the jurisdiction of the States where they are based, which makes them answerable to national legislation that may constrain commercial ties with actors found to be involved in undesirable activities on the high seas. Seeking to reduce the profitability of harvesting operations in the high seas area known as the Barents Sea Loophole, for instance, Norway enacted a legal ban on the supply of services to vessels that had engaged in high seas activities contrary to international rules or to the desired harvesting pattern.¹⁴ Private sanctions may also affect the availability of necessary inputs to unwanted harvesting activities. In the Loophole case, several private boycott actions were introduced prior to the implementation of the legal ban, aimed at removing at least the Norwegian flow of supply of provisions, fuels and services to vessels operating in the Loophole, as well as

¹²For a recent overview of fisheries-relevant varieties, see DD Miller and UR Sumaila “Flag Use Behavior and IUU Activity within the International Fishing Fleet: Refining Definitions and Identifying Areas of Concern” (2014) 44 *Marine Policy* 204–211. On means to deal with the flag of convenience problem in fisheries, see Chapter 15 of this volume (Klein).

¹³On the potential role of liability insurance in combating illegal fishing on the high seas, see Chapter 17 of this volume (Caddell, Leloudas and Soyer).

¹⁴Norway, Legal Order No. 802 of 8 June 1993, paras. 6–9, available at <https://lovdata.no/dokument/SF/forskrift/1993-08-06-802>.

punishing domestic companies that failed to adhere to such boycotts.¹⁵ Mobilizing actors with legal or market-based influence on the companies that provide services to high seas fishing vessels is one way to reduce the lucrateness of undesired high seas fisheries.

Similar comments apply to value-chain links subsequent to harvesting, including transshipment, port services provided in connection with the landing of fish, one or more rounds of wholesaling and processing, as well as retailing to the final consumer. A prominent example of national legislation that constrains transactions further down the distribution chain is the Lacey Act of the United States¹⁶ (US) – adopted more than a century ago – which makes it unlawful for any person subject to US jurisdiction to import, export, transport, sell, receive, acquire, possess or purchase fish caught in violation of national or international rules. Private initiatives that may impinge on the profitability of high seas harvesting include ecolabelling and certification schemes, aiming especially at large retailers with corporate-responsibility commitments or general brand-name concerns that place a premium on products deriving from sustainable fisheries.¹⁷

The remainder of this chapter elaborates on the recent broadening of the institutional complex relevant to the governance of high seas fisheries, highlighting the distinctive capacities each of them can bring to bear on the various tasks of governance, and examining the extent of coordination needed for obtaining coherence among them.

4. BROADENING OF FISHERIES MANAGEMENT COMPLEXES

An increasing number of institutions weigh heavily in efforts to govern high seas fisheries. RFMO/As remain central, but they have been joined by several other types of institutions, public as well as private. Among the public institutions outside the fisheries sector that merit attention are those regulating international trade or economic policies, as well as certain United Nations (UN) bodies that coordinate their Members' law enforcement in areas such as terrorism, drugs and other criminal activities. Private institutions gaining in significance include partnerships among business and environmental non-governmental organizations (NGOs) that make access to market-rewarded ecolabels dependent on commitment to management standards that build on, or even go beyond, those agreed among States.

¹⁵ OS Stokke "Managing Fisheries in the Barents Sea Loophole: Interplay with the UN Fish Stocks Agreement" (2001) 32 *Ocean Development and International Law* 241–262, at 245.

¹⁶ 16 U.S.C. §§3371–3378. On the prospective application and utility of the Lacey Act, see further Chapter 17 of this volume (Caddell, Leloudas and Soyer).

¹⁷ LH Auld, G Gulbrandsen and CL McDermott "Certification Schemes and the Impacts on Forests and Forestry" (2008) 33 *Annual Review of Environment and Resources* 187–211.

4.1. Fisheries Institutions

RFMO/As remain central among the institutions States use for dealing with high seas fisheries, but effectiveness increasingly requires conducive interplay with other international institutions. Around 16 RFMO/As regulate harvesting activities on the high seas today;¹⁸ in addition, numerous bilateral agreements frame the management of stocks shared by two States only. Their hub position in each of the regional complexes of institutions relevant to high seas fisheries derives from their core assignment: to integrate all three tasks of governance, regularly bringing together national agencies with knowledge-building capacity or regulatory competence over much of the harvesting capacity employed in the fishery in question – on the high seas as well as within coastal State maritime zones. These multilateral or bilateral regimes allow Members to coordinate their management measures towards own fishers, often providing transparency by means of reporting or reciprocal inspection procedures that serve to reduce fears of being exploited in the cooperative relationship. In dealing with high seas fisheries, those operating regional fisheries regimes have found it helpful to relate in various ways to a rising number of other types of institutions, both within and outside the fisheries branch of government.

Within the fisheries sector, the interplay of regional management bodies with global institutions centred on the UN has been important for developing and diffusing management principles and measures for high seas fisheries. Consider for instance how the Fish Stocks Agreement¹⁹ negotiated in the mid-1990s was instrumental in promoting and standardizing approaches such as the precautionary and the ecosystem-based approaches to fisheries management, building on the practices that had been pioneered by ICES and the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) respectively.²⁰ Similarly, those elaborating on, and strengthening the concept of, flag State responsibility over vessels engaged in high seas fisheries during the negotiations of the Compliance Agreement,²¹ subsequently brought into the Fish Stocks Agreement, could draw upon innovative provisions developed in tuna-management regimes in the South Pacific.²² Although not aspiring to result in new global instruments, the (Resumed) Fish Stocks Agreement Review Conferences – initiated in 2006 and resumed in 2010 and 2016 – similarly

¹⁸ See Chapter 6 of this volume (Molenaar).

¹⁹ 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 of 4 August 1995 (2167 UNTS 3).

²⁰ OS Stokke (ed.) *Governing High Seas Fisheries: The Interplay of Global and Regional Regimes* (Oxford University Press, Oxford: 2001).

²¹ Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas of 24 November 1993 (33 ILM 969).

²² B Vukas and D Vidas “Flags of Convenience and High Seas Fishing: The Emergence of a Legal Framework” in Stokke, note 20 at 53–90.

provide a global arena for presenting and debating regional cutting-edge practices in high seas management, covering the full range of governance tasks from knowledge-building to compliance inducement.²³ The distinctive edge that global institutions bring to high seas fisheries governance is the combination of universal membership and a mandate to promote the diffusion of best practices.

4.2. Other Sectors of Governance

Among the management principles diffused by means of such global processes, the ecosystem-based approach to fisheries management has promoted cross-issue interplay with regional environmental regimes. Governments are expected to manage stocks under a comprehensive plan that links the larger food webs of micro-organisms and complex predator-prey relationships to the broader environmental conditions in a given sea-area. The institutional implications of this approach are illustrated by the interplay between the North-East Atlantic Fisheries Commission (NEAFC) and Commission for the Protection of the Marine Environment of the North-East Atlantic (OSPAR Commission).²⁴ While initially reluctant to engage with the OSPAR Commission on matters related to fisheries, the NEAFC gradually warmed to the idea of taking into consideration wider environmental concerns, such as protection of cold-water coral reefs. Partly because both institutions base their decisions on scientific inputs from ICES, NEAFC adapted its 2009 closure of certain high seas areas for bottom trawling to the spatial boundaries of the OSPAR Commission's emerging network of marine protected areas (MPAs).²⁵ The distinctive edge that international environmental bodies can offer regarding problem-solving efforts derives from their expertise in identifying ecologically and biologically significant areas, the societal legitimacy associated with ecosystem-based management, and their partial regulatory competence over various marine activities other than fisheries.

Important as such greater interaction among fisheries and environmental regimes is, the most prominent cross-issue institutional interplay in high seas fisheries management concerns the 'chilling effect' expected from imposition of trade restrictions set forth in international trade agreements, notably those administered by the World Trade Organization (WTO).²⁶ These agreements generally prohibit discrimination in trade among the 164 WTO Members,

²³ See Report of the 2016 Resumed Fish Stocks Agreement Review Conference, doc. A/CONF.210/2016/5 of 1 August 2016.

²⁴ See also Chapter 5 of this volume (Harrison).

²⁵ I Kvalvik "Managing Institutional Overlap in the Protection of Marine Ecosystems on the High Seas. The Case of the North East Atlantic" (2012) 56 *Ocean & Coastal Management* 35–43, at 40.

²⁶ E.g. R Eckersley "The Big Chill: The WTO and Multilateral Environmental Agreements" (2004) 4 *Global Environmental Politics* 24–50. See also Chapter 14 of this volume (Churchill).

so compatibility depends on designing trade restrictions that fit the WTO ‘environmental window’, a set of exceptions defined first in Article XX of GATT 1947 and reproduced in subsequent agreements.²⁷ Subject to the *chapeau* requirement that trade restrictions “are not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination [...] or a disguised restriction on international trade”, such measures may be compatible with the global trade regime if they are “necessary to protect human, animal or plant life or health” (paragraph b) or “relating to the conservation of exhaustible natural resources if such measures are made effective in conjunction with restrictions on domestic production and consumption” (paragraph g). Subsequent decisions by dispute settlement bodies have clarified and developed the ramifications of these exceptions, which were accorded even higher prominence by the inclusion of the words “sustainable development” in the Preamble to the WTO’s constitutive instrument.²⁸

As elaborated below, the distinctive institutional capacity provided by trade regimes is the authority States have given them to define generally accepted criteria for restrictions that are compatible with trade rules, allowing those operating regional fisheries regimes to adapt their trade-related compliance measures to fit the specifications of this environmental window.

A more recent cross-issue interplay involves law enforcement activities in areas that differ from fisheries management but impinge on it, especially those set up to combat drugs, money laundering and terrorism. The overlaps between illegal fishing activities and other kinds of maritime crime, such as drug smuggling, trafficking in persons and piracy, have caught the attention of the UN Office on Drugs and Crime (UNODC), the International Organization for Migration, the International Labour Organization, as well as INTERPOL.²⁹ The distinctive institutional capacities these organizations bring to bear on high seas fisheries management revolve around their expertise in preventing and investigating transnational criminal action, as well as their roles in legal prosecution.

4.3. Private Governance

Yet another category of institutions interacting with regional fisheries regimes on matters pertaining to high seas fisheries are market-based instruments operated by private organizations, typically partnerships involving industry as well

²⁷ General Agreement on Tariff and Trade 1947, superseded by GATT 1994, available at www.wto.org. See e.g. OS Stokke “Trade Measures and Climate Compliance: Interplay between WTO and the Marrakesh Accords” (2004) 4 *International Environmental Agreements* 339–357.

²⁸ Marrakesh Agreement Establishing the World Trade Organization of 15 April 1994, available at www.wto.org. See TJ Schoenbaum “International Trade and Protection of the Environment: The Continuing Search for Reconciliation” (1997) 91 *American Journal of International Law* 268–313.

²⁹ *Transnational Organized Crime in the Fishing Industry* (UNODC, Vienna: 2011). See also Chapter 17 of this volume (Caddell, Leloudas and Soyer).

as civil society organizations.³⁰ Early examples of such instruments targeted single species whose stocks were threatened by depletion or were harvested using techniques with insufficient regard for bycatches of charismatic (and thus well-suited for fund-raising efforts) fauna such as dolphins or sea turtles.³¹ Today's leading certification scheme for capture fisheries – the Marine Stewardship Council (MSC) – has a much broader orientation. This private governance institution is open to applications from any industry groupings engaged in the fishery of a specific stock, applying one or several gear types, and prepared to set up a chain-of-custody system that separates production and distribution chains based on a certified fishery from those that are not.³² Obtaining and retaining the right to apply the MSC label on seafood products requires a stamp of approval from an accredited third-party certifying company, stating that the fishery in question is conducted and managed in accordance with three basic principles involving the health of the fish stock, the harvesting pressure and the management system.³³ By 2017, the MSC had certified some 300 fisheries in 34 States – mostly in the Northern Hemisphere but recently including China as well – taking as much as 9.5 million tonnes or more than 12 per cent of global seafood catch.³⁴ The distinctive institutional capacity that this type of institution brings to bear on the high seas fisheries problem is its growing ability to transform corporate environmental responsibility – whether idealistically or opportunistically derived – among leading retail chains in Western Europe and North America, into fishing-industry incentives that contribute actively to developing better harvesting practices.

4.4. An Aggregate Perspective

Examining options for high seas fisheries management from an aggregate perspective, therefore, brings out how the set of relevant institutions has broadened in recent years. To be sure, regional fisheries regimes have remained central elements in this complex due to their integrative role for all three governance tasks, bringing together the national agencies with knowledge-building and regulatory competence in all or most user States. However, other institutions also have distinctive capacities that can support complementary efforts, often in tandem with regional fisheries bodies. The broad participation that marks

³⁰ See also the broader discussion in Chapter 16 of this volume (Massarella).

³¹ On national (US) legislation defining requirements for labelling tuna as 'dolphin-safe', see Chapter 14 of this volume (Churchill).

³² LH Gulbrandsen "The Emergence and Effectiveness of the Marine Stewardship Council" (2009) 33 *Marine Policy* 654–660.

³³ LH Gulbrandsen and G Auld "Contested Accountability Logics in Evolving Nonstate Certification for Fisheries Sustainability" (2016) 16 *Global Environmental Politics* 42–60.

³⁴ See the MSC Annual Report 2016–2017 available at msc.org/global-impacts/msc-annual-report.

many UN-based fisheries conferences has been crucial for their ability to help in diffusing advanced principles or management measures from one regional regime to another. The distinctive capacity provided by trade regimes is their competence to define the general parameters for trade-law-compatible environmentally motivated trade restrictions. Broad-spectrum economic cooperation organizations such as the Organization for Economic Co-operation and Development (OECD) are well placed to identify means for information-sharing among Members concerning the operations of private companies that provide goods or services to those engaging in undesirable high seas fisheries. International law enforcement bodies set up to fight societal problems other than illegal, unreported or unregulated (IUU) fishing (such as drugs, trafficking, and money laundering) can provide intelligence data otherwise unavailable to fisheries management authorities. And partnerships among industrial, environmental and social interests such as the MSC are uniquely placed to incentivize fishing companies and their associations to play constructive roles whenever re-certification requires reduced harvesting pressure or specific improvements in the management system.

5. INTERPLAY MANAGEMENT, COHERENCE AND EFFECTIVE GOVERNANCE

This broadening complex of institutions engaged in high seas fisheries management, each bringing distinctive capacities to bear on one or more of the governance tasks, gives rise to questions of the coherence among them. Central here is whether institutional coherence requires interplay management: deliberate efforts by States or other actors to improve the interplay of the institutions involved.³⁵ Such interplay management may involve overarching principles of international law or explicit cross-institutional coordination of regulatory or programmatic activities, but often takes the less ambitious form of unilateral or mutual adaptation to the objectives or measures of other institutions.³⁶

In examining the extent of coherence among the many institutions now relevant to high seas fisheries management, and the degree of coordination needed for obtaining it, we may usefully consider each governance task separately; that is: provision of scientific advice, adoption of adequate regulations, and inducement of behavioural compliance with agreed-upon rules.

³⁵ OS Stokke *The Interplay of International Regimes: Putting Effectiveness Theory to Work*, FNI Report 10/2001 (The Fridtjof Nansen Institute, Lysaker: 2001). See also S Oberthür "Interplay Management: Enhancing Environmental Policy Integration among International Institutions" (2009) 9 *International Environmental Agreements* 371–391.

³⁶ OS Stokke and S Oberthür "Introduction: Institutional Interaction in Global Environmental Change" in S Oberthür and OS Stokke (eds.) *Managing Institutional Complexity: Regime Interplay and Global Environmental Change* (MIT Press, Cambridge, MA: 2011) 1–24, at 9–10.

5.1. Providing Scientific Advice

The cognitional problem facing States and other stakeholders in fisheries management is to build a shared, well-founded understanding of how best to balance use and conservation.³⁷ Solving this problem requires generating research-based advice that can differentiate convincingly among alternative management programmes in terms of the impacts on the state of targeted and related stocks. Three closely related aspects of that task are particularly relevant to high seas fisheries, each requiring distinctive institutional capacities: maintaining high credibility among decision-makers, ensuring adequate funding for the underlying research activities, and nurturing the perception that management decisions not compatible with scientific advice are likely to prove costly in the longer term. Of the governance tasks examined here, provision of scientific advice relies least on institutions other than the regional fisheries regimes. Yet here too, new institutions are becoming more important, notably private governance initiatives.

The central role of regional fisheries management regimes in cognitional problem-solving is not surprising, since their distinctive feature is the mandate to provide venues for coordination among the national fisheries bureaucracies of user States. These bureaucracies practically monopolize the aggregate willingness to pay for the costly fisheries survey operations needed for providing research-based advice on the state of a stock and how it is likely to be affected by specific harvesting-pressure patterns. Accordingly, participants in regional fisheries regimes tend to be dominant funding agencies for the marine research institutions that conduct those surveys and interpret the evidence in light of catch reports and other information used in developing the advice.

At first sight, the role of ICES in providing scientific advice to various national and international fisheries management authorities with respect to most North-East Atlantic fisheries might seem to contradict the claim that regional fisheries regimes have a practical monopoly on this particular management task. After all, this venerable international institution – founded back in 1902 – is clearly separate from each of the fisheries management bodies – whether organizations or arrangements – that recommend or make decisions on regional fisheries measures. But that observation only serves to illustrate that a ‘regime’ may be something different from an ‘organization’ or ‘arrangement’. An international regime is a set of “explicit rules, agreed upon by governments, that pertain to particular sets of issues in international relations [...] and] prescribe behavioural roles, constrain activity, and shape expectations”.³⁸ Accordingly,

³⁷ OS Stokke *Disaggregating International Regimes: A New Approach to Evaluation and Comparison* (MIT Press, Cambridge, MA: 2012).

³⁸ RO Keohane “Neoliberal Institutionalism: A Perspective on World Politics” in RO Keohane (ed.) *International Institutions and State Power. Essays in International Relations Theory* (Westview Press, Boulder, CO: 1989) 1–12, at 3–4.

ICES is better seen as a key component of several regional fisheries management regimes, each centred on an organization or an arrangement that has incorporated written advice from ICES into its decision-making procedure. Examples include the Joint Norwegian-Russian Fisheries Commission (JNRFC), NEAFC and the European Union (EU)'s Common Fisheries Policy.³⁹

As noted above, the institutional features that make ICES particularly well suited to solving the cognitional problem in North-East Atlantic fisheries management are its membership, comprising national fisheries research institutions in all coastal States, and a set of procedures aimed at balancing relevance to the governments that fund the research (often referred to as the 'saliency' of the advice), with insulation from political pressure that may be exercised by industry or governments.⁴⁰ On the relevance side, ICES receives annual requests for advice from the management bodies or their Members, specifying stocks in various regions and often identifying particular issues in need of scientific elucidation.⁴¹ In responding to such requests, ICES first calls upon a working group typically dominated by experts from the Members involved in the fisheries, and therefore with incentives for financing research activities. This working group compiles available data and conducts the necessary analyses. Subsequently, a review group or process involving experts from Members without any stakes in this particular fishery examines the analysis against the benchmark of 'best available science', and develops draft advice. Finally, the ICES Advisory Committee reviews that draft, modifies it as appropriate and adopts the final advice.⁴² Thus, the generation and provision of scientific advice takes place in a multilateral setting with third-party peer review, but the substantive basis is typically provided by researchers from the main harvesting States.

Adding to the relevance or saliency of the advice, the ICES has a long tradition of 'dialogue meetings' with stakeholders, initially focusing on the participants in the management bodies that receive the advice. Responding to input from those users, ICES has gradually adapted its form of advice, most notably with the shift during the 1980s to providing a range of options (with impact statements for each) for stocks not in imminent danger – and the subsequent specification of the precautionary approach to fisheries advice.⁴³ The high level of coherence that marks the institutional interplay between ICES and each of the regional fisheries management bodies is therefore supported by recurrent

³⁹ OS Stokke and C Coffey "Precaution, ICES and the Common Fisheries Policy: A Study of Regime Interplay" (2004) 28 *Marine Policy* 117–126.

⁴⁰ On this balance, see WC Clark, RB Mitchell and DW Cash "Evaluating the Influence of Global Environmental Assessments" in WC Clark, RB Mitchell, DW Cash and NM Dickson (eds.) *Global Environmental Assessments: Information and Influence* (MIT Press, Cambridge, MA: 2006) 1–28.

⁴¹ On ICES' advisory procedure, see www.ices.dk/sites/pub/Publication%20Reports/Advice/2016/2016/Introduction_to_advice_2016.pdf.

⁴² Stokke, note 37 at 93.

⁴³ P Gullestad "The Scope for Research in Practical Fishery Management" (1998) 37 *Fisheries Research* 251–258.

and formalized coordination, as with the regimes that have placed their advisory component within the same organizational boundaries as the decision-making component.⁴⁴

While these regional fisheries management bodies remain the natural targets for most initiatives aimed at improving the basis and provision of scientific advice on high seas fisheries, private governance institutions have now begun to carve out their own niche in this area.⁴⁵ They do so partly by incentivizing industries to contribute resources to fisheries research, and partly by enhancing the persuasiveness of the advice provided to regional fisheries management bodies.

As to financial resources, high seas areas pose special challenges to achieving funding for costly scientific research, because the returns in terms of better management are less certain than for stocks that occur wholly or mostly in coastal State maritime zones. This follows from the generic externality problem examined above; such challenges multiply if spatial remoteness raises the costs of research, as in the case of krill stocks in the Southern Ocean. Norwegian companies engaged in harvesting krill for production of omega-3-rich krill oil for high-end nutritional markets in North America and Europe, soon discovered that MSC certification would be required for access to the most lucrative distribution chains. Such certification was achieved in 2010 and 2015, respectively. The companies' interest in retaining this label can explain why they maintain an observer coverage twice as high as required by CCAMLR, which manages the fishery at the intergovernmental level.⁴⁶ Similarly, industry incentives aimed at impressing certifying bodies that apply assessment standards stricter than those agreed under the relevant regional fisheries regime, provide the most convincing explanation for the preparedness of one major company – Aker BioMarine – to make its vessels available free of charge for regular survey operations in the Southern Ocean by the Norwegian Institute for Marine Research.⁴⁷ The rise of private governance institutions in fisheries therefore nudges private industries to contribute more actively than before to the costs of scientific research.

Specific criteria in the MSC assessment procedure can also enhance the persuasiveness of scientific advice, depending primarily on the practices and the reputation of the scientific body itself. Among the advantages of conducting marine-science investigations under the framework of an international

⁴⁴Examples of the latter include the Northwest Atlantic Fisheries Organization (NAFO), CCAMLR and the International Commission on the Conservation of Atlantic Tunas (ICCAT).

⁴⁵On institutional niches, see H Aldrich *Organizations Evolving* (SAGE, London: 1999).

⁴⁶See G Hønneland "Fisheries Certification in the Southern Ocean", paper presented at the international workshop *Law and Governance: Emerging Issues of the Polar Regions*, 20–21 June 2017, Shanghai Jiao Tong University, Shanghai, China. On the certifications in question, see www.msc.org/newsroom/news/aker-biomarine-krill-fishery-gains-msc-certification for Aker BioMarine (2010) and www.msc.org/newsroom/news/antarctic-krill-fishery-achieves-msc-certification for Olympic (2015). Since then, Olympic has gone bankrupt.

⁴⁷Hønneland, note 46.

institution – whether CCAMLR in the Southern Ocean or ICES in the North-East Atlantic – are the greater credibility and legitimacy that derive from substantial involvement of experts from States other than those engaged in the specific fishery. The persuasiveness of scientific advice from ICES is mainly due to the reputation this organization has developed for high-quality, impartial input, but other institutions in the larger complex can also contribute. For instance, the MSC assessment team that evaluated a Russian trawl fishery in the Barents Sea gave a much higher score in 2012 than it had two years earlier, because in the meantime ICES had accepted a revised harvest control rule by the JNRFC as being compatible with the precautionary approach.⁴⁸ The fact that compatibility of regulatory measures with ICES advice weighs heavily in the assessment score of a private governance body whose ecolabel is increasingly seen as necessary for gaining access to the most lucrative distribution channels, undoubtedly adds to the persuasiveness of such scientific advice among political decision-makers.

In summary, the institutional complexes relevant to providing scientific inputs to high seas fisheries management are centred on their respective regional fisheries management regime, but private governance institutions like the MSC are becoming more important. That is so because these partnerships make access to lucrative ecolabels conditional on industry practices that support fisheries research and on management practices that are compatible with scientific advice. Relationships among the institutions involved are coherent, as they clearly support each other. In the dominant part of this complex – involving governmental research institutions and international decision-making bodies – such coherence is upheld by regular, formalized coordination. In contrast, the coherence that marks relationships among the public and the private parts of the complex has been obtained without explicit coordination. Instead, the main mechanism delivering coherence is that the private body in question – the MSC – has specified standards for the government-orchestrated management of the fishery in question that are even higher than those agreed among States.

5.2. Obtaining Adequate Regulation

The general regulatory problem for States facing a collective action situation is to establish a set of agreed behavioural rules that covers all major users and reflects the best available knowledge on how to achieve the social purpose of the regime.⁴⁹ In fisheries management, that purpose is to obtain the maximum

⁴⁸LH Gulbrandsen and G Hønneland “Fisheries Certification in Russia: The Emergence of Nonstate Authority in a Postcommunist Economy” (2014) 45 *Ocean Development & International Law* 341–359, at 350.

⁴⁹Stokke, note 37 at 18.

sustainable yield (MSY) from the resource, as qualified by the precautionary approach, aiming to safeguard its ability to replenish. As discussed above, a challenge specific to the high seas variant has been the inadequate participation in existing national or international regulatory arrangements – often referred to as the ‘outsider’ problem. Estimates (necessarily rough) indicate that up to 20 per cent of the vessels fishing on the high seas fly flags of non-Members to the relevant regional fisheries management body.⁵⁰

Related to this outsider problem is the regulatory lenience problem, deriving from the unwillingness of members of a regional fisheries regime to commit themselves to very strict rules if they have reason to fear that non-Members will not cooperate. Whereas regional fisheries regimes provide certain means for combating each of those two problems, interplay with other institutions is gaining in significance; even more so than for the provision of persuasive scientific advice.

An often-powerful option available under a regional management regime for dealing with the outsider problem is coordinated use of the coastal State quota card – typically, the trading of access to fishing in waters under coastal State jurisdiction in return for flag State promises to keep out of high seas areas. Consider, for instance, the role of the JNRFC in coordinating the playing of the quota card to dissuade newcomers from entering the North-East Arctic cod fishery in the Barents Sea Loophole; a high seas enclave surrounded by the maritime zones of Norway and Russia.⁵¹ Coordinated allocation of parts of the total allowable catch (TAC) to third parties is provided for in the annual bilateral protocols drawn up under the JNRFC. After bilateral negotiations with Norway in 1991–1992, Greenland and the then European Economic Community decided to limit their fishing activities in the Loophole and keep total harvests in the Barents Sea within the overall quotas allotted under reciprocal access agreements. The Faroe Islands similarly agreed in 1996 to prohibit landings of fish that had been taken without quotas in the Loophole. Finally, three years later, following a decline in the availability of cod in the Loophole, Iceland – the last remaining participant without any licence from any of the coastal States – agreed to cease operations in exchange for a small but permanent share of the stock to be taken inside the coastal States’ EEZs.⁵²

More recently, institutional interplay *among* distinctive regional fisheries regimes has come to the fore. Such cross-regional interplay has gained in significance partly because certain management tasks can be conducted more effectively if coordinated among adjacent regimes, and partly because certain stocks have changed their migratory pattern, reducing the spatial fit between institutional boundaries and those of the activity system they aim to govern.

⁵⁰ E DeSombre *Global Environmental Institutions* (Routledge, London: 2006) 92.

⁵¹ Stokke, note 15 at 244.

⁵² RR Churchill “The Barents Sea Loophole Agreement: A ‘Coastal State’ Solution to a Straddling Stock Problem” (1999) 14 *International Journal of Marine and Coastal Law* 467–483, at 472.

For several years, NEAFC has cooperated with the Northwest Atlantic Fisheries Organization (NAFO) in the management of North Atlantic redfish, a stock that shifted westward during the late 1990s and became available also in the NAFO area. The joint management option chosen was that NEAFC determines the TAC, setting aside a part that NAFO may allocate among its Members.⁵³ Those two Atlantic fisheries commission cooperate closely on many other high seas management issues of a regulatory nature, as illustrated by the establishment in 2014 of a joint NEAFC-NAFO advisory group on data management, aimed at harmonizing reporting procedures.⁵⁴

Global-level running orders serve to stimulate such cross-regional collaboration. The 2010 Resumed Fish Stocks Agreement Review Conference encouraged RFMOs to set up joint working groups on matters of mutual interest.⁵⁵ This call has been heeded not only by the spatially defined fisheries regimes in the North Atlantic but also by the five tuna RFMOs that coordinate some of their work through the so-called ‘Kobe Process’, including by establishing a joint global register of active tuna vessels, common criteria for performance review, and joint work on fish aggregating devices in tuna harvesting.⁵⁶ Such alignment of measures taken across several regimes requires active coordination, in the form of regular meetings among participants in decision-making bodies – as in the case of the Kobe Process – or through joint working groups.

The need for active coordination might be expected to be even greater when alignment is sought among measures taken under regimes in different issue-areas, as in the NEAFC-OSPAR Commission case. Environmental regimes are typically based on components of national bureaucracies that are distinct from those participating in fisheries regimes, and are therefore not exposed to the same harmonizing global processes as are participants in regional fisheries regimes (e.g. the Fish Stocks Agreement Review Conference), nor are they likely to benefit much from personal overlaps among the delegations attending the respective meetings.⁵⁷

However, one should not jump to the conclusion that conducive institutional interplay across sectors is best achieved through *explicit* coordination. As Kvalvik’s analysis⁵⁸ brings out, the alignment of NEAFC’s closed-area measures to the OSPAR Commission’s planned network of MPAs derived not from joint

⁵³ A Thomson “The Management of Redfish (*Sebastes Mentella*) in the North Atlantic: A Stock in Movement” in *Papers Presented at the Norway-FAO Expert Consultation on the Management of Shared Fish Stocks* (FAO Fisheries Report No. 695, Supplement: 2003).

⁵⁴ See UN doc. A/CONF.210/2016/1 of 1 March 2016, para. 175.

⁵⁵ *Ibid.*, para. 169.

⁵⁶ See e.g. www.tuna-org.org/; also Chapter 5 of this volume (Harrison).

⁵⁷ See, however, R Billé, L Chabason, P Drankier, EJ Molenaar and J Rochette “Regional Oceans Governance. Making Regional Seas Programmes, Regional Fishery Bodies and Large Marine Ecosystem Mechanisms Work Better Together” (*UNEP Regional Seas Reports and Studies* No. 197: 2016), 43.

⁵⁸ Kvalvik, note 25 at 39.

decision-making but from adaptation on the part of the international fisheries body to concerns as well as measures in progress under the environmental regime. Indeed, the initial reluctance to engage with the OSPAR Commission, on grounds that the interface between environmental and fisheries concerns are national rather than international issues, highlights the inclination among those operating institutions to safeguard their formal role and competence in decision-making.⁵⁹ From this point of view, exchange of information and cooperation on technical issues, combined with readiness to take into consideration the concerns and the management measures of the other institution, may provide a sufficient vehicle for coherence, and one less prone to trigger institutional jealousy. One-sided or mutual adaptation is probably more easily achieved than institutional coordination across issue-areas.

Similarly, the contributions made by the MSC certification procedure in supporting regulatory work under regional fisheries management do not seem to rely on coordination: rather, the private governance body places considerable emphasis on internal accountability; on assessment criteria that align well with the governmental management system surrounding the fishery seeking certification. Among the concerns expressed by several MSC assessment teams evaluating applicants in the Russian fisheries industry were inadequate implementation of the precautionary approach – required by the Fish Stocks Agreement – in the domestic legislation of the Russian Federation, as well as inadequate involvement of civil society organizations in regulatory work.⁶⁰ Faced with the risk of losing the certification, an umbrella organization covering nearly 40 per cent of the North-West Russian harvesting capacity participated in, and contributed to, seminars and conferences arranged by the national fisheries authorities, arguing for explicit inclusion of the precautionary approach in Russian legislation.⁶¹ Another applicant for MSC certification responded to the complaint regarding civil society participation by actively involving environmental NGOs in its meetings with governmental agencies.⁶² As in cognitional problem-solving, coherence among private and public governance efforts has been achieved in these cases not through overarching institutions or cross-institutional coordination, but by a private certification criterion that sets the standard higher than the governmentally defined level; and an industry that perceives it as being in its own interest to obtain certification.

A further illustration of how private governance schemes can mobilize politically influential segments of the fishing industry in support of more sustainable public fisheries management can be found with the North-East Atlantic mackerel fishery. This fishery lost its MSC certification in 2012, following the

⁵⁹Ibid., 39. See also the observations Harrison makes on the relationship between NEAFC and the OSPAR Commission in Chapter 5 of this volume.

⁶⁰Gulbrandsen and Hønneland, note 48 at 352.

⁶¹Ibid., 353.

⁶²Ibid., 355.

breakdown of coastal State cooperation on this stock two years before, which had yielded several unilateral quotas and total harvesting pressure well in excess of the ICES advice. In response, industry groups controlling more than 700 vessels from all regional user States except Iceland and the Faroe Islands, joined in the Mackerel Industry Northern Sustainability Alliance (MINSAs). In 2016, the companies succeeded in regaining MSC certification, on grounds that they had played an important and productive role in negotiations that had brought most of the user States back into a cooperative arrangement on mackerel.⁶³

To sum up, institutional interplay relevant to the outsider and the regulatory lenience problems facing high seas fisheries management centres on regional fisheries management regimes, but it also involves national fisheries agencies, global processes under the UN, spatially adjacent regional regimes, institutions with mandates in other issue-areas such as environmental protection, as well as private certification schemes. One important measure facilitated by a regional regime is the coordinated use of the quota card for inducing non-Members of such a regime to adhere to its regulations. Achieving coherence across institutional boundaries can be facilitated by explicit coordination of decision-making among the institutions involved, as illustrated in the NEAFC-NAFO case, although such coordination is generally easier to obtain among regimes that operate in the same issue-area and involve the same sectors of government. Less ambitious modes of obtaining such coherence include one-sided or mutual adaptation, which is especially relevant when one or both regimes have formal decision-making roles their operators would like to protect; as is often the case for institutional interplay across issue-areas. Similarly, achieving coherence of efforts under private governance schemes with governmental management regimes has proven fairly simple as regards coordination. The main mechanism is the unilateral requirement enshrined in the MSC principles: that a well-functioning public management regime must be in place *before* access can be granted to its market-rewarded ecolabel. Separately or jointly, these types of institutional interplay can reward participation in international cooperation, raise the costs of non-participation or sub-standard regulatory practices, and facilitate the diffusion of substantively ambitious conservation and management measures.

5.3. Inducing Compliance

Among the three high seas governance tasks examined here, enhancing behavioural compliance with international commitment is the one that has benefited

⁶³ See MSC, “Mackerel wins back its certified-sustainable status” 11 May 2016, www.msc.org/newsroom/news/mackerel-wins-back-its-certified-sustainable-status. On the North-East Atlantic mackerel dispute, see e.g. J Spijkers and WJ Boonstra “Environmental Change and Social Conflict: The Northeast Atlantic Mackerel Dispute” (2017) 17 *Regional Environmental Change* 1835–1851.

the most from deliberate management of institutional interplay. Processes of demonstration and learning, partly through global bodies like the Food and Agriculture Organization of the United Nations (FAO), have helped to diffuse innovative compliance measures and practices among regional management regimes. Such efforts have also received support from private certification schemes as well as initiatives primarily targeting criminal activities outside the fisheries sector, and from features of international trade regimes that provide fisheries regimes sufficient leeway to put in place environmentally motivated trade restrictions. Consolidating and further improving this compliance-oriented interplay will require somewhat deeper cross-institutional coordination than may seem necessary with respect to science and regulation.

Advances in compliance measures for curbing undesirable fishing on the high seas derive in part from conducive interplay among regional fisheries regimes and global fisheries institutions. The period following the 1992 UN Conference on Environment and Development (UNCED) was particularly dynamic.⁶⁴ Interplay management of the global-regional variety was provided by the UN, through the Agenda 21 programme of action adopted at UNCED, as well as initiatives under the FAO's Committee on Fisheries, triggering negotiation of the Fish Stocks Agreement and a string of FAO instruments, notably the Compliance Agreement, the Code of Conduct⁶⁵ and its IPOA-IUU,⁶⁶ and the PSM Agreement.⁶⁷ Major compliance-inducing advances include stricter flag State responsibilities, procedures allowing non-flag States to inspect and, in certain cases, detain fishing vessels on the high seas, and increasingly coordinated port State measures, often linked to satellite-based vessel monitoring systems (VMS). Cross-regional interplay management has also been important, as illustrated by the mutual endorsement of IUU vessel lists under NAFO and NEAFC; the latter body also endorses the lists maintained by CCAMLR and the South-East Atlantic Fisheries Organisation (SEAFO), implying restrictions on access to ports, transshipment and fishing licences in any Member.⁶⁸

The high degree of coherence that marks the interplay among these many fisheries institutions mobilized in a large-scale and long-term offensive to combat unsustainable pressures on high seas stocks has been achieved by intensive interplay management, as evident in a series of deliberately linked international conferences, global agreements, soft-law instruments and inter-agency working groups.

⁶⁴DA Balton "Strengthening the Law of the Sea: The New Agreement on Straddling Fish Stocks and Highly Migratory Fish Stocks" (1996) 27 *Ocean Development and International Law* 125–151.

⁶⁵Code of Conduct for Responsible Fisheries of 31 October 1995, available at www.fao.org/fishery/en.

⁶⁶International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing of 2 March 2001, available at www.fao.org/fishery/en.

⁶⁷Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing of 22 November 2009, available at www.fao.org/Legal.

⁶⁸See OS Stokke "Barents Sea Fisheries: the IUU Struggle" (2010) 1 *Arctic Review on Law and Politics* 207–224. See also Chapter 5 of this volume (Harrison).

Lower-order interplay management, involving adaptation rather than coordination, has proven sufficient for obtaining high coherence among trade and fisheries institutions with respect to compliance-oriented restrictions on access to ports and markets. Such coherence is a two-sided achievement. From a resource-management perspective, the adoption of trade-law compatible compliance measures implies successful avoidance of the ‘chilling effect’ of imposing international trade restrictions that conservationists have warned against. For the free trade community, coherence has made it possible to pursue legitimate conservation and management objectives, without jeopardizing the non-discrimination norm that has been enshrined in international trade regimes for more than seven decades. Those fisheries regimes have tailored their trade-restrictive compliance measures to the ‘environmental window’ of the global trade regime, accepting guidance from that regime’s *general* compatibility criteria while claiming competence to hammer out *specific* measures that can serve to raise the costs of non-compliance.

On the fisheries side of this relationship, interplay management began in the early 1990s with various tuna RFMOs implementing import bans on States whose vessels had been found to engage in unregulated fishing.⁶⁹ Key standards of WTO compatibility are whether States have exhausted less restrictive measures, have minimized and justified any remaining discrimination, and have developed criteria for avoiding trade restrictions that are transparent, non-discriminatory and not excessively intrusive on the jurisdictional autonomy of the target State.⁷⁰

Regional fisheries management regimes have proven to be conducive platforms for developing trade-restrictive compliance measures that meet those standards, even without significant cross-institutional coordination. First, concerning exhaustion of less trade-restrictive measures, the introduction of stringent requirements to document that landed fish derives from a licensed vessel, and other port State measures was agreed only after a string of less- or non-trade restrictive measures based on international ocean law had proven ineffective. Secondly, with a view to minimizing discrimination, advanced documentation schemes like the one implemented by NEAFC refrained from employing significantly trade-restrictive measures used by certain other RFMOs, including ‘positive lists’ whereby only listed vessels may land or transship their catches in Member ports or restrictions imposed on the flag State and not only the individual vessel. Cooperation with non-Members is yet another feature that enhances the WTO-compatibility of advanced fisheries compliance schemes: the NEAFC variant allows non-Members to apply for a status as ‘cooperating non-Contracting Party’ in order to avoid trade restrictions, provided they agree to play by the same rules as the Members do. The idea of non-Members

⁶⁹ See also Chapter 14 of this volume (Churchill).

⁷⁰ See e.g. Stokke, note 8.

‘cooperating’ with an RFMO’s documentation system emerged within CCAMLR and was aimed precisely at minimizing tension with WTO rules.⁷¹

Finally, regional fisheries regimes are generally better placed to avoid charges of opportunistic design or excessive intrusiveness than are States operating unilaterally, as the multilateral framework makes it more difficult to tailor provisions in ways that hit foreigners harder than domestic players. The coherence among trade- and fisheries regimes relevant to compliance has resulted not from cross-institutional coordination but rather from a long-standing adaptation of specific compliance measures to the environmental window of the global trade regime. Such adaptation was conducted by those operating the fisheries management regimes that pioneered these measures, subsequently emulated by others.

Increasing attention to the high seas fisheries problem has also prompted the engagement of international bodies tasked with crime prevention and criminal justice more generally. The OECD’s Committee for Fisheries set out in the early 2000s to identify new strategies for combating undesirable fishing on the high seas, focusing on value-chain interventions that might affect the cost-benefit ratio of non-adherence to international rules.⁷² A core idea with that initiative was to explore ways of expanding the enforcement network beyond actors with competence over fisheries or ports, taking cues from how States deal with other types of transnational crime such as tax evasion, financial fraud, or trafficking in narcotics, arms or human beings.⁷³ The subsequent engagement of UNODC in the fisheries sector has triggered several awareness-raising studies of overlaps between IUU fisheries operations and high-priority criminal activities, as well as a series of fish-crime conferences aimed at identifying ways of strengthening operational contacts among relevant national, intergovernmental and transnational institutions.⁷⁴ A clear message deriving from these studies and expert meetings is that achieving coherence in this new but expanding segment of the fisheries-compliance complex will require radically deeper inter-agency coordination of investigation and prosecution, nationally as well as internationally.⁷⁵ Among the most advanced instances of such coordination

⁷¹ DJ Agnew “The Illegal and Unregulated Fishery for Toothfish in the Southern Ocean, and the CCAMLR Catch Documentation Scheme” (2000) 24 *Marine Policy* 361–374, at 370.

⁷² C-C Schmidt “Economic Drivers of Illegal, Unreported and Unregulated (IUU) Fishing” (2005) 20 *International Journal of Marine and Coastal Law* 479–507, at 480.

⁷³ The OECD initiative fed into the High Seas Task Force, an international mission hosted by the OECD Round Table on Sustainable Development; see High Seas Task Force *Closing the net: Stopping Illegal Fishing on the High Seas* (available at www.oecd.org/sd-roundtable/aboutus/stoppingillegalfishingonthehighseas.htm). On enforcer networks, see OS Stokke “Actor Configurations and Compliance Tasks in International Environmental Governance” in N Kanie, S Andresen and PM Haas (eds.) *Improving Global Environmental Governance. Best Practices for Architecture and Agency* (Routledge, London: 2014) 83–107.

⁷⁴ *Stretching the Fishnet: Identifying Opportunities to Address Fisheries Crime* (Vienna, UNODC: 2017).

⁷⁵ Outcome of the UNODC/WWF Fisheries Crime Expert Group Meeting, 24–26 February 2016, doc. E/CN.15/2016/CRP.2 of 11 May 2016.

is the North Atlantic Fisheries Intelligence Group. By working closely with INTERPOL's Fisheries Crime Working Group, it enables customs, tax and fisheries-enforcement authorities in 11 European States and territories as well as Canada and the US to share data and intelligence on fisheries and related industries.⁷⁶ The mobilization for fisheries purposes of international collaborative structures for combating higher-priority crimes is still in a relatively early stage, and delivering on the objectives will require sustained coordination of activities under a broad set of institutions.

Private governance bodies have also carved out niches in the institutional complex dealing with high seas fisheries compliance, involving both industry associations and environmental NGOs. The private certification scheme examined above is highly relevant for compliance as well, as the management-system requirement for MSC certification may incentivize industries and States to promote or accept more intrusive or stringent enforcement measures. Among other compliance-relevant measures employed by NGOs are information-gathering, including VMS of fishing vessels on the high seas, as well as naming and praising/shaming of companies involved in the high seas fisheries value chain.⁷⁷

Satellite-based tracking of individual fishing vessels as part of systems for monitoring compliance is a well-established practice in many regional fisheries management regimes, and one that can be reinforced by complementary private action. Thus far, governmental VMS have required specially devised on-board transponders typically linked to flag State enforcement agencies. However, that has made them relevant only for vessels registered with a regime Member, which is an unfortunate limitation, given the frequency of regime outsiders participating in high seas fisheries operations. The Global Fishing Watch initiative by Google, a growing player in the provision of earth observation data, in partnership with environmental NGOs interested in countering unsustainable fishing operations, seeks to overcome that limitation by using the Automatic Identification System (AIS) that is mandatory under the International Maritime Organization (IMO)'s SOLAS 74.⁷⁸

The Global Fishing Watch initiative is coherent with the intergovernmental regime in supporting the same objective, but it cannot make a substantial difference without complementary action under global and regional institutions responsible for maritime safety or resource management.⁷⁹ That is because

⁷⁶ See respectively nafig.org/ and www.interpol.int/News-and-media/News/2017/N2017-123.

⁷⁷ Chapter 16 of this volume (Massarella) examines two other, more adversarial, types of measures: litigation, and various protest actions such as physical impeding of harvesting operations.

⁷⁸ International Convention for the Safety of Life at Sea of 1 November 1974 (1184 UNTS 277; with protocols and regularly amended). See W Ouellette and W Getinet "Remote Sensing for Marine Spatial Planning and Integrated Coastal Areas Management: Achievements, Challenges, Opportunities and Future Prospects" (2016) 4 *Remote Sensing Applications: Society and Environment* 138–157. For details of the Global Fishing Watch initiative, see globalfishingwatch.org.

⁷⁹ DJ McCauley et al. "Ending Hide and Seek at Sea" (2016) 351 *Science* 1148–1150.

SOLAS 74 requires AIS only for vessels larger than 300 gross tonnes and engaged in international voyages, which means that application to most fishing vessels is discretionary for the flag States; implying that such application is unlikely whenever high seas fishing vessels fly a ‘flag of convenience’. The adaptation of other institutions that would raise coherence is not necessarily forthcoming. A 2015 submission by two environmental NGOs encouraging a joint FAO/IMO working group on IUU fishing to advocate stricter AIS regulations met with only a lukewarm response.⁸⁰ Among the counter-arguments is the expectation that use of AIS for compliance purposes will encourage tampering or even disabling transponders, thereby undermining the safety-at-sea objectives that motivated the creation of AIS. Raising the coherence of this private initiative and intergovernmental efforts to strengthen high seas fisheries compliance will require involving potential users of these data with sufficiently high stakes in the outcome to mobilize political energy for creating an effective institutional environment.⁸¹

Private organizations have also engaged in naming and shaming of firms and vessels engaged in IUU fishing. This has been done most systematically by the Coalition of Legal Toothfish Operators (COLTO), which is currently composed of 41 companies active in the value chain of toothfish species taken largely in the Southern Ocean.⁸² Despite its routine use of controversial and undiplomatic language in web postings and televised films explicitly targeting named fishing companies and service providers, COLTO has for 15 years remained one of very few NGOs that receive a standing invitation to attend the annual CCAMLR meetings as observers.⁸³ Its attention-grabbing strategies have included a ‘Rogues Gallery’ of ‘poacher’ and ‘plunderer’ vessels and their associated company structures, as well as a ‘wanted campaign’ of posters in 18 languages offering up to USD 100,000 in reward for information leading to the capture or conviction of those responsible for illegal harvesting of Patagonian toothfish.⁸⁴

More recently, COLTO has added naming and *praising* to its portfolio of compliance measures, by sponsoring CCAMLR’s annual ‘tag-return lottery’ among reports on recaptured toothfish, encouraging adherence to CCAMLR’s

⁸⁰ Report of the Third Session of the Joint FAO/IMO Ad Hoc Working Group on Illegal, Unreported and Unregulated (IUU) Fishing and Related Matters (*FAO Fisheries and Aquaculture Report*, no. 1152 (2015)).

⁸¹ Stokke and Young, note 7 at 191.

⁸² On COLTO’s membership and mission, see www.colto.org. This organization has conducted further activities pioneered by the International Southern Oceans Longline Fisheries Information Clearing House (ISOFISH), a partnership of industries and environmental NGOs; see LD Fallon and LK Kriwoken “International Influence of an Australian Nongovernment Organization in the Protection of Patagonian Toothfish” (2004) 35 *Ocean Development & International Law* 221–266.

⁸³ The other two are the Antarctic and Southern Ocean Coalition (ASOC), an umbrella environmental NGO; and the Association of Responsible Krill harvesting companies (ARK). See www.ccamlr.org/en/organisation/cooperation-others.

⁸⁴ H Österblom and UR Sumaila “Toothfish Crises, Actor Diversity and the Emergence of Compliance Mechanisms in the Southern Ocean” (2011) 21 *Global Environmental Change* 972–982, at 977.

compulsory tagging and release programme for exploratory fisheries.⁸⁵ Although its *de facto* observer status under CCAMLR certainly adds to the prestige and saliency of this private organization, and thereby also to the coherence of this part of the institutional complex, it is clearly possible to compile and disseminate company-specific information relevant to shaming or praising without extensive coordination with the regional regime.

For all three governance tasks, therefore, the trend is towards broadening of the complex of institutions relevant in countering undesirable harvesting on the high seas. Such broadening is particularly notable on the compliance side of governance. Here we can note the increasing involvement of more actors other than the flag State, capable of influencing the costs or gains associated with non-adherence to international fisheries regulations.

6. CONCLUSIONS

The most promising options for improving high seas fisheries management are those that serve to enhance the coherence of problem-solving efforts under a steadily broader set of institutions, with each bringing distinctive capacities to bear on the advisory, regulatory or compliance tasks of governance.

Regional fisheries regimes have traditionally been the core arenas for pursuing such coherence, as their *raison d'être* is to bring together, on a regular basis, the fisheries bureaucracies of the major harvesting States in order to integrate those three tasks. Today, however, more and more institutions inside as well as outside the fisheries sector have roles to play, due to the interconnectedness of measures taken for fisheries purposes and those targeting other governance issues such as environmental protection, labour standards and international trade. Among the drivers of this interplay is the rising interest in fisheries compliance measures that target other links in the seafood value chain besides harvesting, such as vessel registration and insurance, crewing and bunkering, transshipment and various port State measures on landings and subsequent distribution that build on the jurisdiction of port States over any vessel on voluntary call. Several UN-based institutions have helped to sharpen and broaden the use of such measures, which have typically evolved within a small number of particularly advanced regional fisheries regimes.

Achieving coherence among this expanding range of management contributions requires interplay management: deliberate efforts among those operating the institutions to maintain or improve the synergies among them. Such interplay management sometimes takes the demanding form of sustained or recurrent

⁸⁵ See www.ccamlr.org/en/news/2017/ccamlr-tag-return-lottery-2017-%E2%80%93-winners-announced. By 2017, more than 200,000 toothfish had been tagged and released under this programme.

cross-regime coordination. That has been the case for the institutionalized provision of science-based advice to decision-making when advice is generated outside the fisheries bodies, and for the ongoing attempts to make better use of criminal justice capacities for investigation and prosecution of fisheries crime. However, the interplay management needed is usually far more modest. Diffusion of best practices among regional fisheries regimes is enhanced by overlaps in the delegations who represent governments in various regulatory bodies and in global soft-law processes. Achieving adaptation of fisheries measures to area-protection instruments under regional environmental regimes can be easier in the absence of joint decision-making, as each institution involved will typically be reluctant to renounce any of its regulatory competence. Similarly, in several cases coherence has been obtained among compliance-motivated trade restrictions and the non-discrimination rule in international trade regimes by adapting those measures to the general exceptions articulated in agreements under the WTO. And, finally, private governance institutions have achieved coherence with intergovernmental institutions largely through one-sided adaptation; typically by incorporating the intergovernmental standard among their own requirements for avoiding shaming, or obtaining either praise or access to a lucrative ecolabel.

This chapter has brought out the merits of examining international resource management at the aggregate level, highlighting the interplay among several institutions with distinctive capacities relevant to various governance tasks. The findings reported here indicate that reasonable levels of coherence can be achieved within such institutional complexes even without a clear-cut hierarchy among the institutions involved, and without ambitious means of cross-institutional coordination.

