

Assessing the Application of Innovative Incentive-Based Tools to Reform Highly Migratory Fisheries from Regional to Global Scale





338
16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1

360
116
91
80
70
60
50
40
30
20
10

396
111
100
90
80
70
60
50
40
30
20
10

360
116
91
80
70
60
50
40
30
20
10

360
116
91
80
70
60
50
40
30
20
10

40

43

インド
ネシ

イ

Assessing the Application of Innovative Incentive-Based Tools to Reform Highly Migratory Fisheries from Regional to Global Scale

Prepared by

Richard Barnes
Associate Dean for Research
Faculty of Business, Law and Politics
University of Hull

SEPTEMBER, 2018

ACKNOWLEDGEMENTS

This report was prepared for the World Wildlife Fund, Inc. (WWF-US) under a grant from the World Bank's Ocean Partnerships for Sustainable Fisheries and Biodiversity Conservation: Models for Innovation and Reform (OPP). The technical director is Vishwanie Maharaj, Oceans, WWF-US. Additional contributors include Brad Gentner (Gentner Associates), Renee Chung (Bonterra Partners), and Kelly Wachowicz (CatchInvest). Members of the Global Think Tank under OPP also provided review comments that strengthened the final document.

Table of Contents

ABBREVIATIONS.....	iv
1. Introduction: Scope and Aims of the Report.....	1
1.1 Core Concepts.....	2
2. Overview of Governance Position for ABNJ.....	5
2.1 Background to Resource Base.....	5
2.2 General Governance Background.....	6
2.3 United Nations Convention on the Law of the Sea.....	9
2.4 United Nations Fish Stocks Agreement.....	12
2.5 Port State Measures Agreement.....	20
2.6 The FAO Compliance Agreement.....	21
2.7 Other Governance Instruments.....	22
2.8 Soft Law Approaches.....	23
2.9 Future Developments: Implementation Agreement for ABNJ.....	29
2.10 Key Findings on the Legal Framework for the Governance of Fisheries.....	38
3. Innovative Incentive Based Tools.....	41
3.1 Rights-Based Instruments.....	41
3.2 Suasive Instruments.....	46
3.3 Financial instruments.....	49
3.4 Market-Based Measures.....	60
3.5 Key findings: incentives for better governance.....	68
4. Regional Governance Frameworks.....	71
4.1 General Issues in Respect of Regional Governance.....	71
4.2 East Pacific Ocean.....	78
4.3 South Asia and Bay of Bengal.....	83
4.4 West and Central Atlantic and Caribbean.....	88
4.5 West and Central Pacific.....	93
4.6 Key Findings.....	98
5. Preliminary Recommendations.....	101
6. Bibliography.....	105

ABBREVIATIONS

ABM	area-based management	IATTC	Inter-American Tropical Tuna Commission
ABNJ	Areas Beyond National Jurisdiction	ICCAT	International Commission for the Conservation of Atlantic Tunas
ABNJ IA	ABNJ implementation agreement (also referred to as ILBI)	IFQ	individual fishing quota
ADSAF	Association of Deep Sea Going Artisanal Fishermen	IGO	intergovernmental organization
ASEAN	Association of Southeast Asian Nations	ILBI	international legally binding instrument on ABNJ
BET	bigeye tuna	IMO	International Maritime Organization
BFT	bluefin tuna	IOTC	Indian Ocean Tuna Commission
BPA	Benthic Protected Areas	IPOA	International Plan of Action
BMSY	biomass that enables a fish stock to deliver the maximum sustainable yield	IPOA-CAP	International Plan of Action for the Management of Fishing Capacity
CCAMLR	Commission for the Conservation of Antarctic Marine Living Resources	ISA	International Seabed Authority
CCSBT	Commission for the Conservation of Southern Bluefin Tuna	ISSF	International Seafood Sustainability Foundation
CDQ	community development quota	ISO	International Organization for Standardization
CDS	catch documentation schemes	ITLOS	International Tribunal for the Law of the Sea
CITES	Convention on International Trade in Endangered Species	ITQ	individual transferable quota
CCM	Cooperating non-members	IUU (fishing)	illegal, unreported, and unregulated (fishing)
CMM	Conservation and Management Measure	MCS	monitoring, control, and surveillance
CNCP	Cooperating non-contracting parties	MIGA	Multilateral Investment Guarantee Agency
DWFN	distant water fishing nation	MOU	Memorandum of Understanding
EEZ	exclusive economic zone	MPA	marine protected area
EIA	environmental impact assessment	MSC	Marine Stewardship Council
EU	European Union	MSY	maximum sustainable yield
FAD	fish aggregating (or aggregation) device	NAFO	Northwest Atlantic Fisheries Organization
FAO	(United Nations) Food and Agricultural Organization	NGO	non-governmental organization
FFA	Forum Fisheries Agency	NEAFC	North East Atlantic Fisheries Commission
FMSY	maximum rate of fishing mortality	NPFC	North Pacific Fisheries Commission
GATT	General Agreement on Tariffs Trade	OECD	Organization for Economic Cooperation and Development
GEFTC	Global Fisheries Enforcement Training Workshop	OPP	Ocean Partnerships for Sustainable Fisheries and Biodiversity Conservation Program: Models for Innovation and Reform
GFCM	General Fisheries Commission for the Mediterranean	OSPAR	Oslo Paris Commission for the Protection of the Marine Environment of the North-East Atlantic
GloTT	Global Think Tank		
GVC	global value chain		
HCR	harvest control rules		

PNA	Parties to the Nauru Agreement
PPP	public-private partnership
PrepCom	Preparatory Committee on the elements of a draft text of an international, legally binding instrument on the conservation and sustainable use of marine biodiversity of areas beyond national jurisdiction
PRIOTC02	2nd Performance Review of the IOTC
RBM	rights-based management
RFMO(s)	regional fisheries management organization(s)
SDG	Sustainable Development Goals
SEA	strategic environmental assessment
SEAFO	South East Atlantic Fisheries Organization
SIFFS	South Indian Federation of Fishermen Societies
SPAMI	Specially protected Areas of Mediterranean Importance
SPRFMO	South Pacific Regional Fisheries Management Organization
TAC	total allowable catch
TBT Agreement	Technical Barriers to Trade Agreement
TURFs	territorial use rights for fisheries
UN	United Nations
UNCITRAL	United Nations Commission on International Trade Law
UNCLOS	United Nations Convention on the Law of the Sea (1982)
UNGA	United Nations General Assembly
UNFSA	United Nations Fish Stocks Agreement (1995)
USAID	United States Agency for International Development
VDS	Vessel Day Scheme
VME	vulnerable marine ecosystems
VMS	vessel monitoring system
WCPFC	Western and Central Pacific Fisheries Commission
WECAFC	Western and Central Atlantic Fisheries Commission
WTO	World Trade Organization
WWF	World Wildlife Fund



1. Introduction: Scope and Aims of the Report

This report provides an assessment of the past performance and future outlook of innovative, incentive-based tools to reform highly migratory and transboundary fisheries at the regional and global scales. Insights at the project level/regional scale will be captured through a companion report, provided as one input in evaluating global insights and developing a theory/theories of change. The specific tasks below were coordinated with Brad Gentner (working on issues at a project level/regional scale) and Vishwanie Maharaj (WWF OPP lead).

The review seeks to identify legal, financial, and market-related barriers and opportunities for the adoption of incentive-based tools, and the contextual factors impacting on their operation. This report will canvas the relevant legal instruments: United Nations Convention on the Law of the Sea 1982, the United Nations Fish Stocks Agreement 1995, and constitutive instruments of relevant regional fisheries management organizations (RFMOs). More specifically, the review will evaluate the effectiveness of such regimes in terms of outputs, outcomes, and impacts. The “output” of a regulatory arrangement refers to the state of compliance with legal obligations, in this context meaning the adoption and enforcement of international/regional commitments in domestic law. “Outcome” refers to the capacity of legal rules or regimes to influence the behavior of the relevant actors (States, RFMOs, fishers, and civil society). “Impact” means the capacity of a regulatory tool or suite of regulatory measures to reverse or alleviate a problem (e.g., overfishing). These elements of effectiveness are not discrete since each may influence the other.

This research is based upon a literature review and analysis, combined with an evaluation of opportunities for use of innovative governance tools to be introduced within the current international legal framework for fisheries, particularly in regional project areas.

The literature review comprises the following:

- A review of reports on the role of large institutions that have global or multi-regional influence on the political economy of highly migratory and transboundary fisheries
- A review of the contemporary literature on the governance framework for areas beyond national jurisdiction
- A review of the general legal literature on incentive-based tools, with specific focus on ABNJ
- A review of literature specifically concerned with the marine governance frameworks in the four project regions (East Pacific Ocean, South Asia and Bay of Bengal, West and Central Atlantic and Caribbean, and Western and Central Pacific)

This review categorizes incentive-based tools by type: (property) rights-based instruments, suasive instruments, financial instruments, and market-based instruments. The review considers combinations of instruments, since most fisheries are subject to a complex array of regulatory tools and it is difficult to evaluate discrete instruments in isolation. The analysis focuses on the overall governance framework, with insights drawn from related disciplines (international relations and economics) and input from other experts. It assesses the contribution of leading institutions in the governance of fisheries, including regional

fisheries management organizations (RFMOs), sub-regional arrangements, and industry/third sector bodies such as the International Seafood Sustainability Foundation (ISSF).

1.1 Core Concepts

“Incentive-Based Approaches” is a term used to describe management systems that are designed to change or motivate change in behavior. This is typically done through changing or introducing economic incentives for individual behavior, while allowing the actors to decide how to respond to those incentives.¹ In fisheries, such measures range from rights-based management systems to private or voluntary initiatives, such as certification schemes.² Some incentive-based measures are contingent on regulatory intervention to establish and control the use of incentive-based rights, such as individual transferable quotas (ITQ). To this extent, the limits and potential for any incentive-based measure will in part be determined by limits and opportunities within the host legal system, whether domestic or international law (including measures within RFMOs).³ The introduction of such incentive-based measures may require regulatory reform at domestic or international levels in order for measures to operate in an optimal way. However, some incentive-based measures can be introduced without regulatory intervention, such as product labeling, voluntary commitments by actors in the value chain, and customary/informal

tenure regimes. As such, they may influence behaviors and stimulate changed practices regardless of how a legal system operates. In practice, though, many such measures do not operate in isolation from legal rules. Thus, some product labeling is based upon measurable compliance with specific regulatory good standards. Also, market-based measures may still have to comply with trade rules. As Smith et al. note, such systems have tended to emerge in countries with strong governance institutions. This indicates a need for some degree of institutional capacity and regulatory oversight.⁴ As such, it is important to consider the interaction between legal, market, and financial institutions when considering the possibilities for and pathways towards incentive-based measures.

While incentives provide opportunities to improve governance, the following conditions will pose challenges for the effective performance of incentive-based systems.

1. Poor information. Gaps or flaws in information undermine resource management. Critical information deficits in fisheries can include a lack of information about the precise state of a resource; the identity and operational capacity, motivation, and relationship of actors in the supply chain (fishers, processors, traders, marketers, distributors, and consumers);⁵ knowledge of financial restrictions and opportunities; and more complex consequences flowing from poor information flowing from first-order informational deficits. There may be legal

-
- 1 Jack, B.K., Kousky, C. and Sims, K.R.E. (2008), “Designing payments for ecosystem services: Lessons from previous experience with incentive-based mechanisms,” *Proceedings of the National Academy of Sciences of the United States of America*, 105(28), 9465–9470, 9465.
 - 2 Beddington, J.R., Agnew, D.J. and Clark, C.W. (2007), “Current problems in the management of marine fisheries,” *Science*, 316(5832): 1713–1716; Grafton, R., Arnason, R., Bjørndal, T., Campbell, D., Campbell, H. F., Clark, C. W., and Weninger, Q. (2006), “Incentive-based approaches to sustainable fisheries,” *Canadian Journal of Fisheries and Aquatic Sciences*, 63(3): 699–710.
 - 3 The term “incentive” may have different meanings in different legal contexts. For example, in fisheries, this usually means a range of market or (property) rights-based measures. In international law, “incentives” may refer to a range of legal requirements or to sanctions/incentives of a political or fiscal nature, such as trade embargoes, or development support from international organizations.
 - 4 Smith, M.D., Roheim, C.A., Crowder, L.B., Halpern, B.S., Turnipseed, M., Anderson, J.L., and Skoe, K. A. (2010), “Economics. Sustainability and global seafood,” *Science*, 327(5967): 784–786.
 - 5 Mardle, S., and Pascoe, S. (2002), “Modelling the effects of trade-offs between long and short-term objectives in fisheries management,” *Journal of Environmental Management*, 65(1): 49–62.

requirements to develop and share information, but these are sometimes framed too widely or weakly. This is complicated by the need for quite sophisticated levels of information to govern highly migratory fish stocks. Stocks in the wild cannot be considered apart from the wider state of the marine environment or dependent species. Obligations to consider such relationships arise under international law. Often, decisions must be made in conditions of uncertainty,⁶ and so must be structured to account for gaps or contested knowledge. Again there are principles for this under international law, the precautionary principle/approach. In general, poor information and system complexity can impede our ability to secure first best solutions.

2. Information hold and flows. There are several problems arising from the asymmetric use of information that has some value, either inherently or instrumentally. Information may privilege the holder by enabling action, thereby creating asymmetry between different actors. It can be used to leverage the actor's position, and distort the operation of markets or decision-making. Information may arise organically and not be available to the necessary agencies. For example, data on actual catch level may not be available to management bodies. This may generate incentive problems, with actors operating under different conditions and with different objectives. Arguably, regulation can help address some of these problems, through rules on the gathering of good data quality and quantity and rules on the sharing and dissemination of information.

3. Incentive gaps. This is the embodiment of the principal agent problem, where the principal

requests or relies upon agents to conduct certain tasks. This occurs in multiple dimensions, including between States and RFMOs, States and certification providers, vessel owners/quotas holders and fishers. The absence of information means the principal may not be aware of and be able to control the agent. Poor information may create an incentive gap; so too may poor compliance or conflicting interests. The aim is to close the incentive gap—to ensure proper capacity of the actors and to align the goals and outcomes of the principal and agent. This is critical in the context of sustainability, since some

Four Core Concepts:

1. POOR INFORMATION

2. INFORMATION HOLD AND FLOWS

3. INCENTIVE GAPS

4. GOVERNANCE GAPS

incentive-based approaches may encourage the use of a resource in a non-sustainable way.⁷ Principal agent analysis typically assumes the States is the owner and fishers are the users.⁸ It should be noted that limits on State ownership rights limit the extent of any of the rights of the user. Bailey et al. add a further complication with international fisheries, noting the double principal⁹ issue, where the State and RFMO are principals and the State is also an agent.¹⁰ This is a critical feature of international fisheries governance, more generally because the position

6 Ludwig D., Hilborm ,R. and Walters, C. (1993), "Uncertainty, resource exploitation and conservation lessons," *Science*, 316: 36.

7 Clarke C.W. (1973), "Profit maximization and the extinction of animal species," *Journal of Political Economy*, 81:950-961.

8 Clarke, F. H. & Munro, G. R. (1987), "Coastal states, distant water fishing nations and extended jurisdiction: A principal-agent analysis," *Natural Resource Modeling*, 2(1): 81-107.

9 Ibid.

10 Bailey, M. et al., (2016), "Closing the Incentive Gap: The Role of Public and Private Actors in Governing Indonesia's Tuna Fisheries," *Journal of Environmental Policy and Planning*, 18:141-160.

of States as regulator and regulatee means that self-interest and lack of external compliance may undermine first best regulatory solutions. Recent research indicates that a failure to identify and define the various actors in a principal-agent relationship further undermines our ability to close incentive gaps.¹¹

4. Governance gaps. Governance gaps not only impact domestic fisheries management, but also are barriers for reform of tuna fisheries. These gaps can include lack of jurisdiction, lack of regulatory capacity, poorly drafted rules, inappropriate combinations of rules, and lack of monitoring or enforcement rules. They may impede incentive-based approaches in a number of ways. In particular, weak governance (or its absence altogether) may perpetuate some of the problems of a common-pool resource.

It may prevent certain types of incentives from operating. For example, the absence of governance institutions may prevent the development of rights-based management (RBM). Poor regulation, and in particular the lack or weakness of property rights, may deter or undermine investment because investors cannot be certain that they will capture returns on their investment.¹² These issues are developed in more detail below.

-
- 11 Differing objectives between RFMOs and national governments, along with different legal standing with regard to control over resources, complicate tuna fisheries governance. While member states are mandated to try to cooperate within the RFMO framework, the cases of Benoa and Bitung show that the RFMO as principal can find it challenging to incentivize compliance from a member state such as Indonesia. This leads to different first best and second best solutions, depending on the nature of the principal and the agents. Further complicating the matter of "Indonesia" as an agent is the fact that Indonesia is decentralized with different government Ministries at the federal level, such as MMAF and KPDT, tackling different components of tuna management, and differing amounts of local capacities within provincial and municipal governments to implement measures on the ground. As one central government respondent argued, "So many islands, so many capacity challenges." This, combined with differing levels of jurisdiction, creates non-intersecting nodes of tuna governance within Indonesia that are problematic for a transboundary stock like tuna in a domestic context, let alone across the Pacific and Indian Ocean. Bailey et al., *ibid.*, 153.
- 12 Libecap, G. (2007), "Assigning Property Rights in the Common Pool. Implications of the Prevalence of First Possession Rules for ITQs in Fisheries," *Marine Resource Economics*, 22:407-423.

2. Overview of Governance Position for ABNJ

2.1 Background to Resource Base

Tuna as a global industry. The tuna industry is global, with stocks, processing facilities, and markets for products distributed on every continent.¹³ Because the tuna industry is highly integrated, changes in supply levels are readily transmitted to market prices.¹⁴ The tuna market is comprised of two main products: canned tuna and fresh/frozen that includes the high end sashimi/sushi.¹⁵ The former is mainly derived from light-meat species (skipjack, albacore, and yellowfin). The latter is derived from a number of tuna species that includes albacore, bluefin, yellowfin, and bigeye. The canned industry is entirely supplied by wild-capture species, whereas tuna ranching supplies approximately 20 percent of bluefin globally.¹⁶ Most tuna catch is destined for the canning industry. Canned fish is distributed worldwide, although the largest markets are the European Union, the United States, Egypt, Australia, and Japan. These markets have stagnated over the last decade, and there is growth in Near East and Latin American markets. Japan still dominates the market for sashimi and sushi, with around 90 percent of the trade for fresh and frozen bluefin. There are significant domestic markets for bluefin in Spain and Italy.

Tuna processing. The tuna processing sector is highly concentrated, particularly in the canned tuna market. Thailand is the largest exporter of

canned products. Other major exporters are Ecuador, Spain, Indonesia, and the Philippines, with all showing growth in the quantity of exports since 2000. Five large firms control nearly 50 percent of the market. This is due to the high costs associated with tuna processing and the capital-intensive nature of tuna fishing. The result is a predominance of a small number of high-volume production units able to generate returns to scale. In developed countries, this effect can be described as oligopolistic. In such markets, the strong market position of fish processors may be difficult to challenge through regulatory intervention and resilient to market forces. It should be noted that many processors are located in jurisdictions different from the States of origin of tuna catches.

Tuna retail. Increased consolidation in retail sectors has resulted in supermarkets dominating the sale of canned tuna in developed markets. Tuna is promoted as an affordable and convenient food. Because of the market strength of the retail sector, prices for canned tuna have remained low. The strong position of retail chains means they can exert pressure and control up the supply chain, with producers seeking to move to lower-value products such as skipjack to maintain profit margins. The strength of private actors down the supply chain means that States face increasing challenges in regulating the industry. Again, consumer markets and retailers are usually located in States different from processors and

13 Guillotreau, P., Squires, D., Sun, J. and Compean, G. (2016), "Local Regional and Global Markets: what drives tuna fisheries?" *Reviews in Fish Biology and Fisheries*, 27(4): 909-929.

14 Ibid.

15 See Globefish analysis at <http://www.fao.org/in-action/globefish/fishery-information/resource-detail/en/c/880744>.

16 <http://www.fao.org/in-action/globefish/fishery-information/resource-detail/en/c/880744>.

catch suppliers. In these situations, market-based measures can provide an alternative means of influencing behavior across different jurisdictions where recourse to regulatory intervention is resisted or impractical due to governance gaps.

Drive for sustainable tuna products.

In general, growing public concern for the sustainability of tunas has presented challenges to the industry in sustaining or developing the market for their products. In a fragmented multi-jurisdictional, transnational food system like tuna, there is also concern that States alone cannot govern all elements of the industry from catch-to-consumer effectively and ensure sustainable fisheries. Some States can control catch, some processing, and some market entry. However, few States can exert control over the entire supply chain. This is because different States have legal responsibility for different stages of the production process, and different actors (states, private processors, supermarkets, industry, and third sector organizations) have different influences on the food supply chain. Understanding the precise roles and impacts of different actors on ensuring sustainable fisheries and strong global values chains is an area that requires further research in light of rapidly changing resource conditions, markets, and regulatory change. This points to the importance of identifying “choke points” in the value chain where interventions (legal, financial, or market-related) can be leveraged to maximum effect.¹⁷ Sustainable catch and production rules in major EU and U.S. markets for tuna and other marine products have had a significant impact on the conduct of fishing, landing, and/or processing at earlier stages in the supply chain in other countries that depend upon access to EU and U.S. markets. The literature also suggests the importance of “resource territories,” where the

State is able to leverage its exclusive authority over territory (or a constructed counterpart of composite authorities and actors). However, recent research indicates that States remain central to securing sustainable fisheries and driving global value chains (GVCs), and that this requires strong partnerships and alignment with industry groups and NGOs.¹⁸

Influence on governance mechanisms. What are the governance requirements that need to be guaranteed to ensure these market-related issues work well? This includes a strong international, regional and national legal framework; security (of title but also of commercial confidence); transparency; flows of information; value capture (rights need to be valued and valuable); equity; and fairness, or something else to secure buy-in. Access to tuna resources is fundamentally a question of wealth allocation. This requires legitimate rules for determining and allocating fishing entitlements (i.e., rules that are adopted according to fair procedures or socially acceptable formulae for distributing wealth).¹⁹ It also requires dispute settlement mechanisms to ensure that such rules and procedures are protected. Incentives must be sensitive to these wider pressures and demands: activities outside jurisdiction; environmental change beyond the control of the relevant actors (e.g., climate change), but to which management must adapt; and activities of other sectors and agencies, such as shipping.

2.2 General Governance Background

Areas beyond national jurisdiction (ABNJ) is a term that has emerged to describe the regime for areas of the ocean that are not subject to the

17 See for example, Bonini, S., Saran, N. and Stein L (2011), *Design for Sustainable Fisheries—Modeling Fisheries Economics*.

18 Adolf, S., et al. (2016), “Reinserting state agency in global value chains: The case of MSC certified skipjack tuna,” *Fisheries Research*, 182:79-87.

19 See further Barnes, R. (2009), *Property Rights and Natural Resources* (Hart Publishing), 76-7.

exclusive jurisdiction of any State. It includes both the high seas and the seabed beyond the outer limits of the continental shelf. The regulation of fisheries in ABNJ must correspond to two things: first, the nature of the resource base and its location, and second, the wider international governance framework.²⁰ The world's oceans and many of the fisheries resources therein are common-pool natural resources. This means that it is difficult or costly to exclude access to the resource, and the benefits of using any part of the resource subtract from the benefits available to others.²¹ Since fisheries within ABNJ are not exclusive to any State, States have to cooperate to regulate such resources. The physical nature of the oceans and marine living resources does not entail a certain form of regulation, but it does render them more susceptible to certain types of regulatory instruments. For example, traditionally, the high seas and their fish stocks have generally been regarded as "a commons," meaning that they are not exclusive to any State. This is reflected in the fundamental legal principle of "freedom of the high seas" and the resort to open-access regulation. The legal regime of the freedom of the high seas may provide impediments to the introduction of incentive-based management tools because it permits fishing under conditions of an open access resource, in which the fishing of one person reduces the catch available to others, so incentives to sustainability may be weakened.

This high seas governance framework has contributed to the over-exploitation of many fish stocks, as well as the use of fishing techniques that may have adverse impacts on the marine environment. The negative impact of this

governance principle has been exacerbated by two factors. First, the emergence of industrial fishing in the twentieth century has allowed fish to be caught anywhere and on massive scales.²² Second, the expansion of exclusive coastal State jurisdiction through the establishment of exclusive economic zones (EEZ) has pushed excess fishing capacity (particularly by foreign distant water

The legal regime of the freedom of the high seas may provide impediments to the introduction of incentive based management tools because it permits fishing under conditions of a common pool resource, where the fishing of one person reduces the catch available to others.

fishing vessels) onto the high seas, resulting in intensified fishing in areas that were under-regulated.²³ As noted below, this has been possible because of the absence of clear and effective rules that require restrictions on overfishing (including through excess fishing capacity) on the high seas. The situation has been further exacerbated by a well-organized fishing infrastructure that takes advantage of the unregulated nature of many fisheries.²⁴ The fact that fishing for highly migratory species occurs both within and beyond areas of national jurisdiction demands a cooperative and compatible regulatory framework that reflects the bifurcation of basic regulatory control (i.e., one area that is subject to exclusive governance and

20 Barnes R. and Massarella, C. (2016), "High seas fisheries" in Morgera, E. and Kulovesi, K. (eds.), *Research Handbook on International Law and Natural Resources* (Edward Elgar), 369-389.

21 Ostrom, E., Gardner, R. and Walker, J. (1994), *Rules, Games and Common-Pool Resources* (University of Michigan Press), 6.

22 Berkes, F. et al., (2006), "Globalization, Roving Bandits, and Marine Resources," *Science*, 311:1557.

23 Barnes, R. (2006), "The Law of the Sea Convention: An effective framework for domestic fisheries regulation," Freestone, D., Barnes, R. and Ong, D. (eds.), *The Law of the Sea: Progress and Prospects* (Oxford University Press) 233-260.

24 Gianni, M. and Simpson, W. (2005), *The Changing Nature of High Seas Fishing: how flags of convenience provide cover for illegal, unreported and unregulated fishing*, Australian Department of Agriculture, Fisheries and Forestry, International Transport Workers' Federation, and WWF International.

one that is subject to inclusive governance). This is challenging, and where such frameworks are absent or lack proper coordination, conflict may arise or incentives to “game the system” may arise.

During the twentieth century, States responded to the problem of overfishing by developing a rather complex and fragmented governance regime for high seas fisheries.²⁵ The regime is in part a response to the natural complexity of resource systems, as manifest in the ecosystem-based approach,²⁶ and in part influenced by the structure of the international legal system. At the heart of this fragmented governance regime is the 1982 United Nations Convention on the Law of the Sea (UNCLOS).²⁷ UNCLOS establishes the general legal framework for the regulation of ocean spaces. Responding to perceived gaps in UNCLOS, the United Nations Fish Stocks Agreement (UNFSA) was adopted in 1995. This

establishes a specific regime for the regional governance of straddling and highly migratory fish stocks. These instruments are analyzed in greater detail below to identify those principles and rules, as well as institutional limitations, that may impact upon the adoption of specific regulatory tools for fisheries in ABNJ.

The regulation of fisheries located in ABNJ must first be done in accordance with international law. This establishes the basis for and limitations to any regulation done by individual States. Under international law, there are two main forms of jurisdiction, spatial and flag State. Within coastal waters, coastal States exercise exclusive spatial jurisdiction over fishing activities, subject to cooperative obligations in respect of shared or straddling fish stocks. Fishing on the high seas is generally subject to the exclusive jurisdiction of the flag State.²⁸ This means the flag State is



25 See Rayfuse, R. (2015), “Regional Fisheries Management Organizations.” Donald Rothwell et al. (eds.), *The Oxford Handbook of the Law of the Sea* (Oxford University Press, 2015), 439.

26 See Matz-Luck, N. and Fuchs, J., “Marine Living Resources” in Rothwell et al. (n 25) 491, at 512–513.

27 Adopted 10 December 1982, entered into force 16 November 1994, 1833 UNTS 3.

28 UNCLOS, Article 92.

responsible for establishing rules in respect of fishing activities for vessels flying its flag, and for enforcing said rules. Flag States are required to “effectively exercise jurisdiction and control” over vessels.²⁹ However, experts have long identified weaknesses in this system, notably a liberal approach to ship registration and ineffective controls or sanctions on ambivalent flag States.³⁰

Ridgeway and Rice demonstrate that institutional coherence is required to optimize fisheries management.³¹ Globalization, ecosystem-based management (or the fundamental connectivity of resource systems), and the nexus between domestic and regional or global resources management generate a complex system in which actions and interventions have wider systemic consequences. This is important to any analysis of incentive-based management because gaps or obstacles in the governance regime may impede the achievement of incentive-based outcomes, or even the perception that certain outcomes will result. For example, if exclusivity of rights cannot be guaranteed for a minimum/sufficient duration due to free-rider problems, then stakeholders may be unwilling to support or participate in rights-based management approaches.

2.3 United Nations Convention on the Law of the Sea

General context. UNCLOS is a multilateral agreement with 168 States Parties. It provides a general framework for all ocean activities, including fisheries. It establishes legally binding obligations on all States Parties. UNCLOS

prevails, as between States Parties, over earlier agreements. States cannot make reservations to UNCLOS (i.e., qualifications which may change how its provisions apply to that State) unless this is permitted by the terms of UNCLOS.³² Two or more States Parties can conclude agreements that modify or suspend provisions of UNCLOS solely between those States, but only if the terms of such agreements are compatible with the object and purpose of UNCLOS, and that such agreements are consistent with the basic principles of UNCLOS.³³

Conservation and management obligations. UNCLOS sets forth a range of conservation rights and duties. These are generally split between those that pertain to the EEZ and those pertaining to the high seas. Although this report is concerned principally with the high seas, it is important to explain certain rules applicable to the EEZ because many high seas stocks are either straddling stocks or highly migratory, and so may be subject to governance under the regime of the EEZ as well as the high seas. In the EEZ, the coastal State has exclusive sovereign rights as regards exploration and exploitation of stocks. Article 61 establishes a duty upon the coastal State to adopt conservation and management measures. These take priority over any measures concerning how fishing opportunities are used or allocated, per Article 62. Article 62 promotes the objective of optimum utilization, which might be understood to imply the most efficient use of resources. However, given the discretionary nature of how resources within the EEZ are to be used, we should not read much into the notion of optimum use. More important is the fact that coastal States may impose conditions on any

29 UNCLOS, Article 94.

30 See further Barnes, R. (2015), “Flag States,” in Rothwell et al. (n 25), 204.

31 Ridgeway, L. and Rice, J. (2010), “International Organizations and Fisheries Governance,” in Quentin Grafton, R. et al. (eds.), *Handbook of Marine Fisheries Conservation and Management* (Oxford University Press), 485.

32 UNCLOS, Article 311(2).

33 UNCLOS, Article 311(3).

vessels seeking to fish in the EEZ.³⁴ This includes the issue of licenses, payment of fees and other remuneration, fixing of quotas, provision of specifying catch information, the imposition of landing requirements, and the act of engaging in joint ventures for fisheries. It also includes related enforcement measures. These regulatory options are important because they provide the basis for implementing incentive-based measures (e.g., RBM), furnishing data for market-based mechanisms, and channeling landings to ports where further control measures might be implemented. Since many HMS fish are caught in EEZ, these measures can operate in parallel or in

The freedom of fishing on the high seas is to be “exercised by all States with due regard for the interests of other States,” and subject to their treaty obligations. This means States may enter into agreements further regulating the use of the high seas (e.g., the UNFSA), and that any activities on the high seas must have regard for the interests of other States.

addition to those measures adopted by RFMO for high-seas components of such stocks. This may be important when considering how to leverage change in respect of the conduct of harvesting activities on the high seas because fishing in the EEZ is frequently more economic.

The basic governance regime for the high seas is found in Part VII of UNCLOS. The high seas are defined as “all parts of the sea that are not included in the exclusive economic zone, in the territorial sea, or in the internal waters of a State, or in the archipelagic waters of an archipelagic State.”³⁵ The freedom of fishing on the high seas³⁶ is to be “exercised by all States with due regard for the interests of other States,”³⁷ and subject to their treaty obligations.³⁸ This means States may enter into agreements further regulating the use of the high seas (e.g., the UNFSA), and that any activities on the high seas must have regard for the interests of other States. UNCLOS is a package deal, meaning that the regulation of different activities, e.g., fisheries or research, cannot be done in complete isolation from each other. Such regulation should be compatible and consistent. States are further required to “take or co-operate in taking such measures for their respective nationals *as may be necessary for the conservation of the living resources of the high seas.*”³⁹ The obligation to cooperate is reiterated in Article 118, which requires States to negotiate conservation measures through sub-regional or regional fisheries organizations as appropriate.⁴⁰ On the high seas, States are required to take measures, using the best scientific evidence, that are capable of securing the maximum sustainable yield (MSY), as “qualified by relevant environmental and economic factors.”⁴¹ States shall also take into account the effects on species associated with or dependent on harvested species,⁴² and share and exchange scientific information, statistics, and other relevant information.⁴³ As will be noted

34 UNCLOS, Article 62(4).

35 UNCLOS, Article 86.

36 UNCLOS, Articles 87(1)(e) and 116.

37 UNCLOS, Article 87(2).

38 UNCLOS, Article 116(b).

39 UNCLOS, Article 117.

40 See Freestone, D. (1999), “International Fisheries Law Since Rio” in Boyle, A and Freestone, D. (eds.), *International Law and Sustainable Development* (Oxford University Press), 135, at 147.

41 UNCLOS, Article 119(1)(a).

42 UNCLOS, Article 119(1)(b).

43 UNCLOS, Article 119(2).

below, however, the exclusive use of the MSY in setting the allowable catch has been criticized as being ineffective in ensuring the sustainability of fish stocks.

Certain high seas fisheries cannot be regulated apart from coastal State fisheries.⁴⁴ Thus, States must seek to agree, either directly or through appropriate sub-regional or regional organizations, that measures are necessary for the conservation of stocks straddling the EEZ and high seas.⁴⁵ A similar obligation to cooperate is established in respect of highly migratory species.⁴⁶ Commentators generally acknowledge the deficiency of these provisions, although they have since been developed through the UNFSA.⁴⁷

UNCLOS and incentive-based tools. The Convention does not mandate the use of specific tools or instruments, only that such tools contribute to conservation and management of living resources. It is goal-focused rather than containing specific prescriptive measures. Similarly, the Convention does not further articulate the means of cooperation, and has been criticized as deficient.⁴⁸ However, obligations to exercise effective control and to cooperate are obligations of due diligence. This means States must take positive and meaningful steps to achieve ends. This approach was emphasized in a recent case, the *Sub-Regional Fisheries Commission Advisory Opinion*.⁴⁹ Although that decision specifically addressed State Parties to a regional agreement and fishing in the EEZ, the construction by the International Tribunal for the Law of the Sea (ITLOS) of Articles 61 and 62 (in respect of shared stocks) ought equally to apply

to State Parties to regional fisheries management organizations (RFMOs) and in respect of high seas fisheries. UNCLOS does structure the use of information, which in turn may support incentive-based approaches. Thus it requires that, “Available scientific information, catch and fishing effort statistics, and other data relevant to the conservation of fish stocks shall be contributed and exchanged on a regular basis through competent international organizations, whether subregional, regional or global, where appropriate and with participation by all States concerned.” (Article 119(2).) While it only focuses on inter-State sharing and not with non-State actors, it does not preclude this. In short, UNCLOS is largely neutral on the position of incentive-based tools, and could be complementary to such measures.

Barriers/opportunities to amendment of UNCLOS. UNCLOS provides an integrated regime, a package deal, and one that States are careful not to upset. The provisions comprise a legal and political settlement and any changes must be carefully managed. Although UNCLOS contains mechanisms for amendment or modification, these impose procedural barriers so stringent that amendment or modification is all but impossible in practice. These constraints are widely acknowledged by commentators and form part of the institutional context for fisheries management.⁵⁰ As a result, implementing agreements have been used to advance international fisheries law as limitations of UNCLOS were revealed (e.g., the UN Fish Stocks Agreement, the FAO Compliance Agreement, FAO Port State Measures Agreement). That said, UNCLOS is considered a living instrument,

44 UNCLOS, Article 116 specifically subjects fishing on the high seas to Articles 63(2) and 64–67.

45 UNCLOS, Article 63(2).

46 UNCLOS, Article 64.

47 See for example Davies, P.G. and Redgwell, C. (1997), “The International Legal Regulation of Straddling Fish Stocks,” *British Yearbook of International Law*, 67:199.

48 Tanaka, Y. (2012), *The International Law of the Sea* (Cambridge University Press), at 225.

49 *Request for an Advisory Opinion Submitted by the Sub-Regional Fisheries Commission (SRFC)* (Advisory Opinion), (2 April 2015), ITLOS Reports 2015.

50 Boyle, A. (2006). “Further Development of the 1982 Convention on the Law of the Sea,” in Freestone, D., Barnes, R. and Ong, D (eds.), *Law of the Sea. Progress and Prospects* (Oxford University Press), 40

meaning its language, structures and institutions can adapt to changed circumstances. This is done on a day-to-day basis through the process of treaty interpretation. In this way, through dynamic interpretation, the meaning and application of UNCLOS can be kept contemporary with wider technical and legal developments.⁵¹ For example, reference to “best scientific evidence” in the context of fisheries management decisions means States should continuously reappraise the basis for their decisions in light of new science. However, such approaches are limited. Interpretations cannot cut across the grain of UNCLOS text or stretch meaning beyond reasonable limits. Thus, limitations on the authority of States to take action against foreign fishing vessels on the high seas is fundamentally hampered by the principle of exclusive flag States jurisdiction, something no manner of textual interpretation can circumvent.

2.4 United Nations Fish Stocks Agreement

General context. The UNFSA has 86 States Parties. It is a separate agreement to UNCLOS, but it is to be “interpreted and applied in the context of and in a manner consistent with” it.⁵² It regulates only straddling and highly migratory fish stocks because the position of discrete high seas fisheries was not raised as an issue until 2003. Since then, however, there have been calls for the application of the UNFSA’s general principles to discrete high seas stocks.⁵³ The term “discrete high seas stock” is not defined in law, but generally refers to stocks that are located

purely or entirely on the high seas.⁵⁴ To the extent that the principles form part of customary international law, or could be read as part of UNCLOS general obligations to conserve and manage high seas fisheries, then they would apply to discrete high seas stocks.

Governance principles. The UNFSA is based on 12 general principles, all of which apply both to coastal States and States fishing on the high seas for the covered stock types.⁵⁵ These principles require States to

- Adopt measures to ensure the sustainability of fish stocks;
- Use the best available scientific evidence in order to achieve MSY;
- Use the precautionary approach;
- Assess impact on the wider ecosystem (the so-called ecosystem approach);
- Adopt where necessary measures for associated or dependent species;
- Minimize pollution, waste, discards, and bycatch;
- Protect biodiversity;
- Take measures to prevent overfishing;
- Consider the interests of artisanal and subsistence fishers;
- Collect and share data;
- Promote scientific research and technologies; and
- Implement effective monitoring, control and surveillance.

51 See Barnes, R (2016), “The Continuing Vitality of UNCLOS” in Barrett, J. and Barnes R. (eds.), *The United Nations Convention on the Law of the Sea: A Living Instrument*, (BIICL), 459-489.

52 UNFSA, Article 4.

53 See Kimball, L. (2004), “Deep-Sea Fisheries of the High Seas: The Management Impasse,” *International Journal of Marine and Coastal Law* 19:267, Takei (n 20).

54 See Sissenwine, J-J et al. (2006), “The state of world highly migratory, straddling and other high seas fishery resources and associated species,” Rome, FAO Fisheries Technical Paper 495, section 2.1.

55 UNFSA, Article 5.

These principles are directive or facilitative, rather than prescribing in detail how particular outcomes are to be reached. Much is left to the individual State (or groups acting through RFMOs) to adopt specific measures consistent with these principles. Like UNCLOS, the UNFSA is largely neutral to the question of incentive-based tools.

Compatibility of measures. Of particular significance to high seas fisheries is the principle of compatibility, which requires that measures taken by coastal States within the EEZ and those taken on the high seas for the conservation of straddling and highly migratory fish stocks are compatible.⁵⁶ There is no strict legal priority given to either coastal State or high seas interests. Article 7 merely sets out a series of criteria to be used in determining compatibility:

- High seas measures should not undermine measures within the EEZ;
- Account should be taken of previously agreed measures;
- Account should be taken of the biological unity of the stock, its distribution and location;
- Account should be taken of the dependence of States upon the stocks; and
- The impact of measures on living marine resources as a whole.

This allows for measures to be adopted on a case-by-case basis, arguably with priority afforded to measures that ensure sustainable

management over those that do not.⁵⁷ However, given the exclusivity of coastal State rights and the strong legal basis attaching to those rights, it may afford coastal States a higher degree of influence in shaping conservation measures on the high seas. This means it is important to consider governance provisions in combination with each other. Understanding the interplay of provisions is important to agenda setting in RFMOs; for example, as in the case of the PNA States in the Western and Central Pacific

...it may afford coastal States a higher degree of influence in shaping conservation measures on the high seas. This means it is important to consider governance provisions in combination with each other. Understanding the interplay of provisions is important to agenda setting in RFMOs; for example, as in the case of the PNA States in the Western and Central Pacific Fisheries Commission (WCPFC).

Fisheries Commission (WCPFC).⁵⁸ In this case, coastal States have been able to leverage preferential terms through a combination of legal and economic circumstances. This has occurred because HMS species spend a significant part of their life cycle in coastal waters and most economic harvesting opportunities for species are located in coastal waters.

56 UNFSA, Article 7.

57 See Elferink, A.O. (2001), "The Determination of Compatible Conservation and Management Measures for Straddling and Highly Migratory Fish Stocks," *Max Plank Yearbook of United Nations Law*, 5:551.

58 PNA (Parties to the Nauru Agreement) States are Federated States of Micronesia, Kiribati, Marshall Islands, Nauru, Palau, Papua New Guinea, Solomon Islands and Tuvalu.

Cooperation and RFMOs. UNFSA Part III sets out the “mechanisms for international cooperation.” This is primarily through participation in RFMOs.⁵⁹ Each RFMO will have its own institutional framework and approach to conservation and management. The extent to which individual RFMOs or arrangements can adopt novel management tools will depend upon the constituent agreement for that RFMO or arrangement.⁶⁰ The UNFSA requires States to carry out their duty to cooperate by joining an RFMO or at least by agreeing to comply with its regulations.⁶¹ Where a State does not do so, it is prevented from engaging in fisheries to which the conservation measures apply.⁶² Whether or not this precludes States from exercising their freedom to fish on the high seas is much discussed.⁶³ At a minimum, it must amount to a further qualification of their freedom. Where there is yet no competent RFMO, States are expected to negotiate the establishment of one, or enter into other “appropriate arrangements.”⁶⁴

Sub-regional arrangements. Articles 1(d), and 7-10 refer directly to management through sub-regional or regional arrangements. In the text, they appear to read as alternatives, perhaps differentiated in geographic remit. There is nothing in the UNFSA that deals with sub-regional arrangements within the scope of regional arrangements. However, State practice, and the existence of discrete and overlapping RFMOs suggests that different arrangements can co-exist. A prime example of this is the PNA Arrangement (discussed further below in Section 4). Where such overlap exists, it is critical to ensure that cooperation occurs between the different layers or forms of regional arrangement.

Legal authority of RFMOs. RFMOs are a type of intergovernmental organization (IGO), and so possess a degree of legal personality. Legal personality is a status in international law that concerns that capacity of non-State entities (e.g., private persons, companies NGOs, and IGOs) to enjoy rights and duties as legal subjects, as opposed to merely being the object of legal rules. This competence is separate from the legal competence of the constituent member States. This legal personality explains the competence of RFMOs to conclude agreements and MOUs with each other, the FAO, or regional seas bodies. International legal personality remains secondary in the sense that the legal authority of RFMOs is derived from the constituent member States. More specifically, the scope of personality (and rights and duties) is determined by the terms of the constituent treaty and general international law. The former will establish the explicit legal authority of RFMOs to act. The latter recognizes that IGOs possess sufficient authority as is required for them to carry out their functions. This implicit authority will vary according to the function of the RFMO, but could be potentially broad in so far as the legal authority is required to conserve and manage fish stocks. This personality may extend to holding and making of investments (e.g., ICCAT Convention Article 3(8) and ICCAT Financial Regulations). However, such rights and duties are potentially vulnerable to change by States, especially when this is seen to intrude upon the vital interests of those States. It is for this reason that international law remains largely dependent upon the consent or agreement of States.

Compliance Matters under the UNFSA.

With regard to the enforcement of conservation

59 UNFSA, Article 8(1). On RFMOs, see Rayfuse (n 25), at 439; Guilfoyle, D. (2009), *Shipping Interdiction and the Law of the Sea* (Cambridge University Press), 97–169.

60 Considered in more detail for the regional case studies, below.

61 UNFSA, Article 8(3).

62 UNFSA, Article 8(4).

63 Davies and Redgwell (n 47), at 265; Takei (n 20), at 67; Rayfuse, R. (2004), *Non-Flag State Enforcement in High Seas Fisheries* (Martinus Nijhoff), Chapter 3.

64 UNFSA, Article 8(5).

measures against fishing vessels, the Agreement starts by setting out the obligations of flag States for ensuring the compliance with conservation measures.⁶⁵ These are bolstered by a requirement of cooperation by other States to assist flag States with enforcement and investigations.⁶⁶ Control over non-flag State vessels remains a particular weakness in international fisheries law. Port State jurisdiction provides an alternative method of securing compliance with international fisheries law.⁶⁷ The UNFSA recognizes port States' "right and duty" to take measures to promote cooperative conservation measures and, in particular, to perform in-port inspections and to prevent the landing and transshipment of catches where they undermine cooperative conservation measures.⁶⁸ These powers are important given the limitations on exercising control over vessels flying the flag of third States on the high seas in areas covered by RFMO or similar arrangements.

Participatory and Allocation Issues.

When dealing with high seas fisheries, the complete effectiveness of any conservation and management measure is contingent upon securing compliance by all fishing interests/States. Lesser degrees of effectiveness can be tolerated where the major fishing interests comply with conservation and management measures and the extent of "leakages" (non-compliance) is small. In general, a failure by States to comply will undermine the quality of fishing rights and measures established. This will either reduce the value of fishing entitlements to compliant fishing interests or undermine the legitimacy of conservation and management measures, risking wider non-compliance or increasing pressure to improve enforcement, and so elevating regulatory costs. These general observations

hold true for subsequent regulatory measures such as quota allocations and RBM and financial-based incentives because they also depend upon a degree of exclusivity and security over an entitlement.

The main incentive for States to engage with the RFMO is through participatory rights and allocations. Thus, participating States should enjoy some benefits of membership. However, the lack of inclusive or satisfactory allocations to new members provides a disincentive to States to join most RFMOs. While the UNFSA does not establish precise criteria for the allocation of fishing entitlements directly, it does establish

When dealing with high seas fisheries, the complete effectiveness of any conservation and management measure is contingent upon securing compliance by all fishing interests/States.

broad considerations to be used to determine participatory rights (for States) in high seas fisheries. These are set out in Article 11 (status of stocks and existing levels of fishing, respective interests and fishing patterns/practices of existing and new members; contributions to conservation and management; needs of dependent fishing communities; needs of dependent coastal States; interests of developing States in the region). These criteria are not determinative and there is no ranking or weighting of the individual criteria.

65 UNFSA, Articles 18 and 19.

66 UNFSA, Article 20.

67 See generally Molenaar, E.J. (2007), "Port State Jurisdiction: Toward Comprehensive, Mandatory and Global Coverage," *Ocean Development and International Law*, 38:225.

68 UNFSA, Article 23.

In the absence of clear legal criteria to determine participatory rights and allocations, the process is essentially a negotiated political process. Here, competition between States for optimal shares of international resource shares can undermine international cooperation by generating pressure to meet competing demands through increased allocations to all States. Mechanisms exist to control these procedures, although they are not frequently used. The first application occurred in 2013, when Russia—a member of the South Pacific Regional Fisheries Management Organization (SPRFMO)—objected to a quota allocation measure issued by the Commission and asserted its own fishing outside the Commission’s decision. The Commission had allocated reduced fishing quota using historical catch data that excluded Russia’s claimed catch levels and other contributions to stock conservation and management. The allocation of 360,000 tons excluded Russia, which set its own catch limit for Russian vessels of almost 20,000 tons. This ultimately resulted in legal proceedings between Russia and the Commission. A Review Panel was constituted to hear the parties’ positions and present its findings.⁶⁹ The panel upheld aspects of Russia’s claim, noting that the allocations must be non-discriminatory and further that Russia was permitted to fish for the relevant stock as long as this did not result in total fishing levels being exceeded for the stock. To-date, there are no test cases of non-member States seeking to pursue a legal right to participate and share in an RFMO fishery.

UNFSA obligations affecting the use of rights-based and other incentive-based tools. As noted above restrictions on the extent of States’ rights must be factored into the design of incentive-based governance mechanisms at the regional and sub-national levels. In other words individuals cannot enjoy greater rights than States can bestow, and individuals must act within any

limits imposed upon States. This means acting within the limits of the conservation principles and the compatibility and cooperative requirements noted above. It also means ensuring that States (and hence fishers) with an interest in fishing stocks are not excluded from a fishery. Other requirements of the UNFSA will impact upon incentive-based tools. Article 12 requires transparency of decision-making. This could require appropriate publicity and information on the use of market-based tools. Arguably this would require oversight of such processes. Article 14 requires States to collect and verify fishing data. Again this means that oversight is required of private actors.

Article 16 establishes special cooperative duties in respect of high seas areas enclosed by the waters of a single coastal State. It provides that, “States fishing for straddling fish stocks and highly migratory fish stocks in an area of the high seas surrounded entirely by an area under the national jurisdiction of a single State and the latter State shall cooperate to establish conservation and management measures in respect of those stocks in the high seas area.” It continues to state that interim arrangements or dispute settlement proceedings should be used when agreement is not reached, and for fishing to be suspended if this would undermine the state of the stocks concerned. This provision could leverage increased cooperation for certain fisheries. Notably, this does not apply to situations in which areas of the high seas are enclosed by waters of several coastal States, as in the case of sub-regional fisheries arrangements like the PNA. That said, there is no reason special cooperation should not be required in such circumstances. This could be done by way of sub-regional group agreements on regulating distant water fleets operating in their EEZs.

⁶⁹ Review Panel established under the Convention on Conservation and Management of High Seas Fishery Resources in the South Pacific Ocean 5 July 2013, available at <https://www.pcacases.com/web/sendAttach/2082>.

More specific regulatory and enforcement requirements are established by Articles 18 to 23. Thus flag States should ensure vessels flying their flag do not undermine the effectiveness of conservation measures.⁷⁰ Control measures, including the setting of rules and enforcement measures, should be accommodated within any national level fisheries management tools such as licenses, authorizations, or permits. This includes:

- Recording and timely reporting of vessel position, catch of target and non-target species, fishing effort and other relevant fisheries data in accordance with international and regional requirements;
- Adoption of measures to verify the catch of target and non-target species through such means as observer programs, inspection schemes, unloading reports, supervision of transshipment, and monitoring of landed catches and market statistics;

- Adoption of MCS schemes, including inspection schemes, observers, and VMS schemes; and
- Controls on transshipment on the high seas.

Article 23 provides that port States have the right and duty to take steps to promote compliance with conservation measures.⁷¹ This must be exercised in a non-discriminatory way, and includes inspection of documents, gear, and catch for vessels voluntarily within its ports. The port State may also prohibit landings and transshipments where it has been established that the catch has been taken in a manner which undermines the effectiveness of sub-regional, regional, or global conservation and management measures on the high seas. Strong port State authority means that ports could be the focus of incentive-based regulatory measures given their strategic importance in the fish supply chain.



70 UNFSA, Article 18.

71 See also section 2.4 below.

However, this does require coordination of port State measures; otherwise “ports of convenience” can exploit the ability of fishers to bring their catch to a range of markets. Here it seems critical that strong port State measures are adopted at ports connected to large processing facilities or that lead into key markets for fish products. Strong port State authority could open up strategic investment in ports to attract or channel landings through more strongly regulated ports. This could be done by making landings easier,

Strong port State authority could open up strategic investment in ports to attract or channel landings through more strongly regulated ports. This could be done by making landings easier, by having streamlined regulatory processes that thereby make such ports financially and practically attractive, and by enabling harvesters access to more stable markets.

by having streamlined regulatory processes that thereby make such ports financially and practically attractive, and by enabling harvesters access to more stable markets.

A final aspect of the UNFSA that impacts incentive-based approaches are its provisions requiring support/assistance for developing States.⁷² This requires taking into account the vulnerability of developing States that depend upon marine living resources, and avoiding impact on subsistence, small-scale, and artisanal fishers and female fishworkers, as well as on indigenous populations. Forms of cooperation are discretionary, but can include enhancing the ability of developing

States to conserve and manage fisheries, and assisting their ability to participate in fisheries. More specifically this includes: the provision of financial assistance; assistance relating to human resources development; technical assistance; transfer of technology, including through joint venture arrangements; and advisory and consultative services. Much of this is linked to funding and capacity building, and so could be aligned with investment initiatives. It could also be linked to other measures such as side payments and greater shares of catch. In many respects the adoption of the PNA sub-regional agreements leverage support for the contracting parties in this way. This is not a support mechanism furnished by other States. Rather, their willingness to meet and accord with the PNA arrangements over certain fisheries is consistent with a recognition of the special role developing States possess under the UNFSA.

Review and amendment of the UNFSA. The UNFSA explicitly accommodates a process of amendment through Article 36, which establishes a mechanism to “review and assess the adequacy of the provisions of this Agreement and, if necessary, propose means of strengthening the substance and methods of implementation of those provisions in order to better address any continuing problems in the conservation and management of straddling fish stocks and highly migratory fish stocks.” That said, the threshold for institutional change remains high, requiring not less than half of States Parties to agree to a review conference, and agreement of two-thirds of States Parties for any such negotiated amendments to enter into force.⁷³ As indicated below, discussions on the future of the UNFSA are increasingly open to a wider range of measures compatible or supportive of incentive-based tools. However, given the challenge of modifying or amending the text of the UNFSA, this would likely take place in other forums, such as RFMOs. The

72 UNFSA Articles 24-26.

73 UNFSA, Article 45.

next review conference will take place no earlier than 2020. One option would be to develop agreed understandings of what some of the provisions of the UNFSA mean or how they can be implemented. This could be done at regional levels or through FAO technical publications.

Outcomes of the 2016 review of the UNFSA.⁷⁴

The 2016 review noted that the state of stocks had not improved, and in some cases had declined. This remains attributable to overfishing (sometimes driven by poor management or increased demand) and other adverse impacts on marine systems. It sought to align fisheries with the Sustainable Development Goals (SDG). It then made a series of recommendations to States and regional economic organizations, individually and collectively through RFMOs. These largely focus on improving implementation of existing measures. Some key developments are noted, as these provide possible pathways for reform of fisheries management efforts: better understanding of the impacts of climate change and ocean acidification,⁷⁵ development of area-based management tools,⁷⁶ reduction of fishing capacity including incentives and measures to this end,⁷⁷ elimination of harmful subsidies (although with differential treatment for developing States),⁷⁸ establishing new RFMOs and modernizing mandates of older RFMOs,⁷⁹ improving performance reviews, improving participation in RFMOs of States with a real interest—using a range of incentives (technology transfer, sharing expertise, development support, enforcement capacity enhancement),⁸⁰ improving criteria on participatory rights and allocation, improving decision-making rules in RFMOs (restrict opt-out mechanisms, expand participation of other

actors including NGOs), strengthening flag State capacity to control vessels,⁸¹ and strengthening controls over nationals (e.g., crew, master, owners of vessels). The criteria for performance review are under continuous development.

The review called upon States 1) to take measures, consistent with international law, that will ensure only fish caught in accordance with applicable conservation and management measures reach their markets, and 2) to take steps consistent with international and domestic law that require those involved in fish trade cooperate fully to this end. Market access is important, and is linked to paragraphs 11.2.4, 11.2.5, and 11.2.6 of the FAO Code of Conduct for Responsible Fisheries. This Code emphasizes consistency between actions of States and those of RFMOs. Particular attention is paid to landing of fish in ports outside flag States. This latter issue indicates a potential weak point in securing strong chain of custody measures. These steps require greater use of catch documentation schemes and other market related measures (unspecified). The FAO voluntary guidelines on catch documentation schemes (CDS) and other measures need to be finalized. Although not necessarily a market measure, the Review Conference called for States to participate and support the International Monitoring, Control and Surveillance Network for Fisheries-related Activities (IMCS Network). Arguably, scope exists for some consideration of how incentive-based tools should be accommodated within RFMOs as part of the review. At a minimum, best practices from other RFMOs and fisheries using such tools to good effect should be considered.

74 See UN Doc. A/CONF.210/2016/5.

75 Annex, para. A4.

76 Annex, para. A6.

77 Annex, para. A7.

78 Annex, para. A8.

79 Annex, para. B1.

80 Annex para. B4.

81 Annex, para. C1.



2.5 Port State Measures Agreement

Poor flag State control over fishing vessels is recognized as one of the gaps in the governance framework for high seas fisheries. To address this, States acting through the FAO negotiated and adopted the 2009 Agreement on Port State Measures.⁸² The PSM Agreement entered into force on 5 June 2016 and has 48 States Parties.⁸³ This does not fundamentally change port States' jurisdiction; rather it consolidates, structures, and reinforces existing jurisdictional competences. Key obligations are to cooperate and exchange

information on conservation measures⁸⁴ and pre-designation of ports of entry, along with advance information conditions and entry conditions.⁸⁵ Port States should cooperate with other States and organizations. This may include making use of IUU vessels lists by other State or RFMOs, and using such information to restrict access to port for such vessels. While entry may be denied, vessels engaged in IUU fishing can be admitted and subject to investigation and further actions in conformity with international law.⁸⁶ While port States may inspect vessels as a condition of entry and the denial of entry, the flag State remains responsible for the enforcement of fisheries laws

82 FAO Agreement on Port State Measures to Prevent, Deter, and Eliminate Illegal, Unreported, and Unregulated Fishing (concluded 22 November 2009, entered into force 5 June 2016). As of October 2017, the Agreement has 49 parties.

83 As at 19 May 2017. See table http://www.fao.org/fileadmin/user_upload/legal/docs/037s-e.pdf.

84 Article 6.

85 Article 7-9.

86 Articles 12-19.

on the high seas.⁸⁷ Article 21 requires special consideration be given to developing States Parties, including support for capacity building; participation in arrangements that facilitate the development of port State measures; and the avoidance of disproportionate burdens falling on a developing State implementing the PSM Agreement. Port State control measures can be more effective than high seas enforcement, but such control is not without its own difficulties. First, as a practical matter, control is contingent on vessels coming into port, and so can be circumvented by landing fish in ports of non-contracting States. Second, proving that a catch has been made in violation of conservation measures may not be easy. This depends upon at-sea monitoring and enforcement, or remote monitoring activities. Third, restrictions on access to port may give rise to dispute under trade obligations, as in the case of the EU–Chile swordfish dispute.⁸⁸ This is important because the landing of catch provides one of the most important opportunities to introduce controls on the catch. Finally, controls may be undermined by a lack of coordination by port States, the fear of losing trade, and the fact that measures can be circumvented by using ports with relaxed standards.⁸⁹

The PSM Agreement and incentive-based tools. The PSM Agreement is not directly concerned with incentive-based tools. Rather, it indirectly contributes to the performance of such tools, in several ways. First, it provides a degree of work around the principle of exclusive

flag State jurisdiction. Second, it strengthens the contingency of high seas fishing upon cooperative measures. Third, it strengthens the provision of information, which in turn can be used to inform decisions on the control of illegal, unreported, and unregulated (IUU) fishing. As noted above, the agreement makes use of cooperative and information-sharing mechanisms, which in turn can improve information flow. This can be used to target and inform legal interventions, such as decisions to restrict access to ports.

2.6 The FAO Compliance Agreement

The Compliance Agreement was developed to respond to perceived weaknesses in the system of flag State control and in particular the problem of “re-flagging” vessels to avoid compliance with fisheries conservation and management measures.⁹⁰ The Agreement applies to fishing vessels defined as “mother ships and any other vessels directly engaged in such fishing operations.” There is an exception for vessels of less than 24 meters in length unless “such an exemption would undermine the object and purpose” of the agreement.⁹¹ States are required to take “such measures as may be necessary to ensure that fishing vessels entitled to fly [their] flag do not engage in any activity that undermines the effectiveness of international conservation and management measures.”⁹² The Compliance Agreement reiterates the main responsibilities

87 Port State Measures Agreement, Article 20.

88 *Conservation and Sustainable Exploitation of Swordfish Stocks in the South-East Pacific Ocean (Chile/European Community)* ITLOS Case No 7; *Chile–Measures Affecting the Transit and Importation of Swordfish* (2000) WTO Doc WT/DS193/2 (request for consultations by the European Communities), (2000), WTO Doc WT/DS193/2 (request for the establishment of a panel by the European Communities).

89 Tanaka (n 37), at 249–250.

90 *FAO Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas* 1993 (adopted 24 November 1994, entered into force 24 April 2003) 2221 UNTS 91. The Agreement has been ratified by 40 States (Compliance Agreement).

91 Compliance Agreement, Article II.

92 Compliance Agreement, Article III.

of flag States as laid out in UNCLOS,⁹³ but adds important detail regarding recordkeeping⁹⁴ and exchange of information in respect of vessel identity,⁹⁵ including making information available to the FAO.⁹⁶

The FAO Compliance Agreement and incentive-based tools. The agreement is not directly concerned with incentive-based tools. Like the PSM Agreement, it contributes indirectly, and mainly by constraining the scope of freedom of fishing on the high seas.

2.7 Other Governance Instruments

CITES and endangered species listing. The Convention on International Trade in Endangered Species (CITES) establishes a general system of import- and export-based controls for protecting wild fauna and flora. As such, it directly engages market/trade controls to protect certain conservation goals. Significantly, in 2013, the CITES Conference of Parties agreed upon new measures to deal with endangered fish introduced from areas beyond national jurisdiction (the high seas).⁹⁷ Relying on CITES as a fisheries management tool includes several advantages, among them the large number of parties (181), utilizing a regime based upon port control rather than at-sea measures, and

a precautionary approach.⁹⁸ CITES provides for a series of import and export controls that are calibrated according to the threatened status of a species.⁹⁹ Although CITES listings have been extended to all cetaceans, seahorses, some sharks, seals and other mammals, and a limited range of fish (sturgeon, tooth fish, and the humphead wrasse), States have resisted the inclusion of commercial species on the lists.¹⁰⁰ Early debates indicate that the FAO, rather than CITES, was the appropriate forum for control.¹⁰¹ However, this ignored the agencies' shared interests and has since been addressed through the adoption of a Memorandum of Understanding between FAO and CITES in 2006, facilitating knowledge exchange and capacity-building measures.¹⁰²

Limitations of CITES. First, CITES allows States to opt out of protection measures for particular species.¹⁰³ Second, since its focus is on endangered or at-risk species, CITES-based controls cannot be used for general fisheries management. They are essentially retrospective. Also, CITES can only be used to control the trade in the listed species. Thus, CITES is not effective to control incidental effects such as bycatch in fisheries, unless that species was to be listed. Third, CITES concerns international trade, so it is limited to the movement of species across borders. It cannot be used to address fish caught and landed from coastal waters but

93 UNCLOS, Article 94.

94 Compliance Agreement, Article IV.

95 Compliance Agreement, Article V.

96 Compliance Agreement, Article VI.

97 CITES COP, "Introduction from the Sea. Resolution Conf 14/6" (Rev. CoP16), March 2013.

98 Franckx, E. "The Protection of Biodiversity and Fisheries Management: Issues Raised by the Relationship between CITES and LOSC" in Freestone, Barnes and Ong (n 23), 214–215.

99 Reeve, R. (2014), *Policing Trade in Endangered Species. The CITES Treaty and Compliance* (Routledge).

100 Young, M. (2010), "Protecting Endangered Marine Species: Collaboration between the Food and Agriculture Organization and the CITES Regime," *Melbourne Journal of International Law* 11:441, at 450.

101 Franckx (n 98), at 79–80.

102 Available at <http://www.cites.org/sites/default/files/eng/disc/sec/FAO-CITES-e.pdf> accessed 12 December 2017.

103 CITES, Article XXIII, Calley, D. (2011), "Market Denial and International Fisheries Regulation: the Targeted and Effective Use of Trade Measures Against the Flag of Convenience Fishing Industry," (Martinus Nijhoff), at 202–203. Thus Iceland, Japan, and Norway have entered reservations in respect of certain species of whales listed under CITES Appendix I. See Bowman, M., Davies, P. and Redgwell, C. (2010), *Lyster's Wildlife Law* (2nd ed., Cambridge University Press) at 186.

which are not exported. However, CITES does extend to the introduction of fish caught on the high seas by flag ships and then landed for domestic consumption. The CITES resolution on “Introduction from the Sea” classifies the flag State of the catching vessel as the State of introduction (and potential export). The State of introduction must issue an “Introduction from the Sea Certificate,” which requires a non-detriment finding for any catch of endangered species. If the fish are landed or shipped to another State, then this will be treated as an export and require an export permit as described above. A final complication concerns the potential conflict between treaty regimes.¹⁰⁴ For example, one treaty may permit or require free trade in a fish product. Another treaty may permit restrictions on trade to conserve a resource. If one or more States are party to both treaties, then there may be a conflict between the different treaty rules and questions over which rule prevails. There are rules of treaty law that can help resolve such conflicts. This may depend upon the terms of each treaty or the hierarchy of the norms in question. If the treaties are silent on these matters, it might result in a later rule. However, this process of resolving conflicting treaty rules is complex.

CITES and incentive-based measures. CITES can be regarded as a form of market-based measure, not dissimilar to CDS (as discussed below section 4.4). Presently, no tuna or tuna-like species has been listed yet, but proposals to include a listing may place political pressure on States individually and collectively (through RFMOs) to introduce tighter management

controls.¹⁰⁵ In 2010, a proposal from Monaco and supported by the FAO, IUCN and CITES Secretariat sought to list Atlantic bluefin tuna under CITES as it met the test of “marked decline.”¹⁰⁶ However, this was rejected. Unless there is significant change in the position of States, CITES offers limited direct means of controlling fishing levels for endangered species of tuna and tuna-like species.

2.8 Soft Law Approaches

High seas fishing is subject to a number of soft-law instruments intended to supplement and bolster relevant treaties.

FAO Code of Conduct for Responsible Fisheries.

The most significant soft-law instrument is the 1995 Code of Conduct for Responsible Fisheries.¹⁰⁷ While the Code is not binding, “certain parts of it are based on relevant rules of international law.”¹⁰⁸ The key provisions are the guiding principle that “[t]he right to fish carries with it the obligation to do so in a responsible manner so as to ensure effective conservation and management of the living aquatic resources,”¹⁰⁹ and the precautionary principle stating the need to develop and use selective and environmentally safe fishing gear and practices, and to protect and rehabilitate “critical fisheries habitats,” especially nurseries and spawning grounds.

The Code and incentive-based measures.

The Code is particularly important in the context of incentive-based tools for a number of reasons. First, unlike the foregoing international

104 Young (n 100); Franckx (n 98).

105 See <http://jncc.defra.gov.uk/page-5542>.

106 FAO (2010), Report of the third FAO Expert Advisory Panel for the Assessment of Proposals to Amend Appendices I and II of CITES Concerning Commercially Exploited Aquatic Species; IUCN/TRAFFIC Analyses of the Proposals for CITES CoP 15: CITES CoP 15, Doc 62, Annex 2, Comments from the Parties and Comments and Recommendations from the Secretariat; CITES Resolution Conf 9.24, (Rev CoP 14), Criteria for amendment Appendices I and II.

107 FAO Code of Conduct for Responsible Fisheries (1995), FAO Doc 95/20/Rev1.

108 Code of Conduct Article 1.

109 Code of Conduct, Article 6.1.

agreement, its scope is not limited to States. It directly seeks to engage a range of actors who can reference the Code and seek to make use of it in their transactions. Second, it also engages with the market of fish products, not merely fish catch, and so is sensitive to the broad supply chain issues in fishing. Thus Paragraph 1.2 states, “The Code is global in scope, and is directed toward members and non-members of FAO, fishing entities, subregional, regional and global organizations, whether governmental or non-governmental, and *all persons concerned with the conservation of fishery resources and management and development of fisheries, such as fishers, those engaged in processing and marketing of fish and fishery products and other users of the aquatic environment in relation to fisheries.*” (The emphasis has been added.) Three of the Code’s substantive provisions then deal with aspects of the fish supply chain. First, paragraph 11.1 (subsections 8 and 12) generally requires States to take steps to make post-harvest processes (including marketing) sustainable. More important is paragraph 11.2, which sets out a number of objectives concerning trade in fish products. Most provisions are designed to ensure or facilitate the trade in fish products. They also stress the importance of adhering to or developing multilateral standards associated with fish trade, and ensuring these do not undermine conservation measures. For example, paragraph 11.2.15 states that, “States, aid agencies, multilateral development banks and other relevant international organizations should ensure that their policies and practices related to the promotion of international fish trade and export production do not result in environmental degradation or adversely impact the nutritional

rights and needs of people for whom fish is critical to their health and well being and for whom other comparable sources of food are not readily available or affordable.” The rules on investments and support are not well developed and considered further below.

International Plans of Action. Within the framework of the Code, the FAO has elaborated four voluntary International Plans of Action,¹¹⁰ the most relevant to the present discussion being that to Prevent, Deter, and Eliminate IUU Fishing.¹¹¹ This Plan of Action takes the form of a list of measures States should take, including giving effect to relevant treaties, adopting effective national legislation, monitoring and controlling fishing activities, adopting national plans of action, cooperating with other States, and exercising control in the capacity of flag State (including registration and authorization of fishing vessels), coastal State, and port State. The Plan also calls on States to adopt market-related measures. On the high seas, such measures have not gained much traction, although there is growing interest in them.¹¹²

In 2009, the FAO adopted the Voluntary Guidelines for Flag State Performance,¹¹³ which provide a detailed list of measures that flag States are expected to take in order to exercise control over fishing vessels in terms of registration, authorization, and monitoring, as well as cooperating with other States. While not directly addressing incentives, the guidelines can reinforce the effectiveness of such management tools.

110 See <http://www.fao.org/fishery/code/ipoa/en> accessed 12 December 2015.

111 International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing <http://www.fao.org/docrep/003/y1224e/y1224e00.htm>, accessed 12 December 2015.

112 See Serdy, A. (2015). *The New Entrants Problem in International Fisheries Law* (Cambridge University Press).

113 Reproduced in FAO, “The Voluntary Guidelines for Flag State Performance, the 2009 FAO Agreement on Port State Measures, and other Instruments Combating IUU Fishing,” Rome, 9–13 June 2014. COFI/2014/4.2/Rev.1 Annex II available at <http://www.fao.org/cofi/24005-0a794406c6747d10850eb7691593b6147.pdf>, accessed 12 December 2015, at 6.

The international Plan of Action for the Management of Fishing Capacity (IPOA-CAP).

This instrument directly addresses the question of economic incentives, both within domestic fisheries and for high seas fisheries.¹¹⁴ Indeed, highly migratory, straddling, transboundary, and high seas stocks are a priority area. It calls on States to assess the possible impact of all factors, including “subsidies, contributing to overcapacity on the sustainable management of their fisheries.”¹¹⁵ States should distinguish “between factors, including subsidies, which contribute to overcapacity and unsustainability, and those which produce a positive effect or are neutral.”¹¹⁶ “States should reduce and progressively eliminate all factors, including subsidies and perverse economic incentives and other factors which contribute, directly or indirectly, to the build-up of excessive fishing capacity, thereby undermining the sustainability of marine living resources, giving due regard to the needs of artisanal fisheries.”¹¹⁷ IPOA-CAP does not address incentives in any detail. However, later FAO studies have identified specific mechanisms that can be used to incentivize capacity reduction and sustainable fishing.¹¹⁸ This includes incentive-blocking measures, such as “licence limitation schemes, vessel catch limits, individual effort quotas, and gear and vessel restrictions,” and incentive-adjusting measures, such as “individual quotas, taxes and co-management schemes, including community-based management.”¹¹⁹ Stronger property rights-based mechanisms like ITQ are considered more effective in eliminating incentives to race to fish. Conversely, the stricter the management measures, the greater the risk that illegal fishing will be incentivized. This requires further measures, such as

carefully designed and allocated fishing rights (either individually or collectively); stakeholder participation in the management system (co-management); clear lines of accountability within management regimes; strong monitoring and controls systems, such as VMS and remote surveillance of catches; and taking into account relationships within fisheries that result from socio-ecological interactions and the capacity of fleets to move around fisheries. It must be recalled that the above measures to address

IPOA-CAP does not address incentives in any detail. However, later FAO studies have identified specific mechanisms that can be used to incentivize capacity reduction and sustainable fishing. This includes incentive-blocking measures, such as “licence limitation schemes, vessel catch limits, individual effort quotas, and gear and vessel restrictions,” and incentive-adjusting measures, such as “individual quotas, taxes and co-management schemes, including community-based management.

incentives to overfish cannot be easily applied to high seas fisheries because of the baseline system of open access. The effectiveness of such incentive-based controls is contingent upon all or most States with significant fishing interests participating and complying with regional fisheries management arrangements.

114 FAO (1999); “International Plan of Action for the Management of Fishing Capacity,” available at <http://www.fao.org/docrep/006/X3170E/x3170e04.htm>.

115 Ibid, para 25.

116 Ibid.

117 Ibid., para 26.

118 Gréboval, D.F. (2000), “The International Plan of Action for the Management of Fishing Capacity and Selected Issues Pertaining to Illegal, Unreported and Unregulated Fishing,” Document AUS:IUU/2000/13. 2000, 8pp.

119 Ibid., paras, 18-20.

The International Monitoring, Control and Surveillance Network for fisheries-related activities (IMCS Network). The IMCS Network was established in 2002 as a voluntary network of States committed to improving the effectiveness of fisheries-related MCS activities through enhanced cooperation, coordination, information exchange, and control. The Network comprises 49 members (usually representatives from competent fisheries authorities) and six observers. It is free to join, and NGO membership is being developed. The sharing

The effectiveness of the IMCS Network depends on willingness to share information and resources, and support for training to build capacity. There is potential for this initiative to develop along the lines of PSC MOU for shipping, a network that shares information, adopts common standards of inspection, and coordinates enforcement measures between participating States.

of information is intended to cut through red tape, provide analytical support, and organize training to support capacity for implementing MCS activities. The effectiveness of the IMCS Network depends on willingness to share information and resources, and support for training to build capacity. There is potential for this initiative to develop along the lines of PSC MOU for shipping, a network that shares information, adopts common standards of inspection, and coordinates enforcement measures between participating States. Notably, the last GFETC workshop highlighted

the importance of developing market-based controls on IUU fishing and identified the need to establish globally accepted standards for market access, trade, and traceability mechanisms.¹²⁰ The adoption of global standards is important given that tuna is a globally traded product. Without global minimum standards, less stringent regional or local market access conditions could result in potential entry points for products caught illegally or harvested unsustainably.

Food security. Increasingly, fisheries management is being influenced by broader policy concerns linked to food security—ensuring adequate access to or supply of essential nutrition. The UN SDG refers to food security loosely, but it is explicitly addressed in the Report of the United Nations Conference to Support the Implementation of Sustainable Development Goal 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development.¹²¹ A number of instruments refer to food security. The strength of the notion of food security is in the linkage it creates between human rights and access to resources. Thus, it can strengthen claims to have access to a resource or alternatives in order to ensure certain human rights standards are met. The following instruments refer to the concept:

- FAO Code of Conduct for Responsible Fisheries. “Should promote the maintenance of the quality, diversity and availability of fisheries resources in sufficient quantities for present and future generations in the context of food security, poverty alleviation and sustainable development.”¹²²
- FAO Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries. “The objectives of these Guidelines are: to enhance the contribution of small-scale

120 FAO (2017), *Report of the Fifth Global Fisheries Enforcement Training Workshop, Auckland, New Zealand, 7-11 March 2016*, FAO Fisheries and Aquaculture Report No. 2103, Rome, para 240.

121 See para 45. Available at <https://sustainabledevelopment.un.org/sdg14>.

122 Article 6.1.

fisheries to global food security and nutrition and to support the progressive realization of the right to adequate food.¹²³ Furthermore, it provides that, “States should adopt measures to facilitate equitable access to fishery resources for small-scale fishing communities, including, as appropriate, redistributive reform, taking into account the provisions of the Voluntary Guidelines on Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security.”¹²⁴

Food security and incentive-based tools.

The concept of food security has the potential to strengthen access rights of small-scale fishers, even extending to tenure or property rights. This may have implications for access and allocation of fishing rights under RBM. RBM generally entails limiting access to fisheries resources. Limited access is considered essential to responsible fisheries management.¹²⁵ However, limiting access can potentially adversely impact vulnerable fishing communities’ means of securing their livelihoods, if such communities are not accommodated properly within such regimes. A right to food could require that access for these communities to resources is prioritized or not encroached upon when scarce resources are being allocated, or that alternative provision is made, possibly entailing side payments or other compensatory measures. Use rights could be allocated to small-scale fishers or communities, or to companies established on behalf of such individuals and groups, as part of the institutional design of RBM. An FAO study on the right to food in fisheries states that the allocation of use rights to communities:

... can be seen as a step towards strengthening people’s capacity to feed themselves in an autonomous and dignified manner. . . . Use rights for individuals and companies, in combination with the right to transfer these rights, may, in contrast, be associated with loss of employment opportunities due to economic rationalization, the formation of monopolies and the transfer of ownership from coastal communities (FAO, 1997). Provisions in law that allocate use rights to small-scale, subsistence and indigenous fishers would therefore be crucial in ensuring that these groups have equitable access to fisheries resources. Moreover, the conditions and procedures for granting use rights and quotas have to be in conformity with the principles of transparency, accountability and rule of law.¹²⁶

How such community needs and interests are protected is clearly a key issue in the design of any use rights, but it is possible to achieve this. There are precedents for such steps domestically. For example, New Zealand guarantees certain allocations to its indigenous Maori population. Also, the Philippine Fisheries Code (1998) identifies the achievement of “food security as the overriding consideration in the utilization, management, development, conservation and protection of fishery resources in order to provide the food needs of the population....”¹²⁷ Although FAO studies have focused on domestic fisheries, the general applicability of human rights commitments and the fact that small-scale fishing can be conducted in ABNJ means that such approaches should be accommodated in the management of access and use rights for

123 Para 1.1.

124 Para 5.8.

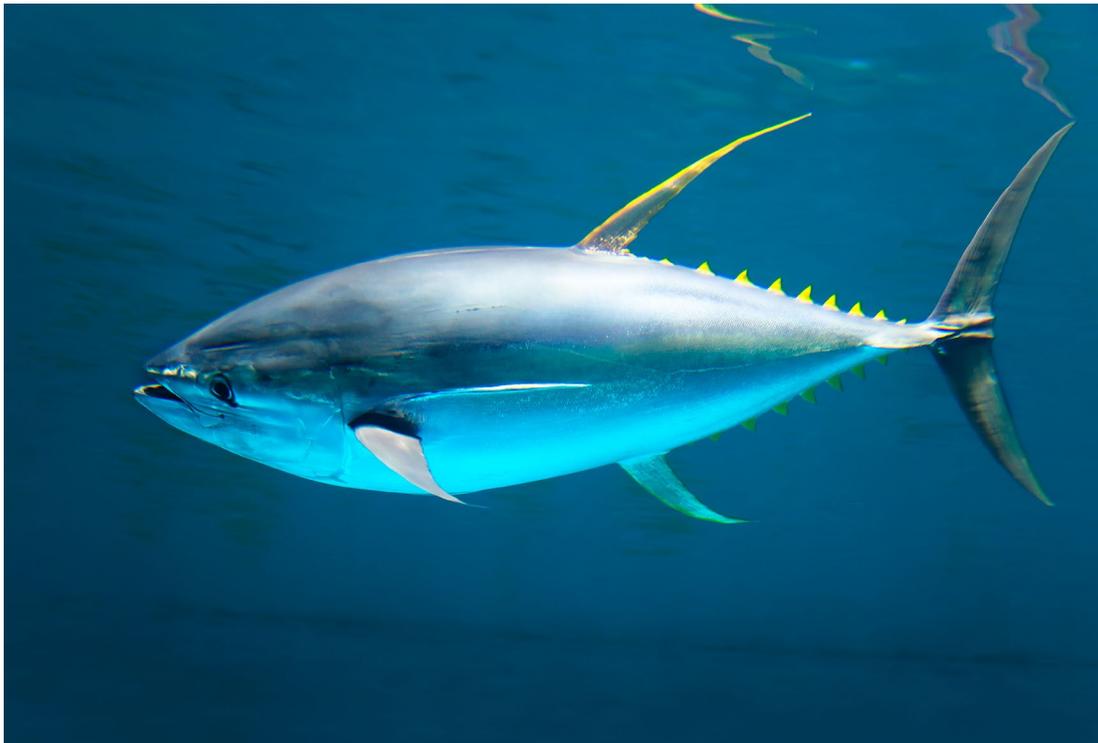
125 FAO, (2003), *Fisheries management: The ecosystem approach to fisheries*. FAO Technical Guidelines for Responsible Fisheries, No. 4, supplement 2, Rome, Italy, 62.

126 FAO, (2009), *Fisheries and the Right to Food*. Implementing the right to food in national fisheries legislation. FAO, Rome, available at <http://www.fao.org/docrep/016/ap553e/ap553e.pdf>.

127 Section 2(a).

such fisheries. This is already acknowledged in the UNFSA. Article 24(2) provides for “the vulnerability of developing States which are dependent on the exploitation of living marine resources, including for meeting the nutritional requirements of their populations...; the need to avoid adverse impacts on, and ensure access to fisheries by, subsistence, small-scale and artisanal fishers and women fishworkers, as well as indigenous people in developing States.” In summary, many small-scale fisheries are overfished and face the same need to reduce fishing capacity. RBM can be used to achieve this, but food security and human rights concerns may require a tempering of design of the RBM or be factored into their design. In particular, attention must be given to how allocations are made, how the benefits derived from fishing are shared, and how such allocations or alternative support measures for fishing communities can maintain adequate livelihoods.

Key points. These soft-law instruments and policy developments are not binding as a matter of law, but they indicate the direction of fisheries governance. They can be used to support the adoption of RBM by fisheries management bodies when RBM is shown to further the sustainable management goals of soft-law instruments. The fact that the Code of Conduct and other instruments are non-binding means that their provisions can be more “ambitious” than treaties, since they do not have to ensure provisions meet or stay narrowly within the confines of States’ negotiated interests. However, because soft-law instruments are not binding, care needs to be taken not to attach too much weight to their content, particularly when they are used as part of an assessment of the regulatory environment as part of a potential investment in fisheries.¹²⁸ Soft-law instruments cannot guarantee specific fishing rights or outcomes. In some respect,



128 See further section 3.3 below.

these instruments operate outside the formal structures of international law and may be regarded as forms of incentive-based tools in that they seek to change or motivate change in behavior, in the process developing institutional cultures and practices in other fora. As in the case of food security, they articulate emergent values in fisheries policy that can influence the application of formal rules in treaties.

Linking fishing to human rights concerns may place potential restrictions on how allocation and access arrangements are framed. Many fisheries and human development policy instruments are framed so as to be mutually reinforcing or compatible. For example, SDG Goal 14 is underpinned by concerns for ensuring habitable environmental, and it reiterates the importance of development needs, including those of future generations. Article 25 of the UNFSA also demands cooperation to enhance the capacity of developing States. This paper does not explore a wider range of human rights instruments. Until recently, these have not been considered part of the immediate policy/legal framework for fisheries.¹²⁹ While it is impossible to evaluate the interaction of different human rights instruments, development policies and rights, and fisheries agreements, as a general rule, fisheries agreements and management tools that are consistent with human rights standards and developmental goals are less likely to be challenged. This includes ensuring RBM accommodates human rights and developmental concerns.¹³⁰ As such they may provide for a more secure regulatory context.

2.9 Future Developments: Implementation Agreement for ABNJ

On 19th June 2015, the UNGA initiated a process for the negotiation of an international legally binding instrument on the conservation and sustainable use of marine biodiversity in ABNJ through the adoption of UNGA Res 69/292.¹³¹

This instrument may have a significant impact on high seas fisheries because it aims to strengthen existing mechanisms for protecting and conserving living resources in ABNJ. In particular, it will consolidate governance principles that should in theory extend to RFMOs, and introduce management tools that may impact upon fisheries, specifically area-based management and environmental impact assessment.

The UNGA established a preparatory committee (PrepCom), which will make recommendations for a new treaty that the UNGA will take forward. The timeframe for this process remains open, but there are strong prospects of a new agreement being drafted and adopted by 2030. In the interim, many of the issues on the agenda for inclusion within a new treaty will continue to influence the practices of States, RFMOs and other bodies with mandates to manage activities in ABNJ. It is highly likely that this agreement will address fisheries, either directly or indirectly, in three main areas: the designation of legal principles applicable to all activities in ABNJ, the adoption of a system of area-based management, and the requirement to use environmental impact assessment.

The parameters and key elements of the agreement have been developed through a

129 Barnes, R. (2018), Environmental Rights and Marine Spaces, paper on file with author.

130 See Allison E.H. et al. (2012), "Rights-based fisheries governance: From fishing rights to human rights." *Fish and Fisheries*, 13:14-29; "Low Impact Fishers of Europe" (2016), *Rights Based management and Small Scale Fisheries in the EU. Human Rights versus Property Rights*, available at http://lifeplatform.eu/wp-content/uploads/2017/01/LIFE-Statement-on-ITQs_Abridged-version.pdf.

131 UNGA Res 69/292, UN Doc A/Res/69.292, 6 July 2015.

series of PrepCom meetings. PrepCom has met four times: March-April 2016 (PrepCom 1), August-September (PrepCom 2), March-April 2017 (PrepCom 3), July 2017 (PrepCom 4). PrepCom meetings were well attended by States and NGOs, but received only limited input from RFMOs.

A key point made by the RFMOs was that an international legally binding instrument (ILBI) for ABNJ should not interfere with their mandate. However, there remained tensions concerning how this would relate to stronger commitments to ensure biodiversity protection.

Notably only one regional fisheries management organization (RFMO), the South East Atlantic Fisheries Organisation (SEAFO), attended, despite the importance of the ABNJ implementing agreement (ABNJ IA) to fisheries. There was a larger and more vocal presence by RFMOs at PrepCom 2 (ICCAT, NPFC, NEAFC attended). A key point made by the RFMOs was that an international legally binding instrument (ILBI) for ABNJ should not interfere with their mandate. However, there remained tensions concerning how this would relate to stronger commitments to ensure biodiversity protection. PrepCom 4 has taken matters as far as possible, having identified broad areas where there appears to be consensus and areas where further work is needed to reach consensus.¹³² The convening of an inter-governmental conference to negotiate an ILBI on ABNJ remains in the hands of States, since it will be done through a vote of the UN General Assembly.

If an intergovernmental conference is convened to draft a text, then the following elements will likely be featured since they represent matters upon which States have demonstrated agreement so far:

- The new treaty will only apply to ABNJ. States' rights and jurisdiction including the EEZ and continental shelf will be respected.
- The material scope will encompass the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction, in particular, together and as a whole; marine genetic resources, including questions on the sharing of benefits; measures such as area-based management tools, including marine protected areas, environmental impact assessments, and capacity-building; and the transfer of marine technology.
- Its main objective will be the conservation and sustainable use of resources in ABNJ, but could include additional objectives, if agreed, such as furthering international cooperation and coordination to ensure the achievement of the overall objective of conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction.
- The text will define its relationship with other instruments and bodies.
- The text will state that nothing in the instrument shall prejudice the rights, jurisdiction, and duties of States under the Convention. It will further state that the instrument shall be interpreted and applied in the context of and in a manner consistent with UNCLOS.

¹³² Report of the Preparatory Committee established by General Assembly resolution 69/292: Development of an international legally binding instrument under the United Nations Convention on the Law of the Sea on the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction. Available at <https://sustainabledevelopment.un.org/index.php?page=view&type=13&nr=2167&menu=1634>.

- The text will state that the instrument will promote greater coherence with and complement existing relevant legal instruments and frameworks and relevant global, regional, and sectoral bodies. It will also state that the instrument should be interpreted and applied in a manner which will not undermine these instruments, frameworks and bodies.;
 - The text could recognize that the legal status of non-parties to the Convention or any other related agreements with regard to those instruments would not be affected.
 - The agreement will contain a range of governing principles:
 - Respect for the balance of rights, obligations and interests enshrined in the Convention
 - Due regard as reflected in relevant provisions of the Convention
 - Respect for the rights and jurisdiction of coastal States over all areas under their national jurisdiction, including the continental shelf within and beyond 200 nautical miles and the exclusive economic zone
 - Respect for the sovereignty and territorial integrity of all States
 - Use of marine biological diversity of areas beyond national jurisdiction for peaceful purposes only
 - Promotion of both the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction
 - Sustainable development
 - International cooperation and coordination, at all levels, including north-south, south-south, and triangular cooperation
 - Relevant stakeholder engagement
 - Ecosystem approach
 - Precautionary approach
 - Integrated approach
 - Science-based approach, using the best available scientific information and knowledge, including traditional knowledge
 - Adaptive management
 - Building resilience to the effects of climate change
 - Duty not to transform one type of pollution into another consistent with the Convention
 - Polluter-pays principle
 - Public participation
 - Transparency and availability of information
 - Special requirements of small island developing States, and least-developed countries, including avoiding transferring, directly or indirectly, a disproportionate burden of conservation action onto developing countries; and
 - The requirement to act in good faith
- In summary, these matters will impose high standards of responsibility for the management and use of living resources in ABNJ, and strengthen cooperative requirements and mechanisms. This agreement could potentially mandate States (individually or through RFMOs) to implement regulatory change for the management of fisheries in ABNJ.

Matters that remain in need of

development. Despite progress, a number of matters remain unresolved: the accommodation of common heritage and freedom of the seas as core principles; the definition of MGR and related matters of benefit sharing; the institutional structure required to implement area-based management (ABM) tools, as well as the related decision-making mechanisms and relationship with existing regional and global bodies; and the question of whether environmental impact assessments (EIAs) should be conducted by States or “internationalized,” and whether this should include strategic environmental assessments (SEAs). Further discussions are required on institutional arrangements and the relationship between the institutions established under an international instrument and relevant global, regional, and sectoral bodies. A related issue that would also require further attention is how to address monitoring, review, and compliance.

Potential impact on fisheries and ABNJ. A number of key points should be noted. First, it is generally accepted that “unsustainable fishing, in particular overfishing, illegal, unreported, and unregulated fishing and certain destructive fishing practices, was the greatest threat to marine biodiversity in those areas.”¹³³ This understanding provides strong support for the inclusion of fisheries within the scope of the agreement, reinforced by the identification of governance gaps in international fisheries law, which are widely acknowledged. These governance gaps include exceptions for small vessels from FAO Compliance Agreement, gaps in species and geographic coverage, weak flag State control and flags of convenience, and insufficient oversight of RFMOs. Second, there

remains a split between groups of States favoring the inclusion of fisheries within the scope of an ILBI on ABNJ and those against such inclusion. The former include the African Group, Costa Rica, Indonesia, Jamaica, New Zealand, Norway, Peru, and the USA.¹³⁴ This was also the position of NGOs Greenpeace, the High Seas Alliance, the Natural Resources Defense Council, and Pew.¹³⁵ The latter group includes Japan, Iceland, and the Russian Federation, and is strongly opposed to the inclusion of fisheries.¹³⁶ RFMOs also, have been generally resistant to any measures that would interfere with their mandate. However, this does not rule out enhancing the mandates of RFMOs to accommodate stronger biodiversity concerns. At PrepCom 1 there was little support for expanding the competence of RFMOs beyond fisheries matters.¹³⁷ However, this will require some degree of integration or complementarity of approaches across sectors. There appears to be growing support for some strengthening of the authority of RFMOs or of enhancing mechanisms for cooperation between RFMOs and other bodies with mandates to govern ABNJ.

Integration of regimes, including RFMOs.

A key issue will be how to integrate any new regime for ABNJ with existing institutions. Integration as a principle requires institutional mechanisms or processes to be put in place to coordinate the activities of different bodies with related or potentially overlapping mandates. This may result in some degree of reform or new modes of operation for RFMOs, and may be pursued in different ways. For example, a holistic or integrated approach would establish a single institutional structure and processes capable of regulating all matters. Alternatively, a decentralized or soft approach would rely upon mechanisms for coordinating activities

133 UN Doc A/68/82, para 10. Also UN Doc 69/117*, para 8.

134 Ibid.

135 Ibid.

136 *Earth Negotiation Bulletin*, vol 25/97, 1-2 and *Earth Negotiation Bulletin* vol 25/98, 2.

137 UN Doc A/63/79, para 24.

between different sectoral institutions. The discussions of PrepCom have produced something of a stalemate on this point, although delegations were alert to the consequences of either approach. As noted above, a holistic approach has significant implications for the structure and functioning of existing sectoral arrangements for fisheries, and would require more profound institutional reform. (This also holds true for pollution control.) A decentralized approach would ensure existing approaches are preserved, but would leave many questions about how fisheries should be integrated within any future regime if they are to remain governed by existing fisheries laws under the UNFSA and RFMOs. Integration could be secured through procedures to ensure that relevant interests, standards, and approaches are considered within different agencies. Already, this is occurring outside of UN processes between RFMOs and regional seas arrangements. A good example is the MOU between NEAFC and OSPAR adopted in September 2008, which recognizes respective competences and areas of shared concern, and establishes processes for sharing of information, joint discussions, and common approaches to the application of precautionary approaches and area-based management.¹³⁸ There is little reason why such an integrated approach to information and advice could not inform any other joint initiative between different sectoral institutions.¹³⁹ However, the area of competence and capacity of many regional environmental seas arrangements bodies is limited or not co-extensive with seas covered by the major tuna RFMOs. Thus, the Indian Ocean is subject only to a regional action plan, and lacks a treaty-based institutional regime to govern environmental matters. In the Atlantic, the area of competence of

ICCAT overlaps with a Caribbean body (Cartagena Agreement), OSPAR, and the West African region (Abidjan Agreement), and there is a significant area of the central Atlantic beyond the scope of the regional environmental bodies. This may place a considerable limit on inter-institutional cooperation.

Integration could be secured through procedures to ensure that relevant interests, standards, and approaches are considered within different agencies. Already, this is occurring outside of UN processes between RFMOs and regional seas arrangements.

Fisheries and area-based management

(ABM). Area-based management is a collective term referring to a range of spatially determinate measures designed to prevent harm to the environment, conserve resources, and/or coordinate activities. The scale of such measures may range from local area controls (e.g., TURFs) to large-scale marine protected areas. Area-based management could include a wide range of spatial measures including zoning controls. From the outset, there has been consensus that area-based management, including through a network of MPAs and associated fisheries measures, would be an important tool for conserving and managing marine biodiversity in ABNJ.¹⁴⁰ There appeared to be general support for addressing fisheries within area-based management regimes.¹⁴¹ Since a number of RFMOs (and other institutions, ISA and IMO) adopt some form of

138 A similar agreement was agreed between OSPAR and other institutions: the International Seabed Authority (2011) and NASCO (2013). A collaborative arrangement was also adopted between OSPAR and the Sargasso Sea Alliance in 2012. These are available at <http://www.ospar.org/about/international-cooperation/memoranda-of-understanding>.

139 UN Doc A/65/68, para 34.

140 UN Doc A/61/65, para 59 and Annex I, para 10.

141 Ibid., Annex I, para 10.

area-based management, the question is really about whether this requires better coordination or entirely new mechanisms.¹⁴²

ABM may impact fisheries and RBM in several ways. First, it may limit areas within which fishing rights in general are exercised, or how fishing is exercised within specific areas (e.g., TURFs). Second, it may result in limits placed on the use of fish aggregating devices (FADs) in certain locations. Third, ABM may entail cooperation between institutions. The cooperative arrangement by way of a MOU between NEAFC and OSPAR is often used as an example of how existing institutions could cooperate in developing area-based management tools.¹⁴³ In principle, there is nothing to prevent cooperative measures between RFMOS or between RFMOS and sub-regional arrangements to develop ABM measures. The treaty of the respective bodies would determine the precise scope of cooperative measures, although caution is required if sub-regional measures potentially conflict with regional measures.¹⁴⁴

The preferred approach emerging seems to be for a regional framework for the designation and implementation of marine protected areas (MPAs), following the RFMO/Fish Stocks Agreement model.¹⁴⁵ However, it was not clear whether this should be done through ad hoc arrangements or a coordinating instrument. Since regional cooperation may be easier to secure than global agreement and would allow

for regional circumstances to be considered, one can see the attraction of this approach. It is generally recognized that although mechanisms exist to establish ABM, these are neither plenary in scope, or fully developed and readily applicable to ABNJ.¹⁴⁶ Second, in ABNJ, the principal form of jurisdiction is flag State. This means that the effectiveness of ABM is contingent upon widespread global support.¹⁴⁷ This is precisely the same challenge facing existing RFMOs and third-party fishing States and one that any new regime for ABNJ will need to address. Discussions about the content of an ILBI for ABNJ make it clear that all States accept some degree of coordination as required between an instrument containing ABM provisions and existing fisheries regimes. A number of delegations suggested that the development of ABM should draw upon or involve RFMOS.¹⁴⁸ The African Group rightly emphasized RFMOs cannot adopt an integrated approach to marine protected areas (MPAs) as this requires coordination of efforts at a minimum.¹⁴⁹ However, there seemed to be little appetite for a significant revision of RFMO mandates. Thus, Norway noted the cost-effectiveness of relying on existing mechanisms, such as RFMOs, to establish MPAs.¹⁵⁰ New Zealand proposed setting of criteria for area-based management tools that could be used by RFMOs.¹⁵¹ This approach could be effective, having been relatively successful with regards to the UNFSA, which influenced the standards and mandates of pre-existing RFMOs and newly established RFMOs.¹⁵²

142 See Takei, (n 00), chapter 3.

143 UN Doc A/65/68, para 59. More specifically, the MOU refers to cooperation between NEAFC and OSPAR regarding marine spatial planning and area based management. *Supra* note 138, point 1(d).

144 See further p. 16 above.

145 UN Doc A/69/82, paras 59-60.

146 UN Doc 69/117*, paras 59-62.

147 *Ibid.*, para 64.

148 Australia, the EU, Papua New Guinea and the United States, *Earth Negotiation Bulletin* vol 25/102, 1-2;

149 *Ibid.*, 1.

150 *Earth Negotiation Bulletin* vol 25/99, 2.

151 *Earth Negotiation Bulletin* vol 25/102, 1.

152 See Diz Pereira Pinto, (2013). *Fisheries Management in Areas beyond National Jurisdiction. The Impact of Ecosystem Based Law Making* (Martinus Nijhoff), chapter 5.

Some RFMOs already utilize area-based management tools. In some RFMOs, ABMs are driven by concerns about the impact of bottom-trawling. In tuna RFMOs, closed areas have been agreed to in order to reduce pressure on over-exploited stocks.¹⁵³ In 2006, the General Fisheries Commission for the Mediterranean (GFCM) declared three areas as Fisheries Restricted Areas to protect corals, cold hydrocarbon seeps, and seamounts. In 2013, it adopted Resolution GFCM/37/2013/1, which seeks to establish and coordinate Fisheries Restricted Areas with Specially Protected Areas of Mediterranean

Importance (SPAMIs), with a particular focus on high seas areas.¹⁵⁴ NEAFC has introduced closed areas in ABNJ including Hatton and Rockall Banks to bottom trawling and static gear in order to protect vulnerable marine ecosystems.¹⁵⁵ NAFO has established two closed areas to shrimp fisheries on the Flemish Cap.¹⁵⁶ In 2007, four seamount areas were closed to bottom fishing between 2007 and 2010,¹⁵⁷ and two further areas were closed in 2008.¹⁵⁸ A coral protection zone was established in 2008, which is also closed to bottom gear fishing.¹⁵⁹ By 2014, there were 12 areas closed to bottom fishing, six protected



153 E.g., WCPFC (2012), "Conservation and Management Measure for Temporary Extension of CMM," 2008-01.

154 Resolution GFCM/37/2013/1 on area-based management of fisheries, including through the establishment of Fisheries Restricted Areas (FRAs) in the GFCM convention area and coordination with the UNEP-MAP initiatives on the establishment of SPAMIs, available at <http://www.fao.org/3/a-ax392e.pdf>.

155 Recommendation IX:2008. These measures have since been continued: See Recommendation VIII:2010, Recommendation 14:2011, Recommendation 8:2012, Recommendation 19:2014.

156 NAFO Conservation and Enforcement Measures 2006, NAFO FC/ Doc. 06/1, Article 12.

157 This includes the Orphan Knoll, Corner Seamounts, Newfoundland Seamounts and new England Seamounts NAFO Conservation and Enforcement Measures 2007, NAFO FC/Doc. 07/1, Article 12.

158 Fogo Seamount Areas 1 and 2. See NAFO Conservation and Enforcement Measures 2009, NAFO FC/Doc. 09/1, Article 15.

159 NAFO Conservation and Enforcement Measures 2008, NAFO FC/Doc. 08/1, Article 15.

seamount areas, and one coral protection zone.¹⁶⁰ Since 2006, SEAFO has closed a number of vulnerable marine areas to fishing. Presently, 11 areas are closed to all fishing and one area to all fishing except pots and longlines.¹⁶¹ In the Indian Ocean, the Southern Indian Ocean Deepsea Fishers' Association, which is comprised of the four main bottom-trawling companies in the region, has designated 13 Benthic Protected Areas (BPAs). BPAs are areas where bottom trawling and dredging is forbidden. However, the measures are limited to members; they cannot be imposed upon third-party operators. There is also little independent assessment, oversight, or control of the designations.

The FAO's International Guidelines for the Management of Deep-Sea Fisheries in the High Seas promote the use of area-based management in vulnerable marine ecosystems (VMEs). The Guidelines encourage States and RFMOs to identify and designate VMEs. VMEs should be closed to fishing "until appropriate conservation and management measures have been established to prevent significant adverse impacts on VMEs and ensure long-term conservation and sustainable use of deep-sea fish stocks . . ." The Guidelines do not establish formal legal authority to manage fisheries. Indeed, they note the limits of existing institutional arrangements and call upon States to strengthen them.¹⁶²

Area-based marine management principles are largely discretionary and facilitative. Indeed, the need for adaptive, context-specific approaches to area-based management support this flexible approach, and it is unlikely the prospective

ABNJ instrument will depart from this approach. The lack of detailed provisions on area-based marine management means that the prospective instrument is unlikely to generate acute legal conflicts with established legal principles unless it adopts measures that run counter to fundamental principles of exclusive flag State jurisdiction in ABNJ. Herein lies the challenge, since it is precisely this response to a lack of strong coordinated/centralized institutional management that is required. Detailed discussion of such issues has been absent from the BBNJ meetings and PrepCom to-date. Careful steps will need to be taken to secure the agreement on coordinated management within a system in which the political preference is for decentralized State-centric decision-making.

Fisheries and environmental impact

assessment. Environmental impact assessment (EIA) is a procedural tool used in many legal systems to ensure that environmental effects are understood before a decision is made to authorize an activity or program of activities. The duty to conduct an EIA is part of customary international law.¹⁶³ It is questionable whether this applies to or includes fisheries. UNCLOS does not contain a specific provision requiring an EIA for fisheries; instead it establishes a rather basic requirement to consider the impacts of an activity when a State has reasonable grounds to believe that it may cause substantial pollution or significant harm to the environment.¹⁶⁴ This falls short of the fully-fledged, cross-sectoral, cumulative impacts assessment that is required to protect the marine environment in ABNJ.¹⁶⁵ Most RFMOs include some form of stock assessment, but this falls some way short of the procedural

160 NAFO Conservation and Enforcement Measures 2014, NAFO FC/Doc. 14/1, Article 16.

161 Conservation Measure 30/15 on Bottom Fishing Activities and Vulnerable Marine Ecosystems in the SEAFO Convention Area.

162 Ibid., paras 26-28.

163 See *Case concerning Pulp Mills on the River Uruguay* (2010) ICJ Rep 14, para 204; *Responsibilities and obligations of States with respect to activities in the Area*, Advisory Opinion, 1 February 2011, ITLOS Reports 2011, 10, para 145.

164 Article 206.

165 See Oude Elferink, A.G. (2012), "Environmental Impact Assessment in Areas beyond National Jurisdiction," *International Journal of Marine and Coastal Law*, 27:449.

standards and inclusivity of EIA as adopted within most domestic legal regimes. Little progress on the detail of EIAs has been made. Key issues will be: Who conducts the assessment? Who pays for the assessment? Is an assessment a pre-requisite for the approval of an activity (what threshold is used to trigger the EIA)? How will decisions be reached and conditions imposed to potentially harmful activities? How will these be monitored and controlled?

Despite the existence of a general duty to conduct an EIA, this duty is only meaningful if procedures for the EIA are then properly articulated within legal instruments. As indicated in Table 1, the UNFSA and some RFMOs address impact assessment, albeit in quite general terms. Elferink notes that the lack of EIA for fisheries is due to the fact that fisheries have developed in parallel to environmental law, as opposed to being part of it.¹⁶⁶ Significantly, many fisheries are established practices, and it is commonplace for EIAs only to apply to new activities. If the prospective implementing agreement is to make a difference, then it must move beyond the generalities and articulate a meaningful EIA process. Support for this has been emerging through non-binding instruments, and it is possible that the processes outlined therein may evolve into formally binding rules.

In 2006, the UNGA called upon States and RFMOs to conduct EIAs prior to new fisheries in ABNJ. Paragraph 83(a) UNGA Res 61/105 calls upon RFMOs “to assess, on the basis of the best available scientific information, whether

individual bottom fishing activities would have significant adverse impacts on vulnerable marine ecosystems, and to ensure that if it is assessed that these activities would have significant adverse impacts, they are managed to prevent such impacts, or not authorized to proceed.”

Significantly, many fisheries are established practices, and it is commonplace for EIAs only to apply to new activities. If the prospective implementing agreement is to make a difference, then it must move beyond the generalities and articulate a meaningful EIA process.

Such assessment provides a starting point for the adoption of other management measures, including area-based management tools for VMEs. This was reiterated in UNGA Res 64/72 of 2009, which called for implementation of UNGA Res 61/105 by flag states and RFMOs in accordance with the FAO Guidelines on Deep Sea Fisheries. Furthermore, they should “ensure that vessels do not engage in bottom fishing until such assessments have been carried out.”¹⁶⁷ Although a positive development, these measures have been criticized for being too weak.¹⁶⁸ Limited assessments have been produced or are limited to specific features such as corals or seamounts. States and RFMOs have been reluctant to close areas. Management measures are often limited to encounter protocols and move on rules, which

¹⁶⁶ Elferink, above (n 165), 469.

¹⁶⁷ Para 119(a).

¹⁶⁸ See Gianni, M. et al. (2011), *Unfinished business: a review of the implementation of the provisions of UNGA resolutions 61/105 and 64/72 related to the management of bottom fisheries in areas beyond national jurisdiction*, (Deep Sea Conservation Coalition, September 2011), available at <http://www.savethehighseas.org/resources/publications/unfinished-business-review-implementation-provisions-united-nations-general-assembly-resolutions-61105-6472-related-management-bottom-fisheries-areas-beyond-nat/>. See also the report of the UN General Assembly Workshop to discuss implementation of paragraphs 80 and 83 to 87 of resolution 61/105 and paragraphs 117 and 119 to 127 of resolution 64/72 on sustainable fisheries, addressing the impacts of bottom fishing on vulnerable marine ecosystems and the long-term sustainability of deep-sea fish stocks: Letter dated 27 October 2011 from the Moderator of the Workshop to the President of the General Assembly, UN General Assembly document A/66/566 (18 November 2011).

are set too high to protect VME.¹⁶⁹ Insufficient controls have been placed upon bottom trawling.

Experiences with EIA under domestic law may be instructive as to the potential pitfalls of a more rigorous approach. However, it should be noted that few domestic regimes require EIAs for established fisheries. As such, lessons may be limited.

Apart from EIAs there is the issue of Strategic Environmental Assessments (SEA) that address issues at a high level, rather than at the level of individual activities. Who would conduct this? Individual states? New institutions? Collaborations between ISA, RFMOs, and regional seas institutions? Again it would seem sensible for a broader SEA to be carried out inclusive of all activities since this is a means of factoring in cumulative and inter-related activities. Would the SEA be taken into account for EIAs? This would seem to be sensible since it facilitates integrated approaches and is the model followed in domestic law. Who carries out the EIA? Member States? Fishing companies or organizations?

EIAs could be carefully calibrated to accommodate different types of activities and associated risks. For example, only requiring stringent use of EIAs in vulnerable areas or for activities that are regarded as high risk and allowing for optional EIAs in low risk contexts.

Summary. The following points are critical. First, the proposed agreement shows a high degree of respect for existing institutions, indicating the “institutionalized” thinking that predominates in law of the sea. Second, it is clear that the proposed regime has the potential to incur significant costs/burdens on existing fisheries management mechanisms. EIAs, ABMs, and integration of approaches across sectors come at a not insignificant cost. There is a good chance that a new ABNJ agreement will commit States

or other agencies (e.g., RFMOs) to conduct a prior environmental impact assessment for any activities in ABNJ that may have a potential significant adverse impact on ABNJ and the resources therein. This would further require that no activity take place unless exempt from an EIA, or having demonstrated that no significant effects will arise, or that such effects can be mitigated or offset. Overall, a new ABNJ agreement will demand a higher degree of systemic thinking in fisheries management.

2.10 Key Findings on the Legal Framework for the Governance of Fisheries

From the foregoing analysis of the legal framework nine key points are identified in relation to incentive-based approaches.

Passive treatment of incentive-based approaches. Most international fisheries agreements are silent or passive on the question of incentive-based tools. Soft-law instruments and recent policy developments are more sensitive to the role that incentives, such as market-based controls and rights-based management, can play in fisheries management and encourage their use. They do not direct or structure their use. As such, the scope to use incentive-based approaches remains largely shaped by extra-legal considerations or rules of trade law (discussed below). This is not to say that that law of the sea does not impact on how incentive-based tools operate. They set the institutional conditions within which such instruments operate. Key points are as follows.

Freedom of the high seas. Each of the binding agreements acknowledges the fundamental principle of freedom of the high seas. This has a

¹⁶⁹ Encounter protocols require vessels that bring up a particular quantity of species, e.g., live coral or sponges, in their gear to move to a different fishing area. See Gianni et al., *ibid.*

strong legal (and political) value and it is difficult to modify. It reflects the idea of the oceans as a public or common good, and not to be allocated away to individual or groups of States. Although later instruments condition its use, they do not significantly challenge it or its associated principle, the exclusive jurisdiction of the flag State. This in turn undermines the extent to which RFMOs governing high seas fisheries can adopt measures, as they may be undermined by third States. In short, the possibility of external fishing can undermine potential incentive structures.

Bindingness of law. Although it may be obvious, it is nonetheless important to state that treaties are only binding on contracting States. They do not as a general rule create rights and duties for non-parties (third States). This is the *pacta tertiis* rule. Some obligations may become custom and bind a third State, but not institutional mechanisms such as those presented by RFMOs.

Participation and allocation issues. Some incentive-based tools implicate the allocation of fishing entitlements. As yet, international fisheries law has taken poorly-defined and backward-looking approaches to allocation, which strongly favor historical fishing activities. As such, it may be difficult to accommodate other considerations, such as credit for conservation or sustainable fishing practices. Initiatives are underway to develop allocation criteria in some RFMOs. This may provide an opportunity to press for the inclusion of criteria that incentivize sustainable fishing. Participatory rights and allocations are a key lever to incentivize non-members to adhere to RFMO measures. However, they remain contentious since new members may require reductions in existing allocations and benefits.

Institutional patterns, processes, and logics.

The law of the sea is quite institutionalized, meaning that actors are inclined to follow

establish practices and rules. Each agreement builds on or supports a previous agreement. Change is slow and incremental, and unlikely to upset existing balances of interests. Thus, it can be hard to reform international fisheries law.

Difficult amendment procedures. The difficulty of developing substantive reforms is reinforced by the procedural obstacles to change. It is unlikely that there will be significant reform of UNCLOS or the UNFSA. It is too early to gauge the likely impact of the ABNJ Agreement on fisheries. This suggests that reform of management rules and processes may be better targeted at regional or national scales.

Regional and sub-regional arrangements.

Although most high seas fishing is governed by RFMOs, the UNFSA is open to and makes explicit reference to sub-regional arrangements. This admits the possibility of arrangements like the PNA, as a sub-regional fora operating in parallel/conjunction to the WCPFC.¹⁷⁰

Reference points for regional and domestic regimes and the operation of incentive based approaches. In particular, compliance with international rules is a general precondition or requirement for certain incentives-based approaches, such as certification schemes (See below)

Integration issues. International legal regulation of fisheries focuses on cooperation and sometimes coordination. Optimal governance requires a higher degree of integration, or collaboration, to ensure the governance system is more than the sum of its parts.¹⁷¹ Without this, incentive gaps may arise, regulatory objectives are missed, value derived from the capture of resources may be lost, and externalities can arise. Integrated governance can be understood in six dimensions: normative, spatial, sectoral, disciplinary, temporal, and user integration.

170 See further Section 4.5 below.

171 Ridgeway and Rice (n 31), 486.

- *Normative integration* requires that legal rules should operate as part of a coherent system of rules. Although some rules of UNCLOS or the UNFSA demand this, conflicting or inconsistent rules may still occur. Gaps may occur “horizontally” when there is no integration between agencies operating at the same “level,” and gaps may occur vertically when domestic regulation is inconsistent with international law. Normative integration further requires that different regulatory tools are used in a coherent way. For example, when using different regulatory tools, rights-based instruments might conflict with seasonal closures.
- *Spatial integration* requires that the integration of an activity occurring in different spaces (maritime zones) is integrated; for example, between RFMOs with common boundaries or between RFMOs and coastal States where a resource straddles a boundary. *Sectoral integration* requires that agencies involved in the governance of discrete activities collaborate to ensure that permitted activities do not conflict.
- *Discipline integration* requires that there is coherent sharing of information and understanding of how different approaches drawn from different disciplines combine, while requiring that information failure is avoided or Mitigated. By having governance systems in which information is drawn from a full range of disciplines, actors are enabled to make optimal decisions about the use of scarce resources. Discipline integration may also help ameliorate biased decision-making, asymmetric decision-making, or moral hazard.
- *Temporal integration* is concerned with how the same or different activities interact over time. More specifically, it is concerned with cumulative impacts, such as high levels of fishing, or the combination of pressures on vulnerable ecosystems over time.
- *User integration* is concerned with ensuring that users or stakeholders are involved in decision-making as regards resource use. While fisheries are regulated at a regional or inter-State level by States, fishing activities are conducted by individuals. If individuals are dislocated from decision-making, then compliance and information flows (e.g., catch reporting, loss of localized expertise) may be undermined.

3. Innovative Incentive Based Tools

In this section, an analysis and evaluation of the options for adopting innovative fisheries management tools is considered. The review is not exhaustive of such measures, and broadly categorizes these into the categories of RBM, suasive instruments, financial incentives, and market-based measures for analytical purposes.

3.1 Rights-Based Instruments

General Fisheries Management Approaches.

Space limits a detailed account of the vast range of fisheries management tools available, but a broad typology and description of the principal forms of regulation is possible. Typically, fisheries management tools are categorized into three types: technical measures, input control, and output controls.¹⁷² Rights-based management is a form of fisheries management that involves the creation of use rights or property rights, which are vested in individual fishers, vessel owners, or communities. Such rights can exist in respect of both input controls and outputs controls, although the more developed form of RBM tend to focus on outputs.¹⁷³ These three types of control can be imposed at different levels (local, national, and international) through different management bodies (e.g., State, EU, or RFMO). The instruments tend to be public regulatory measures implemented through legislation or international agreements (i.e., they are defined, allocated, and enforced by the State or other public agency). Even RBM instruments

such as ITQs, which operate in a market, depend upon a statutory basis. This is because the basic entitlement, a form of exclusive fishing right, needs to be defined and separated from what is otherwise a common resource. The regulatory measures are generally targeted at fishers, although quotas and certain types of technical measure can operate at the level of States.

Technical measures. These comprise a range of controls on when and where fishers can fish. Size limits place restrictions on the size of fish that can be caught, and extend to discard ban and landing requirements. Gear restrictions limit or control the different types of fishing gear that can be used (including boat size, engine size, nets, mesh size, traps, lines, excluder devices) and where the gear can be placed. Area and time restrictions are used to prevent fishing in particular places or at certain times, usually to protect spawning stocks or to allow depleted stocks time to recover. Marine protected areas are a more advanced form of area restriction, in which limits on fishing are often combined with other measures to protect the environment. Technical measures are ubiquitous in fisheries since regardless of who can catch and how much, regulations are required to restrict certain techniques and methods of fishing that are harmful. Technical measures are principally established under domestic law. They are invariably creatures of statute, whether prescribed by legislation at state, federal, or local levels (e.g., by laws). Although technical measures can be adopted at the international level, through RFMOs or within fisheries agreements, such measures will need to be transposed into

172 FAO Technical Guidelines for Responsible Fisheries, No. 4, Rome, FAO, 1997, 45-55.

173 See further Gentner, B. (2018), *Assessing the application of innovative incentive based tools to reform highly migratory fisheries at the project development and regional scales*, prepared for the World Wildlife Fund, Washington, DC, USA.



domestic law in order to have an effect on the conduct of actual fishing activities. Where States have agreed on any technical measures, they are required to adopt such measures into domestic fisheries management laws.

Input controls. Input controls limit the amount of effort that can be “put into” a fishery with a view to controlling the amount of fish that can be caught. Some limit on fishing capacity is generally seen as desirable, and is sometimes set out as the objective of fisheries management (e.g., to reduce overfishing). Input controls may overlap with the above technical measures, for example by restricting certain types of gear. They can also overlap with RBM. For example, input controls can include restrictions on fishing “units” through licenses or permits or effort quotas. To the extent that such measures grant use rights, they may be considered weak forms of RBM. Stronger forms of RBM include effort controls, such as days-at-

sea schemes, as operated in the PNA tuna fishery. As noted above, input controls are put into practice through domestic legislation, although this may be done in accordance with international agreements.

Output controls. Output controls impose direct limits on the amount of fish harvested. At the most basic level, this involves setting a total allowable catch and fishing quotas. Domestically, States are responsible for doing this for fisheries within their coastal waters. In international fisheries (i.e., HMS, straddling stocks and discrete high seas fish stocks), quotas are usually determined through RFMOs or other cooperative frameworks, which allocate quotas to individual States. Quotas may be fixed or structured in a way that allows them to be traded. More sophisticated quotas take the form of rights-based measures such as individual transferable quotas (ITQs), community development quotas

(CDQs), catch shares, and exclusive-use rights such as territorial user rights in fisheries (TURFs). These forms of RBM must be defined in law since they are not naturally occurring rights. A number of these rights can operate as market-based mechanisms since they can be bought and sold or leased on the market.

Rights-based management. RBM can accommodate a wider range of entitlements ranging from weak right-to-fish (such as a fishing license) to strong RBM (such as ITQs). The former are fairly ubiquitous and have existed for a longer period compared to strong forms of rights that have evolved in a number of domestic fisheries since the 1970s/1980s. Strong forms of rights are not widely used in international fisheries due to the lack of an exclusive regulatory authority capable of designing, implementing, and enforcing exclusive rights. While this could be done through cooperative mechanisms, agreeing upon allocation criteria and rules has proved to be challenging. Market-based instruments such as RBM generally depend upon the creation of property-like instruments. By establishing a form of property (usually an exclusive, durable, transferable, and secure right to fish) fishers are incentivized to stop “racing for fish.”¹⁷⁴ The quality of the right will depend upon the degree to which the four elements—exclusivity, durability, transferability, and security—are established in law. Weak rights-based entitlements have only some of those elements, or they will have limited duration, transferability, or security. Conversely, strong rights-based entitlements will enjoy longer duration, unrestricted transferability, and high levels of protection from interference.

Rights-based entitlements can incentivize fishers to fish in a more sustainable and efficient way. Fishers can fish without fear that the fishery

will close before they have caught their share. As a result, they may have time to fish less intensively, and so minimize bycatch. They are able to plan their activities in a way that allows them to catch fish most efficiently according to market conditions. In a market, the more efficient fishers should be able to profit and expand lower-cost fishing activities. In theory, this allows for the maximum economic rent to be derived from a resource. Additionally, owners having a vested capital interest in the resource should have an interest in insuring the resource is both sustainable and not harmed by destructive fishing practices. These factors are important drivers for the adoption of stronger RBM.

Legal basis of RBM. The effectiveness of RBM depends to a large extent upon the carrying capacity of the domestic regulatory regime within which the rights are held (the host legal system). This is important because the nature and operation of such rights is subject to any limits or conditions set by the host legal system. RBM takes the form of constructed legal entitlements that depend upon specific rules and institutions to operate. As yet, such rights do not appear to exist as property rights independently of the law that created them. However, this situation may evolve as courts increasingly recognize and protect the property characteristics of RBM (for example, as security for loans or as personal property in the context of matrimonial disputes or inheritance). There are two broad ways in which RBM might be protected. The first is takings law, which allows holders of rights to challenge regulation that diminishes or removes a property right without compensation.¹⁷⁵ There have been no extensive surveys of this, but it appears that few legal systems require compensation of regulatory change that impacts on quota or other forms of

174 It is important to stress the property is in the fishing right and not the pre-capture resource.

175 See concerns noted in Low Impact Fishers of Europe, (2016), *Rights Based Management and Small Scale Fisheries in the EU: Human Rights Versus Property Rights A LIFE Position Paper on ITQs*, available at http://lifeplatform.eu/wp-content/uploads/2016/12/LIFE-Statement-on-ITQs_full.pdf.

RBM.¹⁷⁶ Indeed, many legal systems specifically define rights within RBM so as to specifically rule out compensation that may arise under general law protecting property.¹⁷⁷ The second restriction on regulation of RBM derives from the doctrine of legitimate expectation, which provides grounds for challenging regulations that effectively deprive persons of legitimately-held expectations that certain states of affairs will continue.¹⁷⁸ The point here is not to categorically state that RBM takes particular legal forms that will always be protected in particular ways, but to flag realistic prospects of legal challenges to regulatory changes that adversely affect the value of individual holdings within RBM systems. Steps must be taken to ensure an appropriate balance between security of a right and the flexibility required to adapt such rights in light of changed conditions within a fishery.

RBM in international fisheries. In principle, scope exists for the introduction of RBM in international fisheries. This can be done in three ways. First, RBM can be implemented in respect of national allocation of quotas from regional fisheries bodies. Second, quotas capable of transfer could be allocated to States. This would allow States to trade quotas among themselves. Third, transferable quotas could be directly allocated to individual fishers without involving the State. This latter option has not occurred in practice and is quite unlikely given the importance that States attach to control of fisheries and the loss of authority this would represent.

The decision to use RBM within national allocations of quotas, as well as the effectiveness of quotas, is influenced by factors at the international level. For example, the introduction

of alternative management measures in other States that supply the same or similar products will influence the supply and price of fish products. Thus, the supply of more fresh halibut under the new Alaskan IFQ regime resulted in a drop in price for Canadian catch. Since RBM tends to be limited to a State's domestic portion of fisheries, limits on transferability of quotas between fishers in different States may limit the potential efficiency benefits from the RBM measures. The report by Gentner gives examples of RBM being adopted for parts of an international fishery at national levels (e.g., U.S. individual quota mechanism for BFT allocations under ICCAT).¹⁷⁹ Often, this is done in response to crisis in a fishery (e.g., the Pacific Halibut IFQ programs in Canada and the IFQ program in Alaska).

Within a domestic fishery, RBM entitlements can be allocated to individuals, companies, vessels, or communities. This also applies to any parts of a national quota allocated through an RFMO or other cooperative arrangement. However, in an international fishery, States must first deal with participatory (the right of a State to participate in a fishery) and allocation (decisions about the extent of fishing rights to participating States) issues before specific rights are assigned to fishers. Deciding and securing the allocation of fishing entitlements to States is logically prior to any sub-national allocation of rights. The negotiation of participatory rights and allocations within international fisheries can be difficult and long processes. Legally, any State with a real interest in a fishery may participate in an RFMO (Article 8(3) UNFSA): "The terms of participation in such organization or arrangement shall not preclude such States from membership

176 Bromley, D.W. (2016), "Rights-based fisheries and contested claims of ownership: Some necessary clarifications," *Marine Policy*, 71:231-236.

177 Stewart, C. (2004), *Legislating for Property Rights in Fisheries*, FAO Legislative Study 83, Rome, FAO.

178 *United Kingdom Association of Fish Producer Organisations v Secretary of State for Environment, Food and Rural Affairs* (2013), EWHC 1959 (Admin).

179 Gentner, B. 2018, *Assessing the application of innovative incentive based tools to reform highly migratory fisheries at the project development and regional scales*, prepared for the World Wildlife Fund, Washington, DC, USA.

or participation; nor shall they be applied in a manner which discriminates against any State or group of States having a real interest in the fisheries concerned.” However, the precise meaning of “real interest” is unclear. Moreover, any State seeking to participate in an established RFMO will likely disrupt existing allocations since it will seek a share of a fishery that is likely fully exploited. This will mean a potential reduction in allocations for existing members. RFMOs can make provisions for this eventuality in the design of the RBM system. Limited duration rights or a set-aside of a pool of rights can be allocated to new members that meet the criteria of having a real interest in the fishery.

The extent of participatory rights (i.e., allocations) are set out in Article 11 of the UNFSA, which includes a non-exhaustive list of factors: status of stocks and existing levels of fishing, respective interests, and fishing patterns/practices of existing and new members; contributions to conservation and management; needs of dependent fishing communities; needs of dependent coastal States; and interests of developing States in the region. These criteria are quite open and the UNGA has regularly called upon States to develop allocation criteria on allocation. For example, the 2017 “Fisheries Resolution” calls upon States to “address participatory rights, including through, inter alia, the development of transparent criteria for allocating fishing opportunities which reflects, where appropriate, the relevant provisions of the Agreement, taking due account, inter alia, of the status of the relevant stocks and the respective interests in the fishery.”¹⁸⁰ The interests of developing States are a priority in this context, with calls to assist developing States in enhancing their participation in regional fisheries management organizations or arrangements, including by facilitating access to fisheries for

straddling fish stocks and highly migratory fish stocks.¹⁸¹ Notably, this is linked to calls for capacity- building support to developing States, with calls for the provision of special financial mechanisms or instruments to developing States “to enable them to develop their national capacity to exploit fishery resources, including developing

Moreover, any State seeking to participate in an established RFMO will likely disrupt existing allocations since it will seek a share of a fishery that is likely fully exploited. This will mean a potential reduction in allocations for existing members. RFMOs can make provisions for this eventuality in the design of the RBM system. Limited duration rights or a set-aside of a pool of rights can be allocated to new members that meet the criteria of having a real interest in the fishery.

their domestically flagged fishing fleet, value-added processing, and the expansion of their economic base in the fishing industry, consistent with the duty to ensure the proper conservation and management of fisheries resources.”¹⁸² Thus, there is a correlation between enabling participation and financial support, which could include investment mechanisms.

The legal authority to develop and implement any RBM is dependent upon the constituent agreement of an individual RFMO, a sub-regional fisheries body, or cooperative arrangement. This is considered further in section 4.

180 UNGA Res A/72/72, adopted by the General Assembly on 5 December 2017, para 157. See also UNGA Res A/71/123 of 23 December 2016, para and UNGA Res A/70/75 of 22 December 2015.

181 UNGA Res A/72/72, *ibid.*, para 45.

182 *Ibid.*, para 47.

Key points. RBM has a growing track record of generating efficiency and contributing to conservation of fish stocks under domestic law. Successful implementation of RBM in domestic regimes may generate interest in the use of RBM at a regional level. As with most innovative regulatory changes, users must be persuaded of the financial or other benefits of the change, and have confidence in its effective operation. In some fisheries, RBM has generated intense conflicts about allocation of public resources (e.g., Iceland). In some fisheries, these concerns have been alleviated through a reduction in foreign fishing rights (e.g., New Zealand). RBM entitlements are creatures of statute. This means their form and operation will be influenced by the other legal requirements operative within the constituting jurisdiction. For example, studies of RBM in domestic legal regimes have shown a reluctance to classify or strengthen RBM in order to restrict the potential impact of regulatory taking law, which would require compensation for regulatory interventions that diminish the value of the holding.¹⁸³ States may also be concerned about encroachments into their overarching responsibility and discretion to manage fish stocks. RBM may create buy-in from rights holders for regulation that supports stock rebuilding efforts. However, rights holders may resist burdensome regulations to protect other components of ecosystems, especially when regulation adversely impacts the value of their holding. As a creature of statute, RBM may be vulnerable to subsequent legislative change and reform, thereby undermining the long-term security of the rights. Regulatory regimes need to be sensitive to these concerns.

3.2 Suasive Instruments

For the purpose of this report, suasive instruments include both information instruments and voluntary agreements. Information instruments encompass a wide range of measures designed to leverage information to influence decisions concerning the use, purchase, consumption, and regulation of commodities. This ranges from general measures, such as the publication of environmental data or data about the state of a resource, to specific product measures such as eco-labeling. This last category includes fishery information schemes; ISO standards; and the adoption of social accountability guidelines by fishing companies.¹⁸⁴ One of the highest-profile examples of an information instrument is the MSC certification scheme. Certification schemes are considered below in the context of market-based instruments since they are specifically designed to leverage change in fishing practices through market behavior. Suasive instruments may operate at international, regional, national, and local/corporate levels.

Voluntary agreements are agreed practices or positions with the scope of regulatory requirements. They may be initiated by the State as an alternative to regulation, but can also be at the initiative of private parties, NGOs, and other parties concerned with the way in which businesses or activities are conducted. These agreements may occur at international, regional, national, and local levels. They can be initiated between States and private actors, between States, and between States and other international actors. A good example, which is central to the issue of both information deficits and enforcement capacity, is the IMCS Network (discussed above).

183 Barnes (n 19).

184 E.g., Social Accountability Guidelines for Purse Seine Tuna Fishing Vessels. Available at <http://www.pacificall.com/guidelines.html>.



A key feature of suasive instruments is that they can operate outside of formal governance structures. This is because information may be possessed, constructed, and managed by any actor within a system, including State, private-actor, and third-sector groups. However, not all suasive instruments can exist or operate effectively without legal or governance structures. This dependence on governance structures can be direct and indirect. For example, MSC certification requires compliance with four basic principles. Principle Three specifically relates to “good regulation.” It provides that, “The fishery is subject to an effective management system that respects local, national, and international laws and standards and incorporates institutional and operational frameworks that require use of the resource to be responsible and sustainable.”¹⁸⁵ Thus, any certified product must be derived from a fishery that is compliant with the law, and this must be evidenced through its chain of custody. Indirect reliance on regulatory standards may

result from other conditions for certification. For example, the MSC principles and criteria also require that the “fishery must be conducted in a manner that does not lead to over-fishing or depletion of the exploited populations and, for those populations that are depleted, the fishery must be conducted in a manner that demonstrably leads to their recovery.” There is a symbiotic relationship here. Certification depends upon pre-existing good regulatory standards. At the same time, it strengthens compliance with such standards from fishers and processors by enhancing the value of the certified product. The more detailed requirements contained in the MSC Principles and Criteria remain at a high level of generality as regards the choice of regulatory instrument used within a fishery. They focus on mere compliance and indicators of positive outcomes (non-destructive practices, low or minimal discards, controlled bycatch). The closest the principles come to influencing instrument choice is the requirement that the

¹⁸⁵ MSC Principles and Criteria for Sustainable Fishing, available at https://www.msc.org/documents/scheme-documents/msc-standards/MSC_environmental_standard_for_sustainable_fishing.pdf.

management system “provide economic and social incentives that contribute to sustainable fishing and shall not operate with subsidies that contribute to unsustainable fishing.” The role of suasive instruments could be enhanced by improving the data and informational systems of RFMOs and requiring greater transparency in their decision-making process. This could ensure greater availability of data for use in suasive instruments, as well as reducing the transaction costs associated with using information.

As indicated, suasive measures can be driven by both State and non-State actors. This can be done individually or through cooperative mechanisms;

The role of suasive instruments could be enhanced by improving the data and informational systems of RFMOs and requiring greater transparency in their decision-making process. This could ensure greater availability of data for use in suasive instruments, as well as reducing the transaction costs associated with using information.

for example, the PNA-secured certification for free schooling skipjack caught by the purse seine fleet in 2011. This has not been without controversy and challenges. In particular, a concern is that the certification mechanism allows fishing vessels to catch tuna using MSC-certified methods to also fish using non-certified methods in the same trip.

There are few detailed analyses of the impact of suasive instrument in fisheries in ABNJ. Of interest is a recent study of the work done by the PNA to establish a tuna marketing body and secure MSC certification.¹⁸⁶ This shows that, first, regulatory standards and market-based mechanisms that

seek to capture value (e.g., MSC certification) are mutually reinforcing mechanisms. Second, public-private partnerships, such as the creation of tuna trading vehicles like Pacifical, can extend the State’s role as “owner” of the resource further down the supply chain by expanding its commercial role and giving it greater control over production trade and marketing. These partnerships strengthen pathways for product traceability, chain of custody, and monitoring, which are critical to certification schemes and creating product premiums. The main challenges to such initiatives have been non-cooperation from parts of the tuna industry and concerns about monopoly branding and alternative certification schemes. These can be overcome if the market conditions are appropriate (e.g., low product price or the need to secure premiums on products supplied) and States can use their strong position as “resource owners” to leverage deals with key industry actors. This latter point is critical and requires that States have a strong, exclusive legal authority over the resource base (i.e., it is within the EEZ). This also allows States to introduce and enforce strong harvest control rules, including environmental standards. To a lesser degree, this may hold true for RFMOs to the extent that they enjoy exclusive legal authority to conserve and manage stocks and to the extent to which this is reflected in de facto control over the conduct of fishing activities in the region. The main challenge for RFMOs is that other States may seek to fish for these stocks outside of the RFMO under the freedom of the high seas or by way of IUU fishing.

Key points. In summary, suasive instruments (especially certification schemes) are entirely feasible options within any fishery on ABNJ. However, the effectiveness of measures is often contingent on generating sufficient consensus among a group of States and industry bodies. This was possible within the PNA, due to its regional

¹⁸⁶ Adolf, S.C., et al., 2016. “Reinserting state agency in global value chains: The case of MSC certified skipjack tuna.” *Fisheries Research* 182:79-87.

“leverage” at a time when the industry was receptive to the approach. This could be followed by RFMOs, particularly when they comprise all interested States and where there is a common interest in maximizing the value of catch opportunities through certification schemes. Finally, many suasive or market approaches have a symbiotic relationship with regulatory standards. This means they should be considered as complementary approaches.

3.3 Financial instruments

General. Private- and public-sector investment forms an important part of the institutional context for the management of fisheries.

Directed appropriately, investment functions as a significant lever in generating change in fisheries management by enhancing both fishing capacity and governance capacity. Yet it can also generate harmful effects; for example, if used to subsidize excess fishing capacity.¹⁸⁷ It is important to note that investment is not isolated from existing governance structure since investors require a degree of legal security in order to support any investment. From a governance perspective, this report aims to analyze those regulatory structures that are required to support investment and those that may limit or restrict its use as a tool of fisheries management. It is then possible to see how financial investment can leverage changes in institutional practices. This section begins with a brief survey of investment opportunities in ABNJ and associated benefit streams before examining the legal framework for investment.

Financial and investment opportunities in fisheries. A number of investment formats and strategies are available. These are not very well known or understood. This is due in part to

the emerging nature of financial investment in fisheries, and also to the commercial nature of investment activity. Here, the use of specialist agencies and networks—and the fact that assessments of investment opportunities, investment rates, and other conditions are commercially sensitive matters—means that investment opportunities are not simply “off-the-shelf solutions.” The following table indicates the broad types.¹⁸⁸

The financing can be used for a range of purposes. It can be used to support general business incubation or to fill credit gaps using debt. This is important in transitional fisheries (e.g., moving to RBM where quotas are auctioned) or fisheries facing short-term external challenges. Investors can take ownership of fisheries through purchase of assets (including quotas), and then lease fishing options back to fishers. Investment can be used to support sustainable sourcing and certification (e.g., Sea Change Investment Fund), either directly or through leveraging further financial support from private equity. Equity investments can be secured over the longer term by locking sustainable practices into conservation covenants (contractual arrangements linked to the assets). The nature of these investments and the need to secure assets or enable returns mean that financial initiatives operate at the local level. There is nothing to stop transnational investment activities, including mobilizing capital and resources in developed States to invest in fisheries around the world. However, the key requirements of security of rights, a sustainable and profitable resource base, and general regulatory capacity remain critical. More ambitious investments might target State-level initiatives, such as debt for a conservation initiative between the Seychelles and the Paris Club/ Nature Conservancy. Here, Seychelles secured a combination of loans and grants of

187 World Bank and FAO (2009), *The Sunken Billions: The Economic Justification for Fisheries Reform* (2009), 23-4.

188 A grant should be distinguished from an investment because the money is given away freely, and the grantee does not expect a financial return from the grant. This is not to ignore that some conditions may be attached to the award of the grant.

	 Foundations	 Government/Public	 Blended Investors	 Commercial
Grants	Grants for: <ul style="list-style-type: none"> • Seeding new concepts • Programs • Technical Assistance • Asset Purchase • Operations 	State/federal/local grants Gear rebates Vessel buybacks New market tax credits	Sometimes provided alongside a debt or equity investment	Generally not applicable
Debt	Program-related investments (PRIs) Impact loans	Small business loans	Public- Private Partnership (PPP) Community Development Financial Institutions	Bank Loans: <ul style="list-style-type: none"> • Recourse or non-recourse • Bridge, short-term, or long-term
Equity	Mission- related investments Endowments Structured PRIs	World Bank social equity portfolios	Social Investors Social Venture Capital Funds Social impact bond	Angel Investors Venture Capital/ Private equity Tax-Equity Investors
Guarantees	Underwriting facility (full or partial)	Domestic investment underwriting (e.g., USAID) Bilateral and Multilateral development finance institutions Multilateral investment guarantee	May be provided as part of an investment package	Generally not applicable

Fig. 1. source: adapted from Manta Consulting 2011. Financing Fisheries Change.

\$22 million, which was used to restructure part of its foreign debt, which was then used to free up capital streams to invest in marine conservation. Returns from improvements in fisheries and tourism were then used to reinvest and provide returns to investors.

Successful initiatives often combine or layer different sources of investment and can add value by drawing upon investor expertise and support in business development. This is important, as investment packages (those involving multiple or sequenced investments) can be structured in such a way as to use investors open to high risk (e.g., philanthropic groups seeking to stimulate social or ecological improvements) and develop investment pathways in novel or challenging environments. This approach then generates data, clarity, and security for more risk-averse investors or investors that focus on financial returns (e.g., private equity, banks). It is important that guarantors have a strong credit rating given the critical role they may have in underwriting more risky or innovative investments in fisheries.

Research conducted by Encourage Capital indicates that investors have an opportunity to generate attractive financial returns from the fisheries sector, as well as to help generate positive environmental and social outcomes.¹⁸⁹ Equity internal rate of return (IRR) of 5 to 35 percent is linked to improvements in stock conditions and improvements in efficiency at all stages in the commercial process.¹⁹⁰ In general, investment returns from fisheries (as for forestry and agriculture) tend to produce lower rates of return on investment than other areas (e.g., mining and service sectors). Investment returns are highly variable and may be influenced by the general state of the global economy, as well as by variations in any component of the value chain—from the state of the stock and natural

fluctuations to changes in landing, processing, and consumer practices. Improvements focus on increasing stock biomass, preventing further declines, reducing bycatch of non-target species/juveniles, and improving habitats; in essence, enhancing the size of the cake and ensuring better allocation of slices, with fewer “crumbs” and waste. Across a range of case studies, Encourage Capital proposes a model of public-private partnerships (PPPs) as a vehicle to introduce investment in key stages of the fishery supply chain. A public-private partnership is a long-term contractual arrangement between the government and a private partner whereby the latter delivers and funds public services using a capital asset, sharing the associated risks. The government will usually contribute a share of the funding or guarantee a minimum revenue stream for the private partner. The legal basis of the PPP is a contract, which is typically subject to the jurisdiction and applicable contract law of the host State. Investors potentially include: private investors, philanthropists and charities, multilateral agencies (World Bank), NGOs/third-sector, and social entrepreneurs.

Public-Private Partnerships. Investment from the PPP can be channeled to a range of areas, including improving quality of access rights and monitoring/enforcement, especially in developed countries; improving landing infrastructure to enhance quality of fishery products entering supply chains; and strengthening the market position of fishers to secure better value. The Encourage Capital report suggests that investment can enhance capacity to meet existing regulatory requirements and catalyze changes in regulatory environments.¹⁹¹ This is achieved by bundling investments with reforms of management regimes and fishing assets or downstream production factors. A good

189 Encourage Capital, (2016), *Investing for Sustainable Global Fisheries*, available at http://investinvibrantooceans.org/wp-content/uploads/documents/FULL-REPORT_FINAL_1-11-16.pdf.

190 Estimates taken from a survey of low- and high-end scenarios. (Per personal correspondence with R Cheung.)

191 Above note 190, pp. 2-3.



example is the Mangue Impact Strategy, which is premised upon bundling improvements in fishery management systems with investments in crab processing and distribution to create economic incentives to finance continuing management improvements and to reward fishers for complying with them.¹⁹² Another example of this is the “ISDA strategy” for Philippines Tuna fisheries, which advocates funding the management reforms, the provision of vessel day schemes (VDS) to vessels, and support for a CDS, which can be used to help eliminate IUU fishing activities.¹⁹³ A first step in this is to work with fisheries management authorities and fishing communities to secure management reforms. While investment can depend upon robust regulation, it can also leverage reform to achieve this state.

Financial instruments work well when the value from reforms can be captured within closed systems such as domestic fisheries. One has to be cautious here about expanding this model to international fisheries. Here, investment in one State or components of a multilateral fishery may have limited effect. This is because regulation and fishing effort is subject to multiple jurisdictions and “leakage” via third-party access. Another example is the financing of a Nexus scenario, which considers the provision of a fisheries information management system (FIMS) to Philippines and WCPFC. This would enhance management capacity, but alone does not necessarily result in improved fish stocks. It is viewed as a lever or catalyst to regulatory change that would include fishery-wide vessel registration systems and the setting of maximum catch

192 Ibid, p. 13.

193 Ibid., p. 15.

limits. While such changes could be introduced without investment, the introduction of capital can overcome political or economic barriers to change. Other PPP investments are targeted at the provision of improved supply chain infrastructure, such as less damaging gear, better catch storage, transport and processing facilities, and measures to cultivate brand and product value (marketing).

In 2016, Althelia Ecosphere and the U.S. Agency for International Development (USAID) signed a risk-sharing agreement under USAID's Development Credit Authority, which will assist the newly launched Althelia Sustainable Ocean Fund to provide impact financing to ocean projects in developing countries. The initiative is intended to catalyze investments in sound and responsible fishing and ocean practices.

Investment regulatory environment. The quality of the regulatory environment can be analyzed at the macro and micro level. At the macro level, this includes compliance with international legal standards; overlap between different international, State, and regional/local rules); conflicts between different tiers of regulation or regulators acting at the same level (e.g., between two States); complexity of regulation; and insufficient enforcement or jurisdictional capacity. These may be regarded as structural issues. Perhaps the most significant of these is the issue of freedom of fishing on the high seas and the limited scope to control harmful third-State fishing activities. While the UNFSA seeks to address this by making access to fishing on the high seas subject to participation in or compliance with regional arrangements (i.e., RFMOs), this does not prevent third-party fishing on the high seas. This is because not all States are party to the UNFSA and/or RFMOs, and treaties only create binding obligations for contracting States. Although there are gaps in the legal governance framework, the impact of these will depend upon the reality of how fishing is conducted. Fishing activities are affected by a

range of social, economic, and political variables including the availability of suitable fishing vessels, distance between fishing grounds and ports, fuel costs, labor costs, having access to markets and buyers, knowledge of the fish stock and markets, and cultural practices and other behavioral patterns. In some fisheries, these factors may de facto preclude new entrants or third parties from entering a fishery; in others, they may not be sufficient to outweigh benefits from seeking to enter a fishery. At this scale, a principal concern is the design and implementation of appropriate policy and regulatory regimes. At the micro level, failures of specific regulations can undermine the investment environment. For instance, failure to prevent bycatch of target species or high levels of discarding can lower the quality of fishery products, while other failures can introduce unnecessary costs and so diminish potential returns from fishing. At this level, a principal concern is the implementation/operation of policy and regulatory frameworks (e.g., improved MCS)

There may be some symbiotic relationship between investment and regulation. As indicated, some regulatory change can occur without investment, thus some States have been able to introduce RBM on their own initiative. However, many States lack the capacity to drive regulatory change, or face competing priorities about how they invest finite resources in regulatory reform. As such, they may be open to support from third parties, such as multilateral investment agencies and private finance. Here, investment, and the introduction of "surrogate regulators" through public-private partnerships can help facilitate regulatory change. However, investment still requires a strong and secure regulatory environment. The introduction of RBM can provide part of this because RBM can provide greater security. For example, if there is excess capacity, or fishing capacity is not distributed fairly across participants in a fishery, then investment can be used to facilitate capacity transfers or the

removal of excess capacity. Thus, the creation of RBM may be bundled with finance to support the reduction of excess capital in a fishery. In many fisheries, capacity reduction has been done through state funding initiatives (e.g., European Maritime and Fisheries Fund). Here, the case for investment is linked to wider social, economic, and political objectives. In principle, private investment or combinations of public and private investment could drive the removal or transfer of capacity. However, this is likely to require some form of return on the initial investment, and so be linked to the creation of tenure rights, which have the ability to enhance and extract value from a fishery. More specifically, investment requires some form of security in fisheries. This could be in the vessel or other assets, but it is often linked to some form of secure tenure rights, catch limits, and robust monitoring and enforcement capacity. If these conditions do not exist, then investors may be unwilling to provide investment. At this point it should be noted that a wider range of factors may influence investment conditions, such as the political climate and the general regulatory environment of the host State or place of business of the investible entity. However, the lack of tenure rights in fisheries or security for the investment appear to be the main reason why capital input into fisheries has mainly taken the form of grants and why so few debt/equity or PRI investments have been made into emerging market fisheries projects.

Investment insurance. Some degree of protection can be afforded by investment insurance, such as the Multilateral Investment Guarantee Agency (MIGA).¹⁹⁴ This provides political risk insurance for foreign direct investment in emerging economies. Such risks include expropriation, breach of contracts, and failure to meet financial commitments. Other

options include the Overseas Private Investment Corporation.

Investment principles. Manta Consulting has developed nine principles for developing finance initiatives based upon its experience in investing in fisheries conservation initiatives.¹⁹⁵ These provide some contextual lessons that can be used to help assess and structure financial planning in fisheries projects anywhere.

1. Assess the specific legal and market landscape, as fisheries are highly contextual.
2. Assess how conservation goals can be met, and what tools have best delivered these in similar projects.
3. Develop simple and clear business models, with clear financial pathways and exit strategies.
4. Engage partners early and be prepared to adapt models, but ensure revenues support debt at all times.
5. Map out the cash flows and partner relationships, and ensure partners are in agreement with the finance structure.
6. Combinations of investment can be used to manage risk (e.g., philanthropists can help stimulate other social investment).
7. Early use of commercial partners can bring in expertise to the project.
8. Keep a central focus on conservation objectives, as these can provide the mainstay of competitive advantage in the long term.
9. Engage in reflective practices, so that lessons are learned and applied.

Investment conditions. As noted above, other factors concerning local investment conditions may restrict foreign investment. This includes, for

194 Multilateral Investment Guarantee Agency, (2013), *Insuring Investments Ensuring Opportunities* (World Bank Group. Washington, DC).

195 Also included is a checklist of project readiness, Manata Consulting, (2011), *Financing Fisheries Change. Learning From Case Studies*, <https://www.conservation.org/publications/Documents/Manta-Consulting-Financing-Fisheries-Change.pdf>.

example, rules on limits of foreign ownership of assets, caps on levels of equity holding, hostile or opaque screening, and approval processes for foreign investment. The political climates may be ill-suited to investment, for example, due to political instability or domestic resistance to foreign inflows of capital. A study by the OECD indicates that restrictions on investment in catch sectors are relatively high.¹⁹⁶ These conditions need to be factored into investment planning. Beyond this, attention needs to be given to the way in which markets for fisheries products operate. For example, strong export markets may be able to drive change in upstream parts of the fish supply chain, particularly in the catch sector. This may offset some of the risks of investing in States with weaker harvest governance systems. In 2014, an ISSF-led expert workshop on capacity transfer explored the conditions for a successful investment environment.¹⁹⁷ While this was done in the context of evaluating capacity transfer options, the general investment conditions are relevant to any scenario in which investment in fisheries is being considered. The various conditions enabling investment included a conducive political and economic environment; a secure legal framework for investment; cultural/social ties and networks; economic conditions/production inputs; availability of fish; market accessibility, trade agreements and partnership; entrepreneurship; willingness to invest and risk; availability of finance; voluntary and market-based transfers/investments. Capacity transfers can take a variety of forms, including joint ventures; reflagging vessels; investment in facilities; education and training; and transfer of technology. Critically such investment in capacity must be consistent with existing legal arrangements, globally and regionally. Legal

factors related to investment are developed below (see the discussion of subsidies below).

Investment periods vary considerably, but can be expected to range from one to ten years. As such, any investor and state must be sensitive to changes in the regulatory environment during this period that may upset the investment framework by diminishing the value of investments. This could include the loss of tenure and access rights, or the introduction of new regulatory requirements that diminish the value of the fishery product. Investments can be protected to some degree from immediate changes in domestic regulatory arrangements by designing contracts carefully. They can also be enhanced by allowing investors in PPPs to make use of international investment arbitration to resolve disputes. For example, in 2015, Ecuador introduced a legal reform allowing

Investment periods vary considerably, but can be expected to range from one to ten years. As such, any investor and state must be sensitive to changes in the regulatory environment during this period that may upset the investment framework by diminishing the value of investments.

PPP to resort to international arbitration.¹⁹⁸ In developing such laws, host states need to balance a secure and transparent regime for investment with other national priorities. Guidance on this already exists, including UNCITRAL's Guidance on PPP/Concessions Laws 2001¹⁹⁹ and Model

196 OECD (2007), "International Investment Perspectives: Freedom of Investment in a Changing World," 149, available at <https://www.oecd.org/investment/internationalinvestmentagreements/40476272.pdf>.

197 ISSF, (2014), *Report of the 2014 ISSF Capacity Transfer Workshop*.

198 Organic Law for the Encouragement of Public-Private Associations (OLEPPA), Official Register, Supplement 652, December 2015.

199 <https://www.uncitral.org/pdf/english/texts/procurem/pfip/guide/pfip-e.pdf>.

Legislative Provisions 2004,²⁰⁰ European Bank for Reconstruction and Development's Core Principles for a Modern Concession Law,²⁰¹ and OECD's Principles for Public Governance of Public-Private Partnerships.²⁰²

RFMOs as investible entities. One option to consider as an alternative to the typical pathway of State-level investment is the direct provision of investment to RFMOs, rather than States. The idea of RFMOs as investment entities appears to be a novel option. In principle, this should be possible because each RFMO is a legal actor with the authority to engage in financial transactions. The precise extent of this depends upon the terms of the RFMO's constituent treaty and/or financial regulations, but it is normal for the Executive Director or equivalent to receive and manage investments. The IATTC Commission may establish and vary its financial regulations.²⁰³ It is entitled to receive and make use of voluntary contributions.²⁰⁴ The WCPFC has authority to engage in financial and budgetary activities.²⁰⁵ It is also permitted to receive and invest income.²⁰⁶ The ICCAT Commission has general budgetary powers,²⁰⁷ and the Commission is entitled to hold and make use of voluntary contributions, which are put into trust to be used consistently with the policy aims and activities of the Commission and to invest such monies.²⁰⁸ The PNA have authority to adopt financial regulations.²⁰⁹ The regulations are not clear on receipt of loans or other forms of investment. To the extent that this is necessary to advance general conservation and management measures, it may be implied

to the authority of the Commissions. In case of doubt, financial regulations could be revised to make this clear. Ultimately, as RFMOs are groups of States, the decision to permit and engage in investment activities directly would depend upon the agreement of the contracting States.

The potential benefits of this would be that it would help to avoid the issue of unlawful subsidies since the recipients are a group of States and so there is no distinct trading advantage given to a single State or its nationals.²¹⁰ However, this approach would seem to require that a number of institutional barriers be overcome. This includes changes to the organizational structure of RFMOs to accommodate stakeholder representation from investors, and changes to decision-making structures since existing consensus-based approaches are likely to result in slow and commercially undesirable outcomes. In theory, financial decisions concerning investments could be conducted by the Commission secretariat. However, given that this would likely be linked to conservation and management decisions relating to investments, it would not be possible to circumvent usual decision-making procedures. In any event, there is likely to be a need for greater transparency in decision-making to ensure that decisions remain accountable—especially in light of the increased influence of commercial- and investment-related factors in the process. Critically, there will need to be some mechanisms in place to ensure that a return on an investment can be identified and collected. This would likely

200 http://www.uncitral.org/pdf/english/texts/procurem/pfip/model/03-90621_Ebook.pdf.

201 Available at <http://www.ebrd.com/cs/Satellite?c=Content&cid=1395238764510&pagename=EBRD%2FContent%2FContentLayout>.

202 <http://www.oecd.org/gov/budgeting/oecd-principles-for-public-governance-of-public-private-partnerships.htm>.

203 Antigua Convention, Article VII(1)(s).

204 Article 15(3).

205 Article 17 of the Honolulu Convention.

206 Regulation 5(1)(d) and 9 of the Finance Regulations.

207 Article X of the ICCAT Convention.

208 Reg. 8 and 11 of the Financial Regulations.

209 Article V(10) of the Nauru Agreement.

210 Discussion at <http://www.fao.org/fi/static-media/MeetingDocuments/WECAFC16/Ref22e.pdf>.

take the form of a rent capture scheme (taxation, fishing fees, and so on). Lastly, most investments depend upon some form of contract. An RFMO entering into such an agreement would need to have the legal basis to undertake such financial commitments.

Legal obstacles to Investment. One may identify a number of general barriers to investment. First, particular types of investment may be regarded as illegal. The principal focus here is on the regulation of subsidies. A key issue is whether this investment is permitted as a positive subsidy or prohibited subsidy. The rules are outlined below. Some investment targets such as improving information systems (e.g., Fishery Performance indicators²¹¹) are likely to be accepted since they furnish information to assist decision-making about optimal fishing strategies of general application, as opposed to advantaging domestic over foreign fishing activities. This is particularly so with regards to their use in respect of fisheries in ABNJ, where information is sometimes poor. Capital investments, such as support for landings and transport, are more challenging because they can advantage some parties over others. This may depend upon the donor lending agent and the way the investment is structured. It is unclear the extent to which subsidized lending (concessionary loans), as opposed to purely commercial investment, may fall afoul of controls on subsidies. Here, the subsidy may take the form of lower than market interest rates, longer maturity periods, government assisted re-financing. It is important to ascertain clearly the extent to which concessionary loans are linked to clear social impacts. The precise figures are

not known for unbudgeted or under-budgeted subsidies, but are estimated from FAO data to be around \$5 billion.^{212,213} However, there may be scope to argue that some types of investment in developing States should be exempt from controls, since these are about delivering effective governance capacity, rather than trade advantage.

A second concern is whether there is a sufficiently strong/secure regulatory environment to protect an investment. Investment opportunity studies in fisheries identify the following factors as barrier to investment: inadequate regulatory management and oversight and instability in the regulatory regime (radical change of policy, new governments).

A second concern is whether there is a sufficiently strong/secure regulatory environment to protect an investment. Investment opportunity studies in fisheries identify the following factors as barrier to investment: inadequate regulatory management and oversight and instability in the regulatory regime (radical change of policy, new governments).²¹⁴ Regulatory changes to attract investment must be able to reduce risks and support or enhance the value of the resource. Conversely, changes that undermine investment are considered one of the main risks to investors.²¹⁵ Indirect risks may arise in respect of related marine regulatory developments, such as pollution control, responses to climate change, and marine spatial planning, all of

211 http://www.fao.org/fileadmin/user_upload/common_oceans/docs/FPI_Training_Report.pdf.

212 Milazzo, M.J. (1998), *Subsidies in World Fisheries. A Reexamination*, (World Bank Technical Paper 402), 47.

213 All currency figures in the report are in US dollars.

214 EKO (2014), *Sustainable Fisheries Financing Strategies* (Ocean, RARE, Bloomberg Philanthropies, Rockefeller Foundation); EDF et al. (2014), *Towards Investment in Sustainable Fisheries. A Framework for Financing the Transition*; Manta Consulting, (2013), *Financing Fisheries: Understanding the Investment Opportunity in Wild Fisheries*. Briefing Paper Series.

215 Vivid Economics (2014). *Financing Green Growth*. Vivid Economics, available at http://www.vivideconomics.com/wp-content/uploads/2015/03/Financing_Green_Growth.pdf.

which may impact upon the security and value of fishing rights. Investments in activities in areas beyond national jurisdiction are potentially more challenging because the regulatory environment makes it difficult to establish good security for investments.²¹⁶ Thus, fishing rights are nonexclusive; there are multiple and diffuse actors; and there are problems related to coordinating the setting and enforcement of

the exposure of decision-making to wider international scrutiny, especially when States with strong domestic governance frameworks are involved, may actually provide opportunities to develop more robust regulatory environments conducive to investment in international fisheries.

More generally, enforcement of rights and duties in ABNJ can be limited because of a lack of enforcement capacity, either through on-board observers or at-sea inspections. These all undermine the investment security. Conversely, the exposure of decision-making to wider international scrutiny, especially when States with strong domestic governance frameworks are involved, may actually provide opportunities to develop more robust regulatory environments conducive to investment in international fisheries.

rules. More generally, enforcement of rights and duties in ABNJ can be limited because of a lack of enforcement capacity, either through on-board observers or at-sea inspections. These all undermine the investment security. Conversely,

Subsidies and the law. Investment through subsidies can maintain excess capacity in the fishing industry by supporting the costs of running uneconomic vessels. Excess fishing capacity (too many boats and too few fish) is one of the main causes of unsustainable fishing.²¹⁷ Although the figures are debated, it is estimated that fisheries are underpinned by \$15-20 billion of subsidies, equivalent to 20 percent of global fisheries revenues.²¹⁸ More than 80 percent of such subsidies are provided by developed States.²¹⁹ From a legal perspective, a key problem is the lack of definition of “subsidy.”²²⁰ If subsidies cannot be defined, or good subsidies distinguished from harmful subsidies, then it is difficult to determine the scope of permissible investments. In general, harmful subsidies include, *inter alia*, subsidized access,²²¹ reduced fuel tax, capital grants for vessels and equipment, infrastructure support, and preferential loans, as well as state-sponsored access agreements.²²² Beneficial subsidies include research programs, data collection, decommissioning vessels, and support for the purchase of selective fishing gear. Impact investments that seek to advance conservation goals, secure more sustainable fisheries, and reform weak governance arrangements would fall into this latter category. As such, they should not

216 This assumes that domestic regulatory environments are stronger than international frameworks. This may not always hold true.

217 See Chen, C-J. (2010), *Fisheries Subsidies under International Law* (Springer-Verlaag). Sumaila et al. estimate this at between \$25-9 billion: Sumaila, U.R. et al. (2010), “A bottom-up re-estimation of global fisheries subsidies,” *Journal of Bioeconomics* 12: 201.

218 Chen (217), 1.

219 World Bank and FAO (n 188) 24. Milazzo (n 213), 73-7.

220 Stone, C. (2002), “Too Many Fishing Boats, Too Few Fish: Can Trade Laws Trim Subsidies and Restore the Balance in Global Fisheries?” in Gallagher K. and Werksman J. (eds.) (2002). *International Trade and Sustainable Development* (Earthscan), 286, 293-294; Young, M. (2009), “Fragmentation or Interaction: the WTO, Fisheries Subsidies and International Law,” *World Trade Review* 8:477, 479 and 487.

221 Here the concern is with states subsidizing the costs of access or leveraging access through subsidies, as opposed to designating a system of access rights.

222 Chen (n 217), 7-11; Sumaila (n 217), 213.

fall afoul of subsidy restrictions. However, each investment would have to be evaluated on its merits.

The principal legal instrument for controlling international subsidies is the WTO Agreement on Subsidies and Countervailing Measures (SCM Agreement).²²³ Until 1999, Article 8 included an exception for environmental subsidies. However, this provision expired in 1999. Presently, environmentally-motivated subsidies are now actionable and can be challenged under international trade law. The regime operates a two-tier system of control. Prohibited or “red box” subsidies are those linked to export performance or the promotion of local goods over imported goods.²²⁴ Unfortunately, it is difficult to apply this restriction to fisheries subsidies because many subsidies are designed to promote domestic supply rather than export.²²⁵ The second category of subsidies, which are not prohibited outright under WTO law are classified as actionable or “amber box” subsidies. These subsidies can be challenged on several grounds, including the degree to which they have adverse impacts on the domestic industries of another WTO member.²²⁶ Again, these are difficult to apply in the context of fisheries because some adverse impacts on other States’ fishing industries may be difficult to explain

on the basis of the subsidies. For example, they may be attributable to fluctuations in natural resource availability.²²⁷ This is particularly so in respect of high seas fisheries where data on natural variations and catch patterns may be less readily available.

The effectiveness of WTO rules on subsidies is limited because they depend upon States initiating proceedings, and States do not frequently challenge other States’ use of subsidies, either because they do not wish to expose their own practices to scrutiny or because they are uncertain how the red/amber box system applies.²²⁸ There is awareness by WTO members of the problems with the subsidies regime.²²⁹ However, States have been unable to negotiate clarification or reform of the rules, especially as regards fisheries.²³⁰ Some States seek the removal of fisheries subsidies, whereas others dispute the link between subsidies and overfishing.²³¹ It seems that progress on this issue is contingent upon defining and calibrating the effects of subsidies in such a way that would allow for beneficial outcomes, such as the protection of artisanal fisheries and enhancing sustainability measures, while controlling subsidies agreed to be harmful.²³² More generally, this will require a greater degree of integration between

223 1869 UNTS 14. See further Coppens, D. (2014), *WTO Disciplines on Subsidies and Countervailing Measures* (Cambridge University Press). The Technical Barrier to Trade Agreement (adopted 12 April 1979, entered into force 1 January 1980) 1868 UNTS 120 also applies, inter alia, to fisheries, disciplining matters such as product labeling and testing. However, it is designed to ensure that such measures do not create unnecessary obstacles to trade. WTO dispute settlement bodies have been concerned not to allow the use of such measures as unilateral means of setting trading standards. See further, Sheffer, G. (2013), “United States—Measures Concerning the Importation, Marketing and Sale of Tuna and Tuna Products,” *American Journal of International Law* 107:192. However, such protective measures are sometimes recognized. See Lurié A. and Kalinina, M. (2015), “Protecting Animals in International Trade: A Study of the Recent Successes at the WTO and in Free Trade Agreements,” *American University Law Review* 20:431, 438-51.

224 *Ibid.*, Article 3. For more detail on the meaning of such subsidies, see Coppens (n 223), 116-42.

225 Young, (n 220), 487; Chang, S.W. (2003), “WTO Disciplines on Fisheries Subsidies: A Historic Step Towards Sustainability?” *Journal of International Economic Law*, 6:879, 885.

226 Coppens (n 223), 143-86.

227 Young (n 220), 488.

228 *Ibid.*, 487.

229 Young (n 220), 488-91.

230 See further, Schorr D.K. and Caddy, J.F. (2007), *Sustainability Criteria for Fisheries Subsidies Options for the WTO and Beyond* (WWF).

231 Chen, C-J. (2008), “The EU Role under the Fisheries Subsidies International Negotiations—particularly the WTO” in Ehlers P. and Lagioni, R. (eds.), *The Maritime Policy of the European Union and the Law of the Sea* (Lit Verlaag), 199.

232 See further von Moltke, A. (ed) (2011), *Fisheries Subsidies, Sustainable Development and the WTO* (Earthscan).

conservation and management standards as interpreted in fisheries law and trade law regimes.²³³

Some commentators have argued that until such issues can be resolved, unilateral trade sanctions are the best way forward.²³⁴ However, unilateral trade measures alone cannot balance the different States' policy concerns, or accommodate the different natural, social, and economic conditions that prevail in different fisheries. Critically, fisheries in ABNJ cannot be addressed other than on a multilateral basis. This is because trade measures may not impose extraterritorial conditions on third States.²³⁵ Arguably, unilateral measures ought best to be regarded as a means of provoking action in multilateral fora.²³⁶ The effectiveness of this would, of course, depend upon the make-up of participants in the fishery. For example, action against major harvesters could catalyze broader changes more effectively than smaller scale harvesters.

Subsidies reform. Apart from the legality of subsidies (i.e., whether they are harmful or legitimate), there is a political dimension to reform of subsidies.²³⁷ Fisheries are often characterized by a high degree of concentration in a limited group of commercial harvesters. These harvesters will have strong incentives to maintain the status quo of subsidy programs. The recipients of any subsidy benefit from the subsidy, but the cost of providing the subsidy is defrayed across the wider society. As such, fishing groups will present a strong case for retaining something that is not considered significant by wider sections of society. Accordingly, the unequal distribution of

gains and losses between homogenous and well organized groups on the one hand, and diffuse, heterogeneous groups on the other acts as an obstacle to reform.

Key points. Investment generally depends on a secure tenure of rights, supportive and secure regulatory regime, and a sustainable resource base, with potential to generate investment returns within a reasonable timeframe. Investments will normally be targeted at domestic-level activities or enterprises because security of tenure, institutional support, and a secure regulatory environment are more tenuous at regional levels, and especially for fisheries in ABNJ. There are good examples of investment opportunities and vehicles drawn from local case studies, with strong conservation focus. Investments must be sensitive to restrictions within host legal systems and general international law. In the latter case, they must not amount to a prohibited subsidy (something that has trade-distorting effects). Investments can be used to enhance regulatory capacity. An unexplored option is to target investment at regional fisheries through RFMOs.

3.4 Market-Based Measures

General context. Market-based mechanisms in fisheries encompass a range of techniques that make use of market forces to incentivize the behavior of actors in the market. They typically involve defining access rights to fisheries resources, but also encompass a wider range of administrative measures that influence how

233 See text circulated by Brazil, China, India, and Mexico, *Fisheries subsidies. Special and Differential treatment* TN/RL/GEN/163. See further, Sumaila, U.R. (2012), "How to make progress in disciplining overfishing subsidies," 70 *ICES Journal of Marine Science*.

234 Telesetsky, A. (2013), "Follow the Leader: Eliminating Perverse Global Fishing Subsidies Through Unilateral Domestic Trade Measures," *Maine Law Review* 65:627.

235 Bodansky D. and Lawrence, J.C. (2009), "Trade and the Environment in Bethlehem D.L., et al. (eds.), *The Oxford Handbook on International Trade Law* (Oxford University Press), 505, 524-6.

236 See Shaffer G. and Bodansky, D. (2012), "Transnationalism, Unilateralism and International Law," *Transnational Environmental Law*, 1:31.

237 Cox, A. and Sumaila, U.R., "A Review of Fisheries Subsidies: Quantification, Impacts and Reform," *Handbook of Fisheries Management*, (n 31), 108.

actors may behave in the market, and a range of economic instruments that are at the disposal of other actors in the market. Given that the law of the sea provides limited opportunities to manage third-party activities on the high seas directly, market-based controls provide an important tool in efforts to address such governance gaps.

Market-based measures may take a variety of forms, but share a common feature in that they leverage market forces to incentivize or otherwise influence the behavior of actors. For example, efforts to influence consumer awareness and behavior through eco-labeling and similar initiatives can generate demand-push for sustainable seafood that can drive regulatory change in the harvest sector. As market-based measures, they can operate outside of, in parallel

to, or as part of legal measures. In some cases, these measures can be used to shore up the exclusivity of fishing within the remit of an RFMO, thereby enhancing the value of fishing and the benefit stream derived from RBM contingent upon exclusive catch or effort rights. Since market-based measures can be imposed at the point of entry of products into markets and any time thereafter, they can avoid some of the jurisdictional limitations placed under the law of the sea. Market-based measures can be adopted under international law so long as they comply with general provisions of trade law. Such measures include the imposition of documentation, certification or traceability schemes, or the imposition of trade restrictions on fish products.



Certification schemes. Certification initiatives emerged in the 1990s as NGOs sought alternative means of initiating change in the practice of fisheries management bodies.²³⁸ Presently, there are around 30 certification schemes available to fisheries, although some may be restricted to particular markets. They are defined by the FAO's Guidelines for the Ecolabelling of Fish and Fishery Products as voluntary, incorporating reliable and independent auditing and verification procedures, and they must be non-discriminatory, among other requirements. They can operate at the level of a fishery rather than specific stock, thus encompassing a wider assessment of fishing practices, and can influence the governance of more than just key market species. A successful certification process results in an eco-label on a product which communicates the quality of the product to the consumer. This may add a premium to the product or allow access to a market (if the market is limited to certain products). Thus, market benefits are used to leverage improvements in sustainable fishing practices.

There is evidence to show the positive impacts of certification on the management and conduct of fishing.²³⁹ Yet there are also concerns, such as potential bias towards larger scale fishing operations and low representation from developing countries. There is a growing body of literature assessing the conditions or factors

conducive to certification and the impacts of certification. This points to certification being highly contextual, with different physical, institutional capacity, and actors being important factors in successful certification.²⁴⁰ For example fisheries using catch share schemes (a form of RBM) have generally been more likely to secure high certification scores.²⁴¹ Bailey et al. show that the engagement of influential middlemen controlling fishing assets was critical to certification.²⁴² High certification costs may deter small-scale fisheries,²⁴³ with such fisheries being potential beneficiaries from financial support. From a governance point of view, certification processes are a form of quasi-private regulation, raising important questions about the accountability of actors in the process. Although there are guidelines on how certification should operate, these are not part of a formal binding process, and so scope remains for certification schemes to operate in biased or inconsistent ways.²⁴⁴ There may even be scope for corruption in the process, in which certifiers are put under pressure to certify fisheries despite the existence of shortcomings. A lack of accountability related to certification schemes is not particular to fisheries. For example, in the field of shipping, classification inspections of ships, which determine whether the vessels meet certain safety and operational standards, are conducted largely by private bodies that are mostly self-regulated. These classification societies have

238 See Sutton, M. (1997), "A new paradigm for managing marine fisheries in the next millennium," Hancock D.A. et al. (eds.) *Developing and Sustaining World Fisheries Resources* (Second World Fisheries Congress Proceedings, CSIRO).

239 See overview by Gutierrez et al. (2016), "The current situation and prospects of fisheries certification and ecolabelling," *Fisheries Research*, 182:1-6.

240 Bellchambers, L., Fisher, E.A., Harry, A.V., Travaille, K.L., (2016), "Identifying and mitigating potential risks for Marine Stewardship Council assessment and certification," *Fisheries Research*, 182:7-17.

241 Parkes, G., Swasey, J.H., Underwood, F.M., Fitzgerald, T.P., Strauss, K., Agnew, D.J. (2016), "The effects of catch share management on MSC certification scores," *Fisheries Research*, 182:18-27.

242 Bailey, M., Simon Bush, S., Oosterveer, P., Larastiti, L., (2016), "Fishers, fair trade, and finding middle ground," *Fisheries Research*, 182:59-68.

243 Stratoudakis et al. (2016) Stratoudakis, Y., McConney, P., Duncan, J., Ghofar, A., Gitonga, N., Mohamed, K.S., Samoilys, M., Symington, K., Bourillon, L. (2016), "Fisheries certification in the developing world: locks and keys or square pegs in round holes?" *Fisheries Research* 182:39-49. Pérez-Ramírez, M., Castrejón, M., Gutierrez, N.L., Defeo, O., 2016, "The Marine Stewardship Council certification in Latin America and the Caribbean: a review of experiences, potentials and pitfalls," *Fisheries Research*, 182: 50-58.

244 Brown, S., Agnew, D.J., Martin, W. (2016), "On the road to fisheries certification: the value of the objections procedure in achieving the MSC sustainability standard," *Fisheries Research*, 182:136-148.

come under considerable scrutiny because their services are paid for by shipowners. As such, they may lack independence from their clients who they depend upon for repeat business. Given that certification is a marketable service, it is subject to market forces and this can put pressure on providers to rationalize their efforts in order to compete with other providers. Considering the increased impact of such schemes, there may be a need to introduce more formalized supervision of the certification mechanisms. It may be noted that certifiers are not bound by the terms of international law agreements, although they use them as reference points for certification. The FAO Guidelines state that “[t]he owner of an ecolabelling scheme should engage a separate independent specialist accreditation body to take on the task of accreditation of certification bodies on its behalf. The accreditation body could be private, public or an autonomous body governed by public service rules.” The Guidelines further refer to the requirements of certifiers to adhere to the criteria for assessment and accreditation of certification/registration bodies contained in Guide 61 adopted by the members of the International Organization for Standardization (ISO). Yet the ISO is not a binding mechanism under international law, and a certifying body would only be accountable for a breach of such standards if they were so imposed by the host country of the certifying body.²⁴⁵ Such standards are neither uniform nor extensive.

Information requirements and Catch Documentation Schemes (CDS). The first step in using market-based controls is to establish informational requirements for trade in fish products. These include catch documentation schemes (CDS). A CDS is defined as, “A system that tracks and traces fish from the point of capture through unloading and throughout

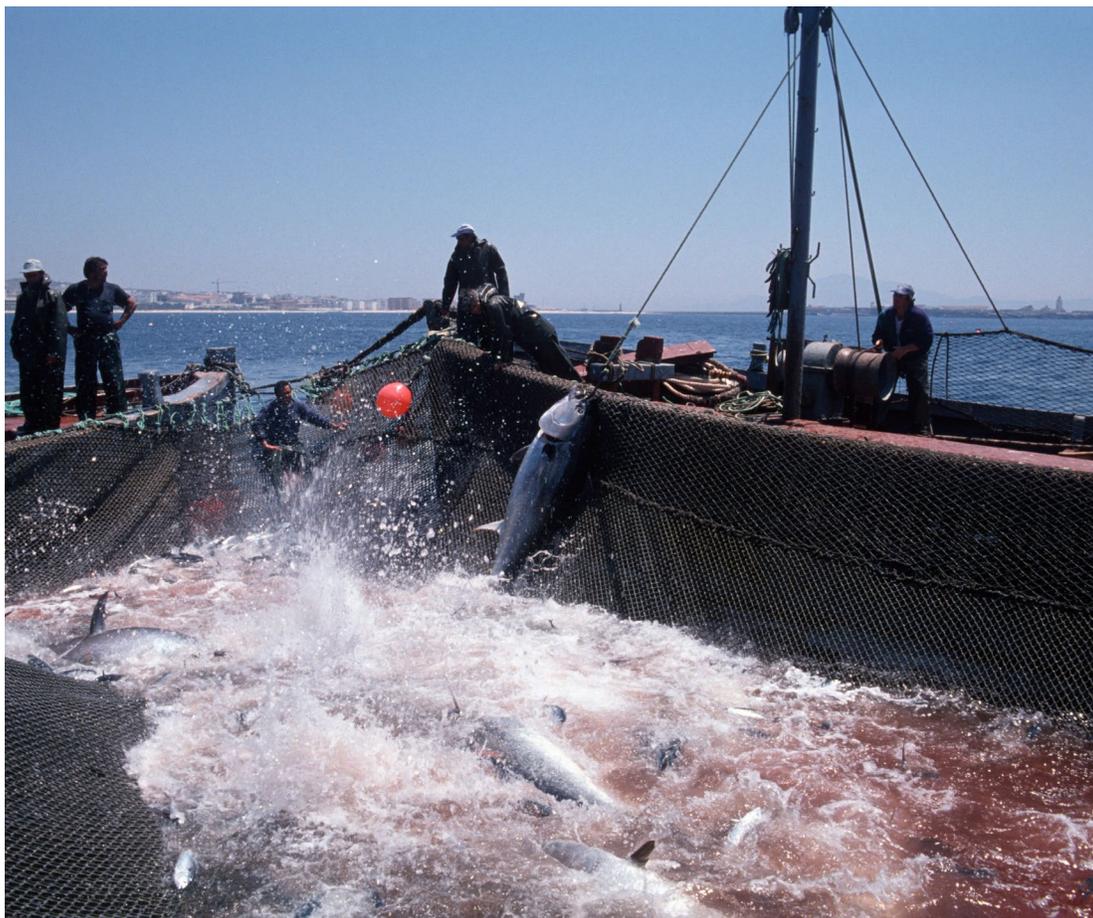
the supply chain. A CDS records and certifies information that identifies the origin of fish caught and ensures they were harvested in a manner consistent with relevant national, regional and international conservation and management measures. The objective of the CDS is to combat IUU fishing by limiting access of IUU fish and fishery products to markets.”²⁴⁶ CDS should be distinguished from catch certification schemes. The latter are a form of port State measures. For example, NEAFC regulations require catches to be certified by the flag State as being within quota, properly reported, derived from authorized fishing operations, and originating in an area confirmed through Vessel Monitoring System (VMS) data before they can be landed or transshipped in ports of contracting parties. This does not constitute a CDS because the documents do not accompany the catch onward into markets.

There is no requirement under international law to adopt documentation schemes, although the UN General Assembly has noted the usefulness of such schemes in addressing IUU fishing.²⁴⁷ There are broadly two types of CDS, RFMO and unilateral schemes. CDS can be adopted by RFMOs, and are consistent with their broader regulatory remit to take measures to conserve and manage stocks. States (or the EU) may also implement CDS. Such schemes have been adopted or facilitated by a number of RFMOs. Catch documentation schemes now include the Commission for the Conservation of Southern Bluefin Tuna (CCSBT) CDS, the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) Toothfish CDS, International Commission for the Conservation of Atlantic Tunas (ICCAT) Bluefin Tuna CDS, North East Atlantic Fisheries Commission (NEAFC) European Union (EU) IUU catch certification schemes, a

245 Froese R. and Proelss, A. (2012), “Evaluation and Legal assessment of Certified Seafood,” *Marine Policy*, 36:1284-1289.

246 FAO, Report of the Expert Consultation on Catch Documentation Schemes, (CDS) Rome, 21-24 July 2015, available at <http://www.fao.org/3/a-i5063e.pdf>.

247 Paragraph 68 of the UN General Assembly Resolution on Sustainable Fisheries of 9 December 2013.



draft ASEAN CDS, and the CITES E-Permitting System. The IOTC has adopted a Big Eye Tuna Statistical Documentation Programme, but this falls short of a CDS.²⁴⁸ The WCPFC has been engaged in the development of a CDS since 2005, with agreement reached in 2017 to implement this by 2020.²⁴⁹

Multilateral CDS. The FAO has developed voluntary guidelines for such schemes, which can be used by RFMOs and States to develop their own CDS frameworks. Such measures must be consistent with international trade law (i.e., rules of the WTO), as well as UNCLOS and UNFSA. An

RFMO scheme has the benefit of comprising a rule of international law, and so is binding on all members of the RFMO. As long as contracting parties adopt domestic measures to implement the CDS, the CDS will apply to entire stocks, from catch to market. In ICAAT and CCSBT, CDS were mainly concerned with under-reporting of catch by otherwise legal operators. There is evidence that the CDS has helped bring actual catches into line with TACs. In this respect, CDS can enhance the value of catch and RBM by protecting the de facto exclusivity of fishing rights and catch by licensed fishers. As noted, there are only three multilateral CDS in operation: ICCAT, CCAMLR

248 Resolution 01/06.

249 At a joint meeting of the WCPFC and IAATC, agreement was reached to introduce a CDS for Pacific Bluefin Tuna by 2020. See Reference Document for Review of CMM 2016-04 and for the Development of Harvest Strategies under CMM 2016-06. WCPFC14-2017-15 15 November 2017.

and CCSBT. These cover less than 0.1 percent of global catch by volume.²⁵⁰

Multilateral CDS are located in RFMOs and based upon conservation and management measures, which have the force of treaty law. Compliance with the CDS is mandatory at all stages of the supply chain, and can be enforced at such stages.

Unilateral CDS. A unilateral scheme can be adopted by a coastal State to cover all fish caught within its coastal waters and or landed in its ports. As such it can leverage change in the conduct of both domestic and foreign fishing vessels operating within an EEZ. It can also leverage by harvesters/producers seeking to export into its market. However, such schemes may be vulnerable because it depends upon fish products to be covered by CDS schemes operated by the flag State authorities. Without oversight of this process they can be vulnerable to fraud. Flag States can also adopt CDS for their vessels operating in foreign waters or on the high seas. However, a flag State that adopts a CDS within a fishery occurring in ABNJ may have limited value. This is because other participants in the fishery are not covered by the CDS (unless they follow the practice voluntarily). It is principally focused on controlling the entry of fish product to the market. The extent of the rule is to impose limits only on those products entering the market. These may impose conditions that go back down the supply chain to the point of capture. However, the CDS cannot control how products are traded outside of the host market. International law limits any such attempts to exercise extra-territorial jurisdiction. As such, the influence of such a measure correlates to the size of the host State's market.

At present there is only one unilateral CDS scheme in operation in the EU CDS. The EU CDS is part of

the EU IUU fishing Regulation. As a regulation, it has direct legal effect within Member States, and so requires no further implementing measures by members of the EU. The EU regime uses an identification procedures, which allows it to designate third States (flag States) as “non-cooperating” when they fail to comply with international commitments to prevent IUU fishing. This is known as the “EU yellow and red card system.” Yellow card represents a warning to the third State, which requires it to adopt measures to ensure compliance with regulatory standards. Failure to respond in a given period of time can result in a red card—meaning a trade embargo on seafood products. The CDS centers on a certificate containing information such as the vessel name, license, flag State, description, date of catch, estimated weight of landings, transshipment, and imports of fish products. It also requires verification by the flag State that the catch complies with applicable laws, regulations, and international conservation standards. The EU scheme lacks an effective supply chain traceability system that transcends individual country systems. While there have been some concerns expressed about the precise standards that the EU is imposing on third States, there have not yet been any challenges to the legality of the scheme. However, there is no clear data to show that the EU scheme has resulted in reduced levels of illegal catch and corresponding reductions in non-CDS products entering the EU markets. Moreover, the issue remains that unilateral measures do not prevent products being supplied to more lenient markets. The proliferation of unilateral schemes can potentially overburden operations, and add complexity and confusion to harvesting sectors, especially if such schemes operate by different standards and procedures.²⁵¹ As such, multilateral steps are required to strengthen and coordinate individual State-based CDS.

250 Hosch, G. and Blaha, F. 2017, *Seafood traceability for fisheries compliance—Country-level support for catch documentation schemes*, FAO Fisheries and Aquaculture Technical Paper No. 619, Rome, Italy, 5.

251 Hosch, G. (2016), *Trade measures to combat IUU fishing: Comparative analysis of unilateral and multilateral instruments*. Geneva, ICTSD (International Centre for Trade and Sustainable Development), available at: <https://www.ictsd.org/themes/environment/research/trade-measures-to-combat-iuu-fishing-comparative-analysis-of-unilateral>.

Effectiveness of CDS. The effectiveness of CDS depends upon major flag, port, and market states collaborating to enforce the scheme and prevent the import of illegal/non-certified origin. Thus, CDS are vulnerable to “ports of convenience” that fail to enforce CDS mechanisms. This is a challenge because there are lucrative markets for non-certified catch that is often cheaper to source. Unilateral CDS are able to protect markets from the supply of IUU fish for various fisheries. However, they may have limited impact on particular fisheries as a whole since it is unlikely that the CDS state dominates the market for all catch from any particular fishery. In contrast, multilateral CDS can protect an entire fishery as long as all States within the RFMO implement and enforce the CDS. New technology, such as block chain systems, present new opportunities to streamline the traceability of catch and can eliminate the need for a central registry.²⁵²

Unilateral CDS are able to protect markets from the supply of IUU fish for various fisheries. However, they may have limited impact on particular fisheries as a whole since it is unlikely that the CDS state dominates the market for all catch from any particular fishery. In contrast, multilateral CDS can protect an entire fishery as long as all States within the RFMO implement and enforce the CDS.

Traceability schemes. Traceability obligations require the disclosure of information about catch. This is generally done through the storage of information electronically, and may complement CDS schemes. Examples of this include EU Regulation 1224/2009.

IUU vessel lists and import bans. A number of schemes seek to identify and block access to ports of vessels engaged in IUU fishing. These can be multilateral or unilateral measures. ICCAT compiles lists of vessels presumed to have carried out IUU fishing.²⁵³ Members are required to prohibit the import, landing, or transshipment of particular species from vessels on the IUU list. In order to control the re-listing of vessels (by changing name and registration), ICAAT operates a white list of vessels deemed to be of “good standing,” and which are permitted to engage in landing or transshipment.²⁵⁴ The EU operates a unilateral regime under its IUU Fishing Regulation. Following a process of enquiry between the Commission, flag State, third States, and other parties (e.g., NGOs), a vessel may be identified as having engaged in IUU fishing. RFMOs can submit their lists to the EU to engage the EU process. If the flag State fails to take effective actions, then the vessel is placed on a special IUU vessel list. Listing engages a risk assessment process, and can result in the withdrawal of fishing authorizations, ban on trading of products, and prohibition of entry into EU ports.²⁵⁵ A vessel can be removed from the list if appropriately sanctioned by the flag State, or if the owner/operator can prove no further infringements have been reported during a two year period after the listing, the vessel is complying with applicable conservation and management standards, and

252 See <https://www.provenance.org/tracking-tuna-on-the-blockchain>.

253 ICCAT, Recommendation 02-23, Establishment of a list of vessels presumed to have carried out illegal, unreported and unregulated fishing activities in the ICCAT convention area, para 9.

254 Recommendation 02-22 by the ICCAT concerning the establishment of an ICCAT record of vessels over 24m authorized to operate in the convention area, Article 1.

255 More specifically, the vessels will not be authorized to fish and to be chartered in EC waters; only to be authorized to enter a EC port if the catches onboard and prohibited fishing gear are confiscated; not to be supplied with fuel or other services in port, except in cases of force majeure or distress; not to be authorized to change crew, except in cases of force majeure or distress; not to be authorized to have its fishery products traded with the EC.

there are no financial links to other vessels or operators engaged in IUU fishing activities. Given the mobility of vessels and the challenges of tracing vessels, the effectiveness of vessels-listing schemes depends upon multilateral cooperation, not just between States, but with RFMOs and other agencies. This could be done through automated reciprocal updates of lists.²⁵⁶

Domestic prosecutions. In the US, there have been examples of prosecutions under the Lacey Act for vessel owners engaged in illegal fishing. The Act makes it illegal to engage in commerce in the United States with respect to wildlife fish or plants taken, possessed, transported or sold in violation of U.S. law and foreign law. It also covers false labeling or identification of products. This law permits U.S. authorities to impose significant penalties upon individuals and companies engaged in trafficking illegally taken fish and wildlife. This approach tends to be ad hoc, and while the penalties can be significant, it suffers from the same limitations as other unilateral approaches. It could be strengthened by States adopting harmonized approaches at a regional or global level.

Limitations imposed by trade law.

International trade law establishes certain restrictions on the ability of States to introduce unilateral restrictions on trade. Such measures could be applied to commercial fishing activities within and beyond areas of national jurisdiction. Trade law comprises the rules of the GATT and WTO, and subsidiary instruments and decisions. Trade law is complex and beyond the scope of this report to review in detail. Key requirements include restrictions on measures that discriminate between foreign trading partners; treating foreign

products less favorably than “like” domestic products; and restrictions on freedom of transit. Legal proceedings have been brought in respect of fisheries measures purported to breach these requirements.²⁵⁷ Any trade measure that imposes unilateral import or export restrictions would be contrary to the GATT, unless it falls within the exceptions provided for by Article XX. Article XX(g) permits measures to be taken in relation to the conservation of exhaustible natural resources if such measures are made effective in conjunction with restrictions on domestic production or consumption. Thus, in the 1982 Panel Report on “United States - Prohibition of Imports of Tuna and Tuna Products from Canada,” it was held U.S. measures breached trade rules because the United States had not adopted equivalent controls on domestic tuna production.²⁵⁸ Other potential bases for restrictions on trade include measures to protect human, animal, or plant life or health (Article XX(b)), to secure compliance with relevant domestic laws not inconsistent with GATT (Article XX (d), or to “protect public morals” (Article XX(a)). The EU successfully raised the latter exception in respect of trade in seal product,²⁵⁹ and arguably it could extend to other species such as commercial fish. Finally, it must be noted that there are additional requirements requiring States to ensure such measures are no more trade restrictive than necessary. They must also be conducted in ways that are fair, transparent, and even-handed.

Arguably CDS comprise technical regulations, and so must comply with the Technical Barriers to Trade Agreement (TBT Agreement). If eco-labelling and CDS amount to technical requirements, the TBT Agreement imposes certain duties to

256 E.g., NEAFC/NAFO scheme, discussed by Olav Schram Stokke: Stokke, O.S. (2009), “Trade Measures and the Combat of IUU Fishing: Institutional Interplay and Effective Governance in the Northeast Atlantic,” *Marine Policy*, 33:339-349. Trade measures and the combat of IUU fishing: institutional interplay and effective governance in the Northeast Atlantic,” *Marine Policy*, 33, 39; SEAF/WCPFC scheme, discussed by Calley, (n 103) at 122.

257 E.g., Shrimp Turtles dispute. Analysed by Young, M. (2011), *Trading fish, saving fish*, Cambridge University Press.

258 L/5198, adopted on 22 February 1982, 29S/91, 107-109, paras 4.5-4.6, 4.9-4.12.

259 WTO Appellate Body Report, European Communities—measures prohibiting the importation and marketing of seal products, WT/DS400/AB/RWT/DS401/ AB/R, adopted 18 June, 2014.

ensure the measures are non-discriminatory, do not constitute unnecessary restrictions on trade and are not more restrictive than is necessary to fulfil a legitimate objective. Notably, there are a number of legitimate exceptions lists in the TBT, including the prevention of deceptive practices; protection of human health or safety, animal or plant life or health, or the environment. Moreover, if a measure is prepared, adopted, or applied for such purposes and is in accordance with relevant international standards, it shall be rebuttably presumed not to create an unnecessary obstacle to international trade. This reinforces the importance of adopting CDS and similar measures within RFMOs. These would appear to encompass CDS and similar measures, although this has not yet been tested. Another key issue here is whether CDS, product labelling, and other initiatives amount to technical measures. However, it remains unclear on what precisely amounts to a technical measure. In 2011, the WTO Panel and Appellate body adopted a broad definition. This included voluntary labelling schemes for dolphin safe tuna.²⁶⁰ This took account of the fact that the United States set out the conditions and verification process under which tuna could be labelled as dolphin safe. In contrast, the WTO Appellate Body found in favor of the E.U.'s seal product ban as regards its stipulations on the identity of the hunter, type of hunt, and indigenous peoples' exception. If this latter approach is followed, then potential challenges to the legality of restrictions on trade in seafood may be more difficult to sustain.

3.5 Key findings: incentives for better governance

A number of general lessons can be derived from an assessment of international governance

frameworks for fisheries. These can be grouped into general observations, followed by insights focused on specific approaches: legal, market-based measures and financial mechanisms.

The most basic observation is that governance of fisheries in ABNJ is complex. It also presents quite different jurisdictional challenges to the management of fisheries due to the nature of the space, and the fact that in the absence of a single, exclusive decision-making authority, regulatory decisions, and by implication many market and financial based interventions, must accommodate cooperative or trans- jurisdictional considerations. A second general observation is the regulatory position is dynamic.

General recommendations from this review:

- Incentive-based approaches can and should be used alongside other legal instruments.
- General consensus is that good governance requires a mix of different instruments. The optimum combination is highly contextual and often appreciated after a process of trial and error.
- Most such measures remain constrained by regulatory requirements, particularly trade law rules.

Rights-Based Management

- RBM regimes have a growing track record of generating efficiency and contributing to conservation of fish stocks under domestic law.
- The successful implementation of RBM in domestic fisheries has generated interest in the use of RBM at a regional level.
- Strong RBM regimes are not well established in ABNJ fisheries. Where they have emerged, they tend to be weaker

260 WTO Panel Report, United States—measures concerning the importation, marketing and sale of Tuna and Tuna products (YUNA II), WT/DS381/R, 15 Sept 2011, paras 7.127, 7.131, 7.145. Also Appellate Body report Tuna II, WT/DS381/AB/R, 13 June 2012, para 199.

forms of rights-based measures such as capacity limits and days-based effort limitation schemes.

- RBM schemes are creatures of statute and cannot emerge without a supporting regulatory framework. This means their shape, form, and operation will be influenced by the other legal requirements operating within the constituting jurisdiction, either domestic laws or RFMO regime.

Suasive Instruments

- Suasive instruments are generally available since they are not contingent upon legal measures.
- Suasive instruments can operate at global, regional and local levels. There is greater scope to make use of these through RFMOs.

Investment Tools

- Investment in fisheries-related activities generally depends upon security of the investible entity, a supportive and secure regulatory regime, security of catch rights, and sustainable harvest rates, with potential to generate investment returns.
- Lessons can be learned from a range of successful conservation initiatives, although they must be adapted to context, as fisheries vary considerably in practice, with impacts upon investment structure, risks, and outcomes.
- There are good examples of investment opportunities and vehicles drawn from local case studies, with strong conservation focus.
- Investments must not take the form of subsidies. Public investment may be at most risk of falling afoul of legal rules prohibiting subsidies.
- Investments will normally be channeled to domestic level activities or enterprises since these are tried and tested models that provide lower risk for investment agreements.

- Investments must not be used to undermine generally accepted goals of fisheries law (e.g., reductions in capacity) or amount to a prohibited subsidy (something that has trade-distorting effects).
- Investments can be used to enhance regulatory capacity.
- Greater encouragement needs to be given to exploring investment at the regional level through, for example, RFMOs.

Market-based incentives

- Some market-based measures have the benefit of being available at any point from the entry of a product into the market (e.g., fish landing), and are generally free of jurisdictional limits (e.g., the effects can proceed up or down a supply chain regardless of the location of the activity).
- Certification schemes can be mutually reinforcing of regulatory regimes, as long as there is clear alignment between the certification process and “good regulatory standards.”
- Certification schemes can be driven by States, individually or acting collectively (e.g., PNA), although in both instances this requires positive engagement with industry actors.
- Catch documentation schemes are contingent upon legal measures. They can operate in combination with certification schemes, and may enhance value of the documented seafood product. The costs of the process may be offset by benefits from access to markets and increased product value.
- CDS and other market controls must not breach trade law, and they must not amount to trade restrictions in disguise.



4. Regional Governance Frameworks and Incentives

The following sections report on the governance regime for tuna and tuna-like species in each of the regions subject to the OPP projects. The report complements the research conducted by Gentner, focusing on the governance, regulatory, and financial mechanisms for each fishery. After a general introduction to common structural issues, four sub-sections deal with Eastern Pacific Ocean, South Asia and Bay of Bengal, Western and Central Atlantic and Caribbean, and Western and Central Pacific. In each case, analysis will be provided of the legal, market, and financial dimensions of the governance framework. The analysis of the regulatory regime is comprised of an analysis of the constituent instrument for each RFMO or sub-regional fisheries management organization, as well as conservation and management measures adopted therein. The analysis of markets and financial aspects of the fishery focuses upon the use of certification schemes and investment conditions. This is drawn together for an analysis of the overarching governance framework, that further draws upon a range of policy reports, academic literature, and performance reviews for each of the RFMOs.

4.1 General Issues in Respect of Regional Governance

RFMOs. Regional fisheries governance is usually undertaken through an RFMO, with each RFMO

governed by a different underlying convention or agreement and, being an autonomous body, answerable in law to their member States. The rules and decisions adopted by each RFMO only apply to those countries that are members of each RFMO.

RFMOs perform a number of functions, including assessing fish stocks, setting the total allowable catch (TAC), setting restrictions on fishing and the use of certain fishing equipment, allocating quotas, establishing reporting and documenting requirements, and coordinating inspection and enforcement measures.²⁶¹ RFMOs have a wide measure of competence to adopt “conservation and management” measures.²⁶² The ICJ has observed the inclusive nature of conservation and management measures in the *Fisheries Jurisdiction* case: “In order for a measure to be characterized as a ‘conservation and management measure,’ it is sufficient that its purpose is to conserve and manage living resources and that, to this end, it satisfies various technical requirements.”²⁶³ In principle, a wide range of measures can be adopted by RFMOs, including incentive-based measures. The precise scope and operation of these may be limited by a range of actors, including political will, procedural rules, substantive obligations, and practical concerns. For example, as Professor Rayfuse notes, the way in which measures are agreed within RFMOs allows State Parties to “pick and choose” between the measures by using either opt-out or objection procedures, a problem that has “lain at the heart

261 Rayfuse, n 25, 450–7; Guilfoyle, (n 59), 112–113.

262 Guilfoyle, n 59, 112.

263 *Fisheries Jurisdiction (Spain v Canada)* (Jurisdiction and Admissibility), 1998, ICJ Reports 431.

	UNFSA	CCSBT	IATTC	ICCAT	IOTC	WECAFC	WECAFC
Cooperation	Art 5	Preamble	Preamble	Preamble	Art. IV(3)	Art. 5	
Integrated Approach – cross sectoral cooperation	? Art. 24.		Art. XVI(2)?			Art. 22	Arts. 2(c), 11
Protection and Preservation of the mare environment	Art. 6		Art s. VII(1) (k), XV(3)				
Science-based management	Art. 5(b)	Arts. 5, 8	Art. VII (1)(c)	Art. IV	Art. V(2)	Art. 5(b)	Art. 6(g)
Precautionary approach	Art 6		Art. IV			Art. 6	Art. 2(a)
Ecosystem-based approach	Art.5(e)		Art. VII (1)(f)?				Art. 2(a)
Sustainable and/or equitable use	Arts. 5(a), 24	Art. 8(4)	Art. II	Art. IV(2)(b)	Art. V(1)	Art. 5(a)	
Public availability of information	Art.14(3)		Arts. XII (2) (j), XVI(1) (a)	Art. IV(2)(d)	Art. V(2)(a)	Arts. 10(1), 13(3)	Art. 6(f)
Transparent and open decision-making	Art. 12		Art. XVI			Art. 21	?
Protection of biodiversity	Art. 5(g)					Art. 5(f)	
Impact Assessment	Art. 5(d)				Art. XII(4)(b)	Art. 5(d)	

Table 1. Matrix of ABNJ Governance Principles in Tuna RFMOs

of major disputes” such as the *Southern Bluefin Tuna* cases.²⁶⁴ This in turn can generate high transaction costs, either through complicated and slow decision-making, or the production of differentiated management measures. There are further legitimacy issues concerning admission to RFMOs and the consequences this has for allocation of quotas.²⁶⁵ Finally, few RFMOs have adopted or sought to develop strict measures to deter IUU fishing (e.g., trade sanctions).²⁶⁶

Governance gaps in international fisheries.

The following table summarizes the coverage of key governance principles in RFMOs, drawn from the UNFSA.²⁶⁷ It is possible that RFMOs will be required to develop their mandates to address

these gaps if they are included within the scope of an ILBI on ABNJ, or through policy pressure to improve their mandates. It should be noted that this table does not cover conservation and management measures adopted by RFMOs, some of which make greater reference to the principles. For example, ICCAT adopted a precautionary approach to the implementation of conservation and management measures in 2015.²⁶⁸ Also, the qualitative difference in how such principles are set forth and implemented varies considerably across different RFMOs.

As the table indicates, the main gaps are in cross-sectoral integration, transparent decision-making, and obligation to protect the environment and

264 Rayfuse, n 25, at 445.

265 Molenaar, E. (2000), “The Concept of ‘Real Interest’ and other Aspects of Cooperation through Fisheries Management Mechanisms,” *International Journal of Marine and Coastal Law*, 15:475. Also Serdy, A. (2015), *The New Entrants Problem in International Fisheries Law*, (Cambridge University Press).

266 Mooney-Seus, M. and Rosenburg, A. (2007), *Recommended Best Practices for Regional Fisheries Management Organizations. Progress in Precautionary Approach and Adopting Ecosystems Based Management*, Technical Study 1, Chatham House.

267 This is a reduced version of a table published in Barnes, R., (2016), “The Proposed LOSC Implementation Agreement on Areas Beyond National Jurisdiction and its Impact on International Fisheries Law,” *International Journal of Marine and Coastal Law*, 31: 583-619. The present table focuses in tuna RFMOs involved in the GloTT project.

268 ICCAT Resolution 15/12 Concerning the Use of a Precautionary Approach in Implementing ICCAT Conservation and Management Measures, <https://www.iccat.int/Documents/Recs/compendiopdf-e/2015-12-e.pdf>.

biodiversity. These deficiencies are more evident in RFMOs established before the Fish Stocks Agreement in 1995.

Further analysis of the provisions reveals important variations in the way core principles are used in RFMOs. Some instruments refer to integrated approaches, but this is generally quite weak and limited exhortations to cooperation with other interested organizations. Even within the UNFSA, such cross-sectoral cooperation seems limited to provisions on developing States.²⁶⁹ Although most RFMOs refer to some form of stock assessment process, this falls short of standards expected of environmental impact assessments, and often does not consider the impact of fishing on the wider environment. Transparency of decision-making and availability of information vary qualitatively.²⁷⁰ Only a few explicitly adopt strong guarantees of transparent decision-making. Similarly, while most RFMOs support the dissemination of information and decisions, few indicate that this will be done publicly, and so may be limited to participating States. Others include caveats about confidentiality.²⁷¹ Arguably this falls short of best practice, for example, as included within the Aarhus Convention. References to sustainable use of resources are common. However, there are few references to equitable sharing of resources.²⁷² This is something that will come under scrutiny should the ABNJ ILBI favor a common heritage approach over freedom of fishing. There is considerable variation in the way principles are articulated. For example, IOTC refers to a duty of a sub-commission of the Commission to consult and cooperate in order “to assess and analyze the conditions and trends of the stocks concerned.” This might be construed as a form of impact

assessment, but it falls some way short of an EIA and omits broader environmental impacts of fishing.²⁷³ In some cases it is difficult to determine whether an approach or principle is included. For example, in the WCPFC, an ecosystem-based approach might be implicit from the Preamble and Articles 5(d), 12(2)(c), and 13(3), but it is not mentioned directly. All RFMOs refer to the use of science and data, but only a few explicitly refer to use of best available science.

In general, the extent to which principles are found in agreements is dependent on a range of factors. Thus post-1995 agreements (including those since amended) have tended towards a stronger and more complete statement of principles. Unsurprisingly, RFMOs, as opposed to advisory bodies, have stronger provisions on the use of science, data exchange, and co-operation. A number of these principles/approaches exist under general international law, and therefore apply to activities within ABNJ regardless of their inclusion within an RFMO. However, their inclusion would have symbolic value and increase pressure on States and other RFMOs to implement the principles. It would also help coordinate the application of potentially opposed or overlapping principles. Finally, as noted, the review focuses on the constituent treaty establishing the RFMO. As noted above, in recent years a number of RFMOs have started to adopt formal cross-sectoral mechanisms, not just with other fisheries bodies, but also with institutions responsible for environmental issues.²⁷⁴ This may establish pathways leading to more sophisticated management mechanisms, such as RBM or EIA or ABM. However, this is not required as a matter of international law, and so happens on an ad hoc basis.

269 UNFSA, Art. 24.

270 See McDorman, T. (2005), “Implementing Existing Tools: Turning Words into Action—Decision-Making Processes of Regional Fisheries Management Organizations,” *International Journal of Marine and Coastal Law*, 20:428.

271 See for example SEAFO, Art. 6(3)(l).

272 See the fifth recital of the preamble to the SPRFMO.

273 See Art. III(i).

274 *Supra* note 138, and accompanying text.

Reform of RFMOs. The standards expected from all RFMOs are set forth in articles 8–14 of UNFSA and other legal instruments, including the FAO Code of Conduct 1995 and various FAO Guidelines (Code of Conduct 1995) and International Plans of Action. RFMOs are responsible only to their own member States, which themselves are responsible for decisions and actions taken or not taken by the RFMO in question. This results in a wide discrepancy in levels of performance and effectiveness of RFMOs. There have been reviews of RFMO performance, but these have varied considerably.²⁷⁵ Common failings include absence of modern governance principles in RFMO mandates; failure of RFMOs to demand timely and accurate catch data; failure to promote/secure compliance with conservation and management rules members; lack of transparency; failure to adhere to scientific advice; opt-out decision-making procedures; failure to agree on participatory rights. Some reviews have been subject to criticism on the basis of their lack of independence, a lack of thoroughness, and a lack of follow-up action by the RFMO.²⁷⁶ Some States also have expressed concern about the lack of engagement with performance review in some RFMOs and the lack of follow-up action to implement recommended changes.²⁷⁷ Other concerns include the lack of a common assessment framework, problems with compliance mechanisms and allocation of fishing rights, and more fundamentally, the need for some changes to the legal structure of RFMOs, including strengthening of their mandates.²⁷⁸ This is particularly so for RFMOs that have not yet

accommodated modern fisheries management principles. These initiatives, while not perfect, reflect a move towards more reflective and proactive regulation of international fisheries law. As such, amendment of the legal framework of some RFMOs has been limited.

There are a number of reasons why reform has not happened. First, RFMOs are only as effective as their members allow them to be, and political will for reform may be lacking, especially where this may result in decreased fishing opportunities for national fleets. This is compounded by decision-making processes and lack of transparency. Second, there are few effective sanctions for RFMOs failing to address regulatory issues. Although periodically reviewed, the consequences of poor performance remain undecided. Third, the membership, mandate, and influence of RFMOs may be out of sync with global fishing activities, where key actors may not be coastal States or third-State operators of fishing vessels (flags of convenience). Under international law, the default position is that fishing may occur until agreement is reached to limit fishing or not to fish (freedom of high seas).

The pathways for reform of RFMOs are voluntary reform through initiative of RFMO membership, directed reform through the recommendations of the UNFSA review, or reform driven by the use of market-based incentives and financial investment.

RFMOs and non-Parties. A particular problem of the RFMO system is the possibility for fishing vessels to avoid compliance with RFMO measures by taking the flag of States that are not subject

275 Gjerde, K.M. Currie, D., Wowk, K., and Sack, K. (2013), "Ocean in Peril: Reforming the Management of Global Ocean Living Resources in Areas Beyond National Jurisdiction," *Marine Pollution Bulletin*, 74(2):540-551.

276 See Molenaar, E.J. (2005), "Addressing Regulatory Gaps in High Seas Fisheries," *International Journal of Marine and Coastal Law*, 20:533; Hoel, A.H. (2010), "Performance Reviews of Regional Fisheries Management Organizations" in Russell, D.A., and VanderZwaag, D.L. (eds.), *Recasting Transboundary Fisheries Management Arrangements in Light of Sustainability Principles* (Martinus Nijhoff), 449.

277 Report of the resumed Review Conference on the 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, A/CONF.210/2016/5, 1 Aug 2016, paras. 27, 101-3.

278 See the recommendations of Lodge, M.W., Anderson, D., Løbach, T., Munro, G., Sainsbury, K., and Willock, A. (2007), *Recommended Best Practices for Regional Fisheries Management Organizations*, (Chatham House, London).

to the particular RFMO treaty obligations. Such vessels are described as “free-riders” since they are able to exploit the fisheries without complying with management measures. They present a particular challenge for some incentive-based measures to the extent that this undermines exclusivity of rights. There are some means of restricting the impact of “free riders.” The UNFSA provides for limited non-flag State enforcement measures.²⁷⁹ States that have joined an RFMO and are party to the UNFSA (for present circumstances called “inspecting States”) are in theory granted the power to interdict and inspect all vessels within a fisheries management area.²⁸⁰ In practice, however, States and RFMOs have been reluctant to exercise this power. In any event, it must be doubted that the UNFSA can grant enforcement powers against third States by virtue of the inherent freedom of the high seas and the *pacta tertiis* principle.²⁸¹ In such circumstances non-State parties’ obligations are limited to the less concrete obligation to cooperate with conservation measures under UNCLOS Article 117. The UNFSA notes that States may take action consistent with the Agreement and international law to deter the activities of vessels undermining the effective implementation of the Agreement,²⁸² a point that links to measures adopted under trade or environmental law, and which are contingent on measures being adopted at port—when products enter markets.

Criminal or administrative proceedings cannot be brought against foreign flagged vessels that enter coastal waters or ports that are suspected of committing illegal fishing operations on the high seas. However, most port States may refuse a vessel’s use of port facilities to land, transship, package, and process fish if the vessel fails to produce a valid fishing permit or authorization,

or if the flag State fails to confirm the vessel was conducting fishing in accordance with RFMO measures, or if there are reasonable grounds to suspect the vessel was engaged in or supporting IUU fishing activities.²⁸³ The port State may furnish the flag State with any evidence of IUU fishing (e.g., VMS AIS data, details of catch, and logs), but only the flag State has jurisdiction to take steps to prosecute the ship or crew. Flag States could consent to prosecutions being conducted, but this would depend upon the coastal State having adopted domestic laws that permit any such proceedings to be brought against foreign-flagged vessels for crimes committed outside its jurisdiction.

The UNFSA provides for limited non-flag State enforcement measures. States that have joined an RFMO and are party to the UNFSA (for present circumstances called “inspecting States”) are in theory granted the power to interdict and inspect all vessels within a fisheries management area.

General drivers of future change in regional fisheries. A range of factors will influence the way in which RFMOs manage fisheries within their remits. This includes climate change, changing markets for tuna, and improved science and technology.

Impacts of climate change. Most fisheries around the globe will be impacted by climate change,

279 UNFSA, Articles 20–22.

280 UNFSA, Article 21(4).

281 Rayfuse (n 25), 444; Guilfoyle (n 59), 104–105.

282 UNFSA, Article 33(2).

283 These matters arise under general rules concerning the extent of prescriptive and enforcement rules under the law of the sea, but are articulated in detail under the FAO Port State Measures Agreement. See above 2.4 Port State Measures Agreement



which will alter ocean temperatures, salinity, and species distribution. This will have varying impacts on tuna and tuna-like species.²⁸⁴ It introduces greater complexity and uncertainty into informational and decision-making systems. It may also undermine quota allocation decisions, or create reasons to challenge allocations. While most tuna RFMO have wide geographic mandates, changed distribution and productivity of species can have consequences for the allocation of fishing entitlements based upon zonal attachment or indeed historic fishing patterns. The impacts of climate change may be felt more acutely when species are distributed between coastal waters and high seas because of the different weighting attached to allocation claims relating to EEZ and high seas. For example, the movement of stocks into an EEZ will provide coastal States a basis for claiming a larger proportion of stocks,

whereas the movement of stocks into high seas will favor high seas fishing interests. Most RFMOs have quite wide mechanisms for allocating quotas to members. In practice, this tends to be a negotiated process, favoring allocations in line with historic landings. If there are significant changes in distribution, then uncertainty over the content and weighting of any allocation principles could hamper quota setting and consequently conservation and management of stocks. One way to address this would be to establish time-bound allocation of rights (including tenure rights) that are renegotiated at periodic intervals. In addition to such rights, coastal States could impose additional fees for foreign vessels seeking to access parts of such allocations located within coastal waters. This would allow for settled allocations to be retained, but allows for the recovery of "rents" by coastal fees to the

284 Bell, J. et al. (2011), *Vulnerability of Tropical Pacific Fisheries and Aquaculture to Climate Change*, SPC, Noumea.

extent that fishing is located from time to time in coastal waters.²⁸⁵ This much is consistent with the UNCLOS, which permits the setting of conditions for foreign fishing in the EEZ.²⁸⁶

Climate change may also have indirect effects on fishing activities through potential impacts on the designation of coastal waters. Sea-level rise could result in loss of coastlines or coastal features used to determine baselines (and hence outer limits of the EEZ). Some States, such as the Marshall Islands, have taken steps to address this by fixing baselines, and hence maritime zones, according to geodesic data— thus fixing baselines and maritime zones independent of physical features likely to be affected by sea level rise.²⁸⁷ Other States with low-lying coastal areas should consider adopting similar measures, or risk having claims to maritime zones challenged.

Impacts of changing markets. Tuna markets are global, so fluctuations in supply and demand in regional fisheries cannot be regarded as isolated. For example, demand for SKJ is likely to be met by the WCPO since Atlantic stocks are at current limits, and WCPO seems to have the greatest capacity to expand.²⁸⁸ Global population and demand for protein (including seafood) will rise. As regards seafood products, it is expected that much of this will be met by aquaculture.²⁸⁹ Changing demand in India and China will have potentially significant impacts given the size of their populations. Higher demand could result in higher prices, or increasing pressure from China for larger allocations of fishing entitlements. The

largest cost for both PS and LL is fuel (estimated at 25 percent and 44 percent respectively).²⁹⁰ Fuel costs are expected to increase 100-fold in real terms by 2040.²⁹¹

Most tuna fisheries are reaching the limits of supply. This will not change unless conservation and management can restore some stocks to more productive levels. Demand for tuna (and other seafood products) is likely to increase in light of population growth. Demand will vary according to products. The canned tuna market appears to be more static with most markets (US/EU) mature and showing little growth. However, new markets in other countries may result in increased demand. There is expected to be growth in fresh tuna products, and this presents challenges concerning supply changes and ensuring product quality. Market prices for all tuna products is expected to show slow and steady growth. Harvesting costs are likely to increase significantly due to fishing fuel costs.

Impact of science and technology. Harvesting technology is expected to improve and become more efficient, offsetting some costs associated with fuel. Advances in fisheries monitoring and surveillance (e.g., VDS, satellite monitoring, surveillance drones, and electronic fishery information systems) should reduce enforcement costs and facilitate improved management. Improvements in vessels capacity and storage could enhance product quality.²⁹² Increased efficiency, larger vessels, and higher dependence on fishing technology will make it more difficult for

285 This system already operates within eastern pacific tuna fisheries.

286 Art. 62(4), discussed in more details in section 2.2 above.

287 See Schofield, C. and Freestone, D. (2013), *Options to protect coastlines and secure maritime jurisdictional claims in the face of global sea level rise*, available at <http://ro.uow.edu.au/cgi/viewcontent.cgi?article=2241&context=lhapapers>.

288 PacificPossible, 2016 *Tuna Fisheries*, World Bank Report, available at <http://pubdocs.worldbank.org/en/858301461833983033/WB-PP-Tuna-Fisheries.pdf>.

289 World Bank, 2013, "Agriculture and Environmental Services Discussion Paper No. 3," *Fish to 2030: Prospects for Fisheries and Aquaculture*, World Bank, Washington, D.C.

290 Conservation International (2015), *Value Creation Opportunities for WCPO island nations in the tuna industry*, Discussion Document, Conservation International, Fairfax.

291 U.S. Energy Information Administration, 2015, Annual Energy Outlook 2015, available at <http://www.eia.gov/beta/aeo/#/?id=3-AEO2015>.

292 PacificPossible, n 288, 83-4.

new fishers to enter the market and compete with existing fleets. Access to technology will require investment. This will come from larger, more profitable fishing concerns, and possibly other actors in the supply chain (canneries, retailers) or from external investors (see section 4.3). These developments will drive changes in regulatory regimes to ensure greater security of fishing rights.²⁹³

Allocation of fishing rights. There is little guidance or direction on allocation of rights under UNCLOS. The UNFSA sets out potential options in Article 11 (status of stocks and existing levels of fishing; respective interests and fishing patterns/practices of existing and new members; contributions to conservation and management; needs of dependent fishing communities; needs of dependent coastal States; interests of developing States in the region). Some RFMOs are developing more formal rules/guides on allocation, ICCAT and NEAFC.²⁹⁴ The ISSF Cordoba Conference concluded that an effective allocation framework is fundamental to the implementation of rights-based management.²⁹⁵ The ISSF also notes that, "A linkage exists between compliance and enforcement and allocation of fishing opportunities. The legitimacy of measures is strongly related to the perceived fairness of allocations and rules. Legitimacy needs to be built from the perspectives of both RFMO members and fishers."²⁹⁶ Legally, any state with a real interest in a fishery must be able to participate in an RFMO (Article 11 UNFSA). Allocations are usually made to States, who then determine individual fishing allocations. States receive "governance powers to determine a share of a resource." Individuals receive property or use

rights. Allocations can be made of fishing effort or catches. Prevailing opinion favors catch rights since this can be directly correlated to total catch, and hence the impact of fishing on the resource. Allocations are usually set as percentage shares, which accommodate natural and anthropocentric variations in the stock size.

4.2 Eastern Pacific Ocean

The EPO fishery for tuna and tuna-like species is an international fishery. It has been managed by the IATTC since 1950. Institutionally, several issues are critical. The fishery is now comprised of purse-seine vessels and long-line vessels. Although the fishery comprises discrete stocks, the way in which fishing is conducted means that fishing of one stock impacts on the other. In particular, the use of FADs is resulting in catch of small/juvenile BET and YFT by the skipjack fleet, resulting in threats to the sustainability of the latter stocks. In general, excess capacity in the purse seine fleet means there is too much fishing effort available to optimally harvest the resource base (WWF 2017). Gentner provides data on the fisheries in the East Pacific Ocean (EPO), highlighting steps taken to try to limit capacity.²⁹⁷

IATTC has competence to manage fisheries with the Convention Area, which includes coastal waters and high seas areas. Present members of IATTC are Belize, Canada, China, Chinese Taipei, Colombia, Costa Rica, Ecuador, El Salvador, the European Union, France, Guatemala, Japan, Kiribati, Mexico, Nicaragua, Panama, Peru, the Republic of Korea, the United States, Vanuatu, and Venezuela. Bolivia, Chile, Honduras, Indonesia,

293 McClurg, T. (2014), *Conceptual Framework for Identification and Assessment of Potential Fisheries Investments*, in Holmes, L., Strauss, C. K., de Vos, K., Bonzon, K. (2014), *Towards investment in sustainable fisheries: A framework for financing the transition*, Environmental Defense Fund and The Prince of Wales's International Sustainability Unit.

294 Barnes, R. (2017), *Climate Change and Fisheries* (working paper on hand with author).

295 ISSF (2011), *Cordoba Conference on the Allocation of Property Rights in Global Tuna Fisheries*.

296 Ibid.

297 Gentner, B. 2018, *Assessing the application of innovative incentive based tools to reform highly migratory fisheries at the project development and regional scales*. Report prepared for the World Wildlife Fund, Washington, DC, USA.

and Liberia are Cooperating Non-Members. Contracting Parties have the legal authority to control all fishing activities within coastal waters, subject to restrictions imposed by international law. The main limits are cooperative requirements and control pertaining to shared stocks and highly migratory stocks, as set forth under the UN Fish Stocks Agreement and IATTC. On the high seas, controls are contingent upon the agreement of flag States, whether parties or non-parties to the Convention.

The aim of the IATTC is “to ensure the long-term conservation and sustainable use of the fish stocks covered by this Convention, in accordance with the relevant rules of international law.” The Commission is able to adopt binding decisions. This is done on the basis of a consensus process, meaning that they are contingent upon the political will of contracting parties, and is a critical juncture in the development and implementation of innovative governance tools. While the Commission provides an effective mechanism for cooperation on fisheries management, the lack of binding decision-making undermines the effectiveness of any measures that may be developed by the Commission. This is reflected in the Antigua Convention’s dispute settlement mechanisms. General disagreements can be aired at annual meetings and referred to consultation or conciliation procedures, and technical disputes can be addressed in non-binding ad hoc expert technical panels. However, there is no binding third-parties dispute settlement process. As such, there is no way for formally resolving disputes when the foregoing steps fail. There is the possibility of recourse to dispute settlement under UNCLOS or the UNFSA dispute settlement proceedings. To date, no such measures have been instigated by a State involved in IATTC fisheries.

The Commission may adopt a wide range of measures under Article VII of the Antigua Convention. Although such measures should be precautionary and ensure the long-term

conservation and sustainable use of the fish stocks, restore stocks to levels that can produce the maximum sustainable yield, and prevent or eliminate overfishing, there is no obligation on the Commission or contracting States to adopt

To date, the IATTC has mainly adopted the following approaches to managing fisheries which comprise weaker forms of RBM. Long-line fishing is controlled through the determination of national quotas, which are then regulated by the holding State. Purse seine is controlled through a system of capacity allocations and closed seasons. This is operated alongside the Regional Vessel Register (RVR), which is intended to provide a definitive list of purse seine vessels authorized to fish tuna in the EPO.

any specific management tool. The plurality of objectives and discretionary authority means that it is impossible to present an unequivocal case for any specific management tool, such as RBM. To date, the IATTC has mainly adopted the following approaches to managing fisheries which comprise weaker forms of RBM. Long-line fishing is controlled through the determination of national quotas, which are then regulated by the holding State. Purse seine is controlled through a system of capacity allocations and closed seasons. This is operated alongside the Regional Vessel Register (RVR), which is intended to provide a definitive list of purse seine vessels authorized to fish tuna in the EPO. Capacity allocations were decided according to participation in 2002 and modified by trading and IATTC approvals of additional capacity post-2002. Capacity allocations are made to States, and only vessels on the register are

permitted to participate in the EPO tuna purse seine fishery. Non-registered vessels fishing for tuna would be regarded as undermining IATTC management measures. The combination of the purse seine capacity limits and RVR could be regarded as a form of RBM since it establishes a degree of exclusive access.

Dolphin Mortality Limits (DMLs) are also a weak form of rights-based measure. The AIDCP specifies limits on dolphin mortality. Dolphin Mortality Limits (DML) are allocated in respect of vessels fishing for tuna associated with dolphins. The DML are divided among member States, who then allocate them to specific vessels. If the vessel does not fish for tunas associated with dolphins, then the DML can be transferred.

Limited entry to the RVR and capacity allocations can be considered weak forms of RBM because they establish forms of individual fishing entitlement with degrees of exclusivity, transferability, and security. Exclusivity is maintained by limiting the entry of new vessels to the RVR, unless as a replacement for vessels leaving the fishery. There is also a rule that prohibits increases in well volumes (capacity) unless equal well volumes are removed from other vessels leaving the fishery. The regime envisages transferability by permitting limited entry into and out of the fishery. Transferability is allowed through several mechanisms. First, vessels on the RVR can change flag from one State to another. Furthermore, complexities arise through the use of bareboat charter, under which

a vessel's principal registration is temporarily suspended in order to permit the charterer to register the vessel in another State. There have been few if any transfers of quota between member States through this mechanism, since member States have been careful to control which vessels should be placed on the register so as to maintain national shares of the allocations. Second, a vessel on the RVR can be replaced by another vessel, subject to the foregoing restrictions. The IATTC regime demonstrates the importance of a central register and of controls on vessels moving to and from the register.

Dolphin Mortality Limits (DMLs) are also a weak form of rights-based measure. The AIDCP specifies limits on dolphin mortality. Dolphin Mortality Limits (DML) are allocated in respect of vessels fishing for tuna associated with dolphins. The DML are divided among member States, who then allocate them to specific vessels. If the vessel does not fish for tunas associated with dolphins, then the DML can be transferred. These are weak rights because the DML does not provide full exclusivity (other than limits to national mortality limits), the duration is only one year, and security is subject to national government's rights to renounce or reallocate the rights. There is limited transferability of rights.²⁹⁸

Governance analysis (law). The decision-making process of the IATTC is generally transparent. The participation of observers at meetings, including NGOs and IGOs, can ensure this. As noted, the IATTC suffers from the absence of binding decision-making procedures. To improve this, some form of majority voting systems would be required. This would require amendment of the Antigua Convention. This is reinforced by a lack of compulsory dispute settlement procedures. Together, these may impede the effectiveness of specific management tools.

298 IATTC 2006.

Few RFMOs allocate rights directly to private persons. In the IATTC, this would presently be possible under national legal systems. Quotas or other rights are allocated to States, which must then determine how fishing opportunities are to be controlled. The IATTC also administers leasing and transfers of capacity between States. It thus acts as an intermediary for transactions. As noted before, such rights are relatively weak forms of RBM as they may have limited exclusivity or have significant conditions or limits imposed upon how they are used. Since the IATTC establishes a regime of fishing rights for vessels, there is limited scope for a State to establish discrete RBM for national fleets.

The IATTC enjoys a wide discretion to adopt management measures, including RBM. There are no explicit limits upon the adoption of RBM within IATTC, although this may become necessary to give effect to other conservation and management duties, imposed by either the Antigua Convention, or by general international law. Legally, if there was sufficient political will to do this, the IATTC could strengthen existing rights or adopt quite different models of RBM. The authority of the IATTC is unusual in comparison to other States, but it demonstrates the potential for greater RFMO use and control of RBM.

It may be possible to enhance the exclusivity of rights and strengthen the existing RBM established by the IATTC. In general, this could be done by restricting the reintroduction of latent fishing capacity into EPO fisheries. Restrictions could be placed on nationals seeking to enter the EPO fisheries by flagging out to third States and engaging in fishing on the high seas. States could strengthen the DML by guaranteeing such rights as a matter of domestic law (e.g., restrict renunciation or reallocation of rights). Similarly, the weakness of RVR/capacity could be strengthened by national governments limiting the situations when they would make changes to the entry of a vessel on the RVR. In general, strengthening monitoring and compliance

would enhance the de facto quality of rights. The question remains whether this system would sufficiently incentivize the right behavior to address problems of overfishing in the EPO.

Governance analysis (financial instruments).

If the stock is threatened by overfishing and or data demonstrate a future decline in the health of the stocks, investment in the fishery may be discouraged. There is clearly a correlation between the health of the stock and the risk to an investor. More heavily depleted stocks would require stronger returns on investment, and this would entail stronger rights and a greater stake in decisions about the management of a fishery. Existing governance structures do not provide a direct role for non-State investors in this process at the regional level. One option to accommodate this would be the adoption of a decision by the Commission to determine how an investment vehicle would be established and managed. Given the broad authority of the Commission, this would be possible. Participation by investment agencies could be accommodated within the institutional structure by way of participating in a subsidiary body, and decisions about the use or structure of investments could be secured through general decisions of the Commission to adopt conservation and management measures. Any such measures would require the approval of the contracting States, given the impact that it would have and would require the support of all States since decision-making is consensus-based. Here, the influence of the States with the highest levels of fishing capacity would be influential. It should be noted that there is nothing to stop individual States from pursuing such investments unilaterally.

The Commission of the IATTC has authority to “adopt or amend its own rules and procedures, financial regulations, and other internal administrative regulations as may be necessary to carry out its functions.” This provides the legal basis for any financial activities conducted by the Commission, including the conduct of investment

activities with third parties. Although there is no specific reference to investment activity, the Financial Regulations adopted in 2008 refer to “other income,” which is managed by the IATTC Director.²⁹⁹ Later provisions in the Financial Regulation appear to encompass investments, by stating that the Director may permit the receipt of monies, incurring of obligations, and making of payments on behalf of the Commission.³⁰⁰ More detailed procedures must be followed as regards budgets, but the main restriction is that the budget must be approved by the contracting parties.

If IATTC wished to pursue investment opportunities with third parties, the main issue would appear to be whether private investors would see this as an attractive proposition. Here, investment would most likely focus on States with the highest levels of fishing capacity since this represents an important element of the investment security. Research conducted under the EPO program has analyzed detailed opportunities for investment in the fishery, providing two options: 1) a traditional loan structure, and 2) the creation of an EPO tuna trust (ETT), which would purchase quotas and

lease back fishing opportunities. This is designed to facilitate the use of an IVQ system that would help reduce fishing effort and avoid more harmful alternatives, such as closed seasons. For this investment to work, efforts are required to influence key actors in the fishery to leverage change at the RFMO level. It would also require improvements in the institutional control of fisheries at the regional level, especially in respect of monitoring and control activities.

Governance (market-based instruments).

As discussed above, the effectiveness of market-based instruments may depend upon the effectiveness of regulatory and management systems. In their analysis of the IATTC, the ISSF finds this to be reasonably robust, although there is scope to improve these areas of performance. See the score in the table below. This is along the lines noted in the analysis of the legal framework above. Specific concerns in the EPO concern the use of subsidies (e.g., fuel, infrastructure development) by some States that can heavily distort performance and potentially undermine market-based controls. There is a lack of enabling conditions, such as strong regulatory rules, some unsustainable harvesting practices, and weak domestic management frameworks.³⁰¹ The absence of strong enforcement of capacity limits and the lack of trading/market mean that capacity remains excessively high. The reasons for a lack of trading is not clear, but may be rooted in social or political cultures.

There is potential for market-based tools to be developed in the EPO. For example, Pacific Alliance for Sustainable Tuna (PAST) achieved MSC certification for the Northeastern Tropical Pacific purse seine yellowfin and skipjack tuna fishery, which operates within the IATTC framework. This certification was confirmed following adjudication

If IATTC wished to pursue investment opportunities with third parties, the main issue would appear to be whether private investors would see this as an attractive proposition. Here, investment would most likely focus on States with the highest levels of fishing capacity since this represents an important element of the investment security.

299 IATTC Financial regulations, para. 8.

300 IATTC Financial regulations, para. 10.

301 ISSF. (2014), Position Statement Presented during the 87th Meeting of the Inter-American Tropical Tuna Commission in Lima, Peru, 14-18 July 2014, available at https://www.iattc.org/Meetings/Meetings2014/Jul/_English/2014-ISSF-STATEMENT-for-IATTCENG.pdf.

that followed an objection by WWF. The IATTC is developing catch documentation schemes. However, at present, this is limited to trade documentation schemes that capture data on trade in species and do not capture data on harvest activities.

4.3 South Asia and Bay of Bengal

A summary of key fisheries in the region is provided in the report by Gentner.³⁰² The Indian Ocean Region covers approximately 73 million sq. miles. The top ten fishing nations in the region are Indonesia, Iran, Spain, Maldives, Sri Lanka, India, France, Seychelles, Taiwan, and Pakistan. Distant water fishing nations capture approximately 20 percent of fish. The key points are that the fish stocks are globally significant, supplying one-fifth of global tuna production. Yellowfin tuna, the most important stock, is overfished, and bigeye tuna and swordfish stocks in the Southwest Indian Ocean are fully exploited, but albacore and SKJ, ALB, and SWO outside the Southwest Indian Ocean could sustain some increase in fishing effort. Purse seine produces the largest share of catch (36 percent), followed by gillnet (31 percent), longline (15 percent), bait boat (10 percent), pole and line (7 percent), and other (1 percent).³⁰³ In general, capacity controls have been set too high, resulting in overfishing.³⁰⁴ Another key concern is the need to reduce post-catch losses arising from poor on-board storage facilities on vessels, many of which are only basically equipped. Related to this is the importance of improving quality of products reaching markets, much of which can deteriorate due to the lack of onboard refrigeration.³⁰⁵

A particular feature of fisheries in the Bay of Bengal region is the influence of India's caste structure, which in general means that only certain sections of society participate in fishing. As a result, this can act as a de facto form of limited entry. It could also be viewed as a form of community-based structure for the fishery. However, this position is gradually changing. At the national level, the fishery management regime is very under-developed. Putting in place strong regulatory and governance arrangements is a key development goal. In principle, this would be easier to achieve before interest groups emerge that may be resistant to regulatory intervention.

The management of tuna stocks is coordinated by the IOTC. The IOTC is an intergovernmental organization responsible for managing tuna and tuna-like species in the Indian Ocean and adjacent seas. Its legal authority is derived from its constituent instrument, the Agreement for Establishing the Indian Ocean Tuna Commission 1993, which was concluded under Article XIV of the FAO Constitution. It entered into force on 10 March 1996. It has 31 members, including Australia, China, Comoros, Eritrea, the European Union, France, Guinea, India, Indonesia, Islamic Republic of Iran, Japan, Kenya, Madagascar, Malaysia, Maldives, Mauritius, Mozambique, Oman, Pakistan, Philippines, Republic of Korea, Seychelles, Sierra Leone, Somalia, South Africa, Sri Lanka, Sudan, Thailand, United Kingdom, United Republic of Tanzania, and Yemen. Membership is open to all coastal States, and States or regional economic organizations that are members of the UN or one of its specialized agencies, and which fishes for tuna in the Convention area.³⁰⁶ However, membership of States that are not members of the FAO is contingent

302 Gentner, B. (2018), *Assessing the application of innovative incentive based tools to reform highly migratory fisheries at the project development and regional scales*. Report prepared for the World Wildlife Fund, Washington, DC, USA.

303 Based on IOTC reports 2005-2014.

304 Aranda, M., Murua, M., and de Bruyn, P. (2012), "Managing fishing capacity in tuna regional fisheries management organisations (RFMOs): Development and state of the art," *Marine Policy*, 36:985-992.

305 Presentation by Yugrav Yadava of the Bay of Bengal OPP to the GloTT Meeting Los Angeles November 2017.

306 IOTC Convention, Article IV.



upon approval by a two-thirds vote of existing members. Cooperating Non-Contracting parties (CNCP) include Bangladesh, Djibouti, Liberia, and Senegal. CNCPs are bound by decisions of the IOTC, but they are not obliged to make financial contributions and do not enjoy voting rights. The Secretariat is based in Victoria in the Seychelles. The Commission is the decision-making body of the IOTC, and it is comprised of representatives from all contracting parties. It is authorized to issue binding decisions, which are adopted on the basis of a two-thirds majority. Individual members may object to decisions and are not bound by such decisions. The Commission may also adopt non-binding recommendations in pursuit of the Convention objectives, and these are adopted by a simple majority of members present at the vote and voting. The Commission is assisted by a Scientific Committee, Compliance Committee, and Standing Committee on Administration and Finance. Other ad hoc

committees may be established to assist the commission. Its area of legal competence extends to FAO statistical areas 51 and 57, and adjacent waters, north of the Antarctic convergence. This includes both coastal waters and high seas.

IOTC is committed to maintaining stocks at or above the MSY. This is done indirectly by reference to UNCLOS in Article V(2), along with the reference in Article VI(1) to sustainable development and optimum utilization. The Commission has broad authority to adopt conservation and management measures under Article V, with the aim of conserving stocks and ensuring optimum utilization. Any measures are without prejudice to the right of coastal States to exercise the sovereign rights in coastal waters that extend up to 200 NM. The Commission depends upon Member States to adopt measures under domestic law to implement any measures (Article X), including penalties and other steps to

secure compliance. There are no requirements on the Commission to adopt specific tools. There are examples of management measures that move towards the adoption of rights-based measures. Thus, IOTC Resolution 15/11 on the Implementation of a Limitation of Fishing Capacity on Contracting Parties and Cooperating Non-Member States permits CPC to change the number of vessels fishing or their gear type if they can demonstrate to the Commission that this will not lead to an increase in fishing effort, or it takes place under a system of individual transferable fishing quotas under a management plan that has been provided to the Commission.³⁰⁷ It appears that the IOTC has struggled to develop a viable quota allocation scheme that would allow catch-share allocation.³⁰⁸

The ISSF has identified seven main concerns with IOTC fisheries³⁰⁹: addressing the overfishing of yellowfin tuna; addressing the impact of gillnet fisheries on tuna; improving understanding of the impacts of FADs; improving the scope and implementation of harvest catch rules for all stocks; addressing bycatch shark mortality; improving monitoring, control and surveillance in fisheries, including observer coverage and transshipment controls; improving compliance, especially with regards to CPCs; and addressing excess fishing capacity.

Governance analysis (law). In general, there have been significant information deficits in the region. Many States do not have the necessary mechanisms to collect and report data. They also lack appropriate research and development capacity. As a result, it has been difficult to develop and implement sustainable harvesting strategies, leading to focus on improving

information systems. The IOTC provides a framework for cooperation. However, this framework is limited in that one major fishing interest (Chinese Taipei) cannot become a member or cooperating party, and so falls outside formal participation and compliance mechanisms. Ad hoc work around measures appears to offset this, but it remains short of fully-inclusive governance.

The IOTC has a decision-making process that applies to the adoption of conservation and management measures. However, it is weakened by the potential use of opt-outs. This does not prevent other States from giving effect to a decision. As a relatively new organization, the IOTC has not adopted many decisions, and so compliance with such measures is not really being tested. The main concern is the conduct of CPC states. The IOTC is only recently engaging in the question of access rights and allocation of quota.³¹⁰ The second performance review recommended that the IOTC:

... should establish a stronger policy on fishing capacity to prevent or eliminate all excess fishing capacity, including options to freeze capacity levels as an interim measure, while alternative management measures are considered. As current capacity limits are generic and apply across all fleets and their ability to control catch of particular species is limited, therefore alternative management measures should be considered which may include spatial-temporal area closures and quota allocation.

Further, the IOTC should undertake a “formal process to develop transfer mechanisms to developing coastal States, and in particular the

307 This measure was originally introduced in 2001, then superseded by new measures in 2006, 2009, and 2012.

308 Noye J. and Mfodwo, K. (2012), “First Steps Toward a Quota Allocation System in the Indian Ocean,” *Marine Policy*, 36:882, 887.

309 ISSF, 2016 IOTC Position Statement, available at <https://iss-foundation.org/what-we-do/advocacy/position-statements/download-info/2016-iotc-position-statement/>. In 2017, similar concerns were raised, although focused on yellowfin tuna. See: ISSF. (2017), *IOTC Position Statement*, available at <https://iss-foundation.org/download-monitor-demo/download-info/2017-iotc-position-statement>.

310 PRIOTC02, para. 129, available at <http://www.iotc.org/cmm/resolution-1603-second-performance-review-follow>.

least developed among them, with a view to realizing their fleet development aspirations within sustainable levels.” As these measures consolidate and enter into operation, then it is likely that they will be tested politically and legally. The IOTC lacks a formal dispute settlement procedure, so it depends upon mainly political fora (i.e., annual meetings and consultations) to resolve disagreements. It remains possible to have recourse to dispute settlement outside the IOTC agreement under UNCLOS or the UNFSA.

An external performance review of the IOTC published in 2012 identified three main gaps or weaknesses in its legal framework.

An external performance review of the IOTC published in 2012 identified three main gaps or weaknesses in its legal framework. First, the IOTC Agreement is outdated and does not take account of modern principles for fisheries management, including the precautionary principle and ecosystem-based approach.³¹¹ Neither does the agreement clearly delineate the functions of the Commission, flag States, and port States. Second, there are limitations on participation rights for States as a result of its status as a FAO Article XIV body, which runs counter to participatory rights set forth under the UNFSA (which allows States with a “real interest” to participate in the RFMO), and prevents major fishing nations from discharging cooperative obligations. Third, the

IOTC is afflicted by budgetary problems. The review further identified performance limits to the IOTC: high levels of uncertainty in data; poor record of compliance and limited tools to address non-compliance; and failure to account for special needs of developing States.

An internal review of performance published by the IOTC in 2016 committed to forming a Working Group to address the following points: developing new language for the IOTC Agreement that takes into account modern principles of fisheries management; that a multi-year program of work that prioritizes issues raised in the performance review will be developed; that a proposal for allowing the participation of all States with a real interest in the fishery also will be developed; that all contracting States participate in the Working Party, with funds to assist developing States; that the Working Group meet annually, with possible inter-sessional meetings done electronically.³¹² Other developments include a Working Party on Implementation of Conservation and Management Measures established in 2016, with a view to reviewing current state of play, and developing recommendations to enhance capacity.³¹³

Another challenge is the issue of setting allocation among States. The IOTC has established a Technical Committee on Allocation, which has met four times since 2011, but it has not yet formulated concrete findings on allocation principles. At the third meeting, the option of developing capacity limits was raised, but there were significant differences of views on the proposal, and the participants failed to reach consensus on any such measures.³¹⁴

311 Ceo, M., Fagnani, S., Swan, J., Tamada, K., and Watanabe, H. (2012), *Performance Reviews by Regional Fishery Bodies: Introduction, summaries, synthesis and best practices, Volume I: CCAMLR, CCSBT, ICCAT, IOTC, NAFO, NASCO, NEAFC*. FAO Fisheries and Aquaculture Circular, No.1072, Rome, FAO. See <http://www.fao.org/docrep/015/i2637e/i2637e00.pdf>. Such concerns were echoed in a further internal performance review conducted by the Commission and published in 2016 (PRIOTC02), *ibid*.

312 PRIOTC02, *ibid*, para. 81.

313 IOTC Resolution 16/12. This now operates under IOTC Resolution 17/02 Working Party on the Implementation of Conservation and Management Measures (WPICMM).

314 Report of the 3rd Technical Committee on Allocation Criteria, Kish Is. Islamic Republic of Iran, 21–23, February 2016, IOTC–2016–TCAC03–R[E]

Given the relatively recent establishment of the IOTC, it would be difficult to conceive of a sub-regional arrangement emerging within the IOTC area in the same way as has happened with the PNA in WCPFC. However, it may be possible for regional alliances to emerge, or for key coastal States to seek to use access to coastal waters as a lever for change at the regional level. Other political considerations aside, this might include, Seychelles, Maldives, India, and Sri Lanka.

Governance analysis (markets). The ISSF review of the IOTC according to MSC criteria P1 and P3 indicates that it is performing reasonably well (Gentner, 2018). However, it falls short in respect of consultation and clear designation of roles and responsibilities, and enforcement of measures. This could undermine future certification efforts.

The Maldives pole and line skipjack tuna fishery was certified in 2012. A condition of this was that the IOTC should improve its harvest strategies within five years. This would require the cooperation of all IOTC members. As a result, the Maldives spearheaded an effort to develop harvest control rules (HCRs), supported by the International Pole and Line Foundation, the WWF, and ISSF. Although no HCRs were adopted, certification was secured. The adoption of HCR by the IOTC soon followed the certification in May 2016.³¹⁵ This is an interesting strategy since it shows how pressure on regional fisheries can be leveraged through national fishery certification processes, combined with cross-sectoral efforts from States, industry, and third-sector stakeholders. It is notable that the yellowfin component of this fishery had its certification suspended by the MSC at the same time. Yellowfin lacked HCRs then and now. The main difference between the fisheries is the overfished state of yellowfin tuna. This indicates that the

adoption of certain regulatory measures may be a necessary but insufficient step to certification.

The IOTC has not adopted catch documentation schemes, although these are under development. This could work in combination with IOTC port State measures, as adopted in 2016,³¹⁶ to enhance control of illegal fishing activities.

Governance analysis (financial). The estimated value of tuna stocks in the Indian Ocean is over \$2 billion per annum. The capitalized asset value of stocks is estimated to be over \$26 billion (assuming an investment return of 8 percent). This indicates a potentially strong investment potential. However, this is only one factor relating to overall investment conditions. The weak level of information on fisheries in the region undermines all other aspects of the management system, and until this is rectified, it may be difficult to attract private investment into regional fisheries. There is perhaps more scope for blended investment here, or for philanthropic or multilateral investment agencies to assume some of the risk of investing in initiatives to address information deficits. Other options might include negotiating sustainable fishery partnership agreements with the European Union. These agreements provide access rights to foreign fishers in return for State-level capital investments. Such approaches might be challenging given the way in which this would benefit access for E.U. vessels vis-a-vis other fishing States, certainly in the short term, but it might generate capital necessary to improve national level infrastructure, which in turn would create conditions for further investment.

315 Resolution 16/02 on harvest control rules for skipjack tuna in the IOTC area of competence.

316 IOTC Resolution 16/11–Port state measures to prevent, deter and eliminate illegal, unreported and unregulated fishing.

4.4 West and Central Atlantic and Caribbean

An account of the history, context, and fishing activities in the region is provided in the Gentner report.³¹⁷ It may be noted that the main ICCAT species are either fully or over-exploited. Despite a large number of management measures having been adopted since the establishment of ICCAT, the main fisheries are beset by poor management. This can be attributed to a number of factors: uncertainty of the stock status due to poor data and research; poor compliance with management measures; and increased non-Party fishing in the Convention area.³¹⁸ With regards to non-Parties, a number of trade measures have been undertaken. These are discussed below.

Legal regime. The International Commission for the Conservation of Atlantic Tunas (ICCAT) is the RFMO responsible for managing tuna and tuna-like species in the Atlantic region. Its constituent instrument is the International Convention for the Conservation of Atlantic Tunas, adopted in 1966 and entering into force in 1969. The geographical scope of ICCAT covers the whole Atlantic Ocean and its adjacent seas, and includes both coastal waters and high seas. In the Mediterranean, the GFCM became a management body (formerly a mere advisory body) in 1997, and so has tended to cooperate with ICCAT, rather than adopt discrete management measures for Mediterranean Stocks. WECAFC remains an advisory body with limited powers. ICCAT's competence extends to the regulation of around 30 tuna and tuna-like species. The species of major interest are ABT, YFT, Albacore, and BET. Also of concern are swordfish and billfish. ICCAT also adopts measures for other species caught in association with tuna fishing as bycatch. Technically, ICCAT has legal competence to

regulate SBT, but the Commission recognizes the competence of the CCSBT and leaves management of this stock to the CCSBT. There are 51 Contracting Parties to ICCAT, making it the RFMO with the largest membership. Members include: Albania, Algeria, Angola, Barbados, Belize, Brazil, Canada, Cape Verde, China, Côte d'Ivoire, Curacao, Egypt, El Salvador, the European Union, Equatorial Guinea, Guatemala, Guinea, Guinea Bissau, France, Gabon, Ghana, Honduras, Iceland, Japan, Liberia, Libya, Mauritania, Mexico, Morocco, Namibia, Nicaragua, Nigeria, Norway, Panama, Philippines, Republic of Korea, Russia, São Tomé et Príncipe, Senegal, Sierra Leone, South Africa, St. Vincent and the Grenadines, Syria, Trinidad and Tobago, Tunisia, Turkey, United Kingdom, the United States, Uruguay, Vanuatu, and Venezuela. There are five Cooperating Non-Contracting Parties or Fishing Entities: Bolivia, Chinese Taipei, Suriname, Guyana, and Costa Rica. Membership of the European Union is notable since it enjoys exclusive competence for fisheries, and so presents a common position in respect of its Member States. France and the United Kingdom retain individual membership to represent overseas territories. The wide membership is potentially beneficial in that any conservation and management measure will have wide application. However, as indicated below, the large and diverse membership can make it difficult to reach agreement.

The aim of ICCAT is to maintain populations of tuna and tuna-like species at levels that will permit the maximum sustainable catch for food and other purposes. The decision-making body is the Commission, which is responsible for coordinating research and developing regulatory measures.³¹⁹ The Commission formulates recommendations for submission to contracting parties. These become binding on parties six

317 Gentner, B. (2018), *Assessing the application of innovative incentive based tools to reform highly migratory fisheries at the project development and regional scales*, Report prepared for the World Wildlife Fund, Washington, DC, USA.

318 Rayfuse above (note 63), 160.

319 ICCAT Convention, Articles IV and VIII.

months after formal adoption, unless they are objected to, in which case they do not come into force for the objecting party.³²⁰ ICCAT is contingent upon parties to adopt/transpose measures under domestic law, or through EU law. The same applies to enforcement measures, although contracting parties must transmit data on actions taken to the Commission.³²¹ Regarding the high seas Article IX(3), it is important because it requires contracting parties “to collaborate with each other with a view to the adoption of suitable effective measures to ensure the application of the provisions of this Convention and in particular to set up a system of international enforcement to be applied to the Convention area except the territorial sea and other waters, if any, in which a state is entitled under international law to exercise jurisdiction over fisheries.”

As indicated, it is legally possible for ICCAT to adopt RBM. And it is open for contracting parties to implement RBM for national quotas. Indeed, some management measures already facilitate aspects of RBM by quota trading in a weak or ad hoc form. Although Paragraph 27 of the ICCAT Criteria for the Allocation of Fishing Possibilities states that, “No qualifying participant shall trade or sell its quota allocation of a part thereof,” some exchanges of quota have taken place with the consent of the Commission. In practice, three types of exchanges have taken place within ICCAT. The first type, the transfer of part of an unused quota by one Party to another, has been permitted when the receiving Party renounces another part of its quota. Such transfers have included penalties. The second type is a bilateral agreement to transfer part of a quota to another party at the start of the fishing year. The third type is the transfer of unused quota of a stock from one Party to another in accordance with

recommendations on the allocation of quota shares. These trades seem to represent ad hoc adjustment of quotas rather than a fully-fledged trading system. It shows a willingness to permit trades when it meets the Members’ political or economic needs. Such exchanges fall short of strong RBM. The transfers are not permanent. Also, they do not directly affect fishing activity, (i.e., post facto corrections/adjustments). Webster describes the ICCAT system as quasi-property to show how national quota allocations (which seek to limit access to the fishery) are reinforced through trade controls that prohibit

As indicated, it is legally possible for ICCAT to adopt RBM. And it is open for contracting parties to implement RBM for national quotas. Indeed, some management measures already facilitate aspects of RBM by quota trading in a weak or ad hoc form.

tuna imports from States that fail to comply with ICCAT conservation and management measures.³²² In reality, this is a weak form of limited access supplemented by trade sanctions. Within ICCAT, there has been resistance to the formal exchanges of quotas for monetary value or other measures that legitimize quota allocations as property rights. Alcock observes that the diverse membership of ICCAT militates against bargaining.³²³ The current capacity trades require strong institutional support. However, even this falls short of the support required for a fully tradable system.

320 ICCAT Convention, Article VIII.

321 ICCAT Convention, Article IX(1).

322 Webster, D.D. (2010), “Quasi-Property Rights and the Effectiveness of Atlantic Tuna Management,” Allen, R., J. Joseph, and D. Squires (eds.), 2010, *Conservation and Management of Transnational Tuna Fisheries*, Iowa, Wiley-Blackwell, 321.

323 Alcock, F. (2010), “Prospects for Use Rights in Tuna Regional Fisheries Management Organizations,” in Allen, Joseph and Squires (eds.), *ibid.*, 251, 265.

Some States have adopted RBM within national quotas for ICCAT species. There is nothing to prevent individual States from doing this, other than domestic legal/constitutional constraints. Spain and Portugal utilize an ITQ for ICCAT swordfish.³²⁴ In Spain, ITQs are used for national swordfish stock management. These are exclusive to the extent that within the national fleet, they are fully allocated to vessels in the fleet on the basis of historic catch/GRT of vessels and no new licenses or entries to the fishery are permitted. They are allocated for an indefinite period. They can be withdrawn in the case of the collapse of the fishery, and may not be compensated. Within the fleet, they can be partial or fully

transferred by sale or lease—subject to limits and conditions related to specific fishing zones.³²⁵ Portugal operates a similar regime, issuing ITQs to national vessels in the swordfish fishery. These are exclusive to the national fleet, permanent, but subject to temporal variations in line with changes to the TAC, and subject to reduction or withdrawal depending upon the state of the stock. Compensation for loss may be provided. Transfers within the fleet are permitted.³²⁶ Malta uses a form of TURF for FADs in dolphin fish management. FADs are used in waters between 7–25 nm off the coast and is conducted by small vessels, usually under 10 meters. The number of concessions to operate a FAD are limited and



© Jürgen Freund / WWF

324 MRAG (Marine Resources Assessment Group Ltd) (2009), *An analysis of existing Rights Based Management (RBM) instruments in Member States and on setting up best practices in the EU FINAL REPORT: PART II Catalogue of Rights Based Management Instrument in Coastal EU Member State*. European Commission, Studies and Pilot Projects for Carrying Out the Common Fisheries Policy No. FISH/2007/03, 46.

325 Garza-Gil, M.D, Varela-Lafuente, M.M. and Iglesias-Malvido, C. (2003), Spain's North Atlantic swordfish fishery, *Marine Policy* 27(1):31-37.

326 MRAG (2009), n 326 above, 56.

issued annually. Allocation takes place through a lottery in which an operator gets access only to one line in which a minimum number of FADs must be placed. Also, an individual quota system is used by Italy for BFT.³²⁷

Key issues: participatory rights, third parties, and allocation issues. ICCAT is still developing a formal process for the allocation of fishing entitlements, and this remains conditional on political negotiation, which undermines any certainty in allocation.³²⁸ In his study for the WWF, Gentner reports that, "There is growing dissatisfaction with allocation in ICCAT. The commission's powers are viewed as weak relative to article VII calling for quota allocations. The non-binding nature of the current criteria is also driving the dissatisfaction. Additionally, many believe the criteria are overly ambiguous and the process is not transparent enough. Currently it is felt that the ICCAT criteria constitute nothing more than a 'shopping list' that States use to pursue their national interests using equity arguments."³²⁹

Governance analysis (legal). The performance review of ICAAT, published in 2009, highlighted a number of serious failings in its governance regime.³³⁰ ICAAT had failed to meet its conservation objectives. In particular, Bluefin tuna management was heavily criticized. This was mainly attributable to non-compliance by CPCs and could be addressed by members developing the political will to comply with the recommendations of ICCAT. ICCAT has attempted to pose some form of sanction on Chinese Taipei for overfishing BET. The 2006 quota was cut, the number of vessels reduced, and an observer system put in place to control transshipments.³³¹

This indicates a preparedness to make sanctions against non-compliant participants in the fishery. Since then, ICCAT has made progress in improving its performance. In some ways, the 2008 review was a shock that generated some political impetus to improve performance. There still remain challenges: slow decision-making, poor management of BET and marlin, poor at-sea monitoring, and the fact that ICCAT still does not encompass modern principles of fisheries management.

While the organizational structure was sound, ICCAT needed to reform to accommodate modern fisheries governance principles. In general, ICCAT faced challenges implementing conservation and management measures to sustainably manage fisheries similar to other tuna RFMOs. However, these were exacerbated by the size of the ICCAT membership. There is scope to consider whether sub-regional arrangements could help alleviate this problem by building in cores of consensus of particular issues that help to leverage change within the wider membership. The potential exists for WECAFC to be established as a regional body/sub-regional body. An alternative would be to use other regional bodies, for instance Caricom, to deliver this. There is scope to learn from the lessons of the PNA in the context of the WCPFC here. Key issues include location and access to catch within coastal waters. The strength of the PNA VDS is the importance of access to the EEZs of members, and capacity to limit fishing in high seas areas.

One option here is to consider how WECAFC could be strengthened as a regional counterpart to ICCAT. This is currently under consideration

327 MRAG 2009 above (n 326), 72.

328 IOTC, 2011a, *Approaches to Allocation Criteria in Other Tuna Regional Fishery Management Organizations*, IOTC Secretariat. IOTC-2011-SS4-03[E], 8.

329 Gentner, B. (2018), *Assessing the application of innovative incentive based tools to reform highly migratory fisheries at the project development and regional scales*, Report prepared for the World Wildlife Fund, Washington, DC, USA. Citing Butterworth and Penney 2004, 181.

330 http://www.iccat.int/Documents/Other/PERFORM_%20REV_TRI_LINGUAL.pdf.

331 Reported in Metzuala et al., *Handbook of Marine Fisheries Conservation*, chapter 12, 172-3.

by its members.³³² There is broad agreement in establishing WECAFC as a RFMO within or outside the FAO structure, with power to make legally binding decisions. Critical to the success of this initiative is the position taken by and political will of its members. It cannot be assumed that simply establishing WECAFC as an RFMO will secure the status of any stocks it manages. As the FAO Legal Office has observed, “The causal link between the legal status of WECAFC as an Article VI Body

impact of the work of the Commission ultimately depends on the interest and willingness of Member Nations.”³³³

A secondary concern, but not unrelated will be its relationship to other fisheries management bodies. WECAFC shares some common membership with other RFMOs, such as ICCAT, but it enjoys discrete membership so it may be able to give voice to a wider range of interested fishing parties. WECAFC would need to therefore manage relations with overlapping/neighborhood RFMOs.

A study by Leria has examined the legal structure of fisheries management in the Caribbean.³³⁴ At the national level, governance and management capacity varies. Most States in the WECAFC region include in their basic fisheries legislation reference to principles of sustainable management and exploitation. The quality and depth of legislation varies considerably. Most have an identifiable institutional structure and fisheries management authority. However, there may be gaps between the formal governance regime and practice. The position on rights-based mechanisms also varies from prohibition to silence to basic enabling provisions. Most States lack detailed provisions on transferable licenses and quotas and TURFs. Although most management regimes accommodate quotas, there is no consensus among countries in the region on the issue of tradability of fishing rights. There is evidence of informal trading or implicit trades via transfers in vessel ownership. The Leria study refrains from suggesting specific reforms or the adoption of RBM, indicating this is highly contextual. However, it does conclude that this would require significant upgrading of the regulatory framework in many of the countries. This is something that could be linked to investment opportunities.

There is broad agreement in establishing WECAFC as a RFMO within or outside the FAO structure, with power to make legally binding decisions. Critical to the success of this initiative is the position taken by and political will of its members. It cannot be assumed that simply establishing WECAFC as an RFMO will secure the status of any stocks it manages.

and these material consequences is however not apparent. Bearing in mind the intergovernmental nature of WECAFC, and the fact that any capacity of FAO to contribute to regional fisheries management depends on Members’ commitments and willingness (including financial commitments), the assumption that WECAFC’s present status would result in reduction of natural resources, or fish trading, or employment, or tourism appears unsubstantiated and excessive. In this regard, it is noted that some Article VI Bodies, while not adopting binding decisions, adopt authoritative recommendations that most of their Members implement. The efficiency and

332 <http://www.fao.org/fi/static-media/MeetingDocuments/WECAFC16/12e.pdf>.

333 Quoted in FAO (2016), Hoydal, K., *Western Central Atlantic Fishery Commission. Findings of the independent cost-benefit assessment of the options for strategic re-orientation of WECAFC*, at <http://www.fao.org/3/a-i6377e.pdf>.

334 FAO (2016), Cristina Leria, *Caribbean Fisheries Legal and Institutional Study: Findings of the comparative assessment and country reports*, FAO Fisheries and Aquaculture Circular No. 1124.

Market and financial analysis. ICCAT has adopted a range of trade-based measures to tackle fishing activity by non-contracting States in the Convention area, with a view to deterring practices that undermine conservation and management objectives.³³⁵ One consequence of this has been the practice of flag hopping, whereby vessels re-register in countries not subject to trade measures. The first performance review of ICCAT indicates a “degree of success in using market- or trade-related measures against IUU activities and the product originating in such activities. These measures are, as the Code of Conduct and the IPOA-IUU stress, adopted carefully through multilaterally-agreed procedures, and applied in a fair, transparent, and non-discriminatory manner, and consistent with WTO rules.”³³⁶ It further complemented the Bluefin Catch Documentation Scheme, if implemented fully, for excluding IUU products from the major markets and thereby deterring IUU fishing. The second review panel in 2016 concurred with the above findings, noting that market measures were perhaps the single most effective means of ensuring compliance, and further recommended the extension of the CDS to BET and swordfish. Another concern in the first review was the practice of developed States’ use of foreign investment rules to place excess or additional capacity owned by their nationals or companies under the flag of developing Contracting Parties.³³⁷

Returning to the position of WECAFC, it may be assumed that creating an RFMO will help improve conditions for investment in fisheries in the region. The independent cost-benefit analysis conducted into establishing WECAFC as an RFMO

estimated that there “are potential economic benefits in the order of \$700 million per year by doing this through an RFMO.”³³⁸ Regardless of fine-grained data on the investment environment, it may be assumed that since economic returns are not very secure for unmanaged stocks, this will be a positive step. This regional-level step may be important given potential concerns about the robustness of national fisheries management systems in the region.

4.5 Western and Central Pacific

A summary of key fisheries and context is provided by the Gentner Report, so this is not replicated here.³³⁹

Regional instruments. Tuna fisheries in the region are governed by the WCPFC and a series of overlapping agreements at the sub-regional level: the Palau Arrangement, the Nauru Agreement, and the FSM Arrangement. The WCPFC was established by the Convention for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean 2000 (hereafter, WCPFC Convention), which entered into force on 19 June 2004. There are 26 contracting parties: Australia, China, Canada, Cook Islands, the European Union, Federated States of Micronesia, Fiji, France, Indonesia, Japan, Kiribati, Republic of Korea, Republic of Marshall Islands, Nauru, New Zealand, Niue, Palau, Papua New Guinea, Philippines, Samoa, Solomon Islands, Chinese Taipei, Tonga, Tuvalu, the United States, and Vanuatu. There are seven Cooperating Non-Members: Ecuador,

335 Carr, C. (1997), “Recent Developments in Compliance and Enforcement for International Fisheries,” *Ecology Law Quarterly*, 24:847.

336 Report of the Independent Performance Review of ICCAT, 27, at http://www.iccat.int/Documents/Other/PERFORM_%20REV_TRI_LINGUAL.pdf.

337 *Ibid.*, 68.

338 *Ibid.*, 5.

339 Gentner, B. (2018), *Assessing the application of innovative incentive based tools to reform highly migratory fisheries at the project development and regional scales*, Report prepared for the World Wildlife Fund, Washington, DC, USA.

El Salvador, Liberia, Mexico, Panama, Thailand, and Vietnam. Additionally, Participating Territories include American Samoa, Commonwealth of the Northern Marian Islands, French Polynesia, Guam, New Caledonia, Tokelau, and Wallis and Fortuna. Cooperating Non Members are non-voting States that are allowed to participate in the work of the Commission. The convention area is defined in Article 3 to include all waters of the western and central Pacific. This encompasses both coastal waters and high seas. Measures may be adopted for all or parts of Convention area for all highly migratory species except sauries.

The Convention is intended to ensure the long-term conservation and sustainable use of highly migratory fish stocks in the western and central Pacific Ocean in accordance with the UNFSA. The decision-making body is the Commission, which is empowered to make binding decisions for the purposes of conserving and managing fish stocks. Such decisions are reached through consensus, and failing that, majority voting. Such measures should be based on the best scientific evidence available and be designed to maintain or restore stocks at levels capable of producing maximum sustainable yield. Measures should account for environmental and economic factors, as well as the needs of developing States in the region. The precautionary approach is to be applied, as detailed in Article 6. The Commission shall assess the impacts of fishing, other human activities, and environmental factors on target stocks, non-target species, and species belonging to the same ecosystem or dependent upon or associated with the target stocks. It can also take measures to minimize waste, discards, catch by lost or abandoned gear, pollution originating from fishing vessels, catch of non-target species, both fish and non-fish species, (hereinafter referred to as non-target species); minimize impacts on associated or dependent species, in particular endangered

species; and promote the development and use of selective, environmentally safe, and cost-effective fishing gear and techniques. The Commission depends upon contracting parties to take steps to legislate and enforce such measures, either coastal States for areas within national jurisdiction (Article 7), or flag States for the areas beyond national jurisdiction (Article 24). The Commission enjoys broad discretion to adopt conservation and management measures, although no specific tool or technique is required. This would include RBM. The Commission has not yet adopted anything approximating strong RBM, although Resolution 2005-02 called on members, cooperating non-members, and participating territories (CCMs) to reduce overcapacity of fishing vessels in the convention area. Other measures include effort limits through reduced fishing days and closed areas (CCM 2008-01).

The WCPFC has considered the development of RBM, although nothing has progressed beyond the stage of policy options.³⁴⁰

At the sub-regional level, three overlapping agreements contribute to fisheries management. These have been developed by members of the FFA. Collectively known as the Parties to the Nauru Agreement (PNA), these States have sought to harmonize terms and conditions of access for distance water fishing vessels/fleets and to grant preferential access to vessels of the Parties. This is intended to enhance domestic participation in the fishing industry. Each agreement is administered separately through different governing bodies and without formal legal mechanisms for cooperation, as discussed below. Another agreement further complicates the situation: the Treaty on Fisheries between the Governments of certain Pacific Island States and the Government of the United States (UST). This entered force in 1988 and provides U.S.-flagged vessels access

340 Joseph, J. (2005), "Past Developments and Future Options for Managing Tuna Fishing Capacity, with Special Emphasis on Tuna Purse Seine Fleets" in W.H. Bayliff, J.I. de Leiva Moreno & J. Majkowski (eds.), *Proceedings of the Second Meeting of the Technical Advisory Committee of the FAO Project "Management of tuna fishing capacity: conservation and socio-economics,"* FAO Fisheries Proceedings No. 2 (FAO, Rome, 2005), 281–323.

to large areas of the Pacific including the EEZs of 16 participating Pacific Island States. The formal means of coordinating decision-making between the sub-regional arrangements and distant water fishing States is the WCPFC.

The first agreement is the Nauru Agreement concerning the Cooperation in the Management of Fisheries of Common Concern 1982. It is a sub-regional agreement establishing terms and conditions for tuna purse seine fishing in the region. There are eight parties to the agreement: Federated States of Micronesia, Kiribati, Marshall Islands, Nauru, Palau, Papua New Guinea, Solomon Islands, and Tuvalu. The main parts of the agreement establish coordinated and harmonized management measures, prioritized access for fishing vessels of the parties, payments of access fees, standardized licensing, and coordinated approaches to MCS and enforcement. There are three implementing arrangements (IA) giving further effect to the provisions of the Nauru Agreement. The first IA introduced a regional register for foreign fishing vessels, becoming operational in 1998. It also put in place a vessel monitoring scheme. The second IA prohibited transshipment at sea, introduced high seas catch reporting, an observer scheme, and the installation of electronic vessel data devices on ships. The third IA banned fishing vessels from operating on the high seas pockets as a condition of any license; banned the use of FADs by purse seine vessels in the PNA states EEZ between July and September each year; and instituted catch retention rules for bigeye tuna, skipjack, and yellow fin tuna to prevent dumping and bycatch.³⁴¹

The Palau Arrangement for the Management of the Western Pacific Purse Seine Fishery was developed by members of the FFA who are Parties to the Nauru Agreement. It emerged from concerns about the over-exploitation of yellow

fin tuna in the 1980s and the need to reduce catches. The Palau Arrangement was signed and adopted in 1992 and entered into force in 1995.³⁴² It has since been amended. It establishes a Management Scheme consisting of rules for a purse seine VDS, which was established in 2007. The main principles of this regime are to establish

The general lesson is that when significant parts of a fishery must be conducted within coastal waters, the corresponding coastal States can leverage change of the wider fishery on the high seas.

a limit on the number of purse seine fishing days allocated as national “total allowable effort” (TAE). A purse seine day means any day during which a fishing vessel is present in the EEZ of a party. Such fishing days could be transferred between parties to accommodate migration of fish in PNA waters. It was intended that this would increase competition and generate increased premiums on access to fisheries. The management scheme is effective and allows the parties to exercise control over the fishery as a whole because a large share of the catch is taken within the parties EEZ (estimated to be around 80 percent of the purse seine fishery) and the pattern of fishing requires some degree of access to EEZs in order to fish effectively. This means the scheme can influence high seas fisheries. The general lesson is that when significant parts of a fishery must be conducted within coastal waters, the corresponding coastal States can leverage change of the wider fishery on the high seas.

The Federated State of Micronesia Arrangement was signed in 1994 and entered into force in

³⁴¹ Except for final trips of a set where there is no well capacity, or if fish is clearly unfit for consumption.

³⁴² <http://extwprlegs1.fao.org/docs/pdf/mul45003.pdf>.

1995. It is a means of facilitating the access of purse seine vessels of one party into waters of another party. It is a reciprocal purse seine vessel access agreement requiring the commitment of vessel days to a regional pool for access by purse seine vessels flagged to participating parties. Its key provisions ensure the provision of access to domestic vessels of contracting parties on terms no less favorable than those granted to DWFNs, promote developing the maximum sustainable economic benefits from the fishery, and promote greater participation by nations of contracting parties.

In 2014 a review of the VDS scheme was commissioned by the PNA, which encompassed general institutional and operational and legal issues. The former are covered by Gentner, so only the latter are examined here.³⁴³

Governance analysis (legal). The factors impeding progress in implementing the convention objectives are much the same as for other RFMOS: the interplay between divergent national interests, adapting the limits of the convention texts to the practicalities of day-to-day management, and limited institutional capacity.³⁴⁴ The fishery is distinct from other tuna fisheries in that significant parts of the catch are taken from the EZZ of coastal States (Pacific Island countries). This has been used by those States to leverage change in the region through a sub-regional arrangement (PNA). The stronger control granted to coastal States has enabled them to exert control over distant water fishing conducted mainly by developed States (the United States, Japan, Korea, and Taiwan). For example, more stringent conservation measures have tended to

emerge from coastal States and then adopted at the regional level, in part influenced by Article 7 and 8 of the UNFSA (compatibility requirements). However, there are risks that such unilaterally driven measures can have unforeseen impacts on other fishing activities since they do not account for non-target practices.³⁴⁵ Another concern is effort creep through the development exemption provided to developing States under Article 30 of the UNFSA. A final factor to consider is the increasing linkage between regulation and certification, in light of the recent challenges to the PNA purse seine certification (see below).

Governance analysis (markets). The performance review of the WCPFC in 2012 provides some clear indications of the effectiveness of governance and market-based measures.³⁴⁶ The review indicated the need to develop a CDS. Although under consideration since 2009, it had not been implemented at the time of the review.³⁴⁷ It remains under development. Again, at the time of review, the WCPFC had not adopted any market-based measures, such as trade restrictions.³⁴⁸ Capacity for this exists under CMM 2010-06, which allows port and trade measures to be taken against vessels engaged in IUU fishing. In this respect it lagged behind other RFMOS, such as ICCAT. WCPFC favored more direct controls, such as boarding and inspection, and transshipment controls. This was not seen as critical, although the effectiveness of such measures is open to question.

The PNA have been active in seeking MSC certification of skipjack and yellow fin tuna purse seine fishery. The PNA's pursuit of certification through a State-led initiative has been successful

343 Gentner, B. 2018. *Assessing the application of innovative incentive based tools to reform highly migratory fisheries at the project development and regional scales*, Report prepared for the World Wildlife Fund, Washington, DC, USA.

344 See Parris H. et al. (2010), "The Challenge of Fisheries Governance after the UNFSA: The Case of the Western and Central Pacific Fisheries Commission" in Grafton et al. (n 31), 443.

345 Ibid., 451.

346 At <https://www.wcpfc.int/system/files/WCPFC8-2011-12%20WCPFC%20Performance%20Review%20Report.pdf>.

347 Ibid., 214-5.

348 Ibid., 217.

and could provide a template for other RFMOs, acting collectively.³⁴⁹ However, this has not been without controversy. Skipjack was certified in 2011, and yellow fin added in 2016. However, when re-certification was sought, the IPNLF lodged an objection on the basis that the fishery was not sustainable. This concerned, inter alia, that shark finning was taking place in the fishery. Also, the certification was “compartmentalized,” whereby only the “FAD-free” component was assessed. However, vessels can engage in FAD-based fishing on the same trip. Thus, there was concern that FAD-based fishing was in a way offsetting the sustainable practices. By compartmentalizing the fishing practices, regardless of how they are conducted in reality, the PNA had undermined the certification

process. In other words, can a fishery claim to be partly sustainable? The objection process resulted in independent adjudication of the matter. This ultimately upheld certification. The process shows the importance of full transparency and provision of information, since it was only through the adjudication process that sufficient information was made available to support the decision of the certification body. Also, in order to retain certification, the PNA must ensure that controls on unsustainable practices are effective. In January 2018, the MSC promised to review its certification standards. This includes ensuring that all fishing on a target stock on a single trip must be certified. While this does not apply to the PNA certification, it will increase the impact of future certifications on wider fishing practices.



349 Yeeting A. and Bush S. (2018), Paper on file with the author.

Continuing dissatisfaction with the certification of the PNA purse seine fishery suggest that certification will be subject to increased scrutiny and potentially more robust regulation.³⁵⁰ This could include giving binding status to FAO Guidelines on eco-labeling. More generally, there is potential for challenge to certification processes if they are deemed to have discriminatory effect, for example, by depriving small-scale and artisanal fishers with equal access to markets under WTO law. The fact that certification could be more readily secured by larger and better-resourced sectors of the fishing industry seems to point in this direction.

Financial instrument comment. Tuna fisheries in the WCPFC region are heavily subsidized. A study by Sumaila et al. found that government fisheries subsidies in the region in 2009 represent 37 percent of the ex-vessel value of tuna fisheries in the region. Fuel subsidies were estimated to be \$335 million (23 percent) and non-fuel subsidies were \$1.2 billion (77 percent).³⁵¹ This has helped maintain excess fishing capacity in the region. A portion of this came from loan subsidies. Subsidies have been mainly supported by Japan, South Korea, Indonesia, the Philippines, and the United States. The leading subsidy provider is Indonesia, which subsidizes 50 percent of every dollar of tuna landings in the region. This tends to result in foreign fishing vessels being able to operate at sub-market rates, thereby putting local/unsubsidized vessels out of business. Although most States engage in some form of subsidy, in general, developed countries benefit most from the practice. The introduction of controls on subsidies through investment involves questions of risk, since economically stronger actors may be able to survive short-term impacts and ride out the rationalization process following the removal of subsidies. This may require some transitional or sequencing approach to the way in which capital investment is provided.

4.6 Key Findings

RBM and RFMOs. The opportunities for developing RBM within RFMOs and sub-regional arrangements must be viewed in the broader context of each institution's priorities. The above analysis indicates that each RFMO has sufficiently broad discretion to adopt some form of RBM, subject to overarching commitments to conservation and management. The development and adoption of RBM is usually part of a process that begins with the establishment of institutional arrangements to govern previously open access fisheries and moves through stages of institutional growth, capacity, and maturity to a point where there is both sufficient political will and governance capacity to implement RBM. Most RFMOs are on the road to RBM, but also need to focus on other aspects of institutional growth. Key stages in this process include:

1. The inclusion of all relevant fishing concerns within the RFMO to preempt free rider concerns
2. The resolution of participatory rights and claims by States with an interest in the fishery
3. The adoption of clear divisions of competence between Commissions and contracting parties to adopt, implement, and secure compliance with regulatory measures
4. The development and adoption of clear and generally applicable capacity/catch limits
5. The development and adoption of clear allocation rules and associated processes for determining quotas or other fishing entitlement for contracting parties

Other competing policy priorities include the adoption of governance principles in older RFMOs' constituent instruments to accommodate new policy or regulatory principles that have

350 <http://ipnlf.org/news/is-the-pna-objection-ruling-fair-to-small-scale-fisheries-or-good-for-conservation>.

351 Rashaila U. et al. (2014), "Subsidies to tuna fisheries in the Western Central Pacific Ocean," *Marine Policy*, 43:288-93.

emerged since the RFMOs were established; and reform of review and accountability mechanisms for RFMOs, which have been subject to long-standing criticisms for poor or weak management. These pressures are not necessarily in conflict with the development of pathways to the adoption of RBM, but they do place competing pressure on limited RFMO resources to reform RFMOs.

The development of RBM in international fisheries is usually a two-stage process, and institutional challenges at either stage will impact upon the success of RBM. At the first stage, some form of exclusive entitlement to catch fish or exert fishing effort must be allocated to or set for States within the regional fishery. The possibility exists for such rights to be traded, exchanged, and managed as a form of "inter-State property." Strictly speaking, this is not a property right since the right of the State is a right to govern the conduct of fishing activity for its share of the fish stock in question. At the second stage, sub-State level, individual entitlements can be allocated to vessels or individuals actually conducting fishing activities. It is important to note that any restrictions on State level rights must be adhered to within sub-national level fisheries.

Although RFMOs can adopt or facilitate RBM, in practice they are contingent upon support and implementation by contracting parties. It seems likely that the development of RBM will emerge as part of a bottom-up approach with experience of successful use being shared and scaled up, and in particular driven by strong actors or sub-regional alliances of actors. The consensus-based approach to decision-making in RFMOs means that unless all parties are convinced of the benefits of a new management regime, then it can be stopped.

Reducing transaction costs. Transaction costs for fisheries are highest when there is no

institution to coordinate fisheries management.³⁵² Even within RFMOs, transaction costs can be high as a result of: poor information, weak institutional procedures, conflicting goals, and non-compliance (enforcement costs). Poor information, or the requirement to gather and coordinate information from multiple sources, increases costs. This is compounded by the complexity of natural and social variables in fisheries. For example, conflicts may arise from divergent views on key reference points for fishing levels (either *Fmsy* or *Bmsy*). Disagreement about the effectiveness of different reference points makes management decisions more difficult to reach. Transaction costs can be exacerbated by the adoption of highly differentiated, incompatible or inconsistent domestic management regimes for allocations of fishing entitlements. Moreover, since RFMOs have limited mandates, and other activities impact on fisheries, increased transaction costs result from the need to engage in external cooperation with other agencies. This is generally manifest in the slow decision-making process and slow evolution of new governance mechanisms within RFMOs. The adoption of agreed governance principles into the constituent instruments of RFMOs can structure and focus decision-making and help reduce transaction costs. Information provision needs to be enhanced. The cost of information provision will have to be met by beneficiaries from a fishery, although this can be adjusted in light of developmental factors. Information collection and recording need to be standardized. Greater use of satellite and electronic recording can be used to achieve this, and can have benefits for monitoring and enforcement. One opportunity here would be to accommodate a wider range of stakeholders in the regional management discussions, potentially as expanded advisory boards. By accommodating trade bodies and fishing interests directly, there would be scope to reduce transaction costs associated with

352 Ostrom, E. (1990), *Governing the Commons The Evolution of Institutions for Collective Action*, Cambridge University Press.

duplicate lines of communication and report. This could be linked to investment support, either financially, or in terms of capacity-building initiatives.

Allocation issues. At the heart of any decision to implement RBM is the question of allocation. As a rule, allocation must benefit all or most Parties, otherwise decisions will not be adopted. The extent of this will depend upon the decision-making structure of the RFMO. Allocations will have to be determined at the inter-State level before national fleet allocations can be introduced. Few RFMOs have clear and prospective rules on allocation. Most decisions are based upon historic fishing levels. There is a

need to engage in more flexible approaches, as changing stock distribution and abundance will put pressure on existing mechanisms. As such reliance on historically focused principles may either result in a dislocation between allocations and new distribution patterns, or in challenges to the fairness or suitability of allocations. For example, the movement of stocks into high seas areas would challenge the position of coastal States in allocation formulae. This should begin from first principles and encompass a broader range of criteria including the value of conservation gains, sustainable and efficient practices, and contributions to knowledge and research.

5. Preliminary Recommendations

International Law Findings

Passive treatment of incentive-based approaches. Most international fisheries agreements are silent or passive on the question of incentive-based tools. Soft law instruments and recent policy developments are more sensitive to the role that incentives, such as market-based controls and rights-based management, can play in fisheries management and encourage their use. Trade restrictions and conservation gain points aside, many of the key factors influencing their use will be “non-legal.”

Freedom of the high seas. Each of the binding agreements acknowledges the fundamental principle of freedom of the high seas. This has a strong legal (and political) value and it is difficult to modify. It reflects the idea of the oceans as a public or common good, not to be allocated away to individual or groups of States. Although later instruments condition its use, they do not significantly challenge it, or its associated principle, the exclusive jurisdiction of the flag State. This in turn undermines the extent to which RFMOs governing high seas fisheries can adopt measures because they may be undermined by third States. In short, the possibility of external fishing can undermine potential incentive structures.

Bindingness of law. It may be obvious, but nonetheless important to state that treaties are only binding on States parties. They do not as a general rule create rights and duties for non-parties (third States). This is the *pacta tertiis* rule. Some obligations may become custom and bind

third States—but not institutional mechanisms, such as those presented by RFMOs.

Institutional patterns, process, and logics.

The law of the sea is quite institutionalized, meaning that actors are inclined to follow established practices and rules. Each agreement builds on and supports a previous agreement. Change is slow and incremental, and care is taken not to upset existing balances of interests. This is reaffirmed by the focus on integration. While this is important in taking a holistic approach (ecosystem-sensitive), it can also impede decision-making and change in what is still a decentralized and sector-structured regulatory regime. The process for change in treaties is slow and difficult, which induces non-legal approaches.

Participation and allocation issues. These are critical and underpin many issues of incentives central to catch regulation. Some incentive-based tools implicate the allocation of fishing entitlements. International fisheries law has poorly defined approaches to allocation. As such, it may be difficult to accommodate other considerations, such as credit for conservation or sustainable fishing practices. Initiatives are underway to develop allocation criteria in some RFMOs, and this may provide an opportunity to press for the inclusion of criteria to incentivize sustainable fishing. Participatory rights and allocations are a key lever to incentivize non-Members to adhere to RFMO measures. However, they remain contentious since new members may require reductions in existing allocations and benefits.

Regional and sub-regional arrangements.

Although most high seas fishing is governed by RFMOs, the UNFSA is open to and makes explicit reference to sub-regional arrangements. This admits the possibility of arrangements like the PNA as a sub-regional fora operating in parallel/conjunction with the WCPFC.

Reference points for regional and domestic regimes and the operation of incentive-based approaches. In particular, compliance with international law is a general precondition or requirement for certain incentive-based approaches, such as certification schemes (see below).++

SMART mix approach to fisheries law. These incentive-based approaches can and should be used alongside other legal instruments. Indeed there is growing consensus that a SMART mix is required. The optimum combination is highly contextual. And often appreciated after a process of trial and error. Most such measures remain constrained by regulatory requirements, particularly trade law rules.

Incentives Findings

Growth of RBM—but mainly as an organic process with potential to upscale to regional fisheries. RBM have a growing track record of generating efficiency and contributing to conservation of fish stocks under domestic law.

Limits of RBM. RBM are creatures of statute and cannot emerge without a supporting regulatory framework. This means their shape form and operation will be influenced by the other legal requirements operative within the constituting jurisdiction, either domestic laws or RFMO regime.

Suasive instruments are generally available since they are not contingent upon legal measures. Therefore they can apply at global, regional and local levels. A key benefit is that

market-based measures have multiple points of entry in the supply chain of fishery products, and so can be focused at optimal points of influence.

Certification schemes can be mutually reinforcing of regulatory regimes, as long as there is clear alignment between the certification process and “good regulatory standards.” Certification schemes can be driven by States (e.g., PNA), although this requires positive engagement with industry actors.

Catch documentation schemes are contingent upon legal measures. They can operate in combination with certification schemes, and may enhance value of the documented seafood product. The costs of the process may be offset by benefits from access to markets and increased product value.

Any market-based measure must comply with international fisheries and trade law.

A key challenge is ensuring they do not amount to impermissible restriction on trade. As such, conservation gains must be emphasized in any measure to avoid becoming trade restrictions in disguise.

Financial Investment conditions. These generally depend on a secure tenure of rights, supportive and secure regulatory regimens, and a sustainable resource base, with potential to generate investment returns.

Investment levels. Experience shows that there is strong focus on domestic investment targets, or in joint venture with transnational operations. This is due to the requirement to have a secure legal environment for investment—one that may be lacking for regionally targeted investments. The structure of global fisheries renders it unsuitable as a target for investment activities.

Investments must not take the form of subsidies. Public investment is associated with this issue. One example of valid public investment is the enhancement of regulatory capacity in fisheries

bodies (e.g., EU SFPAs). Private investments may avoid some of the risks if they are transparent, targeted, and generate clear conservation gains. Investment should not result in breaches of international fisheries laws—although the legal risks here may be unclear given the contractual nature of private investment and the fact that private persons are not bound by international law. Here the domestic legal framework is critical.

Rethinking regional investment. An unexplored option is to target investment at regional fisheries through RFMOs.

RFMO Findings

Governance gaps. These are well recognized, and steps to reform need to be taken. Reform may be driven by a global process such as the UNFSA review and ABNJ Implementing agreement, but it remains highly contingent upon political will. Governance gaps provide points of focus for investment-based incentives or market-based incentives, when linked to reform of regulatory capacity.

Reduction of transaction costs. Within RFMOs, transaction costs can be high as a result of poor information, weak institutional procedures, conflicting goals, and non-compliance (enforcement costs). This could be enhanced by drawing new actors into the RFMO process (industry advisory boards). It could also be addressed by changing the predominant decision-making process with an opt-out procedure.

Allocation issues. Few RFMOs have clear and prospective rules on allocation. Most decisions are based upon historic fishing levels. There is a need to engage in more flexible approaches here. Clear and effective rules could then be used to deal with non-Parties. If participation and allocation will result in redistributions, then consideration will need to be given to issues such as side payments, or linking allocation to

institutional reforms that could enhance the value of the fishery and offset short-term losses in quota.

Third parties. A critical issue is accommodating third States in RFMOs, since “IUU fishing” undermines governance, and reduces the effectiveness of some management tools (e.g., RBM depend upon exclusivity).

Tipping points. Crises and threats to fisheries can be used to leverage change (e.g., climate change, market fluctuations, and technological development), becoming drivers of change and providing means to adopt new regulatory approaches.

The East Pacific Ocean has the conditions to adopt RBM, although it suffers from institutional weaknesses that could be impediments. RBM adoption remains contingent on State-level support and could be strengthened by the removal of latent capacity from the fishery, although this requires strong motivation on fishers/industry to permanently remove capacity. There is a need for other incentives to counteract capacity retention motives. Transferable rights, investments that target capacity reduction, and influence from members that have adopted successful RBM are likely to be levers of future change.

Bay of Bengal. A key challenge is the institutional weakness of the IOTC. Indeed, regulatory capacity in regional States could benefit from support and development. Given this, there seems to be considerable scope for the use of market-based measures and investment to stimulate improved regulatory capacity. As with other RFMOs, participation and allocation are critical issues and need to be addressed. The IOTC initiative to develop formal criteria should be supported.

West and Central Atlantic and Caribbean. Scope exists to adopt RBM in ICCAT, although moves to develop this are slow and impeded by the management structure of ICCAT. These are likely

to be influenced by successful experiences of members using RBM. However, the capacity of a number of States to adopt such measures appears to be limited under domestic law, which would require upgrading. ICCAT has adopted some market-based measures successfully. A particular problem has been flag hopping and there is scope to target non-compliant States more directly. There is evidence of a lack of transparency in some fisheries administrations, and this needs to be addressed. Reform of ICCAT in light of modern fisheries management principles could be used to leverage change under domestic law.

West and Central Pacific. The WCPFC has adopted reasonably strong RBM, driven by the PNA sub-regional arrangement. The governance challenges facing the WCPFC are similar to other RFMOS—capacity, slow politicized decision-making, and unclear translation of regulatory requirements into operational practices. Although use of market-based measures has not been strong, the PNA efforts to obtain MSC certification have shown the potential to leverage improvements in processes through State-led initiatives.

6. Bibliography

1. Institutional Reports and Materials, including project reports and materials

- Allen, R. *International management of tuna fisheries: arrangements, challenges and a way forward*. FAO Fisheries and Aquaculture Technical Paper, No. 536. FAO, Rome, 2010.
- Ceo, M., Fagnani, S., Swan, J., Tamada, K., and Watanabe, H. *Performance Reviews by Regional Fishery Bodies: Introduction, summaries, synthesis and best practices, Volume I: CCAMLR, CCSBT, ICCAT, IOTC, NAFO, NASCO, NEAFC*. FAO Fisheries and Aquaculture Circular, No.1072. FAO, Rome, 2012.
- Conservation International. *Value Creation Opportunities for WCPO island nations in the tuna industry*. Discussion document. Fairfax, 2015.
- EKO Asset Management Partners. *Sustainable Fisheries Financing Strategies*. Ocean, RARE, Bloomberg Philanthropies, Rockefeller Foundation, 2014.
- Encourage Capital. *Investing for Sustainable Global Fisheries*, 2016. At http://investinibrantooceans.org/wp-content/uploads/documents/FULL-REPORT_FINAL_1-11-16.pdf.
- Environmental Defense Fund. *Towards Investment in Sustainable Fisheries. A Framework for Financing the Transition*, 2014. At <http://www.pcfisu.org/wp-content/uploads/2014/07/Towards-Investment-in-Sustainable-Fisheries.pdf>.
- FAO. Report of the Third Project Steering Committee: *Sustainable Management of Tuna Fisheries and Biodiversity Conservation in the ABNJ*. Rome, 6-8 July 2016: 43.
- . *Vulnerable Marine Ecosystems: Processes and Practices in the High Seas*. Fabio Carocci, Jessica Fuller, Jessica Sanders, Merete Tandstad, Anthony Thompson, eds. FAO Fisheries and Aquaculture Technical Paper, No. 595. FAO, Rome, 2016.
- . *Report of Tenure and Fishing Rights 2015: A global forum on rights-based approaches for fisheries, Siem Reap, Cambodia, 23–27 March 2015*. FAO, Rome, 2016.
- Gentner, B. *Assessing the application of innovative incentive based tools to reform highly migratory fisheries at the project development and regional scales*. Report prepared for the World Wildlife Fund, Washington, D.C., 2018.
- Hosch, G. and Blaha, F. *Seafood traceability for fisheries compliance—Country-level support for catch documentation schemes*. FAO Fisheries and Aquaculture Technical Paper, No. 619. FAO, Rome, 2017.
- ISSF. *Bellagio Framework for Sustainable Tuna Fisheries: Capacity controls, rights-based management, and effective MCS*. International Seafood Sustainability Foundation. Washington, D.C., 2010.
- . *The Cordoba Conference on the Allocation of Property Rights in Global Tuna Fisheries*. International Seafood Sustainability Foundation. Washington, D.C., 2011.
- . *Allocation of Rights in the International Environmental Context*. Napa Conference Feb. 2011, 2011.
- . *Eastern Pacific Ocean Rights-Based Management Workshop*. Guayaquil 2011, 2011-12.
- . *Workshop on Rights Based Management, Capacity and Buybacks in the EPO*, Mexico City 2012, 2012-15.
- . *Promoting Compliance in Tuna RFMOs: Mechanics of Reviewing, Assessing & Addressing Compliance with RFMOs*. International Seafood Sustainability Foundation. Washington, D.C., 2016.

- Joseph, J. *Past developments and future options for managing tuna fishing capacity, with special emphasis on purse-seine fleets*. In W.H. Bayliff, J.I. de Leiva & J. Majkowski, eds. *Proceeding of the Second Meeting of the Technical Advisory Committee of the FAO Project Management of Tuna Fishing Capacity: Conservation and Socio-economics*, Madrid 15–18 March 2004, FAO Fisheries Proceedings No. 2. FAO, Rome, 2005, 281–323.
- Low Impact Fishers of Europe. *Rights Based Management and Small Scale Fisheries in the EU: Human Rights Versus Property Rights*. A LIFE Position Paper on ITQs, 2016.
- Maharaj, V. *2017 Report of the Third Global Think Tank Event: Ocean Partnerships for Sustainable Fisheries and Biodiversity Conservation Models for Innovation and Reform*. World Wildlife Fund, November 2016. Report in press.
- . *Concepts for a Business Plan. Addressing Overfishing and Overcapacity in Eastern Pacific Tuna Fisheries*. Discussion Document. World Wildlife Fund, revised October 2015.
- Manta Consulting. *Financing Fisheries: Understanding the Investment Opportunity in Wild Fisheries*. Briefing Paper Series, 2013.
- McClurg, T. *Conceptual Framework – for Identification and Assessment of Potential Fisheries Investments*. In Holmes, L., Strauss, C. K., de Vos, K., Bonzon, K., 2014. *Towards investment in sustainable fisheries: A framework for financing the transition*. Environmental Defense Fund and The Prince of Wales's International Sustainability Unit, 2014).
- Milazzo, M.J. *Subsidies in World Fisheries. A Reexamination*. World Bank Technical Paper 402, 1998.
- MRAG (Marine Resources Assessment Group Ltd). *An analysis of existing Rights Based Management (RBM) instruments in Member States and on setting up best practices in the EU FINAL REPORT: PART II Catalogue of Rights Based Management Instrument in Coastal EU Member States*. Studies and Pilot Projects for Carrying Out the Common Fisheries Policy No. FISH/2007/03. European Commission, 2009.
- Munro, G.R., Van Houtte, A. & Willman, R. *The conservation and management of shared fish stocks: legal and economic aspects*. FAO Fisheries Technical Paper No. 465. FAO, Rome, 2004.
- Organisation for Economic Co-operation and Development (OECD). *Using market mechanisms to manage fisheries: smoothing the path*. OECD, Paris, 2006.
- . *Rebuilding Fisheries. The Way Forward*. OECD, Paris, 2012.
- PacificPossible. *2016 Tuna Fisheries*. World Bank Report. At <http://pubdocs.worldbank.org/en/858301461833983033/WB-PP-Tuna-Fisheries.pdf>.
- Shotton, R., ed. *Use of property rights in fisheries management*. FAO Fisheries Technical Paper Nos. 401/1 & 401/2. FAO, Rome, 2000.
- . *Case studies on the allocation of transferable quota rights in fisheries*. FAO Fisheries Technical Paper No. 411. FAO, Rome, 2001.
- Singh-Renton and S. & McIvor I. *Review of current fisheries management performance and conservation measures in the WECAFC area*. FAO Fisheries and Aquaculture Technical Paper No. 587. FAO, Bridgetown, Barbados, 2015..
- Squires, D., Allen, R. & Restrepo, V. 2013. *Rights-based management in international tuna fisheries*. FAO Fisheries and Aquaculture Technical Paper No. 571. FAO, Rome.
- Squires, D., Maunder, M., Vestergaard, N., Restrepo, V., Metzner, R., Herrick, S., Hannesson, R., del Valle, I. & Andersen, P. *Effort rights in fisheries management: general principles and case studies from around the world*, 17–20 September 2012, Bilbao, Spain. FAO Fisheries and Aquaculture Proceedings No. 34. FAO, Rome, 2014.
- Stewart, C. *Legislating for Property Rights in Fisheries*. FAO Legislative Study 83. FAO, Rome, 2004.
- Transnational Institute, World Forum of Fisher People and Afrika Kontakt. *Human Rights vs. Property Rights: Implementation and Interpretation of the SSF Guidelines*. 2016. At http://worldfishers.org/wp-content/uploads/2016/12/SSF-G-Human_Rights_vs_Property_Rights-EN.pdf.
- UN General Assembly Preparatory Committee. Chair's overview of the third session of the preparatory Committee. 2017, at http://www.un.org/depts/los/biodiversity/prepcom_files/Chair_Overview.pdf.

- Washington, S. and Ababouch, L. *Private standards and certification in fisheries and aquaculture: current practice and emerging issues*. FAO Fisheries and Aquaculture Technical Paper, No. 553. FAO, Rome, 2011
- World Bank. *Fish to 2030: Prospects for Fisheries and Aquaculture*. Agriculture and Environmental Services Discussion Paper No. 3. World Bank, Washington, D.C., 2013.
- . *Project Appraisal Document for the Ocean Partnerships for Sustainable Fisheries and Biodiversity Conservation – Models for Innovation and Reform*. 2014, at <http://documents.worldbank.org/curated/en/755761468331789238/pdf/PAD9620PAD0P12010Box385311B00OUO090.pdf>.
- WWF. Rights Based Management. At <https://wwf.be/assets/RAPPORT-POLICY/OCEANS/UK/WWF-RightManagement-brochure-final.pdf>.
- ## 2. General Literature on the Governance Framework for Incentive-based Tools
- Adolf, S. et al. "Reinserting state agency in global value chains: The case of MSC certified skipjack tuna." *Fisheries Research* 182:79-87, 2016.
- Alcock, F. "Prospects for Use Rights in Tuna Regional Fisheries Management Organizations." Allen, R., J. Joseph, and D. Squires (eds.) *Conservation and Management of Transnational Tuna Fisheries*. Wiley-Blackwell, Iowa, 2010.
- Allen, R., J. Joseph, and D. Squires eds. *Conservation and Management of Transnational Tuna Fisheries*. Wiley-Blackwell, Iowa, 2010.
- Allen, R. et al. "Managing World Tuna Fisheries with Emphasis on Rights-Based management." Quentin Grafton, R. et al (eds.) *Handbook of Marine Fisheries Conservation and Management*. Oxford University Press, 2010. 698.
- Anderson, J. et al. *The Fishery Performance Indicators: A Management Tool for Triple Bottom Outcomes*. Plos One, 2015. At <https://doi.org/10.1371/journal.pone.0122809>.
- Aquorau, T. "Reshaping International Fisheries Development: Assimilating the Treaty on Fisheries between the Governments of Certain Pacific Island States and the United States under the PNA Vessel Day Scheme (VDS)." *International Journal of Marine and Coastal Law* 29(1): 52-76, 2014.
- Ardron, J., Rayfuse, R., Gjerde, K. and Warner, R. "The sustainable use and conservation and management of biodiversity in ABNJ: What can be achieved using existing international agreement?" *Marine Policy* 49: 98-108. 2014.
- Asche, F. et al. "Development in fleet capacity in rights based fisheries." *Marine Policy* 44:166-171, 2014.
- Bailey, M. et al. "Closing the Incentive Gap: The Role of Public and Private Actors in Governing Indonesia's Tuna Fisheries." *Journal of Environmental Policy and Planning* 18:141-160, 2016.
- Bailey, M., Simon Bush, S., Oosterveer, P., Larastiti, L. "Fishers, fair trade, and finding middle ground." *Fisheries Research* 182:59-68, 2016.
- Barkin, J.S. and DeSombre, E.R. *Saving Global Fisheries. Reducing Fishing Capacity to Promote Sustainability*. The MIT Press, Cambridge, 2013.
- Barnes, R. "The Law of the Sea Convention: An effective framework for domestic fisheries regulation." Freestone, D., Barnes, R. and Ong, D. (eds.) *The Law of the Sea: Progress and Prospects*. Oxford University Press, 2006, 233-260.
- . *Property Rights and Natural Resources*. Hart Publishing, 2009.
- . "Entitlement to Marine Living Resources in Areas Beyond National Jurisdiction" in Alex Oude Elferink and Erik Molenaar (eds.), *The International Legal Regime of Areas Beyond National Jurisdiction: Current and Future Developments*. Martinus Nijhoff, 2010, 83-142.
- . "The Continuing Vitality of UNCLOS" in Barrett, J. and Barnes R. (eds.) *The United Nations Convention on the Law of the Sea: A Living Instrument*. BIICL, 2016, 459-489.
- . "The Proposed LOSC Implementation Agreement on Areas Beyond National Jurisdiction and Its Impact on International Fisheries Law." *International Journal of Marine and Coastal Law* 31: 583-619, 2016.

- . "Fisheries in ABNJ and the impact of the Proposed UNCLOS Implementation Agreement." GloTT working paper, 2016. On file with author.
- . "Climate Change and Fisheries." Working paper, 2017. On file with author.
- Barnes, R. and Massarella, C. "High seas fisheries" in Morgera and Kulovesi (eds.) *International Law and Natural Resources*. Edward Elgar, 2016, 369-389.
- Beddington, J.R., Agnew, D.J., and Clark, C.W. "Current problems in the management of marine fisheries." *Science* 316(5832): 1713-1716, 2007.
- Bellchambers, L., Fisher, E.A., Harry, A.V., Travaille, K.L. "Identifying and mitigating potential risks for Marine Stewardship Council assessment and certification." *Fisheries Research* 182:7-17, 2016.
- Berkes, F. et al. "Globalization, Roving Bandits, and Marine Resources." *Science*, 311:1557, 2006.
- Bonini, S., Saran, N. and Stein L. *Design for Sustainable Fisheries – Modeling Fisheries Economics*, 2011.
- Boon, K. "Overfishing of Bluefin Tuna: Incentivising Inclusive Solutions." *University of Louisville Law Review* 52(1): 1, 2013.
- Bowman, M., Davies, P. and Redgwell, C. *Lyster's Wildlife Law* (2nd ed.), Cambridge University Press, 2010.
- Boyle, A. "Further Development of the 1982 Convention on the Law of the Sea" in Freestone, D., Barnes, R. and Ong, D (eds.) *Law of the Sea. Progress and Prospects*, Oxford University Press, 2006.
- Brown, S., Agnew, D.J. and Martin, W. "On the road to fisheries certification: the value of the objections procedure in achieving the MSC sustainability standard." *Fisheries Research* 182:136-148, 2016.
- Calley, D. "Market Denial and International Fisheries Regulation: the Targeted and Effective Use of Trade Measures Against the Flag of Convenience Fishing Industry." Martinus Nijhoff, 2011.
- Carr, C. "Recent Developments in Compliance and Enforcement for International Fisheries." *Ecology Law Quarterly*, 24:847, 1997.
- Chang, S.W. "WTO Disciplines on Fisheries Subsidies: A Historic Step Towards Sustainability?" *Journal of International Economic Law* 6:879, 2003.
- Chen, C.-J. "The EU Role under the Fisheries Subsidies International Negotiations – particularly the WTO" in Ehlers P. and Lagioni, R. (eds.) *The Maritime Policy of the European Union and the Law of the Sea*, Lit Verlaag, 2008.
- Chen, C.-J. *Fisheries Subsidies under International Law*, Springer-Verlaag, 2010.
- Clarke C.W. "Profit maximization and the extinction of animal species," *Journal of Political Economy* 81:950-961, 1973.
- Clarke, F. H. and Munro, G. R. "Coastal states, distant water fishing nations and extended jurisdiction: A principal-agent analysis." *Natural Resource Modeling* 2(1): 81-107, 1987.
- Coppens, D. *WTO Disciplines on Subsidies and Countervailing Measures*, Cambridge University Press, 2014.
- Cox, A. and Sumaila, U.R. "A Review of Fisheries Subsidies: Quantification, Impacts and Reform" in Quentin Grafton, R. et al (eds.) *Handbook of Marine Fisheries Conservation and Management*, Oxford University Press, 2010.
- Crothers, G.T. and Nelson, L. "High seas fisheries governance: a framework for the future?" *Marine Resource Economics* 21: 341-353, 2007.
- Davies, P.G. and Redgwell, C. "The International Legal Regulation of Straddling Fish Stocks." *British Yearbook of International Law* 67:199, 1997.
- Diz Pereira Pinto. *Fisheries Management in Areas beyond National Jurisdiction. The Impact of Ecosystem Based Law Making*, Martinus Nijhoff, 2013.
- Elferink, A.G.O. "The Determination of Compatible Conservation and Management Measures for Straddling and Highly Migratory Fish Stocks." *Max Plank Yearbook of United Nations Law* 5:551, 2001.
- Franckx, E. "The Protection of Biodiversity and Fisheries Management: Issues Raised by the Relationship between CITES and LOSC" in Freestone, D., Barnes, R. and Ong, D. (eds.) *The Law of the Sea: Progress and Prospects*, Oxford University Press, 2014.
- Freestone, D. "International Fisheries Law Since Rio" in Alan Boyle and David Freestone (eds.), *International Law and Sustainable Development*, Oxford University Press, 1999, 135.

- . "Governance of Areas Beyond National Jurisdiction" in Barrett J. and Barnes R. (eds.) *UNCLOS as a Living Treaty*, BIICL, London, 2015.
- Froese R. and Proelss, A. "Evaluation and Legal Assessment of Certified Seafood." *Marine Policy*, 36:1284-1289, 2012.
- Garcia, S.M., Rice, J. and Charles, A. *Governance of Marine Fisheries and Biodiversity Conservation: Interaction and Co-evolution*, John Wiley & Sons, Chichester, 2014.
- Gianni, M. and Simpson, W. *The Changing Nature of High Seas Fishing: how flags of convenience provide cover for illegal, unreported and unregulated fishing*. Australian Department of Agriculture, Fisheries and Forestry, International Transport Workers' Federation, and WWF International, 2005.
- Gjerde, K.M. Currie, D., Wowk, K. and Sack, K. "Ocean in Peril: Reforming the Management of Global Ocean Living Resources in Areas Beyond National Jurisdiction." *Marine Pollution Bulletin* 74(2):540-551, 2013.
- Grafton, R., Arnason, R., Bjørndal, T., Campbell, D., Campbell, H. F., Clark, C. W. and Weninger, Q. "Incentive-based approaches to sustainable fisheries." *Canadian Journal of Fisheries and Aquatic Sciences* 63(3):699-710, 2006.
- Quentin Grafton, R. et al (eds.) *Handbook of Marine Fisheries Conservation and Management*, Oxford University Press, 2010.
- Guilfoyle, D. *Shipping Interdiction and the Law of the Sea*, Cambridge University Press, 2009.
- Guillotreau, P., Squires, D., Sun, J., and Compean, G. "Local Regional and Global Markets: what drives tuna fisheries?" *Reviews in Fish Biology and Fisheries* 27(4): 909-929, 2016.
- Gutierrez et al. "The current situation and prospects of fisheries certification and ecolabelling." *Fisheries Research* 182:1-6, 2016.
- Hannesson, R. *The privatization of the Oceans*. The MIT Press, 2004.
- . "Rights based fishing on the high seas: Is it possible?" *Marine Policy* 42:667-674, 2014.
- Hanich, Q. and Ota, Y. "Moving Beyond Rights-Based Management: A transparent Approach to the Conservation Burden and Benefit in Tuna Fisheries." *International Journal of Marine and Coastal Law* 28(1), 135-170, 2013.
- Havice, E. "Rights-based management in the Western and Central Pacific Ocean tuna fishery: Economic and environmental change under the Vessel Day Scheme." *Marine Policy* 42: 259-267, 2013.
- Hoel, A.H. "Performance Reviews of Regional Fisheries Management Organizations" in Russell, D.A., and VanderZwaag, D.L. (eds.) *Recasting Transboundary Fisheries Management Arrangements in Light of Sustainability Principles*, Martinus Nijhoff, 2010, 449.
- Hosch, G. *Trade measures to combat IUU fishing: Comparative analysis of unilateral and multilateral instruments*. ICTSD (International Centre for Trade and Sustainable Development, Geneva. 2016, at https://www.ictsd.org/sites/default/files/research/trade_measures_to_combat_iuu_fishing-post_publishing_corrections_-_1_-_done.pdf.
- Jack, B.K., Kousky, C. and Sims, K.R.E. "Designing payments for ecosystem services: Lessons from previous experience with incentive-based mechanisms". *Proceedings of the National Academy of Sciences of the United States of America* 105(28): 9465-9470, 2008.
- Jeon, Y., Reid, C. & Squires, D. "Is there a global market for tuna?: policy implications for tropical tuna fisheries." *Ocean Development and International Law* 39 (1): 32-50, 2008.
- Joseph, J. & Greenough, J.W. *International management of tuna, porpoise, and billfish—biological, legal, and political aspects*, University of Washington Press, Seattle and London, 1978.
- Joseph, J. "The tuna-dolphin controversy in the Eastern Pacific Ocean: biological, economic, and political impacts." *Ocean Development and International Law* 25: 1-20, 1994.
- Kimball, L. "Deep-Sea Fisheries of the High Seas: The Management Impasse." *International Journal of Marine and Coastal Law* 19:267, 2004.
- Korman, S. "International Management of a High Seas Fishery: Political and Property Rights Solutions and Atlantic Bluefin." *Virginia Journal of International Law* 51(3), 2011, 697.

- Le Gallic, B. "The use of trade measures against illicit fishing: economic and legal considerations." *Ecological Economics* 64 (1): 858–866, 2008.
- Libecap, G. "Assigning Property Rights in the Common Pool. Implications of the Prevalence of First Possession Rules for ITQs in Fisheries." *Marine Resource Economics* 22:407–423, 2007.
- Lodge, M. *Managing international fisheries: improving fisheries governance by strengthening regional fisheries management organizations*. Chatham House, London, 2007.
- Lodge, M., Anderson, D., Lobach T., Munro, G., Sainsbury K. and Willock, A. *Recommended Best Practices for Regional Fisheries Management Organisations: Report of an Independent Panel for Improved Governance by Regional Fisheries Management Organisations*. Chatham House, London, 2007.
- Ludwig D., Hilborn, R., and Walters, C. "Uncertainty, resource exploitation and conservation lessons." *Science* 316: 36, 1993.
- Manta Consulting. *Financing Fisheries Change*, 2011, at <http://www.conservation.org/publications/Documents/Manta-Consulting-Financing-Fisheries-Change.pdf>.
- Mardle, S., and Pascoe, S. "Modelling the effects of trade-offs between long and short-term objectives in fisheries management." *Journal of Environmental Management* 65(1):49–62, 2002.
- Matz-Luck, N. and Fuchs, J. "Marine Living Resources." Rothwell D. et al. (eds.), *The Oxford Handbook of the Law of the Sea*, Oxford University Press, 2015, 491.
- McDorman, T.L. "Implementing existing tools: turning words into actions—decision making processes of regional fisheries management organizations (RFMO)." *International Journal of Marine and Coastal Law* 20 (3–4): 423–457, 2005.
- Metzner, R. "Fishing Aspirations and Fishing Capacity: Two Key Management Issues." *International Journal of Marine and Coastal Law* 20(3–4), 459–478, 2005.
- Molenaar, E.J. "The Concept of 'Real Interest' and other Aspects of Cooperation through Fisheries Management Mechanisms." *International Journal of Marine and Coastal Law* 15:475, 2000.
- . "Addressing Regulatory Gaps in High Seas Fisheries." *International Journal of Marine and Coastal Law* 20:533, 2005.
- . "Port State Jurisdiction: Toward Comprehensive, Mandatory and Global Coverage." *Ocean Development and International Law* 38:225, 2007.
- Mooney-Seus, M. and Rosenburg, A. *Recommended Best Practices for Regional Fisheries Management Organizations. Progress in Precautionary Approach and Adopting Ecosystems Based Management*. Technical Study 1. Chatham House, London, 2007.
- Osherenko, G. "New Discourse on Ocean Governance: Understanding Property Rights and the Public Trust." *Journal of Environmental Law and Litigation* 21(2) 317–381, 2006.
- Ostrom, E. *Governing the Commons The Evolution of Institutions for Collective Action*. Cambridge University Press, 1990.
- Ostrom, E., Gardner, R. and Walker, J. *Rules, Games and Common-Pool Resources*. University of Michigan Press, 1994.
- Parkes, G., Swasey, J.H., Underwood, F.M., Fitzgerald, T.P., Strauss, K., Agnew, D.J. "The effects of catch share management on MSC certification scores." *Fisheries Research* 182:18–27, 2016.
- Pérez-Ramírez, M., Castrejón, M., Gutierrez, N.L., Defeo, O. "The Marine Stewardship Council certification in Latin America and the Caribbean: a review of experiences, potentials and pitfalls." *Fisheries Research* 182: 50–58, 2016.
- Pinto, D.D.P. *Fisheries Management in Areas Beyond National Jurisdiction. The Impact of Ecosystem Based Law-Making*. Martinus Nijhoff, 2012.
- Rayfuse, R. *Non-Flag State Enforcement in High Seas Fisheries*, Martinus Nijhoff, 2004.
- . "Regional Fisheries Management Organizations" in Rothwell D. et al. (eds.) *The Oxford Handbook of the Law of the Sea*. Oxford University Press, 2015, 439.
- Reeve, R. *Policing Trade in Endangered Species. The CITES Treaty and Compliance*, Routledge, 2014.

- Ridgeway, L. and Rice, J. "International Organizations and Fisheries Governance" in Quentin Grafton, R. et al. (eds.) *Handbook of Marine Fisheries Conservation and Management*. Oxford University Press, 2010, 485.
- Schofield, C. and Freestone, D. *Options to protect coastlines and secure maritime jurisdictional claims in the face of global sea level rise*, 2013, at <http://ro.uow.edu.au/cgi/viewcontent.cgi?article=2241&context=lhapapers>
- Schorr D.K. and Caddy, J.F. *Sustainability Criteria for Fisheries Subsidies Options for the WTO and Beyond*. WWF, 2007.
- Serdy, A. "Fishery commission quota trading of under international law." *Ocean Yearbook* 21:265–288, 2007.
- . "Commentary: Property Rights in Areas Beyond National Jurisdiction – Not too late for a proper debate?" in Alex Oude Elferink and Erik Molenaar (eds.) *The International Legal Regime of Areas Beyond National Jurisdiction: Current and Future Developments*. Martinus Nijhoff, 2010.
- Serdy, A. "International fisheries law and the transferability of quota: principles and precedents." in R. Allen, J. Joseph & D. Squires (eds.) *The conservation and management of transnational tuna fisheries*. Wiley-Blackwell, Iowa, 2010, 199–126.
- Serdy, A. *The New Entrants Problem in International Fisheries Law*, Cambridge University Press, 2015.
- Shaffer G. and Bodansky, D. "Transnationalism, Unilateralism and International Law." *Transnational Environmental Law* 1:31, 2012.
- Sissenwine, J-J et al. *The state of world highly migratory, straddling and other high seas fishery resources and associated species*. FAO Fisheries Technical Paper 495. FAO, Rome, 2006.
- Smith, M.D., Roheim, C.A., Crowder, L.B., Halpern, B.S., Turnipseed, M., Anderson, J.L. and Selkoe, K. A. "Economics. Sustainability and global seafood." *Science* 327(5967): 784–786, 2010.
- Squires D. et al. "Effort rights-based management." *Fish and Fisheries* 18(3): 440-465, 2017.
- Stewart, R.B. "Instrument Choice." in Bodansky, D., Brunnée, J. & Hey, E. (eds.) *Oxford Handbook of International Environmental Law*. Oxford University Press, Oxford, 147-181, 2008.
- Stokke, O.S. "Trade Measures and the Combat of IUU Fishing: Institutional Interplay and Effective Governance in the Northeast Atlantic." *Marine Policy* 33:339-349, 2009.
- Stone, C. "Too Many Fishing Boats, Too Few Fish: Can Trade Laws Trim Subsidies and Restore the Balance in Global Fisheries?" in Gallagher K. and Werksman J. (eds.) *International Trade and Sustainable Development*. Earthscan, 2002, 286.
- Stratoudakis, Y., McConney, P., Duncan, J., Ghofar, A., Gitonga, N., Mohamed, K.S., Samoilys, M., Symington, K. and Bourillon, L. "Fisheries certification in the developing world: locks and keys or square pegs in round holes?" *Fisheries Research* 182:39–49, 2016.
- Sumaila, U.R. et al. "A bottom-up re-estimation of global fisheries subsidies." *Journal of Bioeconomics* 12: 201, 2010.
- . "How to make progress in disciplining overfishing subsidies." *ICES Journal of Marine Science*, 2012, 271.
- Sutton, M. "A new paradigm for managing marine fisheries in the next millennium." In Hancock D.A. et al. (eds.) *Developing and Sustaining World Fisheries Resources*, Second World Fisheries Congress Proceedings. CSIRO, 1997.
- von Moltke, A. (ed.) *Fisheries Subsidies, Sustainable Development and the WTO*. Earthscan, 2011.
- Tanaka, Y. *The International Law of the Sea*. Cambridge University Press, 2012.
- Telesetsky, A. "Follow the Leader: Eliminating Perverse Global Fishing Subsidies Through Unilateral Domestic Trade Measures." *Maine Law Review* 65:627, 2013.
- Young, M. "Protecting Endangered Marine Species: Collaboration between the Food and Agriculture Organization and the CITES Regime." *Melbourne Journal of International Law* 11:441, 2010.
- . *Trading fish, saving fish*. Cambridge University Press, 2011.

3. Incentive-based Tools in the Bay of Bengal (including Indian Ocean Tuna Commission)

BOBP. *Report of the National Workshop on Fisheries Resources Development and Management in Bangladesh*, 1995, at <http://www.fao.org/docrep/X5625E/x5625e00.htm#Contents>.

Habibur Rahman, A. *Legal Regime of Marine Environment in the Bay of Bengal*, Atlantic Publishers, New Delhi, 2007.

Mohammed, E. Y. and Wahab, A. *Direct economic incentives for sustainable fisheries management: the case of Hilsa conservation in Bangladesh*. International Institute for Environment and Development, London, 2013.

Noye J. and Mfodwo, K. "First Steps Toward a Quota Allocation System in the Indian Ocean." *Marine Policy* 36:882, 2012, 887.

Shamsuzzaman, M. Xingmin X., and Islam, M.M. "Legal Status of Bangladesh Fisheries: Issues and Responses." *Indian Journal of Geo Marine Sciences* 45(11): 1474-1480, 2016.

4. Incentive-based Tools in the Eastern Pacific (IATTC)

Inter-American Tropical Tuna Commission (IATTC) and World Bank. *Report of a Workshop on Rights-Based Management and Buybacks in International Tuna Fisheries*. Workshop 5-9 May 2008 sponsored by IATTC and World Bank, La Jolla, USA. 2008.

5. Incentive-based Tools in the Western and Central Atlantic Fisheries Commission (WECAFC)

FAO. "Caribbean Fisheries Legal and Institutional Study: Findings of the Comparative Assessment and Country Reports." *FAO Fisheries and Aquaculture Circular No. 1124*. FAO, Bridgetown, Barbados, 2016.

———. "The Use and Design of Rights and Tenure Based Management Systems for Transboundary Stocks in the Caribbean," by Brad Gentner. *FAO Fisheries and Aquaculture Circular No. 1126*. FAO, Barbados, Bridgetown, 2016.

Garza-Gil, M.D, Varela-Lafuente, M.M. and Iglesias-Malvido, C. "Spain's North Atlantic swordfish fishery." *Marine Policy* 27(1):31-37, 2003.

Parris H. et al. "The Challenge of Fisheries Governance after the UNFSA: The Case of the Western and Central Pacific Fisheries Commission" in Quentin Grafton, R. et al. (eds.) *Handbook of Marine Fisheries Conservation and Management*. Oxford University Press, 2010, 443.

Singh-Renton, S. and McIvor I. "Review of current fisheries management performance and conservation measures in the WECAFC area." *FAO Fisheries and Aquaculture Technical Paper No. 587*. FAO, Bridgetown, Barbados, 2015.

Webster, D.D. "Quasi-Property Rights and the Effectiveness of Atlantic Tuna Management" in Allen, R., J. Joseph, and D. Squires (eds.) *Conservation and Management of Transnational Tuna Fisheries*. Wiley-Blackwell, Iowa, 2010.

6. Incentive-based Tools in the West and Central Pacific (WCPFC, FFA and PNA)

Aquorau, T. "Moving towards a Rights-Based Fisheries Management Regime for the Tuna Fisheries in the Western and Central Pacific Ocean." *International Journal of Marine and Coastal Law* 22(1): 125-142, 2007.

Bell, J. et al. *Vulnerability of Tropical Pacific Fisheries and Aquaculture to Climate Change*. SPC, Noumea, 2011.

Hanich, Q. and Tsamenyi, M. (eds.). *Navigating Pacific Fisheries: Legal and Policy Trends in the Implementation of International Fisheries Instruments in the Western and Central Pacific Region*. Australian National Centre for Ocean Resources and Security, Wollongong, 2009.

Havice, E. *The state of play of access agreements with distant water fishing partners: implications and options for Pacific island countries*. Report submitted to the Pacific Islands' Forum Fisheries Agency, 2007.

- Miles, E.L. "The management of tuna fisheries in the west central and southwest Pacific." In *Environmental regime effectiveness: confronting theory with evidence*, ed. E. L. Miles, A. Underdal, S. Andresen, J. Wettestad, J. B. Skjærseth and E. M. Carlin. Cambridge, The MIT Press, Cambridge, 2002, 117-48.
- Miller, A.M.M., Bush, S.R. and van Zweiten, P.A.M. "Sub-regionalisation officials fisheries governance: the case of the Western and Central Pacific Ocean tuna fisheries." *Maritime Studies* 13:17, 2014.
- Ovando, D. Libecap, L. Thomas, L. and Millage, K. "A Bargain for Tuna. Market Based Solutions to Bigeye Tuna Catch." In *Challenging New Frontiers in the Global Seafood Sector: Proceedings of the Eighteenth Biennial Conference of the International Institute of Fisheries Economics and Trade*, July 11-15, 2016. Compiled by Stefani J. Evers and Ann L. Shriver. International Institute of Fisheries Economics and Trade (IIFET), Corvallis, 2016.
- Rashaila U. et al. "Subsidies to tuna fisheries in the Western Central Pacific Ocean." *Marine Policy* 43:288-93, 2014.
- Reid, C. *Economic Implications of an Implicit Allocation of Bigeye Harvest Rights Through an Across the Board Reduction in Effort Levels in the Western and Central Pacific Tuna Fishery*. Sharing the Fish, Perth, 2006.
- G. Van Santen and P. Muller. *Working Apart or Together: The Case for a Common Approach to Management of Tuna Resources in Exclusive Economic Zones of Pacific Island Countries*. The World Bank, Washington, D.C., 2000.
- Encourage Capital. *Investing for Sustainable Global Fisheries*, 2016, at http://investinibrantocceans.org/wp-content/uploads/documents/FULL-REPORT_FINAL_1-11-16.pdf.
- Environmental Defence Fund. *Towards Investment in Sustainable Fisheries. A Framework for Financing the Transition*, 2014, at <http://www.pcfisu.org/wp-content/uploads/2014/07/Towards-Investment-in-Sustainable-Fisheries.pdf>.
- FAO. *Report of the Third Project Steering Committee: Sustainable Management of Tuna Fisheries and Biodiversity Conservation in the ABNJ*, Rome, Italy, 6th–8th July 2016. FAO, Rome, 2016.
- . *Vulnerable Marine Ecosystems: Processes and Practices in the High Seas*, Anthony Thompson, Jessica Sanders, Merete Tandstad, Fabio Carocci and Jessica Fuller (eds.), FAO Fisheries and Aquaculture Technical Paper No. 595. FAO, Rome, 2016.
- ISSF. *Bellagio Framework for Sustainable Tuna Fisheries: Capacity controls, rights-based management, and effective MCS*. International Seafood Sustainability Foundation, Washington, D.C., 2010.
- . *The Cordoba Conference on the Allocation of Property Rights in Global Tuna Fisheries*. International Seafood Sustainability Foundation, Washington, D.C., 2011.
- . *Allocation of Rights in the International Environmental Context*. Napa Conference, Feb. 2011.
- . *Eastern Pacific Ocean Rights-Based Management Workshop*, Guayaquil 2011, 2011-12.
- . *Workshop on Rights Based Management, Capacity and Buybacks in the EPO, Mexico City 2012*, 2012-15.
- . *Promoting Compliance in Tuna RFMOs: Mechanics of Reviewing, Assessing & Addressing Compliance with RFMOs*, 2016.
- Joseph, J. "Past developments and future options for managing tuna fishing capacity, with special emphasis on purse-seine fleets." In W.H. Bayliff, J.I. de Leiva and J. Majkowski (eds.) *Proceeding of the Second Meeting of the Technical Advisory Committee of the FAO Project Management of Tuna Fishing Capacity: Conservation and Socio-economics*. Madrid, Spain, 15–18 March 2004, FAO Fisheries

7. Institutional Reports and Material, including project reports and materials

Allen, R. International management of tuna fisheries: arrangements, challenges and a way forward. *FAO Fisheries and Aquaculture Technical Paper No. 536*, FAO, Rome, 2010, 45.

Anderson, J. et al. *The Fishery Performance Indicators: A Management Tool for Triple Bottom Outcomes*. Plos One, 2015, at <https://doi.org/10.1371/journal.pone.0122809>.

- Proceedings No. 2. FAO, Rome, 2005, 281–323.
- Low Impact Fishers of Europe. *Rights Based management and Small Scale Fisheries in the EU. Human Rights Versus Property Rights*, 2016, at http://lifeplatform.eu/wp-content/uploads/2017/01/LIFE-Statement-on-ITQs_Abridged-version.pdf.
- Maharaj, V. *Report of the Third Global Think Tank Event: Ocean Partnerships for Sustainable Fisheries and Biodiversity Conservation Models for Innovation and Reform*, World Wildlife Fund November 2016. 2017, report in press.
- . *Concepts for a Business Plan. Addressing Overfishing and Overcapacity in Eastern Pacific Tuna Fisheries. Discussion Document*. World Wildlife Fund, revised October 2015.
- Munro, G.R., Van Houtte, A. and Willman, R. *The conservation and management of shared fish stocks: legal and economic aspects*. FAO Fisheries Technical Paper No. 465. FAO, Rome, 2004.
- Organisation for Economic Co-operation and Development (OECD). *Using market mechanisms to manage fisheries: smoothing the path*. OECD, Paris, 2006.
- . *Rebuilding Fisheries. The Way Forward*. OECD, Paris, 2012.
- Shotton, R., ed. *Use of property rights in fisheries management*. FAO Fisheries Technical Paper Nos. 401/1 & 401/2. FAO, Rome, 2000.
- . *Case studies on the allocation of transferable quota rights in fisheries*. FAO Fisheries Technical Paper No. 411. FAO, Rome, 2001.
- Singh-Renton, S. and McIvor I. *Review of current fisheries management performance and conservation measures in the WECAFC area*. FAO Fisheries and Aquaculture Technical Paper No. 587. FAO, Bridgetown, Barbados, 2015.
- Squires, D., Allen, R. & Restrepo, V. *Rights-based management in international tuna fisheries*. FAO Fisheries and Aquaculture Technical Paper No. 571. FAO, Rome, 2013.
- Squires, D., Maunder, M., Vestergaard, N., Restrepo, V., Metzner, R., Herrick, S., Hannesson, R., del Valle, I. and Andersen, P. *Effort rights in fisheries management: general principles and case studies from around the world, 17–20 September 2012, Bilbao, Spain*. FAO Fisheries and Aquaculture Proceedings No. 34. FAO, Rome, 2014.
- Transnational Institute, World Forum of Fisher People and Afrika Kontakt. *Human Rights vs. Property Rights: Implementation and Interpretation of the SSF Guidelines*, 2016, at http://worldfishers.org/wp-content/uploads/2016/12/SSF-Guidelines-Human_Rights_vs_Property_Rights-EN.pdf.
- UN General Assembly Preparatory Committee. *Chair's overview of the third session of the preparatory Committee*, 2017, at http://www.un.org/depts/los/biodiversity/prepcom_files/Chair_Overview.pdf.
- Washington, S. and Ababouch, L. *Private standards and certification in fisheries and aquaculture: current practice and emerging issues*. FAO Fisheries and Aquaculture Technical Paper No. 553. FAO, Rome, 2011.
- World Bank. *Project Appraisal Document for the Ocean Partnerships for Sustainable Fisheries and Biodiversity Conservation – Models for Innovation and Reform*. 2014, at <http://documents.worldbank.org/curated/en/755761468331789238/pdf/PAD9620PAD0P12010Box385311B000UO090.pdf>.
- WWF. *Rights Based Management*, at <https://wwf.be/assets/RAPPORT-POLICY/OCEANS/UK/WWF-RightManagement-brochure-final.pdf>.

8. General Literature of the Legal Framework for Incentive-based Tools and Fisheries Governance

- Allen, R., J. Joseph, and D. Squires eds. *Conservation and Management of Transnational Tuna Fisheries*. Wiley-Blackwell, Iowa, 2010.
- Aquorau, T. "Reshaping International Fisheries Development: Assimilating the Treaty on Fisheries between the Governments of Certain Pacific Island States and the United States under the PNA Vessel Day Scheme (VDS)." *International Journal of Marine and Coastal Law* 29(1): 52-76, 2014.
- Ardron, J., Rayfuse, R., Gjerde, K. and Warner, R. "The sustainable use and conservation and management of biodiversity in ABNJ: What can be achieved using existing international agreement?" *Marine Policy* 49: 98-108, 2014.
- Asche, F. et al. "Development in fleet capacity in rights based fisheries." *Marine Policy*, 44:166-171, 2014.
- Barkin, J.S. and DeSombre, E.R. *Saving Global Fisheries. Reducing Fishing Capacity to Promote Sustainability*. The MIT Press, Cambridge, 2013.
- Barnes, R. "Fisheries in ABNJ and the impact of the Proposed UNCLOS Implementation Agreement," GloTT Working paper 2016, 2016.
- . "Entitlement to Marine Living Resources in Areas Beyond National Jurisdiction" in Alex Oude Elferink and Erik Molenaar (eds.) *The International Legal Regime of Areas Beyond National Jurisdiction: Current and Future Developments*. Martinus Nijhoff, 2010, 83-142.
- Barnes, R. and Massarella, C. "High seas fisheries" in Morgera and Kulovesi (eds.) *International Law and Natural Resources*. Edward Elgar, 2016, 369-389.
- Boon, K. "Overfishing of Bluefin Tuna: Incentivising Inclusive Solutions." *University of Louisville Law Review* 52(1): 1, 2013.
- Bromley, DW. "Rights-based fisheries and contested claims of ownership: some necessary clarifications." *Marine Policy* 72: 231-236, 2016.
- Crothers, G.T. and Nelson, L. "High seas fisheries governance: a framework for the future?" *Marine Resource Economics* 21: 341-353, 2007.
- Freestone, D. "Governance of Areas Beyond National Jurisdiction" in Barrett J. and Barnes R. (eds.) *UNCLOS as a Living Treaty*. BIICL, London, 2015.
- Garcia, S.M., Rice, J. and Charles, A. *Governance of Marine Fisheries and Biodiversity Conservation: Interaction and Co-evolution*. John Wiley & Sons, Chichester, 2014.
- Hannesson, R. 2004. *The privatization of the Oceans*. The MIT Press, Cambridge.
- . "Rights based fishing on the high seas: Is it possible?" *Marine Policy* 42:667-674, 2014.
- Hanich, Q. and Ota, Y. "Moving Beyond Rights-Based Management: A Transparent Approach to the Conservation Burden and Benefit in Tuna Fisheries." *International Journal of Marine and Coastal Law* 28(1), 135-170, 2013.
- Havice, E. "Rights-based management in the Western and Central Pacific Ocean tuna fishery: Economic and environmental change under the Vessel Day Scheme." *Marine Policy* 42: 259-267, 2013.
- Jeon, Y. Reid, C. and Squires, D. "Is there a global market for tuna? Policy implications for tropical tuna fisheries." *Ocean Development and International Law* 39 (1): 32-50, 2008.
- Joseph, J. and Greenough, J.W. *International management of tuna, porpoise, and billfish—biological, legal, and political aspects*. University of Washington Press, Seattle and London, 1978.
- . "The tuna-dolphin controversy in the Eastern Pacific Ocean: biological, economic, and political impacts." *Ocean Development and International Law*, 25: 1-20, 1994.
- Korman, S. "International Management of a High Seas Fishery: Political and Property Rights Solutions and Atlantic Bluefin." *Virginia Journal of International Law* 51(3), 2011, 697.
- Le Gallic, B. "The use of trade measures against illicit fishing: economic and legal considerations." *Ecological Economics* 64 (1): 858-866, 2008.
- Lodge, M. *Managing international fisheries: improving fisheries governance by strengthening regional fisheries management organizations*. Chatham House, London, 2007.

- Lodge, M., Anderson, D., Lobach T., Munro, G., Sainsbury K. and Willock, A. *Recommended Best Practices for Regional Fisheries Management Organisations: Report of an Independent Panel for Improved Governance by Regional Fisheries Management Organisations*. Chatham House, London, 2007.
- Manta Consulting. *Financing Fisheries Change*, 2011, at <http://www.conservation.org/publications/Documents/Manta-Consulting-Financing-Fisheries-Change.pdf>.
- McDorman, T.L. "Implementing existing tools: turning words into actions—decision making processes of regional fisheries management organizations (RFMO)." *International Journal of Marine and Coastal Law* 20 (3–4): 423–457, 2005.
- Metzner, R. "Fishing Aspirations and Fishing Capacity: Two Key Management Issues. Ocean." *International Journal of Marine and Coastal Law* 20(3-4), 459-478, 2005.
- Osherenko, G. "New Discourse on Ocean Governance: Understanding Property Rights and the Public Trust." *Journal of Environmental Law and Litigation* 21(2) 317-381, 2006.
- Pinto, D.D.P. *Fisheries Management in Areas Beyond National Jurisdiction. The Impact of Ecosystem Based Law-Making*. Martinus Nijhoff, 2012.
- Serdy, A. "Fishery commission quota trading of under international law." *Ocean Yearbook* 21: 265–288, 2007.
- Serdy, A. "Commentary: Property Rights in Areas Beyond National Jurisdiction – Not too late for a proper debate?" In Alex Oude Elferink and Erik Molenaar (eds.) *The International Legal Regime of Areas Beyond National Jurisdiction: Current and Future Developments*. Martinus Nijhoff, 2010, 143-155.
- . "International fisheries law and the transferability of quota: principles and precedents." in R. Allen, J. Joseph and D. Squires, (eds.) *The conservation and management of transnational tuna fisheries*. Wiley-Blackwell, Iowa, 2010, 199–126.
- Squires D. et al. "Effort rights-based management." *Fish and Fisheries* 18(3): 440-465, 2017.
- Stewart, R.B. "Instrument Choice." In Bodansky, D., Brunnée, J. and Hey, E. (eds.) *Oxford Handbook of International Environmental Law*. Oxford University Press, Oxford, 2008, 147-181.
- 9. Incentive based Tools in the Bay of Bengal (including Indian Ocean Tuna Commission)**
- Aranda, M., Murua, M., and de Bruyn, P. "Managing fishing capacity in tuna regional fisheries management organisations (RFMOs): Development and state of the art." *Marine Policy* 36:985-992, 2012.
- BOBP. *Report of the National Workshop on Fisheries Resources Development and Management in Bangladesh*, 1995, at <http://www.fao.org/docrep/X5625E/x5625e00.htm#Contents>.
- Habibur Rahman, A. *Legal Regime of Marine Environment in the Bay of Bengal*. Atlantic Publishers, New Dehli, 2007.
- Mohammed, E. Y. and Wahab. A. *Direct economic incentives for sustainable fisheries management: the case of Hilsa conservation in Bangladesh*. International Institute for Environment and Development, London, 2013.
- Shamsuzzaman, M. Xingmin X., & Islam, M.M. "Legal Status of Bangladesh Fisheries: Issues and Responses." *Indian Journal of Geo Marine Sciences* 45(11): 1474-1480, 2016.
- 10. Incentive-based Tools in the Eastern Pacific (IATTC)**
- Inter-American Tropical Tuna Commission (IATTC) and World Bank. *Report of a Workshop on Rights-Based Management and Buybacks in International Tuna Fisheries*. Workshop sponsored by IATTC and World Bank, La Jolla, 5–9 May 2008, 2008.

11. Incentive-based Tools in the Western and Central Atlantic Fisheries Commission (WECAFC)

FAO. *Caribbean Fisheries Legal and Institutional Study: Findings of the Comparative Assessment and Country Reports*. FAO Fisheries and Aquaculture Circular No. 1124. FAO, Bridgetown, Barbados, 2016.

———. *The Use and Design of Rights and Tenure Based Management Systems for Transboundary Stocks in the Caribbean by Brad Gentner*. FAO Fisheries and Aquaculture Circular No. 1126. FAO, Barbados, Bridgetown, 2016.

Singh-Renton, S. and Mclvor I. *Review of current fisheries management performance and conservation measures in the WECAFC area*. FAO Fisheries and Aquaculture Technical Paper No. 587. FAO, Bridgetown, Barbados, 2015.

12. Incentive-based Tools in the West and Central Pacific (WCPFC, FFA and PNA)

Aquorau, T. "Moving towards a Rights-Based Fisheries Management Regime for the Tuna Fisheries in the Western and Central Pacific Ocean." *International Journal of Marine and Coastal Law* 22(1): 125-142, 2007.

Hanich, Q. and Tsamenyi, M. (eds.). *Navigating Pacific Fisheries: Legal and Policy Trends in the Implementation of International Fisheries Instruments in the Western and Central Pacific Region*. Australian National Centre for Ocean Resources and Security, Wollongong, 2009.

Havice, E. *The state of play of access agreements with distant water fishing partners: implications and options for Pacific island countries*. Report submitted to the Pacific Islands' Forum Fisheries Agency, 2007.

Miles, E.L. "The management of tuna fisheries in the west central and southwest Pacific." In E. L. Miles, A. Underdal, S. Andresen, J. Wettestad, J. B. Skjærseth and E. M. Carlin (eds.) *Environmental regime effectiveness: confronting theory with evidence*. The MIT Press, Cambridge, 2002, 117-48.

Miller, A.M.M., Bush, S.R. & van Zweiten, P.A.M. "Sub-regionalisation of fisheries governance: the case of the Western and Central Pacific Ocean tuna fisheries." *Maritime Studies* 13:17, 2014.

Ovando, D. Libecap, L. Thomas, L. and Millage, K. "A Bargain for Tuna. Market-Based Solutions to Bigeye Tuna Catch." In *Challenging New Frontiers in the Global Seafood Sector: Proceedings of the Eighteenth Biennial Conference of the International Institute of Fisheries Economics and Trade, July 11-15, 2016*, compiled by Stefani J. Evers and Ann L. Shriver. International Institute of Fisheries Economics and Trade (IIFET), Corvallis, 2016.

Reid, C. *Economic Implications of an Implicit Allocation of Bigeye Harvest Rights Through an Across the Board Reduction in Effort Levels in the Western and Central Pacific Tuna Fishery*. Sharing the Fish, Perth, 2006.

G. Van Santen and P. Muller. *Working Apart or Together: The Case for a Common Approach to Management of Tuna Resources in Exclusive Economic Zones of Pacific Island Countries*. The World Bank, Washington, D.C., 2000.

PHOTO CREDITS

Cover: Tuna fishing "Almadraba" style off shore Tarifa, Spain. © WWF / Jorge BARTOLOME

Inside Front Cover: Fresh tuna fished in Japanese waters, labelled and displayed for sale, Tsukiji fish market, Tokyo, Japan. © WWF / Jürgen Freund

Page vi: Unloading the day's catch of Yellow Fin Tuna. General Santos City, Philippines © h3ct02

Page 8: Yellowfin tuna. General Santos City, Philippines. © WWF-Philippines / Gregg Yan

Page 17: Deep sea fishing. North Atlantic Ocean. © WWF / Mike R. Jackson

Page 20: Packing fish in the ice-room aboard a deep sea trawler. North Atlantic Ocean. © WWF / Mike R. Jackson

Page 28: Yellow Fin Tuna. © Comwang112

Page 35: Tokyo's Fish Market. © NetaDegany

Page 42: Broadbill swordfish dead in fishing net used for Bluefin Tuna. © Brian J. Skerry / National Geographic Stock / WWF

Page 47: Mediterranean longliner boat working in Alicante to catch swordfish. © Tono Balaguer

Page 52: Stevedores unload tuna from a fishing vessel and bring them to the fish landing and processing area. General Santos, Southern Mindanao, Philippines © WWF-US / Jürgen Freund

Page 61: Fresh tuna at fish market. © aleksandar kamasi

Page 64: Tuna fishing "Almadraba" style off shore Tarifa, Spain. © WWF / Jorge BARTOLOME

Page 70: Purse seiner. Semporna, Sabah, Malaysia. © WWF / Jürgen Freund

Page 76: Tuna fish processing in factory. © jackstudio

Page 84: Swordfish harpooner, commercial fishery. Southern California, USA. © WWF / Terry Domico

Page 90: Fresh tuna. © imv

Page 97: Tuna fishing "Almadraba" style off shore Tarifa, Spain. © WWF / Jorge BARTOLOME

Inside Back Cover: Tuna processing. General Santos, Southern Mindanao, Philippines. © WWF / Jürgen Freund



This report aims to identify legal and other barriers and opportunities for the adoption of incentive-based tools for highly migratory fisheries with a high seas component, and the contextual factors impacting on their operation. To this end, it contains an evaluation of the impact of relevant legal instruments and related regimes: United Nations Convention on the Law of the Sea 1982, the United Nations Fish Stocks Agreement 1995, and constitutive instruments of relevant regional fisheries management organizations. This review categorizes incentive-based tools by type: rights-based instruments, suasive instruments, financial instruments, and market-based instruments. The analysis focuses on the overall governance framework, with insights drawn from related disciplines (international relations and economics) and input from other experts. It assesses the contribution of leading institutions in the governance of fisheries, including regional fisheries management organizations, sub-regional arrangements, and industry/third sector bodies such as the International Seafood Sustainability Foundation. Since most fisheries are subject to a complex array of regulatory tools and it was sometimes difficult to evaluate discrete instruments in isolation. The report found that most incentive based measures remain constrained by regulatory requirements, particularly trade law rules. Another important conclusion from this review is incentive-based approaches can and should be used alongside other legal instruments. Indeed there is growing consensus that a SMART mix is required. The optimum combination is highly contextual and often appreciated after a process of trial and error.

