## Abstract

Two international agreements instrumental in developing the concept of ecosystems based management and the precautionary approach are the 1995 Straddling and Migratory Fish Stocks Agreement[1] (UNFSA) and the 1980 Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR). In many respects a framework agreement, the UNFSA requires Regional Fisheries Management Organisations to take into account ecosystems effects when making decisions on catch limits, drawing from the example of CCAMLR. The principle of caution in the face of limited information on the ecosystem is by no means universal in its application, primarily due to the scarcity of data and the difficulty in achieving consensus. However, the UNFSA has developed powerful measures to move away from flag state hegemony towards coastal and port state controls. CCAMLR has also failed to find effective enforcement mechanisms, the Catch Documentation Scheme and Vessel Monitoring Scheme both being manipulated in recent years. Future developments should focus on port state interventions, an area CCAMLR members continue to be negligent, and demand initiatives including the implementation of stricter export tariffs, strengthening criminal and civil penalties, educating consumers and perhaps most importantly, restricting the importation of threatened species.

[1] Agreement for the Implementation of the Provisions of the United Nature 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.

## Introduction

Despite the rapid expansion of world population, the total world fish catch (including shellfish) has remained steady since the early 1970s[2]. Nevertheless, some estimates place 75% of the world's fisheries fully exploited, depleted or exhausted[3]. The lack of an indigenous human population, the harsh climate and the availability of stocks closer to markets delayed the exploitation of the Southern Ocean[4], however as soon as technology developed to make fishing profitable, the slaughter began in earnest south of the Convergence. Responding to the decimation of species, the 1980 Convention on the Conservation of Antarctic Marine Life brought marine resources under the treaty system. This agreement introduced an ecosystems approach into fisheries management and through the course of twenty years, has formed a comprehensive system of compliance strategies. The United Nations Fish Stocks Agreement[5] incorporated the lessons learned in the CCAMLR framework[6], into the law of the sea[7] and introduced several innovative compliance mechanisms. However, neither instrument has been entirely successful in addressing the significant issue of illegal, unreported and unregulated (IUU) fishing. The way forward must focus on more efficiently manageable measures including port state controls and market measures[8].

[2] G A Knox, above n 2, 130.
[3] FAO Fisheries and Aquaculture Department, *The State of World Fisheries and Aquaculture 2006*, Rome, 2007. (Full text available: http://www.fao.org/docrep/009/A0699e/A0699e00.htm).
[4] G A Knox, *Biology of the Southern Ocean*, 449.
[5] Agreement for the Implementation of the Provisions of the United Nature 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.
[6] CCAMLR XII, Report of the Twelfth Meeting of the Commission, 1993, Item 12: "UN Conference on Straddling Stocks and Highly Migratory Fish Stocks."
[7] United Nature Convention on the Law of the Sea 1982 (UNCLOS).
[8] O S Stokke and D Vidas, 'Regulating IUU fishing or combating IUU operations?' (2004) Fish piracy: combating illegal, unreported and unregulated fishing. 11 OECD environment and sustainable development.

## Background

Since humans have developed the technology to exploit resources in the Southern Ocean, they have generally done so unsustainably. Unrestrained sealing and whaling brought a significant number of species to the verge of extinction in the 19th and 20th centuries. As one resource became unviable, humans moved to the next[9]. In the early 1970s, several Southern Ocean fish stocks, most notably Notothenia rossii[10], were almost completely exhausted[11]. Fear the unregulated harvest of Euphausia superba[12] might result in untold damage to the Antarctic ecosystem[13], the Eighth Antarctic Treaty Consultative Meeting discussed the negotiation of a new agreement for bringing marine resources under the treaty system[14]. The objective of CCAMLR is the conservation of Antarctic marine resources[15], which includes rational use[16]. The treaty included a commitment to ecosystem based management that has been developed over the last twenty years through the incorporation of a comprehensive system of fisheries management including the implementation of conservation measures and rigid performance review to assess whether management measures are meeting objectives[17].

In 1992, the UN Conference on Environment and Development called for an inter-governmental conference[18] to apply an ecological and precautionary approach to fisheries

[9] G A Knox, above n 2, 449.
[10] Marbled rockcod
[11] D G M Miller *et al*, 'Managing Antarctic Marine Living Resources: The CCAMLR Approach,' (2004) *The International Journal of Marine and Coastal Law*, vol 19, no 3, 319.
[12] Antarctic krill
[13] A J Constable *et al*, 'Managing fisheries to conserve the marine ecosystem: practical implementation of the Convention on the Conservation of Antarctic Marine Living Resources.'
[14] D G M Miller *et al*, 'Managing Antarctic Marine Living Resources: The CCAMLR Approach,' (2004) The International Journal of Marine and Coastal Law, vol 19, no 3, 319.
[15] CCAMLR Article 2 (1).
[16] CCAMLR Article 2 (2).
[17] E N Sabourenkov and D G M Miller, 'The Management of Transboundary Stocks of Toothfish, Dissostichus spp, under the Convention on the Conservation of Antarctic Marine Living Resources,' in A I L Payne, C M O'Brien and S I Rogers (eds.) *Management of Shared Fish Stocks* (Oxford, Blackwell, 2004).
[18] Agenda 21; A Yankov, 'The Law of the Sea Convention and Agenda 21: Marine Environmental Implications' in A Boyle and D Freestone (eds.) *International Law and Sustainable Development: Past Achievements and Future Challenges* (1999), 271.

management[19] responding to depleted stocks[20], dissatisfaction with the UNCLOS section regarding straddling and highly migratory stocks[21], and continued problems in the North-West Atlantic[22], South-West Atlantic, South–East Pacific, 'Donut Hole', 'Peanut Hole', and 'Loop Hole'[23]. The conference produced the UNFSA. Although not officially a protocol to UNCLOS; there is a close link between the two agreements: Article 6 of the UNFSA explicitly states it must be interpreted consistently with UNCLOS, Article 62 and 64 implement UNCLOS provisions and the dispute settlement procedures of UNCLOS apply *mutatis mutandis* to any dispute between state parties to the UNFSA[24]. UNCLOS has been criticized for the generality of its provisions, and its failure to address continuing problems[25]. UNFSA introduces significant changes to the international fisheries regime[26], including CCAMLR's ecosystem approach to fisheries management in an attempt at better achieving sustainable use of fish stocks. However, the objective of UNFSA is to "ensure the long-term conservation and sustainable use of [straddling and highly migratory fish stocks] through effective implementation of the relevant provisions of [UNCLOS]."[27] It does not seek to establish a complete framework for the management of fisheries; rather implement the provisions under UNCLOS.

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[19] Agenda 21, chapter 176, paragraph 17.50.
[20] Sixty to seventy percent of the worlds 200 most important commercial fish stocks were being over fished. G Hubold, 'Fishery and Sustainability' in P Ehlers, E Mann-Borgese and R Wolfrum (eds.) *Marine Issues From a Scientific, Political and Legal Perspective* (2002).
[21] Article 62 (2); See D Nelson, 'The Development of the Legal Regime of High Seas Fisheries' in A Boyle and D Freestone (eds.) *International Law and Sustainable Development: Past Achievements and Future Challenges* (1999), 124-5.
[22] Canada has attempted to take unilateral measures to protect cod stocks lying outside its EEZ, after European Union involvement in the North Atlantic Fisheries Organisation undermined its conservation efforts. R R Churchill and A V Lowe, *The Law of the Sea* (3rd ed, 1999), 306.
[23] For more information see: above n 20, 306-308; above n 21.
[24] D Nelson, above n 20, 309.
[25] D Nelson, above n 20, 305.
[26] W Edeson, 'Towards Long-term Sustainable Use: Some Recent Developments in the Legal Regime of Fisheries' in A Boyle and D Freestone (eds.) *International Law and Sustainable Development: Past Achievements and Future Challenges* (1999), 173.
[27] Article 2 (if not stated otherwise, Article denotes UNFSA provision).

## An Ecosystem Approach

An ecosystem approach to fisheries management does not only target individual depleted species but also dependent and associated species; identifying the effect fishing has on the stock and the ecosystem it is part of. Ecosystems shift and change, but generally sustain life through interplay of predator and prey relationships. Human intervention can destroy the delicate balance of ecosystems, which can have severe effects on the species within those systems. Article 2 of CCAMLR provides harvesting in the treaty area should prevent decrease to levels which would threaten the stable recruitment of species[28], maintain the ecological relationships "between harvested, dependent and related populations of Antarctic marine resources,"[29] and prevent changes or minimalise the risk of change that are not potentially reversible over two or three decades. This is the first time an international instrument enunciated an ecosystem based precautionary approach to the management of fisheries and in consequence had serious issues in implementation[30].

Collosal squid caught off Antarctica, entangled in nets while feeding on Patagonian toothfish. Picture source: National Geographic News.

[28] CCAMLR, Article II, paragraph 3 (a).
[29] CCAMLR, Article II, paragraph 3 (a).
[30] D G M Miller *et al*, above n 10, 319.

Article 5 of the UNFSA, provides coastal and flag states shall assess "the impacts of fishing, other human activities and environmental factors on target stocks, and species belonging to the same ecosystem, or associated with or associated with or dependent on the target species"[31], and adopt conservation measures aimed at preserving the balance of the ecosystem[32]. Furthermore, the agreement goes on to provide states must look to protect biodiversity[33], prompting some commentators to suggest the UNFSA is more important than the Convention on Biological Diversity in protecting the marine environment[34].

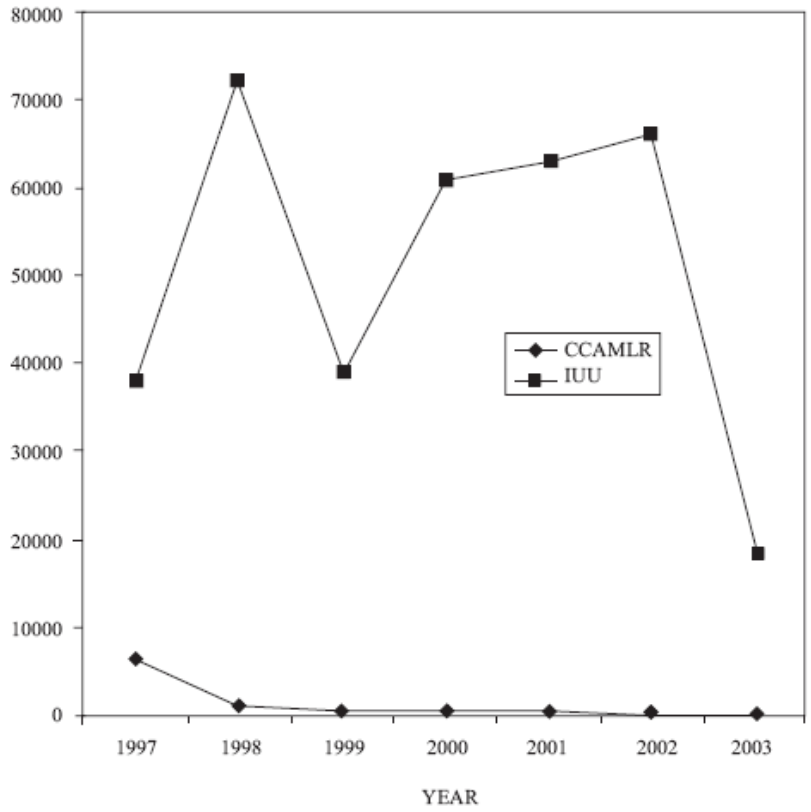


Figure 1: Estimated seabird by catch in *CCAMLR* Regulated and Unregulated longline fisheries in CCAMLR Convention area: from D G M Miller, et al, above n 10, 331.

[31] UNFSA, Article 5(d).
[32] UNFSA, Article 5(e).
[33] UNFSA, Article 5(g).
[34] Above n 7, 675.

Agenda 21 identified by-catch as a significant problem in modern fisheries[35]. The harvest of non-target species is frequent with some equipment, often resulting in dumping the unwanted species or the unintended depletion of unproductive species[36]. Imprecise equipment and methods can also result in genetic change, targeting certain phenotypes and removing them from populations[37]. Long line fishing, driftnet fishing and pollution pose a grave risk to some species' survival[38]. In the Southern Ocean, the use of longline fishing techniques has had detrimental effects on many species, particularly albatrosses and peterels[39]. Japan and Australia had developed gear technologies to reduce long line by catch, and in 1989, CCAMLR adopted Regulation 5/VIII followed by Conservation Measure 29/X the next year, requiring these technologies to be used on CCAMLR members' vessels[40]. In the following five years, bycatch was observed to be significantly reduced[41]. In 2006, the Commission noted continuing low levels of bycatch and for the first time, no reported albatross were taken[42]. Article 5(f) of UNFSA provides states must "minimize pollution, waste, discards, catch of non-target species," and "to the extent practicable" develop more selective, cost effective and environmentally friendly gear and techniques.

## A Precautionary Approach

Furthermore, knowledge about a stocks place in the ecosystem is essential to the sustainable development of that stock[43]. Without sufficient information about the food web, states cannot know the damage fishing operations are doing to ecosystems and stock levels.

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[35] P G G Davies and C Redgewell, 'The International Legal Regulation of Straddling Fish Stocks' (1996) *British Yearbook of International Law* 67, 199-274.
[36] S Jemmings and A S Revill, 'The role of gear technologists in supporting an ecosystem approach to fisheries,' (2007) 64 *ICES Journal of Marine Science* 1525, 1527.
[37] Ibid, 1527.
[38] Ibid, 1525.
[39] D G M Miller, above n 10, 329.
[40] Ibid, 3
[41] Ibid, 328.
[42] CCAMLR. Report of the twenty fifth Meeting of the Commission. Hobart: CCAMLR, 2006.
[43] D Freestone, 'International Fisheries Law Since Rio: The Continued Rise of the Precautionary Principle' in A Boyle and D Freestone (eds.) *International Law and Sustainable Development: Past Achievements and Future Challenges* (1999), 163.

Article IX of CCAMLR provides in managing fisheries, the Commission must base decisions on the best scientific evidence available[44]. A Scientific Committee advises the Commission on harvesting levels and other management measures developed through consultation and technological advance[45]. The CCAMLR Ecosystem Monitoring Program has monitored a few selected krill predators[46] in a few areas since 1987, however the data remains too minimal to identify ecosystem effects of fishing[47]. However, uncertainty as to stock levels led to many recommended conservation measures rejected in the late 1980s[48]. UNCLOS also provides conservation measures must be based on the best scientific information available, and that this information must be shared[49]. One of the "cornerstones" of the UNFSA is the promotion of scientific research and the collecting and sharing of data[50]. However, basing decision making procedures on scientific information has been criticized as there is very little data on most marine species[51]. To address this issue, the UNFSA adopts a precautionary approach to fisheries management.

The precautionary principle[52] emerged from inter-ministerial conferences on marine pollution in the 1980s, and has been since applied in many examples of areas of environmental concern[53]. It addresses the lack of information regarding marine species by adopting a more cautious approach to fisheries management, when information about a particular stock is minimal. "States shall be more cautious when information is uncertain, unreliable or inadequate. The absence of adequate scientific information shall not be used

[44] A J Constable *et al*, above n 12, 779.
[45] At present including two working groups: the Working Group on Ecosystem Monitoring and Management, and the Working Group on Fish Stock Assessment: http://www.ccamlr.org/pu/e/sc/intro.htm.
[46] Krill being the primary food source for a great number of Antarctic animals (see Figure 2).
[47] A J Constable *et al*, above n 12, 787.
[48] Ibid, 782.
[49] UNCLOS, Article 119.
[50] G Hubold, above n 19, 125.
[51] *Report of the Technical Consultation on High Seas Fishing and the Papers Presented at the Technical Consultation on High Seas Fishing*, UN Doc., A/CONF.164/INF/2 (1993).
[52] The fisheries management field prefers the term "precaution approach" because "it denotes a softer non-binding nature." D Vanderzwaag "The Precautionary Principle and Marine Environmental Protection: Slippery Shores, Rough Seas and Rising Normative Tides." (2002) *Ocean Development and International Law, 33*: 167.
[53] D Freestone, above n 42, 139.

as a reason for postponing or failing to take conservation and management measures."[54] States must establish "stock specific precautionary reference points"[55] or total allowable catches (TAC) that must not be exceeded[56]. If exceeded, states must take remedial action. However, it does not go as far as, arguably the most extreme application of a precautionary approach, reversing the burden of proof[57]. Contrasting with the traffic lights approach[58], "the [UNFSA] has green and amber lights, but not red."[59] A moratorium on fisheries is possible[60], but requires an ad hoc decision by the appropriate Regional Fisheries Management Organization (RFMO), a limitation necessary for political reasons[61]. The actual application of this policy may result in political uncertainty due its relatively untried nature[62].

[54] UNFSA, Article 6(2).
[55] P Sands, *Principles of International Environmental Law* (2nd ed, 2003), 576.
[56] Described in Annex II of the UNFSA
[57] D Freestone, Above n 20, 158.
[58] For example: the 1972 Convention for the Conservation of Antarctic Seals.
[59] P G G Davies and C Redgewell, above n 34, 261.
[60] G Hubold, above n 19, 129.
[61] D Freestone, above n 42, 261.
[62] A Hakon Hoel, 'Political uncertainty in international fisheries management,' (1998) 37 *Fisheries Research* 239, 247.

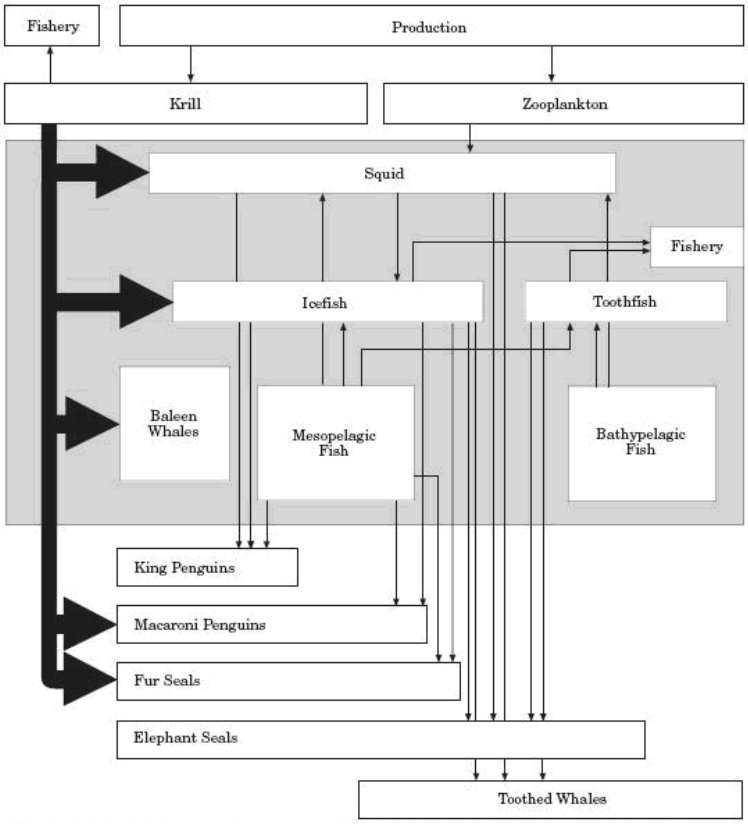


Figure 2: Structure of the food web around South Georgia Island in the Atlantic Ocean, including the fisheries for krill, Patagonian toothfish and mackerel icefish. The grey box represents the pelagic system that depends on krill and other zooplankton: from A J Constable *et* al, above n 12, 780.

CCAMLR certainly reflects the difficulty in applying a precautionary approach in a consensus based decision making body. In 1991 CCAMLR became the first international fisheries instrument to introduce precautionary catch limits, after two years of debate over the dangers of reactive management of krill[63]. The method combines survey-driven estimates of recruitment with long-term projections to produce effective estimates of long time sustainability[64].Yield is calculated as a proportion of an estimate of the pre-exploitation biomass, allowing for other species' predation[65]. However, this approach has

[63] A J Constable, *et al*, above n 12, 783.
[64] D J Agnew, 'The illegal and unregulated fishery for toothfish in the Southern Ocean, and the CCAMLR catch documentation scheme,' (2000) 24 *Marine Policy* 361, 366.
[65] A J Constable, *et al*, above n 12, 784.

not been generalized to all fisheries within CCAMLR and continues to suffer from limitations[66]. In particular the total allowable catch limits encourage excessive competition between operators, and the huge profits create an incentive to 'fiddle' with the system by underreporting or misreporting catches[67]. This does not detract from the significance of an explicit introduction of precaution into fisheries management. States have traditionally dealt with fisheries problems on a reactive basis when stock is severely depleted, now there is the beginning of a proactive obligation to be cautious before any serious problems emerge[68] allowing for a more effective application of the ecosystems approach.

## Compliance Mechanisms

Finding effective compliance mechanisms has been a focus of modern fisheries instruments[69], especially as regards the actions of flag states[70]. "The best conservation measures supported by all states, will fail without effective enforcement."[71] The provisions relevant to flag state responsibilities further expand on the stringent approach adopted in the FAO Compliance Agreement[72]. Vessels must be licensed, and their catches monitored.[73]. Flag states must take measures to ensure compliance with conservation measures, as well as ensuring vessels do not undermine those measures through adopting monitoring, control and surveillance[74]. They must enforce measures wherever violations occur[75] by investigating violations and reporting them to the relevant RFMO[76], and where

[66] D G M Miller, *et al*, above n 10, 341.
[67] B K Sovacool and K E Siman-Sovacool, above n 3, 8.
[68] D Freestone, n 42, 161; above D Nelson, n 20.
[69] P W Birnie and A E Boyle, *International Law and the Environment* (2nd ed, 2002), 678.
[70] *The Discussion Paper on the Agreement for the Implementation of the Provisions of the United Nature 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*, para 36.
[71] B Tobin, cited in P G G Davies and C Redgewell, above n 34, 265.
[72] *FAO Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas (1993)*; Above n 12, 174.
[73] UNFSA, Article 18.
[74] UNFSA, Article 18(3).
[75] UNFSA, Article 19(1)(a).
[76] UNFSA, Article 19(1)(b).

necessary, taking proceedings against infringing vessels[77]. Penalties must be adequate, to discourage recidivism and encourage compliance[78]. Where illegal fishing is particularly profitable, this means depriving offenders of the benefits and possibly banning the vessel or its officers from fishing[79]. Where the violation is sufficiently serious[80]; vessels must be prevented from high seas fishing until all measures are complied with[81]. If a state cannot ensure vessels flying its flag comply with conservation measures effectively, it should not authorize vessels to fish[82]. These provisions attempt to strengthen flag state control, and deter vessels' reflagging to avoid prosecution[83] and have achieved qualified success to this end[84].

CCAMLR, in some respects, is a model agreement for enforcement measures. IUU fishing of toothfish in particular has plagued the Southern Ocean since the meeting of the Commission in 1993 noted a number of infringements to CCAMLR conservation measures[85]. States with territorial waters within the convention area have made key arrests and dealt significant fines[86]. Unfortunately, most of the illegal fishing occurs outside territorial waters or south of $60^{o}$ latitude, bringing it within the Antarctic Treaty and exempt from territorial controls.

A continuing problem with enforcement mechanisms in both CCAMLR and UNFSA is relying on flag state compliance[87]. Agenda 21 identified vessel reflagging to a "flag of

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[77] UNFSA, Article 19(1)(d).
[78] UNFSA, Article 19(2).
[79] P G G Davies and C Redgewell, above n 34, 267.
[80] Note serious violation is defined in the UNFSA at Article 21(11) and includes fishing without a licence, failing to maintain records, fishing in a closed area, fishing for a stock with a moratorium, and using prohibited fishing gear.
[81] UNFSA Article (19)(1)(3).
[82] UNFSA Article 18(2).
[83] P W Birnie and A E Boyle, above n 67, 678.
[84] Above n 68, paragraph 35.
[85] D J Agnew, above n 62, 362.
[86] D J Agnew, above n 62, 362.
[87] A Yankov, "Reflagging of Fishing Vessels: Critical Assessment of its Impact on Enforcement of Fishing Regulations and Responses Thereto" in P Ehlers, E Mann-Borgese and R Wolfrum (eds.) *Marine Isssues From a Scientific, Political and Legal Perspective* (2002).

convenience" to escape controls as a significant problem in the UNCLOS framework[88]. Where a flag state simply refuses to cooperate, or evades true compliance, the best conservation measures will fail. The coastal state requires flag state authorization to board and inspect a vessel it believes with reasonable grounds to have been engaged in illegal fishing[89]. An innovative feature of the UNFSA is found in Article 12(1), permitting members of a RFMO to board and inspect any vessel to ensure RFMO measures are complied within the RFMO territory on the high seas[90]. Several restrictions limit this ability: the flag state must be informed, interference with fishing operations should be minimalised and action taken must be proportionate[91]. However, if the inspection reveals clear grounds suggesting a violation, it may secure evidence and notify the flag state[92], which has three days to respond[93]. The flag state must either authorize the inspecting state to investigate[94], or exercise under Article 19 its flag state duties to investigate and enforce adequate penalties[95]. If the inspection reveals a serious violation[96] and the flag state has failed to respond or failed to take the necessary enforcement action, the inspecting state may retain its investigators on board to collect evidence and require the vessel to be escorted to the nearest port. However, the coastal state cannot take proceedings, as it can in its EEZ[97], further placing reliance on the flag state to enforce actions.

Since 1989, CCAMLR has allowed inspectors of one nation to board and inspect others within the Convention Area, any infringements being reported to the Flag State of the fishing vessel. However, this does not extend as far as non contracting states to CCAMLR and as a significant amount of IUU fishing is performed by non party state flagged vessels, this provision is seen to be insufficient. An example of Flag State non-compliance emerged

[88] The UNCLOS framework only extends its port state enforcement mechanisms as far as marine pollution and safety conventions: D Nelson, n 20, 677.
[89] UNFSA Article 20(6); the procedure for boarding and inspection are to be decided by the RFMO (Article 21(2)) or by default, Article 22.
[90] UNFSA Article 21(1).
[91] UNFSA Article 21(16) UNFSA.
[92] UNFSA Article 21(5).
[93] UNFSA Article 21(6).
[94] UNFSA Article 21(6)(a).
[95] UNFSA Article 21(6)(b).
[96] A Yankov above n 87.
[97] Under Article 228 UNCLOS.

in the 2006 CCAMLR meeting in regard to an attempted blacklist[98] of the Russian vessel Vogna[99]. Despite universal dismay and conclusive evidence to the contrary, Russia forwarded an innocent explanation and insisted the vessel not be added to the list. However, the vessel has not been notified for this season, evidence for the success of international pressure in CCAMLR meetings. Movements towards restricting and prohibiting non flag state members fishing have been consistently pushed by NGOs and certain states but treated with caution at CCAMLR meetings[100].

## Port State Protections

Under UNFSA, Port states may also take non-discriminatory action to promote conservation measures[101]. A port state may inspect documents, fishing gear and catch when the vessel is voluntarily in port, and may prohibit landings or "transshipments of catch" where it has found evidence the vessel has breached RFMO measures. This could be a significant provision, as it could damage the economic benefit attained through illegal fishing activities through delaying the moving of catch into port facilities. However, it cannot take proceedings against the vessel, as opposed to the UNCLOS provisions regarding marine pollution[102]. The restrictions on these provisions are evidence of the balancing act the Convention undertook between the flag states' interests in the high seas freedom of fishery resources, and coastal states' interests of conservation and sustainable management[103]. The Report of the Review Conference on the UNFSA suggests reflagging to avoid complying with RFMO measures and non-compliance by flag states continues to undermine measures of the RFMO, UNFSA and UNCLOS[104]. The flag state is the member

[98] Adding the vessel to the Combined IUU Vessel list, prohibiting fishing in the Convention area for a prescribed time.
[99] Above n 69.
[100] For example: see the Antarctic and Southern Ocean Coalition and Coalition Of Legal Toothfish Operators's statements at the 2006 meeting: above n 41.
[101] UNFSA Article 21(1).
[102] Article 218 UNCLOS.
[103] G Hubold, above n 6, 131.
[104] Above n 68, 34-42.

least likely to suffer from violation of conservation measures[105], yet it is the flag states responsibility to prosecute in the face of violations, clearly failing to account for abuse by a flag state. This constitutes a grave deficiency in the context of fisheries law, the focus should shift onto port state protections and import controls. [106]

CCAMLR contains several port state specific provisions. For example, a Conservation Measure passed in 1997 requires Contracting Parties to prohibit landings of toothfish[107], and in 1998, to inspect all vessels licensed by Contracting Parties to fish for toothfish in CCAMLR waters, when they entered the port of that or another Contracting Party[108]. In 2006, the Antarctic and Southern Ocean Coalition strongly urged the Commission to deny port state access to vessels flagged to non-compliant states[109]. The Coalition of Legal Toothfish Operators also urged the tightening of port state controls. Interestingly, in response to these concerns, Argentina noted the difference between an RFMO under UNFSA and CCAMLR, and accordingly urged caution in applying UNFSA principles. Mirroring this uncertainty, four party state ports were identified as recipients of IUU harvested toothfish[110].

[105] P G G Davies and C Redgewell, above n 34, 266-7.
[106] P G G Davies and C Redgewell, above n 34, 273.
[107] Conservation Measure 118/XVI.
[108] Conservation Measure 147/XVII.
[109] Above n 41.
[110] B K Sovacool and K E Siman-Sovacool, above n 3, 10.

The port of Durban, South Africa identified as a recipient state of IUU toothfish. B K Sovacool and K E Siman-Sovacool, above n 3, 10. Picture Source: picasaweb.google.com.

The difficulty of enforcing and regulating fishing on the high seas has provoked CCAMLR to develop different methods of controlling tooth fish trade. Through requiring the captain of a ship to fill out a catch document recording information about the amount of harvest and location of offload, as well as any subsequent trans-shippers, importers or exporters to fill out similar documents, a paper trail is created enabling CCAMLR to restrict the flow of toothfish[111]. However, the occurrence of mislabeling, falsifying, reusing and tampering of catch documents has impeded the Catch Documentation Scheme[112]. Similarly, the requirement for non-krill harvesting vessels to install satellite-tracking devices[113] on board fishing vessels, has had its limitations. The systems are easily manipulated and without a

[111] Conservation Measure 170/XVII.
[112] B K Sovacool and K E Siman-Sovacool, above n 3, 8.
[113] Vessel Monitoring Systems: Conservation Measure 148/XVII.

centralized electronic monitoring system, any data recruited cannot be effectively utilized[114].

## Demand Based Initiatives

Neither instrument appears to adequately consider demand based initiatives. Sovacool and Siman-Sovacool[115] note the inherent difficulty with international law enforcing practical and widespread supply based policies on a ground level[116]. Consensus style decision making processes at an international level can only suffer from significant limitations in application and enforcement especially in application to non party bodies. In contrast, techniques that manipulate the market may have greater effect at conserving toothfish stocks and more generally, controlling fisheries. This is not to suggest comprehensive systems of supply based initiatives should be pursued, but that in addition, other methods should be sought out that might be more effective in a short-term commercial reality. In particular, the implementation of stricter export tariffs, strengthening criminal and civil penalties, educating consumers and perhaps most importantly, restricting the import of threatened species outside the existing international framework[117], may have significant effect supporting supply style initiatives. It is important that these initiatives be non discriminatory and accompanied by multilateral attempts to address the environmental issue to avoid violating World Trade Organisation rules[118].

[114] B K Sovacool and K E Siman-Sovacool, above n 3, 9-10.
[115] Ibid, 12-16.
[116] Ibid, 12.
[117] Convention on the International Trade of Endangered Species (1973).
[118] B K Sovacool and K E Siman-Sovacool, above n 3, 16.

## Conclusion

UNFSA, as a framework has several significant shortcomings. The lack of alternatives to requiring flag state compliance for enforcement mean the objectives of the agreement have the potential to be undermined and the global reality of a capitalist order require greater focus on demand focused initiatives, largely ignored by both instruments. The Southern Fisheries remain one of the last great fishery resources in the world that are not exhausted beyond sustainable limits. CCAMLR, within the structure of the Antarctic Treaty System has struggled to form a comprehensive conservation system. However, innovative compliance mechanisms in both instruments indicate a gradual shift away from "flag state hegemony,"[119] towards a more efficient enforcement regime. Both incorporate an ecosystems approach utilizing the precautionary principle. The example of CCAMLR shows both are difficult to maintain in practice, but certainly possible. The UNFSA should be recognized as an important step towards a fully effective fisheries management regime, and CCAMLR as an excellent example of a, by no means perfect, but effective RFMO.

[119] P G G Davies and C Redgewell, above n 34, 273.

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