



The Fridtjof Nansen Institute



## **Combating Subsidies, Developing Precaution: Institutional Interplay and Responsible Fisheries**

*Olav Schram Stokke*

*The Fridtjof Nansen Institute*

*Clare Coffey*

*Institute for European Environmental Policy*

*Paper submitted to the International Studies Association Annual Convention,  
Portland, Oregon, 26 February – 1 March 2003.*

***Panel FC22 Friday 28 February, 1:45-3:30 PM  
Interaction between International Institutions: Synergies and Conflict***

*This paper is based on Deliverable no. D9 of the Project ‘Institutional Interaction: How to prevent conflicts and enhance synergies between international and EU environmental institution’. The authors gratefully acknowledge constructive comments from the project participants, especially Alice Palmer and Sebastian Oberthür. Helpful information has been provided by Olle Hagström, Carl-Christian Schmidt, and Ronald Steenblik. The work has been supported by the European Community under the Specific Research and Technological Development Programme ‘Energy, Environment and Sustainable Development’ (contract no. EVK2-CT2000-00079); by the Research Council of Norway (grant no. 128925/520/KS); and the Esmee Fairbairn Foundation, UK.*

Comments are very welcome to [olav.s.stokke@fni.no](mailto:olav.s.stokke@fni.no) and [ccoffey@ieeplondon.org.uk](mailto:ccoffey@ieeplondon.org.uk)

### **1 Introduction**

The world’s oceans and seas have struggled for decades to sustain large-scale and increasingly invasive fishing activities. The response of governments to this situation has ranged from neglect to the establishment of regional institutions for concerted fisheries management. Where international institutions exist, they have provided a mechanism for allocating fishing rights among members; and in some cases also cooperative means for scientific activities and compliance control (Stokke ed. 2001). The effectiveness of such regional regimes varies considerably, however, and the overall performance of the global fisheries regime leaves much to be desired. This is partly because the underlying *problem* being addressed has regained much of the severity it had prior to the introduction in the mid-

1970s of exclusive economic zones. Despite almost universal claim by coastal states over their 200 miles fishing zones, and the concomitant ‘nationalisation’ of 90 per cent of the world’s commercial fisheries, coastal states have largely failed to manage their resources sustainably. At the same time, distant-water fishing fleets have further enhanced the harvesting capacity they deploy on the high seas and in foreign fishing zones. Pushed by capital and modernization subsidies, rising competition, higher operating costs, and steadily lower value yields, fishing companies have introduced a range of new technologies enabling them to profit from fish located in concentrations or at depths which would previously have been beyond economic or technical reach. While technology and harvesting capacity have increased, for most oceans, catches are now well below historic peak levels (FAO 2001a). Importantly, the process has also involved the gradual removal of larger, long-lived and more valuable predator species such as tuna, cod and haddock from the oceans - so-called ‘fishing down marine food webs’ – with significant ramifications for marine ecosystems (Pauly et al. 2002).

Efforts to strengthen global and regional fisheries rules during the past decade occurred in response to these challenges. Central among these efforts is the 1995 UN Fish Stocks Agreement,<sup>1</sup> which specifies the 1982 UN Convention on the Law of the Sea with regard to straddling stocks and highly migratory stocks.

The purpose of this paper is twofold. With a substantive focus on fisheries subsidies and the emergence of a precautionary approach to fisheries management, we will examine the interaction between four international institutions: specifically, how the global fisheries regime has influenced (1) the global trade regime with regard to fisheries *subsidies*; (2) regional *scientific* practices under the International Council for the Exploration of the Sea (ICES); and (3) emerging precautionary policy in the EU *Common Fisheries Policy*. Theoretically, we seek to contribute to the literature on how interaction between international regimes can be conceptualized and which factors can help to explain its impact on the effectiveness of the regimes involved. In order to permit comparison across the issue areas discussed in this project, the cases are structured in the following manner (Oberthür and Gehring 2001): following a brief presentation of the broader issue involved in each case of interaction, assessments are provided of the *causal relationship* between source and target regimes and the adequacy of the *policy responses* to the set of interactions.

## 2 The global regime for fisheries

The 1990s were highly dynamic as regards international fisheries rules. The 1995 UN Fish Stocks Agreement { XE "Fish Stocks Agreement:and regulation" } strengthens and

---

<sup>1</sup> 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, available at ([www.un.org/Depts/los/index.htm](http://www.un.org/Depts/los/index.htm)).

specifies the duty under international law to cooperate on all aspects of high seas fisheries management. It provides that only states that are members of, or adhere to, regional regimes shall have access to the fishery (Article 8) and elaborates certain basic conservation principles, including the precautionary approach to fisheries management (Article 6, Annex II). Although the principal focus of the Fish Stocks Agreement is on high seas fisheries management, Article 7 requires that national measures concerning straddling and highly migratory stocks are compatible with high seas measures and the provisions on precautionary management apply also in national waters (Article 3). As regards compliance control, the Agreement breaks new ground by creating global minimum standards that permit a broader range of compliance mechanisms than was previously the norm within regional high seas management regimes. This includes strengthened flag state responsibilities, procedures for non-flag state inspection, detention and arrest on the high seas, and elaboration of certain port state measures to enhance adherence to regional conservation and management measures (Articles 19-23). The Fish Stocks Agreement is a legally binding instrument and forms, in conjunction with the Law of the Sea Convention, the basis for the global fisheries regime.<sup>2</sup>

In parallel to working on the Fish Stocks Agreement, a set of international instruments was negotiated under the auspices of the UN Food and Agriculture Organization (FAO). The FAO Compliance Agreement was adopted in 1993;<sup>3</sup> the FAO Code of Conduct for Responsible Fisheries was agreed in 1995 and has been followed by four International Plans of Action (IPOAs) on fishing capacity, shark management, seabird protection, and illegal, unreported and unregulated fishing.<sup>4</sup> The FAO Code of Conduct and its plans of action are voluntary, directed at members as well as non-members of the FAO, and reflect the active role of the FAO Committee on Fisheries in seeking to shape and support international fisheries rules. Alongside the UN General Assembly, which annually reviews progress under the Law of the Sea Convention, the FAO Committee on Fisheries is the only permanent international forum which, periodically and on a world-wide basis, examines major fisheries concerns and provides recommendations to government, regional management bodies and other stakeholders.<sup>5</sup>

---

<sup>2</sup> The UN Convention on the Law of the Sea entered into force in 1994 and the Fish Stocks Agreement in 2001. Primary responsibility for overseeing the Fish Stocks Agreement rests with the UN Division on Oceans Affairs and the Law of the Sea.

<sup>3</sup> Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas; available at ([www.fao.org](http://www.fao.org)). The Agreement is not yet legally in force, but many of the provisions are also included in the Fish Stocks Agreement; for an in-depth discussion, see Hønneland (2001).

<sup>4</sup> The first three were adopted in 1999, the fourth in 2001; texts are available at ([www.fao.org](http://www.fao.org)).

<sup>5</sup> The Committee is supported by the Fisheries Department with a staff of around 160, including fishery officers in a number of FAO regional and sub-regional offices. The FAO fisheries work programme is largely normative in nature, involving the preparation and expansion of guidelines for the implementation of the Code of Conduct, but also comprises technical assistance in field projects. See in general 'FAO COFI – Committee on Fisheries' and 'Fisheries Department', both at [www.fao.org](http://www.fao.org).

### 3 Institutional interaction and international fisheries management

Stokke and Coffey (2001) have provided an inventory of interactions between the global fisheries regime, the EU Common Fisheries Policy, and other institutions, covering the full functional range of resource management tasks: science, regulation, and compliance control. An overview of these interactions is given in the box below.

**Box: Specific interactions between the global fisheries regime and other international institutions or EU legislative instruments**

<i>Scientific research and advice</i>	
<i>International Council for the Exploration of the Sea (ICES)</i>	<ul style="list-style-type: none"> <li>• Changed its format for providing scientific advice by adoption of precautionary terminology consistent with the Fish Stocks Agreement</li> <li>• introduced greater safety margins in its catch recommendations and called for more rapid recovery of troubled stocks</li> </ul>
<i>Regulation</i>	
<i>EU Common Fisheries Policy: Precaution</i>	<ul style="list-style-type: none"> <li>• move towards pre-agreed decision rules within recovery plans/management plans</li> </ul>
<i>EU Common Fisheries Policy: Subsidies</i>	<ul style="list-style-type: none"> <li>• reformed subsidy rules in support of conservation objectives, towards the requirements of the global fisheries regime</li> </ul>
<i>World Trade Organization (WTO)</i>	<ul style="list-style-type: none"> <li>• acknowledged that resource sustainability, and not only trade distortions, is a salient reason for addressing fisheries subsidies</li> <li>• decided to renegotiate WTO rules relevant to fisheries subsidies</li> </ul>
<i>Convention on International Trade in Endangered Species (CITES)</i>	<ul style="list-style-type: none"> <li>• CITES listing of shark species raised political awareness to shark management problems and clarified need for division of labour between CITES and FAO</li> <li>• requested FAO to initiate work programme to improve recording and reporting on sharks</li> <li>• ultimately listed shark species</li> </ul>
<i>North-East Atlantic Fisheries Commission (NEAFC)</i>	<ul style="list-style-type: none"> <li>• responded to the transparency rules of the Fish Stocks Agreement by adopting new provisions on access to meetings and reports</li> </ul>
<i>Compliance control</i>	
<i>Northwest Atlantic Fisheries Organization (NAFO) and Doughnut Hole Agreement</i>	<ul style="list-style-type: none"> <li>• served as models for Fish Stocks Agreement provisions on inspection, detention and arrest</li> </ul>
<i>EU Common Fisheries Policy: port State measures</i>	<ul style="list-style-type: none"> <li>• adopted rules compatible with Fish Stocks Agreement port-state provisions, relating to Patagonian toothfish as regulated by CCAMLR</li> </ul>

Some observations from the broader inventory of interactions relevant to the effectiveness of fisheries management are worth examining more closely here. The most frequent driver of institutional interplay appeared to be differences between the regimes in terms of the *means* that are available under them, including the specificity of rules, the extent to which rules are binding, and the existence of compulsory procedures for dispute settlement. The impacts of such differences in means are sometimes compounded by differences in the *objectives* pursued by the regimes, as for instance in the case of the EU's fisheries subsidies regime which has largely aimed at industrial development goals rather than the sustainability objectives pursued under the global fisheries regime. Such differences in objectives sometimes imply that the means mobilized under one of the regimes undermine important goals of the other.

The significance of differences in *membership* for institutional interaction is similarly ambiguous. Frequently, partly overlapping membership can be a factor supporting synergistic effects, as for instance when key players in certain regional processes on non-flag state enforcement measures transfer their negotiated outcome to the global level. In other cases, issues that are unsettled at regional levels are likely to frustrate global-level negotiations, unless other differences between the regimes interfere, such as decision rules, the sectors of government or civil society that are involved in national delegations, or the ability to create productive links to other areas of cooperation (Sebenius 1983).

It is also worth noting that whereas the debate about institutional interplay has tended to focus on disruptive effects, such as 'treaty congestion' and problems of duplication between separate processes, most of the cases reviewed were synergistic or at least led to a *response* to instances of interaction that improved synergy or reduced the level of disruption. That said, the cases also typically revealed ample room for further improvement in the way the institutions in question responded, by means of tacit adaptation among individual regime members, collective decision-making within each of the regimes, or explicit coordination across regimes.

The general approach in this project is to highlight certain key dyads of institutional interaction (Oberthür and Gehring 2001), which sometimes include other institutions than the source and target regimes. Reduction of fisheries subsidies, for instance, is an objective of work undertaken also by the Organization for Economic Cooperation and Development (OECD), the Asia-Pacific Economic Cooperation (APEC), and the UN Commission on Sustainable Development. Similarly, in the European context, the North Sea Conferences intervened in the translation of the precautionary approach to fisheries from a global principle to regional scientific and policy approaches. Civil society activities around these fora can also serve to link them to the source or target regimes and thereby influence their response action. When tracing the causal connection between source and target regimes, it is important to consider the effects of such other institutions and processes.

## 4 Capacity control and checks on subsidies

One of the most severe impediments to responsible harvesting is that, on a world scale, there are too many vessels chasing too few fish.<sup>6</sup> Although excessive fishing capacity is not the only determinant of harvesting pressure, it does provide a major incentive to fish at levels that exceed the reproductive capacity of fishing grounds.

Government subsidies to the fisheries sector can be an important factor generating excessive fishing capacity. This is particularly the case where management policies are unsatisfactory (Hannesson 2001: 17-9) including in, though not limited to, many high seas areas and developing-country zones harbouring distant-water fishing activity.<sup>7</sup> Many States have reduced their financial contributions to the fisheries industry in recent years (Gréboval 2000), but subsidy reduction remains an important means to control the build-up of vessel capacity. Efforts to combat fisheries subsidies are however complicated by the fact that governments have a number of worthy reasons for providing them, including employment in shipbuilding, harvesting or processing sectors, food security, or protection of settlement in sparsely inhabited or economically disadvantaged coastal regions.<sup>8</sup>

This section reviews the interaction between the global fisheries regime and WTO on this issue, with an emphasis on the 2001 decision to renegotiate WTO provisions relevant to fisheries subsidies.

### 4.1 *The limitations of WTO disciplines on subsidies*

Whereas the global fisheries regime aims to ensure the sustainable use of fish stocks, the objective of the global trade regime is first and foremost to remove restrictions on international trade between its members. Potential trade distortion associated with fisheries subsidies had therefore been the overriding rationale for raising the issue within various trade-oriented international institutions in the 1960s and 1970s, especially the OECD and WTO's predecessor - the process surrounding the General Agreement on Tariffs and Trade (GATT) (Steenblik 1999). However, the WTO is also to allow for 'the optimal use of the world's resources in accordance with the objective of sustainable development',<sup>9</sup> and much of the WTO debate on fisheries subsidies has therefore considered environmental as well as trade aspects.

---

<sup>6</sup> Fishing capacity is, for a given resource condition, the amount of fish, or fishing effort, that can be produced over a period of time by a vessel or a fleet if fully utilized (Cunningham and Gréboval 2001).

<sup>7</sup> Access conditions are generally believed to be the most important factor explaining cross-state variation in excess capacity (Cunningham and Gréboval 2001). Figures on the amount of subsidies provided to the fisheries sector vary widely, a reflection partly of scattered knowledge and partly of different definitions or operationalizations of accepted definitions (Milazzo 1998, Stone 1997). Recent estimates suggest a level somewhere between US\$ 7-14 billion each year (Ruckes 2000).

<sup>8</sup> See e.g. WT/CTE/W/175, 24 October 2000, available at [www.docsonline.wto.org/gen\\_search.asp](http://www.docsonline.wto.org/gen_search.asp)

<sup>9</sup> Agreement Establishing the World Trade Organization, (Preamble), 33 *ILM* 1144.

The global trade regime, specifically the 1994 Subsidies and Countervailing Measures (SCM) Agreement negotiated under the WTO, provides rules on subsidies which are detailed, legally binding, and supported by an elaborate compliance system that includes compulsory and binding dispute settlement procedures and authorization of countervailing trade sanctions. In spite of this, and although subsidies are widely recognized as pervasive in the fisheries sector, no fisheries subsidy has so far been challenged under WTO rules.

Notifications to the WTO of fishing subsidies – an obligation under Article 25 of the SCM - have been very limited in terms of both the amount of subsidies reported, the range of subsidies covered, and the quality of information provided (Schorr 1998:154-155). Part of the reason is that several key concepts in the SCM Agreement are defined in ways which make it difficult to determine whether many of the most prolific government expenditures and other interventions in the fisheries sector fall within the domain of the agreement (Stone 1997). The definition of a subsidy as a ‘financial contribution’ has generated a lively debate of whether public investment in fisheries management and enforcement should count as subsidies.<sup>10</sup> Similar questions arise where governments fail to charge for access to resources or indeed purchase access to resources in foreign exclusive economic zones on behalf of the fishing industry. Furthermore, only ‘specific’ subsidies, i.e., those that are limited to an enterprise, industry, or region, are covered by the agreement which makes it unclear whether government provision of important infrastructure, such as quays and lighthouses, should be notified.

Among subsidies that are to be reported, only those that are contingent on export performance or the use of domestic over imported goods are prohibited. Other subsidies can be actionable under the SCM Agreement, but only if they can be shown to have adverse effects on the interests of another party.<sup>11</sup>

Accordingly, only a limited subset of direct or indirect financial transfers to the fisheries industry is clearly disciplined under present rules;<sup>12</sup> conceptual unclarity contributes to a lack of information regarding the extent, nature and objective of subsidies as a whole. A central challenge for those who seek to use WTO rules to reform the subsidies regime, then, is to clarify which part of a large grey area should be placed definitely in the class of government financial transfers that should be disciplined under WTO rules. The challenge is compounded by the fact that not all government financial transfers for fishing vessels or equipment are potentially problematic from a capacity perspective. For instance, investments that improve the efficiency of vessel operations may be neutral in capacity terms if combined

---

<sup>10</sup> As documented by the OECD (2000), research, monitoring, and control activities make up a significant proportion of government financial transfers to the fisheries sector worldwide.

<sup>11</sup> SCM Agreement, Arts. 3, 5-6. Until 31 December 1999, even subsidies shown to have adverse effects were *non*-actionable if they related to research activities, disadvantaged regions, or adaptation of existing facilities in response to new environmental rules; see Art. 8.

<sup>12</sup> A study commissioned by the Asia-Pacific Economic Co-operation, which includes several of the world’s foremost fisheries subsidy nations including Japan and South Korea, concluded that only 10 out of an inventory of 162 instances of fisheries subsidies in this region stood a high chance of being successfully challenged under the SCM Agreement (PricewaterhouseCoopers 2000).

with buy-back or scrapping schemes.<sup>13</sup> Thus, whereas the present notification rules mandate statistical data that permit assessment of the trade effects of a subsidy, future notifications may also have to focus on impacts on capacity and effort (Schorr 1998: 157), and broader sustainability issues.

#### **4.2 Fisheries subsidies at the fore of global negotiations**

The 2001 Doha Ministerial Declaration, which provides the mandate for the new ‘Millennium Round’ of trade negotiations, includes a paragraph on subsidies in which fisheries is singled out as a sector where clarification and improvement of WTO disciplines is particularly needed. The Declaration also highlights fisheries subsidies when sketching the broader trade-environment agenda.<sup>14</sup>

The Doha Declaration is the culmination of many years’ effort to bring fisheries subsidies to the forefront of the WTO agenda. Key members of the so-called ‘Friends of Fish’ group, especially the United States and New Zealand, have a long track record of trying to strengthen international restrictions on subsidies in primary industries (Steenblik 1999).<sup>15</sup> They have been heavily supported by several large, transnational environmental organizations, especially WWF, which sought to harness the free-trade agenda in the interests of conservation.<sup>16</sup> Compared to their most outspoken opponents on the fisheries subsidies issue, including Japan, Republic of Korea, and the European Union, the Friends of Fish countries had relatively low levels of fisheries subsidies and would therefore be less affected by stronger rules.

Early on, the fisheries subsidies issue was framed primarily as a trade and environmental sustainability concern. Indeed, fisheries subsidies have, since 1997, been taken forward by the Committee on Trade and Environment (CTE).<sup>17</sup> However, development issues have gained in prominence and proved decisive in moving the subsidies issue onto the main negotiating agenda in 2001.<sup>18</sup> From a development perspective, fishing interests in developing countries were having to compete at sea and on international markets with heavily subsidized counterparts from wealthier nations.

---

<sup>13</sup> The overall efficiency and environmental impact of previous scrapping schemes has been questioned, however. For example, see Frost et al. (1995).

<sup>14</sup> Doha Declaration, paras. 28 and 31; available at ([www.wto.org](http://www.wto.org)).

<sup>15</sup> The Friends of Fish group refers to a core group among those pressing for reform of fisheries subsidies rules in WTO: Australia, Chile, Ecuador, Iceland, New Zealand, Peru, Philippines and the United States.

<sup>16</sup> World Wide Fund for Nature, or the World Wildlife Fund in the USA.

<sup>17</sup> In setting its workplan for 1997-98, the CTE agreed that fisheries subsidies would be included among the economic sectors that would be discussed by the Committee in the context of the environmental benefits of subsidy removal (Porter 2002).

<sup>18</sup> Compare the two 1997 documents on the issue – WT/CTE/W/51 (19 May 1997) and WT/CTE/W/67 (7 November 1997, pp. 33-4) – with WT/CTE/W/121, 28 June 1999); also the report of the subsequent CTE meeting in WTO Trade and Environment News Bulletins, TE/031, 8 November 1999.

Initially, discussions had focused on the need for more information on the impacts of subsidies on sustainability and trade.<sup>19</sup> By summer 1999, however, and following a high-level WTO symposium on trade and development,<sup>20</sup> states favouring fisheries subsidy reform presented several substantial papers at a CTE meeting. These papers pointed to the ‘loss-loss-loss’ relationship between fisheries subsidies on the one hand, and trade, environment, and development on the other hand,<sup>21</sup> and support for placing the issue on the Millennium Round agenda grew.

In the final CTE meeting before Seattle in October 1999, the EU had joined other WTO members in arguing for fisheries to be dealt with by the FAO (Porter 2002). Towards the end of the Seattle ministerial, however, agreement was nearly reached on a paragraph on subsidies which pledged to consider ‘certain subsidies that may contribute to over-capacity in fisheries’. The work on fisheries subsidies should be ‘carried out in cooperation with the FAO’ and ‘consist of (1) the identification and examination of subsidies which contribute to over-capacity in fisheries and over-fishing...and (2) the clarification and strengthening, as appropriate, of disciplines under the SCM Agreement with respect to such subsidies’.<sup>22</sup>

While discord over other parts of the Seattle declaration barred its adoption, the near-agreement that had been reached on fisheries subsidies was an advantage for those who favoured retention of this topic in the run-up to the Doha Ministerial. The EU position in particular evolved from seeking to integrate fisheries subsidies into the environment agenda, to agreeing during the final few days of the Doha meeting that negotiations should take place under the SCM Agreement.<sup>23</sup> The concession was made partly in response to demands from environmental NGOs, while recognising the interests of developing countries.

In short, fisheries subsidies surfaced on the Millennium Round agenda because the interests of a coalition of countries with relatively small domestic subsidies programmes coincided with the interests of developing fishing nations, as well as environmental organizations in industrialized countries. Attempts to define the WTO as peripheral to the governance of fisheries subsidies and to place this issue within a forum with more fisheries expertise but less regulatory clout, ie., FAO, were rejected. In the following sections, we argue that this outcome was in part due to normative and programmatic contributions of the global fisheries regime. This served to strengthen the political position of those in the WTO process who favoured reform of the subsidies rules under the global trade regime.

---

<sup>19</sup> See Trade and Environment News Bulletins, TE/018, July 1997, TE/021, 16 December 1997, TE/023, 14 May 1998, and TE/028, 31 March 1999.

<sup>20</sup> International Institute for Sustainable Development Report on the WTO's High-Level Symposium on Trade and Environment, 15-16 March 1999, at ([www.wto.org](http://www.wto.org)).

<sup>21</sup> See Trade and Environment News Bulletins, TE/029, 30 July 1999.

<sup>22</sup> The draft text is available at ([www.thunderlake.com/ministerials/Chair\\_fish.doc](http://www.thunderlake.com/ministerials/Chair_fish.doc)).

<sup>23</sup> On 10 November 2001, Trade Commissioner and EU negotiator Pascal Lamy stated to the WTO Ministerial that the EU was ‘looking at how to integrate fish subsidies into the environment negotiating mandate’ see (<http://trade-info.cec.eu.int/europa/2001newround/pl2.php>)

### **4.3 Global fisheries norms and the strength of the Friends of Fish coalition**

The global fisheries regime includes legal and political commitments that are supportive of those in favour of reform of WTO subsidies. Under the Fish Stocks Agreement, coastal states and states fishing on the high seas are to ‘take measures to prevent or eliminate overfishing and excess fishing capacity and to ensure that levels of fishing efforts do not exceed those commensurate with the sustainable use of fishery resources’ (Article 5). There is no explicit mention of subsidies, however.

The FAO Code of Conduct encourages states to ensure that ‘policies, programmes and practices related to trade in fish and fishery products do not result in...environmental degradation’ (Article 6.14); and ‘excess fishing capacity is avoided and...the economic conditions under which fishing industries operate promote responsible fisheries’ (Article 7.2.2). In addition, the Code provides that ‘States, aid agencies, multilateral development banks and other relevant international organizations should ensure that their policies and practices...do not result in environmental degradation’ (Article 11.2.15).

For its part, the equally non-binding FAO International Plan of Action for the Management of Fishing Capacity (IPOA-Capacity) calls on states to achieve, ‘preferably by 2003 but not later than 2005, an efficient, equitable and transparent management of fishing capacity’ (Article 7). If excess capacity is undermining the achievement of long-term management, states should take measures to limit and progressively reduce fishing capacity applied to affected fisheries. National plans for the management of fishing capacity are important means for this objective and shall include assessments of ‘all factors, including subsidies, contributing to overcapacity’ (Article 25). Finally, ‘States should reduce and progressively eliminate all factors, including subsidies...which contribute, directly or indirectly, to the build-up of excessive fishing capacity thereby undermining the sustainability of marine living resources’ (Article 26).

It is difficult to measure the influence of these fisheries-regime provisions on the process of regulating subsidies within WTO. It is indicative of such influence, however, that those in favour of reforming the trade rules on subsidies have consistently emphasized the existence of global fisheries norms in this area and especially the Fish Stocks Agreement and the FAO IPOA-Capacity.<sup>24</sup> The latter was presented at the June 1999 meeting of the CTE, at a time when support for reform of fisheries subsidies rules was growing in the Committee. FAO was invited to report to the next CTE meeting ‘on the main elements of an indicative work programme aimed at addressing the impact of subsidies and other factors which contribute to overcapacity and unsustainability in fisheries’.<sup>25</sup> Since then, FAO representatives have regularly attended CTE meetings providing updates on FAO activities related to fisheries subsidies.<sup>26</sup>

---

<sup>24</sup> See e.g. WT/CTE/W/121, 28 June 1999, WT/GC/W/303, 6 August 1999, and WT/CTE/W/154, 4 July 2000, and TN/RL/W/3, 24 April 2002.

<sup>25</sup> See FAO (1998); and WT/CTE/W/126, 12 October 1999.

<sup>26</sup> See e.g. WT/CTE/W/135, 29 February 2000, and WT/CTE/W/189, 18 June 2001.

#### **4.4 *The significance of programmatic work under the global fisheries regime***

An FAO study published more than a decade ago (FAO 1992) is widely seen as central to the comeback of fisheries subsidies on the international diplomatic agenda, after a decade of moderate interest (Stone 1997, Steenblik 1999). The new twist introduced by that report was to emphasize much more than before the linkage between subsidies and problems of resource sustainability. While subsequent examinations by international organizations such as the World Bank (Milazzo 1998), OECD (1997, 2000) and APEC (PricewaterhouseCooper 2000) have concluded that the \$54 billion estimate of fisheries subsidies – or 70 per cent of world catch – that many read into the FAO report was much too high,<sup>27</sup> they have nevertheless documented that current levels of subsidies are very substantial and causally related to over-capacity in the fisheries sector.

In 1998, at a time when the Friends of Fish group were pushing for more work on fisheries within several international institutions, including the WTO, the Sub-Committee on Fish Trade of FAO's Committee on Fisheries decided that FAO had a role to play in compiling and disseminating information on the impacts of subsidies (FAO 1998b, para 17). It is notable that from the outset, FAO opted for a supportive and complementary role to other international agencies addressing fisheries subsidies, such as WTO and OECD, and was careful to avoid any overlap with activities taking place there.<sup>28</sup> This stance was not favoured by those, including the EU and Republic of Korea, who objected to the WTO taking a more prominent role in international governance of fisheries subsidies.<sup>29</sup>

In the IPOA-Capacity, FAO pledged to 'collect all relevant information and data which might serve as a basis for further analysis aimed at identifying...subsidies which contribute to overcapacity' (Article 45). The organization set out to prepare technical guidelines for the management of fishing capacity and organized a series of technical and expert consultations on issues related to capacity. A Task Force on Fishery Subsidies was established in the FAO Fisheries Department to serve as a focal point in subsidy matters, monitor and review discussions and contributions from other organizations, and map the various forms of fisheries subsidies. An FAO Expert Consultation on Economic Incentives and Responsible Fisheries was held in 2000 but failed to contribute substantially to the debate on whether and how WTO disciplines should be reformed.<sup>30</sup> This was partly because of considerable disagreement among participants over basic conceptual issues including the definition of subsidies.<sup>31</sup> The expert consultation also tried to categorize instances of subsidies

---

<sup>27</sup> Note that the FAO report did not actually forward this claim, but its influence is much due to the fact that many read this finding into it (Milazzo 1998; also Stone 1997); see e.g. WT/CTE/W/51, 19 May 1997: 2; also FAO (1998a), para 8.

<sup>28</sup> See in particular FAO (1998), items 6 and 7.

<sup>29</sup> See WT/CTE/W/173, 23 October 2000; also Schorr (2000:199).

<sup>30</sup> See WT/CTE/W/189.

<sup>31</sup> On the significance of this definitional issue, see section 4.1 above; also Steenblik (1999).

according to whether they affected costs or revenues and their anticipated impact on sustainability – and identified research priorities on the basis of which type were believed to have the most serious effects on sustainability.<sup>32</sup> Despite the conceptual disagreements, the forms of government transfers that were prioritized were all compatible with the conventional definition of subsidies espoused by the WTO: capital expansion such as vessel purchase or modernization grants, tax waivers and deferrals, and price support.<sup>33</sup>

When the report of the Expert Consultation on Economic Incentives and Responsible Fisheries was debated by the FAO Committee of Fisheries, it was criticized by some as having ‘raised more questions than answers’ and the Committee decided that a second consultation on the issue would comprise a broader range of experts with relevant practical and multidisciplinary experience in fisheries management and trade issues.<sup>34</sup> The FAO official who presented the consultation report in WTO emphasized that a key conclusion was that information was still inadequate and there is no indication that the CTE discussion on fisheries subsidies that followed paid much attention to this particular input.<sup>35</sup> In the subsequent years, however, FAO organized information-exchange meetings with other international agencies, including OECD, UNEP, and WTO, with ongoing work programmes on fisheries subsidies (FAO 2001b, 2002).

On balance, programmatic efforts under the global fisheries regime have to some extent, but hardly decisively, strengthened the hand of those who favour reform of the WTO subsidies regime. Throughout the 1990s, both proponents and opponents of WTO reform have referred to the FAO as a particularly relevant source of information on the matter.<sup>36</sup> By attempting to develop clearer and more consensual knowledge on what types of subsidies are capacity-driving and which can be supportive of sustainable fisheries, the FAO sought to render obsolete a key argument against WTO reform in the area, namely the difficulty of separating ‘good’ from ‘bad’ fisheries subsidies. However, FAO’s influence may have been greatest in what it did *not* do: by not opting for a front-runner position in regulatory efforts, as it had with regard to high-seas compliance measures, but instead supporting and facilitating the fisheries subsidies initiative within the global trade regime, FAO did not add fuel to those who argued that the WTO is not the place for separating sustainable from non-sustainable fisheries subsidies.

#### **4.5 *The global fisheries regime and the mobilization of developing countries***

As noted, the ability of the Friends of Fish coalition to frame fisheries subsidies as very much a North-South issue was significant to its success in getting this topic on the Millennium Round trade agenda. There is little to suggest that the global fisheries regime

---

<sup>32</sup> WT/CTE/W189, p. 10-11.

<sup>33</sup> WT/CTE/W189, p. 16-7.

<sup>34</sup> WT/CTE/W/189, 18 June 2001, p. 1.

<sup>35</sup> TE/036, 6 July 2001.

<sup>36</sup> WT/CTE/W/51 (United States), WT/GC/W/303 (Friends of Fish), and WT/CTE/W/173 (Japan).

played any important role in the mobilization of developing countries.<sup>37</sup> The work of the UN Environment Programme (UNEP) has probably been more salient in this regard, aiming to build understanding and consensus on fisheries policy reforms (FAO 2001b), convening a number of expert meetings or consultations with key officials and international institutions with particular attention to the impacts of fisheries subsidies on developing countries – notably in relation to third country fishing agreements.<sup>38</sup> Several leading civil society organizations, including WWF, have also emphasized the development aspect of fisheries subsidies and thus helped to muster broad support for pushing subsidies onto the Doha agenda.

#### **4.6 Summary and assessment**

The causal impact of the global fisheries regime on WTO subsidies rules is largely of a cognitive nature: the FAO has raised concern over the issue and, along with a few other international institutions ensured for supporters and opponents of subsidies reform alike a common source of legitimate expertise on fisheries subsidies. The interaction is primarily driven by differences in means. Unlike WTO provisions, FAO rules tend to be soft and are rarely backed up by intrusive enforcement mechanisms; they do not have the 'clout' of WTO rules. On the other hand, the FAO has a well established practice of mobilizing relevant fisheries expertise in the development of consensual guidelines on how such soft rules can be implemented at national levels.

The effect of the global fisheries regime on the ability of WTO to discipline fisheries subsidies has so far been moderate, though clearly synergistic. The subsidy-related provisions in the Fish Stocks Agreement and FAO IPOA-Capacity supported those in the WTO who argue that fisheries subsidies is a barrier to sustainability, as well as a barrier to free trade. The provisions therefore played a part in bringing this particular issue onto the agenda for the Millennium Round of global trade negotiations. The interaction described here has occurred at the level of institutional output, although this does not rule out interactions occurring at the outcome (subsidies practices) or impact (on harvesting capacity) levels.

Both within the source and the target regime, the interaction has been intentional. Appreciating the significance that trade rules might assume with regard to controlling fisheries subsidies, the FAO sought to coordinate fact-finding and analytical activities relevant to the question of how subsidies influence sustainability. That said, in both regimes many of the activities relevant to fisheries subsidies were generated by internal processes and priorities, and external pressures such as that from environmental organizations, rather than from the other regime.

---

<sup>37</sup> Note however that one of the distinguishing features of the Fish Stocks Agreement is its emphasis on developing country rights.

<sup>38</sup> UNEP has approached this in a number of ways, combining research work, country studies and policy dialogue, in order to understand the effects of fisheries subsidies on the economy, environment and society. UNEP's Economics and Trade Unit (ETU) has worked on the issue since 1997.

Responses to the interaction have been of several kinds, although to date not involving adaptation of the rules upheld by the institutions. There has been moderate inter-institutional coordination: the WTO invited the FAO to provide more specific information on available knowledge about the relationship between fisheries subsidies and sustainability problems, to which FAO responded positively. The FAO input has largely supported a trend within the WTO in which fisheries subsidies are increasingly questioned but it has failed to provide more than highly preliminary answers. Given the high level of controversy that surrounded the issue and the consensus orientation of FAO work, this is not surprising and it is doubtful whether more cross-institutional coordination could have changed the situation substantially. Tacit adaptation at the national level to rising international attention to environmentally-harmful subsidies may be evident in the fact that many governments have chosen to reduce their subsidies programmes during the 1990s (Gréboval 2000).

## **5 The precautionary approach to fisheries research: The case of ICES**

The UN Fish Stocks Agreement contains one of the most explicit definitions provided in an international treaty of how the precautionary principle should apply in practice. Under Article 6, and applying the guidelines set out in Annex II, states are to decide on two types of precautionary reference points. One is a limit reference point, which is associated with danger: if a stock falls below this level, pre-agreed conservation and management action should be initiated to support stock recovery. The overall aim of management strategies is to ensure that the risk of exceeding a limit reference point is very low. With respect to the second type, target reference points, management strategies should ensure that these are not, on average, exceeded.

Based on an FAO Technical Consultation which involved fisheries experts from a wide range of organizations, including ICES, a set of guidelines for implementing the precautionary approach was developed (FAO 1996). These emphasised fisheries management planning, including development of (1) operational and measurable targets and constraints, i.e., biological reference points; (2) which should reflect management objectives based on biological as well as socio-economic considerations and adequate involvement of stakeholders, including fishing industry and conservation groups; (3) and be accompanied by pre-agreed decision rules which define what action should be taken when reference points are exceeded.<sup>39</sup>

These guidelines are used to structure the following assessment of how the global fisheries regime has influenced the emergence of a precautionary approach to fisheries management in the Northeast Atlantic. Establishment of biological reference points, and their relationship to socio-economic concerns, are examined in the context of ICES research and

---

<sup>39</sup> See FAO (1996), especially items 20-35.

advisory work; whereas development of pre-agreed decision rules is examined within the EU Common Fisheries Policy, which relies upon ICES for much of its scientific advice.

### **5.1 *ICES and the global fisheries regime: institutional comparison***

ICES is an intergovernmental organization that coordinates scientific research and provides advice on fisheries management in the Northeast Atlantic.<sup>40</sup> ICES involves only a subset of the state parties to the conventions that underpin the global fisheries regime. While the Fish Stock Agreement introduces general provisions regarding the formulation and use of scientific advice at the global level, ICES has developed and implemented a specific procedure for generating advice, tailored to the relatively advanced level of knowledge about the various Northeast Atlantic fish stocks. There are also notable differences between the two institutions in terms of means that are employed under them. The global fisheries regime includes a legally binding commitment, subject to the dispute settlement apparatus under the Law of the Sea, to conduct and use scientific research in precautionary ways. In contrast, ICES advice is not binding on governments. ICES' influence on regional decision-making depends largely on the organization's reputation for scientific excellence and neutrality towards the often competing claims of various stakeholders – which is widely perceived as high (Gullestad 1998).

The objective pursued by ICES in the fisheries area (promotion of research and provision of scientific advice) is much narrower than that of the global fisheries regime (long-term conservation and sustainable use of fish stocks). Associated with this difference in functional scope is a significant difference in the mix of expertise that is mobilized under these institutions. In ICES fisheries bodies, marine biological expertise relevant to stock assessment and marine ecosystems predominates and the organization has a long tradition for advancing the research frontier in these areas (Stewart 1991:2549). Such expertise is also significant in the UN fisheries bureaucracy, primarily the FAO Fisheries Department, but here social scientists, economists, lawyers, technologists, and information workers are also well represented.<sup>41</sup> Whereas ICES is widely seen as being in the forefront of development of *biological* reference points, the FAO (1996:16-21) has emphasized that the precautionary approach requires mobilization of socio-economic, technical and institutional knowledge as well.

### **5.2 *ICES implementing the precautionary approach***

The precautionary approach to fisheries management was not among the 'themes' addressed at the ICES Annual Science Conferences in the years preceding the adoption of the

---

<sup>40</sup> The organization was founded in 1902; the Convention for the International Council for the Exploration of the Sea (amended in 1964) is available at ([www.ices.dk](http://www.ices.dk)).

<sup>41</sup> 'FAO Fisheries Department – Staff List and Capabilities'; marine biologists are especially numerous in the Marine Resources Service, a sub-unit under Fishery Resources Division.

Fish Stocks Agreement and the Code of Conduct, but it has featured repeatedly since 1997.<sup>42</sup> A Study Group on the Precautionary Approach to Fisheries Management was convened that year, charged with developing a form of advice that would be consistent with the precautionary approach as elaborated under the global fisheries regime.

*Precautionary reference points and the rebuilding of stocks*

Responding to the recommendations of the precautionary study group, the ICES Advisory Committee on Fisheries Management (AFCM) has since 1998 formulated its advice to management agencies within a framework for implementation of the precautionary approach.<sup>43</sup> According to this framework, the advice is based on an estimate of current stock status and usually in the form of catch options that should maintain the stock status inside 'safe biological limits'. The latter term was introduced already in 1981 and refers to the level of the spawning stock below which there is an unacceptable probability that recruitment will be impaired.<sup>44</sup> Similarly, under the new framework, the precautionary management strategy – or the upper bound of the harvesting level which ICES would consider as precautionary – is identified by calculating a buffer that generates a very low probability of reaching a stock level at which recruitment will be impaired; the latter is ICES' operationalization of a limit (danger) reference point. The size of the buffer depends on the natural variability of the stock, the precision of the assessment, and the risk that management agencies are willing to accept (ICES 2000:2).

Two major changes are associated with the implementation of the precautionary approach: clearer articulation of the impairment risk that ICES considered acceptable (for most stocks set as low as 5 percent), and greater commitment to advise forceful rebuilding plans when stocks are depleted or overfished.<sup>45</sup> There is broad agreement that ICES has taken an early lead among regional scientific advisory bodies in implementing the precautionary approach (Hilborn et al. 2001:100), particularly regarding methodologies for establishing biological reference points (Garcia 2000:22), and the concept of precautionary management now permeates ICES activities.

To be sure, the global fisheries regime is not the only institution that has directly impacted on ICES practices in this area. The precautionary approach to fisheries management was also discussed in depth during the 1997 Intermediate Ministerial Meeting on the Integration of Fisheries and Environmental Issues under the North Sea Conferences, which

---

<sup>42</sup> Detailed information on the topics discussed at these conferences is available at ([www.ices.dk](http://www.ices.dk)).

<sup>43</sup> See the annual 'Report of the ICES Advisory Committee on Fisheries Management', *ICES Cooperative Research Report* (hereinafter ICRR) in particular issues 246 (2001), 236 (2000), and 179 (1992).

<sup>44</sup> ICRR 236 (2000:4) in conjunction with 179 (1992:5-6).

<sup>45</sup> Compare ICRR issues 242 (2001:iv) and 179 (1992:12).

involved many of the key participants in ICES.<sup>46</sup> While this parallel process provided an occasion for political discussion of the subject and may have bolstered commitment to the precautionary approach and increased involvement by environmental interests, it did not advance the specification of the precautionary approach, which has largely occurred within the specialized fisheries fora.

#### *Biology, socio-economic considerations, and stakeholder involvement*

Several of the institutions that are responsible for establishing management measures on the basis of ICES advice have complained that the precautionary procedure generates advice that is insufficiently sensitive to the socio-economic costs associated with quota cuts. Criticism of this kind is no novelty for scientific advisory organizations and the clearer commitment to advise rapid rebuilding of stocks that are outside safe biological limits is backed up by the precautionary signal of the global fisheries regime. Indeed, it is very likely that the elaboration of a precautionary approach in the Fish Stocks Agreement has galvanized participants in the ICES advisory process, with their 'long history of unsuccessfully trying to agree on targets with management agencies' (Hilborn et al. 2001:100), whenever their biology-based recommendations face stakeholder complaints. A Russian request in 2000 for a change in the estimate of a precautionary reference point for Barents Sea cod, for instance, was rejected by ICES on the basis that the data 'available at present give no firm basis for revision of reference points'.<sup>47</sup>

It is possible that ICES is paying a price for its precautionary zeal, in terms of reduced influence on decision-makers. In recent years, the Norwegian-Russian Fisheries Commission chose to set quotas well above the level ICES considered precautionary.<sup>48</sup> Even according to ICES itself, its strategy for providing advice on rebuilding plans must be improved to bring out more clearly to stakeholders the costs and benefits of such plans.<sup>49</sup> A broader view is that biological inputs are only a subset of the scientific contributions that are necessary for evaluating the performance of fisheries management systems, and that ideally, limit and target reference points should also be developed for socio-economic and institutional impacts of conservation measures (Garcia 2000:34); this would be beyond ICES' task.

A more general criticism is that ICES precautionary advice is communicated in a way that is difficult to understand for other stakeholders involved in decision-making. This is a two-edged problem. In some cases, excessively technical language may reduce the ability of scientists to convey to industry and managers a clear picture of the biological consequences of management proposals, which is usually a requirement for obtaining their acceptance of

---

<sup>46</sup> 'Statement of Conclusions from the Intermediate Ministerial Meeting on the Integration of Fisheries and Environmental Issues' ([www.dep.no/md/nsc/Intermediate\\_meeting/023021-990005/index-dok000-b-n-a.html](http://www.dep.no/md/nsc/Intermediate_meeting/023021-990005/index-dok000-b-n-a.html)), especially secs. on Guiding Principles and Strategies, with FAO (1996).

<sup>47</sup> Both the request and the response are reproduced in ICRR 242 (2001:12)

<sup>48</sup> ICRR 246 (2001), section 3.1.2.

<sup>49</sup> 'Resolutions adopted at the 2001 annual science conferences', p. 14.

costly restrictions on harvesting. In other cases, obscure or variant terminology may enable scientists to ‘add extra (non transparent) conservatism or precaution into the estimation process’ (Mace and Gabriel 1999), thus trespassing into the domain of management agencies. The general challenge is an old one in fisheries management and an ICES response developed more than two decades ago are the so-called ‘dialogue meetings’ among scientists and other stakeholders that are intended to reduce the communicative distortions associated with different tasks and technical jargons (Parrish 1988:257).

More recently, the communication problem has been compounded by the fact that scientific advisory bodies in the North Atlantic have developed different concepts and terminologies in their implementation of the precautionary approach. There are significant differences in operational definitions of precautionary reference points (ICES 2000:4-5). For instance, the ICES practice of defining limit (danger) reference points in terms of impaired recruitment, and then adding a buffer, is perceived within FAO as less precautionary than NAFO’s linkage of the limit reference point to the maximum sustainable yield (Garcia 2000:24). Recognizing that such differences give rise to confusion among scientists and practitioners alike, ICES convened in 2000 an inter-agency meeting involving FAO and a number of Atlantic management bodies with a view to identifying differences and similarities among them in terminology and conceptual definitions, and explore their consequences for the provision of precautionary scientific advice.<sup>50</sup> The ACFM noted that these inter-agency discussions ‘can be expected to result in further development and clarification of concepts and changes in terminology’,<sup>51</sup> and has pledged to harmonize its use of the term limit reference point to that of NAFO.<sup>52</sup> This reflects a general change in attitude within ICES towards parameters associated with the concept of maximum sustainable yield. Referring to the fact that the Fish Stocks Agreement includes this concept in its definition of the precautionary approach, ICES now pledges to ‘develop a balanced view on how best to interpret this reference point in a fish stock assessment context’.<sup>53</sup> Moreover, ICES is determined to revise the presentation of its precautionary framework to make it more intelligible for laymen.

### **5.3 *Summary and assessment***

Institutional interaction between the global fisheries regime and ICES has influenced the way fisheries scientists in the Northeast Atlantic generate and communicate their recommendations to other stakeholders. Difference in the scope of objectives is one driver this interaction in that the FAO, which has a significant role in the implementation of the UN Fish Stocks Agreement, has a much broader mandate than does ICES. The FAO has

---

<sup>50</sup> ‘Resolutions adopted at the 1999 Annual Science Conference’, p. 77, at ([www.ices.dk](http://www.ices.dk)).

<sup>51</sup> ICRR 242 (2001:v).

<sup>52</sup> ICRR 236, Part I (2000:5).

<sup>53</sup> ‘Resolutions adopted at the 2000 Annual Science Conference’, p. 15.

advocated greater emphasis on non-biological aspects of precautionary management, including more attention to the interface between scientists and other stakeholders.

Another driver is partially overlapping membership because most ICES parties are politically, and increasingly also legally, bound by the Fish Stocks Agreement. The precautionary provisions in the Fish Stocks Agreement are broad enough, however, to leave considerable leeway for ICES regarding how to implement them. Although new terms were introduced, initially there was more continuity than change in the actual reference points used by ICES after its introduction of a precautionary approach. Indeed, one observer has stated that in effect, 'the earlier management regime...often remained unchanged, although the language has been given a precautionary gloss' (MacGarvin 2001:24). That statement would surprise many non-scientist stakeholders in the region and it probably underestimates the significance of the ICES practice of reserving the term 'precautionary', in cases where stocks are troubled, to conservation measures believed to rapidly rebuild the stock. The causal mechanisms associated with this interaction are partly cognitive and partly the nestedness of specific norms in broader institutions. Participants in a more specialised regional institution responded to new global rules by modifying the terms used in their advice and by putting greater emphasis on rapid recovery if stocks are outside safe biological limits.

The effect of this interaction could be deemed as synergistic, since the global fisheries regime induced ICES members to focus on a highly contentious issue – i.e., how to respond to uncertainty regarding the effects of various harvesting patterns – without disrupting their ability to come up with agreed recommendations. From another perspective, however, the largely natural-scientist driven implementation of the precautionary approach to fisheries research has tipped the fine balance between biological and social concerns and is therefore in need of remedy (Hilborn et al. 2001). The view that non-biological impacts should be better represented in the scientific inputs to management decisions in the Northeast Atlantic has also been articulated from within the FAO (Garcia 2000:34).

The response of ICES to this and similar complaints from within the regional management regimes they serve, has been to step up efforts to improve communication with managers and industry representatives, not least about the costs and benefits of stock recovery plans. While this response may seem limited and inadequate, ICES has never aspired to cover all relevant aspects of fisheries management. It is ultimately the responsibility of management agencies to ensure that they are advised by available expertise on the social, economic, and institutional impacts of conservation measures, as well as the biological impacts. Stakeholder involvement will benefit from greater harmonization among regional scientific institutions regarding the biological reference points which structure their assessments and advice. On this issue, ICES has assumed a coordinating role, by bringing together FAO and a range of North Atlantic fisheries science bodies to clarify differences, as well as an adaptive role by modifying its own usage of certain limit reference points.

## **6 The precautionary approach to regulatory decision-making: the EU Common Fisheries Policy**

Given the risk, uncertainty, and political pressures associated with fisheries, the precautionary approach requires adaptations not only in the generation of scientific advice but also in the decision-making process (Hanna 1999, Butterworth 1999:212, Mace and Gabriel 1999). '[A]lone or limited to its scientific aspects, [the precautionary approach] will only represent yet another step towards scientific sophistication along a 50-year old track which has produced large amounts of excellent science against a background of inexorably growing overexploitation, ecosystem degradation, economic dysfunction, and social stress.' (Garcia 2000). And yet, as Caddy noted in 1998, 'most current work...is aimed at the definition of reference points, with relatively less emphasis or experience on how efficiently they will perform in a functioning management system'.

The importance of addressing decision-making is clearly recognised by the Fish Stocks Agreement which, aside from scientific work, requires the use of 'management strategies' to maintain or restore populations of harvested stocks at levels consistent with precautionary reference points. As emphasized also, as noted, in the 1996 FAO guidelines on the implementation of the precautionary approach, those reference points should trigger pre-agreed conservation and management action.

The extent to which the global fisheries regime has led to the introduction of pre-agreed decision rules under the EU Common Fisheries Policy is the subject of this section. The role of ICES in supporting this development is also examined, as are obstacles that may have hindered the EU's response.

### **6.1 *The CFP and the global fisheries regime – different types of institutions***

The framework for fisheries management in the EU is set out in Regulation 2371/2002 and its daughter regulations under the EU Common Fisheries Policy (CFP).<sup>54</sup> Since the 1970s, a variety of instruments has been employed to curb over-fishing or to prohibit damaging practices and yet a growing number of commercial fish stocks in European waters are considered to be outside safe biological limits. This is the case for some two thirds of commercial stocks in the North Sea and the Mediterranean Sea, almost half of those in the North East Atlantic, and 20 per cent of commercial stocks in the Baltic Sea (FAO 2001a); highly migratory species of tuna and swordfish are also overexploited.

The CFP fisheries management regime has a clear functional overlap with the UN Fish Stocks Agreement: both are aimed at securing sustainable exploitation of fisheries. The principal differences between the two institutions are the levels (global versus regional) at which they operate and the means at their disposal. Three particular factors set apart the members of the regional CFP from those of the global Fish Stocks Agreement: firstly, the EU

---

<sup>54</sup> Council Regulation 2371/2002 on the conservation and sustainable exploitation of fisheries resources under the Common Fisheries Policy, OJ L358, 31.12.2002

and several of its Member States have been at the forefront of discussions on the precautionary principle, which has been an established principle in EU environmental law since at least 1993;<sup>55</sup> secondly, the EU participated actively in the negotiations on the UN Fish Stocks Agreement;<sup>56</sup> and lastly, the EU is a major ‘client’ of ICES and has benefited from, as well as contributed to, the lead role played by ICES scientists in elaborating and adapting scientific advice in line with the precautionary provisions of the Fish Stocks Agreement.

There are also important differences between the means available to the Fish Stocks Agreement and the CFP fisheries management regime. The precautionary provisions of the Fish Stocks Agreement give ambitious directions for regional fisheries organizations and state parties, but they are hardly specific enough to be pursued effectively under the dispute settlement procedures of the Convention on the Law of the Sea.<sup>57</sup> In contrast, the provisions of the CFP regime are directly applicable in, and enforceable upon the Member States. Whereas the influence of the Fish Stocks Agreement is largely based on the process which created it, and the influence of ICES on its reputation for scientific excellence and neutrality, the CFP relies rather more on its legal weight.

## ***6.2 Applying precaution to EU fisheries management: towards pre-agreed decision rules***

The failure of the CFP to manage EU fish stocks is frequently blamed on the central role given to Total Allowable Catch limits (TACs) as a management tool, and the process for setting these.<sup>58</sup> The Council of Ministers adopts TACs each December, primarily covering commercial stocks in the Northeast Atlantic and Baltic Sea. The Council decision follows a proposal from the European Commission. The proposals are heavily derived from ICES advice which, as shown above, has modified its framework to take greater account of the uncertainty inherent in fisheries science. The annual Council negotiations are invariably politically charged, with individual Fisheries Ministers being under considerable pressure to secure the best deal for their fishermen at home. Fisheries management is particularly vulnerable to such pressure precisely because of the uncertainty and ignorance about important bio-ecological as well as socio-economic processes involved in fisheries (Garcia 2000). As a result, as one academic has aptly put it, ‘when the scientific advice has been refracted through the [EU] political process it may appear to shed little light on the final decisions’ (Symes 1998: 12).

---

<sup>55</sup> Article 174 of the Treaty establishing the European Community states that Community environmental policy ‘shall be based on the precautionary principle...’ The principle was added by the Maastricht Treaty which entered into force in 1993.

<sup>56</sup> It is in fact the European Community (EC), rather than the EU, which participates in external fisheries agreements. Neither the European Community nor the Member States are party to the Agreement, although they are signatories. According to Council Decision 98/414, the EC and all 15 Member State ratification instruments are to be deposited simultaneously, a requirement that has not yet been met.

<sup>57</sup> For a thorough discussion, see Boyle (2001).

<sup>58</sup> For example, see Commission 2000

The challenge presented by the Fish Stocks Agreement and the FAO guidelines is to develop alternative multi-annual management approaches, where decisions are based on pre-agreed decision rules. The first signs of a wholesale EU response to this challenge emerged within the context of the 2002 CFP reform process during which the basic CFP Regulation 3760/92 was reviewed, renegotiated and ultimately replaced in December 2002 by Regulation 2371/2002.<sup>59</sup> The final agreement includes a requirement for the Council to adopt recovery plans for stocks outside safe biological limits, including harvesting rules stating how annual catch or fishing effort limits should be derived.

Already in 1992, the CFP included provision for the adoption of ‘management objectives and strategies’, setting the scene for a Commission proposal to this effect.<sup>60</sup> The proposal was the subject of some debate in the Council but discussions eventually stalled in 1995. Decisions on EU TACs were destined, for the time being at least, to continue to be made on an annual basis and in the absence of pre-determined decision rules. Steps were nevertheless taken to move towards the use of multi-annual management plans, on a case-by-case basis, by the introduction of multi-annual management strategies under bilateral agreements with Norway (covering several stocks, including cod) and other Northeast Atlantic states (herring and mackerel). These agreements specified that management action would be triggered when mortality or spawning stock biomass passed the precautionary reference points. Further plans were adopted within the context of the International Baltic Sea Fishery Commission (Commission 2000: 13). These prescribed that management action should ensure a safe and rapid recovery, but without specifying exactly what this meant, or what measures were to be used to achieve it. Managers had thus agreed when to take action, and had agreed certain management objectives, but in general they had not agreed, ahead of time, what action would be taken (Anon 2001).

Following these initial developments, efforts were redoubled to develop multi-annual management plans more widely for EU fisheries. Importantly, a meeting of a High-Level Group organised under the French Presidency of the Council in September 2000 showed that circumstances had changed since 1995, and the need to lay down multi-annual procedures that took the precautionary approach into account was now widely accepted by the Member States (Commission 2000: 13). A more concerted focus on management plans was consequently provided by a Communication (Commission 2000) with pre-determined decision rules presented as part of such an approach. The use of such rules, according to the Commission, would end the practice that had resulted in priority being given to avoiding restrictions on fishing that were politically unpopular in the short term.

These developments coincided with the Commission’s preparations for the 2002 reform of the fisheries policy. In its Green Paper outlining the future direction of the CFP, the Commission

---

<sup>59</sup> Council Regulation 2371/2002 on the conservation and sustainable exploitation of fisheries resources under the Common Fisheries Policy, OJ L358, 31.12.2002

<sup>60</sup> Proposal for a Council Regulation fixing management objectives and strategies for certain fisheries or groups of fisheries for the period 1994 to 1997, COM(93)663.

again supported the definition of multi-annual strategies compatible with the precautionary principle (Commission 2001:23). The eventual CFP reform agreement gave multi-annual management planning, including pre-agreed decision or harvesting rules a central place in EU fisheries management. The new basic CFP Regulation 2371/2002 – applicable from 1 January 2003 - states that the Council ‘shall adopt’ multi-annual plans for stocks outside safe biological limits and for other stocks, as far as necessary. Apart from biological reference points, plans should establish harvesting rules laying down how annual catch or effort limits are to be arrived at. A key provision of the Fish Stocks Agreement had thereby been translated into an EU context, seven years after the Agreement was opened for signature but before the EC and its Member States had formally become parties.

### *Responding to the Fish Stocks Agreement or ICES?*

Although provisions of the new 2002 CFP Regulation appear to be a response to the Fish Stocks Agreement, the role of ICES as an ‘interlocutor’ between the global fisheries regime and the CFP deserves some examination. Indeed, it is arguable that in moving towards recovery plans and pre-determined decision rules, the EU was prompted by ICES more than it was by the Fish Stocks Agreement.

As detailed above, ICES presented precautionary reference points for the first time in its 1998 advice. In so doing, ICES introduced a precautionary approach ‘test’ by stating that if a stock is regarded as depleted, or if overfishing is taking place, only an effective implementation within a “reasonable” period of a rebuilding plan would satisfy the condition for a precautionary approach. By not developing effective recovery plans in the case of depleted stocks, the EU would be failing the test. The credibility of ICES and the leadership it has shown in terms of applying the precautionary approach to its scientific advice made this test all the more critical.

ICES applied this approach in 1999 when it stated that ‘fishing mortality on cod should be reduced to the lowest level possible in 2000’, and should be accompanied by a recovery plan to rebuild the spawning stock. Cod is one the EU’s most significant stocks, culturally if not economically, and the ICES advice generated intense discussions in the Fisheries Council in December 1999. This led to a first set of emergency measures being adopted for Irish Sea cod in 2000, followed by longer-term measures to rebuild the stock. A year later, in December 2000, Ministers agreed that conservation measures were also needed for other stocks of cod, and hake, to be formulated within the context of multi-annual recovery plans of at least five years. The Commission was invited to submit, before mid-May 2001, proposals for multi-annual recovery plans for the North Sea cod and western hake. As the Commission subsequently noted, ‘the kinds of measures proposed for cod and hake can be seen as a test case for options that are presented in the Green Paper’, in other words, for introducing multi-annual management strategies across a range of commercial fisheries.<sup>61</sup>

---

<sup>61</sup> COM(2001)326.

ICES' advice regarding the management of certain critical EU fish stocks effectively put pressure on the EU to introduce recovery plans, which in turn were to provide the platform for introducing pre-agreed decision rules.

*Inter-institutional coordination and communication: improving interactions*

ICES' role as 'interlocutor' between the UN Fish Stocks Agreement and the CFP is all but explicit in several ICES texts, including annual management advice to the EU which refers directly to provisions of the Agreement. In contrast, the Fish Stocks Agreement is not referred to at all in the pre-amble of the new CFP Regulation. Indeed, coordination efforts between the global fisheries regime and the CFP, where these have occurred, do not appear to have supported synergy, at least not in the area of recovery plans and pre-agreed decision rules. Despite annual reviews by the UN General Assembly, hearings have taken the form of delegations simply making statements rather than actual debates (Hyvarinen *et al.* 1998). FAO's involvement in EU implementation of the Fish Stocks Agreement is also difficult to pinpoint. There appears, thus, to be considerable scope for improving inter-institutional coordination efforts between the General Assembly and FAO on the one side, and the CFP regime on the other.

The work of elaborating and translating the precautionary approach into the EU context has also, it seems, rested largely with ICES. Perhaps the main drawback of ICES involvement, however, has been the way in which the precautionary approach and associated advice on the use of rebuilding plans was presented to the fishing industry and fisheries managers. The sudden introduction of precautionary reference points and calls for recovery plans in the 1998 ICES advice left little time for discussions with the industry before decisions had to be taken, while making it difficult for managers to gauge the costs and benefits of action.<sup>62</sup> The need for a careful and continuous dialogue had been clearly demonstrated if unnecessary resistance to the use of recovery plans was to be avoided (Brown 2000). Improved communication with the industry has since helped to convince parts of the fisheries sector of the benefits of adopting management strategies, not least as a means of introducing greater stability within the sector (Deas 2000).

### **6.3 Summary and assessment**

With the major 2002 reform of the CFP now completed, the stage has been set for the EU to adopt multi-annual plans including pre-agreed harvesting rules. It will probably be several years before individual plans and pre-agreed decision rules are actually adopted, and therefore also until the influence of the global fisheries regime on the CFP can reasonably be assessed. However, there is every indication that the CFP has and will continue to interact with and respond to the Fish Stocks Agreement in this regard.

---

<sup>62</sup> See Brown 2000 and Deas 2000, in particular.

The initial interaction between the CFP fisheries management regime and the global fisheries regime was broadly synergistic since both institutions have sought to improve fisheries management. There are nevertheless key differences between the institutions and which have generated a response from the CFP. These differences concern the means available to the institutions, and particular membership of the two institutions. Although it has taken several years for the concept of pre-agreed decision-rules to be reflected in the CFP, the EU's commitment to the precautionary principle, its involvement in negotiating the Fish Stocks Agreement and its reliance on ICES for scientific advice has clearly supported this development.

The response to this interaction has involved collective decision-making by the EU, eased by lessons learned from previous attempts to introduce EU medium-term management strategies, as well as a wider and growing EU commitment to the precautionary approach to fisheries management. ICES' role in generating the response has been significant. ICES's dire advice regarding the state of EU cod and hake stocks has acted as a motor behind the use of rebuilding plans. Although inadequate attention to communication issues may have weakened this role, initially at least, more concerted efforts have since been made to improve communication with stakeholders on the benefits of the precautionary approach, long term management and pre-agreed decision rules.

## **7 Conclusions**

The global fisheries regime has developed considerably during the past decade, notably by the elaboration of a precautionary approach to fisheries management, stronger and more specific requirements for cooperation on high-seas fisheries, and more intrusive compliance-control procedures beyond national waters. Interaction with international regimes in other issue areas, and with certain particularly advanced regional fisheries regimes, have been important to this development (Stokke ed. 2001, Stokke and Coffey 2001). This paper has examined three cases where the global fisheries regime has influenced problem-solving activities under other regimes: WTO regulation of fisheries subsidies; ICES' provision of scientific advice to fisheries management bodies in the Northeast Atlantic; and regulation under the EU Common Fisheries Policy.

For all three cases, differences in means are an important driver of institutional interaction. In the subsidies case, source-regime provisions explicitly relating to subsidies are non-binding and backed up by weaker compliance mechanisms than those of the target regime, the WTO. The fisheries regime has served to direct attention among participants in the trade regime to the significance of fisheries subsidies and lent credibility to a negative framing of this issue which highlights threats to sustainability and development instead of the positive impacts that fisheries subsidies may have, especially with regard to regional development goals. The precautionary cases, too, display significant cognitive interaction in that ideas and concepts elaborated in global negotiations structure regional research and decision-making. In these cases, however, there is also an element of nested norms in the

causal relationship: the global fisheries regime provides new binding commitments, which has enhanced, within the target regimes, the compelling force of precautionary procedures.

Differences in membership are significant to the extent that they explain differences in means. In the precautionary cases, where memberships differ notably, the global fisheries regime provides an overall format which is specified and made operational within the more limited, regional regimes. Another important aspect of membership relates to the objectives pursued by international regimes, and resulting differences as to the bureaucratic sectors involved, and associated expertise. One reason the WTO has been so eager to maintain cooperative links with the FAO on subsidies reform is the latter's recognized expertise in fisheries matters and its access to additional expertise at national management levels. Similarly, the broader vocational blend characteristic of FAO as compared to ICES, especially with regard to technological and social sciences, explains in part why this organization has given relatively more emphasis to the non-biological aspects of precautionary management.

The overall effect of the responses examined here has been to improve synergy between the institutions, though not always overwhelmingly so. With regard to fisheries subsidies, developments under the global fisheries helped to place this issue on the agenda of the new round of WTO negotiation, but it is yet unclear whether rules will actually be changed in a way that will address over-capacity in the fisheries sector. Similarly, the precautionary provisions of the Fish Stocks Agreement strengthened the hand of those within ICES and EU fisheries bodies who favoured greater safety margins, long-term planning, and pre-agreement on recovery plans for endangered stocks. That said, the actual impacts on management are unclear, partly because precautionary advice has only recently been accompanied by regulatory decision-making in favour of long-term and precautionary management.

All cases display awareness among participants in source and target regimes of the fact of interaction and also preparedness to *respond* to it, if necessary. Most of the response has occurred within the respective regimes, however, and inter-institutional coordination plays only a moderate part. In the subsidies case, the FAO was requested by WTO to help clarify the causal relationships between subsidies and responsible fisheries management but was unable, at least in the short term, to provide specific findings that would facilitate agreement on the issue within WTO. There is little to suggest that more extensive cross-regime coordination would have improved this interaction, however, due to the high level of political controversy that surrounds the issue. Now that the WTO members have agreed to negotiate fisheries subsidies, there will be new opportunities for FAO and others to provide more specific inputs to a process which could generate stronger and more enforceable rules on such subsidies. As regards precautionary management, too, some inter-agency coordination on how to improve implementation has occurred, in the form of broad expert meetings, but the higher level of conflict among various stakeholders that accompanied introduction of the precautionary approach has largely been addressed within each of the respective institutions.

The findings in this paper confirm that interaction between international regimes at global and regional levels can be significant in their ability to address environmental management effectively. Cross-institutional learning, by flows of concepts and ideas, is an important way in which such interaction occurs, as are processes of obligation in cases where the source regime is binding and the memberships partially overlap. Such impacts should not be expected to be deep in the short term because inputs from other institutions, whether calls for specific fact-finding or elaboration of general management principles, are typically filtered through the existing practices of the target regime. Accordingly, when examining how participants in the respective institutions respond to the interaction, it is vital that attention is not limited to inter-agency coordination efforts because much of the adaptation is likely to occur in the form of rather autonomous collective decision-making within the source or the target institutions.

## References

Anon (2001), *Report of the Study Group on the further Development of the Precautionary Approach to Fisheries Management*, Advisory Committee on Fishery Management, ICES CM 2001/ACFM:11

Boyle, Alan (2001), 'Problems of Compulsory Jurisdiction and the Settlement of Disputes Relating to Straddling Fish Stocks', O. S. Stokke (ed.), *Governing High Seas Fisheries: The Interplay of Global and Regional Regimes*. Oxford University Press.

Brown, S. (2000) 'The Precautionary Approach: a user's view', paper presented at *ICES 2000 Annual Science Conference*, Denmark:ICES

Butterworth, D. S. (1999), *Taking Stock: Science and Fisheries Management Entering the New Millennium*, University of Capetown, New Series, 212.

Caddy, J. F. (1998), 'A Short Review of Precautionary Reference Points and Some Proposals for Their Use in Data-Poor situations', *FAO Fisheries Technical Paper*, 379:30.

Caddy, John (1997), 'Checks and Balances in the Management of Marine Fish Stocks: Organizational Requirements for a Limit Reference Point Approach', *Fisheries Research*, 30, 1-15.

Commission (2000) Communication from the Commission to the Council and European Parliament – Application of the precautionary principle and multi-annual arrangements for setting TACs, COM(2000)803, 1 December 2000. Brussels: European Commission

Commission (2001) Green Paper on a Future Common Fisheries Policy, COM(2001)135, 20. March 2001. Brussels:European Commission

Cunningham, Steve and Dominique Gréboval (2001), 'Managing Fishing Capacity: A Review of Policy and Technical Issues', *FAO Fisheries Technical Paper*.

Deas, B. (2000) 'Fishermen and Scientists: collaboration as the basis for stock recovery', paper presented at *ICES 2000 Annual Science Conference*, Denmark:ICES

FAO (2002), 'Report of the Second Ad Hoc Meeting with Intergovernmental Organizations on Work Programmes Related to Subsidies in Fisheries', *FAO Fisheries Reports*, 688.

FAO (2001a), *The State of the World Fisheries and Aquaculture 2000*. (www.fao.org).

FAO (2001b), 'Report of the Ad Hoc Meeting with Intergovernmental Organizations on Work Programmes Related to Subsidies in Fisheries', *FAO Fisheries Reports*, 649 (www.fao.org).

FAO (1998a), 'Issues of International Trade, Environment and Sustainable Fisheries Development: Fisheries Management, Subsidies and International Fish Trade', Committee on Fisheries, Sub-Committee on Fish Trade, COFI:FT/VI/98/4.

FAO (1998b), 'COFI Report of the Sixth Session of the Sub- Committee on Fish Trade', *FAO Fisheries Reports*, 589.

FAO (1997), 'Review of the State of World Fishery Resources: Marine Fisheries', *FAO Fisheries Circular*, 920.

FAO (1996), 'Precautionary Approach to Capture Fisheries and Species Introductions', *FAO Technical Guidelines for Responsible Fisheries*, 2.

Farnell, J. (1999), New directions in the new century? speech to the 11<sup>th</sup> Annual Conference of Fisheries Economists.

Frost H, R. Lanter, J. Smit, and P. Sparre (1995), *An Appraisal of the Decommissioning Scheme in the Case of Denmark and the Netherlands*, Esbjerg: Danish Institute of Fisheries Economic Research.

Garcia, S. M. (2000), 'The Precautionary Approach to Fisheries 1995-2000: Progress Review and Main Issues' (www.ices.dk/reports/acfm/2000/cwp/cwp00.pdf).

Gréboval, Dominique (2000), 'The FAO International Plan of Action for the Management of Fishing Capacity', (www.osu.orst.edu/Dept/IIFET/2000).

Gullestad, Petter (1998), 'The Scope for Research in Practical Fishery Management', *Fisheries Research*, 37, 251-8.

Hanna, D. (1999), 'Strengthening governance of ocean fishery resources', *Ecological Economics*, 31:2.

Hannesson, Rögnvaldur (2001), 'Effects of Liberalizing Trade in Fish, Fishing Services and Investment in Fishing Vessels', *OECD Papers*, 1.

Hilborn, Ray, Jean-Jacques Maguire, Ana M. Parma and Andrew A. Rosenberg (2001), 'The Precautionary Approach and Risk Management: Can They Increase the Probability of Successes in Fishery Management', *Canadian Journal of Fisheries and Aquatic Sciences*, 58, 99-107.

Hyvarinen, Joy, Elizabeth Wall and Indrani Lutchman, 'The United Nations and Fisheries in 1998', *Ocean Development and International Law*, 29 (1998), 323-38.

Lassen, Hans and Henrik Sparholt (2000), 'ICES Framework for the Implementation of the Precautionary Approach' ([www.ices.dk/reports/acfm/2000/cwp/cwp00.pdf](http://www.ices.dk/reports/acfm/2000/cwp/cwp00.pdf)).

Mace, P. M. and W. L. Gabriel (1999), 'Evolution, scope and current applications of the precautionary approach in fisheries', *NOAA Technical Memorandum*, NMFS-F/SPO-40.

MacGarvin, Malcolm (2001) 'Fisheries: taking stock', P. Harremoës, D. Gee, M. MacGarvin, A. Stirling, J. Keys, B. Wynne and S. Guedes Vaz (eds.), 'Late Lessons From Early Warnings: The Precautionary Principle 1896-2000', *Environmental Issue Reports*, (Copenhagen: European Environmental Agency, 2001) ([www.eea.eu.int](http://www.eea.eu.int)).

Milazzo, Matteo (1998), 'Subsidies in World Fisheries: A Reexamination', *World Bank Technical Paper: Fisheries Series*, Washington, DC: The World Bank.

Pauly D, Christensen V, Gu netter S, Pitcher TJ, Rashid Sumaila U, Walters CJ, Watson R, Zeller D (2002), 'Towards sustainability in world fisheries', *Nature*, 418,

Oberthür, Sebastian and Thomas Gehring (2001), 'Conceptualizing Interaction between International and EU Environmental Institutions' ([www.ecologic.de/english/interaction](http://www.ecologic.de/english/interaction)).

OECD (1997), *Towards Sustainable Fisheries: Economic Aspects of the Management of Living Marine Resources*, Paris: OECD.

OECD (2000), *Transition to Responsible Fisheries: Economic and Policy Implications*, Paris: OECD.

O'Riordan, T. and J. Cameron (eds, 1994), *Interpreting the Precautionary Principle*, London: Cameron and May.

Porter, Gareth (2002), 'Fisheries Subsidies and Overfishing: Towards a Structured Discussion', *Fisheries and the Environment Series*, Geneva: United Nations Environment Programme ([www.unep.ch](http://www.unep.ch)).

PricewaterhouseCoopers (2000), 'Study Into the Nature and Extent of Subsidies in the Fisheries Sector of APEC Members Economies' ([www.apecsec.org.sg](http://www.apecsec.org.sg)).

Ruckes, E. (2000), 'International Trade in Fishery Products and the New Global Trading

Environment', *Multilateral Trade Negotiations on Agriculture: A Resource Manual* ([www.fao.org/DOCREP/003/X7351E/X7351E00.HTM](http://www.fao.org/DOCREP/003/X7351E/X7351E00.HTM)).

Schorr, David (1998), 'Towards Rational Disciplines on Subsidies to the Fishery Sector: a call for new international rules and mechanisms', *The Footprint of Distant Water Fleets on World Fisheries*, Godalming: WWF

Schorr, David (2000) 'Evidence of Poor Transparency in Fishing Subsidy Programmes', *Fishing in the Dark: A symposium on access to environmental information and government accountability in fishing subsidy programmes, 28-29 November 2000, Brussels, Belgium, Proceedings*, Brussels: WWF ([www.worldwildlife.org/commerce/pubs.htm](http://www.worldwildlife.org/commerce/pubs.htm)).

Sebenius, James K. (1983), 'Negotiation Arithmetic: Adding and Subtracting Issues and Parties', *International Organization*, 37, 281-316.

Stewart, James E. (1991), 'A Brief Review of the International Council for the Exploration of the Sea (ICES) on the Occasion of the Formation of the North Pacific Marine Science Organization', *Canadian Journal of Fisheries and Aquatic Sciences*, 48, 2543-50.

Steenblik, Ronald P. (1999), 'Previous Multilateral Efforts to Discipline Subsidies to Natural Resource Based Industries', M. Riepen (Ed.), *Report of Proceedings, Workshop on the Impact of Government Financial Transfers on Fisheries Management, Resource Sustainability, and International Trade*, 17-19 August 1998, Manila, The Philippines. Singapore: Pacific Economic Co-Operation Council, pp. 39-80.

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

Stokke, Olav Schram and Clare Coffey (2001), 'Institutional Interaction in High Seas Fisheries Management: An Inventory' ([www.ecologic.de/english/interaction](http://www.ecologic.de/english/interaction)).

Stone, Christopher D. (1997), 'Too Many Fishing Boats, Too Few Fish: Can Trade Laws Trim Subsidies and Restore the Balance in Global Fisheries?', *Ecology Law Quarterly*, 24, 505-44.

Symes D (1998), *The Integration of Fisheries Management and Marine Wildlife Conservation*, JNCC Report No 287, Peterborough: JNCC