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### The European Union and the Marine Strategy Framework Directive: Continuing the Development of European Ocean Use Management

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# The European Union and the Marine Strategy Framework Directive: Continuing the Development of European Ocean Use Management

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*The European Union has been engaged in an effort to develop a marine strategy to protect the marine environment and a more encompassing integrated maritime policy that would provide a comprehensive system for the management of the uses of the marine areas of Europe. An earlier article by the author described the beginnings of this policy development; this article examines the subsequent 2008 Directive of the European Parliament and the Council, which establishes a framework for community action in the field of marine environmental policy. The Marine Strategy Framework Directive provides a plan of action with designated responsibilities and obligations and a schedule that is to be adhered to by member states and the European Commission. It represents a significant step in the European endeavor to advance ocean use management and sets the stage for future development of European marine policy.*

**Keywords** European marine strategy, European maritime policy, European ocean management/governance, ocean governance

## Introduction

In an earlier article, I examined the initiation of efforts in the European Union (EU) to develop a coherent and integrated approach to ocean use management.<sup>1</sup> Since then, the EU has expanded its membership from 25 to 27 states. Geographically, the marine waters of the EU, which then extended from the North Sea and the Baltic Sea in the north to the Irish Sea and the Atlantic Ocean in the west, to the Mediterranean Sea to the south and east, now include portions of the Black Sea as well. (See Figure 1.) Twenty-two of the 27 member states are coastal and the total coast line of the EU is over 65,000 km.<sup>2</sup>

The purpose of this article is to examine the 2008 Directive of the European Parliament and the Council that establishes a framework for community action in the field of marine environmental policy.<sup>3</sup> This directive, known as the Marine Strategy Framework Directive (MSFD), provides a plan of action with designated responsibilities and obligations as well as a schedule that is to be adhered to by member states and the European Commission. Accordingly, it represents a significant step in the European endeavor to advance ocean use management and merits consideration.

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**Figure 1.** The European Union. (Source: U.S. Central Intelligence Agency, *The World Factbook 2008*, available at [www.cia.gov/library/publications/the-world-factbook/geos/ee.html](http://www.cia.gov/library/publications/the-world-factbook/geos/ee.html).)

Preparatory work done by the European Commission culminating in the adoption of this Directive strongly emphasized the need for effective ocean use management to address problems, including: overexploitation of living resources, alien species introductions, marine pollution, and the need to protect biodiversity and to do so in a comprehensive manner. Such an effort would require effective action through the development of an integrated, cross-sectoral approach to governance that would overcome the management failures associated with the existing pattern of compartmentally based decision making.<sup>4</sup> The 2008 MSFD, proposed by the Commission,<sup>5</sup> modified by the European Parliament<sup>6</sup> and the Council,<sup>7</sup> and adopted by the latter two bodies through the EU's co-decision process,<sup>8</sup> establishes the framework for the operationalization of a broad, coordinated, coherent, and ecosystem-based approach to ocean use management for the marine areas of Europe.

## The Marine Strategy Framework Directive

### *Legal Nature of a Directive*

In formulating policy, the EU has a choice of legal instruments to employ. With respect to coastal zone management, the European Council and Parliament in 2002 utilized the device of a recommendation, which is not binding on member states.<sup>9</sup> Other available legal instruments include regulations or decisions that are binding in their entirety on member states. The EU may also adopt a directive that establishes goals that are binding on member states to which it is directed, but leaves to the national authorities the choice of means to achieve the obligatory goals.<sup>10</sup> With respect to the MSFD, the decision to use a directive reflects concern with the European Community's constitutional principles of subsidiarity<sup>11</sup> and proportionality,<sup>12</sup> and the recognition of the need for flexibility that would allow member states to address the specifics of the varied conditions in different regions of Europe.

### *Structure of the MSFD*

As it appears in the *Official Journal of the European Union*, the 21- page MSFD is composed of three parts. The first is a lengthy Preamble that lays out the significance of the marine environment; the threats to that environment; the measures that have been undertaken within the EU leading up to the adoption of the MSFD; and the many ecological, political, and legal elements and principles that were considered in drafting the Directive.<sup>13</sup> The second part of the MSFD is the operative part and is divided into five chapters:

Chapter I—General Provisions;  
 Chapter II—Marine Strategies: Preparation;  
 Chapter III—Marine Strategies: Programmes of Measures;  
 Chapter IV—Updating Reports and Public Information; and  
 Chapter V—Final Provisions.

The final part of the Directive is composed of six annexes that provide standards and guidance to member states as they address the requirements of the operative sections of the Directive. They have the following titles:

Annex I—Qualitative descriptors for determining good environmental status;  
 Annex II—Competent authorities;  
 Annex III—Indicative lists of characteristics, pressures and impacts;  
 Annex IV—Indicative list of characteristics to be taken into account for setting environmental targets;  
 Annex V—Monitoring programmes; and  
 Annex VI—Programmes of measures.

### *MSFD Perspective and Approach*

Preambles to documents such as international treaties, United Nations General Assembly Resolutions, and also European Union Directives are useful in understanding the motivation and rationale for the actions outlined in their operative sections. In the case of the MSFD, concerns over the need to protect the marine environment and, more particularly, the necessity for conserving marine ecosystems, are expressly stated.<sup>14</sup> The Directive declares that:

The marine environment is a precious heritage that must be protected, preserved and, where practicable, restored with the ultimate aim of maintaining biodiversity and providing diverse and dynamic oceans and seas which are clean, healthy and productive.<sup>15</sup>

To these ends, the Directive calls for integration of environmental considerations into all policy areas, with the MSFD becoming the “environmental pillar” of a broader, cross-cutting, future EU maritime policy.<sup>16</sup> Moreover, it explicitly endorses an ecosystem-based approach to the management of human uses of the marine environment, one that allows for sustainable use of marine goods and services but, very notably, gives priority to maintaining or achieving “good environmental status” of the marine environment and, in doing so, applying the precautionary principle.<sup>17</sup> “Good environmental status” is a central concept in the approach of the Directive and its utilization is similar to the stipulation of “good surface water status,” “good groundwater status,” and “good ecological status” as objectives in the EU’s 2000 Water Framework Directive.<sup>18</sup> In the MSFD, “good environmental status” is defined as:

the environmental status of marine waters where these provide ecologically diverse and dynamic oceans and seas which are clean, healthy and productive within their intrinsic conditions, and the use of the marine environment is at a level that is sustainable, thus safeguarding the potential for uses and activities by current and future generations. . . .<sup>19</sup>

This definition is further developed by expression of concern with anthropogenic inputs that impact the structure and function of marine ecosystems, ecosystem resilience, biodiversity and marine habitat, and the “hydro-morphological, physical and chemical properties of the ecosystems.”<sup>20</sup>

Although the developed strategies are to protect marine ecosystems so that they are not overwhelmed by the cumulative pressures of human activities, the strategies are to allow for sustainable use of marine resources and services by present and future generations.<sup>21</sup> As in all efforts at environmental management, decisions will need to be taken as to the relative priority of use, on the one hand, and conservation and preservation on the other. To promote the stated goal of “good environmental status,” the Directive establishes a framework for action stipulating a variety of obligations and broad targets, leaving it to member states, individually and collectively, to fill in the details.

For example, it is the member states that have the responsibility for determining the precise characteristics of “good environmental status” and environmental targets, for developing and implementing strategies and measures to meet those objectives, and for adopting methodological standards for ongoing assessment of the status of the marine environment.<sup>22</sup> However, as will be seen below, all of those actions by member states are made subject to the guidance and oversight of the European Commission.<sup>23</sup>

The EU’s consideration of the MSFD and an integrated maritime policy (IMP) has given substantial deference to its important principle of subsidiarity<sup>24</sup> and the role of the member states is emphasized throughout the Directive, but the MSFD also recognizes that measures will need to be taken at regional or Community levels in those circumstances where action by individual member states would be insufficient.<sup>25</sup> As noted by Maes, the approach of the EU “confirms the European marine regions as management units for implementation.”<sup>26</sup> Indeed, there is already some history of regional efforts in Europe at ocean use management as, for example, in the Baltic Sea, the North Sea, and the northeast

Atlantic that will be further developed consequent to the MSFD.<sup>27</sup> Thus, while each member state is responsible for developing a strategy specific to its own marine waters, each national strategy is to reflect the broader perspective of the marine region of which it is part and contribute to good environmental status at the subregional, regional, and national levels.<sup>28</sup>

Moreover, given the multiple authorities with management responsibilities, the Directive emphasizes the need to maintain the coherency and consistency of actions taken at national, regional, Community, and international levels, the latter involving the cooperation of non-Community states. At the same time, the Directive acknowledges the reality that the nature of the problems faced in particular marine regions differs and that management solutions will have to vary accordingly.<sup>29</sup>

In addition to recognizing the need for consistency of actions among states and at different levels of governance, the Directive also highlights the need for cross-cutting coordination of the present effort to protect the marine environment with a host of other EU-wide policies such as the Common Fisheries Policy, the Common Agricultural Policy, and the Directive on Water Policy as well as with relevant requirements of international agreements.<sup>30</sup> In this sense, the MSFD is seen as a corrective reaction to the failures associated with earlier sectoral policies taken on a compartmentalized basis that have addressed particular marine uses at all levels of governance from local to international.<sup>31</sup>

With respect to its view of the marine environment, the Directive is sensitive to the reality of nested natural systems. Smaller geographic and ecological areas are recognized as functionally part of larger ecological systems, and it is appreciated that what happens in each influences the other. Consequently, coordination of management efforts through the levels of nested systems is required. Underlying the Directive is the recognition that, just as natural systems are nested and intertwined, governance systems are also nested and intertwined. What is required are management efforts at the global level as recognized by international conventions such as the 1982 United Nations Convention on the Law of the Sea<sup>32</sup> and the Convention on Biological Diversity,<sup>33</sup> at the regional level as reflected in international agreements such as those for the Mediterranean<sup>34</sup> and Black Sea,<sup>35</sup> and at national levels necessitating the development of EU member state marine strategies.<sup>36</sup>

The Directive represents an effort to implement an ecosystem-based management (EBM) approach to ocean use management.<sup>37</sup> This is underscored by its stipulation that the extent of geographic space that should be subject to management measures not be limited to or coextensive with the space coming under the political/legal jurisdiction of individual states or even that of the EU's member states collectively. Importantly, the concept of "region" as utilized in the MSFD is ecological in nature, being defined not by political factors but rather by consideration of "hydrological, oceanographic and biogeographic features."<sup>38</sup> This, in turn, underscores the need for cooperation among member states in a "region" or "subregion," but also the fact that in a variety of instances, such as in the Baltic or the Mediterranean, to be effective management will have to involve "third countries;" that is, nonmember states.<sup>39</sup>

In addition to the consideration of spatial scale, the Directive specifically identifies as goals of marine strategies the protection and, where possible, the restoration of marine ecosystems.<sup>40</sup> The focus on protection of marine ecosystems and their functioning is clear and concepts and principles that are part and parcel of models for EBM, such as biodiversity, precaution, sustainability, habitat, and concern with the needs of future generations, are very much in evidence in the Directive.

The MSFD recognizes that the conceptualization of good environmental status is not a one-time matter but, rather, something that will continue to evolve and be adapted over

time in the face of dynamic factors such as ecosystem change, new scientific knowledge, and the development of new technological capabilities. Accordingly, provision must be made for modification of adopted marine strategies and measures.<sup>41</sup> Periodic assessment of the state of the marine environment, monitoring, and formulation of environmental targets are perceived as part of a continuing management process.<sup>42</sup> And, in this effort to achieve effective marine use management, the Directive calls for “active involvement of the general public.”<sup>43</sup> Fundamentally, what the MSFD attempts to do is to establish the framework for an ongoing process of ocean use governance with major input from member states rather than a code of centrally determined and detailed, substantive rules that are to be immutably followed.

As would be expected in the extended process of drafting the MSFD, disparate interests, both within and outside of the EU institutions, tried to influence its character and specific provisions. For example, environmental groups supported development of a directive that would be mandatory in character while the Council of Ministers, with opposition from the European Parliament, favored a more aspirational directive.<sup>44</sup> Controversy was in evidence, for instance, with respect to the first operative article of the draft MSFD released in December 2006, which stated that the marine strategies “shall be developed and implemented *with the aim* of achieving or maintaining good environmental status.”<sup>45</sup> In its final version, and at the behest of the European Parliament, that wording was changed to more direct and obligatory phrasing, stipulating that member states “shall take the necessary measures to achieve or maintain good environmental status in the marine environment. . .” and, for that purpose, marine strategies “shall be developed and implemented. . .”<sup>46</sup> More generally, tensions between environmental and economic interests and perspectives were evident in the process leading to the adoption of the MSFD.<sup>47</sup> It can be expected that these differences will continue as implementation of the Directive takes place.

### ***Operationalization of the Directive***

The Directive is an action-oriented document that applies to “marine waters;” that is, the waters, seabed, and subsoil, seaward of the baselines used to measure the territorial seas out to the legal limits of the exclusive economic zone and the continental shelf as determined under the rules of the 1982 Law of the Sea Convention (LOS Convention).<sup>48</sup> As seen below, it establishes for member states goals, guidelines for action, procedural requirements, and timelines that are to be met.

*Member State Obligations.* With respect to the designated marine waters, the Directive lays out responsibilities and establishes an obligatory schedule according to which a variety of actions are to be taken by member states. (See Table 1.) To start with, member states are given the task of creating national marine strategies for their marine waters that would preserve, protect, and, where possible, restore marine ecosystems.<sup>49</sup> Additionally, marine pollution is to be reduced or prevented so as to ensure that there are “no significant impacts on or risks to marine biodiversity, marine ecosystems, human health or legitimate uses of the sea.”<sup>50</sup>

Moreover, while member states are to develop national marine strategies for application in their own marine waters, the strategies are to be developed in the context of the needs of their marine regions or subregions.<sup>51</sup> Member states within each region are to make certain that adopted measures “are coherent and coordinated across the marine region or subregion concerned,” following a common approach, and meeting designated deadlines.<sup>52</sup> In further recognition of the workings of ecological systems, the Directive realistically

**Table 1**

European Union: Directive 2008/56/EC (17 June 2008) Time Schedule for Action by Member States

Action	Target date
(A) In regard to National Marine Waters	
● initial assessment of environmental status of waters and environmental impact of human activities <sup>1</sup>	15 July 2012
● determination of “good environmental status” <sup>2</sup>	15 July 2012
● determination of environmental targets and associated indicators <sup>3</sup>	15 July 2012
● establishment and implementation of a monitoring program for ongoing assessment and regular updating of targets <sup>4</sup>	15 July 2014
● development of a program of measures to achieve or maintain “good environmental status” <sup>5</sup>	By 2015
● entry into operation of the developed program of measures <sup>6</sup>	By 2016
(B) In regard to regional cooperation	
● for each marine region or subregion, designate the authority or authorities competent for the implementation of this Directive <sup>7</sup>	15 July 2010
● provide the Commission with list of competent authorities and information requested by Annex II <sup>8</sup>	15 January 2011

<sup>1</sup> Article 5(2)(a)(i).

<sup>2</sup> Article 5(2)(a)(ii).

<sup>3</sup> Article 5(2)(a)(iii).

<sup>4</sup> Article 5(2)(a)(iv).

<sup>5</sup> Article 5(2)(b)(i).

<sup>6</sup> Article (5)(2)(b)(ii).

<sup>7</sup> Article 7(1). Note that this provision also applies to member states within the catchment area for each marine region or subregion. They are to designate the authority or authorities competent for cooperation and coordination; thus, the Directive’s force is not directed to only coastal states.

<sup>8</sup> Article 7(1).

acknowledges the need for coordination and cooperation not only of coastal member states, but also landlocked states with catchment (watershed) areas whose waters ultimately flow into European marine regions.<sup>53</sup>

The Directive specifically identifies four marine regions:

- the Baltic Sea;
- the North-east Atlantic Ocean;
- the Mediterranean Sea; and
- the Black Sea.<sup>54</sup>

Additionally, in view of the special features of areas of the Northeast Atlantic and the Mediterranean, the subregions are identified. For the northeast Atlantic:

- the Greater North Sea, including the Kattegat and the English Channel;
- the Celtic Seas;
- the Bay of Biscay and the Iberian coast; and
- the Macronesian biogeographic region, being the waters surrounding the Azores, Madeira, and the Canary Islands.

For the Mediterranean:

- the Western Mediterranean Sea;
- the Adriatic Sea;
- the Ionian Sea and the Central Mediterranean Sea; and
- the Aegean-Levantine Sea.<sup>55</sup>

Member states may utilize additional, appropriate subdivisions of marine waters, but those subdivisions are to be compatible with the subregions explicitly identified in the Directive.<sup>56</sup>

To advance regional cooperation and coordination, the Directive calls on and encourages member states to use existing regional institutions and organizations, including those established under the relevant Regional Seas Conventions of the United Nations Environment Programme (UNEP).<sup>57</sup> It is recognized that existing arrangements provide opportunities for cooperation not only among EU member states, but also between EU states and nonmember states that share ecologically defined marine regions.<sup>58</sup>

*EU Standards, Oversight, and Responsibility.* While it is the member states that are to draft marine strategies, under the Directive it is the institutions of the European Union that are responsible for ensuring that the national and regional level efforts are coherent and appropriately consistent with the Directive. Among other things, the oversight, control, and coordinating role of the EU is reflected in the fact that the Directive provides a number of elements of guidance that are to be followed as national and regional marine strategies are developed and implemented.

Thus, while the Directive mandates a series of actions at the level of member states, it clearly provides an oversight and coordinating role at the Community level through the European Commission. Among other required actions, the Commission is to be informed by the member states of measures taken pursuant to the Directive and is responsible for assessing whether the adopted national programs meet the requirements laid out by the Directive. To this end, the Commission may request additional information from member states that may be needed to make such an evaluation.<sup>59</sup> The Commission's assessment process is not only to consider the stand-alone adequacy of a member state's program of action, but also to ponder the regional and Community coherence of national programs. Following this analysis, which is to occur in a 6-month time frame, the Commission is to inform member states of its findings with respect to such consistency and to offer guidance on necessary modifications.<sup>60</sup>

As would be expected, marine strategies are understood as instruments subject to a continuing requirement of adaptation over time rather than as instruments that are permanently fixed. Once adopted, they are to be reviewed by member states on a 6-year cycle, with a reexamination of earlier assessments, good environmental status, environmental targets, monitoring programs, and the adopted program of measures.<sup>61</sup> Member state updates consequent to these reviews are then subject, once again, to review and guidance from the Commission.<sup>62</sup> Further, member states are required to deliver to the Commission interim reports describing the progress of implementation within 3 years of program adoption.<sup>63</sup>

In preparing marine strategies, member states are tasked to assess the state of their marine waters and to analyze the pressures and human impacts on those waters. In fulfilling this responsibility, however, each member state is to utilize the indicative list of quantitative and qualitative elements contained in Annex III of the Community Directive.<sup>64</sup> (See the Appendix.) As can be readily seen in Annex III, the elements enumerated for consideration in the required assessment focus on ecological descriptors of the area to be subject to

management. Additionally, the assessment is to consider relevant elements of other Community legislation including, for example, the Water Directive of October 2000.<sup>65</sup> In conducting their studies, member states are to coordinate their efforts to ensure that assessment methodologies are consistent for the subregion or region, and that transboundary features and impacts are taken under advisement.<sup>66</sup>

Assessment is a matter that is to be conducted on a continuing basis. Specific provision is made for the development of ongoing monitoring programs, which are to be conducted in accordance with the EU-provided indicative lists contained in Annex III and Annex V of the MSFD.<sup>67</sup> (See the Appendix to this article.) Member state monitoring programs under the Directive are also to be regionally consistent, utilizing standardized monitoring methodologies, and in accord with similar programs for monitoring established under other Community legislation including, for example, those under Habitats and Bird Directives,<sup>68</sup> as well as under existing international agreements.<sup>69</sup> Such consistency, taken together with consideration of transboundary features and impacts, will provide a basis for meaningful regional assessment of change that could be informative when data is compared to that of the initial baseline assessment. The Commission is given competence to determine whether the efforts adopted for assessment and monitoring provide an appropriate framework to meet the requirements of the MSFD. Should the Commission find that measures taken are inadequate or not regionally coherent, it will provide guidance on needed modifications.<sup>70</sup>

Although it is left to the member states to determine the precise characteristics of “good environmental status” for regional marine waters, this is to be done on the basis of the factors identified in Annex I of the Directive.<sup>71</sup> (See the Appendix to this article.) Entitled “Qualitative descriptors for determining good environmental status,” this Annex lays out a list of 11 descriptors to be considered by member states with the expectation that each will be addressed by member states in developing a marine strategy. These descriptors address a wide range of factors that could individually or collectively affect an area’s environmental status. Elements considered include: the changing state of biological diversity; introduction of nonindigenous species; food webs; eutrophication; seafloor integrity; contamination and the introduction of energy, including noise, into the environment. Should a state conclude that the use of any of the descriptors is inappropriate, that state is required to justify its position to the Commission.<sup>72</sup>

Having determined the character of good environmental status, member states in each marine region or subregion are then to establish a detailed agenda of environmental targets together with indicators that would offer guidance in the effort to achieve that good environmental status.<sup>73</sup> With regard to mandated requirements for assessment of environmental conditions and human impacts and in the determination of good environmental status, Annex IV of the Directive obliges member states to utilize an EU-created list of characteristics to be considered in establishing environmental targets.<sup>74</sup> (See the Appendix to this article.) As can be seen in Annex IV, the list calls on member states to set measurable and consistent targets based on the definition of good environmental status, identify resources needed to achieve targets, and provide indicators so as to allow for evaluation of progress. In developing targets and utilizing the EU indicators, member states are to ensure that their efforts are compatible with national, Community, and international targets adopted with respect to regional waters and that, to the extent possible, they consider transboundary impacts.<sup>75</sup> At the same time, the MSFD also requires contemplation of social and economic concerns in the setting of targets.<sup>76</sup> How socioeconomic elements will be balanced with the other stipulated considerations will be of great interest. No doubt, the balancing process will lead to substantial controversy.

Subsequent to the assessment process and in the context of regional or subregional needs as well as with reference to designated environmental targets, member states are to identify the measures that need to be taken to accomplish the good environmental status that they had delineated earlier.<sup>77</sup> In doing so, they are to take into account relevant Community legislation relating to wastewater, bathing water quality, and other environmental quality standards.<sup>78</sup> They are also to assess the implications of their proposed measures on waters beyond their jurisdiction.<sup>79</sup>

The Directive specifically calls for action, utilizing spatial protection measures, to foster “coherent and representative networks of marine protected areas, adequately covering the diversity of the constituent ecosystems.”<sup>80</sup> It also recognizes the reality of situations in which Community-level or even wider international action is needed and authorizes efforts at these broader levels “so as to enable the integrity, structure and functioning of ecosystems to be maintained or, where appropriate, restored.”<sup>81</sup> Indeed, in instances identified by member states in which action at the national level to advance environmental status would be inadequate, the Commission is to be so informed and is to consider recommendations by member states of the action needed at the Community level. The Commission is to respond within a 6-month period and is to make the necessary requests to the European Parliament and the Council.<sup>82</sup>

Upon adoption of a program of measures, notification is to be provided to the European Commission and concerned member states within 3 months.<sup>83</sup> Those measures are to be made operational within a year.<sup>84</sup> It is significant to note that the Commission is given the responsibility of assessing whether the adopted measures of member states “constitute an appropriate framework to meet the requirements” of the MSFD and, if not, the Commission is to indicate what modifications are required.<sup>85</sup>

Although the Directive’s essential purpose is to advance a healthy marine environment, all of the measures contemplated are to be subject not only to socioeconomic considerations, but also to cost-benefit analysis and evaluated in light of the concept of sustainable development.<sup>86</sup> The Directive stipulates that member states are not obligated to take steps where the costs of those efforts “would be disproportionate taking account of the risks to the marine environment, and provided that there is no further deterioration.”<sup>87</sup>

Notably, the MSFD calls on member states to identify and explain exceptions, situations in which member states cannot “in every aspect” achieve environmental targets or good environmental status due to the following factors:

- action or inaction for which the member state is not responsible;
- natural causes;
- force majeure; and/or
- changes in the physical characteristics of marine waters resulting from actions taken for overriding public interest that outweighs the negative impact on the environment.<sup>88</sup>

In all such situations the member state is to justify to the European Commission its failure to act while also ensuring that the goal of good environmental status is not permanently compromised.<sup>89</sup>

*Community-Level Evaluation.* Under the MSFD, the European Commission is charged with preparing for the European Parliament and the Council its first report evaluating the implementation of the Directive within 2 years of receipt of all national programs of measures, but no later than 2019. Subsequent reports are to be published at 6-year intervals.<sup>90</sup> By 15 July 2012, the Commission is also to report to the Parliament and the Council with

an assessment of how the Directive has contributed to obligations at the Community or the wider international level to environmental protection of marine waters.<sup>91</sup> By 2013, the Commission is obligated to evaluate progress with respect to the creation of marine protected areas.<sup>92</sup> Finally, the MSFD is subject to a mandatory review by the Commission no later than 15 July 2023.<sup>93</sup>

*Public Participation.* It is apparent that the MSFD will be dependent on solid and reliable scientific data and analysis to be effective. At the same time, public involvement in the development of marine policy has been encouraged in the EU<sup>94</sup> and, of necessity, introduces a host of political or “non-scientific” factors into the policy process. The problematic character of the interplay of science and public participation in marine policy development and implementation has often been noted.<sup>95</sup>

The MSFD places substantial emphasis on the need for the wider public to be informed and consulted as action is taken under the Directive. Member states are obliged to “ensure that all interested parties are given early and effective opportunities to participate in the implementation of this Directive.”<sup>96</sup> In particular, key elements of marine strategies such as initial assessments, determination of good environmental status, environmental targets, monitoring programs, and programs of measures are to be made available for public comment.<sup>97</sup> Making such information widely available is in line with provisions of earlier EU Directives and the Aarhus Convention,<sup>98</sup> which address freedom of access to environmental information, provide extensive rights to such access, and call for the integration of access rights into Community policies and activities.<sup>99</sup> But, being informed is only one aspect of public participation; it will be interesting to see the actual role and distribution of influence among elements of the public and the degree of meaningful consultation and input in decision making relating to the interpretation and implementation of the MSFD.

*Financing.* This important subject is addressed only briefly with a statement that implementation of the Directive will be “supported by existing Community financial instruments in accordance with applicable rules and conditions.”<sup>100</sup> It is stipulated that member state programs will be “co-financed by the EU in accordance with existing financial instruments.”<sup>101</sup> Given the varied financial capabilities and policy priorities of member states, this may emerge as an important element in the success of the MSFD.

### **The Marine Strategy Directive and the EU’s Integrated Maritime Policy**

The MSFD is viewed by the Commission as the “environmental pillar” of a much wider and broadly encompassing IMP. As suggested by the Commission, the IMP is expected to address, in coordinated and cross-sectoral fashion, the totality of Europe’s relationship with oceans and seas. Fundamentally, the IMP would consider the interrelated issues of maximizing the sustainable use of European seas, minimizing conflict among users, and protecting the marine environment.<sup>102</sup> The MSFD specifically addresses this latter element, one that is to be considered and balanced in light of the other elements. The MSFD is seen by the Commission and the Council as being nested in the IMP rather than as being a stand-alone Directive.

Given the wide sweep of the proposed IMP, with its attention to the multitude of uses of marine space, it is not surprising that maritime spatial planning has become a focal point of attention in EU institutions. This evolving tool is regarded as both a means and as a process to assist in minimizing conflicts by designating the location of different uses in particular areas, but also as a mechanism to contribute to protection and restoration

of environmental sustainability and health.<sup>103</sup> Reflecting a modern perception of ocean space, maritime spatial planning considers marine areas in terms of four dimensions: the seabed, the water column, the water surface, and time.<sup>104</sup> The inclusion of time as the fourth dimension acknowledges the fact that use compatibility varies temporally. This conception of ocean space allows for varying uses in the different layers of the vertical spatial column of marine space.

Clearly, attention will have to be given to the interplay of land-based activities on marine waters to ensure consistency of activities in those two interrelated areas. Coordination between terrestrial planning and marine spatial planning will be needed. The Commission recognizes that coherence between onshore planning efforts in drainage basins, in the coastal zone, and in marine waters is required.<sup>105</sup> Coordination of efforts associated with other EU Directives and Recommendations, such as the Water Directive and the Coastal Management Recommendation,<sup>106</sup> will be of key importance in that regard.

## **Conclusion**

Ecosystem-based management is a concept that has been globally endorsed as a basis for more effective organization of human uses of the environment and its resources. Because of its holistic nature requiring consideration of myriad factors and spatial areas that extend beyond politically and legally defined jurisdictions, it is recognized as presenting many difficulties in efforts at actual operationalization. Nonetheless, efforts have been ongoing in a variety of countries and in the EU as well to develop and apply this new approach to the management of marine and coastal areas. EBM is understood to have a number of advantages over traditional, sectorally based management applied within the artificial confines dictated by political boundaries. As described by Underdal in his classic article on integrated marine policy, coordination through both vertical dimensions (different levels of authority, international, regional, national, and local) and horizontal dimensions (different institutional bodies at the same level, as in various national agencies) will be needed.<sup>107</sup> The 2008 MSFD expressly acknowledges these requirements, stressing the need for policy coherency, but the precise details of how the Directive will be implemented remain to be determined.

In this context, the MSFD must be seen for what it is: not the end, but rather another step, in an ongoing process of policy evolution and in the development of an important part of an integrated, ecosystem-based framework for a management regime for the marine areas of Europe. The implementation of the Directive will determine its success or failure and will require the cooperation of many governmental and nongovernmental entities. It will also require an effective balancing of different considerations, most notably protection of ecological systems and economic development.

The MSFD is said to be the environmental pillar of a wider IMP. The fit and weight of the MSFD in this broader context is yet to be seen. Inevitably, choices will have to be made that will shape the actual and precise character of the MSFD and the broader IMP. While decisions will be made by the EU member states, they will be subject to the continuing review of the European Commission which will play a key role in the interpretation and implementation of the MSFD. The Directive sets a process in motion and indicates that the way policy is made and governance proceeds will be different than has been the case in the past. It is suggestive of the possibility of better outcomes in ocean use management efforts. But, ultimately, the relative weights given to different considerations, the timeliness and effectiveness of changing institutional arrangements, the ability to learn from experience and alter governance arrangements and policies, and the totality and cumulative impact of

many decisions will determine success in the promotion of ecological sustainability and effective ocean use management.

## Notes

1. Lawrence Juda, “The European Union and Ocean Use Management: The Marine Strategy and the Maritime Policy,” *Ocean Development and International Law* 38 (2007): 259–282.

2. According to U.S. Central Intelligence Agency, *The World Factbook* (2008), the European Union (EU) coastline has a length of 65,992.9 km, available at [www.cia.gov/library/publications/the-world-factbook/geos/ee.html](http://www.cia.gov/library/publications/the-world-factbook/geos/ee.html). The landlocked states of the EU are: Austria, the Czech Republic, Hungary, Luxembourg, and Slovakia.

3. Directive 2008/56/EC of the European Parliament and of the Council of 17 June 2008 (the Maritime Strategy Framework Directive [MSFD]), *Official Journal of the European Union* L 164 (25 June 2008), 19–40, available at [eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2008:164:0019:0040:EN:PDF](http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2008:164:0019:0040:EN:PDF).

4. See, for example, European Commission, Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee, and the Committee of the Regions, *An Integrated Maritime Policy for the European Union*, COM (2007) 575 final (10 October 2007), available at [eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2007:0575:FIN:EN:PDF](http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2007:0575:FIN:EN:PDF). See also Commission Staff Working Document, *An Integrated Maritime Policy for the European Union*, SEC (2007) 1278 (10 October 2007), available at [ec.europa.eu/maritimeaffairs/pdf/ActionPaper/action\\_plan\\_en.pdf](http://ec.europa.eu/maritimeaffairs/pdf/ActionPaper/action_plan_en.pdf); Commission of the European Communities, Communication from the Commission to the Council and the European Parliament, *Thematic Strategy on the Protection and Conservation of the Marine Environment*, COM (2005) 504 final (24 October 2005), available at [www.waterland.net/showdownload.cfm?objecttype=mark.hive.contentobjects.download.pdf&objectid=C37B22E1-0459-1F1C-0F7615A097B94331](http://www.waterland.net/showdownload.cfm?objecttype=mark.hive.contentobjects.download.pdf&objectid=C37B22E1-0459-1F1C-0F7615A097B94331); and European Commission, Communication from the Commission to the Council and the European Parliament, *Towards a Strategy to Protect and Conserve the Marine Environment*, COM (2002) 539 final (2 October 2002), available at [www.eurocean.org/np4/file/129/Com\\_20\\_2002\\_20Marine\\_20environment.pdf](http://www.eurocean.org/np4/file/129/Com_20_2002_20Marine_20environment.pdf).

5. Commission of the European Communities, *Proposal for a Directive of the European Parliament and of the Council Establishing a Framework for Community Action in the Field of Marine Environmental Policy (Marine Strategy Directive)*, COM (2005) 505 final (24 October 2005), available at [eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2005:0505:FIN:EN:PDF](http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2005:0505:FIN:EN:PDF).

6. A detailed examination of the changes proposed by the Parliament of the European Community is found in Council of the European Union, Interinstitutional File: 2005/0211 (COD) (Brussels, 13 December 2007), available at [register.consilium.europa.eu/pdf/en/07/st16/st16st16340.en07.pdf](http://register.consilium.europa.eu/pdf/en/07/st16/st16st16340.en07.pdf).

7. See Council of the European Union, Statement of the Council’s Reasons, Interinstitutional File: 2005/0211 (COD) (Brussels, 3 July 2007), available at [register.consilium.europa.eu/pdf/en/07/st09/st09388-ad01.en07.pdf](http://register.consilium.europa.eu/pdf/en/07/st09/st09388-ad01.en07.pdf).

8. The full documentation of the legislative history of the MSFD is available at [www.europarl.europa.eu/oeil/file.jsp?id=5283632](http://www.europarl.europa.eu/oeil/file.jsp?id=5283632). On the co-decision process, see European Commission, The Codecision Procedure, available at [ec.europa.eu/codecision/procedure/index\\_en.htm](http://ec.europa.eu/codecision/procedure/index_en.htm).

9. Council, Recommendation of the European Parliament and of the Council of 30 May 2002, Concerning the Implementation of Integrated Coastal Zone Management in Europe, *Official Journal of the European Communities* L 148/24 (6 June 2002), available at [eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2002:148:0024:0027:EN:PDF](http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2002:148:0024:0027:EN:PDF).

10. On the distinction among the different legislative mechanisms, see Consolidated Version of the Treaty Establishing the European Community (the EU Treaty), *Official Journal of the European Communities* C 325/33 (24 December 2002), art. 249, available at [eur-lex.europa.eu/en/treaties/dat/12002E/pdf/12002E.EN.pdf](http://eur-lex.europa.eu/en/treaties/dat/12002E/pdf/12002E.EN.pdf).

11. The constitutional principle of subsidiarity recognizes a division of authority between the European Union and its member states. The EU Treaty, *supra* note 10, art. 5, provides that in areas not coming under its exclusive competence, the EU can act “only if and in so far as the objectives of the

proposed action cannot be sufficiently achieved by the Member States and can therefore, by reason of the scale or effects of the proposed action, be better achieved by the Community.” On the concept of subsidiarity and its policy significance, see Andrew Jordan and Tim Jeppesen, “EU Environmental Policy: Adapting to the Principle of Subsidiarity?” *European Environment* 10 (2000): 64–74; and Gráinne de Búrca, “Reappraising Subsidiarity’s Significance after Amsterdam” (Cambridge: Harvard Law School, July 1999), available at [www.jeanmonnetprogram.org/papers/99/990701.rtf](http://www.jeanmonnetprogram.org/papers/99/990701.rtf).

12. The principle of proportionality supplements subsidiarity. The EU Treaty, *supra* note 10, art. 5, stipulates: “Any action by the Community shall not go beyond what is necessary to achieve the objectives of this Treaty.”

13. MSFD, *supra* note 3, paras. 1–48.

14. See, for example, *ibid.*, preambular paras. 2–5.

15. *Ibid.*, preambular para. 3.

16. *Ibid.* and Joe Borg, member of the European Commission for Fisheries and Maritime Affairs, “The EU’s Integrated Maritime Policy: Making Headway in Difficult Times” (Malta, 7 May 2009), available at [ec.europa.eu/maritimeaffairs/speeches/speech070509\\_en.html](http://ec.europa.eu/maritimeaffairs/speeches/speech070509_en.html).

17. *Ibid.*, preambular paras. 8 and 44.

18. Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy, *Official Journal of the European Communities* L 327/1 (22 December 2000), preambular paras. 2(18), 2(20), 2(22), and art. 4, available at [eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2000:327:0001:0072:EN:PDF](http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2000:327:0001:0072:EN:PDF).

19. MSFD, *supra* note 3, art. 3(5).

20. *Ibid.*, art. 3(5)(a)(b).

21. *Ibid.*, art. 1(3).

22. *Ibid.*, preambular paras. 24–27 and 38.

23. *Ibid.*, preambular paras. 11, 14, 24–32, and 35.

24. The Council of the EU has made it clear that the development of an integrated maritime policy should proceed “in accordance with the principle of subsidiarity.” Council of the European Communities, *Draft Council Conclusions on the Integrated Maritime Policy* (5 December 2008), available at [register.consilium.europa.eu/pdf/en/08/st16/st16503-re01.en08.pdf](http://register.consilium.europa.eu/pdf/en/08/st16/st16503-re01.en08.pdf). The Commission has stipulated that it will implement the maritime policy “fully complying with the subsidiarity principle.” Commission of the European Communities, *Guidelines for an Integrated Approach to Maritime Policy*, COM (2008) 395 final (June 26, 2008), at 4, available online at [ec.europa.eu/maritimeaffairs/pdf/com08\\_395.eu.pdf](http://ec.europa.eu/maritimeaffairs/pdf/com08_395.eu.pdf).

25. MSFD, *supra* note 3, preambular para. 43.

26. Frank Maes, “The International Legal Framework for Marine Spatial Planning,” *Marine Policy* 32 (2008): 797–810, at 799.

27. See the Web sites of the Helsinki Commission at [www.helcom.fi](http://www.helcom.fi); the North Sea Commission at [www.northsea.org](http://www.northsea.org); and the OSPAR Commission at [www.ospar.org](http://www.ospar.org).

28. MSFD, *supra* note 3, preambular paras. 5, 10, 11, and 27.

29. *Ibid.*, preambular para. 10.

30. *Ibid.*, preambular paras. 9, 12, 16–19, and 39–40.

31. Commission of the European Communities, *Guidelines for an Integrated Approach to Maritime Policy*, *supra* note 24.

32. United Nations Convention on the Law of the Sea, 1833 *U.N.T.S.* 397.

33. Framework Convention on Biological Diversity, 1760 *U.N.T.S.* 79.

34. The multiple treaties concerning the protection of the Mediterranean Sea, developed under the auspices of the United Nations Environment Programme, are available at [www.unepmap.org/index.php?module=content2&catid=001001004](http://www.unepmap.org/index.php?module=content2&catid=001001004).

35. The text of the treaties concerning the protection of the Black Sea are available at [www.blacksea-commission.org/main.htm](http://www.blacksea-commission.org/main.htm).

36. MSFD, *supra* note 3, preambular paras. 17–19 and 27–28.

37. *Ibid.*, art. 1(3) states that “Marine strategies shall apply an ecosystem-based approach to the management of human activities. . . .”

38. *Ibid.*, art. 3(2). The terminology “politically defined space” and “ecologically defined space” is used in Lawrence Juda, “Considerations in Developing a Functional Approach to the Governance of Large Marine Ecosystems,” *Ocean Development and International Law* 30 (1999): 89–125.

39. *Ibid.*, preambular paras. 13, 16, and 20.

40. *Ibid.*, art. 1(2).

41. *Ibid.*, preambular para. 34.

42. *Ibid.*, preambular para. 38,

43. *Ibid.*, preambular para. 36.

44. Laurence D. Mee et al., “How Good Is Good? Human Values and Europe’s Proposed Marine Strategy Directive,” *Marine Pollution Bulletin* 56 (2008): 187–204.

45. Council of the European Union, Information Note, *Proposal for a Directive of the European Parliament and of the Council Establishing a Framework for Community Action in the Field of Marine Environmental Policy (Marine Strategy Directive)*, 16976/06 (20 December 2006), available at [register.consilium.europa.eu/pdf/en/06/st16/st16976.en06.pdf](http://register.consilium.europa.eu/pdf/en/06/st16/st16976.en06.pdf) (emphasis added).

46. MSFD, supra note 3, art. 1(1)(2). For a detailed review of Parliamentary amendments to the Council’s positions on the draft MSFD, see European Parliament, Recommendation for Second Reading, A6-0389/2007 (12 October 2007), available at [www.europarl.europa.eu/sides/getDoc.do?language=EN&reference=A6-0389/2007](http://www.europarl.europa.eu/sides/getDoc.do?language=EN&reference=A6-0389/2007).

47. Juda, “The European Union and Ocean Use Management,” supra note 1.

48. MSFD, supra note 3, art. 3(a).

49. *Ibid.*, art. 1(1) and (2).

50. *Ibid.*, art. 1(2).

51. *Ibid.*, art. 5(1).

52. *Ibid.*, art. 5(2).

53. *Ibid.*, art. 6.

54. *Ibid.*, art. 4(1).

55. *Ibid.*, art. 4(2).

56. *Ibid.*, art. 4(2).

57. See supra note 34.

58. MSFD, supra note 3, art. 6.

59. *Ibid.*, art. 16.

60. *Ibid.*

61. *Ibid.*, art. 17(1)(2).

62. *Ibid.*, art. 17(3)(4).

63. *Ibid.*, art. 18.

64. *Ibid.*, art. 8.

65. *Ibid.*, art. 8(2); and the Water Policy Directive, supra note 18.

66. *Ibid.*, art. 8(3).

67. *Ibid.*, art. 11(1).

68. Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora, available at [eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31992L0043:EN:NOT](http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31992L0043:EN:NOT); and Council Directive 79/409/EEC of 2 April 1979 on the conservation of wild birds, available at [eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31979L0409:EN:HTML](http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31979L0409:EN:HTML).

69. MSFD, supra note 3, art. 11(1)(2) (4).

70. *Ibid.*, art. 12.

71. *Ibid.*, art. 9(1).

72. *Ibid.*, Annex I.

73. *Ibid.*, art. 10.

74. *Ibid.*, art. 10(1) and Annex IV.

75. *Ibid.*, art. 10(1).

76. *Ibid.*, Annex IV, para. 9.

77. *Ibid.*, art. 13(1).

78. *Ibid.*, art. 13(2).

79. *Ibid.*, art. 13(8).

80. *Ibid.*, art. 13(4).

81. *Ibid.*, art. 13(5).

82. *Ibid.*, art. 15.

83. *Ibid.*, art. 13(9).

84. *Ibid.*, art. 13(10).

85. *Ibid.*, art. 16.

86. *Ibid.*, art. 13(3).

87. *Ibid.*, art. 14(4).

88. *Ibid.*, article 14(1).

89. *Ibid.*, art. 14(1)(e), 14(2)

90. *Ibid.*, art. 20(1).

91. *Ibid.*, art. 20(2).

92. *Ibid.*, art. 21.

93. *Ibid.*, art. 23.

94. See, for example, Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, *Conclusions from the Consultation on a European Maritime Policy*, COM(2007) 574 final (Brussels, 10 October 2007), available at [eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2007:0574:FIN:EN:PDF](http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2007:0574:FIN:EN:PDF). More recently, the EU, in conjunction with European Maritime Day, has hosted a stakeholder's conference, 19–20 May 2009, to allow for input from a variety of interested parties, available at [ec.europa.eu/maritimeaffairs/maritimeday/conference\\_in\\_rome\\_en.html](http://ec.europa.eu/maritimeaffairs/maritimeday/conference_in_rome_en.html).

95. See, for instance, Stephen Fletcher, "Converting Science to Policy Through Stakeholder Involvement: An Analysis of the European Marine Strategy Directive," *Marine Pollution Bulletin* 54 (2007): 1881–1886.

96. MSFD, *supra* note 3, art. 19(1).

97. *Ibid.*, art. 19(2).

98. Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters (1998), (the Aarhus Convention), available at [www.unece.org/env/pp/documents/cep43e.pdf](http://www.unece.org/env/pp/documents/cep43e.pdf).

99. See Directive 2003/4/EC of the European Parliament and of the Council of 28 January 2003 on public access to environmental information; and Council Directive 90/313/EEC of 7 June 1990 on the freedom of access to information on the environment. Directive 2003/4/EC notes, at para. 16, that: The right to information means that the disclosure of information should be the general rule and that public authorities should be permitted to refuse a request for environmental information in specific and clearly defined cases. Grounds for refusal should be interpreted in a restrictive way, whereby the public interest served by disclosure should be weighed against the interest served by the refusal. . . .

100. MSFD, *supra* note 3, art. 22(1).

101. *Ibid.*, art. 22(2).

102. The vision of the Commission is expressed in its report, *An Integrated Maritime Policy for the European Union*, *supra* note 4. The Council welcomed the Commission's report and called for the further development of the IMP, using the MSFD as the "environmental pillar" of the future IMP. Council of the European Union, Presidency Conclusions, 16616/1/07 Rev. 1 (14 December 2007), at 17, available at [www.consilium.europa.eu/ueDocs/cms\\_Data/docs/pressData/en/ec/97669.pdf](http://www.consilium.europa.eu/ueDocs/cms_Data/docs/pressData/en/ec/97669.pdf).

103. Commission of the European Communities, Communication from the Commission, Roadmap for Maritime Spatial Planning: Achieving Common Principles in the EU, COM (2008) 791 final (Brussels, 25 November 2008), available at [eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2008:0791:FIN:EN:PDF](http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2008:0791:FIN:EN:PDF); and European Commission, Legal Aspects of Maritime Spatial Planning (October 2008), available at [ec.europa.eu/maritimeaffairs/pdf/legal\\_aspects\\_msp\\_report\\_en.pdf](http://ec.europa.eu/maritimeaffairs/pdf/legal_aspects_msp_report_en.pdf).

104. Commission, Roadmap for Maritime Spatial Planning, *supra* note 103, at 9.

105. *Ibid.*, at 10–11.

106. Water Policy Directive, *supra* note 18; and Coastal Management Recommendation, *supra* note 9.

107. Arild Underdal, "Integrated Marine Policy: What? Why? How?" *Marine Policy* 4 (1980): 159–169.

## Appendix

### Selected Annexes to the Maritime Strategy Framework Directive

#### Annex I

Qualitative descriptors for determining good environmental status

(referred to in Articles 3(5), 9(1), 9(3) and 24).

1. Biological diversity is maintained. The quality and occurrence of habitats and the distribution and abundance of species are in line with prevailing physiographic, geographic and climatic conditions.
2. Non-indigenous species introduced by human activities are at levels that do not adversely alter the ecosystems.
3. Populations of all commercially exploited fish and shellfish are within safe biological limits, exhibiting a population age and size distribution that is indicative of a healthy stock.
4. All elements of the marine food webs, to the extent that they are known, occur at normal abundance and diversity and levels capable of ensuring the long-term abundance of the species and the retention of their full reproductive capacity.
5. Human-induced eutrophication is minimised, especially adverse effects thereof, such as losses in biodiversity, ecosystem degradation, harmful algae blooms and oxygen deficiency in bottom waters.
6. Sea-floor integrity is at a level that ensures that the structure and functions of the ecosystems are safeguarded and benthic ecosystems, in particular, are not adversely affected.
7. Permanent alteration of hydrographical conditions does not adversely affect marine ecosystems.
8. Concentrations of contaminants are at levels not giving rise to pollution effects.
9. Contaminants in fish and other seafood for human consumption do not exceed levels established by Community legislation or other relevant standards.
10. Properties and quantities of marine litter do not cause harm to the coastal and marine environment.
11. Introduction of energy, including underwater noise, is at levels that do not adversely affect the marine environment.

To determine the characteristics of good environmental status in a marine region or subregion as provided for in Article 9(1), Member States shall consider each of the qualitative descriptors listed in this Annex in order to identify those descriptors which are to be used to determine good environmental status for that marine region or subregion. When a Member State considers that it is not appropriate to use one or more of those descriptors, it shall provide the Commission with a justification in the framework of the notification made pursuant to Article 9(2).

#### Annex III

Indicative lists of characteristics, pressures and impacts

(referred to in Articles 8(1), 9(1), 9(3), 10(1), 11(1) and 24)

**Appendix Table 1**  
Characteristics

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Physical and chemical features

- Topography and bathymetry of the seabed,
- annual and seasonal temperature regime and ice cover, current velocity, upwelling, wave exposure, mixing characteristics, turbidity, residence time,
- spatial and temporal distribution of salinity,
- spatial and temporal distribution of nutrients (DIN, TN, DIP, TP, TOC) and oxygen,
- pH, pCO<sub>2</sub> profiles or equivalent information used to measure marine acidification.
- Habitat types
- The predominant seabed and water column habitat type(s) with a description of the characteristic physical and chemical features, such as depth, water temperature regime, currents and other water movements, salinity, structure and substrata composition of the seabed,
- identification and mapping of special habitat types, especially those recognised or identified under Community legislation (the Habitats Directive and the Birds Directive) or international conventions as being of special scientific or biodiversity interest,
- habitats in areas which by virtue of their characteristics, location or strategic importance merit a particular reference. This may include areas subject to intense or specific pressures or areas which merit a specific protection regime.

Biological features

- A description of the biological communities associated with the predominant seabed and water column habitats. This would include information on the phytoplankton and zooplankton communities, including the species and seasonal and geographical variability,
- information on angiosperms, macro-algae and invertebrate bottom fauna, including species composition, biomass and annual/seasonal variability,
- information on the structure of fish populations, including the abundance, distribution and age/size structure of the populations,
- a description of the population dynamics, natural and actual range and status of species of marine mammals and reptiles occurring in the marine region or subregion,
- a description of the population dynamics, natural and actual range and status of species of seabirds occurring in the marine region or subregion,
- a description of the population dynamics, natural and actual range and status of other species occurring in the marine region or subregion which are the subject of Community legislation or international agreements,
- an inventory of the temporal occurrence, abundance and spatial distribution of nonindigenous, exotic species or, where relevant, genetically distinct forms of native species, which are present in the marine region or subregion.

Other features

- A description of the situation with regard to chemicals, including chemicals giving rise to concern, sediment contamination, hotspots, health issues and contamination of biota (especially biota meant for human consumption),
  - a description of any other features or characteristics typical of or specific to the marine region or subregion.
-

**Appendix Table 2**  
Pressures and impacts

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Physical loss

- Smothering (e.g. by man-made structures, disposal of dredge spoil),
- sealing (e.g. by permanent constructions).

Physical damage

- Changes in siltation (e.g. by outfalls, increased run-off, dredging/disposal of dredge spoil),
- abrasion (e.g. impact on the seabed of commercial fishing, boating, anchoring),
- selective extraction (e.g. exploration and exploitation of living and non-living resources on seabed and subsoil).

Other physical disturbance

- Underwater noise (e.g. from shipping, underwater acoustic equipment),
- marine litter.

Interference with hydrological processes

- Significant changes in thermal regime (e.g. by outfalls from power stations),
- significant changes in salinity regime (e.g. by constructions impeding water movements, water abstraction).

Contamination by hazardous substances

- Introduction of synthetic compounds (e.g. priority substances under Directive 2000/60/EC which are relevant for the marine environment such as pesticides, antifoulants,
- pharmaceuticals, resulting, for example, from losses from diffuse sources, pollution by ships, atmospheric deposition and biologically active substances),
- introduction of non-synthetic substances and compounds (e.g. heavy metals, hydrocarbons, resulting, for example, from pollution by ships and oil, gas and mineral exploration and exploitation, atmospheric deposition, riverine inputs),
- introduction of radio-nuclides.

Systematic and/or intentional release of substances

- Introduction of other substances, whether solid, liquid or gas, in marine waters, resulting from their systematic and/or intentional release into the marine environment, as permitted in accordance with other Community legislation and/or international conventions.

Nutrient and organic matter enrichment

- Inputs of fertilisers and other nitrogen- and phosphorus-rich substances (e.g. from point and diffuse sources, including agriculture, aquaculture, atmospheric deposition),
- inputs of organic matter (e.g. sewers, mariculture, riverine inputs).

Biological disturbance

- Introduction of microbial pathogens,
  - introduction of non-indigenous species and translocations,
  - selective extraction of species, including incidental non-target catches (e.g. by commercial and recreational fishing).
-

## **Annex IV**

Indicative list of characteristics to be taken into account for setting environmental targets (referred to in Articles 10(1) and 24)

1. Adequate coverage of the elements characterising marine waters under the sovereignty or jurisdiction of Member States within a marine region or subregion.
2. Need to set (a) targets establishing desired conditions based on the definition of good environmental status; (b) measurable targets and associated indicators that allow for monitoring and assessment; and (c) operational targets relating to concrete implementation measures to support their achievement.
3. Specification of environmental status to be achieved or maintained and formulation of that status in terms of measurable properties of the elements characterising the marine waters of a Member State within a marine region or subregion.
4. Consistency of the set of targets; absence of conflicts between them.
5. Specification of the resources needed for the achievement of targets.
6. Formulation of targets, including possible interim targets, with a timescale for their achievement.
7. Specification of indicators intended to monitor progress and guide management decisions with a view to achieving targets.
8. Where appropriate, specification of reference points (target and limit reference points).
9. Due consideration of social and economic concerns in the setting of targets.
10. Examination of the set of environmental targets, associated indicators and limit and target reference points developed in light of the environmental objectives laid down in Article 1, in order to assess whether the achievement of the targets would lead the marine waters falling under the sovereignty or jurisdiction of Member States within a marine region to a status matching them.
11. Compatibility of targets with objectives to which the Community and its Member States have committed themselves under relevant international and regional agreements, making use of those that are most relevant for the marine region or subregion concerned with a view to achieving the environmental objectives laid down in Article 1.
12. When the set of targets and indicators has been assembled, they should be examined together relative to the environmental objectives laid down in Article 1 to assess whether the achievement of the targets would lead the marine environment to a status matching them.

## **Annex V**

Monitoring programmes

(referred to in Articles 11(1) and 24)

1. Need to provide information for an assessment of the environmental status and for an estimate of the distance from, and progress towards, good environmental status in accordance with Annex III and with the criteria and methodological standards to be defined pursuant to Article 9(3).
2. Need to ensure the generation of information enabling the identification of suitable indicators for the environmental targets provided for in Article 10.

3. Need to ensure the generation of information allowing the assessment of the impact of the measures referred to in Article 13.
4. Need to include activities to identify the cause of the change and hence the possible corrective measures that would need to be taken to restore the good environmental status, when deviations from the desired status range have been identified.
5. Need to provide information on chemical contaminants in species for human consumption from commercial fishing areas.
6. Need to include activities to confirm that the corrective measures deliver the desired changes and not any unwanted side effects.
7. Need to aggregate the information on the basis of marine regions or subregions in accordance with Article 4.
8. Need to ensure comparability of assessment approaches and methods within and between marine regions and/or subregions.
9. Need to develop technical specifications and standardised methods for monitoring at Community level, so as to allow comparability of information.
10. Need to ensure, as far as possible, compatibility with existing programmes developed at regional and international level with a view to fostering consistency between these programmes and avoiding duplication of effort, making use of those monitoring guidelines that are the most relevant for the marine region or subregion concerned.
11. Need to include, as part of the initial assessment provided for in Article 8, an assessment of major changes in the environmental conditions as well as, where necessary, new and emerging issues.
12. Need to address, as part of the initial assessment provided for in Article 8, the relevant elements listed in Annex III including their natural variability and to evaluate the trends towards the achievement of the environmental targets laid down pursuant to Article 10(1), using, as appropriate, the indicators established and their limit or target reference points.