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REGULATING MARINE SCIENTIFIC RESEARCH IN THE EUROPEAN UNION: IT TAKES MORE THAN TWO TO TANGO

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Abstract

The EU and the Member States are party to the 1982 United Nations Convention on the Law of the Sea. The EU has been a long-standing proponent of the conceptual underpinnings of the 1982 Convention as a "package deal" that balances conflicting interests in an equitable manner. Among the provisions of the package which are particularly germane to achieving this objective are those that are in Part XIII which facilitate and encourage the conduct of marine scientific research (MSR). These provisions are increasingly important in attaining the overall objectives of the EU's Integrated Maritime Policy and its environmental pillar, the Marine Strategy Framework Directive, which among other matters aims to promote new approaches to marine resource management including the ecosystem approach.

With a view to investigating the legal constraints and opportunities at an EU level for improving the implementation of this new normative concept in marine environmental management, this paper traces the progressive development of EU policy in relation to MSR and undertakes a brief review of current Member State practice in relation to implementation of Part XIII of the 1982 Convention. This is followed by a short account of EU regulatory instruments, which are relevant to improving access to data, samples and the results of scientific research on marine ecosystems.

The paper concludes by suggesting a number of steps that could be taken by the EU to streamline the current consent regime that applies to foreign vessel MSR with a view to facilitating the practical implementation of ecosystem approach at a pan-European level. A brief analysis of a number of policy and legal options is undertaken with a view to improving the collection and provision of scientific information and data across the maritime boundaries of the Member States. The paper suggests that the proposed course of action will facilitate a gradual transition from the current fragmented approach to the authorisation of ship-based MSR towards a fully integrated governance system in line with the requirements of a range of EU and international legal instruments. The proposed harmonisation measures sit comfortably with the 1982 Convention which places express obligations on States and competent international organisations to create favourable conditions for the conduct of MSR and requires them to adopt reasonable procedures that promote and facilitate MSR. The author contends that the proposed governance structure and harmonisation instrument will support the sustainable and integrated management of marine ecosystems. The identification of such structures and the streamlining of administrative procedures is one of the core objectives of the EU funded ODEMM project which is examining various options for ecosystem-based management in the European marine environment.

The path to long term recovery from the current economic crisis; the path to tackling key societal challenges; the path to ensuring a prosperous and secure Europe, lie in research and innovation. [1]

1. Introduction

As is evident from the quotation above, the European Union (EU) is placing considerable emphasis on research, innovation and education as a means to stimulate recovery from the current economic crises. In this era of globalisation, there are several other factors which contribute to economic prosperity as is evident from the thought provoking paper delivered by Dr. Bosworth at the opening session of this conference where he articulates the arguments for rebalancing the global economy in the post crises period.[2] Although not specifically mentioned by Dr. Bosworth, one such factor is clarity and certainty in the rule of law as it applies to economic and maritime activities undertaken at sea. The history of the law of the sea teaches us this can often be achieved by seeking global solutions to global problems and by compromise and "accommodations" on the part of nations with respect to uses of the sea.[3] Few can argue with this approach as it has paid a handsome dividend in the form of economic prosperity, the strengthening of peace, security, co-operation and

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[1] European Commissioner for Research, Innovation and Science, Máire Geoghegan-Quinn, speech delivered to the EurOcean Conference 2010. 09.09.2010. Available at: http://europa.eu/rapid/pressReleasesAction.do?reference=SPEECH/10/415&format=HTML&aged=0&language=EN&guiLanguage=en

[2] B. Bosworth, "Post-Crisis Global Rebalancing" *infra.*

[3] D. P. O'Connell, *The International Law of the Sea* (Oxford, Claredon Press, 1982), p.29.

friendly relations among all nations in accordance with general principles of the United Nations Charter.[4]

The EU is fully committed to achieving these ideals and in view of the general theme of this conference, globalisation and the law of the sea, it may be pertinent to recall that the European Economic Community (EEC), as it was then known, was the only intergovernmental organisation to sign the Final Act of the 1982 United Nations Convention on the Law of the Sea on 10 December 1982 (hereinafter "the 1982 Convention").[5] As we now approach the thirtieth anniversary of this momentous date, it is also instructive to note that the 27 Member States that make up the EU today, and the EU as a supranational regional economic integration organisation with legal personality and capacity in its own right, are all party to the 1982 Convention.[6] Moreover, in the words of the European Court of Justice, the 1982 Convention now form an "integral part" of the European legal order.[7] This finding of the Court marks an important

[4] On the stability that the 1982 Convention has engendered in the international legal order as it applies to the sea, see, *inter alia*: A. Oude Elferink (Ed.) *Stability and Change in the Law of the Sea: The Role of the LOS Convention* (Leiden/ Boston, Martinus Nijhoff Publishers, 2005) *passim.*

[5]The EEC (as it was then) did not formally participate at UNCLOS III but had observer status at certain sessions. Indeed the only issue that the Member States were able to achieve consensus on at UNCLOS III was in pursuing the right of the EEC to become party to the 1982 Convention, see M. Nordquist *et al*., *United Nations Convention on the Law of the Sea 1982: A Commentary* (Dordrecht/Boston/Lancaster, Martinus Nijhoff Publishers, 1985) Vol. 1, at 84. On the EEC and the 1982 Convention, see, *inter alia*: T. Treves, "The United Nations Law of the Sea Convention of 1982: Prospects for Europe", *Conference Papers Greenwich Forum IX, Britain and the Sea*, (Edinburgh, Scottish Academic Press, 1984) 166–182; K. Simmonds, "The Community's Participation in the U.N. Law of the Sea Convention", in D. O'Keefe and H. Schermers (eds.), *Essays in European Law and Integration*, (Deventer, Kluwer, 1982) 179–191; J.F. Buhl "The European Economic Community and the Law of the Sea" (1982) 2 *ODIL* 188-200; K. Simmonds "The Community's Declaration upon Signature of the UN Convention on the Law of the Sea" (1986) 23 *Common Market Law Review* 521-544; C. Nordmann, "Regional Organisations: The European Community and the Law of the Sea Convention" in D. Vidas, W. Østreng (Ed.) *Order for the Oceans at the Turn of the Century* (The Hague, Kluwer Law International, 1999) 355-363.

[6] The Council approved the 1982 Convention and the Agreement relating to the implementation of Part XI by Council Decision 98/392 of 23 March 1998. OJ L 179/0001, 23.06.1998.

[7] See, *inter alia*: Case C-459/03 *Commission v Ireland* [2006] ECR I-4635, paragraph 82 citing *inter alia*: Case C-344/04 *IATA and ELFAA* [2006] ECR I-403, paragraph 36. The

milestone in the progressive implementation of the 1982 Convention because the Member States of the EU represent a broad spectrum of interests in relation to the law of the sea. Judge Treves has previously noted that these include: major and minor maritime powers (the United Kingdom, France, Spain and Portugal); twenty-two coastal States (Belgium, Bulgaria, Cyprus, Denmark, Estonia, Finland, France, Germany, Greece, Ireland, Italy, Latvia, Lithuania, Malta, Netherlands, Poland, Portugal, Romania, Slovenia, Spain, Sweden, United Kingdom); five land-locked States (Luxembourg, Austria, Hungary, Slovakia, and the Czech Republic); States on the Atlantic Ocean and on semi-enclosed seas such as the Mediterranean Sea and the Baltic Sea; States on the enclosed Black Sea (Romania and Bulgaria); States which border international straits (Spain, France, the United Kingdom, Denmark and Sweden, to name but a few); States with global fishing interests (Spain, Portugal and France); and States that have an active interest in the legal regime that applies to deep seabed mining.[8] This

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law is well settled in so far as international agreements ratified by the EU such as the 1982 Convention are binding on both the European institutions and the Member States pursuant to Art 216(2) of the TFEU. This has important consequences for 'mixed' agreements such as the 1982 LOS Convention where the EU and the Member States are severally liable with Member States for the performance of all obligations arising under the agreement, even in cases where the obligation is within the exclusive competence of the Member States. C-316/91, *Parliament v. Council*, Judgment of 2 March 1994 [1994] ECR I-625, para. 29. However, Art 6 of Annex IX appears to preclude joint and several liability as noted by S. Boelaert-Suominen, "The European Community, the European Court of Justice and the Law of the Sea, 23 (2008) *The International Journal of Marine and Coastal Law* 643-713 at 672-673.

[8] This range of interests has previously been noted in the introduction of the excellent compendium of Member State practice in relation to the law of the sea by T. Treves, L. Pineschi (Ed.) *The Law of the Sea, The European Union and its Member States* (The Hague, Kluwer Law International, 1997) at p.2. Member States interests change with the passage of time and this can be seen in relation to the legal regime that applies to deep seabed mining. In the sense of having an active interest in mine-sites, the reality appears to be that no EU Members have an interest except for Germany and France, which are both contractors with ISA. Having said that, none of the EU Members listed as 'major investors' eligible for election to Group B of the Council in 1994 have been willing to surrender that status (http://www.isa.org.jm/files/documents/EN/16Sess/Assembly/ISBA-16A-CRP1.pdf) In light of this, they would probably not accept that they have no active interest. As a side note, Korea has been arguing for years that the Group B list should be updated and people should reveal their true investments, but others, particularly the Netherlands and Belgium, have blocked any such development. The UK, on the other hand, is part of Group E in a bilateral deal with Korea. Furthermore, it is clearly likely

picture is further complicated if one takes into account the maritime concerns of Croatia, Turkey, and Iceland who are at the time of writing are negotiating to become future Member States of the EU.[9] A central argument made in this paper is that all of these States have an active interest in protecting marine ecosystems and the resources that they support.

At a practical level, one consequence of this broad spectrum of interests is that there is often little scope for absolutism in the EU's position regarding contentious issues in the law of the sea. Furthermore, this diversity of Member State interests goes a long way to explaining why the EU has been a long-standing proponent and beneficiary of the conceptual underpinnings of the 1982 Convention as a "package deal" that balances conflicting interests in an equitable manner. Indeed, experience in the international arena over the past three decades has shown that the concept of "reasonable use" and the "balancing of rights and duties" enshrined in the 1982 Convention has served and continues to serve the EU well.[10] From a European law perspective, there is nothing unusual in this outcome as the principle of interdependence and the pragmatic reconciliation of conflicting interests reflected in the substantive text of the 1982 Convention are also mirrored in the general architecture and functioning of the EU on a day-to-day basis under the EU Treaties. Rather surprisingly, however, little concerted effort was made by the European institutions to harmonise the regulation and administration of the various maritime activities undertaken by the Member States outside of the domain of commercial sea-fisheries up until relatively recently.[11] Somewhat belatedly, this omission is now being addressed through a broad range

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that the old, state-based model of deep sea mining as envisaged in the 1980s is redundant. Interests will likely be revealed in many other ways. For example, Nautilus is sourcing its mining support vessel from Belgium, and its mining equipment from the UK. Finance is being raised in both UK and Canada. These are not 'interests' in the sense discussed at UNCLOS, but are clearly real national interests that EU Members could be expected to defend.

[9] The former Yugoslav Republic of Macedonia is also a candidate Member State and is land-locked. For further information on the accession of new Member States to the EU, see: http://ec.europa.eu/enlargement/candidate-countries/index_en.htm

[10] On the concept of reasonable use, see D. P. O'Connell, *The International Law of the Sea* (Oxford, Clarendon Press, 1982), pp. 57-58.

[11] See, *inter alios*: R.R. Churchill, D. Owen, *The EU Common Fisheries Policy* (Oxford: Oxford University Press, 2010); R. Long, P. Curran, *Enforcing the Common Fishery Policy* (Oxford: Blackwell Science, 2000).

of ocean governance initiatives which have been launched under the rubric of the EU's Integrated Maritime Policy and by means of its so-called environmental pillar, the Marine Strategy Framework Directive (MSFD), which requires all Member States to achieve and maintain good environmental status of marine waters by 2020 at the latest.[12] All of these initiatives are influenced, to a greater or lesser degree, by the 1982 Convention and its associated agreements.[13] Moreover, all of these initiatives are aimed at promoting sustainable uses of the seas and conserving marine ecosystems.

In spite of this progress, many aspects of the 1982 Convention remain dormant within the European legal order and little effort has been made to date to explore the legal constraints and opportunities under the Convention which facilitate the implementation of ecosystem-based management in practice. With this in mind, this paper aims to show that much remains to be done at a European level regarding the implementation of Part XIII of the Convention, which deals with marine scientific research (MSR) and provides safeguards for the various stakeholders concerned with scientific enquiry into the "phenomena and processes occurring in the marine environment and the interrelationship between them".[14] On a similar vein, as will be seen later, there is considerable scope for improving the way the EU and the Member States discharge the specific obligations placed on States and competent international organisations to create favourable conditions for the conduct of MSR through the conclusion of bilateral and multilateral agreements.[15] Likewise, Member States could do a lot more in

[12] Directive 2008/56/EC of the European Parliament and of the Council of 17 June 2008 establishing a framework for community action in the field of marine environmental policy (Marine Strategy Framework Directive) OJ L 164/19, 25.06. 2008. On the Integrated Maritime Policy see note 18 *infra*.

[13] *Op. cit.* note 6.

[14] For commentary on international law as it applies to MSR, see A. Soons, *Marine Scientific Research and the Law of the Sea* (Kluwer Law and Taxation Publishers, Deventer, 1982); M. Gorina-Ysern, *Marine Scientific Research* (Transnational Publishers, Inc., Ardsley, 2003); F.H. Wegelein, *Marine Scientific Research, The Operation and Status of Research Vessels and Other Platforms in International Law* (Martinus Nijhoff Publishers, Leiden/Boston, 2005); United Nations, *Guide for the Implementation of the Relevant Provisions of the UN Convention on the Law of the Sea* (United Nations, Office for Ocean Affairs and the Law of the Sea, New York, 1991); and D. R. Rothwell, T. Stephens, *The International Law of the Sea* (Oxford, Hart Publishing, 2010) pp. 320-337.

[15] Art 243 of the 1982 Convention.

discharging their duty to adopt reasonable rules and procedures that promote and facilitate MSR in accordance with the general scheme set down in Part XIII.[16] Although these provisions of the Convention are not free from controversy at a global level,[17] they are increasingly important to the attainment of the overall objectives of the EU's Integrated Maritime Policy including the implementation of new approaches to marine resource management such as the ecosystems approach which is based on science and knowledge of the marine environment, as well as knowledge about the interrelationships of the processes that occur therein.[18] They are also central to the fulfilment of the EU's commitment to protect and preserve marine environment under an ever-expanding array of international agreements.[19]

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[16] Art. 255 of the 1982 Convention.

[17] There is, for example, no consensus regarding the precise meaning of a number of the terms and expressions in the 1980 Convention pertaining to MSR and survey activities. See *inter alia*: A. Soons, *Marine Scientific Research Provisions in the Convention on the Law of the Sea: Issues of Interpretation* (Law of the Sea Institute, William S. Richardson School of Law, Honolulu, 1989), pp.365–372; as well as the authorities cited by P. Birnie, "Law of the Sea and Ocean Resources: Implications for Marine Scientific Research" (1995) 10 *International Journal of Marine and Coastal Law* 229. On the meaning of both "scientific research" and "scientific research", see F.H. Wegelein, *Marine Scientific Research, The Operation and Status of Research Vessels and Other Platforms in International Law* (Martinus Nijhoff Publishers, Leiden/Boston, 2005), pp.77–80. For an alternative view, see J.A. Roach, "Marine Scientific Research and the New Law of the Sea" (1996) 27 *Ocean Development and International Law* 59 (especially at pp.60–61).

[18] The policy also aims to: promote the integration of maritime governance structures in the Member States; improve the quality of sector policies such as the transport, energy and fisheries policy; implement tailor-made solutions for specific problems taking into account the Regional Seas Convention. The Integrated maritime Policy was endorsed by the General Affairs Council of 16 November 2009. The European Commission has published a number of documents on the policy including: Green Paper, Towards a future Maritime Policy for the Union: A European vision for the oceans and seas, COM(2006) 275, 5. 6. 2006; Communication from the Commission, An Integrated Maritime Policy for the European Union, COM(2007) 575 final, Brussels, 10.10. 2007; Commission Staff Working Document, SEC(2007) 1278, Brussels, 10.10. 2007; Report from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions, Progress Report on the EU's Integrated Maritime Policy, COM (2009) 540, Brussels, 15. 10. 2009.

[19] For a discussion of the EU's international obligations see V. Frank, *The European Community and Marine Environmental Protection in the International Law of the Sea: Implementing Global Obligations at the Regional Level* (Leiden, Martinus Nijhoff, 2007) *passim*.

With a view to improving the way ecosystem-based management of the marine environment is undertaken at a pan-European level, this paper reviews how the law and policy on MSR is functioning in practice in the Member States and identifies where there is scope for improving the implementation of Part XIII on a regional basis. The paper commences by examining a number of provisions in the European Treaties that are applicable to scientific research and describes the rather cumbersome division of legal competence between the EU and Member States regarding the adoption of measures that promote and facilitate MSR. The paper goes on to identify a range of European secondary legislation that may be relied upon by interested parties to access and use data and information derived from MSR and held by public bodies in the Member States. This is followed by a brief review of Member State practice regarding the implementation of Part XIII of the 1982 Convention generally and the procedural requirements that apply to foreign vessel MSR in sea areas under their sovereignty and jurisdiction more specifically. This paper concludes by suggesting a number of measures that could be taken by the EU to streamline the current consent regime that applies to foreign vessel MSR with a view to facilitating the practical implementation of the ecosystem approach in line with the requirements of the EU's Integrated Maritime Policy, the MSFD and the Habitats Directive at a regional level.

Before pressing ahead, two further preliminary points can be made. Firstly, it needs to be emphasised that Professor Soons first advocated the introduction of simplified MSR procedures for European Member States in the early 1990s.[20] His recommendations were well received but few practical steps were undertaken to follow-up on his prescient and incisive views on the subject. In the intervening years, European law and policy has moved on and there now appears to be a cogent case for reopening the discussion on this matter as the significance of Part XIII takes on a new meaning with the pressing need to advance study of the role of the ocean in the functioning of marine ecosystems and in influencing climate change. In other words, ecosystem-based management may act as a catalyst that improves the way European Member States implement Part XIII of the Convention at a regional level.

The second is a more general point and relates to the important term "competent international organisation" which is used in Part XIII but remains

[20] See A. Soons, "Regulation of Marine Scientific Research by the European Community and its Member States" (1992) 23 *Ocean Development and International Law* 259.

undefined in the 1982 Convention.[21] One UN sponsored study that sheds considerable light on this subject concluded that this term "may generally be considered to mean intergovernmental organisations which are empowered by their constituent instrument or other rules of the organisation to undertake, to co-ordinate, or to promote and facilitate the development of MSR".[22] Following this interpretation, the EU appears to be one such organisation as it has a clear legal mandate to encourage and advance scientific research with a view to implementing, amongst other matters, eco-system based management by the Member States in line with the objectives of the MSFD. On this basis, it may be appropriate to commence our discussion by taking a brief look at the relevant EU Treaty provisions on scientific research and their applicability to MSR.

PART I
EU Law and Policy on MSR

2. EU Treaties and MSR

The EU Treaties establish a unique legal order under which the Member States have limited their sovereignty in a number of fields with a view to achieving greater economic, social and political integration. For understandable reasons relating to the political and economic nature of the EU, the European Treaties do not have specific provisions on MSR *simpliciter*.[23] Indeed, the provisions in the foundation Treaties with their emphasis on economic matters

[21] See, *inter alia*: M. Gorina-Ysern, *Marine Scientific Research* (Transnational Publishers, Inc., Ardsley, 2003); F.H. Wegelein, *Marine Scientific Research, The Operation and Status of Research Vessels and Other Platforms in International Law* (Martinus Nijhoff Publishers, Leiden/Boston, 2005).

[22] United Nations, *Guide for the Implementation of the Relevant Provisions of the UN Convention on the Law of the Sea* (United Nations, Office for Ocean Affairs and the Law of the Sea, New York, 1991), p.1.

[23] The Treaty on European Union (TEU) and the Treaty on the Functioning of the EU came into force on 1 December 2009 as a result of the ratification of the Lisbon Treaty by the 27 Member States. A copy of the Consolidated Treaties is published in the Official Journal of the European Union at OJ C 306/50, 17.12.2007. An electronic copy is available at: htpp://europa.eu/lisbon_treaty/full_text/index_en.htm

had very little to say about maritime matters.[24] Thus it is unsurprising to see that much of the initial policy on scientific research was focused on more mundane matters such as the liberalization of public procurement rules and the removal of fiscal and trade barriers to intra Community trade.[25] A major step forward was taken in 1986, however, when the earlier treaty provisions were consolidated and elaborated upon by the Single European Act which provided, for the first time, a specific legal basis for the adoption of pan-European measures which encouraged and facilitated research across a broad range of scientific disciplines including MSR.[26]

Today the treaty position is far more prescriptive as there is a solid normative basis for EU action in the fields of scientific research and technological development in the Treaty of European Union (TEU) and the Treaty on the Functioning of the European Union (TFEU).[27]

For those unfamiliar with the European legal order it may be appropriate to point out that the TEU sets out the broad political, economic and social objectives of the EU. This may be contrasted with the TFEU which is concerned with the role, policies and functioning of the EU including the law-making process that has to be followed by the European institutions when adopting secondary legislation. As such, both of these Treaties mark "a new stage in the process of creating an ever closer union among the peoples of Europe, in which decisions are taken as openly as possible and as closely as possible to the

[24] These include: Article 55 of the European Coal and Steel Community Treaty; Articles 4 to 11 of the European Atomic Energy Community Treaty which deal with nuclear research; and Articles 35 and 308 of the European Community (EC) Treaty Community Research and Technological Development (RTD) policy which was originally based on Article 55 of the European Coal and Steel Community Treaty (expired in 2002); Articles 4 to 11 of the European Atomic Energy Community (EAEC) Treaty (Euratom: nuclear research); and Articles 35 and 308 of the European Community (EC) Treaty. See J. Elizade, "Legal Aspects of Community Policy on Research and Technological Development" (1992) 29 *Common Market Law Review* pp. 309-346.

[25] See *inter alia*: P. Kapteyn The Law of the European Union and the European Communities p. 1263; W. Sauter, *Competition Law and Industrial Policy in the EU* (Oxford, OUP, 2003) p. 84.

[26] Arts 130f-130q of the Single European Act 1986.

[27] See, in particular, Title XIX, Treaty on the Functioning of the European Union.

citizen."[28] Importantly, the TEU clearly states that one of the specific objectives of the EU is to promote scientific and technological advancement.[29] As will be seen below, these wide-ranging treaty provisions provide the framework for the adoption of *lex specialis* on topics such as MSR in general and ship-based MSR more specifically.

The importance of freedom of scientific research is underscored by the Charter of Fundamental Rights, which has the same legal value as a treaty in the European legal order.[30] Article 13 of the Charter provides that "…scientific research must be free of constraint and academic freedom must be respected".[31] Considerable care ought to be taken with this provision as the Charter is addressed to the EU and Member States when they are implementing EU law and it needs to be emphasised that it does not extend the scope of EU law, or indeed create any new competences or tasks for the EU.[32] Furthermore, the House of Lords in the United Kingdom has suggested that "the language of Article 13 is vague and one could conclude …that the right is limited to freedom of …scientific expression".[33] This suggests that the right of freedom of scientific research enunciated in the Charter is not absolute or enforceable and may therefore be of little practical use in advancing the concept of freedom of MSR as understood by international lawyers. Despite this shortcoming, the importance of this provision in the Charter should not be underestimated as it is very similar to the protection afforded to scientific research in the constitutions of several Member States.[34] Furthermore, it supports the view that any putative EU

[28] Art 1 of the TFEU. Art 2 of the TEU codifies core values in the European legal order such as respect for human dignity, freedom, democracy, equality, the rule of law, and respect for human rights.
[29] Art 3(3) of the TEU.
[30] Art 6(1) of the TEU.
[31] Art 13 of the Charter of Fundamental Rights.
[32] Art 6(1) of the TEU and Art 51(2) of the Charter. See *inter alia*: F. Van den Berghe "The EU and Issues of Human Rights Protection: Some Solutions to More Acute Problems?" (2010) 16 *ELJ* p. 112; G. Harpaz "The European Court of Justice and its relations with the European Court of Human Rights: the quest for Enhanced Reliance, Coherence and Legitimacy" (2009) 46 *CMLRev* p. 105.
[33] House of Lords, 10th Report of Session 2007–08, THE TREATY OF LISBON: AN IMPACT ASSESSMENT, p. 93.
[34]For instances, the constitutions of Germany, Greece Italy, Austria, Portugal, Spain are cited by H. Wagner, *Gibt es ein Grundrecht der Wissenschaftsfreiheit im Europäischen Gemeinschaftsrecht?* in DÖV [1999], pp. 129-137.

harmonisation which facilitates freedom to undertake scientific research at sea must be viewed through the combined prism of the rights and duties set down in the European Treaties, the Charter on Fundamental Freedoms, and in the constitutional law of several EU Member States.

In contrast to the TEU and the Charter, there are elaborate provisions in Title XIX of the TFEU dealing specifically with research, technological development and space.[35] Most importantly, this Title provides a solid legal plinth for the establishment and operation of a European Research Area in which researchers, scientific knowledge and technology circulate freely.[36] Again, the TFEU is very specific in this regard in so far as it states that this to be achieved by "permitting researchers to cooperate freely across borders" and by "enabling undertakings to exploit the internal market potential to the full, in particular through the opening-up of national public contracts, the definition of common standards and the removal of legal and fiscal obstacles to that cooperation."[37] In pursuing these objectives, and with a view to complementing the activities carried out in the Member States, the EU is mandated with four specific responsibilities under the Treaty, namely: (1) the implementation of research, technological development and demonstration programmes by promoting cooperation with and between undertakings, research centres and universities; (2) the promotion of cooperation with third countries and international organisations; (3) the dissemination and optimisation of the results of research, technological development and demonstration; and (4) the stimulation of the training and mobility of researchers in the EU.[38]

One should keep in mind that the activities undertaken by the EU in the domain of scientific research are complementary to the activities of the Member States. Indeed, the TFEU goes as far as to require the EU and Member States to coordinate their research and technological development activities so as to ensure that national policies and EU policy are mutually consistent.[39] Much of the burden in this regard is placed on the European Commission which is obliged to take initiatives aimed at the establishment of guidelines and indicators, the exchange of best practice, and to put in place the necessary elements for periodic monitoring

[35] Arts 179 through to 190 of the TFEU.
[36] Art 179(1) of the TFEU.
[37] Art 179(2) of the TFEU.
[38] Art 180 of the TFEU.
[39] Art 181(1) of the TFEU.

and evaluation.[40] The European Parliament must be kept fully informed of such activities. Apart from the coordination of national policies in the Member States, the Treaty clearly provides the Commission with a very wide remit with regard to the taking of initiatives that promote research and technological development. In practice, this is mainly achieved by means of the multiannual framework programmes which are examined in further detail below. Suffice to note here that the overall aim of these programmes is to strengthen the scientific and technological bases of industry, develop their international competitiveness, and to support the broad range of research activities that are considered necessary by virtue of the Treaties.[41]

Apart from the provisions on scientific research mentioned above, there are many other provisions in the Treaties which are relevant to MSR, and some of these are examined towards the end of this paper as they provide a legal justification for the adoption of EU harmonisation measures. Suffice to note here that the general spirit of the EU Treaties is to oppose discrimination in the Member States on the grounds of nationality.[42] Other Treaty provisions that are relevant to MSR are those that facilitate the free movement of persons and services.[43] This extends to persons employed on a ship flying the flag of a Member State.[44] These rights are also enjoyed by European citizens who are members of the marine scientific community subject to certain limitations set down by the Treaties and secondary legislation.[45] Elsewhere, the TFEU provides that the EU and the Member States are obliged to take action aimed at "fostering better exploitation of the industrial potential of policies of innovation, research

[40] Art 181(2) of the TFEU.
[41] Art 179(1) of the TFEU.
[42] See, for example, Arts 2 and 3 TEU, and Arts 10, 18, 36, 37 40(2), 45(2), 65(3), 95(1), 107 (2) (a) of the TFEU.
[43] Art 26(2) of the TFEU. Arts 45 through to 48 of the TFEU concerns workers. Arts 49 to 55 concerns establishment and Arts 56 to 62 concerns services.
[44] See, *inter alia*: Case 167/73, *Commission v. France* [1974] ECR 359; Case 9/88, *Mario Lopes da Veiga v. Staatssecretaris v. Justitie* [1989] ECR 2989.
[45] Exceptions are set down in inter alia: Arts 45(3), 45(4) and 51 of the TFEU and in Directive 2004/38/EC of the European Parliament and of the Council of 29 April 2004 on the right of citizens of the Union and their family members to move and reside freely within the territory of the Member States amending Regulation (EEC) No 1612/68 and repealing Directives 64/221/EEC, 68/360/EEC, 72/194/EEC, 73/148/EEC, 75/34/EEC, 75/35/EEC, 90/364/EEC, 90/365/EEC and 93/96/EEC OJ L 158, 30.4.2004, p. 77–123.

and technological development."[46] There are many instances where MSR serves the industrial competiveness of the Member States in areas such as biotechnology and the life sciences.[47] Other provisions in the Treaties that are relevant to MSR are those that aim to protect and preserve the environment.[48] Significantly, in preparing a policy for the environment, the EU must take into account: available scientific and technical data; environmental conditions in the various regions of the Union; the potential benefits and costs of action or lack of action; the economic and social development of the Union as a whole and the balanced development of its regions.[49] In some instances, the EU makes policy decisions in the absence of definitive scientific data by relying on the precautionary principles which has a clear legal basis in the TFEU.[50] This does not detract from the firm obligation that is placed on Member States to collect and share scientific data in relation to the status of the marine environment and to implement ecosystem based management under a whole range of secondary legal instruments including the MSFD and the Water Framework Directive as will be seen below.[51]

In summary, there is a solid normative basis in the EU Treaties aimed at advancing scientific research and technological development. From a law of the sea perspective, it is interesting to note that the various provisions on scientific research in the Treaties are very general in ambit and make no attempt to define what constitutes MSR or indeed any other form of scientific research. Significantly, neither the Treaties nor the European framework research programmes distinguish basic from applied research.[52] Indeed, as a matter of practice European funded research often entails undertaking applied research

[46] Art 173(1) of the TFEU.
[47] Art 173(1) of the TFEU.
[48] Arts 4, 11, 191-193 of the TFEU.
[49] Art 191(3) of the TFEU.
[50] Art 191(2) of the TFEU. On the requirements of using available scientific data see L Kramer, *EC Environmental Law*, 6th Edition, (London, Sweet and Maxwell, 2007) 29-30.
[51] Directive 2008/56/EC of the European Parliament and of the Council of 17 June 2008 establishing a framework for community action in the field of marine environmental policy (Marine Strategy Framework Directive) OJ L 164/19, 25 June 2008. 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, OJ L 327, 22 December 2000, 1. Directive as last amended by Directive 2008/32/EC (OJ L 81, 20 March 2008, p 60).
[52] See A. Von Bogdandy, D. Westphal, "The Legal Framework for an Autonomous European Research Council" (2004) 29(6) *European Law Review* 788-807, at 790.

projects at sea which allows one to conclude that the EU Treaty provisions on scientific research apply to the various types of research apart from those that are aimed at increasing knowledge of the marine environment for the benefit of science. Moreover, many of the core provisions in the Treaties aimed at fostering greater European integration are also clearly applicable to creating more favourable conditions for the conduct of MSR in sea areas under the sovereignty and jurisdiction of the Member States. These include: the provisions which prohibit discrimination on the grounds of nationality; the articles that provide the pan-European right to provide and receive a service; as well as the elaborate provisions which advance the EU policy on the environment. We will return to these provisions towards the end of this paper as they all are clearly relevant to the adoption of EU harmonisation measures governing ship-based MSR and therefore deserve closer consideration. First however it is necessary to discuss the competence of the EU to legislate or to act in relation to MSR.

3. EU competence to regulate MSR

The EU operates under the principle of conferral in so far as it can "only act within the limited competences conferred upon it by the Member States in the Treaties to attain the objectives set out therein".[53] For those unfamiliar with the unique parlance of the EU, the term "competence" which is derived from the French term *competencé*, may be understood as denoting the powers of the European institutions to legislate in a particular area or to enter into international agreements with third parties on a particular subject matter. The corollary of this principle is that competence not conferred on the EU by Treaty remains with the Member States.[54] In the context of the law of the sea, a good example of the latter is the power of the Member States to determine their maritime boundaries in accordance with international law.[55]

[53] Art 5(2) of the TEU.
[54] Art 4(1) of the TEU.
[55] In exercising such competence, however, a Member State must respect the interests of other Member States as protected by EU law, see Case C-146/89, *Commission v. United Kingdom* [1991] ECR I-03533. Furthermore, the extension of a Member State's maritime boundaries automatically entails the extension of the geographical area where the EU can exercise its legislative competence, insofar as the EU is internally competent to regulate the subject matter in question see Case C-6/04 *Commission v. UK* [2005] ECR I-9017. As

The precise division of legal competence between the EU and the Member States is a complex matter and has fundamental implications for the implementation of the 1982 Convention. Generally speaking, it falls into three broad categories: exclusive, shared, or exercised by the EU in the form of supporting actions in areas such as administrative cooperation.[56] If we start with exclusive competence, in such instances, the EU is vested with the power to adopt legally binding acts in a particular policy area or to enter into an international agreement with a third party.[57] One longstanding example is the power of the EU to exercise exclusive competence in the conservation of marine biological resources under the common fisheries policy.[58] This is now codified in the TFEU but traces its origins back to some decisive judgements of the European Court of Justice in the late 1970s.[59] Exclusive competence must be distinguished very carefully from the position where a competence is shared between the EU and the Member States. This means that both the EU and the Member States are empowered to legislate and adopt legally binding acts.[60] This is subject to the important caveat that Member States must exercise their competence only to the

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a general rule, the geographical and material scope of application of EU law can extend to all areas where Member States exercise their sovereignty and jurisdiction under public international law.

[56] Arts 2 through to 6 of the TFEU.

[57] Joined Cases 3, 4. and 6/76, *Kramer and Others* (1976) ECR 127; Case C-405/92, *Ets. Armand Mondiet SA v. Armement Islais SARL*, [1993] ECR I-6133: Case C-25/94, *Commission v. Council*, [1996] ECR I-01469.

[58] The exclusive power of the EU extends to adopting the relevant rules on the management, structural and marketing aspects of the policy, as well as the power to enter into external undertakings with third States or competent international organisation in relation to fisheries. This competence applies to taking measures which apply to activities undertaken in sea areas under national jurisdiction and to the high seas. Subject to EU law, however, Member States retain power to exercise jurisdiction over vessels flying their flag, the registration of vessels, as well as to invoke penal and administrative sanctions for non-compliance with EU measures. In such instances, they must exercise their jurisdiction in conformity with EU law. See *inter alia*: Case C-221/89 *The Queen v. Secretary of State for Transport, ex parte Factortame Ltd and others*, [1991] ECR I-03905; Case 57/86, *Hellenic Republic v. Commission* [1988] ECR 2855; and Case C-127/87, *Commission v. Hellenic Republic* [1988] ECR 3333.

[59] Arts 2(1) and 3(1)(d) of the TFEU. Joined Cases 3, 4. and 6/76, *Kramer and Others* (1976) ECR 1279; Case 61/77, *Commission* v. *Ireland* [1978] ECR 417.

[60] Arts 2(2) and 4 of the TFEU.

extent that the EU has not exercised its competence.[61] Also, competence may revert to the Member States to the extent that the EU has decided to cease exercising its competence.[62]

The scope and arrangements for the exercising of EU competence, whether exclusive, shared or otherwise, are determined by the provisions of the Treaty that are applicable to the particular subject matter.[63] Previously, ascertaining the division of legal competence between the EU and the Member States in any given area demanded a forensic examination of the substantive provisions of the Treaties. The Treaty of Lisbon has simplified this process considerably as the categories and areas of EU competence are set down in Title I of Part One of the TFEU.[64] A brief perusal of these provisions reveals that one of the areas where competences are *shared* between the EU and the Member States is to carry out activities and implement programmes in the areas of research and technological development, in particular to define and implement [research] programmes (emphasis added).[65] The TFEU goes on to provide that the exercise of such competences by the EU must not result in Member States being prevented from exercising their competences.[66] The latter is an important caveat because the Member States can only legislate and adopt legally binding acts in areas of shared competence as matter of law if the EU has not exercised its competence to act or if the EU has ceased to act.[67] Furthermore, one of the protocols appended to the Treaties provides that when the EU has taken action in a certain area where there is shared competence, the scope of the Union act in question only covers those

[61] Art 2(2) of the TFEU. See also Protocol (No 25) which provides that where the EU has taken action in a certain area, the scope of this exercise of competence only covers those elements governed by the Union act in question and therefore does not cover the whole area.
[62] Art 2(2) of the TFEU.
[63] Art 2(6) of the TFEU. Under the TFEU, there are three categories of EU powers, namely, areas of exclusive competence where the EU has the exclusive right to legislative (Art 3 of the TFEU); areas of shared competence where both the EU and the Member States may legislate (Art 4 of the TFEU); and areas where the EU has competence to carry out actions to support, coordinate or supplement the actions of the Member States (Art 5 of the TFEU).
[64] Arts 2 through to 6 of the TFEU.
[65] Art 4(3) of the TFEU. This extends to research in space.
[66] *Ibid.*
[67] Art 2(2) of the TFEU.

elements governed by the EU act in question.[68] In other words, it does not extend to or cover the whole area.

Apart from the implementation of research programmes, there are several ways that the EU institutions can choose to exercise its shared competence, the most obvious ones being through the adoption of secondary legislation which are applicable to the Member States such as directives and regulations, or where necessary by entering into binding agreements with third countries and international organisations. The exercise of EU competences is also governed by the principles of proportionality and subsidiarity and these are considered separately at the end of the paper as they have implications for the regulation of ship-based MSR in sea areas under the sovereignty and jurisdiction of the Member States.[69]

The division of competence between the EEC (the predecessor of the EU) and the Member States was the subject of a Declaration at the UNCLOS III. Appended to the Declaration was the list of matters where competence was shared with the Member States and this included "marine environment research and scientific and technological cooperation".[70] More recently, when the EEC deposited the instrument of formal confirmation with the United Nations Secretary-General in 1998, it also deposited a Declaration specifying the matters governed by the Convention and the Fish Stocks Agreement in respect of which competence has been transferred to it by its Member States. This Declaration provides, *inter alia*, that:

> *… with regard to the provisions of Parts XIII and XIV of the Convention, the Community's competence relates mainly to the promotion of cooperation on research and technological development with non-member countries and international organisations. The activities carried out by the Community here complement the activities of the Member States. Competence in this instance is implemented by the adoption of the programmes listed in the appendix.*

[68] TFEU, Protocol No 25 on the Exercise of Shared Competence.
[69] Art 5(1) of the TEU.
[70] Declaration concerning the Competence of the European Community with regard to Matters governed by the United Nations Convention on the Law of the Sea of 10 December 1982 and the Agreement of 28 July 1994 relating to the Implementation of Part XI of the Convention, 1 April 1998, OJ L 179, 23 June 1998, p. 130, point 1.

The said appendix goes on to list the following programmes: the marine science and technology programme; the environment and climate programme; cooperation with non-member countries and international organisations: as well as scientific and technological cooperation with developing countries programme. The Declaration also notes that the scope and the exercise of EU competences are, by their nature, subject to continuous development. This is a theme that frequently recurs in the jurisprudence of the European Court of Justice when the existence or exercise of competence by the EU and its predecessor the European Community is disputed by the Member States.[71] Instructively, in the *Mox Plant* case, the Court held that the question whether a provision of a mixed agreement such as the 1982 Convention comes within the competence of the EU is "one which relates to the attribution and, thus, the very existence of that competence, and not to its exclusive or shared nature".[72] Furthermore, within the specific context of the 1982 Convention, a finding that there has been a transfer to the EU of areas of shared competence is contingent on the existence of EU rules within the areas covered by the Convention provisions in issue, irrespective of what may otherwise be the scope and nature of those rules.[73] In this regard, the Court held that the appendix to the Declaration of Community competence, while not exhaustive, constitutes a useful reference base. Crucially, the Court went on to find that the Member States could not rely on an international agreement such as the 1982 Convention (and the appended Declaration) to contest the internal division of competence or to "affect the allocation of responsibilities defined in the Treaties and, consequently, the autonomy of the Community legal system".[74] As a result, Ireland was censured by the Court for seeking a remedy to the dispute with the United Kingdom outside the European legal order as it concerned a matter concerning marine environmental protection where competence was shared between the EU and the Member States.

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[71] The exercise of shared competence between the Member States and the EU in the international arena as it applies to maritime matters (fisheries in particular) has been the subject of litigation in the European Court of Justice, see Case C-25/94, *Commission v. Council*, Judgment of 19 March 1996 [1996] ECR I-01469.
[72] Case C-459/03 *Commission v. Ireland*, [2006] ECR I-4635, para 93.
[73] Case C-459/03 para. 108.
[74] Case C-459/03 para. 123.

As a matter of practice, the exercise of EU competence on a particular subject matter where competence is shared with the Member States tends to be evolutionary in nature. There is nothing unusual in this process within the broader scheme of EU law. Indeed, when considering the ambulatory nature of EU law generally, it may be useful to recall Lord Denning's illustrative analogy that described the EEC Treaty (now the TFEU) as like "an incoming tide. It flows into the estuaries and up the rivers. It cannot be held back."[75] This of course has the practical effect of shrinking Member States' scope for regulatory intervention and placing limits on their sovereignty. On the other hand, it has allowed the European institutions to respond to new challenges and to develop the *acquis communautaire* (the settled law of the EU) through the creative interpretation of the European Treaties.

For the purpose of this paper, this discussion allows us to make two key points about the implementation of Part XIII on MSR of the 1982 Convention. One is that in areas of shared competence, such as the adoption of new measures that encourage and facilitate MSR, it is open to the EU to act internally by adopting a secondary legal instrument and/or a common policy, or to exercise its competence externally by entering into a binding international agreement with third countries or international organisations as it sees fit.[76] Secondly, insofar as Member States can legislate for vessels flying their flag under public international law, the EU has similar powers provided it is competent to legislate on such matters internally within the EU.[77] There thus appears to be no legal impediment to the adoption of EU measures that encourage and facilitate MSR apart from satisfying the relevant requirements of the EU Treaties regarding the adoption of such measures. We will return to a number of procedural matters in this regard concerning the principles of subsidiarity and proportionality towards the end of the paper.[78] We turn now to the area where the EU has been particularly active in exercising its competence: the domain of the framework research programmes.

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[75] *Bulmer v Bollinger* [1974] Ch. 401 at 418.

[76] See D. Verwey, *The European Community, The European Union and the International Law of Treaties* (The Hague, TMC Asser Press, 2004) at 180.

[77] Para 6 of the EC's Declaration of Competence concerning the 1994 Implementation Agreement and the 1995 UN Fish Stocks Agreement notes that the "Community enjoys the regulatory competence granted under international law to the flag State of a vessel, OJ L 189, 03.07.98, p. 39.

[78] See the discussion *infra* on the principles of proportionality and subsidiarity.

4. EU Framework Research Programmes

The Framework Research Programmes for Research and Technological Development (commonly referred to by the abbreviation "FP") are the principal mechanism by which the EU manages and funds research and related activities. As seen above, these programmes have a solid legal basis in the TFEU and their nature and content have evolved steadily since the mid 1980s.[79] Much of the administrative burden associated with designing, delivering and implementing the programmes is borne by the European Commission which brings forward proposals regarding their objectives and content, as well as the administrative and financial rules governing their implementation. The final say regarding their adoption, however, rests with the European Parliament and the Council who act in accordance with the ordinary legislative procedure in the EU institutions after consulting with the Economic and Social Committee.[80] This procedure puts the Parliament on an equal footing with the Council in making decisions on matters such as the duration, objectives, priorities and the amount of EU financial support for the various components of the programme. In practice, this also means that the programmes are subject to a considerable amount of parliamentary scrutiny and debate prior to their ultimate adoption. In 2005, the Parliament adopted a resolution on science and technology, which sets down Guidelines for future EU policy to support research and development, and this informs the shape and content of the framework programmes.[81]

Since their inception, there have been seven framework programmes.[82] The current programme, referred to as the 7th Framework Programme, is scheduled to run for seven years from 2007 to 2013 and is divided into five thematic areas,

[79] Art 179(1) of the TFEU.
[80] Art 182(1) of the TFEU. This used to be referred to as the co-decision procedure under the EC Treaty.
[81] OJ C 320 E, 15.12.2005, p. 259.
[82] The division of the framework programme into specific sub-programmes for particular activities is facilitated by the Treaty which only affords the European Parliament a consultative role regarding their adoption under Art 182(3) and 182(4) of the TFEU. This may be contrasted with the wider role enjoyed by the Parliament in the adoption of the overall framework programme, as seen above, where it has a full say regarding the objectives, content and financial rules of the programme.

namely: cooperation, ideas, people and capacities.[83] The overall regulatory regime governing this programme is set down in Regulation (EC) No 1906/2006 and the overall strategic goal is to make the EU the "most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion.[84] The programme is strongly focused on promoting and investing in "world-class state-of-the-art research" and supporting "trans-national cooperation at every scale across the EU".[85] Similar to previous programmes, the overall aim of the 7th Framework Programme is to advance the European research agenda by enhancing research and innovation capacity in the Member States, improving the mobility of researchers throughout Europe, and creating a solid scientific basis for EU policy-making. A broad range of public and private entities participate in the programmes, which for obvious reasons tend to be highly competitive. These include: universities, government institutes, public agencies, research centres, businesses, as well as individual researchers.[86] There are different rules for different categories of participants and the EU retains discretion under the Treaty

[83] For further information on the 7th Framework Programme see: http://cordis.europa.eu/fp7 For a history of the early programmes see European Parliament Fact Sheet: Policy for Research and Development. Available at: http://www.europarl.europa.eu/factsheets/4_13_0_en.htm

[84] Regulation (EC) No 1906/2006 of the European Parliament and of the Council of 18 December 2006 laying down the rules for the participation of undertakings, research centres and universities in actions under the Seventh Framework Programme and for the dissemination of research results (2007-2013), OJ L 391/1, 30.12.2006. See Recital 2, Preamble, Decision No 1982/2006/EC of the European Parliament and of the Council of 18 December 2006 concerning the Seventh Framework Programme of the European Community for research, technological development and demonstration activities (2007-2013), L 412/1, 30.12.2006

[85] Recital 4, Preamble, Decision No 1982/2006/EC.

[86] Responsibility rests with the Commission to implement the framework programme including its financial aspects. Although frequently the subject of criticism within the scientific community, the administrative burden associated with project participation has lessened considerably in recent years. The procedure is relatively straight forward in so far as research consortia involving partners from more than one Member State come together and submit project proposals in response to research call made by the European Commission. The process is highly competitive and successful projects are selected by the Commission who are assisted by panels of experts who are especially convened for the purpose of evaluating the proposals submitted by various consortia.

to lay down the rules governing dissemination of the results of the research.[87] Over the past decade, the European Commission has sought to involve the less industrialised Member States in the framework research programmes with a view to strengthening economic and social cohesion across the EU. There is also scope for participation by international organisations that are made-up of Member States or countries associated with the EU. Indeed, the Treaty provides a specific legal basis for cooperation with third countries and international organisations in research and development matters.[88] A key feature of framework research programmes is the transnational element in so far as many of the projects are undertaken by scientists from different European and third countries. Importantly, the 7th Framework Programme is open to all researchers irrespective of their country of origin and participants from Russia, Eastern European and Central Asian countries, developing countries and Mediterranean partner countries, are entitled to funding under the same conditions that apply to researchers from European partner countries provided that they are willing to work with scientific groups from the European Research Area.

The research undertaken under the framework programme should not be viewed in isolation as it is intended to complement the research activities undertaken in and by the Member States. In this regard, the TFEU has a number of miscellaneous provisions which provide for, *inter alia*: the adoption of supplementary programmes which involve the participation of a limited number of Member States;[89] EU participation in research and development programmes undertaken by Member States subject to their agreement;[90] and the establishment of joint undertakings to undertake specific projects.[91]

Since their inception, the EU framework research programmes have served the EU extremely well and command a significant proportion of the EU's central budget. This investment was discussed at the Barcelona European Council

[87] Art 183 of the TFEU.
[88] Art 186 of the TFEU.
[89] Supplementary programmes must be financed by the Member States. EU participation requires the agreement of the Member States concerned. The EU however retains discretion to adopt rules applicable to supplementary programmes including rules regarding the dissemination of knowledge and access by other Member States. Art 184 and 188 of the TFEU.
[90] Art 185 of the TFEU.
[91] Arts 187-188 of the TFEU.

meeting in 2002, where it was agreed by the European heads of state that overall spending on research, development and innovation in the EU should be increased with the aim of achieving 3% of GDP by 2010. In recent framework programmes, there has been a concerted effort to marshal research infrastructure, platforms and facilities in the Member States with a view to making them available to European researchers. The current research budget under the 7th Framework Programme is in the order of €52 billion and a sizeable proportion is allocated to marine-related research projects.

4.1 EU funded marine research projects

The history of marine related research within the framework programmes is somewhat disjointed and it is difficult to identify a central "marine theme" linking the various programmes together since their first commencement in the early 1980s. The first Marine, Science and Technology Programmes were referred to by the acronyms MAST I, II and III and formed component parts of the 2nd, 3rd and 4th Framework Programmes during the period 1986 to 1998. In the main, the marine projects were focused on providing a scientific and technological plinth for the sustainable exploitation of marine resources and enhancing our understanding of the role of marine ecological systems in global change. This allows to say that origins of ecosystem-based research may be traced back to a number of projects funded under MAST I. Conspicuously, these projects had sizeable budgets for vessel based MSR in the North-east Atlantic Ocean, the Baltic Sea and the Mediterranean Sea. After 1998, there were no specific marine science and technology research programmes and these topics were largely funded under the Environment and Sustainable Action component of the 5th Framework Research Programme (1998-2002). Once again, much of the focus of the research was on improving scientific knowledge of marine processes, ecosystems and their interactions with the wider marine environment. During this period, there were specific projects within other aspects of the programme on topics which are clearly germane to ecosystem-based management such as fisheries, CO2 exchange processes in the context of global climate change and biodiversity, global observing systems, as well as the development of marine research infrastructure in the Member States.

The 6th Framework Programme which ran from 2002 to 2006 had no dedicated programme for marine research and technological development but nevertheless funded 245 marine related projects in areas such as: global change, ecosystems research, and sustainable surface transport, food quality and safety, biotechnology, international cooperation and research for policy support. The levels of EU funding for marine related research in this programme were fairly impressive and amounted to over €600 million. Moreover, one recent statistical analysis of this programme reveals some interesting data, which demonstrate that this was truly a global programme in so far as 83 countries participated in marine related projects. [92] This was made-up of the 27 EU Member States, 10 other European countries and 46 non-European countries including Russia, Argentina, Israel and the United States.[93] Perhaps reflecting the size and expertise of their respective research communities, the United Kingdom, France, Germany and Italy participated in the largest number of marine projects followed by Norway, which was involved in 76 projects. Surprisingly, this placed Norway on a par with the Netherlands and well ahead of 21 EU Member States. This is strong reflection of the importance of marine related research in Norway. Although the budget for marine related research projects grew by three fold between 1986 and 2006, it still remained less than 4% of the overall EU budget for research under the framework programmes.[94]

Similar to the 6th Programme, the 7th Framework Programme has no specific marine programme but funded marine and maritime-related research topics under a number of thematic areas including: Food, Agriculture and Biotechnology", "Energy", "Environment", and "Transport". At the time of writing the estimated EU contribution to marine research is in the order of €735 million for 345 marine related projects.[95] Many of these projects, such as CORALFISH, have a significant budget for ship time much of which is co-funded by the marine research agencies in the Member States. Most importantly, the 7th

[92] R. Santos, T. Carvalho, L. d'Ozouville, "Marine Science and Technology Projects Funded under the Sixth Framework Programme of the European Commission: A Statistical Overview. Available at: http://www.eurocean.org/np4/file/65/FP6_20statistics_20Paper_2024_01_07.pdf
[93] *Ibid.*
[94] *Ibid* at p.4.
[95] European Commission Press Release, 12 October 2010. Available at: http://europa.eu/rapid/pressReleasesAction.do?reference=IP/10/1317&

Framework Programme has a whole range of projects examining various options on how to improve ecosystem-based management of the marine environment including the ODEMM project.

5. EU policy and MSR

At the time of writing, neither the EU nor the Member States have concluded any bilateral or multilateral agreements to give specific effect to the MSR provisions in the 1982 Convention. There have however been a number of important policy initiatives at an EU level that accord with the spirit and central thrust of Part XIII. From a European law perspective, these initiatives have sought to promote excellence in MSR as a means to support the development and implementation of the EU's Integrated Maritime Policy and a range of legal instruments pertaining to the conservation and management of offshore resources and the protection of the marine environment generally. These policy initiatives include: the European Marine and Maritime Research Strategy; Marine Knowledge 2020; and the European Marine Observation and Data Network. Before examining these in greater detail, it is relevant to our discussion to note that these initiatives have received additional impetus from the European scientific research community through a number of declarations adopted by scientists attending the Euro Oceans Conferences at Galway, Aberdeen, Bremen and Ostend.[96] One of the central themes in the Declarations is the need for the scientific community to actively foster working relationships with their colleagues in neighbouring countries with whom Europe shares regional seas including, the Baltic Sea, the Black Sea and the Mediterranean Sea.[97] Although the Declarations are hortatory in content and lack legal substance they nonetheless provide us with an excellent indicator of the views of the broader scientific community on what should be the underlying philosophy of EU policy as it pertains to MSR. Thus, for example, the Ostend Declaration calls for the development of an integrated research framework at a European level which combines the assets available under the European programmes with those of Member States, as well as the

[96] Galway Declaration, 4 May 2004. Available at: http://www.eurocean2004.com/pdf/galway_declaration.pdf

[97] Aberdeen Declaration, 22 June 2007. Available at: http://www.crpm.org/pub/agenda/340_aberdeen_declaration_packaged_rev2.pdf

development of the European Ocean Observing System, and the "establishment of an appropriate mechanisms to keep under review current marine and maritime research programmes and projects with a view to enhancing their impact".[98] A central theme in the Declarations is the strengthening of international cooperation on MSR both within and beyond the EU. The Declarations are fully consistent with central thrust of Part XIII of the 1982 Convention and convey precisely the same message that is evident in the more formalised policy initiatives taken by the Commission and it is to these that we must now turn as they give us a clear understanding of the importance of maximising the infrastructural resources available at a European level to undertake research at sea into the functioning of marine ecosystems and the processes that take in the wider marine environment.

5.1 European Marine and Maritime Research Strategy

The EU's integrated maritime policy is very much science driven and is founded on a number of policy initiatives including the European Marine and Maritime Research Strategy (the "Strategy").[99] Within the wider landscape of the EU's research and educational policies, the Strategy is a blueprint and part of the so-called Ljubljana Process which is focused on widening and deepening of the European Research Area.[100] In line with this process, the Strategy places considerable emphasis on the development of infrastructure, education, capacity building and the implementation of a new cross-thematic approach to marine research. One of the principal aims of the Strategy is to enhance integration between marine research and maritime research. Although the Strategy does not define MSR, the Commission in the accompanying memorandum distinguish marine research from maritime research as follows:

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[98] Ostend Declaration, 13 October 2010. Available at: http://www.eurocean2010.eu/declaration/

[99] Communication from the Commission, European Strategy for Marine and Maritime Research a coherent European Research Area framework in support of a sustainable use of oceans and seas. Brussels 3.9.2008, COM(2008) 534 final.

[100] Council Conclusions on the launch of the "Ljubljana Process" - towards full realisation of ERA adopted on 30 May 2008. Council Document 10231/08. Available at: http://register.consilium.europa.eu/pdf/en/08/st10/st10231.en08.pdf

> *Marine research addresses a branch of earth science that studies the oceans and seas including their flora and fauna as well as their interaction with coastal territories and with the atmosphere. It covers a wide spectrum of scientific knowledge and phenomena such as marine organisms, ecosystems dynamics, ocean currents, plate tectonics and geology. These diverse topics involve multiple disciplines to understand the underlying processes and the complexity of their interaction. Nowadays, one of the major concerns of marine research is the preservation of marine ecosystems.*
>
> *Maritime research aims at technologies and innovative solutions for a better exploitation of sea and ocean resources such as the design, building and operation of vessels, harbours, oil platforms and more widely any kind of human related activity centred around sea and ocean resources (e.g. tourism).*[101]

Apart from consolidating the linkage between marine research and maritime research, the Commission believes that the EU must identify the means with which it can strengthen its capacity to carry out all aspects of marine research if it is to remain at the forefront of advances in world research. In the words of the Strategy:

> *World-class marine science requires specialised and sophisticated research infrastructures, which are costly. Today, most infrastructures are operated to take account of national priorities. To optimise their use it will be essential to build lasting and complementary relationships between infrastructure holders based on joint plans for future investments and* ***standardisation*** *in measurement, observation and reporting methodologies.*[102] (emphasis added)

In the context of the subject matter of this paper, it is significant that the Strategy calls for greater integration in the use of European marine research

[101] Memo 08/553, Brussels, 3 September 2008. Available at: http://europa.eu/rapid/pressReleasesAction.do?reference=MEMO/08/553&format=HTML.%C2%A0

[102] COM(2008) 534 final, 3.9.2008, at p.8.

infrastructure and the harmonisation of procedures relating to research.[103] There is considerable emphasis in the Strategy on the promotion of inter-disciplinary research on cross-cutting issues such as climate change, the impact of human activities on coastal and marine ecosystems, continental margin research, operational oceanography and marine technology, as well as the protection and exploitation of marine biodiversity. Similar to the framework programmes discussed above, the Strategy aims to promote synergies between the EU, the Member States, and non-EU countries regarding access to research infrastructure. For understandable reasons which accords with the regional approach adopted in a number of legal instruments such as the MSFD, the Strategy has a strong regional seas focus and calls for the strengthening of research partnerships with third countries that share sea basins with the EU.

One of the interesting proposals in the Strategy is the call for the establishment of new forms of governance including the creation of a stable partnership of various stakeholders including scientists, policy-makers, industry and civil society with a view to setting research priorities and fostering greater cooperation between concerned parties. In line with long-standing policy on research in the EU, the Commission foresee its own role curtailed to that of a facilitator with the Member States responsible for the implementation of national and EU policy on research. One of the themes that run through the Strategy is the need to identify ways of providing better scientific evidence to policy makers. Regrettably, the Strategy does not present any concrete proposals on how to achieve this objective apart from the establishment aforementioned stakeholder consultation forum.

Since its publication, the Commissioner with responsibility for research and innovation at a European level has pointed out in the intensive and competitive environment of global research, "The best infrastructure also helps to attract and keep the best researchers".[104] Moreover, in her view the Member States could achieve greater added value by "pooling resources or coordinating initiatives at the EU level, such as in observation of the seas or in research on

[103] *Ibid.*

[104] Commissioner Máire Geoghegan-Quinn, SPEECH/10/415 09.09.2010. Available at: http://europa.eu/rapid/pressReleasesAction.do?reference=SPEECH/10/415&format=HTML&aged=0&language=EN&guiLanguage=en

marine biodiversity".[105] Accordingly, the Commissioner has called for the harnessing of the synergies between the Member States on the grounds that "marine ecosystems do not stop at maritime borders and actions taken in one Member State have consequences in regional waters."[106] This is an interesting argument and appears to supports the view the practical implementation of the ecosystems approach by the EU will require a greater effort and a more harmonious approach by the Member States in implementing Part XIII of the 1982 Convention with a view to creating more favourable conditions for the conduct of MSR in sea areas under their sovereignty and jurisdiction.[107]

5.2 Marine Knowledge 2020

In 2010, the Commission published the *Marine Knowledge 2020: A better understanding of our seas and oceans to boost competitiveness and growth.*[108] This policy initiative may have far reaching implications for the future development of EU policy on MSR as it focuses on improving knowledge of the status of the European marine environment, facilitating greater access to marine data, and enhancing cooperation between the providers of marine data and end users in the Member States.

In order to understand the background to this initiative, it is first necessary to recall that the collection of marine data is primarily undertaken by public and private entities in the Member States.[109] The financial contribution made by the EU to the collection of marine data is nevertheless considerable and recent estimates suggest that it is in the region of €110 million per annum, much of which is invested by means of the framework programmes discussed above.[110]

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[105] *Ibid.*
[106] *Id.*
[107] Arts 242, 243 and 255 of the 1982 Convention.
[108] Communication from the Commission, Marine Knowledge 2020 marine data and observation for smart and sustainable growth, COM(2010) 461 final, Brussels, 8.9.2010.
[109] Communication from the Commission to the European Parliament and the Council, Marine Knowledge 2020, Marine data and observation for smart and sustainable growth, COM(2010) 461 final, Brussels, 8.9.2010, p.3.
[110] COM(2010) 461 final, Brussels, 8.9.2010. This figure is made-up of two component parts, €40 million for fisheries data and €70 million for marine spatial data. The EU has augmented this spending by an additional €18.5 million per year for the period 2011-2013 through the Global Monitoring for Environment and Security initiative and under the

In addition, the Commission estimates that public bodies in the Member States are spending about €1.5 billion a year in marine observation and data collection. [111] The scale of this investment is all the more remarkable in view of the fact that it does not take into account the collection of marine data by private companies for other purposes. [112] Despite the large amounts of money spent on the collection of data, a survey conducted on behalf of the Commission found that there was "widespread dissatisfaction with the European marine data infrastructure amongst professionals who need to process marine data in both the public and private sector."[113] Instructively, many of those consulted in the survey sought an enhanced role for the EU in improving matters.

There are several restrictions on data access and use including "fragmented standards, formats and nomenclature, lack of information on precision and accuracy, the pricing policy of some providers and insufficient temporal or spatial resolution".[114] In response to these shortcomings, the Commission has suggested nine different actions to improve access to marine data as well as the setting-up of a unique electronic architecture for as a focal point for the collection and dissemination of marine data. The Marine Knowledge 2020 initiative applies to all marine data held by bodies within the EU irrespective of where the data originates although in the initial phase of rolling-out the initiative there is an emphasise on improving access to data sets that are applicable to the regional seas adjacent to the European continent with a view to helping Member States meet the requirements of the MSFD for monitoring environmental status. Significantly, the Commission have acknowledged that data are normally collected for specific purposes such as to improve the safety of navigation or to facilitate fisheries management. Conversely, the aim of the new European marine

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Integrated Maritime Policy. See, Proposal for a Regulation of the European Parliament and of the Council establishing a Programme to support the further development of an Integrated Maritime Policy, COM (2010) 494 final, Brussels, 29.9.2010.

[111] Speech by Commissioner Maria Damanaki, European Commissioner for Maritime Affairs and Fisheries, Marine research as pillar of the Integrated Maritime Policy of the European Union, Oostende, 12.10.2010. Available at: http://europa.eu/rapid/pressReleasesAction.do?reference=SPEECH/10/542&format=HTML&aged=0&language=EN&guiLanguage=en.

[112] *Ibid.*

[113] Commission Staff Working Document, "Marine Data Infrastructure Outcome of Public Consultation", 22.1.2010, SEC(2010)73 final.

[114] COM(2010) 461 final, Brussels, 8.9.2010, p. 4.

data architecture is to provide for multi-purpose uses including ecosystem-based management of the marine environment under the MSFD. This objective is facilitated by the establishment of the European Marine Observation and Data Network.

5.3 European Marine Observation and Data Network

As is evident from the discussion in this paper, the EU has a diffuse range of policies and legal instruments which are aimed at facilitating greater access and use of data that is collected and held by public bodies in the interest of the common good. Many of these instruments do not, however, apply to data held by scientific institutions or other bodies that have no formal role in government or public administration. Such data are nonetheless essential to undertaking ecosystem-based management of the marine environment. This problem is often compounded by the fact that different teams often process physical and biological data collected during the same research cruise and this information is frequently stored in different databases.[115] As a result, is not possible to assess the spatial and temporal coverage of scientific research programmes across the maritime boundaries of the Member States.

The EU is not unique in this respect as a report published in 2004 by the United States National Research Council on *A Geospatial Framework for the Coastal Zone* pointed out that at least 15 federal agencies are involved in the collection of coastal geospatial data and this resulted in "a chaotic collection of potentially overlapping, and often uncoordinated, coastal mapping and charting products that can frustrate the efforts of users to take advantage of existing datasets and build on past studies". [116] The Committee chaired by a contributor to this conference, Professor Larry Mayer, produced the report and recommended the establishment of a seamless geodetic framework for all US coastal regions, easier access to timely data, and improved coordination and collaboration between federal, state, local agencies, academic researchers, and the private sector

[115] Commission Staff Working Document. Building a European marine knowledge infrastructure: Roadmap for a European Marine Observation and Data Network. SEC(2009) 499 final. Brussels, 7.4.2009, at p.10.

[116] See, National Research Council, *A Geospatial Framework for the Coastal Zone* (Washington, National Academy of Sciences, 2004) at p. 4.

in the collection and sharing of data.[117] In 2010, the United States Congress responded to this challenge by enacting a law which provides for the establishment of a program to develop a coordinated and comprehensive Federal ocean and coastal mapping plan for the Great Lakes and sea areas under the sovereignty and jurisdiction of the United States with a view to enhancing "ecosystem approaches in decision-making for conservation and management of marine resources and habitats, establishes research and mapping priorities, …and advances ocean and coastal science".[118] The outer continental shelf of the United States comes within the scope of the program.

The response to the difficulties encountered with collecting and accessing marine data in the EU shares some similarities with the one adopted in the United States described above. In 2008, the European Commission established of a new European Marine Observation and Data Network (EMODNET).[119] Essentially the Network has eight objectives, namely: (1) the collection of data once and its subsequent re-use many times; (2) the development of standards across disciplines as well as within them; (3) the processing and validating of data at different levels. Structures are already developing at national level but infrastructure at sea-basin and European level is needed; (4) the provision of sustainable financing at an EU level so as to extract maximum value from the efforts of individual Member States; (5) building on existing efforts where data communities have already organised themselves; (6) the development of a decision-making process for priorities that is user-driven; (7) the accompaniment of data with statements on ownership, accuracy and precision, and; (8) recognise that marine data is a public good and discourage cost-recovery pricing from public bodies.[120]

EMODNET and its associated web based tool facilitate access to bathymetric, geological, physical, chemical, biological and habitat data for selected sea basins.[121] Additional impetus for the Network is derived from the work of the Data Expert Group which is made up of scientific, technical and operational experts who will oversee the marine knowledge projects and meet a

[117] Chapter 7 *ibid.*
[118] 3 USC Chapter 48 - Ocean and Coastal Mapping Integration.
[119] Commission Staff Working Document, European Marine Observation and Data Network Impact Assessment**,** SEC (2010) 998 final, Brussels, 8.9.2010.
[120]SEC(2009) 499 final. Brussels, 7.4.2009, at p. 11.
[121] http://www.emodnet-chemistry.eu/portal/portal/emodnet/Home

number of times a year. Ultimately, it is foreseen that EMODNET will become one of the component systems of the Global Earth Observation System of Systems as a complement to the Global Monitoring for Environment and Security which went into operation in 2009.

The importance of the Network cannot be overstated and it is anticipated that it will become a vital tool for scientists and public officials who are working at the science-policy interface and who are responsible for implementing ecosystem-based management of the European marine environment under the MSFD and related instruments.

6. EU legal instruments on data discovery, access and use

The discussion so far has focused on a number of soft law initiatives and the establishment of EMODNET. The central thrust of these measures is to foster greater collaboration and coordination in relation to MSR at a regional level. This approach has considerable merit and complements a number of regulatory instruments governing public access to environmental data and information. Some of these instruments are applicable to MSR data, samples and the results of research obtained during the course of ship-based MSR and that is subsequently held or acquired by public bodies. They include the INSPIRE Directive, the Environmental Information Directive, the Public Sector Information Directive, and the Fisheries Data Collection Regulation.

Little has been published on how effective these measures are in practice and it is therefore difficult to comment on their utility as instruments that can be relied upon by interested parties to ensure greater access to MSR data, samples and the results of ship-based MSR**.** Broadly speaking, these instruments seek to improve public access to information on the environment as well as access to justice in environmental matters. Undoubtedly, they are aimed at bringing many benefits including greater transparency in the environmental decision-making process in the Member States. From a law of the sea viewpoint, it is interesting to note that the general trend in EU law is towards the enhancement of greater public access to environmental data and information held by public bodies. Some of the principal features in these instruments are highlighted here with a view to showing their utility in facilitating ecosystem-based management of the marine

environment. Mention is also made of the data sharing requirements that arise under the framework research programme.

6.1 **INSPIRE Directive**

The so called "INSPIRE Directive" establishes an infrastructure for sharing data in the EU which requires Member States to establish networks allowing their spatial data holdings to be searched and displayed.[122] The Directive came into force in 2007 and aims to assist public authorities in exercising their functions in support of EU policies that protect the environment. The scope of the instrument applies to spatial data held in electronic form by public authorities including hydrographical, geologic, oceanographic, and habitat data, as well as aggregate data on species distributions. Significantly, the INSPIRE Directive does not set down requirements for the collection of new data, or for reporting such information to the Commission. Nor does it set down any requirements regarding the sharing of samples acquired during the course of ship-based MSR. Nonetheless, the Directive will assist policy makers in making decisions regarding the implementation of the ecosystems approach which have cross boundary implications. Overall, the Directive accords with general spirit of Part XIII in providing greater access to scientific knowledge of the marine environment and data acquired during the course of scientific research projects including those undertaken at sea. Again, however, the Directive only applies to data held by public authorities.

6.2 Environmental Information Directive

The "Environmental Information Directive" provides for public access to environmental information in line with the requirements of the United Nations/ECE Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters ('the Aarhus

[122] Directive 2007/2/EC of the European Parliament and of the Council of 14 March 2007 establishing an Infrastructure for Spatial Information in the European Community (INSPIRE), OJ L 108/1, 25.4.2007.

Convention').[123] This instrument has facilitated greater public access to environmental data and information in the Member States on a day-to-day basis. The applicant does not require any particular *locus standi* to gain access to information that is held by public bodies or by persons that perform public functions. This includes information and data held by public research institutes and agencies. There are a number of significant limitations on the application of the Directive stemming from the fact that Member States may restrict access to such data on a number of grounds including, *inter alia*: intellectual property grounds, or with a view to protecting international relations, public security or national defence. In the context of MSR, for instance, access to bathymetric data may be restricted on military security grounds in some European Member States, either for all sea areas under national jurisdiction such as in Finland, or in some restricted areas such is the case in France.[124] In such instances, these data do not come within the scope of the Directive. Once again, this Directive does not set down any specific requirements regarding the collection or dissemination of new data or information concerning the marine environment. Accordingly, as a legal instrument it can only play a very limited role in the implementation of the ecosystem approach at an operational level. There is however an underlying rationale underpinning this Directive, which is also evident in Part XIII of the 1982 Convention,[125] and that is the belief that information on the state of the environment and its biological diversity should be publically available.

6.3 Public Sector Information Directive

[123] Directive 2003/4/EC of the European Parliament and of the Council of 28 January 2003 on public access to environmental information and repealing Council Directive 90/313/EEC. OJ L L 41/26, 14.2.2003. As well as Regulation (EC) No 1367/2006 of the European Parliament and of the Council of 6 September 2006 on the application of the provisions of the Aarhus Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters to Community institutions and bodies. OJ L 264/13, 25.9.2006.

[124] Commission Staff Working Document. Building a European marine knowledge infrastructure: Roadmap for a European Marine Observation and Data Network. SEC(2009) 499 final. Brussels, 7.4.2009, at p.19.

[125] See, for example, Art 249(1)(e) of the 1982 Convention which requires that the research results are made internationally available through appropriate national or international channels, as soon as practicable.

Another legal instrument which has limited utility in the context of MSR, is the "Public Sector Information Directive" which aims to remove the barriers which individuals or companies encounter while developing new cross-border information services and products based on public data resources.[126] The Directive establishes a minimum set of rules governing the re-use and the practical means of facilitating reuse of existing documents, whatever its medium, held by public sector bodies of the Member States.[127] The type of information that comes within the scope of the Directive includes social, economic, geographical, weather, tourist, business, patent and educational information.[128] Similar to the Environmental Information Directive described above, there are a number of exceptions which remove certain categories of documents from the scope of the Directive including information pertaining to the protection of national security (i.e. State security), defence, or public security.[129] Although marine data could ostensibly come within its scope, the Directive does not apply to "documents held by educational and research establishments, such as schools, universities, archives, libraries and research facilities including, where relevant, organisations established for the transfer of research results."[130] This restriction appears to curtail the utility of this instrument in widening public access to MSR data, samples and the results of scientific research projects undertaken at sea.

6.4 Fisheries Data Collection Regulation

In many ways, the approach taken by fisheries managers within the framework of the common fisheries policy sets the European standard of "best practice" regarding the collection and sharing of MSR data and related information. In 2008, a sophisticated instrument, the Fisheries Data Collection Regulation, was adopted by the Council in order to establish a scheme for the collection, management and use of data in the fisheries sector and to provide

[126] Directive 2003/98/EC of the European Parliament and of the Council of 17 November 2003 on the re-use of public sector information. OJ L 345/90, 31.12.2003.
[127] Art 1 of Directive 2003/98/EC.
[128] Recital 4 of the Preamble, Directive 2003/98/EC.
[129] Exceptions are set out in Art 1(2) of Directive 2003/98/EC.
[130] Art 1(2)(e) of Directive 2003/98/EC.

support for scientific advice.[131] This instrument greatly facilitates the implementation of the ecosystem approach to fisheries management by the EU. This is achieved through the establishment of a multi-annual EU programme for the collection, management and use of biological, technical, environmental, and socio-economic data concerning: commercial fisheries carried out by fishing vessels flying the flag of a Member State both within and beyond EU waters.[132] National programmes must be drawn up in accordance with EU programmes and these must include schemes for *inter alia*: monitoring of commercial and recreational fisheries where necessary; research surveys-at-sea; the management and use of the data for scientific purposes.[133] Crucially, Member States must make detailed and aggregated data available to end-users in three instances: firstly, as a basis for advice to fisheries management, including to Regional Advisory Councils; secondly, in the interest of public debate and stakeholder participation in policy development; thirdly, for scientific publication.[134] 'End-users' are defined in the regulation to mean: "bodies with a research or management interest in the scientific analysis of data in the fisheries sector".[135] Although the regulation sets down specific guidance on the timeline for the provision of such data, the Commission may withhold data transmission to the end-users for a period of three years in order to protect the professional interests of the data collectors.[136] In line with the general trends in European law, the regulation provides certain safeguards and restrictions regarding access to personal data and the use of data derived from satellite vessel monitoring systems.[137]

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[131] Council Regulation No 199/2008 of 25 February 2008 concerning the establishment of a Community framework for the collection, management and use of data in the fisheries sector and support for scientific advice regarding the Common Fisheries Policy. OJ L 60/1, 5.3.2008.

[132] This includes commercial fisheries for eels and salmon in inland waters. The EU Programme also extends to: recreational fisheries carried out within EU waters including recreational fisheries for eels and salmon in inland waters; aquaculture activities related to marine species, including eels and salmon, carried out within the Member States and EU waters; industries processing fisheries products.

[133] Art 3(1)(a) of Council Regulation No 199/2008.

[134] Art 18 of Council Regulation No 199/2008.

[135] Art 1(1)(i) of Council Regulation No 199/2008.

[136] Art 18(3)(a) of Council Regulation No 199/2008.

[137] Arts 1(3) and 18(2) of Council Regulation No 199/2008.

This Regulation sets an important standard but does not establish a free-for-all approach to fishery data in so far as it clearly circumscribes the obligations of the end-users in relation to the data by providing that they: use the data only for the purpose stated in their request; are responsible for correct and appropriate use of the data with regard to scientific ethics; inform the Commission and the Member States concerned of any suspected problems with the data; provide the Member States concerned and the Commission with references to the results of the use of the data; not to forward the requested data to third parties without the consent of the Member State concerned; not to sell the data to any third party.[138] Albeit it comes within an area where the EU exercises exclusive competence under the CFP and thus cannot be compared to other forms of MSR data, the Regulation nonetheless sets an important precedent regarding the sharing of European MSR data with a view to implementing ecosystem-based management in accordance with the requirements set down by a range of regulatory instruments such as the MSFD and the Water Framework Directive.

6.5 Data acquired under the Framework Research Programmes

As seen previously, a considerable amount of research concerning the practical aspects of undertaking ecosystem-based management is undertaken under the European framework research programmes. The Regulation governing the 7th Framework Programme has specific rules concerning the sharing and dissemination of "background" and "foreground" information.[139] The former relates to information which is held by participants prior to their participation in a European research project and the latter relates to "the results, including information, whether or not they can be protected," which are generated by the research. Such rights are also governed by the Grant Agreement which is concluded between the Commission and the various parties participating in the research programme. Again the central thrust of these measures is to ensure that scientific information and data are made available to the scientists working on specific projects where appropriate.

[138] Art 22 of Council Regulation No 199/2008.
[139] Arts 49 and 50, Regulation No 1906/2006. OJ L 391/1, 30.12.2006.

PART II
Ship-based MSR in EU Member States

7. Member State practice in relation to MSR

The practice of the EU Member States regarding the implementation of the MSR provisions in the 1982 Convention varies considerably. This divergence of practice has its origins the different positions taken by the EEC Member States at UNCLOS III and their inability to adopt a common position regarding the legal regime that ought to apply to MSR in sea areas under coastal State sovereignty and jurisdiction.[140] At the Conference, some Member States such as France, the Netherlands, and United Kingdom were strong advocates of the freedom of scientific research. The Netherlands made considerable efforts to ensure that the development of the concept of the EEZs would not result in an unjustifiable restriction on MSR.[141] Other Member States such as Ireland were interested in the establishment of a practicable regime that reflected the principles of qualified coastal State consent in relation to research conducted within the EEZ and on the continental shelf.[142] Moreover, the views expressed by 9 Member States at the time of the Conference do not reflect the position of the 27 Member States that make-up the EU today.[143] In the absence of harmonisation measures at an EU level, ascertaining what the precise nature of Member State practice in relation to the implementation of Part XIII of the Convention presents its own challenges as

[140] See, *inter alia*: M. Nordquist (*et al*.) *United Nations Convention on the Law of the Sea 1982: A Commentary* (Dordrecht/Boston/ Lancaster, Martinus Nijhoff Publishers, 1985) Vol. 1, p.84; J.F. Buhl "The European Economic Community and the Law of the Sea" (1982) 2 *ODIL* 188-200 at 186.

[141] See A. Soons, *Marine Scientific Research and the Law of the Sea* (Kluwer Law and Taxation Publishers, Deventer, 1982) at pp. 63-66.

[142] Official Records of UNCLOS III, Vol. VI, Summary Record of Meetings, Third Committee, 30th Meeting, Para 20. For a comprehensive insight into the Irish position on MSR and related matters, see M. Hayes, *The Law of the Sea: The role of the Irish delegation at the Third UN Conference* (Dublin, Royal Irish Academy, 2011).

[143] The 9 EEC Member States which participated at the conference were: Belgium, Denmark, Germany, France, Ireland, Italy, the Netherlands, Luxembourg and the United Kingdom.

little has been published on the subject since Professor Soons completed his incisive study in the mid 1990s.[144]

One of the most comprehensive primary sources of information on state practice is the IOC survey on the practice of IOC Member States with respect to Parts XIII and XIV (which deals with the Transfer of Marine Technology (TMT)) of the 1982 Convention for the period 1998-2002. [145] The results of the survey

[144] A. Soons, "Regulation of Marine Scientific Research by the European Community and its Member States" (1992) 23 *Ocean Development and International Law* 259

[145] Further, to a request from the United Nations General Assembly and the IOC Executive Council, the IOC drafted and issued a Questionnaire to survey the practice of IOC Member States with respect to Parts XIII and XIV (which deals with the Transfer of Marine Technology (TMT)) of the 1982 Convention for the period 1998-2002. See Paragraph 23 of United Nations General Assembly Resolution A/RES/56/12 and the International Oceanographic Commission Executive Council Resolution EC-XXXV-7. The purpose of the survey was threefold: firstly, to assess the problems encountered in the implementation of Part XIII; secondly, to assist States in establishing generally accepted guidelines, criteria and standards for the transfer of marine technology in accordance with Article 271 of the 1982 Convention; and thirdly, to inform the international community as to the status of MSR and TMT and the practical issues raised in the implementation of Part XIII and XIV of the 1982 Convention. Although there were a relatively high number of non-respondents with only 82 of the 136 IOC Member States had responded to core components of the survey by 2008 which amounts to a 60% response rate, the results of the survey make interesting reading as it provides us with an excellent overview of the general thrust of international state practice on this important aspect of the Convention. In addition, a concise and useful analysis of the data compiled from the survey was undertaken by experts on behalf of the IOC in 2003 and 2005, with an update in 2008. One core component of this analysis which was undertaken by an expert from the United States State Department, Ms. Elizabeth Tirpak, and is cited here in full as it clearly outlines a number of emerging trends regarding state practice in this evolving field of law. This passage reads as follows:

- "There are a considerable number of countries interested in receiving guidance/assistance in updating or creating legislation for marine scientific research.
- Very few of the respondents that acknowledged national legislation for MSR provided copies of the relevant national legislation as requested per Section I Question IA.3
- Of the 25 countries that have specified an MSR application form, fewer than half were based on ICES or the UN Standard Form A.
- Most countries listed security as the rationale for not employing the implied consent regime.

have to be treated with care in view of the transient nature of state practice both within and beyond the EU. Regardless of this shortcoming, the IOC survey provides us with a useful yardstick with which to measure progress by Member States in discharging their obligations under Part XIII. Out of a total of 22 coastal Member States, 16 completed the IOC Questionnaire.[146] Somewhat surprisingly, the results of the survey demonstrate that Member State practice in the EU does not appear to have changed to any great extent since Professor Soons published

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- The implied consent regime has been employed – in general – by governments lacking resources to conduct the same research in their EEZs.
- Data indicate that there are very few instances of misrepresentation on behalf of the researching State, which would likely trigger the suspension or cessation of research.
- IOC Member States show very high approval rates for MSR applications.
- Researchers need to be acutely aware of the coastal State's perspectives on such specifics as "start dates" when applying for clearance.
- Observers, when employed by the coastal State, typically serve multiple purposes.
- Researching States are sharing their data – however half of those countries are apparently *not* conducting research in waters outside their jurisdiction."

Since 2008, five additional IOC Member States (Croatia, Fiji, Ireland, Samoa, and South Africa) have completed the Questionnaire. Overall, the results of the IOC Survey suggest that the practical implementation of Parts XIII appears to be far from satisfactory. Most notably, the absence of national legislation, bilateral and multilateral agreements, as well as regional agreements which are aimed at facilitating and promoting MSR, are major shortcomings in a regime that is intended to be a model of international collaborative and cooperative endeavor. See E. Tirpak, Results of IOC Questionnaire Nº3 on the Practice of States in the Fields of Marine Scientific Research and Transfer of Marine Technology: An update of the 2003 analysis by Lt. Cdr. Roland J. Rogers. Presented at Fifth Meeting of the Advisory Body of Experts on the Law Of The Sea (IOC/ABE-LOS V), Buenos Aires, Argentina, 11–15 April 2005; and by the same author, Practices of States in the Fields of Marine Scientific Research and Transfer of Marine Technology *An Update of the 2005 Analysis of Member State Responses to Questionnaire No. 3* IOC/ABE-LOS VIII, Paris, 21-25 April 2008.The results of the survey are available at: Available at: http://ioc3.unesco.org/abelos/index.php?option=com_content&task=view&id=45&Itemid=56

[146] The 16 of the 22 coastal Member States replied to the survey (Belgium, Bulgaria, Denmark, Finland, France, Germany, Ireland (2008), Lithuania, The Netherlands, Poland, Portugal, Romania, Slovenia, Spain, Sweden, and the United Kingdom). The non-respondents were Cyprus, Estonia, Greece, Italy, Latvia, and Malta.

his original study in the early 1990s.[147] In general, it is evident that state practice in the EU varies considerably and there is no uniform approach by Member States to the regulation and management of foreign vessel MSR in sea areas under their sovereignty and jurisdiction. A summary of the information provided by Member States is shown in Table 1 below.[148]

Significantly, 13 of the Member States who respond to the IOC Survey indicated that they have adopted some form of legislation governing foreign MSR. Again this legislation differs to a significant extent with some Member States such as Poland and Latvia setting a high standard by adopting specific laws which replicate many of the MSR provisions in the 1982 Convention.[149] Other Member States such as the Netherlands, the United Kingdom have remained true to their original negotiation position at UNCLOS III by not enacting national legislation regulating the activities of foreign vessels engaged in MSR. The administrative practice of both these States, nonetheless, appears to follow the scheme set down by the 1982 Convention very closely.[150] One noteworthy point is that the United Kingdom does not consider "as a matter of law" that hydrographic survey constitutes MSR under the 1982 Convention.[151] This is similar to the position taken by the United States on this issue.[152] As mentioned above, the Netherlands has been a longstanding advocate of the adoption of simplified reciprocal arrangements between EU Member States governing vessel based MSR.[153]

A number of Member States such as Ireland have not adopted national legislation on MSR but utilise their laws on the continental shelf and fisheries to

[147] A. Soons, "Regulation of Marine Scientific Research by the European Community and its Member States" (1992) 23 *Ocean Development and International Law* 259

[148] Additional information has been obtained from the DOALOS website and the academic works cited in footnotes 14 and 17 *infra.*

[149] IOC Survey, Responses from Poland and Latvia. Available at: http://ioc3.unesco.org/abelos/index.php?option=com_content&task=view&id=45&Itemid=33

[150] First noted by M. Geoffrey, United Kingdom Material International Law 1985, *British Yearbook of International Law*, 1985, pp.500-503.

[151] See V. Lowe, "The United Kingdom and the Law of the Sea" in T. Treves (ed)., *The Law of the Sea, The European Union and its Member States* at p. 552.

[152] J.A. Roach, "Marine Scientific Research and the New Law of the Sea" (1996) 27 *Ocean Development and International Law* 59 at 60.

[153] A. Soons, "Regulation of Marine Scientific Research by the European Community and its Member States" (1992) 23 *Ocean Development and International Law* 259.

address the matter indirectly. The position in relation to Spain appears to be slightly oblique in so far the IOC Survey indicates that there are no specific measures implementing UNLOS MSR provisions but at the same time it lists *Royal Decree 799/1981* which is clearly relevant to the subject of foreign vessel based MSR.[154] At the time of writing, the law in Spain governing foreign vessel MSR and underwater cultural heritage is the subject of prompt release proceedings at ITLOS in *The M/V "Louisa" Case (Saint Vincent and the Grenadines* v. *Kingdom of Spain)*.[155] Elsewhere in Iberia, Portugal changed its position between UNCLOS I and III from a view supporting freedom of scientific research to one which now reflects the qualified coastal State consent approach to MSR in sea areas under national jurisdiction.[156] Today Portugal addresses foreign MSR by means of its continental shelf legislation and a licence must be obtained from the appropriate Ministerial authority in order to conduct oceanographic or other research on the continental shelf.[157]

In Scandinavia, state practice is more or less typical of Member State practice elsewhere in the EU. Thus, for example, Sweden which was a leading advocate of freedom of scientific research at UNCLOS III, addresses MSR by means of national legislation concerning the EEZ, the continental shelf, and the high seas but again has not adopted specific national legislation on the subject of MSR.[158] Similarly, Finland has no specific legislation but relies upon a range of measures such as the Continental Shelf Act of 1965, the Surveillance Decree of 1989, as well as fisheries legislation to address MSR in sea areas under national jurisdiction. At the other side of the Baltic Sea, Denmark has a diffuse range of legal instruments that are relevant to MSR but relies upon administrative procedures and institutional arrangements for regulating the conduct of MSR by non-nationals in maritime zones under her national jurisdiction.[159]

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[154] *Spanish legislation: R.D. 799/1981, 27 febrero (B.O.E. 8 mayo 1981).* This measures is discussed by V. Bout, R. Bermejo, "L'Espagne et le droit de la mer" in T. Treves (ed)., *The Law of the Sea, The European Union and its Member States* at pp. 490-491.

[155] Available at http://www.itlos.org/start2_en.html

[156] M. E. Goncalves, "Le Portugal et le droit de la mer" in T. Treves (ed)., *The Law of the Sea, The European Union and its Member States* at pp. 443-444.

[157] Arts 5 and 6 Decree No 49-369 of 11 November 1969.

[158] IOC Survey, Response Sweden. Also, see, M. Jacobsson, "Sweden and the Law of the Sea"in T. Treves (ed)., *The Law of the Sea, The European Union and its Member States* at p. 553.

[159] IOC Survey, Response Denmark.

Germany has a strong tradition in the marine sciences and has adopted the Federal Mining Law which concerns the approval of research activities on the continental shelf which do not relate to the exploitation of resources as well as *Meeresforschungsgesetz*, the Marine Research Law, authorizing the Ministry of Transport to regulate MSR in the German territorial sea and in the EEZ in accordance with Art. 245 to 255 of the 1982 Convention. At the time of the IOC Survey, no regulations had been issued under this law and this appears to be the current position at the time of writing. In practice, Germany relies upon an administrative procedure for foreign vessel MSR that is managed by the *Bundesamt für Seeschifffahrt und Hydrographie* in conjunction with the Federal Foreign Office and the Federal Ministry of Transport, Building, and Housing.[160]

In the Mediterranean Sea, neither Italy nor Greece responded to the IOC survey. This is surprising in light of their vested interests and the well-established MSR communities in both countries. At the various Law of the Sea Conferences, Italy supported the concept of freedom of scientific research in sea areas under coastal State jurisdiction and was the first country to advance the principle of tactic consent at the Seabed Committee in 1973. In order to address practical matters, the Italian Ministry of Foreign Affairs issued a Note concerning the regulation of scientific research by foreign vessels in areas under Italian jurisdiction in 1984.[161] As pointed by Judge Treves, this follows the general scheme of the 1982 Convention in many respects but exceeds what is set down in the 1982 Convention on a number of points.[162] In line with other international agreements, the 1982 Convention is implemented into Italian law by statute and the provisions therein thus supersede the Note as a matter of law.[163]

Similar to Italy, Greece is another EU Member State with a strong tradition in MSR and marine related research. Again an administrative approach has been adopted and is set out in a *Note Verbale* issued by the Ministry of Foreign Affairs in Athens in 1978.[164] There have been a number of incidents

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[160] Available at http://www.bsh.de/en/Marine_uses/Science/Research_activities/index.jsp

[161] T. Treves, "Italy and the Law of the Sea" in T. Treves (ed)., *The Law of the Sea, The European Union and its Member States* at p. 358.

[162] *Ibid.*

[163] *Ibid.*

[164] UN OALOS, National Legislation, Regulations and Supplementary Documents on Marine Scientific Research in Areas under National Jurisdiction, 1989, p.123. See *inter alia*: T. Kairitis (ed.), *Greece and the Law of the Sea* (Dordrecht, Kluwer International

regarding research by third countries in areas of the territorial sea that are claimed by both Greece and Turkey and this subject continues to be the source of controversy in the eastern Mediterranean Sea.[165]

Disappointingly, some of the EU Member States that participated in the survey did not provide copies of their national legislation as it applies to MSR as requested by the IOC. This makes it difficult to obtain a comprehensive overview of state practice in the EU. From the limited information available, however, it appears that only 2 Member States (Germany and Poland) appear to have specific regulatory measures implementing Part XIII. This is not fully representative of the overall position as can be seen from the information presented in Table 1 below as at least 12 Member States have some form of legislation that address MSR but this in the main has a much broader material scope (*ratione materae*) in so far as it addresses matters such as the continental shelf, fisheries and the EEZ. Of the 16 Member States that replied to the survey, all require consent to be sought by means of official channels for foreign vessel based MSR in sea areas under their sovereignty and jurisdiction. Five Member States utilise the ICES Standard Form and the remainder utilise a specialised form which shares similarities with the UN Standard Form A. The Helsinki Commission has adopted the ICES Form. On the whole, the level of requests for foreign vessel based request is impressive with some Member States such as Sweden and Denmark receiving up to 300 and 200 requests respectively for authorisation over the five-year period 1998-2002. The level of approvals is equally impressive with almost all request approved by Member States and with only one member States, Denmark, recording a less than 98% approval rating at 95%. This trend is consistent with the general trend of IOC Member States which showed very high approval rates for MSR applications.[166] All of the EU Member States surveyed,

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Law, 1997); E. Roucounas, Greece and the Law of the Sea in T. Treves (ed)., *The Law of the Sea, The European Union and its Member States* at pp. 248-249.

[165] M. Gorina-Ysern, An International Regime for Marine Scientific Research, p. 275. This issue was raised before the International Court of Justice in the Aegean Sea Continental Shelf case, Request for Indication of Interim Measures of Protection. The Court did not issue any interim measures. See http://www.icj-cij.org/docket/files/62/6221.pdf

[166] E. Tirpak, Results of IOC Questionnaire Nº3 on the Practice of States in the Fields of Marine Scientific Research and Transfer of Marine Technology: An update of the 2003 analysis by Lt. Cdr. Roland J. Rogers. Presented at Fifth Meeting of the Advisory Body of

apart form Finland, Lithuania and Slovenia, have benefited from the procedure of implied consent as set out in Article 252 of the 1982 Convention to conduct research in the waters of another coastal State. Ten Member States have had observers embarked on foreign research vessels serving multiple purposes. Nine Member States require researchers to provide the relevant authorities with copies of data and samples in accordance Article 249 (1c) of the 1982 Convention. Practice on this matter appears to vary considerably with some Member States such as Finland limiting their request to data on sea bottom mapping / profiling. Overall, however, the sharing of data between researching States and coastal Member States does not appear to pose any specific problem or impediments in the EU. From the information presented by EU Member States, there appear to be a number of instances where there has been the suspension or cessation of research for non-compliance with Articles 248 and 249 of the 1982 Convention. Namely, Belgium and France, with Finland rerouting research cruises for grounds relating to military purposes or concerns.

Interestingly from a law of the sea perspective, there is no generally accepted definition of what constitutes "fundamental MSR" in Member State or EU law. This omission does not seem to create any practical problems regarding the regime that is applied by the Member States. In general, it appears that the practice of EU Member States is more or less consistent with the general scheme set down in Part XIII of the 1982 Convention. Furthermore, a brief perusal of national legislation and administrative practices appears to suggest that the majority of Member States appear to assert their jurisdiction over MSR in very general terms. The principal weakness in the current regime appears to be the absence of harmonisation regarding the administrative and procedural requirements governing foreign vessel based MSR projects. Importantly, undertaking MSR in the regional seas which surround the EU does not pose the same range of problems that are now being encountered elsewhere in the world such as the South China Sea or the Indian Ocean. Indeed, several EU Member States have adopted an approach similar to the United States aimed at fostering MSR in sea areas both within and beyond national jurisdiction. In other words, they have ensured that all EU Member States, have the right to conduct MSR

Experts on the Law Of The Sea (IOC/ABE-LOS V), Buenos Aires, Argentina, 11–15 April 2005.

subject to the rights and duties of other States as provided for in the 1982 Convention.

8. Member State capacity to undertake ship-based MSR

The capacity of the EU to undertake ship-based MSR compares very favourably to the capacity of other global maritime powers such as the United States and the Russian Federation. Such a comparison may not be apposite in view of the fact that research vessels fly the flag of the Member State in which they are registered and therefore it is somewhat misleading to talk about the "capacity of the EU". As such, there is no EU research fleet *per se* as there is no EU registry for research vessels apart from the national shipping registries in the Member States. Accordingly, it may be more appropriate to talk about the research vessel capacity of the Member States as opposed to the EU. That being said, there are however a number of pan-European administrative and organisational structures which are concerned with the management and operation of research vessels. One such entity is the *Marine Board of the European Science Foundation*, which represents 31 organisations from 19 different countries in Europe involved in MSR. In light of the diversity of interests that it represents, the Marine Board has a wide brief, which extends to defining common priorities and activities that impact upon the research agendas adopted by the Member States and the EU. Importantly, the Marine Board has undertaken important work aimed at promoting a more integrated approach to the utilization of European research infrastructure including research vessels. Much of progress to date can be attributed to a Working Group established by the Marine Board in 2007 tasked with examining the use of European research vessels and their associated equipment, and mandated with making recommendations regarding their enhanced use and improved management at a European level. The Working Group produced a position paper entitled: *European Ocean Research Fleets – Towards a Common Strategy and Enhanced Use*, which made wide ranging recommendations on the subject.[167]

[167] Marine Board, *European Ocean Research Fleets – Towards a Common Strategy and Enhanced Use* (Ostend, March 2007). Available at: http://www.esf.org/index.php?eID=tx_nawsecuredl&u=0&file=fileadmin/be_user/researc

In 2007, the research fleet was made-up of 46 vessels including 11 of Global class, 15 of Ocean class and 20 of Regional class (see Figures 2 and 4 below). This particular classification is similar to the one used in the United States and using this as a comparator it is evident that the size of the European fleet is relatively impressive and compares very favourably to size and number of research vessels available in the United States. The principal problem associated with the European research fleet relates to the age of vessels. This may be contrasted with the assessment of the large exchangeable equipment deployed on research vessels such as underwater submersibles which is described in the report as "state-of-the-art, performing excellently, and is more extensive than elsewhere in the world".[168]

From the viewpoint of our discussion regarding the need to undertake transboundary MSR to support the implementation of ecosystem-based management under the MSFD, it is significant to note that the Expert Group found that national authorities in the Member States are the principal funding bodies for ship-time.[169] Furthermore, they expressed the view that this situation was unlikely to change in the near future and the onus rested with the same national authorities to generate further "European integration" regarding the utilisation of ship resources and other infrastructure.[170] The Expert Group made several substantive recommendations that are worthy of enumeration here in light of the practical difficulties encountered in undertaking ecosystem-based management on a transboundary basis with the limited resources that are available in the Member States to undertake deep-ocean science. Firstly, they urge national authorities in the Member States to promote and support the co-ownership national equipment pools and to open possibilities to barter/charter national fleets.[171] Secondly, they call on the Marine Board to "promote the integration of the use of European fleets; its Member Organisations to find ways and means to enhance coordination of fleets and equipment scheduling, to launch transnational technical teams for deployment of heavy equipment, and to elaborate together proposals, on inter-operability for instance, and to present them to the European

h_areas/marine/pdf/Publications/MBPP10_OFWG.pdf&t=1291123536&hash=92aa612744e7e9611da47b2934a7bf61

[168] *Ibid.* at p.10.

[169] *Id.*

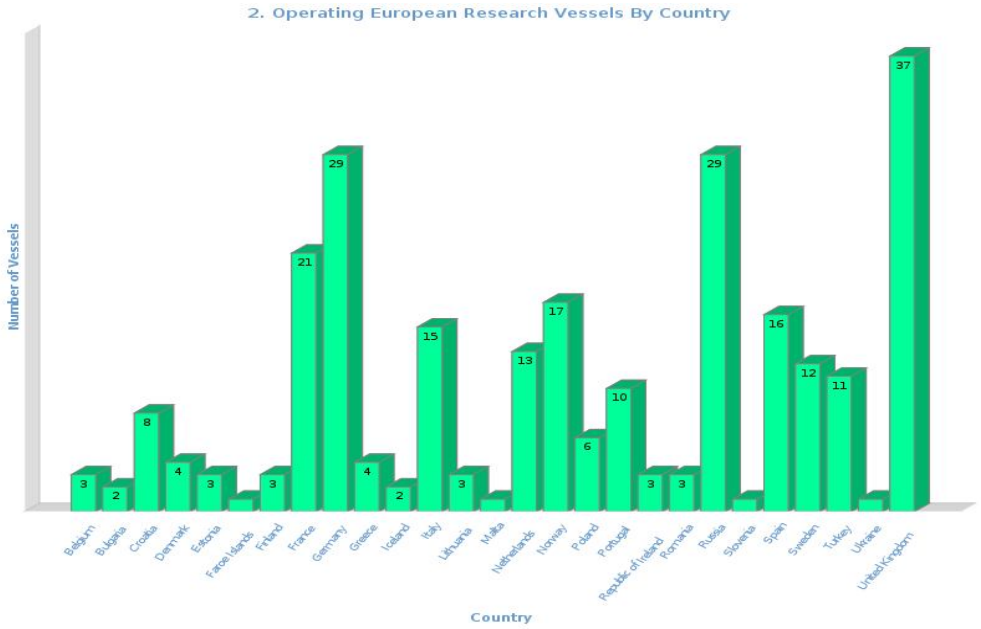
[170] *Id.*

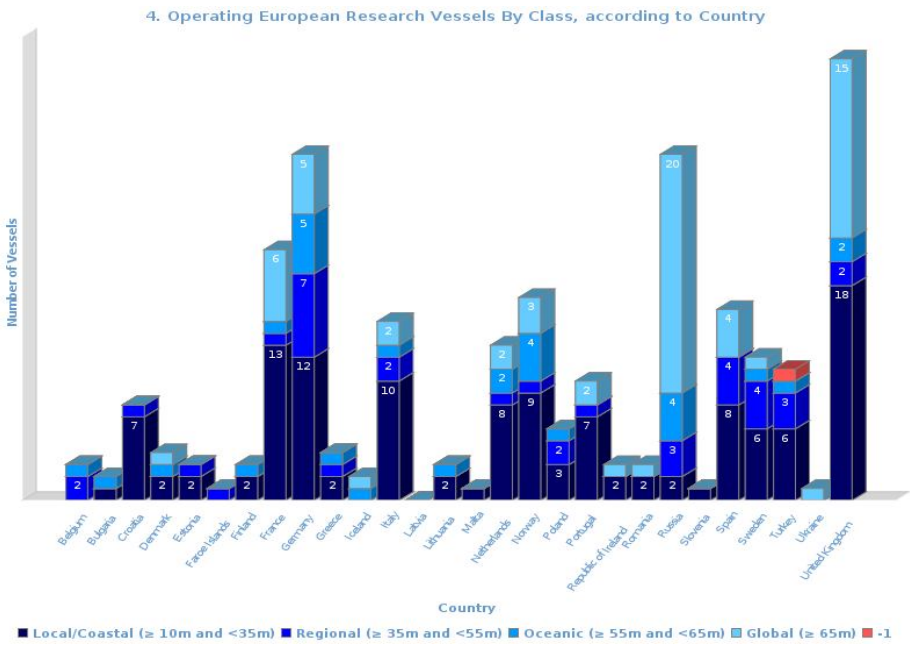
[171] *Id.* at p.11

Commission."[172] Thirdly, they call upon the European institutions to support new infrastructure projects dedicated to inter-operability.[173] Fourthly, they recommended the re-organisation of the various European groups concerned with the exchange of equipment and the operation of research vessels into two specific groups, the Ocean Facilities Exchange Group and the European Research Vessel Operators Group.[174] Overall, the central thrust of these recommendations is to improve efficiency and to contribute to the enhanced integration of critical infrastructure at a pan-European level. This is entirely consistent with the requirements of delivering ecosystems-based management under the MSFD which requires policy-makers to obtain comprehensive scientific knowledge on the status of the marine environment.

Since the publication of the Marine Board position paper there have been a number of other initiatives at a pan-European level aimed at improving the efficiency and inter-operability of European research infrastructure. In 2009, for example, the European Commission financed a project under the 7th Framework Research Programme entitled "Towards an Alliance of European Research Fleets" (the "Eurofleets Project") which brings together 24 partners from 16 Member States and associated countries who own or operate research vessels with a view to enhancing their coordination and promoting the cost-effective use of their facilities.[175] The project has a budget of €7 million and is in the process of developing a common strategic vision for European research fleets and their associated heavy equipment. One of the project tasks is to promote a common language among European research fleets by reinforcing common standards and experimental protocols. A key project objective is to improve access to research vessels and their associated equipment by facilitating transnational access to infrastructure and facilities in the Member States.

[172] *Id.*
[173] *Id.*
[174] *Id.*
[175] Available at http://www.eurofleets.eu/np4/15


2. Operating European Research Vessels By Country
Number of Vessels
Country
Belgium
Bulgaria
Croatia
Denmark
Estonia
Faroe Islands
Finland
France
Germany
Greece
Iceland
Italy
Lithuania
Malta
Netherlands
Norway
Poland
Portugal
Republic of Ireland
Romania
Russia
Slovenia
Spain
Sweden
Turkey
Ukraine
United Kingdom
3
2
8
4
3
3
21
29
4
2
15
3
13
17
6
10
3
3
29
16
12
11
37



Sources Figures 2 & 4: EurOcean Database on European Research Vessels[176]

Part III
Harmonising Member State Practice: Why, What and How?

9. Why do Member States need to harmonise national procedures?

Apart from implementing the European Research Area, there appears to be several valid reasons why the Member States in the EU need to streamline current procedures governing ship-based MSR. Some of the principal reasons that support harmonisation are mentioned here.

[176] Available at http://www.rvinfobase.eurocean.org/

9.1 Implementing international law

As a start point, the simplification of current procedures and practices of the Member States in relation to MSR will accord with international legal obligations that arise for the EU and the Member States under the scheme set down in Part XIII of the 1982 Convention.[177] This approach will also build upon the sterling work undertaken by the Member States and the EU in promoting and facilitating the work of international bodies such as the IOC and ICES which are mandated to undertake scientific research at global, regional and sub-regional levels.

9.2 Implementing the EU Treaty right to provide and receive a service

From a European law perspective, harmonisation will sit very comfortably with treaty provisions which prohibit discrimination on the grounds of nationality and aim to eliminate restrictions to trade within the EU. [178] Clearly, the market for research ship-time is a European market and it may therefore be appropriate to say a little more about the applicable Treaty regime. The free movement provisions in the European Treaties guarantees the right of workers such as scientists to move freely from one Member State to another for the purpose of work.[179] This is a core principle of EU law and derogations can only be justified on the grounds set out in the Treaties and secondary EU legislation.[180]

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[177] Arts 243 and 255, 1982 Convention.

[178] Art 18 of the TFEU. The Court has held that this provision is directly effective in *Baumbast and R v Secretary of State for the Home Department* [2002] ECR 1-7091.

[179] The concept of who constitutes a "worker" has a broad and unique meaning under European law and definitely encompasses members of the scientific community whose work normally entails performing services of economic value under the direction of another person in return for remuneration. On the meaning of the term "worker" see, *inter alia*: Case 53/81 *Levin* v. *Staatssecretaris van Justitie* [1982] ECR 1035; Case 139/85 *Kempf* [1986] ECR 1741; Case 3/87 *Agegate* [1989] ECR 4459; Case 196/87 *Steymann* [1988] ECR 6159; Case 344/87 *Bettray* [1989] ECR 1621; Case C-413/01 *Ninni-Orasche* [2003] ECR I-13187; Case C-456/02 *Trojani v. CPAS* [2004] ECR I-7573.

[180] The right is not absolute and is subject to some important qualifications under Article 45(4) of the TFEU and under secondary legislation including Regulation (EEC) No 1612/68 of the Council of 15 October 1968 on freedom of movement for workers within the Community OJ 257, 19.10.1968, pp. 2-12 ; Directive 2004/58/EC of the European Parliament and of the Council of 29 April 2004 on the right of citizens of the Union and

In practice, research vessels only move to another Member States temporarily and often do so to undertake research work commissioned by public and private bodies in another Member State or which is paid for by the EU under the framework research programmes.[181] Therefore the provisions in the TFEU which protects the right to provide and receive a service on a cross-border basis without restrictions are applicable to research services.[182] Briefly stated, EU Treaty provisions on this subject apply to both providers and recipients of services and are aimed at ensuring that the rules that are normally applied in a host Member State to service providers that resident in that Member State are also applied to the activities of a temporary nature pursued by persons who are normally resident in another Member State. Services may be provided by sole traders, companies or partnerships and include activities of an industrial, commercial or professional character normally undertaken on a remunerated basis.[183] These are important considerations in the case of ship time on board research vessels which tends to be expensive, publically funded, and may entail additional costs if it includes the use of large equipment such as ROVs and submersibles. Significantly, the Court has held that publically funded services such as education and research come within the scope of the Treaty provisions and a service may be provided or received on a temporary or infrequent basis.[184] *A priori*, all discrimination based on nationality in relation to such services whether direct or indirect is prohibited under the TFEU.[185]

A preliminary assessment suggests that the different authorisation requirements described above that apply to research ships flying the flag of a Member State offering a scientific service in another Member State do not sit

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their family members to move and reside freely within the territory of the Member States amending Regulation (EEC) No 1612/68 and repealing Directives 64/221/EEC OJ L 158, 30.4.2004. Article 46 of the TFEU provides a legal basis for the European Parliament and Council to issue directives or make regulations setting out the measures required to bring about the free movement policy.

[181] As seen above, the ship time is normally paid from public funding in the Member States. See note 168 *infra* at p.10.

[182] Art 56 of the TFEU.

[183] Art 57 of the TFEU.

[184] In Case 286/83 *Luisi and Carbone v Ministero del Tesoro* [1984] ECR 377, the ECJ held that education can be a service if it is provided by a private body on a commercial basis.

[185] Case 205/84 *Commission v Germany* [1986] ECR 3755.

comfortably with the Treaty provisions which guarantee the freedom to provide and receive a service in another Member Treaty. In practice, they make it more difficult for ship operators to reach potential customers in a host Member State and apply different rules than those that apply to a ship operator established in that Member State. There is important secondary legislation in this particular field in the form of the Services Directive which requires Member States to remove unjustified and disproportionate burdens including administrative burdens when a service provider wants to supply services across borders in another Member State, without setting up an establishment there.[186]

The Treaty sets down a number of derogations which allow Member States to impose restrictions on the free movement provisions regarding posts that are connected with the exercise of official authority, or on the grounds of public policy, security or public health.[187] In the context of free movement of workers, however, both the European Court of Justice and the European Commission have interpreted these restrictions very narrowly.[188] Suffice to note here that research for non-military purposes or research undertaken on behalf of a national research agency do not come within the scope of the exceptions.[189] From a legal viewpoint, streamlining the consent procedures as suggested in this paper will be fully consistent with the achievement of a fundamental aspect of the EU Treaties

[186] Directive 2006/123/EC of the European Parliament and of the Council of 12 December 2006 on services in the internal market, OJ L 376, 27.12.2006, pp. 36–68. Under the Directive, service providers are able to obtain information and complete administrative formalities through points of single contact in each Member State. The EU has also adopted a Directive (referred to as the "Posted Workers Directive") which sets down the rules which applies to workers which are posted from State of origin to provide a service in another Member State. Directive 96/71/EC of the European Parliament and of the Council of 16 December 1996 concerning the posting of workers in the framework of the provision of services. OJ L 018 , 21.01.1997 p.1

[187] Art 62 of the TFEU applies 51-54 of the treaty to the provisions on services.

[188] See COM (2002) 694 and the cases cited therein including Case 152/73, Sotgiu ECR [1974] 153; Case 149/79, Commission v Belgium I ECR [1980] 3881; Case 149/79, Commission v Belgium II ECR [1982] 1845; Case 307/84, Commission v France ECR [1986] 1725; Case 66/85, Lawrie-Blum ECR [1986] 2121; Case, 225/85 Commission v Italy ECR [1987] 2625; Case C-33/88, Allué ECR [1989] 1591; Case C-4/91, Bleis ECR [1991] I-5627; Case C-473/93, Commission v Luxembourg ECR [1996] I-3207; Case C-173/94, Commission v Belgium ECR [1996] I-3265; Case C-290/94, Commission v Greece ECR [1996] I-3285

[189] Case 225/85 *Commission* v. *Italy* [1987] ECR 2625.

as it will facilitate the freedom to provide and receive a scientific service across the EU.

9.3 Implementing the ecosystems approach

As is evident from our discussion so far, harmonisation will also facilitate the implementation of the ecosystems based approach to management of human activities in the marine environment. This will be achieved through the provision of timely data, better knowledge of the marine environment, and scientific information regarding the impact of EU policies in the marine environment.[190] In this context it is worth noting that the *2009 European Commission's Progress Report on the EU's Integrated Maritime Policy* emphasises that there can be no maritime policy without proper data and knowledge on Europe's seas and coast.[191]

At this juncture, it may be appropriate to say a little more about the ecosystem approach as it has the potential to shape the future development of EU policy on ship-based MSR. In very general terms, the ecosystems approach is intended to provide for the conservation, management and exploitation of marine aquatic resources while maintaining the quality, structure and functioning of marine ecosystems. [192] The successful implementation of the approach is utterly contingent upon having good quality scientific data regarding the functioning of marine ecosystems. As noted in the OSPAR Quality Status Report 2010, "the implementation of the ecosystem approach requires a good understanding of the ecosystem and its dynamics and the development of appropriate indicators and scientific methodologies to enable evaluation of the quality status of the ecosystem in response to pressures from human activities".[193]

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[190] Art 192 of the TFEU.

[191] Report from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions, Progress Report on the EU's Integrated Maritime Policy, COM (2009) 540, Brussels, 15 October 2009, at p.7.

[192] R. Long, "The EU Marine Strategy Framework Directive: A New European Approach to the Regulation of the Marine Environment, Marine Natural Resources and Marine Ecological Services", International Bar Association, (2011) *Journal of Energy and Natural Resources Law* 29 (1) pp. 1-45.

[193] Available at: www.ospar.org. This report reviews all aspects of human influence on the quality of the marine environment of the OSPAR maritime area which is divided into five

As noted above, the EU has taken a broad brush perspective to implementing this new normative concept for environmental management and there are several secondary legal instruments that assist the EU and the Member States in implementing the ecosystem approach including the Habitats and Birds Directives, the Water Framework Directive and the MSFD. These instruments are very much science driven and require Member States to achieve good environmental status of all marine waters by 2020 at the latest in the North East Atlantic, the Mediterranean Sea, the Baltic Sea and the Black Sea.[194] One of the first steps under the Directive is that Member States must "establish and implement coordinated monitoring programmes for the ongoing assessment of the environmental status of their marine waters by 2014."[195] Significantly, such monitoring programmes must be compatible within marine regions or sub regions and must build upon, and be compatible with, relevant provisions for assessment and monitoring laid down by EU legislation, including the Habitats and Birds Directives, or under international agreements.[196] With a view to facilitating coherence and coordination at a regional level, Member States must ensure that: (a) monitoring methods are consistent across the marine region or sub region so as to facilitate comparability of monitoring results; (b) relevant transboundary impacts and transboundary features are taken into account. Elaborate and

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regions (the Arctic Waters, Greater North Sea, Celtic Seas, Bay of Biscay and Iberian Coast, Wider Atlantic).

[194] Directive 2008/56/EC of the European Parliament and of the Council of 17 June 2008 establishing a framework for community action in the field of marine environmental policy (Marine Strategy Framework Directive) OJ L 164/19, 25 June 2008. For commentary on this Directive from a political science perspective, see R. Long, The EU Marine Strategy Framework Directive: A New European Approach to the Regulation of the Marine Environment, Marine Natural Resources and Marine Ecological Services", (2011) *Journal of Energy and Natural Resources Law* 29 (1) pp. 1-45; L Juda 'The European Union and the Marine Strategy Framework Directive: Continuing the Development of Ocean Use Management', (2010) 41 *ODIL* 34–54; N Westaway, 'The New European Marine Strategy Framework Directive', (2008) 10 *Env L Rev* 218–224; S Fletcher, 'Converting science to policy through stakeholder involvement: an analysis of the European Marine Strategy Directive', (2007) 54 *Marine Pollution Bulletin* 1881–1886; L D Mee *et al*., 'How good is good? Human values and Europe's proposed Marine Strategy Directive', (2008) 56 *Marine Pollution Bulletin* 187–204; A Borja, 'The new European Marine Strategy Directive: difficulties, opportunities, and challenges', (2006) 52 Marine *Pollution Bulletin* 239–42.

[195] Art 5.2(a)(iv) of Directive 2008/56/EC.

[196] Art 11(1) of Directive 2008/56/EC.

indicative lists of the elements that need to be provided in the monitoring programme are set out in Annex III and Annex V of the Directive. These by definition will require a high level of scientific cooperation across a broad range of scientific disciplines and across borders. Therefore it comes as no surprise to find that Member State cooperation and coordination with third countries by means of the regional seas agreements are at the heart of the scheme introduced by the Directive.[197] The ultimate aim is the integration of the conservation objectives, management measures and monitoring and assessment activities at the level of the various regional seas conventions with a view to achieving good environmental status by 2020.

The importance of MSR is noted in the preamble of the MSFD which points out that "strategies will be effective only if they are devised on the basis of a sound knowledge of the state of the marine environment in a particular area and are tailored as closely as possible to the needs of the waters concerned in the case of each Member State".[198] In 2010, the Commission laid down criteria and methodological standards to be used by the Member States for monitoring and assessment of the marine environment.[199] There is an express legal obligation under this instrument and the MSFD regarding the sharing of data and information in so far as Member States must provide the Commission with access and use rights in respect of data and information resulting from the initial assessments and from the ongoing monitoring programmes of the status of the marine environment.[200] In addition, such information and data must also be made available to the European Environment Agency for the performance of its tasks.[201]

[197] In particular, the Convention on the Protection of the Marine Environment of the Baltic Sea Area; the Convention for the Protection of the Marine Environment of the North-East Atlantic; the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean; and the Protocol for the Protection of the Mediterranean Sea Against Pollution from Land-Based Sources; 1992 Convention on the Protection of the Black Sea against Pollution.
[198] Recital 23 of the Preamble.
[199] Commission Decision of 1 September 2010 on criteria and methodological standards on GES of marine waters, OJ L 232/14, 2.9.2010.
[200] Art 19(3) of Directive 2008/56/EC.
[201] Art 19 (3) of Directive 2008/56/EC.

9.4 Implementing maritime spatial planning and ICZM

Harmonisation will also complement initiatives such as maritime spatial planning **(**MSP) and integrated coastal zone management (ICZM) which are heavily dependent on good quality scientific evidence and data.[202] In 2008, the Commission adopted the "Roadmap on Maritime Spatial Planning: Achieving Common Principles in the EU" (the "Roadmap") which sets down 10 key principles and seeks to promote the development of a common approach among Member States in the implementation of MSP at national and EU level.[203] Principle 5 is the streamlining of the application process for licences and consents for offshore activities at a national level in the Member States.[204] The Roadmap points out that "cooperation across borders is necessary to ensure coherence of plans across ecosystems. It will lead to the development of common standards and processes and raise the overall quality of MSP".[205] Furthermore, that "MSP has to be based on sound information and scientific knowledge."[206] Since the publication of the Roadmap, the Commission have launched two preparatory actions in the Baltic Sea and in the North Sea/North East Atlantic. These aim to develop the cross-border cooperation aspects and economic benefits of MSP. In addition, they have commissioned a study on the potential of MSP in the Mediterranean Sea of MSP. In a progress report on the implementation of the EU's IMP, the Commission expressed the view that spatial planning can drastically improve the way we manage our maritime spaces and preserve their ecosystems.[207] Viewed in this light, the streamlining of the procedures for the conduct of ship-based MSR will facilitate and reduce the costs in implementing MSP as it will entail the introduction of a simplified permit system and administrative procedures in the Member States. This will bring about significant cost reductions in the planning of scientific cruises. Furthermore, it will facilitate the implementation of the ecosystem approach. As noted in the Communication from the Commission:

[202] ICZM Recommendation.
[203] Communication from the Commission. Roadmap for Maritime Spatial Planning: Achieving Common Principles in the EU. COM(2008) 791 final. Brussels, 25.11.2008.
[204] Para 5.5, COM(2008) 791 final.
[205] Para 5.7, COM(2008) 791 final.
[206] Para 5.10, COM(2008) 791 final.
[207] Progress Report on the EU's Integrated Maritime Policy, COM(2009) 540, Brussels, 15 October 2009 at 11.

> *The sea is a complex ecosystem that cuts across administrative borders. For balanced long-term management, the whole ecosystem and its determining factors must be taken into account. Planning must seek to protect and enhance the marine environment. Work on MSP at EU level provides an appropriate forum for Member States to discuss and develop a holistic approach to the management of maritime activities in line with ecosystem requirements.*[208]

The Communication goes on to point out that MSP needs to be based on sound information and scientific knowledge and it highlights several scientific and data gathering tools that have been developed in the EU with a view to undertaking adaptive management of the marine environment.[209] These include some of the initiatives described above including: the European Marine Observation and Data Network (EMODNET). In conclusion, the harmonisation of the procedures that apply to foreign vessel MSR will assist the implementation of MSP through the provision of a stable and more coherent regulatory framework for undertaking ship-based MSR on a cross-boundary basis.

10. What measures ought to be harmonised at an EU level?

From the review undertaken above, it appears that there is a compelling case supporting the harmonisation and the simplification of the complex and expensive procedures associated with the planning and implementation of MSR projects by vessels flying the flag of a Member State when such projects are going to be undertaken in sea areas under the sovereignty and jurisdiction of another Member State of the EU. But what exactly needs to be harmonised?

At a rather mundane administrative level, an EU harmonisation needs to address matters such as to how and when scientists are required to submit a research cruise application, the information to be provided by the applicant to the coastal State, as well as the information to be provided to neighbouring land-locked States. There also appears to be a strong case for standardising the designated channels for the submission of such applications. On this particular issue, it is questionable whether is really necessary to work through the

[208] COM(2008) 791 final, p. 4.
[209] COM(2008) 791 final, p. 11.

designated diplomatic channels as is currently the procedure in the majority of Member States as this normally entails communication by means of the diplomatic mission of the researching State to the Ministry of Foreign Affairs in the coastal State. Surely consideration ought to be given to allowing the researching institutions to communicate directly with a designated authority in the coastal Member State such as an "MSR Clearance Office" which is officially established and resourced for this purpose. This in itself would expedite the application process from the excessive limit of 6 months which is set down by the 1982 Convention to perhaps a more realistic period of 1 month for the processing an application if it is received electronically.[210] Obviously this process could be speeded up further if there is agreement to use a standard EU form modelled on the ICES Standard Form or the UN Draft Standard Form A.[211] As a minimum, the onus should be on the applicant to provide information which fulfils the requirements set down in Article 248 of the 1982 Convention and address matters such as: the objectives of the project; the name and details of the vessel and the scientific equipment embarked; the geographical coordinates of the project and the estimated times of arrival and departure of the vessel from sea areas under coastal State jurisdiction; the name of institution and the lead scientist for the research programme; the European and third-country partners participating in the project; the scope for participation of scientists and observer from the coastal State in the research project. The request for consent should be submitted in the working language of the coastal Member State where the project is going to take place. As a matter of EU law, the "standard EU application form" will have to be made available in all 23 official languages of the Member States.[212]

The procedures and timeline for the response of the coastal Member State could also be standardised to address matters such as: the designation of a central MSR Office as a "one-stop shop" in the coastal Member State for the processing

[210] Art 248 of the Convention.

[211] See, United Nations, *Guide for the Implementation of the Relevant Provisions of the UN Convention on the Law of the Sea* (United Nations, Office for Ocean Affairs and the Law of the Sea, New York, 1991).

[212] This in itself should not pose an insurmountable challenge as European legislation is normally published in 23 languages in the Official Journal of the EU prior to coming into force. These are: Bulgarian, Czech, Danish, Dutch, English, Estonian, Finnish, French, German, Greek, Hungarian, Irish, Italian, Latvian, Lithuanian, Maltese, Polish, Portuguese, Romanian, Slovak, Slovene, Spanish and Swedish.

of applications and to ensure coordination at a national level. This office could be responsible for circulating the proposed application to national bodies such as the coastguard, government agencies and the appropriate ministries. Clearly, a Member State is required to grant consent for research projects in its exclusive economic zone or continental shelf unless the project comes within the four specified cases set out in the 1982 Convention. Namely, projects of direct significance for natural resource exploration and exploitation; projects involving drilling, use of explosives or the introduction of harmful substances into the marine environment; projects involving artificial islands, installations and structures; or research projects containing information that is inaccurate regarding the nature or objective of the project or where there is outstanding obligations in relation to a previous research project.[213] In view of the fact that the provisions on MSR in the 1982 Convention simply refer to the researching State, it would appear logical if the designated clearance office in the member State monitors compliance by both governmental and non-governmental research institutes with the obligations set down by the 1982 Convention as subsequently implemented into EU law. The EU harmonisation measure should also prescribe an exhaustive list the conditions which may be imposed by the coastal State when granting consent similar to the list enumerated in Article 249 of the 1982 Convention. This could include matters that are to be undertaken during or after a research cruise which are linked to the research undertaken at sea.

In relation to undertaking the research cruise, the EU harmonisation measure could address the following: the terms and conditions for coastal State participation in the research project when practicable; the duty to disclose changes in the research programme to the coastal State; the rights of the coastal State to suspend or to require the cessation of MSR; the removal of installations and equipment; general measures concerning the provision of assistance to research vessels; as well as the rules governing access and assessment of data, samples and research results.

The rights of research institutes in land-locked Member States (Austria, Luxembourg, Slovakia, the Czech Republic and Hungary) to participate in MSR projects could also be addressed in the harmonisation measures. Such measures would follow the general thrust of Art 254 of the 1982 Convention but it needs to be emphasised that research institutes in land-locked states of the EU have

[213] Art 246 5 (a) to (d) of the 1982 Convention.

precisely the same rights and duties as institutes that are located in coastal Member States under the EU Treaties. Indeed, EU secondary legislation such as the MSFD and the Water Framework Directive set down specific requirements for land-locked States regarding their role in the protection and preservation of the marine environment.[214]

Although not specifically provided for in the 1982 Convention, EU research vessels could be required to install and operate a vessel monitoring system with a view to facilitate monitoring compliance with the scheme of regulation set down by the EU harmonisation measure. This is of course is an issue which might provoke some discord among the scientific community and it is clearly beyond the scope of this paper to explore the legal implications of setting down such a requirement. *Prima facie*, however, the imposition of such a requirement would certainly make the task of monitoring the activities of research vessels less onerous for coastal and flag States.

10.1 What type of measure could be used to harmonise Member State practice?

There are several potential answers to this question as there are many options open to the EU should it wish to harmonise Member State practices on this matter. In the first instance, the reply will very much depend on whether a non-legislative or legislative approach is the preferred option. In relation to the former which is a softer intervention by the EU, it would be possible to tighten up the existing administrative procedures in the Member States to ensure that they are fully consistent with Part XIII of the 1982 Convention. This would not entail any regulatory action on the part of the EU and would only involve a degree of administrative coordination by the European institutions regarding the current practices in the Member States. This could be achieved by means of a Communication from the Commission setting down best practice on the subject matter or it could be in the form of an Action Plan, Roadmap, or Guidelines which encourage Member States, and other interested parties including the marine

[214] See, for example, Article 6(2) and 6(3) of Directive 2008/56/EC which requires landlocked countries to bring into force only those measures that are necessary to ensure compliance with requirements under Article 6 (Regional Cooperation) and Article 7 (Competent Authorities) of Directive 2008/56/EC.

scientific community, to take appropriate steps in streamlining current practices regarding foreign vessel MSR. Along the same vein, the Council or the Commission could adopt a non-binding instrument as it has done in other areas of the maritime policy. An example of such an approach is evident the ICZM Recommendation mentioned above.[215] This would be slightly more formal but would not have the force of law in the Member States as it would simply encourage the adoption of a specific line of Member State conduct in relation to the administration and control of foreign vessel MSR.[216] Broadly speaking, recommendations are adopted in areas where the EU lacks legal competence or where a transitional period is required before the EU institutions are empowered to adopt appropriate measures. Therefore, in the domain of MSR, where the EU shares competence with the Member States under the Treaties, the adoption of a non-binding legal instrument would not appear to be the most appropriate course of action.

Moving on to the second category, there appear to be two hard law options which both entail the adoption of a secondary European legal instrument following the procedures set down in the EU Treaties. The first is the adoption of a prescriptive instrument in the form of a European Parliament and Council Regulation.[217] The principal advantage of this approach is that regulations are binding in their entirety and directly applicable in all Member States.[218] This approach has a number of clear advantages in so far as regulations are incorporated automatically into the legal systems of each of the Member States and do not require national transposition measures. As a matter of practice, the European institutions generally rely upon regulations in instances where it is necessary to be clear and precise regarding the legal obligations that are created. Furthermore, regulations are directly effective which means that can be applied by the courts of the Member States as soon as they become operative. They are the preferred regulatory option in a number of policy areas such as fisheries and agriculture where there is a requirement to adopt legislation which requires speedy implementation by the Member States.

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[215] See discussion on ICZM *infra.*
[216] Note however that the European Court of Justice held in Case 322/88 *Grimaldi* [1989] ECR 4407 that recommendations are not devoid of all legal effect.
[217] Art 288(1) of the TFEU.
[218] Art 288(2) of the TFEU.

The second option is to adopt a relatively inflexible directive that leaves the national authorities a degree of autonomy regarding the choice of form and method of achieving desired results in relation to the conduct of MSR.[219] In contrast to regulations, a directive is not directly applicable and therefore requires national transposition measures by each Member State before they become effective in national legal systems. Directives by their very nature are more malleable than regulations as they usually provide Member States with a range of options from which they can choose when adopting their national implementation measure. Directives are the principal means of regulatory intervention under the EU's environmental policy and in many instances they leave Member States considerable discretion regarding national transposition measures. This leads to one obvious weakness which is that a number of EU Member States have tardy records when it comes to meeting their requirements under EU directives and consequently this type of instrument would not appear to be the most appropriate for the task at hand. In any case, within the European legal order, the relevant institution are empowered by the Treaty to choose the relevant instrument for harmonisation once a particular legal basis is identified in the Treaties for such a measure.

10.2 Finding an appropriate legal basis in the Treaties

This takes us to the next question which is to identify an appropriate legal basis in the European Treaties in which to root an EU legislative measure aimed at harmonising Member State practice. The legal base in the Treaties will dictate the legislative procedures that must be followed in the European institutions as well as the voting procedures in the Council. In principle, without an appropriate legal base in the Treaties, the European institutions are prevented from adopting a measure that is legally binding on the Member States. Thus, for example, there is no specific legal basis in the Treaties for the Integrated Maritime Policy and most of the initiatives in this regard have consisted of soft law initiatives or else in the form of regulatory measures in the field of EU environmental protection that has its own separate legal basis in the TFEU.[220]

[219] Art 288(3) of the TFEU.
[220] Art 3 of the TEU and Arts 4, 11, and 191 to 193 of the TFEU.

The task of selecting a legal base for draft legislation normally falls on the Commission who must also record the reasons for the legislative proposal, the decision-making process followed, and the institutions and bodies which participated in the legislative process.[221] A brief perusal of the Treaties reveals that there appear to be a number of treaty provisions that could be cited to support the adoption of common rules at an EU level regarding ship-based MSR. At first sight, the determination of a specific legal basis is not a straight-forward exercise as any such measure touches on several treaty provisions as seen previously including the provisions on the European Research Area, the freedom to provide and receive a service, and the EU's environmental policy.

Instructively, the European Court of Justice has set down a number of general principles that allow the European institutions to identify the appropriate legal base for a legislative act when there are a number of possibilities under the Treaties.[222] The choice is not simply dependent on the EU institution's conviction as to the objective pursued but must be based on objective criteria which are amenable to judicial review by the Court taking into account the aim and content of the measure.[223] If the EU harmonisation measure seeks to achieve two objectives which are covered by different treaty provisions, then the objective that is considered to be the principal or predominant purpose must be selected as opposed to a purpose that is merely ancillary. [224] The Court has set down a test to resolve the difficulties concerning the identification of an appropriate legal basis

[221] Art 296 of the TFEU. These questions used to be the source of controversy and litigation between the European institutions but since the ratification of the Lisbon Treaty and the application of the ordinary legislative procedure to the majority of EU policy areas, there now appears to be less scope for conflict as this procedure puts the Parliament and the Council on an equal footing in the law-making process.

[222] The principles for the identification of the appropriate legal basis are described in most textbooks on EU law, see, *inter alia*: J. Fairhurst, *Law of the EU*, 8th Ed., (Harlow, Pearson, 2010) pp. 125-150; A. Kaczorowska, *European Union Law*, 2nd Ed., (London / New York, Routledge-Cavendish, 2010) pp. 183-197, especially 219-220.

[223] Case C C-176/03 Commission v Council [2005] ECR I-7879; Case C-269/97 *Commission v Council* [2000] ECR I-2257; Case C-300/89 *Commission v Council* (Titanium Dioxide) [1991] ECR I-2867; Case 45/86 *Commission v Council* [1987] ECR 1493.

[224] Case T-99/05 *Spain v Commission* 10 May 2007; Case C-42/97 *Parliament v Council* [1999] ECR I-869.

which is refereed to as the "centre of gravity doctrine".[225] In effect, this means that the legal basis that is closest to the primary purpose of the instrument must be selected. In very exceptional circumstances where the proposed measure seeks to achieve a number of objectives which are of equal importance and which are inseparably linked, the measure may be rooted in a number of treaty provisions.[226]

If one is to follow the methodology set down by the Court it appears that any EU harmonisation measure aimed at standardising the procedures that apply to ship-based MSR in the Member States could have as its principal aim the implementation of the Treaty provisions on research and technological development.[227] This would allow the European Parliament and the Council, acting in accordance with the ordinary legislative procedure and after consulting the Economic and Social Committee, to adopt a harmonisation measure as a "complement to the activities planned in the multiannual framework programme."[228] Although much of the research conducted in sea areas under Member State jurisdiction and sovereignty is not connected with the framework programmes this would not appear to be an impediment to the adoption of an EU harmonisation measure as it could be argued that such a measure is necessitated to advance the implementation of the European Research Area. [229] In other words, the definition of "common standards" regarding ship-based research will facilitate researchers circulating and co-operating across borders in line with the general scheme set down by the Treaties.[230] The TFEU expressly provides that all EU activities under the Treaties in the area of research and technological development, including demonstration projects, must be decided on and implemented in accordance with the provisions of Title XIX of the Treaty.[231] The

[225] See *inter alia*: Case C-155/91 *Commission v Council* [1993] ECR I-939; Joined Cases C-164 and 165/97 *European Parliament v Council* [1999] ECR I-1139. For discussion of the application of this doctrine in relation to environmental legislation, see, R. Brady, in M. Norquist, R. Long, T. Heidar and J. Norton Moore (ed.) *Law, Science and Ocean Management* (Boston/Leiden, Nijhoff, 2007) pp. 110-115.
[226] Case C-178/03 *Commission v European Parliament and Council* [2006] ECR I-107; Case C-281/01 *Commission v Council* [2002] ECR I-2049.
[227] These provisions are set out in Title XIX of the TFEU.
[228] Art 182(5) of the TFEU.
[229] Art 179(1) of the TFEU.
[230] Art 179(2) of the TFEU.
[231] Art 179(3) of the TFEU.

EU is compelled to stimulate the training and mobility of researchers in the EU.[232] Furthermore, both the EU and Member States are obliged to coordinate their research and technological development activities so as to ensure that they are mutually consistent.[233] The European Commission thus have an explicit legal basis in which to root the proposed harmonisation measure and it is open to the European institutions to select the appropriate measure on how to achieve this objective.

10.3 Legal constraints: the dual principles of subsidiarity and proportionality

EU legislative measures harmonising the regulatory or administrative procedures of the Member States in relation to ship-based MSR have to be reconciled with the principles of subsidiarity and proportionality which are cardinal tenets of EU law that influence the decision of the European institutions to adopt draft legislation in any particular field.

The principle of subsidiarity was introduced into the EU Treaties in the mid 1980s with a view to maintaining a degree of equilibrium in the balance of powers between the EU Member States and the EU institutions. Essentially, the principle ensures that EU action is only permissible when particular objectives cannot be better attained at the level of the individual Member States. This ensures that the European institutions acts within the limits of the powers conferred on them by the Member States under the Treaties. The precise wording in the TEU on the principle is as follows: "in areas which do not fall within its exclusive competence, the EU shall act only if and in so far as the objectives of the proposed action cannot be sufficiently achieved by the Member States, either at central level or at regional and local level, but can rather, by reason of the scale or effects of the proposed action, be better achieved at EU level."[234]

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[232] Art 180(d) of the TFEU.

[233] Art 181 of the TFEU.

[234] Art 5(3) of the Treaty on European Union. As an aside, it should also be mentioned that there is a Protocol on the application of both principles appended to the Treaties which sets down a number of procedural requirements which must be followed by the European institutions in bringing forward draft legislation. Protocol No 2 to the Treaty on European Union and the Treaty on the Functioning of the EU. Importantly, this provides

The application of the principle will depend on which legal basis is selected for the proposed harmonisation measure. So for example, if the proposed measure is aimed at facilitating the provision of scientific services on a cross-border basis, then this is an exclusive EU competence and the principle is thus inapplicable. If on the other hand, the proposed measure is intended to implement the Treaty provisions on research and development as suggested above, then the principle is applicable as the regulation of ship-borne MSR is not within the exclusive competence of the EU but is shared with the Member States.[235] However, it may be contended that this does not pose an insurmountable legal obstacle for a number of reasons. To start with, the rationale underpinning EU legislative intervention in this particular field stems from the trans-national and regional nature of MSR activities which cannot be properly regulated by action at a national level in the Member States. Secondly, an EU legislative measure will facilitate Member States in implementing EU Directives and undertaking a whole range of tasks associated with ecosystem-based management, as well as soft law initiatives such as maritime spatial planning and integrated coastal zone management. Thirdly, it can also be argued that action at an EU level is likely to produce clear benefits by reason of its scale and effects, compared with regulatory action pursued at the level of an individual Member State or at the regions. In this regard, the decision to grant or refuse a particular research cruise will remain a question for the relevant authorities in the Member States following the long-established national administrative arrangements for processing foreign MSR cruise applications.

The principle of proportionality provides that any EU action should not go beyond what is necessary to achieve a legitimate objective. In contrast to principle of subsidiarity described above, it is less elusive as a legal concept in so far as it has a well-established history in both civil and common law jurisdictions. The principle was imported into EU law from the German legal system and it is aimed at ensuring that the content and form of EU action must not exceed what is necessary to achieve the objectives of the Treaties.[236] The suggested harmonisation measure appears to be proportionate since it will enable the

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a mechanism by which the Commission will have to reconsider a proposal if one-third of national parliaments consider that the proposal infringes the principle of subsidiarity.

[235] See discussion on EU competence to regulate MSR in paragraph 3 *infra*.

[236] Art 5(4) of the Treaty on European Union.

Member States to achieve the objectives of a number of EU policies more effectively. In particular, there are tangible symbiotic links between MSR and EU policies such as fisheries, environment, research, climate change, and the EU's integrated maritime policy. Moreover, it should not be forgotten that the principal focus of any putative EU measure ought to be aimed at harmonising national measures and making existing administrative systems interoperable. In this context, some similarities may be drawn between the European integrated maritime surveillance system and the proposed measure.

Assuming that the proposed measure is clearly predicated on the need for EU-wide action and is not overtly restrictive or onerous, it may be contended that it is unlikely to infringe upon either the principle of subsidiarity or proportionality.

11. Conclusions

Over the past three decades, research has become increasingly global and it is now generally accepted that MSR is the foundation of good ocean governance.[237] We have seen on a number of occasions over the past three decades how science can play an important role in resolving high profile disputes at an international level regarding the status of the marine environment and the resources it supports.[238] Surprisingly, however, advances in scientific enquiry into the oceanic environment have not been mirrored by the progressive development of the law as it applies to modern research methods.[239] In this context, the implementation of Part XIII by States Parties to the 1982 Convention appears to be pedantic at best and frequently at odds with the needs of the scientific community. This is borne out by the experience in the EU over the past three decades which demonstrates that getting authorisation for ship-based MSR tends to be a time-consuming business involving cumbersome procedures in the Member States.[240] Although permission is rarely refused, national structures and

[237] Y. Tanaka, *A Dual Approach to Ocean Governance*, (Farnham, Ashgate, 2008) at 209.
[238] See, for example, the *Southern Bluefin Tuna* case (Australia, New Zealand v Japan, 1999) 38 ILM 1624.
[239] In particular, *in situ* and *ex situ* research methods, see D. R. Rothwell, T. Stephens, *The International Law of the Sea* (Oxford, Hart Publishing, 2010) at 321.
[240] As seen above, the European Commission has taken a number of regulatory initiatives to coordinate the policies of Member States in relation to fisheries research and

procedures do not facilitate Member States and the EU in discharging their obligation under Part XIII of the 1982 Convention to create favourable conditions and rules for the conduct of MSR.

The MSR provisions in the 1982 Convention require further implementation by means of state practice and the EU has an enormous capacity to influence the future development of the law in this regard. This paper suggests that the rising cost of undertaking research at sea and the potential efficiencies to be gained from regulatory harmonisation are compelling reasons for setting down common EU standards for foreign vessel MSR. Streamlining administrative procedures and reducing red tape in the EU would lead to shorter times to contract and plan vessel time for MSR.[241] This is attractive for companies that face tight deadlines and a harsh fiscal environment in which to market their services.

The case should not be viewed solely in terms of its commercial utility as harmonisation will undoubtedly make a significant contribution to the implementation of EU Treaty provisions on research and innovation as it applies to the marine environment. Most importantly of all it will help the Member States to implement the ecosystem approach on a regional basis in accordance with the scheme established under the MSFD. From the scientific literature, it is evident that the successful implementation of this approach is very much contingent upon obtaining a comprehensive scientific picture of the functioning of marine ecosystems. This is the principal reason why the MSFD and the supplementary Commission Decision require the on-going collection and analysis of a considerable amount of scientific data regarding the environmental status of marine waters. Indeed, the *raison d'être* for the MSFD instrument may partly be attributed to the divergence of approaches across Europe regarding the monitoring and assessment of the status of the marine environment. The regional approach to ecosystems based management under this Directive could be greatly facilitated if there is one consent procedure that is applied to ship-based MSR across the EU.

Similarly, the European Integrated Maritime Policy and the MSFD are predicated on obtaining a sound scientific understanding of the functioning of the

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considerable developments have been undertaken within the framework of the Fisheries Data Collection Regulation to ensure the sharing of information and the rationalisation of the resources used for this purpose.

[241] This accords with the finding of the Marine Board, *European Ocean Research Fleets – Towards a Common Strategy and Enhanced Use* (Ostend, March 2007) at 37-38.

ocean environment.[242] The European institutions and international scientific bodies will also benefit from such an approach as they do not have any capacity to collect MSR data on their own and rely upon the resources that are available in the Member States. The streamlining of the administrative procedures that apply to foreign vessel MSR will reduce the cost of obtaining scientific data for policies such as the transport, fisheries, environmental, and climate change policies. This will create a win-win situation for all interested parties including the research community and those responsible for policy implementation in the Member States.

There are a number of potential ways to take this proposal forward within the European institutions. The first point of contact could be the Working Party on the Law of the Sea (usually referred to by its French acronym COMAR) which is made-up of experts from the Member States who undertake much of the advisory within the European institutions on the implementation of the 1982 Convention and its associated agreements.[243] Apart from preparing the ground work for meetings of the Council of Ministers and the Committee of Permanent Representatives, COMAR has a wide mandate and undertakes many of the difficult tasks associated with the providing advice on law of the sea issues at an EU level.

In considering the merit of proposed measure, COMAR will be aware of the importance of introducing a scheme that is expeditious, transparent and does not discriminate between natural and legal persons in the Member States on the basis of nationality. This will speed up the authorisation process for foreign vessel MSR significantly. As a result, ship operators will find it much easier to provide their services across borders in line with their free movement provisions of the EU Treaties. At a practical level, the establishment of an automated

[242] Recital 11 of the MSFD states that: "it is necessary that Member States cooperate among themselves, as well as with third countries, and coordinate their national programmes with respect to the collection of data regarding the same marine region and regions covering relevant inland waters. Recital 12 goes on to provide that: priorities should be established at Community level, as should the procedures for data collection and processing within the Community, in order to ensure that the entire system is consistent and to optimise its cost-effectiveness by creating a stable multi-annual regional framework.

[243] Positions on questions within the EU's competence are adopted by the normal procedure at COMAR. Questions falling under the European Union's foreign policy are governed by Title V of the TEU.

electronic system and a "one-stop approach" will allow for the direct and efficient exchange of information between Member States, the various service providers, and the marine scientific community. This in turn will lead to greater efficiency regarding the use of the European research fleet. Additional impetus could also be achieved if the Member States in conjunction with the professional bodies or associations that represent the scientific community agreed a European code of conduct that is applicable to ship-based MSR. [244] Such a code has already been agreed by OSPAR Contracting parties in relation to MSR undertaken in the deep seas and high seas of the OSPAR Maritime Area. [245]

One final question relates to how many Member States ought to be concerned about this issue. The short answer is that this is a matter of concern for all 27 EU Member States, including land-locked States such as Austria which has an active scientific community engaged in researching the functioning of marine ecosystems and has a long-standing diplomatic interest in the legal regime that applies to the conduct of MSR.[246] Indeed, with the advent of phenomena such as climate change and the inherent dangers posed by transboundary hazards such as tsunamis and extreme weather events such as typhoons and hurricanes which originate over the oceans, the legal regime that applies to MSR in the European maritime area ought to be of interest to all States both within and beyond the EU, irrespective of their geographical location. In other words, when it comes to harmonising the procedures that apply to foreign vessel MSR in sea areas under their sovereignty and jurisdiction, it will certainly take more than two Member States to tango.

[244] Some Member States have already adopted codes of practice regarding research undertaken in sea areas that are designated for the protection under the Habitats Directive, see, R. Long, *Marine Resource Law*, (Dublin, Thomson Round Hall, 2007) at 680-681.
[245] OSPAR 08/24/1, Annex 6. Available at: www.ospar.org
[246] See G. Hafner, "Austria and the Law of the Sea" in T. Treves (ed)., *The Law of the Sea, The European Union and its Member States* at 35.

Table 1: Member State practice in relation to MSR as evaluated by the IOC in 2005.[247]

Member State	Legislation	Consent via Official Channels	Consent Form Spec Form	No. of requests annually 1998-002	Approx No. of authorisations / approvals 1998-2002	Researching State	Observers	Copies of Data / Assessments of Data Require	Suspension of MSR for Non Compliance with Arts 248-249
BE*	✓	✓	ICES Form X	12	57 (almost all)	✓		X	✓
BG*	✓					✓	✓	No Response	X
CY	No Response								
DK*	✓	✓	ICES Form	200	95%	✓	✓	✓	X
EE	No Response								

[247] Compiled from IOC Questionnaire N°3 IOC which was implemented in accordance with Resolution EC-XXXV.7 adopted by the 35th session of the IOC Executive Council (Paris, 4-14 June 2002) and of Resolution A/RES/56/12 of the UN General Assembly. The purpose of the survey and compilation is (i) to assess the problems encountered in the implementation of the marine scientific research (MSR) regime as established by Part XIII of UNCLOS (Section One), (ii) to assist States in establishing generally accepted guidelines, criteria and standards for the transfer of marine technology (TMT) in accordance with Article 271 of UNCLOS (Section Two) and to inform the international community as to the status of MSR and TMT and practical issues raised in their implementation. Available at: http://ioc3.unesco.org/abelos/index.php?option=com_content&task=view&id=45&Itemid=56

FR*	✓	✓	No Form	40	Almost all	✓	✓	?	✓
FI*	✓	✓	ICES	20	100%	x	X	*Only if data on sea bottom mapping/profiling*	Rerouting for military purposes
DK*	✓	✓	No Form	39	All	✓	X	✓	x
EL	No Response								
IRL[248]	No Response								

[248] Ireland has since submitted a response to the survey.

Member State	Legislation	Consent via Official Channels	Consent Form Spec Form	No. of requests annually 1999-2002	Approx No. of authorisations /	Researching State	Observers	Require Copies of Data / Assessments of Data	Suspension of MSR for Non-Compliance with
IT	No Response								
LV	No Response								
LT	✓	✓	Helsinki Commission (Baltic Sea Environment Protection Commission) X	7-17	100 %	X	X	✓	X
MT	No Response								
NL*	x	✓	ICES X	50	100 %	✓	X	X	X
PL*	✓	✓	NO FORM X	–	–	–	✓	–	–
PT*	✓	✓	X X	49	100 %	✓	✓	✓	X
RO*	✓	✓	X X	2	100 %	✓	✓	✓	X
SI	✓	✓	X X	1	100 %	X	✓	✓	–
ES*	X	✓	X X	< 10	–	✓	✓	✓	–
SE*	✓	✓	ICES X	300	98%	✓	X	✓	X

UK*	X	✓	X X	80- 90	2%	✓	X	✓	X