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**REGIONAL WORKSHOP ON VULNERABLE MARINE ECOSYSTEMS
(VMEs) IN THE SOUTHEAST ATLANTIC OCEAN**

Swakopmund, Namibia, 15–17 April 2013

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PREPARATION OF THIS DOCUMENT

This is the report of the Regional Workshop on Vulnerable Marine Ecosystems in the Southeast Atlantic Ocean, which took place in Swakopmund, Namibia, from 15 to 17 April 2013. It was organized by FAO in close cooperation with the National Marine Information and Research Centre (NatMIRC), Ministry of Fisheries and Marine Resources and the South East Atlantic Fisheries Organisation (SEAFO). The workshop was attended by 18 participants, including representatives from government fisheries departments, environmental agencies, fishery research institutes, the fishing industry, non-governmental organizations, regional organizations, and projects.

The workshop was organized as part of the FAO Deep-sea Fisheries Programme to promote the use of the International Guidelines for the Management of Deep-sea Fisheries in the High Seas, which provide guidance to States and regional fisheries management organizations or arrangements to ensure the long-term conservation and sustainable use of marine living resources in the deep seas including preventing significant adverse impacts on vulnerable marine ecosystems.

FAO is grateful to the workshop participants for their contributions to this report. The final report was edited by Tony Thompson, Jessica Sanders and Merete Tandstad.

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ABSTRACT

The Regional Workshop on Vulnerable Marine Ecosystems (VMEs) in the Southeast Atlantic Ocean took place in Swakopmund, Namibia, on 15-17 April 2013. The workshop aimed to raise awareness and build capacity on VMEs and associated management issues in the Southeast Atlantic Ocean region. The workshop discussed the VME concept within the framework of the FAO Deep-sea Fisheries Guidelines and looked at examples of different management methodologies and options for VMEs, and how these processes can be facilitated. The global VME database, under development by FAO, was introduced, with a focus on how it can support the VME process in the Southeast Atlantic Ocean region. In addition, the workshop identified relevant existing sources of information on deep-sea fisheries and benthic ecosystems, and discussed confidentiality and data-sharing issues. Finally, the future requirements and support mechanisms, including a network of experts to support the VME process and collaborative arrangements for data sharing, were discussed, in addition to how the upcoming Areas Beyond National Jurisdiction (ABNJ) Deep-seas Project could assist with this by working with States and other stakeholders and projects.

This workshop was held immediately following a Convention on Biological Diversity (CBD) workshop on ecologically or biologically significant marine areas (EBSAs), which covered the Atlantic coast region of Africa. To improve understanding and to create synergies between the EBSA and VME processes, a one-day workshop was held on 13 April 2013, with participants drawn from both the CBD EBSA and FAO VME workshops. A report of this VME-EBSA workshop is annexed to this report.

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1. INTRODUCTION

1.1 General Background

The importance of sustainably managing deep-sea fisheries is a primary focus of States and regional fisheries management organizations/arrangements (RFMO/As). In the 1990s, there was an increasing realization that many deep-sea fish stocks, especially those around seamounts and other underwater features, were being heavily fished, invariably lacked stock assessments and management measures, and had characteristics that rendered the stocks susceptible to overfishing. Interest in deep-sea habitats and ecosystems was also increasing during this period, particularly in those comprised of slow-growing and structure-forming organisms, such as sponges and corals. There was also an increasing concern that some of these fisheries, especially those conducted with bottom-contact fishing gear and bottom trawls, could be negatively impacting deep-water corals and sponges in benthic habitats that are unique to the deep seas, and that this would lead to a general reduction in fish stocks and biodiversity through a gradual degradation of ecosystem health.

The importance of these realizations was highlighted in the United Nations General Assembly (UNGA) Resolutions dealing with sustainable fisheries. In 2006, UNGA Resolution 61/105 (mainly paragraph 83) requested States and RFMO/As to take improved measures for deep-sea bottom fisheries and take measures to address **significant adverse impacts** (SAIs) on **vulnerable marine ecosystems** (VMEs) by 31 December 2008. To assist States and RFMO/As, the International Guidelines for the Management of Deep-Sea Fisheries in the High Seas (hereinafter “the FAO Deep-sea Fisheries Guidelines”; FAO, 2009)¹ were developed to provide guidance on the long-term conservation and sustainable use of deep-sea marine living resources in the high seas. This guidance greatly assists with the implementation of paragraph 83 (and more generally paragraphs 80-86) of UNGA Res. 61/105 (2006) as well as the more recent resolutions 64/72, 65/38 and 66/68. FAO has developed a full programme to support the implementation of the FAO Deep-sea Fisheries Guidelines consistent with the **ecosystem approach to fisheries** (EAF). This includes a VME database that will serve to raise awareness on VMEs to fishery policy-makers, managers and scientists, conservationists, the fishing industry, and the public at large.

The RFMO/As responsible for managing deep-sea fisheries in the high seas are in different stages of development with respect to their fisheries management functions. Some have responded very quickly in identifying and protecting VMEs, whereas others need support to achieve results.

In May 2010, a workshop was held in Busan, the Republic of Korea, with the aim of analysing the challenges of and proposing ways forward for the implementation of the FAO Deep-sea Fisheries Guidelines. The workshop identified specific programmes of work and activities that will be needed to advance implementation of the FAO Deep-sea Fisheries Guidelines, including further guidance on the use of the VME criteria and associated measures. The proposed VME database was introduced and its attributes discussed.

In December 2011, a workshop was held to discuss stakeholder needs and to develop a strategy for information-sharing mechanisms for the VME database. Various RFMOs had already indicated their willingness to provide information to the database. The workshop noted the need for regional approaches and a selection of case study areas was identified in order to assist in the development of the database. In this context, FAO is organizing a series of regional workshops, the first of which was in Flic-en-Flac, Mauritius from 25 to 27 July 2012. The VME workshop in Swakopmund, Namibia, was the second workshop of the series and aimed to facilitate information sharing and discussions between stakeholders on issues related to VMEs, including relevant fisheries management and conservation measures. The knowledge gained at the workshops will also feed into the VME database development and the Areas Beyond National Jurisdiction (ABNJ) Deep-seas project.

¹ FAO. 2009. *International Guidelines for the Management of Deep-sea Fisheries in the High Seas. Directives internationales sur la gestion de la pêche profonde en haute mer. Directrices Internacionales para la Ordenación de las Pesquerías de Aguas Profundas en Alta Mar.* Rome/Roma. 73 pp. (also available at www.fao.org/docrep/011/i0816t/i0816t00.htm).

The Convention on Biological Diversity (CBD), principally through the Conference of the Parties (COP) decision IX/20² adopted in 2008, has also embarked upon regional workshops to facilitate the description of ecologically or biologically significant marine areas (EBSAs) in the oceans. This scientific process uses seven scientific criteria (EBSA criteria) to help describe important ocean areas that meet these criteria. Participants of the 11th COP meeting, in Hyderabad, India, described areas that meet the EBSA criteria in the western south Pacific region and the wider Caribbean and western Mid-Atlantic region, and areas that could meet the criteria in the Mediterranean region (COP Decision XI/17).³

To further exchange and sharing of information between the EBSA and VME processes, the CBD Secretariat held its workshop “South–Eastern Atlantic Regional Workshop to Facilitate the Description of Ecologically or Biologically Significant Marine Areas (EBSAs)”, immediately before this Namibia VME workshop. A one-day joint discussion workshop on VMEs and EBSAs was held on 13 April and was attended by 41 participants originally participating in either the VME or EBSA workshops, or both.

These workshops were funded through the Global Environment Facility (GEF) preparation grant in support of the development of the ABNJ Deep-sea project and co-funded by the FAO Deep-sea Fisheries Programme suites of projects: principally GCP/GLO/323/NOR: “Support to the implementation of the International Guidelines on the Management of Deep-sea Fisheries in the High Seas”, with additional support from projects GCP/INT/253/JPN “Fisheries Management and Marine Conservation within a Changing Ecosystem Context- deep-sea fisheries component projects”, and GCP/GLO/309/FRA “The VME database project”.

1.2 Regional Background

The South East Atlantic Fisheries Organisation (SEAFO) had its first meeting in 2005. Its convention area covers the Southeast Atlantic Ocean and borders the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) to the south, and the Fishery Committee for the Eastern Central Atlantic (CECAF) to the north. The convention area is mainly abyssal with the notable features being the Mid-Atlantic Ridge (MAR) to the east, the Walvis Ridge to the north, and the Agulhas Ridge to the south of the convention area. The main fished species include orange roughy (*Hoplostethus atlanticus*), alfonso (*Beryx decadactylus*), armourhead (family Pentacerotidae), deep-sea red crab (*Chaceon quinquedens*), and Patagonian toothfish (*Dissostichus eleginoides*). Today, the fishery is comprised mainly of longlines (toothfish) and pots (crabs) on and around benthic features. Deep mid-water trawling for alfonso and armourhead continues on the seamounts. There has been little bottom-trawl activity since 2005. In 2007, SEAFO closed 13 areas to fishing in order to protect VMEs on seamounts that were, at the time, classified as moderately exploited or unexploited. The 2007 closures were reviewed three years later, in 2010. In 2010, SEAFO imposed a ban on gillnetting in the convention area. Currently, 11 VMEs in the SEAFO convention area are closed to fishing activities. During this time, SEAFO also formulated and adopted its fishing protocols, in addition to delineating both existing and new bottom-fishing areas, establishing VME encounter thresholds and move-on rules, and exploratory fishing protocols.

2. WORKSHOP ARRANGEMENTS AND OPENING SESSION

2.1 Venue and Participation

The workshop took place at the Alte Brücke Conference Centre in Swakopmund, Namibia, from 15 to 17 April 2013. The workshop was attended by 18 participants including representatives from government fisheries departments, environmental agencies, research institutes, non-governmental organizations (NGOs), regional organizations and projects, the CBD Secretariat, and FAO.

² www.cbd.int/doc/decisions/cop-09/cop-09-dec-20-en.pdf

³ www.cbd.int/cop/cop-11/doc/2012-10-24-advanced-unedited-cop-11-decisions-en.pdf

2.2 Welcoming Remarks

Welcoming remarks were provided by Mr Árni M. Mathiesen, Assistant Director-General of the Fisheries and Aquaculture Department of FAO (delivered by Ms Merete Tandstad, Fisheries and Aquaculture Department, FAO), and by Mr Bráulio Ferreira de Souza Dias, Executive Secretary, CBD (delivered by Ms Jihyun Lee, Marine and Coastal Biodiversity, Scientific, Technical and Technological Matters, CBD Secretariat).

The remarks highlighted the importance of long-term sustainability in the oceans and in the deep seas in particular. Many species inhabiting these nutrient-poor, yet stable, environments often have low growth rates, mature at relatively old ages, and cannot recover quickly following adverse impacts. In addition, the deep oceans are the least surveyed and least understood of all the areas on the planet. It was pointed out that the process to describe EBSAs, which has been ongoing since about 2008, has helped to increase the knowledge base for identifying biologically or ecologically important sites. Moreover, the process to identify and protect VMEs has added to the knowledge base on the distribution of deep-water sponges and corals, and also to knowledge of deep-sea fisheries.

Mr Ben van Zyl, Executive Secretary, SEAFO, welcomed the participants to Swakopmund, Namibia, and elaborated upon SEAFO's proactive role in applying the principles of the ecosystem approach to fisheries (EAF) in the Southeast Atlantic region. He expressed appreciation to FAO for arranging this meeting and to all the workshop participants for contributing and sharing their experiences. He noted that the preceding CBD EBSA meeting had added to the knowledge of the region and described a number of areas that meet the EBSA criteria in the high seas. Mr Van Zyl wished all participants an informative and productive meeting on VMEs in the Southeast Atlantic Ocean.

2.3 Appointment of Chair and Rapporteur

Mr Paulus Kainge (Chair, SEAFO Scientific Committee) was proposed to act as Chair for the meeting and Mr Tony Thompson was proposed to act as Rapporteur. This was unanimously agreed by the participants.

2.4 Adoption of Agenda

The Chair presented the provisional agenda as circulated to participants prior to the meeting. The agenda was adopted.

The workshop agenda, prospectus and list of participants can be found in Appendixes 1, 2 and 3, respectively.

2.5 Overview of Workshop Objectives and Expected Outputs

FAO organized a three-day workshop on the protection of VMEs and management of adverse impacts in the Southeast Atlantic. In order to provide synergies with the CBD, this was held immediately following the "South-Eastern Atlantic Regional Workshop to Facilitate the Description of Ecologically or Biologically Significant Marine Areas (EBSAs)".

The workshop:

- discussed the VME concept in the framework of the FAO Deep-sea Fisheries Guidelines, including examples of different management methodologies and options for VMEs;
- built capacity on VMEs and related management issues in the region;
- discussed the potential collaborative framework and priority collaborative activities;
- identified and assessed relevant existing information, and the use of the VME database;
- identified future requirements and support mechanisms, including a network of experts to support the VME process and collaborative arrangements for data sharing.

The workshop built on the considerable achievements already made in the VME process and associated deep-sea fishing protocols within the Southeast Atlantic region. Of particular regional and global interest was the SEAFO review of its VME areas undertaken in 2010, and the monitoring, control and enforcement measures required to manage these areas. Although this workshop focused on the Southeast Atlantic region, it intended to develop networking mechanisms that would allow for a more global exchange of best practices. The meeting also reflected more generally on the various management mechanisms and tools, including spatial measures currently used to ensure that fisheries are sustainable under an ecosystem approach.

The workshop was technical in nature and intended to stimulate informal discussion. Participants were invited in their personal capacity from a range of stakeholders that included: (i) scientists and managers from involved or concerned States; (ii) representatives of the fishing industry in the region; (iii) representatives from scientific institutes in the region working on issues related to VMEs; and (iv) representatives from NGOs / intergovernmental organizations (IGOs) and other relevant stakeholders working on or contributing to initiatives complementary to the work on VMEs.

It was recognized that many of the scientific and management discussions regarding VMEs occur within the SEAFO. It was hoped that the workshop results would contribute to furthering the VME processes within SEAFO.

The outputs included:

- a workshop report covering a range of aspects of the VME process in the region;
- participants who were familiarized with the ABNJ Deep-seas project, and possible collaborative options and relevant data sets discussed;
- regional network needs defined;
- VME database concept and structure clarified and regional needs incorporated.

2.6 Joint Workshop on Vulnerable Marine Ecosystems (VMEs) and Ecologically or Biologically Significant Marine Areas (EBSAs)

FAO and the CBD Secretariat held a joint meeting on “Vulnerable Marine Ecosystems (VMEs) and Ecologically or Biologically Significant Marine Areas (EBSAs)” on Saturday, 13 April 2013. The report from this meeting is provided in Annex 1.

3. SESSION 1: INTRODUCTION – UNGA RESOLUTIONS, FAO DEEP-SEA FISHERIES GUIDELINES, FAO DEEP-SEAS FISHERIES PROGRAMME AND THE ABNJ PROGRAMME

3.1 Legal instruments supporting deep-sea fisheries (DSFs) and VMEs – UNGA Resolutions

Mr Peter Deupmann (FAO) gave a presentation on the law of the sea, in particular the 1982 United Nations Convention on the Law of the Sea⁴ (UNCLOS) as well as related binding and non-binding legal instruments. Among others, UNCLOS provides for the establishment of maritime zones, including among others internal waters, the territorial sea, and the exclusive economic zone (EEZ), which may extend up to 200 nm. The areas beyond these maritime zones are referred to as the “high seas” where all States enjoy a number of qualified freedoms, including the freedom of fishing. The high seas, together with the sea bed beyond the (extended) continental shelves of coastal States is also known as “areas beyond national jurisdiction (ABNJ)”.

⁴ http://www.un.org/Depts/los/convention_agreements/texts/unclos/unclos_e.pdf

UNCLOS defines the rights and responsibilities of States, which vary depending on the maritime zone and addresses issues such as marine living resources, mineral resources, and shipping. Attention is given to the protection of the environment, including conservation, sustainable exploitation, and research.

Of particular importance for the international governance of fisheries are the provisions related to management and conservation of straddling and highly migratory fish stocks (articles 62 and 63) and the provisions relating to the management and conservation of living resources in the high seas (article 118). In respect of these marine living resources, UNCLOS requires that States cooperate with one another, either directly or through appropriate regional organizations. Other binding instruments, such as the 1995 Fish Stocks Agreement⁵ (UNFSA), the 1993 Compliance Agreement,⁶ and the 2009 Port State Measures Agreement,⁷ support UNCLOS in ensuring sustainable fisheries management and conservation.

In addition, there is a series of non-binding instruments that serve to support the binding agreements listed above. Many of these instruments have been developed in the context of the 1995 FAO Code of Conduct for Responsible Fisheries (the Code) The guidelines are diverse and include the following instruments:

- International Guidelines for the Management of Deep-sea Fisheries in the High Seas (2008);
- Guidelines for the Ecolabelling of Fish and Fishery Products from Marine Capture Fisheries (2009);⁸
- Guidelines to Reduce Sea Turtle Mortality in Fishing Operations (2009);⁹
- International Guidelines on Bycatch Management and Reduction of Discards (2011);¹⁰
- Voluntary Guidelines for FLAG State Performance (2013).¹¹

These non-binding agreements provide valuable guidance to States on their expected responsibilities and duties, and provide a starting point and common ground for negotiations and the development of measures. They also provide details on expected outcomes together with guidance on procedural details, and this greatly assists States in implementing the requirements stipulated by the binding agreements.

In the context of high seas DSFs, reference was made to the Resolutions adopted by the United Nations General Assembly (UNGA) addressing this issue, in particular the regular UNGA Resolutions on Sustainable Fisheries, which are of a non-binding nature.¹² The UNGA, in Resolution A/RES/61/105, called for a time-bound introduction and implementation of measure by RFMO/As to regulate bottom fisheries. Moreover, the UNGA invited FAO to developing standards and criteria for use by States and RFMO/As in identifying vulnerable marine ecosystems and the impacts of fishing on such ecosystems, and establishing standards for the management of DSFs (para. 89), and to consider creating a global database of information on VMEs (para. 90).

The FAO International Guidelines for the Management of Deep-sea Fisheries in the High Seas were adopted in 2008, and a summary was presented under the topic of sustainable fisheries and the protection of VMEs. With respect to the section on governance framework in the FAO Deep-sea Fisheries Guidelines, it is noted that:

⁵ Agreement for the Implementation of the Provisions of the Convention Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (available at <http://daccess-dds-ny.un.org/doc/UNDOC/GEN/N95/274/67/PDF/N9527467.pdf?OpenElement>).

⁶ Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas (available at www.fao.org/fileadmin/user_upload/legal/docs/012t-e.pdf).

⁷ Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing (available at www.fao.org/fileadmin/user_upload/legal/docs/1_037t-e.pdf).

⁸ www.fao.org/docrep/013/i1948e/i1948e08.pdf

⁹ www.fao.org/docrep/012/i0725e/i0725e.pdf

¹⁰ www.fao.org/docrep/015/ba0022t/ba0022t00.pdf

¹¹ [ftp://ftp.fao.org/Fl/DOCUMENT/tc-fsp/2013/VolGuidelines_adopted.pdf](http://ftp.fao.org/Fl/DOCUMENT/tc-fsp/2013/VolGuidelines_adopted.pdf)

¹² Resolution adopted by the General Assembly, Sustainable fisheries, including through the 1995 Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, and related instruments.

- States are to achieve the objectives outlined in the guidelines (para. 24).
- States are to implement national policy and legal and institutional frameworks for effective DSF management (including such to prevent significant adverse impacts [SAIs] on VMEs and those adopted by RFMOs) (para. 26).
- States should strengthen relevant RFMOs, such as through the implementation of international and related instruments (para. 27).
- States should establish deep-sea RFMOs, where none exists, and take interim conservation and management measures, including the prevention of SAI on VMEs (para. 28).
- RFMOs should establish mechanisms for cooperation and coordination among themselves with relevant international organizations and scientific bodies (para. 29).

The following discussions centred on the nature of the various UNGA and UN FAO binding and non-binding instruments, and how these assist in the adoption of fishery measures in ABNJ. These instruments are developed and adopted by States through intergovernmental processes. The binding instruments require subsequent ratification or similar national procedures through which States become contracting parties. There are about 165 contracting parties to UNCLOS (binding), and 80 to UNFSA (binding), and 39 to the Compliance Agreement. The Port State Measures Agreement has not entered into force. The non-binding instruments are generally adopted by unanimity of all States involved

These instruments inform States of their responsibilities, and States can be called to report back on actions taken (e.g. in relation to the implementation of UNGA resolutions and to the implementation of the Code). The actions, as far as fisheries in the high seas is concerned are typically taken in the context of RFMO/As, for example by the adoption of measures by their member States (or contracting parties). They may however also be taken by States directly.

The discussion then focused on the nature of conservation and management measures (CMMs) adopted by RFMOs. The CMMs adopted by RFMOs are binding on their members, although in some cases objections are raised by contracting parties and measures may therefore not bind these contracting parties. Non-contracting parties are invited to comply with RFMO/A measures when conducting fishing activities in their areas of jurisdiction, but are not formally bound by their measures. Typically, non-contracting parties that fail to abide by the measures are determined to be undertaking illegal, unreported and unregulated (IUU) fishing, and may be subject to actions taken to address IUU fishing, including in the context of the RFMO/A.

3.2 VMEs and other conservation measures in DSFs

Mr Tony Thompson (FAO) gave a presentation to introduce VMEs and to place them in context with other fisheries measures adopted by RFMO/As and used in ABNJ for the general protection of various species groups. For example, SEAFO, either every year or at some other appropriate interval, assesses the principal targeted deep-sea stocks and adopts total allowable catches (TACs) for Patagonian toothfish, deep-sea red crab, alfonsino and orange roughy. In 2006 and 2010, SEAFO identified and adopted measures to protect VMEs from SAIs caused by fishing. In 2012, SEAFO adopted more general measures concerning bottom-fishing activities and divided the convention area into “existing bottom fishing areas” and “new bottom fishing areas”. Various protocols were developed that apply to bottom fishing in these two areas, and which centre on the requirement to provide protection to VMEs. In addition to these protocols, SEAFO also has measures¹³ concerning:

- sharks (2006/04);
- deep-water sharks (2008/01);
- sea turtles (2009/14);
- seabirds (2009/15);
- banning of gillnets (2010/01);
- retrieval of lost gear (2010/19);

¹³ www.seafo.org/ConservationManagementMeasures.html

- IUU vessel lists (2008/06);
- port State control (2011/21).

The first six bullet points concern the protection of non-target species, and the remaining points are designed to allow closer control over the targeted species.

Owing to international concerns and to deadlines imposed by UNGA Res. 61/105, great attention has been given to the identification and protection of VMEs from SAIs caused by DSFs. The resolution itself mainly focuses on VMEs, but this is clarified and extended in UNGA Res. 64/72, which also strengthens commitments for the sustainable management of target fish stocks. These resolutions tend to focus on expected outcomes. The development of protocols and the guidance for implementation of measures to achieve these outcomes were elaborated upon in the FAO Deep-sea Fisheries Guidelines, which were developed through a series of international consultations from 2006 to 2008 and finally adopted in 2008.

The FAO Deep-sea Fisheries Guidelines are designed for fisheries that occur beyond national jurisdiction where the catch includes species that can only sustain low exploitation rates, and for fishing gear that may contact the sea floor. The objective of the guidelines is to provide tools and guidance for sustainable DSFs, and to facilitate and encourage the efforts of States and RFMO/As towards the:

- sustainable use of marine living resources;
- prevention of significant adverse impacts on deep-sea VMEs;
- protection of marine biodiversity that these ecosystems contain.

Many marine-living resources fished directly or caught as bycatch by DSFs in the high seas have biological characteristics that create specific challenges for their sustainable utilization and exploitation. These include:

- maturation at relatively old ages;
- slow growth;
- long life expectancies;
- low natural mortality rates;
- intermittent recruitment of successful year classes;
- spawning that may not occur every year

Owing to the above characteristics, many deep-sea marine living resources have low productivity and are only able to sustain very low exploitation rates. Moreover, when these resources are depleted, recovery is expected to be long and is not assured. Much attention has focused on the impact of DSFs on VMEs. These are areas containing organisms defined by a set of five criteria:

- uniqueness or rarity;
- functional significance of the habitat;
- fragility;
- life-history traits of component species that make recovery difficult;
- structural complexity.

The FAO Deep-sea Fisheries Guidelines explain that VMEs are principally areas that contain ecosystems whose structures and functions can be vulnerable to and compromised by SAIs. Vulnerability is related to the likelihood that a population, community, or habitat will experience substantial alteration from short-term or chronic disturbance, and the likelihood that it would recover and in a certain time frame. These are, in turn, related to the characteristics of the ecosystems themselves, especially biological and structural aspects. The SAIs compromise ecosystem integrity (i.e. ecosystem structure or function) in a manner that:

- impairs the ability of affected populations to replace themselves;
- degrades the long-term natural productivity of habitats; or

- causes, on more than a temporary basis, significant loss of species richness, habitat or community types (impacts should be evaluated individually, in combination and cumulatively).

The FAO Deep-sea Fisheries Guidelines provide details of protocols to assess VMEs and SAIs, and this has developed the need for fisheries scientists and benthic ecologists to work closely together. In addition, and perhaps for the first time since stock assessments became common practice in the 1960s, a new dimension was added to the manner in which fisheries are conducted and assessed. The interactions between fisheries and seabirds or fisheries and turtles, for example, have made some differences to the way fisheries are conducted, but this has generally been through technical measures (turtle excluder devices [TEDs], sorting grids, tori lines, etc.) or changes in practice (offal discharge, longlines set at night, etc.). With VMEs, there has been a movement in the RFMOs to map fisheries into existing and new fishing areas in an attempt to control expansion, and to introduce exploratory fishing protocols in new fisheries areas to assess possible impacts prior to the commencement of any commercial operation. At the same time, there has been an increased effort to quantitatively monitor bycatch of corals and sponges and to relate this to the activation of encounter protocols that trigger move-on rules or area closures.

Implementation issues in the FAO Deep-sea Fisheries Guidelines were the subjects of an FAO workshop in Busan, Republic of Korea, in 2010. Although the workshop occurred only two years after the deadlines imposed by UNGA Res. 61/105, it was already observed that there was a need to develop further guidance on impacts and risk assessment, encounter protocols and related mitigation measures, and the move-on rule, as well as the use of the VME criteria, including triggers, and to further discuss “what degree of presence” constitutes a “significant concentration”. It has also become clear that the knowledge of DSFs needs to be improved in order to better understand the overlap and relationships between the various DSFs using longlines, gillnets pots and bottom trawls, and the VMEs. This has entailed a more detailed investigation of logbooks and VMS monitoring systems, and along with this there has been a development in data confidentiality and sharing agreements. In summary, it was noted that the VME process that takes place in ABNJ requires consideration of a large variety of issues that may include all or parts of the elements listed below:

- a mandate that includes ecosystem considerations;
- new regulations;
- establishment of VME working groups or ad hoc workshops;
- agreement on existing fished /unfished areas;
- habitat surveys;
- development of VME indicators;
- setting of encounter thresholds;
- impact assessments;
- exploratory fishing protocols;
- proposed “VME” areas;
- identification guides for VME type species;
- review procedures.

A discussion followed that addressed questions and added clarification on the legal instruments supporting DSFs and VMEs, and the general summary of VMEs and other conservation measures in DSFs used by RFMO/As.

It is considered important and necessary to protect the oceans. Various recommendations have used an area metric to protect 10–30 percent of the ocean area. There was a question regarding the percentage of areas that RFMO/As protect. In a fisheries context, there is no simple figure as there is a wide variety of measures in place typically throughout the areas under the management jurisdiction. In the context of VMEs, there are regulations that affect the identified VME areas directly, and these often result in closures to either bottom fishing or to all fishing. More generally, and because of UNGA Res. 61/105, the fishing areas have been divided into both existing and new fishing areas in order to ensure wider protection to VMEs that have not been specifically identified, usually because they are unknown.

The measures include encounter protocols in existing fishing areas, whereby a specific response is triggered when VME indicator species are encountered, and exploratory fishing protocols in new (unfished) fishing areas. In the regulatory area of the Northwest Atlantic Fisheries Organization (NAFO), which is the portion of the NAFO convention area in ABNJ, for example, the existing fishing area represents 5.4 percent of the regulatory area, and thus the area where exploratory fishing protocols apply is 94.6 percent.

The areas closed to bottom fishing, in order to protect benthic organisms, represents 14.1 percent of the NAFO regulatory area.

The percentages are slightly different in the SEAFO area as there are far fewer trawlable fishing grounds compared with the NAFO area. SEAFO has 3.3 percent of its convention area open to fishing as existing fishing areas, and thus 96.7 percent is subject to exploratory fishing protocols. In SEAFO, 3.2 percent of its area is closed for the protection of VMEs.

There are maps of all these areas on the RFMO/A websites. FAO has a VME database and portal where all these areas can be readily viewed in a common format, along with the descriptions and measures and where other relevant information can be accessed. Because of the nature of VMEs and the fact that they are often confined to specific benthic features, such as seamounts or ocean ridges, the closures can be quite small. However, for practical reasons, usually concerning compliance, they can be larger, as for example in the Corner Rise and New England Seamount closures in the Northwest Atlantic. It was also discussed that VMEs are just one of many fisheries management measures to protect non-target species. For examples, measures relating to seabirds, turtles or sharks usually apply to the entire regulatory areas.

It was stressed that management measures related to VMEs are dynamic owing to an increased understanding of benthic habitats, as more information becomes available for the ever-changing nature of the fisheries. Measures to protect VMEs are often for defined periods, which currently range from about 1 to 5 years. This allows for reviews of the measures in the light of new information gained during the period of the measure, and appropriate amendments are made that reflect this new knowledge.

The final discussion point in this session regarded the selection process for VMEs and EBSAs, and who, if anyone and if needed, is responsible for the management of these areas. It was explained that VMEs, by the application of the FAO Deep-sea Fisheries Guidelines, are benthic areas that are or could be vulnerable and negatively affected by deep-sea bottom fisheries; there is a direct link between the habitat and its vulnerability to SAIs from fishing. Because of the need to reduce or eliminate this impact, fisheries measures are applied. The VMEs are not directly a habitat mapping exercise, and therefore it is quite possible to have, essentially, the same type of benthic habitats with some being vulnerable and others not. This may arise because they occur in areas where bottom fisheries are not permitted or in areas that are too deep for bottom fisheries.

To date, VMEs have typically been identified by RFMO/As during the course of their meetings or workshops when members examine the distribution of various habitats and fishing operations and determine collectively which areas meet the FAO criteria for identifying VMEs. The process is facilitated by the knowledge of both the spatial distribution of benthic habitat types and the distribution of bottom fisheries activities. Fisheries measures relating to VMEs, and various other measures relating to seabirds, sharks, turtles, and indeed to fish stock management, all form part of a suite of measures that are developed and adopted by States and RFMO/As that form part of the bigger picture, in order to sustainably manage the oceans.

The process for describing areas that meet the EBSAs criteria is different – certain areas are proposed by States at the various EBSA regional workshops, along with justifications as to why these areas meet the EBSA criteria described by COP IX/20. These areas are reviewed at the workshops, and those areas meeting the EBSA criteria are recorded in the report. At this stage in the process, this is a technical and scientific exercise to record ecological or biological significant areas, as their name suggests.

3.3 FAO's work in DSFs: overview of the FAO Deep-seas Fisheries Programme and the ABNJ Programme

Ms Merete Tandstad (FAO) introduced and presented the work of the FAO Deep-seas Fisheries Programme that was developed to support the implementation of the FAO Deep-sea Fisheries Guidelines and building upon recommendations that had resulted from a workshop held in Busan, Republic of Korea, on the implementation of these Guidelines. It was explained that the current VME regional workshop in the southeast Atlantic was the second in a series of workshops that had started with a meeting in the Indian Ocean and would be followed by a third meeting in the Northeast Pacific later in 2013 or in 2014. The link to the development of the Global Environmental Facility (GEF) funded, ABNJ Deep-seas project: "Sustainable fisheries management and biodiversity conservation of deep-sea living marine resources and ecosystems in the Areas Beyond National Jurisdiction (ABNJ)" was also explained.

The work of the FAO Deep-sea Fisheries Programme is ongoing and includes, amongst others, the development of a VME database to assist RFMO/As and States to compile and disseminate information on measures taken to protect areas already designated as likely to, or known to, contain VMEs. In this respect it was noted that the VME processes initiated through RFMO/As has led to the re-examination of existing datasets, and in many cases has seen the need to design new data collection protocols or to search for existing data hitherto not fully utilized. New data collection requirements have also led to a need for improved tools associated with the identification of, for example, bycatch species such as deep-sea sharks, skates and rays, and benthic species such as corals, sponges and other VME indicator taxa. In response to this, FAO has produced, and is continuing to produce, guides to help with both taxonomic species identification and recording of indicator taxa by observers. FAO also holds training workshops to support the use of the identification guides.

The possible role and contribution of the fishing industry to data collection and research, such as through acoustic surveys for deep-sea species by commercial vessels was noted. The FAO Deep-sea fisheries programme thus envisages to work with industry, managers and scientists to develop guidelines on best practices for collaboration and to hold supporting workshops as part of the ABNJ Deep Seas project described below. This includes best practices for encounter protocols, impact assessments, and the use of VME criteria.

FAO with support from GEF and in partnership with other organisations or entities is also developing a programme called the "Global sustainable fisheries management and biodiversity conservation in the Areas Beyond National Jurisdiction (ABNJ)" (ABNJ Programme). There are four projects within this programme that cover the pelagic zone, the deep-sea zone, partnerships, and global capacity:

- ABNJ Tuna Project – sustainable management of tuna fisheries and biodiversity conservation in the ABNJ;
- ABNJ Deep-sea Project – sustainable fisheries management and biodiversity conservation of deep-sea ecosystems in the ABNJ;
- Ocean Partnership Fund.
- Strengthening Global Capacity to Effectively Manage ABNJ.

The ABNJ Deep-seas project consists of four thematic components:

- improved application of policy and legal frameworks;
- reducing adverse impacts on VMEs and components of EBSAs;
- improved planning and adaptive management for ABNJ DSFs;
- development and testing of a methodology for area-based planning.

The first three components will be managed and implemented by FAO and the fourth by the United Nations Environment Programme (UNEP). Potential partners for the three FAO components include the RFMO/As, regional seas programmes, NGOs, and fishing industry. Details of these components are:

Component 1: Improved application of policy and legal frameworks

Improved policy and legal frameworks are tested and disseminated to all competent authorities.

- Impediments to the implementation of international policy and legal instruments identified and remedial measures formulated.
- Implementation guide for relevant international policy and legal instruments to deep-sea fisheries and biodiversity conservation made available to competent authorities, industry partners and other stakeholders.
- Options for rights-based management (RBM) systems and market-based incentives (e.g. trade certification and eco-labelling) developed and tested in at least one selected pilot area.
- Model policy and legal frameworks, enabling sustainable DSF management and biodiversity conservation at the regional and national levels, developed and integrated into national legislation in countries in at least one region.

Global and regional networks are strengthened and/or expanded.

- Collaborative networks and partnerships, including all stakeholders involved in ABNJ DSFs and biodiversity conservation, strengthened or set up, with links to global and regional communities of practice under the ABNJ programme.

Component 2: Reducing adverse impact on VMEs and EBSAs

Improved application of management tools is demonstrated.

- Biological, ecological and economic analyses of DSF and biodiversity in the ABNJ carried out, in consultation with relevant stakeholders, to classify risks and threats and identify VMEs.
- Interactive Web databases for identification and use in mitigation of threats to sustainable DSF and biodiversity in ABNJ, particularly for VMEs and EBSAs, improved for use in regions in close collaboration with all stakeholders.
- Indicators in terms of species and critical habitats, for VME and EBSA identification and thresholds, when appropriate, developed in at least one pilot area.
- Management measures and improved fishing practices to reduce impacts on VMEs and EBSAs piloted in at least one pilot area.

The capacities of stakeholders are strengthened.

- Customized support provided to at least ten developing countries to fully integrate best practices for sustainable DSFs and biodiversity conservation in their management processes.
- Technical and operational support on the application of VME and EBSA criteria provided (including training), for systematic use by countries.

Component 3: Improved planning and adaptive management for DSFs in the ABNJ

Planning and management processes are improved, tested, and disseminated to all competent authorities.

- Best practices, methods and tools for comprehensive management planning, encompassing an ecosystem approach and allowing for adaptive changes, reviewed and adapted to the special conditions of ABNJ DSFs.
- Adaptive management processes demonstrated, including identification of management objectives and priorities, through participatory risk analysis in at least one selected pilot area.
- Objective-based indicators and reference points (related to target species, catch/bycatch composition, biodiversity, etc.) selected and a related monitoring programme for ABNJ DSFs tested in a selected pilot area.

- Action plan for adoption of best monitoring, control, and surveillance (MCS) practices, adapted to the specific conditions of ABNJ–DSFs, formulated and adopted in one of the selected pilot areas.
- Options for improved management measures for sustainable fisheries and biodiversity conservation, including: (i) encounters with vulnerable species/habitats; (ii) spatial management tools; and (iii) fishing operations aimed at mitigating adverse impacts on sensitive habitats and ecosystems, developed and disseminated.

Component 4: Development and testing of a methodology for area-based planning (UNEP)

Efficient area-based planning tools and good practices based on ecosystem-based management practices are made available to competent authorities, including regional seas programmes (RSPs) and RFMOs for regional management plans and policies.

- Adaptation and further development of available area-based planning tools addressing deep-sea ecosystems in ABNJ and connected EEZs. These tools include trade-off analyses, ecosystem service valuation, and cost–benefit analyses.
- Knowledge and experience sharing from the Northeast Atlantic and the Mediterranean concerning deep-sea marine ecosystems and area-based planning to support other competent authorities, including RSPs and RFMOs (linked also to other information sharing initiatives (such as Outcome 1.2), and coordinated with the relevant outputs of the Global Capacity Project.

Area-based planning in ABNJ is incorporated into the regional marine planning processes in selected regions (preliminarily identified as the Southeast Pacific Ocean and the Western Indian Ocean) through partnerships between competent authorities, including RSPs and RFMOs.

- Testing of area-based planning tools in the selected regions. The test application will be conducted with close linkage with the other components of this project.
- Science-based and policy relevant advice on area-based planning and management applied in regional deep-sea ecosystem planning processes in the selected test regions with engagement of relevant stakeholders and through the partnership between competent authorities, including RSPs and RFMOs. The planning process will also benefit from the information provided through Output 2.1.2 (VME and EBSA databases).

While the project is global in scope, activities with focus on specific regions are envisaged. The pilot areas for Components 1, 2 and 3 are the Southeast Atlantic and the Indian Ocean whereas the Western Indian Ocean and the Southeast Pacific are pilot areas for Component 4. .

The GEF funding mechanism was explained, highlighting the need for co-financing and how baseline activities made up of all the work being done by all the institutions concerned for a given project can be considered as co-financing. The GEF finance additional costs (or incremental costs) associated with for example transforming a project with national/local benefits into one that offers global benefits. Co-funding is considered to be a formal part of the project’s funding mechanism, and letters from the co-financing institution detailing their commitment are required. The participants were referred to the GEF website (www.thegef.org/gef/policy/co-financing) for further explanations.

Many points arose in the discussions following the presentation on the GEF-funded ABNJ Deep Seas project. It was noted that the project was supporting both the CBD EBSA process as initially outlined in COP IX/20 and the FAO VME process as outlined in the FAO Deep-sea Fisheries Guidelines. This was both commendable and at times confusing. Participants at the workshop stressed that it was important to appreciate that, while there may be similarities between the underlying criteria, there are many differences in the supporting processes and in their application. The consistency in the criteria for both processes creates an impression that there are perhaps more similarities than actually exist. The selection of areas and the reasons for the application of the criteria are very different. It is important that, in the development of the ABNJ Deep Seas project, these differences are clearly identified, while

at the same time building on and assisting with the general mapping and descriptions of areas through the EBSA process and on the protection of VMEs from SAI. Following this, it was stated that there are many fisheries measures that protect various bycatch species and that these need to be more widely publicized. This is particularly the case with the VME aspects of fisheries management that have been given a high priority by many of the RFMO/As over the past five years, and this has overshadowed some of the other work of the RFMO/As in sustainable fisheries. Examples of these measures are given at the beginning of Section 1.2.

A more detailed discussion of the various binding and non-binding instruments relevant to ABNJ fisheries followed, and these were explained to participants with the assistance of Mr Peter Deupmann, the FAO legal expert present at the meeting.

The role of the industry in the management or co-management of sustainable DSFs could also be more important in these fisheries than in the shallow-water more-inshore fisheries. The ABNJ DSFs, particularly those occurring on and around VME features such as seamounts and ridges, are typically relatively small in terms of the number of vessels and total catch. However, they can be a valuable catch for individual vessels. Independent fisheries surveys, at least on a basis regular enough for assessment, are in many cases unlikely to be a cost-effective option. It was therefore noted that investigations on how the collaboration between industry and states in surveying resources, mapping of habitats and monitoring of catches could be an important aspect of the ABNJ project. In this regard the FAO Deep-sea Fisheries Programme offers opportunities to assist in the work of observers and identification of bycatch. Training programmes and identification guides will be developed in collaboration with stakeholders, including the industry. FAO is currently working on guides to identify deep-water sharks and other elasmobranchs.

Considerable emphasis is placed on adaptive management in the ABNJ Deep Seas project. One issue raised in respect of management was that the setting of a TAC, or effort limitations, is usually applied at a stock, or multi-stock, level. However, many of the deep-sea fish species, and particularly those associated with seamounts, are believed to have a finer and more complex stock structure. It is uncertain how to deal with this in terms of fisheries management, particularly in light of historical “pulse” fishing of deep-sea species, which is now generally regarded as being unacceptable. It was pointed out that some species such as alfonsino are fished with midwater trawls, and that these trawls fall outside of the scope of the FAO Deep-sea Fisheries Guidelines. As the alfonsino is regarded as moderately productive and is associated with seamounts, it was clarified that the ABNJ Deep Seas project, with its ecosystem approach, would not exclude alfonsino or deep mid-water trawls from the work of the project.

3.4 DSFs in the Southeast Atlantic – role of SEAFO

Mr Ben van Zyl (Executive Secretary, SEAFO) presented an overview of the role of SEAFO in fisheries management in the Southeast Atlantic. SEAFO is an RFMO in the Southeast Atlantic Ocean and was established in line with the provisions of UNCLOS and UNFSA. The convention was signed in April 2001 and entered into force in April 2003. In March 2005, the secretariat was established, and it is located in Swakopmund, Namibia. Membership is open to all States and regional economic integration organizations that have participated in SEAFO negotiations, or whose vessels fish for stocks that are covered by the convention. The current contracting parties are Angola, the European Union, Japan, Namibia, Norway, the Republic of Korea, and South Africa. The commission is the highest decision-making body and meets annually. The scientific committee provides advice to the commission on resource conservation and management based on the best available scientific information. Parties are required to collect and exchange scientific, technical, and statistical data.

The objective of the convention is to ensure the long-term conservation and sustainable use of the fishery resources in the convention area, which is about 16 million square kilometres. Significant progress has been made to date towards the implementation of the convention and several conservation measures have been adopted to protect biodiversity and VMEs in the convention area. The commission has adopted the bottom-fishing footprint (reference period 1987 to July 2011), which has resulted in an area open to bottom fisheries that is about 3 percent of the total convention area.

The discussion of this presentation has been combined with the discussion that occurred for the next presentation on the VME process used by SEAFO in Section 2.1.

4. SESSION 2: VME PROCESSES

4.1 VME process used by SEAFO

Mr. George Campanis (SEAFO Data Manager) presented an overview of the methods used by SEAFO's scientific committee to delineate VME areas in the international waters of the Southeast Atlantic. He also presented an overview of regulations in place to protect VMEs. In its delineation of potential VME closed areas, to determine the most likely locations of VMEs, the scientific committee considered: commercial fishing effort; information provided by the National Oceanography Centre in Southampton, the United Kingdom of Great Britain and Northern Ireland (NOCS Report¹⁴); biological data; and Longhurst biogeographical provinces.

The scientific committee also confirmed that chemosynthetic communities may exist at depths greater than 1 000 m and acknowledged that commercial vessels are able to fish as deep as 2 000 m. The closed areas were, therefore, developed based on seamounts occurring between the sea surface and the 2 000 m isobaths. The scientific committee developed 15 potential closed areas, of which 11 were deemed suitable for closure. Vulnerable marine ecosystems outside of the current SEAFO closed areas are monitored and managed through encounter protocols, i.e. move-on rules and bycatch thresholds. The presentation also showed that about 97 percent of SEAFO's convention area is closed to fishing or subject to exploratory fishing protocol.

There was a more detailed discussion around the processes used by SEAFO to identify VMEs and delineate the existing fishing area footprint. It was noted that the initial VME management measures in 2006, as was commonly undertaken by many RFMO/As, were based largely on precautionary grounds. A review was considered necessary, and this was undertaken in 2010. There had been a number of surveys in the SEAFO area, but only the NOCS bathymetric report was available to the scientific committee at the time of the review. The results of other surveys, including the joint Spanish–Namibian surveys on the Valdivia Bank and Ewing seamount, the Norwegian survey of the Vema seamount, and the South Atlantic MAR-ECO project, were not available at the time of the review of existing VME areas in the SEAFO area. Details of these can be found in the 2010 SEAFO scientific committee report.¹⁵

This situation is not unique to the SEAFO area, as surveys generate a large amount of information that takes time and resources to analyse, and the timing of reviews is often dictated by rules set in management measures some years previously. SEAFO also accounted for the maximum commercial fishing depth that was considered to be 2 000 m, as the maximum depth of “vulnerability”, and that fished areas may be less likely to contain VMEs, or at least could be monitored through encounter protocols. It was also considered desirable to ensure that VME areas were representative of the 4–5 ecoregions identified using the Longhurst criteria and supported by other information. During the review, there was the desire to ensure that the Mid–Atlantic Ridge would also be considered, as this was not included in the first round of VME discussions in 2006.

It was also noted that there are other datasets regarding historical fishing in the area, and the early Russian surveys were an example. However, these would have occurred outside of the reference period of 1987–2011 used by SEAFO to determine its fishing footprint. FAO is working with various institutes to facilitate and provide resources, if necessary, to extract historical information so that it can be more widely accessed. It was also noted that there are more recent data, partly arising from the additional analyses of existing data, which was not submitted in time for the required SEAFO-imposed deadlines. However, it was understood that, especially when considering management measures, strict guidelines are necessary, and that there are pressures for SEAFO to complete work during its short meeting

¹⁴ www.seafo.org/ScientificCommittee/Reports/NOCS%20report%20English.pdf

¹⁵ www.seafo.org/ScientificCommittee/Reports/scientific%20report%20-%202010.pdf

periods. However, it is also recognized that reviews of existing decisions are necessary, and that this will be the appropriate time to consider new information.

4.2 VME Process used by CCAMLR

Mr David Ramm (Data Manager, CCAMLR) presented CCAMLR's approach to VMEs in the Southern Ocean. CCAMLR is responsible for the conservation of Antarctic marine ecosystems, including the sustainable management of fisheries in the Southern Ocean. It is regarded as a multilateral organization, not an RFMO, and was established by international treaty in 1982, with a current membership of 25 member countries. Ecosystem approaches fit well into CCAMLR's mandate and it pioneered the ecosystem-based and precautionary approaches. Its work with both marine protected areas (MPAs) for wider conservation interests, and with the protection of VMEs against SAIs from deep-sea fisheries. CCAMLR has established the world's largest MPA around the South Orkney Islands and is currently working on two proposed MPAs in the east Antarctic and Ross Sea, with a number of other proposals in the development stage. There are, in addition, Antarctic Specially Managed Areas (ASMAs), Antarctic Specially Protected Areas (ASPAs), and various national initiatives. CCAMLR has been active and successful in reducing seabird mortality in longline fisheries and also in determining IUU fishing activities.

The VME measures involve the identification of areas using indicator species, either from encounters by commercial vessels or through scientific surveys, and the subsequent assessment and closure of such areas through assessments of the impacts of bottom fishing. Encounters that occur above a threshold level result in an immediate temporary closure. CCAMLR has a comprehensive VME-taxa identification guide designed for use on board fishing vessels and this is supported by the presence of two scientific observers on all commercial fishing operations. In 2007, CCAMLR implemented CM 22-06, which describes the rules for bottom fishing in the convention area, to protect VMEs from bottom fishing activities that have SAIs on such ecosystems. This was in response to the UNGA Res. 61/105, and applies to high seas bottom fisheries in the convention area. In addition to registered VMEs, CCAMLR also has VME risk areas and VME fine-scale rectangle designations. As of April 2013, there were 46 registered VMEs.

CCAMLR has declared areas where fishing is permitted, subject to various gear restrictions, and areas outside of this that require an exploratory fishing protocol. This is a small-scale, closely monitored "commercial" operation designed to investigate the impact on stocks and on the ecosystem more generally, including potential VME areas. Future fisheries are only permitted if impacts are prevented through appropriate management measures. The decisions are made on the best available scientific information and are consistent with the precautionary approach. CCAMLR is developing a registry for VMEs that will be placed on a public area of their website. This will include and will identify registered VMEs, VME fine-scale rectangles and VME risk areas.

The discussions noted that the CCAMLR convention is directed towards the conservation of the ecosystem as a whole and the work of CCAMLR supports this. Fish are considered a component of the ecosystem, and the consequences of fisheries have always been considered against their effects on the whole ecosystem. This is facilitated by having two scientific observers on board that greatly assist in the recording of catch information, including both target species and bycatch, and this generates a more solid foundation for the knowledge base of the Antarctic area.

The CCAMLR VME identification process can be considered a two-step process, although it is possible to jump straight to the second step if information is available. The first step is typically triggered by quantities of VME indicator species, as identified in the CCAMLR VME guide, being caught as bycatch by commercial fishing vessels. The CCAMLR VME guide was developed in Australia and includes a wide range of species that can indicate the presence of potential VMEs (e.g. structure forming sponges, corals, bryozoans) or physical features that may contain VMEs (e.g. certain crustaceans and gastropods for chemosynthetic communities). The action depends upon the quantities caught. If above a threshold limit, then an automatic closure is triggered and remains closed as a risk area until scientific surveys have been undertaken to determine the nature of the area of the encounter. If quantities are below

threshold, but above a minimal level, the area is noted, and after five such encounters a fine-scale rectangle designation is triggered indicating VMEs may be present. The second step is a scientific survey of an area that maps bottom ecosystems more closely and completes a VME template description for consideration by the CCAMLR's scientific committee. If the scientific committee accepts the VME, the commission will generally ensure that the area identified is closed to fishing with bottom-contact gear. In many cases, VME areas are identified in areas already closed to bottom fishing, and so no additional measure is necessary. To date, CCAMLR has only used bottom closures to protect VMEs.

With its wider remit, CCAMLR has established an MPA around the South Orkney Islands, and has other MPAs under development. This is being undertaken to satisfy the requirements of the World Summit on Sustainable Development (WSSD) directive to achieve a representative network of MPAs in place by 2012. The process for defining MPAs follows a set of rules described in CCAMLR Conservation Measure 91-04. This follows an assessment process using a number of tools including bioregionalization analysis. No fishing is permitted in the South Orkney MPA, but this is not necessarily the case for other MPAs as some will be designed for multiple uses. When established, VMEs are done so against a set of defined rules that includes exceeding threshold values, as well as a subsequent assessment by a scientific committee. The purpose of the MPAs is to have areas that can form a focus for understanding the Antarctic ecosystems that will be subject to research and monitoring activities to help understand impacts from, for example, climate change and fishing.

4.3 Science and support to the VME process – NAFO experiences

Ms Ellen Kenchington (Department of Fisheries and Oceans, Canada) presented recent examples of the science process within NAFO that relate to VMEs. Scientific support to managers within NAFO on VMEs is generated by the terms of reference of the working group on the ecosystem approach to fisheries management (WGEAFM) and the joint NAFO/ICES working group on deepwater ecology (WGDEC), which is also presented to the scientific council (SC). The SC sets the terms of reference in response to requests from the fisheries commission (FC). The SC generates responses to such requests that are then considered by a working group of the FC (working group of fisheries managers and scientists on vulnerable marine ecosystems; WGFMS-VME), which recommends management actions to the FC.

The WGEAFM applies a systematic application of the criteria outlined in the FAO Deep-sea Fisheries Guidelines in the High Seas when responding to terms of reference on VMEs. Research is documented in peer-reviewed literature and made public whenever possible (NAFO SCR reports, CSAS documents, primary publications) to support the content of the working group reports. The area inside the fishing footprint is considered data rich, with annual stock assessment surveys conducted by Canada and the European Union. The much larger area outside of the fishing footprint is relatively data poor. The WGEAFM has addressed a number of broad topics including (quotes are from the FAO guidelines):

- identification of VMEs (using FAO guidelines) including new research on characteristics of key species;
- production of identification guides;
- “identify areas where VMEs are known or likely to occur”;
- operational definitions for language in resolutions, guidelines, instruments, e.g. “significant concentrations of biotic and abiotic features”;
- encounter thresholds and move-on distances;
- catchability estimates;
- impact on commercial operations;
- assessment of (SAIs);
- “the extent to which ecosystem functions may be altered by the impact”;
- species distribution models.

Examples of work undertaken for each of these topics were presented along with a reference to the documentation. At the conclusion, it was noted that through this process there was an increased demand

for evidence-based conservation management for VME inside the fishing footprint. It was also noted that the formation of the WGEAFM greatly accelerated the process and increased the quality and quantity of the science produced. Questions for discussion were posed:

- NGO groups use area-based metrics of success in protecting VMEs. Is this a valid approach?
- Seamount areas are based on geomorphology with no confirmed presence of VMEs and with no risk of bottom contact fishing. Is this a weakness?

In discussions on this presentation, it was pointed out that there were 56 fishing vessels from 13 States in the NAFO Regulatory Area, all using bottom trawls. Many of these fisheries are well established and, to varying degrees, have been fully fished since the 1970s. This mainly applies to fishing on and around the Grand Bank and Flemish Cap, but there have been irregular fisheries in some of the shallower seamount areas, and most notably on one or two seamounts in the Corner Rise. Compared with other sea regions, data collection has been extensive in the existing fishing areas, mainly owing to the fisheries assessment research surveys by Canada and the European Union. During these cruises, additional information was collected on bycatch, particularly when there were large catches of specific organisms such as corals and sponges. This provided a good basis for supporting the initial closures. Subsequently, surveys were undertaken in areas on the margins of the fishing grounds, mainly around the eastern and southern edges of the Grand Bank, the Flemish Pass and around the Flemish Cap. The main surveys were undertaken through the Spain–Canada 2009–2010 NEREIDA that had over seven months ship time between the Spanish *Miguel-Oliver* and the CCGS *Hudson*, using Multibeam in NRA and dredges/box cores at key locations to assess fauna and habitat, and underwater camera surveys and remotely operated vehicles (ROV).

The VME process in NAFO has been underpinned by a solid structure that includes the WGEAFM and WGDEC on the scientific side, and the WGFMS on the management side. All these groups were new to NAFO around 2008, when the FAO Deep-sea Fisheries Guidelines were adopted. Fulfilling the requirements for establishing VMEs, as laid down in the guidelines, necessitates the collection and analysis of extensive data sets, many of which were only marginal to the typical work of RFMO/As in about 2006. The generated scientific advice then had to be processed by the management bodies and drafted into regulations. A suitable working structure, supported by contracting parties, has been essential to the implementation of UNGA Res. 61/105.

The criteria used to identify VMEs do not identify species or taxa, although examples are provided in Annex 1 of the FAO Deep-sea Fisheries Guidelines. Initially, a wide range of species groups including fish, birds, and mammals, were assessed by NAFO.¹⁶ However, in general, only some of the corals and sponges were found to fit well with the criteria and consistent with the intention of UNGA Res. 61/105 to protect VMEs. The other groups would be better protected under other measures designed more specifically for the purpose. NAFO has recently added three new VME species groups: stalked crinoids, erect bryozoans, and large tunicates. These three are all identified under the structural complexity criterion.¹⁷ This topic was recently discussed by the ICES WGDEC,¹⁸ where it was appreciated that not all sponges and corals are slow growing.

New VME areas within the existing fishing footprint are largely identified through encounters with VME indicator taxa above a threshold level. At present, the list of VME indicator taxa for the NAFO regulatory area is a list of almost 70 species covering large-sized sponges, stony corals, small and large gorgonians corals, sea pens, tube-dwelling anemones, erect bryozoans, crinoids and sea squirts. The threshold levels for reporting of encounters are aggregations of these taxa, and an encounter with primary VME indicator species is defined as a catch per set (e.g. trawl tow, longline set, or gillnet set) of more than 7 kg of sea pens, 60 kg of other live coral and 300 kg of sponges. Because many of these species tend to occur at the same location, a simple threshold value is appropriate and well within the

¹⁶ <http://archive.nafo.int/open/sc/2008/scs08-10.pdf>

¹⁷ <http://archive.nafo.int/open/fc/2013/fcdoc13-01.pdf>

¹⁸ www.ices.dk/sites/pub/Publication%20Reports/Expert%20Group%20Report/acom/2012/WGDEC/wgdec_2012.pdf

available expertise and time constraints on board commercial fishing vessels. However, accurate recording has been greatly assisted by the development of appropriate identification guides.

The importance of the VME measures is that they are there to protect entire communities or ecosystems, although within these ecosystems there may be components that are more critical. There appears to be a natural tendency for fishers to avoid VME areas, and instead fish adjacent to them. This occurred for sea-pen fields where an analysis of vessel monitoring system (VMS) information showed that historical fishing had occurred up to the boundary of identified VME areas. The reasons are more likely to do with the risks to fishing gear and catch damage associated with fishing in areas suitable for VMEs. In most cases, but certainly not all, VMEs in the NAFO area are on grounds that are not particularly well suited to fishing, at least by bottom trawl gear. Analyses of core samples on the NEREIDA project showed that corals and sponges never occurred in the shallower more heavily trawled areas, and had always been present in the deeper areas that are now VMEs.

The monitoring of VME closures is an important aspect of the closure. This can largely be undertaken using a VMS, although there are difficulties in identifying the use of deep pelagic trawls from bottom trawls. Therefore, in areas where VMEs are just closed to bottom contact gear, which are the majority and include all of the NAFO closures, VMS is only partially helpful. Logbooks also help with compliance as species compositions differ between deep pelagic and bottom trawls. Inspections at sea are possible if the VMEs are close to the main fishing grounds, but become increasingly impractical when they are far away, as is the case for the Corner Rise seamounts in the Northwest Atlantic Ocean.

4.4 Benthic areas in the Northeast Atlantic

Mr Odd Aksel Bergstad (Norway) presented current information on the processes and designations used by North East Atlantic Fisheries Commission (NEAFC) and the Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR) to identify benthic areas within the Northeast Atlantic Ocean region.

Through a scientific process involving ICES, NEAFC has identified 13 areas for the protection of VMEs that are closed to fishing by bottom trawling and fishing with static gear, including bottom set gillnets and longlines. NEAFC has closed a total of seven delineated areas on the Hatton and Rockall Banks for the protection of VMEs – the SW Rockall Areas 1, 2 and 3, West Rockall Mounds, Logachev Mounds, NW Rockall and Hatton Bank closures. The current closures in these areas are in force from 1 January 2013 to 31 December 2015. However, most of these areas were first identified and closed in 2007, although through a regular review process of their VME components the boundaries have been modified so that they reflect the best current scientific information. NEAFC has also closed five areas on the Mid-Atlantic Ridge (MAR) to protect VMEs in the high seas of the Northeast Atlantic – southern, middle and northern MAR areas, Altair Seamount and Antialtair seamount. The closures came into force in April 2009 and are guaranteed to be in place until 2015, with the possibility to extend beyond that time. An additional VME closure on the Edora Bank was agreed at the NEAFC annual meeting in 2012 and came into force in January 2013.

For the purpose of protecting haddock and blue ling, NEAFC has two additional closures that restrict bottom fishing activities, although it is here made clear that these closures are not for the protection of VMEs. There is the Rockall haddock box that is closed to all fishing, except with longlines, for 2013 and this measure is reviewed annually and typically rolled over owing to the protection it affords to haddock. There is also the seasonal closure to protect blue ling during the spawning period that prohibits the use of all fishing with bottom-contacting gear (bottom trawl, longline, and gillnet) in the period from 15 February to 15 April.

NEAFC has also defined and adopted its existing bottom fishing areas, on the Hatton Bank, in the Mid-Atlantic, on the Josephine Bank, in the Barents Sea (Loophole), and in the Bay of Biscay. These are complex boundaries based on historical fishing activities in the period 1987–2007. Areas within the NEAFC convention area but outside of the existing bottom fishing areas are called “new bottom fishing areas”. VMEs may be placed, and also closed, existing, or new, bottom fishing areas. The main

difference between existing and new bottom fishing areas lies in the application of the exploratory fishing protocol that is applied to new bottom fishing areas. This is undertaken to ensure that fisheries in new areas develop under controlled fishing plans to protect both the target fish species from overfishing, and any VMEs. In addition, an exploratory fishery will also be considered as such if bottom fishing gear is used that was not previously used in the area concerned.

OSPAR has also defined a number of high-seas MPAs in the Northeast Atlantic Ocean. These include the Charlie-Gibbs North and South, Mid-Atlantic Ridge north of the Azores, Altair, Antialtair, and Josephine Seamounts high seas MPAs, based on their physical and biological attributes. The purpose of these recommendations by OSPAR is to guide OSPAR contracting parties in their actions and adoption of measures to protect and conserve the ecosystems and the biological diversity of the Charlie-Gibbs North High Seas MPA, with a view to achieving the general and specific conservation objectives endorsed for this area by OSPAR. Such guidance and identification and description of important areas is valuable to bodies with management jurisdiction, such as NEAFC, with their responsibilities to manage fisheries, and many of these MPAs already have management measures associated with restrictions on bottom fisheries adopted by NEAFC.

4.5 Challenges in the VME process

The discussion commenced with a short presentation from Mr Tony Thompson outlining the main conclusions from the “FAO workshop on the implementation of the FAO international guidelines for the management of deepsea fisheries in the high seas – challenges and ways forward” held in Busan, the Republic of Korea, on 10–12 May 2010. The workshop identified a need to compile, develop guidance, and make available information on:

- impacts and risk assessment;
- encounter protocols and related mitigation measures, and the move-on rule;
- use of the VME criteria, including triggers for what degree of presence constitutes a “significant concentration”;
- step-wise approach to implementation, prioritizing the main provisions;
- procedures to build confidence between scientists and industry for improved collaboration including protocols for collaboration;
- collection of historical data;
- sharing experiences and best practices between RFMOs and RFMO scientists;
- building awareness among deep-sea skippers, operators and crew.

It was also considered important to evaluate the implementation of the FAO Deep-sea Fisheries Guidelines and the convening of further workshops at regular intervals.

4.6 Summary – Day 1

Mr Tony Thompson summarized the key points of the many and varied excellent presentations and discussions. Below is a brief list of some of the issues relating to VMEs:

- stimulated research and the formation of new RFMO/A working groups;
- identified data gaps;
- encouraged networking and stakeholder participation;
- changed the attitudes of industry, managers, and fisheries scientists;
- identified threats and produced mitigation measures;
- highlighted the need for transparency and accountability in data collection and usage;
- the need for data sharing agreements and protocols;
- scientific advice improves informed decision-making;
- importance of management scale, and the need to match measures with habitat boundaries;
- need for measures to be appropriate to knowledge and adaptive;
- the need to explain the fisheries measures to a wider audience.

5. SESSION 3: REGIONAL ISSUES IN THE SOUTHEAST ATLANTIC

5.1 Stock assessment and bycatch issues in SEAFO's scientific committee

Mr Paulus Kainge (SEAFO Scientific Committee, Chair) presented a summary of the work of SEAFO's scientific committee on stock assessment and bycatch monitoring. The function of the scientific committee is to provide the commission with scientific advice and recommendations for the formulation of conservation and management measures for fishery resources covered by the convention, and to encourage and promote cooperation in scientific research in order to improve knowledge of the living marine resources of the convention area. The executive secretary of the SEAFO Secretariat reports to the scientific committee on landings, incidental catch, and discards. The data manager and the SEAFO Secretariat, which undertakes data management and analysis, assist with this process. The scientific committee also undertakes exploratory fishing survey reports, stock status reports for five commercially important species, spatial distribution of reported VME catches, and methodologies to determine harvest specifications for data-poor stocks. It reviews various conservation measures, including TACs, reducing incidental bycatch of seabirds, and the monitoring of bottom fishing activities. This is aided by the consideration of research activities in the SEAFO convention, and this may include data access rules, the development of identification guides for fish, crustaceans, and incidental bycatch species, as necessary. The activities are guided by requests for advice from the commission and, using the above, are answered by scientific committee, which provides the best scientific advice.

SEAFO's scientific committee is now following the ICES catch-based approaches and assessments whenever possible and using the best available information for the data-poor stocks in the region. SEAFO now has stock status reports for its five major fisheries (alfonsino, orange roughy, Patagonian toothfish, pelagic armourhead, and red/golden deep-sea crabs), and provides TAC advice for all but pelagic armourhead. However, there are difficulties in assessing these stocks, and time series are not long enough to observe trends in CPUE data. Nevertheless, the precautionary TACs are appropriate until more information is acquired. There is fish bycatch of TAC-regulated species in the alfonsino and armourhead fisheries, and these do require more complete reporting that should also account for fish discarded at sea. Recent advice from the scientific committee has also included proposed reductions to threshold levels for VMEs, and a detailed study of seabird mortality in what could be termed an "exploratory" fishery. SEAFO currently requires that longlines be set at night, but as a test case the seabird mortality for day-set longlines is being investigated, with the condition that fishing reverts to night setting should a total of three seabirds be captured. The scientific committee's work plan for 2013 included a more thorough assessment of the alfonsino and crab fisheries, training of observers, and the establishment of scientific representatives from contracting parties.

Various issues were discussed after the presentation that clarified the activities of SEAFO's scientific committee.

Stock assessment in SEAFO is generally based on an analysis of CPUE over the past several years. Time series are not long enough to permit a more thorough analysis. A local depletion model was applied to armourhead in 2011, although the results were inconclusive. At present, TACs are based on previous catches. It is hoped to use some more appropriate methods that follow some of the more recent work of ICES on data poor stocks, particularly the work of ICES WGDEEP in March 2012. The main transboundary species is the Patagonian toothfish, which is believed to be a single stock across the CCAMLR-SEAFO boundary, although it is currently assessed separately. Work on stock identity through tagging programmes has been undertaken in the SEAFO and CCAMLR areas. In CCAMLR, this is at the rate of five fish per tonne caught. There have not been any recoveries in the SEAFO area as yet.

Observers are a requirement of vessels fishing in the SEAFO area, and these are provided by contracting parties. Training is usually undertaken by the contracting party. SEAFO has no independent observers. Observer reports are transmitted to the executive secretary, and these include bycatch data assisted by identification guides developed by the Instituto Español de Oceanografía (IEO), Spain. Observers report catch and bycatch to SEAFO for vessels fishing in the SEAFO area. The Republic of Korea reports that

it does fish in the Southwest Atlantic Ocean, where there is no RFMO, and in this case reports are sent to FAO. Countries with exploratory fisheries in the SEAFO area follow strong protocols and also report bycatch to SEAFO. There are no good estimates of IUU fishing in the SEAFO area, unlike in the CCAMLR area where sightings or confiscated catches provide estimates. There are unconfirmed reports of IUU gillnetting in the SEAFO area, but no reports of piracy.

There were some discussions and clarifications on the decision-making process by the SEAFO scientific committee. These are given in Part II para. 5 of its rules of procedure. In most cases, decisions are made by consensus (defined as when there are no objections). If consensus is not reached, then the report indicates the various views expressed as majority and minority views.

5.2 Working at sea – BirdLife International

BirdLife International is a global partnership of 117 national conservation organizations in 116 countries and territories. It strives to conserve birds and their habitats, and global biodiversity, and works with people towards the sustainable use of natural resources. Mr Ademola Ajagbe (BirdLife Africa Region) explained BirdLife International’s “Working at Sea” Global Seabird Programme, which was established in 1997. The programme addresses seabird conservation issues at a global level, and engages regional and international stakeholders to facilitate existing, and promote new, initiatives to reduce the incidental mortality of seabirds by fisheries, particularly in respect to longlining. To achieve this, BirdLife International establishes and supports a network of BirdLife partners and others to influence global and regional policies affecting seabirds. Of particular relevance in the South Atlantic Ocean is the Albatross Task Force (ATF), consisting of a team of mitigation instructors working with fishers both onshore and at sea. The ATF assesses seabird risks from fishing, quantifies interactions, analyses the data, and devises, tests and proposes solutions to reduce impacts in capture fisheries. The teams have worked successfully with several fisheries and fleets, and with a variety of fishing methods (e.g. trawl and longline). The ATF has developed international best practice standards and implemented these in many national fleets. These include the length of bird-scaring lines, the quantity of lead to put on lines for appropriate sink rates, etc. The ATF works actively with RFMOs, such as SEAFO and the International Commission for the Conservation of Atlantic Tunas (ICCAT), and provides materials, training and expertise to assist in managing biodiversity impacts while understanding and respecting observer requirements on board fishing vessels, data confidentiality, and reporting protocols.

BirdLife International offers a number of international resources, such as:

- AS@S – at-sea survey data online;
- Marine IBA – e-Atlas online;
- seabird identification guides;
- best practice bycatch fact sheets for seabird–fishery interactions;
- albatross and petrel tracking database.

BirdLife International has identified a number of important bird areas (IBAs) throughout the oceans and these can be accessed through the Marine IBA e-Atlas online at <http://maps.birdlife.org/marineIBAs/default.html>, which was launched at CBD COP XI in India, in October 2012. A demonstration was provided during the presentation.

Following the presentation, a question was asked on SEAFO’s seabird measures and why they had chosen a limit of three seabird mortalities in the exploratory longline fishery that currently sets lines during daylight hours (the SEAFO measures say that longlines should be set at night). It was explained that the number was chosen from some of the CCAMLR measures. Another question related to the identification of seabirds by observers, and in the answer it was recognized that this is a difficult area and that more training is necessary.

The discussion also highlighted the fact that there were a range of stakeholders involved in the study of seabirds at sea. Both BirdLife International and WWF Smartfish have programmes to develop novel

methods of reducing impact on seabirds. These include the use of scaring devices, tori lines, sinkers, not using frozen bait, not discharging offal, and setting at night.

It was pointed out that the BirdLife International databases have both a strong educational and strong scientific value, and that the layout is attractive and appears intuitive. There are many parallels with what is hoped for the VME database. The links between the mapping functions and the other factsheets supports the whole process into making it a user-friendly system.

5.3 Regional initiatives

The group divided into two groups to discuss data sources and institutions that could identify key issues, current initiatives, and activities to provide information on:

- fisheries management;
- resources and the fisheries;
- associated biodiversity;
- bathymetry, oceanographic and physical features;
- associated institutions and networks.

The information collected was collated into a table that is shown in Appendix 4. The table includes institutes that have undertaken work in the Southeast Atlantic region and also data sources relevant to the Southeast Atlantic. In many cases, the nature and extent of the data sources is not known, and contact should be made with the institutes identified in order to explore their data holdings.

5.4 Spanish research on VMEs and international collaboration: the Walvis Ridge case study (Southeast Atlantic Ocean)

Mr Luis J. López Abellán (Instituto Español de Oceanografía, Centro Oceanográfico de Canarias, Spain) presented the results of collaborative research in the Walvis Ridge area. Between 2008 and 2010, three multidisciplinary research surveys were conducted in the seamounts of Ewing and Valdivia Bank (Walvis Ridge), as a collaborative effort between Spain and Namibia, through the IEO and the National Marine Information and Research Centre of Swakopmund (NatMIRC). In order to support the ongoing international discussions and the activities for the conservation and sustainable management of vulnerable ecosystems on seamounts, the multidisciplinary survey on the Walvis Ridge seamounts, off Namibia waters, was considered as an experimental study to localize and identify bioconstructions associated with seamounts as potential VMEs that could be damaged by fishing gear. This was done as a response to the UNGA Res. 61/105, with the aim of identifying the most feasible procedure to follow in all of the SEAFO area, and also the biological and geological characterization of seamounts surveyed. A total of 15 823 km² were surveyed with a multibeam echosounder and 1 462 km of seismic profiles, using an ultra-high resolution parametric sounder. The depth ranged between 218 m at the outcrop in the southeast sector of Valdivia Bank and 3 000 m in the south part of the study area. Seventy-three hauls were conducted to obtain fauna associated with the sea bed.

This study only represents 1 percent of the target sea bed above 3 000 m depth (approximately 1 328 758 km²). Thus, the idea of extending this research to the entire area of SEAFO is unrealistic. However, some open or closed areas could be identified as targets of such studies or to reinforce or validate previous findings.

Information regarding these cruises was integrated into a geographic information system (GIS), and in a short time it will be available as part of IEO geoportal (IDEO). Biodiversity data will also be shortly available in the OBIS database. This would be the first step for new updates to be included.

Predictive models that use location data for benthic organisms, together with sea-bed and topographic features of the Ewing Seamount and Valdivia Bank seamounts complex, are used to understand causes and to study biodiversity distribution within the area studied.

Any projection of these models to extensive areas will be constrained by the applicable scale, the reliability, the accuracy of variables used to model such areas, and the variables themselves (availability). In addition, patchy distribution of benthic organisms in the area studied shows strong relationships to small-scale, patchy distributions of sea-bed features. Thus, the projection of models outside the studied area is not feasible. Only the use of large-scale bathymetry and estimations of depth strata surface would be able to show areas of potential presence of VME indicator species.

Another approach would be to use fishing activity for identifying locations of VME. In this case, it would be necessary to consider that:

- Although common elements exist among different ocean regions, each region itself is unique and singular and, therefore, requires specific solutions.
- In certain cases, thresholds have been adopted after copying them from other regions without analysing the specificities of the new region and making them, therefore, inefficient.
- The final aim of the encounters-based methodology is to locate VMEs from evidences. An encounter has to be characteristic of each zone, each fishing method and each indicator taxon together.
- The encounters move-on rule protocols have proved to be a feasible method for protecting and defining the potential VME's extent in CCAMLR. A similar method was studied, proposed and applied in the SEAFO convention area.

Any preliminary study in relation to the potential impact of a fishery is always based on the assessment of past fishing activities. Therefore, as a further step in these preliminary assessments, it is important that management organizations record estimations of cumulative impacts on fragile benthic organisms from bottom fishing activity.

The discussion commenced with questions on the scarcity, scale and patchiness of the VME habitats on both the Ewing Seamount and Valdivia Bank in the Walvis Ridge area. Because of these constraints, the predictive habitat models only provide very approximate indications of species and ecosystem distributions, and were not reliable enough to be used to predict the presence of VMEs. Even at broader scales, the predictive capabilities are limited. Therefore, on-site validation is required for accurate mapping. This is only possible in small areas owing to the time and costs of surveys. Validation studies need to be directed by, for example, encounters with VME indicator species by commercial vessels. It was also discussed that quantities of VME indicator species brought on board a commercial vessel as bycatch are dependent upon the fishing gear used and the area in which it is deployed. All participants looked forward to the information being provided by the IEO on its geoportal.

Another question raised after this detailed and scientific presentation that directly supports the VME identification and management process was the definition of “research”. The normal process among RFMO/As is to use scientific advice as the basis for decision-making whenever possible. For example, UNGA Res. 61/105, para. 78 “Further encourages States to increase scientific research in accordance with international law on the marine ecosystem”, and UNGA Res. 64/72 states “Conduct further marine scientific research and use the best scientific and technical information available to identify where vulnerable marine ecosystems are known to occur or are likely to occur ...” (para. 119b). The UNFSA underpins the above: “In fulfilling their obligation to cooperate through subregional or regional fisheries management organizations or arrangements, States shall: (d) obtain and evaluate scientific advice, review the status of the stocks and assess the impact of fishing on non-target and associated or dependent species;” (Article 10). RFMO/As support this research through their conventions, and usually contain an exemption clause in their measures to manage fisheries that the regulations do not apply when vessels are declared as research vessels. In addition, the FAO Deep-sea Fisheries Guidelines’ DSFs should be rigorously managed throughout all the stages of their development: experimental, exploratory and established. While “exploratory” fisheries usually follow a well-defined protocol, the meaning of

“experimental” is less clear. The conducting of scientific research is typically the responsibilities of States, and their research programmes may be collaborative or independent. Correspondingly, information sharing from the research cruises is shared to different degrees, although increasingly it is being brought to working groups in a summary format. The RFMO/As are working hard to increase collaborative research and data sharing through agreements.

6. SESSION 4: THE ABNJ DEEP-SEAS PROJECT

Ms Merete Tandstad elaborated on her earlier introduction of the ABNJ Deep Seas Project presented under Session 1.3. She further explained the concept of co-funding and discussed this in more detail with the participants present at the meeting. Ms Tandstad explained that co-financing is a formal component of the project and that letters of commitment are required from partners. Co-funding contributions from GEF project partners are typically regarded as the baseline activities of that partner and form part of their normal work responsibilities that are also of direct relevance to the purposes and outputs of the GEF project. GEF incremental funding can then be used to finance the additional costs (or incremental costs) associated with transforming a project with national/local benefits into one with global environmental benefits as well. Estimates of co-funding amounts follow certain guidelines and are agreed between the project and the partner. The co-financing is also known as the in-kind contribution.

Presentations were then delivered by Mr Peter Deupmann, Mr Tony Thompson, and Mr David Japp on draft activities developed for Components 1, 2 and 3, respectively, that lead to the outcomes and outputs described in Section 1.3 of this report. These were discussed in detail, and suggestions were made to clarify and improve activities and to identify potential partners. Many of these were helpful in redrafting text in the project activity matrix that will be used in the project document. There was also a clear need to separate global activities from pilot activities in the Southeast Atlantic Ocean and Indian Ocean. Only the more general points are presented below and these relate more to the pilot studies in the Southeast Atlantic Ocean.

The discussions on the legal component, Component 1 “Policy and legal frameworks for sustainable fisheries and biodiversity conservation in the ABNJ deep sea”, highlighted the need for States to include measures adopted by RFMO/As into their own national legislation and to work towards harmonizing legislation in ABNJ and EEZ waters. It was noted that much of the catch from the Southeast Atlantic Ocean ABNJ is landed in Cape Town, South Africa, and Walvis Bay, Namibia. The ABNJ project is, as the name suggests, focusing on ABNJ waters, but owing to the importance of port States measures, and the occurrence of some DSFs within EEZs, there is still a need to consider fisheries within EEZ waters when they affect ABNJ fisheries. Moreover, capacity building in the ABNJ project is directed towards developing States, whereas the DSF vessels are typically flagged to developed States. However, it is hoped that capacity-building activities within the legal and policy component will assist all States in achieving improvements in the sustainable utilization of DSF stocks and the protection of VMEs.

The discussions on the VME and EBSA component, Component 2, commenced with clarifications on the title of Component 2 “Reducing adverse impacts on vulnerable marine ecosystems (VMEs) and ecologically or biologically significant areas (EBSAs)” and on the outputs that lead to the outcomes in the project document (see Section 1.3 for details). It was explained that the project’s outcomes and outputs were drafted during the development of the project identification form (PIF), which provides the basis on which the project is funded. The PIF was approved by GEF on 5 April 2012. There are two outcomes proposed in Component 2: 2.1 Improved application of management tools for mitigation of threats to sustainable DSF and biodiversity is demonstrated; and 2.2 The capabilities of stakeholders are developed, to use improved management tools for mitigation of threats to sustainable DSF and biodiversity. There are a total of six outputs to achieve these two outcomes, and many of these follow the component title and address VMEs and EBSAs. Participants were concerned that outputs and activities were supporting the management of EBSAs, when EBSAs were in fact scientific descriptions of significant areas within the world’s oceans that are currently not linked to the fisheries management process. Participants stressed the fact that sustainable fisheries included the protection and conservation of both harvested fish stocks and biodiversity, and that biodiversity was not synonymous with described

EBSA areas. Participants fully supported measures that lead to reduced SAIs on VMEs, deep-water sharks, seabirds, etc., and that this should be made clear when drafting the ABNJ Deep Seas project document. Participants also stressed the importance of mapping and describing EBSAs, and would like to see separate activities that assist in this process.

Discussions continued with the practical aspects of the implementation of the FAO Deep-sea Fisheries Guidelines and to “identify areas where VMEs are known or likely to occur” (para 12ii). The work of the IEO in the Southeast Atlantic Ocean (described in Section 3.4) showed that corals and sponges had a patchy distribution and that predictive modelling was unable to account for this fine-scale distribution detail, and that not all seamounts contained VME indicator species. The need to survey the sea floor was considered essential to mapping the distribution of corals and sponges, and the question was raised as to the extent that the ABNJ project could support such surveys. The answer to this is not straightforward as the ABNJ Deep Seas project is more designed to look at supporting the planning and implementation of adaptive management measures that will lead to sustainable fisheries, including the protection of biodiversity. Therefore, it would be difficult for the project to support and fund dedicated surveys. However, the project can support work that leads to improved management. This may, for example, be directed towards monitoring encounters with VME elements and indicators, on potential impacts of various fishing gears on VMEs, and on exploratory fishing protocols. The project will work with observer programmes and improved data collection protocols that are supported by appropriate identification guides. The project can also support sourcing and digitizing of historical information, typically acquired during the early exploratory cruises in the 1960–1970s when seamounts were first fished. In addition, the project can assist in the improved use of collected information for management purposes, and this could also include electronically transmitted information from logbooks and VMS. The project will work with both RFMO/As and industry partners to achieve this.

It was suggested that the capacity-building components of the project should focus on areas where there are no, or new, RFMOs, and that this should also be extended to harmonize DSFs in EEZs where appropriate. It was noted that in many States separate departments address fisheries and biodiversity issues and that there is also a need to support greater collaboration among the fisheries and environmental sectors. It is foreseen that this will become increasingly important with the application of the EAF and spatial planning.

The final discussions in this section were on Component 3 “Promotion of improved planning and adaptive management for ABNJ deep-sea fisheries”. It was explained that this component would, in parallel with the other components, work with States to plan and develop mitigation measures to support sustainable fisheries in ABNJ areas. There are a number of ways in which the project can provide its support. These include working with the three existing exploratory fisheries currently operating in the SEAFO area: the Japanese longline fishery for toothfish, the bottom and mid-water trawl fisheries of the Republic of Korea, and the joint Japan–Namibia crab fishery. It would also include capacity building for the use and application of the FAO EAF Toolbox (www.fao.org/fishery/eaf-net/topic/166272/en), and other exercises and workshops to increase the planning and participation of States in the management process. The nature of DSFs in relation to management was also discussed, as they include relatively small catches in dispersed locations far from land, and it was noted that there was a need for greater involvement of industry in the management process, while simultaneously addressing the need to develop and promote transparency and compliance in self-monitoring.

The participants were grateful for the discussions on the ABNJ Deep Seas project and now have a clear understanding about the activities and funding mechanisms. It was agreed that the project would follow up with the chair of SEAFO’s science committee, CCAMLR, the Republic of Korea, Japan, Australia, and BirdLife International on potential partnership opportunities.

7. SESSION 5: THE GLOBAL VME DATABASE

7.1 Overview and the Southeast Atlantic

Mr Tony Thompson presented the general background to the FAO VME database that was originally requested by the FAO Committee on Fisheries (COFI) at its Twenty-seventh Session in 2007, based on a request in UNGA Res. 61/105 in 2006. FAO held its first VME database workshop in Rome, Italy, in December 2011, and has included agenda items in regional VME meetings since that date. The VME database will be a component of the iMarine Virtual Research Environment (VRE) and the Fisheries Global Information System (FIGIS), currently used by FAO to disseminate fisheries-related information. This includes the FAO deep-sea fish distribution maps and aquamaps, the FAO FishStat STATLANT catch and effort databases, and the FAO Regional Fisheries Bodies database. The VME database will also operate as a portal to access other outside databases such as biodiversity/taxonomic data (InDeep list of deep-sea species [WoRRDS], and CenSeam and other OBIS sources, accessible through OBIS), and environmental/physical data (geomorphology and predictive habitat modelling [GOLD and GEBCO]). The purpose of the VME database is to assist States in assessing any impacts of bottom fisheries on VMEs and will serve to advertise the work of the RFMO/As on protecting the marine environment from SAIs. The database content will focus on providing details on the managed VME areas in ABNJ and will include areas detailing the international instruments and definitions concerning VMEs, project areas, and data repository, along with the links mentioned above. The output will be available in both map and text formats.

7.2 Structure, content and functionality

Mr A. Gentile delivered a presentation on the development of the VME database, its proposed structure, content and functionality. The information on VMEs will be disseminated through the VME database website (consisting of web pages, images, video, documents, etc.), and VME records that will be structured into two main components: fact sheets and maps. An advanced model of the VME database was presented and discussed in relation to fact-sheet development. The VME map viewer (a web-based mapping interface) was browsed live in relation to VME geospatial information.

A possible input workflow scenario was also introduced through the iMarine platform and its reporting tool. It will be possible for VME editors to enter information through an online dedicated form built upon the overall VME data model. The reports can be exported in various formats for being disseminated through the VME database website.

7.3 Input and output

Mr Tony Thompson then presented details of the proposed input and output formats of the database and discussed the implications for data entry from partners.

The main feedback on the VME database is as follows:

- The database will contain all and only those areas falling under the definition (all areas for which a management action has been taken in relation of the UN Res. 61/105 or the FAO Deep-sea Fisheries Guidelines).
- “Encounter” is not appropriate; better label it “Presence”.
- Possible addition of numeric search fields (e.g. threshold).
- Merge type and status attributes and provide new list of controlled terms.
- Bookmark: SEAFO and CCAMLR indicate that a textual reference within the citation (page or paragraph number) is sufficient, and in any case the bookmarked PDF files must stay in the RFMO’s site.
- Summary: CCAMLR indicates that it is an onerous task and will not be completed unless such a summary is undertaken by CCAMLR also for internal use (for its own VME database), and in that case the summary could be dynamically provided to the FAO VME database.
- There was a suggestion to amend the industry page of the layout to ensure broader applicability.

In general, the discussions showed that there is a need to integrate the database content with work being currently planned by regional bodies on their own VME databases. There is a balance to be achieved here in developing a database with consistent content across all regional bodies and yet avoiding duplication of effort. This will be discussed further when the draft prototype has been developed and distributed.

Further discussions identified a need to define clearly and somewhat limit the overall scope of the benthic ecosystems to be included in the database. There was a general consensus that the database should focus on the benthic ecosystem that have management measures designed to protect VMEs and VME-type areas from possible SAIs caused by bottom-contact fishing gear as defined in the FAO Deep-sea Fisheries Guidelines and set by a regional management body or, if applicable, a State. The following draft text was proposed by a participant after the meeting based on discussions held at the meeting:

Short Name: FAO VME Measures Database

Full name: Global inventory of fisheries measures adopted to prevent significant adverse impacts of high-seas bottom fisheries on vulnerable marine ecosystems (VMEs)

Short description:

Resources and biodiversity at risk – enhanced awareness and action

Documentation of overfishing of deep-water fish resources, as well as negative impacts of bottom-contact fishing gear on vulnerable species and ecosystems, has raised the awareness of society at large and the fisheries sector to a threat that was previously unappreciated when these fisheries began a few decades ago. Some fisheries were not compatible with the sustainability goals expressed in key international agreements requiring States and international management authorities to take action to ensure that fisheries are conducted in such a way as to maintain productive resources and healthy ecosystems.

Fisheries in areas where no single nation has management powers were of special concern. The international response was the UNGA Resolutions (61/105, 64/72, etc.) and the FAO International Guidelines for the Management of Deep-Sea Fisheries in the High Seas (2008) calling for stronger protection of VMEs in ABNJ. Responding to this new obligation and guidance, regional fisheries management organizations (RFMOs/As), other regional conventions (i.e. CCAMLR), fishing nations, and the fishing industry, introduced a range of measures to prevent significant adverse impacts of bottom fisheries. VMEs were defined and mapped in many areas, and science-based assessments of the likelihood of negative impacts and advice on protective and precautionary actions was provided and formed the knowledge base for the suite of management measures now in force.

Some measures are area-based, such as limitations or bans on bottom fisheries within defined subareas of the ocean; others are catch or effort limits aiming to reduce fishing mortality on target and bycatch species of bottom fisheries. FAO VMEM presents global and regional information source on actions taken by international or national bodies. Also included is the underlying scientific advice, background information, history, reports of global evaluations of progress, and relevant international instruments and guidelines. Measures are dynamic and change following the discovery of new VMEs and revision processes. The FAO VMEM is the single global source of updated information for the global ocean.

8. SESSION 6: FUTURE DEVELOPMENTS AND SUMMING UP

The workshop began on Saturday 13 April 2013, with a half-day meeting with the CBD Secretariat, during which EBSAs and VMEs were discussed. It was noted that, in general, these two processes draw upon experts from different backgrounds, partly because of the tendency for environment institutes and

universities to be connected with the EBSA process, and regional fisheries bodies and fisheries departments being connected with the VME process. There was a general appreciation that, although the VME and EBSA criteria may appear similar, the reasons for describing EBSAs or adopting measures for VMEs are different.

The VME meeting covered a range of issues, including: (i) the basic introduction of VMEs and the underlying legislation; (ii) examining other fisheries measures to protect other ecosystem components; (iii) discussing the GEF ABNJ Deep-sea Project in detail with an aim to identify partners principally for the Southeast Atlantic Ocean pilot study area, but also for the project globally; and (iv) discussing the FAO VME database. The details of the presentations and discussions are contained within the body of this report.

The workshop identified the need for FAO to continue to promote the FAO Deep-sea Fisheries Guidelines to assist States and RFMO/As in implementing UNGA Res. 61/105 and the subsequent relevant resolutions. The workshop determined that the different ABNJ regions fall into three broad categories: (i) regions that have well-established regional bodies and can be considered relatively “data-rich” and have information on fish stocks and benthic habitats; (ii) regions that have newer regional bodies and are typically lacking information on fish stocks and benthic habitats; and (iii) regions that do not have regional bodies and have very little data and information available. There has been a change in the data-rich areas from an initial set of VME closures undertaken around 2005-07 that were mainly precautionary and based on limited information, to a set of managed VMEs based on newly collected data with an increasing developed scientific basis. The VME process, which formed a major component of the work of regional bodies from 2006 to 2010, is now maturing to become more routine in nature. However, work is still needed on encounter protocols and exploratory fishing protocols so that new areas are identified and appropriate mitigation measures applied. There is also a need to better understand gear-specific impacts on VMEs and other components of the ecosystem, and a need for a better understanding of current gear-specific effort levels, so that effort is not allowed to increase significantly without following exploratory fishing protocols. There have also been many lessons learned in these regions that can be transferred to other areas where the VME process is less developed.

The second category is regions where RFMO/As are usually newer and the VME process is hampered by lack of information on both the location of the fisheries and the scarcity of information on VMEs. These regions invariably need to rely on precautionary closures and well-developed encounter and exploratory fishing protocols. There is a need to collect information from commercial vessels, and, therefore, partnerships with relevant industries are important for achieving this. Improved use of observer programmes and VMS are also essential in these regions, for which support and training are needed.

The third category is where RFMO/As are lacking, and in this case States, and particularly Flag States and coastal States, need to assume the primary responsibility. This requires awareness raising and an eye to long-term sustainability. In all these categories, there is a need to share responsibilities and a need to look for economic opportunities to engage coastal States in the DSFs.

The principal outcome of this workshop, and the half-day joint EBSA and VME workshop, is a greater understanding of the players involved in deep-sea conservation and sustainable use, and the networking opportunities that develop from sharing experiences among these players. It is hoped that this will result in the more complete development of the ABNJ Deep Seas project by including a wide range of partners with complementary and synergistic skills.

APPENDIX 1 - AGENDA

Regional Workshop on Vulnerable Marine Ecosystems (VMEs) in the Southeast Atlantic Ocean

Alte Brücke Conference Centre

Swakopmund, Namibia – 15–17 April 2013

Agenda

Day 1: Monday 15 April 2013

08:30 – 9:00	Registration
09:00 – 9:30	Opening session <ul style="list-style-type: none"> - Welcome addresses - Appointment of Chair and Rapporteurs - Adoption of Agenda - Introductions of participants - Overview of workshop objectives and expected outputs
9:30 – 10:00	Session 1: Introduction - UNGA Resolutions, Deep-sea Fisheries Guidelines, FAO Deep-seas programme and the ABNJ Programme <i>Presentation:</i> UNGA sustainable fisheries resolutions and FAO Deep-sea Fisheries Guidelines – Fishing areas and VMEs (15- 20min) <i>Discussion (10min)</i>
10:00 – 10:30	<i>Presentation:</i> FAO's work in Deep-sea Fisheries: Overview of the FAO Deep-seas Programme and the ABNJ Programme (15- 20min) <i>Discussion (10min)</i>
10:30 – 11:00	<i>Group photo and Coffee break</i>
11:00 – 11:30	<i>Presentation:</i> DSF in the Southeast Atlantic - Role of SEAFO <i>Discussion (15min)</i>
11:30 – 12:00	Session 2: VME Processes <i>Presentation:</i> VME processes used by SEAFO – overview <i>Discussion</i>
12:00-13:30	<i>Lunch</i>
13:30 – 14:00	<i>Presentation:</i> VME processes used by CCAMLR - overview <i>Discussion</i>
14:00- 14:30	<i>Presentation:</i> Science and support to the VME process – NAFO experiences <i>Discussion</i>
14:30 – 15:00	<i>Discussion-</i> Similarities and contrasting; lessons learned from the different processes
15:00 – 15:30	<i>Coffee Break</i>
15:30 – 16:30	<i>Discussion cont.</i> – What are the greatest challenges with the VME process?

16:30 – 17:00	Summary for Day 1
17:00	Closure

Day 2: Tuesday 16 April 2013

09:00 – 9:30	<p>Session 3: Regional issues in the Southeast Atlantic</p> <ul style="list-style-type: none"> - Main challenges for the SWG: - DSF, stock assessment and by-catch issues in the Southeast Atlantic - <i>Discussion: How are the different RFMOs present dealing with issues such as e.g. opening new areas, exploratory protocols, or increasing footprint?</i>
09:30 – 10:00	<p><i>Presentation:</i> Seabirds – what is currently being done in the region and what types of tools does BLI hold that may be of use</p> <p><i>Discussion – where are the gaps in addressing seabirds in this region?</i></p>
10:00-10:30	<p>Working group discussions: key issues, current initiatives and activities that may provide information on:</p> <ul style="list-style-type: none"> - Fisheries management - Resources and the fisheries - Associated biodiversity - Bathymetry, oceanographic and physical features - Associated institutions and networks
10:30 – 11:00	<i>Coffee Break</i>
11:00 – 11:30	Working group discussion continued
11:30-12:00	Group work summary in plenary
12:00 – 12:30	Research and surveys in the Southeast Atlantic (MarEco South, Walvis ridge research surveys, the NERIDA project, etc.)
12:30-14:00	<i>Lunch</i>
14:00 – 14:30	<p>Session 4: The ABNJ Deep-sea project</p> <p><i>Presentation:</i> The ABNJ Deep-sea Project, the pilot areas, Components 1,2 and 3</p>
14:30 – 15:30	Group work – Stakeholder inputs on proposed activities on ABNJ Deep-sea project components (Legal/Policy, VME/EBSAs, Adaptive management)
15:30 – 16:00	<i>Coffee Break</i>
16:00 – 16:30	<p>Group work continued: Partner engagements and priorities for the region</p> <p><i>Where can organizations or groups participate, what would be their specific role and what type of baseline (existing work) do they have?</i></p>
16:30 – 17:00	Group work summary in plenary
17:00 – 17:15	Summary for Day 2
17:15	Closure

Day 3: Wednesday 17 April 2013

09:00 - 09:30	Session 4: The ABNJ Deep-sea project (ctd) <i>Presentation:</i> Summary of yesterday's conclusions
09:30 - 10:30	<i>Planning for possible priority activities for pilot activities</i>
10:30-11:00	Coffee break
11:00-11:30	Session 5: The Global VME Database <i>Presentation:</i> Global VME database proposed structure, content and functioning <i>Discussion</i>
11:30 - 12:00	<i>Presentation:</i> The VME database Map Viewer
12:00-12:30	<i>Presentation/Discussion:</i> VME data output and input (web pages, search interfaces, input and output, etc) <i>Discussion</i>
12:30-14:00	Lunch
14:00 – 14:30	Working group discussions on VME database <i>(i) General comments on structure, content and functionalities; ii) Review of input information (reports, bookmarking and links) (iii) data inputters and “commitments” (iii) linkages to existing information and structures (SEAFO region) preparing inputs from SEAFO region linkages to ABNJ Deep-sea project</i>
14:30 – 15:00	Session 6: Future developments and summing up <i>Discussions:</i> Future developments and FAO support
15:00 – 15:30	Summary for Day 3
15:30 – 16:00	Coffee Break
16:00 – 17:00	Key conclusions
17:00	Workshop Closure

APPENDIX 2 - PROSPECTUS



**Regional Workshop on Vulnerable Marine Ecosystems (VMEs)
in the Southeast Atlantic Ocean**

Swakopmund, Namibia – 15–17 April 2013

Prospectus

General Background

The *International Guidelines for the Management of Deep-Sea Fisheries in the High Seas* (the FAO Deep-sea Fisheries Guidelines; FAO 2008)¹ provides guidance to States and regional fisheries management organizations or arrangements (RFMOs/As) on the long-term conservation and sustainable use of marine living resources in the high seas. This includes preventing **significant adverse impacts** (SAIs) on **vulnerable marine ecosystems** (VMEs) by bottom contact fishing gears. This greatly assists with the implementation of paragraph 83 (and more generally paragraphs 80-86) of United Nations General Assembly (UNGA) Resolution 61/105 (2006)² as well as the more recent resolutions 64/72, 65/38 and 66/68. FAO has developed a full programme to support the implementation of the FAO Deep-sea Fisheries Guidelines consistent with the Ecosystem Approach to Fisheries (EAF)³. This includes a VME database that will raise awareness on VMEs to fishery policy makers, managers and scientists, conservationists, the fishing industry, and the public at large.

In May 2010, a workshop⁴ to analyse the challenges and propose ways forward for the implementation of the FAO Deep-sea Fisheries Guidelines was held in Busan, Republic of Korea. This Workshop identified specific programmes of work and activities that will be needed to advance implementation of the FAO Deep-sea Fisheries Guidelines, including further guidance on the use of the VME criteria and associated measures. The proposed VME database was introduced and its attributes discussed. In December 2011, a workshop was held to discuss stakeholder needs and to develop a strategy for information sharing mechanisms for the VME database. Various RFMOs have already indicated their willingness to provide information to the database. The workshop noted the need for regional approaches and a selection of case study areas were identified to assist in the development of the database. FAO is organizing a series of regional workshops that aims to facilitate information-sharing and a discussion on issues related to VMEs, including on relevant fisheries management and conservation measures between stakeholders. The knowledge gained at the workshops will also feed into the VME database development.

The Convention on Biological Diversity (CBD), principally through Conference of the Parties (COP) decision IX/20⁵ adopted in 2008, has also embarked upon regional workshops to facilitate the description of **ecologically or biologically significant areas** (EBSAs) in the oceans. The CBD Conference of the Parties (CoP) at its 11th meeting in Hyderabad, India, discussed the outputs of the workshops that described areas that meet the EBSA criteria in the western south Pacific region and the wider Caribbean and western Mid-Atlantic region, and areas that could meet the criteria in the Mediterranean region (COP Decision XI/17)⁶.

To further coordination between the VME and EBSA processes, FAO and the CBD Secretariat are holding a series of back-to-back workshops to facilitate collaboration and sharing of information. In July/August 2012, the first back-to-back regional workshops were held in the Indian Ocean. Many participants attended both meetings, and this allowed stakeholders from the conservation bodies representing fisheries and biodiversity interests to share, understand, and contribute to a more sustainable future in the Indian Ocean region. The VME Workshop for the Southeast Atlantic will be organized from the 15-17 April 2013, following the CBD West Africa Workshop to Facilitate the Description of EBSAs that will take place from the 8-12 April. Furthermore it is proposed to hold a joint VME/EBSA meeting on the 13 April.

¹ <http://www.fao.org/docrep/011/i0816t/i0816t00.htm>

² <http://daccess-dds-ny.un.org/doc/UNDOC/GEN/N06/500/73/PDF/N0650073.pdf?OpenElement>

³ <ftp://ftp.fao.org/docrep/fao/006/y4773e/y4773e00.pdf>

⁴ <http://www.fao.org/docrep/014/i2135e/i2135e00.htm>

⁵ <http://www.cbd.int/doc/decisions/cop-09/cop-09-dec-20-en.pdf>

⁶ <http://www.cbd.int/cop/cop-11/doc/2012-10-24-advanced-unedited-cop-11-decisions-en.pdf>

Regional Background

The Southeast Atlantic Fisheries Organization (SEAFO)⁷ has been very active in applying the Ecosystem Approach to Fisheries since its first meeting in 2005. The Convention Area covers the southeast Atlantic and borders CCAMLR to the south and CECAF to the north. The sea is mainly abyssal with the notable features being the mid-Atlantic, Walvis, and Agulhas ridges. The main exploited species are orange roughy, alfonsino, armourhead, deep sea red crab, and Patagonian toothfish that are caught mainly by longlines and pots on and around seamounts. There is little bottom trawling and no gillnetting. There is deep mid-water trawling on the seamounts and also fisheries for large pelagic in the region. SEAFO closed ten areas to bottom fishing to protect VMEs on seamounts that were considered to be slightly or unexploited. These closures were reviewed in 2010 and the boundaries modified or combined to better reflect vulnerability to fisheries, and five new closures were declared along the mid-Atlantic ridge. During this time, SEAFO also formulated and adopted its fishing protocols and delineated existing and new bottom fishing areas along with establishing VME encounter thresholds, move-on rules, and exploratory fishing protocols.

Objectives

It is proposed to hold a three-day workshop on the protection of VMEs and management of adverse impacts in the Southeast Atlantic. In order to provide synergy with the CBD, this will be held immediately following the West Africa Workshop to Facilitate the Description of EBSAs⁸. More specifically, the workshop will:

- discuss the VME concept and identify synergies with the EBSA process;
- identify VME processes and potential related management measures in the southeast Atlantic and review VME processes from other regions;
- identify relevant existing information, including confidentiality issues, and identify future requirements to establish VMEs within the framework of the FAO Deep-sea Fisheries Guidelines and the various relevant UNGA Resolutions;
- facilitate processes on VMEs and related management issues in the region; and
- identify future requirements for the VME database and support regional use and integration of information.

Approach

The workshop is designed to build on the achievements already made in developing the VME process and associated deep-sea fishing protocols within the southeast Atlantic region. Of particular regional and global interest is the SEAFO review of their VME areas undertaken in 2010 and the monitoring, control and enforcement measures required to manage these areas. Although this workshop focuses on the southeast Atlantic region, it is intended to develop networking mechanisms that allow for an exchange of best practices more globally. The meeting will also reflect more generally on the various management mechanisms, including spatial measures, currently used to ensure that fisheries are sustainable under an ecosystem approach.

The proposed workshop will be technical in nature and intended to stimulate informal discussion and be complementary to the work of the SEAFO Commission and Scientific Committee.

Participants

A small group of stakeholders will be invited, including (1) scientists and managers from involved or concerned states; (2) representatives of the fishing industry in the region; (3) representatives from scientific institutes in the region working on issues related to VMEs; and (4) representatives from NGO/IGOs and other relevant stakeholders working on or contributing to initiatives complementary to the VME database (e.g.: the CBD/EBSA process).

⁷ <http://www.seafo.org>

⁸ <http://www.cbd.int/doc/?meeting=EBSA-NP-01>

Outputs

- List of data sets that can be useful to facilitate VME identification, addressing of ownership and confidentiality issues, and inputs to the VME database for the region
- Regional network of experts for VMEs
- Workshop report

Tentative location and date

Swakopmund, Namibia from 15-17 April 2013.

Further information

Further information on the Workshop can be obtained from Tony Thompson (tony.thompson@fao.org).

Workshop organizers

The workshop will be organized and funded by FAO through a suite of projects in support of the implementation of the deep-sea guidelines.

FAO Webpage for Deep-sea Fisheries in the High Seas - <http://www.fao.org/fishery/topic/4440/en>

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APPENDIX 4 - INSTITUTES AND DATA SOURCES

Table A4.1

Existing and emerging processes and institutions /projects that could support VME identification in the region and the possibility for use of local knowledge. Many of these institutions hold data relevant to the SEAFO Convention Area and adjacent ABNJ and EEZ areas.

Institution/ Project / Source	Fisheries Management	Management, other sectors	Biodiversity	Research (Fisheries and Biodiversity)	Networks	Economic	Industry	Others incl. Universities/	Notes and/or data sets
INTERNATIONAL									
BirdLife International - marine programme	(v)			v	v		(v)		Global Seabird Programme, Albatross Task Force, Bird distribution, tracking, factsheets, ID, Country profiles, case studies, training, capacity building
Census of Marine Life – CENSEAM					v				includes seamount surveys
CITES							v		Trade in endangered species
Convention on Biological Diversity (CBD) - Marine Programme - EBSA process			v	v	v				Marine Programme-EBSA process, EBSA repository
Convention on Migratory Species				v					Expanded into marine species
Expert groups on specific species topic (e.g. InDeep, sponges, lopehelia)					v				Web site, distribution list
Food and Agricultural Organization	v			v	v	v			FishStat (Fish catch, economics), VME (bycatch), PortLex (legal), Vessel authorisations records (HSVAR), FIRMS
FAO Deep-sea Programme	v		v	v	v	v			
GEBCO									Bathymetric data
i-Marine - data mining					v				In development - data e-infrastructure fisheries management and conservation
International Maritime Organization		v							Safety and security of shipping and the prevention of marine pollution by ships

Institution/ Project / Source	Fisheries Management	Management, other sectors	Biodiversity	Research (Fisheries and Biodiversity)	Networks	Economic	Industry	Others incl. Universities/	Notes and/or data sets
International Oceanographic Commission - UNESCO			v	v	v				Biodiversity and oceanographic information, potentially support research - GGODS report
International Seabed Authority		v		v		(v)	(v)		Research related to biodiversity, management of mining, prospecting
International Union for Conservation of Nature - Marine Programme			v		v				Red list, etc.
International Whaling Commission		v	v	v	v				Management and research
IUCN	v		v		v				IUCN Red List, Fisheries Expert Group
Ocean Biogeographic Information System (OBIS)			v	v	v				OBIS - Results from many datasets including CoML
South Atlantic Mar Eco Project (Partners both side Atlantic)				v					Research related to biodiversity Consortium scientists Brazil, Uruguay, Angola, South Africa, Norway); Rio Grande and Walvis ridges
World List of Marine Species (WoRMS)			v						World list of marine species
International Network for Scientific investigation of Deep-sea Ecosystems (INDEEP -WoRDSS)			v						World list of deep-water marine species
Seamounts online			v	v					Includes CoML data
FishBase			v						Information on fish species
REGIONAL									
Abidjan convention			v						EEZ
Benguela Current Commission (BCC)	v			v	v				Mainly EEZ. Includes work on BCLME on biology, management and oceanography. Training programme BENEFIT.
Commission for the Conservation of Antarctic	v		v	v					Data on Catch and effort, VMS, observer, scientific surveys, VMS, bycatch, habitats, Bouvet-Maud MPA planning domain

Institution/ Project / Source	Fisheries Management	Management, other sectors	Biodiversity	Research (Fisheries and Biodiversity)	Networks	Economic	Industry	Others incl. Universities/	Notes and/or data sets
Marine Living Resources (CCAMLR)									
EAF-Nansen project	v			v	v				Benthic, fishing, taxonomy, oceanography
Fishery Committee for the Eastern Central Atlantic (CECAF)	v								
SE Atlantic Fisheries Organization (SEAFO)	v				v				Fish catch (5 day), Scientific observer reports set-by-set (biological, length freq., etc., bycatch, via CPs), VMS, Total catch (from CPs), trip report (from CP)
International Commission for South East Atlantic Fisheries (ICSEAF)									Precursor to SEAFO, fisheries data
The International Commission for the Conservation of Atlantic Tunas (ICCAT)	v								Bird information, bycatch, tuna as predator
NATIONAL									
Angola									
Petro-chemical Industry							v		Benthic studies; Annual studies
National Fishing Research Institute (INIP)	v		v	v					Fisheries management advice
Ministry of Fisheries	v								
Ministry of Environment			v						
Ministry of Petrol			v						Benthic studies; impact assessment
University Augustinho-Neto; Faculty of science				v					Deep-sea related research
EAF-Nansen project									EEZ areas
Argentina									
El Instituto Nacional de Investigación y Desarrollo Pesquero (INIDEP)		v	v	v					

Institution/ Project / Source	Fisheries Management	Management, other sectors	Biodiversity	Research (Fisheries and Biodiversity)	Networks	Economic	Industry	Others incl. Universities/	Notes and/or data sets
Brazil									
Universidade do Vale do Itajaí (UNIVALI), Santa Catherina				v					
National Museum of Sao Paolo				v					
France									
Institut de recherche pour le développement (IRD)				v					
French Research Institute for the Exploration of the Seas (IFREMER)				v					Oceanographic (Indian Ocean as well)
Germany									
Baltic Sea Research Institute				v					Research vessels/Historical work
Alfred Wegener Institute, Bremerhaven				v					Polar/oceanographic research mainly in CCAMLR area
GEOMAR Helmholtz Centre for Ocean Research				v					Formerly Leibniz Institute of Marine Sciences (IFM-GEOMAR)
Japan									
Fisheries Agency of Japan	v		v						Including oversight of exploratory fishing in SEAFO area, with observer and VME investigation sent to SEAFO
National Research Institute of Farseas Fisheries				v					
Japan Agency for Marine-Earth Science and Technology (JAMSTIC)			v						Ocean floor exploration with SUV
Deep-sea Fisheries Union							v		
Toothfish operations - Cape Town									
Deep-sea red crab- Namibia							v		
Japan Overseas (demersal) fishing association							v		

Institution/ Project / Source	Fisheries Management	Management, other sectors	Biodiversity	Research (Fisheries and Biodiversity)	Networks	Economic	Industry	Others incl. Universities/	Notes and/or data sets
Kenya									
IUCN Regional Office				v					Biodiversity, MPAs
National Fisheries Research and Development Institute (NFRDI)	v		v	v					Observer information (fishing, VMEs using CCAMLR and SEAFO ID guides)
Namibia									
Ministry of Fisheries (NATMIRC)	v		v	v					Apply mainly EEZs, Research cruises (mainly fish biomass and oceanography)
Mining industry				v			v		Benthic studies; Annual studies, Debeers Mining Co., benthic data to 200 m depth.
Petrol Industry				v					Benthic studies; Annual studies
Trawling Association							v		Deep-water fisheries within EEZ
Nacoma Project		(v)							Joint GEF-Namibian project looking at coastal zone management, including southern right whale areal survey (EEZ only)
EAF Nansen			v	v					Biodiversity, oceanography
Genus			v					v	(with Germany: German Federal Ministry of Education and Research) climate change, biogeochemical cycles, and ecosystem structure - EEZ only
Baltic Sea Research Institute Warnemünde, Germany			v						GLOBEC and BENEFIT projects - oceanography, biodiversity
BirdLife International									Albatross Task Force - trawl and longline bycatch data
Norway									
Institute of Marine Research				v					
University of Bergen				v					
Petrol Industry (Statoil?)				v					Benthic studies; Annual studies
Portugal									
Instituto Português do Mar e da Atmosfera (IPMA) - Lisbon				v					
Society for the Study of Birds (SPEA)			v	v					
Industry			v				v		Exploratory fishing in north SEAFO area - report with SEAFO

Institution/ Project / Source	Fisheries Management	Management, other sectors	Biodiversity	Research (Fisheries and Biodiversity)	Networks	Economic	Industry	Others incl. Universities/	Notes and/or data sets
Russian Federation									
AtlantNIRO				v					Historical commercial and research fisheries and survey data
Shirshov Institute of Oceanology, Academy of Sciences				v					Research vessels and historical data; collection of marine animals, biogeography, taxonomy
Senegal									
IUCN Regional Office			v						Biodiversity, MPAs
South Africa									
Department of Agriculture, Forestry and Fisheries (DAFF)	v			v					Oversight of fisheries sector in South Africa
Department of Environmental Affairs (DEAT)						v	v		Oversight of environmental sector in South Africa
South African Deep-sea trawling industry association (SADSTIA)							v		
South African National Biodiversity Institute (SANBI)			v	v					Biodiversity database
University of Cape Town (Marine Research Institute (Mare), Geoscience, Oceanography, Percy Fitzpatrick Institute of African Ornithology)				v	v				EEZ and ABNJ
University of Stellenbosch				v					Genetics
Department of Environmental Affairs and Tourism				v					
SA Institute for Aquatic Biodiversity (Rhodes University)				v					
South African Environmental Observation Network (SAEON)			v						Databases (metadata and repository), data sharing - mainly EEZ and terrestrial
BirdLife South Africa			v	v					

Institution/ Project / Source	Fisheries Management	Management, other sectors	Biodiversity	Research (Fisheries and Biodiversity)	Networks	Economic	Industry	Others incl. Universities/	Notes and/or data sets
Nansen-Tutu Centre			v					v	Partners with Nansen Environmental Centre in Norway. Climate, ocean modelling, data dissemination
Petroleum Agency South Africa (PASA)								v	Extended shelf claim and information associated with this
Spain									
Instituto Español de Oceanografía (IEO)	v		v	v					Cruises (with NATMIRC and Vigo University) - 2 in EEZ and 3 in Walvis Ridge
University of Vigo				v					with IEO above
Spanish Ornithological Society (SEO) / BirdLife			v	v					
La Dirección Nacional de Recursos Acuáticos (DINARA)		v	v	v					
UK									
Royal Society for the Protection of Birds (RSPB)			v	v					Birds
Ukraine									
YugNIRO				v					Historical commercial and research fisheries and survey data
USA									
National Oceanic and Atmospheric Administration (NOAA)	v		v	v					NCEP - remote sensing: temps profiles, current, actual data collection. NODC - World Ocean Atlas. ETOPO1 - Bathymetric data
Oregon State University				v					Walvis Ridge expedition
Scripps Institute of Oceanography				v					Bathymetric data
Woods Hole				v					Oceanographic data

APPENDIX 5 - ABNJ DEEP SEAS PROJECT DRAFT ACTIVITY MATRIX

Component 1: Improved policy and legal frameworks for sustainable fisheries and biodiversity conservation in the ABNJ deep seas

Outputs	Activity (where discussed)	Issues raised during workshop
Output 1.1.1: Impediments to the implementation of international policy and legal instruments identified and remedial measures are formulated.		
Output 1.1.2: Implementation guide for relevant international policy and legal instruments to deep-sea fisheries and biodiversity conservation made available to competent authorities, industry partners and other stakeholders.	Activity 1.1.2.1: Preparation of an implementation guide for implementation of obligations deriving from international instruments and of international best practice for DSF and BD conservation.	(1) Compliance criteria of RFMO/As (such as those used by CCAMLR) to verify compliance with C&M measures taken at RFMO level by States, could be compared and best practices could be extracted (possibly in activity 1.1.4.1) (2) Consistency between MCS related measures of RFMO/As with overlapping/adjacent competence areas, e.g. the VMS transmission is 2 hours in SEAFO, 4 hours in CCAMLR, and different at national level. Consistency should be enhanced (possibly in activity 1.1.4.1, and 1.1.4.3) (3) Implementation of CCTV as part of MCS in areas where observer presence is weak possibly in activity 1.1.4.1, and 1.1.4.3).
Output 1.1.3: Options for Rights-Based Management (RBM) systems and market-based incentives (e.g. trade certification and ecolabelling) developed and tested in at least one selected pilot area.		
Output 1.1.4: Model policy and legal frameworks, enabling sustainable Deep Sea Fisheries (DSF) management and biodiversity conservation at the regional and national levels, developed and integrated into national legislation in countries in at least one region.	Activity 1.1.4.1: Development of a regional model legal framework for at least one pilot region. By way of desk study and individual consultations, the regional model legal framework will be developed on the basis of the implementation guide (prepared under Output 1.1.2), and taking into account the legal specificities of the selected region.	(1) The regional model legal framework should also take into consideration selected measures by RFMO/As in the region, for example in relation to observer schemes and their reporting standards, and look at ways to increase compatibility between them. CCAMLR and SEAFO observer schemes and reporting requirements e.g. appear to be slightly different, while some vessels fish in the competence areas of both RFMOs in a single trip. (2) Either under the institutional part of the model legal framework or under the capacity building activities (activity 1.1.4.4), an analysis of the institutional and legal procedures by which C&M measures of RFMO is implemented in national law. On the basis of these assessments, recommendations can be done to improve these processes and enhance consistency within the region. (3) Compliance criteria of RFMO/As (such as those used by CCAMLR) to verify compliance with C&M measures taken at RFMO level by States, could be compared and best practices could be extracted (possibly in activity 1.1.2.1)

	<p>Activity 1.1.4.3: Review of the national legislation of selected developing countries in the pilot region.</p>	<p>(1) Namibia is reviewing its natural marine resources legislation and regulations, with help from Norway. Perhaps follow-up capacity building activities needed; In SEAFO area, much DSF takes place in national jurisdiction waters. (2) Updating of national legislation for areas under national jurisdiction for consistency with legislation on DSF for ABNJ is needed, for example in relation to gillnet prohibitions in SEAFO area, but not in national waters of Angola. <i>(Kenya and Tanzania are doing review of DSF legislation.)</i></p>
	<p>Activity 1.1.4.4: Preparation of the legal capacity building program and implementation of capacity building activities.</p>	<p>(1)SEAFO has a fund for supporting member countries to implement the convention. SEAFO requires states to implement PSM and capacity building is needed. This could perhaps be done in cooperation with ICCATT. The interest was expressed in the context of MCS in general. (2) SEAFO currently supports capacity building activities with Korean deep-sea trawlers to reduce seabird mortality. These capacity building activities could be used to further the implementation of the IPOA-seabirds in the region and, perhaps best practices could be extracted. <i>(IOTC is doing its port state measures through training manuals and training inspectors.)</i></p>
<p>Outcome 1.2: Global and regional networks are strengthened and/or expanded.</p>		
<p>Output 1.2.1: Collaborative networks and partnerships, including all stakeholders involved in ABNJ-DSF and biodiversity conservation, strengthened or set-up, with links to global and regional communities of practice under the ABNJ Program.</p>	<p>Activity 1.2.1.1: Organize a global stakeholder meeting to set priorities within the project in relation to DSF and BD conservation</p>	<p>A global DSF meeting as an inception meeting of the project was discussed (Busan II). The meeting would allow for global stakeholders to set priorities within the project and ensure active engagement from the onset.</p>

Component 2: Reducing adverse impact on VMEs and EBSAs

Output/Outcome	Activity	Issues raised during workshop
Outcome 2.1: Improved application of management tools is demonstrated.		
Output 2.1.1: Biological, ecological and economic analyses of DSF and biodiversity in the ABNJ carried out, in consultation with relevant stakeholders, to classify risks and threats and identify vulnerable marine ecosystems.	Activity 2.1.1.1: <i>Baseline study</i> . Source and collate existing biological, ecological, environmental, economic and socio-economic data, sources of data or metadata, from diverse sources, such as past scientific research, fisheries monitoring, knowledge of fishers about the areas and ecosystems that they exploit.	Historical data from Russia? CCAMLR could contribute information, data and knowledge
	Metadata, links to data, or data as appropriate, collated in geospatial database for use by all stakeholders.	Under 2.1.2 Or rephrase to link to availability
	<i>Fisheries study</i> . WWR-Preparation and analysis of questionnaires circulated to flag states to update the “Worldwide review of bottom fisheries in the high seas” and for other purposes to meet the needs of activities 2.1.1.2-3.	All RFMOS, CCAMLR, Identify challenges for contributing to these (definitions of deep sea fisheries, and catch inside and outside EEZ- not a problem in SEAFO.
	<i>Fisheries study 2</i> . Putting ABNJ fisheries in perspective including biodiversity considerations. VMS and effort data on activities, illustrate relative significance of fisheries in ABNJ compared to coastal fisheries-catch	effort in perspective, encounters? All RFMOS
	Review of DSF fisheries in relation to EBSAs. Geographical distribution and scale	e.g. example in SEAFO Walvis ridge, perhaps related to approved EBSA
	<u>Activity 2.1.1.2: Biological assessment</u> . Analyze data and develop predictive models or occurrence or likely occurrence of VMEs, EBSAs, and fishery areas to improve understanding of predict expansions of fisheries to harvest new resources and the vulnerability of VMEs and EBSAs to bottom fishing.	Reword, do not indicate specific methods
	<u>Activity 2.1.1.3: Economic assessment</u> . Economic and socio-economic analyses of DSF, including fishing operations, management, monitoring and compliance, markets, post-harvest processing, and consumption. The direct and indirect economic and nutritional beneficiaries of DSF, identifying opportunities for SIDS and LDC countries to benefit from DSF.	Study- what is the impact of a closure on a fishery? Comparison of EEZ and ABNJ. Regional or national analysis. History of subsidies, oil price and introduction of fisheries measures- case studies. Economic indicators. France Montpellier
	<u>Activity 2.1.1.4: Monitoring methods</u> . Coastal and Flag States, in collaboration with RFMOs, to review their DSF data collection procedures used for management and monitoring purposes at-sea on-board commercial fishing or research vessels, and at landing ports. Revise or develop harmonized, transparent and validated collecting protocols consistent with objectives laid down in FAO DSF Guidelines, being conscious of preserving the continuity of previous time series, and test at sea where possible.	Collaborative between RFMOS capacity building for implementing measures. At sea activity- industry involvement- CCMLR, involves use of ID guide, SEAFO protocol, Link 3
Output 2.1.2: Interactive web databases, for identification and use in mitigation of threats to sustainable DSF and biodiversity in ABNJ, particularly for VMEs and EBSAs, improved for use in regions in close collaboration with all stakeholders.	<u>Activity 2.1.2.1: Interactive web databases</u> . Develop interactive web databases on fish stocks, DSF, VMEs and EBSAs.	Focus on additional modules to VME database Link to FIRMS, all RFMOS. EBSA web database in separate activity
	<u>Activity 2.1.2.2: Assessment and mitigations tools</u> . Develop web-based tools and associated instruction or training manuals to support the assessment of impacts to populations, communities and habitats, including fish stocks, DSF, VMEs and EBSAs.	Combined with above and as above
Output 2.1.3: Indicators in terms of species and critical habitats, for VME and EBSA identification and thresholds, when appropriate, developed in at least one pilot area.	<u>Activity 2.1.3.1: Indicators</u> . Identify reliable ecosystem and fishery indicators that can be easily and cheaply collected, that identify and monitor key attributes important to the structure and function of VMEs and EBSAs. These should be able to reliably track the health and impacts of DSF on fish stocks, VMEs and EBSAs.	Develop 1 activity for VME Workshop, Aim: evaluation of effectiveness of appropriate ness? Include representatives from EEZ? What measures were introduced in EEZs. Combine 2.1.3.1 and 2.1.3.2 Twinning with NAFO and CCAMLR?

Output/Outcome	Activity	Issues raised during workshop
	<u>Activity 2.1.3.2: Thresholds.</u> Identify gear-specific candidate thresholds for the relevant indicators that can be easily measured and would indicate a likelihood of presence or absence of a VME or EBSA relevant to DSF and stimulate a response to avoid further SAI in the vicinity of the encounter.	
Output 2.1.4: Management measures and improved fishing practices to reduce impacts on VMEs and EBSAs piloted in at least one pilot area.	<u>Activity 2.1.4.1: Development of DSF in pilot areas.</u> Analyze the development of the DSF in the pilot area(s) including rates and patterns of expansion of potential new DSF fisheries resources. Flag States, collaborating with fishing vessels owners, skippers, and RFMOs, develop fishing plans and conduct impact and risk assessments, on current and proposed DSF operations.	EAF- Look at component 3
	Activity 2.1.4.2: Effectiveness of measures. Work with industry and States to determine impacts of different fishing practices including avoidance and mitigation measures on features associated with VMEs and relevant EBSAs: (i) field-test performance of candidate indicators, thresholds and encounter protocols under operational conditions of fishing, identifying best fishing practices that reduce impacts on VMEs and EBSAs; (ii) tests of reliability of predictions of presence of features associated with VMEs and relevant EBSAs, through field visits to poorly known sites predicted to possess or lack associated features, and desk-study comparisons with well-known sites; (iii) work with Component 3 outputs to support the development and testing of adaptive management measures. Estimates of uncertainty should be developed along with the consequences of vessel operator knowledge and experience.	Baseline data? To be able to compare? Japan doing exploratory fishing. Incorporate data from Japans exploratory fishing; Look at immediate impact. e.g. Indian ocean connect look at developing new areas. Historical fishing data, valuable as baseline. The fact that fishing has occurred can be advantageous as you can get valuable data. Work on this activity to develop with SEAFO; Carry out additional observer? Mid-water trawl (Korea) Fleet in area small. Look at impacts from various gears. Deep water trawling? Video-acoustic,
Outcome 2.2: The capabilities of stakeholders are developed		
Output 2.2.1: Customized support provided to at least ten developing countries to fully integrate best practices for sustainable DSF and biodiversity conservation in their management processes.	<u>Activity 2.2.1.1: Country selection.</u> Through a needs assessment, develop and agree on selection criteria and invite at least 10 countries to receive customized support to fully integrate best practices for sustainable DSF and biodiversity conservation in their management processes. Priority will be given to those countries active in the pilot areas of the SE Atlantic and Indian Ocean.	
	Activity 2.2.1.2: Customized workshops. Deliver the following capacity building workshops in the pilot areas of the SE Atlantic and Indian Ocean: (i) The collection of DSF data on fish stocks, bycatch and indicator species for monitoring purposes. Impacts of fishing gears and modifications in design, usage and deployment to reduce impact on a range of bycatch species. Impact assessments and risk assessments. (ii) Opportunities for involvement with DSF for coastal states with little or no history of DSF, especially SIDS and LDC, (iii) Integration of best practices into management and conservation measures, including VMEs and EBSAs.	PORT STATE MEASURES ; NEW VESSELS and how to get clearances; implications for high seas fishing; engagement in the work of the working groups, scholar ships; compliance training; provision of licenses; improved coordination between departments- look at harmonisation between industry- how promote strategy under 1. Look at also BCC- under umbrella SEAFO; biodiversity conservation incorporate into fisheries-EAF and also legislation. EAF training. Consistency between legal frameworks inside and outside jurisdiction - gill nets? Collection of data- better data forms- smart forms; onboard vessels - technical developments; electronic log books etc. (CCAMLR)-pilot and template (developed, and tested-in SEAFO-multilingual aspects)- tested with CCAMLR
Output 2.2.2: Technical and operational support on the application of VME and EBSA criteria provided (including training), for systematic use by countries.	Activity 2.2.2.1: Training workshops. The following workshops are designed to be technical in nature to support some of the activities listed in Component 2. Some will be field based and may involve working on vessels: (i) VME and EBSA description and identification through surveys, bycatch monitoring, encounter protocols, and on-	? not priority project? Some elements covered through other means - CBD, and other.

Output/Outcome	Activity	Issues raised during workshop
	board electronic fish finding and bottom profiling equipment.	
	Activity 2.2.2.2: Capacity building. Build capacity of States, especially developing states, to participate more effectively in VME, EBSA and DSF processes, by providing support to (i) attend regional or international meetings dealing with DSF management (subject to selection criteria).	
	<u>Activity 2.2.2.3: Sustainability.</u> Assist relevant organizations and States to develop their long-term capabilities for continued capacity building and the application of the precautionary approach and EAF.	Needs assessment? Targeted training activities to be defined throughout course of project
	<u>Activity 2.2.2.4: International FAO Workshop.</u> The preparation of discussion papers by States working in the pilot areas and holding of an international FAO workshop on the implementation of the FAO Guidelines for the management of Deep-sea fisheries in the high seas – further challenges and ways forward as a follow-up to the FAO workshop held in Busan, Republic of Korea, in 2010	Check with other component. Early on in the project-inception meeting

Component 3: Improved planning and adaptive management for deep-sea fisheries in the ABNJ

Output/Outcome	Activity	Issues raised during workshop
Outcome 3.1: Planning and management processes are improved, tested, and disseminated to all competent authorities.		
Output 3.1.1: Best practices, methods and tools for comprehensive management planning, encompassing an ecosystem approach and allowing for adaptive changes, reviewed and adapted to the special conditions of ABNJ-DSF	3.1.1.1: Review of best practices, methods and tools for fisheries management planning. A desk-top review is undertaken of best practices, methods and tools for management planning provides elements for an operational manual for deep-sea fisheries management planning	clarify what is meant by management planning; Global activity,
	3.1.1.2: Expert workshop to develop a framework for an operational manual on deep-sea management planning. An expert workshop is held, including representatives from RFMOs addressing deep sea fisheries and other relevant experts, to discuss, review and refine the elements of the manual, and to provide comprehensive information and advice on its structure and contents, making use of and supplementing the FAO EAF Toolbox as appropriate.	
	3.1.1.3: <i>Production of operational manual on deep-sea fisheries management planning.</i> The manual is completed, reviewed by a panel of suitable experts, finalised and published.	
Output 3.1.2: Adaptive management processes demonstrated, including identification of management objectives and priorities, through participatory risk analysis in at least one selected pilot area.	3.1.2.1: Preparation of EAF baseline report for the selected pilot areas. Pilot areas will be identified during Project Preparation and could be both at regional scale (e.g. and RFMO or RFB) or national scale in the form of a GEF eligible country or countries. In each selected pilot area, a scoping study is undertaken, including review of existing objectives for the fishery (both formal/explicit and informal/implicit) and current management practices and their effectiveness, leading to the production of an EAF baseline report. Recognizing the frequently limited data and information on deep-sea fisheries and ecosystems, this activity could include in some instances the compilation and analysis of relevant data currently available but not utilized, for example as collected by the fishing industry.	Three existing exploratory fisheries currently operating in the SEAFO area: the Japanese longline fishery for toothfish, the Korean bottom and mid-water trawl fisheries, and the joint Japan-Namibia crab fishery; Importance of involving industry was stressed
	3.1.2.2: Issue identification and prioritisation workshops. In each pilot area a series of inclusive workshops is convened to undertake a process of identification and prioritisation of issues that need to be addressed by management, in accordance with an EAF framework. Workshops will consist of representatives of management agencies and stakeholders in the pilot areas. Representatives from other selected RFMOs or fishing nations with a track record in deep-sea management should also be invited to contribute to the process. Liaison with Component 2 will be done to include best available information relevant to VMEs and EBSAs.	
	3.1.2.3: Development of Objectives. In each pilot area, working through the appropriate, mandated scientific body (e.g. RFMO scientific advisory group or national fisheries research agency) and in consultation with fishing industry and other stakeholders (including RFMO members for RFMO pilot areas), existing objectives for the fishery or fisheries will be reviewed taking into account the priority issues identified in Activity 3.1.2.2. Operational objectives will be revised as appropriate and should, in accordance with EAF, encompass target species, catch/bycatch composition, biodiversity etc. (from 3.1.3) as well as human well-being and governance aspects.	
	3.1.2.4: Identification of options for improved adaptive management measures. With reference to the baseline report and revised operational objectives (Outputs 3.1.2.1 and 3.1.2.3) and in consultation with mandated scientific body, industry and other stakeholders in pilot areas, a review will be undertaken of the strengths and weaknesses and operation costs of existing management arrangements. Options for improvements in and alternatives to existing management measures, tools and practices, including options with improved cost-benefit ratios, will be evaluated and identified. The results of this activity, in the form of a	

Output/Outcome	Activity	Issues raised during workshop
	report with management recommendations, will be a major input for Activity 3.1.5.1.	
Output 3.1.3: Objective-based indicators and reference points (related to target species, catch/bycatch composition, biodiversity, etc.) selected and a related monitoring programme for ABNJ-DSF tested in a selected pilot area.	3.1.3.1: Selection of objective-based indicators and reference points. Workshops will be held for each pilot area (regional and/or national) to consider possible indicators and associated reference points in order to track and assess the progress and effectiveness of management in achieving the operational objectives identified in Activity 3.1.2.3. Due consideration needs to be given to any indicators currently being used by relevant management agencies. For country pilot areas, indicators and reference points selected should be consistent with and include any indicators and reference points being applied by relevant mandated regional bodies. Possible examples of indicators include e.g.: CPUE as indicator of target species density/abundance; bycatch CPUE and/or occurrence; occurrence of benthic substrates / frequency distribution of VMEs and features e.g. corals as indicators of VME impacts; etc. Agreed indicators must be feasible and cost-effective for monitoring, analysis and interpretation.	Define indicators? Look at indicator work under 2
	3.1.3.2: Design and implementation of monitoring programme. In each pilot area, through appropriate, mandated scientific body and management body/agency, and with participation by industry and additional statistical and scientific expertise as required, a scientifically valid and operationally cost-effective monitoring programme will be designed and implemented on trial basis to collect information for routine tracking of indicators. Protocols will be established for implementation by agreed institutions to analyse data collected and report on trends and management implications. The timing, format and contents of a reporting mechanism on status and trends of indicators will be agreed and implemented.	Look at electronic monitoring discussed above
Output 3.1.4: Action plan for adoption of best MCS practices, adapted to the specific conditions of ABNJ-DSF, formulated and adopted in one of the selected pilot areas.	3.1.4.1: Review global best-practice MCS. The objective of the review will be to present global best-practices in MCS, with particular emphasis on deep-sea fisheries in ABNJ. The review will draw from and liaise with Component 1 to include an overview of international guidelines and legal requirements as reflected in international law and other instruments relevant to deep-sea fisheries in ABNJ.	Integrated closely with component 1; An area of work that can be strengthened. Harmonisation issues and cooperation.
	3.1.4.2: Review of existing MCS systems. In consultation with appropriate bodies in the RFMO(s), states, the fishing industry and other stakeholders relevant to each pilot area, a review will be undertaken of the existing MCS systems and practices in each pilot study and by relevant flag, port and market States. The review will include an evaluation of the effectiveness of existing MCS practices and the likely extent and impact, of any IUU fishing or harvesting practices detrimental to the marine environment in each pilot area.	No compliance observers in SEAFO
	3.1.4.3: Consider options for strengthened MCS and compliance and develop or revise MCS action plan(s) accordingly. Options for strengthening plans and their implementation, where required, will be considered through participatory processes with the scientific and existing MCS committees and commission of the relevant RFMO, as well as any states with fishing interest or experience relevant to the pilot area(s).	
Output 3.1.5: Options for improved management measures for sustainable fisheries and biodiversity conservation, including: i) encounters with vulnerable species/habitats; (ii) spatial management tools; and iii) fishing operations aimed at mitigating adverse impacts on sensitive habitats and ecosystems, developed and disseminated.	3.1.5.1: Trial implementation in selected pilot area(s) of improved management measures within an adaptive management process. In each pilot area, working through the appropriate, mandated scientific body and management body/agency and using the results and lessons-learned from Activities 3.1.2.1 – 3.1.2.4, pilot protocols and processes for implementation of adaptive management will be developed and implemented on a trial basis. These could include, for example, testing mitigation and practical management options to minimise ecosystem impacts such as usefulness of move-on clauses and methods for estimating coral and other substrate volumes in trawls.	Look at 3.1.5.2 and also under component 2
	3.1.5.2: Development of options for improved management measures. Using selected pilot sites test practical measures for the at-sea implementation of different strategies adapting to variability that may be encountered. This would include 1)	

Output/Outcome	Activity	Issues raised during workshop
	testing practicality of threshold limits for VME indicator species using on board observers (independent) and vessel staff 2) application of move-on rules 3) testing of opening and closing areas based on risk levels	
	Activity 3.1.5.2: In each pilot area, using outputs from the previous activity and working through RFMO scientific advisory groups and in full consultation with RFMO members, comprehensive adaptive management plan developed and approved by RFMO members to strengthen existing approaches by modifying and extending control measures and regulations to address high priority issues and to improve effectiveness where required.	
	3.1.5.3: Evaluation of role and effectiveness of available management options for sustainable fisheries and biodiversity conservation. Drawing on the lessons learned from this project and all other relevant information, the role and utility of the different management measures and approaches used in deep-sea fisheries and biodiversity conservation will be evaluated. The evaluation, to be undertaken by an expert group, will consider the strengths and weaknesses, including consideration of costs and benefits, of different management measures and approaches in relation to the objectives to be achieved and the specific geographic, ecological and socio-economic characteristics in which they are to be applied. There will be close interaction with Components 2 and 4 in undertaking this activity. The report from this activity will supplement the operational manual on deep-sea fisheries management planning produced from Output 3.1.1. Depending on the timing of the two products, the report could either be an appendix to the manual or a later addendum.	Look at economic analysis;

ANNEX 1: JOINT DISCUSSION MEETING ON VULNERABLE MARINE ECOSYSTEMS (VMES) AND ECOLOGICALLY OR BIOLOGICALLY SIGNIFICANT MARINE AREAS (EBSAS)

On the occasion of the CBD South-eastern Regional Workshop on EBSAs and the Regional Workshop on Vulnerable Marine Ecosystems (VMEs) in the Southeast Atlantic Ocean

WORKSHOP ARRANGEMENTS AND OPENING SESSION

FAO and CBD Secretariat held a joint meeting on “Vulnerable Marine Ecosystems (VMEs) and Ecologically or Biologically Significant Marine Areas (EBSAs)” on Saturday 13 April 2013. This was held in conjunction with the CBD “South-Eastern Atlantic Regional Workshop to Facilitate the Description of Ecologically or Biologically Significant Marine Areas (EBSAs)” meeting on 8-12 April 2013 and the FAO “Regional Workshop on Vulnerable Marine Ecosystems (VMEs) in the Southeast Atlantic Ocean” held the following week on 15-17 April 2013. All three meetings were held at the Alte Brücke Conference Centre in Swakopmund, Namibia.

Forty-one people with expertise in Ecologically or Biologically Significant Areas (EBSAs) and Vulnerable Marine Ecosystems (VMEs) processes either globally or in the Southeast Atlantic region attended this meeting.

The Chair presented the provisional agenda as circulated to participants prior to the meeting. The Agenda was adopted. The workshop agenda and list of participants can be found in Appendices 1 and 2, respectively.

Ms Merete Tandstad explained that the purpose of this meeting was to share experiences and knowledge in relation to the two processes for VMEs and EBSAs focused on the deeper waters of the oceans, and particularly the SE Atlantic Ocean. Many of the participants at this meeting were involved in the description of EBSAs in the SE Atlantic that occurred one week prior. Other participants present were to attend the meeting on VMEs in the SE Atlantic immediately after the joint discussion meeting. The two processes have largely evolved independently and often draw upon expertise from experts with different backgrounds and often from different organisations or institutions. Even within governments they are often dealt with by different departments. Only a limited number of people are involved with both processes.

This meeting presented the background to these two important processes and, with the aid of participative discussions, gain a mutual understanding of both.

The objectives of this joint session:

- Promote exchange of experiences and dialogue between people engaged in the two processes
- Contribute to improved understanding of the two processes, related key concepts and actors within the fisheries and biodiversity communities
- Create awareness on fisheries and biodiversity conservation
- Discuss relevance of scientific information and sharing of knowledge between the fisheries and biodiversity communities

The meeting was directed by introductory presentations followed by informal discussions to increase understanding and identify synergies in the EBSA and VME processes.

SESSION 1. INTRODUCTION TO VMES AND EBSAS

Ms Merete Tandstad (FAO) introduced the background to the VME process recalling that the World Summit on Sustainable Development (2002, Plan of Implementation, paragraph 32 a, c, d) included an

explicit call for greater protection of special places in the sea. Subsequently both VMEs and EBSAs have been the focus of discussions in various international forums in recent years; including the United Nations General Assembly (UNGA), the FAO Committee on Fisheries (COFI), and within the Marine Programme of the Convention on Biological Diversity (CBD).

Ms Tandstad explained that the FAO work on VMEs and the VME criteria was triggered by the sustainable fisheries UNGA Res. 58/14 in 2004. It very generally asked the UN Secretary-General to work with FAO, States, RFMO/As, and other relevant organizations, to outline "... current risks to the marine biodiversity of vulnerable marine ecosystems including, but not limited to, seamounts, coral reefs, including cold water reefs and certain other sensitive underwater features, related to fishing activities ...". Conservation and management measures were in place to mitigate such risks. In 2006, a strong call for action was adopted in UNGA Res. 61/105, together with tight deadlines, for "States to take action immediately, individually and through regional fisheries management organizations and arrangements (RFMO/As), and consistent with the precautionary approach and ecosystem approaches, to sustainably manage fish stocks and protect vulnerable marine ecosystem...". In 2008, the "International Guidelines for the Management of Deep-sea Fisheries in the High Seas" (DSF Guidelines), were adopted by FAO members, The guidelines assist States and RFMO/As, in implementing UNGA Res. 61/105 as well as the supporting sustainable fisheries resolutions. The process has been implemented in many ABNJ areas, but this is an on-going process and further support is to be provided globally and in specific pilot areas through the FAO program and the GEF-funded ABNJ Deep-seas Project that is currently being developed.

Ms Tandstad explained that the five criteria for identifying VMEs: Uniqueness or rarity, Functional significance of the habitat, Fragility, Life-history traits of component species that make recovery difficult, Structural complexity, and the need to determine vulnerability and assess significant impacts arising from DSF activities. VMEs, in practice but not necessary strictly so, are confined to benthic organisms (deep-water sponges and corals including seapens, etc.) in ABNJ that could be significantly impacted by bottom contact fishing gears. With this information, RFMO/As and States develop and adopt the necessary mitigation measures through an elaborate process that requires consideration of a broad range of elements. The process of identifying VME areas and adopting mitigation measures for their protection lies, for the most part, with those bodies responsible for the management of fisheries in ABNJ. With some exceptions involving individual states, this typically lies with the regional bodies that have a mandate to manage fisheries. The process typically involves a request for advice from the management committee to the scientific committee to identify likely or known VME areas and an account of bottom fisheries related impacts. This scientific advice is delivered back to the management committee who will develop and adopt mitigation measures as appropriate.

Ms. Jihyun Lee (CBD Secretariat) introduced the background to the EBSA process and presented the seven criteria for their identification: Uniqueness or rarity, Special importance for life history stages of species, Importance for threatened, endangered or declining species and/or habitats, Vulnerability, Fragility, Sensitivity, or slow recovery, Biological productivity, Biological diversity, and Naturalness. Similarities with the VME criteria were noted, but it was emphasised that differences in the underlying rationales between EBSAs and VMEs can mean that the application of these criteria may differ. The process of identifying EBSA areas follows submissions from states through a series of regional workshops that have, to date, covered some 68 percent of the global ocean area in EEZs and ABNJ. These workshops review the submissions and select those areas that meet the criteria to be included in the workshop report and an EBSA repository. The CBD Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA), who make recommendations to the CBD COP, reviews the selections. The list of areas, once adopted by CBD CoP, can then be submitted to the United Nations General Assembly and particularly its Ad Hoc Open-ended Informal Working Group to Study Issues Relating to the Conservation and Sustainable Use of Marine Biological Diversity Beyond Areas of National Jurisdiction, as well as to submit them to Parties, other Governments and relevant international organizations.

The EBSA process facilitates valuable scientific collaboration enhancing global knowledge on marine biodiversity in open-ocean and deep-sea habitats. This expert driven process provides an important

starting point for future long-term continuous assessment with increasing availability of scientific information. EBSAs provide potential focus for future research and monitoring. The data collation/synthesis/mapping exercises undertaken for regional workshops can also contribute to existing regional and national conservation efforts. Noting that, in accordance with COP decision X/29, the application of the scientific criteria for ecologically or biologically significant marine areas is a scientific and technical exercise and emphasizing that the identification of ecologically or biologically significant marine areas and the selection of conservation and management measures is a matter for States and competent intergovernmental organizations, in accordance with international law, including the United Nations Convention on the Law of the Sea. To this end, a preliminary map of potential EBSAs selected in the SE Atlantic by the meeting that finished the day before this meeting was presented.

Discussion

The initial process was designed to describe EBSAs in some seven major regions that cover around 70 percent of the world's ocean area. These initial descriptions of areas meeting the EBSA criteria are now coming to an end and the process of their endorsement through COP has started. This is explained in detail in COP XI/17 (para. 6):

Noting that, in accordance with decision X/29, the application of the scientific criteria for ecologically or biologically significant marine areas is a scientific and technical exercise and *emphasizing* that the identification of ecologically or biologically significant marine areas and the selection of conservation and management measures is a matter for States and competent intergovernmental organizations, in accordance with international law, including the United Nations Convention on the Law of the Sea, as stated in paragraph 26 of decision X/29, requests the Executive Secretary to include the summary reports on the description of areas that meet the criteria for ecologically or biologically significant marine areas, prepared by the Subsidiary Body on Scientific, Technical and Technological Advice at its sixteenth meeting and contained in the annex to this decision, in the repository, as referred to in decision X/29 and this decision, and, for the purpose set out in decision X/29, to submit them to the United Nations General Assembly and particularly its Ad Hoc Open-ended Informal Working Group to Study Issues Relating to the Conservation and Sustainable Use of Marine Biological Diversity Beyond Areas of National Jurisdiction, as well as to submit them to Parties, other Governments and relevant international organizations, and *further requests* the Executive Secretary to submit them to the Ad Hoc Working Group of the Whole on the Regular Process for Global Reporting and Assessment of the State of the Marine Environment, including Socio-economic Aspects, as well as to provide them as a source of information to United Nations specialized agencies.

It is recognized that there will be a need to review the EBSA process and to decide on future steps to build on the work already undertaken. This decision was adopted by COP XI/17 (para. 9) that “*Affirms* that scientific description of areas meeting scientific criteria for EBSAs and other relevant criteria is an open and evolving process that should be continued to allow ongoing improvement and updating as improved scientific and technical information becomes available in each region;”.

Similarities and differences between the EBSA and VME processes

It is noted that there are a list of seven criteria used for describing EBSAs and five criteria for VMEs. The specific elements of VMEs are quite different in that the concept of VMEs was designed for ecosystems in deep waters in ABNJ and is in direct relation to potential impacts from bottom contact fishing gears. Interpretations to date have limited VMEs to defined areas of the seabed containing benthic organisms that are structure forming principally occurring on seamounts, ocean ridges or other topographic features. It was noted that is scope for wider interpretations within the FAO DSF Guidelines, but to date these other features, ecosystems, or components of ecosystems, have dealt with under a different management measures.

The main difference between the EBSA and VME process is not in the detail of the criteria but the overall purpose and application. EBSAs are a “scientific and technical exercise and *emphasizing* that the identification of ecologically or biologically significant marine areas” (loc. cit.) that essentially produces a map with associated descriptions. VMEs are a fisheries management tool designed to prevent significant adverse impacts from bottom contact fishing gears to a specific kind of vulnerable marine ecosystem. This means that VMEs are established (adopted) to mitigate “impacts” and thereby affording protection to safeguard the VME. VMEs are therefore focussed on areas of spatial overlap, or potential spatial overlap, between the ecosystems meeting the criteria and the deep sea fisheries. Mapping the extent of these VMEs is an important component of the VME process and has been undertaken more widely in some of the more extensively fished areas such as in the north Atlantic. However, this is more to identify possible areas of interaction and to prioritise the “more important, diverse and susceptible” areas in need of protection. Typically, it is found that the more extensively fished areas either never had VMEs or have lost their VMEs, and so these areas would not meet the VME criteria.

The description of EBSAs was originally intended to be a high seas/ABNJ exercise, though with the many EBSAs have been described within EEZs and included in the EBSA repository. Many coastal States have similar processes within their EEZs and would prefer to have designated areas that match their own particular needs. The important aspect of EBSAs, and similar designated areas, is that information on these areas will become publically available and shared widely through the EBSA Repository and by any other suitable means.

The processes relating to VMEs, as described in the UNGA Resolutions, for example, UNGA Res. 61/105, and the DSF Guidelines, applies to ABNJ only and its application is through regional bodies with mandates to adopt fisheries management measures and by individual states when applied to flagged vessels or fishing vessels entering their EEZs. Coastal States may apply these Guidelines within their national jurisdiction, as appropriate (para. 10, DSF Guidelines).

VMEs likely or known to occur

The first VMEs to be adopted were typically established in seamount areas as precautionary measures based on limited survey information. There are examples of this in the north and south-east Atlantic. They were usually for a set duration with the expectation that work would be undertaken during the closure period to identify the ecosystems present and the types of fisheries prosecuted. This approach was necessary in order to respond to the deadlines given in UNGA Res. 61/105. It is also a sensible approach, since certain topographical, hydrophysical or geological features, are likely areas where VMEs occur. There are many diverse sources of information that are useful in the VME process. These can come from scientific surveys for fisheries or biodiversity habitat mapping, from commercial fisheries and particularly through observer programmes, and through environmental ministries often in conjunction with the oil and gas and mining industries. With increasing knowledge of the distributions of VMEs and the areas fished, and of the interactions between the fishing and the VMEs, came a period of review and refinement of the VMEs areas. As a result, additional VME elements were identified and boundaries were modified to focus the management measures on areas where they have the greatest effect whilst allowing fisheries to continue in areas where VMEs were found to be absent or limited.

Monitoring and confidentiality

As noted by some participants, one of the many benefits of describing and mapping the biodiversity of the world’s oceans is that it allows for a prioritisation of monitoring activities. In fisheries, the use of satellite Vessel Monitoring Systems (VMS), together with on-board catch recording systems such as log-books and observer programmes, combined with at-sea inspections, have meant that fisheries is more closely monitored than ever before. This information has largely been for compliance purposes and due to confidentiality restrictions it has in the past been problematic to gain access to this information for scientific purposes. This can be true of work undertaken by the fisheries industry themselves, by other industries and even by scientific or government organisations involved in surveys.

Data sharing, with appropriate confidentiality restrictions, remains problematic, however there have been many advances in recent years in the sharing of data and in the development of agreements for data sharing. Data “ownership” issues are also being increasingly discussed, since the data owners need to provide permission for data to be released. Most, if not all, of the data submitted to international and regional bodies is owned by the State or Contracting Party that submitted the data. Often this is provided on the condition of open-access, perhaps as an international obligation as is often seen for fisheries catch statistics. More detailed data is often owned by individual institutions, and may be brought to working groups in a pre-processed or summary format. Usually, this is sufficient and there are often processes in place to ensure that the information is correct.

The EBSA process can be used as one method of data sharing within and across regions. Examples of data use and data sharing protocols exist within many of the regional bodies involved with fisheries, and may provide examples for data sharing.

SESSION 2 - FISHERIES AND BIODIVERSITY

Presentation

Ms Merete Tandstad (FAO) presented a general overview of biodiversity conservation with a focus on DSF in ABNJ. It was explained that the mandate of fisheries management has been expanding over the past 10-20 years to include an ecosystem approach to fisheries (EAF) that places fish stocks within the wider ecosystem in which they occur. The EAF has developed along several lines, including through the UNGA (with UNCLOS, UN Fish Stock Agreement, UNICPOLOS), UNCED (with Earth Summit in 1992, WSSD in 2002, Rio+20 in 2012), and FAO (Cancún Declaration 1992, Code of Conduct for Responsible Fisheries 1995, Reykjavik Declaration 2001). EAF is considered important to address realised poor performances of current management practices, a general degradation of fishery resources and the marine environment, and recognition of a wide range of societal interests in marine ecosystems that need to be reconciled in a successful fisheries management program. An EAF strives to balance diverse societal objectives, by taking account the knowledge and uncertainties about biotic, abiotic and human components of ecosystems and their interactions and applying an integrated approach to fisheries within ecologically meaningful boundaries. None of the principles that underlie the EAF are new. They can all be traced in earlier instruments, agreements, or declarations. However, implementation of these principles lags behind their formulation in agreed international instruments. The EAF highlights and reorganizes the principles of sustainable development making their application more imperative. FAO has a suite of fisheries products starting with the 1995 FAO Code of Conduct for Responsible Fisheries and expanding to include the various International Plans of Action, and technical and international guidelines (<http://www.fao.org/fishery/code/about/en>). EAF comprises of three “pillars”: Ecological wellbeing (retained species, non-retained species, general ecosystem), Human wellbeing (community, national) and the ability to achieve (governance, external drivers).

The FAO International Guidelines on Deep-sea Fisheries in the High Seas (2008, DSF Guidelines) was developed to assist states and relevant regional bodies in managing DSF where the catch includes species that can only sustain low exploitation rates and fishing gear may contact the sea floor. It was developed specifically in response to UNGA Res. 61/105. The objective of the guidelines are to provide tools and guidance for the sustainable use of marine living resources, to prevention of significant adverse impacts on deep-sea VMEs, and hence to protect marine biodiversity that these benthic ecosystems contain. To assist RFMO/As and States in the further implementation of the DSF Guidelines, FAO is developing a project on the “Sustainable fisheries management and biodiversity conservation of deep-sea living marine resources and ecosystems in the Areas Beyond National Jurisdiction (ABNJ)” that is part of a larger programme dealing with fisheries more generally on the high seas. The project follows the EAF approach and has components on (1) Improved application of policy and legal frameworks; (2) Reducing adverse impacts on VMEs and EBSAs; (3) Improved planning and adaptive management for ABNJ deep-sea fisheries; and (4) Development and testing of a methodology for area-based planning. The project document is currently being drafted and activities are being discussed with partners and stakeholders.

Mr Tony Thompson (FAO) presented an overview of the main institutions and actors influencing the decisions made in DSF and biodiversity. This has changed substantially over the last 20 years. In the early 1990s, this was largely in the fisheries sector confined to the United Nations General Assembly (UNCLOS and mostly with resolutions against pelagic drift nets), six or so regional fisheries bodies (and the International Whaling Commission for the marine mammals), and the fishing industry. The situation is very different nowadays, with a wide range of stakeholders having diverse interests in fisheries and biodiversity in ABNJ areas. This started primarily with concerns originating in the Earth Summit conference in 1992 regarding destructive fishing practices. This led to increasingly stronger UNGA Resolutions for regional fisheries management bodies and states to prevent or at least monitor impacts from fisheries on various components of the ecosystem. Simultaneously, there was increasing interest for biodiversity conservation that grew mainly through the work of the CBD. Though there are some shared and common objectives in these two pathways, they are typically treated separately by the controlling organisations/departments. The former focuses on maintaining sustainable fisheries, and the latter focuses on conserving biodiversity. There has also been a large increase in NGOs interested in ABNJ issues that have a strong advocacy role and play an increasing role in decision-making processes in the more open fora that now occur in many of the UN and national processes. Associated with the increasing number of actively involved organisations are an increasing number of binding and non-binding instruments. UNCLOS (1982) and the FSA (1995) are the principal binding instruments, and these are implemented through regional bodies with fisheries management responsibilities by the adoption of measures by member states.

Discussion

Scope of scientific advice

The presentation showed that there are a large and seemingly increasing number of international and national organisations with interests in the high seas. Most of these institutions or organisations, for example the UNGA, FAO, CBD, Regional bodies with fisheries management responsibilities like SEAFO, NAFO, NEAFC, CCAMLR, SIOFA, etc., and other regional bodies like ICES and OSPAR, are guided by well-defined terms of reference usually in the form of internationally agreed and adopted Conventions or Agreements. Within the regional bodies with fisheries management responsibilities, the normal process is to base decisions upon the best available scientific advice, and this is done by “requests for advice” being made by the decision making (management) committee to the scientific committee or some other appointed scientific body. For the process to be open and transparent, the scientific bodies usually comprise of nationally selected representatives that meet under an umbrella organisation, for example, ICES or the SEAFO Scientific Committee. Typically, requests are recurrent and scientific bodies have routine sampling and assessment programmes in place to address these requests. Stock assessment advice falls into this category. However, information in new areas of importance, like EBSAs and VMEs, require information that is not readily available. These processes both started around 2005-2006, and it is only in the last few years that the benefits of these initiatives are being realised. Within each individual stakeholder group, for example the CBD and the EBSA process, or the Regional Fisheries Bodies and the VME process, it has been relatively easy to gain a degree of internal consistency through the use of common guidelines (mainly COP IX/20 for the EBSA process, and UNGA Res. 61/105 and the DSF Guidelines for the VME process), information exchange and the peer review process. However, in a cross-sectoral sense, it has been more difficult and there has been little interaction between these two processes. This is partly due to some important differences, but nevertheless, both processes can benefit from exchange of information and ideas. Within the northeast Atlantic, ICES operates over many sectoral interests, including NEAFC and OSPAR, and can provide more coordinated advice to the different sectoral bodies. Similar requests to ICES can be combined and joint advice can be more balanced. CCAMLR in the Antarctic, with its broader remit, can offer more coordinated advice, as it operates in a more cross-sectoral environment with conservation being a primary focus. Organizations, e.g. SEAFO and NAFO, that have integral scientific bodies, and provide their advice relative to the primary objectives of these organisations, which is the management of sustainable fisheries (that increasingly includes biodiversity conservation).

The issue is not as to the quality of the advice, as there are review processes in place in all the systems, but more as to the scope of the advice. Independent advisory bodies have a greater freedom, and often a wider range of expertise to draw upon, to cast their advice in terms applicable to a range of stakeholders. This is particularly the case for ICES. This may offer advantages when cross-sectoral spatial planning is considered.

SESSION 3 VMES IN THE CONTEXT OF FISHERIES MANAGEMENT IN THE DEEP SEAS

Presentation

Mr Anthony Thompson gave a brief presentation on the wider objectives of fisheries management and how the protection of VMEs fits into the overall scheme. A question being addressed by regional bodies with a remit to manage fisheries sustainably in ABNJ is:

How can we harvest fish to provide food, economic and social benefits, whilst safeguarding the biodiversity and reducing impacts on the ecosystem and environment, including on fish stocks?

The South East Atlantic Fisheries Organisation (SEAFO), owing to the location of this meeting, in Swakopmund, Namibia, was used as an example to place VME measures in context with other measures. SEAFO was established in line with the provisions of the United Nations Law of the Sea (Article 118) and United Nations Fish Stocks Agreement (UNFSA). The objective of the SEAFO Convention (The Convention on the Conservation and Management of Fisheries Resources in the South East Atlantic Ocean) is to ensure the long-term conservation and sustainable use of the fishery resources in the Convention Area through the effective implementation of the Convention. The Convention Area excludes exclusive economic zones of the coastal states in the region. In 2007, SEAFO prohibited all fishing activities in ten areas that contain or are likely to contain Vulnerable Deep Water Habitats and Ecosystems. This was reviewed in 2010 and the status of some of these seamounts changed following improved information and some were re-opened to fishing whereas other areas were designated and fishing prohibited. Since 2011, SEAFO currently has 11 areas where all fishing is prohibited to protect deepwater habitats and ecosystems.

However, SEAFO has many other conservation responsibilities. The most traditional is the assessment of target fish stocks and the setting of TACs as part of the management regulations for these fisheries. In 2013, SEAFO has TACs for Patagonian toothfish (230 tonnes), orange roughy (100 tonnes), alfonsinos (200 tonnes), deep-sea red crab (400 tonnes), Southern boarfish which is yet to be set. Since SEAFO operates under an EAF, there are many other measures to safeguard other components of the ecosystem. These currently include measures for sharks, VME closures, deep-water sharks, sea turtles, seabirds, banning of gillnets, retrieval of lost gear, and bottom fishing activities. In addition, there are measures to assist in compliance, such as port state control and IUU vessel lists. This is a typical array of measures common to many RFMOs.

SESSION 4 - THE EBSA PROCESS IN SOUTH-EASTERN ATLANTIC

Presentation

Mr Piers Dunstan (CSIRO) gave a presentation on “Data compilation for the EBSA process: Regional data gaps and strengths”. This data compilation for the descriptions of EBSAs has involved contributions from many partners including those submitting descriptions of EBSAs and from many of the regional and global datasets. The seven agreed EBSA criteria were presented followed by details of the process used to include the described EBSAs for the SE Atlantic region in the report of the meeting held the preceding week. This was initiated by a workshop in Senegal to develop scientific capacity and familiarisation with the EBSA process and data sharing and networking. This led to submissions for the EBSA templates from regions that included potential areas that met the EBSA criteria. Various global and regional partners, including GOBI and OBIS, supported this information. This information was brought to the workshop held here last week “South-Eastern Atlantic Regional Workshop to Facilitate the Description of Ecologically or Biologically Significant Marine Areas (EBSAs)”. The proposed EBSAs were discussed in groups and in plenary and modifications and

clarifications were made to the submitted proposals. Those meeting the criteria were included in the report, with some need for post-workshop report editing. Examples of maps and plots of important features in the SE Atlantic were shown, including those that described how overlays can help define EBSAs.

Discussion

The EBSA process

A summary of the process used to describe EBSAs at the regional workshops is as follows. Initially, States or designated persons within States, submit information to the CBD on potential EBSA sites using defined terms of reference and a pro forma. Justifications are included against the criteria specified by CBD. These submissions are typically divided into general ocean areas appropriate to the region being examined. Each submission is discussed in detail first in groups and then in plenary. The EBSA submissions are assigned to one of four categories: (1) EBSA description accepted; (2) EBSA description accepted with amendments made during plenary; (3) EBSA description accepted but requiring amendments within a two-week period; (4) EBSA description not accepted because of insufficient information or not meeting the criteria.

Data and scale

It was noted that submissions for potential EBSAs had been provided in advance of the meeting along with supporting spatial data. It was generally felt that the success of the submissions was due to the clear purpose to which the information was to be used. The information was also provided at an appropriate spatial scale, and that this can vary according to the purpose of the information. It was noted that, with respect to fisheries, there has been a scale change following the advent of the VME process around 2006. Prior to this, fisheries data was collated for the purpose of stock assessments with the primary spatial unit being the area occupied by a particular stock. FAO has developed standard areas through the Coordinated Working Party on Fisheries Statistics, including subdivisions in many areas such as the Southeast Atlantic. Benthic information at a finer scale in fisheries management was lacking, though sometimes could be recreated from log-books or perhaps VMS information if available. The advent of VMEs resulted in the need for benthic information at a much finer scale than previously required. This has resulted in some information now being collected at much finer scales, whilst keeping the routine stock monitoring at its previous resolution focussing on stock boundaries.

Data sharing

It was noted that information from more detailed regional studies that is owned by individual organizations is often not available for open-access databases. Confidentiality agreements, that are becoming more common, can ensure that specialist partnerships among organisations or institutions ensure that summary information can be made available. This was the case in many of the EBSA applications.

SESSION 5 - PLENARY DISCUSSION

Transparency

The need for justifications and publically available supporting documentation is important in any open decision making process. However, it becomes more important as the decisions move from scientific exercises to the establishment of regulations that affect access rights. Stakeholder participation helps to make better-informed decisions and to increase transparency. Access to raw data is rarely made available but summary information is usually presented and often reviewed by competent bodies. These reviews should also form part of the documentation “paper trail”.

Capacity building

The importance of building capacity, both with-in and between organizations, and across countries, is necessary to obtain global and regional information. This needs to have a clear purpose and be supported by appropriate training programmes. The EBSA programme has given countries the purpose and opportunity to work together to collect and share information. The submission and review process that occurs at the regional EBSA workshops and at SBSTTA, with the associated documentation in the meeting reports and in the EBSA repository, supports this review process. The EBSA process also gives many countries a sense of ownership in a wider scheme, especially when EBSAs are described within EEZ areas. This is part of the reason as to why the EBSA process has been successfully globally.

Capacity building for sustainable fisheries is also very important and shares similarities with capacity building needed for EBSAs. However, one difference is that VMEs are only in ABNJ waters (though coastal states can and do apply similar measures within the EEZ areas of jurisdiction). Feelings of ownership are harder to appreciate in ABNJ areas when states are not involved in the fishery, either directly or indirectly. Here capacity building needs to also stimulate a greater sense of global responsibility for sustainable fisheries and biodiversity conservation. In addition, social and economic opportunities from the involvement in DSF need to be further expanded. The first contact point with DSF for many coastal states may be involvement in their regional fisheries body. Through this, capacity building opportunities will start to develop that can also be applied to some of the fisheries within EEZs.

CLOSING

The Chair thanked the speakers for their interesting presentations and the participants for their enthusiastic contributions to the discussions. The Chair felt that this was a very useful meeting and served to bring together experts involved in the EBSA and VME processes and this itself was a capacity building exercise. The report will help to increase understanding and reflect the importance of the two processes. It is hoped that participants found this meeting useful and will return to their organisations and countries to discuss these issues with their colleagues.

APPENDIX 1. AGENDA



Convention on
Biological Diversity

Joint discussion meeting on Vulnerable Marine Ecosystems (VMEs) and Ecologically or Biologically Significant Marine Areas (EBSAs)

on the occasion of the CBD South-eastern Regional Workshop on EBSAs and the Regional Workshop on Vulnerable Marine Ecosystems (VMEs) in the Southeast Atlantic Ocean

Alte Brucke

Swakopmund, Namibia – 13 April 2013

Agenda

9:00 – 10:00	<p>1. Introduction</p> <ul style="list-style-type: none"> - Meeting objectives and background on VMEs/EBSAs - <i>Plenary Discussion</i> <ul style="list-style-type: none"> o <i>Questions or clarifications</i> o <i>Sharing experiences in the VME or EBSA processes by selected participants</i> o <i>Has your country/organization been more involved in one or the other process and why? (e.g. the UNGA, CBD or FAO including the associated workshops or in regional processes)</i>
10:00 – 10:45	<p>2. Fisheries and Biodiversity (Guided Discussion)</p> <p>This will be a guided discussion mapping the relevant actors in each community.</p> <ul style="list-style-type: none"> - <i>Who is influencing the main decisions in fisheries?</i> <ul style="list-style-type: none"> o <i>What are the main processes, institutions, organizations or other stakeholders?</i> - <i>Who is influencing the main decisions in biodiversity conservation?</i> <ul style="list-style-type: none"> o <i>What are the main processes, institutions, organizations or other stakeholders?</i> - How can we enhance the collaboration between two groups?
10:45 – 11:15	Coffee break
11:15 – 11:45	<p>3. VMEs in the context of Fisheries management in the deep seas</p> <ul style="list-style-type: none"> - <i>General overview of biodiversity conservation in fisheries:</i> Looking at the protection of target and non-target species from a fisheries standpoint - <i>Discussion: How does fisheries management address biodiversity conservation off the coast of Western Africa</i> - <i>Who are the main Actors and what is being done by these groups? [Fishing, Closed areas (including VMEs and all others), Regional or national measures and resolutions protecting target and non-target species]</i>
11:45 – 12:15	<p>4. The EBSA process in South-eastern Atlantic</p> <ul style="list-style-type: none"> - <i>Data compilation for the EBSA process: regional data gaps and strengths</i> - <i>An overview of EBSA workshop discussions and outputs from the CBD Workshop (8 - 12 April)</i> <p>Discussion: <i>Share experiences prior to and during the EBSA workshop</i></p>

	<ul style="list-style-type: none"> ○ <i>How do you like to use the scientific information on EBSAs in your own countries/organizations?</i>
12:15-12:45	<p>5. Plenary discussion</p> <ul style="list-style-type: none"> - <i>How can knowledge and lessons learned from VME and EBSA processes be shared?</i> - <i>Potential use of scientific information on EBSAs by the fishing communities</i> - <i>Need for capacity-building and scientific collaboration</i>
12:45-13:00	Wrap up and close of meeting
13:00 - 14:30	Lunch

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This is the report of the FAO Regional Workshop on Vulnerable Marine Ecosystems (VMEs) in the Southeast Atlantic Ocean that took place in Swakopmund, Namibia, from 15 to 17 April 2013. The workshop was organized as part of the FAO Deep-sea Fisheries Programme to promote the use of the *International Guidelines for the Management of Deep-Sea Fisheries on the High Seas* that provides guidance to States and Regional Fisheries Management Organizations or Arrangements (RFMO/As) to ensure the long-term conservation and sustainable use of marine living resources in the deep seas. This includes preventing Significant Adverse Impacts (SAIs) on vulnerable marine ecosystems (VMEs).

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