



Review of the implementation of the provisions of UN GA resolution 61/105 related to the management of high seas bottom fisheries

Submission to the UN Division for Oceans Affairs and the Law of the Sea

Executive summary

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The United Nations General Assembly (UN GA), in resolution 61/105 adopted in December 2006, called on States and regional fisheries management organizations (RFMOs) to take measures to protect vulnerable marine ecosystems from the adverse impacts of bottom fisheries on the high seas and to ensure the long-term sustainability of deep-sea fish stocks. The measures agreed in the resolution included conducting impact assessments to determine whether significant adverse impacts to vulnerable marine ecosystems (VMEs) would occur, and closing areas of the high seas to bottom fishing where VMEs are known or likely to occur unless regulations were in place to prevent significant adverse impacts.

Since then a number of States and RFMOs have adopted framework agreements to implement the UN GA resolution. The UN GA set a deadline of December 31 2008 for the implementation of the measures outlined in the 2006 resolution after which States committed to prohibiting (not authorizing to proceed) high seas bottom fishing unless or until regulations were in place.

As of May 2009, some, but not all, high seas bottom fishing nations have produced impact assessments. However, even the most comprehensive are only partial and inconclusive at best. Some areas of the high seas have been closed to bottom fishing but many high seas areas where VMEs are likely to occur remain open to bottom fishing with few or no constraints. Moreover, there has been a general reluctance on the part of many States and RFMOs to close high seas areas where bottom fishing currently takes place to protect VMEs. A 'move-on' rule is often the only conservation regulation in place to protect VMEs in both existing and new or unexplored areas. This rule, however, is of limited value in protecting VMEs; in some cases, such as in the North Atlantic and the Northwest Pacific, the high threshold levels established as triggers for the move-on rule make it likely that this measure will provide little, if any, protection for VMEs.

Finally, most high seas bottom fisheries target, and take as bycatch, long lived, slow growing, low fecundity species which are highly vulnerable to overexploitation and depletion. The absence of sufficient information on the biological characteristics and status of most target and bycatch species impacted by high seas bottom fisheries renders it

difficult if not impossible to ensure the long-term sustainability of deep-sea fish stocks and species. Indeed, it is questionable whether large-scale industrial deep-sea fisheries on the high seas can be economically viable and sustainable, given the low levels of exploitation most deep-sea species can sustain.

This submission was prepared by Matthew Gianni, Political and Policy Advisor to the Deep Sea Conservation Coalition (DSCC) with help from colleagues of the member organizations of the DSCC. Mr. Gianni is solely responsible for the content and accuracy of the information contained in the submission.

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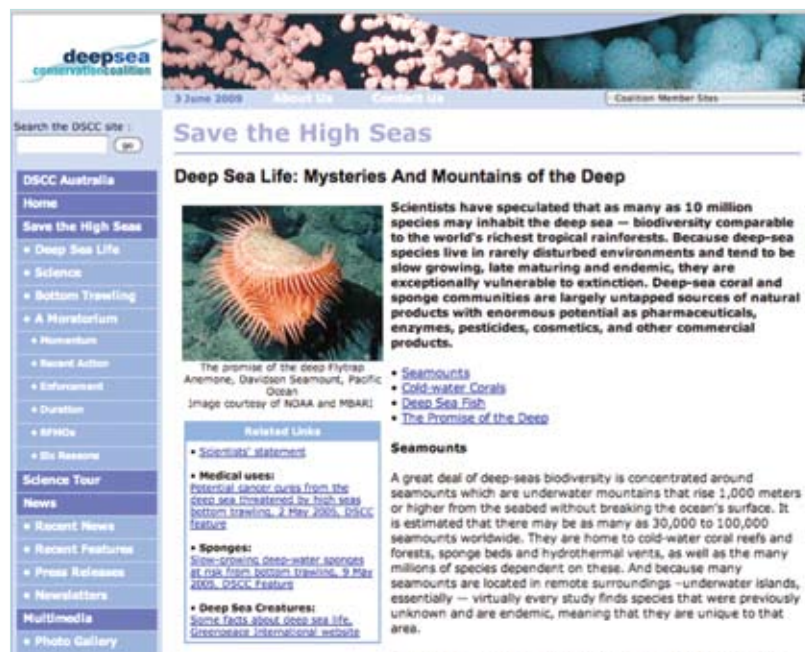
Introduction

The Deep Sea Conservation Coalition (DSCC) is a coalition of over 60 organizations worldwide promoting fisheries conservation and the protection of biodiversity on the high seas. The DSCC has been actively involved in the international debate and negotiations concerning the adverse impacts on deep-sea biodiversity in areas beyond national jurisdiction from bottom trawling and other methods of bottom fishing on the high seas since 2004.

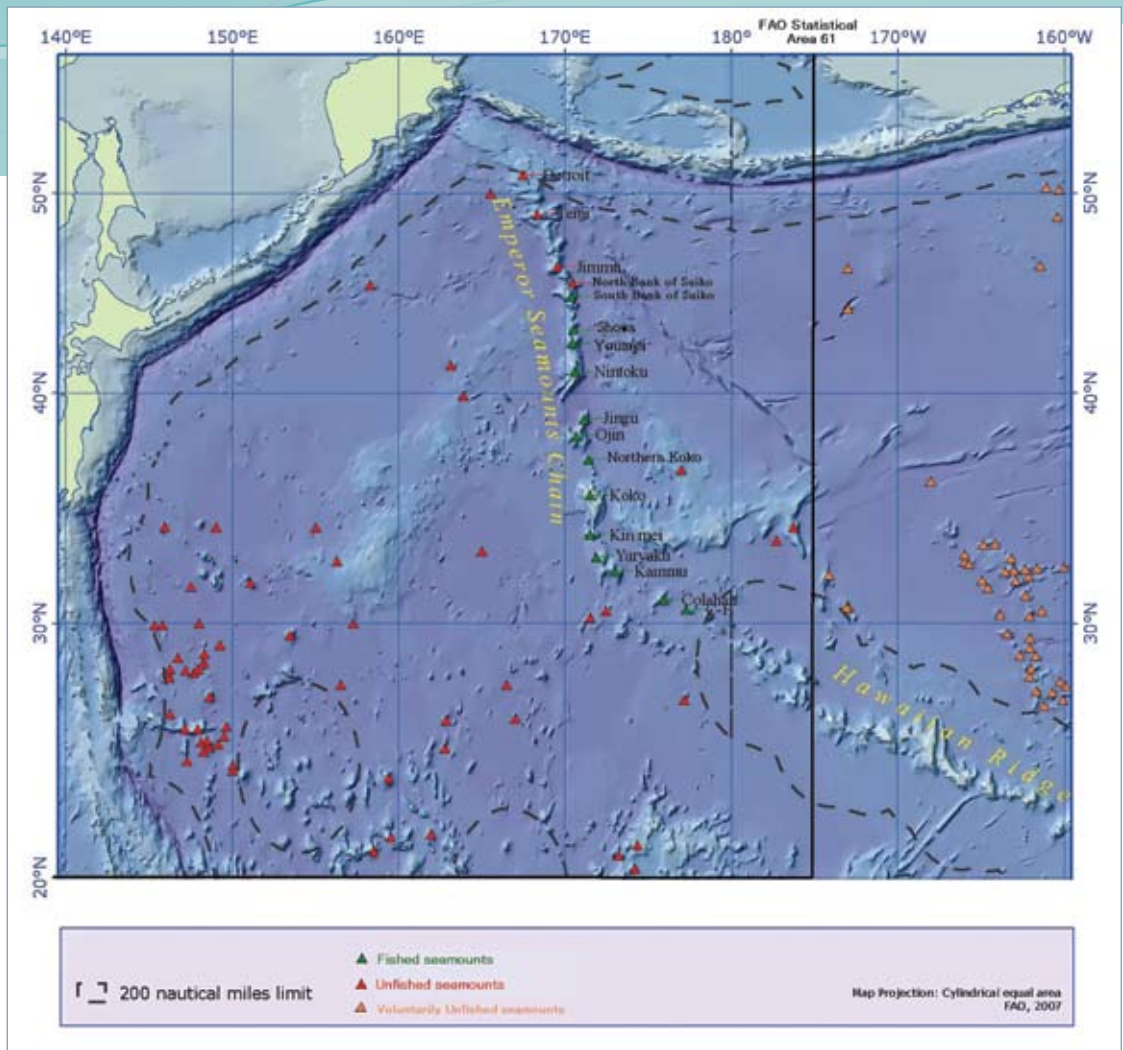
Since the adoption of UN GA resolution 61/105 in 2006, member organizations and advisors to the DSCC have been involved in a variety of regional and national efforts to implement the provisions of the resolution related to the management of high seas bottom fisheries to protect vulnerable marine ecosystems and ensure long-term sustainability of deep-sea fish stocks and species. Over the past two years, DSCC representatives have participated in meetings of North-East Atlantic Fisheries Commission (NEAFC), the Northwest Atlantic Fisheries Organization (NAFO), the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR), the North Pacific RFMO negotiations and the South Pacific RFMO negotiations, as well as consultative and legislative processes in a number of countries designed to implement regional agreements and the UN GA resolution at the national level. DSCC representatives

also participated in the development of the UN FAO International Guidelines for the Management of Deep-Sea Fisheries in the High Seas over the course of 2007-2008.

On the basis of this experience and a review of the publicly available information on the actions taken by States and RFMOs to date, the DSCC offers the following observations on the extent to which high seas bottom fishing nations and RFMOs have adopted and implemented resolution 61/105. Specifically, the DSCC review focuses on the actions taken by States and RFMOs to conduct impact assessments, identify areas where vulnerable marine ecosystems are known or likely to occur and establish measures to protect vulnerable marine ecosystems and ensure the long-term sustainability of deep-sea fish stocks.



Left: Deep Sea Conservation Coalition web page. For online version of report go to: www.savethehighseas.org/display.cfm?ID=196



Map source:
North Pacific Ocean
Fisheries Organization
website

1. THE NORTH PACIFIC OCEAN

Negotiations to establish a regional RFMO/A to regulate high seas bottom fisheries have been underway since 2006 but have not yet been completed. An interim Secretariat and science working group have been established and Interim Measures have been agreed for deep-sea bottom fisheries in the Northwest Pacific Ocean. No measures have yet been adopted or implemented for the regulation of high seas bottom fisheries in the Northeast and Central North Pacific Oceans. It is not clear how much high seas bottom fishing currently takes place in these areas, although there are anecdotal reports of limited high seas bottom fishing on seamounts in the Northeast Pacific and coral 'drag' fishing targeting precious corals in other areas.

1.1 Description of high seas bottom fisheries

Main high seas bottom fishing nations: Japan, the Republic of Korea, the Russian Federation and Belize. An estimated total of 18 vessels were reported engaged in high seas bottom fisheries in the Northwest Pacific in 2006.

Main high seas bottom fisheries: Bottom trawl fisheries targeting splendid alfonsin and North Pacific armourhead along the Emperor Seamount chain and the Northern Hawaiian Ridge in the Northwest Pacific Ocean. There are limited bottom gillnet, longline, trap and pot fisheries for deep-sea red crabs, oreos, deep-sea sharks, mirror dory, scorpionfishes, rockfishes, skilfish and other species in the Northwest Pacific.

Catch: approximately 8,000-20,000 tonnes per year over the past several years.

Vessels Authorized to fish in 2009: For 2009, Japan, the Republic of Korea and the Russian Federation have published a list of 43 vessels authorized to bottom fish on the high seas, including 29 bottom trawlers, 13 longliners, and 1 gillnet vessel. No information is available in regard to whether Belize, which reported five vessels pot fishing on the high seas in the Northwest Pacific in 2006, or any other State has authorized such fishing in the area.

1.2 Implementation of Measures related to paragraph 83a-d of UN GA 61/105 for the regulation of high seas bottom fisheries

Interim Measures to implement UN GA 61/105 were adopted by Japan, Republic of Korea, Russian

Federation and the United States in February 2007 and revised in October 2007, October 2008 and again in February 2009. The Interim Measures provide that bottom fisheries in the area where VMEs are known to occur or likely to occur, based on the best scientific information, will cease by 31 December 2008, unless conservation and management measures have been established to prevent significant adverse impacts on VMEs. A freeze of the footprint was initially agreed in 2007; this has now been lifted and replaced by an exploratory fisheries protocol for “new” bottom fisheries (those in previously unfished areas or using fishing gear not previously used in existing fishing areas) beginning in 2009.

1. Impact Assessments/Preventing Significant Adverse Impacts (SAIs) (83a):

Standards and criteria for conducting impact assessments have been agreed and incorporate the UN FAO Guidelines for the Management of Deep-Sea Fisheries in the High Seas. Japan, Russia, the Republic of Korea and the United States have submitted impact assessment reports of varying detail to the interim science working group. By far the most comprehensive assessment reports have been produced by Japan, the nation with the largest number of vessels currently engaged in high seas bottom fishing in the region, and the United States, which is concerned over the continued depletion of straddling seamount stocks within its zone as a result of overfishing on the high seas (the US does not conduct high seas bottom fishing and has closed adjacent seamounts within its zone to bottom trawling since 1986).

The Japanese impact assessment report concluded that the Emperor Seamount chain could form a unique ecosystem given its distance from other seamount and continental shelf areas. The report includes a review of ROV surveys conducted in 2006 and drop camera surveys in 2008 in a number of seamount areas along the Emperor Seamount Chain. The analysis of the surveys and other relevant information to determine whether VMEs were present and whether SAIs would occur was only conducted for four types of corals – Alcyonacea, Gorgonacea, Antipatharia and Scleractinia – although other VME indicator species are known to exist and have been observed on seamounts in the area.

Japan reports that the surveys found evidence of the presence of the four orders of corals “as individuals” in most areas surveyed but only found aggregations “which may constitute ecosystems” in two areas, both of which Japan concludes are areas inaccessible to bottom trawl vessels. However, the assessment states that there were a number of limitations and uncertainties in the data and surveys used to review potential bottom fishing impacts. These included spatially restricted underwater observations with ROV and drop cameras, difficulties in taxonomic identifications

based on camera or video shots, and absence in life history parameters and population structures of species that may constitute potential VMEs. The percentage or portion of the areas surveyed that will, or are likely to, be fished in 2009 is not clear. The US concludes that while the efforts to remotely visualize the seamount summit benthos from drop-camera photography and ROV video observations have been informative, they will require much more survey effort, particularly directed at prioritized sites. The US further states that the fishing industry should make available the locations of its ‘trawling corridors’ so that comparative surveys can be conducted between trawl pathways and adjacent relief areas (presumed refugia). These comparisons would allow a more objective evaluation of deepwater coral refugia (in terms of substrate characteristics) and the composition of species associated with such refugia.

The impact assessment report from Japan also concluded that much more needs to be done to determine whether significant adverse impacts will occur to VMEs as a result of continued high seas bottom fishing. The report concludes that it is difficult to assess the impacts of bottom fishing on fragility of ecosystems formed by corals due to lack of knowledge on structure and function of the ecosystems. Furthermore, no information is yet available on the spatial extent of potential impacts relative to the availability of habitat type affected, the ability of an ecosystem to recover from harm and rates of such recovery, the extent of which ecosystem functions may be altered by the impact of bottom fishing, and the timing and duration of the impacts relative to the period in which a species needs the habitat during one or more life-history stages. The US impact assessment report comes to similar conclusions.

Finally, Japan’s assessment report concluded that extensive bottom drag fishing for precious corals on the Emperor Seamount Chain in the past has probably resulted in significant reductions in the occurrence of the precious corals on seamounts in the region, but that there was no information on whether precious corals were ‘fished’ in areas currently of interest to bottom fishing vessels. However, Japan provided evidence that two vessels from Chinese Taipei/Taiwan have been recently bottom drag fishing for precious corals on seamounts in the North Pacific.

The Republic of Korea and the Russian Federation largely come to the same conclusions as Japan, largely based on information provided by Japan. With regard to the bottom gillnet, longline and pot fisheries, which target a range of species, the Russian Federation impact assessment concluded, in each case, that “Inadequate catch statistics for this fishery does not make it possible to accurately conduct stock assessment, evaluate the sustainability of the fishery, and assess SAI on VMEs”.

Japan proposes to introduce several measures for bottom trawl and gillnet fisheries, including: 100%

observer coverage on trawl vessels (“in principle”) and gillnet vessels beginning in April 2009; a “tentative” prohibition of trawl and gillnet fishing below 1500 metres (which is below the depth at which bottom fishing currently takes place); a move-on rule (discussed below); and to limit the number of trawlers to seven vessels. The Russian Federation will deploy 100% observer coverage on bottom trawl vessels and the Republic of Korea commits to deploy 100% observer coverage on all bottom trawl vessels by the end of 2009. In respect of areas where fishing currently takes place, Japan, Korea and the Russian Federation only propose to close one small area on one seamount to protect VMEs (discussed in the following section).

The impact assessment reports are publicly available on the website of the North Pacific Ocean Fisheries Organization.

2. Closures of areas where VMEs are known or likely to occur unless or until measures are adopted to prevent SAIs (83c):

VMEs are likely to occur, or to have occurred, on many of the seamounts on the high seas in the Northwest Pacific. Nonetheless, Japan, the Republic of Korea and the Russian Federation appear to have ‘tentatively’ agreed to close only a small area of one seamount, the Koko Seamount, where the coral *Corallium* spp. were found through bottom surveys. The Republic of Korea and Japan additionally agreed to close to bottom fishing the smaller and less important of two seamounts proposed for closure by the US to rebuild depleted populations of straddling stocks that occur both within and outside the US EEZ in the Northwest Pacific. Though this measure is primarily intended as a fishery conservation measure, it would also have the effect of temporarily protecting any VMEs from the impact of bottom fishing by Japanese and Korean vessels on this seamount (the Russian Federation apparently has not agreed to this measure). All told, in the area of the high seas of the Northwest Pacific where bottom fishing currently takes place, the three fishing nations propose to close only one of the areas (a small portion of one of the seamounts) identified through drop camera surveys and other methods as containing or likely to contain VMEs.

In regard to areas that are not currently of interest for bottom fishing, Japan has proposed a “tentative” prohibition of trawl and gillnet fishing below 1500 metres and a “tentative” prohibition of trawl and gillnet fishing above 45 degrees north latitude. The Republic of Korea suggests prohibiting bottom fishing in all areas not currently fished and proposes to “provisionally” prohibit bottom fishing north of 40 degrees north latitude. However, the closures

under consideration to date by the participants in the North Pacific negotiations, at this stage, are only proposals, tentative, and/or provisional in nature. Even if all three countries unilaterally prohibited their flagged vessels from fishing in the areas they have proposed to close, all but the one small portion of the Koko Seamount would remain open to bottom fishing (e.g. Japanese and Russian vessels would still be permitted to continue bottom fishing in the areas closed by the Republic of Korea).

3. Move-on rule/cease fishing in areas where VMEs are encountered (83d):

The Interim Measures for the bottom fisheries stipulate that vessels must cease fishing and move 5 nautical miles from the site of an encounter with a VME prior to resuming fishing. However, no agreement has been reached as to how the move-on rule should be applied. A ‘tentative’ threshold of 50kg of corals per tow or set observed in the fishing gear has been adopted by Japan as the limit that would trigger the move-on rule. Not only is this level quite high but Japan would only require that a vessel move 2 nautical miles from the site where the tow or set occurred, not five miles as agreed in the interim measures. Neither the Republic of Korea nor the Russian Federation have implemented a threshold level or trigger for the move-on rule.

4. Ensuring the long term sustainability of deep sea fish stocks (83b):

Target stocks/species: The status of splendid alfonsin and North Pacific armourhead, the two main target species in the bottom trawl fisheries, is not well known. There are no reliable biomass estimates of these two species. However, major declines in the catch per unit effort (CPUE) in the fisheries for both species – from approximately 50-60 tonnes/per hour of trawling at the respective peaks of the fisheries in the 1970s and 1980s to well less than 1 tonne/per hour of trawling over the past several years – suggests that both stocks/species have been heavily overexploited and depleted over the past 30-40 years of fishing. Both armourhead and alfonsin appear to be straddling stocks that form one population that extends into the US EEZ off Hawaii. The portions of the populations of these species that occur within the US EEZ have not recovered despite the closure of fisheries for these species on seamounts just inside the US zone since 1986.

Japan, the Republic of Korea and the Russian Federation have proposed reducing fishing mortality by approximately 20-25% on both stocks. The three countries assert that this will be achieved primarily through a seasonal closure of bottom fisheries in November and December but do not present evidence as to whether the seasonal closure will achieve the desired reduction in fishing mortality.

The US states that stocks of the main target species, armourhead and alfoncin, are at risk of significant adverse impacts given that 1) the tendency of these species to form schools, presumably even at low abundance; 2) the efficiency with which modern trawlers can electronically detect, then target and capture these schools; 3) the continued pursuit of this fishery after the crash of the historic fishery in 1977, despite low annual catches during most years; 4) the increasing trend in fishing effort of the Japan trawl fleet from 1,825 nominal trawling hours in 1990 to 10,107 nominal hours in 2007; 5) the notion that the next recruitment pulse of armourhead can be safely “fished up” at sustainable levels; and 6) the high trawl selectivity for juvenile stage alfoncin. In regard to target species in other bottom fisheries, the US states that insufficient information is available to detect trends in the fisheries.

The closures under consideration to date by the participants in the North Pacific negotiations are only tentative and/or provisional in nature. Even if all three countries unilaterally prohibited their vessels from fishing in the areas they have each proposed to close, the whole of the high seas of the Northwest Pacific would still remain open to bottom fishing by at least some vessels, with the exception of one small portion of one seamount in the area.

Bycatch stocks/species: Current estimates of the amount and status of most of the bycatch species impacted in the bottom fisheries is unknown. The impact assessments of the three countries indicated that some two dozen or more species or species groups are taken as bycatch in all bottom fisheries combined, apparently including both species of commercial value and those of non-commercial value. In an appendix to the impact assessment report provided by Japan relating to bycatch species, some 40-50 species or species groups were recorded caught in 56 tows by a trawl research vessel in 1993 in 5 seamount areas which are currently open to bottom fishing.

2. THE SOUTH PACIFIC OCEAN

Negotiations for a regional agreement to establish an RFMO to regulate high seas bottom fisheries (and other fisheries for non-highly migratory species) have been underway since 2006 but have not yet been completed. Interim Measures have been agreed for deep-sea bottom fisheries. An interim secretariat, science working group and data and information working group have been established.

2.1 Description of high seas bottom fisheries

Main high seas bottom fishing nations: Australia, New Zealand, Belize, Faroe Islands. An estimated 52 vessels engaged in bottom fisheries on the high seas in the South Pacific in 2006 (including vessels from Republic of Korea, Cook Islands, and the Ukraine, in addition to the countries indicated above).

Main high seas bottom fisheries: Bottom trawl fisheries for orange roughy, bottom longline and mid-water trawl for alfoncino, bottom longline fishery for bluenose warehou.

Catch: approximately 2,000-3,000 mt per year in recent years. The catch may have decreased somewhat in 2008 as a result of the price of fuel oil and restrictions imposed by New Zealand with respect to its flagged vessels.

Vessels authorized to fish in 2009: New Zealand has authorized 30 vessels to bottom fish on the high seas in 2008/2009 although between 2-4 of the vessels apparently do not employ gear that could be used for bottom fishing. This information is publicly available on the South Pacific RFMO website. However, only four of the thirty vessels were reported as having engaged in bottom fishing on the high seas in 2008. No other country has publicized a list of vessels authorized to bottom fish on the high seas in the South Pacific as far as the DSCC is aware although Australia is known to have authorized several vessels to bottom fish.

2.2 Implementation of Measures related to paragraph 83a-d of UN GA 61/105 for the regulation of high seas bottom fisheries

Interim Measures were adopted in May 2007 to implement UNGA 61/105 incorporating the provisions of paragraph 83 of the resolution. In addition, the Interim Measures included a requirement to establish 100% observer coverage on bottom trawl vessels, 10% coverage on bottom fishing vessels using other gear types, and to “freeze the footprint” of high seas bottom fisheries until 2010. The method established to delineate the area of the footprint however allowed for 20 minute longitude by 20 minute latitude grid blocks of ocean space surrounding any area where any trawling had occurred between 2002 and 2006 (including even a single trawl tow) to be included in the ‘footprint’. According to New Zealand, the result has been an “exponentially increasing exaggeration

of the mapped footprint in comparison with actual seabed impact area of individual trawl tracks". This has meant that large areas of the seabed of the South Pacific that are not likely to have been previously impacted by bottom trawl fishing have been incorporated into country footprints. The footprint of New Zealand's high seas bottom trawl fishery includes 218 such blocks, each approximately 800-1,200 square kilometers in size, depending on the latitude. Chile has also stated that it has a bottom trawl footprint for 2002-2006 but has yet to indicate whether any vessels have been authorized to fish.

1. Impact assessments/Preventing SAIs (83a):

New Zealand has submitted a "Benthic Impact Assessment" report to the South Pacific RFMO Science Working Group. The report contains a quite comprehensive and detailed review of the information available on the potential impact of bottom fishing on VMEs on the high seas and the regulations New Zealand has established. However, it is not an impact assessment per se as measured against the criteria for impact assessments in the UN FAO Guidelines. No other country has submitted an impact assessment report to the South Pacific RFMO negotiating process.

New Zealand's Benthic Impact Assessment is publicly available on the South Pacific RFMO website as is a Draft Benthic Assessment Standard currently under development for the high seas bottom fisheries in the SPRFMO area. No other country has submitted an impact assessment.

New Zealand has closed approximately 40% of the area within its trawl footprint. For those areas that remain open, a move-on rule has been established in 'moderately' fished areas and no restrictions are in place in the heavily fished areas. While New Zealand has delineated its bottom longline footprint it has yet to apply any specific measures to this fishery. It is not clear whether other flag States have delineated their footprints and/or allow bottom fishing on the high seas of the South Pacific in the areas that New Zealand has closed to bottom trawling, since no other country has submitted an impact assessment. No specific measures have been established to

prevent SAIs in any of the bottom fisheries with the exception of a move-on in a portion of the area within the New Zealand footprint that remains open to bottom trawl fishing.

2. Closures of areas where VMEs are known or likely to occur unless or until measures are adopted to prevent SAIs (83c):

As indicated previously, New Zealand has closed a substantial portion of its footprint, including areas where VMEs are known or likely to occur, through closing all previously "lightly trawled" areas within its footprint and approximately 15% of moderately and heavily trawled areas within its footprint. The net result is that approximately 40% of the area within the New Zealand footprint is closed to bottom trawl fishing by New Zealand flagged vessels. However, as indicated earlier, the 60% of the footprint that remains open is likely to include many areas that have not been previously fished. In fact, bottom trawl fishing has occurred within the trawl footprint on at least one previously undiscovered and unfished seamount since 2007.

No systematic identification of areas where VMEs are known or likely to occur within the footprint has taken place although VMEs are believed likely to occur in most high seas areas of the South Pacific where bottom fishing occurs (e.g. seamounts, rises, ridge systems). No formal implementation of this provision has occurred although the freezing of the footprint has resulted in the temporary closure to bottom fishing of many areas of the high seas in the South Pacific where VMEs are likely known or likely to occur, including the seamount and ridge system areas in the high seas of Southeast Pacific off the coasts of Chile, Peru and Ecuador. However, the freeze on fishing areas within notified footprints is set to expire in 2010, effectively allowing bottom fishing to take place in any high seas area in the South Pacific.

New Zealand's Benthic Impact Assessment is publicly available on the South Pacific RFMO website as is a Draft Benthic Assessment Standard currently under development for the high seas bottom fisheries in the SPRFMO area. No other country has submitted an impact assessment.

3. Move-on rule/cease fishing in areas where VMEs are encountered (83d):

A move-on rule has been adopted by New Zealand, the only country to notify the SPRFMO negotiating process of a move-on rule. However, the rule is only applicable to bottom fishing in one-half (the 'moderately' fished areas within its existing footprint) of the high seas areas where New Zealand vessels are currently permitted to bottom trawl fish. Bottom fishing in the 'heavily fished' blocks of the New Zealand footprint is not covered by

the rule. Furthermore, according to the Benthic Impact Assessment submitted by New Zealand to the SPRFMO negotiating process, the move-on rule only appears to require that a vessel move 5 nautical miles from the site of the encounter “for the remainder of that fishing trip”. It would appear that a vessel could return to bottom fish in the same area on a subsequent trip and other vessels could also bottom fish in the same area.

The threshold levels New Zealand has established for triggering the move-on rule are 1-30 kg of corals, depending on the species, and 50kg of sponges. These levels are high, but substantially lower than those agreed by NAFO, NEAFC, SEAFO and the North Pacific fishing nations. Nonetheless, they are somewhat arbitrary and, like elsewhere, the threshold levels do not correspond to a quantifiable or measurable amount of damage to VME indicator species on the seabed nor do they allow for a determination of SAIs. According to the New Zealand Benthic Impact Assessment, “[a]though catch weights [of VME indicator species] may appear small, trawl selectivity for many taxa is poor, so small individuals are not retained and large individuals are broken and not well retained. Comparisons of video with sled and trawl tows demonstrate the low selectivity and the small weights typically encountered. . . Few datasets exist to investigate the relationship between what benthic invertebrates are actually on the bottom and what comes up in a trawl.” In reviewing the information from an area where such data sets do exist, New Zealand states that corals appeared in the net in only one of nine trawls on a seamount area known to contain high concentrations of corals “highlighting the poor ability of these trawls to retain benthic materials, assuming the same areas were fished.”

4. Ensuring the long term sustainability of deep sea fish stocks (83b):

No special measures have been established to ensure the long-term sustainability of target or bycatch fish stocks and species. The status of high seas stocks of the primary target species in the bottom trawl fishery, orange roughy, is either unknown or considered depleted (e.g. the South Tasman Rise population – a fishery now closed). There are no reliable estimates of the stock size, biomass, or fishing mortality of bluenose warehou – the primary target species in the bottom longline fishery. Over 100 species have been recorded as caught in the New Zealand and Australian high seas bottom fisheries in the South Pacific. However, neither the amount of bycatch of non commercial species nor the status of most, if not all, bycatch species is known.

3. THE INDIAN OCEAN

A regional agreement, the South Indian Ocean Fishery Agreement, to establish an RFMO to regulate high seas bottom fisheries has been negotiated, but has not yet entered into force. No interim measures have been established for high seas bottom fisheries in the region.

3.1 Description of high seas bottom fisheries

Main high seas bottom fishing nations: Australia, Cook Islands, Mauritius, Namibia, and China. An estimated 20-22 vessels were engaged in high seas bottom fisheries in the Indian Ocean in 2006.

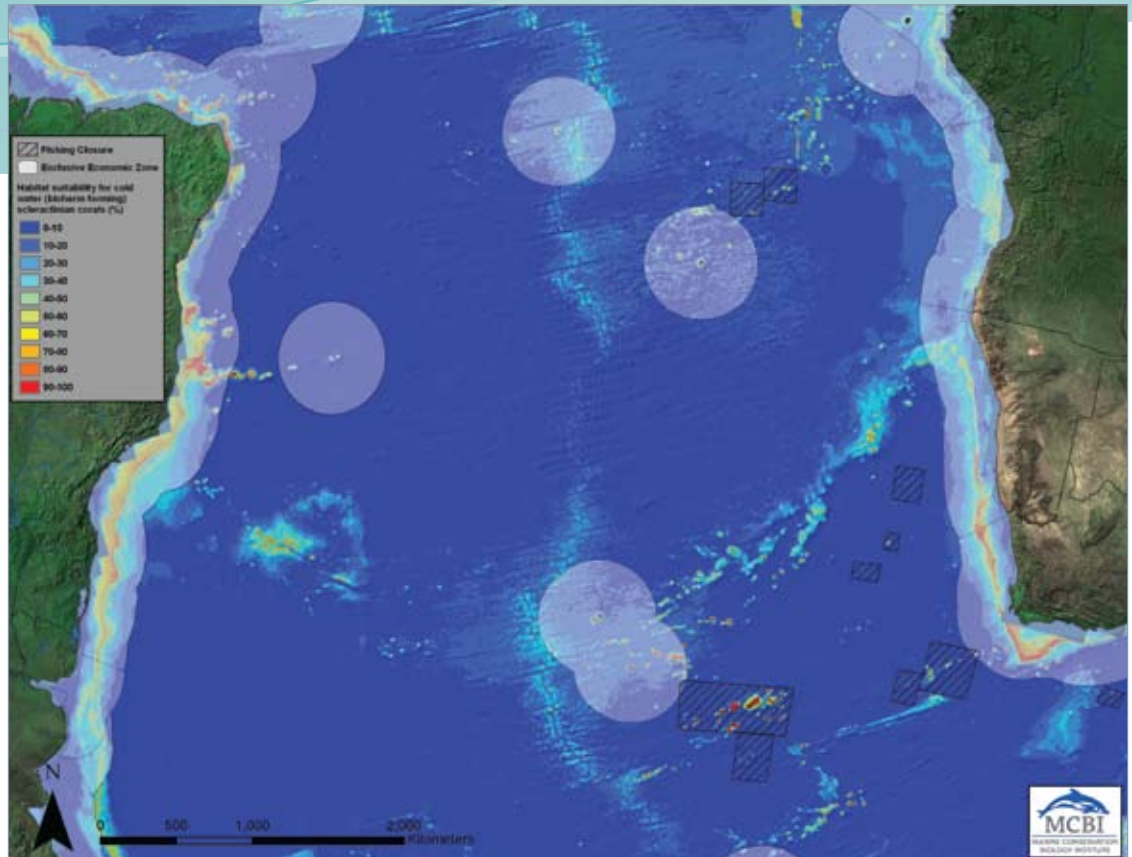
Main high seas bottom fisheries: Bottom trawl fishery for orange roughy and deepwater mid-water trawl fisheries for alfonso. Bottom longline fishery for deepwater longtail and snapper.

Catch: approximately 5000-6000 mt in 2006 (only China has reported catch).

Vessels authorized to fish in 2009: No country has publicized a list of vessels authorized to bottom fish on the high seas of the Indian Ocean as far as the DSCC is aware.

3.2 Implementation of Measures related to paragraph 83a-d of UN GA 61/105 for the regulation of high seas bottom fisheries

No multilateral regulations or interim measures have been established for high seas bottom fisheries in the region. With the exception of the Chinese longline fishery, the high seas bottom fishery catch is unreported. Vulnerable marine ecosystems such as cold-water corals associated with seamounts and ridge systems are likely to occur throughout the high seas areas of the Southern Indian Ocean, where most of the deep-sea bottom fishing currently occurs. Orange roughy, the main target species in the deep-sea trawl fisheries, is highly vulnerable to overexploitation. Several companies operating deep-sea trawlers have voluntarily agreed to refrain from fishing in 11 deep-sea areas though the proportion of closed to open areas it is not clear, nor whether there are VMEs in the areas where the vessels operate. None of the provisions of paragraph 83 of UN GA 61/105 to protect VMEs from significant adverse impacts or ensure the long-term sustainability of deep-sea fish stocks have been adopted or implemented by flag States for the high seas bottom fisheries in the region as of 31 December 2008 as far as the DSCC is aware. The deadline for implementation of UN GA 61/105 in the Indian Ocean region was 31 December 2007.



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4. THE SOUTH ATLANTIC OCEAN

4.1 SOUTHEAST ATLANTIC

The regulation of bottom fisheries on the high seas of the Southeast Atlantic is governed by the South-East Atlantic Fisheries Organisation (SEAFO).

4.1.1 Description of high seas bottom fisheries

Main high seas bottom fishing nations: Namibia, Spain, Japan, Cook Islands, South Korea (others?).

Estimated number of vessels in 2006: 7 vessels.

Main high seas bottom fisheries: Bottom trawl fisheries for orange roughy and other deep-sea species. Bottom longline fisheries for toothfish and pot fisheries for deep-sea red crabs.

Catch: Approximately several hundred tons per year in recent years, primarily orange roughy and alfonsino in bottom trawl fishery; Patagonian toothfish in bottom longline fishery; deep-sea red crabs in bottom pot fishery.

Vessels authorized to fish in 2009: SEAFO has publicized a list of 44 vessels currently authorized to bottom fish on the high seas in the SEAFO area which includes the following: Spain – 32 bottom trawl and 4 longline vessels; Portugal – 6 longline and 1 gillnet vessel; Namibia – 1 longline/pot fishing vessel.

4.2.2. Implementation of Measures related to paragraph 83a-d of UN GA 61/105 for the regulation of high seas bottom fisheries:

A framework regulation for the management of high seas bottom fisheries in the SEAFO Area consistent with UN GA 61-105 has not yet been adopted.

1. Impact assessments/Preventing SAIs (83a):

No impact assessments have been conducted for any of the high seas bottom fisheries in the region though these are required as a precondition for resumption of fishing in areas currently closed to bottom fishing (see below).

No specific measures have been established to prevent SAIs in any of the bottom fisheries (though some areas have been temporarily closed to bottom fishing as noted below) other than a move-on rule. The Scientific Committee of SEAFO in 2007 did recommend a temporary prohibition on bottom trawling and bottom gillnet fishing in the SEAFO area; however this recommendation has not yet been adopted by SEAFO. Spain has recently conducted an independent benthic research survey of some portion of the SEAFO area but it is not clear whether this survey has identified where VMEs are known or likely to occur.

2. Closures of areas where VMEs are known or likely to occur unless or until measures are adopted to prevent SAIs (83c):

Ten of thirteen seamount areas where VMEs (e.g. corals) are known to occur or likely to occur have been temporarily closed to bottom fishing until 2010. These areas encompass a large portion of the high seas areas where bottom trawl fishing has previously taken place in the SEAFO area. These areas will only be reopened on condition that VMEs have been identified and mapped in the areas and an assessment has been made on the impact of any resumption of fishing on such VMEs. However, a systematic identification of areas where VMEs are known or likely to occur in the remainder of the SEAFO area has not yet taken place.

3. Move-on rule/cease fishing in areas where VMEs are encountered (83d):

A move-on rule has been implemented but will only be triggered in the event that a bycatch/threshold level of 100kg of "live" coral or 1,000kg of sponges or more per tow or set of the gear is observed.

4. Ensuring the long term sustainability of deep sea fish stocks (83b):

The status of the exploitation of the deep-sea stocks is unknown and the Scientific Committee of SEAFO has consistently stated indicated that it has not been possible to give specific management advice for any of the species harvested in the SEAFO Area because of a lack of sufficient data for stock assessments. However, the Committee has indicated that the stocks of deep-sea red crabs are not likely to be depleted. SEAFO has established quotas for the deep-sea fisheries for orange roughy, alfonsino, toothfish and red crabs and has banned directed fisheries for deep-sea sharks.

4.2 SOUTHWEST ATLANTIC

No RFMO nor any interim measures have been established to regulate the high seas bottom fisheries of the Southwest Atlantic nor are there any negotiations underway to establish an RFMO in the region.

4.2.1 Description of high seas bottom fisheries

Main high seas bottom fishing nations: Spain, Estonia, Republic of Korea, (others?). Estimated number of vessels from the above countries engaged in bottom fishing in 2006: 55 vessels. UN FAO catch statistics suggest that other countries may also be involved in bottom fishing on the high seas in the area.

Main high seas bottom fisheries: Bottom trawl fisheries for hake and squid along portions of the Patagonian shelf and upper slope extending into international waters. Longline fishery for Patagonian toothfish.

Catch: Estimated catch in 2006 was 111,000 tonnes
Vessels authorized to fish in 2009: No country has publicized a list of vessels authorized to bottom fish on the high seas in the SEAFO area as far as the DSCC is aware.

4.2.2 Progress on the implementation of Measures related to paragraph 83a-d of UN GA 61/105 for the regulation of high seas bottom fisheries

A framework regulation for the management of high seas bottom fisheries in the Southwest Atlantic conducted by vessels flagged to EU Member States has been adopted by the European Union in July 2008 to implement UN GA 61/105. It is not clear whether any other flag States whose vessels engage in high seas bottom fisheries in the region have adopted similar measures.

1. Impact assessments/Preventing SAIs (83a):

No impact assessments have yet been conducted or publicized for any of the high seas bottom fisheries in the region though these are required of EU vessels as a precondition for fishing in the area in 2009. Spain has conducted a benthic survey and mapped the topographical features of the area of the Patagonian shelf and slope in the high seas areas where Spanish bottom trawl vessels operate but it is not clear whether the results of the survey provide indications of the known or likely locations of VMEs. No specific measures to prevent SAIs have yet been publicized by the EU for any of the high seas bottom fisheries though these are required by the EU regulation. No other country has established measures or publicized the information as far as the DSCC is aware.

2. Closures of areas where VMEs are known or likely to occur unless or until measures are adopted to prevent SAIs (83c):

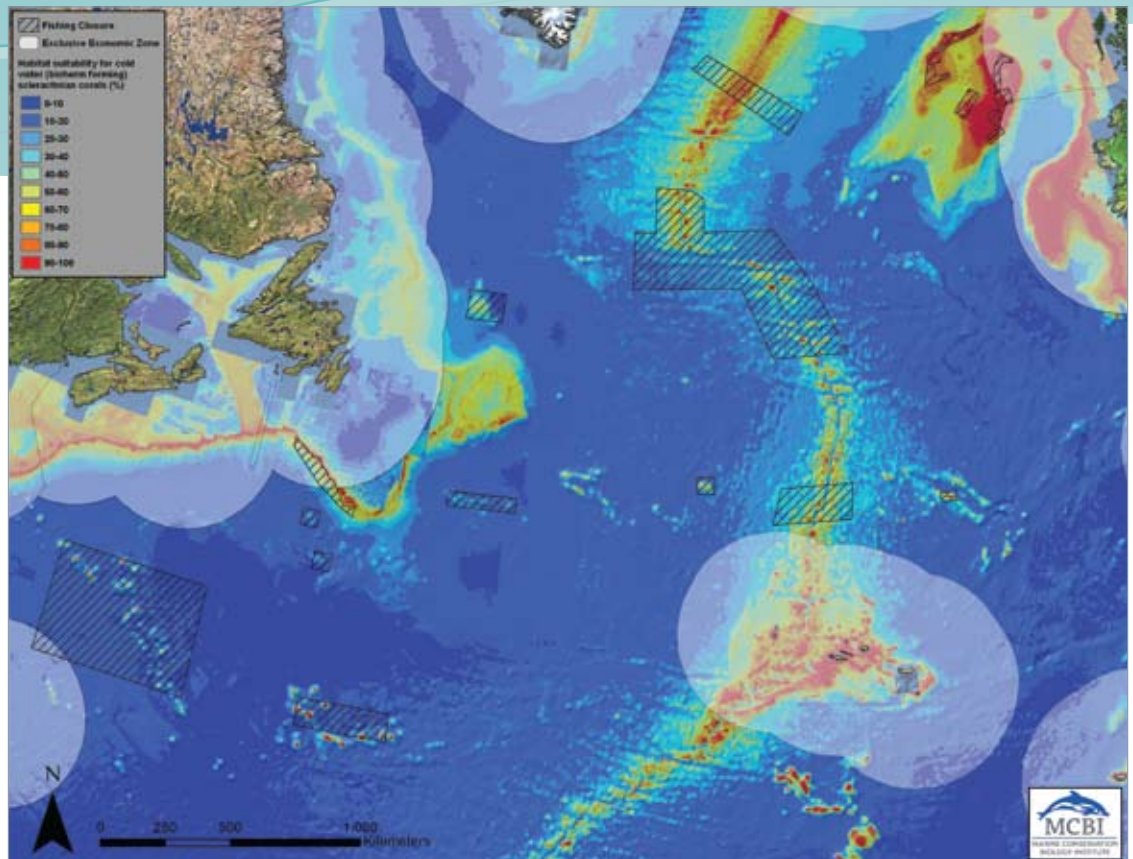
As indicated, an extensive topographical survey of the high seas areas where bottom fishing by EU fleets takes place has been conducted. No flag State has closed any areas where VMEs are known or likely to occur as far as the DSCC is aware.

3. Move-on rule/cease fishing in areas where VMEs are encountered (83d):

A move-on rule is required in the EU regulation but has yet to be developed and implemented as far as the DSCC is aware.

4. Ensuring the long term sustainability of deep sea fish stocks (83b):

The high seas bottom fisheries in the region are not subject to quotas or other catch restrictions as far as the DSCC is aware. The status of bycatch species is unknown.



DAVIES AND GUINOTTE, IN PREP.

5. THE NORTH ATLANTIC OCEAN

5.1 NORTHWEST ATLANTIC

The regulation of bottom fisheries on the high seas of the Northwest Atlantic is governed by the Northwest Atlantic Fisheries Organization (NAFO).

5.1.1 Description of high seas bottom fisheries

Main high seas bottom fishing nations: EU (Spain, Portugal, Estonia, Latvia, Lithuania, Poland), Russian Federation, Iceland, Norway, Faroe Islands, Canada. Estimated number of high seas bottom fishing vessels in 2006: 67

Main high seas bottom fisheries: Bottom trawl fisheries for redfish, Greenland halibut, yellowtail flounder, skates, white hake and shrimp/northern prawn.

Catch: Reported high seas bottom catch in 2006 approximately 56,000 tonnes

Vessels authorized to fish in 2009: no information is publicly available as far as the DSCC is aware

5.1.2 Implementation of Measures related to paragraph 83a-d of UN GA 61/105 for the regulation of high seas bottom fisheries

A framework regulation for the management of high seas bottom fisheries in the NAFO Regulatory Area was adopted at an Extraordinary Meeting of NAFO

in May 2008 to implement UN A 61/105. A number of meetings of the NAFO Ecosystem Working Group, the Science Council and the Ad Hoc Joint Scientists and Managers Committee were held between May 2008 and early 2009 to identify areas of VMEs and make recommendations for area closures and management measures to the Annual Meetings of NAFO in 2008 and 2009.

1. Impact assessments/Preventing SAIs (83a):

No impact assessments have been conducted by any flag State for any of the high seas bottom fisheries in the region though these are required in 2009. A number of areas have been closed to bottom fishing as noted below. In areas that remain open to bottom fishing, no specific measures have been established to prevent SAIs other than a move-on rule.

2. Closures of areas where VMEs are known or likely to occur unless or until measures are adopted to prevent SAIs (83c):

In 2006, NAFO closed 4 seamount areas to bottom trawling although leaving 20% of each area open to fishing on the basis of a voluntary data collection protocol. Some fishing appears to have occurred in one of the closed seamount areas subsequent to the closure. In 2007, NAFO closed an area of the continental slope along the southern Grand Banks to bottom trawling to protect deep sea corals (area 8 on the map below). The depth restriction was set at 1000m, despite scientific advice that the highest concentration of corals in this area was between 400-800m. In 2008, two additional seamount areas were

closed to bottom fishing. All closures are currently temporary.

In addition, the Science Council was requested to identify, on the basis of best available scientific information, vulnerable marine ecosystems in the NAFO Regulatory Area and map sites where these vulnerable marine ecosystem are known to occur or likely to occur and provide such data and information to NAFO Contracting Parties. The Science Council, in 2008, identified seven high seas areas along the slope of the Grand Banks and Flemish Cap, the areas of the high seas where most bottom fishing occurs in the NW Atlantic, where VMEs are known to occur based on a request from the Fisheries Commission. These are areas 1,2,3,5,6,7, and 8 in the map below.

The Scientific Council based its findings on observations of coral bycatch in Spanish and Canadian research trawl surveys in recent years (through 2007). Amongst the findings in one or more of the areas were large gorgonians and high density of sponges; high density of pennatulaceans, alcyonaceans and antipatharians and, to a lesser extent, solitary scleractinians and small gorgonians; large gorgonians and large survey catches (> 1000 kg/haul) of sponges; abundant gorgonian corals and large survey catches (> 1000 kg/haul) of sponges.

As indicated previously, NAFO had already

agreed to close area 8 in 2007. However, the Annual Meeting of NAFO in 2008 did not agree to close any of the other areas indicated by the Science Council. Rather, NAFO concluded that "based on preliminary information presented related to catch of corals by commercial vessels in areas currently fished, there appears to be little interaction between species of corals and fishing activity in the regulatory Area". NAFO requested the Science Council to further review the information on the known or likely locations of VMEs and, in the meantime agreed to maintain all of these areas open in 2009 to continued bottom fishing with no constraints to protect VMEs other than the move-on rule (described below).

3. Move-on rule/cease fishing in areas where VMEs are encountered (83d):

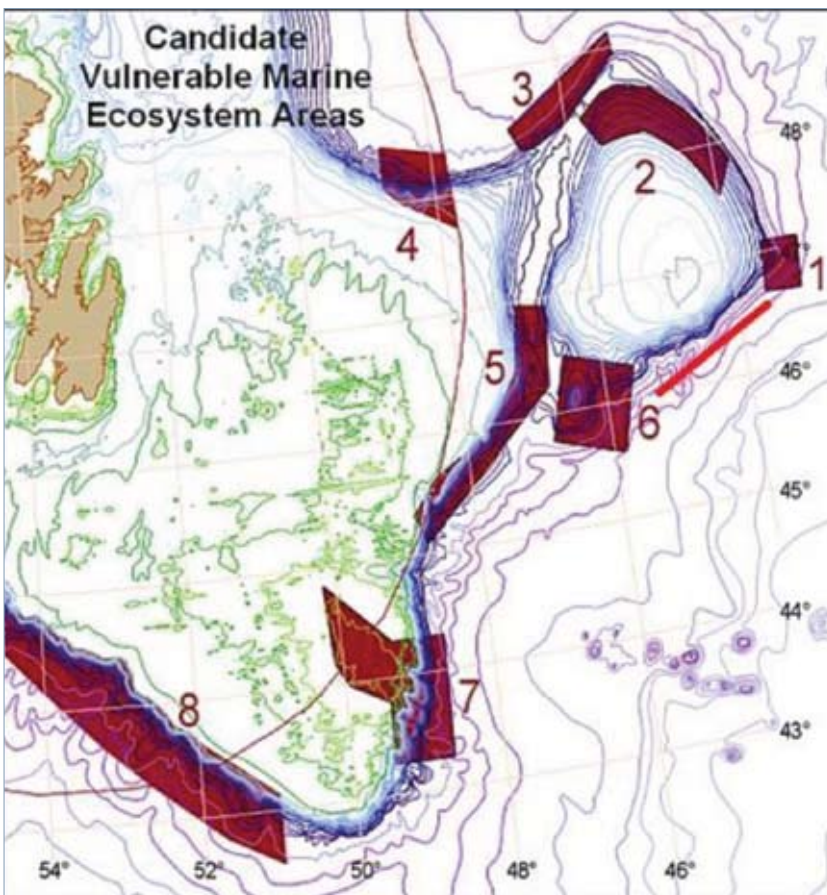
A VME encounter protocol was agreed in 2008 which triggers a move-on rule only if 100kg of 'live' corals or 1,000kg of sponges are brought up in the fishing gear (trawl, longline, gillnet or pot). The move-on rule requires a vessel to cease fishing within an area of 2 nautical miles surrounding the end point of a tow or the point during the tow/set at which the skipper of the vessel believes that the VME was encountered. Within 'historically fished' areas, the vessel must report the encounter and the Science Council will subsequently review the information. In the meantime, any other vessel can continue to fish in the area. In 'new areas' – that is previously unfished areas, the area where the encounter occurs is closed to all vessels, pending a review by the Science Council.

However, the NAFO Scientific Council stated that this threshold "is too high to offer protection to deepwater coral species". For the purpose of attempting to map areas where VMEs occur, the Scientific Council chose a threshold level of 0.2kg-2kg of coral (depending on the species of coral) in research trawl surveys as a more realistic indicator of the presence of VMEs. This is approximately 1/100th of the threshold level in the move-on regulation adopted by NAFO Contracting Parties. The Scientific Council will review, in 2009, the information available on the existence and locations of sponge species in the NEAFC area and may review the threshold level for sponges as well.

4. Ensuring the long term sustainability of deep sea fish stocks (83b):

Quotas and/or effort restrictions are in place for the main species targeted in high seas bottom fisheries – Greenland halibut, redfish, northern prawn and skates. Other deep-sea species, such as grenadiers, are not subject to quotas. Most deep-sea species taken in the high seas bottom fisheries in the NAFO area are considered overexploited, with the exception of northern prawns and redfish. The Greenland halibut fishery is currently managed under a fifteen year rebuilding program, initiated in 2004. Nonetheless, 5 years into the plan, the biomass of this species is estimated to be at its lowest point. A paper published in the journal Nature in January 2006 concluded that the two main species

Map source: NAFO



of grenadiers of commercial value (roundnose and roughhead grenadiers) taken in the bottom trawl fishery on the high seas were critically endangered based on the IUCN Red List criteria. The catch of grenadiers is unregulated.

5.2 NORTHEAST ATLANTIC

The regulation of bottom fisheries on the high seas of the Northeast Atlantic is governed by the North-East Atlantic Fisheries Commission (NEAFC).

5.2.1 Description of high seas bottom fisheries

Main high seas bottom fishing nations: EU, Russian Federation, Norway, Faroe Islands.

Main high seas bottom fisheries: Bottom fisheries for roundnose grenadier, smoothheads, blue ling, ling, Greenland halibut, black scabbardfish, congers, and deep-sea sharks. (Some bottom fishing for cod, haddock and redfish also occurs as well). Bottom fisheries are predominantly bottom trawl fisheries with some bottom longline fishing also taking place.

Catch: Reports/estimates of the high seas catch of deep-sea species have ranged from 25,000 tonnes to 90,000 tonnes over the previous several years (the bottom catch of cod, haddock and redfish are not included in NEAFC estimates/reports of the catch of deep-sea species).

Vessels authorized to fish in 2009: The DSCC is not aware of a published list of vessels authorized to bottom fish on the high seas in the NEAFC Regulatory Area.

5.2.2 Progress in the implementation of Measures related to paragraph 83a-d of UN GA 61/105 for the regulation of high seas bottom fisheries:

A framework regulation for the management of high seas bottom fisheries in the NEAFC Regulatory Area to implement UN GA 61/105 was adopted at an Extraordinary Meeting of NEAFC in July 2008.

1. Impact assessments/Preventing SAIs (83a):

No impact assessments have been conducted for any of the high seas bottom fisheries in the region. Impact Assessments will be required of Contracting parties in 2009. In the meantime, NEAFC Contracting Parties, at the 2008 Annual Meeting of NEAFC, declared that on the basis of a preliminary assessment "current bottom fisheries practices in the NEAFC Regulatory Area do not have significant adverse impacts on VMEs."

This was in spite of the information and advice from several sources. Norway submitted a proposal to NEAFC in 2008 which indicated that VME related species are likely to occur on hills throughout the

Mid Atlantic Ridge. The International Council for the Exploration of the Sea (ICES), the intergovernmental advisory body for fisheries and related environmental issues in the Northeast Atlantic, advised NEAFC that there was insufficient scientific information on the known or likely locations of VMEs and the precise locations of high seas bottom fishing to determine whether bottom fishing activities would or would not have significant adverse impacts on VMEs. ICES also stated that concentrations of cold-water corals were known to exist in at least one area along the Hatton Bank (outside of the current closed areas) where high seas bottom trawl fishing currently takes place and that the area should be closed to bottom fishing. In spite of this advice, NEAFC did not agree to close this area at its Annual Meeting in 2008 nor in a special meeting held in March 2009 at which the EU proposed closing this area.

Several areas along the Hatton and Rockall Banks where corals are known to occur based on Spanish research trawl surveys have been temporarily closed to bottom fishing. In addition, a section of the mid-Atlantic Ridge and adjacent seamount areas were temporarily closed in 2004 and these area closures were expanded in 2009, albeit with an important caveat that may serve to undermine the closures.

In addition, NEAFC has implemented a prohibition on bottom gillnet fishing below 200 meters. This has been an important step in addressing the depletion of deep-sea fish stocks. However, in regard to the relative impacts of various types of bottom fishing gears, ICES provided the following advice in 2008 in response to a request from NEAFC on identification of vulnerable marine ecosystems:

"The primary methods of fishing within the NEAFC area include bottom trawling by otter trawl, pelagic trawling, pelagic fishing by seine net, longlining, gillnetting, tanglenetting, and the use of traps... Any gear that has bottom contact has the potential to damage vulnerable deep-water habitats. The degree of impact depends on the type of gear, the degree of contact with the seabed and the frequency of contact. Thus, even bottom gear with a low potential for damage per deployment can potentially cause significant impact if used intensively. Of the types of fishing listed above, the greatest instantaneous physical impact on sensitive habitats is likely to be caused by towed otter trawls..."

– that is, bottom trawl fishing.

For those areas that remain open to bottom fishing, the only measure implemented thus far to prevent SAIs is a move-on rule as noted below.

2. Closures of areas where VMEs are known or likely to occur unless or until measures are adopted to prevent SAIs (83c):

As noted above, over the past few years, several high seas areas along the Hatton and Rockall Banks

where VMEs (corals) are known to occur have been temporarily closed to bottom fishing, based on at-sea research surveys conducted primarily by the Spanish Oceanographic Institute and analysis and advice from ICES. In addition, in 2004, four seamount areas and a section of the Mid Atlantic Ridge where VMEs are likely to occur were also closed temporarily to bottom fishing. These latter closures were set to expire on 31 March 2009. A meeting of "Heads of Delegation" of NEAFC Contracting Parties took place 24-27 March 2009 to discuss extending the current closures and proposals from Norway and the EU for new closures to bottom fisheries in the NEAFC Regulatory Area.

In 2008, Norway submitted a proposal for additional closures of areas to bottom fishing along the Mid Atlantic Ridge (MAR), based, to a large extent, on information obtained by the MarEco expedition. The Norwegian proposal stated, in part, that "The existence of fragile benthic macrofauna (corals, sponges etc.) on the MAR has been documented in several studies (Mortensen et al. 2008 and references therein), and it is a fair assumption that most hard-bottom areas of the hills and slopes have or are likely to have such fauna albeit in varying density.... In summary, there is a high likelihood that most upper slope areas and the associated range of species have to some extent been affected by past fisheries, and that fragile invertebrate communities occur on many hills."

There is a high likelihood that most upper slope areas along the Mid-Atlantic Ridge and the associated range of species have to some extent been affected by past fisheries, and that fragile invertebrate communities occur on many hills.

Similarly WWF, in a submission to the NEAFC Permanent Committee on Management and Science in 2008, also reviewed the best scientific information available and concluded that VMEs are likely to be found throughout the high seas areas of the Northeast Atlantic at fishable depths. WWF recommended prohibiting the use of all bottom contacting fishing gear in areas where vulnerable benthic species and habitats are likely to occur, such as on the flanks of seamounts and ridges, until it can be shown that the activities do not pose a threat.

The Norwegian proposal further stated that the "aims of the closures [proposed by Norway] are to protect and/or facilitate restoration of resources and associated invertebrate communities, and to protect, as called for by UNGA and further defined by FAO, representative vulnerable ecosystems against future

potentially significant adverse impacts from present and future fisheries activity." In a memo to the Heads of Delegation in advance of the meeting in March 2009, the DSCC and WWF pointed out that UN GA resolution 61/105, in paragraph 83c, calls for closing areas where VMEs are known or likely to occur unless or until significant adverse impacts on VMEs can be prevented. It does not call for only closing "representative" areas of VMEs.

At the March 2009 meeting of the Heads of Delegation of NEAFC, the EC proposed closing most of the Mid Atlantic Ridge (MAR) in the high seas of the Northeast Atlantic to bottom fishing. The EC proposal included the closed areas proposed by Norway as well as the closure of additional areas currently under consideration for designation as MPAs by the OSPAR Commission. The EC also proposed the closure of an area on Hatton Bank to protect corals based on a recommendation from ICES. This is highly significant given the fact that EC fleets are responsible for most of the bottom fishing in the NEAFC Regulatory Area.

In this regard, the DSCC and WWF recommended that NEAFC Contracting Parties agree to establish permanent closures of areas merging the proposal by Norway with the existing closure on the Reykjanes Ridge agreed by NEAFC in 2004 and with the candidate MPA sites under consideration by the OSPAR Commission (Convention for the Protection of the Marine Environment of the North-East Atlantic); and to close the whole of the remainder of the MAR at least temporarily to bottom fishing with the proviso that portions of the MAR and adjacent seamounts could be reopened to one or more types of bottom fishing provided that prior impact assessments were conducted and a determination made that a) there are no VMEs in the particular area or b) one or more types of bottom fishing could occur in the area without significant adverse impacts to VMEs.

In April 2009, NEAFC agreed to close only the areas along the Mid Atlantic Ridge as had been originally proposed by Norway plus one of the areas under consideration by OSPAR (as proposed by the EU). In addition, the recommendation by ICES, put forward by the EU, for an additional closure on Hatton Bank to protect known concentrations of corals was rejected.

Nonetheless, a substantial portion of the Mid Atlantic Ridge and adjacent seamount areas covering approximately 360,000 square kilometers has been closed, albeit with an important caveat that may significantly undermine the closure. The agreement to close these areas contains a clause which stipulates that these areas would remain open to 'scientific' or 'research' fishing. Apparently there is no protocol in the agreement governing the conduct of such research fishing, only a requirement that NEAFC Contracting Parties (CPs) that wish to engage in such fishing in the closed areas are required to notify the other CPs of their intention to do so. This is potentially a major loophole which may have the practical effect of allowing the "closed"

areas to remain open to continued bottom fishing.

The EC, in a press statement just after the HODs meeting, expressed disappointment that NEAFC did not adopt the measures proposed by the EU Contracting Parties but that the EU decided ultimately to support the Norwegian proposal for the closure of a smaller number of areas “in order to make at least some progress in the right direction.” Joe Borg, EU Commissioner for Maritime Affairs and Fisheries stated that “The proposed NEAFC measures can only be a first step and need to be extended urgently if NEAFC is to respond to the expectations of the international community and protect vulnerable marine ecosystems in the Atlantic effectively”, The Commission has stated that the EU will continue to work with the other NEAFC Parties during 2009 “in order to ensure that the organisation gives a more positive and effective response to the UNGA Resolution.”

Most deep-sea species exploited in the bottom fisheries on the high seas of the Northeast Atlantic are considered overexploited or depleted (outside “safe biological limits”) or their status is unknown.

Finally, while extensive surveys have been conducted on the Hatton and Rockall Banks and, to a lesser extent, along the Mid-Atlantic Ridge, no systematic surveys have taken place to identify areas where VMEs occur in the high seas areas of the Northeast Atlantic. In response to a request in 2005 from NEAFC and OSPAR in 2005, ICES provided the following advice in relation to closed area proposals at the time: “There are no data available to estimate the percentage of vulnerable deep-water habitats in the NEAFC Regulatory Area that are covered by the closed area proposals. A complete wide-area habitat mapping survey would be required to make this assessment.” However, as indicated above, more than sufficient information on the likely occurrence of VMEs to provide a basis for precautionary action.

3. Move-on rule/cease fishing in areas where VMEs are encountered (83d):

A VME encounter protocol was agreed in 2008 which triggers a move-on rule only when 100kg of ‘live’ corals or 1,000kg of sponges are brought up in the fishing gear (trawl, longline, gillnet or pot). The move-on rule requires a vessel to cease fishing within an

area of 2 nautical miles surrounding the end point of a tow or the point during the tow/set at which the skipper of the vessel believes that the VME was encountered. Within ‘historically fished’ areas, the vessel must report the encounter and the Science Council will subsequently review the information. In the meantime, any other vessel can continue to fish in the area. In ‘new areas’ – that is previously unfished areas, the area where the encounter occurs is closed to all vessels, pending a review by NEAFC.

This rule is virtually identical to the NAFO move-on rule. However, the March 2009 meeting of NEAFC heads of Delegation agreed that the threshold levels are too high and should be reduced though no agreement was reached on the extent of the reduction.

4. Ensuring the long term sustainability of deep sea fish stocks (83b):

Most deep-sea species exploited in the bottom fisheries on the high seas of the Northeast Atlantic are considered overexploited or depleted (outside “safe biological limits”) or their status is unknown. The two main species of deep-sea sharks targeted or caught as bycatch in the deep-sea fisheries on the high seas of the Northeast Atlantic – the leafscale gulper shark and the Portuguese dogfish – are listed as endangered on the IUCN Red List. A third species, the gulper shark, is listed as critically endangered in the Northeast Atlantic.

Some seventy species have been recorded in the catch of bottom trawl fisheries targeting roundnose grenadier, blue ling and black scabbardfish – amongst the main target species in the mixed species bottom trawl fisheries. Insufficient information is available to determine the impact on most bycatch species affected by bottom fisheries. A study published in early 2009 concluded that deep-sea fisheries in the Northeast Atlantic off the coast of Ireland are depleting communities of deep-sea fish stocks/populations as deep as 2500 meters – well below the lowest depths of approximately 1600 meters at which bottom fishing actually takes place. The same is likely to occur in the high seas bottom fisheries.

A review of the management of deep-sea fish stocks in the Northeast Atlantic by the European Commission in 2007 concluded, among other things, that “Many deep-sea stocks have such low productivity that sustainable levels of exploitation are probably too low to support an economically viable fishery. It must therefore be recognised that current levels of exploitation on those stocks must inevitably be reduced, either by choice in order to conserve the stocks or else because the stocks become fished to depletion. Moreover, stock recovery times are so long that the reductions in exploitation must be regarded as permanent, not as a means to rebuild

6. THE SOUTHERN OCEAN

The regulation of bottom fishing south of the Antarctic Convergence is managed by CCAMLR: The Convention for the Conservation of Antarctic Marine Living Resources.

6.1 Description of high seas bottom fisheries

Main high seas bottom fishing nations: Australia, Chile, Japan, Republic of Korea, New Zealand, Russia, South Africa, Spain, United Kingdom, Uruguay. Australia, France, South Africa and the UK license vessels to bottom fish in declared fishing zones and EEZs within the CCAMLR area.

Main high seas bottom fisheries: Bottom longline fishery for toothfish (Patagonian and Antarctic toothfish).

Catch: About 4,500 mt of toothfish is caught annually on the high seas while another 10,000 mt is caught within EEZs in the CCAMLR areas. (This figure does not include the estimated IUU catch per year of some 4,000 mt).

Vessels Authorized to fish in 2009: CCAMLR has published a list of a total of 46 vessels authorized by 12 countries to fish in the CCAMLR area. Many, though not all, are authorized to fish on the high seas; of those that are, the majority are licensed to bottom fish for Patagonian and Antarctic toothfish.

6.2 Implementation of Measures related to paragraph 83a-d of UN GA 61/105 for the regulation of high seas bottom fisheries:

Prior to the adoption of UNGA Resolution 61/105 in 2006, CCAMLR already had an interim prohibition on commercial bottom trawl fishing in high seas areas of the Convention Area (initially for the 2006/07 and 2007/08 seasons with a permanent measure adopted in 2008), had banned the use of gillnet fishing in the Area, and tasked the Scientific Committee to review the criteria for determining significant harm to benthos and benthic communities. Since 2006, CCAMLR has adopted additional measures (Conservation Measures 22-05 and 22-06) consistent with the UN GA resolution.

1. Impact assessments/Preventing SAIs (83a):

All Contracting Parties proposing to participate in bottom fishing in 2009 were required to submit information on their fishing plans, a preliminary assessment of the known and anticipated impacts of bottom fishing activities on vulnerable marine ecosystems, including benthos and benthic communities, and mitigation measures to prevent impacts, no less than three months in advance of the October-November 2008 annual meeting of CCAMLR. However, only Australia, New Zealand, Spain, Japan and the United Kingdom submitted interim assessments. At the 2008 Annual Meeting,

stocks to allow higher exploitation rates in the longer term". The Commission also concluded that very little is known of the ecosystem impacts of deep-sea fisheries beyond the physical impact of bottom fishing gear on deep-sea habitats.

In 2004, NEAFC established a cap on fishing effort (no more than the highest level in previous years) for deep-sea species in the NEAFC Regulatory Area—the first ever measure to regulate fisheries for deep-sea species on the high seas of the North Atlantic. In 2006, NEAFC Contracting Parties agreed to further reduce fishing effort by 35% in fisheries for deep-sea species. In spite of this regulation however, the reported catch of deep-sea species in high seas bottom fisheries in the NEAFC area has risen from approximately 25,000 tonnes in 2004 to approximately 90,000 tonnes in 2007. European Union fleets are responsible for 95% of the catch of deep-sea species on the high seas in the NEAFC area.

The European Union proposed a ban on the fishery for orange roughy in the NEAFC Regulatory Area at the Annual Meeting in 2008, consistent with the advice from ICES to prohibit fishing for this species in the NE Atlantic. The proposal went to a vote at NEAFC – the EU and Norway voted for the prohibition; Denmark on behalf of the Faroe Islands and Russia voted against it; Iceland abstained. In addition, the European Union has adopted a regulation to phase out the directed fisheries for deep-sea sharks by 2010. However, a bycatch of deep-sea sharks will almost certainly continue to occur given the mixed species nature of the bottom trawl and bottom longline fisheries in the Northeast Atlantic.

5.3 CENTRAL NORTH ATLANTIC

No RFMO has been established to regulate bottom fishing on the high seas of the Central Atlantic. There are no reports of high seas bottom fishing occurring in this Area although CECAF expressed concern over the possibility of bottom trawl fisheries on seamounts on the high seas of the CECAF area.

Table source: NEAFC

High seas catch of deep-sea species in the NEAFC Regulatory Area 2004-2007 (Tonnes)					
Country	2004	2005	2006	2007	Total 2004-2007
EC	25157	69883	51346	90554	236940
Faroe Islands	642	756	253	202	1853
Greenland	0	0	1913	2391	4304
Iceland	0	0	0	0	0
Norway	648	620	963	933	3164
Russia	56	2188	148	366	2758
Total	26503	73447	54623	94446	249019
EC share of total 2004-2007	95%	95%	94%	96%	95%

CCAMLR adopted a measure that prohibits fishing in 2010 by any country that does not submit an impact assessment in 2009. The Scientific Committee has been requested to determine if such activities would contribute to having significant adverse impacts on vulnerable marine ecosystems. Based on advice from the Scientific Committee, the Commission would then determine whether to allow, prohibit or restrict bottom fishing activities within particular areas, apply specific mitigation measures for bottom fishing activities, allow, prohibit or restrict bottom fishing with certain gear types, and /or determine any other relevant requirements or restrictions to prevent significant adverse impact to vulnerable marine ecosystems.

The impact assessments submitted by the five flag States in 2008 vary considerably in quality and detail. Several of the flag States concerned indicate that fisheries independent information, including benthic surveys of areas to be fished and underwater video footage of the interaction between fishing gear and benthic ecosystems, would be of benefit and should be included in future research and impact assessments. However, none of the impact assessments appear to contain such information. New Zealand, in reviewing available information to date concludes that “there have been no direct studies on the impacts of autoline longlines on VMEs”. Australia concludes that the impact of bottom longline fishing on all VME indicator species reviewed in the assessment is “unknown” and “[l]ikely to cause damage and possible mortality on contact.”

Although all of the impact assessments state that some amount of VME indicator species, including various species of corals and sponges, are regularly observed in the fishing gear, they all appear to conclude that the bottom longline fisheries will not have significant adverse impacts on VMEs. This conclusion appears based primarily on the quantity, volume and/or weight of VME related species observed brought up from the bottom in the gear of commercial longline fishing vessels during one or more previous seasons (CCAMLR requires 100% observer coverage on all vessels authorized to fish for toothfish) and the observation that bottom longline fishing physically impacts much less of the ocean bottom than bottom trawl fishing.

2. Closures of areas where VMEs are known or likely to occur unless or until measures are adopted to prevent SAIs (83c):

The Scientific Committee has been requested to identify areas where VMEs are known or likely to occur. No areas have yet been closed as a result of this process although 7-8 areas have been closed over the past few months as a result of the move-

on rule (see below). Australia has identified one area which the Scientific Committee agreed met the definition of a VME.

3. Move-on rule/cease fishing in areas where VMEs are encountered (83d):

A move on rule has been agreed by CCAMLR for bottom longline fishing that requires the closure of a one nautical mile area surrounding an area where either 10 litres of VME species that fit in a container (e.g. sponges) per 1000 hooks/1200 metres, or one kilogram of VME species (e.g. corals) per 1000 hooks/1200 metres, are observed on the longline gear. According to the CCAMLR Secretariat, 7-8 areas, primarily in the Ross Sea, have been closed as of March 2009 as a result of the move-on rule.

4. Ensuring the long term sustainability of deep sea fish stocks (83b):

CCAMLR has established conservation and management measures, including quotas, for fisheries Patagonian and Antarctic toothfish – the main target species in the bottom longline fisheries in the CCAMLR region. Nonetheless, Patagonian toothfish stocks are considered to be fully exploited to overexploited, in part due the prevalence of IUU fishing in the Southern Ocean. (FAO 2006)

7. EUROPEAN UNION

The European Union has the largest fleet and highest catch of any high seas bottom fishing entity. EU fleets are responsible for approximately one-half or more of the total high seas bottom catch in recent years. Thus implementation of UN GA resolution 61/105 by the European Union will be critical to the success of international efforts to protect deep-sea ecosystems.

During the course of the UN General Assembly negotiations of resolution 61/105 in 2006, major policy initiatives were announced by the European Community based on extensive consultations between the Commission and Member States. Amongst these were the following:

“The European Union will again be calling for an effective package of measures to tackle the impact of destructive fishing practices on the high seas at the UN General Assembly debate on sustainable fisheries.... The Member States of the EU have given their unanimous support to the position that will be advanced by the European Commission on their behalf. Based on the conviction that Regional Fisheries Management Organisations (RFMOs) are key to the effective governance of high seas fisheries, the Commission will propose a radical overhaul to the regulatory approach by both RFMOs and States. Today, any activity that is not regulated is implicitly permitted. In the future, fishing with bottom gears that may have adverse impacts on vulnerable ecosystems would need to be assessed before it is authorised. This far-reaching change in the way in which fishing activities with potential destructive effects are regulated represents a decisive step forward in ensuring both better fisheries governance and effective environmental protection. The position which the Commission will advance this week in New York was unanimously approved during a coordination meeting held with Member States in Brussels on 9 November.”

“The EU is also calling for the reversal of the burden of proof in establishing in which areas of the high seas bottom fishing may continue to be carried out. That is, rather than assuming that bottom fishing within the existing footprint is harmless to deep sea ecosystems unless it can be demonstrated otherwise, flag states and RFMOs will require clear evidence of the nonharmful nature of fishing activities for the vessels concerned to retain their licences.”

(Statement by the European Commission, 17 November 2006)

“The protection of the marine environment, and in particular vulnerable marine ecosystems, is a common responsibility. The European Union is committed to taking expeditious action, in conjunction with its partners, in following up on what has been agreed by the General Assembly.”

(Statement by the European Union to the UN General Assembly, December 2006)

Subsequent to the adoption of the UN GA resolution 61/105, the European Commission announced a series of policy initiatives to implement the resolution, including the following:

“The requirement of an environmental impact assessment as a condition for the authorisation of individual fishing activities is the first and indeed the lynchpin of the set of recommendations issued by the General Assembly. This represents a radically innovative principle in fisheries management. In contrast with other resource exploitation activities carried out in the oceans and seas, where it is established practice to require prior impact assessments (e.g. installing offshore oil or gas platforms), the effects of fishing on marine habitats are generally assessed only after the fact, if at all.”

(Communication from the Commission, 17 October 2007)

“It is important to underline that RFMO members can choose to apply stricter rules to their vessels and operators if they so wish. The EU should aim at ensuring that RFMO measures attain a high degree of protection and effectiveness in preventing destructive fishing impacts.

However, the EU must reserve itself the right to adopt stricter rules for itself if it considers that the RFMO measures do not go far enough in this respect.”

(Communication from the Commission, 17 October 2007)

The DSCC wishes to highlight these policy initiatives and the urgent need for their implementation by the European Union, given the extent of high seas bottom fishing activities by EU Member State's fleets and the role of the EU in numerous RFMOs and negotiating processes. In particular, in the North Atlantic, where EU fleets are responsible for some 80% of the bottom fishing on the high seas, EU implementation of the above policies and measures consistent with UN GA 61/105 is essential. Where RFMOs (e.g. NEAFC or NAFO) have failed to adopt sufficient measures to implement the UN GA resolution, the stated commitment of the EC to take unilateral action would result in significant protection of vulnerable marine ecosystems.

8. CONCLUSION

According to a report published in 2009 by the UN FAO, the global catch in high seas bottom fisheries in 2006 was estimated to be some 250,000 tonnes, representing 0.3% of the marine catch worldwide. The value of the high seas bottom catch in 2006 was estimated at approximately \$450 million US dollars.

Some 285 vessels flagged to 27 countries were estimated to be engaged in high seas bottom fisheries in 2006, though many of the vessels only engaged part-time in bottom fishing on the high seas. Of this number, 80% were flagged to only ten States: Spain, Republic of Korea, New Zealand, Russian Federation, Australia, Japan, France, Portugal, Belize and Estonia. Over one-third were flagged to EU countries and the EU fleet took half or more of the high seas bottom catch. The majority of the vessels engage in high seas bottom trawling. The conclusions of the UN FAO report were similar to the findings of a study published by IUCN in 2004.

Since the adoption of resolution 61/105 by the UN General Assembly in 2006, framework agreements to implement paragraph 83 of the resolution have been adopted by NEAFC (NE Atlantic); NAFO (NW Atlantic); and CCAMLR (Southern Ocean). SEAFO (SE Atlantic) has yet to adopt regulations consistent with 61/105 although SEAFO has closed a number of seamount areas to bottom fishing. In the South Pacific and the Northwest Pacific, where RFMO/As do not yet exist but are under negotiation, Interim Measures have been adopted by the participants in the negotiations. No measures have yet been agreed for the high seas bottom fisheries of the Indian Ocean where an agreement to establish an RFMO has been negotiated but is not yet in force. In regions where no RFMO/As exist nor are under negotiation, which include the Central and Southwest Atlantic, the European Union has adopted regulations applicable to all EU Member flag States to implement UNGA 61/105 for the management of high seas bottom fisheries. It is not clear whether any other flag States whose vessels engage in high seas bottom fishing activities in such regions have done so.

The implementation of the provisions of UN GA resolution 61/105 with respect to the management of bottom fisheries on the high seas still falls far short of the measures called for in paragraph 83. For many high seas bottom fisheries, no impact assessments have been conducted to determine whether individual bottom fishing activities would have significant adverse impacts on vulnerable marine ecosystems as called for in paragraph 83a of UN GA resolution 61/105. Where impact assessments have been done to date by flag States and RFMOs, they

have varied considerably in quality and detail and have been either preliminary or partial at best, in light of the criteria for conducting impact assessments and determining significant adverse impacts agreed in the UN FAO Guidelines for Deep-Sea Fisheries in the High Seas.

Thus far, the most comprehensive and detailed assessments by nations whose vessels engage in high seas bottom fisheries have been produced by New Zealand for its fisheries in the South Pacific and the Southern Ocean and Japan for its bottom fisheries in the Northwest Pacific. However, even these assessments, as well as those produced by other States, have not been able to clearly determine whether individual bottom fishing activities would or would not have significant adverse impacts on vulnerable marine ecosystems. In most cases this is due to a combination of factors, including insufficient baseline information on the presence, likely occurrence and ecology of VMEs in the areas to be fished; insufficient information on the precise areas in which bottom fishing will or is likely to take place; insufficient information on the interaction of the bottom fishing gear with VME related species; and insufficient information on the extent, severity, duration, and likely scale of the impact of bottom fishing on VMEs known or likely to occur in areas subject to bottom fishing. In spite of this, in virtually all cases the flag States and RFMOs concerned have stated that no significant adverse impacts were likely to occur to vulnerable marine ecosystems and have continued to authorize high seas bottom fishing in 2009.

Paragraph 83c of UN GA 61/105 calls for the closure of areas where VMEs are known or likely to occur unless measures are in place to prevent significant adverse impacts. Implementation of this provision of the UN GA resolution has been rather limited. Only Spain, and to a lesser extent Japan, have conducted independent benthic surveys of areas of the high seas of interest to bottom fishing fleets. There have been a number of high seas areas where cold-water corals are known to occur that have been closed to bottom fishing over the past several years (e.g. portions of the Hatton and Rockall Banks in the Northeast Atlantic), although most of these closures are only temporary at this point in time. In addition, a substantial number of areas where VMEs are likely to occur have been closed by some flag States and RFMOs although many of these areas remain open to 'exploratory' or 'research' bottom fishing and are also only temporary. Overall however, the areas closed to date represent only a small portion of the areas of the high seas where VMEs are likely to occur at depths accessible to bottom fishing activities. Moreover, most areas where bottom fishing has occurred on the high seas over the past 5-10 years remain open to continued bottom fishing

activities, primarily bottom trawling (except in the CCAMLR area), with limited (e.g. a 'move-on rule') or no restrictions in place to protect VMEs. Area closures have generally been limited to areas which not been previously fished or are not likely to be fished.

At least three RFMOs have adopted some gear restrictions. CCAMLR has established a temporary prohibition on high seas bottom trawling and prohibited bottom gillnet fishing in the Southern Ocean. NEAFC has established a ban on bottom gillnet fishing below 200 metres on the high seas of the Northeast Atlantic. The General Fisheries Commission of the Mediterranean has established a prohibition on bottom trawl fishing below 1000 metres. (The SEAFO Scientific Committee in 2007 recommended a temporary prohibition of bottom trawl and bottom gillnet fishing on the high seas of the Southeast Atlantic but this recommendation has not yet been adopted SEAFO). However, bottom fishing, including bottom trawling, continues to be permitted across wide areas of the high seas. The best scientific information available has consistently highlighted that bottom trawl fishing has the most immediate and destructive impact on vulnerable benthic marine ecosystems – most recently as reflected in the advice from the International Council for the Exploration of the Seas in 2008 in response to a request from the North-East Atlantic Fisheries Commission.

Paragraph 83b of UN GGA 61//105 calls for ensuring the long-term sustainability of deep sea fish stocks. Most high seas bottom fisheries target low productivity species (e.g. orange roughy, grenadiers, deep-sea sharks) highly vulnerable to overexploitation and depletion. There are exceptions, such as the bottom fisheries for Argentine hake and squid in the Southwest Atlantic and northern prawns in the Northwest Atlantic, though in the case of the latter, the depths at which this fishery occurs means it is likely to impact low productivity fish species in addition to cold-water corals and sponges. In addition, a large number of species have been recorded in the bycatch of many high seas bottom fisheries, in particular bottom trawl fisheries, the majority of which are likely to be low productivity species. The status of target species and bycatch species in deep-sea fisheries on the high seas is largely either unknown or, where information is available, considered overexploited or depleted (again, there are a few exceptions, e.g. northern prawn and squid). Regulations are in place in some fisheries in some areas (CCAMLR, NAFO, NEAFC, SEAFO) to manage the target catch and at least some species of commercial value taken as bycatch in high seas bottom fisheries. However, few, if any of the fisheries impacting deep-sea stocks or species on the high seas can currently be considered sustainable. The scientific literature often refers to deep-sea fisheries as 'serial depletion' fisheries and

a number of studies or reports since 2006 continue to confirm the problematic nature of fisheries for deep-sea species. A report published by the Royal Society of Britain in 2009 concluded that deep-sea fisheries in the Northeast Atlantic are depleting populations of deep-sea fish well below the depths at which the fishing takes place. The IUCN Red List classifies the two main species of deep-sea sharks of commercial value (leafscale gulper shark, Portuguese dogfish) subject to high seas bottom fishing in the Northeast Atlantic as endangered and a third species (gulper sharks) as critically endangered. A study released by the Fisheries Centre of the University of British Columbia in 2007 concluded that many deep-sea fisheries on the high seas in recent years would not have been economically viable without state subsidies. And a review of deep-sea fisheries in the Northeast Atlantic by the European Commission in 2007 concluded that many deep-sea fish stocks have such low productivity that "sustainable levels of exploitation are probably too low to support an economically viable fishery."

Finally, paragraph 83d of UN GA 61/105 calls on States and RFMOs to require vessels flying their flag to cease bottom fishing activities in areas where, in the course of fishing operations, vulnerable marine ecosystems are encountered. It is important to emphasize that the move-on rule should be considered as a measure of last resort to protect VMEs, as a complement to, not a substitute for, impact assessments, identifying and closing areas where VMEs are known or likely to occur, and establishing regulations to prevent significant adverse impacts to VMEs in areas where high seas bottom fishing is permitted to take place. Even where stringently applied, the move-on rule alone is not likely to be effective in preventing significant adverse impacts to VMEs. The Bottom Fishery Impact Assessment submitted by New Zealand in December 2008 to the Science Working Group of the South Pacific RFMO negotiations notes that commercial bottom trawl fishing gear is often not likely to retain much, if any, coral and/or other vulnerable bottom species impacted by bottom trawl gear and thus likely to be of limited value in assessing whether significant adverse impacts have occurred to VMEs. The move-on rule adopted by CCCAMLR in respect of bottom longline fisheries has led to some area closures thus far. However, in the case of NAFO, NEAFC and SEAFO, where the move-on rule is the only regulation in place designed to protect VMEs in areas where bottom fishing is permitted to take place, the degree of protection afforded by the rule is likely to be minimal, if at all, given that the threshold for the bycatch of VME related species (100kg of "live" corals and/or 1000kg of sponges) required to trigger the move-on rule is so high. This is not a valid implementation of paragraph 83 of UNGA resolution 61/105 in the DSCC's view.

In summary, the impact assessments produced to date are partial and inconclusive at best and some areas have been closed to bottom fishing

but many high seas areas where VMEs are likely to occur remain open to bottom fishing with few or no constraints. The move-on rule is often the only conservation regulation in place to protect VMEs in both existing and new or unfished areas; however it is of limited value in protecting VMEs given the high threshold levels established as triggers for the move-on rule in many of the high seas fisheries. There has been a general reluctance on the part of many States and RFMOs to close areas where bottom fishing currently takes place. Finally, most high seas bottom fisheries target (and take as bycatch) long lived, slow growing, low fecundity species which are highly vulnerable to overexploitation and depletion. The absence of sufficient information on the biological characteristics and status of most target and bycatch species impacted by high seas bottom fisheries to establish conservation and management measures to ensure long-term sustainability.

The report of the UN FAO Expert Consultation International Guidelines for the Management of Deep-Sea Fisheries in the High Seas which was convened in September 2007 in response to paragraph 87 of UN GA resolution 61/105, provides a good summary of the particular challenges and difficulties in managing high seas bottom fisheries to protect VMEs and ensure the sustainability of fish stocks. The report states as follows:

"Many of the problems associated with the conservation and management of Deep Sea Fisheries (DSF) are common to the management of coastal fisheries. In addition, many but not all marine living resources exploited by DSF have biological characteristics that make management problematic. These include: maturation at relatively old ages; slow growth; long life expectancies; low natural mortality rates; intermittent recruitment of successful year classes; adults may not spawn every year. As a result, deep-sea marine living resources generally have low productivity and they are able to sustain only very low exploitation rates. Also, when these resources are depleted, recovery is expected to be long and not assured.

"The problems...with regard to sustainable use of the marine living resources targeted by DSF also apply to the protection of VMEs and marine biodiversity, and are often even greater. Particular concerns include: the sensitivity and vulnerability of some species, communities and habitats to direct and indirect impacts of fishing (easily perturbed); the extreme longevity (100s to >1 000 years) of individuals of some types of organisms (e.g. octocorals) or the long times over which some habitats develop – up to >8,000 years for cold water coral reefs (slow recovery); the low resilience of species, communities and habitats as a result of low

productivity, great longevity, unpredictable and usually low recruitment, and low growth rates (unpredictable recovery); a high proportion of species encountered within some deep-sea ecosystems are endemic, and are found nowhere else (high risk of loss of biodiversity, including extinctions); some vulnerable seafloor communities are distributed as spatially discrete units often within a small area relative to the overall area of the seabed (small perturbations may have significant consequences); the connectivity between populations within geographic regions may be critical to the long-term sustainability of biodiversity (fragmentation and risk of loss of source populations); current knowledge of the ecosystem components and their relationships is generally poorly known and the gaps more difficult to fill (managing under greater uncertainty)."

The UN General Assembly has agreed to review, in 2009, the implementation of the provisions of UN GA resolution 61//105 with respect to bottom fisheries on the high seas designed to address the international concerns by scientists, NGOs and numerous governments as reflected above. It is important to recognize that the 2006 UN GA resolution represented a compromise, primarily between fishing nations whose vessels engage in high seas bottom fisheries and non-high seas bottom fishing nations. Unfortunately, the review in 2009 will not be able to determine whether the measures called for in 61/105 have been sufficient to protect vulnerable marine ecosystems on the high seas from the adverse impacts of bottom fisheries given that the measures in paragraph 83 have not been fully implemented. The resolution established a deadline of 31 December 2008, after which high seas bottom fisheries should not be authorized to proceed unless or until the measures contained in paragraph 83 have been implemented to prevent significant adverse impacts to VMEs and ensure the long-term sustainability of deep-sea fish stocks. Nonetheless, a number of high seas fishing nations and RFMOs have continued to authorize high seas bottom fishing. The challenge facing the General Assembly in 2009 will be to conduct an honest, open and robust review and call for additional measures to address the shortcomings in the management of high seas bottom fisheries to date – in light of the fact that a number high seas nations and RFMOs continue to authorize high seas bottom fisheries in spite of the lack of full implementation of the 2006 resolution.

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ANNEX 1: UN FAO GUIDELINES FOR THE MANAGEMENT OF DEEP-SEA FISHERIES IN THE HIGH SEAS

Impact Assessments, Identifying VMES and SAIs

1. FAO Guidelines para 47: Impact Assessments

47. Flag States and RFMO/As should conduct assessments to establish if deep-sea fishing activities are likely to produce significant adverse impacts in a given area. Such an impact assessment should address, inter alia:

- i. type(s) of fishing conducted or contemplated, including vessels and gear-types, fishing areas, target and potential bycatch species, fishing effort levels and duration of fishing (harvesting plan);
- ii. best available scientific and technical information on the current state of fishery resources and baseline information on the ecosystems, habitats and communities in the fishing area, against which future changes are to be compared;
- iii. identification, description and mapping of VMES known or likely to occur in the fishing area;
- iv. data and methods used to identify, describe and assess the impacts of the activity, the identification of gaps in knowledge, and an evaluation of uncertainties in the information presented in the assessment;
- v. identification, description and evaluation of the occurrence, scale and duration of likely impacts, including cumulative impacts of activities covered by the assessment on VMES and low-productivity fishery resources in the fishing area;
- vi. risk assessment of likely impacts by the fishing operations to determine which impacts are likely to be significant adverse impacts, particularly impacts on VMES and low productivity fishery resources; and
- vii. the proposed mitigation and management measures to be used to prevent significant adverse impacts on VMES and ensure long-term conservation and sustainable utilization of low-productivity fishery resources, and the measures to be used to monitor effects of the fishing operations.

2. FAO Guidelines para 42: VMES

42. A marine ecosystem should be classified as vulnerable based on the characteristics that it possesses. The following list of characteristics should be used as criteria in the identification of VMES.

- i. Uniqueness or rarity – an area or ecosystem that is unique or that contains rare species whose loss could not be compensated for by similar areas. These include:
 - habitats that contain endemic species;
 - habitats of rare, threatened or endangered species that occur only in discrete areas; or
 - nurseries or discrete feeding, breeding, or spawning areas.

- ii. Functional significance of the habitat – discrete areas or habitats that are necessary for the survival, function, spawning/reproduction or recovery of fish stocks, particular life-history stages (e.g. nursery grounds or rearing areas), or of rare, threatened or endangered marine species.
- iii. Fragility – an ecosystem that is highly susceptible to degradation by anthropogenic activities.
- iv. Life-history traits of component species that make recovery difficult – ecosystems that are characterized by populations or assemblages of species with one or more of the following characteristics:
 - slow growth rates;
 - late age of maturity;
 - low or unpredictable recruitment; or
 - long-lived.
- v. Structural complexity – an ecosystem that is characterized by complex physical structures created by significant concentrations of biotic and abiotic features. In these ecosystems, ecological processes are usually highly dependent on these structured systems. Further, such ecosystems often have high diversity, which is dependent on the structuring organisms. Examples of potentially vulnerable species groups, communities, and habitats, as well as features that potentially support them are contained in Annex 1.

3. FAO Guidelines paras 17-19: SAIs

17. Significant adverse impacts are those that compromise ecosystem integrity (i.e. ecosystem structure or function) in a manner that: (i) impairs the ability of affected populations to replace themselves; (ii) degrades the long-term natural productivity of habitats; or (iii) 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.

18. When determining the scale and significance of an impact, the following six factors should be considered:

- i. the intensity or severity of the impact at the specific site being affected;
- ii. the spatial extent of the impact relative to the availability of the habitat type affected;
- iii. the sensitivity/vulnerability of the ecosystem to the impact;
- iv. the ability of an ecosystem to recover from harm, and the rate of such recovery;
- v. the extent to which ecosystem functions may be altered by the impact; and
- vi. the timing and duration of the impact relative to the period in which a species needs the habitat during one or more life-history stages.

19. Temporary impacts are those that are limited in duration and that allow the particular ecosystem to recover over an acceptable time frame. Such time frames should be decided on a case-by-case basis and should be in the order of 5-20 years, taking into account the specific features of the populations and ecosystems.

ANNEX 2: UN GA RESOLUTION 61/105 PARAS 83-87

The General Assembly

83. Calls upon regional fisheries management organizations or arrangements with the competence to regulate bottom fisheries to adopt and implement measures, in accordance with the precautionary approach, ecosystem approaches and international law, for their respective regulatory areas as a matter of priority, but not later than 31 December 2008:

(a) To assess, on the basis of the best available scientific information, whether individual bottom fishing activities would have significant adverse impacts on vulnerable marine ecosystems, and to ensure that if it is assessed that these activities would have significant adverse impacts, they are managed to prevent such impacts, or not authorized to proceed;

(b) To identify vulnerable marine ecosystems and determine whether bottom fishing activities would cause significant adverse impacts to such ecosystems and the long-term sustainability of deep sea fish stocks, inter alia, by improving scientific research and data collection and sharing, and through new and exploratory fisheries;

(c) In respect of areas where vulnerable marine ecosystems, including seamounts, hydrothermal vents and cold water corals, are known to occur or are likely to occur based on the best available scientific information, to close such areas to bottom fishing and ensure that such activities do not proceed unless conservation and management measures have been established to prevent significant adverse impacts on vulnerable marine ecosystems;

(d) To require members of the regional fisheries management organizations or arrangements to require vessels flying their flag to cease bottom fishing activities in areas where, in the course of fishing operations, vulnerable marine ecosystems are encountered, and to report the encounter so that appropriate measures can be adopted in respect of the relevant site;

84. Also calls upon regional fisheries management organizations or arrangements with the competence to regulate bottom fisheries to make the measures adopted pursuant to paragraph 83 of the present resolution publicly available;

85. Calls upon those States participating in negotiations to establish a regional fisheries management organization or arrangement competent to regulate bottom fisheries to expedite such negotiations and, by no later than 31 December 2007, to adopt and implement interim measures

consistent with paragraph 83 of the present resolution and make these measures publicly available;

86. Calls upon flag States to either adopt and implement measures in accordance with paragraph 83 of the present resolution, mutatis mutandis, or cease to authorize fishing vessels flying their flag to conduct bottom fisheries in areas beyond national jurisdiction where there is no regional fisheries management organization or arrangement with the competence to regulate such fisheries or interim measures in accordance with paragraph 85 of the present resolution, until measures are taken in accordance with paragraph 83 or 85 of the present resolution;

87. Further calls upon States to make publicly available through the Food and Agriculture Organization of the United Nations a list of those vessels flying their flag authorized to conduct bottom fisheries in areas beyond national jurisdiction, and the measures they have adopted pursuant to paragraph 86 of the present resolution;

About the DSCC

The Deep Sea Conservation Coalition (DSCC) is a coalition of over 60 organizations worldwide promoting fisheries conservation and the protection of biodiversity on the high seas. The DSCC has been actively involved in the international debate and negotiations concerning the adverse impacts on deep-sea biodiversity in areas beyond national jurisdiction from bottom trawling and other methods of bottom fishing on the high seas since 2003/2004.

The DSCC submission was made possible by the support of the Pew Environment Group, a member organization of the DSCC.

Futher information

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Deep Sea Photo Gallery

Home to unclassified, beautiful, strange and mysterious creatures

Deep Sea Creatures

Scientists have speculated that as many as 10 million species may inhabit the deep sea, but only a few have been described. Deep sea creatures are often found in the deep ocean, where they live in complete darkness. They are biologically adapted to survive in their environment, and therefore, particularly at risk from the devastation caused by deep sea bottom trawling and petroleum activities.

Multimedia / Video

DEEP SEA LIFE

Deep Sea Coral

Save the High Seas

Bottom Trawling

Today's trawlers are capable of fishing deep-sea corals and rough seafloors that were once avoided for fear of damaging beds. To maintain their high output commercial catches, deep-sea bottom trawling extends along huge miles around with steel drums and heavy rollers across the seabed, allowing up and pulverizing everything in their path. For a few commercial target species, thousands of tons of coral are hauled up only to be thrown back dead or dying, along with huge quantities of unwanted bycatch. In a matter of a few weeks or months, bottom trawl fishing can destroy what took many thousands of years to create.