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# Conservation of marine biodiversity beyond the limits of national jurisdiction

With a focus on High Seas Marine Protected Areas

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## General Coordinators

### Christian Neumann

International WWF Center for Marine Conservation  
WWF Germany  
Hongkongstr. 7  
20457 Hamburg  
Germany  
Tel: +49 40 530 200  
christian.neumann@wwf.de

### Verónica Cirelli

FVSA - Programa Antártida y Océanos Australes / WWF ASOI  
Fundación Vida Silvestre Argentina  
Defensa 251 Piso 6 "K"  
(C1065AAC) Buenos Aires  
Argentina  
Tel: +54 11 4331 3631  
oceanosaustales@vidasilvestre.org.ar

## Case Study Coordinators

### Case Study 1.

#### Giuseppe Notarbartolo di Sciara and Marco Costantini

WWF Mediterranean Programme  
WWF Italy  
Via Po 25/c  
00198 Rome  
Italy  
Tel: +39 06 844 971  
giuseppe@disciara.net;  
m.costantini@wwf.it

### Case Study 2.

#### Sabine Christiansen

WWF North East Atlantic Marine Ecoregion Programme  
WWF Germany  
Hongkongstr. 7  
20457 Hamburg  
Germany  
Tel: +49 40 530 200  
christiansen@wwfneap.org

### Case Study 3.

#### Rebecca Bird

WWF New Zealand  
WWF Antarctic and Southern Oceans Initiative ASOI  
PO Box 6237  
Wellington  
New Zealand  
Tel: +64 4 499 2930  
Rbird@wwf.org.nz

### Case Study 4.

#### Guillermo Cañete

Programa Marino - Patagonia y Atlántico Sudoccidental  
Fundación Vida Silvestre Argentina  
Córdoba 2920, 4ºB  
(7602) Mar del Plata  
Argentina  
Tel: +54 223 4941877  
gcmarino@vidasilvestre.org.ar



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This briefing is offered as a summary, particularly to advance the debate on achieving HSMPAs. For more information, detailed references and for general feedback please contact the general or case study coordinators.

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# Conservation of marine biodiversity beyond the limits of national jurisdiction

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## Conservation of marine biodiversity beyond the limits of national jurisdiction

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### Forward

High seas biodiversity is under serious threat from a variety of human activities. WWF advocates for the effective conservation of the marine environment also in the high seas, including through the use of Marine Protected Areas (MPAs), to help reverse multiple cumulative adverse impacts on this fragile marine environment. Parties to the Convention on Biological Diversity (CBD) have committed to establishing networks of representative MPAs including in areas beyond national jurisdiction by 2012, yet progress is painfully slow. At the publication date of this document only a very few areas technically considered to be high seas marine protected areas (HSMPAs) have thus far been established, these being in the Southern Ocean and the Mediterranean.

*This briefing is offered by WWF to help inform interested parties about ongoing work in high seas conservation and presents four case studies in order to advance the debate on achieving HSMPAs.*

## Introduction

We are only just beginning to comprehend the diversity of life in the deep sea. Estimates of the number of species inhabiting this vast realm range from 500,000 to 100 million, with each scientific expedition revealing yet more species new to science.

Inadequately regulated human activities in the high seas, the open access international waters that make up 64% of the oceans, have already severely damaged deep sea habitats and led to overexploitation of many fish populations. High seas bottom trawling is regarded as the most significant threat to high seas marine biodiversity, an activity being subsidised to the tune of US\$ 150 million per year globally.

With increasing pressure for short term profit from industrial activity, better management of high seas activities and protection of sensitive areas are urgently needed for ensuring conservation and sustainable use of the oceans. It has been estimated that a strategic closure of 10% of the high seas to bottom trawling would lead to a global profit loss of only US\$ 140 million per year in the short term, while failure to do so is likely to fuel a further decline of stocks and decreased financial returns from high seas fisheries.

## Three deep sea ecosystems



Atlantic wolffish and Gorgonian sea fan in a protected cold-water coral reef in Norway.  
© WWF-Canon / Erling SVENSEN

**Seamounts-** effectively isolated mountains of biodiversity beneath the surface of the sea are high in endemic species. The slow growth and restricted distribution of many seamount species render them very vulnerable to human impact.

**Deep-sea coral reefs-** are found along the continental slopes, on seamounts, plateaus and ridges. North-east Atlantic reefs may be up to 10,000 years old and more than 1,300 species have been found associated with some of these.

**Hydrothermal vents-** host an array of life adapted to living in special conditions - high temperatures and highly toxic waters. Such specialised species cannot move between vent systems and so each vent has its own unique set of species.

Although various international and regional agreements have been established to regulate the use of high seas resources, many countries have not yet implemented these, and most activities - including commercial fishing, oil and gas exploration, mining, shipping, bioprospecting and the laying of cables and pipelines - are currently largely unrestricted in where they can go on the high seas, irrespective of whether they are regulated or not. Where regulations do exist, most are inadequate in scope and limited in effect due to poor enforcement. Large areas of ocean lack adequate regulation for any activity, such as the entire high seas of the South-west Atlantic (see case study 4).

### Current legal framework

The basis of international law as it relates to the oceans is the 1982 United Nations Convention on the Law of the Seas (UNCLOS). With respect to fishing, UNCLOS grants States a conditional freedom to fish on the high seas, further limited both by the right of other States to do so and their duty to cooperate with each other *“as may be necessary for the conservation of living marine resources on the high seas”* (Articles 116 and 117). Part XII of UNCLOS is devoted entirely to the protection and preservation of the marine environment which is binding on parties to UNCLOS, irrespective of whether they cooperate with others or not. It includes a very clear requirement that *“States have the obligation to protect and preserve the marine environment”* including by acting individually, or jointly as appropriate to take all measures necessary, using the best practical means at their disposal. By combining the fisheries and environmental components of UNCLOS, States are mandated to take strong conservation measures on the high seas and a duty to cooperate with other States in doing so, to show these measures would enhance the conservation of resources and to ensure they are based on best available scientific evidence.

### UNCLOS and HSMPAs

While UNCLOS does not refer to marine protected areas on the high seas, it does not preclude them either. Following the 1982 UNCLOS agreement, a number of agreements and instruments relating wholly or partially to the implementation of UNCLOS provide more clarity on use of, and legal regime for HSMPAs as one of the tools for marine conservation and sustainable use of resources.

## The Convention on Biological Diversity (CBD) and HSMPAs

The 1995 Jakarta Mandate of the 1992 CBD identifies establishing MPAs as one of five strategies to implement the requirements of the CBD in the coastal and marine environment. Under the CBD, Parties are mandated to cooperate for the conservation and sustainable use of biodiversity of the high seas.

## Fisheries and the Food and Agricultural Organisation (FAO)

Fisheries conservation measures have been further elaborated by the binding 1995 UNCLOS Implementing Agreement on Straddling and Highly Migratory Fish Stocks, by the non-binding UN Food and Agricultural Organisation (FAO) Code of Conduct for Responsible Fisheries, the binding 1993 Compliance Agreement for high seas fishing, and various non-binding FAO International Plans of Action and technical guidelines. This ensemble of hard and soft law and other instruments, creates and strongly encourages the use of Regional Fisheries Management Organisations (RFMOs) and similar cooperative arrangements to design conservation and management measures that rely not only on exercise of flag state controls on the high seas, but also more and more on port and market state controls and state control of nationals to implement and ensure compliance with these conservation measures. The recent FAO Technical Guidelines on Marine Protected Areas related to fisheries include a section on HSMPAs. The UN General Assembly 2006 Fisheries Resolution also created an obligation to protect vulnerable marine ecosystems from destructive fishing practices.



*Human activities in the immensity of the high sea. MRCelano.*

## Implementing HSMPAs through multi-lateral arrangements

### United Nations Environment Programme (UNEP) Regional Seas Conventions (RSCs)

Currently, over 150 countries participate in 18 Regional Seas Conventions, 13 of which have been established under the auspices of UNEP's Regional Seas Programme (UNEP-RSP). Other arrangements, such as the Oslo and Paris Convention for the North East Atlantic (OSPAR) and the Antarctic Treaty System have equivalent provisions. All are now developing regional strategies, protocols and if possible regulations, to implement the Jakarta Mandate of the CBD among other commitments and obligations of both hard and soft law.

RSCs can act as frameworks for setting up representative networks of HSMPAs within member states' EEZs but require complementary action by the relevant competent authority in areas beyond national jurisdiction. Some RSCs have taken up efforts to establish representative networks of MPAs including by contributing to the development of the CBD scientific criteria for identification of candidate areas. While RSCs have the competency to regulate certain harmful activities, they customarily lack the mandate to regulate some of the most critical ones, notably fishing, shipping and mineral extraction. In order to achieve adequate comprehensive protection of ecosystems, habitats and species, RSCs need to request competent authorities, such as the relevant RFMO, the International Maritime Organization (IMO) and the International Seabed Authority (ISA) to adopt compatible regulations.

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## Regional Fisheries Management Organisations (RFMOs)

RFMOs bring fishing nations, coastal states and other interested countries together to manage and monitor fish stocks in the high seas component of a region's maritime area. An RFMO may have a specific remit for a geographic 'Convention Area' (e.g. *the North Atlantic Fisheries Organisation, NAFO*) or just for a specific species or groups of species (e.g. *the International Commission for the Conservation of Atlantic Tuna, ICCAT*) or both (e.g. *the Western Central Pacific Fisheries Commission, WCPFC*). Some RFMOs and related agreements have adopted an ecosystem approach to management and have begun processes to designate protected areas for vulnerable marine ecosystems. These include a ban on high seas bottom trawling in the Commission on the Conservation of Atlantic Marine Living Resources (*CCAMLR*) Area in the Southern Ocean, the interim ban on fishing new areas in the South Pacific RFMO (under negotiation), in the Mediterranean below 1000m depth by the General Fisheries Commission for the Mediterranean (*GFCM*) and small area closures by the North-east Atlantic Fisheries Commission (*NEAFC*) and the North Atlantic Fisheries Organisation (*NAFO*).

The UNGA 2006 Resolution 61/105 calls on RFMOs and States *"to adopt and implement measures, in accordance with the precautionary approach, ecosystem approaches and international law (...) as a matter of priority"*, in accordance with a package of key elements that constitute a framework for rigorous management of high seas bottom fisheries. The UNGA calls for the adoption and implementation of these measures by 31 December 2008 at the latest.

The IMO can designate Particularly Sensitive Seas Areas (PSSAs) where shipping activities can be subject to special controls. A PSSA can be established for high seas areas although all current PSSAs are in Exclusive Economic Zones (EEZs). Associated protective measures including areas to be avoided, traffic separation schemes and no discharge areas can be adopted for PSSAs that qualify under specific IMO criteria because of their ecological, socio-economic or scientific importance. Areas to be avoided and special areas with strict discharge requirements can also be designated independently.

## Shipping and the International Maritime Organization (IMO)

In 1994 UNCLOS was elaborated by "The Mining Agreement" (Agreement relating to Part XI of UNCLOS), establishing the provisions under which deep seabed mining, including oil and gas, is expected to take place, including environmental considerations. The ISA, established to regulate deep sea mining in the high seas, does not currently designate MPAs but may establish "no-take" reference areas to monitor mining impacts on the environment.

## Mining and the International Seabed Authority (ISA)

While, initiatives are underway to give effect to the UNGA Fisheries Resolution including commitments to expand RFMOs in both geographical extent and competency to create a comprehensive network of effective regional management arrangements, other multi-lateral arrangements may be appropriate to deliver special-purpose and networks of MPAs in some areas. For instance, the sovereignty dispute in the South-west Atlantic inhibits the development of an RFMO or RSC. WWF, its associate Fundación Vida Silvestre Argentina and key multi-lateral fisheries sector representatives for example, have been in dialogue for over five years to seek a complementary process to,

## Other multilateral arrangements

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and develop an arrangement that will, designate a HSMPA for ecosystem-based management of the South-west Atlantic squid resource (*Illex argentinus*) (see case study 4).

## Control of HSMPAs

Despite the plethora of international and regional laws and processes, current frameworks for protecting marine areas in the high seas areas are limited. Examples such as the Pelagos Sanctuary for Mediterranean Marine Mammals (see case study 1) or the “Titanic Agreement” demonstrate that MPAs can be designated and management plans set by the mutual agreement of interested governments, but that these governments cannot control activities of non-signatory states. Regional Seas agreements, such as OSPAR, have the mandate to designate MPAs, but not to control activities such as fishing, even when undertaken by a signatory state. While the principal basis of control of fishing and shipping activities on the high seas is based upon flag state control, individual vessel owners and operators can legally avoid the requirements of signatory states by registering their fishing vessel with a non-signatory country - the so-called 'flag of convenience' or 'flag of non-compliance' system.

With respect to these legal and institutional loopholes, which seriously frustrate the effective control of critical activities on the high seas, WWF believes that in parallel to progressing the identification and implementation of a representative network of HSMPAs through existing instruments and processes, a new overarching UNCLOS implementing agreement for effective oceans governance in areas beyond national jurisdiction is required. Among other provisions, this agreement should provide for Strategic Environmental Assessment (SEA) and for all maritime activities to be subject to prior environmental impact assessment (EIA) pursuant to globally agreed criteria and processes. Additionally that for special control of any maritime activities within designated HSMPAs to be subsequently imposed by competent bodies to ensure identified values are protected. A coordinating framework will need to be established by the agreement to ensure that management plans and arrangements developed by competent bodies are integrated and control measures coordinated to ensure efficient and effective management, including appropriate complementary management of areas and activities both within and beyond areas of national jurisdiction.

## Identifying HSMPAs in developing management plans

As the UN instrument with a mandate to provide scientific advice on the protection of biological diversity, including in the high-seas, expert workshops under the auspices of the CBD have considered:

- a) in collaboration with the United Nations Division for Ocean Affairs and the Law of the Sea (DOALOS) options for preventing and mitigating the impacts of some activities on selected vulnerable seabed habitats (particularly on hydrothermal vent, cold-seep, seamount, cold-water coral and sponge reef ecosystems, each and all of which are likely to contain high levels of endemism and biodiversity, much of it as yet unknown to science)
- b) ecological criteria for identifying candidate marine areas in need of some protection from some uses and for biogeographic

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classification systems for use in ecosystem-based regional management of the oceans, including design and designation of representative networks of MPAs by those competent to do so.

With respect to the former, there are clearly highly threatened ecosystems, habitats and species which require immediate designation as individual HSMPAs within the appropriate regional or other management regimes. With respect to identifying a network of biologically representative HSMPAs, the workshop experts have recommended criteria for adoption by the CBD and for application by the appropriate RFMO, RSC or other multi-lateral arrangement.

The seven scientific criteria for identifying ecologically or biologically significant marine areas in need of protection in open ocean waters and deep sea habitats that are recommended for adoption by governments are:

1. Uniqueness or rarity
2. Special importance for life history stages of species
3. Importance for threatened, endangered or declining species and/or habitats
4. Vulnerability, fragility, sensitivity or slow recovery
5. Biological productivity
6. Biological diversity
7. Naturalness

The five recommended scientific criteria for selecting areas to establish a representative network of marine protected areas, including in open ocean waters and deep-sea habitats, are:

1. Ecologically and biologically significant areas
2. Representativity
3. Connectivity
4. Replicated ecological features
5. Adequate and viable sites

In order to advance the debate on achieving effectively managed individual and representative HSMPAs, WWF offers several case studies which cover:

### Case studies

1. A description of the area
2. Human activities, threat and causes
3. The framework for the MPA
4. A check against the developed *“criteria for identifying ecologically or biologically significant marine areas”*

## Case study 1. Pelagos Sanctuary for Mediterranean Marine Mammals

Contact: Giuseppe Notarbartolo diSciara, giuseppe@disciara.net; Marco Costantini, m.costantini@wwf.it

### Area description, biodiversity or socio-economic value



Fin whale in the Pelagos Sanctuary  
© M.Rocco, WWF Italy

A high level of primary production resulting from an upwelling of nutrient-rich waters in turn supports a high biomass of zooplankton. This makes the area extremely important for a number of cetacean species: striped dolphin (*Stenella coeruleoalba*), fin whale (*Balaenoptera physalus*), common bottlenose dolphin (*Tursiops truncatus*), short-beaked common dolphin (*Delphinus delphis*), long-finned pilot whale (*Globicephala melaena*), Risso's dolphin (*Grampus griseus*), Cuvier's beaked whale (*Ziphius cavirostris*) and sperm whale (*Physeter macrocephalus*).

### Human activities and threats

A high level of pelagic driftnet fishery for swordfish - with as many as 700 Italian boats alone in the 1980s - posed a serious threat to marine mammals. These boats, operating with nets of an average size of 20km, entered the Ligurian Sea's fishing grounds in the summer, causing high levels of accidental mortality for at least six cetacean species in the area. Today, more limited driftnet fishing occurs in the NW Sanctuary, and maritime traffic is of concern as a source of direct body damage, as well as disturbance and noise. The area is bordered to the north with major harbours, large cities and industrial and agricultural centres. A large offshore re-gasification plant is being planned off the city of Livorno (Italy).

### Framework for the MPA

The Pelagos Sanctuary was designed to protect marine mammals from all types of human activities, while at the same time allowing for a harmonious development of socio-economic activities.

The area covers 87'000 km<sup>2</sup>, >50% of which lies beyond territorial waters (most countries of the Mediterranean have not claimed an EEZ, hence the High Seas lie beyond their Territorial Waters). The Sanctuary was created through an agreement between France, Italy and Monaco in 1999, which came into force in February 2002. It is regarded as the world's first high seas MPA.

Each Party to the agreement plans its policies and management projects in consultation with the other Parties and with reference to the jointly adopted management plan. Policy and management are also coordinated with other organizations and intergovernmental agreements such as the Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area (ACCOBAMS), International Commission for the Scientific Exploration of the Mediterranean Sea (ICSEM), the GFCM and the Regional Activity Centre for Specially Protected Areas of UNEP's Mediterranean Action Plan (RAC/SPA).

With the inscription of the Sanctuary in the List of Specially Protected Areas of Mediterranean Importance (SPAMI), 21 Mediterranean States that are Party to the Barcelona Convention's SPA Protocol are bound by the Sanctuary Agreement. In practice this has meant the extension of a conservation regime to the Mediterranean high seas.



Map of the Pelagos Sanctuary © Consorzio Mediterraneo

**Uniqueness or rarity** - The area covered by the Pelagos Sanctuary is characterised by a special oceanographic feature (the Ligurian Sea permanent front) which ensures unusually high levels of primary productivity in the Mediterranean pelagic domain.

**Special importance for life history stages of species** - High primary productivity sustains an important zooplankton biomass (in particular, the euphausiid shrimp *Meganyctiphanes norvegica*), the main prey of fin whales and a large number of pelagic secondary consumers. As a consequence, the area is the most important feeding ground for fin whales in the Mediterranean and also very important for a number of other cetacean species of a higher trophic level. The area is also known as a breeding area for many cetacean species.

**Importance for threatened endangered or declining species and/or habitats** - The cetacean populations that the Pelagos Sanctuary was designed to protect, have been proposed for inscription in the Red List as “endangered” (sperm whales, short-beaked common dolphins) or “vulnerable” (striped dolphin, common bottlenose dolphin). Although fin whales, Risso's dolphins, Cuvier's beaked whales and long-finned pilot whales are still considered “data deficient” for a proper Red List assessment of their status, it is likely cannot be discounted that they may be inscribed under a threatened status once the assessment will be completed (in fact, it is very likely).

**Vulnerability, fragility, sensitivity or slow recovery** - Cetaceans are long-lived, slow-reproducing mammals that are particularly vulnerable to impacts from human activities. Such impacts are particularly relevant in the Mediterranean, where human activities are more intense than in most oceans.

**Biological productivity** - The high seas area covered by Pelagos, due to oceanographic reasons, contains the most productive pelagic waters of the entire Mediterranean.

**Biological diversity** - The Pelagos Sanctuary contains the habitat of all the eight cetacean species known to regularly occur in the Mediterranean. As such, its biological diversity in terms of cetacean fauna cannot be higher. In addition the high productivity of the area leads to the presence of many other non-mammalian marine species (vertebrates and invertebrates).



*Fin whale in the Ligurian Sea, 40 miles off the coast of Monaco © WWF-Canon / Emanuele COPPOLA*

**Naturalness** - In spite of being surrounded by a highly populated coastline, the Sanctuary contains relatively pristine pelagic waters due to its large water volume (deep waters beginning very close to the coast) and circulation. Most of the human activities and influences are along the very narrow continental shelf; protection to the pelagic vertebrates afforded by the MPA should allow such naturalness to persist indefinitely into the future.

## Case study 2: Mid-Atlantic Ridge / Charlie Gibbs Fracture Zone

Contact: Sabine Christiansen, [christiansen@wwfneap.org](mailto:christiansen@wwfneap.org)

### Area description, biodiversity or socio-economic value

The Mid-Atlantic Ridge (MAR) extends from the Lomonosov Ridge in the Arctic Ocean to the south Atlantic. The proposed area covers approx. 350000 km<sup>2</sup>, from 55° N south of Iceland to 49° N north of the Azores. It consists of three biogeographic zones, a northern and southern zone intercepted by the subpolar front and Charlie Gibbs Fracture Zone (GGFZ), both at approx. 52°N.



Soft coral on the Mid-Atlantic Ridge,  
© Mortensen et al, *Deep Sea Research II*,  
55 (2008) 142-152

On the slopes of the seamounts and hills, the suspension feeding fauna includes a wide range of cold-water coral and sponge species with associated communities. The enhanced production at the subpolar front and CGFZ attracts aggregations of sei (*Balaenoptera boreales*) and sperm whale as well as fin whales, common dolphins and sea turtles. Dominant seabirds are Northern fulmar (*Fulmarus glacialis*) and Great (*Puffinus gravis*) and Cory's shearwater (*Calocentris diomedea*). Deepwater fish which are commercially relevant due to their aggregations at seamounts change from redfish (*Sebastes marinus*) in the north to roundnose grenadier (*Coryphaenoides rupestris*) near the CGFZ to golden eye perch (*Beryx splendens*) in the south.

### Human activities and threats

Since the 1970s, the Soviet/Russian fishery in particular exploited the deep water demersal fish aggregations on the MAR. Today the roundnose grenadier is near "commercial extinction", golden eye perch north of the Azores is "commercially extinct" and a longline fishery for redfish is "not commercially feasible". The impact on other parts of the ecosystem is uncertain, however, lost fishing gear and trawl tracks have been documented, and the littering of the seafloor from vessel traffic, and increased noise levels are highly likely. Bottom trawling and longlining have shown bycatch of 10 and 11 coral taxa respectively.

### Framework for the MPA

The Mid-Atlantic Ridge / CGFZ has been proposed for inclusion in the envisaged ecologically coherent network of well-managed MPAs in the OSPAR Convention area. It has been chosen as a pilot for areas beyond national jurisdiction in order to develop the required governance and management reforms. It is currently in the process of revision towards adoption. As yet there is no management proposed.

**Uniqueness or rarity** - The MAR section proposed is unique in that it constitutes a biogeographic divide on several scales, reflected in all trophic levels, partly fuelled by a highly productive frontal zone.

**Special importance for life history stages of species** - The northern MAR is considered to be the main reproduction area of i.e. roundnose grenadier, and may be crucial for the reproduction of bathypelagic fish. It provides the only extensive hard substrate available for propagation of benthic suspension feeders off the continental shelves and isolated seamounts.

**Importance for threatened endangered or declining species and or habitats** - Of particular importance as a feeding area for marine mammals. the Ridge structure is important for deep water sharks and enhances teleost fish aggregations, including orange roughy (*Hoplostethus atlanticus*). 40 taxa of cold water corals, including *Lophelia pertusa* and *Solenosmilia variabilis* as main structure builders, and 27 octocoral taxa occur.

**Vulnerability, fragility, sensitivity or slow recovery** - Deep water species and biogenic habitats formed by cold water corals and sponges for example are considered vulnerable, as often fragile and slow (if at all) to recover.

**Biological productivity** - The area proposed shows large aggregations of feeding whales, relatively high abundances of sea turtles and seabirds, coinciding with high concentrations of main secondary producer *Calanus finmarchicus*. An increased biomass of demersal and deep-pelagic fish is associated to the summit region of the MAR. The overall biomass, however, is low.

**Biological diversity** - Little research has, as yet, been undertaken but the wide range of substrates, elevations and depths provide for an extensive range of ecological niches.

**Naturalness** - It can be assumed that most hills along the ridge have at the least, been explored; more than 30 of the 170 seamounts within fishing depth were consecutively exploited. There are indications that *Lophelia* reefs have been destroyed by fishing. Beyond the fishing depth no significant human impacts are known.

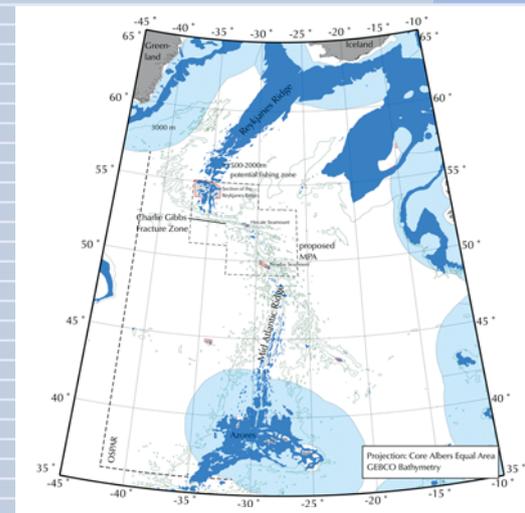
Contact: Rebecca Bird, RBird@wwf.org.nz; Sian Pullen, sianprior9@hotmail.com

The Ross Sea is a physically and ecologically unique region with a food web that appears different to most other areas of the Southern Ocean. Characterised by high primary productivity, the region is host to phenomenal numbers of seabirds, e.g. Antarctic petrels, emperor and Adelie penguins, as well as seals, dolphins and whales. It was the site of the capture of the largest recorded specimen of the colossal squid. It has a high benthic diversity and is home to the toothfish.

### Human activities and threats

The Ross Sea is described by scientists as the last relatively intact neritic ecosystem on the planet. In the past it has been heavily whaled and harvesting of minke whales continues through so-called "scientific whaling". A number of seabird species may have disappeared from the region. Direct pressures include an exploratory longline fishery for toothfish (currently undergoing Marine Stewardship Council assessment against criteria for sustainable fisheries), tourism, shipping, and research, while bioprospecting and invasive marine species are probable threats of the future. Climate change also poses a very imminent threat.

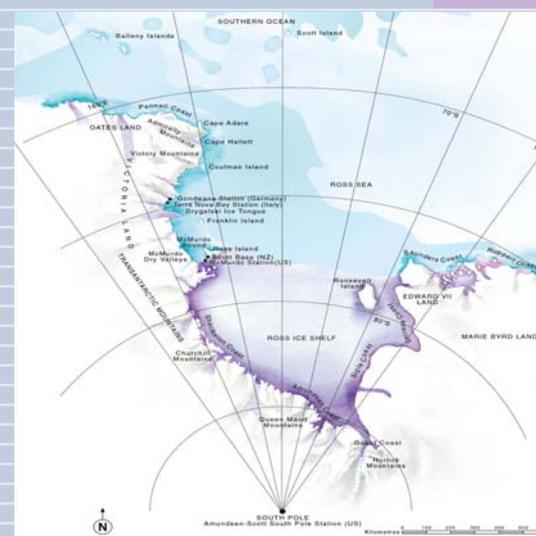
### Check against the criteria



Map of the proposed HSMMA in the CGFZ, OSPAR-MAR.

## Case study 3: The Ross Sea HSMMA network

### Area description, biodiversity or socio-economic value





*Iceberg, Pleneau Bay. Visitors from the icebreaker Kapitan Dranitsyn, on a zodiac. Antarctic Peninsula. Antarctica  
© WWF-Canon / Sylvia RUBLI*

### Framework for the MPA

Provisions for the development of MPAs are well established under the Madrid Protocol on Environmental Protection to the Antarctic Treaty and the Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR), but thus far, these provisions have not been used to their full potential. In 2007, the Belgium government hosted a Workshop on Bioregionalisation of the Southern Region which built on an earlier WWF / ACE CRC hosted workshop ([www.wwf.org.au/publications/bioregionalization-southern-ocean](http://www.wwf.org.au/publications/bioregionalization-southern-ocean)). The results were considered by CCAMLR and its Scientific Committee and it was agreed that it should be possible to undertake finer-scale bioregionalisation work in a number of areas based on existing data. With a well-established interest in the Ross Sea, the New Zealand government undertook a public consultation on the future management of its marine living resources and biodiversity. In 2006, a Strategy was published which focuses on seeking a balance between well managed sustainable harvesting and marine protection. WWF believes that the basis for a finer-scale analysis of the Ross Sea, to identify a network of MPAs, has now been set.

### Check against criteria

-analysis drawn largely from A State of the Environment Report for the Ross Sea Region of Antarctica.

**Uniqueness or rarity** - The continental shelf is considered to be a physically and ecologically unique region where large polynyas are a feature.

**Special importance for life history stages of species** - It is a fundamentally important area during the summer months to feeding whales, emperor penguins and a range of seals and seabirds. The waters around the Balleny Islands support significant numbers of juvenile toothfish.

Importance for threatened endangered or declining species and or habitats - Its waters are important for the endangered blue whale and specially protected Ross seal.

**Vulnerability, fragility, sensitivity or slow recovery** - It is especially vulnerable and sensitive to a range of threats including climate change and over-exploitation of living resources. These species are typically long-lived, slow to start breeding, produce relatively few young and are therefore slow to recover from heavy impact.

**Biological productivity** - There very high levels of primary production and the Ross Sea polynyas contain the most productive and spatially extensive phytoplankton bloom in the Southern Ocean

**Biological diversity** - The Ross Sea is typified by high benthic diversity relative to other polar seas.

**Naturalness** - It is considered the last intact open marine ecosystem on the planet.

Contact: Guillermo Cañete, gcmario@vidasilvestre.org.ar

### Area description, biodiversity or socio-economic value

The area covers the high seas extension of the Patagonian continental shelf, the continental slope and deep waters in the western section of the South-west Atlantic Ocean. Highly productive fisheries are only possible because rich oceanic conditions bring nutrients, plankton and fish into these waters. Despite this richness, events have shown that normally abundant fisheries can and do fail. The critical stock is the squid (*Illex argentinus*) which straddles national and international waters and has spawning grounds in the high seas (thought to reach more than 600m deep).

### Human activities and threats

The *Illex* squid is fished mainly by jigging vessels but also by trawlers along with other species. Key countries are Argentina, China (Taiwan), South Korea, Spain, United Kingdom (Falklands Islands/Islas Malvinas) and Uruguay. All fisheries in the high seas of the South-west Atlantic are largely unregulated. The inconsistent *Illex* stock levels year on year lead to poor fishing years and years of price collapse when stocks are abundant.

### Framework for the MPA

The sovereignty dispute between Argentina and the United Kingdom currently blocks any bi-lateral exchange of data and joint management processes. For over five years, WWF, associate Fundación Vida Silvestre Argentina and key representatives of the fisheries sector have been in dialogue to seek a management solution that will complement all government positions. The most practical way forward is the designation of a multi-use HSMMPA to cover the *Illex* squid distribution in the high seas, including its spawning grounds, and a further deep sea zone for scientific research. The challenge is to achieve multi-lateral scientific consensus on conservation and sustainable management requirements within the area and de-politicise issues such as stocks allocation by a private agreement amongst all multi-lateral fishing interests. Flag state control of EU vessels in the region through EIA, will be informed by a scientific campaign (October 2007- March 2008) by the Spanish Administration in partnership with Argentine scientists.

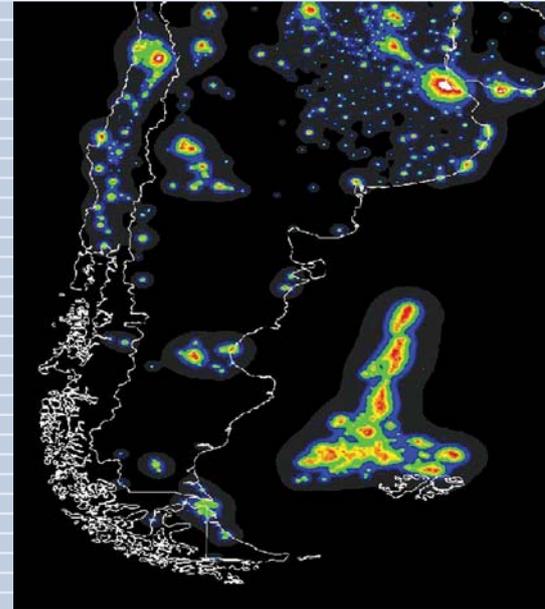
### Check against the criteria

Conservation organisations of the Forum for the Patagonian Sea and its areas of influence are currently compiling a review on the "Conservation State of the Patagonian Sea", including areas beyond national jurisdiction, which will help further inform this analysis.

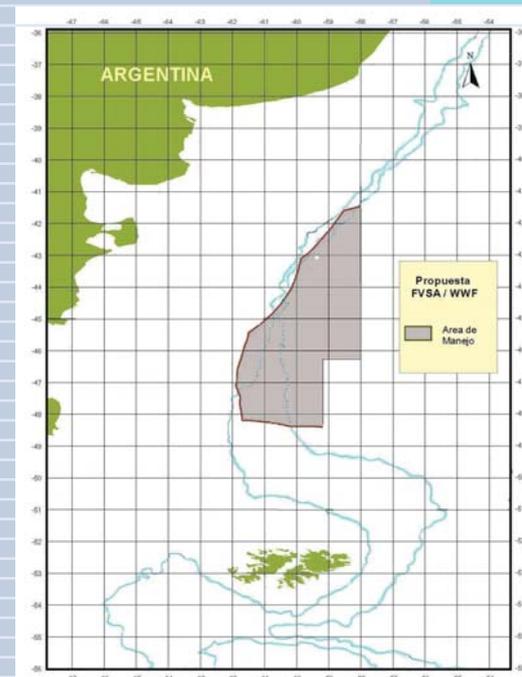
**Importance for threatened endangered or declining species and or habitats** - The area is fundamentally important for the threatened *Illex* stock. As a cold water system, food chains and species numbers tend to be less complex and less abundant respectively than in warm water systems and therefore individual population decline can be more threatening to the entire food web.

**Vulnerability, fragility, sensitivity or slow recovery** - The population

## Case study 4: The proposed South-west Atlantic Squid HSMMPA



The city at sea: the lights of the squid jigging vessels (estimated to be more than 300 vessels) in the area of the proposed HSMMPA are as bright as Buenos Aires city in 2000.



Proposed HSMMPA in the Southwest Atlantic.  
By Germán Palé, FVSA.

abundance of *Illex* can have an alarming variation from one year to the next. For this and other species states, additional studies of the sensitive deep sea bed beyond the continental platform are required.

**Biological productivity** - This is very high, as it is area of highly productive current convergence and upwelling.

**Biological diversity** - The region in general has a lower overall diversity than in warmer water systems, but it is the feeding ground and migration route of a number of important Antarctic and sud-Antarctic seabirds and mammals.

**Naturalness** - The deep sea waters still largely unexplored.

## Recommendations

Recognising that parties to the CBD have committed to establishing networks of ecologically representative MPAs, including in areas beyond national jurisdiction, by 2012, WWF's general recommendation is that urgent action is required to incorporate the concept of effectively managed MPA systems offshore within all relevant UN and regional instruments, fora and other arrangements and in national governments processes, covering areas both within and beyond national jurisdiction. In particular:

1. That the CBD as the relevant UN body responsible for providing scientific advice on biodiversity protection adopts the ecological criteria for HSMPA selection developed by its expert workshop and presented to its ninth Conference of Parties.
2. That all RSOs and RFMOs create their own programme of work within their respective areas of competency to draw up lists of proposed HSMPAs by 2009 based on best available scientific information.
3. That in regions such as the South-west Atlantic where formal regional arrangements are unlikely in the short term, meetings are held with scientific experts and stakeholders to obtain a scientific-based consensus on voluntary management measures for multi-use and biodiversity protection. A pilot could be the area proposed by WWF (see case study 4.).
4. That the Member States of international bodies such as the IMO and ISA review the Protected Areas Work Programme of the CBD and incorporate relevant elements into their own processes and decision-making, and identify and support regional measures which facilitate the development of effectively managed regional MPA networks by 2012.
5. That national governments strengthen their management not only by improved flag state control but also through port and market state controls and control over their nationals, to help protect biodiversity in areas beyond national jurisdiction, including in HSMPAs, through use of tools such as Environmental Impact Assessment and Strategic Environmental Assessment.

6. That in parallel with the development of HSMPA systems, States should negotiate a new UNCLOS Implementing Agreement for high seas biodiversity conservation to address a broader range of necessary reforms for integrated management, as well as to support the implementation of effective management and control measures for HSMPA systems.
7. That in all instances the final selection of HSMPA systems by 2010 and their effective management measures by 2012 are achieved based on application of ecosystem-based management principles, including wide stakeholder consultation for achieving a balance between medium-term commercial interests and biodiversity protection but, that the final decision is based upon best available scientific advice, consistent with the precautionary approach, to achieve the objectives of the MPA systems.
8. That, as a parallel exercise, a global review of financial mechanisms for creation and effective management of HSMPAs is undertaken by governments at the earliest possible date, which includes innovative concepts such as payments for environmental services, reciprocal access arrangements and business planning, but that this review should not delay urgent actions detailed in the other recommendations from this document.





By M. Royo Celano

WWF is one of the world's largest and oldest organisations, active in more than 50 countries around the world. WWF aims to restore the balance in the use of the oceans, and secure a healthy marine environment for future generations.

WWF's mission is to stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature, by:

- conserving the world's biological diversity
- ensuring that the use of renewable natural resources is sustainable
- promoting the reduction of pollution and wasteful consumption.

For more information about WWF Global Marine Programme please contact:

WWF Global Marine Programme  
Avenue de Mont-Blanc 1196  
Gland - Switzerland  
Tel.: 00 41 22 364 9111 - [sbladen@wwfint.org](mailto:sbladen@wwfint.org)  
[www.panda.org](http://www.panda.org)



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