

Questions & Answers

FISHING COMPANIES ANNOUNCE WORLD'S FIRST VOLUNTARY CLOSURES TO HIGH-SEAS DEEPWATER TRAWLING

Questions & Answers about deep seas and benthic protected areas

WHAT IS A BENTHIC PROTECTED AREA?

The term “benthic” signifies on the bottom, under a body of water. The region at the bottom of a body of water, such as an ocean or a lake is known as the “benthic zone”. The fauna in this zone is the ‘benthos’.

Benthic protected areas are set aside in the oceans and delimited by latitude and longitude coordinates or other boundaries such as those of EEZs or territorial waters. The benthic protected areas declared by Southern Indian Ocean Deepwater Fishers' Association (SIODFA) are a **global first** as no such zones in the high seas existed prior to this announcement. These areas will provide protection for vulnerable bottom benthos such as cold water corals, other fixed benthos and related faunal communities: this will contribute to their sustainability and conservation.

WHAT LIVES IN BENTHIC ZONES?

The Benthic zone adjacent to the seabed in deep-sea areas is inhabited mostly by organisms that tolerate low temperatures and can survive without light. Between 500,000 and 100 million species are thought to live in deep ocean habitats. Benthic zones may consist of a variety of substrates including sand, rock outcrops (e.g. seamounts, knolls, tectonic ridges) and coral although the deep sea floor consists predominately of soft mud. The type of substrate influences the kind of creature that live there. Fauna that inhabit the benthic zone of the deep sea include tiny clams, worms, and crustaceans while a variety of larger animals such as sea cucumbers and starfish wander across its surface. A myriad of fishes live in the water column above this zone.

WHAT IS BOTTOM TRAWLING?

Bottom, or demersal, trawling refers to a fishing method whereby nets are towed along the sea floor. In pelagic trawling, the net is towed in the water column. Bottom trawling is practiced by vessels from small motor boats to large ocean-going trawlers; in the Southern Indian Ocean, these are up to 85 m in length.

A bottom trawl net is kept open by two inclined trawl doors that act as planes as they are pulled by the vessel. Fish in the path of the trawl pass over the ground rope and beneath the head line pass down the net into a "cod-end" which has a smaller mesh size, where the fish are collected. The size and design of these nets depends on the species targeted, the engine power and design of the fishing vessel and locally enforced regulations.

Trawling in this area may occur from 150 m down to 1400 m with most bottom trawling in the range 500 to 1400m.

WHAT ARE THE MAIN EFFECTS OF BOTTOM-TRAWLING?

Bottom trawling in areas where corals exist can cause significant damage to such animals and species that are extremely slow growing and may take hundreds or even thousands of years to recover from the damage. Where benthos is of great age and of scientific importance, it is important to avoid demersal trawling to protect these ancient lifeforms.

WHAT ARE THE BENEFITS OF MARINE PROTECTED AREAS SUCH AS BENTHIC PROTECTED AREAS?

Protecting marine biodiversity in critical areas ensures the survival of slow growing benthic fauna and conserves sea floor bio-diversity and fish habitat. Such areas also act as reserves for genetic material, scientific research. Existing marine protected areas cover less than one percent of the seas and oceans: there is not a single area on the high seas, which make up 64% of the world's oceans.

WHAT RESEARCH HAS BEEN DONE IN THE AREAS OF THE BENTHIC PROTECTED AREAS?

The seafloors of these areas have been determined by the fishing operators using swath-mapping, a method that uses low frequency sidescan sonar and multiple transducers to map the sea floor. In some areas, e.g. Atlantis Benthic Protected Area, considerable submarine geological research has been undertaken.

WHAT IS THE CURRENT STATE OF THE INDIAN OCEAN FISH STOCKS?

The current state of health of the different deepwater fish species and stocks of the Indian Ocean is unclear as species assessments have been impeded by lack of a regional fisheries management organization. Data recording of fishing activities has been undertaken by various fishing companies but concerted efforts to collect, collate and analyze these data are now just beginning.

Overall, overfishing and unregulated fishing are perhaps the greatest threats. In the absence of an effective ocean governance framework, future supply of fish and other vital marine resources for the world's population is at risk.

WHAT ARE THE COMMERCIALY IMPORTANT DEEPWATER SPECIES FISHED IN THE INDIAN OCEAN?

Commercially-exploited deep-water fishes include the very slow-growing orange roughy (*Hoplostethus atlanticus*) and oreos (*Allocyttus niger*, *Neocyttus rhomboidalis*, *Pseudocyttus maculatus*), the relatively fast growing alfonosinos (*Beryx splendens*), boarfish (*Pseudopentaceros richardsoni*) and *Epigonus telescopus* (Cardinalfish), Bluenose (*Hyperoglyphe antarctica*), ruby fish (*Plagiogeneion rubiginosum*), Cape bonnethmouth (*Emmelichthys nitidus*), bluenose warehou (*Hyperoglyphe antarctica*), violet warehou (*Schedophilus velaini*), imperial blackfish (*Schediophilus ovalis*), wreckfish (*Polyprion americanus*) and rudderfish (*Centrolophus niger*). In some areas, deepwater shrimp such as royal red shrimps may also be exploitable, though they have not supported continuing fisheries.

WHAT MARINE PROTECTED AREAS DOES THE INDIAN OCEAN CURRENTLY POSSESS?

<http://www.mpaglobal.org/> lists protected areas by country and these are shown on a global basis in Figure 1. Prior to this closure, the Southern Indian Ocean had more than 200 marine protected areas, covering some 77 000 km² but all were in national economic extended areas. The high-seas sea floor areas that will be voluntarily closed to bottom trawling cover 309 150 km², an area slightly larger than Norway! The areas closed to SIODFA vessels in the southern Indian Ocean are shown in Figure 2 and full details of the benthic protected areas are provided in Table 1.

Figure 1
Locations of MPAs on a global basis

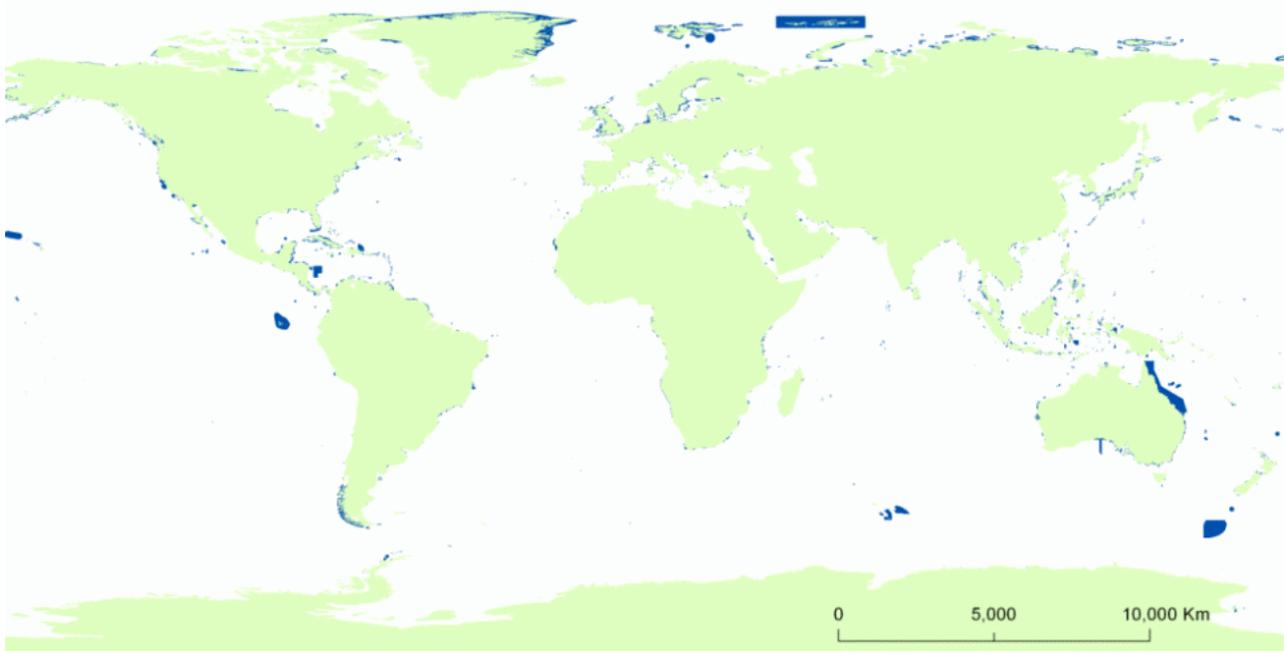


Figure 2

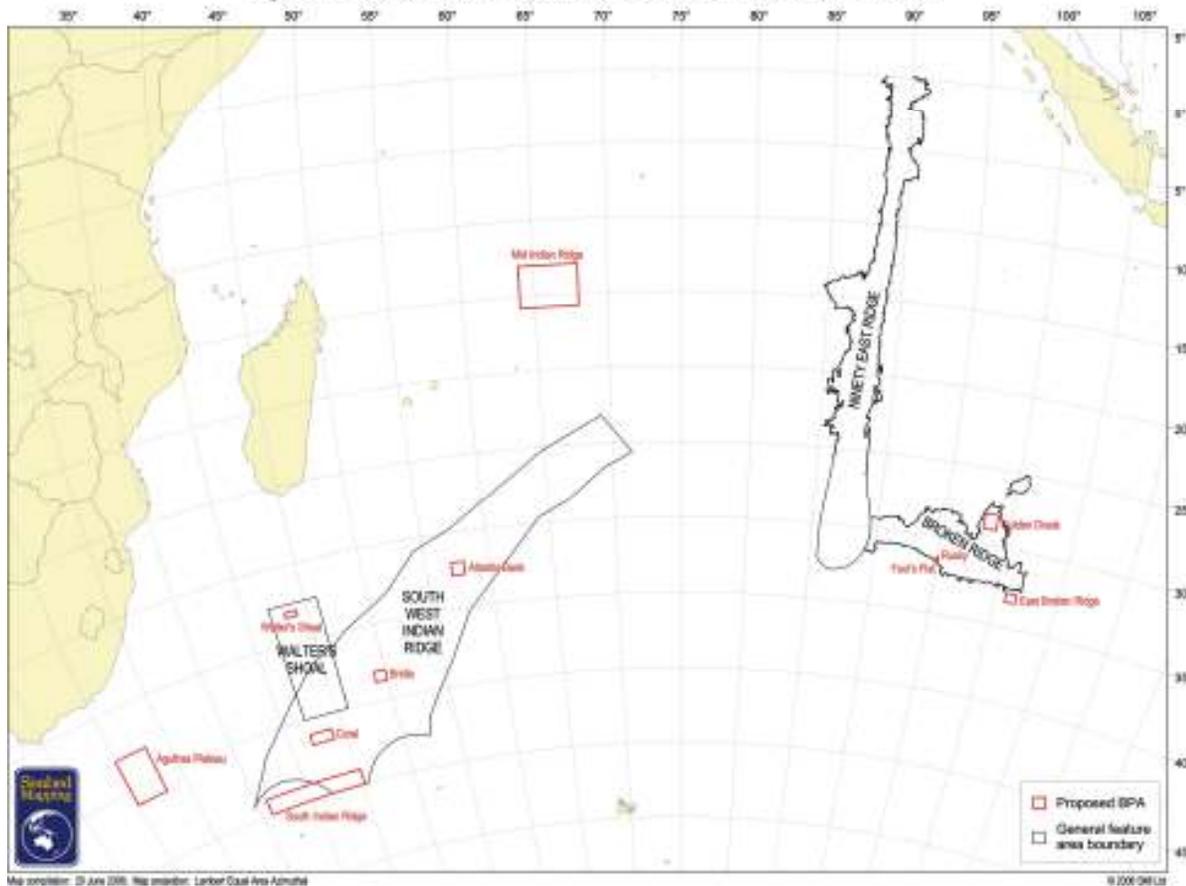


Table 1

SIODFA Benthic Protected Areas

Area	Coordinates				Area (km ²)	Area Features
	Lat (S)	Long (E)	Lat (S)	Long (E)		
<i>Gülden Draak</i>	28° 00'	98° 00'	29° 00'	99° 00'	10 867	A massive mid-ocean seamount in pristine biological condition.
<i>Rusky</i>	31° 20'	94° 55'	31° 30'	95° 00'	147	A productive knoll located on extensive ridge; extensive black coral exists with the benthos in an almost pristine state.
<i>Fools' Flat</i>	31° 30'	94° 40'	31° 40'	95° 00'	585	A deep-sea bank with numerous canyons incising its slopes; strong upwelling currents sustain extensive coral beds; in pristine condition, this is a previously unmapped area of the seabed.
<i>East Broken Ridge</i>	32° 50'	100° 50'	33° 25'	101° 40'	5 037	A seamount rising to 1000 m, biologically pristine; its benthos and topography previously undescribed.
<i>Mid-Indian Ridge</i>	13° 00'	64° 00'	15° 50'	68° 00'	135 688	An area of seamounts rising to 650 m; a tropical region in pristine biological condition.
<i>Atlantis Bank</i>	32° 00'	57° 00'	32° 50'	58° 00'	8 694	This seamount was formed from an ancient island; extensive research has been conducted on this BPA by a number of agencies; it is the location of a productive fishery
<i>Bridle</i>	38° 03'	49° 00'	38° 45'	50° 00'	6788	An area of knolls and ridges in almost pristine condition; previously unmapped and undescribed.
<i>Walters Shoal</i>	33° 00'	43° 10'	33° 20'	44° 10'	3 443	This area, which rises from 4000 to within 10 m of the surface provides a habitat for a variety of whale species; the area is characterized by high biodiversity
<i>Coral</i>	41° 00'	42° 00'	41° 40'	44° 00'	12 376	A spreading centre with seamounts and ridges with depths from 4500 m to 180 m. Extensive coral beds, a near pristine area.
<i>South Indian Ridge (North)</i>	44° 00'	40.878° S	44 00'	46.544° E		An area of seamounts adjacent to the CCAMLR region to the south; in pristine biological condition.
<i>(South)</i>	45 00' S	42.124° E	45° 00' S	45.711° E		This area is bounded to the east and west by the EEZs of South Africa and France.
<i>Agulhas Plateau</i>	38° 00'	25° 00'	41° 00'	28° 00'	85 828	Region of seamounts north of the proposed South African Antarctic MPA; contiguous with the South

WHY WAS SIODFA CREATED?

SIODFA, the Southern Indian Ocean Deepwater Fishers Association is fundamentally committed to biologically-sustainable and economically-viable commercial fishing operations in the southern Indian Ocean. Its members recognize their responsibility to contribute to resource management activities and will continue to expand their programme of fisheries research in the area.

SIODFA is comprised of Austral Fisheries Pty Ltd, Perth, Australia; Bel Ocean II Ltd, Port Louis, Mauritius; Sealord Group, Nelson, New Zealand; TransNamibia Fishing Pty Ltd, Walvis Bay, Namibia. SIODFA membership is open to reputable companies who are fishing in the deepwaters of the Southern Indian Ocean and who support the objectives of the Association.

Fishing effort by SIODFA members has been fairly stable since 2002 at around four vessels. This is a major reduction from the peak of over 40 vessels operating in 2000, a level of fishing that would have been unsustainable during this period of opportunistic fishing by numerous operators.