

The Formigas Bank - A Potential MPA

Location

The Formigas Islets and Dollabarat Reef (known collectively as the Formigas Bank) are a remote group of shallow reefs in the southeastern part of the Azores, 33 and 20 nautical miles (nm) from the neighbouring islands of the archipelago. The position is approximately 37°19' N 24°40' W and 37°12' N 24°48' W.

Potential Reasons for Selection

Although the Formigas Bank has the status of a Nature Reserve since 1988 and a small part of it is a European Site of Community Importance (SCI), it further qualifies as an OSPAR MPA as it is representative of the wealth of biodiversity associated with the open ocean hard substrate environment. Moreover, the Formigas Bank is a good example of the remarkable ecological importance of seamounts in OSPAR Region V, the Wider Atlantic in terms of feeding grounds, spawning and nursery areas for many marine species. The Formigas Bank example highlights the necessity to weave a network of protected areas for the North-East Atlantic.

Site Description

The reefs forming the Formigas Bank are located in an area subject to strong currents and frequent large swells. The Formigas Islets break the surface forming a linear group of rocky outcrops with a lighthouse on the largest landmass. The Dollabarat Reef is completely submerged

but the shallowest area is only around 3 m deep so oceanic waves frequently break on its top.

In calm seas, it is possible to go ashore on the Formigas Islets just below the lighthouse.

Around the Islets the seabed drops steeply to a depth of 50-70 m on both sides and more gently

at the northern and southern ends. The gradient is less marked around the Dollabarat Reef,

which is also larger and more heterogeneous but nevertheless shows a steep profile.

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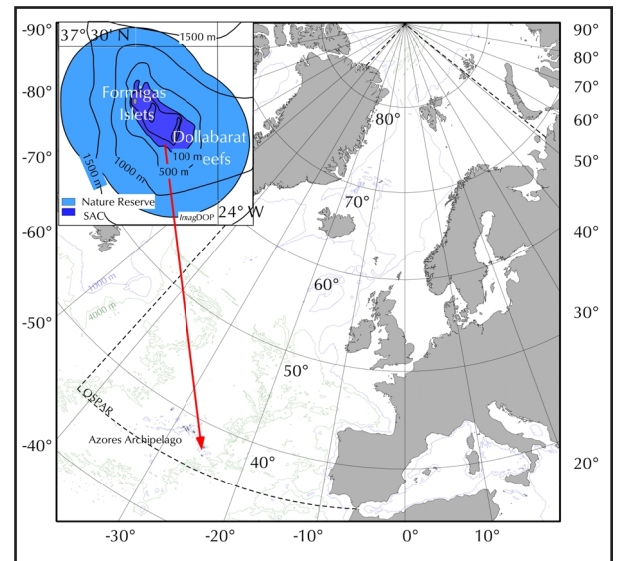


Fig. 1: Location of the Formigas Islets and Dollabarat Reef in the North-East Atlantic and the Azores Archipelago.

Biological Features

The shallowest areas of the reefs are believed to be unique in the Azores, due to their dense and tall cover of *Cystoseira* spp., as well as the high abundance and diversity of pelagic species occurring in large schools at large individual size. No similar subtidal *Cystoseira* stands have been recorded elsewhere in the archipelago and hence, they are supposed to be the marine biotope with the highest plant biomass in the Archipelago. Likewise, this is the only site in the Azores where laminarians (*Laminaria ochroleuca*) are known to occur. The fronds of *Cystoseira* are generally 20-30 cm long and provide shelter for large numbers of fish such as juvenile ornate wrasse (*Thalassoma pavo*), emerald wrasse (*Centrolabrus caeruleus*) and juvenile dusky grouper (*Epinephelus marginatus*). The deep crevices, which are common, provide a habitat for many benthic species such as locust lobster (*Scyllarides latus*), conger eel (*Conger conger*), moray eel (Muraenidae spp.), and larger forkbeard (*Phycis phycis*), and the vertical faces are colonised by sponges, cup corals and jewel anemones. The algal beds start to thin out below 30 m and are gradually replaced by communities dominated by encrusting species. Large colonies of the black coral (*Antipathes wollastoni*) occur on the vertical faces of the bedrock in these deeper areas.



Fig. 2: Dollabarat Reef. The clarity of the mid-ocean waters renders a splendid rocky seascape, covered by a dense and tall mat of swaying algae. Photo: R.S. Santos ©ImagDOP

Justification for the Potential Selection of the Formigas Bank as an Offshore Marine Protected Area

The pelagic communities are particularly rich on and around the reefs, with large numbers of jacks (*Seriola rivoliana* and *Seriola dumerili*), striped barracuda (*Sphyraena viridensis*), Atlantic bonito (*Sarda sarda*) and grey triggerfish (*Balistes carolinensis*), as well as smaller species that make up the basis of the food web, like boarfish (*Capros aper*) and snipefish (*Macroramphosus scolopax*). Large oceanic predators like manta rays (*Manta birostris*), sicklefin mobulas (*Mobula tarapacana*), Galapagos sharks (*Carcharinus galapagensis*) and the shortfin mako (*Isurus oxirhynchus*) are also often registered in the area. Large individuals of demersal species such as seachub (*Kyphosus sp.*), comb grouper (*Mycteroperca fusca*), black-tail comber (*Serranus atricauda*) also occur frequently. Bottlenose dolphins (*Tursiops truncatus*), common dolphins (*Delphinus delphis*), spotted dolphins (*Stenella frontalis*), pilot whales (*Globicephala sp.*) and loggerhead turtles (*Caretta caretta*) are frequently observed.

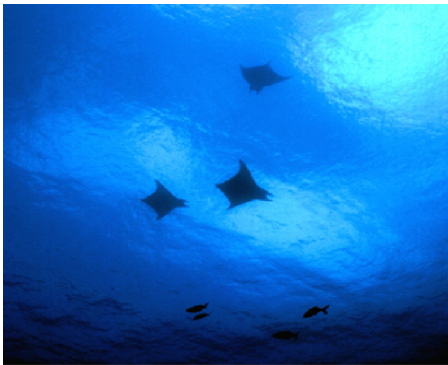


Fig. 3:
Formigas Islets.
Sicklefin mobulas
(*Mobula tarapacana*)
Photo: J. Cardigos
©ImagDOP

Human Impacts

Due to the extraordinary clarity of the mid-ocean waters which enhance the exuberance of these communities and the beauty of the seabed even further, one can hardly imagine that this splendid seascape could suffer from environmental degradation. Local and historical knowledge, however, suggest that there has been significant depletion of some of the marine resources around the Formigas Islets in particular, with noticeably fewer commercial species such as locust lobsters and limpets, as well as some demersal fish species. The variety and intensity of fishing over the bank which is expected to further increase due to the depletion of fishing grounds in the Eastern Azores, are the principal threat to the marine resources of the area and result from both commercial and recreational activities. The remoteness of the Formigas Bank makes it difficult to enforce existing legal regulations, forbidding the collection of any molluscs, crustaceans or algae, sports fishing, spearfishing, fishing with trammel nets, bottom long lining (artisanal fishing with up to 14 m boats allowed). These activities increasingly threaten the ecological integrity of the Formigas Bank. Research is directed at studying the movements of demersal fish across Azorean seamounts and assessing their role as spawning and nursery grounds. If these functions prove real, the impact of the extractive activities could have far-reaching implications for commercial fisheries.

Existing/Proposed Protection

The Formigas Bank became a nature reserve in 1988 by Law Decree (see DLR no. 11/88/A of 4 April with DLR no. 8/90/A of 17 May), comprising an area limited by a 5 nm radius from the lighthouse on the Formigas Islets and a 5 nm radius from the shallowest point of the Dollabarat Reef. The habitats encompassed by this protected area range from the emerged area of the Formigas Islets to depths of more than -1700 m in places. A fraction of the reserve (3628 ha, extending only to 200 m depth) was designated as a Site of Community Importance (SCI, Natura 2000 network) because of its reefs, bottlenose dolphin (*Tursiops truncatus*) and loggerhead turtle (*Caretta caretta*).

Management Issues

At present, neither the nature reserve nor the SCI benefits of any management plan and the need to enforce proposed protection measures is particularly pressing. Zoning schemes can be a useful tool in the management of this MPA. As the Formigas Islets and the Dollabarat Reef already are a nature reserve, the central part of which is the SCI, there already exist two potentially different management zones in the area. One management option is for the SCI to act as a core zone for the nature reserve in which all resource extraction would be prohibited. Another option is to extend strict protection out to the boundary of the nature reserve without any difference in management regime for the whole area. The latter presents a simpler and more ecologically sound option as it covers the whole bank. At least, it would be worth being pursued on an experimental basis for several years. An unambiguous management scheme is needed to help improve the acceptance for the reserve by the neighbouring communities and protect the treasures of the ocean against deliberate destruction.

Action Required

Detailed management plans for the Formigas Bank and other Azorean SCIs will soon be presented for public discussion, putting the protection of Formigas Bank into the larger context of conservation of the region (EU-LIFE project Maré, involving the University of the Azores and the Regional Departments of Environment and of Fisheries). In this context, not only the surveillance of the area and the enforcement of regulations, but also the communication with resource users has to be improved. As an OSPAR MPA, Formigas Bank should benefit from extra popularity as an important site within a network of marine conservation for the whole Atlantic region.

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References/Further Reading

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