



## Océana proposal for a Marine Protected Area Klints Bank and North East of Gotland

### INTRODUCTION

Klints Bank is an offshore bank in the middle of the Baltic Proper, located about 50 km to the east of Gotland. This eastern part of the Gotland Basin is recognized as an important area for Baltic species and habitats<sup>1</sup>, but large parts of the area remain unprotected. Twenty km east of the bank lays one of the deepest points in the Baltic Sea, the Gotland Deep, which reaches more than 250 m deep. At around 28 m deep, Klints Bank is a plateau with steep transition towards the surrounding Gotland Basin. The moraine-generated bank is isolated and exposed far out at sea, and is both deeper and smaller than other offshore banks in the Baltic Sea, such as Norra Midsjöbanken and Södra Midsjöbanken<sup>2</sup>.

Little is known about the ecology of Klints Bank and its surrounding area. Though more studies should be carried out to reliably assess its environmental importance, there is already some evidence of the value of Klints Bank. Many seabirds, for example, can be found in the water between the bank and the coast of

Gotland<sup>3</sup>. Furthermore, the Eastern Gotland Basin is an important spawning ground for fish, like cod<sup>4</sup> and it is likely an important breeding and feeding ground for other species as well. An area to the north of the bank, Gotska-Sandö, has been protected both nationally and through the EU Natura 2000 network.

Oceana conducted research at Klints Bank, its surroundings, and the coastal area northeast of Gotland in 2011 and 2012.

## DESCRIPTION OF THE AREA

Due to stratification, the deeper parts of the Gotland Deep suffer from a lack of oxygen, which prevents most multicellular organisms from living there. Occasionally, a phenomenon takes place wherein major inflows of oxygen-rich water from the North Sea reach the Gotland Deep via strong western winds. These inflows take place at irregular, sometimes decade-long, intervals. When they occur, the oxygen content at the bottom of the Gotland Deep increases, which allows species in the surrounding areas, such as amphipods and worms, to migrate and live there for a few years<sup>5</sup>. Oceana's recordings of the seabed showed organic-rich mud, a seabed strewn with dead medusa, but no visible life, indicating clearly that the Gotland Deep is currently in an anoxic condition.

As Klints Bank is next to the Gotland Deep, it possibly serves as a sanctuary for species escaping periods of oxygen deficiency. Furthermore, it can be assumed that during times of oxygen inflow, some species from Klints Bank and the surrounding areas migrate to the deeper parts of Gotland Basin. The basin is also known to be an important area for cod spawning when salinity and oxygen levels are good, and the area along the eastern coast of Gotland island serves as a nursery area for cod<sup>6</sup>.

Oceana studied different depths within the area proposed for protection; from the deep points of Gotland Deep to the shallower areas of Klints Bank, as well as some coastal sites just off Gotland's east coast. Klints Bank has sandy bottoms with ripples marks, strewn with rocks of different sizes covered in blue mussels (*Mytilus* sp.); a community that provides habitat for other species, such as hydrozoans and bryozoans, which attach themselves to the shelves. Predatory fish were also observed, including scorpion fish (*Myoxocephalus scorpius*) and cods (*Gadus morhua*), the latter of which is listed as vulnerable in the Eastern Baltic Sea<sup>7</sup> (see Table 1). Going deeper showed, unsurprisingly, fewer species, and at 108 meters depth, no visible life was observed.



Plaice (*Pleuronectes platessa*) at 57 meters depth near Klints Bank, Sweden. © OCEANA



Two-spotted goby (*Gobiusculus flavescens*) in shallow water at the eastern coast of Gotland in Sweden. © OCEANA/ Carlos Minguell

Compared to the offshore area, the shallow coastal area was inhabited by many species. Oceana documented several invertebrates, such as Baltic clam (*Macoma balthica*), cockle (*Cerastoderma* sp.), and crustaceans, including shrimp (*Praunus flexuosus*), as well as several species of fish, such as sand gobies. Brown algae and several types of red algae were also observed (see Table 2 for the entire species list).

## PROPOSAL

Currently, the central parts of the Baltic Proper are completely disconnected from the network of marine protected areas, and the Eastern Gotland Deep region has none.

Klints Bank should be protected because of its importance with respect to its surroundings. Furthermore, as a large, offshore sandbank, listed in the Habitats Directive, Klints Bank requires protection from EU Member States to avoid any further deterioration. This includes the obligation for these countries to protect the area through the Natura 2000 network and to designate as many Special Areas of Conservation (SAC) as necessary to guarantee its favorable conservation status.

## POSSIBLE THREATS AND MANAGEMENT PROPOSALS

Offshore banks, like Klints Bank, are generally less exposed to human activities, due to their distance from land. In the future, there may be growing interest to utilize more remote, offshore banks for construction of wind power, extraction of materials, etc, which could potentially threaten the area.

However, a number of threats currently exist, including eutrophication and fisheries. The state of eutrophication in the eastern Gotland basin ranges from poor to bad<sup>8</sup>, and the low visibility and depleted oxygen concentrations, especially in deeper areas, pose a severe threat to all species living in the area. Bycatch from fisheries threatens the area by killing non-target fish, such as juveniles, and species, such as benthic invertebrates, seabirds and marine mammals. Bottom trawling,<sup>9</sup> a particularly destructive fishing method, causes severe damage to the already fragile sea floor.

A management plan for the area should address all current and potential threats to the protected areas and provide strategies to prevent and mitigate them. Action will be required from all Baltic Sea countries to tackle larger issues like eutrophication, while other threats, such as fishing can be handled more easily with national management plans.

## REFERENCES

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- 6 Hinrichsen H-H., Kraus G., Böttcher U. & Köster. 2009. Identifying eastern Baltic cod nursery grounds using hydrodynamic modelling: knowledge for the design of Marine Protected Areas. *ICES Journal of Marine Science*, 66 101-108. Available at: <http://icesjms.oxfordjournals.org/content/66/1/101.full.pdf+html> [Viewed 19 Nov 2013].
- 7 HELCOM 2013. HELCOM Red List of Baltic Sea species in danger of becoming extinct. *Baltic Sea Environment Proceedings No. 140*
- 8 HELCOM 2010. Ecosystem Health of the Baltic Sea 2003-2007: HELCOM Initial Holistic Assessment. *Baltic Sea Environment Proceedings No. 122*.
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## SPECIES LISTS FOR KLINTS BANK AND NORTH EAST OF GOTLAND

**Table 1:** List of species recorded from Klints bank in 2011. Possible threat category indicated in brackets.

Species
<b>CNIDARIA</b>
<i>Laomedea flexuosa</i>
<b>BRYOZOA</b>
<i>Electra crustulenta</i>
<b>MOLLUSCA</b>
<i>Mytilus</i> sp.
<b>FISH</b>
<i>Gadus morhua</i> (vulnerable, HELCOM)
<i>Myoxocephalus scorpius</i>

**Table 2:** List of species in Klints bank in 2012 and their threat category.

Depth (m)	Species
108	<i>No life at all</i>
78-32	<b>CNIDARIA</b>
	<i>Cyanea capillata</i>
	<i>Laomedea flexuosa</i>
	<i>Obelia geniculata</i>
	<b>MOLLUSCA</b>
	<i>Mytilus</i> sp.
	<b>CRUSTACEA</b>
	<i>Monoporeia affinis</i>
	<i>Neomysis integer</i>
	<i>Saduria entomon</i>
	<b>FISH</b>
	<i>Gadus morhua</i> (vulnerable, HELCOM)
	<i>Myoxocephalus scorpius</i>
	<i>Pholis gunnellus</i>
	<i>Platichthys flesus</i>
	<i>Pleuronectes platessa</i>
	<i>Taurulus bubalis</i>
<i>Trigloporus quadricornis</i>	
11-15	<b>CNIDARIA</b>
	<i>Aurelia aurita</i>
	<i>Laomedea flexuosa</i>
	<b>BRYOZOA</b>
<i>Electra crustulenta</i>	

**Table 2:** List of species in Klints bank in 2012 and their threat category.

Depth (m)	Species
	<b>MOLLUSCA</b>
	<i>Cerastoderma</i> sp.
	<i>Macoma balthica</i>
	<i>Mytilus trossulus</i>
	<b>CRUSTACEA</b>
	<i>Balanus improvisus</i>
	<i>Bathyporeia pilosa</i>
	<i>Gammarus</i> spp.
	<i>Idotea</i> cf. <i>balthica</i>
	<i>Praunus flexuosus</i>
	<i>Saduria entomon</i>
	<b>ANNELIDA</b>
	<i>Piscicola geometra</i>
	<i>Seruplidae</i> spp.
	<b>FISH</b>
	<i>Gobiidae</i> sp.
	<i>Gobiusculus flavescens</i>
	<i>Myoxocephalus</i> cf. <i>scorpius</i>
	<i>Platichthys flesus</i>
	<i>Pleuronectes platessa</i>
	<i>Pomatoschistus minutes</i>
	<i>Zoarces viviparus</i>
	<b>RHODOPHYCEAE</b>
	<i>Ceramium</i> sp.
	<i>Furcellaria lumbricalis</i>
	<i>Hildenbranchia rubra</i>
	<i>Phyllophora</i> sp.
	<i>Polysiphonia</i> sp.
	<b>PHAEOPHYCEAE</b>
	<i>Halosiphon tomentosus</i>
	<b>CHLOROPHYCEAE</b>
	<i>Enteromorpha</i> sp.

**Table 3:** List of communities in Klints bank in 2011 and 2012 and their threat category.

Habitats and communities	Red list category
<i>Monoporeia</i> community	
<i>Mytilus</i> bed	
<i>Saduria</i> community	
Sandbanks	Vulnerable, HELCOM