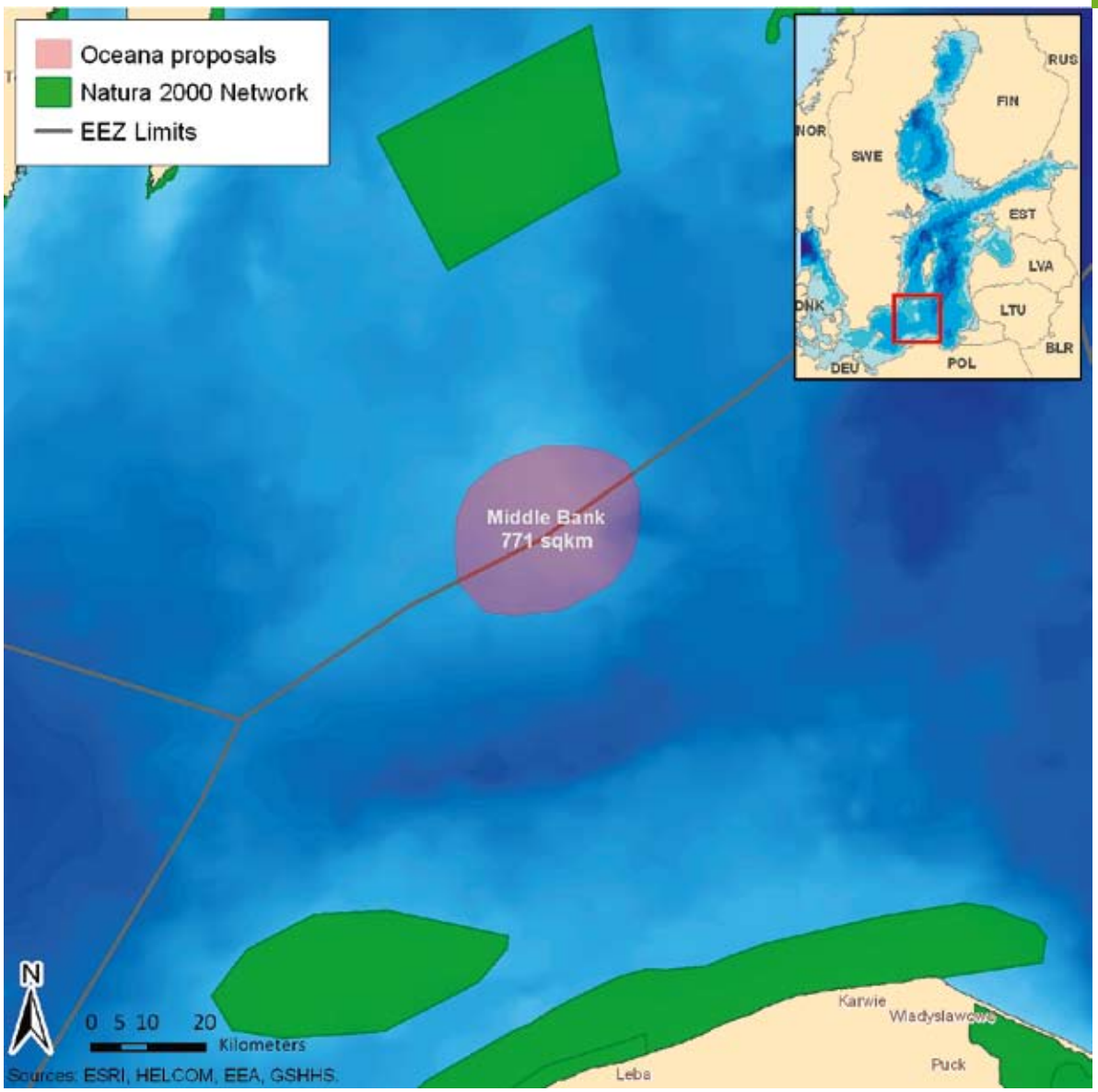

Oceana proposal for a Marine Protected Area

Middle Bank

INTRODUCTION

Middle Bank is located in the middle of the southern Baltic Proper, the main basin of the Baltic Sea. Salinity in the sub basin varies from higher levels in the southern and western parts to lower levels in the north, where the number of marine species declines. The Baltic Proper boasts a number of important breeding grounds for fish, birds and seals[1], but its overall health is poor, as a consequence of the excessive nutrient load that has led to eutrophication[2].

Oceana conducted underwater surveys in the area in 2011 and 2012.

DESCRIPTION OF THE AREA

Middle Bank, also known as Södra Midsjöbanken in Swedish, is situated approximately 80 km from the nearest coast, in the exclusive economic zones of Poland and Sweden[3]. Unlike the two nearest offshore banks, *Norra Midsjöbanken* and *Hoburgs Bank*, both in Sweden, Middle Bank is not protected.

Salinity in the area is relatively low, at 6-7.5 psu and the shallowest area is at 13 meters depth[4]. The bank's exposure to waves, combined with the low salinity, limits the number of marine species living there. Nevertheless, the species that do call this bank their home have an important role in the ecosystem. Blue mussels (*Mytilus* sp.) are present in high numbers on scattered stones across the bank. These mussels are an important food resource to the wintering long-tailed duck (*Clangula hyemalis*)[5]. Organisms including hydroids (*Cordylophora* sp.) and algae such as *Pilayella littoralis* and *Rhodomela confervoides,* also make their home in Middle Bank. The southern, Polish, part of the bank hosts Baltic clams (*Macoma balthica*), sand gapers (*Mya arenaria*), and cockles (*Cerastoderma* spp.), as well as the polychaet *Pygospio elegans*, which are the most common species[6] in the area.

The *Saduria* community, named after the large isopod *Saduria entomon* has a relatively large distribution in the Baltic Sea, and can also be found in the Southern Baltic Proper. The isopod is omnivorous, and is also an important food supply for cod (*Gadus morhua*) and fourhorn sculpin (*Triglopsis quadricornis*)[7].

ROV readings at 18 meters depth taken in 2011 in the northern part of Middle Bank, in Swedish waters, revealed a sand bottom with ripples marks and few larger stones on which blue mussels were attached. Other invertebrates, including hydroids, barnacles, and bryozoans were attached to the blue mussels. Two dives conducted in 2012 at 16 and 18 meters depth respectively, saw sandy seafloors scattered with bigger stones covered with *Mytilus* sp. Cod, short-spined scorpions (*Myoxocephalus scorpius*), and a male lumpsucker (*Cyclopterus lumpus*), which was protecting red eggs on the seabed, were also documented at one of the sites (see Table 1).

In deeper waters of the area, at 58 meters, the *Saduria* community was documented on gravel- and sand-mixed seabed with few scattered stones. *Saduria entomon* of different sizes, indicating a variety of ages, were also present in high numbers. This community is listed as threatened and/or declining in the Southern Baltic Proper by HELCOM.

In the southern part of Middle Bank, in Polish waters, a 2012 scuba dive at 20 meters depth showed sand bottom with bivalves, including sand gaper (*Mya arenaria*) and blue mussels, shrimps (*Praunus flexuosus*), and fish, such as sand goby and turbot (*Psetta maxima*). Bladder wrack (*Fucus vesiculosus*) and red seaweed (*Ahnfeltia plicata*) were also documented in the area.

PROPOSAL

Sandbanks (EU code 1110) are some of the few marine habitats protected under the EU Habitat Directive. Nevertheless, despite meeting the requirements for protection, Middle Bank is currently unprotected.

Oceana's proposal covers this important area for wintering birds, which also hosts the aforementioned *Saduria* community (see map above). Cod and plaice, both of which are listed as threatened and/or declining fish species by HELCOM, are also present in the area and there is evidence suggesting that Middle Bank functions as a nursery area for cod. The southern part of the bank is a fishing area for cod and autumn herring[8].

There is general a lack of offshore protected areas in the Baltic Sea. Establishing Middle Bank as a marine protected area would move the Baltic Sea closer to having an ecologically coherent network of MPAs as recommended by HELCOM.

POSSIBLE THREATS AND MANAGEMENT PROPOSALS

Even though the bank is located far from land, several human threats exist including eutrophication and hazardous substances, as well as cod and herring fisheries, shipping, and extractions[9,10]. Furthermore, the southern part of Middle Bank was a minefield during World War II, and though most were removed after the war, the area is still considered to a mine threat region[11].

Sweden has plans to establish an offshore windfarm in the Middle Bank[12]. The increasing CO_2 emissions, acidification of oceans and climate changes makes wind parks a better and more environmentally friendly way of creating energy, than thermal and nuclear power plants. The structures can serve as reef-like objects, which can be beneficial for blue mussel communities and macrophytes, for instance. Often, fisheries are also prohibited between the mills creating a closure area for fish to replenish in. Maritime traffic is also by default restricted. However, the establishment of wind parks may have some unwanted environmental impacts, both during the construction and operation phases, including underwater noise and physical disturbance. These should be minimized using best available technologies.

A management plan for the Middle Bank should address all the aforementioned threats, paying particular attention to the species and communities which are threatened and/or declining.

Cod (*Gadus morhua*) and blue mussels (*Mytilus* sp.). Middle Bank, Southern Baltic Proper, Sweden. © OCEANA/ Carlos Minguell

REFERENCES

1 HELCOM 1998. Red list of marine and coastal biotopes and biotope complexes of the Baltic Sea, Belt Sea and Kattegat. Baltic Sea Environment Proceedings No. 75.

2 HELCOM, 2010. Ecosystem Health of the Baltic Sea 2003-2007: HELCOM Initial Holistic Assessment. Balt. Sea Environ. Proc. No. 122.

3 Zaucha J. & Matczak M. 2011. Developing a pilot maritime spatial plan for the southern Middle Bank. Maritime Institute, BaltSeaPlan Report No. 10. Available at: http://www.baltseaplan.eu/index.php?cmd=download&subcmd=downloads/0_MiddleBank_2011.pdf [Viewed 4 March 2013].

4 Zaucha J. & Matczak M. 2011. Developing a pilot maritime spatial plan for the southern Middle Bank. Maritime Institute, BaltSeaPlan Report No. 10. Available at: http://www.baltseaplan.eu/index.php?cmd=download&subcmd=downloads/0_MiddleBank_2011.pdf [Viewed 4 March 2013].

5 Petterson J. / JP Fågelvind 2006. Fågeldelen av miljökonsekvensbeskrivningen för en fast vindmätningsstation på Södra Midsjöbanken.

6 Zaucha J. & Matczak M. 2011. Developing a pilot maritime spatial plan for the southern Middle Bank. Maritime Institute, BaltSeaPlan Report No. 10. Available at: http://www.baltseaplan.eu/index.php?cmd=download&subcmd=downloads/0_MiddleBank_2011.pdf [Viewed 4 March 2013].

7 Sandberg E. & Bonsdorff. 1990. On the structuring role of *Saduria entomon* (L.) on shallow water zoobenthos. Ann. Zool. Fennici 27, p 279-284.

8 Zaucha J. & Matczak M. 2011. Developing a pilot maritime spatial plan for the southern Middle Bank. Maritime Institute, BaltSeaPlan Report No. 10. Available at: http://www.baltseaplan.eu/index.php?cmd=download&subcmd=downloads/0_MiddleBank_2011.pdf [Viewed 4 March 2013].

9 HELCOM, 2010. Ecosystem Health of the Baltic Sea 2003-2007: HELCOM Initial Holistic Assessment. Balt. Sea Environ. Proc. No. 122.

10 Zaucha J. & Matczak M. 2011. Developing a pilot maritime spatial plan for the southern Middle Bank. Maritime Institute, BaltSeaPlan Report No. 10. Available at: http://www.baltseaplan.eu/index.php?cmd=download&subcmd=downloads/0_MiddleBank_2011.pdf [Viewed 4 March 2013].

11 Zaucha J. & Matczak M. 2011. Developing a pilot maritime spatial plan for the southern Middle Bank. Maritime Institute, BaltSeaPlan Report No. 10. Available at: http://www.baltseaplan.eu/index.php?cmd=download&subcmd=downloads/0_MiddleBank_2011.pdf [Viewed 4 March 2013].

12 E.ON. Vindkraftprojekt Södra Midsjöbanken. Samrådsunderlag 2011-05-16.

SPECIES LIST OF MIDDLE BANK

Table 2: List of species at Middle Bank in 2011 and 2012, listed by depth. Possible threat category indicated in brackets.

Depth (m)	Species
58	**CRUSTACEA**
	Saduria entomon
16-20	**CNIDARIA**
	Campanulariidae sp.
	Laomedea sp.
	ANNELIDA
	Piscicola geometra
	MOLLUSCA
	Cardiidae sp.
	Mya arenaria
	Mytilus edulis
	Mytilus sp.
	CRUSTACEA
	Balanus sp.
	Balanus improvisus
	Gammarus sp.
	Palaemon cf. *adspersus*
	Praunus flexuosus
	Mysis sp.
	BRYOZOA
	Electra crustulenta
	FISH
	Cyclopterus lumpus
	Gadus morhua (threatened and declining, HELCOM)
	Myoxocephalus scorpius
	Platichthys cf. *flesus*
	Pleuronectes platessa (probably declining, HELCOM)
	Pomatoschistus cf. *minutus*
	Pomatoschistus sp.
	Psetta maxima
	RHODOPHYCEAE
	Ahnfeltia plicata
	PHAEOPHYCEAE
	Fucus vesiculosus

Table 2: List of habitats and communities at Middle Bank in 2011 and 2012, and their threat category.

Habitats and communities	Red list category
Mytilus bed	
Saduria community	Threatened and/or declining in the Southern Baltic Proper (HELCOM)
Sandbanks	Endangered (HELCOM)

OCEANA

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