

BIOTOPE INFORMATION SHEET

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| English name: Baltic photic muddy sediment dominated by ocean quahog (<i>Arctica islandica</i>) | | Code in HELCOM HUB: AA.H3L3 | |
| Characteristic species: <i>Arctica islandica</i> | | | |
| Past and Current Threats (Habitat directive article 17): Eutrophication (H01.05) | | Future Threats (Habitat directive article 17): Eutrophication (H01.05) | |
| Red List Criteria: A1 | Confidence of threat assessment: M | HELCOM Red List Category: | NT Near Threatened |
| Previous HELCOM Red List threat assessments | | | |
| BSEP 75 (HELCOM 1998): "3" Endangered 2.7.2.1 Sublittoral muddy bottoms with little or no macrophyte vegetation of the photic zone | | BSEP 113 (HELCOM 2007): | |
| Greater concern stated by: | | | |

Habitat and Ecology

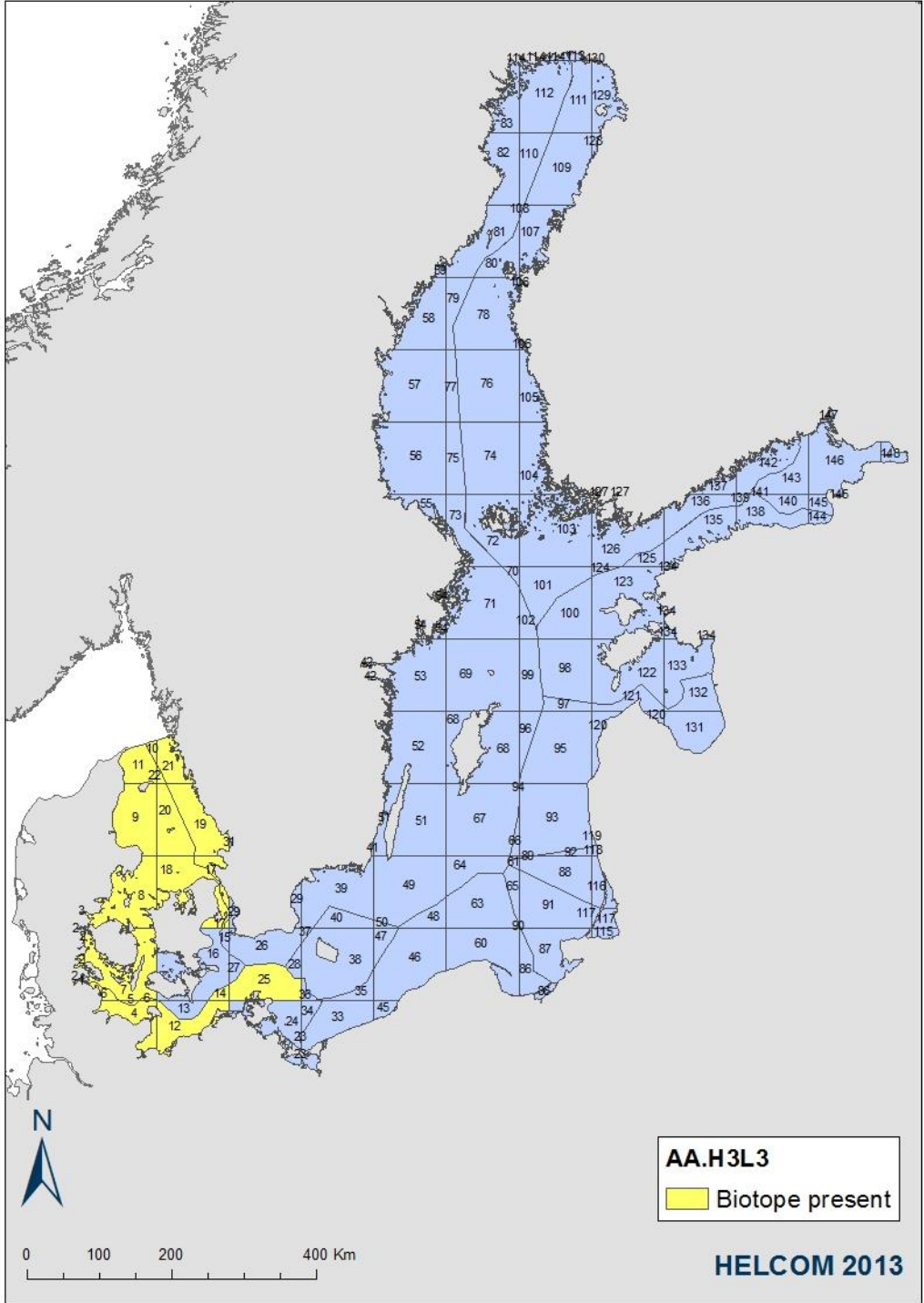
The biotope is defined to have a coverage of muddy sediments >90% and of the macroinfauna the biomass of the ocean quahog (*Arctica islandica*) constitutes at least 50%. The biotope is limited to areas in the Baltic Sea where the salinity is above 15 psu

Ocean quahog (*Arctica islandica*) is a bivalve mollusk found buried in sandy and muddy sediments. *Arctica islandica* is a long-lived species with a very slow growth rate. Populations of 40–80 year old specimens with a substantial proportion over 100 years old have been observed. *A. islandica* is among the longest-lived and slowest growing marine bivalves (OSPAR 2009). It is a large species that can grow up to 20 cm length (Moen & Svensen 2004).

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Distribution and status in the Baltic Sea region

The main distribution area of this biotope is the western Baltic Sea. The largest populations of *A. islandica* are found in Kiel and Mecklenburg Bights (Zettler et al. 2001). The distribution map indicates the area in the 100 x 100 km grid where biotope is estimated to occur based on environmental conditions and the availability of the specific substrate.



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Description of Major threats

Eutrophication is considered to be one of the major threats to this biotope. Long lasting and frequent periods of oxygen depletion have caused mortality of *A. islandica* populations. Due to the slow population growth rate, the recovery of declined populations is slow, and therefore communities characterized by *A. islandica* have been replaced by communities consisting of short living polychaetes (Zettler et al. 2001). Physical disturbance by bottom-trawling might also affect the biotope, but is assumed to be of minor importance due to the relatively low frequency of bottom trawling in the southern Baltic Sea.

Assessment justification

A1

The quantity of the biotope has declined by $\geq 25\%$ during the past 50 years. The decline in quantity of this biotope has not been as severe as for biotopes dominated by *Arctica islandica* on aphotic muddy bottoms in the Baltic Sea. In the areas where the biotope occurs, the photic muddy sediments have not been subjected to anoxia.

Recommendations for actions to conserve the biotope

All actions that reduce eutrophication will benefit the biotope.

Common names

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References

- OSPAR 2009. OSPAR Background for Ocean quahog *Arctica islandica*. Biodiversity Series. http://qsr2010.ospar.org/media/assessments/Species/P00407_Ocean_quahog.pdf
- Gogina, M., Zettler, M.L. 2010. Diversity and distribution of benthic macrofauna in the Baltic Sea: Data inventory and its use for species distribution modelling and prediction. *Journal of Sea Research* 64(3): 313–321.
- Moen, F. E., Svensen, E. (2004). *Marine fish & invertebrates of Northern Europe*. KOM, Kristiansund. 608pp.
- Zettler, M. L., Bönsch, R., Gosselck, F. 2001. Distribution, abundance and some population characteristics of the ocean quahog, *Arctica islandica* (Linnaeus, 1767), in the Mecklenburg Bight (Baltic Sea). *Journal of Shellfish Research* 20: 161– 169.