



OSPAR

COMMISSION

Background document on *Haploops* habitat



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OSPAR Convention

The Convention for the Protection of the Marine Environment of the North-East Atlantic (the “OSPAR Convention”) was opened for signature at the Ministerial Meeting of the former Oslo and Paris Commissions in Paris on 22 September 1992. The Convention entered into force on 25 March 1998. The Contracting Parties are Belgium, Denmark, the European Union, Finland, France, Germany, Iceland, Ireland, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Convention OSPAR

La Convention pour la protection du milieu marin de l’Atlantique du Nord-Est, dite Convention OSPAR, a été ouverte à la signature à la réunion ministérielle des anciennes Commissions d’Oslo et de Paris, à Paris le 22 septembre 1992. La Convention est entrée en vigueur le 25 mars 1998. Les Parties contractantes sont l’Allemagne, la Belgique, le Danemark, l’Espagne, la Finlande, la France, l’Irlande, l’Islande, le Luxembourg, la Norvège, les Pays-Bas, le Portugal, le Royaume-Uni de Grande Bretagne et d’Irlande du Nord, la Suède, la Suisse et l’Union européenne.

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Executive Summary

This Background Document on Haploops habitat has been developed by OSPAR following the inclusion of this species on the OSPAR List of threatened and/or declining species and habitats ([OSPAR Agreement 2008-6](#)). The inclusion of the feature on the list was supported by an analysis against the Texel-Faial criteria ([OSPAR Agreement 2019-03](#)), as presented in the case report ([publication 358/2008](#)). This Background Document provides proposals for action and includes measures that could be taken to improve the conservation status of the species. In agreeing to the publication of this document the OSPAR Contracting Parties have indicated the need to further review these proposals. However, the publication of this background document does not imply any formal endorsement of these proposals by the OSPAR Commission. On the basis of the further review of these proposals, OSPAR will continue its work to ensure the protection of Haploops habitat, where necessary in cooperation with other competent organisations. This background document may be updated to reflect further developments or additional information that become available on the status of the species.

Récapitulatif

Le présent document de fond sur habitat a haploops a été élaboré par OSPAR après l'inclusion de cette espèce dans la Liste OSPAR des espèces et habitats menacés et/ou en déclin ([Accord OSPAR 2008-6](#)). L'inclusion de l'espèce a été soutenue par une analyse par rapport aux critères Texel-Faial ([Accord OSPAR 2019-03](#)), qui se trouve dans le rapport de cas ([publication 358/2008](#)). Ce document fournit des propositions d'actions et des mesures qui pourraient être prises dans le but d'améliorer l'état de conservation de l'espèce. En se mettant d'accord sur la publication de ce document, les Parties Contractantes OSPAR ont indiqué la nécessité de réviser de nouveau ces propositions. La publication de ce document ne signifie pas, par conséquent, que la Commission OSPAR adopte elle-même et à titre formel ces propositions. Après la nouvelle révision de ces propositions, OSPAR poursuivra ses travaux dans le but d'assurer la protection de le habitat a haploops, le cas échéant avec la coopération d'autres organisations compétentes. Ce document de fond pourra être mis à jour pour tenir compte de nouvelles avancées ou des informations nouvelles qui deviendront disponibles concernant le statut de l'espèce.

Description and ecology

The *Haploops* habitat is built by small crustacean amphipods living in muddy substrates. They live in small, self-built tubes that rise a few centimeters above the seafloor and these can form dense mats. Soft-bottom habitats dominated by one or several of these species are called *Haploops* spp. communities or habitats, depending on the density of individuals. The presence of *Haploops* individuals (in OSPAR region II mainly *H. tubicola* and *H. tenuis*) in such density/abundance that a structural habitat is present, can provide several functions of ecological significance (e.g. filtering, feeding ground, increased benthic primary production). The *Haploops* habitat is in general characterised by high alpha-diversity of macroinvertebrates (tube worms, sea urchins, brittle stars) and serve as feeding grounds for many species of fish, e.g. cod and flatfish. Such functions are undoubtedly beneficial to coastal ecosystems harbouring these habitats.

Threat and link to human activities

Bottom trawling has a direct impact on the substrate and is believed to have caused the decline of the *Haploops* spp. communities to some extent in the Belt Sea and Kattegat area (Göransson et al. 2010). Bottom trawling activities have been on-going for a long period of time in the areas where the *Haploops* spp. community has been replaced by a brittle star community (Göransson et al. 2010). Bottom trawling is however not likely to be the only cause for the past decline as the practice was prohibited in the area.

Periodic anoxia occurs in the areas where the muddy *Haploops* spp. dominated biotope occurs. The anoxia in the region is suggested to occur due to restricted water movement and unusual water stratification, possibly due to changing climatic conditions (Göransson et al. 2010). Increasing temperatures have been noted in the area (Göransson et al. 2010).

Pollution by various hazardous substances can affect the deep muddy biotopes dominated by *Haploops* spp. Accumulation bottoms, where hazardous substances accumulate, are rare in the generally shallow Belt Sea area. Accumulation bottoms are typically muddy and may coincide with the muddy *Haploops* spp. biotope.

Relevant human activities from the JAMP List (OSPAR Agreement 2014-2)

Human activities:

- Fisheries
- Mariculture
- Sand and gravel extraction
- Exploration and exploitation of deep-sea mineral resources, including deep sea mining
- Dredging for navigational purposes
- Land reclamation
- Coastal defence
- Construction or placement of artificial reefs
- Placement of cables and pipelines
- Dumping of wastes or other matter

Relevant pressures from the JAMP List (OSPAR Agreement 2014-2)

Pressures:

- Physical loss
- Changes in suspended solids (water clarity)
- Siltation rate changes, including smothering
- Penetration and/or disturbance of the substrate below the surface of the seabed, including abrasion
- Habitat structure changes – removal of substratum (extraction)
- Temperature changes / Salinity changes - local
- Nutrient enrichment
- Organic enrichment
- Water flow (tidal current) changes – local, including sediment transport considerations
- Hydrocarbon and PAH contamination
- Radionuclide contamination
- Deoxygenation

Existing management measures

Within the European Union, Haploops habitat is not in the Annexes of the Habitats Directive (92/43/EEC).

HELCOM has listed the Haploops habitat (Baltic aphotic muddy sediment dominated by Haploops spp.) as Endangered, and the species *H. tenuis* as Endangered, while *H. tubicola* is listed as being Vulnerable. In 2019, HELCOM has adopted a general habitat recommendation which applies, however it is too early to determine whether any measures applied are having a positive effect.

Management needs and actions to be taken by OSPAR

Evidence

Monitoring programmes should, where possible, seek to record presence of the *Haploops* habitat throughout the OSPAR maritime area. This could help increase knowledge of the habitat and facilitate improvement of the OSPAR habitat database. Any information on the *Haploops* habitat from mapping and/or inventory activities should also be considered. A biomass estimation through invasive sampling of *Haploops* spp. would not always be possible nor desirable. Given the threatened and declining status of the habitat in Region II, it would be preferable that only non-intrusive and non-destructive visual methods are used to monitor, survey and estimate Haploops spp. densities and habitat occurrence.

Improving understanding of reasons why the *Haploops* habitat has declined in OSPAR Region II (while the corresponding habitat in region IV built mainly by the species *Haploops niraе* has increased). For example, increasing temperatures have been noted in the Kattegat area (Göransson et al. 2010, Göransson 2017). Future research could explore whether this is a cause of the decline.

Measures

OSPAR Contracting parties could individually do the following:

Pressure from human activities, which can cause physical disturbance and loss of seabed habitats, could be removed or avoided in areas where the haploops habitat is currently, or was previously, found. This should help facilitate the recovery of the habitat.

Reducing eutrophication so that periodic anoxia observed in the Kattegatt area where Haploops habitats (Göransson et al. 2010) are found is prevented. The anoxia is likely to happen due to restricted water movement and unusual water stratification, as well as excessive amounts of nutrients in the water.

Reducing pollution by various hazardous substances can affect the haploops habitat (HELCOM 2013a,b,c). Therefore measures which minimise inputs of these substances should improve conditions for this habitat.

Awareness raising

OSPAR contracting parties could collectively raise awareness of the importance of Haploops habitat among relevant management authorities and stakeholders to ensure they understand the need to improve the status of this habitat and reduce the activities and pressures that may be preventing recovery.

International co-operation

Haploops habitat presents an opportunity for OSPAR (collectively) and HELCOM to co-operate and co-ordinate on management, research, and knowledge/information exchange.

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Our vision is a clean, healthy and biologically diverse North-East Atlantic Ocean, which is productive, used sustainably and resilient to climate change and ocean acidification.

Publication Number: 786/2021

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