



Brief on: Important areas for narwhal (*Monodon monoceros*), concerning operations related to mineral activities.

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Important areas for Narwhal winter and spring

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Background

Rules for field work and reporting regarding mineral resources ('Field Rules'), Government of Greenland, Bureau of Minerals and Petroleum, November 2000, provides special provisions applied to field work within areas and periods of particular significance to wildlife based on the existing biological knowledge.

The Government of Greenland has requested that area types described in Field Rules chapter 2 and 3 should be available and be displayed geographically in the NatureMap online mapping portal for environment and nature of Greenland, accessible at www.eamra.gl, and the information from there distributed directly and automatically to the national planning and mapping portal NunaGIS, accessible at www.nunagis.gl, and LicenceMap, the mineral mapping portal at www.govmin.gl. Accordingly, information from NatureMap can be viewed also in NunaGIS and LicenceMap as direct data link service.

Considering the latest existing biological knowledge, Greenland Institute of Natural Resources recommends the following additions regarding environmental regulation on field work activities related to mineral resources, including changes to the geographical outline of areas.

This brief is an addition to the text of chapter 2 *Areas and periods of particular significance to wildlife* as a provision to section 2.03.15 based on the existing biological knowledge of the stocks of narwhal (*Monodon monoceros*) during winter and spring.

Ad. 1: Sensitivity and general description

On the national Red List, the North-West Greenland population of narwhal (*Monodon monoceros*) is assessed as ‘Near Threatened’ (NT) and the East Greenland population is assessed as ‘Endangered’ (EN) (Boertmann & Bay 2018). On the IUCN red list, the narwhal species is currently assessed as ‘Least Concern’ (LC) (Lowry et al., 2017). However, IUCN is in the process of assessing narwhal subpopulations.

National legislation covers narwhal in the Government of Greenland’s *Act on protection and catch of beluga and narwhals* (Selvstyrets bekendtgørelse om beskyttelse og fangst af hvid- og narhvaler), and narwhal is protected except for hunting (Anon., 2017).

The *Act on the nature reserve in Melville Bay* (Hjemmestyrets bekendtgørelse om naturreservatet i Melville Bugt) covers an area where all wildlife is protected, and all hunting, catch, fishery, gathering of eggs, traffic at sea or on land, and overflight below 500 m is prohibited (Anon., 1989). Similar prohibitions apply (all hunting prohibited) to Nationalpark of North- and East-greenland (Anon. 1992).

Conservation management is conducted under the transnational Joint Commission for the Conservation and Management of Narwhal and Beluga (JCNB), in collaboration with the North Atlantic Marine Mammal Commission, NAMMCO.

Narwhals are like other whale species covered by the international bodies of the *Convention on Environmental Impact Assessment in a Transboundary Context* (Espoo Convention), the *Convention on International Trade in Endangered Species of Wild Fauna and Flora* (CITES), and the *OSPAR Commission*.

Narwhals only live in Arctic waters.

The narwhal stocks in Greenland are (determined by summer aggregation areas):

1. Qimusseriarsuaq (Melville Bugt),
2. Ikersuaq (Inglefield Bredning),
3. Tasiilaq
4. Kangerlussuaq (east Greenland)
5. Ittoqqortoormiit
6. Dove Bugt
7. Jøkel Bugt

There are probably more summer aggregations in East Greenland.

Narwhals from at least three of the six stocks with summer aggregation in Canadian waters are exposed to catch in Greenland hunting regions (Hansen et al. 2024, Heide-Jørgensen et al. 2015, Hansen et al. 2015, Heide-Jørgensen et al. 2013, Heide-Jørgensen et al. 2016, Hansen R.G. and Nielsen, N.H. 2022). They are all considered to have status as ‘highest concern’ by a recent

global review on the conservation status of monodontid stocks (Hobbs et al. 2020). The same is true for the stocks in Southeast Greenland (stock 3, 4, 5; Hobbs et al. 2020).

Narwhals conduct their main annual foraging through winter and spring before arriving at the summer areas for breeding (Heide-Jørgensen et al. 2015). Consequently, the winter and spring areas are of great importance to the success of annual growth and life cycle of narwhal. In the areas, they do long and deep dives for feeding with a following rest period at the sea surface.

Narwhals are sensitive to anthropogenic disturbance of underwater noise from active acoustic sources and vessel traffic (NAMMCO 2022). Experimental studies in 2017 and 2018 show that narwhals are sensitive to both ship noise and seismic exploration. They react by physiological response, change of foraging behavior, vocal activity, reduced activity, and diving behavior (Tervo et al. 2023, Terrie et al 2022, Terrie et al 2017, Williams et al. 2022, Williams et al. 2017). They may also react by increase of swim speed in the upper part of the water column and approaching the coast (Heide-Jørgensen et al. 2022).

In general, narwhals travel at a speed of 3-4 knots (Dietz et al 1995, Heide-Jørgensen et al. 2022). It is advised not to allow vessels to travel at a speed higher than 5 knots in the important areas when sea ice is forming in autumn or breaking up in spring. This is during the sensitive periods of migration to and from summer areas near the coast and foraging areas offshore. In spring they often wait in pods close to the ice edge before coastal waters and fjords become accessible.

Considering the sensitivity to anthropogenic disturbances and the national Red List status of narwhals, it is advised to expand the Field Rules to include the winter and spring period in certain areas of importance, see ad. 2 and ad. 3 (Laidre et al. 2015).

Ad. 2: Periods of importance

In the Field Rules (November 2000) there are no dates stated for winter and spring.

It is advised to add periods of importance as:

1. North Water Polynya: During the period October 1 – July 31.
2. Davis Strait and Baffin Bay: During the period October 15 – June 15.
3. The South-East Greenland coastal region: During the period October 1 – July 31.
4. Denmark Strait off Blossville Coast: During the period October 1 – July 31.
5. Greenland Sea: During the period October 1 – July 31.

The periods of importance are supported by studies proving presence of narwhal in many of the wintering and spring areas and migration routes to summer areas during this period. The recommended periods are assigned to accommodate variances in migration of narwhal due to changes in sea ice cover. Start and end of the periods in the particular year depend on variation in sea ice cover.

Ad. 3: Areas of importance

Winter and spring areas are defined from aerial surveys and satellite tracking.

1. North Water Polynya.
2. Davis Strait and Baffin Bay
3. The South-East Greenland coastal region
4. Denmark Strait off Blossville Coast
5. Greenland Sea

It should be noted that the areas are not well defined geographically but change due to sea ice cover of annual and seasonal variation (Boertmann et al 2020, Heide-Jørgensen et al., 2013 and 2016).

Ad. 4 Recommended regulation

It is advised to add a new section to the Field Rules with the following:

2.03.15 Narwhal winter and spring areas. During the period October 1 – July 31, the following regulations apply in narwhal winter and spring areas when narwhal is observed, unless approved by the Environmental Agency for Mineral Resources and Activities:

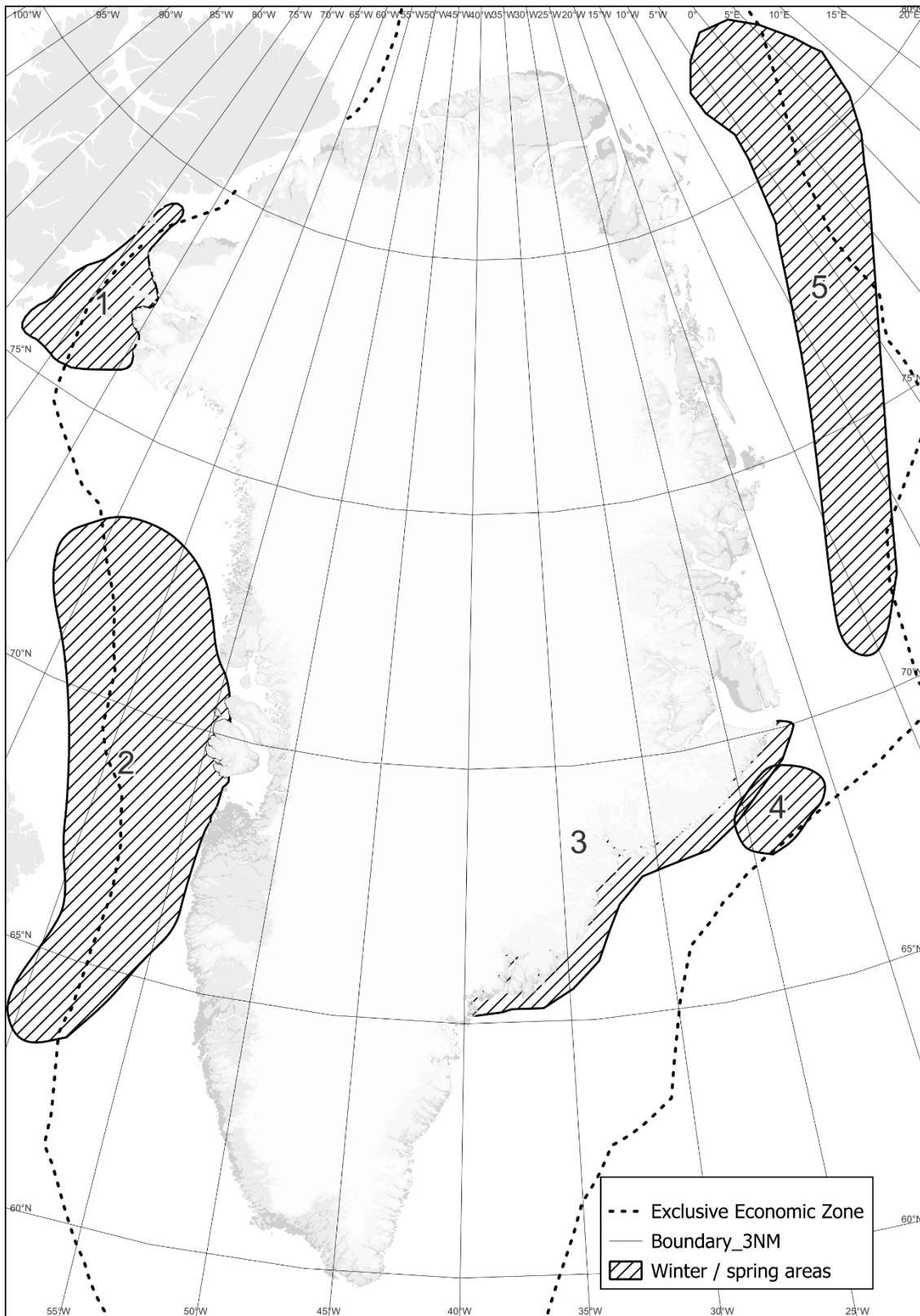
- a. It is not allowed to cause disturbance, including traveling by boat at speeds above 5 knots.*
- b. It is not allowed to fly by fixed-wing plane or helicopter within a vertical distance of 500 meters.*
- c. It is not allowed to fly drones within a vertical or horizontal distance of 100 meters.*

Traffic within a distance of 1 km to ice floes and fast-ice edges is not allowed in the areas when narwhal is observed.

It is advised to employ Marine Mammal and Seabird Observers (MMSOs) during extensive activities or when conducting surveys with active acoustic instruments during the sensitive periods, and to monitor the area using Passive Acoustic Monitoring methods. Considering the traditions of hunting by local communities in or close to the areas, it is advised to consult the communities through the appropriate channels well before activities.

It is advised to conduct an intensive lookout for narwhals from vessels in infrequent transits through the areas.

Map of important areas for narwhal during winter and spring



Previous map of important areas narwhal during winter and spring

No previous map of important areas for narwhal during winter and spring exists in the Field Rules.

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