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Marine wintering birds abundance and distribution

Monitoring programme: Biodiversity - Birds
Programme topic: Birds

SUB-PROGRAMME: MARINE WINTERING BIRDS ABUNDANCE AND DISTRIBUTION

Updated on 15 June 2016

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REGIONAL COORDINATION

The monitoring of this sub-programme is: **partly coordinated**

- [Common monitoring guidelines](#)
- Common quality assurance programme: missing. National QA/QC exist.
- Common database: under development.

PURPOSE OF MONITORING (Q4K)

Follow up of progress towards:

| | | |
|---|---------------------------------------|---|
| Baltic Sea Action Plan (BSAP) | Segments | Biodiversity |
| | Ecological objectives | Natural distribution and occurrence of plants and animals Viable populations of species |
| Marine strategy framework directive (MSFD) | Descriptors | D1 Biodiversity D4 Food webs D6 Seabed habitats |
| | Criteria (Q5a) | 1.1 Species distribution 1.2 Population size 4.3 Abundance/distribution of key trophic groups/species 6.2 Condition of benthic community |
| | Features (Q5c) | Biological features: A description of the population dynamics, natural and actual range and status of species of seabirds occurring in the marine region or subregion. |
| Other relevant legislation (Q8a) | Habitats Directive Birds Directive | |

Assessment of: (Q4k)

| | | |
|---|----------|--|
| State/Impacts | X | temporal trends, spatial distribution |
| Pressures | | |
| Human activities causing the pressures | | |
| Effectiveness of measures | | |

Scale of data aggregation for assessments: (Q10a)

HELCOM assessment unit levels

| | |
|--|----------|
| 1 - Baltic Sea | |
| 2 - Subbasins | |
| 3 - Subbasins with coastal and offshore division | x |
| 4 - Subbasins with coastal WFD division | |

MONITORING CONCEPTS TABLE

| Coordination | Elements <u>Q9a (Q5c)</u> | Parameter <u>Q9a (Q5c)</u> | Method <u>Q9c, Q9d</u> | QA/QC <u>Q9e, 9f</u> | Frequency <u>Q9h, 9i</u> | Spatial resolution <u>Q9g, 9i</u> | Link to HELCOM core indicators | Link to MSFD GES characteristics <u>Q5b</u> | Spatial scope <u>Q4i</u> | Monitoring started <u>Q4h</u> | CPs monitoring |
|--------------|---|-----------------------------------|---|-------------------------|-----------------------------|---|---|--|---------------------------------------|-------------------------------------|-------------------|
| National | Coastal birds | Population size (abundance) | Transects (3), 20 days, Ground/Plane | National | Every 6 years | 3000km | Abundance of waterbirds in the wintering season | 1.2.1 Population abundance and/or biomass | Territorial Waters | 2000 (1968) | DK |
| National | Coastal birds | Population size (abundance) | Transects (3), 15 days, Ground/Plane | National | Every 3 years | 8000km | Abundance of waterbirds in the wintering season | 1.2.1 Population abundance and/or biomass | Territorial Waters (EEZ) | 2000 (1968) | DK |
| National | Whoopers Swan, Bewicks Swan | Population size (abundance) | Ground counts | National | Yearly, jan+feb | | Abundance of waterbirds in the wintering season | 1.2.1 Population abundance and/or biomass | Territorial Waters/ Terrestrial | 2000 | DK |
| National | Geese | Population size (abundance) | Ground counts | National | Yearly | | Abundance of waterbirds in the wintering season | 1.2.1 Population abundance and/or biomass | Territorial Waters/ Terrestrial | 2000 | DK |
| National | Winter census in Åland Islands | Population size (abundance) | Midwinter- waterfowl counting in ship-based strip transect. | National | Yearly | Three selected areas | Abundance of waterbirds in the wintering season | 1.2.1 Population abundance and/or biomass | Territorial Waters | 1968 | FI |

| | | | | | | | | | | | |
|----------|--|-----------------------------|---|----------|---------|--|--|--|----------------|------------|----|
| National | Winter bird census. | Population size (abundance) | Coastal transects | National | Yearly | Whole Coast | <u>Abundance of waterbirds in the wintering season</u> | 1.2.1 Population abundance and/or biomass | Coastal Waters | Mid 1950's | FI |
| National | Key wintering areas of waterfowl | Population size (abundance) | Aerial surveys and expeditions by boats for identifying key wintering and staging areas | National | Yearly | Åland islands | <u>Abundance of waterbirds in the wintering season</u> | 1.2.1 Population abundance and/or biomass | EEZ | 2000 | FI |
| National | Coastal survey for all waterfowl species | Population size (abundance) | Ground-based | National | Yearly | Most of the ice-free coastline | <u>Abundance of waterbirds in the wintering season</u> | 1.2.1 Population abundance and/or biomass | | 1967 | EE |
| National | Beached bird survey | Mortality rate | Ground | National | Yearly | | | 8.2.2 Occurrence, origin, extent of significant acute pollution events and their impact on biota physically affected by this pollution | | 1992 | EE |
| National | Offshore counts | Population size (abundance) | Plane and ship | National | One-off | Gulf of Riga, NW Estonia, Saaremaa Island, Hiiumaa island (plans to cover the whole coast), Irbe Strait, Gretgrund | <u>Abundance of waterbirds in the wintering season</u> | 1.2.1 Population abundance and/or biomass | | 2007 | EE |
| National | Coastal | Population size (abundance) | Ground | National | Yearly | Mecklenburg-Western Pomerania, Schleswig-Holstein | <u>Abundance of waterbirds in the wintering season</u> | 1.2.1 Population abundance and/or biomass | | 1965 | DE |

| | | | | | | | | | | |
|----------|--|-----------------------------|-----------------|----------|---------------|---|--|---|------|----|
| National | 3 strips (2200km): Gavia arctica, Gavia stellata, Melanitta nigra | Population size (abundance) | Plane | National | Every 3 years | Entire area | <u>Abundance of waterbirds in the wintering season</u> | 1.2.1 Population abundance and/or biomass | 2009 | DE |
| National | German EEZ | Population size (abundance) | Plane and ship | National | Every 3 years | All areas by plane every 3 years, Pomerania by ship every 2 years. | <u>Abundance of waterbirds in the wintering season</u> | 1.2.1 Population abundance and/or biomass | 2008 | DE |
| National | Schleswig Holstein: Somateria mollissima, Melanitta nigra, Clangula hyemalis | Population size (abundance) | Plane | National | Yearly | Coastline since 1980, offshore since 2004 | <u>Abundance of waterbirds in the wintering season</u> | 1.2.1 Population abundance and/or biomass | 1980 | DE |
| National | All wintering waterbirds | Population size (abundance) | Ground and ship | National | Yearly | Latvian coast | <u>Abundance of waterbirds in the wintering season</u> | 1.2.1 Population abundance and/or biomass | 1991 | LV |
| National | All wintering waterbirds | Population size (abundance) | Ship | National | One-off | Gulf of Riga (LV) | <u>Abundance of waterbirds in the wintering season</u> | 1.2.1 Population abundance and/or biomass | 1998 | LV |
| National | All wintering waterbirds | Population size (abundance) | Plane | National | One-off | Irbe strait and banks NW from Ventspils | <u>Abundance of waterbirds in the wintering season</u> | 1.2.1 Population abundance and/or biomass | 2011 | LV |
| National | All wintering waterbirds | Population size (abundance) | Ship | National | One-off | Shallow parts of Riga Gulf and Orbe strait with banks NW from Ventspils | <u>Abundance of waterbirds in the wintering season</u> | 1.2.1 Population abundance and/or biomass | 2011 | LV |

| | | | | | | | | | | |
|----------|--|-----------------------------|----------------|----------|----------------------------------|--|--|---|-----------|----|
| National | Wintering waterbirds | Population size (abundance) | | National | Every 2 years | Lithuanian coast line, Nemunas river delta, Curonian's spit national park area | <u>Abundance of waterbirds in the wintering season</u> | 1.2.1 Population abundance and/or biomass | 2007 | LT |
| National | Wintering waterbirds | Population size (abundance) | Ship | National | One-off | Three areas offshore | <u>Abundance of waterbirds in the wintering season</u> | 1.2.1 Population abundance and/or biomass | | LT |
| National | All waterfowl | Population size (abundance) | Ground | National | Yearly | Western part of the Gulf of Gdansk | <u>Abundance of waterbirds in the wintering season</u> | 1.2.1 Population abundance and/or biomass | 1984 | PL |
| National | All waterfowl | Population size (abundance) | Ship | National | Yearly, during the winter season | Whole Polish 12 miles zone. Two offshore areas: Slupsk Bank and Pomeranian Bay | <u>Abundance of waterbirds in the wintering season</u> | 1.2.1 Population abundance and/or biomass | 2011 | PL |
| National | Wintering waterbirds | Population size (abundance) | Ground | National | Yearly | Neva estuary within ST Petersburg | <u>Abundance of waterbirds in the wintering season</u> | 1.2.1 Population abundance and/or biomass | | RU |
| National | Waterfowl (ducks, geese, swans, cormorants, divers etc.) | Population size (abundance) | Ground | National | Yearly | Swedish Baltic Sea Coast up to Kattegatt | <u>Abundance of waterbirds in the wintering season</u> | 1.2.1 Population abundance and/or biomass | 1967 | SE |
| National | Waterfowl | Population size (abundance) | Plane and ship | National | One-off | Skane to Stockholm | <u>Abundance of waterbirds in the wintering season</u> | 1.2.1 Population abundance and/or biomass | 2007-2011 | SE |

| | | | | | | | | | | |
|----------|-----------|-----------------------------|-------|----------|---------|--|--|---|------|----|
| National | Waterfowl | Population size (abundance) | Plane | National | One-off | Kattegat | <u>Abundance of waterbirds in the wintering season</u> | 1.2.1 Population abundance and/or biomass | 2009 | SE |
| National | Waterfowl | Population size (abundance) | Plane | National | One-off | SW Scania, Blekinge and Hanö bukten Gävlebukten, Stockholm archipelago | <u>Abundance of waterbirds in the wintering season</u> | 1.2.1 Population abundance and/or biomass | | SE |

Brief description of monitoring

Detailed information on monitoring frequency and spatial resolution has not yet been collected from all countries but will be added.

| | |
|----------------------------|--|
| Element / parameter | Wintering birds/Population size (abundance) |
| Method | Ground count based coastal surveys by volunteers, offshore surveys by plane and ship. |
| QA/QC | National, but guidelines from the Wetlands International are used. |
| Frequency | The temporal resolution of the monitoring of wintering birds varies greatly among the countries. Data is available from the year 1991. In Finland winter bird census has been organized by <u>LUOMUS</u> (Finnish Museum of Natural History); the first censuses were done as early as the mid-1950s. |
| Spatial Scope | Different spatial scope in different countries. |
| Spatial resolution | Spatial resolution varies between countries and specific parts within the country waters depending on site importance for wintering waterbirds |

ASSESSMENT REQUIREMENTS

Monitoring requirements and gaps

Monitoring is to be carried out to fulfill assessment requirements of HELCOM ecological objectives that are specified through HELCOM core indicators. The requirements on monitoring can include number of stations, the sampling frequency and replication.

Monitoring requirements

All Baltic Sea countries are currently monitoring wintering birds and collecting data on species numbers and distribution; however, counting methods, timeframe and type of financing varies greatly among the countries. Ground count based coastal surveys are carried out in all countries and mostly by volunteers.

Offshore surveys by plane and ship are being carried out in all countries, except Russia. Further coordination will be needed between the countries to harmonize monitoring methods and timing.

Monitoring of wintering birds will support the core indicator 'Abundance of waterbirds in the wintering season'.

Gaps

Offshore monitoring in the winter time lacks coordination and is geographically not representative. Because of the very uneven survey coverage across the Baltic region, assessments of some species, such as long-tailed duck or common scoter are not possible with the current monitoring.

Experts have suggested improvements in offshore monitoring in the Baltic Sea during the winter time. In addition, there is an attempt to evaluate the usefulness of spring migration count data from bird observatories in Gulf of Finland as the estimate of annual abundance changes of the long-tailed duck winter population. There is also a need for revision of the winter population monitoring system, as it can be expected that due to general climate warming, iceless winters in the Northern Baltic will become more frequent in the future. Thus, in order to monitor total Baltic populations, there has to be readiness for spatially larger-scale censuses than nowadays.

Coordination should be enhanced by building a platform for seabird monitoring in the Baltic and agreeing on common guidelines and a metadabase for seabird monitoring. Activities should be coordinated with neighboring countries as much as possible.

Adequacy for assessment of GES (Q5d)

Monitoring should provide adequate data and information to enable the periodic assessment of environmental status, and distance from and progress towards GES as required by MSFD under Article 9 and 11.

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|--|--|
| Adequate data? | Adequate data exist already for coastal and inshore parts across the Baltic, e.g. Finland (the annual International Waterbird Census counts starting from 1960's), reliable datasets for the whole region starting with 1991. For offshore areas: NOT YET |
| Established methods for assessment? | Yes by Wetlands International |
| Adequate understanding of GES? | Under development |
| Adequate capacity to perform assessments? | Nationally |

Assessment of natural variability (Q5e)

Natural variability is assessed from the long-term data series and scientific studies have assessed the effects of climate change on the seabird winter distribution and abundance

DATA PROVIDERS AND ACCESS

| | |
|--|--|
| Data access point | Database under development |
| Data type (Q10c) | Processed datasets |
| Data availability (Q10c) | National databases |
| Data access (Q10c) | Access by request |
| INSPIRE standard (Q10c) | Species distribution |
| When will data become available? (Q10c) | Data for coastal/inshore parts of the Baltic: available already Offshore: differences between countries |
| Data update frequency (Q10c) | Coastal/inshore: Annual |

| | |
|---|--|
| Describe how the data and information from the programme will be made accessible to the EC/EEA | On request |
| Contact points in the Contracting parties | Contact point to national monitoring programmes will be added. |
| Has the data been used in HELCOM assessments? | Yes, e.g. BSEP116B Biodiversity in the Baltic Sea. |

REFERENCES

Aunins A., Nilsson L., Hario M., Garthe S., Dagys S., Petersen I.K., Skov H., Lehikoinen A., Mikkola-Roos M., Ranft S., Stipniece A., Luigujoe L., Kuresoo A., Meissner W., Korpinen S. 2013. Abundance of waterbirds in the wintering season. HELCOM Core Indicator of Biodiversity. HELCOM, Helsinki, 25 pp.

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