

Home / Action areas / Monitoring and assessment / Monitoring Manual / Birds /
Marine breeding birds abundance and distribution

Monitoring programme: Biodiversity - Birds
Programme topic: Birds

SUB-PROGRAMME: MARINE BREEDING BIRDS ABUNDANCE AND DISTRIBUTION

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TABLE OF CONTENTS

[Regional coordination](#)

[Purpose of monitoring](#)

[Monitoring concepts table](#)

[Assessment requirements](#)

[Data providers and access](#)

[References](#)

REGIONAL COORDINATION

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

- Common monitoring guidelines: missing.
- 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
Marine strategy framework directive (MSFD)	Descriptors	D1 Biodiversity D4 Food webs D6 Seabed habitats
	Criteria (<u>Q5a</u>)	1.1 Species distribution 1.2 Population size 1.3 Population condition 4.1 Productivity (production per unit biomass) of key species or trophic groups 4.3 Abundance/distribution of key trophic groups/species 6.2 Condition of benthic community
	Features (<u>Q5c</u>)	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 (<u>Q8a</u>)	Habitats Directive Birds Directive	

Assessment of: (Q4k)

State/Impacts	x	temporal trends
	x	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	White-tailed eagle	Population size (abundance)	Population abundance and offspring	National	Yearly	Identified territories	White-tailed eagle productivity.	1.2.1 Population abundance and/or biomass	Coastal Waters	1972	FI, DE, PL, DK, RU, EE
National	Barnacle goose	Population size (abundance)	Population abundance and offspring	National	Yearly	Selected coastal areas	Abundance of waterbirds in the breeding season	1.2.1 Population abundance and/or biomass	Territorial Waters	1989	FI
National	Breeding population census	Population size (abundance)	Nest counts. of breeding birds	National	Every 3 years	Total of c. 2000 islands in the outer/central archipelago. 43 areas/ units of 3-233 islets (coastal bays, mainland shores not included).	Abundance of waterbirds in the breeding season	1.2.1 Population abundance and/or biomass	Territorial Waters	1984	FI
National	Caspian tern monitoring	Population size (abundance)	Nest counts. Visiting all known sites and finding new ones.	National	Yearly	100	Abundance of waterbirds in the breeding season	1.2.1 Population abundance and/or biomass	Territorial Waters	1984	FI
National	Cormorant breeding sites	Population size (abundance)	Ground-based	National	Yearly	All colonies (FI)	Abundance of waterbirds in the breeding season	1.2.1 Population abundance and/or biomass	Territorial Waters	DK: 1938 FI: 2005	DK, FI

National	Arctic Tern breeding sites	Population size (abundance)	Ground-based	National	Every 6 years		<u>Abundance of waterbirds in the breeding season</u>	1.2.1 Population abundance and/or biomass	Territorial Waters	2000	DK
National	Sandwich Tern breeding sites	Population size (abundance)	Ground-based	National	Every 3 years		<u>Abundance of waterbirds in the breeding season</u>	1.2.1 Population abundance and/or biomass	Territorial Waters	2000	DK
National	Blacktern breeding sites	Population size (abundance)	Ground-based	National	Yearly		<u>Abundance of waterbirds in the breeding season</u>	1.2.1 Population abundance and/or biomass	Territorial Waters	2000	DK
National	Common Eider	Population size (abundance)		National	Every 10 years		<u>Abundance of waterbirds in the breeding season</u>	1.2.1 Population abundance and/or biomass	Territorial Waters	2000	DK
National	Guillemot/Razorbill	Population size (abundance)		National	Yearly		<u>Abundance of waterbirds in the breeding season</u>	1.2.1 Population abundance and/or biomass	Territorial Waters	From 60's but not always with public monitoring programme	DK
National	Great Cormorant	Population size (abundance)	Nests	National	Yearly	See page 47 of <u>Estonian marine monitoring program</u> (In Estonian)	<u>Abundance of waterbirds in the breeding season</u>	1.2.1 Population abundance and/or biomass	Territorial Waters	1983	EE

National	Breeding birds	Population size (abundance)	Pairs and nests	National	Yearly (or every 3, 5, 6 or 10 years)	Nature reserves, Moonsund islets in Matsalu Nature reserve, Islets in Vilsandi Nature reserve, Hiiumaa islets, Kolga islets. See page 46 of Estonian marine monitoring program (In Estonian)	Abundance of waterbirds in the breeding season	1.2.1 Population abundance and/or biomass	Territorial Waters	1957	EE
National	Breeding birds	Population size (abundance)	Pairs and nests	National	Yearly	Mecklenburg-Western Pomerania	Abundance of waterbirds in the breeding season	1.2.1 Population abundance and/or biomass	Territorial Waters	1970	DE
National	Breeding birds	Population size (abundance)	Pairs and nests	National	Every 6 years	Schleswig-Holstein SPA	Abundance of waterbirds in the breeding season	1.2.1 Population abundance and/or biomass	Territorial Waters	2000	DE
National	Breeding birds	Population size (abundance)	Pairs and nests	National	Yearly	Schleswig-Holstein Nature reserves	Abundance of waterbirds in the breeding season	1.2.1 Population abundance and/or biomass	.Territorial Waters	1984	DE
National	Breeding birds	Population size (abundance)	Pairs and nests	National		one-off, ca 2/3 of the coast	Abundance of waterbirds in the breeding season	1.2.1 Population abundance and/or biomass	Territorial Waters	2011	LV

National	Breeding birds	Population size (abundance)		National	Every 2 years	coastline, Nemunas river delta, Curonian spit national park area	<u>Abundance of waterbirds in the breeding season</u>	1.2.1 Population abundance and/or biomass	Territorial Waters	2007	LT
National	Breeding birds	Population size (abundance)	Nests	National	Yearly	Almost whole coastline	<u>Abundance of waterbirds in the breeding season</u>	1.2.1 Population abundance and/or biomass	Territorial Waters	2010	PL
National	Breeding birds	Population size (abundance)	Nests, Pairs, Males, by boat	National	Yearly	Bothnian Bay coast	<u>Abundance of waterbirds in the breeding season</u>	1.2.1 Population abundance and/or biomass	Territorial Waters	2010	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	Breeding birds/Population size (abundance)
Method	Most countries use counts of nest and/or pairs as the counting method. Sweden is also monitoring by boat.
QA/QC	National
Frequency	The temporal resolution of the monitoring of breeding birds varies from annually to every third year by most countries depending on species.
Spatial Scope	Different spatial scope in different countries.
Spatial resolution	Spatial resolution depends on species distribution and varies from counting of all occurrences to selected breeding areas.

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

Waterbirds are a special part of the Baltic ecosystem, spending most of their time above the surface and breeding on land. Nevertheless, their role in the marine trophic web as herbivores, benthivores, piscivores or scavengers is significant.

Monitoring of marine breeding birds is needed to support the HELCOM core indicator 'Abundance of waterbirds in the breeding season'. The indicator consists of six species (Common Eider, Caspian Tern, Sandwich Tern, Razorbill, Common Guillemot and Great Cormorant), four of which have increased significantly during the past 20 years. The core indicator is based on two parameters: abundance and breeding success. The abundance parameter follows the OSPAR EcoQO1 procedure for the status of seabirds in the North Sea (ICES 2008, 2011), whereas the breeding success parameter will be developed separately for each bird species.

Currently monitoring is done nationally in all Baltic countries besides Russia, but the number of breeding marine bird species (i.e. number of species to be monitored) differs between the countries. Countries with suitable cliffs for nesting colonies or many islets such as Finland, Sweden, Denmark and Estonia have far more breeding species than the countries with mostly sandy beaches like Latvia or Lithuania, Poland and Germany. Some monitoring efforts are species specific and often restricted to particular sites or protected areas.

Lithuania, Denmark, Germany, Sweden and Estonia have state financed monitoring programmes in place, while monitoring is mainly carried out by volunteers in Finland and to some extent also in Germany. In Latvia the only coastal breeding bird surveys have been carried out on a project basis.

To support the core indicator, the six species should be monitored by all Baltic countries (where ecologically relevant), and monitoring methods and temporal resolution should be harmonized.

Gaps

For breeding birds, only Denmark, Sweden, Poland and Lithuania have reported monitoring that covers the entire or almost entire coastal area for selected species. In Finland the monitoring of Great cormorant, Caspian tern and White-tailed eagle covers the whole marine area. For the rest of the countries monitoring efforts are concentrated to particular areas.

It is important to ensure that monitoring is representative for the whole population of each marine bird species (especially the six species for the core indicator) breeding in the particular country. Since there are many species with very uneven distributions, often separate programmes are required as their distribution, habitat preferences and timing or methods used for counting are not compatible. Currently monitoring of breeding birds is lacking coordination, guidelines and a joint database.

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.

Adequate data?	Yes
Established methods for assessment?	Yes nationally, under development regionally
Adequate understanding of GES?	Partially
Adequate capacity to perform assessments?	Nationally

Assessment of natural variability (Q5e)

Not possible until longer series exist.

DATA PROVIDERS AND ACCESS

Data access point	BALSAM database and platform (in the future)
Data type (Q10c)	Processed Data sets
Data availability (Q10c)	<u>Joint ICES database</u> , national databases
Data access (Q10c)	Access by request
INSPIRE standard (Q10c)	Species distribution
When will data become available? (Q10c)	Maybe in 2015 but still unclear

Data update frequency (Q10c)	Every 6 years
Describe how the data and information from the programme will be made accessible to the EC/EEA	By 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
Data is used in the following Baltic Sea Environment Fact Sheets (BSEF)	Population development of Great Cormorant Population development of Sandwich Tern Population development of Southern Dunlin

REFERENCES

Herrmann C., Rintala J., Lehtikoinen A., Petersen I.K., Hario M., Kadin M. and Korpinen K. 2013. Abundance of waterbirds in the breeding season. HELCOM Core Indicator of Biodiversity. HELCOM, Helsinki, 21 pp.

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