Monitoring programme: Biodiversity - Mammals
Programme topic: Mammals

SUB-PROGRAMME: HARBOUR PORPOISE ABUNDANCE

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REGIONAL COORDINATION

The monitoring of this sub-programme is: **partly coordinated** for the Belt Sea population and **not coordinated** for the Baltic Proper population.

Recommendation on coordinated monitoring for the Baltic Proper population is under development. The monitoring of the Belt Sea population is planned and coordinated by Aarhus University, Denmark, under the Danish national monitoring programme, NOVANA. Other Contracting Partners are involved on an *ad hoc* basis.

PURPOSE OF MONITORING (Q4K)

Follow up of progress towards:

Baltic Sea Action Plan (BSAP)	Segments	Biodiversity

	Ecological objectives	Viable populations of species
Marine strategy framework directive (MSFD)	Descriptors	D1 Biodiversity D4 Food webs
	Criteria (Q5a)	1.1 Species distribution 1.2 Population size 4.3 Abundance/distribution of key trophic groups/species
	Features (Q5c)	Biological features: A description of the population dynamics, natural and actual range and status of species of marine mammals and reptiles occurring in the marine region or subregion.
Other relevant legislation (Q8a)	Habitats Directive	

Assessment of: (Q4k)

State/Impacts	**X**	Temporal trends Spatial distribution State classification
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	
4 - Subbasins with coastal WFD division	X

MONITORING CONCEPTS TABLE

Coordination	Elements Q9a (Q5c)	Parameter Q9a (Q5c)	Method Q9c, Q9d	QA/QC Q9e, 9f	Frequency Q9h, 9i	Spatial resolution Q9g, 9i	Link to HELCOM core indicators	Link to MSFD GES characteristics Q5b	Spatial scope Q4i	Monitoring started Q4h	CPs monitoring
Through HELCOM Seal Expert Group	Harbour porpoise, Belt Sea	Population size (abundance)	SCANS II, Hammond et al. 2013	SCANS II, Hammond et al. 2013	11 years (1994, 2005, 2016)	Entire population	Population growth rate, abundance and distribution of marine mammals	1.1.1 Distributional range, 1.2.1 Population abundance	EEZ	1994	SE, DK, DE
HELCOM Seal Expert Group	Harbour porpoise, Baltic Proper	Population size (abundance)	SAMBAH.org NB that this is a project: not a regular monitoring programme	SAMBAH.org	To be decided	Entire population	Population growth rate, abundance and distribution of marine mammals	1.1.1 Distributional range, 1.2.1 Population abundance	EEZ	2011	SE (not a regular monitoring programme), DK, DE, EE, FI, LT, LV, PL

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	**Harbour porpoise/Population size** (abundance)**, Belt Sea**
Method	The current Danish national monitoring program, NOVANA, includes line transect surveys of the Belt Sea population with a frequency of approx. 6 years, starting 2011 and building on the previous SCANS surveys. Line transect double platform visual surveys during summer (distance methods, random transects). In 2016 line transects is planned to be conducted using aeroplanes.
QA/QC	Surveys are planned under the Danish national NOVANA monitoring program.
Frequency	Every 5-7 years.

Spatial Scope	Entire distribution of population
Spatial resolution	Circa 1000 km of line transect survey effort randomly distributed over the population area.
Element / parameter	**Harbour porpoise/Population size** (abundance)**, Baltic Proper**
Method	Methods are being developed within SAMBAH, but a monitoring programme has not been implemented.
QA/QC	-
Frequency	No scheduled efforts yet. Project based monitoring.
Spatial Scope	EEZ
Spatial resolution	Baltic Proper: Pending monitoring design

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	Line transect aerial and ship-based monitoring of the harbour porpoise in the Baltic proper is complicated by the very low density of the species in this area, resulting in very uncertain estimates of abundance. The SAMBAH project has aimed to address this by employing static acoustic recorders. Assessment of monitoring methods and the necessary scope of the monitoring in order to assess GES in the Baltic Proper should wait for results and assessment of the static acoustic approach in the report of the SAMBAH-project. Another harbour porpoise population unit occurs in the Danish, German and Swedish Belt Sea area, where density is sufficient for ship-based surveys. This area is covered by the SCANS surveys conducted in 1994 and 2005, and population abundance estimates on the basis of these surveys are possible. Another survey with methods comparable to the SCANS surveys was performed in 2012. With the interval between the 1994 and 2005 (11 years) surveys, a power analysis revealed that four surveys with this interval would be required to detect an annual change in abundance of 8% with a power of 0.8. Thus, to be able to monitor the population over shorter periods than 33 years, much more frequent surveys are needed. Thus, current monitoring is not adequate for data on porpoise abundance to be used for e.g., the core indicator on 'Harbour porpoise distribution and abundance', or the MSFD-descriptor on biodiversity for harbour porpoise. If such a level of precision is needed, a higher frequency of surveys with greater accuracy of estimates should be considered. The current Danish national monitoring program, NOVANA, includes line transect surveys of the Belt Sea population with a frequency of approx. 6 years, starting 2011 and building on the previous SCANS surveys.
Gaps	Better individual biomass assessment would increase the indicator reliability, since using length or other individual size measurements would provide more realistic biomass values compared to the fixed individual weight values. This is related to seasonal and geographic variability in body size. Also, regular intercalibrations of sample analysis (Ring-tests) would facilitate the interlaboratory comparisons. Harmonization of sampling frequency and spatial resolution among the national monitoring programmes is needed to improve indicator-based assessment across the Baltic Sea and to increase coherency of GES targets.

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 (Belt Sea population)
Established methods for assessment?	Yes (Belt Sea population)

Adequate understanding of GES?	Yes (Belt Sea population)
Adequate capacity to perform assessments?	Yes (Belt Sea population)

Assessment of natural variability (Q5e)

Quantitative. Line-transect surveys using distance statistics of the management unit of the Belt Sea are carried out with an interval of circa 5 years. There is currently no planned monitoring of the management unit in the inner Baltic.

DATA PROVIDERS AND ACCESS

Data access point	Danish NOVANA database (Belt Sea)
Data type (Q10c)	Processed Data sets (Belt Sea) Unprocessed/raw Data
Data availability (Q10c)	Data in national data centre (Belt Sea)
Data access (Q10c)	
INSPIRE standard (Q10c)	Species distribution
When will data become available? (Q10c)	
Data update frequency (Q10c)	Every 6 years (Belt Sea)
Describe how the data and information from the programme will be made accessible to the EC/EEA	Under development
Contact points in the Contracting parties	Contact point to national monitoring programmes will be added
Has the data been used in HELCOM assessments?	No

REFERENCES

Hammond PS, Macleod K, Berggren P, Borchers DL, Burt L, Cañadas A, Desportes G, Donovan GP, Gilles A, Gillespie D, Gordon J, Hiby L, Kuklik I. Leaper R, Lehnert K, Leopold M, Lovell P, Øienm N, Paxton CGM, Ridoux V, Rogan E, Samarra F, Scheidat M, Sequeira M, Siebert U, Skov H, Swift R, Tasker ML, Teilmann J, Van Canneyt O, Vázquez JA. 2013. Cetacean abundance and distribution in European Atlantic shelf waters to inform conservation and management. Biological Conservation 164: 107–122.