

# SAMBAH

## Static Acoustic Monitoring of the Baltic Sea Harbour Porpoise



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An EC LIFE+ Nature project



AquaBiota  
WATER RESEARCH

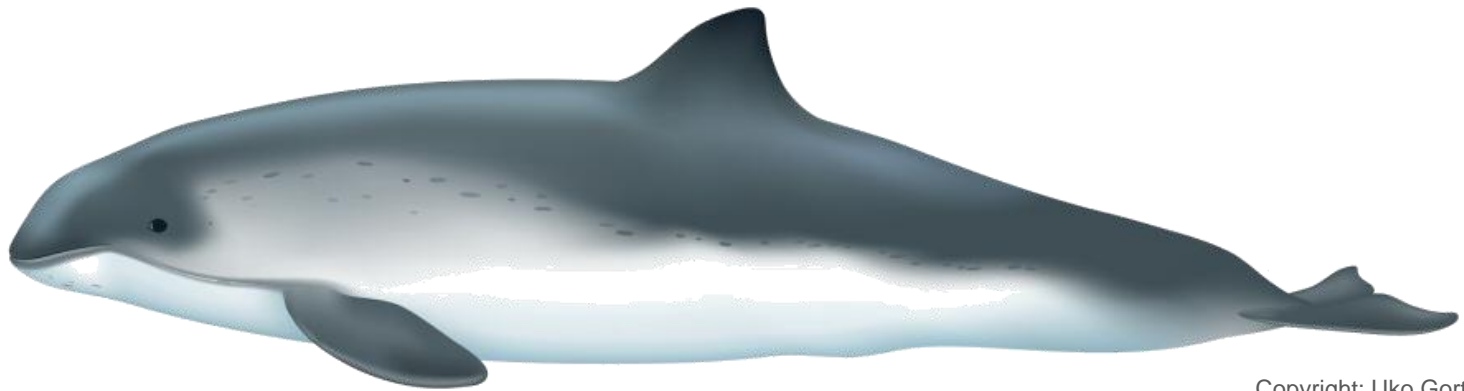


# Outline of presentation

- **The Baltic harbour porpoise**
- **Objectives**
- **Targeted EU policies**
- **Organisation**
- **Project outline and time schedule**
- **Methods**
- **Dissemination and support**

# The Baltic harbour porpoise (*Phocoena phocoena*)

- IUCN red list: Baltic Sea population critically endangered (CR)
- EU Habitats Directive: Annex II and IV
- Baltic Sea population estimates ~ 100 - 600 (CI 10 - 3300)
- Threats: bycatch in fisheries, environmental contaminants, anthropogenic disturbances, eutrophication and overfishing
- Important areas essentially unknown. Protected areas only in Danish, German and Polish waters



# **SAMBAH objectives**

- 1. Estimate density, abundance and distribution within the project area**
- 2. Identify habitat preferences, hotspots and areas with higher risk of conflicts with anthropogenic activities**
- 3. Increase the knowledge about the Baltic harbour porpoise among policymakers, managers, stakeholders, users of the marine environment and the public**
- 4. Implement best practice methods for cost efficient, large scale surveillance of harbour porpoises in a low density area**

# Targeted EU policies etc

**SAMBAH will provide results that are fundamental for the implementation of:**

- **Habitats Directive (1992/43/EEC)**
- **Marine Strategy Framework Directive (2008/56/EC)**
- **ASCOBANS Recovery Plan for Baltic Harbour Porpoises (Jastarnia Plan)**
- **HELCOM's BSAP and recommendation 17/2**
- **Several national strategies developed under those international rules and agreements**

# SAMBAH organisation

## Coordinating beneficiary

- Kolmården Wildlife park, SE

## Associated beneficiaries

- SE: Swedish Environmental Protection Agency
- FI: Turku University of Applied Sciences, Finnish Ministry of the Environment, Särkänniemi Adventure Park
- PL: University of Gdańsk, Institute of Meteorology and Water Management, Chief Inspectorate for Environmental Protection
- DK: National Environmental Research Institute, Danish Forest and Nature Agency

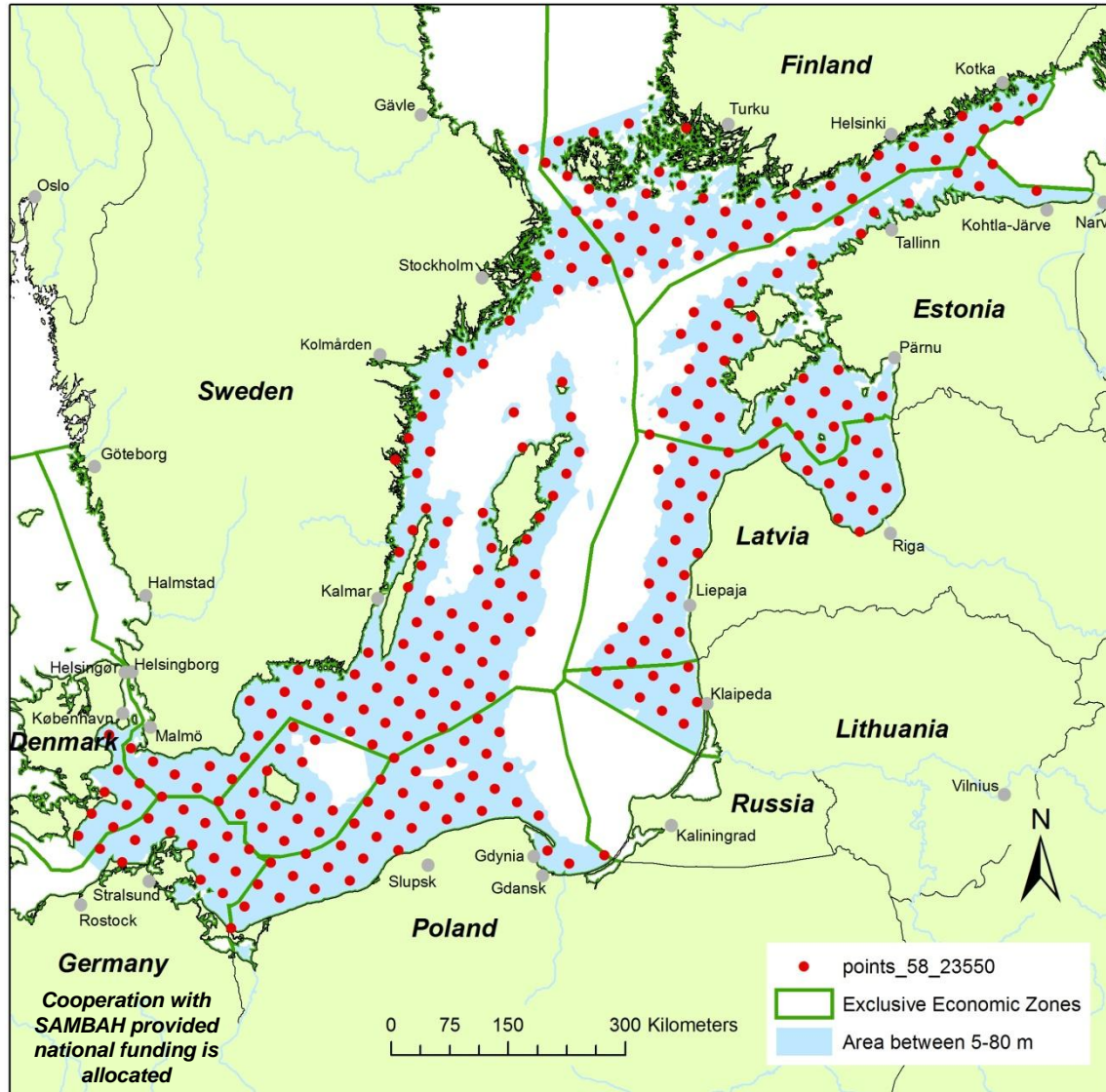
## Collaborators

- AquaBiota Water Research (SE); CREEM, St Andrews University (UK); Chelonia Ltd (UK)
- Pro Mare (EE); Latvian Institute of Aquatic Ecology (LV); Klaipeda University Coastal Research and Planning Institute (LT)
- German Oceanographic Museum in Stralsund (DE)

# SAMBAH project outline

## Deployments:

- Depth 5-80 m
- ~300 units
- Year 2011-2012
- Servicing every 3 months



# SAMBAH time schedule

Action	2010	2011	2012	2013	2014
Preparatory actions; Contracts, permits, logistics	Red				
Acoustic data collection		Yellow	Green		
Statistical analyses; Density and abundance, habitat modelling				Blue	
Dissemination actions; Meetings, website, exhibition, reports	Red	Yellow	Green	Blue	Purple
Project management	Red	Yellow	Green	Blue	Purple



# Methods

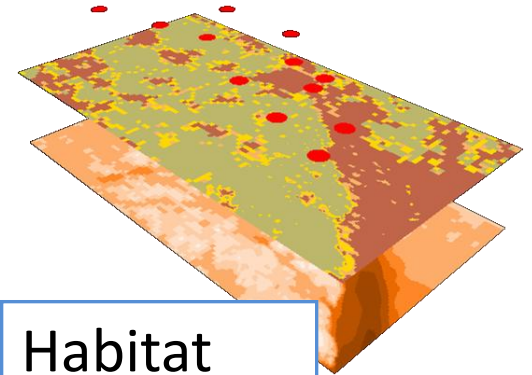
Data collection using SAM



$$\hat{D} = \frac{n(1 - \hat{c})}{K\pi w^2 \hat{P}T\hat{r}}$$

Density and abundance analyses

Satellite and acoustic tagging of porpoises in Denmark



Habitat modelling

# Tagging of porpoises

- Porpoises opportunistically captured in Danish pound nets
- Acoustic tags recording acoustic data, dive profiles and 3-dimensional movements
- Satellite tags recording position
- Data for density analyses, e.g.
  - Click rate
  - Orientation
  - Swim speed



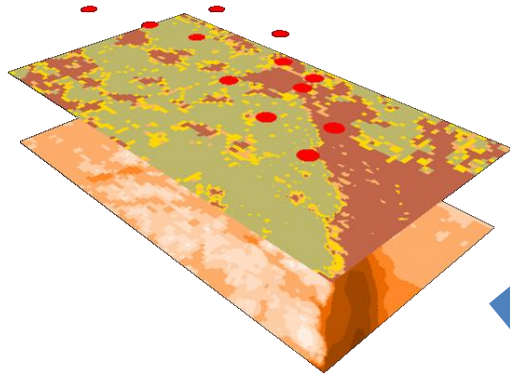
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# Estimating porpoise density from SAMBAH data

- More than one method will be used
- All dependent on auxiliary data
- Variance have to be estimated for all parameters

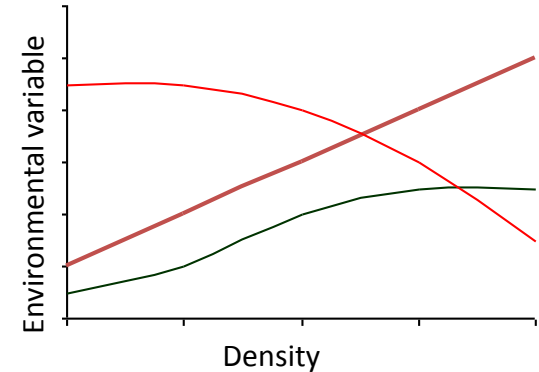
# Habitat modelling

Response variable:  
density estimates



Environmental variables  
as raster data

1



Statistical model

2

Prediction of density

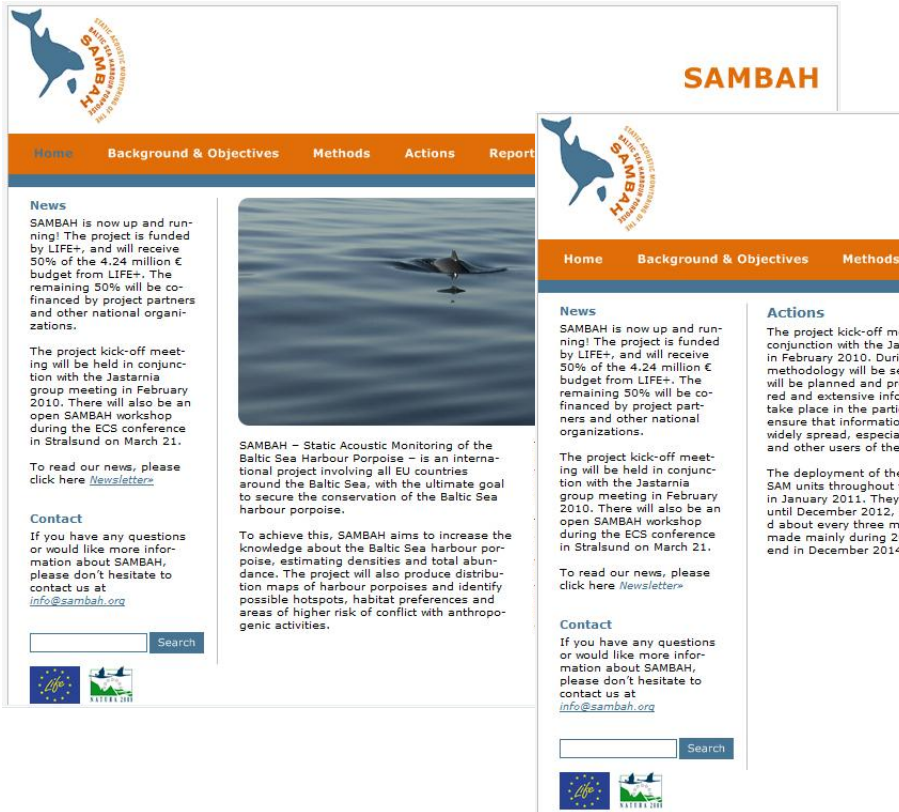


- density grid of the whole study area
- important geographical areas
- important environmental factors

# SAMBAH dissemination actions

- Web site [www.sambah.org](http://www.sambah.org)
- ECS workshop
- National information meetings
- Exhibition at Kolmården, Hel Marine Station and Särkänniemi Adventure Park
- Polish TV spot and leaflet
- Networking with relevant authorities and organisations
- Results to international databases
- Scientific publications
- Non-technical reports to managers, policymakers and stakeholders
- Swedish workshop for managers, policymakers and stakeholders
- Promotion of results (ASCOBANS, HELCOM, WWF Baltic Sea Office, CCB)
- End-of-project conference

# SAMBAH web page and info sheet



**SAMBAH**  
Static Acoustic Monitoring of the Baltic Sea Harbour Porpoise

Home Background & Objectives Methods Actions Reports

**News**  
SAMBAH is now up and running! The project is funded by LIFE+, and will receive 50% of the 4.24 million € budget from LIFE+. The remaining 50% will be co-financed by project partners and other national organizations.

The project kick-off meeting will be held in conjunction with the Jastarnia group meeting in February 2010. There will also be an open SAMBAH workshop during the ECS conference in Stralsund on March 21.

To read our news, please click here [Newsletters](#)

**Contact**  
If you have any questions or would like more information about SAMBAH, please don't hesitate to contact us at [info@sambah.org](mailto:info@sambah.org)

To achieve this, SAMBAH aims to increase the knowledge about the Baltic Sea harbour porpoise, estimating densities and total abundance. The project will also produce distribution maps of harbour porpoises and identify possible hotspots, habitat preferences and areas of higher risk of conflict with anthropogenic activities.

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**Actions**  
The project kick-off meeting will be held in conjunction with the Jastarnia group meeting in February 2010. There will also be an open SAMBAH workshop during the ECS conference in Stralsund on March 21.

The deployment of the SAM units throughout the in January 2011. They will be serviced every three months, with the last service in December 2014.



**SAMBAH**  
Static Acoustic Monitoring of the Baltic Sea Harbour Porpoise

*SAMBAH is an international LIFE+ funded project involving all EU countries around the Baltic Sea, with the ultimate goal to secure the conservation of the Baltic Sea harbour porpoise.*

**Project partners**  
Sweden: Kolmårdens Djurpark (Coordinator), Swedish Environmental Protection Agency  
Finland: Turku University of Applied Sciences, Ministry of Environment, Särkänniemi Adventure Park (Tampere dolphinarium)  
Poland: University of Gdańsk, Inst. of Meteorology and Water Management, Chief Inspectorate for Environmental Protection  
Denmark: National Environment Research Institute, Danish Forest and Nature Agency  
The Baltic States will be included in the project through subcontractors. They will deploy and service click detectors in Estonian, Latvian and Lithuanian waters.  
Germany will join forces with SAMBAH. The German Oceanographic Museum in Stralsund will host the project.  
Other collaborators: AquaBiota Water Research, CREEM, Chelonia Limited

**Objectives**  
The objectives of SAMBAH are to estimate densities, total abundance and to produce distribution maps of harbour porpoises in the study area; to identify possible hotspots, habitat preferences and areas of higher risk of conflict with anthropogenic activities; to increase the knowledge about the Baltic Sea harbour porpoise among policymakers, managers, stakeholders and the public; as well as to implement best practice methods for cost efficient, large-scale surveillance of harbour porpoises in a low density area.

**Actions**  
Approximately 300 porpoise click loggers will be deployed at 5-80 m depth throughout the study area in 2011-2012. The loggers will be serviced every 3 months. Data will be analysed and the result disseminated in 2013-2014.

**www.sambah.org**



Map showing the Baltic Sea region with countries (Sweden, Finland, Estonia, Latvia, Lithuania, Poland, Germany, Russia) and the study area. The map includes markers for SAM positions (red dots), Exclusive Economic Zones (blue dashed lines), and the Area between 0-80 m (blue shaded area).



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# Ways of supporting SAMBAH

- Spread information on the project in general and on the SAM devices in particular
  - Share information to minimise risk of removal of SAM devices
  - Spread information on what to do with lost and found devices
- 
- **Please do not move any devices encountered at sea**
  - **Please contact SAMBAH if a lost device is encountered**





**Questions and  
viewpoints are  
most welcome!**  
**[www.sambah.org](http://www.sambah.org)**