

Environmentally Sound Fisheries Management in Marine Protected Areas - The EMPAS Project

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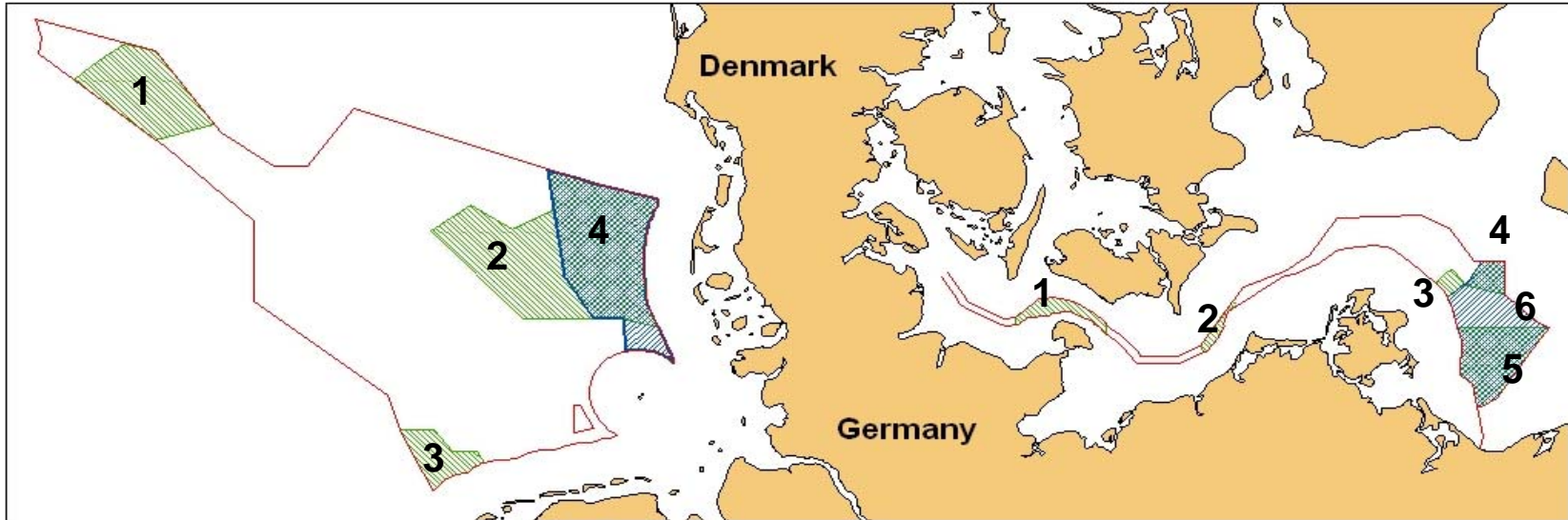
Environmentally Sound Fisheries Management in Marine Protected Areas - The EMPAS Project



Outline:

1. Background and targets of the EMPAS project
2. Access to fisheries data
3. Fishing activities
4. Conflict analysis
5. Future Perspective

EMPAS Project Background



- In May 2004 Germany nominated 10 Natura 2000 sites in its EEZ of the North Sea and the Baltic Sea to the EU Commission
- Federal ministry of environment (BMU) and the Federal Agency for Nature conservation (BfN) are responsible for the selection, designation and management of marine Natura 2000 sites in the German EEZ

EMPAS Project Background



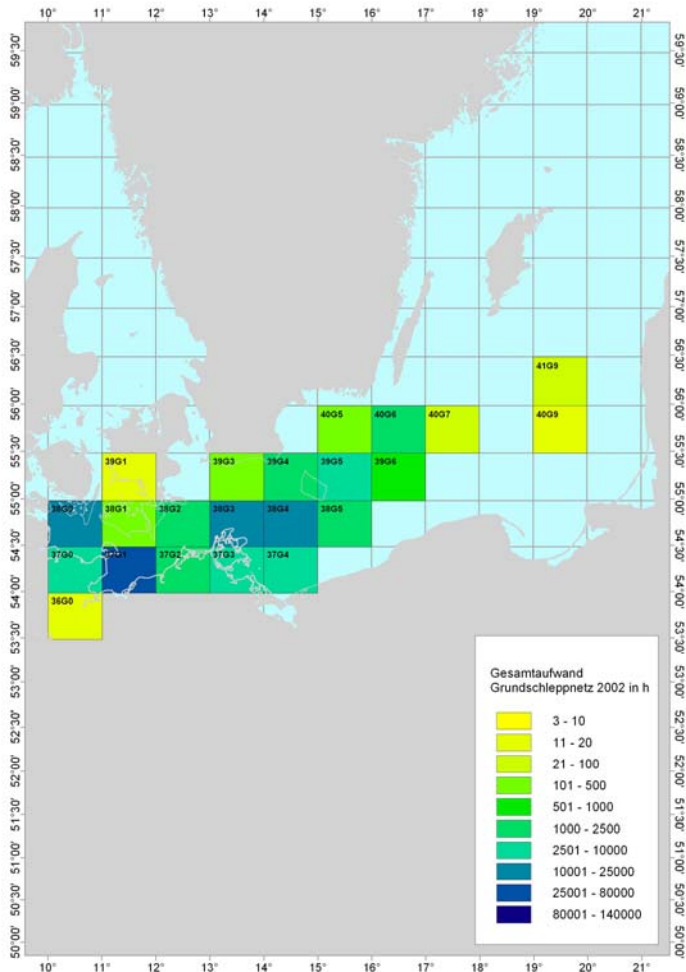
- According to the two nature directives there is an obligation to keep habitats and species in and outside Natura 2000 sites in a favourable conservation status
- Fisheries, if not properly managed, have the potential to exert harm to the protected habitats and species :

Direct effects

- By-catch of protected and characteristic fish species
- By-catch of marine mammals and seabirds
- Impact of bottom trawls on benthic habitats (e.g. reefs, sandbanks) and associated communities

Indirect effects

- Impact of fisheries (e.g. industrial fisheries) on the food resources of protected species
- Disturbance of seabirds by fishing vessels



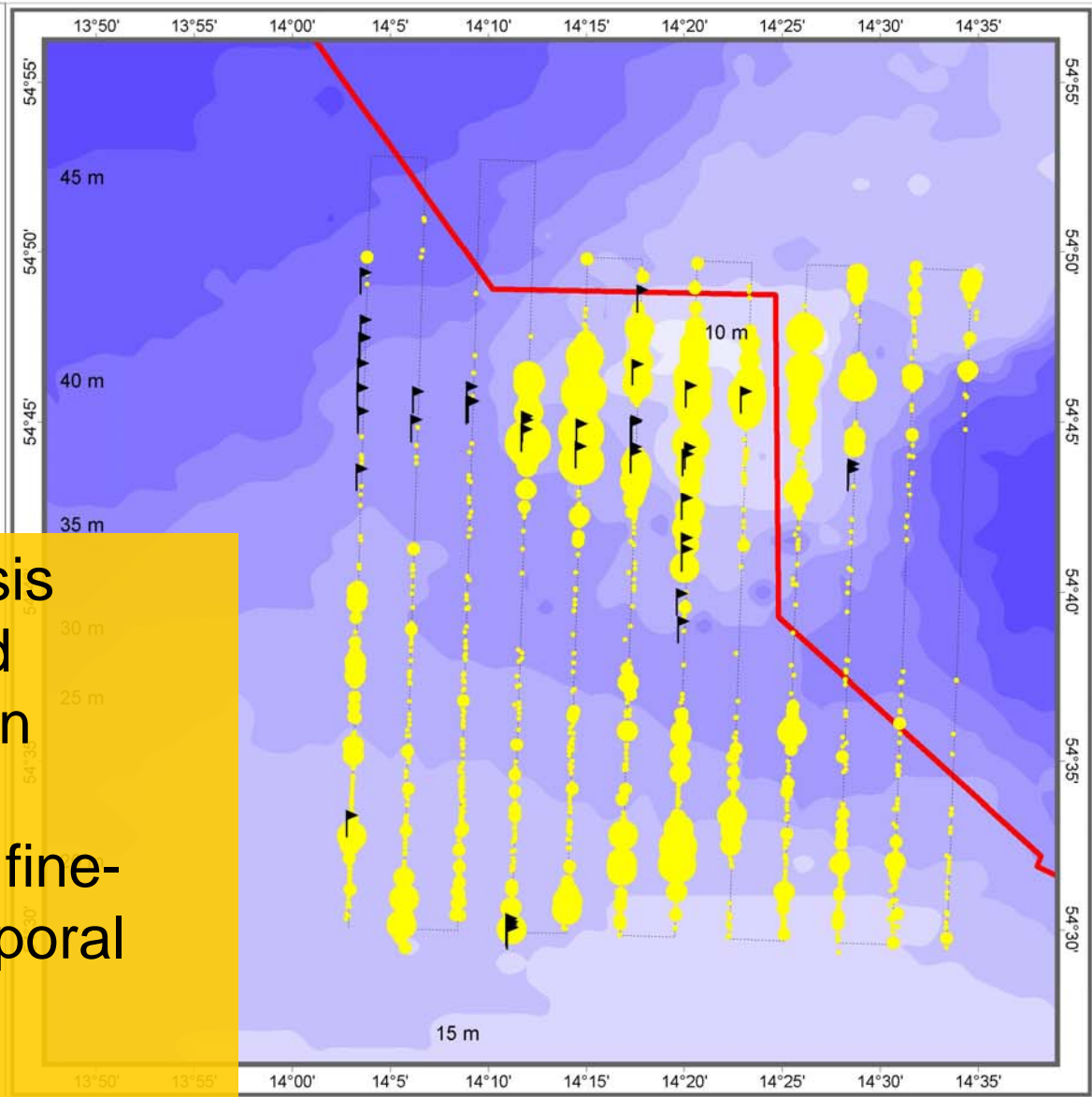
- Officially fishery data for the German EEZ are reported in a spatial scale of ICES rectangles (30 x 30 nm)

e.g. Fishery effort (h) of the German bottom trawl fishery in the Baltic Sea (2002)

EMPAS Project-Background

Verteilung von Eisenten
 (*Clangula hyemalis*) und
 Stellnetzen im Zeitraum
 Dezember 2002 bis April 2003
 (n= 4 Flüge)

- Anzahl der Individuen
- 1 - 10
 - 11 - 25
 - 26 - 50
 - 51 - 100
 - 101 - 200



For the conflict analysis between fisheries and conservation targets in Natura 2000 sites the documentation of the fine-scale spatial and temporal distribution of fishing activities is essential.

EMPAS Project

- Research project Nov. 2005 - Nov. 2008 by the International Council for the Exploration of the Sea (ICES)
- Coordinated by the Federal Agency for Nature Conservation (BfN) and funded by the Federal Ministry for Environment, Nature Conservation and Nuclear Safety (BMU)
- Three expert workshops
- Cooperation with other ICES working groups e.g. WGMME Working on Marine Mammal Ecology, WGSE Working Group on Seabirds Ecology, WGECO (Working group on ecosystem effects of fisheries)

EMPAS Project Targets



For all designated Natura 2000 sites in the German EEZ of the North Sea and the Baltic Sea the following aspects should be analyzed:

1. Documentation of the fine-scale spatial and temporal distribution of fishing activities;
2. Investigation of effects of fishing activities on habitats and species;
3. Identification of possible conflicts between fishing activities and nature conservation targets
4. A stepwise development of management plans In cooperation with relevant stakeholders



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- The second expert workshop (WKFMMPA “Workshop on Fisheries Management in Marine Protected Areas”) took place 10.-12. April 2007 at ICES, Copenhagen
 - Participants from Fishery institutes and organizations of seven European Countries (Denmark, Germany, UK, Netherlands, Poland, Sweden, Spain)
 - Representatives of the fishing industry of Denmark and the Netherlands

Documentation of fishing activities

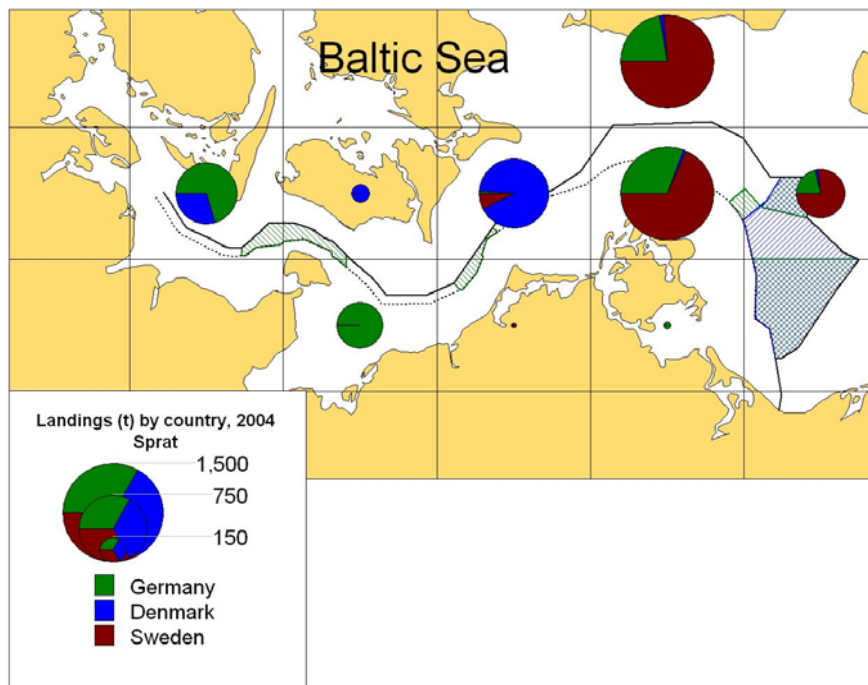
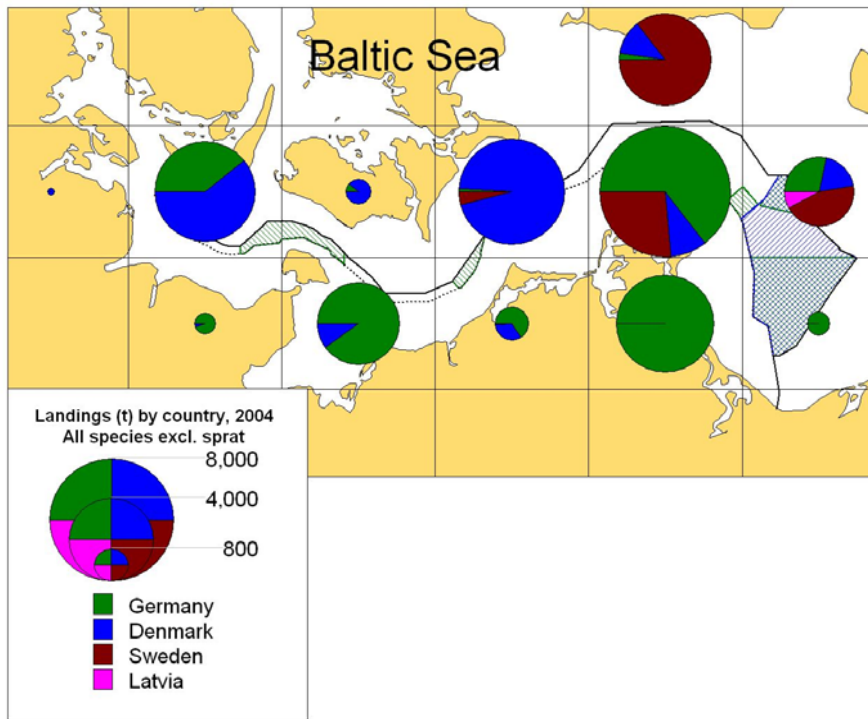


Fisheries data:

- National data (Logbook data, scientific surveys, observers)
- ICES data, STATLANT database
- European Commission STECF Data
- Vessel Monitoring System (VMS) data of national and international fishery vessels > 18 m (2004); > 15 m (2005), collected by the responsible national authorities

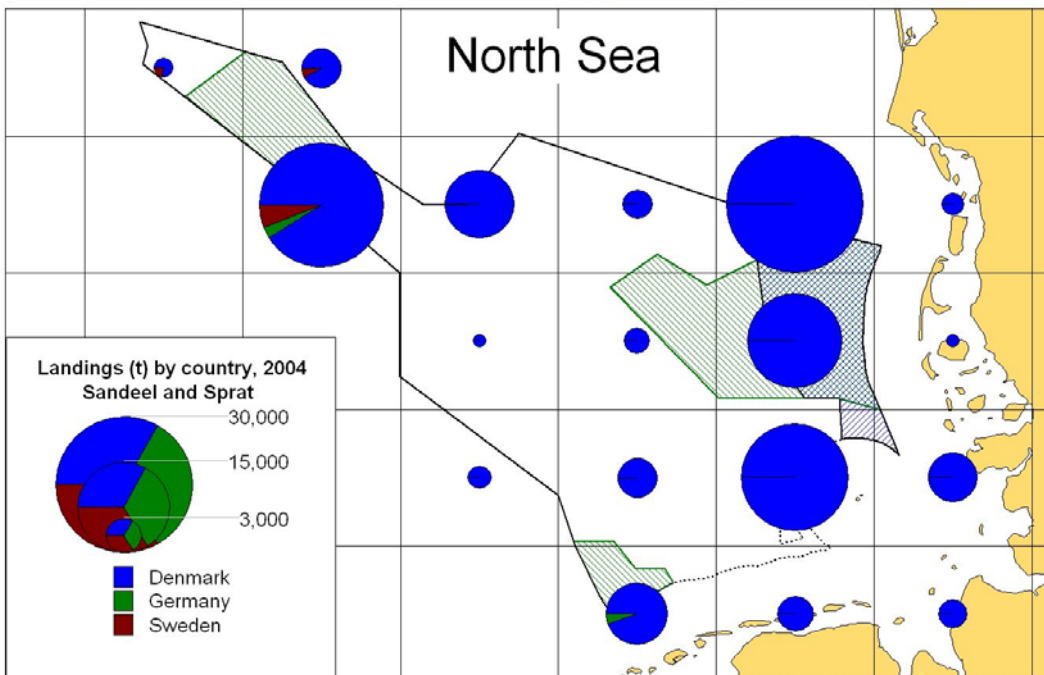
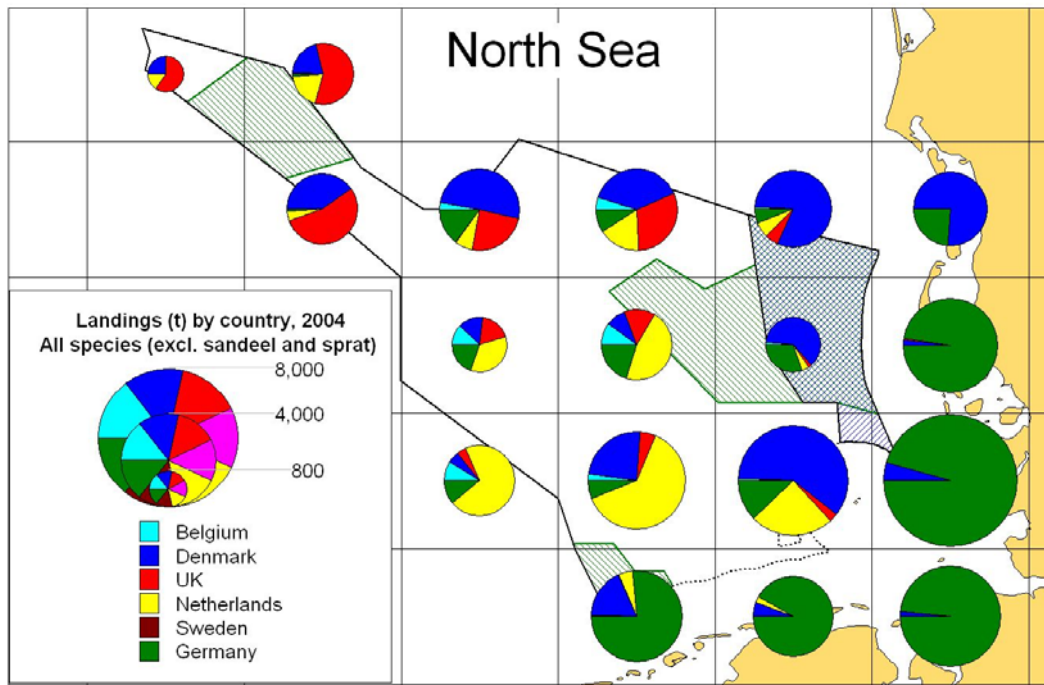
Data availability:

- Availability of VMS data in different European countries was heterogeneous
- Improved availability of VMS data during the project
- Availability of logbook data is still uncertain



Fishing activity is characterized by an international fleet. 4 nations operate in the German EEZ of the Baltic Sea

Landings (t) according to ICES rectangles and nations, STECF data 2004

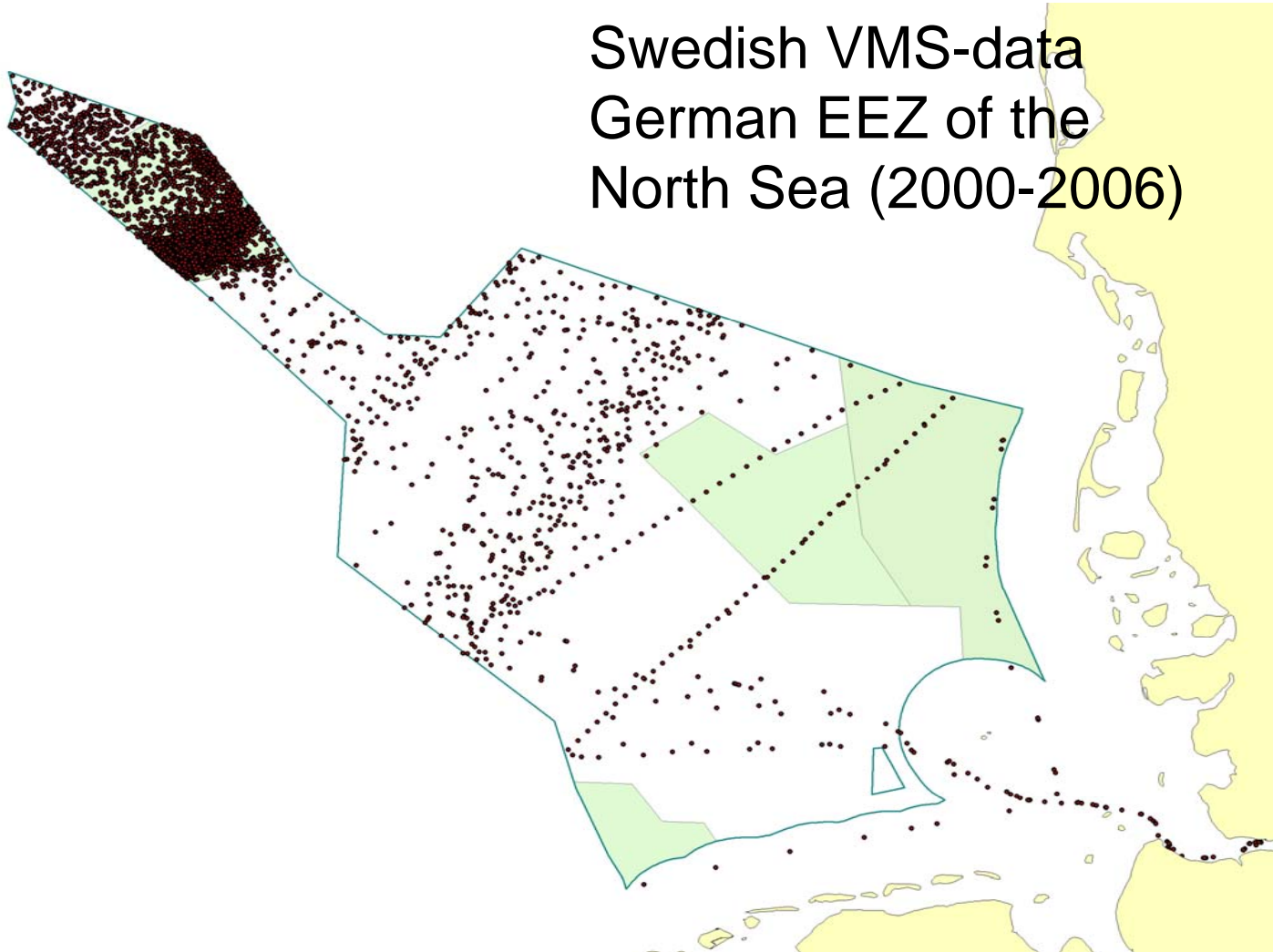


...and 6
European
nations in the
North Sea

Landings (t) according
to ICES rectangles and
nations, STECF data
2004

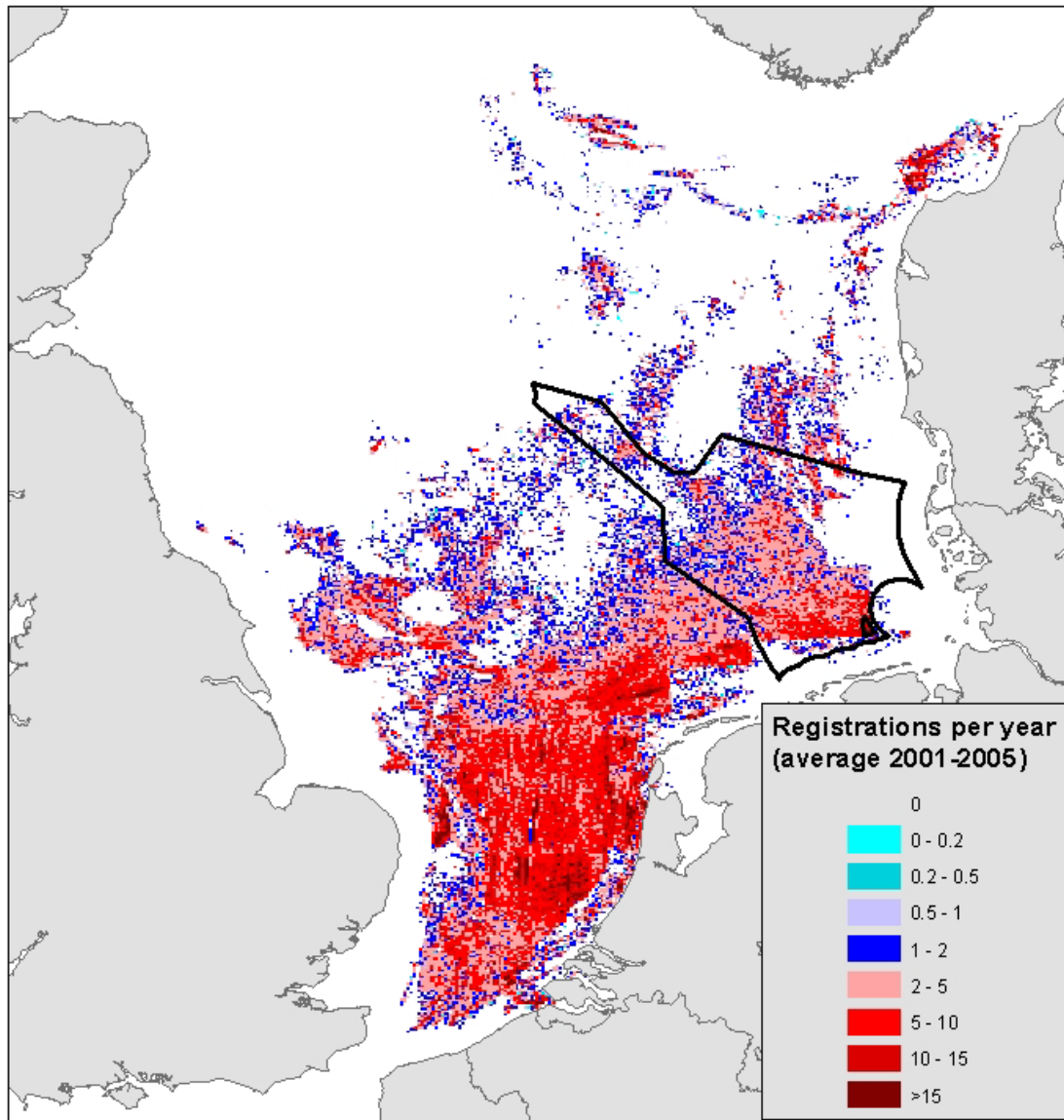
EMPAS Project: Fishing activities

Swedish VMS-data
German EEZ of the
North Sea (2000-2006)



**Swedish Board of
Fisheries, Institute
of Marine Research
2006**

EMPAS Project: Fishing activities

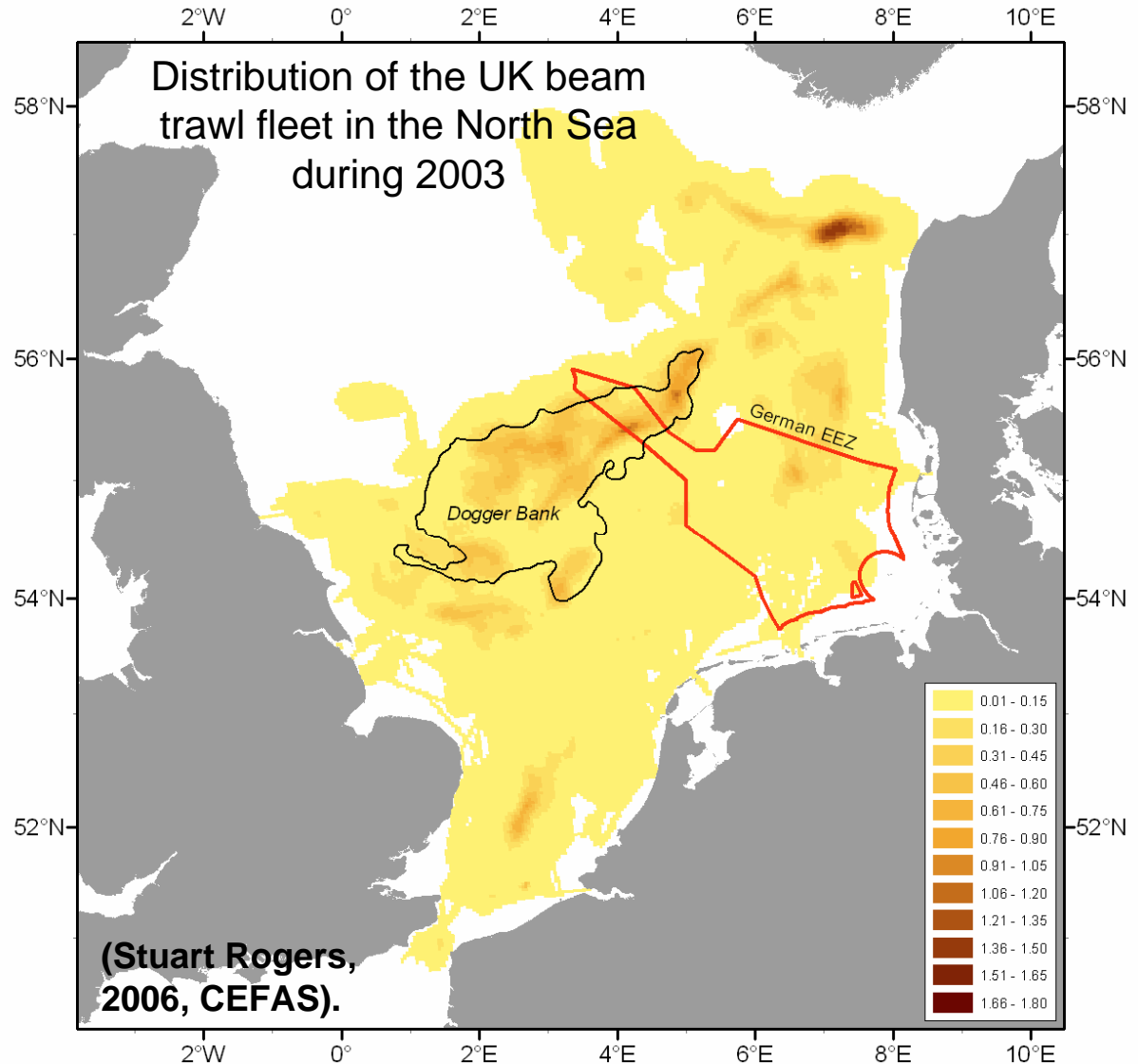


VMS data of the dutch beam trawl fleet (>300 PS) in the North Sea (2001-2005)

**Netherlands Institute for Fisheries Research (RIVO),
Piet 2006**

EMPAS Project: Fishing activities

- Effort (from VMS) summarised within 3km grid squares to show how many times a grid square was trawled per year (km² swept km² y⁻¹)
- Beam trawling activity is patchy on and around the Dogger Bank, and west of Denmark.



Conflict analysis: Fishing activities and nature conservation targets

Example: pSCI Pomeranian Bay with Odra Bank

Pommeranian Bay with Oder

| Nature conservation objectives | | Potential conflicts between fishing and nature conservation objectives | | | | | | | | | |
|--------------------------------|--|--|----------------------|-------------|---------------|-------------------|--------------------------|---------------------------------------|---------------------------------|-------------------------|-----------------|
| F/F | Latin name | Bycatch by fishing technics | | | | | Other effects of fishing | | | | |
| Fauna or Flora | A = very conflicting, B = conflicting, C = little conflicting, D = no conflict, N = unknown | Beam trawl | Otter trawl | Danish sein | Pelagic trawl | Gill net demersal | Longlines | Food depletion - industrial fisheries | Food depletion - mussel fishing | Disturbances by fishing | Discard feeding |
| | | B | <i>Gavia arctica</i> | D | D | D | D | A | C | B | D |
| B | <i>Gavia stellata</i> | D | D | D | D | A | C | B | D | A | D |
| B | <i>Podiceps auritus</i> | D | D | D | D | A | C | B | D | B | D |
| B | <i>Cephus grylle</i> | D | D | D | D | A | C | B | D | B | D |
| B | <i>Clangula hyemalis</i> | D | D | D | D | A | D | D | A | A | D |
| B | <i>Melanitta fusca</i> | D | D | D | D | A | D | D | A | A | D |
| B | <i>Melanitta nigra</i> | D | D | D | D | A | D | D | A | A | D |
| B | <i>Podiceps grisegena</i> | D | D | D | D | A | C | B | D | B | D |
| M | <i>Phocoena phocoena</i> | C | C | B | C | B | C | B | D | C | C |
| F | <i>Acipenser oxyrinchus</i> | A | B | A | D | A | A | D | D | D | C |
| F | <i>Cottus gobio</i> | A | B | B | D | A | C | D | D | D | D |

Conflict analysis: Fishing activities and nature conservation targets

Effects of fishing activities on sandbanks and reefs

| Potential conflicts between fishing and nature conservation objectives | | | | | | | |
|--|---|------------|-------------|-------------|---------------|-------------------|-----------|
| Name | Destructive effects by fishing technics | | | | | | |
| | Dredge | Beam trawl | Otter trawl | Danish sein | Pelagic trawl | Gill net demersal | Longlines |
| Benthic Fauna and Flora | A | A | B | B | D | C | C |
| Reef | A | A | B | B | D | C | C |
| Sandbank | A | A | B | B | D | C | C |

A = very destructive (very likely)

B = destructive (likely)

C = little destructive (little likely)

D = not destructive (not likely)

N = unknown



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1. Workplan to finalize the conflict analysis between nature conservation targets and fishing activities in and around marine Natura 2000 sites
 2. Preparation of the third workshop (April 2008) with the objective to develop management plans
 - It is expected that concrete fisheries management measures will be recommended:
 - Spatial and temporal regulation of fishing activities (e.g. zoning concepts)
 - Introduction of alternative, ecologically sound fishing methods (e.g. pots, traps and longlines)



Projects to improve data background:

- In cooperation with fisheries organizations questionnaire to collect data about by-catch of seabirds in the German gillnet fishery
- Observer program to collect by-catch data in cooperation with commercial fisheries



Küstenfischerei und Beifang von Vögeln
Ziel: Die Auswirkungen von Küstenfischerei auf Vögel zu untersuchen.
Dieser Teil der Umfrage ist anonym. Tragen Sie bitte keine persönlichen Daten ein.

Frage 1
Wären Sie eine bitte einige Basis-Information zu Ihrem Betrieb geben?
Für die verschiedenen Bereiche in einer Hypertext-Form. Information und Unterstützung für die anderen Fragen für die Teil der gesamten Umfrage. Für die
Bitte geben Sie die folgenden Informationen an:

| Allgemeine Angaben zum Fischer | | Beschreibung der Fischerei | |
|--------------------------------|------------------------|----------------------------|--------------------------|
| 1. Name des Fischers | 2. Geburtsdatum | 3. Name der Fischerei | 4. Adresse der Fischerei |
| 5. Beruf | 6. Berufsjahre | 7. Art der Fischerei | 8. Größe der Fischerei |
| 9. Anzahl der Mitarbeiter | 10. Anzahl der Boote | 11. Anzahl der Netze | 12. Anzahl der Stunden |
| 13. Anzahl der Boote | 14. Anzahl der Netze | 15. Anzahl der Stunden | 16. Anzahl der Boote |
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| 93. Anzahl der Stunden | 94. Anzahl der Boote | 95. Anzahl der Netze | 96. Anzahl der Stunden |
| 97. Anzahl der Boote | 98. Anzahl der Netze | 99. Anzahl der Stunden | 100. Anzahl der Boote |

BfN pilot studies:

- Pilot studies to evaluate alternative, ecologically sound fishing methods in the Baltic Sea and North Sea (e.g. use of traps and pots instead of gillnets in bird concentration areas)
- Pilot study to investigate modified fishing gears (Barium sulfate nets to minimize by catch of harbor porpoises)

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WKFMMPA Workshop Report
Interim Report 2006

<http://www.ices.dk/projects/empas.asp>

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Busy *for* Nature



Federal Agency for
Nature Conservation



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