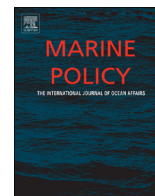




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# Uncovering governance mechanisms surrounding harbour porpoise conservation in the Danish Skagerrak Sea

Thomas Kirk Sørensen\*, Lotte Kindt-Larsen

National Institute of Aquatic Resources (DTU AQUA), Technical University of Denmark, Charlottenlund, Denmark

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## ABSTRACT

The harbour porpoise (*Phocoena phocoena*) is the focus of a range of conservation efforts and policies, including the Habitats Directive, aimed at reducing the bycatch of non-target species in gillnet fisheries. This paper describes the governance process and analyses the governance mechanisms and conflicts surrounding ongoing fisheries management planning with a focus on two Natura 2000 sites in the Danish part of the Skagerrak Sea designated to protect harbour porpoises. Responsibility for developing fisheries management for Natura 2000 sites is solely the remit of the fisheries agency, including mechanisms related to stakeholder involvement. This approach fuels the efficiency of the decision making process, while full transparency and/or co-decision becomes less of a given within a ministry for an economic sector compared with the environment ministry. In relation to porpoises, conflicts are driven mainly by the economy and the varying perceptions of the bycatch issue, with great differences between government, NGO's and fishers. Interviews with fishers and fishing effort data reveal intra-sectoral conflicts pertaining to the incompatibility of active trawling and passive gillnetting in the areas. The paper questions the overall approach to managing the harbour porpoise bycatch issue in light of Natura 2000 and discusses the role of science and its high level of influence in this planning process.

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## 1. Introduction

The harbour porpoise (*Phocoena phocoena*) is a small toothed whale that is widespread throughout the northern hemisphere [1]. The main direct threat to harbour porpoise populations in northern European waters is their entanglement and drowning in bottom-set gillnets [2]. However, porpoises may also be negatively impacted by high noise levels [3] and overfishing of prey species. The only known method to avoid bycatch of harbour porpoises, apart from reducing the overall fishing effort, is to attach acoustic deterrents (*pingers*) to the nets, i.e. scaring the animals away from nets [4]. In Denmark, estimates of total harbour porpoise bycatch have only been made in the North Sea, where high levels of bycatch were observed in the bottom-set gillnet fisheries for turbot, cod, hake and plaice [5]. As a result of the overall threat of gillnets to porpoises, a number of conservation efforts and policies are targeted towards reducing the bycatch of the species either through technological solutions (e.g. acoustic deterrents) or through the establishment of marine protected areas (MPAs) [6,7].

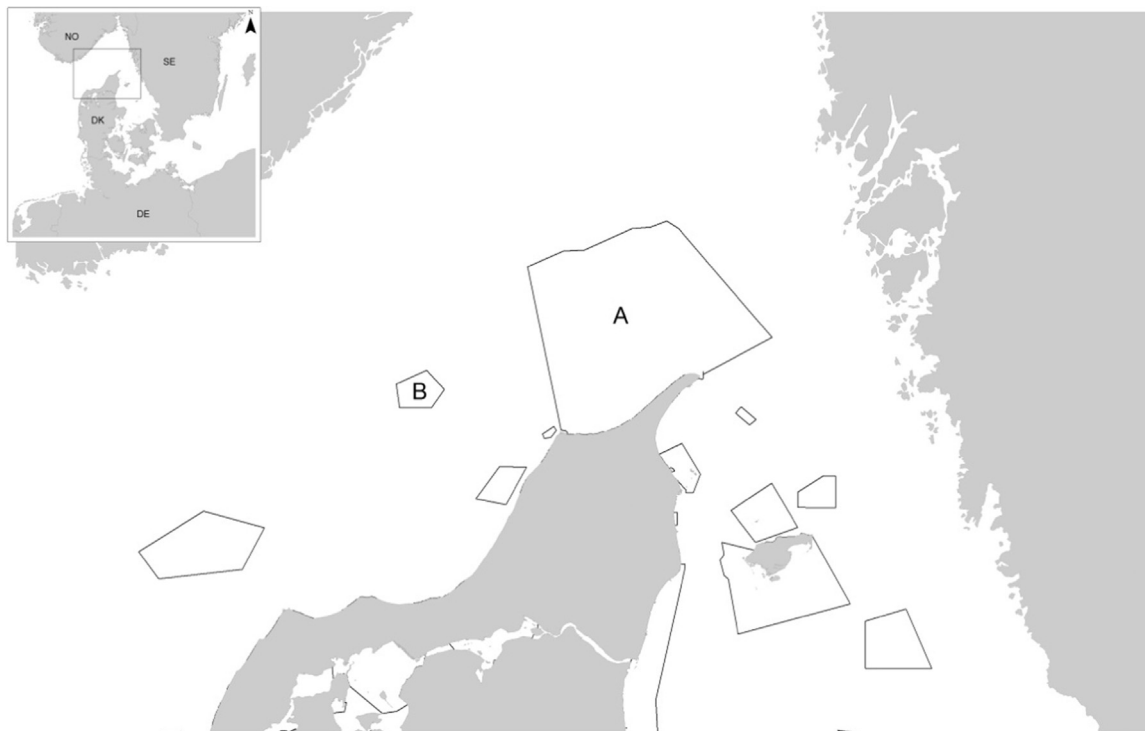
The European Union's Habitats Directive [7] is the overarching

basis upon which a large number of protected areas, known as special areas of conservation (SACs) have been nationally designated in the land and sea areas of EU Member States, to protect a set of habitats and species listed in the annexes of the directive. Together with special protection areas (SPAs) under the Birds Directive [8], these sites constitute the so-called Natura 2000 network of protected sites. The aim of the Habitats Directive is to achieve a *favourable conservation status* for the listed habitats and species. The harbour porpoise is listed in both Annex II, as a priority species whose conservation requires the designation of special areas of SACs, and Annex IV, as a species in need of particularly strict protection throughout its natural range. This means that the obligation to protect the harbour porpoise applies to marine areas within as well as outside SACs.

Harbour porpoises are also the focal species of a number of agreements rooted in fisheries policy. The European Common Fisheries Policy (CFP) aims, among other things, to ensure sustainable exploitation of living aquatic resources [9]. In light of the wider species conservation targets of the Habitats Directive, the EU addresses porpoise bycatch directly through Council Regulation 812/2004 [6], which lays down measures concerning incidental catches of cetaceans in fisheries, including the implementation of monitoring systems to register the incidental catches of these species. Member States must also take action and conduct research to ensure that incidental catches do not have a significant impact

\* Corresponding author.

E-mail addresses: [tk@aqu.dtu.dk](mailto:tk@aqu.dtu.dk) (T.K. Sørensen), [lol@aqu.dtu.dk](mailto:lol@aqu.dtu.dk) (L. Kindt-Larsen).



**Fig. 1.** Natura 2000 sites in waters surrounding northern Denmark, including case study areas Skagens Gren & Skagerrak (A) and Store Rev (B).

on the species concerned and the marine ecosystem. The Regulation aims at mitigating incidental catches of cetaceans by introducing technical measures concerning gillnets (incl. mandatory use of pingers) and by creating a monitoring framework on board fishing vessels to obtain information on bycatches of cetaceans in 'at risk' fisheries. In addition to the CFP, the agreement on the conservation of small cetaceans of the Baltic and North Seas (AS-COBANS) aims to restore and/or maintain harbour porpoise populations at 80% of their carrying capacity [10] and to reduce bycatch to levels not exceeding 1.7% of the population [11].

This study focuses on *Skagens Gren & Skagerrak* and *Store Rev*, two SACs designated under the Habitats Directive to protect harbour porpoises in the Danish part of the Skagerrak, a sea area shared by Norway, Denmark and Sweden (see Fig. 1). *Skagens Gren & Skagerrak* (approx. 2690 km<sup>2</sup>) is designated to protect harbour porpoises and sandbanks, while the neighbouring site *Store Rev* (approx. 109 km<sup>2</sup>) is designated to protect harbour porpoises as well as reefs and submarine structures made by leaking gases [12]. The focus of the current study is solely on harbour porpoises. This case study research followed the governance analysis approach and structure developed as part of the MESMA project [13].

Originally designated in 1998, the *Skagens Gren & Skagerrak* site included only terrestrial habitats. In 2003 the site was expanded to include adjacent coastal waters (albeit no marine habitats and species) and in 2010 the site was finally expanded to also encompass additional offshore areas including harbour porpoise habitats. As a result of the 2010 expansion the SAC became subject to both national fisheries regulations (out to 12 nm) and international regulation under the CFP. *Store Rev* was designated in 2010. The two Danish SACs were designated by the Danish Ministry of the Environment on the basis of porpoise density data derived from satellite tracking of captured and tagged individuals [14], with site boundaries drawn to encompass those areas with the highest observed densities of harbour porpoises. There is no obligation under the Habitats Directive to develop formal management plans for these two sites until 2015 (5 years after designation).

Although the two SACs are nationally designated by Denmark, EU Member States do not have exclusive fishing rights within their Exclusive Economic Zones and much of the Skagerrak is fished by vessels from several other member states in accordance with the CFP. Several major Danish ports are located in the vicinity of the Skagerrak, including the fishing ports of Skagen and Hirtshals. There are many fishing communities in this region, which is considered to be one where employment opportunities are otherwise sparse.

The governance issues, conflicts and impacts surrounding the two MPAs were analysed by the authors on the basis of policy research, face-to-face interviews with 20 local fishers from Skagen and Hirtshals, satellite data from vessel monitoring systems (VMS) of fishing vessels larger than 12 m, and results of experimental video monitoring, where cameras were installed on smaller vessels fishing in the sites, allowing hitherto inaccessible detection of harbour porpoise bycatch incidents [15]. DTU Aqua scientists played no role in the selection of the two sites, but do support the implementation process by delivering scientific data for stakeholder meetings and data requests from the involved ministries. The current paper therefore draws on personal experiences from the authors, but also contains stakeholder views based on interviews and information from available literature.

## 2. Case study process and governance

The Danish Ministry of the Environment has the overall national responsibility for the implementation of the Habitats Directive. This responsibility is placed within the Ministry's Nature Agency that designates sites, develops and publishes overarching management plans and conservation objectives for each site, carries out public hearings, etc. However, the Ministry of the Environment has legally delegated sectoral management responsibilities to various other ministries (e.g. the Ministry of Transport, Energy etc.). As a result the Ministry of Food, Agriculture and Fisheries of Denmark and its AgriFish Agency have been given the

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