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Case studies on

Remuneration of Positive Externalities (RPE)/ Payments for Environmental Services (PES)

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A set of small connected projects aims at reducing the environmental impact of fisheries by means of detecting and mitigating bycatch of endangered, threatened or protected (ETP) species and at the same time increase the revenues of the local fisheries business in recognition of their service to the local economy.

The project involves the Thünen Institute of Baltic Sea Fisheries in Rostock and obtains financial support from Germany-based NGOs and the public sector.

*Starting date: March 31st, 2011 – ongoing
Budget involved so far: approx. 0.4 Mill Euro*

Reduction of the environmental impact on ETP (endangered, threatened, protected) species of a coastal passive fishery in the Baltic Sea

Overview

Main participants and their roles

Different German Baltic Producer Organisations (POs), based mainly in the ports of Freest and Fehmarn. Members of these POs fish with passive gear (mostly gillnet and longline), targeting herring, cod and flatfish in the German EEZ, and operate partly in marine protected areas. This fishery is highly selective with respect to the target species and extremely energy efficient, but may have unwanted bycatches of ETP species, mainly rare seabirds and harbour porpoise. These fisheries are usually little profitable but deliver significant unaccounted services for the society and the economy of the rural coastal areas. The task in the project is to test monitoring and mitigation tools and apply the results. They will also be responsible for conducting the MSC assessment if phases 1 and 2 (see explanation below) make such an assessment promising.

Thünen Institute of Baltic Sea Fisheries, Rostock: TI is the German Federal research institute responsible for scientific advice on the marine living resources of the Baltic Sea. TI develops the overall strategy and pulls the different project parts together, secures funding, helps developing monitoring and mitigation technology, evaluates the project, finally writes up and communicates the results.

WWF Germany, Hamburg, does part of the public relations and provided funding for the first phase of the study to the fishery.

German Federal Ministry for Consumer Nutrition, Agriculture and Consumer Protection, Berlin, finances the technical development of the mitigation measures, namely the “porpoise alert” pingers.

Country of Schleswig Holstein/Ministry of the environment and rural areas, Kiel – sets the political targets for the fishery in protected areas and is considering to finance a loss of profit for the fishery in phase 3 of the project if no other mitigation measure is sufficient to reach the bycatch mitigation aims.

Background

The passive fishery along the German Baltic coast is usually conducted by family-owned companies. They use gillnets or entangling nets and longlines, rarely traps. These fishing methods are highly selective with respect to the target species, they also require very little energy per unit of fish landed. But in some cases these fisheries can have a significant bycatch of endangered, threatened or protected species such as seabirds and harbour porpoise, which is unacceptable given the status of these species. The public reputation of these fisheries, historically regarded as the environmentally friendly fishery compared to trawl fisheries, is therefore deteriorating. Also, they are very labour intensive and thus not very profitable. In spite of this, they are delivering an important service to the rural areas which are usually economically weak: The most important source of income in these areas is tourism, and that very much depends on the presence of fishing vessels and fresh fish landings in small harbours. This service is usually not accounted for by economists trying to make the European fleet more profitable.

With the extension of marine protected areas and no-take zones in the traditional fishing areas of these fleets, the fishery increasingly comes under pressure. To preserve their value for the coastal communities, they asked the Thünen Institute for help. The original intent was to determine unwanted bycatch more precisely and thus avoid being excluded from fishing in protected areas. As most of the vessels are very small (<12m length), new methods of permanent monitoring had to be deployed. Over the course of some years, more project stages and subprojects were developed by the fishery and TI along with varying partners. This resulted in a more complex medium-term strategy to monitor and mitigate unwanted bycatch of ETP species, improve the public perception of the ecological performance of the fishery, and improve profitability by receiving higher landing prices.

The scheme is still under development, and at present negotiations have started to secure direct compensation for a potential loss of income due to the implementation of mitigation measures in case other means of bycatch avoidance would not be successful. The project is expected to secure the long-term operation of this fishery but at the same time provide sufficient data for the assessment of the environmental impact and reduce unwanted bycatch as much as possible.

The environmental service provided, if the project is successful, is the significant reduction of the unwanted bycatch of ETP species in this fishery, to a level where it wouldn't impact these species negatively.

Beyond the environmental service, there are important economic services for the local communities, and benefits for the perception of the fishery and their profitability.

Environmental and economic success is permanently monitored by independent scientific institutions.

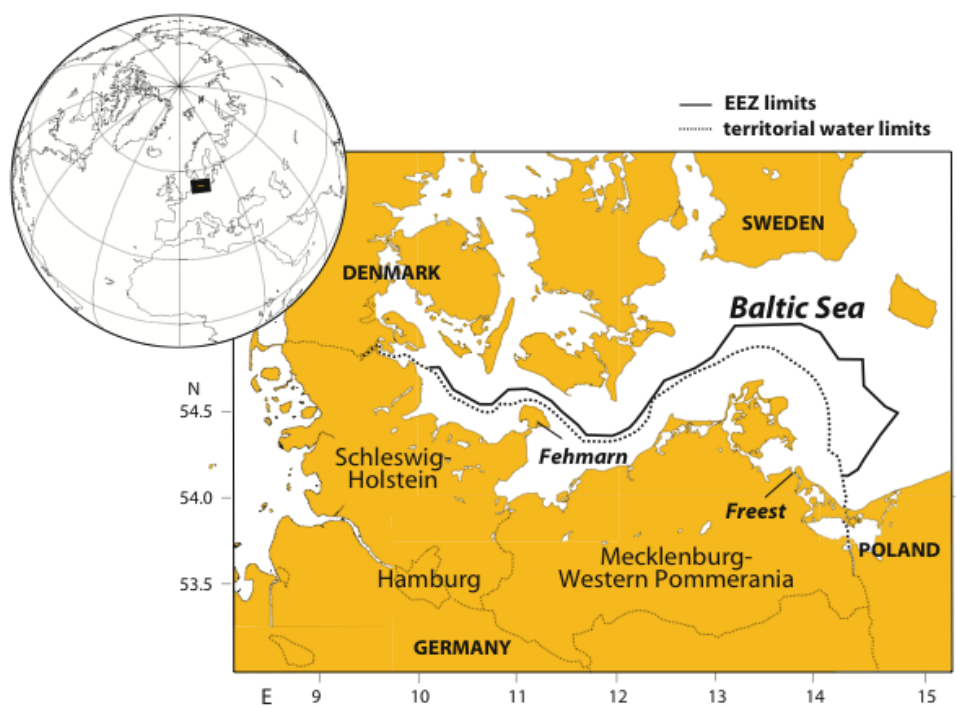


Figure 1 Map of German Baltic EEZ, area of operation of the passive fleet. Ports of the producer organisations participating in the project, Fehmarn and Freest, are indicated. Graph: C Zimmermann. Map source: GEBCO.

Improving ES provision by reducing bycatch

The overall project is constructed of multiple stages and different partners participating.

Phase 1 focussed on the monitoring of unwanted bycatches. This is needed to determine a firm basis of the threat that ETP species are found in the catch and to assess what amount of bycatch would be acceptable. The phase was initiated by the Freest fishery, which asked TI to help verifying how much ETP species are bycaught. TI placed an electronic monitoring system on board of a sample of vessels, which was known to be a reliable and cost-effective tool on bigger vessels and is widely used in Canadian fisheries. The systems were financed by its partner WWF, and TI modified the monitoring systems over 2 yrs until it provided reliable data also on the small vessels. It turned out that the number of bycaught birds in this specific fishery was much lower than currently believed, but also higher than what the participating fishery expected. The project helps fulfilling the EU obligation for member states to monitor harbour porpoise bycatch, although not a single porpoise was bycaught in this area by the subset of vessels over the course of the two years. As it is known that further to the west, around Fehmarn, bycatch rates of harbour porpoise (belonging to a different, much bigger population) are much higher, electronic monitoring systems are now placed on vessels of this PO.

Phase 2 focuses on mitigation measures. For seabird bycatch, the most promising approach seems to be the determination of areas and times with unacceptable bycatch rates and then the avoidance of these areas and times. This is also the preferred approach of the country of Schleswig-Holstein's ministry for fisheries and the environment which aims at defining protected areas and times in state waters, however currently lacking sufficient information to decide on an adequate definition of these areas and times. For harbour porpoise, TI along with industry partners currently develops and implements pingers (signal-emitting transmitter) which would not expel porpoise from the area – this would not be acceptable in a protected area –, but instead alert animals about the potential danger arising from approaching gillnets. This is achieved by sending out natural clicktrain signals (used for echo orientation) recorded from harbour porpoise. The animals then increase their clicktrain frequency and thus “see” the danger acoustically. The development and implementation is financially supported by a grant of the Federal ministry, and the use of those special pingers (if successfully tested) will be encouraged by the local legislation providing exceptions from fishing bans for those fishers participating.

A third means of mitigation is the use of different fishing gear with lower bycatch rates. This approach is preferred by some Federal agencies. However the problem is that none of the alternative fishing gears has zero impact, and for all of them the catchability of the target species is usually much lower than for gillnets. This will reduce the profitability of the fishery even further and make it likely that this specific type of fishery will just disappear. If all other approaches prove ineffective to reduce unwanted bycatch of birds and mammals sufficiently, the introduction of alternative gear will therefore require a compensation payment. This will be necessary to keep the fishery in operation, considering its great value for tourism in the area. In this case, the country of Schleswig-Holstein is considering paying the fishermen directly for their fishing activities. Such a direct payment could amount for 20-40% of the fisher's income, depending on the reduction of the catchability of the chosen alternative gear.

Phase 3 focuses on the public perception of the fishery and on improving its profitability. Local marketing along with a campaign demonstrating what the fishery has done to minimise its environmental impact would be one way. The most promising approach would be an eco-labelling under the credible and well-known standard of the Marine Stewardship Council (MSC). If the fishery enters assessment within the next two years, it would likely be the first marine gillnet fishery to achieve MSC certification. Partners of this project phase would be again the fishery and WWF, and financial contributions by retailers are likely to cover part of the assessment cost. This phase can however only start when phases 1 and 2 are successfully concluded, and it would certainly require continued monitoring of larger parts of the fleet even after the certification. It is expected that landing



Figure 2. (above) Image of the smallest vessels in the German Baltic passive fleet. Photo: A Müller.

Figure 3 (below) Electronic monitoring system including CCTV cameras for the detection of incidental seabird and mammal bycatch in the German Baltic passive fishery (in Freest). Photo: WWF

prices at least for herring would increase once the fishery is MSC certified by about 10%. This price premium is usually higher for early adopters and reduces with increasing number of certified fisheries landing the same resource (in this case: Baltic herring).

Lessons learned

In spite of the fact that the initiative for the development of a medium-term strategy came from the fishers, communication with them proved to be difficult throughout the project. Incentives for the fishery were clear and appreciated, at least among fishers and funders in the retail sector through WWF. Yet the scheme was not always understood in the respective ministries. Fishers considered it to be an incentive if the public perception of their environmental impact would change. They complained however about the presence of an electronic monitoring system and asked for a scheme to share the perceived burden of being monitored among a larger group of fishers. At least in the beginning of the process, the involved ministries and federal agencies were, not too interested in a firm scientific basis of their plans to create protected areas and zones mainly due to politics and difficulty to communicate such an idea to the public.

The idea to compensate fishers for their loss of income if voluntarily switching to a less effective method with fewer bycatches in order to ensure environmental conservation as well as the economic viability of the local fishery is new to Germany and maybe even Europe. At present it is not quite clear for how long funding for such a scheme would be available. The MSC certification proved to be a strong pull for more sustainability in the fishery, and the retail sector in Germany is the driving force in this approach.

Overall, all participants in the project learned a lot by just improving their communication and being forced to work together to find an optimal solution. We are confident that over the next 3-4 years it will be possible to achieve all of the original aims of the project, even if some aspects will have to be adapted again to the results of the continued scientific monitoring. Some of the results, specifically the use of electronic monitoring for the determination of the amount of incidental bycatch of ETP species, are globally applicable.

Further Information

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References:

At present only available in German but published in peer reviewed journals and on international conferences soon. In the meantime, see for example:

<http://www.ti.bund.de/de/startseite/institute/of/forschungsbereiche/umwelt-fischerei/beifaengestellnetzfisherei.html>

Contacts

Remuneration of Positive Externalities (RPE) / Payments for Environmental Services (PES) in the Agriculture and Food Sectors
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