

ANNEX II

Pilot study in Natura 2000 site in Danish waters

17 July 2024

Introduction

Gule Rev, a Natura 2000 area located in Danish waters, harbours sensitive marine habitats described as 'reefs'. The reef structures in Gule Rev consist of both stone reefs and gravel beds. The Belgian fishing vessels must be able to demonstrate during the pilot project that they are not in contact with the mapped reef structures and need to show maximum transparency regarding their fishing activities (spatial and temporal).

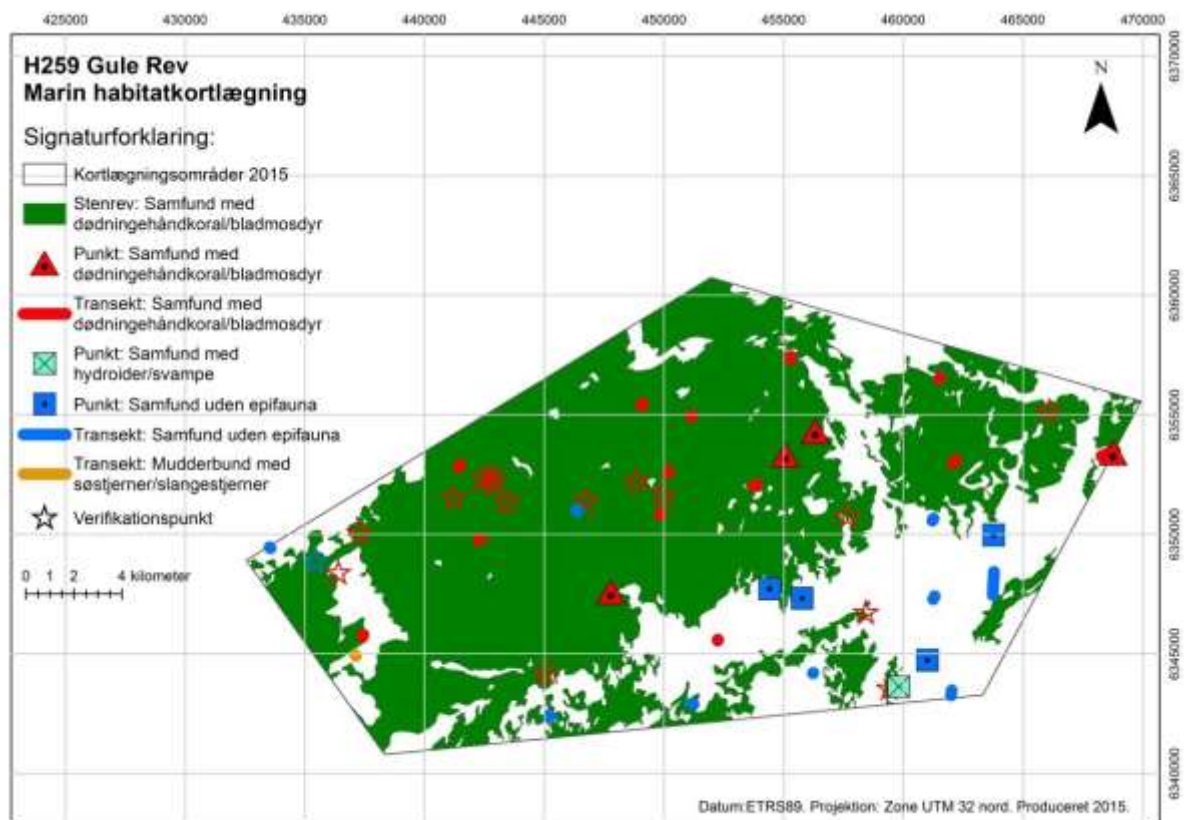


Figure 1 Map of Gule Rev, which is protected under the Habitats Directive for its reefs

Objectives

The general ambition of the project is to show that by using the latest developments in the beam trawl fishery and precision fisheries, it is possible to avoid and safeguard the most sensitive areas.

The main objectives are to:

- Show the viability of precision fishing methods in Gule Rev
- Minimize disturbance to sensitive gravel beds during fishery

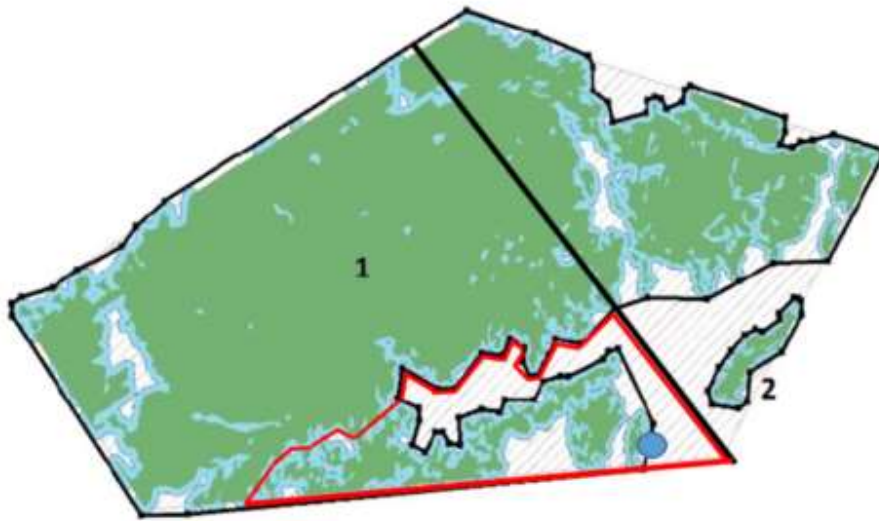


Figure 2. Red line indicate area of pilot study.

Methodology

A number of Belgian demersal beam trawl vessels are suitable for precision fishing within Gule Rev for several reasons:

- These beam trawls are designed to efficiently target demersal species such as flatfish and shrimp. Compared to other demersal fishing methods beam trawls typically have a smaller fished surface (per effort?).
- Real-time monitoring: The VISTools system¹ is installed on these vessels and automates data collection from conventional onboard equipment such as GPS, towing force, and fuel consumption from the main engine and registers landed catch (i.e., via an electronic weighing scale). This data is captured and processed in near real-time, allowing the development of decision support tools for vessel owners (VISTools Analytics) while gathering valuable high-resolution data for research purposes.
- Seabed composition: In order to map the sediment further, a WASPP multibeam will be taken on board. Combined with the 3D presentation of the seabed it helps to assess seafloor hardness to identify the best fishing grounds in a range of different environments. It profiles the seabed 100 times faster than single-beam echo sounders. It accurately profiles the water column and seafloor to reveal reefs, fish, wrecks, backscatter, foreign objects and seafloor artefacts. WASPP multibeam sounders gives a wide-angle 120° port-to-starboard view of the seafloor and water column. The viewing span is over 3 times sea depth.
- Detailed catch composition analysis: A scientific sea-going (onboard) observer from the Flanders Research Institute for Agriculture, Fisheries and Food (ILVO) will accompany the vessel, collecting length and weight data for commercial discards and documenting the total numbers of ETP species (Endangered, Threatened and Protected species). Additionally, the observer will collect a subsample of the total catch (fish, commercial

¹ [Precisievisserij - ILVO Vlaanderen](#) (VISTOOLS)

invertebrates and epibenthos) for comprehensive analysis onshore after the trip. Within the Belgian VISIM II project², which aimed to integrate state-of-the-art electronic monitoring methods focusing on advanced camera technologies and deep learning techniques, a camera will be positioned above the conveyor belt to collect images of the entire catch. Through analysis of the total catch, the aim is to identify species composition. This data will then be correlated with the species composition of the expected sediment type, allowing verification if the fishing occurred in the intended substrate. Ultimately, this process will enable to cross-reference catch composition with existing sediment maps, ensuring accurate substrate targeting during fishing operations.

Expected outcomes

Outcome 1: WASSP

In a first phase, the use of the WASSP will be tested to check whether a clear distinction can be made between sandy areas and the reefs.

This will allow to form a clear image of sensitive areas that need to be avoided.

Outcome 2: Precision fisheries

As a second milestone, is that the Belgian beam trawl equipped with VISTOOLS and the WASSP can demonstrate the ability to fish very precisely within the project area. Based on the WASSP images on board, the skipper will be able to decide where to fish to avoid the sensitive habitats. The landings will be closely monitored via the VISTOOLS system and an observer will collect data to make a detailed catch composition analysis, supported by the use of the camera.

Depending on the success of the pilot project a follow up project can be setup to test the best system outcome of the pilot project on its feasibility for regular fishery activity.

Conclusion

The proposed pilot project for precision fishing in Gule Rev represents a proactive approach towards sustainable fisheries management. By using precise fishing techniques and adopting targeted fishing practices, we aim to demonstrate that responsible fishing can coexist with the preservation of sensitive marine habitats.

² Applicability of self-sampling for biological data collection within the Belgian fisheries sector to improve stock assessments for commercial fish species — ILVO