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Discard survival in Trammel net and Danish seine

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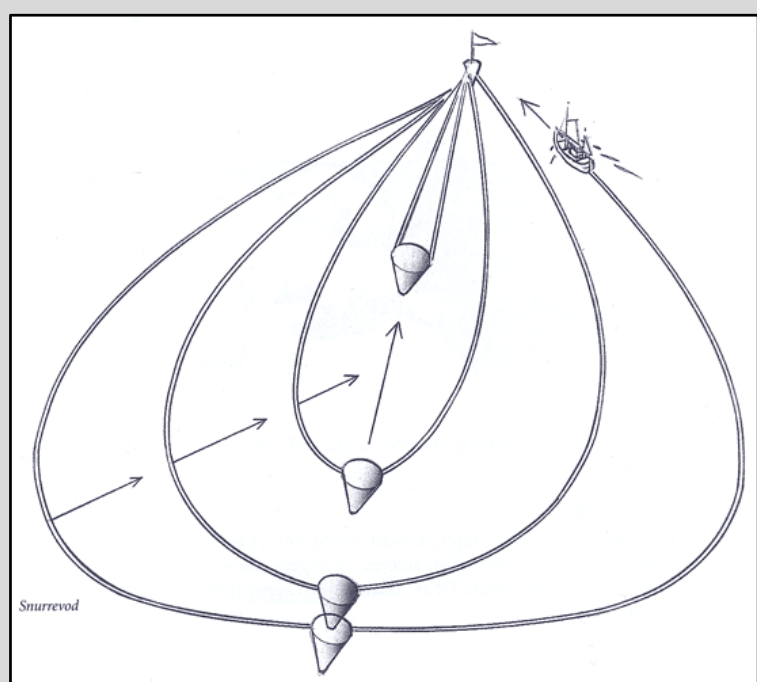
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BACKGROUND

- The Common Fisheries Policy of the European Union has enacted a landing obligation, prohibiting the discard of quota regulated fish species.
- The regulation includes the possibility of exemption from landing obligation for “species for which scientific evidence demonstrates high survival rates”.
- The majority of studies on discard survival have focus on trawl fisheries and data from smaller, more sustainable fisheries is therefore limited.



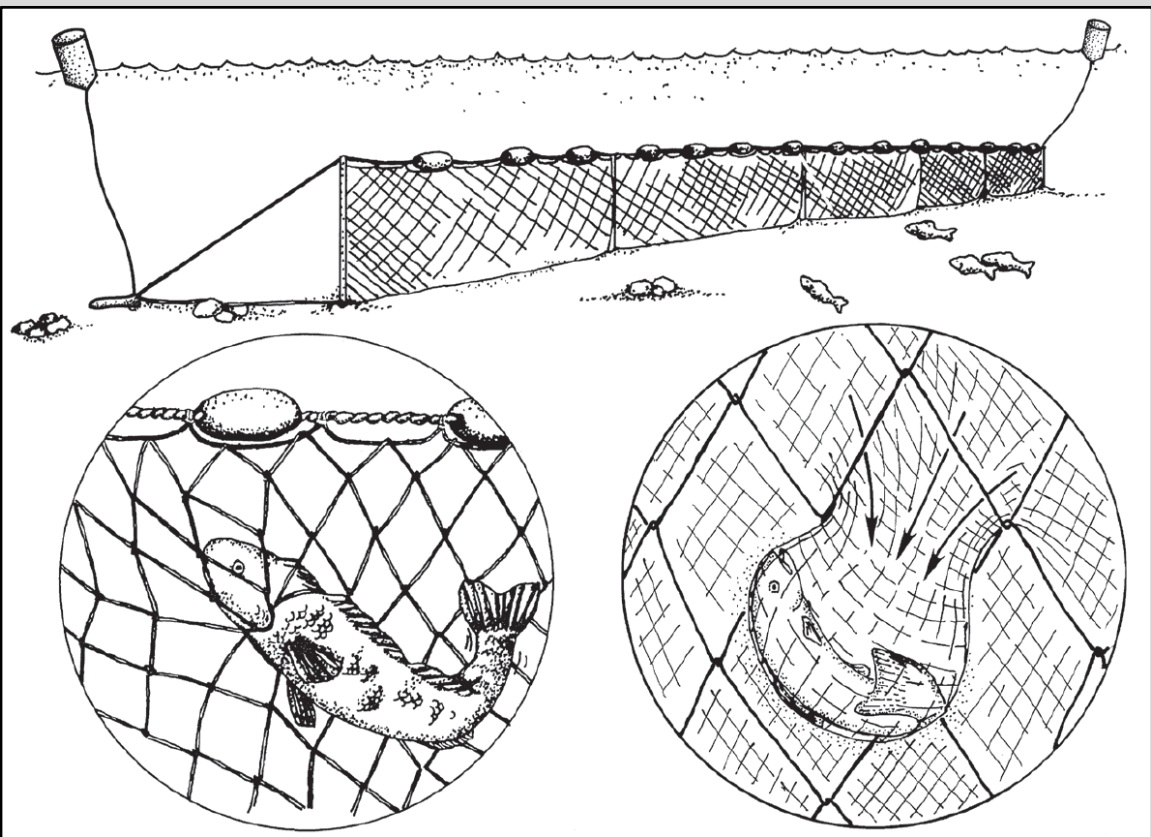
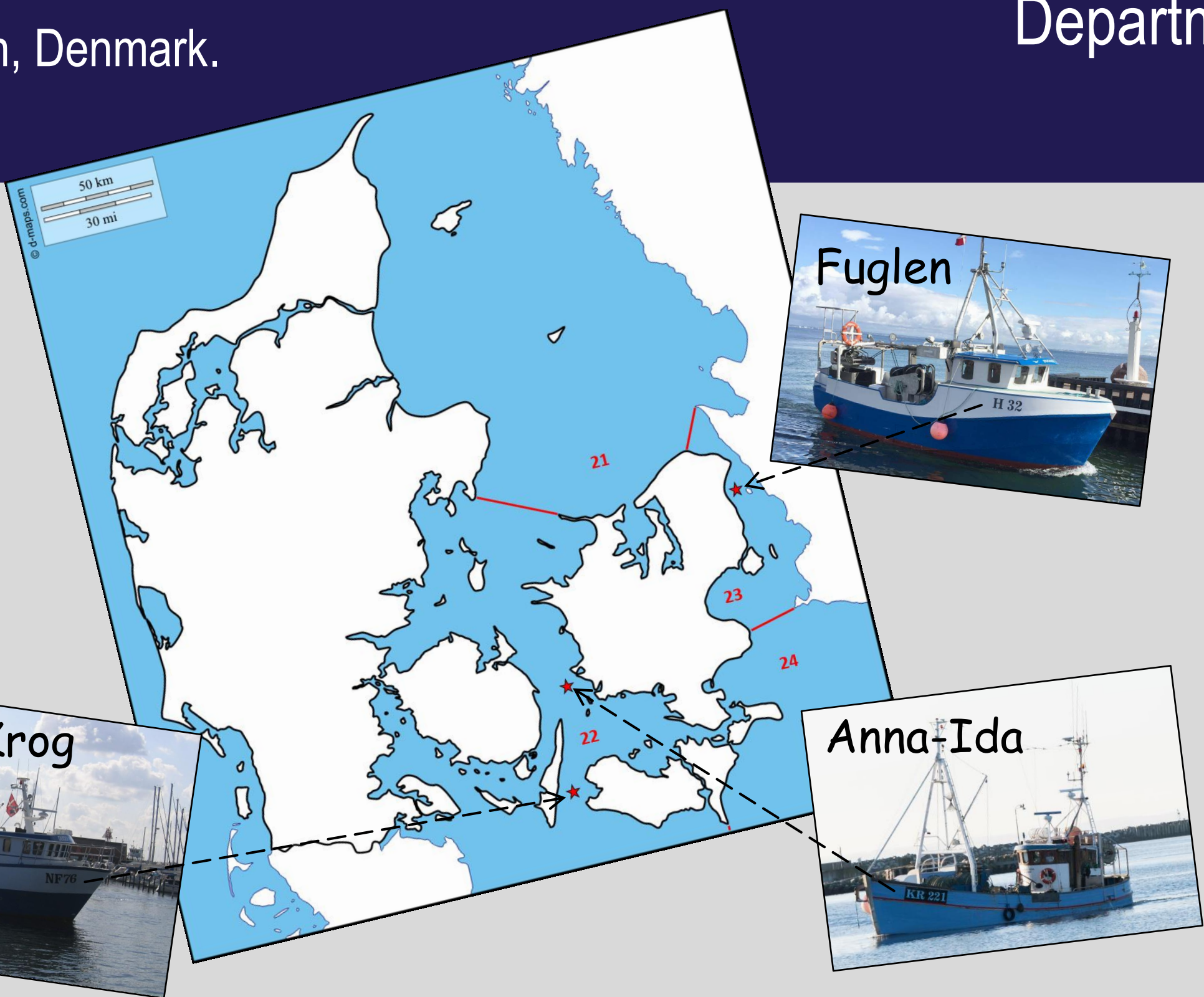
Danish seine

OBJECTIVES

- Estimate discard survival in plaice and cod from vessels fishing with trammel net and Danish seine.
- Assess injuries and reflex impairments after capture and after observation of short-term survival rate.
- Determine the effects of catch-related injuries and reflex impairments on discard survival.
- Determine the effects of housing conditions during observation on injuries and reflex impairments.

METHODS

- Captured fish were: 1) Assessed for injuries and reflex impairments, 2) Transported to shore in tanks with oxygenated sea water, 3) Transferred to housing facilities, 4) Observed for short-term mortality for 4-11 days, 5) Assessed for injuries and reflex impairments.
- Reflex Action Mortality Predictor (RAMP) and Catch-Damage-Index (CDI) scores provide information about the overall level of reflex impairments and injuries, respectively.
- For each fish, RAMP scores from 0-3, and CDI scores from 0-9 were calculated by adding scores for the 3 reflexes and 9 injuries, respectively (Figure 1).



Traditional gill net Trammel net

Reflex - Stimulus and responses

- Righting : Righting itself when turned upside down under water.
Evasion : Swims toward the bottom when released at the surface.
Tail grab : Struggle or tries to escape when tail is held between two fingers.

Injury - Description

- Bruises (minor / medium / major) : Areas with discoloration or scale loss (0-10% / 10-50% / 50-100%).
Fin fraying : Shredding of the thin skin between the fins.
Blood clots : Blood clots visible through the skin.
Minor wounds (head / body) : Shallow cuts or punctured skin.
Deep wounds (head / body) : Deep cuts or punctured skin, often with Bleeding.
Intestines : Intestines visible through the anus.
Net-mark : String cuts from net contact.

Table 1 For reflexes, individuals was scored 0 if the response was completed, or 1 if the response was not completed (i.e., impaired). For injuries, individuals was scored 0 if the injury was absent, or 1 if the injury was present (results in Figure 1).

RESULTS & CONCLUSION

- Survival rate was high for both species and fisheries.
- Reflex impairments were virtually absent which may have contributed to the high survival rate.
- Bruises, fin fraying and net marks were frequent but did not appear to reduce survival rate.
- Results have already contributed to an exception from the EU landing obligation for fish from trammel net and Danish seine.

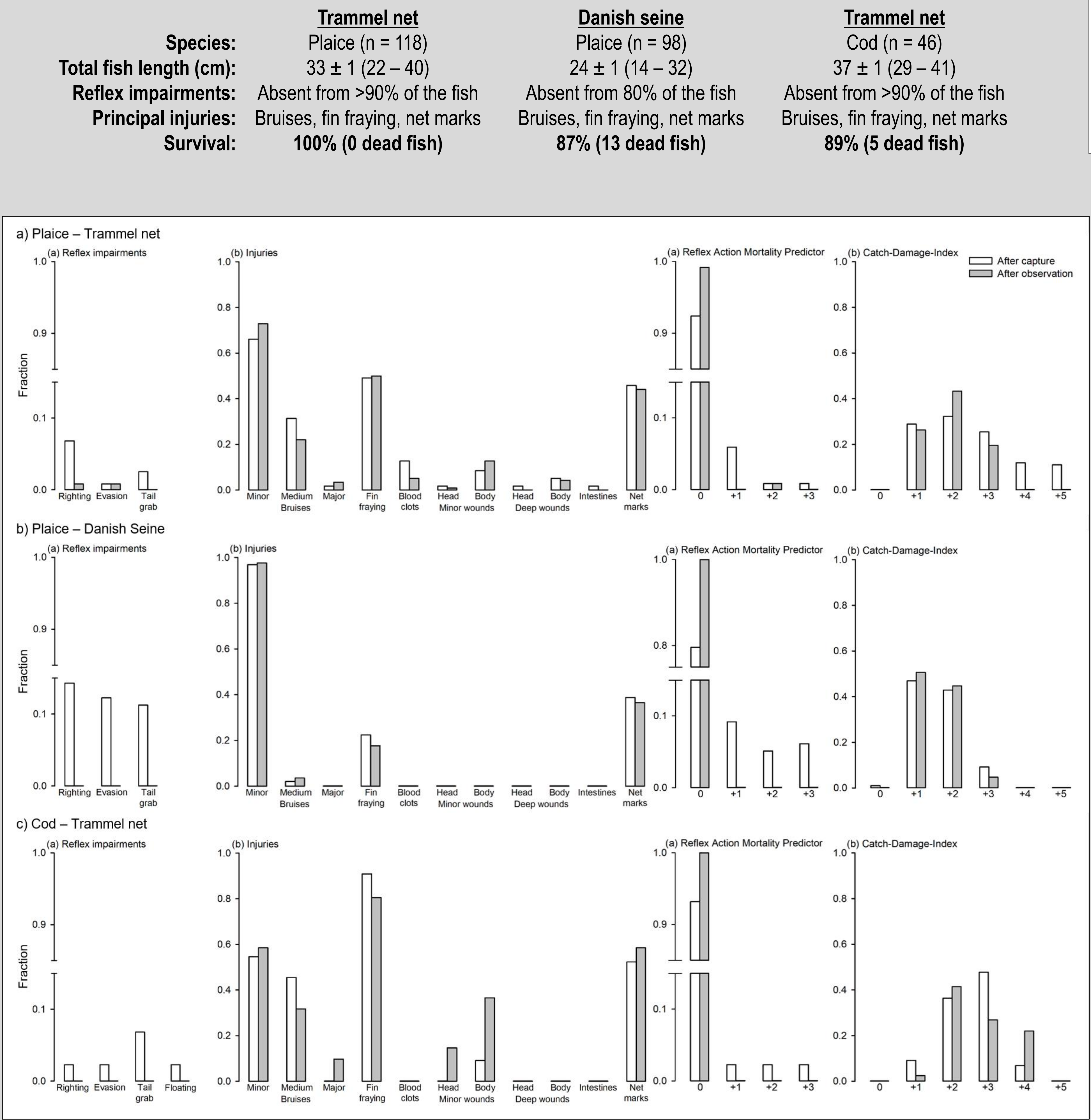


Figure 1 Fraction of fish with reflex impairments and injuries, as well as RAMP and CDI scores, after capture (white), and at the end of the observation period (grey).



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