

Trilateral Workshop on Blue Mussel Fishery Management in the Wadden Sea

Blue Mussel Fishery in the Danish Wadden Sea

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Introduction: Per Dolmer (DTU Aqua)

Environmental Impact Assessment: Helle Torp Christensen (DTU Aqua)

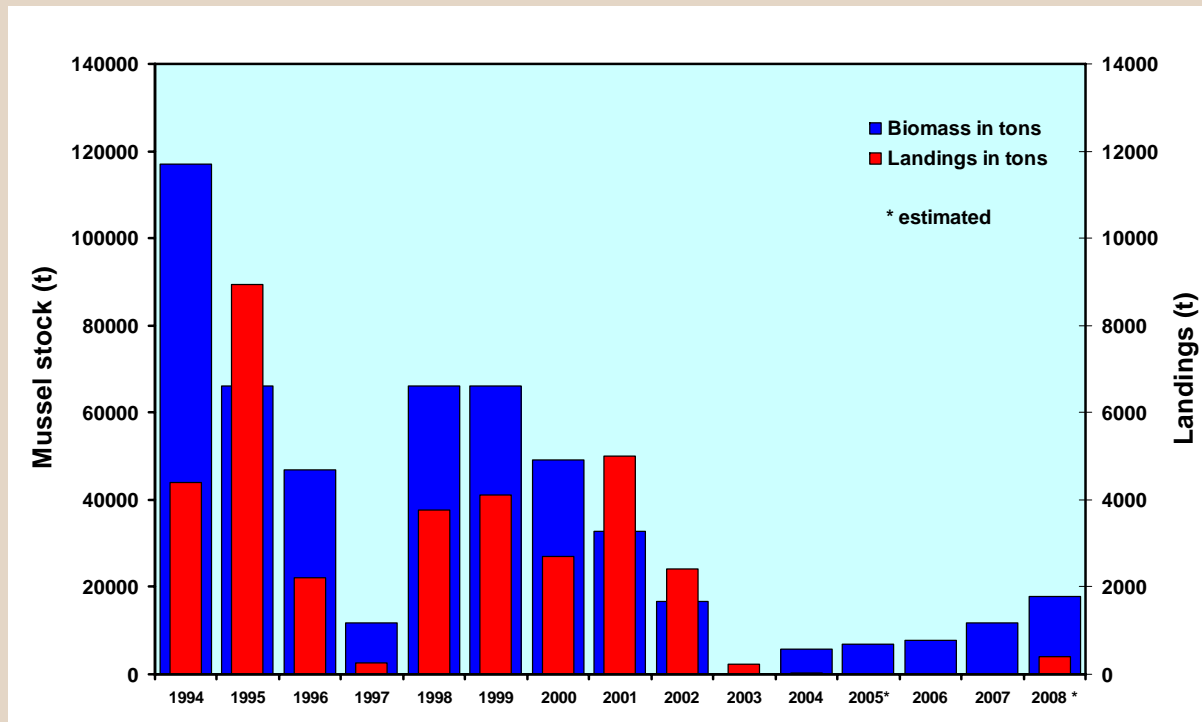
Birds: energetic and ecology: Karsten Laursen (NERI)

Future for blue mussel fishery: Per Dolmer (DTU Aqua)



Technical University of Denmark

Population and fishery development for blue mussels in the Danish Wadden Sea

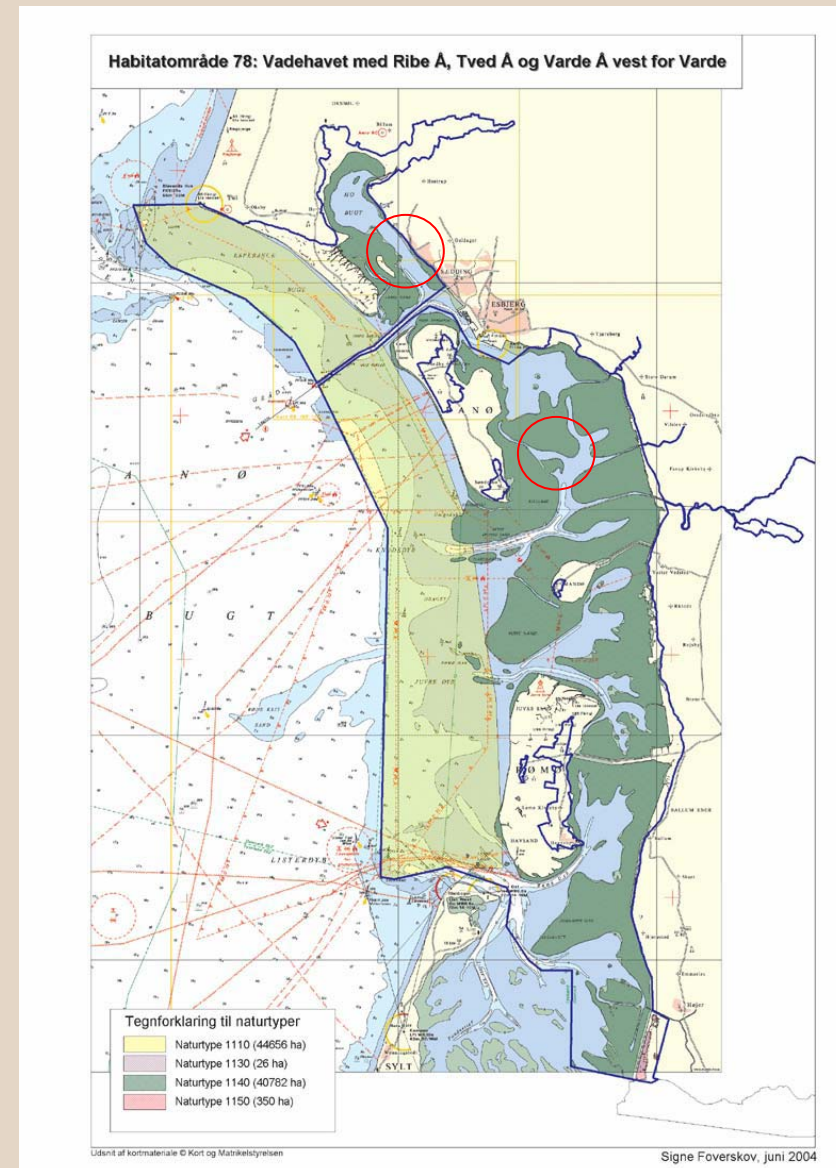


10 x difference in axes

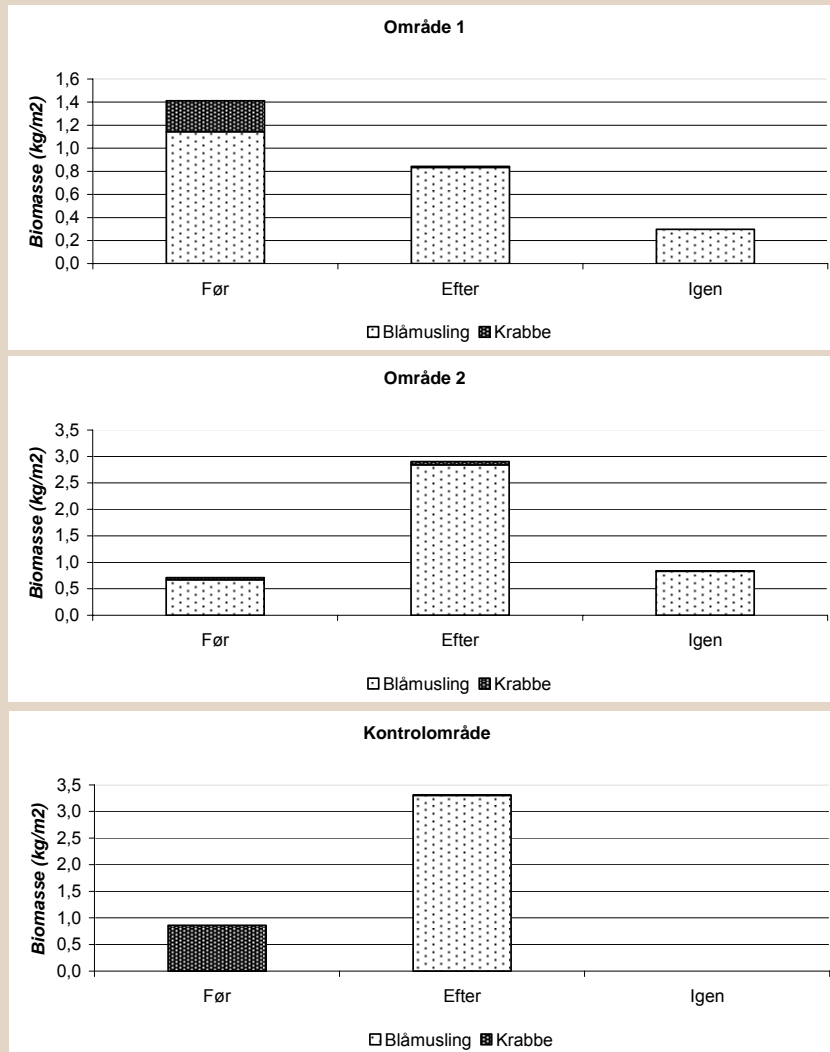
Management: chain of events

- **Jan 07:** Mussel stock 7,816 tons – quota for 500-1,000 tons
- **Jan 07:** Meeting with EPA and FVM - Analysis of mussel dredging/stock
- **Mar 07:** Analyses of fishery of mussels
FVM order an EIA
- **Dec 07:** EIA finished
- **Dec 07:** Permission for 700 t in Jan-Feb 08
- **Jan 08:** Mussel stock 11,838 tons
- **6-11. Feb:** Revised advice from NERI
EPA withdraw dispensation for fishery
- **13. Feb:** FVM withdraw permission
- **Mar 08:** FVM and MM ministers signal solution: improved advise

- Conditions for the EIA
 - **Assessment** conducted with respect to specific fishing area
 - Quota on **500-1000 tonnes** was recommended
 - **Fishing areas** selected with respect to local stock sizes
 - **Fishing plans** were made specifically for these areas



Epifauna



Species: blue mussels, pacific oysters, shore crabs

There were found **significant difference** in biomass of epifauna as a function of time ($p=0,026$).

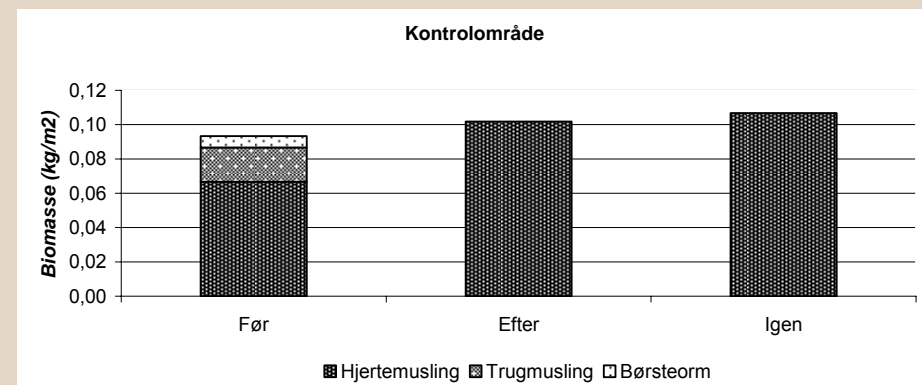
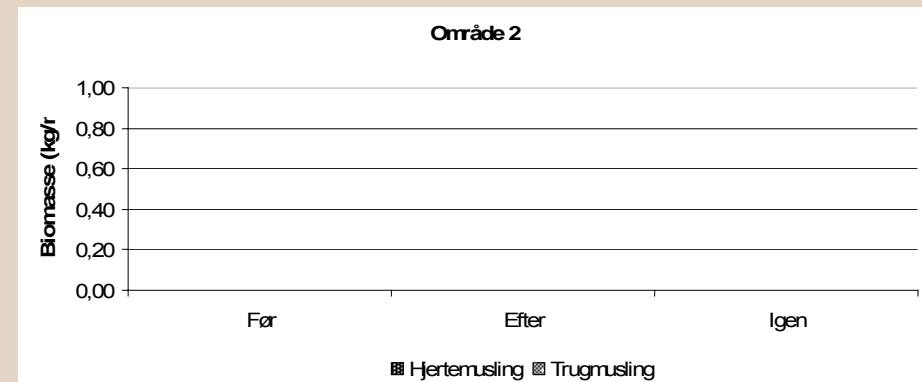
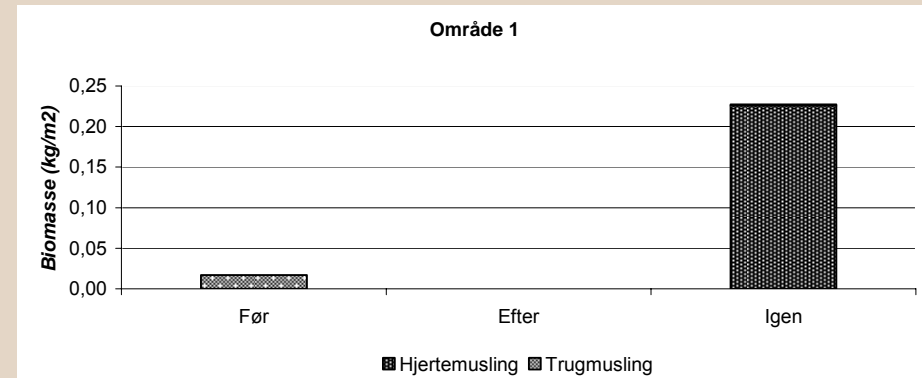
But...

...difference was **only seen in control area** where no fishery took place. It means that difference is not due to fishery.

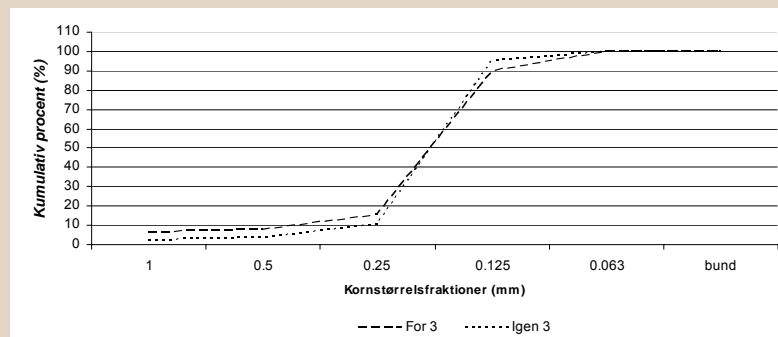
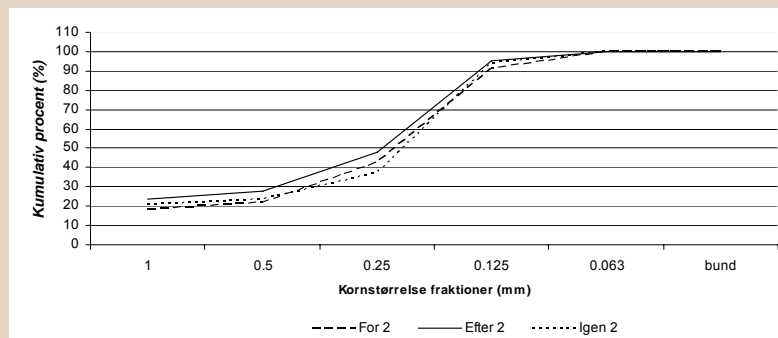
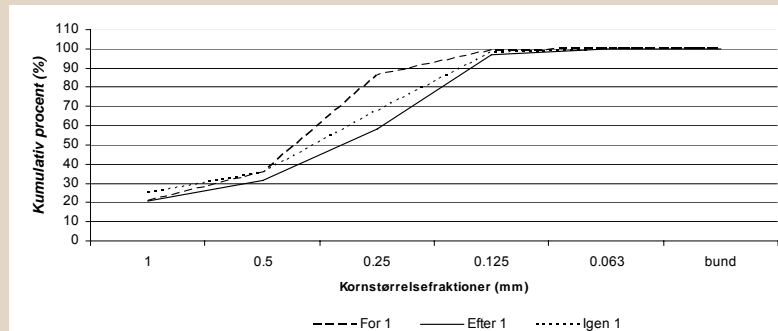
Infauna

Species: cockle, trough shell, sand worm.

There were found **no significant difference** either as a function of time or area.



Sediment



Significant difference in grain size ($\Phi 50$) between areas.

No significant difference in grain size ($\Phi 50$) as a function of time.

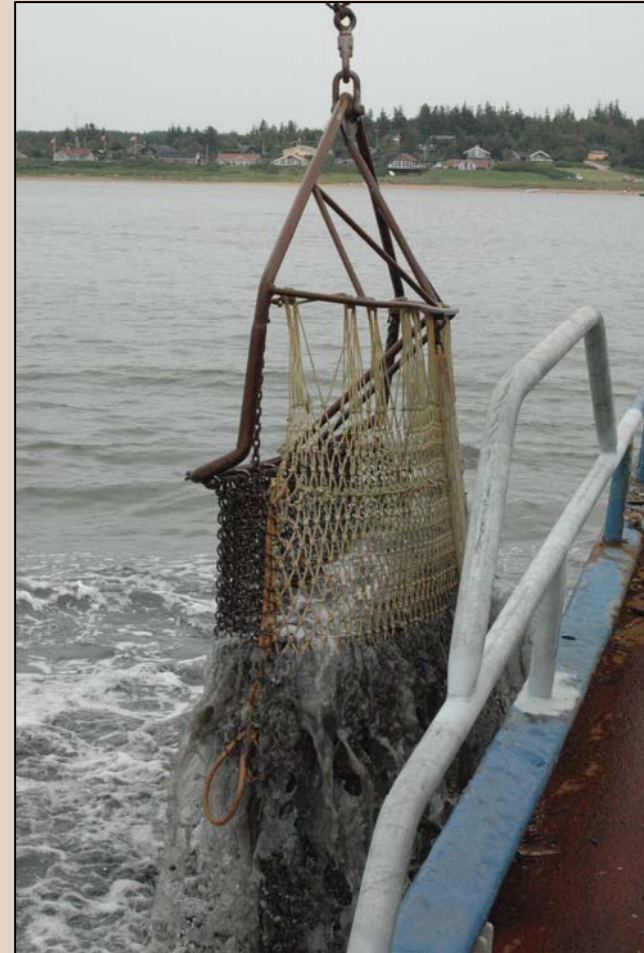
Habitat Area and Strictly Protected Species

- No effect on **nature types** =
 - with background in results,
 - large natural fluctuations in biomass of epi- and infauna
 - and proportion of the planed fishery.
- Species in **Habitat Area H78**: Harbour seal, gray seal, harbour porpoise
- No negative effects of seals =
 - seals are mainly located else where
 - fishing areas located with respect to seasonal activities (moulting, breeding etc.).
- Strictly protected species (**appendix 4**) = harbour porpoise is the only species in the Wadden Sea listed.
- Not expected that fishery will have a negative effect on harbour porpoises in the Wadden Sea → known to be very common in Danish waters with high boat activity. But few data on harbour porpoises in the Danish Wadden Sea.

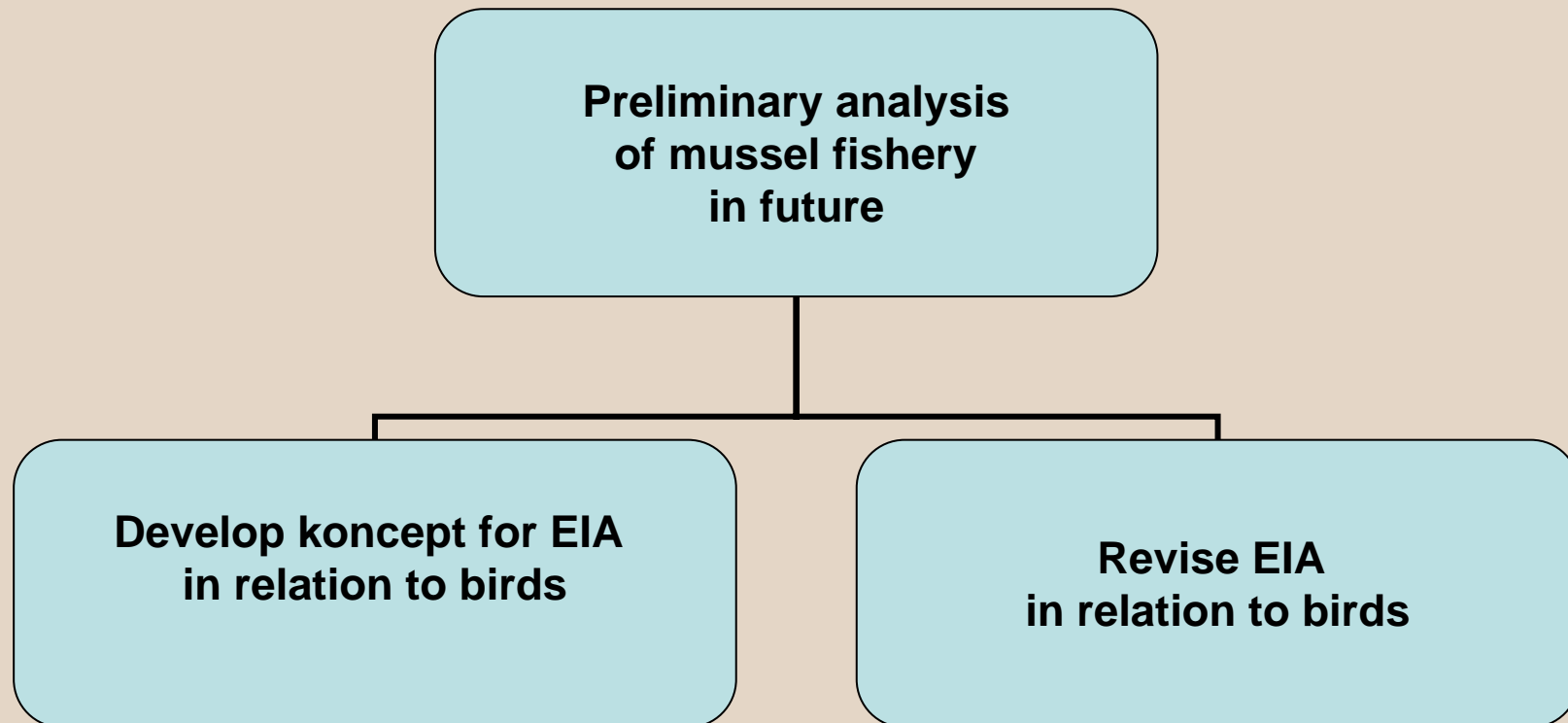


Conclusion

- No significant effects of the fishery on blue mussels in the Danish Wadden Sea were found after the experimental fishery.
- Therefore it is suggested that it is reasonable to allow a fishery on blue mussels in Hjerting Løb and Grådyb.
- Specific terms in fishing plan:
 - Quota of 700 and 300 tonnes in Hjerting Løb and Grådyb respectively
 - Maximum two fishing vessels were allowed to fish in an area at the same time
 - Fishery is only allowed between sun rise and sun set and
 - The fishery permit is limited in time.

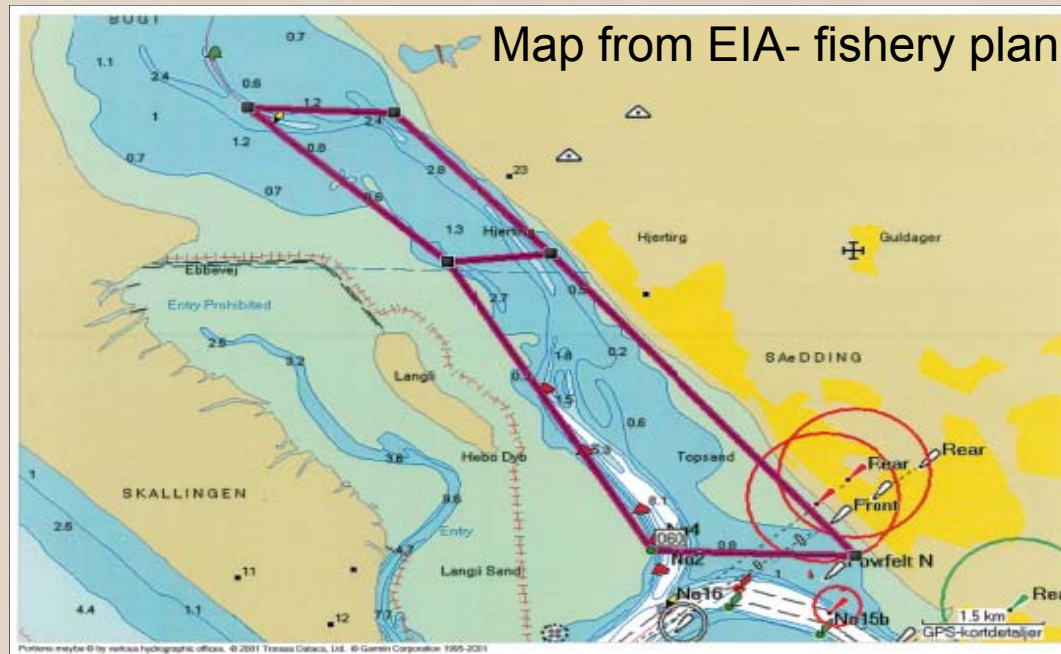


Future for blue mussel fishery - prompt decision to fishermen



Revision of EIA I

- Focus on subarea Hjerting Løb
- Sublittoral zone – only impact on eiders



Revision of EIA II

- Mussel-eider relation in area:
 - Climate effects
 - Stock sizes in border-areas
- Precision of Goss-Custard factor (2,5-7,4)
- Precision of mussel assessment
- Revision of management regime

