What's going on in Sweden?
Reducing bycatch of marine mammals and birds
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What’s going on in Sweden?

- Development of alternative fishing gear
  - Seal and Fisheries Programme
  - Secretariat of selective fishing gear
- Commercial fisheries with pingers and harbour porpoise presence
- Harbour porpoise bycatch risk maps
- Pinger programs
- Development of a seal safe pinger
Development of alternative fishing gear

Time consuming, High risk projects, Fishermens´ and researchers´commitment, Open mind to crazy ideas, Persistence

- Comparable catches in alternative fishing gear as to traditional fishing gear
- Environmental impact
- Seal-safe; protect the catch and minimize the seals reward
- Practical handling
Development of alternative fishing gear

- Pontoon traps
- Seine nets
- Pots for cod
- Multifunctional pots
- Shrimp pots
The Pontoon trap for migratory species
Salmon trap

Traditional salmon trap

Modified trap with push-up fish chamber
Pontoon trap for Schooling pelagic species
Herring/vendace trap

- Catching very large quantities
- Need of selection devices
Pontoon trap for Demersal species
Cod trap

- Location dependent
- Exposed fishing gear
Seine nets

- Vendace
- Herring
- Flatfish
- Potential alternative to vendace, perch and flatfish
- Less environmental impact than bottom trawling
- Short fishing time i.e. seal safe
- No bycatch of marine mammals
- Need of traditional and local knowledge
Cod pots

Implementation program

Fishermen’s design

Fishermen’s commitment and involvement

The pots are only a loan

Obliged to fish for a month
Multifunctional pots

- Multiple target species (cod and lobster)
- Same pot, several seasons, swap entrances and/or selection panel
- Small scale fishing, reduce number of gear
Shrimp pots trials

- Top or side mounted entrances
- Strains of 10 pots
- Herring bait
- 50-80m depth
- 1-7 days soak time
Commercial fisheries with pingers and harbour porpoise presence
Harbour porpoise bycatch risk areas

Fishing effort * likelihood of porpoise presence
After model by Lotte Kindt-Larsen et al. 2017 using SAMBAH data and logbook fisheries data
2017: 9 Fishermen are using pingers voluntarily
Fishermen are reporting bycatch
2018: 20 fishermen will start using pingers in 2018
Development of a seal safe pinger

The required frequency spectrum of the pinger sound (short section of the normal multi-harmonic pinger sounds). Blue: audiogram for a harbor porpoise. Red: audiogram for a grey seal.

Y scale: dB re 1μPa; SL for pinger harmonics measured @1m; X scale: Hz, log scale.
Experimentel set up at 2 locations

Preliminary results at one location
Thank you for listening!

Peter, Sven-Gunnar, Maria and Sara
Central and south Baltic sea, fishing effort in km net per fishing day