# Development focus on trawl to reduce environmental impact within CRISP

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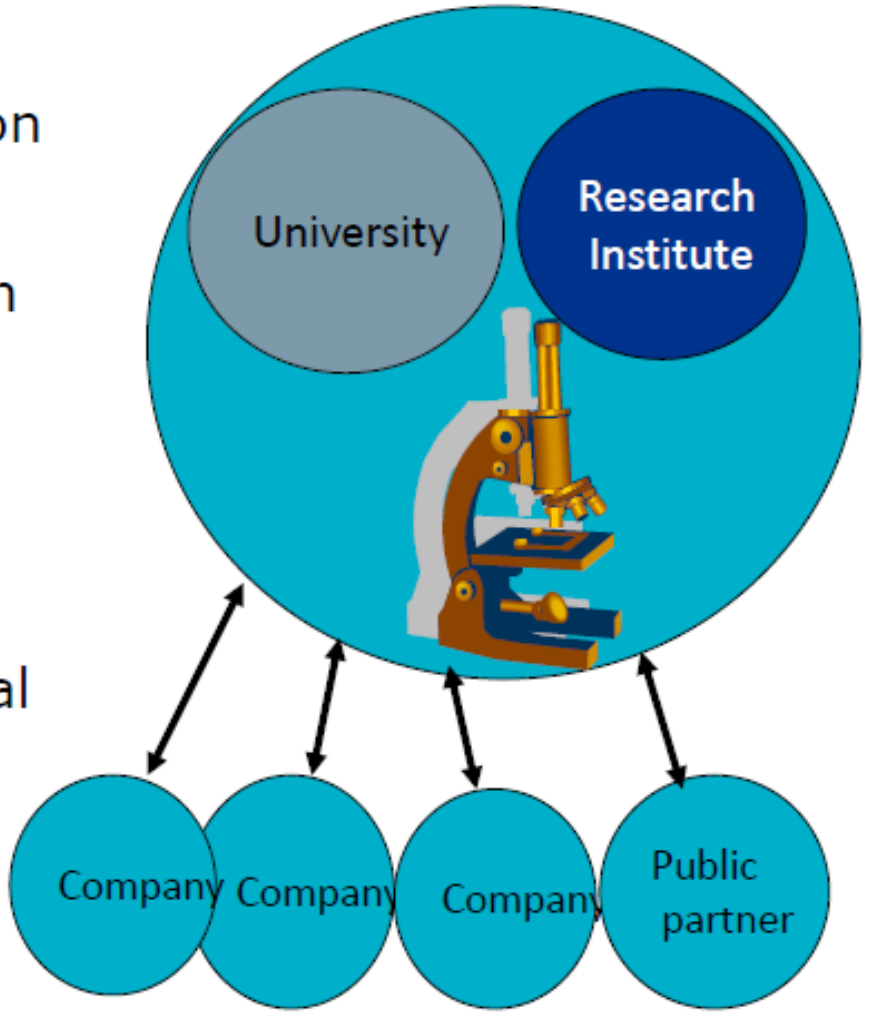
Director

CRISP

# SFI Characteristics

- High potential for innovation and value creation
- Active cooperation between innovative companies and prominent research groups
- High scientific quality of research
- Bridgehead for international cooperation
- Recruitment of talented researchers



# CRISP - Centre for Research-based Innovation in Sustainable fish capture and Processing technology

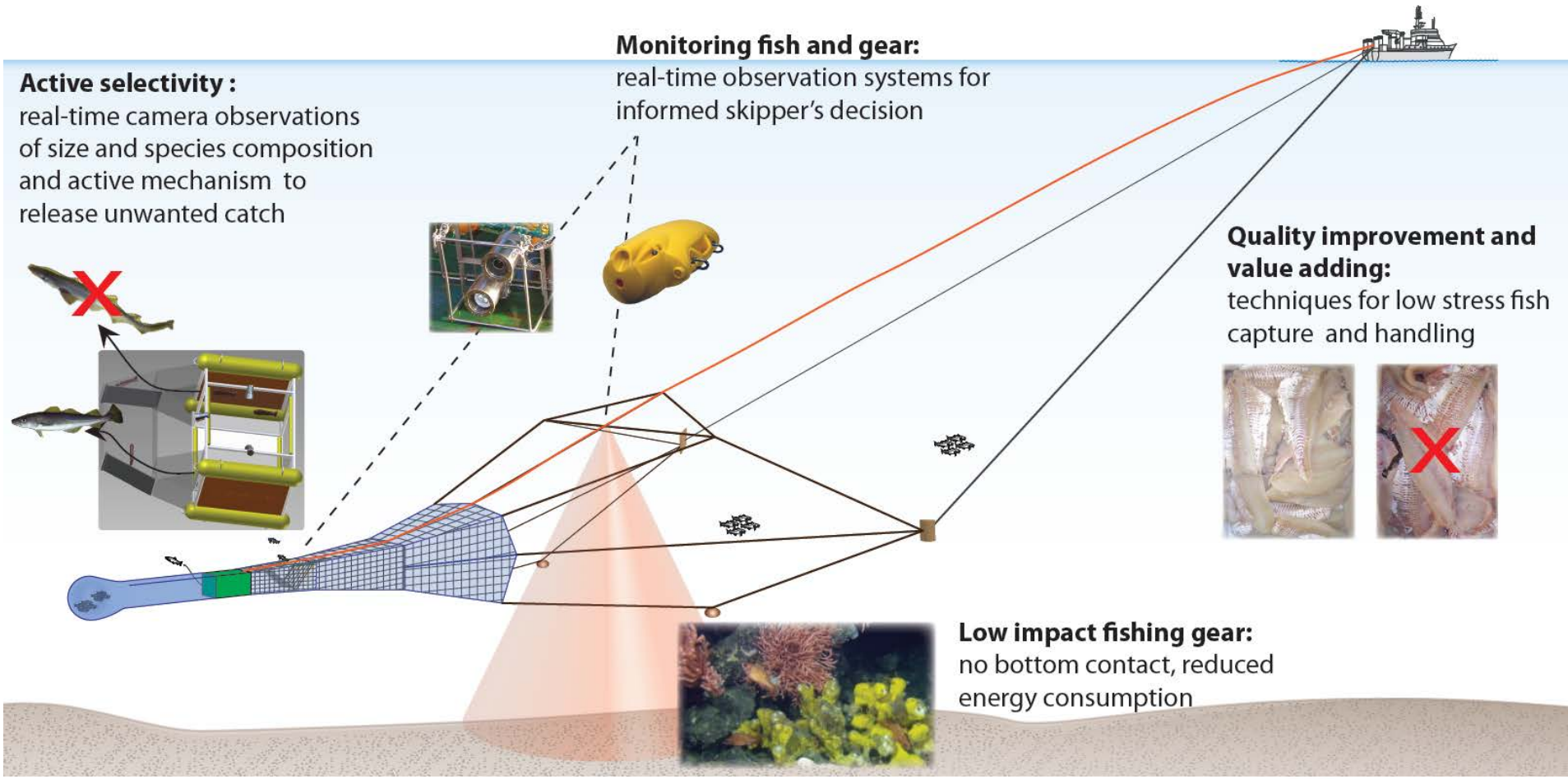
## 2011 - 2019

- **Objective**: Increased value creation by more responsible and selective fisheries and thereby a better management of marine resources.
- **Host institution**: Institute of Marine Research
- **Research partners**: Nofima, Univ. of Bergen, Univ. of Tromsø
- **Enterprise partners**: Scantrol AS, Kongsberg Maritime, Egersund Group, Nergård Havfiske
- **Public partners:** Norges Sildesalgslag, Norges Råfisklag

# Sustainability challenges for CRISP

- Bycatch and discards while fishing
- Environmental impact (bottom habitat interference and air pollution)
- Increasing fuel cost
- Income and work conditions
- Consumer demands for sustainable harvesting from the OCEAN
- Quality of fish products

# Challenges in trawl fisheries



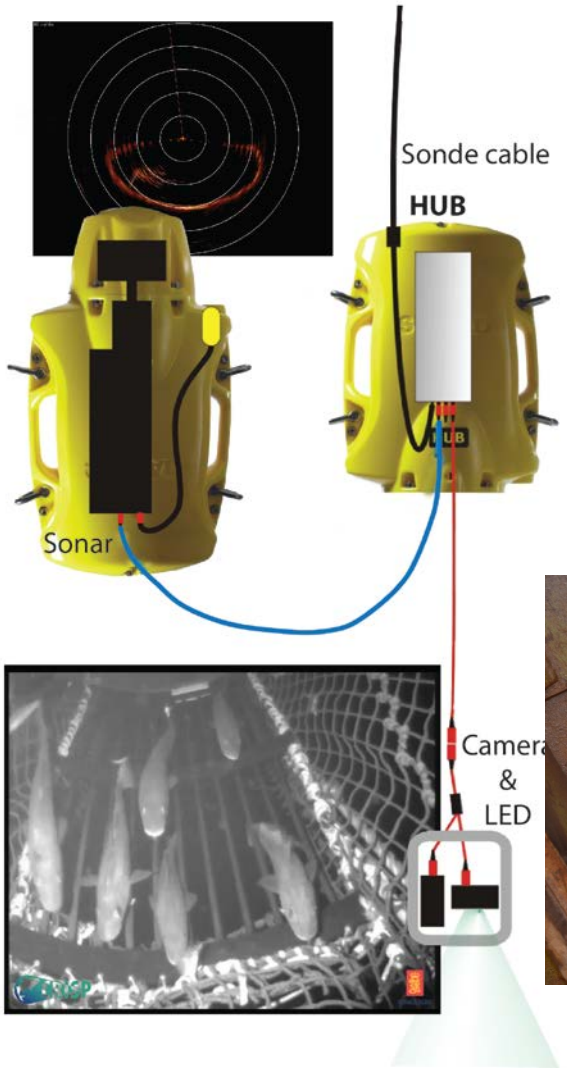
# Development focus in CRISP

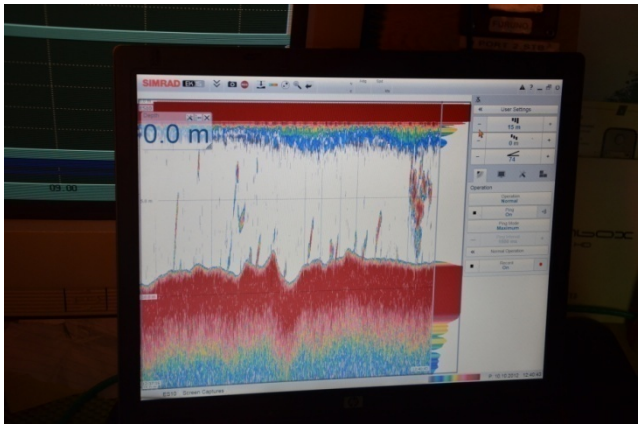
1. Instrumentation to estimate quantity, species and fish sizes prior to the capture process
2. Instrumentation that monitors gear performance and fish behaviour while fishing
3. Instrumentation and methods to identify species and sizes of fish encountered by the fishing gear prior to retrieval, and methods to release unwanted catch
4. **Develop smarter trawl techniques that make use of fish behaviour and control of trawl performance while towing**
5. Quality improvement of trawl captured fish by storage in live tanks till processing

# ”Smart” trawl designs and trawling operation

- Less bottom interaction than with traditional bottom trawling
- Reduced drag of netting and trawl doors
- Monitoring og fish behaviour and trawl performance
- Adjustment of gear parametres while fishing e.g. manoevrable trawl doors

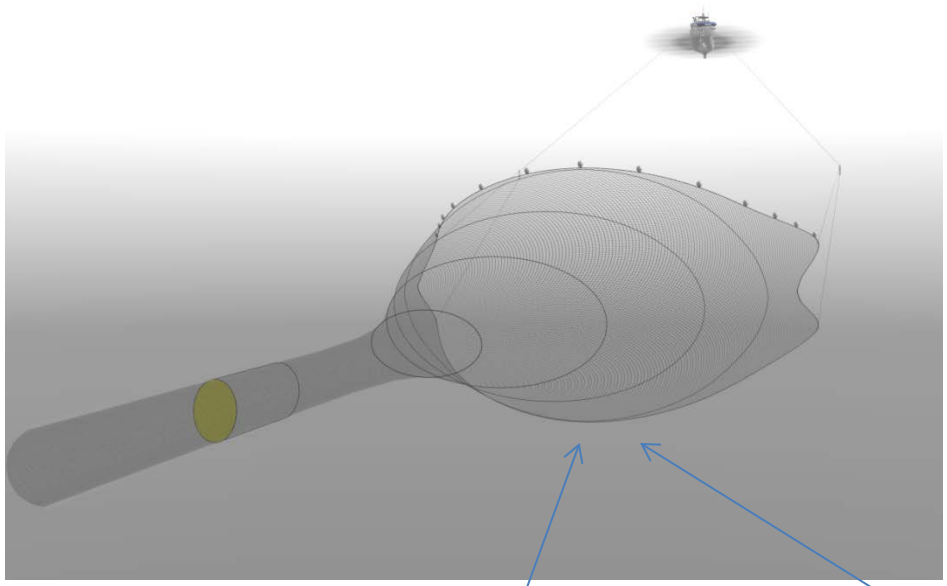
# Instruments to observe fish and gear while trawling

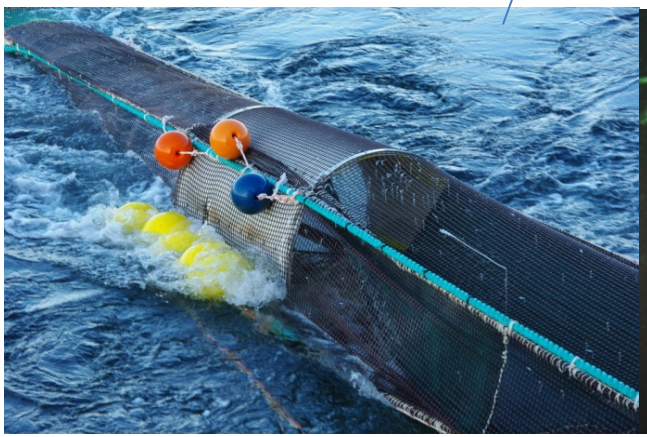


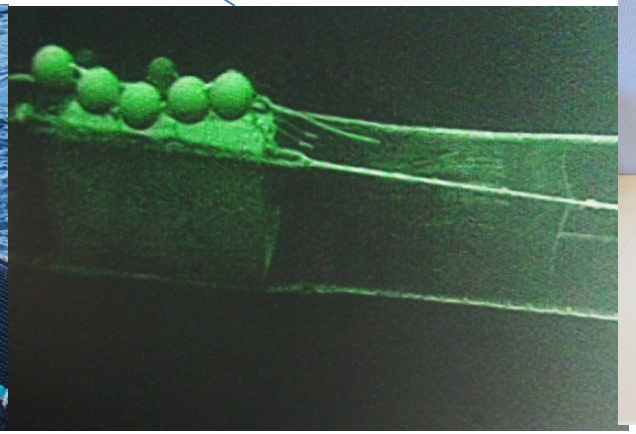



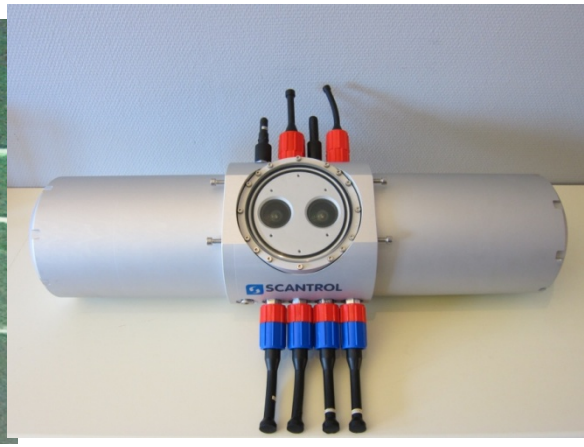
# The Deep Vision system in a trawl

- take quality images for identification of size and species





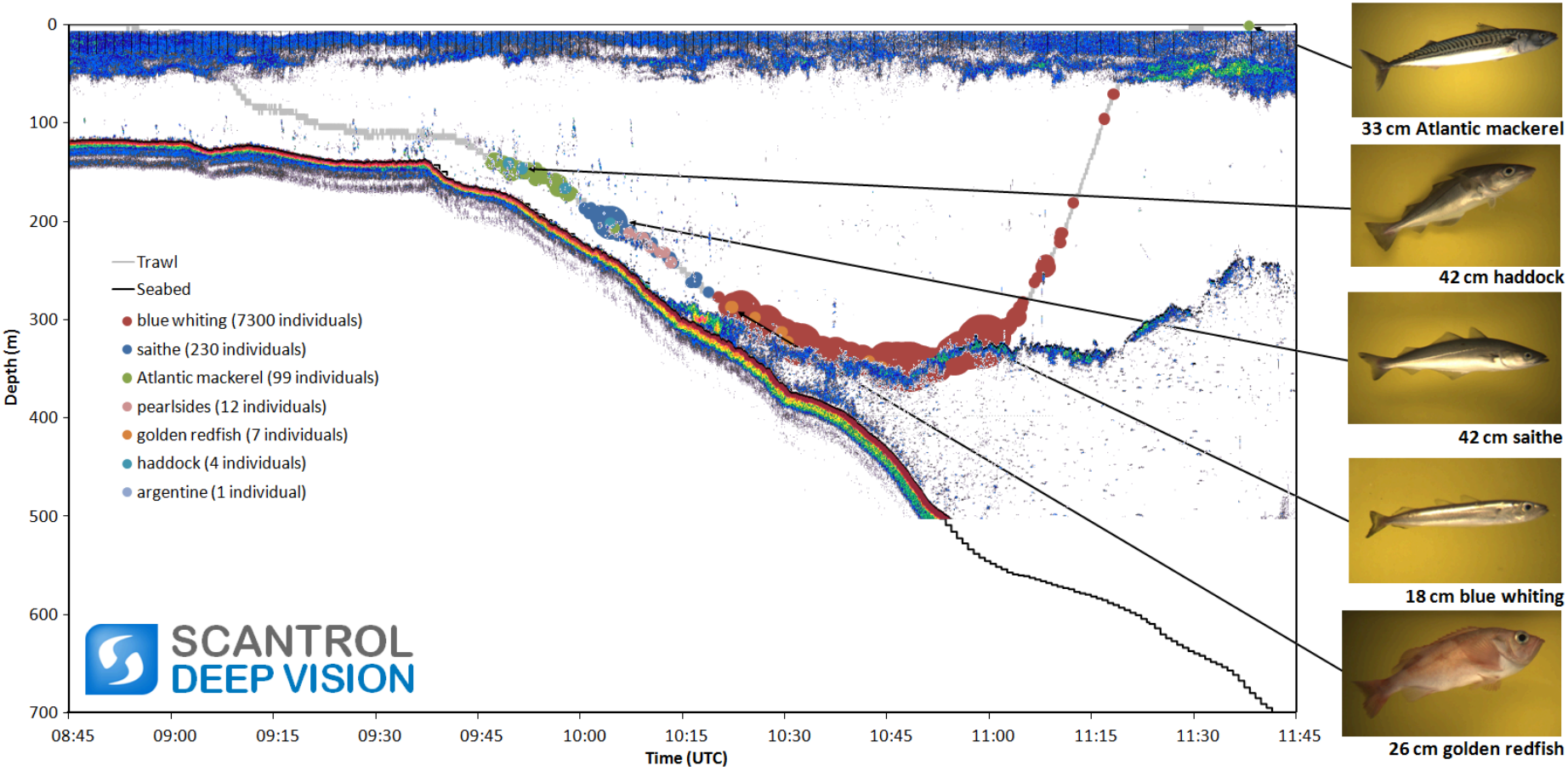




| | | | | | |
|---|---|---|---|---|---|
| Date: | 08.07.2012 | Location: | | Species: | Saithe |
| Time: | 10:05:00 | N | 68° 26.28' | Length: | 42 cm |
| Depth: | 202 m | E | 011° 32.89' | | |

SCANTROL DEEP VISION

# Data products: Depth profile of species

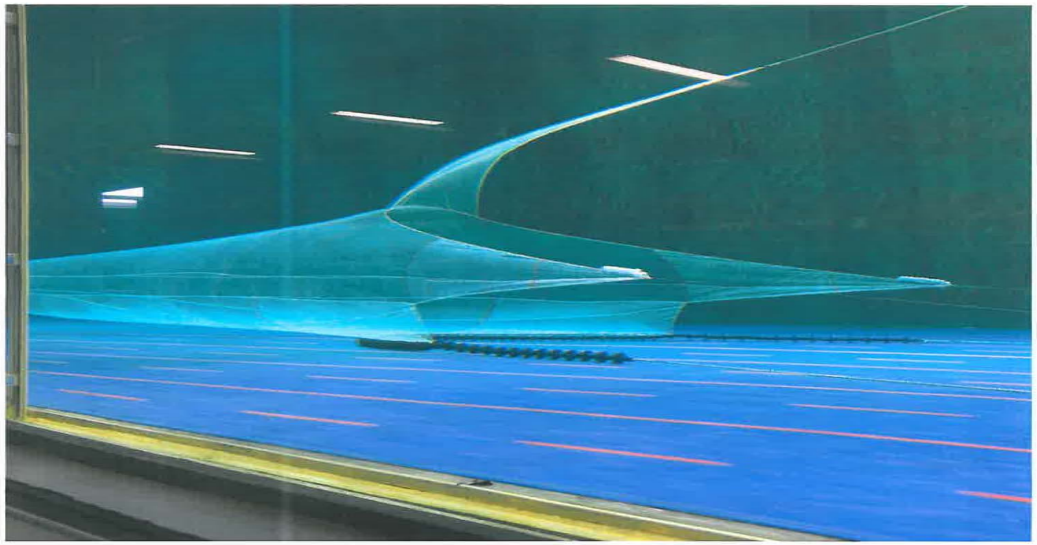


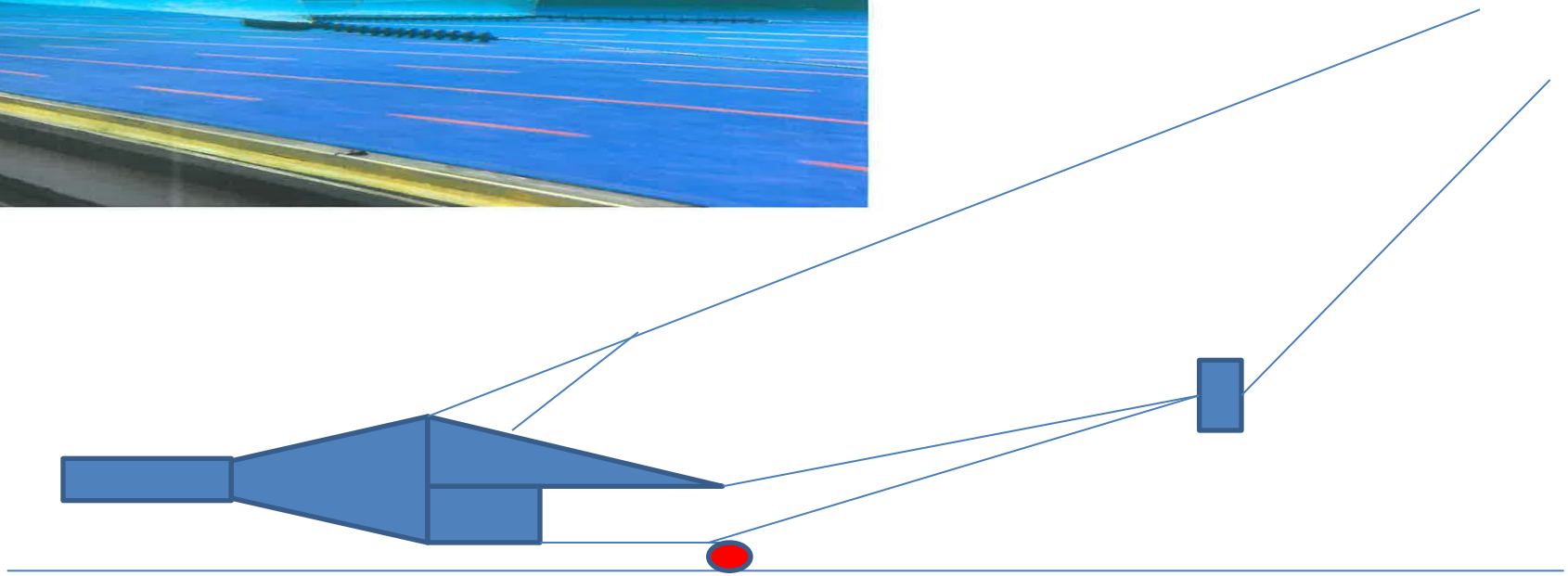

Time and depth of each passage
Passage rate (density)
Species overlap

Compare against acoustic record

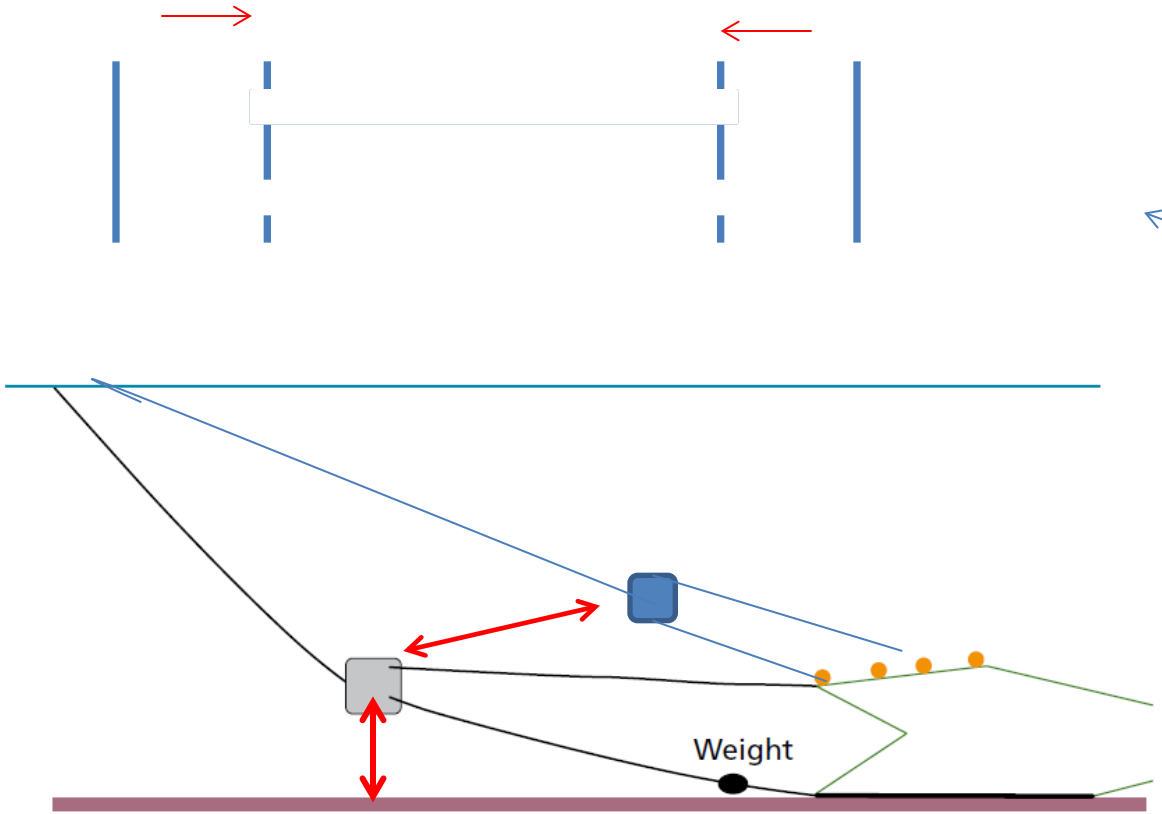
- Verify species
- Investigate differences in length over time or depth for TS calculations

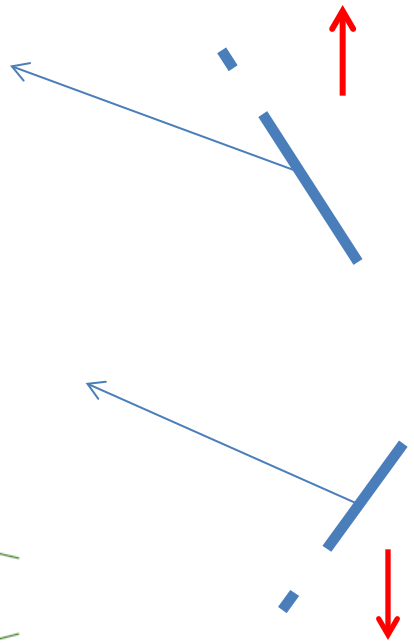
# Semipelagic trawling





# Manoevrable trawl doors



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