Fishing Gear as a Data Collection Platform
Today: What fisheries can contribute to oceanography

Background & Inspiration: What oceanography brings to fisheries

Background: commercial fishing, fisheries science, and engineering

Future of fisheries science: linking stock and ecosystem health to ocean conditions
Concept:

Sensors on fishing gear

Sensor go along for the ride: down and back up water column

Little or no effort on the part of the fishermen

Fishermen fishing for fish, and now data
Collecting a wide range of sample data

Working with fishermen in the Kattegat, Skagerrak, North Sea, Iceland, Gulf of Maine, and Bering Sea

Real-time transmission and database this month
Holes in current subsurface observation programs: Shelf seas

EMODnet observation platform data

Global Fishing Watch AIS CNN data
Shelf seas are where the majority of maritime activity takes place, and conditions change more rapidly than in the deep ocean.

Trawling activity for January 2018

Subsurface data profiles for January

Fish prefer the variable benthic features that prevent Argo operation.
CTD data from Kattegat
Relatively consistent spatial and temporal sampling:

Skagerrak (entrance to Baltic)

Nine other DK vessels and 30+ SWE & NOR in same fishery

Comparison to AMM7 model
Baltic: high seasonal fluctuations in fishing activities

July 2018 Fishing activity

January 2018 Fishing activity

Subsurface data profiles, January 2018

More consistent in southern Baltic and DK waters. Useful for monitoring?
Annual cost of a fishing vessel collecting data ~ One day of R/V costs

Argo float, $200 (€176) / 10 day profile

Cost-effective data collection: a path to long-term monitoring sustainability.

Could supplement, but not replace research vessel cruises

195,000 DKK (€26,000) / day

DTU Aqua, Research Vessel Dana
Thanks!

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