Norwegian use of Reference Fleets

Tom Clegg PhD Candidate Institute of Marine Research, Bergen

Discard Action Group meeting London 2nd April 2019



"A trustful collaboration between fishers and scientists."

Providing IMR with detailed information on fishing activity and catches on a regular basis

Catch composition



Biological sampling





Joint understanding

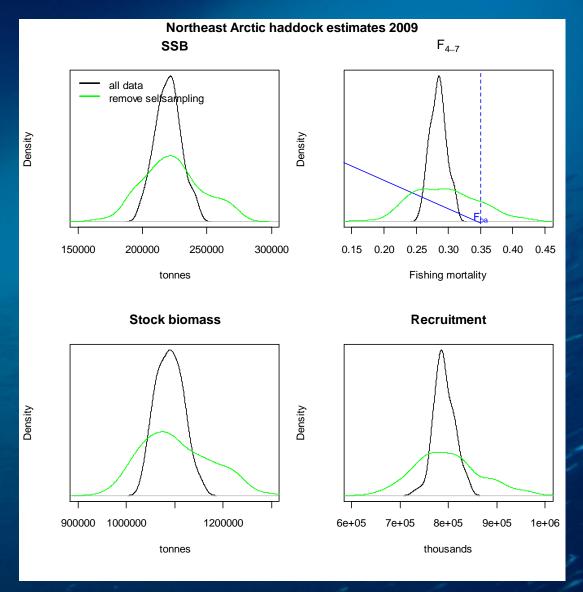




The Norwegian Reference Fleet Stock assessments

Data rich stocks

- Important data source to reduce bias and increase precision in assessments.
- There are too few vessels to be the only data source for stock estimations for some species (Bowering et al. 2011)

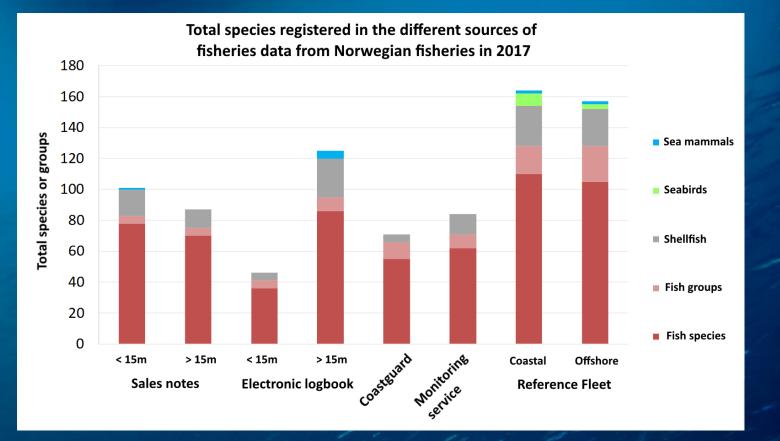




The Norwegian Reference Fleet Catch composition

Reference fleet data gives a much better and complete overview of total catches and discards than all other sources of fisheries data

Fishermen in the Reference fleet also register bycatches of seabirds and sea mammals





Catch composition

PLOS ONE

RESEARCH ARTICLE

Spatial and temporal variations in seabird bycatch: Incidental bycatch in the Norwegian coastal gillnet-fishery

Kim Magnus Bærum 1* , Tycho Anker-Nilssen², Signe Christensen-Dalsgaard², Kirstin Fangel¹, Tom Williams³, Jon Helge Vølstad³

 Norwegian Institute for Nature Research (NINA), Lillehammer, Norway, 2 Norwegian Institute for Nature Research (NINA), Department of Terrestrial Ecology, Trondheim, Norway, 3 Institute of Marine Research, Bergen, Norway

• These authors contributed equally to this work. * kim.barum@nina.no



Original research article

Assessing incidental bycatch of seabirds in Norwegian coastal commercial fisheries: Empirical and methodological lessons

CrossMark

Kirstin Fangel^{a,*}, Øystein Aas^a, Jon Helge Vølstad^b, Kim Magnus Bærum^a, Signe Christensen-Dalsgaard^c, Kjell Nedreaas^b, Modulf Overvik^d, Line Camilla Wold^a, Tycho Anker-Nilssen^c

^a Norwegian Institute for Nature Research, Fakkelgården, NO-2624 Lillehammer, Norway
^b Institute of Marine Research, PO Box 1870 Nordnes, NO-5817 Bergen, Norway
^c Norwegian Institute for Nature Research, PO Box 5685 Sluppen, NO-7485 Trondheim, Norway
^d Directorate of Fisheries, PO Box 185 Sentrum, NO-5804 Bergen, Norway

Biological Conservation 161 (2013) 164-173



Contents lists available at SciVerse ScienceDirect

Biological Conservation

journal homepage: www.elsevier.com/locate/biocon



Check for

Estimated bycatch of harbour porpoise (*Phocoena phocoena*) in two coastal gillnet fisheries in Norway, 2006–2008. Mitigation and implications for conservation



Arne Bjørge ^{a,*}, Mette Skern-Mauritzen^b, Marjorie C. Rossman^c

^a Institute of Marine Research, Caustadalleen 21, 0349 Oslo, Norway ^b Institute of Marine Research, P.O. Box 1870 Nordnes, 5817 Bergen, Norway National Marine Fisheries Services, 166 Water Street, Woods Hole, MA 02543-1026, USA

- Seabirds
- Marine mammals
- Commercial & non-commercial fish species





How can discards be estimated under a discard ban?

The Norwegian Reference Fleet *Discarding*

TRUST

Reference Fleet records their discarding activity

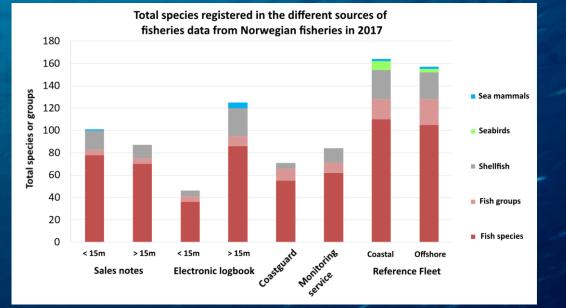
- Coastguard
- Fisheries Dir
- IMR
- Fishers

enforcement surveillance data users data collectors

Agreement not to request/use RF data for prosecutions

- Only anonymous data are published/shared
- Reference Fleet have no immunity

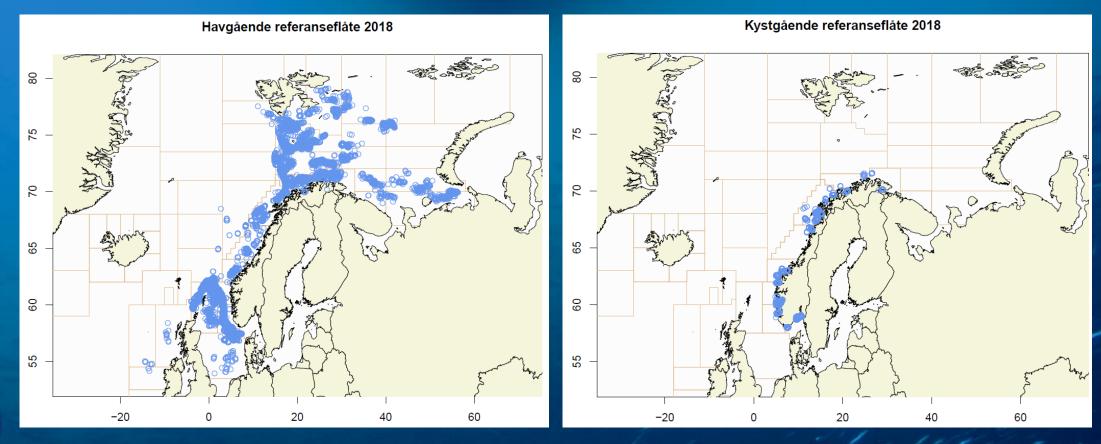






The Norwegian Reference Fleet Reliability & representativeness

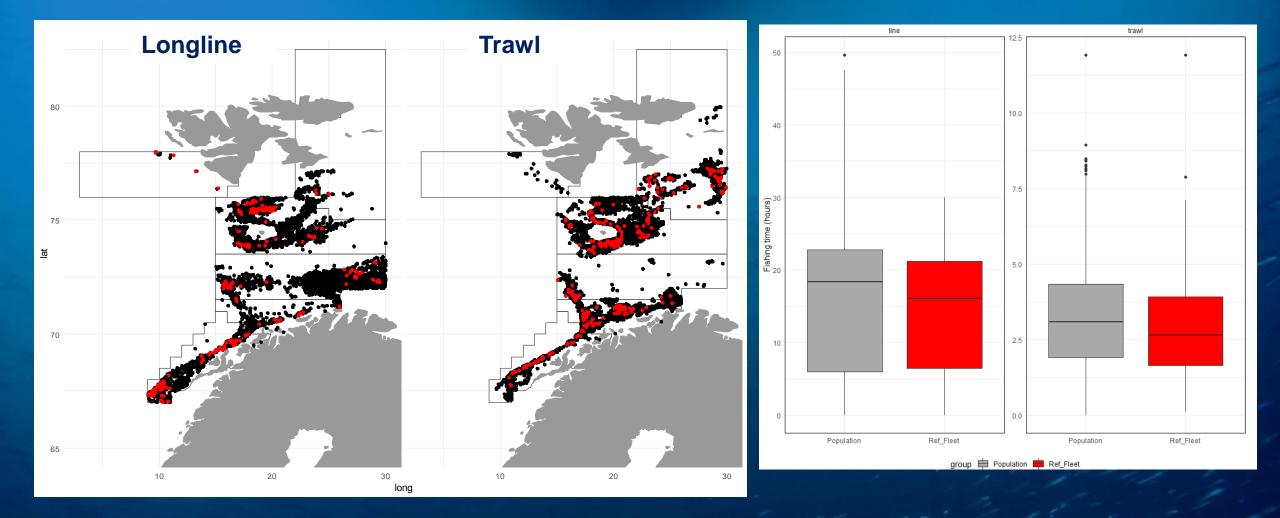
Coverage? 'Normal' fishing behaviours? Reliable data collection?





Reliability & representativeness

Preliminary results from Barents Sea trawl & line fishery



"A trustful collaboration between fishers and scientists."



All pictures courtesy of IMR/Reference Fleet











Gullestad et al. (2015). "The "Discard Ban Package": Experiences in efforts to improve the exploitation patterns in Norwegian fisheries." Marine Policy 54: 1-9 Bowering, R., et al. (2011). Evaluation of the Norwegian Reference Fleet - Done by an International Committee. Institute of Marine Research, report nr. 16-2011