

2020 pollock saildrone project

MACE staff

Eugene Burger

Jim Ianelli

Cole Monnahan

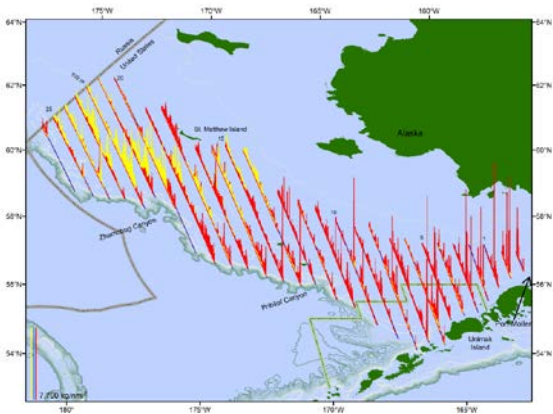
Alex De Robertis



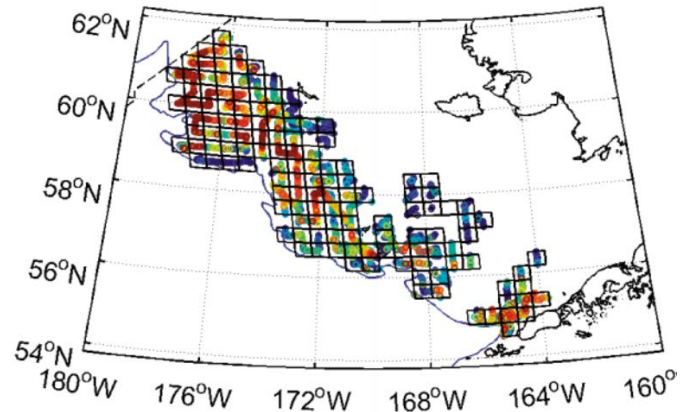
Summer EBS Pollock surveys

- Bottom Trawl survey (Annual)
- Acoustic-Trawl survey (Biennial)
- 'AVO' acoustic index (Annual)

Acoustic-trawl (Dyson)



AVO (chartered industry vessels)



NOAA Fisheries Coronavirus (COVID-19) Update



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NEWS

NOAA Fisheries will Cancel Five Alaska Research Surveys for 2020

May 22, 2020

Announcement of survey cancellations in 2020.

[Media Release](#) | [Alaska](#)

Due to the uncertainties created by the COVID-19 pandemic, and the unique challenges those are creating for the agency, NOAA Fisheries today took the unprecedented step to cancel five of six large scale research surveys in federal waters off Alaska in 2020. The cancelled surveys include the Aleutian Islands bottom trawl survey, the eastern Bering Sea bottom trawl survey, the northern Bering Sea bottom trawl survey, the Bering Sea pollock acoustics survey, and the Fall Ecosystem Survey. The annual Alaska Longline Survey will take place as planned.

This was a difficult decision for the agency as we strive to meet our core mission responsibilities while balancing the realities and impacts of the current health crisis. Over the past two months, we have been engaged in careful planning and rigorous analysis of various options for conducting surveys this year. After much deliberation, we determined that there is no way to move forward with a survey plan that effectively minimizes risks to staff, crew, and the communities associated with the surveys. For instance, conducting the key groundfish and crab surveys in a limited timeframe would require

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Project overview

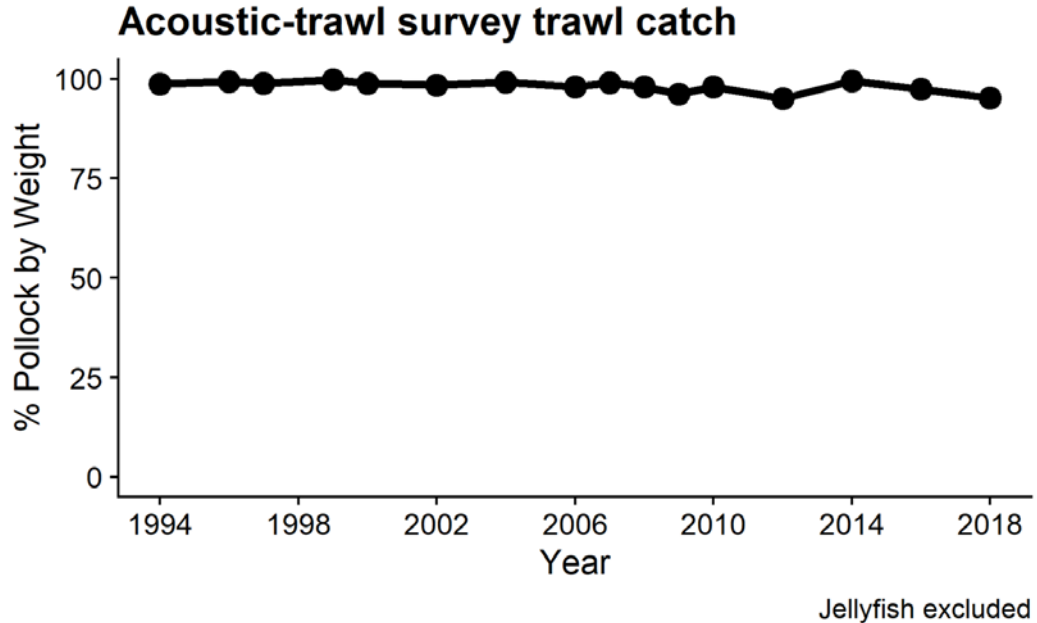
AFSC Sairdrone survey was a contingency plan in case surveys were cancelled

Goal: Use unmanned surface vehicles to add data point to existing acoustic time series

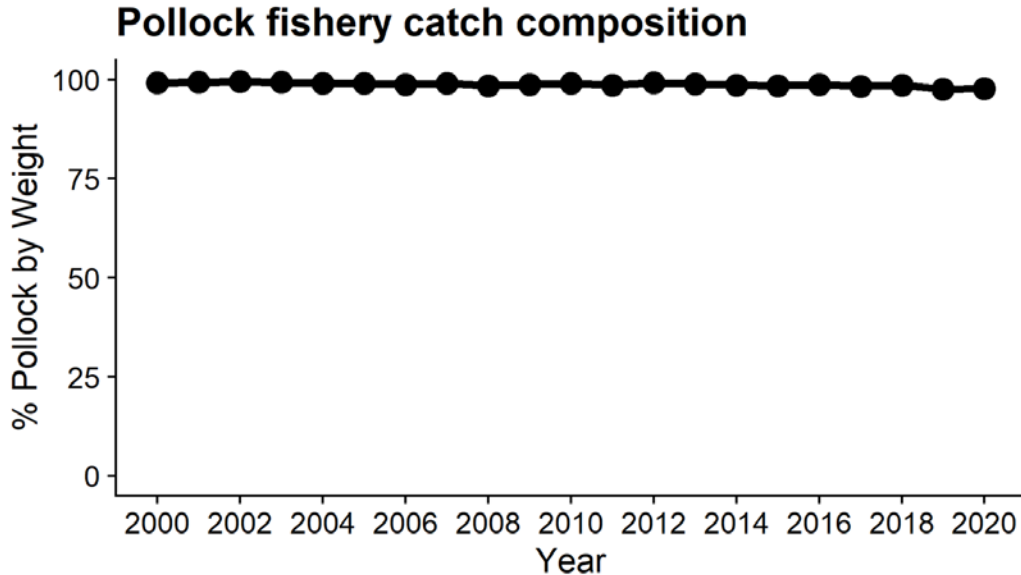
Feasible because:

- Fish backscatter on EBS shelf is dominated by pollock
- Approach relies on recent research and development efforts.

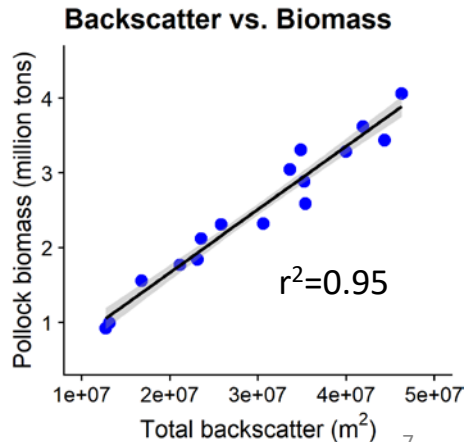
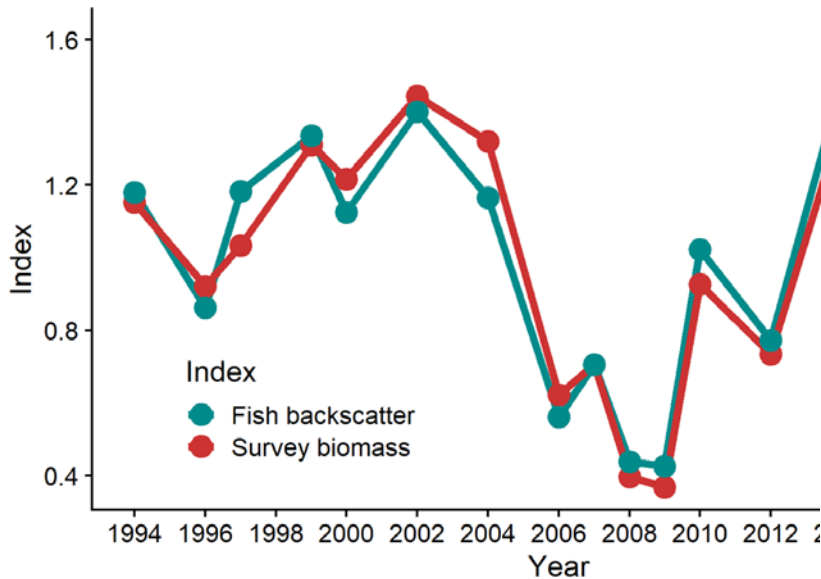
Fish backscatter on EBS shelf is dominated by pollock



Fish backscatter on EBS shelf is dominated by pollock



Acoustic-only index tracks acoustic-trawl survey biomass



Saildrones

- Wind and solar powered robots
- Calibrated 38/200 kHz echosounder, oceanographic, meteorological sensors
- Methods for data collection/processing have been worked out
- Saildrones produce comparable pollock backscatter to Dyson



ICES Journal of
Marine Science



International Council for
the Exploration of the Sea
International Commission for
the Study of Commercial Fish

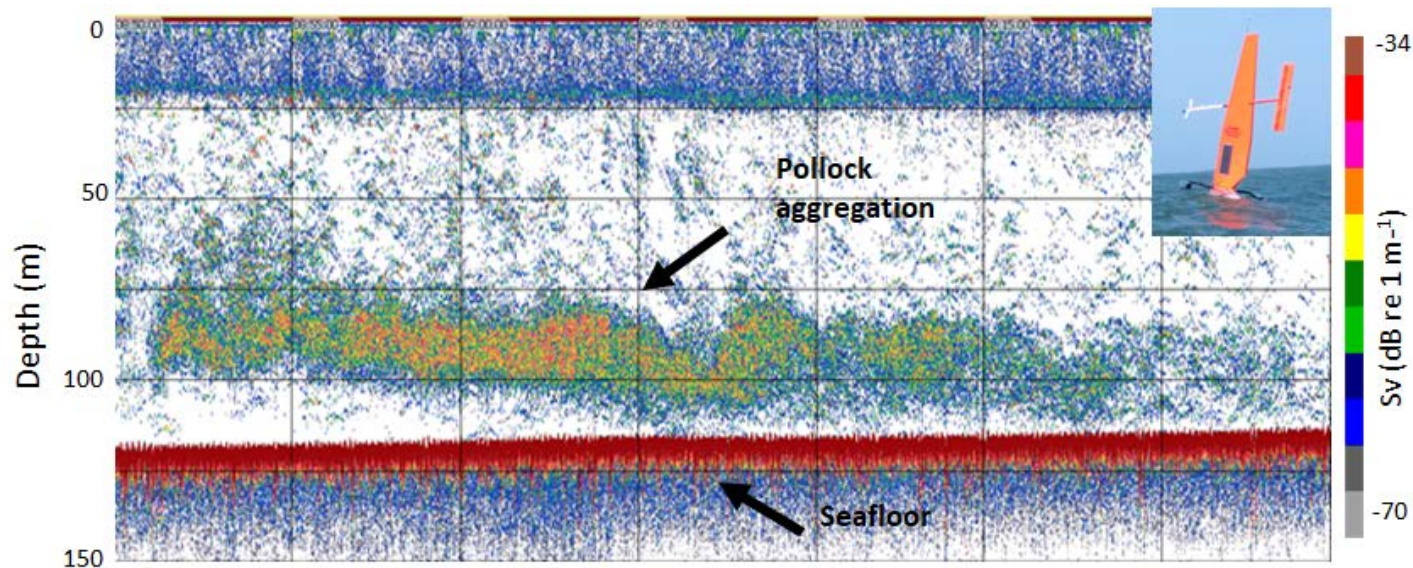
ICES Journal of Marine Science (2019), 76(7), 2459–2470. doi:10.1093/icesjms/fsz124

Original Article

Long-term measurements of fish backscatter from Saildrone unmanned surface vehicles and comparison with observations from a noise-reduced research vessel

Alex De Robertis^{1*}, Noah Lawrence-Slavas², Richard Jenkins³, Ivar Wangen⁴, Calvin W. Mordy^{2,5}, Christian Meinig², Mike Levine¹, Dave Peacock², and Heather Tabisola^{2,5}

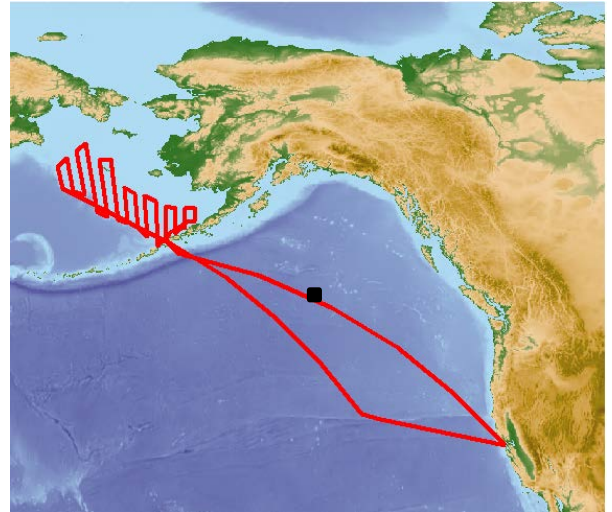
See ICES J. Mar. Sci. 2019, 76: p 2459



wind is 16 knots, vehicle speed 2 knots

Approach

- Sail to/from Alaska
- 3 saildrones
- 40 nmi spacing
- Survey July 4-20 Aug
- Data recovery in mid-Oct

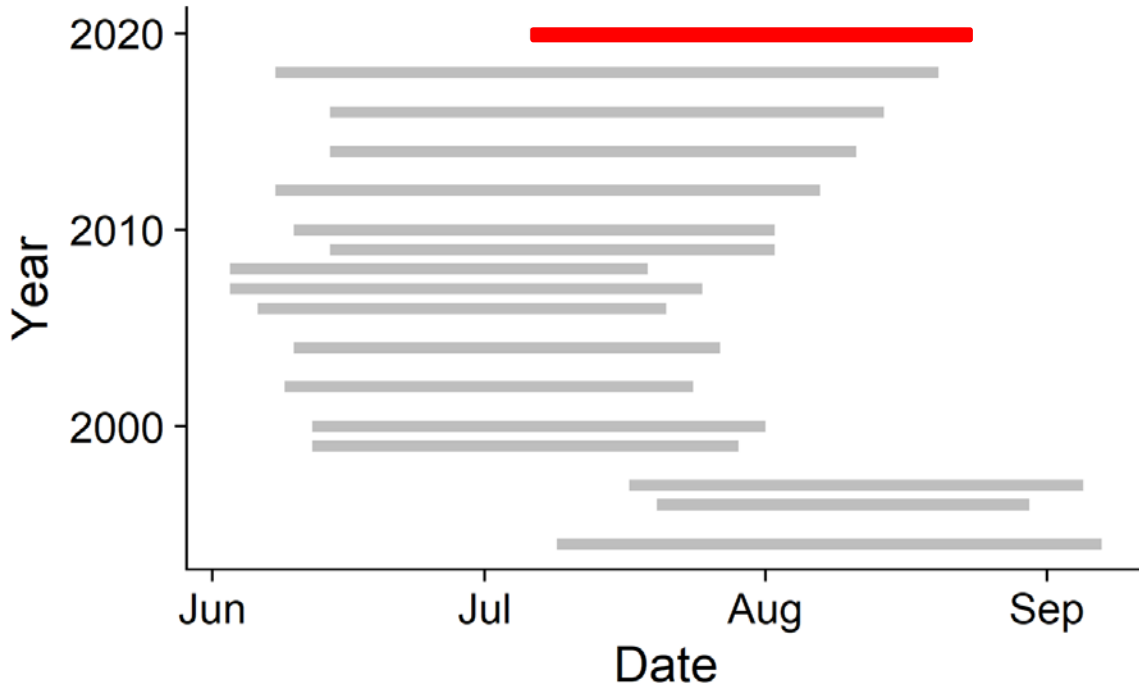


Limitations

- No size/age composition
- Lower sampling density
- No data until vehicles are recovered

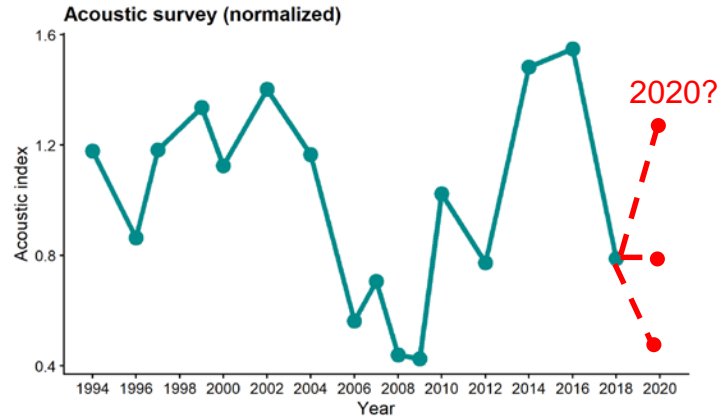


Timing compared to previous AT surveys

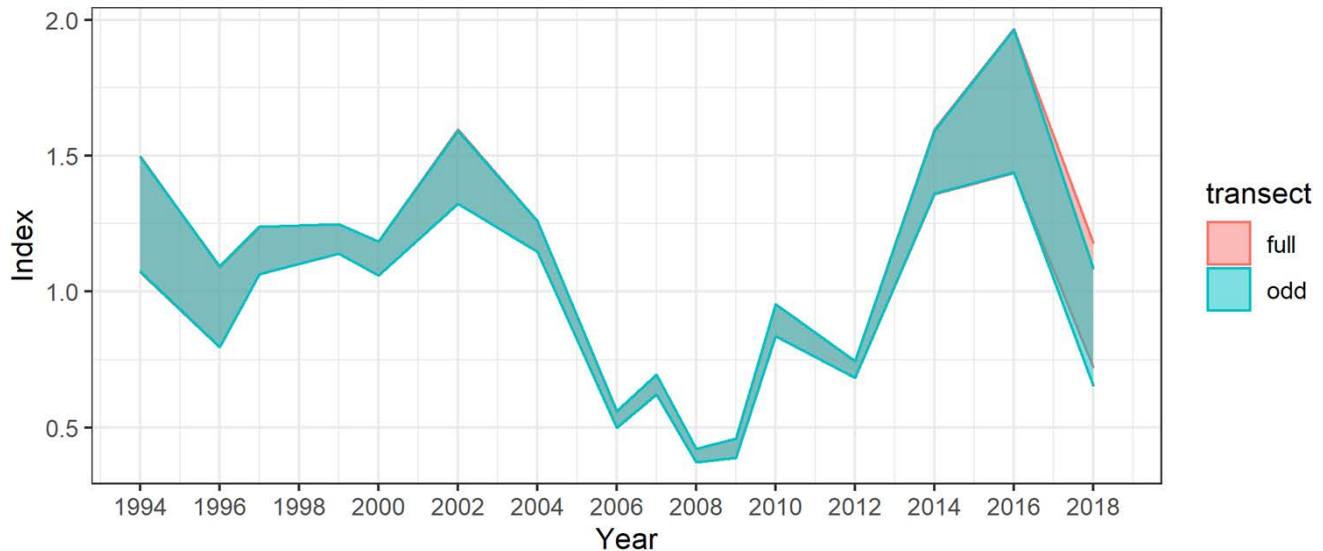


Future plans

- Recover data, add a 2020 data point to acoustic time series
- Quantify uncertainty in new index
- Incorporate index in assessment model

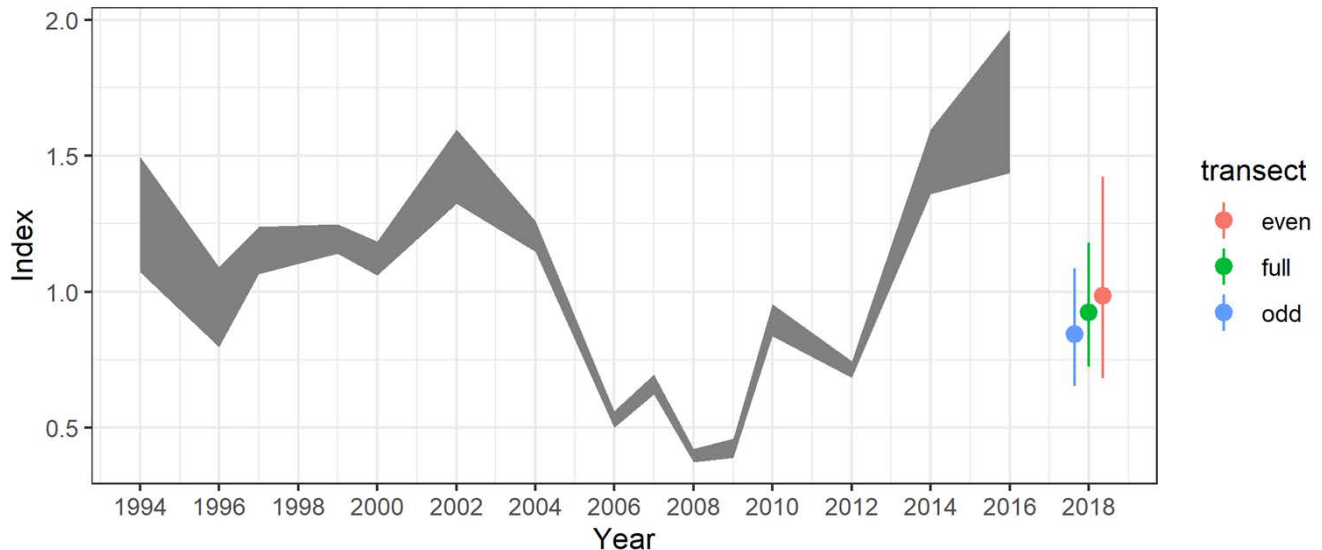


Model-based estimates with VAST



- Mimic 2020 by throwing out even transects in 2018 and fitting VAST to both versions
- Result: Previous years identical, 2018 is similar

Model-based estimates with VAST

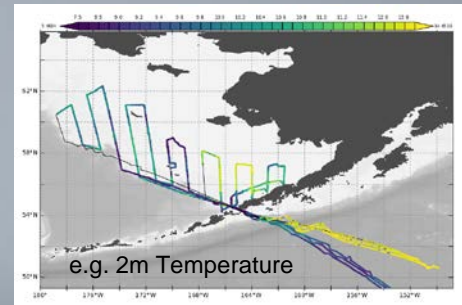


- Compare full vs throwing out even or odd transects
- Result: Estimates have higher uncertainty but generally similar for this year, suggesting half transects are meaningful
- Future: repeat for other years to quantify sensitivity

Questions ?



Alex.DeRobertis@noaa.gov



Environmental data available at
<https://ferret.pmel.noaa.gov/pmel/erddap/index.html>

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