

# Deployment of an Acoustic Data Logger on Commercial Fishing Vessels to Evaluate the Potential of Fishing-Induced Declines in Local Pollock Abundance



POLLOCK CONSERVATION  
COOPERATIVE RESEARCH CENTER

*Project Synopsis*



Pollock processing.

CREDIT: KURT BYERS, ALASKA SEA GRANT

## FUNDING SUMMARY

### PRINCIPAL INVESTIGATORS

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### GRADUATE STUDENT

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Rhodes University  
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### YEAR FUNDED

2001

### RESEARCH PERIOD

2001-2005

### BUDGET

\$251,528

## Fishermen take part in study to measure their impacts on local pollock stocks

*Large-scale commercial fishing is often blamed for reducing the availability of food for marine mammals such as Steller sea lions. However, the relationship between commercial fishing and the depletion of local fish stocks has not been well-studied and little is known about these impacts.*

## WHY IS PCCRC INTERESTED?

A better real-time understanding of pollock fishing impacts on local fish stocks may allow fishermen and managers to determine and modify any effect.

## WHAT SCIENTISTS DID

The project developed a prototype data logger that interfaces with the ship's 38 kHz echo sounder and captures the acoustic backscatter returns. In 2002, the system was installed on three catcher/processors. The backscatter data were post-processed and integrated with observer and logbook data. The trial period was used to test and debug the systems, and to investigate the feasibility of data collection and the quality of data collected. In 2003, an additional four vessels were equipped with acoustic data logging systems, bringing to seven the total number of pollock vessels equipped.

## WHAT SCIENTISTS LEARNED

The system was tested and implemented, and found to work satisfactorily. The preliminary findings indicate that the devices record information that is correlated with pollock catches.

## OBJECTIVE

Conduct a "proof of concept" project to evaluate the feasibility of installing acoustic data loggers on catcher/processors in the eastern Bering Sea pollock fishery to study localized depletion of pollock.

## BOTTOM LINE

Shipboard acoustical data loggers may be an effective tool to determine the localized depletion of pollock.

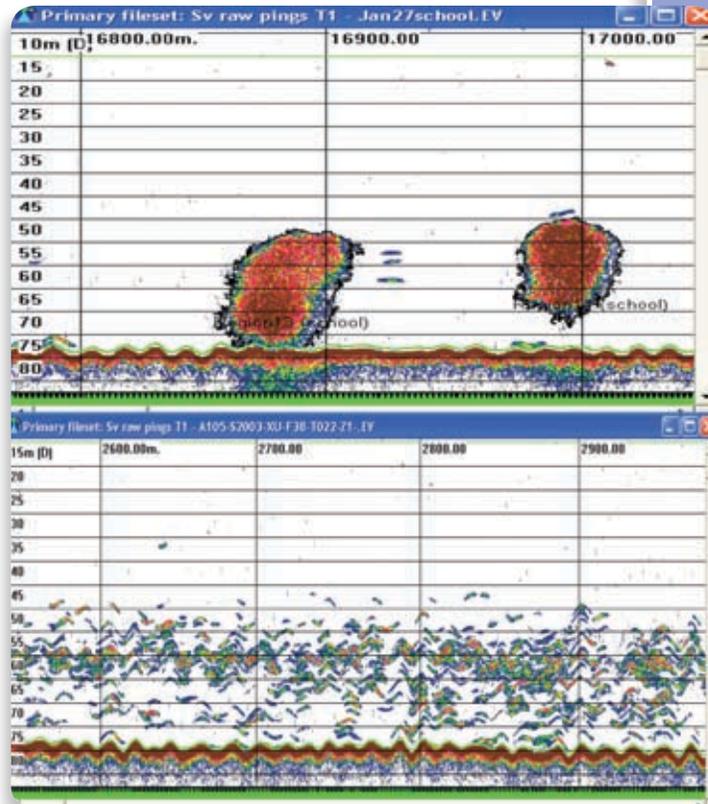


PCCRC researchers examined the utility of new electronic sensing devices on large catcher-processor vessels, aimed at improving catch data.

CREDIT: © NATALIE FOBES / WWW.FOBESPHOTO.COM

## FURTHER STUDY

Work since 2005 has concentrated on the analysis phase of the project. This work includes classifying and searching behavior of the vessel, integrating the acoustic biomass, identifying pollock aggregations detected while searching, and evaluating what inferences, if any, can be made concerning the rate at which those aggregations are reduced in abundance. The project is moving forward in developing more sophisticated analytical tools for inferring the temporal dynamics of pollock spatial pattern using multiple data sources.



These echograms were recorded aboard a factory trawler off Unimak Island in the Aleutians. The top figure reveals two schools of pollock during the day. The lower panel depicts pollock spread out in a loose, layered aggregation near the seafloor, typical of their behavior at night. The size of the layer of pollock can spread to several kilometers. CREDIT: HAIXUE SHEN, UAF/SFOS

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