

Integrating Science and Tradition: Ecosystem Monitoring through the Subsistence Harvests of the Pribilof Islands, Alaska



POLLOCK CONSERVATION
COOPERATIVE RESEARCH CENTER
Project Synopsis



A bull fur seal and females.

CREDIT: JO-ANN MELLISH, UAF/SFOS

FUNDING SUMMARY

PRINCIPAL INVESTIGATOR

Jo-Ann Mellish

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School of Fisheries and Ocean
Sciences and
Alaska SeaLife Center

COLLABORATORS

LGL Alaska Research
Associates, Inc.

Aleut Community of St. Paul
Island Tribal Ecosystem
Conservation Office

YEAR FUNDED

2006

RESEARCH PERIOD

2006-2007

BUDGET

\$24,867

Connecting subsistence and science

Integrating traditional knowledge and modern scientific research is a critical step toward understanding changing ecosystems such as the Bering Sea. Subsistence harvests, oral natural history, and local experiences and culture offer valuable tools for the investigation of the current role of contaminants in species declines.

WHY IS PCCRC INTERESTED?

A fundamental goal of the Pollock Conservation Cooperative is creating networks and connecting people to improve the collection of important scientific data, leading to enhanced understanding of the ecosystem.

WHAT SCIENTISTS DID

Researchers engaged subsistence hunters on St. Paul Island, and developed a sampling protocol that hunters used to collect more than 100 tissue samples from fur seals, sea lions, and seabirds, including muscle, liver, blubber, and kidney tissues.

The samples were analyzed to determine concentration of polychlorinated biphenyls (PCBs), a human-made chemical known to have significant adverse effects on organ function and reproduction.



A scientist demonstrates how to record data from a porpoise.

CREDIT: LIANNA JACK, ALASKA SEA OTTER/STELLER SEA LION COMMISSION

OBJECTIVES

Collaborate with subsistence hunters to collect biological samples from the subsistence harvest of marine mammals and seabirds on the Pribilof Islands.

Provide opportunities to augment scientific knowledge with traditional knowledge and vice versa.

Measure contaminant levels in multispecies tissue samples collected during subsistence hunting events, including marine mammals and seabirds.

BOTTOM LINE

The project effectively demonstrated the ability of different interest groups and backgrounds to work toward a single goal, resulting in the collection of tissues that would otherwise be unavailable due to logistic and financial constraints to researchers.

WHAT SCIENTISTS LEARNED

Analyses suggest that PCB contamination could cause a decrease in the northern fur seal population. The project proved that scientists and local subsistence users can work together to better understand natural systems, and share information that would otherwise be unavailable to researchers due to logistic and financial constraints.



Alaska hosts the world's largest population of northern fur seals. They spend 7 to 10 months at sea, coming ashore once a year to breed on Bogoslof Island in the Aleutians and on St. George and St. Paul islands in the Bering Sea. CREDIT: JO-ANN MELLISH, UAF/SFOS

FURTHER STUDY

The species examined in this study are sentinels of a changing ecosystem, and represent an important traditional food source for rural communities. Climate change and environmental pollution may be responsible for some of the unexplained developments in traditional food consumption. Continued monitoring of subsistence foods for both academic and local knowledge is necessary.

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