

# Ancient herring catch nets fisheries weakness

February 17 2014

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Iain McKechnie and Dana Lepofsky examine ancient herring fish bones that tell a fascinating story about how gigantic herring fisheries were for thousands of years in the Pacific Northwest. Credit: Diane Luckow, SFU Public Affairs and Media Relations

Archaeological data indicate modern herring management needs to take a longer look into the past to manage fisheries for the future says a new study involving Simon Fraser University researchers.

That is one of the key findings in the study, just published online in

*Proceedings of the National Academy of Sciences (PNAS)*. SFU researchers Iain McKechnie, Dana Lepofsky and Ken Lertzman, and scientists in Ontario, Alberta and the United States are its co-authors.

The study is one of many initiatives of the SFU-based Herring School, a group of researchers that investigates the cultural and ecological importance of [herring](#).

This study's authors combed through reams of archaeological reports that analyse almost half a million fish bones at 171 archaeological sites from Alaska, British Columbia and Washington State.

Up to 10,000 years old, the bones belonged to primarily Pacific herring, not the iconic salmon or any other fish, during a time when Indigenous [fisheries](#) reigned.

The researchers drew from their ancient data-catch concrete evidence that long-ago herring populations were consistently abundant and widespread for thousands of years. This contrasts dramatically with today's dwindling and erratic herring numbers.



Vertebrae from herring collected at an archeological site. Credit: University of Oregon

"By compiling the largest dataset of archaeological fish bones in the Pacific Northwest Coast, we demonstrate the value of using such data to establish an ecological baseline for modern fisheries," says Iain McKechnie. The SFU archaeology postdoctoral fellow is the study's lead author and a recent University of British Columbia graduate.

Co-author and SFU archaeology professor Dana Lepofsky states: "Our archaeological findings fit well with what First Nations have been telling us. Herring have always played a central role in the social and economic lives of coastal communities. Archaeology, combined with oral traditions, is a powerful tool for understanding coastal ecology prior to industrial development."



Herring roe on kelp on Calvert Island, B.C. (Credit: Caroline Fox/Raincoast.org)

"This kind of ecological baseline extends into the past well beyond the era of industrial fisheries. It is critical for understanding the ecological and cultural basis of coastal fisheries and designing sustainable management systems today," says Ken Lertzman, another SFU co-author. The SFU School of Resource and Environmental Management professor directs the Hakai Network for Coastal People, Ecosystems and Management.

**More information:** "Archaeological data provide alternative hypotheses on Pacific herring (*Clupea pallasii*) distribution, abundance, and variability," by Iain McKechnie et al. *PNAS*, [www.pnas.org/cgi/doi/10.1073/pnas.1316072111](http://www.pnas.org/cgi/doi/10.1073/pnas.1316072111)

Provided by Simon Fraser University

Citation: Ancient herring catch nets fisheries weakness (2014, February 17) retrieved 5 May 2024 from <https://phys.org/news/2014-02-ancient-herring-nets-fisheries-weakness.html>

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