

Helping threatened coho salmon could generate hundreds of millions in non-market economic benefits

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A new study provides evidence that increasing the abundance of a threatened or endangered species can deliver large benefits to the citizens of the Pacific Northwest.

The study, published today in the journal *PLOS ONE*, finds that a two-thirds increase in the average annual number of returning coho [salmon](#) to the Oregon coast would generate up to \$518 million per year in non-market [economic benefits](#) to residents of the region.

The study comes the same week that the U.S. Department of Interior announced that it will implement a new rule that stipulates that economic impacts for listing a species be considered under the U.S. Endangered Species Act (ESA).

"When we think about actions to protect endangered and threatened species, we often focus on the costs," said David Lewis, an economist in OSU's College of Agricultural Sciences and corresponding author on the study. "The benefits of protecting threatened species are difficult to estimate since they are considered to be non-market and arise from the public's values for things like the existence of abundant salmon in the wild. This study gives us a way to evaluate the benefits."

"If an agency is considering a policy or program that would increase the number of salmon by a certain amount, our study translates the benefits for that amount of salmon to a [dollar value](#)," said Steven Dundas, study co-author and economist in OSU's College of Agricultural Sciences and Coastal Oregon Marine Experiment Station.

"This provides evidence of the economic value Pacific Northwest residents place on protecting threatened and [endangered species](#)," Dundas said. "We can compare it to how much we actually spend on salmon restoration activities, to see if there's a net benefit to more investment."

The study, a collaboration between OSU and the Alaska Fisheries Science Center in Seattle, also found that the public attaches a substantial value—up to \$277 million a year—to achieving conservation

goals sooner rather than later.

"There are sizable benefits to achieving conservation goals quickly," Lewis said. "That has real implications for [conservation programs](#), showing that there's significant value to the public in up-front investments."

Another key study finding: People benefit from Oregon Coast coho salmon conservation even if the fish aren't declared recovered and removed from listing under the ESA.

"That's an important concept," Lewis said. "This indicates that we shouldn't evaluate ESA activities only by whether a [species](#) is recovered or not. It's not all or nothing."

For the study, the researchers mailed surveys to 5,000 randomly selected households in Oregon, Washington, Idaho and northern California in the fall of 2017. The surveys included scenarios with levels of attributes associated with improving the abundance of Oregon Coast coho salmon: how many fish come back from the ocean, how quickly they come back and what their conservation status would be under the ESA.

Associated with these scenarios was an annual per-household cost from a combination of additional taxes and higher prices for lumber and agricultural products, ranging from \$10 to \$350 per year. Survey respondents then chose their preferred conservation scenario or a status quo option with \$0 cost.

Twenty-one percent of the surveys were returned. By analyzing the responses, the researchers determined the public's average household willingness to pay for salmon [conservation](#), which is then multiplied by the number of Pacific Northwest households to get the final benefit numbers.

"The surveys create a situation for someone to make a decision about a public good—as if increases in salmon abundance were something they could choose off the shelf at the grocery store," Dundas said.

More information: *PLOS ONE* (2019). [DOI: 10.1371/journal.pone.0220260](https://doi.org/10.1371/journal.pone.0220260)

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