
\$1.4M Fish Movement Grant: OSU takes lead for new study

June 6, 2023

An Oregon State University (OSU) researcher has been awarded a three-year, \$1.4 million grant from the U.S. Department of Defense to lead a study about the movement of fish stocks due to changing climate conditions and the potential geopolitical tensions that could result from that shift.

“Fisheries that exist today in the U.S. may move to Canadian or even Russian waters in 20 years,” said James Watson, an associate professor in OSU’s College of Earth, Ocean, and Atmospheric Sciences and the project’s principal investigator. “We will be exploring ways to measure those changes and the potential consequences of those changes, economically and politically, particularly in the Arctic and Pacific oceans.”

The grant, from the Department of Defense’s Minerva Research Initiative, is one of 11 selected from 130 applications based on scientific merit, relevance and potential impact. The initiative’s focus is on basic research in social and behavioral sciences on topics relevant to national security.

Watson’s project is titled: “Future Fish Wars: Chasing Ocean Ecosystem Wealth.” The research team includes Steven Mana’oakamai Johnson, who earned his doctorate at Oregon State and is now faculty at Cornell University; Sarah Glaser of the World Wildlife Fund; Cullen Hendrix of the Peterson Institute for International Economics and economist Ethan Addicott of the University of Exeter.

The researchers will use machine learning tools to build a database of past conflicts in the Arctic and Bering and Chukchi seas to understand the historical context of disputes in that region, which has a known history of fishing conflicts. It is also a region where sea ice is declining rapidly, opening new areas for fishing and leading to shifts in where marine animals spend time.

That data will be combined with economic data on fisheries and climate change models to develop models showing how climate change may impact where fish, and subsequently fishing, may move, the potential economic impacts on communities and where those shifts could lead to conflict, said Watson, who specializes in marine social-ecological systems and understanding complex adaptive systems.

“In addition to movement of the fishery, you can also have compression, where the fish and the fishery shift to a smaller space, which can also lead to issues if fleets from different nations try to get the same value out of the ocean even though it is compressed,” he said. “Using Earth systems modeling, we can establish where we are likely to see these kinds of issues arise.”

This kind of research could help inform world leaders so they can prepare for expected changes and work to alleviate associated risks, Watson said.

“In today’s highly connected world, small tensions can quickly escalate and spiral out of control,” he said. “If we can pinpoint when and where those tensions might occur, that could help prevent that.”

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