



# TRACKING SEASONAL MOVEMENTS OF HERRING

## PRINCIPAL INVESTIGATORS

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## RESEARCH PERIOD

2012-2014, 2016-2022

## FUNDING

Exxon Valdez Oil Spill  
Trustee Council

Alaska Ocean Observing  
Systems

Ocean Tracking  
Network

This project is part of the *Herring Research and Monitoring Program*. The purpose of the program is to improve predictive models of herring stocks in Prince William Sound through observations and research.



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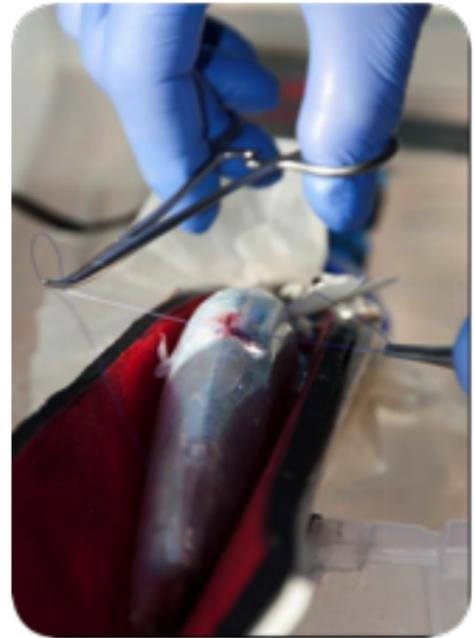
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## BACKGROUND

Where herring go after spawning in Prince William Sound (PWS) remains a mystery. Do they stay in PWS or migrate out into the Gulf of Alaska? A pilot project beginning in 2012 demonstrated it was possible to implant acoustic tags in Pacific herring and then detect them on acoustic arrays as they traveled to the entrances of PWS. Over the last 7 years researchers at PWSSC have put together a network of acoustic arrays at key areas around PWS to better understand the movement of these critical forage fish.

## METHODS

With the help of historical knowledge and aerial surveys, researchers set out into PWS in search of herring to tag. Adult herring are captured on the spawning grounds using jigs and transferred to a seawater holding tank aboard a research vessel. Individually, the herring are sedated, measured, and a small acoustic tag is surgically implanted into the abdomen. The tags transmit pings that can be “heard” by acoustic receiver arrays installed in PWS which “listen” for tagged fish. These receivers are placed on the spawning grounds and the major entrances to PWS including Hinchinbrook Entrance, southern Montague Strait, and the four southwest passages. Receiver data are uploaded once or twice a year. Data collected from the receivers are then pooled into a Multistate Cormack-Jolly-Seber (CJS) Model. [Click here for a full report on the locations of PWS acoustic arrays.](#)



*Acoustic tag being implanted.*

## WHAT WE WILL LEARN



*Acoustic receivers ready for deployment across the major entrances and passages between PWS and the Gulf of Alaska.*

Researchers have already learned that after spawning, the majority of adult herring move to the entrances of PWS. Recently researchers found that when the herring migrate seasonally out of PWS into the Gulf of Alaska there is a much higher probability they will leave using Hinchinbrook Entrance and then return through Montague Strait. Researchers are trying to learn what other routes and areas in PWS the herring are using. To aid in this effort additional receivers were deployed in 2018 near southern Knight Island Passage, Red Head (near Port Gravina), along the west side of Hawkins Island, and across the north end of Montague Strait. Since April 2019, 400 herring have been tagged on their spawning grounds. Data will be uploaded from the receivers in February of 2021 with the hope of better illuminating the paths these herring take. By knowing where the fish are, we can improve the design of studies that examine factors such as predation, food availability, and stock genetics that affect herring populations.