



# Prince William Sound Herring Survey: Aerial Surveys of Juvenile Pacific Herring

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## RESEARCH PERIOD

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## FUNDING

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This project is part of the *Prince William Sound Herring Survey*. The purpose of this comprehensive study is to better understand the factors limiting the recovery of the Pacific herring in Prince William Sound, Alaska.

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## BACKGROUND

Flying 1000 feet in the air, following the contours of the Prince William Sound shoreline, schools of juvenile herring are easily identified and measured during the long summer days. Aerial surveys have been conducted in this region since the 1950s, proving to be an effective method for collecting herring population density and distribution data. Surveying from the air has the benefit of covering a large geographic area while minimizing the disturbance of herring and their predators. The small aircraft can also survey waters that are too shallow for acoustic survey vessels to access.



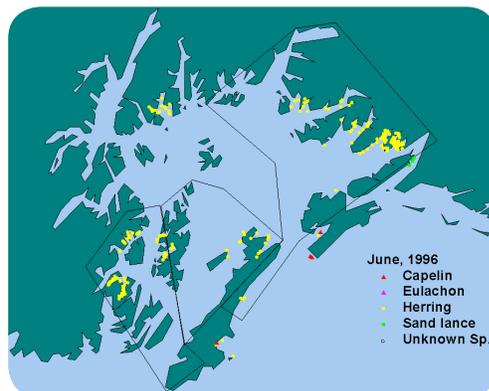
*Several herring balls are easily spotted from above. Photo by Evelyn Brown*

## METHODS

Aerial surveys will be conducted during the months of June through August, in conjunction with the PWS Herring Survey monthly zooplankton cruises, during which species validation surveys of fish schools will occur. Each monthly survey takes about 4 to 6 days, 3 to 6 hours each day, in a Cessna 185 float plane. During the course of the survey, numbers of fish schools, species of fish, surface area of schools, numbers of birds and mammals, behavior of birds, and oceanographic features are recorded.

## WHAT WE WILL LEARN

This study will provide a sound-wide map detailing a large amount of data. Included in the data will be an estimate of the age-1 overwinter survivorship and later their summer mortality; the timing, density and distribution of age-0 herring recruiting to nursery habitat; and changes in predator/competitor densities. Overlapping the herring density and distribution data with zooplankton and ocean conditions and ground sampling data, modelers and researchers will be able to determine how all these factors affect energetics, growth, predation and disease. Lastly, these surveys



*Example of data from June 1996 showing distribution of forage fish schools. Yellow dots signify herring.*

will help determine appropriate site selection for potential herring restoration efforts, by providing a map of full and empty juvenile nursery bays.