

# Population structure of Georgia Basin Pacific Hake (*Merluccius productus*)

## Problem Statement

During National Marine Fisheries Service Biological Review Team (BRT) deliberations, it became apparent that additional information was needed to make accurate determinations concerning the Endangered Species Act (ESA) status of distinct population segments for Puget Sound Pacific hake, *Merluccius productus* (also known as Pacific whiting), in the inside waters of the Pacific Northwest.



## Critical Factors

- A number of geographically discrete and temporally persistent spawning aggregations of Pacific hake occur in the region, including populations in Puget Sound and the Strait of Georgia.
- No reliable genetic information is currently available that could be used to differentiate between these aggregations of Pacific hake.
- A majority of the BRT felt that significant population structuring may exist within this region and that up-to-date studies of the genetic analyses of spawning aggregations would be necessary to adequately define this structure.
- Information about population structure is also considered crucial to the BRT's decision concerning extinction risk for Pacific hake because its abundance in the Strait of Georgia has not declined markedly over the past 15 years.

## Status of Research

Northwest Fisheries Science Center (NWFSC) scientists are pursuing research aimed at estimating the degree of genetic divergence among spawning populations of Pacific hake in Puget Sound and the Strait of Georgia. This research involves:

- Collecting samples of Pacific hake from spawning aggregates in several locations in Puget Sound and the Strait of Georgia, as well as samples from coastal populations.
- Developing and using variable genetic markers to determine the degree of differentiation between these spawning aggregates.
- Reporting the results to the Pacific hake Biological Review Team.

## Future considerations

Several species of marine fish in Puget Sound have been petitioned for listing under the ESA, and additional genetic work to better elucidate the population structure of these species may be necessary if Biological Review Teams are to accurately assess the status of these species.

## Key Players

Conservation Biology (CB) Division, NWFSC  
Washington Department of Fish and Wildlife  
Canadian Department of Fisheries and Oceans

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