The Incredible Egg Hunt: Finding Forage Fish Spawning Habitats of the Northwest Straits, Washington (2001-2003)

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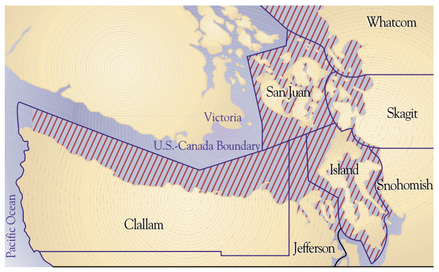
Background

Forage fish, also known as baitfish, are small, pelagic organisms that are food for coastal and estuarine fish populations. Living in relative obscurity in nearshore waters, forage fish spawn high on sandy beaches, laying eggs indistinguishable from sand grains. Despite the importance of forage fish as major food sources for commercially and recreationally valuable fish species, we know relatively little about their spawning distributions, life histories or population fluctuations.

Several species of forage fish are common residents of Puget Sound and adjacent Washington and British Columbia waters. Pacific sand lance, surf smelt and Pacific herring are of primary importance as prey items for marine fish and anadramous salmonids, several of which are listed under the federal Endangered Species Act. This project set out to inventory and map beaches throughout the seven northern counties of Puget Sound, collectively involved with the Northwest Straits Marine Conservation Initiative .



Methods

Following state fisheries methods, over 100 volunteers worked under the direction of state and tribal biologists to look for forage fish spawn on beaches throughout the Northwest Straits, many of which had never been documented as having a forage fish presence. The resulting field and lab work was translated into a series of GIS maps that have been turned over to county planning departments.

Results

Data from spawning surveys have been collated and mapped on a county-by-county basis, to better supply policy makers and planners with local information. As an example, Island County's 214 linear mils of shoreline are prime forage fish spawning habitat. From 2001 through 2003, surf smelt spawning was documented on 62 miles of shoreline, encompassing virtually all high intertidal beaches with mixed sand and gravel substrate. Sand lance spawning has been found on 14 percent of county shorelines.

In Washington, local and state protection is afforded to beaches and shorelines where forage fish are known to spawn. As the presence of forage fish spawn has been confirmed on beaches, local governments have moved to afford increased levels of protection to those shorelines. All seven NWS counties have incorporated the forage fish data into their critical area maps. The data are also being used extensively by applicants and by the counties for permitting and zoning decisions. Two additional Puget Sound counties have also initiated the collection and mapping of forage fish data.

Program participants

Marine Resources Committees of Island, San Juan, Clallam, Jefferson, Whatcom, Skagit and Snohomish counties

Northwest Straits Commission

Thurston and Mason counties

Tulalip, Jamestown S'Kallam and Lummi tribes

North Olympic Salmon Coalition and Friends of the San Juans.

Washington Department of Fish and Wildlife, University of Washington, Washington State University

Acknowledgements

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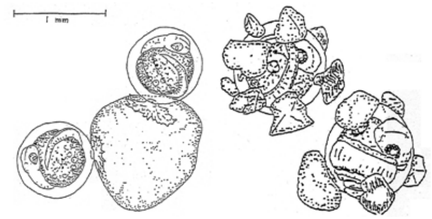

Surf smelt eggs attached to grains of sand.
Credit: Dan Penttila, WDFW