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Little Squalicum Estuary

If you build it, they will come...



Sara Brooke Benjamin - City of Bellingham

Steffan Kinley and John Rombold - Salish Sea Research Center at Northwest Indian College

Project Overview

The Little Squalicum Estuary project addresses the critical need for additional estuarine habitat in Bellingham Bay. Completed in 2024, the project created 4.85 acres of coastal habitat, including a 2.4-acre estuary, and removed a fish passage barrier at the mouth of Little Squalicum Creek—just two miles east of the Nooksack River Delta in Little Squalicum Park. From conception to finish, this project took 15 years to complete.



This restoration reestablishes natural tidal and sediment processes, improves fish passage, and brings back vital saltmarsh, mudflat, and estuarine habitats to an area where wetlands were historically lost. Over the past 150 years, Bellingham Bay has lost an estimated 282 acres of aquatic habitat due to dredging, filling, and shoreline modifications, significantly reducing rearing habitat for local salmonids.



Pre-construction



Post-construction

Project Partners



WASHINGTON STATE
Recreation and Conservation
Funding Board

Learn More



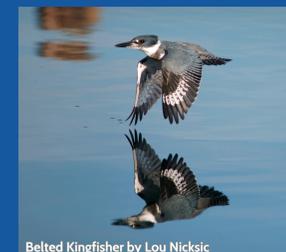
cob.org/little-squalicum-creek-estuary



Great Blue Heron and Mallard Duck by Lou Nicksic

Bird and Fish Species Observed in the Estuary

Since construction wrapped up in 2024, we have observed a variety of bird and fish species in the new estuary and its surrounding habitat, including an abundance of Longfin Smelt. These observations suggest that the project is successfully expanding lost estuarine habitat for many fish and wildlife that depend on this limited habitat.



Belted Kingfisher by Lou Nicksic

Bird Species Observed

Common Name	Scientific Name
American Crow	<i>Corvus brachyrhynchos</i>
American Goldfinch	<i>Spinus tristis</i>
American Robin	<i>Turdus migratorius</i>
Anna's Hummingbird	<i>Calypte anna</i>
Barn Swallow	<i>Hirundo rustica</i>
Belted Kingfisher	<i>Megasceryle alcyon</i>
Bewick's Wren	<i>Thryomanes bewickii</i>
Black-capped Chickadee	<i>Poecile atricapillus</i>
Bufflehead	<i>Bucephala albeola</i>
Bushtit	<i>Psaltriparus minimus</i>
Canada Goose	<i>Branta canadensis</i>
Cedar Waxwing	<i>Bombicilla cedrorum</i>
Common Merganser	<i>Mergus merganser</i>
Common Yellowthroat	<i>Geothlypis trichas</i>
Cooper's Hawk	<i>Accipiter cooperii</i>
Double-crested Cormorant	<i>Nannopterum auritum</i>
Glaucous-winged Gull	<i>Larus glaucescens</i>
Great Blue Heron	<i>Ardea herodias</i>
Hooded Merganser	<i>Lophodytes cucullatus</i>
House Finch	<i>Haemorrhous mexicanus</i>
House Sparrow	<i>Passer domesticus</i>
Killdeer	<i>Charadrius vociferus</i>
Mallard	<i>Anas platyrhynchos</i>
Pied-billed Grebe	<i>Podilymbus podiceps</i>
Purple Martin	<i>Progne subis</i>
Ring-billed Gull	<i>Larus delawarensis</i>
Ring-necked Duck	<i>Aythya collaris</i>
Rock Pigeon (Feral Pigeon)	<i>Columba livia</i>
Song Sparrow	<i>Melospiza melodia</i>
Spotted Sandpiper	<i>Actitis macularius</i>
Spotted Towhee	<i>Pipilo maculatus</i>
Steller's Jay	<i>Cyanocitta stelleri</i>
Yellow-rumped Warbler	<i>Setophaga coronata</i>
Yellow Warbler	<i>Setophaga petechia</i>

Table 1. Observations contributed by: Danielle Rapoza (Herrera Environmental Consultants), Doug Brown (North Cascades Audubon) and Marysia Smith (City of Bellingham). Observations do not include birds on the beach or the bay.

Fish Species Observed

Common Name	Scientific Name	2024	2025
Arrow Goby	<i>Clevelandia ios</i>	X	
Chinook Salmon	<i>Oncorhynchus tshawytscha</i>	X	X
Chum Salmon	<i>Oncorhynchus keta</i>	X	X
Coho Salmon	<i>Oncorhynchus kisutch</i>	X	X
Pacific Staghorn Sculpin	<i>Leptocottus armatus</i>	X	X
Prickly Sculpin	<i>Cottus asper</i>	X	
Shiner Perch	<i>Cymatogaster aggregata</i>	X	X
Starry Flounder	<i>Platichthys stellatus</i>	X	X
Threespine Stickleback	<i>Gasterosteus aculeatus</i>	X	X

Table 2. Fish data collected in April and May of 2024 and 2025 by Kathryn L. Sobocinski (WWU) and her students in collaboration with Lummi Department of Natural Resources in the newly constructed estuary.



Fish seine in estuary

In spring of 2024 and 2025, students from WWU's Marine Fish Ecology class teamed up with Lummi Department of Natural Resources to perform beach seine surveys in the estuary. In both years, students found juvenile Chinook salmon, the target species for this restoration project, in addition to other fish species.



Juvenile salmon

Chinook juvenile

Longfin Smelt eDNA Results

In 2024, the Salish Sea Research Center at Northwest Indian College collected eDNA samples at the mouth of the estuary for Longfin Smelt, an anadromous, oil-rich forage fish important to both people and salmon.



Karlee Cooper and Kira Walters eDNA sampling



Longfin smelt

The lower Nooksack River is one of the few spawning grounds of Longfin Smelt. The smelt enter the Nooksack to spawn in mid-November, when they are the focus of a short yet culturally important tribal subsistence fishery. The eggs hatch after about 40 days, after which smelt larvae are swept by currents into Bellingham Bay. Little is known about the marine distribution and habitat requirements of Longfin Smelt. To date, our study has found that Longfin Smelt are widely distributed in the northern Salish Sea, yet truly abundant nowhere.

November 2024 sampling found an extraordinarily high density (3400 copies L⁻¹) of Longfin Smelt DNA in the estuary. This value is about 150 times greater than the mean smelt density in Bellingham Bay, which tends to have a greater Longfin Smelt abundance than elsewhere in the Salish Sea. Our data suggest that Longfin Smelt are itinerant visitors to the estuary, likely entering with the tide to feed upon copepods, gammarid amphipods, mysid shrimp and other large zooplankton.

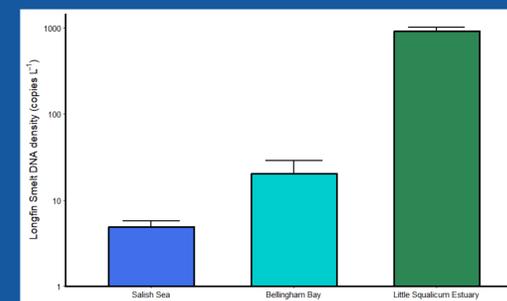


Figure 1. Mean DNA densities of Longfin Smelt. We target a short segment — unique to Longfin Smelt — of the mitochondrial cytochrome oxidase I gene which is shed in feces, slime, scales and other cellular debris. Our quantified variable estimates the number of these smelt-unique gene segments per liter of water sampled.