BEST PRACTICES



Forage Fish 101: Survival Snacks for Salmon

What are Forage Fish and Why are They so Important?

Six different species of small schooling fish live in the waters of Puget Sound. All of these fish are critically important to our local ecosystem, because they provide a food source, or forage, for larger species of fish, birds and marine mammals. Forage fish play an essential role in the life of local Pacific salmon, as they are the major prey species which salmon depend on for survival.

Spawn (verb): The act of fish depositing eqqs or milt directly into the water

Where do forage fish live?

Three of the six forage fish species spawn within the nearshore zone of our beaches. These species are the Pacific herring (Clupea pallasi), surf smelt (Hypomesus pretiosus) and the Pacific sand lance (Ammodytes hexapterus). Surf smelt and sand lance rely on the upper, sandier



beach habitat for spawning, while the Pacific herring uses the blades of eelgrass in the sub-tidal zone of the near shore to lay their eggs. In Puget Sound, forage fish occupy every estuarine and marine nearshore habitat.

What is the concern? Habitat loss...habitat loss...habitat loss...

Since forage fish rely on a healthy nearshore zone for survival, they are especially vulnerable to shoreline development and pollution. Substantial loss of native shoreline vegetation, poor lawn management (application of excessive fertilizer and other chemicals) and shoreline armoring, such as the construction of bulkheads, severely impact our shorelines. These actions affect the upper intertidal zone through the direct loss of and damage to spawning habitat and the interruption of critical sediment (sand and gravel) transport.

Loss of vegetation increases localized water temperatures and dehydrates eggs spawned in upper tidal areas. Shoreline armoring cuts off the natural supply of sand and gravels that naturally erodes from cliffs and shoreline banks to make up our beaches. Without this naturally occurring supply of beach substrate, the finer beach sand and gravel erode and the substrate coarsens (smaller sands and gravels wash away leaving only larger cobbles). Eventually, only the hard pan clay or rock layer remains, leaving behind a habitat that lacks proper conditions necessary for forage fish spawning.



It is the mission of Stream Team to protect and enhance water resources and associated habitats and wildlife in Thurston County through citizen action and education. Stream Team is funded and jointly managed by the stormwater utilities of the Cities of Lacey, Olympia and Tumwater and Thurston County. www.streamteam.info Less than 20% of the estuaries once found in Puget Sound (and world wide) exist today. Locally, over 90% of the shoreline in Budd Inlet has been modified with armoring and fill. This contributes to a substantial net loss of habitat in south Puget Sound specifically used by forage fish, which, in turn, affects Pacific salmon survival.

For more information about protecting and enhancing our Thurston County shoreline through the **Shoreline Master Planning** process in your area, join Stream Team for a free presentation.

Source: Stream Team News, Winter 2011





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