

# forage fish

## SNOHOMISH COUNTY MARINE FACT SHEET



(Pacific herring)



(Sand lance)



(Surf smelt)

For more information on this topic or to learn how you can help, please call Snohomish County Public Works, Surface Water Management at 425-388-3464 (TTY: 425-388-3700) or check [www.co.snohomish.wa.us/mrc.htm](http://www.co.snohomish.wa.us/mrc.htm)

### Overview

The more common fish species identified as forage fish within Washington include:

- **Pacific herring** (*Clupea harengus pallasii*),
- **Pacific sand lance** (*Ammodytes hexapterus*),
- **Surf smelt** (*Hypomesus pretiosus*), and
- **Northern anchovy** (*Engraulis mordax*).

This fact sheet will focus on the three species of forage fish of concern in Snohomish County:

- **Pacific herring**—Grows up to 9 inches long. Bluish green to olive dorsal with silvery sides. No adipose fin. Large scales on body; none on the head and tail. The largest stock is in the Cherry Point area (northern Puget Sound).
- **Sand lance**—Grows up to 8 inches long. Gray to green dorsal, silver sides. Large dorsal fin. Elongated pointed body. No adipose fin. Scales almost invisible.
- **Surf smelt**—Grows up to 9 inches long. Olive green dorsal, silver or yellow band on sides. Adipose fin. Small scales.

Forage fish are abundant in Washington State. Humans use forage fish for bait and food, while forage fish and their eggs are critical prey for a large variety of marine organisms including seals, fish, waterfowl and other animals. Their populations are also a valuable indicator of the health and productivity of our marine environment. Forage fish depend on nearshore habitat for their survival.

Because forage fish spawn in the nearshore vegetation and beaches of the Puget Sound shoreline, local spawning populations are vulnerable to shoreline development.

### Human impacts on forage fish

- **Bulkheads** and other shoreline armoring can bury the upper intertidal zone, increase erosion along the base of the structures and prevent renewal of fine beach sediments needed for surf smelt and sand lance.
- **Removing trees** along the shoreline can increase erosion and decrease shading.
- **Dredging, pollution and shading** can remove eelgrass beds or prevent them from thriving.
- **Commercial and recreational harvest**, especially of herring stocks, has put pressure on forage fish populations.

### Protection efforts

- **Local protection efforts**—The Snohomish County Marine Resources Advisory Committee (MRC) is a citizen-based advisory committee created to address local marine issues. The MRC wants to protect forage fish and their habitat. The MRC is investigating potential forage fish habitat and issues related to forage fish in the Snohomish County area.
- **Voluntary**—Consider alternatives to bulkhead construction. Keep or maintain a buffer of native shrubs and trees along your beach.



Snohomish County  
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## Life histories and status

	Pacific herring	Sand lance	Surf smelt
<b>Spawning</b>	Late Jan. – April in same area each year. Sticky eggs deposited on eelgrass blades or other marine vegetation.	Nov.-Feb. in upper zones of gravel-sand beaches near high tide line. Tiny, sticky eggs same size as sand grains and attach to sand.	Throughout the year in upper zones of mixed sand-gravel beaches near high tide line. Overhanging vegetation helps egg development by providing shade. Often spawn in same area each year. Small, sticky eggs attach to sand grains.
<b>Egg hatching</b>	14 – 15 days (depending on conditions).	About 4 weeks.	2-5 weeks.
<b>Larval stage</b>	2 weeks - 3 months. Drifts with currents.	4 weeks – 3 months. Drifts with currents.	5 weeks – 3 months. Drifts with currents.
<b>Juvenile stage</b>	Feed on animals (such as crab larvae) in plankton. Rear in nearshore waters.	Feed on animals in plankton. Rear in nearshore waters of Puget Sound.	Feed on animals in plankton. Rear in nearshore waters of Puget Sound.
<b>Adults</b>	Return to spawn after 2-3 years. Can spawn in successive years. Can migrate to open ocean or stay in Puget Sound. Lives to 4-5 years.	Adults feed in open water during the day and burrow into the sand at night. Migration or age structure of adults unknown.	Return to spawn after 1-2 years. Can spawn in successive years. Lives to 4-5 years.
<b>Status</b>	Steep decline in Puget Sound since 1975, especially Cherry Point stock.	140 miles of potential sand lance spawning beaches known in Puget Sound. Many potential areas remain to be surveyed.	Over 250 miles of spawning beaches known in Puget Sound. Many potential areas remain to be surveyed.

- **Regulatory**—Surf smelt and Pacific herring spawning sites are given enhanced “no net loss” protection while the spawning habitat of sand lance is considered a “marine habitat of special concern” under state law. The fishery is managed jointly by the Washington Department of Fish and Wildlife and Treaty Tribes.

## Sources

- 2000 Puget Sound Update, Puget Sound Water Quality Action Team
- Washington Department of Fish and Wildlife, [www.wa.gov/wdfw](http://www.wa.gov/wdfw)
- Washington Department of Ecology, [www.ecy.wa.gov](http://www.ecy.wa.gov)

## How you can get involved

The Snohomish County Marine Resources Advisory Committee (MRC) was formed to recommend remedial actions to local authorities and build local awareness of the issues and support for remedies. The MRC meets on a monthly basis and welcomes public participation.

## Resources

- MRC web site: [www.co.snohomish.wa.us/mrc.htm](http://www.co.snohomish.wa.us/mrc.htm)



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