

Protect and Restore Marine and Nearshore Species

The Challenge

The protection and recovery of marine and nearshore species is an integral part of maintaining overall species diversity throughout Puget Sound. As a tidal estuary ecosystem, Puget Sound's marine and nearshore species interact with marine species to form a complex and biologically rich food web which requires protection and responsible stewardship to maintain function and minimize disruption.

Relationship to Recovery Targets

Primary recovery targets associated with the protection and recovery of marine and nearshore species include toxics in fish, marine sediment quality, shoreline armoring, Orcas, wild Chinook, Pacific Herring, and eelgrass.

B7. Protect and recover marine & nearshore species.

Recovering at risk marine and nearshore species, and maintenance of biodiversity is vital to restore the biological health and integrity of Puget Sound. Implementation of existing species recovery plans will be most effective if overlapping actions within these plans are identified and redundancies eliminated. The strategies and actions described here for marine and nearshore species mirror actions described in detail in A10 for terrestrial and freshwater species. Readers should refer to A10 for details on the context for strategies and actions and for information on ongoing programs.

B7.1 Implement existing biodiversity plans in a coordinated way while a more integrated planning approach is created.

Near Term Actions

No near-term actions were identified.

B7.2 Implement existing marine and nearshore species recovery plans in a coordinated way.

Marine and nearshore species recovery is a vital component of Puget Sound recovery, particularly its implications for biodiversity maintenance. Implementation of existing species recovery plans will be most effective if overlapping actions within these plans are identified and redundancies eliminated.

Existing marine and nearshore species recovery plans include:

- Sea Otter (<http://wdfw.wa.gov/publications/00314/wdfw00314.pdf>)
- Southern Resident Killer Whale (<http://www.nwr.noaa.gov/Marine-Mammals/Whales-Dolphins-Porpoise/Killer-Whales/ESA-Status/upload/SRKW-Recov-Plan.pdf>)
- Puget Sound Rockfish Conservation Plan <http://wdfw.wa.gov/conservation/fisheries/rockfish/>

Each plan lays out a species-specific approach to ensure self-sustaining populations at appropriate levels of abundance. Recovery plans generally include an assessment of the stock status and an evaluation of the factors that contribute to declining populations and measures to mitigate them. These plans also recommend specific actions to protect species habitat needs, their food and forage requirements, and protection from human disturbance and harvest management. WDFW identified management recommendations for 101 species and five priority habitats. These can be found at http://wdfw.wa.gov/conservation/phs/mgmt_recommendations/. Many of the actions to protect and restore habitat and to improve fresh and marine water quality and quantity described in other sections of the Action Agenda echo the types of actions called for in species recovery plans.

Near-Term Actions

B7.2 NTA 1: Appropriate state agencies will prioritize the implementation of their restoration projects identified within existing marine & nearshore species recovery plans.

Performance measure: To be determined

B7.2 NTA 2: Use and augment existing species plans to create actionable work plans for imperiled species without existing or specified plans. Such species include: Geoduck Clam, Pinto Abalone, Olympia Oyster, Dungeness Crab, Pacific Hake, Pacific Cod, Walleye Pollock, and Rockfish

Performance measure: Number of actionable work plans for imperiled species currently lacking such plans

In addition, A10.1 NTA 1 on the Fish and Wildlife Action Plan for Puget Sound also will address marine and nearshore species.

SALMON RECOVERY

Salmon Recovery Plan priorities: B7.2 Placeholder

How are these priorities integrated: B7.2 Placeholder

Target View: Pacific Herring

Pacific Herring are a vital component of the marine ecosystem, and are a key indicator of the overall health of Puget Sound. Healthy stocks of herring indicate that the food web in Puget Sound is functioning to provide a prey base for fish, seabirds, and marine mammals; that nearshore and open-water habitats are functioning properly; and that fisheries for bait and other products are available for Puget Sound residents.

Herring are one of a number of small, schooling fish species called "forage fish" that are preyed upon by larger predators for food (other species include surf smelt, Pacific sand lance, and northern anchovy). The Puget Sound Partnership has focused on Pacific Herring as a key sentinel for Puget Sound health. Herring are one of the most abundant forage fish species, and their populations have been tracked since the 1970s.

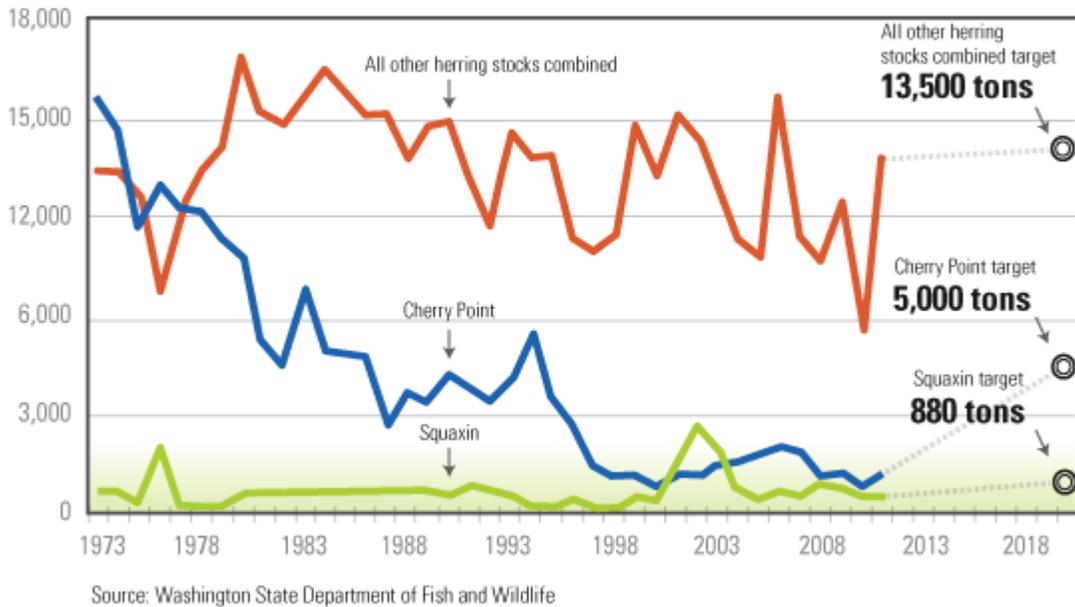
Overall, the number of herring in Central and Southern Puget Sound has been relatively stable for the past 40 years. However, the population of one large and important stock of Pacific Herring, the Cherry Point stock in North Puget Sound, has declined by 90 percent since 1973. There are many factors that may have contributed to this decline, including pollution, overfishing, changes to the natural shoreline, parasites, changes in abundance of predators or prey, and disease. Some scientists think the decline may be part of a natural cycle, related to large-scale ecosystem conditions.

Efforts to help the recovery of Cherry Point herring have been taken, but we have yet to see their population turn around. More needs to be done to understand the causes of the decline. For herring in the rest of Puget Sound, appropriate fishery management is important to ensure continuation of the commercial and sport harvest. In addition, we need to protect the water quality and habitats essential to the well-being of all herring populations.

Further, as prey for virtually every large predator in Puget Sound, healthy herring populations play a significant role in a healthy food chain. However, herring are particularly susceptible to some types of toxic contaminants, such as PCBs (see "Toxics in Fish"). PCB levels increase in fish tissues as the chemicals move up the food chain, from herring to salmon, birds, seals, orcas, and humans.

The 2020 recovery target for Pacific Herring is: to increase the overall amount of spawning herring throughout Puget Sound to about 19,000 tons.

Spawning biomass of Pacific herring stocks in Puget Sound In tons, 1973-2020



The graph represents the tons of adult Pacific Herring estimated to be in Puget Sound, based on annual surveys. The estimated number of tons that spawn each year is called the spawning biomass. The herring targets are grouped based on results of genetic studies that indicate Cherry Point and Squaxin Pass herring stocks are genetically distinct and that all other sampled Puget Sound herring stocks are not genetically distinguishable from each other.

The Action Agenda strategy most related to the Pacific Herring target is:

- Implement and maintain priority nearshore and marine ecosystem restoration projects (B3)

Miradi target diagrams are still being developed for the eelgrass target.

Target View: Orcas

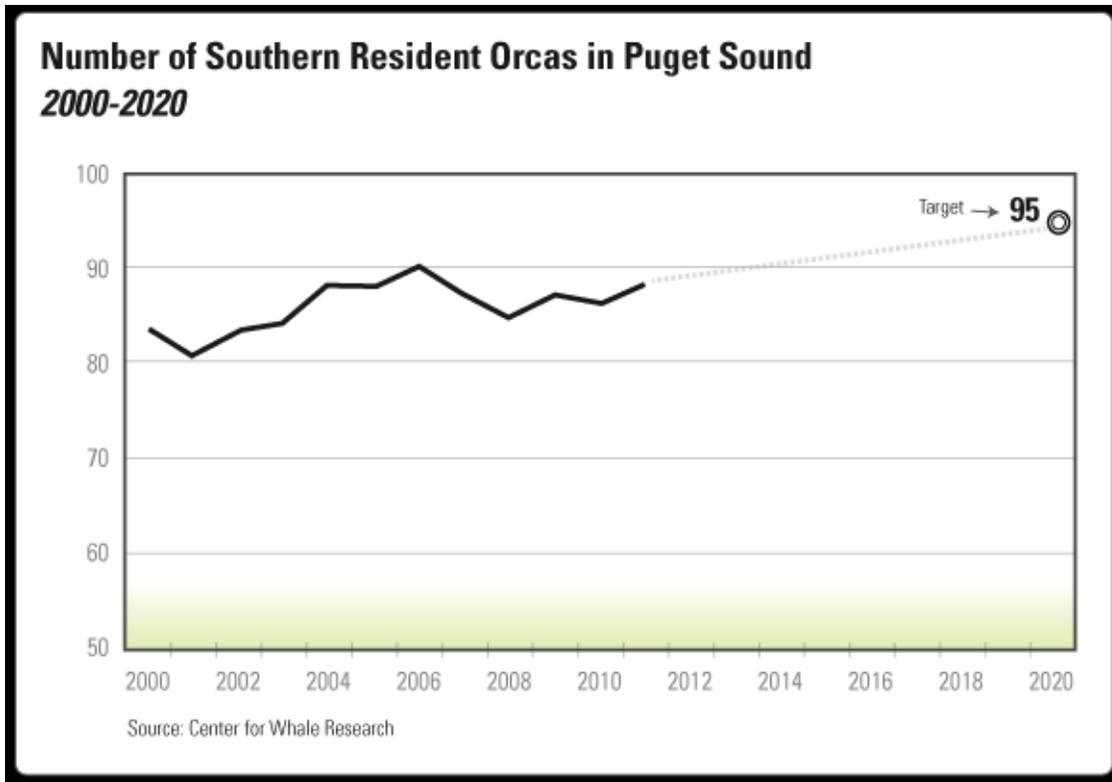
Orca whales are an iconic species of the Pacific Northwest. We are thrilled when we see a killer whale breaching (jumping) high out of the water or when a resident pod swims majestically by a state ferry. Orcas also are at the top of the marine food chain – their main diet is Chinook salmon, as well as cod, herring and other fish species. Therefore, their health is a great indicator of the overall quality supply and quality of living organisms in the Sound.

The orcas in Puget Sound are generally known as Southern Resident Orca Whales and are actually a large extended family, or clan, comprised of three pods: J, K and L pods. They are often seen during the summer in the protected inshore waters of the Salish Sea, especially in Haro Strait west of San Juan Island, the Strait of Juan de Fuca and in Georgia Strait near the Fraser River. Orcas can live as long as 80 to 90 years.

The historic population of Southern Resident Orcas may have numbered around 200 individuals, but by mid-2011, the population totaled fewer than 90 whales. Current potential threats to resident orcas include reduced quantity and quality of food, high levels of environmental contaminants possibly affecting immune and reproductive systems, human disturbance (especially boat traffic and noise disturbance), and the threat of oil spills. Further, there are currently only 17 female orcas capable of bearing young, and orcas generally wait three to five years between pregnancies. Also, about three orcas disappear from the population every year; generally their fates are unknown.

The 2020 target for orcas is, despite these challenges:

- To increase the number of Southern Resident Orcas to 95 individuals. This would represent a one percent annual population growth rate from 2010 to 2020.



This graph represents the number of Southern Resident Orca Whales in Puget Sound. This count does not include transient orcas from other regions who are temporarily in Puget Sound. The target is to grow that population by 1% annually between 2010 and 2020, from 86 to 95 orcas by the close of 2020.

As of July 2011, the Center for Whale Research reports 88 whales in the population. The population number is provided as an estimate only, as the number of whales in this population is constantly changing. Please contact the Center for Whale Research for the most up-to-date numbers.

The Action Agenda strategy most related to the orca target is:

- Implement existing marine and nearshore species recovery plans in a coordinated way (B7.2)

Miradi target diagrams are still being developed for the eelgrass target.