

PUGET SOUND VITAL SIGNS

VITAL Sign ORCAS

Orcas, or killer whales, are among Puget Sound's most distinctive and charismatic creatures. They are icons in Pacific Northwest culture and top predators of the wider Salish Sea ecosystem. The Orcas Vital Sign tells us about the population status of the endangered Southern Resident killer whales and the occurrence of all orcas in Puget Sound and throughout the Salish Sea. The combination of a declining food supply and impacts from pollution, vessel traffic, and noise continues to threaten the survival of Southern Resident killer whales. Additionally, there is emerging science on the impacts of inbreeding for Southern Resident killer whale survival, which indicates that we need to do more now than before to recover populations.



Photo credit: Center for Whale Research

Related Strategies

- Awareness of Effects of Climate Change
- Climate Adaptation & Resilience
- Education Partnerships
- Funding
- Oil Spills
- Research & Monitoring
- Responsible Boating
- Stewardship & Motivating Action
- Strategic Leadership & Collaboration

Vital Sign Reporter

PSEMP Marine Mammals Work Group

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VITAL SIGN > INDICATOR	PROGRESS	STATUS
Orcas		
Number of Southern Resident killer whales	GETTING WORSE	BELOW TARGET
Occupancy/residency of orcas in Puget Sound	INDICATOR TO BE DEVELOPED	NO TARGET

KEY VITAL SIGN MESSAGES

Orcas are iconic in the Pacific Northwest and top predators in the Salish Sea. The Orcas Vital Sign tracks endangered Southern Resident killer whales - whose survival is threatened by a declining food supply, pollution, vessel traffic, and noise - and the occurrence of all orcas in Puget Sound and throughout the Salish Sea. Ongoing research highlights the need for continued recovery efforts; however, active efforts made to reduce vessel disturbance, restore habitat, and maintain healthy fish populations offer hope for the long-term recovery of the Southern Resident killer whale population.

- The Southern Resident killer whale population has continued to decline; the population having peaked in 1995 with 98 whales and diminished to a current count of 73 whales (as of the July 1, 2024 census). Their seasonal presence in the Salish Sea has shifted from historic trends, with decreased presence in the summer months and increased presence in the fall and winter.
- The Bigg's (transient) orcas' population has grown steadily over the last 40 years, and their use of the Salish Sea has increased. These orcas are distinct from Southern Residents in that they feed on marine mammals, including seals and porpoises, have different social structures, behaviors, and home ranges. The abundance of the most common Bigg's killer whale prey in the Salish Sea has increased over the last 50 years.
- Southern Resident killer whales feed exclusively on fish, with a preference for salmon species such as [Chinook salmon](#), making their recovery efforts closely linked. However, most Chinook populations are in crisis and show little sign of recovery. Factors such as climate change impacts, predation by other species, harvest, habitat degradation, hatchery programs, and hydropower operations alter salmon density, size, and migration timing. These changes reduce prey availability, threatening orca survival and ecosystem function.
- The Chinook salmon that Southern Resident killer whales rely on originate throughout the west coast, including the Puget Sound, Columbia Basin, Fraser River, and Klamath River. Because salmon migrate across broad regions, understanding and improving prey availability throughout Southern Resident killer whale range will be critical for their recovery.
- In the Salish Sea, [underwater noise](#) and disturbance from commercial and recreational vessels masks orca echolocation and communication. Vessel noise decreases orca foraging efficiency, lowering the chances of successful prey capture. In recent years, voluntary (Quiet Sound) and regulatory (1,000-yard mandatory vessel buffer) actions have been put in place to reduce vessel noise and disturbance.
- When Southern Resident killer whales lack food, they burn their own fat, thereby increasing circulation of [harmful pollutants](#) picked up from the Salish Sea and elsewhere. Poorer body condition increases the orcas' vulnerability to disease, hinders reproduction, and is linked to lower survival rates.

BACKGROUND DOCUMENTS

Indicator Targets

2030 and 2050 Recovery Target

- [Number of Southern Resident killer whales target fact sheet](#)
- [Memo to Science Panel with rationale](#)

2020 Recovery Target

- [Leadership Council Resolution 2011-17: Adopting a 2020 ecosystem recovery target for orcas](#)
- [Orca 2020 Target Briefsheet](#)

OTHER RESOURCES

- [2021 Southern Resident Killer Whales \(Orcinus orca\) 5-Year Review: Summary and Evaluation \(NOAA Fisheries\)](#)
- [Puget Sound Marine Waters 2021 Overview](#)
- [Encyclopedia Of Puget Sound](#)
 - Entries related to [killer whales](#), [harbor porpoises](#), and [harbor seals](#).
 - [Status and trends for West Coast transient \(Bigg's\) killer whales in the Salish Sea](#)
- [Summary of Key Research Findings about Underwater Noise and Vessel Disturbance \(Washington State Academy of Sciences\)](#)
- [Inbreeding and Inbreeding Depression in Southern Resident Killer Whales \(NOAA Fisheries\)](#)
- [Southern Resident Orca Task Force website](#)
 - [Orca Task Force Final Report and Recommendations](#)
 - [Orca Task Force Year 1 Comprehensive Report and Recommendations](#)
- [Recently Published Reports](#)
 - [Economic Impact of Killer Whales in the Salish Sea](#) (Earth Economics, supported by the Seadoc Society)
 - [Southern Resident Killer Whale Vessel Adaptive Management 2022 Legislative Report](#) (Washington Department of Fish & Wildlife)

CONTRIBUTING PARTNERS

The following U.S. organizations monitor killer whales in Puget Sound:

- [NOAA Fisheries](#)
- [The Center for Whale Research](#)
- [Oceans Initiative](#)
- [Orca Network](#)
- [Orca Behavior Institute](#)
- [Orcasound](#)
- [SR³](#)
- [The Whale Museum](#)
- [Wild Orca](#)

TO LEARN MORE ABOUT THE VITAL SIGNS VISIT: vitalsigns.pugetsoundinfo.wa.gov OR CONTACT: vitalsigns@psp.wa.gov