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Puget Sound orcas: Pollution, noise and loss of salmon leave their future uncertain

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It seems orcas are everywhere in Western Washington.

They're in art. Businesses are named after them. A new ticket that can be used to board any bus or commuter train in the Puget Sound area is called One Regional Card for All: ORCA.

One of the finalists for the state quarter issued in 2007 featured an American Indian art version of an orca. It lost out to one showing the orcas' favorite food — the salmon.

There aren't nearly as many real orcas in local waters as there are figurative ones on land. About four years after orcas living in Puget Sound waters were declared endangered, the prospects for their recovery are still unclear.

Their fate is inextricably linked with that of the also-troubled Puget Sound chinook salmon.

By most accounts, as the big salmon go, so go the killer whales that eat them. There aren't enough fish, and those the orcas eat are often contaminated.

Other factors have been cited as possible culprits in the decline of the southern resident orcas, as they are called, such as noise from boats. According to most experts, however, fish are foremost.

"It's the single most important thing," said Ken Balcomb, founder and director of the Center for Whale Research in Friday Harbor. "If we feed them, they'll be OK. If we don't, they won't."

In December 2005, the three pods of orcas living between the southern end of Puget Sound and the middle of Vancouver Island were listed as endangered under the federal Endangered Species Act. The three pods currently number 85 orcas.

The listing came following a petition by the Center for Biological Diversity, a national environmental group. Orcas also are listed under Canada's Species at Risk Act, said Lynne Barre, a marine mammal specialist for the National Oceanic and Atmospheric Administration in Seattle.

The orcas landed on the Endangered Species Act two years after Puget Sound chinook salmon were listed as threatened under the same federal law.

The listing of the salmon was a factor in the listing of the orcas, Barre said. Orcas prefer chinook, the largest salmon, over other types of salmon because of their size and fat content, experts say. Roughly 80 percent of their diet is chinook salmon, according to Balcomb.

The pods were given endangered status also because the southern resident orca population, made up of family pods known as J, K and L, is so small, officials said at the time. The numbers dipped from 88 in 2004 to 83 last year. Two calves born earlier this year brought the number up to 85.

By contrast, the 16 northern resident pods that range from mid-Vancouver Island to southeast Alaska number about 220.

The southern orcas' limited numbers make the population highly vulnerable to a large oil spill or disease outbreak, experts say. It's believed that southern orcas mate only with those from other pods in the southern area — not from their own pod or with the northern whales.

Still declining

The standards for orcas' recovery are high. For them to be upgraded from endangered to threatened would require a growth rate in the pods of 2.3 percent per year for 14 years, Barre said. To have them taken off the list entirely would require that same growth rate over 28 years, she said.

So far, the drop from 88 to 85 since the 2005 listing means the numbers have gone in the wrong direction. Seven died last year, some from old age, but a female of reproductive age died from unknown causes, Barre said.

Males of reproductive age seem to be limited in number, and some of the females that should be calving are not, according to the Center for Whale Research. Researchers also estimate that 40 percent of calves die in the first six months of their lives.

The listing for the orcas required the federal government to create a plan for their recovery, and it requires that any development along the affected shoreline address orca habitat.

The nine-point plan, given final approval in early 2008, includes supporting salmon recovery efforts, addressing pollution, evaluating and improving guidelines for boating near the whales, and preventing oil spills.

Much of the work on the plan, and on a similar plan for salmon, is in the early stages of being implemented under Puget Sound Partnership 2020, a state agency established to coordinate efforts to reduce the effects of pollution in state marine waters.

NOAA is expected soon to approve a stricter set of guidelines for vessels that navigate waters near orcas, Barre said. Government agencies and other groups also have made progress on a response plan for keeping orcas away from an oil spill, including development of noisemaking devices to scare them away, she said.

Numerous agencies are working on fish recovery efforts. The increasing coordination on all fronts is an encouraging sign, said Larrie LaVoy, a salmon policy analyst for the state Department of Fish and Wildlife.

What's working in favor of salmon and orcas is "the large amount of effort and study and research going to make improvements where we can make improvements and getting people together and developing partnerships," LaVoy said.

Unique problems

Orcas are found all over the world, in every ocean. The whales in local waters, however, have faced a unique set of problems.

From 1965 to 1975, 45 whales were captured for marine theme parks around the world, according to the Center for Whale Research. Thirteen other whales were killed during those captures.

Estimates vary on the number of whales before 1960. The population stood at 70 in 1976, according to NOAA figures. By 1995, it had built back up to 98. After that, though, it dropped to 81 by 2001.

The whales' decline mirrored a drop in the Puget Sound chinook salmon population from the mid-1990s into the early 2000s.

That dip in the numbers of salmon contributed to the fish being declared threatened under the Endangered Species Act in 2003.

"The whale population tracks the salmon population by about a year," said Balcomb of the Center for Whale Research.

Another threat to orcas — development — reaches them primarily through their food source.

Pollution from a variety of sources is absorbed by salmon and in turn consumed by whales.

High levels of PCBs have been found in dead whales, which likely affects their immune systems, reproductive systems and ability to develop, according to research by research scientists Peter Ross and John Ford of the Canada Department of Fisheries and Oceans. Poison accumulates in their systems because they eat up to 200

pounds of fish a day and they're at the top of the food chain.

It also could be hurting their ability to feed, said Kit Rawson, senior fisheries biologist for the Tulalip Tribes.

"It's clear they're not feeding; the question is why," he said.

Degradation of streams where salmon spawn is another factor. Along with development, these issues are bigger in urbanized Puget Sound and southwestern British Columbia than farther north.

Also, two of the three pods often venture down the coast to northern and central California, where they eat salmon that still bear traces of DD T, the pesticide banned in 1972, said Brad Hanson, a wildlife biologist for NOAA.

The toxic substance still hasn't left the environment, he said.

"It doesn't break down," he said.

Other factors affect salmon, Hanson said.

"Ocean conditions play a huge role in fish survivorship," he said, which makes it difficult to predict the long-term prospects for chinook recovery beyond their normal life cycle of four to five years.

Noise affects sonar

Noise from boats at short distances has been found to affect the whales' sonar capabilities, according to Barre. The whales communicate and find fish by sending out sounds and sensing their bounce-back, a process called echolocation. As with pollution, the noise could be a factor in the whales' ability to feed, said Rawson of the Tulalip Tribes.

Last year, the state passed a law prohibiting boats from being within 100 yards of the whales. The new rules proposed by NOAA, as part of the recovery plan, include keeping at least 200 yards away from whales, not steering or stopping in their path and slowing down within 400 yards.

Responsible whale-watching groups have followed orca-friendly guidelines for years, said Monte Hughes, owner of Mystic Sea Charters in Anacortes, which runs whale-watching trips.

Hughes said police boats from many jurisdictions are in the water every day enforcing the current rules.

"There's many days out there we have more enforcement boats than we've had whale-watch boats," Hughes said.

Still, many boaters and whale-watching vessels violate the guidelines by getting close to the whales and stopping in their path, Barre said.

Significant to tribes

The orca has special significance to local tribes.

American Indians have called the whales the blackfish. The tribes have followed orcas to find salmon, said Ray Fryberg, director of fish and wildlife for the Tulalip Tribes. Often, the tribes place the orca and the eagle on top of totem poles to be lookouts for salmon.

According to one story, five brothers were able to find their way home to their village in the fog by jumping into the water and transforming into orcas, Fryberg said.

Fryberg met an orca face-to-face in British Columbia in 2004. Ambrose Maquinna, chief of the Mowachaht tribe, had said he wanted to return as an orca after he died. Shortly after the chief passed on, a previously unaccounted-for orca showed up, Fryberg said.

Fryberg was invited to a ceremony where tribal members called to the orca by venturing out in canoes and singing the chief's paddle song.

“He came at us just like a torpedo” and calmly stopped between the two canoes, Fryberg said. Fryberg and other tribal members placed their hands on the orca.

“I was eye-to-eye with that killer whale, he was making his vocal sound with me,” Fryberg said.

“I think that we particularly see the need for them to be protected, and our spiritual connection to them.”

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