

Porpoise

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found in the North Pacific and North Atlantic oceans. In many places the population is recognized in decline — around Switzerland and Denmark where other studies are being conducted, Jeffries said.

Canada has listed them as a Species of Special Concern. In Washington, they are a state candidate for listing as a Species of Concern by Fish and Wildlife.

Harbor porpoises are rarely longer than 5.5 feet and weigh less than 170 pounds, according to the Pacific Biodiversity Institute. They are dark gray to dark brown turning a lighter gray on their sides and belly. They feed on squid, herring, smelt and sand-lance, and live probably less than 20 years.

Harbor porpoises in Puget Sound, which do not migrate, are considered different from those in outlying waters by the National Oceanic and Atmospheric Administration, Jeffries said. The two do not mix and studies show they have different DNA.

Jeffries initially started her own land-based observations in December 2009. At first, she didn't even know if it could be done with any success.

Starting in March 2010 volunteers or citizen scientists were used to conduct more observations. They typically sit on a particular rock on a Washington Park bluff overlooking Burrows Pass — for hours at a time.

"They are so sweet about doing this," Jeffries said.

Many of the participants are WSU Skagit County Beach Watchers led by field assistant and volunteer coordinator Sue Ehlers.

"I'm getting outside and seeing what there is to see,"



SUBMITTED / PETER MORRISON

Harbor porpoises, seen here in Burrows Pass, are the subject of a study by Aileen Jeffries of the Pacific Biodiversity Institute, a nonprofit using science to enhance natural resource planning and management decisions.

Ehlers said of the project. "The more you watch the more you see."

Ehlers seems particularly impressed with Jeffries approaching the biological study with a physics background and the fact that such a study on the harbor porpoises has not been done in this area before.

'This is sort of a stronghold for the porpoise all over this area. We're here because they're here.'

Aileen Jeffries, research scientist

Last week, Ehlers was helping train 22 new observers who will join about seven active ones with volunteer trainer Sue Ann Gifford.

Gifford explained to the group how to watch for harbor porpoises and what data to record in the 10-minute increments.

"The main thing we're recording is boats and porpoises," Gifford said. "But there's other things we're

recording."

Observers use a sighting grid to mark off where they see harbor porpoises in the pass. They also documented weather conditions, strength of the riptide near the acoustic monitor and specific activity by the porpoises.

Particularly interesting is when a mom and calf are together, Gifford said. They tend to surface together and can look like one porpoise with two dorsal fins.

Observers are also to report immediately if they see a Dall's porpoise, which is similar in size to the harbor porpoise but has a white patch on its back. The reason is the two species can sound alike and therefore affect the acoustic data.

Part of the reason the pass is such a good place for the study is Dall's porpoises seldom if ever go through it, Jeffries said. Orcas are also rarely seen, though one humpback whale with a calf was spotted.

Jeffries began studying the use of acoustic monitors on marine mammals with hydrophones and C-PODs in 2007. She tried out both instruments in 2009 on Daisy, an orphan harbor porpoise being cared for by the Marine Mammal Rescue Center in Vancouver,

Harbor porpoise presentation

- 7 p.m. Friday, Anacortes Public Library, 1220 10th St.
- Research scientist Aileen Jeffries presents the natural history of the harbor porpoise. The presentation is co-sponsored by the Pacific Biodiversity Institute.
- For more information, contact Marnee Chua at (425) 948-7785 or go to www.pacificbio.org.

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The young porpoise was shy and at the same time a little rambunctious, knocking Jeffries' hydrophone off its stand and then swimming away like a kid would.

"You appreciate the animals more when you see that side of them," Jeffries said.

Harbor porpoise's sounds are inaudible to the human ear, which hears in the range of 20 to 20,000 hertz. The harbor porpoise communicates in the range of 120 to 150 kilohertz — much, much higher, Jeffries said.

Presumably it is so high that orcas, predators of harbor porpoises, cannot detect them.

"Orcas are top dog so they don't care who hears them," Jeffries said.

The porpoise's sound is

at such a high frequency, it comes out as clicks, she said. It works like sonar, sending out a pulse about 150,000 times per second, which enables them to echo-locate food.

The C-POD in Burrows Bay was first deployed in June 2011 with the first data retrieved in October. The instrument can collect data, recording it on a memory card, for up to four months without intervention.

Acoustic data so far has shown a much greater presence of harbor porpoises in the pass than expected, Jeffries said. Preliminary data indicates they are more present during the noon hour than they are around midnight. The early data also indicates they are much more likely to appear in the winter months than the summer. The land-based observations are showing the same patterns.

"We have been able to get surprisingly useful insights about the porpoises by comparing recordings from this device with observations from our team of volunteer observers," she said.

With the baseline she is creating, Jeffries aims to monitor the presence of harbor porpoises for population stability, determine trends in the population over time and identify areas important to the harbor porpoise.

Her main interest is long-term survival of the

species and actually doing something before they are endangered, she said. Too much conservation work starts after a species is close to extinction.

"We want to learn what they do before they are so stressed they can't recover," she said.

Many factors could have caused the population decline, but not enough information is known about the species to know for sure. Some possibilities are gillnet entanglement, loss of food supply, pollution, boat noise, naval testing, loss of habitat and human activities.

Their sensitivity to human activity is what drove Canada to list them as a special concern, Jeffries said.

Jeffries, who lives in Eastern Washington, spends about half her time in Anacortes. Through her career she's worked in physics, computers and modeling.

"This is what I do if I really get to choose," she said of the harbor porpoise study.

Why this area is such a stronghold for the harbor porpoise is not known, Jeffries said. However, she speculated that human impact here is less than a lot of places and forage fish are here.

"The porpoise follow the food," she said. "But who knows?"

Eventually Jeffries hopes to

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