Experts sleuth out what killed Puget Sound orca

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In this Feb. 11, 2012 file photo provided by the Seaside Aquarium, a team works on a dead killer whale after it washed ashore near Long Beach, Wash. Two months after the 3-year-old endangered orca washed ashore bloodied and bruised in Washington state, the cause of her death remains a mystery. Marine experts believe the female killer whale, known as L-112, died of massive blunt force trauma, but they're still examining evidence and waiting for tests of tissue samples to determine what caused that trauma. Some orca experts, however, suspect the injuries are linked to an underwater explosion or military training activity at sea. (AP Photo/Seaside Aquarium, Tiffany Boothe)

(AP) -- Two months after a 3-year-old endangered orca washed ashore bloodied and bruised in Washington state the cause of her death remains a mystery.

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Law enforcement officers with the National Oceanic and Atmospheric Administration last week began looking into the orca's death and are seeking information from the U.S. Navy and other sources about their activities as part of its investigation, said NOAA spokesman Brian Gorman. "So far, there haven't been any red flags," he said.

The Navy says it wasn't conducting activity off the coast in the weeks before Feb. 11, when the orca's 12-foot long carcass was discovered on Long Beach on Washington's southern coast.

The young female orca was a member of the "L" pod, one of three groups of federally-protected killer whales that frequent Puget Sound, whose population now stands at 86.

Conservations groups say her death represents a major reproductive loss for the marine mammals and, combined with recent naval sonar use in the region by the U.S. and Canada, underscores the need for stricter protections for the marine mammals. Last month, they urged the Navy to disclose all of its activities off the Oregon and Washington coast in the weeks before the whale washed ashore.

"There were no activities at all," said Navy spokesman Sheila Murray. "The Navy was doing nothing. ... If the Navy was doing an activity at the time, I think they would let the public know. There's so much speculation, and it's wrong."

Joe Gaydos, a wildlife veterinarian with SeaDoc Society who has been working with a team of experts to understand what killed the whale, said they're considering all possible scenarios, including a strike from another

animal, sonar activity, an explosion and other possibilities.

"Right now everything is on the table," he said, adding that "as scientists, we have to weigh all the evidence before we come to a conclusion."

Gaydos and a team of biologists dissected the orca's head and examined the skull and brain during a necropsy last month. They found no fractures of the skull or jaw, indicating that the trauma or the force was dispersed over a larger area and not likely caused by a boat strike. They also found hemorrhaging and bleeding in the back of the orca's head.

"When something is shaken up, you'll have trauma at multiple locations," Gaydos said.

Orca expert Ken Balcomb, however, is convinced the whale died from an explosion, which he believes is most likely from military training exercises at sea.

"I don't know who else has that powerful of an explosive device that they're setting off in whale habitat," said Balcomb, a senior scientist at the Center for Whale Research on San Juan Island who has studied the mammals for years. He suspects the extensive trauma found on the whale's head, chest and side are consistent with blast trauma. Balcomb observed the necropsy but is not directly involved in the examination being conducted by Gaydos, Washington state wildlife officials, Cascadia Research, the Makah tribe, Portland State University and others.

The whale's death comes at a tense time between conservationists and the Navy. Conservationists are suing in federal court over the Navy's use of sonar in the Northwest, saying the noise can harass and kill whales and other marine life and NOAA was wrong to approve the Navy's plan for increased training activities. The Navy for decades has been training

in the Northwest Training Range Complex, an area about 126,000 nautical square miles off the coast of Northern California, Oregon and Washington.

Several days before the whale turned up dead on the Washington coast, the Canadian Naval frigate HMSC Ottawa used sonar in Canadian and U.S. waters near Victoria, B.C., raising concerns about possible harm to marine mammals.

But federal officials studying wind, currents and tides during the two weeks before the orca washed ashore recently concluded the animal could not have been near British Columbia during that time.

"We are very confident that this animal died near the Columbia River or south of Long Beach and drifted north," Gorman said Tuesday. "It's highly unlikely that it died off the coast of B.C. and drifted south."

If the whale was on the coast, it's unlikely that she would have been near the Ottawa's sonar activity so far away, said Jason Wood, research associate at The Whale Museum at Friday Harbor, who has studied the effect of human sound on mammals. "But I don't know if there were other naval ships doing other things on the outer coast," he added.

Tissue samples collected from the whale are currently being analyzed under a microscope. Once that is done, the team of experts will have to figure out how to piece together all the evidence to determine what killed the orca, Gaydos said.

"We may never know," said Kristin Wilkinson, who works with NOAA and is coordinating the examination. "All we can do is to try to do all of our homework to see what potentially could have happened."

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