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RESEARCHERS HOPE 'CRITTERCAMS' WILL OFFER CLUES TO STELLER SEA LIONS' PREDATION BEHAVIOR IN COLUMBIA

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A recent experiment – the deployment of two so-called "Crittercams" -- could potentially lead to insights on the behavior of Steller sea lions that venture into the lower Columbia to feed on white sturgeon, salmon and other fish species.

The ever-evolving National Geographic video camera system early last week was placed between the shoulder blades of two of the big marine mammals that had been captured in floating traps at Bonneville Dam, where research is ongoing to evaluate the impact the predators have on fish.

The main focus of the trapping effort, led by the Oregon Department of Fish and Wildlife, is to capture and remove California sea lions that are known to prey on salmon and steelhead stocks that are listed under the Endangered Species Act. The removal authority was granted to the states of Idaho, Oregon and Washington via Section 120 of the Marine Mammal Protection Act.

The "eastern" Steller sea lion population is protected under both the ESA and MMPA, though NOAA Fisheries is set to announce by month's end whether the species will be dropped from the ESA threatened list.

The Stellers are being hazed below the dam as an attempt to reduce their predation on concentrations of fish there, but they are not eligible for lethal removal as are the California sea lions.

NOAA Fisheries began an ESA draft status review of the eastern population, which ranges from Alaska's Cape Suckling to California's Channel Islands, in June 2010 and soon thereafter received two petitions, one from the states of Washington and Oregon, and the other from the state of Alaska, asking the species be delisted.

That review was completed in March 2012 and showed the population had met recovery plan criteria. As a result the federal agency a month later proposed that the eastern population be delisted. Its final decision is expected with the next few weeks.

The western population, which ranges from Alaska as far as the Russian Pacific coast, will retain its endangered status.

The idea with last week Columbia River experiment was to test a possible new Crittercam wrinkle – a method developed by a Seattle company to allow the remote release of the cameras from their host animals so that the flotation-equipped video cameras can be retrieved on demand. The current versions use a timed release.

Unfortunately, the two animals didn't cooperate. The Steller sea lions were trapped and released early April 30. They were that night identified (via a VHF radio signal) downstream about 14 miles to a popular Steller hangout, Phoca Roca.

"We thought they were safely in the zone" were they could be tracked and the camera easily retrieved," said Kyler Abernathy, the National Geographic's director of research for Remote Imaging. The cameras have about 10 hours of memory, but can be programmed to stop and start.

"Then the animals with the Crittercams did a disappearing act on us," Abernathy said. There were no detections the following day in the area from Bonneville Dam (at about river mile 146) down to the Phoca Rock area.

A day later, still with no detections, the ODFW's Robin Brown suggested a trip further downstream, all the way to the river mouth. Brown leads the state agency's Marine Mammal Program.

A signal from one of the cameras was received there, somewhere off the seaward end of the South Jetty on the Oregon side of the river mouth. By that time the camera's preset release would have already been triggered.

"We never got a chance to use that," Abernathy said of the new remote release technology.

Then the signal was lost again. But fortunately the equipment is labeled, including contact information.

On Friday, May 3 National Geographic "got a call from a woman that found one of the Crittercams on the beach" just north of the Columbia River's mouth in Washington, Abernathy said. "It is potentially a happy ending."

Abernathy collected the camera and its memory card and headed back to his office in Washington, D.C. Little time has been devoted yet to review the video.

"I've only had a chance to lightly skim it," Abernathy said of the several hours of video. He noted that visibility in the Columbia River water was not the best, but the video still offers a view of the animal's travels.

The video will be shared with Columbia River researchers, including ODFW and its Washington counterparts. Also involved in sea lion research is the Columbia River Inter-Tribal Fish Commission and the U.S. Army Corps of Engineers, which operates Bonneville Dam, as well as NOAA's Fisheries Service.

National Geographic's research arm, and its grants program, funds "hypothesis-based scientific research" with an eye toward helping local problem solvers.

A review of the video should help local researchers decide if the Crittercam might be a useful tool for gathering information about the big sea lions' comings and goings, and predation, in the Columbia.

"It needs to be of research value," Abernathy said of data that could potentially be drawn from the video. That means that local researchers must decide if using such a tool is worth the time, effort and money.

"We'd probably be talking about next season" before any further tests of the equipment could conducted in the Columbia, Abernathy said.

The monitoring of sea lion behavior at Bonneville Dam could help in the evaluation of predation in the lower Columbia, which now relies almost exclusively on human observers charting predation that they see.

“I’d like to know how much they’re eating underwater,” said the Corps’ Robert Stansell, head of sea lion research project at the dam that has been ongoing since 2002. Stellers, the largest of all sea lion species, can likely gobble up a salmon or steelhead without surfacing. And after preying almost exclusively on white sturgeon during earlier years of the study (at least as far observers could see), the Stellers have shown a growing appetite for salmon.

“The game has changed,” Stansell said.

As of midweek, there was no sign of the second Crittercam. But there’s still hope. Abernathy said that in the past equipment has been found, and returned, years later.

The Crittercam is described by National Geographic as an “animal-borne research tool to record images, sound, and data from an animal's perspective.” It has been deployed mostly on marine mammals, such as whales, sharks, seals, turtles and penguins but also on land-based creatures as wild lions in Kenya.

In all, the system has been human researchers’ eye on the back of 67 different species around the world.

In addition to providing critical scientific data for basic biology and habitat management, Crittercam's unique perspective captures the imagination of television audiences. Shared through National Geographic films, the stories these images convey fuel public awareness of the extraordinary lives and challenges many marine species face, according to National Geographic’s web site.

These compact systems allow scientists to study animal behavior without interference by a human observer.

Crittercam was conceived in 1986 by marine biologist and filmmaker Greg Marshall. He now heads the Remote Imaging Program at National Geographic.

Marshall and his engineering team are constantly working to make Crittercam smaller, lighter, and more hydrodynamic.