

Satellite tracking will help answer questions about penguin travels

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The feathers of three Magellanic penguins blackened with oil, seen along Argentina's Atlantic coast in October 2005. Credit: Dee Boersma

You could understand if a half-dozen Magellanic penguins developed a "big bird is watching" phobia before this month is over, but the surveillance really will be for their own good.

University of Washington scientists will attach satellite tracking devices to the backs of six penguins that have been treated at two centers in northern Argentina after their feathers were fouled with oil. The birds will be released into the Atlantic Ocean and their movements traced using satellites and the Internet.

The idea is to plug a critical gap in the knowledge of the Magellanics' annual life cycle, their movements on the journey from their winter

feeding grounds back to their breeding colonies along the southern Argentina coast and the Islas Malvinas, or Falkland Islands.

"We're missing that information. We know what happens when they leave the breeding grounds but we don't know what happens on the return trip," said Elizabeth Skewgar, a University of Washington doctoral student in biology.

"We want to model the energy requirements for these birds so that we understand what it takes to return to the breeding grounds and still have enough energy to reproduce. Human fisheries competing for the same food could make migration even more difficult for them."

The project is led by Dee Boersma, a UW biology professor who for 25 years has headed the Magellanic Penguin Project at Punta Tombo, Argentina, the birds' largest breeding colony in South America.

"We need to know how penguins use the ocean so we can make their migration route safe through a combination of national marine parks, marine protected areas and ocean zoning," Boersma said.

During the week of Aug. 20, the scientists will select six adult male penguins from rehabilitation centers at San Clemente del Tuyu and Mar del Plata, coastal towns more than 500 miles north of Punta Tombo. Epoxy and special tape will be used to attach a transmitter to each bird before it is released into the Atlantic. The tags are about the size of many common cellular telephones and weigh less than 3.5 ounces.

"We want to put the transmitters on healthy, robust birds that we think are likely to get back and start breeding," Boersma said. "The point is to follow them back to their colony and see where they might be running into petroleum."

Through late October the birds' movements will be tracked by the Argos satellite system, operated by the National Oceanic and Atmospheric Administration and the French space agency. A satellite will pass overhead every two hours and chart the penguins' positions, then transmit the information back to the researchers, who will use it to update a public tracking map on the Internet at www.penguinstudies.org.

The transmitters will be active for 36 hours at a time and then will be off for 36 hours, a means of preserving the two double-A batteries in each transmitter for the life of the project. The researchers have no way of knowing whether the birds will go to southern Argentina or the Malvinas, or whether they will follow a straight course to the breeding grounds or take a circuitous route.

"After we release them, they could just hang out at Mar del Plata for a month. It's all up to them," Boersma said. "We're hoping the males we tag will be in a hurry to get to their colony and start breeding."

The satellite tracking also will be instrumental in pinpointing the birds after they arrive at the breeding grounds. Punta Tombo alone is home to some 400,000 penguins during breeding season.

"Tracking the locations by satellite is only accurate to within 5 kilometers, so it really is like trying to find a needle in a haystack," Boersma said.

Locating the penguins once they reach the breeding ground is important so the researchers can assess the birds' physical condition after the long journey.

"We'll know how much weight they gained or lost on their journey," Boersma said.

After its mate arrives, a male fasts until the female lays two eggs, then he returns to the ocean to feed, sometimes swimming hundreds of miles in search of fish such as anchovies that are staples of the penguin diet. After about two weeks the male returns to the nest to incubate the eggs while the female goes in search of food.

The birds' energy can be drastically sapped if they become coated with oil, and that can mean death. Last year, a team of scientists that included Boersma reported they had found 19 groups rehabilitating oiled seabirds along the Atlantic coast from central Brazil to central Argentina, indicating a much larger problem than generally had been believed. It remains uncertain where the oil comes from -- it could be from a combination of sources, including seepage from offshore oil rigs and ballast water from passing ships.

"We know that birds show up oiled back at our colony, so that means they're getting oiled somewhere between where they winter and Punta Tombo," Boersma said.

Source: University of Washington

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