

A Challenging Future for the Steller's Eider

by Susan Morse

Recovering a threatened species is never easy, but some challenges are particularly formidable. Try monitoring a migratory duck population across a vast, remote region with a notoriously harsh climate. Factor in unrestricted hunting in a nearby foreign country. Throw in a database in need of an update and tracking instruments that seem to make your animal more vulnerable to predators. On top of that, consider that your species is at high risk for a virus that threatens people as well as birds.

Those are just some of the challenges facing the Izembek National Wildlife Refuge, near the tip of the Alaska

Peninsula, in trying to recover a sea duck called the Steller's eider (*Polysticta stelleri*). The Alaska breeding population of Steller's eiders has been listed as threatened since 1997.

Steller's eiders have become scarcer in recent decades, nearly disappearing from their Alaskan nesting areas. Only an estimated 70,000 remain out of the 200,000 that once wintered along the Alaska Peninsula. New survival data, now being compiled, is not expected to change the picture.

No one knows why the drop has occurred, but researchers at Izembek are well situated to study the problem. Others joining them in trying to unravel the mystery include the U.S. Fish and Wildlife Service's Migratory Bird Management office in Anchorage, our Fairbanks field office, our Alaska Sea Life Center in Seward, and the Alaska Department of Fish and Game.

Since 1961, refuge biologists have captured and banded the birds during the fall when 20,000 or more arrive to molt in Izembek Lagoon. Students and volunteers help. The data generated provide wildlife managers with important population and survival rate information. Weather permitting, refuge staffers also conduct aerial surveys of birds wintering along the icy peninsula.

One theory for the eider's decline blames over-hunting in Siberia and other areas where some of the birds breed. The theory is based on a study showing male eiders have a lower survival rate than females. "Males arrive at molting areas before females...so males may take

Steller's eiders are herded into pens for banding at Izembek National Wildlife Refuge.



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the brunt of the hunting pressure,” says Izembek Refuge biologist Kristine Sowl.

Lead poisoning from the ingesting of lead shotgun pellets accumulated in breeding grounds may be another culprit. Lead poisoning is known to affect a related species, the spectacled eider, as well as other waterfowl. In the 1980s, the use of lead shot on national wildlife refuges was banned after it was implicated in the deaths of bald eagles that fed on poisoned waterfowl. A nationwide ban on lead shot for waterfowl hunting began in 1991.

Other possible threats cited in the Service’s 2002 Steller’s Eider Recovery Plan include exposure to oil and other contaminants; a drop in mussels, clams, and other marine invertebrates that eiders feed on; and collisions with fishing boats. But, as the plan notes, “the species’ marine ecology is poorly understood.”

Fifty Years of Data

In 2005, the Izembek Refuge launched a new database to boost research capability. The system now incorporates almost 50 years of banding data – information

that has become scattered in several Excel spreadsheets, hindering data compilation and analysis.

The improvement of data management is particularly noticeable, says Sowl, if you’re checking the history of a 20-year-old bird that’s gone through several individually numbered aluminum bands. When salt water corrodes a band, the bird gets a new one, weather permitting.

In the past, to follow a bird’s history, you had to know every band number it had. “With the new database,” explains Sowl, “you can plug in any of the band numbers, and up will pop the same bird, because it is identified with a unique number in the database. It doesn’t matter how many bands it’s had – you will always be able to find it. That has really simplified looking up capture histories.”

Refuge staff had also considered an additional step: putting the database online so other researchers could add their data. But the programmer died before achieving that goal and the refuge has yet to find his successor. Until recently the software program automatically exported banding-schedule data to the U.S. Geological Survey’s

Bird Banding Laboratory. Then the lab changed its software. So that’s one more item on the need-to-fix list.

There are also questions about how a road-building project approved by Congress earlier this year will impact Steller’s eiders. (The project is subject to the completion of an Environmental Impact Statement and a subsequent finding by the Secretary of the Interior that it is “in the public interest.”) Before building begins, biologists have several questions: What path do the eiders take in their night flights across the narrow peninsula? Will this path put them at risk of striking construction equipment? Will public use along this road change eider movements?

To find out, researchers have tried tracking the birds with portable transmitters. But they stopped when they found the transmitters – whether because of their weight or for other reasons – appeared to make the wintering birds more vulnerable to eagle predation. “Transmitters are wonderful tools, but you need the transmitters to match the bird,” says Sowl.

Izembek Refuge cooperates with other researchers monitoring the birds for avian flu. Steller’s eiders are considered at high risk of carrying the virus, which experts fear could jump from birds to humans and cause a pandemic. So far, Izembek’s eiders have come up clean. Eiders captured at nearby Nelson Lagoon have had some low-pathogenic virus, but not the high-pathogenic variety that’s of most concern.

Where does all this leave Izembek Refuge’s researchers? Worried, but determined to decode the eider’s mysteries and work around challenges as they find them.

“What we’re finding out,” says Sowl, “is that the eiders are more complicated than we thought they were going to be.”

Amber Wagner, an administrative technician at Izembek NWR, and maintenance worker Bill Pickett read and record an eider band.



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