Using Helicopters To Capture Molting Eiders

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Sea ducks are among the least understood of North American waterfowl. The Department of Natural Resources has been involved in a long-term program which has banded thousands of Common Eider hens on breeding colonies. This information has been critical in determining survival rates of the southern race of this species.

However, fewer than 230 adult males were banded over the same period (1970 -1995) throughout the range of the southern race. Funnel traps erected on intertidal flats have been effectively used in the Dutch Wadden Sea to capture large numbers of molting birds. (Common eider are flightless while molting their feathers.) Flocks of molting males discovered in 1993 off south-western Nova Scotia provided an opportunity to repeat their success.

Common Eider begin congregating in dispersed flocks in coastal waters off south-western Nova Scotia in July and remain until late August. Numbers have been estimated to be as high as 40,000 but vary between years with 25,000–30,000 occurring regularly. Flocks vary in size from less than 100 individuals to multiple thousands in waters ranging from 10 to 40 m (33 to 131 ft) deep. Birds congregate near coastal islands, submerged ledges, and open water 1-8 km (5 miles) off-shore.

Unsuccessful attempts to capture molting birds used techniques such as night-lighting and drives. Difficulty in locating the dispersed flocks at night, birds not leaving the water to roost on land while molting, and no intertidal flats or ledges upon which to locate funnel and drive traps hampered our efforts.

In 1997 we decided to apply the expertise our staff had gained in capturing White-tailed Deer with a CODA NETGUN and department helicopter (Hughes 500) to the capture of Common Eider. We modified the design of the net and its material, and attached an automatic inflatable life ring to one corner. The life ring provides a minimum 8 kg (17.5 lbs) of buoyancy to the net soon after it enters the water and prevents loss of the net if no birds are captured.

Banding Eiders

Capture and handling procedure

The capture and handling procedure is straight forward but requires trained and experienced personnel in the air and on the water. Once a flock of eider is selected, DNR's 7 m (23 ft) boat and 4 m (14 ft.) Zodiac approach on opposite sides of the flock. The boat operators are in radio contact with each other and the helicopter pilot. The pilot of the larger boat determines when an attempt is to be made. Once the flock is positioned into a tight but actively swimming group, the helicopter pilot is radioed to begin his approach.

The helicopter approaches low over the water, usually from out of the sun, and flares at approximately 5 to 7 m (16 to 23 ft) above the flock. The gunner makes the decision to fire or to pass for another attempt (background photo). If the shot is successful, the crew in the Zodiac will approach and retrieve the entangled birds. Depending upon the number of birds in the net, 2–3 additional shots may be made before processing the birds. The birds are returned to the larger boat where they are removed from the net, aged, sexed and banded before being released over the side. Some birds may be temporarily placed in holding cages while other birds are being handled (inset photo). Once all nets have been fired, the helicopter sets down on an island or a beach on the mainland and waits for the Zodiac crew to return the fired nets to be re-packed.

Our success

This technique has been used in 5 of the last 6 years to capture 1,407 adult molting Common Eider, of which 1.3 % (18) were females. While the maximum number of birds captured with a single shot is 77, numbers typically vary from 0 to 30. The mortality of birds using this technique is less than 1.4% (19 - male) of all birds captured.

A small number (6) of birds have been recaptured 2 (n=4), 3 (n=1), and 4 (n=1) years after banding in the same area off Lockport; and one adult male banded in 1999 was recaptured in 2002 within a molting flock off the coast of Maine. Recoveries to-date (n=27) of these released birds (n=1,382) have been reported from the coasts of Nova Scotia and Maine; and one male was harvested 2.5 years after banding along the north shore of the Gulf of St. Lawrence.

Program impact

Molting areas for the southern race of the Common Eider are not well documented. In addition to south-western Nova Scotia, they have been found along the coast of Maine, the north and south shores of the St. Lawrence River estuary, and the north shore of the Gulf of St. Lawrence. The recapture of a molting male along the coast of Maine three years after its banding in Nova Scotia suggests movement between molting sites does occur.

Coupled with monitoring the numbers of molting birds at traditional sites throughout the Common Eider's range, banding programs could quickly provide sufficient numbers of marked birds to determine survival estimates for adult males, affinity to traditional molt sites, and abundance. With our banding program, DNR is playing a key role in the management of this waterfowl species.