

Monitoring Harlequin Ducks at Acadia

By Glen Mittlehauser and Judy Hazen

The south end of Isle au Haut, part of Acadia National Park (ACAD) off the coast of Maine (see map), harbors the largest wintering population of harlequin ducks (*Histrionicus histrionicus*) in the western Atlantic. This area has been used by harlequins every winter for over 100 years (Palmer 1949) yet little is known about their ecology. Declines have been noted recently in Atlantic Canada (Goudie, 1988), but population trends in the Gulf of Maine are unknown. Harlequins in the Gulf of Maine have not been extensively studied, partially because of the inaccessibility of their wintering grounds.

Through a cooperative agreement between the NPS North Atlantic Region's Office of Scientific Study and the College of the Atlantic, a study was undertaken to provide baseline data on the population status of harlequin ducks wintering along the coastline of Isle au Haut. Results will be used to monitor future population trends and determine the importance of Isle au Haut in the wintering ecology of these ducks.

Harlequin Duck Biology

Harlequin ducks inhabit the northern hemisphere in both the Atlantic and Pacific Oceans. The population in the Pacific numbers close to 1 million birds while the population in the Atlantic may not exceed 4,000. A majority of the harlequins in the Atlantic, about 3,000, breed and winter in Iceland. The other population, made up of less than 1,000 individuals (Vickery 1988) breeds in Labrador and winters from Newfoundland south to the Gulf of Maine, with concentrations at Cape St. Mary's Newfoundland, and Isle au Haut, Maine. This population is believed to have been much larger in the early 1800s (Goudie 1989). Declines in the Atlantic population were noted before the turn of the century (Knight, 1897). Even then, biologists warned of extinction of this species in the western Atlantic. Although the harlequin was not extirpated as the years passed, the population never recovered to previous levels as did other waterfowl species in the Atlantic. Recently, declines have been noted in the Cape St. Mary's wintering group. In Canada, an extensive hunter education program has been initiated and harlequins are protected. These ducks are currently on Maine's "watch list" of possibly endangered fauna, but still are hunted.

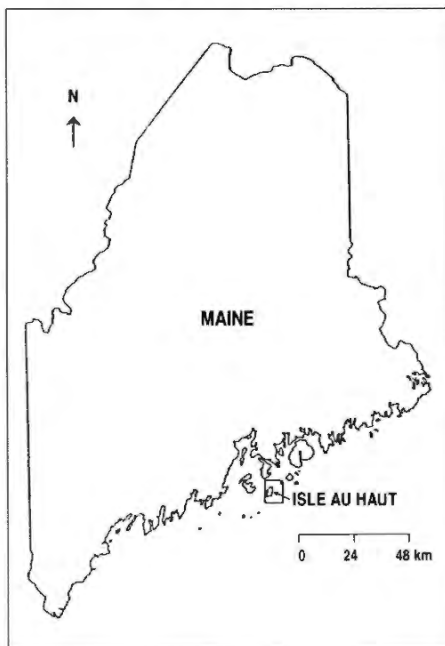
Monitoring Methodology

A series of shoreline and boat surveys was conducted along the south shore of Isle au Haut and around nearby islands. Eight shoreline surveys were conducted bimonthly from December 1988 to March 1989. Harlequin numbers were tallied by walking 19 kilometers of shoreline on the south end of Isle au Haut. Three surveys from a boat were conducted during the same time period, and included a group of small islands approximately 2 kilometers to the east of Isle au Haut. By slowly circling the islands in calm seas, using care not to frighten and flush the birds, observers using binoculars recorded counts.

In addition to these censuses, observations from a series of blinds were made, to investigate harlequin duck behavior with reference to the species' wintering ecology. Observations were made throughout daylight hours and activity budgets were determined.

Findings

Over 350 harlequin ducks winter off the south shore of Isle au Haut and the small islands to the east. This is



nearly double previous estimates for the area. This estimate probably does not represent a population increase but rather represents more intensive census techniques. Because of Isle au Haut's inaccessibility and challenging winter weather conditions, all previous surveys had been by boat or plane. Females slightly outnumbered males (1.2:1.0). The March shoreline survey showed about 11 percent of the population to be immatures.

Harlequin ducks fed 68 percent of the time observed, an estimation similar to a previous study in Newfoundland (Goudie and Ankney, 1986). Herring gulls were commonly seen stealing food brought to the surface by harlequins. Only large food items that took some time to swallow were targeted by the gulls. Although harlequins did not consistently associate with other species, they were seen occasionally with large



Atlantic harlequin duck, a beautiful and possibly increasingly rare species.

flocks of feeding common eider (*Somateria mollissima*) and black scoter (*Melanitta nigra*).

Implications for Management

This study provided baseline data on the current population of harlequin ducks near Isle au Haut. Despite challenging field conditions, shoreline surveys were shown to be feasible if combined with boat surveys to cover all ledges and small islands used by harlequins. Of course, additional data would provide more confident population counts. A closely coordinated comparison of survey techniques also would provide information useful in formulating a long term monitoring strategy. Other areas in the Gulf of Maine also should be censused regularly.

As with many preliminary studies, this one raises as many questions as it answers. What is the critical factor that makes the Isle au Haut area so attractive to harlequin ducks? If it is the remote nature of the Islands, managers must be careful to regulate increasing winter use, which would be disruptive to the birds. Because the area is important for feeding, degradation of water quality and habitat from contaminants such as oil must be avoided, and the study area should be a priority for protection should a spill occur.

What effect does hunting have on the Isle au Haut population? Under current Maine law, harlequins may be hunted from the waters surrounding Isle au Haut. Future census data may indicate the need for protection through a program of hunter education and restrictions on the taking of harlequin ducks. Although harlequins are not favored targets of hunters, some birds may be shot by mistake or by bird carvers and artists who want study skins. Canadian wildlife officials may be able to provide information on the effectiveness of their education program and hunting restrictions in harlequin protection.

Management of harlequin ducks will depend on a cooperative approach between local, state, federal, and Canadian agencies. The situation calls for development of a good communication network leading to joint evaluation of future research needs, and development of strategies for protection of this rare and beautiful bird.

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