

Pre-dusk rafting flights of wintering Goldeneyes and other diving ducks in the Province of Quebec

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Since 1956 observations have been made on a wintering population of American Goldeneyes *Bucephala clangula* inhabiting a portion of the St. Lawrence River near Montreal, Quebec. Periodic counts since 1963 gave totals of some 1,200 to 2,900 birds. Smaller numbers of Goosanders (Common Mergansers) *Mergus merganser*, Black Ducks *Anas rubripes* and Mallards *A. platyrhynchos* also winter in these waters kept free of permanent ice by fast river currents.

During daylight hours the Goldeneyes and Goosanders are widely dispersed over the available open water but as dusk approaches they fly, singly or in small flocks, to a gathering site in the lee of a small island near the upstream extremity of the ice free portion of the river (Figure 1). As darkness falls the ducks crowd still closer, forming a very dense raft in the form of a spoon (similar to that described by Linsell 1969) with the broadest portion of the flock towards the upstream edge.

Pre-dusk gathering of Goldeneyes during the winter occurs in England (King 1961; Linsell 1969) and in the central United States (Breckenridge 1953).

In Britain the birds generally swim to the rafting site, but this gathering does not occur until mid-February and becomes most pronounced in March (Linsell 1969). In Minnesota, as in the present study area, night rafts are formed from December through March, with the birds flying to the gathering site (Breckenridge 1953). The studies of Breckenridge and Linsell suggest that British Goldeneyes congregate at an earlier time of day than their Minnesota counterparts; peak arrival of birds in the former area occurs prior to sunset; in the latter most birds arrive after sunset. On average, arrival times in my study area correspond with those from Minnesota. There is, however, some indication that arrivals occur earlier (in relation to sunset) as the season progresses (Figure 2); data recorded on 9th March 1971 showed that a substantial proportion of the flock congregated before sunset, more or less corresponding with the British situation at this period.

It has recently been found that American Goldeneyes and Buffleheads *Bucephala albeola* also perform rafting flights in the St. Lawrence Estuary near the

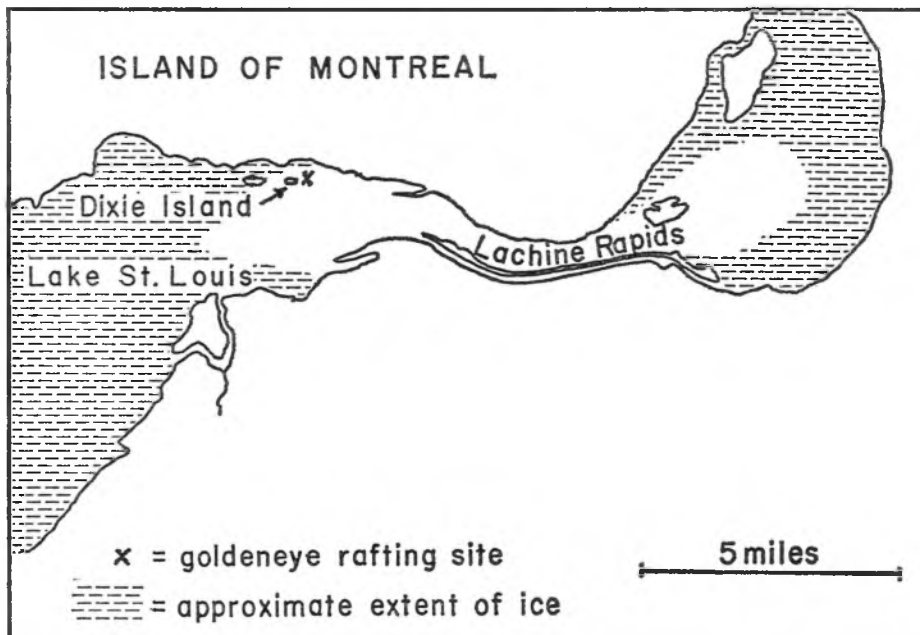


Figure 1. The St. Lawrence River south of Montreal, Quebec.

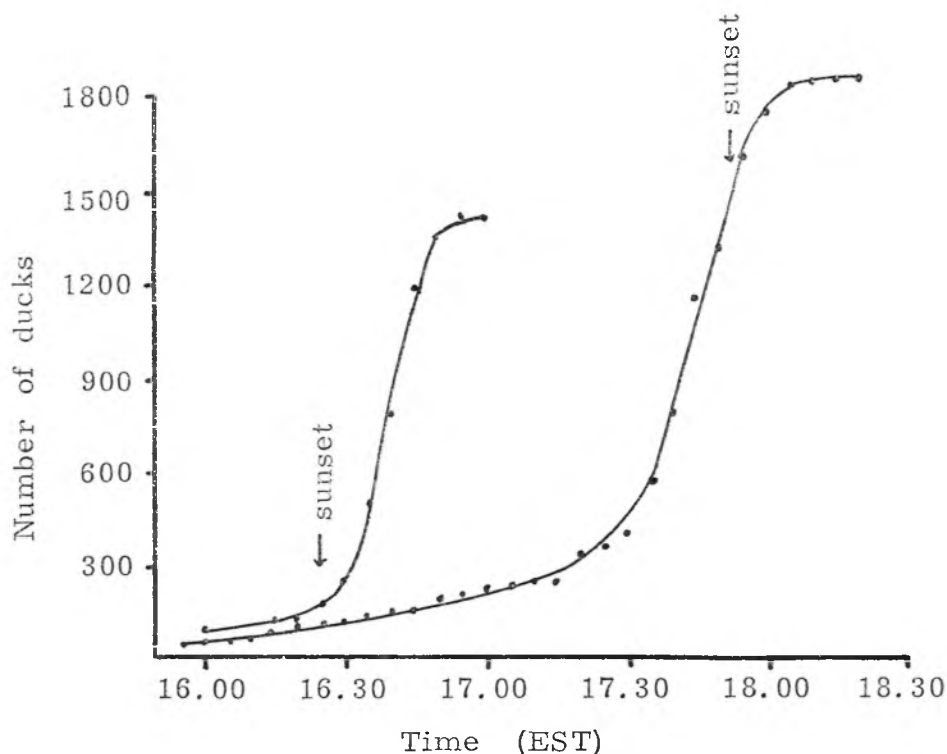


Figure 2. Cumulative build-up of diving ducks (mostly Goldeneyes) at rafting sites near Dixie Island, Quebec, on 6th January (left hand line) and 9th March (right hand line) 1971. Saguenay River mouth. Pre-dusk gathering of Goosanders and Buffleheads has not been previously reported, but has for Pochards *Aythya ferina* and Tufted Duck *A. fuligula* (King 1961).

Pre-dusk flights of Goosanders have proven harder to study as that species forms only a small part of the rafting birds and dim light has often prevented accurate species identification. However, of the 1,839 birds recorded on 9th March 1971 (Figure 2) it was confidently estimated that 103 were Goosanders; their cumulative numbers built up in linear fashion with no apparent peak of arrivals.

The ecological significance of these daily movements by Goldeneyes and other diving ducks is not at once evident from the few published reports. Goldeneyes in the Montreal area, however, seem clearly to be taking advantage of various features of the environment which permit them to conserve energy: rafted in the lee of the island they are sheltered from

the dominant winds, from drifting ice and from the stronger currents which prevail elsewhere. The closeness of the rafted birds may provide a measure of heat conservation. Conceivably a similar reduction in energy loss could be attained by climbing ashore and huddling on stationary ice (as other species of ducks often do) but Goldeneyes are remarkably clumsy on ice and rarely climb out of water during winter. By rafting on open water they gain additional protection from ground predators.

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References

- BRECKENRIDGE, W. J. 1953. Night rafting of American Goldeneyes on the Mississippi River. *Auk* 70 : 201-4.
- KING, B. 1961. Pre-dusk gathering of Goldeneye. *Wildfowl Trust Ann. Rep.* 12 : 166.
- LINSELL, S. E. 1969. Pre-dusk and nocturnal behaviour of Goldeneye, with notes on population composition. *Wildfowl* 20 : 75-77.

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