Step Outside:
Your Guide to Nature's Events

Nature Guides

Diving Ducks: Why the Decline?

Mid-October

Featured Species: Greater and Lesser Scaup

The Greater Scaup has now joined the Lesser Scaup (which has been here since early September) stopping-over on some of our larger lakes en route to wintering grounds. The two scaups look very similar (Greater on the left and Lesser on the right), with small differences in head size and bill shape (Greater Scaup has a rounder head and broader bill). Males in their winter plumage are quite different from the dramatic black, grey and white of breeding season. Females have a browner plumage with a light patch above the bill. Scaups are diving ducks and in fact, the Lesser Scaup has the largest population of diving ducks in North America.

However, something has been happening to scaup populations. Since 1978, the population of Greater and Lesser Scaup has dropped from 6 million to 3.5 million, as of 2007. Together with 3 species of scoters (Surf, Black, and White-winged Scoter), Greater and Lesser Scaup are the only common species of North American ducks to show losses in population since 1987. Trying to find out why is a fascinating study in how science works, and how, of course, all things are connected. Here are just some of the key points from a Ducks Unlimited summary article, *The Great Scaup Mystery*:

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- Large numbers of scaup now stop during migrations to feed on invasive Zebra Mussels in the Great Lakes. Zebra Mussels concentrate a number of toxins, including selenium, which in large quantities could deform or kill developing ducklings or cause health problems in adults. Initial studies showed that scaup indeed accumulated selenium from eating Zebra Mussels. Promising.
- However, later breeding ground studies conducted in the western boreal forest and parklands found that selenium concentrations in scaup eggs were below critical levels and that most eggs under observation hatched. Moreover, females on the breeding grounds also had much lower concentrations of selenium in their bodies than those sampled from wintering and staging areas. Why?
- In a captive study, breeding females quickly eliminated much of the selenium in their bodies once they were no longer fed contaminated food. Because the breeding grounds are generally thought not to be contaminated with selenium, birds with high levels in their body on staging areas likely will reach normal levels by the time they lay eggs. Therefore, it seems unlikely that selenium is causing problems for breeding scaup. But there is still uncertainty about whether it is causing some birds not to reach the breeding grounds, or not to breed when they get there, particularly birds that winter in contaminated areas.
- Attention then turned to the breeding grounds, and scientists discovered an alarming trend. Wetlands in the

northern boreal forest of both Alaska and Siberia were disappearing—quite literally being drained away in some cases. These wetland losses have been linked to climate change, which is thought to be melting the permafrost seal. This seal holds water in many wetlands and lakes, and without it, water drains into the soil over time. Indeed, at several important scaup breeding areas in Alaska, 25 percent of wetlands have disappeared since 1950, mostly in the last 20 years. This habitat change has not been investigated in the heartland of scaup breeding in Canada, but could be occurring there as well.

- Some wetlands aren't disappearing because of climate change but are warming up earlier in the spring and getting hotter in summer. Research suggests this change has caused shifts in the types and numbers of aquatic invertebrates in these wetlands, including a reduction in those that female scaup and ducklings prefer to eat. The potential implications are that less food and a poorer quality diet could cause ducklings to grow slower and could delay wing feather development of post-breeding females and young, reducing survival on the southward migration.

Obviously the scaup story is not finished, and these are definitely birds to watch. You can do so by following the migration patterns of transmitter-fitted birds.

Other Happenings:

- According to Ontario Parks' Fall Colour Report, we're at peak in Algonquin, and at or approaching it in most of the rest of the province except the southwest. Get out and observe what's happening to the leaves in your schoolyard (see Featured Process from Early October). Trees that are stubbornly green may be non-native, and still tied to the day-length patterns of their native bioregions (e.g. Norway Maple, Common Buckthorn).
- Northern Saw-whet Owls are migrating through the area, and we get to band these small owls as part of a research study at Trent University to find out more about habitat use and migration patterns. Fine netting is set up at night in a diamond pattern, with a tape recorder playing owl calls in the middle. Nets are checked every half-hour, and any birds untangled, weighed, measured and banded. One bird banded at our site near Bobcaygeon turned up in Port Hope, 60 km south, only 2.5 hours later. The little guy averaged 24 km/hr.! Other interesting individuals were ones that came from distant locations such as Wisconsin, Manitoba, Virginia and Thunder Bay. On October 7 of this year, 5 owls were caught.
- Common Goldeneye and Bufflehead Ducks, Rough-legged Hawks and even Golden Eaglesare arriving, while Turkey Vultures, Cooper's Hawks and Eastern Meadowlarks are leaving. Our hummingbird feeder isn't going down any more, so our Ruby-throated male, who guarded the thing passionately all summer, has also taken his leave. Yellow-rumped Warblers, however, are still flitting around our trees.
- Right now, you may still hear some buzzing, though – mosquitos of the genus *Culex* are still somewhat active. These mosquitos overwinter as adults, and need a blood meal to get them through the winter. Any donors out there?
- Something invisible, but quite remarkable and important, is going on in our lakes right now. As the surface water cools, it approaches the temperature of the deeper water. These two water bodies, kept separate since spring by their temperature differences, can now mix in what's called the fall turnover, which brings oxygen to the depths and nutrients to the shallows. Turnover will continue until ice over, when no more oxygen will be available until spring melt.

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