

Two Common Loons flying with open bills in Toronto on 27 May 2013.
Photo by Garth Riley



Common Loons Flying with Open Bills

By Jean Iron

RECENTLY I BECAME AWARE that Common Loons often fly with their bills open. In late May 2014, at the Whimbrel Watch in Toronto, we observed large numbers of northbound migrating Common Loons and decided to count them. See Table 1. We were surprised that every Common Loon we consciously watched was flying with its bill open. On 27 May, we counted 181 Common Loons and all had their bills open. It was then that I realized the significance of our observations.

Wondering why they fly with open bills and how frequent it is, I checked the literature but found very little information. For example, in the Birds of North America Online, a photo shows a breeding-plumaged Common Loon flying with its bill open with no reference in the text to this behaviour. However, a Google internet search produced some positive results, and several birders who watch loons responded to my request for sightings.

Frequency

"Characteristic" is how several websites and books describe loons flying with their bills open. Dave Martin and Linda Wladarski have been counting migrating Common Loons on Lake Erie at Port Stanley for many years. Dave reported: "we see lots, if not most, flying with their beaks open."

John Carley also counts Common Loons on northbound migration from his home overlooking the Humber River in Toronto and noticed some flying with open bills.

Ron Tozer has observed Common Loons flying with their bills open on several occasions in Algonquin Park, but it is infrequent. Most sightings were during the breeding season, and are probably mainly adults returning to their home territorial lake after visiting another lake to feed. He rarely sees loons that are obviously migrating.

Behrens and Cox (2013) describe the Common Loon's bill as often held open in flight, particularly on warm days, a distinctive trait that is surprisingly obvious, and a photo depicting one with its bill open is on page 253.

Two Explanations

There are two explanations why Common Loons fly with bills open: 1. to intake more fresh air and 2. to thermoregulate or keep their body temperature stable.

1. Intake more fresh air to power their body in flight

Donald Collins at Warren Wilson College in North Carolina proposes that Common Loons fly with their mouths open to increase intake of air to their lungs in order to power their bodies in flight.

Common Loons are heavy-bodied with many dense bones such as the long bones, whereas most birds have hollow bones (*Hinterland Who's Who*; Michigan Department of Natural Resources). Their wings are short relative to the length and weight of their bodies. In order to lift such a heavy body into the air, loons require a long runway up to 200 metres, preferably heading into the wind. Their wings beat rapidly up to 250 times a minute and their feet patter along the top of the water to gain enough speed for take-off. Once airborne, their strong swift flight reaches 120 km/h during migration (Evers *et al.* 2010). Because they do not soar or glide like other large birds, Common Loons must flap their wings continuously to remain aloft. Heavy bones reduce buoyancy and are a perfect adaptation for diving, but add weight for take-off and flight.

Consider also the demands of take-off and flight on the lungs of Common Loons. Birds have different lung physiology from mammals. "To provide more efficient absorption of oxygen to satisfy the large energy demands for flight, the air passes through birds' lungs in only one direction. In contrast mammals have a "tidal" in-out breathing mechanism — the air exits the lungs through the same bronchial tube through which the air enters." (Collins 2011).

Table 1. Dates, numbers, mean temperature and watch time of Common Loons at Colonel Sam Smith Park in Toronto.

Date 2014	No. Common Loons	Mean Temperature	Times
May 22	54	15.6*	5:45 a.m. - 2:00 p.m.
May 23	12	13.7	5:45 a.m. - 2:00 p.m.
May 24	18	17.5*	5:45 a.m. - 2:00 p.m.
May 25	25	19.1*	5:45 a.m. - 2:00 p.m.
May 26	83	20.2	5:30 a.m. - 3:30 p.m.
May 27	181	18.3	5:30 a.m. - 12 noon
May 28	26	15.1	5:45 a.m. - 12 noon
May 29	3	13.1	
May 30	5	16.9	

Temperature source: Government of Canada Daily Data Report for Toronto Island Airport. * Indicates Toronto Pearson Airport.

In this way, birds, including Common Loons, always have a continuous supply of fresh air.

2. Thermoregulation

Ken Abraham referred me to Graham Scott, professor of Comparative & Evolutionary Physiology at McMaster University in Hamilton, Ontario. "It is possible that Common Loons open their mouths to breath more for gas exchange, just like we do when running, but it could also be useful for getting rid of heat. Birds will pant to rid heat by evaporative cooling when they get hot, and they have to keep their mouths open while doing so in order for all the moist surfaces to be exposed to the rapid flow of air. This wouldn't work while breathing through the nose, because there are extremely effective counter-current exchangers in the nasal passages that minimize heat and water loss."

Common Loons are often seen on the nest with their bills open. "The open mouth and breathing heavily on the nest is a way for the loon to control body temperature while incubating the eggs, in the same way that a dog or cat will "pant" during warmer temperatures." (Minnesota Bound). On a hot day, Michael Runtz observed a loon flying with an open bill at Presqu'île Provincial Park, "trying to cool down its flight engine?"

Discussion

Both reasons why loons hold their bills open seem valid depending on the circumstances. Because of the demands of a long strenuous flight migrating Common Loons probably fly with open bills more so than those on breeding territory where they take shorter

flights between lakes. Also, they may get hot in spite of cool air temperatures. Regulating body temperature is a physiological challenge for all migratory birds, and their strategies for maintaining body temperature are manifested in various ways.

Behrens and Cox (2013) reported from East Coast seawatches that when Common Loons migrate on warm days they often "pant" with open bills. There is a relationship between warm temperatures and Common Loons flying with their bills open, but do they need to thermoregulate in this way when it is cooler? Most loons we saw leaving Lake Ontario in late May were migrating in cool morning air temperatures, and lake waters were still cold. On 11 August 2014 on James Bay, I observed a Common Loon flying with its bill open and noted that the temperature was about 14°C. In Iceland

in early July 2015, I watched a Common Loon flying with its bill open when the temperature was about 12°C.

Summary

After learning about how heavy Common Loons are and the energy demands of flight and migration, and observing them do this in cool temperatures, it is understandable why Common Loons fly with their bills open. Dave Martin (pers. comm.) sums it up well, "for maximum air intake to power their strong flights."

If you too wondered why Common Loons fly with their bills open, I hope my short article has stimulated your interest in this flight strategy. It appears not to be a well-studied aspect of Common Loon flight. Follow-up observations in the fall, on the breeding grounds and wintering grounds relative to the air and water temperatures may give more insights into this behaviour. Please watch for this behaviour and report your results to me. Email: jean.iron@sympatico.ca

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Sources/Links

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