

ANNUAL CHRONOLOGY AND NESTING SUCCESS OF COMMON LOONS ON ANVIL LAKE, CORTES ISLAND, BRITISH COLUMBIA, 1984-2007

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The call of the loon, along with the howling of wolves, is the most evocative of Canadian wilderness sounds. When my wife Aileen and I first arrived on our property on Cortes Island, the place we call Swamp's Edge, near the northern end of Georgia Strait, British Columbia, we were thrilled to discover that Common Loons (*Gavia immer*) were present on the lake that borders our land. We fell under the spell of the powerful lift and quaver of their song and were transported by the feeling of untamable romance their voices communicated. To this day, 30 years later, the call will stop us in mid-sentence, often to the mild consternation of visiting friends, for whom we wish nothing more than to experience the moment as deeply and joyfully as we once did.

Anvil Lake, located on the south end of Cortes Island (50° 06' 00" N, 124° 59' 00" W), must look inviting from the air, attracting broody pairs of loons year after year. It has an unobstructed surface of 12 has. Several suitable nest sites for loons are found along the shore such as moss-covered floating logs and old beaver works with sedges growing on the weave of sticks and mud (Figure 1). The depth of the lake is between four and six m, as evidenced by the nearly emergent growth of *Potamogeton praelongus*, a pondweed growing to a maximum length of six m. Its seasonally fluctuating surface level is approximately seven meters above sea level. The shore is steep to moderately steep, supporting a dense second growth of mixed conifers, with a few veteran Douglas-firs (*Pseudotsuga menziesii*) and standing snags. Access is difficult, and only a few people swim in the lake during the summer months. During recent winters, thin skeins of ice formed for short periods of time, while a couple of decades ago we occasionally could ski across the lake.

Three-spined Sticklebacks (*Gasterosteus aculeatus*) and Prickly Sculpins (*Cottus asper*;



Figure 1. Anvil Lake, BC. showing potential Common Loon nest site on floating islet. 27 May 2007 (Christian W. Gronau). BC Photo 3525.

Figure 2) make up the ichthyofauna. No attempts to stock the lake with trout have been made because suitable spawning areas are not present. The lake is contained in its own small watershed, there are no feeder streams, and the run-off has been dammed by American Beavers (*Castor canadensis*) creating a relatively stagnant body of water.

A summary of annual events for a pair of loons spanning two decades from a secluded lake in southern coastal British Columbia has not previously been published. The loons on Anvil Lake show local changes in arrival and departure times, the significance of traditional nest sites, and an incredible resilience to years of unsuccessful nesting attempts. Also, there is no other long-term occurrence and breeding dataset for any coastal lake in British Columbia (Campbell et al. 1990).



Figure 2. Prickly Sculpin collected at Anvil Lake, BC. 18 July 2007 (Christian W. Gronau).

Table 1. Early, late, and average arrival and departure dates for the Common Loon on Anvil Lake, British Columbia, 1984-2007. The average date was calculated by using Julian days (1 Jan = 1; 31 Dec = 365) and then back-converting to a Gregorian (modern) calendar date.

Spring Arrival				Autumn Departure			
Years ¹	Early	Late	Average	Years ¹	Early	Late	Average
20	13 Mar	9 Apr	26 Mar	23	8 Aug	7 Sep	24 Aug

¹Total years with data.

Annual Chronology

My wife and I have recorded the arrival and departure dates for Common Loons on Anvil Lake for the last 20 years. Their spring arrival and late summer departure might be within +/- a few days as the birds are not very conspicuous when they first appear and tend to be silent. Their departure can be a gradual affair, with our sight-records for the last days being of birds in flight over the lake. Our observations seem to indicate that the pair-bond between mated loons weakens as nesting attempts are repeatedly foiled. By late July and through their stay in August only one bird may be present on the lake. It is important to note that while our dates for the loons' departure from Anvil Lake all fall into August and September, other loon families with immature, though fully fledged, young have been observed in saltwater bays as early as the middle of July.

Loons arrive sometime from about mid-March through the first week of April and depart from early August to early September. Earliest and latest arrival dates over the two and a half decades were 13 March and 9 April while the earliest and latest departure dates were 8 August and 7 September (Table 1). The annual difference ranged over 28 days in spring arrival and 31 days in autumn departure. On average, loons arrive in late March and depart in late August (Table 1).

The average spring arrival date by decade changed from 19 March in the 1980s to 1 April in the 2000s, a difference of 14 days (Table 2). This is unusual, as trends for many species throughout British Columbia are showing earlier arrival dates. In autumn, average departure dates by decade suggest a similar pattern, although the 1990s is the decade with the most complete dataset. Changes in spring migration times may be associated with changes in climate, whereas autumn departures may be more affected by extent and timing of unsuccessful nestings (see below).

Table 2. Average spring arrival and autumn departure dates, and length of stay, for the Common Loon on Anvil Lake, BC., 1984-2007. Dates are the average for the decade. The average date was calculated by using Julian days (1 Jan = 1; 31 Dec = 365) and then back-converting to a Gregorian (modern) calendar date.

Decade	Arrival Date	Departure Date	Days
1980-1989	19 Mar	26 Aug	161
1990-1999	22 Mar	31 Aug	162
2000-2007	1 Apr	15 Aug	136

Table 3. Shortest, longest, and average length of stay for the Common Loon on Anvil Lake, BC., 1984-2007.

Total Years ¹	Length of Stay (days)		
	Shortest	Longest	Average
18	124	172	152

¹Total years with data

The average length of time Common Loons visited Anvil Lake each decade decreased during the period 1984 to 2007. Through the 1980s and 1990s the length of stay remained constant but during the 2000s the period of residency decreased by 26 days (Table 2). Again, this change in pattern may reflect continued unsuccessful nestings.

The length of stay for Common Loons on Anvil Lake ranged from 124 days (in 2005) to 172 days (in 1992) with an average of 152 days over 18 years with complete data (Table 3).

Nesting

For us, the meaning of the loon's call has changed from the romantic to the melancholic. Our journal entries, noting the presence of loons on Anvil Lake, are regularly followed by a record for Bald Eagles (*Haliaeetus leucocephalus*): the loons' calls are almost always in response to the flight of the raptor across the lake, driving the loons from their nest. One summer afternoon, lured by incessant calling, we went to a cliff overlooking the lake. We observed 15 Bald Eagles in the trees along the shore! The pair of loons were paddling around in the centre of the lake, driven there (and off their nest) by the threat of so many raptors. Losing our "disinterested observer status" comes easy, and our sympathies for the loons take over.

Not once, in the 30 years we lived as their neighbours, has a pair of loons succeeded in raising young on Anvil Lake. On 21 May 1983, we observed and photographed a single egg in a nest on a small floating, sedge-covered island (Figure 3); by the 26th it was gone, the nest torn up. On 7 June 2001, we observed and video-taped a mature Bald Eagle feeding on a dead adult Common Loon (Figure 4).

In many lakes popular with summer vacationers and boaters, human disturbance is the major factor contributing to lack of nesting success of Common Loons. However, at Anvil Lake the chief cause appears to be constant harassment by Bald Eagles. Bald Eagles are known to prey on Common Loon



Figure 3. Common Loon nest with egg photographed on 21 May 1983 on Anvil Lake, BC. A week later the nest was torn up and nesting was abandoned (Christian W. Gronau). BC Photo 3526.

chicks (e.g., Paruk et al 1999), attack incubating adult loons (e.g., McIntyre and Barr 1997, Vlietstra and Paruk 1997), predate nests (e.g., Meyer 2005), and sometimes kill adult loons (e.g., McIntyre 1988, this paper). The long-term impact of Bald Eagle harassment and predation on the breeding success of Common Loons, as has occurred at Anvil Lake, is unknown, and locally can be devastating.



Figure 4. Harrassment and predation by Bald Eagles at Anvil Lake, BC. has resulted in lack of reproductive success for nesting Common Loons for the past two decades. 7 June 2001 (Christian W. Gronau). BC Photo 3527.

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About the Author

Christian studied paleontology in Germany and worked as a geologist in the Great Bear Lake area in the Northwest Territories, where he also met his wife Aileen. They are naturalists who have lived for 30 years off-the-grid on Cortes Island where they operate a small, strictly beach-based shellfish farm.

“It is that range of biodiversity that we must care for - the whole thing - rather than just one or two stars.”

David Attenborough