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Author(s): Luke R Halpin, Jeffrey A Seminoff, and Gavin F Hanke

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FIRST PHOTOGRAPHIC EVIDENCE OF A LOGGERHEAD SEA TURTLE (*CARETTA CARETTA*) IN BRITISH COLUMBIA

LUKE R HALPIN, JEFFREY A SEMINOFF, AND GAVIN F HANKE

ABSTRACT—On 22 February 2015, a single specimen of *Caretta caretta* was identified in surface waters about 45 nm west of Tofino, British Columbia. The animal's carapace was covered with algae, but the specimen was identified based on shell shape, head size, and the color of its parietal and interparietal scales. This record confirms that 4 sea turtle species range into British Columbia's coastal waters.

Key words: Canada, *Caretta caretta*, Cheloniidae, cold stunning, first record, Loggerhead Sea Turtle, North Pacific

Marine turtles such as the Green Sea Turtle (*Chelonia mydas*) are known to stray north into British Columbian and Alaskan waters during periods of warming (Carl 1955; McAlpine and others 2002, 2004, 2007; Matsuda and others 2006), especially during el Niño events. Occasionally, individuals remain in cold BC waters into late autumn and these individuals tend to strand either dead or incapacitated, likely as a result of hypothermia (Witherington and Ehrhart 1989) (also see cold stunning as described by McAlpine and others 2007). Additional *C. mydas* have been found since the synopsis by McAlpine and others (2007), but their appearance is sporadic. Leatherback Sea Turtles (*Dermochelys coriacea*) are also known along the entire British Columbia coastline and offshore, north to the Gulf of Alaska (Matsuda and others 2006; McAlpine and others 2007; Spaven and others 2009). Prior to the recovery of an Olive Ridley Sea Turtle (*Lepidochelys olivacea*) in British Columbia in 2011, only *C. mydas* and *D. coriacea* were known from BC waters with certainty, and researchers relied on anecdotal information to suggest that *L. olivacea* and the Loggerhead Sea Turtle (*Caretta caretta*) pass through British Columbian coastal waters. A forthcoming publication will detail the discovery of *L. olivacea* in British Columbia.

According to Hodge and Wing (2000), McAlpine and others (2004), and Matsuda and others (2006), *C. caretta* has been recorded twice in the Gulf of Alaska and south off the coast of

Washington State. McAlpine and others (2004) suggested the species would at some point appear in British Columbia. In the Atlantic Ocean, *C. caretta* is known to stray north along the east coast of Canada off the edge of the continental shelf (McAlpine and others 2007), but in this paper we present the 1st photographic record of a live specimen along the west coast of Canada in British Columbian waters.

The 1st author (LRH) observed a putative *C. caretta* (Fig. 1), on 22 February 2015, 45 nm west of Tofino, BC (UTM: Zone 9, 654560 E, 5392824 N, WGS84), during pelagic seabird and marine mammal research aboard the Canadian Coast Guard ship *John P Tully*. The turtle was initially spotted with binoculars, and was floating at the surface approximately 300 m from the ship. The specimen, estimated at $\frac{3}{5}$ m long (from snout to tip of shell) with a significant layer of algal growth on its head and carapace, submerged after the ship approached. Sea surface temperature in the area was between 10.5° and 10.8°C (Marie Robert, Fisheries and Oceans Canada (DFO), pers. comm.).

The turtle had a large head and broad heart-shaped carapace with the widest part of the carapace skewed to the anterior $\frac{1}{5}$ (Fig. 1). The individual's head was large (approximately $\frac{1}{4}$ of overall body width) and triangular in shape; both characteristics are more consistent in Loggerhead Sea Turtles than in any other species (Pritchard and Mortimer 2000). The carapace shape compared closely to that of either *C. caretta* or *L. olivacea*. The turtle's carapace (Fig. 2A, Fig. 2B) also had a prominent peak running along the midline like that of a sub-adult *C. caretta*. In transverse section, the carapace of adult *L. olivacea* is fairly flat across the midline (Richardson 1997), as is a comparable sub-adult specimen of *L. olivacea* with a 70-cm carapace (Royal British Columbia Museum herpetology specimen 2065).

The color and distribution of the carapace scutes could not be determined due to the amount of algal growth (Fig. 1, Fig. 2). However,

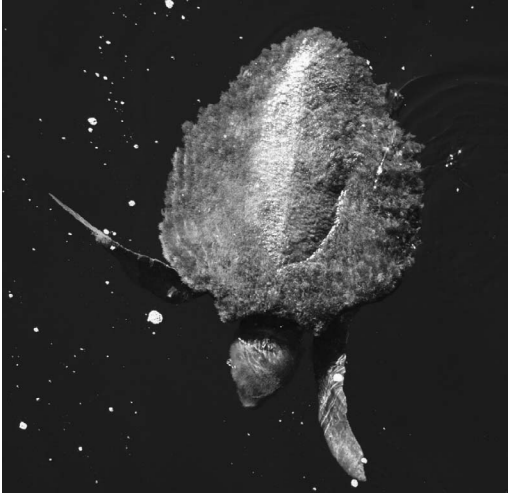


FIGURE 1. Photograph of the Loggerhead Sea Turtle (*Caretta caretta*) found on 22 February 2015, 45 nm west of Tofino, British Columbia (UTM: Zone 9, 654560 E, 5392824 N, WGS84). Photo by L Halpin.

we determined that there were 4 parietal scales and an interparietal scale, which lacked algal cover and were a red-brown color with lighter cream to yellow margins (Fig. 2B). The combination of red-brown color, and the 4 parietal scales and interparietal scale is consistent with *C. caretta* (Matsuda and others 2006; Lee and others 2014), rather than with *L. olivacea* or *C. mydas*. The scales on the nape of *L. olivacea* are grey-olive, yellow-brown to olive-brown (Stebbins 1985; Matsuda and others 2006), and the margins of the large scales on the nape are far less conspicuous. *Chelonia mydas* tend to have 2 large sub-rectangular parietal scales and no interparietal scale.

Based on shape of the carapace, relative head size, the color and pattern of parietal scales, and the prominent interparietal scale, we concluded that this individual was the 1st confirmed *C. caretta* for Canadian Pacific waters.

Caretta caretta has a cosmopolitan distribution throughout temperate, subtropical, and tropical waters of the Atlantic, Pacific, and Indian Oceans. In the North Pacific, the species nests almost exclusively in Japan (Kamezaki and others 2003). Upon hatching, *C. caretta* carry out an extensive developmental migration, traveling from nesting areas in Japan to distant developmental and foraging habitats in the central and eastern North Pacific (Bowen and others 1995; Kobayashi and others 2008). After spending years foraging in these regions, *C. caretta* return to their natal nesting beaches in Japan for reproduction and remain in the western Pacific for the remainder of their life cycle (Nichols and others 2000; Kamezaki and others 2003).

Caretta caretta is listed globally as Vulnerable by the IUCN Red List of Threatened Species, with the North Pacific population listed as of Least Concern (Casale and Tucker 2017). In Canada, *C. caretta* is listed as Endangered under the Federal Species at Risk Act, but no status is afforded to Pacific populations. In the United States, *C. caretta* in the North Pacific is considered a distinct population segment (DPS) and is listed as Endangered under the US Endangered Species Act (Federal Register 2011).

The presence of *C. caretta* in British Columbia increases the province's marine turtle diversity to 4 species. As suspected for *C. mydas* and *L. olivacea*, this individual may have

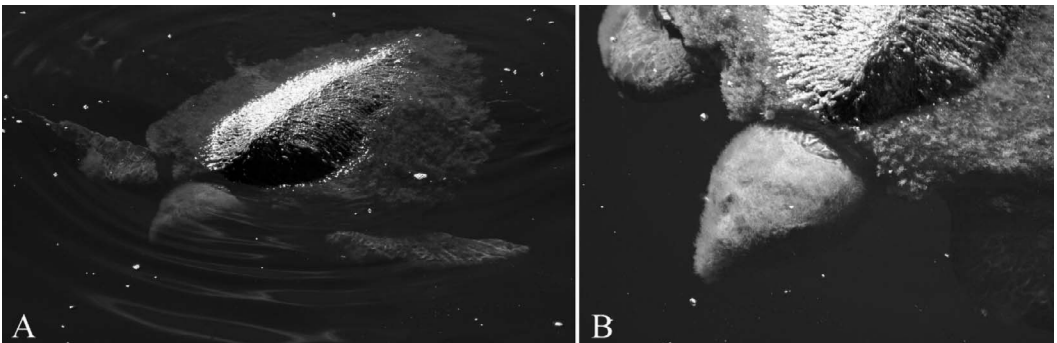


FIGURE 2. Photographs of the Loggerhead Sea Turtle (*Caretta caretta*) showing (A) the midline ridge along the carapace, and (B) scales on the nape. Photos by L Halpin.

strayed north in a plume of warm water, subsequently becoming stranded in 10°C water in which it was likely unable to thermoregulate and suffered from “cold stunning”. Most sea turtles wash onshore dead or moribund in autumn to early winter. The survival of this animal into February is unusual, and its fate is unknown.

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- Halpin Wildlife Research, Vancouver, BC V6G 1J3 Canada; Current address: School of Biological Sciences, Monash University, VIC 3800, Australia (LRH), Luke.Halpin@gmail.com; Southwest Fisheries Science Center, NOAA - National Marine Fisheries Service, 8901 La Jolla Shores Drive, La Jolla, CA 92037 USA (JAS); Royal British Columbia Museum, 675 Belleville Street, Victoria, BC V8W 9W2 Canada (GFH). Submitted 17 October 2017, accepted 9 November 2017. Corresponding Editor: Robert Hoffman.*