

The First Swordfish (*Xiphias gladius*) Recorded in Coastal British Columbia

Author(s): Luke R Halpin, Moira Galbraith, and Ken H Morgan

Source: *Northwestern Naturalist*, 99(1):63-65.

Published By: Society for Northwestern Vertebrate Biology

<https://doi.org/10.1898/NWN17-25.1>

URL: <http://www.bioone.org/doi/full/10.1898/NWN17-25.1>

BioOne (www.bioone.org) is a nonprofit, online aggregation of core research in the biological, ecological, and environmental sciences. BioOne provides a sustainable online platform for over 170 journals and books published by nonprofit societies, associations, museums, institutions, and presses.

Your use of this PDF, the BioOne Web site, and all posted and associated content indicates your acceptance of BioOne's Terms of Use, available at www.bioone.org/page/terms_of_use.

Usage of BioOne content is strictly limited to personal, educational, and non-commercial use. Commercial inquiries or rights and permissions requests should be directed to the individual publisher as copyright holder.

THE FIRST SWORDFISH (*XIPHIAS GLADIUS*) RECORDED IN COASTAL BRITISH COLUMBIA

LUKE R HALPIN, MOIRA GALBRAITH, AND KEN H MORGAN

ABSTRACT—We report the 2nd occurrence of a warm water teleost predator, Swordfish (*Xiphias gladius*), in Canadian Pacific waters, and the first seen in coastal waters of British Columbia. A Swordfish was observed on 5 September 2017 approximately 20 nm (37 km) from the Brooks Peninsula, Vancouver Island, British Columbia (UTM: Zone 9, 560062 E, 5526365 N, WGS84) in above average water temperatures.

Key words: British Columbia, new records, Swordfish, *Xiphias gladius*

The Swordfish (*Xiphias gladius*) is a large and distinctive actinopterygian fish with a long and flattened sword-like bill. It is the only species in the family Xiphiidae. The unique morphology of the Swordfish makes it easy to distinguish from other pelagic fishes. The upper jaw is elongated and extends into a sword-like bill, the dorsal fin is tall and falcate, and the caudal fin is crescentic. In fully grown adults, scales and teeth are absent and no lateral line is visible along the body (Nakamura 1985). The body is long and cylindrical, gradually tapering toward 2 large anal fins that the fish uses, along with its tall dorsal fin, for efficient travel (Nakamura 1985). The upperparts of the Swordfish are blackish-brown and fade into light-brown or grey on the underside (Nakamura 1985). Swordfishes are found in all tropical, subtropical, and temperate oceans of the world from the surface to depths of at least 610 m (2000 ft; Taylor and Murphy 1992), but are generally found above the thermocline, preferring temperatures of 18–24°C (Collette 1995). Acoustic tracking indicates Swordfish make some diel movements from deeper waters during the daytime and into mixed surface water at night, which is likely in response to vertical movements of prey (Holts 2001). Swordfish are often fished commercially (Markaida and Hochberg 2005). In the eastern Pacific, Swordfish are reported to range from about 50°N to 35°S (Lobell 1947; Nakamura 1985). In winter months, Swordfish are known to be restricted to warmer waters, but in the summer they are found over a wider area, generally with

only larger fish venturing into waters below 18°C (Palko and others 1981).

On 5 September 2017 at 13:34, LR Halpin observed and photographed a Swordfish (Fig. 1) swimming at the surface at approximately 20 nm (37 km) west of the Brooks Peninsula, Vancouver Island, British Columbia (UTM: Zone 9, 560062 E, 5526365 N, WGS84). The Swordfish was encountered during pelagic seabird and marine mammal surveys from aboard the Canadian Coast Guard ship *John P Tully*. The fish was initially spotted about 75 m from the ship, its dorsal and caudal fin projecting above the surface. The observer estimated its length to be approximately 3 to 4 m. The fish appeared to be swimming very slowly against the current. Sea surface temperature in the area off the west coast of Vancouver Island, as recorded by the CCGS *John P Tully* science crew, was between 1.5 to 2.5°C above the average expected temperature for September. Sea surface temperature at the time and location of the sighting, as recorded by the CCGS *John P Tully* at a depth of 4.5 m was 16.9°C. The average sea surface water temperature in September 2017 in the 0–10 m depth range in the region of the sighting was 16.5°C, and 15.1°C in the 10–20 m depth range (LaPerouse Zooplankton Monitoring Program: cruise 2017-09). The region's anomalous warm temperature in September was confined to the upper 20 m with a steep thermocline below 20 m. It is presumed that the Swordfish was travelling in the anomalous warm upper-surface waters that originate from the equatorial oceanic waters to the southwest of Vancouver Island.

The only other Swordfish recorded in Canadian Pacific waters (reportedly captured within the Canadian Exclusive Economic Zone) was caught far offshore by the M/V *Tomii Maru #88* as gillnet bycatch (catch location UTM: Zone 9, 345904 E, 5273880 N, WGS84) on 8 August 1983 (Sloan 1984; Peden and Jamieson 1988) during a joint Canadian-Japanese test fishery for oceanic squid (Sloan 1984). Parts of this specimen (the tail and bill) were partially preserved by the



FIGURE 1. First record of a Swordfish (*Xiphias gladius*) observed in coastal British Columbia. This individual was approximately 3 to 4 m in length, photographed approximately 20 nm west of the Brooks Peninsula, Vancouver Island, BC, on 5 September 2017. Photo: Luke Halpin.

Royal British Columbia Museum (BCPM 983-1730-001). The Swordfish found near the British Columbia coast on 5 September 2017, was not captured.

Acknowledgements.—We thank the Captain and crew of the CCGS *John P Tully*, Marie Robert (Fisheries and Oceans Canada), Gavin Hanke (Royal British Columbia Museum), and John Holmes (Fisheries and Oceans Canada). We thank Dr Milton Love (University of California, Santa Barbara) for pre-reviewing this manuscript.

LITERATURE CITED

- COLLETTE BB. 1995. Xiphiidae. *Peces espada*. Guia FAO para Identificación de Especies para los Fines de la Pesca. Pacifico Centro-Oriental. In: Fischer W, Krupp F, Schneider W, Sommer C, Carpenter KE, Niem V, editors. FAO, Rome 3:1651–1652.
- HOLTS D. 2001. Swordfish. In: Leet WS, Dewees CM, Klingbeil R, Larson EJ, editors. California's living marine resources: A status report. Sacramento, CA: California Department of Fish and Game. p 322–324.
- LOBELL MJ. 1947. The fisheries of Chile, present status and future possibilities (United States Fisheries Mission to Chile). US Department of the Interior, Fish and Wildlife Service. p 14–20.
- MARKAIDA U, HOCHBERG FG. 2005. Cephalopods in the diet of Swordfish (*Xiphias gladius*) caught off the west coast of Baja California, Mexico. *Pacific Science*, 59: 25–41. DOI: 10.1353/psc.2005.0011.
- NAKAMURA I. 1985. FAO species catalogue. Vol.5. Billfishes of the world. An annotated and illustrated catalogue of marlins, sailfishes, spearfishes and Swordfishes known to date. FAO Fisheries Synopsis No. 125, Volume 5. 65 p.
- PALCO BJ, BEARDSLEY GL, RICHARDS WJ. 1981. Synopsis of the biology of the Swordfish, *Xiphias gladius* Linnaeus. NOAA Technical Report. 441 p.
- PEDEN AE, JAMIESON GS. 1988. New distributional records of marine fishes off Washington, British Columbia and Alaska. *Canadian Field-Naturalist* 102:491–494.
- SLOAN NA. 1984. Canadian-Japanese experimental fishery for oceanic squid off British Columbia, summer 1983. *Canadian Industry Report of Fisheries and Aquatic Sciences* 152. 42 p.
- TAYLOR RG, MURPHY MD. 1992. Reproductive biology of the Swordfish *Xiphias gladius* in the Straits of Florida and adjacent waters. *Fishery Bulletin* 90:809–816.

Halpin Wildlife Research, Vancouver, BC V6G 1J3 Canada; Current address: School of Biological Sciences, Monash University, VIC 3800, Australia (LRH), luke.halpin@gmail.com; Fisheries and Oceans Canada, Institute of Ocean Sciences, 9860 West Saanich Road, PO Box 6000, Sidney, BC V8L 4B2 Canada (MG, KHM). Submitted 16 October 2017, accepted 9 November 2017. Corresponding Editor: Robert Hoffman.