

Short Note

Observations of Killer Whale (*Orcinus orca*) Attacks on Bryde's Whales (*Balaenoptera edeni*) in the Galápagos Islands

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Killer whales (*Orcinus orca*) are one of the most extensively distributed marine mammals worldwide (Ford, 2002). This species of toothed cetacean is a well-known apex predator and carnivore, affecting food webs under top-down control with predictable effects at the base of the marine trophic chain (Estes et al., 1998). At present, three lineage ecotypes have been described in the northeastern Pacific: (1) the piscivorous “resident” killer whales; (2) mammal-eating “transient” killer whales; and (3) the poorly known “offshore” ecotype, which preys upon fish, including sharks (Bigg et al., 1990; Ford et al., 1998; Saulitis et al., 2000; Ford, 2002).

Killer whale attacks on baleen whales, including minke (*Balaenoptera acutorostrata*) and grey (*Eschrichtius robustus*) whales, have been well documented in the eastern North Pacific Ocean and other regions of the world (Ford et al., 2005; Ford & Reeves, 2008). Pitman et al. (2001) also reported predation on large toothed cetaceans such as sperm whales (*Physeter macrocephalus*). Silber et al. (1990) detailed one of the first accounts of killer whales attacking, killing, and feeding on a Bryde's whale (*B. edeni*) in the northern Gulf of California, Mexico.

Although the Bryde's whale is one of the most common baleen whales observed in Galápagos waters, the species is listed as nationally “Near Threatened” in marine waters off Ecuador by the International Union for Conservation of Nature (IUCN) (Alava et al., 2011a). This cetacean is a mesopredator strongly associated with the major nucleus of upwelling coupled with the Cromwell

current. A total of 316 sightings of Bryde's whales, with an average group size of 1.6 individuals, was recorded from 1973 to 2000 (Palacios & Salazar 2002). The relative abundance of this baleen whale was estimated as 500 individuals within the Galápagos Marine Reserve waters (Alava, 2009), and it might well represent an important source of food and energy for killer whales in this tropical region.

The aim of this note is to describe a successful attack by a group of killer whales on a Bryde's whale in the Galápagos Islands, Ecuador, with a description of their attack behavior. We also present information related to a resighting of one of the killer whales involved in the attack off the coast of Ecuador. To our understanding, there is no photo documentation on killer whale attacks on Bryde's whales in the existing literature for the equatorial Pacific region.

We analyzed a set of eight pictures provided to the first author (JJA) by R. Butler in December 2008. G. Merlen confirmed that R. Wenrick took these photographs on 26 July 2003, who granted permission to the authors for use. The exact location of the predatory event occurred in the Bolívar Channel, a passage located in offshore waters between Fernandina and Isabela Islands (00°12' S–91°25' W and 00°19' S–91°20' W, respectively) in the western region of the Galápagos Archipelago. West of Isabela Island is one of the most productive upwelling areas in the eastern tropical Pacific, and rorquals are frequently sighted there throughout the year (Alarcón, 2012; Denkinge et al., 2013), with Bryde's whales the