
Bryde's whale sighting in coastal waters of Karnataka

Balaenoptera edeni (Anderson, 1879) is a widely distributed tropical marine mammal species belonging to the family Balaenopteridae. They are found in tropical, subtropical, and warm temperate waters worldwide, where temperature ranges between 16°C and 23°C. Bryde's whales inhabit all oceans between 40° south and 40° north. Some populations migrate seasonally, moving away from the equator in summer and returning toward it in winter. In contrast, other populations are residents and remain in the same area year-round without migrating. They are considered one of the "great whales," a group that also includes,

Blue Whales and Humpback Whales. Originally, *B. edeni* and *B. brydei* were classified as separate species (Wada *et al.*, 2003). However, recent scientific consensus recognizes Bryde's whale as a single species with two subspecies (Ren *et al.*, 2022). Bryde's Whales are distributed across the Indian Ocean, but sightings in Indian waters are uncommon (Sathasivam, 2004) and often documented through stranding reports. Under the Marine Mammal Stock Assessment in India (MMSAI) project we started the marine mammal survey of the Karnataka coast on 13th December 2023 from Mangalore coast. The survey was conducted using a 22m

OAL commercial fishing vessel with four research crew members on board, following a linear transect methodology for visual survey. Surveys were conducted following six predefined line transects each of 12 nautical miles (NM) in length, situated at an interval of 24 NM throughout the Karnataka coast. On December 16th, around 16:30 IST, while conducting the sixth and final transect along the coast of Karwar, Karnataka (Latitude: 14° 52.922' N, Longitude: 73° 53.705' E), we observed a whale blow on the starboard side of the boat. Upon closer observation, we identified a pod of three whales (two adults and one sub-adult). The observation was



made 12 NM from the coast at a depth of 28-30 m. The adult whales were approximately 10-11 m in length, while the sub-adult measured around 6-7 m. The whales were identified as Bryde's whales (*Balaenoptera edeni*) based on their counter-shaded coloration, which transitions from smoky grey on the dorsal side to white on the ventral side. Identification was further confirmed by the presence of three prominent ridges running from the anterior blowholes along the dorsal surface of the head, as well as a pointed, strongly hooked dorsal fin positioned about two-thirds of the way along the back of the. From the initial cue, the sighting was sustained for 60

minutes, observing the behaviour of the individuals. All three whales exhibited uniform breathing patterns, performing apneustic breathing to secure more time underwater. The breathing tailed a long deep dive for an average of four minutes followed by three to four instant breathings with an average time interval of 15 seconds. During each deep dive, they did not display their flukes, a characteristic commonly observed in Bryde's whales. We followed the animals through the visual observation of the whale's footprint. During our observation of about 50 minutes, the whales were showing behavioural states including slow swimming, semi-breaching, and tactile communication.

All the individuals maintained a minimal distance between them while moving. Water samples were collected from the site to measure water quality and conduct plankton analysis. The water temperature at the site was measured as 29°C, salinity at 34.7 PSU, pH at 8.1, and dissolved oxygen (DO) at 5.82 mg/L. Initial analysis of the water sample revealed a clear abundance of mesozooplankton. Zooplankton density observed at the site was 3030.16 nos/m³, with appendicularia as the dominant group comprising of 1521.44 nos/m³.

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