

SIGHTINGS OF HUMPBACK WHALES ON THE VITÓRIA-TRINDADE CHAIN AND AROUND TRINDADE ISLAND, BRAZIL

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The Trindade and Martim Vaz islands belong to an archipelago located 1,140 km east of Vitória, Espírito Santo State, Brazil, in the Southern Atlantic Ocean. The archipelago consists of six islands of which Trindade (20°30'S and 29°18'W), with an area of 10.1 km², is the largest and Martim Vaz, with an area of 0.3 km², the second in size. The archipelago has a total area of 10.4 km² (4.0 sq mi). Its isolation on the ocean surface makes it difficult to perceive that it is part of the Vitória-Trindade Alignment, a great E-W submarine volcanic chain. The volcano lies on the ocean floor at a depth of about 5,500 m. Other volcanic constructions belonging to this alignment between Trindade-Martim Vaz and the coast have been completely eroded by the sea, and leveled down to 100 m depth. They are the guyots, usually called banks, but the islands, probably due to prolonged volcanic activity, are still high above the ocean surface. The Trindade island platform has a limited area, the width varying between 800 and 3,000 m (ALMEIDA, 2002).

In the Southwest Atlantic Ocean the winter breeding ground of *M. novaeangliae* is located on the north-eastern coast of Brazil, on the Abrolhos Bank (16°55'S, 38°50'W) and in its surroundings (ZARBINI et al., 2004). The Abrolhos Bank, with its shallow (0-50 m), warm waters (23°C) protected from the prevailing NE winds and covered with coral communities, provides an ideal breeding habitat for humpback whales (SICILIANO, 1995). Studies conducted in the Abrolhos breeding ground, north-eastern Brazil, indicate that humpbacks inhabit that region from June to January, with peaks between

August and October (MARTINS et al., 2001). Antarctic feeding activity extends from November to at least April (STONE; HAMMER, 1988; SECCHI et al., 2001). Additionally, occasional sightings have been reported in the Fernando de Noronha Archipelago (~3°S) and off southern and south-eastern Brazil (e.g. LODI, 1994; PIZZORNO et al., 1998). Reported 16 sightings of humpback whales off Trindade Is. and in the surrounding area between 1984 and 1994. The group composition of the whales sighted by this author included: singletons, mother-calf, mother-calf and escort and trios. Further, the possibility of the Trindade and Martin Vaz archipelago being one of the destinations of humpback whales wintering off Brazil was discussed.

In this note we report on two sets of opportunistic sightings of humpback whales off the south-east coast of Brazil between 2003 and 2007. Sightings were made onboard a longline fishing boat operating along the Vitória-Trindade Chain from 27 October to 10 November 2003. A second set of sightings was collected during a trip to Trindade Is. from July to August 2007. Observations of humpback whale groups during 2007 were made from cliff-top vantage points on the mainland. Whenever possible, a description of the general behavior of the whales was recorded *ad libitum*.

Twelve sightings of groups of humpback whales were made during the longline fishing trip carried out in 2003 along the Vitória-Trindade chain (Fig. 1; Table 1). It is suggested that the region may be an important migratory corridor for *M. novaeangliae* to use the Abrolhos archipelago as a breeding ground.

On the other hand, previous studies have also suggested that the humpback population that breeds in Brazilian waters has increased in recent decades and the area used to breed has expanded as well (FREITAS et al., 2004; ANDRIOLO et al., 2006; ROSSI-SANTOS et al., 2008).

During one of the 2003 voyages whale groups were twice observed moving across an immersed longline fishery operation. Whales may become entangled in this fishing gear, commonly used in the Vitória-Trindade chain, as has been observed elsewhere in the world (CASSOFF et al., 2011). Seven sightings of humpback groups were recorded in July-August 2007 near Trindade Is. by observation from the mainland. Additionally, previous data from S (1997; n=16) and Townsend (1935; n=01) were considered in this work for the spatial and group composition analysis (Fig. 1, Table 1). A total of 24 sightings of whale groups were recorded around Trindade Is. Mother-calf pairs were sighted on five

different occasions, representing 20.8% of the all the recordings made of whales' group around the Island, (excluding the 2003 sightings on the Vitória-Trindade chain). New projects are needed to study the habitat use, group composition and behavior of the whales that visit this oceanic region. The sightings around Trindade Is. were of solitary individuals or pairs. Aerial behavior such as pectoral fin waving, tail slapping, and breaching were observed during seven of the sightings.

Townsend's (1935) classic whale charts, which illustrate where American open-boat (pre-modern) whalers took sperm, humpback, right and bowhead whales worldwide, evidence few catches of humpback whales off Trindade. Reports of humpback whales relating to 1984, 1993 and 1994 were the first evidence of the presence of the species off Trindade in recent decades. This author also discussed the probable origin of these whales and their connection with other major breeding grounds.

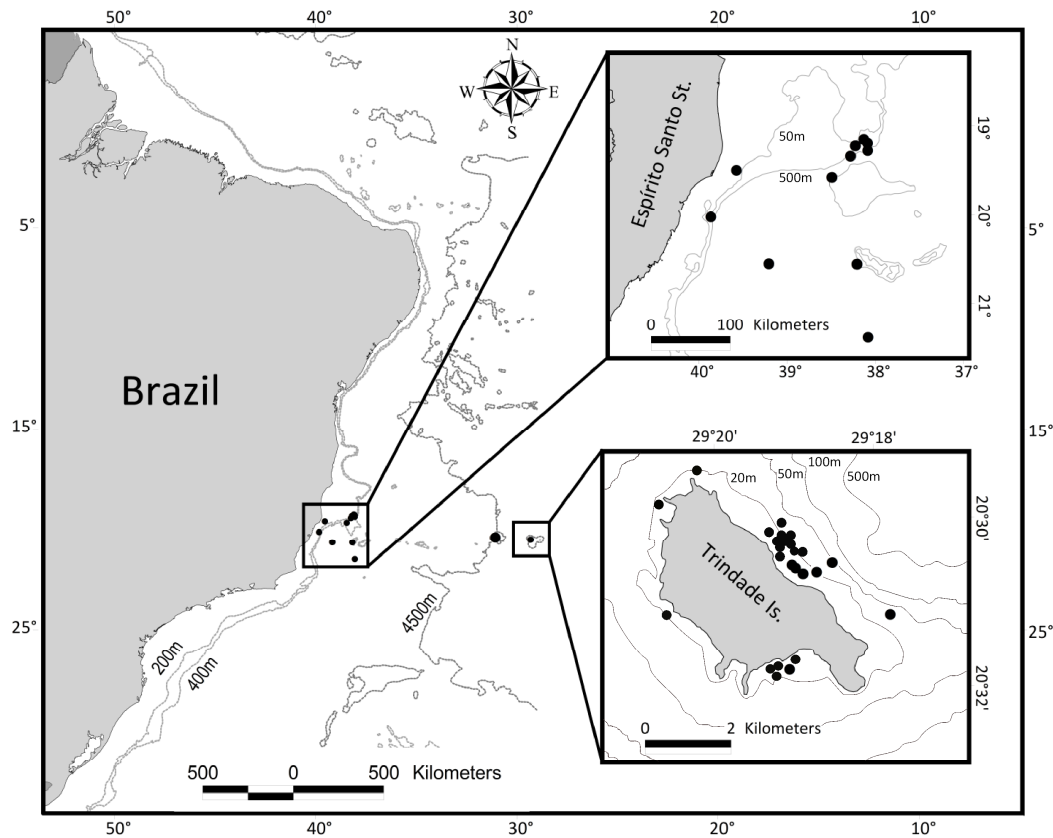


Fig. 1. Sightings of humpback whale groups during a longline fishing trip along Vitória-Trindade chain (2003) and around Trindade Island (2007), Brazil.

Table 1. Sightings of humpback whales on the Vitória-Trindade Chain and around Trindade Island during 2003 and 2007. The table also shows previously published sightings around Trindade Island provided* and Townsend (1939)[#].

DATE	LATITUDE	LONGITUDE	OBSERVATIONS
XIX Century [#]	20°30'	29°19'	At least two humpbacks caught by U.S. Whalers (TOWNSEND, 1939)
19 August 1984*	20°30'	29°19'	Mother-calf and escort swimming
15 August 1993*	20°30'	29°19'	Three humpback whales, southward bound, in aerial behavior
09 August 1994*	20°30'	29°19'	Two whales swimming northeastwards
09 August 1994*	20°30'	29°19'	Two whales swimming northeastwards
11 August 1994*	20°31'	29°19'	Two whales swimming southwards
16 August 1994*	20°31'	29°19'	Three humpback whales moving southwards: breaching, leaping from the water or slapping their tail flippers on the surface
18 August 1994*	20°31'	29°19'	Mother-calf pair swimming eastwards
18 August 1994*	20°31'	29°19'	A whale in intense aerial behavior moving southwards
19 August 1994*	20°29'	29°19'	One humpback travelling southwards
22 August 1994*	20°30'	29°19'	Mother-calf pair in aerial behavior swimming northeastwards
23 August 1994*	20°30'	29°19'	Mother-calf pair in aerial behavior swimming northeastwards
01 September 1994*	20°30'	29°19'	Two humpback whales showing their flipper above the water. Moving northeastwards
10 September 1994*	20°28'	29°20'	Mother-calf pair in aerial behavior swimming northeastwards
17 September 1994*	20°31'	29°20'	Two whales moving southeastwards
08 October 1994*	20°30'	29°19'	Two whales moving northeastwards
08 October 1994*	20°30'	29°19'	Two whales moving northeastwards
July 2007	20°30'	29°19'	Two humpback whales moving southeastwards: breaching, leaping from the water or slapping their tail flippers on the surface
July 2007	20°30'	29°18'	Two humpback whales moving southeastwards: breaching, leaping from the water or slapping their tail flippers on the surface
July 2007	20°30'	29°18'	Two humpback whales moving southeastwards: breaching, leaping from the water or slapping their tail flippers on the surface
July 2007	20°30'	29°18'	One humpback whale moving northwards
August 2007	20°30'	29°18'	Two humpback whales travelling northeastwards
August 2007	20°30'	29°17'	Two humpback whales travelling northeastwards
August 2007	20°31'	29°19'	Humpback whales in aerial behavior
27 October 2003	20°39'	39°09'	Mother-calf pair swimming
27 October 2003	20°39'	38°09'	Group of humpback whales travelling southwards
28 October 2003	20°28'	31°03'	Four humpback whales travelling
29 October 2003	21°29'	38°02'	Humpback whale milling
01 November 2003	19°17'	38°02'	Mother-calf pair travelling southwards
02 November 2003	19°40'	38°27'	Humpback whales swimming across long line fishing gear
02 November 2003	29°25'	38°14'	Humpback whale blowing
05 November 2003	19°22'	38°02'	Humpback whales in aerial behavior: breaching, leaping from the water or slapping their tail flippers on the surface
05 November 2003	19°14'	38°05'	Humpback whale blowing
08 November 2003	19°18'	38°11'	Up to 3 groups of humpback whales
09 November 2003	19°35'	39°32'	Humpback whale blowing
10 November 2003	20°07'	39°49'	Group of six humpback whales swimming across longline fishing gear

Pre-modern whaling data for South American waters (1831/32) indicate that humpback whales were observed in the same seasonal period and migratory route locations recognized at the present time in Brazil (BEST, 2008). According to Best (2008) the whales observed 500 to 1,000 nautical miles off the Brazilian coast (including sightings off Trindade Is.) between latitudes 17 and 28°S in mid-winter suggest that the destination of these cetaceans

may not be the Abrolhos bank (18°30'S, 39°30'W), but a region further north and east. Humpback whales are relatively abundant on the north-eastern Brazilian coast, far north of the Abrolhos bank and where important whaling activities occurred in the 20th century (ZERBINI et al., 2004; ANDRIOLO et al., 2010). According to Zerbin et al. (2004), the high density of whales off northeastern Brazil suggests that the species is undergoing a process of reoccupation of

a historical area of distribution, and the presence of newborn individuals indicates that calving and nursing occur in the area. Data on telemetry presented by Zerbini et al. (2011) show a female *M. novaeangliae* tagged off Brazil (far north of the Abrolhos bank) migrating southward over the Vitória-Trindade submarine chain (at a point 200 km from Trindade Is.) towards the South Sandwich Archipelago. It is common for oceanic islands (such as Trindade and Martim Vaz) to serve as habitats for humpback whales during their migrations, as is seen in the Pacific Ocean (HAUSER et al., 2010).

Our results and the previous published information suggest that the region around the Trindade and Martim Vaz archipelago may represent a migratory route for humpbacks that visit Brazilian waters. Furthermore, the frequency of groups of whales in this oceanic region during migration may be increasing due to population growth and the reoccupation process on the part of the stock of whales that have been using Brazilian waters after the cessation of whaling activities. This hypothesis has been presented to explain the growing extension of the area in which the occurrence of whales has been reported north of the Abrolhos bank (ROSSI-SANTOS et al., 2008; ANDRIOLO et al., 2010). Another reasonable explanation for the occurrences of humpbacks presented in this study is the more frequent presence of researchers visiting Trindade Is., which increases the possibility of sightings. We recommend future long-term, systematic studies for the investigation of the habitat use, group composition and behavior pattern of *M. novaeangliae* in the oceanic waters around Trindade Island.

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