Trindade Island, off Brazil, as a migratory destination for humpback whales

Salvatore Siciliano[1], Jailson F. de Moura[1], Henrique R. Filgueiras[2], Paulo P. Rodrigues[3] and Nilamon de Oliveira Leite Jr.[4]

1 – Grupo de Estudos de Mamíferos Marinhos da Região dos Lagos (GEMM-Lagos), Departamento de Endemias Samuel Pessoa, Escola Nacional de Saúde Pública/FIOCRUZ. Rua Leopoldo Bulhões, 1.480 – 6º. andar, sala 620, Manguinhos – 21041-210, Rio de Janeiro, RJ Brazil

2 – Reserva Biológica de Comboios/Projeto Tamar, Caixa Postal 105, 29900-970 – Regência, Linhares, ES Brazil

3 – Instituto Ecomaris, Rua Renato Nascimento Daher Carneiro, 780. Condomínio Village, Edifício Delacroix, apto 203. Ilha do Boi – 29052-730 Vitória, ES Brazil

4 – Projeto Tamar/ICMBio, Av. Paulino Müller, 1.111, Jucutuquara – 29040-715 Vitória, ES Brazil

Introduction

Trindade Isl. location and geomorphology

The Trindade and Martim Vaz is an archipelago located far 1,140 km east of Vitória, Espírito Santo State, Brazil, in the Southern Atlantic Ocean. The archipelago consists of six islands: Trindade (20º30'S and 29º18' W) being the largest island, with an area of 10.1 km² and Martim Vaz the second largest, with an area of 0.3 km². The archipelago has a total area of 10.4 km² (4.0 sq mi). Its isolation on the ocean surface precludes the realization that it is part of the Vitória-Trindade Alignment, a great E-W submarine volcanic chain. The volcano lies on the ocean floor about 5,500 m deep. Other volcanic buildings belonging to this lineament between Trindade-Martim Vaz and the coast were completely eroded by the sea, and levelled above 100 m depth. They compose the guyots, usually called banks, but the islands, probably due to the prolonged volcanic activity, are still high above the oceanic surface The Trindade island platform has a restrict area; the width varies between 800 and 3.000 m (Almeida, 2000).

Humpback whale distribution off Brazil

Current information on the distribution of humpback whales shows that it is abundant in the Abrolhos Bank (16° 40' to 19° 30' S), the main breeding area for the species in the western South Atlantic Ocean (e.g. Siciliano 1997, Martins et al. 2001, Andriolo et al. 2006). Occasional sightings have been reported for the Fernando de Noronha Archipelago (~ 3°S) and in southern and southeastern Brazil (e.g. Lodi, 1994, Siciliano, 1997, Pizzorno *et al.*, 1998).

Siciliano (1997) reported 16 sightings of humpback whales off Trindade Is. from 1984 to 1994. The author was the first to point out the relevance of these remote islands as a migratory destination for the humpback whale. Groups of singletons, mother-calf, mother-calf and escort and trios were reported around the main island of Trindade. In addition, it was discussed the possibility of Trindade and Martin Vaz archipelago representing a final destination of humpback whales wintering off Brazil.

Methods

We report on two sets of opportunistic sightings of humpback whales off the southeast coast of Brazil from 2003 to 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 visit to Trindade Is. from July to August 2007. Observations of humpback whale groups were made from cliff-top vantage points on mainland. Whenever possible, a description of the general behavior of whales was recorded *ad libitum*.

Results

A total of 12 sightings of groups of humpback whales were made during the longline fishing trip along the Vitória-Trindade chain (Figure 1, Table 1). Cliff-top observation in July and August 2007 resulted in seven sightings of humpback whales. Mother-calf pairs were sighted twice, only onboard the fishing vessel. Groups sighted around Trindade Is. were comprised of solitary individuals or pairs. Aerial behaviour such as pectoral fin waving, tail slapping, and breaching were observed. That behaviour, a common feature of humpback whales, may have called the attention of researchers while in the mainland. Whales were observed twice passing by the long line immersed in water.

Discussion

Townsend's (1935) classic whale charts, which illustrate where American open-boat (premodern) whalers took sperm, humpback, right, and bowhead whales worldwide, evidence few catches of humpback whales off Trindade. Siciliano (1997) report of humpback whales in 1984, 1993 and 1994 were the first evidence of the presence of the species off Trindade in the last decades. This author also discussed the probable origin of these whales and their connection with other major breeding grounds.
It is possible that humpback whales use the waters around Trindade Is. since the XIX Century. There is an obvious lack of data on sightings around Trindade in post-whaling period. On the other hand, based on the descriptions of researchers visiting Trindade Is., the presence of whales may not be accidental, but can truly reflect a regular pattern of use of these remote islands. It is recommended future survey efforts for investigating the use of these oceanic waters by breeding and calving humpback whales.

Acknowledgements

The authors were in part sponsored by the Fundação Pro-TAMAR, responsible for the longline boat survey and its expends.

References

Almeida, F.F.M. 2000. The Island of Trindade. *In*: Schobbenhaus,C.; Campos, D.A.; Queiroz, E.T., Winge, M. and Berbert-Born, M. (Eds.) Sítios Geológicos e Paleontológicos do Brasil. http://www.unb.br/ig/sigep/sitio092/sitio092.htm

Andriolo, A., Martins, C.C.A., Engel, M.H., Pizzorno, J.L., Más-Rosa, S., Freitas A.C., Morete, M.E. and Kinas, P.G. 2006. The first aerial survey of humpback whales (*Megaptera novaeangliae*) to estimate abundance in the breeding ground off Brazil (Breeding Stock A). J. Cetacean Res. Manag. 8:307–311.

Lodi, L. 1994. Ocorrências de baleias-jubarte, *Megaptera novaeangliae*, no Arquipélago de Fernando de Noronha, incluindo um resumo de registros de capturas no Nordeste do Brasil. Biotemas 7:116–123.

Martins, C.C.A., Morete, M.E., Engel, M.H., Freitas, A.C., Secchi, E.R. and Kinas, P.G. 2001. Aspects of habitat use patterns of humpback whales in the Abrolhos Bank, Brazil, breeding ground. Mem. Queensl. Mus. 47:563–570.

Pizzorno, J.L.A., Brito Jr. J.L., Dorneles, P.R., Azevedo, A.F. and Gurgel, I.M.G.N. 1998. Review of strandings and additional information on humpback whales, *Megaptera novaeangliae*, in Rio de Janeiro, southeastern Brazilian coast (1981–1997). Rep. Int. Whaling Comm. 48:443–446

Siciliano, S. 1997. Características da população de baleias-jubarte (*Megaptera novaeangliae*) da costa brasileira, com especial referência aos Bancos de Abrolhos. MSc Thesis, Universidade Federal Rural do Rio de Janeiro. 113pp.

Townsend, C.H. 1935. The distribution of certain whales as shown by logbook records of American whaleships. Zoologica 19:1-50, 4 charts.

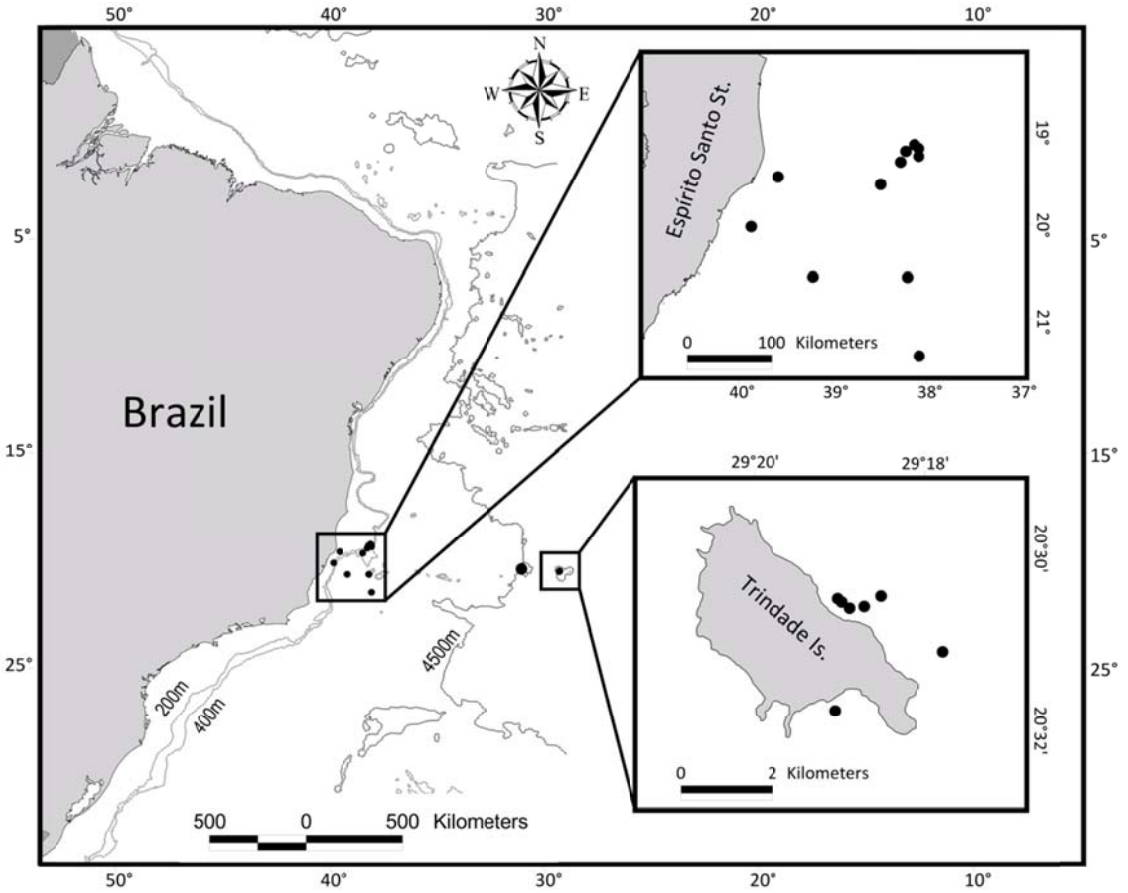

Figure 1. Sightings of humpback whale groups during a long-line fishing trip along Vitória-Trindade chain (2003) and around Trindade Is. (2007).

Table 1: Sightings of humpback whales in the Vitória-Trindade Chain and around Trindade Island in 2003 and 2007

ID	Latitude	Longitude	Date	Observations
J1	-20.503746	-29.316761	July/August 2007	Two humpback whales moving to southeast in aerial behavior: breaching, leaping from the water or slapping their tail or flippers on the surface
J2	-20.504424	-29.315988	July/August 2007	Two humpback whales moving to southeast in aerial behavior: breaching, leaping from the water or slapping their tail or flippers on the surface
J3	-20.505644	-29.314446	July/August 2007	Two humpback whales moving to southeast in aerial behavior: breaching, leaping from the water or slapping their tail or flippers on the surface
J4	-20.505282	-29.311600	July/August 2007	One humpback whale moving to north
J5	-20.503249	-29.308320	July/August 2007	Two humpback whales travelling to northeast
J6	-20.514045	-29.296170	July/August 2007	Two humpback whales travelling to northeast
J7?	-20.525664	-29.317249	July/August 2007	Humpback (?) whale in aerial behavior
J8	-20.650904	-39.165858	27 October 2003	Mother-calf pair
J9	-20.654996	-38.166073	27 October 2003	Group of humpback whales travelling to south
J10	-20.483112	-31.064940	28 October 2003	Four humpback whales travelling
J11	-21.490298	-38.040894	29 October 2003	Humpback whale milling
J12	-19.286325	-38.045834	01 November 2003	Mother-calf pair travelling to south
J13	-19.669570	-38.451234	2 November 2003	Humpback whale swimming transversaly a longline fishing
J14	-19.431861	-38.239383	2 November 2003	Humpback whales blowing
J15	-19.369496	-38.045081	5 November 2003	Humback whale in aerial behavior: breaching, leaping from the water or slapping their tail or flippers on the surface
J16	-19.244631	-38.089760	5 November 2003	Humpback whales blowing
J17	-19.316166	-38.185349	8 November 2003	Up to 3 groups of humpback whales
J18	-19.590569	-39.534678	9 November 2003	Humpback whales blowing
J19	-20.119435	-39.824701	10 November 2003	Group of six humpback whales swimming across a longline fishing