

Establishing a Marine Mammal Stranding Network in the Bahamas

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LONG-TERM GOALS

The long-term goals of this project are to establish a marine mammal stranding network to address conservation of marine mammals in the Bahamas and potential impacts of naval operations on local populations. Capacity building through multiple training workshops, established communication trees, stranding kits on major islands in the archipelago and a national stranding hotline will ensure more effective response during stranding events to better determine the cause of strandings as well as increase our understanding of the biology of marine mammals. The stranding network is to become self-sufficient and continue into the future with local support.

OBJECTIVES

The specific objectives are the following:

- 1) To identify and liaise with potential stranding network participants.
- 2) To develop the structure of the stranding network.
- 3) To organize two workshops to train Bahamians as first responders to stranding events.
- 4) To distribute stranding kits throughout the island chain.
- 5) To establish a link with stranding networks in the US and wider Caribbean region.

APPROACH

The establishment of the stranding network began by creating a core team made up of individuals and organizations that had shown an interest in forming a stranding network in the Bahamas. Individuals from this group formed the Steering Committee and included the Bahamas Department of Marine Resources, the Bahamas Marine Mammal Research Organisation (BMMRO), the Bahamas National Trust, three captive marine mammal facilities (Dolphin Encounters and Atlantis Resort's Dolphin Cay

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in Nassau and Dolphin Experience in Freeport), and the US Southeast Regional Stranding Center, NOAA Fisheries in Miami, Florida. The Steering Committee developed the initial organizational structure of the stranding network, and plans for the training workshops, i.e. choose a venue, a list of participants, invited speakers, and activities.

Two training workshops were planned with the goal of inviting participation from throughout the Bahamas, with the first scheduled for 2008 and the second for 2009 (Table 1). Invited speakers included experts in stranding response and necropsy procedures, with an emphasis on beaked whales. Invited participants included Fisheries Officers, Government and private veterinarians, Bahamas National Trust Park Rangers, veterinarians and Officers from the Bahamas Humane Society, veterinarians and trainers from the captive dolphin facilities, personnel from the US Navy's Atlantic Undersea Test and Evaluation Center (AUTC), personnel from field research stations, and students from the Young Bahamian Marine Scientists organization. Supplies were assembled for two different types of stranding kits (large and small) to be distributed to participants who attended the workshops so they could return to their island with the equipment needed to respond to stranding events.

Table 1. Summary of events that have taken place to establish the Bahamas Marine Mammal Stranding Network.

Date	Event	Participants	Venue
8 November 2007	Steering Committee meeting	Dept. Marine Resources, BMMRO, NOAA, captive facility personnel	Atlantis Cove Resort
3 – 4 May 2008	Training workshop I	62 Bahamians (Fisheries Officers, Park Rangers, veterinarians, dolphin trainers)	Atlantis Dolphin Cay
28 February – 1 March 2009	Training workshop II	71 Bahamians (Fisheries Officers, Park Rangers, veterinarians, dolphin trainers, students)	Atlantis Dolphin Cay

WORK COMPLETED

Two 2-day marine mammal stranding workshops were held in Nassau during May 2008 and February-March 2009 with 133 participants representing 15 Bahamian islands. The 2009 workshop took place from February 28 to March 1st with over 70 participants representing twelve of the Bahamian islands. The workshop followed the same format as in 2008 (see Claridge and Dunn, 2008 Annual Report to ONR for details). All participants were trained as First Responders through the oral presentations (Table 2) and hands-on training during interactive sessions with the Dolphin Cay dolphins and the necropsy of three harbor porpoises, led by Drs. Ewing, Manire and Ketten.

Table 2. Oral presentations given during the 2009 Stranding Workshop.

Speaker	Affiliation	Topic
Michael Braynen	Department of Marine Resources	Keynote address
Diane Claridge	Bahamas Marine Mammal Research Organisation	Marine mammal occurrence and strandings in the Bahamas
Pedro Baranda	Dolphin Experience	Sea turtles: species identification, strandings, and legislation
Kelly Melillo	Dolphin Communication Project	The story of Harold the manatee in Bimini
Jared Dillet	Department of Marine Resources	Marine mammal legislation
Charlotte Dunn	Bahamas Marine Mammal Research Organisation	The Bahamas Stranding Network
Andrea Bogomolni	Eastern Caribbean Cetacean Network	The Eastern Caribbean Cetacean Network
Elizabeth Tuohy-Sheen	NOAA Fisheries	The importance of first response: What to do when there is a marine mammal stranding – Live / Dead
Missi Voigtmann	Atlantis Dolphin Cay	Dolphin Cay Conservation
Dr Darlene Ketten	Woods Hole Oceanographic Institute	Introduction to marine mammal & turtle anatomy
Dr Ruth Ewing, DVM,	NOAA Fisheries	Sample collection: The Basics
Dr Charles Manire, DVM	Atlantis Dolphin Cay	Rescue, rehabilitation and release

RESULTS

A stranding network for the Bahamas has been created, complete with a 24/7 stranding hotline number manned by the Bahamian Department of Marine Resources, and an online discussion group for quick and easy information sharing. The online Google group (bahamas-marine-mammal-stranding-network@googlegroups.com) allows documents to be stored and shared; these include standardized stranding data forms, instructions on how to sample collection and proper preservation, and an up-to-date contact tree spreadsheet that network members can edit as needed. The contact trees allow the hotline representative to reach First Responders closest to a stranding. There are currently 93 registered stranding network members.

One hundred and thirty-three Bahamians representing 15 islands in the archipelago have been trained to respond to the stranding of a live or dead marine mammal (Figure 1). The participants have been given identification badges so they can identify themselves to the public as trained First Responders and act as leaders during stranding events. Key participants (primarily Fisheries Officers and Park Rangers) have been given stranding kits consisting of the equipment needed for effective stranding response. Twelve large stranding kits have been distributed to 12 of the Bahamian islands that do not have captive marine mammal facilities, and 23 small stranding kits spread throughout the islands.

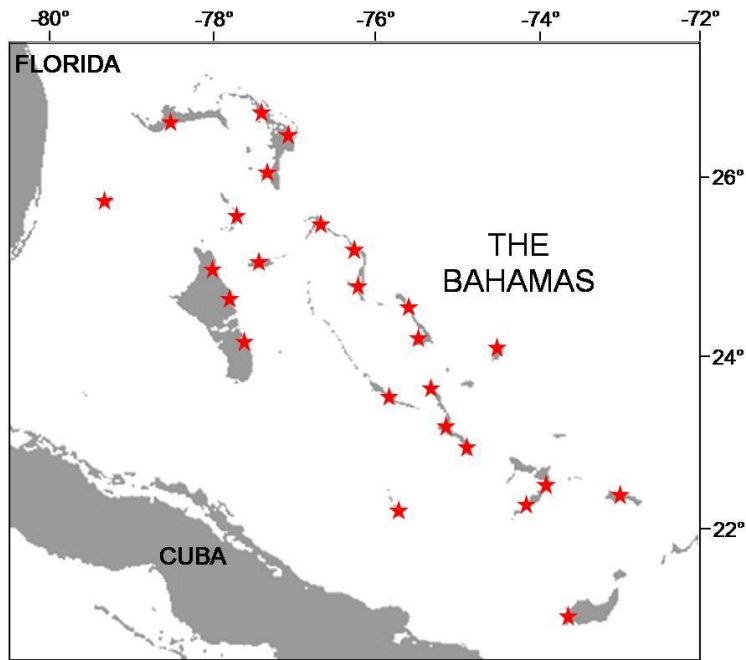


Figure 1. Map of the Bahamas showing each island that was represented at the stranding workshops by local participants. Each of these islands now has a large stranding kit and at least one small kit (depending on the size of the island). The map shows how the project has successfully trained individuals and distributed stranding kits throughout the island archipelago.

IMPACT/APPLICATIONS

Mass strandings of beaked whales have been correlated with international naval operations (Simmonds and Lopez-Juraco 1991, Frantzis 1998, Jepson *et al.* 2003), raising concern that beaked whales are particularly vulnerable to naval sonar. One of these events occurred on March 15th, 2000 in the northern Bahamas during which 14 beaked whales stranded (Balcomb and Claridge 2001, Evans and England 2001). The US Navy has two operating ranges in Bahamian waters, and following additional strandings during 2005 and 2006 near the Atlantic Undersea Testing and Evaluation Center (AUTC), public concern has increased within the Bahamas about the impacts these operations may be having on beaked whales and other cetacean species. In light of these developments, there has been a growing need to train Bahamians to become First Responders to quickly respond to each stranding and conduct an initial examination, assist live strandings, and facilitate a more thorough investigation to determine the cause of death. The establishment of the Bahamas Marine Mammal Stranding Network has begun this process of training and capacity building amongst Bahamians. Two strandings since the Network was initiated (a West Indian manatee and a clymene dolphin which is the first record of this species from the Bahamas), have been reported through the hotline and information shared on the Google group, and provide evidence that the Network is functioning well.

RELATED PROJECTS

Behavior Response Study (BRS)

The goal of this project is to understand how cetaceans respond to underwater sound. This international study is led by Dr. Brandon Southall (National Oceanographic and Atmospheric Administration (NOAA)). The project is supported by the Office of Naval Research (ONR) and US Department of Defense (NAVSEA PEO IWS Mr. Joseph Johnson and OPNAV N45 Dr. Frank Stone).

Distribution, abundance and population structuring of beaked whales in the Great Bahama Canyon, northern Bahamas

The goals of this project are to determine beaked whale distribution and abundance in the Great Bahama Canyon (Northeast and Northwest Providence Channels and Tongue of the Ocean) from visual and acoustic surveys. The study is also examining population structure of beaked whales in the Great Bahama Canyon through the analysis of photo-identification data and genetic samples currently archived by BMMRO and from photographs and biopsy samples obtained during the surveys. The project is funded by an ONR grant (FY07 – FY10) and Diane Claridge (BMMRO) is the Principal Investigator and Dr. John Durban (NOAA) is the co-Principal Investigator.

REFERENCES

- Evans, D.L. and G.R. England. 2001. Joint interim report Bahamas marine mammal stranding event of 14 – 16 March 2000. Unpublished report released by the U.S. Department of Commerce and the Secretary of the Navy, vi + 59 pp. Available from: <http://www.nmfs.noaa.gov/pr/acoustics/reports.htm>
- Balcomb, K.C and D.E. Claridge. 2001. A mass stranding of cetaceans caused by naval sonar in sonar in the Bahamas. *Bahamas Journal of Science* 5:2-12.
- Frantzis, A. 1998. Does acoustic testing strand whales? *Nature* 392:29.
- Jepson, P.D., M. Arbelo, R. Deaville, I.A.P. Patterson, P. Castro, J.R. Baker, E. Degollada, H.M. Ross, P. Herraiez, A.M. Pocknell, F. Rodriguez, F.E. Howie, A. Espinosa, R.J. Reid, J.R. Jaber, V. Martin, A.A. Cunningham and A. Fernandez. 2003. Gas-bubble lesions in stranded cetaceans. *Nature* 425:575-576.
- Simmonds, M. P. and L. F. Lopez-Juraco. 1991. Whales and the military. *Nature* 351:448.