Establishing a Marine Mammal Stranding Network in The Bahamas

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TECHNICAL INFORMATION

ABSTRACT:

The lack of a marine mammal stranding network in the Bahamas has limited Bahamian institutions from responding effectively to stranding events. As a result, the information gathered from the majority of strandings has not been sufficient to determine the cause of the stranding. The development of a nationwide stranding network and organization of training workshops will prepare Bahamians for a more rapid and skilled response to future stranding events. The goal is to increase our understanding of the conservation needs of marine mammals in the Bahamas.

DISCUSSION:

The proposed effort will respond to the objectives of the Office of Naval Research (ONR) by contributing towards our understanding of marine mammal strandings in the Bahamas. Establishment of a Bahamas Marine Mammal Stranding Network will build capacity within the Bahamas increasing our ability to respond more quickly and more effectively to stranding events, resulting in increased understanding of the cause of strandings. This will enable us to better understand the conservation needs of marine mammals in the Bahamas, with particular focus on the Tongue of the Ocean and the US Navy's AUTEC range.

Time period: 1.5 years (18 months)

STATEMENT OF WORK:

To establish a marine mammal stranding network in the Bahamas. Specifically, this involves three tasks:

1) To identify and liaise with potential stranding network participants
2) To develop the structure of the stranding network
3) To organize 2 stranding training workshops

DESCRIPTION OF EACH TASK:

BACKGROUND

The Bahamas Marine Mammal Research Organisation (formerly known as Bahamas Marine Mammal Survey) has been conducting field studies on marine mammals in Bahamian waters since 1991. Part of this effort has resulted in a compilation of recorded marine mammal strandings in the Bahamas, both historical and recent.

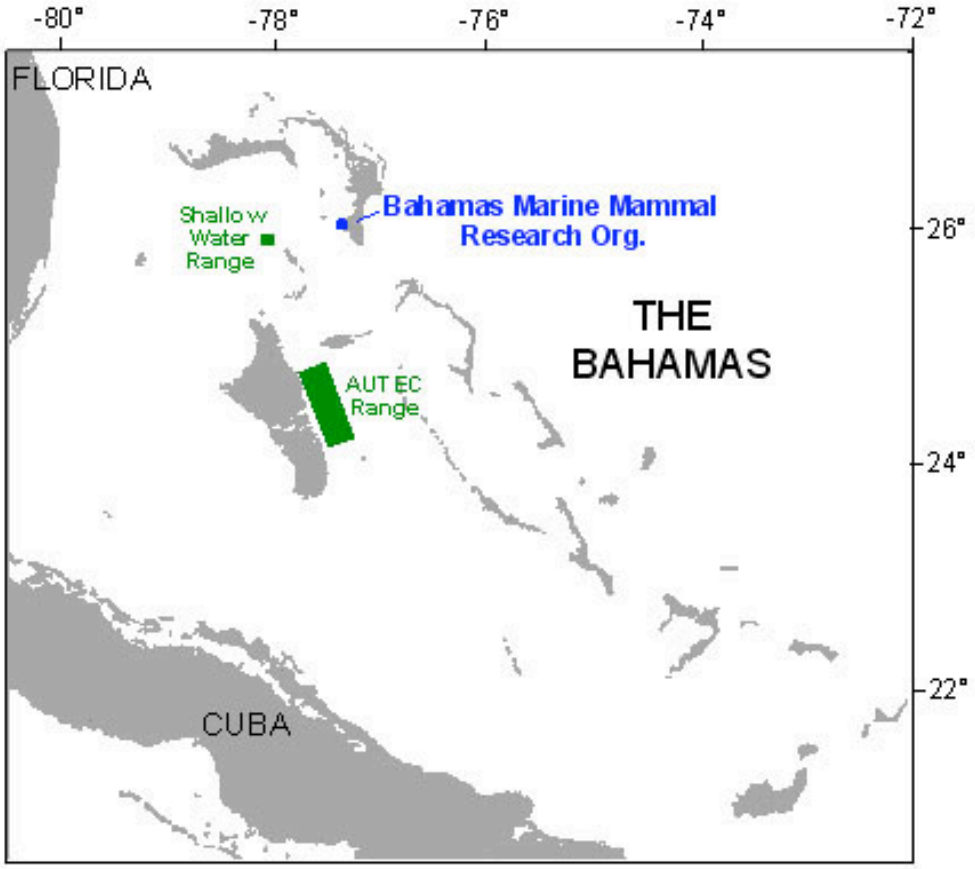

Figure 1. Map of the Bahamas showing US Naval Operating Areas at AUTEC and the Shallow Water Range in the Berry Islands.

Marine mammal strandings are generally uncommon in the Bahamas, with only 116 strandings recorded throughout the archipelago since the first record in 1944. From the 1940s until 2000, the number of recorded strandings has steadily increased at a mean decadal rate of 2.17 (median 1.4, mode 1) (Figure 2). This increase correlates strongly with a similar increase in the human population in the country during the same time period ($r = 0.88$). As transportation and communication technologies improved in the islands, more people were able to witness and report stranding events. However, this correlation has not been evident during the last decade, when there was a two-fold increase in the stranding rate (from 2.43 to 4.59) and only a slight increase in the population growth rate (from 1.22 to 1.25). In total, strandings since the beginning of 2000 until 2006 represent 67% of all recorded strandings in the Bahamas, suggesting an increase in strandings which can not be explained by more frequent reporting.

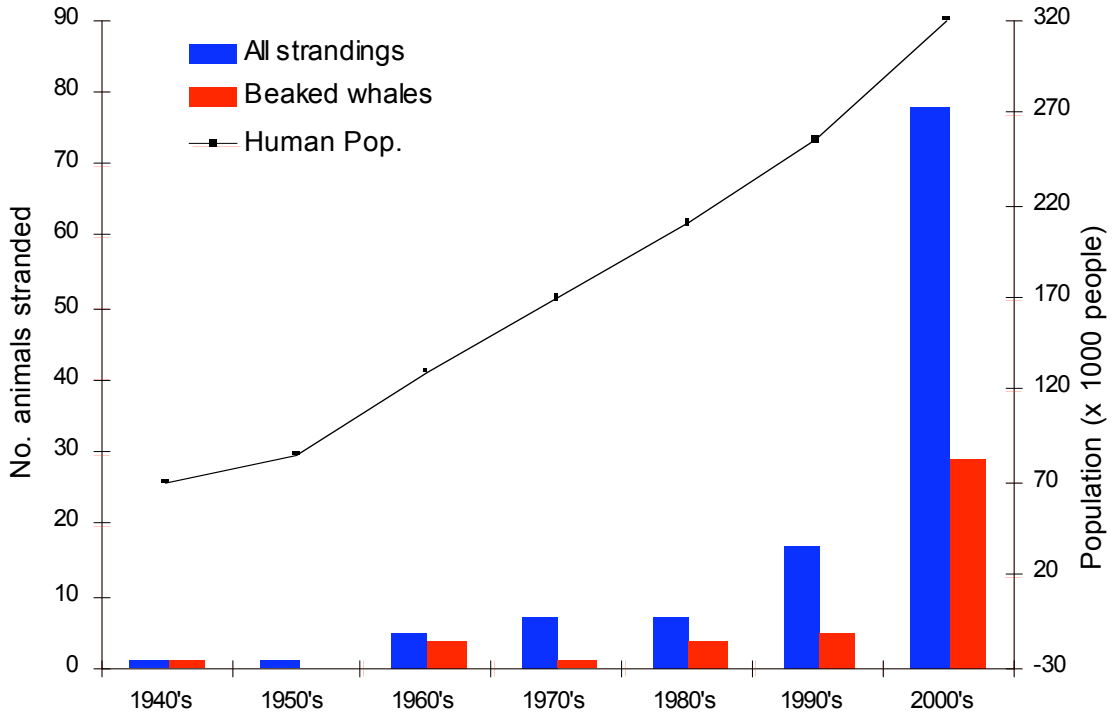

Figure 2. The number of recorded marine mammal strandings in the Bahamas has increased with increasing human population. The rates of increase are strongly correlated until 2000.

Of particular concern is the increased number of beaked whale strandings in the Bahamas, representing 37% of all strandings since the beginning of 2000. 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, NOAA 2001). The US Navy has two operating ranges in Bahamian waters (Figure 1), and following additional strandings during 2005 and 2006 near the Atlantic Undersea Testing and Evaluation Center, public concern has increased within the Bahamas about the impacts these operations may be having on beaked whales and other cetacean species (see: Nassau Tribune article, April 20th, 2006). In light of these developments, there is a growing need for Bahamians to quickly response to each stranding and conduct a professional investigation to determine the cause of death, independent of US scientists, however, the Bahamas currently lacks the capacity to do so.

PROPOSAL

This proposal is requesting support to establish a marine mammal stranding network in the Bahamas. Workshops would be held to train Bahamians in stranding response to ensure that live stranded animals receive proper care and that dead stranded animals are necropsied and tissues collected. The network would include rescue of sea turtles as well.

Approach

The establishment of a stranding network would begin by organizing a core group of Bahamians who already have shown an interest in forming a stranding network. These include personnel from the Bahamas Department. of Marine Resource, Bahamas National Trust, and from captive facilities in the Bahamas (Dolphin Encounters and Atlantis in Nassau and Dolphin Experience in Freeport). During the first year, a meeting will be held in Nassau with these key persons with the primary goal of formulating the basic organizational structure of the stranding network. Secondary goals include beginning to detail plans for the first workshop. i.e. choose venue, list of participants, invited speakers, and activities.

Workshop participants will be individuals from throughout the Bahamas. They will include Fisheries Officers, personnel from field stations, Government and private veterinarians, Bahamas National Trust Park Rangers, conservationists, and personnel from the captive facilities. In addition, personnel from the AUTEC range would be invited to participate. Participants invited to the second workshop will include individuals who were unable to attend in 2008 in order to train as many Bahamians as possible. Invited speakers will include experts in conducting necropsies, with an emphasis on beaked whales.

After training is completed, the stranding network will be structured so that it will be self-sufficient and able to continue with local funding.

Work Plan

FY08
November 07 – January 08 (90 days) – CAD to contact initial core members to introduce them to the plan. Co-ordinate plans with Natalie Ward (Eastern Caribbean Cetacean Network) and Blair Mase (SE Stranding Center). Purchase 3 stranding kits. CAD and DEC 4-day trip to Nassau to meet with Bahamas Dept. of Fisheries, Bahamas National Trust, and personnel from captive facilities (Blue Lagoon and Atlantis). Distribute stranding kits to three key groups. Organize for the February workshop. Invite speakers, arrange travel and accommodations for all participants, plan workshop agenda, purchase stranding kits.
February 08 – Host first 4-day workshop in Nassau.

FY09
November 08 – January 09 (60 days) – Organize for the February workshop. Invite speakers, arrange travel and accommodations for all participants, plan workshop agenda, purchase stranding kits.
February 09 – Host second 4-day workshop in Nassau.

BIOGRAPHIES of key personnel: See attached Curriculum Vitae.

Description of general or special facilities available for performing the proposed work.

Scientists from the Bahamas Marine Mammal Research Organisation (BMMRO) have documented the occurrence and distribution of marine mammal species in the Bahamas since 1991. As part of this effort, BMMRO staff has responded to stranding events and a database of all stranding records has been compiled. The expertise and local knowledge of BMMRO's field scientists will be a valuable contribution towards the development of a stranding network in the Bahamas. As an established Bahamian NGO, BMMRO already has professional relationships developed with many of the key players in a stranding network.

Pertinent BIBLIOGRAPHY of the investigators.

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SUPPORTING INFORMATION

Other research projects currently undertaken by PIs.

Dolphins and Whales of Abaco Island (annual grant from Earthwatch Institute) – DEC & CAD

Shore-based surveys to describe occurrence and distribution of marine mammals around Great Abaco Island using line transects and photo-identification.

Distribution, abundance and population structuring of beaked whales in the Great Bahama Canyon, northern Bahamas (ONR grant FY07 – FY10) – DEC

Determining 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 and examine 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 proposed surveys.

Providing field support for the proposed Behavior Response Study (BRS-07) (ONR grant FY07) – DEC

To provide personnel and vessel support as part of the research team for Phase I of the proposed Behavior Response Study (BRS-07) at the Atlantic Undersea Test and Evaluation Center (AUTEC) in summer 2007.

Extent of institution participation and support in the program.

The Bahamas Marine Mammal Research Organisation (BMMRO) is providing support for the proposed program in numerous ways. BMMRO will be providing a database of all known stranding events that have occurred in the Bahamas. BMMRO is also providing equipment (laptops, projector, etc.) and office space as in-kind support. Additionally, we have several frozen specimens which can be used for necropsy training purposes during the proposed workshops.

Names of other agencies receiving the proposal and/or currently supporting the effort.

None.

Indication of how the proposed effort might be coordinated with Navy and industrial counterparts.

The proposed effort will include participation from numerous institutions, both Bahamian and US. These include local captive dolphin facilities, which will be providing access to their captive animals to help during response training for live strandings. The Bahamas Department of Fisheries will provide guidance in the legal aspects of stranding response. The Bahamas National Trust and local NGOs will provide support for additional personnel to attend the training workshops. Representatives from NOAA Fisheries SE Stranding Center will contribute expertise and guidance during all stages of the network development. The US Navy's AUTEC facility will provide support for their key personnel to attend the workshops.

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