

THE NATURE CONSERVANCY
Indonesia Coastal & Marine Program

KOMODO NATIONAL PARK
CETACEAN SURVEYS:

**A RAPID ECOLOGICAL ASSESSMENT OF
CETACEAN DIVERSITY, ABUNDANCE & DISTRIBUTION.**
ABSTRACT ONLY



Benjamin Kahn
APEX Environmental

Yvonne James-Kahn
APEX Environmental

Jos Pet
The Nature Conservancy

Please address all correspondence to:

Benjamin Kahn, M.Sc., Director, APEX Environmental PO Box 59 Clifton Beach - Cairns, 4879 Qld Australia. E-mail: bkahn@apex-environmental.com

Reference details: Kahn, B., James-Kahn, Y. and J. Pet. 2000. Komodo National Park cetacean surveys - A rapid ecological assessment of cetacean diversity, distribution and abundance. Indonesian Journal of Coastal and Marine Resources 3(2): 41-59.

Table of contents of complete publication:

ABSTRACT.

THE SIGNIFICANCE OF CETACEAN SURVEYS AT KOMODO NATIONAL PARK, INDONESIA.

PREVIOUS CETACEAN SIGHTINGS IN KOMODO NATIONAL PARK AND ADJACENT WATERS.

SURVEY METHODS AND RESEARCH ACTIVITIES.

Survey method I: TNC speedboats.

Survey method II - Local live-aboard vessels.

SURVEY RESULTS.

Visual survey effort.

Acoustic survey effort.

Cetacean species diversity and distribution.

SPECIES-SPECIFIC DATA: SIGHTING FREQUENCIES, GROUP SIZES, CALVING RATES AND VISUAL SEARCH TIMES.

Sighting frequencies.

Group sizes and composition.

Calving rates.

Initial visual search times (IVST).

Species - specific visual search times (VST).

Seasonality.

Species associations.

Multi-species photo-identification of individual cetaceans.

EDUCATIONAL ACTIVITIES AND TNC CETACEAN MONITORING PROGRAM.

Educational activities.

Cetacean sightings by TNC Komodo Field Office Staff and KNP Rangers.

ENVIRONMENTAL THREATS TO KNP CETACEANS.

Marine debris and net entanglement.

Noise pollution related to destructive fishing practices.

Gill netting activities.

POTENTIAL LONG-TERM EFFECTS OF DESTRUCTIVE FISHING ACTIVITIES NEAR NUSA TENGGARA MIGRATORY STRAITS AND PASSAGES.

ALTERNATIVE LIVELIHOOD OPTIONS.

Responsible cetacean watching potential in KNP.

RELEVANCE OF REGIONAL CETACEAN SURVEYS TO COASTAL RESOURCE MANAGEMENT

AND MARINE PROTECTED AREAS IN INDONESIA.

ACKNOWLEDGEMENTS.

REFERENCES.

TABLES.

FIGURES.

Abstract

During May and October 1999 visual and acoustic cetacean surveys were conducted in Komodo National Park (KNP), Indonesia and adjacent waters. The surveys were conducted as a rapid ecological assessment of KNP with the aim to 1. identify which cetacean species occur in these waters; 2. monitor seasonal patterns and identify sensitive marine areas for cetaceans; 3. identify marine environmental impacts affecting cetaceans; 4. provide site-specific information on cetaceans for educational and environmental awareness programs; 5. initiate a volunteer cetacean monitoring program for environmental staff and dive operations.

Komodo National Park Cetacean Surveys -
A rapid ecological assessment of cetacean diversity, abundance & distribution.

ABSTRACT ONLY

In total, 14 cetacean species were identified during 207 active survey hours conducted over 26 field days. The surveys covered an estimated 1443 nautical mile (nm). The 14 species encountered were predominantly toothed whales and dolphins, and included the long-nosed spinner dolphin (*Stenella longirostris*), bottlenosed dolphin (*Tursiops truncatus*), pan-tropical spotted dolphin (*S. attenuata*), melon-headed whale (*Peponocephala electra*), sperm whale (*Physeter macrocephalus*), Risso's dolphin (*Grampus griseus*), Fraser's dolphin (*Lagenodelphis hosei*), pygmy killer whale (*Feresa attenuata*), false killer whale (*Pseudorca crassidens*), rough-toothed dolphin (*Steno bredanensis*), common dolphin (*Delphinus sp.*), pygmy or dwarf sperm whale (*Kogia sp.*), Cuvier's beaked whale (*Ziphius cavirostris*) and a rorqual whale species (*Balaenoptera sp.*) with unusual morphological characteristics.

An estimated total of 2423 individual cetaceans were sighted during the 1999 survey periods. The acoustic surveys included 93 hydrophone listening stations. These covered an estimated 5912 nm². Acoustic contact with cetaceans was recorded during 29% of the listening stations. The sightings within KNP borders were dominated by members of the Family Delphinidae, especially *T. truncatus* and *S. longirostris*. The off-shore waters adjacent to KNP have a far more diverse pattern and high diversity of cetaceans, some rare and endangered. Three species were seen regularly throughout the survey period: *S. longirostris*, *T. truncatus* and *S. attenuata*. For eight species a relative abundance index was calculated using multiple species-specific visual search times. Species were assigned a local abundance category (abundant, common, uncommon and rare) according to their sighting frequency and visual search time. On six occasions species associations were observed, including one school comprising of four different dolphin species.

The presence of new-born calves was observed for seven dolphin species as well as the sperm whale, indicating the KNP area could be an important cetacean calving (and breeding) ground. Several environmental impacts were identified of relevance to cetaceans, which are especially sensitive to acoustic disturbances, such as reef bombing, as well as chemical pollution.

Responsible cetacean watching potential in the area has increased due to the survey results. However, this may not be an appropriate activity without strict permit and operational conditions, educational programs and adequate enforcement realised from the start. The survey's outreach activities include a volunteer cetacean monitoring program. The Nature Conservancy field staff and several dive tourism operators interested in cetacean ecology and ocean conservation have advanced their identification skills through workshops and field training. This program is currently active with staff recording cetacean sightings on standardised datasheets. This community involvement will increase the information available on KNP cetacean diversity and abundance during times other than the priority survey periods.

Komodo National Park and World Heritage Area has been identified as one of the richest marine diversity sites in the Indo-Pacific. The rapid ecological assessment for cetaceans shows that the Komodo region is also an important habitat for whales and dolphins, and would benefit from additional cetacean survey efforts to assist resource management plans, conservation measures and alternative livelihood options. Extensions of the Park and its buffer zones have been adopted by the management authorities in order to protect cetacean preferred habitats and migration routes and a 25 year management plan is currently being implemented.