



**LONG-TERM VISUAL AND ACOUSTIC CETACEAN SURVEYS IN  
KOMODO NATIONAL PARK, INDONESIA 1999-2001:**

**MANAGEMENT IMPLICATIONS FOR LARGE MIGRATORY MARINE LIFE.**

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## **Abstract.**

Komodo National Park and World Heritage Area (KNP) is located between the Indonesian islands of Sumbawa and Flores. To assess KNP's ecological significance for large migratory species of special concern, visual and acoustic cetacean surveys have been conducted twice yearly since 1999 and focus on several Park management and conservation priorities:

- Identify which species of cetaceans are present in KNP and adjacent waters and provide data on relative species abundance, seasonality, critical habitats of regional importance, tourism potential and environmental impacts.
- Involve government, industry and community stakeholders in cetacean monitoring programs.

Visual and acoustic surveys are carried out from an 8m half-cabin speedboat, as well as from live-aboard vessels. Time, location, sea state, species, abundance, group composition, distance, direction, behaviours and associations are recorded. Listening stations are conducted using a directional hydrophone. In the May 1999 - April 2001 survey periods a total of 18 cetacean species were identified during 207 survey hours over 71 field days during 5 intermonsoon field seasons. The surveys covered an estimated 4706 nautical miles. The species encountered were predominantly oceanic odontocetes, but also included several balaenopterid species. An estimated total of 7082 individual cetaceans were sighted during 299 encounters. Acoustic contact with cetaceans was recorded during 38.1% of the 217 listening stations. Temporal and spatial patterns are apparent on the species level. Major species-specific results include relative abundance indices, site preferences and calving rates. A regionally distinct baleen whale, the pygmy Bryde's whale *Balaenoptera edeni*, was positively identified using photographic and genetic profiling techniques. Critical habitats including regional migration corridors, have been identified. Major environmental impacts observed include reef bombing (acoustic habitat degradation, i.e. Kemp 1996, Gordon and Moscrop 1998) and other fisheries interactions. Cetacean watching potential has

increased due to the survey results. However, this may not be an appropriate tourism activity without strict controls and enforcement in place first.

Significant extensions to KNP's legislative boundaries have been designed to include preferred habitats of the Park's cetaceans. These extensions are incorporated in the 25-year management plan and will increase the protective status of cetaceans, as well as other large migratory marine life, in KNP and Indonesia. The long-term cetacean surveys have resulted in major improvements in our knowledge of Indonesia's cetaceans and proved that the Komodo region is an important habitat for whales and dolphins. Overall, cetaceans are an important aspect of resource management plans as they allow a focus on large migratory marine life issues and are listed as vulnerable or endangered species by CITES. In addition, cetaceans can provide high-revenue alternative livelihood options through site promotion and environmentally sound cetacean watching (Hoyt 2000) for marine protected areas in eastern Indonesia. This is especially so when areas of consistent whale and/or dolphin sightings are considered in a strict tourism development and management plan. The experience in Komodo National Park has shown that in eastern Indonesia, cetacean surveys and ecological research can be an important impetus to realise cetacean conservation measures, assist with the mitigation of threats in protected areas and provide input to national marine mammal conservation strategies. Lessons learned may be applicable to assist with potential site selection and design of additional marine protected areas for other eastern Indonesian island passages which function as Indo-Pacific marine migratory corridors. A recommended area for such an approach is the Alor region, one of the priority habitats for oceanic cetaceans in Indonesia, and possibly SE Asia.

***Keywords: Komodo National Park, cetaceans, surveys, marine corridors, Indonesia.***