

CETACEAN SURVEYS IN KOMODO NATIONAL PARK



The Komodo National Park (KNP) cetacean surveys started in April 1999 and are conducted twice a year during the intermonsoon periods of April-May and September-October. The surveys focus on several Park management priorities:

- Identify which species of whales and dolphins are abundant, common, uncommon, or rare in Komodo National Park and adjacent waters.
- Identify resident or transient populations, and if the latter, record any seasonal sighting patterns in the Park.
- Identify critical habitats for cetaceans of regional importance, such as preferred feeding and breeding habitats, as well as migration corridors.
- Provide site and species-specific information on Komodo's cetaceans for:
 - Marine resource and Park management purposes.
 - Environmental awareness and educational programs.
 - Support to the Park's marine tourism and dive industry.
- Examine the major local and regional environmental impacts that threaten eastern Indonesia's whales and dolphins.
- Evaluate which protective measures can be implemented by Park management authorities to minimize the environmental impacts on cetacean habitats, including coral reefs, mangroves and the open ocean.
- Involve local communities, dive operators, and tour guides to help monitor whale and dolphin activity in and around the Park.
- Share the survey results with the Indonesian National Park Authorities, environmental organisations and local communities.

The significance of cetacean surveys at KNP

Indonesian waters have an exceptional cetacean diversity and at least thirty different cetacean species inhabit these waters. More than one third of all known whales and dolphins species worldwide can be found in the Indonesian Seas, some rare and endangered.

Cetaceans are versatile marine mammals and inhabit Indonesia's major rivers, mangroves, reef and open



Photo: Benjamin Kahn/Apex Environmental

Sperm whale vertical fluke with watercurtain

ocean environments. These diverse habitats are often in close proximity to one another because of Indonesia's narrow continental shelf, abundant oceanic islands and extreme depth gradients.

In addition to this, Indonesia is uniquely located as the only equatorial region worldwide where an exchange of marine life between the Indian and Pacific Ocean occurs. Each year cetaceans travel from the tropical Pacific and Indian Oceans through Indonesian waters, and vice versa. To do so, most will have to pass the narrow yet deep inter-island passages of the Nusa Tenggara island chain in eastern Indonesia. KNP includes three of these sensitive bottleneck passages: Selat Molo, Selat Linta and Selat Sape.

This means that cetaceans are especially vulnerable to numerous regional and local environmental impacts that may occur near the passages, such as habitat destruction, subsurface noise disturbances such as reef blasting, net entanglement, marine pollution and over fishing of marine resources. Most, if not all, of these impacts may occur in the waters of KNP, and would affect both residential populations as well as transient species that include these waters in their long-range movements.

Important cetacean habitat

The KNP whale and dolphin surveys have greatly increased our understanding of Komodo's



significance as an important cetacean habitat:

At least 15 whale and dolphin species have been recorded in the Park's and adjacent waters, including the long-nosed spinner dolphin, bottlenosed dolphin, pan-tropical spotted dolphin, melon-headed whale, Risso's dolphin, Fraser's and rough-toothed dolphins, false and pygmy killer whales, the sperm whale, dwarf sperm whale, the Cuvier's beaked whale and a rorqual baleen whale (*Balaenoptera sp.*) which may be regionally distinct for other known whale species in the area. The presence of new-born calves was observed for seven dolphin species as well as the sperm whale. This indicates the KNP area could be an important cetacean calving ground. The relative abundance (abundant, common, uncommon and rare) was calculated for eight cetacean species using species-specific visual search times. This is the first time data of this type is available for the region.

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 realized from the start. The survey's outreach activities include a volunteer cetacean monitoring program. The Nature Conservancy field staff, KNP rangers and several dive tourism operators interested in cetacean ecology and ocean conservation have advanced their whale identification skills through workshops and field training. This program is currently active and will increase the information available on KNP's whales and dolphins during times other than the priority survey periods.

Threats

Cetaceans are long-lived marine mammals dependent on the long-term health of marine resources. Their ecology, longevity, mobility and sensitivity to chemical and acoustic disturbances make them appropriate indicators for acute as well as chronic disturbances of their ocean realm. Several environmental impacts of relevance to cetaceans are identified, and the most pressing of these is the illegal but wide-spread practice of reef bombing. Bombing activities have been observed during most survey periods and are considered a serious and constant threat to KNP's whales and dolphins, possibly with regional implications. The potential impacts of bombing in close proximity to sensitive cetacean habitats range from:

- Fatal exposure to high pressure waves resulting from the blast.
- Permanently reduced sensory capabilities due to non-fatal exposure.
- Acoustic masking of environmental cues.
- Long-term abandonment of important habitats.
- Long-term alteration of migration routes.

Conservation

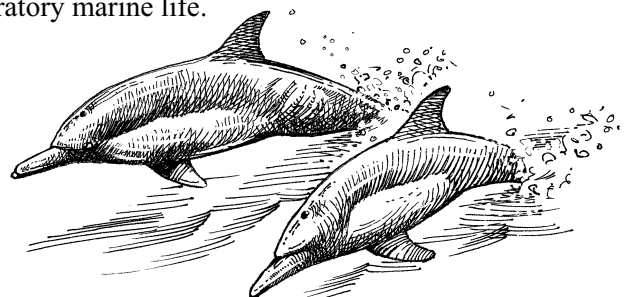
By gathering information of regional significance about the whales and dolphins of Indonesia, and increasing community awareness and involvement in on-going monitoring, the surveys help safeguard one of the Indo-Pacific's richest marine environments, and the migratory whales and dolphins who depend upon it to survive.

Survey efforts assist with the development of resource management plans, conservation measures and alternative livelihood options. As a result of the recent cetacean surveys, several whale and dolphin conservation measures have been incorporated in the KNP's 25-year management plan, and are currently implemented:

- Extension of the Park's boundaries to shelter a wider range of marine life;
- The creation of buffer zones that will protect key migration routes; and
- Additional regulations to prohibit activities within the Park that may harm migrating whales and dolphins (e.g. destructive fishing methods, gill and drift netting).

This is an important conservation strategy for KNP, but also when viewed from a regional perspective. Because of Indonesia's significant geographical location and function as a passage way for Indo-Pacific migratory whales and dolphins, there is an urgent need for additional protective measures for cetaceans in all seas under Indonesian jurisdiction.

A cetacean sanctuary in Indonesian waters is necessary, as for whales and dolphins the degrading forces on crucial aspects of their ecology often occur outside the current areas of protection. Such an Indonesian initiative would both complement the environmental commitment of other Indian Ocean states who are signatories to the Indian Ocean Whale Sanctuary and protect the Indian-Pacific Ocean migration corridors for cetaceans and other large migratory marine life.



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