

Obtaining distributional information on Indian Ocean cetaceans: suggestions based on an Indian network experience

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ABSTRACT

The understanding of the occurrence and distribution of cetaceans in the Indian region is largely based on information that has been incidentally obtained from strandings and bycatches. An attempt was made to compile such data systematically. The resultant database has been made widely accessible by hosting it on the internet. To improve the quality of information collected, identification aids were published on the same website. A stranding booklet was also created, mainly for the use of individuals and organisations with limited access to the internet. The 'spare capacity' of individuals and organisations was used to gather information and also to prepare the website and booklets, so that little or no expense was incurred. Recommendations are made regarding the collection of distributional data from the Indian Ocean.

KEYWORDS: INDIAN OCEAN; STRANDINGS; CONSERVATION; MONITORING

INTRODUCTION

Little is known about the distribution or populations of marine cetaceans occurring in Indian waters. India has a coastline of 7,500km, an exclusive economic zone (EEZ) of 2.3 million km² and millions of citizens rely on marine resources for their livelihoods and nutrition. Remarkably few sightings surveys have been conducted in Indian waters (Afsal *et al.*, 2008; Alling, 1986) and nearly all the information that is available has come from just a few hundred records of strandings and fisheries bycatch (James and Soundarajan, 1980; Lal Mohan, 1994; Leatherwood, 1986; Moses, 1940; 1947; Pillay, 1926; Sathasivam, 2000; 2004; Yousuf *et al.*, 2008). There is no regular national data collection scheme and the information accumulated over the past one and a half centuries can be considered scanty. The information that is available relating to the cetaceans of India is almost entirely based on incidental observations and a large number of the specimens have not been identified to the species level.

THE VALUE OF INCIDENTAL INFORMATION

The number of cetaceans stranded, cast ashore and incidentally caught along the Indian coast annually is believed to be great. Given the experiences of other countries it was thought that much information of value could be obtained from records of such specimens. For example, in Australia numerous strandings have been documented, giving considerable insights into species composition, demographics and population variability (e.g. Evans *et al.*, 2005; Kemper *et al.*, 2005). Closer by, much has been learnt from relatively modest recording programmes in the Maldives and Oman (Anderson *et al.*, 1999; Collins *et al.*, 2002).

In India, even a basic record of stranding location, date and species would be very useful. Additional information on sex, whether juvenile or adult, condition and obvious causes,

if any, of stranding or death might also be collected relatively easily. If these data were collected systematically, then over time the resulting database would be sufficiently large to provide a useful reflection of the status of cetaceans in the Indian seas. The species diversity, demographic constitution, spatial distributional patterns, temporal variations including migrations, causes of mortality and population trends might all be inferred in due course. These are essential for understanding the conservation requirements of these animals. A database was developed guided by the following criteria:

- (1) easily available to all interested parties;
- (2) would be a collaborative effort by those who made the observations;
- (3) created in conjunction with efforts to increase awareness about cetacean identification, diversity, abundance and habitats. This would ensure that the data collected were of the best scientific quality possible. It would also reduce the proportion of unidentified records;
- (4) provide as much detail as available, including photographs.

With assistance from the Whale and Dolphin Conservation Society (WDCS, UK), the Indian Marine Mammal Conservation Network (IMMCN) was established in 2008, creating a website (<http://www.marinemammals.in>) which incorporated the database described above.

SPARE CAPACITY

Marine mammal science is typically expensive and laborious to pursue. This hurdle can be overcome by using 'spare capacity' to collect information, at little or no expense. Essentially, spare capacity refers to the opportunities, manpower and facilities available to individuals and existing organisations through their infrastructure and regular

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activities. This idea has been described more fully elsewhere (Sathasivam and Natarajan, In press); in the present context the spare capacity available for studying cetaceans is referred to.

It is intended that the IMMCN will grow through the spare capacity and voluntary efforts of those individuals and organisations in India involved with the marine environment. Many already possess diverse data on marine mammals (cetaceans and the dugong) and some could gather more in the course of their work and contribute it to the community at large, particularly to an open-access data storage and distribution system such as the IMMCN. These individuals and groups include members of fishing communities, defence and law enforcement agencies, the media, naturalists and conservationists. They are well placed to acquire data on marine mammals in the course of their daily activities.

One of the important aspects of the IMMCN is that it is web-based. The internet is widely accessible and India has a very large and rapidly growing online population (<http://www.internetworldstats.com/stats3.htm#asia>). Not only does the IMMCN rely on spare capacity for gathering data, it also used it in creating its own website: many of the website's pages were created through the voluntary effort of cetacean enthusiasts.

However, reaching out to communities who do not have internet access is a challenge. With this in mind, a printable stranding booklet has been created for distribution to such groups through organisations and individuals who work with them (also available from 'Dealing with a Stranding' in the website). It is anticipated that these organisations and individuals have a key role. Voluntary effort, or spare capacity, was again used in translating the stranding booklet. India is a multilingual country and there are many languages used along the coast. A particular cetacean species has a different name in each language. Thus the booklet needs to be produced in each of these languages. Members of the IMMCN have translated the booklet into Tamil and Gujarati, two of the most widely used languages of the coastline. Another member has undertaken to translate it into Bengali.

RECOMMENDATIONS

There are many outstanding questions relating to the taxonomic diversity, distribution and migratory movements of cetaceans within the Indian Ocean, as highlighted by papers in this issue of the *Journal of Cetacean Research and Management*. Even as more rigorous scientific surveys are undertaken, the collection of incidental data still has a significant role, particularly when performed at minimal expense. The following guidance should be given to all national and local efforts to collect distributional information on cetaceans in the Indian Ocean.

(1) The internet can be used not only to receive and display records, but also to disseminate information. This will permit easy information exchange in the region. An electronic mail discussion group linking cetologists across the region would serve as a single point where the answers for all technical questions could be obtained. The IMMCN has such a forum; the *marinemammalsofindia* Yahoo group.

- (2) The value of national and local networks will depend to a large extent on the reliability of the data they accumulate. Accurate species identification is critical. The provision of identification aids as on the website and in the stranding booklet of the IMMCN; the ability to store all available information, including photos, on the database; and the periodic scientific scrutiny of all records are all important.
- (3) Low-cost solutions are required because of the limited availability of financial resources. The use of spare capacity, such as 'platforms of opportunity' for offshore surveys is encouraged (Perera and Ilangakoon, 2009; Rowat, 2009). The regular ferry services to the Lakshadweep and Andaman Islands are examples of such platforms. In the same vein, when necropsies are performed regularly on stranded cetaceans, samples could be sent, for instance for molecular analyses, to existing facilities in India or a nation in the region rather than creating new institutions or sending the samples farther away.
- (4) Innovative solutions should be sought for any problems encountered rather than following the usual protocols.

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