

See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/311066467>

Abundance Estimates of Indo-Pacific Humpback Dolphins (*Sousa chinensis*) in Kuching Bay, East Malaysia

Article in *Aquatic Mammals* · November 2016

DOI: 10.1578/AM.42.4.2016.462

CITATIONS

6

READS

406

5 authors, including:



Cindy Peter

University Malaysia Sarawak

18 PUBLICATIONS 197 CITATIONS

SEE PROFILE



Andrew Tuen

University Malaysia Sarawak

64 PUBLICATIONS 753 CITATIONS

SEE PROFILE



Gianna Minton

Independent consultant, Megaptera Marine Conservation

59 PUBLICATIONS 1,044 CITATIONS

SEE PROFILE

Some of the authors of this publication are also working on these related projects:



Support to various research and conservation projects in the Arabian Sea, Sarawak, and Gabon, as well as adviser to the WWF global cetacean programme. [View project](#)



Distribution and conservation of Indian Ocean Humpback Dolphin in Dayer Nakhiloo National Park - Persian Gulf - Iran [View project](#)

Short Note

Abundance Estimates of Indo-Pacific Humpback Dolphins (*Sousa chinensis*) in Kuching Bay, East Malaysia

Anna Norliza Zulkifli Poh,¹ Cindy Peter,¹ Jenny Ngeian,¹
Andrew Alek Tuen,¹ and Gianna Minton²

¹Institute of Biodiversity and Environmental Conservation, Universiti Malaysia Sarawak, Malaysia,
94300 Kota Samarahan, Sarawak, Malaysia
E-mail: annanorliza@gmail.com

²Megaptera Marine Conservation, Wassenaar, the Netherlands

Indo-Pacific humpback dolphins (*Sousa chinensis*, Osbeck, 1765) occur in shallow coastal waters from the east coast of India to central China and throughout Southeast Asia (Jefferson & Rosenbaum, 2014). While the species has been studied extensively in Hong Kong (e.g., Jefferson, 2000), China (Zhou et al., 2007; Chen et al., 2009, 2010), and Taiwan (Wang et al., 2007; Wang & Yang, 2011), very little is known about populations in Borneo, of which Sarawak is a part (Minton et al., 2016).

Prior to the current study, only a few researchers had reported on or reviewed the occurrence of humpback dolphins in Sarawak (e.g., Gibson-Hill, 1950; Beasley & Jefferson, 1997; Beasley, 1998; Jaaman, 2004; Minton et al., 2011). None of these sources provided any detail about the species' fine-scale distribution, ecology, or abundance estimates in Sarawak waters.

In the Kuching Bay, Irrawaddy dolphins (*Orcaella brevirostris*, Owen in Gray, 1866), finless porpoises (*Neophocaena phocaenoides*, Cuvier, 1829), Indo-Pacific bottlenose dolphins (*Tursiops aduncus*, Ehrenberg, 1833), and humpback dolphins occur in sympatry (e.g., Beasley & Jefferson, 1997; Minton et al., 2011, 2013). In line-transect surveys conducted in 2010–2011, Irrawaddy dolphins and finless porpoises were the two most frequently encountered species for which abundance estimates were generated—Irrawaddy dolphins: 149 individuals (CV = 28%, 95% confidence interval [CI] 87 to 255) and finless porpoises: 135 individuals (CV = 31%, 95% CI 74 to 246) (Minton et al., 2013). Humpback dolphins, however, were less frequently encountered, and the number of sightings was insufficient for population estimation using *DISTANCE* (Buckland et al., 2001). Herein, the results of a 2-y-

mark-recapture study on this species using photo-identification data are presented.

Photo-identification studies of humpback dolphins were conducted concurrently with line-transect surveys in the nearshore waters of the Kuching Bay (see Minton et al., 2013). Boat surveys were conducted on four consecutive days per month during the dry season between March 2010 and October 2011 (Figure 1).

Standard photo-identification protocols were followed during each dolphin sighting (e.g., Parra, 2006; Minton et al., 2013). Photographs of left or right sides of dorsal fins (LDFs and RDFs) were cropped, digitally enhanced, and entered into a custom-designed *Microsoft Access*® database. Photographs of LDFs and RDFs of dorsal fins were treated as two separate datasets due to the inability, in most cases, to definitively link the LDFs and RDFs of individual dolphins. All photographs were catalogued based on identifiable features (e.g., dorsal fin shapes, colouration, and scarring), regardless of quality and distinctiveness. Unique identification codes were assigned to each new individual that could not be matched to existing photographs in the database.

Each photograph was assigned scores based on four categories for photo quality and distinctiveness of dorsal fins (Minton et al., 2013). To minimise the bias that could be caused by failure to recognise individuals because of poor photo quality or lack of distinctiveness or “marking,” only good quality photographs of distinctive individuals were used for mark-recapture analysis (see Minton et al., 2013). For each sighting event, the proportion of “marked” individuals was calculated by dividing the number of individuals meeting the distinctiveness criteria by the total number of individuals photographed that day. This proportion