

**Final Report**  
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**ECOLOGY AND CONSERVATION OF  
IRRAWADDY, *Orcaella brevirostris* AND  
INDO-PACIFIC HUMPBACK, *Sousa chinensis*,  
DOLPHINS IN COWIE BAY, SABAH,  
MALAYSIA**

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## ABSTRACT

### **Ecology and conservation of Irrawaddy, *Orcaella brevirostris* and Indo-Pacific humpback, *Sousa chinensis*, dolphins in Cowie Bay, Sabah.**

Between April 2008 and March 2009, 47 days of boat surveys were conducted off Cowie Bay, Sabah with the aim of recording dolphins' distribution during neap and spring tides. Data on dolphin sightings and physiochemical properties of water were collected in every tide cycle for a period of four consecutively days in 39 sampling zones. There are two species of dolphins inhabiting Cowie Bay namely the Irrawaddy (*Orcaellabrevirostris*) and Indo-Pacific humpback (hereinafter humpback) (*Sousa chinensis*) dolphins. Currently, there is limited information regarding dolphins' species in Malaysia. Therefore, this study was carried out to generate information and provide understanding on the ecology and conservation of the two species dolphin in the area where the conservation status is poorly available. Irrawaddy dolphins were found in 43 surveys (91.5 %) and their sighting frequencies were highest in Zone 3 with 183 sightings (30.81 %). Feeding behaviour of Irrawaddy dolphins was most frequent (50.25% of sightings) compared to socializing (28.42 %) and travelling (12.09 %). The occurrence of Irrawaddy dolphins was correlated with sea surface temperature (SST) and turbidity, and the same goes to feeding and socializing. While, Humpback dolphins were found in 41 surveys (87.2 %) and their sighting frequencies were highest in Zone 3 (near the Seranum River) with 226 sightings (28.36 %). This species spent more time for feeding (59.49 %) than socializing (38.93 %) and travelling (10.82 %). Occurrence and behaviour of humpback dolphins did not correlate with depth and any of the water parameters. Both species can tolerate the same water conditions in the study area. Humpback and Irrawaddy dolphins are mostly found near river mouth. Based on the high feeding activity recorded throughout the study period, Cowie Bay could be an important feeding ground for the two dolphins' species. Hence, it is recommended that socio-economic activities, such as logging, agriculture and fisheries, which are actively taking place in the study area be controlled to minimize threats. Such effort can largely contribute to the restoration of the dolphin populations and other marine life in the bay.

## ABSTRAK

*Antara April 2008 dan Mac 2009, 47 hari tinjauan bot dijalankan di teluk Cowie, Sabah bertujuan untuk merekod taburan lumba-lumba ketika pasang-surut perbani dan pasang-surut anak. Setiap kitaran pasang-surut, data penampakan dan parameter air dikumpulkan sebanyak empat hari berturut-turut di 39 zon pensampelan. Terdapat dua spesies lumba-lumba mendiami Teluk Cowie iaitu lumba-lumba empesut (*Orcaella brevirostris*) dan lumba-lumba putih (*Sousa chinensis*). Setakat ini, maklumat mengenai spesies lumba-lumba di Malaysia adalah sangat terhad. Oleh yang demikian kajian ini dijalankan bagi menjana maklumat serta memberikan pemahaman mengenai ekologi dan pemuliharaan dua spesies lumba-lumba di kawasan ini yang mana status pemuliharaan masih kurang. Lumba-lumba empesut dijumpai di dalam 43 tinjauan (91.5 %) dan frekuensi penampakan mereka adalah tinggi di zon 3 dengan 183 penampakan (30.81 %). Kelakuan makan lumba-lumba empesut lebih banyak (50.25 %) berbanding bersosial (28.42 %) dan mengembara (12.09 %). Kemunculan lumba-lumba empesut dilihat berhubung kait dengan suhu dan kekeruhan, begitu juga makan dan bersosial. Manakala, lumba-lumba putih dijumpai di dalam 41 tinjauan (87.2 %) dan frekuensi penampakan di zon 3 (berhampiran Sungai Seranum) iaitu sebanyak 226 penampakan (28.36 %). Lumba-lumba putih menghabiskan lebih banyak masa untuk makan (59.49 %) berbanding bersosial (38.93 %) dan perjalanan (10.82 %). Kemunculan dan kelakuan lumba-lumba putih bagaimanapun diperhatikan tidak berhubung kait dengan mana-mana parameter air termasuk kedalaman. Kedua-dua spesies boleh bertoleransi dengan keadaan air yang sama di kawasan kajian. Lumba-lumba putih dan empesut kebanyakannya didapati berada berhampiran muara sungai. Disebabkan aktiviti makan yang lebih banyak diperhatikan di kawasan kajian, teluk Cowie adalah dianggap sebagai tempat mencari makanan penting bagi kedua-dua spesies lumba-lumba yang dikaji. Oleh yang demikian, aktiviti-aktiviti socio-ekonomi seperti pembalakan, pertanian dan perikanan di mana aktif dijalankan di kawasan ini hendaklah dikawal bagi mengurangkan ancaman supaya populasi lumba-lumba dan hidupan marin lain di teluk ini dapat dkekalkan.*