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# CHAPTER 8

## Marked declines in populations of Irrawaddy dolphins

Brian D. Smith, Isabel Beasley, Daniëlle Kreb

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Coastal Irrawaddy dolphins held in captivity in Oasis Seaworld, Laem sing, Thailand. Live captures pose a serious threat to the fragmented populations in South East Asia. In Indonesia, Irrawaddy dolphins from the Mahakam River were held for live-display in Jaya Ancol, Jakarta between 1974 and 2000. At present no dolphins have remained alive. Photo: Daniëlle Kreb

## ABSTRACT

Recent population assessments of Irrawaddy dolphins *Orcaella brevirostris* in South East Asia were conducted in three major rivers, i.e., the Mahakam (Indonesia), Mekong (Vietnam, Cambodia, Laos) and Ayeyarwady (Myanmar) and Songkhla Lake (Thailand). All populations are faced with drastic declines in numbers and ranges and face several threats but death through gillnet entanglement is the main cause for these declines. In all areas, site-based research and conservation projects have been initiated by local and international NGOs in cooperation with government agencies. Generally, throughout their range, humans are positively inclined towards the dolphins, which may aid in their conservation.

## RINGKASAN

Pengamatan terkini lumba-lumba Irrawaddy (*Orcaella brevirostris*) di Asia Tenggara dilakukan pada tiga sungai besar, yaitu Mahakam (Indonesia), Mekong (Vietnam, Kamboja, Laos), Ayeyarwady (Myanmar) dan Danau Songkhla (Thailand). Seluruh populasi dihadapkan pada penurunan yang drastis dalam jumlah dan daerah hidup dan menghadapi sejumlah ancaman. Namun kematian yang disebabkan oleh terperangkap jala adalah penyebab utama dari penurunan jumlah tersebut. Di seluruh daerah, penelitian didasarkan pada tempat dan proyek perlindungan telah diprakarsai oleh LSM lokal dan internasional bekerjasama dengan perwakilan pemerintah. Pada umumnya, untuk seluruh ruang lingkupnya, manusia setuju untuk melindungi lumba-lumba, yang mana hal ini dapat membantu usaha konservasi.


## Conservation of Irrawaddy dolphins in South East Asia

Irrawaddy dolphins *Orcaella brevirostris* occur in some of the larger rivers and marine appended lakes in South-east Asia, as well as in coastal waters of the Indo-Pacific (Figure 1). Although the species is categorized as Data Deficient on the IUCN Red List, recent population assessments conducted in the Mahakam, Mekong and Ayeyarwady rivers and Songkhla Lake indicate alarming declines in their numbers and ranges and ongoing and pervasive threats to their long-term persistence.

Based on an intensive set of surveys conducted over 1999–2002, the population of Irrawaddy dolphins in the Mahakam River, Indonesia, was estimated to be < 50, generally confined to a 200 km segment of the mainstream plus connecting tributaries. Meanwhile, the population has been subject to a mean annual mortality rate of > 10%, with 80% of deaths attributed to gillnet entanglement. Prey depletion by non-selective fishing practices such as poisoning and electrocution may increase the temptation for dolphins to prey on fish caught in gillnets. Large coal barges towed by tugboats also

physically block dolphin movements in tributaries, where many of the remaining animals occur.

On the basis of similarly intensive surveys in the Mekong River from February 2001 to April 2003, the population was estimated to be < 100, confined during the dry season to a 190 km segment between Kratie, Cambodia, and Khone Falls just upstream of the Laos-Cambodian border. Eleven dolphin carcasses were recovered in the past 10 months, at least six of which were attributed to entanglement in gillnets.

A survey of the entire length of the Ayeyarwady River, Myanmar, in December 2002 recorded only eight dolphin groups and 37 individuals, in a 373 km long segment. This represents > 50% decline from their reported historical range. Meanwhile, > 1,200 gillnets were documented in the river with a significantly higher net density recorded in areas where dolphins have apparently been extirpated. Almost 900 gold mining operations were also recorded within the area of current dolphin distribution. These operations use mercury to amalgamate the gold. Accidental introduction of this element into the river could have profound toxic effects on the animals, especially given the bio-accumulative properties of this trace metal and the dolphin's position at the top of the aquatic food chain. Excessive noise from these operations also interferes with the ability of dolphins to navigate and detect and catch their prey. In addition, the operations introduce, break-up, and redistribute large quantities of sediment, causing major changes in the geomorphologic and hydraulic attributes of the river.

In May 2000 and February 2001 extensive surveys of Songkhla Lake recorded only four dolphin groups, with the largest composed of eight individuals. Between 1990 and 2001, 28 dolphin carcasses were recovered. At least 13 of these died from entanglement in gillnets. Six dolphins were also found dead in the first 6 months of 2003. One of these was pregnant and had its flukes cut off, probably to extract it from a gill net.

These findings indicate that freshwater populations of Irrawaddy dolphins are at a critical juncture and that immediate conservation action is required to prevent their extirpation. The greatest threat to these animals, and probably all small cetaceans, is entanglement in gillnets. However, despite the grim situation facing these populations there are reasons for hope. In collaboration with local NGOs and government agencies the Whale and Dolphin Conservation Society and Wildlife Conservation Society, among others, are establishing site-based research and conservation projects in all three rivers where the dolphins occur and in Songkhla Lake. There has also been a great increase in local awareness of the conservation importance of these animals. The Irrawaddy dolphin has been adopted as the official mascot of the Phattaloug Province, which borders Songkhla Lake, and the Queen of Thailand has declared the animals a Royal Protected Species. People living in the Mahakam Basin attribute the animals to a human origin and the species participates in a cooperative fishery with throw-net fishermen in the Ayeyarwady River. Throughout their freshwater range in South-east Asia local people generally revere Irrawaddy dolphins. The challenge is to channel these positive sentiments into effective conservation action.

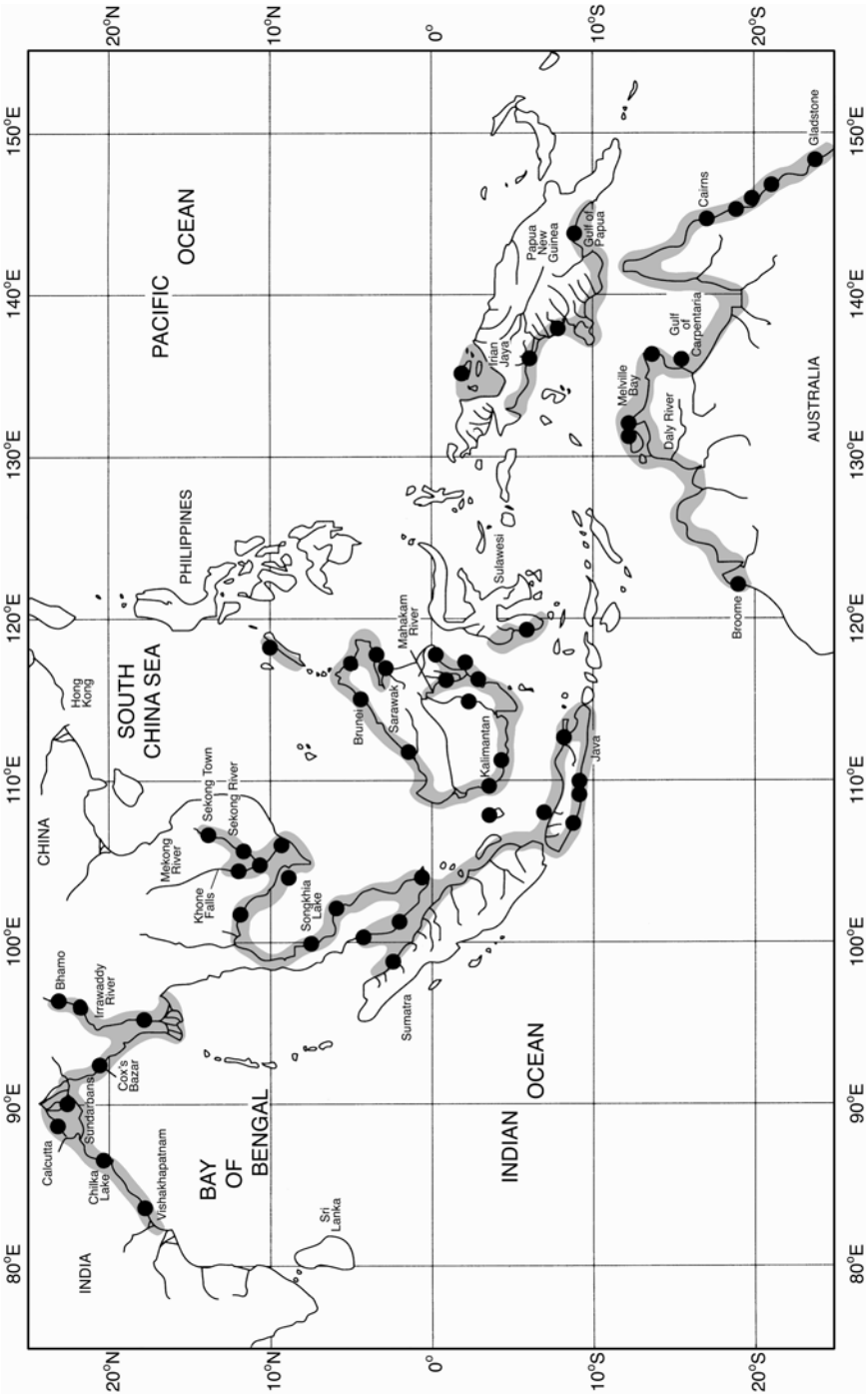


**Figure 1.** Map with Irrawaddy dolphin distribution in South East Asia. Black dots representing actual records from literature and own observations.

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