Based on interviews with fishermen, a total of 11 specimens (Table 1) were cataloged over a period of four years (January 1992 - January 1996). These specimens were caught by fishing nets (8-14 cm mesh between knots) which extend from the sea bed to the surface; the nets are 60 m in total length and 4 m in height. The captured turtles are all juveniles, and their occurrence in the bay is seasonal during spring and summer months.

<table>
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**Table 1.** Specimens of *C. mydas* caught in Patos Lagoon, Brazil, January 1992 - January 1996. Material collected was deposited in the Museu Oceanográfico do Vale do Itajaí (MOVI).


**SEA TURTLE DEATHS COINCIDE WITH TRAWLING ACTIVITIES IN NORTHERN AUSTRALIA**

The threats posed by shrimp trawling to the survival of sea turtles have been well documented in the United States (e.g., National Research Council, 1990). In Australian fisheries, limited, yet conflicting, data exist on the impact of prawn (shrimp) trawling on sea turtle populations. Early authors confused the issue by comparing high annual harvests of green (*Chelonia mydas*) and hawksbill (*Eretmochelys imbricata*) sea turtles in Indonesia and New Guinea with incidental drowning of mainly flatback (*Natator depressus*), loggerhead (*Caretta caretta*) and olive ridley (*Lepidochelys olivacea*) sea turtles in Northern Australia, and thereby deducing the
trawler induced mortality (9%) to be at a level which was not of immediate concern (Poiner et al., 1990; Poiner and Harris, 1994).

Sea turtle mortality from incidental capture by trawler operators in Queensland was estimated at 1%, but may be as high as 6% (Robins, 1995). Loggerheads are prone to higher mortalities when trawling activities overlap with feeding aggregations near nesting beaches (Limpus and Reimer, 1994; Tucker et al., 1996). Trawling has significantly contributed to the decline of loggerheads in eastern Australia (Limpus and Reimer, 1994; Heppell et al., 1996). Few data are available for non-breeding turtles trawled on feeding grounds which are not associated with nesting aggregations.

In the United States, the coincidence of sea turtle strandings on beaches with the peak of shrimp trawling activities offshore has been demonstrated many times (e.g., Whistler, 1989; Amos, 1989; Caillouet et al., 1992; Steiner, 1994; Shaver, 1994, 1995). Yet reports of similar coincidences between sea turtle mortalities and trawling activities are unknown from the Northern Prawn Fishery which extends across the sparsely populated coastline of northern Australia (see Poiner et al., 1990). Herein is reported a stranding of four species of sea turtle that coincided with trawling activities in the Northern Prawn Fishery.

On 2-3 September 1995, 15 dead sea turtles washed ashore along 20 km of coastline at Dundee Beach, Fog Bay, Northern Territory Australia (12°43'S, 130°21'E). Twelve were olive ridleys with curved carapace lengths (CCL) between 51-67 cm; also, one loggerhead (CCL =70 cm), one sub-adult green (CCL=40 cm) and one flatback (CCL=71 cm). An aerial survey of 60 km of coastline in the vicinity revealed no other strandings. This is the same locality where numerous sea turtles were killed by a bottom-set gill net in 1991 (Guinea and Chatto, 1992). Most of the flesh had decomposed from the carcasses leaving only the carapace and plastron. There was no sign of human-induced physical damage from what remained of each animal. Judging by their advanced decomposition, we estimated that the animals had been dead for at least a week.

As four species, each with a different diet, were involved, it was unlikely that a toxin in the food chain was responsible. The cause of death remains unknown but it is reasonable to consider the potential impact of human activities in the Fog Bay region at the time. Prawn trawlers using otter trawls operated windward of the beach and about 12 km from shore. Inshore, the users included an unknown number of recreational anglers and a professional crab pot (trap) fisher. Of these activities, trawling was the most likely to have caused the death of the turtles. Vessels in the Northern Prawn Fishery are not required, at the present time, to record incidental captures of sea turtles, or to use Trawl Efficiency Devices (TED’s) which exclude bycatch species including sea turtles.

The lack of previous reports of sea turtle mortality during trawling activities in the Northern Prawn Fishery may be attributable, in part, to a minimal negative impact of trawlers (Poiner et al., 1990; Poiner and Harris, 1994; Robins, 1995), or possibly, to the extensive, largely uninhabited northern Australian coastline, or even, to the low density of sea turtles over some of the trawling grounds. Fog Bay is exceptional in having a small but lucrative prawn fishery (Grey, 1978), a coastal community of environmentally-conscious people who report dead turtles, and a large sea turtle population. These factors make the area suitable for assessing the impact of trawling on sea turtles on a feeding ground and thereby providing an independent test of the efficiency of sea turtle excluding devices or the usefulness of incidental catch log-books by the fishing industry.
Netting and trawling activities pose a real threat to the five species of sea turtle that live in Fog Bay. The high relative frequency of olive ridleys amongst beach-washed specimens, is of particular concern as so little is known about the Australian population (Limpus, 1982; Guinea, 1990; Harris, 1994). The demand for prawns and other marine products from northern Australia is high and is likely to increase. Modifications to existing fishing gear with Trawl Efficiency Devices (Mounsey et al., 1995; Robins-Troeger et al., 1995) and more selective fishing traps (Buckworth, 1995) which reduce the threat to sea turtles, are overdue developments. Australian fishers have been receptive to these innovations, but await the results of extension work before deciding to trial the new technologies.

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