

DIVING AND SUBMERGENCE BEHAVIOUR AND PHYSIOLOGY

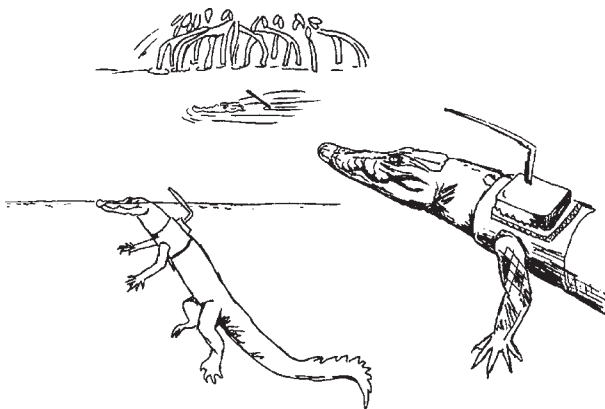
Although crocodylians have long had a strong reputation for being able to remain submerged for long periods, there has been a dearth of detailed information. In 1981, Peter Harlow, Bill Farlow, Kjell Johansen and I tried to get some information about natural diving patterns in free ranging, undisturbed *Crocodylus porosus*. We caught 12 crocodiles, 6–51 kg, in the downstream tidal Liverpool River, Northern Territory, Australia and attached what would now be seen as very clumsy devices, designed and built by Bill to monitor whether the head was above or below water. It is a story to weep over. We fitted devices to all of the animals, held in place with snazzy neoprene ‘jackets’ with radio transmitters attached, and released them at their capture sites. We trialled the jacket on the smaller crocs in captivity before release and they seemed unaffected, but when we

recaptured seven of them, 5–16 days later, only one croc was still wearing one!

We got excellent data from that one, a 9.5 kg female, which made the loss of what we could have had even more acute. Fortunately, really sophisticated depth loggers are now easily available and, nearly 30 years later, Frank Seebacher, Craig Franklin and Hamish Campbell got some great data from both ‘freshies’, *C. johnstoni* and ‘salties’, *C. porosus* (see below). But a lot more data are needed, and from more species and in different habitats, before we have a good understanding of those parts of crocodylian lives that are spent under water.

WHEN? WHY? HOW DEEP? HOW, AND HOW FOR SO LONG?

These are questions about crocodylian diving and submergence that it would be good to have answers to. Crocs have long been famous for the ability to stay under water for long periods (Figs 9.1–9.6), for ‘a couple of hours even’. This has always attracted interest, probably because humans cannot, yet there are surprisingly few satisfactory answers to any of these questions. Until recently, most reports about natural diving behaviour have been anecdotal, but happily there is a wealth of new information from field studies on Australia’s freshwater crocodile, *Crocodylus johnstoni*. One significant finding was very enlightening, and it confirmed my long held



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Large crocodylians, like this adult male *Crocodylus porosus*, are capable of resting on the bottom for extraordinarily long periods. (Photo DSK, modified from image taken at WILD LIFE Sydney Zoo)