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Old Charley's Legacy

by Rachel Smolker

At dawn the familiar chuff of dolphins breathing tells us that they are back again. Stumbling out of our tents, bleary eyed, we are greeted by Snubnose, who lies on his side in the shallow water with one eye out, watching us as we walk down the beach and into the water. The splashing of our entrance into the water brings Bibi who has been foraging just offshore. His fin slices the water as he approaches, stopping at our feet with head held up and mouth agape in anticipation of a fish handout. So begins another day at Monkey Mia, a small caravan park on the east coast of Peron Peninsula, Shark Bay. Snubnose and Bibi are just two of the 7 or 8 Bottlenose Dolphins that regularly 'visit' the people at the park.

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The association between dolphins and people at Monkey Mia began many years ago. Though the history of the interaction is somewhat obscure, many locals say that it began with a single dolphin, 'Old Charley', who used to herd schools of bony herring underneath the small jetty at the park. Fishermen could easily catch the herring, some of which they used for bait, and some of which they fed to the dolphin. Old Charley is no longer around, but it appears the tradition was passed along.

Wilf and Hazel Mason took over the operation of the caravan park in 1975, and have kept some records since then. At present the dolphins that visit the park include Holey Fin, an older female, and her three offspring: Nicky (11-12 years), Joy (7 years) and Holly (3 years). Joy rarely visits the park any more. Another adult female, Crooked Fin, used to come in regularly with her daughter Puck (10 years). Crooked Fin seldom comes inshore these days, but will approach boats offshore. She has a new baby this year. Beautiful used to come in with her son Bibi (11-12 years). Bibi still visits, along with his friend Snubnose, an adult male, but Beautiful had a new baby in 1982 and disappeared shortly after.

In 1981, as students at the University of California at Santa Cruz, we learned of the Monkey Mia dolphins from Elizabeth Gawain (author of 'The Dolphin's Gift'). The situation appeared ideal for a study of dolphins' behaviour in their natural environment. We made our first trip to Monkey Mia in 1982, and have returned for a few months each year since then.

We use small dinghies to move around the bay making observations. Typically, we encounter anything from one dolphin to groups of ten, whose members change frequently. Using photographs of the nicks and scars on the

dolphins' dorsal fins, we have learned to recognise over 150 dolphins in the waters around the park. Some are seen regularly, while others are seen less frequently. A few of the dolphins we know from our work offshore occasionally accompany the tame dolphins in close to people at the park. Although they generally don't take fish or allow people to touch them, these offshore dolphins are surprisingly friendly and accepting of people on boats.

We have been able to determine the sex of many dolphins by simply looking at their genitals when they roll upside down while riding at the bow or playing around the boat. As these dolphins grow older, they develop speckles on their bellies. This provides us with some indication of the dolphins' ages.

With regular observation of a large number of dolphins of known sexes and approximate ages, we are beginning to unravel a fascinating story of the dolphins' social lives. Using a technique called 'focal animal' observation, in which a different dolphin is chosen each day and observed for as long as possible, we are studying the dolphins' society. By studying the focal dolphin's activities and social interactions, we will be able to answer questions such as: are there differences between the sexes in terms of whom they choose to socialize with and how much time they spend at different activities? How big are dolphin groups, and how many different dolphins does an individual come into contact with in a typical day? What happens when dolphins join or leave groups?
Dolphins produce a wide array of sounds, including clicks, whistles and 'social' sounds which, to human ears, sound like squeals, barks or grunts. Clicks are used for echolocation, a sensory system used by dolphins (and some

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bats) to 'see' their environment with sound, by listening to the echoes produced when their clicks bounce off objects such as fish.

Sound travels four times faster underwater than in air. When a sound made underwater strikes air (such as the water surface or a fish's swim bladder) the sound is not conducted into the air, but is reflected, much as light is reflected when it strikes a mirror. On the other hand, underwater sound is efficiently conducted from water through fat. The bulbous forehead of a dolphin contains an organ (called the 'melon') which consists of fat. The melon serves to focus the dolphin's clicks (produced in air sacs beneath the blow hole) into a directional beam emitting from the front of the forehead. Dolphins hear sound up to 150 kHz through fat bodies which channel sound from the back of the jaw to the inner ear. These adaptations for the processing of underwater sound provide the dolphin with an unusually sophisticated means of sensing their environment where murky waters make vision somewhat ineffective. While it is difficult to imagine what it's like to 'see' the world with sound, we can begin to understand how dolphins use echolocation by observing them in the wild.

Scientists studying captive dolphins have found that each member of a dolphin group may have a distinctive type of whistle, called its 'signature' whistle. Dolphins produce their sounds internally, so it is generally impossible to determine which dolphin is responsible for a particular sound, particularly in the wild. Studies of dolphin whistles have therefore been limited to captivity, where the dophin's natural behaviour may be distorted.

At Monkey Mia, we take advantage of our ability to interact at very close range with the 7 or 8 tame dolphins to record whistles from each dolphin. This will allow us to see whether wild dolphins have 'signature' whistles, and to learn about how these whistles function in nature. We also can record the sounds produced by groups of dolphins as they hunt for fish, socialize with each other, travel around the bay, rest and interact with people. This will allow us to determine whether certain types or sequences of sound are correlated with particular behaviours.
Despite the popular appeal of dolphins, and the fact that by any measure dolphins appear to be amongst the most intelligent mammals, surprisingly little is known about them because they are difficult to observe. There is only one other long-term study of wild bottlenose dolphins, based off the coast of Florida. Monkey Mia provides an unprecedented opportunity to learn about the ecology, social lives and communication of dolphins using simple, passive observation. While many people have seen dolphin shows at marine parks, the dolphins at Monkey Mia provide a unique glimpse into the natural lives of dolphins.

THE FUTURE

Earlier this year State Cabinet approved in principle the joint management of the dolphin habitat at Monkey Mia by the Department of Conservation and Land Management (CALM) and the Shire of Shark Bay.

The Shark Bay Regional Plan, prepared jointly by CALM and the State Planning Commission, and available for public comment until 10 July 1987, has recommended that this 600 ha area be made a Marine Park to ensure the protection of the dolphins, and control boating and other activities that may endanger them.

Already there is an excellent visitors' information centre at Monkey Mia, paid for by public donations, thanks to the pioneering efforts of the W.A. Tourism Commission. A development plan for this site has been prepared, and is recommended for implementation. □

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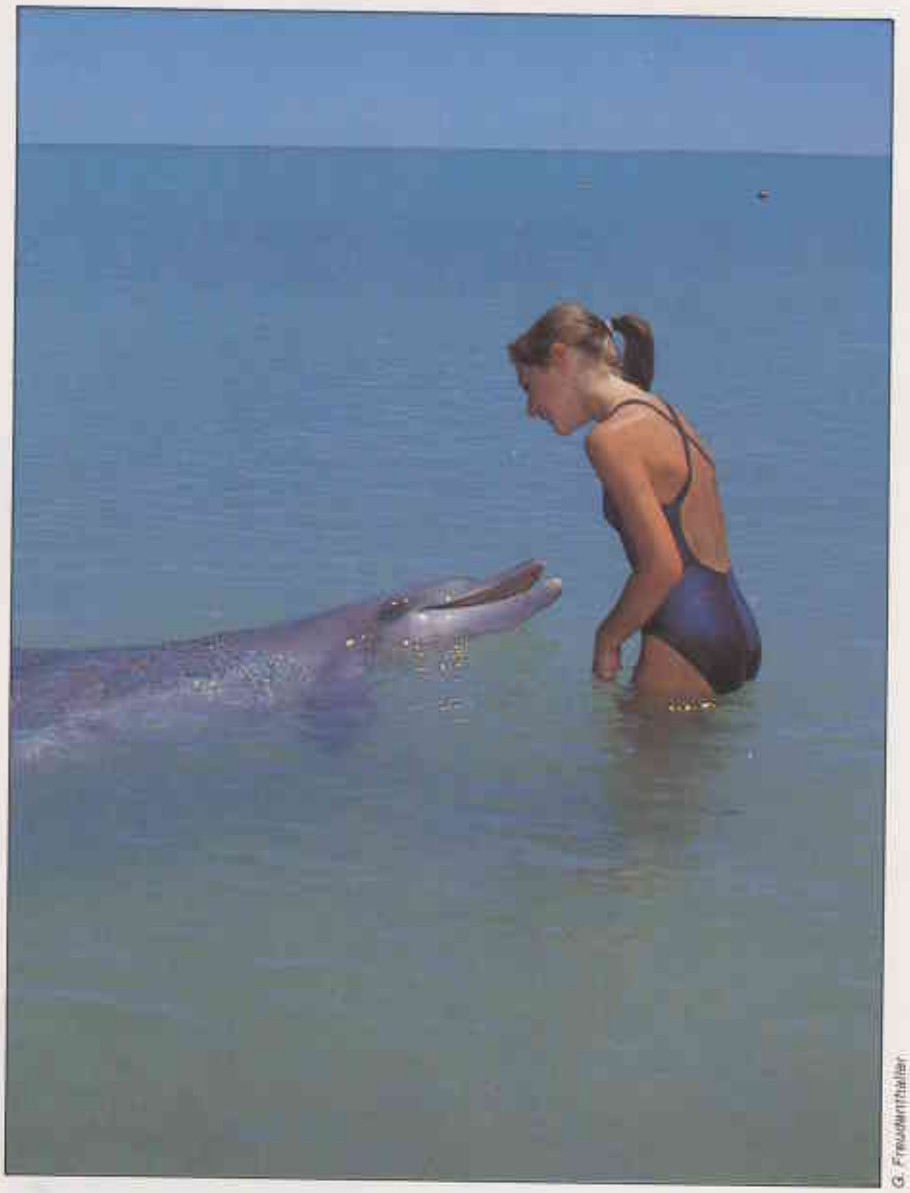
Peaceful co-existence (above).

Conversation without words (below).



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The Monkey Mia caravan park

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COVER PHOTO
Shipwreck at Broome (Jiri Lochman).

EDITORIAL

For more than 100 years W.A. has recognised the importance of protecting significant areas of its natural heritage.

Today, about 4.5 million hectares of our State is classified as national parks, vibrant natural museums ranging from the hardwood forests of the south-west to vast inland deserts that represent our unique terrestrial flora and fauna.

Until now, however, there has been a missing element: the marine environment.

Clearly, its absence has made our park system less representative of W.A.'s environment, especially considering that the State has some 12700 km of coastline.

Recently a start was made to address this imbalance with the official opening of the Marmion Marine Park, W.A.'s first marine park.

The primary objective in establishing this park, which is located on metropolitan Perth's doorstep, is to conserve significant examples of our marine heritage, and to encourage public understanding, appreciation and continued enjoyment of the marine environment in ways which will leave it unimpaired for future generations.

These same values apply to the proposed Ningaloo Marine Park which is situated along 260 km of the State's coastline south of Exmouth. Ningaloo will be vested in the National Parks and Nature Conservation Authority as a marine park in July.

Both of these marine parks not only allow for the development of proper management techniques to protect the marine environment, but also to enhance recreation.

Marmion reef has long been a popular holiday destination for many Western Australians who fished for the huge groper and crayfish offshore, and swam in the protected lagoons.

Ningaloo might be less well known because of its isolation, but the tourist industry is expected to promote this area of our coastline and the adjacent Cape Range National Park and, as a consequence, it will become one of the State's premier tourist attractions.

The establishing of marine parks will provide many benefits.

Some intangible, such as the knowledge that future generations will be able to appreciate areas of unspoiled natural beauty.

Others more tangible, such as the enjoyment of visiting a marine park.

There will also be benefits in terms of jobs created and the expansion of a growing and viable tourist industry.

Furthermore, marine parks will provide ecological benchmarks for research into natural processes and into the relative effects of marine and coastal uses.

W.A. has a responsibility to protect special marine environments and to encourage public appreciation of these areas now and in the future.

Our marine parks will do this.