Monkey Mia News

Issue 2 Winter 2000

DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT

SHIRE OF SHARK BAY

***Welcome to the issue of* Monkey Mia News.**
This newsletter will be produced twice a year, giving an update on what's happening in this important region, the Shark Bay World Heritage Area. Monkey Mia News is a not-for-profit publication to give visitors an understanding of the happenings at Monkey Mia, including the important research undertaken in Shark Bay. Support this work by becoming a Monkey Mia Dolphin 'Friend' and receive regular newsletters and other benefits. See back page for details!

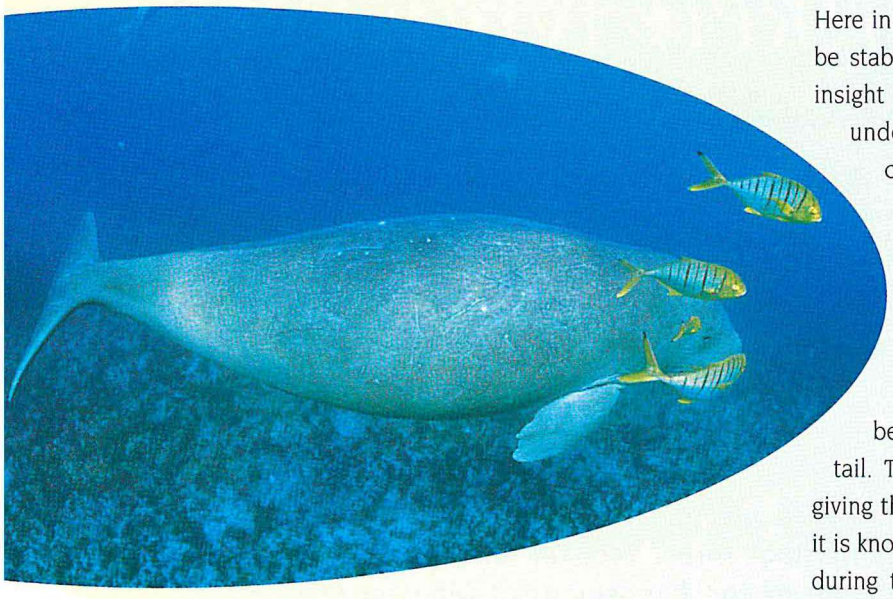
Left: Holeyfin's daughter Nicky still visits the beach almost daily to interact with visitors.

Monkey Mia's Matriarch

People who visited Monkey Mia before 1995 will probably remember Holeyfin, who was the matriarch of this special place for many years. She was easy for people to identify because of the distinctive markings on her back, which were scars from sunburn. Holeyfin was one of three dolphins that received severe sunburn when they were stranded on a sand bar in 1987. Holeyfin survived this ordeal but, unfortunately, died in 1995 from a stingray barb that entered her heart. Although the rangers realised from a change in her behaviour that something was wrong, unfortunately, nothing could be done to help her, and she died at the age of 35.

As well as for her distinctive markings, Holeyfin was renowned for approaching the people standing on the beach, purely to interact with them on a one-to-one basis. Such an interaction gave visitors to Monkey Mia a thrilling experience that they would never forget, so much so that many of these people still visit Monkey Mia every year. Even today, Holeyfin remains a part of Monkey Mia by providing valuable information for research. DNA samples were taken from her for future use in establishing relationships between the dolphins in Red Cliff Bay, and teeth samples were taken that have enabled us to estimate her age. Also, Holeyfin's daughter Nicky is still a regular visitor to Monkey Mia, visiting the beach on an almost daily basis.

The new visitor centre, which is currently under construction, will have Holeyfin's skeleton and replica on display, ensuring that she will be a part of Monkey Mia for many years to come.



Above: A Dungong swimming in the waters of Shark Bay

RESEARCH SPOTLIGHT
Revealing the secrets of the Dungong

By Researcher Dave Holley

The dugongs of Shark Bay are not as easily seen as the better-known marine mammals, the dolphins. However, with latest population estimates for the Shark Bay region being at between 10,000 and 16,000, their presence here is undeniable. The dugong (*Dugong dugon*), the only herbivorous marine mammal in Australian waters, is at its southern most limit within the waters of Shark Bay. Feeding on seagrass, the dugong can reach lengths of up to 3m and weights of up to 420kg. The unique environment of Shark Bay, with its large banks of seagrasses, is prime dugong habitat, criteria that contributed to the bay's listing on the World Heritage register.

Having always been a food source for indigenous groups throughout its range, from East Africa to Vanuatu, the dugong is now quite vulnerable to extinction from many new and quite different practices, with many smaller populations having already disappeared. Moreton Bay, which forms the southern most limit on the eastern seaboard, has seen a dramatic decline in dugong numbers. The cause of this decline has been attributed to a variety of factors. Mesh nets for trawling, shark nets set for protection of swimmers, and boat strikes are some of the direct threats responsible for this decline. Other factors include the low population growth of the dugong and the indirect threat to their habitat by loss of seagrass from agricultural chemical runoff and coastal development. Combined with the often violent weather patterns of northern Australia the cards can often seem to be stacked against the dugong.

Here in Shark Bay the already healthy population appears to be stable, which makes it ideal to study and gain a clearer insight into the movements and habitats of a very little understood animal. The Department of CALM, in conjunction with the local Yadgalah Aboriginal Corporation, Edith Cowan University in Perth and James Cook University, Townsville, is currently using state of the art technology to determine dugong movements throughout the bay during the year. Specially designed Satellite and Global Positioning System (GPS) tags are towed along behind a dugong, attached to a harness on the animal's tail. These tags either store information or relay it back, giving the location of the dugongs within the bay. At present, it is known that dugongs inhabit the inner portions of the bay during the summer months, and as the water temperature drops and winter approaches, they will move out to seek the warmer waters in the northern sections of the bay.

By deploying location devices on the animals, their movement patterns can begin to be understood. Assessment can also be made of the seagrass habitat of particular areas in which they can be found during various times of the year. The combined information on habitat use and seasonal movement will aid management decisions to ensure that practices, which may prove harmful or disruptive, are not carried out in those areas favourable to dugongs. The overall conservation aim is to maintain the population at a healthy level, ensuring a presence within the bay for generations to come.

TIGER SHARKS . . . Putting the pieces of the puzzle together

By Researchers Mike Heithaus and Lawrence Dill

The waters surrounding Monkey Mia are a spectacular patchwork of shallow seagrass beds and surrounding deeper waters. The dolphins of Shark Bay can be seen in both of these areas, but it was unknown how often the dolphins used these shallow and deep areas, and why they chose to spend time in one or the other. Before we began our investigation we had to ask ourselves what might influence where a dolphin wants to spend its time. Dolphins are always looking for their next meal, so food should be important. Also, more than 70 percent of the bay's dolphins bear wounds and scars from attacks by large sharks, so staying away from these large predators, especially tiger sharks, should also be an important consideration for the dolphins.

In order to determine the distribution of the dolphin's food (fish), more than 600 fish traps have been set over the past several years. These traps were baited with chopped fish and

placed in both shallow and deep areas. After two hours, the traps were retrieved and the fish counted and measured before being returned to the water. After counting and measuring about 12,000 fish, we have found that there is three times as much food for the dolphins in the shallow seagrass beds year-round, than in the deeper water.

Determining which habitats were the most dangerous for the dolphins meant we had to study the dolphin's main predator, the tiger shark. Over the last three years more than 280 tiger sharks have been tagged and released, some more than four metres in length. Our work has shown that in the summer months, Shark Bay is full of 'tigers', with their preferred habitats the shallow seagrass beds. The sharks are probably in these areas looking for their favorite prey dugongs, sea snakes, and sea turtles. However, when the water cools down in late May, the sharks generally disappear, and in particularly cold winters, there are almost no tiger sharks around at all, probably because the dugongs and sea snakes have left. Where the sharks go at this time remains a mystery until further research can be undertaken.

Above: A Tiger Shark is tagged by researchers

So what about the dolphins? Do they spend most of their time feeding in the shallow areas that have more food or do they stay away from these favorite haunts of the tiger shark? In the winter months, when the sharks are gone, more dolphins are found in the shallow waters than in the deep, taking advantage of the rich food source. However, when the sharks come back in the summer, the dolphins spend much less time in the shallows, opting for the safer, deeper waters even though it means they have to spend more time looking for food. This raises the possibility that animals such as dugongs, turtles, and sea snakes may be important to the dolphins even though they never interact directly with each other. Basically, these animals influence the movement of the tiger sharks, which, in turn, influence the habitat choices of the dolphins. This shows that the lives of the animals in Shark Bay are all interconnected, which has led to the creation of the Shark Bay Ecosystem Research Group (ShaBERG). ShaBERG's goal is to understand the complex interactions among many of the bay's animals. In the future, ongoing research on animals such as tiger sharks, sea turtles and rays will begin to expand our knowledge of how all the pieces of the Shark Bay puzzle, including the dolphins, fit together. If you would like to support this work, please contact Dr. Lawrence Dill (Department of Biological Sciences, Simon Fraser University, Burnaby, BC V5A 1S6 Canada; ldill@sfu.ca).

THE SHARK AND DOLPHIN MYTH

The common belief that where you find dolphins you won't see sharks is, in fact, just a myth. Shark Bay has a large population of dolphins and sharks, so it's not just the dolphins that you may see cruising around the bay!

Sharks prey on dolphins, particularly calves, with their main predator being the tiger shark. More than 70 per cent of the Shark Bay dolphins bear wounds and scars from attacks by large sharks. Kiya, the two and a half year old calf of Monkey Mia's beach dolphin Puck, was bitten by a tiger shark on the 4th March 2000. When she first came into the beach the wound was approximately 20 centimetres in diameter and 6 centimetres deep. As shark bites are a natural hazard for dolphins, ranger staff did not interfere with the healing process, but instead monitored the wound, which healed naturally over about 6–8 weeks. Kiya's wound is now completely healed. However she still bears a scar, a reminder of her encounter, and her lucky escape.

Below: Kiya was lucky to escape with her life after being bitten by a tiger shark

Dolphin Update

Throughout the Summer and Autumn of 2000, the seven regular 'beach' dolphins have continued to visit the beach at Monkey Mia on a daily basis. Possibly the most well known of these, Nicky, a 24-year-old female, and her 20-month-old calf Nomad, have been the most regular visitors, closely followed by 23-year-old Puck and her two-and-a-half-year-old calf Kiya. Puck's juvenile daughter Piccolo, at seven-and-a-half years, is also a regular visitor, coming inshore on average three to four days per week. Nicky's five-year-old son Hollikin also visited on a number of occasions, along with regular visitors 20-year-old Surprise and her 18-month-old calf Sparky. As well as the regular visitors, a number of off-shore dolphins came inshore for occasional visits over the past few months, particularly when playing and socialising with the calves of the beach dolphins.

NUMBER OF HOURS PER MONTH SPENT IN-SHORE

Dolphin	January	February	March	April	May	TOTAL HOURS
*Nicky	102	91	81	98	70	442
*Nomad	102	91	81	98	70	442
*Puck	102	83	94	89	67	435
*Kiya	102	83	94	89	67	435
*Piccolo	99	65	68	61	37	330
*Surprise	70	81	61	52	56	320
*Sparky	70	81	61	52	56	320
Holikin	0	0	3.3	1.55	2.25	7.1
Joysfriend	0	0	1.2	0	7.21	8.41
Jambo	0	0	1.2	0	7.21	8.41
Lando	0	0	0	0	1.4	1.4
Peglet	0	0	0.7	0.15	2.4	3.25
Shock	0	0	12.1	9.92	4.13	26.15
Skruff	0	0	0.45	0.15	1.39	1.99
Smokey	0	0	0.1	0.35	1.45	1.9

* Regular Visitors to the Monkey Mia foreshore

The Monkey Mia Dolphin Friends Membership

You will receive a copy of the Monkey Mia learning package and a discount voucher for entry to Monkey Mia (valid for one year)

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