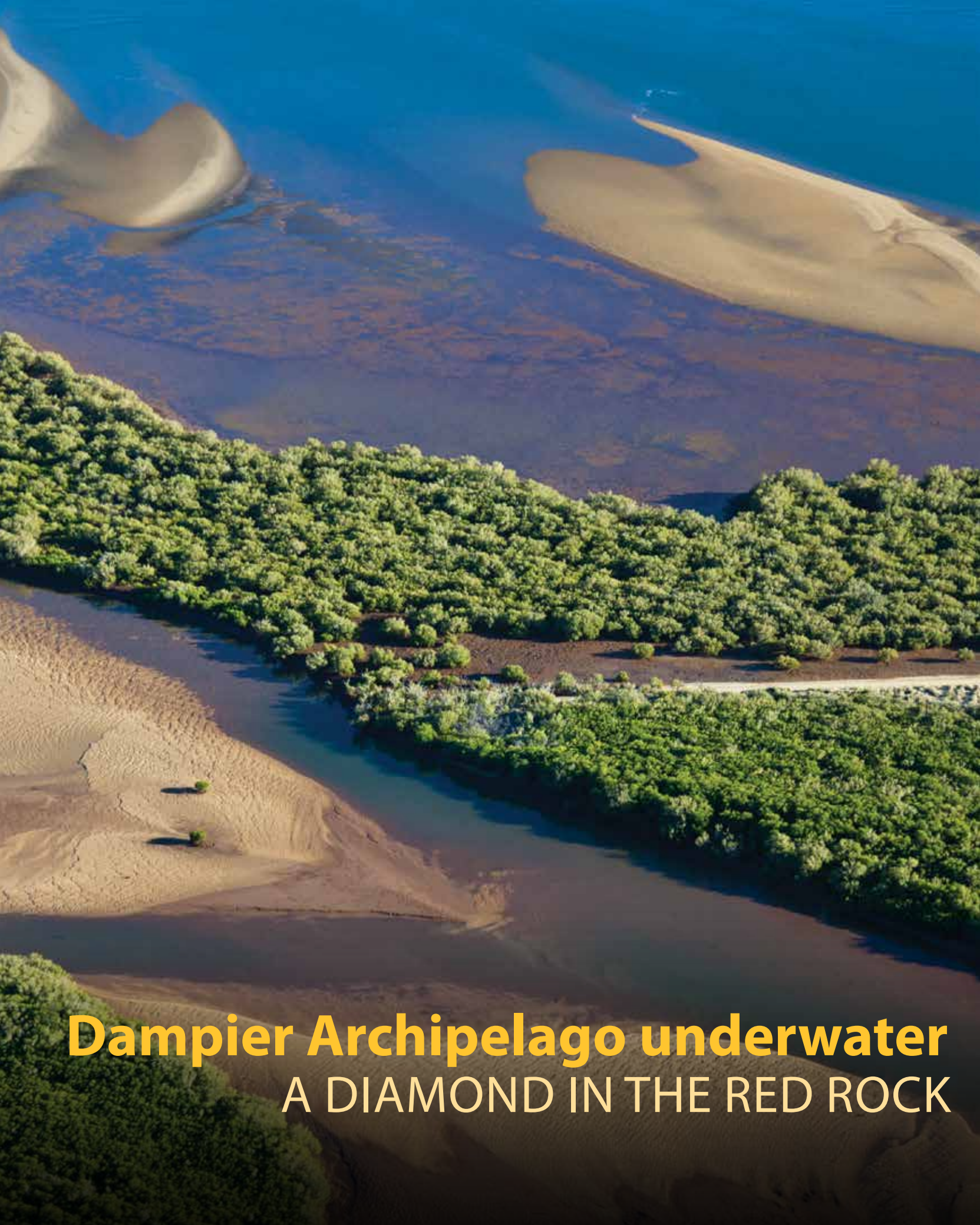


Dampier Archipelago underwater

A DIAMOND IN THE RED ROCK

BY MARGIE MOHRING

When many people think of the towns of Dampier and Karratha, they think of red dirt and mining, but there's much more to this area than meets the eye. Just beneath the surface of the surrounding ocean you'll find a rich diversity of marine plants and animals.

The Dampier Archipelago is situated 1650 kilometres north of Perth, adjacent to the towns of Dampier and Karratha. When most people think of the area, they think of mining, busy ports, salt pans and red dust. Not many people have had the opportunity to explore the area's rich and diverse waters and experience first-hand its unique marine and coastal environment. Made up of 42 offshore islands, intertidal and subtidal coral reefs, mangroves, and macroalgal communities, the archipelago abounds with magnificent marine life.

It is also significant because it is the meeting point between a diverse marine environment and intensive human activities. As part of offset funding associated with the Pluto Liquefied Natural Gas development on the Burrup Peninsula, Parks and Wildlife marine scientists are establishing a marine monitoring program in the waters surrounding the Dampier Archipelago to help understand and manage the outstanding marine conservation values of this hidden gem into the future.

CAPTIVATING CORALS

Dramatic red granophyre rocks loom over contrasting blue water, which contains some of the most diverse coral habitats in Western Australia. More than 200 hard coral species from 57 genera have been identified and approximately 18,000 hectares of coral reef occur around the archipelago. In some areas the coral reef is bright and complex, with massive *Porites* bommies looming over branching *Acropora* beds. In other areas close to shore the water can be warmer and less clear, which gives rise to different, hardier and less spectacular communities. These include vase (*Turbinaria* spp.) and cactus (*Pavona* spp.) corals which are more common in silty environments, and even the uncommon giant star coral (*Moseleya* sp.), which is entirely restricted to murky, muddy waters. Other genera which survive well in muddy environments are the flowerpot corals (*Alveopora* spp. and *Goniopora* spp.) which can be observed extending their long tentacles into the water. These corals use their tentacles to catch food to supplement the energy provided by the microscopic algae (known as zooxanthellae) that live in coral tissue and provide corals with much of their colour.

SEAWEEDS AND SEAGRASS

Seaweeds and seagrass form dense beds among the coral reefs and provide food and shelter for fish and invertebrates. Seaweed beds are dominated by the genus *Sargassum*, and can be found throughout the waters of the Dampier Archipelago. These extensive algal beds are significant breeding, feeding and nursery habitats for species popular with fishers in the Pilbara. Each year the algal beds undergo major seasonal changes as *Sargassum* fronds break away from their holdfasts and form massive rafts. These rafts allow pieces of seaweed to be transported long distances and populate new areas, as well as carrying small critters like juvenile fish and crabs, which can be transported to widely separated habitats around the archipelago. Seagrass beds are found throughout Nickol Bay and around many of the islands. They are important habitats for swimmer crabs and prawns, while dugong feed on the small-leaved *Halophila* and *Halodule* seagrasses.

MANGROVE FORESTS

The area is considered to be internationally significant for mangrove communities. More than half of the mainland shore and many of the islands are lined with complex mangrove habitats, comprising six species. Species that occur in the area include the common grey mangrove (*Avicennia marina*) with its exposed breathing roots (pneumatophores) which help them survive in muddy sediments with low oxygen; and the stilt mangrove (*Rhizophora stylosa*) with its strong buttress roots that trap sediment and help stabilise the shoreline. Their complex root systems provide safe havens for many transient and resident animals, and provide important nursery habitat for juvenile fish, turtles and sharks. Mangroves also protect the shore from strong waves and cyclones, and shelter urban and industrial developments and infrastructure. A small mangrove creek on the southern side of Enderby Island serves as a secret hiding spot for countless creatures. The water here is often very clear and juvenile turtles, sharks and rays can readily be seen sheltering in the mangroves.

RICH COASTLINE

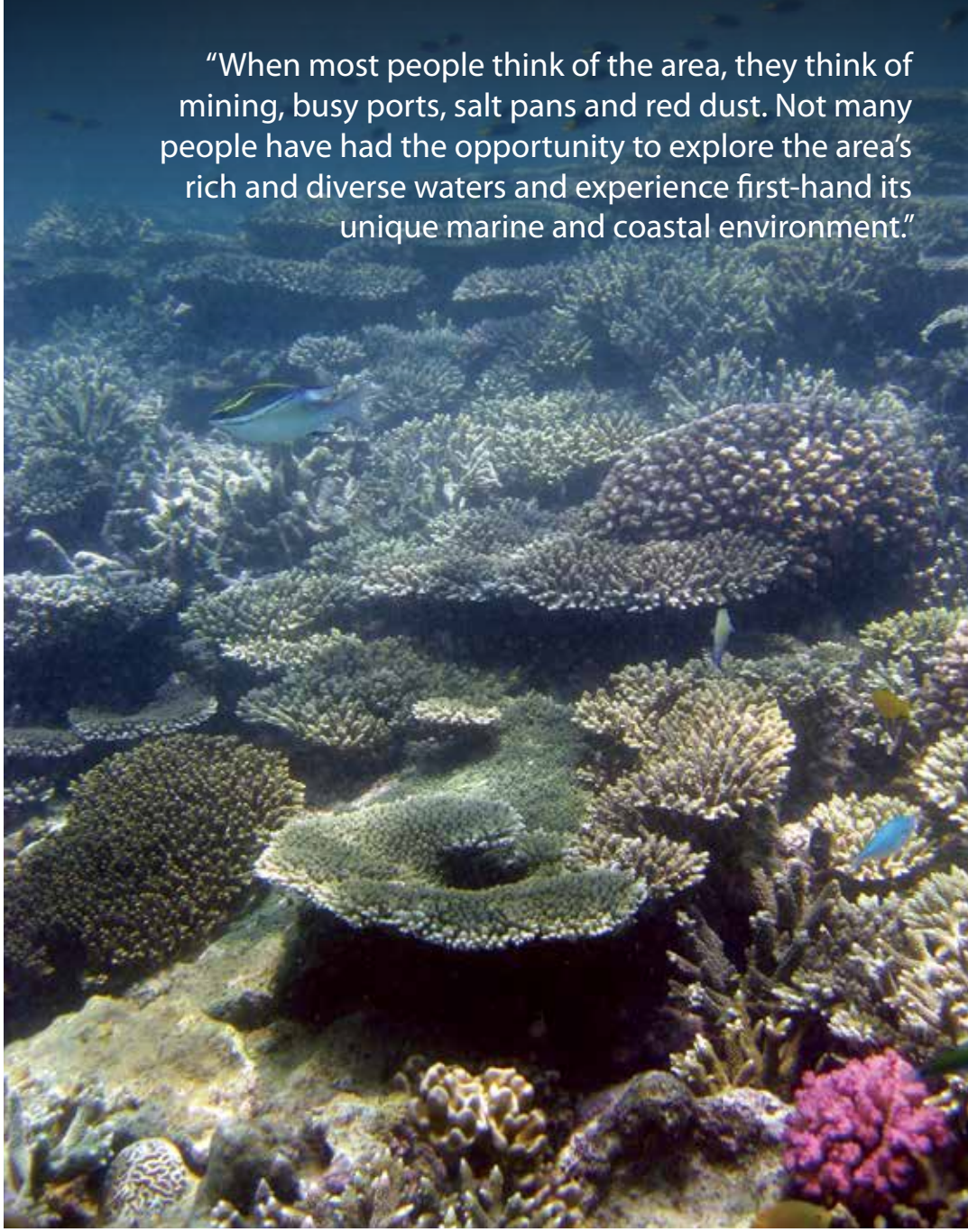
There are beautiful beaches all over the Dampier Archipelago, where the red rocks contrast with the white sand and yours are often the only footprints. There are lots of small and unusual

Previous page
Main Stunning mangroves at south west Regnard Marine Management Area.
Photo – Cliff Winfield
Inset from top A fiery-looking Aeolid nudibranch.
Photo – Margie Mohring/Parks and Wildlife
A striking sixbar angelfish.
Photo – Shannon Armstrong/Parks and Wildlife
A colony of delicate stalked ascidians.
Photo – John Huisman/Parks and Wildlife

Above Lush mangroves fringe Murujuga National Park.
Photo – Sallyanne Cousans

Right Mangroves provide shelter for a range of organisms.
Photo – Marissa Spiers/Parks and Wildlife

Far right A magnificent *Acropora* bed sighted in 2007. Return trips to the area have failed to find the reef.
Photo – Shannon Armstrong/Parks and Wildlife



"When most people think of the area, they think of mining, busy ports, salt pans and red dust. Not many people have had the opportunity to explore the area's rich and diverse waters and experience first-hand its unique marine and coastal environment."

invertebrates to observe, and beautiful shells accumulate on the tide line. Many species of sea birds visit, feed and nest along the Dampier coastline, some forming large nesting colonies. Birds of prey, including ospreys and sea eagles, are common and can be seen leaving their nests on the islands to go hunting, occasionally resting on the bow of vessels. Other birds can be spotted along the shore, such as the shy beach stone-curlew with its distinct warning call, or the more common cormorants which are a pleasure to watch diving deep in search of fish. The coastline of the Dampier Archipelago is also rich in culture, with the history of Indigenous people extending back at least 30,000 years. The area is Murujuga land and contains some of Australia's earliest art and cultural sites. The interests of the Aboriginal people are represented through the Murujuga Aboriginal Corporation, and the cultural heritage of the land is managed by the Murujuga Land and Sea Unit. The team carry out regular patrols to observe and report on plants and animals, as well as the condition of heritage sites.

SCHOOLS OF FISH

The Dampier Archipelago is a popular spot for anglers to wet a line and catch a fish, but there are hundreds of species on reefs that fishers are unlikely to see unless they venture under the water. A total of 650 species of fish have been identified, including many interesting and exciting species. These include some targeted by fishers like golden trevally, mangrove jack and coral trout. Other reef fish, like angel and butterfly fish, colourful wrasse, and tiny damsel fish dart in and out of branching corals, which provide shelter, and in some cases food, for these stunning species. Some of the fish observed are important for maintaining a healthy reef system. Surgeonfish and rabbitfish are typically herbivorous and feed on

Left A pin-cushion star, resting in a gap between the coral bommies.
Photo – Parks and Wildlife

Below far left Dense drifts of pink jellyfish off the northern tip of Legendre Island.
Photo – Melanie Trapon/Parks and Wildlife

Below left A moray eel peers out of a rock crevice.
Photo – Margie Mohring/Parks and Wildlife

filamentous and juvenile algae, preventing it from growing into fleshy macroalgae that competes with corals for light and space.

INVERTEBRATES

The waters of the archipelago are home to hundreds of species of molluscs, echinoderms, crustaceans and sponges. There are some amazing molluscs in the area, including the massive Australian trumpet (*Syrinx aruanus*). This trumpet shell is the world's largest living gastropod, and can grow to almost a metre in length and weigh more than 18 kilograms. These big shells can often be seen on the intertidal mudflats around the Dampier and Regnard area. Although often highly visible, they are an important part of the ecosystem and should not be disturbed. On the hard reefs it is also common to see giant clams, and big baler shells (*Melo amphora*) as they crawl across the interspersed sandy patches. Painted crayfish hide under ledges or in crevasses, and on the steep offshore walls they are often in high numbers and share these refuges with black urchins (*Diadema* spp.) and octopuses. A popular crustacean among fishers is the mud crab (*Scylla serrata*), which is common among the muddy shoreline mangroves. Recently there have been many reports of crown-of-thorns seastars around Mermaid Sound. Although these large seastars feed on live coral and have caused large-scale coral declines on other reefs, they occur naturally across this region. Dense drifts of pink jellyfish have been observed caught in a tide eddy off the northern tip of Legendre Island. Amongst this swarm of jellyfish, a large mantra ray was seen feeding amid the activity.

MARINE GIANTS

The waters of the Dampier Archipelago are important breeding, feeding and migration grounds for dugongs, whales, dolphins and turtles. Two dolphin species are relatively common: the more abundant bottlenose dolphin (*Tursiops aduncus*) and the Australian humpback dolphin (*Sousa sahulensis*) that is endemic to northern Australia. The cryptic Australian snubfin dolphin (*Orcaella heinsohni*), also found only in northern Australia, is occasionally sighted in Pilbara coastal waters but there are no known resident populations and these are presumably only occasional visitors to the Dampier area. Nickol Bay is an important staging area for migrating humpback whales, and dugongs are frequently seen foraging on seagrass in the area. Four species of turtles use the Dampier Archipelago – flatback, hawksbill, green and loggerhead. Every year hundreds of hawksbill turtles come ashore to nest at Rosemary Island, where scientists tag and monitor them (see also 'Tracking tides of turtles', *LANDSCOPE*, Autumn 2016). Other important turtle rookeries are found around Cape Lambert, Delambre Island and Legendre Island, where flatback turtles, which are endemic to Australia, are predominantly known to nest.

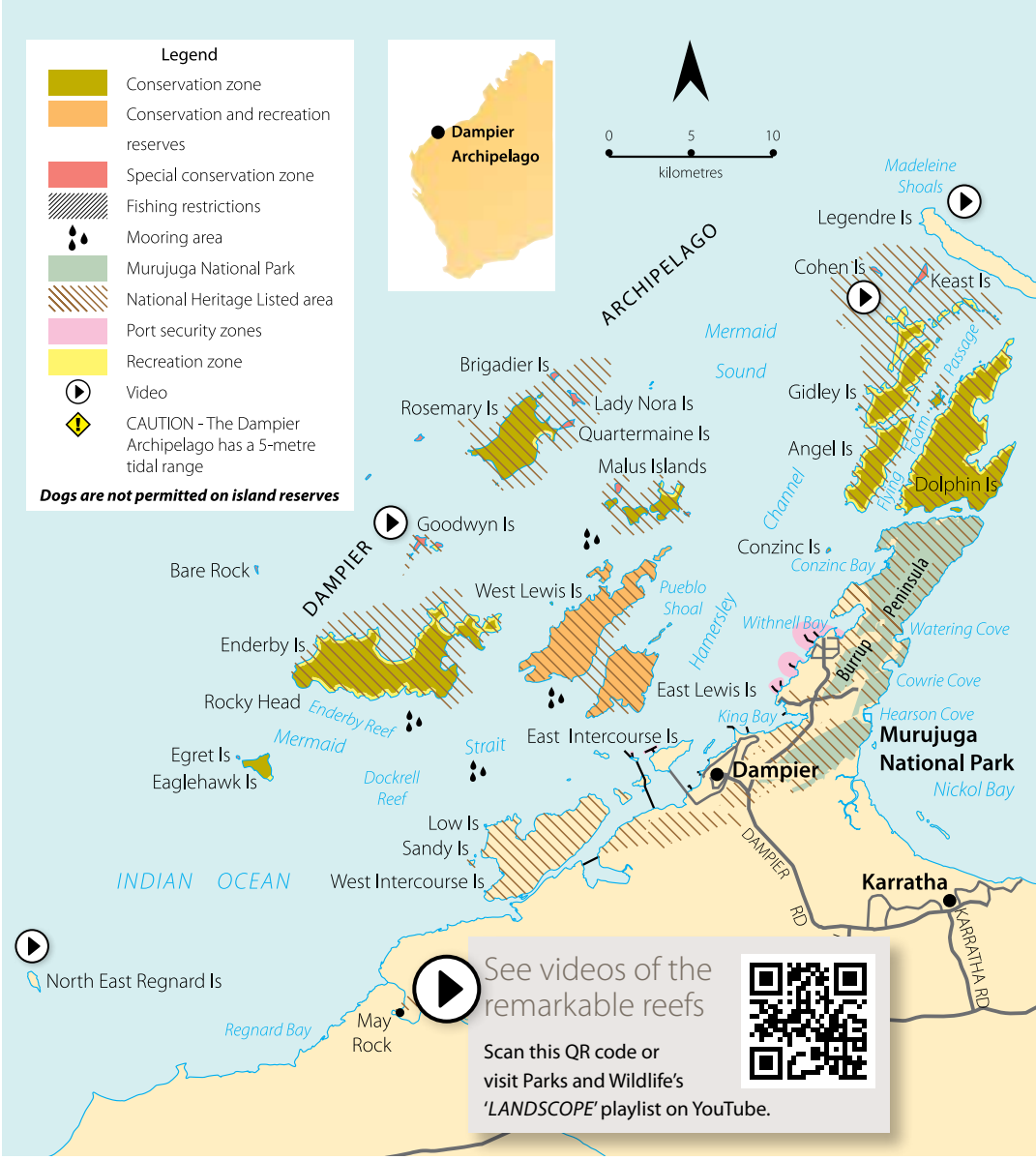
SCIENCE FOR CONSERVATION AND MANAGEMENT

The ocean and coast of the Dampier Archipelago and Cape Preston region are the focus of significant industrial

development and human activity. These create challenges in managing and conserving the environment so that this outstanding area remains for future generations to enjoy. For this reason, the Murujuga National Park and 25 island nature reserves have been created to protect the exceptional natural beauty and outstanding conservation and heritage values of this region. Several of the islands are either completely or partially closed to visitors to protect sensitive turtle and bird nesting habitats.

The monitoring program currently being implemented by Parks and Wildlife marine scientists will assist in the conservation of the largely unseen but spectacular underwater habitats and species that surround the Dampier Archipelago. This program will provide valuable baseline information on the health of this marine environment. It will initially investigate the condition of coral reefs and associated fish and invertebrate species, but will also examine mangroves, algae and seagrasses over time. These surveys will also help to identify areas where future research is needed.

Parks and Wildlife also monitors turtle nesting throughout the Dampier Archipelago and surrounds, recording hawksbill, flatback, green and loggerhead turtles at key nesting beaches on the islands. Remarkably, the nesting of hawksbill turtles on Rosemary Island has now been monitored for 28 years and is the longest running program of its kind in WA. Aerial and boat-based surveys are also being used to investigate the abundance, distribution and habitat use of dolphins. Finally, Parks and Wildlife is carrying out a large-scale project looking at how benthic habitats and their inhabitants are connected by ocean circulation and the movement of larvae and propagules throughout Pilbara marine waters, including the Dampier region. This will improve our understanding of how corals and seagrass might recover following environmental disturbances and identify areas that are especially important for maintaining healthy coral reefs and seagrass meadows.



Above left Beach stone-curlew are found in the area.
Photo – Jiri Lochman

Right Parks and Wildlife scientists researching the reefs.
Photo – Margie Mohring/Parks and Wildlife

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