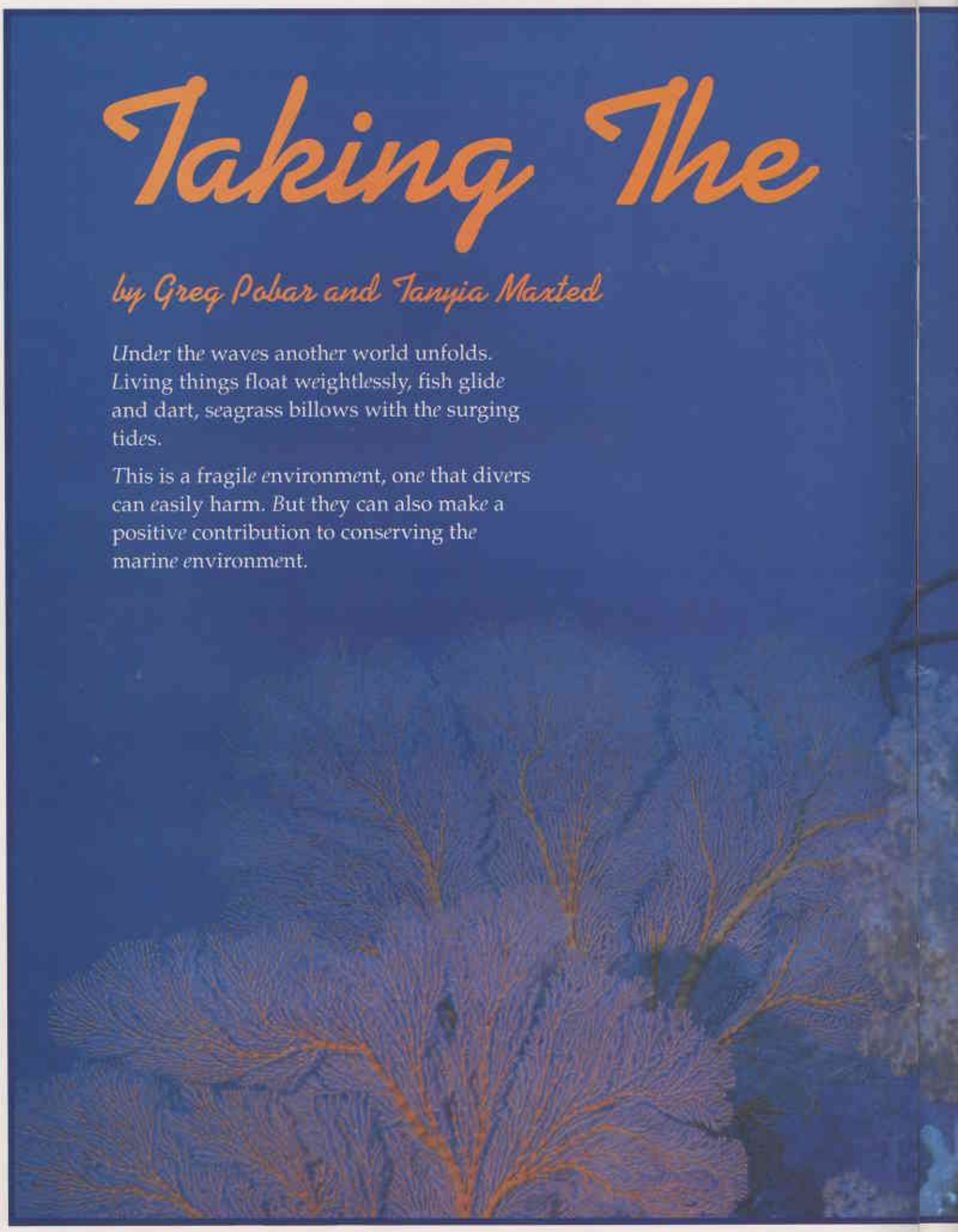
Taking The

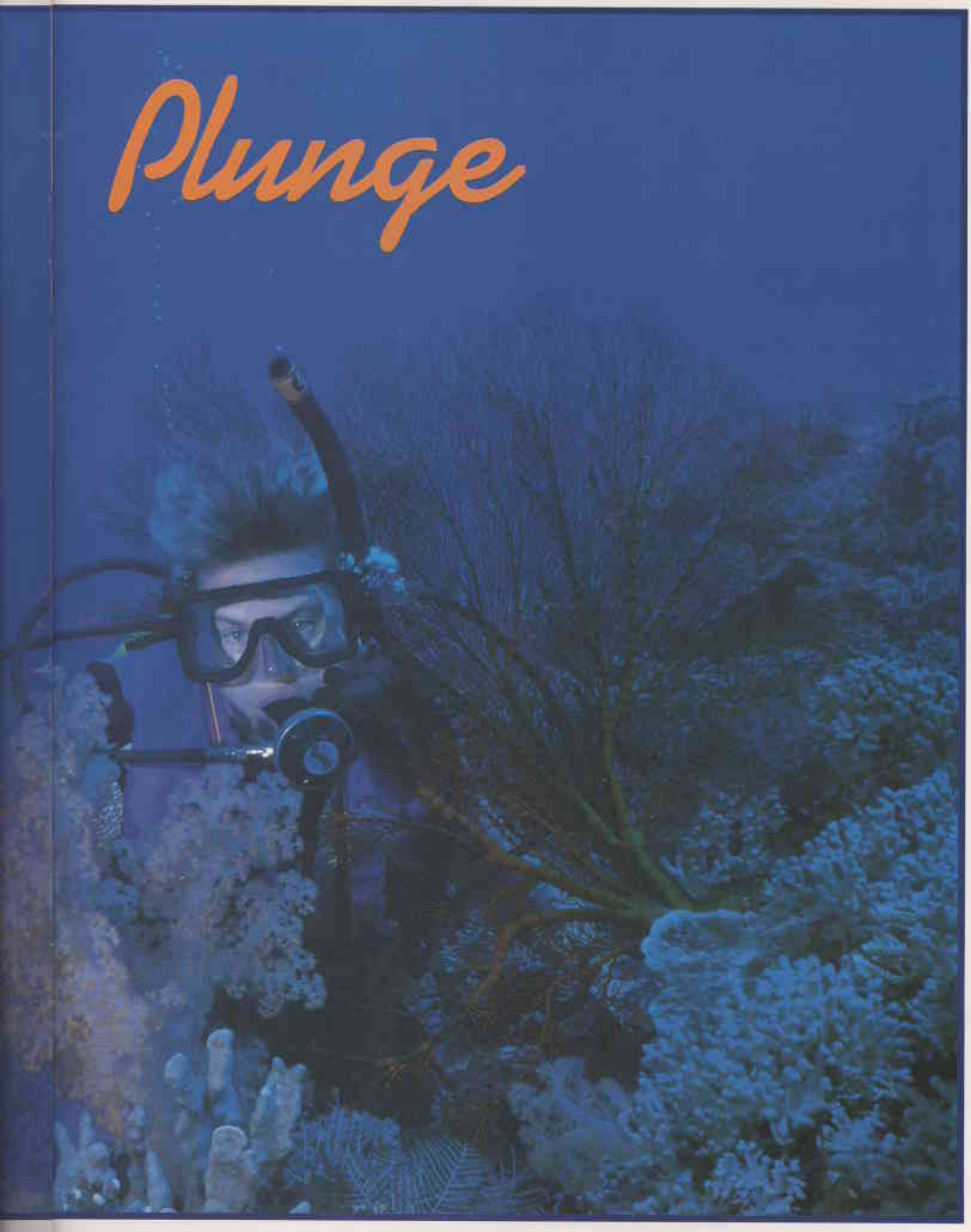
by Greg Pobar and Tanyia Maxted

Under the waves another world unfolds. Living things float weightlessly, fish glide and dart, seagrass billows with the surging tides.

This is a fragile environment, one that divers can easily harm. But they can also make a positive contribution to conserving the marine environment.



Plunge



DIVING is one of Western Australia's most popular pastimes. Trained divers with the aid of scuba (an acronym of Self-Contained Underwater Breathing Apparatus), and snorkellers with basic equipment such as masks and fins, become pioneers as they explore the coastline and discover places and marine creatures they never dreamt existed. Each week classes of masked, wet-suited novices of all ages take to diving spots around our coast to learn correct techniques before plunging into the deep on their own journeys of discovery.

This watery world has no limits: coral reefs, eerie shipwrecks, underwater caves, limestone harbour walls, tropical lagoons or forests of kelp ... each place offers its own array of natural wonders. Marmion Marine Park, for example, has an incredibly diverse array of marine life that can be attributed to the Leeuwin Current. From mid-autumn to winter, warm waters flowing south may contribute to marine life in the Park by carrying larvae of many tropical species. Shark Bay offers a completely different diving experience. Seagrass is the most prominent feature in the Bay's shallow waters. It grows in jungle-like formations on the massive Wooramel seagrass bank, a platform built by tidal currents and waves generated by strong southerly winds. The waving plain of seagrass covers 1030 square kilometres, and stretches the 129 kilometres of Shark Bay's eastern shore. It forms the basis of a whole ecosystem.

UNDERWATER WORLD

In spite of the interest in marine areas, marine ecosystems are little understood. Research programs are only just beginning to unravel their complexity. But it is clear that even the most minute marine organisms play an important role in maintaining microcosms, such as coral clumps, which in turn affect the productivity of whole habitats.

Coral reefs are rivalled only by tropical rainforest in the numbers of plants and animals that exist together in a delicately balanced web of life (although this itself may be in a constant state of flux). If key elements such as coral are altered, this may change the whole ecosystem. The population explosion of the small snail *Drupella* at Ningaloo Marine Park is a good example of this. *Drupella* has decimated huge areas of reef, leaving patches of dead coral covered with algae. Once the coral has gone, species dependent on it for food and shelter are lost. At Ningaloo, the colourful coral-eating fish have been replaced with large schools of grazing fish which eat the luxuriant algae.

During training, novices practise diving techniques in the controlled conditions of a swimming pool.
Photo - Gerhardt Saueracker▲

Photo previous page - Eva Boogard

Several important and representative underwater habitats are protected by WA's marine parks, which are managed by the Department of Conservation and Land Management (CALM). Marmion and Ningaloo Marine Parks are well established. In the near future, waters at Shark Bay and Shoalwater Bay will also be declared marine parks.

There are also many other beautiful and ecologically significant areas outside marine parks that are heavily used by divers but not at present subject to any management control. It is up to the individual diver to ensure that his or her activities maintain the environment in its natural state.

Diving can affect unspoilt marine communities in many ways. Activities like spearfishing, harvesting or collecting marine life, are thought to disrupt normal marine communities by altering species number and diversity. Unlike line fishers, divers can easily select the site and the type of fish they wish to take, a practice which can result in heavy exploitation of certain species at particular sites, upsetting the natural balance.

However, it is now becoming clear that even passive diving activities, such as underwater photography, simple observation or fish feeding, may have an impact on marine environments. These passive divers can sometimes unknowingly alter the composition and aesthetics of marine communities in the most indirect way. For example, a class of novice divers, still learning to control their buoyancy at a favourite coral reef dive site, can, by finning and rolling around, break and destroy coral.

Schools of wrasse (predatory fish) often accompany a diver to feed on morsels of food disturbed by the diver kicking. Bubbles from a diver's breathing apparatus dislodge marine fauna attached to roofs of caves; and dangling equipment like gauges and air lines can snag coral and attached fauna, resulting in reef damage.

While the impact of one diver may be minimal, WA's favourite dive sites are visited by thousands. Because of its accessibility from Hillarys Boat Harbour, Boyinaboat Reef, a limestone outcrop in the Marmion Marine Park off metropolitan Perth, is visited by up to 100 divers a day during peak summer periods. Sites in more remote areas that regularly attract tourists, like Ningaloo Reef, are also at risk. For instance, *Drupella* flocks to broken coral. Damage by humans who visit the reef may be one of the initial causes of the infestation. Researchers are currently investigating this possibility.

However, divers can also make a positive contribution to conserving the aquatic environment. CALM is asking divers who visit remote sites to record

Proper buoyancy control protects marine life attached to underwater features.
Photo - Gerhardt Saueracker ▶

Feeding marine life such as this moray eel is a great experience, but the effects of luring nocturnal animals to feed during the day aren't fully understood.
Photo - Neil Wehlack ▼

the presence of dead or dying coral, *Drupella* and crown-of-thorns starfish. Divers interested in participating can obtain a coral reef assessment form from diving shops in Geraldton, Exmouth, Karratha and Broome. This information will be useful in the research, and ultimately the management, of these areas.

Divers can play an important role in marine management. Groups such as the Friends of Marmion Marine Park have been involved in reef monitoring and mapping, dive site and underwater nature trail development, and underwater cleanups.

Diver training agencies can also help. They have witnessed changes to diving sites first-hand, and most are now developing awareness programs to ensure that novice divers not only have the skills to dive, but are conscious of the impact that even passive diving can have on the marine environment.

MARINE MANNERS

Interaction with aquatic plants and animals is both a privilege and a responsibility. It is the "diver in residence" (the fish, dolphin, sea-lion, etc.), as well as the coral polyp and other encrusting life, which is affected by our behaviour when conducting underwater activities.

When you dive, make up your mind to leave an area as it was before you arrived, avoiding undue disturbance to the marine environment and its resident plants and animals. Leave marine invertebrates where you find them, for all to enjoy, and if you pick up a rock or a shell always put it back where you found it. Virtually anything you pick up will probably have an animal living in it.

Make sure your diving gear is secured and not dangling, and watch where you're kicking: fins can break off coral. Good buoyancy control is important so that you don't crash into animals such as sensitive corals. You should also take great care when settling on the bottom; quiet, smooth movement is less likely to disturb animals and will let you observe aquatic life behaving naturally, rather than fleeing or hiding.

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Dive Time

To go on charter boats or hire scuba equipment, and to become a safe and capable diver, you need an open-water scuba certificate.

1. ARE YOU FIT?
You must have a medical examination before you can register for a dive course. Obtain a medical form from your local dive shop.

2. EQUIPMENT
To take a course it is best to have your own mask, fins, snorkel, wetsuit and weight belt. Other essential scuba equipment (which can be hired for about $30 per day) includes an alternative air source "octopus", a buoyancy compensating device, a depth gauge, and a submersible pressure gauge. If you decide to purchase rather than hire, make sure you buy quality products with warranties.

3. CHOOSING YOUR INSTRUCTOR AND COURSE
There are a number of dive schools throughout WA. However, it is important to make sure your instructor is approved by the National Coaching Accreditation Scheme (NCAS). If you have any doubts about the suitability of your intended instructor, contact the Department of Sport and Recreation on (09) 387 9700. Your course normally includes a minimum of six hours of pool training. You will be taught the correct use of scuba equipment, in-water safety techniques, and rescue exercises. During this phase of your training you will also be prepared and tested for ocean diving.

Photo - Gerhard Saueracker

using practical skills you learnt in the swimming pool. Ocean diving is the culmination of your basic dive course.

4. KEEPING A LOG
Divers should keep an up-to-date log book listing the number of dives per year. You should keep up your skills with at least one dive every six months. Otherwise, you should do your next dive with an experienced dive master. A log book also provides a useful record of where you've been and what it was like.

5. ADVANCED COURSES
Once you have the basic certificate, you can take advanced courses in night diving, deep diving, search and recovery, compass navigation and underwater natural navigation. As well as imparting valuable skills, they are tremendous fun. Imagine diving at night when nocturnal creatures such as worms, eels and crayfish come out.

6. BE A SAFE AND CONSIDERATE DIVER
Always:
. take someone with you
. be wary of others and their activities
. know local regulations and ethics
. keep a weather watch ◘

Photo - Eva Boogard

Each weekend, hundreds of novice scuba divers take the plunge. Get the most out of your diving on page 10.

A very different landscape replaces what was once a thriving timber industry. Rediscover Cannington in the 1850s. See page 42.

Seaweed! Delicate and beautiful, or slimy and smelly? Decide for yourself on page 20.

LANDSCOPE

VOLUME FIVE No. 4 - WINTER EDITION 1990

How do birds fly? How do some reach speeds of over 80 kilometres per hour? Learn about avian aerodynamics on page 28.

Western Australia grows some rare and stunning native spider orchids. Their alluring nature will delight the reader on page 34.

FEATURES

REGULARS

COVER

*Back in the early 1970s, Western Australia proclaimed the numbat (*Myrmecobius fasciatus*) as its State emblem which may have saved its life. With the help of scientists and new techniques, these delightful creatures are now fighting back against extinction. See page 15.*

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