

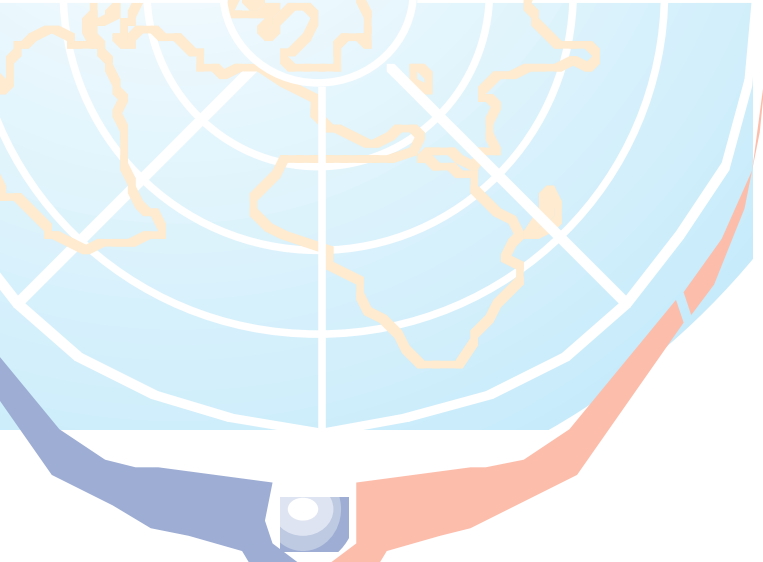


EARTHDIVE

“The health of our oceans is intrinsically linked to the future of life on this planet”

PRE-DIVE BRIEFING PACK **Eco-Region 12a** **Australia - Sub-tropical/temperate**





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1.0 General Information

This booklet is a **pre-dive briefing pack** for the **Australia - Sub-tropical/temperate** eco-region. Please feel free to print it and take it with you as an 'aide memoir' for your dive. It contains all the information you need to contribute to the **EARTHDIUE** Global Dive Log.

1.1 Introduction

The **EARTHDIUE Global Dive Log** is a pioneering methodology that has been developed in partnership with **UNEP-WCMC** and marine scientists from around the world. These marine scientists helped establish thirty **EARTHDIUE** eco-regions - areas of water that share a relatively similar climate and contain a common assembly of natural habitats and species. They then identified key indicator species for each region - an important set of marine animals whose numbers and changing population can tell us a lot about the changing state of our oceans.

You can help observe and record sightings of these marine animals during a dive or snorkel trip and enter observations into the **Global Dive Log**. You can also record evidence of key anthropogenic pressures - changes in the marine environment brought about by human activity such as pollution and overfishing. Any data you enter onto the **EARTHDIUE** website can be viewed by you and other visitors.

The **EARTHDIUE** eco-regions span all of the world's oceans - not just those areas with warm water and coral reefs. Whether you are diving in Scotland or Saint Lucia, Connecticut or Cocos, Denmark or Dominica, your data collection is equally valid and valuable. So you don't have to wait for the next exotic dive trip - home waters are just as important!

Each eco-region also has its own types of megafauna, from dolphins to whale sharks, from whales to polar bears (if you like really cold water) and provision is also made in the Global Dive Log to record sightings of these exciting animals.

Collecting this valuable information for **EARTHDIUE** helps create a **Global Dive Log** - a valuable research tool.

This briefing pack lists the indicator species and anthropogenic pressures for the **Mediterranean** eco-region.

Thank you for recording scientific information for **EARTHDIUE**.

1.2 How to record your observations into the Global Dive Log

When recording scientific information for **EARTHDIUE**, divers are recommended to follow our 7 Point Plan. You will find the use of a slate or some other method of taking notes underwater, such as a laminated fish identification card, invaluable. Always try to transfer your data to the **EARTHDIUE** website as soon as possible following your dive. Let dive buddies and dive leaders know what you are measuring, as they may be able to help with some post-dive questions on identification.

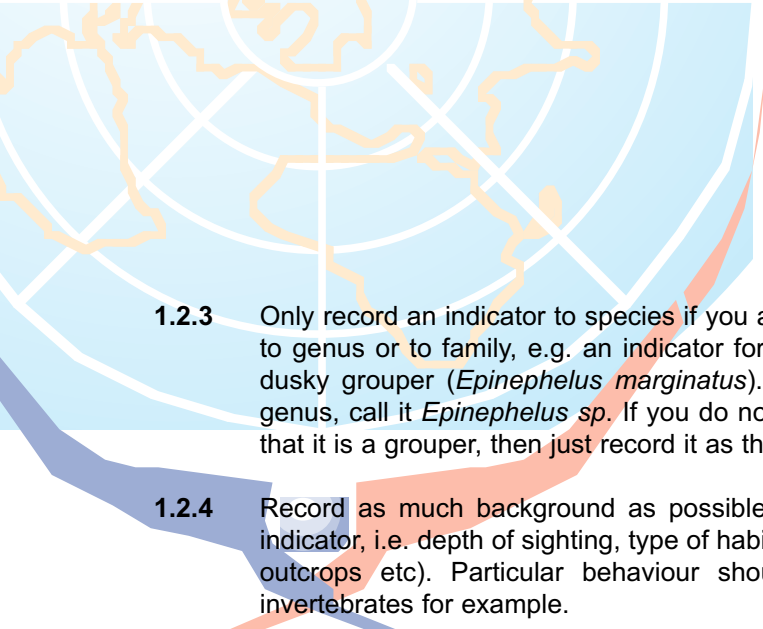
1.2.1 Try and ensure that the time of the underwater recording session is accurately noted. The length of the session can be all of the dive or just a period during the dive e.g. 10 minutes. You may even spend periods of time recording different indicators. For example there may be a dense aggregation of drums, which you count for 10 or 15 minutes. On the other hand you may look for other species such as groupers for most of the dive. Whatever your choice, the data is important so try to add the recording time in the notes for each indicator.

1.2.2 When possible always record **actual** counts of indicator species. If this is too difficult on the dive then enter your data into the abundance scale in the Global Dive Log as an estimate.



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- 1.2.3 Only record an indicator to species if you are 100% certain that it is that species. Otherwise record to genus or to family, e.g. an indicator for the sub-tropical Atlantic Coast of South America is the dusky grouper (*Epinephelus marginatus*). If you are uncertain of the species but recognise the genus, call it *Epinephelus sp.* If you do not have time to recognise it, or do not know it apart from that it is a grouper, then just record it as that - it's just as important!
 - 1.2.4 Record as much background as possible in the notes section of the Global Dive Log for each indicator, i.e. depth of sighting, type of habitat (lower reef slope, kelp bed, sand with scattered rocky outcrops etc). Particular behaviour should also be noted - spawning behaviour in fish or invertebrates for example.
 - 1.2.5 When recording always fin slowly and evenly with minimal sudden movements. Moving rapidly will disturb resident fish causing them to hide from view more quickly. By moving slowly and evenly you have more chance of seeing indicator species and recording their presence/absence more accurately. Always look carefully for particular indicators such as lobsters, which are often under overhangs or in crevices.
 - 1.2.6 On your way to and from your dive site, record any observations you have made regarding the listed anthropogenic pressures for this eco-region.
 - 1.2.7 Following your dive, make notes from your slate or memory and keep them in a safe place. Add any further comments within 24 hours before you lose some of the detail from your memory.

Thank you

2.0 The Australia - Sub-tropical/temperate Eco-Region

This eco-region comprises the coastal waters of the Australian states of New South Wales, South Australia, Victoria, Western Australia (South of Geraldton), plus Norfolk Island and Lord Howe Island Group.

Biodiversity is the term used to describe the variety of ecosystems, habitats, and species found in a region. The waters of this eco-region contain some of the highest levels of marine biodiversity in the world.

A remarkable example of isolated oceanic islands, the ancient and long-isolated **Lord Howe Island** group in the South Pacific, off the eastern coast of Australia, enjoy a rich diversity of fish and invertebrates, particularly echinoderms. The waters around Lord Howe Island provide an unusual mixture of temperate and tropical organisms, 477 fish species having been recorded in 107 families (although even this number has been shown to be conservative by at least 10%) of which 4% are unrecorded elsewhere other than in Norfolk Island-Middleton Reef waters. The beautiful, if toxically prickly, lionfish or red firefish, (*Pterois volitans*), is a protected species locally.

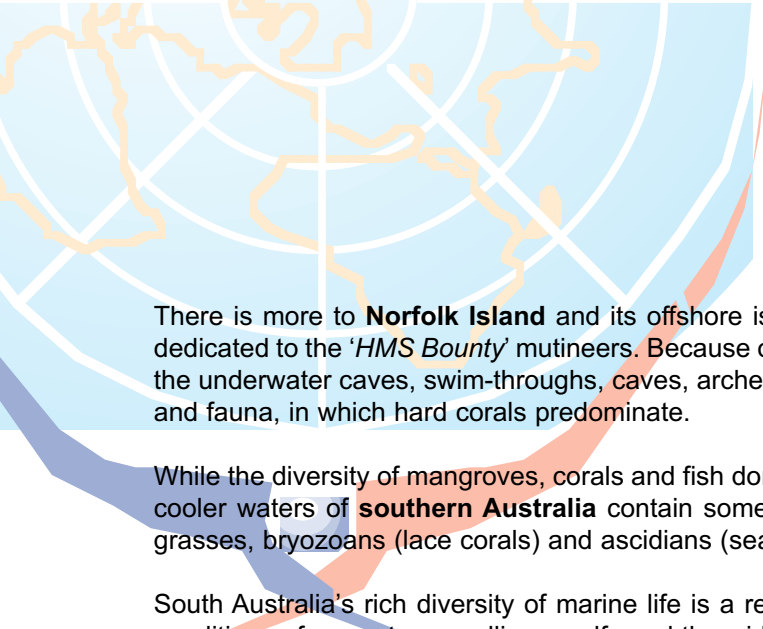
The islands also support significant populations of seabirds, including, sooty terns, providence albatross, flesh-footed shearwater, wedge-tailed shearwater, little shearwater, black-winged petrel, white-bellied storm petrel, masked booby tropicbird noddie, grey ternlet, and white tern.

Sub-Antarctic currents periodically denude the coral reef, but tropical currents support the recolonising process. Coral die-off as a result of polluted groundwater has been reported. These islands boast a spectacular topography, in a humid sub-tropical climate with a mean temperature of 16°C in August and 23°C in February. Lord Howe Island is a World Heritage site.



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There is more to **Norfolk Island** and its offshore islands of **Nepean** and **Philip Islands** than the museum dedicated to the '*HMS Bounty*' mutineers. Because of the volcanic rather than coral reef origins of the islands, the underwater caves, swim-throughs, caves, arches and walls are covered in a broad variety of marine flora and fauna, in which hard corals predominate.

While the diversity of mangroves, corals and fish dominate the warm tropical waters of northern Australia, the cooler waters of **southern Australia** contain some of the highest levels of biodiversity for seaweeds, sea grasses, bryozoans (lace corals) and ascidians (sea squirts) in the world.

South Australia's rich diversity of marine life is a result of its 3,700km coastline; it's varying oceanographic conditions of currents, upwellings, gulfs and the wide variety of coastal and marine environments.

Southern Australia also contains one of the world's largest marine floras, including about 25 percent of the world's red algae, of which 75 percent are endemic.

3.0 Indicator Species

What to look for and record in the **Australia - Sub-tropical/temperate Ecoregion**:

All Sharks

Low numbers are indicators of overfishing



Groupers (*Serranidae*)

Low numbers are indicators of overfishing



Reef and Rock Lobsters

Low numbers are indicators of overfishing



Snappers (*Lutjanidae*)

Low numbers are indicators of overfishing



Abalone

Target of exploitation – low numbers are indicative of exploitation



The International Union for Conservation of Nature and Natural Resources (IUCN) provides a listing of species that are at risk of global extinction. The 'IUCN Red List Categories and Criteria' are intended to be an easily and widely understood system and can be found at <http://www.redlist.org> The general aim of the system is to provide an explicit, objective framework for the classification of the broadest range of species according to their extinction risk. If any of the indicator species for this Eco-Region have been classified as Critically Endangered, Endangered or Vulnerable on the list, then we have included that information below.

3.1 Sharks

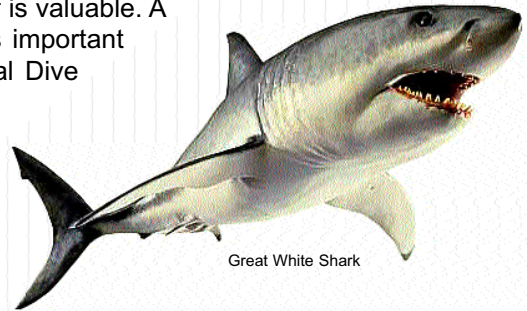
Identifying sharks in the wild is a great challenge! While scientists can spend weeks examining every detail of a species, divers may encounter a shark for only a few seconds or minutes. Many species look alike and one individual may not be identical to the next. There are, however, relatively few species in any one specific dive site and with some preparation and a little practice it is possible for all of us to recognise the more common and distinctive species.

The key to successful shark identification underwater is a process of elimination, based on a mental checklist of the main features to look for in every animal encountered. One feature alone is rarely enough for a positive identification, so gather as much information as you can before drawing firm conclusions.



EARTHDIVE wants you to record sightings of sharks. That in itself is valuable. A total count of all species and the time duration of the count is important information in itself and you can record this data in the Global Dive Log.

However, identifying the actual species is even more important. If you do not recognise a species, ask your buddy, dive leader or other divers in the group, who may have seen it also. Or, record unusual features like, needle sharp teeth, incredibly long tail, diamond-shaped open mouth or a flattened hammer-shaped head. All these observations are sufficiently distinctive to help us and others make an identification. Record these details in the notes section for each indicator in the Global Dive Log.



Great White Shark

Colour is also helpful - note the main background colours of both the upperside and underside as well as distinctive markings. The dorsal (back) fins can also tell us a lot. Do they have a broad or narrow base? Are they curved or upright? Are they falcate (sickle shaped)? Are the tips rounded or pointed? What is the background colour of the fins?

Some species have very distinctive dorsal fins - the first dorsal of the oceanic whitetip, for instance, is huge, rounded and conspicuously marked with a mottled white tip.



Blue Shark

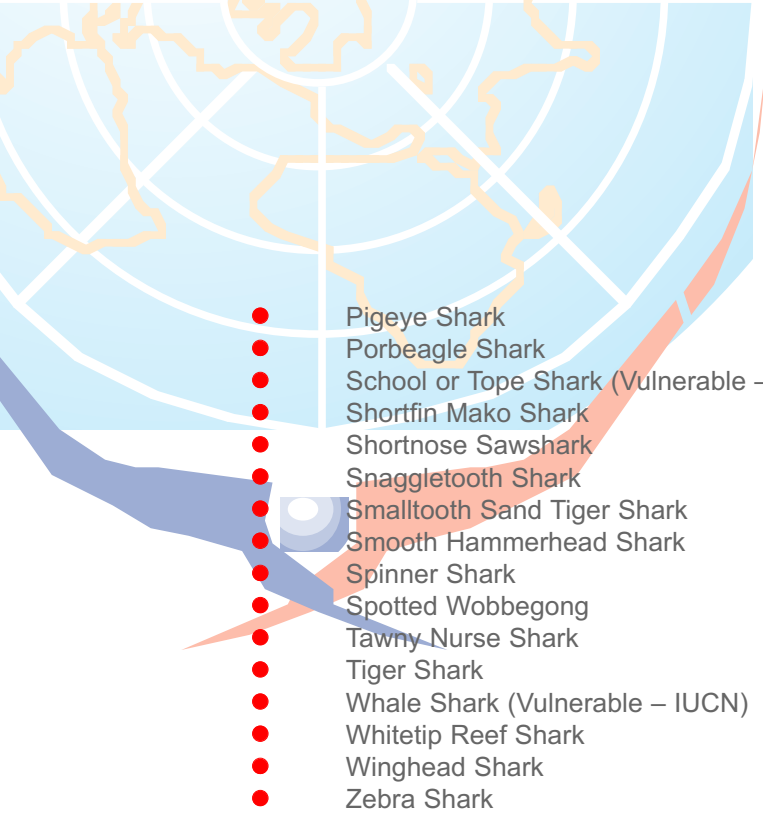
One thing we are pretty sure of (unless the **Global Snapshot** proves us wrong!), is that all sharks are restricted in their range in one way or another. Whitetip reef sharks are only found in the Pacific and Indian Oceans (including the Red Sea), for example, while bull sharks are found virtually worldwide but only in tropical and sub-tropical waters. Caribbean reef sharks occur mainly around island reefs, whereas oceanic whitetip sharks are more common farther offshore in oceanic waters.

In this way we can tell you which sharks you are most likely to encounter in the Australia - Sub-tropical/temperate Eco-region:

- Australian Blacktip Shark
- Basking Shark
- Banded Wobbegong
- Bigeye Sixgill Shark
- Bignose Shark
- Blacktip Shark
- Blue Shark
- Bull Shark
- Copper Shark
- Gummy Shark
- Graceful Shark
- Great Hammerhead Shark
- Great White Shark (Vulnerable IUCN)
- Milk Shark
- Nervous Shark
- Pacific Sleeper Shark
- Pelagic Thresher Shark
- Plunket Shark

- Carcharhinus tilstoni*
- Cetorhinus*
- Orectolobus ornatus*
- Hexanchus nakamurai*
- Carcharhinus altimus*
- Carcharhinus limbatus*
- Prionace glauca*
- Carcharhinus leucas*
- Carcharhinus brachyurus*
- Mustelus antarcticus*
- Carcharhinus amblyrhynchoides*
- Sphyrna mokarran*
- Carcharodon carcharias*
- Rhizoprionodon acutus*
- Carcharhinus*
cautus
- Somniosus*
pacificus
- Alopias pelagicus*
- Centroscymnus*
plunketi





- Pigeye Shark
- Porbeagle Shark
- School or Tope Shark (Vulnerable – IUCN)
- Shortfin Mako Shark
- Shortnose Sawshark
- Snaggletooth Shark
- Smalltooth Sand Tiger Shark
- Smooth Hammerhead Shark
- Spinner Shark
- Spotted Wobbegong
- Tawny Nurse Shark
- Tiger Shark
- Whale Shark (Vulnerable – IUCN)
- Whitetip Reef Shark
- Winghead Shark
- Zebra Shark

- Carcharhinus amboinensis*
- Lamna nasus*
- Galeorhinus galeus*
- Isurus oxyrinchus*
- Pristiophorus nudipinnis*
- Hemipristis elongata*
- Odontaspis ferox*
- Sphyrna zygaena*
- Carcharhinus brevipinna*
- Orectolobus maculatus*
- Nebrius ferrugineus*
- Galeocerdo cuvier*
- Rhincodon typus*
- Triaenodon obesus*
- Eusphyra blochii*
- Stegostoma fasciatum*

Of particular interest in the region are sightings of the **Wobbegong sharks**. There are two species of these distinctive sharks, the Banded or Ornate Wobbegong (*Orectolobus ornatus*) and the Spotted Wobbegong (*Orectolobus maculatus*), both belonging to the Order of orectolobes, which also includes the nurse sharks and the whale shark. They are also commonly known as carpet sharks.

The banded or ornate wobbegong shark is recorded from all Australian coasts and from Papua New Guinea. It is usually seen in clear water on inshore reefs and offshore islands to depths of at least 50m. Divers are most likely to see the ornate wobbegong lying on the bottom during daylight hours. It is generally not aggressive, but its large size and sharp teeth render it potentially dangerous. Be careful!

The species is readily recognised by its body shape and colouration. It has a broad, flattened head with skin flaps around the snout margin. The eyes are small and oval and it has two dorsal fins which are positioned posteriorly on the body. Colouration is usually golden-brown with broad dark areas, and blueish-grey spots above. It is pale below. The margins of the fins often have dark spots.



The **spotted wobbegong** is most commonly found in temperate Australian coastal waters from southern Queensland to the southwest Western Australia. It can be distinguished from the Ornate Wobbegong by its colour pattern, which consists of broad dark saddles and distinct circles formed by groupings of small white dots.

The spotted wobbegong is possibly endemic to Australia and inhabits shallow coastal waters to depths of about 100m. They often lie on sand or rocky reef bottoms and are frequently seen by divers.

About 20cm in length when born, adults grow to a maximum length around 3m. Identifying characteristics are the skin flaps around the snout margin and the distinctive colour pattern of dark saddles and white rings on a yellow to greenish-brown background.

The diet includes large prey such as fishes, crayfish, crabs and octopuses which are taken mostly at night.





3.2 Groupers (*Serranidae*)

When people talk about coral reefs, fishermen tend to shrug their shoulders and complain about snagged lines and torn nets. But when you talk about groupers, they suddenly sit up and pay attention. Groupers are among the economically most important fishes of the coral reef, because of their popularity as food. Yet without the coral reef there would probably be no groupers.

For this reason, groupers are an extremely important indicator species and your record of their existence or non-existence during your dive tells us a lot. Like all indicators, it is valuable if you can record the particular species you sight. However, recording the total number of groupers is just as important.

One example of the species is the giant grouper (*Epinephelus lanceolatus*), also known as the Queensland groper (sic), the largest of all bony fishes to be found in coral reefs. It is common in shallow waters, to depths of 100m. It feeds on spiny lobsters, smaller fishes, juvenile sea turtles and crustaceans. The maximum recorded size for this species is 270 cm, the maximum published weight an incredible 400kg. Any that you encounter are bound to be smaller than this! In Australia it is seen from the southern coast of Western Australia, around the tropical north and south to the southern coast of New South Wales.

The Queensland grouper has a large mouth and a rounded tail; the body is green-grey to grey-brown with faint mottling; there are numerous small black spots on the fins. Juveniles have irregular black and yellow markings.

There is anecdotal evidence of the giant grouper fatally attacking humans.

The species that you are most likely to encounter in the **Australian sub-tropical/temperate** eco-region are listed below. Given the enormous diversity of species within the eco-region, this list may not be all-inclusive:

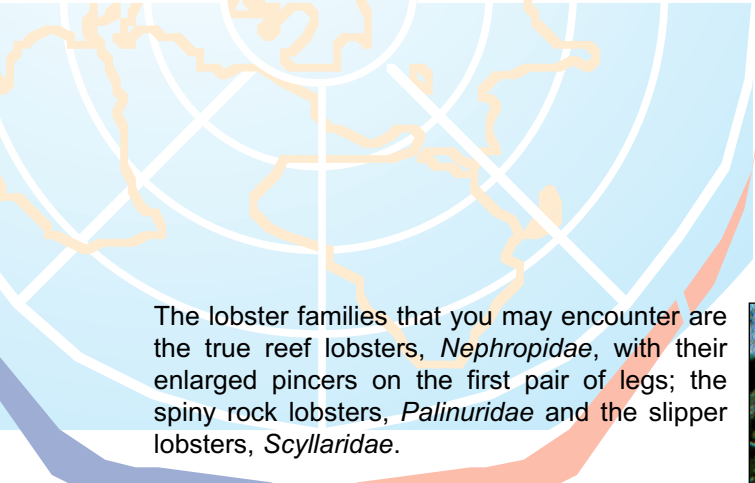
- | | | |
|---|-----------------------|------------------------------------|
| ● | Brown-Marbled Grouper | <i>Epinephelus fuscoguttatus</i> |
| ● | Coral Grouper | <i>Epinephelus corallicola</i> |
| ● | Giant Grouper | <i>Epinephelus lanceolatus</i> |
| ● | Greasy Grouper | <i>Epinephelus tauvina</i> |
| ● | Halfmoon Grouper | <i>Epinephelus rivulatus</i> |
| ● | Humpback Grouper | <i>Cromileptes altivelis</i> |
| ● | Leopard Coral Grouper | <i>Plectropomus leopardus</i> |
| ● | Longfin Grouper | <i>Epinephelus quoyanus</i> |
| ● | Maori Grouper | <i>Epinephelus undulatostratus</i> |
| ● | Oval Grouper | <i>Triso dermopterus</i> |
| ● | Saddletail Grouper | <i>Epinephelus daemeli</i> |
| ● | Twinspot Grouper | <i>Epinephelus bilobatus</i> |
| ● | Yellow-Edged Grouper | <i>Variola louti</i> |

3.3 Reef and Rock Lobsters

Lobsters, like shrimps and crabs, are decapods – literally meaning 10 legs - and can be found in all of the world's tropical and sub-tropical seas as well as more temperate waters. They are predatory, nocturnal animals with a vividly decorated coat. They are often numerous locally; they linger in crevices (with their long antennae sticking out) during the day and hunt small benthic organisms at night, but they also feed on organic detritus whenever they happen across it. As with all crustaceans, the lobster moults or sheds its shell to grow.

Lobsters have recently suffered a dramatic demographic decline; intensive fishing has annihilated entire populations, especially where tourism abounds.





The lobster families that you may encounter are the true reef lobsters, *Nephropidae*, with their enlarged pincers on the first pair of legs; the spiny rock lobsters, *Palinuridae* and the slipper lobsters, *Scyllaridae*.

Among the lobsters that will delight you in the region is the **eastern rock lobster** (*Jasus verreauxi*), which inhabits the continental shelf along the east coast of Australia, from Tweed Heads in New South Wales, around Tasmania, through to Port MacDonnell in South Australia. They can be found in holes and crevices around rocky areas and reefs. They have a green body and brownish-orange legs and can have a carapace length of 26cm, reaching up to 100cm when their long antennae are included.



Spiny Rock Lobster (*Palinurus sp*)

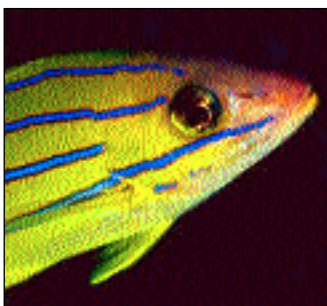
This is not to be confused with the **southern rock lobster** (*Jasus edwardsii*), which has a red body.

You may also find the **ornate spiny lobster** (*Panulirus ornatus*), a comparative monster at 40cm plus! Ornate lobsters are greenish blue to reddish brown in colour, with orange spines on the head. The most prolific lobster in the region, and the most commercially important, is the **western rock lobster** (*Panulirus cygnus*).

In addition, there are the **slipper or shovelnose lobsters**, *Scyllaridae*. Their antennae have evolved into thin, rounded plates, extending in front of a flattened body. They have no long spines or pincers, but instead depend on camouflage and armour for protection. They blend in well with the hard substrate upon which they are often found. By day they hide in caves and crevices and forage at night. **The Balmain bug** (*Ibacus peronii*) is dull reddish and it can grow up to 23cm. The Balmain bug is distributed across southern Australia from southern Queensland to central Western Australia. It lives on soft sand and mud at depths between 10 and 250m. This is the most common species of slipper lobster encountered in southeastern Australia where it lives in bays and on the shelf. It is excellent eating but not as popular as rock lobster. The animal's flat shape enables it to partly bury in the exposed soft sediments where it lives.

Please record all sightings of lobsters, identifying individual species where possible.

3.4 Snappers (*Lutjanidae*)



Common Bluestripe Snapper

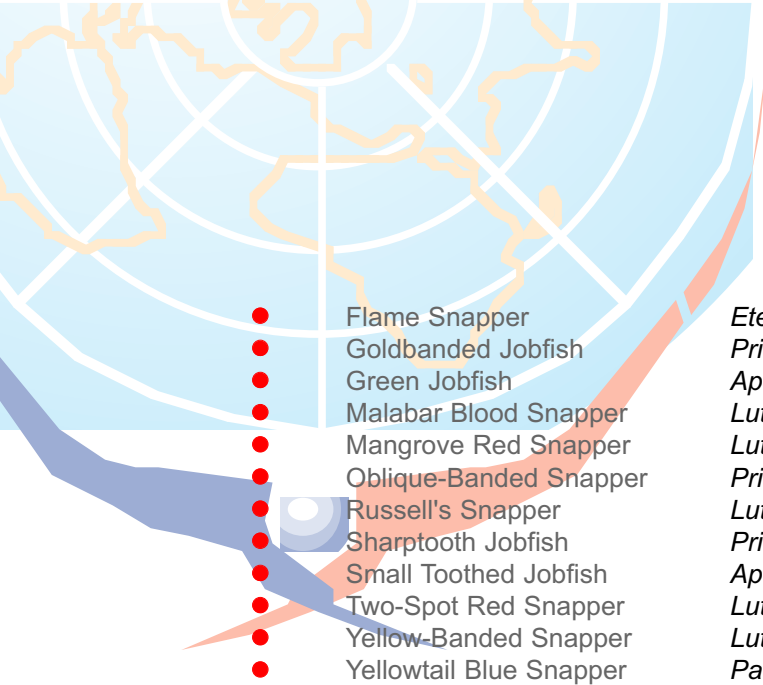
Snappers are a large and diverse group of robust-bodied, carnivorous fishes. Most species possess relatively large mouths with stout canine teeth and bodies covered with relatively large, coarse scales.

Snappers are members of the Lutjanidae family which has 17 genera and 103 species. They are found in the tropical and subtropical waters of the Atlantic, Indian, and Pacific Oceans. Most species of Snappers are carnivorous fish with relatively large mouths and enlarged canine teeth. They tend to swim at deeper depths.

There are over one hundred individual species globally, but within the subtropical waters of Australia there are a limited number of species that you are likely to see at diving depth, and many of these are shown below. The approximate maximum adult size is also included in the list.

●	Common Bluestripe	<i>Lutjanus kasmira</i>	40cm
●	Crimson Jobfish	<i>Pristipomoides filamentosus</i>	100cm
●	Dory Snapper	<i>Lutjanus fulviflamma</i>	35cm
●	Emperor Red Snapper	<i>Lutjanus sebae</i>	116cm
●	Five-Lined Snapper	<i>Lutjanus quinquelineatus</i>	38cm





●	Flame Snapper	<i>Etelis coruscans</i>	120cm
●	Goldbanded Jobfish	<i>Pristipomoides multidens</i>	90cm
●	Green Jobfish	<i>Aprion virescens</i>	112cm
●	Malabar Blood Snapper	<i>Lutjanus malabaricus</i>	100cm
●	Mangrove Red Snapper	<i>Lutjanus argentimaculatus</i>	150cm
●	Oblique-Banded Snapper	<i>Pristipomoides zonatus</i>	50cm
●	Russell's Snapper	<i>Lutjanus russellii</i>	50cm
●	Sharptooth Jobfish	<i>Pristipomoides typus</i>	70cm
●	Small Toothed Jobfish	<i>Aphareus furca</i>	70cm
●	Two-Spot Red Snapper	<i>Lutjanus bohar</i>	90cm
●	Yellow-Banded Snapper	<i>Lutjanus adetii</i>	50cm
●	Yellowtail Blue Snapper	<i>Paracaesio xanthura</i>	50cm

3.5 Abalone

Abalones are slow growing, herbivorous marine snails. They belong to a large class of molluscs (*Gastropoda*) with single-structured shells. There are over 100 species worldwide in the single genus *Haliotis*, which means 'sea ear', a reflection of the flattened shape of the shell. It is no surprise then that it is called 'Oreille de Mer' in France. Abalone shells can be oval or rounded, with a row of respiratory pores and large dome towards one end.

The strong, muscular foot generates enough suction to allow the abalone to fix itself firmly to rocky surfaces. They are found from the intertidal to the depth limit of marine plants, some 80 -100m, and from tropical to cold waters.



Abalone (*Haliotis* spp.)

Abalone is an edible mollusc and considered a delicacy. They are found along the rocky shores of Australia, south from mid New South Wales down and around to Western Australia.

There are eleven abalone species to be found in the waters of Western Australia. Three of these are commercially fished from reefs off the coast.

The most common species is **Roe's abalone** (*Haliotis roei*), which is found on reef platforms along the western and southern coasts. **The greenlip abalone** (*Haliotis laevis*), and **brownlip abalone** (*Haliotis conicopora*), are larger, less common and as a result are more valuable. These species are found mainly on the southern coasts.

4.0 Anthropogenic Pressures

EARTHDIVE is recording five different types of anthropogenic pressures (effects resulting from the actions of humans). Collection of this data enables us to establish an ever-evolving **Global Snapshot** of our oceans.

The types of anthropogenic pressures are the same for each region and are:

- Surface Pressures paper, wood, plastic and any other man-made debris
- Boat Activity pleasure, fishing, commercial
- Subsurface Pressures litter, sediment, physical damage
- Evidence of Fishing pots, traps, discarded nets, blast damage, cyanide damage, other etc.



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Coastal Development resorts, villages, towns, distance from the dive sites etc.

Please note any information you feel is relevant and record the data in the notes section for each impact in the Global Dive Log.

Thank you.

5.0 eCORD

EARTHDIVE asks all scuba divers to subscribe to the principles of **eCORD** - the **EARTHDIVE** Code of Responsible Diving - and to encourage others to practice them. **eCORD** is a straightforward 7 Point Plan which will help divers to limit the anthropogenic impact of recreational diving - while at the same time making their diving experiences more rewarding and enjoyable. Be sure to incorporate the 7 points in your dive planning!

1. Know your limits.

Every dive is different and every diver is different. Always ensure that you dive within the limits of your training and experience, whilst taking due account of the prevailing conditions. Take the opportunity to advance and extend your skills whenever that opportunity arises. In particular, buoyancy skills can become a little rusty after any prolonged absence from the water. If you can't get pool or confined water practice before your trip, get your buoyancy control checked out by a qualified instructor on your first dive! There are many national and international dive training organisations which offer a comprehensive range of courses and instructional material beyond basic skills level. Take advantage of them!

2. Be aware of the marine environment and dive with care.

Not surprisingly, many dive sites are located where the reefs and walls play host to the most beautiful corals, sponges and fish - fragile aquatic ecosystems! Starting with your point of entry, be aware of your surroundings: never enter the water where there are living corals, water plants or reeds. Once underwater, it only takes one unguarded moment - a careless kick with a fin, an outstretched hand, a dragging gauge or octopus - to destroy part of this fragile ecosystem. Even fin kicks too close to the reef or sand can have an adverse effect - so dive with the utmost care. Photographers in particular need to take greater care as they strive for that best-yet shot! Don't let your dive become an adverse anthropogenic impact! And remember that these rules apply just as much to 'hard' dive sites - such as wrecks, which have become the home of diverse marine life - as well as fresh-water and other sites.

3. Understand and respect marine flora and fauna.

A large part of the joy of diving is in learning more about the plants and animals who live in this unique underwater environment. In order to survive and thrive, many living creatures disguise themselves to look like plants and inanimate objects, or develop defence mechanisms such as stings. Some even do both! (Have you seen a stonefish lately?) The **EARTHDIVE** briefing packs (available by download only) provide information about indicator species for the region in which you are planning to dive. In addition, dive training organisations run marine naturalist and identification courses. The more that you learn, the more that you will see, the more that you will derive pleasure from your underwater experience - and the safer you will be for yourself, other divers and the marine environment!

4. Don't interfere.

First and foremost, be an observer in the underwater environment. As a general rule, look don't touch. Remember that polyps can be destroyed by even the gentlest contact. Never stand on coral even if it looks solid and robust.

Always resist the temptation to feed fish and discourage others from doing so. You may interfere with their normal feeding habits, damage their health and encourage aggressive behaviour. Leave only your bubbles!



EARTHDIVE





5. Take only what you need.

The marine environment is a valuable source of food for mankind and it is important that it remains so into the future. If you are among those divers who enjoy taking food from the sea, observe some simple rules :

- Obtain any necessary permits or licenses.
- Comply with all relevant fish and game regulations. These are designed to protect and preserve fish stocks, the environment and other users.
- Only take what you can eat. If you catch it and can't eat it, put it back.
- Never kill for the sake of 'sport'.
- Avoid spear fishing in areas populated by other divers or visitors to the area, or where you might cause collateral damage.

Don't be tempted to collect shells, corals or other mementos of your dive. If you want a souvenir, take a photograph!

6. Observe and report.

As an **EARTHDIVE** member, you will be in a unique position to monitor and report on the health, biodiversity and any obvious damage to dive sites using the **EARTHDIVE** Global Dive Log. In addition, we would encourage you to report anything unusual to the appropriate local marine and environmental authorities, or if this is difficult, get your dive centre to do it for you. They have a vested interest in a healthy marine environment, and will normally be more than willing to help. Always be on the lookout for physical damage, fish stock depletion, pollution and other environmental disturbances. If the dive operation itself is causing damage -say by anchoring to the reef - then let them know how you feel in no uncertain terms!

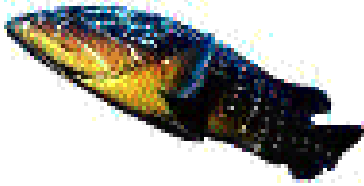
7. Get involved.

No matter where you are diving or snorkelling, be it at home or abroad, there will be at least one (and often many more) marine conservation bodies who are active in the area. Don't be afraid to approach them for information, to offer help, or just to find out what they have to offer. You will receive an enthusiastic welcome! They will provide you with lots of opportunities to contribute to marine conservation.



EARTHDIVE





All Groupers (*Serranidae*)

How many Groupers did you see? (tick box and/or record actual number)

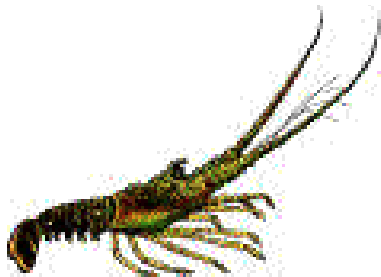
0 1 - 5 6 - 20 20 - 50 51 - 250 >250

Actual Number (write actual number)

How long were you looking for this indicator? (minutes)

Add your additional information here. In what type of habitat did you see this indicator? Can you record its species? What was it doing? At what depth did you see it/them?

Additional Information:



Reef and Rock Lobsters

How many Lobsters did you see? (tick box and/or record actual number)

0 1 - 5 6 - 20 20 - 50 51 - 250 >250

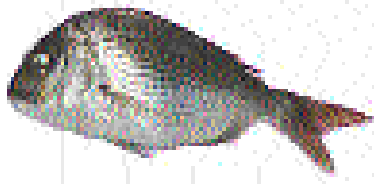
Actual Number (write actual number)

How long were you looking for this indicator? (minutes)

Add your additional information here. In what type of habitat did you see this indicator? Can you record its species? What was it doing? At what depth did you see it/them?

Additional Information:





Snappers (*Lutjanidae*)

How many Snappers did you see? (tick box and/or record actual number)

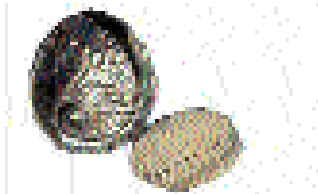
0 1 - 5 6 - 20 20 - 50 51 - 250 >250

Actual Number (write actual number)

How long were you looking for this indicator? (minutes)

Add your additional information here. In what type of habitat did you see this indicator? Can you record its species? What was it doing? At what depth did you see it/them?

Additional Information:



Abalone (*Haliotis spp.*)

How many Abalone did you see? (tick box and/or record actual number)

0 1 - 5 6 - 20 20 - 50 51 - 250 >250

Actual Number (write actual number)

How long were you looking for this indicator? (minutes)

Add your additional information here. In what type of habitat did you see this indicator? Can you record its species? At what depth did you see it/them?

Additional Information:



Post Dive Recording Sheet - **Anthropogenic Pressures**



Surface Pressures

Did you see any Surface Litter? (tick box)

Yes No Dont Know

If yes please record any details (plastic, wood, paper, other etc.) Please record quantity and any other relevant information.



Boat Activity

Did you see any Boat Activity? (tick box)

Yes No Dont Know

If yes please record any details (i.e fishing boats, pleasure boats, commercial vessels any other etc)

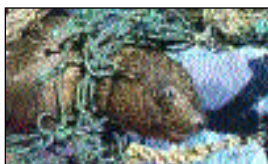


Subsurface Pressures

Did you see any Surface Litter? (tick box)

Yes No Dont Know

If yes please record any details (litter, sediment, physical damage, coral bleaching other etc).



Evidence of Fishing

Did you see any Surface Litter? (tick box)

Yes No Dont Know

If yes please record any details (pots, traps, discarded nets, blast damage, cyanide damage, other etc).



Evidence of Coastal Development

Did you see any evidence of Coastal Development? (tick box)

Yes No Dont Know

If yes please record any details (resorts, villages, towns, distance form the dives site etc).

Evidence of the illegal trade in endangered species

Any observations you make below and record in the Global Dive Log will be passed onto **TRAFFIC**, the world's wildlife trade monitoring network.

TRAFFIC works to ensure that the trade in wild plants and animals is not a threat to the conservation of nature. It has offices covering most parts of the world and works in close co-operation with the Secretariat of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). **TRAFFIC** is a joint programme of WWF and IUCN-The World Conservation Union.

Evidence of the illegal trade in endangered species

Did you find any evidence at any time during your holiday/dive trip of the illegal trade of endangered species. (tick box)

Yes No Dont Know

If yes please record any details (the species, sale location, and any other available information). Please refer to the **TRAFFIC** Guide for more information concerning species identification, local laws, and contact information of **TRAFFIC** to report offences.



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Turtle shell ornaments on display

TRAFFIC

