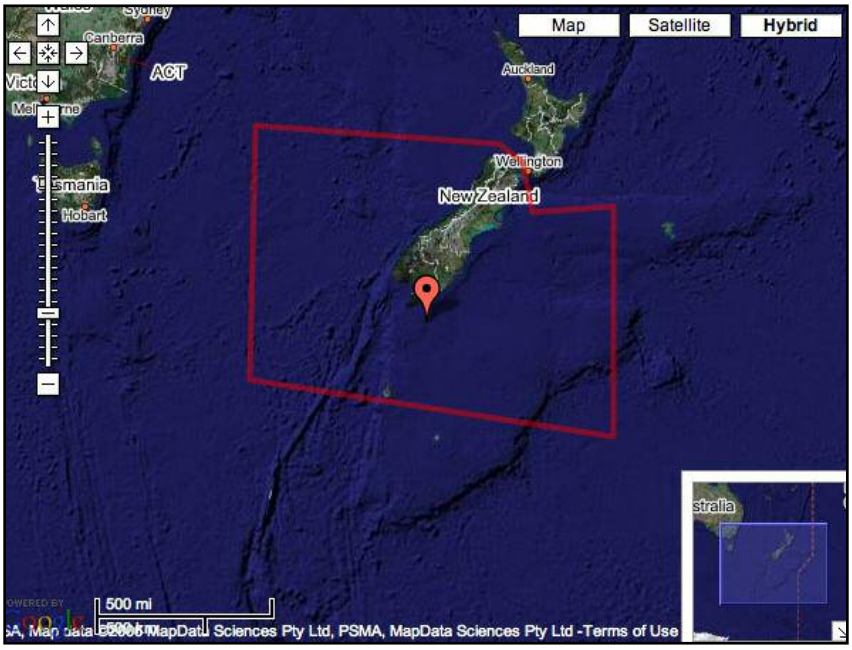
EARTHDIVE

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

PRE-DIVE BRIEFING PACK

Eco-Region 13b

New Zealand - Temperate



Contents

1.0 General Information

This booklet is a **pre-dive briefing pack** for the **New Zealand - 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 EARTHDIVE Global Dive Log.

1.1 Introduction

The EARTHDIVE **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 EARTHDIVE 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 EARTHDIVE website can be viewed by you and other visitors.

The EARTHDIVE 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 EARTHDIVE 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 EARTHDIVE.

1.2 How to record your observations into the Global Dive Log

When recording scientific information for EARTHDIVE, 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 EARTHDIVE 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.

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 New Zealand - Temperate Eco-Region

This region comprises the temperate waters and Islands around New Zealand's South Island. It also comprises the southern part of the North Island, approximately the half that lies to the south of Cape Egmont in the west, and East Cape in the east. If you are diving to the North of these points please refer to the briefing pack for the New Zealand Sub-tropical Eco-Region.

New Zealand is made up of two main Islands, North Island and South Island, separated by the Cook Straight. The northern half of the country is influenced by the warm South Equatorial Current, while the southern half is influenced by the cooler West Wind Drift. The marine environment is diverse and includes estuaries, mudflats, mangroves, seagrass and kelp beds, reefs, seamount communities and deep-sea trenches.

The marine systems here support a rich diversity of aquatic plants, fish, bivalves, and marine mammals, including sperm whales and a diverse community of dolphins and smaller whales.

The shelf surrounding New Zealand varies in width from 150 km in the northeast and southwest, to 3,000 km on the northwest and southeast plateaus and the region is considered moderately productive. Approximately 8000 marine species have been identified in New Zealand waters, including 964 species of fish, 2000 species of molluscs (snails, shellfish, and squid), 400 species of echinoderms (urchins and starfish), and 900 species of seaweed.

New Zealand's coastal waters and habitats are generally held to be of high quality by international standards, but they are under stress in some areas, particularly near

large estuarine towns and cities and the mouths of large rivers. Estuarine and marine ecosystems are also threatened by the invasion of exotic non-native species.

The natural beauty of New Zealand's rugged South Island is not restricted to the land. The underwater realm provides a variety of diving experiences, In the **Southland** region, as mountains spill into fiords and sheer walls drop to sandy bottoms, temperate, subtropical, deep and shallow water species all co-exist in the region because of the fresh water layer and the limited temperate range. From Invercargill and Stewart Island to the Fiordland National Park, extensive kelp beds, weeds, sponges, habitats rich in marine biodiversity play host to, among others, dolphins and fur seals.

The **Otago** region, set between the Southern Alps and the Pacific Ocean is where you will find some of New Zealand's most varied scenery, wildlife and architecture. More importantly for the diver, this part of the Pacific Coast is alive with seals, penguins and large colonies of migratory birds. On the tip of the Otago Peninsula at Taiaroa Head is to be found the only mainland breeding colony of the most magnificent of sea birds - the Royal Albatross.

At **Kaikoura** –the name means "feast of crayfish" in Maori - on the east coast and to the north of Christchurch, there is an abundance of marine mammals and fish life thanks to a deep underwater trench. The sea floor drops off sharply 1.6 kilometres from shore, forming a wall of the Kaikoura Canyon. Nutrients from the trench are forced to the surface, building a food chain to feed seals, schooling fish, diver friendly dolphins in pods of up to 1500, Orcas and the mighty sperm whales that are residents year round.

The extensive coastline of the lower North Island supports a wide range of habitats, and embraces spectacular marine reserves and active volcanic islands.

3.0 Indicator Species

What to look for and record in the **New Zealand - Temperate** eco-region:

Rock Barren Habitats
Loss of habitat indicates overfishing of grazing sea urchins

All Lobsters
Low numbers are indicators of overfishing

Japanese Wakame Seaweed *(Undaria pinnatifida)*
Invasive alien

Paua (*Haliotis iris*)
Low numbers are indicators of overfishing

Large Reef Fish (Blue Moki, Butterfish, Blue Cod, Trumpeter)
Low numbers are indicators of overfishing

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 Rock Barren Habitats

The marine habitats in which marine communities live are many and varied and are created, or caused, by a number of physical factors. These factors combine to determine which animal and plant communities can co-exist within a particular habitat, with the interplay of the communities themselves playing a large determining factor.
The physical factors include elements such as temperature, depth, tides and currents, relative salinity, wave action, light or shade, sea-bottom substrate, aspect and inclination. Extreme physical factors, such as a rise in sea temperature can have a significant and sudden impact on habitats, such as the El Nino effect on the coral reefs in the Maldives, where a small rise in sea temperature caused widespread coral bleaching.

In addition to the physical factors, the resident marine life makes a significant impact on the habitat. These living (or biotic) factors include the extent to which animals and plants compete or co-operate with each other. For example, sea urchins graze a shallow band below the worst wave action and in so doing displace both the shallow seaweeds above and the stalked kelp below. This has a secondary effect in that it also clears the way for other grazers such as snails and limpets. The stalked kelp, in turn, pens the urchins in their zone, preventing them from straying, thereby ensuring that the habitat is suitably grazed.

As organisms compete for a place, either by grazing or predation, over many years -indeed many thousands of years - the interdependent communities evolve into a unit where one organism can no longer be viewed independently from the whole. That is a habitat.

Between the shallow bladder kelp zone and the kelp forest, there usually extends a barren zone where sea urchins (echinoderms) and other grazing organisms keep a large area of rock free from algae. These rock barren habitats are also known as **sea urchin habitats**, **the urchin zone**, **urchin flats**, **urchin barrens** or **grazed flats**.

These barren habitats are also created by grazers such as the **paua** (*Haliotis iris*) or the **Cooks turban shell** (*Cookia sulcata*), where sea urchins are absent.

Overfishing of sea urchins can lead to a depletion of these habitats. When recording the presence of these habitats, please estimate the total area, noting the depth and presence of any other marine life.

3.2 All Lobsters

Spiny Rock Lobster (*Palinurus sp*)

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 **spiny rock lobsters**, *Palinuridae* and the **slipper lobsters**, *Scyllaridae*. The true reef lobsters, *Nephropidae*, with their enlarged pincers on the first pair of legs, tend to prefer warmer waters, but keep looking just in case!

Commonly known as crayfish, New Zealand has two common forms of rock lobster, the **green** or **packhorse lobster**, also known as the **eastern rock lobster** (*Jasus*

verreauxi) and the **red** or **spiny rock lobster** (*Jasus edwardsii*), also known as the southern rock lobster.

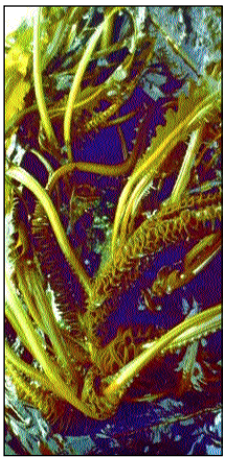
The packhorse is the world's largest rock lobster and can be found in holes a... crevices around rocky areas and reefs. They have a green body and brownish-orange legs. The Maori name for the packhorse lobster is 'pawharu'

Red rock lobsters are generally smaller and are widespread around New Zealand, especially in rocky coastal areas where there are plenty of places to shelter. They are most often found in groups, hiding in crevices and around reefs. The Maori name for the red lobster is 'koura'.

In addition, you may be fortunate to see the **slipper lobste**r, *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 **Spanish lobster** (*Ibacus peronii*) is dull reddish and it can grow up to 23cm. 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.

3.3 Japanese Wakame Seaweed (*Undaria pinnatifida*)



The Japanese wakame seaweed, Undaria pinnatifida, which has established itself in several New Zealand locations, is a brown macroalga, and typically grows to 1-3m in length. It is an opportunistic species that forms dense forests and has the potential to out-compete and displace native species of algae.

It has been established since late 1980s in Australia and New Zealand, where it is highly invasive, forming dense forests that change the structure of ecosystems and displace native macroalgal communities. Like other kelp species, wakame consists of a holdfast, a stem (or stipe) and a blade. The central stem grows to 10cm wide and extends for the length of the plant. The blade may be up to 1m wide and extends from the tip of the plant for half to three-quarters the length of the plant.

The most characteristic feature of his alga is a distinctive convoluted spore-bearing structure, (the sporophyll) which forms on the stem of the mature plant, between the root-like holdfast and the leafy blade. The alga occurs from the lowinter-tidal to 15 m depth on rocky reefs, usually in areas where there is shelter from direct wave action. It will attach and grow on any hard surface including breakwaters, pylons, buoys and the hulls of vessels.

Wakame is regarded as a pest because it is highly invasive, grows rapidly and has the potential to outgrow and exclude native seaweeds. The effect that this non-native species will have on the marine communities that it invades are not yet well understood. However, areas where it becomes dominant, exclusion of native algae could have a domino effect on native herbivores, particularly if those herbivores do not feed on wakame. Yet in its native Japan, wakame is a commercially important edible species. It is possible that controlled farming of this alien species could become an important contributor to local economies, and it could become beneficial to the New Zealand marine environment. In Japan the seaweed is a favoured food of various marine animals including abalone.

When surveying and recording wakame, please only count (or estimate) individual plant numbers.

3.4 Paua (*Haliotis iris*)

Whilst abalones are to be found in all of the world's temperate and tropical seas, the New Zealand blackfoot abalone, or **Paua** (*Haliotis iris*), is unique to the waters around New Zealand. This univalve marine mollusc eats seaweed and inhabits rocky, coastal areas at depths between one and fifteen metres. It grazes on seaweed and ranges in size from 7-14cm at maturity, but can grow to a maximum of 18cm.

The cooler South Island waters enable the paua to grow larger here than they do in the warmer north. As a result, most wild paua are harvested from the South, the Chatham and Stewart Islands and from the southern coast of the North Island.

There are two other locally occurring abalone species, also known by the collective Maori name, paua (pronounced pah-wah). The yellowfoot abalone (*Haliotis australis*), and the whitefoot abalone (*Haliotis virginea*) have limited value and therefore are rarely harvested commercially.

The paua shell is the most colourful of all the abalone shells, varying from greens & pinks to purples & blues and in some cases with gold or crimson toning. The colour in the paua shell changes when viewed at different angles and this iridescence, similar to that of Mother of Pearl shell, but even more brilliant, is what makes paua shell so attractive to jewellery manufacturers.

3.5 Large Reef Fish (Blue Moki, Butterfish, Blue Cod, Trumpeter)

Blue Cod (Parapercis colias)

In July 2003, The Earth Policy Institute and others reported that a recent review of marine fisheries, carried out by Ransom Myers and Boris Worm at Canada's Dalhousie University, had concluded that a startling 90 percent of the world's large predatory fish stocks, including tuna, swordfish, cod, halibut and flounder, have disappeared in the past 50 years. The study was carried out over a ten-year period, and attributed the decline to a growing demand for seafood, coupled with an expanding global fleet of technologically efficient boats.

In addition to numerical decline, the review also concluded that the surviving members of the reef fish population are only one-fifth to one-half the size of earlier individuals.

With the capacity of the world's fishing fleet now twice the sustainable yield of fisheries, Myers and Worm believe that the global fish catch may need to be cut in half to prevent further collapse. Some of the strategies that could be used to achieve this include the reduction of bycatch, the creation of no-take fish reserves, and the management of marine ecosystems with a goal of long-term sustainability rather than one of short-term economic gain.

There are a number of species in the **New Zealand - Temperate Eco-region** that are particularly affected, including blue moki, butterfish, blue cod and trumpeter fish.

The **blue moki** (*Latridopsis ciliaris*) is a predominantly southern species that mostly school offshore over mainly open bottom. They grow up to 80 cm. The usual colour is blue-grey with shades of brown and one or two large brownish blotches below the dorsal fins. The mouth is small with thick lips and small teeth. These fish feed in very shallow water often after dark.

The **butterfish** (*Odax pullus*) is restricted to New Zealand waters, and is more abundant in the south. It inhabits shallow inshore waters where rocks and brown

algae are plentiful and feeds mainly on the brown alga *Carpophyllum*. It reaches an average size of between 30-50cm and is commonly found in shallow, rocky reefs at depths of les than 15m. The butterfish is a popular recreational and commercial target species - fished for primarily by gill net and speargun.

The **blue cod** (*Parapercis colias*) lives on clear rocky ground to depths of about 150 m. This species and the New Zealand Snapper are probably the most generalized and least fussy feeders in the region, as both take quantities of every food animal. Large examples are usually greenish blue in coloration, while smaller ones are blotched in varying shades of brown. The smoothly sloped head and snout, short low first dorsal fin and the long second dorsal fin are clear identifying features. Blue cod can grow to 70 cm and belong to the family *Pinqguipedidae* or sandperches. They are not related to the true or morid cods such as the red cod (*Pseudophycis bachus*).

The **trumpeter** (*Latris lineata*) can grow to in excess of 120cm and feeds on a wide variety of animal life including other quite large fishes. Its general colour is shades of olive with flushes of yellow, and there are three or four yellowish-brown bands along the upper sides. The colour pattern, protruding snout and large mouth are readily observed features. It frequents rocky coastlines to depths of 40m, or clear bottoms down to 200 m.

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.
- 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 of its 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!

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.

6.0 Appendices

Post Dive Recording Sheet - **General Data** (complete/add/delete/tick as applicable)

Dive No: ☐☐☐☐ **Dive Site Name:** ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

GPS: N/S: ☐☐•☐☐☐☐☐☐ E/W: ☐☐•☐☐☐☐☐☐ (Decimal Degrees up to 7 decimal points)

Date: ☐☐/☐☐/☐☐☐☐ **Boat** ☐ **Shore** ☐ **Water Type:** Salt ☐/Brackish☐/Fresh☐

Dive Type: Recreational ☐ Technical ☐ Training ☐ Drift ☐ Search ☐ Wreck ☐ Drift ☐ Night ☐ Other ☐☐

Time In: ☐☐:☐☐ **Time Out:** ☐☐:☐☐ (24 hour clock) **Dive Time:** ☐:☐☐ (hr:mins)

Air/Nitrox Start: ☐☐☐ End: ☐☐☐ (psi or bar) **Max Depth** ☐☐☐ (ft/m)

Visibility: ☐☐☐ ft/m **Temperatures: water**: ☐☐°C/☐☐°F **air**: ☐☐°C/☐☐☐°F

Current: None ☐ Light ☐ Medium ☐ Strong ☐ (tick)

Surface Conditions: Cloudy ☐ Sunny ☐ Partly Cloudy ☐ Rain ☐ Variable ☐ other

IF DIVING WITH A CLUB/DIVE CENTRE/LIVEABOARD OR RESORT, WERE YOU GIVEN AN ENVIRONMENTAL BRIEFING: YES ☐ NO ☐

Please record any other information you normally record immediately following a dive. Add this data to the **earthdive** website via your control panel as soon as possible. **Thank you**

Post Dive Recording Sheet - **Indicator Species**
Important Note: If you allocated some time to looking for one of the indicator species, but didn't find any, please make sure that you record a **0 (zero)** count in the appropriate box, and record how much time you spent looking for the indicator.

Rock Barren Habitats
What area of Rock Barren Habitats did you see? (tick box and/or record actual area)

0 ☐ 1 - 5m² ☐ 6 - 20m² ☐ 20 - 50m² ☐ 51 - 250m² ☐ >250m² ☐

Actual Number ☐☐☐ (write actual area m2)

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

Add your additional information here.

Additional Information:

All 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:

Japanese Wakame Seaweed (*Undaria pinnatifida*)
How many individual plants did you see? (tick box and/or record actual number)

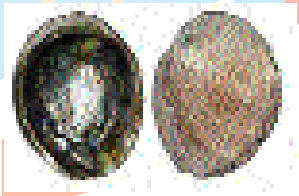
0 ☐ 1 - 5 ☐ 6 - 20 ☐ 20 - 50 ☐ 51 - 250 ☐ >250 ☐

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? At what depth did you see it/them?

Additional Information:



Paua (*haliotis iris*)

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

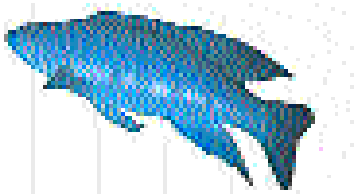
0 ☐ 1 - 5 ☐ 6 - 20 ☐ 20 - 50 ☐ 51 - 250 ☐ >250 ☐

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? At what depth did you see it/them?

Additional Information:



Large Reef Fish

How many Large Predatory Fish 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:

Post Dive Recording Sheet - **Anthropogenic Pressures**

Surface Pressures

Did you see any Surface Litter? (tick box)

Yes ☐ No ☐ Dont Know ☐

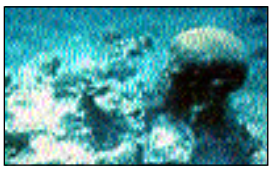
If yes please record any details (plastic, wood, paper, other etc.) Please record quantity and any other relevant information.

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, cynanide 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.

© Elizabeth Fleming
Turtle shell ornaments on display

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.

TRAFFIC