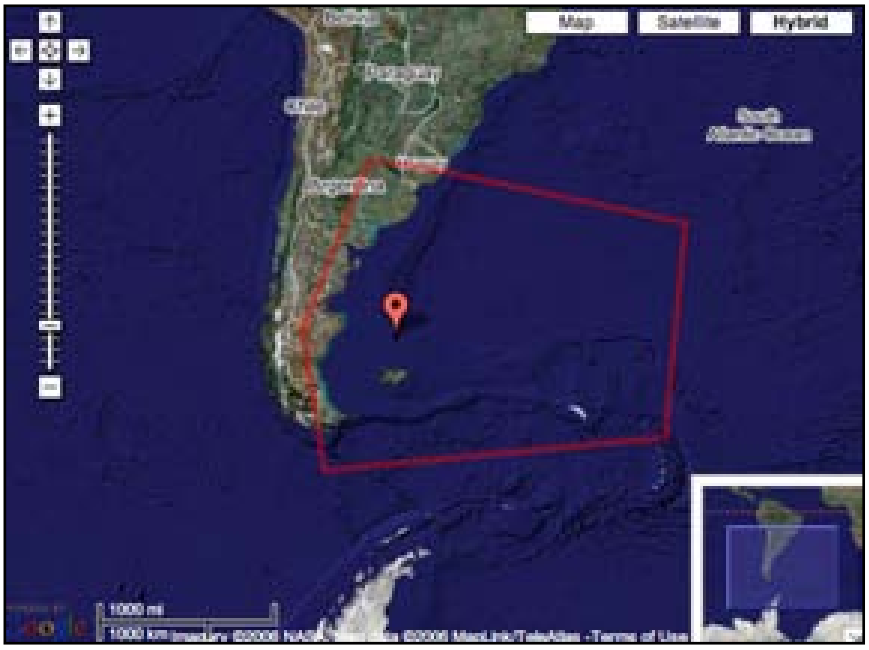
EARTHDIVE

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

PRE-DIVE BRIEFING PACK

Eco-Region 1a

South America - Atlantic Coast - Temperate



Contents

EARTHDIVE

1.0 General Information

This booklet is a **pre-dive briefing pack** for the **South America - Atlantic Coast - 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 scientists established thirty specific 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.

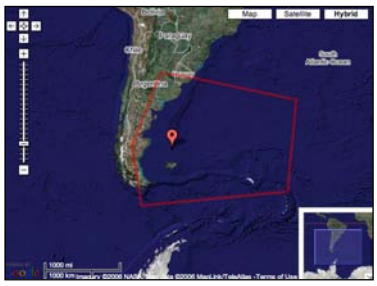
1.2.5 When recording always fin slowly and evenly with minimal sudden movements. Moving rapidly will disturb resident fish causing them to hide from view more quickly. By moving slowly and evenly you have more chance of seeing indicator species and recording their presence/absence more accurately. Always 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 South America - Atlantic Coast - Temperate Eco-Region



The countries in this eco-region are Argentina, the Falkland (Malvinas) Islands, South Georgia, South Sandwich and Uruguay. It is characterised by an extensive continental shelf off the coast of Argentina.

The cold Falkland (Malvinas) Current flows slowly north along the coast of Argentina from the extreme south. This current is strongest along the outer edge of the continental shelf where it travels at speeds of about 2 kilometres per hour. Prevailing westerly winds produce an upwelling of cold Antarctic water along the edge of the shelf that lowers the surface temperatures. Most of the shores of Patagonia are washed by an inshore component of the Falkland Current. The northward extent of this current is variable; generally reaching the latitude of the province of Buenos Aires in Argentina, but its influence can be felt as far north as Rio de Janeiro. At Rio de La Plata, the Falkland Current meets the warmer Brazil Current that flows in a south westerly direction along the coast of Brazil from about latitude 10°S.

Highly productive areas occur where there is mixing of inshore and deeper northbound drifts of water with those of the southward-moving warm Brazilian Current. The Brazil Current is strongest off Brazil, from Abrolhos Archipelago to the latitude of Rio de Janeiro. South of the tropic of Capricorn, it becomes progressively weaker. The Río de La Plata forms an important biogeographical barrier between the cold Falkland Current and the warm Brazilian Current systems. Tides in Argentina become pronounced, particularly along the coast of Patagonia where tidal range can be as much as 7 metres.

The coast of Argentina is an important breeding area for marine seabirds and mammals. In particular Peninsula Valdes, a well-known international tourist destination, hosts the only continental breeding colony of Southern Elephant Seals.

The gulf waters of Peninsula Valdes also provide breeding and calving grounds for Southern Right Whales. Punta Tombo represents the biggest breeding colony of Magellan Penguins, containing an estimated 1,000,000 individuals. Early this century, fur seals and sea lions were heavily exploited for fur and oil. This resulted in a dramatic decline of local seal populations, particularly in the case of fur seals.

This eco-region also supports a very important fishing industry, especially for hake (Merluccius hubbsi), common squid (Loligo), shortfin squid (Illex argentinus) and shrimp. Fisheries in the South West Atlantic have dramatically increased in the last decade. With this increase in fishing activities, overfishing and bycatch present significant threats and effective regulation is needed.

Oil exploration and shipping activities in the Patagonian region have resulted in oils spillages in the past. Penguins, in particular, have suffered the effects of oil contamination during their migratory movements along the Patagonian coast.

Concerns about coastal pollution arising from industrial and other waste discharges have given rise to a view that the region lacks an effective coastal development and management planning process.

3.0 Indicator Species

What to look for and record in the **South America - Atlantic Coast- Temperate Eco-region**:

All Sharks
Low numbers are indicators of overfishing

Canchito - *Pseudopercis semifasciata*
Low numbers are indicators of overfishing

All Reef Lobsters - *Palinurus*
Low numbers are indicators of overfishing

Sea Bass - *Acanthistius brasilianus*
Low numbers are indicators of overfishing

Besugo - *Pagrus pagru*
Indicators of reef health and status

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.


Great White

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.

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.

One thing we are pretty sure of (unless the **Global Dive Log** 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 might encounter in the South America – Atlantic Coast - Temperate eco-region and some of these are listed below, but given the enormous diversity of species within the region, this list is not all-inclusive.:

Basking Shark	*Cetorhinus maximus*
Blacktip Shark	*Carcharhinus limbatus*
Blue Shark	*Prionace glauca*
Broadnose sevengill shark	*Notorynchus cepedianus*
Great White Shark (sparse distribution)	*Carcharodon carcharias*
Night shark	*Carcharhinus signatus*
Oceanic Whitetip Shark	*Carcharhinus longimanus*
Porbeagle Shark	*Lamna nasus*
School or Tope Shark (Vulnerable – IUCN)	*Galeorhinus galeus*
Smooth hammerhead	*Sphyrna zygaena*
Thin Tail Thresher Shark	*Alopias vulpinus*
Tiger Shark	*Galeocerdo cuvier*

3.2 Canchito - *Pseudopercis semifasciata*

Canchito is the Uruguayan name for this indicator, the Brazilian counterpart being Namorado. It is also known as the Brazilian Sandperch, and locally as "salmon de mar" or Sea Salmon. Commercially fished off the Southwestern Atlantic coasts, it can be found from Rio de Janeiro in Brazil, to at least the New Gulf in Argentina. With a maximum length of 120cm, but more typically 50-80cm and weighing 12-18kg, this important indicator has a pale brown body, with darker brown blotches giving rise to dark brown vertical and horizontal stripes. A row of dark brown blotches appears on the middle of the

dorsal fin, with a prominent black spot on the upper lobe of the caudal (tail) fin. It feeds on fish, cephalopods, benthic (bottom dwelling) organisms and plants.

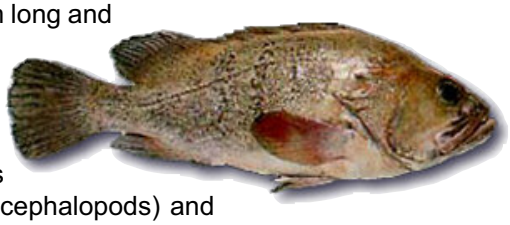
3.3 Lobsters – *Palinurus genus*

The Palinurus genus (frequently transcribed as Panulirus) is represented by numerous species in all of the world's tropical and sub-tropical seas as well as more temperate waters. It is a predatory, nocturnal animal 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. Lobsters have recently suffered a dramatic demographic decline; entire populations have been annihilated by intensive fishing, especially where tourism abounds.

3.4 Sea Bass - *Acanthistius brasilianus*

A member of the Serranidae family, the Brazilian Sea Bass is related to Groupers and can be found in the Southwest Atlantic: Brazil, Argentina and Uruguay. It is up to 60cm long and is commercially fished. The mouth is large and slightly protractile, with well-developed fleshy upper lips. The lower jaw extends anterior to upper jaw. A brownish colour, with 3-4 dark bands on the lateral side of body, there are small irregular shaped dark spots on the body and dorsal and anal fins. The diet consists mainly of crustaceans (crabs) and moluscs (bivalves and small cephalopods) and smaller bony fish.



3.5 Besugo - *Pagrus pagrus*

Known as the Red Porgy or the Common Sea Bream, this indicator is classified 'Endangered' on the IUCN (International Union for Conservation of Nature and Natural Resources) Red List of threatened species.

Found over rocky, rubble, or sandy bottoms, this indicator feeds on crustaceans, fish and mollusks. It can be found as deep as 250m, but we certainly don't expect any observations at that depth! The body is pinkish silver with an indistinct yellow spot on each scale on the upper half of the body, these spots giving a yellowish striped effect. There is some yellow marking on the snout and upper lip. The dorsal, caudal and pectoral fins are pink.

Note: Many species of fish and plants are known by different names in different locations. Where appropriate, we provide the recognised scientific name, but in the case of common names, for the sake of consistency, we have used the common names as they appear in the fishbase.org database as our default name.

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 site etc

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

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!

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

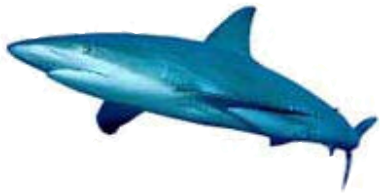
Current: None ☐ Light ☐ Medium ☐ Strong ☐ (tick)

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.



All Sharks

How many Sharks 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:

Canchito (*Pseudopercis semifasciata*)

How many Canchito 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? What was it doing? At what depth did you see it/them?

Additional Information:

Lobster

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

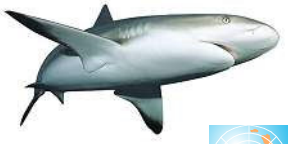
0 ☐ 1 - 5 ☐ 6 - 20 ☐ 20 - 50 ☐ 51 - 250 ☐ >250 ☐

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:



Sea Bass

How many Sea Bass 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? What was it doing? At what depth did you see it/them?

Additional Information:

Besugo (*Pagrus pagrus*)

How many Besugo 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? 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.

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