

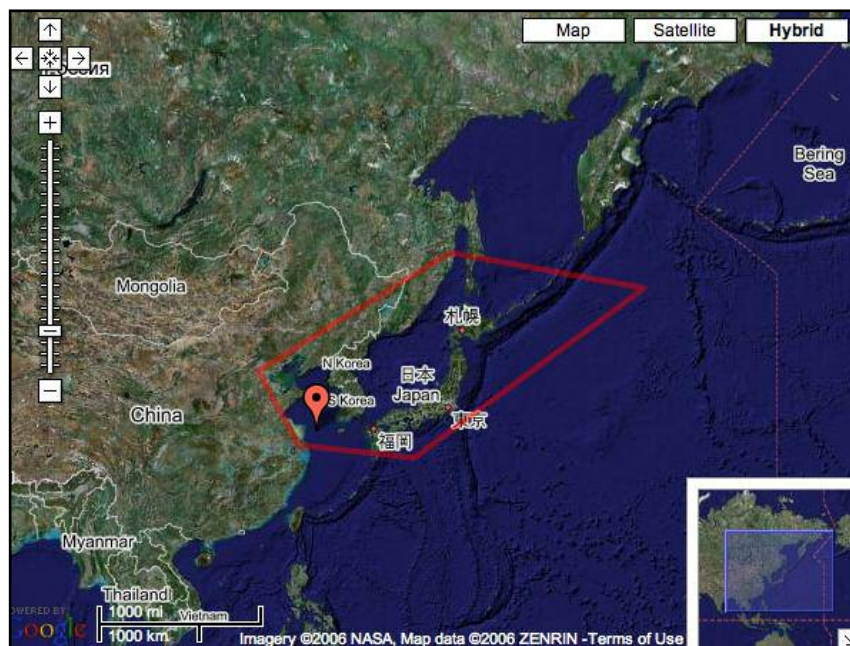


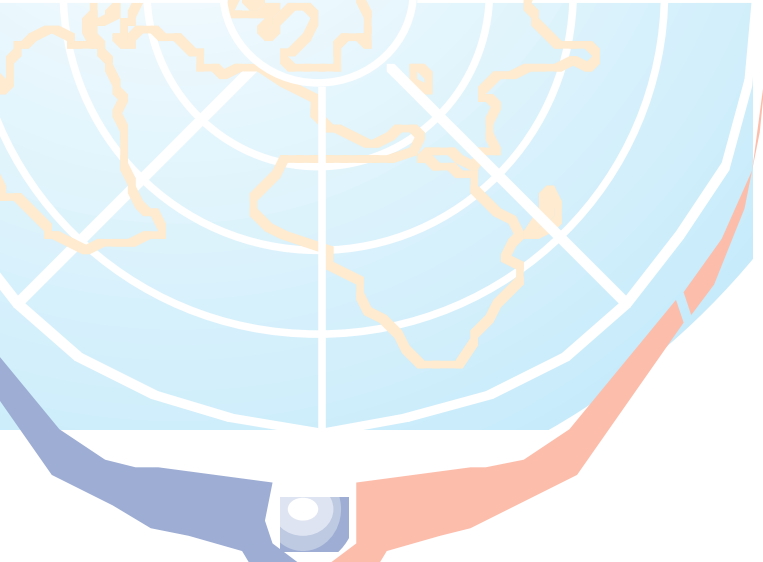
# EARTHDIVE

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

## PRE-DIVE BRIEFING PACK

**Eco-Region 10b**  
**Japan/Asia - Temperate**





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## 1.0 General Information

This booklet is a **pre-dive briefing pack** for the **Japan/Asia - 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 **EARTHDIIVE** Global Dive Log.

## 1.1 Introduction

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

The **EARTHDIIVE** 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 **EARTHDIIVE** 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 **EARTHDIIVE**.

## 1.2 How to record your observations into the Global Dive Log

When recording scientific information for **EARTHDIIVE**, 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 **EARTHDIIVE** 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 Japan/Asia - Temperate Eco-Region

This eco-region comprises the Chinese waters of the Yellow Sea; North and South Korea; Japan, north from the southernmost tip of Kyushu and the Sea of Japan; Russia from the border with North Korea north to the mouth of the Tumnin River; the southern part of Sakhalin Island from Makaro and Saritsa south.

**The Yellow (Huanghai) Sea** is a partially enclosed body of water bounded by the Chinese mainland to the west, the Korean Peninsula to the east, and a line running from the north bank of the mouth of the Yangtze River to the south side of Cheju Island. It is a shallow sea with an average depth in the region of 44 metres, sloping gently away from the Chinese coastline. The Yellow River and the Yangtze have both formed large deltas and deposit large amounts of sediment into the sea. These deposits are mineral rich and give the waters a yellow hue, hence the name. This highly productive Sea is marked by seasonal variation, and supports substantial populations of both cold temperate (eel-pout, cod, flatfish, Pacific herring) and warm water (skates, gurnard, jewfish, small yellow croaker, spotted sardine, fleshy prawn, southern rough shrimp) species. There are eleven species of mammals including fin-less porpoise, seals, and sea cow lions. Some whale species may also be spotted here, although these are just remnants of the the pods that used to migrate and breed there. The Yellow Sea is one of the most intensively exploited areas in the world. There are over 270 fish species, with about 100 species of fish and crustacea being commercially harvested. This exploitation of the Sea's resources means that over time, stocks some of the more commercially valuable species have declined, to be replaced by smaller, less valuable species.

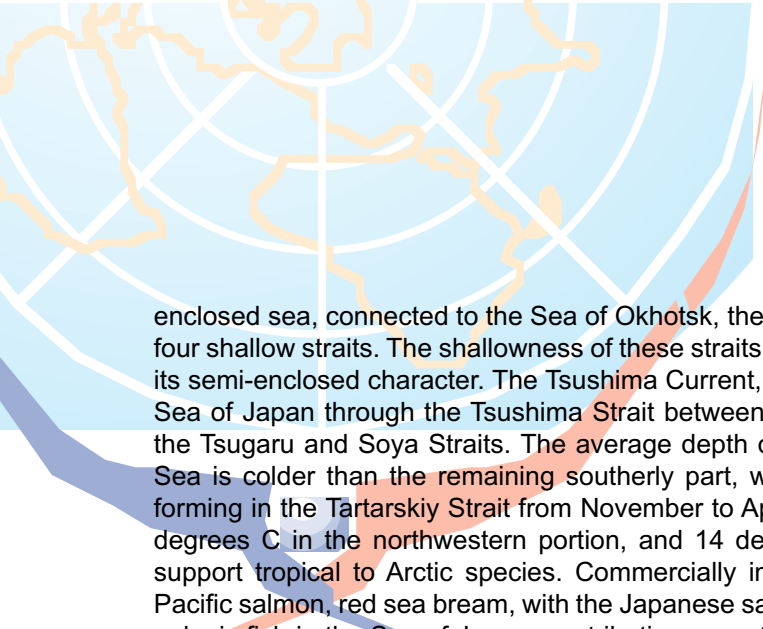


**The Sea of Japan** (also known as the East Sea) is another highly productive, semi-



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enclosed sea, connected to the Sea of Okhotsk, the Northern Pacific Ocean and the East China Sea through four shallow straits. The shallowness of these straits limits the water flow in and out of the Sea and contributes its semi-enclosed character. The Tsushima Current, a small branch of the warm Kuroshio Current, enters the Sea of Japan through the Tsushima Strait between Kyushu and Korea and flows out to the Pacific through the Tsugaru and Soya Straits. The average depth of the sea is 1350 metres. The northwestern area of the Sea is colder than the remaining southerly part, with sharp declines in temperature in the winter and ice forming in the Tartarskiy Strait from November to April. Seasonal temperature fluctuations are as high as 20 degrees C in the northwestern portion, and 14 degrees C in the southern portion, allowing the region to support tropical to Arctic species. Commercially important species include sardine, flounder, Pacific cod, Pacific salmon, red sea bream, with the Japanese sardine (*Sardinops melanostica*), one of the most abundant pelagic fish in the Sea of Japan, contributing more than 70 percent of the total catch.

The country that is **Japan** is actually an archipelago that stretches over 3000 kilometres from north to south. Because of this, northern Japan is located in the North Temperate Zone, experiencing temperatures that range from cool to cold, while the southern Japanese islands, (outside this eco-region) are situated near the Tropic of Cancer and enjoy tropical temperatures. Summers are humid and hot, whilst areas impacted by the Asian monsoons suffer severe weather, despite the temperate latitude. Most areas of Japan have a rainy season, known as tsuyu, sometime during June and July, with occasional typhoons, from August to October, bringing heavy rains and high winds to some parts of the region.

High levels of land reclamation and coastal development has led to the destruction of mangrove areas and harmed extensive areas of coral reef in the south of Japan. Oil pollution is a significant problem along major shipping routes and an increasing number of accidents have occurred in recent years. The former Soviet Union and now Russia have reportedly dumped radioactive waste in the Sea of Japan.

### 3.0 Indicator Species

What to look for and record in the **Japan/Asia Temperate** eco-region:

Stichopodidae sea cucumbers (*Apostichopus japonicus* and *Stichopus nigripunctatus*)

*Low numbers are indicators of overfishing*



Lobsters

*Low numbers are indicators of overfishing*



Horned Turban (*Turbo cornutus*)

*Low numbers are indicators of overfishing*



Abalone (*Haliotis* spp. - 4 species)

*Low numbers are indicators of overfishing*



Seagrasses to genera, with some to species (*Zostera asiatica* and *Z. marina*)

*Indicators of rare habitat*



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 Stichopodidae sea cucumbers (*Apostichopus japonicus* and *Stichopus nigripunctatus*)

Sea cucumbers (*Holothuroidea*) are a group of worm-like and usually soft-bodied echinoderms that are found in nearly every marine environment, but are most diverse on tropical shallow-water coral reefs. They range from the intertidal zone, where they may be exposed briefly at low tide, to the floor of the deepest oceanic trenches (an unidentified specimen was taken from the Philippine trench in 1951 at 10,190 metres) generally preferring sandy and muddy habitats.

There are approximately 1400 extant species which come in many forms. Generally cucumber shaped, some adults of diminutive species may not exceed 1cm in length, while one large species (*Synapta maculata*) can reach lengths of 3 m! (One report of this species at 5m long on the Great Barrier Reef may well have been two sea cucumbers entwined – but may also be accurate!)



*Apostichopus japonicus*

Several species can swim and there are even forms that live their entire lives as plankton, floating with the ocean currents, whilst other species live buried in the sand and only expose their tentacles above the sand to attract food. Most sea cucumbers feed on detritus (dead plant and animal material) in the sand. The sand is taken in through the mouth, the detritus digested and the clean sand is then expelled. Others, like the beach-ball sea cucumber, use feather-like arms to filter food from the surrounding seawater.

Sea cucumbers can be commercially important for a number of reasons: in Asia the body wall is considered a gourmet item, being processed and marketed as trepang or beche-de-mer; pharmaceutical research has discovered that some compounds extracted from sea cucumber have anti-microbial, anti-coagulant, anti-cancerous and anti-inflammatory properties; Pacific island fisherman use the respiratory inhibiting toxins produced by sea cucumbers as an aid to fishing.

Some sea cucumbers are hosts to pearlfish (*Carpidae*). These eel-shaped fish enjoy a commensal relationship (a form of symbiosis where only one organism benefits) by living inside the body of the sea cucumber. Sea cucumbers also have the ability to auto-eviscerate. They can expel their internal organs through a violent muscular contraction which breaks the body wall. This wards off prey, and the sea cucumber then regenerates the expelled organs.

The class *Holothuroidea* contains six orders, one of which is *Aspidochirotida*. This order in turn contains three families, one of which is *Stichopodidae*, which contains the two species that we are interested in.

The cold-water species of Japanese sea cucumber (*Apostichopus japonicus*, sometimes just *Stichopus japonicus*) is found in the Western Pacific Ocean along the coast of China, Japan and Korea and the east coast of Russia. It grows to a length of 25cm. The vertical range is from tidal areas down to 20–30 m depth. In China, it is mainly distributed along the coast of Shandong, Liaoning and Hebei Provinces, as well as in some areas of Jiangsu. In Japan it is highly valued in a raw food form. There are three colour variations of this sea cucumber: green, red, and black. The green and red varieties inhabit sandy and mud bottoms and are of great commercial importance. The black variety can be found both in the open sea and on rocky shores.

The species *Stichopus nigripunctatus* has a soft and pliant body wall and inhabits shallow waters.

### 3.2 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.

Up until the end of the 19th century lobster was so plentiful that it was often used as fish bait. Sadly, with lobster's ever-increasing popularity those days are now gone forever. 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*, the slipper lobsters, *Scyllaridae* and the true reef lobsters, *Nephropidae*.



*Panulirus japonicus*

The true reef lobsters, *Nephropidae*, with their enlarged pincers on the first pair of legs are found in northern waters, and will not be seen in these waters. The first pair of walking legs carries large but slightly unequal pincers that can be both formidable and dangerous.

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. There are a number of *Palinurus* species, also known as spiny or rock lobsters to be found in the region, including the Japanese spiny lobster (*Palinurus japonicus*) and the Japanese blunthorn lobster (*Palinustus waguensis*)

Slipper lobsters, also known as Spanish or shovelnose lobsters they live on stony ground, in caves, and can also be found on muddy bottoms. They use the large spade-like scales at the front of the head to burrow into mud, sand or gravel between and under stones. It lacks the large claws of a true lobster, or the long antennae of spiny lobster. Instead it sports very short antennae and two large hinged scales or plates at the front of the shell. The carapace has a rough consistency. The Japanese slipper lobster, known elsewhere as the Moreton Bay Bug (*Thenus orientalis*) is to be found in the region.

Other decapods to be found in the region are the Species of *Metanephrops*, such as the China lobster (*Metanephrops sinensis*) and the Japanese lobster (*Metanephrops japonicus*). These small members of the class, commonly called scampi elsewhere, normally inhabit very deep waters with and often burrow into the sandy or muddy bottom. They range in size from 50 – 75mm. Please do not include any *Metanephrops* in your survey.

Unsurprisingly, low numbers are indicative of overfishing.

### 3.3 Horned Turban (*Turbo cornutus*)



The horned turban (*Turbo cornutus*) is an edible mollusc, a member of the class Gastropoda, the largest class of molluscs containing over 35,000 living species and 15,000 fossil forms. The one - piece (univalve) shell is usually coiled or spiralled, although in some cases, such as nudibranchs, the shell is completely absent.

The gastropod usually has a distinct head with one or two sensory tentacles and a mouth that is often equipped with a rasp-like tongue called a radula. The head can be drawn into its body. The underside of the animal is modified into a long, flattened foot, used by benthic (bottom-dwelling) species for mobility. The foot and other soft parts of the body can usually be completely withdrawn into the shell and the opening covered by a permanent plate called the operculum.



Most species of gastropod are marine and many are among the most important invertebrate fisheries in the world. The main classes of mollusc fished are Cephalopoda, Bivalvia and Gastropoda. With gastropods representing approximately 2% of the global mollusc fishery. Several species of gastropods, such as *Haliotis* spp., *Strombus* spp., *Busycon* spp. and *Concholepas concholepas*, have high economic value in international markets and play important social roles in small-scale artisanal fisheries.

The horned turban is a member of the family of turban-shelled molluscs, *Trochoidea Turbinadae* and is found in intertidal habitats down to 30m, usually in rocky habitats. It is an algae feeder. The shell has a distinct turban coiled turban shape, and the horned turban is characterised by the spiny or horn-shaped projections at the base of the shell. These projections are slightly more pronounced in areas where there is a high current. The horned turban shell grows to 12cm.

### 3.4 Abalone (*Haliotis* spp. - 4 species)



*Haliotis*

Abalones are highly-valued but 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. They are edible molluscs and considered a delicacy. The inner shell of abalone, which has an iridescent green, blue, or pink sheen, is a source of mother-of-pearl

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

The feed mostly on seaweed, which they trap by marginally raising the front end of the 'foot', and when a piece of seaweed drifts underneath, the foot clamps down on it.

Worldwide there are approximately 100 species of abalone, of which about 15 are harvested commercially.. Demand for this delicacy has outstripped the natural supply, with a resulting growth in mariculture. The principal countries producing cultured abalone are China, Taiwan and Japan. Several other countries including Australia, Chile, Iceland, Ireland, Mexico, New Zealand, South Africa, Thailand, and the United States are still developing significant abalone mariculture industries. The story of depletion of the ocean's abalone stocks is not encouraging in all of these countries, with reductions running from 50 to 95 percent in the commercial catch over the past twenty quarter century.

Called awabi in Japan, there are a number of species to be found in the waters of the region. In Japan alone there are 10 species, of which only four constitute staple food products.

Despite a large volume of imported species for local markets, there is a distinct preference in Japan for a local Japanese green abalone called ezo awabi (*Haliotis discus hannai*), the only species eaten live locally. This species is found in the more southerly part of the region, and is similar to the more northerly kuro awabi (*Haliotis discus discus*). Feeding on brown algae, they are on or under rocks from the inter-tidal zone to about 20m, the shell grows to 15cm, with 4-6 open, nearly circular perforations, with a spiral groove to the right of the perforations. Of the total catch ezo hawabi supplies 58%.

The giant abalone (*Haliotis gigantea*) grows to 200mm. The shell has a tinge of iridescent shades of blue, green and bronze. Any pearls that the animal produces as a reaction to irritants within the shell have the same colour range. The species *Haliotis sieboldii* grows to 150mm

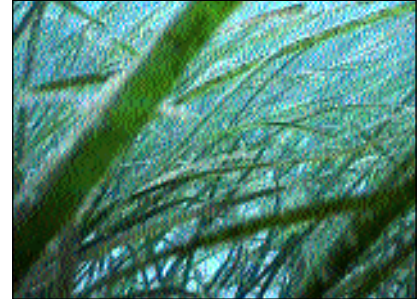




### 3.5 Seagrasses to genera, with some to species (*Zostera asiatica* and *Z. marina*)

Seagrass habitats in the region, as elsewhere in the world, have been lost, fragmented and damaged by development and poor catchment management, through practices such as sewage and stormwater discharges, urban runoff, dredging, boating and land reclamation.

Seagrass meadows play a key ecological role in the region's coastal ecosystems and the loss of seagrass beds is considered to be one of the most serious issues facing the marine environment. Seagrass habitats support high primary productivity and host a wide variety of associated fauna including commercially important fishes.



The extent of seagrass beds is a good indicator of the ecological health of the marine environment. Healthy seagrass beds provide both habitat and food source, supporting biodiversity and stabilising the sea-bottom.

Seagrasses are highly specialised marine flowering plants adapted to soft sediments of nearshore environments and which live totally submerged in water. They come complete with leaves, a rhizome (an underground, usually horizontally-oriented stem) and a root system. They are found in marine or estuarine waters. Most seagrass species are located in soft (that is, silty or sandy) sediments.

There are thought to be less than 70 species of seagrasses worldwide, with around sixteen of these in the northwest pacific

The seagrass flora in Japan is characterized by the occurrence of several species of Zosteraceae that are considered to be endemic to the northwestern Pacific (Japanese, Korean and southeast Russian waters). These are *Zostera asiatica*, *Z. caespitosa*, *Z. caulescens*, *Phyllospadix iwatensis* and *P. japonica*. Among them, *Zostera spp.* generally occur at sub-tidal soft bottom in northern Japan, usually forming mixed-species seagrass beds with the cosmopolitan eelgrass *Z. marina*. Some of these species are now known only in a few localities around Japan and thus considered to be at risk of extinction. Basic information on distribution and quantitative aspects of their ecology and population genetic structure is urgently required for promoting effective and efficient conservation of these seagrasses

*Zostera marina* is the most common of all temperate seagrass species with a large variation in size being reported from 30 cm to over 200 cm long. The rhizome is brown with roots located only at the rhizome nodes. A single shoot occurs at the end of each rhizome. A single sheath encompasses 3-5 strap-shaped leaves. The leaf tip is rounded, sometimes with a very small point at the apex.

*Zostera asiatica* is similar in appearance to *Z. marina* except that there are many more roots for each rhizome node and they sometimes emerge from the side of a short shoot. Multiple sheathes can occur on a single shoot, a characteristic not displayed by *Z. marina*.

When recording Seagrasses, please do not try to count individual plants – you will be there forever (or at least till you run low on air!). We just need to know that it is present, preferably by position fixing on GPS, the depth range and an estimated size of the bed or meadow. And if you can, identify the genus, or better still, the individual species.

### 4.0 Anthropogenic Pressures

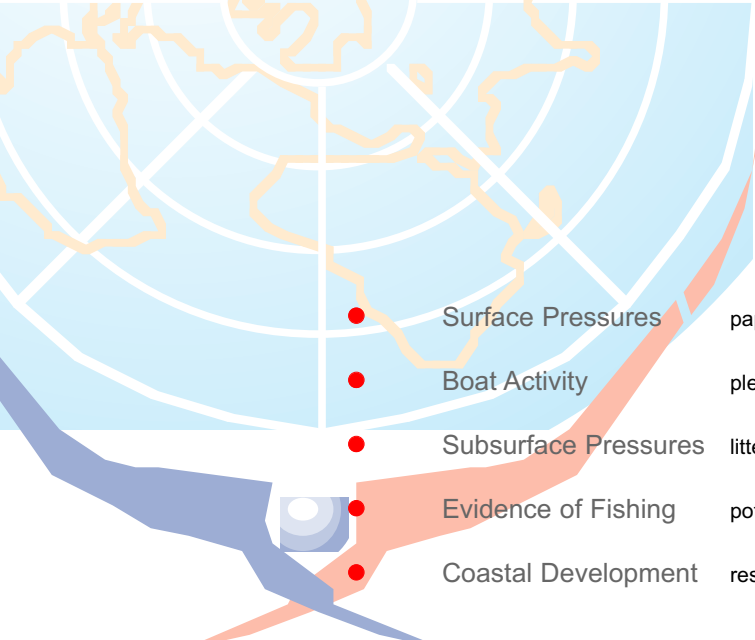
**EARTHDIVE** is recording five different types of anthropogenic Pressures (effects resulting from the actions of humans). Collection of this data enables us to establish an ever-evolving **Global Snapshot** of our oceans.

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



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- 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 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 to everybody) 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!



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#### 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.



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### 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:



### Horned Turban (*Turbo cornutus*)

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

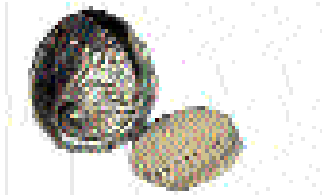
0  1 - 5  6 - 20  20 - 50  51 - 250  >250

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:



**Abalone (*Haliotis* spp. - 4 species)**

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

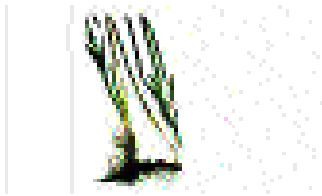
0  1 - 5  6 - 20  20 - 50  51 - 250  >250

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

**Additional Information:**



**Seagrasses**

How big was the seagrass bed you saw? (tick box and/or record actual area in m<sup>2</sup>)

0  1 - 5 m<sup>2</sup>  6 - 20m<sup>2</sup>  20 - 50m<sup>2</sup>  51 - 250m<sup>2</sup>   
>250m<sup>2</sup>

Actual area  m<sup>2</sup> (write actual number)

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

Add your additional information here. Depth range and extent (estimate size of bed). Identify main species present if possible.

**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)

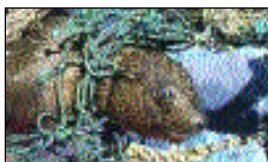


**Subsurface Pressures**

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.



© Elizabeth Fleming  
Turtle shell ornaments on display

**TRAFFIC**

