Oceans in the Balance

The crisis facing our waters

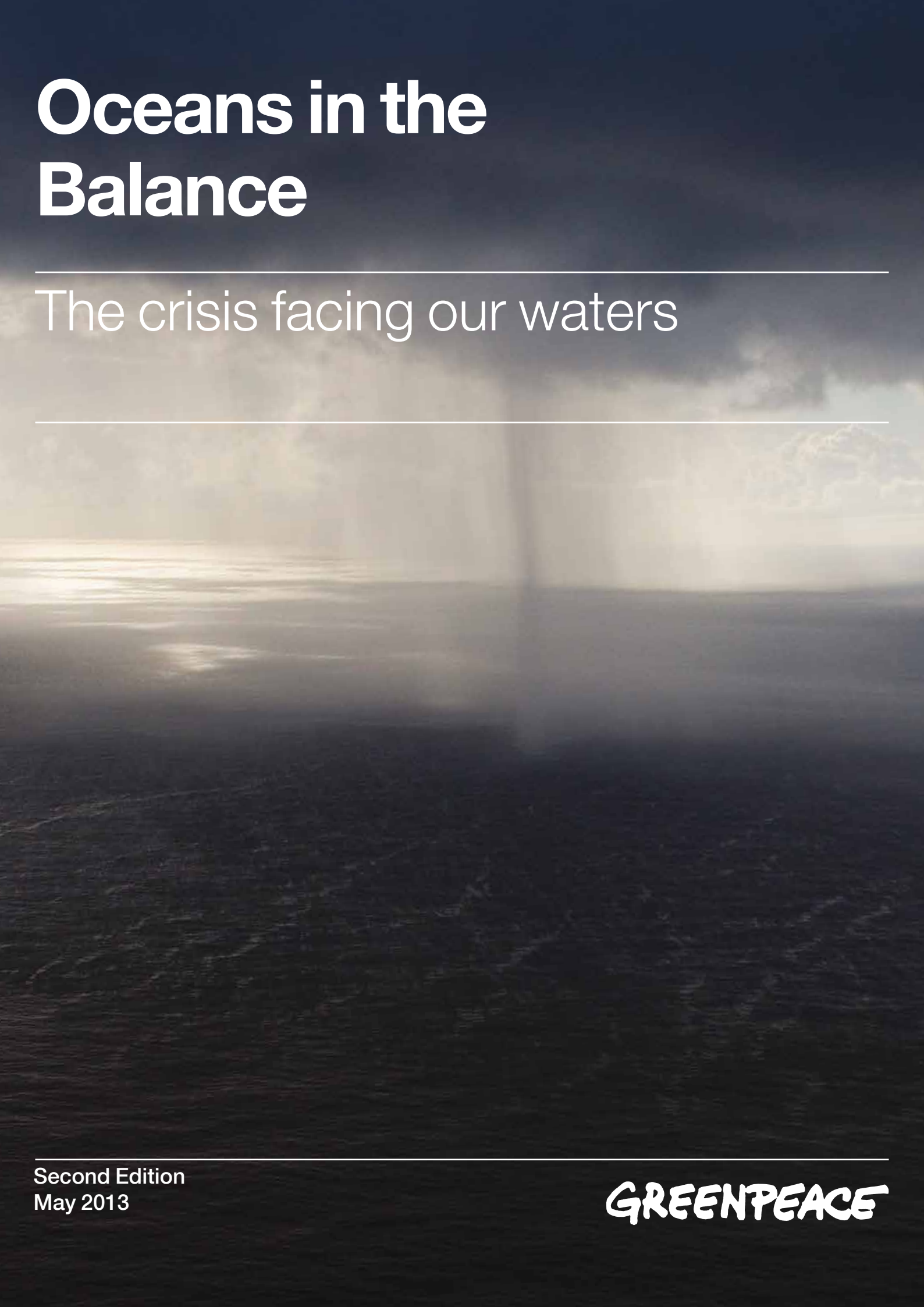

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Image The main fish market in Busan, South Korea. Fish on sale were mainly mackerel, with some juvenile bluefin tuna, sun fish and others.

Oceans in the Balance

The crisis facing our waters

"For most of history, man has had to fight nature to survive; in this century he is beginning to realise that, in order to survive, he must protect it."

– Jacques-Yves Cousteau

Our oceans give us life

Every second breath we take comes from the ocean. Billions of people rely on our oceans for their food and for employment. In return, we are plundering the oceans of fish, choking them with pollution and altering them forever with the impacts of human-induced climate change.

Once seen as boundless, the world's oceans are finite and the marine life they hold can indeed be exhausted. Roughly 90% of the big fish in our oceans have been fished out, and coral reefs are fast disappearing. Soon our oceans will be unable to recover. The 3rd United Nations Global Biodiversity Outlook in 2010 warned that unless "radical and creative action" is taken quickly, our oceans will collapse.

Humankind has set sail on a wrong course, harming our very source of prosperity. As technology has improved, so ocean life has disappeared faster and faster, and fishing fleets have moved further away from the coast in search of decreasing numbers of fish. The international waters of the high seas – areas once seen as too far, too deep and too difficult to exploit – are now in peril.

Threats to the world's oceans

Overfishing, pirate fishing, and destructive and unsustainable fishing methods are some of the main causes of ocean destruction and the collapse of fish populations. Giant factory ships are using state-of-the-art equipment to locate and literally vacuum entire schools of fish out of the water. These industrial fishing fleets target one species at a time, deplete it and then turn to another species, threatening the very future of our oceans' ability to sustain life on Earth.

Rising temperatures and ocean acidification are the twin threats to ocean life resulting from the increased levels of carbon dioxide we are pumping into the atmosphere as a result of our dependence on fossil fuels. We are witnessing wide-scale coral bleaching and increases in invasive species due to climate change.

Pollution is widespread throughout our oceans. All sorts of human-generated pollutants are degrading the marine environment, including those discharged from factories on land, pesticides and nutrients from agriculture, sewage, plastics, toxic chemicals and oil resulting from spills, and even radioactive discharges from nuclear power stations situated near the coast.

Without clear rules and regulations to govern deep-sea mining and its potential impacts on marine life, there is concern that irreparable harm may be inflicted on our oceans. Deep-sea mining companies are most interested in exploiting those areas of the seabed covered in polymetallic nodules (small lumps of rock rich in metals such as manganese) and hydrothermal vents. Vents create sulphide deposits that contain precious metals such as silver, gold, copper, manganese, cobalt and zinc. Unfortunately, extracting the valuable deposits associated with these vents is likely to harm the rich and unique ocean life that are often found living in these little-known deep-sea environments.

The search for marine genetic resources found in the organisms living in the deep sea is another activity that is unregulated and could lead to the destruction of rare marine species and habitats. Scientists, governments and corporations are beginning to research the genetic and chemical compounds found in deep sea creatures for the pharmaceutical and cosmetic industries and then patenting these resources. There is no legal regime to ensure that the exploration for and removal of these resources (bioprospecting) happens safely. Given the huge financial gains, knowledge and other benefits arising from the use of these resources, it is crucial that these are fairly and equitably shared among countries.

HIGH SEAS THREATS

FISH ARE A VITAL FOOD SOURCE FOR

200 MILLION

AFRICANS

OVER

80%

OF THE WORLD'S FISHERIES ARE FULLY EXPLOITED, OVER-EXPLOITED OR RECOVERING FROM DEPLETION

OCEAN ACIDIFICATION WILL DISRUPT THE ABILITY OF MANY MARINE SPECIES TO GROW THEIR SHELLS

LESS THAN **1%** OF THE HIGH SEAS ARE MARINE RESERVES

AN ESTIMATED

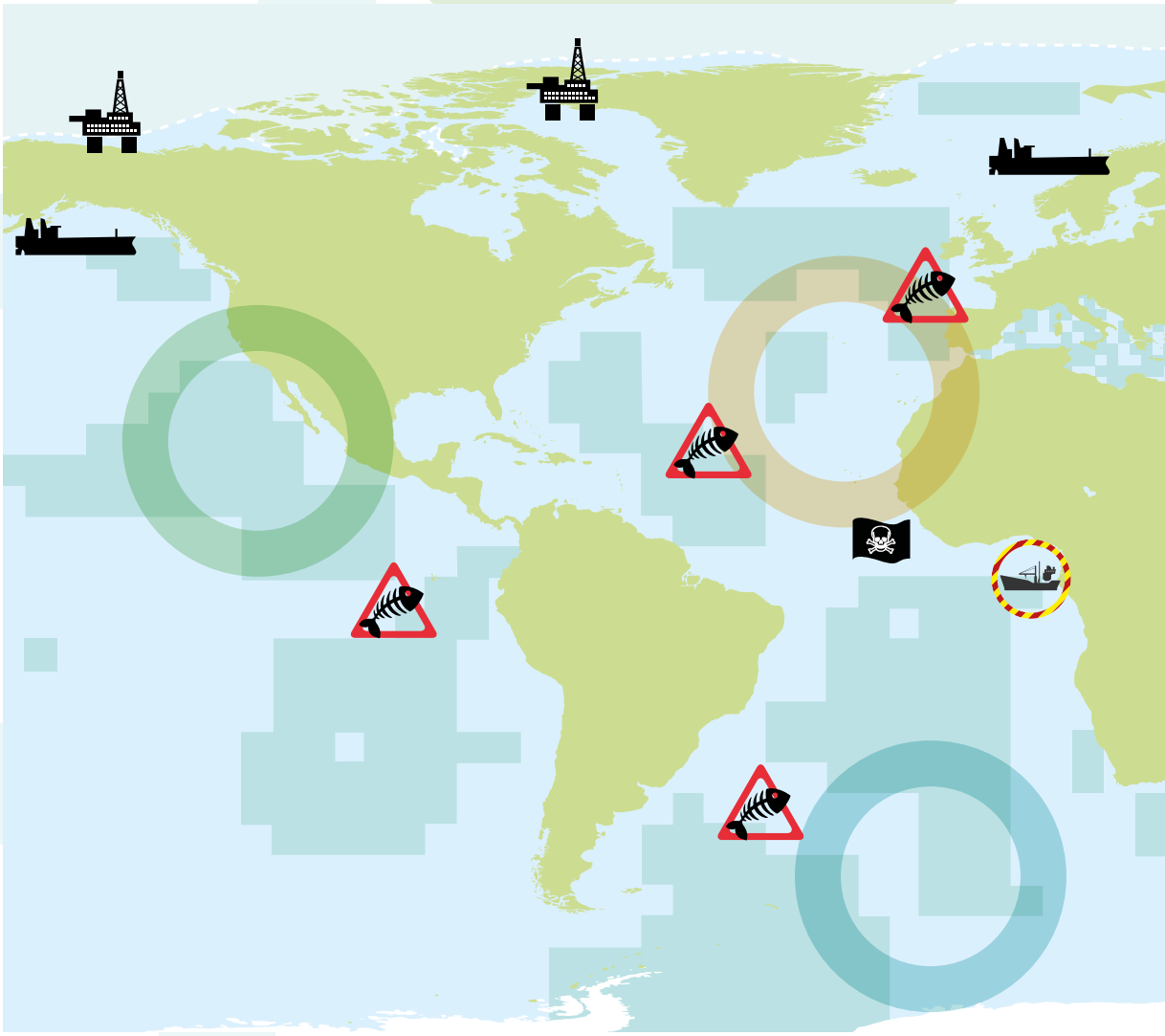
80%

OF MARINE DEBRIS IS FROM LAND-BASED SOURCES.

IN 1998, ONE MASS CORAL BLEACHING EVENT KILLED

16%

OF ALL THE WORLD'S TROPICAL CORAL REEFS



Key

- Fisheries flashpoint
- Area of oil exploration
- Oil tanker shipping route
- Large-scale industrial fishing
- Proposed marine reserves
- Pirate fishing area

300,000

WHALES, DOLPHINS AND PORPOISES DIE EACH YEAR AS A RESULT OF BECOMING ENTANGLED IN FISHING GEAR

THE MAJORITY OF THE WORLD'S

10,000

SEAMOUNTS HAVE YET TO BE STUDIED

2000M

DEEP SEA TRAWLERS CAN FISH TO DEPTHS OF 2000M OR MORE

AN ANTARCTIC LONGLINER SETS AND RETRIEVES 10,000-40,000 HOOKS EACH DAY, AN EQUIVALENT OF ABOUT

15-50KM

OF LONGLINES

BIOPROSPECTING IS GROWING: IN 2002 GLOBAL SALES OF MARINE BIOTECHNOLOGY PRODUCTS WERE ESTIMATED AT ABOUT

$2.4BN(US)

Black holes in ocean management

Governments are not unaware of what is happening in the oceans; there is a growing list of unfulfilled commitments to protect them. In 2002, at the World Summit on Sustainable Development, governments committed to create a global network of marine protected areas by 2012. In 2004, at the Convention on Biological Diversity, they agreed to protect 10%. Yet, in 2012, only 1% of the oceans are currently under any form of protection, lagging far behind protection on land.

Why the delay?

There are two main reasons for the delay: firstly, there are massive gaps in the rules that govern international waters; and, secondly, a lack of understanding about the urgency of the oceans crisis. The environmental crisis is seen as unimportant in times of global financial turmoil. However, in 2008 a study published jointly by the World Bank and the Food and Agriculture Organisation exposed the scale of losses incurred by overfishing – a staggering $50bn US dollars annually. The study concluded that improved oceans governance is key to recapturing a large proportion of this annual loss. In addition, it has been estimated that setting aside 20-30% of our oceans as marine reserves could create a million jobs, enable fish catches worth $70–80bn a year and ecosystem services with a gross value of roughly $4.5–6.7 trillion a year.

Mind the governance gap

The lack of political will has left huge gaps in the way we manage our oceans, causing a “Wild West” mentality in oceans governance.

What are the main loopholes and gaps in how the high seas are managed?

- No explicit rules on what the protection of international waters should look like, leaving large areas of oceans left without management.
- Little coordination between the relevant groups responsible for protecting and managing international waters.
- No means of establishing marine reserves or of assessing the impact of human activities on marine life in the high seas.
- Poor monitoring, surveillance, compliance and enforcement of extractive or potentially polluting activities.
- No rules to ensure that the benefits taken from international waters are shared fairly.
- No mechanisms to assess and regulate new and emerging human activities.

What can be done?

The poorest people on our planet will be impacted by the changes happening to the oceans the soonest and the hardest. But, ultimately, we all will suffer the consequences. Ocean resources will increasingly become a source of conflict unless clear rules are put in place to ensure the fair use of our oceans. There may still be time to reverse the damage we have caused to our oceans, but it requires action be taken now.

Overfishing must end, and large areas of oceans need to be protected. In order to protect our oceans, world governments must agree an Oceans Rescue Plan. This should include a high seas biodiversity agreement that would implement the relevant marine conservation provisions under the UN Convention on Law of the Sea to protect international waters from destructive industrial practices. This agreement must empower governments to finally act on their long-standing commitments to defend our oceans and create a global network of marine reserves, essential to saving life on Earth now and for future generations.

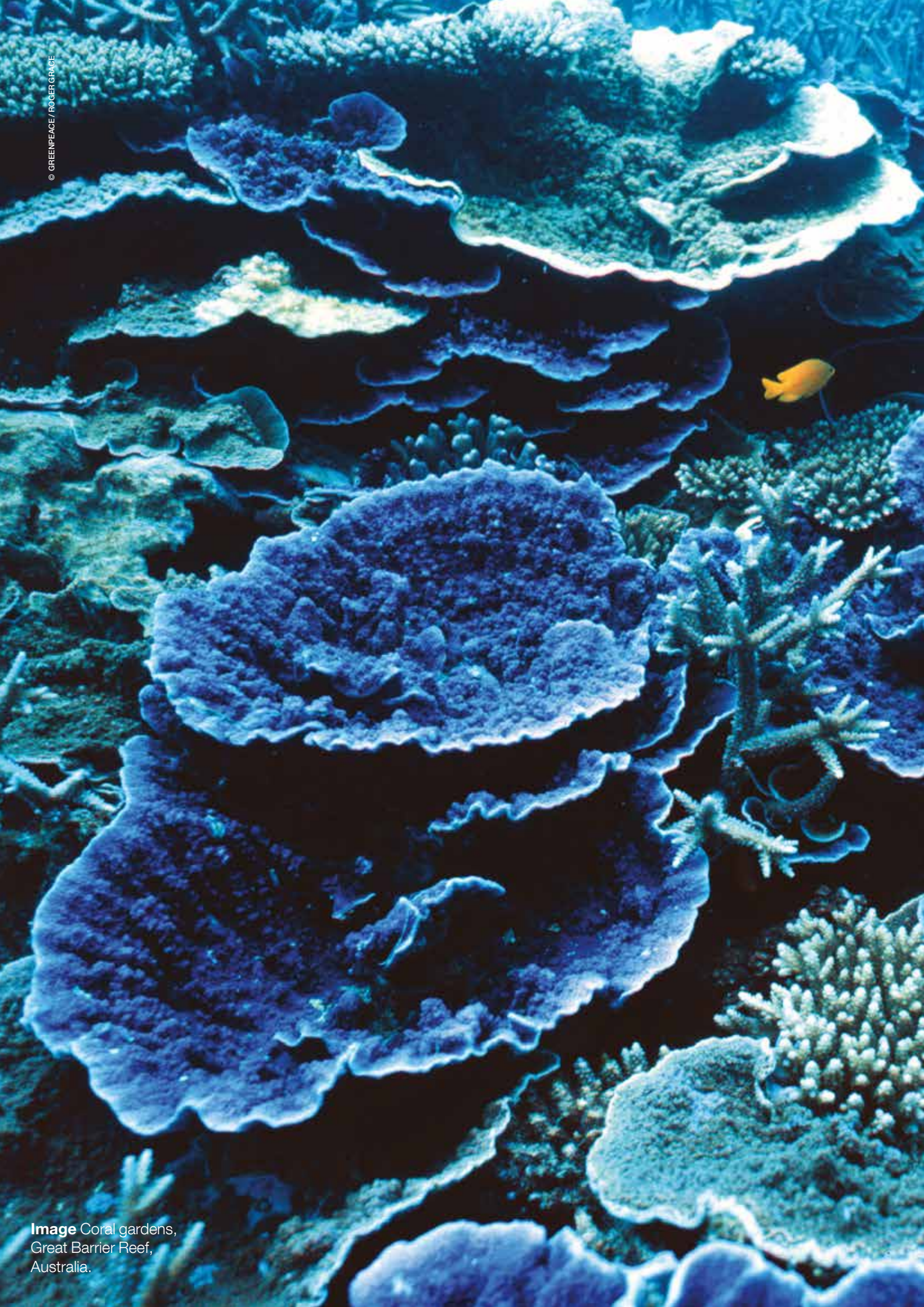


Image Coral gardens, Great Barrier Reef, Australia.

Image A polar bear in drifitng and unconsolidated sea ice in Kane Basin, off Cape Clay.

The Arctic Ocean

The hole at the top of the world

"What is it that is missing, is tentative, in us I would wonder, to make me so uncomfortable walking out here in a region of chirping birds, distant caribou and redoubtable lemmings? It is restraint."

– Barry Lopez, author of Arctic Dreams

Life on ice

Many people still think of the Arctic Ocean as impossibly remote – an untouched wilderness. Sadly, this idea no longer holds true. Once protected by permanent sea ice, the Arctic Ocean is becoming accessible to both the oil industry and also to large industrial-scale fishing fleets.

Some parts of the Arctic are among the fastest warming on the planet and consequently are experiencing severe climate impacts – including the alarmingly rapid disappearance of sea ice. Some scientists warn that the Arctic Ocean could have ice-free summers by 2030 or earlier. Permafrost is thawing, the ocean water is becoming more acidic, glaciers are melting, and the massive Greenland Ice Sheet is losing ice at record rates. As the sea ice shrinks and thins there are major repercussions, and there will be new challenges for the Arctic's people and wildlife.

Many species – including seabirds, seals, walruses, whales and polar bears – depend on the sea ice. Every spring the mixing of cold Arctic waters and warmer waters from the south creates one of nature's most amazing feeding frenzies, supporting millions of seabirds, whales and seals. Arctic seals give birth to and nurse their pups on the ice, use it as a resting platform, and search for food under and near the ice edge. Seabirds like the ivory gull are dependent on sea ice for foraging; in some parts of the Arctic they are in rapid decline, due to melting sea ice as well as pollutants emitted from far-away sources.

Threats to the Arctic

Arctic waters – and especially the polar front areas – are rich in marine life. At present, the sea ice that exists for most or all of the year limits industrial activities in the Arctic Ocean. Melting sea ice and global warming-induced changes in ocean current are causing ocean temperatures to rise, leading to modified distribution of fish populations. It's predicted that the North East Atlantic cod, the last of the big global cod stocks, will move north and east due to changes in ocean temperatures. With the opening up of previously unfished waters, the Barents whitefish fleet is already venturing further north than it has ever done before.

In June 2010, the Greenpeace ship *Esperanza* encountered 10 Russian trawlers on the northwestern coast of Svalbard, in the northernmost part of Norway. Cod trawlers operating in these areas drag their heavy fishing gear across the seabed, destroying everything in their paths, including vulnerable coldwater corals and sponge fields. The marine habitats in the far north are not well understood and are poorly mapped, so it is not known what impact destructive fishing will have there. In 2010 Greenpeace conducted a series of seabed surveys in the region using specialised underwater camera equipment. We discovered that the seabed was not the lifeless muddy bottom suggested by some, but rather home to sea urchins, sea stars, sea anemones, soft corals, sea squirts, tube worms, sponges, haddock, cod, red fish and shrimp.

Black holes in oceans management

The institutions and regulations meant to protect our oceans have failed to create the network of marine reserves urgently needed to rescue our oceans, including the Arctic. Much of the region falls under the national jurisdiction of one of eight Arctic nations (Canada, Russia, Greenland, the US, Norway, Sweden, Finland and Iceland), all of who have their own rules and regulations for activities within their own waters. Too often, the fossil fuel industries in each of these countries have undue influence over the management of the Arctic Ocean, and have little or no interest in the protection of the marine environment. As the same countries are now venturing into the final carve-up of territory and the estimated resources on and beneath the seabed, the Arctic Ocean urgently needs legally-binding protection that will safeguard these waters from destructive activities.

The only body that includes all the Arctic states is the Arctic Council. The Arctic Council describes itself as a "high-level intergovernmental forum to promote co-operation, co-ordination and interaction among the Arctic States". Working groups organised under the Arctic Council have produced several scientific reports about the state of the environment in the Arctic and the threats to it. However, there has been little interest to actually implement the recommendations from the scientific reports. The environmental proceedings agreed are merely voluntary guidelines and do not have a "hard" legal status, so are not always followed by Arctic nations or the corporations operating within the Arctic.

UNDER THREAT

"Now is the time for the international community to create a precautionary management system for central Arctic Ocean fisheries. Such a system should postpone fishing activity until such time as the biology and ecology of the region are understood sufficiently well to allow for setting scientifically sound catch levels. Such a system should also require that a robust management, monitoring and enforcement regime be established before fishing is allowed. This system should be put in place before sea ice retreats farther, before fishing begins and political pressure increases, and before precautionary management is no longer an option."

Open Letter signed by more than 2,000 scientists from 67 countries, released by the Pew Environmental Group on the first day of the International Polar Year conference in Montreal, 2012.

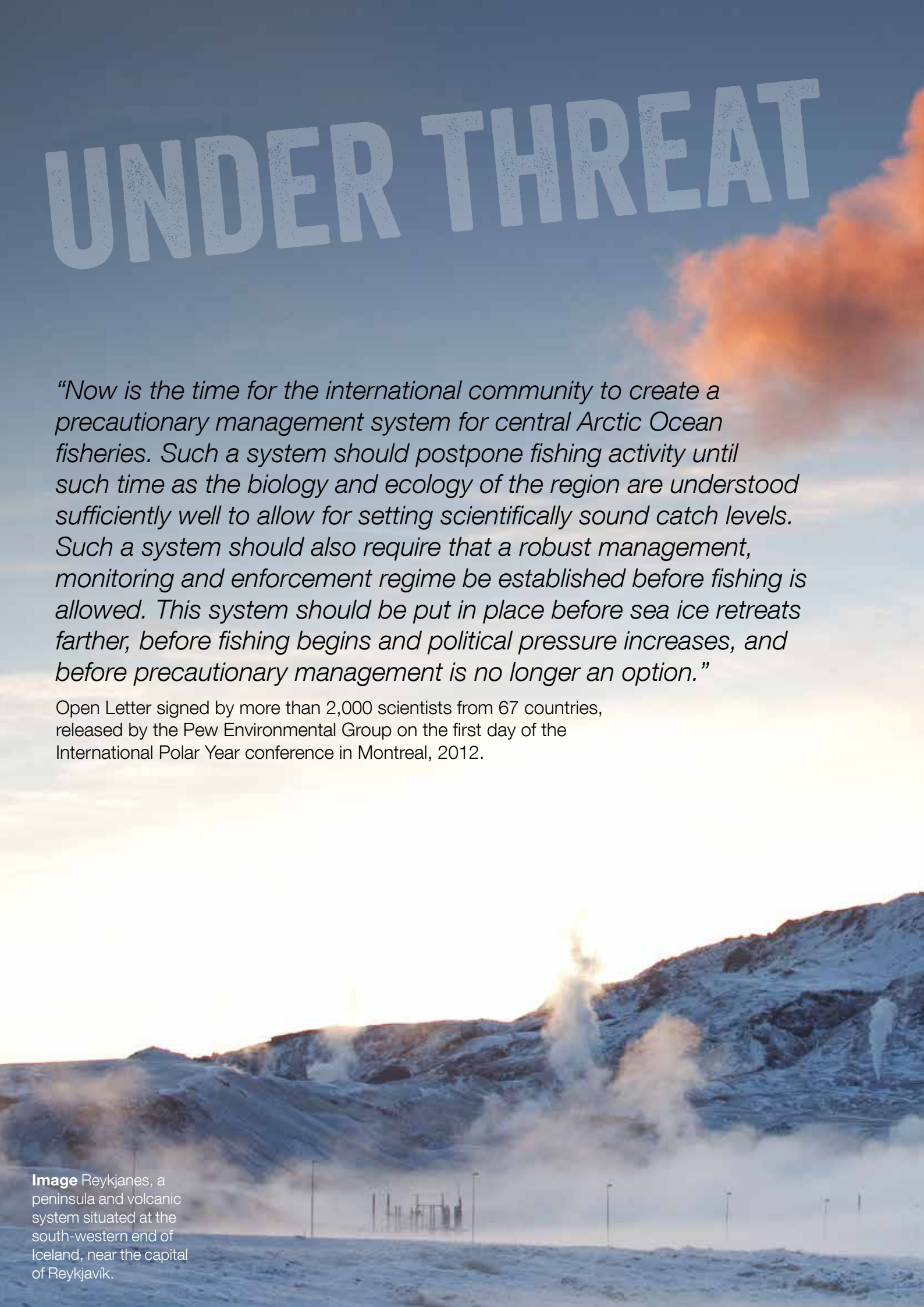


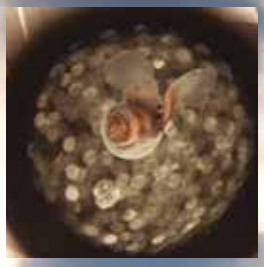
Image Reykjanes, a peninsula and volcanic system situated at the south-western end of Iceland, near the capital of Reykjavík.

ARCTIC THREATS

THERE IS NO WAY OF CLEANING AN OIL SPILL IN THE ARCTIC ICE

CLIMATE CHANGE IS ALREADY IMPACTING THE ABILITY OF ICE DEPENDENT POLAR BEARS TO FIND FOOD.

LARGE SCALE INDUSTRIAL TRAWLERS WILL DESTROY FRAGILE ARCTIC SEABED HABITATS BEFORE THEY HAVE EVEN BEEN MAPPED.



THE "SEA BUTTERFLY" IS A SMALL MARINE ANIMAL THREATENED BY OCEAN ACIDIFICATION. PTEROPODS ARE A FUNDAMENTAL PART OF THE FOOD WEB, COMMONLY CONSUMED BY FISH, SEABIRDS AND WHALES.

BIOTECHNOLOGY COMPANIES ARE ALREADY SCOURING THE ARCTIC. ENZYMES FROM ARCTIC POUT ARE ALREADY FOUND IN LOW FAT ICE CREAM.

BIOPROSPECTING IS GROWING: IN 2002 GLOBAL SALES OF MARINE BIOTECHNOLOGY PRODUCTS WERE ESTIMATED AT ABOUT

$2.4BN(US)

Key

- Fisheries flashpoint: The waters around Svalbard are the gateway for the large-scale industrial fleet into the Arctic Ocean
- Area of oil exploration
- Oil tanker shipping route
- Large-scale industrial fishing

THE US GEOLOGICAL SURVEY ESTIMATES THAT

90 BILLION

BARRELS OF TECHNICALLY RECOVERABLE OIL LIE IN OFFSHORE RESERVOIRS IN THE ARCTIC.

THAT'S ABOUT A THIRD OF THE SIZE OF SAUDI ARABIA'S RESERVES.

While there are some agreements meant to manage and protect shared fish populations, there are clear gaps – such as the Canada-US agreement, which does not govern the Beaufort Sea, and the Canada-Russian Federation-US agreement, which excludes the Chukchi Sea. Now that sea ice is receding and fish stocks are moving further north into unmanaged areas there is a threat that fishing will occur increasingly outside of any control or regulation.

The area of high seas in the middle of the Arctic Ocean – like the vast majority of the high seas – lacks protection. While the rules of the UN Convention on the Law of the Sea apply to these waters, these are totally inadequate in ensuring the effective protection and management of life there. The Law of the Sea Convention does however call for increased cooperation in managing ice-covered waters and semi-enclosed seas, and requires that states should safeguard the marine environment. The recent conflict over mackerel quotas in the North Atlantic, between the EU and Iceland and the Faroe Islands, is a clear example of how the lack of international management of highly migratory fish can result in conflict.

BAFFIN BAY IS HOME TO

80-90%

OF THE WORLD'S NARWHALS.

THE AREA IS ALSO HOME TO BOWHEAD WHALES, POLAR BEARS, SEALS, CORMORANTS, KITTIWAKES AND NUMEROUS MIGRATORY BIRD SPECIES.

What can be done?

Due to limited knowledge of the Arctic region and the impacts certain activities will have on the environment, scientists have been urging a more precautionary approach to fishing in the Arctic Ocean.

The North Pacific Fisheries Management Council – one of the intergovernmental bodies charged with managing some Arctic fish stocks – decided in February 2009 to establish a moratorium on commercial fishing in a vast zone off Alaska's northern coast. This move will help give marine life in the Chukchi and Beaufort Seas a chance of surviving the sea ice loss and increasing ocean acidification that are coming to Arctic waters.

For these reasons Greenpeace is calling for an immediate moratorium on industrial-scale fishing in the historically unfished areas of the Arctic. This ban must remain until an effective system of protection is in place that creates marine reserves, establishes environmental impact assessments for proposed industrial activities in the Arctic Ocean region, and protects indigenous peoples' rights.

The Arctic Ocean is not the only area that lacks a framework to create marine reserves. These problems exist for most of the high seas, putting fish stocks and the ability of the oceans to provide humankind with food, jobs and the very oxygen we breathe at risk. In order to protect our oceans, world governments must agree an Oceans Rescue Plan. This should include a high seas biodiversity agreement that would implement the relevant marine conservation provisions under the UN Convention on Law of the Sea to protect international waters from destructive industrial practices. This agreement must empower governments to finally act on their long-standing commitments to defend our oceans and create a global network of marine reserves, essential to saving life on Earth now and for future generations.

Image View from the mast sailing through scattered drift ice.

Image Coral in Addu atoll, in the Southern Maldives.

The Indian Ocean

An abundance amidst the poorest and most populous

The Indian Ocean covers 20% of the Earth's surface and is home to thousands of species living in a variety of habitats – from the mangroves, seagrass meadows and coral reefs of the coastal zone, to the deep waters of the open ocean. Unfortunately the wildlife and ecosystems of the Indian Ocean, and the people that depend on them for food and income are threatened by the impacts of poorly regulated and controlled industrial fishing, offshore drilling, deep-sea mining and shipping.

The easternmost portion of the Indian Ocean forms part of the number one global hotspot for marine life, with more species found here than anywhere else on Earth. But life is not confined to the coastal seas. The open ocean or "pelagic zone" is sometimes referred to as a marine desert, because its clear blue waters are low in nutrients and food is hard to find. But ocean life is abundant here, including huge schools of tuna chasing the smaller fish on which they prey. Rare and vulnerable sea turtles, whales, sharks and rays can be found far from shore, spending their entire lives there or passing through in the course of long migrations between breeding and feeding areas.

Life also thrives in the depths, where mid-ocean mountain chains, seamounts and hydrothermal vents represent oases in the deep sea, where availability of food and habitat leads to high concentrations of many different species. We know very little about these areas and new species are found by many of the expeditions that set out to study them.

The Indian Ocean is surrounded by some of the world's poorest and most populous countries. People throughout the region are dependent on the sea for food and jobs. In the Maldives, fish accounts for an estimated 50% of people's daily intake of animal protein – the highest in the world. The Maldives also tops the list for the percentage of animal protein derived from open-ocean species (the group that includes tuna), and both the Seychelles and Comoros Islands are in the top five. Fishing is essential to the economies of these island nations and, throughout the larger Indian Ocean region, for providing employment and food to coastal communities. At the last estimate, there were over 200,000 small-scale fishing vessels in India alone.

Threats to the Indian Ocean

Many different kinds of fishing take place in the Indian Ocean, from small-scale vessels using low-impact fishing methods in coastal waters to industrial-scale vessels that can spend months fishing at sea. Catches have been increasing since the 1950s, and Indian Ocean catches account for approximately 10% of global marine catches. Large-scale industrial vessels dominate fisheries on the high seas. The majority target large predator fish such as tuna and swordfish.

Vessels come from Indian Ocean countries, including Indonesia, India, Sri Lanka and Iran, and many more come from further afield: France, Spain, China, Taiwan, Korea and Japan are among the distant water fishing powers sending large fleets of vessels to the Indian Ocean.

Deep-sea trawlers have fished on the high seas of the Indian Ocean since the 1970s. Boats from a number of countries, including Australia, New Zealand, South Africa and countries of the former USSR, target orange roughy and alfonsino. They use huge trawl nets that are dragged along the ocean floor, scooping up everything in their path including corals and sponges – species that can provide valuable habitat for many others. Fisheries usually take place on or around seamounts, home to slow-growing deep-sea species that cannot recover from even relatively low levels of fishing pressure, putting their populations at risk of collapse.

Decades of industrial fishing have already had a major impact on the Indian Ocean. Tuna populations may have declined significantly since the onset of industrial fishing and the total catch peaked in 2006. Studies have shown that the population of yellowfin tuna is currently in decline and has shrunk by approximately 45% in the last 10 years. The global population of southern bluefin tuna, which is fished in the southern Indian and Pacific Oceans, is estimated to be 5% of the population size before fishing began. The species is now listed as "critically endangered" on the IUCN Red List of Threatened Species. The indiscriminate catch methods used in many industrial tuna fisheries result in the capture of many other species, including sharks and rays and sea turtles.

It has been estimated that 40% of the world's offshore oil production comes from the Indian Ocean, much of it from the Persian Gulf and other areas, including the waters off Western Australia, Indonesia, India and Iran. The shipping lanes of the Indian Ocean see some of the highest traffic of oil tankers anywhere in the world, particularly in the Straits of Malacca and the Gulf of Aden. In addition to the risk of a major oil spill there is chronic oil pollution from routine drilling and shipping operations in parts of the northern Indian Ocean, including the Red Sea, Arabian Sea and Persian Gulf.

Technological advances are opening the world's oceans to the possibility of seabed mining. In September 2011 the International Seabed Authority (ISA) and China signed a 15-year contract for prospecting and exploration for valuable mineral deposits located in the Southwest Indian Ridge. Just as with mining on land, such activities could have serious environmental impacts.

UNDER THREAT

Image Whale shark.

INDIAN OCEAN THREATS

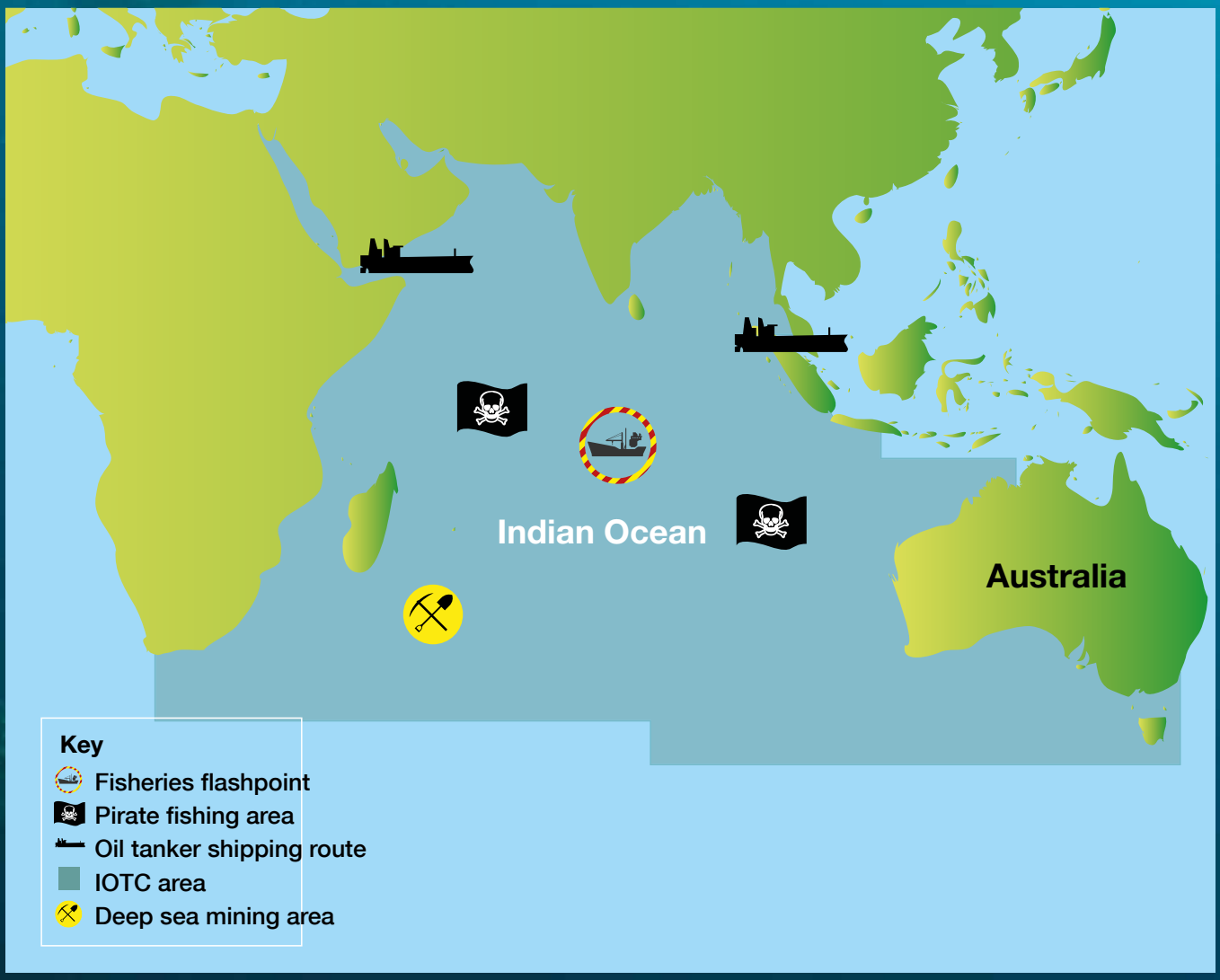
THE INDIAN OCEAN TUNA COMMISSION (IOTC) CAN ONLY MANAGE TUNA AND TUNA-LIKE SPECIES

THE FOOD & AGRICULTURE ORGANISATION SUGGESTS THAT

18%

OF FISHING IN THE INDIAN OCEAN IS ILLEGAL

THE SHIPPING LANES OF THE INDIAN OCEAN HAVE SOME OF THE HIGHEST OIL TANKER TRAFFIC OF ANYWHERE IN THE WORLD



WHALE SHARKS MAY TRAVEL AS MANY AS 13,000KM (8,000 MILES) TO VISIT RICH FEEDING GROUNDS

THE MALDIVES AND CHAGOS ARCHIPELAGO INCLUDE THE LARGEST CORAL ATOLL STRUCTURES IN THE WORLD

YELLOWFIN TUNA IS CURRENTLY IN DECLINE AND STOCKS HAVE SHRUNK BY APPROXIMATELY

45%

IN THE LAST 10 YEARS

The Indian Ocean is the warmest ocean in the world, and the impacts of climate change are already beginning to be felt, as low-lying atolls in island nations such as the Maldives are increasingly vulnerable to rising sea levels. With warming seas come increasingly frequent episodes of coral bleaching, when whole reefs lose their pigmentation and with it their ability to feed and grow. The world's worst episode of coral bleaching took place in the Indian Ocean between 1997 and 1998, and resulted in over 70% of corals dying in the Maldives, Andaman Islands, Lakshadweep Islands and Seychelles. In some areas, 90% of corals died. There have been many more episodes since then, and as sea temperatures continue to rise these events are expected to become more frequent and severe. Unlike the Atlantic and Pacific Oceans, the Indian Ocean is bordered by land to the north, which means that species won't be able to migrate northwards to cooler seas as sea temperatures rise, a response that is already being noted in other oceans. What the effects of this will be on marine life are not yet known.

Black holes in oceans management

Despite the well-documented threats posed by industrial fishing, offshore oil drilling, deep-sea mining and climate change, the Indian Ocean lacks a harmonised approach to management, an absolute necessity in order to effectively control human impacts on the ocean. The current management system is fragmented and has serious gaps, leaving some activities poorly or entirely unregulated. There are also problems with enforcement of existing regulations. These problems are compounded by a lack of available data (for example on fishing activities) that makes it very hard to understand what is happening at sea.

A lack of cooperation among fishing nations is undermining any attempt at useful fisheries management. There is currently only one functioning fisheries management body (Regional Fisheries Management Organisation, or RFMO) in the region, the Indian Ocean Tuna Commission (IOTC), which has a mandate to manage fisheries for tuna and related species in the Indian Ocean. The IOTC, however, has so far not reduced tuna catches and failed to enforce already existing regulations, putting tuna populations in the Indian Ocean at risk of being overfished. As with other oceans, vessels from countries that are not part of the IOTC are free to fish in the Indian Ocean without being subject to any regulations. Deep-sea fisheries lack the most basic management and are not subject to the rules of any RFMO since the only existing agreement meant to manage these fisheries, the Southern Indian Ocean Fisheries Agreement (SIOFA), has not yet entered into force. Indian Ocean deep-sea fishing is therefore left completely unregulated.

Fishing bycatch is one of the major threats to sea turtles and many species of sharks are now in decline due to increased global demand for their fins for use in shark fin soup.

While some countries and RFMOs (including IOTC) have regulations designed to reduce bycatch, there has been no attempt to introduce a comprehensive bycatch reduction scheme.

A lack of good quality catch statistics from many Indian Ocean fisheries makes it impossible to effectively measure and control the impacts of fishing. Records show that 42% of marine fish caught in the eastern Indian Ocean were recorded as "marine fish, species not identified" in the latest figures compiled by the UN Food and Agriculture Organisation (FAO). There has not been adequate data to conduct proper tuna stock assessments for much of the western Indian Ocean in recent years. There has been no assessment of the status of Indian Ocean albacore tuna since 2008 and the population of skipjack tuna has never been assessed at all.

Recent reports from the UN FAO suggest that 18% of all catch taken from the Indian Ocean is illegal, due to inadequate enforcement of existing regulations and the absence of proper surveillance of fishing vessels in the region.

While organisations and conventions exist to manage the impacts of shipping, sea-bed mining and offshore drilling at a national or international level, there is no way to cumulatively assess and manage the impacts of all of these activities plus fisheries on Indian Ocean biodiversity. Despite the fact that industrial fisheries and other activities are already threatening marine life on the high seas, there is currently no way to protect these areas as marine reserves.

What can be done?

The changes happening to the oceans are going to impact some of the poorest people on our planet, many of whom live around the Indian Ocean, the soonest and hardest. But, ultimately, we all will suffer the consequences.

Ocean resources will increasingly become a source of conflict unless clear rules to ensure the fair use of our oceans are created. There may still be time to reverse the damage we have caused to our oceans, but it requires action be taken now.

Overfishing must end and large areas of oceans need to be protected. In order to protect our oceans, world governments must agree an Oceans Rescue Plan. This should include a high seas biodiversity agreement that would implement the relevant marine conservation provisions under the UN Convention on Law of the Sea to protect international waters from destructive industrial practices. This agreement must empower governments to finally act on their long-standing commitments to defend our oceans and create a global network of marine reserves, essential to saving life on Earth now and for future generations.

Image A swordfish is pulled alongside a Spanish longliner in the southwest Indian Ocean.

The Southern Ocean

A beacon of hope in Antarctica's icy waters

Antarctica and the surrounding Southern Ocean are ecologically unique in many ways and deserving of comprehensive protection. Despite the hostile environment, many highly-adapted species – including whales, seals, penguins and seabirds – make the Antarctic region their home. A large proportion feeds on the vast swarms of krill – a small shrimp-like crustacean – that underpin the Antarctic food web.

Threats to the Southern Ocean

Toothfish fishing

In spite of its remoteness and the harsh working conditions, fishing vessels from a number of nations make the long journey to the Southern Ocean to catch Patagonian and Antarctic toothfish, species that are often marketed under the more consumer-friendly name "Chilean Seabass". Toothfish can reach 2m in length and can weigh as much as 100kg. Living up to 35 years, these species become sexually mature at a late age – most female Antarctic toothfish mature and breed when they reach around 17 years of age and 1.3m in length, while the males mature at around 13 years and 1.2m – making them highly vulnerable to over-exploitation.

The high value of toothfish attracts pirate fishing vessels, conducting what is officially referred to as illegal, unregulated and unreported (IUU) fishing. The amount of toothfish taken by IUU vessels can only ever be estimated, thus undermining effective fishery management and leading to overfishing in some areas. Official estimates of the amount of toothfish taken by IUU vessels may only be as much as 50% of the total catch. As soon as pirate fishing vessels have taken all the fish from one area, they move on to the next. A recent development among toothfish pirates is the use of highly destructive, plastic monofilament gillnets instead of the longlines used in the legal fishery. No data are available on the birds, mammals and other marine species caught as bycatch in gillnets within the Southern Ocean, but it is known that high levels of bycatch are the result in other areas where gillnets are used. In addition, lost nets may carry on "ghost fishing", continuing to trap and kill fish and other species as they drift through the ocean.

Krill fishing

Gathering in huge concentrations, with sometimes as many as 30,000 individuals in a cubic metre, krill have long been targeted by fishing vessels from several nations, including Norway, Japan and Korea. Krill is increasingly being used as a major ingredient for Omega-3 dietary supplements and for aquaculture fish feed.

With the advent of new technology that enables a single state-of-the-art trawler to vacuum up as much as 45,000 tonnes in a single season, and the increased demand for krill-based products, we can expect a massive expansion of the krill fishing industry in the near future.

Even at current levels there are concerns that krill depletion may be impacting populations of predator species higher up the food chain. Given the possible impacts of climate change and observed krill declines in some parts of the Southern Ocean, there is real reason to fear that the whole basis of the Antarctic ecosystem is at risk.

Climate change

Climate change is altering the Antarctic. Although some areas are apparently cooling, recent studies show that the continent as a whole appears to be warming. The most dramatic changes are happening around the Antarctic Peninsula, one of the most rapidly warming regions on Earth. A recent review showed that, over the last 61 years, 87% of the glaciers on the Antarctic Peninsula have retreated.

While there has been an increase in sea ice in some parts of Antarctica, due to increased offshore winds resulting from the ozone hole, there has also been a significant reduction in the duration and extent of winter sea ice west of the Antarctic Peninsula. Krill use winter sea ice as a nursery, and its loss leads to a fall in krill numbers the following summer. In turn, this has consequences for the whales, seals and penguins that feed on krill. Additionally, Adélie and emperor penguins rely on the sea ice in Antarctica for breeding and feeding, and it appears that in some places ice-dependent Adélie penguins are already being replaced by open-water species. According to a recent Woods Hole Oceanographic Institution study, a large emperor penguin colony in Terre Adélie, Antarctica, could face the loss of 95% of its population by the end of the century.

Black holes in ocean management

One of the crown jewels of the Antarctic is the Ross Sea, home to populations of penguins, seals and whales, which feed and breed over the Ross Sea continental shelf and slope. The waters overlying this shelf and slope comprise approximately 2% of the Southern Ocean (32.9 million km^2) south of the Antarctic Polar Front, an area small in size from a global perspective but of enormous importance biologically and ecologically. Underpinning the Ross Sea ecosystem are the phytoplankton, which are so prolific that they are important for the Antarctic as a whole; the amount of food they produce accounts for about 28% of the entire Southern Ocean.

UNDER THREAT

"We've got to back off, as we've lost 90% of the big fish. It's time to protect the last 10% everywhere, especially in the Ross Sea."

Sylvia Earle, oceanographer
21 May 2009, Fairfax VA, USA

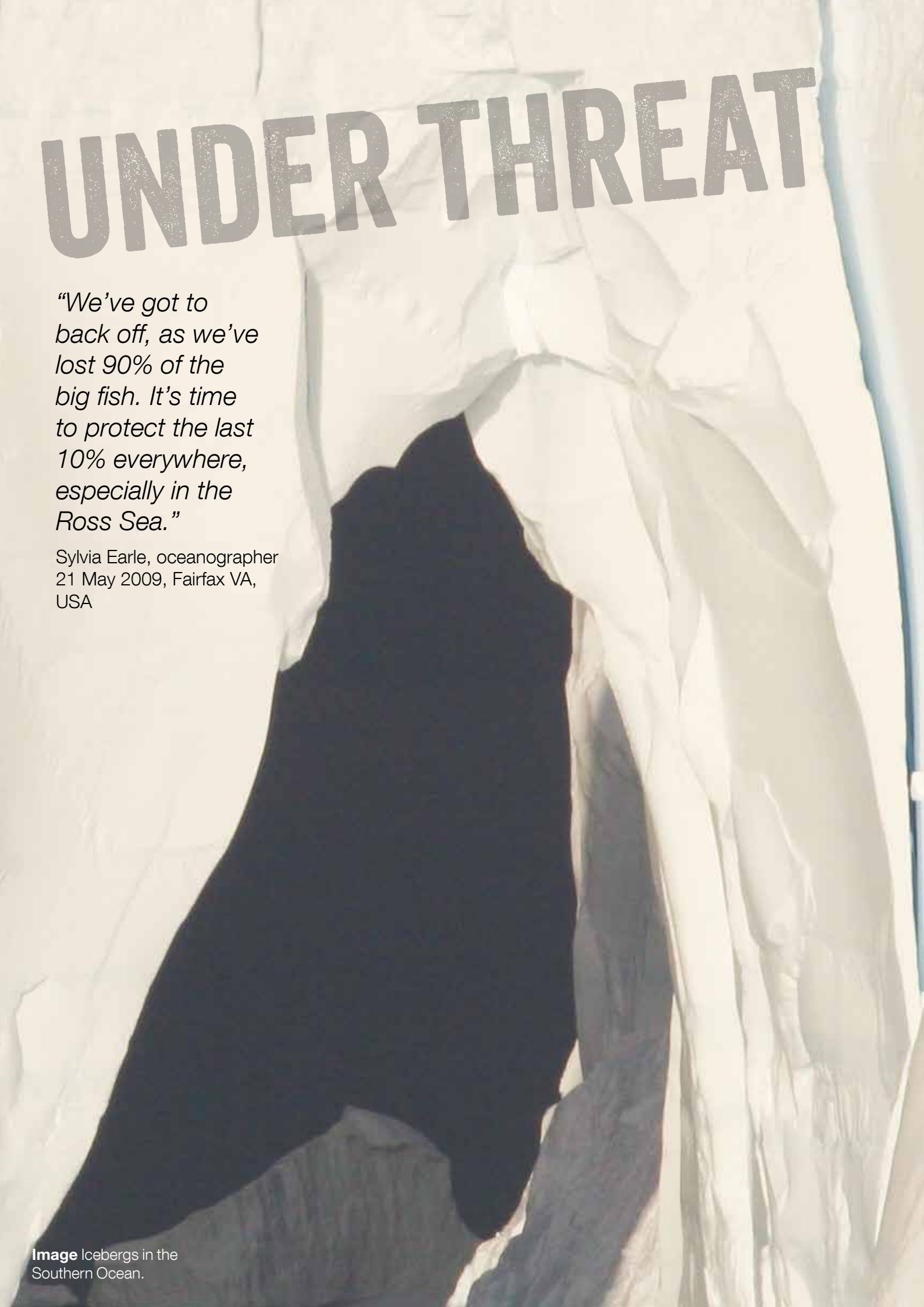


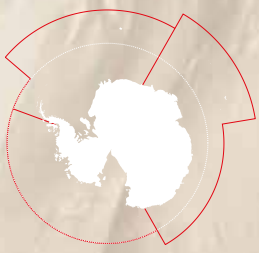
Image Icebergs in the Southern Ocean.

SOUTHERN OCEAN THREATS

Key

- Fisheries flashpoint: Since 2000, up to 12 countries have legally sent vessels to fish in the Ross Sea
- Pirate fishing area
- Krill fishing area
- Industrial scale fishing area

IN THE HIGH SEAS AROUND ANTARCTICA, CCAMLR HAS THE MEANS TO CREATE A NETWORK OF MARINE RESERVES



THE SOUTHERN OCEAN IS HOME TO OVER

15,500

SPECIES, MANY OF WHICH ARE FOUND NOWHERE ELSE ON EARTH

IN APRIL 2009 AN AUSTRALIAN PATROL VESSEL FOUND AN ILLEGAL GILLNET ON THE BANZARE BANK, BUT WAS UNABLE TO FIND THE IUU FISHING VESSEL RESPONSIBLE. THE NET WAS 130KM LONG AND WAS SET AT A DEPTH OF 1.5KM. IT HAD ALREADY CAUGHT

29 TONNES

OF ANTARCTIC TOOTHFISH AND A SIGNIFICANT NUMBER OF SKATES

THE WORLD'S LEAST DEGRADED OCEAN ECOSYSTEM – THE ROSS SEA - IS NOW BEING FISHED FOR ANTARCTIC TOOTHFISH

THE ANTARCTIC OCEAN ALLIANCE HAS IDENTIFIED 19 AREAS TO BE INCLUDED IN A NETWORK OF MARINE RESERVES AND MPAS

1. **Antarctic Peninsula**
   - Climate change reference area
   - Chinstrap and Adelie penguins
2. **South Orkney Islands**
   - High benthic biodiversity
   - Chinstrap and Adelie penguins
3. **Weddell Sea**
   - Highly productive area
   - Climate change reference areas during retreat of sea ice / ice shelves
4. **South Georgia**
   - Rare seamount habitats
   - Penguin and albatross foraging ranges
5. **South Sandwich Islands Arc**
   - Volcanic activity associated habitats
   - Land-based predators
6. **Maud Rise**
   - Area of high productivity for krill
   - Shelf to basin biodiversity including seamounts, canyons, ridges and plateaus
7. **Bouvetoya**
   - Unique benthic environment with mid-ocean ridge rift valleys, fracture zones and seamounts
   - Foraging area for land based predators
8. **Ob & Lena Banks**
   - Recovering populations of toothfish
   - Rare seamount habitats
9. **Del Cano Region High Seas**
   - High levels of land-based predators
   - Benthic environment including seamounts & canyons
10. **Kerguelen Plateau High Seas Area**
    - The Grand Banks of the Southern Ocean
    - Recovering toothfish populations
    - Vulnerable marine ecosystems & canyons
11. **Eastern Antarctic Shelf**
    - Areas of high productivity
    - Climate change reference areas
12. **Banzare Bank**
    - Recovering toothfish populations
    - Vulnerable marine ecosystems & canyons
13. **Kerguelen Production Zone**
    - Rugose seabed habitats
    - Area of high productivity
14. **Indian Ocean Benthic Environment**
    - Unique benthic habitats including troughs, shelf commencing canyons, ridges and thermohaline current formed sediments
15. **Pacific Seamounts**
    - Toothfish breeding habitat
    - Benthic biodiversity
16. **Ross Sea**
    - Intact top predator assemblage
    - Least disturbed oceanic ecosystem
    - Climate change reference area
17. **Amundsen & Belllingshausen Seas (West Antarctic Shelf)**
    - Climate change reference areas
    - Recognised vulnerable marine ecosystems
18. **Peter I Island**
    - Area of high productivity
    - Pacific Basin, De Gerlache, Belgica Guyot & Lecointe Seamounts
19. **Balleny Islands**
    - Land-based predetor foraging ranges
    - Rare benthic habitat

THE EXPANSION OF THE KRILL FISHERY, COMBINED WITH CLIMATE CHANGE, MAY THREATEN THE BASIS OF THE ANTARCTIC FOOD WEB

THE COLOSSAL SQUID - THE RARELY-SEEN SEA MONSTER OF MANY SAILORS' MYTHS - ROAMS THE DEEP WATERS OF THE SOUTHERN OCEAN. THOUGHT TO GROW AS LONG AS

15 METRES

IT EATS LARGE FISH, NOTABLY ANTARCTIC TOOTHFISH

According to an independent analysis of human impacts on the world's oceans, conducted by Benjamin Halpern from UC Santa Barbara and 18 other marine ecologists, the Ross Sea is the least impacted oceanic ecosystem remaining on Earth. This makes the Ross Sea a unique "living laboratory" where climate change and its impacts can be investigated without interference from other human activity. Fundamentally the Ross Sea food web has remained unchanged for millennia, except for the loss of blue whales due to industrial whaling and the ongoing depletion of Antarctic toothfish. This means that the Ross Sea, unlike most other ocean areas, is still home to large populations of top predators, making it invaluable for studying how a fully functional ecosystem works.

Among its diverse life, the Ross Sea contains 38% of all Adélie penguins, 26% of all emperor penguins, 30% or more of all Antarctic petrels, 6% of all Antarctic minke whales, and 6% of all Weddell seals. Despite the small area it covers, the Ross Sea is the planet's icy Galapagos.

In spite of its remoteness, the Ross Sea has been unable to escape the attention of the fishing industry. As fish stocks have been wiped out in accessible coastal waters, fishing vessels have ventured further out to sea, exploiting deep-sea fish populations and those found in the remotest ocean areas. Apart from some exploratory fishing carried out in the 1970s by Soviet trawlers, the Ross Sea was not targeted by fishing vessels until 1998, when New Zealand began longline fishing for toothfish in what is the southernmost fishing ground in the world. The largest number of vessels in the fishery was 21 in the 2004 season. During the 2009/10 season there were 18 vessels from seven countries catching toothfish. This legal fishery, together with the IUU fishing in the Ross Sea, already appears to be impacting the wider Antarctic ecosystem.

Due to overfishing, adult toothfish can no longer be caught by scientists studying them in the area of McMurdo Sound, the southern edge of the species' range. As an important predator species within the Ross Sea, any declines in Antarctic toothfish populations are likely to have detrimental impacts on the whole ecosystem. In fact, Antarctic scientists have new evidence that the fishery may already have caused changes to the Ross Sea food web. The disappearance of Antarctic toothfish from McMurdo Sound has been linked to a decline in the numbers of fish-eating Ross Sea killer whales in the area and a change in the diet of Adélie penguins.

What can be done?

Greenpeace is working with other members of the Antarctic Ocean Alliance (AOA) to ensure the establishment of a circumpolar network of marine reserves and marine protected areas (MPAs) in the Southern Ocean. Nineteen areas have been identified by the AOA as priorities for protection on the basis of the best scientific information currently available, including a proposal for a fully protected marine reserve covering 3.6 million sq km, including the entire Ross Sea shelf and slope.

Establishing such a large-scale network is possible due to the unique provisions available under the Antarctic Treaty System (ATS). Under the ATS, any activities in the Antarctic must be carried out in a way that limits any harmful impacts, and any future activities must be planned with sufficient information about their possible impacts. Importantly, all activities relating to mineral resource extraction – except for those conducted for scientific research – are prohibited, but fishing is still allowed. The Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR), the body responsible for managing all Antarctic fisheries, is considered an international leader in its precautionary and ecosystem-based approach to fisheries management. Through the provisions of CCAMLR and the Antarctic Treaty, there is a clear mechanism for establishing marine reserves and other forms of MPAs and, importantly, an agreed process to create a representative and comprehensive network of protected areas by 2012, in line with the World Summit on Sustainable Development goal.

The member countries of CCAMLR must fulfil their mandate and expedite the establishment of a circumpolar network of large-scale marine reserves in the Antarctic, to include the Ross Sea shelf and slope. However, it is not only Antarctic marine life that needs protection. We must manage all areas of the world's oceans for the benefit of all, and governments must ensure that there are rules to establish marine reserves throughout the high seas so that a future Southern Ocean reserve becomes part of a larger global network. In order to protect our oceans, world governments must agree an Oceans Rescue Plan. This should include a high seas biodiversity agreement that would implement the relevant marine conservation provisions under the UN Convention on Law of the Sea to protect international waters from destructive industrial practices. This agreement must empower governments to finally act on their long-standing commitments to defend our oceans and create a global network of marine reserves, essential to saving life on Earth now and for future generations.

Image Icebergs in the Southern Ocean.

Image Greenpeace activists cut lines on a fish aggregating device (FAD) in the Western Central Pacific Ocean.

Western and Central Pacific Ocean

Safeguarding the ocean's bounty for future generations

Mind the governance gap

The Western and Central Pacific is home to many small island countries with large ocean areas under their control. The Pacific nations are blessed with valuable terrestrial and marine ecosystems, including the most diverse tropical coral reefs in the world. The oceans are crucial to the livelihoods of the Pacific Island States, as fish is a vital part of their economies and an important source of food for their people. Many of these countries are just a few metres above sea level at their highest point, putting them at risk from rising sea level and other climate change impacts.

The high seas areas of the Western and Central Pacific are made up of some vast areas of open ocean and the areas enclosed by surrounding Pacific Island Nations' waters, known as the Pacific Commons. The region is home to ocean life both great and small, from sharks and tuna to tiny plankton, the base species of the ocean food chain. Whales, sharks, endangered turtles and vulnerable fish populations migrate through these waters, and key tuna species – yellowfin, bigeye, albacore and skipjack – are found here as well.

A large number of underwater mountains known as seamounts are also in this area. These areas are literally oases of marine life. Nutrient-rich currents well up and swirl around their slopes feeding diverse corals and fish, including tuna, which thrive in these areas. Seamounts, in particular underwater volcanic vents, are also known to contain valuable metals such as gold and copper.

Threats to the Western and Central Pacific Ocean

The ocean provides approximately 60% of the world's tuna, and dramatic expansion of industrial-scale fishing in recent decades is driving the deline in tuna and other marine animals taken as bycatch in tuna fishing operations. Pirate fishing is also rampant in the area, especially on the high seas.

The prospect of valuable minerals in the area makes it an attractive prospect for deep-sea mining activities. Deep-sea mining sometimes takes place thousands of metres below the ocean's surface on the ocean floor, often on seamounts and hydrothermal vents. Valuable metals have already been found in the Pacific region's international waters. Currently, commercial deep-sea mining is not technologically or economically viable, but it will not be long before a new frontier could be opened up for exploitation.

The Canadian-registered company Nautilus Minerals is already actively exploring opportunities in the region. It holds applications for approximately 600,000 sq km of exploration acreage in Papua New Guinea, the Solomon Islands, Fiji, Vanuatu and Tonga as well as in international waters in the eastern Pacific.

Very little is understood about underwater volcanoes, and their ability to recover from mining is unknown. Technologies being used to conduct mining exploration are untested, and their long-term impacts are not well documented.

Papua New Guinea's domestic tuna fishing grounds are located close to the area where deep-sea mining activity would take place. There is a worry that the exposure of the marine food chain to heavy metals and other toxic substances released through the mining process will negatively impact the fishery. The silt thrown up from mining poses a very real threat to undersea life, and noise pollution from seabed exploration could be lethal to whales and dolphins. The noise produced by seismic air guns is estimated to span a region up to 300,000km^2, equivalent to the total land area of the Philippines. Currents, weather and seismic events will make it impossible to contain or predict the spread of pollution and other impacts as mining interests grow in the Pacific. The transboundary impacts of mining could spark regional tensions.

Climate change could alter many aspects of the Pacific Ocean. With changes in ocean temperatures it is likely that valuable tuna stocks will move, displacing the fishing industry that is central to island nations' economies and food sources. Sea level rise and ocean acidification may cause the death or slow the growth of tropical corals. Ocean acidification can also lead to reduced growth of deepwater coral species. Climate change is likely to combine with the effects of other human activities in the region, with unpredictable and negative consequences.

UNDER THREAT

"As part of our commitment to seafood sustainability, Princes supports the principle of using marine reserves to protect fish stocks and achieve clear conservation objectives. We are keen to see a positive measurable impact from the creation of Pacific Commons marine reserves on tuna populations and a beneficial contribution to local island people."

Princes, major UK tinned tuna brand and ISSF member

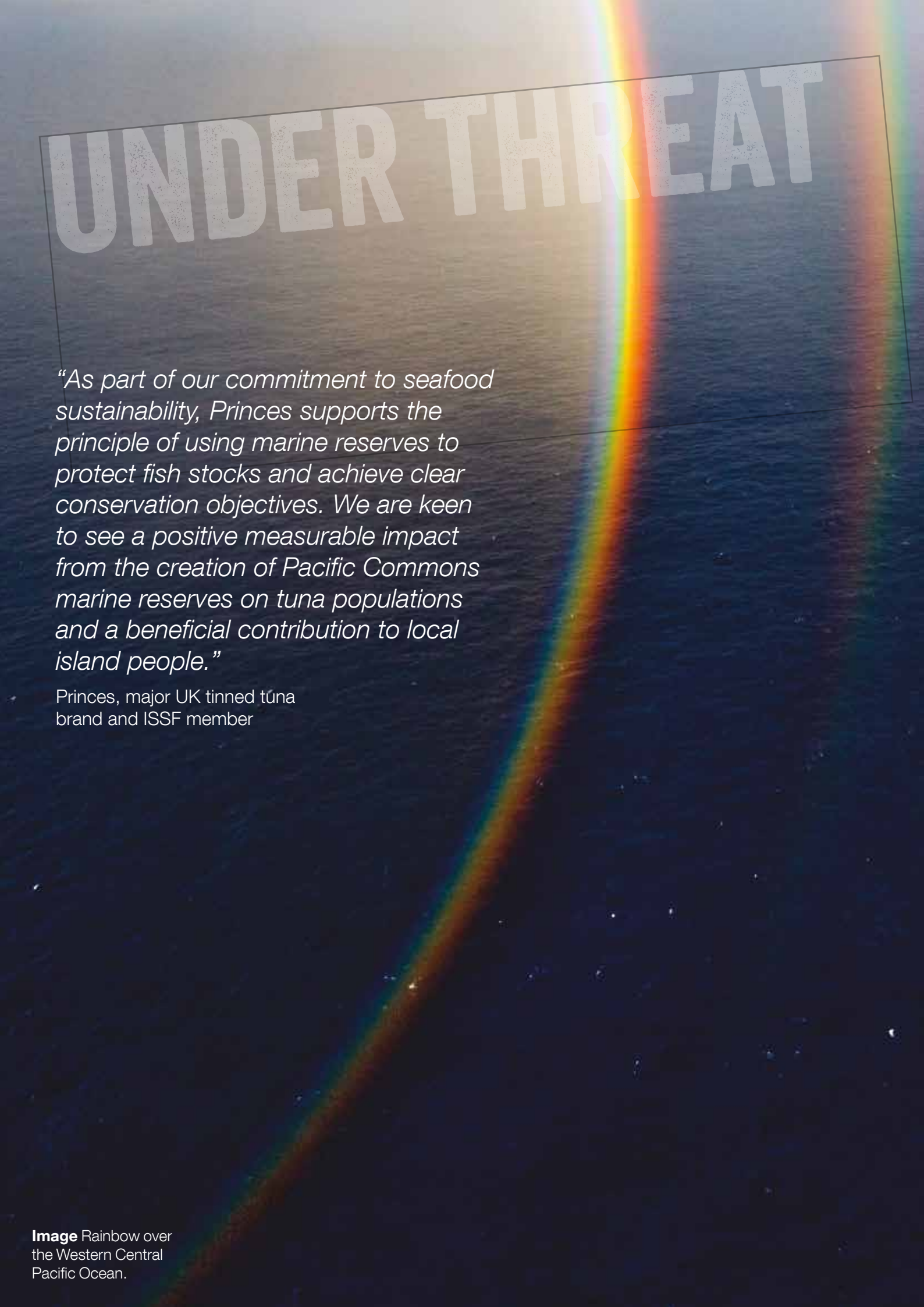


Image Rainbow over the Western Central Pacific Ocean.

WESTERN AND CENTRAL PACIFIC OCEAN THREATS

THE PACIFIC ISLAND COUNTRIES ARE WORKING TO PROTECT THE PACIFIC COMMONS IN ORDER TO PROTECT TUNA AND END PIRATE FISHING

THE EXTRACTION OF HIGHLY VALUABLE MINERAL RESOURCES MAY DESTROY FRAGILE DEEP SEA ECOSYSTEMS

THE SEAMOUNTS IN THE PACIFIC ARE OASES FOR MARINE LIFE ATTRACTING TUNA AND OTHER SPECIES

THE NEW SPRFMO, NOT YET IN FORCE, COULD CLOSE AREAS TO FISHING BUT CANNOT MANAGE OTHER HUMAN ACTIVITIES

HEALTHY TUNA POPULATIONS PROVIDE FOOD AND JOBS FOR COASTAL PACIFIC COMMUNITIES

THE WCPFC ALONE IS NOT ABLE TO PROTECT THE HIGH SEAS AREAS FROM ALL FISHING OR TO RESTRICT OTHER HUMAN ACTIVITIES IN ORDER TO RESCUE THE PACIFIC

CLOSE TO

60%

OF THE WORLD'S TUNA IS CAUGHT IN THE WESTERN AND CENTRAL PACIFIC

Black holes in oceans management

A number of Pacific Island Nations have taken the innovative move to close high seas areas to certain types of tuna fishing in order to address overfishing and end pirate fishing in these areas. The initiative is being increasingly backed by progressive businesses within the international tuna industry. This measure was adopted in 2008 by the regional fisheries management organisation that regulates the region's tuna, the Western and Central Pacific Fisheries Commission (WCPFC). However, it was not renewed at the March 2012 meeting, highlighting the WCPFC's shortcomings in creating marine reserves. Furthermore, the WCPFC does not have the necessary mandate to protect the high seas areas from all fishing, or to restrict other activities.

Another fisheries management organisation - the South Pacific Regional Fisheries Management Organisation (SPRFMO) – has just recently been negotiated, but is still not yet in force. Once fully operational it could, together with the WCPFC, close areas to all fishing. However, it would still be unable to close off vulnerable areas to all extractive human use as fully protected marine reserves.

The Convention for the Protection of the Natural Resources and Environment of the South Pacific Region (SPREP Convention) includes provisions for marine protected areas, parks and reserves, and environmental impact assessments, covering also the high seas Pacific Commons areas. There are two protocols in place regarding dumping and combating pollution. Unfortunately, Pacific nations have not been particulatly active in implementing the Convention provisions, which could lead to it becoming a dead letter.

The International Seabed Authority (ISA) is the UN agency responsible for managing mineral resources found in the seabed of the high seas. It has recently received applications for seabed mining exploration in international waters, but a more immediate threat is that mining will happen within domestic waters.

There are a number of different organisations responsible in one way or another for specific forms of ocean life, but there is no means of coordinating between them to ensure that measures are taken to protect all the marine life in certain fragile and important areas.

What can be done?

In combination, these threats are having huge impacts on the Pacific, the lifeline of many small island countries. If fishing at current levels and other extractive practices are continued in the region, crucial marine ecosystems could be destroyed and important tuna populations wiped out. Protecting these waters, by establishing fully protected marine reserves will help secure a healthy and productive Pacific Ocean, better able to feed those who rely on fish for food and jobs.

Encouragingly, Pacific Island Forum leaders have started an ambitious journey towards a more holistic approach to managing the oceans under their control through the Pacific Oceanscape Vision. The appointment of the current Secretary General of the Pacific Islands Forum Secretariat as the current regional oceans commissioner is the first step towards strengthening regional oceans governance and policy coordination.

The Western and Central Pacific Ocean is not the only area where fragmented governance hinders the creation of marine reserves. These problems exist for most high seas areas, putting fish populations and the ability of the oceans to provide humankind with food, jobs and oxygen at risk. In order to protect our oceans, world governments must agree an Oceans Rescue Plan. This should include a high seas biodiversity agreement that would implement the relevant marine conservation provisions under the UN Convention on Law of the Sea to protect international waters from destructive industrial practices. This agreement must empower governments to finally act on their long-standing commitments to defend our oceans and create a global network of marine reserves, essential to saving life on Earth now and for future generations.

© ALEX HOFFORD / GREENPEACE

Image An illegally deployed fish aggregating device (FAD) in the Pacific Ocean.

Image A whale shark swims in the warm waters off the Philippines.

Migration routes

The great ocean migratory routes

Far out in the blue, beneath the waves, ocean wanderers are making vast migrations across thousands of miles. Many different species – including sharks, tuna, whales, sea turtles, seabirds and sea lions – travel vast distances between feeding and breeding grounds, some wandering the oceans for their entire lives. These migration routes often pass through international waters, where there are few opportunities to protect these vulnerable animals from human activities such as fishing and shipping.

Some animals undertake long migrations at sea, such as the great whales that travel thousands of miles from breeding grounds in tropical zones to summer feeding grounds in polar waters. However, we have only recently developed the technology to follow these animals beneath the waves and see the routes they take in their journeys through the oceans. There are many different kinds of satellite tags used to research migratory species but all work in a similar way. The tag is attached (using darts, a harness or even glue!) where animals come ashore to breed or congregate in coastal waters. Tags then transmit their location, and sometimes other useful information such as water temperature, to satellites that relay it back to researchers on shore (alternatively, the tag has to be retrieved so that the data can be downloaded). Scientists around the world use this tool to track the movements of vulnerable marine species through all of the planet's oceans.

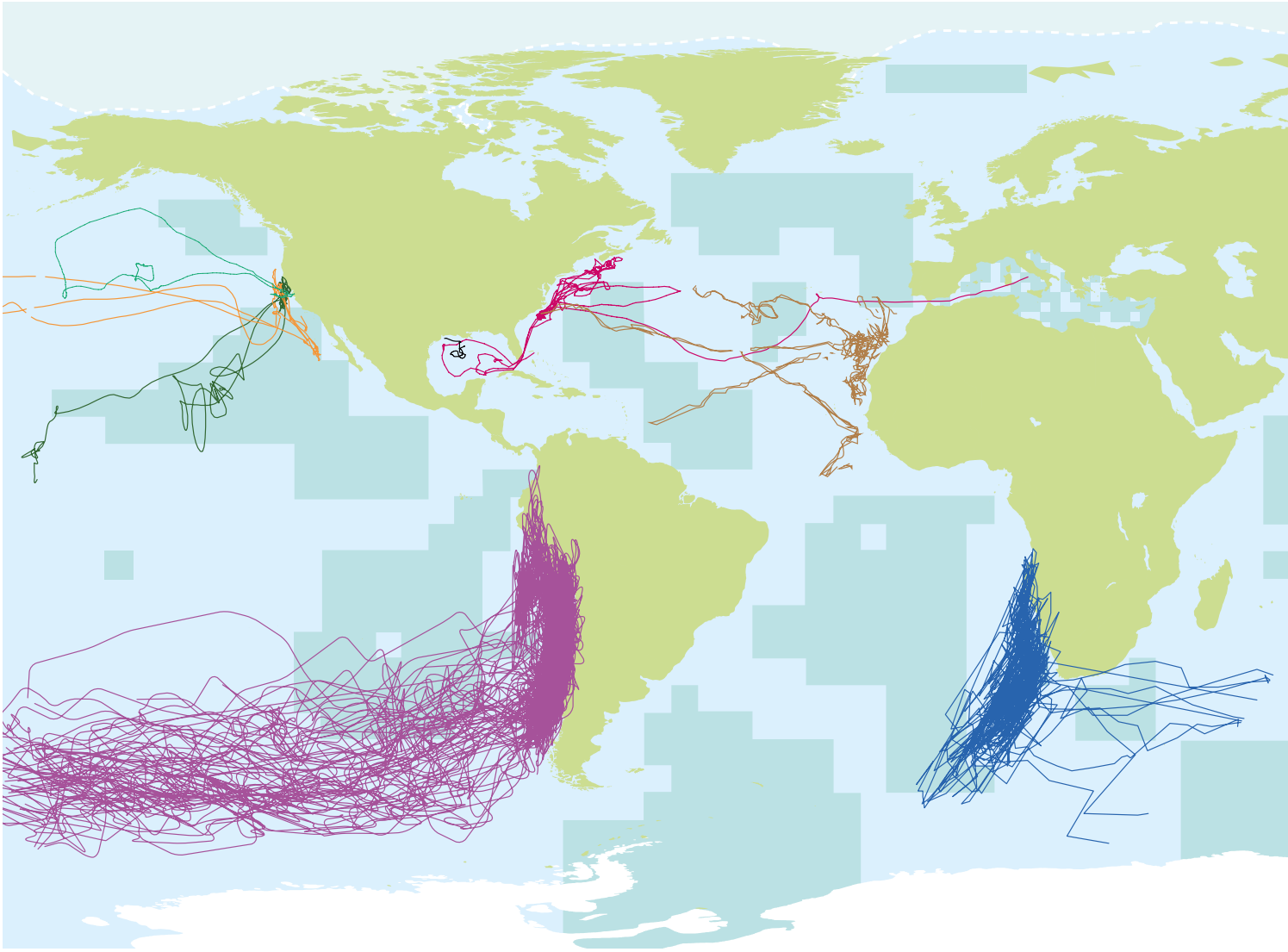
Tracking studies have shown us that there are parts of the ocean where many different species congregate in large numbers. Especially important are the boundaries between different ocean currents where cool water, rich in nutrients rises from the deep-sea to create areas rich in phytoplankton – the basis of almost all ocean food chains. Many different types of animals will travel huge distances to reach these feeding grounds. A decade-long study of animals tagged on the Pacific coast of the US found that the California Current is one such area – a zone that extends up to 100 miles (160km) from the shoreline, stretching from Canada to Mexico. Species found there include blue whales, white sharks, salmon sharks, northern elephant seals and bluefin tuna.

Some animals spend part or all of their lives in long wanderings through the open ocean without any clear destination. Juvenile sea turtles spend their early years following ocean currents until they are large enough to return to coastal breeding areas, and we are only just beginning to understand where they go during this important life stage. It is known that loggerhead turtles born on the east coast of the US are carried by the Gulf Stream into the Sargasso Sea, an area in the middle of the North Atlantic Ocean that falls mostly in international waters. Here the turtles are able to shelter from predators and find food under the Sargassum seaweed that masses on the surface. Sadly, the same ocean currents that create these unique conditions also cause plastic debris to concentrate in these same waters: just one of many threats these juveniles have to survive before they can breed.

Threats to the ocean wanderers

All of these species are at risk due to fishing, shipping, offshore drilling and deep-sea mining. Many of them – including sharks, sea turtles and whales – are slow growing, late to reach maturity, and have relatively few offspring. All of these factors mean that numbers can drop rapidly and are then slow to recover from even relatively low death rates due to fishing or other human activities. Accidental capture in fishing gears, including the longlines used to catch tuna, swordfish and related species, is one of the major causes of recent declines in the numbers of sea turtles. One study, published in the journal *Conservation Letters*, found that over 85,000 sea turtles were reported to have died in gillnets, longlines and trawl nets between 1990 and 2008, but estimated that the actual figure is likely to be at least 100 times higher. The long distances travelled by these migratory species mean that they may be subject to varying levels of impact when they move between waters of different countries or into international waters, especially when they swim into areas with few or no mechanisms in place to manage human activities or to create marine reserves. This can have a significant effect on our ability to conserve them.

THREATS TO MIGRATORY SPECIES



Bullers Albatross
The bird's breeding grounds are in New Zealand but they fly to feeding grounds off the coast of South America. They are often taken as bycatch in longline and trawl fisheries throughout the Pacific. Although some RFMOs have measures in place to reduce seabird bycatch, there is no collective system to manage impacts on animals that pass through waters managed by multiple RFMOs.

White Shark
White sharks were thought be a coastal species – often found close to their prey, seals and sea lions. A recent study found that some white sharks migrate far into the open ocean from California – in some cases as far as Hawaii, to an area dubbed the "White Shark Café". It has been suggested that they venture there because it is a breeding area for mobile prey species such as tuna.

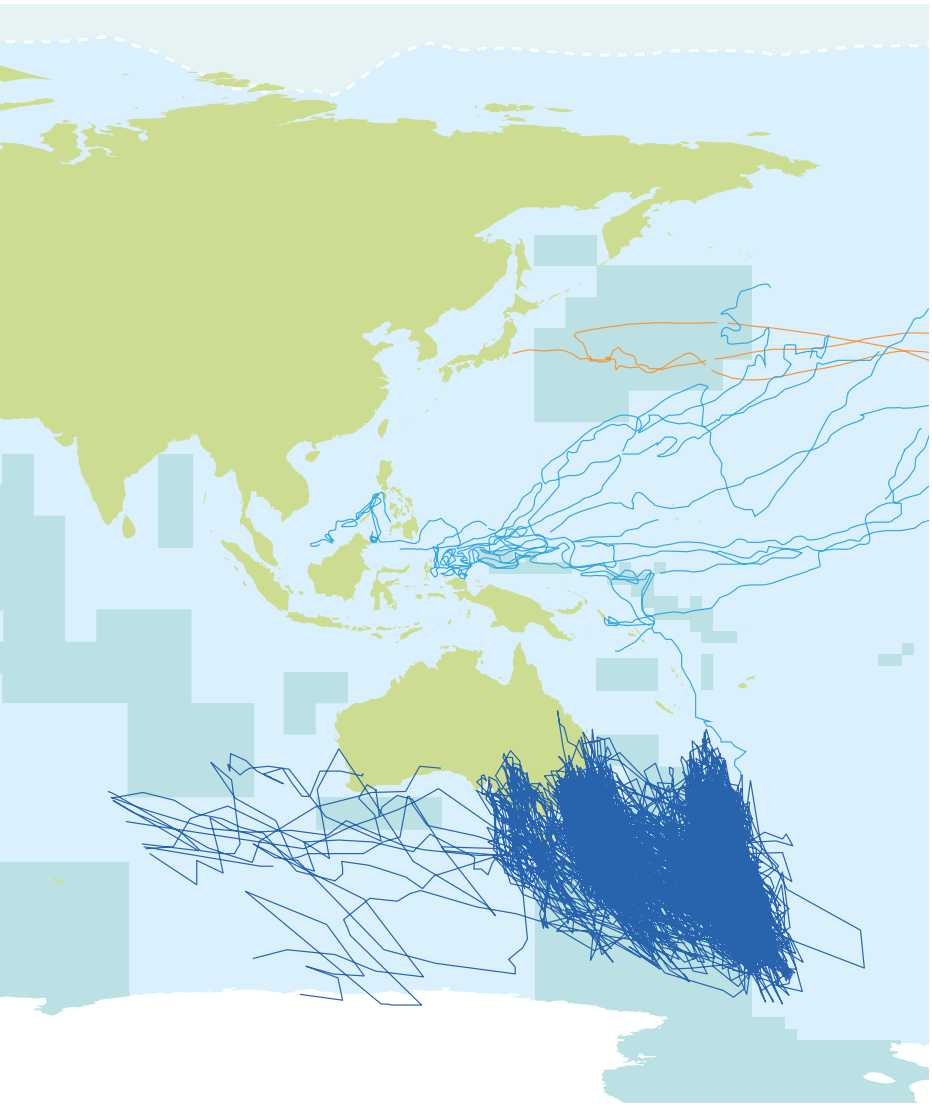
Pacific Bluefin Tuna
There is only one Pacific bluefin population, caught in fisheries managed by WCPFC and IATTC. There is not enough information to estimate the total size of the population. Vessels have begun to fish in breeding grounds which damages their ability to reproduce. Recent research suggests that the population could be shrinking at an alarming rate.

Atlantic Bluefin Tuna
One of the most highly prized fish species, and now officially considered an endangered species. A 2010 attempt to control international bluefin trade failed, despite the fact it met the scientific criteria for listing. There are two populations of Bluefin in the Atlantic (eastern and western) but there is mixing between the two, making it hard to estimate population size and the impacts of fishing.

Whale Shark
Whale sharks, the biggest fish in the sea, are sighted seasonally at feeding grounds in coastal areas in many parts of the world, but we know almost nothing about where they go after feeding. It is thought that these incredible animals spend part of their lives in the open ocean and travel long distances to reach feeding areas. Whale sharks face a number of threats – especially finning for use in shark fin soup.

Key

- Bullers Albatross
- White Shark
- Pacific Bluefin Tuna
- Elephant Seal
- Leatherback Turtle
- Loggerhead Turtle
- Atlantic Bluefin Tuna
- Whale Shark
- White Capped Albatross



White-capped Albatross

Endemic to New Zealand, where breeding colonies are found on offshore islands, these birds are known to fly as far as the South Atlantic and Southwest Indian Ocean to feed. One study estimated that 8,000 are killed in trawl fisheries every year. Currently there are no figures to estimate how many are killed every year by the longline fishing fleets of Japan, Taiwan and Korea.

Elephant Seal

Found at breeding beaches between Baja California and the Gulf of Alaska, they undertake long migrations each year between breeding and feeding grounds. Once hunted for their blubber oil and reduced to a single breeding population in the early 1900s they have since recovered. Threats to them now include entanglement in fishing gear, underwater noise, collision with fishing vessels and disturbance at breeding beaches.

Leatherback Turtle

Critically endangered leatherback turtles migrate huge distances between nesting beaches and feeding grounds. Tracking studies have shown that some turtles migrate directly through the Pacific Commons – areas of international waters where some restrictions are placed on the activities of tuna purse seine fishing vessels but longliners (which kill thousands of sea turtles every year) are still free to fish.

Loggerhead Turtle

Juvenile loggerhead turtles from different parts of the Atlantic migrate to the area around the Canary Islands to feed. Loggerhead turtles are threatened around the world, with about 20,000 accidentally captured in fishing gear every year in the Mediterranean alone. Unfortunately, poor data makes it difficult to estimate and manage the impacts of human activities in its feeding grounds.

THE CRITICALLY ENDANGERED EUROPEAN EEL MIGRATES

7,000KM

ACROSS THE ATLANTIC, FROM THE RIVERS WHERE IT SPENDS MOST OF ITS LIFE TO ITS SPAWNING GROUNDS IN THE SARGASSO SEA

Black holes in ocean management

There is some awareness of the problems facing some of these species and the state of the wider marine environment, shown by the fact that 116 countries are members of the Convention on Migratory Species, and by the agreements to create a global network of marine protected areas that exist under the World Summit on Sustainable Development and the Convention on Biological Diversity. However, the fact is that the current regime for the protection of the marine life of the high seas is highly fragmented and largely ineffective. There are no mechanisms to actually mandate and deliver the establishment of large-scale marine reserves in the areas that are critical to these species. There is no global assessment of the cumulative impacts of human activities on these species. There are no rules to ensure that environmental impact assessments are conducted before potentially harmful activities take place. With all this poor monitoring control and enforcement, there is an urgent need for action. This is why Greenpeace is demanding an Oceans Rescue Plan.

What can be done?

Providing adequate protection to these great ocean wanderers from both existing and emerging threats requires that the world's governments address the protection of the high seas in a systematic and global manner. In order to protect our oceans, world governments must agree an Oceans Rescue Plan. This should include a high seas biodiversity agreement that would implement the relevant marine conservation provisions under the UN Convention on Law of the Sea to protect international waters from destructive industrial practices. This agreement must empower governments to finally act on their long-standing commitments to defend our oceans and create a global network of marine reserves, essential to saving life on Earth now and for future generations.

Satellite tracking data sources

Buller's albatross
David Thompson, Leigh Torres and Paul Sagar (National Institute of Water & Atmospheric Research (NIWA), New Zealand)

White shark
Tagging of Pacific Predators (TOPP) www.topp.org

Pacific Bluefin tuna
Tagging of Pacific Predators (TOPP) www.topp.org

Atlantic bluefin tuna
Tagging of Pacific Predators (TOPP) www.topp.org

Whale shark
Tagging of Pacific Predators (TOPP) www.topp.org

White capped albatross
David Thompson, Leigh Torres and Paul Sagar (National Institute of Water & Atmospheric Research (NIWA), New Zealand)

Northern elephant seal
Tagging of Pacific Predators (TOPP) www.topp.org

Leatherback turtle
Benson SR, Eguchi T, Foley DG, Forney KA, Bailey H, Hitipeuw C, Samber BP, Tapilatu RF, Rei V, Ramohia P, Pita J & Dutton PH (2011). Large-scale movements and high-use areas of western Pacific leatherback turtles, *Dermochelys coriacea.* Ecosphere 2, art84. (doi:10.1890/ES11-00053.1)

Loggerhead turtle
Observatorio Ambiental Granadilla.

Image An Olive Ridley turtle swims in the open blue ocean of the Pacific.

Image A school of mixed Fusiliers (*Caesionidae*) in the Great Barrier Reef.

The need for a High Seas Biodiversity Agreement

No more "Wild West" oceans

"The wholesale removal of marine life and obliteration of their habitats is stripping resilience from ocean ecosystems. Moreover, it is undermining the ability of the oceans to support human needs."

– Callum Roberts, *The Unnatural History of the Sea*

Until the last century most of the world's oceans were too far, too deep, too rough, too cold or too dangerous to fish. Most of the oceans were *de facto* marine reserves, off-limits to fishing. However, technology has developed in leaps and bounds. Fishing vessels are now able to fish all over the world, including in the Arctic and Antarctic regions, and to depths of several kilometres. Vessels fish for months on end, using powerful sonar and satellite equipment to locate their catch. And now, companies are deploying new technologies to mine and drill in deep waters. There are no longer any safe havens for the life contained in our oceans.

More than 64% of the oceans lie beyond the jurisdiction of any one country, and are commonly known as the high seas. These areas belong to everyone, no matter if your country is on the other side of the planet, or even landlocked. The constitution for the oceans, the UN Convention on the Law of the Sea (UNCLOS), sets out the rights and obligations that countries have when operating in the high seas, including the responsibility to protect ocean life from harm.

Unfortunately, much more emphasis has been put on the "right" to plunder the oceans than on the responsibility to protect them, creating a "Wild West" approach to oceans management. If you want to fish, drill or mine the high seas, there are organisations and processes that enable you to do so. But if you want to protect the high seas – by creating a marine reserve to protect a fragile coral reef, for example – there is simply no clear way to do so. It is very difficult or even impossible at the moment to create marine reserves, let alone monitor and control them, in most high seas areas.

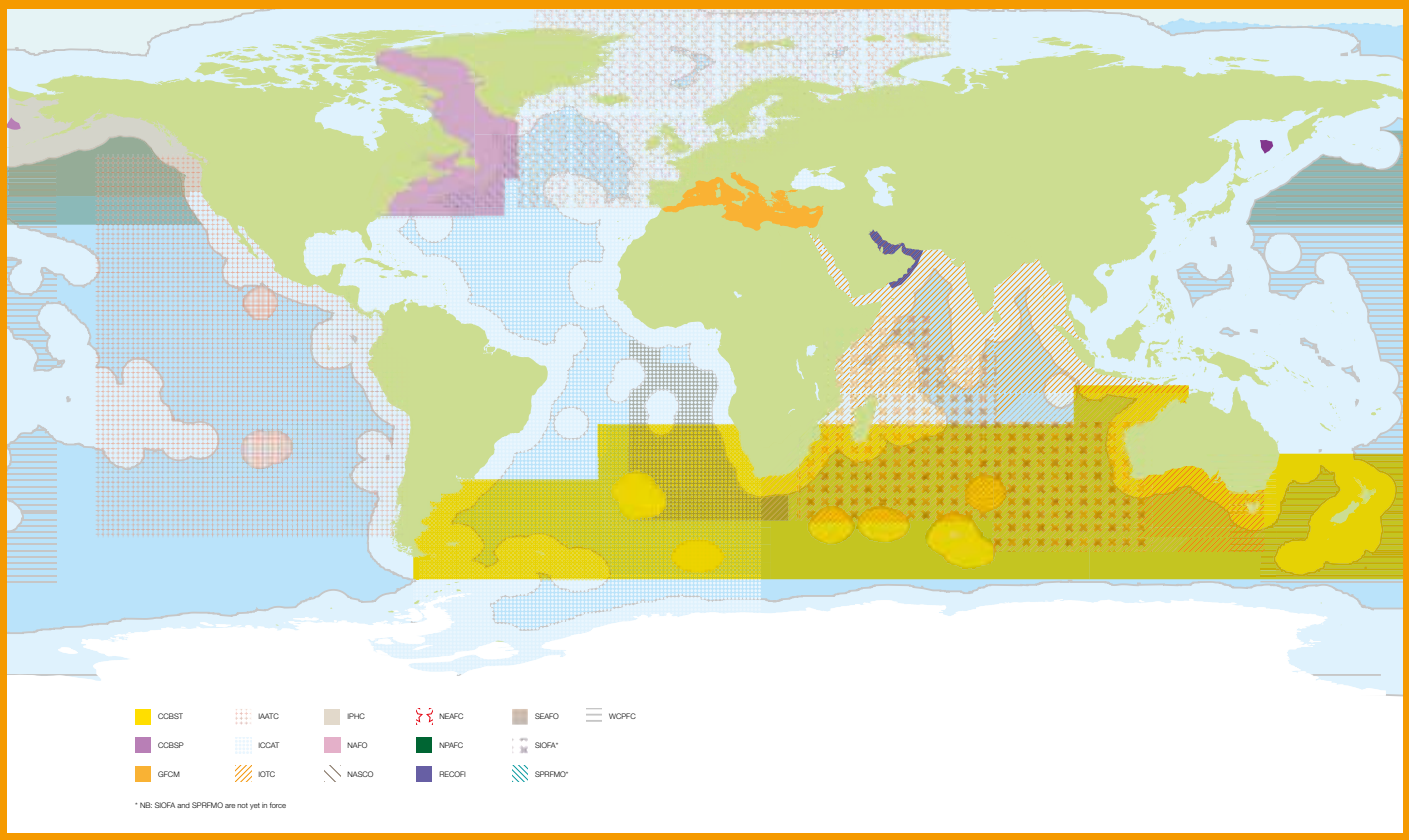
The way we manage our oceans looks like a patchwork quilt – one with many holes. There are a wide array of different organisations and agreements responsible for managing parts of the high seas, specific activities, or particular fish species. However, there is little or no coordination or cooperation between these different bodies. Of the various regional fisheries management organisations (RFMOs) that are responsible for the management of particular fish populations, many have been spectacular failures, taking species such as the bluefin tuna to the brink of collapse due to gross mismanagement. By comparison, there are very few regional and international organisations with the power to conserve marine ecosystems. There is also no centralised monitoring control and enforcement to ensure that conservation measures are respected in high seas waters or any process to undertake environmental impact assessments before any activity that potentially impacts our oceans takes place.

The current way of managing the high seas puts short-term corporate interests before the long-term health of our oceans. Unless action is taken to restore and protect the health of our oceans, they will be unable to sustain life on Earth. Although properly implementing existing ocean protection rules would greatly improve the situation, this alone will never be enough. With no institutions in place to ensure countries and industries respect and protect ocean life, our oceans – and the billions of people dependent on them for food and jobs – remain in peril. The numbers are daunting – as of 2012, less than 1% of the high seas are under some form of protection, despite global leaders agreeing to establish networks of marine protected areas by this date. The "Wild West" approach to oceans management needs to end if our planet and its people are to survive.

UNDER THREAT

MAP SHOWING THE PARTIAL AND COMPLEX PATCHWORK OF RFMOs RESPONSIBLE FOR FISHERIES MANAGEMENT ON THE HIGH SEAS

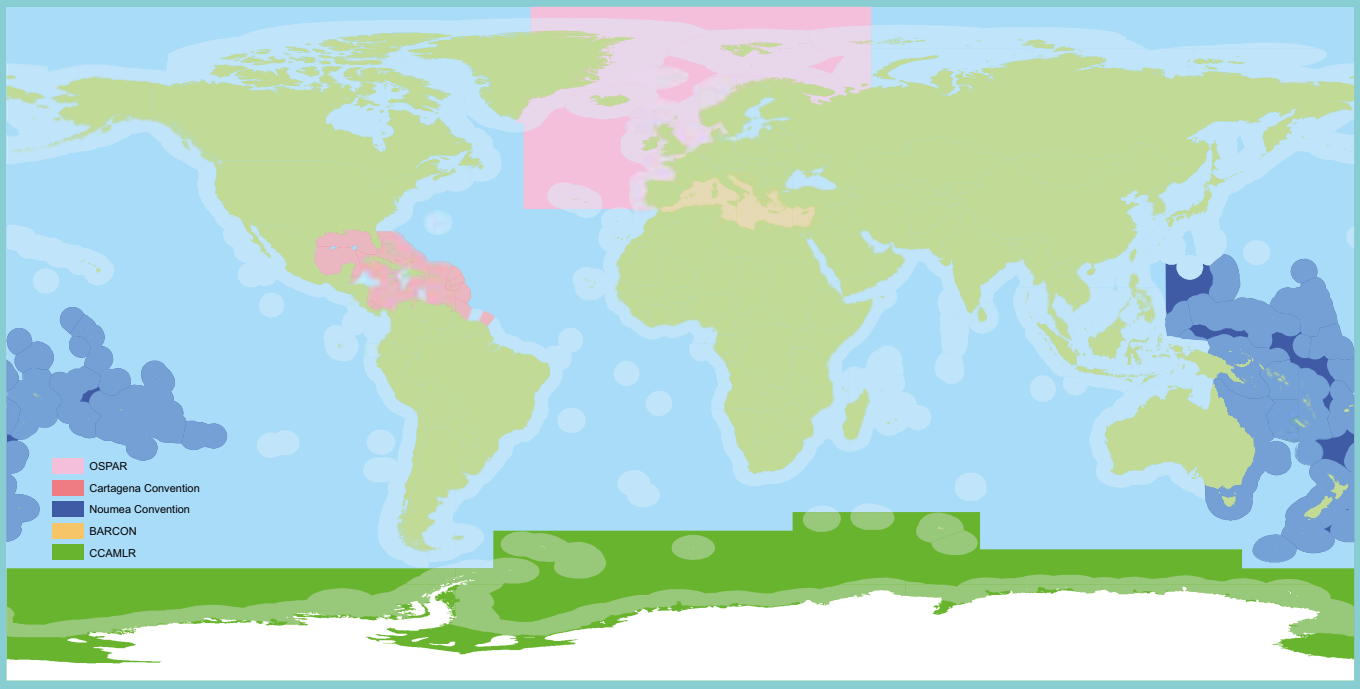
Please note that the areas on this map are best approximations, intended to show the complexity and gaps in high seas governance



RFMOs: There are many gaps in Regional Fisheries Management Organisations (RFMOs) governance – both geographically and in terms of fished species. Many RFMOs are not assessing or addressing the impacts of fishing on non-target species and vulnerable habitats such as seamounts and coral reefs. There is also limited communication and coordination between RFMOs, making the total fishing impact on our oceans overlooked.

Other Organisations: Many other global organisations and agreements are responsible for regulating different activities on the high seas, including the IWC (whaling), the IMO (shipping), ISA (deep sea mining) and the London Convention (dumping of waste). However, there is currently no coordination and cooperation between these bodies, and no mechanism to assess the impacts of all human activities on the high seas or to effectively monitor them.

MAP SHOWING THE SMALL PROPORTION OF THE HIGH SEAS COVERED BY ORGANISATIONS WITH A MANDATE TO PROTECT MARINE LIFE



For the vast majority of the oceans there are no agreements to protect marine life and their habitats from human activities, to assess these impacts, or to create and implement marine reserves.

Even in the areas covered by regional seas agreements, the standards and rules applied are not uniform. Some agreements only focus on single threats such as pollution, while others address a range of threats and can establish marine protected areas.

The new implementing agreement under the UNCLOS would address the gaps and fragmentation. It would help to identify, create and manage marine reserves, assess human impacts, organise the coordination of regional organisations and ensure agreed enforcement rules are respected by all.

LESS THAN

1%

OF THE HIGH SEAS ARE PROTECTED

A High Seas Biodiversity Agreement

To bring about the end of the oceans "Wild West", governments and industries must recognise the need to use the oceans responsibly, and that by managing their activities effectively they can ensure healthy and productive oceans for generations to come. A new agreement that protects life in the oceans and ensures sustainable use is urgently needed. This is why Greenpeace is demanding a high seas biodiversity agreement under UNCLOS.

A high seas biodiversity agreement would make clear the obligation of countries to protect ocean life that is found both in high seas waters and the seabed in areas that are beyond the jurisdiction of any one country. It would put in place a mechanism to identify, create and manage marine reserves. It would spell out the process that industry needs to follow to create and implement environmental impact assessments before extractive and potentially damaging activities are allowed to take place. It would coordinate existing regional organisations that regulate human activities (including fishing, drilling, mining, and shipping) and protect our oceans. It would also create a fair regime for the access and sharing of benefits from the exploitation of genetic resources in the oceans – so that developing countries can also benefit from such resources. An effective agreement must also include a monitoring and control and enforcement mechanism that will ensure agreed rules are respected by all.

The urgent crisis facing our oceans has made more and more leaders realise that the status quo is pushing marine life to the brink of collapse. Today, the large majority of countries support a global agreement to protect the high seas, but progress is currently blocked by a handful of powerful nations. At the Rio+20 Summit in Brazil in June 2012 governments committed to take a decision on the development of a global agreement under UNCLOS by the end of 2014 at the UN General Assembly, where issues can be taken to vote.

The oceans hang in the balance. There is no more time to waste. The large majority of countries in favour of high seas protection must now join forces and act together for healthy oceans and the millions of people that depend on them.

Calling for a high seas biodiversity agreement under UNCLOS

A high seas biodiversity agreement under UNCLOS is urgently needed to ensure healthy and productive marine ecosystems across the world's oceans. Only a global agreement can provide a coherent and integrated approach in all areas beyond national jurisdiction.

The agreement should provide:

- an explicit mandate for the protection, conservation and sustainable use of biodiversity in areas beyond national jurisdiction;
- implementation tools, such as a mechanism to establish, monitor and control marine reserves; and to undertake environmental impact assessments (EIAs) and strategic impact assessments (SEAs) in areas beyond national jurisdiction;
- harmonisation and coordination among relevant instruments or regional, international and intergovernmental bodies;
- a mechanism for the access and equitable benefit sharing of the utilisation of marine genetic resources (MGRs); and
- a centralised monitoring, control and compliance system with a register and database of all high seas fishing vessels.

Image Schooling fish swim over a coral reef near Nauru in the Pacific Ocean.

Greenpeace is an independent global campaigning organisation that acts to change attitudes and behaviour, to protect and conserve the environment and to promote peace.

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