



China Dialogue
Ocean

June 2022

Second chance



**Is 2022 the year we
reverse the decline
in ocean health?**

FOREWORD

The year 2020 began with confident predictions of a “super year for the ocean”. There were to be breakthroughs in negotiations on biodiversity and climate change that would tackle the key threats of overfishing, warming and pollution. But Covid-19 derailed these ambitions. Many treaties and talks on global marine governance were left dead in their tracks, and some have yet to recover.

Hope returned at the COP26 climate talks in Glasgow at the end of 2021, when the ocean was incorporated into the UN’s climate change framework for the first time, in the form of the Glasgow Climate Pact. COP26 also saw significant steps made towards decarbonising the shipping sector, with commitments to create “green corridors” for zero-emission vessels and more countries calling for the industry to speed up its emissions reduction efforts.

This year has brought more promise too. In February, French president Emmanuel Macron convened an ocean summit in Brest that resulted in major announcements on protecting the high seas; fighting illegal fishing; greening shipping and ports; and funding to clean up marine plastic pollution. France, which has huge overseas territorial waters, also became the latest signatory to the High Level Panel for a Sustainable Ocean Economy, a coalition of 15 countries working to sustainably manage their waters by the end of this decade.

In March, member states at the UN Environment Assembly in Nairobi agreed to begin negotiations on the world’s first legally binding treaty to end plastic pollution. This has been widely recognised as the most significant international environmental deal since the Paris climate agreement in 2015.

Then, in April, the Our Ocean Conference was held in Palau, the first time the annual event has been hosted by a small island developing state. Such nations are particularly vulnerable to climate change and the associated sea level rise and extreme weather. The summit highlighted the importance of ocean health, particularly for coastal communities, and resulted in US\$16 billion of commitments to safeguard it.

But some events have continued to be delayed. Talks at the World Trade Organisation to end the harmful subsidies that contribute to overfishing and illegal fishing failed once again to achieve an agreement. While talks in March on producing a long-awaited treaty to protect and sustainably use biodiversity on the high seas fell short of their goal, and will require a further round of talks in August.

Discussions on deep-sea mining have remained controversial. Mining companies want to exploit the seabed to harvest minerals they say are critical to building a low-carbon economy. But scientists, conservationists and increasingly businesses, including Volvo and Google, are calling for a mining moratorium until a fuller picture of its environmental impacts can be obtained.

The body in charge of regulating deep-sea mining, the International Seabed Authority (ISA), has so far handed out more than 30 exploration contracts, and is working to finalise a code that would govern extraction. This too has been delayed by Covid, leaving some nations and companies so frustrated that they triggered an obscure legal clause. The ISA therefore has two years to finalise the code – otherwise mining can proceed under whatever environmental standards are in place at the time.



The second and final part of the COP15 biodiversity talks is scheduled to take place in Kunming, China later this year. These UN talks are key to progress on ocean protection, with a target tabled that would protect 30% of land and seas by 2030. Marine protected areas (MPAs) are seen as the best tool to safeguard biodiversity while continuing to protect food and jobs. There has been a steady increase in MPAs in recent years, but currently only about 8% of the ocean is part of an MPA, and only 2.8% is highly or fully protected from any human activity whatsoever.

As the host country of COP15, China keeps enhancing its marine conservation efforts. It is trying to enlarge its protected areas, and increase conservation effectiveness through building marine national parks. It passed a five-year plan for the marine environment, raising existing targets for coastal wetlands and coastline restoration. The Wetland Protection Law, which came into force this June, will help to unify the national rules and standards for wetlands restoration, and strengthen China's biodiversity conservation which will in turn contribute to global efforts.

Many environmental problems are interrelated with food security challenges. To help feed the 10 billion people who are likely to inhabit Earth by 2050, both the aquaculture and wild fishery industries are seeking to grow output sustainably. China, which contributes more than one-third of global aquatic food, started this year to limit the number of its vessels fishing for squid in the high seas. It also implemented new subsidies for responsible fishing in Chinese waters, and speeding up development of sustainable aquaculture.

Eyes now turn to Lisbon for the UN Ocean Conference,

co-hosted by the governments of Kenya and Portugal. Billed by UN special envoy for the ocean, Peter Thomson, as a "key chance to reverse the decline in ocean health", the conference aims to support the implementation of the UN Sustainable Development Goal related to the ocean. SDG 14 is made up of 10 targets on protecting marine life, including preventing and reducing pollution and ocean acidification, protecting ecosystems, regulating fisheries and increasing scientific knowledge.

The five-day summit will bring together political leaders, scientists, NGOs, civil society, academics and industry to push for the adoption of "innovative science-based solutions" to sustainably manage the oceans and meet the goals of SDG14 by 2030.

The first UN Ocean Conference in 2017 was considered a "game changer" in terms of raising global awareness of the problems facing the world's oceans. Now, by harnessing growing momentum and political will, Lisbon is the time to find the solutions.

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**Dedicated to
illuminating, analysing
and helping to resolve
our ocean crisis.**

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A timeline of ocean events and key dates

2022

JUNE

1 June

World Reef Awareness Day

5 June

International Day for the Fight against IUU fishing

6–10 June

78th Session of IMO Marine Environment Protection Committee
Virtual

8 June

World Oceans Day

12–15 June

12th WTO Ministerial Conference
Geneva

25 June

Day of the Seafarer

27 June–1 July

UN Ocean Conference
Lisbon, Portugal

JULY

18–29 July

27th Session of International Seabed Authority (Part II) Council Meeting
Kingston, Jamaica

26 July

International Day for the Conservation of the Mangrove Ecosystem

AUG

15–26 Aug

5th Session of Intergovernmental Conference on Marine Biodiversity of Areas Beyond National Jurisdiction (BBNJ)

SEP

5–9 Sept

FAO 35th Session of the Committee on Fisheries
Rome, Italy



LISBON

UN Ocean Conference is a key step on the road to recovering ocean health

The event in Lisbon will see the launch of a great fleet of ocean solutions, writes UN ocean envoy Peter Thomson



*A northern gannet entangled in a green fishing net in the UK waters of the North Sea
(Image: © Marten van Dijk / Greenpeace)*

Peter Thomson

With every breath we take, we are connected to the ocean. The planet-defining blue covers more than 70% of the Earth's surface, providing half of its oxygen, stabilising our global climate and weather system, and providing food and livelihoods for billions of people.

A healthy ocean is critical to all life on Earth, and yet through humankind's witting and unwitting activities, the ocean's health is measurably in decline.

Overfishing continues to deplete precious marine resources and jeopardise sustainable, smaller-scale fisheries. Excess anthropogenic carbon emissions are warming the ocean, causing the death of coral, raising sea levels and making the ocean more acidic, weakening its ability to sustain life. Plastic and chemical pollution are permeating the ocean, putting many marine species in trouble.

There can be no healthy planet without a healthy ocean. The positive news is that – on our watch – we can take the necessary steps to stop the decline of the ocean's health. In 2022, we have important opportunities to take bold, meaningful action to put our ocean onto a path of recovery. Solutions exist to restore the health of the ocean, but they will require action from each one of us, from every sector of industry and all parts of society, from world leaders to CEOs, and from scientists to citizens.

In February 2022, we witnessed world leaders at the UN Environment Assembly in Nairobi commit to the drawing up of a legally binding global treaty to tackle the pernicious issue of plastic pollution. Members of the World Trade Organization are close to agreeing a deal to eliminate the distorted behaviour of harmful fisheries subsidies. Negotiations to conclude a robust and operable High Seas Treaty are expected to conclude later in the year, while the Convention on Biological Diversity conference, also to be held later this year, holds the promise of a new target to protect

30% of the planet by 2030. And then there is the next UN climate change gathering, COP27 in Sharm El-Sheikh, in November, which more than ever includes explicit focus on the ocean as a critical ally in both mitigating and adapting to climate change.

The ongoing International Year of Artisanal Fisheries and Aquaculture, the UN Decade of Ocean Science for Sustainable Development and the UN Decade on Ecosystem Restoration also remain key threads in supporting and advancing the realisation of the UN's 2030 sustainable development agenda.


Next up on the global agenda, we have the UN Ocean Conference, co-hosted by the governments of Kenya and Portugal, in Lisbon, from 27 June to 1 July. The conference is held in support of SDG14, the UN's Sustainable Development Goal to conserve and sustainably use the ocean's resources. It is my firm belief that SDG14 and the continued development of a sustainable blue economy around the world are crucial for humanity's future on this planet.

I am confident we will see the launching in Lisbon of a great fleet of innovative, science-based solutions. These solutions will be carried forward in well-funded partnerships, that will propel the effective implementation of SDG14. I am urging every attendee to bring the best of their ideas and resources to Lisbon. We need all hands on deck.

The UN Ocean Conference will be focussing on the major challenges and opportunities faced by the ocean today. The programme features

plenary meetings, a suite of interactive dialogues, and a rich series of side events complementing the main programme. Sessions will cover topics ranging from strengthening sustainable ocean-based economies, to addressing ocean acidification, deoxygenation and warming; and from making fisheries sustainable, and fair for small-scale artisanal fishers, to conserving and restoring marine and coastal ecosystems.

The conference will culminate in the adoption of a political declaration on "Our Ocean, Our Future, Our Responsibility" which has already received support from all UN Member States. All this will be complemented by a range of now over 1,700 voluntary ocean commitments from around the world – an array of ocean action covering all targets of SDG14, submitted by a broad range of stakeholders online. All are welcome to go to the UN Ocean Conference website to submit a voluntary commitment and become part of the drive for progress.

If we are to halt the decline in the ocean's health this year, we must not squander the unparalleled opportunities presented by 2022's confluence of moments for decisive ocean action. And when I say "we", I am referring not just to the leaders of UN Member States, but also ultimately to each and every one of us. We and our children and grandchildren are all citizens of Planet Ocean, and it falls on our watch to do the necessary work to secure the healthy, thriving ocean on which humanity's future depends. 



We and our children and grandchildren are all citizens of Planet Ocean, and it falls on our watch to do the necessary work"



After many Covid-related delays, there was a feeling at the talks that there is finally a solid and promising timetable of events in the next 12 months to build momentum for ocean protection (Image: Michael Pitts / Alamy)

COP

COP26 deal sees progress on ocean protection

Ocean-based action was brought into the UN climate process in Glasgow, but further commitments are needed ahead of key events in 2022

Jessica Aldred | November 16, 2021

Marine conservationists have welcomed an “important and hard-fought-for win” as the ocean was incorporated into the UN climate change regime at the close of the COP26 summit in Glasgow over the weekend.

But there was also a warning that any progress would be undone by the lack of near-term, verifiable action towards limiting global warming to 1.5C.

“Pressure on the ocean will

continue to increase,” said the OneOcean Flotilla, a collective of marine organisations that stressed the urgent need for ocean action, including “a robust High Seas Treaty, protection of at least 30% of the global ocean by 2030, a reduction in other current ocean stressors including overfishing, and in future threats such as deep-sea mining.”

The Glasgow Climate Pact, adopted late on Saturday evening, now recognises the ocean under the UNFCCC (United Nations Framework Convention on

Climate Change), with an invitation for all workstreams and constituted bodies to consider how to integrate and strengthen ocean-based action.

In its preamble, the pact highlights “the importance of ensuring the integrity of all ecosystems, including in forests, the ocean and the cryosphere, and the protection of biodiversity ... when taking action to address climate change.”

Most significantly, the pact calls for an annual dialogue to strengthen ocean-based action, that will take

place every May/June from 2022, before reporting back to the COP towards the end of the year.

Torsten Thiele, head of the Global Ocean Trust, who moderated the finance panel at the first UNFCCC Ocean–Climate Dialogue earlier this year, told China Dialogue Ocean: “COP26 succeeded in fully integrating ocean-based action into all workstreams. Now we need to ensure that ... we have a solid commitment to stopping ocean degradation, supported by appropriate financial contribution.”

Campaigners, notably John Kerry, the US special climate envoy, had seen this annual dialogue as key to ensuring that the ocean would play a role in UN mitigation, adaptation and finance goals.

“When the world talks about the climate crisis, the ocean crisis must be front and centre in that conversation. One way to ensure that happens will be to establish an ongoing forum for ocean issues here in Glasgow in the COP26 decision text,” Kerry said.

In a statement on the COP26 outcome, WWF Oceans said the annual Ocean–Climate Dialogue would be an important tool to increase ambition: “Priority actions should strengthen the mitigation, adaptation and resilience potential of the ocean, as well as dependent communities and economies, through nature-based solutions and measures that are biodiversity-positive and can deliver net-zero outcomes.”

Ocean–climate nexus

While ocean health, biodiversity and climate change have traditionally been siloed under UN processes, there has been increased recognition that they are inseparable issues. The ocean plays an essential role in climate regulation: covering 70% of the planet, it absorbs CO₂ and heat, and the life within it produces half the oxygen we breathe. But it is under existential threat due to anthropogenic climate change, pollution and overfishing. The latest science, particularly from the 2019 IPCC Special Report on the Ocean and Cryosphere and the 2021 Second World Ocean Assessment,



US climate envoy John Kerry, speaking at the Climate Action is Ocean Action event at COP26, Glasgow (Image: Karwai Tang/UK Government, CC BY-NC-ND 2.0)



The aim is to reach objectives of the Paris agreement, and if we don't use the nature-based solutions at hand – including the oceans – we will never reach it.

indicates that tipping points are being reached and risk is increasing, namely from acidification, warming and sea-level rise.

However it's not only the damage, but the ecosystem services provided by the ocean that are being increasingly valued economically and recognised politically. Protecting and restoring ocean ecosystems – from mangroves, salt marshes, coral reefs, seagrass beds to kelp forests – provides crucial services such as carbon sequestration, reducing vulnerability to storms and flooding, and supporting sustainable livelihoods for indigenous peoples and local communities.

Jane Madgwick, CEO of Wetlands International, said the presence at this year's COP of the first-ever pavilion dedicated to peatlands “indicates how far we've come in finally acknowledging the fragility and power of peatlands while providing a platform on which the private and public sector can work together to realise solutions towards the protection and restoration of, hectare-to-hectare, the best carbon sink, when compared to forests.”



Mauritian scientist and climate change activist Shaama Sandooyea stages an underwater protest at the Saya de Malha Bank, to highlight the need to protect the world's largest seagrass meadow (Image: Christophe Van Der Perre / Alamy)

While many high-level experts agreed that the relationship between the ocean and climate change – the “ocean–climate-nexus” – had now become mainstream, others said valuable time had been lost by excluding the ocean from the UNFCCC process for so long.

“I fervently hope that even the naysayers now realise that there cannot be a healthy planet without a healthy ocean, and that climate change and ocean change are basically one and the same thing,” said Peter Thomson, the UN’s special ocean envoy.

“It has taken 25 years – and we are still fighting,” Waldemar Coutts, director for environment and oceans at Chile’s Ministry of Foreign Affairs, commented. “That’s very sad because the aim is to reach objectives of the Paris agreement, and if we don’t use the nature-based solutions at hand – including the oceans – we will never reach it.”

Representatives of small



The forests got the money and the oceans didn't

island states also noted progress at COP26, but stressed a need for further action. “We’d like to see [the COP] get consistently bluer,” said Palau’s UN ambassador, Ilana Seid. “Seeing traction in getting oceans incorporated into climate dialogue [is progress] but we need to see more. The voices of small island developing states haven’t been amplified loudly enough and we must continue to push our agenda at future COPs.”

New initiatives

The Glasgow Climate Pact followed two weeks of talks that saw more than 30,000 people arrive in

Glasgow, including civil society, the media, world leaders and government representatives. There had been high hopes that the ocean would feature strongly on the agenda, with a dedicated themed day, and numerous side events and exhibits showcasing ocean-based climate solutions, fisheries, shipping emissions, offshore renewable energy and finance.

The first week began with 20 countries signing the third instalment of the ‘Because the Ocean’ Declaration, which called on states to integrate ocean, climate and biodiversity linkages in their plans to implement the Paris Agreement. More than 100 signatories to the Ocean for Climate Declaration – from civil society organisations, the private sector and academia – then called for governments to include ocean conservation initiatives within their formal commitments to reduce emissions.

In ocean funding, US\$145 million

was announced for the Global Funds for Coral Reefs, while \$20 million was committed towards supporting nature-based solutions and vulnerable communities at the Ocean Risk and Resilience Action Alliance roundtable. Elsewhere, the Great Blue Wall initiative was launched by states in the Western Indian Ocean, aiming to conserve and restore marine and coastal biodiversity, while Fiji announced its plan to issue a sovereign blue bond in 2022. Belize also pledged to develop a pioneering “project finance for permanence” scheme for marine protected areas (MPAs), conservation and coastal ecosystems.

But many ocean campaigners contrasted these initiatives against the high-profile funding pledges made on forests. “The forest people got the money and the ocean people didn’t,” said the Global Ocean Trust’s Thiele. “We need a serious commitment to ocean climate finance. An extra \$10 billion given to the oceans could have closed the gap on [the climate finance target of] \$100 billion and helped the most at-risk – the small island coastal states, the people who made the Paris agreement happen.

“[Action on oceans at COP] is not streamlined or focused in the right way, and we see from forests that this is needed. As we go into 2022 there are several big opportunities to close the finance gap – and we are asking countries to please step up and make that commitment.”

After many postponements and delays due to Covid-19, there was a feeling at the talks that there is finally a solid and promising timetable of events in the next 12 months to build momentum for ocean protection. Thiele pointed ahead to several key meetings, including:

- World Trade Organization negotiations to end harmful fishing subsidies (Geneva, November–December)
- UN Environment Assembly (Nairobi, February–March)
- Our Ocean Conference (Palau, February)

- One Ocean Summit (Brest, February)
- The Economist World Ocean Summit (Lisbon, March)
- Fourth session of negotiations on UN High Seas Treaty (New York, March)
- Convention on Biological Diversity COP15 (Kunming, April–May)
- UN Ocean Conference (Lisbon, June)
- Fifth International Marine Protected Area Congress, (Vancouver, June)

Of the months and events ahead, the UN’s Peter Thomson said: “The two important conferences in my mind between now and COP27 are the biodiversity COP – where hopefully we will adopt a target of 30×30 protection of land and sea. And, secondly, the UN Environment Assembly, where I fully expect that member states will mandate the commencement of negotiations for an internationally binding treaty on plastic pollution.”

Calls for “30×30” – to protect 30% of the world’s land and ocean area by 2030 – were repeatedly made at COP26, and 77 countries are now backing the inclusion of this target in the final UN biodiversity treaty.

MPAs are considered one of the best ways to enhance coastal ecosystems, which capture and store atmospheric carbon dioxide. UN goals had aimed for 10% of ocean areas to be fully protected by 2020 – but only made it to 7.8%. “Now we say ‘30×30’. We need to get real here and be universal in our efforts,” said Thomson. “Africa, Latin America, Russia, China need to be in there too. And we need the Southern Ocean MPAs. We would have 10×20 now if we could get them in place.”

Thomson was referring to the latest round of CCAMLR talks on Antarctic protection, which recently failed – for the fifth year in a row – to increase protected areas in the Southern Ocean.

A significant announcement also made in the first week of COP26 was the plan for a new “mega-MPA” in the Eastern Tropical Pacific involving Colombia, Costa Rica, Ecuador and Panama. Enric Sala, National Geographic’s explorer in residence, will next year lead an expedition to the “Ocean Highway” area using a manned submersible and remote cameras to survey current marine protected areas and identify potential new ones.


“This will be the first science ever conducted in these waters to assess abundance of marine life,” Sala said. “It will also provide a benchmark against which future change will be measured.”

Negotiations to protect marine Biodiversity in areas Beyond National Jurisdiction (BBNJ) – known as the High Seas Treaty – also look set to finally resume next year after delays due to the pandemic. Emmanuel Macron’s One Ocean Summit, due to be held in Brest next February, reportedly aims to secure a high-level political commitment to large-scale marine protection, and give negotiators guidance for the final round of UN talks on the treaty scheduled for March in New York.

Countries are negotiating on four key topics, with the aim of ensuring that all nations can share equally and sustainably in the benefits and resources – biological and mineral – of the high seas, which cover 45% of the planet’s surface and are home to 90% of marine life. 🌊

7.8%

UN goals had aimed for 10% of ocean areas to be fully protected by 2020 – but only made it to 7.8%



A treaty would help protect migratory species such as whales which navigate the high seas in search of food and mates (Image: Christopher Michel/Flickr CC BY 2.0)

BBNJ

High seas negotiations fail to secure long-awaited treaty

The UN will have to convene another round of talks later in the year to complete work on a legally binding treaty to protect biodiversity in international waters

Fermin Koop | March 30, 2022

Negotiations for a treaty on the conservation and sustainable use of biodiversity in the high seas have ended without conclusion at the UN headquarters in New York.

The fourth and final scheduled round of talks was supposed to conclude a multi-year process and result in a treaty. Now, governments will have to keep making progress in the coming months until another round of talks, likely to happen in August.

“We have not come to the end of our work,” said conference president,

Rena Lee, noting that Covid had caused major delays to the negotiations. “I believe that with continued commitment, determination and dedication, we will be able to build bridges and close the remaining gaps.”

The high seas represent nearly two-thirds of the global ocean – but only 1% of them are currently fully protected. Outside nations’ exclusive economic zones, these remote areas support diverse ecosystems important for the health of the planet.

There has been a strong drive to get them protected, with 85 countries now part of the 30×30 coalition. Launched

in January 2021, it aims to protect 30% of the planet’s land and sea by 2030. Without a high seas agreement, these pledges won’t have a legal basis in areas beyond national jurisdiction. Currently, countries can navigate, fish and carry out research on the high seas with few restrictions.

“All efforts must be devoted in the coming months to secure this long-awaited treaty in 2022 – a goal expressed by many governments,” said Peggy Kalas, director of the High Seas Alliance. “It was a very productive session but we don’t have an agreement yet. The high-level political momentum



There's a lack of coherence between positions at the UN and how governments act at other bodies

signalled early on that it was not going to be the final one. Due to Covid, a reduced number of negotiators and campaigners were allowed to enter the UN building, which closed its doors at 6pm every day, not allowing for any extra time.

Karan said that despite negotiators running out of time, she had heard “a chorus of voices committed to finish the agreement and do hard work between now and the final meeting. Countries are trying to find common ground and bridge the gaps between their positions.”

The latest round of negotiations focused on the four key components of the future treaty: marine genetic resources; area-based management tools, like marine protected areas; environmental impact assessments; and capacity-building and the transfer of technology from richer to poorer nations.

Sharing the benefits of genetic resources is a particularly sensitive area for countries. It's still not clear whether it will be mandatory or voluntary and whether it will include both monetary and non-monetary benefits. However, on regulations for marine protected areas and other area-based management tools, progress was made, such as on site selection criteria.

The process for impact assessments is also yet to be finalised, with no consensus on the applicable thresholds and criteria. Negotiators from developing countries are asking for stronger commitments on capacity building and technology transfer, for example with a compulsory environmental assessment mechanism.

“There was some progress. We saw some regional groups with progressive stands. However, there were also some countries defending the status quo, such as Russia. They see this treaty as having a coordination role without decision-making power,” said Veronica Frank, policy advisor at Greenpeace, referring to decision-making continuing to be the remit of those organisations that already manage the high seas.

Negotiations also have to agree

on the institutional arrangements of a future treaty, which are critical for its effectiveness. Some of the issues include the mandate and rules of a regular conference of the parties (COP) – in the same UN vein as those that take place annually on climate and biannually on biodiversity – financing mechanisms and coordination with existing instruments regulating activities on the high seas.


“There's a lack of coherence between positions at the UN and how governments act at other bodies. Here we talked about a new treaty, and this week the International Seabed Authority is meeting to talk about regulations for deep sea mining,” said Kristina Gjerde, IUCN high seas advisor. “That's the biggest challenge of this new treaty, to ensure coherence.”

The road ahead

In their closing remarks, all delegations thanked conference president Lee for her efforts to make the meeting happen amid the pandemic. Many said they were hopeful that the next negotiating round will finally bring the treaty into existence. A new draft text is expected to be circulated by early May.

The EU delegation said “good progress” was made, and that they are optimistic about concluding the deal at the next meeting. Meanwhile, the Pakistani delegation, on behalf of the Group of 77 and China, said the commitment of all delegates is clear but asked for the principles of fairness and equity to be reflected in the agreement.

The ocean is high on the agenda this year, creating further pressure to finalise an agreement. The UN will host its Ocean Conference in Lisbon in June, while the World Trade Organisation (WTO) is expected to agree on ending fishing subsidies in the same month. A new global biodiversity framework is also in the works.

“We reached the point we wanted, having delegates engaged in real text-based discussions. Now, we need political impetus to make the deal happen,” Torsten Thiele, founder of the Global Ocean Trust, said. 

has to be translated into action.”

High time for a treaty?

Negotiations on the treaty began in 2018 after a decade of discussions at the UN. A so-called High Ambition Coalition of European Union nations and 13 other countries have endorsed the goal of concluding the process this year. Campaigners believe this is feasible but only if negotiations actively continue between now and the next round of talks.

Elizabeth Karan, who leads Pew's high seas programme, said circumstances around the meeting

France's membership lends weight to coalition for ocean sustainability

The European nation joins the US and 14 other countries in planning to sustainably manage their waters this decade. But what does that mean in practice?

Olive Heffernan | March 4, 2022

In December 2020, 14 nations, which together oversee 30% of the ocean area covered by exclusive economic zones (EEZs), committed to managing their waters 100% sustainably by 2025. The ambitious plan, which followed a two-year, science-based review of ocean threats and opportunities, set out a blueprint for marine restoration in a way that would provide more food and jobs, benefit maritime economies and help to mitigate climate change.

On 11 February, France, which has the largest EEZ of any nation, became the latest to sign what is known as the High Level Panel for a Sustainable Ocean Economy. France's participation takes the coalition's footprint to 42% of the world's EEZ area, 46% of the world's coastlines, 25% of its fisheries, and 20% of its shipping fleet.

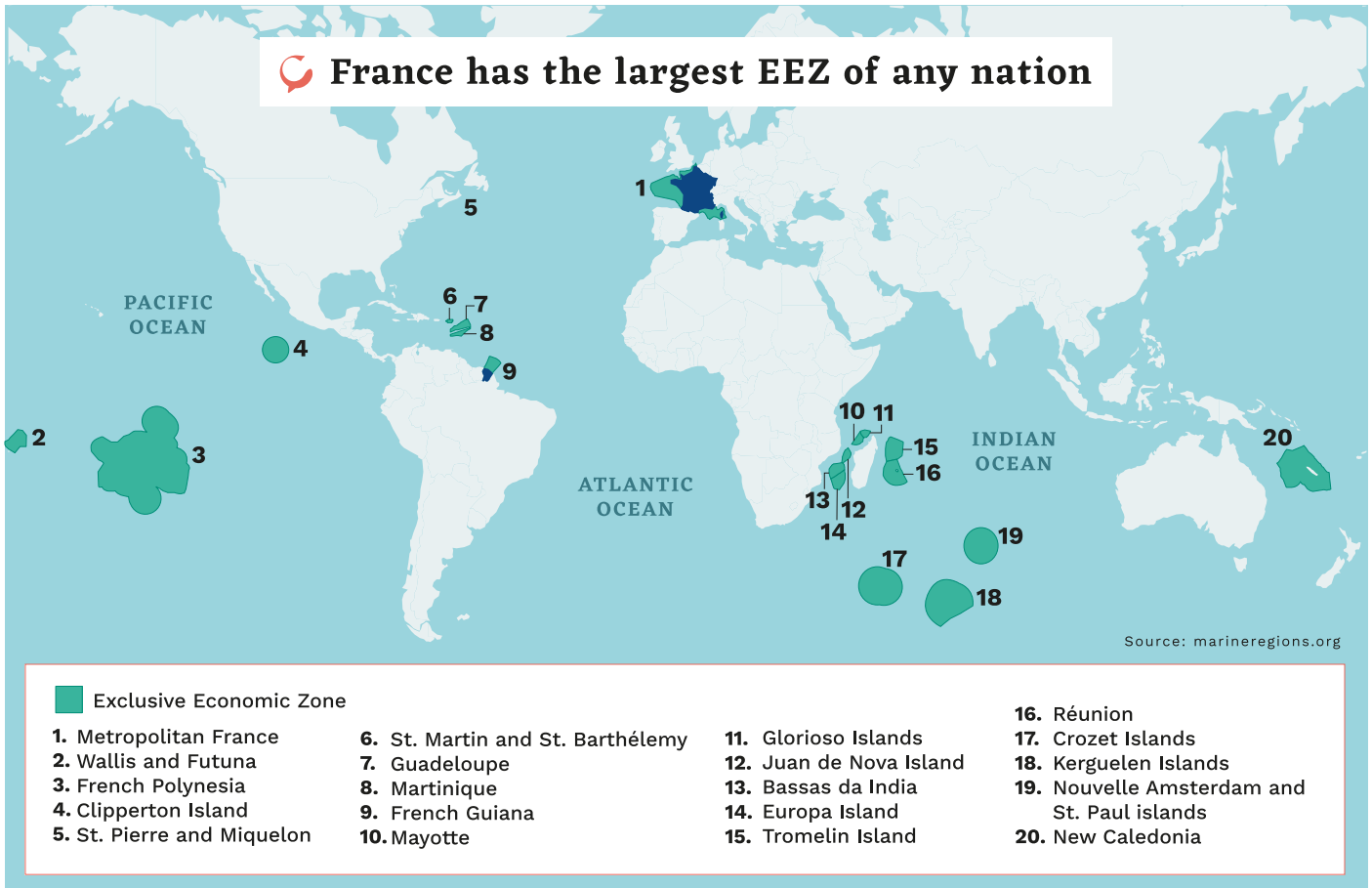
A mix of wealthy and developing coastal countries, the original signatory states were Australia, Canada, Chile, Fiji, Ghana, Indonesia, Jamaica, Japan, Kenya, Mexico, Namibia, Portugal, Norway and Palau. The US signed up

in November at the COP26 climate conference in Glasgow, committing to 100% sustainable management of its jurisdictional waters by 2030. Now that France has also committed, signing to the earlier target of 2025, the pledge includes the two nations with the world's largest EEZs. Much like the Paris Agreement on climate change, the commitments of the High Level Panel are nation-specific, voluntary and non-binding.

Signatories have yet to reveal the details of their management plans, but they are expected to be as much



Juvenile fish near a coral reef in French Polynesia, which is part of France's EEZ. The European country has committed to managing its waters 100% sustainably by 2025. (Image: Doug Finney/Flickr CC BY-NC 2.0)



about economic development as conservation. Norway, for example, is currently investing in its offshore oil and gas industry and has plans to expand salmon aquaculture five-fold by 2050, a plan that will see around 5 billion fish farmed annually along its western coast. How Norway will mitigate the environmental damage from the growth of its maritime industries and achieve sustainability is as yet unclear.

“In Norway, there is a process for sustainable ocean management. But there are the challenges, for getting incentives for offshore wind and disincentives for oil and gas, for instance,” says Peter Haugen, the programme director at the Institute of Marine Research in Bergen, and chair of the High-Level Panel’s Expert Group. “Should we allow deep-sea mineral exploitation in areas where we allow fisheries? Are we doing enough to minimise plastics from fisheries? These discussions are

ongoing, but much has yet to be decided. It’s going to be gradual with Norway,” he says.

Meanwhile, nations such as Ghana and Mexico are struggling with severely depleted fish stocks and are fighting a growing battle against illegal fishing. While they have joined the pledge, they currently have few resources for monitoring their waters or enforcing protective measures. “A major challenge here in Mexico, on any of the commitments to the ocean panel, is the lack of funding,” says Renata Terrazas, vice-president of the non-profit Oceana in Mexico. “Right now, in this administration, environment has not been a priority,” she says, adding that the government has recently cut the environment budget and did not provide a Covid-stimulus package to industry, which was hoped would form part of a “blue recovery” effort to jump start ailing economies.

Emerging leadership on oceans

France’s High Level Panel pledge came during the One Ocean Summit in Brest, from 9–11 February. Several other high-profile announcements were also made at the conference, including the forming of a European-led coalition to protect the high seas; measures to fight illegal fishing; UNESCO’s plans for “ocean education” in all UN countries by 2025; green shipping and ports initiatives, and 4 billion euros (US\$4.5 billion) of European bank finance to clean up marine plastic pollution.

With 97% of its EEZ located overseas, some experts say France’s greatest challenge in meeting its commitment will be controlling these remote waters. “France is present in every ocean on the planet, from the tropics to the poles. The problem is that France does not have full authority over all these waters; some territories have their own governments, they have their own parliament – like



Penguins on one of the Crozet islands in the Indian Ocean. The archipelago's waters will be part of the world's second largest marine reserve, which France recently announced at the Brest Summit. (Image: CTBTO/Flickr CC BY 2.0)

in French Polynesia or New Caledonia – with the authority to manage their EEZ,” says Jérôme Petite, who directs the Pew Bertarelli Ocean Legacy Project in French Polynesia.

Petite estimates that around 70% of French waters are managed by overseas authorities. “It’s always a collaboration between the French government and the territories. It’s always a dialogue,” he says. Currently, France gives around 2 billion euros (US\$2.3 billion) a year to French Polynesia, for example, a payment that is seen as recompense for nuclear testing on the islands in the 1960s and 1970s. It is generally used to fund projects of mutual interest but one possibility is that it could finance ocean management goals.

Despite its challenges, France is keen to be seen as the emerging world leader in ocean conservation. In Brest, it announced the creation of the world’s second largest marine reserve around the Crozet and Kerguelen archipelagos and the islands of Saint-Paul and Amsterdam. Located in the Indian Ocean, these waters are under France’s direct control. First proposed in 2013, this

reserve will extend the safeguarded area around these islands by around 1 million km², increasing the proportion of waters in France’s EEZ with full protection from 1.6% to 4%.

At the One Planet Summit in Paris in January 2021, France joined with Costa Rica and the UK to persuade 50 nations to sign a deal to protect at least 30% of the world’s ocean and land by 2030. There were more signatories to the 30×30 campaign in Brest, taking the total number of countries to 84, before the measure is debated at the upcoming second session of the COP15 biodiversity meeting in Kunming.

Separately, France, together with the EU, has pushed for the creation of a large marine protected area in East Antarctica, a proposal that has yet to win the unanimous approval of the 26 nations that jointly manage the Southern Ocean. This brings France closer to its self-imposed target of fully protecting 10% of its EEZ – a target that was initially set for 2022 only a year ago, but was pushed back to 2030 during the Brest Summit.

As far as the High Level Panel’s

pledge is concerned, the progress so far, detailed in a report released last November, has been piecemeal. Among the notable successes are a Covid relief package for 17,000 Jamaican artisanal fishers, a “Dark Vessel Detection Programme” launched in Canada to tackle illegal, unreported and unregulated fishing, and a new government office in Kenya tasked with maritime commercialisation. By joining the pledge, nations that are further behind maritime superpowers such as France hope to lever support from their better-resourced allies. Recognising this, the panel issued a user’s guide recently, suggesting initial steps for countries to start the process of sustainable ocean planning.

“While there’s no formal commitment from other countries such as France... to fund poorer nations if they come on board, they have huge EEZs and they have a lot of experience that could help them,” says Haugen. Terrazes agrees that by collaborating, nations are more likely to make quick progress towards these daunting targets. “The more the merrier,” she says. 🍷

World's nations commit to ending plastic waste

The UN resolution on ending plastic pollution has been described as the most important international environmental deal since the Paris Agreement

Emma Bryce | March 9, 2022

The UN has laid the foundation for negotiations to begin on the world's first legally binding treaty to end plastic pollution. At the United Nations Environment Assembly (UNEA) in Nairobi earlier this month, the parameters were set for a future treaty, including hard-won provisions to address the full life cycle of plastics and tackle waste in all environments, not just the ocean.

The decision on 2 March was met with applause, cheers and tears from delegates of 175 member states. They had gathered to negotiate several multilateral environmental

agreements, but most notably one on plastics. "The bottom line is, we will eliminate plastic pollution from our environment," said Inger Andersen, executive director of the United Nations Environment Programme (UNEP), during the closing plenary.

"It's a really important step. When I first started working on [plastics], there wasn't a broad consensus

An art installation depicting plastic bottles flowing from a tap at the UNEP headquarters in Nairobi, Kenya (Image: Alamy)



about the scale of the problem, or even agreement that there was a problem,” says Richard Thompson, a marine scientist at the University of Plymouth who has been studying plastic pollution for 30 years, and coined the term “microplastics”.

With plastic production doubling from 234 to 460 million tonnes in the past 20 years, it is now accepted that the scale of the resulting pollution means that neither voluntary nor national actions are enough. Recent years have seen a push for a coordinated global response, backed by a Scientists’ Declaration and popular opinion. A survey published last month by WWF revealed that nine out of 10 citizens in 28 countries believe in the need for a global treaty on plastic waste, with the greatest support coming from Mexico, Peru and China. Even plastics producers and brands heavily dependent on plastic packaging, such as Coca-Cola, Nestlé and Unilever, are backing the idea.

This mounting support came to a head during a week of negotiations in late February, when countries used two proposals for tackling plastic pollution, put forward by Rwanda and Peru and by Japan, as the basis for a final resolution. After days of heated discussion and fine-tuning, a draft of the resolution was tabled for consideration by the world’s environment ministers in the early hours of 28 February, the day the UNEA began.

Ambitious, urgent and wide-ranging

The adopted text has been called the “most important” deal since Paris. It insists that a final treaty be legally binding, which was not a guarantee at the start of negotiations. It calls for an “end”, rather than a reduction, to plastic pollution, and sets an ambitious 2024 deadline for finalising the treaty. “Countries have come together and said, ‘We want to do this quickly in recognition of the urgency of the problems,’” says Christina Dixon, deputy campaigns lead for oceans at NGO the



Espen Barth Eide, UNEA president and Norway's environment minister, passes the plastics resolution with a bang of his gavel (Image: UNEP/Flickr, CC BY 2.0)



*The industry is always saying, ‘We need a better mop.’
But in reality, we need to turn off the tap*

Christopher Chin

Centre of Oceanic Awareness, Research and Education

Environmental Investigation Agency (EIA), who was an observer during the negotiations.

Civil society groups are celebrating the ambitious scope of the resolution, which reduces the risk of negotiators delivering a narrow and toothless treaty. The text asserts that negotiations must focus on ending all plastic pollution, in all ecosystems, not just marine environments (where most policy efforts are currently focussed due to the large-scale impacts there.) This provision is important given river-transported plastic is a major source of ocean pollution.

The resolution also uses a generous interpretation of “impact”. Rather than just plastic waste, it considers the well-established risks that chemicals from plastics pose to human health, with microplastics now found in major organs including human placentas.

Crucially, it specifies that a future treaty must address the full life cycle of plastic if it is to succeed. This widens the scope beyond tackling waste to potentially reducing production, especially of single-use products.

“The industry is always saying, ‘We need a better mop.’ But in reality, we need to turn off the tap,” says Christopher Chin, an expert on single-use plastic legislation and executive director of the non-profit Centre of Oceanic Awareness, Research and Education, which was also an observer at the talks. The resolution responds to that need by “looking at plastic pollution in a more holistic way”, he says.

The resolution includes provisions for financing, Dixon notes, which will help countries meet their legal obligations once a treaty comes into force. That’s important because, as the text highlights, establishing new circular economies will be key to limiting plastic production, increasing recycling and extending its life: these upgrades will require significant resources in countries that don’t have the capacity yet.

The resolution also calls for national action plans and better plastic production and waste monitoring, crucial to measure progress. It also highlights the role of indigenous and traditional knowledge in forming solutions, and recognises the role of informal waste-pickers in recycling plastic globally.

“Broadly speaking, we’re pretty happy with the contents of the resolution,” says Dixon. “There’s a reference to health, which means that we can have a conversation about [toxins from plastics],” she says. “It talks about sustainable production and consumption, which means we can talk about reporting on plastic production. “Now”, she cautions, “is when the hard work begins.”

From resolution to treaty

The resolution establishes an intergovernmental negotiating committee, which will thrash out the terms of the final treaty. Its first meeting is scheduled for May 2022 in Senegal.

Some of the tougher debates will centre around how the treaty enables all countries to enact the necessary changes to their plastics economy – such as establishing circular infrastructure. Colombian lawyer Mónica de Greiff Lindo, speaking at UNEA on behalf of the G77 and China, emphasised that developing countries will need finance and technology transferred from developed countries to aid their transition to sustainable systems of consumption and production. Firming up countries’ obligations for this will be crucial, she said.

Another challenge is creating supportive markets for plastic alternatives and recycled materials. “We see the treaty as an enabler of progress,” said Ed Shepherd, senior global sustainability manager at the consumer goods giant, Unilever, speaking at a UNEA side event. But he added that the low price of virgin plastics may discourage businesses from getting their new products ready for the circular economy. One way for


the treaty to correct skewed market dynamics would be to introduce extended producer responsibility schemes that build the costs of plastic waste into production, or to apply a tax on virgin plastics.

Christopher Chin cautions that open-ended wording in the resolution text around the “full life cycle” of plastics could lead to questions about where exactly a plastic’s “life” begins, and therefore who has responsibility to tackle production and waste. “Some people will tell you that the life cycle of plastic begins as a product, or as a polymer, or at extraction,” he explains. On this point, Dixon says the EIA will be watching for lobbying during the negotiations, because the new life cycle focus might bring fossil fuel companies into the picture: “The petrochemical industry hasn’t really had to worry about this until the deal was done,” she says.

Search for solutions

Meanwhile, Thompson says that in the inevitable scramble for solutions that this global agreement will trigger, more research is needed to determine what really works. “We’ve got more evidence than we need about [plastics’] harm. What we don’t have as much evidence about is how to apply which solution in which context, in order to get the best traction,” he says.

This will require environmental scientists, economists, materials scientists, behavioural psychologists, and others to come together to find holistic solutions along the entire plastics life cycle, he says. Without this, a treaty runs the risk of enforcing measures that are ill-fitted to the challenge.

In the meantime, Inger Andersen urged countries to take the momentum of the talks back home using Kenya, the home of UNEA, as an example of a country that has recently brought in decisive bans on single-use plastics. “Do not sit back and wait for the plastic treaty to be ratified and signed,” she said. “There is lots that you can do.” 

Moving the dial on ocean-based CO₂ removal

Two reports published in the US look seriously at the practicalities and responsibilities of altering the ocean to tackle the climate crisis

Olive Heffernan | March 15, 2022

It's now widely acknowledged that to avoid catastrophic climate change we'll need to physically remove CO₂ from the atmosphere. Yet the technologies needed to do this, collectively known as carbon dioxide removal (CDR), remain nascent, underfunded and largely unregulated. Two recent developments aim to clear a path for testing these controversial methods in the ocean.

In the first week of December 2021, the US National Academies of Science, Technology and Medicine (NASEM) released a much-awaited report evaluating the feasibility and cost of alternative ocean-based CDR approaches. The same week,

the international non-profit Aspen Institute released a separate report, calling for a code of conduct for such approaches.

While previous reports, including another by NASEM in 2018, have evaluated options for climate intervention, NASEM's new analysis, funded by US non-profit ClimateWorks, takes a detailed look at ocean-based techniques exclusively, focusing on the six deemed most promising. The options range from restoring kelp forests to electrifying seawater in a bid to enhance the ocean's natural capacity for carbon storage.

"This is a holistic picture of the current state of knowledge about these different techniques and what we need to do before we can make

Options for enhancing the ocean's capacity to take in carbon include restoring ecosystems like kelp forests, adding minerals such as lime and using electricity to boost alkalinity (Image: Daniel Poloha / Alamy)

a decision about whether to deploy them,” says Romany Webb, an author on both reports and an expert in environmental law at Columbia Law School in New York.

Meanwhile, the Aspen report gives specific guidance to practitioners – be they scientists or entrepreneurs – interested in ocean CDR, and calls for a code of conduct that is environmentally and socially responsible.

Calling the reports “nicely complementary”, NASEM author David Koweek says the Aspen report helps to fill in the blanks on what the ethical, responsible CDR research that NASEM calls for actually looks like in practice. While neither report advocates for climate intervention, taken together they are seen as a gear-shift in the conversation around altering the ocean to tackle the climate crisis.

The ocean as a carbon sink

To keep global warming at or below 1.5C – above which will see the disappearance of coral reefs and low-lying island nations, as well as other adverse outcomes – emissions need to be dramatically reduced by 2030. By mid-century onwards, as much as 1 billion tonnes of carbon will need to be removed from the atmosphere each year. These are the conclusions of the UN’s Intergovernmental Panel on Climate Change in a landmark 2018 analysis. Despite this knowledge, there has been little done since to develop carbon dioxide removal at scale. On land, proposals to plant trees and develop bioenergy with carbon capture and storage (BECCS) are seen as competing with global food security and possibly worsening deforestation.

There are fewer territorial conflicts in the ocean, which already sequesters billions of tonnes of CO₂ each year, an amount equivalent to around 25% of our annual emissions. In theory, encouraging the ocean to absorb just a little more carbon, and store it over long timescales, could avert the worst of climate change. “These recent reports help to rectify the very land-centric focus that has previously prevailed,” says Greg Rau, an ocean



Researchers on the Polarstern icebreaker recover a sediment trap from deep waters in the Weddell Sea, Antarctica, as part of a project to understand more about the ocean as a long-term carbon sink (Image: Izzet Noyan Yilmaz / Alamy)

chemist and co-founder of CDR start-up Planetary Hydrogen, who was not involved in either report.

But ocean-based interventions have also been contentious. Early attempts by entrepreneurs – most famously Russ George in 2007 and 2012 – to seed the ocean with iron and to sell the sequestered carbon as tradable credits prompted an international outcry and led to calls (most notably by the UN’s Convention on Biological Diversity and the International Maritime Organization) for a moratorium on commercial ocean fertilisation. This stalled ocean CDR research for at least a decade, during which there was little funding for research and few real-world trials. With greenhouse gas emissions continuing to rise, however, interest has resurfaced and experts are keen that, this time, it’s done responsibly.

While there are numerous options for enhancing the ocean’s carbon storage capabilities, the NASEM report focuses on those thought the most promising. These are: seeding the ocean with nutrients such as iron to boost plankton growth; altering the ocean’s

physical transport processes in order to boost nutrients at the surface and to bring carbon to depth; cultivating seaweed at large scale; restoring ocean ecosystems such as kelp forests; adding large volumes of carbon-absorbing minerals such as lime to the ocean; and using electricity to boost the ocean’s alkalinity and carbon uptake.

Putting a price on reality

For ocean CDR to take off, practitioners will first need to test these approaches in the lab and in the field. The NASEM report assigns costs to each of these stages. The largest cost is for demonstration-scale field trials, which, if existing studies are any indication, will total about US\$25 million per year for 10 years. In addition, some approaches will need to be tested in the lab to optimise methods, costing around \$18 million per year. The report also estimates computer modelling costs at around \$5 million per year and research into governance and issues such as equity at around \$4 million per year. A separate report, published in 2020



Any government funding for CDR would compete with other strategies to tackle the climate crisis including decarbonisation and adaptation

Brown and green plankton bloom in the Baltic Sea. Stimulating phytoplankton growth by iron fertilisation is one proposed method of ocean CO₂ removal, but it could also spread damaging blooms. (Image: Alamy)

by the Energy Futures Initiative, suggested a total US budget of \$2.5 billion in research development and demonstration for CDR.

“These two independent assessments give some sense that we are in the billion-dollar range over a decade, probably,” says Koweek. Any government funding for CDR would compete with other strategies to tackle the climate crisis including decarbonisation and adaptation. In comparison, the entire US budget to tackle climate change in 2021 was \$22 billion.

Beyond finding funding for R&D, practitioners will have other hurdles to overcome. One of the major issues with any form of ocean intervention is environmental liability: who is responsible for negative impacts – should they occur – in international waters? And what about transboundary effects, where jurisdictional claims overlap or where a technology deployed in national waters has impacts downstream? Iron fertilisation, for instance, may impact the biological productivity at the test site, but also elsewhere; in changing the amount or type of plankton in the

water, it could spread harmful blooms or introduce non-native species to other nations’ waters.

“Any negative effects that go beyond the authorising nation’s ocean boundaries, or that are derived from CDR conducted in international waters, have international implications. But then so do the benefits,” says Rau. “Both national and international governance are required.”

One issue for commercial practitioners who want to sell credits from their CDR scheme, just as Russ George did, is verifying any claims they make about carbon sequestration. One of the codes that the Aspen Institute recommends is that any project must estimate the amount of CO₂ that might be removed, as well as how that might be independently verified. “We can create a framework that ensures effective public consultation and public input into the design of projects. How are we actually going to pay for them?” asks Webb. “Are we going to have some sort of carbon crediting framework? What does that mean for monitoring and verification of carbon removal?” she says. “There’s a lot of work to do on

the science side and on what supports we need for these related issues.”

Another concern is inclusivity. Climate intervention, as a field of research, is almost exclusively the domain of wealthy nations, with research typically carried out by older, white men. In formulating their guidelines, the Aspen Institute solicited the views of a broad range of stakeholders. “There was a strong effort made... to include diverse voices, bringing in a wider range of country representatives and representatives from different fields – the fisheries industry, for example, could be really heavily impacted by some of these approaches,” says Webb.

Given that 300 million people worldwide depend on fisheries for their living, of which 90% are artisanal fisheries in poor countries, “the governance of doing anything like this at scale should be globally inclusive,” says Andrew Norton, director of the London-based International Institute for Environment and Development. Norton also points out that some of the lower-tech options, such as kelp restoration, could provide employment for poor communities in developing countries. The question, he says, is not only “what’s the hit?”, but also “what’s the potential?”

Kerryn Brent, a climate governance expert at the University of Tasmania, says: “What the code attempts to do here is to strongly encourage researchers, be they scientists or practitioners, to think beyond just the questions of science and technology... to issues of social impacts and the need for evidence.”

For the time being, none of these technologies are ready for deployment, just for further investigation. “Some of the techniques are further advanced than others. But none are ready for prime time yet,” says Webb. “It’s another path for hope,” says Koweek. “We need to be able to find ways to think and to know that the future will be better than the present. And these reports are one small part of that.”

Additional reporting by Chelsea Noack

How to make China's long-awaited wetlands protection law work

China finally has legislation in place for protecting wetlands, but complementary measures, open information and public participation are needed for effective implementation

Wang Xinyi, Sheng Xiaoying

March 9, 2022

The coastal wetlands near the mouth of the Linhong River in Lianyungang, Jiangsu province, are of huge ecological value. Between 2014 and 2020, five species on China's Class I protected list were spotted here, along with seven Class II-protected species and 15 species classed as threatened or near-threatened worldwide. The wetlands are a key feeding and resting ground on the East Asian-Australasian Flyway, a migratory route for waterbirds, and are essential for many species' breeding and survival.

Yet they are currently being damaged in the name of "restoration". Satellite imaging shows that since 2019 a series of projects sharing the name of "Blue Bay" has begun, with the aim of creating supposedly picturesque beaches. The work has included the creation of encircling

dykes, constructed beaches, land reclamation and the filling in of natural shoals, badly damaging the feeding grounds migratory birds rely on. If the work continues, rare and endangered waterbirds, and the wetlands, will suffer irreversible ecological impacts.

In response, Friends of Nature, a Chinese environmental organisation, submitted a public interest lawsuit to an environmental court in Nanjing, the provincial capital, in May 2021. The court immediately agreed to hear the case. Then, in January this year, Friends of Nature applied for an injunction, appealing to Nanjing's intermediate people's court to order the construction firms involved to halt all work related to the Blue Bay projects.

This case demonstrates how wetland restoration projects can, due to skewed philosophies and a lack of legal processes and standards, end up further damaging the ecosystems they are meant to protect. The problems do

not stop there. China has long lacked legislation protecting its wetlands, leading to a mishmash of different regulations and approaches to wetland conservation across the country. Frequent problems have been seen in the identification of wetlands eligible for protection, and their restoration, as well as government transparency and public participation in such processes.

Wetland ecosystems are complex, including land, water, wildlife and diverse vegetation over wide areas. Legislating for their protection is no easy task. In 2005, a draft statute for protecting wetlands was submitted to the State Council's Legislative Affairs Office, and rounds of consultations and hearings followed. However, these regulations never came into force, partly because of the need for action at a higher legislative level. There has been no regulatory movement since the National Forestry and Grassland Administration's Regulations on

An Asian dowitcher, one of many protected species supported by the wetlands at the mouth of the Linhong River in Jiangsu province (Image: Alamy)



The Shahe reservoir nestles between Beijing's fifth and sixth ring roads, and is a home to a rich variety of birdlife (Photo: Mai Keca)



53.3 million hectares

The total area of wetlands in China, representing about 10% of the global total

Conservation and Management of Wetlands in 2018. These were low-ranking, ministry-level rules that did not put adequate mechanisms in place. Many key issues remained unresolved.

But on 24 December last year, the Standing Committee of the National People's Congress passed the Wetlands Protection Law, which is set to come into force on 1 June this year and mark a new era for wetlands conservation in China.

Wetlands to be defined and listed

To date, Friends of Nature has filed six lawsuits over wetlands destruction. The first of these, which concerned a housing development in Beijing in 2015, was the city's first public interest environmental lawsuit.

The development, in Changping district, was home to a 200 mu (13.3 hectare) area of wetland. The developer and property management firm were dumping construction and excavation waste into a lake, damaging the ecosystem. Beijing has had wetland conservation rules in place since 2012, requiring a list of wetlands within the city limits to be produced. But at the time of the case, no such list had yet been published. This hampered efforts to ensure the urban wetland got the protection it was due.

Article 2 of the new law defines the areas it protects: "Natural or artificial, year-round or seasonal waterlogged zones or bodies of water, including sea areas of

less than 6 metres in depth at low tide, with significant ecological functions, but excluding paddy fields or artificial areas of water or shoals used for aquaculture." The same article states that China will operate a graded system of conservation, one that is based on lists of wetlands eligible for protection. The three grades will be wetlands of "national significance", "provincial significance" and "ordinary significance". Lists will be produced at the corresponding level of government.

The new law is not the first document to try to define and list wetlands. There has often been controversy over exactly what is protected, and how.

We believe that the letter of the law requires all wetlands, as defined in Article 2, to be protected – not just those featured on the graded lists. But the lists will provide a concrete enumeration, and the definition will complement them. The inclusion of wetlands on these lists can be used to override any lack of clarity arising from language such as "significant ecological function", providing government bodies with a clear basis on which to enforce the law. Meanwhile, the Article 2 definition can be used to ensure that protections are not restricted to areas on the lists, making up for any failures of coverage. However, we have observed different understandings of this: local law enforcement and judicial practice habitually focuses on lists, holding that anything not listed does not require protection.

So, we hold that the status of the legal definition of a wetland should be affirmed, and that protected wetlands should be added to the list promptly for complete clarity. This will require central and local governments to carry out comprehensive surveys and monitoring of wetlands, and improve regulations on the defining and listing of wetlands, so that these registers can be produced and updated promptly.

We also think that the listing of wetlands of ordinary significance is the most important of the three levels, for two reasons.

First, few of China's many wetlands will achieve provincial or national status, but a huge number are of ordinary significance. Despite the lower status, the ecological functions and value of those wetlands should not be overlooked.

Second, rules for identifying and listing these wetlands lags behind that for the more important wetlands, with significant differences across different localities. Although the new law does not specifically call for these rules to be produced, they are essential for wetland conservation.

At the national level, the National Forestry and Grassland Administration published regulations in 2019 on identifying and listing nationally significant wetlands, with an associated national standard, GB/T 26535-2011, also providing a legal basis for the process. This list of wetlands of national significance is being regularly updated.

However, at the provincial level, progress has not been uniform. All provinces have published lists of wetlands of provincial significance and rules for identification and list management, but there are obvious gaps between provinces. These differences are even more apparent with regard to wetlands of ordinary significance, where the lists are managed by county-level governments.

For example, in 2014, the province of Yunnan published a process and associated standard for identifying provincial-level protected wetlands. In 2017, the Yunnan prefecture of Honghe did the same for wetlands of ordinary significance, as did the city of Mile, under Honghe, in 2019. This level-by-level process provides the necessary information for a graded system of wetland protection. In comparison, the province of Hubei has published a list of provincial wetlands, and a process for managing that list. But Wuhan, the provincial capital and so-called “city of a thousand lakes”, has yet to produce its own.

We know very well that it is not easy to get a wetland added to the lists. It requires significant input of government resources and a balancing of interests of various stakeholders. But conservation work must go ahead. Friends of Nature suggests local governments speed up publication of lists of local wetlands, as well as rules and standards for their identification. Ordinary significance wetlands must not be overlooked during this process. We must also ensure lists are compiled in a scientific manner and kept up to date. The situation seen with animal conservation – where long gaps between updates of lists of protected animals has hampered conservation – must be avoided.

Scientific standards for restoration are crucial

China’s successes in wetland conservation and restoration in recent years have been encouraging. However, some restoration projects have actually caused more harm, with the Linhong River wetlands a case in point. Many more problems exist. Restoration work sometimes focuses solely on vegetation cover and water quality, but fails to create a diverse habitat. The creation of steep banks is still the norm, which does not

suit some emergent plants (that grow at the water’s edge) and bottom-dwelling animals. Other problems include original wetlands being destroyed in favour of attractive, park-style replacements, supposedly in the name of “ecology”. There is a tendency to pursue large investments and focus on quick high-impact projects, with frequent failures to carry out follow-up monitoring and water-level management.

Behind these failings lies the lack of a single, practical and mandatory standard for wetland restoration, the failure of the environmental impact assessment system to play its preventative role, and a lack of public participation and transparency in government information.

The new law dedicates an entire section to wetland restoration. It sets a principle of “natural restoration first, and a combination of natural and artificial restoration”. It also requires that restoration plans be drawn up for wetlands of national and provincial significance. However, the same requirement is not in place for wetlands of ordinary significance, leaving it unclear which processes to use in these locations.

Article 16 of the new law addresses the lack of a national standard for wetland restoration, by requiring one to be drafted. The speed with which that happens, and its quality, will determine whether or not “restoration” carried out is worthy of the name.

More space for public participation needed

The Shahe reservoir sits between Beijing’s fifth and sixth ring roads, a rare example of a still partially wild wetland nestling in a megacity, and one that is home to a rich variety of birdlife. A project to build a Shahe Wetland Park, which aims to restore wetland ecology, has come under scrutiny a number of times since its inception. In September 2017, the environmental impact assessment report for the project was approved, despite a number of issues that would have badly affected birdlife. These included fountains for a “water dance show” and several boat piers. In 2020, a new project proposal and feasibility study were produced, with the

more obviously damaging ideas removed from construction plans. However, what appears in a feasibility study is not always what happens on the ground. Since July 2021, Friends of Nature has been requesting that the parks and gardens bureau of Changping district, where Shahe is located, make final plans public, but to no avail. Nor will there be any further opportunity for public participation – the process is now a black box. Controversy over the project reflects a lack of openness of information when it comes to wetland conservation, and a lack of safeguards ensuring public participation.

Public participation is important for wetland conservation. Members of the public are often experts on their own local wetlands and can help carry out long-term studies through surveys and monitoring. They can also provide information to law enforcement. The data on species at the Lianyungang wetlands was provided by long-term monitoring by knowledgeable members of the public, experts and social organisations.

The Wetlands Protection Law gives the public the right to report and sue in cases of damage to wetlands, and requires governments at all levels to publicise information about their conservation. But the scope of public participation remains limited. Full public participation in wetlands conservation cannot rely on the new law alone: the systems of environmental impact assessment and openness of government information will also need to be improved to work in tandem with the law.

We make the following suggestions in order to promote public participation: before approval for projects is granted, issuing bodies should make documents available for public comment, including zoning plans related to wetlands, their area targets, assessment criteria, wetland lists, standards and technical norms, restoration plans and construction proposals. That will ensure the public can participate earlier in the process and help support scientific decision-making, providing better routes for their participation in conservation, and bringing public knowledge and capacities into play. 🔄

China starts limiting squid boat numbers

Caps on squid-jigging boats on the high seas begin this month, following on from spawning ground closed seasons

Zhou Chen | April 14, 2022

On 1 April, China started restricting boat numbers in five squid fishing grounds, including in the Southeast Pacific and Southwest Atlantic.

The measure follows on from annual closed seasons in squid spawning grounds, which China has had in place since summer 2020 for its distant-water fishing (DWF) fleet.

According to the new policy, published by the Ministry of Agriculture in January, China's squid fleet will "in principle" not be expanded, and the number of boats allowed to work particular fishing grounds over the course of a year will be capped.

The intention to rein in squid fishing was reiterated in February in a document on "high-quality" development of the DWF sector during the 14th Five Year Plan period (2021-25).

China is also planning a comprehensive rollout of electronic fishing logs and fishery observers, and exploring quotas for squid fishing as well as systems to prove squid has been caught legally.

The move signals that China is applying measures, which have proven effective at home, to the DWF fleet. During the 13th Five Year Plan period (2016-2020), China successfully controlled domestic fishing effort via limits on vessel numbers. "Dual controls" on vessel numbers and engine size, combined with catch quotas, brought down annual wild catch in Chinese coastal by 3 million tonnes – to under 10 million tonnes.

China's moves are good news, as the country accounts for half of all high seas squid fishing. Wang Songlin, president and founder of the Qingdao Marine Conservation Society, says that China is moving away from extensive



A Chinese-flagged squid boat in the Northern Indian Ocean (Image © Abbie Trayler-Smith / Greenpeace)

growth and controlling squid-jigging boat numbers for two reasons: concern for the long-term sustainability of squid populations, and to ensure the economic sustainability of China's squid fishing. "As you can imagine, too many boats competing for limited resources do nothing to help long-term sustainability of squid fishing."

In 2020, Chen Xinjun of Shanghai Ocean University's College of Marine Sciences, and others, published a paper saying that after 30 years of growth, China had become the world's largest producer, market and consumer of DWF catch, and since 2009 had been the world's biggest catcher of squid. China's squid-jigging vessels are undergoing a period of upgrading and high-quality sustainable development, the paper found.

Scientific suggestions

Most commercially caught squid species have lifespans of one to two years and population numbers are extremely sensitive to environmental variables such as water temperature. That complicates the job of sustainable harvest management. Take the Jumbo flying squid fishery, managed by the South Pacific Regional Fisheries Management Organisation (SPRFMO), as an example. Though they don't usually all operate at the same time, China has over 700 vessels authorised to be in SPRFMO waters, with 669 of those being fishing boats – more than any other nation. Several countries, including China, have developed models of squid populations to help in fishery management, but accurate assessments are difficult. SPRFMO's

scientific committee has called for countries to allow joint searching of catch data to improve those models.

In a report last September, the scientific committee recommended that “fishing effort in the squid fishery be limited by both the number of vessels and the total gross tonnage of squid-jigging vessels.” Coastal nations could still expand fishing, the committee added. Given this, at the SPRFMO annual meeting in January, China proposed amending conservation measures to limit fishing effort, so that if nations which do not currently have authorised vessels or fishing activity wish to fish, boat numbers and tonnage would be restricted in line with the state of resources and historical fishing levels. After rounds of modifications to respond to various concerns, the proposal won support from many nations. Ultimately, though, there was no consensus and it was not adopted.

Voluntary action

According to the scientific committee’s report, there is still scope to expand squid fishing. In 2020, the main countries catching squid in the SPRFMO area and nearby national waters were the coastal nations Chile and Ecuador, and China and Korea. Ecuador’s boats work mostly in its national waters, but in its 2020 summary it stated 373 boats had expressed interest in fishing on the high seas. The US, meanwhile, has no fishing boats working those waters, but has kept the possibility of doing so open.

In 2020, China voluntarily put closed seasons in place for its squid fishing boats in the South Pacific and Southwest Atlantic. Squid fishing in the Southwest Atlantic is not currently managed by an RMFO. An expert from the China DWF International Compliance Institute has told the media squid populations there are threatened by overfishing of juveniles and spatial shifts due to climate change. The three-month closed seasons allow squid to spawn, with the juveniles growing to 5-10cm in length and their weight increasing greatly, without the risk of being caught.

So far there is no information publicly available on how effective those closed seasons have been, but follow-

up measures, such as China’s limits on squid-jigging boats, and it’s looking at the idea of quotas, are starting to appear. Under China’s plans, no more than 400 Chinese squid jiggers will be able to work in SPRFMO-managed waters this year, and no more than 300 in the Southwest Atlantic.

Wang Songlin said that if the Chinese squid-jigging sector sticks to government policies, it will greatly contribute to the sustainability of squid populations in international waters. What policymakers still need to pay attention to, though, is a small number of trawler and seine-net fishing vessels. Those are indiscriminate, hauling up squid with no regard to age and with significant bycatch issues. In the process, some of them also destroy ecosystems on the seabed. “All countries,

not just China, should reduce use of those methods,” he said.

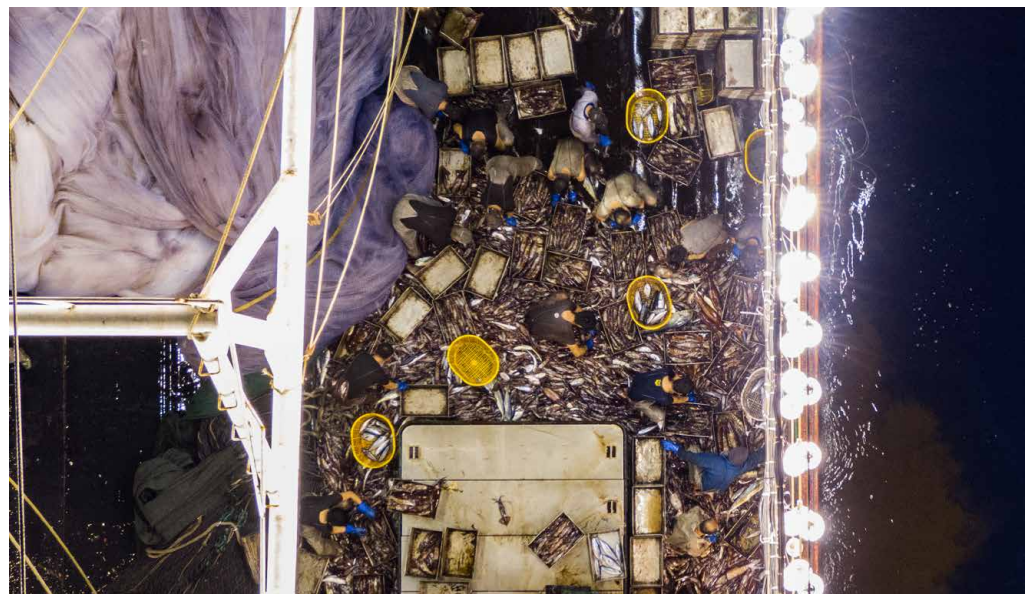
“And those practices are worst in areas without regulation,” Wang said, explaining that while observer schemes are limited by staff numbers and Covid-induced lockdown measures, there are hopes to add in electronic observation to plug that gap: “New technologies are bringing the costs of electronic observation down, and in some areas it is already much cheaper than a human observer.”

He added that international cooperation will be essential for sustainable squid fishing on the high seas. As a major player in squid fishing, processing and consumption, China is beginning to fulfil its own obligations, and can also lead multilateral talks on the measures necessary to protect fisheries.

Chen Xinjun, also the head of the squid-jigging technology group at the China Distant Water Fisheries Association, has suggested that, alongside long-term monitoring of populations and bolstering international cooperation, China should promote the founding of an international organisation for responsible squid fishing. Such an organisation could discuss issues like stewardship of squid resources, vessel management and tackling IUU fishing, as well as work with others to explore sustainable development of the global squid fishing industry. 



A small number of trawler and seine-net fishing vessels are indiscriminate, hauling up squid with no regard to age and with significant bycatch issues



Aerial image of a Chinese-flagged squid boat in the Northern Indian Ocean (Image © Fernanda Ligabue / Greenpeace)



FISHERIES

To meet global food demand, aquaculture needs more policy support and research

Farming saltwater snails in Hainan. China's aquaculture output is split 60:40 between saltwater and freshwater operations. (Image: Sun Nuo / China Dialogue Ocean)

Aquaculture is an important pillar in global food security. But scarcity of land and water for producing feed mean more policy support and innovation are needed.

Han Qing | May 10, 2022

Globally, per capita fish consumption has doubled since 1960. The proportion of farmed fish compared to wild-caught grew from negligible to 52% of all fish for direct human consumption by 2018, according to the UN Food and Agriculture Organization. Aquaculture is hugely important for food and nutrition security, livelihoods and employment. The potential of the sector, and the role it will play in future food systems, is becoming ever more vital.

Despite freshwater aquaculture providing 77% of all edible aquaculture production (excluding aquatic plants), it has been much less published about than the saltwater equivalent. To raise awareness of its importance, Zhang Wenbo at Shanghai Ocean University joined forces with experts from institutions including the University of Stirling in the UK, Michigan State University in the US, and the World Fish

Centre, to write a paper on aquaculture growth. Published in Nature magazine this March, it concluded that growth will continue to focus on land-based, freshwater operations – both in terms of the actual farming, and obtaining the resources to sustain it.

Freshwater and saltwater aquaculture are both important for ensuring global food security. They both face environmental and resource limitations, and require more technological innovation and research inputs for their sustainable development.

Two years before Zhang Wenbo's paper, another, led by Christopher Costello from University of California's Santa Barbara and Dr. Cao Ling from Shanghai Jiaotong University, had appeared in the same publication. It noted that as food demand rises, human activities on land could exacerbate climate warming and ecological damage. Concluding that saltwater aquaculture has huge potential for food production,

Over 60%

of global aquaculture output comes from China



We need to put more research efforts into farmed freshwater species in terms of genetics, feed and equipment, to ensure this sector can realise its potential in contributing to food security

Zhang Wenbo

Shanghai Ocean University

it modelled a potential increase in food output from the ocean of 36–74% by 2050, with most of that growth coming from aquaculture. That would be enough to provide 12–25% of the increase in global demand for meat, according to the paper.

Zhang's new paper stresses that the growth potential of freshwater aquaculture cannot be ignored, and will keep playing the dominant role in global aquaculture for a long time. By virtue of its relatively low cost and low technological demand, freshwater aquaculture has already proven to be an affordable, accessible and stable source of food, particularly in the global south, where most future growth of aquatic food consumption is set to occur.

Both fresh and saltwater aquaculture are seeking to grow sustainably. However, many believe that aquaculture as a whole has been marginalised in the global food system conversation. A lack of academic attention may hinder the realisation of its potential as the world population approaches 10 billion and countries strive to achieve the UN's Sustainable Development Goals.

Responding to this lack, in 2020 more than 100 experts from 25 organisations around the world started the Blue Food Assessment. They sought to demonstrate how aquaculture contributes to human livelihood, nutrition and food security, and to motivate policy makers to pay more attention to aquatic food. In collaboration with Nature and its affiliated publications, the initiative is producing a series of papers on the topic.

Aquaculture and food security for the developing world

In the past two decades, the aquaculture sector and its value chain have been growing fast.

Zhang's team noted that since 2000, demand for aquatic products in developed nations held steady at about 25 kilograms per person per year. This food was increasingly imported from the global south, including farmed freshwater species such as tilapia, pangasius and crayfish. Meanwhile, aquatic food consumption in countries in the global south rose from 5.2 kilograms per person in 1961 to 19.4 kilograms in 2017, mainly driven by the

expansion of freshwater aquaculture. "In Southeast Asia and Africa, populations are growing fast, and so demand is too. That's where future growth in demand will come from," Zhang explained.

They think freshwater aquaculture – which is cheaper, involves simpler technology, lower feed demand, and is more adaptable to different environments – is a better choice for expansion to meet demand, particularly from developing nations.

Appropriate aquaculture methods and technology can even help low-income countries solve food shortages. By researching small fish rich in vitamins and minerals, Shakuntala Haraksingh Thilsted was able to develop a pond polyculture system which helped Bangladesh become the world's fifth largest aquaculture producer, and significantly decrease its malnutrition rate. That sustainable approach has led to the country's agricultural output tripling since 2000, benefiting 18 million Bangladeshis. Some Asian and African countries have adopted the same approach. In 2021, Thilsted was awarded the World Food Prize for her work.

Saltwater aquaculture also plays a role in ensuring many developing countries' food and nutrition supply, usually in the form of shellfish and seaweed farming, which demand no feed input. For several years, China has boasted the world's largest mariculture outputs, 70% of which are from shellfish and seaweed.

In comparison, equipment and feed for cultivating marine finned fish (such as salmon) is relatively expensive, and currently such aquaculture only exists in a few middle-to-high income countries. "Middle class consumers are the main source of demand for saltwater finned fish. And this group of consumers is increasing in China and a few other developing countries," said Zhang Wenbo, "But in general we need to put more research efforts into farmed freshwater species in terms of genetics, feed and equipment, to ensure this sector can realise its potential in contributing to food security."

Land and water constraints, and technical innovations

Both saltwater and freshwater aquaculture face resource and



Aquaculture in Fujian province. Most of China's saltwater aquaculture is currently concentrated in bays such as this. (Image: Zimu Liu / Alamy)

environmental constraints as they seek to meet demand. While the availability of water areas for aquaculture is important, Zhang Wenbo's team did not see it as a primary determinant. It is the availability of land and water for the production of the feed needed for the farmed fish that constrains both forms of aquaculture.

David Little, professor at the University of Stirling's Institute of Aquaculture, has told the media that the environmental impact of aquaculture mainly comes from producing feed. There is little difference between saltwater and freshwater aquaculture in terms of overall land and water use and impact on climate change and biodiversity, according to Little.

In 2018, output from feed-based (fed) aquaculture methods accounted for 69.1% of the total, up 13 percentage points on 2000. The proportion of fed systems in saltwater aquaculture is small, and concentrated on high-value fish for human consumption. Emphasis on protecting ocean resources has meant less fishmeal and fish oil being used in aquaculture feed, and more vegetable oils and proteins, which come from terrestrial farming.

Zhang Wenbo's team gave the example of salmon farming. In 2016, almost 4,400 square kilometres of land was needed to supply feed for farmed salmon in Norway – ten times more than the water area needed for the actual farming.

One of the key assumptions made by Costello's team when estimating the future potential of saltwater aquaculture was that technical innovations would provide a sustainable source of feed. Norway plans

to increase output by four to five times by 2050, to five million tonnes, and is looking at obtaining raw materials from mesopelagic species, krill and zooplankton, and perhaps even grass and insects. This should reduce use of fishmeal and fish oil, and also soy, which may be in limited supply.

Although research has found that aquaculture only uses 4% of the world's animal feed, far less than the poultry industry, the example of salmon farming in Norway shows that distribution and supply of raw materials are uneven and each country faces its own constraints.

Zhang's research shows that most freshwater aquaculture occurs in major river basins and delta regions, where freshwater is comparatively abundant and the direct occupation of land areas is very small. Generally, resource constraints for freshwater aquaculture are no worse than for saltwater, and can be solved by horizontal expansion, intensification, and more efficient use of resources. All that is needed is more targeted research.

China: Best of both worlds

China is the world's largest producer, exporter and consumer of aquatic food. Since 1985, its policy has been to focus on aquaculture over wild catch, and it now accounts for over 60% of global aquaculture output, making an important contribution to food security and poverty reduction. Both saltwater and freshwater aquaculture have been developed, with a long-standing 60:40 split in terms of live weight output. However, most saltwater aquaculture produces shellfish, which has lower yields of edible meat.

According to China's plans for the 14th Five Year Plan period (2021–25), aquaculture output will grow as will its share of all aquatic food production. Alongside speeding up development of standardised pond-based aquaculture, industrial recirculating systems and combined aquaculture and rice-growing, China is also encouraging the development of deep-sea aquaculture standards and equipment.

Statistics from recent years show a new trend: environmental governance has meant the area of land dedicated to freshwater aquaculture has fallen since 2018, but total output has continued to grow. Pond-based aquaculture is still dominant, while combined aquaculture and rice-growing and intensive industrialised systems are growing fast. When it comes to saltwater aquaculture, there has been a clear fall in output from coastal shoals, where the more environmentally friendly farming of algae and shellfish is now preferred. Meanwhile, industrial-scale and deep-sea cage farming are small, but showing the most growth.

"Currently, saltwater aquaculture is concentrated in bays," Zhang Wenbo said that a lack of data on the ocean conditions where deep-sea cage-based aquaculture is being rolled out by China, and a lack of experience and technology, means that more research on economic efficiency and work safety, and a cautious approach are needed, before the sector expands greatly.

"Freshwater aquaculture is also improving, in a more sustainable and intensive direction, with output by area continuing to grow," he said. "The key is still where and how to carry out those operations." He suggests more research and resources are needed, better balanced across freshwater and saltwater aquaculture, to help develop the sector and contribute to global food security.

Both are important sources of aquatic food, but regardless of how demand grows, there will be resource and environmental constraints. According to Cao Ling: "With both saltwater and freshwater aquaculture, you can't just look at their potential to produce food and assume constant growth, while ignoring the vulnerabilities and risks to fishery systems caused by global changes and human activity." 🍌

China replaces fuel subsidies with responsible fishing payments

China has ended 15 years of fuel subsidies and started subsidising responsible fishing behaviour. Zhou Wei investigates, and makes some suggestions for implementation.

Zhou Wei | May 4, 2022

Shandong and Fujian provinces recently announced they will start paying “fishery stewardship” subsidies this year to fishing boat owners based there. These will replace the fuel subsidies that have been paid to China’s coastal fishers for the last 15 years.

Those fuel subsidies were seen as a “blood transfusion” for the fishing sector. But as they were available to all vessels, they encouraged overfishing and were considered an inefficient fossil fuel subsidy.

During WTO (World Trade Organization) talks on fishing subsidies, China has said it supports a ban on harmful payments that encourage overcapacity and overfishing, and wants to see negotiations concluded by the 12th WTO Ministerial Conference in June.

China is making the switch from subsidising fuel to rewarding responsible behaviour as part of efforts to make fishing sustainable. But as we will see, tax and finance policies such as subsidies need constant monitoring and evaluation to ensure their outcomes are in line with targets, and with the overall aim of sustainability.

Why a stewardship subsidy?

Details from Shandong and Fujian indicate the new subsidy will include two equal components: one for compliance with closed seasons, and another for fishing responsibly.

In 2017, China lengthened its closed seasons by a month to better protect fish stocks, but there have been



Fishermen unload noodle fish at Xiaogang wharf in Qingdao, Shandong province. China’s new “stewardship” subsidy is designed to reward responsible fishing practices and improve oversight of coastal fisheries. (Image: Alamy)



Tax and finance policies such as subsidies need constant monitoring and evaluation to ensure their outcomes are in line with targets, and with the overall aim of sustainability.

breaches. The subsidy will alleviate the associated falls in income and make fishers more inclined to comply.

Granting of the responsible fishing subsidy depends on a wider range of factors: port entry and exit reports (hail-in/hail-out), location monitoring data, fishing logs, use of designated landing ports and protection of ocean wildlife. Fujian adds an extra factor: percentage of juvenile fish in the catch. Those indices reflect key issues China is facing in managing its fishing sector, and respond to calls in the 14th Five Year Plan to improve governance and upgrade coastal fishing.

Designated ports, hail-in/hail-out,



A juvenile puffer fish caught in a net at Shidao dock, Shandong. The fishing of juvenile and “trash fish” – too young or small for human consumption – is driven by demand from China’s booming aquaculture industry, which uses them as fish feed. (Image © Zhu Li / Greenpeace)

fishing logs and location monitoring are all part of a catch-management system the government is working on. Its aim is to better monitor fishing vessels, build a catch-traceability system and ensure stewardship measures can be enforced, while also boosting the safety of maritime traffic.

The designated landing port system was first trialled in 2017, to better manage fishery stocks and quotas. So far, the Ministry of Agriculture has approved 107 national-level designated ports. Once the process of designating ports is complete, all larger fishing vessels, of 12 metres in length or more, will be required to use them. There are more than twice as many smaller boats as larger, but the larger ones hold seven times as much horsepower and the lion’s share of fishing capacity in Chinese waters.

30%

In 2017, Greenpeace published a report pointing out that almost 30% of China’s coastal catch was low-value or young “trash fish”, representing huge damage to fishery stocks.

The hail-in/hail-out system requires larger fishing vessels to report certain information to port authorities before arriving at or leaving port, giving ports a role in managing vessels and their catch. Protection of rare ocean wildlife and juvenile fish also needs to be addressed. The fishing vessels and nets crowding China’s coastal waters are a threat to protected animals, such as sea turtles, seahorses, the Chinese horseshoe crab and whale sharks. Despite prohibitions, the deliberate catching of protected species continues. And with stocks of bigger fish on the wane, fishers are turning to juveniles. In 2017, Greenpeace published a report pointing out that almost 30% of China’s coastal catch was low-value or young “trash fish”, representing huge damage to fishery stocks.

The stewardship subsidy is dependent on the size of a vessel and the type of fishing it is engaged in. There is also an annual cap. For boats under 12 meters, the limit is between 9,000 and 15,000 yuan (US\$1,400–2,300). For larger vessels, it ranges from 16,000 to 306,000 yuan (US\$2,400–46,800). Pole and line vessels do not need to observe the closed season, so will only be eligible for half those amounts.

The annual limits are in line with those of the fuel subsidies after reductions were made in 2019. This will keep subsidy levels stable and avoid impacting fishers’ incomes.

The contribution subsidies make to incomes varies. A study looking at the finances of trawlers in Rongcheng in Shandong province, Xiangshan in Zhejiang, and Beihai in Guangxi, found that 5–12% of incomes were from subsidies in 2018. That percentage made the difference between profit or loss. Smaller boats are often owned and run by a single family that relies on fishing for its livelihood. Larger boats are still usually owned by an individual who serves as captain and is responsible for profits or losses.

Fuel subsidy runs dry

The moves by Shandong and Fujian are towards implementing plans in the 14th FYP on fishing subsidies. Those plans also include the removal of fuel subsidies for fishing vessels, which have been in place since 2006.

The fuel subsidy originated with reforms carried out between 2006 and 2009 to bring oil prices in China in line with the market internationally, and to switch from taxes like road tax to fuel consumption taxes. That caused fuel prices to rise, and as fishers use fuel without using roads, many had to stop work due to the higher costs. The government put subsidies in place to get fishers and fishing firms working again.

At that point, the subsidy was designed to kick in when oil prices were over a 2006 baseline, and then fluctuate in line with fuel prices.

The subsidy did ease the impact on fishing and fishers, but also encouraged more intensive operations, worsening overfishing and stock depletion in China's coastal waters.

Those problems became more apparent as time went on. In 2015, the government announced changes to fuel subsidies for the fishing and aquaculture sectors. It said that by 2019 fishing fuel subsidies would drop to 40% of the 2014 level, in order to ensure that vessel numbers and total horsepower would drop by half, further improve the structure of the fishing sector, and bring fishing intensity under control.

Further changes came in May 2021 with the announcement of the stewardship subsidy. They added targets and rules on deduction which had not been in place from 2015 to 2019, meaning vessels had to tick certain boxes to get the full amount. And to get the subsidy, fishers will need to be familiar with, and abide by, fishery management systems.

Ongoing improvements needed

The subsidies switch isn't only driven by the need to make China's fishing sector more sustainable: it is part of a global process. But it will




Fishing boats moored at Zhoushan harbour, Zhejiang province in 2015. Government fuel subsidies did relieve economic pressure on fishers but also fuelled the industry's excessive growth, to the detriment of China's marine ecosystems and fish populations. (Image: Hu Sheyou / Alamy)

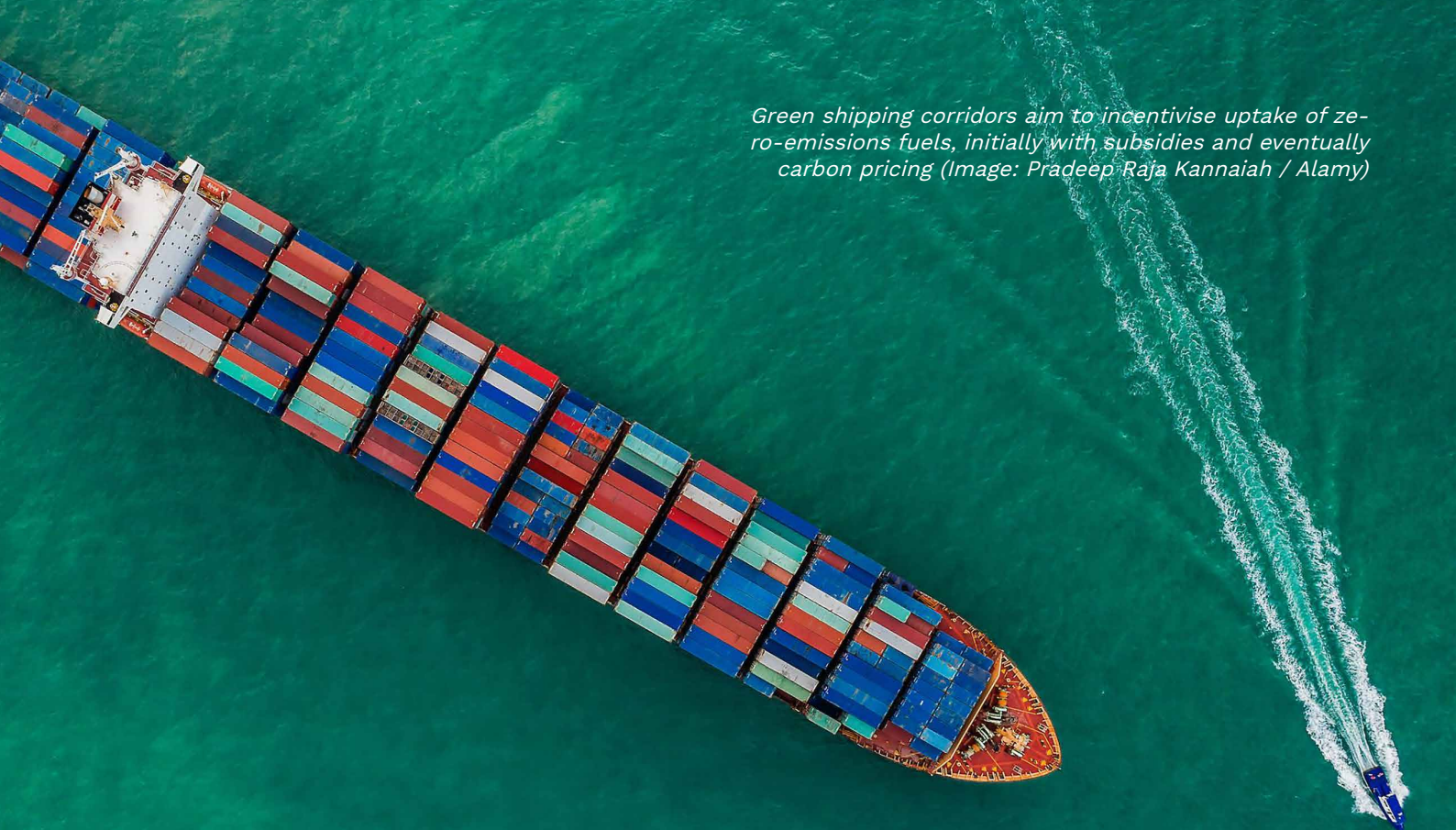
still require ongoing monitoring and assessment to ensure it is promoting stability, and that problems are spotted and dealt with promptly.

First, some issues with the fuel subsidy carry over to the stewardship subsidy. For example, how does the subsidy interact with the 14th FYP's aims to encourage fishers to change profession? Does it increase income expectations and discourage them from making that change? Moreover, as the subsidy is paid to vessel owners, complementary measures are needed to protect the interests of disadvantaged groups and fishers who do not own vessels, so the subsidy does not simply increase income disparities and cause conflict.

Secondly, subsidy indices such as the use of designated landing ports, hail-in/hail-out, fishing logs and location monitoring should be monitored constantly via technology

and linked up with subsidy mechanisms, so fishers will proactively follow the rules.

Fishers should also be made fully aware of the aims of the subsidy, so they understand the differences with the fuel payments and how it will develop over time, to avoid any misunderstandings. China is making constant improvements to its management of the fishing industry and stewardship measures are starting to see results. But fishery resources remain in decline. We still need to study possible changes to fishery subsidies, in order to remove excess capacity and avoid damage to the ocean environment and biodiversity; to improve fishery management systems; to ensure that catch is in line with scientific surveys and stock assessments; and to help fishers transition to alternative work. 



Green shipping corridors aim to incentivise uptake of zero-emissions fuels, initially with subsidies and eventually carbon pricing (Image: Pradeep Raja Kannaiah / Alamy)

SHIPPING

Can 'green corridors' tackle shipping's giant carbon footprint?

The push for zero-carbon routes has gained traction since COP26, but advances in zero-emissions fuel and port infrastructure will be key to realising their potential

Isabelle Gerretsen | April 13, 2022

At last year's COP26 climate summit in Glasgow, 22 countries, including the UK, US, Germany and Japan, signed up to the Clydebank Declaration, announcing their intention to establish various zero-emissions shipping routes known as "green corridors". By 2025, the aim is to have set up at least six such corridors, which would each run between two or more ports. By 2030, it is hoped many more routes will be operational.

Ships emit over 1 billion tonnes of greenhouse gases every year, or just under 3% of global emissions, according to the International Maritime Organization, the UN body responsible for shipping. Without further action, shipping emissions are projected to rise by at worst 30% by 2050, compared to 2008 levels.

Global shipping emissions need to reach net zero by mid-century to achieve the Paris Agreement goals. To date, the IMO has set an emissions

reduction target of just 50% by 2050 compared to 2008 levels, which campaigners say is insufficient to help limit global heating to 1.5C above pre-industrial levels.

Dissatisfied by the IMO's slow decision-making, countries are taking matters into their own hands by establishing green corridors. These aim to accelerate the uptake of zero-emissions fuels on vessels travelling between major shipping hubs and establish the necessary regulation,

3%

Ships are responsible for just under 3% – over 1 billion tonnes – of global greenhouse gas emissions each year

infrastructure and technology.

“In practice, you’re creating a special economic zone,” said Aparajit Pandey, shipping lead at the Energy Transitions Commission. “It’s a targeted area where fuel production and port infrastructure can be built up super quickly and efficiently and where safety procedures and regulations can be put in place.”

The agreements between countries and ports will allow governments to provide targeted support to an industry that is otherwise governed internationally by the IMO, Pandey said.

The green corridors will allow countries to identify which decarbonisation solutions are scalable, said Katherine Palmer, shipping lead on the UN High-Level Climate Champions team. They are a “testbed” that provide “an evidence base to show policymakers what is possible,” she said. “They give them confidence in what can be done.”

Challenges for green corridors

One of the major challenges facing the shipping industry is that zero-emissions fuels are currently not cost competitive. An average carbon price of just under US\$200 per tonne of CO₂ is needed to bridge the competition gap and fully decarbonise the shipping industry by 2050, according to analysis by the University Maritime Advisory Services (UMAS), which is partnered with University College London’s (UCL) Energy Institute.

“There’s no incentive to switch to new fuels and build zero-emissions vessels now. Declarations like Clydebank are trying to create those incentives but they are not enough



We anticipate that China will focus on improving energy efficiency of its fleet, but we do hope they consider measures to transition to low-carbon shipping fuels and zero-emission vessels.”

Xiaoli Mao

Senior researcher on the marine programme team at the International Council on Clean Transportation (ICCT)

in themselves,” said Aoife O’Leary, a long-time IMO observer and head of Opportunity Green, a non-profit focusing on international climate issues, including shipping. “But they will help build up momentum for policy that can make it happen,” she said.

The green corridors aim to incentivise the uptake of zero-emissions fuels by putting pricing mechanisms in place. This could be in the form of subsidies initially, such as feed-in tariffs, and eventually through carbon pricing, said Palmer.

The two fuels that will power green corridors are methanol and “green” ammonia, which are both deemed to be zero-carbon if they are generated from

renewable sources. “In the near term, methanol is the better fit because there’s availability, but in the long term, green ammonia is likely to be the fuel of choice for decarbonising the shipping industry,” said Pandey.

The cost to build new vessels and convert existing ones to run on methanol is significantly lower than for alternative zero-carbon fuels. Ammonia, which is a compound of nitrogen and hydrogen, contains no carbon and so does not emit any CO₂ when used to fuel an internal combustion engine.

Zero-emissions vessels will also require huge amounts of new infrastructure to produce and store the fuels and allow ships to refuel at ports. And the production of sustainable fuels must ramp up. Currently less than 0.2 million tonnes of renewable methanol is produced annually and ammonia production relies heavily on fossil fuels.

Both methanol and ammonia are derived from hydrogen, so countries will need to invest in electrolyzers and renewable energy capacity, mainly wind and solar, to produce these fuels, as well as battery and hydrogen storage, said Pandey. Most of this will have to be built at or near the participating ports, as hydrogen is costly to transport.

China skips declaration but joins first corridor

China is the world’s largest shipbuilder and the country with the largest shipping fleet, but noticeably did not sign up to the Clydebank Declaration in Glasgow. Xiaoli Mao, a senior researcher on the marine programme team at the International Council on Clean Transportation (ICCT), said this fits with China’s view that plans to reduce maritime emissions should be decided under the IMO rather than the UN Framework Convention on Climate Change, which convened COP26.

“We anticipate that China will focus on improving energy efficiency of its fleet, but we do hope they consider measures to transition to low-carbon shipping fuels and zero-emission vessels,” Mao said.

Despite not joining the declaration, China is participating in the first green corridor. The ports of Los Angeles and Shanghai agreed in January to work on developing a plan for a zero-emission route by the end of 2022.

The Trans-Pacific corridor, as it is known, is the world's busiest cargo route. In 2020, ships moved 31.2 million 20-foot unit containers – 21% of the world's total – across the Pacific Ocean. Katherine Palmer said the corridor has strong first-mover potential because it carries out liner trade, which means goods are transported along a fixed route on a regular schedule.

Similar initiatives are being explored. A working paper by the ICCT analysed the technical feasibility of a zero-emissions container corridor running on hydrogen fuels cells between Shenzhen and Long Beach, a similar but longer route than LA-Shanghai. It concluded that 99% of the voyages it studied – all those that travelled the route in 2015 – could be powered by hydrogen, “with only minor changes to fuel capacity or operations”.

One vital change is the need for ports to identify refuelling points en route, as alternative fuels do not have the range of fossil fuels, said Elise Georgeff, an associate researcher on the ICCT's marine programme team. For the Shenzhen–Long Beach route, she points to the Aleutian Islands, off the coast of Alaska, as a natural halfway point for refuelling.

More corridors under consideration

It is still early days for the green corridor concept but work to identify and promote other potential routes is underway. These include the Australia–Japan iron ore corridor and the Asia–Europe container corridor, according to the “Next Wave: Green Corridors” report, published by the Global Maritime Forum and World Economic Forum and co-authored by Pandey.

The Australia–Japan corridor is one of the largest dry bulk trade routes, with 65 million tonnes of iron ore exported annually between



Sixty-five million tonnes of iron ore are exported between Australia and Japan each year. Australia is investing heavily in hydrogen production capacity, much of it near major ports such as Port Hedland. (Image: Adrian Wojcik / Alamy)

the countries. Australia is already investing heavily in hydrogen and has announced plans to build 29 gigawatts of electrolyser capacity by 2030, much of it near major ports, the report notes.

The Asia–Europe corridor is among the largest shipping routes in the world and is currently responsible for generating more emissions than any other trade route. It has multiple potential refuelling ports across the regions en route that make it suitable for being a green corridor, with more than 60 gigawatts of announced hydrogen electrolyser capacity by 2030, according to the report.

Pandey also points to the large cast of cargo owners and companies that are “eager to reduce their emissions” along the route. “That could be really helpful in setting up a green corridor,” he added.

Palmer said that more intra-European green corridors should be expected within the next decade. The

European Union has been leading the way in decarbonising its shipping industry through a range of measures, including a sustainable fuel mandate within the EU and the inclusion of maritime emissions in the bloc's emissions trading scheme (ETS).

Could the IMO get side-lined? “There is a significant role for the IMO going forward in regulating shipping internationally and around the long-term goal to reduce greenhouse gas emissions from shipping,” Palmer believes.

According to O’Leary, green corridors can help build momentum for action at the IMO, which moves more slowly as it operates by consensus.

“The more green corridors we see, the more the IMO will do, and the more national and regional governments will move forward with policy,” she said.

“There’s this whole ecosystem that is starting to come together. It’s really great to see it coming to fruition.”

*Scientists in Antarctica. The impact of climate change on Southern Ocean life, such as krill and toothfish, is being factored into the decisions of some ocean management organisations.
(Photo: Jivko Konstantinov/Alamy)*

THE POLES

How ocean management in Antarctica has integrated climate change



Some ocean management organisations are bringing climate change into decision-making, with Antarctica's CCAMLR a pioneer

Jiliang Chen, Ding Yutian

January 19, 2022

Climate protection and ocean conservation are getting increasing attention, and the links between the two are being taken more seriously during international processes. At the Glasgow Climate Conference, leaders announced their ocean actions, including establishing marine reserves, as climate actions. Some countries have put the “blue economy” and coastal adaptation to climate change into their Nationally Determined Contributions (NDCs) to keeping warming within Paris Agreement levels.

The Glasgow Climate Pact marks the first time ocean issues have been formally included in UN climate processes. In its own words, the pact “invites the relevant work programmes and constituted bodies under the UNFCCC [UN Framework Convention on Climate Change] to consider how to integrate and strengthen ocean-based action in their existing

mandates and workplans and to report on these activities within the existing reporting processes.”

This is hardly the first time the link between the climate and the ocean has been recognised. Some ocean management bodies are already considering climate change when setting policy, with the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) a pioneer.

The climate change threat to marine life in Antarctica

CCAMLR, one part of the Antarctic Treaty system, is an international organisation founded in 1982 to steward Antarctica's marine, mainly by managing fisheries. Specifically, it applies “to the Antarctic marine living resources of the area south of 60° South latitude... and of the area between that latitude and the Antarctic Convergence.”

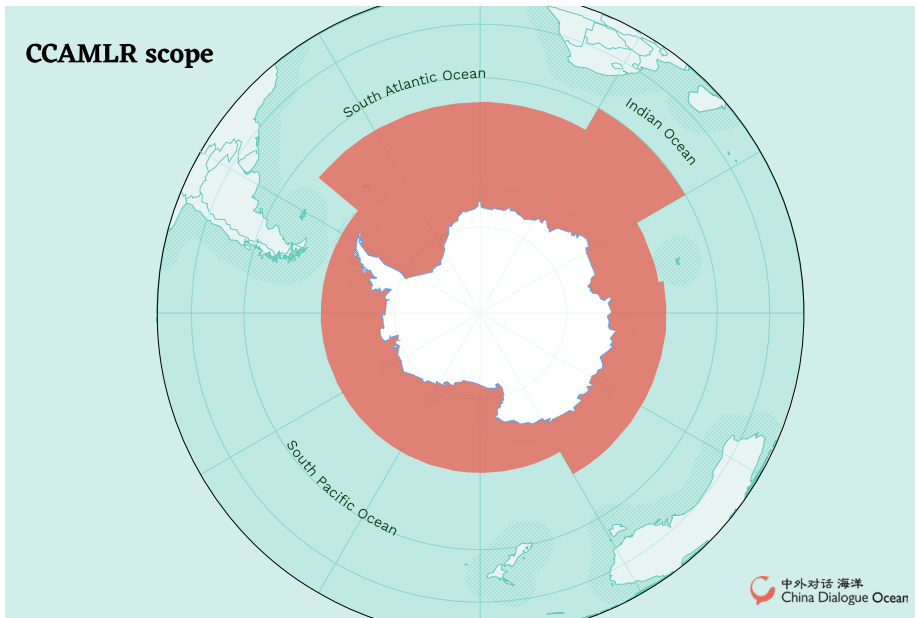
CCAMLR's work is carried out in accordance with the 1980 Convention for the Conservation of Antarctic Marine

Living Resources. In Article 2 of that document, a section on conservation principles includes the “prevention of changes or minimisation of the risk of changes in the marine ecosystem which are not potentially reversible over two or three decades.” That means not just preventing clear cause-and-effect threats, but also potential future threats. And there is no doubt that climate change is one of the major threats faced by Antarctic ecosystems.

Climate change could cause changes in the size of individual creatures, overall biomass (through changes in population size, spawning rates and disease); and distribution (as species shift to waters with more suitable temperatures, or are forced to move due to shifting competitors or predators).

These impacts aren't yet significant in the Antarctic's two main fisheries – krill and toothfish. But research shows they will worsen as climate change intensifies.

In 2013, scientists from the Australian Antarctic Division, working



The area regulated by CCAMLR is shaded red. The main fisheries here are Antarctic krill, Antarctic toothfish and Patagonian toothfish.
Source: CCAMLR

in the laboratory to study krill breeding during ocean acidification, found that when carbon dioxide in the water reaches 1750 μ atm, more than four times normal levels, krill breeding plummets. The researchers predict that, under a business-as-usual scenario, by 2100 krill hatch rates will have dropped

20%. That will affect population sizes.

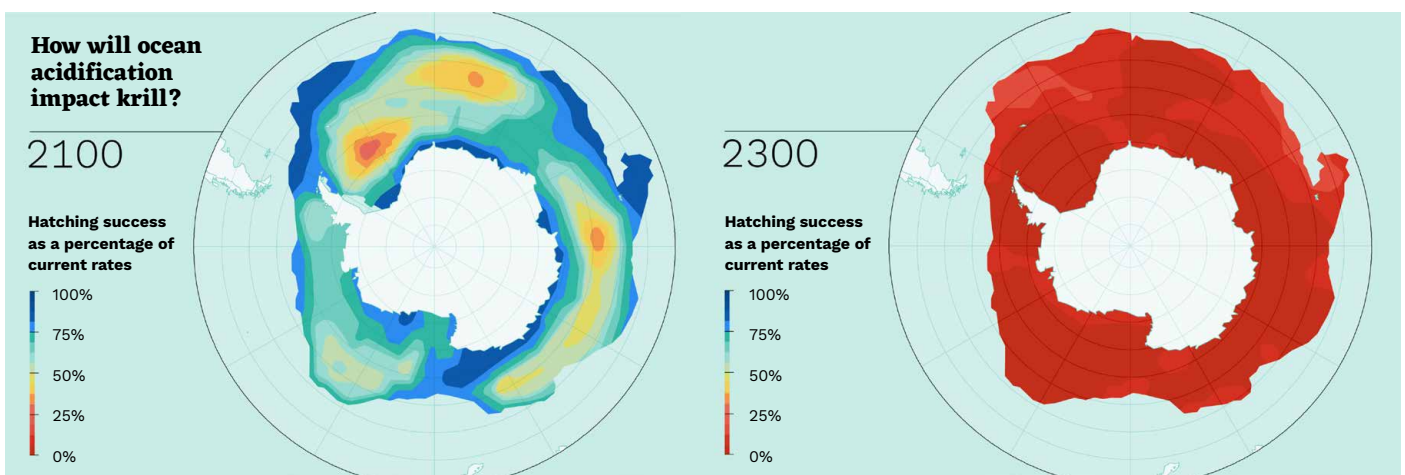
The Antarctic toothfish, one of two toothfish species found in these waters, is under even greater threat. Research carried out in 2008 by the University of British Columbia predicted moderately warmer oceans would cause the range of the Antarctic toothfish to shrink

as the ice shelf retreats. In an extreme warming scenario, that range would drastically reduce, with a risk of extinction in a matter of decades.

Including the climate in Southern Ocean conservation policy

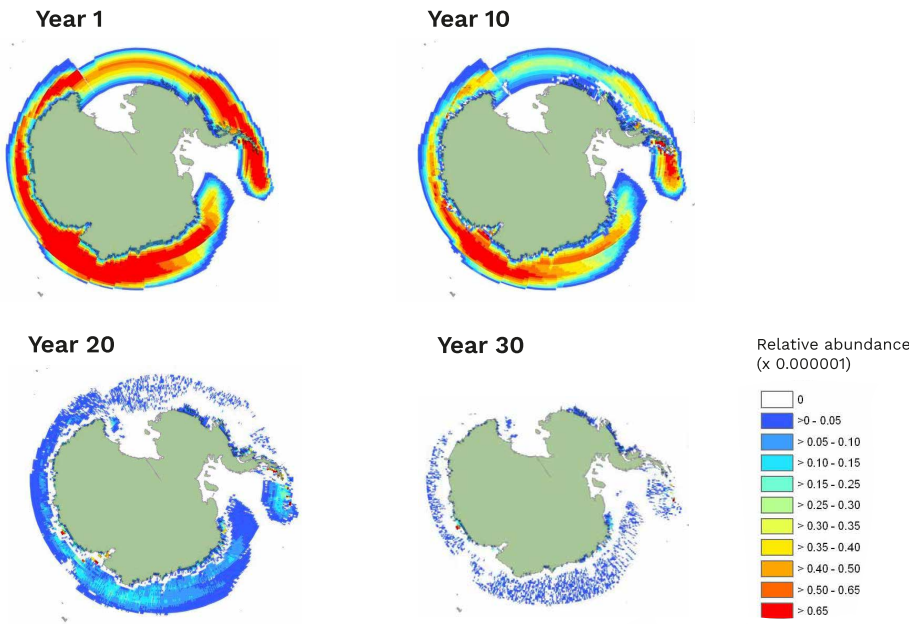
Against this background, CCAMLR started discussing climate change relatively early and has kept up to date with research, gradually including climate considerations in its policy-making framework. As all CCAMLR policies are first discussed and given scientific backing by its Scientific Committee before being passed to the commission itself, that process has gone through three stages.

The first stage involved agenda setting. In 2000, CCAMLR noted that the International Science Council had carried out a study into the vulnerability to climate change of Antarctica's mainland and freshwater ecosystems, which could be relevant to its own Ecosystem Monitoring Programme. Cooperation between the Council and the Programme benefited both. In 2005, climate change entered the agenda of the CCAMLR Scientific Committee intersessional working group meetings. Two years later, it became an official agenda item of the Committee. In 2015,



As well as rising temperatures, another danger facing krill is the steady acidification of seawater as it absorbs carbon dioxide from the atmosphere. Scientists worry this could affect krill development, from the rates at which eggs hatch to the size and mortality rate of embryos. These risk maps show the hatching success, compared to today, for krill in 2100 and 2300 if CO₂ emissions continue to grow at current rates (RCP 8.5). By 2100, in some areas of Antarctic waters, less than 50% of eggs will successfully hatch. And by 2300, less than 2% will hatch • Source: Risk maps for Antarctic krill under projected Southern Ocean acidification • (Graphic: Manuel Bortoletti/China Dialogue)

The Antarctic toothfish could go extinct in a high warming scenario



Red represents higher density of Antarctic toothfish, while blue represents lower. As the research was published in 2008, Year 30 represents 2038. Source: Cheung et al. 2008

climate change became an independent agenda item for the CCAMLR meeting, which is where decisions are made and policy is set.

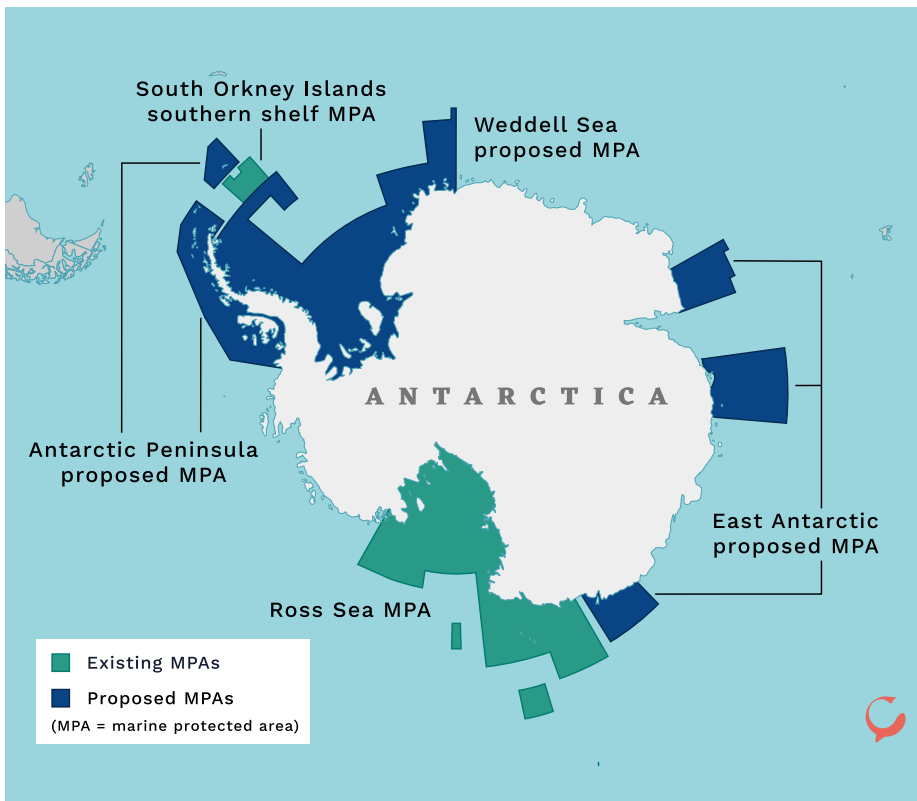
That led to *the second stage: some CCAMLR measures started to feature climate change goals*, for example during the establishment of protected areas and the management of krill stocks.

Establishing nature reserves can improve the ability of ecosystems to adapt to and recover from climate change. Also, less disturbed ecosystems can be used as reference for scientific research. In 2011, this was one of the stated aims in proposals for protected areas in the Ross Sea and East Antarctica. The Ross Sea “marine park” was created in 2016 and is the largest protected area in the world. Building resilience to climate change, and use in scientific research, are both stated objectives in the proposals for marine protected areas in the Weddell Sea and Western Antarctic Peninsula. These proposals were put forward in 2018 and 2017 respectively but CCAMLR member states have so far failed to agree on establishing them.

The Antarctic ice shelf, which has been affected by climate change, is also getting particular attention. In 2012, the UK proposed a protected area for the collapsing Larsen Ice Shelf. Negotiations led to time-limited protections under Conservation Measure 24-04 which was put in place in 2017.

Another example is “feedback management” of the krill fishery. In 2013, the chair of CCAMLR’s Scientific Committee proposed to “provide a short targeted presentation on the complex matter of feedback management, including considerations in respect of climate change, to be presented to the Commission in 2014”. The feedback management involves actively adjusting fishing activity according to information on the state of the ecosystem. In theory, if the data shows that krill and adjacent species on the food chain are doing well, krill fishing quotas can be increased. If that system is applied, climate change factors will need to be taken into account.

These changes in CCAMLR’s agenda and work have gradually reached a *third*





There have been attempts since 2014 to have CCAMLR reports include a statement on the impact of climate change on different Antarctic species, such as krill (Image: Image: Norkrill/Flickr, CC BY-NC-ND 2.0)

stage: improving how decisions are made.

In 2014, the Antarctic and Southern Ocean Coalition, a CCAMLR observer, proposed that all CCAMLR documents and fisheries reports include, as far as possible, a statement on the impact of climate change, to provide adequate data for discussions and negotiations. Despite support from many countries, consensus was not reached and the proposal failed. The following year, discussions at the Antarctic Treaty's Committee for Environmental Protection prompted the UK and Norway to resubmit the proposal. After years of talks, in 2018 that submission eventually became a proposal for a "Climate Change Response Work Program", which would aim to establish a regular CCAMLR mechanism to promote the production, delivery and use of climate change information and proposals.

Specific issues to be addressed by the

Program would include: using structural reforms and dialogue to strengthen consideration given to climate change; responding to the impact of climate change on in the Southern Ocean and its sustainable use; and protecting the habitats and species at risk from climate change and reducing the likelihood of invasive species appearing. However, opposition from certain countries meant this proposal has not yet passed.

Matters pending

CCAMLR is a step ahead of many other fishery management regimes, thanks to the support it has received. It is part of the Antarctic Treaty system, whose annual meetings are a key part of managing the region, and discussions of climate change there have spurred CCAMLR's work. Civil society has also driven discussion of climate change, while the UK, Australia and Norway

have been keener than other nations to see it on the official agenda.

Of course, we can also see opposition to consideration of climate change within decision-making processes. Should it be treated only as a scientific matter for reference, or should climate change factors be considered systematically in all decisions? Is there a need for a comprehensive framework for considering climate change, or can it be treated on a case-by-case basis when deciding on specific measures? Would these additional considerations create an unacceptable burden to fishing? None of these questions has been answered adequately.

With climate change and ocean conservation issues both coming to greater attention, those are three key issues all marine industrial policies will need to face. 🌀



THE POLES

Southern Ocean conservation cannot be left behind

Environmental DNA sampling in Paradise Harbour, Antarctica. By collecting floating DNA left behind by animals, scientists can improve their understanding of a region's marine biodiversity. (Image © Abbie Trayler-Smith / Greenpeace)

The recent CCAMLR meeting failed to increase marine protected areas, but progress was made on regulating krill fishing

Andrea Kavanagh

December 14, 2021

The 40th annual meeting of CCAMLR, the body that oversees biodiversity conservation in the Southern Ocean, concluded at the end of October, with member states failing for the fifth consecutive year to establish further marine protected areas.

MPAs are seen as the best way to protect this key marine ecosystem from the impacts of climate change and concentrated krill fishing.

There are many reasons to protect Antarctica's Southern Ocean: it is home to unique species, comprises roughly 10% of the global ocean's area and generates the Antarctic circumpolar current – an oceanic conveyor belt that ferries nutrients to fisheries thousands of miles away.

For years, scientists have warned

that the Antarctic is among the fastest-warming regions on Earth. The consequences of this change are mounting: a drop in the annual average sea ice coverage that is so vital to the survival of penguins and other animals, and a rise in ocean acidification which makes it difficult for some organisms to form their shells. Warming is also forcing some species, including krill – a tiny crustacean that underpins the region's food web – to shift where they live, with unknown impacts on the broader ecosystem.

At the same time, commercial fishing for krill – which are ground up to make oil pills for human consumption, and for use in aquaculture, livestock feed and fertiliser – has increased markedly in the past decade. Failure to manage the impacts of this concentrated fishing could lead to a cascade of disruption throughout the ecosystem.

Krill, as individuals and massive swarms, are a key prey species for whales, crabeater seals, and birds such as Adélie penguins, snow petrels and southern fulmars. And several predators, including killer whales and leopard seals, consume species further up the food chain that are themselves dependent on krill as a food source. Krill also play a role in the capture and transfer of carbon dioxide from the sea surface to the deep ocean.

Despite the inaction on MPAs, members of CCAMLR (the Commission for the Conservation of Antarctic Marine Living Resources) were able to agree on extending current conservation measures for krill for a further year. “CM 51-07” is a temporary solution that aims to reduce the impact of fishing on predators which depend on krill as a food source, while CCAMLR continues to work on a more long-term, ecosystem-based management plan.

MPAs

CCAMLR comprises 26 member governments that meet annually in Hobart, Australia, to set policy by consensus. So far, it has shown a willingness to protect the region. In 2009, the commission established an MPA along the South Orkney Islands’ Southern Shelf, and in 2016 it created the Ross Sea region MPA – which, at 2.06 million square kilometres, remains the largest protected area on Earth.

Marine scientists overwhelmingly agree that establishing networks of large MPAs is essential for protecting biodiversity and providing resilience to climate change. Under a framework adopted in 2011, CCAMLR member governments had agreed to create a network of nine MPAs throughout the Southern Ocean by 2012. Nine years later, the network still doesn’t exist.

The three proposals CCAMLR considered in October would have, if adopted, marked a big step toward preserving connectivity among the Southern Ocean’s many unique ecosystems. They would have allowed marine life to migrate between protected areas for breeding and foraging, and significantly contributed to science-based global ocean



Protecting our oceans

Just **8%** of the oceans are formally protected

2020

The UN is considering a goal of protecting **30%** of coastal and marine areas by 2030

2030

Some scientists and conservation groups want a more ambitious goal of **50%**

2050

protection targets.

The first, the proposed East Antarctica MPA, would have safeguarded 970,000 square kilometres of near-pristine ocean wilderness where coastal currents mingle with the larger Antarctic circumpolar current to support abundant marine life.

Another proposed marine reserve, in the remote, ice-covered Weddell Sea, would have covered more than 2.2 million square kilometres, protecting sea birds such as Antarctic petrels, multiple species of seals and whales, and bottom-dwelling creatures such as glass sponges, brittle stars and bone-eating worms.

The site of the third proposed MPA, the Antarctic Peninsula, is home to orcas and humpback whales, fur and crabeater seals, as well as millions of nesting pairs of Adélie, chinstrap and gentoo penguins, but also overlaps with the commercial krill fishing operations.


Collectively, the three proposed MPAs would have protected 3.8 million square kilometres (1,467,188 square miles) of the Southern Ocean, making a significant contribution toward the goal of safeguarding 30% of the world’s oceans by 2030, while protecting critical foraging and breeding grounds of species found nowhere else on the planet.

We saw this year that the compelling scientific evidence and the mobilisation of millions of global citizens was not enough to overcome

China’s and Russia’s opposition to designating MPAs in the East Antarctic, Antarctic Peninsula and Weddell Sea. As a pioneering intragovernmental conservation body, CCAMLR can and must do more, or risk being left behind in responding to the global environmental crisis.

The good news is that the number of co-proponents for the East Antarctic and Weddell Sea MPAs grew significantly; 18 of CCAMLR’s 26 members have now signed on as co-sponsors, with South Korea, India, and Ukraine the latest additions. Importantly, during the meeting, all members agreed to explore the possibility of holding an intersessional meeting on MPAs before the 41st CCAMLR meeting, scheduled for October 2022.

And although no MPAs were designated during CCAMLR 40, there were indications of movement, including significant high-level engagement among member countries in the run-up to the annual meeting; French President Emmanuel Macron’s bilateral meeting with Chinese President Xi Jinping during CCAMLR; and a clear acknowledgement of the importance of protecting the Southern Ocean, in the communiqué following the G20 meeting in Rome immediately after CCAMLR 40 ended.

Now CCAMLR must turn these conversations into action and designate MPAs in 2022. 



Villagers on Plantain Island are being forced to move away as the sea erodes their coastline and washes away their homes (Image: Saidu Bah / China Dialogue Ocean)

CLIMATE CHANGE

Sierra Leone's sinking islands

Sea-level rise is causing the loss of entire communities and culturally significant sites, forcing relocations and costing livelihoods

Abdul Brima | October 6, 2021

Passengers clamber out of a small wooden boat named “God Lek True” (God likes truth), trying to stay dry after an hour-long journey to Bonthe, the main town on Sherbro Island in the south of Sierra Leone. Near the jetty, waves break against a new sea wall – still under construction – that locals hope will protect their island from sinking. All along the West African country’s coast, communities are in peril as rising sea levels, driven by global warming, are submerging houses, farmland and culturally significant sites.

Sierra Leone’s 530km coastline is predominantly low-lying, dotted with beaches and islands. Vast swathes of mangrove forest do provide some protection from the sea. But this vegetation cover, which prevents erosion and acts as a natural barrier against storms, is being removed for firewood and to build new homes. Unregulated sand mining is adding to the problem, making coastal communities increasingly vulnerable to not only rising seas, but also more extreme weather caused by climate change.

These are not problems that belong to Sierra Leone alone. Globally, sea levels are expected to rise between 0.6 and 1.3 metres by the end of the century unless greenhouse gas emissions are curtailed. But in West Africa, around





A sea wall is under construction to protect the town of Bonthe on the low-lying island of Sherbro (Image: Saidu Bah / China Dialogue Ocean)

one-third of the population lives in coastal areas, which generate more than half of the region's GDP. Add to this the high levels of coastal degradation, and rising seas could well have a much bigger impact here than elsewhere, on people and the economy alike.

In 2017, the Intergovernmental Panel on Climate Change ranked Sierra Leone third after Bangladesh and Guinea Bissau on its list of nations most vulnerable to the adverse effects of climate change – despite the country being one of the lowest contributors to global emissions.

On the Turtle Islands, a small archipelago off the western coast of the larger Sherbro Island, around 500 inhabitants have already relocated further inland after floods repeatedly washed away their homes.

The situation is the same in the north of the country, where 2,000 people from Yelibuya are to be relocated because their island is sinking. In total, more than two million Sierra Leoneans living along the coast are expected to be at risk.

“Houses that were along parts of the coastline some 15-20 years ago have now disappeared into the sea,” says Dr Raymond Johnson of the Institute of



Houses that were along parts of the coastline some 15-20 years ago have now disappeared into the sea



Homes on Plantain Island lie in ruins after a storm (Image: Saidu Bah / China Dialogue Ocean)

Marine Biology and Oceanography at Fourah Bay College.

Erosion is one of the main problems. He warns that the mangroves, which also provide breeding grounds for fish and land for farming, are being depleted without being replaced, at an unsustainable rate. “And if the level of removal of sand [by sand miners] surpasses that of replenishment, this too serves as a precursor for erosion.”

Indiscriminate sand mining along the coast is a lucrative business, and a major source of income for many young people, who struggle to find work elsewhere. Despite its devastating effects, vested interests are hampering efforts to stop it. There are allegations that local chiefs are getting rich by taxing the sand miners, and the problem is further complicated by confusion over who has final authority when it comes to regulating the industry.

Loss of livelihoods

On Plantain Island, home to one of Sierra Leone's most historic sites, sea-level rise is causing devastation. Where once its inhabitants cultivated crops on nearly eight square kilometres of land, farming activities are no longer possible because most of the land has been lost to the sea. Residents now rely mainly on artisanal fishing.



Video: Saidu Bah / China Dialogue Ocean



Scan the QR code to watch on your phone or click the screen-shot to watch on computer

There is no available government data on the extent of sea-level rise here, but locals estimate the sea has encroached by more than 300 metres over the past four decades. Life on this island is becoming increasingly impossible, residents say. Their community was once buzzing with activity, with traders from the capital Freetown braving the choppy waters in small canoes to buy the island's fish in exchange for alcohol, clothes, building materials and food. Today, even getting fresh vegetables is difficult, and almost everything, including drinking water, has to be imported from Tombo, a nearby fishing community.

Community chief Gbassay Kabbia says the island was previously home to more than 5,000 people. Today, only 3,000 remain after many have relocated to nearby islands. Kabbia has watched helplessly as the sea swallowed two of his houses.

He and his family have now moved further inland. He gestures towards the wreckage of houses that once stretched along the shoreline, mentioning a 52-year-old woman, Nanday Thollie, as the latest victim of the sea's destruction. Thollie's house was built just a few metres from the shore, making it particularly vulnerable to storm surges, where waters rise above their normal levels and are pushed inland by the wind.

Nearly all the houses on Plantain Island have been built with little regard for the long term. "People are supposed

to build permanent structures at least 1km away from the sea," says Gabriel Mannah Kpaka, deputy director general of Sierra Leone's Meteorological Agency. "But you'll see that structures are built [within] 100 metres." Without a sea wall to protect the houses, destruction takes place every time the low-lying community is hit by a storm.

Islands of historical value

Between 1747 and 1807, slave traders brought captives from warring inland tribes to Plantain and the nearby island of Dublin, where they were chained and held for transit to Bunce Island. As many as 60,000 slaves passed through Bunce on their way to the West Indies and America.

The former quarters of the slave merchant, John Plantain, after whom Plantain Island was named, is an important part of this history, and a tourist attraction. It used to be connected to the main island, but over the years the rising saltwater has separated it completely. Local and foreign tourists now have to take a boat to get to the site,

but there's very little left to see, says local resident Ben Caulker.

"If you visit the slave pen, you could see relics of the slave trade. The place used to have guns used during the colonial era. All those have now disappeared," he says.

Sierra Leone is not the only country in West Africa losing historical heritage to sea-level rise. To the north in Senegal, the UNESCO World Heritage colonial city of Saint-Louis is losing houses, streets and cropland to the rising saltwater.

West African nations are counting the economic cost of this and other climate change impacts. In 2019, the World Bank found that flooding and coastal erosion due to sea-level rise cost the region around US\$3.8 billion and caused the deaths of 13,000 people in just one year.

More than 100 leaders from poorer nations are now demanding richer countries do more to counter global warming ahead of this year's COP26, the most crucial climate talks since the Paris Agreement was signed in 2015.



With very little money to protect them from the ravages of nature and climate change, historically important relics of the slave trade in Sierra Leone are beginning to disappear (Image: Saidu Bah / China Dialogue Ocean)

Fishing safely

Another group feeling the immediate impacts of the changing climate is Sierra Leone's fishers. On Mania, one of the Turtle Islands 30 minutes by boat from Bonthe, small-scale fishers are struggling with more extreme weather and the unpredictable movement of fish escaping warming waters. This is being exacerbated by increased competition from industrialised foreign fishing fleets, who leave fewer fish for local people.

The island used to be inhabited by some 500 people, but only 300 residents remain today. Life is tough, says Mania's youth chairman, Lahai Kain, and many worry about the long-term survival of the community.

Last year, Kain almost lost his life during a fishing trip. His wooden boat was hit by strong waves that left him and his friends stranded at sea. They had to wait hours to be found by a local rescue party, and by then he had lost his boat along with all his fishing gear. He now relies on small-scale farming to feed his wife and three children. He hopes to return to sea very soon, and is saving to buy a new boat. But he wants improved weather forecasts to help fishers like him plan their excursions and improve their productivity.

To this end, Sierra Leone's Meteorological Agency has installed



Local fishers use small wooden boats, and often have to travel long distances and face dangerous weather to bring back a catch (Image: Saidu Bah / China Dialogue Ocean)

eight new automatic weather stations in strategic locations around the country, says Deputy Director General Kpaka.

According to Kpaka, these stations are manned by people trained in

weather-monitoring systems to provide timely information on offshore conditions so fishers can know when it's safe to go out.

But Johnson from Fourah Bay College thinks more needs to be done. "Fishermen need more education to understand the changing pattern of the sea, and in the event of turbulence, they [need to be] able to communicate with one another or relevant institutions that are responsible for disaster management and search and rescue."

Weather conditions have already become more severe in Sierra Leone. In 2017, intense rain caused flooding and landslides in Freetown that left more than 1,000 people dead. Having already experienced a roughly 0.8C rise in average temperature since the 1960s, the country is expected to see a further increase of 1.6C by 2100, according to a report by the government and the UN Development Programme.

Local action

Some communities are attempting to contain the rising sea themselves,



Video: Saidu Bah / China Dialogue Ocean

Scan the QR code to watch on your phone or click the screenshot to watch on computer





The deforestation of Sierra Leone's mangroves is lowering the resilience of coastal communities in the face of an unstable climate future (Image: Saidu Bah / China Dialogue Ocean)

using homemade methods such as sandbags. But in the town of Bonthe, which has an estimated 10,000 inhabitants, a publicly funded sea wall up to 1.7km long is being constructed. As Bonthe's deputy mayor, Mohamed Robinson, explains though, it remains to be seen if the wall will be high enough to protect the town, even if the Paris Agreement's target to limit global warming to 1.5C is met.

In addition to these local efforts, international players are also involved. In 2018, the Sierra Leonean government launched a project to promote "climate-resilient livelihoods" for 116,000 people – supported by the United Nations Development Programme, the project benefited from a US\$9.9 million grant from the Global Environment Facility. The main aim was to diversify local economies and help communities restore mangrove habitats, making them more able to withstand the impacts of rising seas, extreme weather and an "uncertain climate future".

Johnson has been a consultant on

this umbrella project, implemented by government agencies, civil society and NGOs. He says one major success is the establishment of an oceanographic monitoring system that will help to improve the management of marine areas and resources, reduce pollution and provide proper predictions of tides and weather in Freetown and several other coastal locations.

Policies are not enough

As part of the UN's climate change framework, Sierra Leone has developed a National Adaptation Plan, which sets out the actions needed to reduce the impacts of climate change nationally.

But there is concern over the implementation of these policies, according to Joseph Rahall, executive director of environmental NGO Green Scenery. "They should be translated into laws and the laws implemented," he says. "Enforcement [is] the problem."

Rahall wants the government to prioritise environmental issues by making them part of the national

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Video: Saidu Bah / China Dialogue Ocean



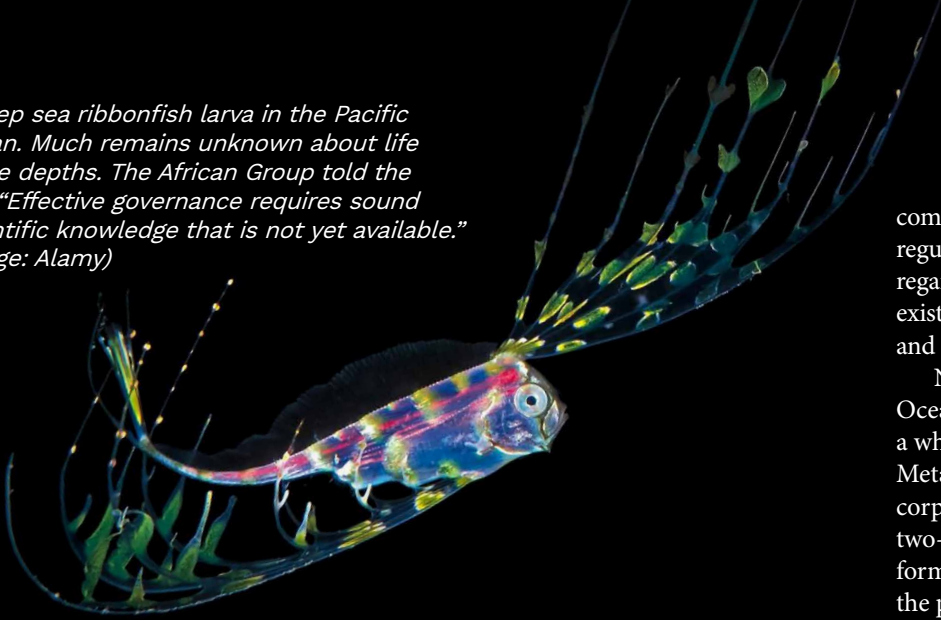
conversation through adequate budget allocation. "When you play with environmental safety, you're playing with conflict. If those in government cannot mitigate the risks that come from climate change, that will cause hunger [and] diseases, and that will lead to instability."

But with national action plans in place, acting director of Sierra Leone's Ministry of the Environment, Edward Pieh Bendu, is confident the government is in a good position to respond to climate change. Over the next four years, for example, the government plans to reforest over 7,000 hectares of degraded land and mangrove swamp. The national project is expected to plant a total of five million trees – 1.1 million were already planted last year.

But with many coastal communities already suffering, Sierra Leone's islanders need more urgent solutions to save both their homes and their livelihoods. 🔄

With additional reporting from Saidu Bah and Abdulai Kargbo.

A deep sea ribbonfish larva in the Pacific Ocean. Much remains unknown about life in the depths. The African Group told the ISA: "Effective governance requires sound scientific knowledge that is not yet available." (Image: Alamy)



DEEP-SEA MINING

Deep-sea mining code missing from agenda at ISA meeting

Covid has again derailed face-to-face negotiations over mining. The International Seabed Authority's council will instead discuss its 'roadmap' amid mounting opposition

Todd Woody | December 6, 2021

As the International Seabed Authority meets in person this month for the first time in nearly two years, global opposition to deep-sea mining is building, and the United Nations-affiliated organisation faces dissent among its member states over a rush to enact regulations to allow seabed exploitation to begin.

Negotiating those regulations, however, will not be on the agenda during the eight-day meeting at the ISA's headquarters in Kingston, Jamaica. Covid-19 restrictions in Jamaica limit in-person gatherings to 100 people, making it impossible to hold face-to-face talks among the ISA's 167 member states and the European Union.

With the emergence of the Omicron variant, Jamaica has also barred visitors from South Africa and seven other African countries. The ISA has asked

member states to limit delegations to two people, and for non-governmental organisations to send only one observer to the meeting. Journalists are not permitted to attend.

Instead, the ISA Council, the organisation's 36-member-state policymaking body, will consider a "roadmap" proposed by the secretary-general, Michael Lodge, to finalise by July 2023 regulations to allow the mining of cobalt, nickel and other valuable metals to proceed.

The pandemic derailed the previous roadmap that called for the regulations, known as the Mining Code, to be completed by the end of 2020. Then, in June, the tiny South Pacific island nation of Nauru effectively blew up the road when it invoked a rule that requires the ISA to complete the code within two years.

If it doesn't, the Council must provisionally approve a "plan of work" to mine polymetallic nodules by a

company Nauru sponsors under whatever regulations are in place at the time, regardless of whether sufficient safeguards exist to minimise damage to biodiverse and fragile deep ocean ecosystems.

Nauru acted on behalf of Nauru Ocean Resources Incorporated (NORI), a wholly owned subsidiary of The Metals Company, a Canadian-registered corporation. When Nauru triggered the two-year rule, The Metals Company, formerly called DeepGreen, was in the process of listing its shares on a United States stock market and had told investors it expected to begin mining in 2024. The move came days after Bloomberg News and the Wall Street Journal published investigations into The Metals Company's business practices.

Like other ISA state sponsors of mining companies, Nauru, a 20-square-kilometre island with a population of 11,000, will receive royalties on the minerals excavated. In US government filings, The Metals Company valued the minerals to be mined from one of Nauru's concessions at US\$95 billion over 23 years and said it would pay Nauru and the ISA 7.6% of that in royalties.

Observers say the proposed ISA roadmap leaves a plethora of difficult issues to be resolved in a short timeframe amid a pandemic that is showing no signs of abating.

Among the most contentious are the establishment of an inspectorate and the development of procedures and technology to monitor mining and ensure compliance with environmental regulations. Also unresolved, despite years of talks, is a financial regime to set the royalty rates mining companies will pay to the ISA and how to distribute a portion of those payments to member states. In addition, the ISA must create a scheme to compensate developing nations for losses to their terrestrial mining industries due to competition from seabed mining.

"I think it's really questionable whether the ISA should allow exploitation activities to commence as there are all these other items within and beyond the regulations that still need to be agreed on," says Pradeep Singh, a legal researcher at the University of Bremen in Germany who studies ISA governance.

In a paper published in December, Singh noted that the Council requires consensus among its members to approve regulations. “The coming months could seriously test the solidarity of the Council,” he wrote.

Opposition from Africa and Latin America

Cracks in that solidarity appeared within weeks of Nauru’s exercising what some observers call “the nuclear option.”

In a 13 July submission to the Council, the African Group of nations warned that Nauru’s action “is likely to weaken rather than facilitate the development of an effective regime” to regulate deep-sea mining.

“Critical questions persist regarding the mechanism for equitably sharing benefits derived from seabed mining, the impact of such activity on terrestrial mining economies, and the effects of mining on deep ocean ecosystems and coastal states,” the submission states.

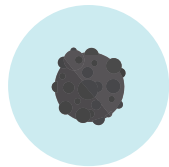
“These questions must be substantially answered before regulations on exploitation can be finalized and commercial scale mining can be permitted even on provisional basis.”

“Effective governance requires sound scientific knowledge that is also yet not available,” the African Group added.

On 13 October, a group of 10 Latin American and Caribbean nations, including Costa Rica, Argentina and Chile, filed a submission to the Council expressing unease with the two-year deadline. It noted that, among other things, the ISA has yet to agree on the creation of an inspectorate to monitor mining and enforce regulations and has not adopted environmental management plans for areas of the deep sea targeted for mining.

“We express our concern regarding the ... crucial pending issues that need to be discussed and agreed upon before any plan of work should be considered, and on which delegations are far from reaching an agreement,” the submission states. “Consideration must be given to the reality that the Council might not be able to conclude the development and adoption of the required rules, regulations and procedures within the two-year period.”

Deep-sea mineral deposits and the metals they contain



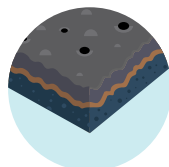
Polymetallic nodules

Source of nickel, cobalt, copper and manganese



Polymetallic sulfides

Copper, lead, zinc, gold and silver



Cobalt-rich crust

Cobalt, vanadium, molybdenum, platinum and tellurium

Some member states also have objected to holding an in-person conference during a pandemic and asked that the December meeting be postponed. In a 5 November letter to the Council president, Brazil’s representative to the ISA noted that pandemic restrictions make it “practically impossible to reach the required quorum” to hold meetings of the Assembly and Council.

“Current conditions do not guarantee the complete safety of the participants or the success of the 26th Session,” the letter states.

The ISA did not immediately respond to a request for comment.

A lack of consensus

An indication of just how far from consensus member states remain comes in their comments on some of the draft environmental standards and guidelines that must be completed for the Mining Code to take effect.

Germany, for instance, commented that draft standards and guidelines for environmental management systems are “not fit for purpose/adoption yet” and noted that they allow mining companies “to determine their own environmental objectives, performance criteria and auditing scheme.”

China, on the other hand, advocated for eliminating binding standards from the draft and including only voluntary guidelines for environmental management systems.

Kristina Gjerde, a long-time ISA observer and senior high seas adviser at the IUCN (International Union for Conservation of Nature), said: “The roadmap is overly hasty: it does not allow sufficient time to conduct and analyse the scientific research required to understand potential impacts of full-scale mining, nor to set appropriate environmental standards or guidelines.”

Mining companies forge ahead

Mining companies, meanwhile, are moving forward. In May 2021, Belgian mining contractor GSR concluded a test of a prototype of its polymetallic nodule collector in the Pacific Ocean. The Metals Company says a partner is retrofitting a former drill ship to serve as a surface vehicle to transport nodules and that it plans to test a nodule collector in 2022. UK Seabed Resources, a subsidiary of US defence contractor Lockheed Martin, plans to test a nodule collector in 2023, according to a report by a UK government-funded research organisation.

Opposition to deep-sea mining, though, continues to grow. In recent months, IUCN members voted overwhelmingly for a moratorium on deep-sea mining while more than 600 prominent marine scientists and policy experts signed a letter calling for the same. This month, Patagonia and VW Group joined Google, BMW, Volvo Group and other multinational corporations in pledging not to buy seabed minerals until the environmental impacts of mining are better understood.

ISA observer Matthew Gianni, a founder of the Deep Sea Conservation Coalition, says Nauru’s trigger of the two-year rule underscores the need for fundamental reform of the ISA. “Countries have to take a hard look at these rules that are forcing them to have this debate now, in spite of the fact that they’re nowhere near ready to agree to exploitation regulations.”

Sandor Mulsow: 'The ISA is not fit to regulate any activity in the oceans'

The International Seabed Authority is promoting exploitation rather than protection of the deep, says its former head of environment and minerals



Deep-sea mining would put the habitats of little-understood species at risk (Image: Okeanos Explorer/NOAA/CC BY 2.0)

Jack Lo Lau | December 7, 2021

The deep-sea floor is peppered with unknown quantities of minerals, formed over millions of years. Iron and manganese are the most abundant, but there are also deposits of copper, nickel, cobalt, zinc and a variety of rare earths. These minerals have long been mined on land and are essential to everyday objects including smartphones, televisions and cars.

They are also crucial ingredients in technology that delivers renewable energy, such as solar panels and batteries. Some argue that the world cannot decarbonise unless we begin to mine these minerals from the deep sea floor. They say terrestrial mining causes far worse ecological impacts and greenhouse gas emissions.

But increasing numbers of scientists and civil society groups are calling for a moratorium on deep-sea mining. They argue the global ocean



DR SANDOR MULSOW

Chilean professor of marine geology, from 2013 to 2019 he was head of the Office of Environmental Management and Mineral Resources at the International Seabed Authority (ISA).

is already severely stressed by climate change, pollution and overfishing, and that mining regulations are being developed without a full understanding of the risks. Their stance has recently been supported by prominent companies including BMW, Volvo, Samsung and Google.

Dr Sandor Mulsow stands firmly on this side of the debate. A Chilean professor of marine geology, from 2013 to 2019 he was head of the Office of Environmental Management and Mineral Resources at the International

Seabed Authority (ISA).

The ISA is the UN-appointed body charged with developing rules that will govern eventual mining. It is due to resume negotiations around the issue at its headquarters in Kingston, Jamaica, from 6–15 December, although finalising regulations, known as the Mining Code, will no longer be on the agenda because of Covid-19 travel restrictions.

Mulsow, who has more than 30 scientific articles and hundreds of legal reports on the ocean to his name,



everything into the sea, so that it will supposedly be lost. But when I do the analysis, in terms of volume, of all the water in the ocean, it becomes a tiny little ball that is 1,000 times smaller than the Earth. In other words, it is a tremendously fragile environment, but we are not protecting it as we need to.

Who is in charge of ensuring the protection of the oceans?

The International Seabed Authority is the one that should. However, in practice it does not do so. There are other interests behind it. At the moment, the ISA has two mandates that are counterproductive. One, which is in articles 136 to 145 [of the UN Convention on the Law of the Sea], has to do with the common heritage of mankind, with the search for equality of all countries, the promotion of research, and very positive things. But, on the other hand, it has articles 150, 151 and 152 that focus on production, exploitation and profits.

So, their mandate is positive...

It would be positive if we had knowledge available. We know very little about the seabed. We don't have enough data and research to understand what is going on at

the bottom of the oceans. During my five years as director of ISA's environmental management and mineral resources office, I saw a lot of irregularities.

What would be an example of an irregularity?

The Clarion-Clipperton Zone, which is in the middle of the Pacific Ocean between Mexico and Hawaii, is one of the most heavily explored areas. It is estimated to be almost twice the size of Mexico and there are 17 exploration contracts of 75,000 square kilometres each. There are contractors who send 100 samples of what they find in their concession – which is nothing. It's as if we were to go to the middle of Central Park in New York, which is 3.4 square kilometres, and do a test with a 10-centimetre tube to determine how many worms there are in the whole place. Is it possible to measure biodiversity like that? How are we going to measure the real impact we are generating? You can't with that data. But with just that data, they want to promote underwater mining.

How do you see the work of ISA?

There is a huge bias in favour of new contractors. Very little research work has been done, but they still want to do

is currently based at the Universidad Austral in Chile's southern coastal city of Valdivia.

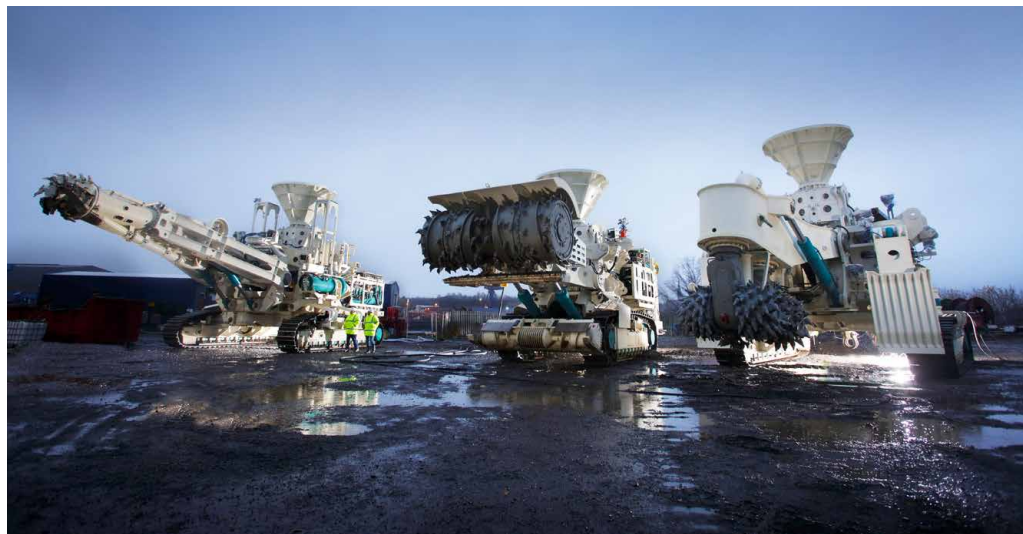
He spoke to China Dialogue Ocean via video call.

China Dialogue Ocean: What is the tragedy you say is about to happen?

Sandor Mulsow: There is currently a movement that is looking to start mining the seabed for minerals. And when that happens, there is no going back. It's a lot cheaper to mine the seabed, which is very attractive to industries, and it would be done in very remote places, where nobody can complain.

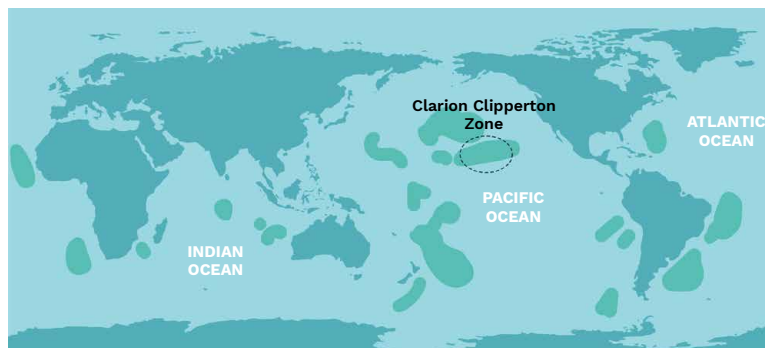
What is the problem with mining in the deep ocean?

We only have one planet. And we have to protect it. We have always been told that the oceans are gigantic. Seventy per cent of the surface of our planet is ocean and we think it can hold everything. That's why every country in the world dumps

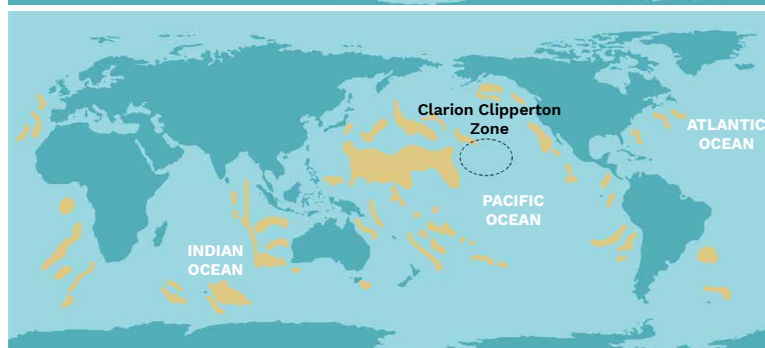


*Machines designed for mining the deep-sea floor
(Image © Nautilus Minerals)*

Maps showing what could be mined and where



Polymetallic nodules



Cobalt-rich crusts



Polymetallic sulphides/vents

mining. As I just said, they are accepting very bad evidence. ISA is responding to pro-seabed mining interests.

In June this year, the small island state of Nauru invoked a rule which compels the ISA to allow mining to proceed within two years, under whatever regulations are in place at that time. How significant is the ‘Nauru trigger’?

In 2013, the then British prime minister David Cameron declared that underwater mining was going to be worth £40 billion [US\$53 billion] to the UK economy over the next 30 years... So I was not surprised that Nauru, an island with a very nascent economy, but part of the Commonwealth, has made this

request. Behind this strategic move is DeepGreen and The Metals Company [from Canada] who are promoting by all means the exploitation of undersea minerals.

It all feels unclear...

Here’s another example. Jamaica, also in the Commonwealth, has just won an exploration contract. When I looked at who was behind it, there were companies that were in England that were only worth a dollar. And those companies were justifying exploration costs over the next five years to the tune of two million dollars. How is that possible? How does the secretary-general of ISA, the Englishman Michael Lodge, not do a technical analysis of

this situation or ask where that money is coming from? A bit odd, isn’t it?

What do you want to say?

Watch the DeepGreen videos. We are on a direct path to the destruction of the oceans. If nothing is done, on 25 June 2023, Nauru starts to explode. And with that, all countries. There would be tremendous chaos and unprecedented destruction because no one would control this activity.

What about the ISA?

If it continues with the same attitude it has had so far, it will give free rein to underwater mining. There is a meeting in December, but nothing is done at these meetings. They only validate technically and legally everything that the secretariat presents to them, without any objections. Most of the members keep quiet and no one speaks up. The ISA will end up validating the start of exploitation.

What is the way out?

In the short term, what we need is for countries to sign a moratorium that does not allow exploitation until we have scientific certainty about what we should do. It sounds simple, but if nobody is interested in what happens in the oceans, who is going to oppose it? There is a lot of money and interests at stake.

Reform is also needed at ISA to ensure that decision-making and regulatory processes are transparent, accountable, inclusive, effective and environmentally responsible. This can only happen when ISA is part of the United Nations. ISA is autonomous, it reports to no one.

There is an unclear game here that allows the ISA to do whatever it wants and nobody controls it. The balance between the legal and the scientific side has to be equal. At the moment it is purely lawyers who are making the decisions. There are officials who are industrial spies, who are more in favour of the companies than the common good. The way ISA is working at the moment, it is not fit to regulate any activity in the oceans. 🔄



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