

OCEAN ATLAS

Facts and Figures on the Threats to Our Marine Ecosystems 2017

RESOURCE: OCEAN ATLAS WEB DOSSIER and PDF

Lorraine Chaffer
Geography Education Consultant

The Ocean Atlas is published in a printed version, as a PDF (Download here https://www.boell.de/en/2017/05/30/ocean-atlas-facts-and-figures-about-our-relationship-with-the-ocean?dimension1=ds_ocean_atlas) and a web dossier (<https://www.boell.de/en/oceanatlas>).

The Ocean Atlas gives an insight into the state of, and the threat to the seas and the possibilities for protecting it. The Ocean Atlas 2017 contains 17 contributions and 50 graphics containing relevant facts and figures about the ocean. Images such as Fig. 1 can be downloaded.

The material in this resource is suited to many topics from Stages 4 to 6. See Table 1

Each topic is two pages making it perfect for a lesson or two with built in discussion and inquiry.

The graphics are excellent and can be used to develop inquiry questions and stimulate classroom discussion. It is easy to import selected images into a PPT presentation or a document for class use.

Website

<https://www.boell.de/en/oceanatlas>

Image downloads

https://www.boell.de/en/2017/05/30/downloads-ocean-atlas?dimension1=ds_ocean_atlas



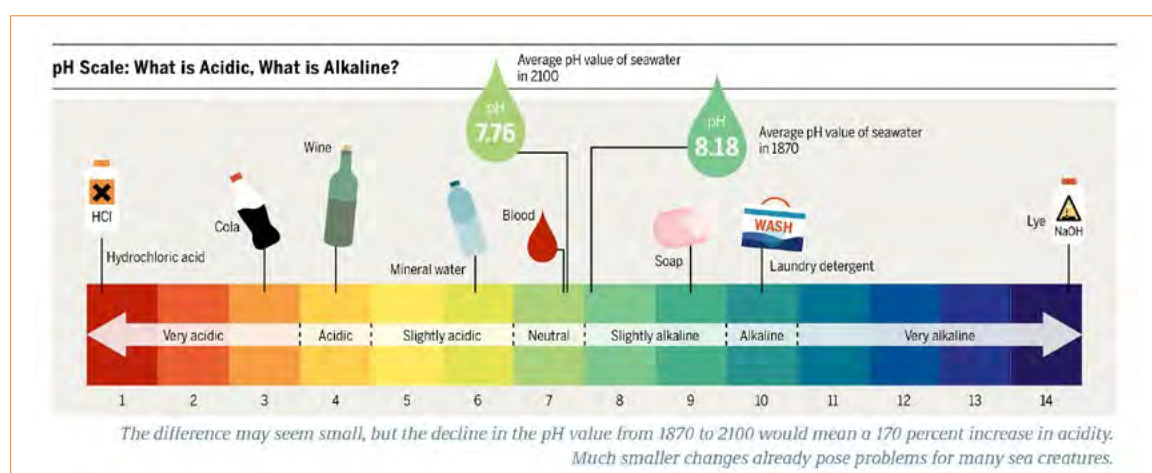
All graphs of the Ocean Atlas are published under a Creative Commons License CC BY SA 4.0. and can be continued to be used, processed and published under these conditions. Downloads available in various formats (png, pdf):

- All graphics as PNG (ZIP/3,34 MB)
– ideal for websites and presentations
- All graphics as PDF (ZIP/MB)
– Package 1 (page 8–27) (ZIP/49,58 MB)
– Package 2 (page 28–50) (ZIP/46,14 MB)

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Figure 1: ACIDIFICATION: A CORROSIVE FUTURE



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Table 1: Links to Syllabus topics for Stages 4 to 6

CHAPTER	GEOGRAPHY TOPIC	STAGE 4 / 5 Elective geography: Oceanography
Fisheries Management: fish – almost out of stock?	Stage 5: Sustainable biomes Stage 5: Environmental Change & management Stage 6: Natural resources	
Aquaculture: Are fish farms the future?	Stage 5: Sustainable biomes Environmental Change & management Stage 6: Natural resources People & Economic Activity	
Eutrophication: Fertilizer for the dead zones	Stage 4: Interconnections Stage 5: Environmental Change & management	
Pollution: Trash in the surf, poison in the sea	Stage 4: Interconnections Stage 5: Environmental Change & management	
Plastic waste: The microplastic problem	Stage 4: Interconnections Stage 5: Environmental Change & management	
Biodiversity: The danger of declining diversity	Stage 4: Interconnections Stage 5: Environmental Change & management	
Climate change: How the ocean slows climate change	Stage 5: Environmental Change & management Stage 6: Biophysical Interactions	
Warming: Warming waters and rising risks	Stage 5: Environmental Change & management Stage 6: Biophysical Interactions Ecosystems at risk	
Coasts: Life in the danger zone	Stage 5: Environmental Change & management Stage 6: Biophysical Interactions Ecosystems at risk	
Acidification: A corrosive future	Stage 5: Environmental Change & management Stage 6: Biophysical Interactions Ecosystems at risk	
A look into the past: Exploitation and protected areas	Stage 5: Environmental Change & management	
Ocean governance: Who owns the ocean?	Stage 5: Environmental Change & management Stage 6: Natural resources	
Deep-sea mining: Global hunger for natural resources	Stage 6: Natural resources	
Energy from the ocean: Where does the future lie?	Stage 6: Natural resources	
Marine tourism: Destination Ocean	Stage 4: Interconnections Stage 5: Environmental Change & management Stage 6: People & Economic Activity	
Maritime transport: World trade and price wars	Stage 4: Interconnections Stage 6: People & Economic Activity	
Circle of sustainability: Living with the ocean	Stage 5: Sustainable biomes Environmental Change & management Stage 6: Natural resources People & Economic Activity	
The world must act together: Towards a new governance of the ocean	Stage 5: Sustainable biomes Environmental Change & management Stage 6: Natural resources	

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Sample graphics

Figure 2: TWELVE BRIEF LESSONS ABOUT THE OCEAN AND THE WORLD

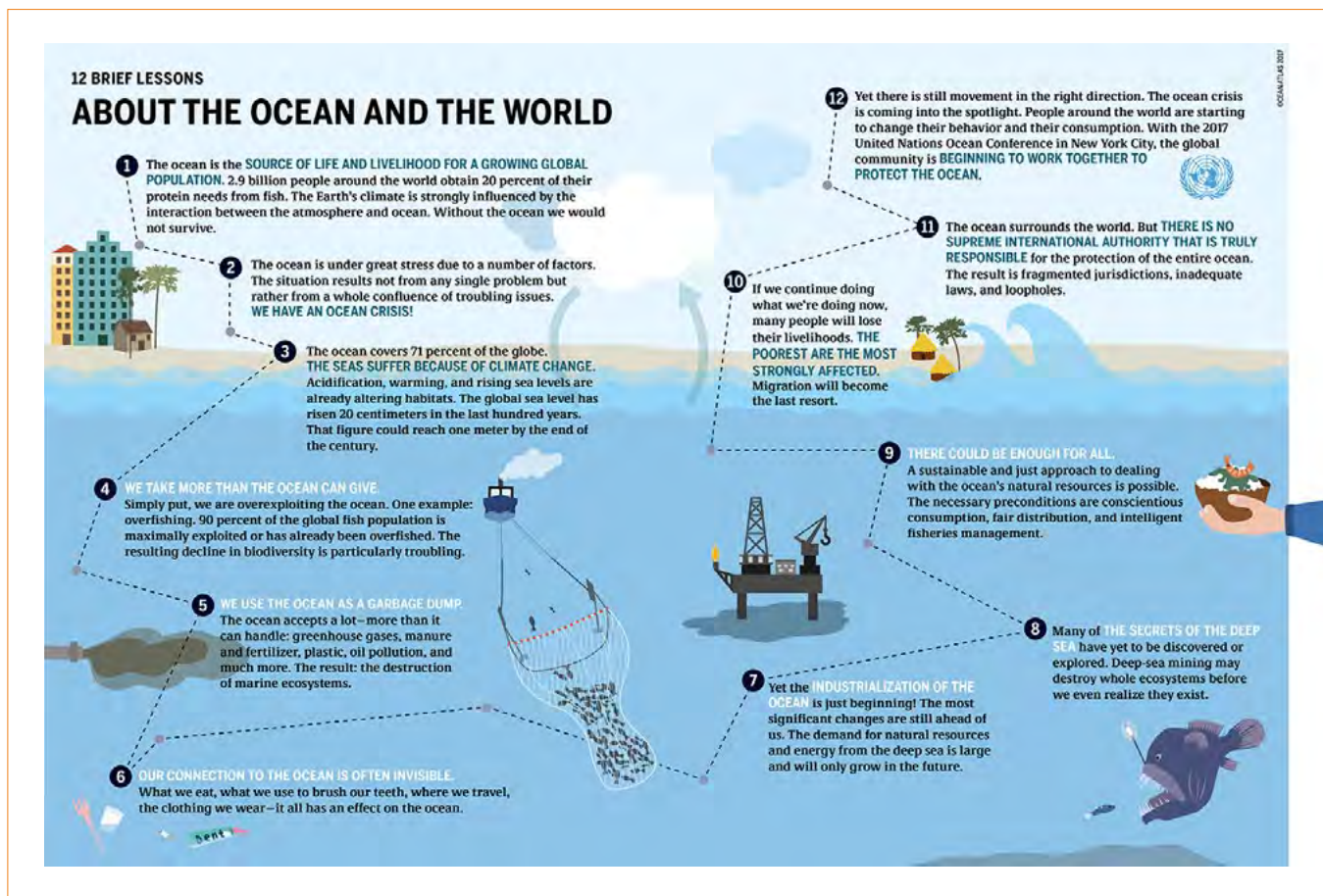


Figure 3: FISH: ALMOST OUT OF STOCK

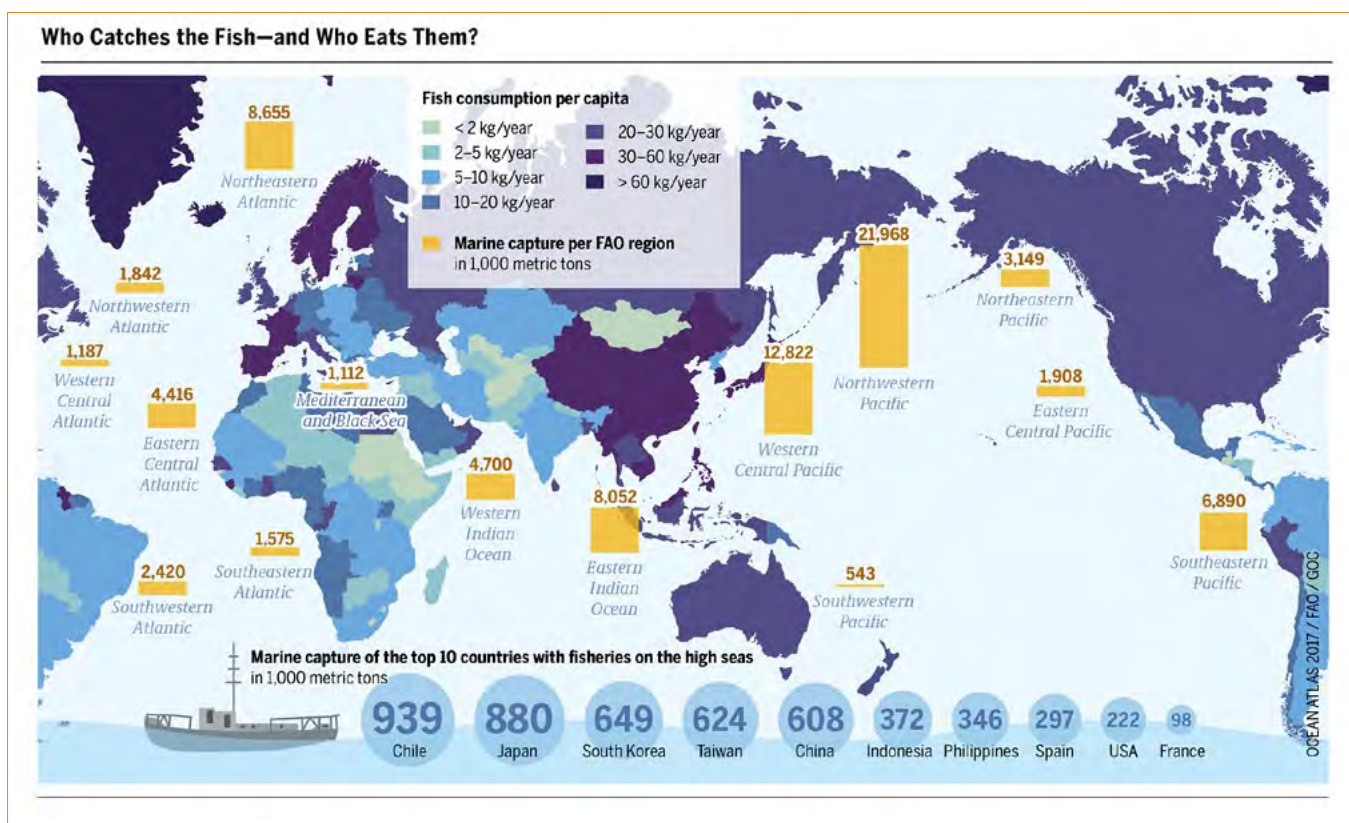


Figure 4: ACIDIFICATION: A CORROSIVE FUTURE

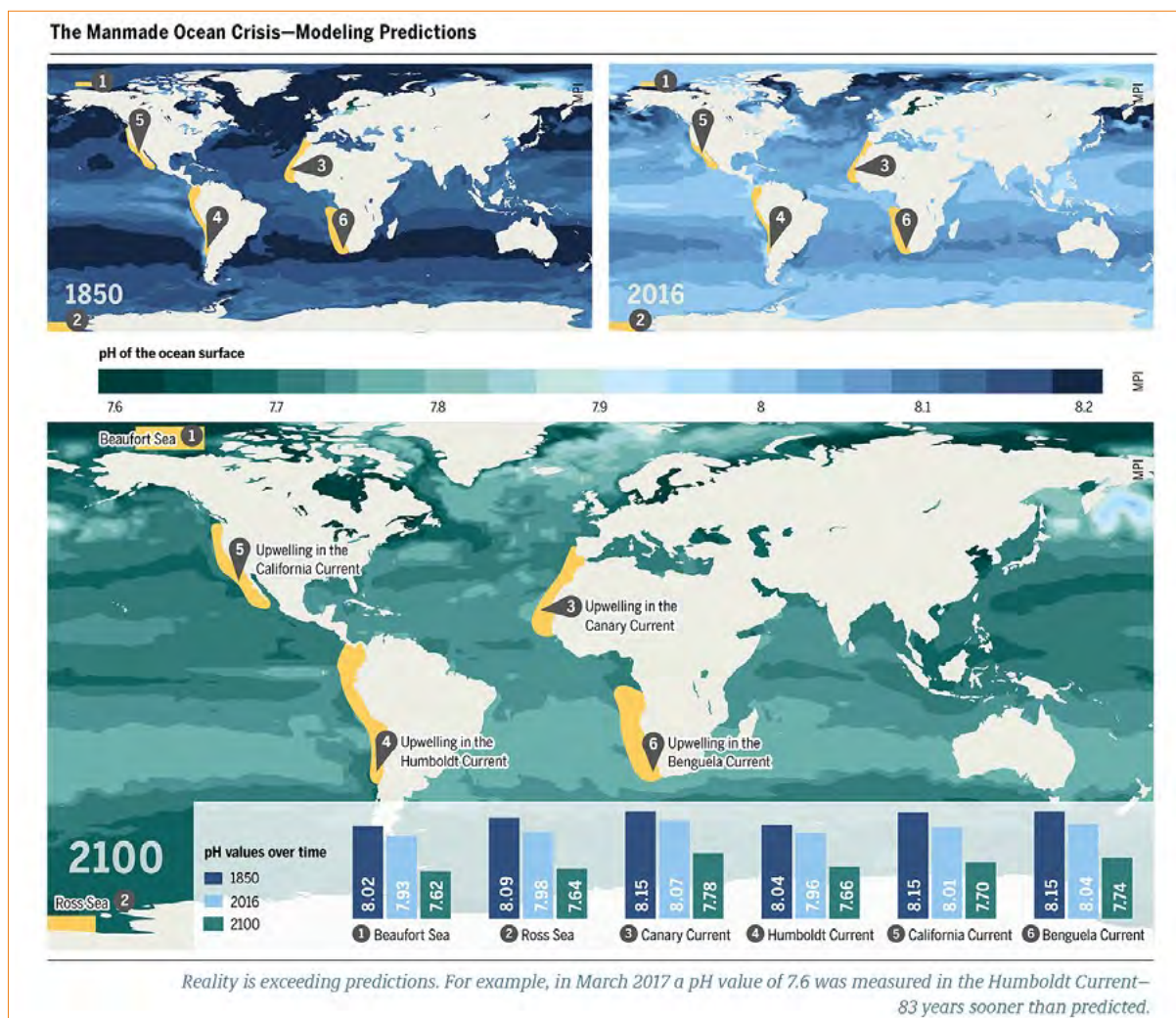
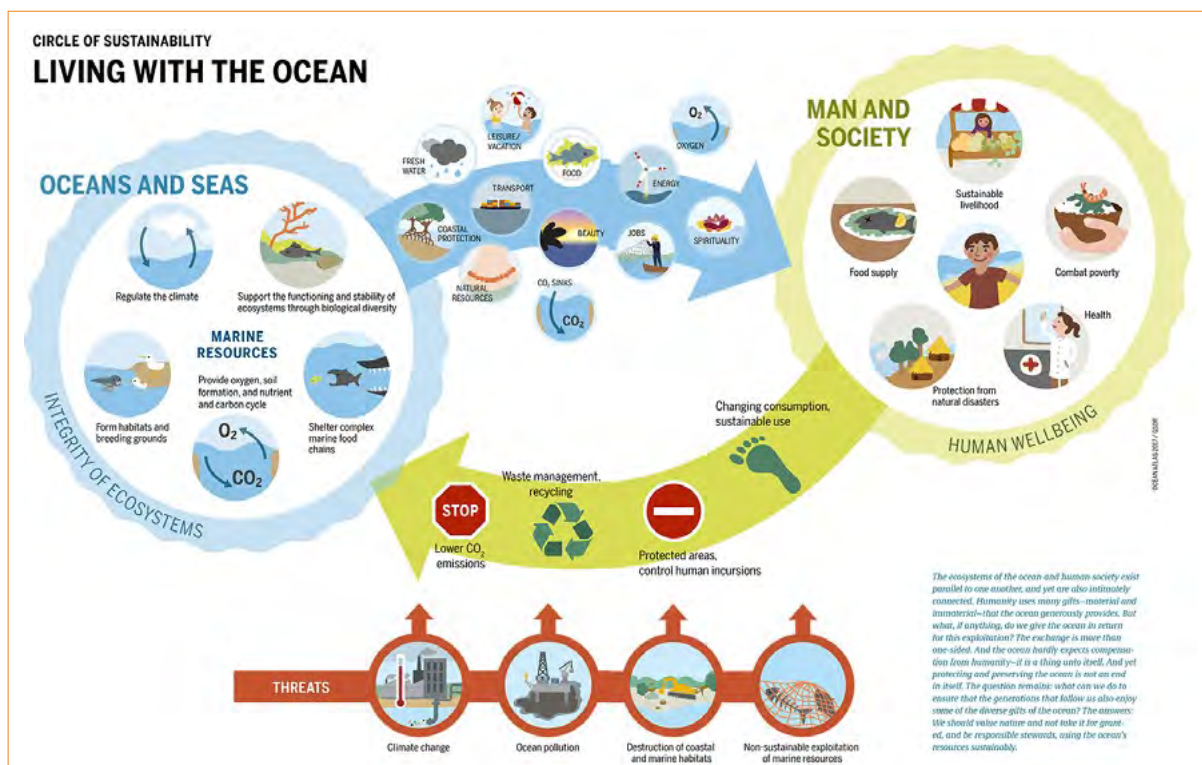


Figure 5: CIRCLE OF SUSTAINABILITY



OCEAN GOVERNANCE

WHO OWNS THE OCEAN?

For thousands of years, people have taken to the sea to fish and trade. For centuries wars have been fought as rival rulers claimed the rights to the sea and its exploitation. Those conflicts have continued to this day.

But it is no longer merely a matter of access to shipping lanes. The reason for the current international conflicts actually lies beneath the surface. Disputes revolve around the expansion of territorial seas and economic zones in order to secure exclusive rights to so-called non-living marine resources, like the valuable minerals and fossil fuels buried beneath the sea floor. They are about “territory” in the sea. Absurd? Not if you look at where land begins. And where it allegedly ends.

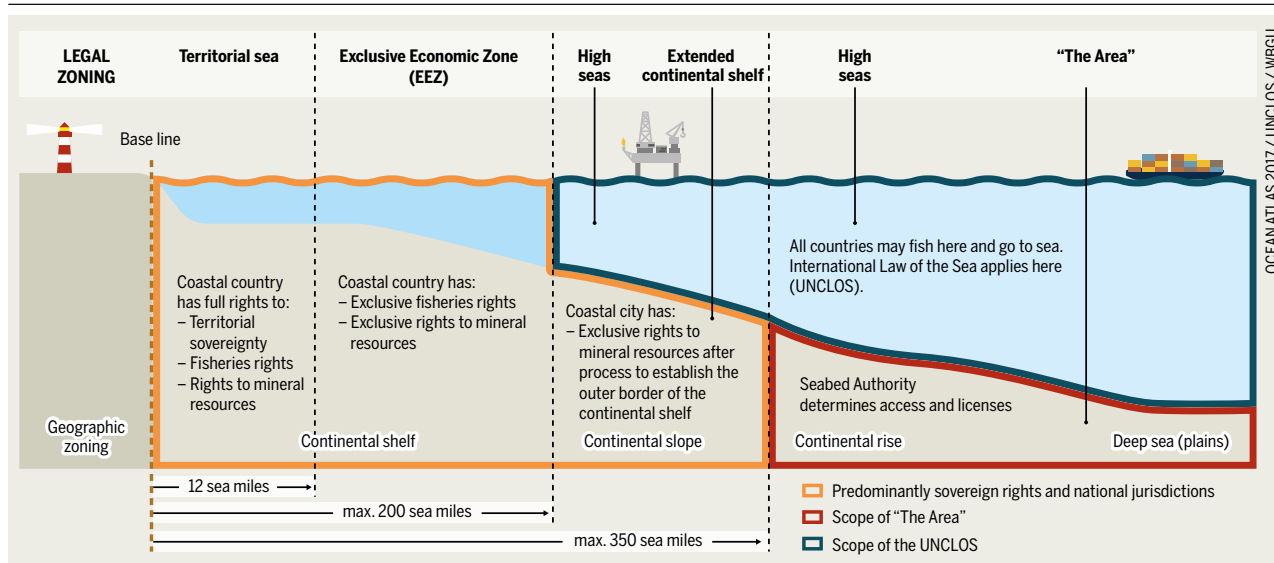
The foundation is the United Nations Convention on the Law of the Sea (UNCLOS 1982). It says that a country may claim an area extending 12 nautical miles from its coast as its own territorial sea. Additionally, it can exploit 200 nautical miles of the water column beyond its coast as its exclusive economic zone. The same applies to the first 200 nautical miles of the sea floor, the continental shelf. The resources found there can be exploited by that country alone. Furthermore, if the country can scientifically prove that its continental shelf extends even further – that it is continuously geologically connected to the main-

land – it also has the sole rights to the resources there as well. This territorial claim includes islands but not rocks or other outcroppings.

This is particularly interesting for some uninhabited islands like Heard Island and the McDonald Islands. They are tiny islands located 1,000 kilometers north of eastern Antarctica. Thanks to them, Australia has secured a geological exploitation area of more than 2.5 million square meters, because these islands stand on the undersea Kerguelen Plateau, a gigantic mountain range that stretches more than 2,000 kilometers. Australia can now claim exclusive exploitation rights to it. The convention does place some limits on this, but the rights may still extend up to 350 nautical miles from the island.

The Convention on the Law of the Sea (UNCLOS 1982), which is considered to be the constitution of the ocean and is intended to peacefully adjudicate the interests of all states, is still relatively young. Its approach to the areas of the ocean floor that lie totally outside national sovereign-

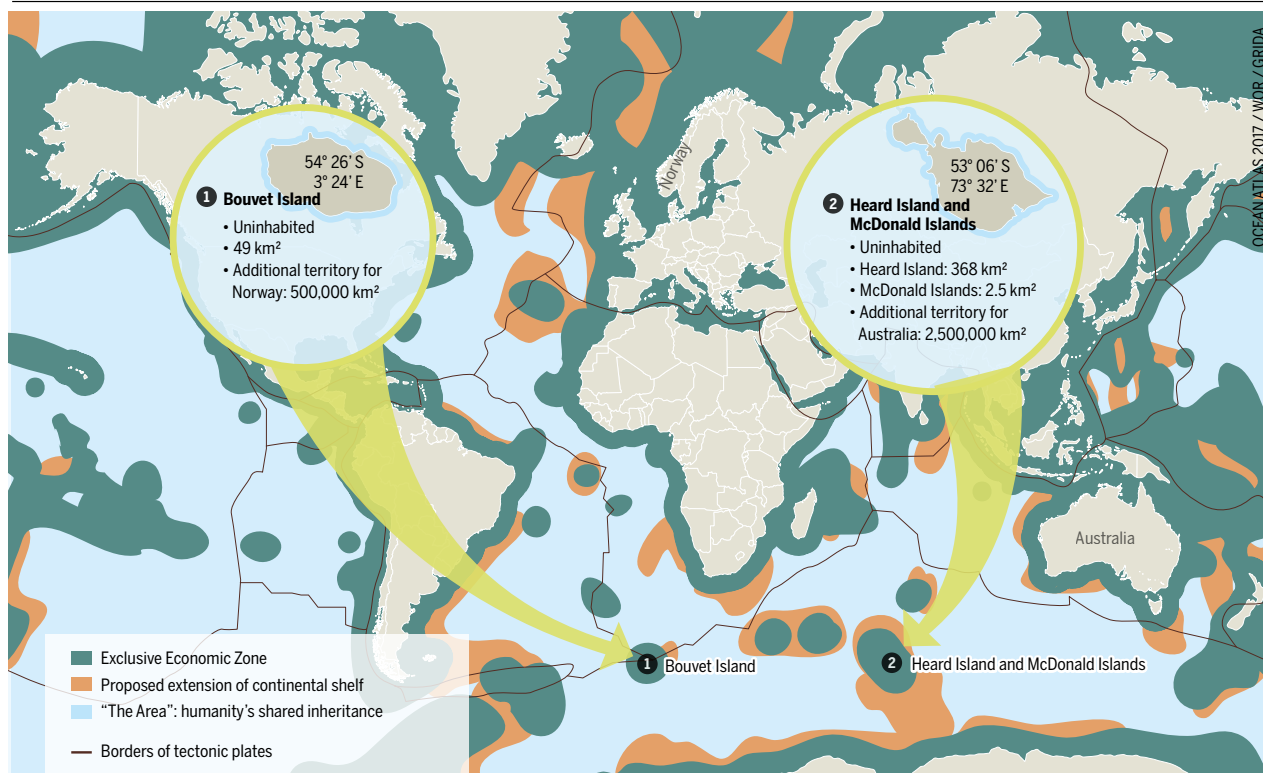
How the Lawyers Think—Maritime Zones and the International Law of the Sea



Today, humanity's inheritance is solely limited to the mineral resources of the parts of the seafloor that lie beyond national jurisdictions ("the Area"), which is administered by the Seabed Authority. The UN Convention on the Law of the Sea (UNCLOS), together

with its existing implementing conventions, defines the framework for ocean governance. The regional fisheries management organizations (RFMO) organize the cultivation of the fish stocks in the high seas as well as the trans-territorial and far-ranging fish stocks in the Exclusive Economic Zones (EEZ).

The International Community Is Losing Ground—As Individual Countries Gain It



The expansion of coastal countries' exclusive economic zones (dark green) into the area of the outer continental shelf (orange) reduces the international area. Any gain for an individual country is a loss for the community of nations. 57 percent of the sea floor is already partitioned. Only 43 percent of humanity's shared inheritance remains.

ty and national exploitation rights – referred to simply as “the area” in the language of the UN – is actually based on the concept of “the shared heritage of humanity.” It is intended to guarantee that the environment is protected and that developing nations also have their share of the riches.

These strong words sometimes achieve only weak results. When a country can legally expand its exclusive economic zone, it reduces the shared inheritance. Consider the case of Norway, which has reserved an exclusive economic zone of 500,000 square kilometers thanks to its ownership of Bouvet Island, a small “island” completely covered in ice and lacking fresh water located in the South Atlantic, 2,600 kilometers from the Cape of Good Hope. France has also swelled in size thanks to many far-flung island dependencies – it is still “la grande nation” when it comes to stockpiling the treasures of the ocean floor.

In establishing these claims, the UN Commission on the Limits of the Continental Shelf plays an important role. There, states secure rights to raw material reserves that are sometimes only partly economically ascertainable or that are only suspected to exist – unknown chances of future riches, so to speak. It is not just a matter of fossil fuels, ores, metals, and the power that comes from their control. It is also about the global strategic interests of the states in legally expanding their spheres of influence. The remain-

ing unclaimed “area” shrinks. It has already declined from more than 70 percent of the sea floor to just 43 percent. 57 percent of the ocean floor has already been parceled out. And as the international area shrinks, so does the ability of international influence to ensure that all nations have an opportunity to participate and that resources are fairly distributed.

These regulations are only related to the ocean floor. But the masses of water above, and everything that happens in and on them, are also subject to legal regulations. Within the economic zones, national laws apply to the exploitation of resources and environmental protection. Additionally, the law of the high seas applies – it is part of international law. But it also has loopholes: pirates can be detained by anyone who catches them, but not polluters, illegal fishing fleets, terrorists, weapons dealers, drug smugglers, or human traffickers. They can only be pursued by the countries from which they originate. It is often more than unclear who the responsible international organizations are. Territorially speaking, the high seas belong to no one – and so when it comes to exploitation, they belong to everyone. It is thus difficult to advance the protection of the ocean with reference to global problems. But it is not impossible, as current negotiations to create protected zones in the high seas at the EU level may prove. ●