

A large school of fish, likely sardines or anchovies, swimming in clear blue water. The fish are densely packed and moving in a coordinated pattern, creating a sense of movement and depth. The water is a vibrant blue, and the lighting is bright, suggesting a shallow depth near the surface.

The Blue Economy

Dr. Tim Buehrer
July 2023



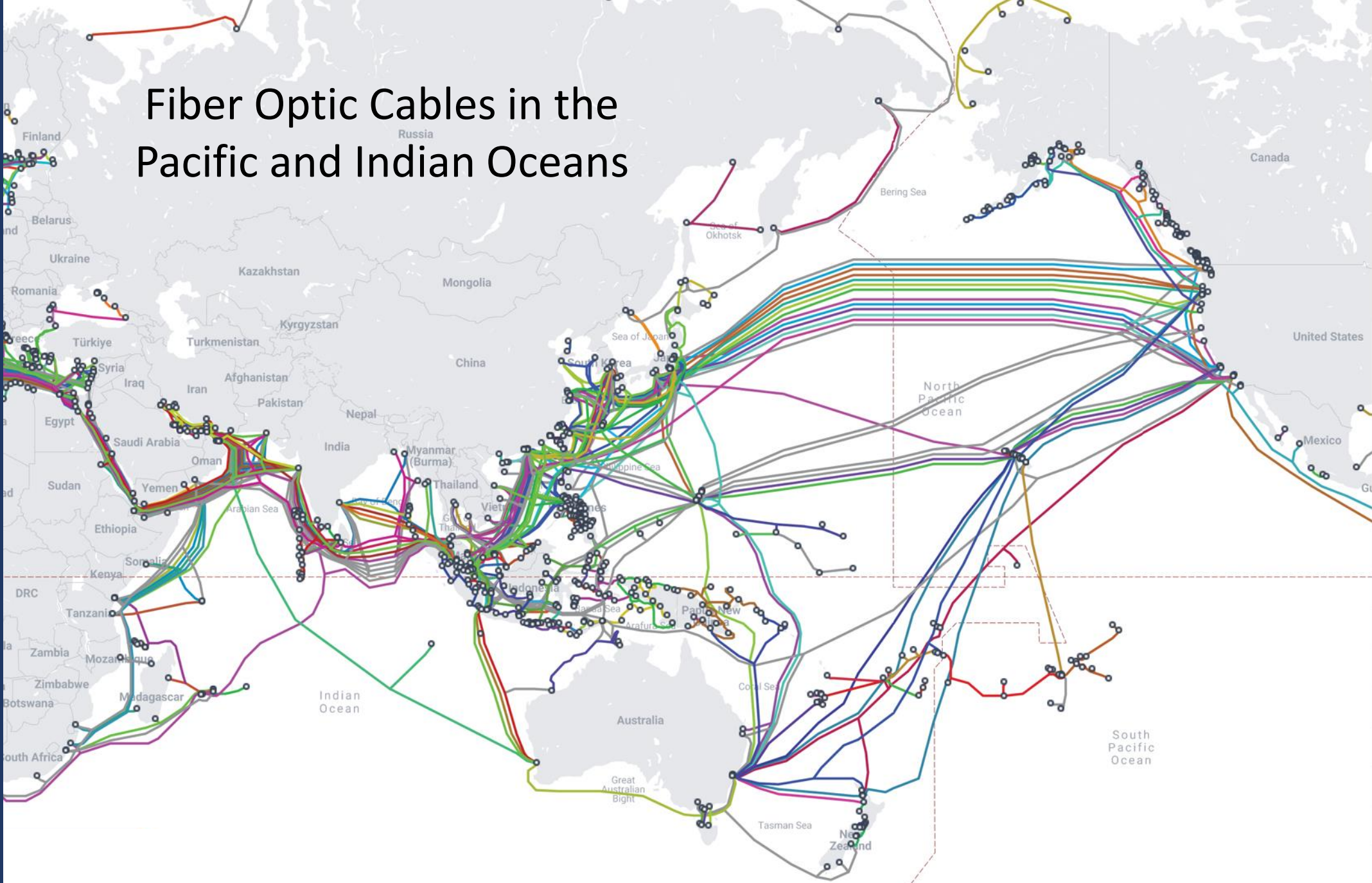




Black, potato-sized polymetallic nodules scattered on the seafloor are drawing prospectors for their cobalt, nickel, copper, and manganese. Credit: 2019 Southeastern U.S. Deep-sea Exploration/Office of Ocean Exploration and Research/NOAA



Fiber Optic Cables in the Pacific and Indian Oceans



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GreenPeace

Resources from the Sea

- 40% of the world's population lives near the coast
- 3 billion people rely on the oceans for their livelihood
- 15% of protein globally (
- More than 25% of oil and gas production (IIEA)
- 80% of international trade on ships (UNCTAD)
- 99% of data on fiber optic cables
- Undersea mining?





National State of Oceans and Coasts 2018:
Blue Economy Growth

THAILAND

Thai benefits from the sea

- 15 million people live near the coast (23%)
- Ocean area 323488 km²
- 29% of GDP comes from the ocean
- Approximately 20% of GDP is from tourism (IMF, but not all coastal)

PEMESA, National State of Oceans and Coasts 2018: Blue Economy Growth of Thailand,
<https://seaknowledgebank.net/sites/default/files/NSOC%20Thailand%202018%20%28FINAL%29%2012032020.pdf>



Tragedy of the Commons

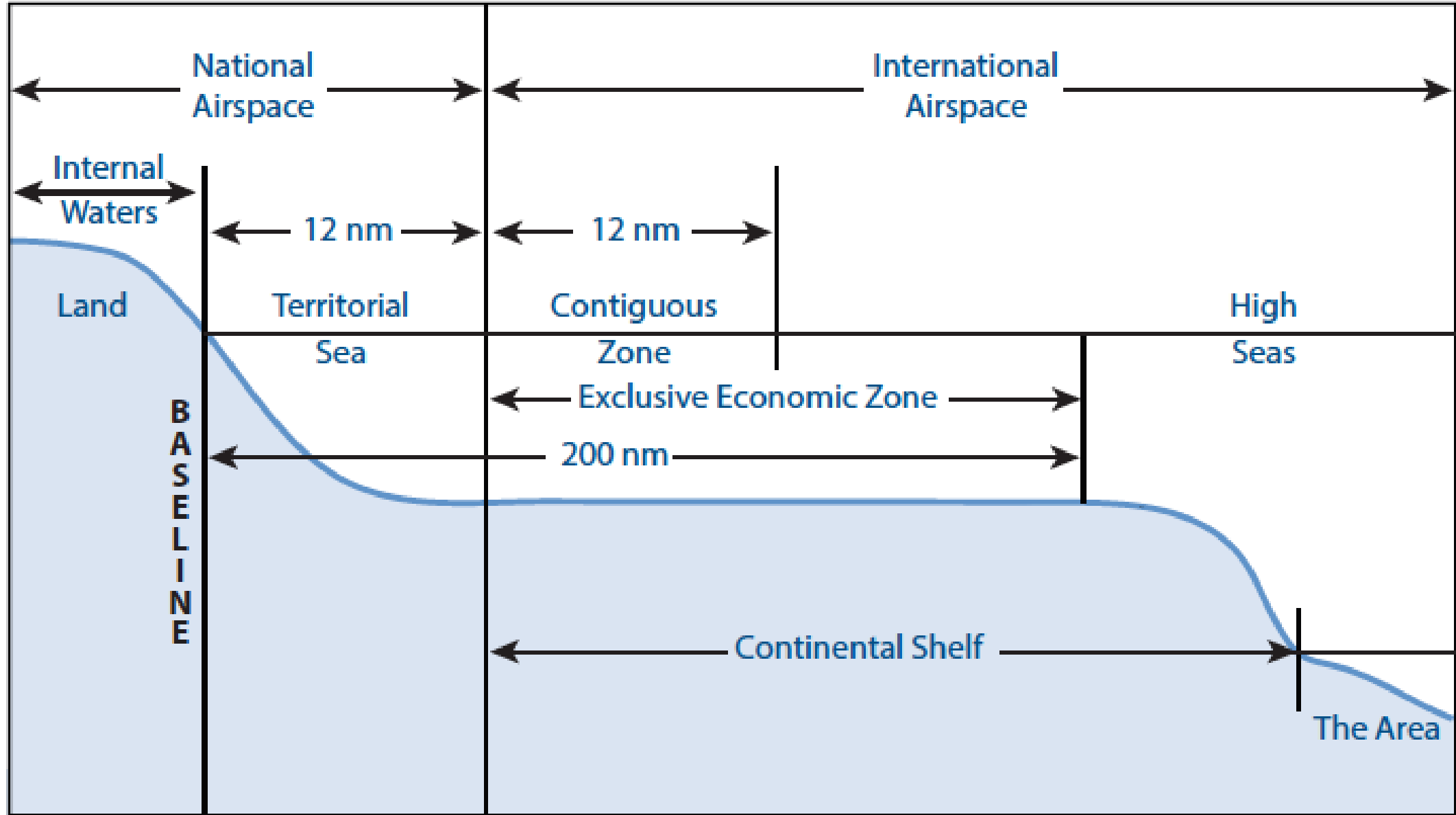


An aerial photograph of a coastline. The image shows the ocean on the left, with waves breaking onto a sandy beach on the right. The water is a deep blue, and the sand is a light tan color. The waves are white and foamy as they crash onto the shore.

Law of the Sea

- Baselines
- Territorial Waters & Contiguous Zones
- Exclusive Economic Zone
- Continental Shelf
- High Seas
- Seabed Authority

**Legal
Boundaries of
the Oceans and
Airspace**



nm – nautical mile

Comparative Sizes of the Various Maritime Zones

Areas of the Earth covered by the Oceans	approx. 335.0 million km²
High Seas	200.4 million km ²
Territorial Seas	22.4 million km ²
Contiguous Zones	6.6 million km ²
Exclusive Economic Zones	101.9 million km ²
Total areas under national jurisdiction excluding extended continental shelves beyond 200 nm	131.0 million km ²

Source: [UNEP/GRID-Arendal](#), [Continental Shelf: The Last Maritime Zone \(2011\)](#) at 28.

Countries with the Largest EEZs

Rank	Country	Exclusive Economic Zone Area (km ²)
1	France	11,691,000
2	United States	11,351,000
3	Australia	8,505,348
4	Russia	7,566,673
5	United Kingdom	6,805,586
6	Indonesia	6,159,032
7	Canada	5,599,077
8	Japan	4,479,388
9	New Zealand	4,083,744
10	Chile	3,681,989

Rank	Country	Exclusive Economic Zone Area (km ²)
11	Brazil	3,660,955
12	Kiribati	3,441,810
13	Mexico	3,269,386
14	Micronesia	2,996,419
15	Denmark	2,551,238
16	Papua New Guinea	2,402,288
17	Norway	2,385,178
18	India	2,305,143
19	Marshall Islands	1,990,530
20	Portugal	1,727,408

Thailand's Ratification of UNCLOS

Thailand's Exclusive Economic Zone

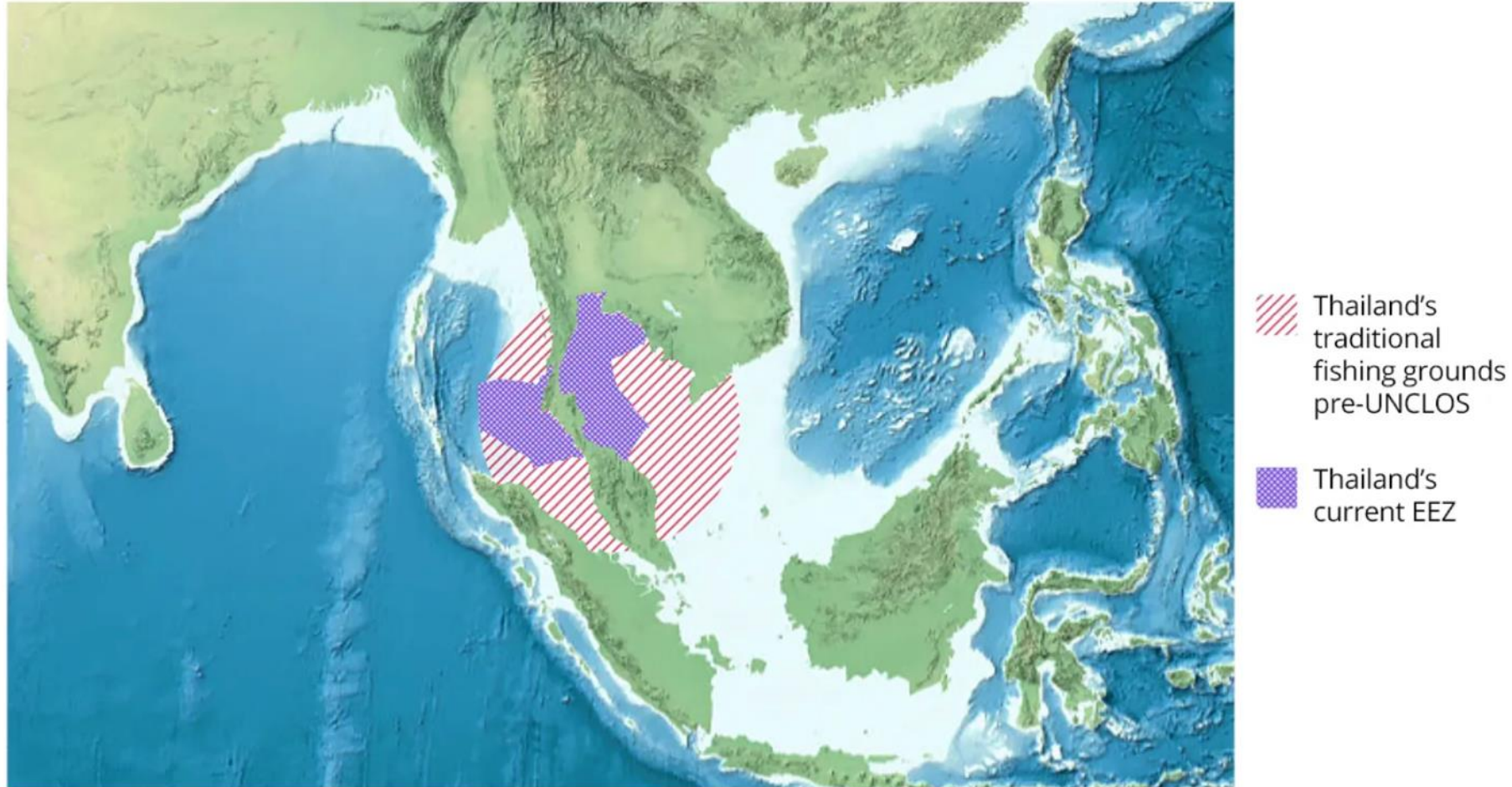


Figure 1

Source: marineregions.org (rendering of Thailand's traditional fishing grounds added by author)

Rear Admiral Somjade Kongrawd (retired, Royal Thai Navy)

<https://fulcrum.sg/unclos-and-thailand-security-prosperity-and-sustainability/#:~:text=UNCLOS%20was%20adopted%20in%201982,ratified%20the%20Convention%20in%202011.>



Black, potato-sized polymetallic nodules scattered on the seafloor are drawing prospectors for their cobalt, nickel, copper, and manganese. Credit: 2019 Southeastern U.S. Deep-sea Exploration/Office of Ocean Exploration and Research/NOAA

International Seabed Authority (ISA)



- Established in 1994 pursuant to UNCLOS
- Mandated by UNCLOS to manage mineral-related activities in the seabed outside of the EEZs for the benefit of humankind
- Working on regulations for different kinds of seabed mining since that time, with limited success
- In 2021, Nauru triggered a provision in the implementation agreement for UNCLOS that requires regulations to be completed in 2 years to permit mining
- The clock was up earlier this week and the ISA failed to complete negotiations
- First commercial mining may begin in 2024



<https://www.greenqueen.com.hk/bottom-trawling-fishing-releases-more-emissions-than-global-aviation-study-reveals/>

Conservation and Sustainable Use of Marine Biological Diversity of Areas Beyond National Jurisdiction

- A second major sub-agreement to UNCLOS covers the management of biological diversity in the High Seas
- Agreement on an initial text was reached in March 2023
- Calls for scientific management of the High Seas
- Enables the creation of marine sanctuaries and set a target of 30% of the high seas to be sanctuaries by 2030
- Regulates marine research for scientific and commercial development
- Does not supersede existing organizations (ISA, regional fisheries organizations, etc.)



SUSTAINABLE DEVELOPMENT GOALS

1 NO POVERTY

2 ZERO HUNGER

3 GOOD HEALTH AND WELL-BEING

4 QUALITY EDUCATION

5 GENDER EQUALITY

6 CLEAN WATER AND SANITATION

7 AFFORDABLE AND CLEAN ENERGY

8 DECENT WORK AND ECONOMIC GROWTH

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

10 REDUCED INEQUALITIES

11 SUSTAINABLE CITIES AND COMMUNITIES

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

13 CLIMATE ACTION

14 LIFE BELOW WATER

15 LIFE ON LAND

16 PEACE, JUSTICE AND STRONG INSTITUTIONS

17 PARTNERSHIPS FOR THE GOALS



SDG 14 Life Below Water: Targets/Indicators



- 14.1: Prevent and significantly reduce marine pollutions
- 14.2: Sustainably manage and protect marine and coastal ecosystems
- 14.4: Effectively regulate harvesting and end overfishing, illegal, unreported and unregulated fishing and destructive fishing practices
- 14.5: Conserve at least 10 per cent of coastal and marine areas
- 14.6: Prohibit certain forms of fisheries subsidies
- 14.7: Increase the economic benefits to Small Island Developing States and Least Developed countries

BLUE ECONOMY

The Blue Economy is sustainable use of ocean resources for economic growth, improved livelihoods and jobs, and ocean ecosystem health.

The Blue Economy encompasses many activities...

RENEWABLE ENERGY

Sustainable marine energy can play a vital role in social and economic development.

FISHERIES

Marine fisheries contribute more than **US\$270 billion** annually to global GDP. More sustainable fisheries can generate more revenue, more fish and help restore fish stocks.

MARITIME TRANSPORT

Over **80%** of international goods traded are transported by sea, and the volume of seaborne trade is expected to double by 2030 and quadruple by 2050.

TOURISM

Ocean and coastal tourism can bring jobs and economic growth. Coastal Least Developed Countries and Small Island Developing States receive more than **41 million visitors** per year.

CLIMATE CHANGE

The impacts of climate change on oceans—rising sea-levels, coastal erosion, changing ocean current patterns, and acidification—are staggering. At the same time, **oceans are an important carbon sink** and help mitigate climate change.

WASTE MANAGEMENT

80% of litter in the ocean is from land-based sources. Better waste management on land can help oceans recover.

2050 Strategy for the Blue Pacific Continent

- Declaration of Pacific Island leaders through the Pacific Island Forum of a vision for the Pacific Ocean
- Focus: “We will prepare and position ourselves ... to secure our ocean and derive economic benefits from its resources in a manner that will maintain environmental integrity and drive sustainable economic prosperity and development for all Pacific peoples.”
- Strategic Pathways:
 - Governance
 - Inclusion and equity;
 - Education, research and technology;
 - Resilience and wellbeing; and
 - Partnerships and cooperation

Blue Economy Strategies

- Strategies come in many forms but focus on sustainability of ocean resources
- Emphasis on governance and inclusion, including addressing the “tragedy of the commons”
- Balancing all uses of the ocean:
 - Biological, particularly relating to food security
 - Mineral
 - Climate impacts
 - Pollution abatement
 - Tourism



The Development of ASEAN **Blue Economy** Framework

<https://www.youtube.com/watch?v=vtVvkqaoQZc>

Establishing a Blue Economy Strategy - Canada

- **Ocean protection:** Protecting the oceans from the threats of pollution, climate change and overfishing.
- **Ocean sustainability:** Develop regulations to support sustainable and environmentally responsible ocean practices
- **Ocean science and innovation:** Invest in ocean science to drive sustainable innovation
- **Ocean governance:** Ensure inclusive and integrated decision-making regarding ocean resources
- **International engagement:** Engage other nations in broader ocean management
- **Oceans plastics and marine litter:** Targeting reduction in plastic waste on land and in oceans

A Blue Economy Strategy for Thailand

- What issues should be addressed?
- Who should be involved in development of the policy?
- What existing strategies would need to be modified or accommodated?

