Responsible Alpha
ESG Integration®

Ocean Geopolitics - impact of new science and technology

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Responsible Alpha Inc.

Supporting the transition to a low-carbon, sustainable, and equitable future

Sustainable Finance

- Financial Structuring & Advisory Services
- Green, Social & Sustainability Bonds Advisory
- Investor Relations Strategies
- Market Intelligence, Research & Analysis
- Environmental Market Project Development

Sustainable Transition Strategies

- ESG Integration & Strategy Development
- Disclosure & SDG Reporting
- Impact Measurement & Biodiversity Analysis
- Greenwashing Risk Analysis
- Capacity Building and Training

IDB Inter-American Development Bank

Helped to broaden the reach of IDB's pioneering Green Bond Transparency Platform

Nestlé

Analysis of the ESG, SDG, and climate risk metrics associated with their petrochemical plastics supply chain

Ocean Conservancy®

Advocacy for improved climate-related disclosures by public companies by the SEC

Impact of new science

Science or exploration?

1872-1876	The **HMS Challenger** expedition • first comprehensive survey of the world's oceans
1930-1934	**Bathysphere** Expeditions • first deep-sea exploration in a human-occupied vehicle • first observations of deep-sea animals in their habitat
1977	First observation of **hydrothermal vents** made with the DSV Alvin at the Galápagos Rift
2000-2010	**Census of Marine Life** • first ever baseline of marine life diversity, distribution, and abundance
2017-2030	**Seabed 2030** is mapping the seabed to an adequate resolution (6% → 26.1%)
2021-2030	**The Ocean Decade**, a 10-year framework initiative to identify, generate and use critical ocean knowledge to manage the ocean sustainably

unesco

OBIS OCEAN BIODIVERSITY INFORMATION SYSTEM

THE NIPPON FOUNDATION-GEBCO SEABED 2030

2021 2030 United Nations Decade of Ocean Science for Sustainable Development

Impact of new science

Impactful new science

- In many domains our scientific understanding is insufficiently developed to support policy-making
  - Risk of unknown and irreversible impacts
- Need to integrate terrestrial and ocean science domains for an holistic understanding of human-ocean interactions
- Artificial Intelligence – Machine Learning - Natural Language Processing
- Environmental DNA (eDNA)

Impact of new technology

Cutting up a very big cake

I'll address this from three angles

- national security
- economic (blue economy)
- environmental conservation

Ocean Geopolitics from a National Security perspective

Protecting a Nation's People, Territory, and Resources

- What is at risk?
  - Land → Armed Forces (Navy *et al*)
    - Strategic; Security; Warfighting functions
  - Territorial Sea & EEZ
    - Resources → oil, gas, minerals
    - Infrastructure → offshore platforms, pipelines, data centres
  - Deep sea
    - Shipping Routes
    - Undersea Cables
- Who are involved?
  - State Actors
  - Non-state Actors

Ocean Geopolitics from a National Security perspective

Impactful new technologies

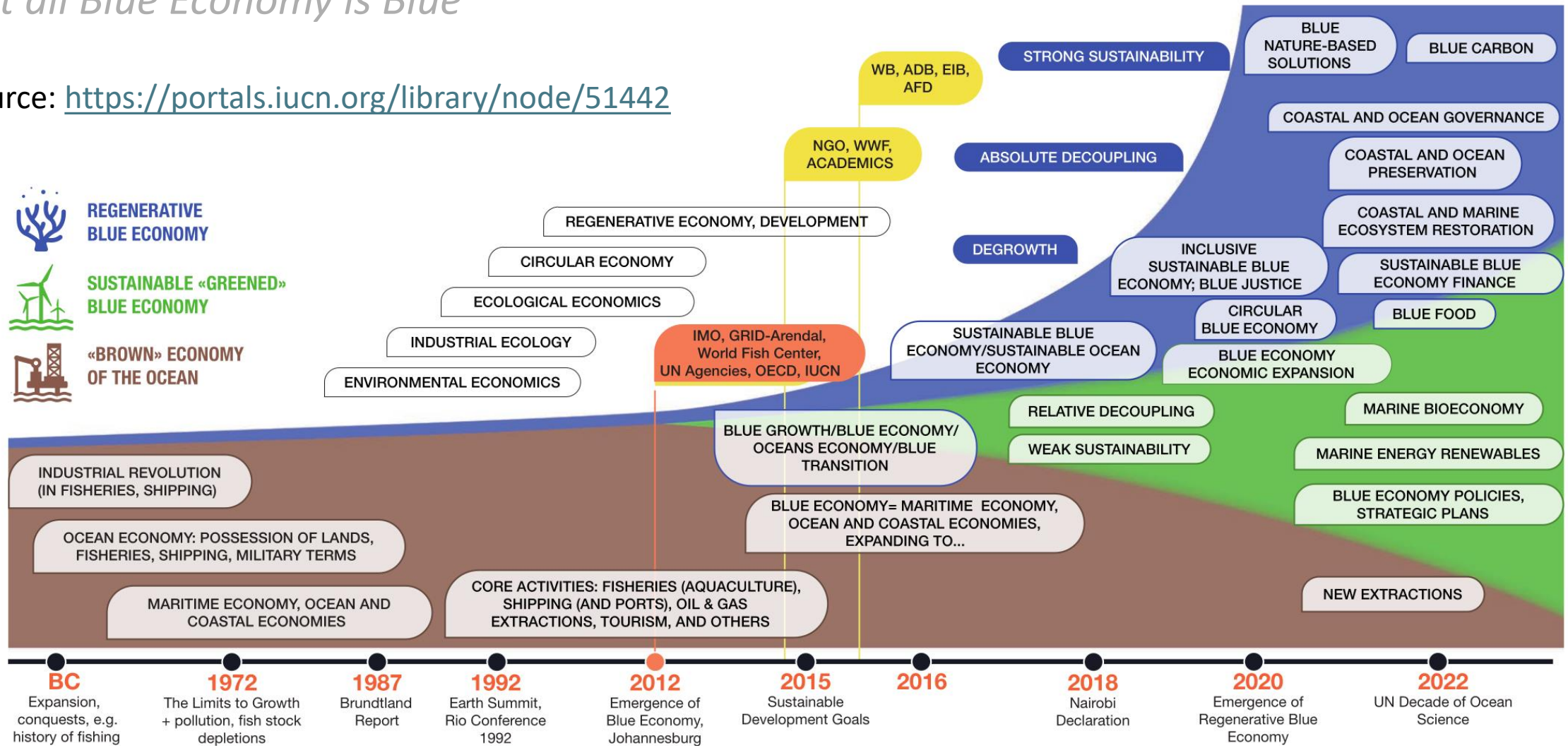
- **Maritime Situational Awareness is key**
  - the effective understanding of anything associated with the maritime domain that could impact the security, safety, economy, or environment.
- Sensing below, on, and above the sea surface
- Unmanned / remotely operated underwater and aerial vehicles
- AI, AI, AI
- Cyber security

….but "current ways" from legal to silos and standards hinder data sharing, and the overall lack of data quality and harmonised standards also limit building trust in data handling

Ocean Geopolitics from a Blue Economy perspective

Not all Blue Economy is Blue

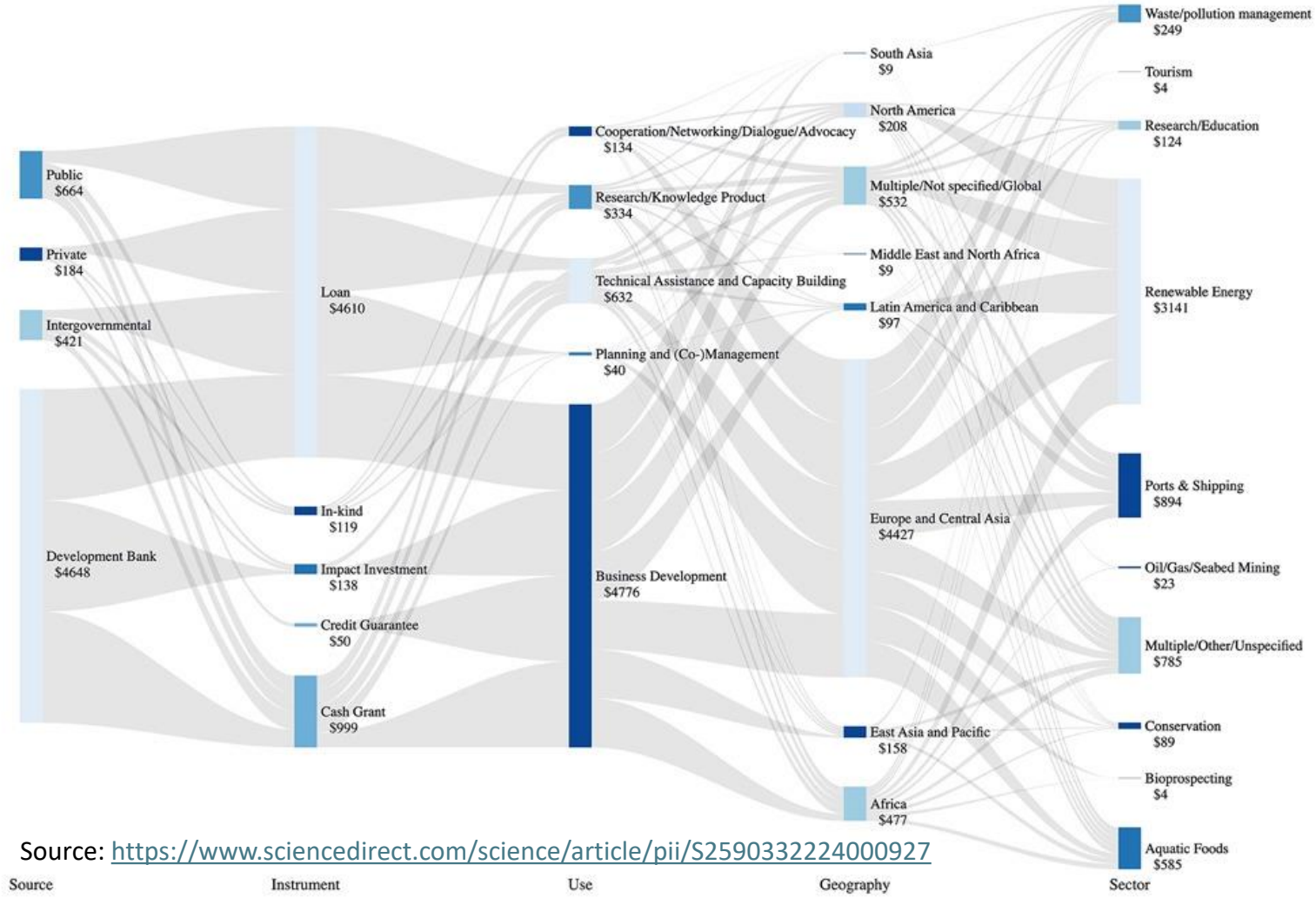
Source: https://portals.iucn.org/library/node/51442



Ocean Geopolitics from a Blue Economy perspective

Follow the money

- UNCTAD (2023)
  - annual export value of goods and services US$1.3t in 2020
  - annual economic value estimated at US$3-6t/yr
- "Blue economy" labelled investments between 2017 and 2021 totalled US$5.9b
- 1.6% of ODA directed at the ocean economy (2013-2018)



Source: https://www.sciencedirect.com/science/article/pii/S2590332224000927

Ocean Geopolitics from a Blue Economy perspective

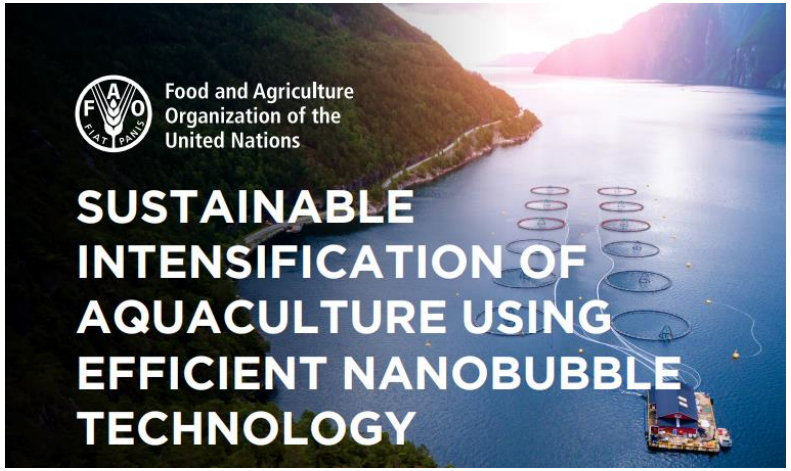
Shipping/Tourism

- Decarbonisation journey has only just started
  - 92.6% of tonnage in operation can only use fuel oils, but half the tonnage on order will have alternative fuel capability
- Onboard CCS + Nuclear propulsion
- Energy-efficiency measures (propeller and hull efficiency; waste-heat recovery, air lubrication, and wind technologies)
- Operations (digital-enabled optimized voyage planning, shore power, slow steaming)

Ocean Geopolitics from a Blue Economy perspective

Fisheries & Aquaculture

- Improved species identification through genetic technologies
- Illegal, Unreported, and Unregulated (IUU) fishing
- Blockchain application in seafood value chains
- Genomics to enhance aquaculture production
- Sustainable intensification of aquaculture



Ocean Geopolitics from a Blue Economy perspective

Resources

- Oil & Gas & CCS
  - Oil & Gas are here to stay…until they're made illegal
  - CCS is designed to extend the use of hydrocarbons and a boost for EOR
- Offshore Wind, Solar, Power-to-X
  - ecosystem impacts
- Marine minerals
  - deep sea mining of **manganese** nodules **cobalt** crusts, and **sulphur**-rich ore that originates at "black smokers"

Ocean Geopolitics from a Environmental Conservation perspective

Drivers for technology innovation

- In March 2023 the UN adopted the **BBNJ** Agreement on Conservation and Sustainable Use of Marine Biological Diversity of Areas Beyond National Jurisdiction (ABNJs)
  - 03/09/2024: 91 nations and the EU have signed the Agreement of which 8 have also ratified
  - BBNJ addresses 1) Marine Genetic Resources; 2) Area-based Management Tools (e.g. Marine Protected Areas); 3) Environmental Impact Assessments; and 4) Capacity Building and Marine Technology Transfer
- **Nature Based Solutions**: actions to protect, sustainably manage, and restore natural or modified ecosystems, that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits
- **Blue Finance**

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www.poseidonprinciples.org

Final observations

Impact

- One Ocean, many countries
- Our **scientific** understanding of the Ocean lags behind to adequately inform policy development
- The environmental Ocean **data** we currently gather is orders of magnitude below what is needed to adequately inform policy development and management of ocean resources in both **quantity** and **diversity**

Recommended reading

in addition to the sources already mentioned in the slides

- State of the Oceans 2024 (German Ocean Foundation)
- World Ocean Outlook 2023 (Economist)

Please note that these slides are not a complete representation of the presentation given.