Havet og havnæringenes bidrag til bærekraftig utvikling

Peter M Haugan

Programme Director
IMR *Global Development*
Institute of Marine Research, Norway

også tilknyttet:

Geophysical Institute, University of Bergen

Norwegian Ministry of Foreign Affairs and the
High Level Panel for a Sustainable Ocean Economy

Intergovernmental Oceanographic Commission and the UN
Decade of Ocean Science for Sustainable Development 2021-2030

Havet er nøkkelen til bærekraftig utvikling

United Nations Educational, Scientific and Cultural Organization
Intergovernmental Oceanographic Commission
2021 2030 United Nations Decade of Ocean Science for Sustainable Development

One Planet, One Ocean

- Havet er for stort til å ignoreres
- Havet er stort, men det kan ødelegges
- Havet er stort, men det kan fixes

(Lubchenco & Gaines, Science, 2019)

Løsninger!

Havet spiller en nøkkelrolle for det meste

Generates

Of the Earth's oxygen

Absorbs

Of all CO2 emissions

Captures

Of the additional heat generated from those emissions

NO POVERTY

Sustainable ocean growth means sustained growth, which is able to lift and keep people out of poverty

ZERO HUNGER

Farming and fishing sustainably has the potential to produce far more protein than a 2050 population requires

GOOD HEALTH AND WELL-BEING

Apart from being able to provide more nutritious food, a healthy ocean is the recharging point for billions of people

QUALITY EDUCATION

Lifting marginalised coastal communities out of poverty increases their children's chances for a good education

GENDER EQUALITY

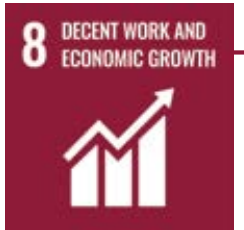
Increasing gender equality in the ocean economy would empower millions of women

CLEAN WATER AND SANITATION

Desalination of ocean water provides drinking water to millions of people. Additionally, improving sanitation can increase coastal water quality

AFFORDABLE AND CLEAN ENERGY

Expanding the ocean's almost unlimited renewable energy potential is predicted to contribute 10% of the global electricity production increase by 2050



DECENT WORK AND ECONOMIC GROWTH

Growing the ocean economy sustainably is projected to more than double the current ocean economy

Stuchtey et al., 2020, oceanpanel.org

INDUSTRY, INNOVATION AND INFRASTRUCTURE

Constructing low carbon ports and renewable ocean energy will stimulate innovation and create vital infrastructure

REDUCED INEQUALITIES

Granting well-defined ocean access rights and sustainable resource use ensures long-term prosperity of marginalised groups

SUSTAINABLE CITIES AND COMMUNITIES

Constructing blue-green storm protection infrastructure will make cities more sustainable

RESPONSIBLE CONSUMPTION AND PRODUCTION

Solving ocean plastic pollution drives us to build a more circular economy on land

CLIMATE ACTION

Growing ocean industries sustainably can contribute up to one-fifth of greenhouse gas savings towards achieving a 1.5^{0}C future

LIFE ON LAND

Reducing ocean dead zones catalyses land-based reforms towards regenerative precision agriculture

PEACE, JUSTICE & STRONG INSTITUTIONS

In a sustainable ocean economy, a nation's sovereignty over its exclusive economic zone and resources is achieved

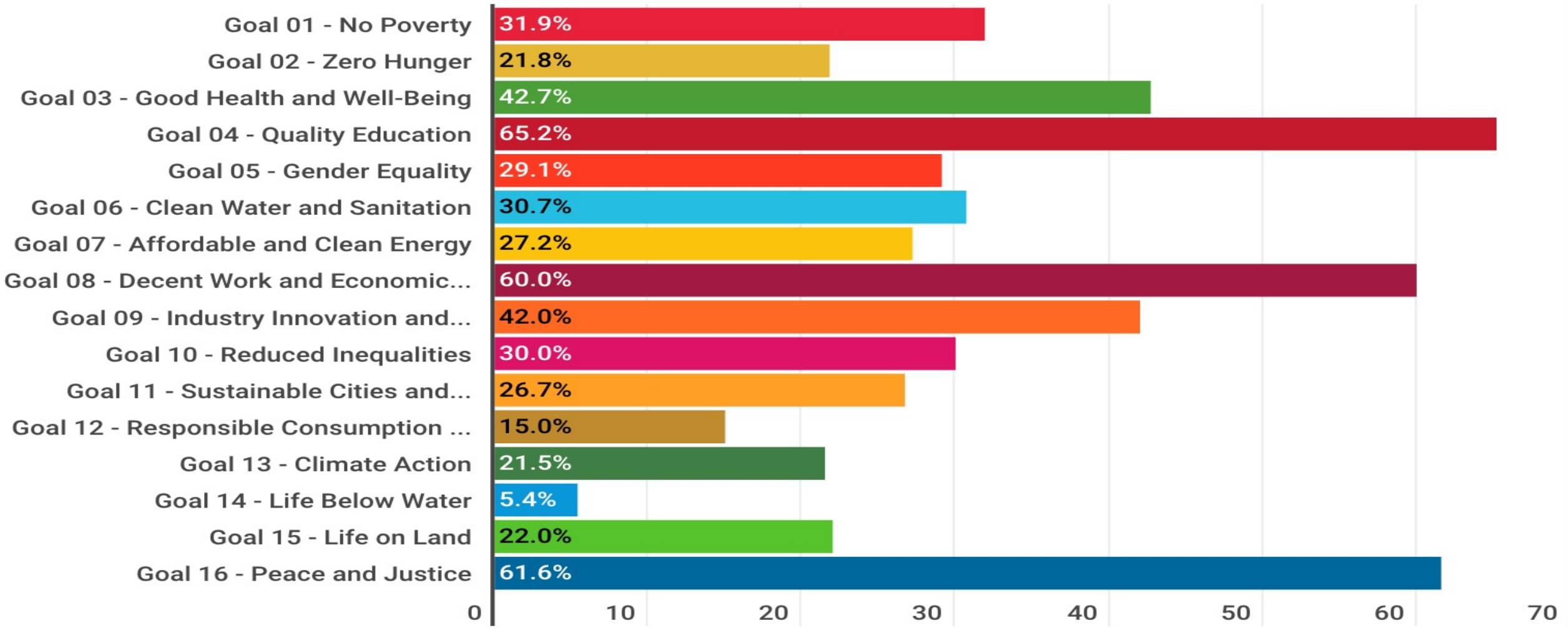
PARTNERSHIPS FOR THE GOALS

The ocean is a platform for collaboration and strengthens the global partnership for sustainable development

Stuchtey et al., 2020, oceanpanel.org

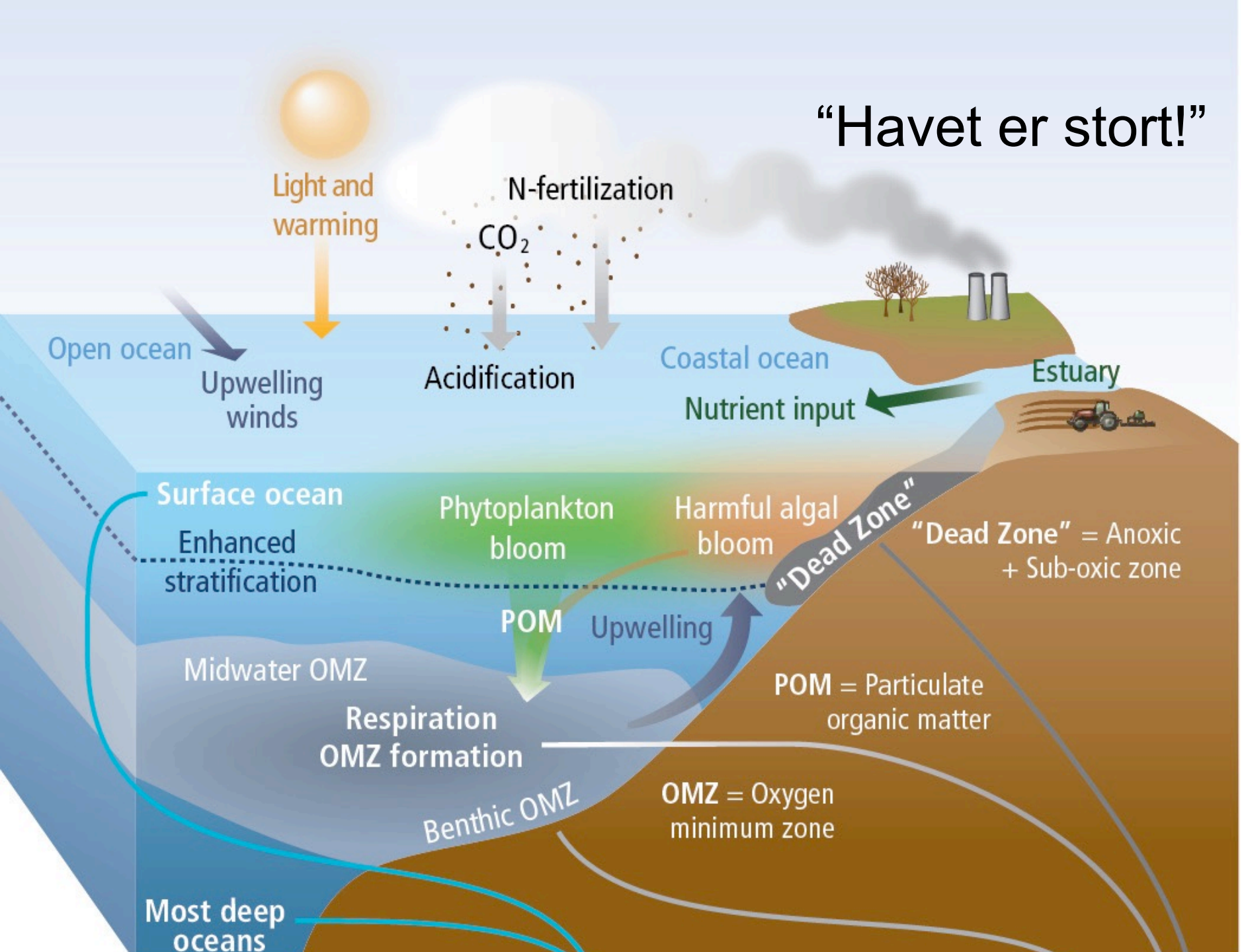
How frequently does a global goal appear in leaders top six priorities?

All Regions | EAP | ECA | LAC | MENA | SA | SSA



Custer et al., 2018

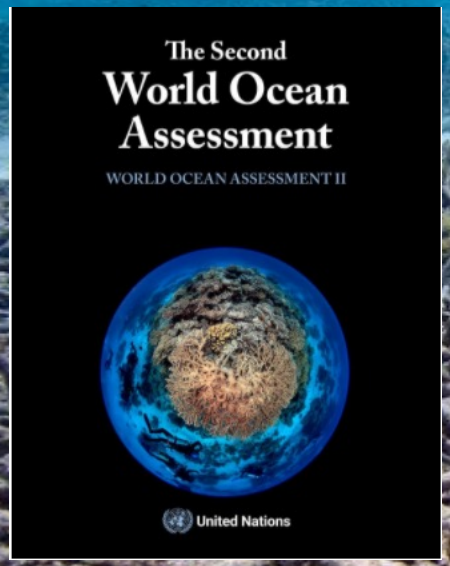
“Havet er stort!”



- Mennesker er landdyr
- Vanskelig å begripe
- Store variasjoner

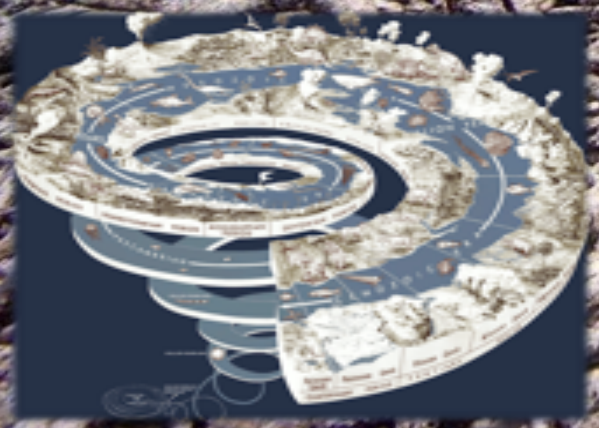
Ocean:

Dirty, hot, sour, half-dead, and breathless!?



Main finding of World Ocean Assessment :

due to multitude and complex nature of stressors world is running out of time to save and sustainably manage its ocean!



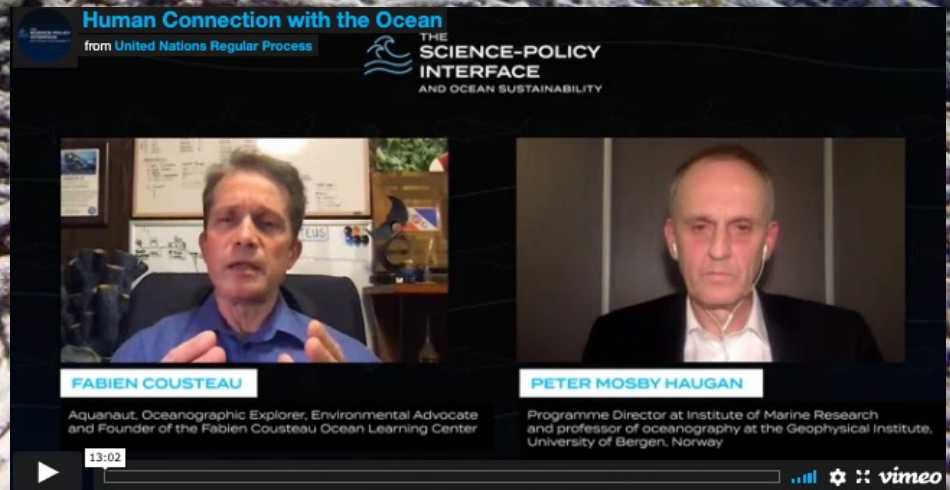
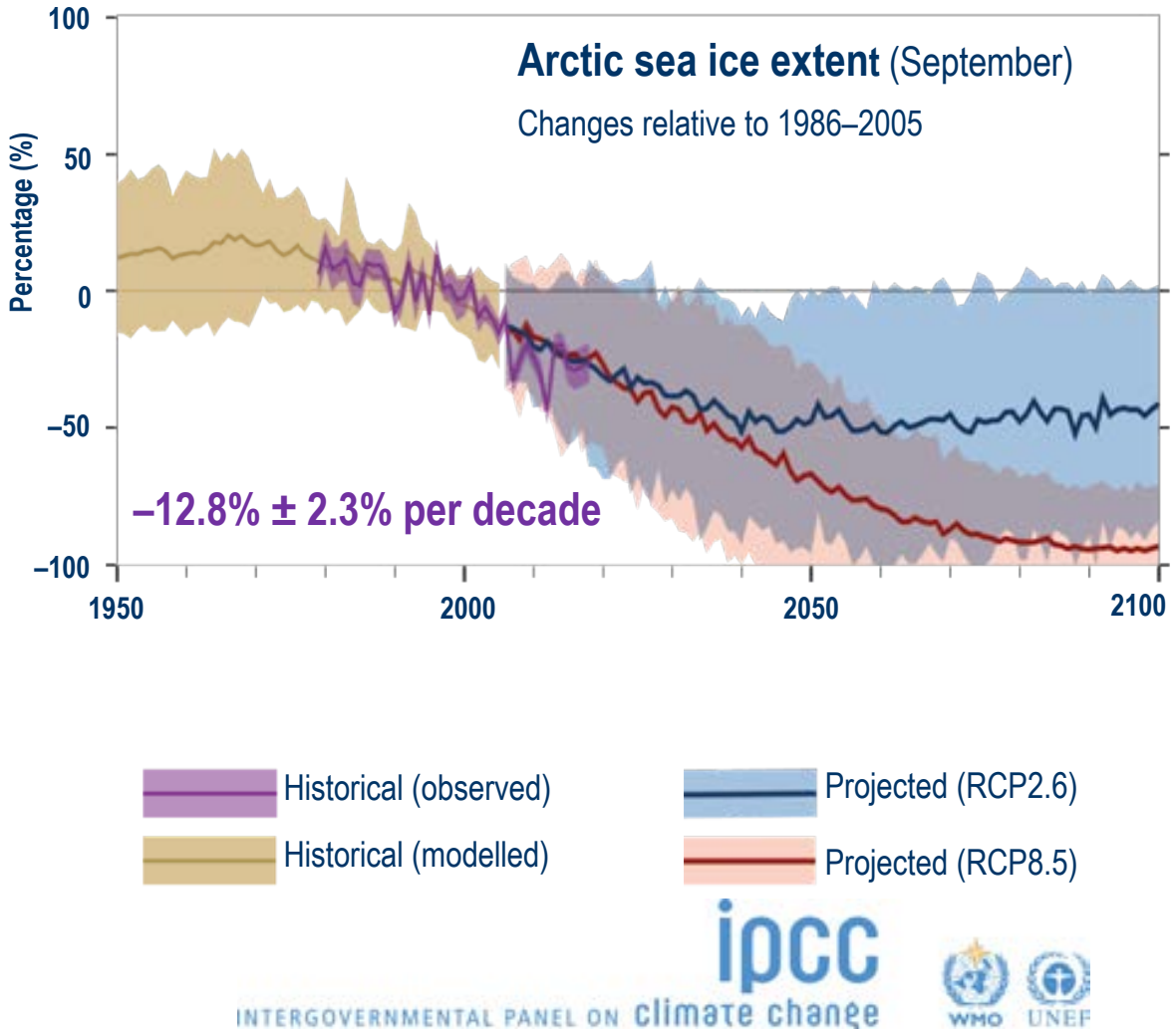


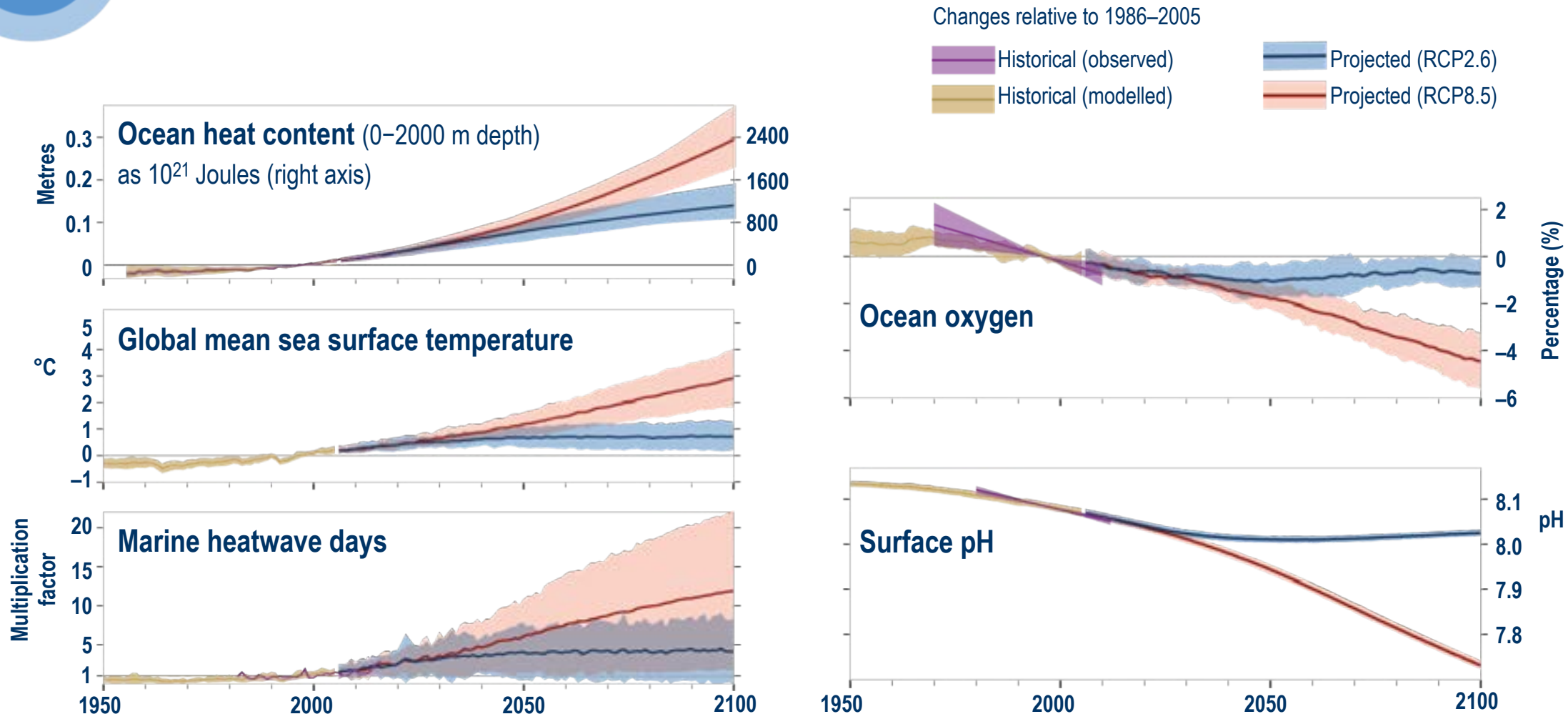
Photo: B Christensen / Azote

Arctic sea ice is shrinking and its loss is projected to continue depending on global warming

- September **Arctic sea ice extent has decreased** between 1979 and 2018
- Summertime Arctic **ship-based transportation** has **increased** over the past two decades
- At global warming of **1.5°C**, the **Arctic Ocean** will **rarely be free of sea ice** in September.
- At **2°C** warming, this would occur on average in **one to three times in ten years**



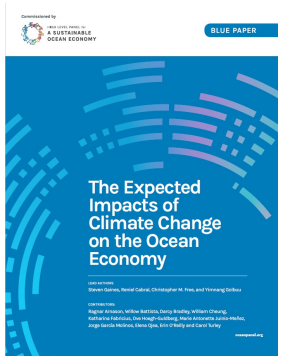
The ocean is projected to transition to unprecedented conditions



ipcc
INTERGOVERNMENTAL PANEL ON climate change

WMO UNEP

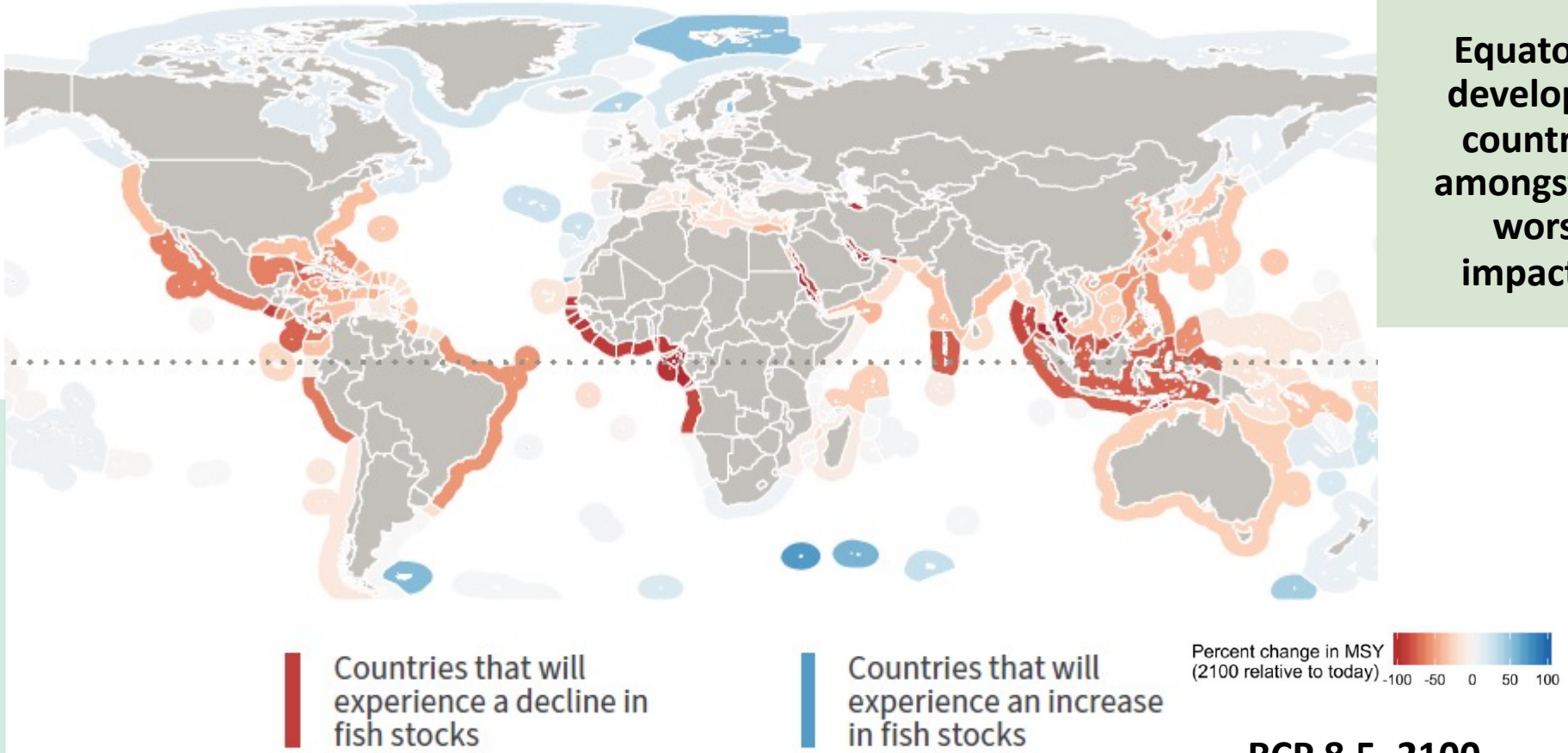
Estimated impacts – capture fisheries



Global Redistribution and Loss of Productivity of Fish Stocks

Equatorial developing countries amongst the worst impacted

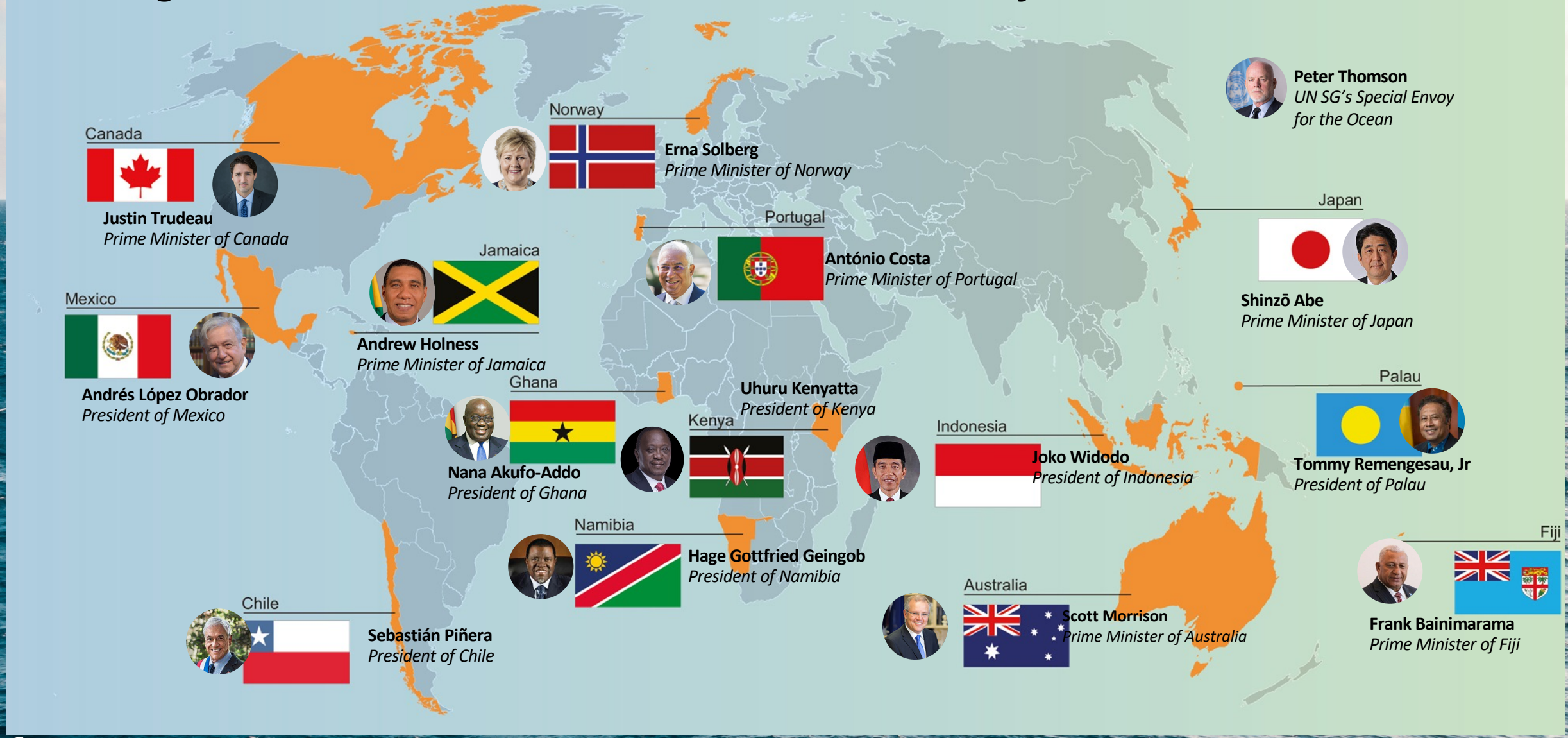
West Africa could see fish stock decline by 85% under high emissions scenario



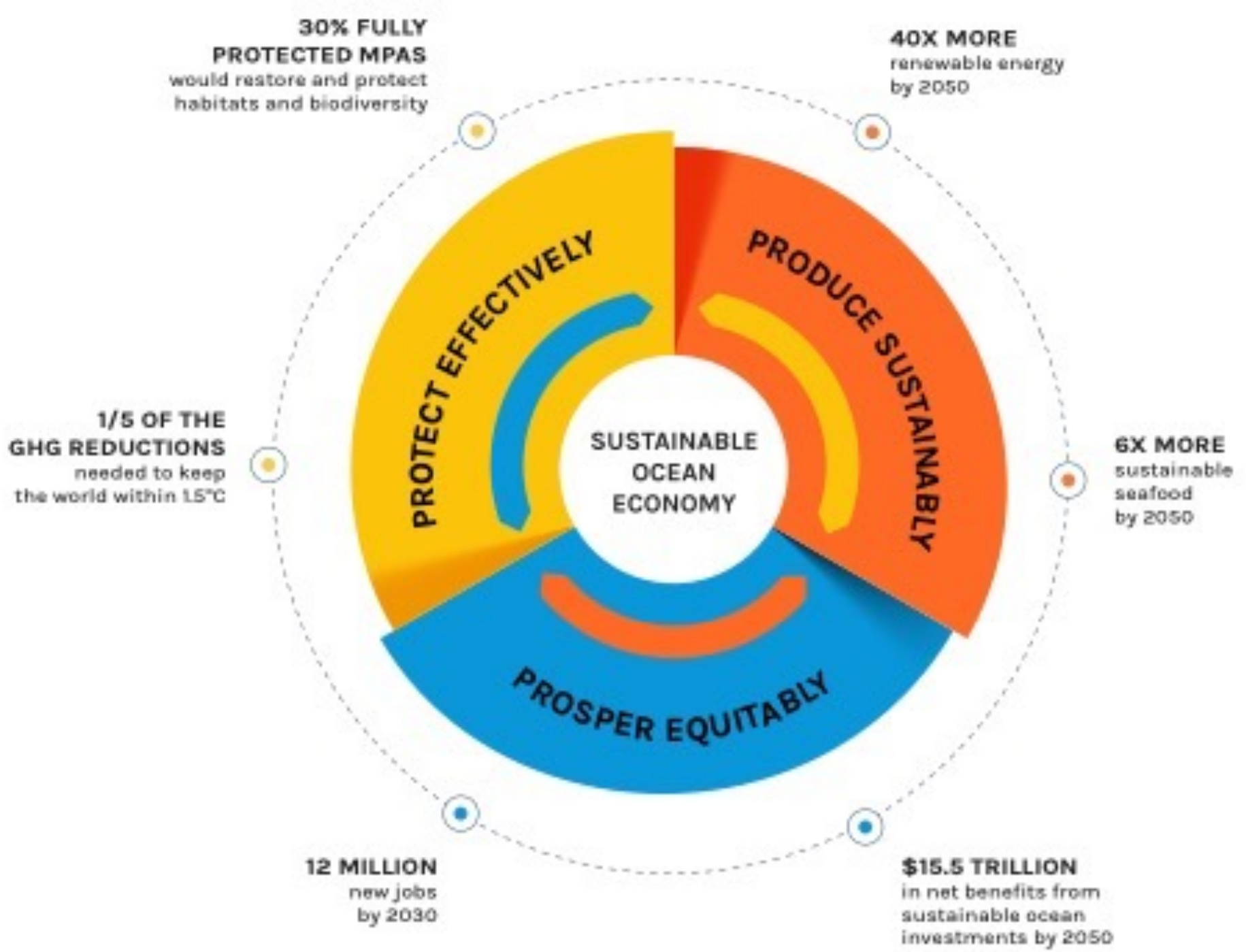
RCP 8.5, 2100

Figure courtesy Elena Ojea

The High Level Panel for a Sustainable Ocean Economy



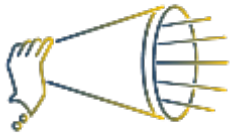
HIGH LEVEL PANEL for
A SUSTAINABLE
OCEAN ECONOMY



Havpanelet:

- Effektivt vern
- Bærekraftig virksomhet
- Rettferdig velstand

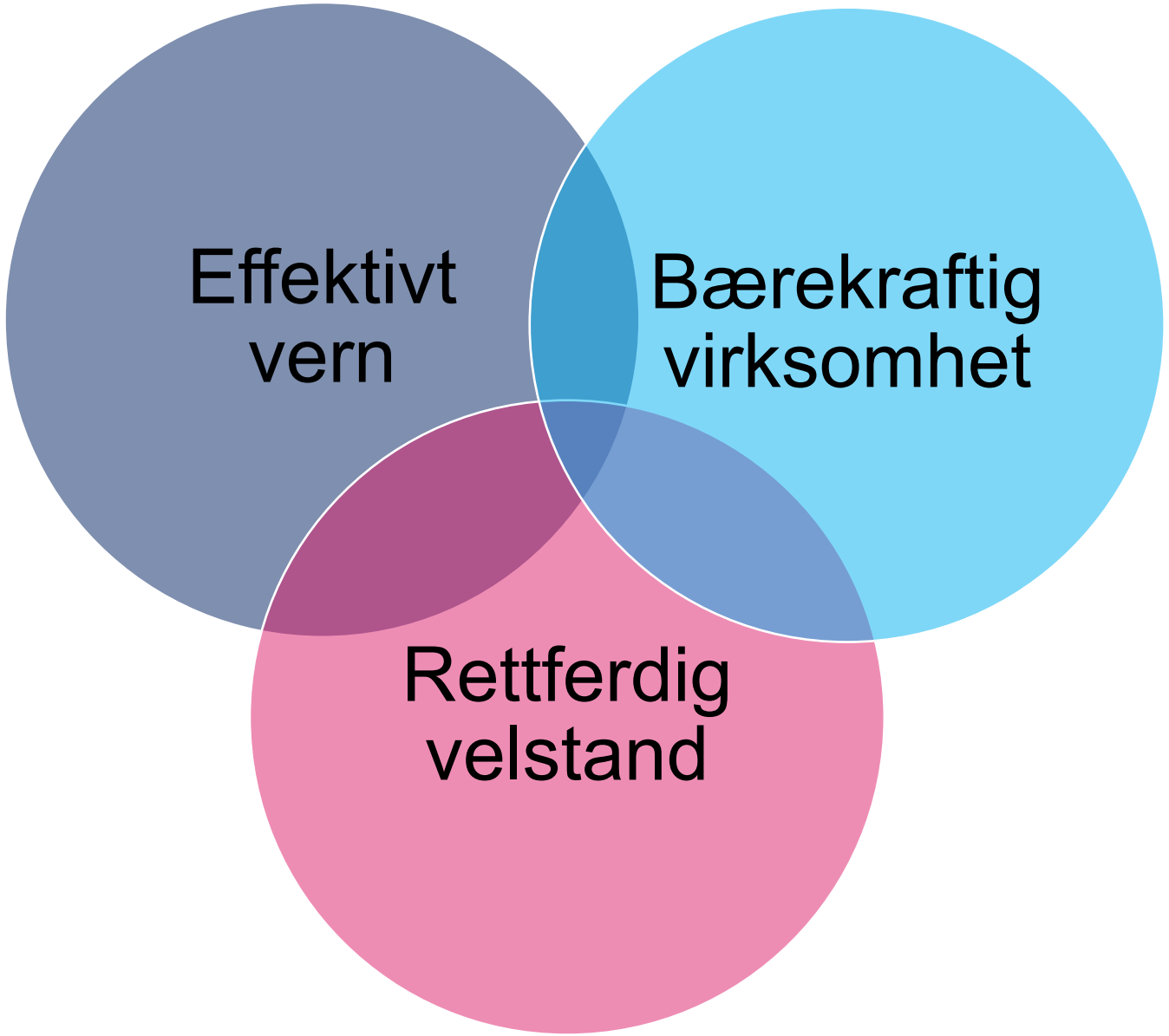
The High Level Panel will:



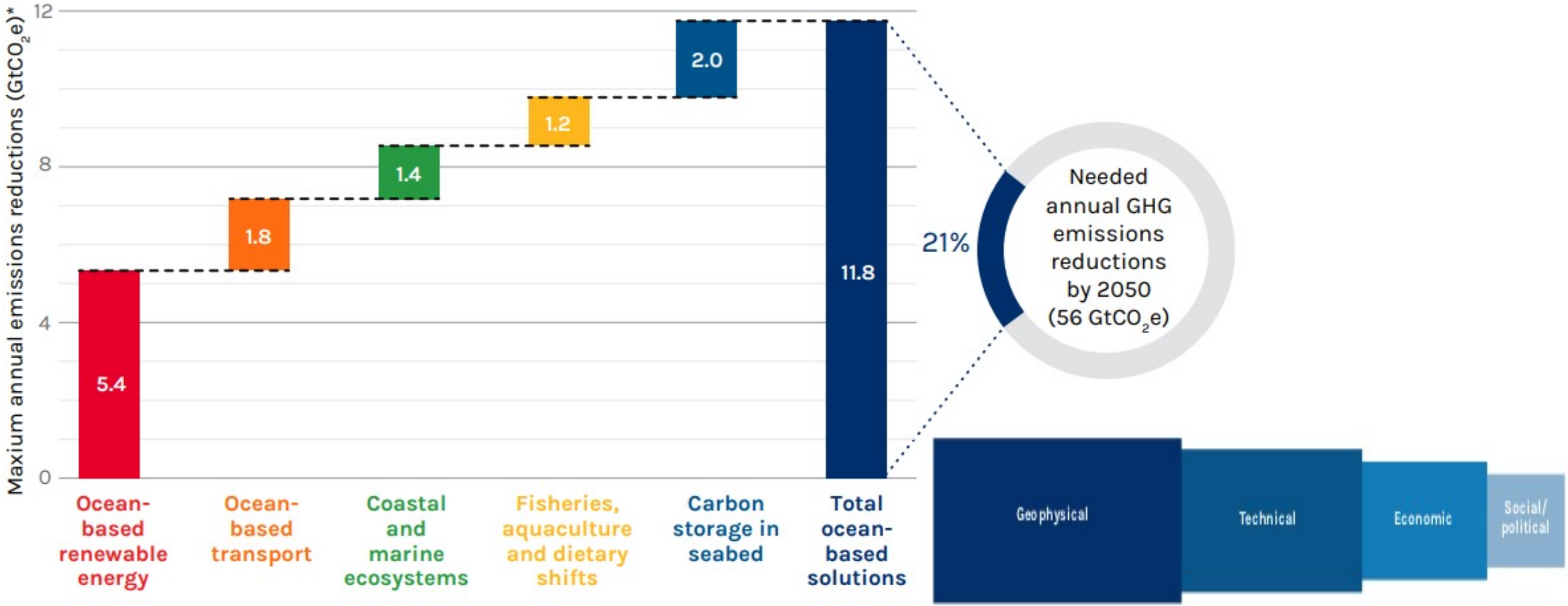
Accelerate and amplify worldwide action for ocean health and wealth that charts a new course towards a sustainable, prosperous future.

Work with governments, experts and stakeholders to create a roadmap for rapid transitioning to a sustainable ocean economy.

Present this landmark set of practical recommendations in 2020 – a critical year for the ocean.


Effektivt vern
Bærekraftig virksomhet
Rettferdig velstand

Mulige bidrag fra havsektorer til å redusere klimagassutslipp i 2050 (maximum $GtCO_2e$)

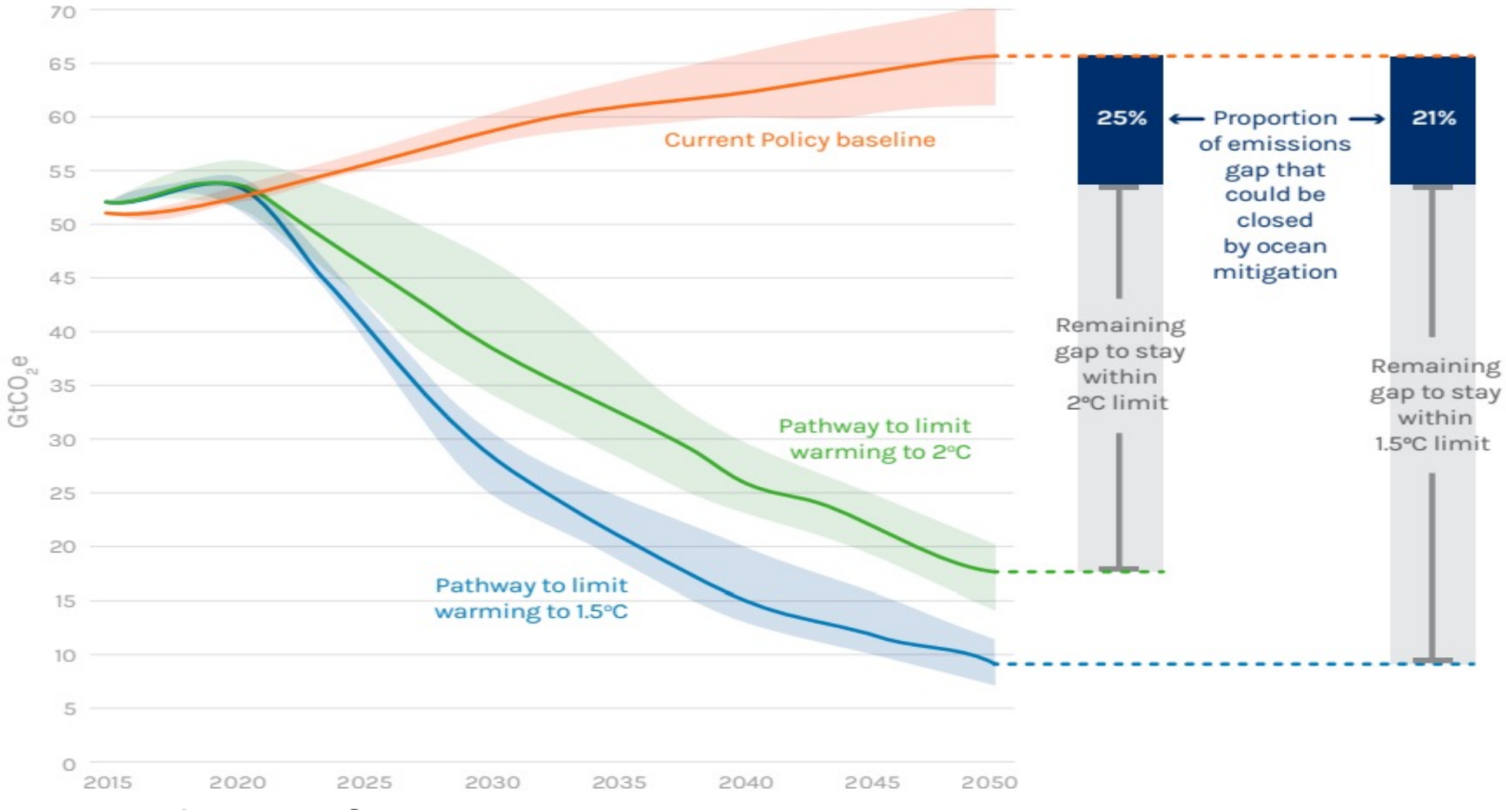


*Notes: * To stay under a 1.5°C change relative to pre-industrial levels*

oceanpanel.org

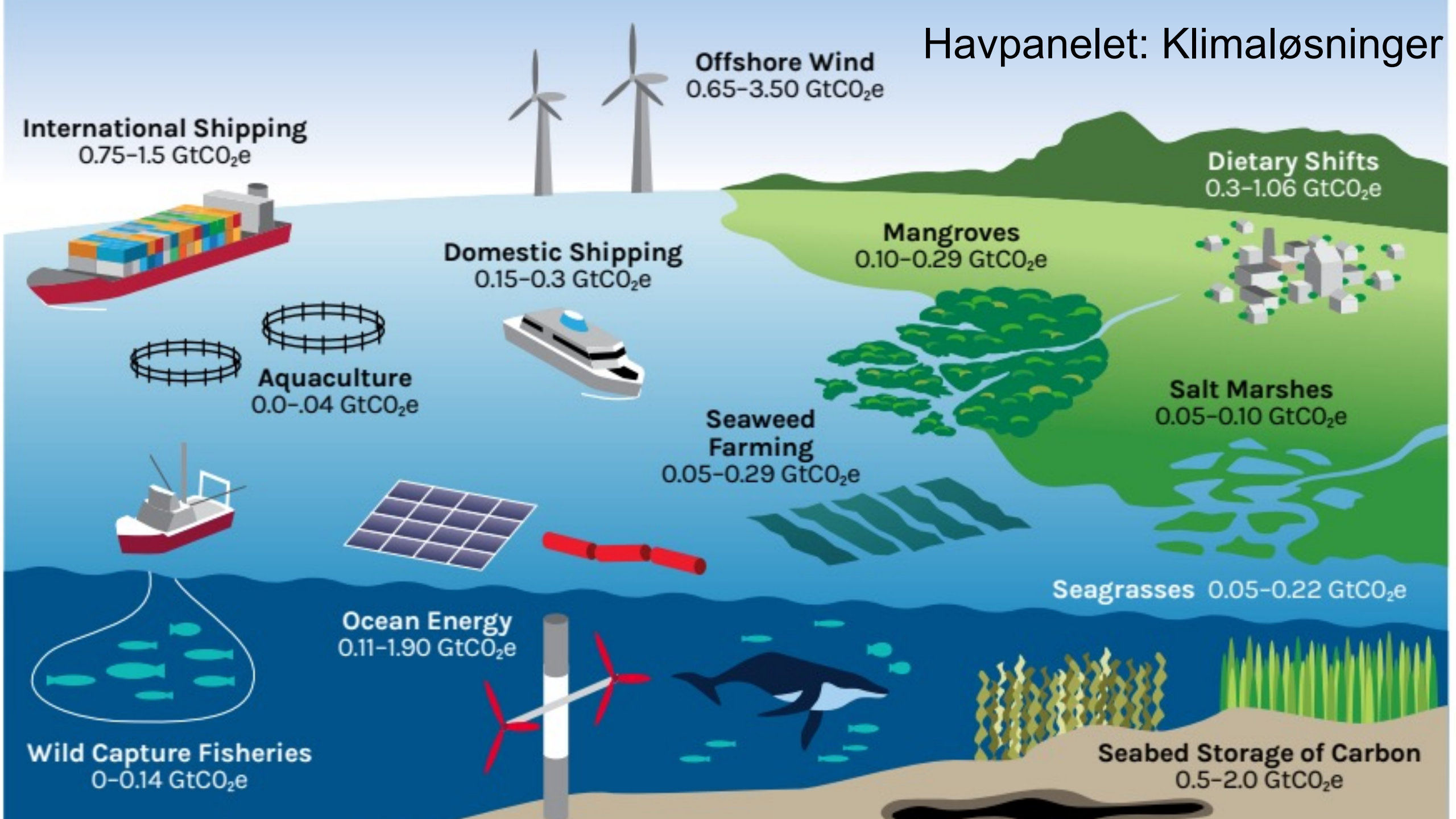
HIGH LEVEL PANEL for A SUSTAINABLE OCEAN ECONOMY

Contribution of ocean-based mitigation options to closing the emissions gap in 2050

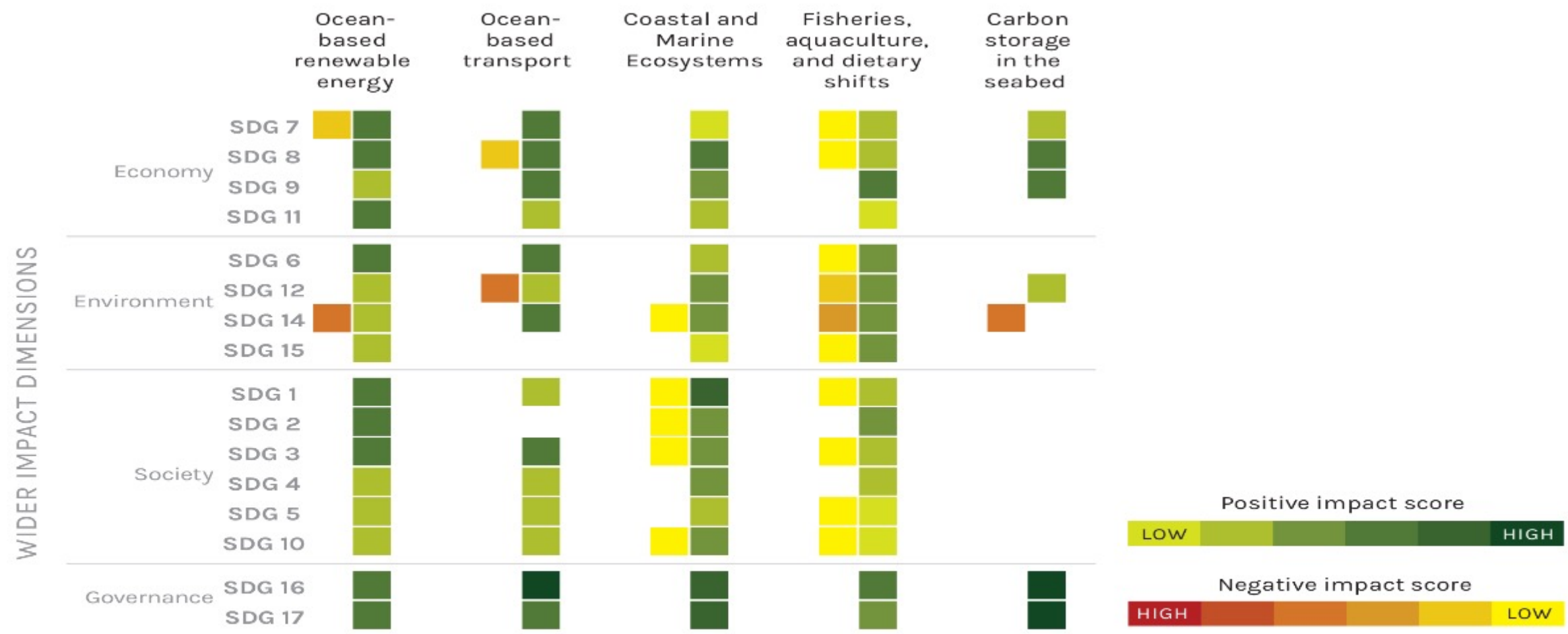


HIGH LEVEL PANEL for A SUSTAINABLE OCEAN ECONOMY

Havpanelet: Klimaløsninger



Ocean-based climate mitigation options have more co-benefits than trade-offs, and will support the achievement of the SDGs

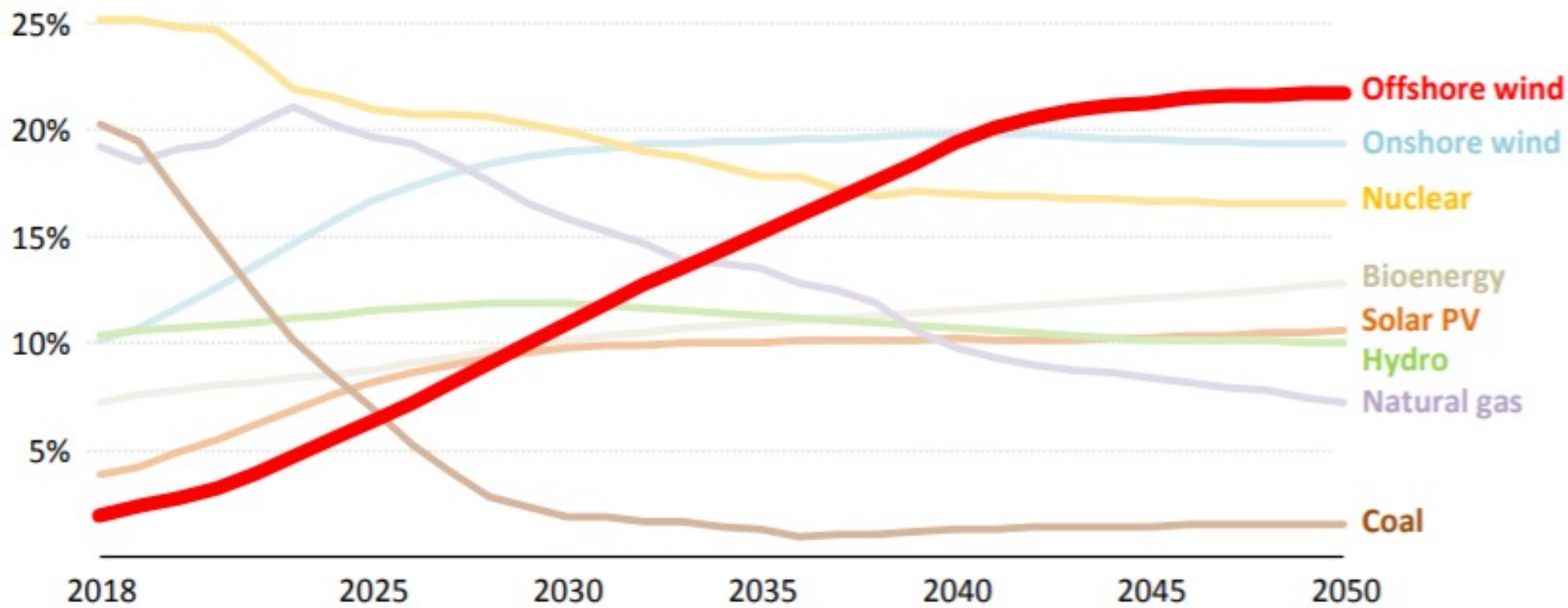


List of Sustainable Development Goals reviewed:

Source: Authors

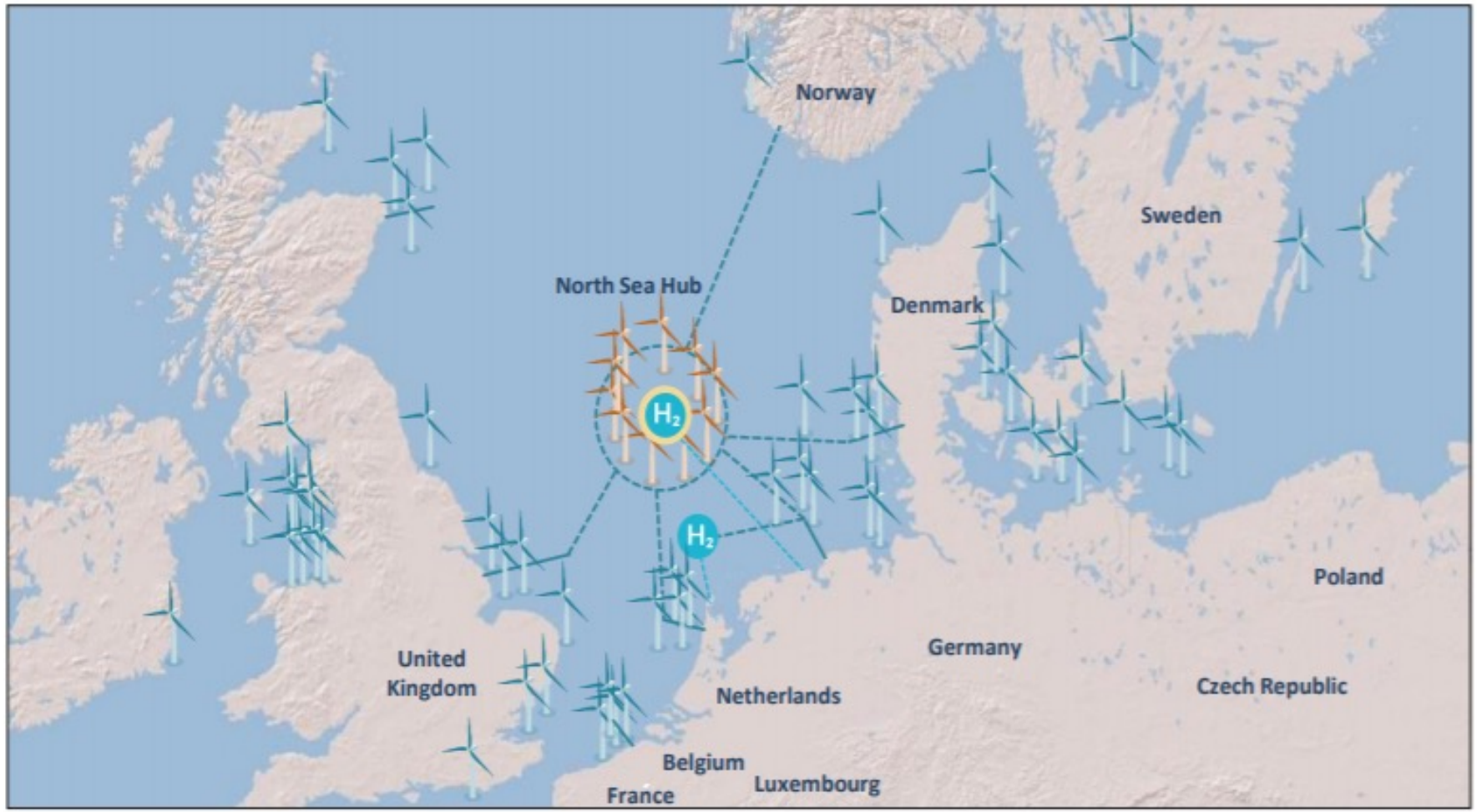
A carbon neutral Europe puts offshore wind in front

Shares of electricity generation by technology in the European Union, Sustainable Development Scenario



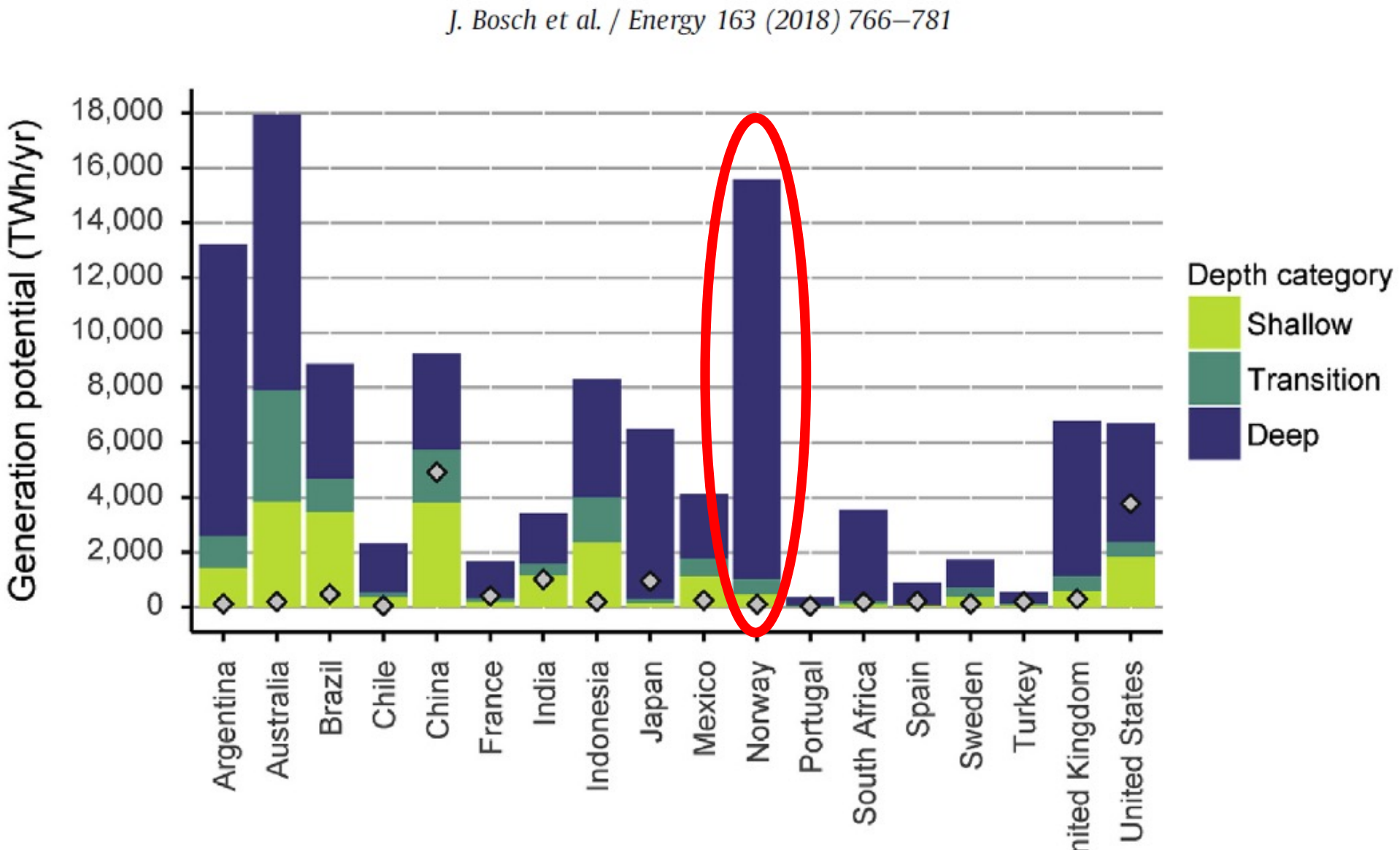
Offshore wind is set to become the largest source of electricity in the European Union by 2040, complementing other renewables towards a fully decarbonised power system

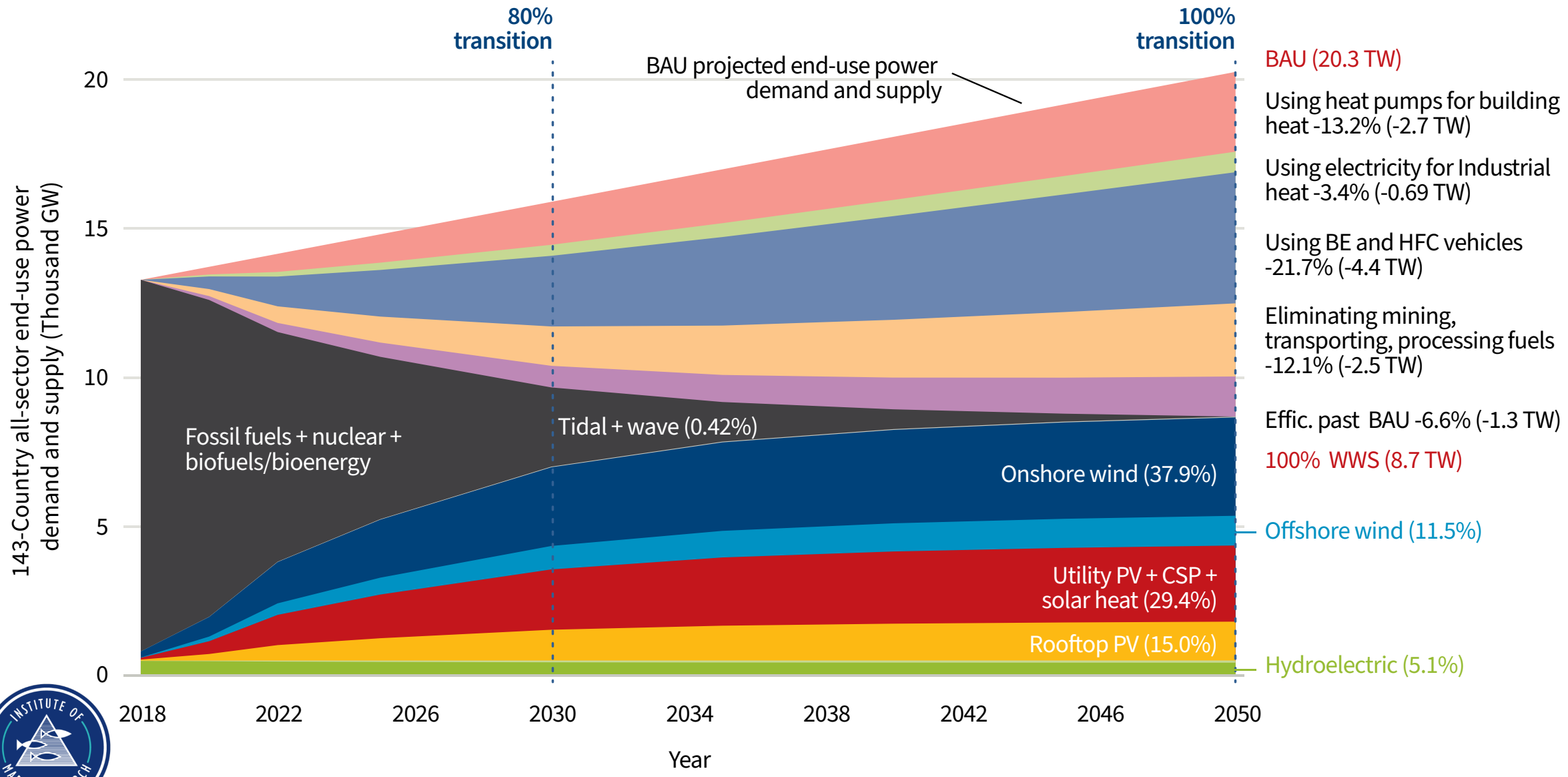
Offshore wind is well suited for hydrogen production



Decarbonisation of heat and transport could further increase demand for hydrogen, opening new market opportunities for offshore wind

Offshore wind technical potential





Low Energy Demand (LED) scenario fra Jacobson et al (2019)

Energieffektivisering og energitjenester
(Varme til el – faktor 1/3. El til varme – ca faktor 3.)

Samme tjeneste!

Kullkraft → glødelyspære

100

Fornybar → glødelyspære

35

Fornybar → LED lys

7


Commissioned by
HIGH LEVEL PANEL for
A SUSTAINABLE
OCEAN ECONOMY
BLUE PAPER
The Future of
Food from the Sea
LEAD AUTHORS
Christopher Costello, Ling Cao and Stefan Gelcich
CONTRIBUTORS:
Miguel Angel Cisneros, Christopher M. Free, Halley E. Froehlich, Elsa Galarza, Christopher D. Golden, Gaku Ishimura, Ilan Macadam-Somer, Jason Maier, Tracey Mangin, Michael C. Melnychuk, Masa Miyahara, Carryn de Moor, Roz Naylor, Linda Nøstbakken, Elena Ojea, Erin O'Reilly, Giacomo Chato Osio, Ana Parma, Fabian Pina Amargos, Andrew Plantinga, Albert Tacon and Shakuntala H. Thilsted
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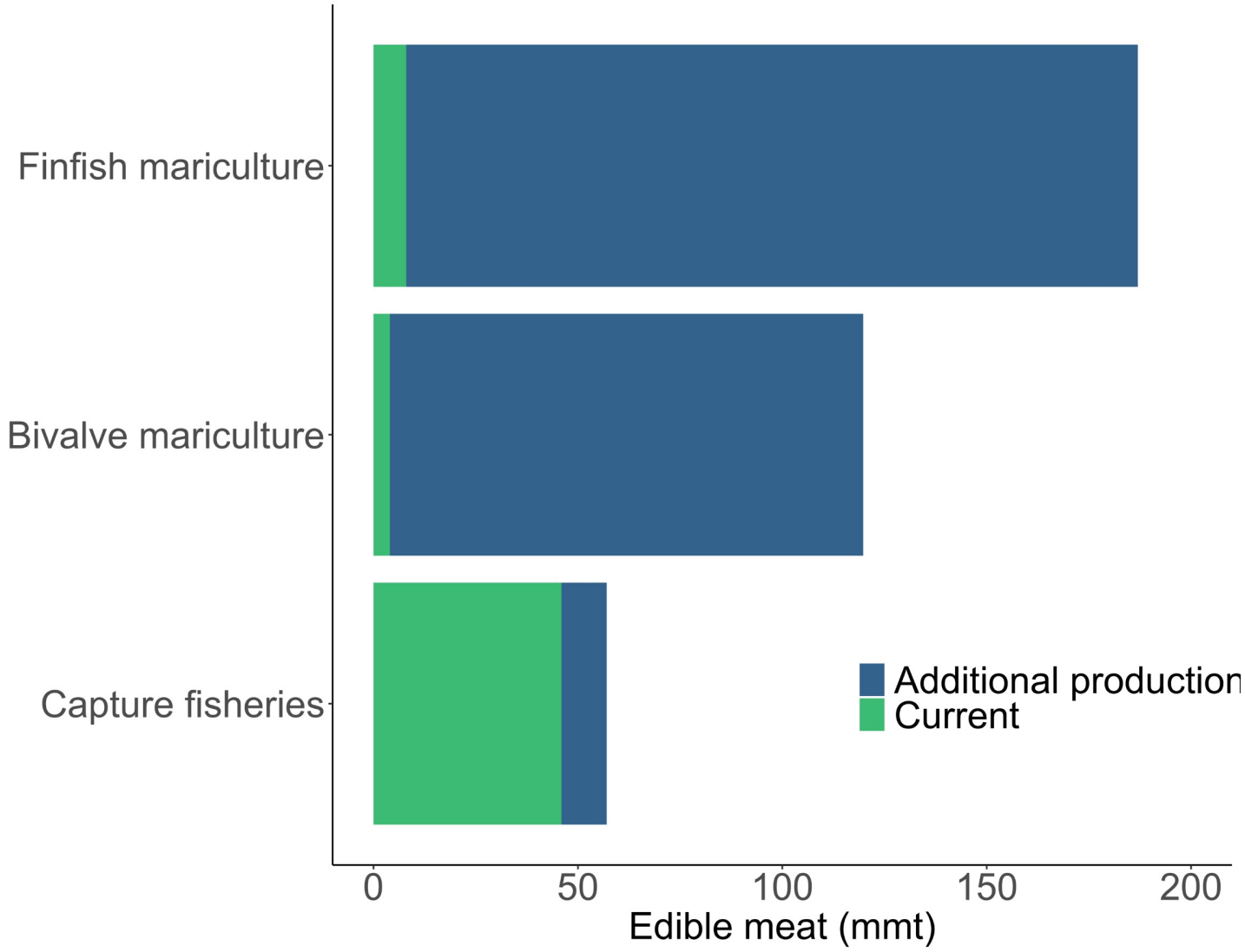
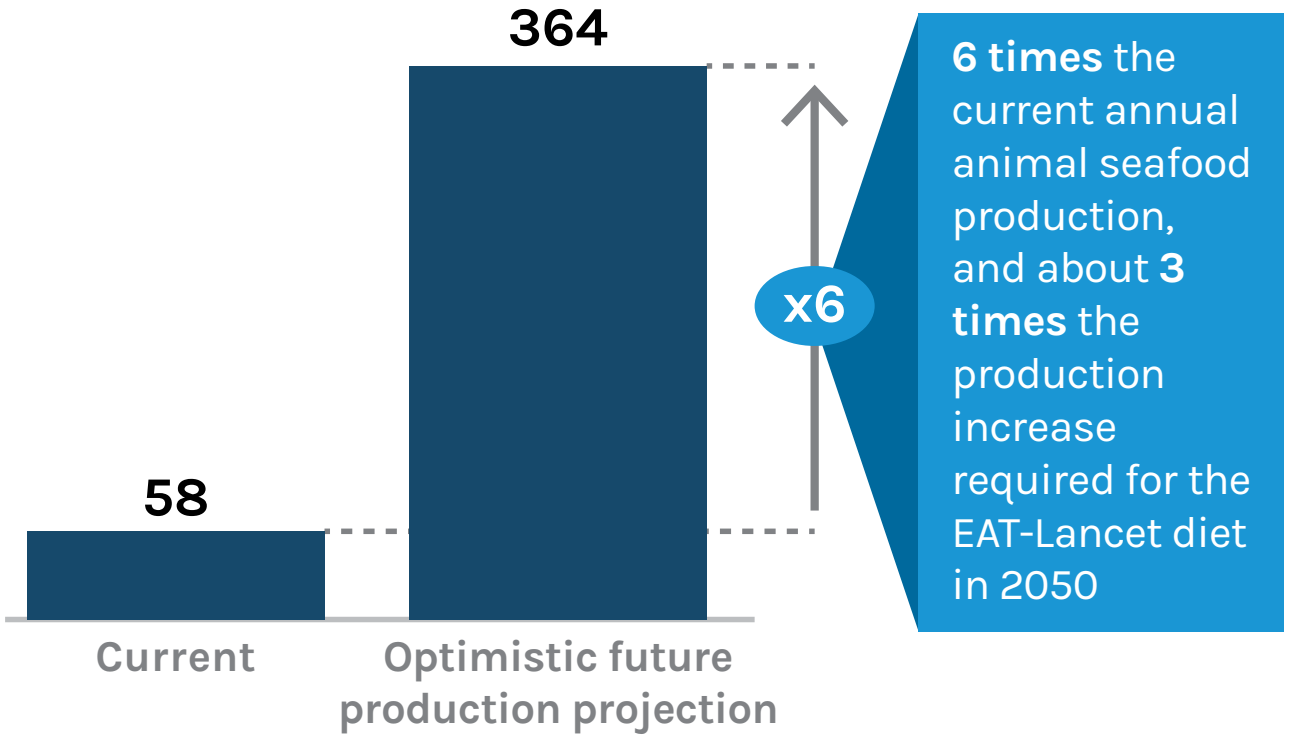
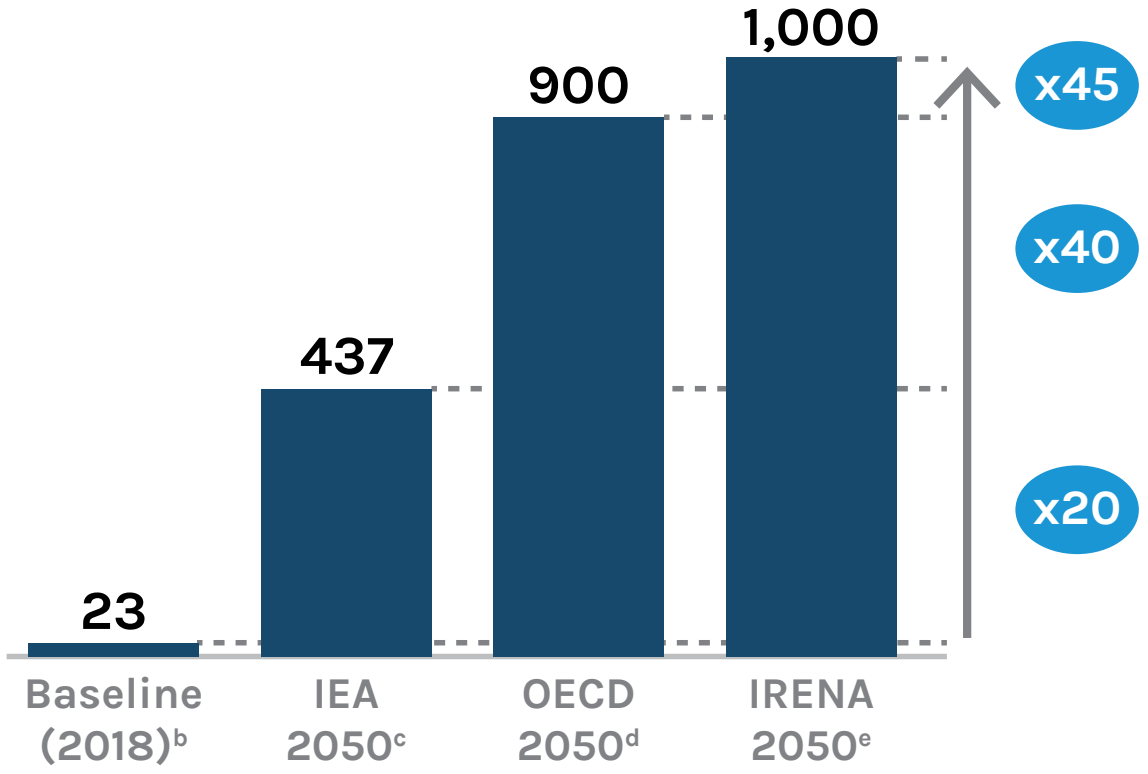
BP1: The Future of Food from the Sea (Optimistic scenario)



A) Potential additional ocean food production under sustainable practices — in edible weight
(at a price of USE 5,500 per MT, graph in MMT/yr.)[a]



B) Potential capacity increase in offshore wind
GW, global



Stuchtey et al., 2020, oceanpanel.org

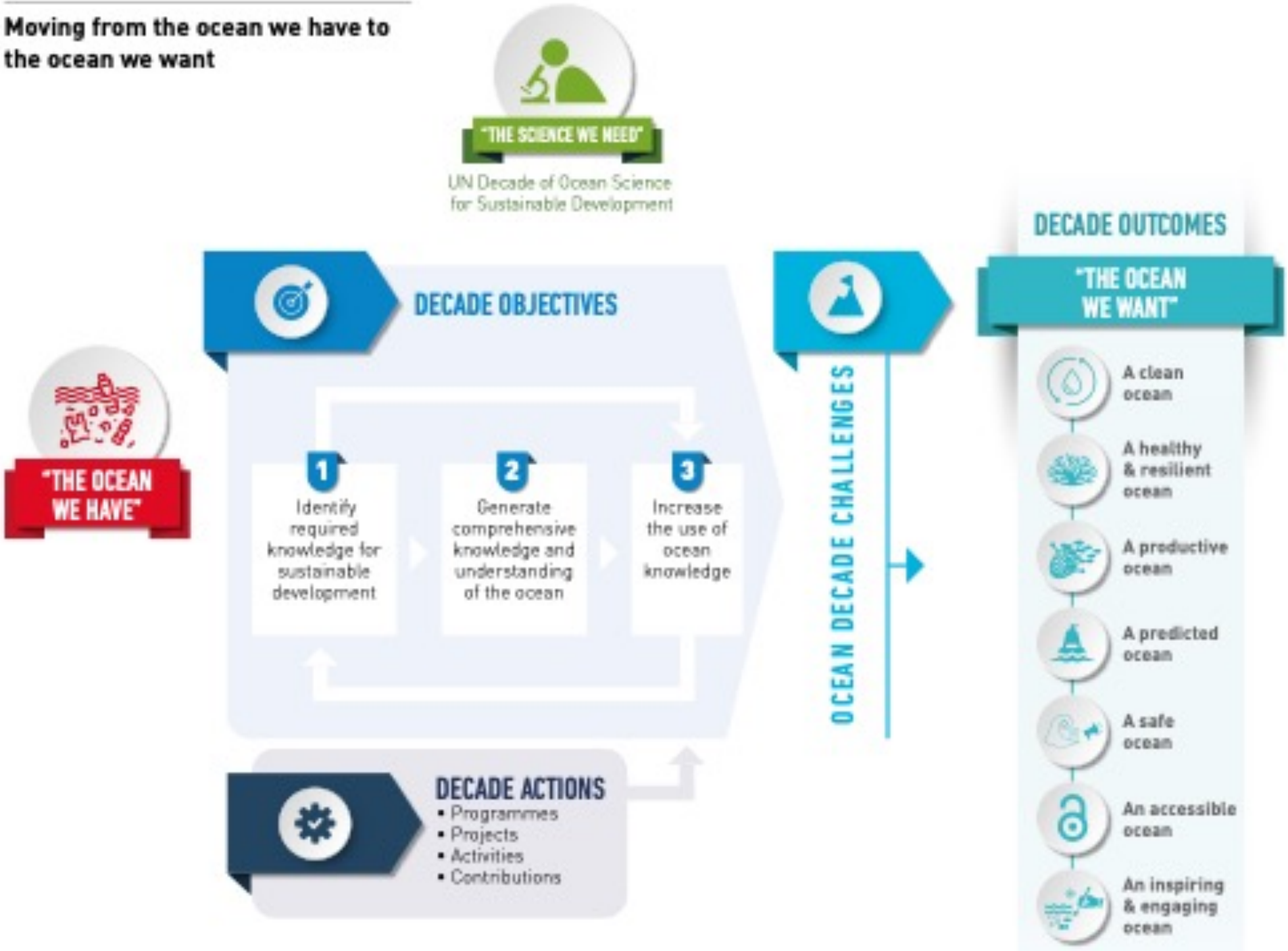
Proposal for an International Decade of Ocean Science for Sustainable Development (2021-2030)

One Planet, One Ocean

2021 2030 United Nations Decade of Ocean Science for Sustainable Development

Science to help the ocean support the 2030 agenda

Moving from the ocean we have to the ocean we want



The vision of the Ocean Decade is ***'the science we need for the ocean we want'***

The mission is ***'to catalyse transformative ocean science solutions for sustainable development, connecting people and our ocean'***.

UN Decade Alliance m/Solberg

Call for Programmes/Actions

En rekke regionale planleggingsmøter

Executive Planning Group fra 2018 -> Interim Decade Advisory Board

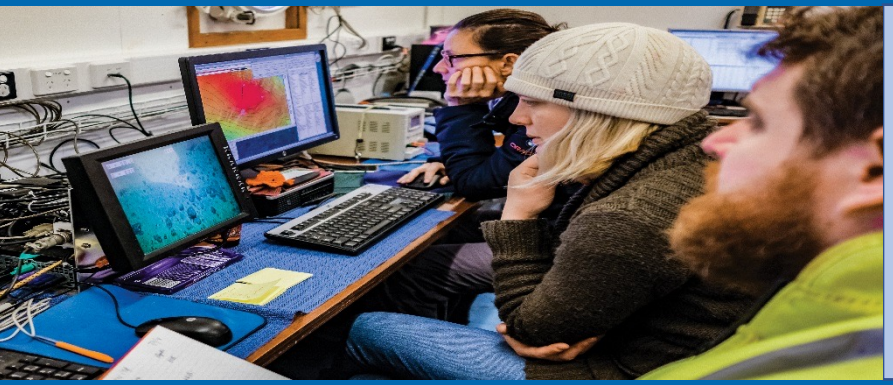
Outcomes

A clean Ocean

Sources of pollution are identified, quantified and reduced, and pollutants removed from the Ocean.

A healthy and resilient Ocean

Marine ecosystems are mapped and protected, multiple impacts, including climate change, are measured and reduced, and the provision of ocean ecosystem services is maintained.



A predicted Ocean

Society has the capacity to understand current and future Ocean conditions, forecast their change and impact on human wellbeing and livelihoods.

Outcomes

A safe Ocean

Human communities are protected from ocean hazards and the safety of operations at sea and on the coast is guaranteed.

A sustainable productive Ocean

The provision of food supply and alternative livelihoods are secured.

A transparent and accessible Ocean

All nations, stakeholders and citizens have access to ocean data and information, technologies, and are capable of making informed decisions.

Outcome 7: An inspiring and engaging ocean

One Ocean: Jorden rundt med Statsraad Lehmkuhl

Setting Sail for the Future

September 2021 – April 2023

Around the world for knowledge, education and diplomacy by the Norwegian tall ship Statsraad Lehmkuhl.
A part of the United Nations Decade of Ocean Science for Sustainable Development.

United Nations Educational, Scientific and Cultural Organization

Intergovernmental Oceanographic Commission

2021 2030 United Nations Decade of Ocean Science for Sustainable Development

A transformative decade in the way we:

United Nations Educational, Scientific and Cultural Organization | Intergovernmental Oceanographic Commission | 2021 2030 United Nations Decade of Ocean Science for Sustainable Development

One Planet, One Ocean

- *Use science in decisionmaking*
- *Share observations, data, information and knowledge*
- *Inspire science informed actions giving the ocean a bigger role in global sustainable development*
- *Work with non-science knowledge including local and traditional knowledge*

Havforskningstiåret i Norge

Forslag til nasjonal satsing

Norges forskningsråd

Foto: Christian Morel / Arven etter Nansen

Nasjonal ekspertgruppe

Ekspertgruppe for å:

- Foreslå satsing for FNs havforskningstiår
- Informere om og mobilisere til havforskningstiåret

- Peter Haugan (leder), Havforskningsinstituttet og Universitetet i Bergen
- Arne Fredheim, SINTEF Ocean og NTNU
- Stål Heggelund, Norsk Industri
- Fredrik Myhre, WWF Verdens naturfond
- Linda Nøstbakken, Norges Handelshøyskole
- Magnar Pedersen, Nofima
- Marit Reigstad, UiT Norges arktiske universitet og prosjektleder for Arven etter Nansen
- Elana Wilson Rowe, NUPI og Nord universitet

1 Samspill mellom klima og miljø

Mål:
Havets rolle for klima er godt forstått, og vi har et renere hav med sunne økosystemer.

2 Helhetlig havforvaltning

Mål:
Verden har en helhetlig forståelse av hvordan havet skal forvaltes.

3 Sunn og trygg sjømat til alle

Mål:
Mat fra havet utgjør en stadig større del av det vi spiser.

4 Fornybar energi fra havet

Mål:
Havet er en betydelig leverandør av fornybar energi.

5 Miljøvennlig maritim transport

Mål:
Nye transport- og teknologi-løsninger har gjort maritim transport miljøvennlig.

6 Et hav av data

Mål:
Samarbeid om innsamling, lagring, analysering og deling av data er normen.

7 Hvem skal eie havet?

Mål:
Havet og verdi-skapingen fra havet kommer alle til gode.

8 Arktis fullt og helt, ikke stykkevis og delt

Mål:
Et Arktisk hav som forstås og forvaltes i et helhetlig perspektiv..

9 Global havøkonomi og bistand

Mål:
Norsk havforskning og -forvaltning har gitt økt tilgang til, og rettferdig fordeling av, marine ressurser verden over.

10 Alle kan hav!

Mål:
Alle forstår viktigheten av havet og mulighetene fornuftig bruk og vern av havet gir.

Foto: Havforskningsinstituttet

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Foto: Geir Johnsen (NTNU/UNIS), fra boka Polar Night Marine Ecology.

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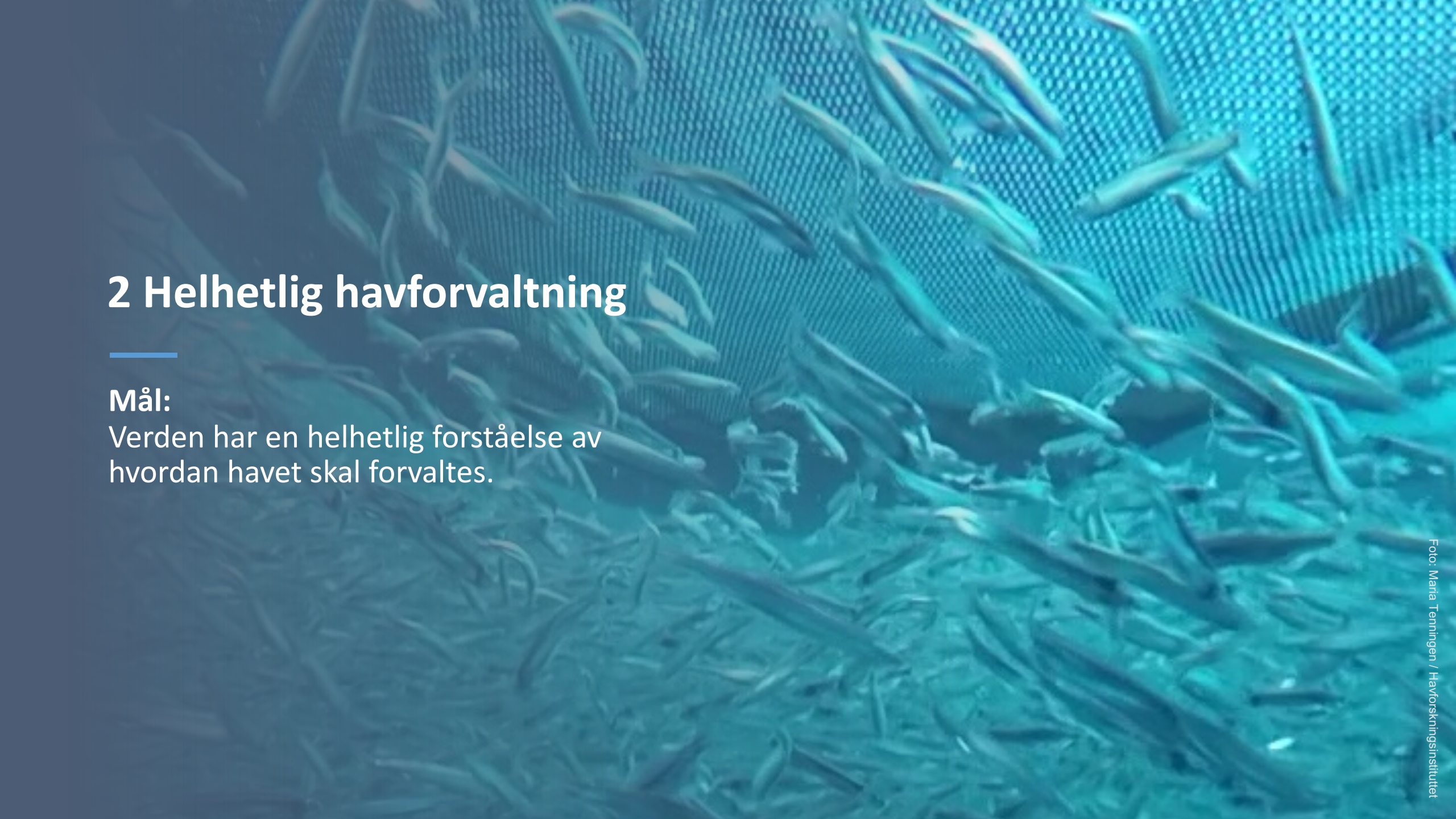

Foto: Maria Tenningen / Havforskningsinstituttet

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Foto: Jonas Bendiksen

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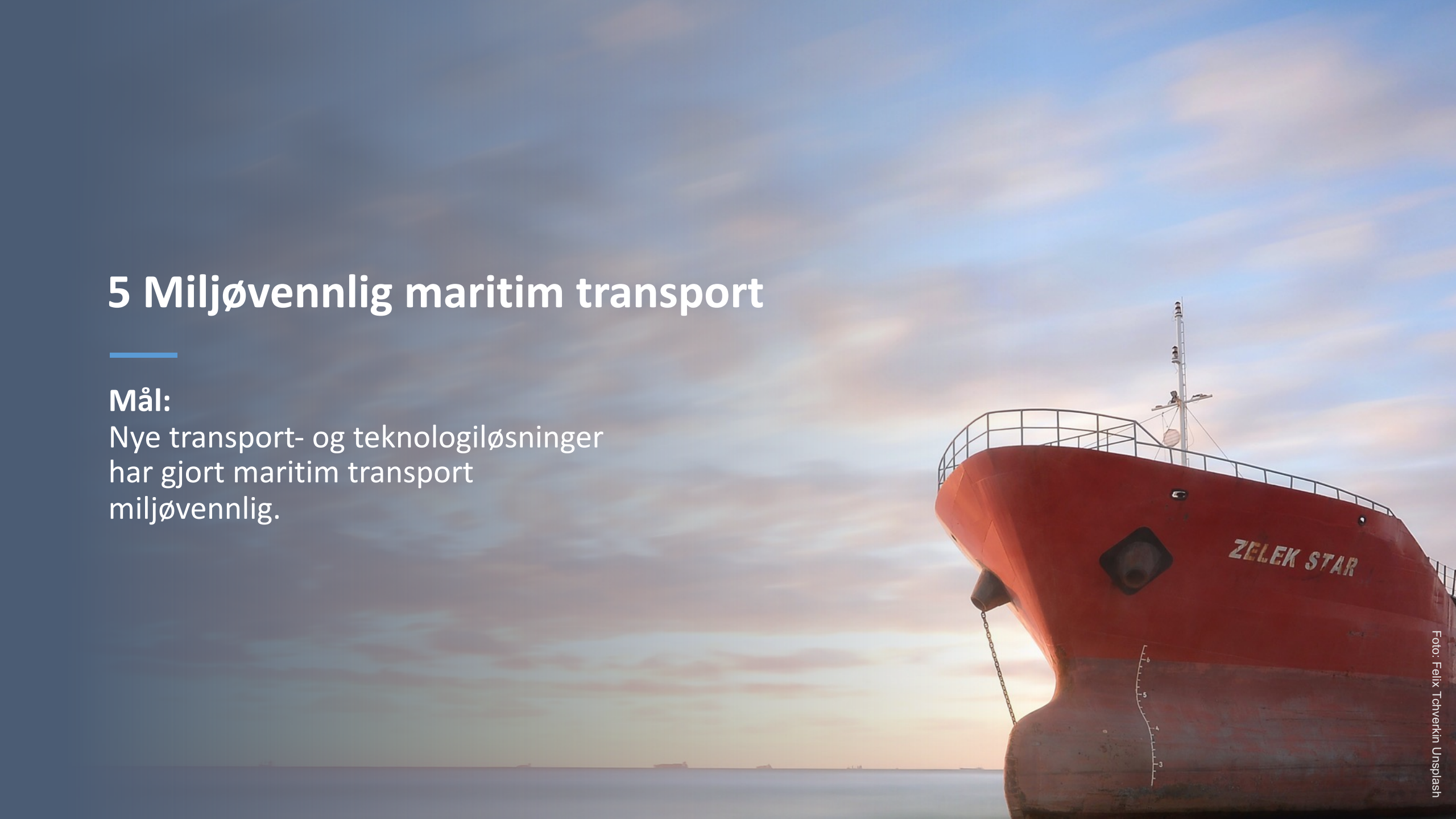

Foto: Felix Tchverkin Unsplash

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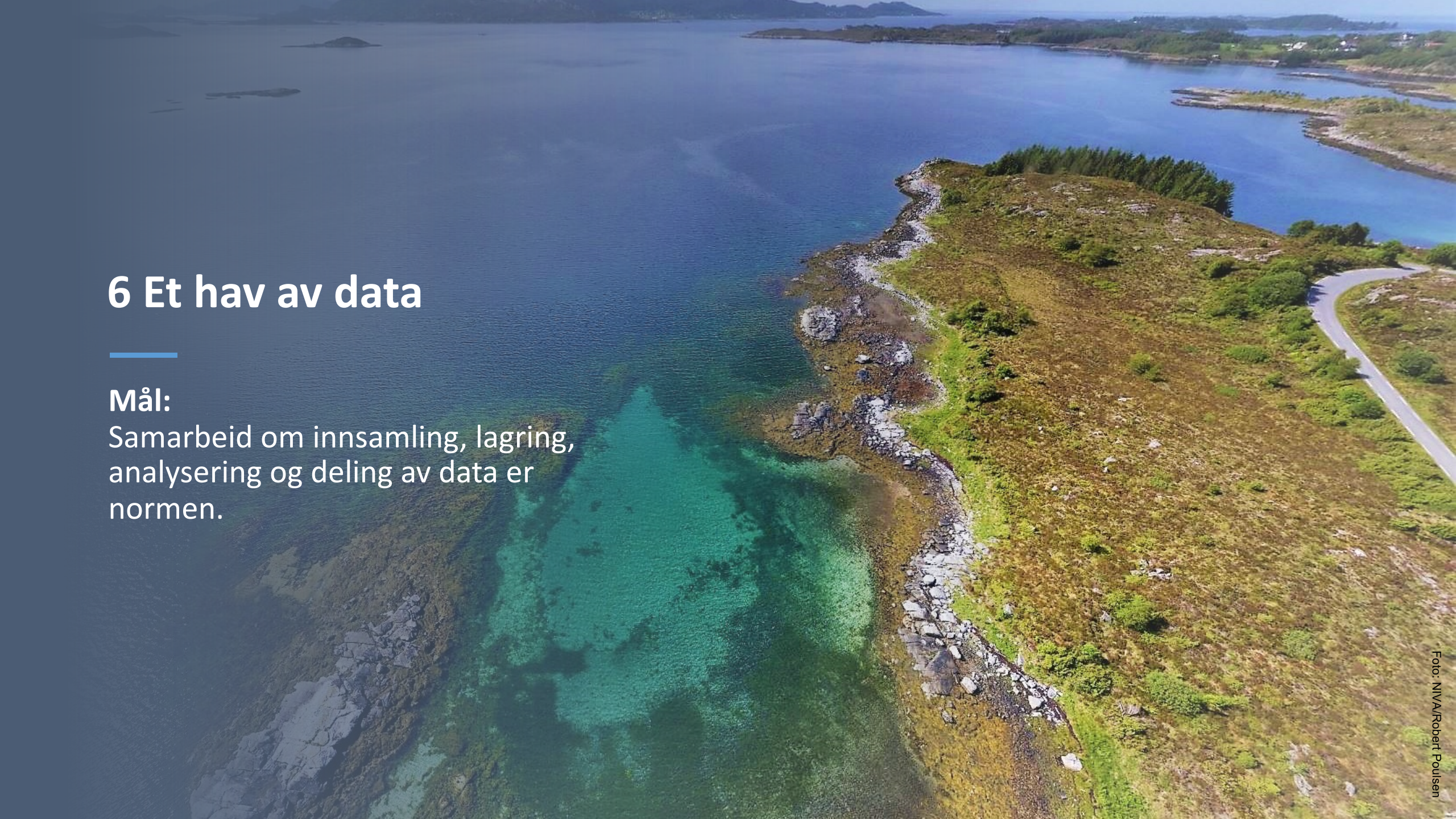

Foto: NIVA/Robert Poulsen

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Foto: Havforskningsinstituttet

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Foto: Wildlife Conservation Society, Mombasa

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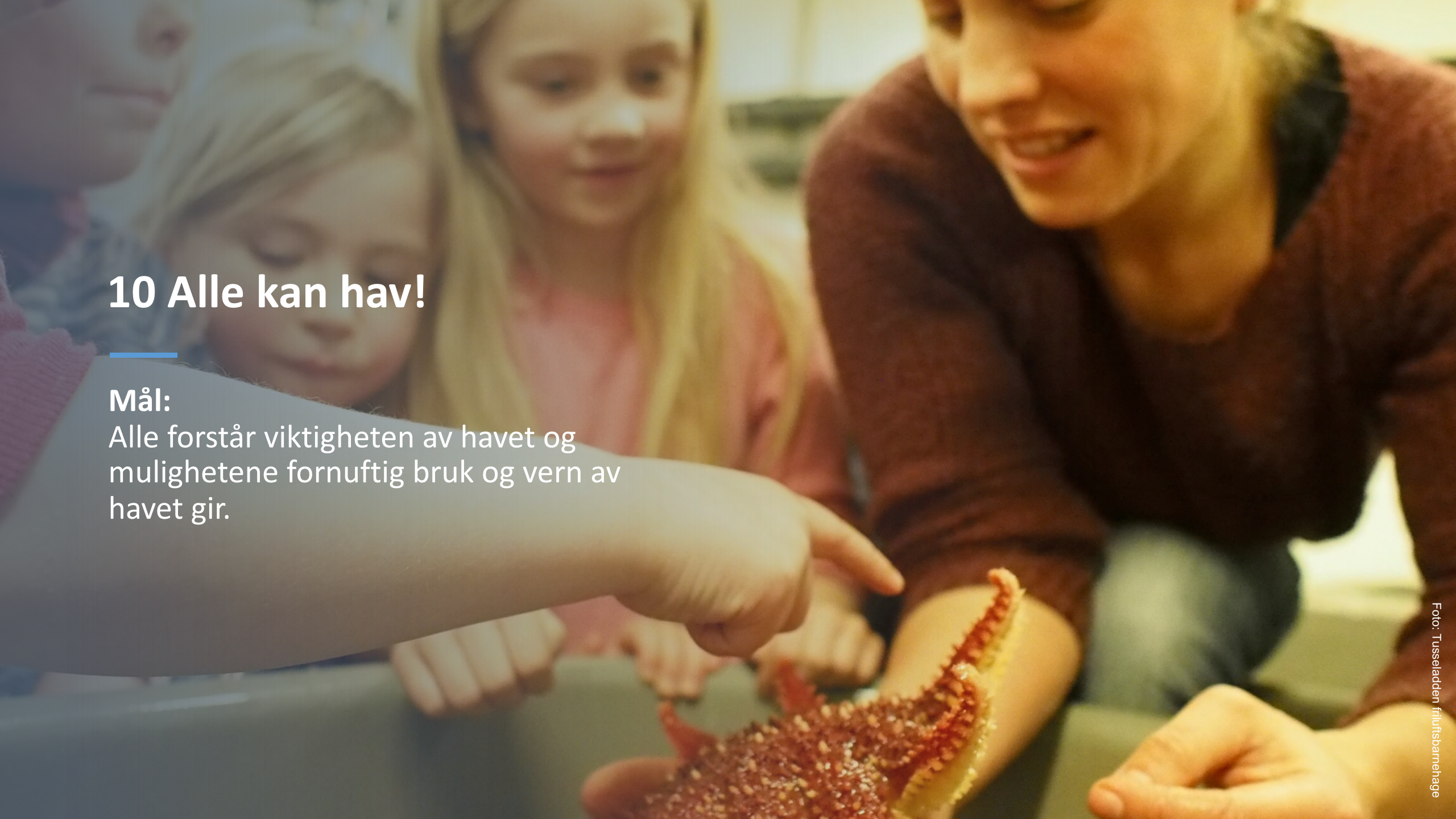
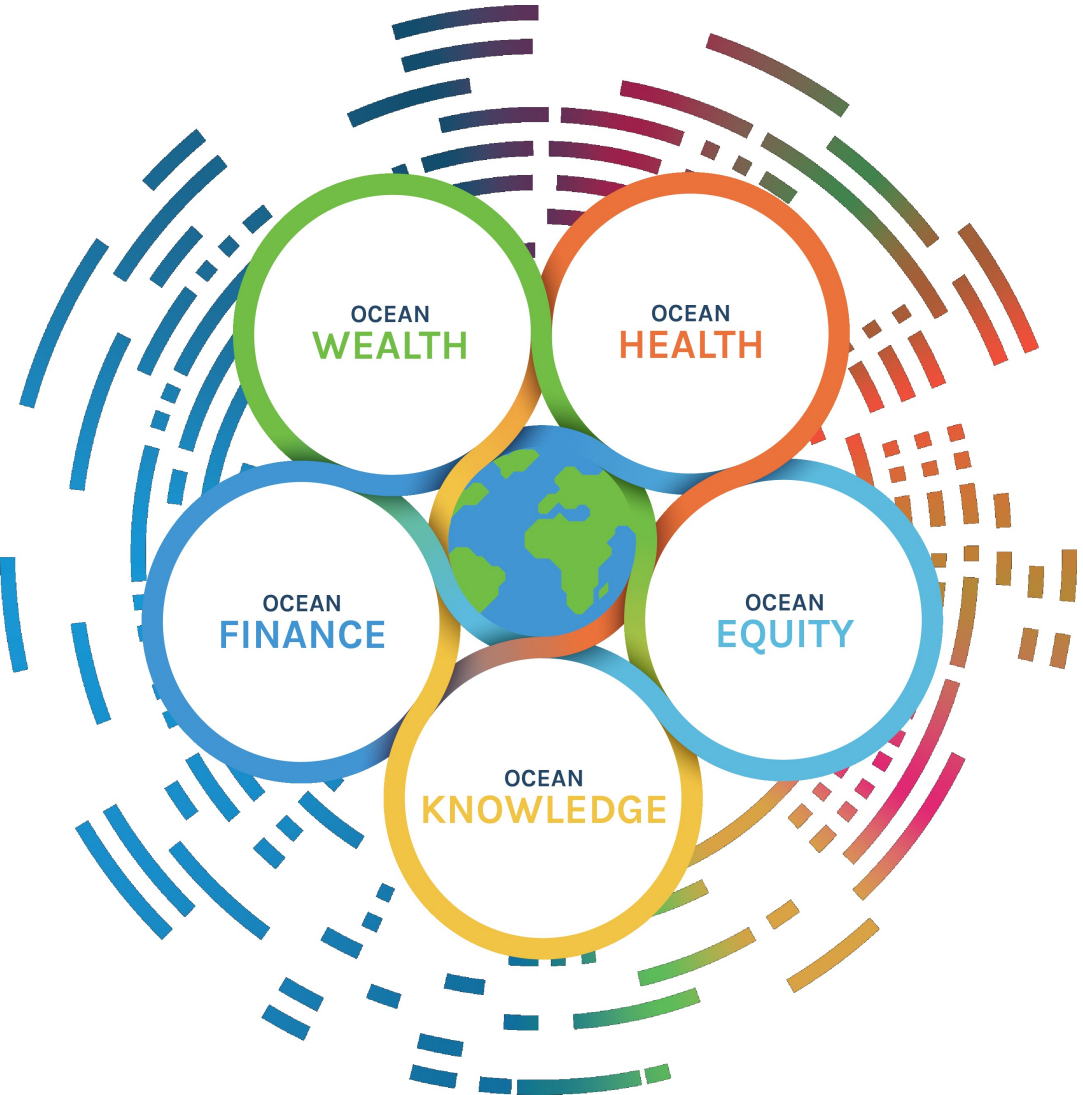


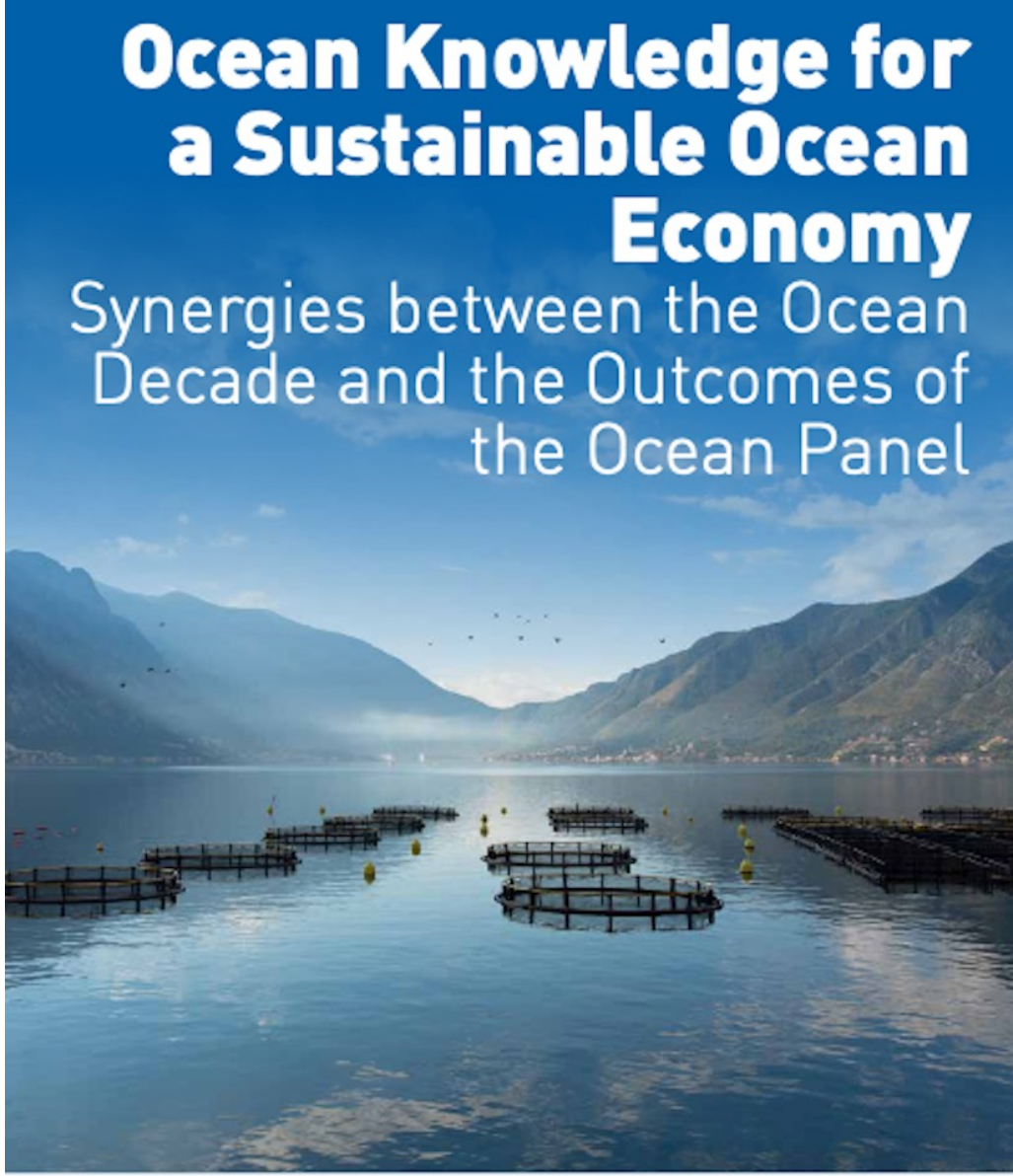
Foto: Tusseladden friluftsbarnehage

Havpanelet vs havtiåret

Ny rapport, se https://www.oceandecade.org/news



Koplinger mellom
5 områder og
10 utfordringer



Kunnskap og politikk:

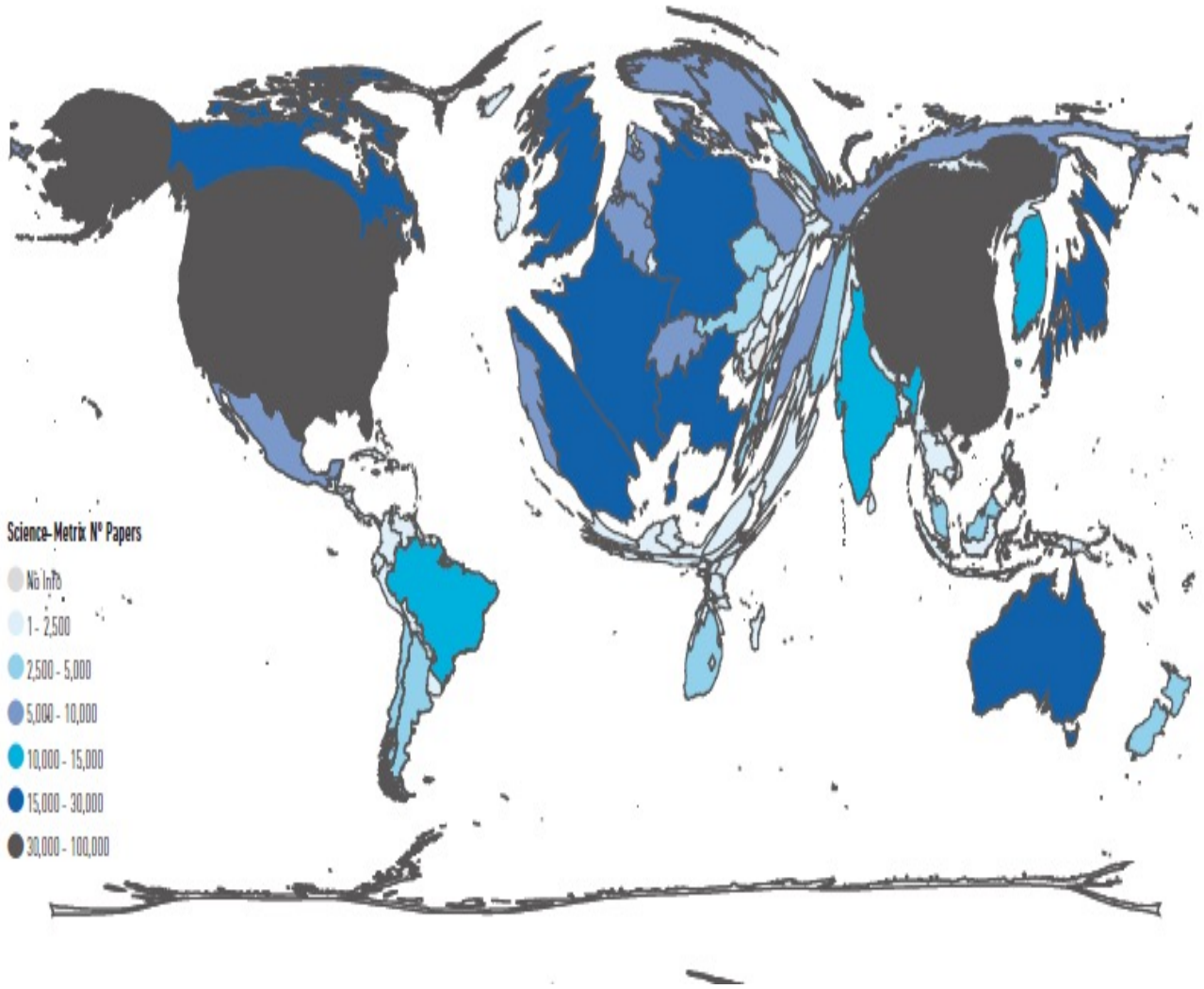
- Havpanelets arbeid
- Bottom-up vs top-down
- Planleggingsprosesser globalt og regionalt
- Norge i verden

Figur fra Claudet et al., 2020

Havforskning for global utvikling

Forskning for

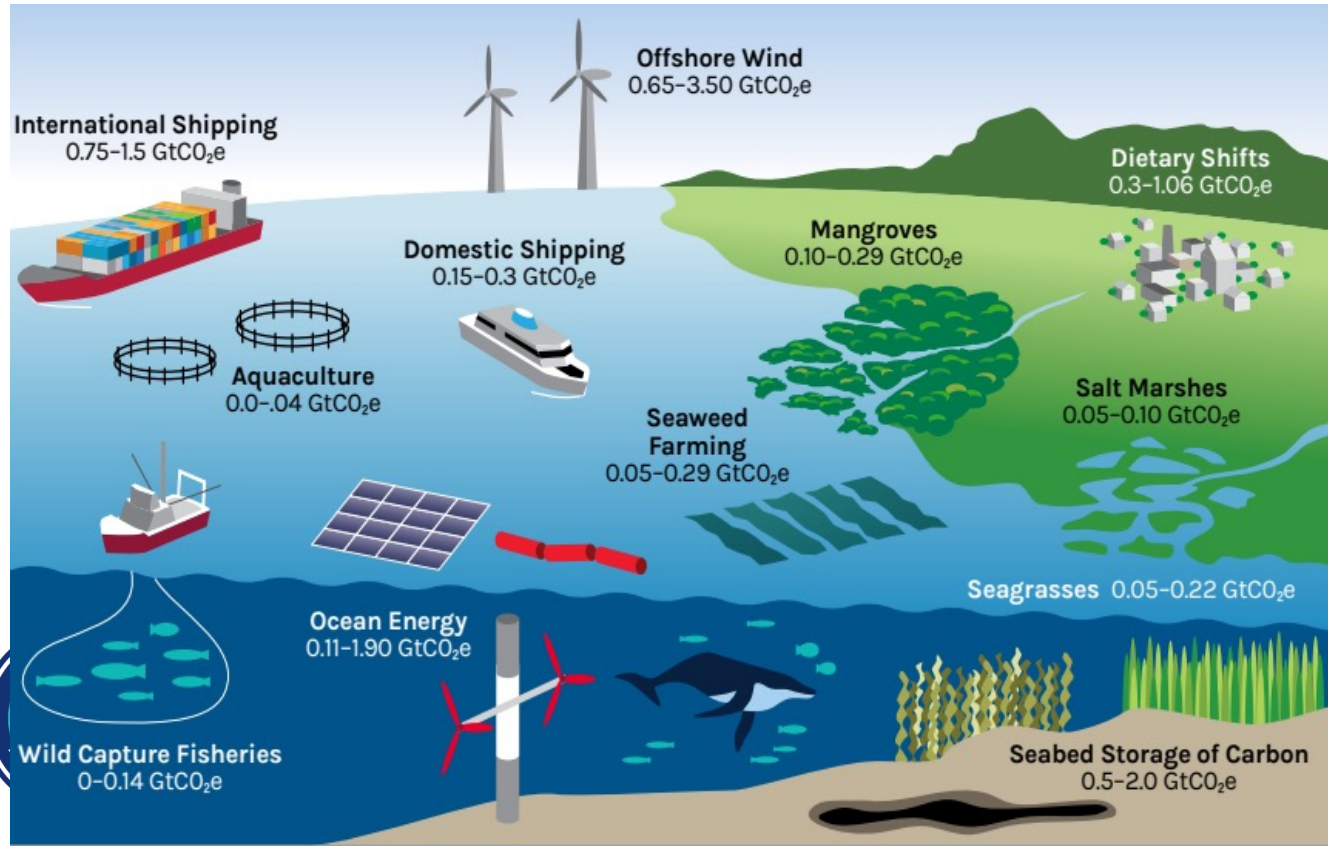
- Nysgjerrighet
- Matnytte
- Rettferdighet
- Bærekraft

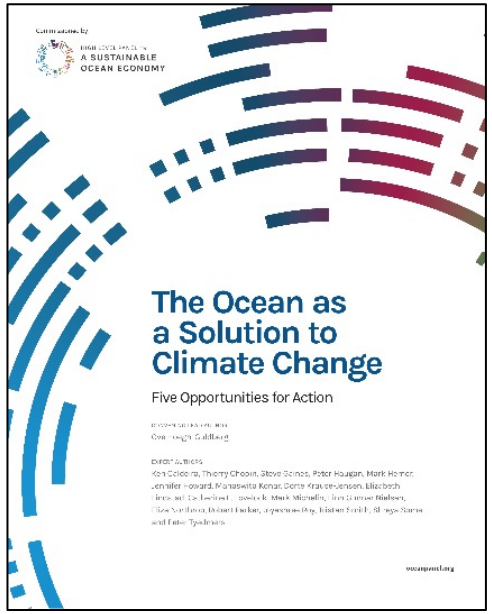


Ulikheter i havforskningskunnskap (Global Ocean Science Report)

BUILDING BLOCKS	KEY ACTIONS
 **Using data to drive decision-making**	Create global data networks that provide broad and automated access to ocean data
 **Engaging in goal-oriented ocean planning**	Establish, fund and implement ocean plans for 100% of areas under their jurisdiction
 **De-risking finance and using innovation to mobilise investment**	Create pipelines of sustainable investments by providing grants or other forms of support to early-stage innovation
 **Stopping land-based pollution**	Implement a package of solutions that tackles the drivers of pollution, such as reducing unnecessary plastics and safely disposing of waste
 **Changing ocean accounting so that it reflects the true value of the ocean**	Develop complete sets of national ocean accounts

- Vi trenger et velfungerende hav for framtidig mat og energiforsyning.
- Havpanelet har laget en rekke rapporter om dette, se oceanpanel.org
- Gjennomføring av kunnskapsoppbygging som bidrag til FNs havtiår 2021-2030





2021
2030
United Nations Decade
of Ocean Science
for Sustainable Development