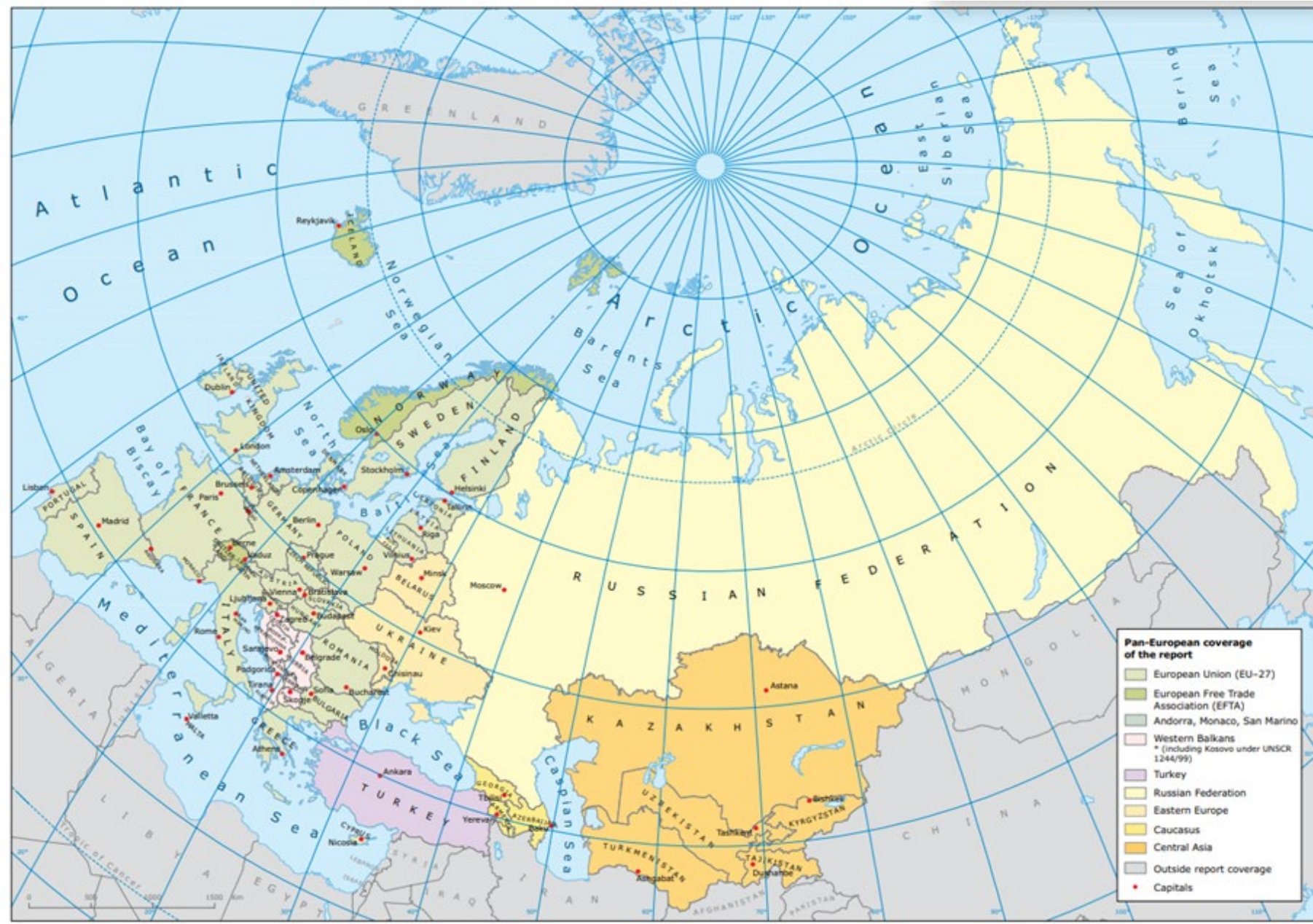


COASTAL WATERS, MARINE ECOSYSTEMS AND OCEANS

Chapter IIID

Dr. Claudette Spiteri, MCL Environmental Consulting



Combined approach

Sea basins

- North East Atlantic Ocean, including North Sea
- Baltic Sea
- Mediterranean Sea
- Black Sea, including Azov Sea
- Caspian Sea
- Aral Sea
- Barents Sea
- East Siberian Sea

National data

- 37 littoral Member States of the 54 ECE Member States

INDICATOR FRAMEWORK

Source: The New Division (TND)

Goal 14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development

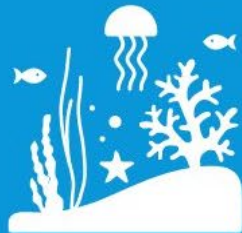
14 LIFE BELOW WATER

Management of coastal and marine ecosystems



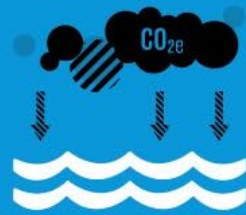
14-1

Marine pollution



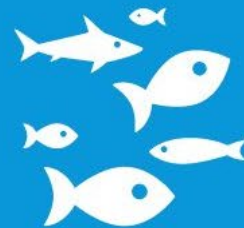
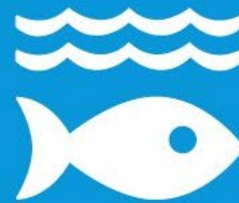
14-2

Ocean Acidification



14-3

Fish stocks, IUU and destructive fishing practices



14-4

Area-based conservation measures



14-5

Fish subsidies



14-6



14-7

Sustainable fisheries

SELECTED INDICATORS (I)



MARINE POLLUTION

Source	Indicator	Type	From	To
WRI/The Ocean Cleanup	Plastic waste emissions to seas and oceans (kg/yr)	P	2010	
SDG 14.1 (ii)	14.1.1 (ii) Beach litter per square kilometer (Number)	S	2015	2020
SDG 14.1 (i)	Chlorophyll-a deviations, remote sensing (%)	S	2000	2019
NASA/CMEMS	Average Chlorophyll-a Concentration (mg/m ³)	S		
WRI/GO2NE	Eutrophication and hypoxia status	S/I		
ITOPF/CEDRE	Quantities of oil spill (thousand tonnes) Global/by country	P	1970-2020	

SELECTED INDICATORS (II)



FISHERIES

Source	Indicator	Type	From	To
Eurostat	Fishing fleet by type of gear and engine power	P	2010	2019
Eurostat	Fish catch by fish area (tonnes live weight)	P	2000	2019
EEA	Status of marine fish and shellfish stocks in European Seas	S	2015	2017
SDG 14.4/ FAO	Proportion of fish stocks within biologically sustainable levels (Data by Fishing Area)	S	2015 & 2017	
SDG 14.7	Sustainable fisheries as a percentage of GDP	S	2011	2018
OECD	Threatened marine fish species (number) (Data for OECD countries only)	I	2018	
SDG 14.6	Progress by countries in the degree of implementation of international instruments aiming to combat illegal, unreported and unregulated fishing	R	2018 & 2020	
SDG 14.b	Degree of application of a legal/regulatory/policy/institutional framework which recognizes and protects access rights for small-scale fisheries (1-5)	R	2018 & 2020	

SELECTED INDICATORS (III)

CLIMATE-CHANGE RELATED IMPACTS

Source	Indicator	Type	From	To
SDG 14.3	Average marine acidity (pH) measured at agreed suite of sampling stations	S/I	2017	2020
WRI/NOAA	Projected Ocean Acidification (2050 Projected Aragonite Saturation State)	S/I		2050
CMEMS/EEA	Average sea surface temperature (SST) anomaly	S/I	1900-2020	
CMEMS	Mean sea level trends (cm)	I/I	1993-2020	
WRI	Cumulative Climate Impact Index on Marine Ecosystems	I		

RESPONSES

Source	Indicator	Type	From	To
SDG 14.5	Coverage of protected areas in relation to marine areas (%)	R		2018
OECD	Total marine protected areas as a share of economic exclusive zone (%) (data also for non-OECD countries)	R	2000	2020
SDG 14.a	National ocean science expenditure as a share of total research and development funding (%)	R	2013	2017
SDG 14.c	Score for the ratification of and accession to UNCLOS and its two implementing agreements (%)	R		2021
OECD	Ocean-related policy instruments as share of all policy instruments (%) (data also for non-OECD countries)	R		2018

MULTIPLE PRESSURES = CUMULATIVE IMPACTS

Pressures

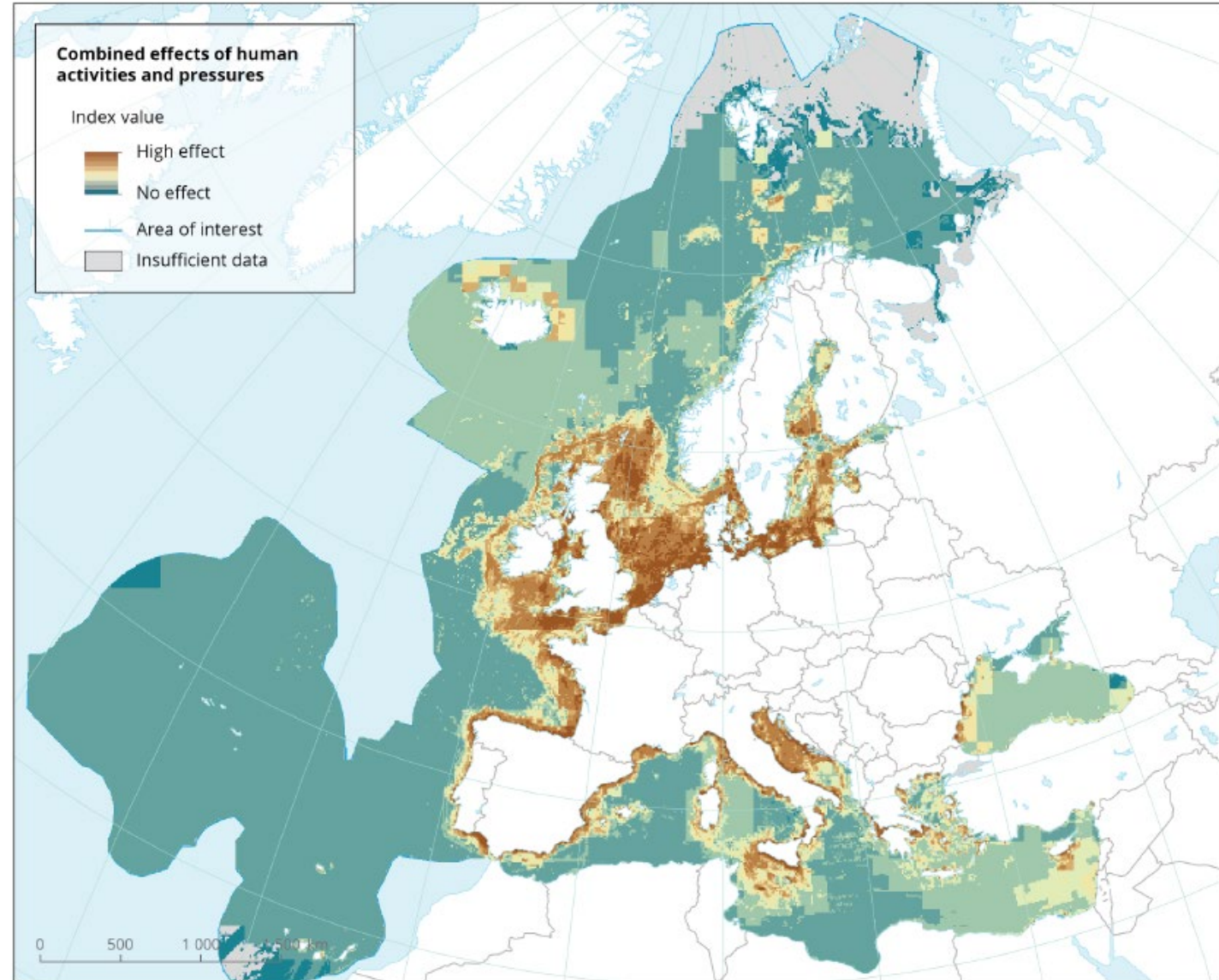
- extraction of living and non-living materials
- pollution by nutrients and chemicals
- underwater noise
- marine litter
- sea floor disturbance
- introduction of nonindigenous species

Climate change-related impacts

- ocean warming
- ocean acidification
- oxygen depletion

Source: EEA ETC/ICM (2019)

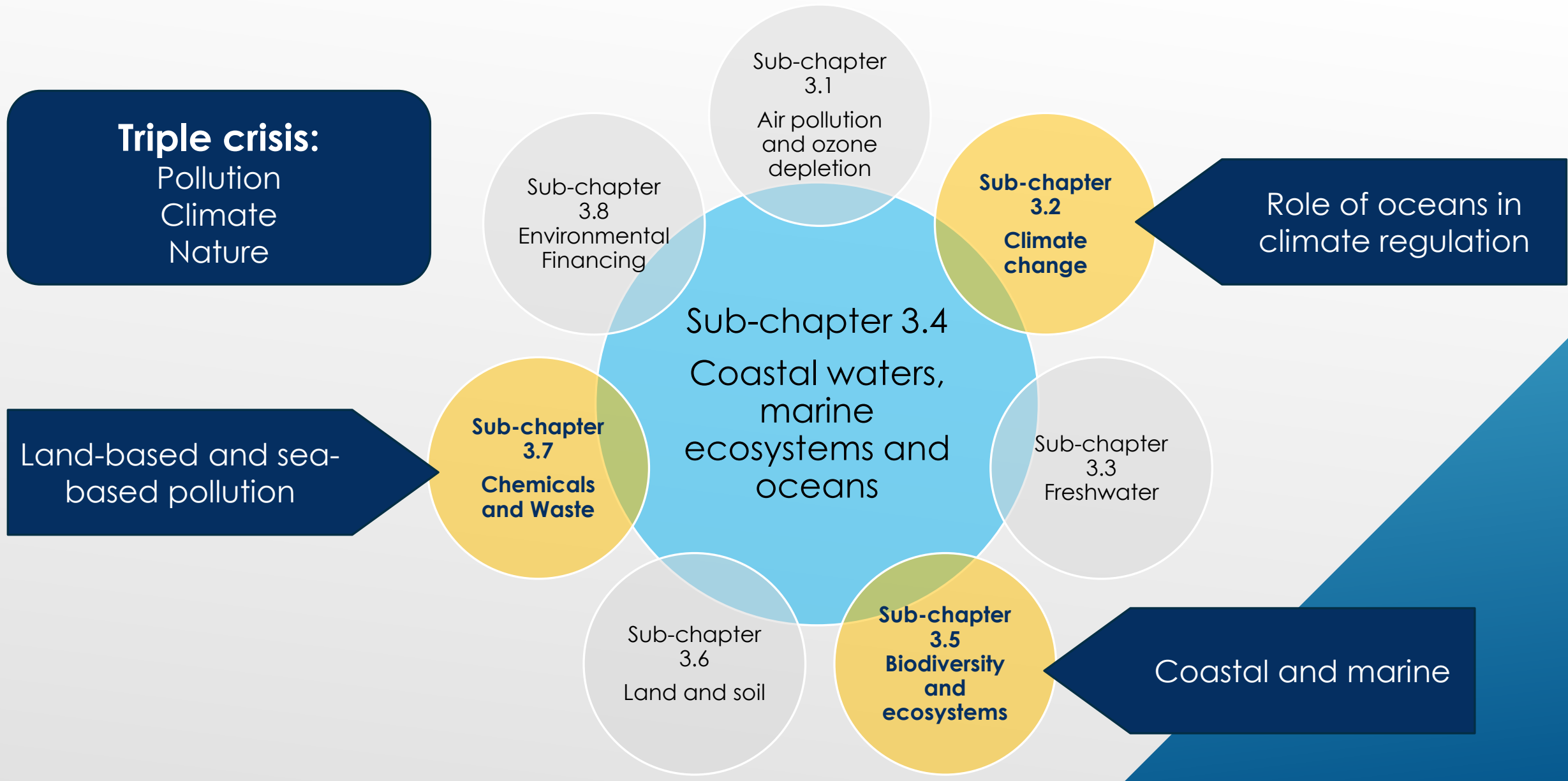
Multiple pressures and their combined effects in Europe's seas



DRIVERS FOR ENVIRONMENTAL CHANGE

General drivers	Specific implications
Demography Population growth Migration	Coastal population growth Coastal population density
Urbanization	Coastal development
Industrialization	Blue/ocean economy sectors <i>e.g. fishing, oil and gas, seabed mining</i>
Globalization	Shipping
Increased personal wealth	Coastal tourism
Climate change	Sea level rise Increased sea temperatures
Effect of responses	Policies, investments, awareness raising, capacity building, technology, digitization..

LINKS TO OTHER THEMES



Triple crisis:

Pollution
Climate
Nature

Sub-chapter
3.8
Environmental
Financing

Sub-chapter
3.1
Air pollution
and ozone
depletion

**Sub-chapter
3.2
Climate
change**

Role of oceans in
climate regulation

Land-based and sea-
based pollution

**Sub-chapter
3.7
Chemicals
and Waste**

Sub-chapter 3.4
Coastal waters,
marine
ecosystems and
oceans

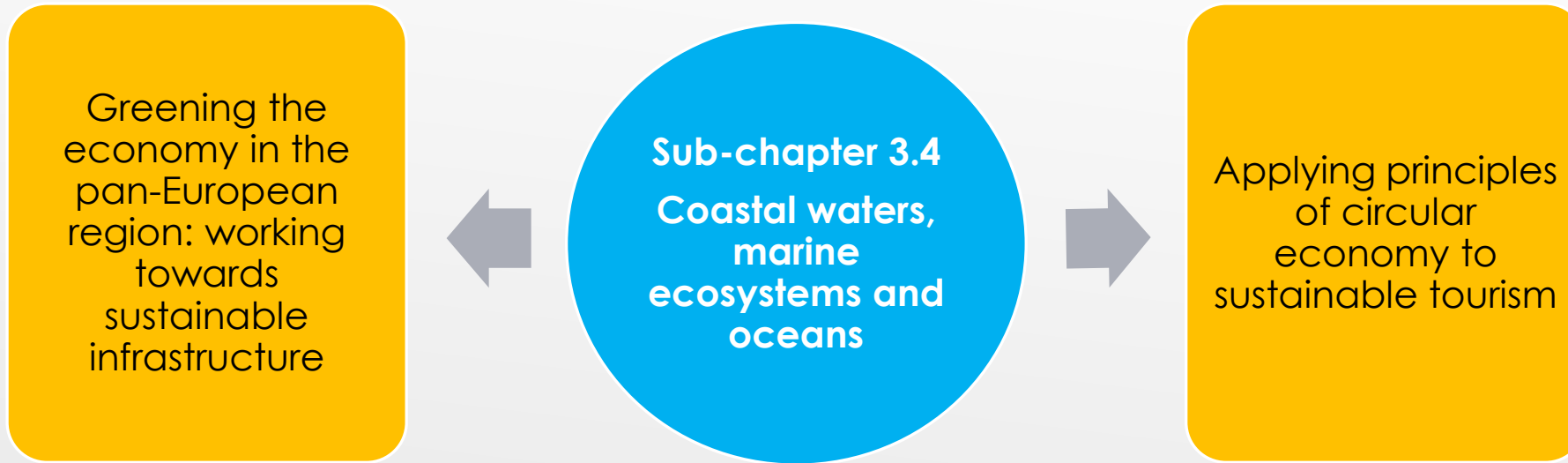
Sub-chapter
3.3
Freshwater

Sub-chapter
3.6
Land and soil

**Sub-chapter
3.5
Biodiversity
and
ecosystems**

Coastal and marine

LINKS TO CONFERENCE THEMES



- Nature-based solutions
- Increased coastal resilience
- Multi-functionality
- Climate adaptation
- Climate-proof coastal infrastructure
- Ecosystem services

- Pressures of unsustainable coastal tourism and cruise tourism
- Impacts on coastal resources
- Economic importance
- Post-Covid recovery

OTHER SOURCES OF INFORMATION

- ▶ UN **World Ocean** Assessment II 2021
- ▶ **Global Environment** Outlook GEO-6 2019
- ▶ IUCN **Ocean deoxygenation**: Everyone's problem 2019
- ▶ Copernicus Marine Service Ocean State Report, 2020
- ▶ EEA The **European** environment – state and outlook (SoER 2020)
- ▶ EEA Marine messages II, EEA report 17/2019
- ▶ ETC/ICM, 2019, **Biodiversity** in Europe's seas
- ▶ State of the **Baltic Sea** - second HELCOM holistic assessment 2011-2016
- ▶ **OSPAR** intermediate assessment 2017
- ▶ State of the Environment and Development in the **Mediterranean** 2020
- ▶ Towards a cleaner **Mediterranean**: a decade of progress. Monitoring Horizon 2020 regional initiative. Joint EEA-UNEP/MAP 2020
- ▶ 12 Facts about the **Black Sea** (EMBLAS II) 2017
- ▶ **Caspian Sea** - State of the Environment 2019

SUMMARY

- ▶ Combined approach
 - ▶ sea basins
 - ▶ data for littoral Member States
- ▶ SDG 14 is an appropriate indicator framework
 - ▶ data limitations – spatial and temporal (trends)
 - ▶ combined with other data and information sources
- ▶ Clear links to drivers
- ▶ Opportunity to integrate with other themes
- ▶ Two conference themes of specific relevance
- ▶ *Are there other sources of data/indicators and assessments?*

THANK YOU
FOR YOUR ATTENTION

c.spiteri@mcl-environmentalconsulting.com