

**One Mediterranean:**  
practices, results and strategies for a common Sea

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*BlueMed CSA Final Conference*  
Feb. 22-24, 2021

# The status of the Mediterranean

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*and*

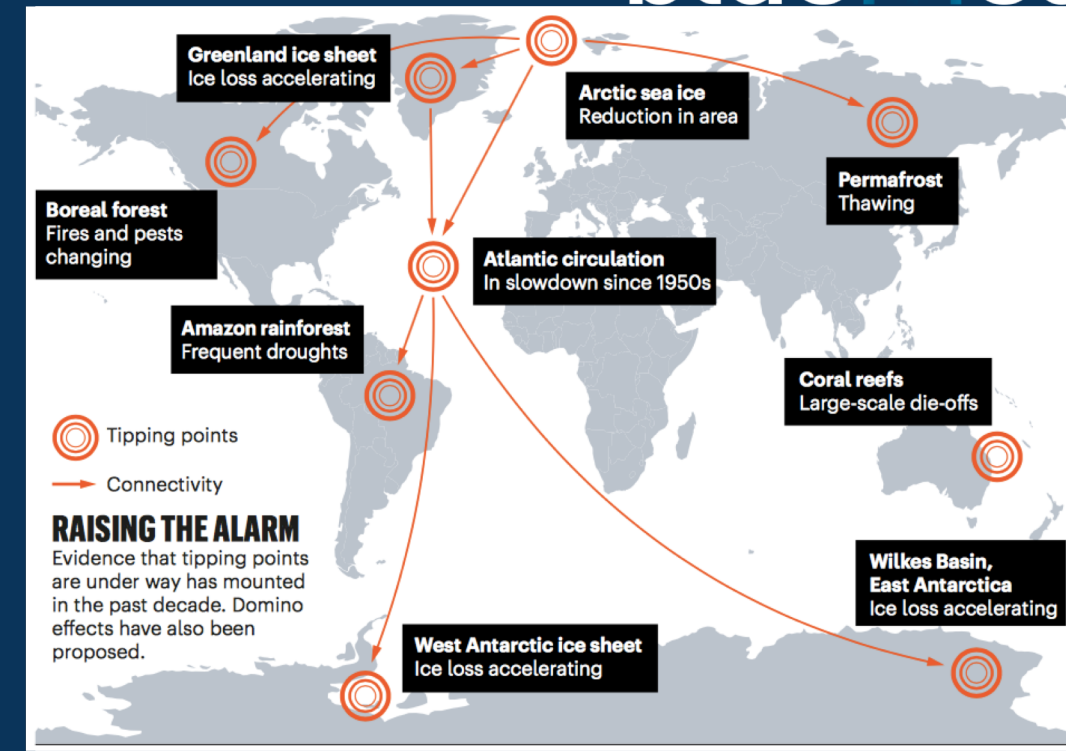
*Head of the Earth Systems Science and Environment Technologies Department of CNR*

**blue****med** Research and Innovation  
for blue jobs and growth  
in the Mediterranean Area

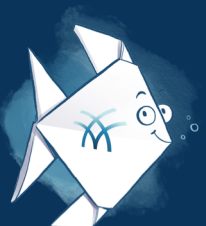


# The limits to growth

- The planet lives in the “great acceleration”
- Growth cannot be linear and unlimited
- Instead, we should stay within «planetary boundaries»
- Beyond planetary boundaries:
  - we generate a number of irreversible transitions (tipping elements)
  - we enter a super-interglacial
  - our society is not going to last
  - resources will not be sufficient to keep growing

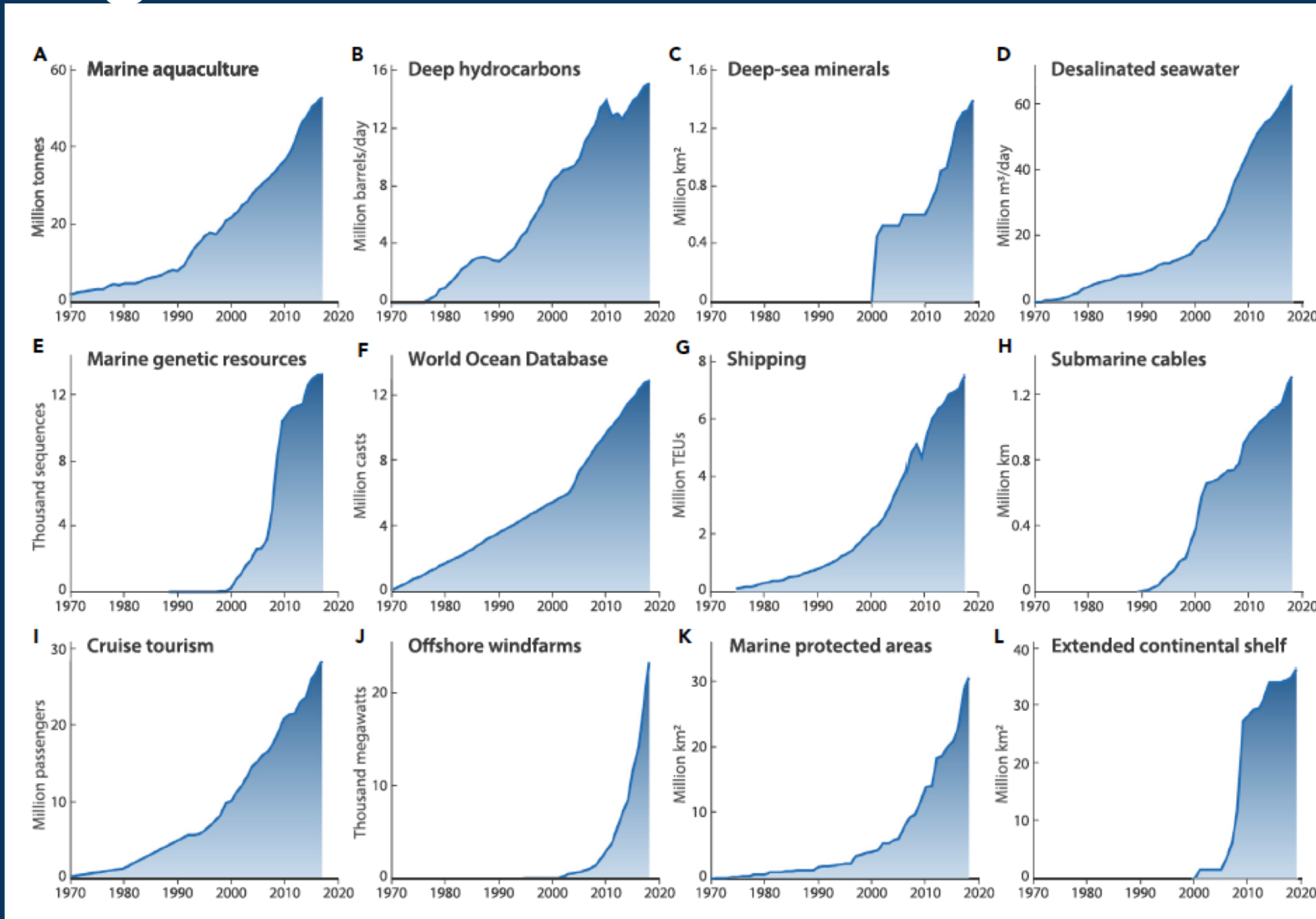


*Lenton et al., 2020 NATURE*

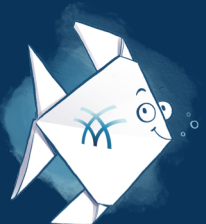


# The great acceleration and the ocean

Jouffroy et al., 2020 NATURE



We should not extend to the ocean what we have done on land for two Centuries



# Toward a healthy and resilient Mediterranean

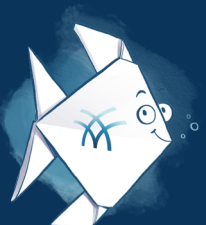
Urgent need to overcome three orders of problems:

- Natural hazards
- Ecosystems degradation
- Enhanced regional warming (hotspot of climate change)

Economy during the «great acceleration» used the ocean as a trash bin

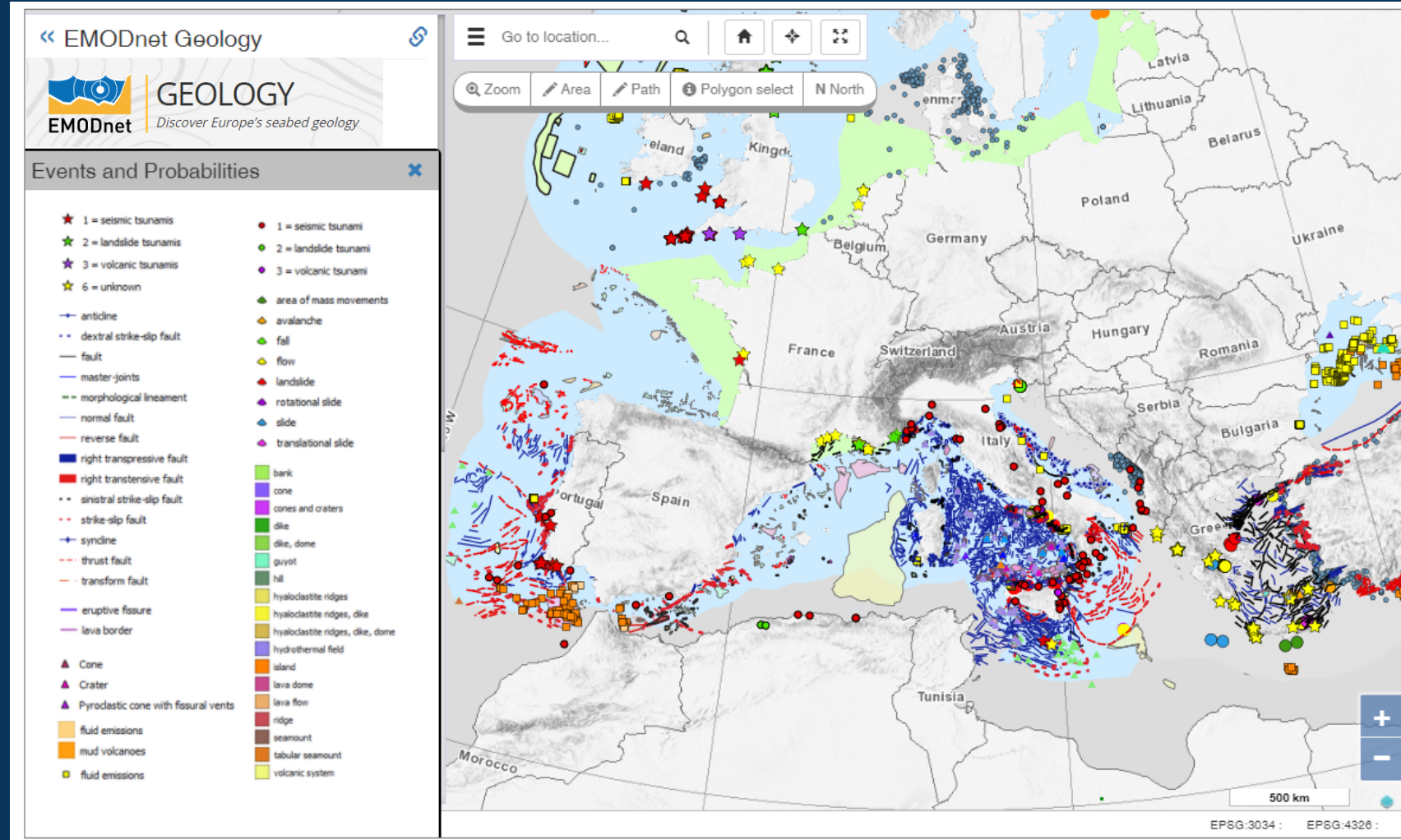
Circular economy should now:

- Revitalize endangered areas (e. g.: coastal industrial plants, offshore dumping sites, obsolete infrastructures, etc.)
- Prevent further environmental impacts
- Use resources sustainably (and not solely in terms of “extraction”)



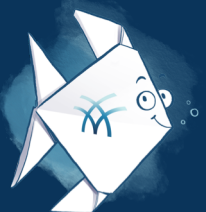


# Natural hazards



seismicity,  
active faults,  
volcanoes,  
slides,  
tsunamis

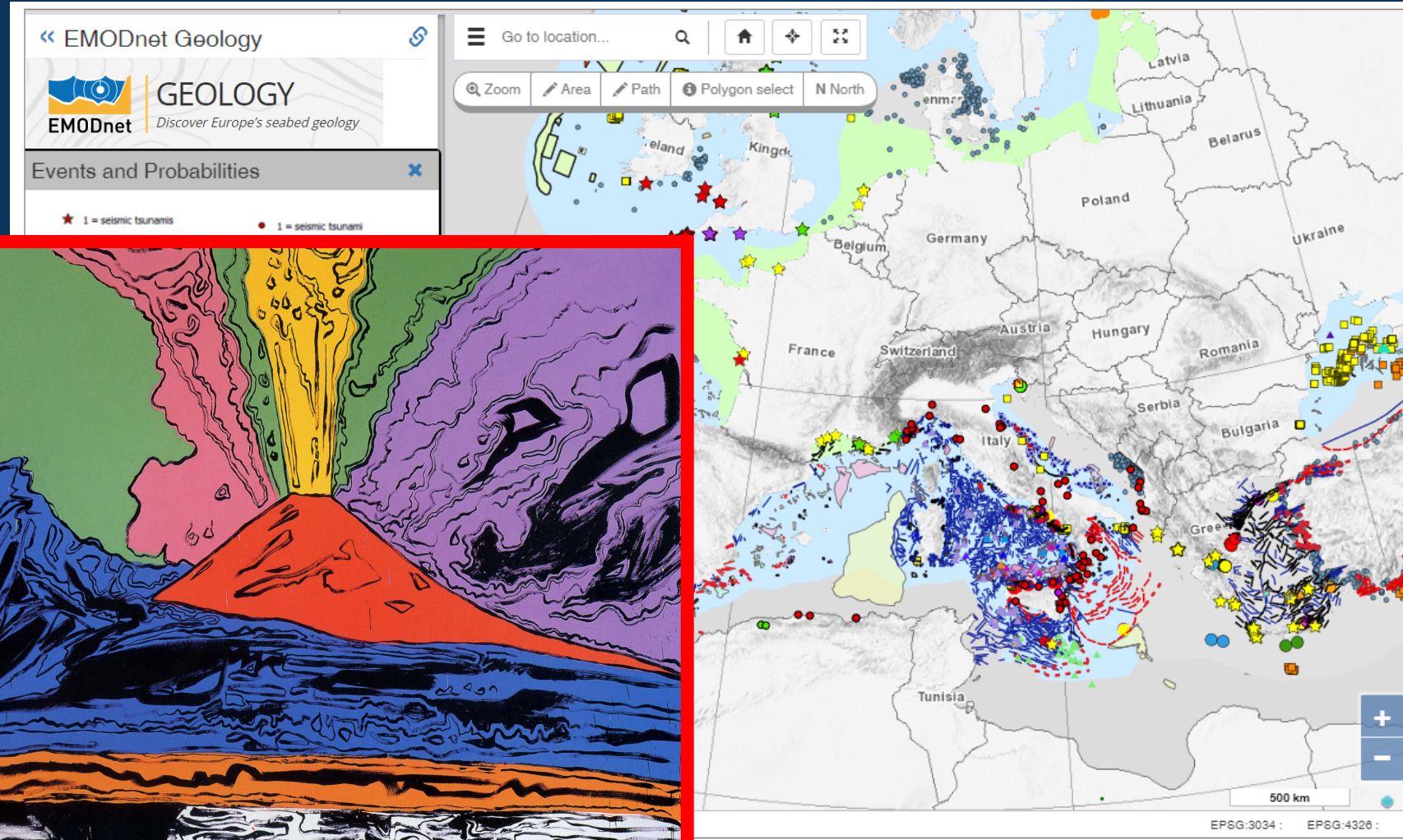
Need of  
multi-risk  
assessment



# Natural hazards

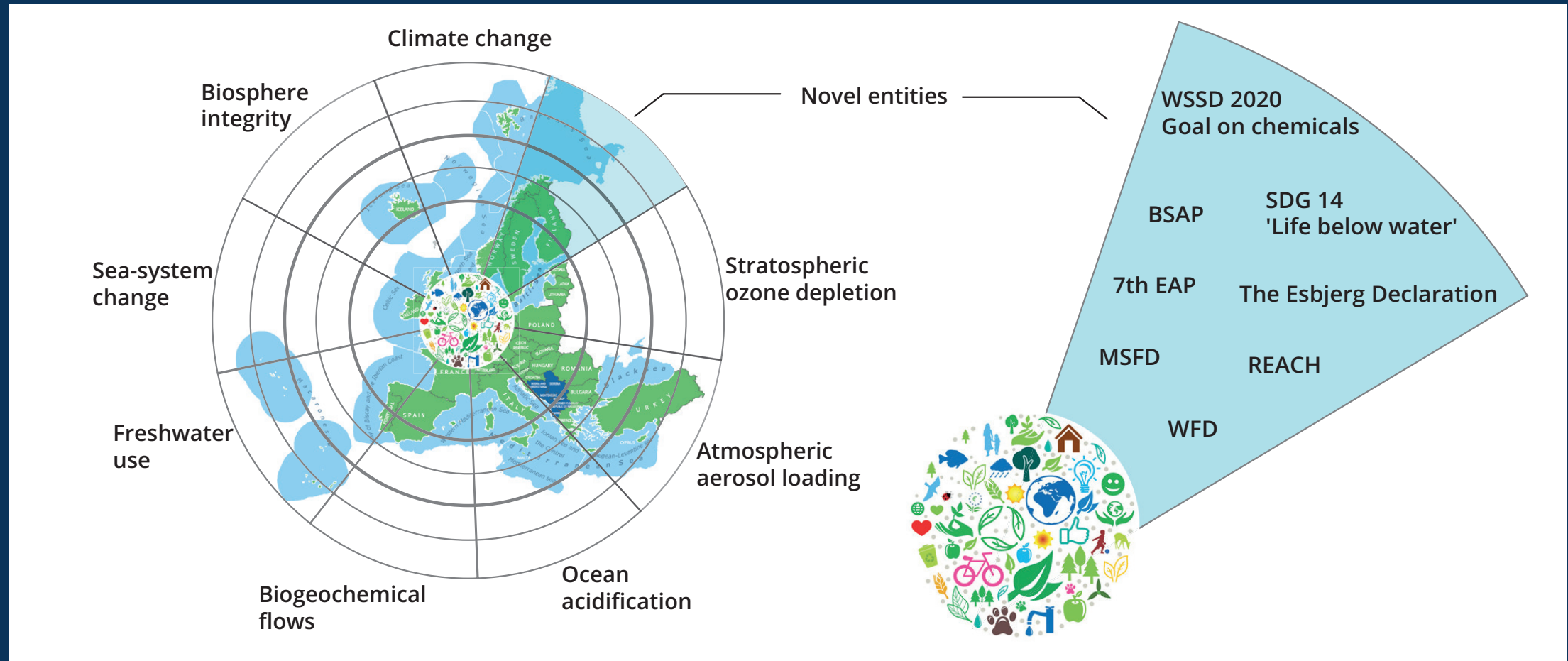
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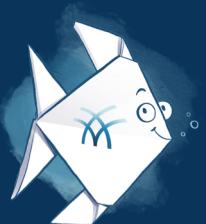


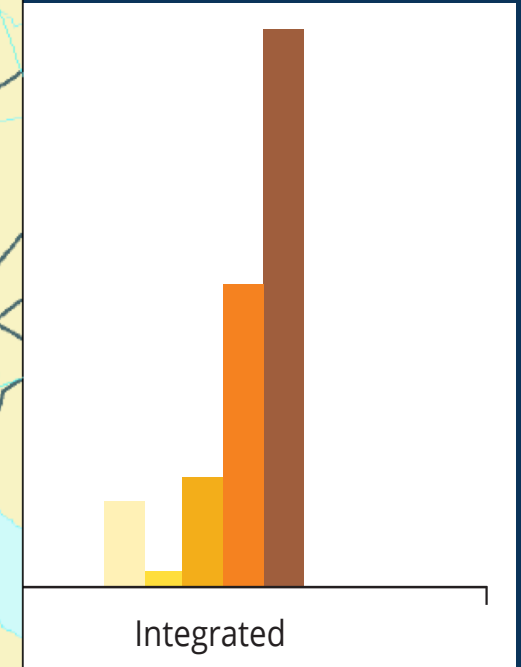
# Ecosystems degradation



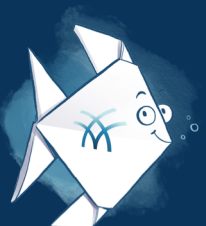
Loss of biodiversity and pervasive pollution (including sea floor) are both legacies of the great acceleration

EEA report, 2018





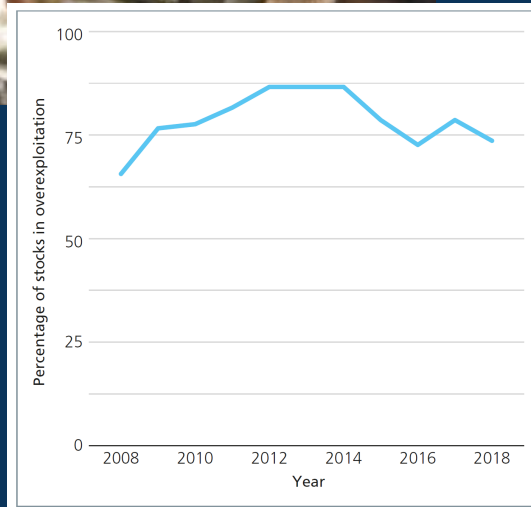
- amount of data on the environmental status is insufficient [EEA report, 2018](#)
- data are spatially biased (concentrated in coastal areas, scarce offshore)
- huge number of pollution hotspots along the coasts



# The fishery in the Mediterranean

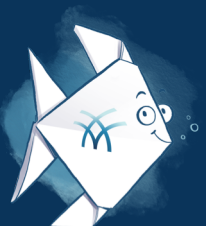


FAO. 2020. The State of Mediterranean and Black Sea Fisheries 2020. General Fisheries Commission for the Mediterranean. Rome.  
<https://doi.org/10.4060/cb2429en>



- For millennia, fisheries have driven the “blue” economy of the Mediterranean, providing essential coastal livelihoods and the basis for the so-called “Mediterranean diet”
- In the last decades fisheries reached the overexploitation of most commercial stocks, large eutrophication events, appearance of non-indigenous species, changes in globalized market, etc..
- Research in fishery is promoting sustainability in the exploitation of living resources of the Mediterranean Sea, mitigating the impacts of catch processes on marine resources and habitats and the conflicts with other uses of the sea.

SOMFI 2020

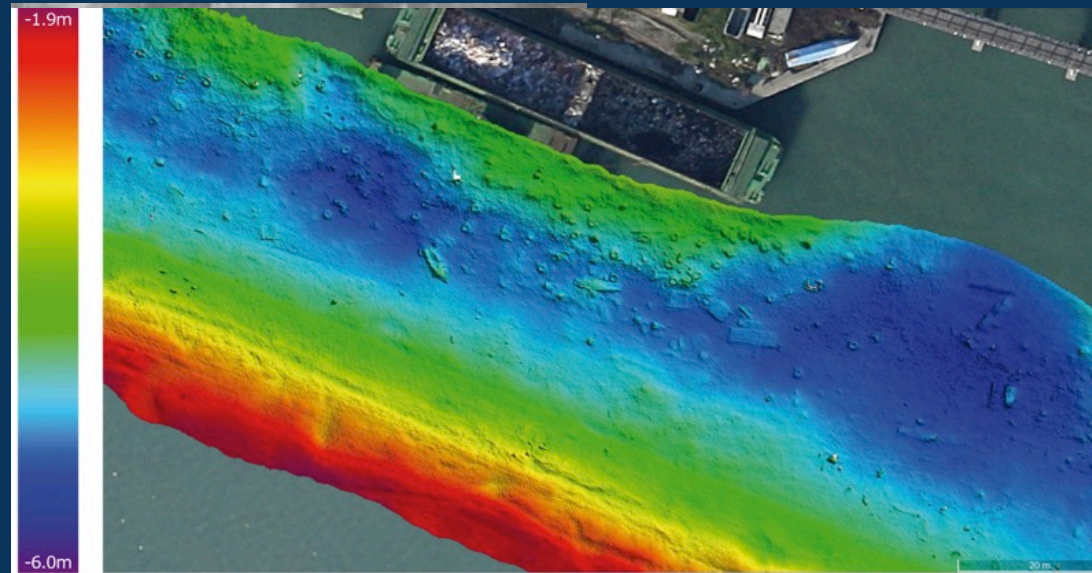




# Mediterranean seafloor at a glance

- Areas of illegal dumping are widespread

Pierdomenico et al., 2019 Sci. Rep.



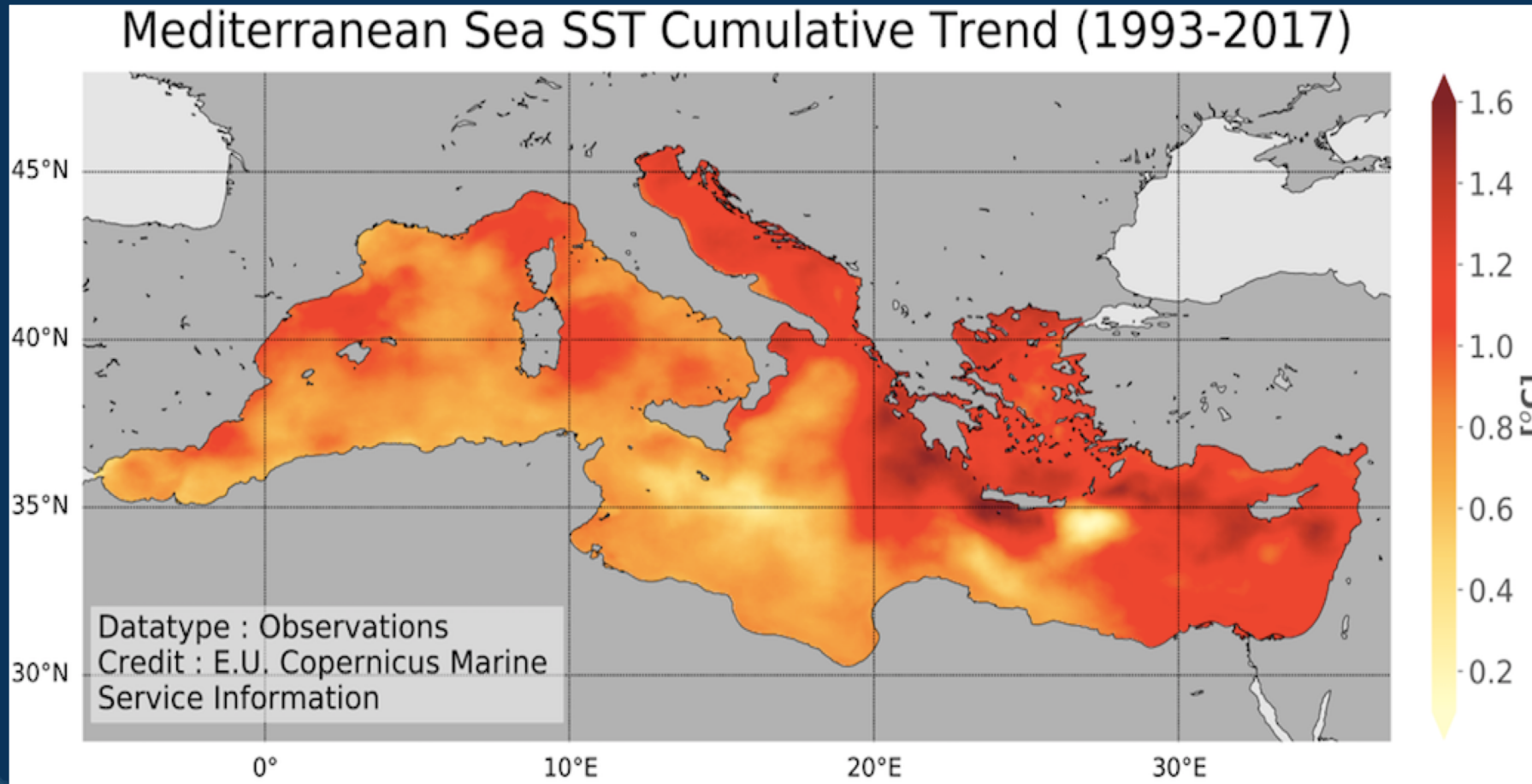
Madricardo et al., 2019 Sci. Rep.

On the continental slope off Gioia Tauro,  
Tyrrhenian Sea (200-600 m)

“Garbage” on the bottom of  
the Venice Lagoon 3-6 m water  
depth



# The Mediterranean is a hotspot for climate change



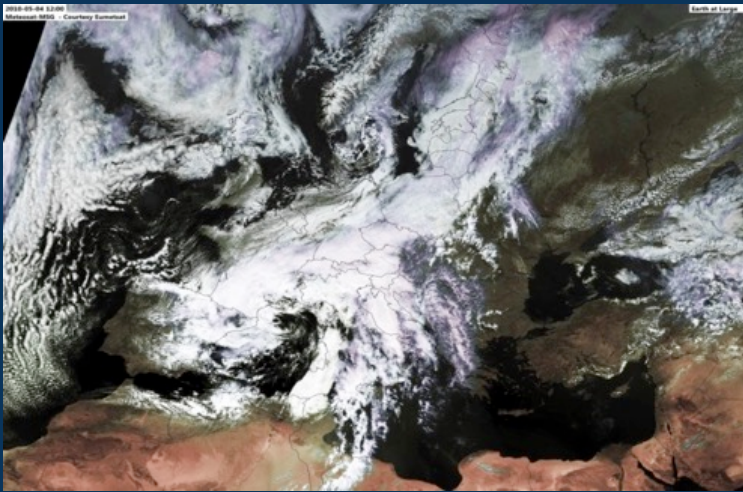
with (light curves) and without (dark curves) smoothing



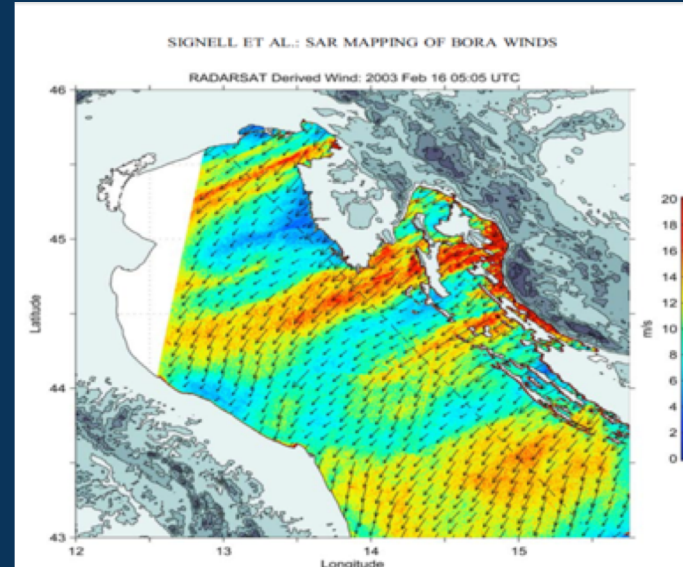


# The Mediterranean is a hotspot for climate change

## Severe cyclogenesis



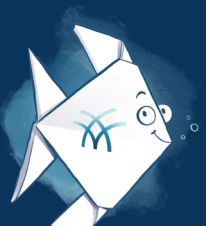
## Wind storms



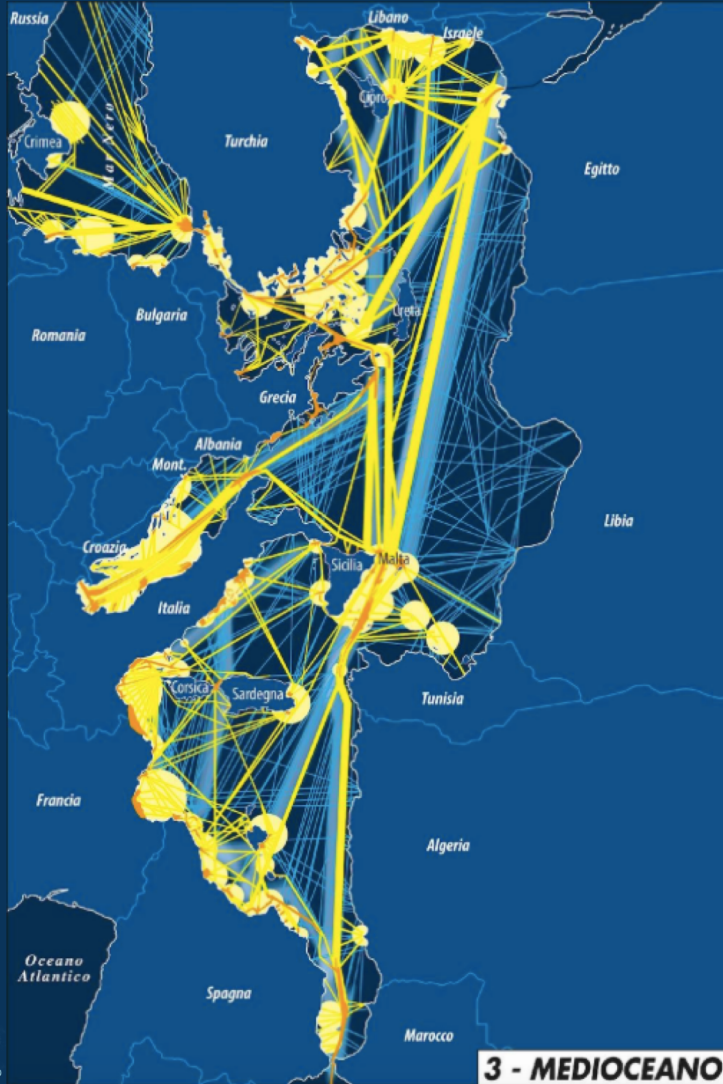
## Flash Flood Heavy Precipitation



- Increase T, reduction of precipitations, extreme events more recurrent



# The exploitation of Mediterranean



Key connecting area between the far East and the Atlantic

Crossed by 25% of global marine trades (though the 400 local ports do not take full advantage of this)

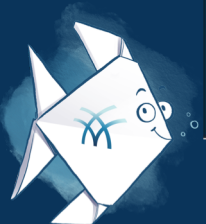
Impacted by 7% of global mismanaged plastic garbage

Overfished (88% of stocks overexploited)

Heavily polluted (chemicals)

30 % of global tourism

LIMES, November 2020.





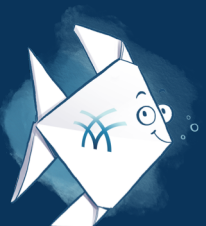
# Economical drivers



**Every economical driver has a footprint on the environment and ecosystems**

**Sustainable thresholds for economic operations shall be defined**

**WWF 2017 Report**



# Conclusions

- Plan economical development taking into account scenarios of global change (Sea Level Rise, coastal erosion, reduction of biodiversity, changes in oceanographic circulation, increasing recurrence of extreme events ...)
- Plan economical development taking into account all spatial dimensions: the Mediterranean in the world (the silk road), and the Mediterranean political fragmentation
- Beware of the pressures on the Mediterranean: pollution (from main land, rivers, coasts); water shortages; subsidence and desertification of coastal regions, threats on infrastructures
- Consider socioeconomical impacts: democracy, migrations, access ...



# Bluemed SRIA, Priorities & Implementation Plan



13 priority goals were selected by countries of the Basin from the BlueMed Strategic Research and Innovation Agenda: their implementation will foster sustainable, non-conflicting Blue Growth in the Mediterranean.

