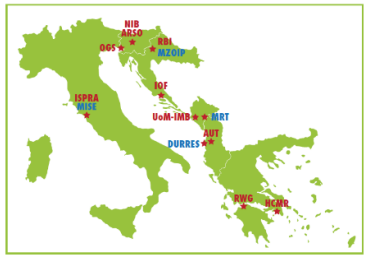
HarmoNIA - Harmonization and Networking for contaminant assessment in the Ionian and Adriatic Seas

Marina Lipizer & HarmoNIA partnership



Interreg ADRION ADRIATIC-IONIAN
European Regional Development Fund - Instrument for Pre-Accession II Fund

HarmoNIA

Interreg ADRION ADRIATIC-IONIAN
European Regional Development Fund - Instrument for Pre-Accession II Fund

Thematic Cluster on Coastal and Marine Environment Management

Financed by Interreg ADRION Programme

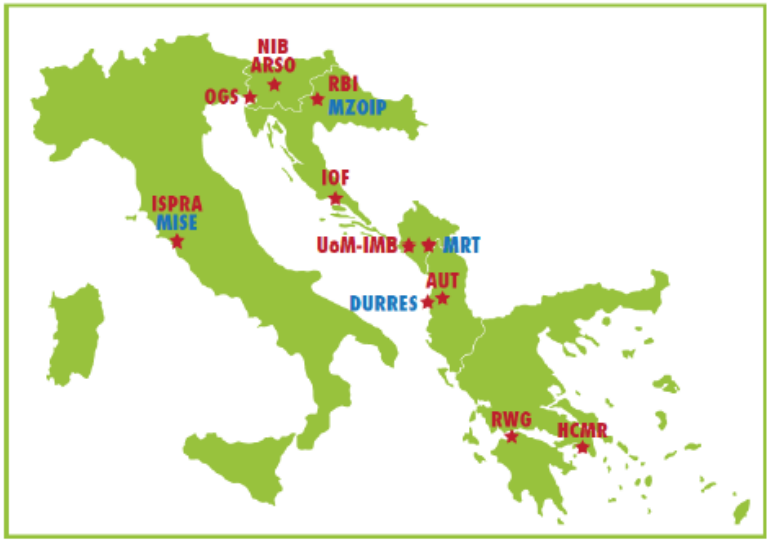
SPECIFIC OBJECTIVE 2.2

ENHANCE THE CAPACITY IN **TRANSNATIONALLY** TACKLING **ENVIRONMENTAL VULNERABILITY**, FRAGMENTATION, AND **SAFEGUARDING ECOSYSTEM** SERVICES IN THE ADRION AREA

Who we are:

Partnership

- National Institute for Oceanography and Applied Geophysics (OGS) - ***Italy***
- Italian National Institute for Environmental Protection and Research (ISPRA) - ***Italy***
- Institute of Oceanography and Fisheries (IOF) - ***Croatia***
- Ruder Boskovic Institute (RBI) - ***Croatia***
- Hellenic Centre for Marine Research (HCMR) - ***Greece***
- Region of Western Greece (RWG) - ***Greece***
- National Institute of Biology (NIB) - ***Slovenia***
- Slovenian Environment Agency - (ARSO) - ***Slovenia***
- Public institution University of Montenegro - Institute of Marine Biology (UoM-IMB) - ***Montenegro***
- Agriculture University of Tirana - Department of Plant Protection (AUT) - ***Albania***



Associated Partners

- Ministry of Economic Development Directorate General for the Safety Also Environmental of Mining and Energy Activities National Mining Office for Hydrocarbons and Georesources - ***Italy***
- Durres Municipality - ***Albania***
- Ministry of Sustainable Development and Tourism - ***Montenegro***
- Ministry of Environmental and Nature Protection - ***Croatia***

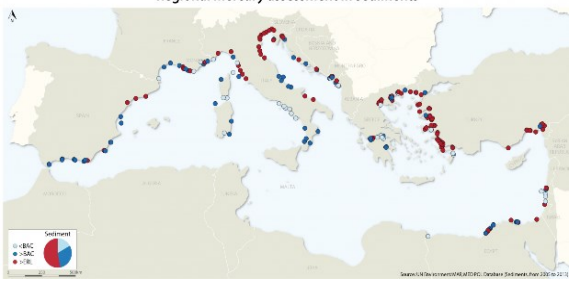
Challenges in the ADRION region:

- Hot spot of biodiversity - great environmental importance
- Marine socio- economic activities rely on **Good Ecosystem Status** (but may threaten GES)

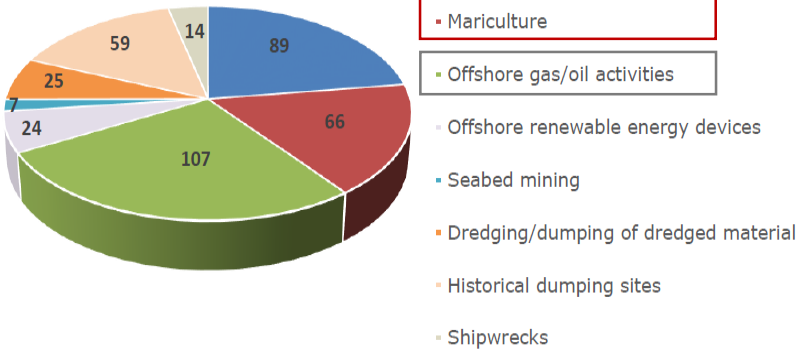



From: 2017 Mediterranean Quality Status Report, UNEP/MAP

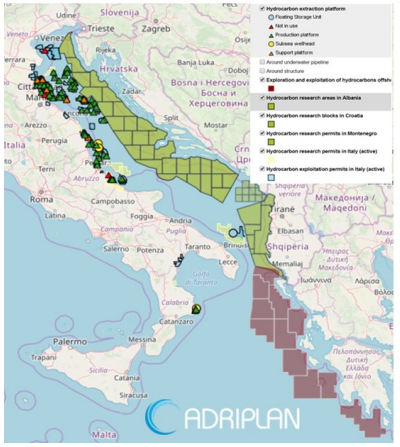
Regional mercury assessment in sediments



- Pollution in the ADRION area is a key issue



Oil & gas concessions and platforms



EUSAIR challenges tackled by HarmoNIA:

➔ Threats to coastal and marine biodiversity

➔ Pollution of the sea

With a particular focus on:

- ❖ sharing data
- ❖ Information
- ❖ best practices

for monitoring, assessing and managing pollutants in the marine environment

To support harmonized implementation of **MSFD** and provide information useful for **MSP** and environmental conservation

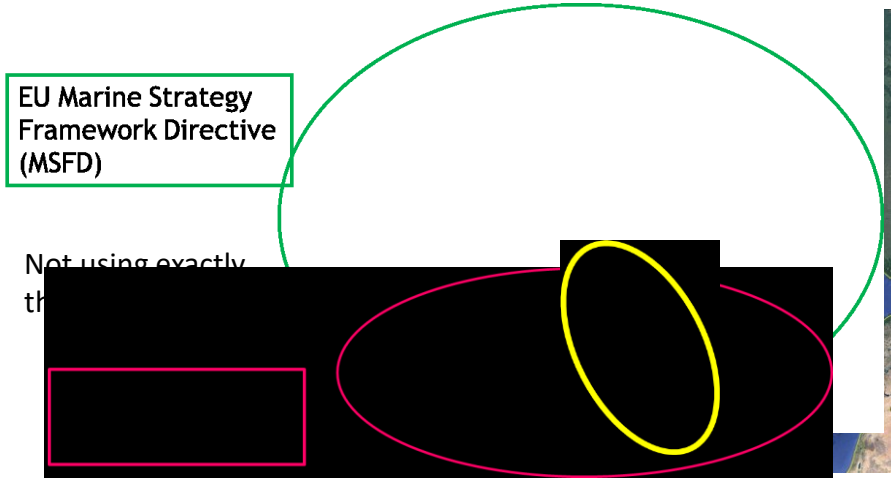
Marine pollution. What do we mean?

➔ Chemical pollutants

(heavy metals, hydrocarbons, pesticides/biocides, PCBs, DDTs, farmaceuticals,… often ***invisible*** pollution)

Are the Adriatic - Ionian Seas polluted?

➔ Legislative instruments indicate **how** to assess pollution (what to measure, how, where, when)



→ Harmonized assessment not so trivial!

HarmoNIA overall objective:

… to address the heterogeneity in **methodological approaches** **(sampling -> analysis -> assessment)**, **to overcome** the **fragmentation** in **data** availability on contaminants and **to propose** an approach for contaminant dispersion **risk assessment**.

Contribution to wider strategies & policies:

EU Strategy for the Adriatic and Ionian Region EUSAIR

"Environmental quality" - Establishment of a common platform of all countries for data collection, research and analysis

UN environment programme Mediterranean Action Plan Barcelona Convention

- **Marine Strategy Framework**
- Maritime Spatial Planning
- Protocols of the Barcelona Convention against pollution

2021 2030 United Nations Decade of Ocean Science for Sustainable Development

- **A clean ocean:** whereby sources of pollution are identified, quantified and reduced…
- **A safe ocean:** whereby human communities are protected from ocean hazards and where the safety of operations at sea and on the coast is ensured
- **A transparent and accessible ocean:** whereby all nations, stakeholders and citizens have access to ocean data and information, technologies and have the capacities to inform their decisions

14 LIFE BELOW WATER

SUSTAINABLE DEVELOPMENT GOALS

HarmoNIA approach:

- Establish an Adriatic – Ionian **network** of agencies and institutes in charge of the assessment of marine contaminants
- Define **best practices** to tackle monitoring, assessment and evaluation of impacts due to contamination
- Collect and make accessible through a common and already available infrastructure regional **datasets** of contaminants for the Adriatic – Ionian region
- Propose a **regional strategy** for a shared and harmonized evaluation of the risk due to contaminant dispersion from different sources of pollution.

Network of institutions

Adopting:

Shared analytical protocols

Common data infrastructure

Shared assessment procedures

What has been done:

Monitoring & assessment of marine contaminants in ADRION region

WATER

SEDIMENT

BIOTA

Substances considered for the analysis of monitoring protocols

MSFD

Barcelona Convention

Heavy metals
Hydrocarbons
Antifoulants
Pesticides and biocides
Brominated compounds
Pharmaceuticals
Radionuclides

WFD

Emerging Contaminants

The problem:

Are the monitoring protocols in the ADRION region comparable?

NO!

Clear need of a common protocols!

Implementing the monitoring of radionuclides and pharmaceutical products

Harmonization of the list of measured substances at sub-regional level

Main needs

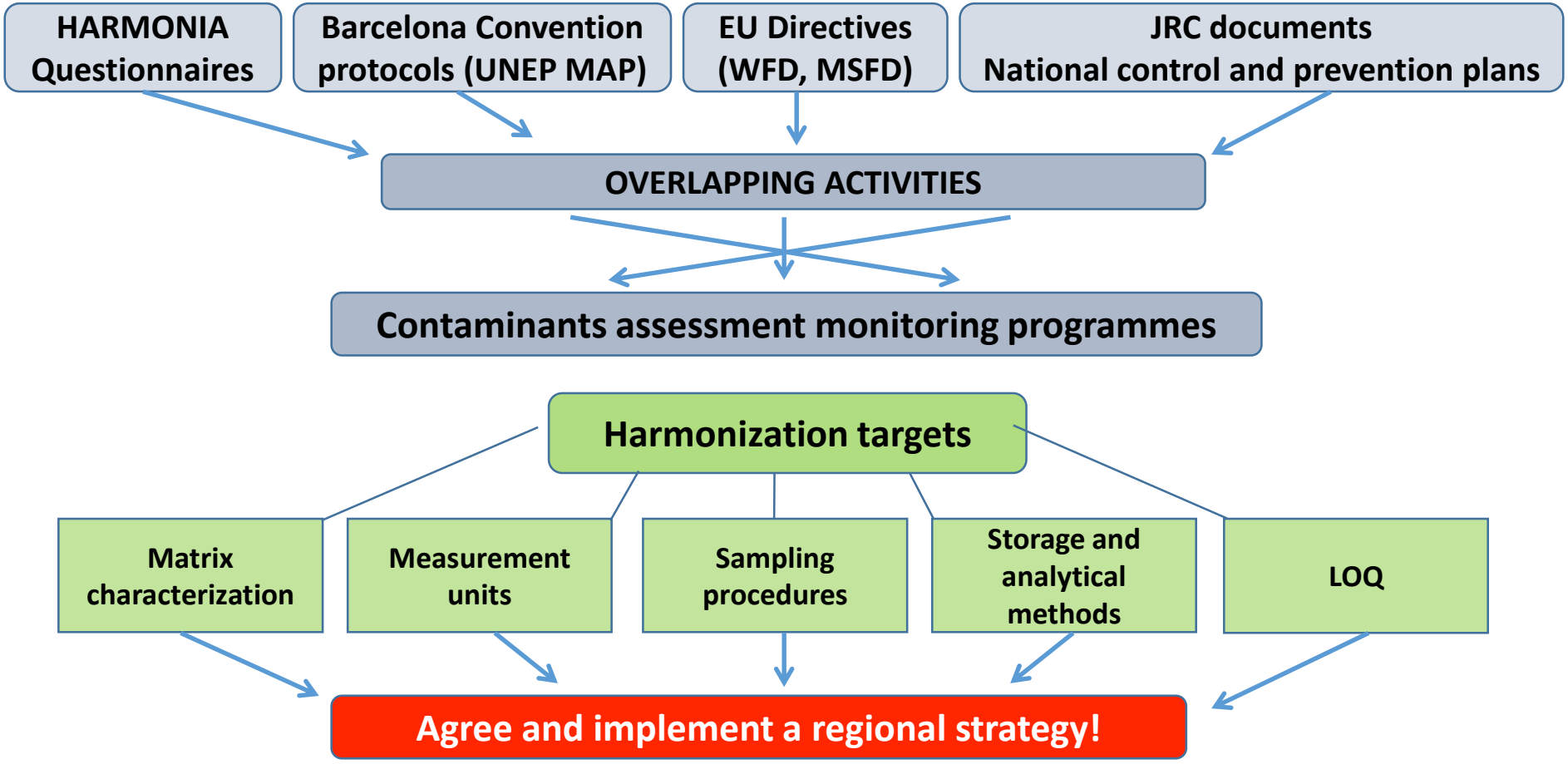
Improvement in comparability of sampling and analytical procedures: protocols harmonization + metadata

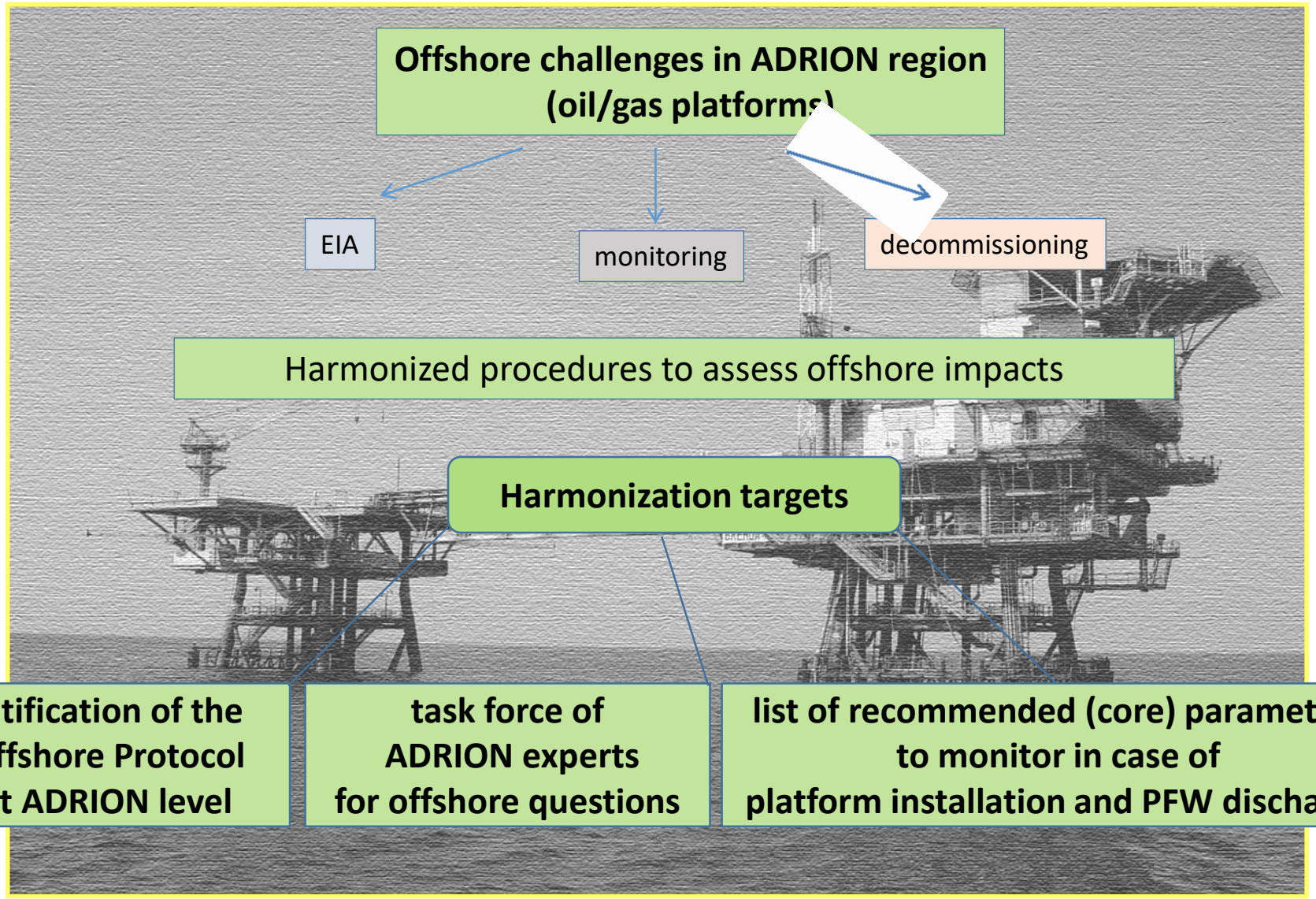
<u>For biota:</u>
measurement weight basis

<u>For sediment:</u>
Grain size fraction of sediment
Thickness of sediment sampled

<u>For water, sediment, biota:</u>
Improved metadata (accuracy, reproducibility, LOD, LOQ, reference materials and intercalibration exercises)

Methodological proposal for harmonization




Offshore challenges in ADRION region (oil/gas platforms)
EIA
monitoring
decommissioning
Harmonized procedures to assess offshore impacts
Harmonization targets
ratification of the Offshore Protocol at ADRION level
task force of ADRION experts for offshore questions
list of recommended (core) parameters to monitor in case of platform installation and PFW discharge

HarmoNIA results and outputs:

Shared analytical protocols

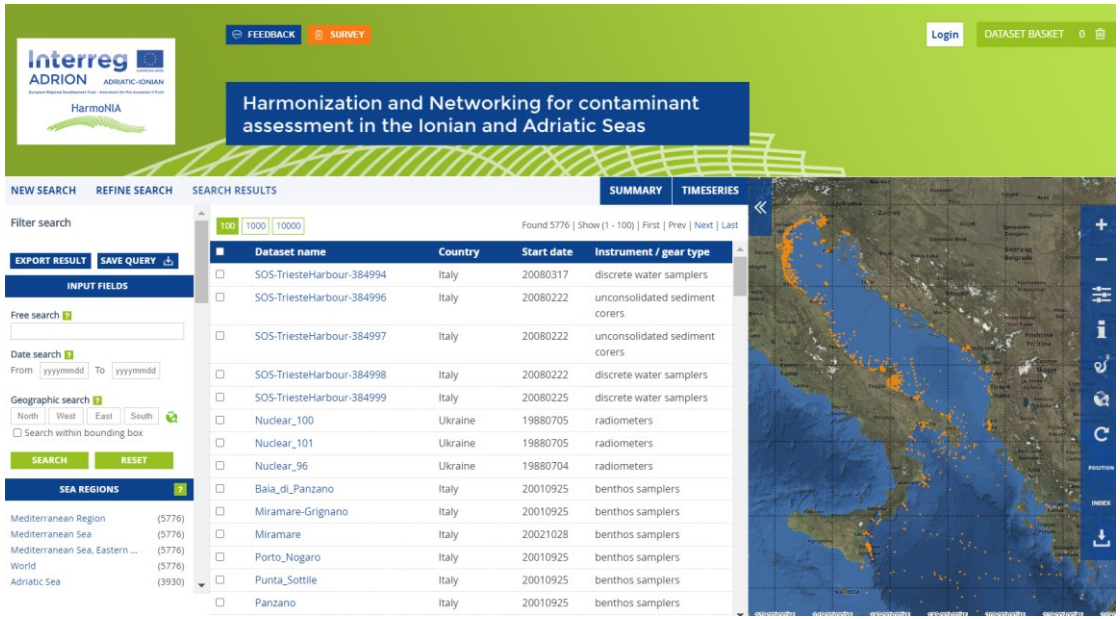
→Harmonized monitoring!

→Strategy for harmonized monitoring

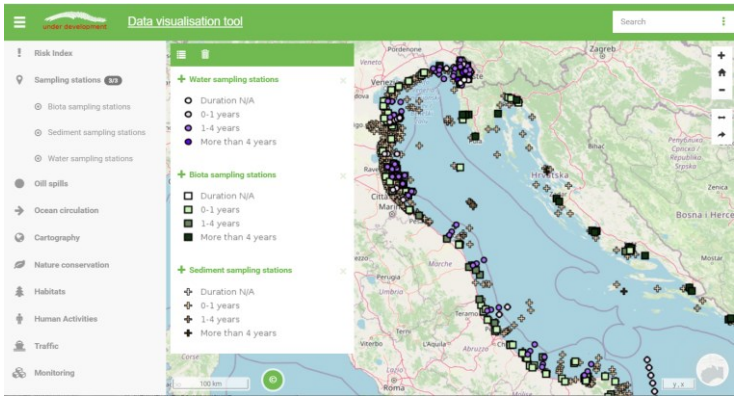
HarmoNIA outputs: Data infrastructure - Network

To facilitate access and re-use of marine data

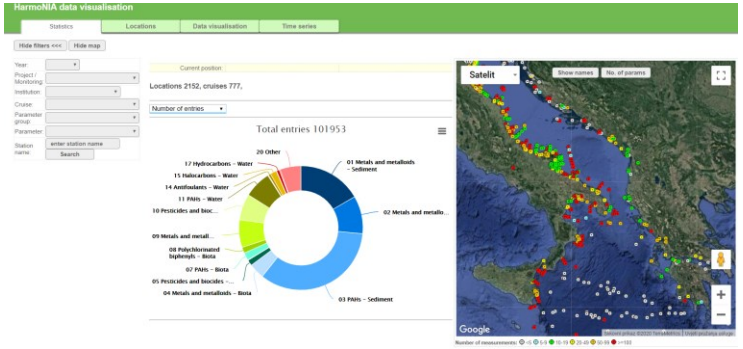
Based on long-consolidated EU initiatives (SeaDataNet, EMODnet):



Provide easy access to metadata:



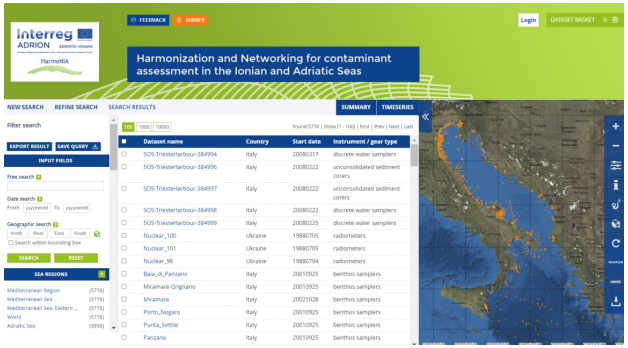
… and to data visualizations:



Collect and make **accessible** datasets of contaminants for the Adriatic – Ionian region, using a **common** and **consolidated infrastructure**

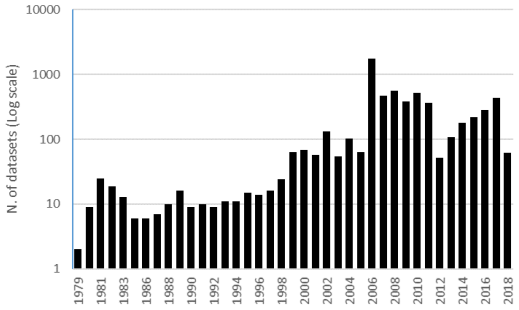
HarmoNIA outputs: Data infrastructure - Network

From accessible data ….



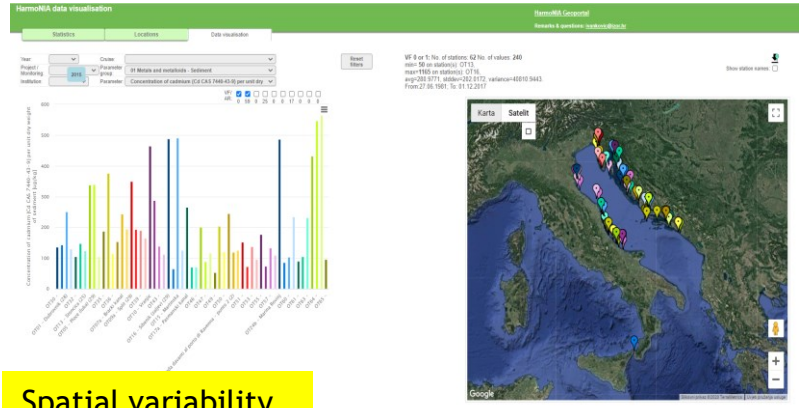
Total number of datasets: 5.666

Dataset temporal extent: 1979 - 2018

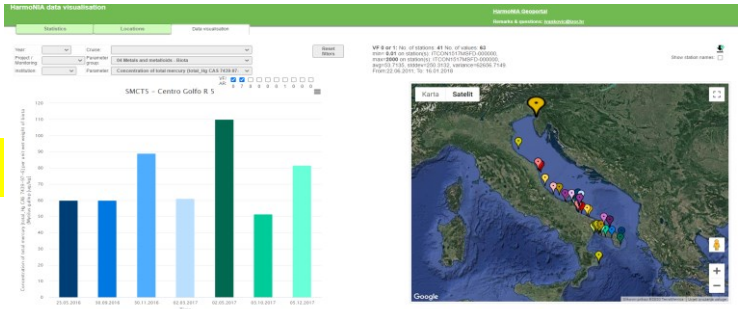


- 192 different chemical substances
- 96 measured in seawater
- 144 in Sediment
- 58 in biota

… to data visualization with a common and agreed approach



Spatial variability



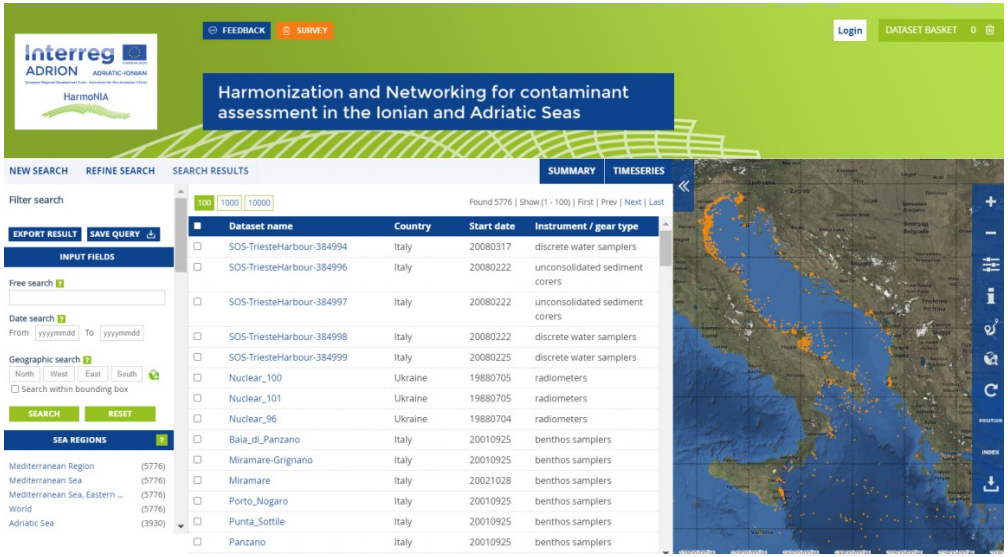
Temporal variability

Final output:

HarmoNIA Transnational network of institutions sharing expertise and information towards harmonization of monitoring of contaminants in the marine environment, data management and visualization

HarmoNIA results and outputs:

Common data infrastructure



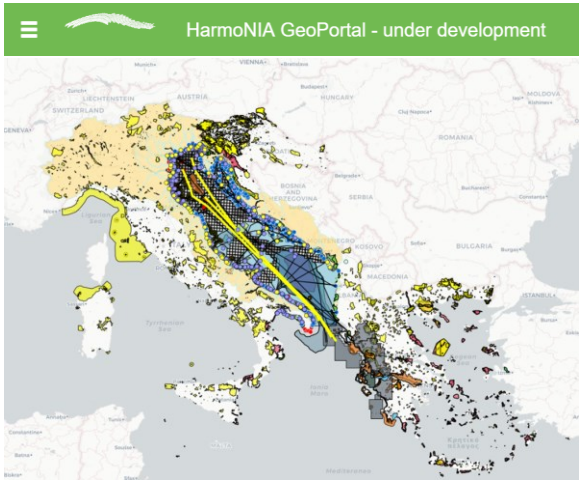
→Accessible data!

→Network for data-info sharing

HarmoNIA outputs: Risk assessment - Strategy

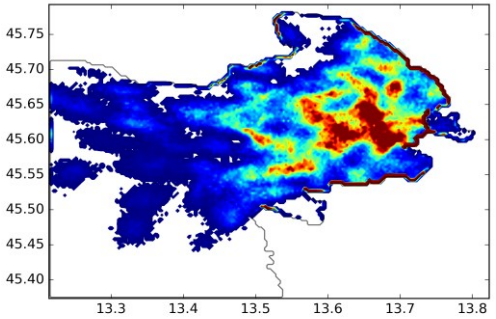
- Supporting a coordinated **approach** of pollution management and in case of pollution accidents and defining a **common strategy** to assess contaminant dispersion risk along the coast

- Where the main sources of **pollution** are
- Collection of relevant information for the ADRION area to define **vulnerability** index along the coast and to define case study areas
- Organization of information in a GeoPortal – ongoing process (data-metadata)

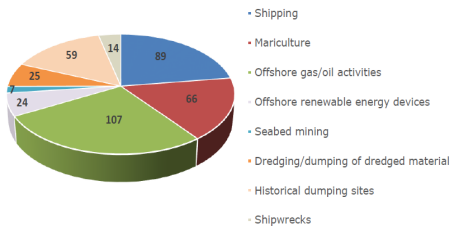


➢ Use **hydrodynamic modelling** to predict contaminant dispersion in typical situations and in case study areas

Oil spill simulation



➢ Evaluate **vulnerable** marine and coastal areas



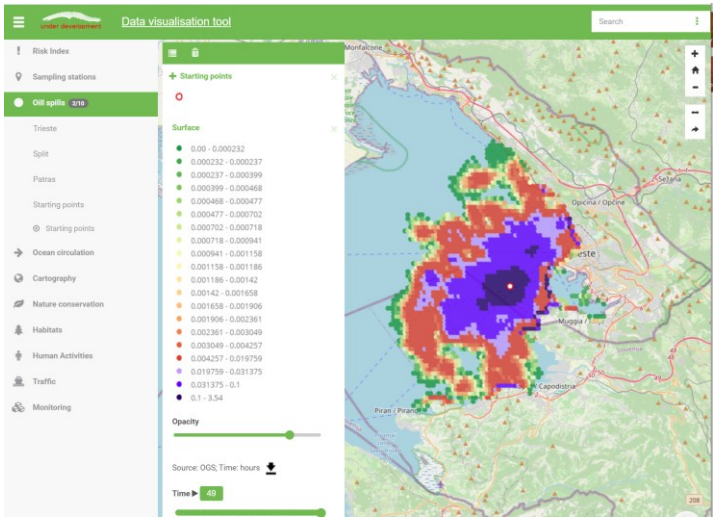
➢ Evaluate the **probability** of the distribution of contaminants

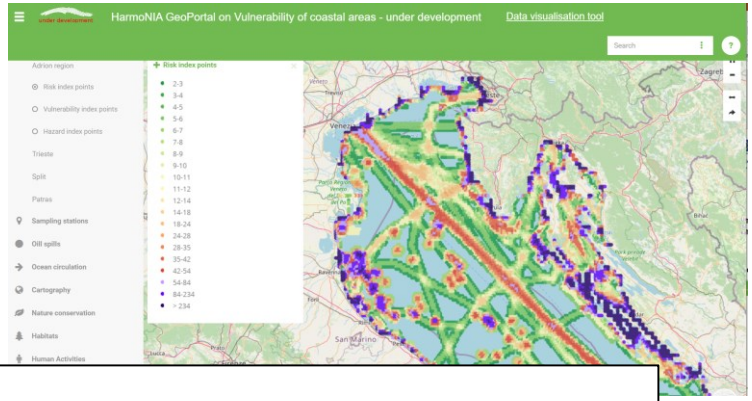
➢ Propose a **methodology** for assessing risk index of contaminant dispersion and results in case study areas

HarmoNIA outputs: Risk assessment - Strategy

- Spatial information to evaluate vulnerability
- Spatial information to evaluate hazard

- Hydrodynamic and oil spill modeling





- Risk assessment data and methodology

Final output:

Adriatic - Ionian regional strategy for a shared and harmonized evaluation of the risk due to contaminant dispersion from different sources of pollution.

HarmoNIA results and outputs:

Shared assessment procedures

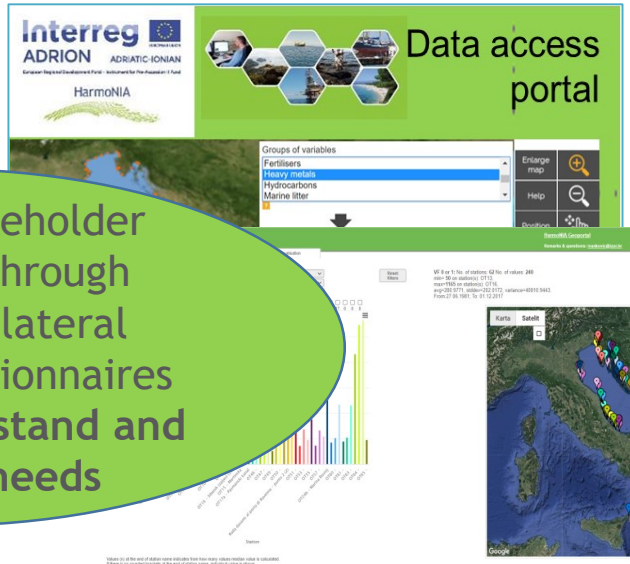
→Knowledge for decision making

→Strategy on risk assessment

HarmoNIA in synthesis:

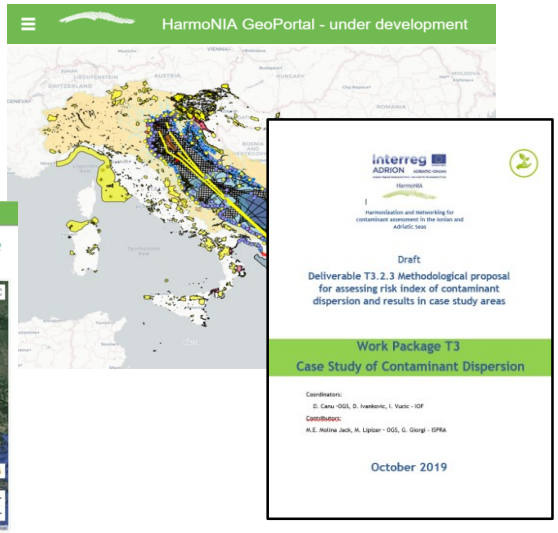
Shared analytical protocols

Common data infrastructure



Continuos stakeholder engagement through workshops, bilateral meetings, questionnaires **to better understand and fit ADRION needs**

Shared in procedures

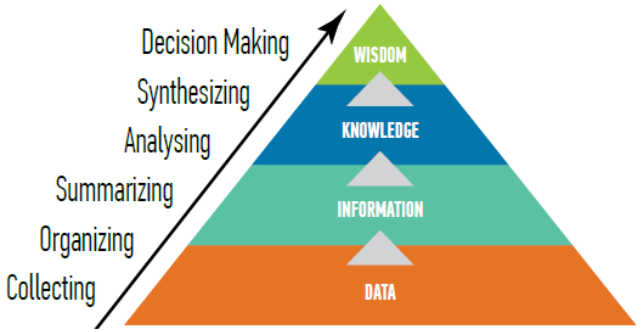


→ **Guidelines**

→ **Accessible data** and information!

→ **Knowledge** for decision taking

From **good monitoring** data to **good decision** making



Thanks you for your attention!

Visit our website with all information and documents (ongoing)
https://harmonia.adrioninterreg.eu/