



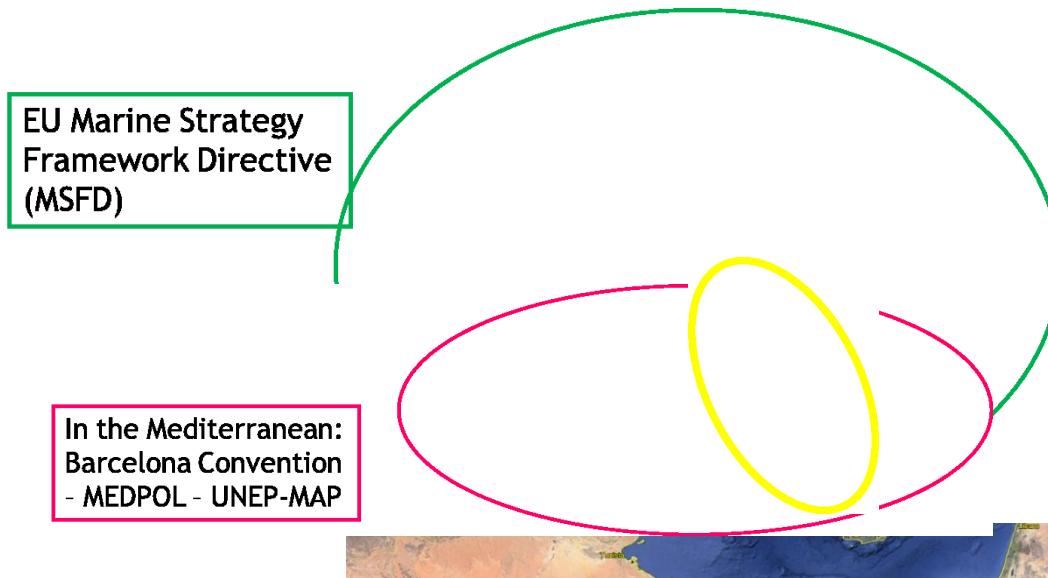
Assessing the status of our common seas: how to find data of contaminants for the Adriatic and Ionian Region.



Marina Lipizer, M. Eugenia Molina Jack, M. Giani - OGS

❖ Assessing marine pollution: legislative requirements in the ADRION region

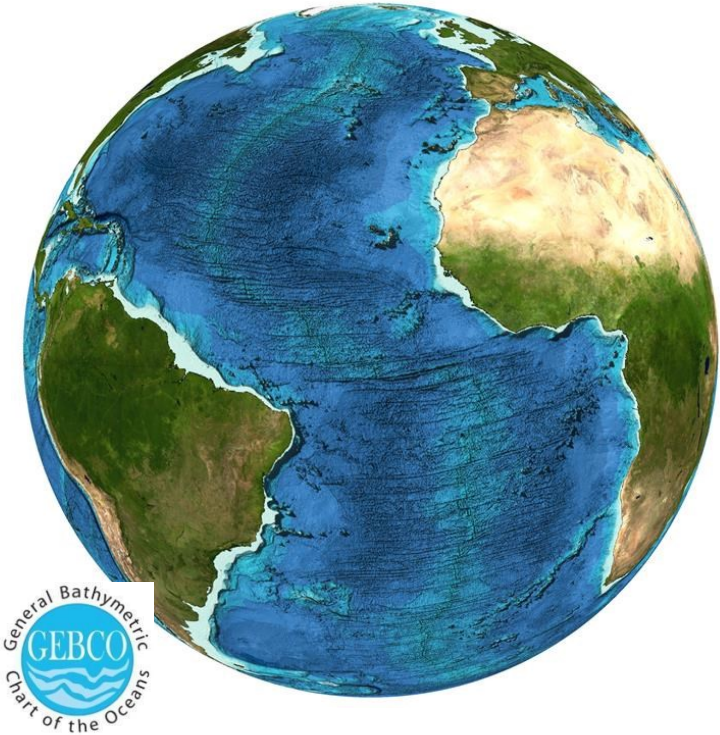
➔ Legislative instruments indicate **how** to assess pollution (what to measure, how, where, when)



➔ Harmonized assessment not so trivial!

➔ First step is to obtain data

HarmonIA



❖ The cost of collecting data



Sampling the marine environment is both
difficult and expensive

❖ The cost of collecting data

Some numbers about data acquisition:

- ✓ Data are collected by more than 1000 organisations in Europe (governments, research institutes, and private industry)
- ✓ The costs of marine data collection by European organisations is around 1.4 billion Euro per year:
 - ~ 1.0 billion for in-situ
 - ~ 0.4 billion for remote sensing

Monitoring contaminants is expensive and time consuming, therefore it is extremely necessary to take full advantage of the existing data. Data must contain all the relevant information and be properly prepared to be useful

Collect once and use many times philosophy would
save at least €1 billion per year

❖ The EU data initiatives

HarmoNIA builds on:

❖ EMODnet Chemistry as one of the backbones of HarmoNIA, with SeaDataNet tools

- Standard vocabularies*
- Standard data formats*
- Standard metadata (=data about data)
- Standard Quality Control approaches and flagging
- Standard IT tools to manage data*

❖ To make data FAIR:

- Findable
- Accessible
- Interoperable
- Reusable



- ❖ To provide INSPIRE compliant services and specific outputs focused on contaminants relevant for main stakeholders (EEA, JRC)

EMODnet (since 2009) a network of organisations working together to observe the sea, process the data according to international standards and make that information freely available as interoperable data layers and data products

HarmoNIA

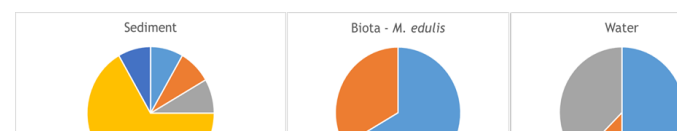
- ❑ According to JRC (JRC, 2017) there are more than 2700 chemical substances considered as potential contaminants
- ❑ The analysis of data collated **within HarmoNIA** highlights large heterogeneity:
 - ❑ Different substances measured in the different countries
 - ❑ Different matrixes (seawater, sediment, biota)
 - ❑ Different characteristics of matrix



Parameters measured in the ADRION region:



Matrix heterogeneity:



→ The larger the complexity, the higher number of information is needed to allow comparison

Data management for contaminants is complex and challenging due to the big number of variables that have to be considered in the sampling, but also to the increasing number of substances that are considered as pollutants

GAP:

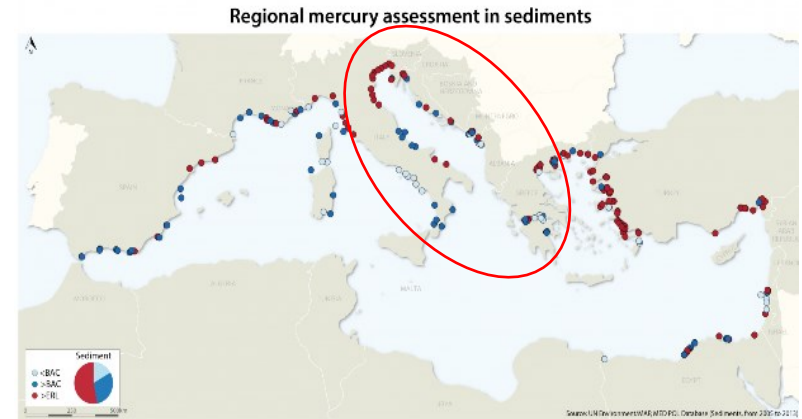
Data availability for GES

HarmonIA approach:

- ❑ Collect and make accessible datasets of contaminants for the Adriatic - Ionian region, using a common and already available infrastructure
- ❑ Dig into the available data collection in the Adrion Region to identify the main needs in harmonisation
- ❑ Strengthen the **network of data infrastructures** to facilitate access and re-use of marine data

❖ HarmonIA objective

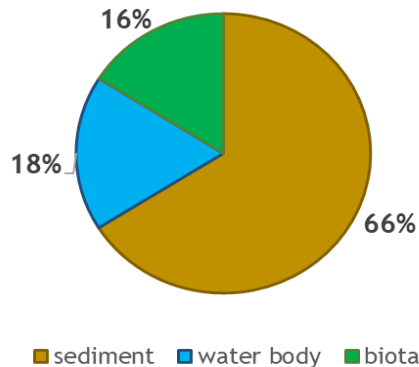
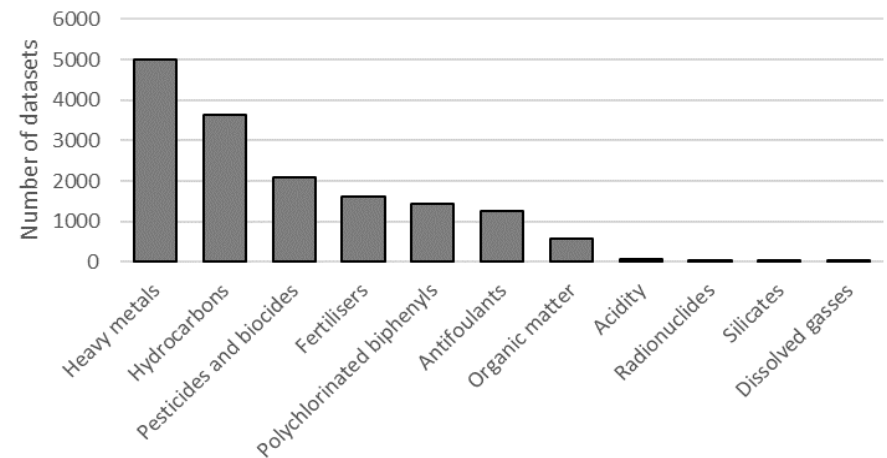
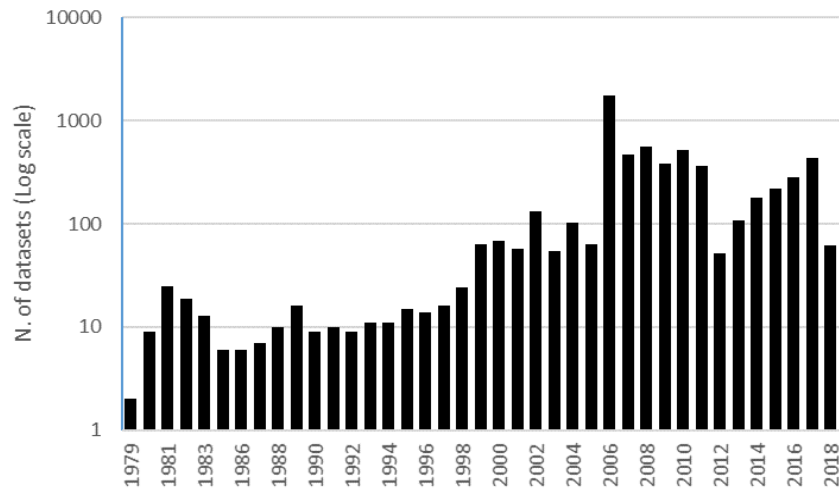
From: 2017 Mediterranean Quality Status Report,
UNEP/MAP



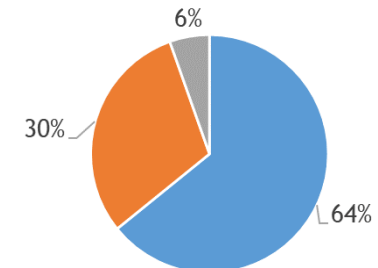
❑ Data availability from all countries along the ADRION seas

Total number of datasets: 5.666

Dataset temporal extent: 1979 - 2018



Groups of variables



Dataset description:

- 192 different chemical substances
- 96 measured in seawater
- 144 in Sediment
- 58 in biota
 - 39 are common to all 3 matrices



2,3',4,4',5-pentachlorobiphenyl
2,4'-dichlorodiphenyldichloroethane
2,4'-dichlorodiphenyltrichloroethane
4,4'-dichlorodiphenyldichloroethane
4,4'-dichlorodiphenyldichloroethylene
4,4'-dichlorodiphenyltrichloroethane
acenaphthylene
alpha-hexachlorocyclohexane
anthracene
arsenic
benz(a)anthracene
benzo(a)pyrene
benzo(b)fluoranthene
benzo(g,h,i)perylene
cadmium
chromium
chrysene
copper
DDT+DDD+DDE
dibenzo(a,h)anthracene
dibutyltin
dieldrin
fluoranthene
fluorene
gamma-hexachlorocyclohexane
hexachloro-1,3-butadiene
hexachlorobenzene
indeno(1,2,3-cd)pyrene
lead
naphthalene
nickel
phenanthrene
pyrene
silver
total iron
total manganese
total mercury
tributyltin cation
zinc



❑ Data availability

Common access system for the Adriatic-Ionian Seas of data of contaminants measured in water, sediment and biota

<http://harmonia.maris2.nl/search>

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

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DATASET BASKET 0

[NEW SEARCH](#)
[REFINE SEARCH](#)
[SEARCH RESULTS](#)

[SUMMARY](#)
[TIMESERIES](#)

SEA REGIONS

- Mediterranean Region (1235)
- Mediterranean Sea (1235)
- Mediterranean Sea, Eastern B... (1235)
- World (1235)
- Adriatic Sea (1151)
- Ionian Sea (78)

MATRIX CATEGORIES

- water body (605)
- sediment (423)
- biota (222)

GROUPS OF VARIABLES

Found 1235 | Show (1 - 20) | First | Prev | Next | Last

Dataset name	Country	Start date	Instrument / gear type
WFD_HCMR_Metals-water_2012 (00002)	Greece	20120428	discrete water samplers
WFD_HCMR_Metals-water_2012 (00007)	Greece	20120423	discrete water samplers
WFD_HCMR_Metals-water_2012 (00008)	Greece	20120422	discrete water samplers
WFD_HCMR_Metals-water_2012 (00010)	Greece	20120424	discrete water samplers
WFD_HCMR_Metals-water_2012 (00021)	Greece	20120425	discrete water samplers

EXPORT RESULT

SAVE QUERY

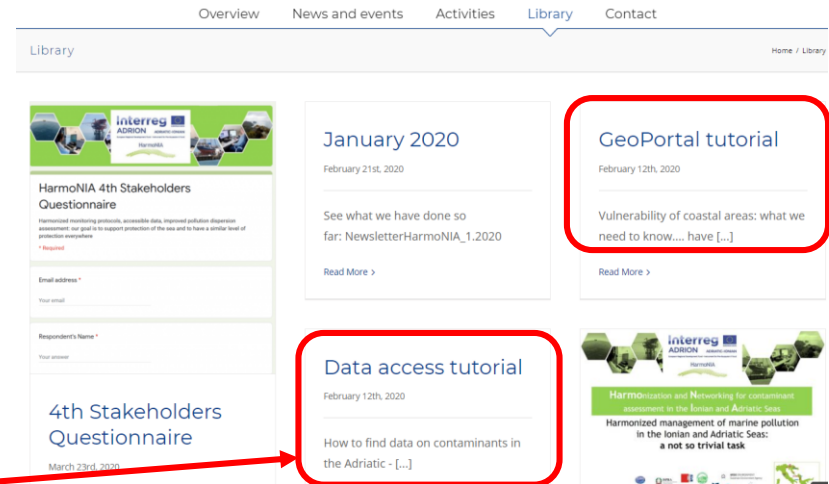


❑ Data acces tutorials

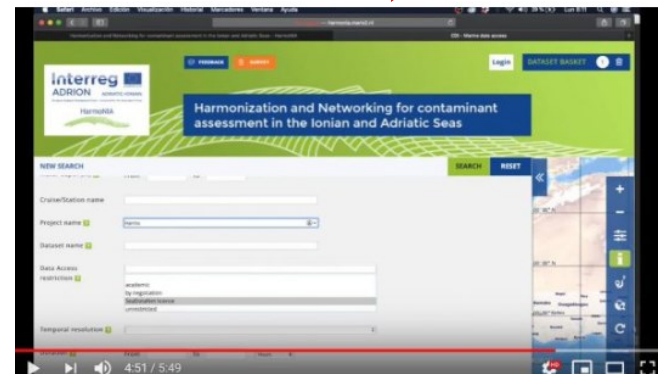
<https://harmonia.adrioninterreg.eu/>

❖ HarmoNIA contribution

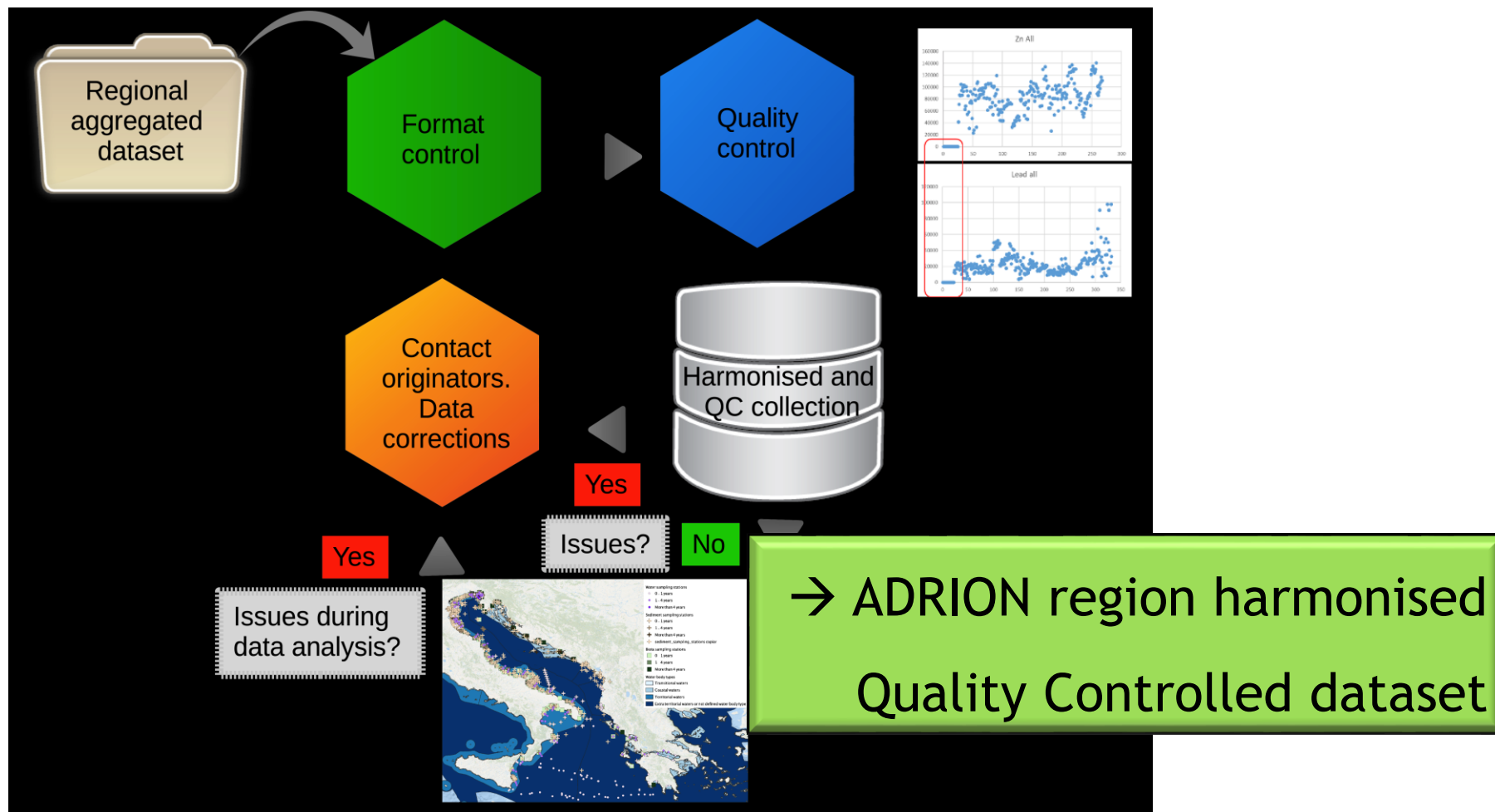
<https://harmonia.adrioninterreg.eu/library>



<https://www.youtube.com/watch?v=MtyGLfpgkQo>

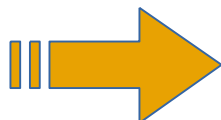


❑ **Data quality**





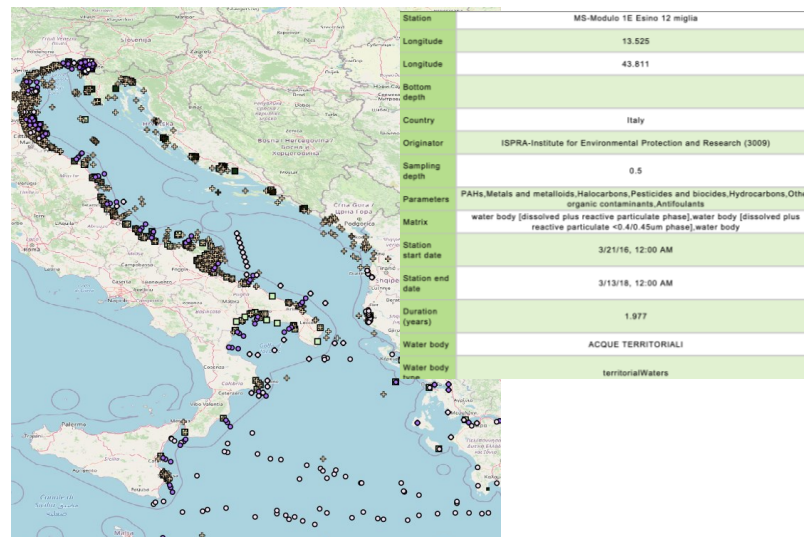
From data to information



Initial list
Station ID
Station type
Latitude
Longitude
Country
Matrix
Species (if biota)
Parameters
Purpose of monitoring

- Questionnaire to gather information considered relevant about sampling stations
- Analysis of UNEP/MAP requirements

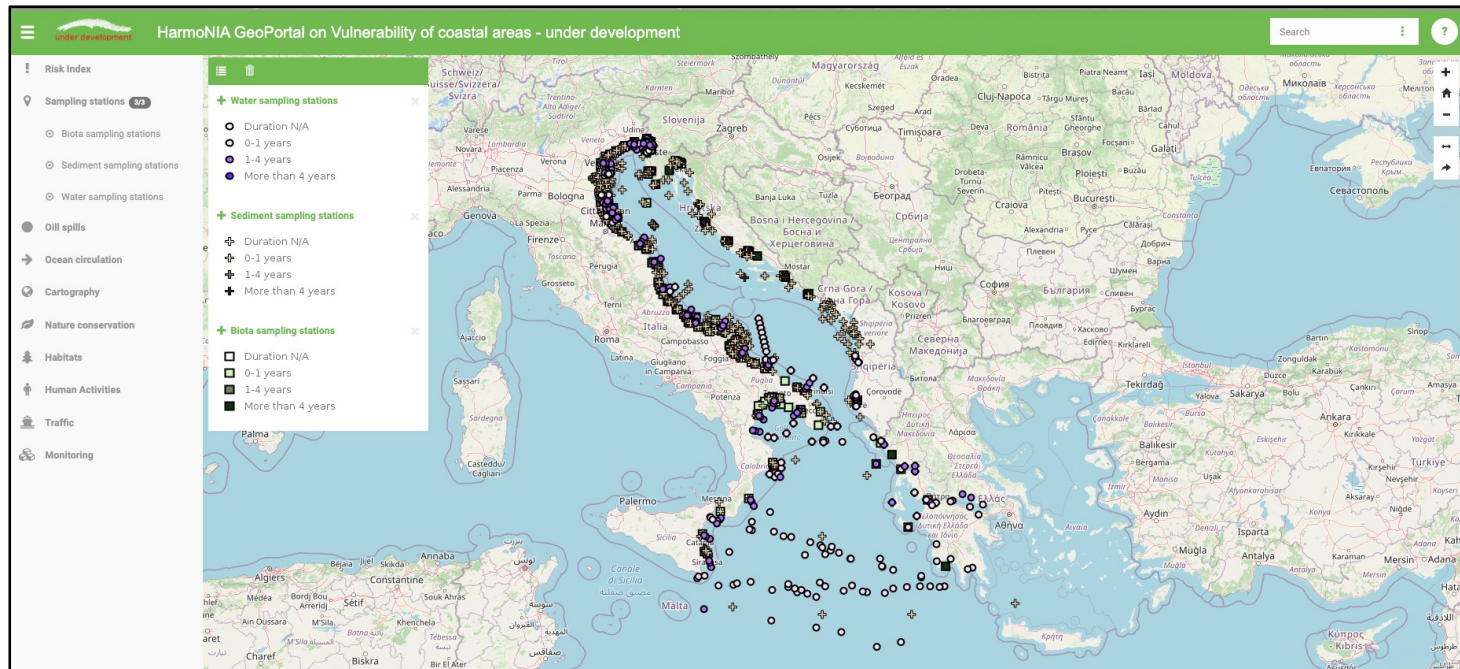
❖ HarmoNIA contribution



<https://nodc.inogs.it/geoserver/HarmoNIA/wms?>

- Relevant information about sampling stations were gathered from the validated regional data collection and additional data sources.
- The visualisation of information related to the stations is an easy way to see where and how sampling efforts are distributed.

From data to information

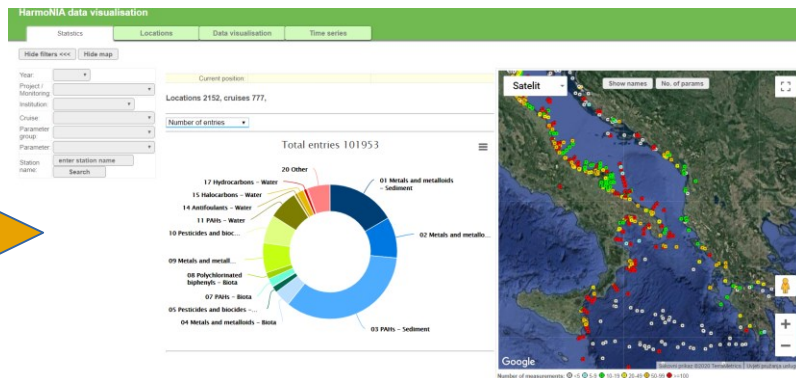
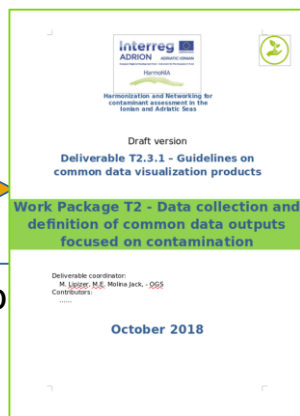
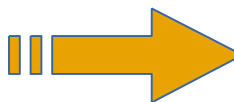


- OGC compliant webservices provide access to information about sampling stations
- The use of interoperable services allow to have the information about stations on hand through multiple tools and platforms to promote its usability by different stakeholders

HarmoNIA



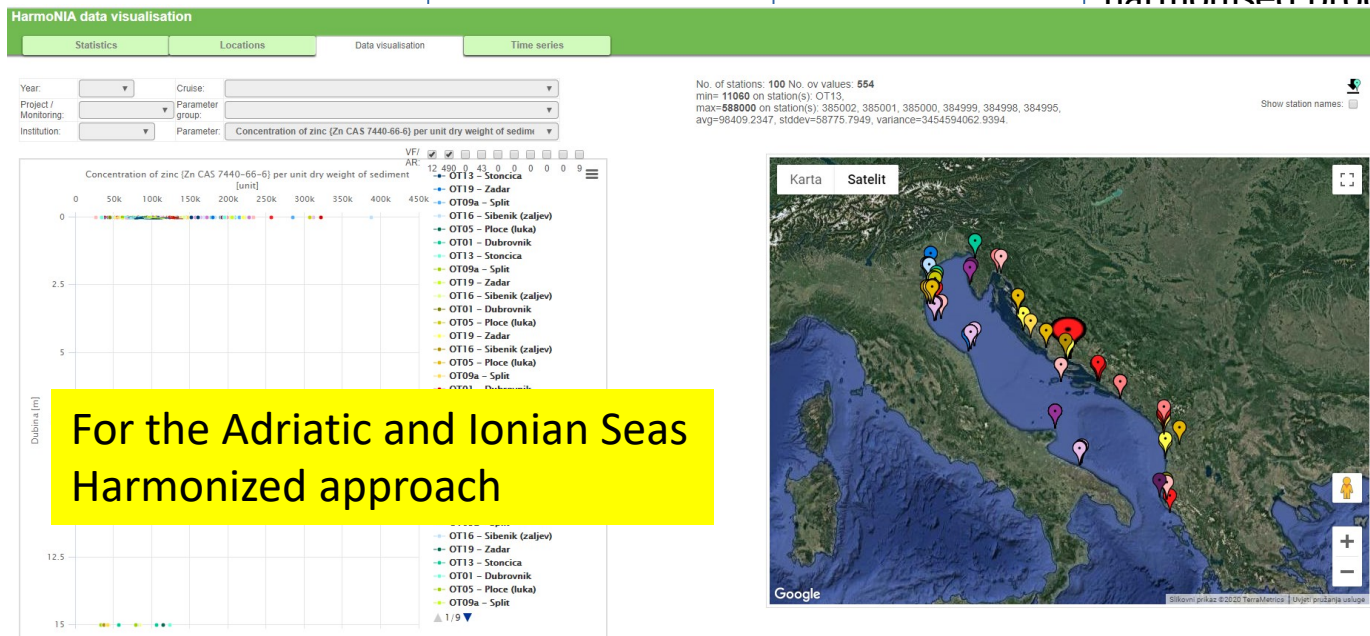
From data to information

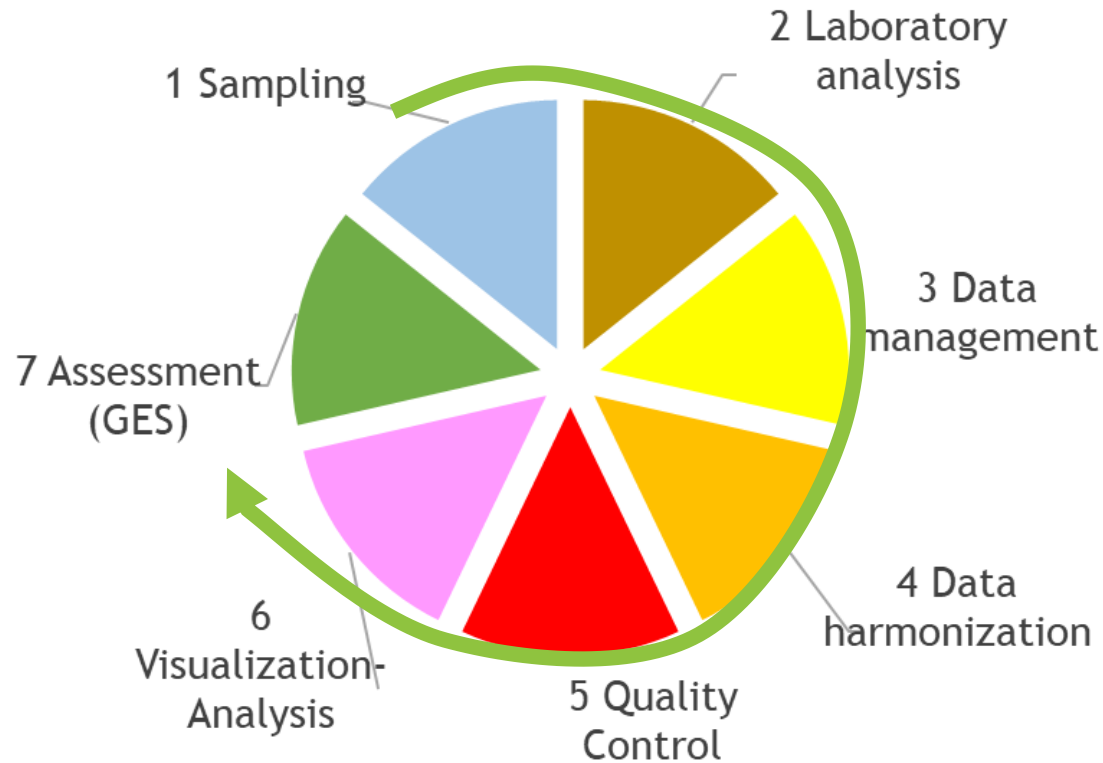


Questionnaire to collect information and experience needed to define best practices for visualization of data on contaminants

Definition of

Implementation of harmonised products





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

To proceed after HarmoNIA conclusion....

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

Objective:


- ❖ share experience within the network to improve harmonization in data acquisition, management, processing and visualization
- ❖ promote the use of common tools for the harmonization and validation data
- ❖ make easy access to marine chemical data
- ❖ promote the use of common tool for displaying data across the entire region


Commitments of the members:

In accordance with the capacity and its legal framework of competence,... the members agree to...

- ☐ Share information on **methodological procedures** for monitoring contaminants in the marine environment
- ☐ Share information on approaches for environmental status **assessment**
- ☐ Share **needs** in monitoring and assessment of marine contaminants
- ☐ Share **best practices** to improve the common approach to monitor and assess marine pollution
- ☐ Share **data** on contaminants in the marine environment
- ☐ Share and possibly adopt **Guidelines and Strategies** proposed by HarmoNIA project

Application form

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

HarmoNIA


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

In my role of _____ (type
of institution/body) I request to join HarmoNIA Network to share expertise and
information in order to improve harmonization of monitoring of contaminants in the
marine environment. I have read and I declare to accept the cooperation agreement.

Institution: _____