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EU Marine Monitoring:

Importance, Challenges and Potential Impact

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LEITAT

COMMON SENSE FINAL EVENT

Origin

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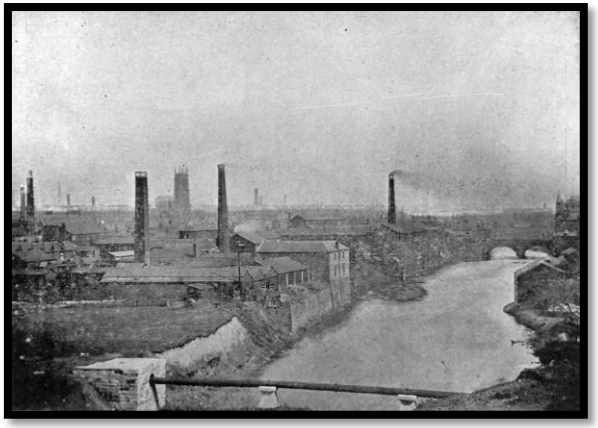
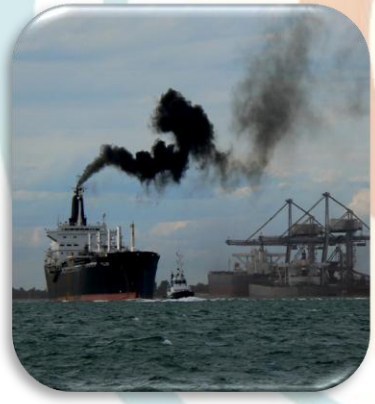
Early evidence of large-scale air pollution due to human contributions found on a glacier
Around the year 1540 in a silver mine



1780s – 1850 the British Industrial Revolution
EUROPE (1815-1848)

Massive industries
Carbon,
Non treated water



Mega cities

Electronic devices

Transport model

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And…

And Non visible pollutants!

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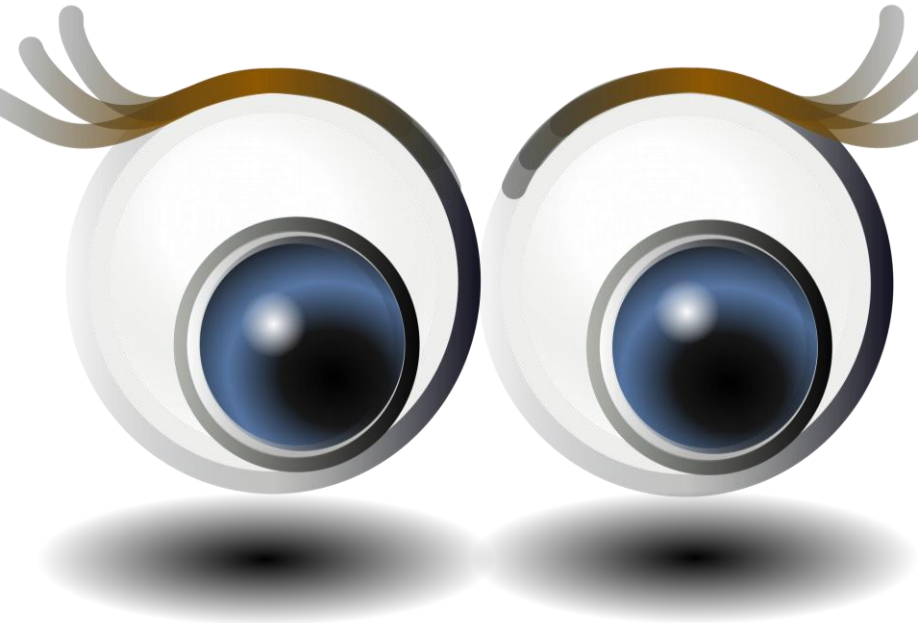
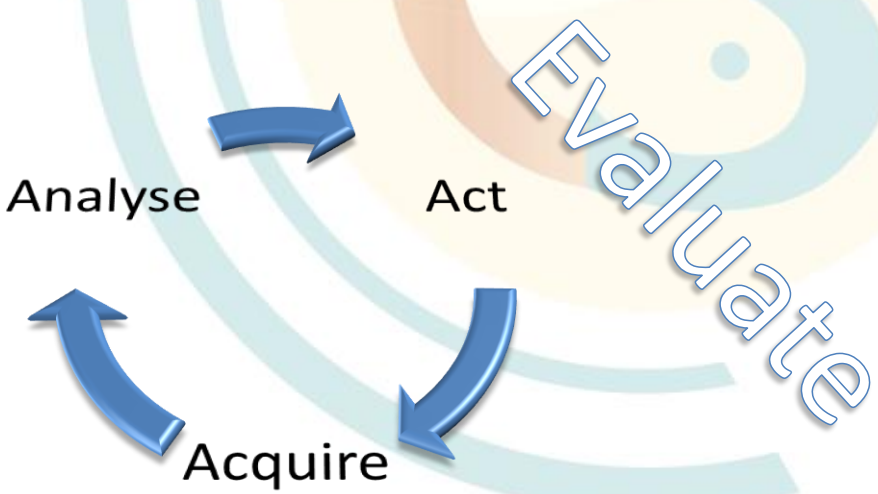
Solution



observe and check the progress or quality of something over a **period of time**; keep under **systematic** review.

Supervising activities in progress to ensure they are on-course and on-schedule in meeting the objectives and performance targets.



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Short history

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- **1970:** The US Environmental Protection Agency is established.
- **1972:** The United Nations Conference on the Human Environment is held in Stockholm. This leads to the creation of government environment agencies and the UN Environment Programme.
- **1972:** EU environmental policy was formally founded through the European Council declaration made in Paris in October 1972.
- **1972:** The EU adopts its first Environment Action Programme, based on the ideas that prevention is better than cure
- **1972:** The Club of Rome publishes The Limits to Growth. It stresses, for the first time, the importance of the environment, and the essential links with population and energy.
- **1973:** A small Environment and Consumer Protection Service is set up and attached to the European Commission department for industrial policy and a Standing Committee on the Environment is created in the European Parliament.

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Currently

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The 7th Environment Action Programme (EAP)

update air quality and noise legislation

biodiversity provides goods and services

Improving resource efficiency across the economy

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Currently

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Marine Strategy Framework Directive

Adopted on 17 June 2008,

Transposed into national legislation by 15 July 2010. A set of detailed criteria and indicators to help Member States implement the Marine Directive were produced .

Regional Sea Conventions (RSC)

The four European Regional Sea Conventions are:

North-East Atlantic of 1992 the OSPAR Convention (OSPAR)
Baltic Sea Area of 1992 the Helsinki Convention (HELCOM)
Mediterranean of 1995 the Barcelona Convention (UNEP-MAP)
Black Sea of 1992 – the Bucharest Convention.

Water Framework Directive
Common Fisheries Policy
Habitats and Birds directives

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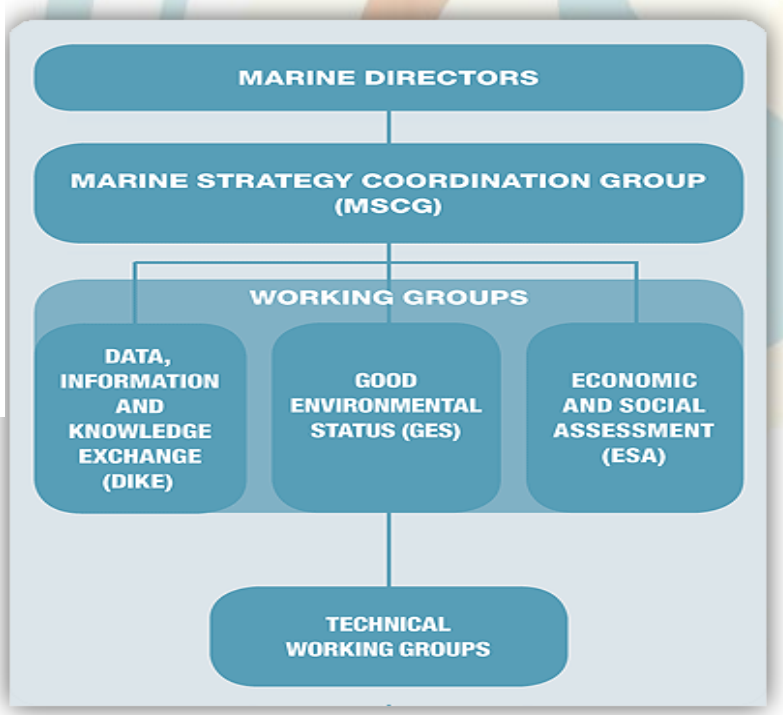
Copernicus Programme

The Copernicus Marine Environment Monitoring Service (CMEMS)

EMODnet
European Marine Observation and Data Network

Framework Programme for research and innovation



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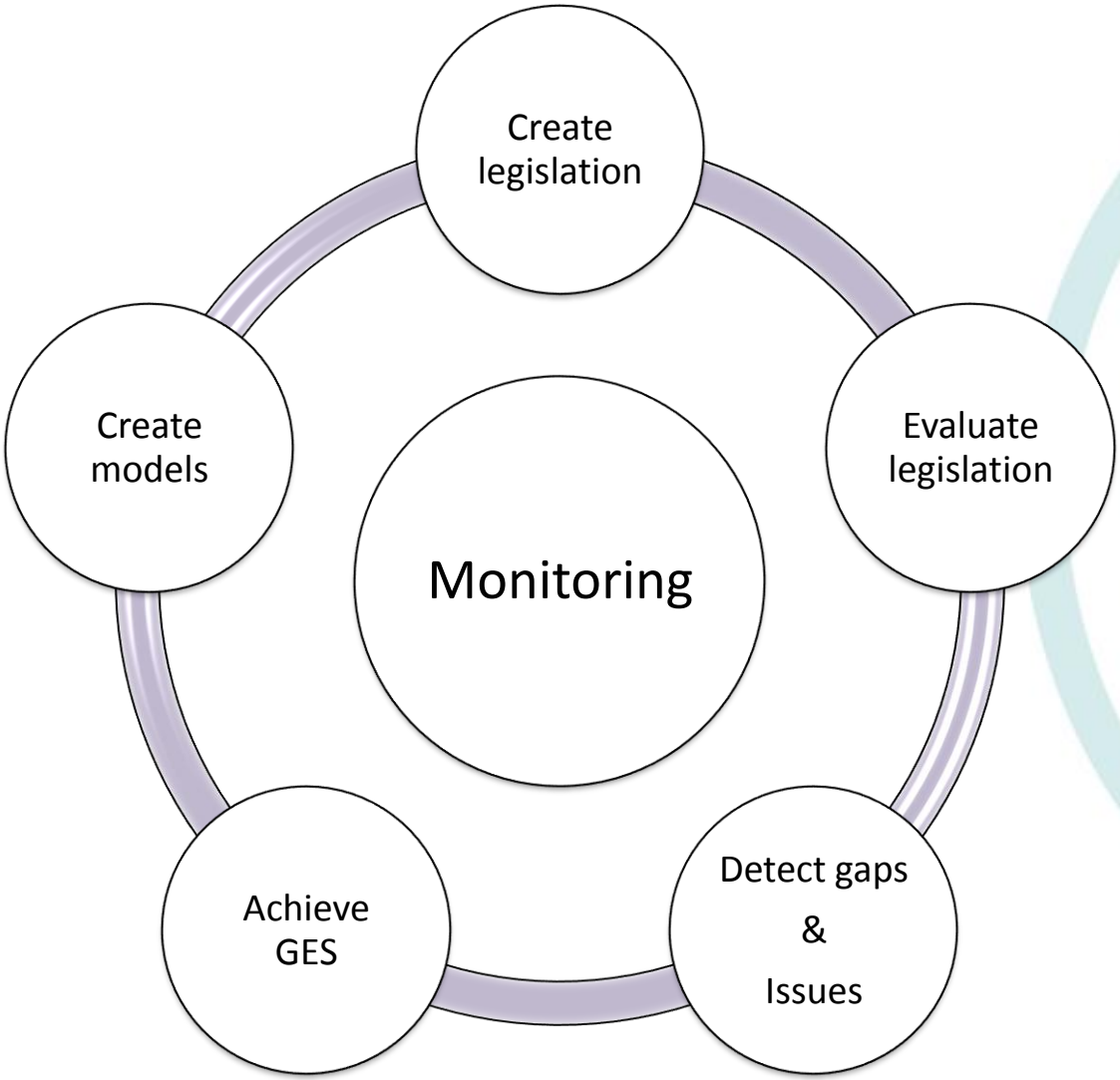
Importance



Over the past decades the European Union has put in place a broad range of environmental legislation.

As a result, air, water and soil pollution has significantly been reduced.

Chemicals legislation has been modernised and the use of many toxic or hazardous substances has been restricted.

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Importance

Monitoring of environmental conditions is central to environmental decision making.

Monitoring allows the evaluation of the success or failure of management projects.

This is particularly true for ‘adaptive management’ in which the effectiveness of various management choices is monitored over time to reduce uncertainty

environmental deterioration
health of living organisms

global warming
depletion of the ozone layer

reduced efficiency or infertility of farm lands and crop fields.

water, soil and atmosphere microscopic and macroscopic levels

immediate harm / long-term damage.

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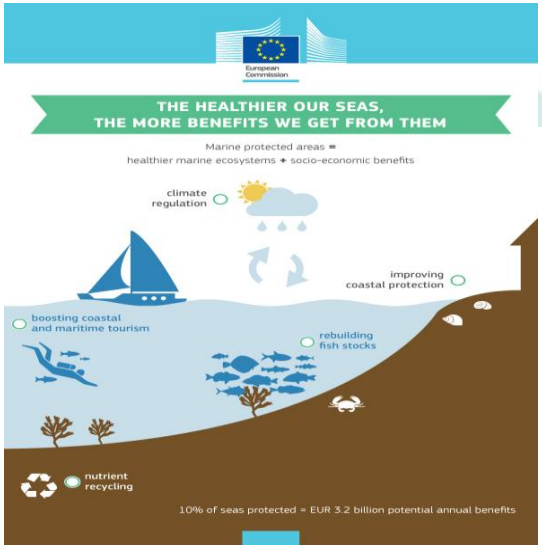
Potential impact



Monitoring and assessing how our **planet** is **changing**.

Make the **best decisions** for contaminants and for the environment.

Understand the causes of inundation, identify local vulnerabilities, and communicate risks. Impact coastal communities.

Collected information **helps** changing reserve conditions in both the short and long terms and provide an important baseline for evaluating similar habitats outside reserve boundaries.

Thousands of **incidents** occur each year in which oil or chemicals are released into the coastal environment. Spills into our coastal waters, whether accidental or intentional, can harm people, the environment, and the economy.

Development, erosion, and other forces can alter the face of the coastal landscape. These changes can have implications for conservation, recreation, development, planning, and even safety. **Changing landscapes**

under grant agreement No 614155.

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Potential impact

Safe navigation: Ports are lifelines for maritime commerce and the national economy. Inadequate or outdated navigational information would pose unacceptable risks to life, property, and coastal environments.

New environmental problems: Monitoring can pinpoint new environmental problems that need regulatory attention, and therefore provide political or legal pressure for the implementation of new standards, or improve existing ones

Protecting health: Our health is intricately connected to the health of the ocean. When water quality is poor, beaches dirty, or seafood tainted, communities, economies, and ecosystems all suffer.

Benthic habitats support a wide variety of marine life, from corals and fish to clams, plants, and bacteria. The organisms in benthic habitats play important roles in ecosystem health by functioning as part of the ocean food web and helping to filter pollutants out of the water. Healthy habitats also play an important economic role by providing food, protecting areas from erosion, and sustaining tourism-related jobs.

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Potential impact

- Environmental Monitors to **mitigate negative** environmental **impacts** associated with **industrial activities**. Identify sustainable and responsible environmental practices.

- Environmental monitoring helps to ensure that the industrial projects being implemented abide by policies and practices to decrease their impact on the environment.

- Environmental Monitors also play a vital role in **scientific research**. Environmental monitoring helps to create a baseline for the impact of industrial pollutants in the air, land and water.

- Environmental Monitoring also helps to ensure **accountability and transparency for industry. In relation to regulations and policies**

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Challenges

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The 7th Environment Action Programme (EAP) 2014 -2050

"In 2050, we live well, within the planet's ecological limits. Our prosperity and healthy environment stem from an innovative, circular economy where nothing is wasted and where natural resources are managed sustainably, and biodiversity is protected, valued and restored in ways that enhance our society's resilience. Our low-carbon growth has long been decoupled from resource use, setting the pace for a safe and sustainable global society."

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Challenges

key objectives

- to protect, conserve and enhance the Union's **natural capital**
- to turn the Union into a **resource-efficient**, green, and competitive low-carbon **economy**
- to **safeguard** the Union's citizens rom **environment-related pressures** and risks to health and wellbeing

Enablers

- better **implementation** of legislation
- full **integration** of environmental requirements and considerations into other policies
- better **information** by improving the knowledge base
- more and wiser **investment** for environment and climate policy

horizontal priority objectives

- to **make** the Union's **cities more sustainable**
- to help the Union **address international environmental** and **climat e challenges more effectively**.

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Challenges

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Not all collected observations are in the same format, meaning they cannot be easily used together.

Also, there are gaps in the information that is collected

Standards for data collection, so that data can be used together and be more accessible to users

All of this means more information, which means a more comprehensive understanding of our planet

Data

Interoperability, between observing systems, sensors platforms and measurements

Monitoring programs have been criticized as “costing too much while delivering too little.” How much should monitoring cost? The cost of monitoring should be commensurate with the size, importance, and risks of a project. Cost-effectiveness!

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Challenges

There are major gaps in our understanding of current data

Solutions require understanding why and how those obstacles deter the collection and use of ambient monitoring data.

Effective monitoring requires collecting enough of the right kind of data needed to answer the questions the monitoring program was established to answer

Increasing scientific knowledge on the marine environment and its processes is required to adequately achieve the Directive's goal

Monitoring requires measuring variables over extended periods of time; it must be both continuous and long-lived to be successful.

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Thank you for your Attention

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