MISTRALS

Mediterranean Integrated STudies at Regional And Local Scales

Marin Ecosystems Response to the Anthropisation of the Algerian BAsin (MERAALBA)

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ENSSMAL

Laboratoire de recherche: Conservation et valorisation des Ressources Marine

Projet proposé dans le cadre des projets nationaux de recherche (DGRSDT)

ONEED
Observatoire National de l'Environnement et du Développement Durable

CNL
Commissariat National du Littoral

Strong Anthropogenic Pressure

Climat Change

Tempreature increase in intermediate and deep water

EMT

Increase invasive species

East-West and south-North migration

Modification in the biology and biogeochemical cycle

Sensitive area and rapid response

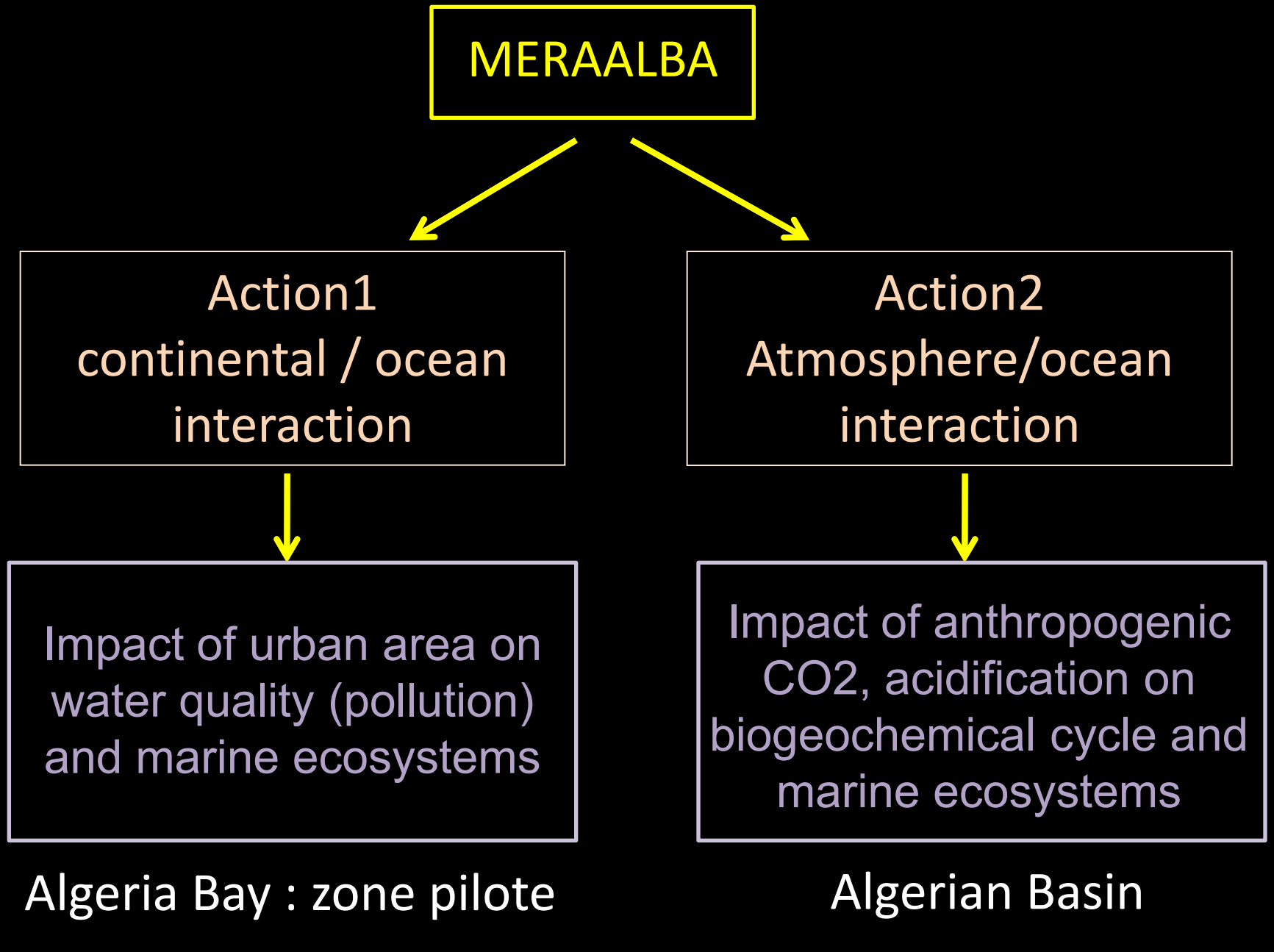
A model for oceanic response to the anthropisation

MERMeX

MERAALBA

To understand the functioning of the Mediterranean Sea and it's response to the anthropogenic pressure

Need to consider the Mediterranean Sea at a global Scale


MERAALBA
Action1
continental / ocean
interaction
Action2
Atmosphere/ocean
interaction
Impact of urban area on
water quality (pollution)
and marine ecosystems
Impact of anthropogenic
CO2, acidification on
biogeochemical cycle and
marine ecosystems
Algeria Bay : zone pilote
Algerian Basin

Action 1: Impact of urban area on the marine ecosystem

2 million people: 450 000 m^3/day dirty water

More than 300 industrials units: 23 million m^3/year dirty water

Important Industrial, agricultural, Domestic Pollution

Objectives

-Make an overview of the pollution of the bay and survey the pollution on a long time series (reseau de surveillance)

Study of the impact of mineral and organic pollution on the benthic biodiversity

Study the eutrophisation (nutrient supply) on this area and its impact on plankton and benthic biodiversity

Global Warming and CO_2 uptake affect the ocean on 2 scale

Increasing sea surface temperature

Acidification

Effect on stratification

How these will affect the Phytoplankton communities and biogeochemical cycle?

Action 2:
Impact of CO_2 gas exchange on ecosystems and biogeochemical cycles

Few data on the carbonate system in the western basin
Gibraltar, Golf of lion, DYFAMED, Tyrrhenian sea

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The Mediterranean Sea is a source of anthropogenic CO_2 for Atlantic ocean

(Ait-Ameur et Goyet, 2006)

Algerian Basin: anticyclonic circulation a sink for atmospheric CO_2 (model approach)

Louanchi et al., 2009

What is the response of the Algerian Basin to anthropogenic CO2 increase and warming?

Objectives:

- Make a seasonal and annual Survey of the carbonates system (AT, TCO2, pH) and nutrient.

-Estimate the anthropogenic CO2 in the water masses (carbon Budget).

-Define the Algerian Basin as a source or a sink for atmospheric CO2.

-Study of spatial and temporal distribution and variability of the benthic and planktonic population associated to the chemical and physical parameters.

Sampling strategy

Initiate a long time series survey on one station in the Algerian Basin (ALBA site) (monthly sampling)

2 sampling/year in the Algerian Basin (Summer, winter)

Retombées escomptées

-A better understanding of the Algerian Basin response to the penetration of anthropogenic CO2 and warming concerning biogeochemical cycle, carbon budget, impact on the marine organisms

-An overview of the pollution, its evolution and its impact on marine organisms in the Algerian Bay

- New information that will help us to understand what is happening in the south part of the Western Mediterranean Sea.

-A helpful contribution to consider the Mediterranean Sea at a global scale.

Integration of MERAALBA in Mediterranean project

The objectives of MERAALBA are in the same way with WP2, WP3 and WP4 of MERMeX project initiated in the north part of the western Mediterranean sea (France and Italy).

Coordinate our efforts to provide response to the initial problematic:

How will the Mediterranean sea response to the anthropogenic pressure and climate change?