Where

Normandy, France

Issue type(s):

Identification of suitable sites based on physical and biological indicators; conflicts with other usages; policy and management issues.

Specific Issue:

Shellfish culture is a traditional activity with a challenge to maintain durability. Marine fish aquaculture is weak but its potential development could represent an economic opportunity. Both have to compete with numerous other usages or constraints.

Case study:

09. Normandy/Cancale, FR (including the bays of Cancale and Mont Saint-Michel

Objective:

Optimizing shellfish aquaculture through reorganization of existing areas and eventually developing of new offshore industry in areas complying with other activities or constraints. Developing marine fish culture in a way allowing an improvement of social licence.

Tool(s):

Hydrodynamic model (MARS3D),

Ecophysiological models (DEB),

Satellite data,

SISAQUA (GIS web based tool).

How tool(s) has/have been implemented:

Hydrodynamic modelling has been implemented to produce maps of waves, current speeds, temperature and salinity. Netcdf files of mean, 90 and 10 percentile were produced over several years and integrated to SISAQUA.

Ecophysiological modelling has been implemented to produce maps related to oyster and mussel growth. Netcdf files of mean shell length, flesh mass, condition index and time to reach commercial size were produced over several years and integrated to SISAQUA.

Satellite data were integrated to SISAQUA as maps of chlorophyll a concentration and suspended matter (mean over several years). These data were also used as forcing variable in ecophysiological modelling.

SISAQUA is a GIS tool hosted by the georeferenced data infrastructure Sextant (including a web portal). This allowed data sharing through interoperability: data produced and updated by other organisms can be visualized. Three pre-defined indicators allowed to identify suitable sites according

to growth or survival performances and technical requirements for installing cultivation infrastructures. Then information on other usages and other constraints (environmental protections…) are superimposed.

Results:

The process allowed the assessment and analysis of opportunities for the evolution of shellfish aquaculture and the potential development of shellfish and fish aquaculture in new sites. Their coexistence with other usages and constraints was also examined. The tool did not provide a diagnostic in the strict sense but allowed sharing information and facilitating public debate.

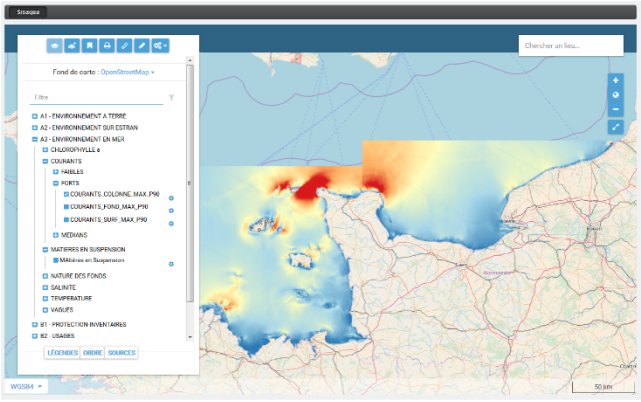

Figure 1: Example output from Sisaqua

Links:

AquaSpace D4.2 at aquaspace-h2020.eu on Library/Reports page

Reference

NA

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