Tool name
SISAQUA

Tool type
Web based dynamic GIS

Short description of the tool
SISAQUA is a dynamic web application based under Geographic Information System and provided with a user interface. It is originally derived from the Norwegian demonstrator AkavaVis. SISAQUA is first a GIS project, which allows integration and visualization of different types of spatial data, model outputs (physical and biological information describing properties of the ecosystem relevant to aquaculture) as well as regulatory frameworks and other activities. These last information can be harvested on other websites through Web Map/Feature Services. This project is then hosted by the infrastructure of georeferenced data set up by Ifremer: Sextant. A treatment module has been implemented to combine different information and generate indicators. The hosting by Sextant allows respecting all norms and standards of interoperability.

Source (where/ link)
http://sisaqua.ifremer.fr/

Licence cost or other type of costs (e.g. maintenance)
No licence cost.
Maintenance (excepted data update) is related to the maintenance of Sextant.

General requirements (technical and input data)
Access to an internet connexion

Management dimension for which the tool could be used
☒ Policy / Management

☒ Environmental

☐ Economic / Market

☒ Other sectors

Main functionality

☒ Site identification	☐ Modelling
☒ Mapping	☐ Stakeholder engagement
☐ Economic analysis	☐ Ecosystem services assessment
☒ Scenario analysis	☐ Other: (Please specify)

Fields of application (i.e. issue to be solved)

SISAQUA can be used for site identification of bivalve culture activities (determination of trophic suitability, habitat suitability, adequate farming practices). For marine fish aquaculture, an indicator to limit risk exposure to parasites has been implemented. Constraints including regulatory frameworks and other activities can be superimposed and the result can help to support consultation.

Circumstances in which it can be implemented (strength and opportunities)

SISAQUA is simply accessible through an internet connexion, with, for some information, an easy update and integration of new data through WMS/WFS. This is an interactive tool with a user interface and an offline modelling module (predictions of bivalve growth). The hosting by Ifremer information system Sextant makes SISAQUA durable. More than one hundred layers are currently available and some of them can be downloaded depending on the rules set by beneficiaries. These layers cover a large panel of field areas: physical and biological description of the environment, protected areas, others usages, quality of the environment and specific information related to aquaculture.

Limitations

The number of indicators is still limited for the moment, especially for marine fish aquaculture. Direct modelling is not included; simulations are predefined, run offline and results integrated to the tool. The superimposition of constraints is possible but there is no direct cross-spatial analysis. There is no economic module.

Technical skills needed to operate the tool

No technical skills needed.

Background knowledge needed to implement the tool

User needs to have enough expertise of the system to be studied (e.g. farming practices) in order to implement the indicators.

How can the tool contribute to the EAA

Please select the EAA steps that the tool can contribute:

1. ☐ Scoping

2. ☒ The identification of issues and opportunities

3. ☒ Prioritisation of issues

4. ☐Objectives

5. ☐ Management actions

6. ☐ Monitoring

How can the tool contribute to the MSP

Please select the MSP steps that the tool can contribute:

1. ☐ Define goals and objectives

2. ☒ Gather data and define current conditions

3. ☒ Identify issues, constraints, and future conditions

4. ☒ Develop alternative management actions

5. ☐ Evaluate alternative management actions

6. ☐ Monitor and evaluate management actions

7. ☒ Refine goals, objectives and management actions

AquaSpace case studies in which it has been implemented

Case study name:

Normandy, FR

Reference and link to case studies report:

http://www.aquaspace-h2020.eu/

Other bibliographic references

Gangnery, A., Le Gendre, R., Picoche, C., Petton, S., Bacher, C., Alunno-Bruscia, M., You, J., Hageberg, A., Strand, Ø. 2015. Une application dynamique sous système d'information géographique pour la planification spatiale des activités aquacoles en Normandie. Actes du colloque merIGéo 2015. pp.127-130. http://archimer.ifremer.fr/doc/00307/41773/

Bacher,C., Gangnery, A., Cugier, P., Mongruel, R., Strand, Ø., Frangoudes, K. Spatial, ecological and social dimensions of assessments for bivalve farming management. Chapter of the book: Goods and Services of Marine Bivalves. *In press*.