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## TOOL FACTSHEET



### **Tool name**

BLUEFARM 2

### **Tool type**

Plug-in for the free software QGIS.

### **Short description of the tool**

The BLUEFARM-2 tool implements a flexible Spatial Multi Criteria Evaluation methodology, which can support policy makers and investors in selecting sites for developing aquaculture activities. The tool allows one take into account both a set of spatially explicit suitability criteria and constraints: on this basis, BLUEFARM 2 computes and maps a suitability index ranging from 0 (not allowed) to 1 (highly suitable). A set of core criteria are suggested, including environmental, production and socio-economic ones. All information layers can be easily uploaded by end-users, through a user friendly interface. Users can also define the weights for each criterion. Once the input layers are uploaded, the suitability maps are produced very quickly, thus allowing users to rapidly explore different scenarios of weighting: this feature can be very useful in the implementation of the MSP Directive, which requires the participation of stakeholders. These scenarios can be explored and discussed at participatory meetings, involving different stakeholder groups, e.g. investors, farmers, representatives of other industries/activities, such as tourism, ONGs ...

### **Source (where/ link)**

At present, BLUEFARM-2 can be requested at the Bluefarm contact point: [admin@bluefarmenvironment.com](mailto:admin@bluefarmenvironment.com). We are currently uploading the tool on the QGIS plug-in repository.

### **Licence cost or other type of costs (e.g. maintenance)**

BLUEFARM-2 is free for all users.

### **General requirements (technical and input data)**

BLUEFARM-2 is supported by the free software QGIS, which can be downloaded at [www.download.qgis.org](http://www.download.qgis.org). Input data concerning constraints should be provided as shapefiles, criterion layers as raster files, e.g. ASCII or GeoTiff.

### **Management dimension for which the tool could be used**

- Policy / Management
- Environmental
- Economic / Market
- Other sectors



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### 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)

BLUEFARM-2 tool was designed for identifying AZAs, i.e. areas to be allocated to aquaculture, in particular in coastal areas. However, in Aquaspace it was tested only for shellfish farming. The methodology can be easily applied to fish farm site selection but such application still needs to be tested in a real world case study.

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

The tool can be implemented by all users who have separately collected spatially explicit layers, i.e. maps, concerning the main criteria to be used to assessing the suitability of a given area to shellfish or finfish farming, as well as constraints to the development of aquafarms.

### Limitations

The present version allows one to deal with information layers characterized by different spatial resolutions. However, a user can select only the highest or lowest ones for mapping the suitability index.

### Technical skills needed to operate the tool

Users should be familiar with the use of QGIS and be able to upload spatial layers, required as input.



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### **Background knowledge needed to implement the tool**

Users are required to be familiar with the criteria for site selection in aquaculture. Bluefarm can assist potential users providing maps concerning potential production and environmental impact criteria, based on remotely sensed data and modelling tools developed by the company.

### **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:**

Shellfish culture in Emilia-Romagna, Adriatic Sea, IT

#### **Reference and link to case studies report:**

[www.aquaspace-h2020.eu](http://www.aquaspace-h2020.eu)



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### Other bibliographic references

Brigolin, D., Lourguioui H., Taji M.A., Venier C., Mangin A., Pastres R. 2015 Space allocation for coastal aquaculture in North Africa: Data constraints, industry requirements and conservation issues. *Ocean & Coastal Management* 116 (2015) 89-97

Brigolin D., Porporato, E.M.D., Prioli G., and Pastres R. Making space for shellfish farming along the Adriatic coast. *ICES Journal of Marine Science* (2017), Vol 74(6): 1540-1551. doi:10.1093/icesjms/fsx018.

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