Deep Sea Habitat Suitabilty Model

null Palma *http://ffoglini.livejournal.com/* *Raul Palma*

***Abstract*—In this RO we derive the MSFD indicator 1.5 (Habitat area) to assess the biological diversity descriptor. To do this in deep sea environment, the scientist (user) needs to implement a habitat suitability model.**

***Index Terms*—sea monitoring; habitat suitability**

I. Introduction

This document provides a paper-style view of the Research Object (RO) "*Deep Sea Habitat Suitabilty Model*"[1] generated . The RO has been created, managed and preserved via ROHub platform [1]. Please refer to [2] for a general introduction to the RO concept, to [3] for a detailed description of the RO model, and to [4] for more information about ROHub platform.

The RO is of type *"Workflow-centric", which represents an aggregation of related resources where scientific workflows play the central role.* [2].

An overview of this RO is depicted in Figure 1. In summary, the hypothesis of this work is described in *152278-f.doc*[3]; the methods used include *maxent.zip*[4]; Additionally, this RO has been enriched automatically with the following annotations:

- concepts (most frequently mentioned in the RO): *corals, Area, mounds, species, seabed, Wilson, variables, model, water, habitats, variables, Study, north east, distribution, trawl, water, Results, Habitat, Shetland Islands, dredges*
- domains (fields of knowledge in which the main concepts are commonly used): *hydrography, geography*
- frequent expressions (most frequently mentioned noun phrases): *habitat suitability model, hydrodynamic variable, data of the hydrodynamic model, north east Atlantic, variable influence, UV mean, hydrodynamic data, bathymetric data, bathymetric variable, N. W Triangular dredge dead, presence data, north east corner*
- named entities (most frequently mentioned):
  - Places: *Mount Wilson, Bari Canyon*

II. Resources

The resources encapsulated by the RO are summarized in table I

A. Key Resource details

- Name: *Workflow_WPS_2.t2flow*
  Description: *Attempt to use a WPS made in ArcGIS 10.2 in Taverna. The WPS comes from the .tbx workflow made*

[1] *http://sandbox.rohub.org/rodl/ROs/SeaMonitoring01/*
[2] See RO types definitions at http://w3id.org/ro/earth-science#
[3] http://sandbox.rohub.org/rodl/ROs/SeaMonitoring01/152278-f.doc
[4] http://sandbox.rohub.org/rodl/ROs/SeaMonitoring01/maxent.zip

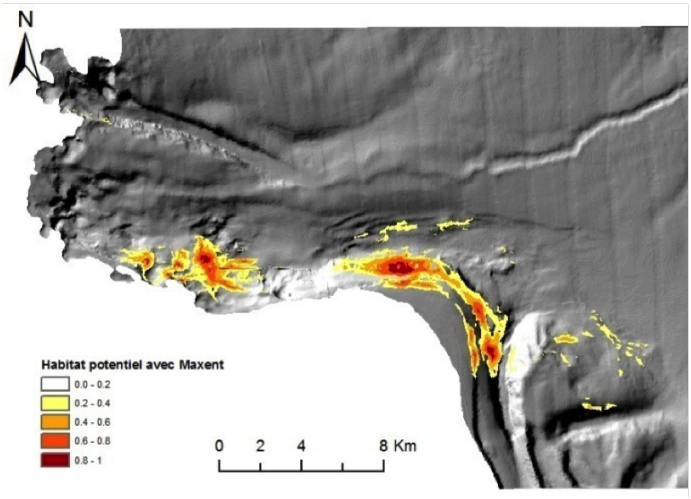

Fig. 1. Research Object Sketch

TABLE I
Research Object Resources

name
Habitat suitability models for BARI canyon_2.pptx
Use of Maxent for predictive habitat mapping of.pptx
How_to_use.docx
The-cold-water-coral-Lophelia-pertusa-Scleractinia-and-enigmatic-seabed-mounds-along-th
CWC_Bari_20m.csv
EnvVariable.7z
maxent.zip
Final results Using_all_variable_to_choose.7z
Workflow.png
sea_monitoring_maxent.t2flow
Workflow1.wfbundle
Select_File-51a0069fc691344871ee5d9ebecaf87cda5ed10b.txt
GeoHAB2016.docx
152278-f.doc
Workflow_WPS_2.t2flow
Workflow_WPS_2.t2flow
Workflow_WPS_2.t2flow
Workflow_slope_btm_2.t2flow
Habitat Suitability Model_10.2.tbx
Habitat Suitability Model_10.2.tbx
outmaxent.png

in ArcGIS with Model Builder. This workflow doesn-t work.

- Name: *Workflow_WPS_2.t2flow*
  Description: *Attempt to use a WPS made in ArcGIS 10.2 in Taverna. The WPS comes from the .tbx workflow made in ArcGIS with the Model Builder (see Habitat Suitability Model_10.2.tbx). This workflow doesn-t work.*
- Name: *Workflow_WPS_2.t2flow*
  Description: *Attempt to use a WPS made in ArcGIS 10.2 in Taverna. The WPS comes from the .tbx workflow made in ArcGIS with Model Builder (see Habitat Suitability Model_10.2.tbx).*
- Name: *Workflow_slope_btm_2.t2flow*
  Description: *Second attempt to use a WPS made in ArcGIS in a Taverna workflow. The WPS is very simple, one input, one process and one result. The workflow doesn-t work.*
- Name: *Habitat Suitability Model_10.2.tbx*
  Description: *The workflow creates the Environmental ecoGeographical Variables needed to build a habitat suitability model. Starting from a DTM it creates 16 rasters that can be used as inputs in the maxent workflow.*
- Name: *Habitat Suitability Model_10.2.tbx*
  Description: *The workflow creates the Environmental ecoGeographical Variables needed to build a habitat suitability model. Starting from a DTM it creates 16 rasters that can be used as inputs in the maxent workflow (see sea_monitoring_maxent.t2flow).*

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[2] K. Belhajjame, O. Corcho, D. Garijo, J. Zhao, P. Missier, D. Newman, R. Palma, S. Bechhofer, E. García Cuesta, J. M. Gómez-Pérez, S. Soiland-Reyes, L. Verdes-Montenegro, D. De Roure, and C. Goble "Workflow-Centric Research Objects: First Class Citizens in Scholarly Discourse", Proceedings of Workshop on the Semantic Publishing, SePublica Crete, Greece 28 May 2012.

[3] Belhajjame K., Zhao J., Garijo D., Gamble M., Hettne K., Palma R., Mina E., Corcho O., Gómez-Pérez J. M., Bechhofer S., Klyne G., Goble C. "Using a suite of ontologies for preserving workflow-centric research objects", Journal of Web Semantics: Science, Services and Agents on the World Wide Web Available online 11 February 2015 ISSN 1570-8268.

[4] Palma R., Corcho O., Gómez-Pérez J. M., Mazurek, C. "ROHub - A Digital Library of Research Objects Supporting Scientists Towards Reproducible Science". In Semantic Publishing Challenge of Proc. Extended Semantic Web Conference (ESWC) Crete, Greece 25-29 May 2014