Trend in the evolution of invasive jellyfish distribution

http://ffoglini.livejournal.com/

***Abstract*—Starting from Jellyfish sightings, we elaborate data to produce explicit geographical information concerning trend about the evolution and distribution of alien species according with MSF directive descriptors.**

I. Introduction

This document provides a paper-style view of the Research Object (RO) "*Trend in the evolution of invasive jellyfish distribution*"[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 *"Basic", which represents a general aggregation of related resources.* [2].

An overview of this RO is depicted in Figure 1. In summary, the hypothesis of this work is described in *hypothesis2.pdf*[3]; Additionally, this RO has been enriched automatically with the following annotations:

- concepts (most frequently mentioned in the RO): *sightings, descriptors, Jellyfish*
- domains (fields of knowledge in which the main concepts are commonly used): *marine biology*
- frequent expressions (most frequently mentioned noun phrases): *accord with MSF directive descriptor, elaborate data*

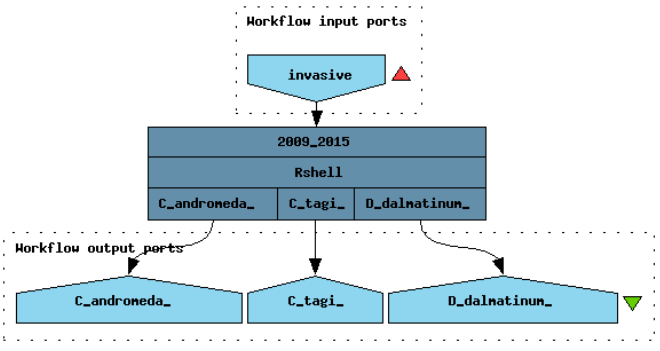


Fig. 1. Research Object Sketch

[1] *http://sandbox.rohub.org/rodl/ROs/SeaMonitoring_03/*
[2] See RO types definitions at http://w3id.org/ro/earth-science#
[3] http://sandbox.rohub.org/rodl/ROs/SeaMonitoring_03/hypothesis2.pdf

II. Resources

The resources encapsulated by the RO are summarized in table I

TABLE I
Research Object Resources

name	size	type
trend_invasive.t2flow	10.0 KB	Workflow
Workflow1.wfbundle	9.8 KB	Workflow
wf_trend.xml	118.0 B	Workflow
trend_invasive.png	3.0 KB	Sketch
hypothesis2.pdf	718.9 KB	Hypothesis
D.dalmatinum .png	100.7 KB	Conclusions
invasive.csv	8.2 KB	Dataset
s10530-014-0810-2.pdf	541.1 KB	BibliographicRe
1-s2.0-S0165783614000617-main.pdf	755.4 KB	
RStudio-0.99.896.dmg	60.0 MB	File
Workflow3.wfbundle	7.6 KB	
Rshell-604ce4b3a3128f7ed18c3592ca4d10fbf2ca2290.txt	1.2 KB	
ctagi.png	189.2 KB	Sketch

A. Key Resource details

- Name: *s10530-014-0810-2.pdf*
  Description: *Abstract The rapid expansion of multicellular native and alien species outbreaks in aquatic and terrestrial ecosystems (bioinvasions) may produce significant impacts on bacterial community dynamics and nutrient pathways with major ecological implica- tions. In aquatic ecosystems, bioinvasions may cause adverse effects on the water quality resulting from changes in biological, chemical and physical proper- ties linked to significant transformations of the microbial taxonomic and functional diversity. Here we used an effective and highly sensitive experimental strategy, bypassing the efficiency bottleneck of the traditional bacterial isolation and culturing method, to identify changes of the planktonic microbial commu- nity inhabiting a marine coastal lagoon (Varano, Adriatic Sea) under the influence of an outbreak- forming alien jellyfish species. Water samples were collected from two areas that differed in their level of confinement inside in the lagoon and jellyfish densities (W, up to 12.4 medusae m - 3 ; E, up to 0.03 medusae m - 3) to conduct a snapshot microbiome analysis by a metagenomic approach. After extraction of the genetic material in the environmental water samples, we deep-sequenced metagenomic amplicons of the V5–V6 region*

of the 16S rRNA bacterial gene by an Illumina MiSeq platform

- Name: *1-s2.0-S0165783614000617-main.pdf*
  Description: *Abstract Extensive blooms of gelatinous macrozooplankton species ('Jellyfish") have appeared in recent decades in Northern Adriatic (NA) waters. Anecdotal evidence suggests that these blooms have had a considerable impact on fishing operations, as this region is one of the most heavily exploited Mediterranean fishing grounds. In order to gain a better understanding of the possible economic losses for the Italian NA fishing industry due to jellyfish impacts, we conducted a survey of fishermen in the city of Chioggia, which is the main fishing port for the NA basin. The study focused on fishermen's perceptions about jellyfish blooms in the NA Sea and also investigated whether and how blooms compromised fishing operations. Survey results confirm that blooms have negatively affected fishing operations in the last few decades. We estimate that economic losses due to reduction in fish catches could amount to as much as (sic) 8.2 million per year for the Italian NA trawling fleet. Other costs on this fleet include additional fuel costs due to displacement of fishing operations, which could represent an increase in costs of over (sic) 460,000 per year. Moreover, during a jellyfish bloom episode it can happen that time has to be spent by fishermen to repair nets damaged by jellyfish caught in them, leading to an estimated cost for the trawling fleet and small scale fisheries of over 89,000 man-hours per year. This study not only confirms that jellyfish blooms have a considerable impact on fishing operations but also shows how costly blooms can be for the NA fisheries.*

ACKNOWLEDGMENT

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REFERENCES

[1] The Research Object Management Platform - ROHub http://www.rohub.org/.

[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