

Presenter: Christos Arvanitidis (LifeWatchGreece)



# CROWDSOURCING INITIATIVES IN THE MEDITERRANEAN BASIN

*Contributors: Emmanouela Panteri, Sarah Faulwetter, Thanos Dailianis, George Chatzigeorgiou, Eva Chatzinikolaou, Evangelos Pafilis, Christina Pavloudi, Thomas Uher, Simon D Rycroft, Alexander Kroupa, Vincent Smith, Lyubomir Penev, Edward Baker, Jean-Pierre Feral, David Romain, Christos Arvanitidis*

# Open Source Technologies



Scratchpads are an online virtual research environment for biodiversity, allowing anyone to share their data and create their own research networks

Sites can focus on specific taxonomic groups, Scratchpads are also suitable for societies or for managing and presenting projects.

Key features of Scratchpads include: tools to manage biological classifications, bibliography management, media (images, video and audio), rich taxon pages (with structured descriptions, specimen records, and distribution data)



Drupal, Apache, MySQL



# CS Projects

- COMBER
- CIGESMED
- AmvrakikosBirds

members of



# CIGESMED

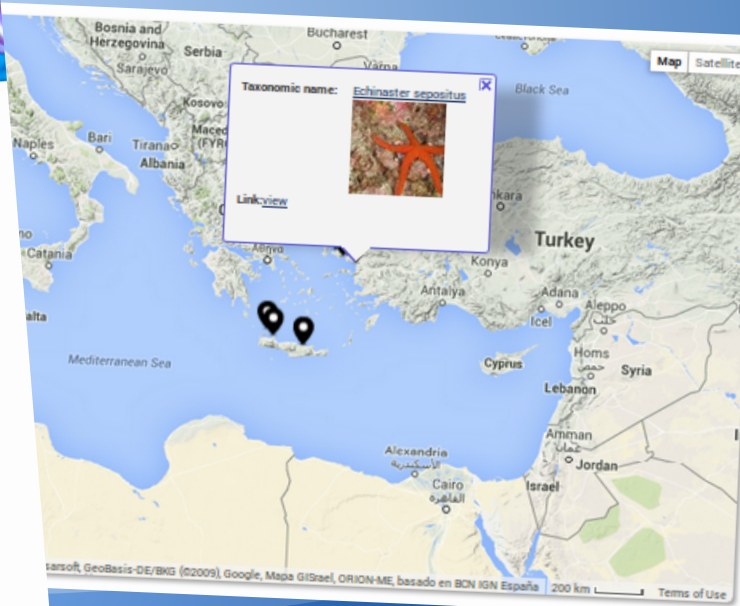
CIGESMED: Coralligenous based Indicators to evaluate and monitor the "Good Environmental Status" of the MEDiterranean coastal waters



Welcome to CIGESMED



CIGESMED: Coralligenous based Indicators to evaluate and monitor the "Good Environmental Status" of the MEDiterranean coastal waters



# AmvrakikosBirds

AmvrakikosBirds is a new project, targeted to all potential bird watchers operating in the wetlands of the Amvrakikos Gulf

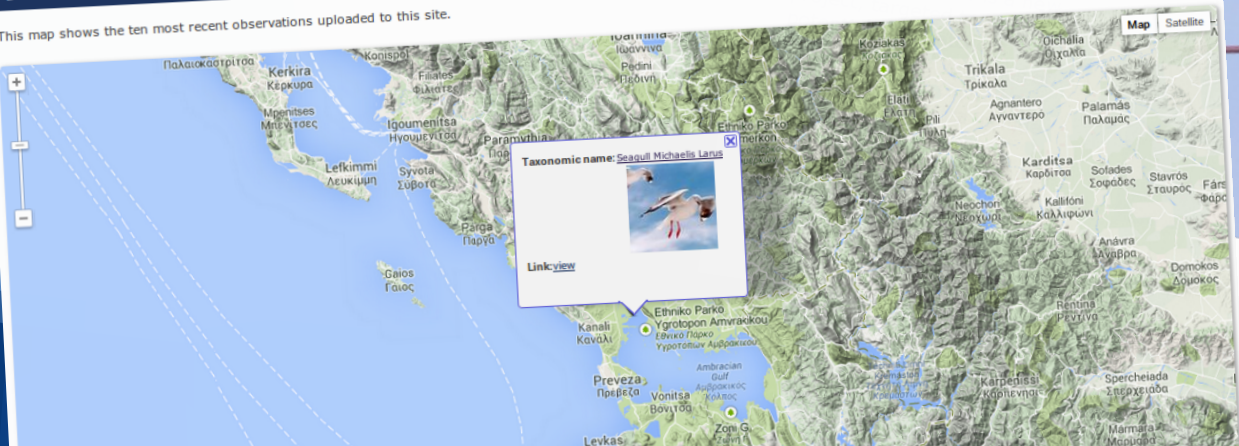


Welcome to AmvrakikosBirds



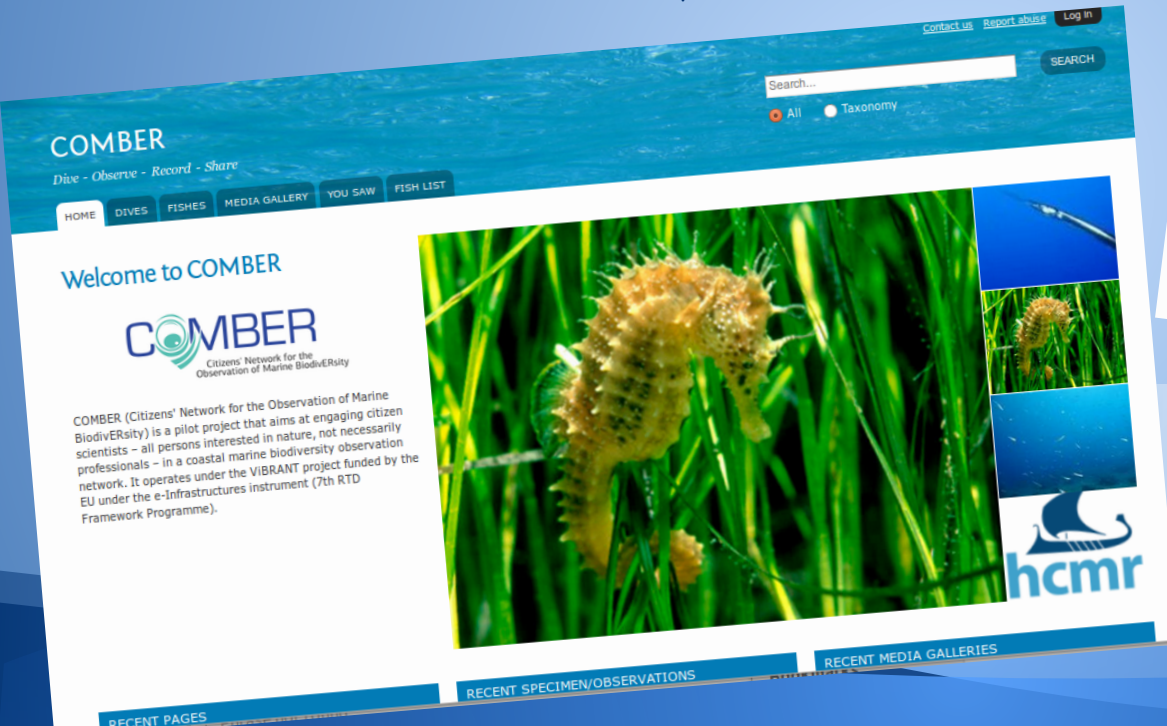
## BIOBLITZ RECORDS

This map shows the ten most recent observations uploaded to this site.

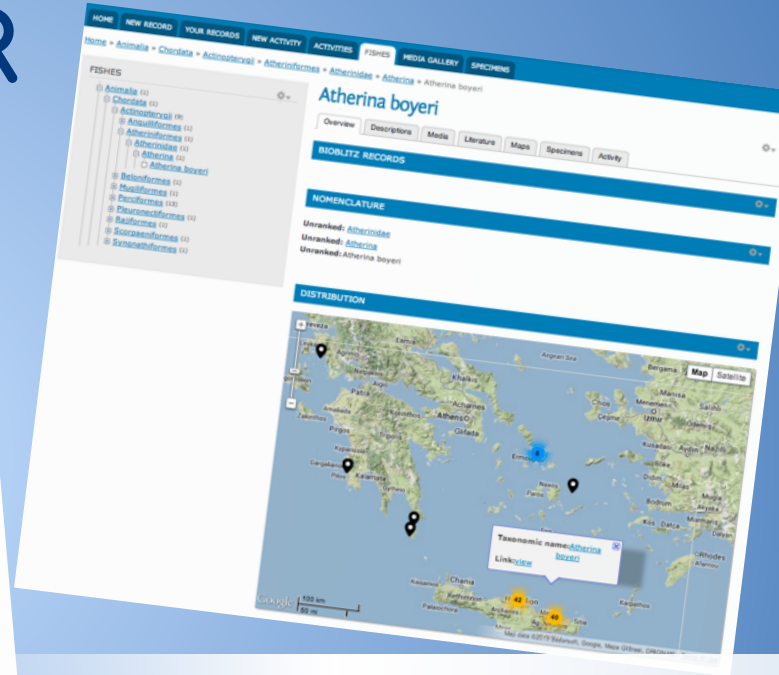


# COMBER

COMBER (Citizens' Network for the Observation of Marine BiodivERsity) is a pilot project that aims at engaging citizen scientists in a coastal marine biodiversity observation network.



The screenshot shows the homepage of the COMBER website. At the top, there is a navigation bar with links for HOME, DIVES, FISHES, MEDIA GALLERY, YOU SAW, and FISH LIST. Below this is a search bar with a 'SEARCH' button and radio buttons for 'All' and 'Taxonomy'. The main content area features a large image of a sea urchin and the text: 'Welcome to COMBER Citizens' Network for the Observation of Marine BiodivERsity'. Below this is a paragraph describing the project: 'COMBER (Citizens' Network for the Observation of Marine BiodivERsity) is a pilot project that aims at engaging citizen scientists - all persons interested in nature, not necessarily professionals - in a coastal marine biodiversity observation network. It operates under the VIBRANT project funded by the EU under the e-Infrastructures instrument (7th RTD Framework Programme)'. At the bottom, there are sections for 'RECENT PAGES', 'RECENT SPECIMEN/OBSERVATIONS', and 'RECENT MEDIA GALLERIES'. The hcmr logo is visible in the bottom right corner of the page.



The screenshot shows the species page for *Atherina boyeri* on the COMBER website. The page has a blue header with navigation links: HOME, NEW RECORD, YOUR RECORDS, NEW ACTIVITY, ACTIVITIES, FISHES, MEDIA GALLERY, and SPECIMENS. Below the header is a breadcrumb trail: Home > Animals > Chordata > Actinopterygii > Atheroformes > Atheroidei > Atherina > Atherina boyeri. The main content area includes a 'FISHES' sidebar with a tree view, a 'BIODIVERSITY RECORDS' section, a 'NOMENCLATURE' section with 'Unranked: Atheroidei' and 'Unranked: Atherina', and a 'DISTRIBUTION' section with a map of the Mediterranean region. The map shows the distribution of *Atherina boyeri* with a blue dot in the Aegean Sea. A tooltip over the map displays 'Taxonomic name: Atherina boyeri' and a 'Link to record' button. The map also includes a scale bar (0-100 km) and a 'Map' button.



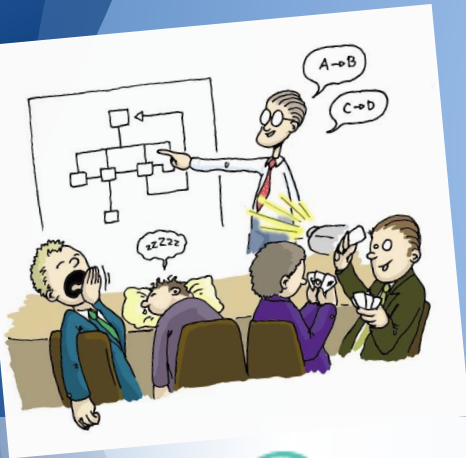
The COMBER logo features the word 'COMBER' in a large, blue, sans-serif font. The letter 'O' is stylized with green and blue concentric circles. Below the logo is the tagline 'Citizens' Network for the Observation of Marine BiodivERsity' in a smaller, blue, sans-serif font.



The VIBRANT logo consists of five colorful hexagons arranged in a circle, each containing a different icon: a butterfly, a bird, a leaf, a paw print, and a globe. Below the hexagons is the text 'VIBRANT Virtual Biodiversity' in a blue, sans-serif font.

# Case Scenario: COMBER

At the very beginning of the project we worked with local diving and sailing clubs.



They offered short seminars for divers and snorkelers



So they could get an overview of the local fish fauna and how to identify the species, underwater

# COMBER

Citizens' Network for the  
Observation of Marine BiodivERsity

# The BLOwatch™ identification card



### MEDITERRANEAN COASTAL FISHES

A Snorkeler's field guide

1. *Acanthopagrus labrus*  
Common sea bream  
10-20cm

2. *Scorpaenopsis diabolus*  
Black scorpionfish  
10-20cm

3. *Merluccius merluccius*  
Common hake  
10-20cm

4. *Merluccius medius*  
Black scorpionfish  
10-20cm

5. *Merluccius medius*  
Black scorpionfish  
10-20cm

6. *Merluccius medius*  
Black scorpionfish  
10-20cm

7. *Merluccius medius*  
Black scorpionfish  
10-20cm

8. *Merluccius medius*  
Black scorpionfish  
10-20cm

9. *Merluccius medius*  
Black scorpionfish  
10-20cm

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Black scorpionfish  
10-20cm

29. *Merluccius medius*  
Black scorpionfish  
10-20cm

30. *Merluccius medius*  
Black scorpionfish  
10-20cm

Barcode: 9 783007 000000

© BLOwatch, hazardous species  
\* Presence species via State Canal  
[www.bio-watch.com](http://www.bio-watch.com)

### MEDITERRANEAN COASTAL FISHES

A Snorkeler's field guide

1. *Acanthopagrus labrus*  
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30. *Merluccius medius*  
Black scorpionfish  
10-20cm

Barcode: 9 783007 000000

© BLOwatch, hazardous species  
\* Presence species via State Canal  
[www.bio-watch.com](http://www.bio-watch.com)

Using the BLOwatch™ identification card to identify the species



# Divers / Snorkelers community

Now the project is addressed to the local diving community, that employ the individual experiences while they dive/snorkel



# Submit Observations via website

COMBER

Dive - Observe - Record - Share

HOME DIVES FISHES MEDIA GALLERY YOU SAW FISH LIST

Home » Fish List

## Fish List



[Apogon imberbis](#)



[Atherina boyeri](#)



[Belone belone](#)



[Parablennius tentacularis](#)



[Bothus podas](#)



[Gobius niger](#)



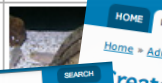
[Thalassoma pavo](#)



[Coris julis](#)



[Symphodus tinca](#)



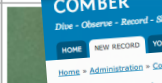
[Labrus merula](#)



[Mullus surmuletus](#)



[Muraena helena](#)



[Chromis](#)



[Scorpaena scrofa](#)



[Scorpaena porcus](#)



[Serranus](#)



[Epinephelus marginatus](#)



[Siganus luridus](#)



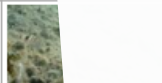
[Pagellus](#)



[Epinephelus marginatus](#)



[Siganus luridus](#)



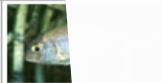
[Pagellus](#)



[Epinephelus marginatus](#)



[Siganus luridus](#)



[Pagellus](#)

After the dive, we encourage divers to enter their observation into the COMBER database.

COMBER  
Dive - Observe - Record - Share  
HOME NEW RECORD YOUR RECORDS NEW ACTIVITY ACTIVITIES FISHES MEDIA GALLERY SPECIMENS  
Home » Administration » Create Specimen/Observation

### Create Specimen/Observation

Essentials +  
Map  
Move  
+ Pin  
What  
When  
Where  
Image/video

Map data ©2013 BaseSoft, Google, Mapbox, OpenStreetMap contributors, Swatch

(35.44727119262691, 25.062484592199326)

COMBER  
Dive - Observe - Record - Share  
HOME NEW RECORD YOUR RECORDS NEW ACTIVITY ACTIVITIES FISHES MEDIA GALLERY SPECIMENS  
Home » Administration » Create Specimen/Observation

### Create Specimen/Observation

Taxonomic name  
at  
Animalia » Chordata » Actinopterygii » Atheriniformes » Atherinidae » Atherina  
Animalia » Chordata » Actinopterygii » Atheriniformes » Atherinidae » Atherina » Atherina boyeri  
Animalia » Chordata » Actinopterygii » Atheriniformes » Atherinidae » Atherina » Atherina boyeri  
Animalia » Chordata » Actinopterygii » Atheriniformes  
Animalia » Chordata » Actinopterygii » Perciformes » Serranidae » Epinephelus » Epinephelus marginatus  
Animalia » Chordata » Actinopterygii » Perciformes » Syngnathiformes » Hippocampus » Hippocampus guttulatus  
Animalia » Chordata » Actinopterygii » Perciformes » Sparidae » Sparidae » Lithognathus  
Animalia » Chordata » Actinopterygii » Perciformes » Sparidae » Sparidae » Lithognathus » Lithognathus mormyrus  
Settings  
 Open  
Users with the "Post comments" permission can post comments.  
 Closed  
Users cannot post comments.

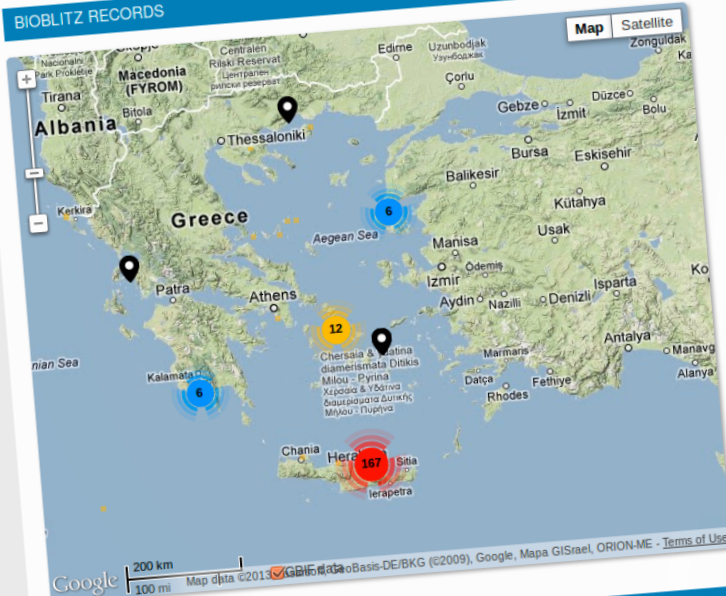
# See Observations online

So they could see the results  
of their submissions

## Coris julis

Overview Descriptions Media Literature Maps Specimens Activity

### BIOBLITZ RECORDS



### NOMENCLATURE

Unranked - Labridae

### FISHES

- Animalia (1)
- Chordata (1)
- Actinopterygii (9)
- Anguilliformes (1)
- Atheriniformes (1)
- Belontiiformes (1)
- Mugiliformes (1)
- Perciformes (13)
- Apogonidae (1)
- Blenniidae (1)
- Gobiidae (1)
- Labridae (5)
- Coris (1)
- Coris julis
- Labrus (1)
- Symphodus (3)
- Thalassoma (1)
- Xyrichtys (1)
- Moronidae (1)
- Mullidae (1)
- Pomacentridae (1)
- Scaridae (1)
- Siganidae (1)
- Sparidae (7)
- Sphyraenidae (1)
- Trachinidae (1)
- Pleuronectiformes (1)
- Rajiformes (1)
- Scorpaeniformes (1)
- Syngnathiformes (1)

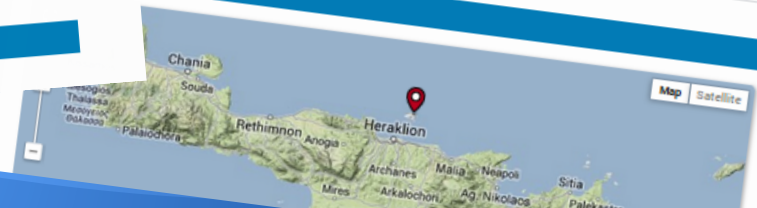
HOME DIVES NEW OBSERVATION FISHES MEDIA GALLERY YOU SAW SPECIMENS FISH LIST

## COMBER - emmi - 1393254838

View Edit Track Devel

one content

Basis of record:	Living Specimen
Institution code:	COMBER
Collection code:	emmi
Catalogue number:	1393254838
Taxonomic name:	<a href="#">Hippocampus guttulatus (Fishes)</a>



# COMBER data to Anymals.org

Using ABCD standards we uploaded the data from COMBER database to Anymals.org database (Anymals+plants)

**Coris julis**

Overview | Descriptions | Media | Literature | Maps | Specimens | Activity

**BIOBLITZ RECORDS**

Map | Satellite

Map of the Mediterranean region showing distribution points for *Coris julis*. The map covers parts of Albania, Greece, and the Aegean Sea. Distribution points are marked with colored circles (blue and red) and numbers (e.g., 6, 12, 107, 187, 191, 1825). Major cities like Thessaloniki, Athens, and Patras are labeled.

**NOMENCLATURE**

- Animalia (1)
- Chordata (1)
- Actinopterygii (0)
- Actinopterygii (1)
- Atheriniformes (1)
- Atheriniformes (1)
- Belontiiformes (1)
- Mugiliformes (1)
- Pisces (1)
- Agonostomidae (1)
- Bleenniidae (1)
- Gobiidae (1)
- Gobiidae (1)
- Cottidae (1)
- Labrus (1)
- Symphodus (1)
- Thalassoma (1)
- Xyrichtidae (1)
- Micropodidae (1)
- Mullidae (1)
- Pomacentridae (1)
- Scorpaenidae (1)
- Scorpaenidae (1)
- Scorpaenidae (1)
- Scorpaenidae (1)
- Scorpaenidae (1)
- Scorpaenidae (1)
- Pleuronectiformes (1)
- Rajiformes (1)
- Scorpaeniformes (1)
- Symphysiognathiformes (1)

**COMBER**

COMBER (Citizens' Network for the Observation of Marine BioDiversity) is a pilot project that aims at nature, not necessarily professionals – in a coastal marine biodiversity observation network.

**Map of COMBER**

Map of the Mediterranean region showing distribution points for COMBER. The map covers parts of Albania, Greece, and the Aegean Sea. Distribution points are marked with colored circles (orange and red) and numbers (e.g., 91, 72, 44, 191, 1825). Major cities like Thessaloniki, Athens, and Patras are labeled.

**anymals +plants**

Register today

**anymals+plants - Citizen Science Data**

Occurrence dataset published by Museum für Naturkunde Berlin

Information | Stats | Activity

FULL TITLE  
Anymals+plants - Citizen Science Data

Map of the Mediterranean region showing distribution points for Anymals+plants. The map covers parts of Albania, Greece, and the Aegean Sea. Distribution points are marked with yellow dots.

and from Anymals+plants to GBIF

# COMBER data to Anymals.org

**COMBER**  
COMBER (Citizens' Network for the Observation of Marine Biodiversity) is a pilot project that aims at engaging citizen scientists – all persons interested in nature, not necessarily professionals – in a coastal marine biodiversity observation network.

**Map of COMBER**

**Species List:**

- 1 • Parrot fish (*Sparisoma cretense*)  
Rodhiá | 01.06.2013
- 1 • Red mullet (*Mullus surmuletus*)  
Rodhiá | 01.06.2013
- 1 • Damsel fish (*Chromis chromis*)  
Rodhiá | 01.06.2013
- 1 • Gold line (*Sarpa salpa*)  
Rodhiá | 01.06.2013

**Map Data:**

Country	Count
Spain	441
France	597
Italy	26938
Turkey	2913
Algeria	441
Libya	58
Egypt	58
Saudi Arabia	58
Iran	134
Afghanistan	134
Pakistan	134
China	64
Japan	64
Thailand	31
Indonesia	26
India	11
Papua New Guinea	59
Australia	59
Greenland	11
Iceland	632
Norway	597
Poland	26938
Ukraine	2913
Kazakhstan	134
Mongolia	64
South Africa	10
Brazil	3
DR Congo	10
Tanzania	10
Madagascar	10
India	27
Yemen	67
ADIA PELAGIA	29
ADIA	7
MAC	365
MAC	21

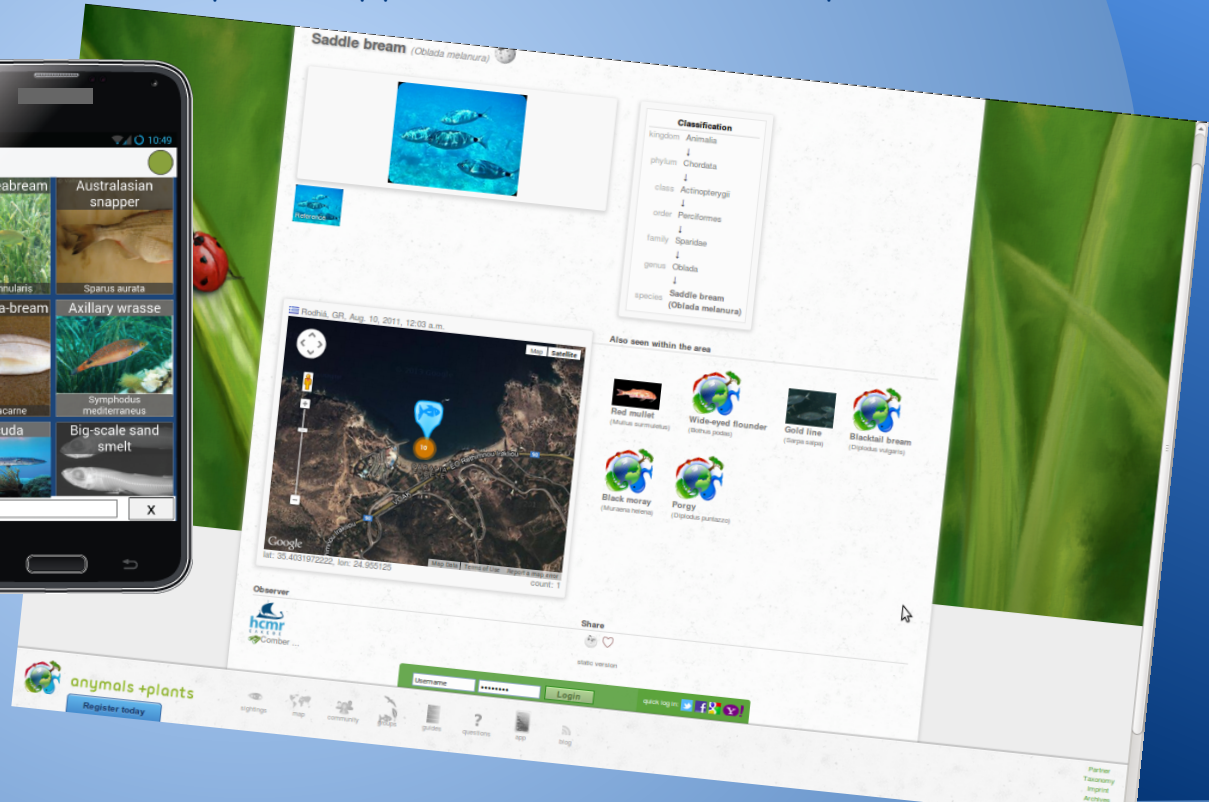
**anymals + plants**  
Register today

**anymals**

**Partner Taxonomy Imprint**

# Submit via mobile

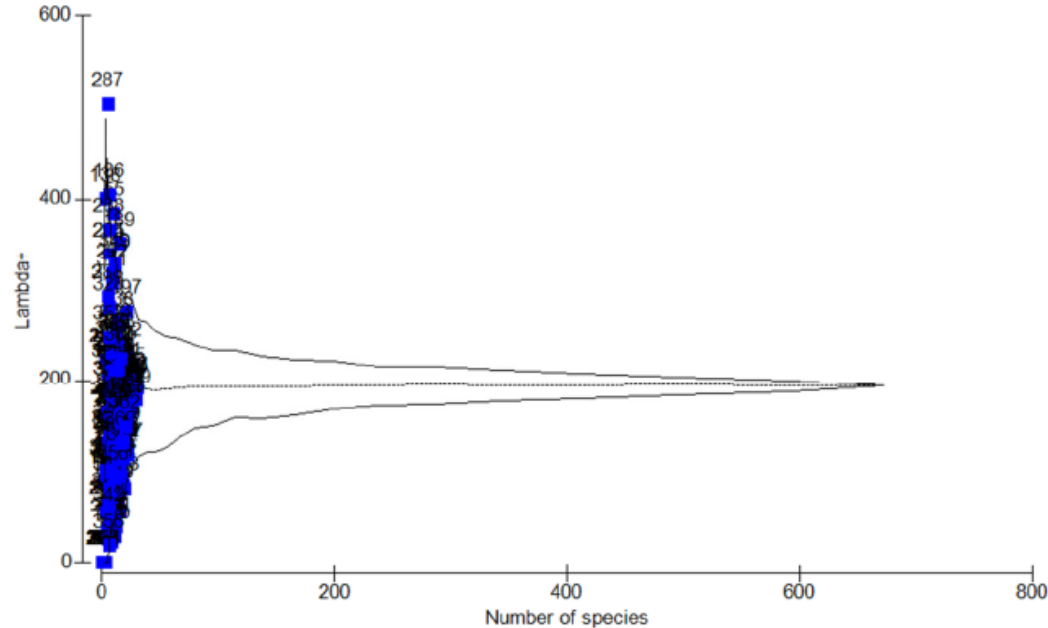
A new phone application is under development now



# Work under development...

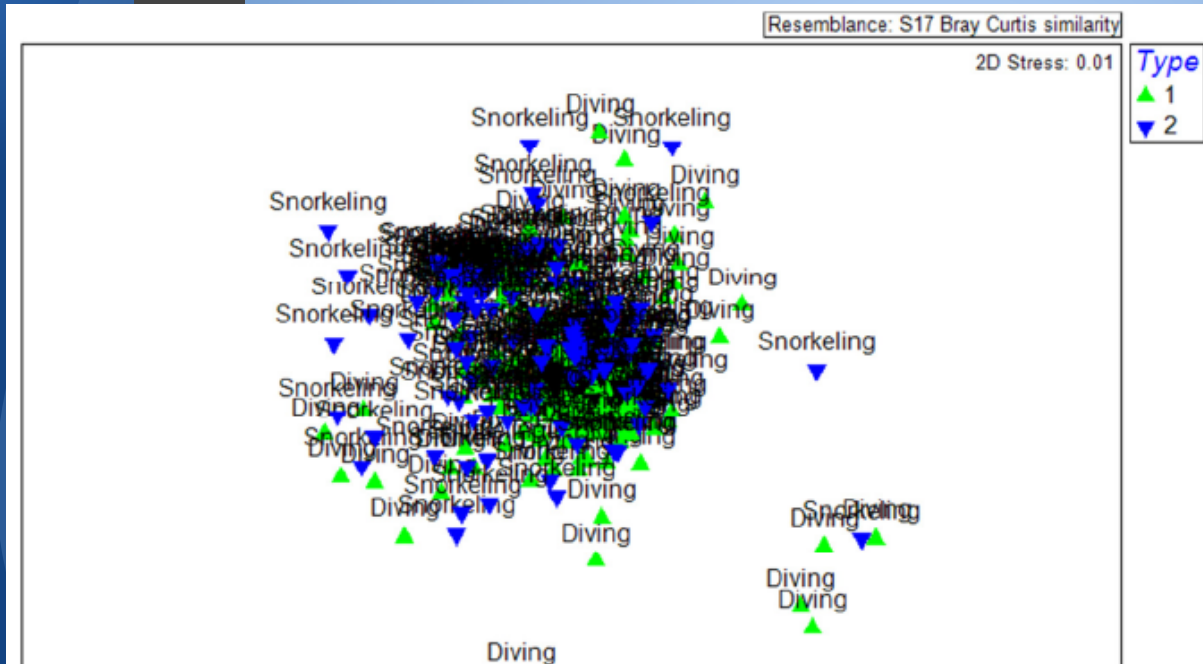
Scientific hypotheses to be tested:

**Fig 41: The 95% probability funnel for the variation in taxonomic distinctness ( $\Lambda^+$ ) for all the fish species lists compiled from the data collected over the entire period of the COMBER project: 2011-2013. Funnel's confidence limits are calculated from random samples of the Mediterranean fish species and their higher phylogenetic/ taxonomic classifications.**



# Work under development...

Scientific hypotheses to be tested:



Sample statistic (Global R): 0.186

Significance level of sample statistic: 0.1%

Number of permutations: 999 (Random sample from a large number)

Number of permuted statistics greater than or equal to Global R: 0



# Lessons learned

Crowdsourcing can deliver a wealth of data

The value of these data and their subsequent use in biodiversity studies must be checked

Individuals need these initiatives to get engaged to meaningful leisure activities

ESFRI Infrastructure is important as an incubation chamber for these initiatives

Coordination of the crowdsourcing activity at global scale is a must

Thank you for you  
attention!

Useful URLs:

[www.hcmr.gr](http://www.hcmr.gr)

[www.lifewatchgreece.eu](http://www.lifewatchgreece.eu)

[scratchpads.eu](http://scratchpads.eu)

[www.anymals.org](http://www.anymals.org)