Citizen Science initiatives in the Mediterranean basin

by Emmanouela Panteri

Contributors: Christos Arvanitidis, Nicolas Bailly, Thanos Dailianis, Sarah Faulwetter, Vasilis Gerovasileiou, Michalakis Nikitas
Citizen Science Era

- Drastic increase of the number of Citizen Science projects all over the world
- Boosted by fast and easy internet access, digital photography, mobile and tablet applications, etc
- Data to be used in biodiversity monitoring, biology, ecology, and species traits collections
HCMR CS Projects

In collaboration with many partner institutions from all over Europe, and focus on the Mediterranean and Greek territories:

- COMBER
- CIGESMED
- Amvrakikos Birds
Open Source Technologies

- Backend: PHP, Apache, MySQL
- Scratchpads (www.scratchpads.eu) under Drupal

- online VREs (virtual research environments) for biodiversity
  - creation of community/research networks
  - sharing their data
- tools to manage
  - biological classifications
  - bibliography
  - media (images, video and audio)
  - taxon pages
Case Study: COMBER

Citizens' Network for the Observation of Marine Biodiversity

- Targeted to amateur divers and snorkelers
- Scope: record coastal fish biodiversity
- Pilot project in the coastal marine biodiversity observation network
- Design and implementation by HCMR – under EC FP7 ViBRANT
- Implemented in Greece for two years (2011--2012)
- Scalable to the Mediterranean

production website: comber.hcmr.gr
under development: vm4.her.hcmr.gr/hcmr-comber/scratchpads-2.0/
Observe and Identify the 40 most common coastal fishes in the Mediterranean Sea using the BIOwatch™ identification card
Basic training lessons

(Short seminars for divers and snorkelers)

Pre-diving Course
• introduction to the project and its aims
• presentation of the target species and identification aid
• guidelines for data recording

Underwater Activity
• supervision by scientist or trained divemaster
• assistance to observation and data recording
• user free to abort in case of lack of interest
Observation Submission

Post-diving activity:
Data submission in the COMBER database
Collecting data

- 5652 observations
- 141 users
- 15 countries

- The most frequently observed species:
  - Coris julis
  - Chromis chromis
  - Thalassoma pavo

- The most rarely observed species:
  - Raja clavata
  - Sphyraena viridensis
  - Hippocampus guttulatus

- 17 surveyed locations with 95 distinct dive sites
Technical Issues

Only potential when database is larger (e.g. scaling up to the entire Mediterranean)

- Query/answer time (faster computers to support the needs)
- Photo submission (need to allocate more space storage)
- Species selection (currently 40, potentially 2,500 all groups included for the entire Mediterranean)
Evaluating the experience

From the scientist's’ point of view
Successful as a demonstration effort but...
- heterogeneous user groups with different skills and preferences
- low rates of participation in diving clubs
- conflicts with diving club workflow
- time-consuming for assisting scientists
- requires an active contact leading person in the diving group/club
- Difficulties submitting data on-the-spot
  - wet and tired
  - lack of computers at diving clubs
Minimize guidance, increase support

Pre-diving
- Propose various levels of training and tools: redefine target group towards a community driven approach
- Improve identification training
- Videos of species on site

How to identify a fish?
- Shape (elongated – flat)
- Colour (silvery – coloured)
- Colour patterns (stripes, spots)
- Habitat (sand, open water, rocks & seagrass)
- Mobility (swimming – sitting on ground)
- Social behaviour (alone – in small groups – in big schools)
Looking Towards

Diving
● Underwater equipment

Post-diving
● Improve the data submission tools
● Facilitating quality control and filtering of data
Current and Future Plans

For citizens:

- Increase of covered species number:
  - CIGESMED: monitoring coralligenous assemblages
  - Potentially all species from the Mediterranean Sea
- Organize bioblitz for collecting data massively, e.g., in one week-end
- Link with species database like WoRMS, FishBase, SeaLifeBase
- Promote the activity and tools
- Create a mobile application, for data entry
Current and Future Plans

For scientists:

- Deliver the data to aggregators such as OBIS and GBIF
- Create an OBIS node for CS data from all marine projects
- Facilitate the use data in e-infrastructures like LifeWatch
Soon available

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

- targeted to more advanced divers
thank you for your attention

more info @ www.lifewatchgreece.gr