

Engaging citizen-scientists for the assessment of marine biodiversity: experience from the ongoing COMBER project

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COMBER

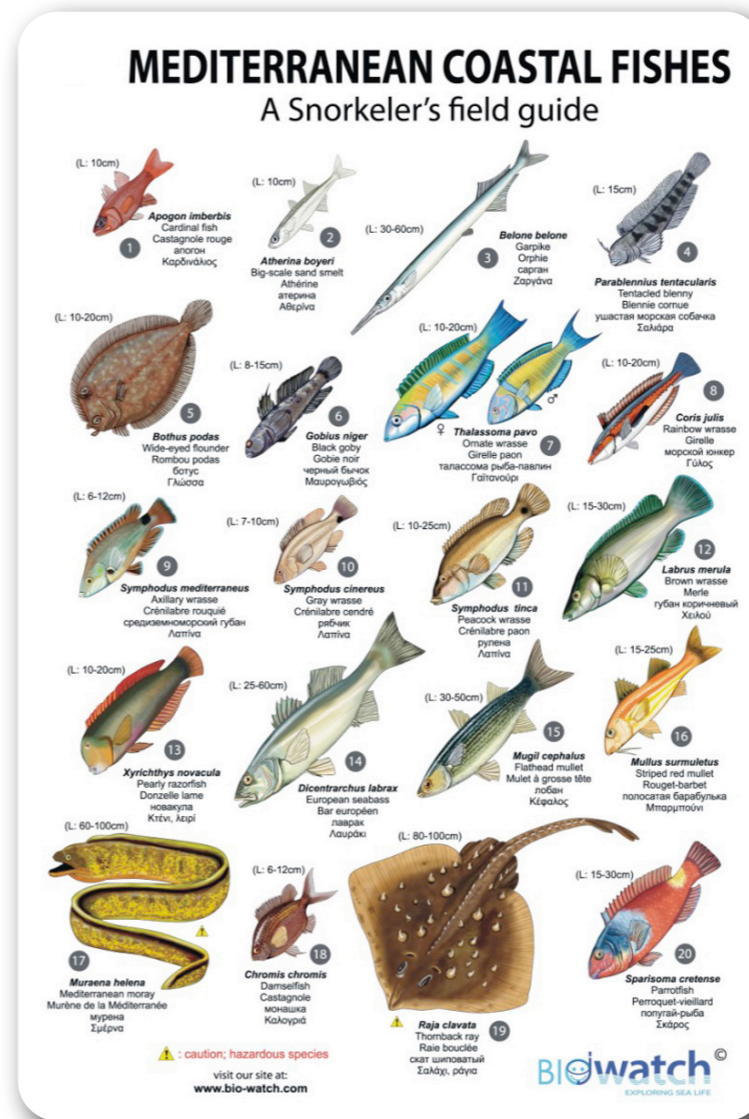
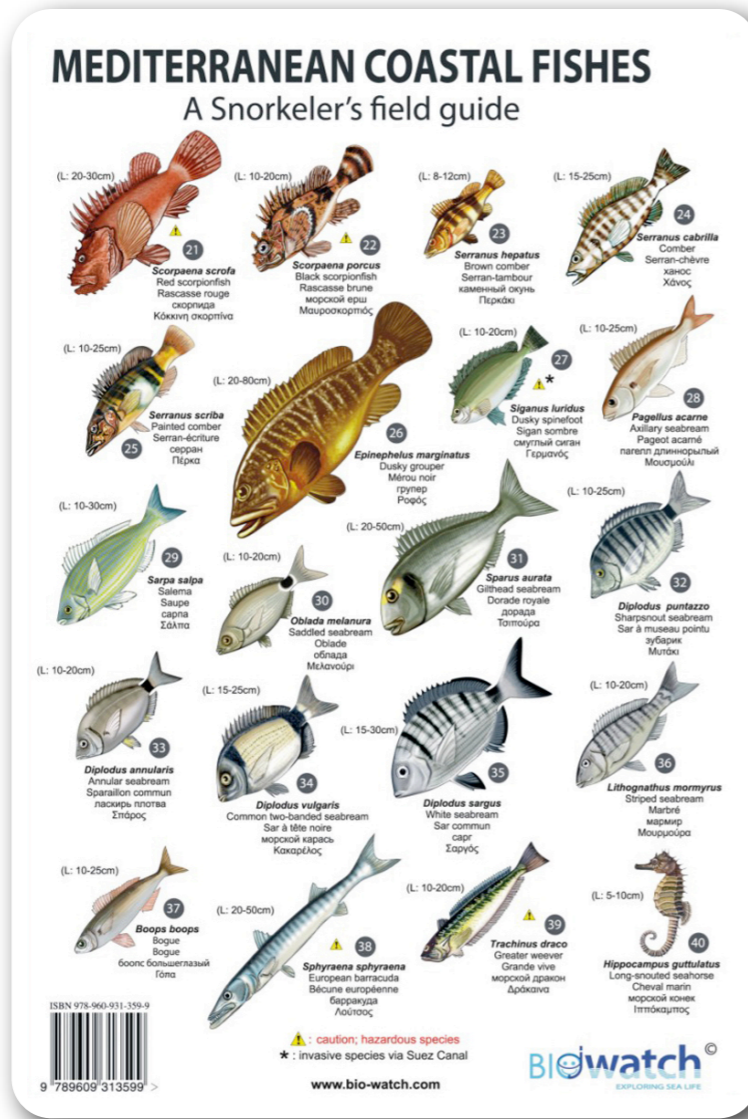
a pilot citizen science project



- Design and implementation by HCMR – under EU ViBRANT
- Scope: record coastal biodiversity
- Targeted to amateur divers and snorkelers
- Implemented in Greece for three years (2011-today)
- Scalable to the Mediterranean

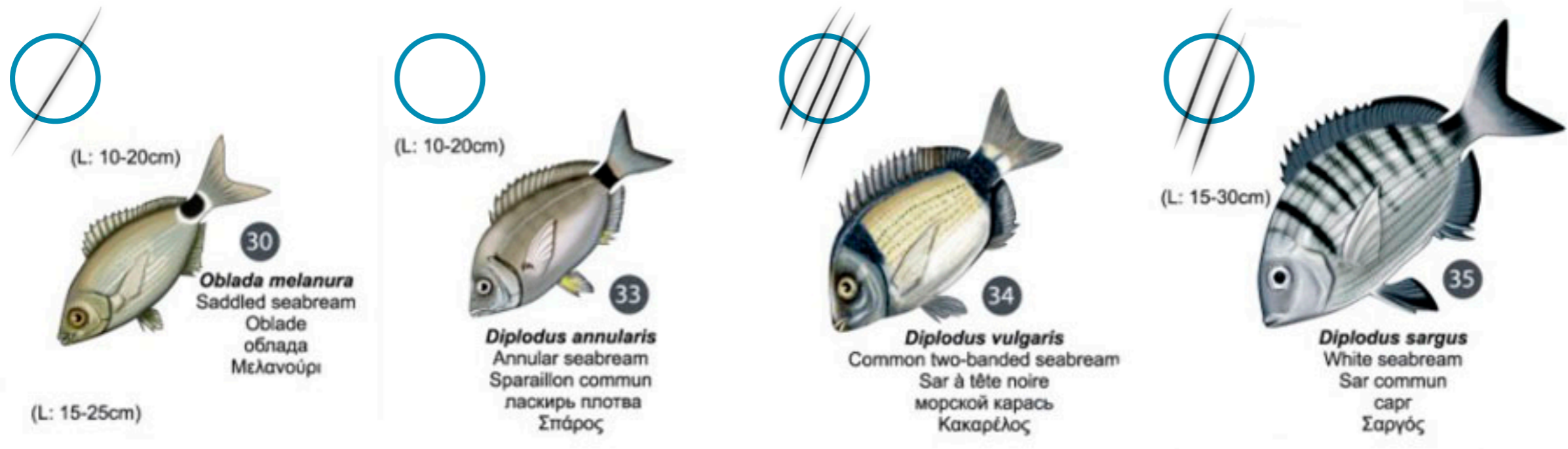
Defining target organisms

The BIOwatch™ identification card



Quantifying observations

...using abundance classes



Unmarked: absent – no observation

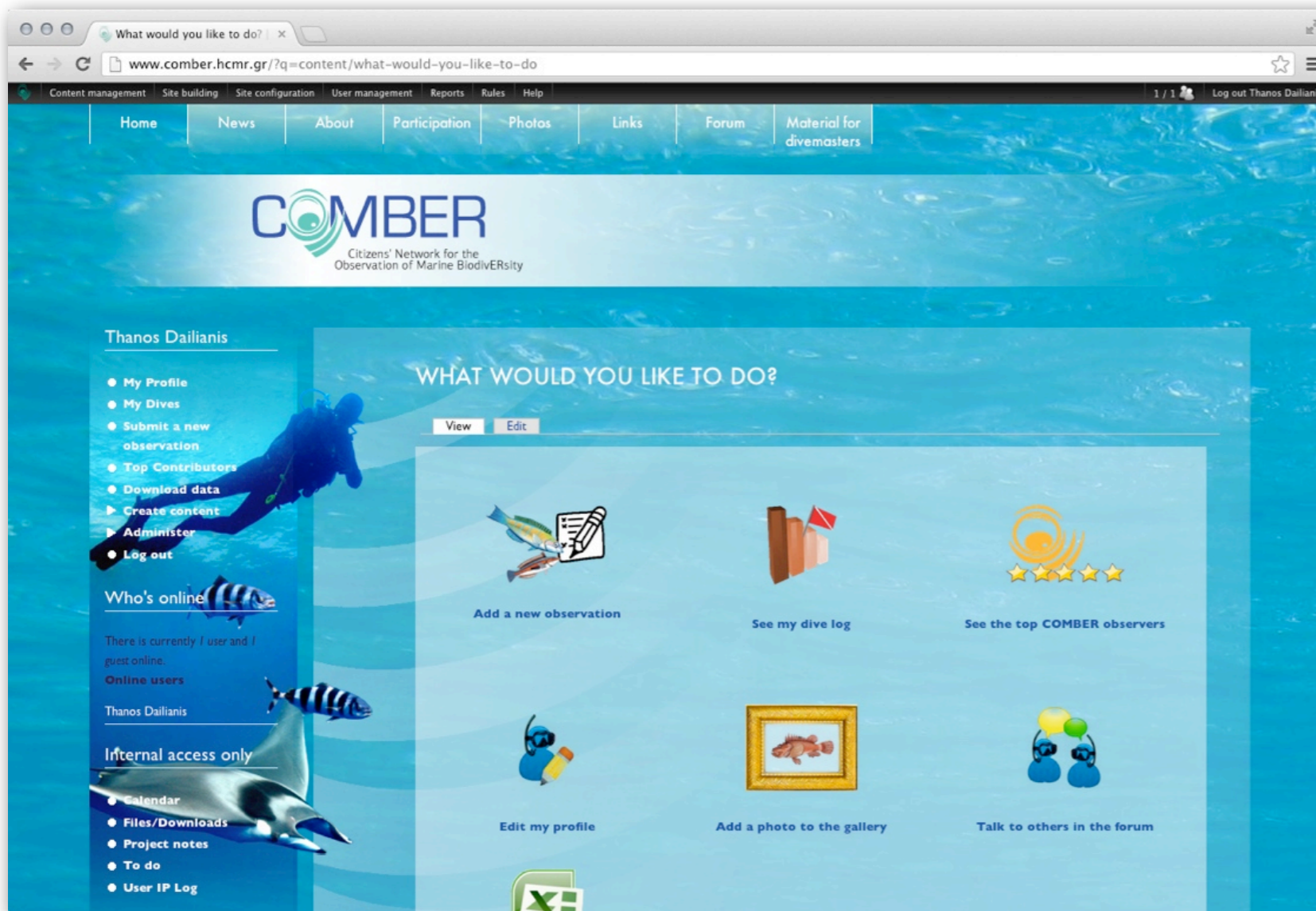
One mark: rare – 1 to 3 individuals observed

Two marks: common – 4 to 10 individuals observed

Three marks: very abundant – more than 10 individuals observed

Collecting data

Through a multi-functional COMBER website



- data upload
- personal log
- photo gallery
- forum
- reward system

Pilot run: summer 2011 & 2012

Supporting partners

COMMUNICATION

- Cretaquarium



IMPLEMENTATION

- Four diving clubs in Crete
- One sailing operator



Pilot run: summer 2011 & 2012

Basic components of the course

1. Pre-dive briefing

- introduction to the project and its aims
- presentation of the identification card and the fish therein
- guidelines for the recording of data



source: <http://www.sportifdive.co.uk>

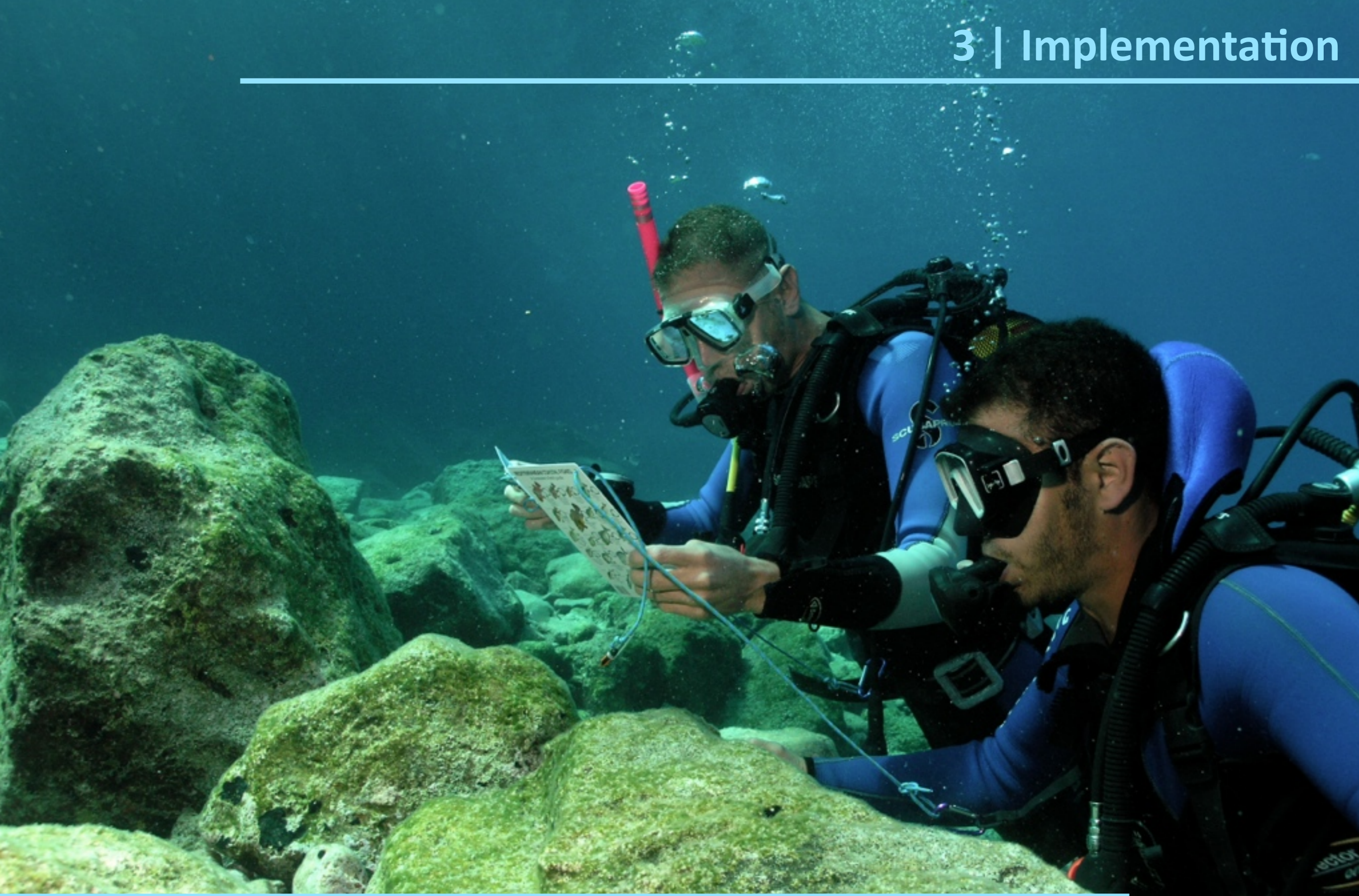
Pilot run: summer 2011 & 2012

Basic components of the course

2. Underwater activity

- supervision by scientist or trained divemaster
- assistance to observation and data recording
- user free to abort in case of lack of interest





Pilot run: summer 2011 & 2012

Basic components of the course

3. Data submission

- presentation of the webpage and user registration
- assistance to data submission
- encouragement for follow-up during future dives
- evaluation questionnaire

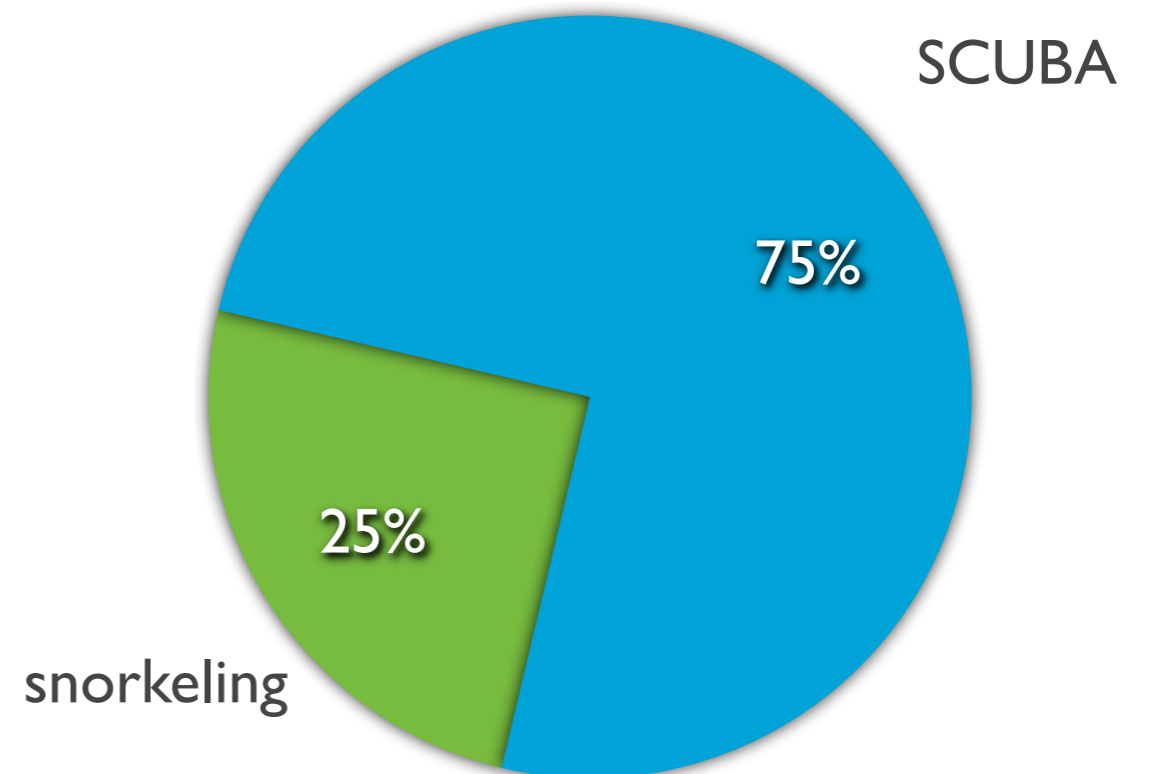


source: Christian Haugen – www.flickr.com

Pilot run: summer 2011 & 2012

Usage statistics

1. Participation method

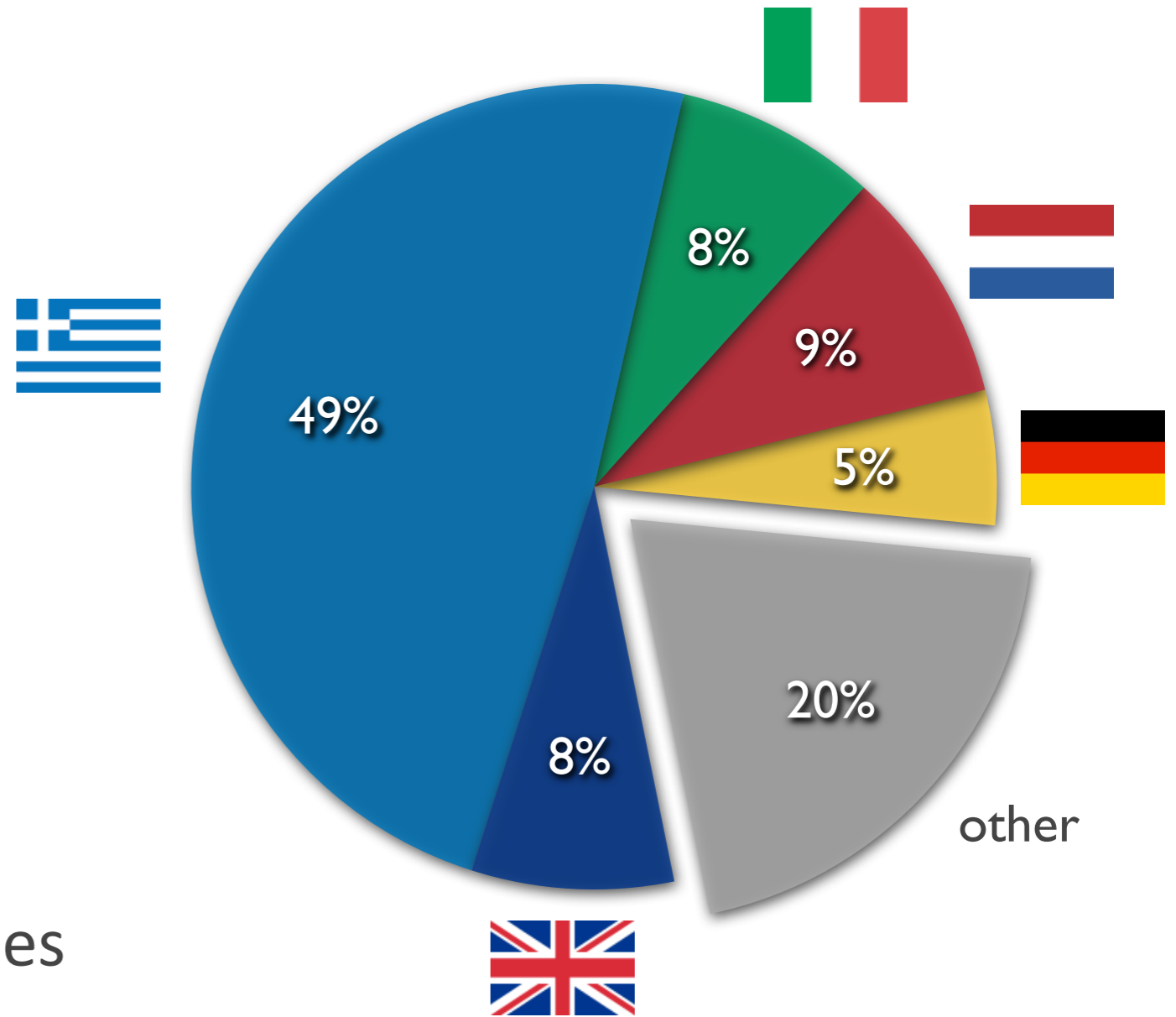


- a total of 409 dives (including scuba & snorkeling)

Pilot run: summer 2011 & 2012

Usage statistics

2. Number of users



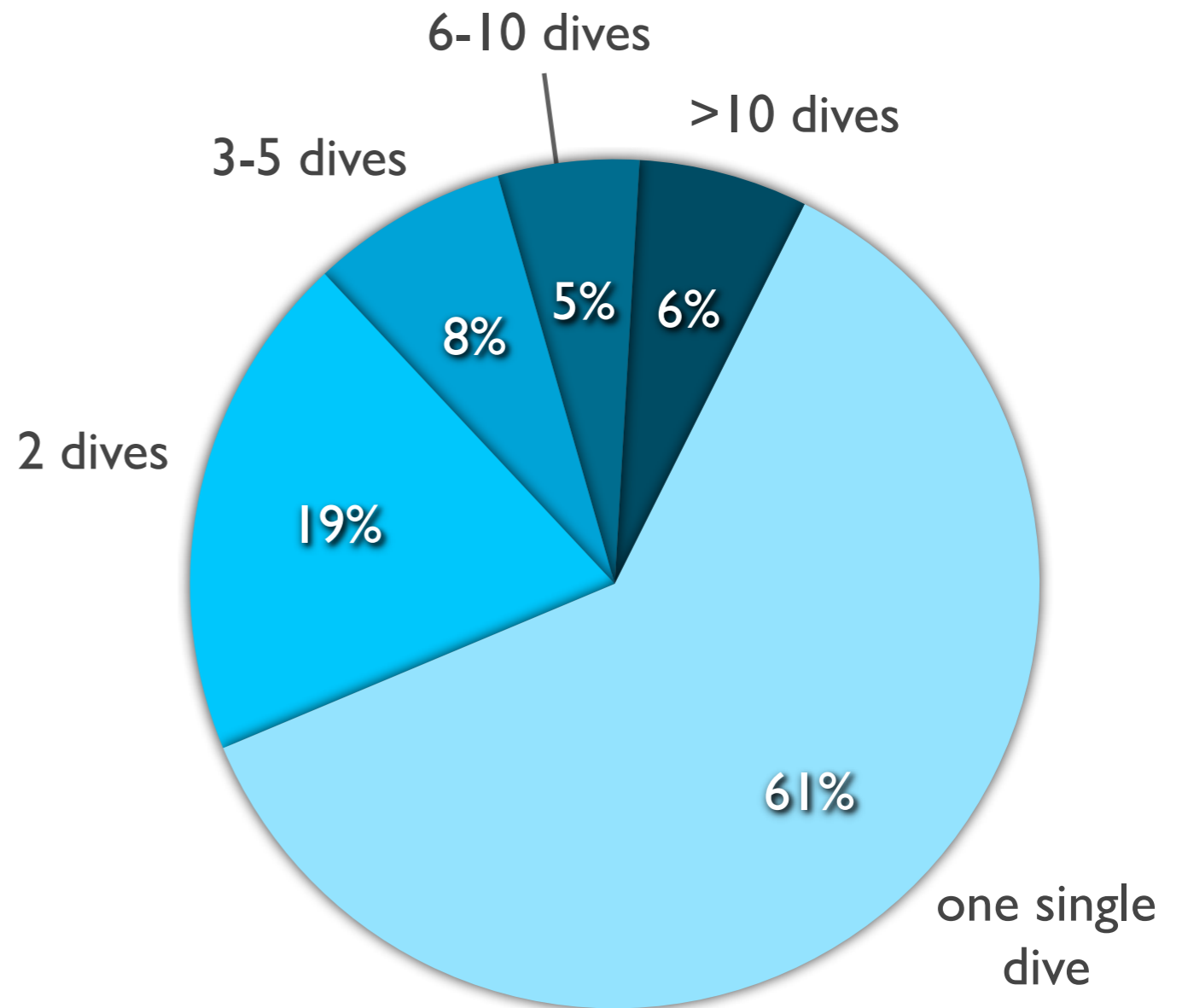
- total 141 users from 15 countries

Pilot run: summer 2011 & 2012

Usage statistics

3. User contribution

- 56 users contributed with more than one dive

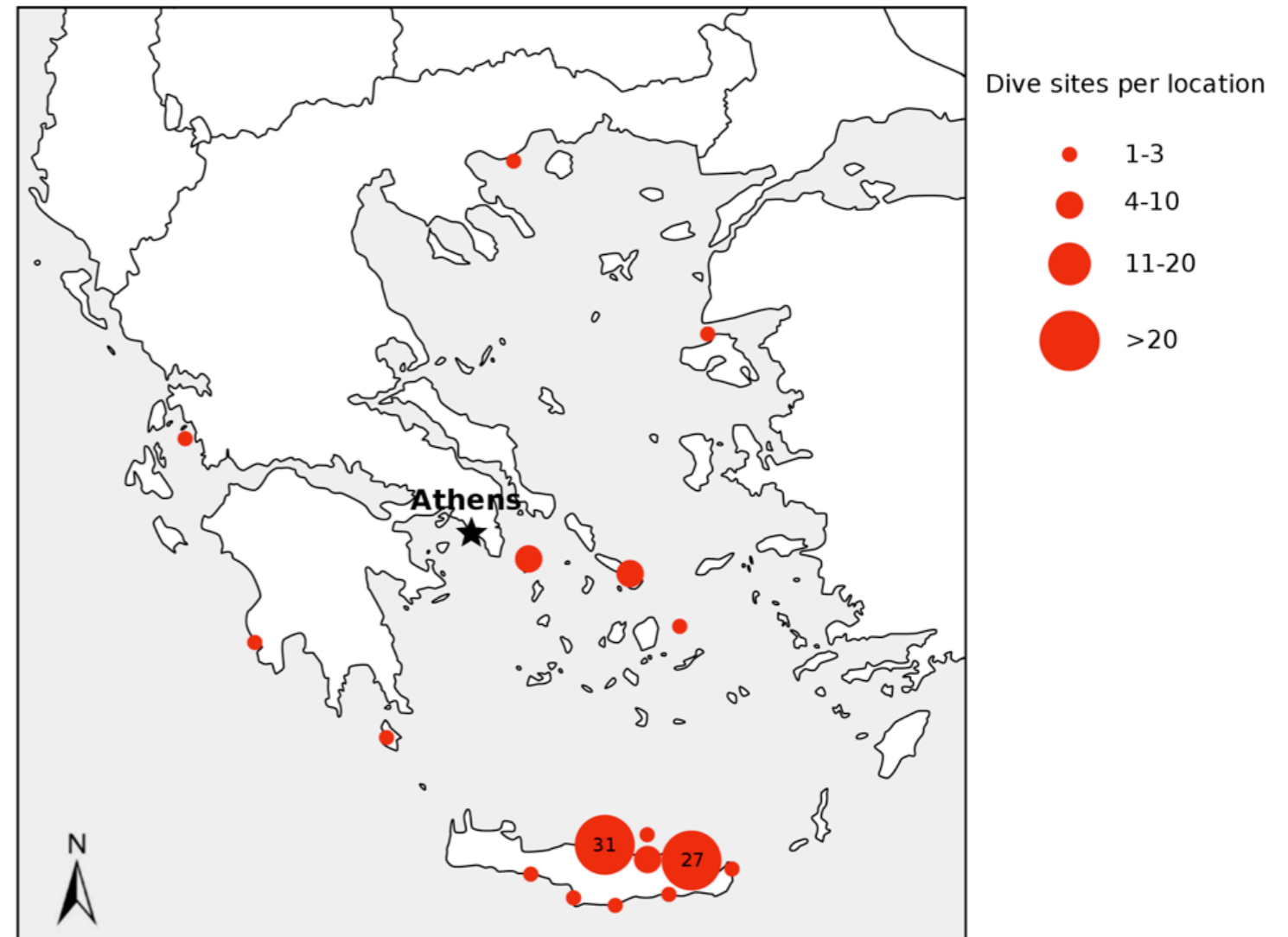


Pilot run: summer 2011 & 2012

Usage statistics

4. Diving locations and sites

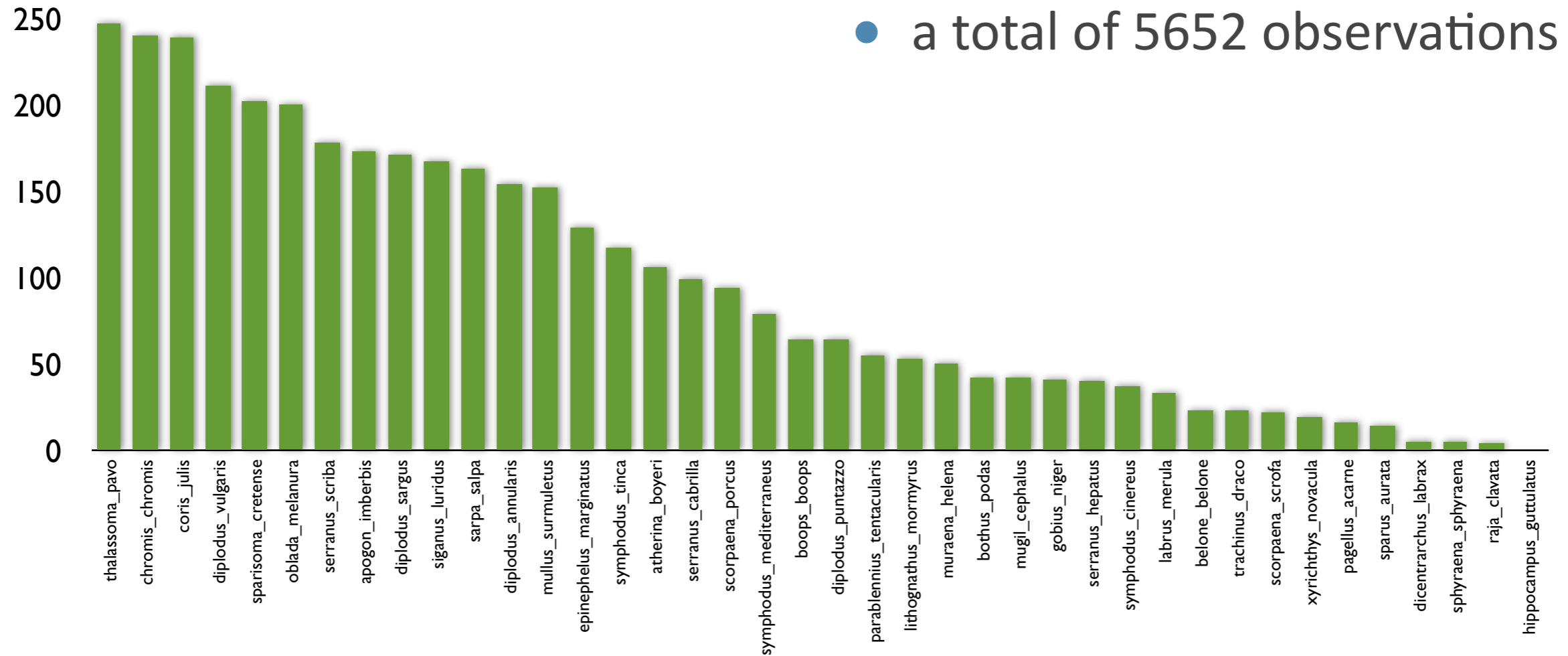
- 17 surveyed locations with 95 distinct dive sites



Pilot run: summer 2011 & 2012

Usage statistics

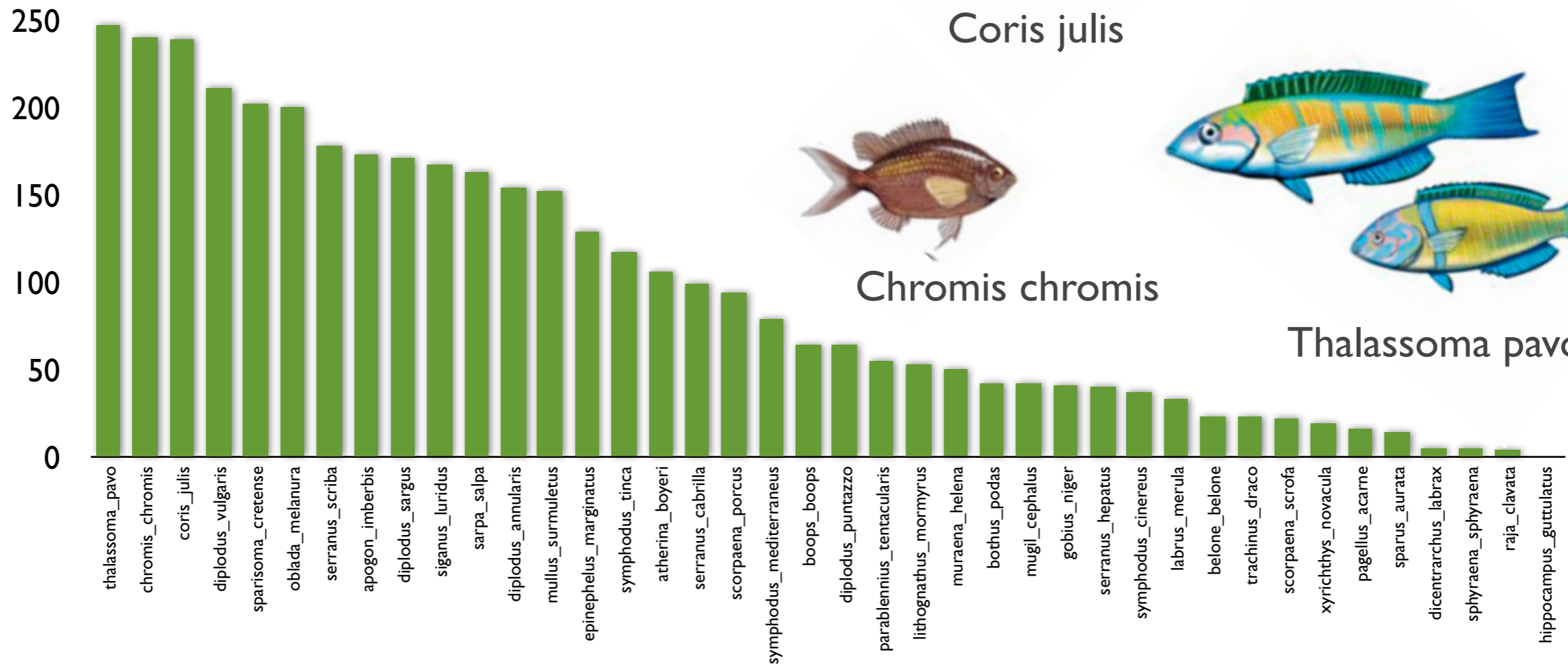
5. Species observations



Pilot run: summer 2011 & 2012

Usage statistics

5. Species observations



Coris julis



Chromis chromis



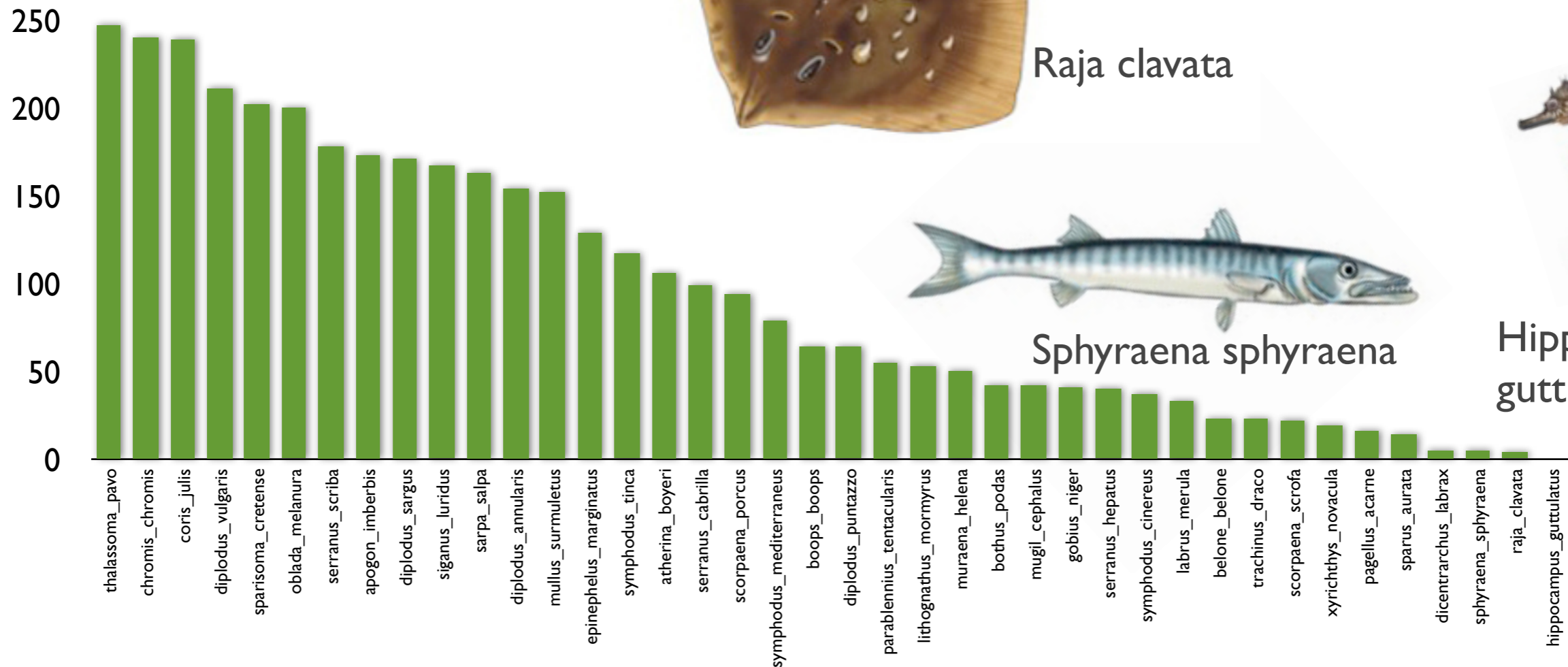
Thalassoma pavo

- the most frequently observed species

Pilot run: summer 2011 & 2012

Usage statistics

5. Species observations



Raja clavata



Sphyraena sphyraena



Hippocampus guttulatus

- the most rarely observed species

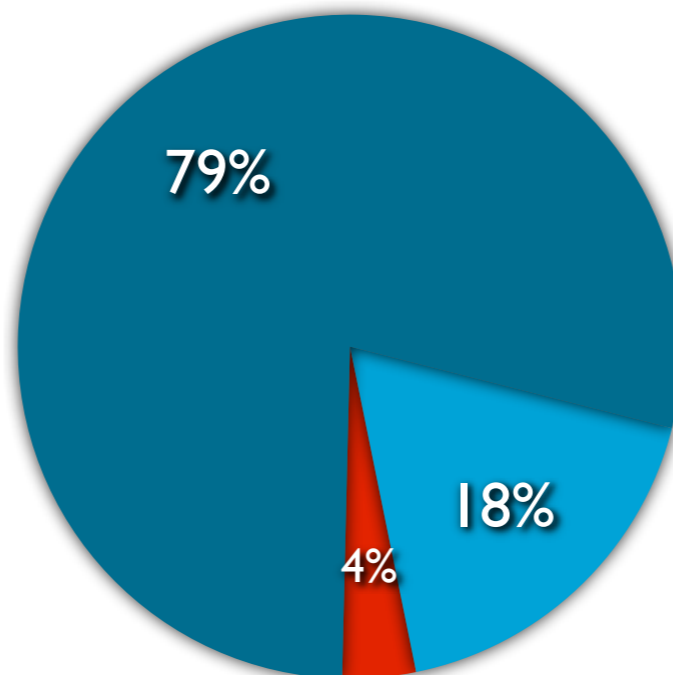
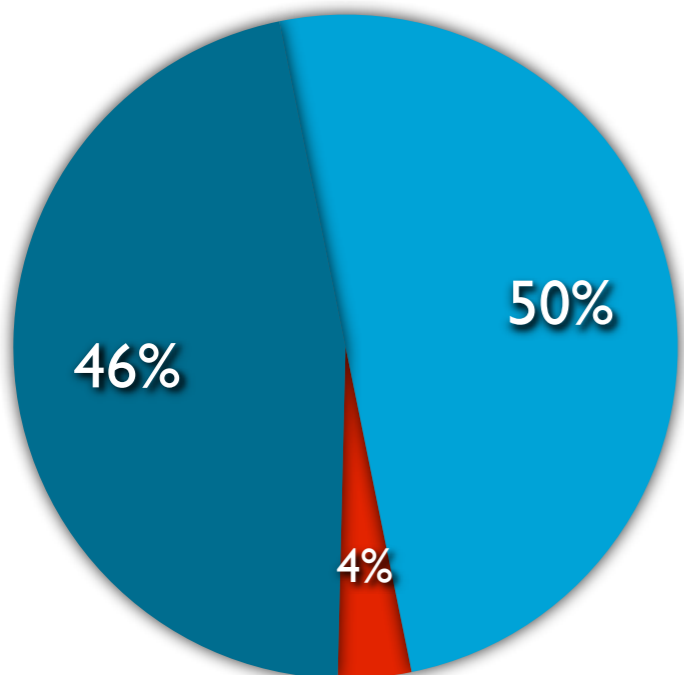
Evaluating the experience

From the users' point of view

1. Overall appraisal of the project

Project implementation

Project idea

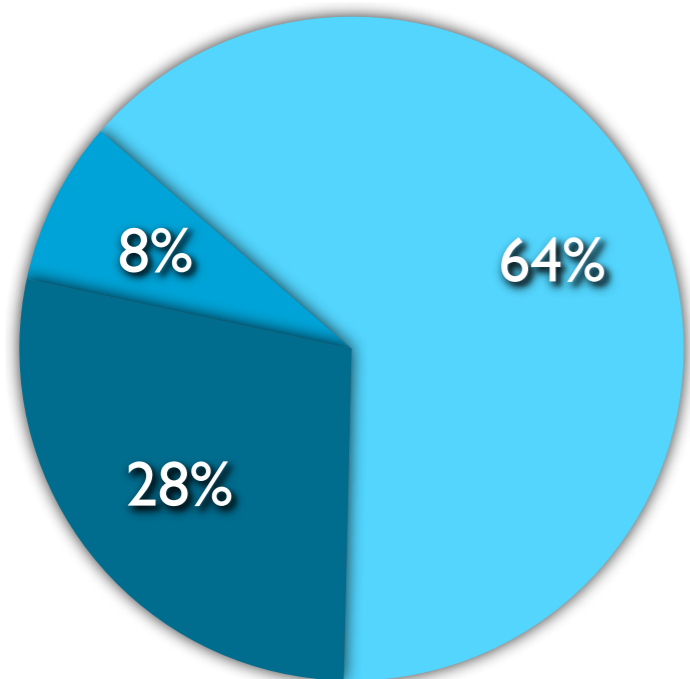


Evaluating the experience

From the users' point of view

2. Motivation

Experience in similar projects



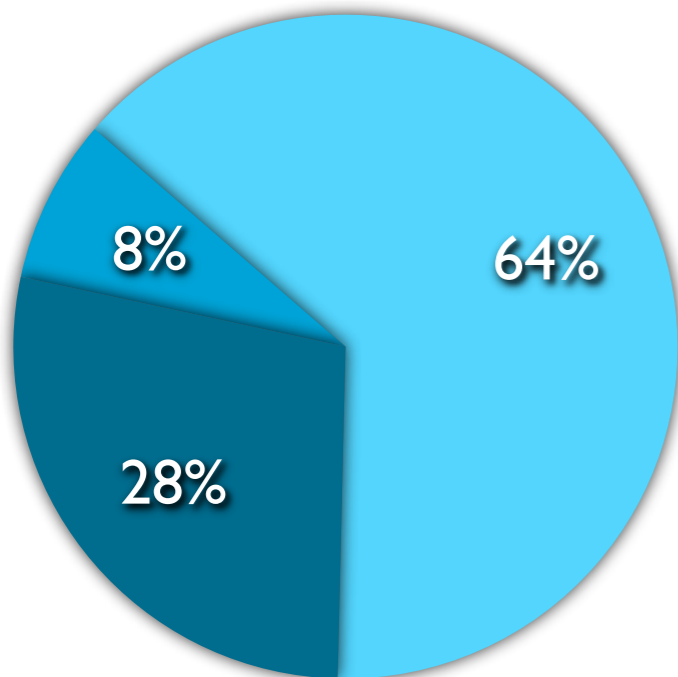
- actively engaged in volunteer projects in the past
- participated but not engaged in volunteer projects
- never participated in volunteer projects

Evaluating the experience

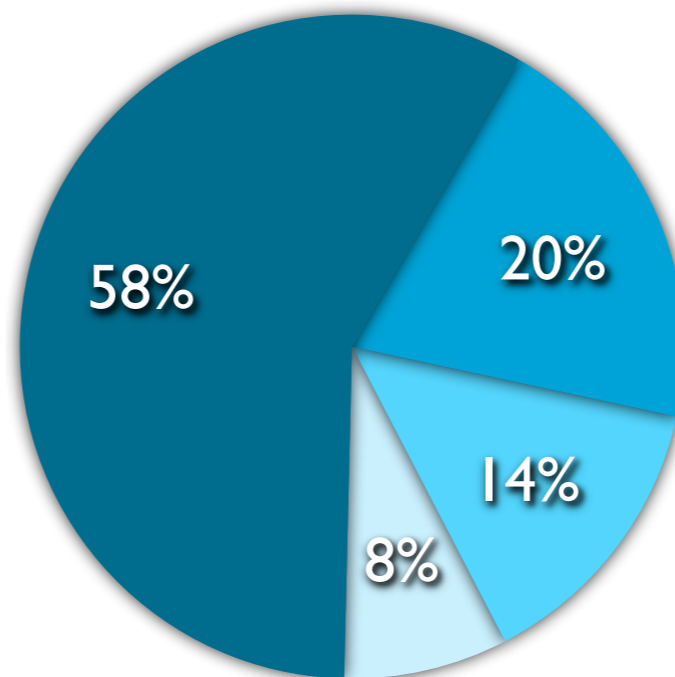
From the users' point of view





2. Motivation

Experience in similar projects



Reason for participation

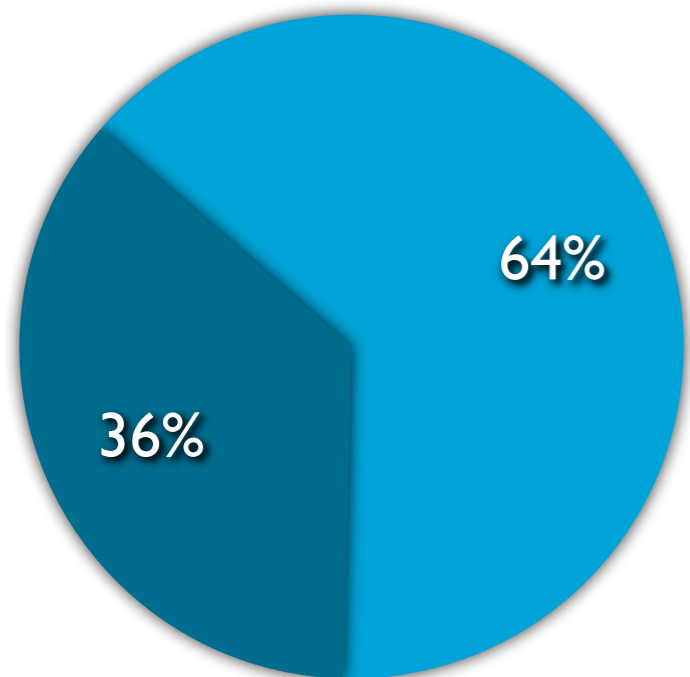


-  feeling of contribution
-  gain new knowledge
-  out of curiosity
-  friends or dive buddies wanted to participate

Evaluating the experience

From the users' point of view

3. Confidence in organism identification

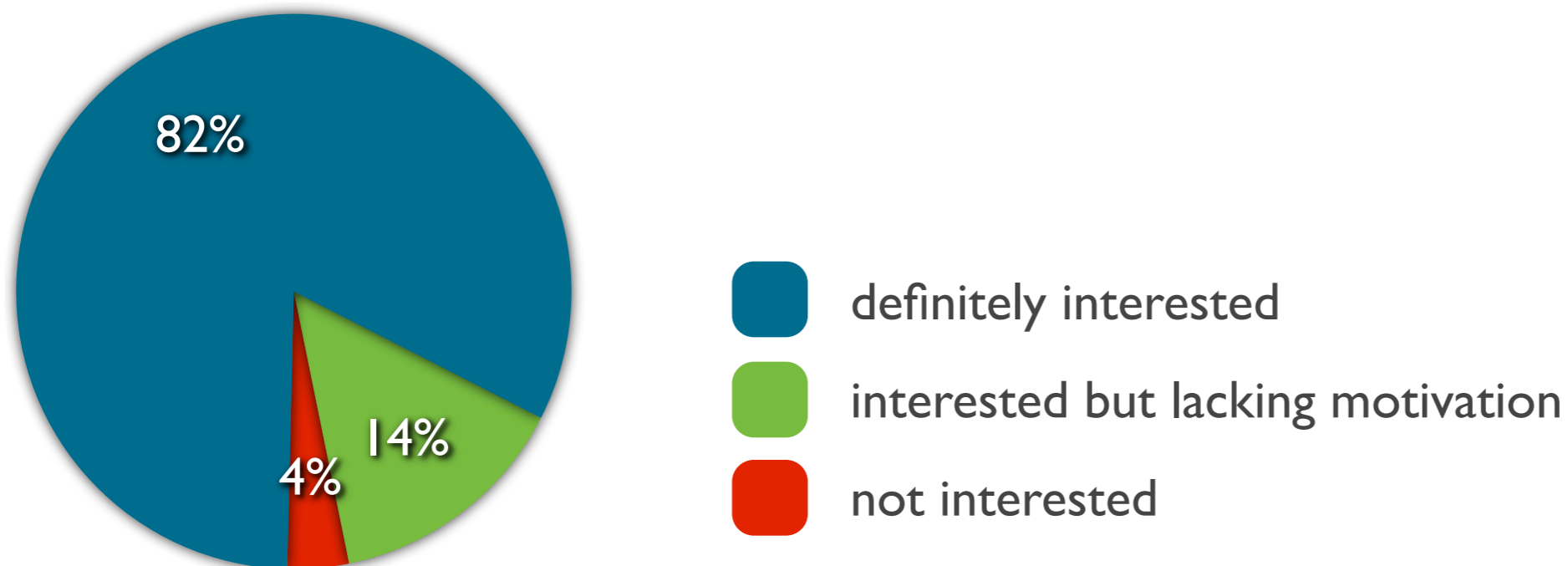


- 90% of the users considered the pre-dive briefing critical to their success in identifying the organisms

Evaluating the experience

From the users' point of view

4. Willingness to continue contribution



Evaluating the experience

From the scientists' point of view

A successful demonstration initiative

- adequate participant numbers
- abundant and useful data
- positive evaluation from the users
- users willing to carry on with participation

Evaluating the experience

From the scientists' point of view

A successful demonstration initiative **BUT...**

- heterogenous user groups with different skills and preferences
- conflicts with diving club workflow
- supervision required
- difficulties submitting data on-the-spot

Looking towards the next few years

priorities and challenges

- redefine target group towards a community driven approach
- include all marine taxa
- advance from a strictly structured to an “open” approach
- develop quality control and filtering of data
- minimize guidance, increase effectiveness