

Valorization of Marine Biodiversity to Engage Local Communities in the Design of Tailored Conservation Measures

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1. COASTAL SCIENTIFIC TOURISM (ScT) TREND

Review in progress

Search engine:



Keywords:

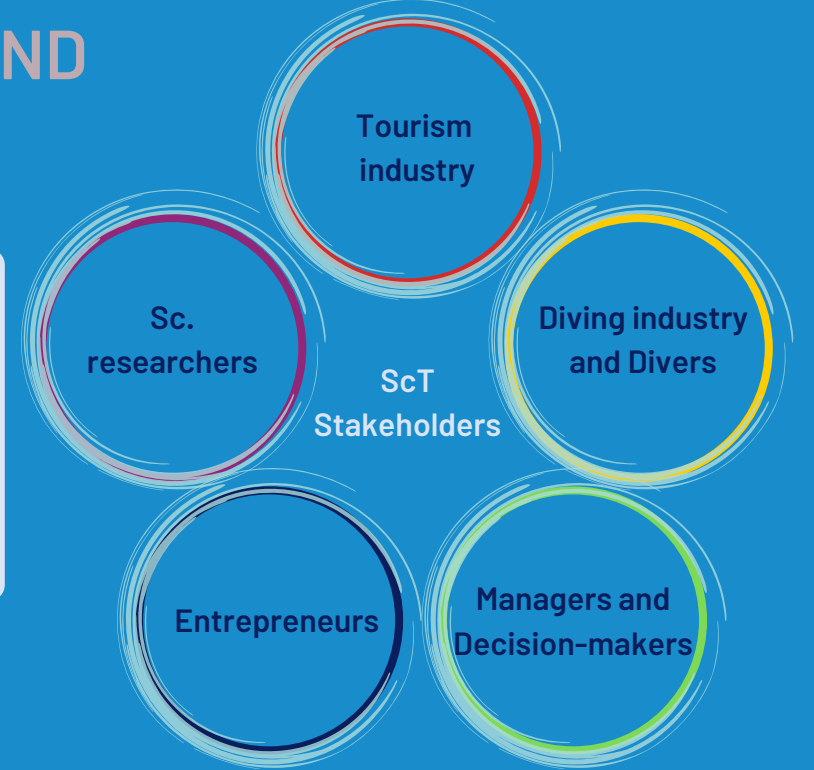
scientific tourism; tourism experience;
tourist engagement;
marine science; citizen science

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"Scientific Tourism (ScT) is an activity where visitors participate in the generation and dissemination of scientific knowledge, carried out by research and development centres".
(INST Network, Valdivia 29 April 2019)

Does ScT support Sustainable Tourism through the generation of:

- Data that can inform management decision
- Positive effects of participation in conservation measures
- Pro-conservation attitudes and responsible behavior



2. OCEAN LITERACY (OL)

Study case: Ancona

Can OL and proper awareness of local sea, drive society towards a smoother acceptance of conservation measures?

- International Ocean Literacy Survey (IOLS) to students
- Vis a vis interviews to citizens

STEPS

1. Design a semi-structured interview: 19 open-ended and close-ended questions divided into 5 sections
2. Request an ethical permit from the UNIVPM Research Ethics Committee
3. Calculate the Sample Size considering 3 factors: Population Size, Confidence Interval (CI), Confidence Level (CL)
4. Data collection: interviews and transcription from April to July 2022
5. Data analyses in collaboration with TREES North-West University of South Africa



3. HISTORICAL ECOLOGY

Study case

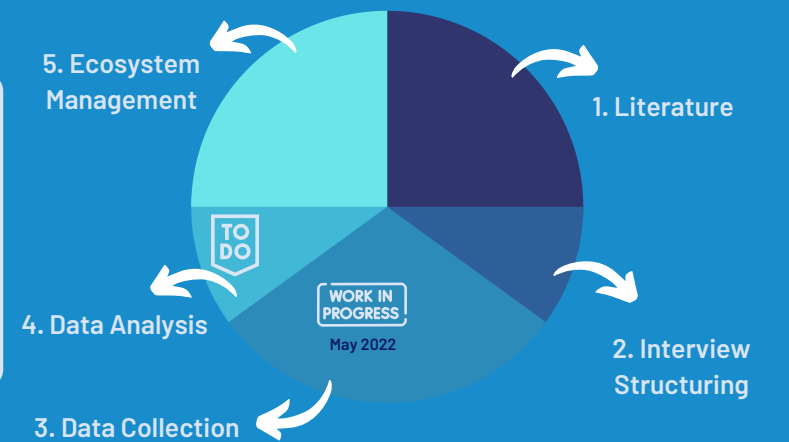
- I: Pantelleria Island
- II: Tremiti Islands
- III: Conero Riviera
- IV: Gallinara Island

Can the detection of key habitats and biodiversity loss address restoration and conservation projects?

LEK Protocol

Interview experienced fishermen or local divers to reconstruct historical changes in species abundances and distribution

- Main TARGET TAXA
- Porifera
 - Cnidaria
 - Mollusca
 - Bryozoa
 - Echinodermata



4. COMMUNITIES ENGAGEMENT

Study case: Citizen Science (CS)

Can distribution and trophy of Heterobranchia be indicators of climate change effects on benthic communities?

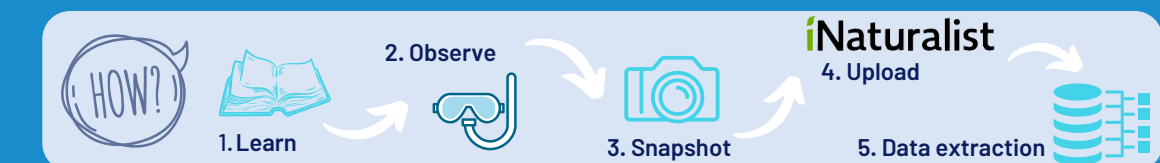
8 BENEFITS OF CS

- Achieving more participation in research
- Facilitating research on a bigger scale
- Increasing citizen engagement in scientific research
- Building a stronger connection between science and society
- Improving Ocean Literacy
- Developing new methods
- Improving openness and reliability of research
- Ensuring that citizens understand scientific research even better

WHY SEA SLUGS?

Shapes and colors make them increasingly attractive for underwater photographers, especially along the Conero Riviera.

Species-specific diet, generally oriented towards Porifera and Cnidaria, two of the phyla most sensitive to climatic warming.



- DATA CHARACTERIZATION:
- Taxonomy
 - Trophy
 - Distribution

5. HETROBRANCHIA PHENOLOGY AND CLIMATE CHANGE

Study case: Conero Riviera

Does climate change affect the Heterobranchia life cycle?

WHY SEA SLUGS?

- Lack of ecological investigations into their temporal variability
- Benthic egg masses and usually visible to naked eye
- Species-specific egg mass
- Relationship between embryonic development and climate change is poorly understood

1. Underwater egg masses sampling
2. Laboratory eggs maintenance and veligers culturing
3. Larval development experiments with temperature manipulation
4. Observations of egg size, embryonic development and hatching larvae

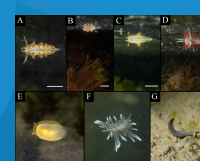
CAREER DEVELOPMENT PLAN

TASKS	YEAR 1	YEAR 2	YEAR 3
1. Scientific Tourism trend	Nov Jan Mar May Jul Sep	Nov Jan Mar May Jul Sep	Nov Jan Mar May Jul Sep Nov
2. Ocean Literacy			
3. Historical Ecology			
4. Communities engagement			
5. Hetrobranchia phenology and climate change			
Ph.D. Final Report			

Expected submission of Sc. paper

PUBLICATIONS

Riccardi, A., Colletti, A., Virgili, R. & Cerrano, C. (in press). Diversity and behavior of sea slugs (Heterobranchia) in the rocky tide pools of Conero Riviera (western Adriatic Sea). *European Zoological Journal*.



...and first observations of upside-down floating behavior in this area

...connecting ocean science and education for sustainable development..