



Coastal cultural ecosystem services and human wellbeing, a case study to approach the complex relation between people and nature

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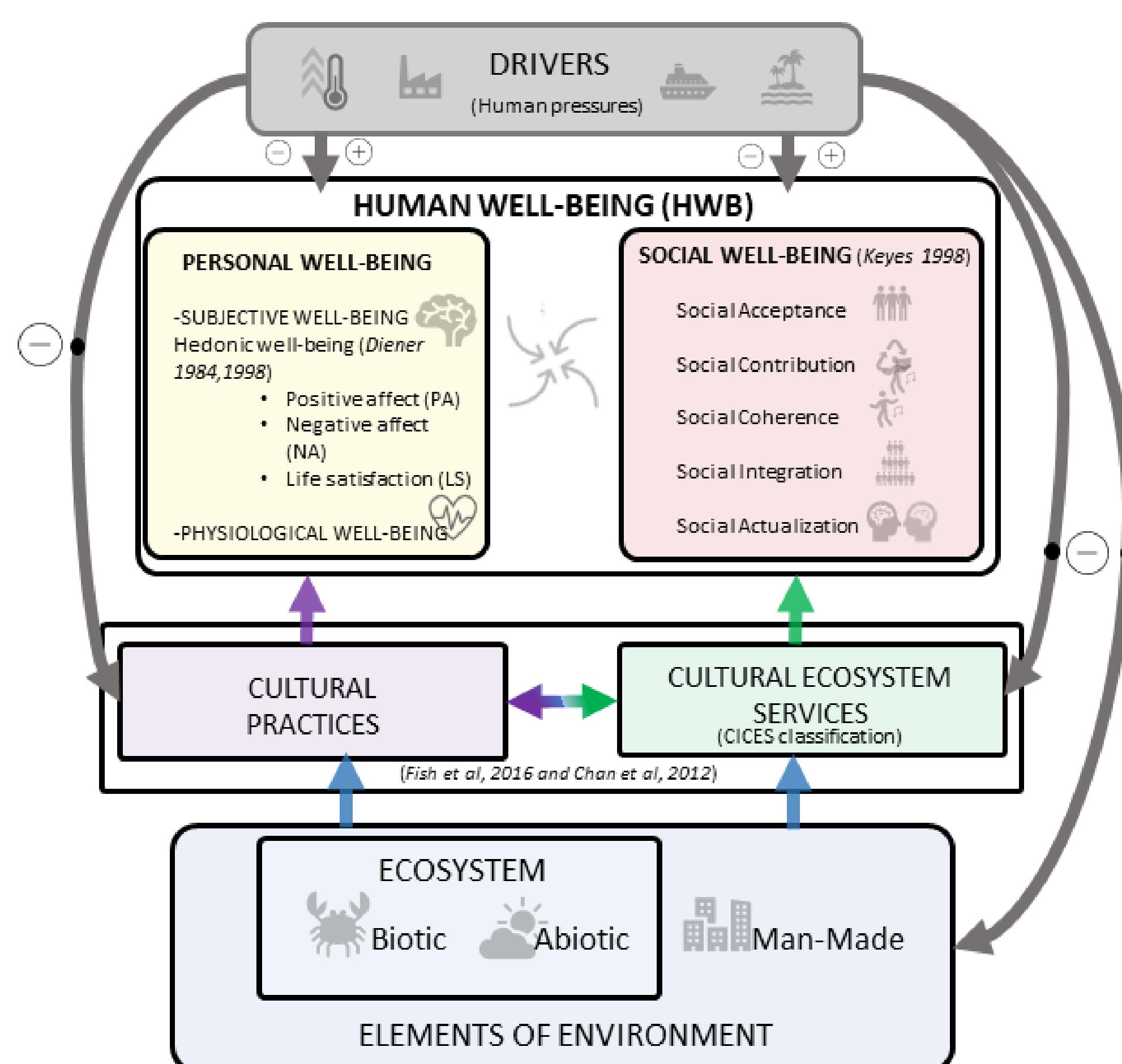
Gap of knowledge. The benefits people obtain from their interaction with the coastal systems has been studied across multiple disciplines and frameworks. Yet this body of literature often neglects groups of age as teenagers which makes the generated evidence to be incomplete to inform environmental or health policy.

Scope. In this research, we aim at disentangling how teenagers engage with the coast, and how this relation is underpinned by Cultural Ecosystem Services (CES) and contributes to their personal and social wellbeing. Here we acknowledge the complexity of the linkages amongst people, the coastal environment, and its state of conservation. Thus, by integrating key concepts from ecosystem services, psychology, social sciences, and environmental conservation we create evidence on the less tangible connections (cultural and psychological) between teenagers and the coast.

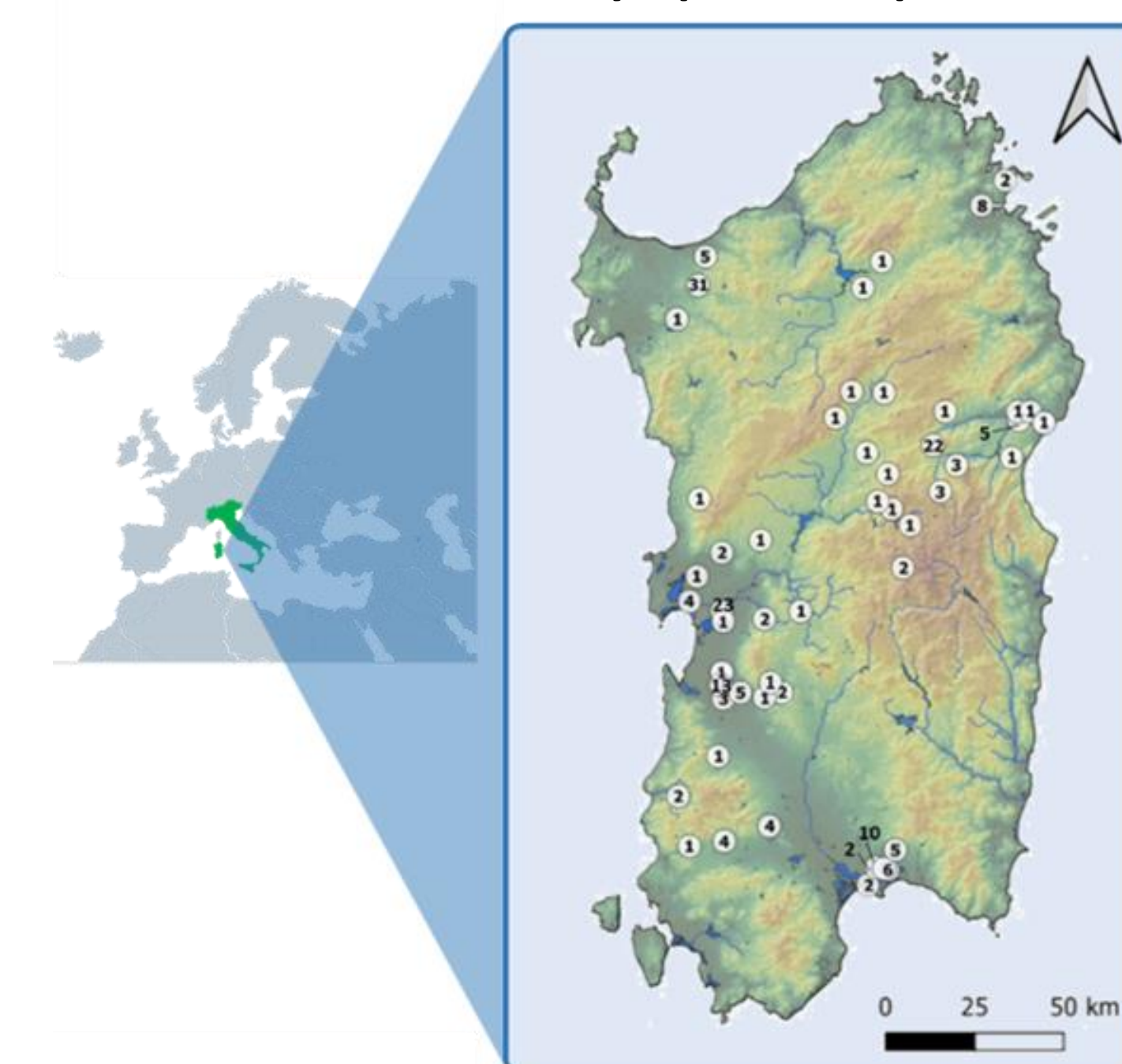
The applied Framework, aims to find how teenagers engage with the coast by applying two fundamental frameworks;

1. Cultural Ecosystem Services
2. Subjective human well-being

The figure shows the rationale for defining the links between the coastal environment, cultural ecosystem services human wellbeing.



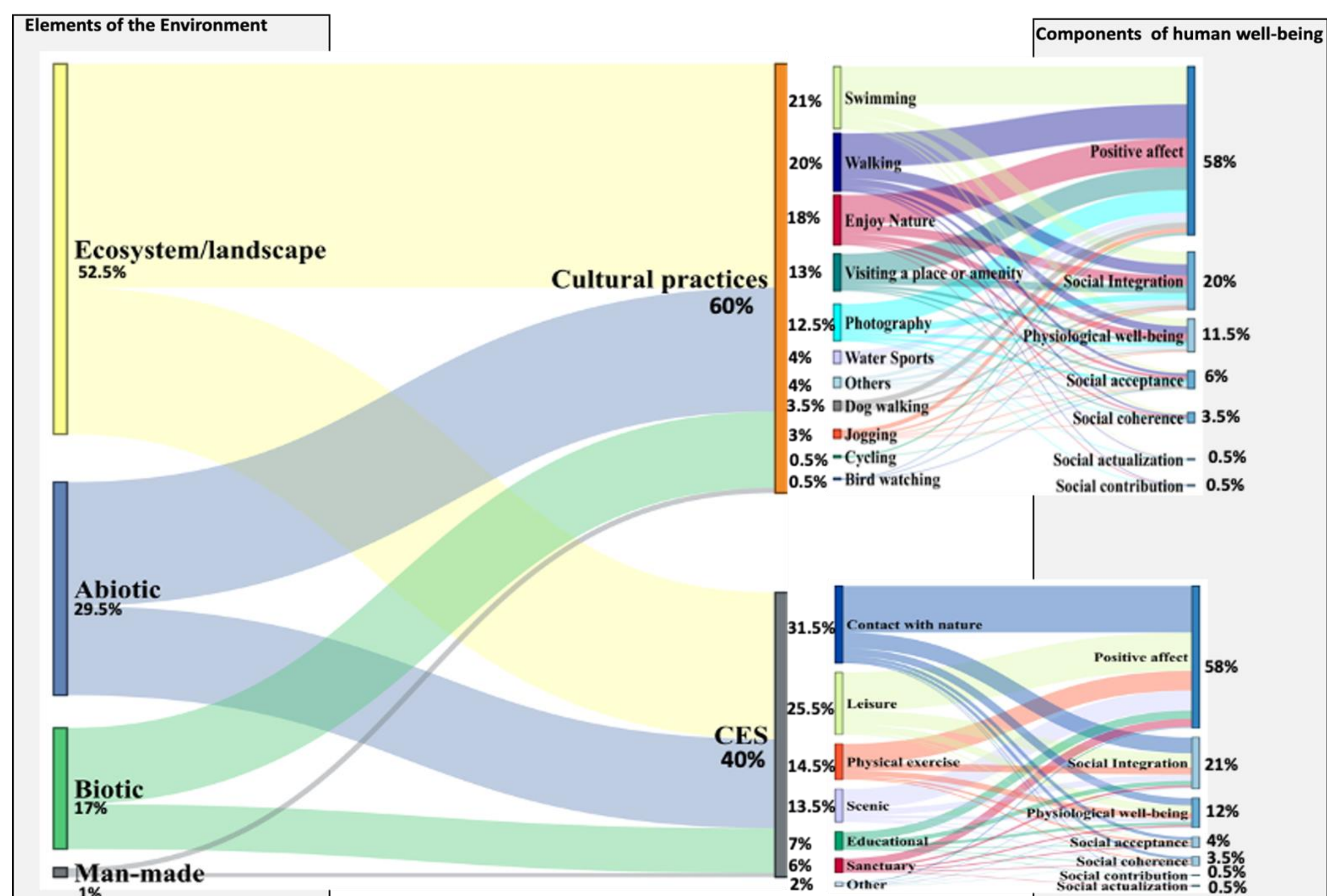
Methods. We conducted the survey from January 2019 to January 2020 distributing paper-based questionnaires to groups of students between 16-17 years old. A total of 202 completed questionnaires of 8 public schools distributed along the Sardinian territory participated in this research.



The Results show that teenagers appreciate the environment mostly from an ecosystem or landscape optic which contributes providing space for different cultural practices (mostly swimming, walking, enjoy nature, and visiting a place or amenity) and CES (mostly contact with nature, leisure and physical exercise).

The novelty of our approach is the further results where teenagers reflect on how these activities and CES contribute to their personal and social well-being. In this regards our results show how teenagers interacting with the coast acknowledging an increase on *positive affect*, *Social integration*, *Physiological wellbeing*, *Social acceptance* and *Social coherence* (table below).

HWB	Terms	Sentences and concepts
Personal wellbeing	Positive affect	Relaxation, calmness, joy, disconnection, peace, free mind, serenity, love, etc.
	Physiological wellbeing	Healthy, vitamin D, blood circulation, etc.
Social wellbeing	Social integration	Friends, my people, etc.
	Social coherence	Be part of nature, etc
	Social acceptance	Sardinian peoples, strong cultural values, and tradition, etc.



Conclusions. Based on our results, nature health state effects on personal and social wellbeing and the level of interaction amongst the studied elements are measurable. Thus, we advocate on informed environmental conservation policy for improving human wellbeing. Coastal governance (e.g., Marine Spatial Planning) and management tools as MPAs, which are commonly driven by environmental and economic aspects, need to expand towards integrating human wellbeing and cultural ecosystem services at the centre of their objectives. Applying new integrative frameworks summed to the development of new multidisciplinary indicators contributes to access information for balanced management on benefit of nature and people personal and social life.