

# **EXPLORING PEOPLE'S PERCEPTION TOWARDS MARINE BIODIVERSITY IMPROVEMENT: THE CASE OF ROCKY HABITATS IN THE ADRIATIC SEA**

## **ABSTRACT**

*Understanding the importance of marine biodiversity and its value are fundamental for designing appropriate conservation and protection policies. Also, the success of these policies is closely related to how people perceive marine biodiversity. The study was conducted in the North Adriatic Sea and analysed the biodiversity perception of rocky habitats, locally named Tegnùe, by the local population.*

## **KEY-WORDS**

*Marine biodiversity; Perception; Attitude; Marine conservation.*

## **INTRODUCTION**

Coastal and marine ecosystems provide environmental goods and services that are essential for our well-being (Beaumont et al., 2007). These important ecosystems hold high rate of biodiversity but they are also highly vulnerable and under the pressure caused by human activities and natural factors. Understanding the importance of marine biodiversity and its value is fundamental for designing appropriate conservation and protection policies. On the other hand, the implementation and the success of these policies are closely related to how people perceive marine biodiversity. Understanding people's attitudes is important to researchers because attitudes determine how people perceive and implement actions. Researchers have shown particular interest in understanding public attitudes towards environmental problems as demonstrated by numerous studies published by social scientists. The economic literature shows that biodiversity perception is not uniform across the population, and such diversity is likely to impact upon methods to catalyse societal engagement with marine conservation. The aims of this contribution is to present the results of several focus groups organized with local residents to better understand people's knowledge of a particular marine ecosystem localized in the North Adriatic Sea, the *Tegnùe*, and to investigate their perception regarding biodiversity conservation policies and measures.

## **MARINE BIODIVERSITY AND ITS PERCEPTION**

The role of marine biodiversity as an indicator of environment health and ecosystems functioning is largely recognized not only by scientists, but also by mass media, decision makers and public opinion (Aarts and Nienhuis, 1999).

Biodiversity provides an array of ecosystem services that can be synthesized as: provisioning, regulating, cultural and supporting services (Nunes et al., 2001; de Groot et al., 2012). The value of biodiversity derives from its role in the provision of ecosystem services, and from the demand for those services, as a normal market. This is one of the reasons

why economists have typically valued the individual components of biodiversity or specific services yielded by ecosystems biodiversity, rather than ecosystems biodiversity themselves. Whyte (2011) defined environmental perception as “the means by which we seek to understand environmental phenomena in order to arrive at a better use of environmental resources and a more effective response to environmental hazards”. Several study demonstrated that environmental governance of biodiversity is influenced by our perception (Vodouhê 2010). This is so because governance is a decision making process, which is heavily influenced by cognition and perception.

European policies have encouraged the implementation of systems for marine biodiversity conservation and have stimulated studies on perception and the Convention on Biological Diversity makes an explicit reference to recognize the importance of public education and awareness to promote conservation and sustainable use of biodiversity. The acquisition of more knowledge and information shapes our perception of the environment, thus, leading to changing approaches to biodiversity governance and management (Potts et al. 2011).

## **MATERIALS AND METHODS**

The study was conducted in the North Adriatic Sea characterized by shallow waters with sandy seabed and some rocky habitats, locally named *Tegnùe*, in which there is high biodiversity richness. The marine rocky habitats embody high geological and biological variability and are important for their exceptional biodiversity and their fundamental role in the costal ecosystem. The ecological and environmental role played by the *tegnùe* is peculiar because as well as being true oases of biodiversity, they are areas naturally protected against bottom trawl fishing. They offer refuge and reproduction sites for a number of fish and invertebrate species. Specific studies carried out over the last years have underlined the scientific importance of these rocky habitats, revealing a very high number of zoobenthic species, including those which are now rare and, therefore, protected in Italian seas (Casellato et al., 2007). However, these areas are recently experiencing a loss of biodiversity as a consequence of human activities such as over-fishing and environmental contamination. In particular, among the negative impact on the conservation of local biodiversity there is the loss of fishing equipment (e.g. nets, traps, metal tools), a phenomenon known as Abandoned, Lost or Discarded Fishing Gears (ALDFG). The ALDFG causes considerable damages to the natural environment, such as covering nesting places, continuous rubbing of stone surfaces, shading, and accidental entrapment of marine protected species.

Our work presents the results of four focus groups organized in February and May 2014 with the residents of Venice, selecting a total of 32 participants among the population. The purpose of these meetings was to reveal the extent to which people were aware of the existence of *tegnùe* ecosystem and its biodiversity. People’s perceptions of marine biodiversity were generated by asking them the benefits that the area provides, the

main threats suffered by the ecosystem, and, finally, which interventions they will support or not for protecting this ecosystem.

## **RESULTS**

We found that most of the participants did not know the *tegnùe*, and only few people had some personal and direct experienced with them. Almost all participants were surprised of the great variety of species hosted by *tegnùe*, and they were even more surprised by the fact this big variety of biodiversity could be found in the Italian Adriatic Sea, and so closed to them. All participants agreed that this beautiful ecosystem has also a lot of vital functions and provides important environmental goods. On the other hand, the *Tegnùe* is a delicate and vulnerable environment that is threatened by different causes that, in the opinion of our respondents, the main are pollution, waste abandoned, excessive over extraction of natural resources, and destructive fishing practices. The instruments and policies people preferred for reducing the decline of biodiversity and the environmental damages in these habitats are the reduction of pollutant discharges, to put some restrictions on fishing activities, to design a marine reserve, and to educate and provide more information to the residents. People strongly agreed to the potential establishment of a marine park and they are firmly convinced that the best managing authorities are the environmental organizations or the research institutions but not the central or regional governments.

## **CONCLUSIONS**

In the scientific literature there is a general consensus that the lack of knowledge on biodiversity is considered one of the main causes of biodiversity loss (de Groot et al., 2012). Moreover, biodiversity works at different levels, such as genes, species and ecosystems. This makes the valuation and understanding of biodiversity more complicated, especially for common people and they necessitate to be assessed in a different way. Several studies demonstrated that environmental governance of biodiversity is influenced by people's perception (Vodouhê 2010), that is influenced by many factors such as the education level, the community involvement in management strategies, the degree of awareness of marine biodiversity, and many others. This research aimed to understanding the factors which influence people's connections with marine biodiversity, and their attitudes towards biodiversity conservation and protection.

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