European Commission

Science for Environment Policy

IMPASEA: a new framework to assess marine protected areas

26 November 2015
Issue 437

Subscribe to free weekly News Alert

Marine protected areas (MPAs) have well-reported ecological benefits, but may also have important socioeconomic effects on local communities. Existing methods to assess these effects have been hampered by a number of limitations. This paper describes a new framework to monitor and assess the socioeconomic effects of MPAs, which overcomes many of these limitations to provide greater value for decision makers.

Source: Rodríguez-Rodríguez, D., Rees, S., Rodwell, L. & Attrill, M. (2015). IMPASEA: A methodological framework to monitor and assess the socioeconomic effects of marine protected areas. An English Channel case study. *Environmental Science & Policy*, 54, pp.44-51. DOI:10.1016/j.envsci.2015.05.019

Contact: david.rodriguez-rodriguez@plymouth.ac.uk ; davidrgrg@yahoo.es

Read more about:
Environment information services, Marine ecosystems, Sustainable development and policy assessment

To cite this article/service: "Science for Environment Policy": European Commission DG Environment News Alert Service, edited by SCU, The University of the West of England, Bristol.

The ongoing decline of marine biodiversity has spurred efforts to conserve marine ecosystems. MPAs have become an important method of achieving this and now cover 3.4% of marine area across the globe. In addition to their ecological benefits, MPAs may have social, economic and cultural effects on local communities, such as increased costs for fishermen or restrictions on tourism. It is important to understand what the consequences of establishing a MPA may be, in order to maximise the positive effects and mitigate the negative repercussions.

There have been numerous attempts to assess the effects of MPAs on local communities, but these have been limited by a number of factors. For example, most have focused on narrow groups of stakeholders, which neglects the impact on the broader community. Furthermore, indicators tend to be qualitative, which are subjective and hard to verify. Combined with the fact that these tools are generally based on different approaches, assumptions and resources, they have had limited use for decision makers.

There is a need for a simple, cost-effective and robust technique to monitor and assess the socioeconomic effects of MPAs. This study aimed to develop such a framework, for use in management, decision making and reporting. The framework, called the Integrated MPA Socio-Economic Assessment (IMPASEA), was developed through the EU-funded PANACHE[1] project. It was created through a mixed-method approach, including both qualitative and quantitative methodologies.

Development began with a literature review. Using a web search, the researchers identified marine and coastal stakeholder categories relevant to Europe and a list of socioeconomic variables likely to be influenced by MPAs. To reduce result bias, they aimed to find a balance of variables and categories representing both positive and negative effects.

In the second stage, the researchers identified national or regional (intra-national) organisations belonging to the stakeholder categories. As the initial proof of concept was focused on the English Channel, those organisations were in the UK and France. Representatives were surveyed using an online questionnaire in order to identify social and economic variables important to their organisations, such as visitor satisfaction and maritime activity.

In the final stage, the researchers assessed the effect of a small sample of multiple-use MPAs in the English Channel on the selected socioeconomic variables applying a geo-statistical, Multiple-Paired-Before-After-Control-Impact research design (MPBACI). This is a robust variation on BACI, a common method for assessing environmental impacts. In this study, it was used to assess the impact of MPAs by comparing data before and after the implementation at both potentially impacted and control sampling units. The authors analysed data from multiple coastal municipalities within and adjacent to MPAs using official statistics, which were easy to access, objective, consistent and cost-effective.

In addition to its cost-effectiveness, the tool overcomes several other limitations of existing methods for MPA socioeconomic assessment:

Continued on next page.

1. Protected Area Network Across the Channel Ecosystem (PANACHE) is funded by the European Union INTERREG IVA France – England Programme. See: http://www.panache.eu.com ; http://www.interreg4a-manche.eu

26 November 2015
Issue 437

Subscribe to free weekly News Alert

Source: Rodríguez-Rodríguez, D., Rees, S., Rodwell, L. & Attrill, M. (2015). IMPASEA: A methodological framework to monitor and assess the socioeconomic effects of marine protected areas. An English Channel case study. *Environmental Science & Policy*, 54, pp.44-51. DOI:10.1016/j.envsci.2015.05.019

Contact: david.rodriguez-rodriguez@plymouth.ac.uk ; davidrgrg@yahoo.es

Read more about:
Environment information services, Marine ecosystems, Sustainable development and policy assessment

European Commission

Science for Environment Policy

IMPASEA: a new framework to assess marine protected areas *(continued)*

- **Representation** is improved due to participation of a broad and balanced set of relevant stakeholder categories and organisations within each category
- **Objectivity** is enhanced via structured questionnaires with both closed- and open-ended responses representing organisational stances
- **Salience** is promoted by focusing on the analysis of the variables considered most important for the set of stakeholder organisations
- **Accuracy** is increased thanks to IMPASEA's MPBACI design
- **Robustness** is enhanced as three different methods (evidence from the literature, survey and geo-statistical analysis) are used to validate the results

IMPASEA is also versatile. It can be applied to individual MPAs or MPA networks (provided they have similar levels of legal protection and management effort), and in any context with consistent, fine-scale socioeconomic data (which includes some European countries).

However, IMPASEA does have its limitations. In testing, a scarcity of consistent official data on mostly social variables made quantitative analysis difficult and limited IMPASEA's salience for end users. Although there is room for improvement, the authors say IMPASEA represents a robust, balanced, participative and meaningful tool to assess the socioeconomic impact of MPAs.

The authors say the tool should be trialled on a larger number of MPAs to confirm the applicability of the framework. Looking ahead, the framework could be extended for assessments on land, where environmental and socioeconomic statistics are generally more abundant.