

POLICY BRIEF

N°2, April 2016



The ResponSEAbLe project

ResponSEAbLe is a Horizon 2020 project on Ocean Literacy, which aims at supporting the emergence of an effective and dynamic European ocean knowledge system that contributes to raising awareness on everybody's (individual and collective, direct and indirect) responsibility and interest in a healthy and sustainable ocean. It has a regional focus in all European regional seas: the Baltic, Black, Mediterranean, North seas and the Atlantic ocean.

On board are experts from fifteen countries, representing various organizations, including researchers with expertise in marine sciences, environmental policy and communication, social-economic tools, artists, and multi-media.

Trim your sails to the wind!

Why do you want to read this policy brief?

One of our stops is a series of Policy Briefs, in which we will define the place and role of Ocean Literacy, its position within the policy context, and begin the discussion on what kind of knowledge we need to ensure that Ocean Literacy supports change in behavior and in the implementation of marine policies. The policy briefs will allow following the project process and results for policy makers, and wider audience. Published every six months, ResponSEAbLe Policy Briefs will take you on a journey where you will explore with different regional issues and policies, follow testing of ocean literacy products and their efficiency to find the most cost effective ones and put them to practice.

The ResponSEAbLe journey on Ocean Literacy continues

In the previous policy brief we discussed who is Ocean Literate?

Anyone who knows...

- Our seas and human-ocean relationships...
- The functioning of our society and economy...
- What is required to change behavior... is aware of their complexity and of the challenges one is likely to face when addressing all three dimensions simultaneously.

At this second stop (policy brief) of the journey we explore how we propose to contribute to the debate on ocean literacy so it enables changes in behavior. We will discuss the following three issues:

- There is a vast amount of knowledge on the oceans and the human-ocean relationships. But what should we (people) know to be considered as "ocean-literate"?
- How knowledge should be organized, so human-ocean connections are made more explicit and can be more easily understood?
- Who in our society should "change behavior" so pressures on the oceans are reduced? To investigate this question, we propose to investigate the chains of values that are linking different stakeholders from the activity effectively impacting on the sea to final consumers

Which knowledge should ocean literacy build on?

When human activities are described and presented, there is often a focus on activities and actions that have a direct impact on marine ecosystems, e.g. fisheries, tourism on the coast, etc.

Even though some of the specific ocean problems (e.g. the stranding of whales on the beach, the floating plastics at sea, or even the sea-level rise

because of climate change) have transcended to society, and resulted into behavioural changes, it is still very difficult for scientists to explain about - and broader society to understand - the complexity of ocean ecosystems and to know where they can act responsibly (Uyarra et al 2016).



The implementation of marine policies relies strongly on technical/technological solutions, regulation (e.g. thresholds in chemical quality or pollutants or fish efforts) and financial incentives targeting specific sectors or environment. However, there is increasing attention given to soft approaches aimed at enhancing knowledge on the challenges of the marine ecosystems, with the assumption that this will help individuals (consumers, citizens, workers...), economic sectors, public bodies and elected representatives to better understand and thus adapt their actions and decisions. However, it is rare that produced knowledge focuses on the activities of everyday consumers (purchasers of fish products, purchasers of goods produced in other continents and transporter by cargoes, as users of internet making use of submarine cables), users of agriculture products (as intensive agriculture is leading to nitrate pollution and eutrophication); energy users who rely on energy including from marine-based renewable; users of drinking water and sewage services on (highly populated) coastal areas which treated effluent ends into the sea.

The ecosystem services approach provides the link between environmental status and provision of services to people, and helps people to understand how the oceans influence people (TEEB, 2012). However, despite being popularized in recent years, it remains an approach understood by academics, experts and policy makers. Furthermore, it does not sufficiently describe the organization of the economy (interconnected economic operators, producers and consumers) that stands behind the human use of the ecosystem services delivered by the ocean.

Overall, knowledge on how to “do better” and what is in the hands of people for reducing pressures on marine ecosystems is rarely central to the knowledge they have access to. When possible changes in behavior are illustrated, these are often limited to “best practices” for the sectors imposing a direct pressure on the marine ecosystems.

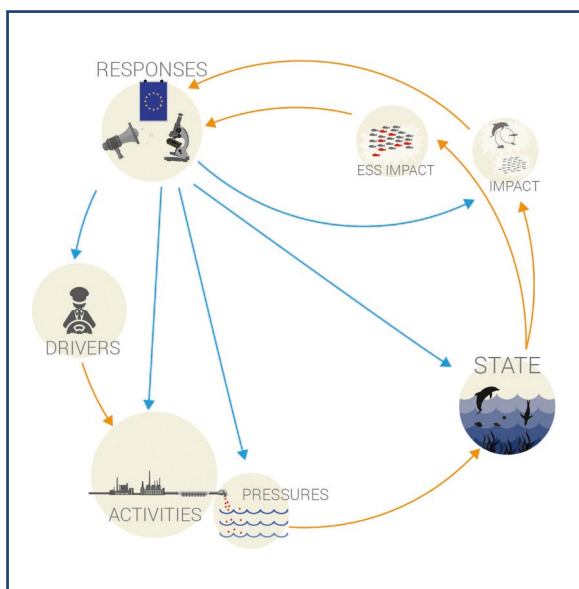
How to structure knowledge relevant to ocean literacy

In order to build a framework which can help structuring knowledge on the human-sea relationships that is required for ocean literacy to support “behavioural changes”, we have developed our own framework expanding on assessment frameworks currently used in environmental policy making.

As indicated in the first policy brief of this series, the Driver-Pressure-State-Impact-Response (or DPSIR) framework has been used to describe different environmental issues and support policy assessment and evaluation (Smith et al. 2014). However, one of the main limiting factors of the DPSIR framework is that it ignores the multiple dimensions of causality inherent to complex environmental and socio-economic systems (Sundblad et al., 2014). It also does not capture the socio-economic relationships of actors that will, directly or indirectly, impact on the status of marine ecosystems.

To better capture these socio-economic relationships, and some of the logics of our economies, we propose to use the so-called DAPSI(W)R framework that builds on recent developments carried out in research projects (i.e. DEVOTES, MARS, ODDEM) and considered in policy development (e.g. DG Environment, 2014) and relevant publications (e.g. Elliott 2015). The DAPSI(W)R approach (after Elliott 2014) considers that **Drivers**, which are the main social, demographic, economic and cultural developments in society (e.g. population growth), that lead to changes in life styles, overall levels of consumption and production patterns, require a set of **Activities** (considered as the causal relationships between demands that society places over the environment: energy supply, food security, transport, recreation...) to respond to these changes' needs. The **Activities** may cause multiple **pressures** (e.g. trawling), which may lead to State changes (e.g. substrate abrasion) in the natural system. **State changes** may result in Impacts, on the environment (e.g. benthic community changes and ecosystem services) and on human **Welfare** (e.g. food provision changes). And these impacts will need to be addressed through a variety of **Responses** (e.g. involving economic, technological, legal etc. approaches) targeting different components of the DAPSI(W)R framework. It needs to be highlighted that not all pressures lead to either environmental or welfare impacts. Furthermore, environmental impacts do not necessarily lead to welfare impacts or changes in the provision of ecosystem services.





The ResponSEable project will use the DAPSI(W) R framework for organizing and structuring existing knowledge on the link between human activities and the marine ecosystems so it can feed into the development of ocean literacy initiatives and products.

The ResponSEable framework for organizing existing knowledge on the human-ocean relationships:

» Includes Drivers, Activities, Pressures, State, Impacts (Welfare) and Response as key components;

» Highlights the linkages between these components, making causal relationships between responses, (human) activities and the state of marine ecosystems more explicit and visible;

» Helps identifying underlying factors that influence a specific human-ocean relationship, be it positive or negative, strong or weak.

Actors and value chains

In order to better understand the Activities component of our framework, we need to investigate the chains of values that are connected to these activities and that explain the interdependencies between different economic operators and consumers. The analysis of these Values Chains describes the interactions between all economic actors of a given sector, where the resources availability (securing supply) and the existing regulation (directives, norms, standards...) define the physical, economic and legal constraints over the Value Chain. Within these constraints, the Value Chain has, for example, to meet demands from consumers for more environmental friendly products at competitive prices while integrating ethical corporate responsibility (positive reputation, with potential win-win situation in keeping operation costs low through environmental improvements). This will form an area of desirable behavior and potential changes. Loss of ecosystems services due to activities can be seen as a co-production of the Value Chain considered for a given product or economic sector.

Different value chains are mapped for activities that impose pressures on marine ecosystems. This helps better capturing the causal relationships between anthropogenic and bio-physical systems, highlighting that actors from the economy that are specialized in packaging, processing, marketing and waste management that might "have a role" in the search for solutions that would reduce pressures on marine ecosystems.

Follow our journey with the next policy briefs

N1	First issue, description of a project, need for innovation
N2	Description of a framework WP1, 2, 3
N3	Description of key storylines/ process: actors
N4	Existing media and knowledge systems: EU Member States
N5	Regional processes: who has room for manoeuvre?
N6	Effectiveness of ocean literacy – how effective
N7	Types of ocean literacy products – their application
N8	Efficiency of Ocean literacy, use of multipliers



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