Article

Ocean Literacy: A Systemic Approach to Human-Ocean Relationship

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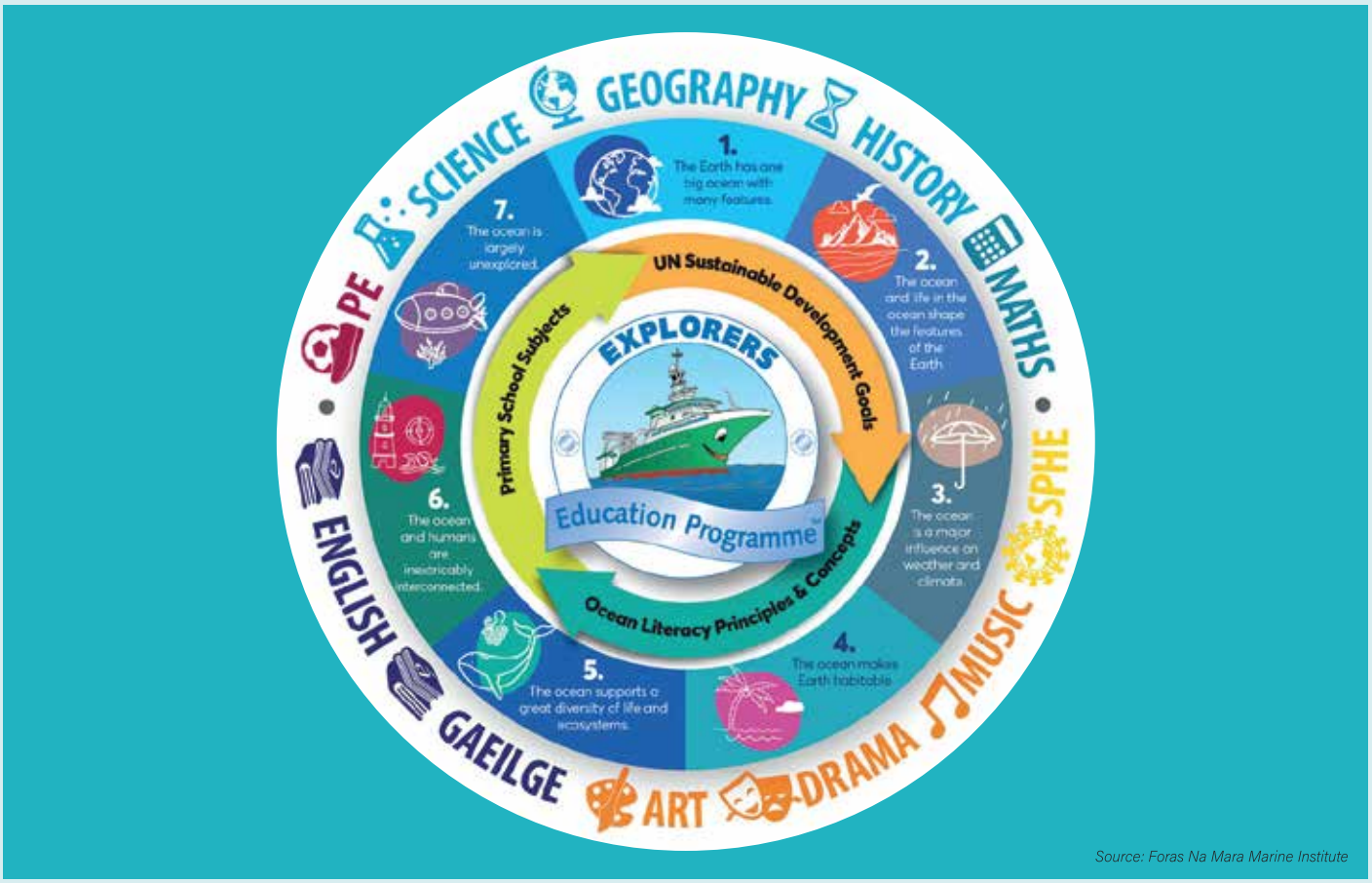

Source: Foras Na Mara Marine Institute

The concept of Ocean Literacy (OL) began to take shape in the early 2000s. In February 2002, the National Geographic Society initiated a pivotal step by convening a virtual workshop to identify key ocean concepts (National Geographic Society, 2002). This led to the development of an Oceans Scope and Sequence aligned with the National Geography Education Standards. Building on this momentum, the National Marine Education Association (NMEA) formed an ad hoc committee in July 2003 to define essential marine and aquatic science literacy concepts and integrate them with existing educational standards. Concurrently, Dr. Robert Stewart and colleagues presented a paper in July 2004 outlining crucial ocean knowledge for every student (Stewart et al. 2004). Furthering these efforts, the Center for Ocean Sciences Education Excellence (COSEE-New) embarked on a mission to strengthen regional ocean science education, culminating in a draft definition of OL. These concerted actions laid the groundwork for a comprehensive understanding of the ocean and its significance. On September 25, 2015, the 193 countries of the United Nations General Assembly announced 17 Sustainable Development Goals, including Goal 14: "Conserve and sustainably use of the oceans, seas and marine resources for sustainable development." The 10 targets within this goal include sustainable management of fisheries, aquaculture, and tourism, and an increase in scientific knowledge of the oceans (United Nations Department of Economic and Social Affairs, 2023). This is how the term "Ocean Knowledge" or "OL" developed in the recent world.

Now the question is: What is the actual meaning of "OL," and why is it so important?

The most popular definition of OL currently in use was developed by the National Oceanic and Atmospheric Administration (2013): "OL is an understanding of the ocean's influence on you – and your influence on the ocean." So OL deals with the actions and reactions between humans and the ocean. To be straightforward, "ocean is what ocean gets."

If we discuss the broader aspect, the analysis of OL shows it is not only information that one possesses but also one's sentiments or attitudes towards different issues, one's practical approach or behavior in one's daily life and the workplace, and how often one discusses ocean-related issues with neighbors, siblings, friends, and other contacts. This could include small talk, encouraging posts/threads on social media, and standing up for change. Based on Umuhire and Fang (2016) definition of "Ocean Environmental Awareness," it incorporates willingness to engage in marine environmental activities.

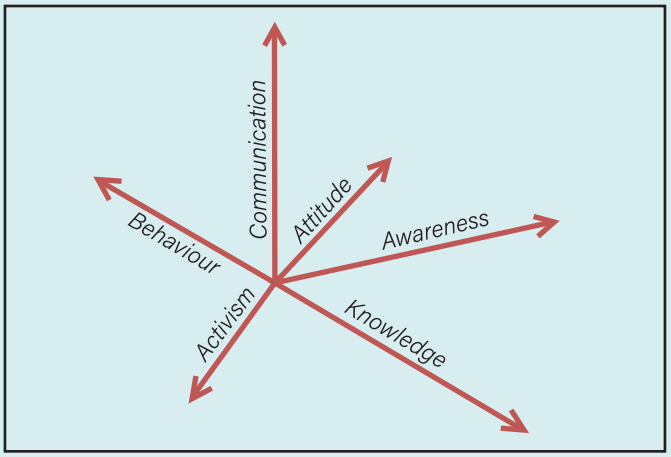

Figure 01: The Ocean Literacy Dimension (Brennan et al., 2019)

So, it is clear that OL deals with understanding the interconnection and interdependence between people and the ocean. This link comprises geological, climatic, biological, and socio-economic components. OL also focuses on raising societies' awareness that the ocean is a system sustaining life and its resources. As such, it focuses on humanity's responsibility to properly care for and maintain the ocean and its ongoing importance to human existence.

It is well known that, from the age of sail till the modern era, humankind has consistently ventured and explored the sea to ensure their better livelihood. Now, the problem is that with the population expanding each day, land resources are shrinking while the demand for ocean-derived food and nutrients continues to rise. This growing human presence exerts pressure on these ecosystems. Activities like overfishing, pollution, and coastal development degrade marine environments and endangered species and disrupt natural processes, underscoring the need for conservation efforts and effective management practices.

In contrast, despite these impacts, the sea remains largely uncharted. Researchers have only delved into 5 percent of our planet's ocean. This implies that 95 percent of our sea is still a mystery (Why Ocean Exploration Matters, NOAA). Progress in technology like satellites, buoys, and uncrewed underwater vehicles is broadening our ability to research and comprehend the depths and workings of the sea. This investigation is vital not only for exploration but also for making well-informed choices on managing ocean resources.

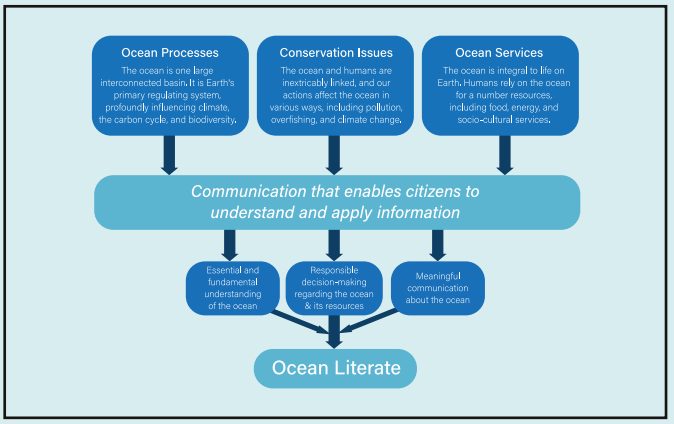

Figure 02: How Ocean Literacy Connects Human Perception Towards Ocean (Stoll & Kleemann, 2019)

On the one hand, there are many resources, and in contrast, there is a lot of destruction, so there is a massive imbalance between knowledge and exploration. It is a matter of fact that the role of the oceans and the interaction between people and the oceans has remained understudied. Therefore, in the past, the ocean was, for many people, the distant space necessary for several individuals to turn for food and transport. Although the last centuries were a period in which the use was further intensified for the extraction of oil and natural gas, onshore windrose, aquaculture, tourism, and especially mobility.

To be more precise, new maritime sectors are being identified, as captured by the "EU Blue Growth Strategy." This means that human use of the oceans has become more demanding, and therefore, we need to protect the seas from the impacts of people's exploitation. Stress factors affecting marine resources can be controlled and further development opportunities in the form of the ocean's benefits need to be balanced in the human-ocean interactions. Coordination and cooperation at the systemic level mean using an interdisciplinary approach, including incorporating ideas from biology, chemistry, geology, meteorology, and more to create holistic models of the ocean system and its relations with the Earth's climate and ecosystems to make it green.

OL has many facets in ocean-compatible behavior; it includes knowledge about the underlying systems and how they work, the relationships people have with them, and if they are willing and able to protect ecology and fix the failed management of resources; about issues like sustainable harvesting and consuming, traveling, policy, etc. In turn, it is essential to expand the understanding of our own and others' place and role in the web of interactions with the ocean.

Systematic thinking might be more relevant in helping us frame, explain, and solve problems relating to human-Ocean linkages. In other words, an ocean-literate person understands the ocean's influence on you - and your impact on the ocean. For example, through OL, a coastal community might recognize the importance of healthy mangrove forests for protecting from natural disasters and supplying food and marine fisheries. This

awareness can lead to community- driven efforts to reduce pollution, support sustainable fishing practices, and engage in mangrove protection projects, demonstrating a well-rounded understanding and commitment to the ocean's health.

Implementing OL as a systematic methodology may result in our harmonious and sustainable coexistence with the ocean. So, the emphasis on OL aims to provide people and society with the knowledge, tools, and well-informed background to understand marine ecosystems, processes, challenges, and actions that underline good decisions toward sustained ocean health. This systems perspective is crucial for tackling maritime challenges. As Bangladesh moves forward as a maritime nation, modifying education curriculum to improve the realm of oceanic science, marine literacy and ocean governance to support sustainable management practices of our ocean, and seas cannot be sufficiently emphasized.

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Source: https://www.researchgate.net