Innovation Challenge 4
To advance and improve the use of social science data for ocean management, decision making and policy development

Description of challenge

Rationale: Data and information (including narratives) are collected on human societies, their past and current coastal and maritime practices, and their beliefs, behaviours and responses to changing marine, social and economic conditions and resource availability. However, much of this information is unevenly distributed in time and space, in contrast to some oceanographic data, that can be collected globally by satellites to provide synoptic, continuous views and can be analysed over a range of spatial and temporal geo-referenced scales. The effective use and integration of social science data and information will support the interdisciplinary effort to couple ocean and human systems in Grand Challenge II while strengthening the social science data needs of Grand Challenge III.

Knowledge Gaps: Social science data are generally collected in local or time-bound studies over varying periods of time, sometimes taking years to collect. These data are often collected using a variety of protocols with different objectives and stored in individual databases (that are not readily accessible). In addition, social science data are not always geo referenced and there may be access restrictions due to ethical considerations and privacy protection issues. Moreover, indigenous and local knowledge might be excluded from these initiatives. These differences create both challenges and opportunities for the integration of social and natural science data.

Priority research questions

1. What are the main benefits and forms of social science data that will help drive knowledge collection with a sense of place at the local level, to enlighten questions at the regional and global levels?

2. How can data and information on marine systems collected at different spatial and temporal scales from the social and natural sciences be integrated, analysed and synthesized?

3. What social science data are currently available or required for integration with marine ecosystem models and transdisciplinary research? What is the value addition of incorporating these social science data for improved ocean governance?

Why IMBeR can make a difference

IMBeR comprises a global network of natural and social scientists working at the cutting edge of marine science research. Much of the past and on-going work is based on multi-disciplinary or interdisciplinary approaches. IC 4 will promote the strengthening of interdisciplinary and transdisciplinary work within a global community of marine science researchers, engaged in a process of co-development of knowledge.

Strategic context

The effective integration of social science data and information with natural science data addresses the interdisciplinary work of coupling ocean and human systems for scenario development, projections and predictions of changes in the marine biosphere within Grand

Challenge II. It also strengthens the evidence for governance centered research in Grand Challenge III. It is important to identify what types of social science data (disciplines, scales, methods) are currently available and would be required for integration with natural science research to incorporate and better understand the human dimension of transformative changes in the marine biosphere. Importantly, the value addition of integrating social science data with natural science data needs to be assessed.

Expertise within IMBeR

IC4 will build upon the past and on-going work integrating social and natural science data in GC II (e.g. Marine Data Hub), GC III (e.g. Human Dimensions Working Group) and the IMECaN network (e.g. support to early career scientists), as well as that of partner organizations, such as ICES, OFI, HDWG, PICES and V2V, co-developing knowledge on integrating social and natural science data in coastal communities.

Focussed activity / outputs

Activity	Outputs
1. Identifying best practices in integrating social and natural science data, including indigenous/local knowledge, in upscaling from local to global application, based on around 10 case studies across the globe; assessing from which critical areas of human impact on the ocean these case studies emerge	Paper(s); links on IMBeR website to case studies
2. Supporting GC II with the expansion of political, economic and social datasets on Marine Data Hub, based on a discussion on what types of social data are available and required	Content for webpages on the Marine Data Hub and links to datasets
3. Initiating a discussion with partner organizations producing and/or using social science data on generating a template/s to integrate social and natural science data to upscale application from local to global levels; outreach initiative to share results	A session at IMBIZO or partner meetings (ICES/SCM, PICES) in 2022/2023; protocol or policy brief

What does success look like and when would we consider this mainstreamed into Grand Challenge III

- Uptake of paper on case studies/best practices (number of reads and citations) and of the web links to case studies (number of hits on website)
- Increase in the use of social science datasets in the Marine Data Hub (number of hits)
- Preliminary template/s to integrate social science and natural data in upscaling from local to global levels in marine systems
- Uptake of policy brief or protocol on results of IC4 by research and government/policy institutions in publications or policy documents