

Monitoring the Attitude of Society Toward our Seas (MASTS) Survey Framework

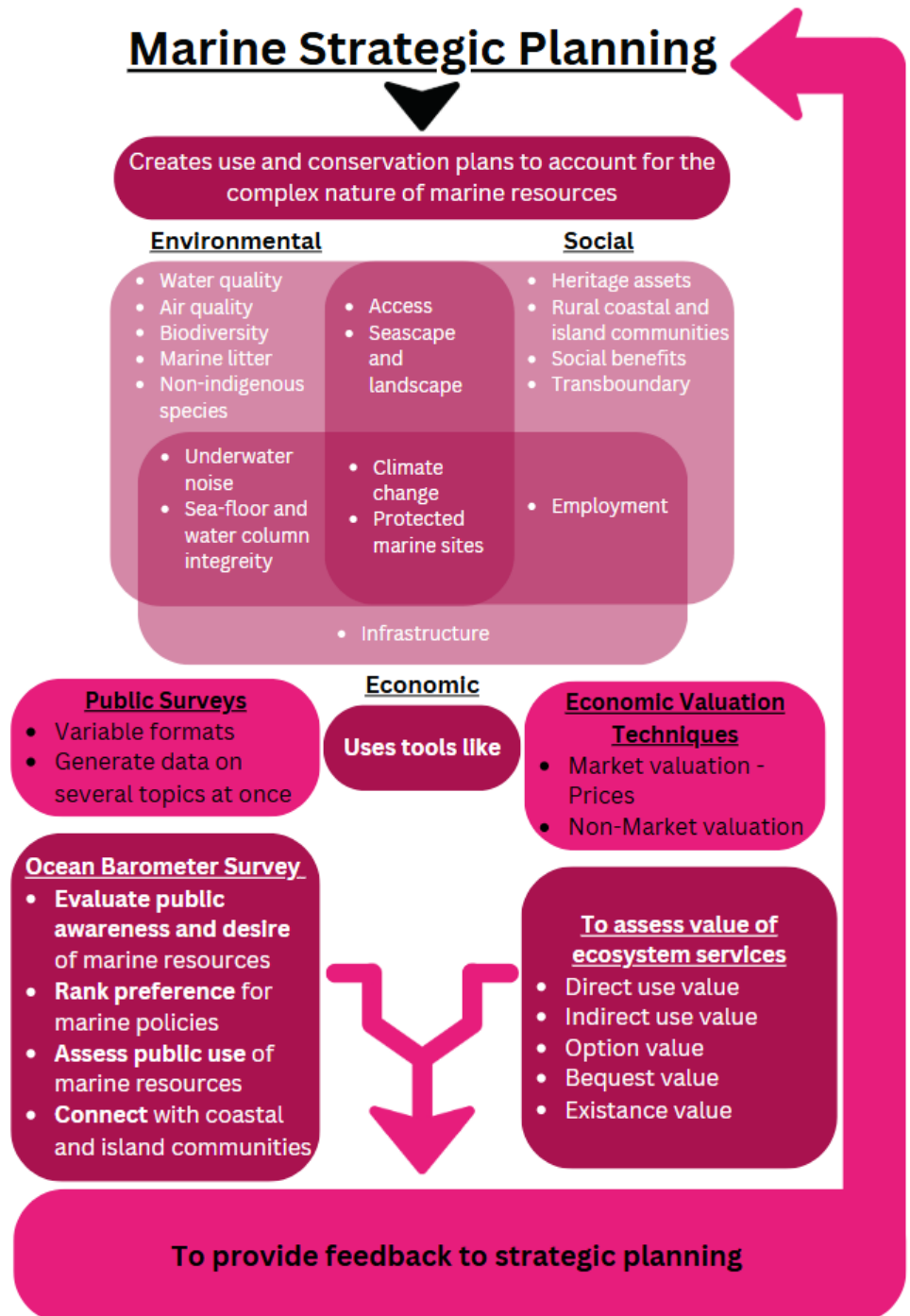
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Introduction

This framework sets out the objectives and development process for the Ocean Barometer survey for the MASTS (Monitoring the Attitude of Society Toward our Seas) project. This framework can serve as a template for the development of similar surveys in the future and provide continuity to data gathering. The objective of the Ocean Barometer survey is to assess the Irish public's interactions with, perceptions of, and attitudes toward marine environment, policy and governance topics. Secondary objectives to this survey include the establishment of a baseline of public marine perceptions and attitudes. The framework described here aims to ensure future surveys can effectively examine how the public's responses evolve over time. Surveys will be carried out at two levels: one for national level sampling and one for a coastal community level sample.

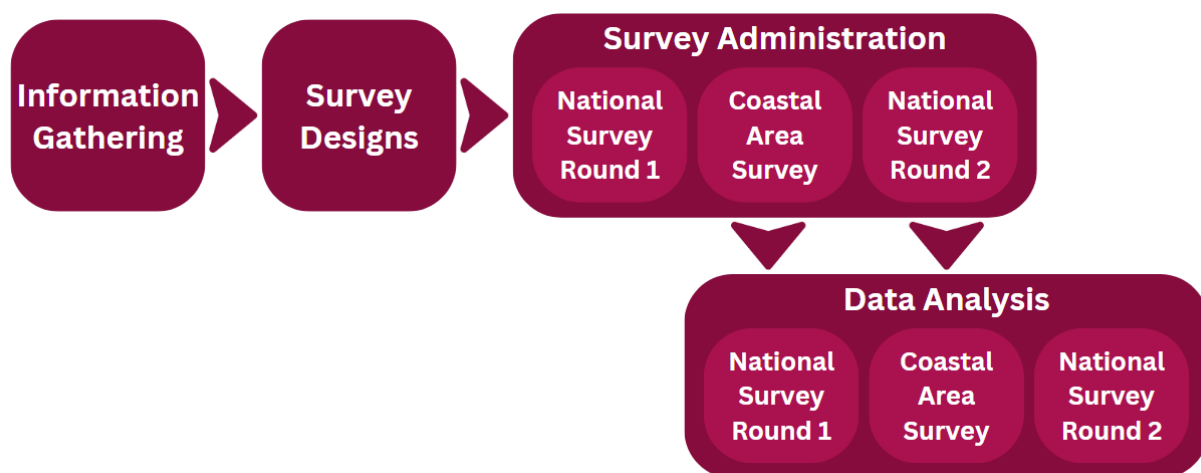
These surveys sit within the larger strategic marine planning framework by providing feedback for the policies

developed to manage Ireland's marine resources. The feedback from these surveys in particular will speak to public use of marine resources, public knowledge about various marine policies, organizations, and issues, and public attitude toward marine attributes, industries and ecosystem



restoration. A more detailed figure of how the Ocean Barometer survey fits into the larger strategic marine planning framework is presented above.

The survey data will be generated with a stepwise methodology of four steps: information gathering, survey design, survey administration, and analysis. The first step, information gathering, includes a desk review of past surveys and informal interviews with marine stakeholders. The second step, survey development, includes the development of the national and coastal community level surveys. The third step, survey administration, includes the administration of two rounds of the national level survey and five rounds of the coastal community survey. The fourth step, data analysis, begins once the data collection from the first national level survey is complete and continues as more data is collected from further data collection rounds. The analysis produces reports and briefs to communicate findings.



Information Gathering

The information gathering phase serves to inform the design of the Ocean Barometer and the coastal community surveys and ensures the data gathered is as useful as possible. There are two steps to this phase, a desk review of past marine attitudinal surveys and a series of informal interviews with marine experts and stakeholders. A review of the current literature found a number of marine attitudinal surveys across many countries, although the majority of surveys occurred in the UK, the European Union, Australia, and then the United States. These surveys also cover a broad range of topics relating to marine attitudes, from approval of various marine policies to perceptions of marine attributes to the use of marine resources. All surveys fit into three question types however: interactions with marine resources, perceptions or knowledge of information about the marine, and attitudes or feelings toward some change to the marine. A list of the surveys consulted is in Appendix A. Some key surveys which greatly influenced survey design for these rounds of survey development are the 2012 SEMRU public survey on marine attitudes (Hynes et al. 2014), the SEMRU tourism surveys (Hynes et al. 2020), the CLAMER

survey (Buckley et al., 2017) and SOPHIE survey (H2020 SOPHIE Consortium, 2020). In particular the SEMRU tourism surveys provide an excellent opportunity to compare changes in the Irish public's interaction with Irish marine resources over time.

The marine expert and stakeholder informal interviews provide insight into the types of topics and data which would be of most use at the current moment. These experts and stakeholders include individuals from marine academic areas, marine policy experts, and marine nonprofit stakeholders. While stakeholders often could not provide specific examples of other marine attitudinal surveys at this time, they did state the need for such data in both policy work and marine planning spaces. The discussion of possible survey topics revealed a similar breakdown in categories as the desk review; interactions, perceptions and knowledge, and attitudes toward changes. The importance of being able to track changes in these three categories over time was also emphasized.

Survey Design

The survey design is informed by the findings of the information gathering portions of the project. There will be a total of four topics to the survey reflecting the three categories mentioned earlier and a section for demographic information.

Interaction: This topic includes collecting data about a participant's interactions with marine resources, including how frequently they visit marine areas, what activities they engage in while there, and how close their primary residence is to the sea.

Knowledge and perception: This topic relates to evaluating ocean literacy and public perceptions of marine resources. Data includes assessing knowledge of common marine policies and stakeholder groups, knowledge sources for marine information, and awareness of various threats to the marine.

Attitude questions: This is the broadest topic, including participants' personal importance of marine attributes, their views on the impact of different marine stakeholders, and preferences on marine policies and restoration. These topics all relate to more complex topics around marine management and interaction, who should get a say, and what are acceptable impacts.

Demographic background information: Finally, demographic data about respondents is collected, including age, gender, and education level among other information. These data are generally used as controls.

The coastal survey is of a similar design to the national level survey to facilitate comparisons between the two data sets. There may be some differences in design, however, to allow for tailoring of the survey to the chosen coastal locations. The selection of the coastal areas to survey

are assessed based on several area demographics including population size, levels and variation of marine industries in the area, and proximity to a policy-relevant marine area. Coastal survey areas are chosen to give the broadest range of responses across the above attributes.

Survey Administration

Both the national and coastal community level surveys will be administered by the survey company Ipsos MRBI. Before full survey deployment the questionnaires are tested in a focus group stage. These focus groups are organized and conducted by the research team. They involve gathering small groups of potential participants who will review the survey and discuss with the researchers any points of confusion, concern, or miscommunication that might be present. Also, Ipsos MRBI tests the survey in a pilot phase by gathering 50 initial responses from their panel and then reviewing these responses for any miscommunication or confusion on the part of the respondents. The survey is then released for participation until the remainder of the full sample is obtained.

This sample is gathered using the Ipsos online panel which has access to about 40,000 potential respondents. This panel is gathered using a variety of advertisement methods including both online and public advertisements to recruit a broad spread of potential participants. The survey sample is selected from this panel by following a multistage sampling quota procedure to ensure a representative sample. A representative sample of the Irish public reflects the same or similar demographics as the total Irish population where the average age is 38.8 years old and 49% male according to the 2022 Irish census. A quota system achieves this representative sample by limiting or targeting responses from particular demographic groups so the make-up of the final sample matches that of the population. Ipsos MRBI bases these quotas on the latest CSO and AIMRO data available. The multi-staged aspect of this procedure means the sample is stratified for one demographic at a time, such as location, and then by another, and another until all characteristics are accounted for. Ipsos will ensure the survey is representative across age, gender, location, and socioeconomic status.

The national level survey will have two rounds within this project. The first is set for data collection in the spring and summer of 2025 while the second round will occur the following year. This allows for the establishment of a baseline data set and then a separate comparable data set to test if there are changes in the intervening year. The coastal survey data collection occurs between the two national level surveys. This is also carried out by Ipsos MRBI. To ensure coverage of the whole coastal community the sampling procedure follows a similar quota procedure as above, but the survey is administered face to face as opposed to online. Trained field interviewers are assigned randomly in the community to begin sampling and informed as to the demographic quotas they are required to achieve. Interviewers continue selecting participants within the community using a random walk procedure until their demographic quotas are filled.

Data Analysis

Data are analyzed using common statistical techniques. Data consists of the baseline national survey responses, the second-round national survey responses, and the coastal community survey responses, all at the individual level. These datasets can be compared and used to provide feedback on possible marine policies, and, if the surveys continue, track possible impacts of the policies as they are implemented. The policy implications from the analysis of data from each topic section are summarized below.

Interaction: Data on the public interaction with marine resources provides insight into regulatory requirements needed to protect marine resources from overuse and what areas these regulations should effect. For example, if there is no demand for boating and fishing in the open ocean, then there may not need to be management to prevent environmental damage, whereas if there is great demand for near shore boating, that activity should be managed. Or if there is demand for sea swimming but concentrated only in one area, there can be efforts to make that activity sustainably accessible in other locations and limit the environmental burden from being concentrated in one local area.

Perceptions: Data regarding public perceptions and knowledge about marine resources can be used to assess the level of public awareness of various issues and any possible disconnect between public knowledge or perceptions and scientific or expert knowledge and perceptions. For example, if the public are unaware of a significant threat to marine resources in Ireland, this data can both confirm that and magnitude of misinformation. This data can also help ensure the resources needed to educate the public on the marine environment are available in the most efficient forms. It can also inform shifts in public perception or knowledge over time if survey cycles continue to collect comparable data in these topics

Attitudes: Attitudinal data can be used for a variety of policy uses. The data from this survey in particular can assess the public's willingness to pay for specific restoration projects and policies. It can also be used to assess what people value and care about with regards to the ocean resources around them. There will also be data on preferences for public policy engagement which can be used to better include the public in the policy making process.

Overall, data on these topics can be used to help inform policy experts and other marine stakeholders on the viewpoint of the public in regard to how they use, view, and feel about marine resources in Ireland. If comparable data are systematically collected over time it can also help demonstrate changes to use, views, and attitudes regarding marine resources over time. However, to compare data gathered over time will have to take into consideration the compatibility of the data, especially regarding question format, style, and content.

Survey Cycle

Lastly, as stated previously, a secondary goal of this project is the testing of the effectiveness and feasibility of a long-term periodic survey of public marine perceptions and attitudes. This goal requires a fifth step to the ones included above, survey reevaluation. In the initial completion of the survey cycle, this step includes a series of considerations regarding the structure and design on the survey cycle, and then another set of considerations at every reevaluation phase after.

These initial considerations include:

1. What are the core topics that should be collected in every survey cycle?
2. What is the most efficient survey cycle timeline that allows for the continuation of a useful data set while considering the resources needed for each survey cycle?
3. If sampling the coastal communities, what metrics should be considered when choosing which communities to sample and how often should the same community be resampled?
4. How should additional topics be chosen for each survey cycle?



The answers to these questions provide a structure and timeline in which the survey cycle can continue to provide additional data in a strategic and systematic manner. There are also a series of considerations that should be reviewed every survey cycle. These include:

1. What went well with this survey cycle?
2. What could be improved either procedurally or in terms of survey content for the next cycle? (This can extend into the information gathering step of the next cycle and reviewing for any improvements indicated by the literature as well.)
3. In addition to core topics that are asked in every survey cycle, what topics should be covered in the next survey? (This includes data topics collected in the past, but not in the

core topics, that are more effectively collected on longer time scales, (e.g. a data topic that is collected every other survey cycle or every third survey cycle)

4. How can additional value be added in the next survey cycle, given the data collected in the past and just collected?

The answers to these questions will sometimes come from the information gathering and survey development of the next survey cycle, as stakeholder interviews and literature reviews can provide more information. However, care should be taken to include insights and information from the previous cycle's reevaluation phase. A graphic showing the full survey cycle is above.

Citations

Buckley, P., Pinnegar, J., Painting, S., Terry, G., Chilvers, J., Lorenzoni, I., Gelcich, S., Duarte, C. (2017) “Ten Thousand Voices on Marine Climate Change in Europe: Different Perceptions among Demographic Groups and Nationalities,” *Frontiers in Marine Science*, 4. Available at: <https://doi.org/10.3389/fmars.2017.00206>.

H2020 SOPHIE Consortium (2020) Citizens and the Sea. Public perceptions of Oceans and Human Health: A 14-country pan-European citizen survey. H2020 SOPHIE Project. Ostend, Belgium.

Hynes, S., Aymelek, M., Norton, D., Tsakiridis, A., Corless, R. (2020) *A survey of domestic coastal and marine tourism and leisure activities in Ireland*. Research Reports 309532. National University of Ireland, Galway, Socio-Economic Marine Research Unit. Available at: <https://econpapers.repec.org/paper/agssemrrr/309532.htm>

Hynes, S., Norton, D. and Corless, R. (2014) “Investigating societal attitudes towards the marine environment of Ireland,” *Marine Policy*, 47, pp. 57–65. Available at: <https://doi.org/10.1016/j.marpol.2014.02.002>.

Appendix A

Survey Name	Paper Name	Paper Authors
Attitudes in Scotland on Marine Environment and Marine Issues	Attitudes in Scotland on Marine Environment and Marine Issues	YouGov, Marine Scotland
BlueHealth	The value of blue-space recreation and perceived water quality across Europe: A contingent behaviour study	Börger, Campbell, White, Elliott, Fleming, Garrett, Hattam, Hynes, Lankia, Taylor
CERA initiative	Demographic change and shifting views about marine resources and the coastal environment in Downeast Maine	Safford, Hamilton
CLAMER poll	Public awareness, concerns, and priorities about anthropogenic impacts on marine environments	Gelcich, Buckley, Pinnegar, Chilvers, Lorenzoni, Terry, Guerrero, Carlos Castilla, Valdebenito, Duarte
CLAMER poll	Public engagement with marine climate change issues:(Re) framings, understandings and responses.	Chilvers, Lorenzoni, Terry, Buckley, Pinnegar, Gelcich
CLAMER poll	Ten Thousand Voices on Marine Climate Change in Europe: Different Perceptions among Demographic Groups and Nationalities	Buckley, Pinnegar, Painting, Terry, Chilvers, Lorenzoni, Gelcich, Duarte
KnowSeas	Public Perceptions of Europe's Seas	O'Higgins
KnowSeas	Who cares? European attitudes towards marine and coastal environments	Potts, Pita, O'Higgins, Mee
MaCoBioS	Promoting Stakeholders' Support for Marine Protection Policies: Insights from a 42-Country Dataset	Nguyen, Duong , Nguyen, Mutai, Jin, Nguyen, Le, Vuong
MaCoBioS	Survey data of public awareness on climate change and the value of marine and coastal ecosystems	Fonseca, Wood, Andriamahefazafy, Casal, Chaigneau, Cornet, Degia, Failler, Ferraro, Furlan, Hawkins, de Juan, Krause, McCarthy, Pérez, Roberts, Trégarot, O'Leary
MARLISCO	Exploring public views on marine litter in Europe: Perceived causes, consequences and pathways to change	Hartley, Pahl, Veiga, Vlachogianni, Vasconcelos, Maes, Doyle, d'Arcy Metcalfe, Öztürk, Di Berardo, Thompson
MERCES	Investigating societal attitudes toward marine ecosystem restoration	O'Connor, Hynes , Chen, Papadopoulou, Smith
Ocean Citizen Survey	Perceptions of the Irish public on priorities for the protection and sustainable use of the ocean	French, McDonough
Ocean Project	Communicating About Oceans: Results of a National Survey	Russonello

SeaWeb	U.S. PUBLIC ATTITUDES TOWARD MARINE ENVIRONMENTAL ISSUES	Spruill
SOAK	Baseline Studies for Marine Education: Experiences Related to Marine Knowledge and Attitudes	Fortner, Taetes
SOPHIE	Citizens and the Sea	McMeel, Tonné, Calewaert, Davison, Roberts, White, Fleming, Britton, McHugh, Domegan, Kellet
SOPHIE	Public concern about, and desire for research into, the human health effects of marine plastic pollution: Results from a 15-country survey across Europe and Australia	Davison, White, Pahl, Taylor, Fielding, Roberts, Economou, McMeel, Kellett, Fleming
The Evaluation and Design of Great Barrier Reef Interpretation	UNDERSTANDING PUBLIC PERCEPTIONS OF THE GREAT BARRIER REEF AND ITS MANAGEMENT	David Green, Gianna Moscardo, Tanya Greenwood, Philip Pearce, Matt Arthur, Amanda Clark & Barbara Woods
UK Ocean Acidification Research Programme	Public Perceptions of Ocean Acidification	Corner, Capstick, Pidgeon
No specific survey name	A National Survey of Water Based Leisure Activities in Ireland 2003	Williams, Ryan
No specific survey name	A Survey of Domestic Coastal and Marine Tourism and Leisure Activity in Ireland	Hynes, Aymelek, Norton, Tsakiridis, Corless
No specific survey name	A Survey of Marine and Coastal Overseas Tourism Activity in Ireland	Hynes, Aymelek, Corless, Evers
No specific survey name	A survey of public opinion in south-west Scotland on cetacean conservation issues	Scott, Pearsons
No specific survey name	Advancing Marine Policy Toward Ecosystem-Based Management by Eliciting Public Preferences	Chhun, Kahui, Moller, Thorsnes
No specific survey name	An Assessment of 4th-, 8th-, and 11th-Grade Students' Environmental Science Knowledge Related to Oregon's Marine Resources	Brody
No specific survey name	Anglers' views on stock conservation: Sea bass angling in Ireland	Grilli, Curtis, Hynes, O'Reilly
No specific survey name	Assessing public awareness of marine environmental threats and conservation efforts	Easman, Abernethy, Godley
No specific survey name	Attitudes and behaviours of marine recreationists towards conservation and environmental protection: A case study of Tel Aviv, Israel	Portman, Zhulpa Camporesi

No specific survey name	<u>Attitudes and perceptions of fishermen on the island of Ireland towards the development of marine renewable energy projects</u>	Reilly, O'Hagan, Dalton
No specific survey name	<u>Attitudes of Scottish city inhabitants to cetacean conservation</u>	Howard, Parsons
No specific survey name	<u>Attitudes towards offshore wind farms—The role of beach visits on attitude and demographic and attitude relations</u>	Ladenburg
No specific survey name	<u>Better understanding ocean awareness: Insights from young people</u>	Wootton, Nursey-Bray, Holland, Gillanders
No specific survey name	<u>Canadian Perceptions of Commercial Fisheries Management and Marine Mammal Conservation in the Northwest Atlantic Ocean</u>	Kellert, Gibbs
No specific survey name	<u>Casting a wider net: A national survey of Australian attitudes to marine protected areas</u>	Raabe, King, Cardilini, Miller, Bangay, Singleton
No specific survey name	<u>Coarse angler site choice model with perceived site attributes</u>	Deely, Hynes, Curtis
No specific survey name	<u>Connecting Value and Knowledge of Marine Environmental Issues: A Social Survey in Coastal Nova Scotia</u>	Guest
No specific survey name	<u>Environmental attitude, motivations and values for marine biodiversity protection</u>	Halkos, Matsiori
No specific survey name	<u>Estimating the Public's Preferences for Sustainable Aquaculture: A Country Comparison</u>	van Osch, Hynes, Freeman, O'Higgins
No specific survey name	<u>Evaluating perceptions of marine protection in Australia: Does policy match public expectation?</u>	Roberts, Hill, Cook
No specific survey name	<u>Examining awareness, attitudes and behaviours of stakeholders in Irish Fishing towards plastic</u>	Kneel, Stephens, Rolston, Linnane
No specific survey name	<u>Exploring Public Knowledge, Attitudes, and Perceptions of the Marianas Trench Marine National Monument</u>	Kotowicz, Richmond, Hospital
No specific survey name	<u>Exploring the effect of psychometric variables on willingness to pay for marine ecosystem services: A survey in Japan</u>	Wakita, Kurokura, Oishi, Shen, Furuya
No specific survey name	<u>From coast to coast: Public perception of ocean-derived benefits in Canada</u>	Daigle, Haider, Fernández-Lozada, Irwin, Archambault, Côté
No specific survey name	<u>Gauging perceptions of ocean acidification in Alaska</u>	Frisch, Mathis, Kettle, Trainor

No specific survey name	How Great is the Great Barrier Reef! Tourists' Knowledge and Understanding of the World Heritage Status of the Great Barrier Reef	Gianna Moscardo, David Green, Tanya Greenwood
No specific survey name	Investigating societal attitudes towards the marine environment of Ireland	Hynes, Norton, Corless
No specific survey name	Managerial Implications of Perceptions, Knowledge, Attitudes, and Awareness of Residents Regarding Puerto Morelos Reef National Park, Mexico	Heinen, Roque, Collado-Vides
No specific survey name	Marine Environmental Knowledge and Attitudes among University Students in Hong Kong: An Application of the Ocean Literacy Framework	Mallick, Tsang, Lee, Cheang
No specific survey name	Marine environmental protection knowledge, attitudes, behaviors, and curricular involvement of Taiwanese primary school students in senior grades	Wen, Lu
No specific survey name	Measuring New Zealanders' attitudes towards their oceans and marine reserves	WWF
No specific survey name	One hundred-fold difference between perceived and actual levels of marine protection in New Zealand	Eddy
No specific survey name	Perceptions of shellfish aquaculture in British Columbia and implications for well-being in marine social-ecological systems	D'Anna, Murray
No specific survey name	Preferences for Management of Near-Shore Marine Ecosystems: A Choice Experiment in New Zealand	Chhun, Thorsnes, Moller
No specific survey name	Public attitudes toward aquaculture: An Irish and Norwegian comparative study	Hynes, Skoland, Ravagnan, Gjerstad, Vatland Krøvel
No specific survey name	Public attitudes towards the environmental impact of salmon aquaculture in Scotland	Whitmarsh, Wattage
No specific survey name	Public awareness and attitudes towards marine protection in the United Kingdom	Hawkins, O'Leary, Bassett, Peters, Rakowski, Reeve, Roberts
No specific survey name	Public awareness of marine environmental issues in the UK	Fletcher, Potts, Heeps, Pike
No specific survey name	Public ocean literacy in the United States	Steel, Smith, Opsommer, Curiel, Warner-Steel
No specific survey name	Public Perception and Opinion of Visible Beach Aesthetic Pollution: The Utilisation of Photography	Tudor, Williams
No specific survey name	Public Perception of Ocean Governance and Marine Resources Management in Taiwan	Huang, You

No specific survey name	Public Perceptions of Deep-Sea Environment: Evidence From Scotland and Norway	Ankamah-Yeboah, Bich Xuan, Hynes, Armstrong
No specific survey name	Public Perceptions of Environmental Quality: A Survey Study of Beach Use and Perceptions in Los Angeles County	Pendleton, Martin, Webster
No specific survey name	Public perceptions of ocean health and marine protection: Drivers of support for Oregon's marine reserves	Manson, Nielsen-Pincus, Granek, Swearingen
No specific survey name	Public Perceptions of Offshore Wind Energy in Michigan's Upper Peninsula	Nordman, Haven, Pebbles, Hummer
No specific survey name	Public perceptions of the UK marine environment	Jefferson, Bailey, Laffoley, Richards, Attrill
No specific survey name	Public perceptions, knowledge, responsibilities, and behavior intentions on marine litter: Identifying profiles of small oceanic islands inhabitants	Bettencourt, Freitas, Costa, Caeiro
No specific survey name	Public preferences regarding use and condition of the Baltic Sea An international comparison informing marine policy	Ahtiainen, Artella, Czajkowski, Hasler, Hasselström, Hyytiäinen, Meyerhoff, Smart, Söderqvist, Zimmer, Khaleeva, Rastrigina, Tuhkanen
No specific survey name	Reshaping preferences over coastal and marine environment. Evaluating temporal effects on preferences raised by information campaigns	Bithas, Latinopoulos, Mentis, Chatzivasileiadis
No specific survey name	Resident and expert opinions on marine related issues: Implications for the ecosystem approach	Ressurreição, Simas, Santos, Porteiro
No specific survey name	Residents' involvement in tourism and their perceptions of tourism impacts	Sharma, Dyer
No specific survey name	Saltwater Anglers' Attitudes towards Marine Protected Areas	Salz, Loomis
No specific survey name	Segmentation of visitor perceptions and attitudes as a tool for informing management and targeted communication strategies in Coastal and Marine Protected Areas	Le Corre, Saint-Pierre, Hughes, Peuziat, Cosquer
No specific survey name	Social acceptability of a marine protected area: The case of Reunion Island	Thomassin, White, Stead, David
No specific survey name	Social Acceptability of Marine Aquaculture	Whitmarsh, Giovanna Palmieri
No specific survey name	Towards a Marine Mindset: Visiting an Aquarium Can Improve Attitudes and Intentions Regarding Marine Sustainability	Wyles, Pahl, White, Morris, Cracknell, Thompson

No specific survey name	Towards an ecosystem approach for understanding public values concerning marine biodiversity loss	Ressurreição, Zarzycki, Kaiser, Edwards-Jones, Dentinho, Santos, Gibbons
No specific survey name	What does the public want to know about the sea?	Seys, Fockedey, Copejans, Hoerberigs, Mees
No specific survey name	What drives you to the sea? Animal rights, environmental protection and sensation seeking	Suarez-Rojas, León, Lam-González
No specific survey name	What drives you to the sea? Animal rights, environmental protection and sensation seeking	Suárez-Rojas, León, Lam-González
No specific survey name	Youth and the sea: Ocean literacy in Nova Scotia, Canada	Guest, Lotze, Wallace