

One Earth, Volume 5

Supplemental information

**A framework to identify barriers and levers
to increase the levels of protection of marine
protected areas**

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Supplementary Information

Supplemental Notes. Survey Procedure. Related to the “Step 2: Assessment of the Barriers and Levers” subsection of the Experimental Procedures

Note S1. Context

To investigate the barriers and levers to strong protection within French MPAs, we surveyed French experts. The survey was thought out by a scientific committee convened for the Future Earth research initiative. The scientific committee revised and validated the identified 24 barriers and levers, as well as the survey design and the targeted sample of experts. The survey was designed using Google survey to ensure respondent's anonymity and ease of use. The experts targeted were researchers, MPA managers, managers in associations, NGOs, people working for the government or local authority, professionals of the fishing industry and consultants in MPA management. The survey was sent individually via e-mail to 239 experts. The respondents were informed about the purpose of the survey, their rights to withdraw their answers and to be updated on the processing of their answers. In accordance with the European General Data Protection Regulation (GDPR), the answers to the questionnaire cannot be disclosed outside the strict context of the study. For this reason, the raw data cannot be made available publicly.

Note S2. Email sent to the experts

(Originally in French)

Subject: MPA Questionnaire - Future Earth SC Ocean

Dear Sir/Madam,

The Science-Based Pathways for Sustainability initiative of the Future Earth international research program aims to foster integrated approaches to the United Nations Sustainable Development Goals (SDGs). It is based on a series of studies and working groups involving a variety of stakeholders that explore different options to move towards the environmental goals of the 2030 Agenda.

As part of this initiative, the French office of the Future Earth secretariat has convened a scientific committee to conduct a study on barriers to the establishment and effective management of marine protected areas (MPAs) in France and the levers of action that would overcome them in order to achieve targets of the SDG 14 "conserve and sustainably use the oceans", including target 14.2 "manage and protect marine and coastal ecosystems", and target 14.5 "preserve at least 10% of marine and coastal areas".

We would like to benefit from your expertise on marine and/or MPA issues and would be very grateful if you could complete the following anonymous survey before January 22, 2021 (15 minutes maximum): click [here](#) to access the questionnaire. Your answers will feed the study of the scientific committee.

We thank you in advance for your contribution.

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Joachim Claudet, Philippe Cury, Françoise Gaill, Thomas Lamy, Pascal-Jean Lopez, Marie-Alexandrine Sicre

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Note S3. Survey Script

(Originally in French)

This questionnaire is intended to feed into a study on barriers to the implementation and effective management of marine protected areas (MPAs) in France, carried out as part of Future Earth's Science-Based Pathways for Sustainability initiative. It is anonymous and will take about 15 minutes.

There are blockages (obstacle) and levers (actions to address an obstacle) to the establishment of marine protected areas. The aim of this survey is to determine whether the barriers and levers are dependent on the level of protection considered (strong or moderate protection).

In the context of this questionnaire, "strong protection" means non-extraction zones or zones in which only light extractive activities are authorised. Moderate protection" refers to areas where protection measures exist, but where the majority of extractive activities are allowed.

For more information on the Science-Based Pathways to Sustainability initiative, please visit: <https://futureearth.org/initiatives/earth-targets-initiatives/science-based-pathways/> This questionnaire is anonymous. To exercise your right of withdrawal or for any questions about the processing of your data, you can contact xxxx@xxxx.fr. Visit the cnil.fr website for more information on your rights.

*Compulsory

* Before starting, please fill in your field of activity:

Only one answer is possible.

1. Association or NGO
2. Administration or community
3. MPA manager
4. Fishing or aquaculture professional Research and education
5. Tourism and nautical activities
6. Maritime industry
7. Other :

1. Intensity of barrier to moderate protection

"Strong protection" refers to non-extraction areas or areas where only light extractive activities are allowed. Blockages are obstacles to the establishment and effective management of MPAs in France.

* For each of the blockages listed below, please identify whether, in your opinion, the blockage is weak (1), medium (2), strong (3) or not a blockage (0) at all to strong protection. Only one answer is possible.

1. Administration: Complexity and length of administrative procedures for the creation of MPAs, their development, obtaining funding, etc.
2. Regulatory framework: Difficulty for managers to make the regulatory framework evolve due to a lack of decision-making or legal prerogatives.
3. Knowledge: Lack of scientific knowledge in natural sciences and/or human and social sciences, humanities and social sciences.
4. Delimitation: Lack of clarity in geographic delineation and overlapping regulatory frameworks
5. Information: Lack of information to the public or local stakeholders on the role and objectives of MPAs.
6. Capital: Lack of financial or human capital.
7. Participation: Not all stakeholders are involved in management, and/or do not all have the same influence in decision making.
8. Perception: Different and potentially conflicting views of the socio-economic and ecological costs and ecological costs and benefits of MPAs.
9. Policy: The use of MPAs as a conservation tool is not a political priority.
10. Redistribution of benefits: Existence of "losers" and "winners" after the establishment of MPAs: restricted or expanded activities, lack of compensation measures, etc.
11. Common standards: Lack of common standards on the definition of an MPA and the levels of protection.
12. Monitoring: MPAs are not adequately monitored on a long-term basis.

2. Intensity of barriers to strong protection

You are now asked to answer the same questions as before, but this time for moderate protection. Moderate protection' covers areas where protection measures exist, but where the majority of extractive activities are permitted.

* For each of the blockages listed below, please identify whether, in your opinion, the blockage is weak (1), medium (2), strong (3) or not a blockage (0) at all to moderate protection. Only one answer is possible.

1. Administration: Complexity and length of administrative procedures for the creation of MPAs, their development, obtaining funding, etc.
2. Regulatory framework: Difficulty for managers to make the regulatory framework evolve due to a lack of decision-making or legal prerogatives.
3. Knowledge: Lack of scientific knowledge in natural sciences and/or human and social sciences humanities and social sciences.
4. Delimitation: Lack of clarity in geographic delineation and overlapping regulatory frameworks
5. Information: Lack of information to the public or local stakeholders on the role and objectives of MPAs.
6. Capital: Lack of financial or human capital.
7. Participation: Not all stakeholders are involved in management, and/or do not all have the same influence in decision making.
8. Perception: Different and potentially conflicting views of the socio-economic and eco-logical costs and ecological costs and benefits of MPAs.
9. Policy: The use of MPAs as a conservation tool is not a political priority.
10. Redistribution of benefits: Existence of "losers" and "winners" after the establishment of MPAs: restricted or expanded activities, lack of compensation measures, etc.
11. Common standards: Lack of common standards on the definition of an MPA and the levels of protection.
12. Monitoring: MPAs are not adequately monitored on a long-term basis.

3. Links between blockages and levers to marine protected areas in France

Levers are actions that allow an obstacle to be completely or partially addressed. For each of the blockages assessed in the previous questions, we seek to identify the corresponding levers.

* For each blockage, please choose the corresponding lever(s) in your opinion.

Several answers are possible.

1. Administration: Complexity and length of administrative procedures for the creation of MPAs, their development, obtaining funding, etc.
 - (a) Adopt binding regulations
 - (b) Design MPAs as an investment opportunity
 - (c) Further communicate about the role of MPAs
 - (d) Develop education on the marine environment
 - (e) Encourage transfer of skills between professionals
 - (f) Encourage stakeholders' consultation
 - (g) Promote participatory research
 - (h) Promote collaboration between groups of stakeholders

- (i) Merge overlapping areas and regulatory frameworks
 - (j) Standardize management and monitoring indicators
 - (k) None of the above
2. Regulatory framework: Difficulty for managers to make the regulatory framework evolve due to a lack of decision-making or legal prerogatives.
[the options a to k are repeated]
 3. Knowledge: Lack of scientific knowledge in natural sciences and/or human and social sciences humanities and social sciences.
[the options a to k are repeated]
 4. Delimitation: Lack of clarity in geographic delineation and overlapping regulatory regulatory frameworks.

[the options a to k are repeated]
 5. Information: Lack of information to the public or local stakeholders on the role and objectives of MPAs.
[the options a to k are repeated]
 6. Capital: Lack of financial or human capital.
[the options a to k are repeated]
 7. Participation: Not all stakeholders are involved in management, and/or do not all have the same influence the same influence in decision making.
[the options a to k are repeated]
 8. Perception: Different and potentially conflicting views of the socio-economic and eco-logical costs and ecological costs and benefits of MPAs.
[the options a to k are repeated]
 9. Policy: The use of MPAs as a conservation tool is not a political priority.
[the options a to k are repeated]
 10. Redistribution of benefits: Existence of "losers" and "winners" after the establishment of MPAs: restricted or expanded activities, lack of compensation measures, etc.
[the options a to k are repeated]
 11. Common standards: Lack of common standards on the definition of an MPA and the levels of protection.
[the options a to k are repeated]
 12. Monitoring: MPAs are not adequately monitored on a long-term basis.
[the options a to k are repeated]

4. Open-ended Question

Would you like to mention other barriers and/or levers to be taken into account?

If you would like to be kept informed of any follow-up to the survey (publication of a report or organisation of a feedback workshop), please fill in your e-mail address.

Thank you very much for the time you have given to this survey!

Supplemental Figure and Table Related to the “Illustration of the framework” section and “Expert’s assessment” subsection

**Response Rate per Sector of Activity
(Total response = 53)**

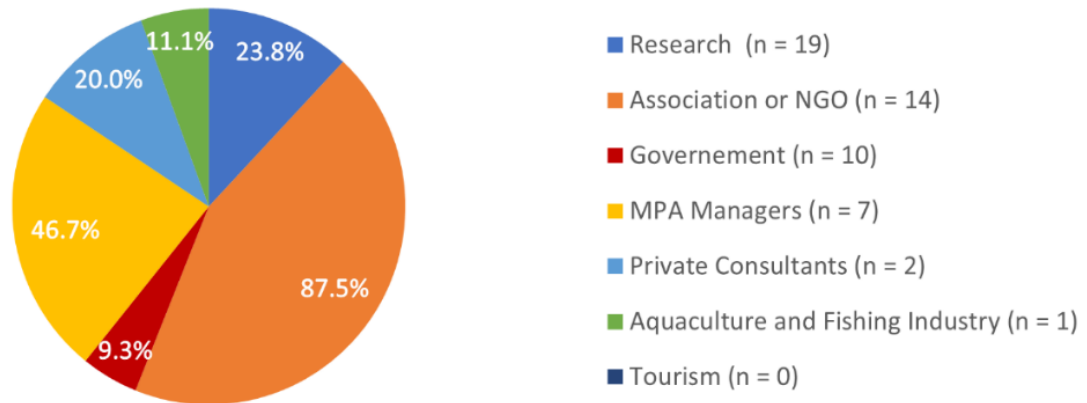


Figure S1. Response Rate per Sector of Activity. This graph represents the rate of response given to the survey by sector of activity. 239 MPA experts were reached out personally through email, 53 responded.

**Sector of Activity of the Experts Reached
(Total people reached = 239)**

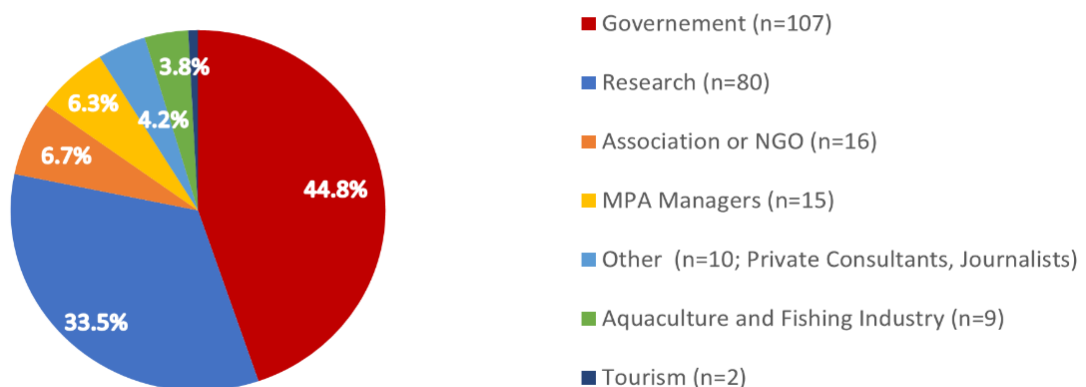


Figure S2. Sector of Activities of the experts reached for the survey. This graph represents the distribution of the respondent according to their sector of activity.

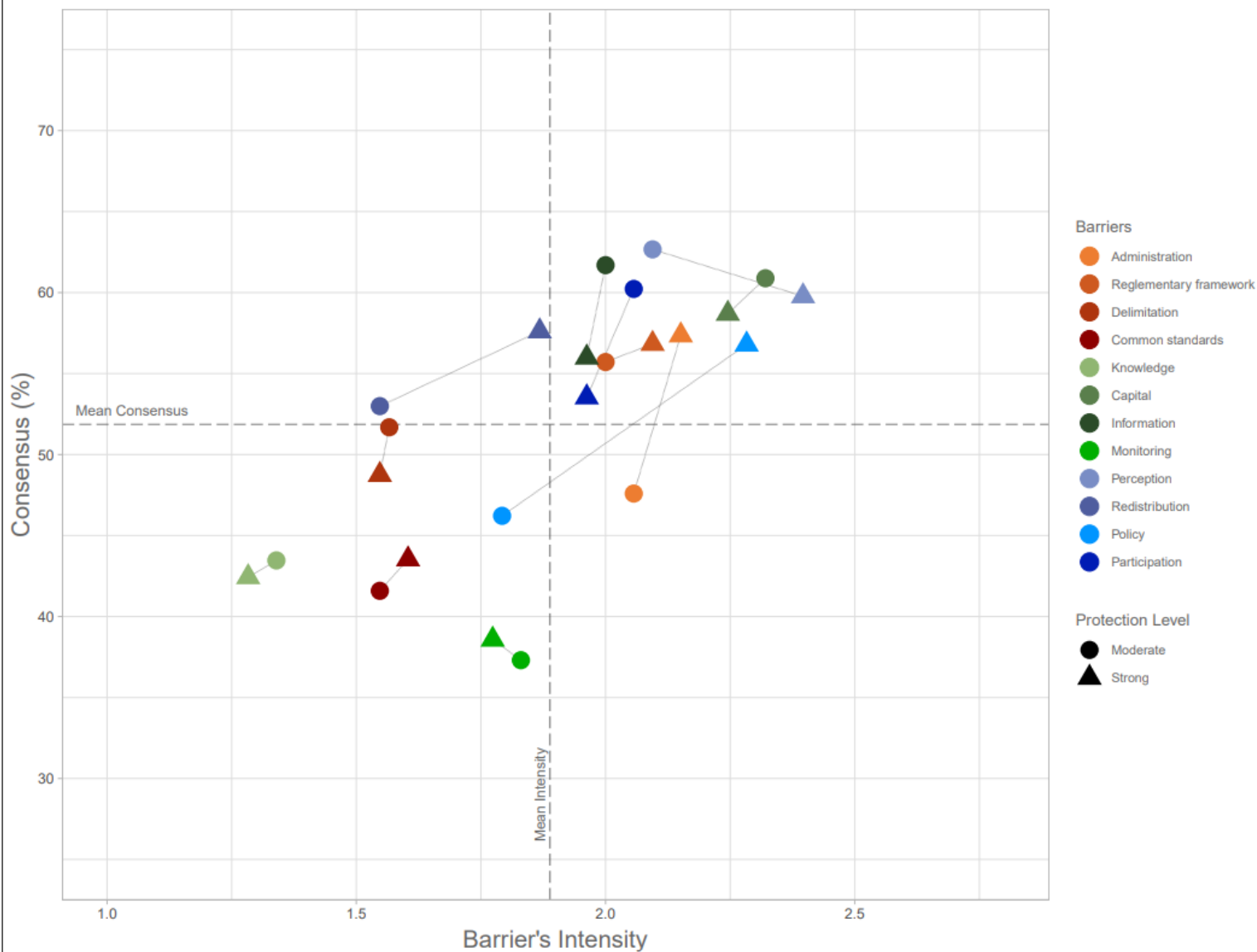


Figure S3. Level of Agreement of the experts on the intensity assessment of the barriers.

Table S1. Sector of Activity of the Respondents

Sector of Activity	Number of Respondents
Research and Education	19
Association and N.G.O.	14
Government or Local Authority	10
MPA Managers	7
Private Consultant	2
Professional in Fishing Industry	1
Tourism Sector	0
Maritime Transportation	0