

Supplementary Files

## Participatory Governance? A critical perspective on stakeholder knowledge integration in the context of German Baltic MPAs

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**Table A1.** Interviewee list of the first interview series including stakeholder group, governance level, description of interviewee (eNGO = environmental nongovernmental organization, MPA=Marine Protected Area).

Stakeholder group	Interviews	Governance level	Mean interview duration	Description
Commercial fishery	2	Regional	01:15:16	Fisheries representatives from the federal states of Schleswig-Holstein and Mecklenburg-Western Pomerania
eNGO	2	National	00:32:38	Environmentalist for national marine protection within the Baltic Sea area
Public administration	1	National	00:49:31	Officials responsible for e.g. the implementation of the MPA management plans
Recreational fishery	2	National, local	01:24:35	Representatives of the association level and tour operators
Science	3	National	01:11:41	Researchers from different disciplines such as sociology, fish ecology, conservation

**Table A2.** Interview guide divided into four parts including questions related only to either the Fehmarnbelt (FB) or Pomeranian Bight–Roenebank (PBR) MPA (MPA=Marine Protected Area).

Question
<p><b>Part 1: Opening to introduce into the topic of MPAs</b></p> <p>1. In which areas of your profession do you have interfaces with the topic of marine protection and in particular with marine protected areas?</p> <p>2. Do you consider the Fehmarnbelt MPA and/or Pomeranian Bight–Roenebank MPA as an appropriate measure for</p> <p><b>2a.</b> Preservation of fisheries</p> <p><b>2b.</b> Marine conservation</p> <p><b>2c.</b> Tourism?</p>

3. What do you consider a (functioning) Marine Protected Area?

3a. Are “no-take areas” both required and beneficial for an effective marine protected area?

3b1. Only PBR: What is your perspective on Nord Stream?

3b2. Only PBR: The marine protected area has been divided into four areas. Do you consider this as useful and reasonable?

3b3. Only FB: What is your perspective on the planned tunnel construction?

**Part 2: Ecology of the marine protected area**

4. Why were Fehmarnbelt MPA and Pomeranian Bight–Roennebank MPA declared a marine protected area?

5. What is the condition of the environment (fauna, habitat type) within the Fehmarnbelt MPA and/or Pomeranian Bight–Roennebank MPA (1=very good to 5=very bad)? On what basis do you estimate this condition?

	1	2	3	4	5	6
Fauna (1)						
Fauna (2)						
Habitat type (1)						
Habitat type (2)						

6. What effects do the different listed sectors have on the ,protected goods‘ you mentioned in question 5 within the respective MPA?

Use	Big Impact	Medium impact	Little to no impact
Professional/ commercial shipping			
Bottom trawl fisheries			
Pelagic trawl fisheries			
Gillnet fisheries			
Recreational fishing with longlines			
Recreational fishing			
Exploration and extraction of sand and gravel			
Laying and operation of cables and pipelines			
Power generation from wind			
Elimination of military contaminated sites			
Marine science			

7. What measures could help to improve or maintain the current condition of the environment?

**Part 3: Management**

8. Are there any existing legal obligations at different governance levels to establish marine protected areas? Are there consequences for non-compliance?

9. Are there controls in place to implement Marine Protected Areas?

9a. Yes

9b. No

10. Is there a monitoring that measures the success of Marine Protected Areas?

10a. Yes

10b. No

11. Does your position involve you in regulatory processes?

11a. Yes

11b. No

12. How much influence do the listed stakeholder groups have on the management of the Marine Protected Area (5=very large to 1=very small to none)?

	5	4	3	2	1
Commercial fishery					
Recreational fishery					
Environmental protection and nature conservation					
Tourism					
Public authorities					
Politics					
Science					

13. Would you like to be more involved in the management in the future or which group do you think should be more involved?

14. Does the management of Marine Protected Areas take place at different governance levels?

#### Part 4: Impact and future of Marine Protected Areas

15. Has anything changed since the establishment of the Fehmarnbelt MPA and / or the Pomeranian Bight–Roennebank MPA?

15a. For the marine environment

15b. For the (active / passive) fisheries

15c. For the tourism?

16. What are the positive and/or negative impacts of marine protected areas within your working field (i.e., commercial fisheries / recreational fisheries / environment protection / politics and public administration / science)?

17. What are the biggest obstacles to the success of German Baltic Marine Protected Areas? How could these obstacles be overcome?

18. How do you imagine the future of the Fehmarnbelt MPA and / Pomeranian Bight–Roennebank MPA?

**Table A3.** Presentation of the category system consisting of five main categories and corresponding subcategories including examples from stakeholder interviews. (MPA=Marine Protected Area)

Main-category	Sub-category	Description
Management	Structures and processes	Illustrates the various structures and processes within the management in general (e.g. high administrative effort, complexity of structures)
	Flexibility	Describes the flexibility in the management, and response to changes in the system (e.g. lack of adaptive management)

<b>Management plans</b>	Implementation of plans	Addresses the implementation of management plans in the Baltic Sea MPA (e.g. paper parks)
	Infringement procedures	Focusses specifically on the infringement procedure by the European Union against Germany (e.g. lack of management plans)
<b>Management measures</b>	Control and sanction	Addresses the control carried out (e.g. lack of sufficient controls) as well as the sanctions incurred in the course of non-compliance with measures (e.g. criticism of non-compliance)
	Monitoring of MPAs	Focusses on the monitoring carried out within MPAs, the resulting data and the responsible authority (e.g. lack of personnel)
	Spatial measures	Describes the evaluation of measures that relate to the space of MPAs (e.g. no-take areas, zoning)
	Sectoral measures	Includes certain measures that relate explicitly to a sector, such as fisheries (e.g. use of alternative fishing gear)
	Temporary measures	Describes measures that have a time component (e.g. lack of temporary closures)
<b>Stakeholder participation</b>	Acceptance of management and measures	Focusses on stakeholder acceptance of the management in general, and implemented measures in specific (e.g. lack of understanding regarding the exclusion of recreational fisheries from MPAs)
	Communication between stakeholders	Represents the communication between stakeholders of multiple groups (e.g. lack of transparency)
	Governance levels	Depicts the local, national and European governance level and the corresponding actors (e.g. lack of veto right for the Ministry of the Environment)
	Knowledge types	Describes the acceptance and integration of various knowledge types of different stakeholder groups into the management and their plans (e.g. non-integration of practical knowledge)
	Lobbyism	Refers to the attempt of individual groups to influence decisions within the management and its measures (e.g. construction measures within the MPA)
<b>Anthropogenic pressures</b>	Climate change	Describes the impact of climate change on the socio-ecological system MPA (e.g., damage to protected goods due to temperature increase)
	Biodiversity	Includes the different life forms and habitats in which species live as well as the genetic diversity within the species within the MPAs (e.g. loss of species)
	Operation of user groups	Illustrates the multi-layered uses and their effect on the MPAs (e.g. disturbance of harbour porpoises by shipping traffic)

**Table A4.** Interviewee list of the second interview series including stakeholder group, governance level, description of interviewee (eNGO = environmental nongovernmental organization, MPA=Marine Protected Area).

Stakeholder group	Interviews	Governance level	Interview duration	Description
eNGO	1	National	00:19:47	Environmentalist for national marine protection within the Baltic Sea area

Public administration	1	National	00:59:05	Officials responsible for e.g. the implementation of the MPA management plans
Science	1	National	01:04:31	Researcher from conservation

**Table A5.** Interview guide regarding participation divided into three parts (MPA=Marine Protected Area).

**Part 1: Understanding and knowledge of participation**

1. How would you define participation?

**Part 2: Participation in the German Baltic MPA case**

2. How many stages or levels of participation were involved in the enforcement of the MPA management plans?

3. Which participation formats have been used?

4. Which group was addressed? Are there differences between the different levels?

5. At what point were the groups involved in the participation process?

6. How did the announcement for participation take place?

7. What weighting do the individual contributions have? Are there differences between the different levels?

**Part 3: Current status and future development**

8. How would you summarize participation in the MPA process?

8a. Classification of the current situation

8b. Classification of desired state

9. How do you rate the willingness of participating groups to compromise?

10. What suggestions for improvement regarding participation would be desirable?

11. What is the current status regarding the implementation of MPAs in the Baltic Sea?