

Appendix: Survey copy (Wadden Sea)

Wadden Sea Biodiversity Change & NCPs

Start of Block: Default Question Block

Q27

What does biodiversity change of the Wadden Sea mean for people?

As part of the Belmont Forum funded MARISCO project, the Helmholtz Institute for Functional Marine Biodiversity (HIFMB) aims to better understand how changes in the biodiversity of the Wadden Sea, impacts humans. This survey will analyze how changes biodiversity influence Nature's Contribution to People (NCPs). NCPs are a set of standardised measures to evaluate how changes in nature impact people's quality of life. You can find our slightly modified, marine NCPs [here](#).

The four organism groups that will be evaluated in this survey are phytoplankton, macrozoobenthos, fish and birds. You will not be required to answer extensive questions about any organism group that is unfamiliar to you.

Please prepare about 30 minutes to complete this survey.

We greatly appreciate your participation.

For further information, please contact jan-claas.dajka@hifmb.de

Q97 I agree to participate in this research project. I know that this online survey will take place anonymously and no personal data (name, date of birth, address, etc.) will be collected or stored. As such, I will not be identifiable from any results that are disseminated (e.g., in

publications, presentations).

I acknowledge that I can share my opinion without this resulting in negative consequences.

I agree that my answers will be used for research purposes and will be stored for a maximum of 10 years.

I am aware that I can contact the project manager (jan-claas.dajka@hifmb.de) if I have any questions.

☐ I agree (1)

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Q2 Thank you for your willingness to take this survey. Please indicate the country where you work.

Page Break

Q26 Do you feel confident answering questions about phytoplankton biodiversity change?

☐ Yes (1)

☐ No (2)

Page Break

Display This Question:

If Do you feel confident answering questions about phytoplankton biodiversity change? = No

Q76 Though you may not have extensive data or knowledge on biodiversity change for this organism group, we are still interested in your general impressions of biodiversity change and how it impacts you as a stakeholder, or the interests that you serve.

Display This Question:

If Do you feel confident answering questions about phytoplankton biodiversity change? = No

Q77 Does phytoplankton biodiversity change impact you and/or the work that you do?

☐ Yes (1)

☐ No (2)

Display This Question:

If Do you feel confident answering questions about phytoplankton biodiversity change? = No

Q93 Please provide an explanation for your answer. (Optional)

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Display This Question:

If Do you feel confident answering questions about phytoplankton biodiversity change? = Yes

Q15 For each NCP row, please indicate on a scale of 0 (no significance) to 4 (extremely significant) how strongly the changes in each Essential Biodiversity Variable (species populations, species traits & functions, biomass & abundance) impacts the NCP in question. For example, how do phytoplankton population changes influence the regulation of air quality? If you are unsure or feel that the variable does not apply to a specific NCP, please indicate NA.

For clarification of each NCP's definition, you can hover over each name in the left-hand column. You can also hover your mouse over population, traits, or biomass in the matrix to get a better understanding of what those EBVs mean.

Display This Question:

If Do you feel confident answering questions about phytoplankton biodiversity change? = Yes



Q95 Phytoplankton

	Species population	Species traits & functions	Biomass & abundance

Regulating				
NCPs	Habitat	▼ 0, no significance	▼ 0, no significance	▼ 0, no significance
creation	and	(1 ... NA (6)	(1 ... NA (6)	(1 ... NA (6)
maintenance	(20)			
Dispersal (2)		▼ 0, no significance	▼ 0, no significance	▼ 0, no significance
		(1 ... NA (6)	(1 ... NA (6)	(1 ... NA (6)
Regulation of air		▼ 0, no significance	▼ 0, no significance	▼ 0, no significance
quality (3)		(1 ... NA (6)	(1 ... NA (6)	(1 ... NA (6)
Regulation of climate		▼ 0, no significance	▼ 0, no significance	▼ 0, no significance
(4)		(1 ... NA (6)	(1 ... NA (6)	(1 ... NA (6)
Regulation of ocean		▼ 0, no significance	▼ 0, no significance	▼ 0, no significance
acidification (5)		(1 ... NA (6)	(1 ... NA (6)	(1 ... NA (6)
Regulation of water		▼ 0, no significance	▼ 0, no significance	▼ 0, no significance
location and timing		(1 ... NA (6)	(1 ... NA (6)	(1 ... NA (6)
(6)				
Regulation of water		▼ 0, no significance	▼ 0, no significance	▼ 0, no significance
quality (7)		(1 ... NA (6)	(1 ... NA (6)	(1 ... NA (6)
Formation and		▼ 0, no significance	▼ 0, no significance	▼ 0, no significance
protection of the sea		(1 ... NA (6)	(1 ... NA (6)	(1 ... NA (6)
floor (8)				
Regulation of		▼ 0, no significance	▼ 0, no significance	▼ 0, no significance
hazards and extreme		(1 ... NA (6)	(1 ... NA (6)	(1 ... NA (6)
events (9)				
Regulation of		▼ 0, no significance	▼ 0, no significance	▼ 0, no significance
detrimental		(1 ... NA (6)	(1 ... NA (6)	(1 ... NA (6)
organisms (10)				
Material	NCPs	▼ 0, no significance	▼ 0, no significance	▼ 0, no significance
Energy (21)		(1 ... NA (6)	(1 ... NA (6)	(1 ... NA (6)

Food and feed (12)	▼ 0, no significance (1 ... NA (6)	▼ 0, no significance (1 ... NA (6)	▼ 0, no significance (1 ... NA (6)
Materials and assistance (13)	▼ 0, no significance (1 ... NA (6)	▼ 0, no significance (1 ... NA (6)	▼ 0, no significance (1 ... NA (6)
Medicinal, biochemical, and genetic resources (14)	▼ 0, no significance (1 ... NA (6)	▼ 0, no significance (1 ... NA (6)	▼ 0, no significance (1 ... NA (6)
Non-material NCPs Learning and inspiration (22)	▼ 0, no significance (1 ... NA (6)	▼ 0, no significance (1 ... NA (6)	▼ 0, no significance (1 ... NA (6)
Experiences (16)	▼ 0, no significance (1 ... NA (6)	▼ 0, no significance (1 ... NA (6)	▼ 0, no significance (1 ... NA (6)
Supporting identities (17)	▼ 0, no significance (1 ... NA (6)	▼ 0, no significance (1 ... NA (6)	▼ 0, no significance (1 ... NA (6)
Maintenance of options (18)	▼ 0, no significance (1 ... NA (6)	▼ 0, no significance (1 ... NA (6)	▼ 0, no significance (1 ... NA (6)

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Q33 Do you feel confident answering questions about macrozoobenthos biodiversity change?

☐ Yes (1)

☐ No (2)

Display This Question:

If Do you feel confident answering questions about macrozoobenthos biodiversity change? = No

Q78 Though you may not have extensive data on biodiversity change for this organism group, we are still interested in your general impressions of biodiversity change and how it impacts you as a stakeholder, or the interests that you serve.

Display This Question:

If Do you feel confident answering questions about macrozoobenthos biodiversity change? = No

Q81 Does macrozoobenthos biodiversity change impact you and/or the work that you do?

☐ Yes (1)

☐ No (2)

Display This Question:

If Do you feel confident answering questions about macrozoobenthos biodiversity change? = No

Q94 Please provide an explanation for your answer. (Optional)

Display This Question:

If Do you feel confident answering questions about macrozoobenthos biodiversity change? = Yes

Q56 For each NCP row, please indicate on a scale of 0 (no significance) to 4 (extremely significant) how strongly the changes in each Essential Biodiversity Variable (species populations, species traits & functions, biomass & abundance) impacts the NCP in question. For example, how do macrozoobenthos biomass changes influence the formation and protection of the sea floor? If you are unsure or feel that the variable does not apply to a specific NCP, please indicate NA.

For clarification of each NCP's definition, you can hover over each name in the left-hand column. You can also hover your mouse over population, traits, or biomass in the matrix to get a better understanding of what those EBVs mean.

Display This Question:

If Do you feel confident answering questions about macrozoobenthos biodiversity change? = Yes



Q104 Macrozoobenthos

	Species population	Species traits & functions	Biomass & abundance

Regulating NCPs Habitat creation and maintenance (20)	▼ 0, no significance (1 ... NA (6))	▼ 0, no significance (1 ... NA (6))	▼ 0, no significance (1 ... NA (6))
Dispersal (2)	▼ 0, no significance (1 ... NA (6))	▼ 0, no significance (1 ... NA (6))	▼ 0, no significance (1 ... NA (6))
Regulation of air quality (3)	▼ 0, no significance (1 ... NA (6))	▼ 0, no significance (1 ... NA (6))	▼ 0, no significance (1 ... NA (6))
Regulation of climate (4)	▼ 0, no significance (1 ... NA (6))	▼ 0, no significance (1 ... NA (6))	▼ 0, no significance (1 ... NA (6))
Regulation of ocean acidification (5)	▼ 0, no significance (1 ... NA (6))	▼ 0, no significance (1 ... NA (6))	▼ 0, no significance (1 ... NA (6))
Regulation of water location and timing (6)	▼ 0, no significance (1 ... NA (6))	▼ 0, no significance (1 ... NA (6))	▼ 0, no significance (1 ... NA (6))
Regulation of water quality (7)	▼ 0, no significance (1 ... NA (6))	▼ 0, no significance (1 ... NA (6))	▼ 0, no significance (1 ... NA (6))
Formation and protection of the sea floor (8)	▼ 0, no significance (1 ... NA (6))	▼ 0, no significance (1 ... NA (6))	▼ 0, no significance (1 ... NA (6))
Regulation of hazards and extreme events (9)	▼ 0, no significance (1 ... NA (6))	▼ 0, no significance (1 ... NA (6))	▼ 0, no significance (1 ... NA (6))
Regulation of detrimental organisms (10)	▼ 0, no significance (1 ... NA (6))	▼ 0, no significance (1 ... NA (6))	▼ 0, no significance (1 ... NA (6))
Material NCPs Energy (21)	▼ 0, no significance (1 ... NA (6))	▼ 0, no significance (1 ... NA (6))	▼ 0, no significance (1 ... NA (6))
Food and feed (12)	▼ 0, no significance (1 ... NA (6))	▼ 0, no significance (1 ... NA (6))	▼ 0, no significance (1 ... NA (6))

Materials and assistance (13)	▼ 0, no significance (1 ... NA (6)	▼ 0, no significance (1 ... NA (6)	▼ 0, no significance (1 ... NA (6)
Medicinal, biochemical, and genetic resources (14)	▼ 0, no significance (1 ... NA (6)	▼ 0, no significance (1 ... NA (6)	▼ 0, no significance (1 ... NA (6)
Non-material NCPs Learning and inspiration (22)	▼ 0, no significance (1 ... NA (6)	▼ 0, no significance (1 ... NA (6)	▼ 0, no significance (1 ... NA (6)
Experiences (16)	▼ 0, no significance (1 ... NA (6)	▼ 0, no significance (1 ... NA (6)	▼ 0, no significance (1 ... NA (6)
Supporting identities (17)	▼ 0, no significance (1 ... NA (6)	▼ 0, no significance (1 ... NA (6)	▼ 0, no significance (1 ... NA (6)
Maintenance of options (18)	▼ 0, no significance (1 ... NA (6)	▼ 0, no significance (1 ... NA (6)	▼ 0, no significance (1 ... NA (6)

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Q40 Do you feel confident answering questions about fish biodiversity change?

☐ Yes (1)

☐ No (2)

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Display This Question:

If Do you feel confident answering questions about fish biodiversity change? = No

Q79 Though you may not have extensive data on biodiversity change for this organism group, we are still interested in your general impressions of biodiversity change and how it impacts you as a stakeholder, or the interests that you serve.

Display This Question:

If Do you feel confident answering questions about fish biodiversity change? = No

Q82 Does fish biodiversity change impact you and/or the work that you do?

☐ Yes (1)

☐ No (2)

Display This Question:

If Do you feel confident answering questions about fish biodiversity change? = No

Q92 Please provide an explanation for your answer. (Optional)

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Display This Question:
If Do you feel confident answering questions about fish biodiversity change? = Yes

Q55 For each NCP row, please indicate on a scale of 0 (no significance) to 4 (extremely significant) how strongly the changes in each Essential Biodiversity Variable (species populations, species traits & functions, biomass & abundance) impacts the NCP in question. For example, how do fish trait changes influence the regulation of water quality? If you are unsure or feel that the variable does not apply to a specific NCP, please indicate NA.

For clarification of each NCP's definition, you can hover over each name in the left-hand column. You can also hover your mouse over population, traits, or biomass in the matrix to get a better understanding of what those EBVs mean.

Display This Question:
If Do you feel confident answering questions about fish biodiversity change? = Yes



Q105 Fish

	Species population	Species functions	traits	&	Biomass abundance	&

Regulating NCPs Habitat creation and maintenance (20)	▼ 0, no significance (1 ... NA (6))	▼ 0, no significance (1 ... NA (6))	▼ 0, no significance (1 ... NA (6))
Dispersal (2)	▼ 0, no significance (1 ... NA (6))	▼ 0, no significance (1 ... NA (6))	▼ 0, no significance (1 ... NA (6))
Regulation of air quality (3)	▼ 0, no significance (1 ... NA (6))	▼ 0, no significance (1 ... NA (6))	▼ 0, no significance (1 ... NA (6))
Regulation of climate (4)	▼ 0, no significance (1 ... NA (6))	▼ 0, no significance (1 ... NA (6))	▼ 0, no significance (1 ... NA (6))
Regulation of ocean acidification (5)	▼ 0, no significance (1 ... NA (6))	▼ 0, no significance (1 ... NA (6))	▼ 0, no significance (1 ... NA (6))
Regulation of water location and timing (6)	▼ 0, no significance (1 ... NA (6))	▼ 0, no significance (1 ... NA (6))	▼ 0, no significance (1 ... NA (6))
Regulation of water quality (7)	▼ 0, no significance (1 ... NA (6))	▼ 0, no significance (1 ... NA (6))	▼ 0, no significance (1 ... NA (6))
Formation and protection of the sea floor (8)	▼ 0, no significance (1 ... NA (6))	▼ 0, no significance (1 ... NA (6))	▼ 0, no significance (1 ... NA (6))
Regulation of hazards and extreme events (9)	▼ 0, no significance (1 ... NA (6))	▼ 0, no significance (1 ... NA (6))	▼ 0, no significance (1 ... NA (6))
Regulation of detrimental organisms (10)	▼ 0, no significance (1 ... NA (6))	▼ 0, no significance (1 ... NA (6))	▼ 0, no significance (1 ... NA (6))
Material NCPs Energy (21)	▼ 0, no significance (1 ... NA (6))	▼ 0, no significance (1 ... NA (6))	▼ 0, no significance (1 ... NA (6))
Food and feed (12)	▼ 0, no significance (1 ... NA (6))	▼ 0, no significance (1 ... NA (6))	▼ 0, no significance (1 ... NA (6))

Materials and assistance (13)	▼ 0, no significance (1 ... NA (6)	▼ 0, no significance (1 ... NA (6)	▼ 0, no significance (1 ... NA (6)
Medicinal, biochemical, and genetic resources (14)	▼ 0, no significance (1 ... NA (6)	▼ 0, no significance (1 ... NA (6)	▼ 0, no significance (1 ... NA (6)
Non-material NCPs Learning and inspiration (22)	▼ 0, no significance (1 ... NA (6)	▼ 0, no significance (1 ... NA (6)	▼ 0, no significance (1 ... NA (6)
Experiences (16)	▼ 0, no significance (1 ... NA (6)	▼ 0, no significance (1 ... NA (6)	▼ 0, no significance (1 ... NA (6)
Supporting identities (17)	▼ 0, no significance (1 ... NA (6)	▼ 0, no significance (1 ... NA (6)	▼ 0, no significance (1 ... NA (6)
Maintenance of options (18)	▼ 0, no significance (1 ... NA (6)	▼ 0, no significance (1 ... NA (6)	▼ 0, no significance (1 ... NA (6)

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Q47 Do you feel confident answering questions about bird biodiversity change?

☐ Yes (1)

☐ No (2)

Page Break

Display This Question:

If Do you feel confident answering questions about bird biodiversity change? = No

Q80 Though you may not have extensive data on biodiversity change for this organism group, we are still interested in your general impressions of biodiversity change and how it impacts you as a stakeholder, or the interests that you serve.

Display This Question:

If Do you feel confident answering questions about bird biodiversity change? = No

Q86 Does bird biodiversity change impact you and/or the work that you do?

☐ Yes (1)

☐ No (2)

Display This Question:

If Do you feel confident answering questions about bird biodiversity change? = No

Q74 Please provide an explanation for your answer. (Optional)

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Display This Question:
If Do you feel confident answering questions about bird biodiversity change? = Yes

Q54 For each NCP row, please indicate on a scale of 0 (no significance) to 4 (extremely significant) how strongly the changes in each Essential Biodiversity Variable (species populations, species traits & functions, biomass & abundance) impacts the NCP in question. For example, how do bird population changes influence habitat creation and maintenance? If you are unsure or feel that the variable does not apply to a specific NCP, please indicate NA.

For clarification of each NCP's definition, you can hover over each name in the left-hand column. You can also hover your mouse over population, traits, or biomass in the matrix to get a better understanding of what those EBVs mean.

Display This Question:
If Do you feel confident answering questions about bird biodiversity change? = Yes



Q106 Birds

	Species population	Species functions	traits	&	Biomass abundance	&

Regulating NCPs Habitat creation and maintenance (20)	▼ 0, no significance (1 ... NA (6))	▼ 0, no significance (1 ... NA (6))	▼ 0, no significance (1 ... NA (6))
Dispersal (2)	▼ 0, no significance (1 ... NA (6))	▼ 0, no significance (1 ... NA (6))	▼ 0, no significance (1 ... NA (6))
Regulation of air quality (3)	▼ 0, no significance (1 ... NA (6))	▼ 0, no significance (1 ... NA (6))	▼ 0, no significance (1 ... NA (6))
Regulation of climate (4)	▼ 0, no significance (1 ... NA (6))	▼ 0, no significance (1 ... NA (6))	▼ 0, no significance (1 ... NA (6))
Regulation of ocean acidification (5)	▼ 0, no significance (1 ... NA (6))	▼ 0, no significance (1 ... NA (6))	▼ 0, no significance (1 ... NA (6))
Regulation of water location and timing (6)	▼ 0, no significance (1 ... NA (6))	▼ 0, no significance (1 ... NA (6))	▼ 0, no significance (1 ... NA (6))
Regulation of water quality (7)	▼ 0, no significance (1 ... NA (6))	▼ 0, no significance (1 ... NA (6))	▼ 0, no significance (1 ... NA (6))
Formation and protection of the sea floor (8)	▼ 0, no significance (1 ... NA (6))	▼ 0, no significance (1 ... NA (6))	▼ 0, no significance (1 ... NA (6))
Regulation of hazards and extreme events (9)	▼ 0, no significance (1 ... NA (6))	▼ 0, no significance (1 ... NA (6))	▼ 0, no significance (1 ... NA (6))
Regulation of detrimental organisms (10)	▼ 0, no significance (1 ... NA (6))	▼ 0, no significance (1 ... NA (6))	▼ 0, no significance (1 ... NA (6))
Material NCPs Energy (21)	▼ 0, no significance (1 ... NA (6))	▼ 0, no significance (1 ... NA (6))	▼ 0, no significance (1 ... NA (6))
Food and feed (12)	▼ 0, no significance (1 ... NA (6))	▼ 0, no significance (1 ... NA (6))	▼ 0, no significance (1 ... NA (6))

Materials and assistance (13)	▼ 0, no significance (1 ... NA (6)	▼ 0, no significance (1 ... NA (6)	▼ 0, no significance (1 ... NA (6)
Medicinal, biochemical, and genetic resources (14)	▼ 0, no significance (1 ... NA (6)	▼ 0, no significance (1 ... NA (6)	▼ 0, no significance (1 ... NA (6)
Non-material NCPs Learning and inspiration (22)	▼ 0, no significance (1 ... NA (6)	▼ 0, no significance (1 ... NA (6)	▼ 0, no significance (1 ... NA (6)
Experiences (16)	▼ 0, no significance (1 ... NA (6)	▼ 0, no significance (1 ... NA (6)	▼ 0, no significance (1 ... NA (6)
Supporting identities (17)	▼ 0, no significance (1 ... NA (6)	▼ 0, no significance (1 ... NA (6)	▼ 0, no significance (1 ... NA (6)
Maintenance of options (18)	▼ 0, no significance (1 ... NA (6)	▼ 0, no significance (1 ... NA (6)	▼ 0, no significance (1 ... NA (6)

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Q57 Why do you think it is important to fill out this survey?

Q96 What do you hope comes from this survey?

Q9 Do you have any additional input?

End of Block: Default Question Block
