MSPACE Social Acceptability Survey

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MSPACE
Marine Spatial Planning
Addressing Climate Effects

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DESIGN BY LANDS

Acknowledgments
The Marine Spatial Planning Addressing Climate Effect project (MSPACE) was funded by the UK Natural Environment Research Council and the Economic and Social Research Council, as part of the Sustainable Management of UK Marine Resources (SMMR) Strategic Priorities Fund (grant NE/V016725/1). The SMMR Programme dedicated funding to marine research in order to address critical gaps in understanding identified by UK policy makers.

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To cite this report, please use: Reinhardt, Gina Yannitell (2026) MSPACE Social Acceptability Report. Project Report. University of Essex. https://doi.org/10.5526/ERR-00042632

Published February 2026

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This report describes and analyzes the results of a survey of acceptability for MSPACE. Respondents were shown the MSPACE Scenario documents[1,2,3,4] and asked questions as described in the MSPACE Values, Preferences, and Trade-offs Methodology[5].

1 East Marine Plan Storyline: Narrative of marine (spatial) planning scenarios explored in the MSPACE project Elizabeth Talbot, Simon Mair, Alberto Roca Florido, Océane Marcone, Gina Yannitell Reinhardt, Patricia Danahey Janin and Ana M Queirós 10.5281/zenodo.18173837

2 Northern Ireland Marine Plan Storyline: Narrative of marine (spatial) planning scenarios explored in the MSPACE project Elizabeth Talbot, Simon Mair, Alberto Roca Florido, Océane Marcone, Gina Yannitell Reinhardt, Patricia Danahey Janin, Hugh Edwards, William Hunter and Ana M Queirós 10.5281/zenodo.18173588

3 Welsh National Marine Plan Storyline: Narrative of marine (spatial) planning scenarios explored in the MSPACE project Elizabeth Talbot, Simon Mair, Alberto Roca Florido, Océane Marcone, Gina Yannitell Reinhardt, Patricia Danahey Janin and Ana M. Queirós 10.5281/zenodo.18173893

4 Orkney Islands Regional Marine Plan Storyline Narrative of marine (spatial) planning scenarios explored in the MSPACE project Elizabeth Talbot, Simon Mair, Alberto Roca Florido, Océane Marcone, Gina Yannitell Reinhardt, Patricia Danahey Janin, and Ana M Queirós 10.5281/zenodo.18174001

5 Reinhardt, Gina and Danahey Janin, Patricia (2025) MSPACE Values and Preferences Methodology. Project Report. University of Essex. 10.5526/err-00041405

Describing the sample

After asking colleagues and networks to circulate the survey link, thirty usable responses were collected. The following frequency tables depict the proportions of respondents that fit into categories such as whether they were responding in their personal or professional opinions (Table SAS. 1), whether those responding in their professional opinions worked in the public, private, or voluntary sectors (Table SAS. 2), which general field of the marine space was of highest interest (Table SAS. 3), and which MSPACE case region they would focus on in their survey (Table SAS. 4).

Table SAS. 1 Responding in a personal or professional capacity

Will you be responding to this survey with your personal opinion or in professional capacity ?	Freq.	Percent	Cum.
Personal opinion	13	43.33	43.33
Professional capacity	17	56.67	100.00
Total	30	100.00	

Table SAS. 2 Work in the private, public, or voluntary sector

Which of the following broad economic sectors would you say describes the the organisation where you work?	Freq.	Percent	Cum.
Private sector (organisations or businesses that may be for -profit, owned by individuals or shareholders, self-employed, etc.)	8	47.06	47.06
Public sector (organisations that are government-owned and may be statutory, regulatory, public service provision, etc.)	6	35.29	82.35
Voluntary sector (organisations that are non-profit, charitable, may be known as “third sector”, etc.)	3	17.65	100.00
Total	17	100.00	

Table SAS. 3 Field in the marine space

In your personal/professional opinion, which of the following categories would you say best describes the industry or element of the marine space that is of highest interest to you? (Please consider any category to include all relevant manufacturing and supply chains.)	Freq.	Percent	Cum.
Aquaculture (shellfish, fin fish, seaweed)	2	6.67	6.67
Carbon capture, usage and storage	1	3.33	10.00
Commercial fisheries	4	13.33	23.33
Conservation (cultural heritage and natural)	4	13.33	36.67
Defence	2	6.67	43.33
Government (local or national administration, regulation, or management of marine resources or space)	6	20.00	63.33
Other (please specify)	4	13.33	76.67
Ports and shipping	1	3.33	80.00
Renewable energy	1	3.33	83.33
Tourism and recreation	5	16.67	100.00
Total	30	100.00	

Table SAS. 4 Case of Focus for Response

We would like to ask you questions about a specific marine spatial planning (MSP) area in the United Kingdom.	Freq.	Percent	Cum.
East Marine Plan (from Flamborough Head to Felixstowe)	15	50.00	50.00
Marine Plan for Northern Ireland	3	10.00	60.00
Orkney Islands Marine Plan	5	16.67	76.67
Welsh Marine Plan	7	23.33	100.00
Total	30	100.00	

Table SAS. 5 Summary statistics for scenario ratings

		N	Mean	Std. Dev.	min	max
No economic outcomes given	Conservation v. BAU	26	6.808	2.698	0	10
	Food v. BAU	24	5.583	2.501	0	10
	Compromise v. BAU	19	5.526	2.674	0	9
Economic outcomes given	Conservation v. BAU	26	6.808	2.53	0	10
	Food v. BAU	20	5.25	2.693	0	10
	Compromise v. BAU	17	5.471	2.625	1	10

Approval ratings

Respondents were asked a sequence of questions comparing various hypothetical management scenarios to the predicted "business-as-usual" outcome (BAU). In each case, the respondent was asked how they rated the scenario outcomes' acceptability (on a 0-10 scale) compared to the BAU. For each scenario, respondents were asked to rate outcomes compared to BAU outcomes both without seeing economic outcomes, and then with seeing economic outcomes, using the following questions:

On a scale from 0 to 10, with 0 being "not at all" and 10 being "completely", how much would you say you would support the introduction of the interventions proposed under the Hypothetical Conservation Scenario, compared to no intervention at all (in the Business-as-Usual Scenario)?

On a scale from 0 to 10, with 0 being "not at all" and 10 being "completely", how much would you say you would support the introduction of the interventions proposed under the Hypothetical Conservation Scenario, compared to no intervention at all (in the Business-as-Usual Scenario), now that economic outcomes have been added to the comparison?

Respondents were asked the above questions regarding 3 scenarios for any planning area: Conservation Scenario, Food Provision Scenario, and Compromise Scenario. We can view the average ratings for each scenario for the entire sampling pool (Table SAS. 5), as well as according to case/marine plan (Table SAS. 6).

Table SAS. 6 Summary statistics for scenario ratings, by marine plan area

East Marine Plan (from Flamborough Head to Felixstowe)	N	mean	sd	min	max
Conservation v. BAU, no Econ	13	6	2.915	0	10
Conservation v. BAU w Econ	14	6.071	2.433	0	10
Food v. BAU, no Econ	13	5.231	2.279	0	10
Food v. BAU w Econ	12	4.917	2.353	1	10
Compromise v. BAU, no Econ	11	5.545	2.423	1	9
Compromise v. BAU w Econ	8	4.125	1.959	1	6
Marine Plan for Northern Ireland					
Conservation v. BAU, no Econ	3	6	4	2	10
Conservation v. BAU w Econ	3	7	3	4	10
Food v. BAU, no Econ	3	6	1	5	7
Food v. BAU w Econ	2	6	1.414	5	7
Compromise v. BAU, no Econ	2	7.5	.707	7	8
Compromise v. BAU w Econ	2	7	1.414	6	8
Orkney Islands Marine Plan					
Conservation v. BAU, no Econ	5	7.8	1.643	6	10
Conservation v. BAU w Econ	4	6.5	2.887	3	10
Food v. BAU, no Econ	3	6.667	1.528	5	8
Food v. BAU w Econ	2	6	1.414	5	7
Compromise v. BAU, no Econ	2	7	0	7	7
Compromise v. BAU w Econ	2	6	1.414	5	7
Welsh Marine Plan					
Conservation v. BAU, no Econ	5	8.4	1.517	7	10
Conservation v. BAU w Econ	5	9	1.414	7	10
Food v. BAU, no Econ	5	5.6	4.159	0	10
Food v. BAU w Econ	4	5.5	4.796	0	10
Compromise v. BAU, no Econ	4	3.75	3.862	0	8
Compromise v. BAU w Econ	5	6.8	3.564	1	10

Analyzing acceptability

Table SAS. 7 Paired t-tests: Comparing scenario ratings without considering economic effects

Difference-of-means tests for scenario ratings without economic effects
With average ratings for each scenario and for each marine plan, we can compare ratings across scenarios. Using paired t-tests, we investigate whether the differences between the means of ratings is statistically and substantively significant when no economic outcomes were shared (Table SAS. 7).

	obs	Mean1	Mean2	dif	St Err	t value	p value
Conservation—Food Provision	23	6.696	5.609	1.087	.79	1.4	.182
Conservation—Compromise	18	7	5.611	1.389	.768	1.8	.088
Compromise—Food Provision	19	5.527	5.263	.263	.97	.25	.789

Table SAS. 8 Paired t-tests: Comparing scenario ratings without considering economic effects, by marine plan

No significant differences found

We find that on average, respondents do not indicate a significant difference between the acceptability of any two scenarios when compared to each other, when economic aspects are not included. Investigating according to marine plan, we find no significant differences (Table SAS. 8).

Conservation—Food Provision	obs	Mean1	Mean2	dif	St Err	t-val	*p*-val
East Marine Plan	12	5.833	5.25	.583	1.048	.55	.589
Marine Plan for Northern Ireland	3	6	6	0	2.887	0	1
Orkney Islands Marine Plan	3	8	6.667	1.333	1.856	.7	.547
Welsh Marine Plan	5	8.4	5.6	2.8	1.985	1.4	.231
Conservation—Compromise							
East Marine Plan	10	5.8	5.7	.1	.459	.2	.832
Marine Plan for Northern Ireland	2	8	7.5	.5	1.5	.35	.795
Orkney Islands Marine Plan	2	8.5	7	1.5	1.5	1	.5
Welsh Marine Plan	4	8.75	3.75	5	2.614	1.9	.151
Conservation—Compromise							
East Marine Plan	11	5.546	5.272	.273	1.129	.25	.814
Marine Plan for Northern Ireland	2	7.5	5.5	2	1	2	.295
Orkney Islands Marine Plan	2	7	6	1	1	1	.5
Welsh Marine Plan	4	3.75	4.75	-1	3.697	-.25	.804

Table SAS. 9 Paired t-tests: Comparing scenario ratings whilst considering economic effects

	obs	Mean1	Mean2	dif	St Err	t value	p value
Conservation – Food Provision	20	7.35	5.25	2.1	.858	2.45	.025
Conservation – Compromise	17	7.176	5.471	1.706	.663	2.55	.021
Compromise – Food Provision	16	5.438	5.562	-.125	.831	-.15	.883

Difference-of-means tests for scenario ratings, adding economic effects
When economic effects are added to the predicted outcomes of each scenario, ratings of each scenario as compared to business-as-usual (BAU) does change (Table SAS. 9).

On average, respondents find the Conservation Scenario 2.10 points more acceptable (on a 0-10 scale) compared to Business-as-Usual (BAU) than they find the Food Provision Scenario when comparing to BAU, when economic aspects are included ($p<0.05$).

On average, respondents find the Conservation Scenario 1.71 points more acceptable (on a 0-10 scale) compared to Business-as-Usual (BAU) than they find the Compromise Scenario when comparing to BAU, when economic aspects are included ($p<0.05$).

On average, respondents do not indicate a significant difference between the acceptability of the Food Provision Scenario when compared to BAU versus the Compromise Scenario when compared to BAU (on a 0-10 scale), when economic aspects are included.

Breaking down the analysis by case, there is no particular marine planning area that stands out as the source of the difference in opinions. This is likely due to the small sample sizes for the Northern Ireland and Orkney cases. Results are shown according to case in Table SAS. 10, which indicates no difference in ratings according to case.

Table SAS. 10 Paired t-tests: Comparing scenario ratings whilst considering economic effects, by marine plan

Conservation – Food Provision	obs	Mean1	Mean2	dif	St Err	t-val	*p*-val
East Marine Plan	12	6.25	4.917	1.333	1.054	1.25	.232
Marine Plan for Northern Ireland	2	8.5	6	2.5	2.5	1	.5
Orkney Islands Marine Plan	2	8.5	6	2.5	2.5	1	.5
Welsh Marine Plan	4	9.5	5.5	4	2.677	1.5	.232
Conservation – Compromise							
East Marine Plan	8	5.375	4.125	1.25	.84	1.5	.18
Marine Plan for Northern Ireland	2	8.5	7	1.5	.5	3	.205
Orkney Islands Marine Plan	2	8.5	6	2.5	2.5	1	.5
Welsh Marine Plan	5	9	6.8	2.2	1.772	1.25	.282
Compromise – Food Provision							
East Marine Plan	8	4.125	5.375	-1.25	1.161	-1.1	.318
Marine Plan for No	2	7	6	1	2	.5	.705
Orkney Islands Mar	2	6	6	0	0	.	.
Welsh Marine Plan	4	7	5.5	1.5	2.218	.7	.547

Examining the results by case area

Although the association between case area and scenario ratings (with or without economic effects) was not statistically significant, this outcome should be interpreted in light of the very small sample sizes in several categories, which substantially reduces statistical power. The moderate effect sizes and the directional trends indicated by the coefficients suggest that there may be meaningful differences in scenario ratings across case areas, but the available data are insufficient to confirm these patterns with confidence. It is therefore more plausible that the non-significant results reflect limitations in sample size rather than the absence of an underlying relationship. Additional data—or a larger, more balanced sample across cases—would be required to more reliably assess whether the observed differences represent genuine variation or sampling noise.

A note on economic attitudes

Did adding the economic outcomes make people likely to rate a scenario higher, lower, or equally? We find no overall trend in the sample, but we do find that some people are more likely to view the economic outcomes in a particular way.

First, examine Table SAS. 11, which demonstrates no significant differences in ratings when comparing scenarios with versus without economic effects.

An examination across marine plans reveals no additional information, as Table SAS. 12 reveals on the following page.

Table SAS. 11 Paired t-tests: Comparing estimates without economic effects (mean1) to those with economic effects (mean2)

	obs	Mean1	Mean2	dif	St Err	t value	p value
Conservation Scenario	25	6.84	6.88	-.04	.367	-.1	.914
Food Provision Scenario	20	5.45	5.25	.2	.277	.7	.48
Compromise Scenario	16	5.125	5.25	-.125	.689	-.2	.859

Table SAS. 12 Paired t-tests: Comparing estimates without economic effects (mean1) to those with economic effects (mean2), by marine plan

Conservation	obs	Mean1	Mean2	dif	St Err	t value	p value
East Marine Plan	13	6	6.154	-.154	.465	-.35	.747
Marine Plan for Northern Ireland	3	6	7	-1	.578	-1.75	.226
Orkney Islands Marine Plan	4	8.25	6.5	1.75	1.436	1.2	.31
Welsh Marine Plan	5	8.4	9	-.6	.4	-1.5	.208
Food Provision							
East Marine Plan	12	5.333	4.917	.417	.452	.9	.376
Marine Plan for Northern Ireland	2	5.5	6	-.5	.5	-1	.5
Orkney Islands Marine Plan	2	6	6	0	0	.	.
Welsh Marine Plan	4	5.5	5.5	0	0	.	.
Compromise							
East Marine Plan	8	4.75	4.125	.625	.324	1.95	.095
Marine Plan for Northern Ireland	2	7.5	7	.5	.5	1	.5
Orkney Islands Marine Plan	2	7	6	1	1	1	.5
Welsh Marine Plan	4	3.75	6.25	-2.5	2.5	-1	.391

Individual economic attitudes

We do note that respondents who are answering in a professional capacity seem to be less likely to find a hypothetical scenario acceptable compared to the BAU when they know about economic outcomes, compared to when they do not know. We gave each respondent a score on "individual economic attitudes" calculated as follows:

1. Subtract the rating of each scenario without known economic effects from a respondent's rating of the same scenario with economic effects known. Each respondent then receives a score for "econ – noecon" for each scenario.

2. Average a respondent's differences to create the "individual economic attitudes" measure.

The new indicator for individual economic attitudes can be described as given in Table SAS. 13.

Table SAS. 13 Summary statistics for generated "individual economic attitudes" indicator

	N	Mean	Std. Dev.	min	max
Individual economic attitudes	26	-.237	1.596	-6	3.333

Regressing the individual economic attitudes indicator on various categorical variables in our sample, we find that:

- People answering from a professional viewpoint are likely to downgrade a scenario when the economic outcomes are known versus unknown, compared to people answering from a personal perspective (Table SAS. 14).
- People answering regarding the Orkney Islands Marine Plan are likely to downgrade a scenario when the economic outcomes are known versus unknown, compared to people answering regarding each of the other three marine plans (Table SAS. 15).
- There is no statistically significant difference in economic attitudes between people from different economic sectors (public, private, voluntary, results not shown).

Table SAS. 14 Regressing individual economic attitudes on viewpoint

	Coef.	St.Err	t-value	p-value	[95% Conf	Interval]	Sig
Personal perspective (comparison category)	0	.	.	.	.	.	
Professional capacity	-1.446	.569	-2.54	.018	-2.62	-.273	**
Constant	.542	.417	1.30	.207	-.32	1.403	
Mean dependent var		-0.237	SD dependent var			1.596	
R-squared		0.212	Number of obs			26.000	
F-test		6.468	Prob > F			0.018	
Akaike crit. (AIC)		94.869	Bayesian crit. (BIC)			97.385	

*** p<.01, ** p<.05, * p<.1

Table SAS. 15 Regressing individual economic attitudes on marine plan

	Coef.	St.Err	t-value	p-value	[95% Conf	Interval]	Sig
East Marine Plan	1.536	.788	1.95	.064	-.099	3.171	*
Northern Ireland	2.694	1.062	2.54	.019	.492	4.897	**
Orkney Islands	0	.	.	.	.	.	
Welsh Marine Plan	2.817	.933	3.02	.006	.882	4.751	***
Constant	-1.917	.695	-2.76	.012	-3.359	-.475	**
Mean dependent var		-0.237	SD dependent var			1.596	
R-squared		0.332	Number of obs			26.000	
F-test		3.642	Prob > F			0.028	
Akaike crit. (AIC)		94.591	Bayesian crit. (BIC)			99.623	

*** p<.01, ** p<.05, * p<.1

Marine Spatial Planning Addressing Climate Effects (MSPACE) was a highly integrated, multidisciplinary research project, designed to drive forward the capability of the four UK nations in designing and implementing economically viable and socially acceptable climate-smart marine plans. The project was co created with UK governments, the policy community, marine industries and communities to ensure sustainable management of UK marine resources and improve the marine environment for the next generation.

MSPACE was funded by the UK Natural Environment Research Council and the Economic and Social Research Council, as part of the T Sustainable Management of UK Marine Resources (SMMR) Strategic Priorities Fund. The SMMR Programme dedicated funding to marine research in order to address critical gaps in understanding that had been identified by UK policy makers.

The MSPACE initiative continues as an endorsed UN Ocean Decade Action, helping deliver the vision of the UN Decade of Ocean Science for Sustainable Development 2021-2030.

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