

# A matter of timing: How does the temporal scale selection influence cetaceans ecological niche modelling?

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## Supplement 1

### Minimum Sampled Area and detectability indexes

In this study we used two methods to perform the background data selection. As a first step we defined the Minimum Sampled Area (MSA) based on the Minimum Convex Polygon containing all the sightings for each trip (Fig. S1.1). All the grids inside the MSA were assumed as sampled by the lookout and therefore used for the analysis.

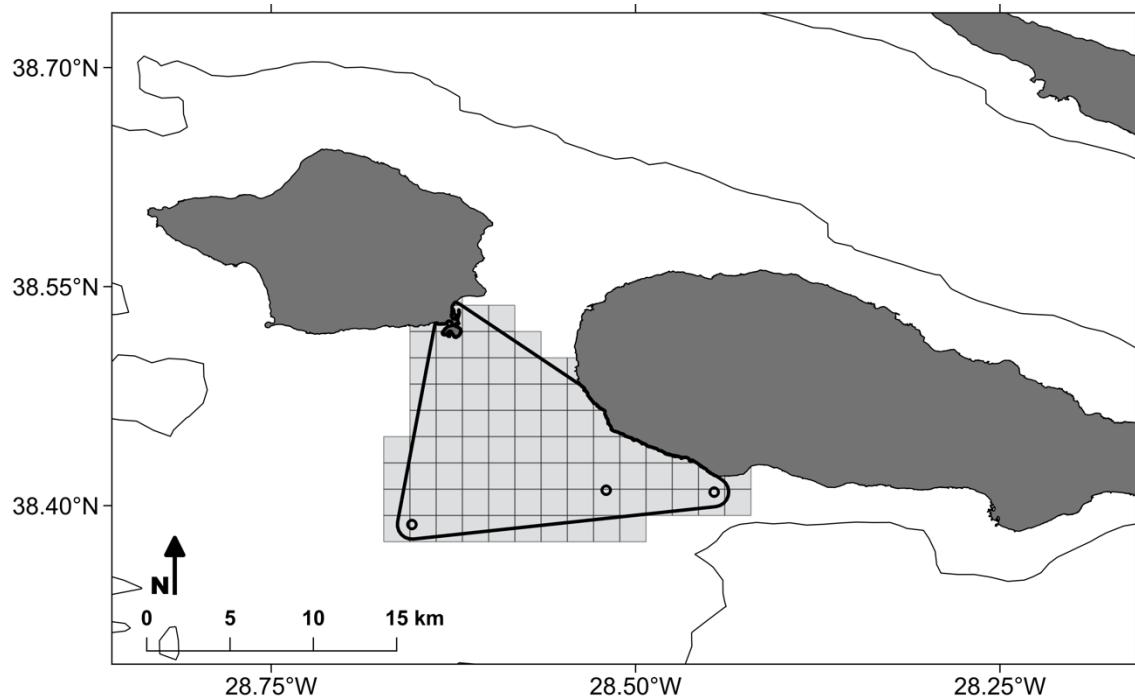


Figure S1.1 Minimum Sampled Area (grey grid) for a randomly selected trip in the Central Group of the Azores Archipelago. The black line represents the Minimum Convex Polygon, the circles represents all the sightings for that trip. The grid represented is in a 2x2 km scale.

Grids were selected and grouped according to the time period of interest and the detectability index calculated. Four different species groups were done to calculate the detection functions: baleen whales (fin, blue and sei whales), sperm whales, big dolphins (bottlenose and Risso's dolphins and pilot whales) and small dolphins (common, Atlantic spotted and striped dolphins). These groups were made according to expert knowledge of the respective detectability from the lookout. A multiple-covariate model approach was used to calculate the detectability index. Two co-variables were used: the mean sea state condition (using a

Beaufort scale) and the company who collected the data. The mean sea condition was calculated using all the registers collected by the companies for each trip and categorized in 2 groups (Sea State class 1: Beaufort $\leq$ 3 and Sea State class 2: Beaufort $>$ 3). Different detectability functions were obtained depending on the group analysed (Fig. S1.2, S1.3, S1.4, S1.5).

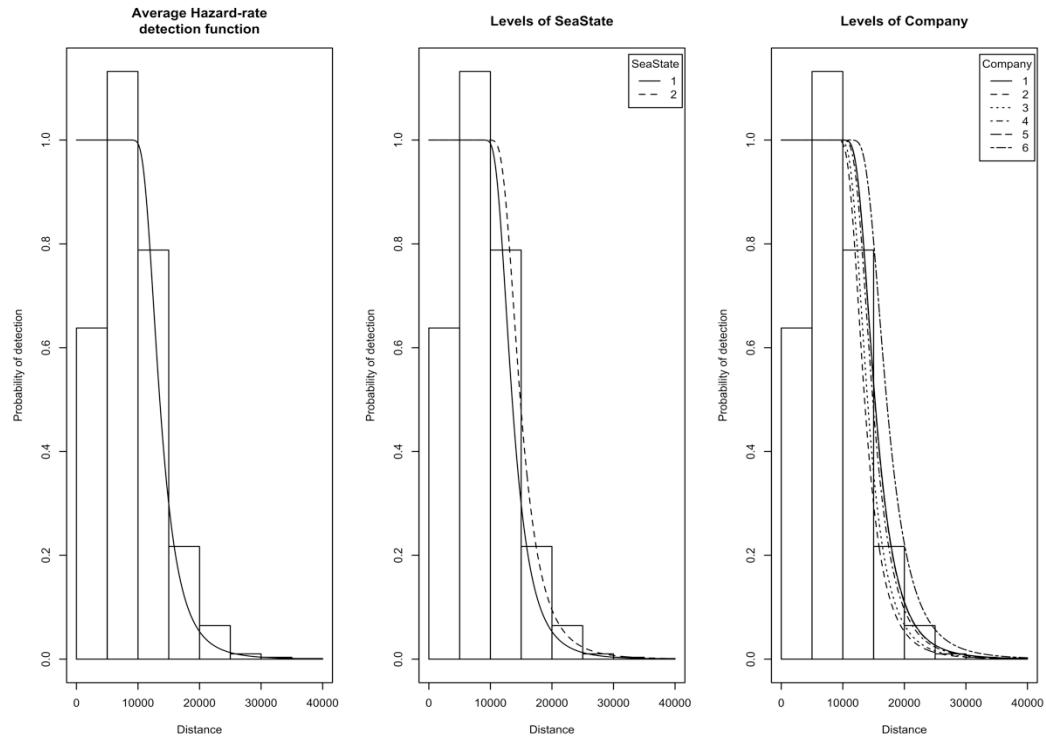


Figure S1.2. Baleen whale group detectability function for the distance to the closest lookout, with sea state and company as covariates. The bars represent the number of detections divided by distance from the observation point. Distances are given in meters.

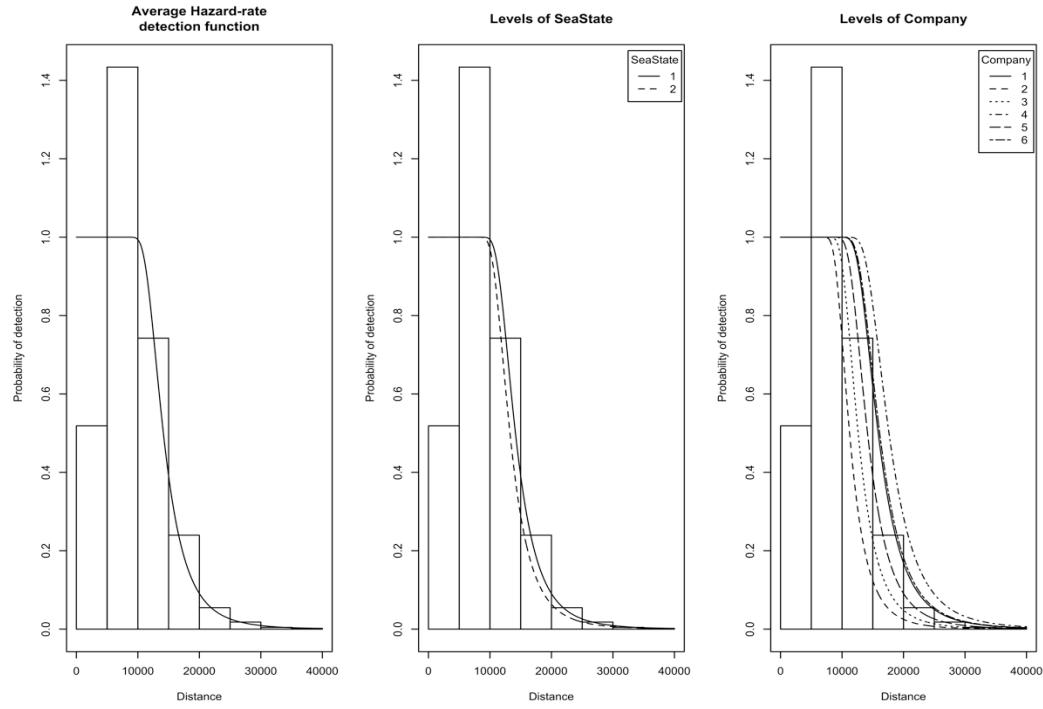


Figure S1.3. Sperm whale group detectability function for the distance to the closest lookout, with sea state and company as covariates. The bars represent the number of detections divided by distance from the observation point. Distances are given in meters.

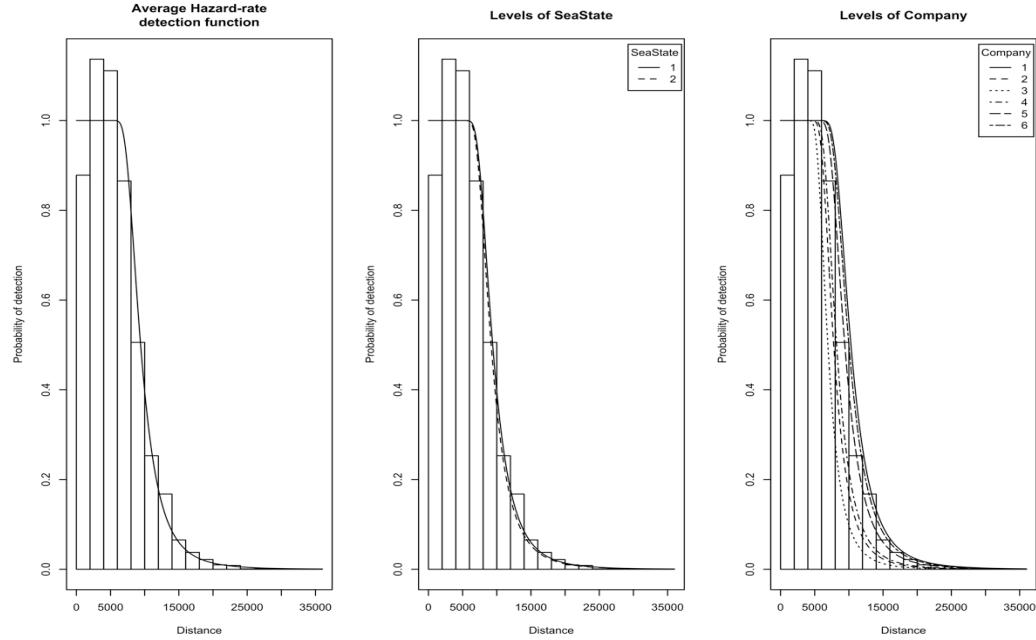


Figure S1.4. Big dolphin group detectability function for the distance to the closest lookout, with sea state and company as covariates. The bars represent the number of detections divided by distance from the observation point. Distances are given in meters.

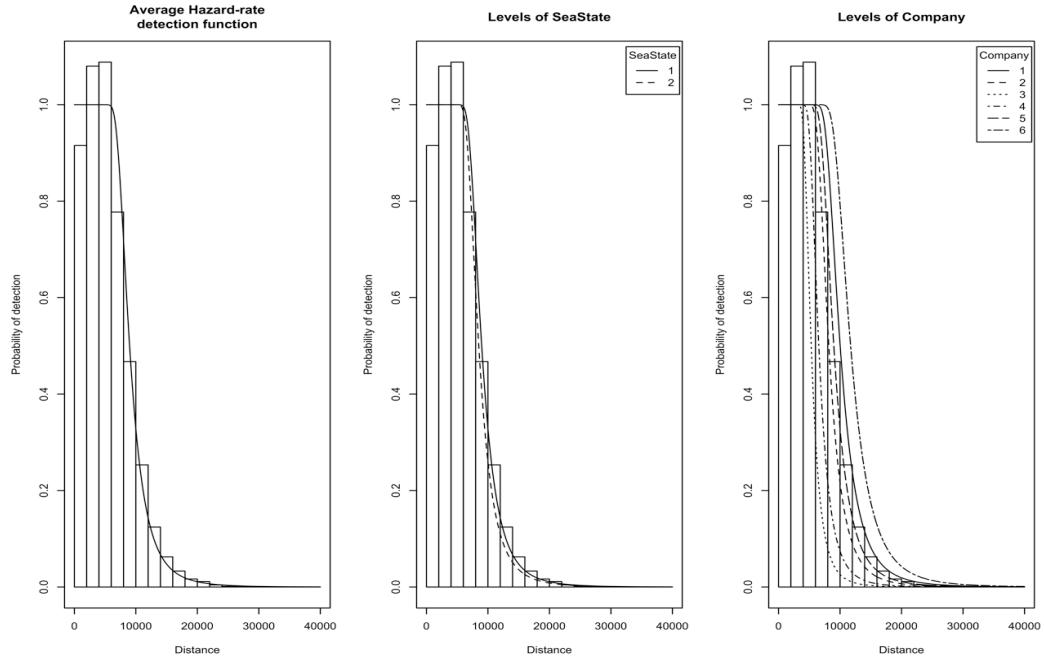


Figure S1.5. Small dolphin group detectability function for the distance to the closest lookout, with sea state and company as covariates. The bars represent the number of detections divided by distance from the observation point. Distances are given in meters.

## **Supplement 2. Independent data collection**

### **Introduction**

A cetacean survey campaign was performed around São Miguel Island (Azores) in 2013 and 2014 by the 11.9 m Anacaona sailing boat, a platform of the Groupe de Recherche sur les Cétacés (GREC). From July 13<sup>th</sup> to August 24<sup>th</sup> of 2013 the team conducted a total of 22 days of effort around the island. From May 8<sup>th</sup> to May 17<sup>th</sup> and from July 4<sup>th</sup> to August 1<sup>st</sup> of 2014, the team conducted a total of 18 days of effort around the island.

### **Methods**

A minimum of 3 and maximum of 5 observers were used for cetacean detection. Boat speed varied from 3 to 6 knots, with a mean of 4 knots. All survey data was introduced on the on-board monitoring system SMAC (Système de Monitoring Acoustique des Cétacés). The GPS position was recorded every 5 min during sampling and every 2 minutes during observations. Environmental conditions (atmosphere and sea) were checked and entered every 15-20 minutes.

Due to visibility and navigability issues, effort was restricted to days with Beaufort≤3 and steady wind. More exactly, wind speed in the lower part of the Beaufort 4 range (11-13 knots) were often compatible with the survey, while the upper range of Beaufort 4 did not allow the continuation of the survey. For the same reason, survey feasibility was limited to moderate swell: swell height above 1 m usually imposed limitations to the boat tracks.

### **Results**

From the 28 species reported for the Azores we observed 8 different species in 2013 and 9 in 2014.

Table S2.1. Detailed effort for the all surveys. Effort: 3 dedicated observers. Off-effort: no dedicated observers.

	Time (hours)	Distance (km)
Effort	280.1	2,196.8
Off-effort	39.78	337.1

Table S2.2. Species sighted and group size features during the 2013 survey

Species	Sightings	Mean group size	Min/Max group size
Short-beaked common dolphin (Dd)	47	33.31	1-2000
Atlantic spotted dolphin (Sf)	34	38.6	3-700
Bottlenose dolphin (Tt)	10	15.26	1-100
Sperm whale (Pm)	8	4.34	1-15
Risso's dolphin (Gg)	6	11.37	3-30
Striped dolphin (Sc)	5	7.40	2-30
Beaked whales (Zp)	3	4.16	2-10
Sei whale (Bb)	1	1	-
Unidentified Small delphinids	14	-	-

A total of 8 different species were sighted, in a total of 128 sightings. The most commonly sighted species was the common dolphin, followed by the Atlantic spotted dolphin (Table S2.2 & Fig. S2.1).

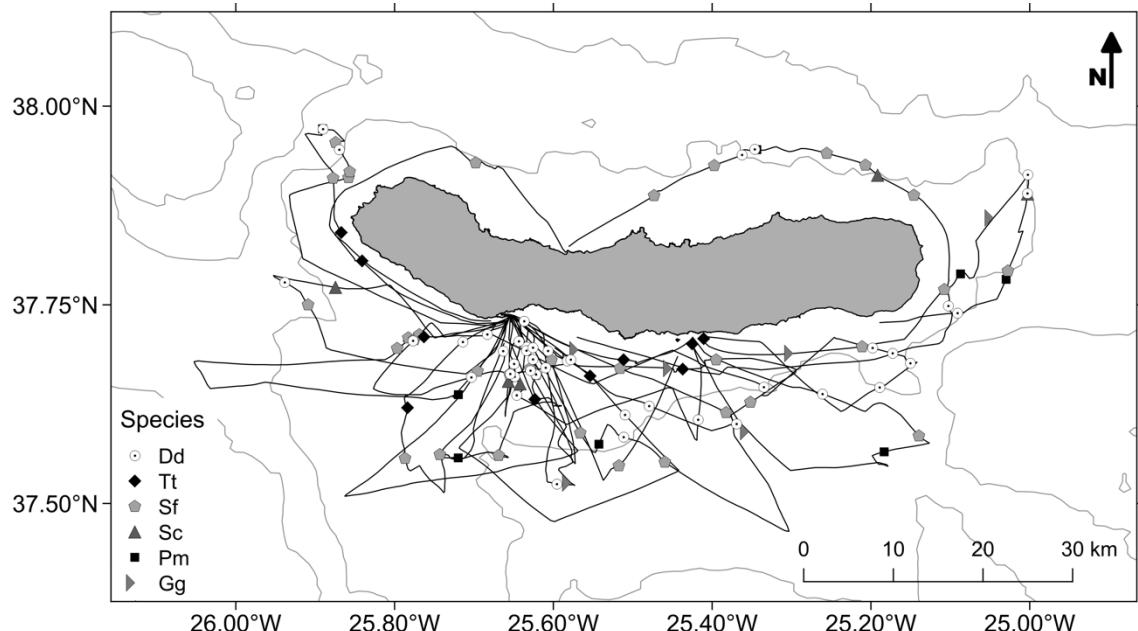


Figure S2.1: Tracks and sightings from the 2013 survey campaign

### **Survey 2014**

A total of 9 different species were sighted, in a total of 142 sightings. The most commonly sighted species was the common dolphin followed by the Atlantic spotted dolphin (Table S2.3 & Fig. S2.2).

Table S2.3 Species sighted during the 2014 survey and group size

Species	Sightings	Mean group size	Min/Max group size
Short-beaked common dolphin (Dd)	68	28.36	2-200
Atlantic spotted dolphin (Sf)	26	32.28	7-100
Sperm whale (Pm)	13	5.50	1-12
Bottlenose dolphin (Tt)	10	20.90	2-45
Fin whale (Bp)	4	3.5	1-6
Risso's dolphin (Gg)	2	3.5	3-4
False killer whale (Pc)	2	4.5	4-5
Striped dolphin (Sc)	2	16.5	3-30
Blainville's beaked whale (Md)	1	3	3
Unidentified Small delphinids	14	-	-

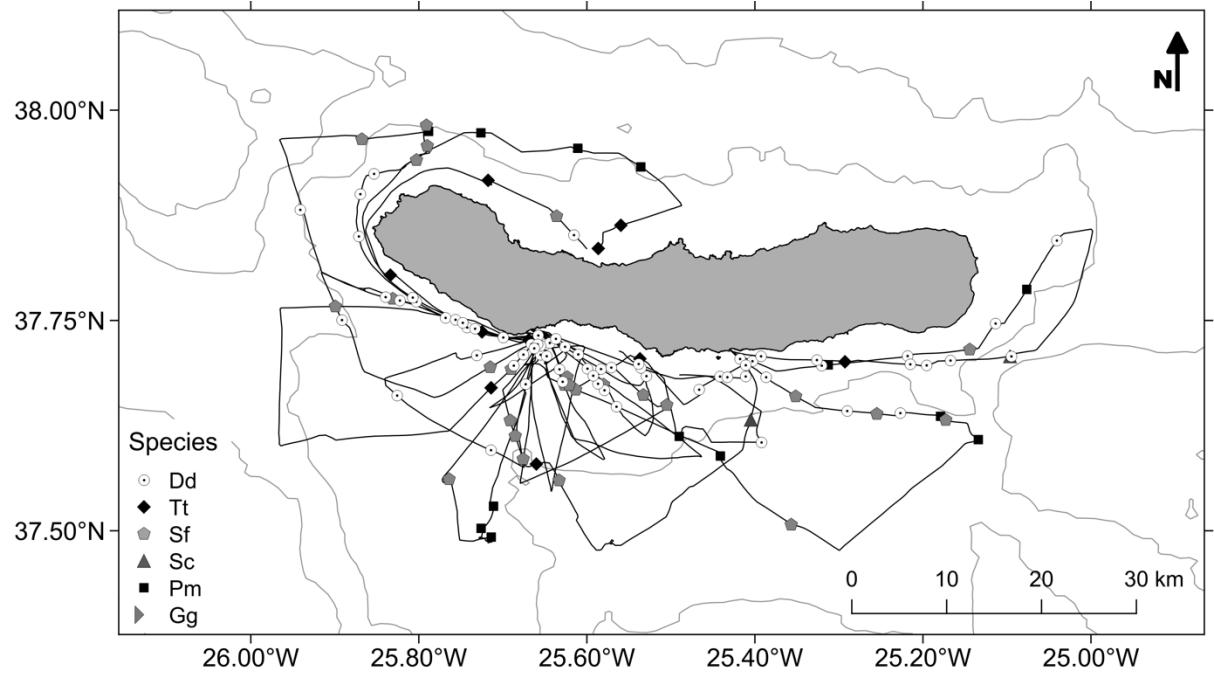


Figure S2.2: Tracks and sightings from the 2014 survey campaign.

### Supplement 3. MAXENT modelling results

Table S3.1. Main variables selected for model predictions for deep-diving species (sperm whale, short-finned pilot whale and Risso's dolphins), based on jackknife tests, permutation values and AUC tests. Values for permutation importance indexes (P) and jackknife training gain (J) are given. The permutation importance (given in percentage from 1 to 100) indicates the contribution of each variable by randomly permuting the values of that variable among the training points. The jackknife training gain (given in regularized training gain) indicates how the variables improve the model performance. Blank spaces (represented by the '-' sign) mean no contribution to the model results for the variable.

	Sperm Whale		Short-finned Pilot Whale		Risso's dolphin	
	P	J	P	J	P	J
Depth (m)	88.61	1.17	69.02	1.35	33.98	0.27
Dist. to 1000m bathymetric line (m)	3.19	0.44	-	-	41.04	0.30
Dist. to 200m bathymetric line (m)	-	-	13.86	1.03	-	-
Distance to canyon-like features (m)	1.90	0.22	3.00	0.24	11.62	0.15
Slope (degrees)	2.75	0.04	-	-	5.9	0.06
Sea Surface Temperature (°C)	3.32	0.04	11.74	0.16	7.46	0.03
Dist. to frontal thermal areas (m)	-	-	-	-	-	-

Table S3.2. Main variables selected for model predictions for the remaining delphinid species (stripped, Atlantic spotted, common and bottlenose dolphins), based on jackknife test, permutation values and AUC test. Values for permutation importance indexes (P) and jackknife training gain (J) are given. The permutation importance (given in percentage from 1 to 100) indicates the contribution of each variable by randomly permuting the values of that variable among the training points. The jackknife training gain (given in regularized training gain) indicates how the variables improve the model performance. Blank spaces (represented by the '-' sign) mean no contribution to the model results for the variable.

	Stripped dolphin		Atlantic spotted dolphin		Common dolphin		Bottlenose dolphin	
	P	J	P	J	P	J	P	J
Depth (m)	82.19	0.88	40.57	0.48	50.23	0.06	19.87	0.03
Dist. to 1000m bathymetric line (m)	-	-	1.5	0.28	-	-	-	-
Dist. to 200m bathymetric line (m)	4.41	0.74	-	-	24.90	0.04	39.74	0.03
Distance to canyon-like features (m)	5.07	0.19	2.82	0.09	-	-	-	-
Slope (degrees)	-	-	-	-	8.25	0.02	14.07	0.01
Sea Surface Temperature (°C)	6.75	0.07	55.11	0.48	16.62	0.01	17.95	0.01
Dist. to frontal thermal areas (m)	1.57	0.1	-	-	-	-	8.36	0.01

Table S3.3. Main variables selected for model predictions for baleen whales (blue, fin and sei whales), based on jackknife test, permutation values and AUC test. Values for permutation importance indexes (P) and jackknife training gain (J) are given. The permutation importance (given in percentage from 1 to 100) indicates the contribution of each variable by randomly permuting the values of that variable among the training points. The jackknife training gain (given in regularized training gain) indicates how the variables improve the model performance. Blank spaces (represented by the ‘-’ sign) mean no contribution to the model results for the variable.

	Blue whale		Fin whale		Sei whale	
	P	J	P	J	P	J
Depth (m)	26.03	1.16	40.89	0.53	26.03	0.30
Dist. to 1000m bathymetric line (m)	-	-	-	-	-	-
Dist. to 200m bathymetric line (m)	20.10	1.10	24.90	0.57	10.58	0.30
Distance to canyon-like features (m)	-	-	-	-	-	-
Slope (degrees)	-	-	2.68	0.08	-	-
Sea Surface Temperature (°C)	76.72	1.14	46.72	0.53	54.47	0.63
Dist. to frontal thermal areas (m)	-	-	-	-	3.99	0.02
Chlorophyll on-time (mg/m <sup>3</sup> )	-	-	-	-	4.93	0.57
Chlorophyll 2 weeks lag (mg/m <sup>3</sup> )	0.56	0.84	-	-	-	-

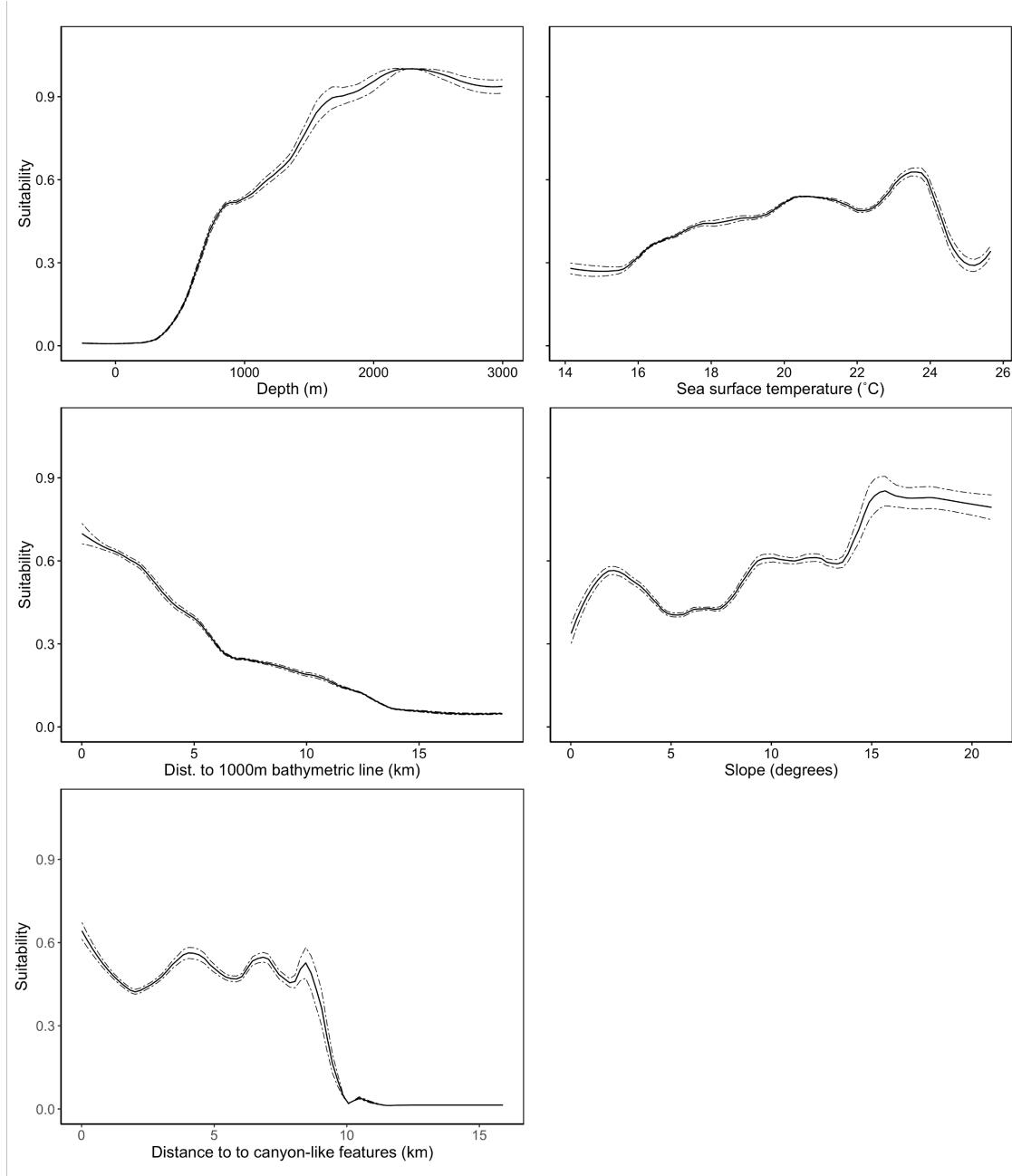


Figure S3.1. Cumulative response curves for the main environmental variables influencing the distribution of sperm whales. Mean values and confidence intervals for 10 runs are presented.

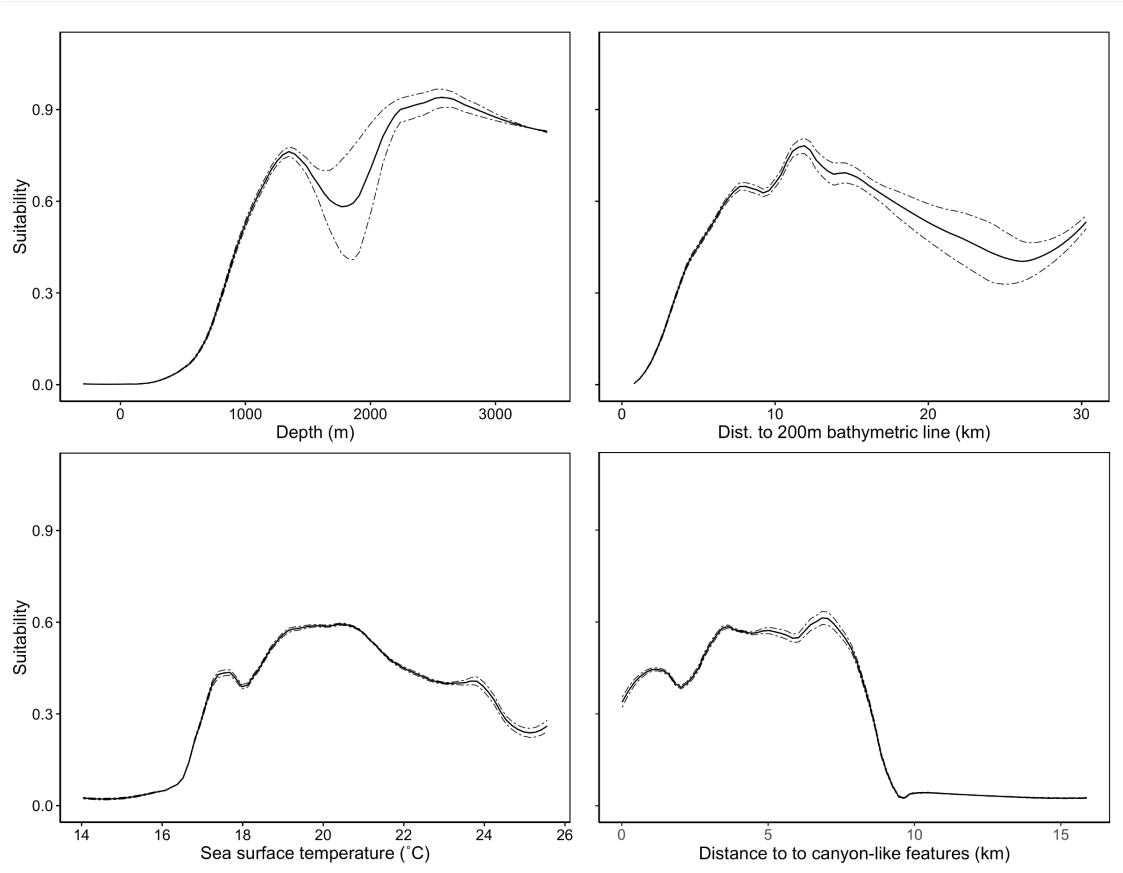


Figure S3.2. Cumulative response curves for the main environmental variables influencing the distribution of short-finned pilot whales. Mean values and confidence intervals for 10 runs are presented.

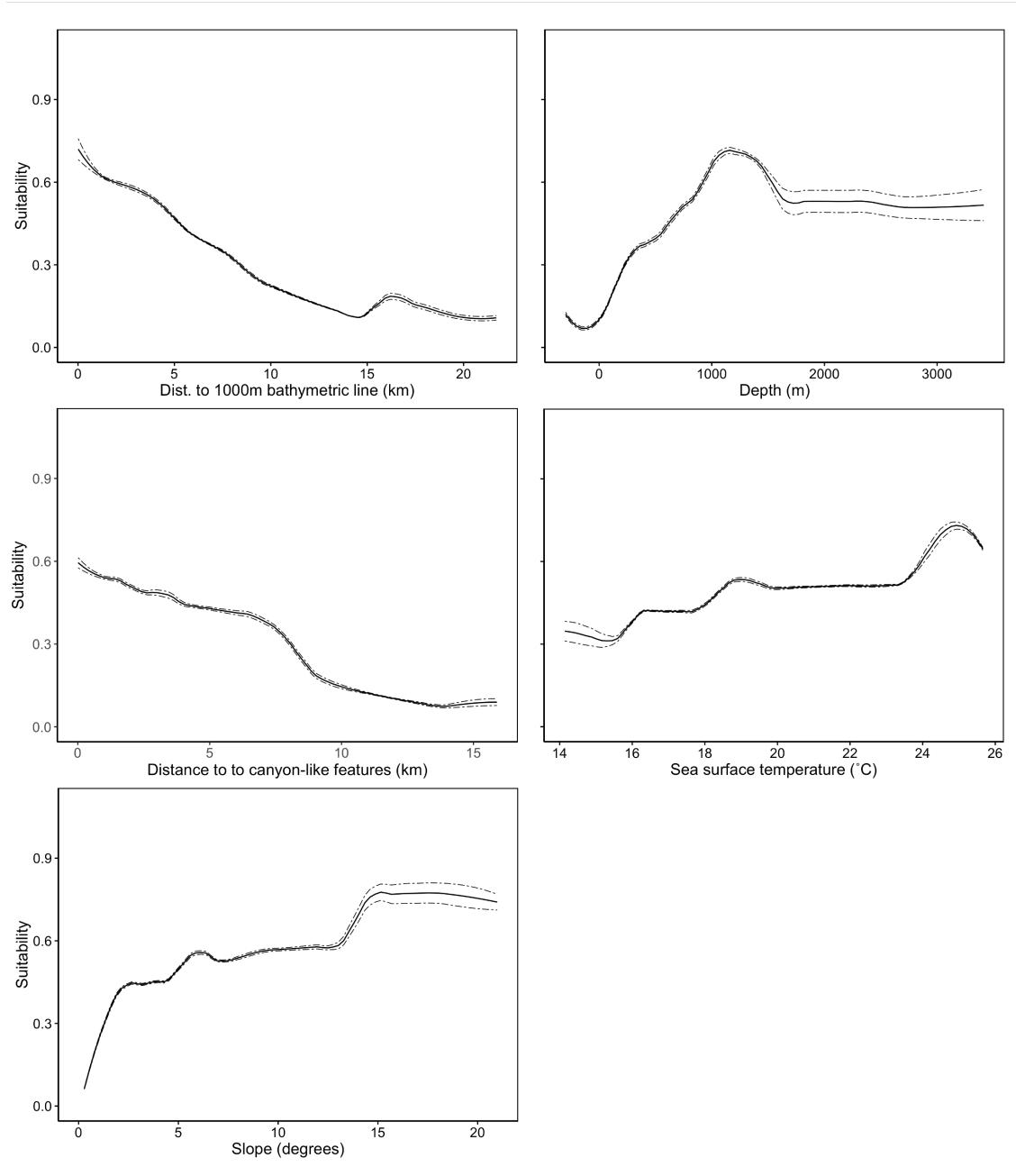


Figure S3.3. Cumulative response curves for the main environmental variables influencing the distribution of Risso's dolphins. Mean values and confidence intervals for 10 runs are presented.

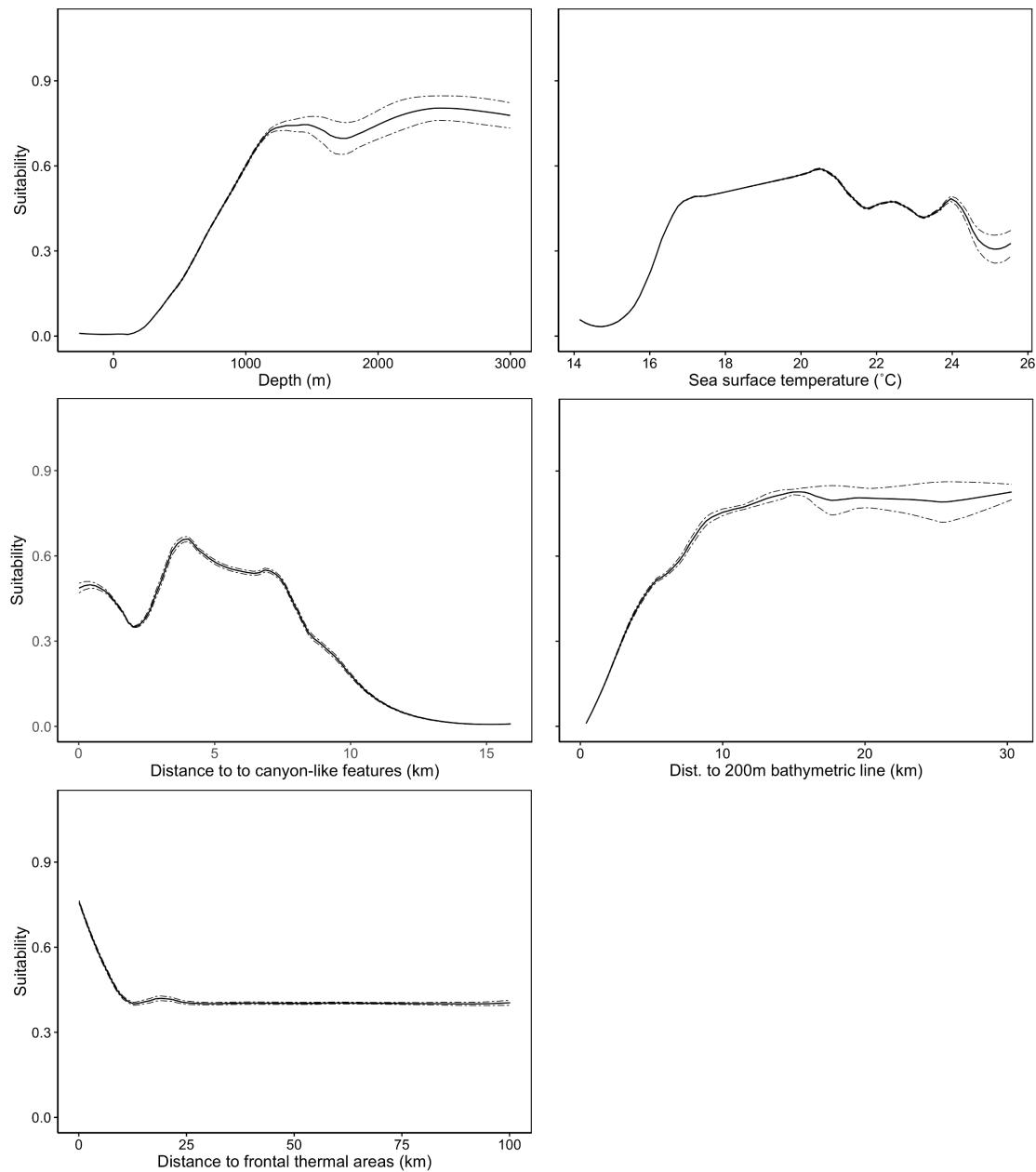


Figure S3.4. Cumulative response curves for the main environmental variables influencing the distribution of striped dolphins. Mean values and confidence intervals for 10 runs are presented.

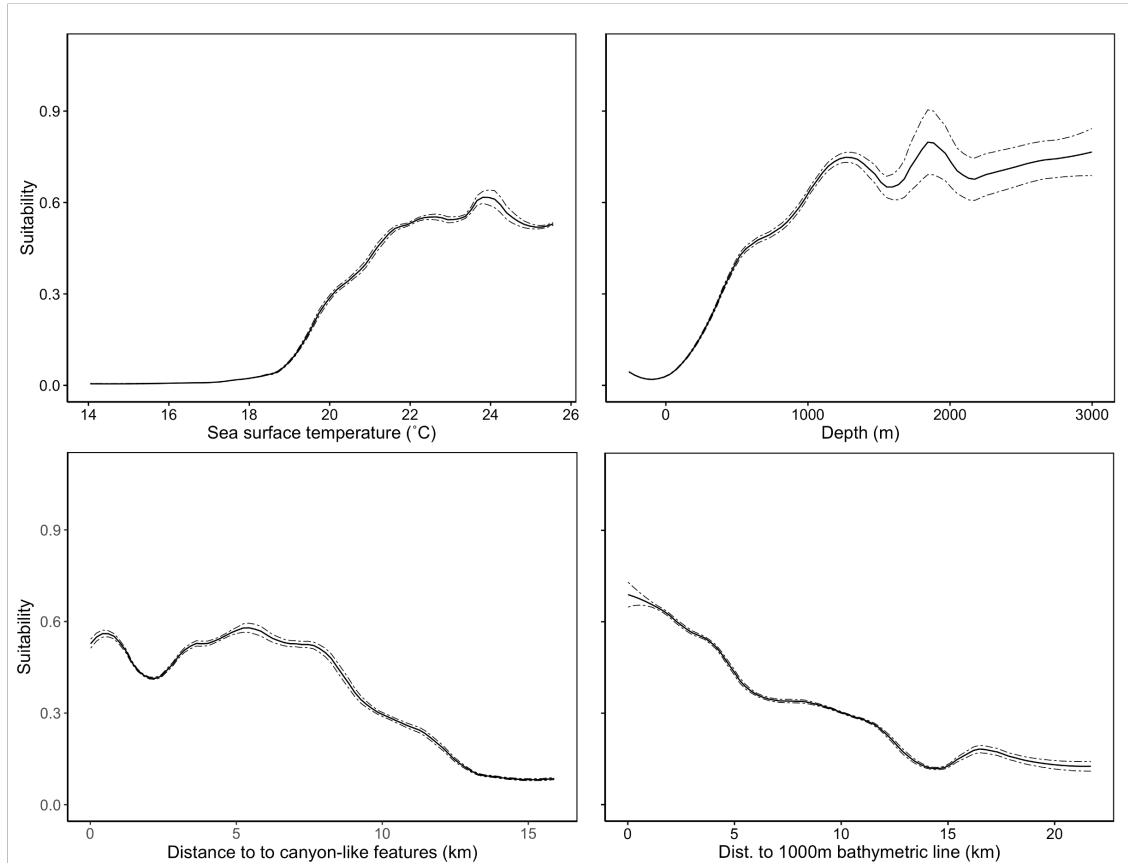


Figure S3.5. Cumulative response curves for the main environmental variables influencing the distribution of Atlantic spotted dolphins. Mean values and confidence intervals for 10 runs are presented.

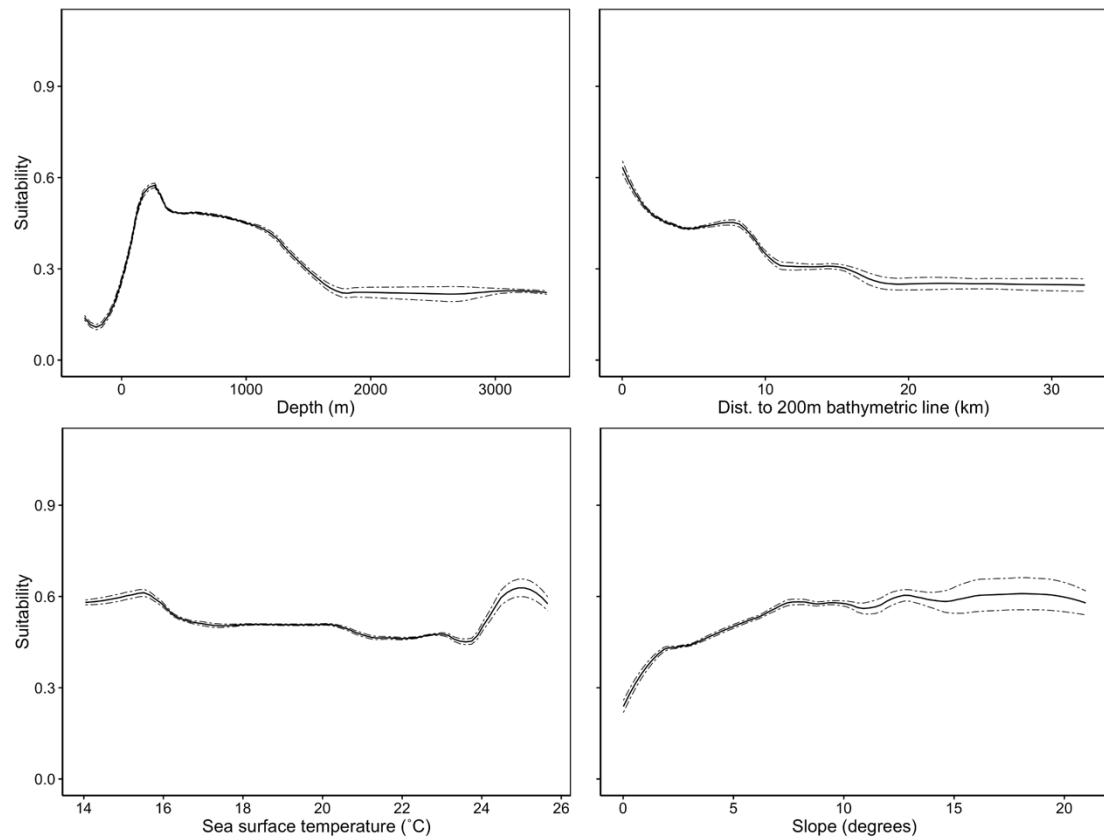


Figure S3.6. Cumulative response curves for the main environmental variables influencing the distribution of common dolphins. Mean values and confidence intervals for 10 runs are presented.

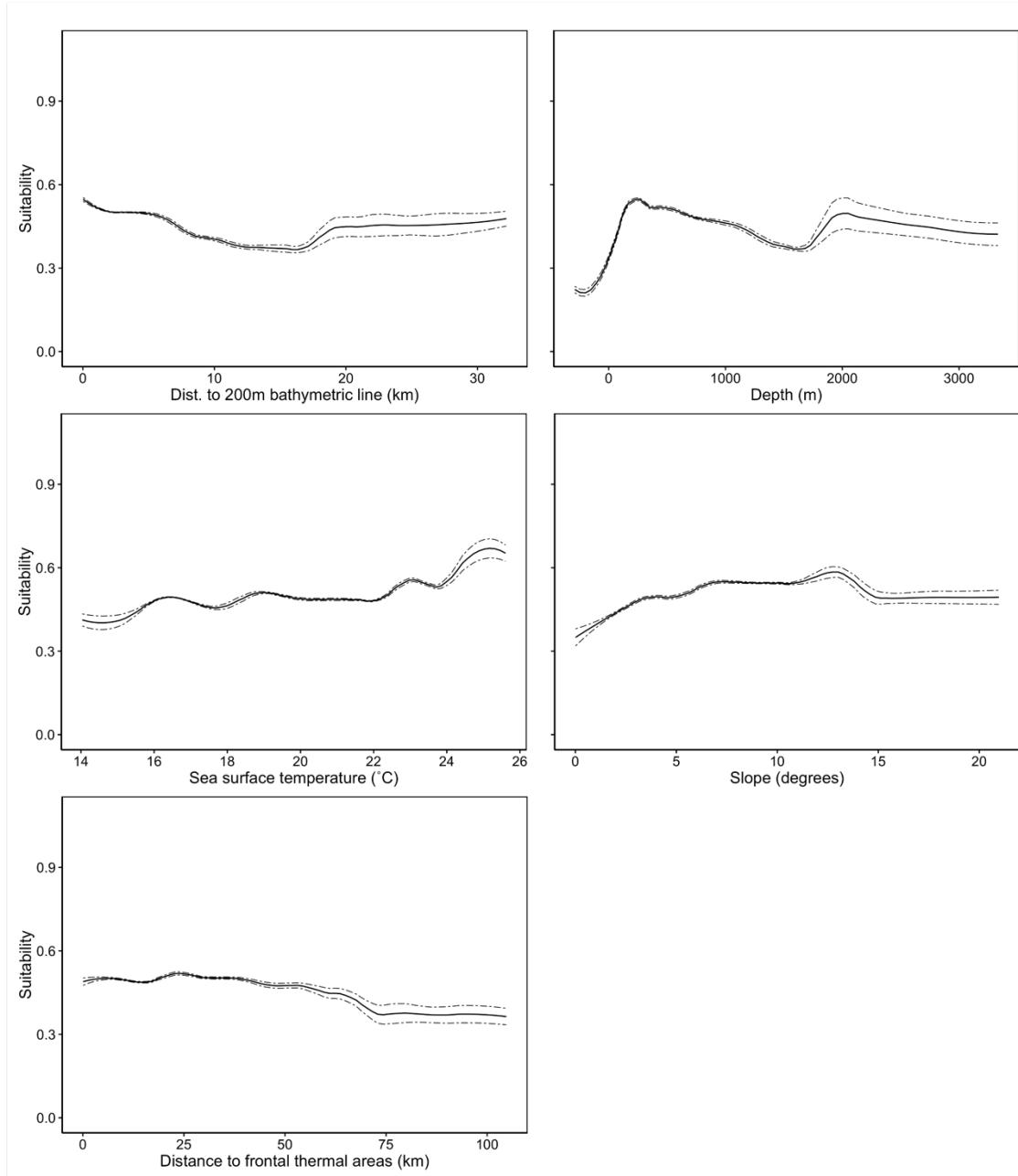


Figure S3.7. Cumulative response curves for the main environmental variables influencing the distribution of bottlenose dolphins. Mean values and confidence intervals for 10 runs are presented.

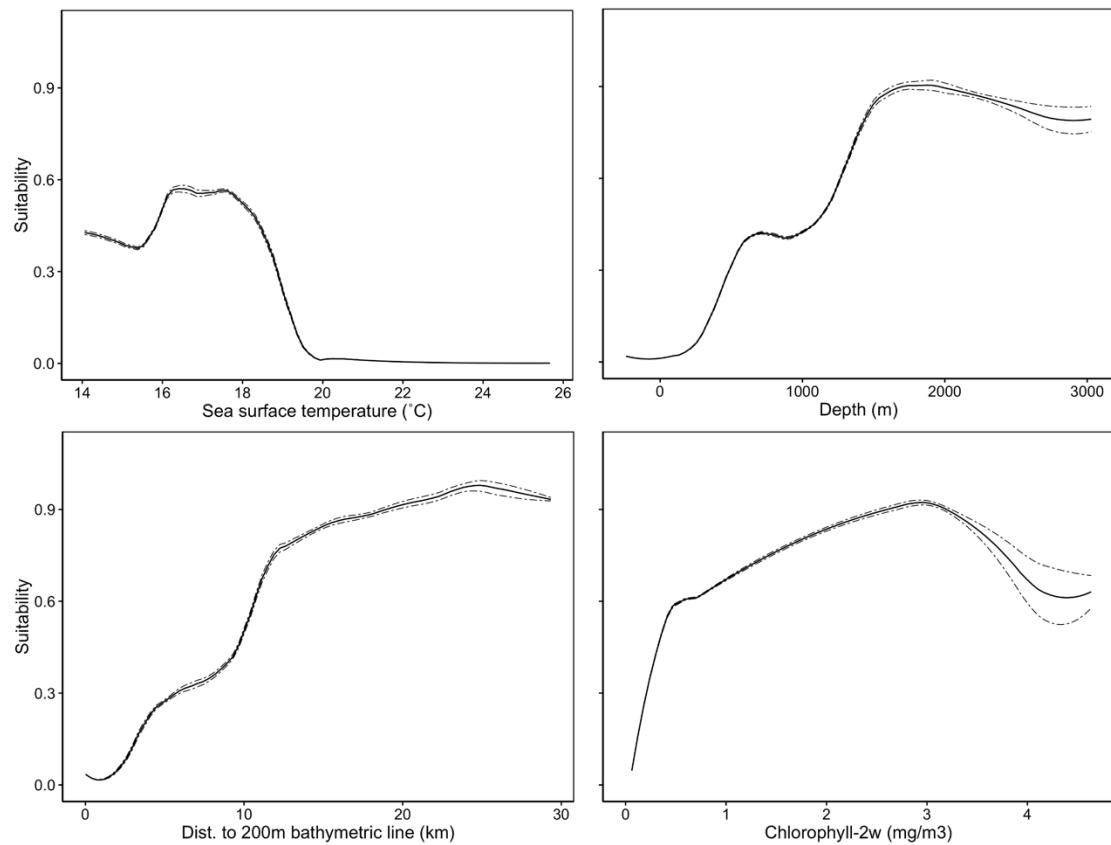


Figure S3.8. Cumulative response curves for the main environmental variables influencing the distribution of blue whale. Mean values and confidence intervals for 10 runs are presented.

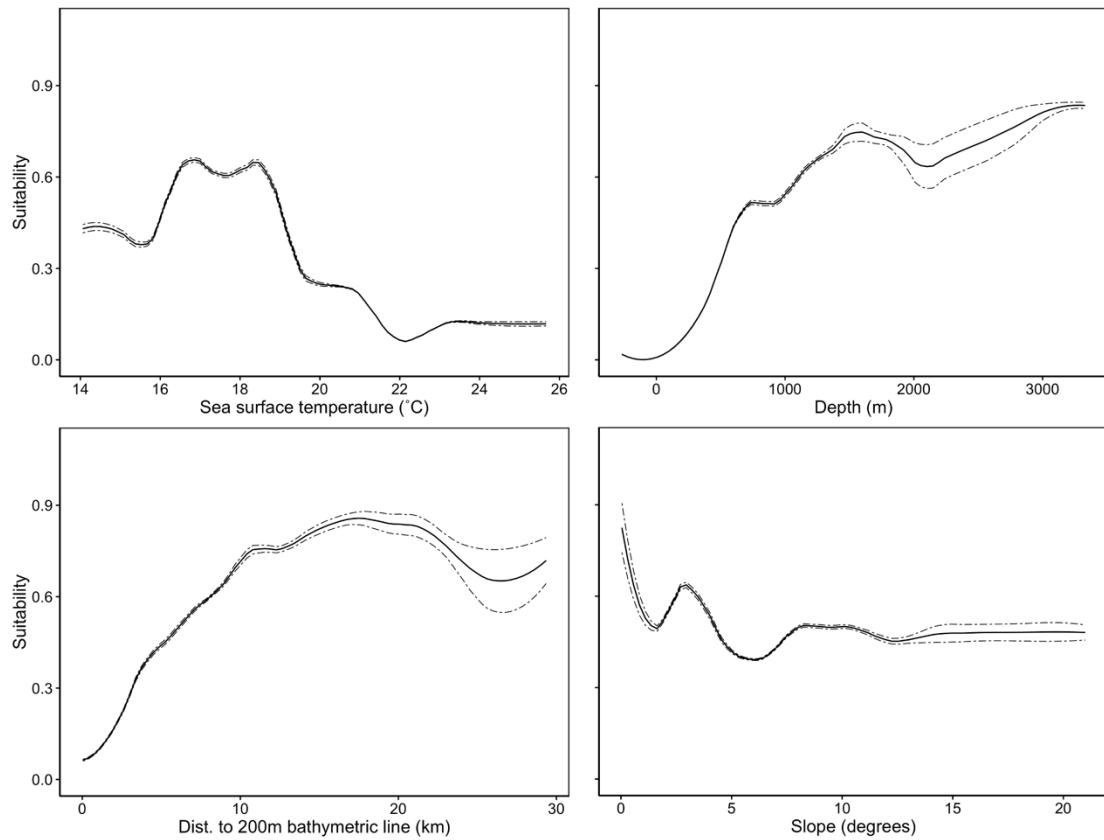


Figure S3.9. Cumulative response curves for the main environmental variables influencing the distribution of fin whale. Mean values and confidence intervals for 10 runs are presented.

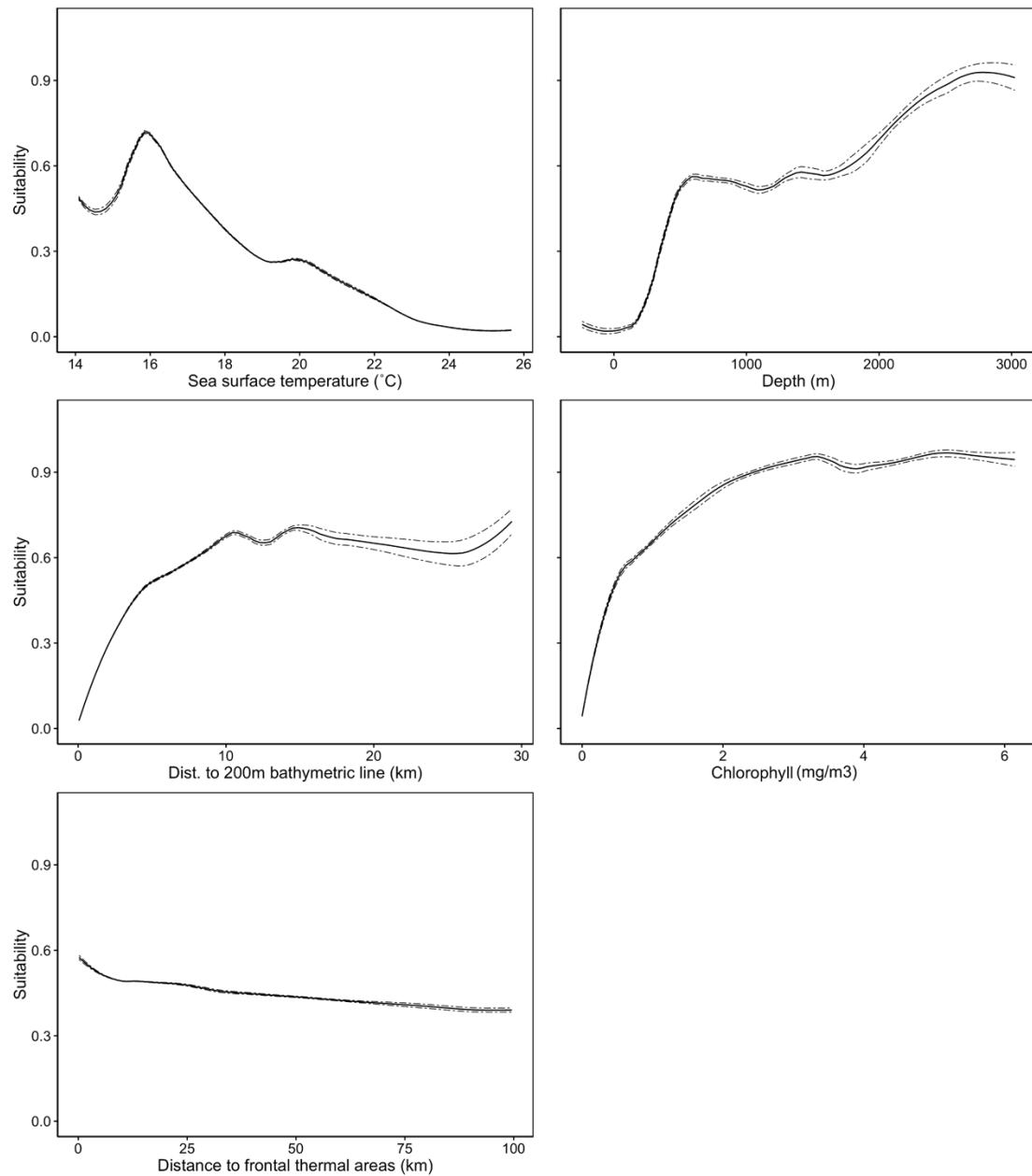


Figure S3.10. Cumulative response curves for the main environmental variables influencing the distribution of sei whale. Mean values and confidence intervals for 10 runs are presented.

## **Supplement 4. Suitability maps**

In this appendix, we present a series of dynamic maps representing the weekly suitability of the 10-species modelled. A series of static maps is also presented with the mean monthly suitability and the standard deviation based on the weekly suitability for each month.

### ***Dynamic maps:***

<https://doi.org/10.5281/zenodo.400519>

Figure S4.1. Dynamic weekly suitability map for sperm whales around São Miguel island, Azores. A targeted background sampling based detectability was used. The map represented is in a 2x2 km scale.

<https://doi.org/10.5281/zenodo.400521>

Figure S4.2. Dynamic weekly suitability map for sperm whales around central group islands (Pico, Faial, São Jorge and Terceira), Azores. A targeted background sampling based detectability was used. The map represented is in a 2x2 km scale.

<https://doi.org/10.5281/zenodo.400523>

Figure S4.3. Dynamic weekly suitability map for short-finned pilot whales around São Miguel island, Azores. A targeted background sampling based detectability was used. The map represented is in a 2x2 km scale.

<https://doi.org/10.5281/zenodo.400524>

Figure S4.4. Dynamic weekly suitability map for short-finned pilot whales around central group islands (Pico, Faial, São Jorge and Terceira), Azores. A targeted background sampling based detectability was used. The map represented is in a 2x2 km scale.

<https://doi.org/10.5281/zenodo.400526>

Figure S4.5. Dynamic weekly suitability map for Risso's dolphins around São Miguel island, Azores. A targeted background sampling based detectability was used. The map represented is in a 2x2 km scale.

<https://doi.org/10.5281/zenodo.400527>

Figure S4.6. Dynamic weekly suitability map for Risso's dolphins around central group islands (Pico, Faial, São Jorge and Terceira), Azores. A targeted background sampling based detectability was used. The map represented is in a 2x2 km scale.

<https://doi.org/10.5281/zenodo.400528>

Figure S4.7. Dynamic weekly suitability map for striped dolphins around São Miguel island, Azores. A targeted background sampling based detectability was used. The map represented is in a 2x2 km scale.

<https://doi.org/10.5281/zenodo.400529>

Figure S4.8. Dynamic weekly suitability map for striped dolphins around central group islands (Pico, Faial, São Jorge and Terceira), Azores. A targeted background sampling based detectability was used. The map represented is in a 2x2 km scale.

<https://doi.org/10.5281/zenodo.400530>

Figure S4.9. Dynamic weekly suitability map for Atlantic spotted dolphins around São Miguel island, Azores. A targeted background sampling based detectability was used. The map represented is in a 2x2 km scale.

<https://doi.org/10.5281/zenodo.400532>

Figure S4.10. Dynamic weekly suitability map for Atlantic spotted dolphins around central group islands (Pico, Faial, São Jorge and Terceira), Azores. A targeted background sampling based detectability was used. The map represented is in a 2x2 km scale.

<https://doi.org/10.5281/zenodo.400534>

Figure S4.11. Dynamic weekly suitability map for short-beaked common dolphins around São Miguel island, Azores. A targeted background sampling based detectability was used. The map represented is in a 2x2 km scale.

<https://doi.org/10.5281/zenodo.400537>

Figure S4.12. Dynamic weekly suitability map for short-beaked common dolphins around central group islands (Pico, Faial, São Jorge and Terceira), Azores. A targeted background sampling based detectability was used. The map represented is in a 2x2 km scale.

<https://doi.org/10.5281/zenodo.400538>

Figure S4.13. Dynamic weekly suitability map for bottlenose dolphins around São Miguel island, Azores. A targeted background sampling based detectability was used. The map represented is in a 2x2 km scale.

<https://doi.org/10.5281/zenodo.400539>

Figure S4.14. Dynamic weekly suitability map for bottlenose dolphins around central group islands (Pico, Faial, São Jorge and Terceira), Azores. A targeted background sampling based detectability was used. The map represented is in a 2x2 km scale.

<https://doi.org/10.5281/zenodo.400541>

Figure S4.15. Dynamic weekly suitability map for blue whales around São Miguel island, Azores. A targeted background sampling based detectability was used. The map represented is in a 4x4 km scale.

<https://doi.org/10.5281/zenodo.400542>

Figure S4.16. Dynamic weekly suitability map for blue whales around central group islands (Pico, Faial, São Jorge and Terceira), Azores. A targeted background sampling based detectability was used. The map represented is in a 4x4 km scale.

<https://doi.org/10.5281/zenodo.400544>

Figure S4.17. Dynamic weekly suitability map for fin whales around São Miguel island, Azores. A targeted background sampling based detectability was used. The map represented is in a 2x2 km scale.

<https://doi.org/10.5281/zenodo.400545>

Figure S4.18. Dynamic weekly suitability map for fin whales around central group islands (Pico, Faial, São Jorge and Terceira), Azores. A targeted background sampling based detectability was used. The map represented is in a 2x2 km scale.

<https://doi.org/10.5281/zenodo.400546>

Figure S4.19. Dynamic weekly suitability map for sei whales around São Miguel island, Azores. A targeted background sampling based detectability was used. The map represented is in a 4x4 km scale.

<https://doi.org/10.5281/zenodo.400547>

Figure S4.20. Dynamic weekly suitability map for sei whales around central group islands (Pico, Faial, São Jorge and Terceira), Azores. A targeted background sampling based detectability was used. The map represented is in a 4x4 km scale.

## **Static maps:**

### **Sei whale:**

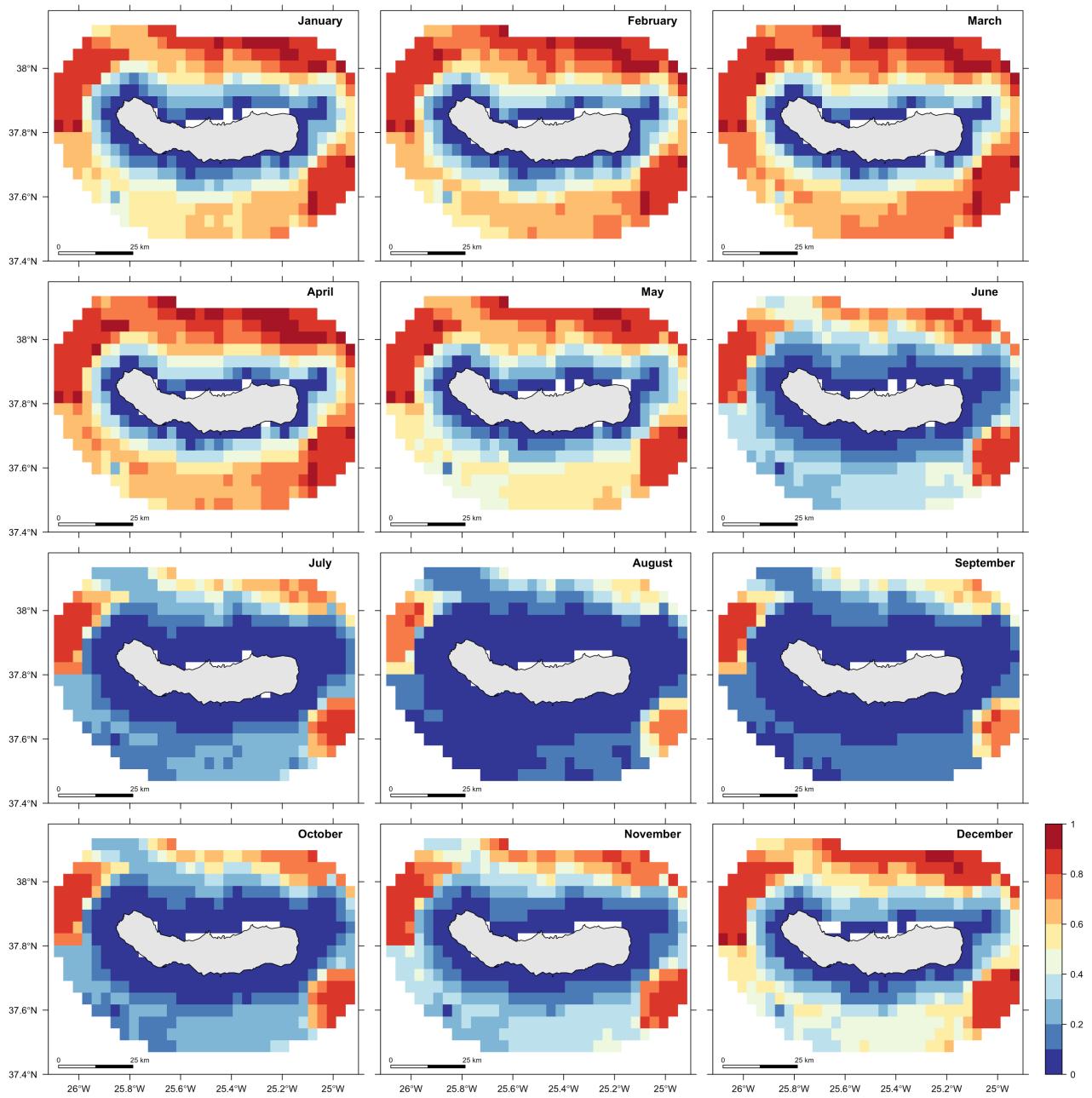


Figure S4.21: Mean monthly suitability values for Sei whales around São Miguel Island, Azores (4km grid). An 8-day temporal resolution for the environmental variables was used and results

were averaged for each month. A targeted background sampling based on detectability was used.

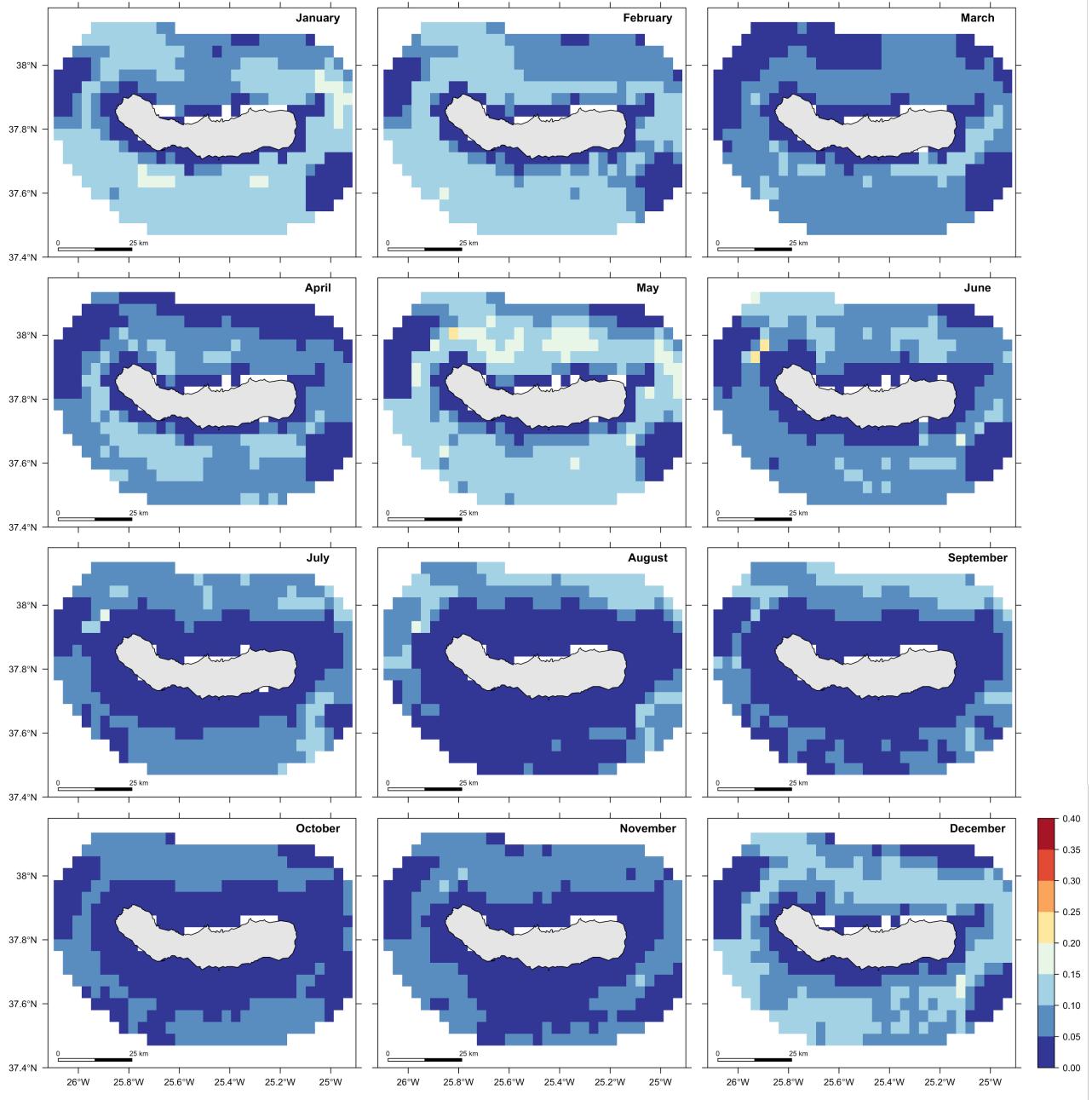


Figure S4.22: Monthly standard deviation of suitability predictions for Sei whales around São Miguel Island, Azores (4km grid). An 8-day temporal resolution for the environmental variables

was used and results were averaged for each month. A targeted background sampling based on detectability was used.

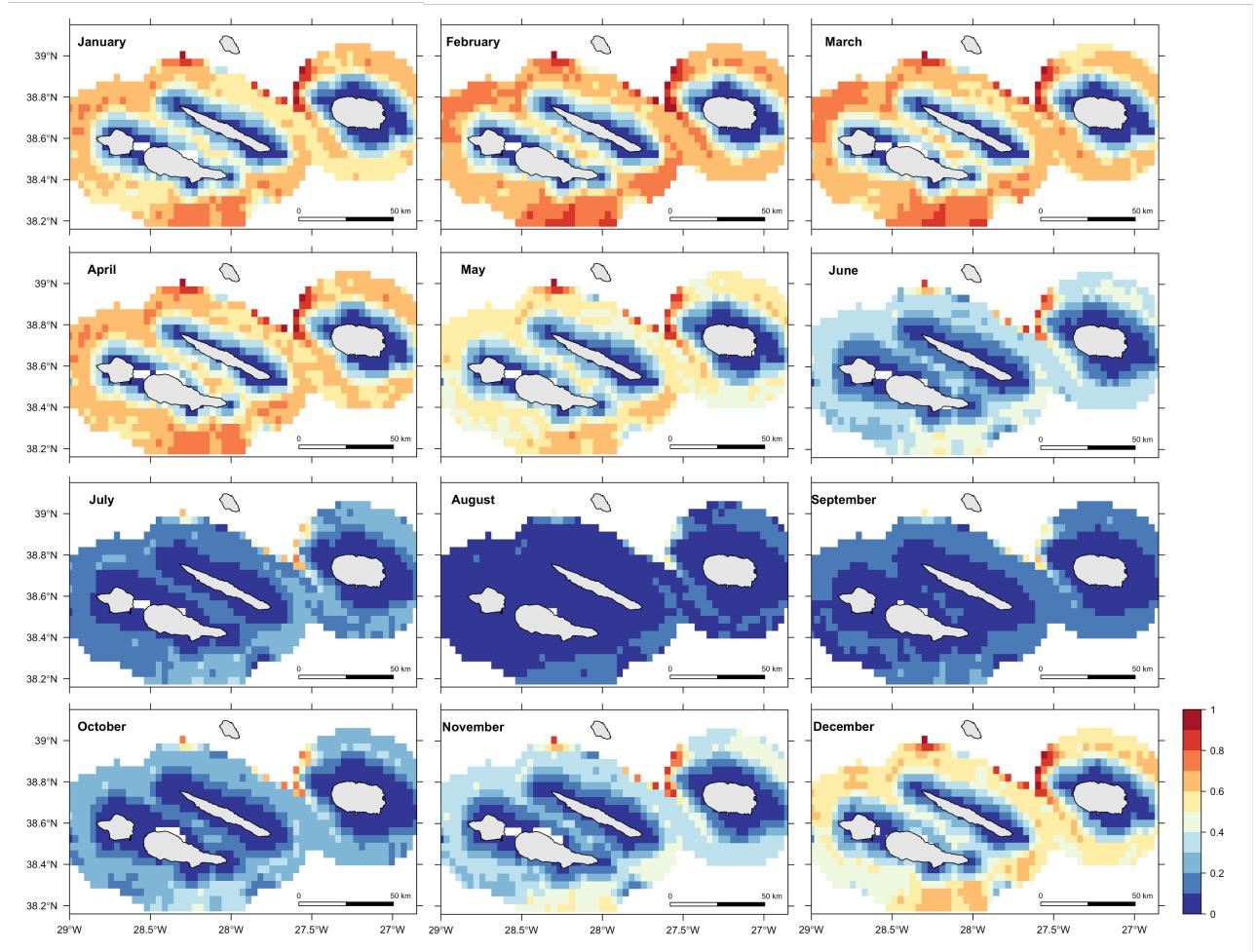


Figure S4.23: Mean monthly suitability values for Sei whales around the central group islands (Pico, Faial, Sao Jorge and Terceira), Azores (4km grid). An 8-day temporal resolution for the environmental variables was used and results were averaged for each month. A targeted background sampling based on detectability was used.

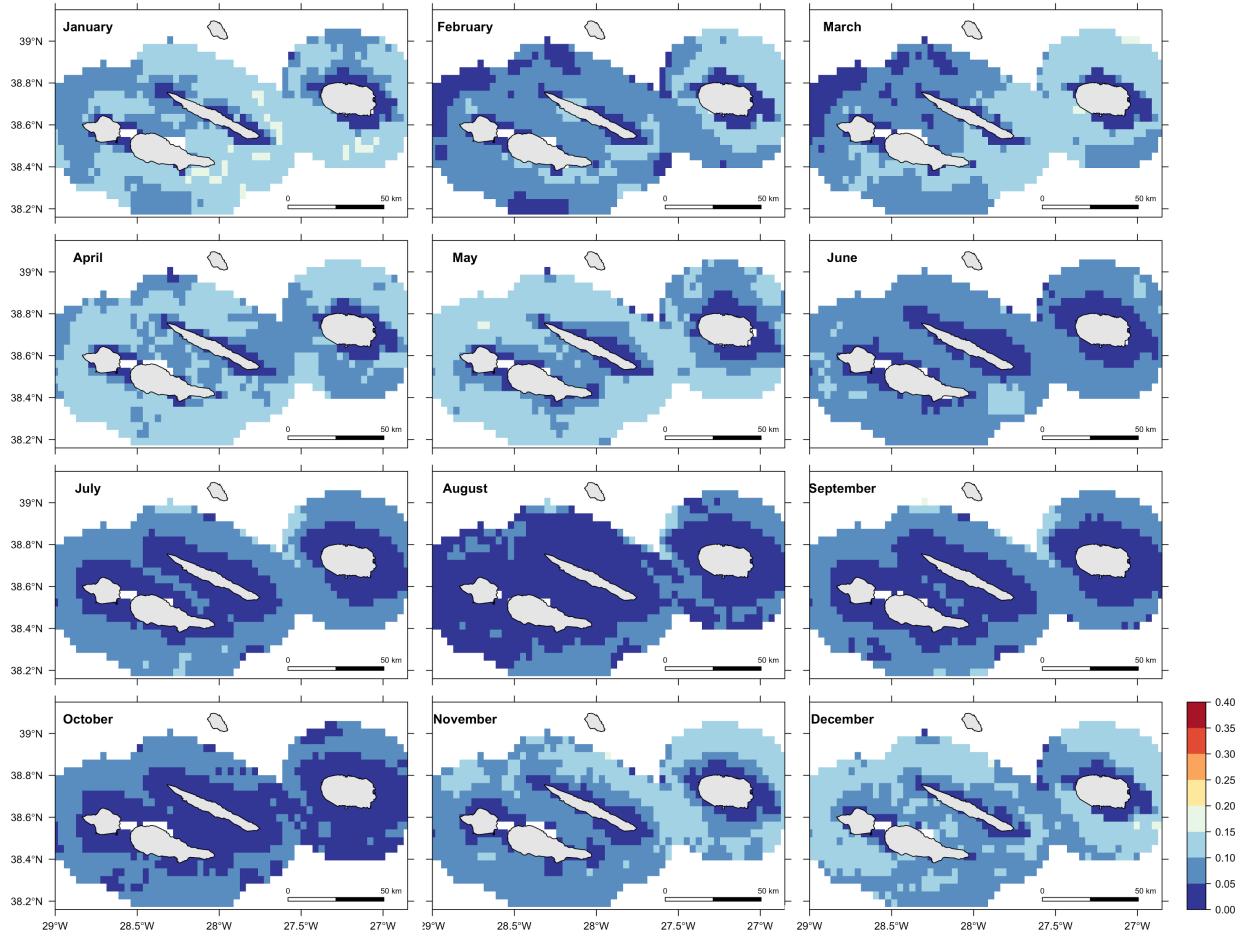


Figure S4.24: Monthly standard deviation of suitability predictions for Sei whales around the central group islands (Pico, Faial, Sao Jorge and Terceira), Azores (4km grid). An 8-day temporal resolution for the environmental variables was used and results were averaged for each month. A targeted background sampling based on detectability was used.

## Blue whale

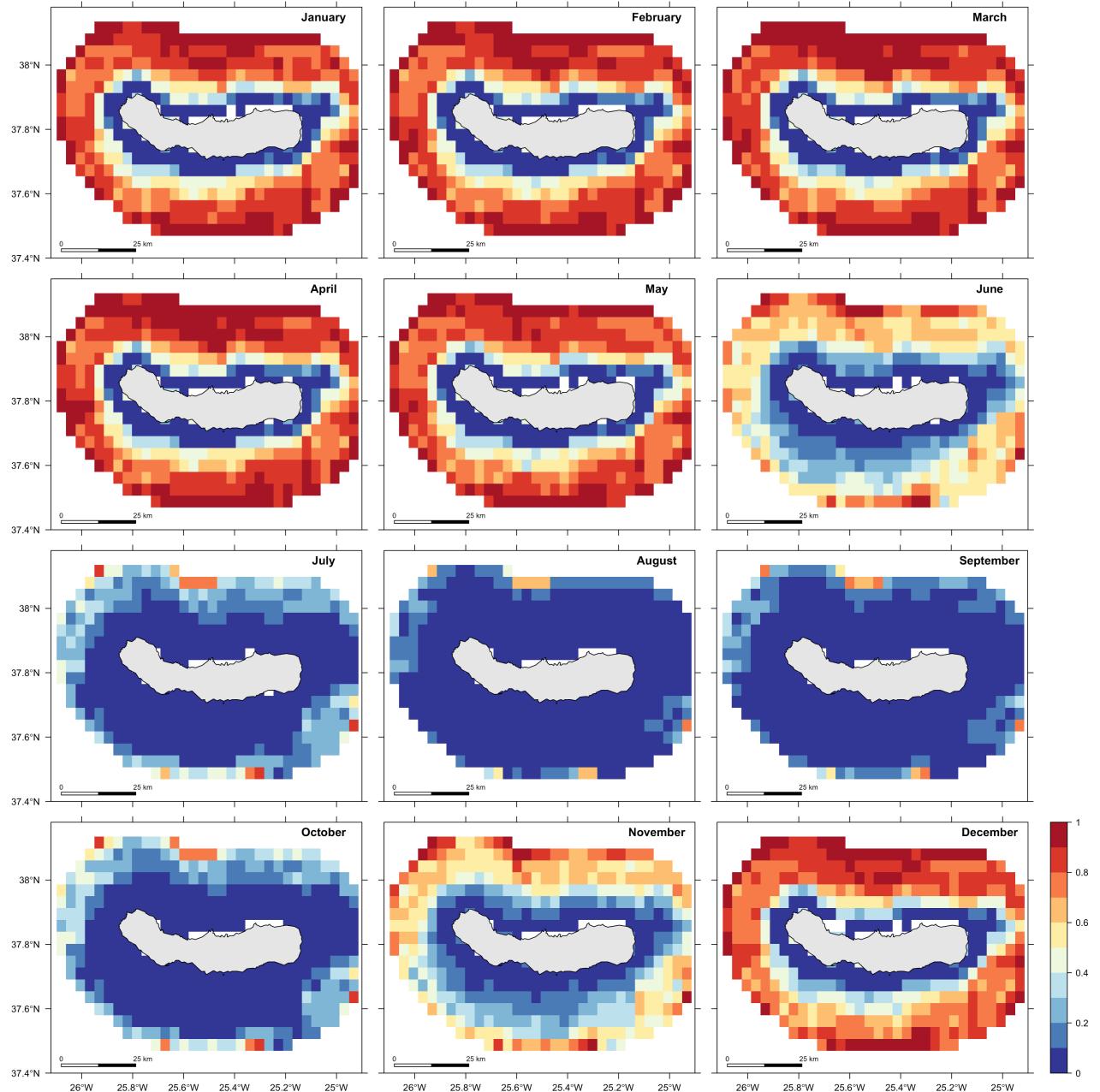


Figure S4.25: Mean monthly suitability values for blue whales around São Miguel Island, Azores (4km grid). An 8-day temporal resolution for the environmental variables was used and results were averaged for each month. A targeted background sampling based on detectability was used.



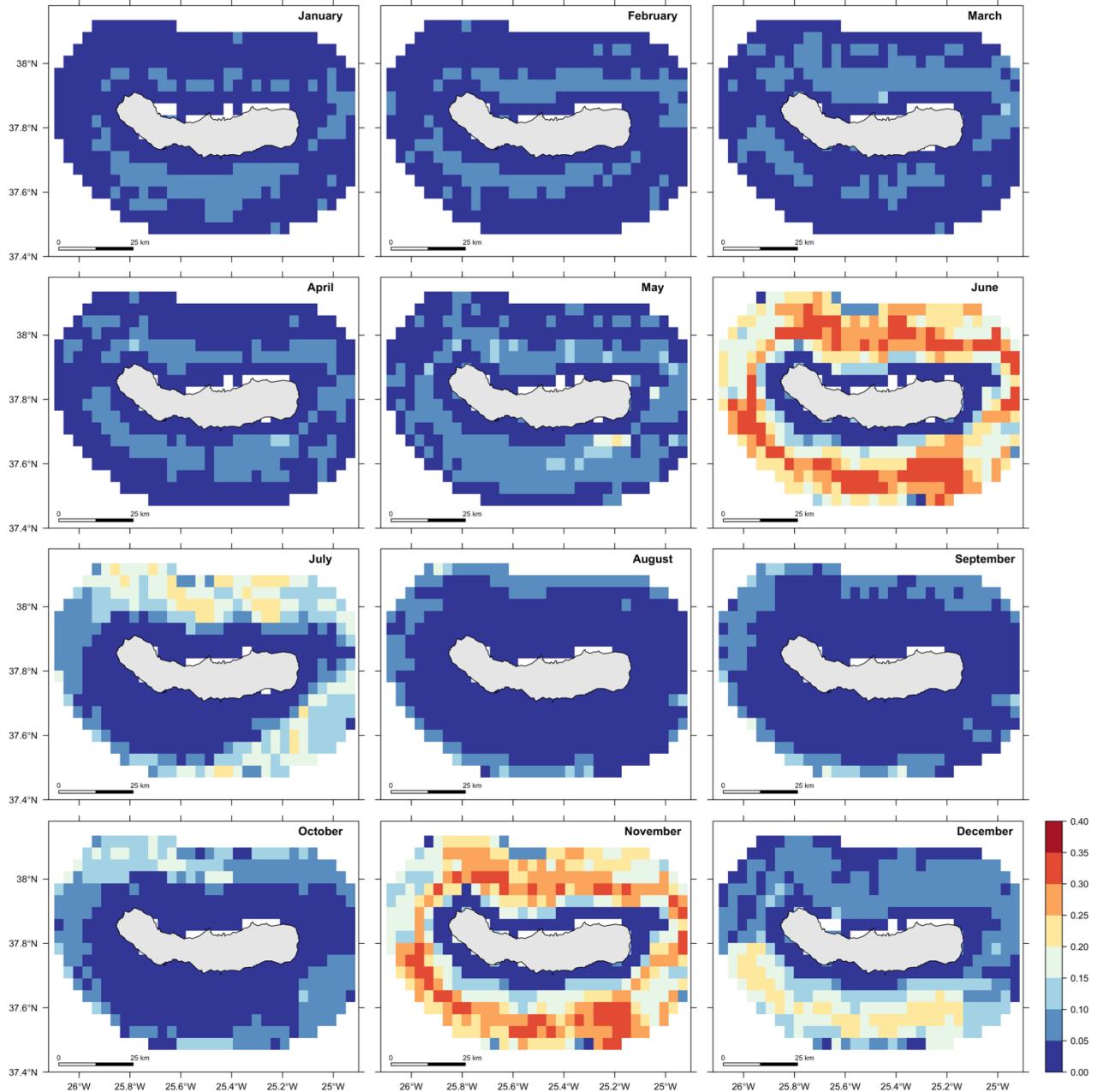


Figure S4.26: Monthly standard deviation of suitability predictions for blue whales around São Miguel Island, Azores (4km grid). An 8-day temporal resolution for the environmental variables was used and results were averaged for each month. A targeted background sampling based on detectability was used.

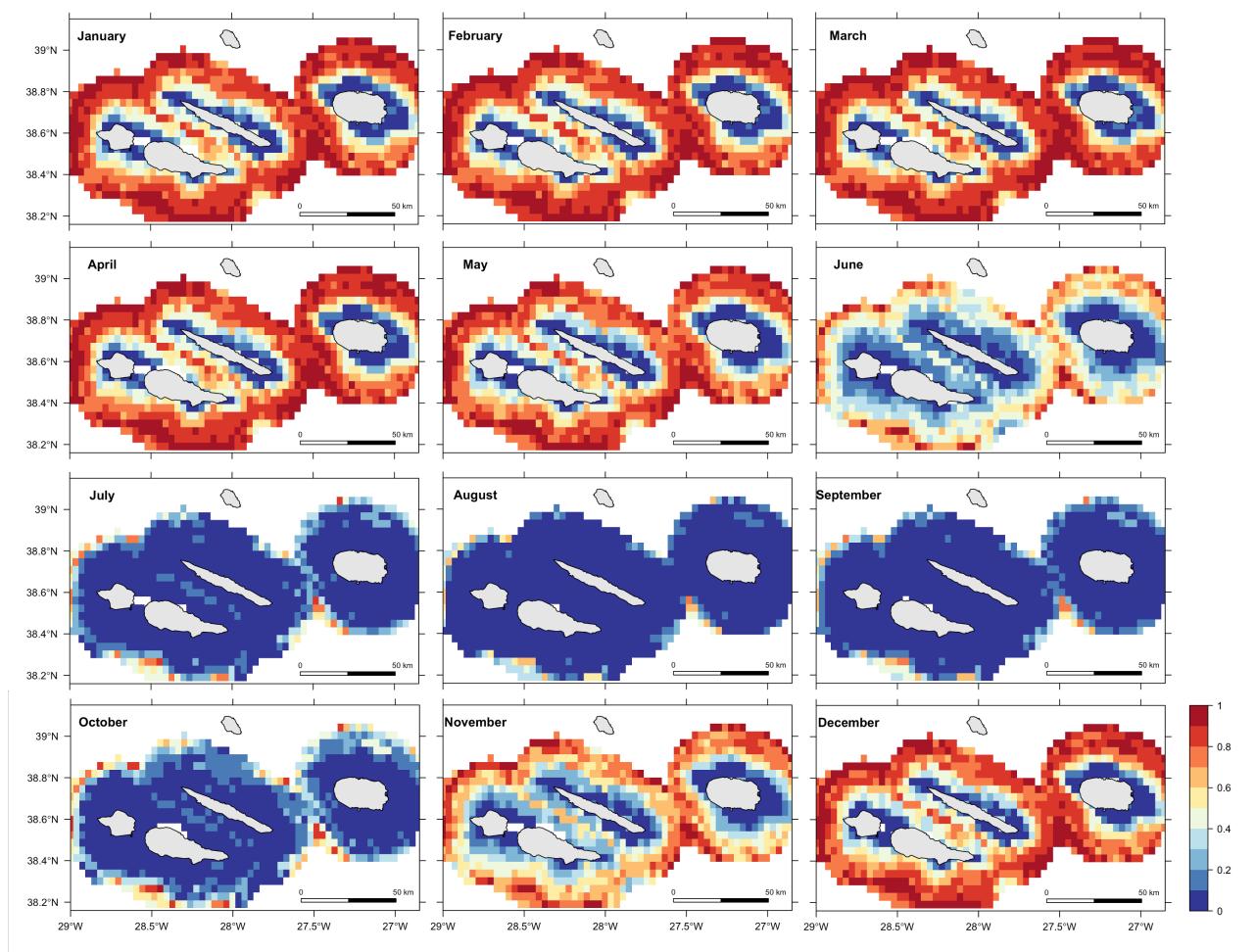


Figure S4.27: Mean monthly suitability values for blue whales around the central group islands (Pico, Faial, Sao Jorge and Terceira), Azores (4km grid). An 8-day temporal resolution for the environmental variables was used and results were averaged for each month. A targeted background sampling based on detectability was used.

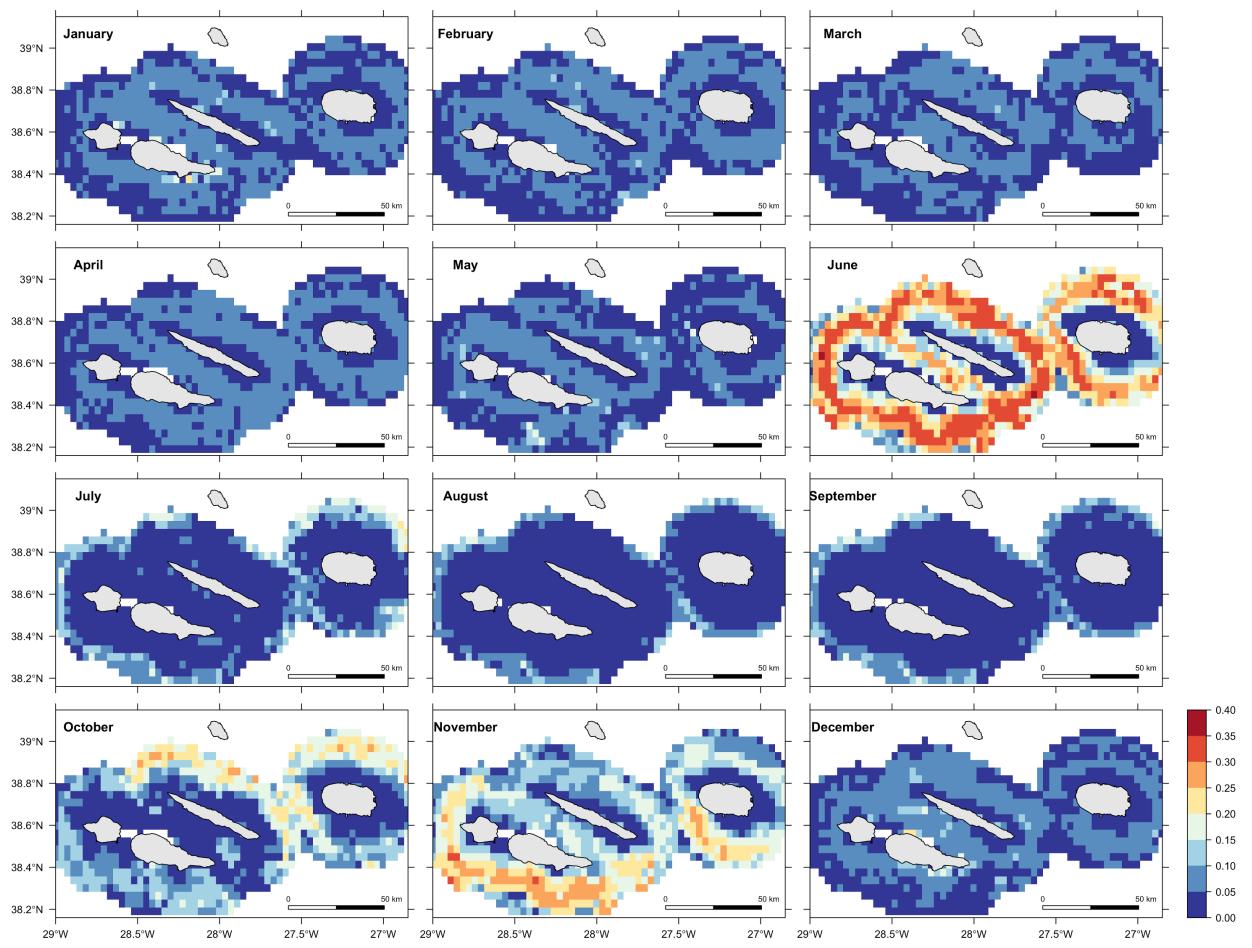


Figure S4.28: Monthly standard deviation of suitability predictions for blue whales around the central group islands (Pico, Faial, Sao Jorge and Terceira), Azores (4km grid). An 8-day temporal resolution for the environmental variables was used and results were averaged for each month. A targeted background sampling based on detectability was used.

## Fin whales

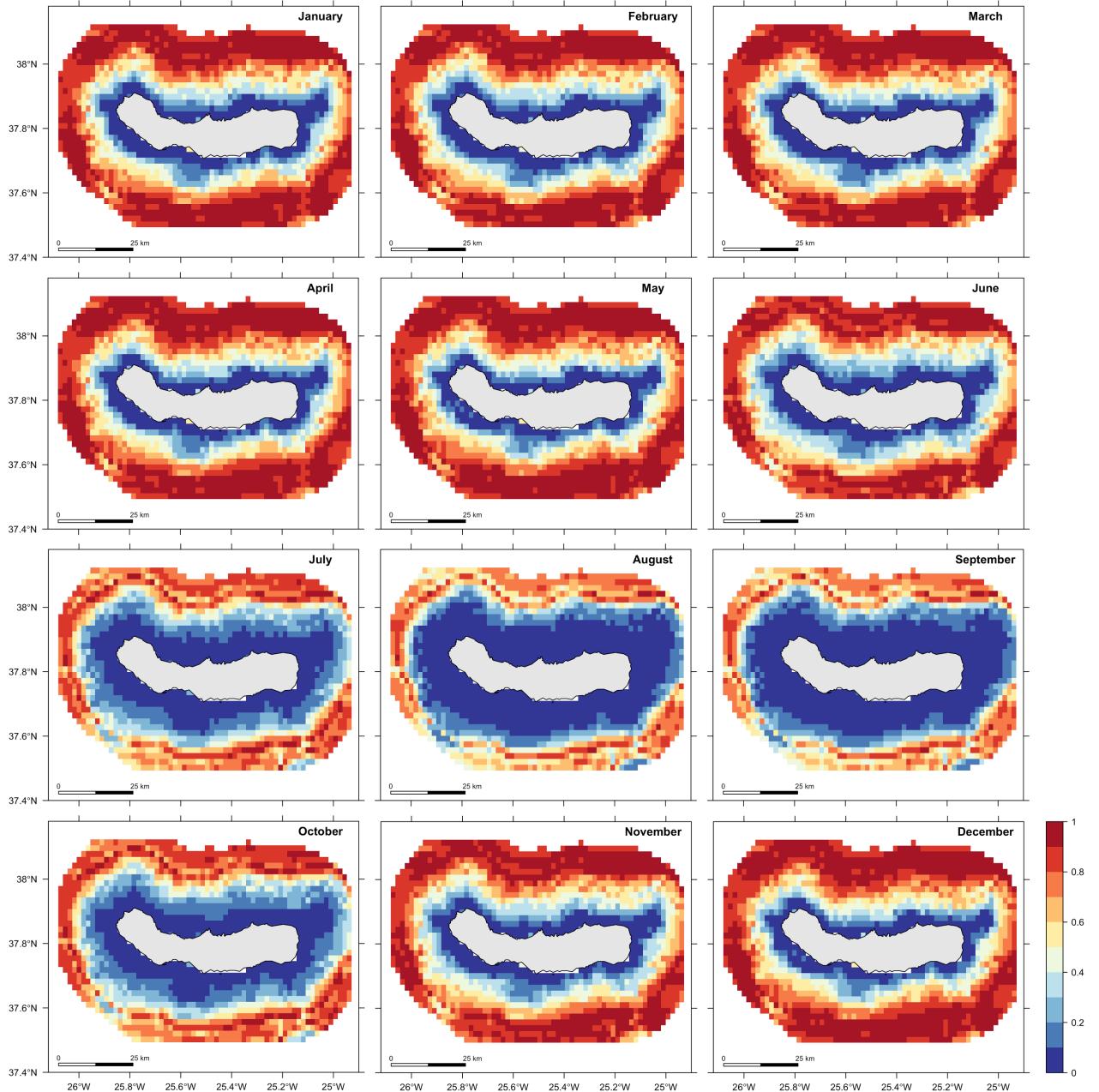


Figure S4.29: Mean monthly suitability values for fin whales around São Miguel Island, Azores.

An 8-day temporal resolution for the environmental variables was used and results were averaged for each month. A targeted background sampling based on detectability was used.

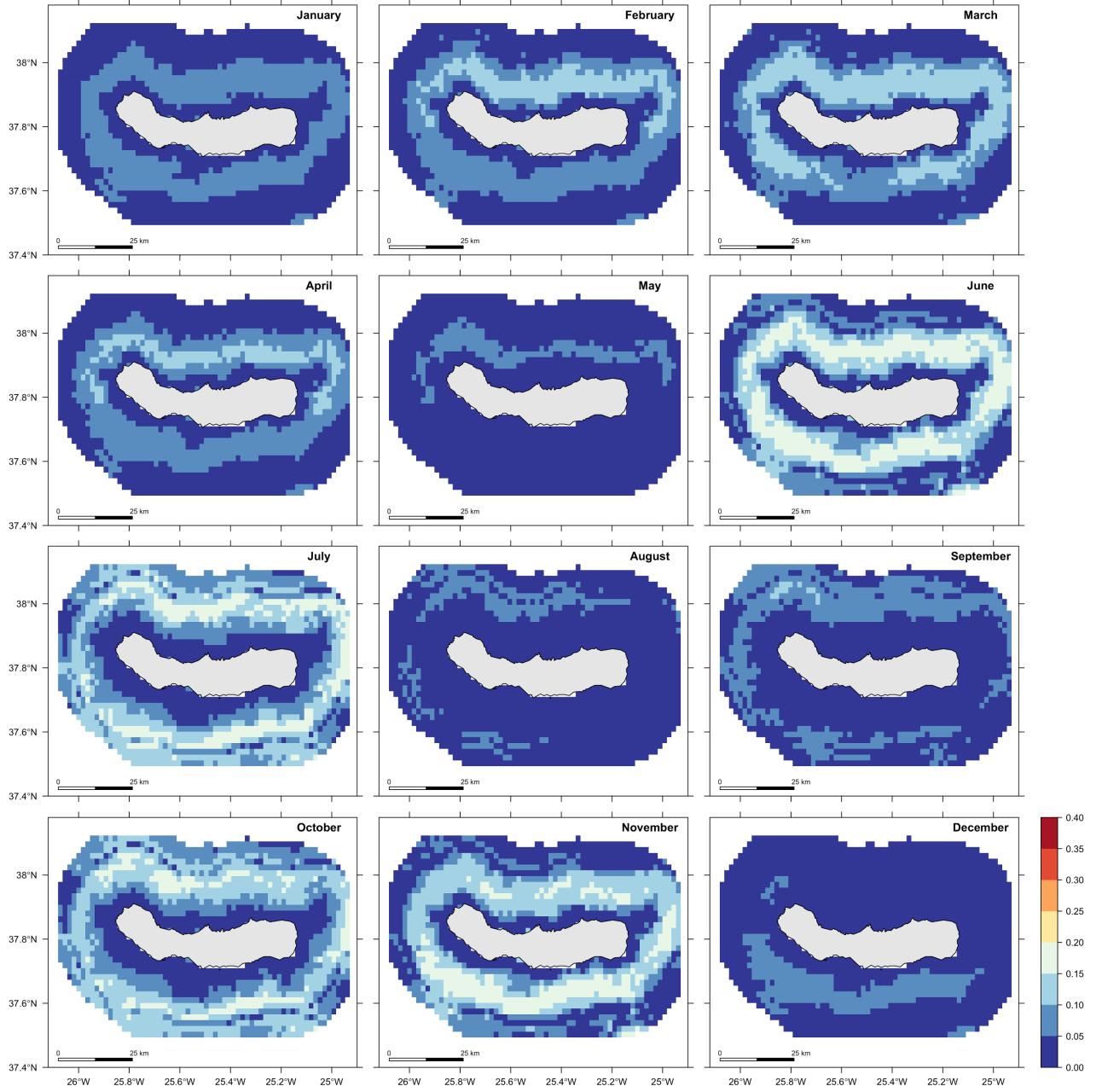


Figure S4.30: Monthly standard deviation of suitability predictions for fin whales around São Miguel Island, Azores (2km grid). An 8-day temporal resolution for the environmental variables was used and results were averaged for each month. A targeted background sampling based on detectability was used.

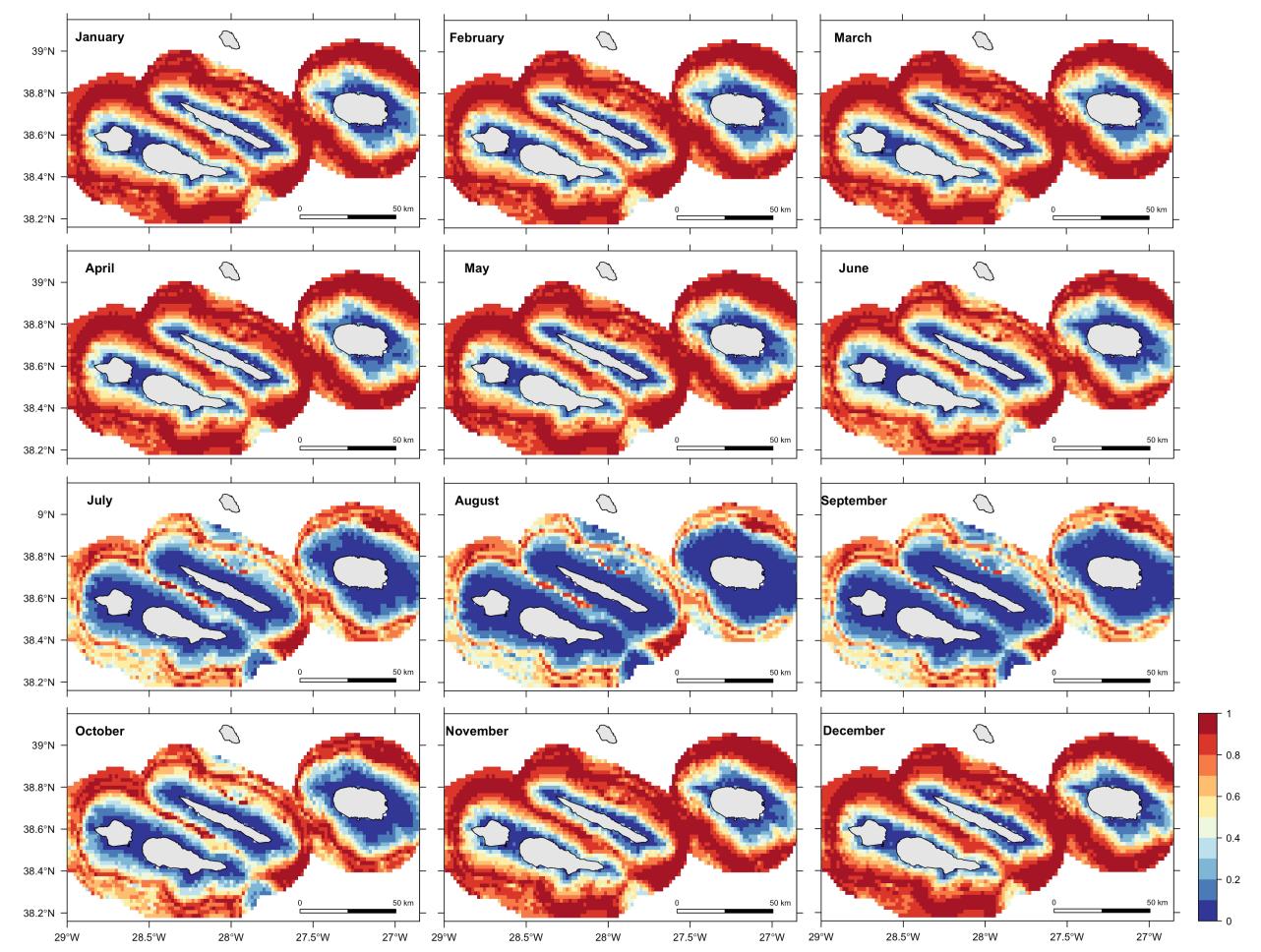


Figure S4.21: Mean monthly suitability values for fin whales around the central group islands (Pico, Faial, Sao Jorge and Terceira), Azores (2km grid). An 8-day temporal resolution for the environmental variables was used and results were averaged for each month. A targeted background sampling based on detectability was used.

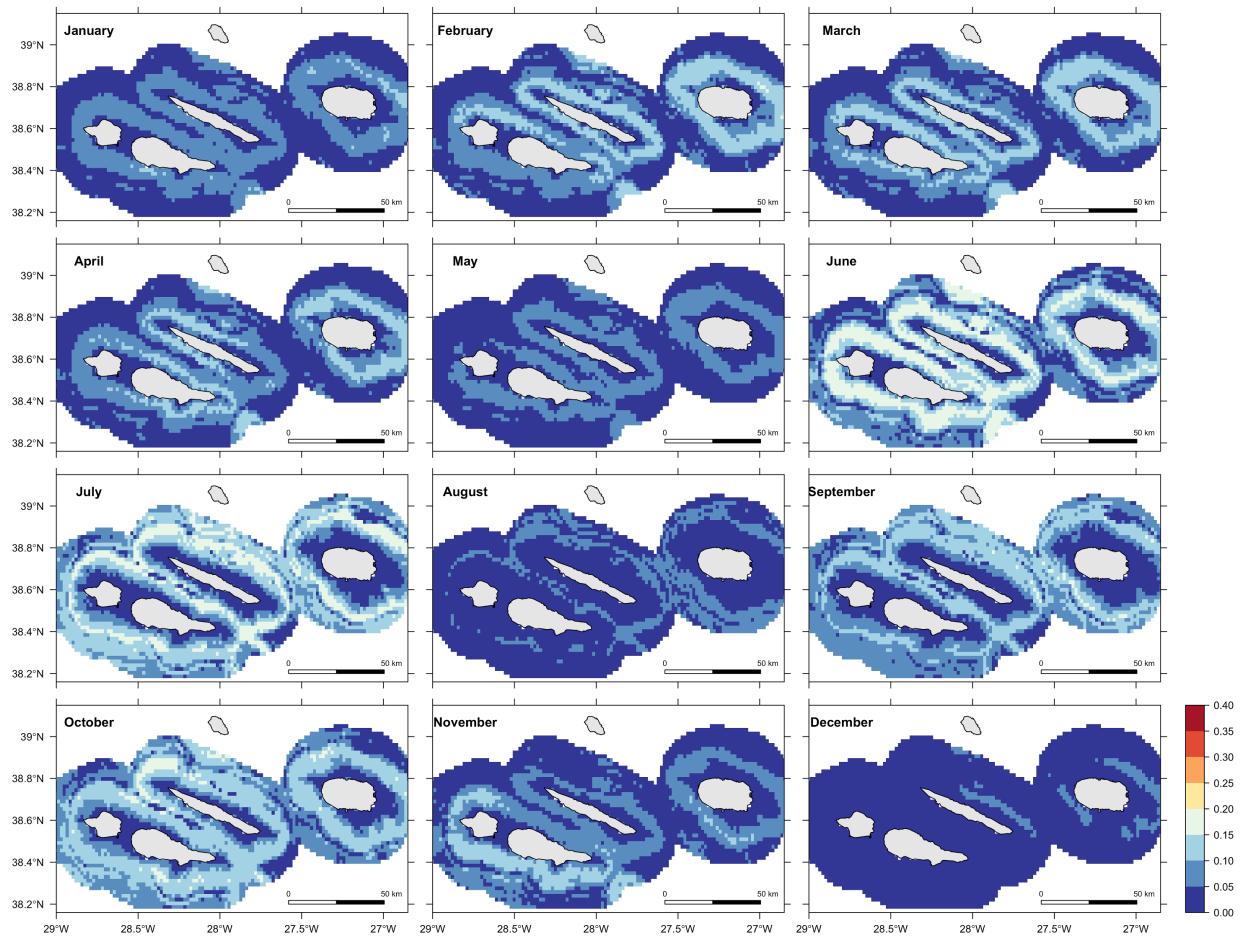


Figure S4.32: Monthly standard deviation of suitability predictions for fin whales around the central group islands (Pico, Faial, Sao Jorge and Terceira), Azores (2km grid). An 8-day temporal resolution for the environmental variables was used and results were averaged for each month. A targeted background sampling based on detectability was used.

## Sperm whales

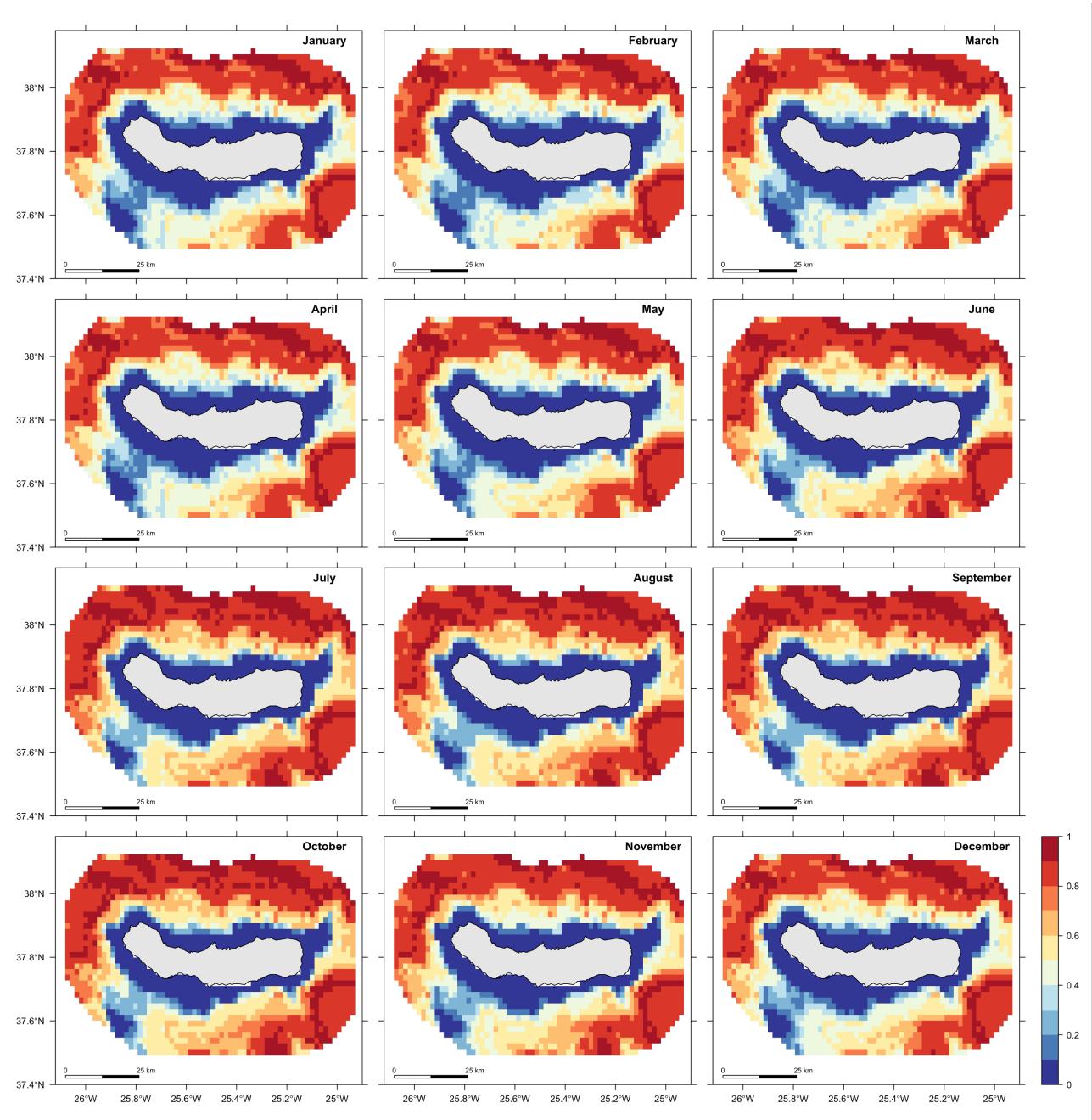


Figure S4.33: Mean monthly suitability values for sperm whales around São Miguel Island, Azores (2km grid). An 8-day temporal resolution for the environmental variables was used and results were averaged for each month. A targeted background sampling based on detectability was used.

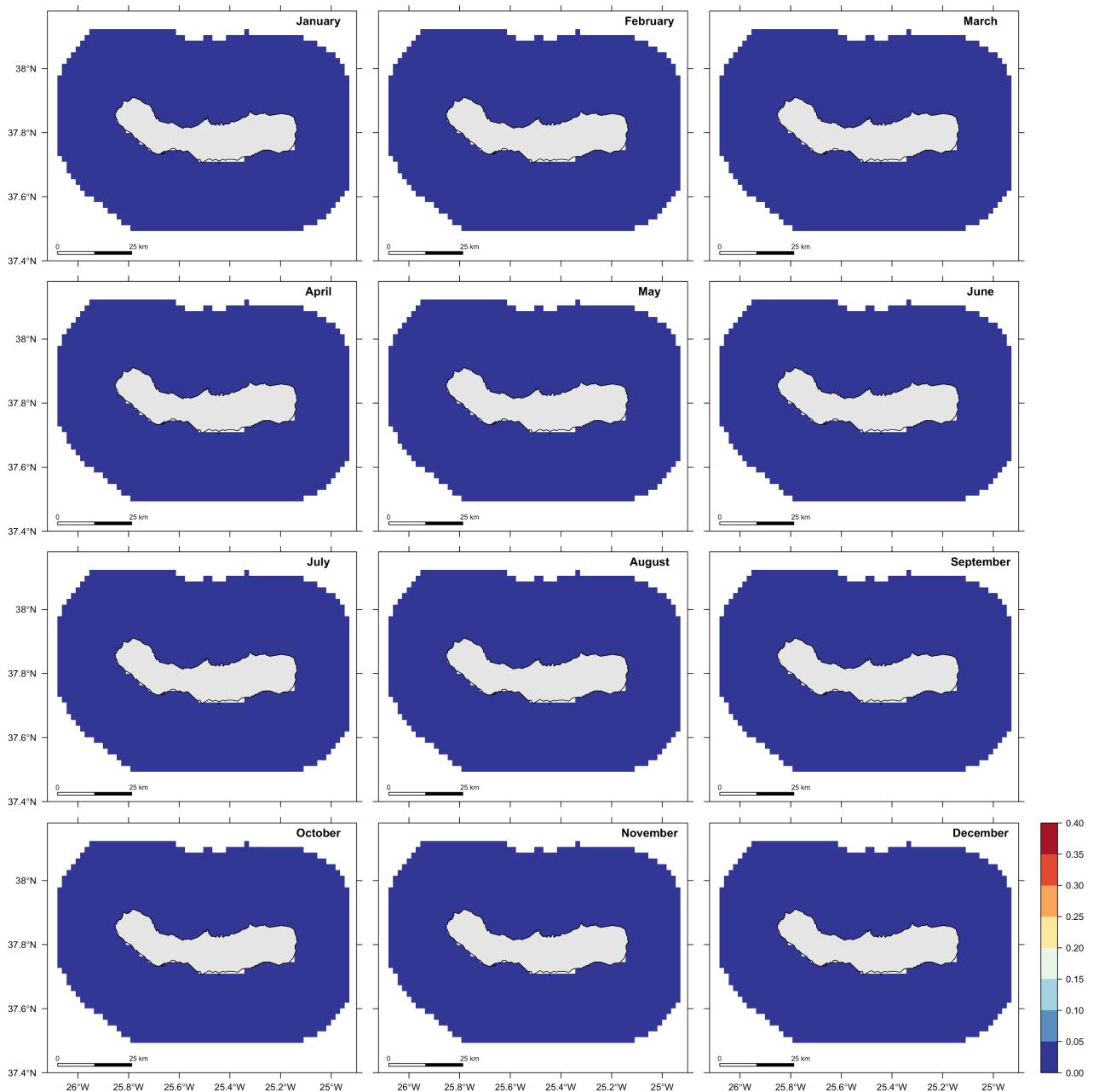


Figure S4.34: Monthly standard deviation of suitability predictions for sperm whales around São Miguel Island, Azores (2km grid). An 8-day temporal resolution for the environmental variables was used and results were averaged for each month. A targeted background sampling based on detectability was used.

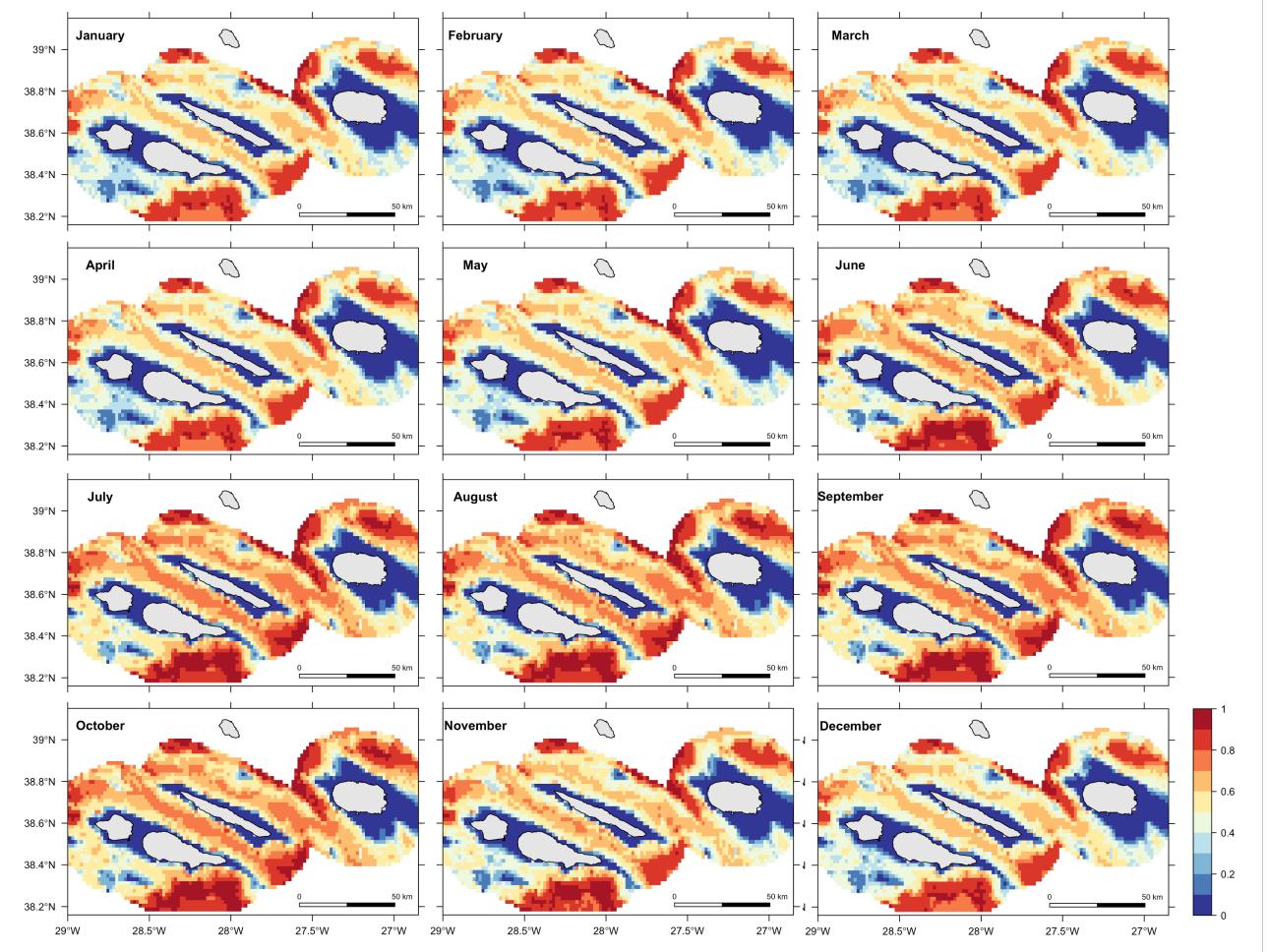


Figure S4.35: Mean monthly suitability values for sperm whales around the central group islands (Pico, Faial, São Jorge and Terceira), Azores (2km grid). An 8-day temporal resolution for the environmental variables was used and results were averaged for each month. A targeted background sampling based on detectability was used.

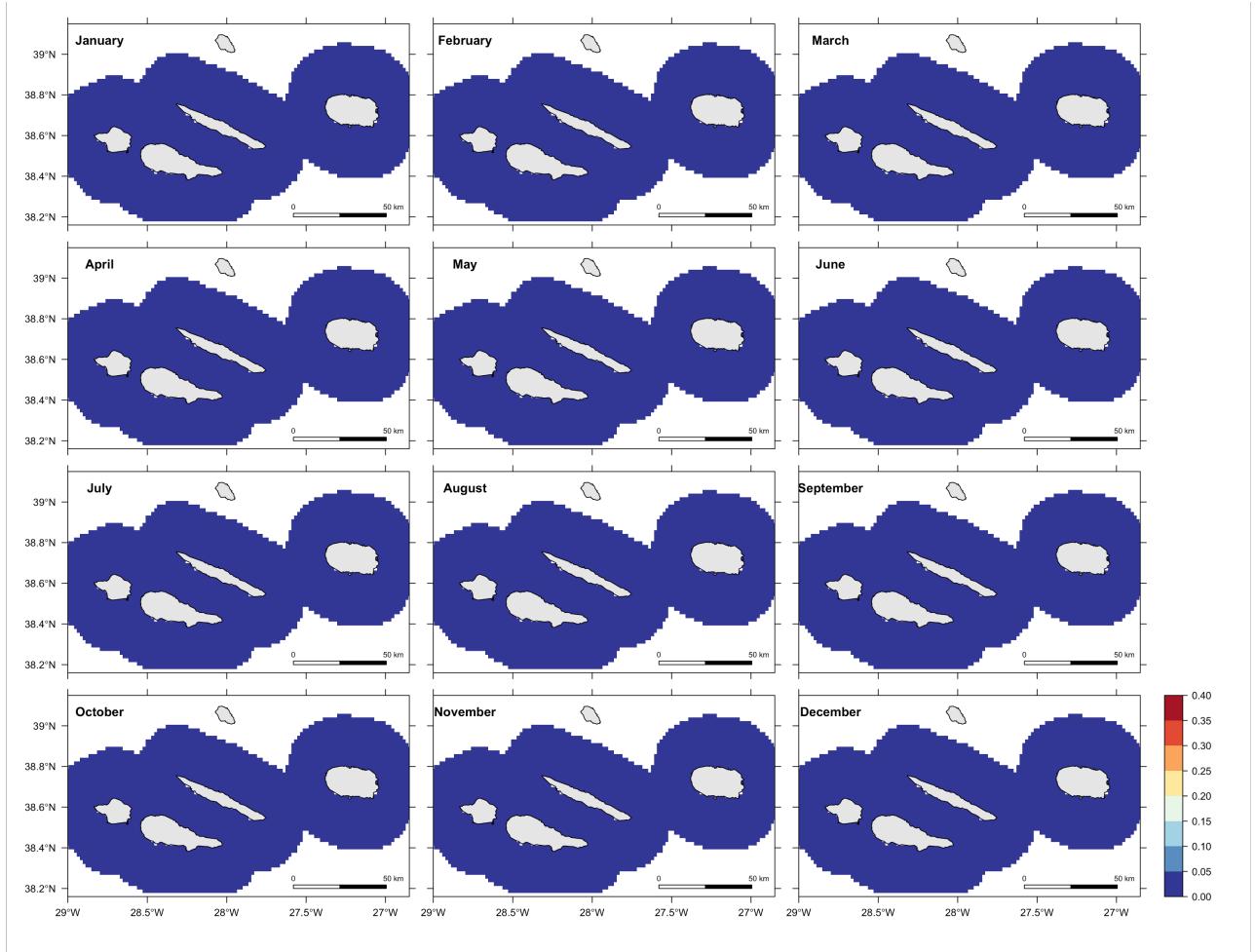


Figure S3.16: Monthly standard deviation of suitability predictions for sperm whales around the central group islands (Pico, Faial, Sao Jorge and Terceira), Azores (2km grid). An 8-day temporal resolution for the environmental variables was used and results were averaged for each month. A targeted background sampling based on detectability was used.

## Short-finned pilot whales

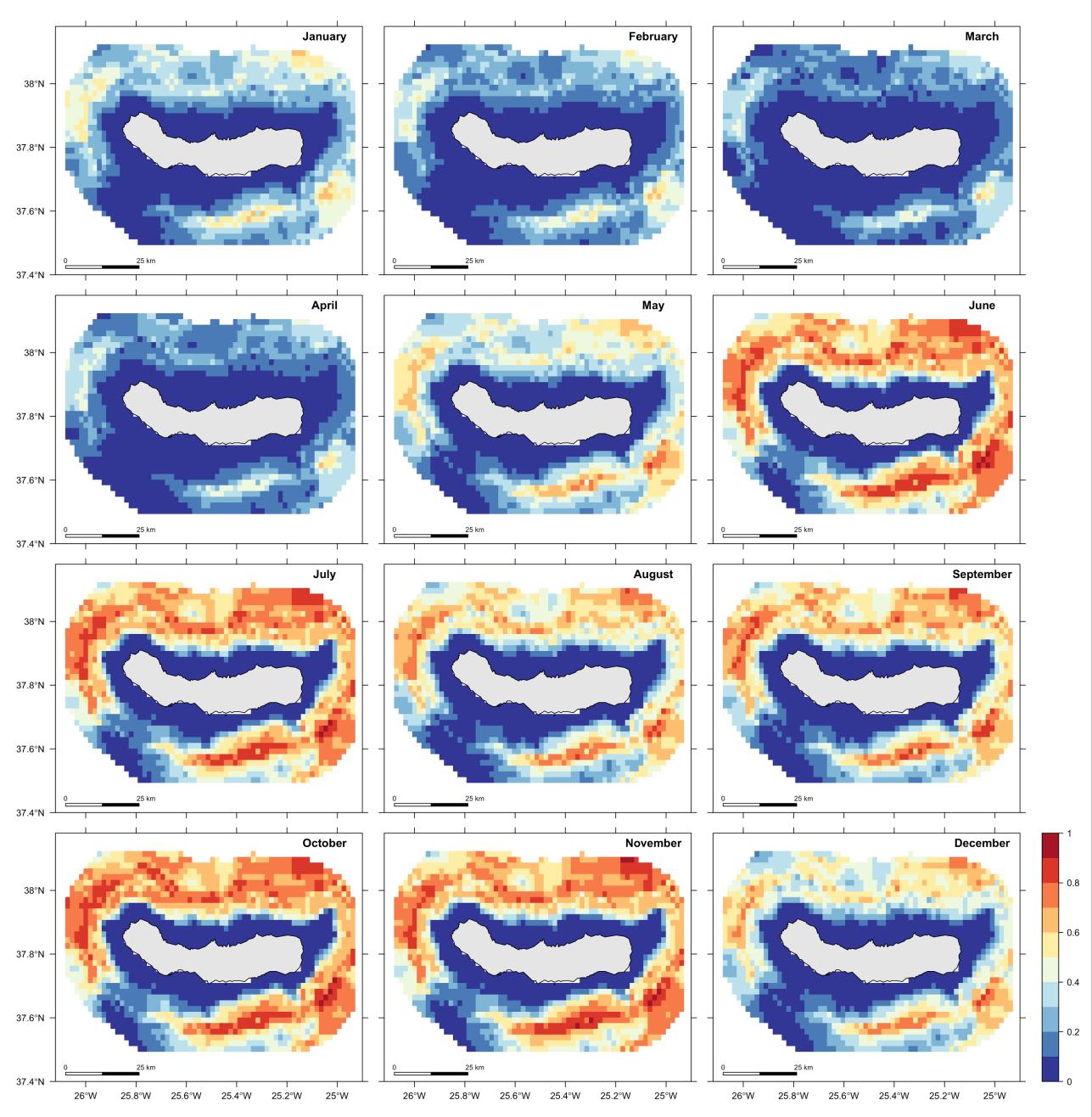


Figure S4.37: Mean monthly suitability values for short-finned pilot whales around São Miguel Island, Azores (2km grid). An 8-day temporal resolution for the environmental variables was used and results were averaged for each month. A targeted background sampling based on detectability was used.

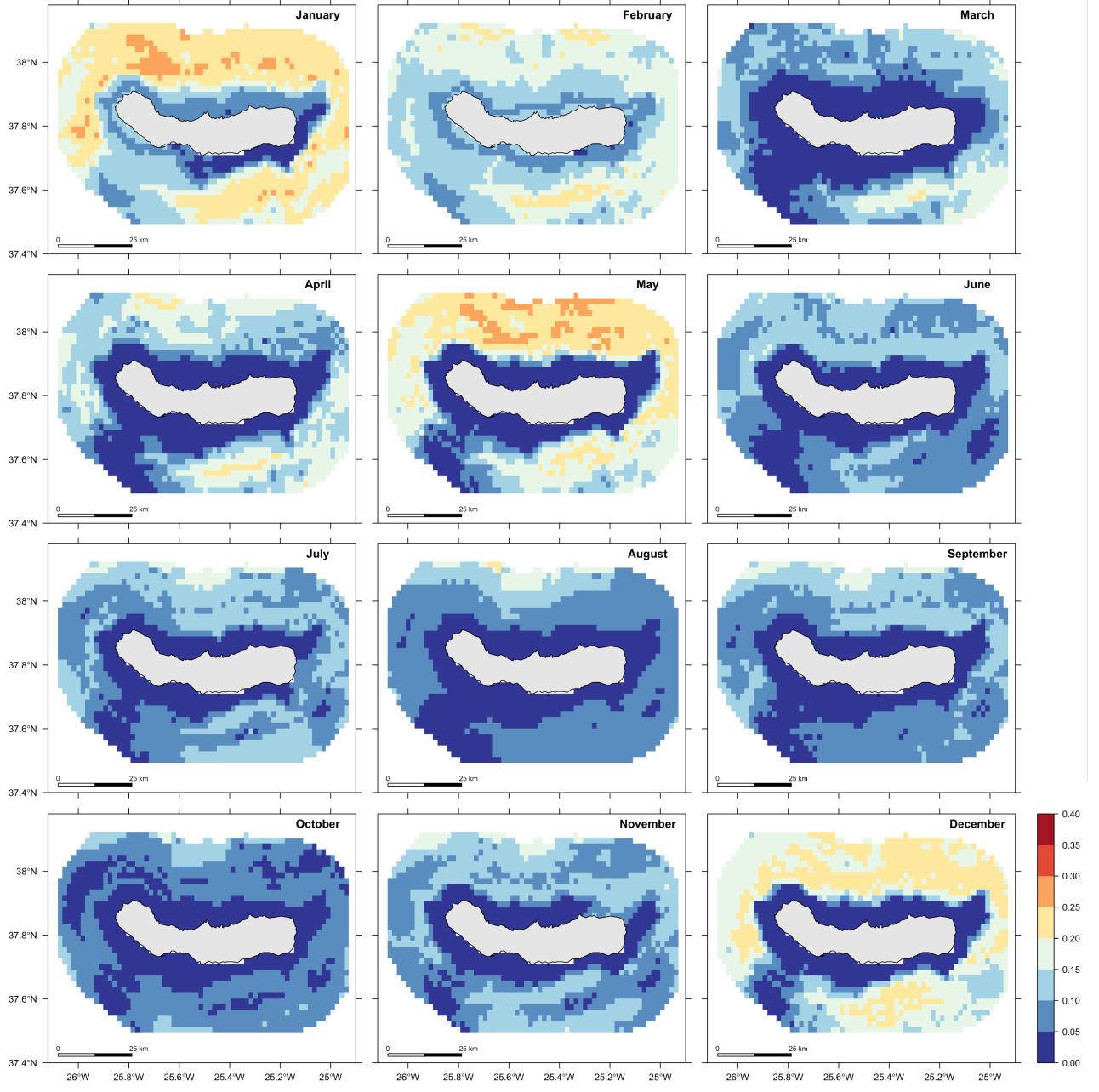


Figure S4.38: Monthly standard deviation of suitability predictions for short-finned pilot whales around São Miguel Island, Azores (2km grid). An 8-day temporal resolution for the environmental variables was used and results were averaged for each month. A targeted background sampling based on detectability was used.

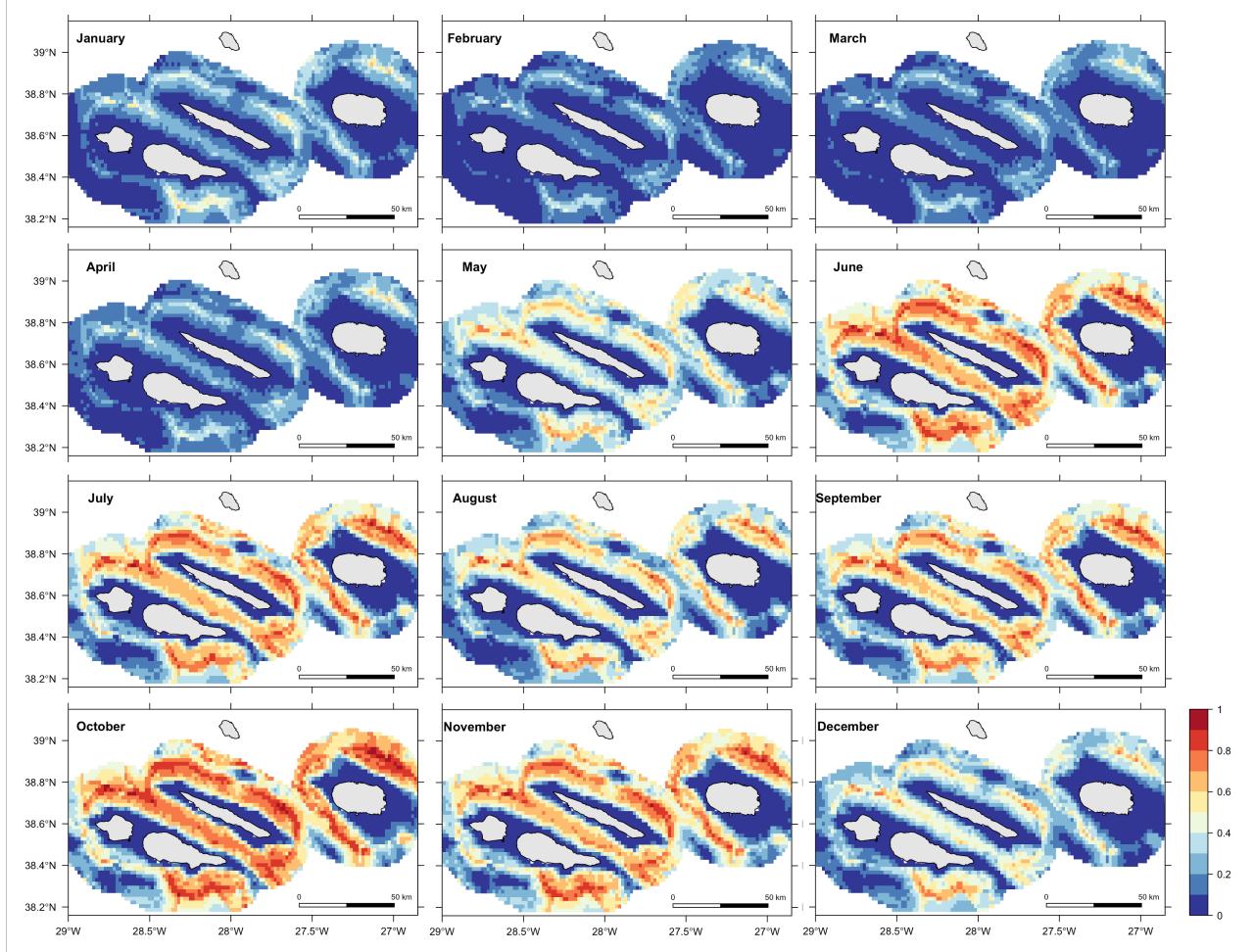


Figure S4.39: Mean monthly suitability values for short-finned pilot whales around the central group islands (Pico, Faial, Sao Jorge and Terceira), Azores (2km grid). An 8-day temporal resolution for the environmental variables was used and results were averaged for each month. A targeted background sampling based on detectability was used.

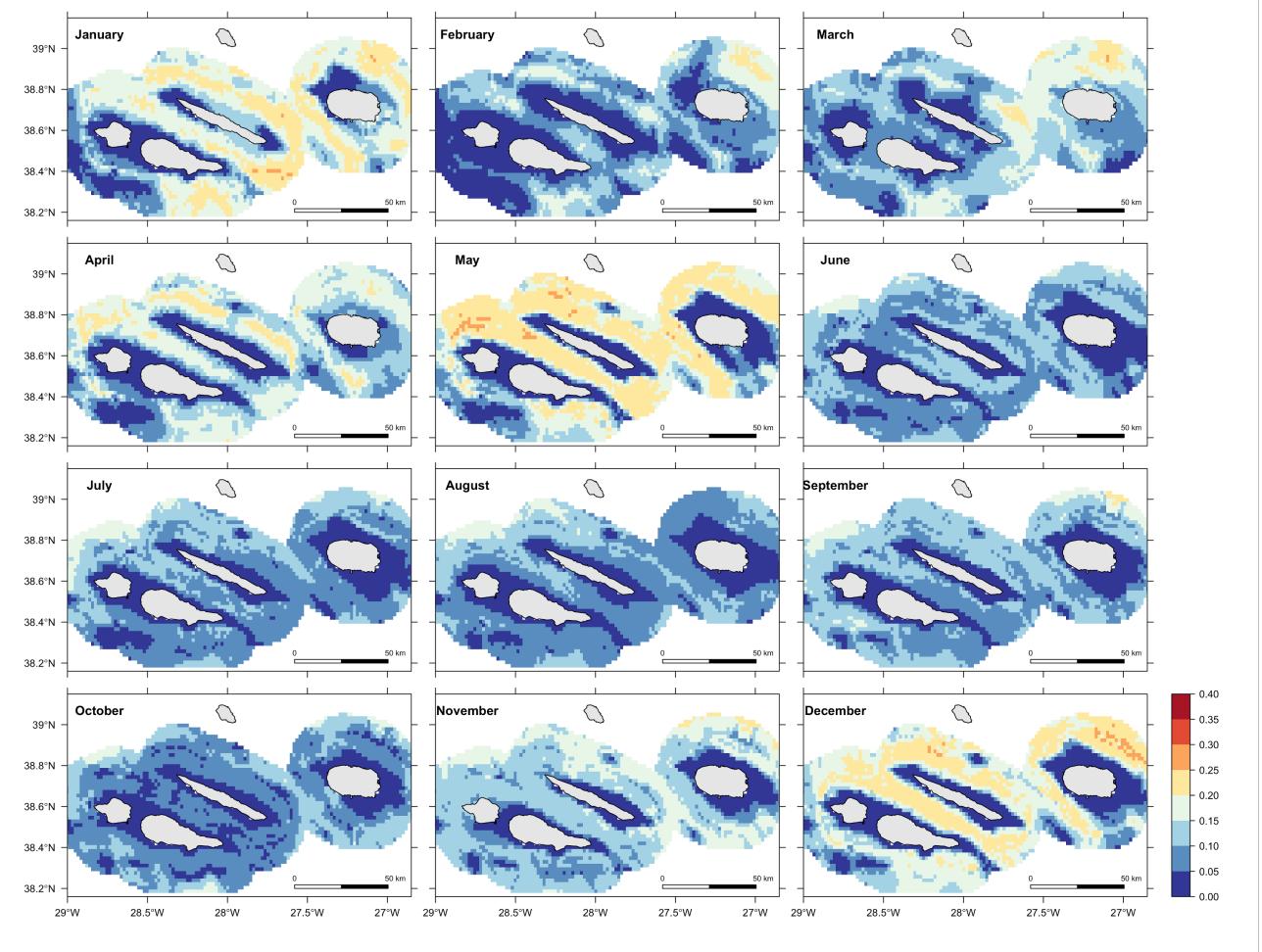


Figure S4.40: Monthly standard deviation of suitability predictions for short-finned pilot whales around the central group islands (Pico, Faial, Sao Jorge and Terceira), Azores (2km grid). An 8-day temporal resolution for the environmental variables was used and results were averaged for each month. A targeted background sampling based on detectability was used.

## Risso's dolphins

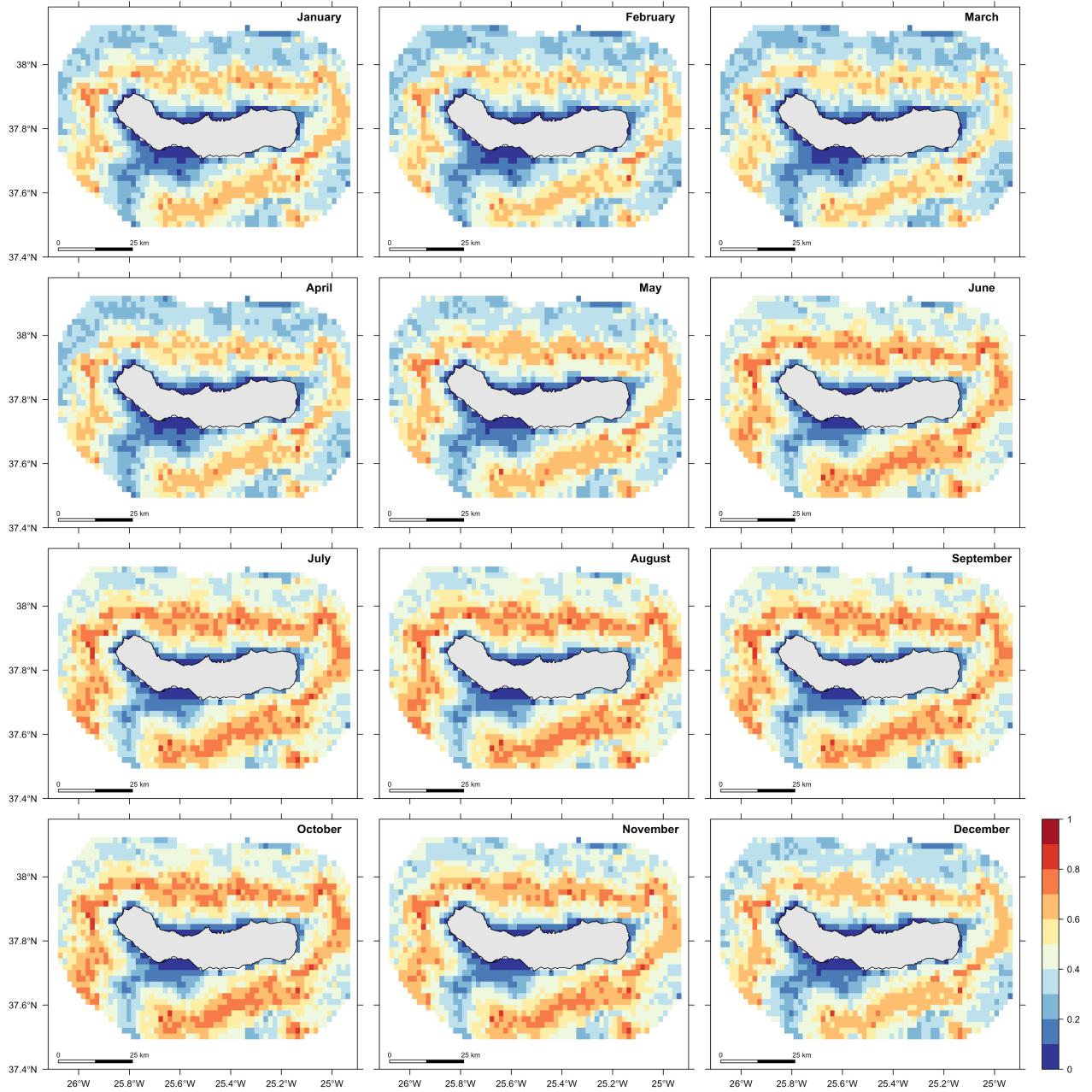


Figure S4.41: Mean monthly suitability values for Risso's dolphins around São Miguel Island, Azores (2km grid). An 8-day temporal resolution for the environmental variables was used and results were averaged for each month. A targeted background sampling based on detectability was used.

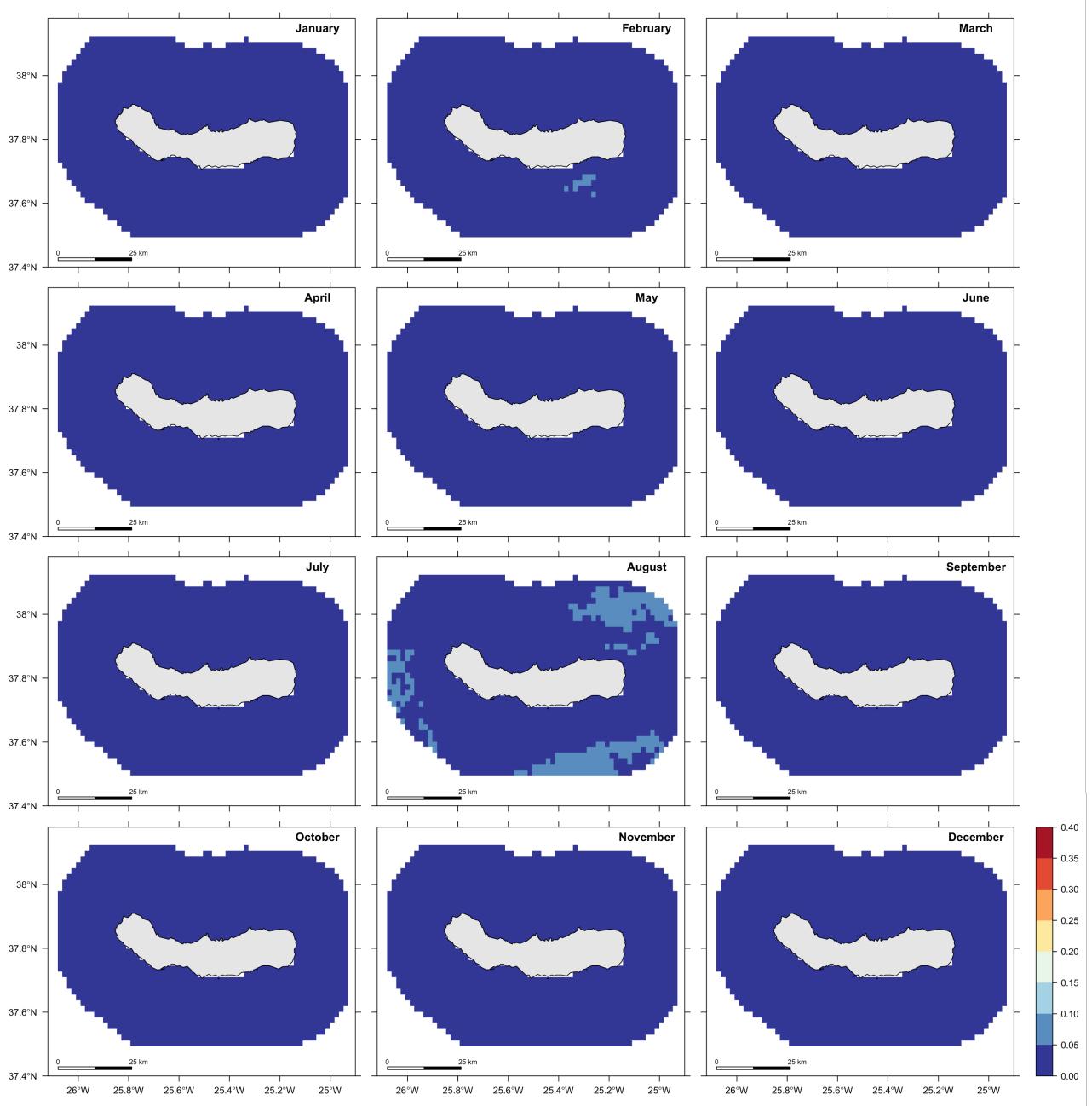


Figure S4.42: Standard monthly deviation of suitability predictions for Risso's dolphins around São Miguel Island, Azores (2km grid). An 8-day temporal resolution for the environmental variables was used and results were averaged for each month. A targeted background sampling based on detectability was used.

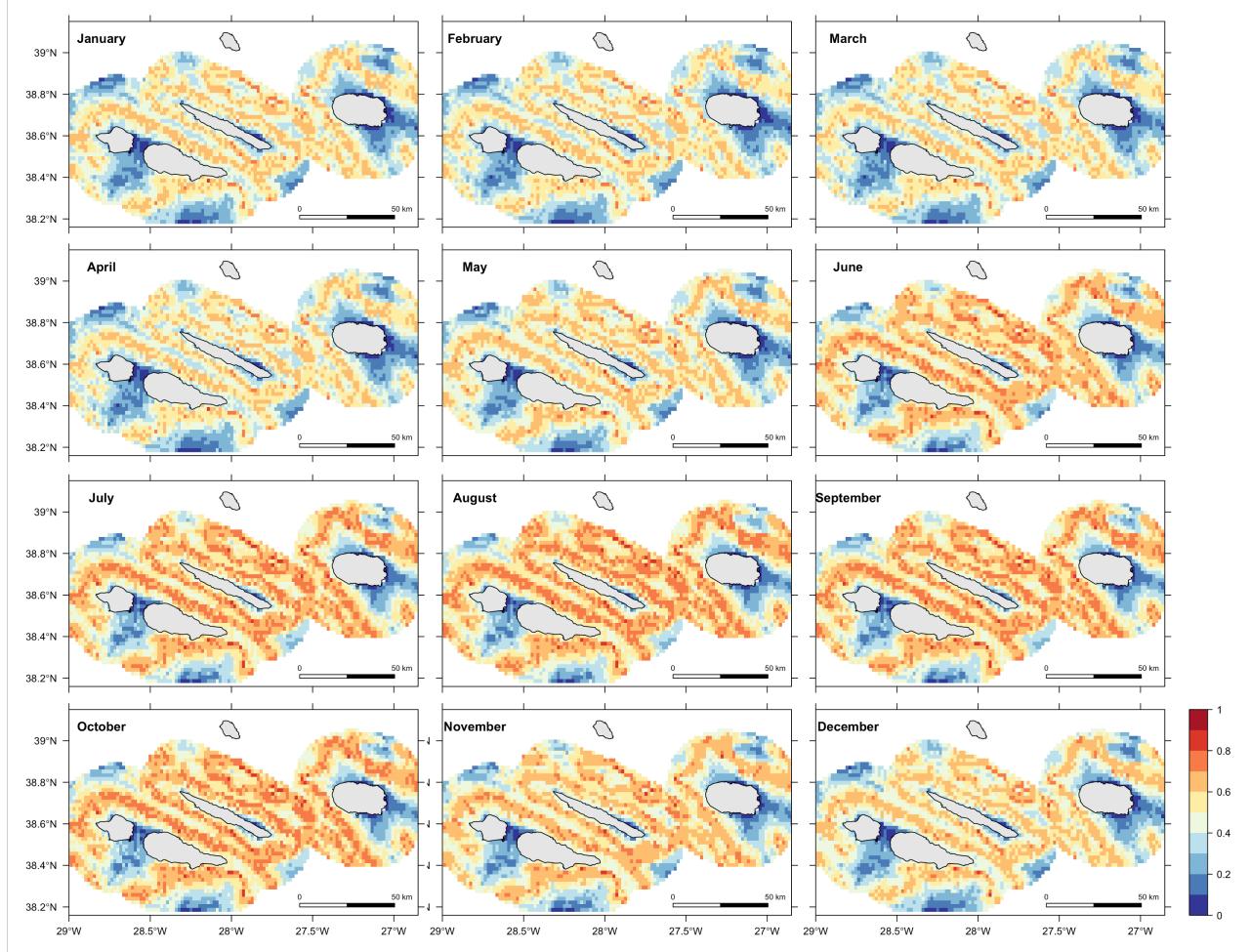


Figure S4.43: Mean monthly suitability values for Risso's dolphins around the central group islands (Pico, Faial, Sao Jorge and Terceira), Azores (2km grid). An 8-day temporal resolution for the environmental variables was used and results were averaged for each month. A targeted background sampling based on detectability was used.

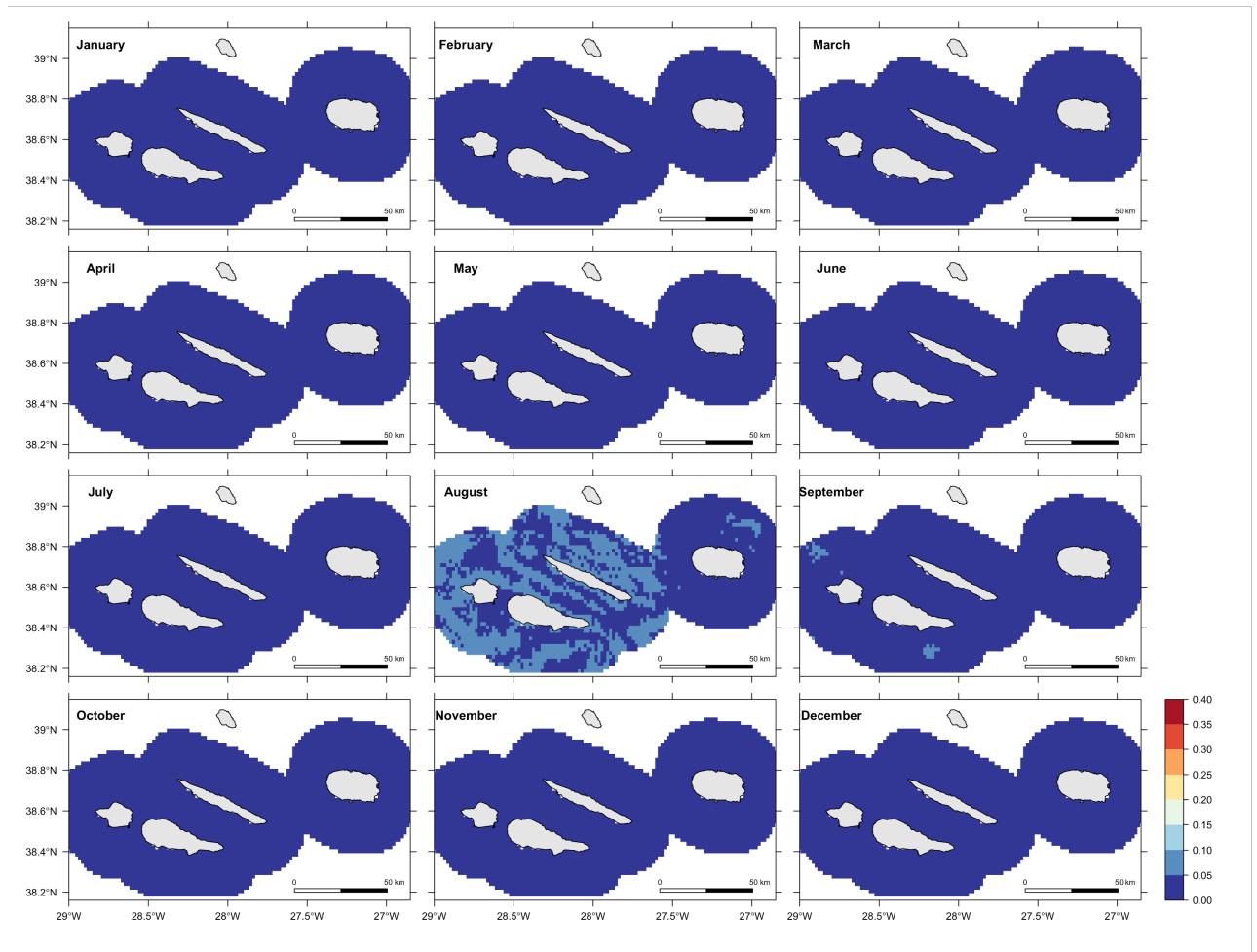


Figure S4.44: Monthly standard deviation of suitability predictions for Risso's dolphins around the central group islands (Pico, Faial, Sao Jorge and Terceira), Azores (2km grid). An 8-day temporal resolution for the environmental variables was used and results were averaged for each month. A targeted background sampling based on detectability was used.

## Bottlenose dolphins

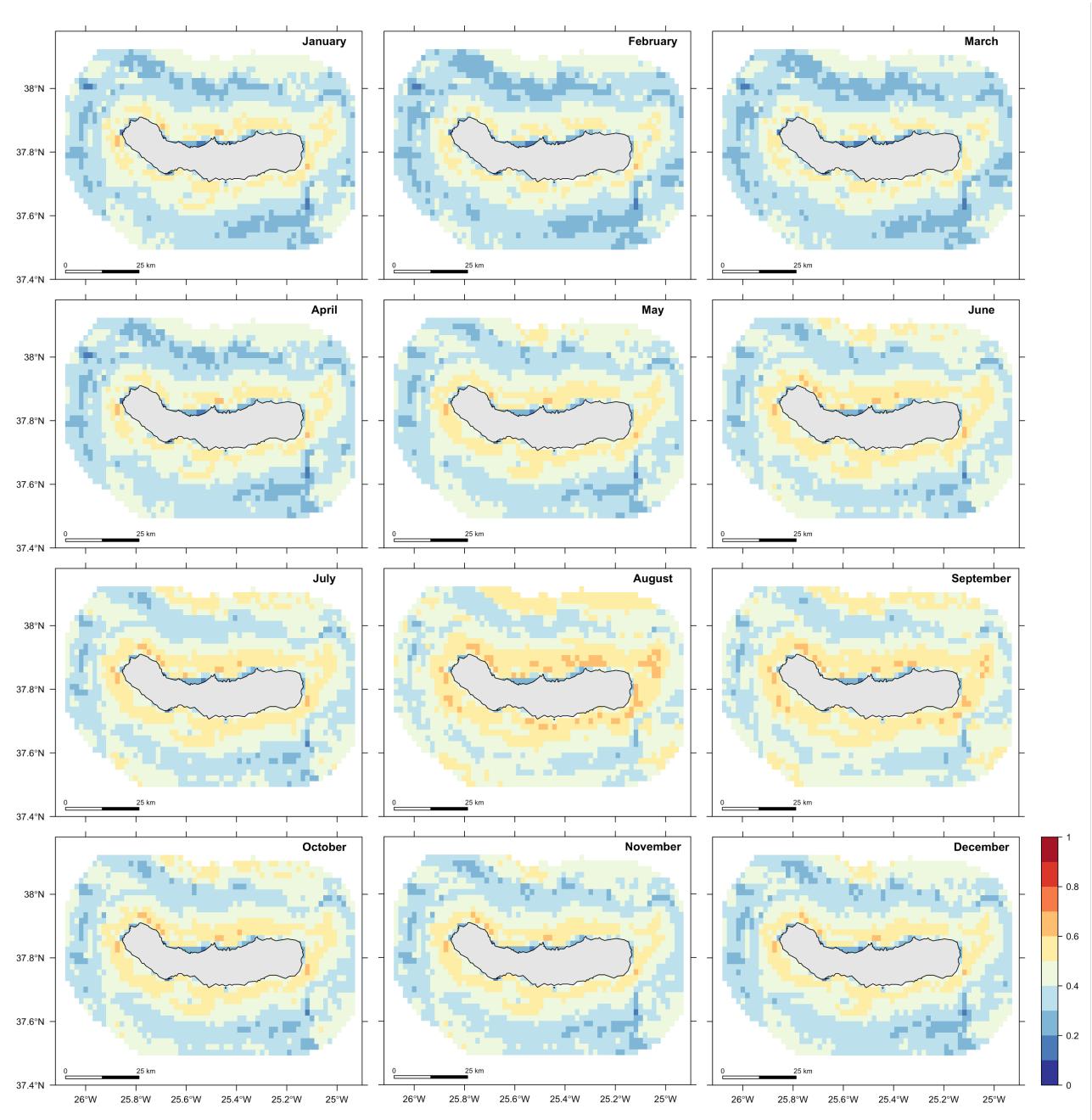


Figure S4.45: Mean monthly suitability values for bottlenose dolphins around São Miguel Island, Azores (2km grid). An 8-day temporal resolution for the environmental variables was used and results were averaged for each month. A non-targeted background sampling was used.

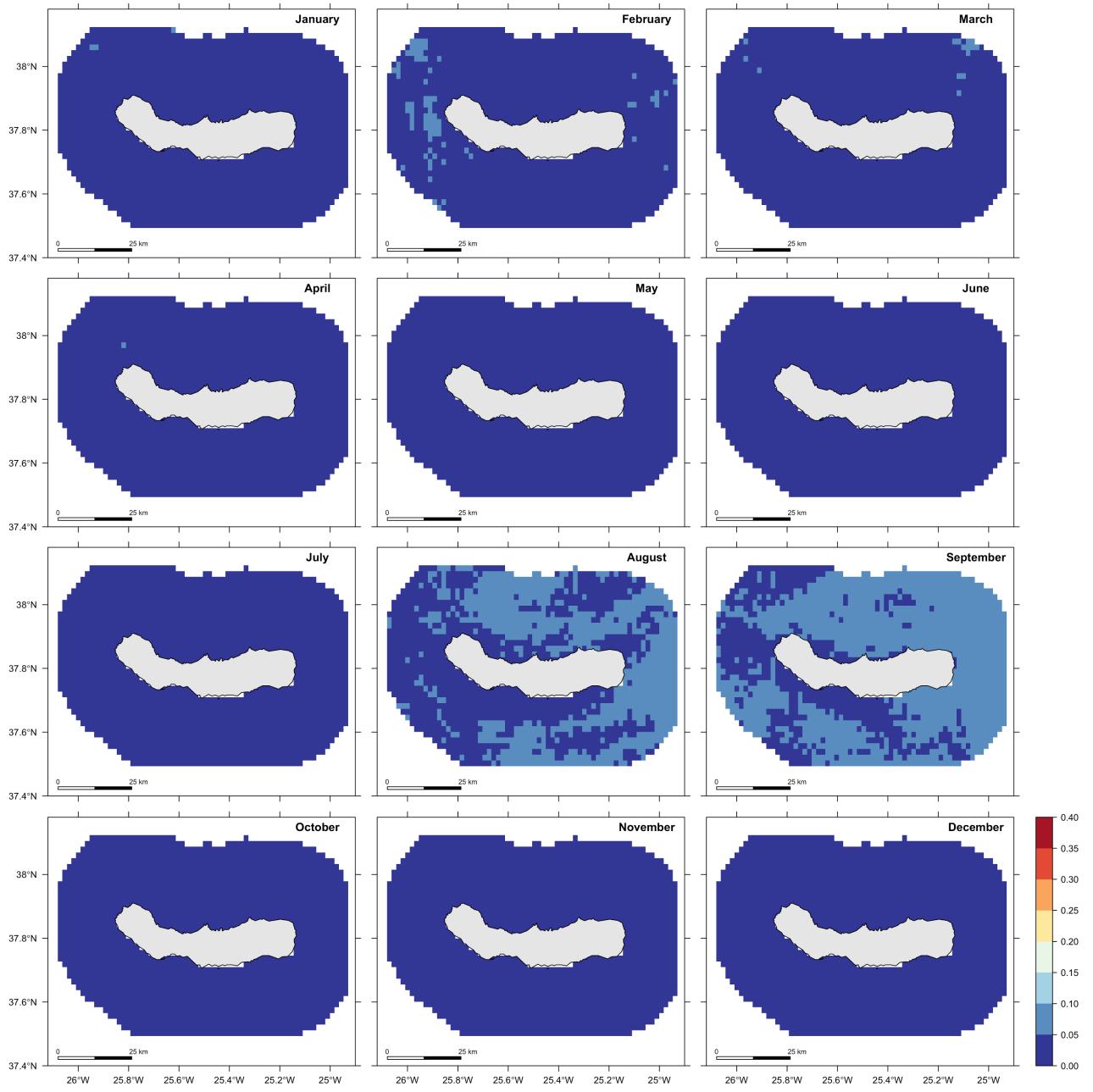


Figure S4.46: Monthly standard deviation of suitability predictions for bottlenose dolphins around São Miguel Island, Azores (2km grid). An 8-day temporal resolution for the environmental variables was used and results were averaged for each month. A non-targeted background sampling was used.

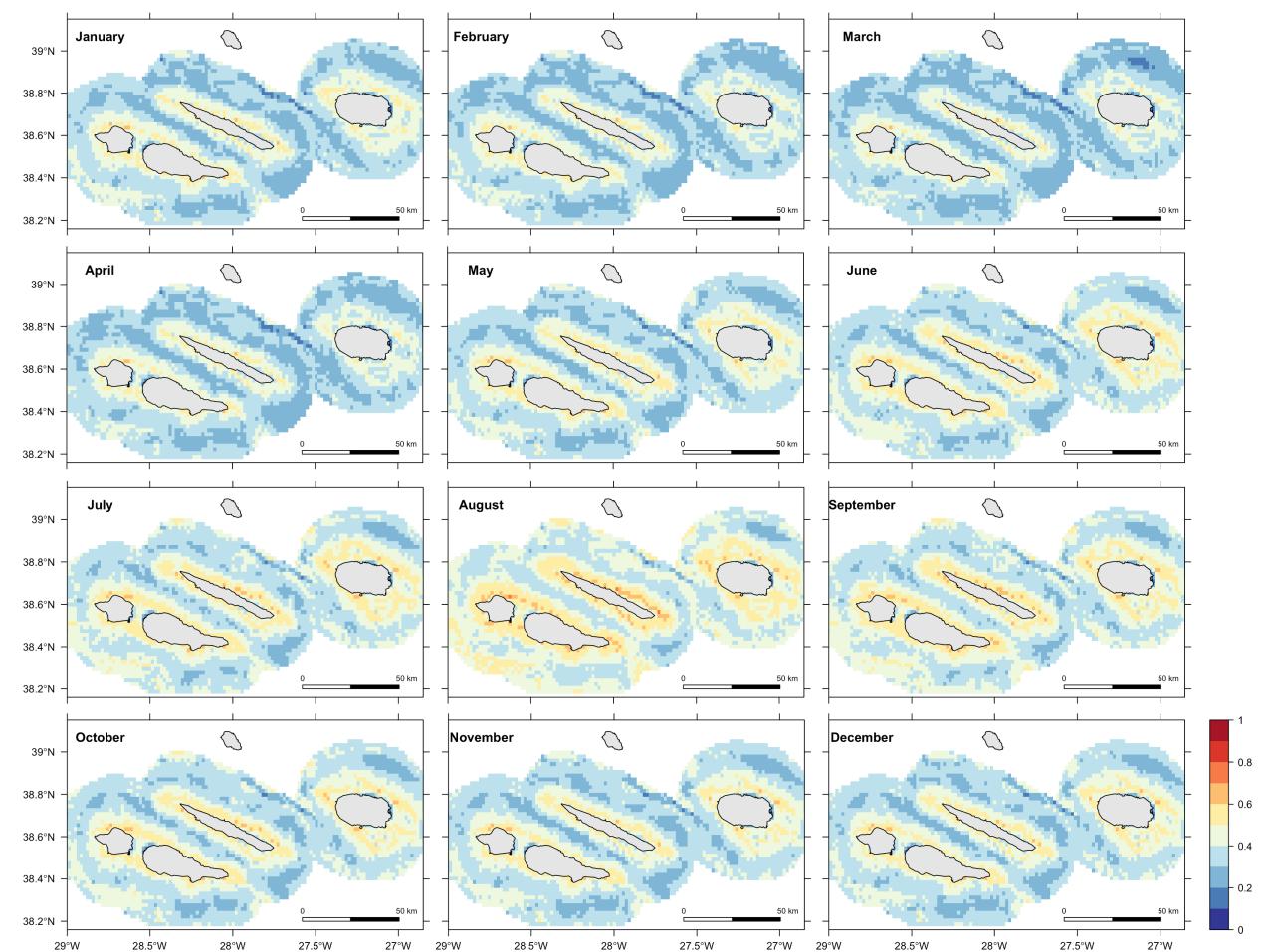


Figure S4.47: Mean monthly suitability values for bottlenose dolphins around the central group islands (Pico, Faial, Sao Jorge and Terceira), Azores (2km grid). An 8-day temporal resolution for the environmental variables was used and results were averaged for each month. A non-targeted background sampling was used.

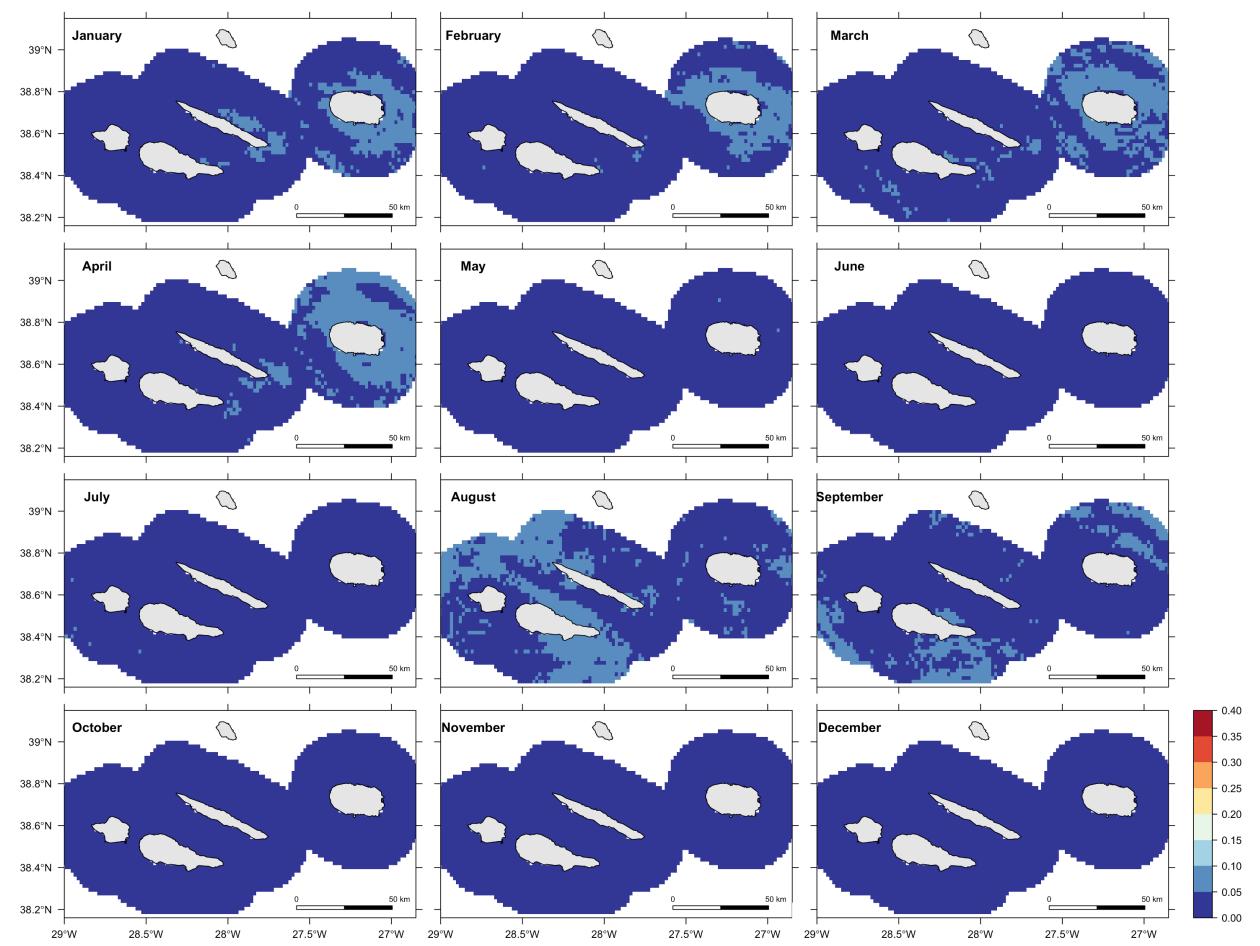


Figure S4.48: Monthly standard deviation of suitability predictions for bottlenose dolphins around the central group islands (Pico, Faial, Sao Jorge and Terceira), Azores (2km grid). An 8-day temporal resolution for the environmental variables was used and results were averaged for each month. A non-targeted background sampling was used.

## Atlantic spotted dolphins

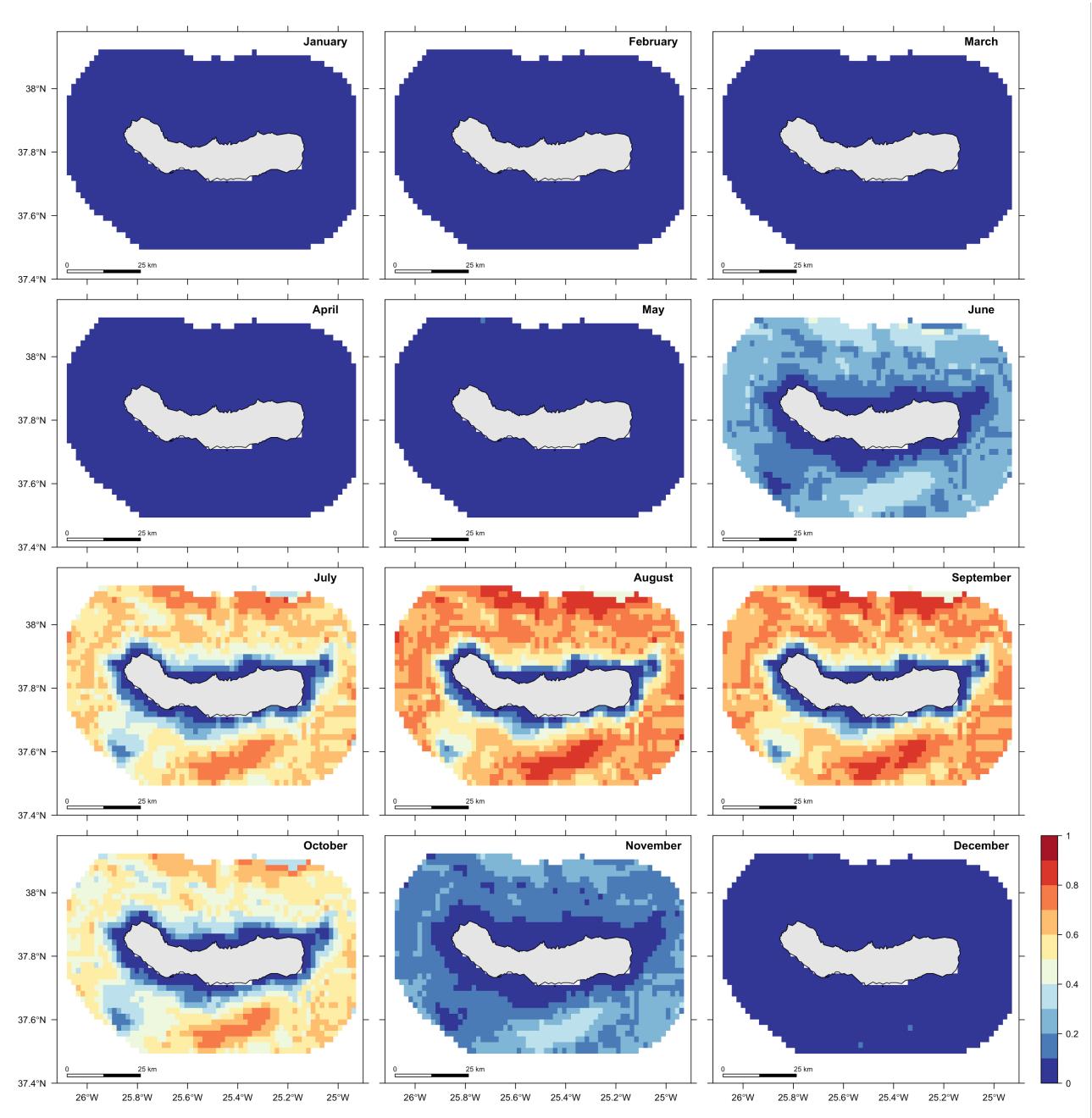


Figure S4.49: Mean monthly suitability values for Atlantic spotted dolphins around São Miguel Island, Azores (2km grid). An 8-day temporal resolution for the environmental variables was used and results were averaged for each month. A targeted background sampling based on detectability was used.

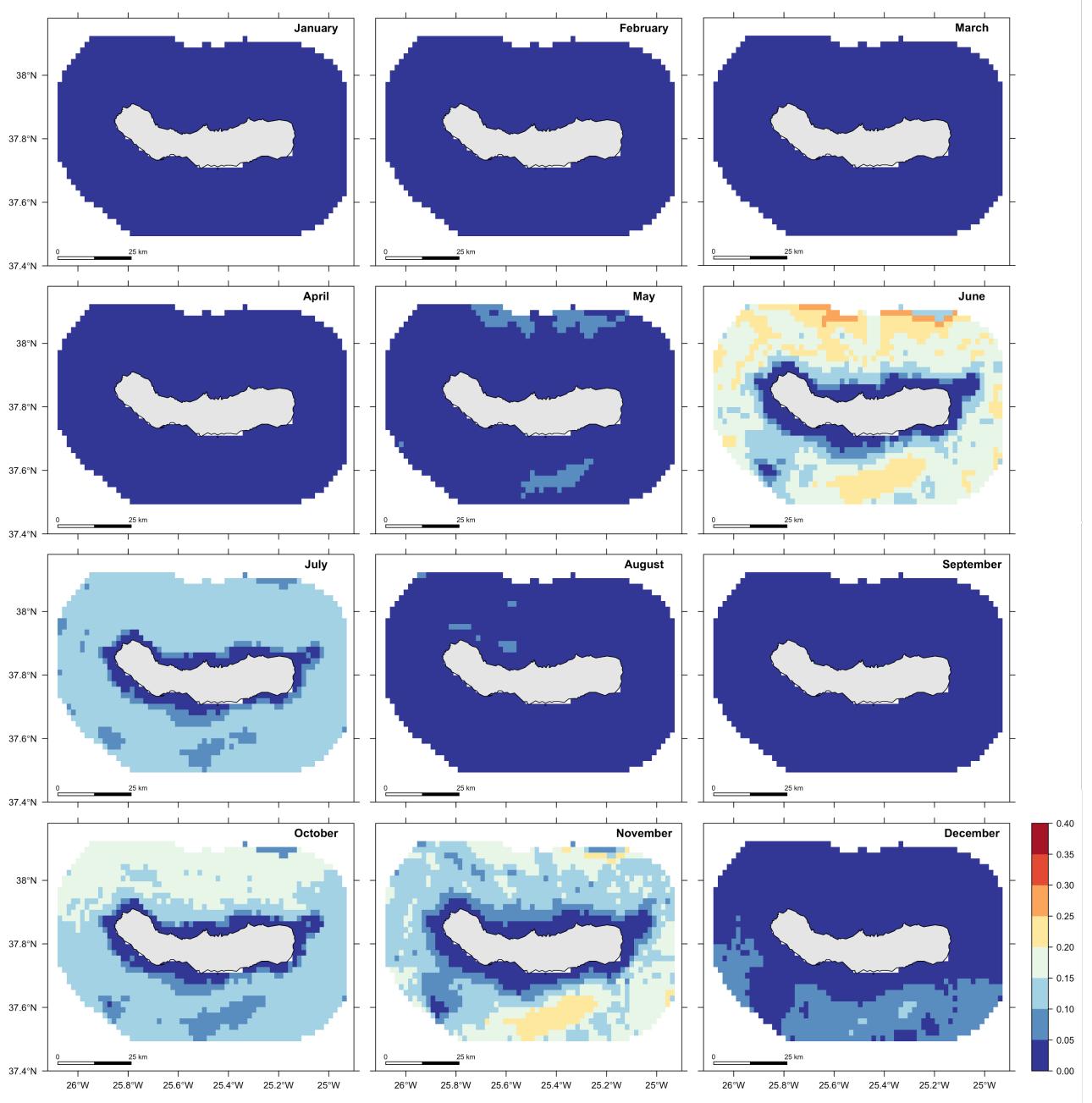


Figure S4.50: Monthly standard deviation of suitability predictions for Atlantic spotted dolphins around São Miguel Island, Azores (2km grid). An 8-day temporal resolution for the environmental variables was used and results were averaged for each month. A targeted background sampling based on detectability was used.

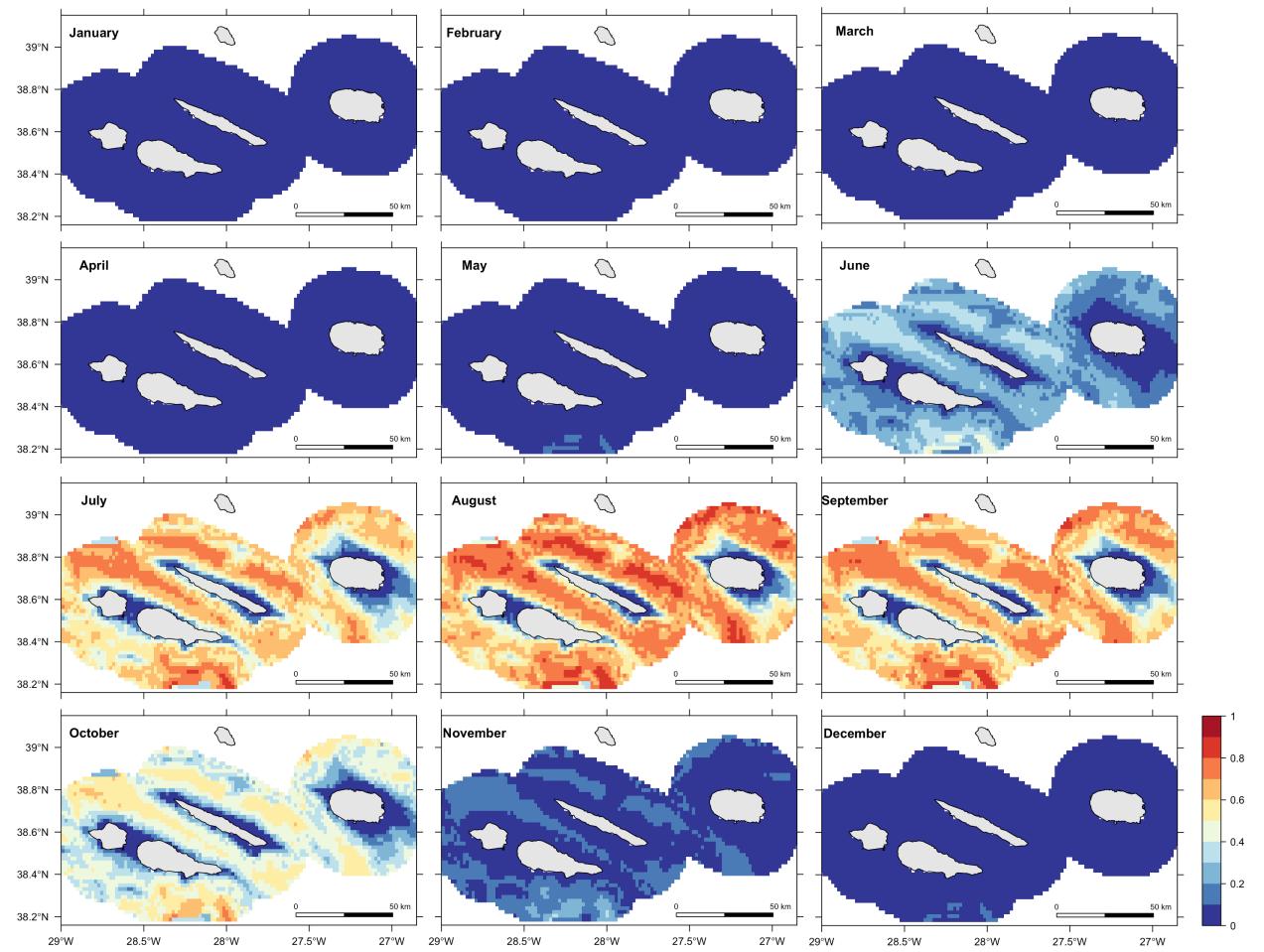


Figure S4.51: Mean monthly suitability values for Atlantic spotted dolphins around the central group islands (Pico, Faial, Sao Jorge and Terceira), Azores (2km grid). An 8-day temporal resolution for the environmental variables was used and results were averaged for each month. A targeted background sampling based on detectability was used.

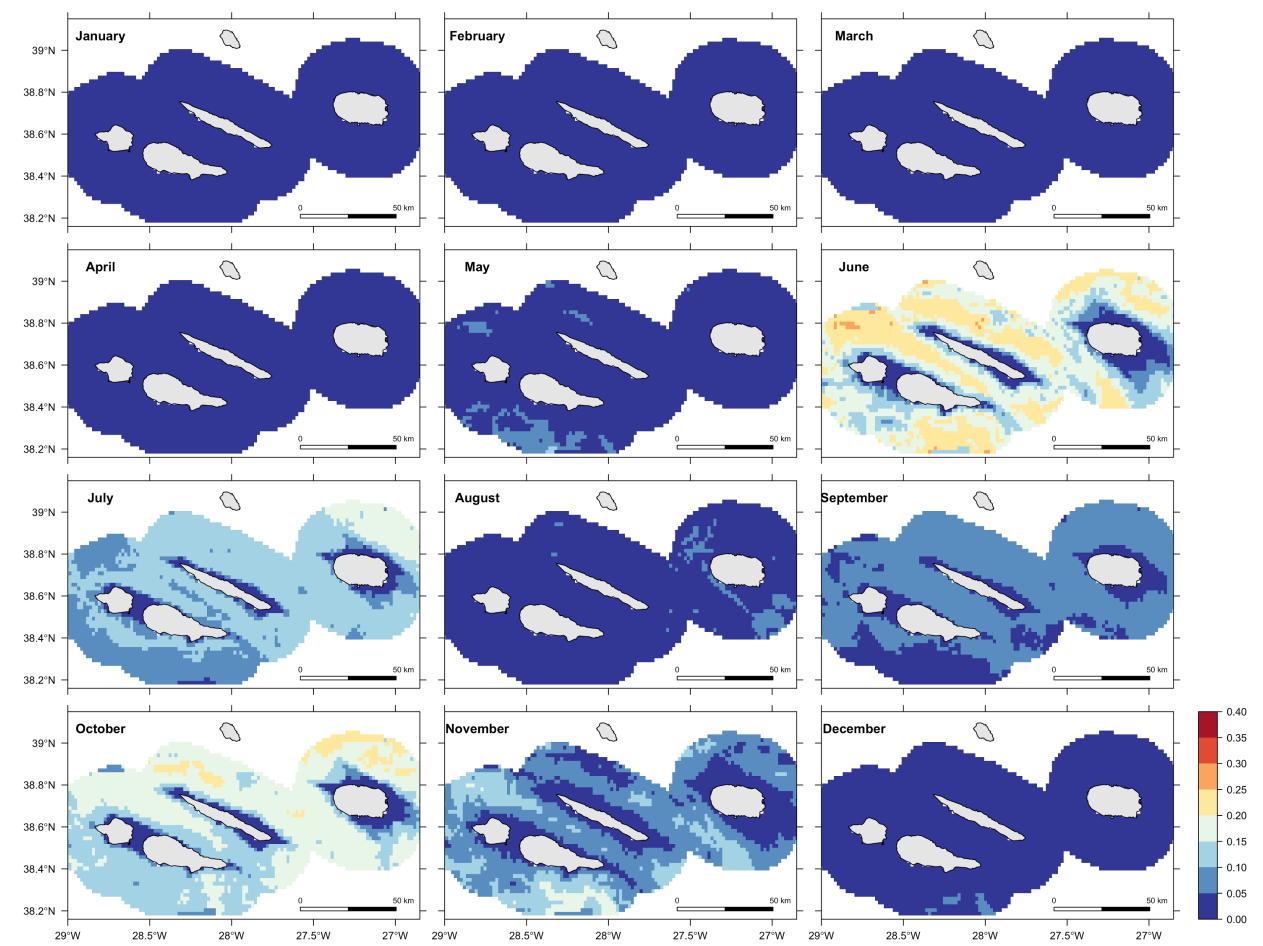


Figure S4.52: Monthly standard deviation of suitability predictions for Atlantic spotted dolphins around the central group islands (Pico, Faial, Sao Jorge and Terceira), Azores (2km grid). An 8-day temporal resolution for the environmental variables was used and results were averaged for each month. A targeted background sampling based on detectability was used.

## Stripped dolphins

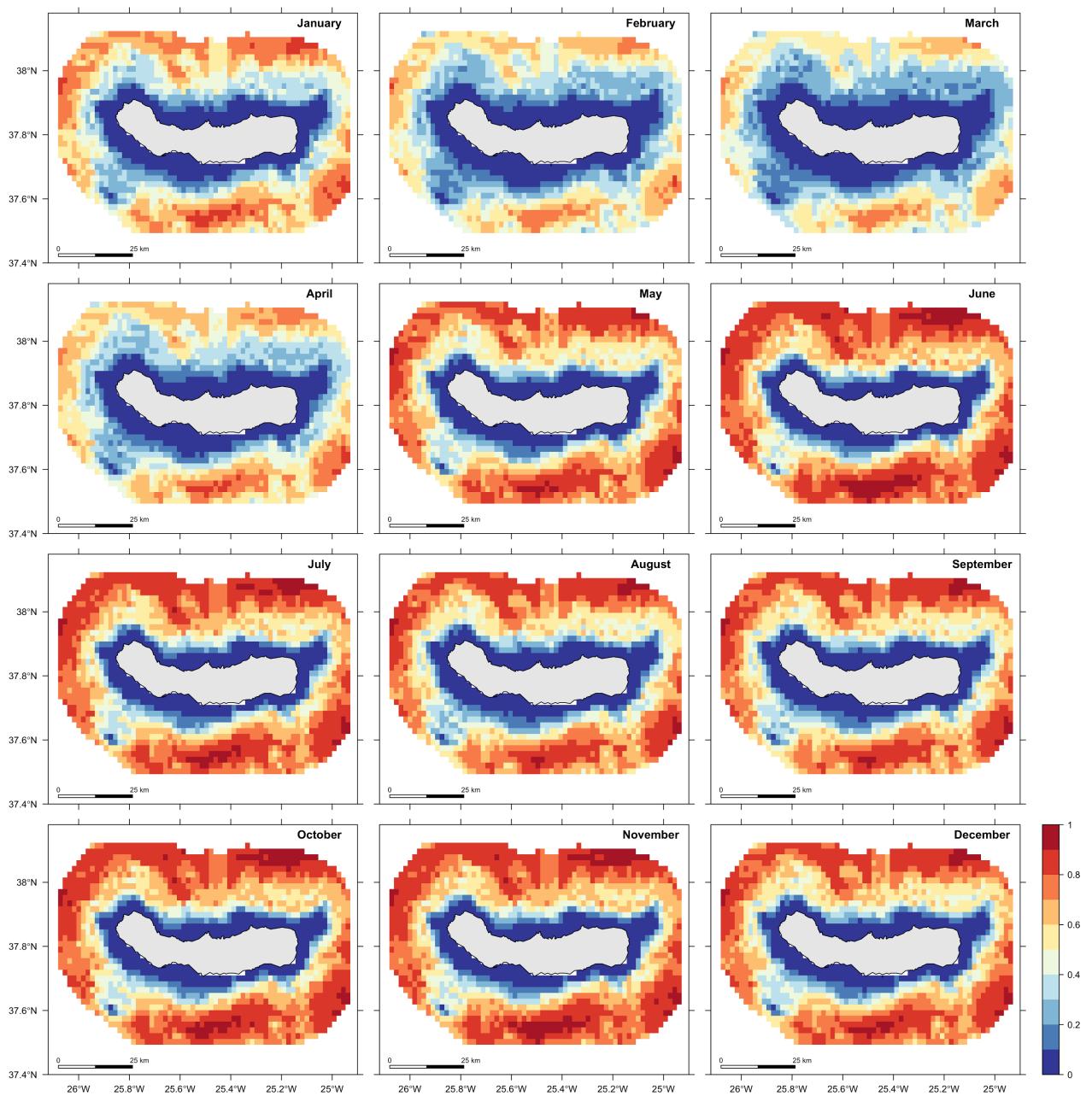


Figure S4.53: Mean monthly suitability values for stripped dolphins around São Miguel Island, Azores (2km grid). An 8-day temporal resolution for the environmental variables was used and results were averaged for each month. A targeted background sampling based on detectability was used.

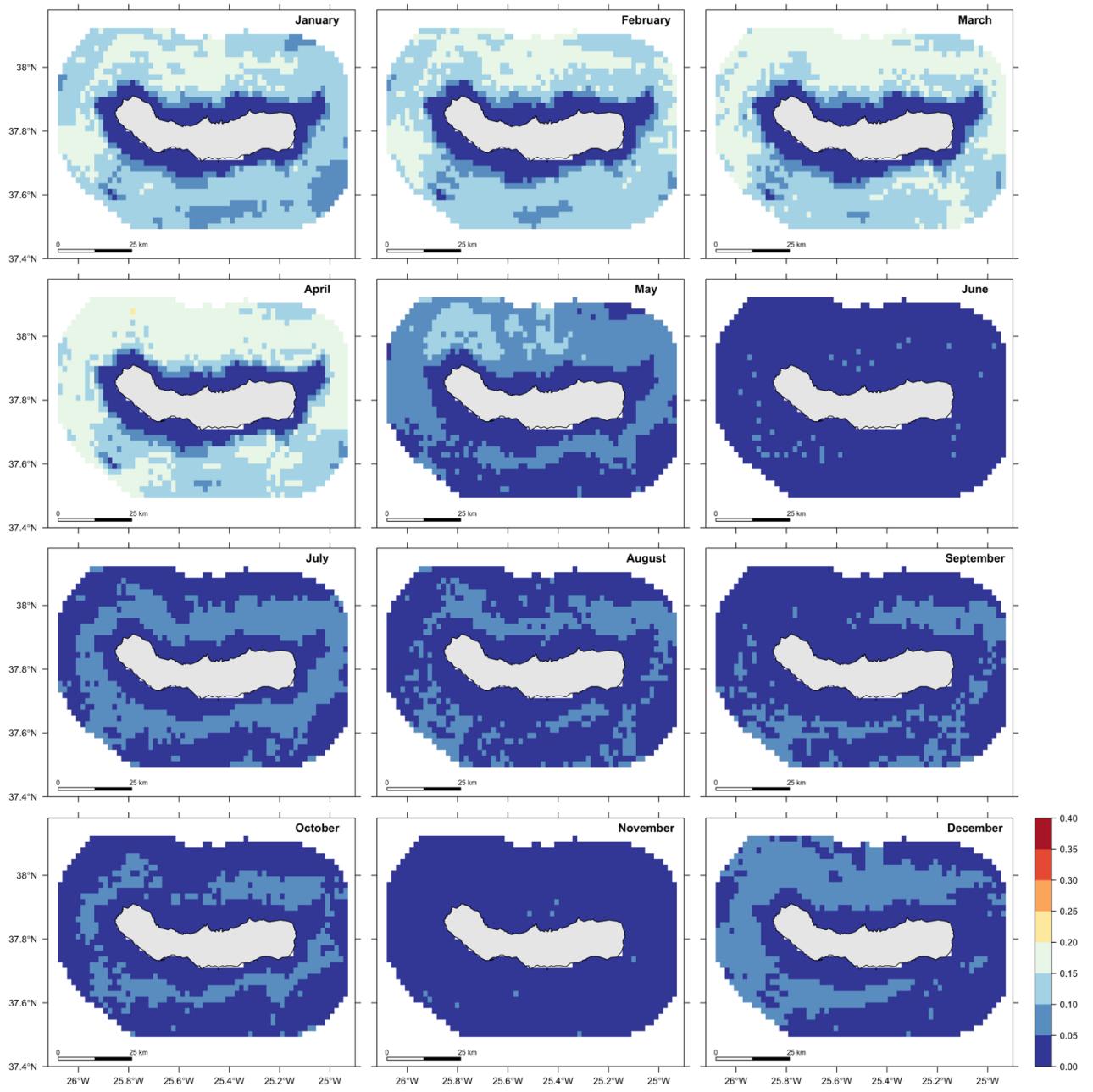


Figure S4.54: Monthly standard deviation of suitability predictions for stripped dolphins around São Miguel Island, Azores (2km grid). An 8-day temporal resolution for the environmental variables was used and results were averaged for each month. A targeted background sampling based on detectability was used.

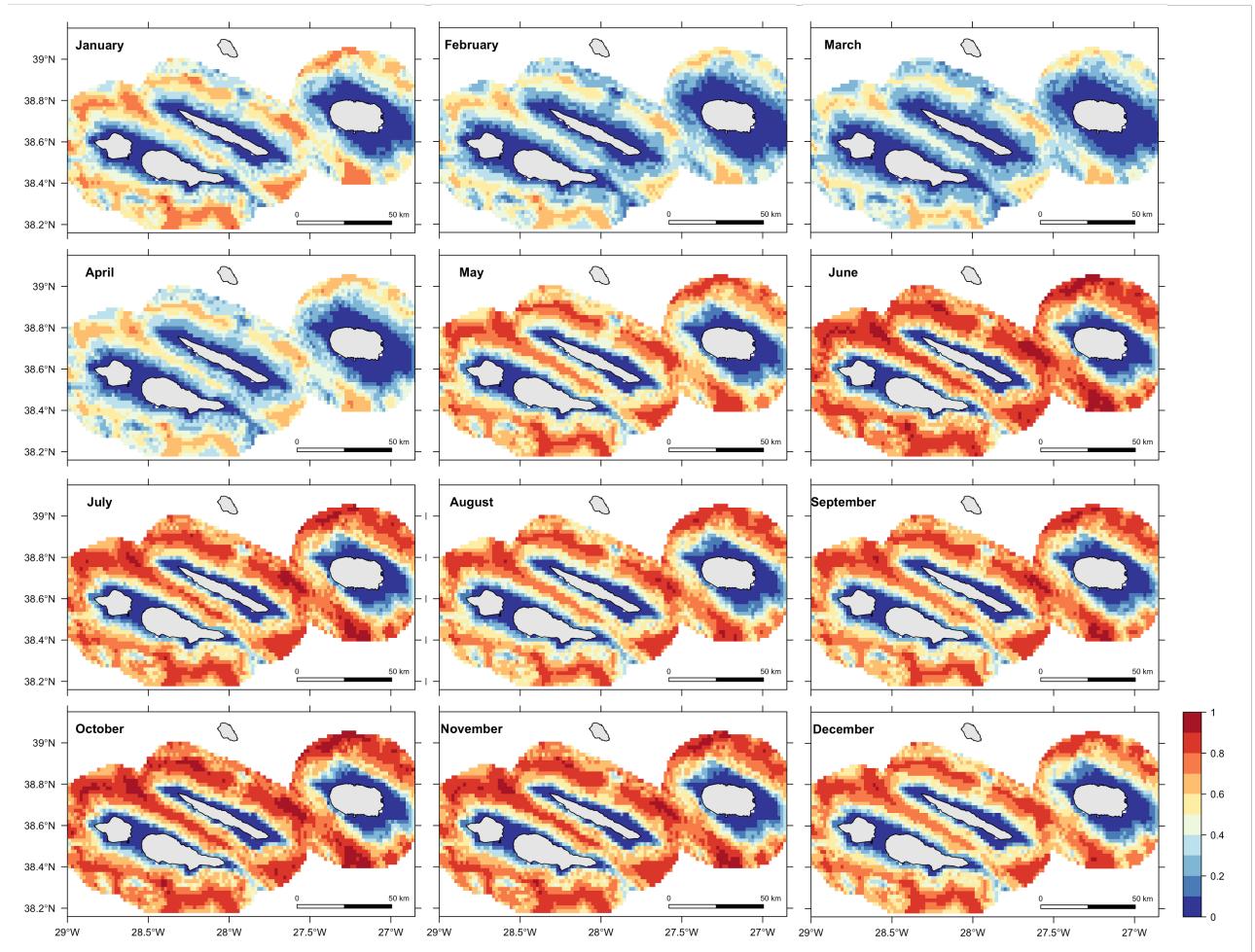


Figure S4.55: Mean monthly suitability values for stripped dolphins around the central group islands (Pico, Faial, Sao Jorge and Terceira), Azores (2km grid). An 8-day temporal resolution for the environmental variables was used and results were averaged for each month. A targeted background sampling based on detectability was used.

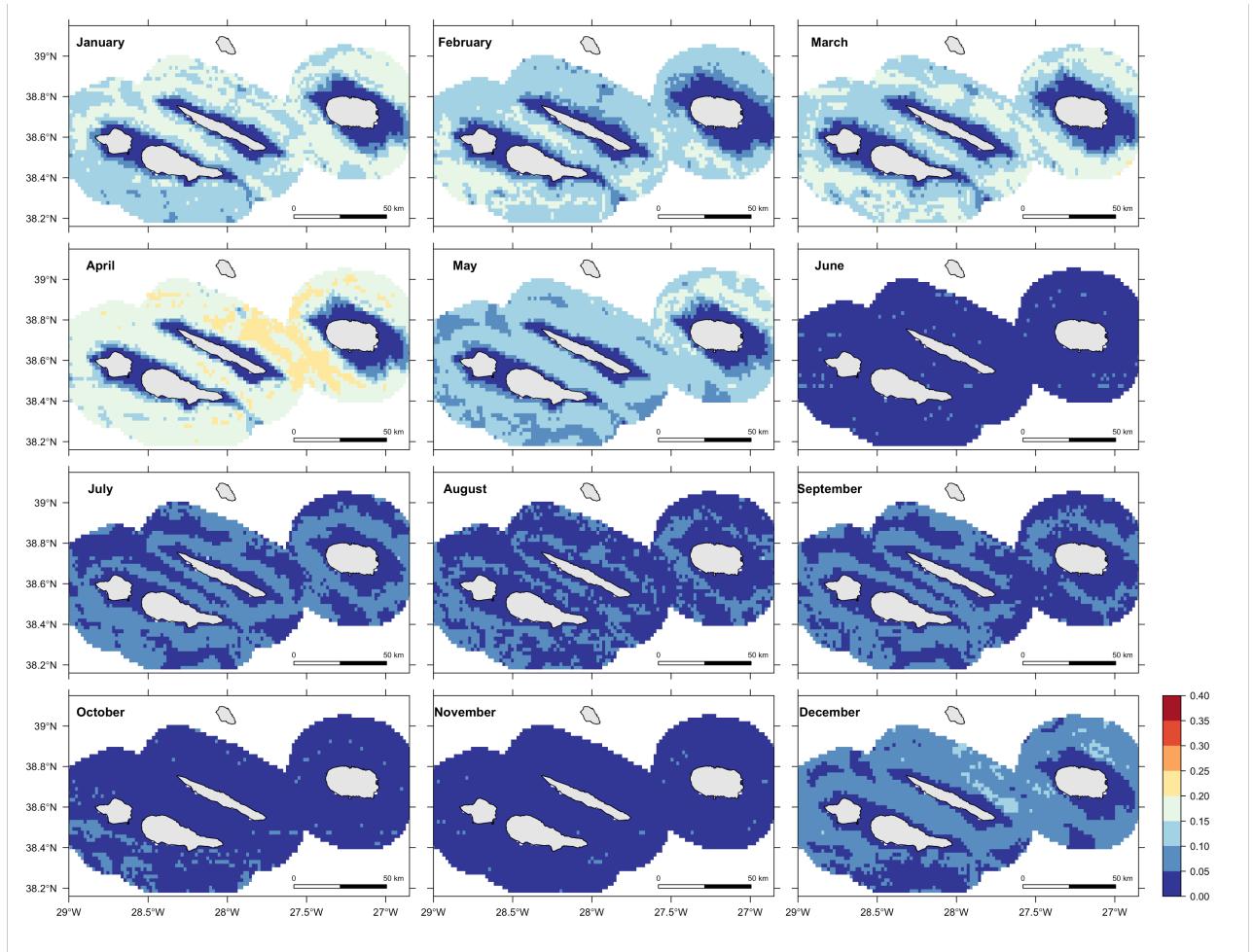


Figure S4.56: Monthly standard deviation of suitability predictions for stripped dolphins around the central group islands (Pico, Faial, Sao Jorge and Terceira), Azores (2km grid). An 8-day temporal resolution for the environmental variables was used and results were averaged for each month. A targeted background sampling based on detectability was used.

## Common dolphins

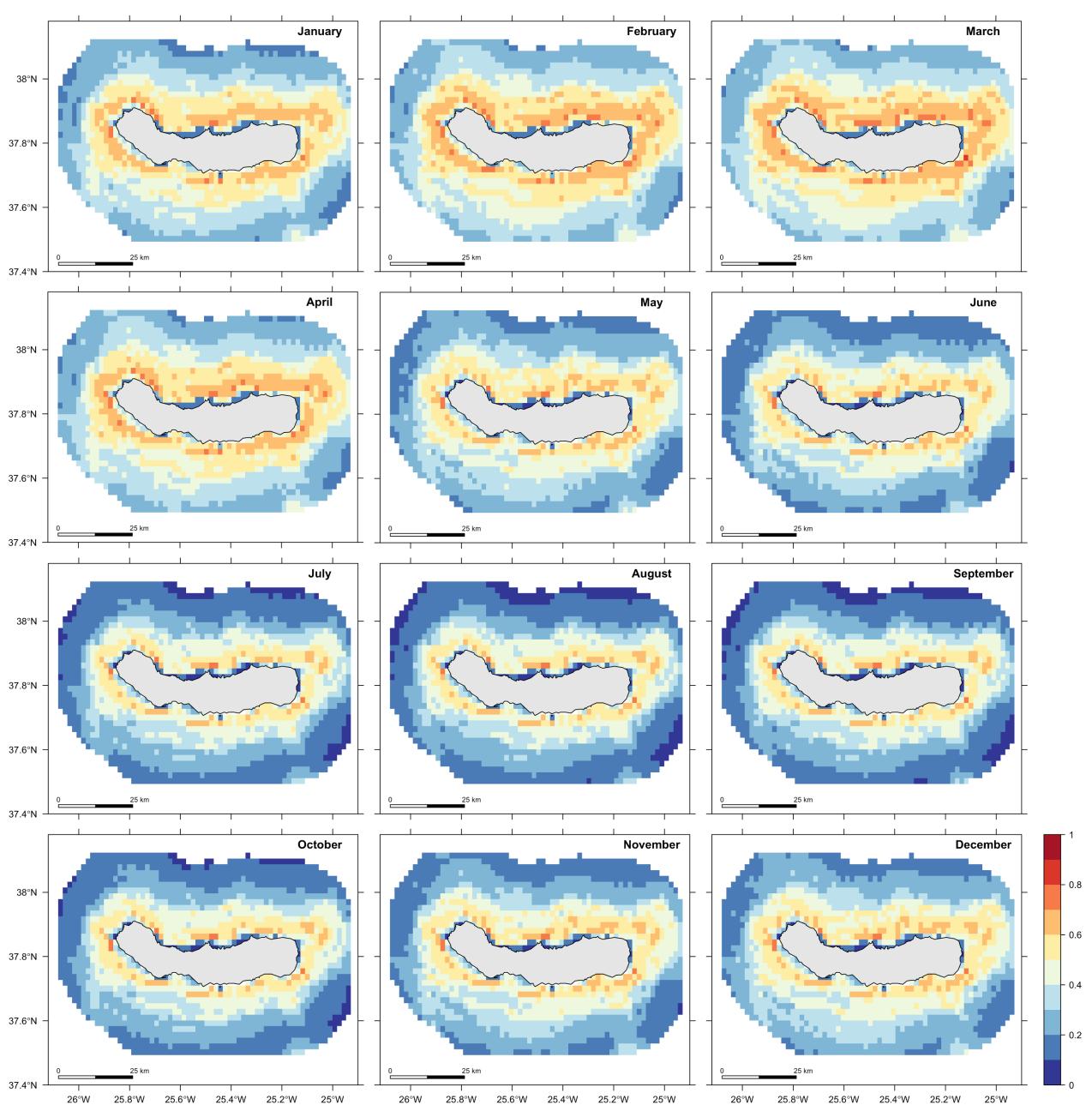


Figure S4.57: Mean monthly suitability values for short-beaked common dolphins around São Miguel Island, Azores (2km grid). An 8-day temporal resolution for the environmental variables was used and results were averaged for each month. A non-targeted background sampling was used.

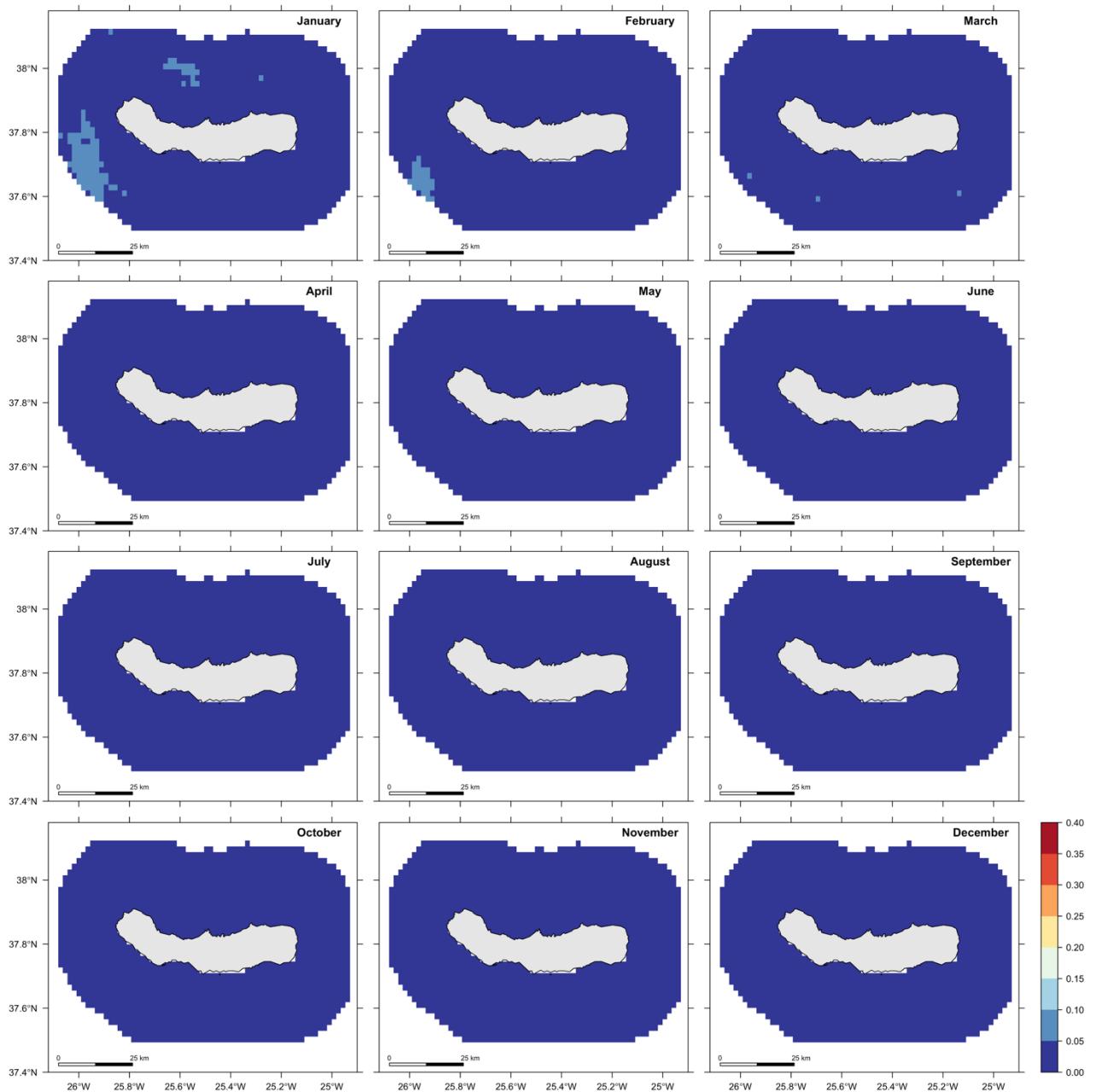


Figure S4.58: Monthly standard deviation of suitability predictions for short beaked common dolphins around São Miguel Island, Azores (2km grid). An 8-day temporal resolution for the environmental variables was used and results were averaged for each month. A non-targeted background sampling was used.

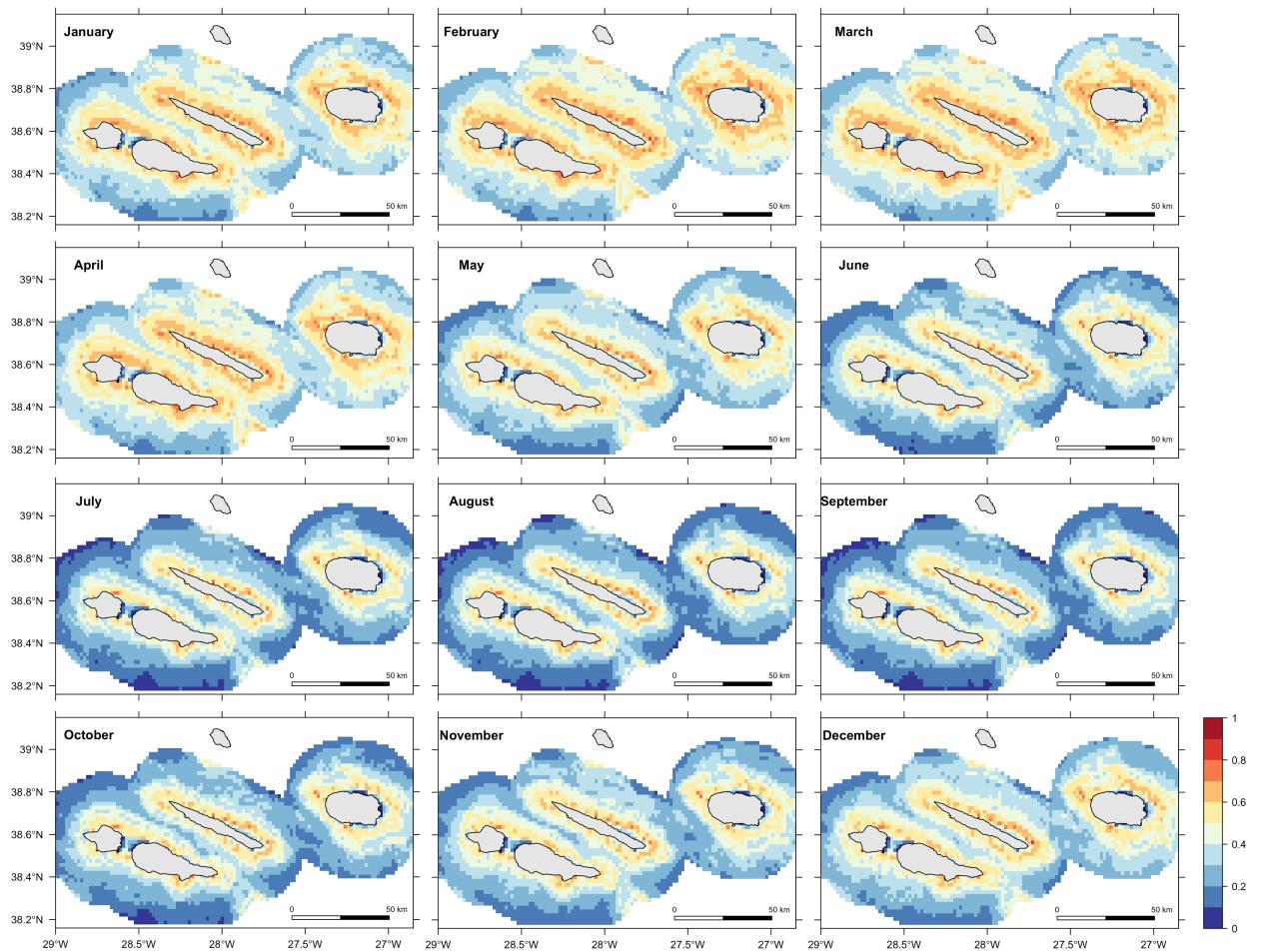


Figure S4.59: Mean monthly suitability values for short beaked common dolphins around the central group islands (Pico, Faial, Sao Jorge and Terceira), Azores (2km grid). An 8-day temporal resolution for the environmental variables was used and results were averaged for each month. A non-targeted background sampling was used.

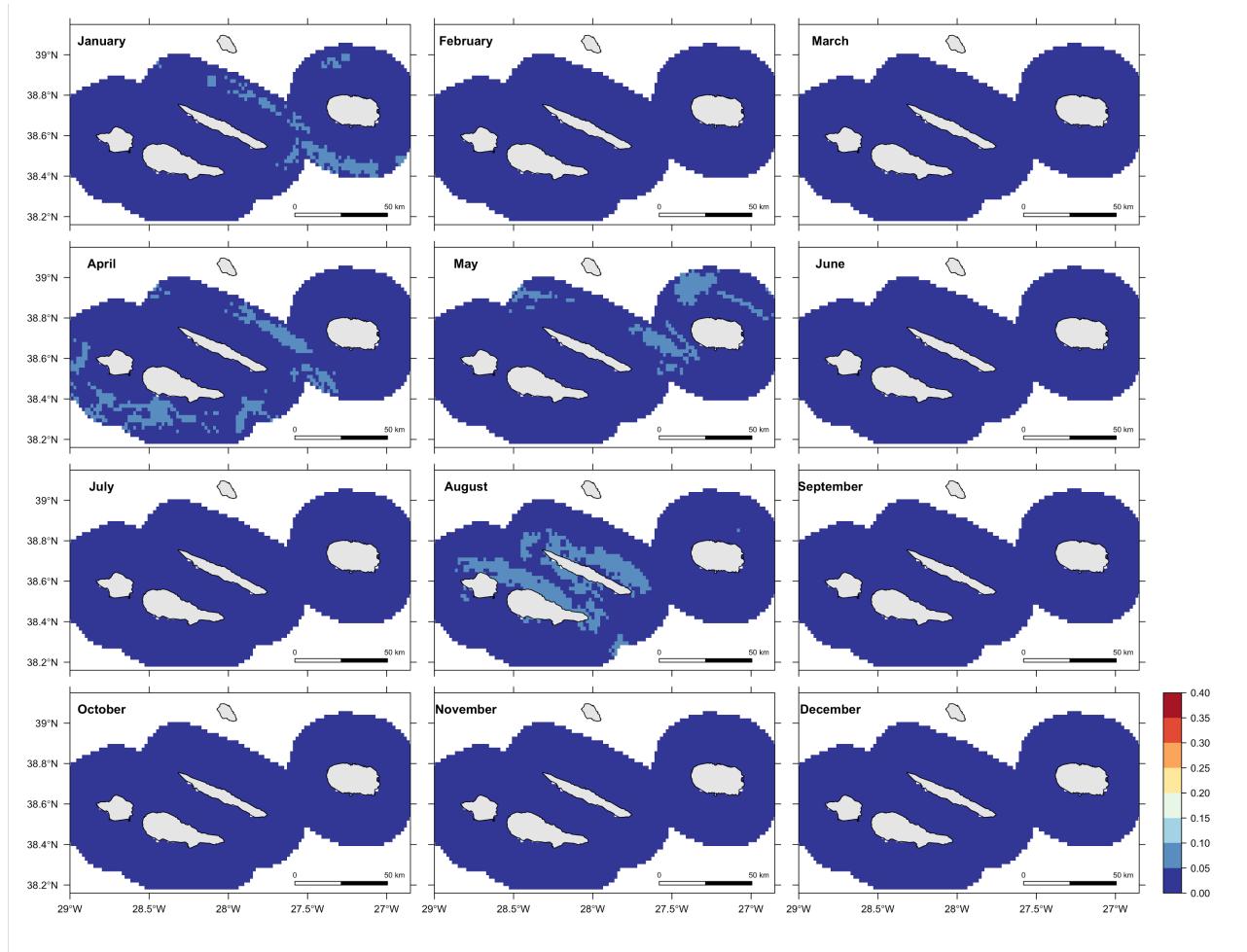


Figure S4.60: Monthly standard deviation of suitability predictions for short beaked common dolphins around the central group islands (Pico, Faial, Sao Jorge and Terceira), Azores (2km grid). An 8-day temporal resolution for the environmental variables was used and results were averaged for each month. A non-targeted background sampling was used.