

DIGITAL SUPPLEMENT G[†]

Maps and figures for **full hurdle model (zero and non-zero count)** power analyses and significance tests.

Maps depict results in BOEM Atlantic OCS lease blocks.

The user should keep in mind that the spatial distribution of information in maps is dependent on the input data used. There are a variety of reasons that some datasets may not be reflected in these maps: some datasets existed but were not available to us, others were excluded because they were not of a consistent high scientific quality, and others may not yet been collected or made available at the time of this analysis. These maps are intended as a demonstration of the methods described in OCS Study BOEM 2012-101.

SECTION I. Summary Statistic Maps Calculated for All Species [Pages 3-42]

Summary statistics (number of times each lease block was surveyed and average, maximum, and minimum hotspot and coldspot power) were calculated across all species in all seasons combined and for each season individually.

Figures G1-G7. All Seasons Combined [Pages 3-10]

- Number of times each lease block was surveyed, summed over all seasons
- Average, maximum, and minimum power to detect 3x hotspots of abundance
- Average, maximum, and minimum power to detect 1/3x coldspots of abundance

Figures G8-G14. Spring [Pages 11-18]

- Number of times each lease block was surveyed in spring
- Average, maximum, and minimum power to detect 3x hotspots of abundance
- Average, maximum, and minimum power to detect 1/3x coldspots of abundance

Figures G15-G21. Summer [Pages 19-26]

- Number of times each lease block was surveyed in summer
- Average, maximum, and minimum power to detect 3x hotspots of abundance
- Average, maximum, and minimum power to detect 1/3x coldspots of abundance

Figures G22-G28. Fall [Pages 27-34]

- Number of times each lease block was surveyed in fall
- Average, maximum, and minimum power to detect 3x hotspots of abundance
- Average, maximum, and minimum power to detect 1/3x coldspots of abundance

Figures G29-G35. Winter [Pages 35-42]

- Number of times each lease block was surveyed in winter
- Average, maximum, and minimum power to detect 3x hotspots of abundance
- Average, maximum, and minimum power to detect 1/3x coldspots of abundance

[†]A digital file supporting OCS Study BOEM 2012-101 / NOAA Technical Memorandum NOS NCCOS 158

Citation for main document:

Kinlan, B.P., E.F. Zipkin, A.F. O'Connell, and C. Caldow. 2012. Statistical analyses to support guidelines for marine avian sampling: final report. U.S. Department of the Interior, Bureau of Ocean Energy Management, Office of Renewable Energy Programs, Herndon, VA. OCS Study BOEM 2012-101. NOAA Technical Memorandum NOS NCCOS 158. xiv+77 pp.

SECTION II. Species-specific Power Analysis Maps and Figures [Pages 43-246]

Results of the full hurdle model (for zero and non-zero counts) are presented as a set of 5 figures for each included species in each season. Within each season, species are presented in the same order as in Table 4 of the main document, except that only species for which maps were created (“Maps created?” = “Yes” in 3rd column of Table 4) are included.

Figures G36-G90. Spring power analysis maps and figures (11 species x 5 figures per species). [Pp.43-98]

Figures G91-G125. Summer power analysis maps and figures (7 species x 5 figs. per species). [Pp.99-134]

Figures G126-G185. Fall power analysis maps and figures (12 species x 5 figs. per species). [Pp.135-195]

Figures G186-G235. Winter power analysis maps and figures (10 species x 5 figs. per species). [Pp.196-246]

1st Figure for each Species: Map of the mean count (including any zeros) for this species in this season in BOEM Atlantic OCS lease blocks.

2nd Figure for each Species: Power vs. sample size curves for 3x hotspot and 1/3x coldspot detection for this species, given the selected model fit, reference mean, and reference prevalence.

3rd Figure for each Species: Map of power to detect 3x hotspots of abundance.

4th Figure for each Species: Map of power to detect 1/3x coldspots of abundance.

5th Figure for each Species: Combined map of hotspot (red) and coldspot (blue) significance test p-values, based on one-sample, one-tailed (hotspot) Monte Carlo significance tests of the mean count in each lease block compared to the expectation from the reference mean/prevalence. Darker shading indicates greater statistical significance. Lease blocks that did not approach statistical significance ($p > 0.2$) are shown in grey, with the intensity of the shading proportional to the average of 3x hotspot and 1/3x coldspot power values for that cell. That is, the darkest grey shading indicates lease blocks not identified as significant hotspots or coldspots, and for which we can be confident in that result because there was relatively high power to detect a hotspot or coldspot, had it existed. In contrast, light grey shading indicates lease blocks not identified as significant hotspots or coldspots, but for which there was little or no power to detect a hotspot or coldspot, had it existed. The darkest blue lease blocks can therefore be regarded as the most significant coldspots, the darkest red lease blocks as the most significant hotspots, and the darkest grey blocks as places most likely to be neither hotspots nor coldspots. Blank (white) polygons indicate lease blocks that were not surveyed in this season. Hotspot (coldspot) significance does not consider whether high (low) abundances persisted across years or occurred in the same year; if inter-annual persistence is of concern, the temporal distribution of the data should be examined. P-values are not corrected for the large number of simultaneous tests performed (two tests for each lease block that was surveyed in this season), so many of the lighter red and blue lease blocks are likely false positives. Note that there are many more tests performed in these maps than in the corresponding maps presented in Digital Supplement F, because of the larger number of lease blocks considered; the number of false-positives will be correspondingly higher. The most significant values (darkest red and blue) are more reliable, but will still contain some false positives. Similarly, the lightest grey cells have the highest chance of being false negatives, whereas the darkest grey cells have the lowest chance of being false negatives.

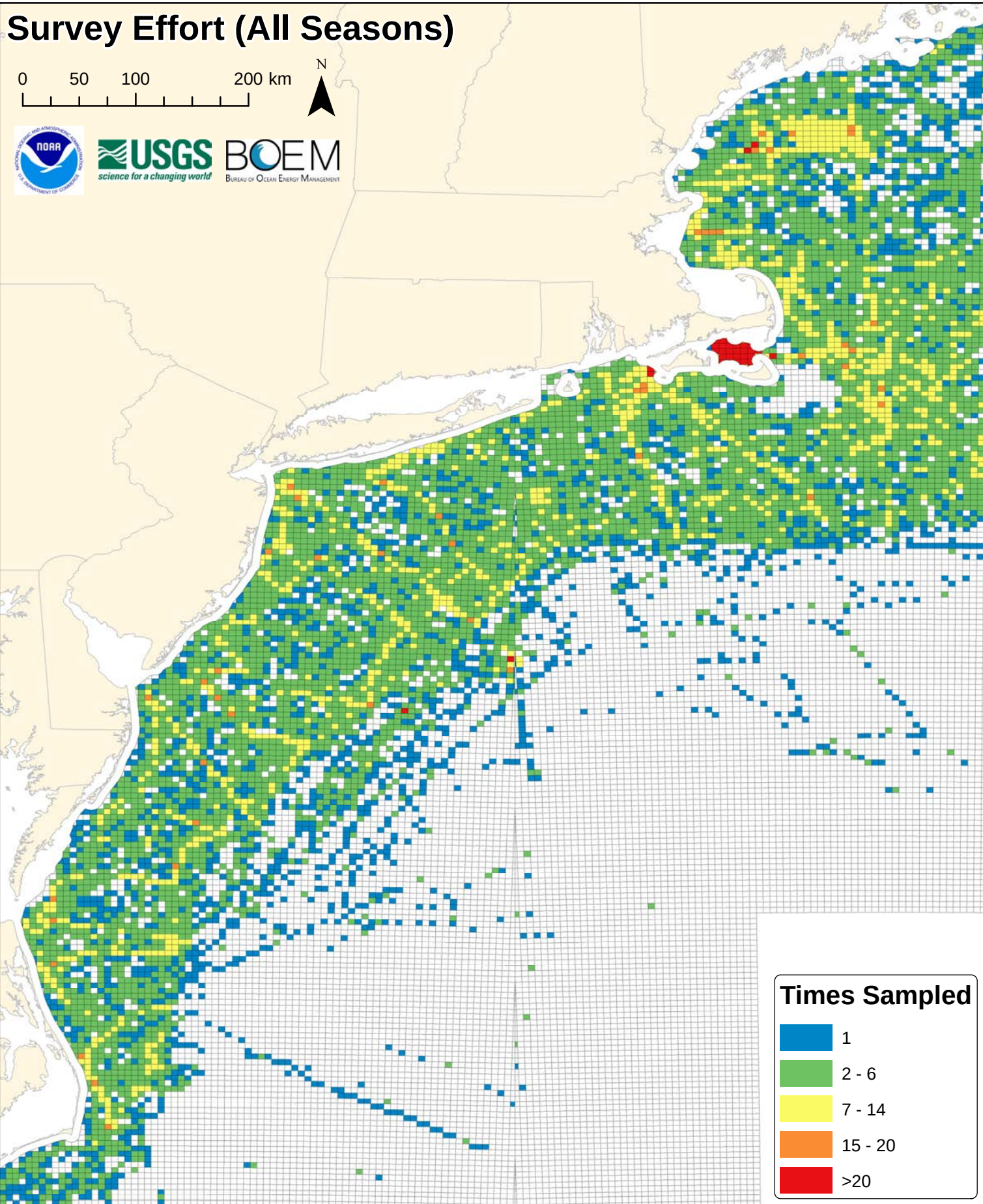
DIGITAL SUPPLEMENT G

Full Hurdle Model (Zero & Non-Zero Counts) Results

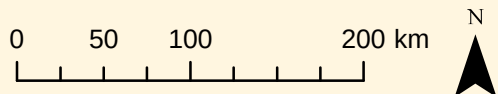
SECTION I. Summary Statistic Maps Calculated for All Species

Figures G1-G7. All Seasons Combined

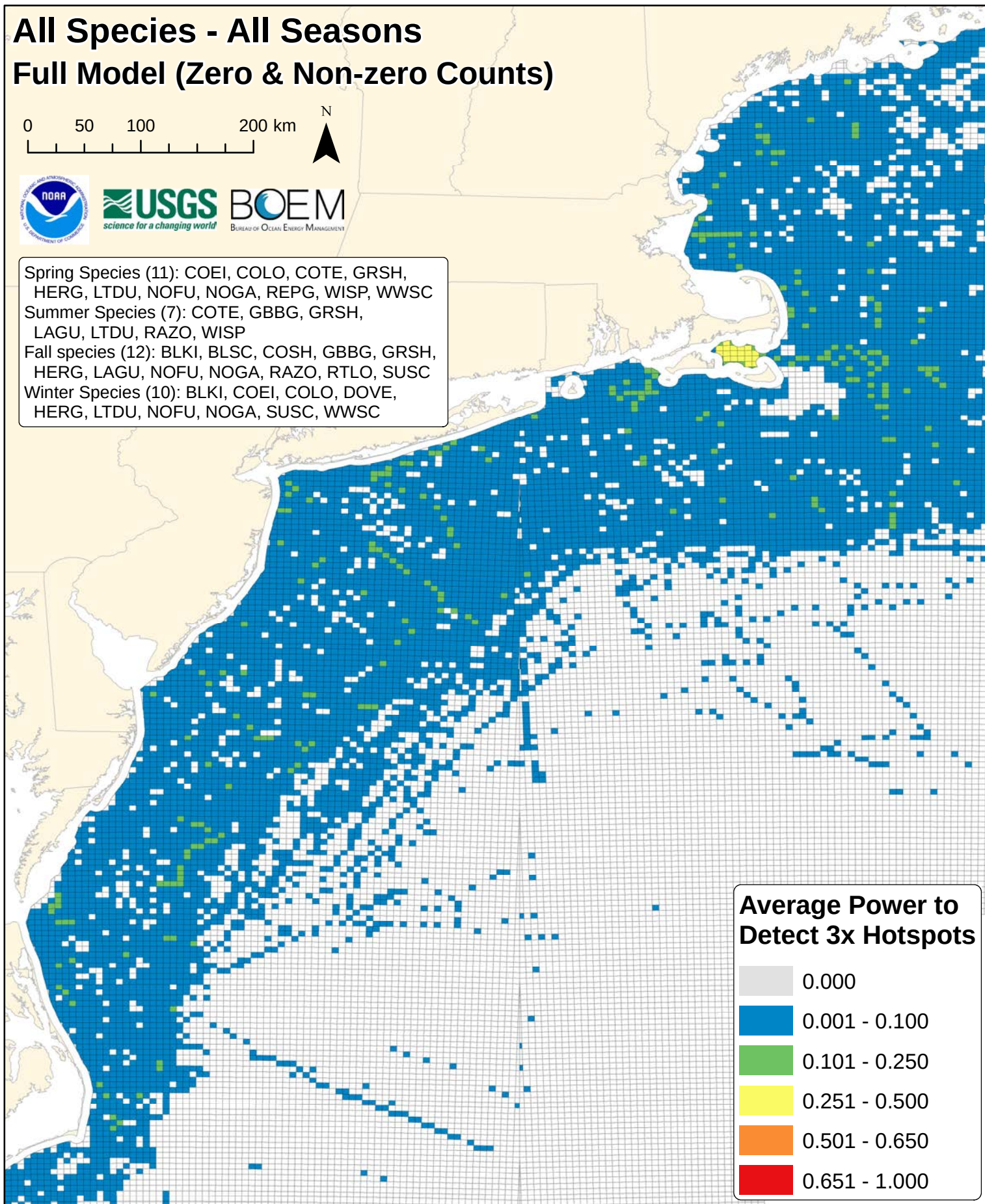
- Number of times each lease block was surveyed, summed over all seasons
- Average, maximum, and minimum power to detect 3x hotspots of abundance
- Average, maximum, and minimum power to detect 1/3x coldspots of abundance



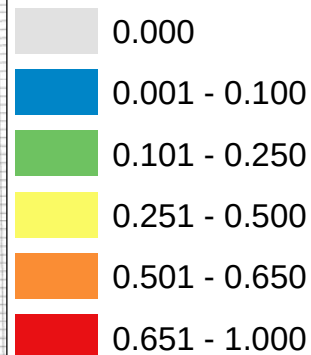
All Species - All Seasons Full Model (Zero & Non-zero Counts)



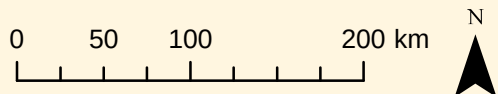
Spring Species (11): COEI, COLO, COTE, GRSH, HERG, LTDU, NOFU, NOGA, REPG, WISP, WWSC
 Summer Species (7): COTE, GBBG, GRSH, LAGU, LTDU, RAZO, WISP
 Fall species (12): BLKI, BLSC, COSH, GBBG, GRSH, HERG, LAGU, NOFU, NOGA, RAZO, RTLO, SUSC
 Winter Species (10): BLKI, COEI, COLO, DOVE, HERG, LTDU, NOFU, NOGA, SUSC, WWSC



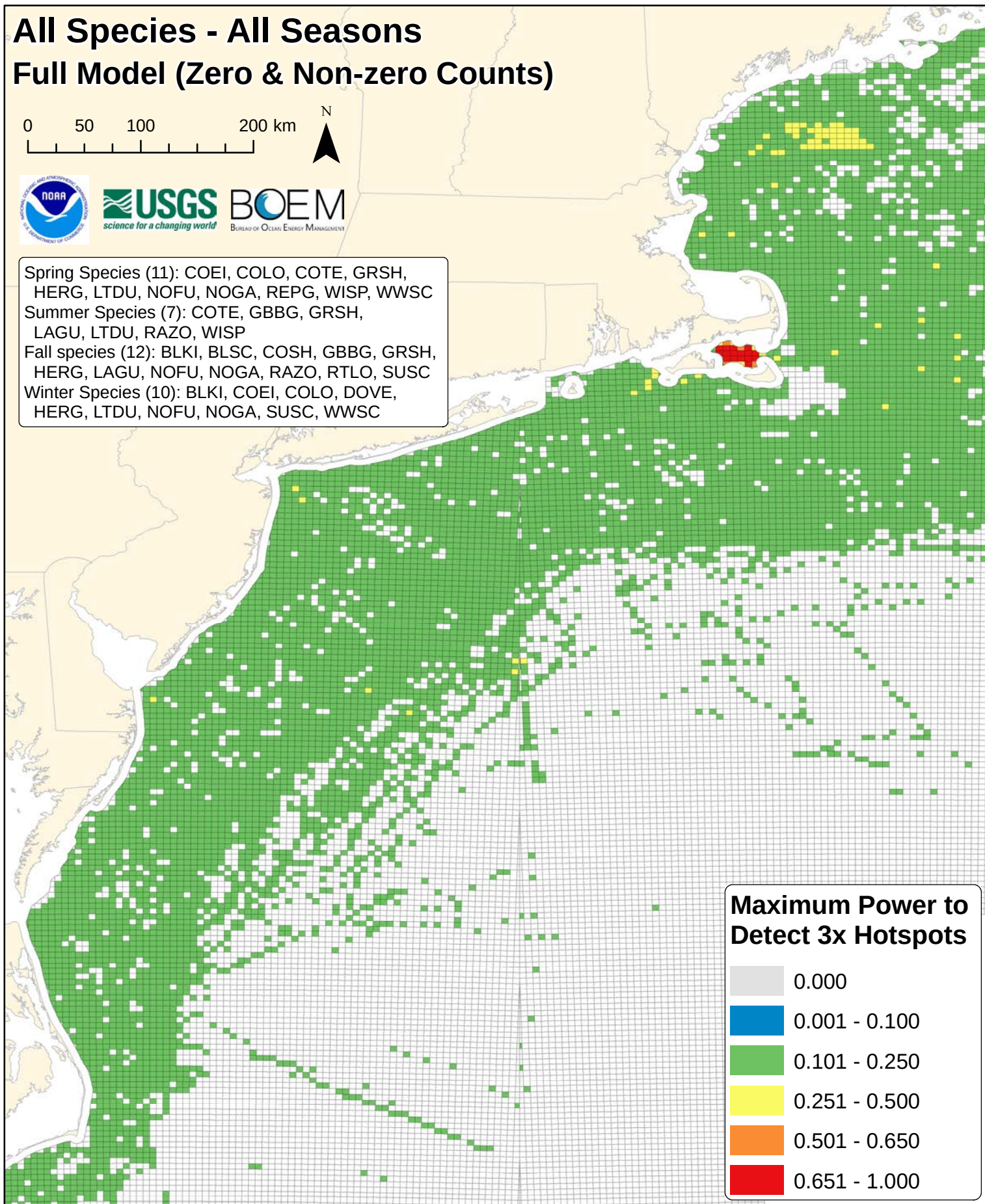
Average Power to Detect 3x Hotspots



All Species - All Seasons Full Model (Zero & Non-zero Counts)



Spring Species (11): COEI, COLO, COTE, GRSH, HERG, LTDU, NOFU, NOGA, REPG, WISP, WWSC
 Summer Species (7): COTE, GBBG, GRSH, LAGU, LTDU, RAZO, WISP
 Fall species (12): BLKI, BLSC, COSH, GBBG, GRSH, HERG, LAGU, NOFU, NOGA, RAZO, RTLO, SUSC
 Winter Species (10): BLKI, COEI, COLO, DOVE, HERG, LTDU, NOFU, NOGA, SUSC, WWSC



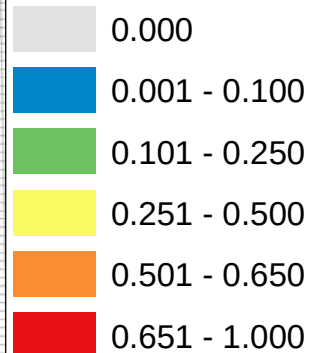
All Species - All Seasons Full Model (Zero & Non-zero Counts)

0 50 100 200 km



Spring Species (11): COEI, COLO, COTE, GRSH, HERG, LTDU, NOFU, NOGA, REPG, WISP, WWSC
 Summer Species (7): COTE, GBBG, GRSH, LAGU, LTDU, RAZO, WISP
 Fall species (12): BLKI, BLSC, COSH, GBBG, GRSH, HERG, LAGU, NOFU, NOGA, RAZO, RTLO, SUSC
 Winter Species (10): BLKI, COEI, COLO, DOVE, HERG, LTDU, NOFU, NOGA, SUSC, WWSC

Minimum Power to Detect 3x Hotspots



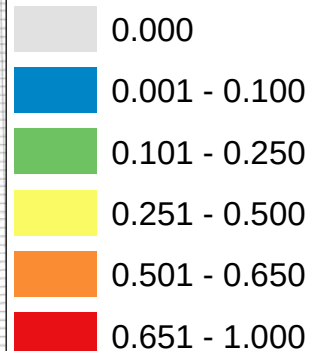
All Species - All Seasons Full Model (Zero & Non-zero Counts)

0 50 100 200 km



Spring Species (11): COEI, COLO, COTE, GRSH, HERG, LTDU, NOFU, NOGA, REPG, WISP, WWSC
Summer Species (7): COTE, GBBG, GRSH, LAGU, LTDU, RAZO, WISP
Fall species (12): BLKI, BLSC, COSH, GBBG, GRSH, HERG, LAGU, NOFU, NOGA, RAZO, RTLO, SUSC
Winter Species (10): BLKI, COEI, COLO, DOVE, HERG, LTDU, NOFU, NOGA, SUSC, WWSC

Average Power to Detect 1/3x Coldspots

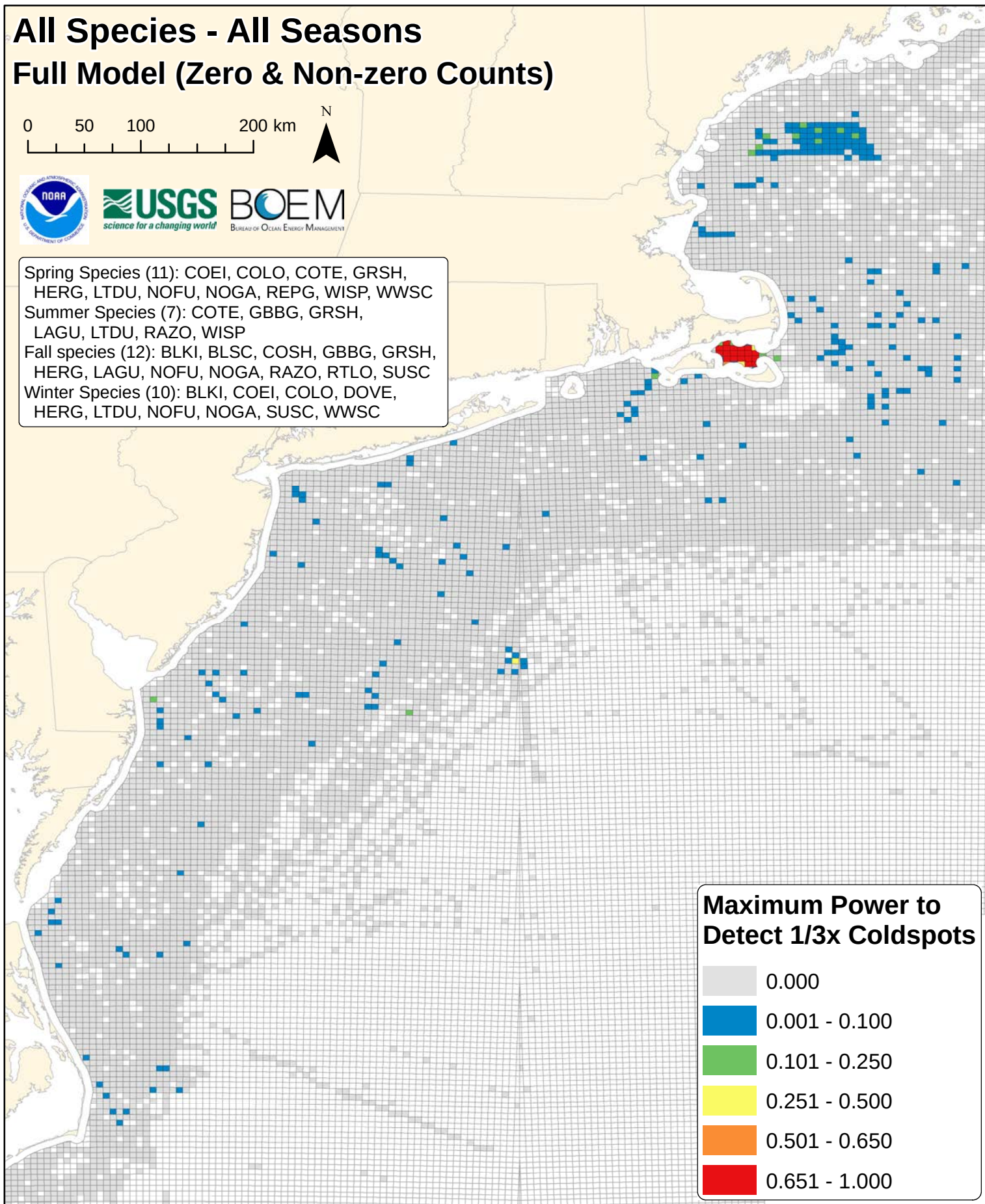


All Species - All Seasons Full Model (Zero & Non-zero Counts)

0 50 100 200 km

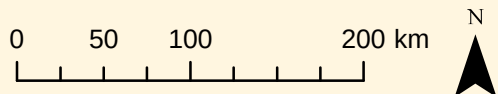


Spring Species (11): COEI, COLO, COTE, GRSH, HERG, LTDU, NOFU, NOGA, REPG, WISP, WWSC
 Summer Species (7): COTE, GBBG, GRSH, LAGU, LTDU, RAZO, WISP
 Fall species (12): BLKI, BLSC, COSH, GBBG, GRSH, HERG, LAGU, NOFU, NOGA, RAZO, RTLO, SUSC
 Winter Species (10): BLKI, COEI, COLO, DOVE, HERG, LTDU, NOFU, NOGA, SUSC, WWSC



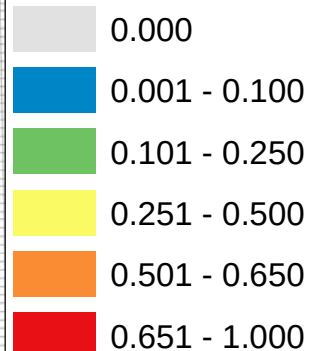
All Species - All Seasons

Full Model (Zero & Non-zero Counts)



Spring Species (11): COEI, COLO, COTE, GRSH, HERG, LTDU, NOFU, NOGA, REPG, WISP, WWSC
 Summer Species (7): COTE, GBBG, GRSH, LAGU, LTDU, RAZO, WISP
 Fall species (12): BLKI, BLSC, COSH, GBBG, GRSH, HERG, LAGU, NOFU, NOGA, RAZO, RTLO, SUSC
 Winter Species (10): BLKI, COEI, COLO, DOVE, HERG, LTDU, NOFU, NOGA, SUSC, WWSC

Minimum Power to Detect 1/3x Coldspots



DIGITAL SUPPLEMENT G

Full Hurdle Model (Zero & Non-Zero Counts) Results

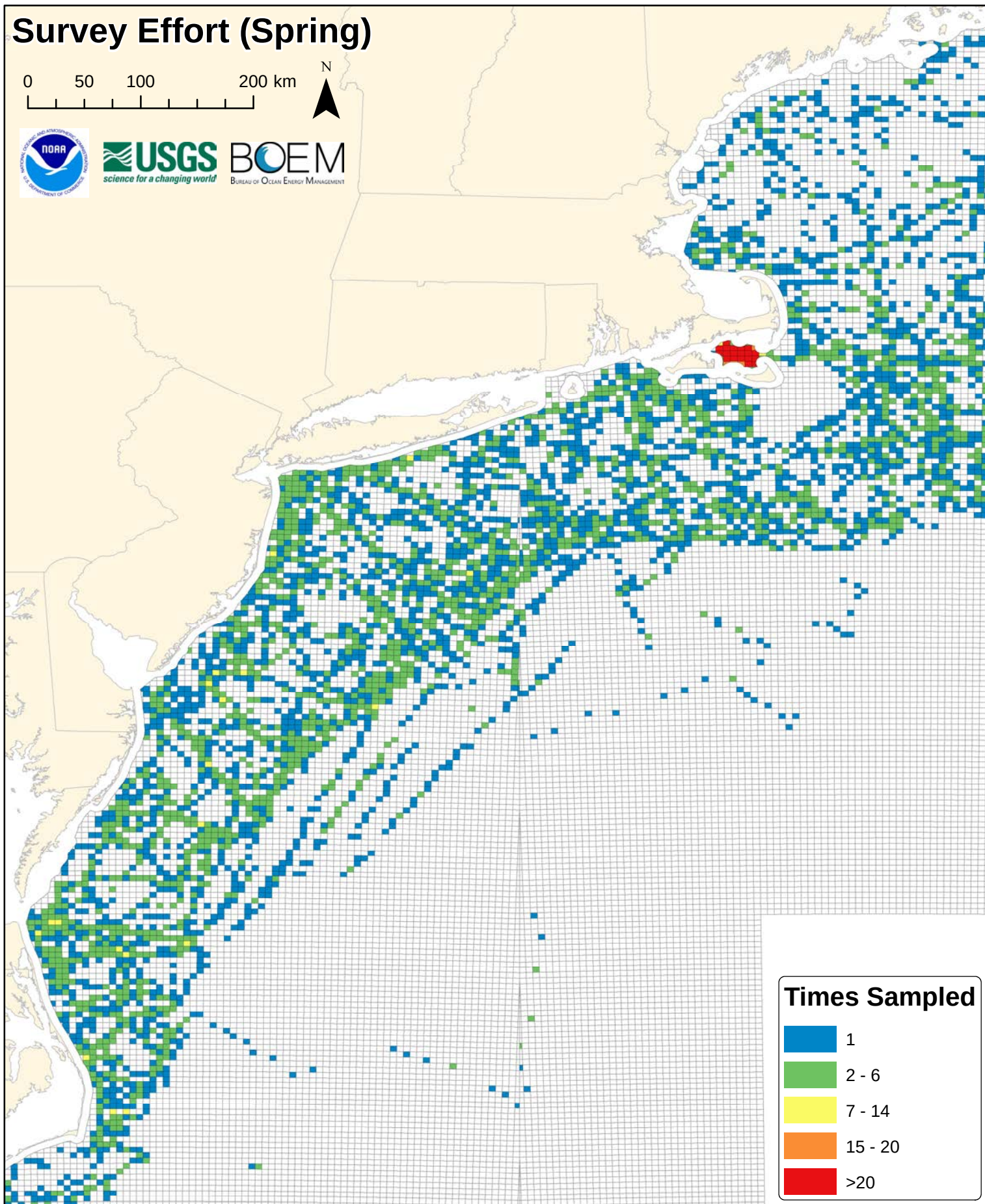
SECTION I. Summary Statistic Maps Calculated for All Species

Figures G8-G14. Spring

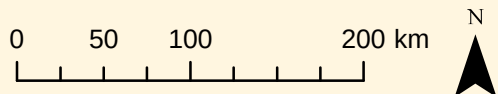
- Number of times each lease block was surveyed in spring
- Average, maximum, and minimum power to detect 3x hotspots of abundance
- Average, maximum, and minimum power to detect 1/3x coldspots of abundance

Survey Effort (Spring)

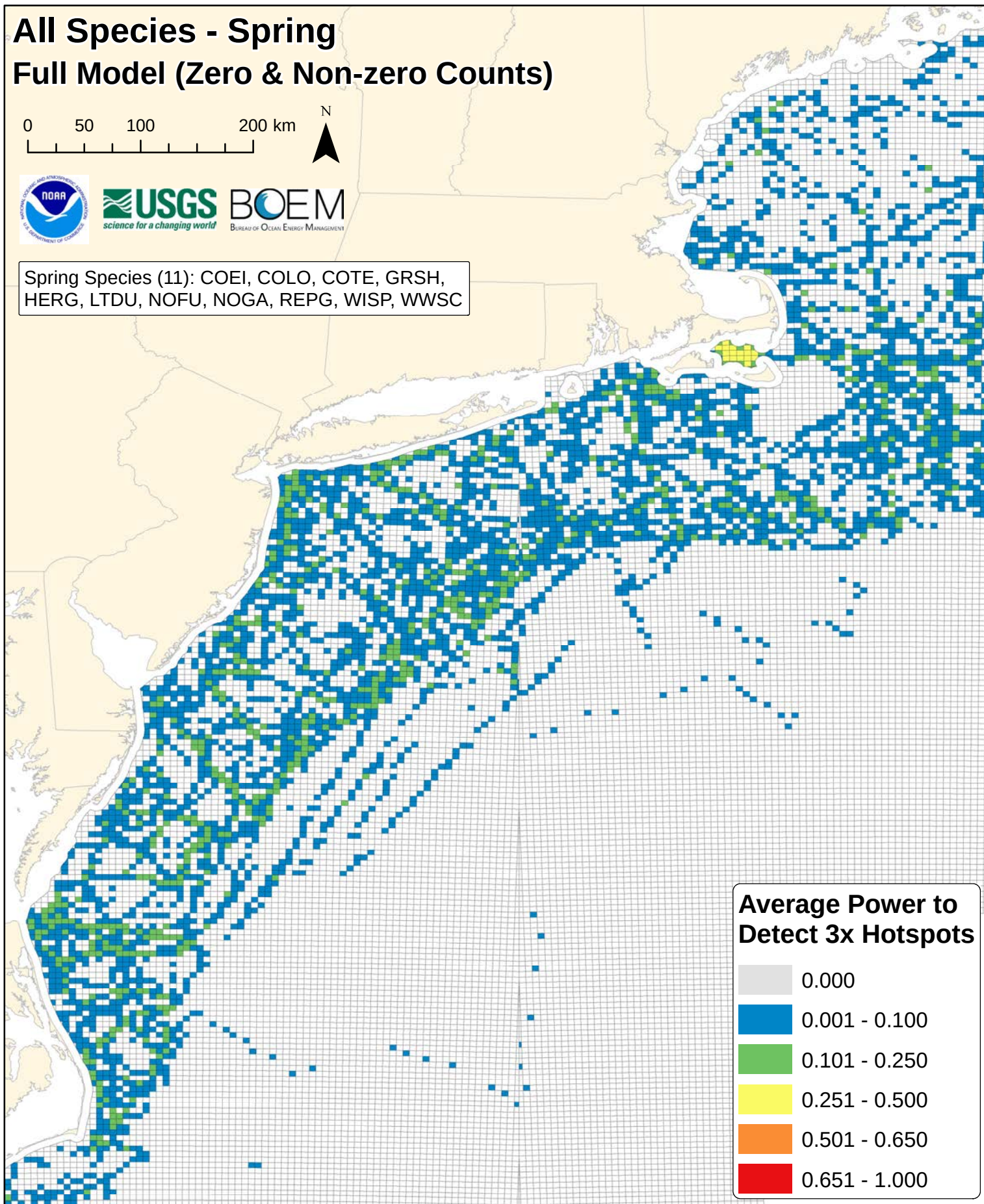
0 50 100 200 km



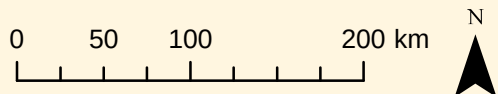
All Species - Spring Full Model (Zero & Non-zero Counts)



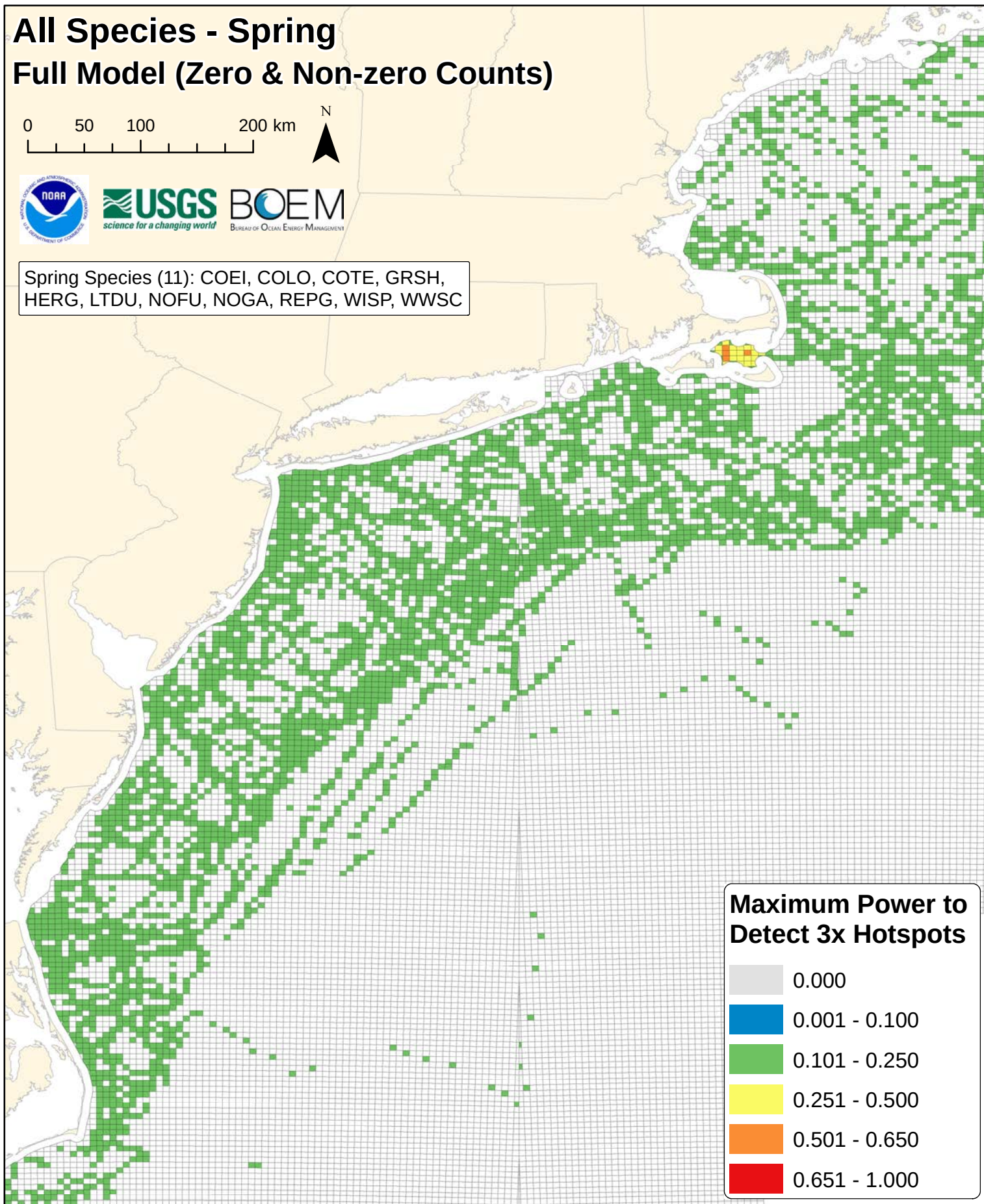
Spring Species (11): COEI, COLO, COTE, GRSH, HERG, LTDU, NOFU, NOGA, REPG, WISP, WWSC



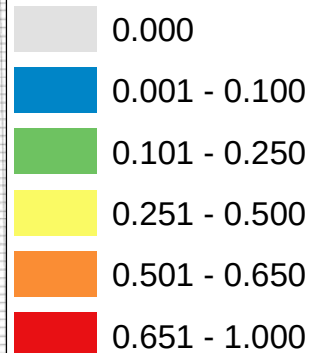
All Species - Spring Full Model (Zero & Non-zero Counts)



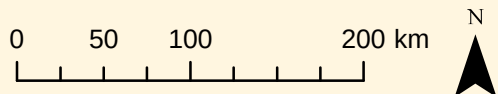
Spring Species (11): COEI, COLO, COTE, GRSH, HERG, LTDU, NOFU, NOGA, REPG, WISP, WWSC



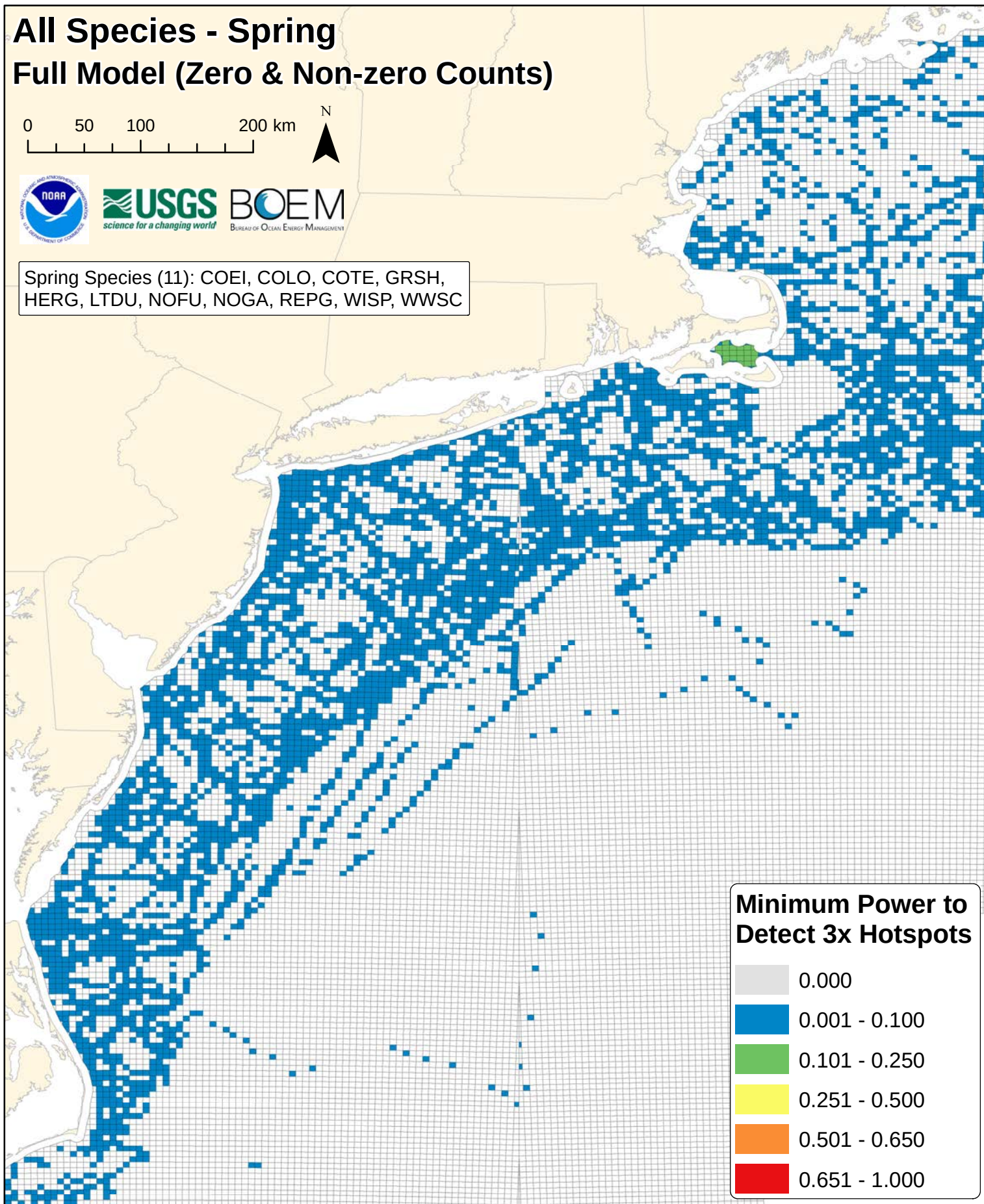
Maximum Power to Detect 3x Hotspots



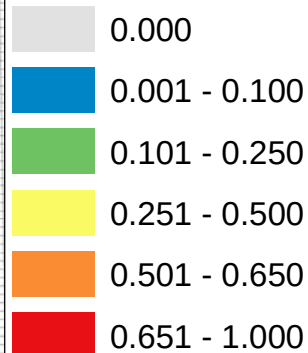
All Species - Spring Full Model (Zero & Non-zero Counts)



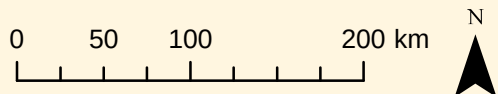
Spring Species (11): COEI, COLO, COTE, GRSH, HERG, LTDU, NOFU, NOGA, REPG, WISP, WWSC



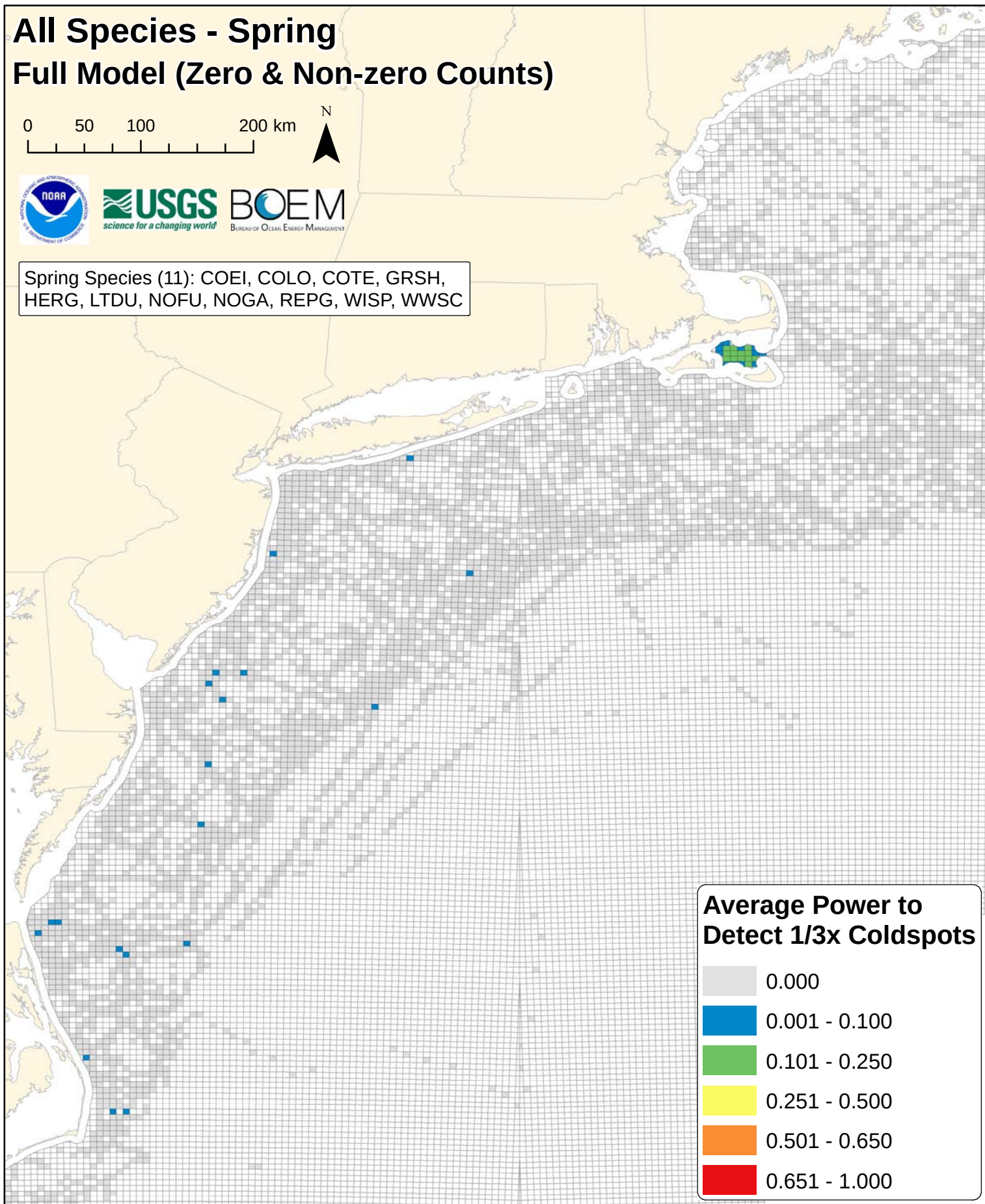
Minimum Power to Detect 3x Hotspots



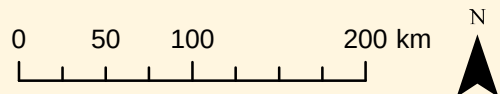
All Species - Spring Full Model (Zero & Non-zero Counts)



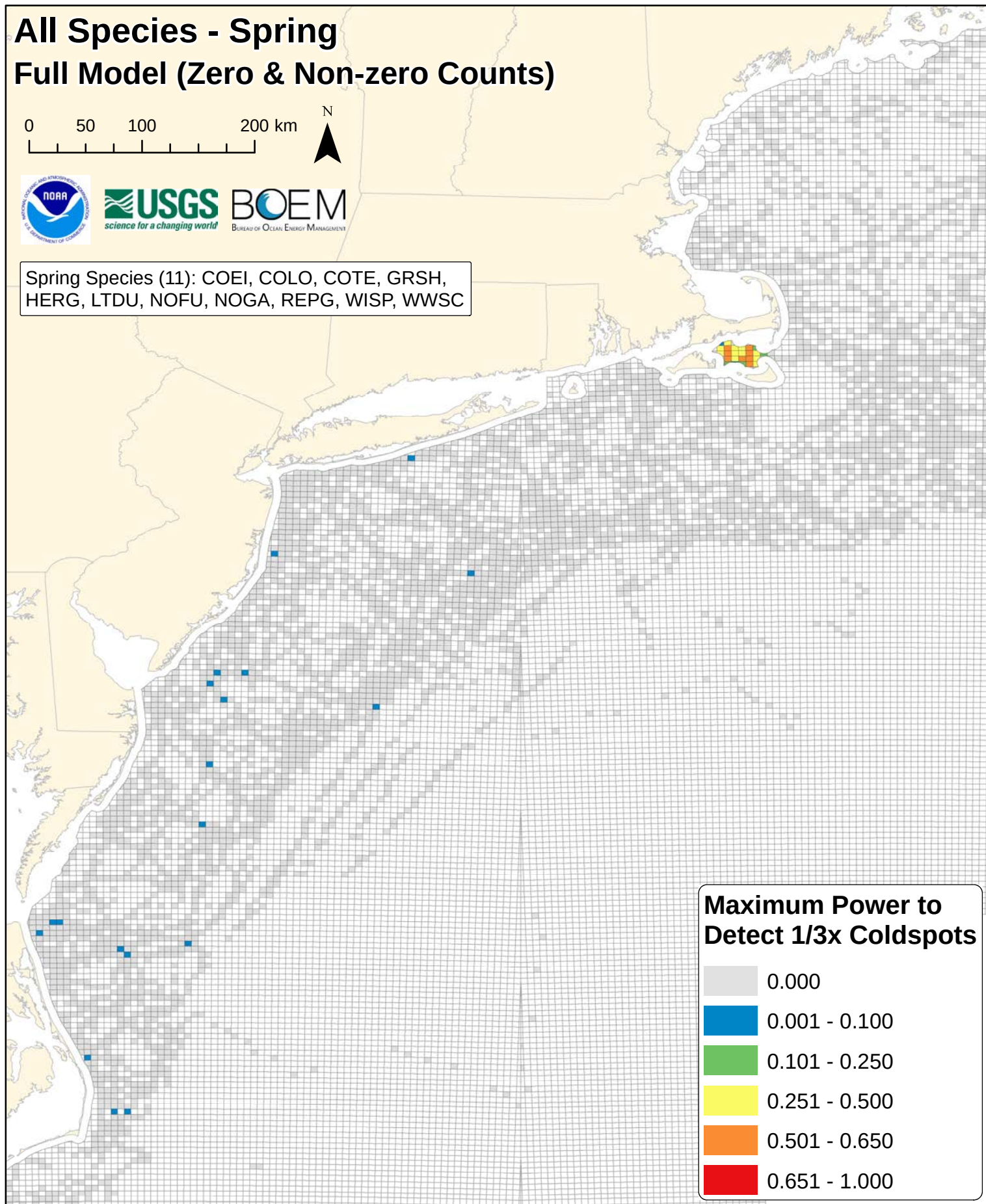
Spring Species (11): COEI, COLO, COTE, GRSH, HERG, LTDU, NOFU, NOGA, REPG, WISP, WWSC



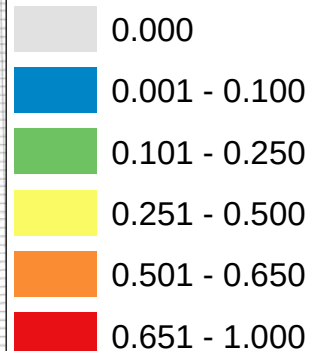
All Species - Spring Full Model (Zero & Non-zero Counts)



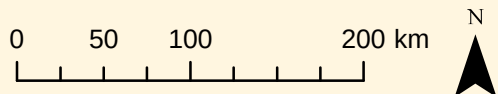
Spring Species (11): COEI, COLO, COTE, GRSH, HERG, LTDU, NOFU, NOGA, REPG, WISP, WWSC



Maximum Power to Detect 1/3x Coldspots

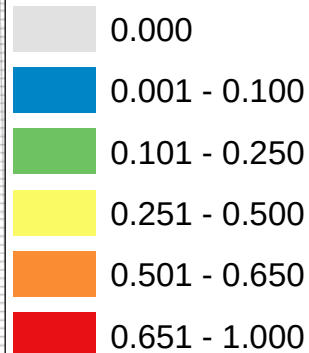


All Species - Spring Full Model (Zero & Non-zero Counts)



Spring Species (11): COEI, COLO, COTE, GRSH, HERG, LTDU, NOFU, NOGA, REPG, WISP, WWSC

Minimum Power to Detect 1/3x Coldspots



DIGITAL SUPPLEMENT G

Full Hurdle Model (Zero & Non-Zero Counts) Results

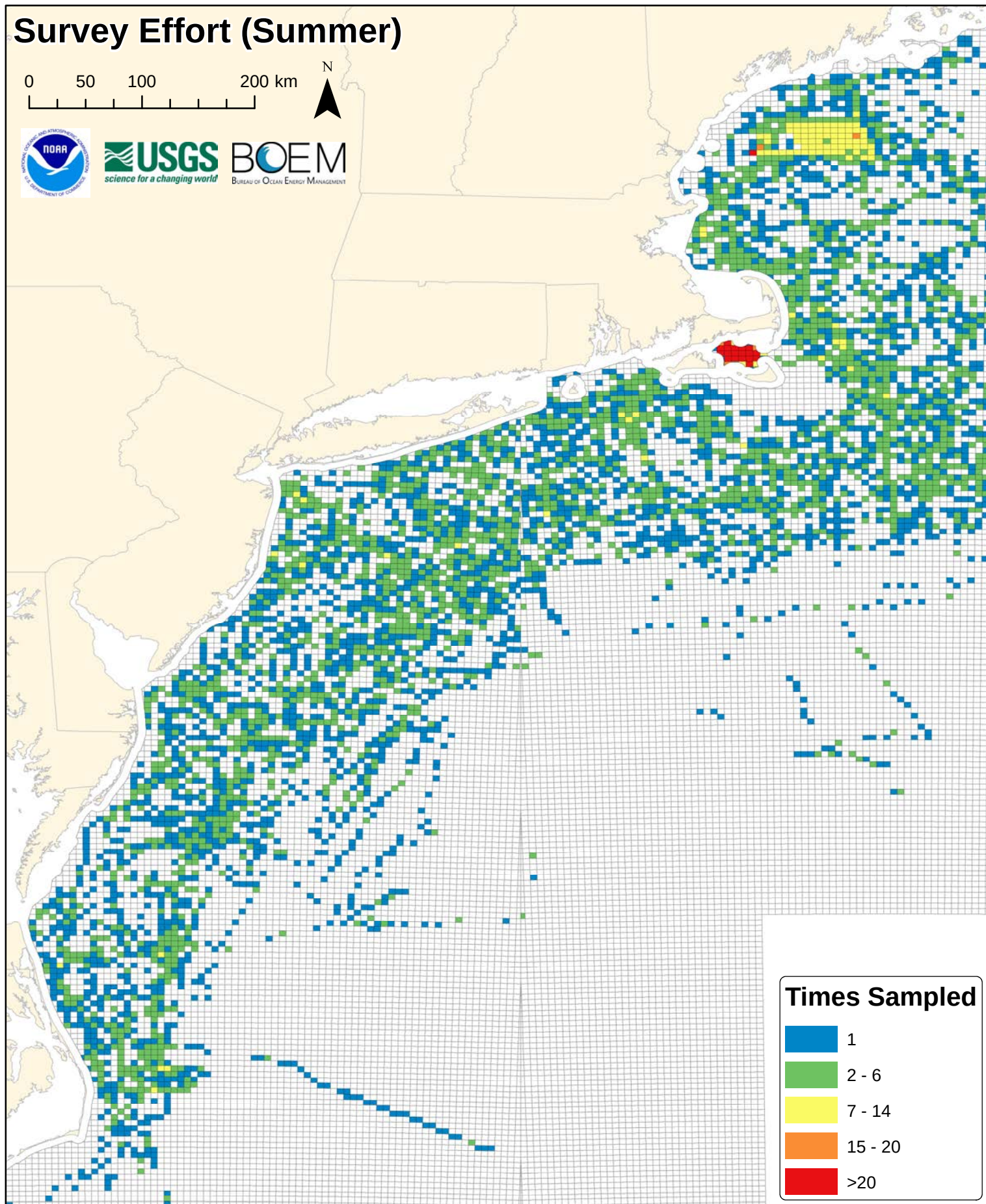
SECTION I. Summary Statistic Maps Calculated for All Species

Figures G15-G21. Summer

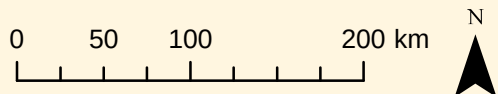
- Number of times each lease block was surveyed in summer
- Average, maximum, and minimum power to detect 3x hotspots of abundance
- Average, maximum, and minimum power to detect 1/3x coldspots of abundance

Survey Effort (Summer)

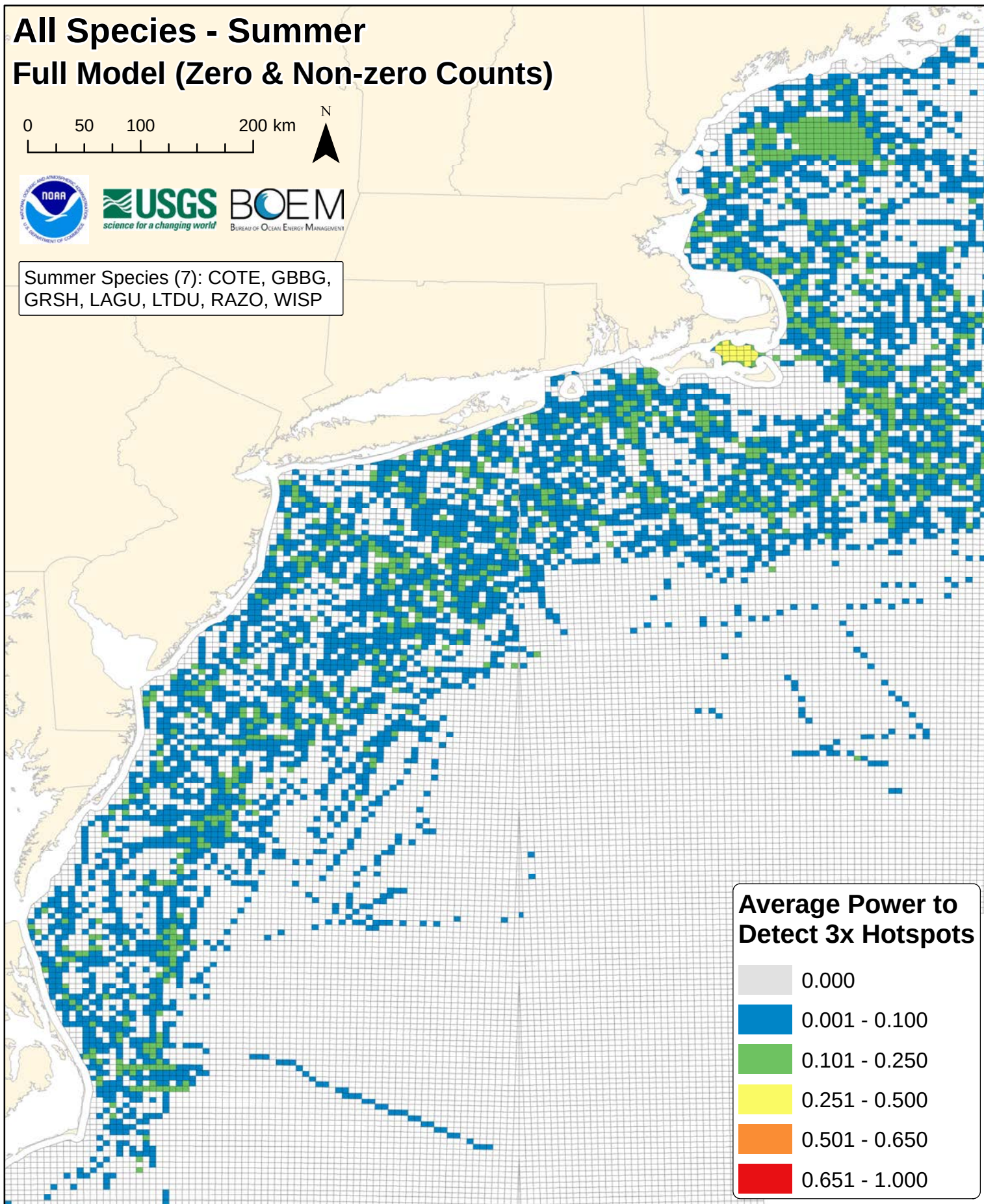
0 50 100 200 km



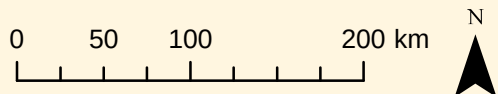
All Species - Summer Full Model (Zero & Non-zero Counts)



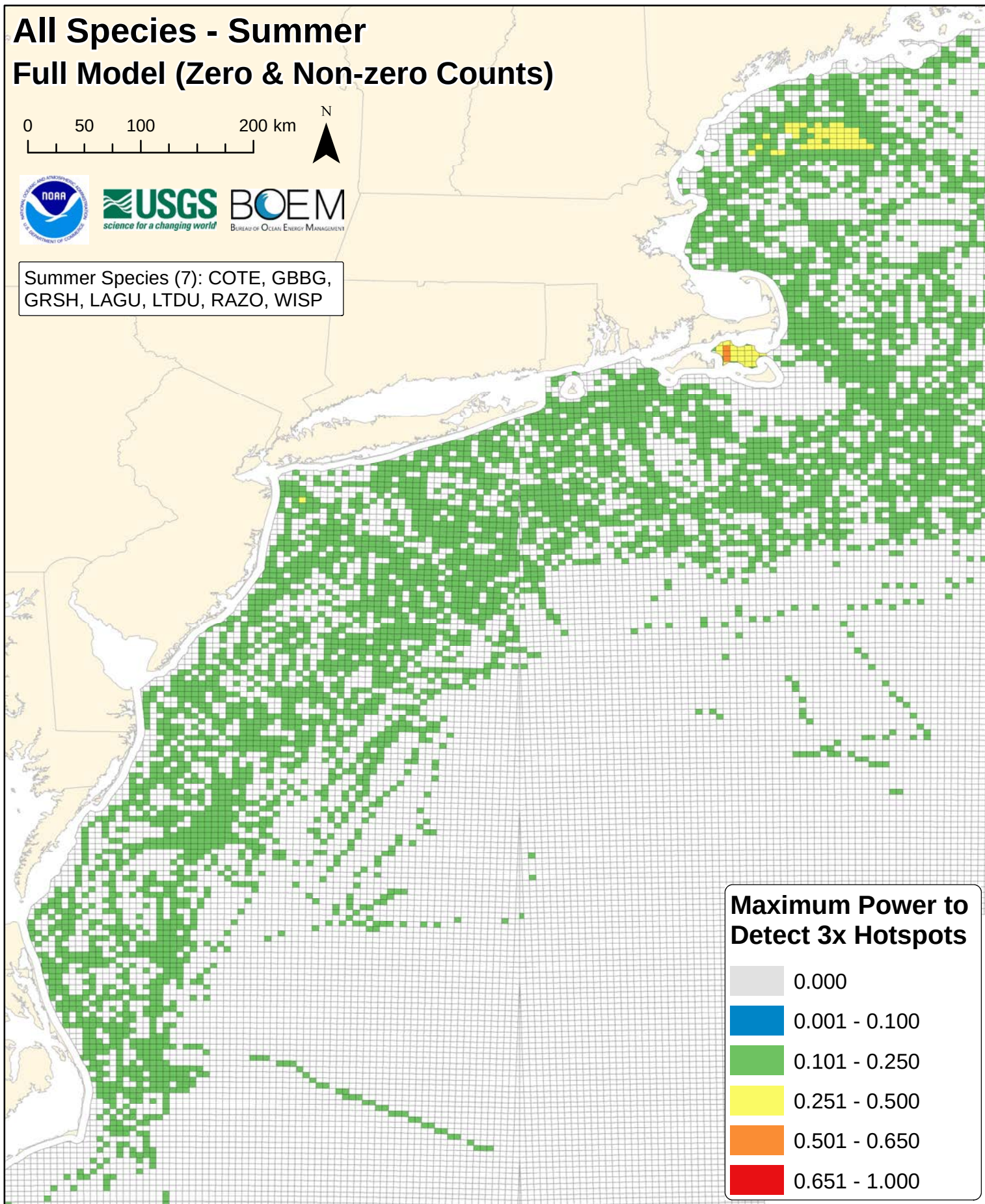
Summer Species (7): COTE, GBBG, GRSH, LAGU, LTDU, RAZO, WISP



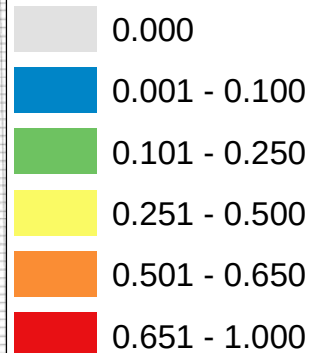
All Species - Summer Full Model (Zero & Non-zero Counts)



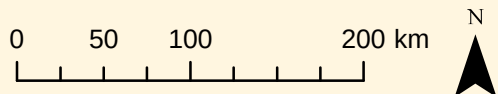
Summer Species (7): COTE, GBBG, GRSH, LAGU, LTDU, RAZO, WISP



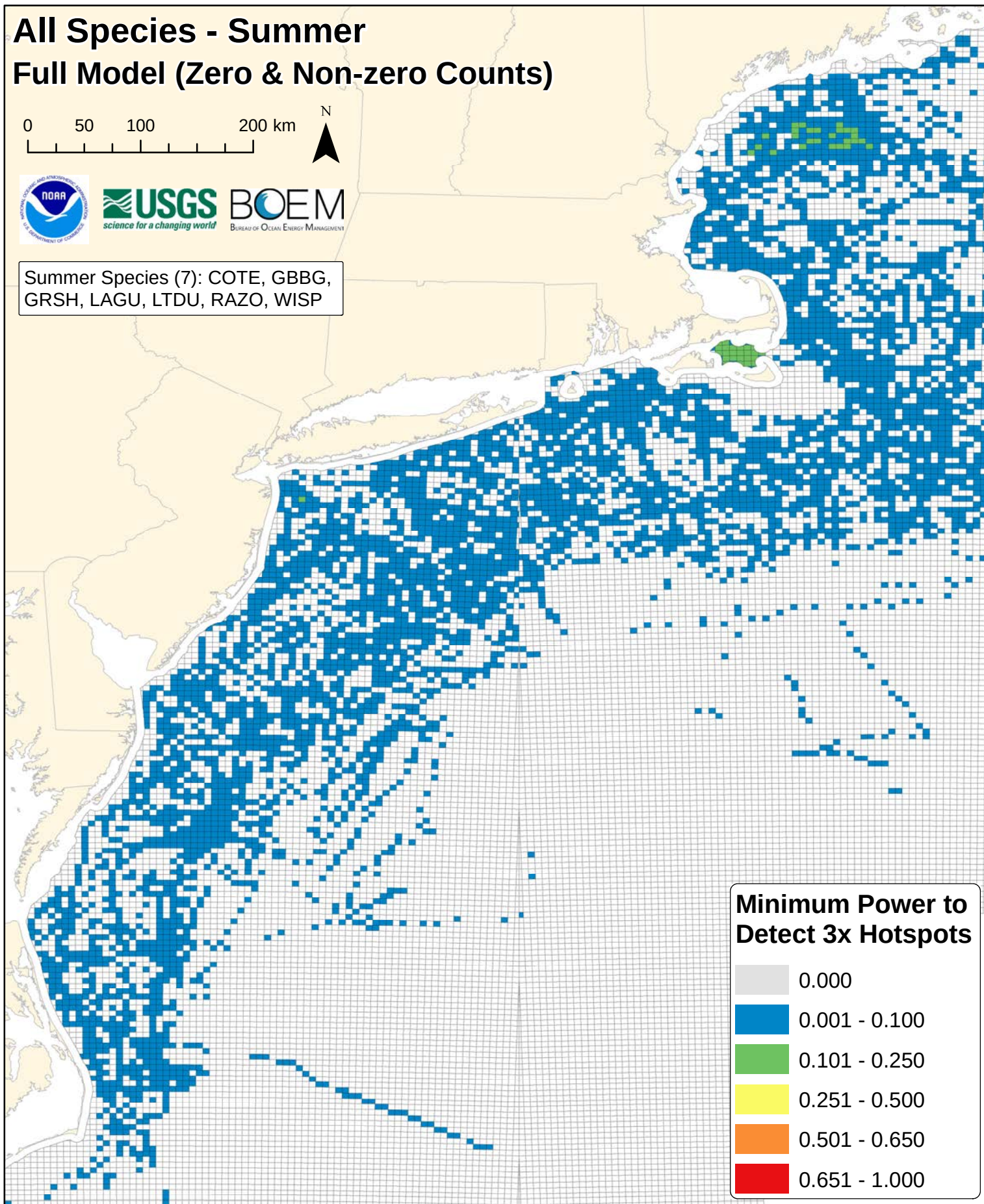
Maximum Power to Detect 3x Hotspots



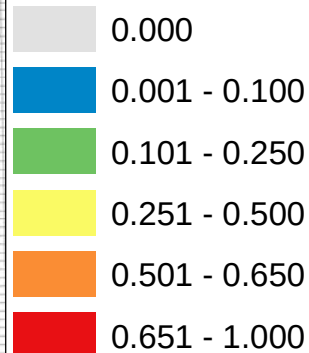
All Species - Summer Full Model (Zero & Non-zero Counts)



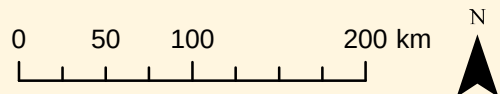
Summer Species (7): COTE, GBBG, GRSH, LAGU, LTDU, RAZO, WISP



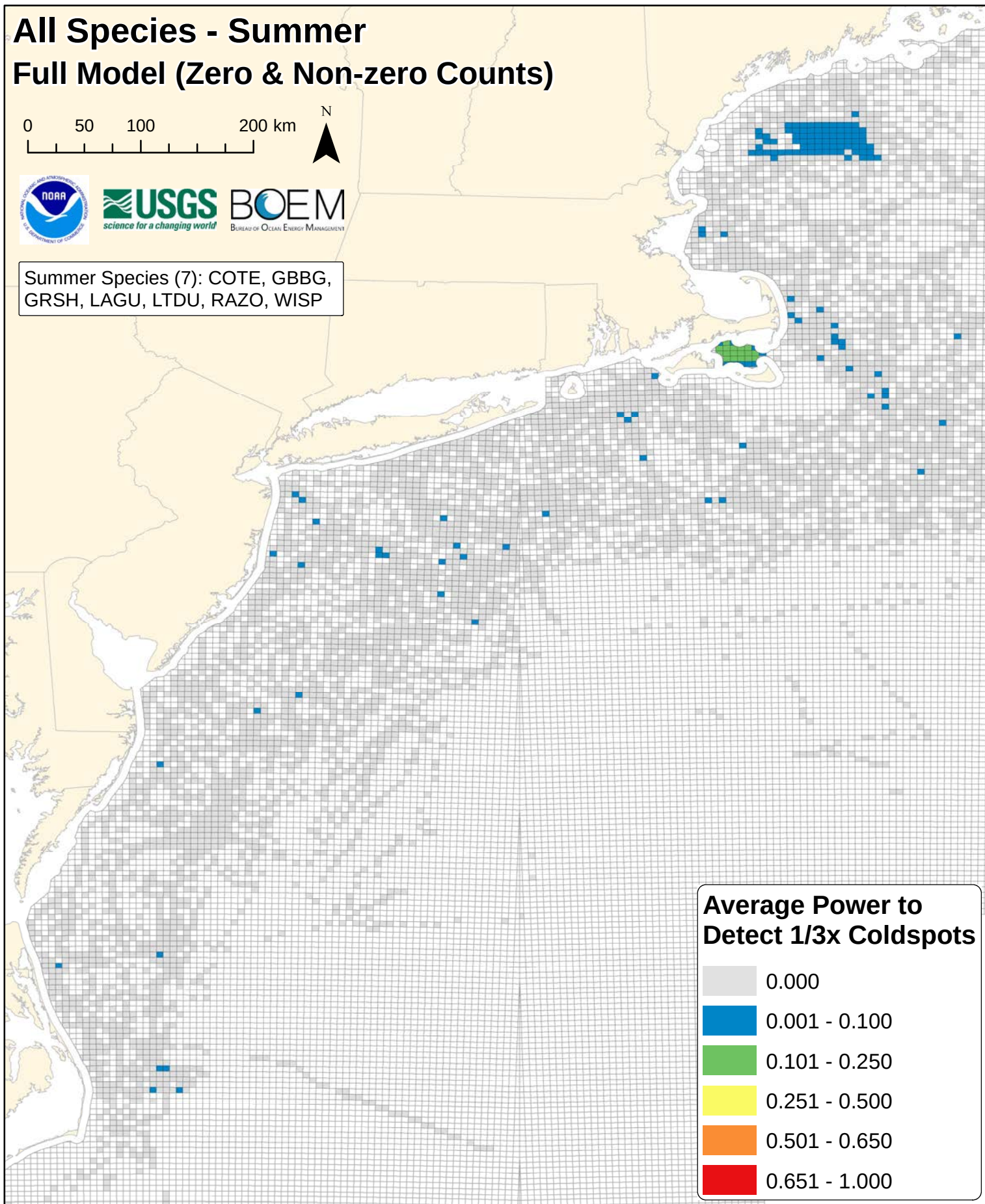
Minimum Power to Detect 3x Hotspots



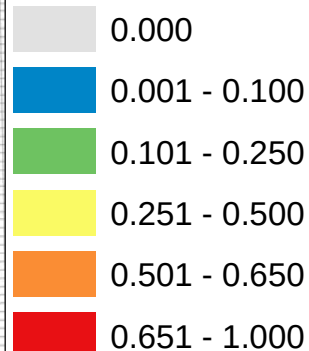
All Species - Summer Full Model (Zero & Non-zero Counts)



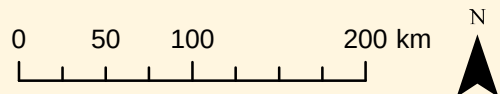
Summer Species (7): COTE, GBBG, GRSH, LAGU, LTDU, RAZO, WISP



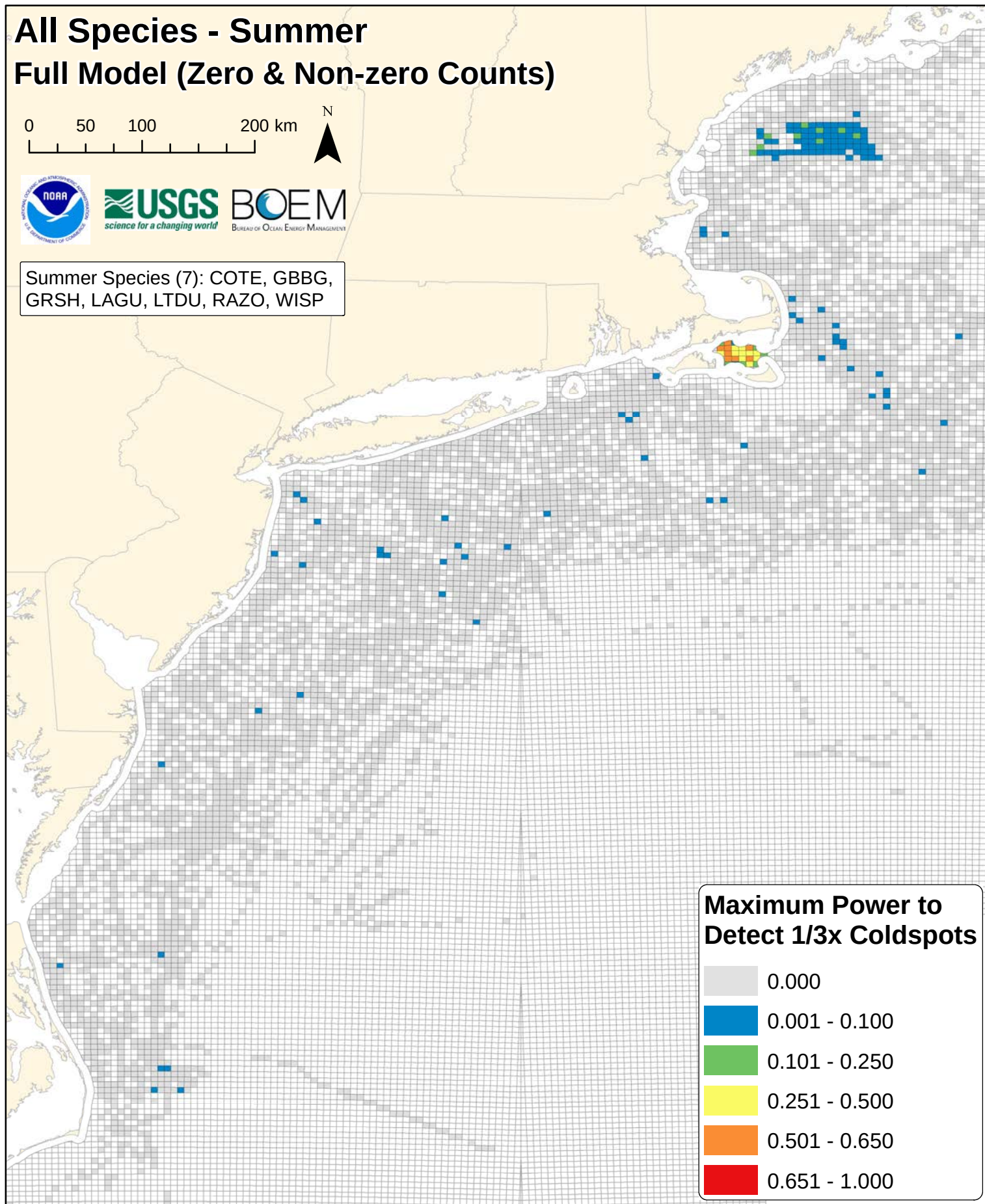
Average Power to Detect 1/3x Coldspots



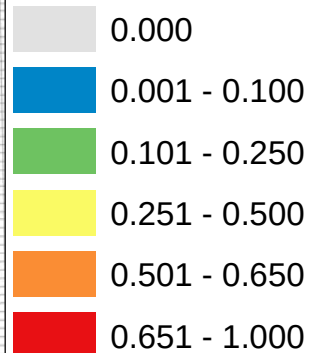
All Species - Summer Full Model (Zero & Non-zero Counts)



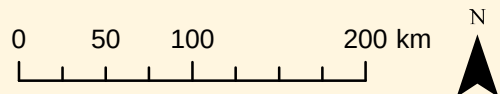
Summer Species (7): COTE, GBBG, GRSH, LAGU, LTDU, RAZO, WISP



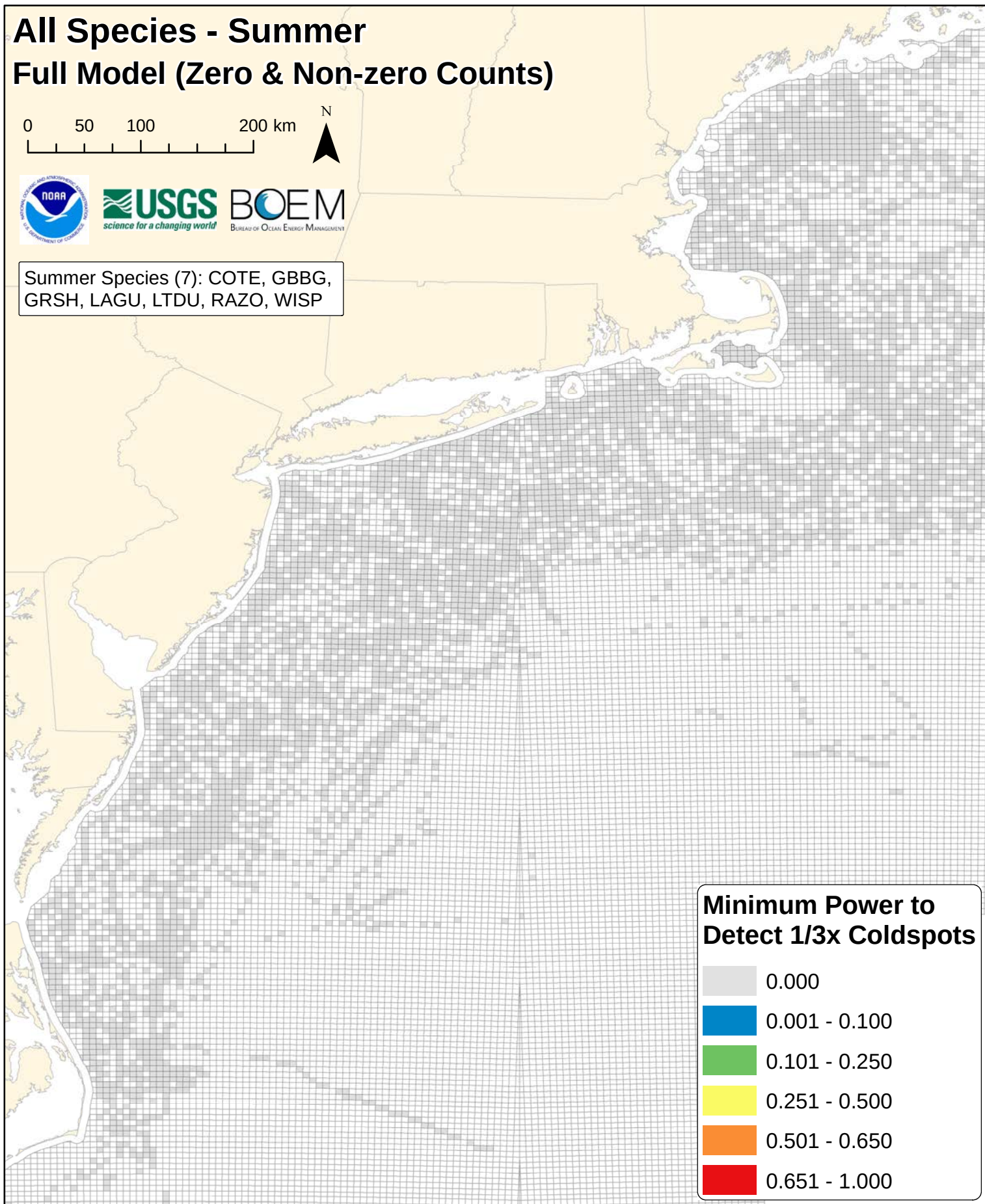
Maximum Power to Detect 1/3x Coldspots



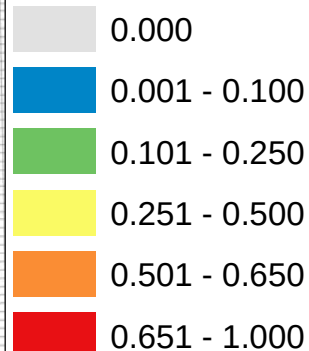
All Species - Summer Full Model (Zero & Non-zero Counts)



Summer Species (7): COTE, GBBG, GRSH, LAGU, LTDU, RAZO, WISP



Minimum Power to Detect 1/3x Coldspots



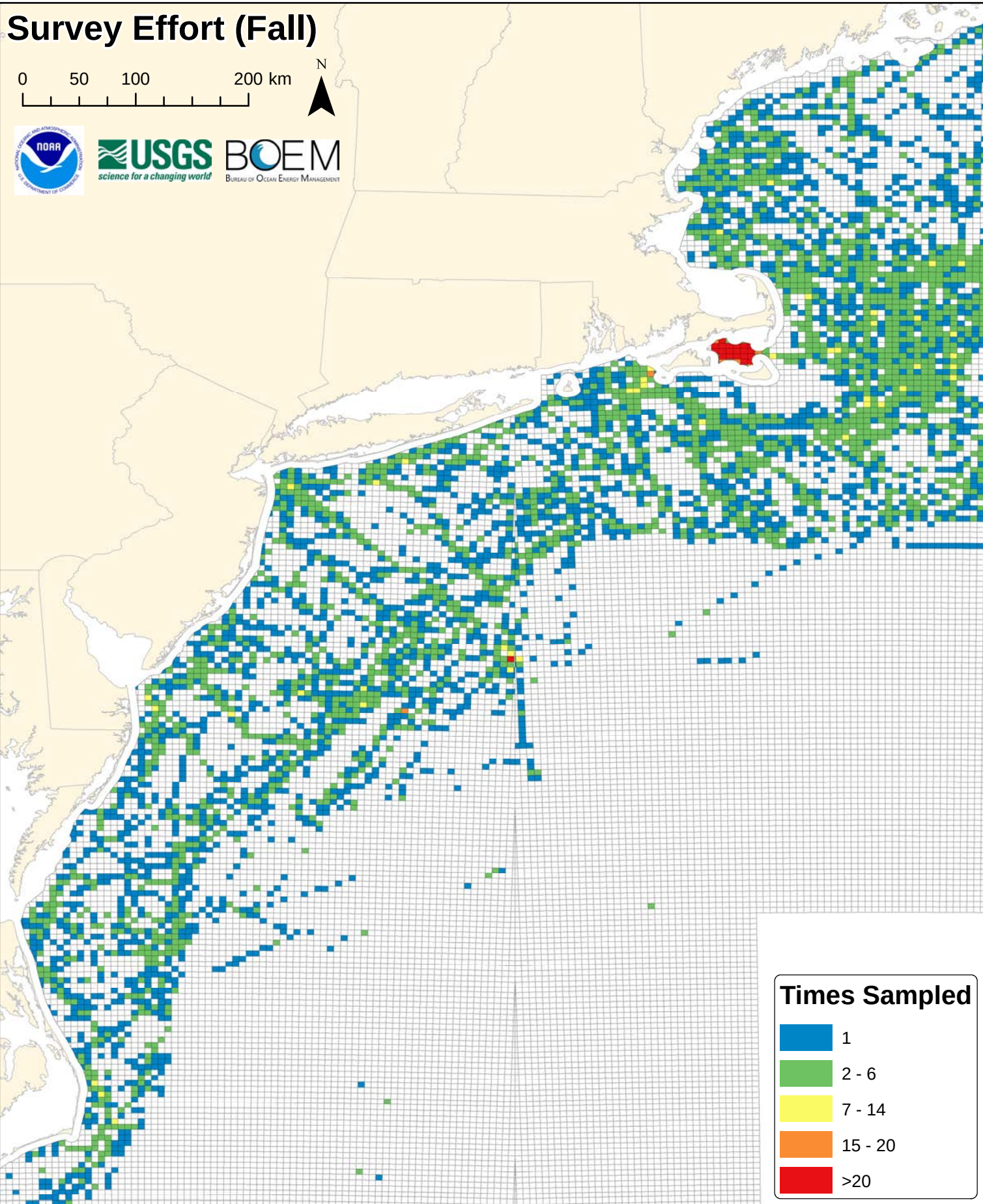
DIGITAL SUPPLEMENT G

Full Hurdle Model (Zero & Non-Zero Counts) Results

SECTION I. Summary Statistic Maps Calculated for All Species

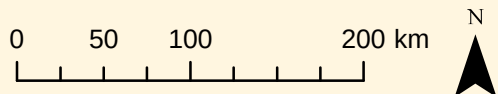
Figures G22-G28. Fall

- Number of times each lease block was surveyed in fall
- Average, maximum, and minimum power to detect 3x hotspots of abundance
- Average, maximum, and minimum power to detect 1/3x coldspots of abundance

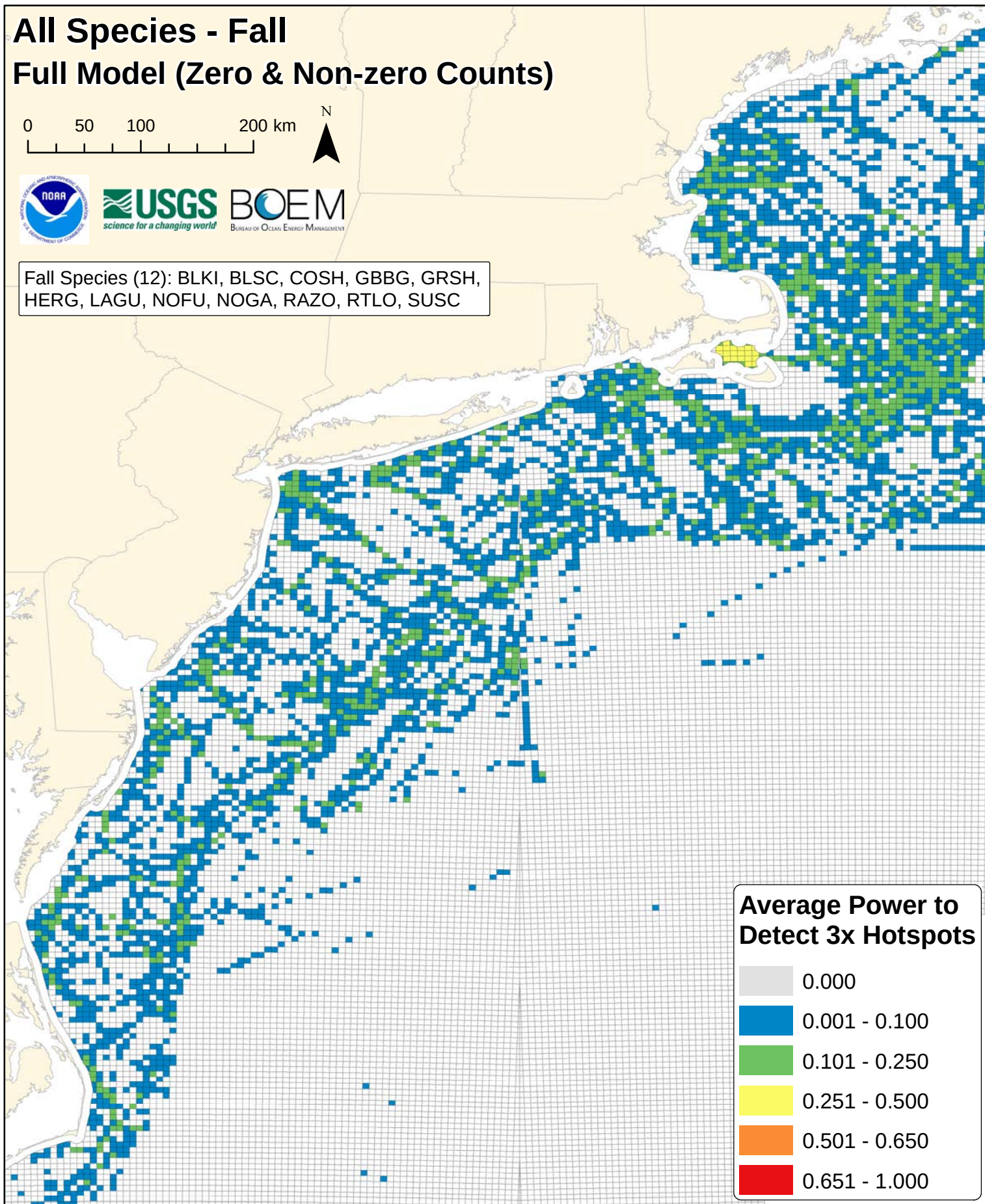


All Species - Fall

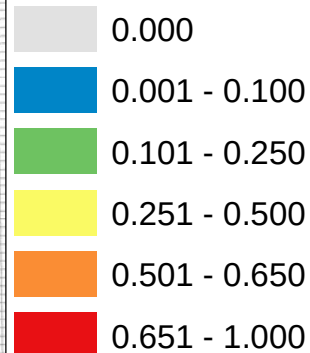
Full Model (Zero & Non-zero Counts)



Fall Species (12): BLKI, BLSC, COSH, GBBG, GRSH, HERG, LAGU, NOFU, NOGA, RAZO, RTLO, SUSC



Average Power to Detect 3x Hotspots



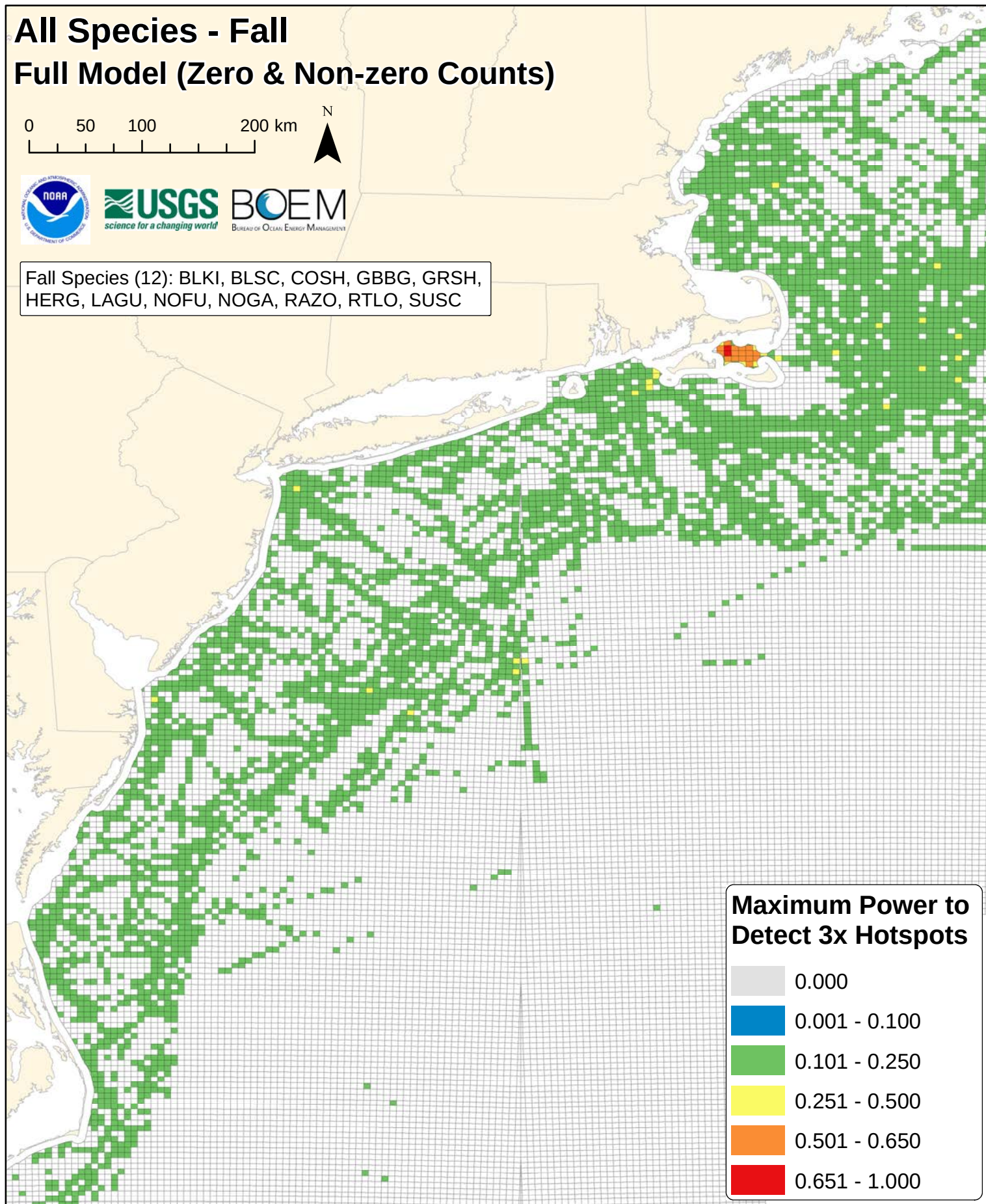
All Species - Fall

Full Model (Zero & Non-zero Counts)

0 50 100 200 km



Fall Species (12): BLKI, BLSC, COSH, GBBG, GRSH, HERG, LAGU, NOFU, NOGA, RAZO, RTLO, SUSC



Maximum Power to Detect 3x Hotspots

0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 1.000

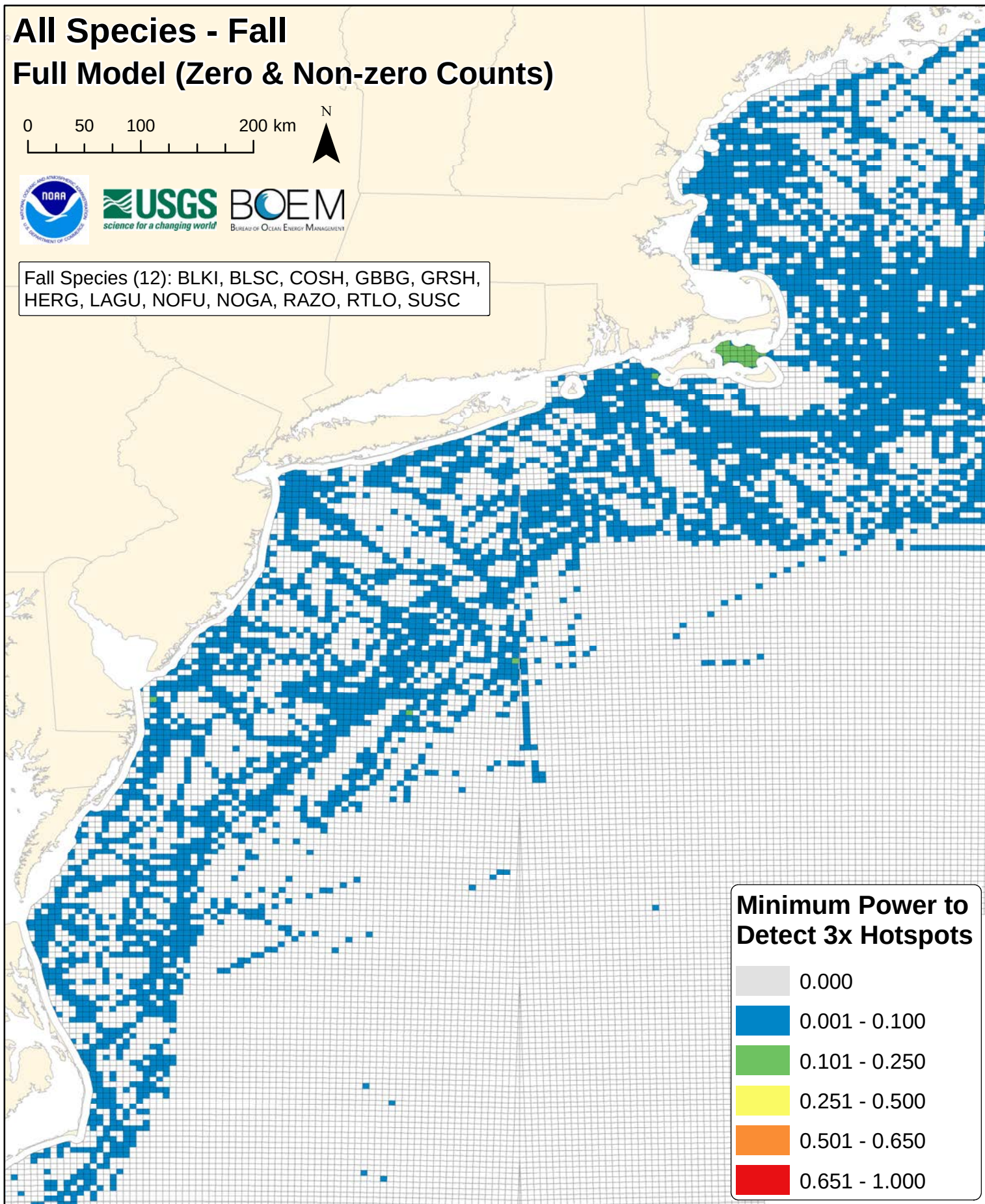
All Species - Fall

Full Model (Zero & Non-zero Counts)

0 50 100 200 km

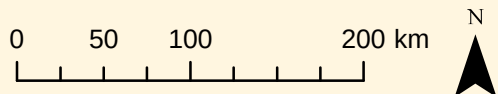


Fall Species (12): BLKI, BLSC, COSH, GBBG, GRSH, HERG, LAGU, NOFU, NOGA, RAZO, RTLO, SUSC

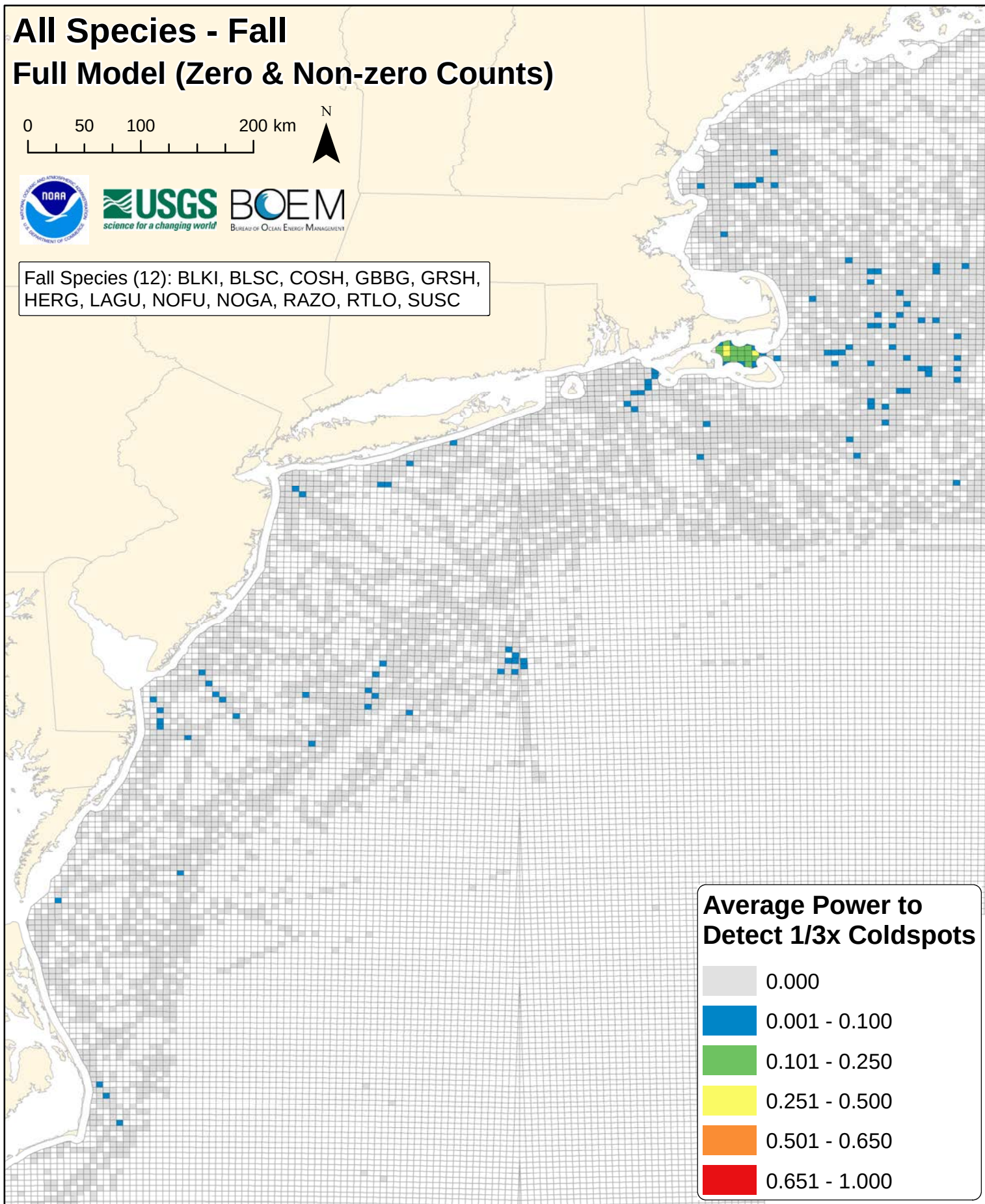


All Species - Fall

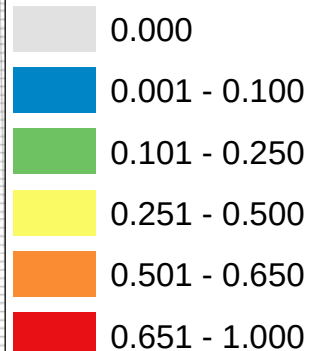
Full Model (Zero & Non-zero Counts)



Fall Species (12): BLKI, BLSC, COSH, GBBG, GRSH, HERG, LAGU, NOFU, NOGA, RAZO, RTLO, SUSC

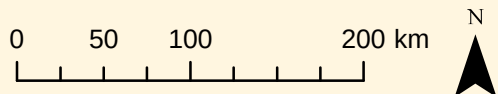


Average Power to Detect 1/3x Coldspots

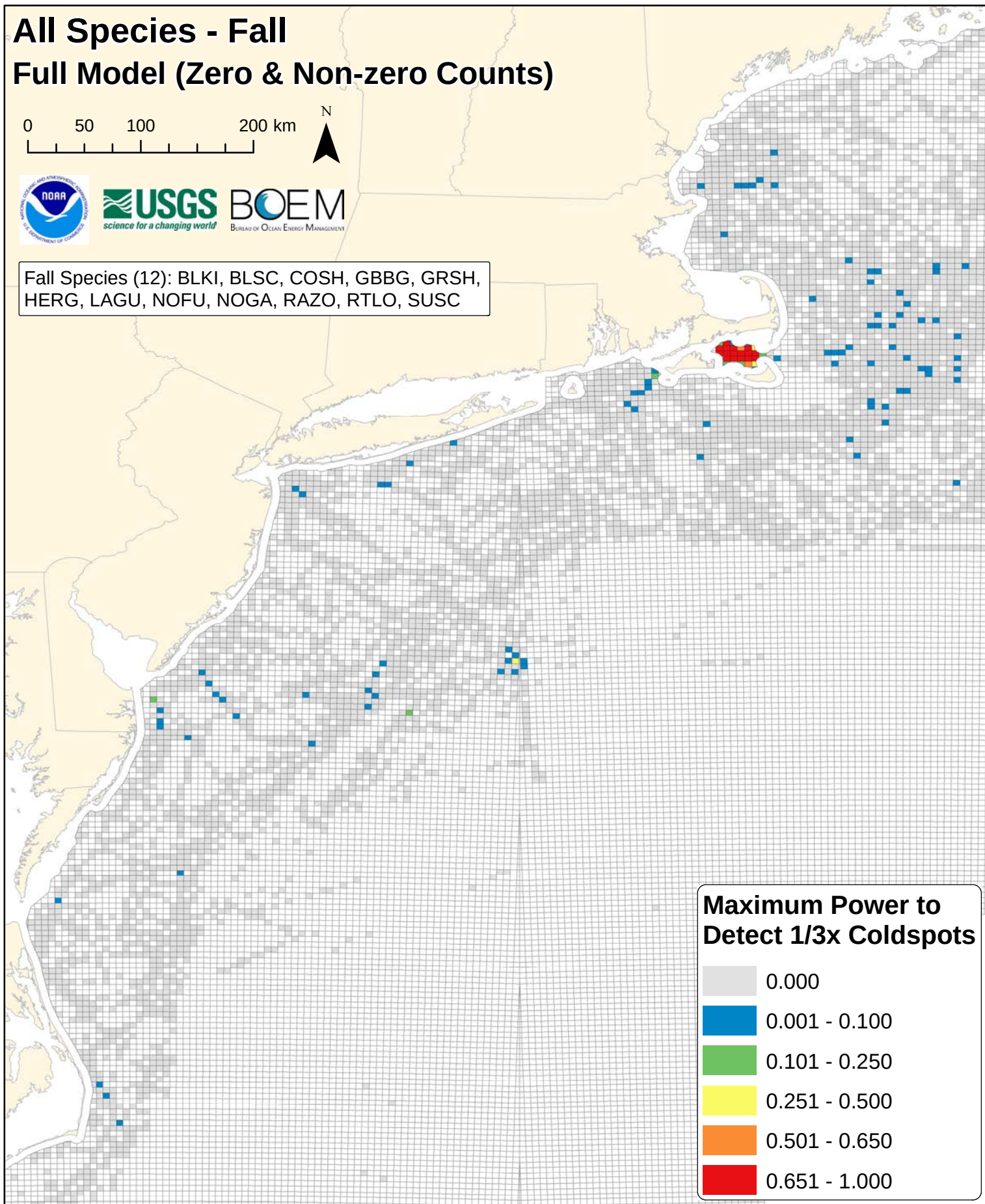


All Species - Fall

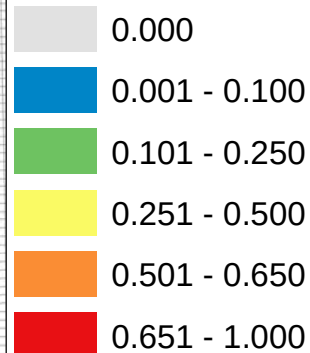
Full Model (Zero & Non-zero Counts)



Fall Species (12): BLKI, BLSC, COSH, GBBG, GRSH, HERG, LAGU, NOFU, NOGA, RAZO, RTLO, SUSC

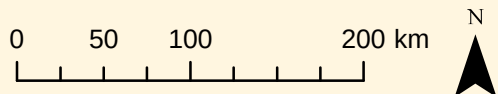


Maximum Power to Detect 1/3x Coldspots



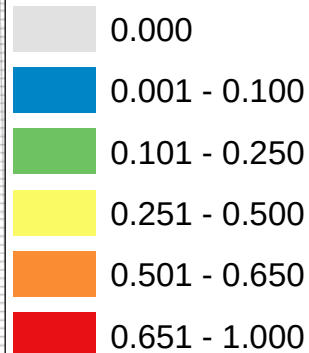
All Species - Fall

Full Model (Zero & Non-zero Counts)



Fall Species (12): BLKI, BLSC, COSH, GBBG, GRSH, HERG, LAGU, NOFU, NOGA, RAZO, RTLO, SUSC

Minimum Power to Detect 1/3x Coldspots



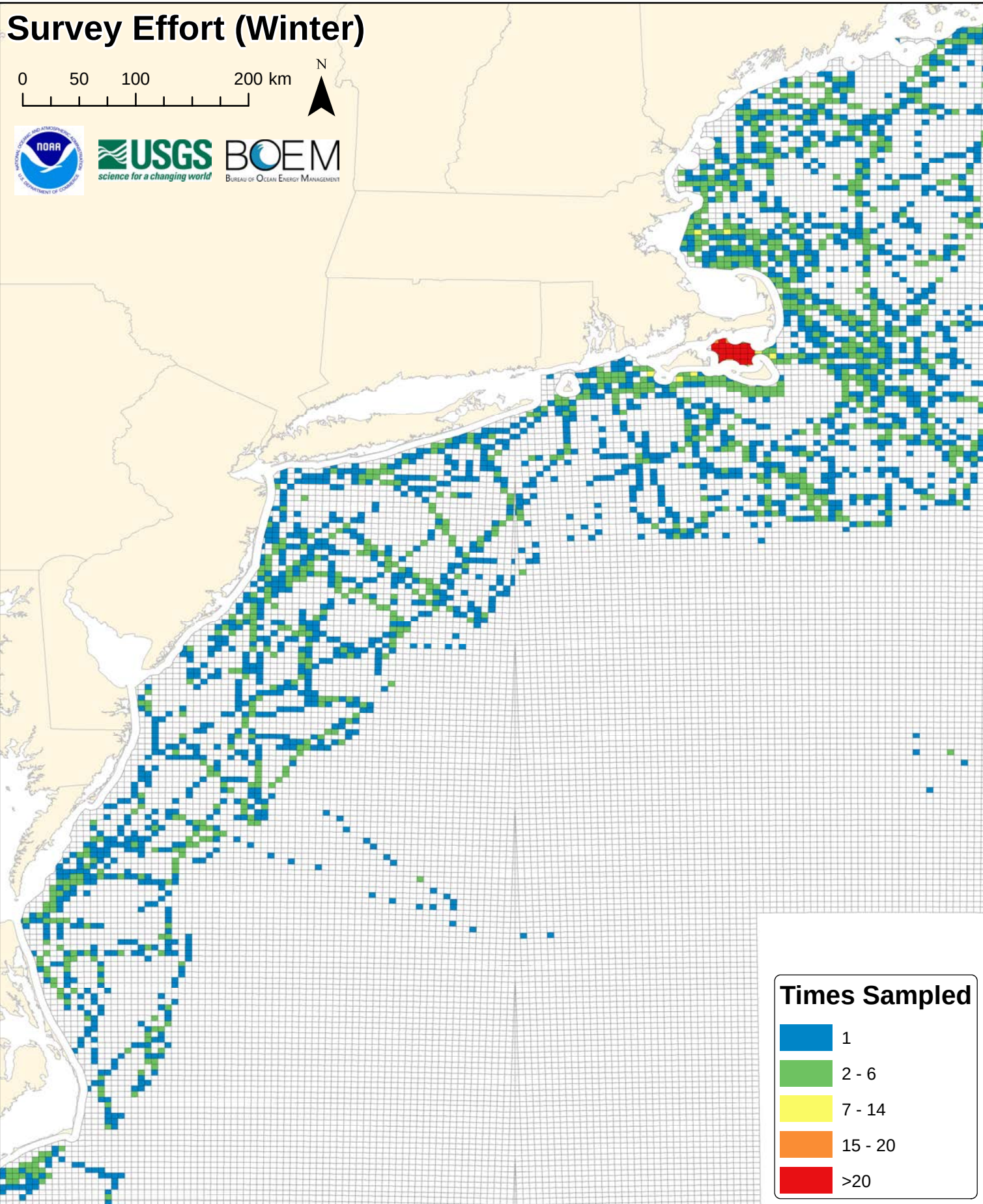
DIGITAL SUPPLEMENT G

Full Hurdle Model (Zero & Non-Zero Counts) Results

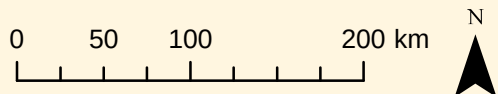
SECTION I. Summary Statistic Maps Calculated for All Species

Figures G29-G35. Winter

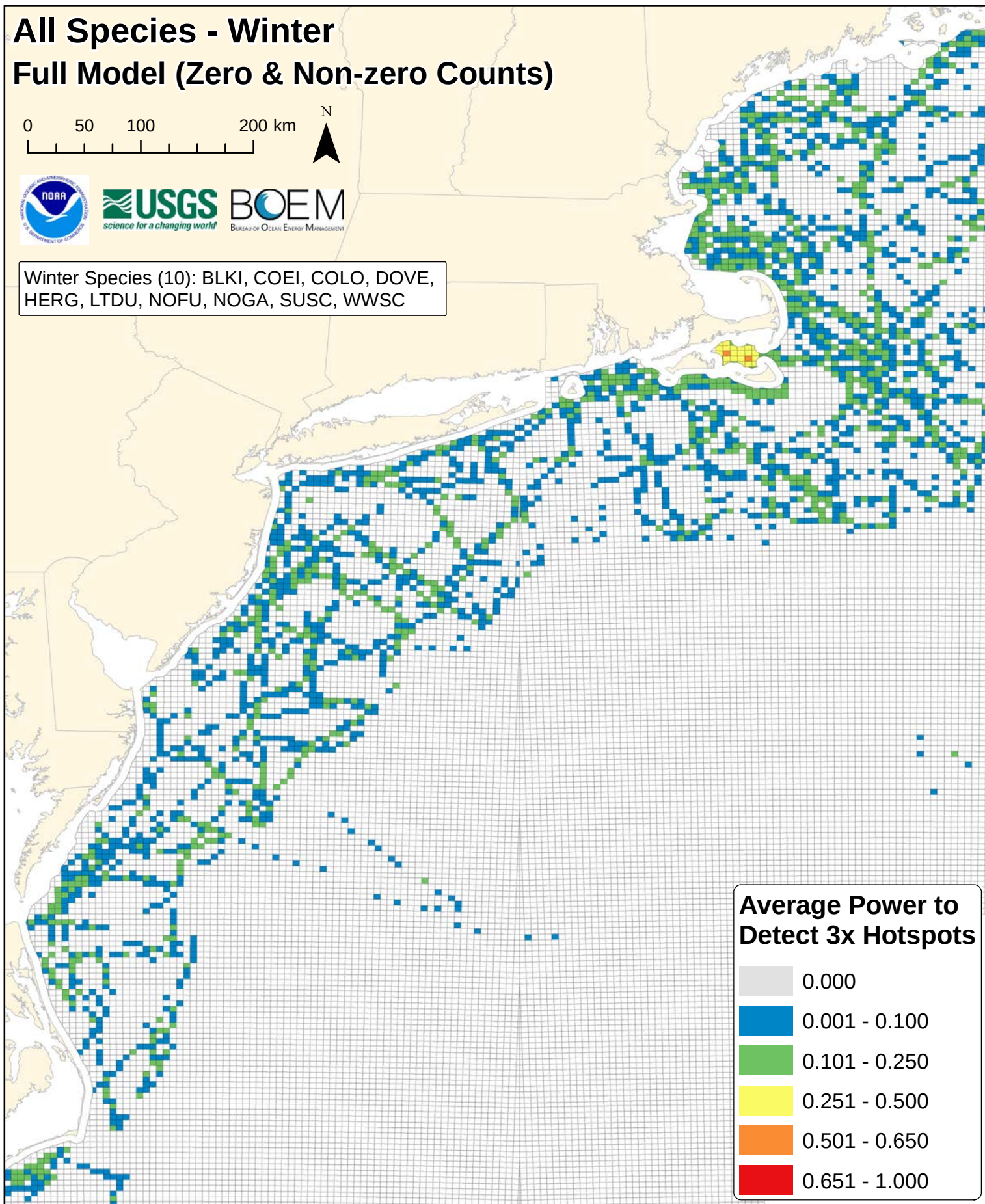
- Number of times each lease block was surveyed in winter
- Average, maximum, and minimum power to detect 3x hotspots of abundance
- Average, maximum, and minimum power to detect 1/3x coldspots of abundance



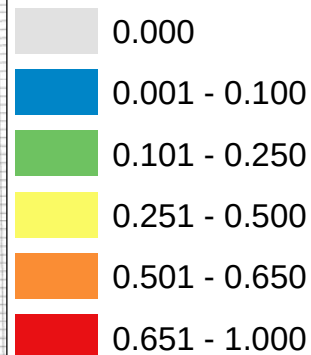
All Species - Winter Full Model (Zero & Non-zero Counts)



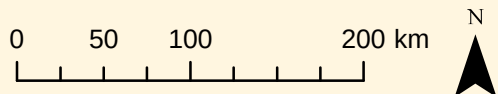
Winter Species (10): BLKI, COEI, COLO, DOVE, HERG, LTDU, NOFU, NOGA, SUSC, WWSC



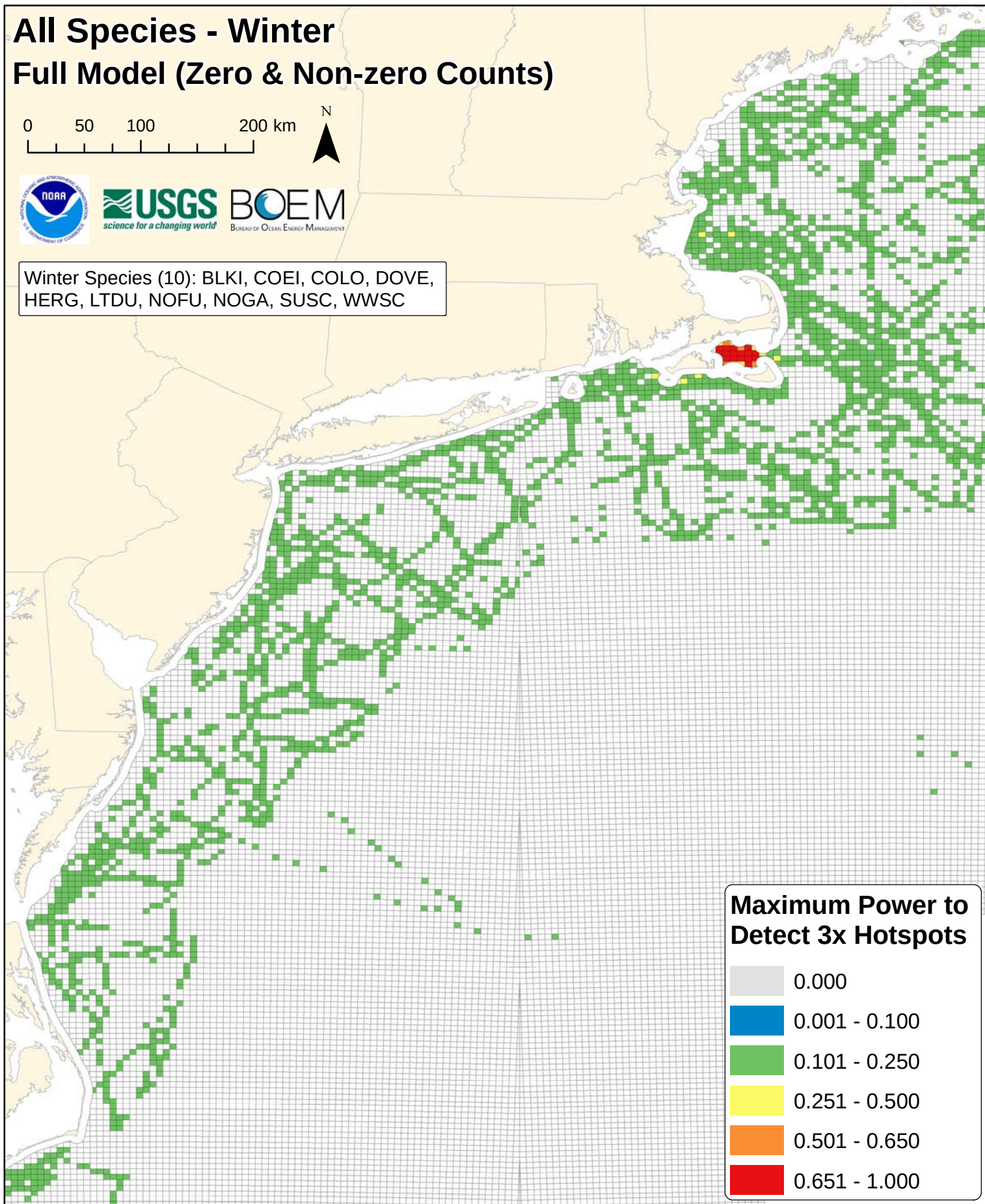
Average Power to Detect 3x Hotspots



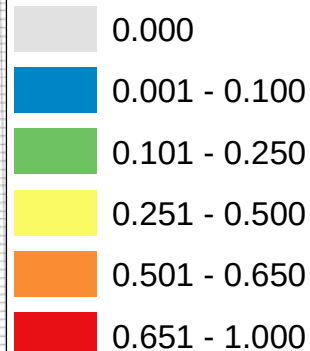
All Species - Winter Full Model (Zero & Non-zero Counts)



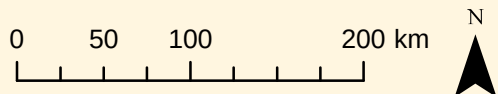
Winter Species (10): BLKI, COEI, COLO, DOVE, HERG, LTDU, NOFU, NOGA, SUSC, WWSC



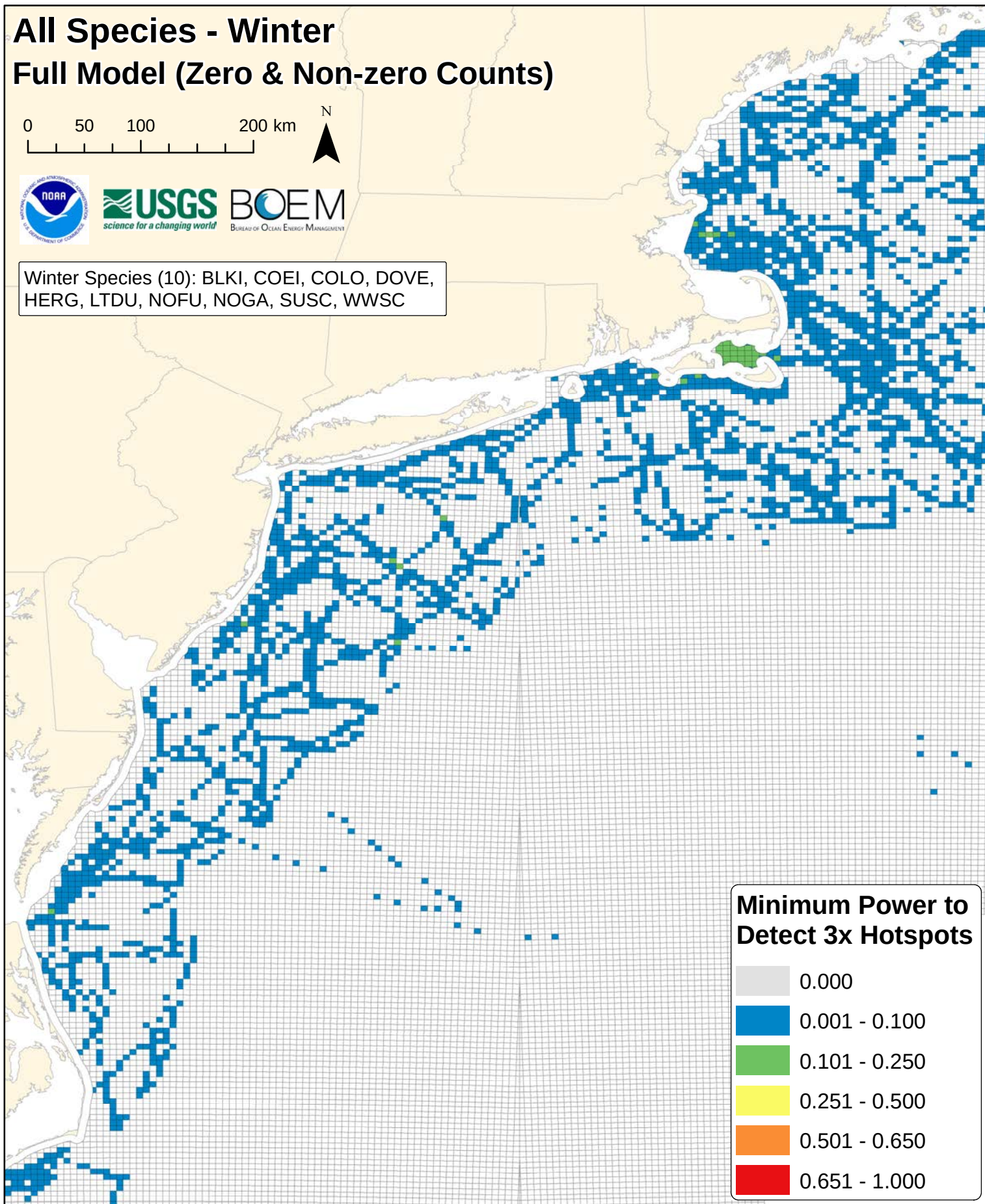
Maximum Power to Detect 3x Hotspots



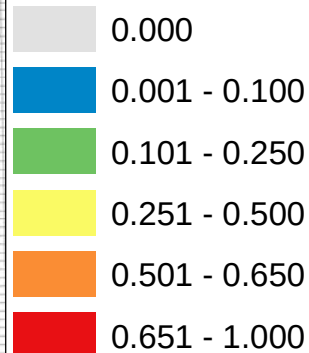
All Species - Winter Full Model (Zero & Non-zero Counts)



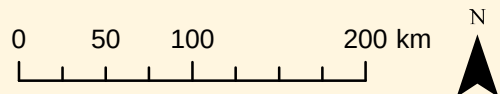
Winter Species (10): BLKI, COEI, COLO, DOVE, HERG, LTDU, NOFU, NOGA, SUSC, WWSC



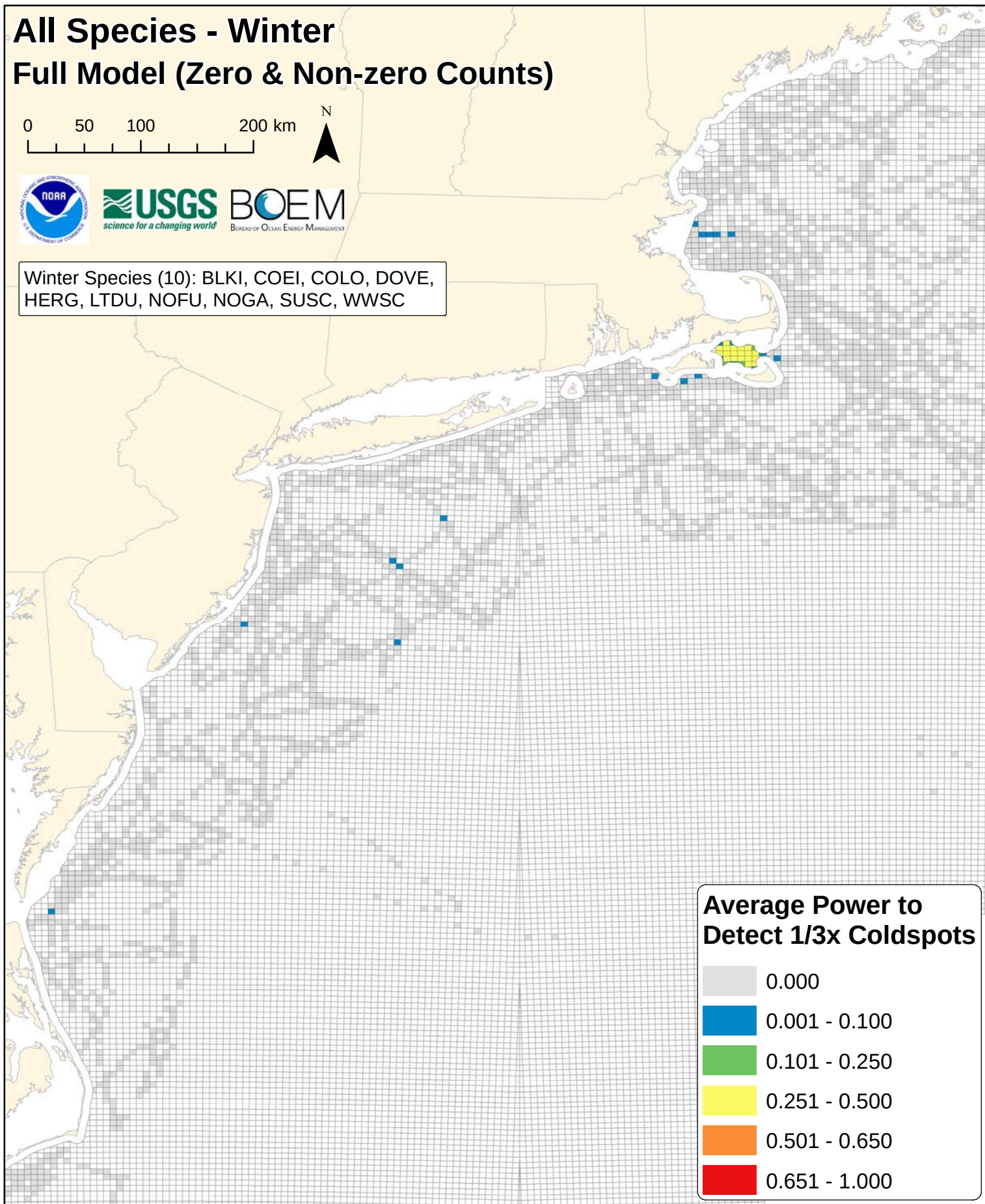
Minimum Power to Detect 3x Hotspots



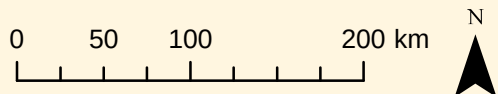
All Species - Winter Full Model (Zero & Non-zero Counts)



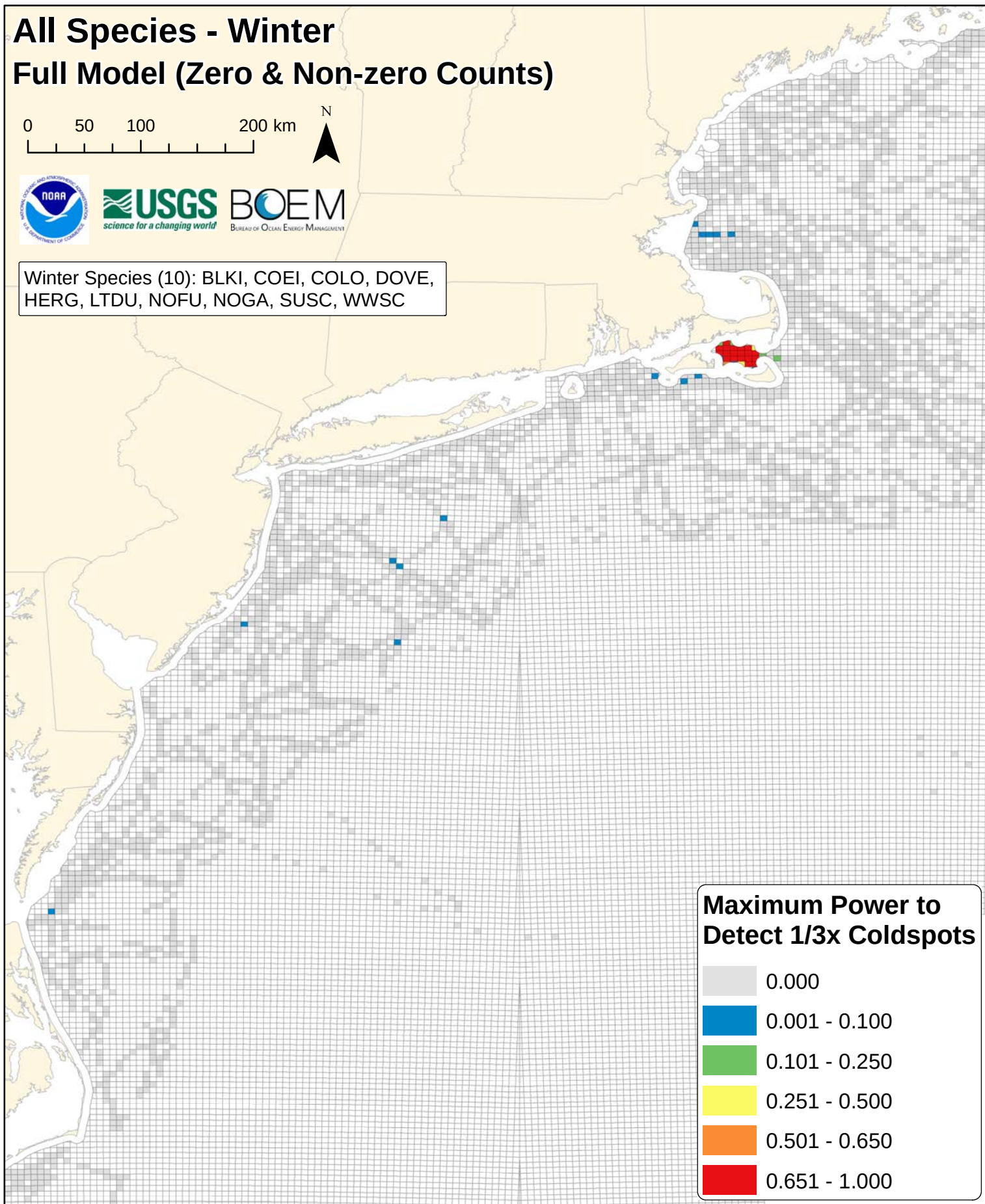
Winter Species (10): BLKI, COEI, COLO, DOVE, HERG, LTDU, NOFU, NOGA, SUSC, WWSC



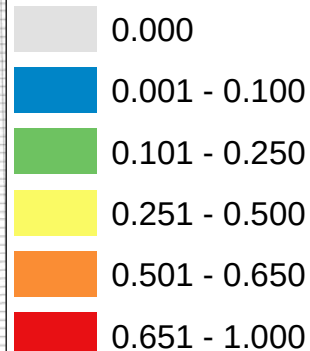
All Species - Winter Full Model (Zero & Non-zero Counts)



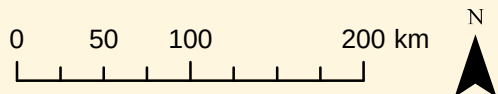
Winter Species (10): BLKI, COEI, COLO, DOVE, HERG, LTDU, NOFU, NOGA, SUSC, WWSC



Maximum Power to Detect 1/3x Coldspots

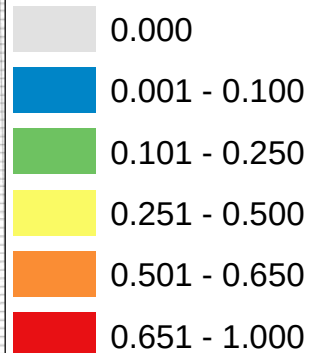


All Species - Winter Full Model (Zero & Non-zero Counts)



Winter Species (10): BLKI, COEI, COLO, DOVE, HERG, LTDU, NOFU, NOGA, SUSC, WWSC

Minimum Power to Detect 1/3x Coldspots



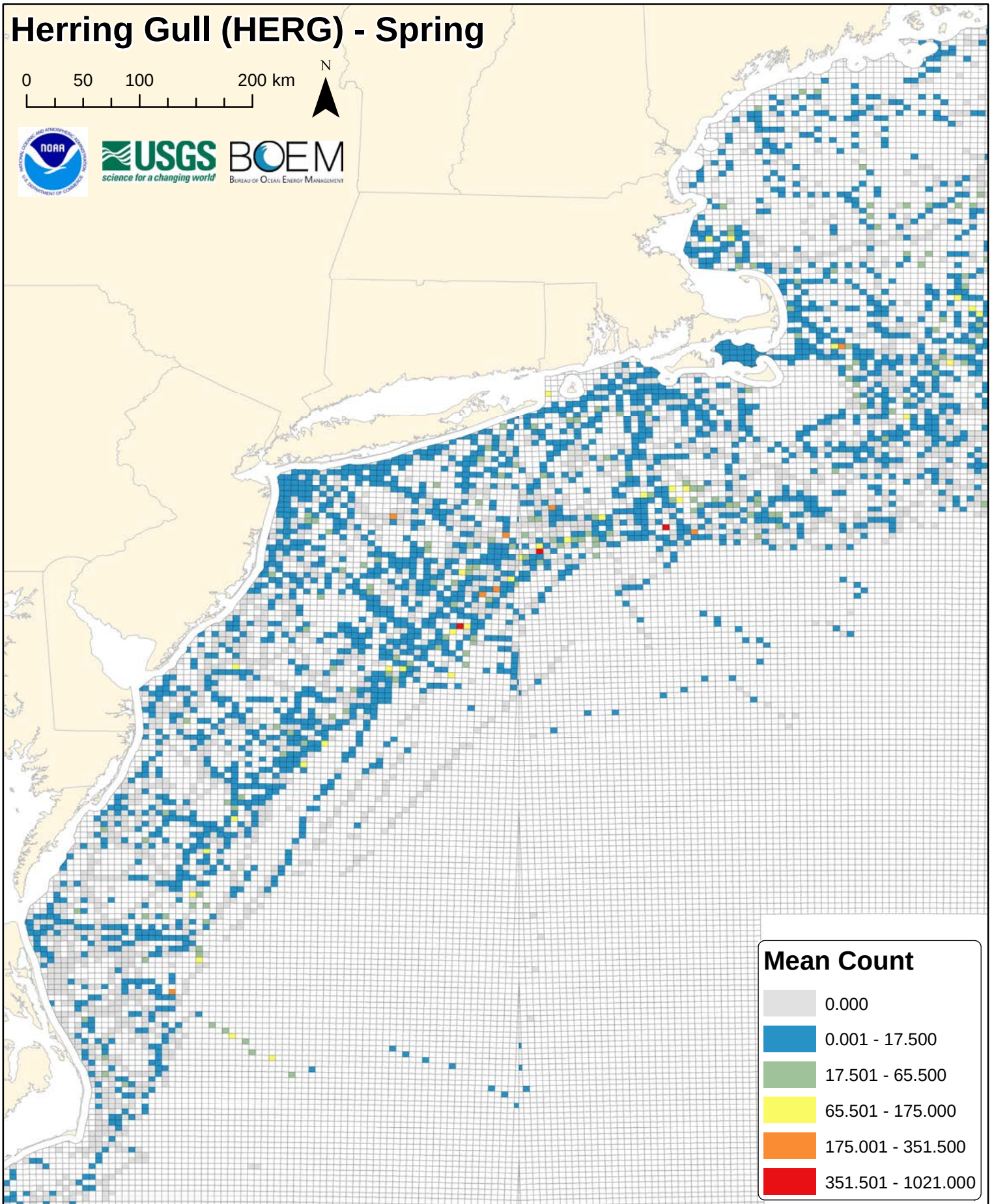
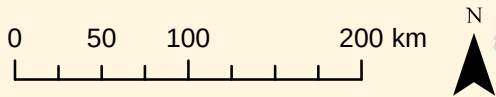
DIGITAL SUPPLEMENT G

Full Hurdle Model (Zero & Non-Zero Counts) Results

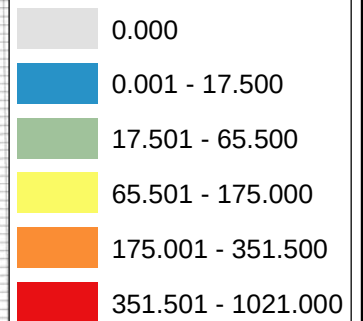
SECTION II. Species-specific Power Analysis Maps and Figures

Figures G36-G90. Spring power analysis maps and figures (11 species x 5 figures per species).

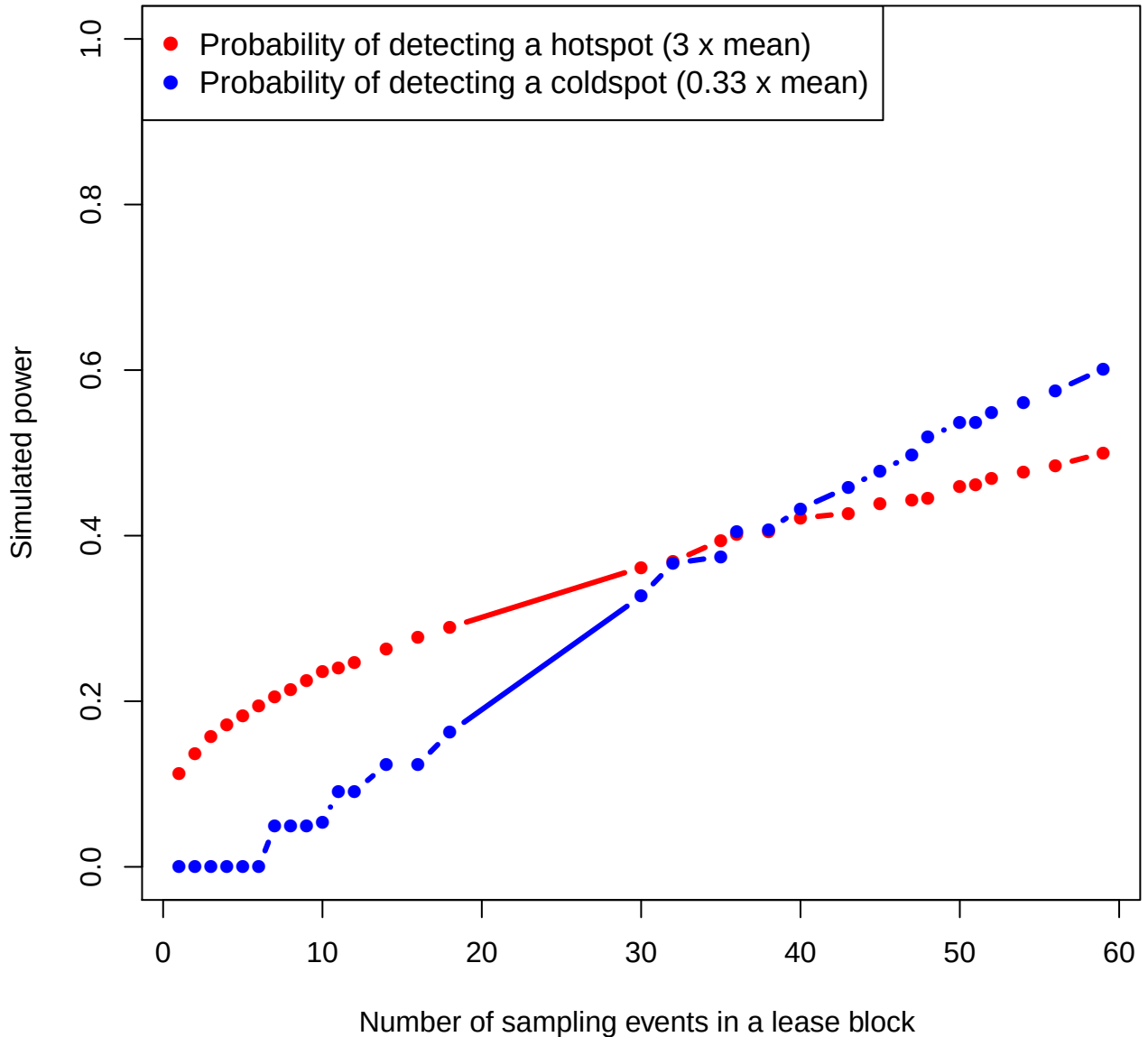
Herring Gull (HERG) - Spring



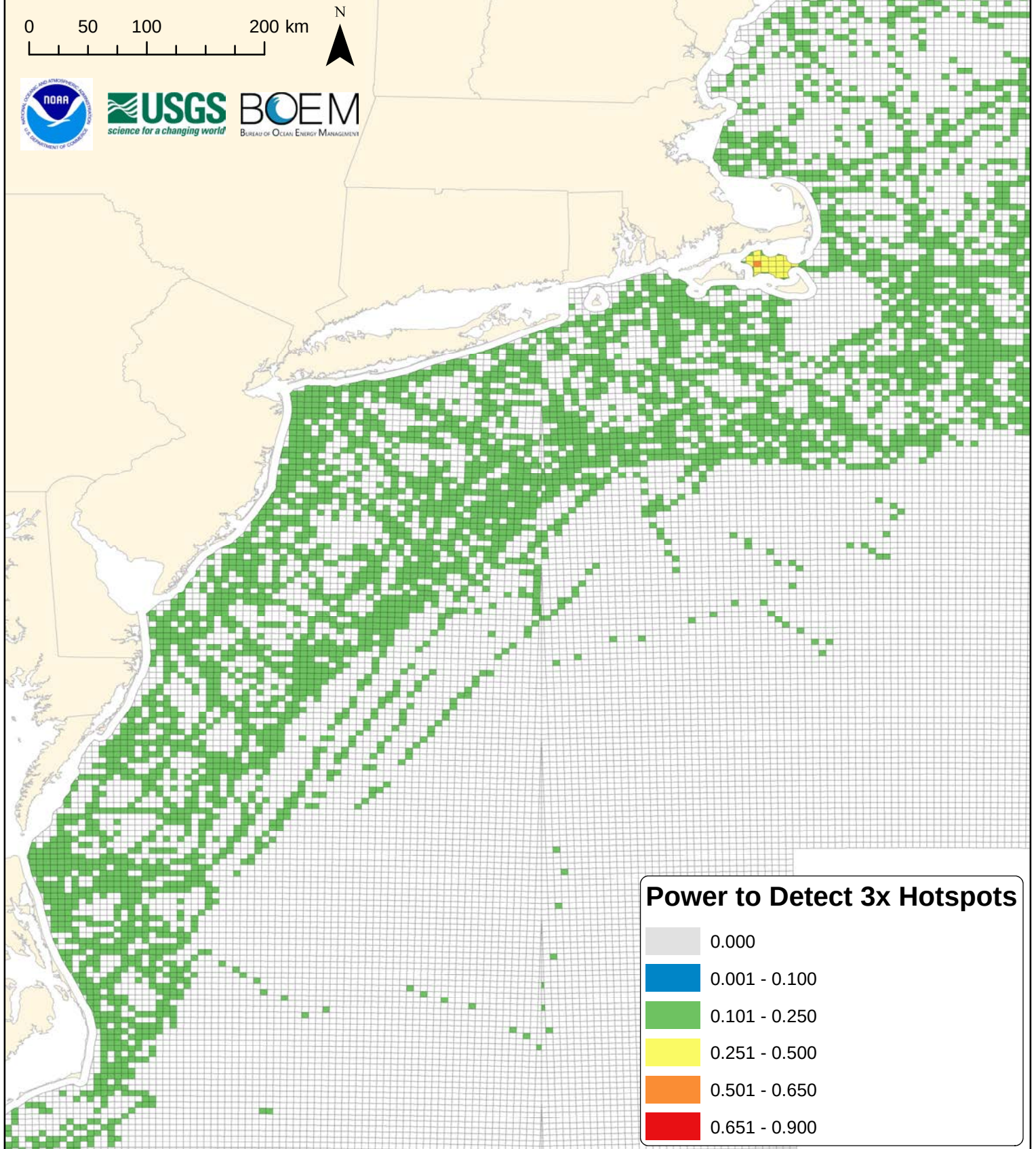
Mean Count



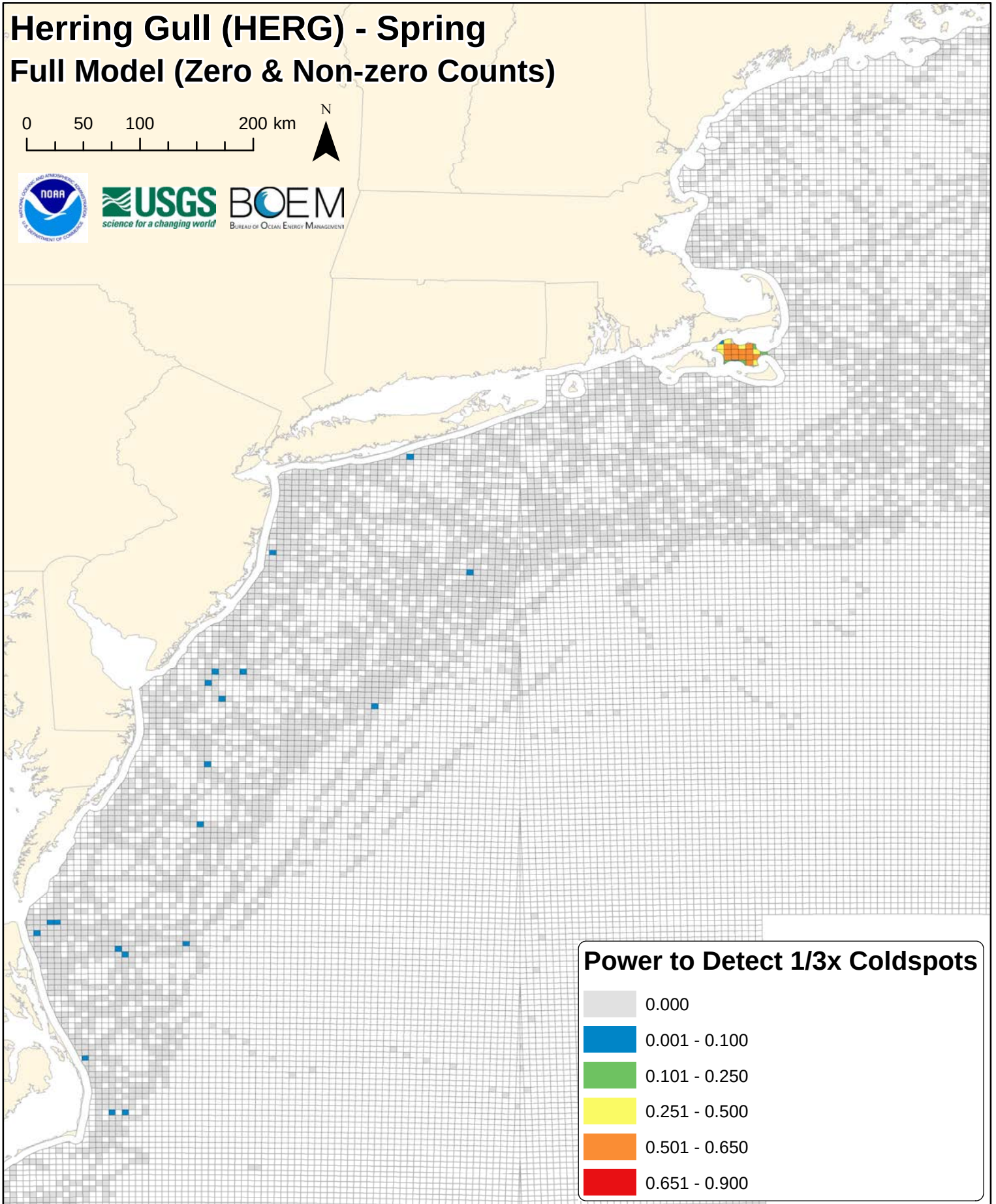
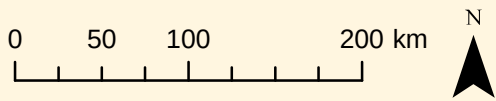
herg



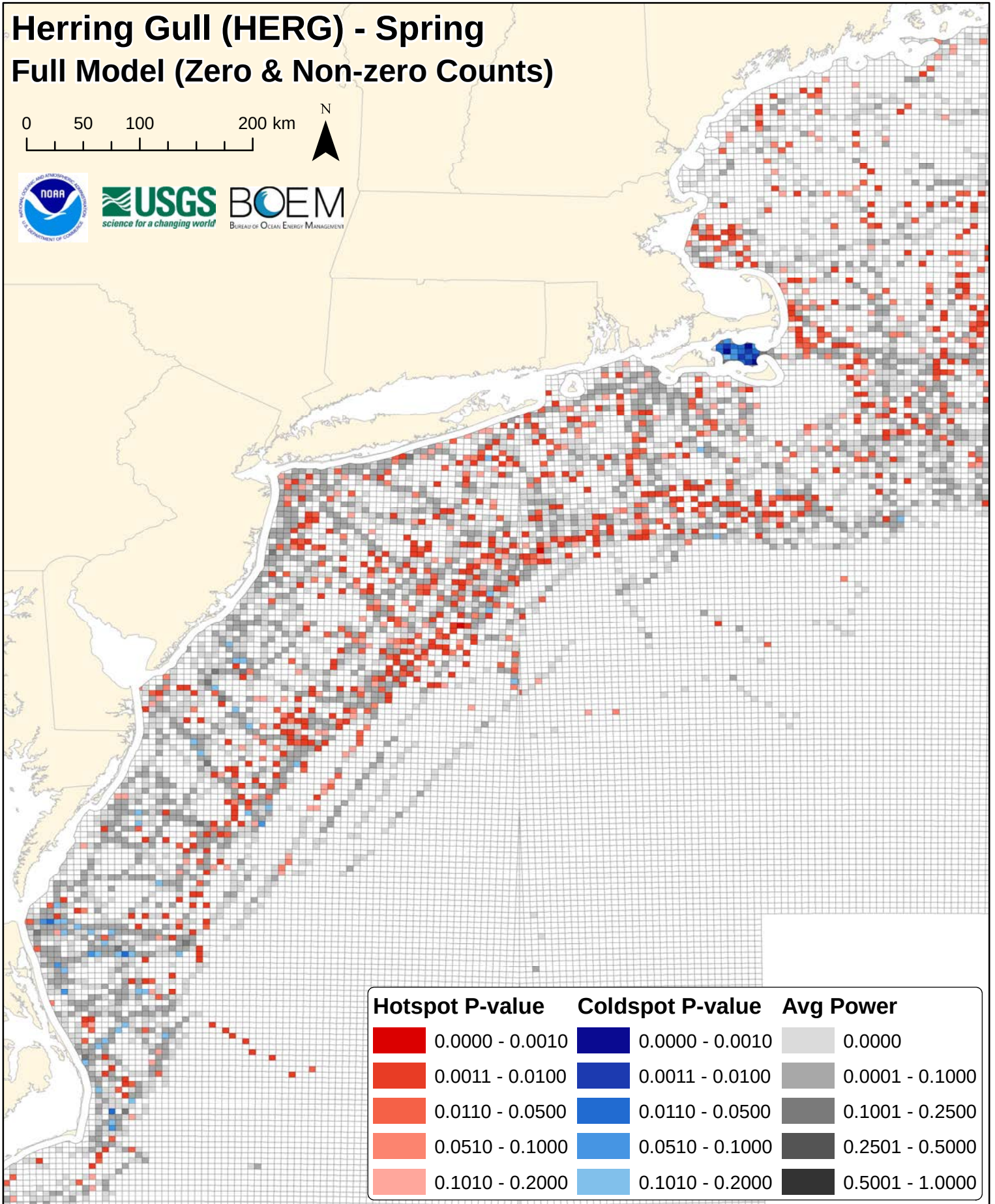
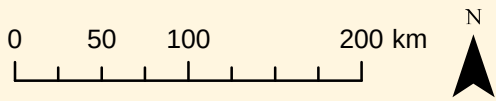
Herring Gull (HERG) - Spring Full Model (Zero & Non-zero Counts)



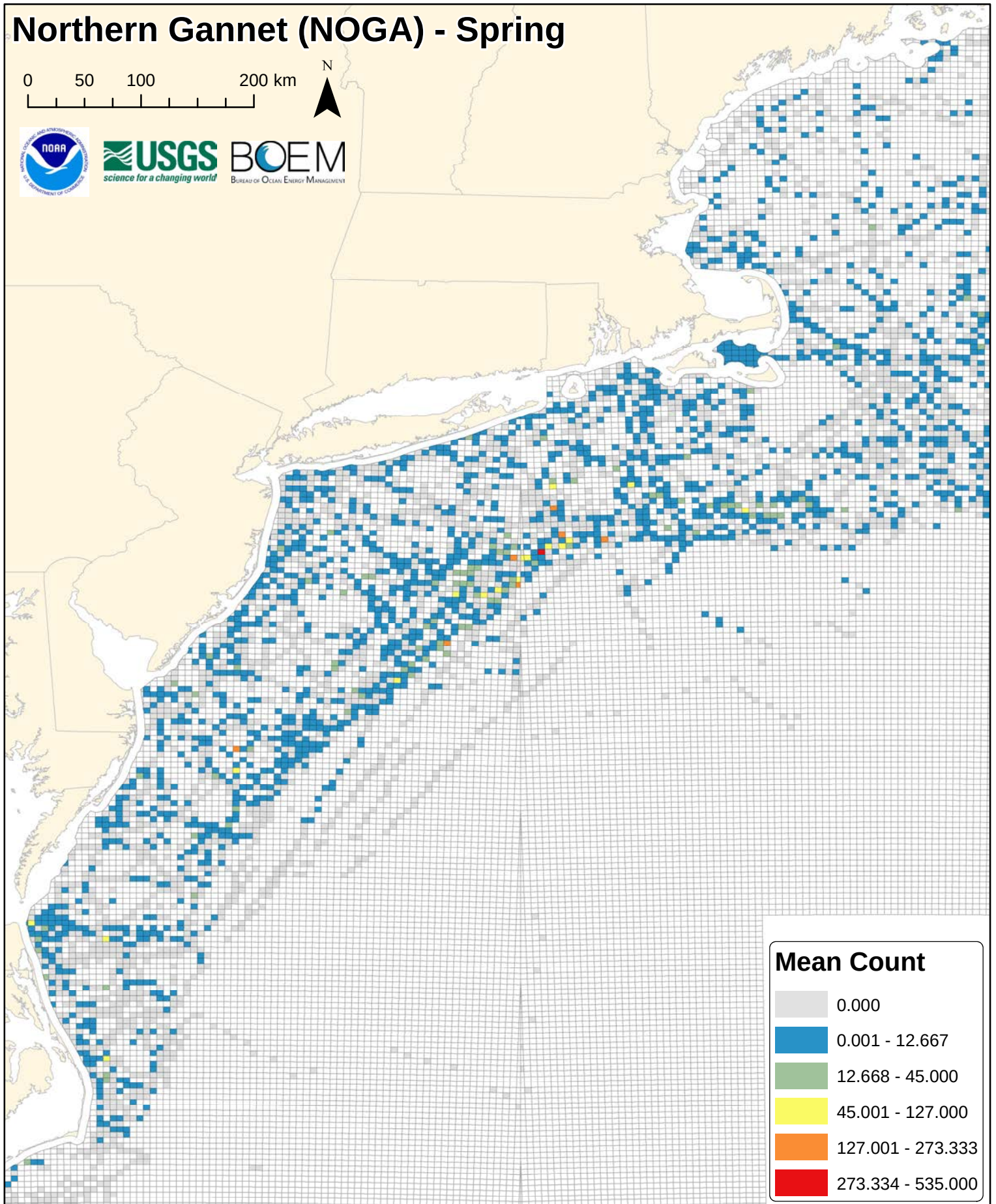
Herring Gull (HERG) - Spring Full Model (Zero & Non-zero Counts)



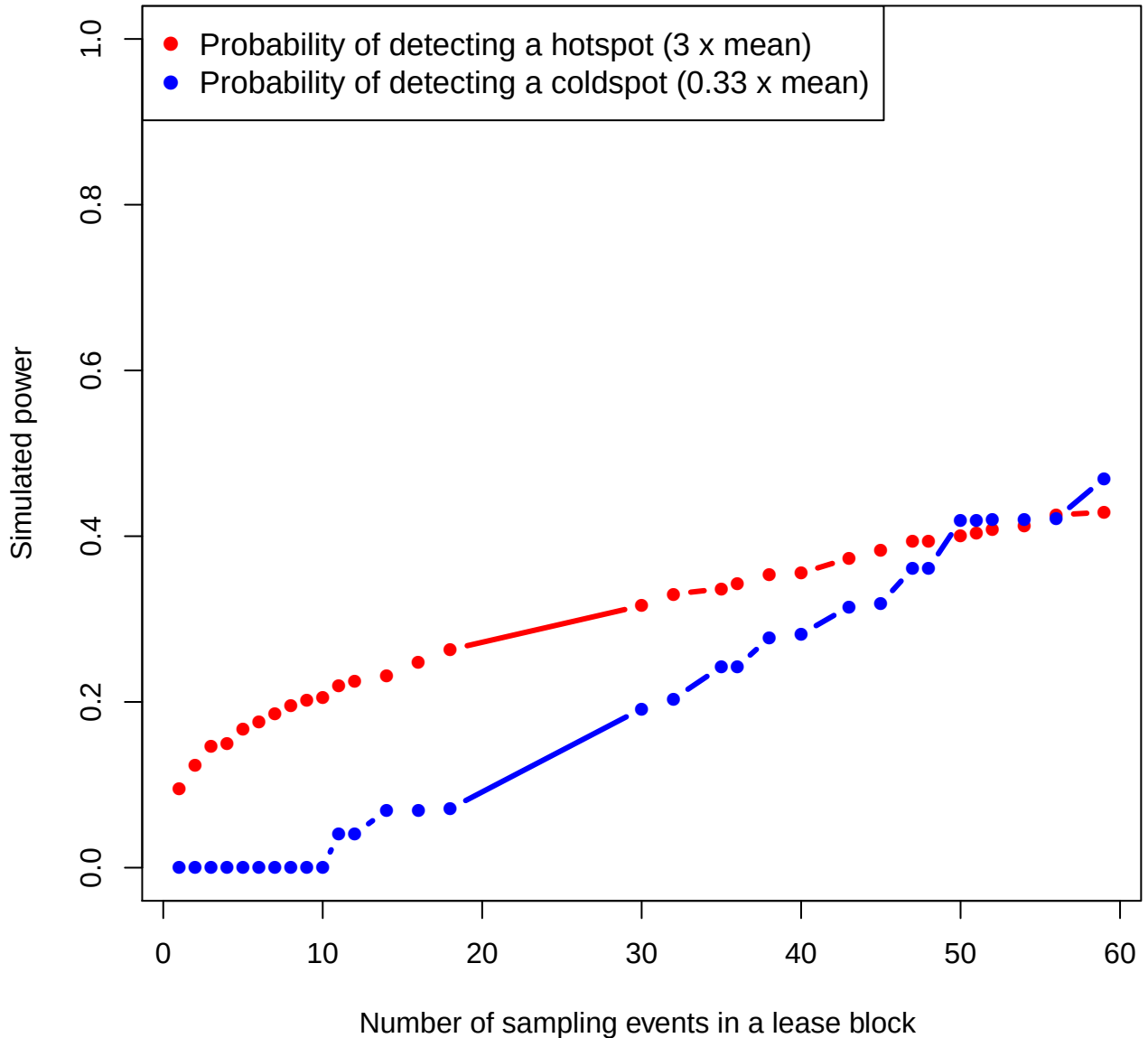
Herring Gull (HERG) - Spring Full Model (Zero & Non-zero Counts)



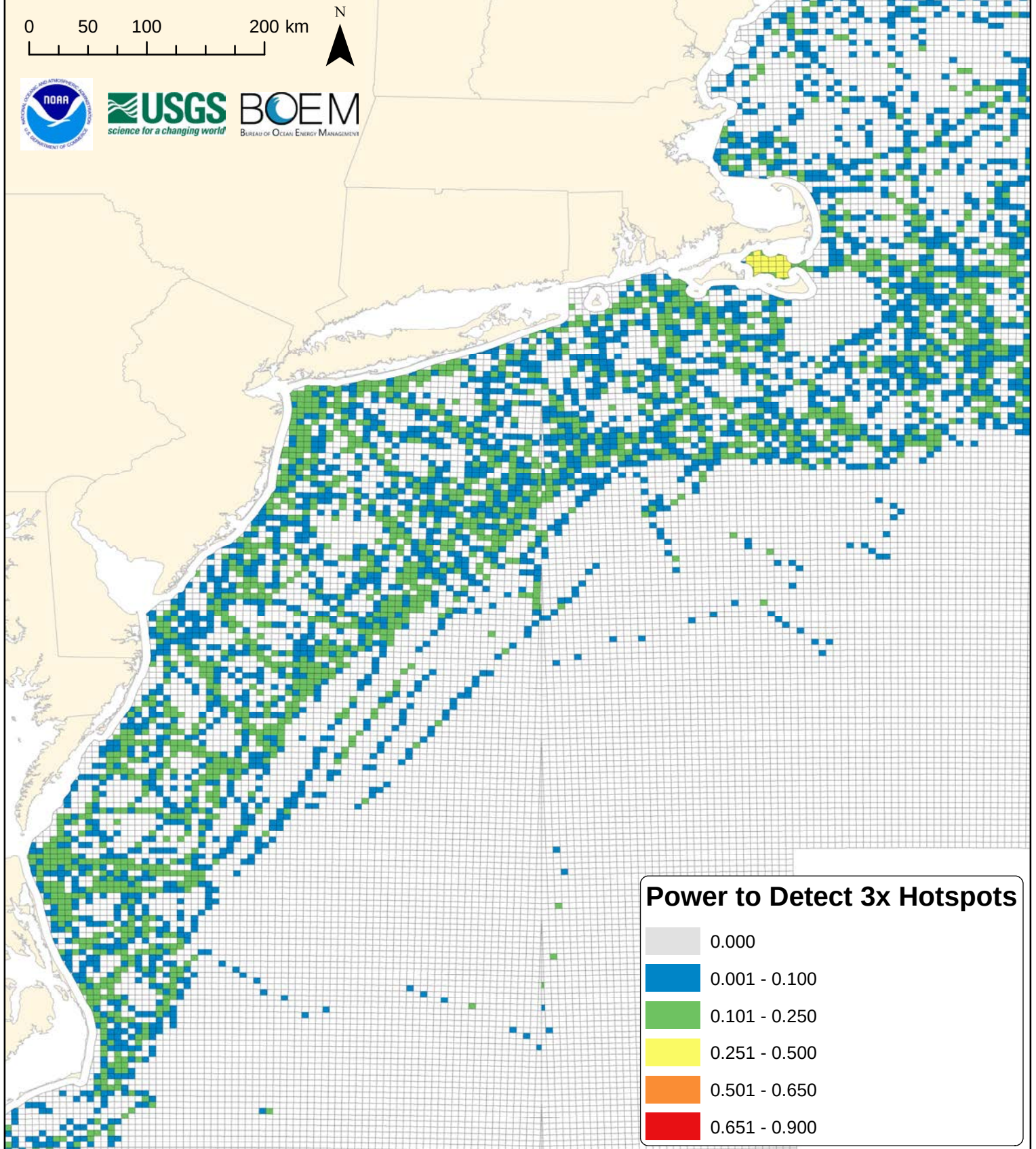
Northern Gannet (NOGA) - Spring



noga

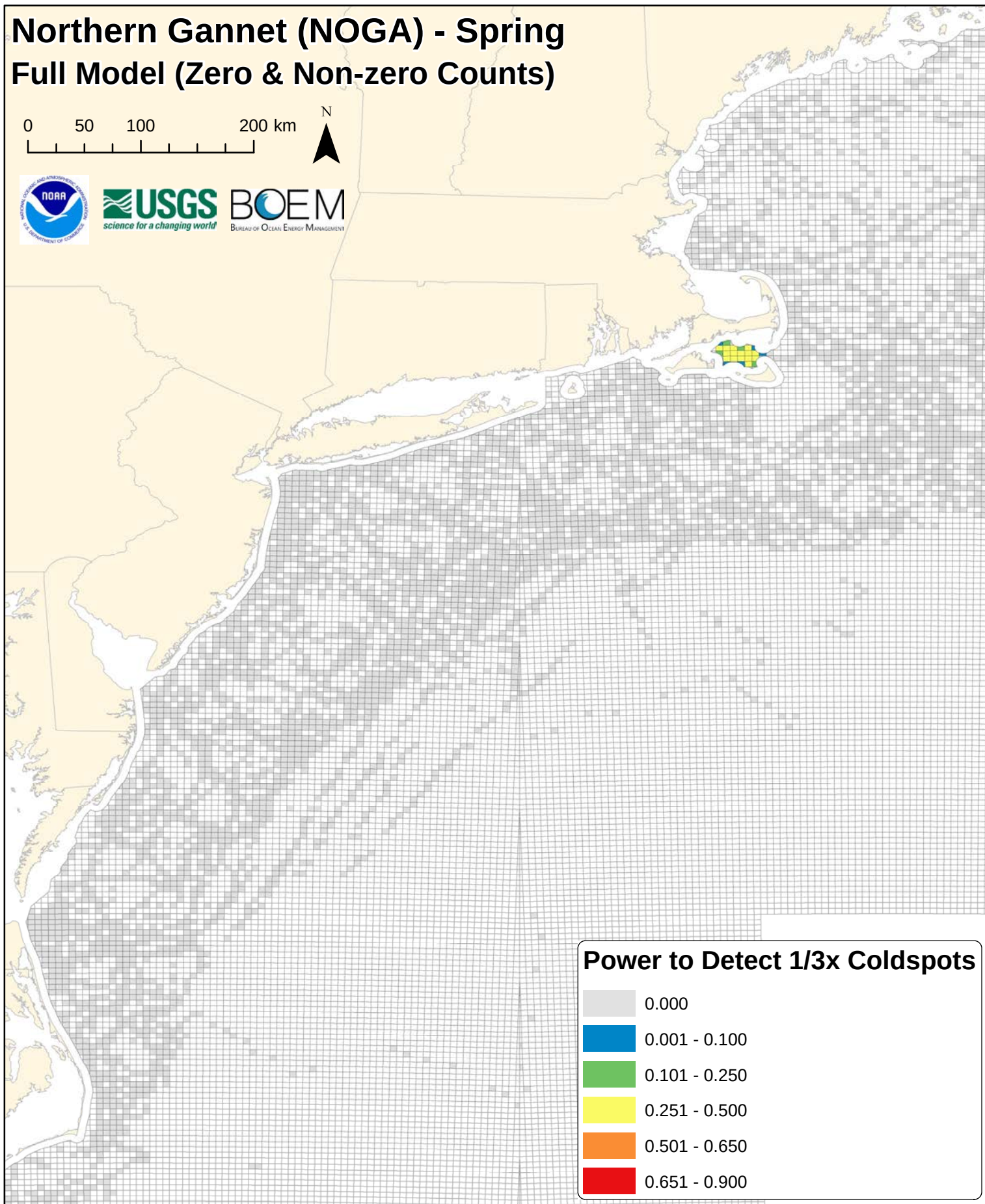


Northern Gannet (NOGA) - Spring Full Model (Zero & Non-zero Counts)



Northern Gannet (NOGA) - Spring Full Model (Zero & Non-zero Counts)

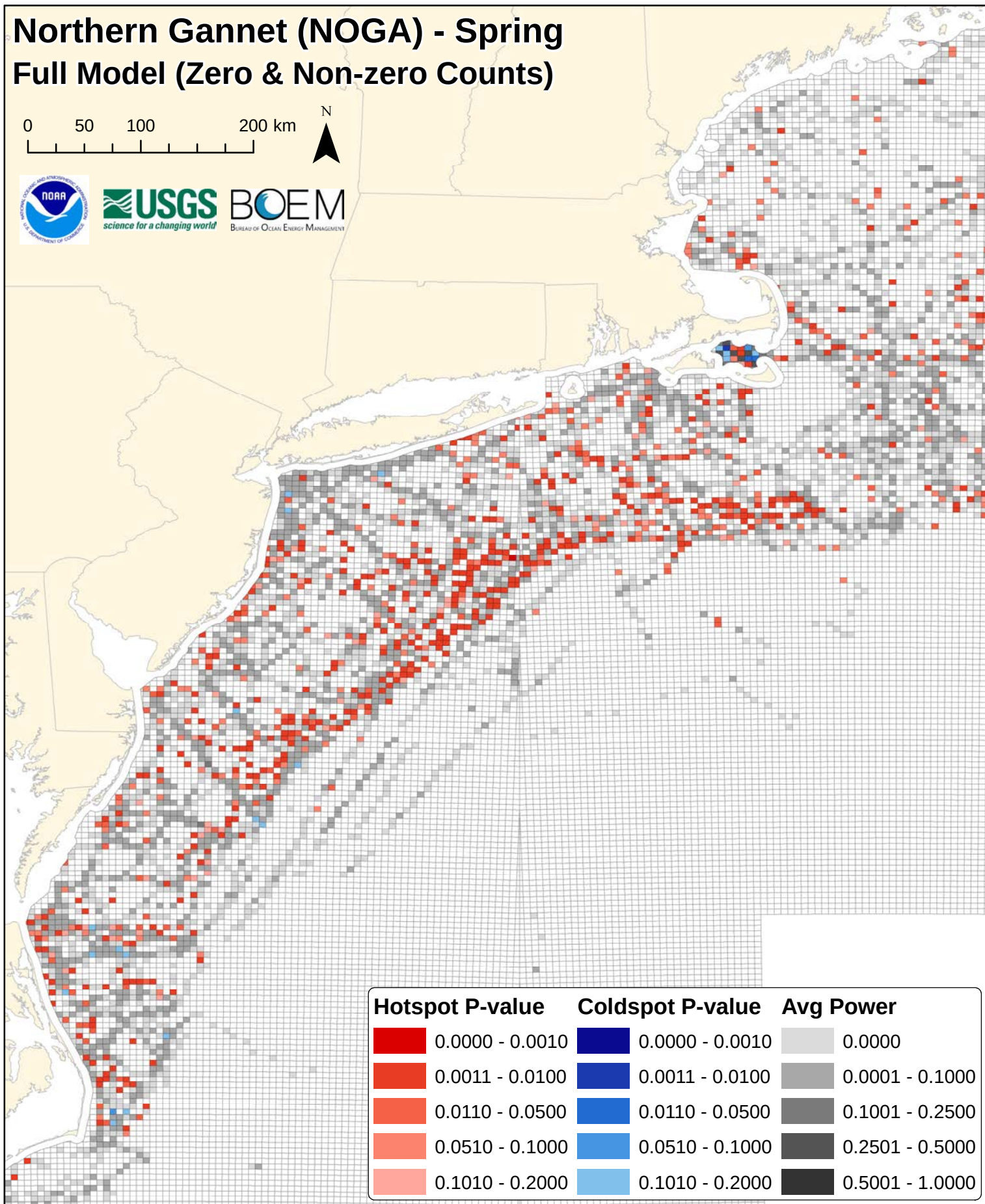
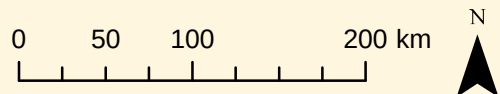
0 50 100 200 km



Power to Detect 1/3x Coldspots

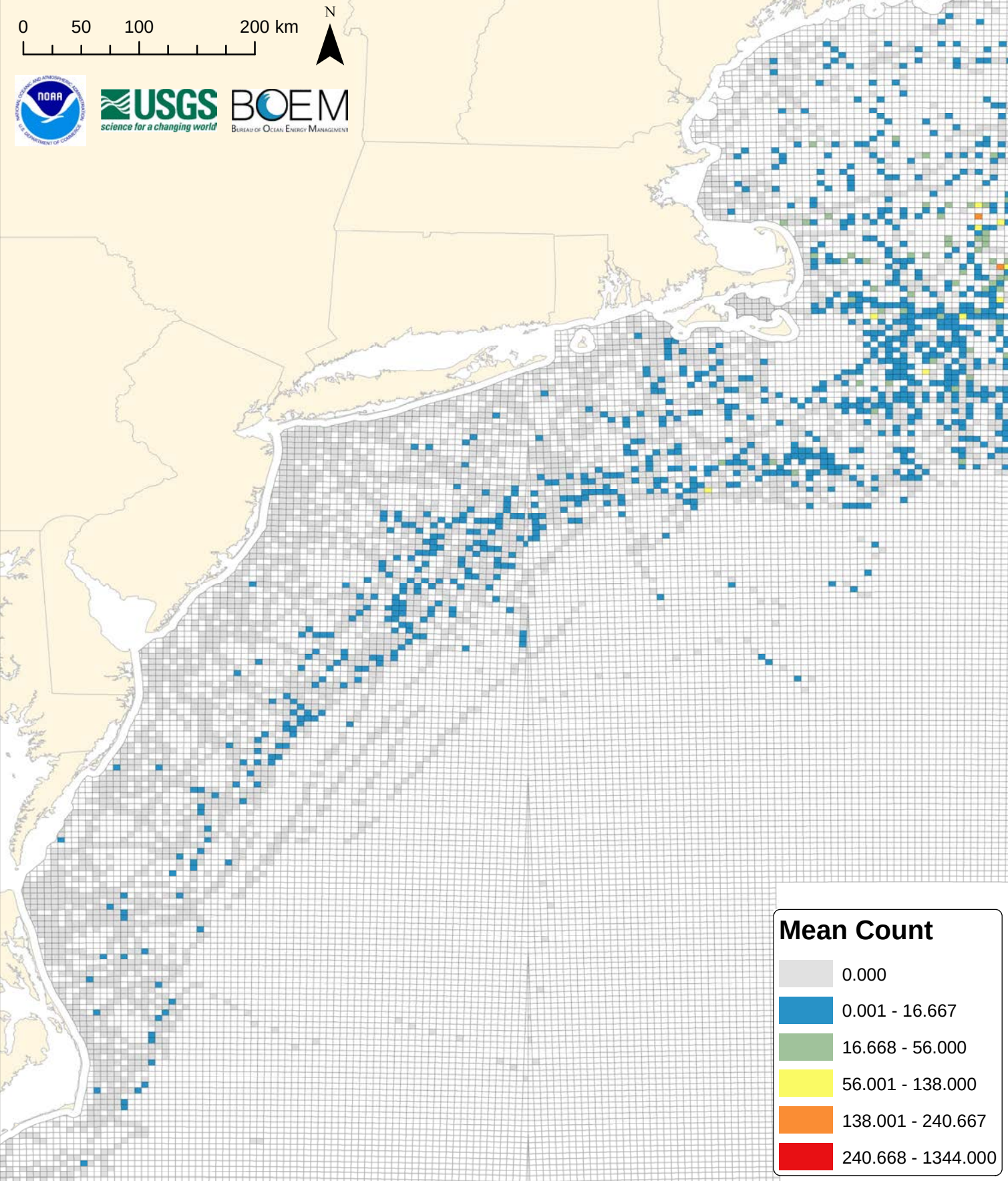
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

Northern Gannet (NOGA) - Spring Full Model (Zero & Non-zero Counts)

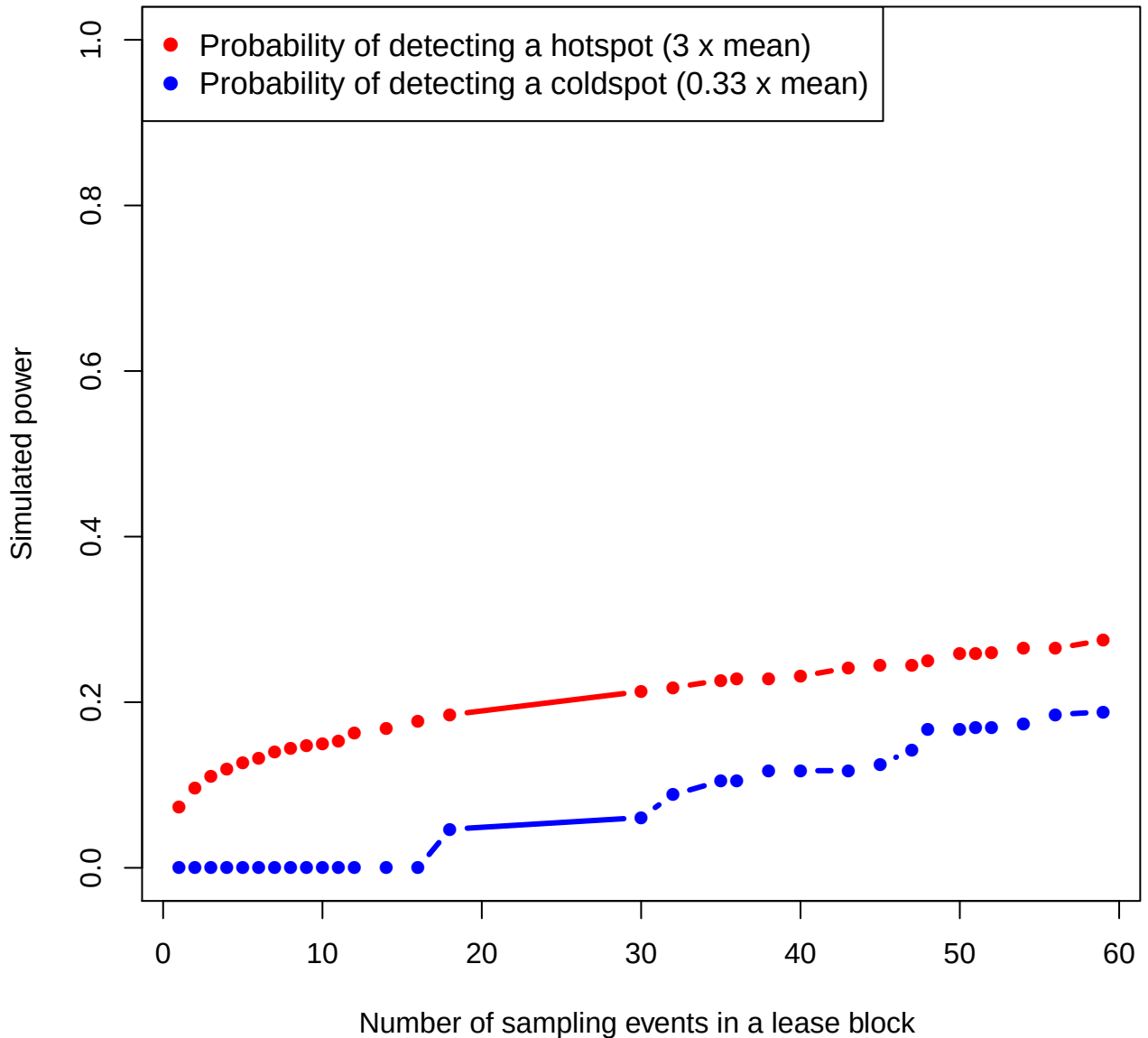


Hotspot P-value	Coldspot P-value	Avg Power
0.0000 - 0.0010	0.0000 - 0.0010	0.0000
0.0011 - 0.0100	0.0011 - 0.0100	0.0001 - 0.1000
0.0110 - 0.0500	0.0110 - 0.0500	0.1001 - 0.2500
0.0510 - 0.1000	0.0510 - 0.1000	0.2501 - 0.5000
0.1010 - 0.2000	0.1010 - 0.2000	0.5001 - 1.0000

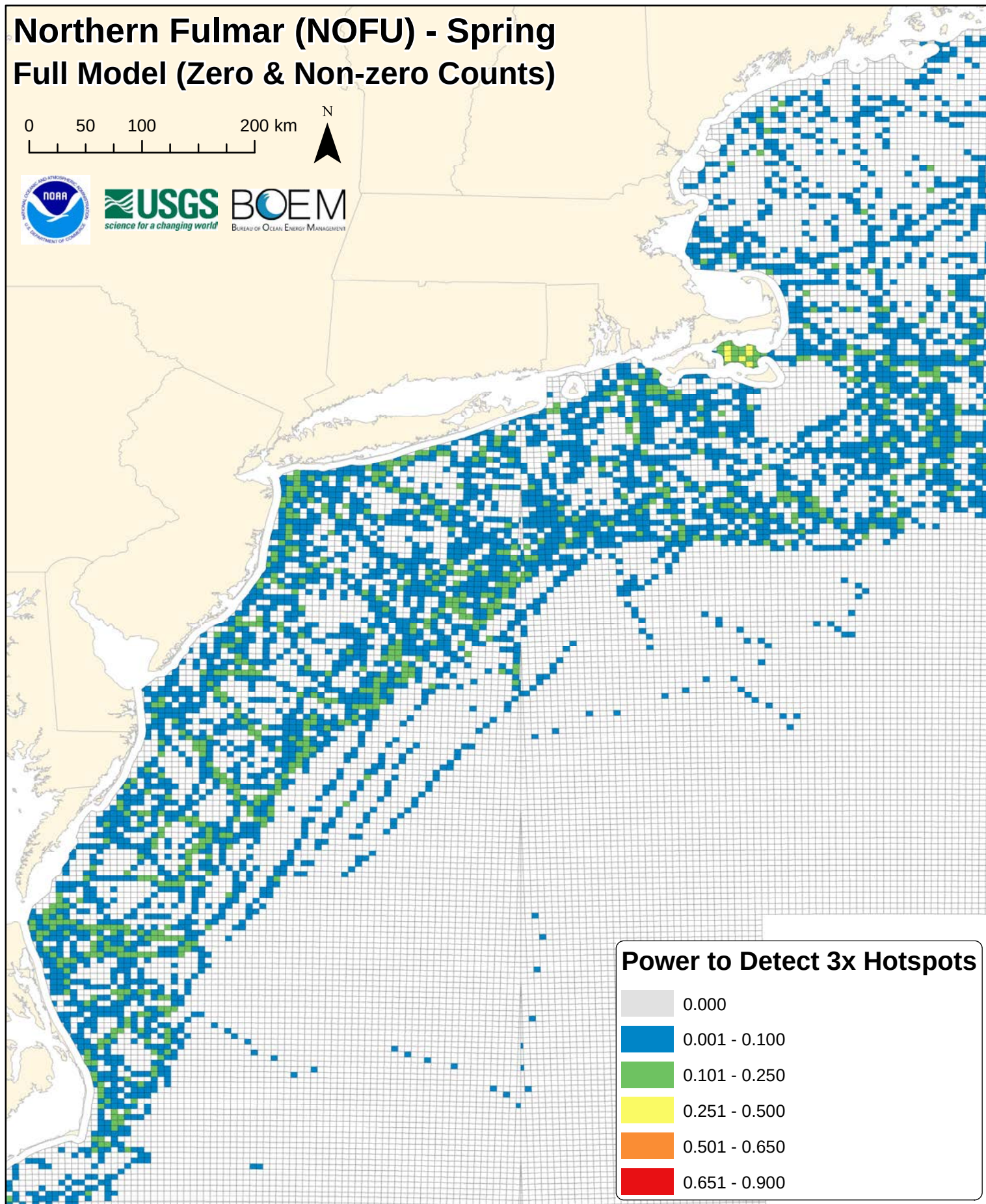
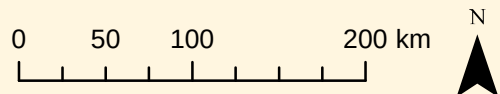
Northern Fulmar (NOFU) - Spring



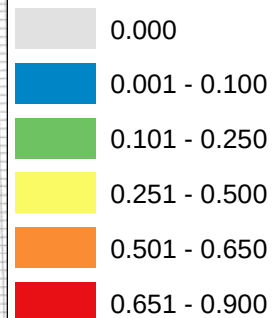
nofu



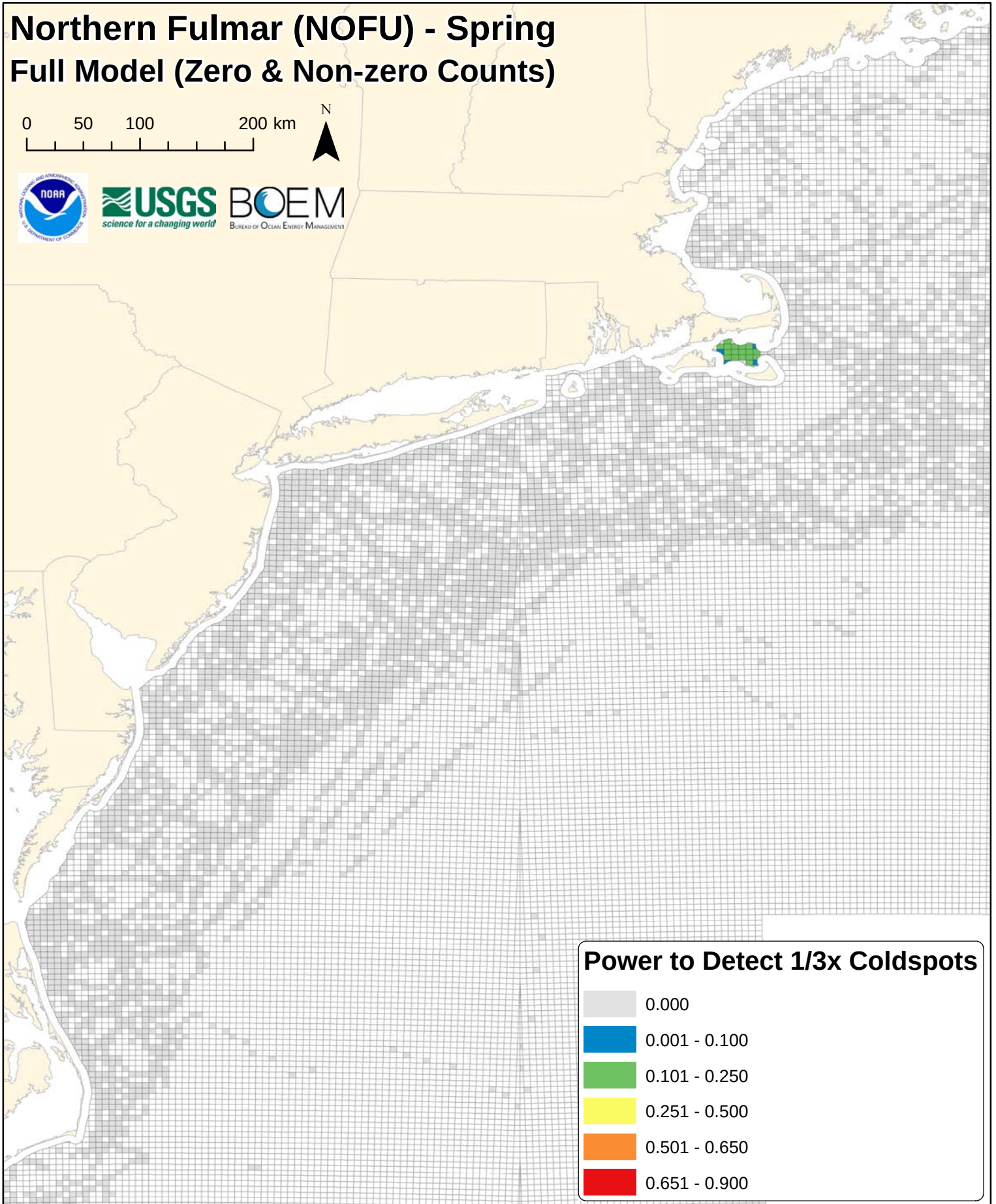
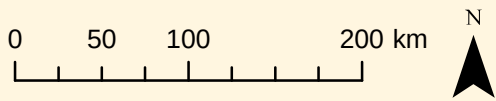
Northern Fulmar (NOFU) - Spring Full Model (Zero & Non-zero Counts)



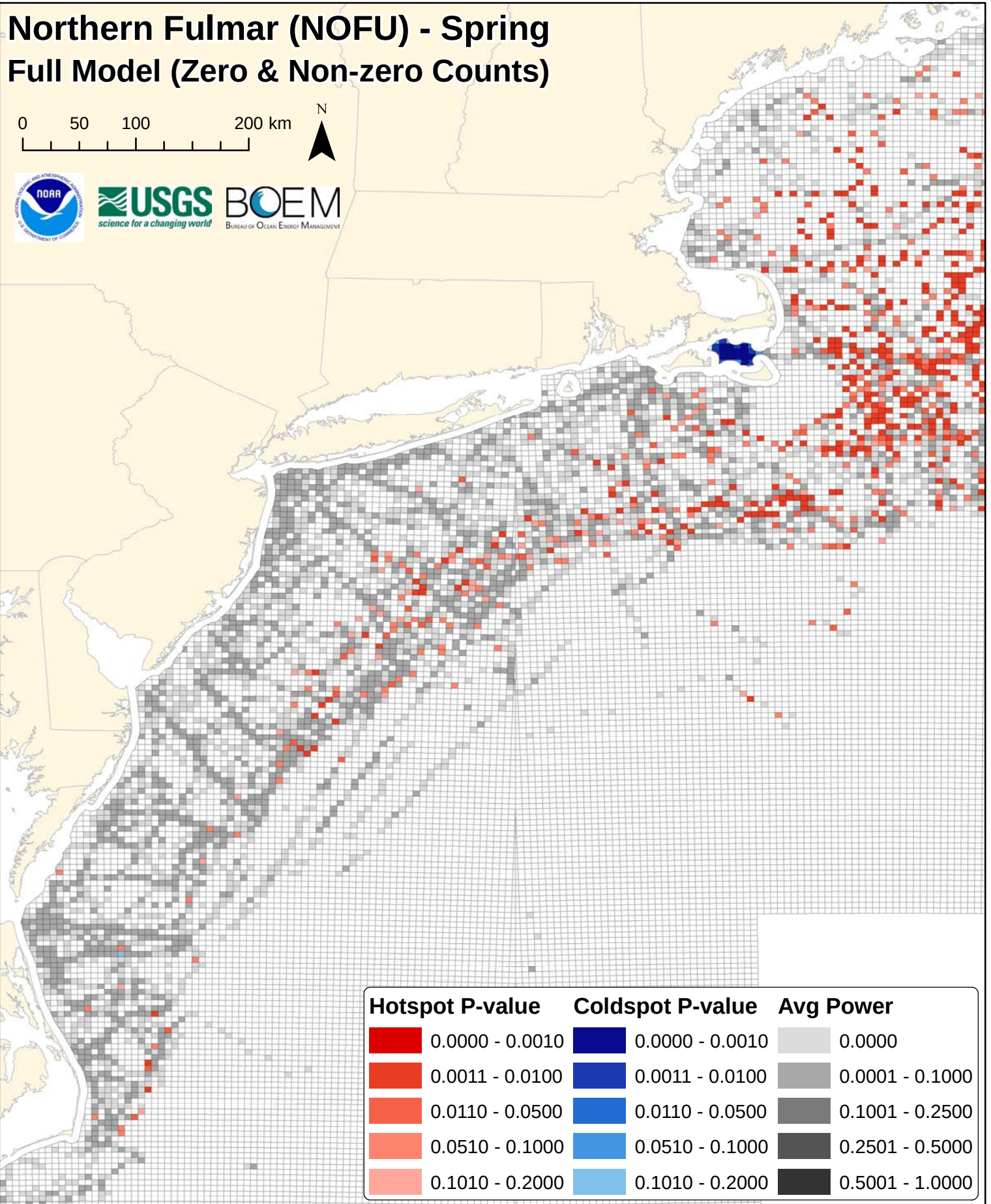
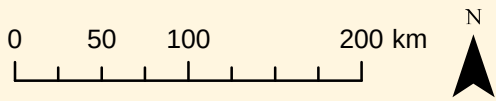
Power to Detect 3x Hotspots



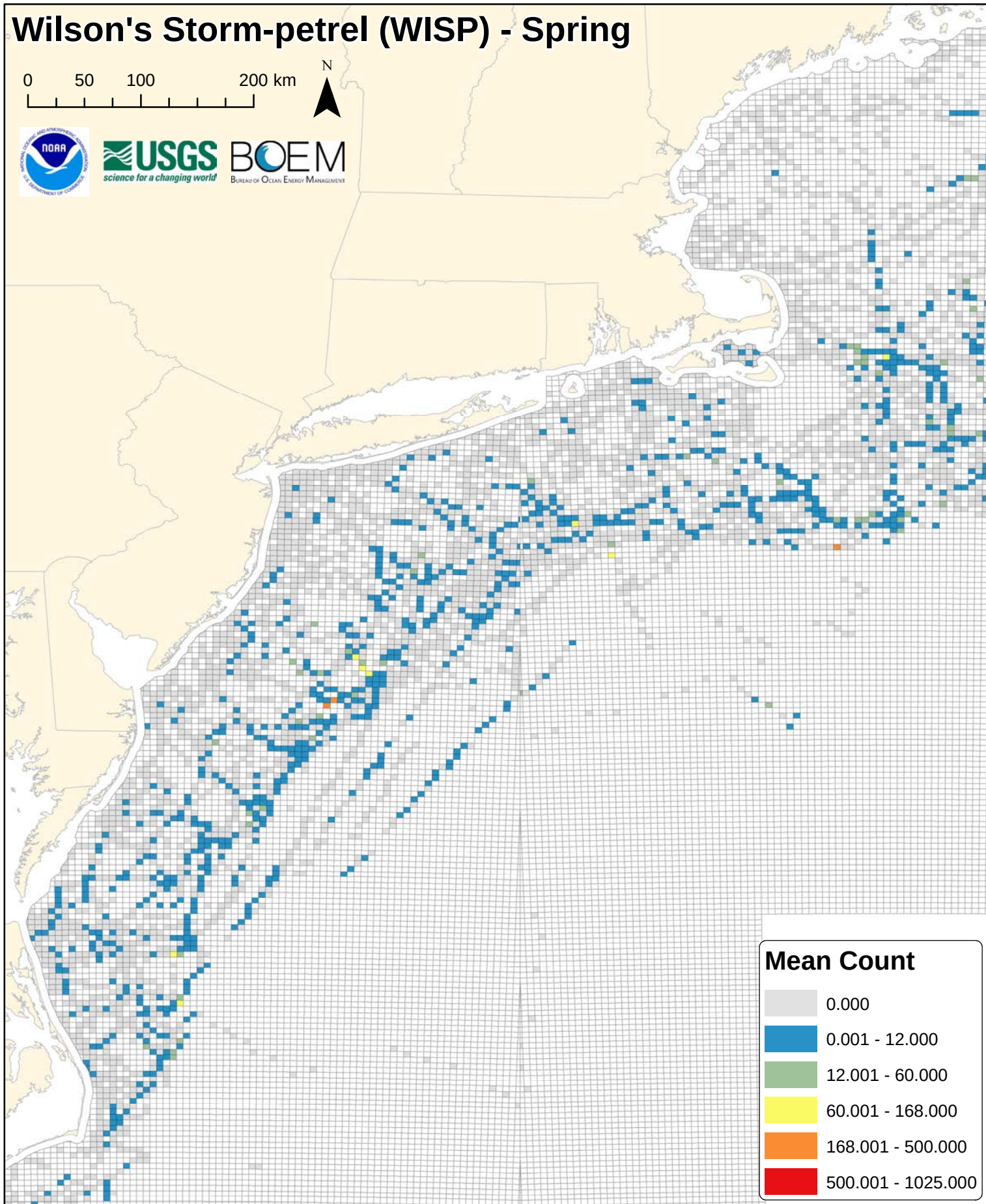
Northern Fulmar (NOFU) - Spring Full Model (Zero & Non-zero Counts)



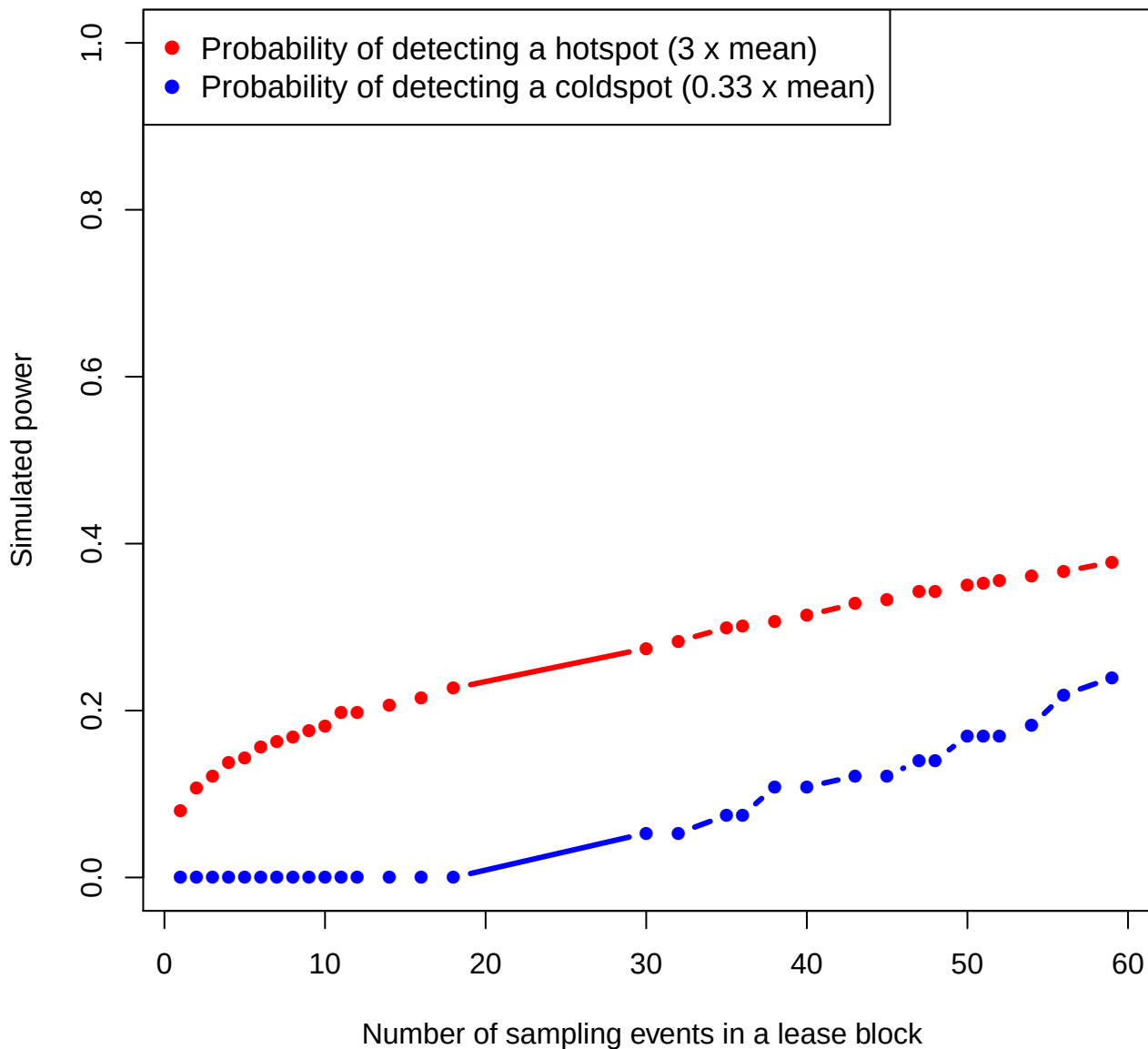
Northern Fulmar (NOFU) - Spring Full Model (Zero & Non-zero Counts)



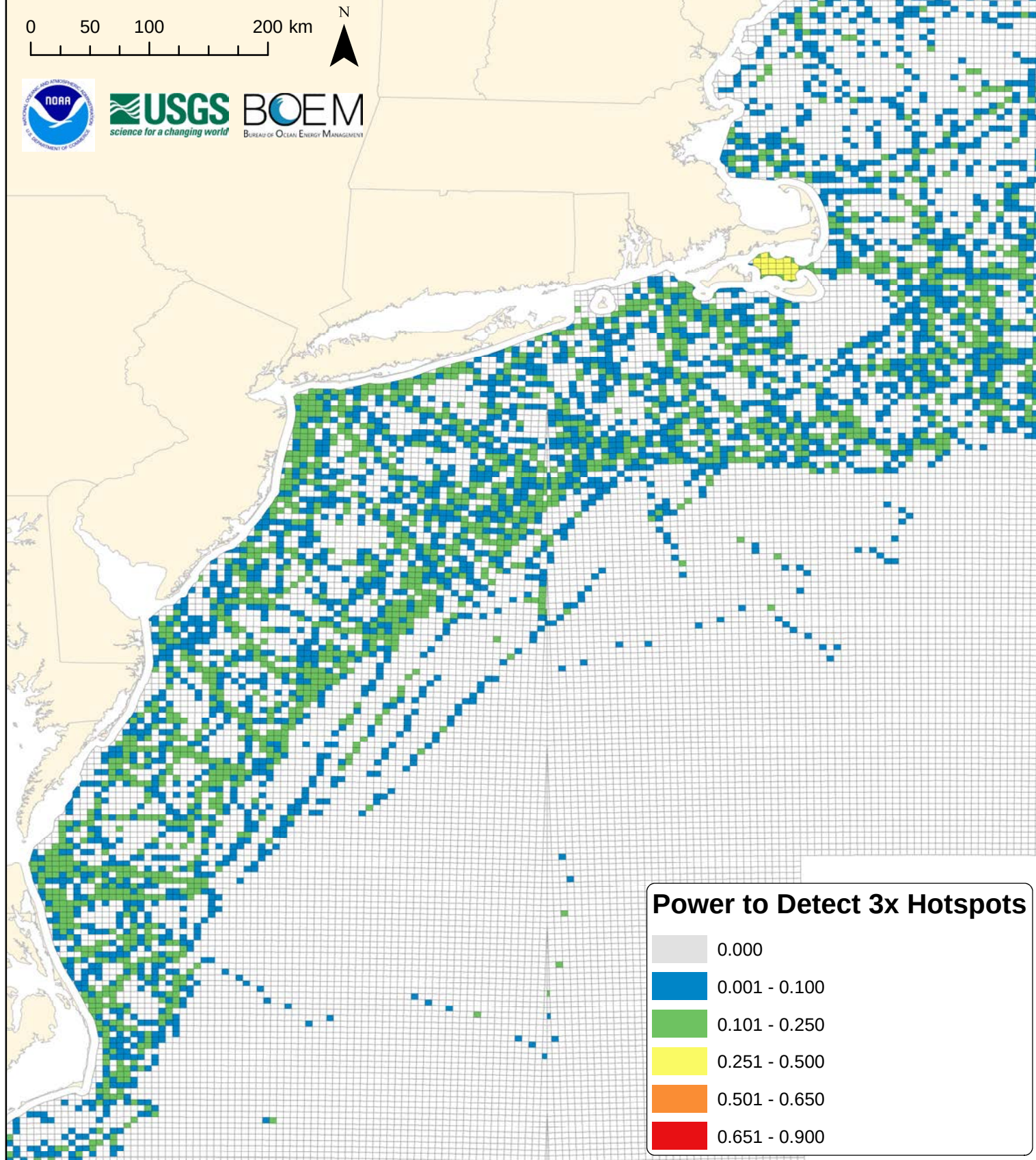
Wilson's Storm-petrel (WISP) - Spring



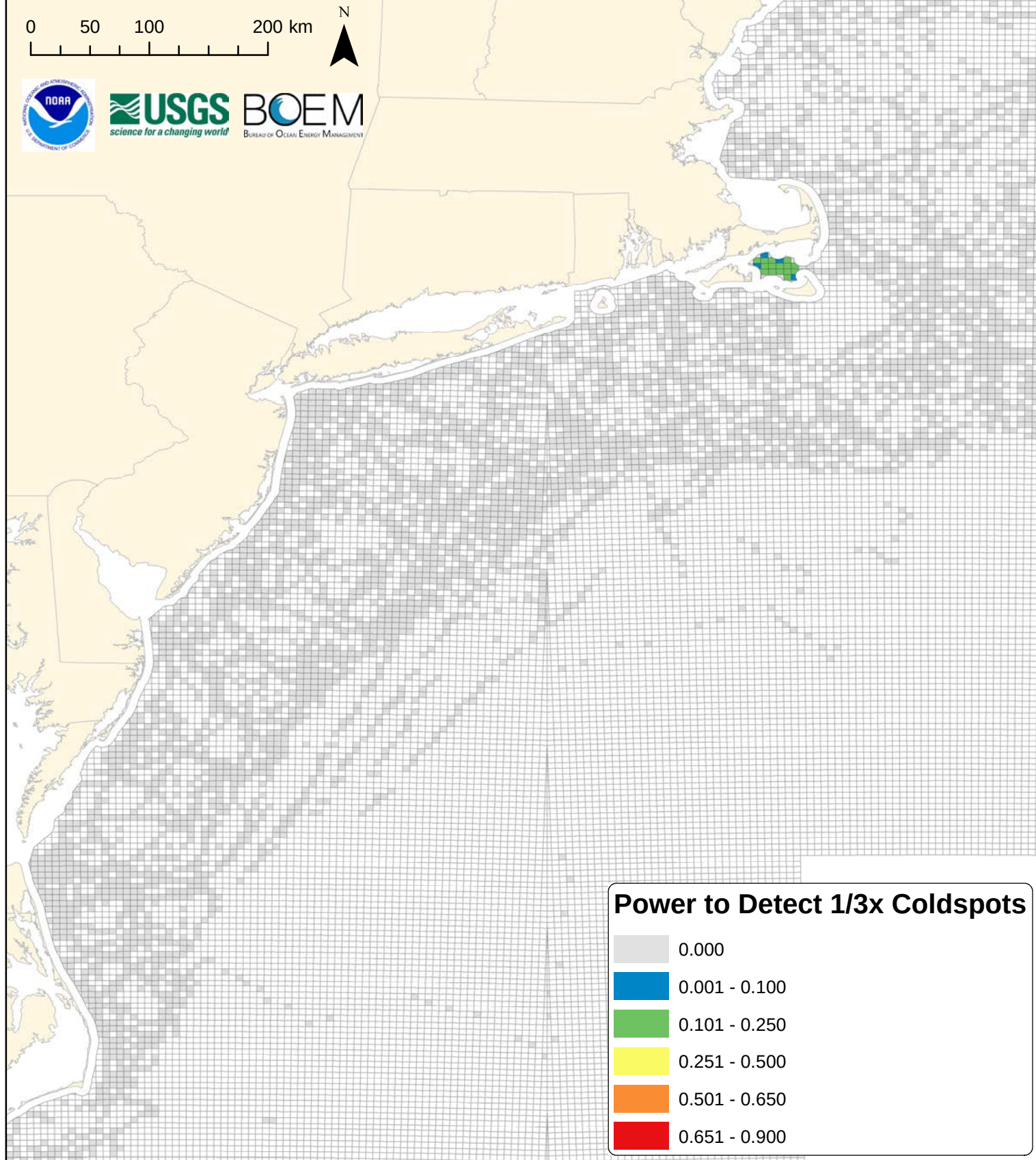
wisp



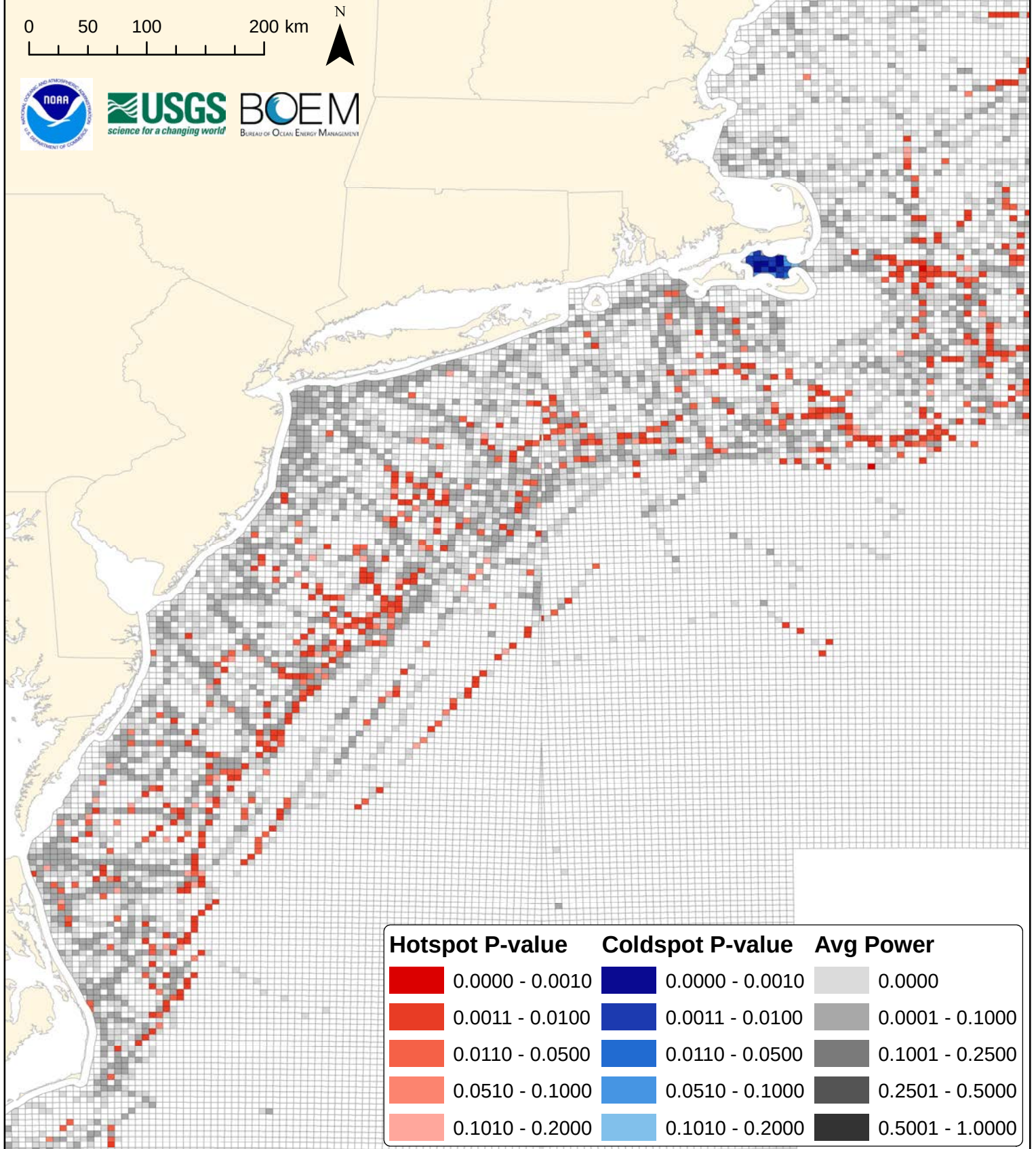
Wilson's Storm-petrel (WISP) - Spring Full Model (Zero & Non-zero Counts)



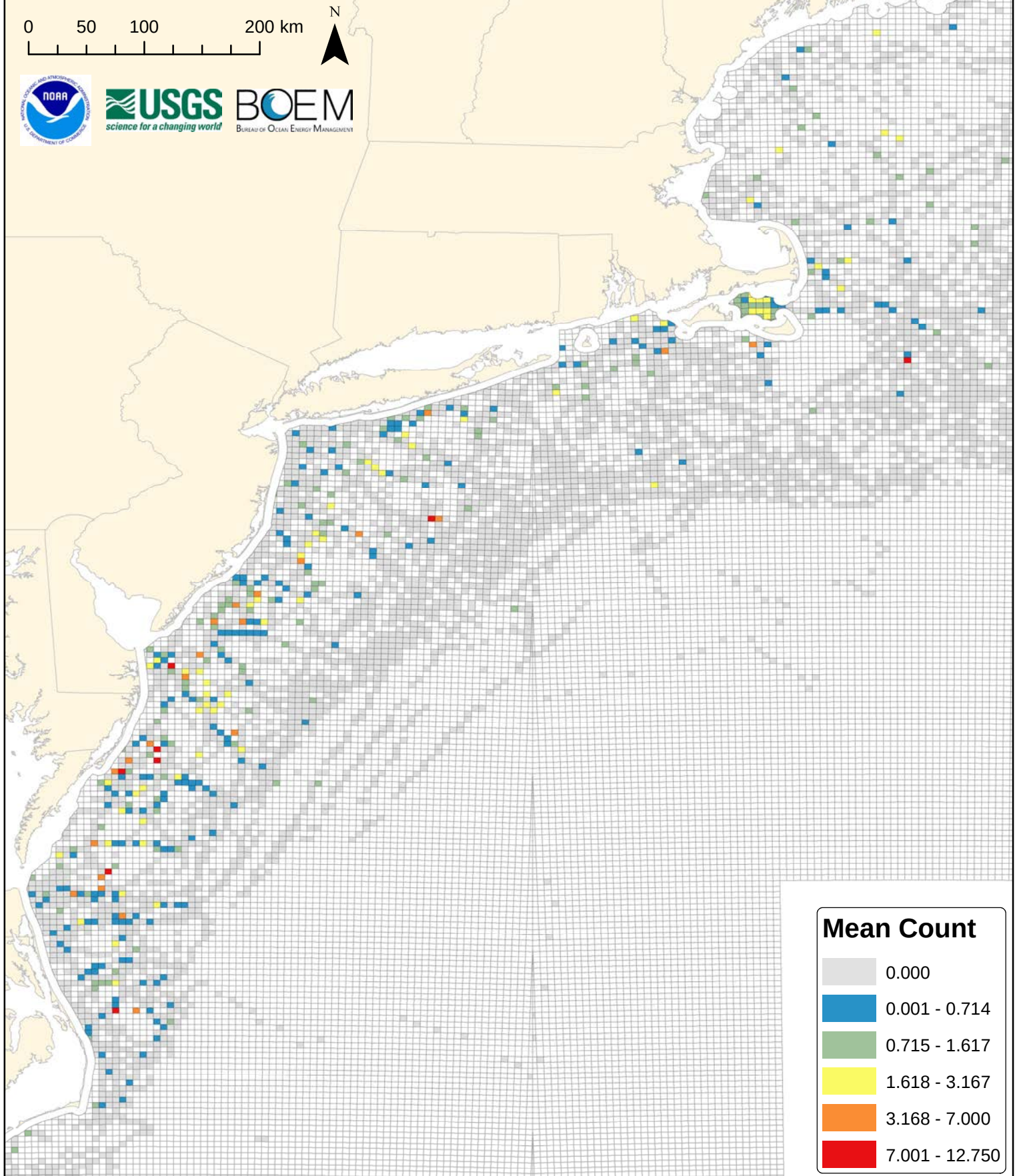
Wilson's Storm-petrel (WISP) - Spring Full Model (Zero & Non-zero Counts)



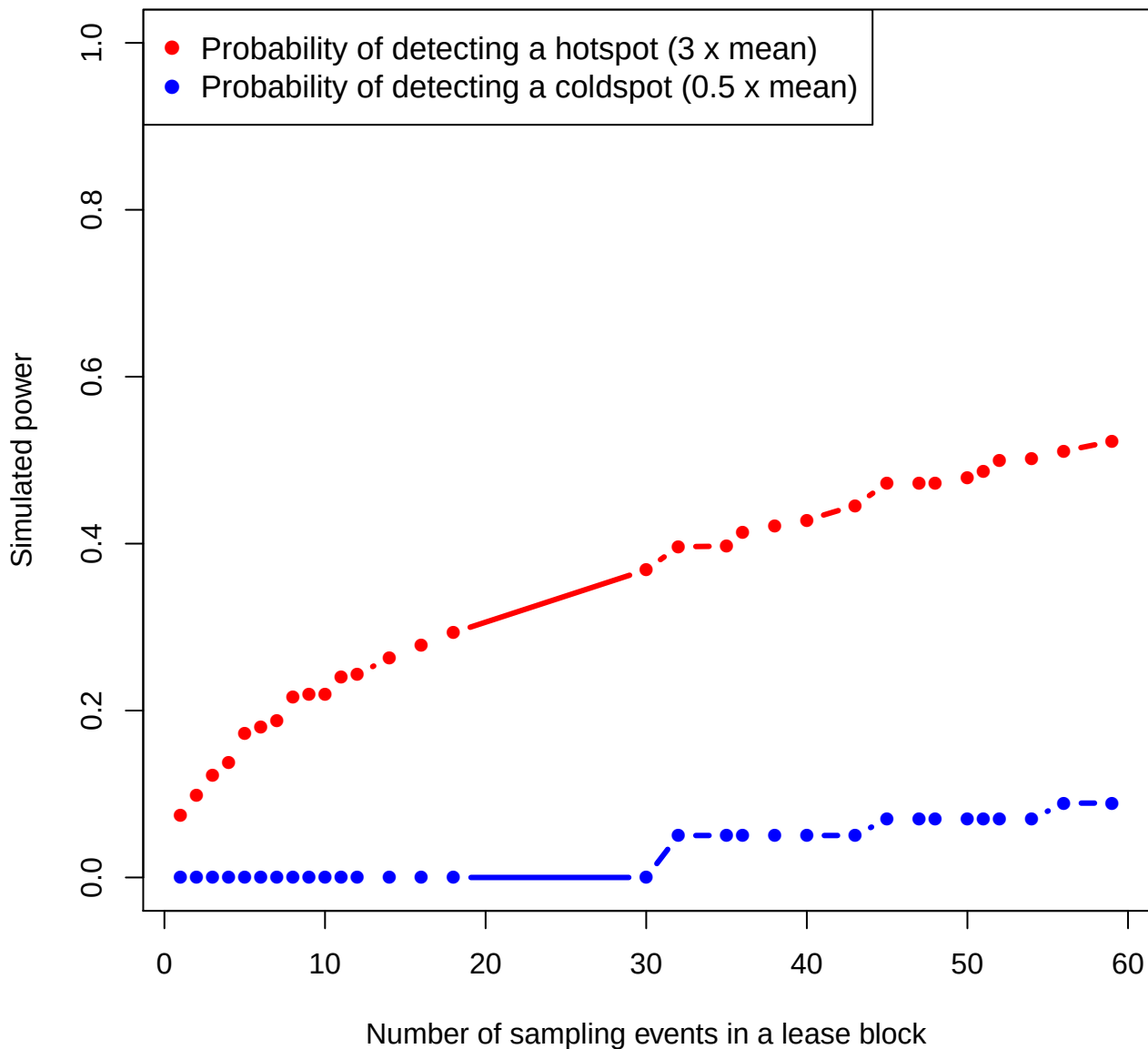
Wilson's Storm-petrel (WISP) - Spring Full Model (Zero & Non-zero Counts)



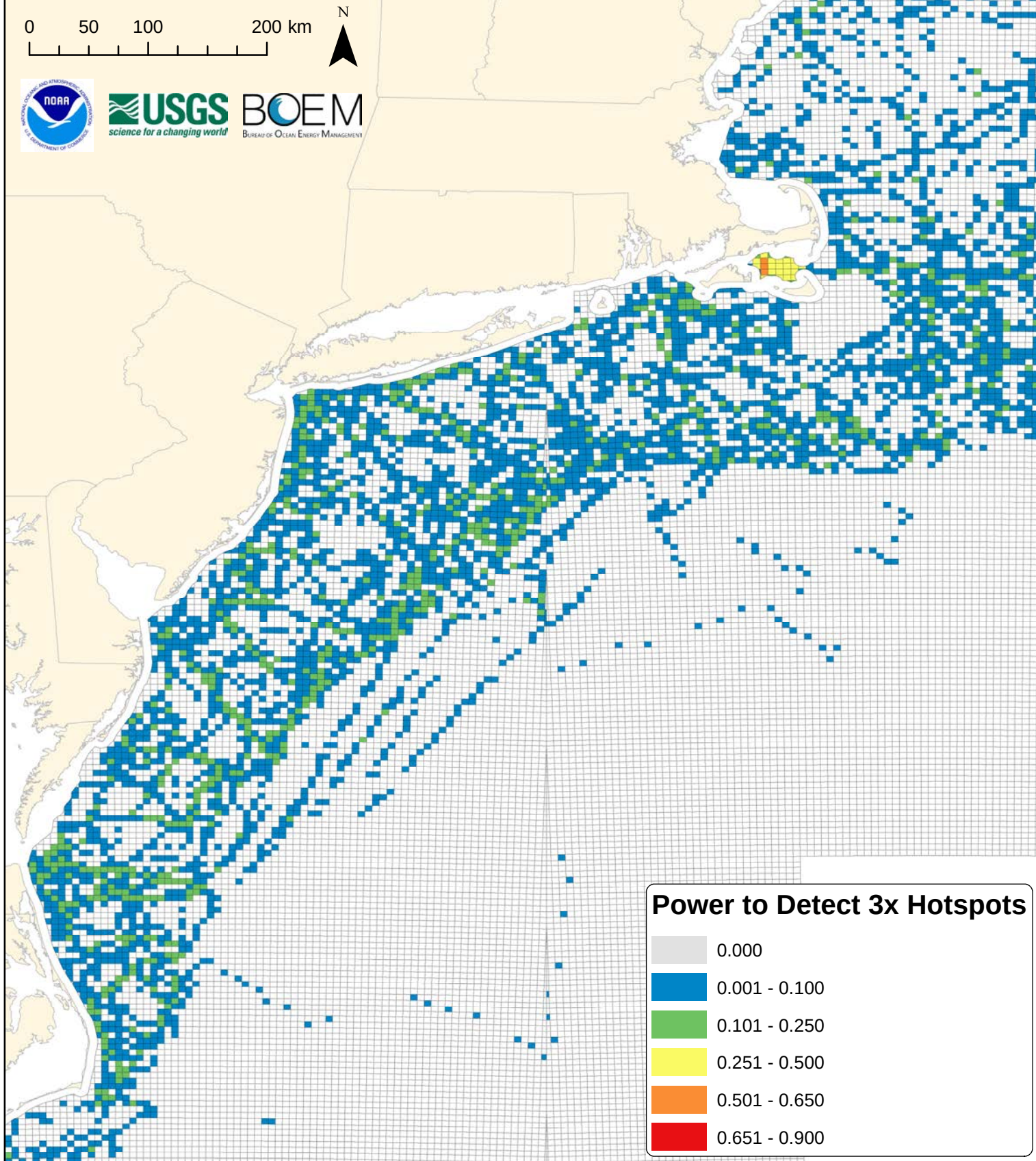
Common Loon (COLO) - Spring



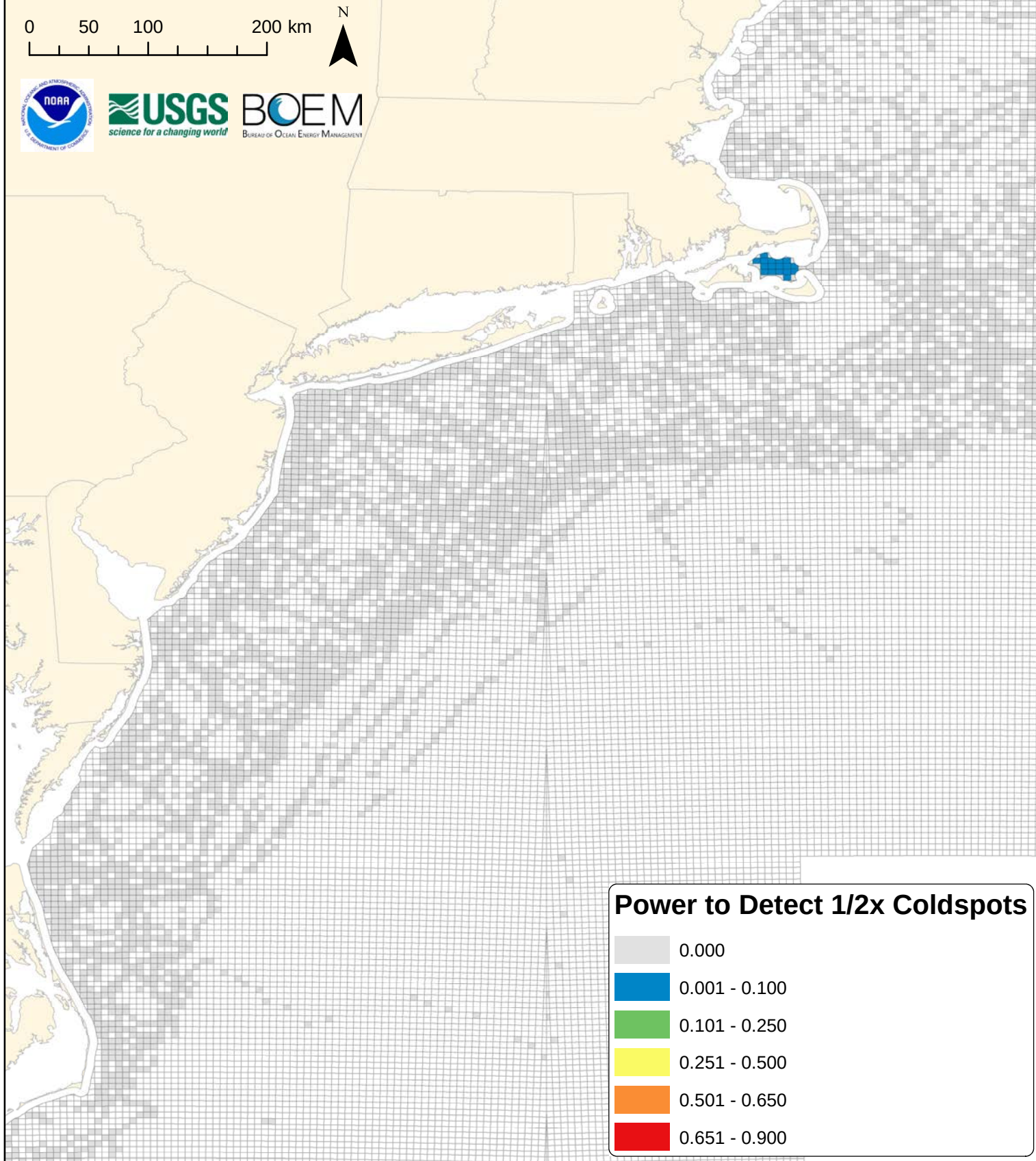
colo



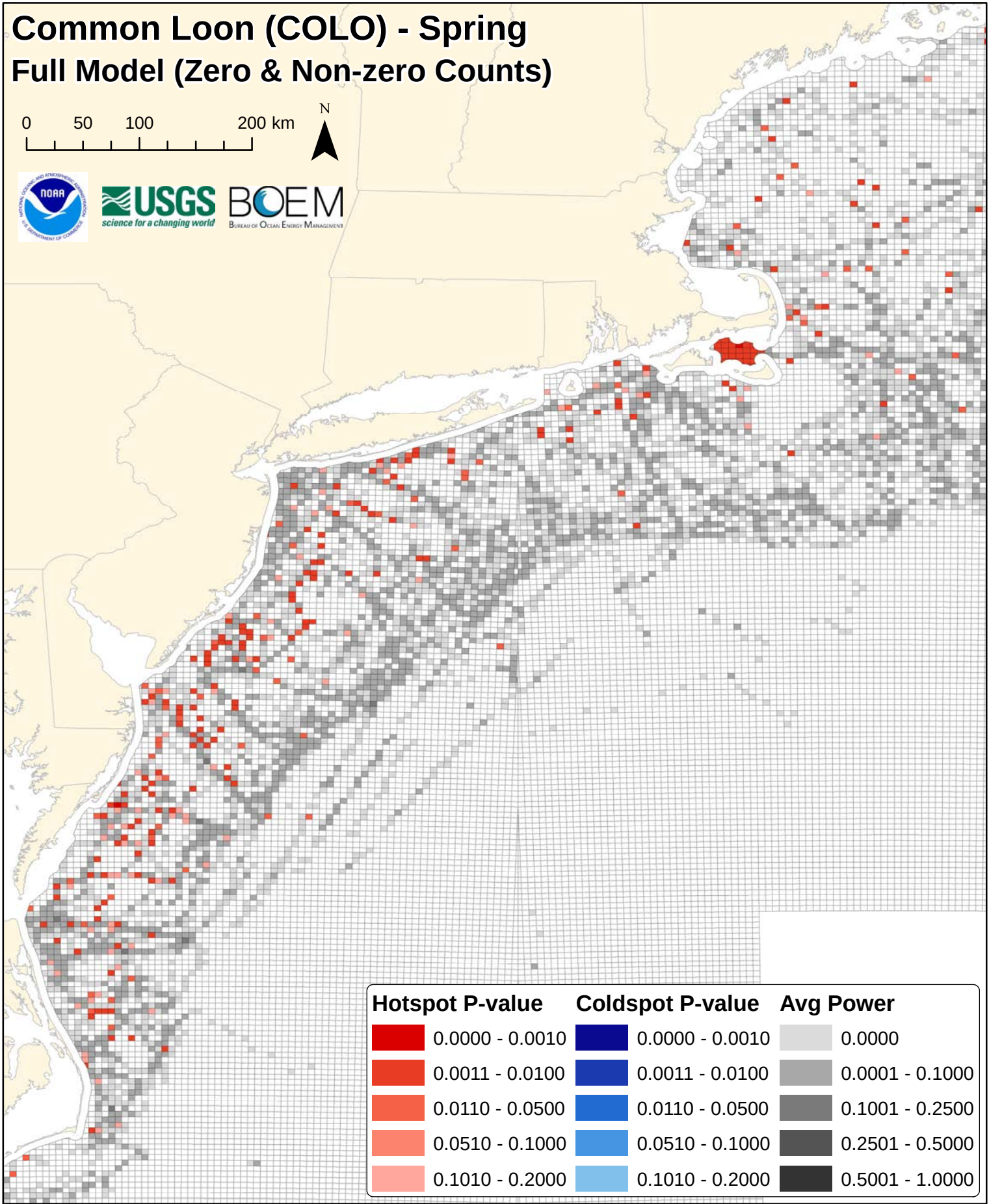
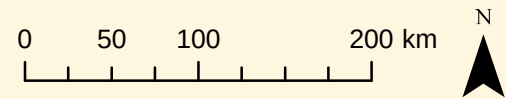
Common Loon (COLO) - Spring Full Model (Zero & Non-zero Counts)



Common Loon (COLO) - Spring Full Model (Zero & Non-zero Counts)

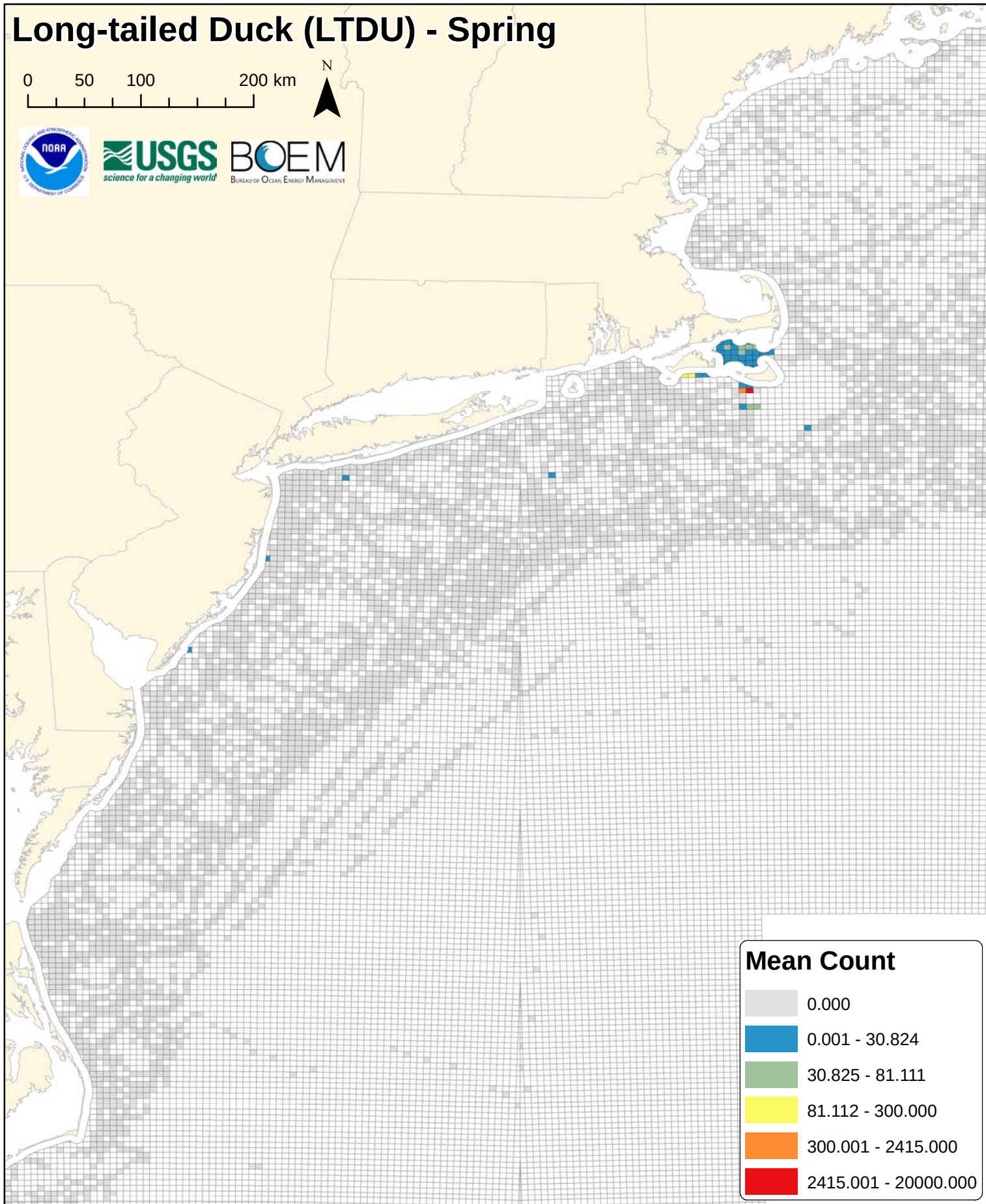


Common Loon (COLO) - Spring Full Model (Zero & Non-zero Counts)

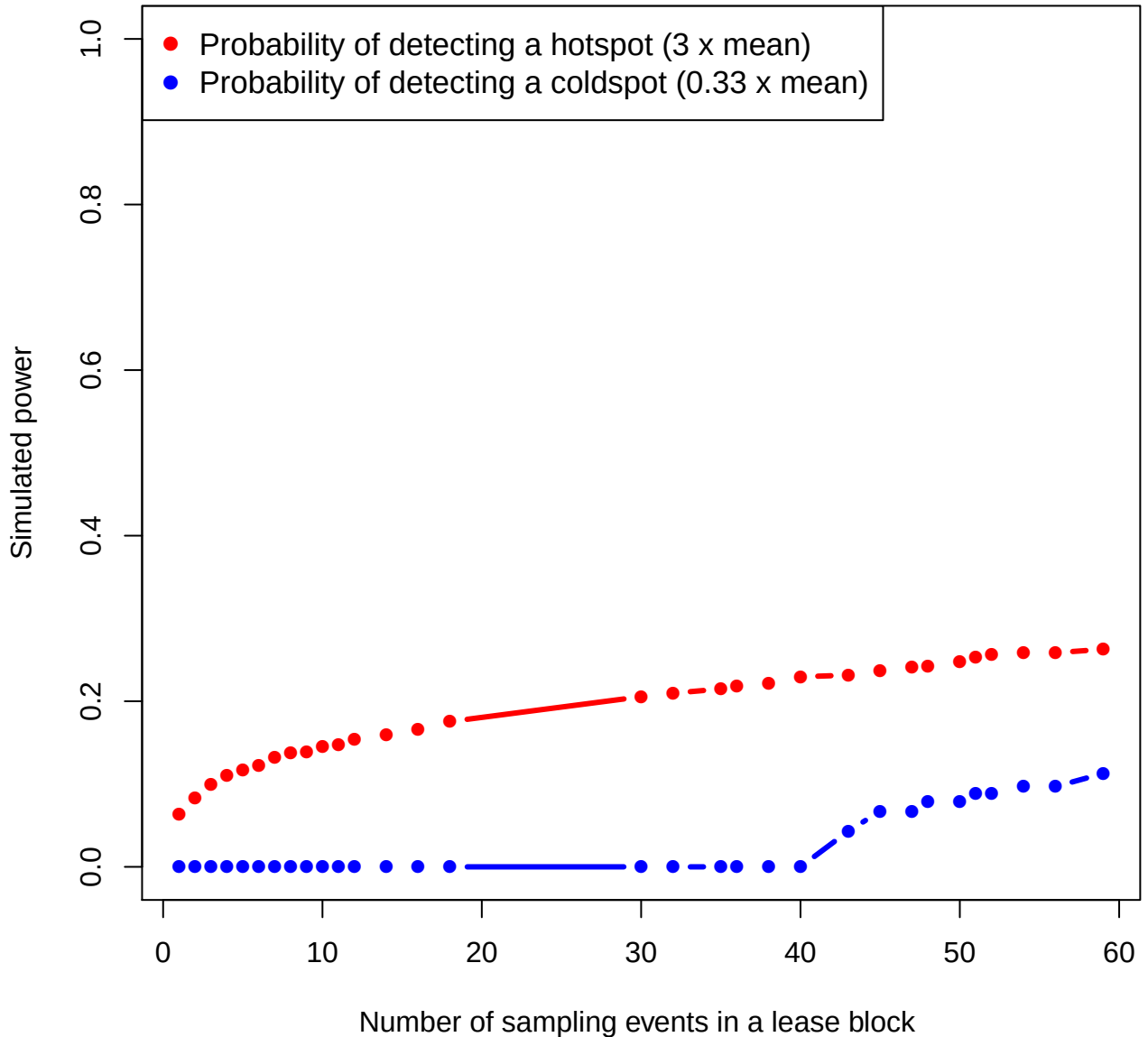


Hotspot P-value	Coldspot P-value	Avg Power
 0.0000 - 0.0010	 0.0000 - 0.0010	 0.0000
 0.0011 - 0.0100	 0.0011 - 0.0100	 0.0001 - 0.1000
 0.0110 - 0.0500	 0.0110 - 0.0500	 0.1001 - 0.2500
 0.0510 - 0.1000	 0.0510 - 0.1000	 0.2501 - 0.5000
 0.1010 - 0.2000	 0.1010 - 0.2000	 0.5001 - 1.0000

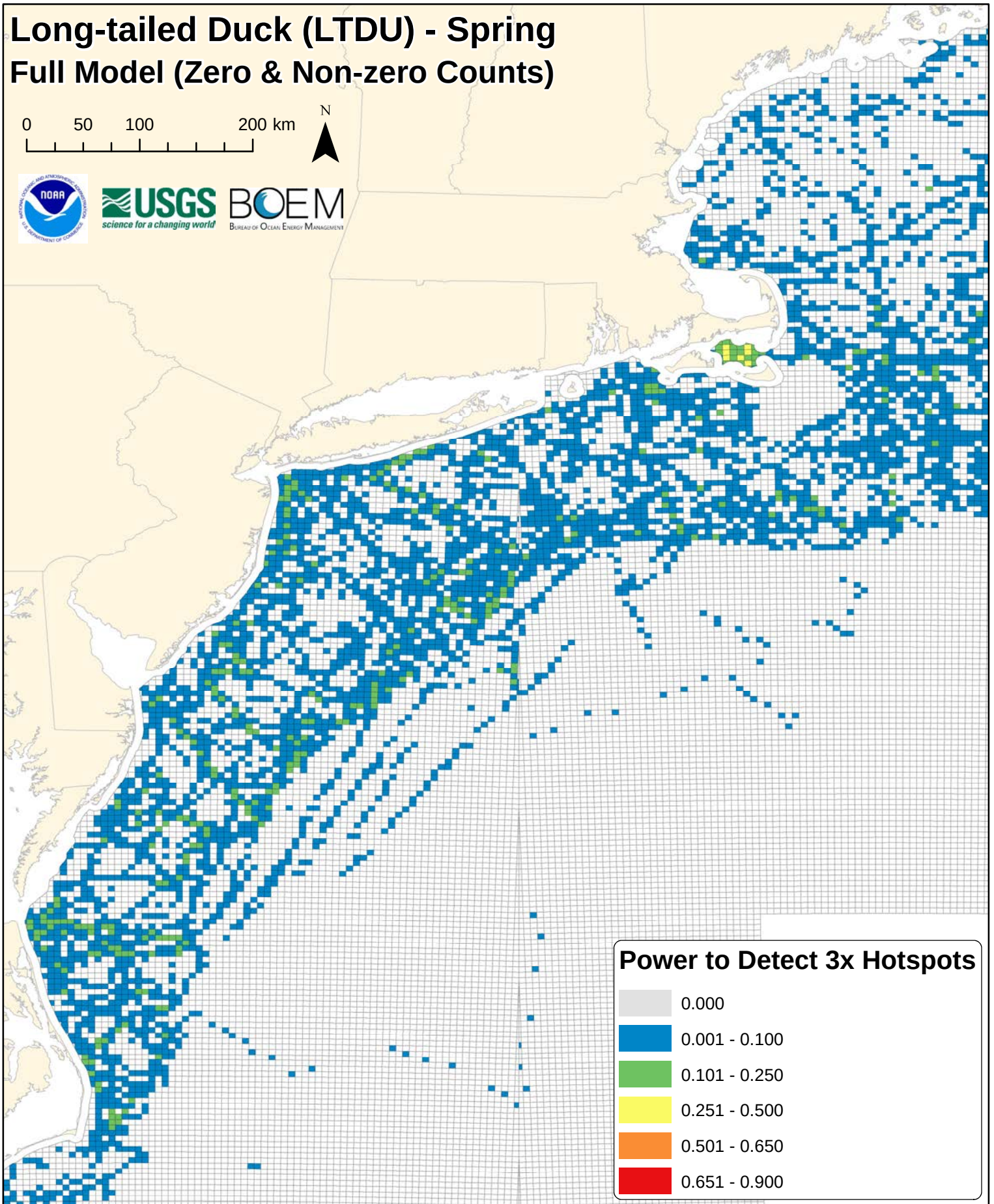
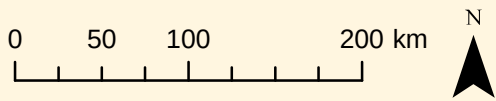
Long-tailed Duck (LTDU) - Spring



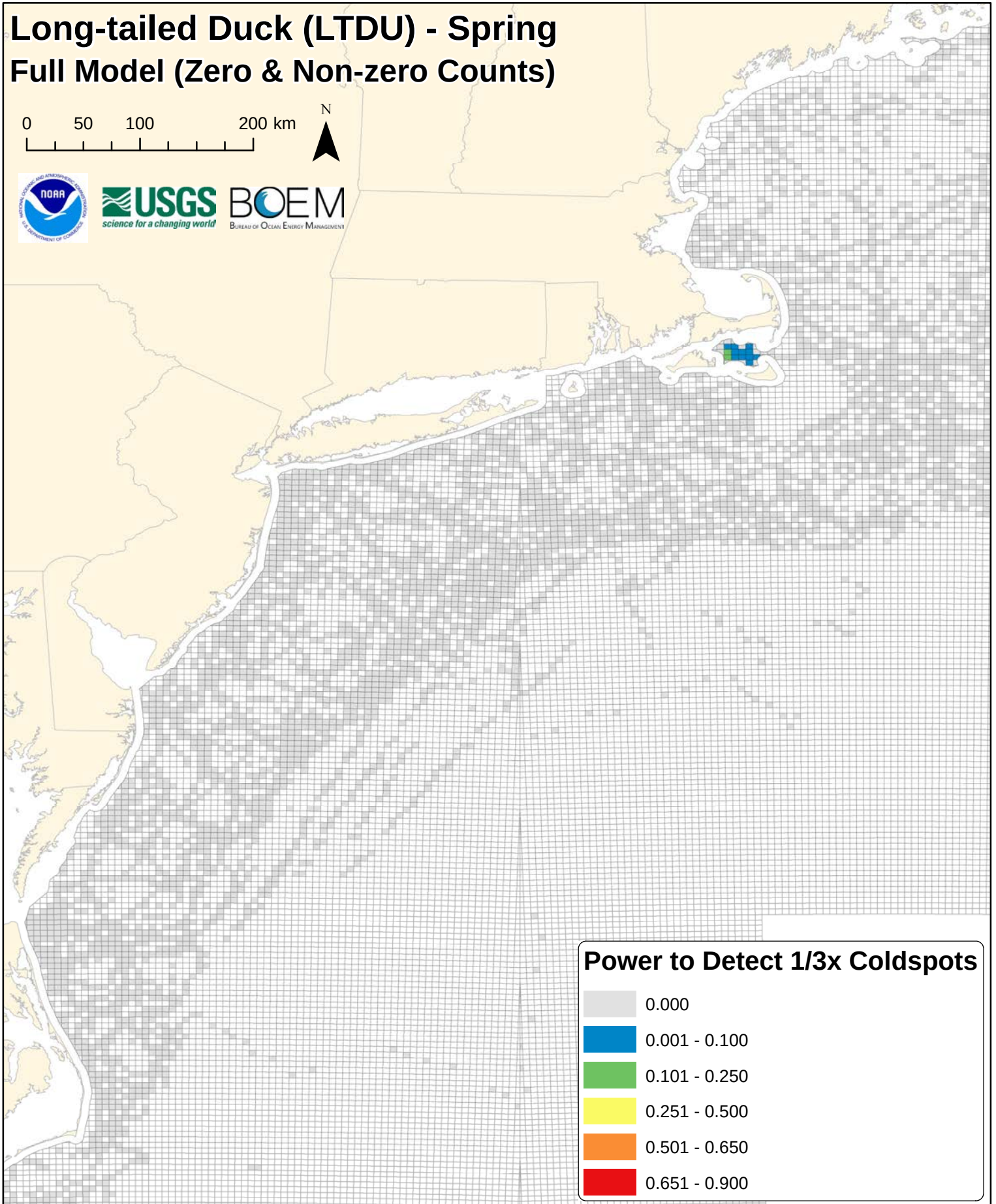
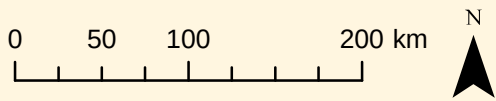
ltdu



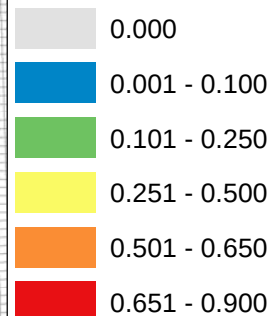
Long-tailed Duck (LTDU) - Spring Full Model (Zero & Non-zero Counts)



Long-tailed Duck (LTDU) - Spring Full Model (Zero & Non-zero Counts)



Power to Detect 1/3x Coldspots



Long-tailed Duck (LTDU) - Spring Full Model (Zero & Non-zero Counts)

0 50 100 200 km



Hotspot P-value

	0.0000 - 0.0010
	0.0011 - 0.0100
	0.0110 - 0.0500
	0.0510 - 0.1000
	0.1010 - 0.2000

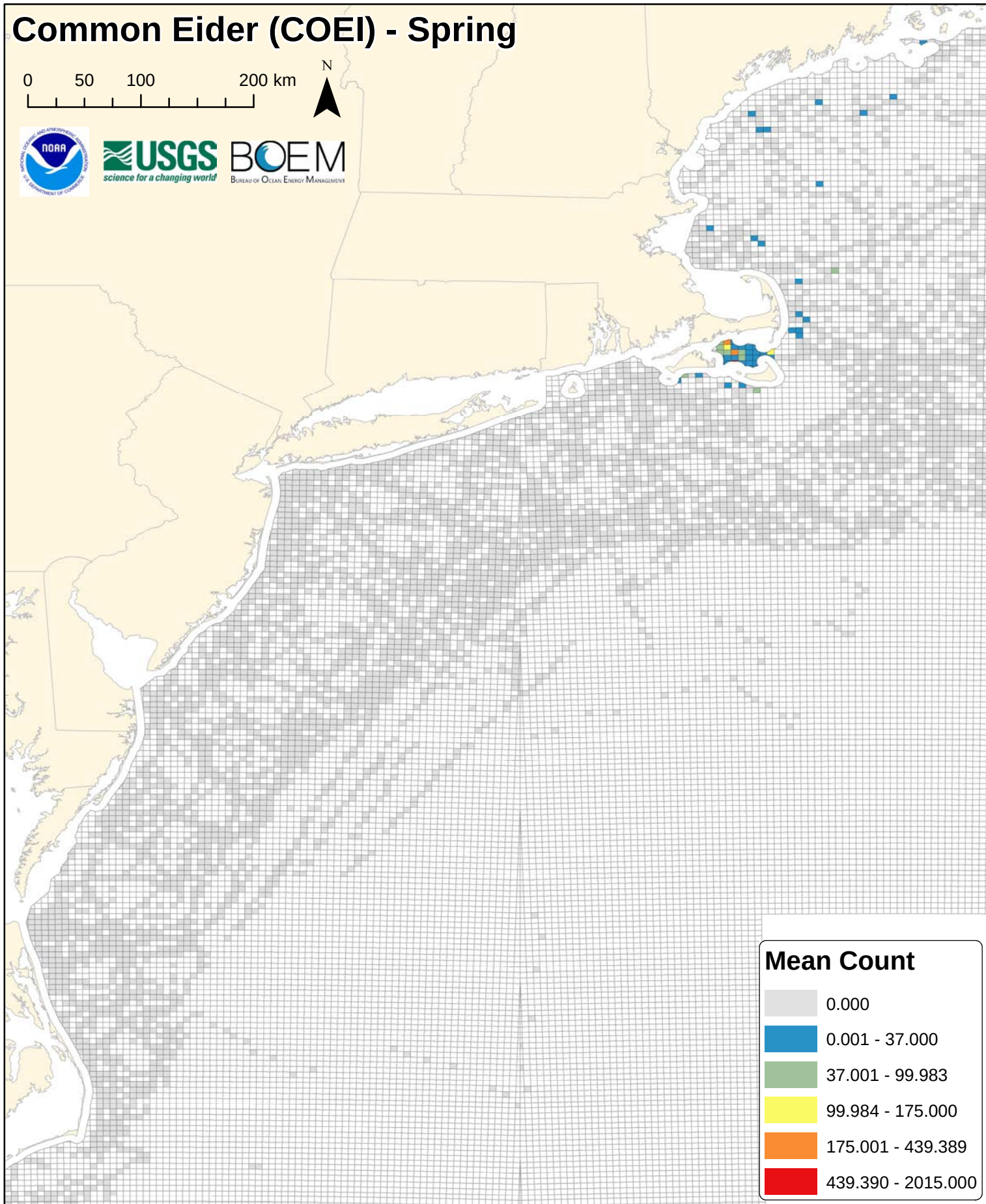
Coldspot P-value

	0.0000 - 0.0010
	0.0011 - 0.0100
	0.0110 - 0.0500
	0.0510 - 0.1000
	0.1010 - 0.2000

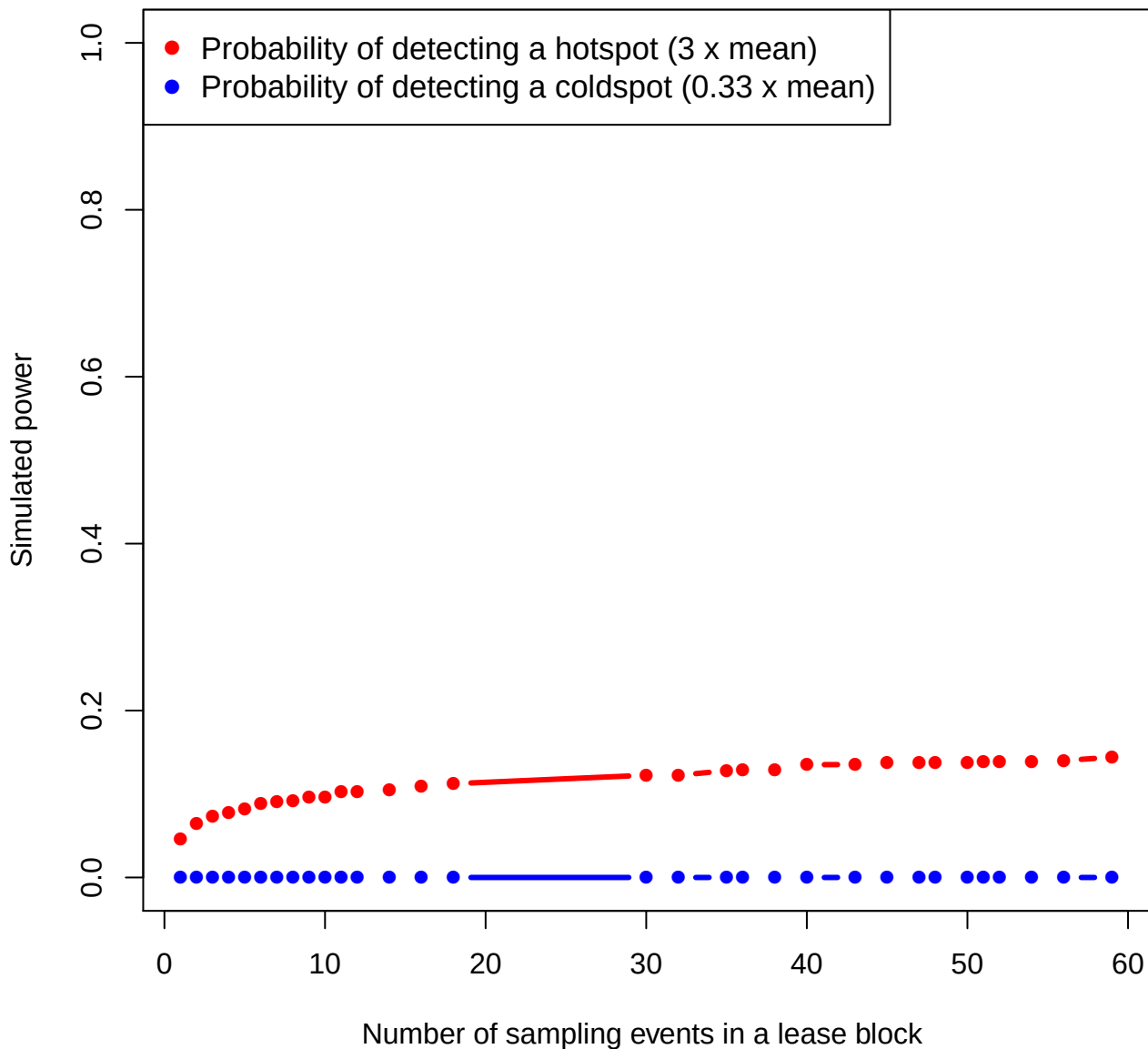
Avg Power

	0.0000
	0.0001 - 0.1000
	0.1001 - 0.2500
	0.2501 - 0.5000
	0.5001 - 1.0000

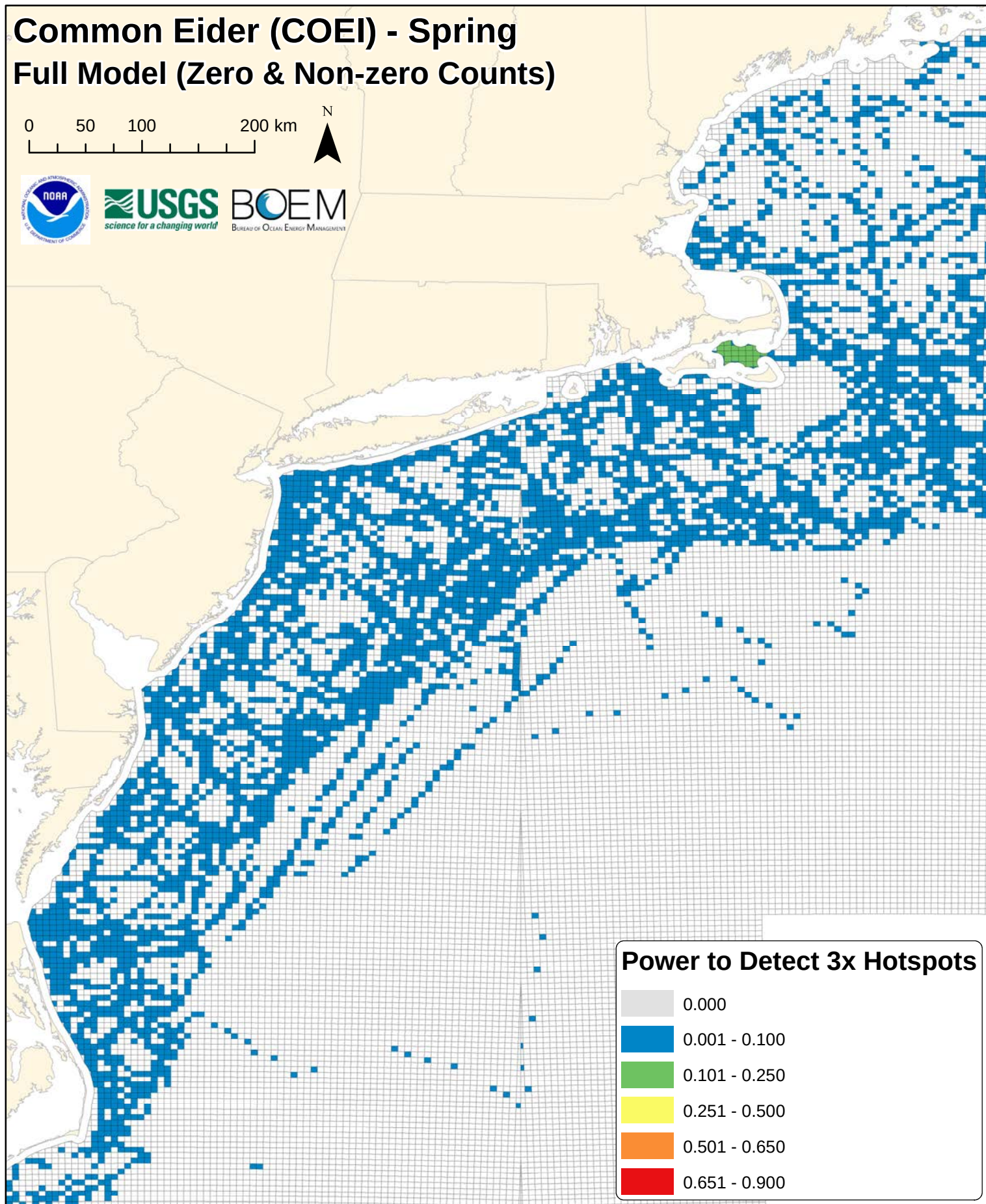
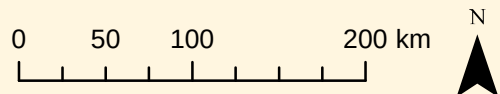
Common Eider (COEI) - Spring



coei

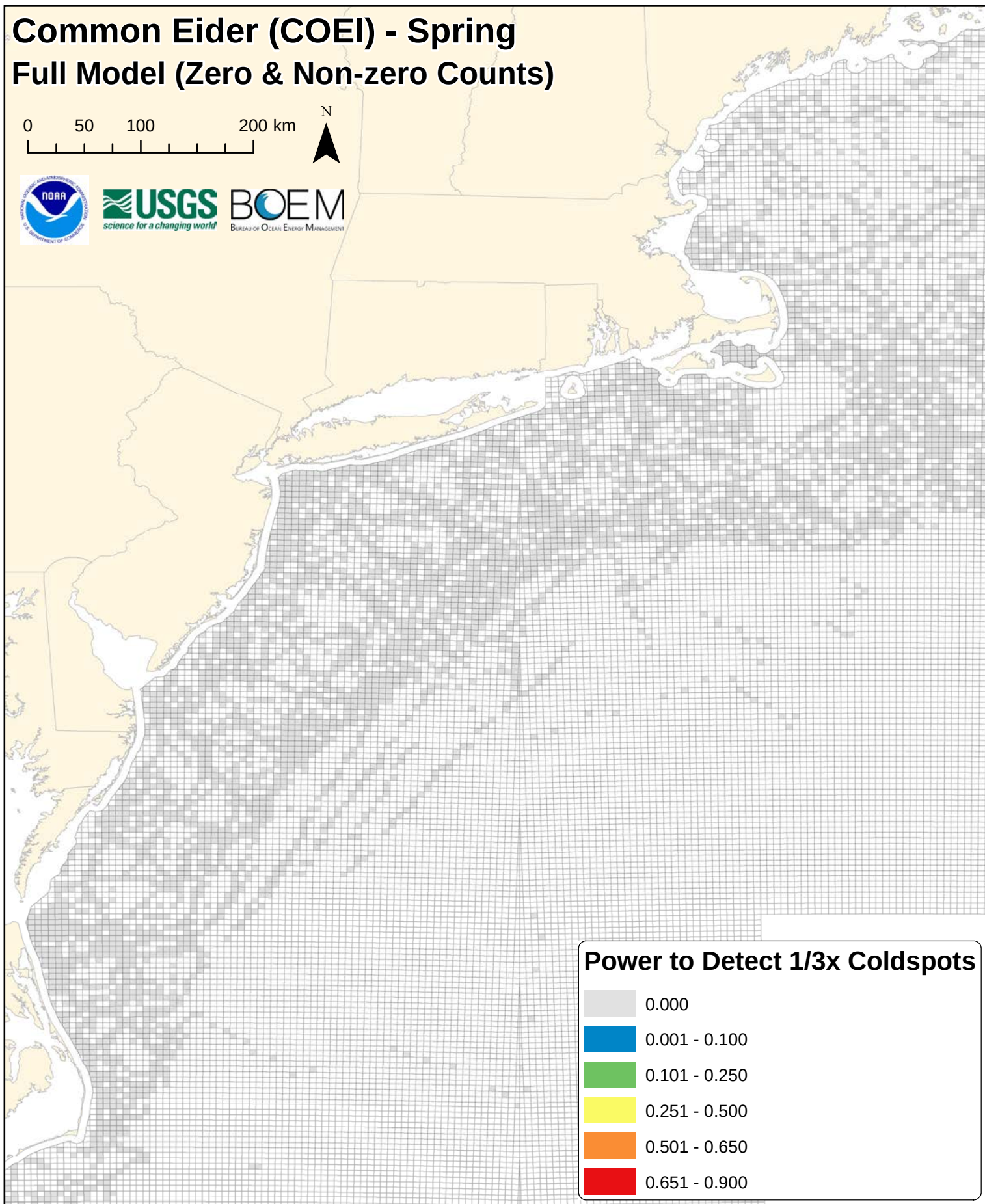


Common Eider (COEI) - Spring Full Model (Zero & Non-zero Counts)

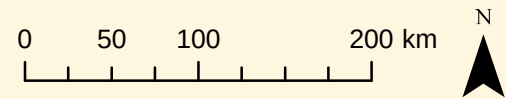


Common Eider (COEI) - Spring Full Model (Zero & Non-zero Counts)

0 50 100 200 km



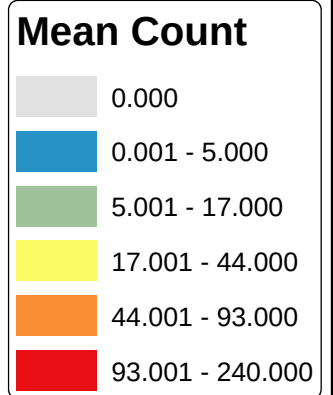
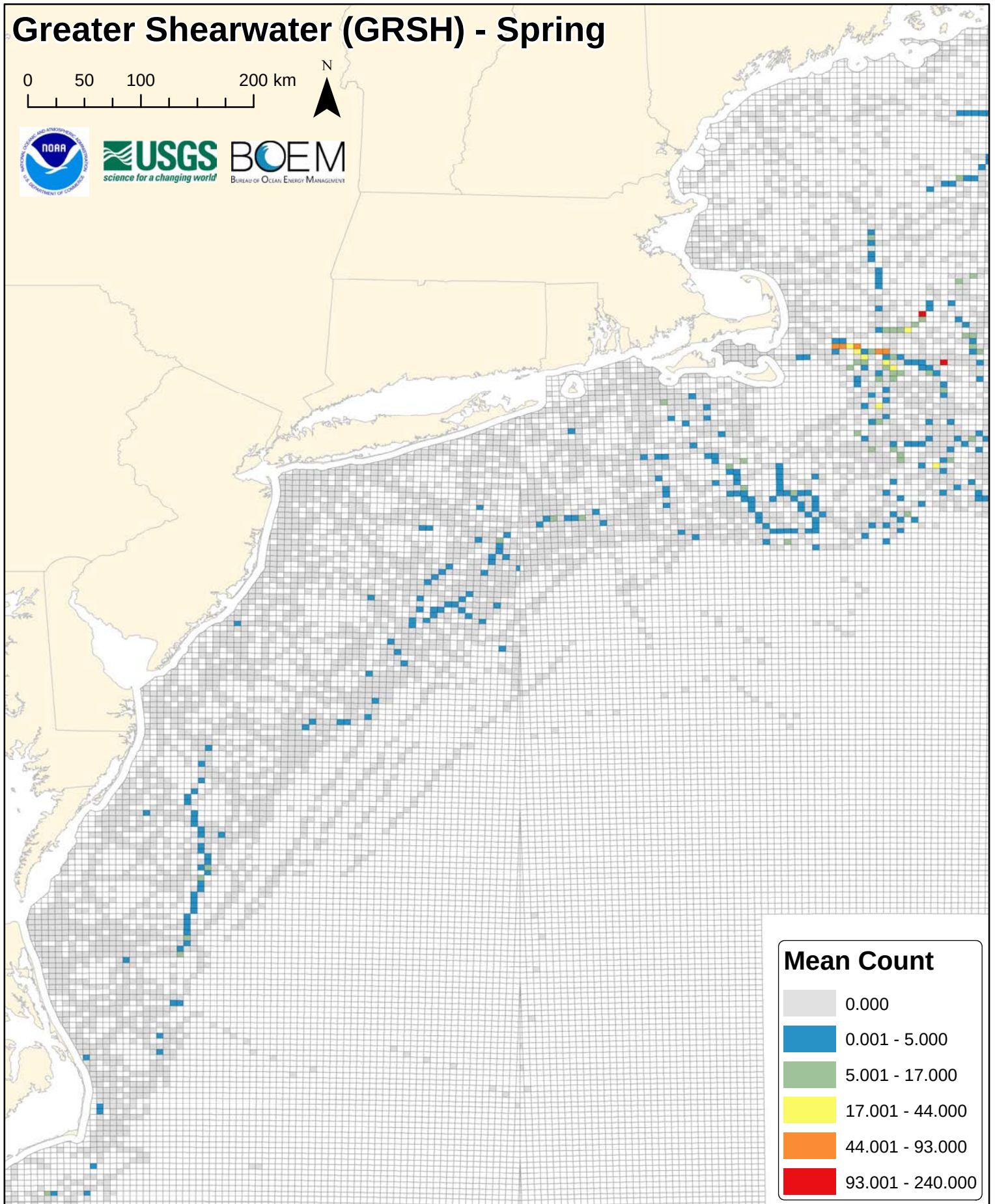
Common Eider (COEI) - Spring Full Model (Zero & Non-zero Counts)



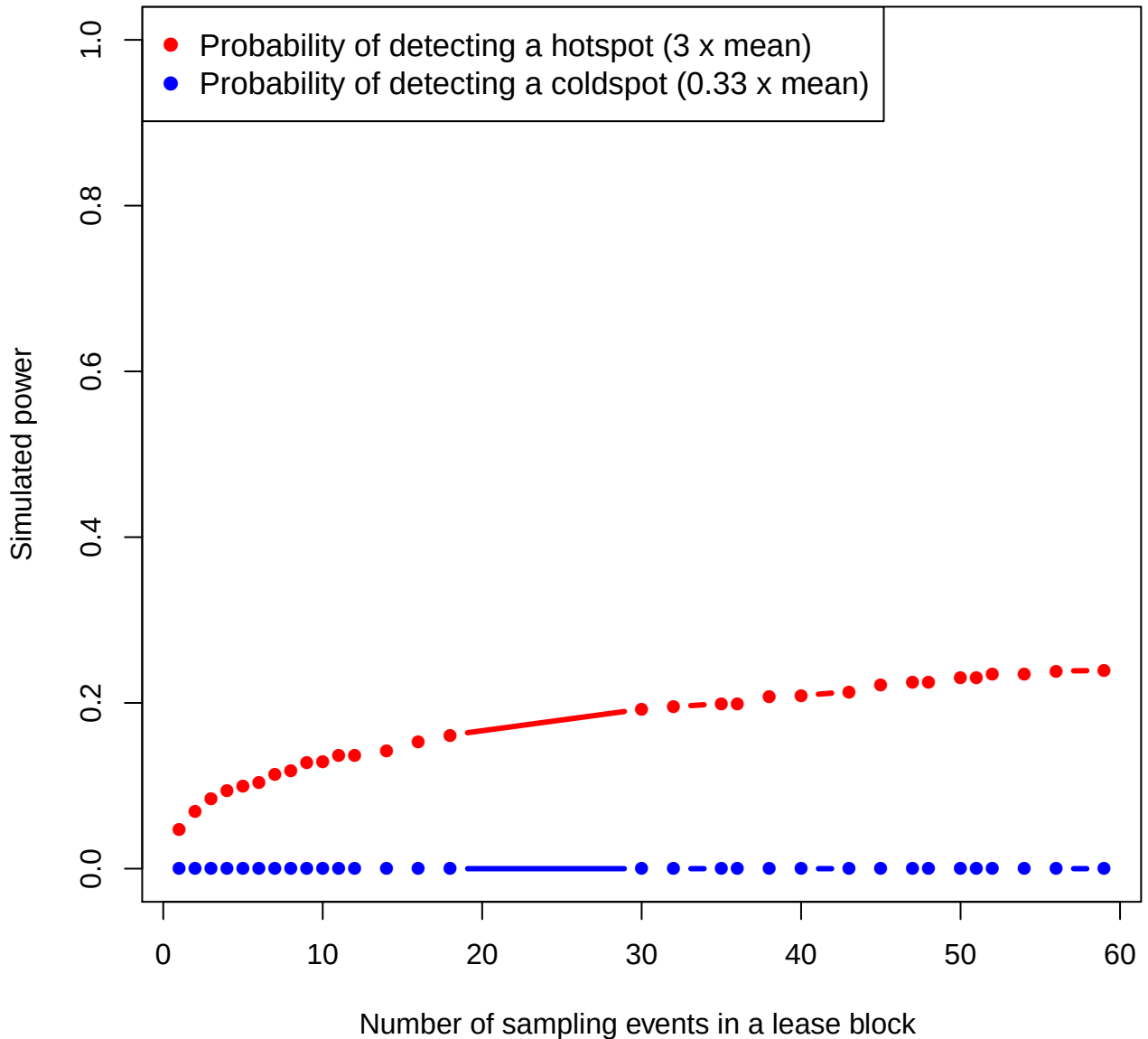
Hotspot P-value	Coldspot P-value	Avg Power
 0.0000 - 0.0010	 0.0000 - 0.0010	 0.0000
 0.0011 - 0.0100	 0.0011 - 0.0100	 0.0001 - 0.1000
 0.0110 - 0.0500	 0.0110 - 0.0500	 0.1001 - 0.2500
 0.0510 - 0.1000	 0.0510 - 0.1000	 0.2501 - 0.5000
 0.1010 - 0.2000	 0.1010 - 0.2000	 0.5001 - 1.0000

Greater Shearwater (GRSH) - Spring

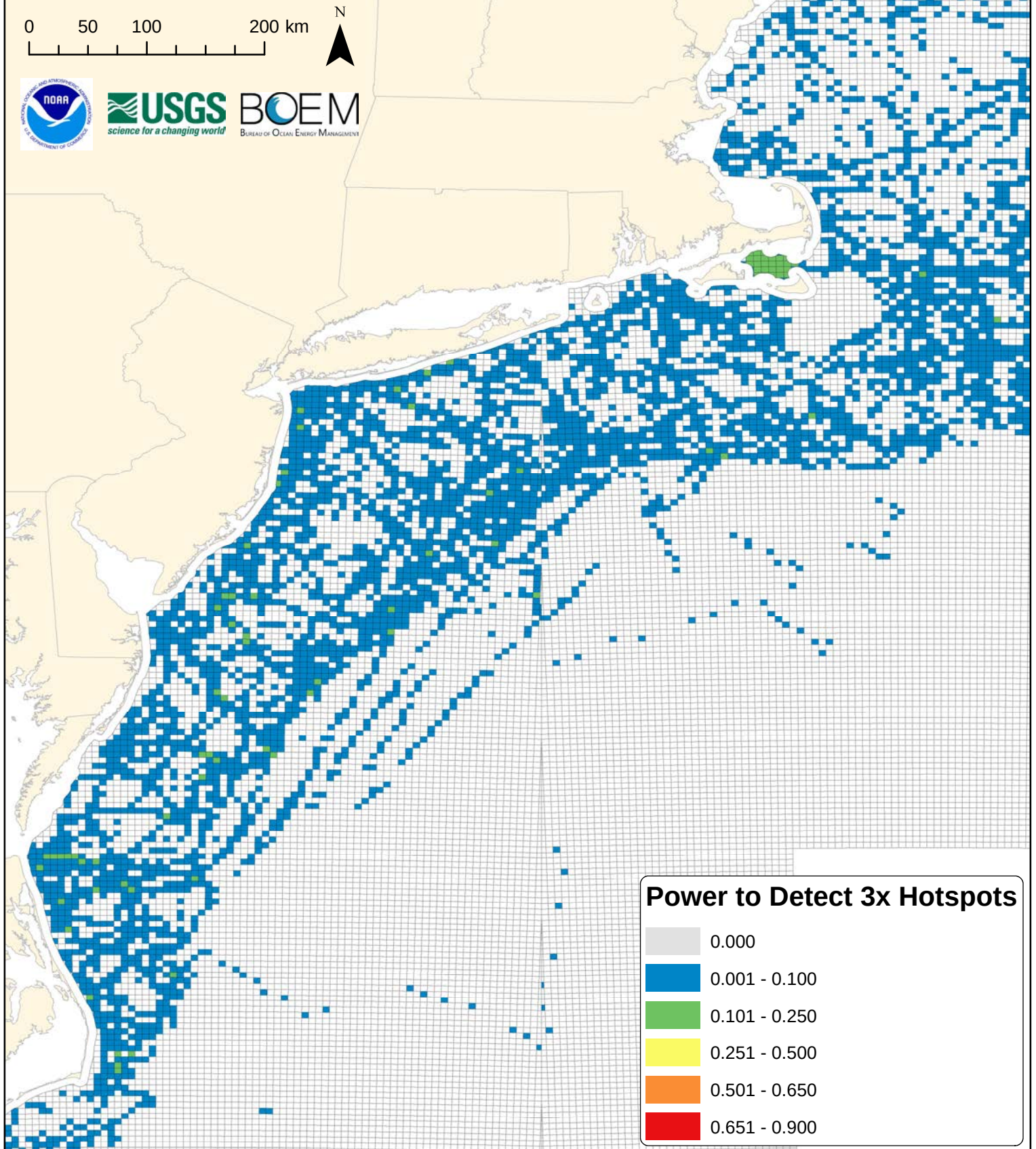
0 50 100 200 km



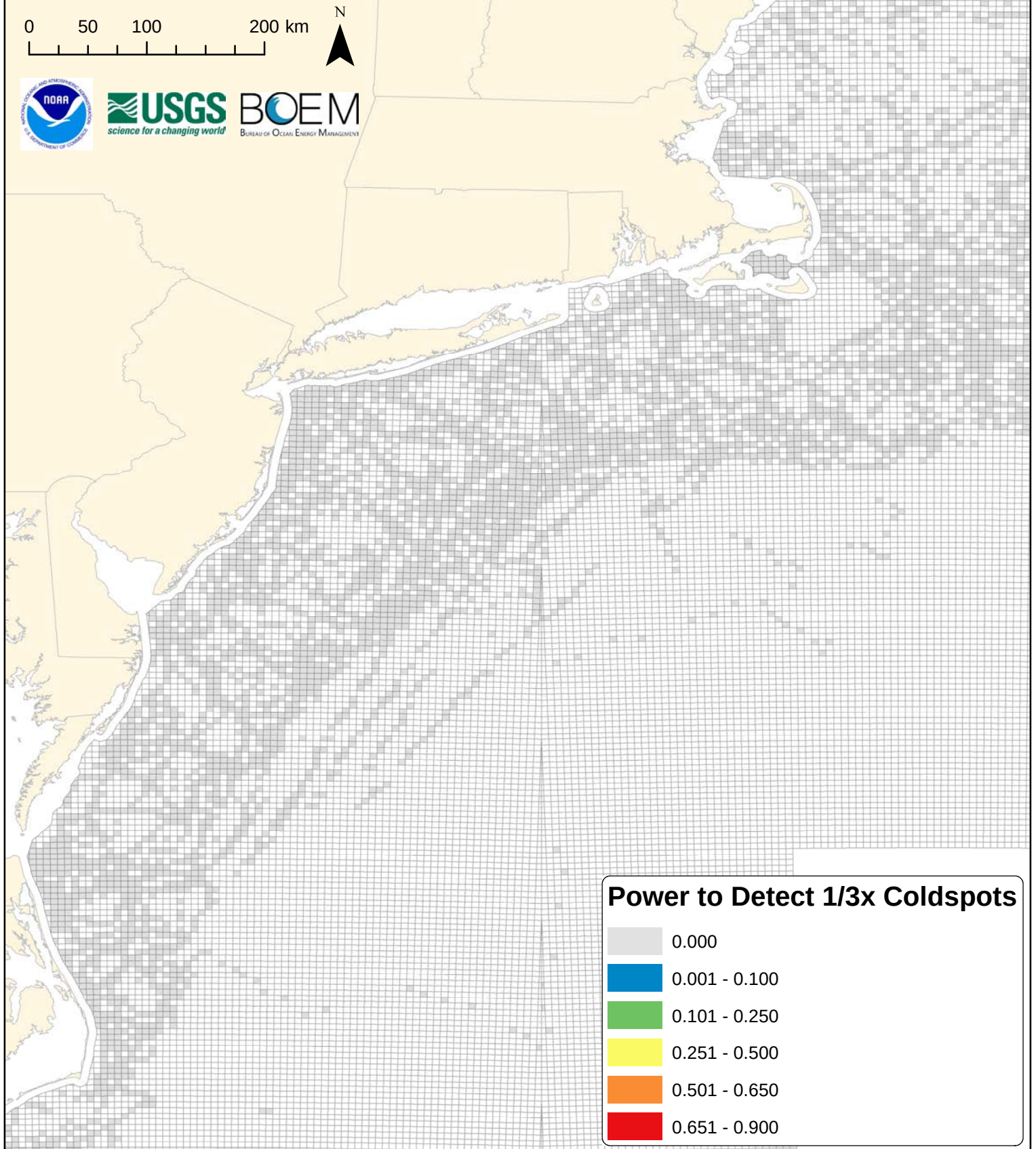
grsh



Greater Shearwater (GRSH) - Spring Full Model (Zero & Non-zero Counts)

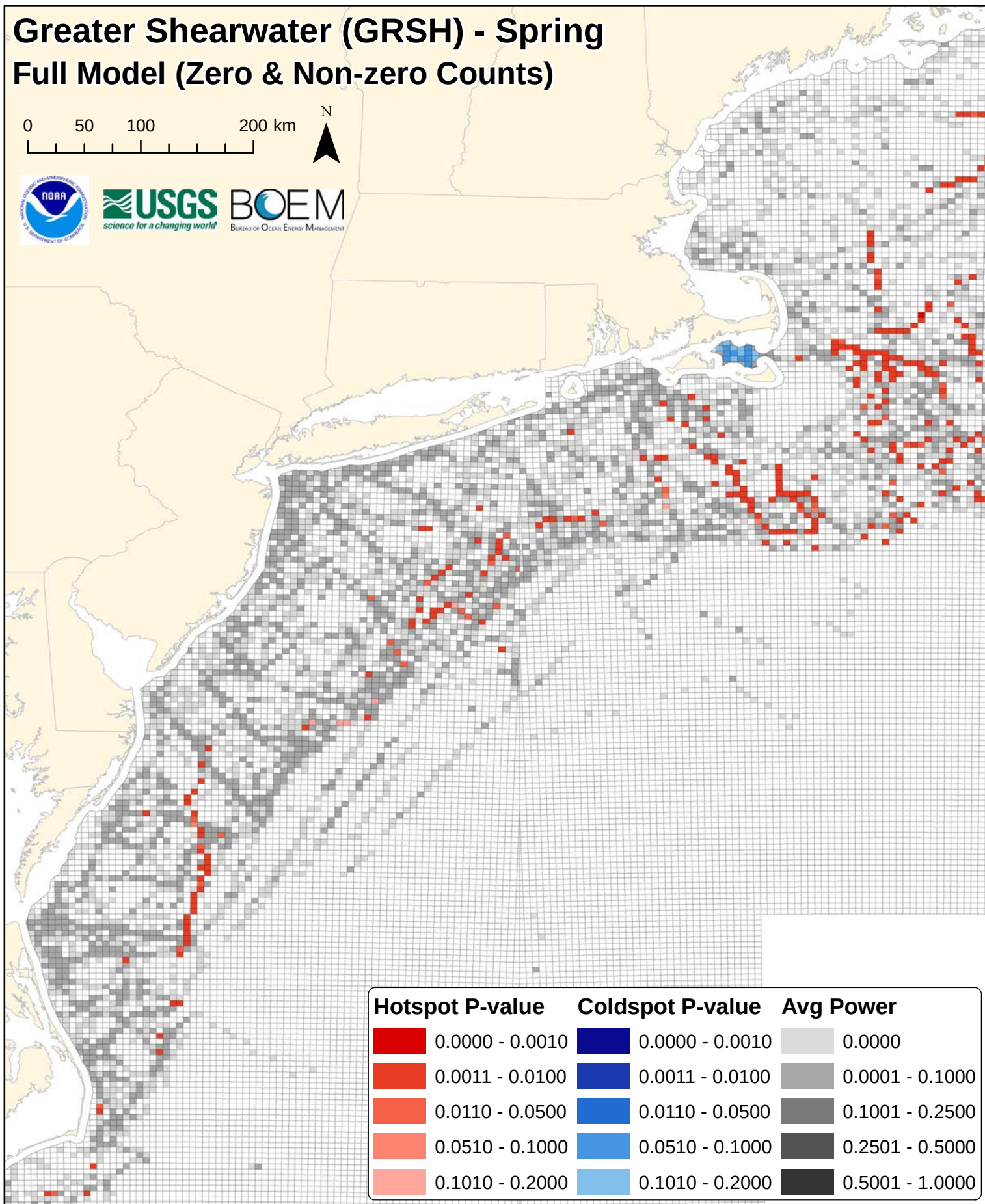


Greater Shearwater (GRSH) - Spring Full Model (Zero & Non-zero Counts)



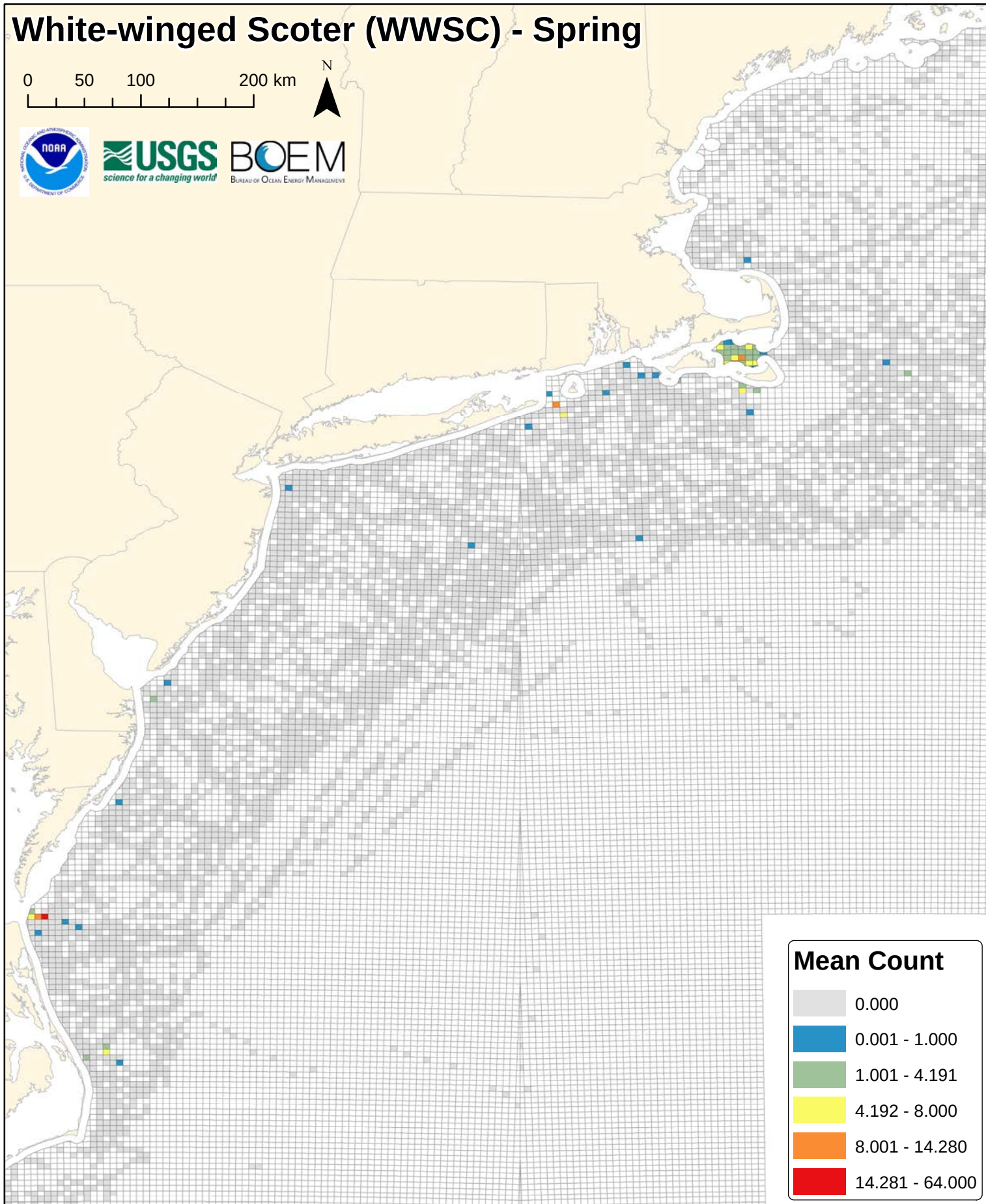
Greater Shearwater (GRSH) - Spring Full Model (Zero & Non-zero Counts)

0 50 100 200 km

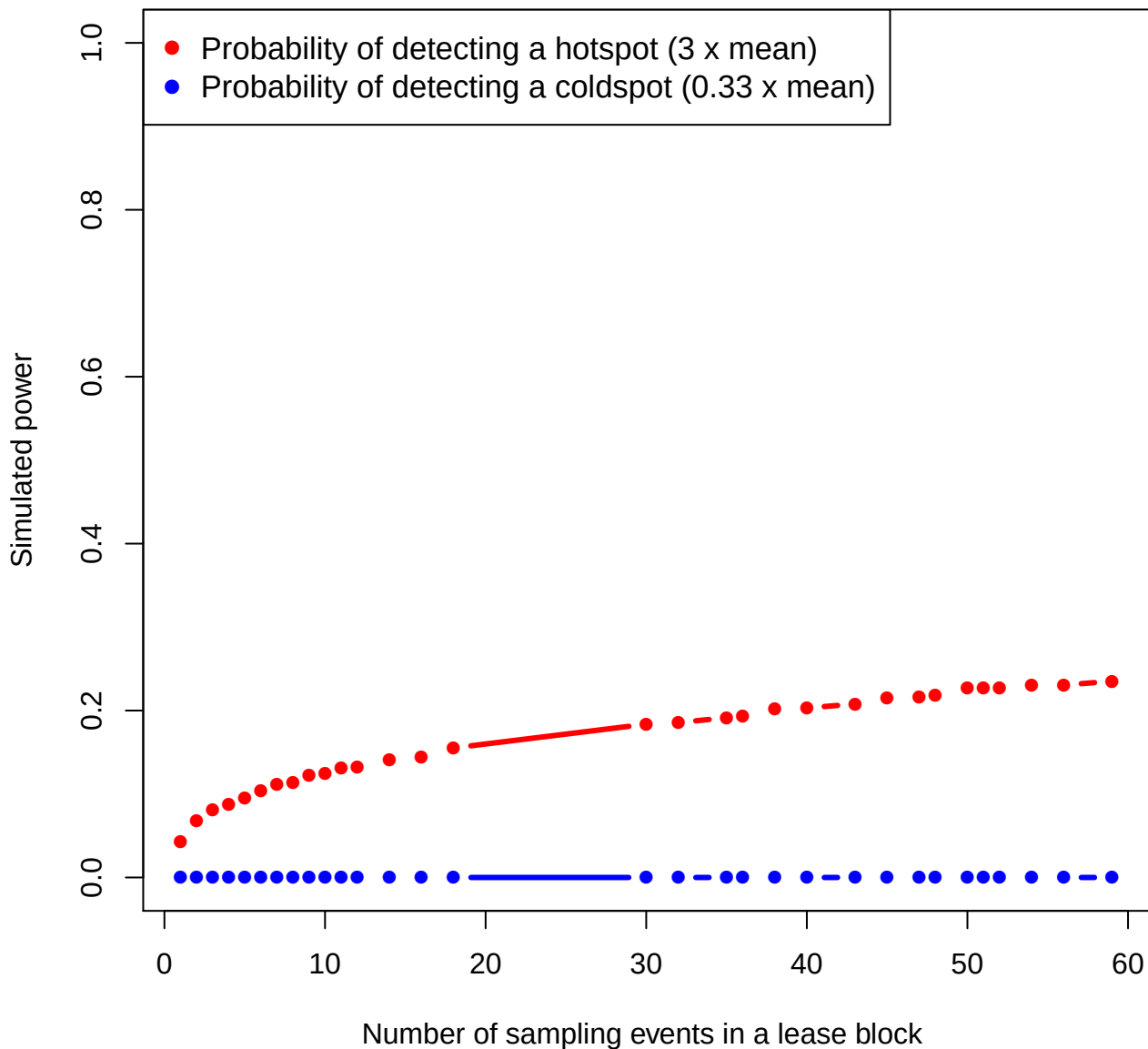


White-winged Scoter (WWSC) - Spring

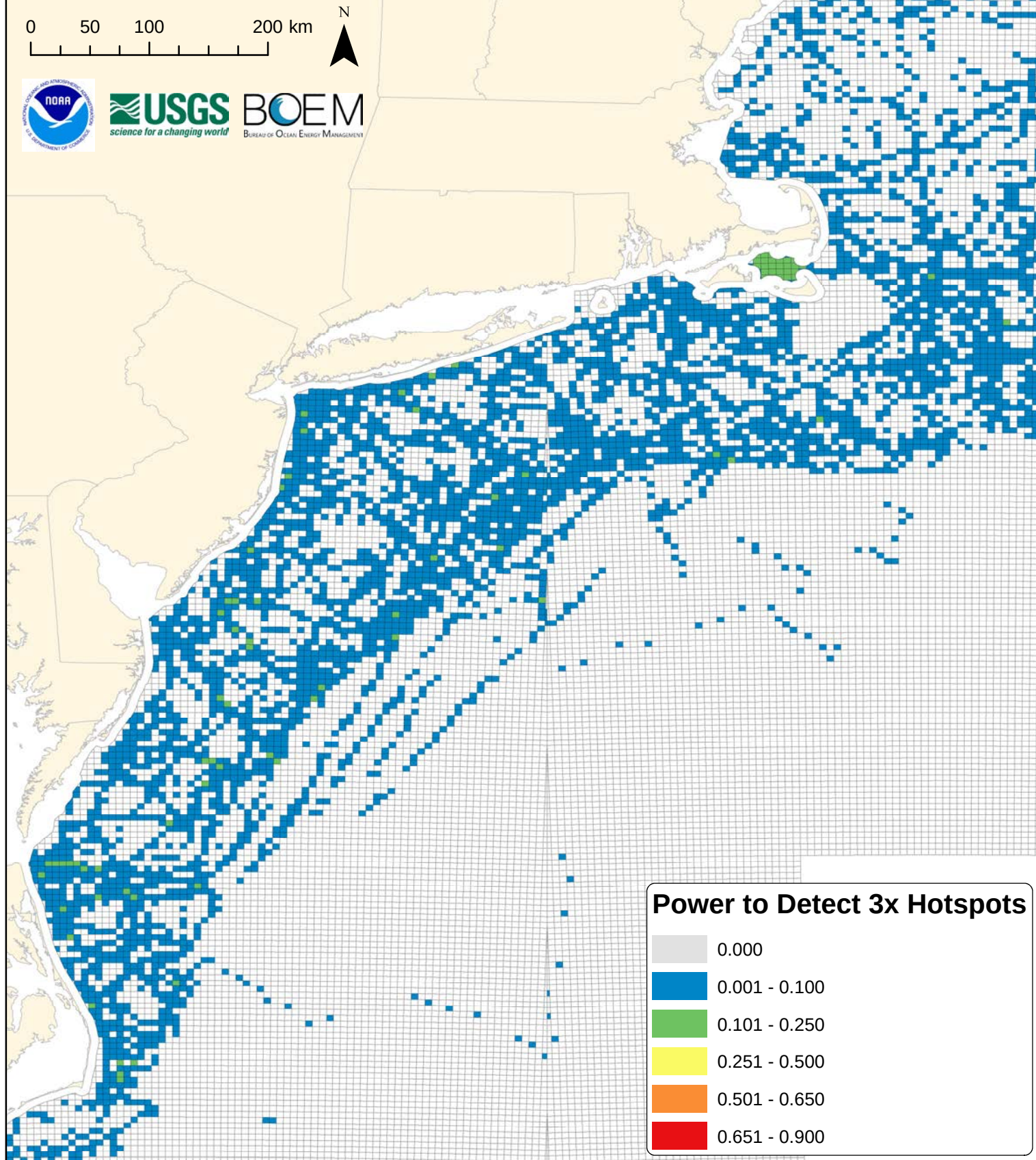
0 50 100 200 km



WWSC

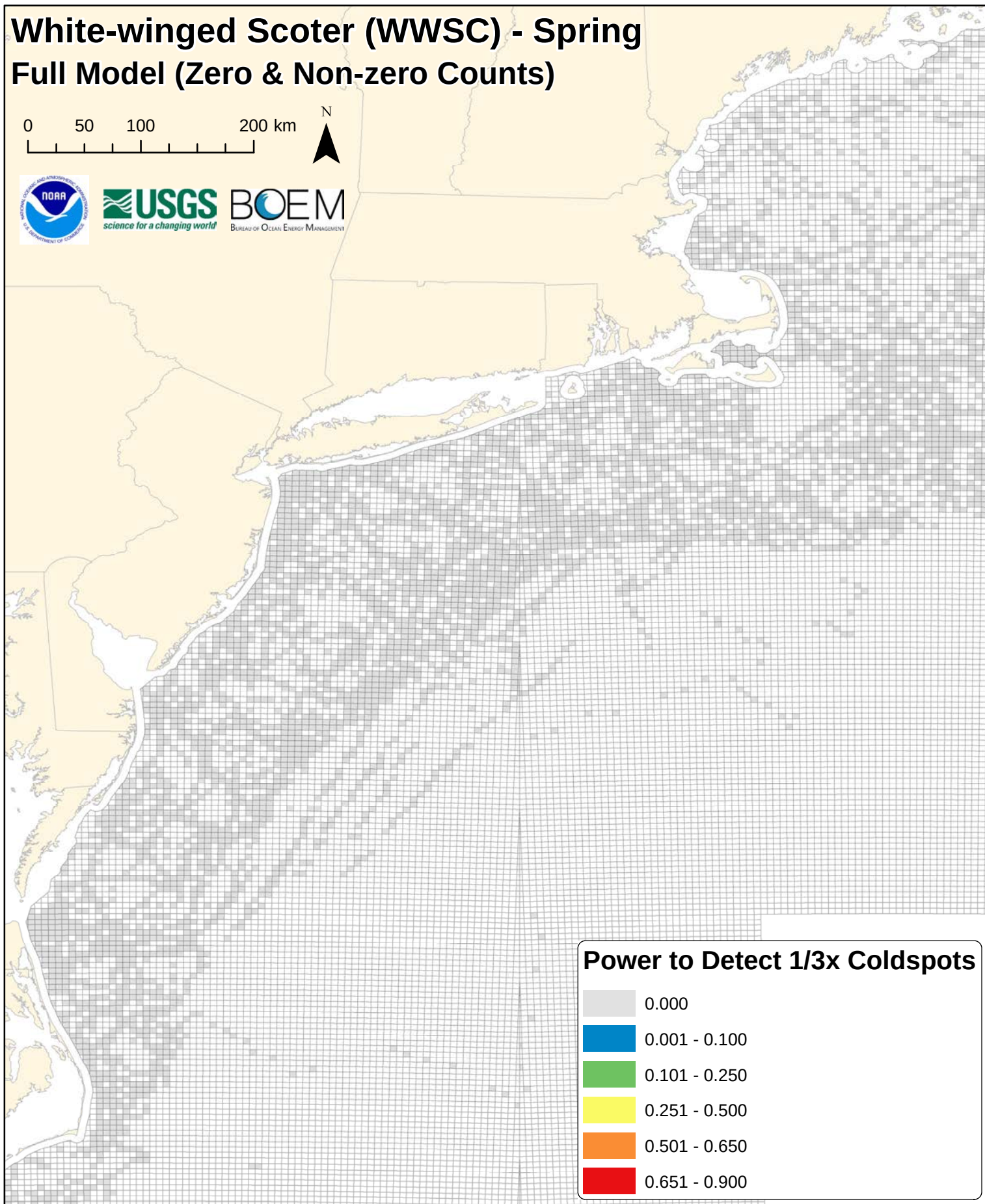


White-winged Scoter (WWSC) - Spring Full Model (Zero & Non-zero Counts)

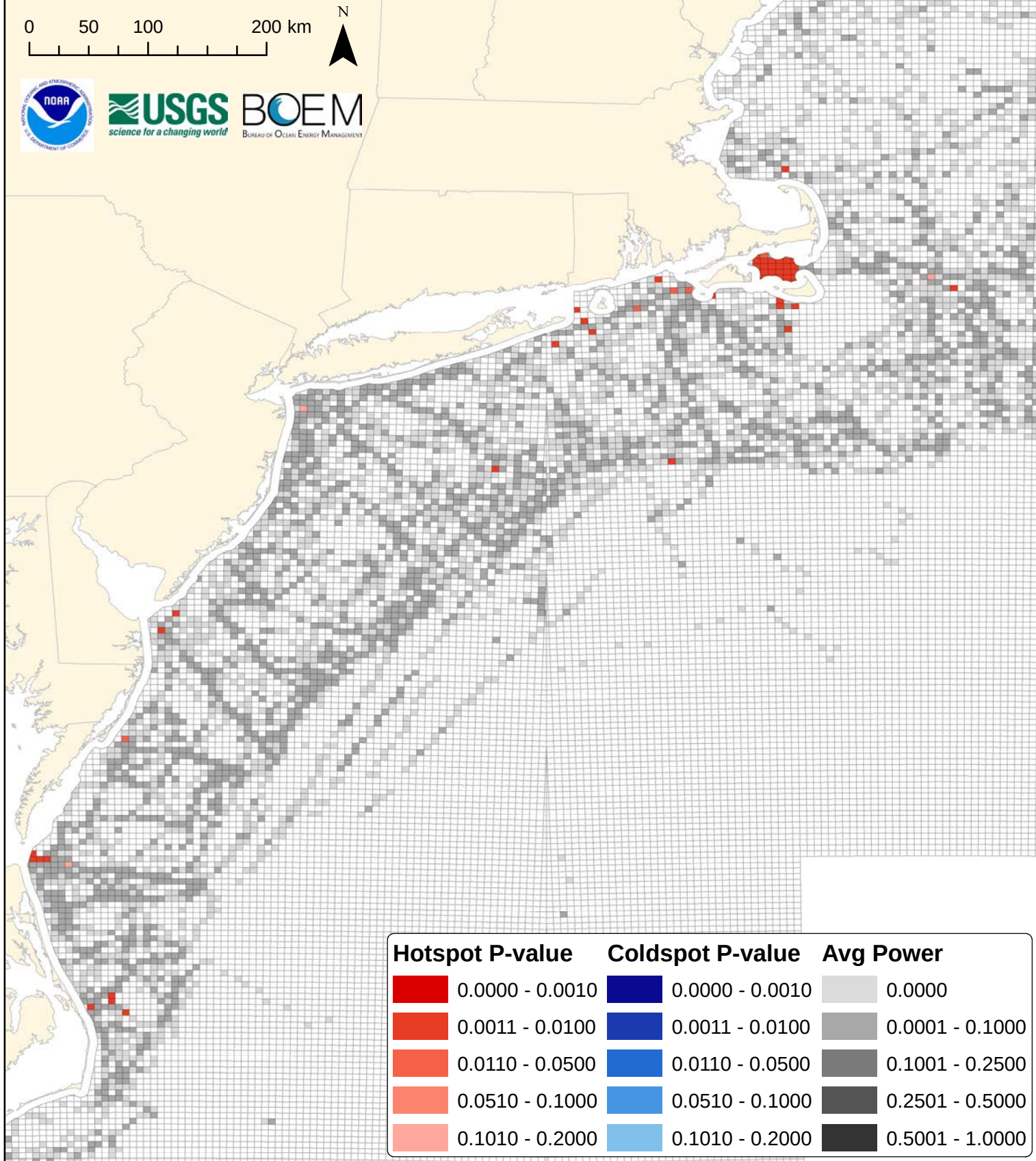


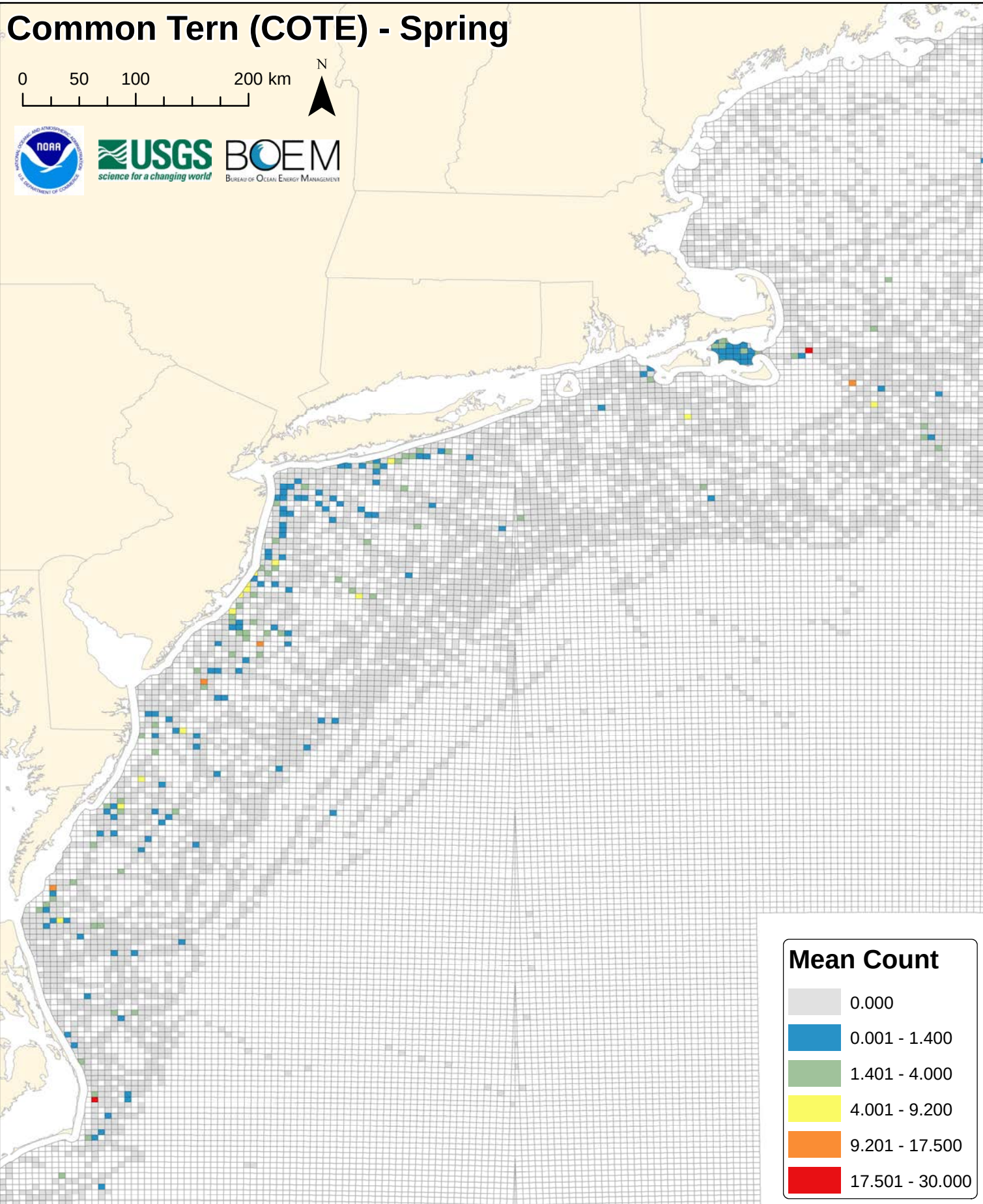
White-winged Scoter (WWSC) - Spring Full Model (Zero & Non-zero Counts)

0 50 100 200 km

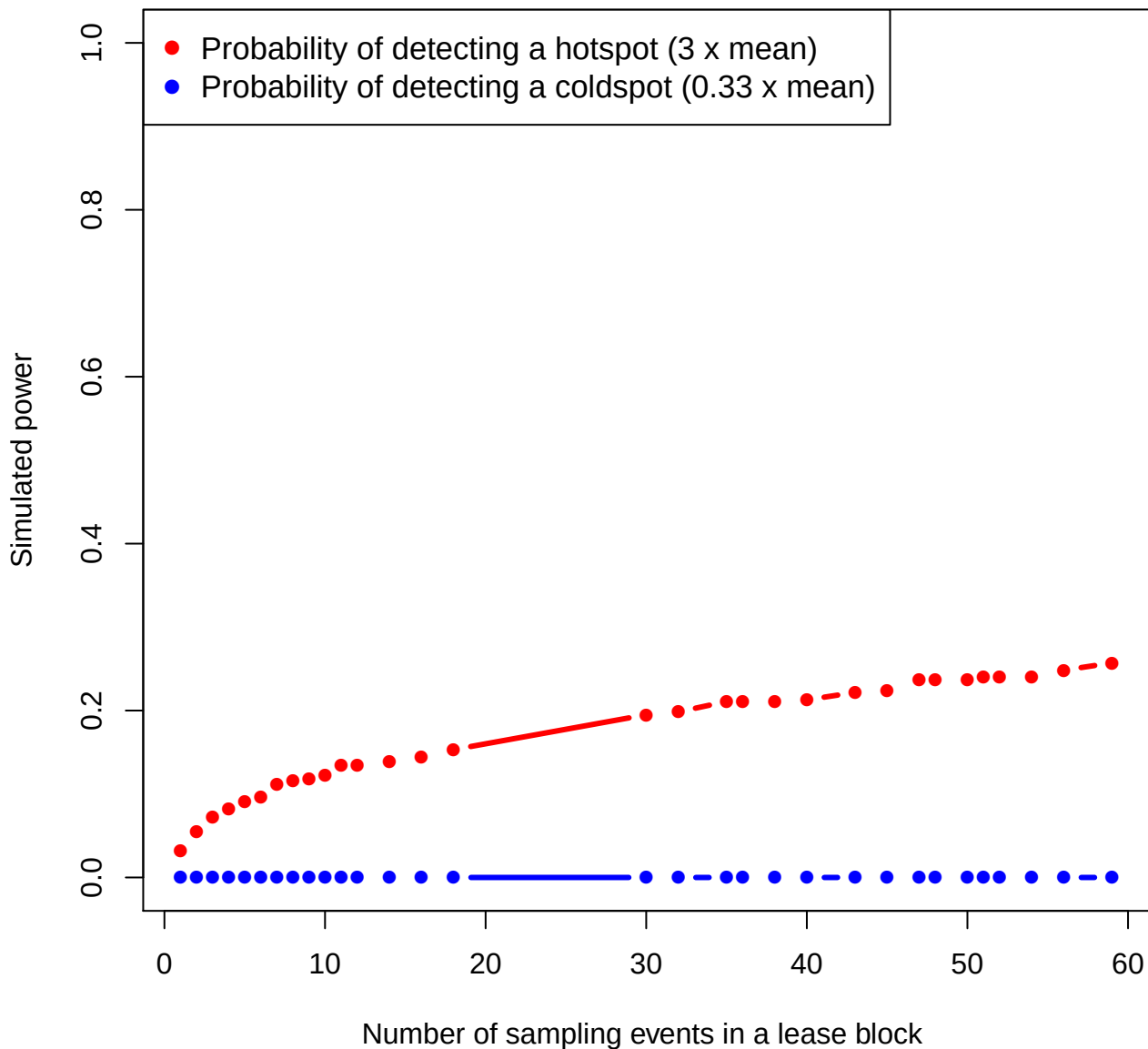


White-winged Scoter (WWSC) - Spring Full Model (Zero & Non-zero Counts)

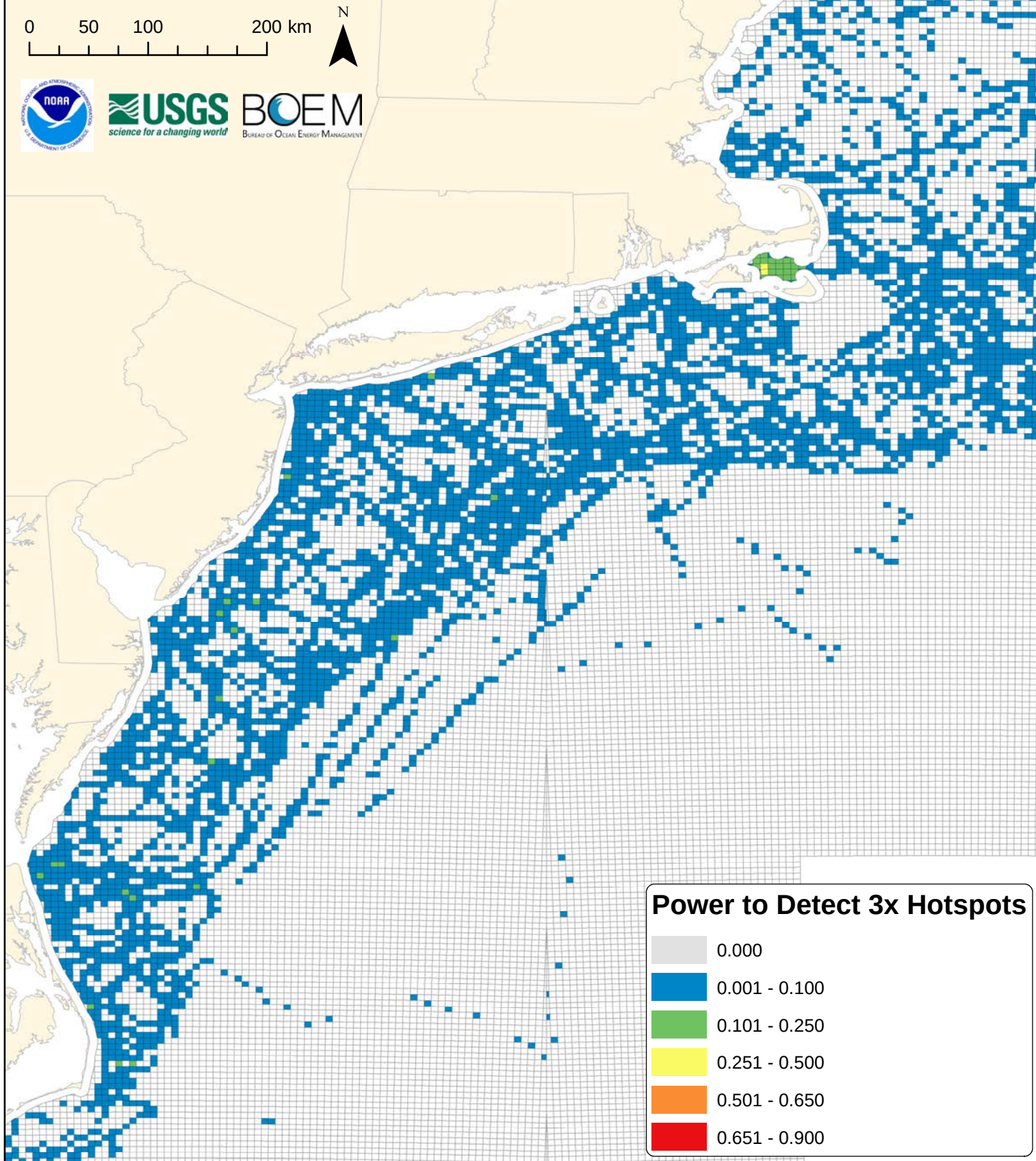




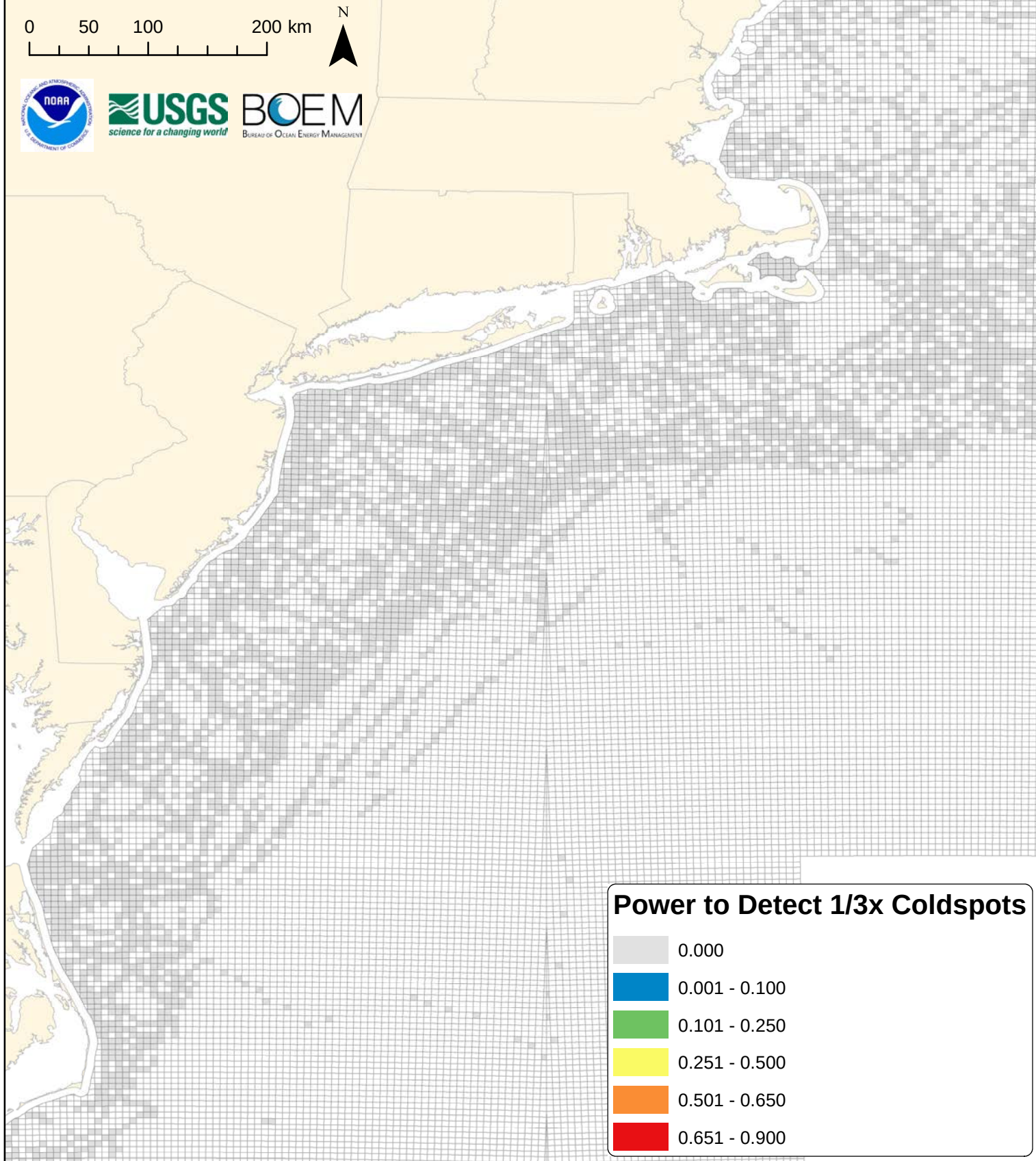
cote



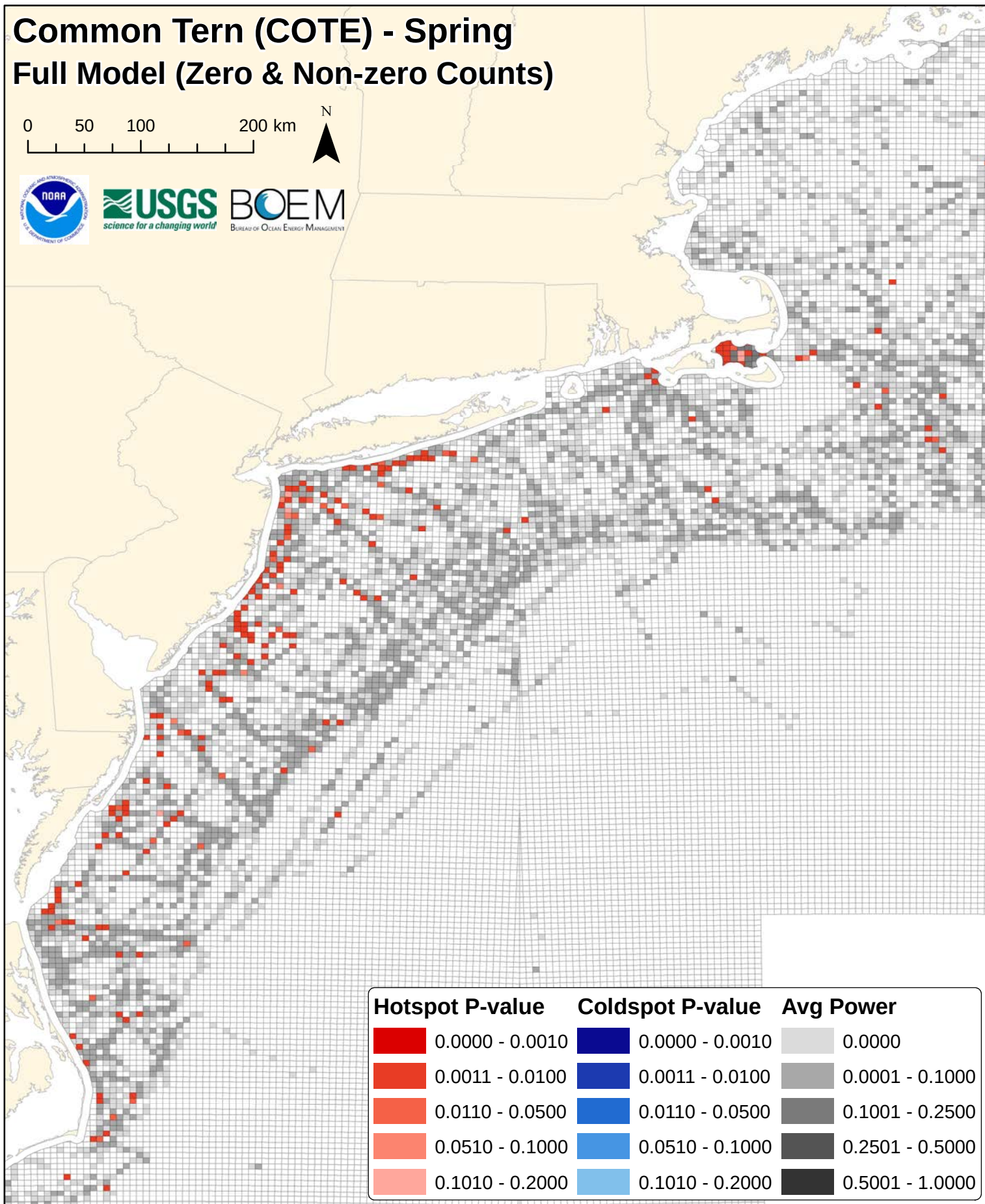
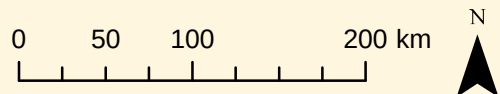
Common Tern (COTE) - Spring Full Model (Zero & Non-zero Counts)



Common Tern (COTE) - Spring Full Model (Zero & Non-zero Counts)

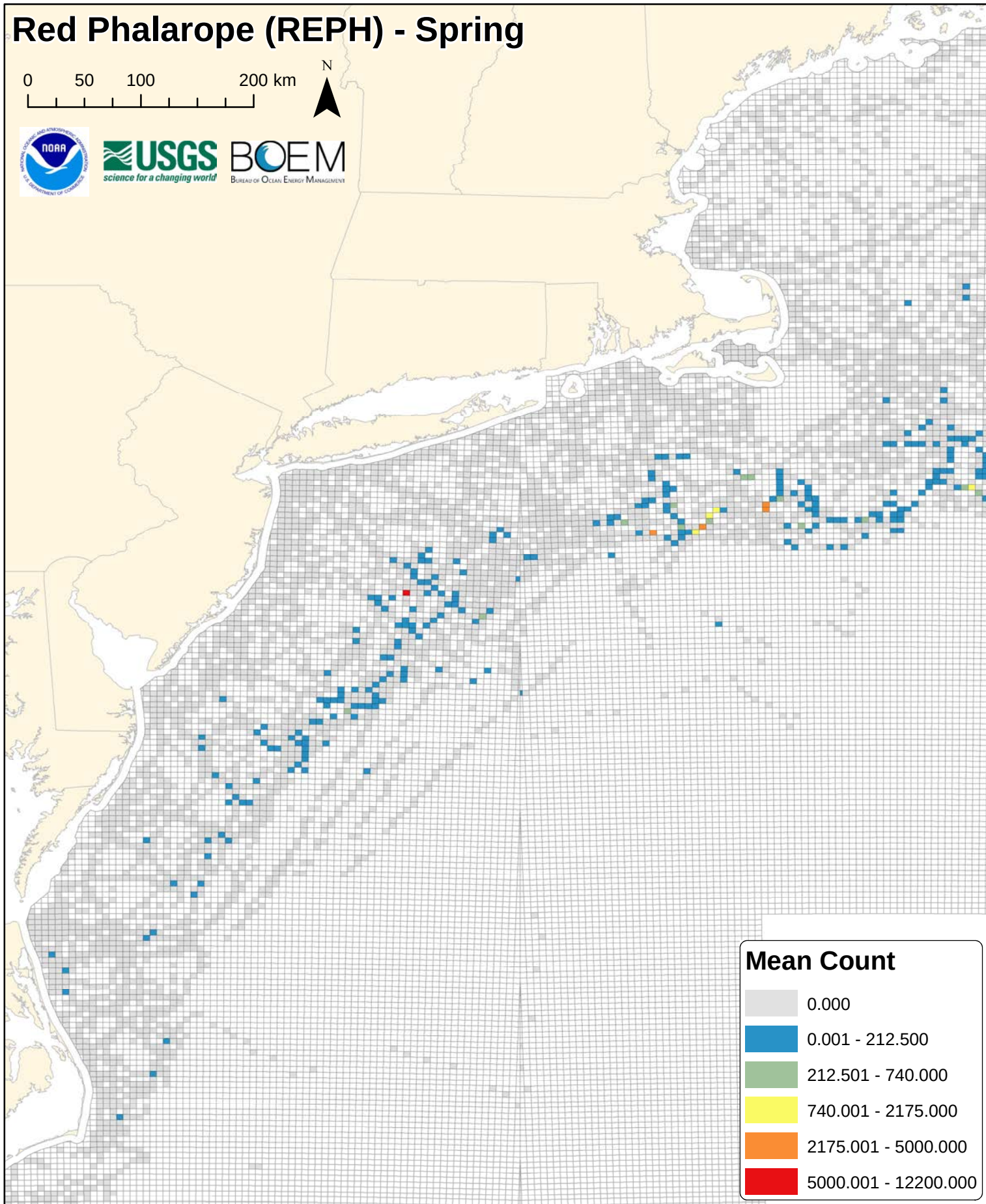


Common Tern (COTE) - Spring Full Model (Zero & Non-zero Counts)

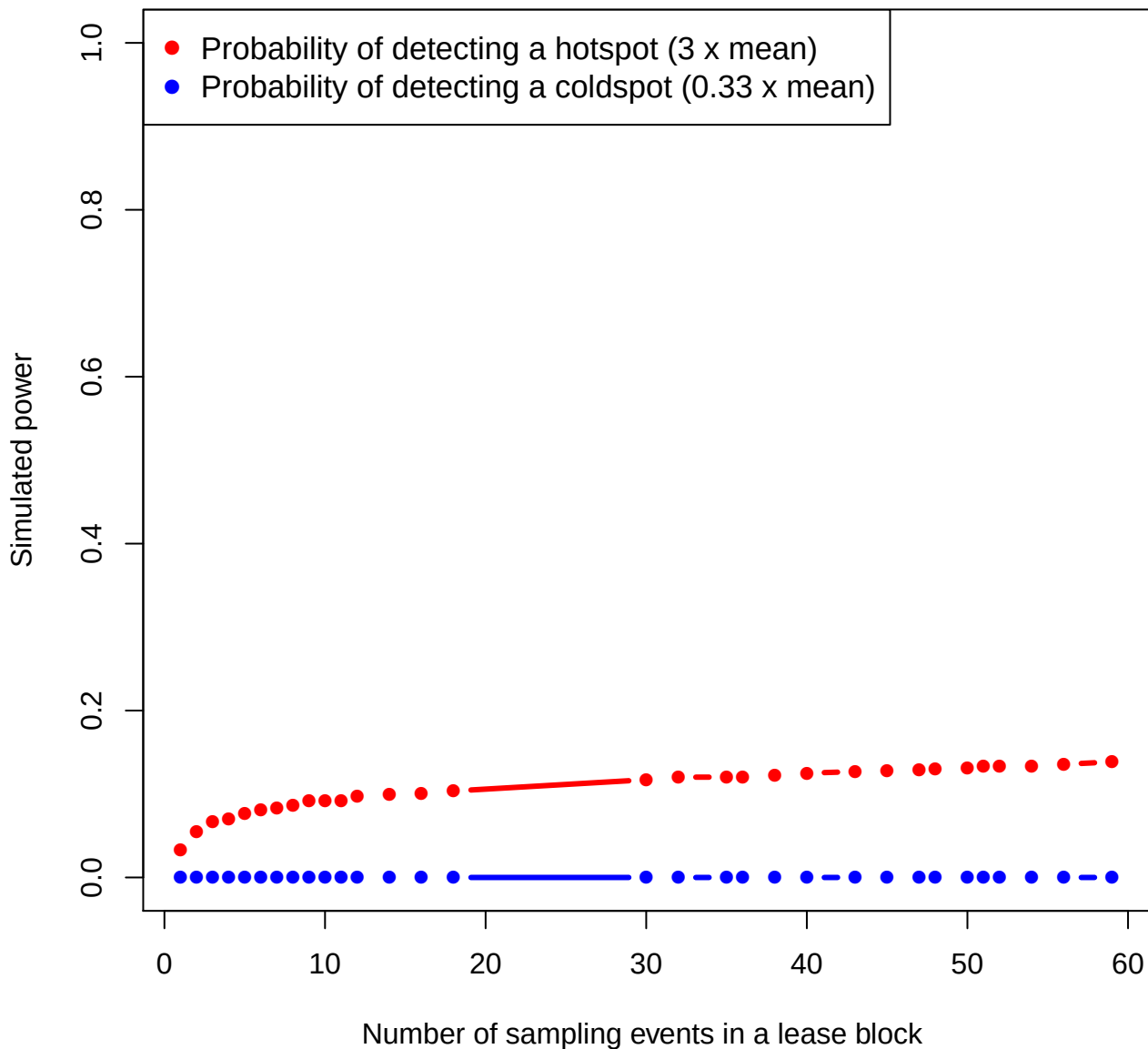


Hotspot P-value	Coldspot P-value	Avg Power
0.0000 - 0.0010	0.0000 - 0.0010	0.0000
0.0011 - 0.0100	0.0011 - 0.0100	0.0001 - 0.1000
0.0110 - 0.0500	0.0110 - 0.0500	0.1001 - 0.2500
0.0510 - 0.1000	0.0510 - 0.1000	0.2501 - 0.5000
0.1010 - 0.2000	0.1010 - 0.2000	0.5001 - 1.0000

Red Phalarope (REPH) - Spring

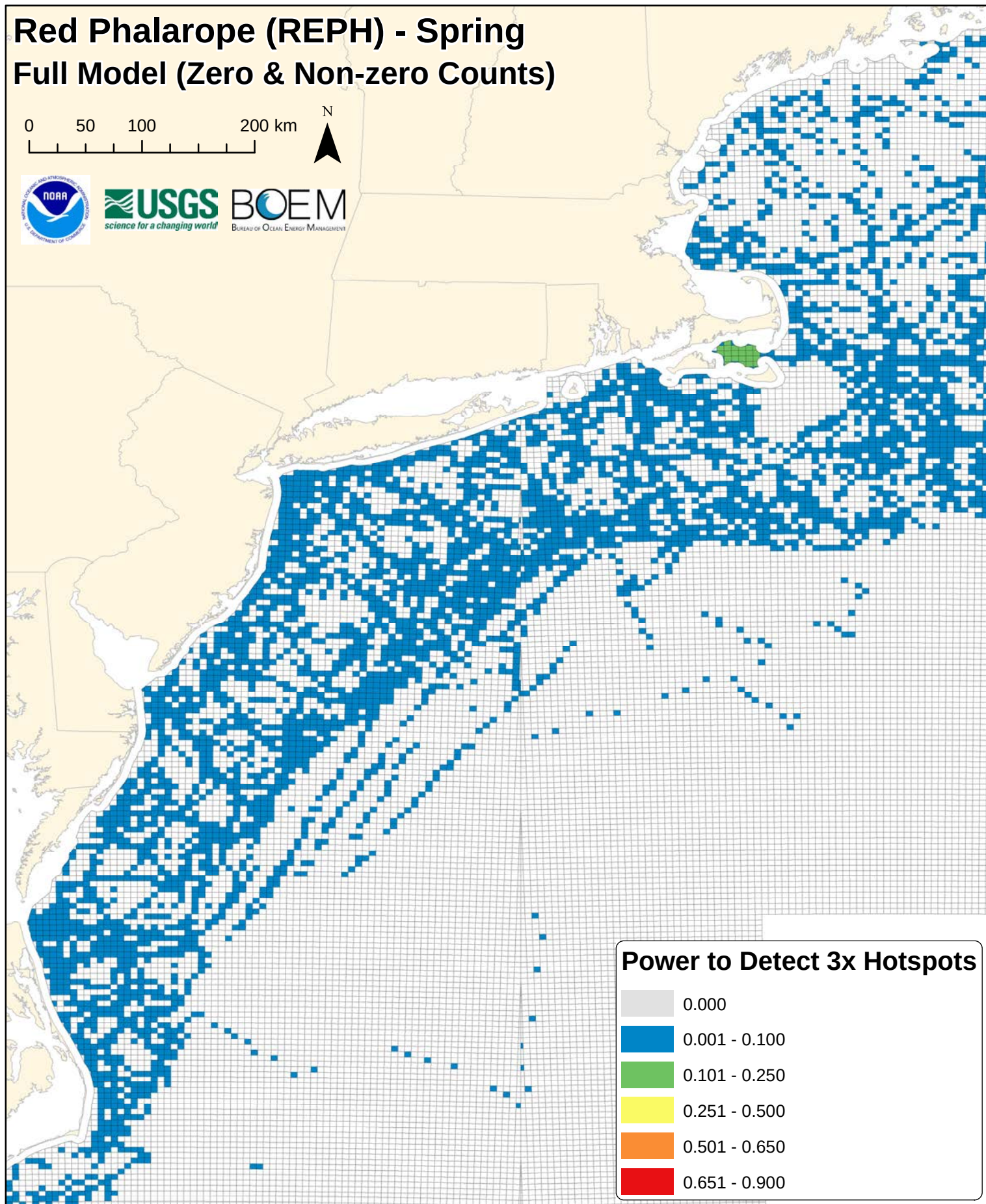


reph



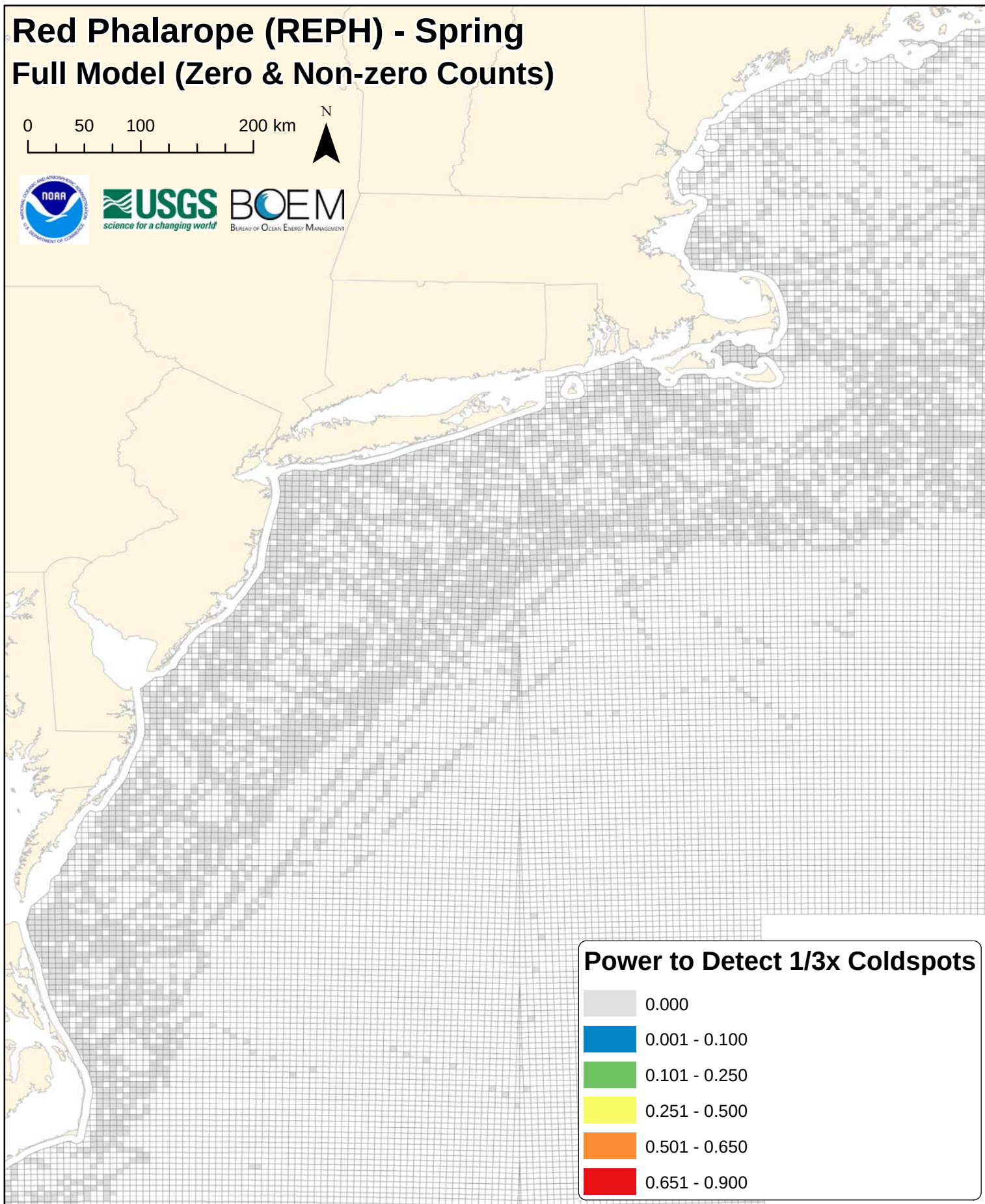
Red Phalarope (REPH) - Spring Full Model (Zero & Non-zero Counts)

0 50 100 200 km

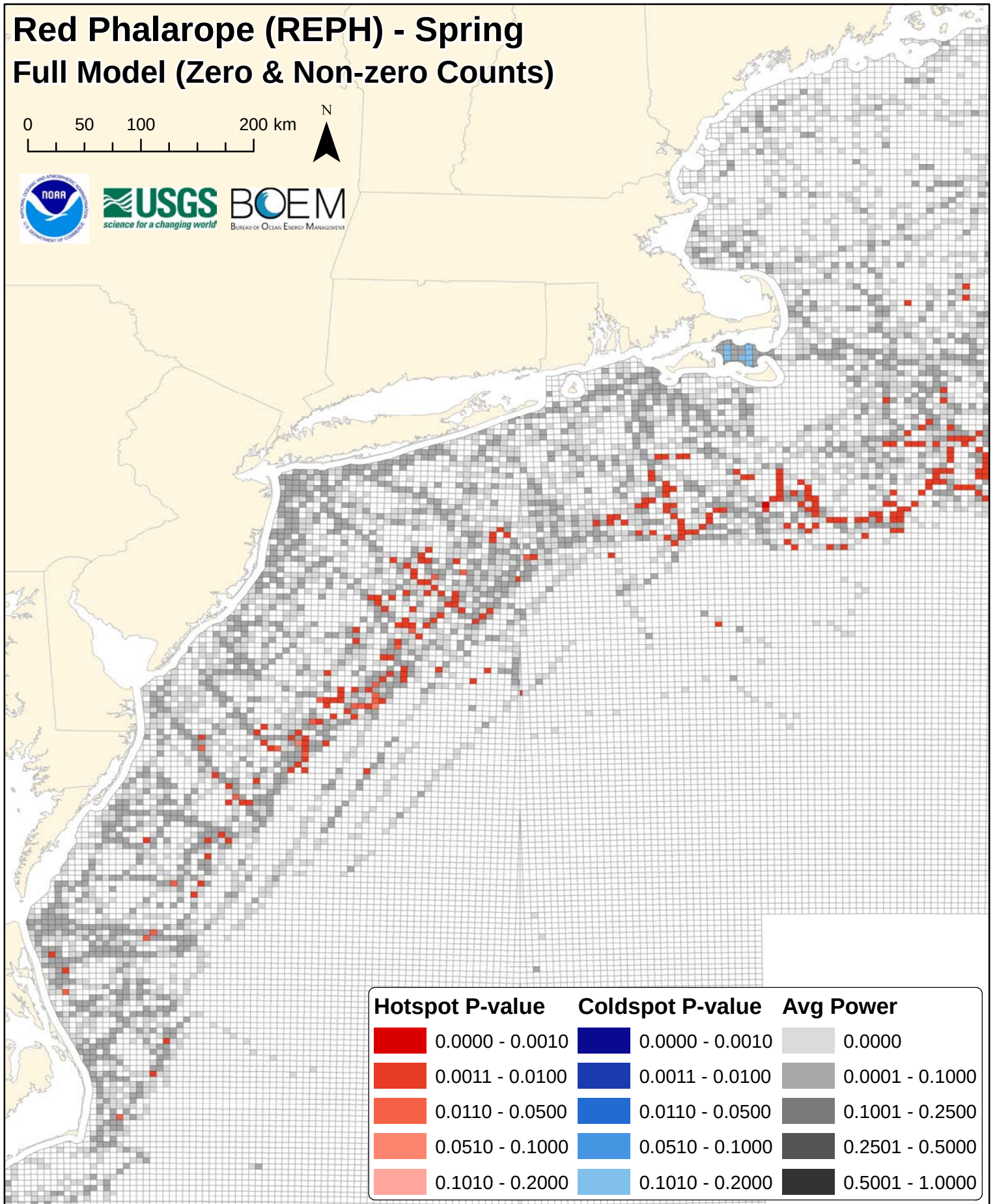
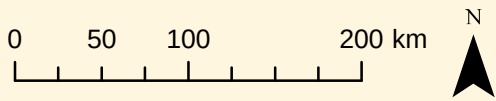


Red Phalarope (REPH) - Spring Full Model (Zero & Non-zero Counts)

0 50 100 200 km



Red Phalarope (REPH) - Spring Full Model (Zero & Non-zero Counts)



Hotspot P-value	Coldspot P-value	Avg Power
0.0000 - 0.0010	0.0000 - 0.0010	0.0000
0.0011 - 0.0100	0.0011 - 0.0100	0.0001 - 0.1000
0.0110 - 0.0500	0.0110 - 0.0500	0.1001 - 0.2500
0.0510 - 0.1000	0.0510 - 0.1000	0.2501 - 0.5000
0.1010 - 0.2000	0.1010 - 0.2000	0.5001 - 1.0000

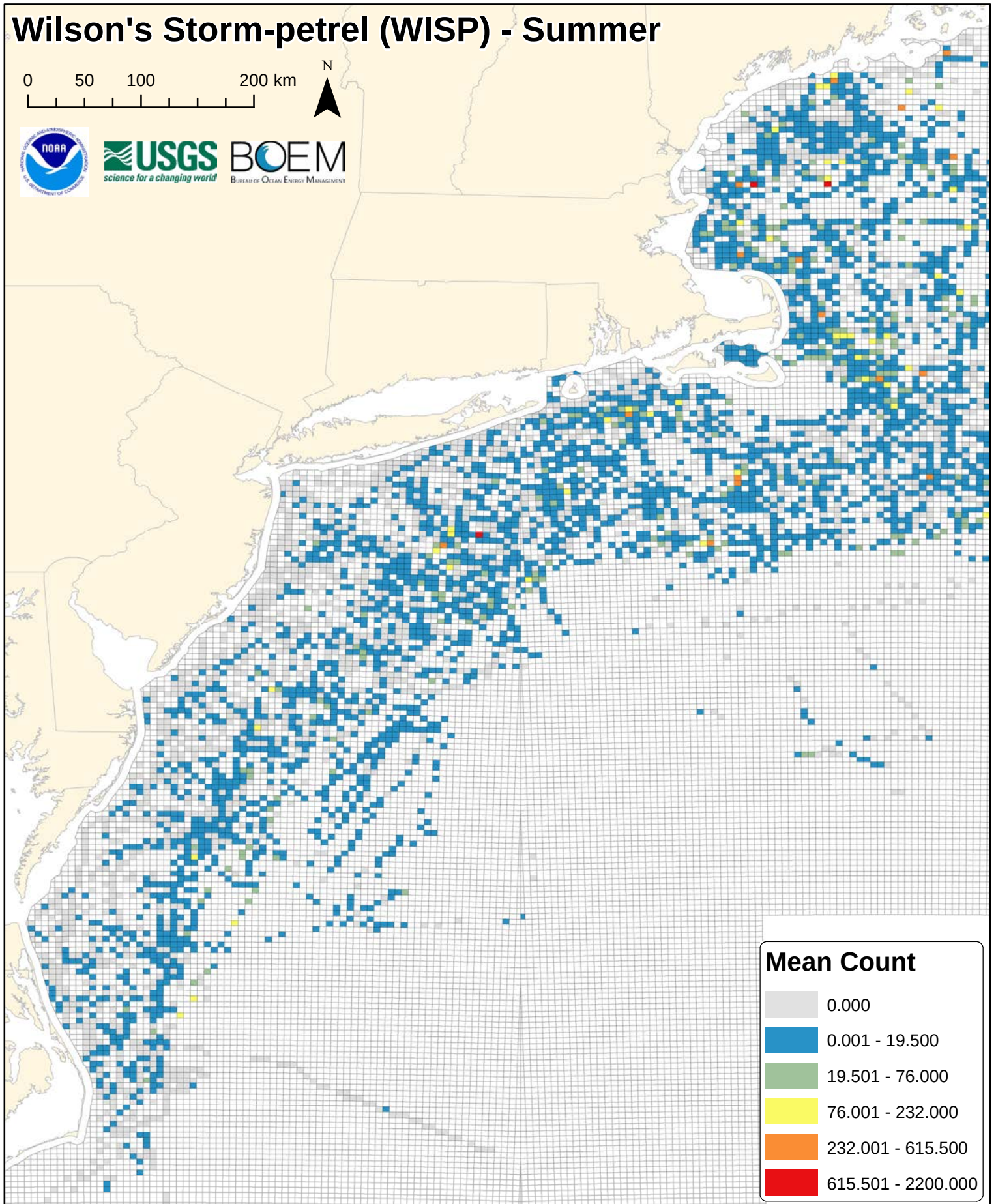
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Full Hurdle Model (Zero & Non-Zero Counts) Results

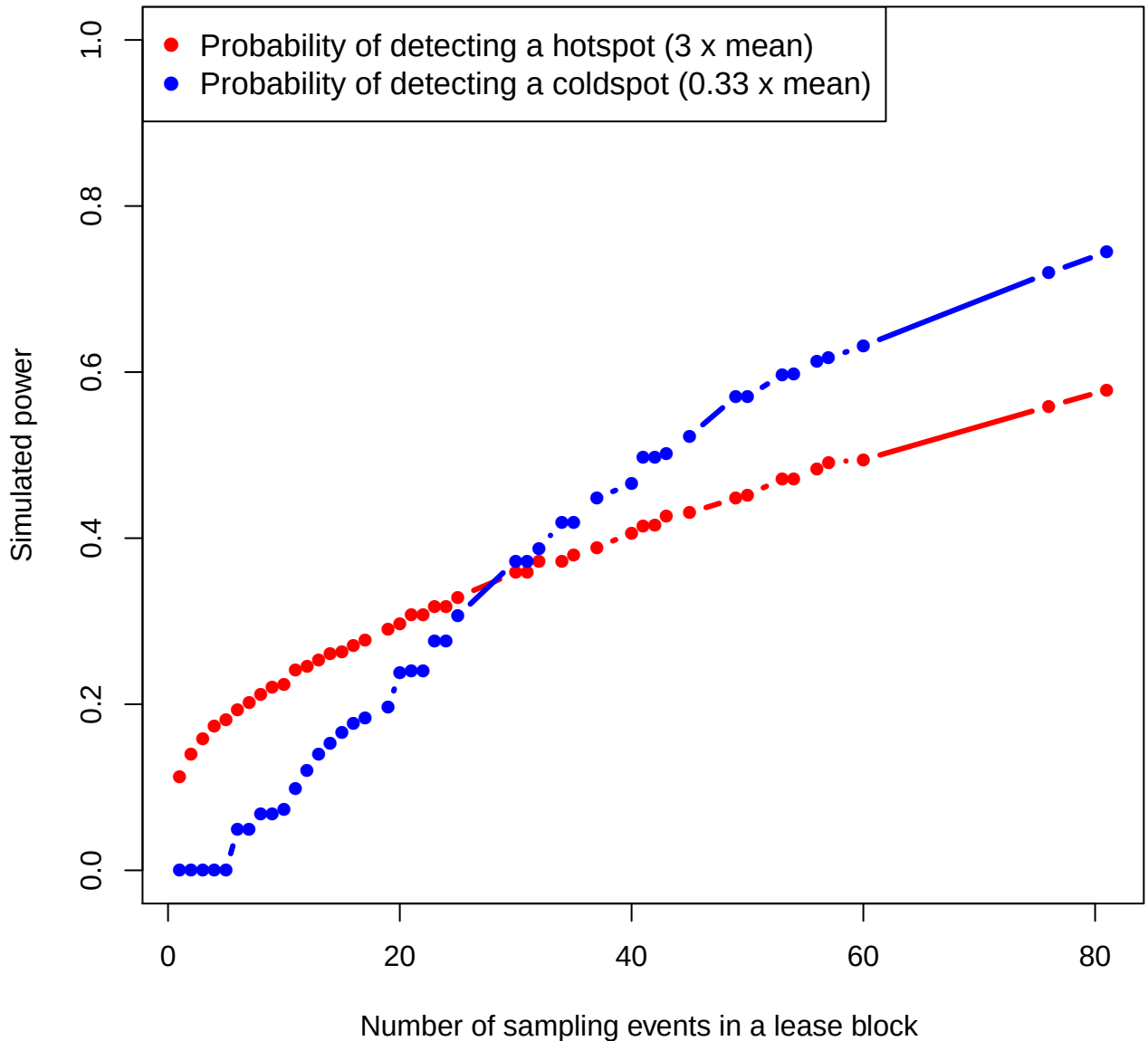
SECTION II. Species-specific Power Analysis **Maps and Figures**

Figures G91-G125. Summer power analysis maps and figures (7 species x 5 figures per species).

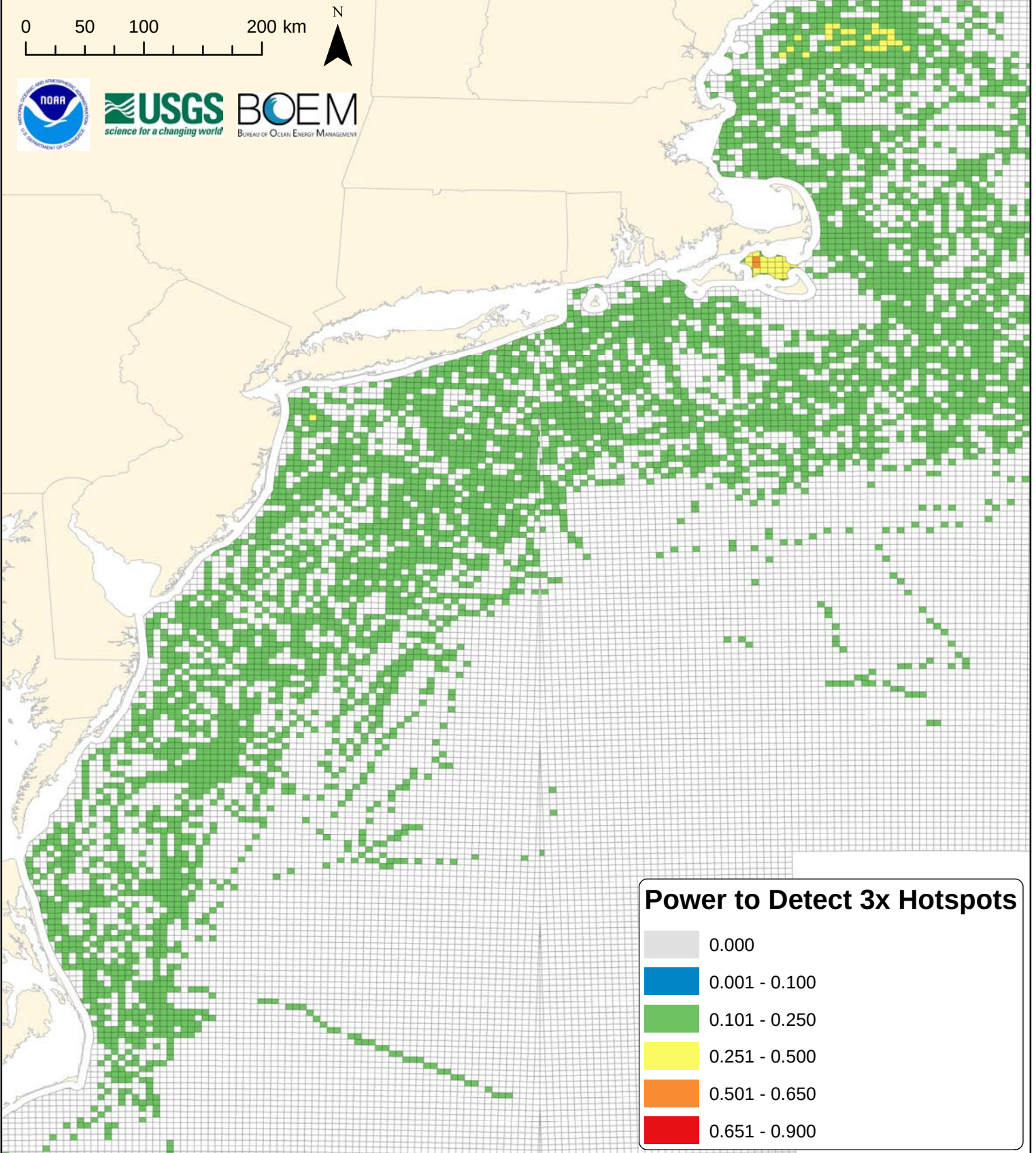
Wilson's Storm-petrel (WISP) - Summer



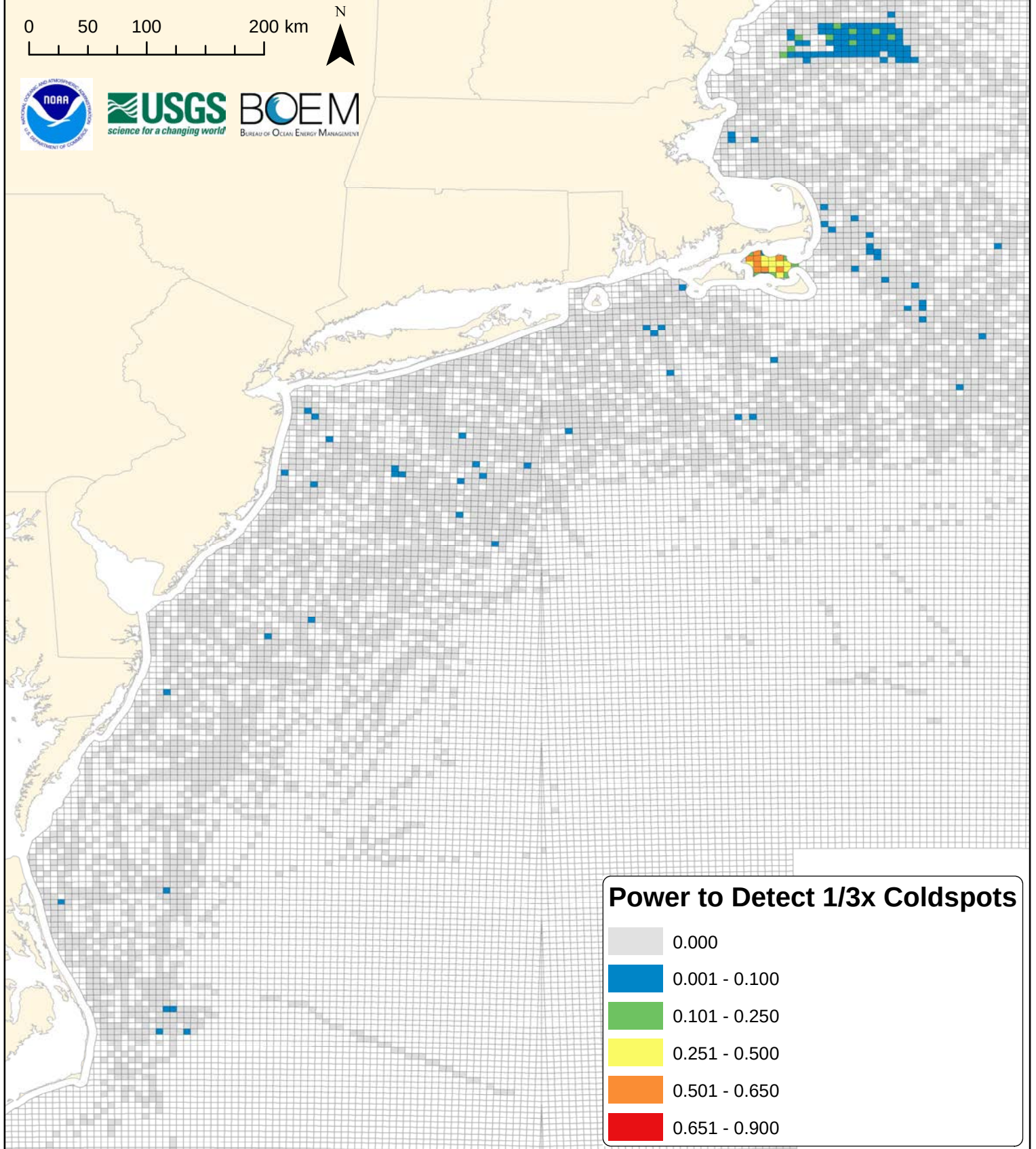
wisp



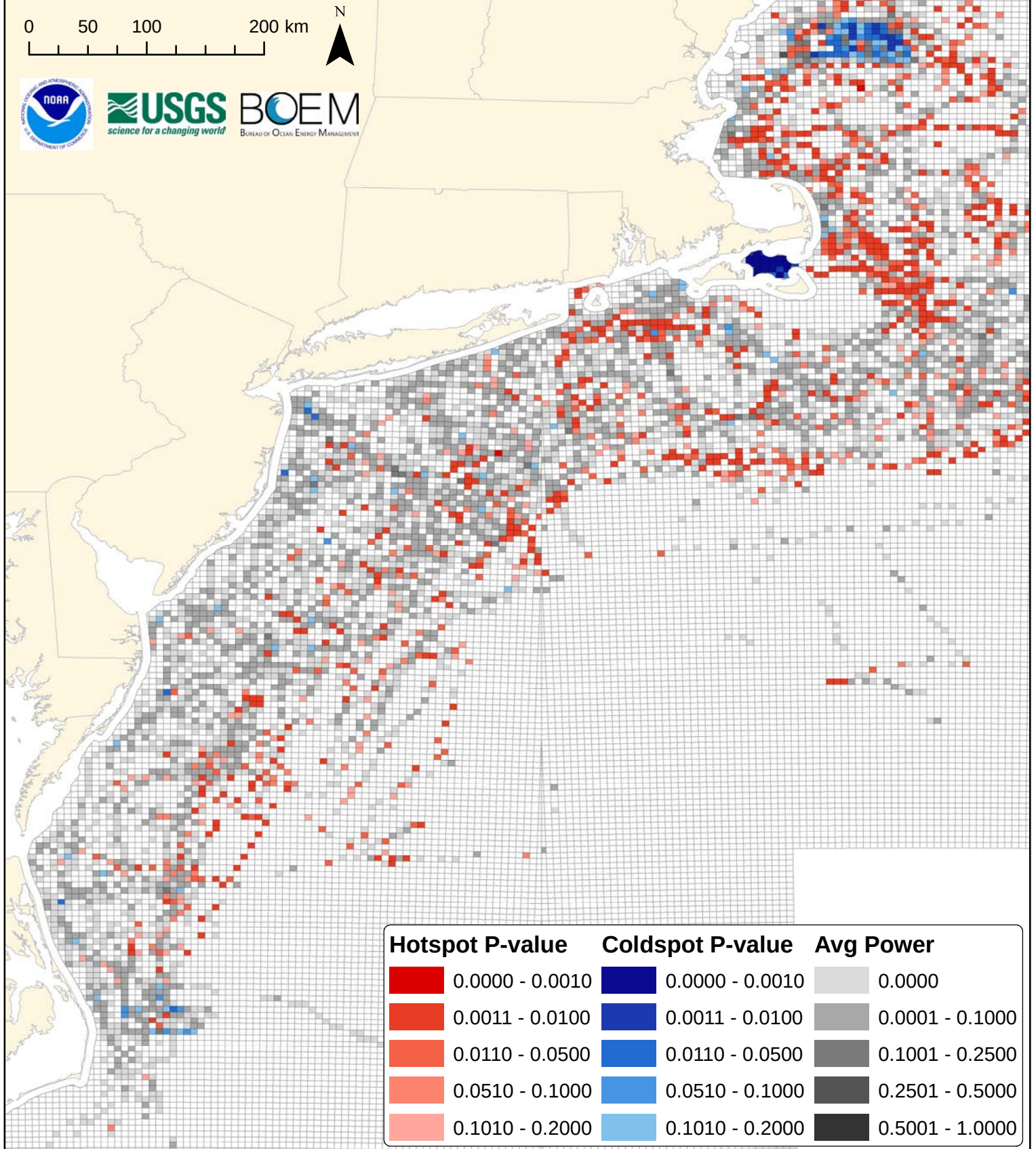
Wilson's Storm-petrel (WISP) - Summer Full Model (Zero & Non-zero Counts)

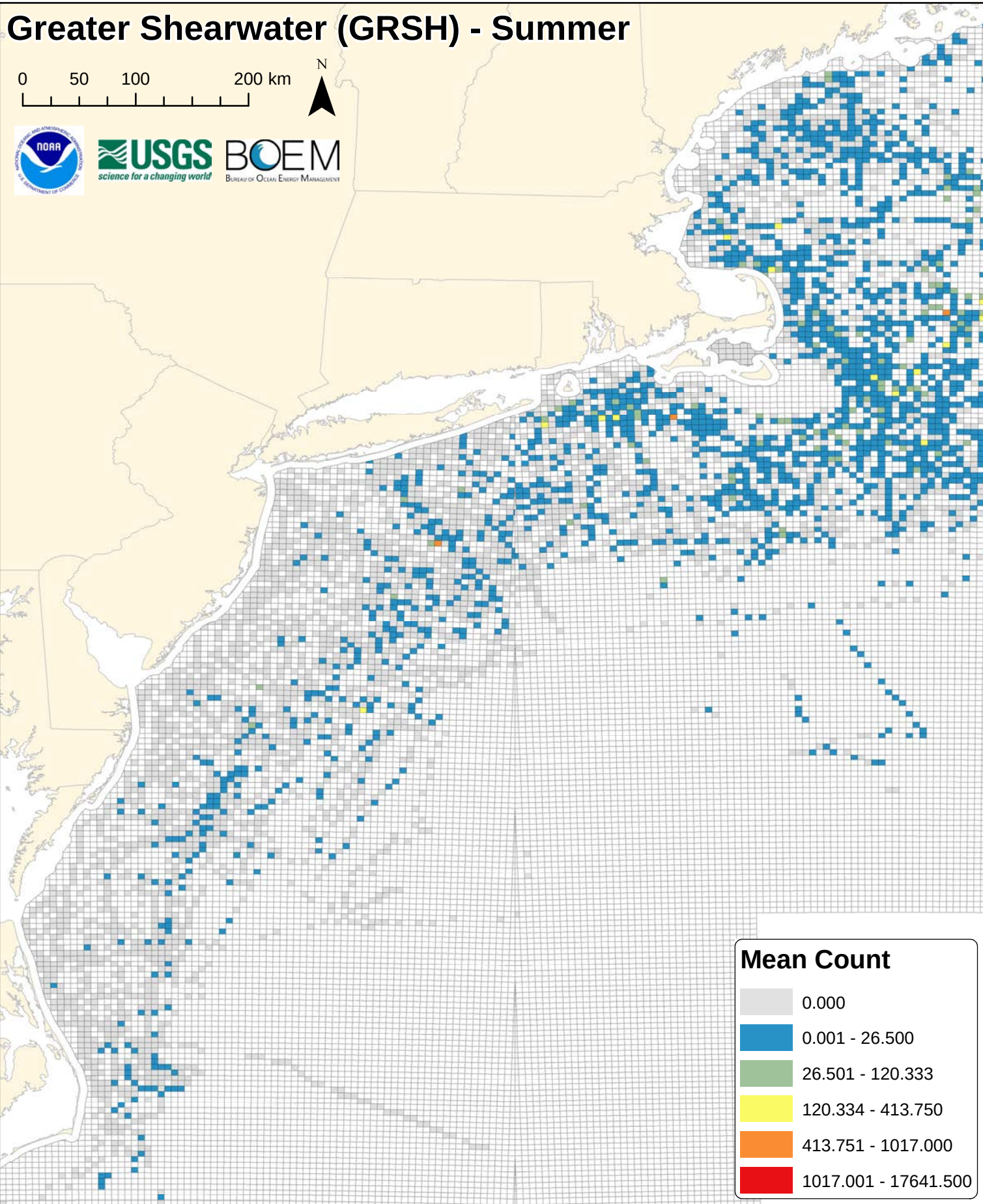


Wilson's Storm-petrel (WISP) - Summer Full Model (Zero & Non-zero Counts)

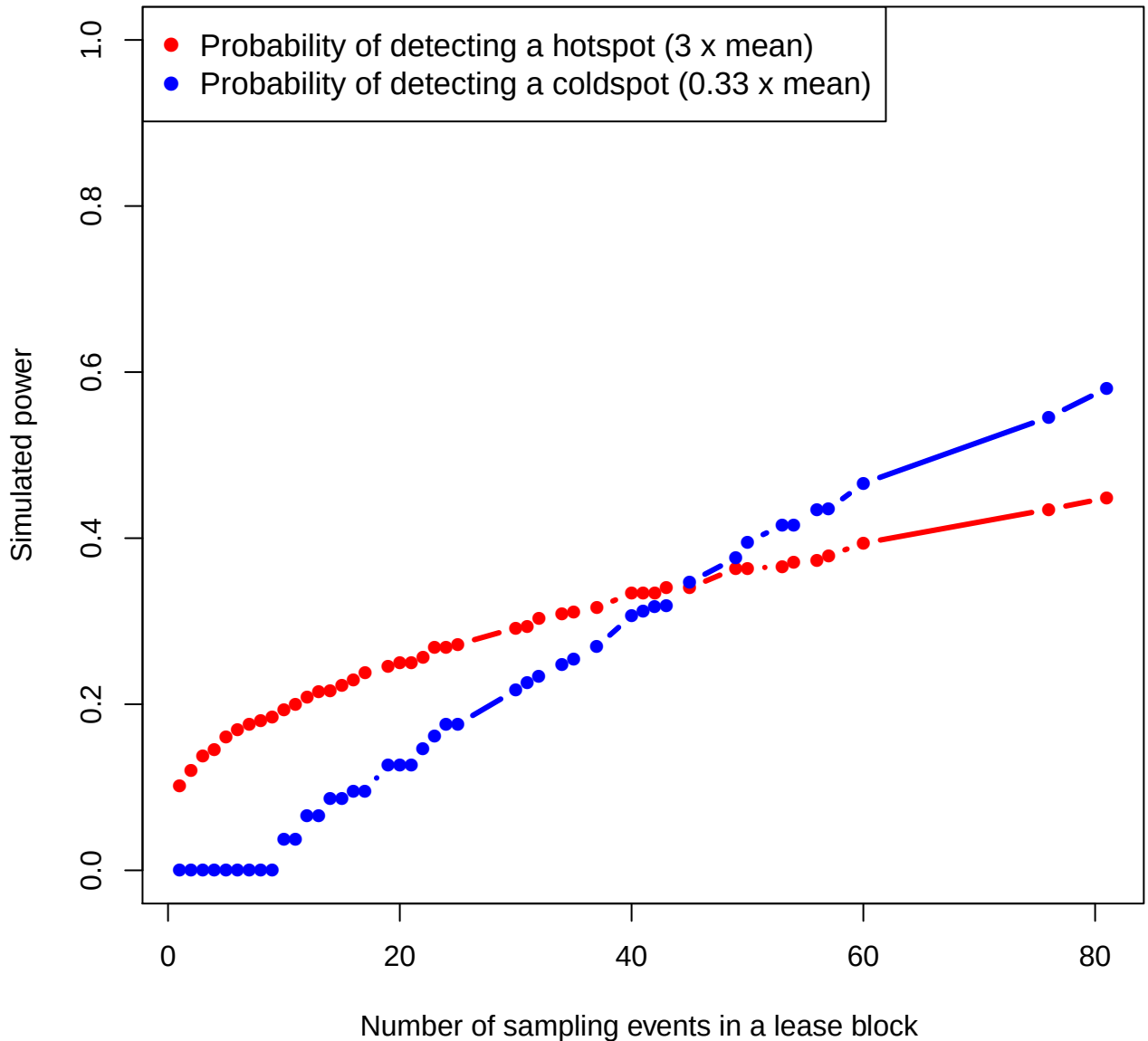


Wilson's Storm-petrel (WISP) - Summer Full Model (Zero & Non-zero Counts)

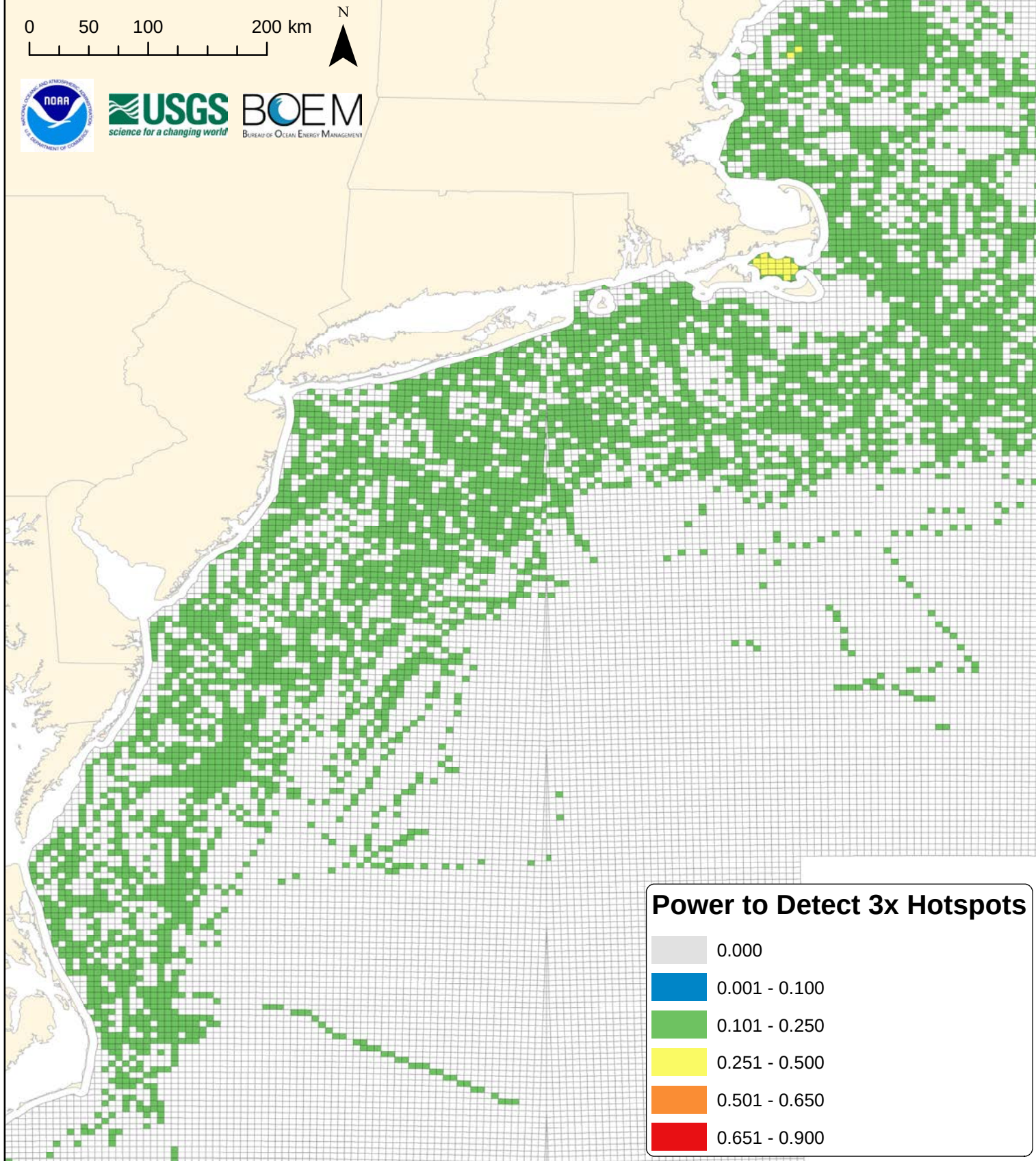




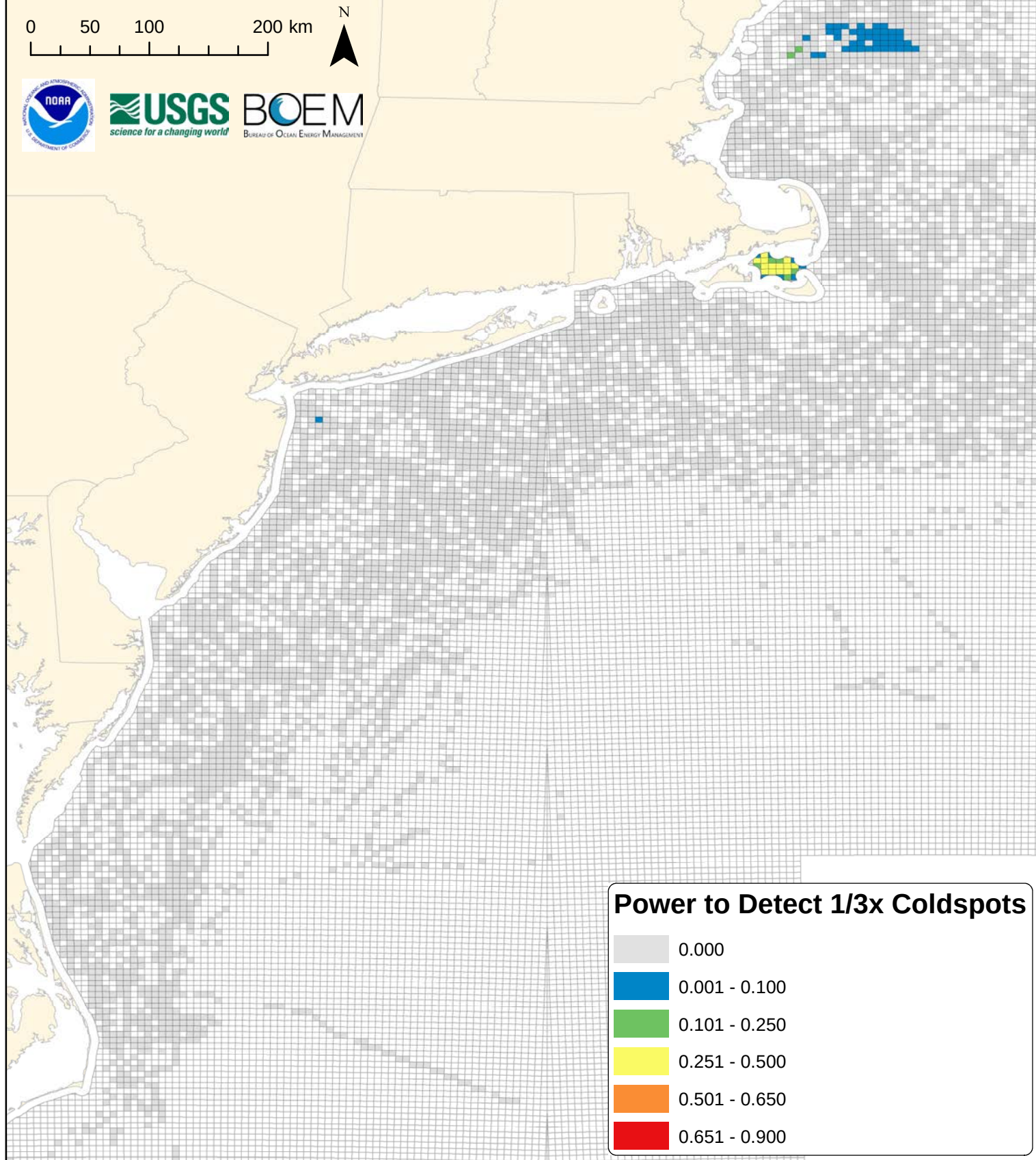
grsh



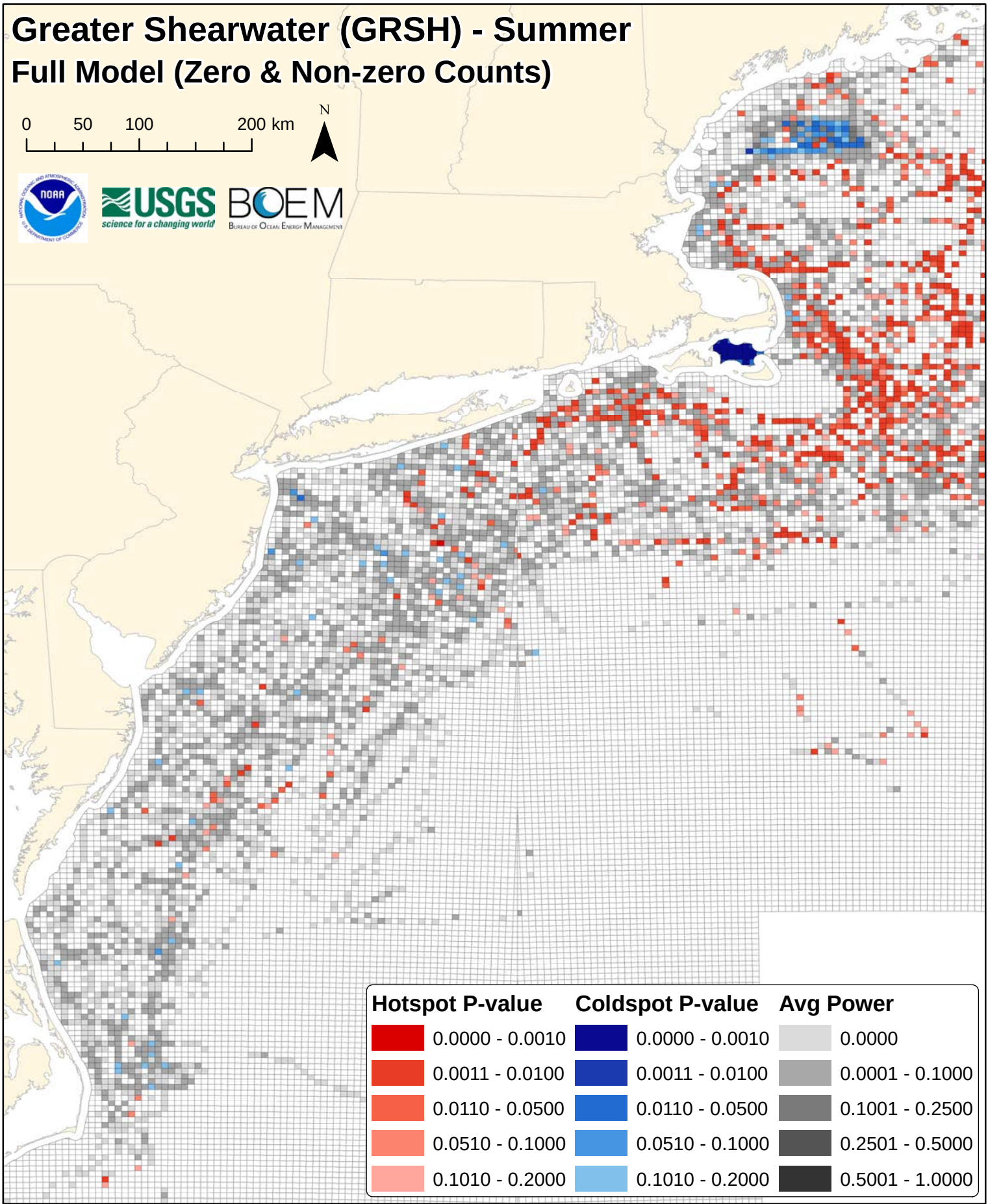
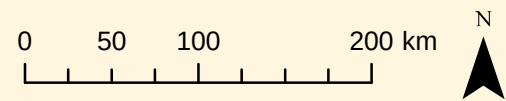
Greater Shearwater (GRSH) - Summer Full Model (Zero & Non-zero Counts)



Greater Shearwater (GRSH) - Summer Full Model (Zero & Non-zero Counts)

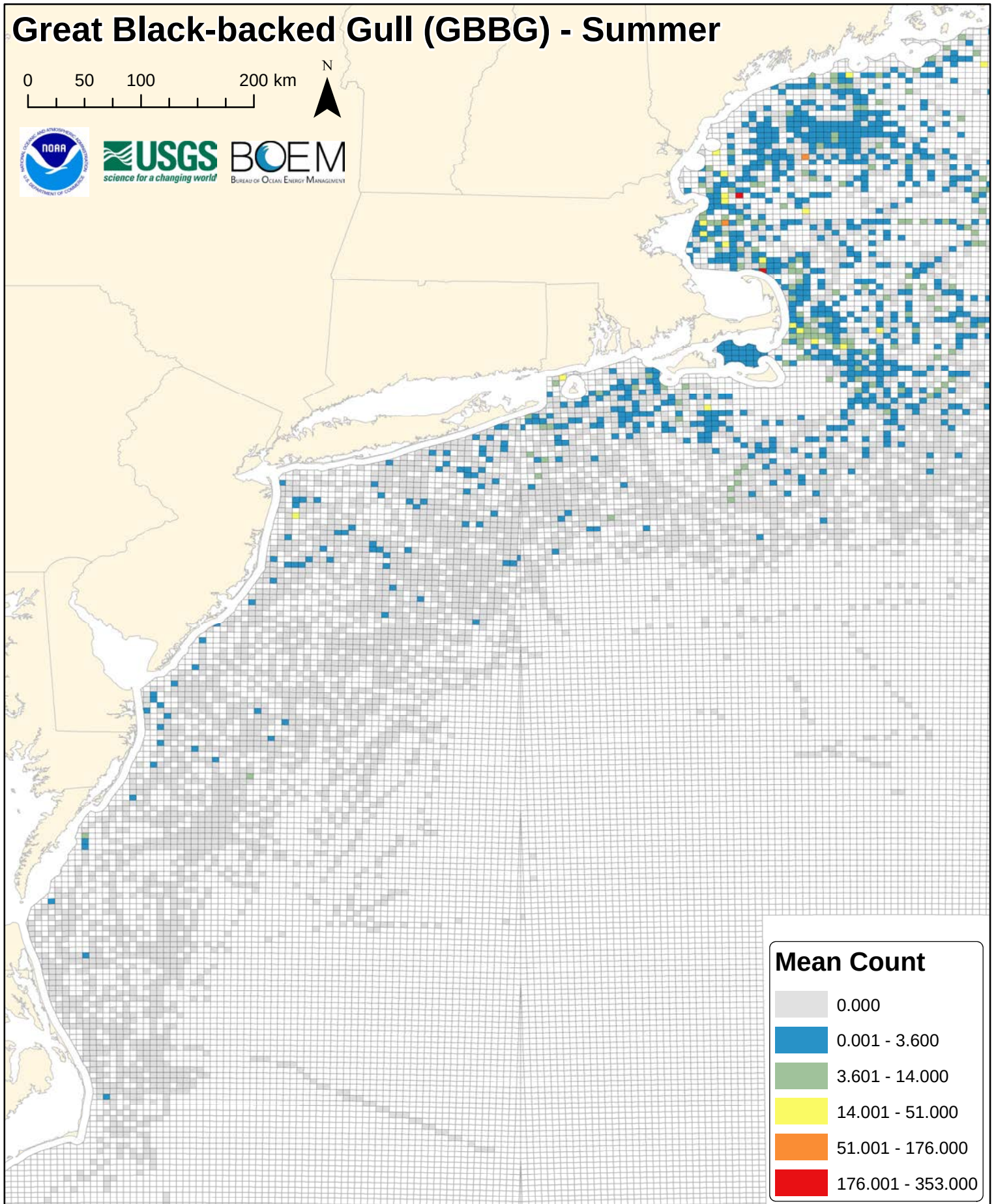


Greater Shearwater (GRSH) - Summer Full Model (Zero & Non-zero Counts)

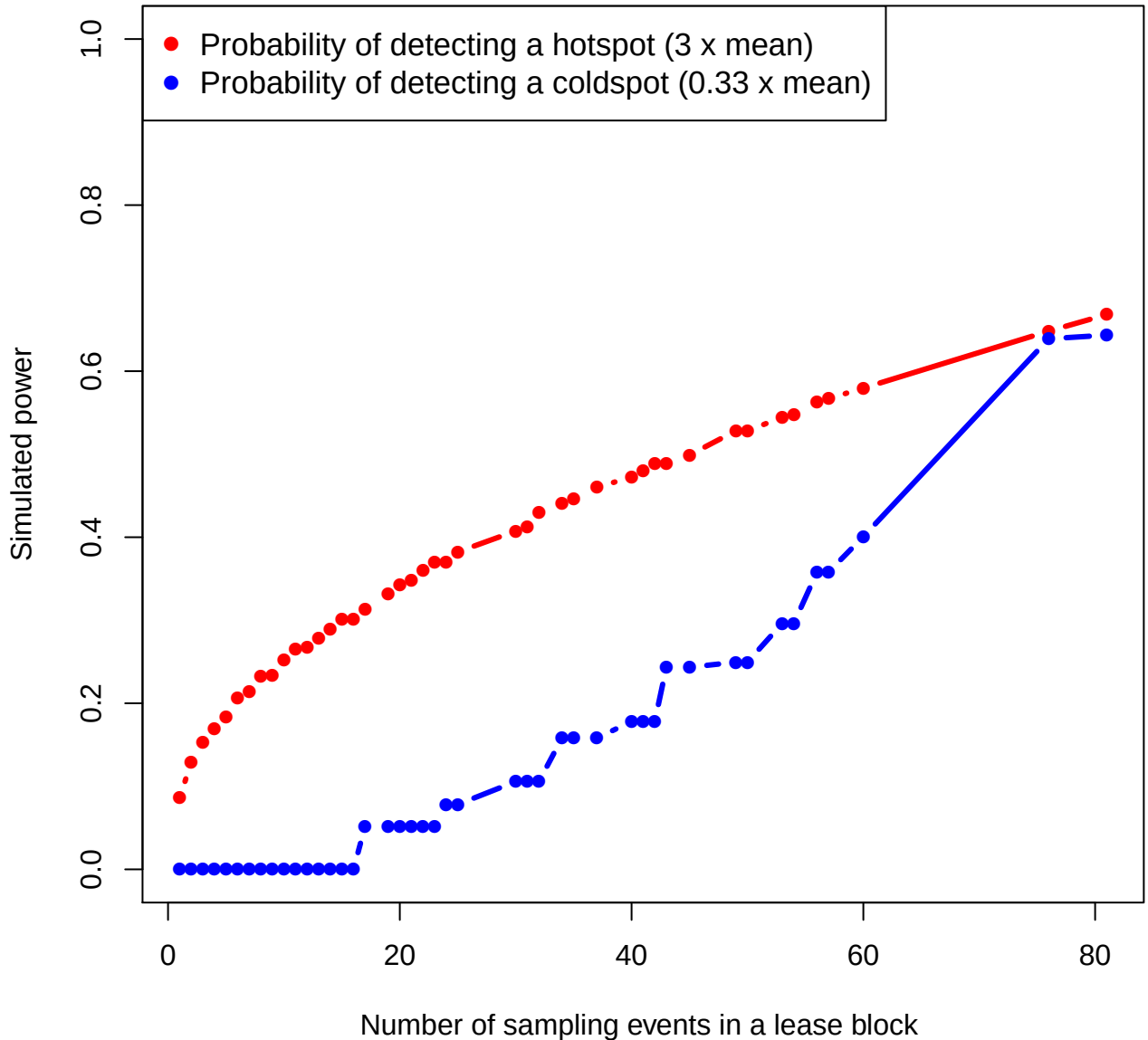


Hotspot P-value	Coldspot P-value	Avg Power
 0.0000 - 0.0010	 0.0000 - 0.0010	 0.0000
 0.0011 - 0.0100	 0.0011 - 0.0100	 0.0001 - 0.1000
 0.0110 - 0.0500	 0.0110 - 0.0500	 0.1001 - 0.2500
 0.0510 - 0.1000	 0.0510 - 0.1000	 0.2501 - 0.5000
 0.1010 - 0.2000	 0.1010 - 0.2000	 0.5001 - 1.0000

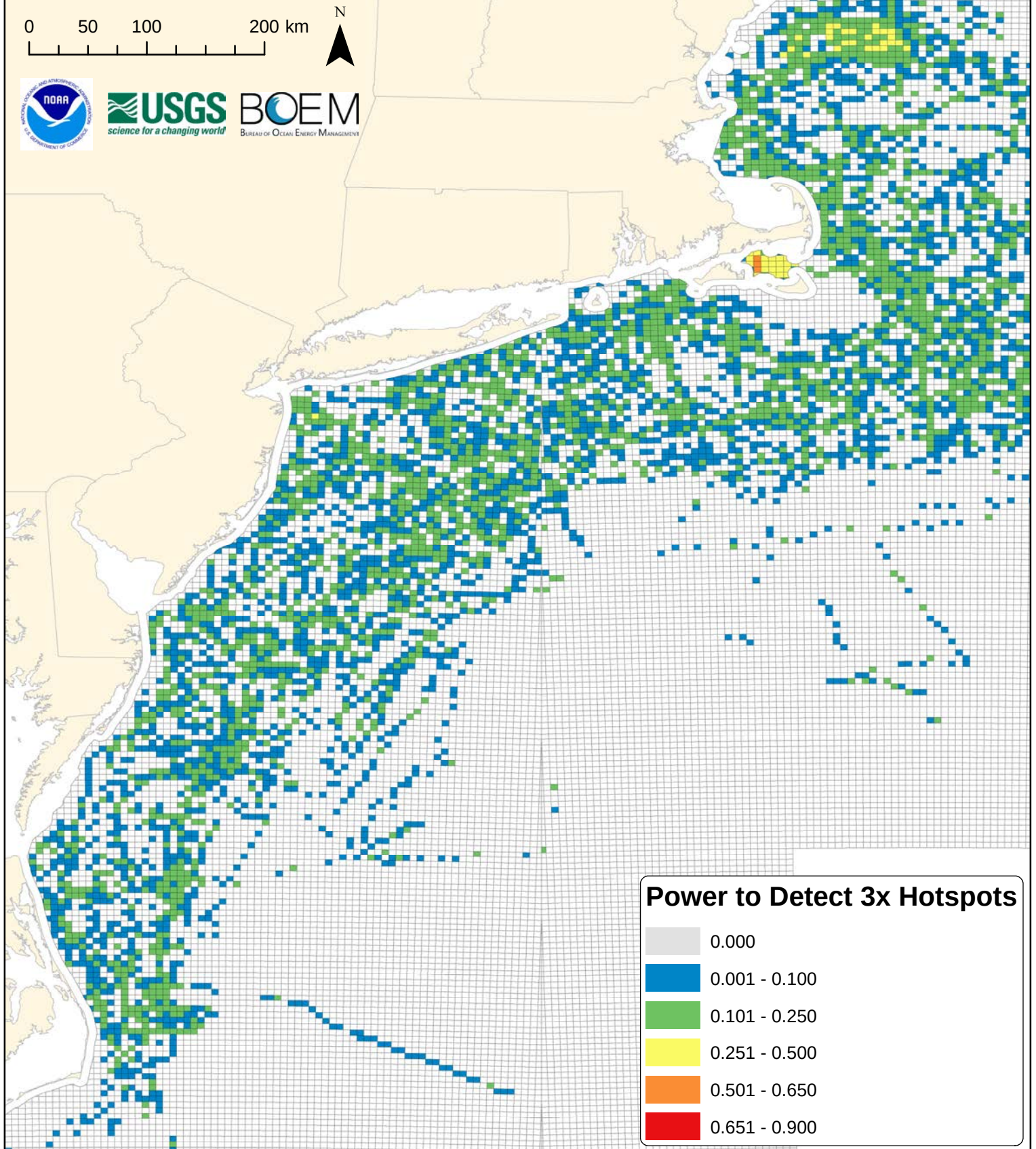
Great Black-backed Gull (GBBG) - Summer



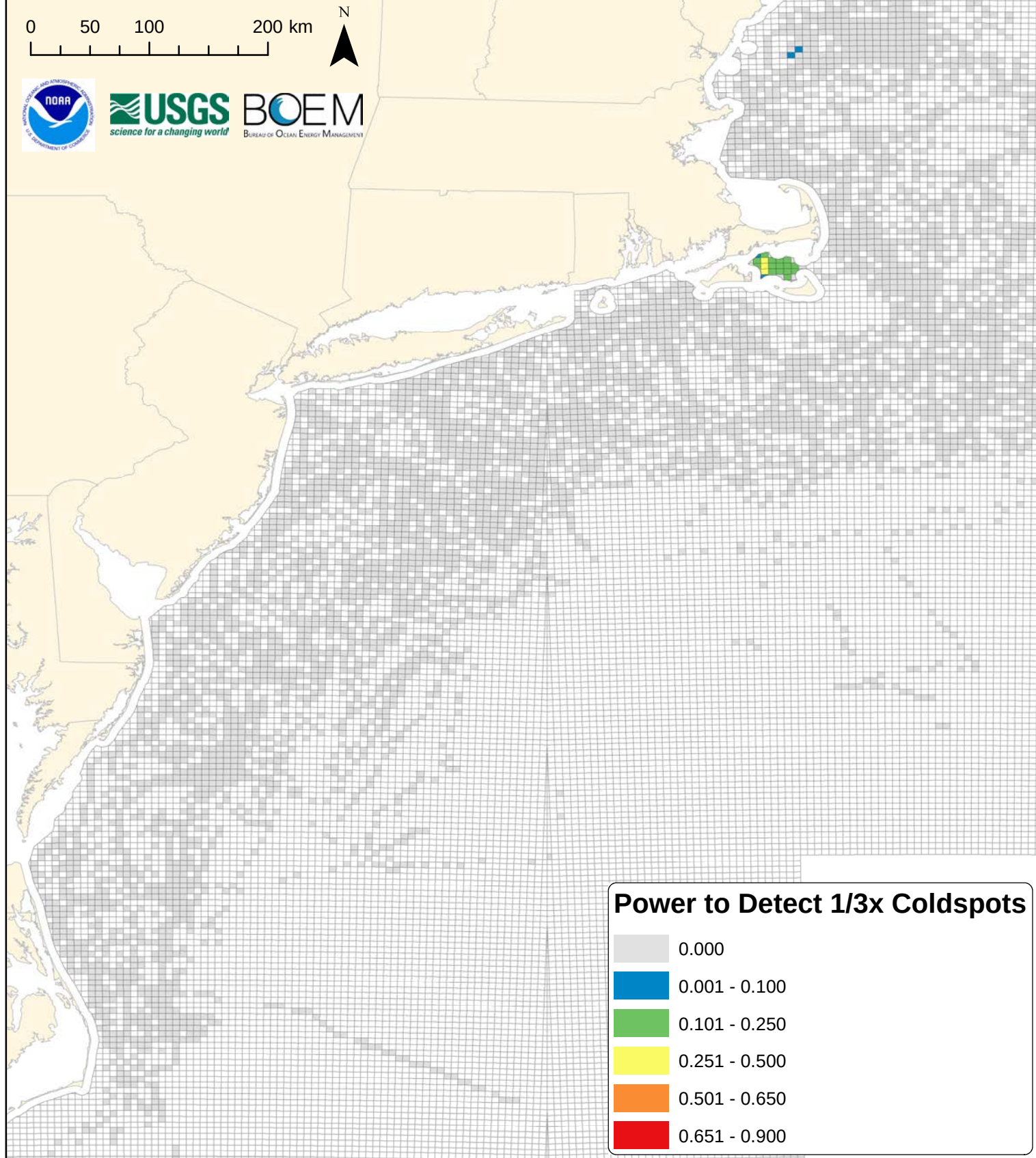
gbbg



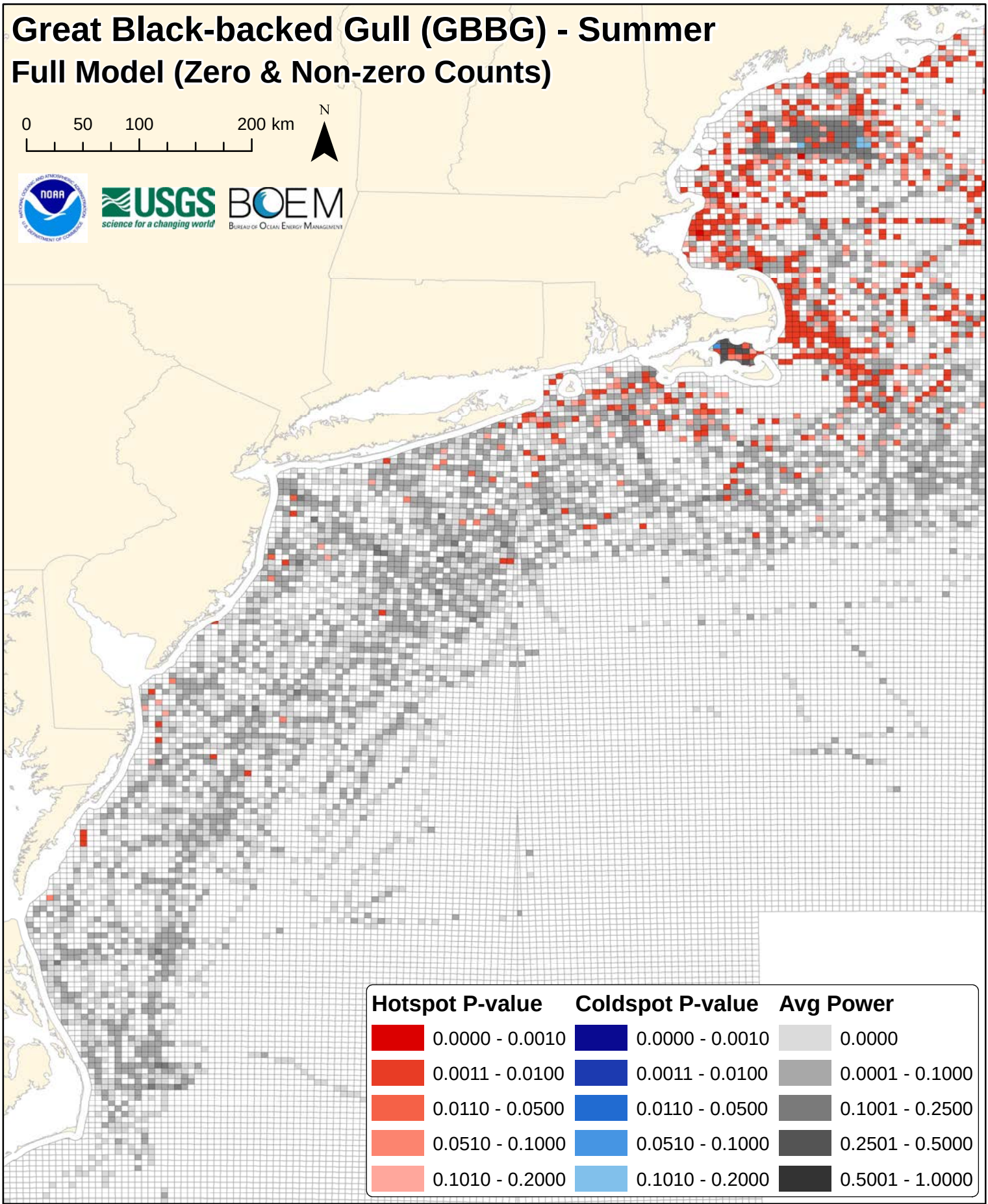
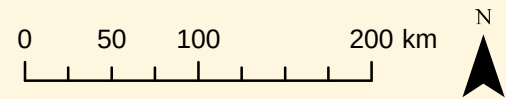
Great Black-backed Gull (GBBG) - Summer Full Model (Zero & Non-zero Counts)



Great Black-backed Gull (GBBG) - Summer Full Model (Zero & Non-zero Counts)

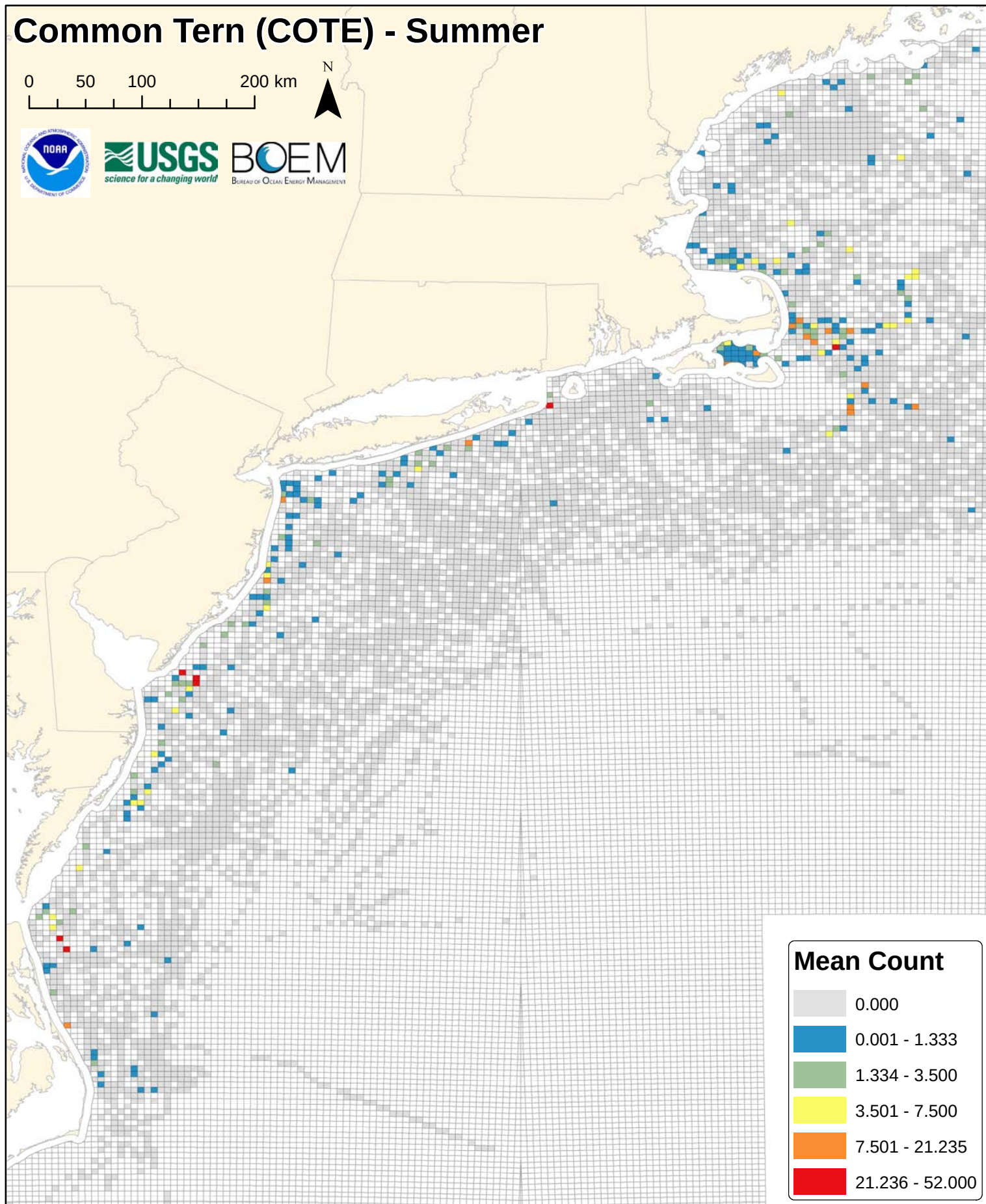


Great Black-backed Gull (GBBG) - Summer Full Model (Zero & Non-zero Counts)



Common Tern (COTE) - Summer

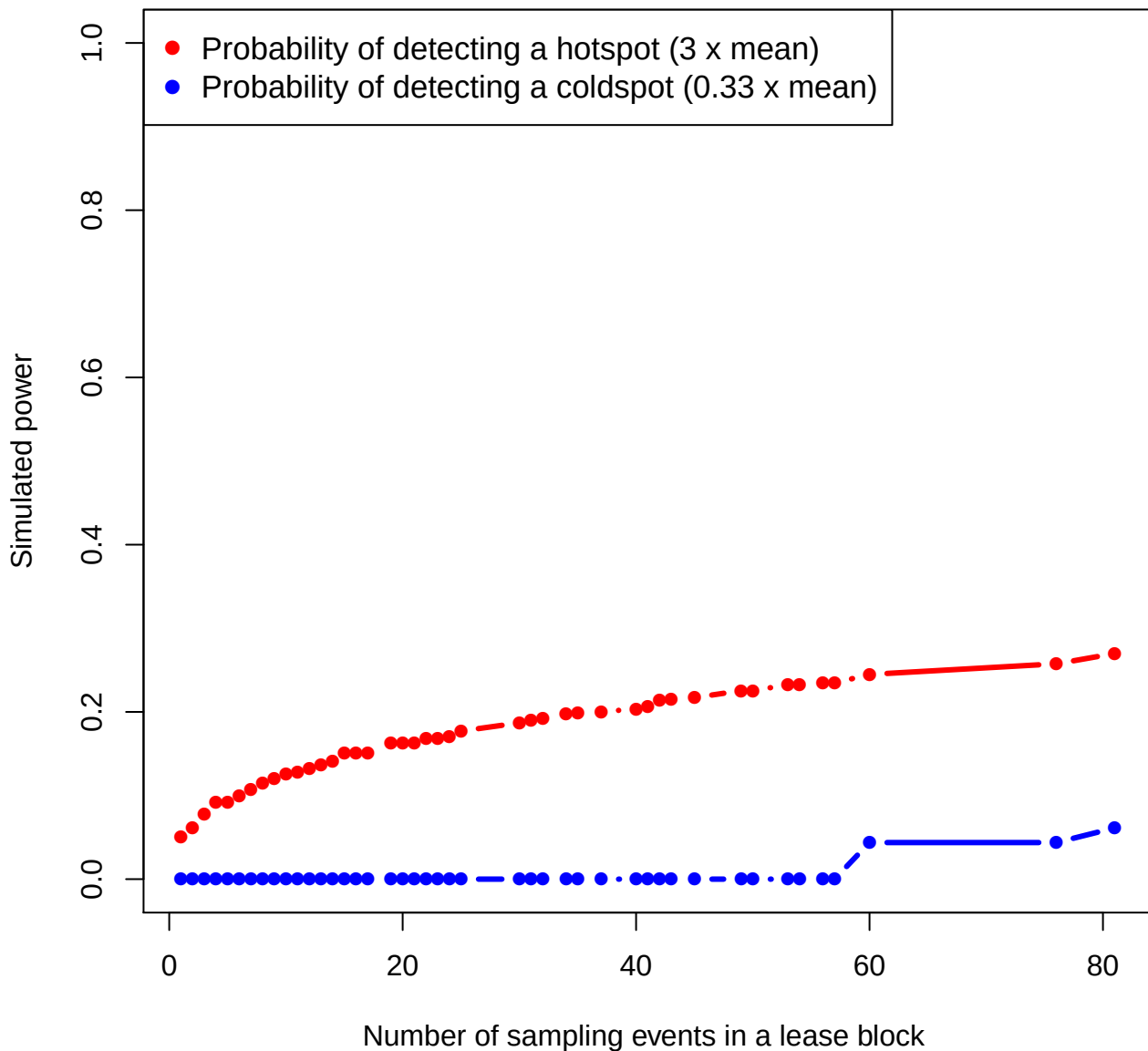
0 50 100 200 km



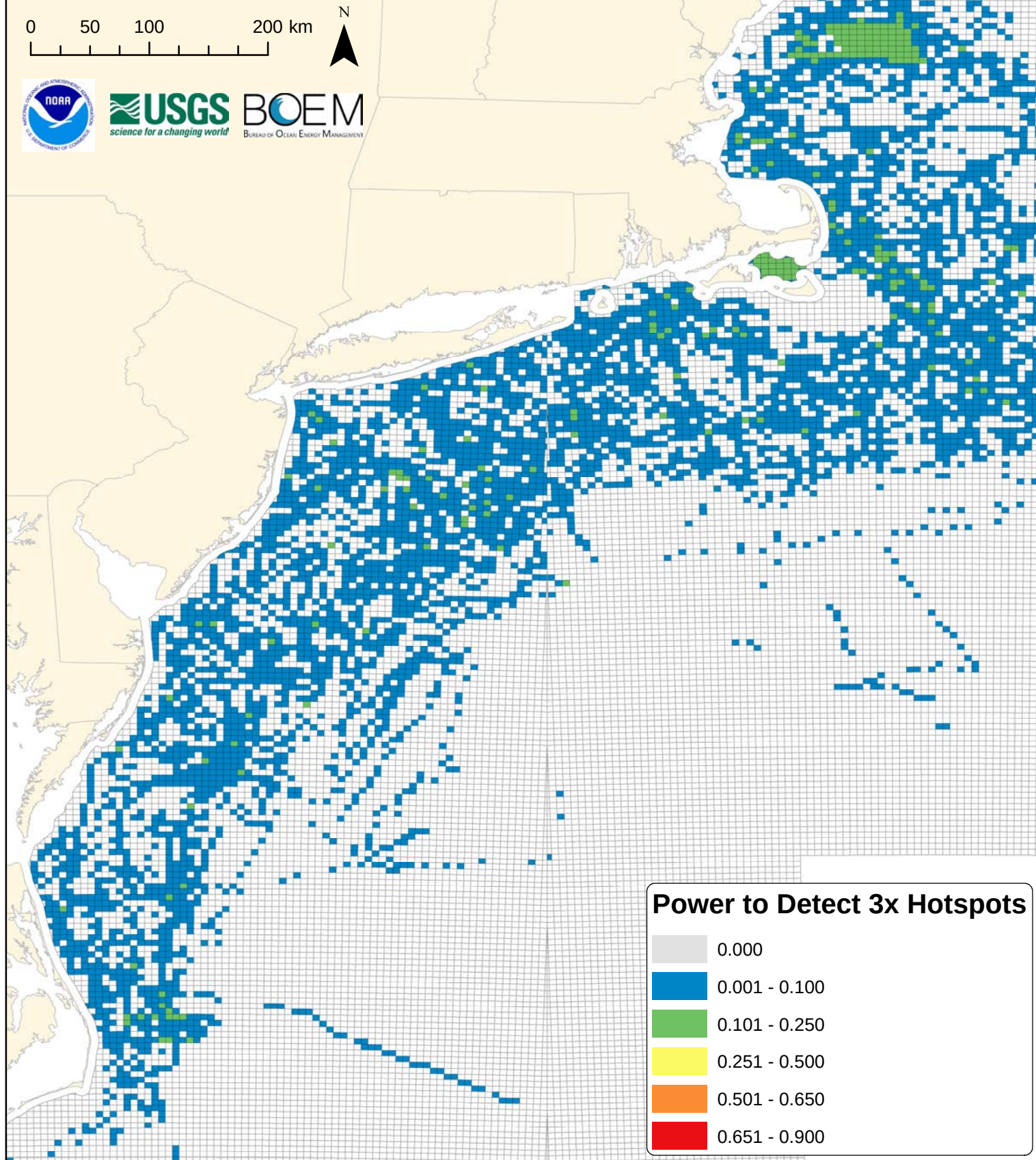
Mean Count

0.000
0.001 - 1.333
1.334 - 3.500
3.501 - 7.500
7.501 - 21.235
21.236 - 52.000

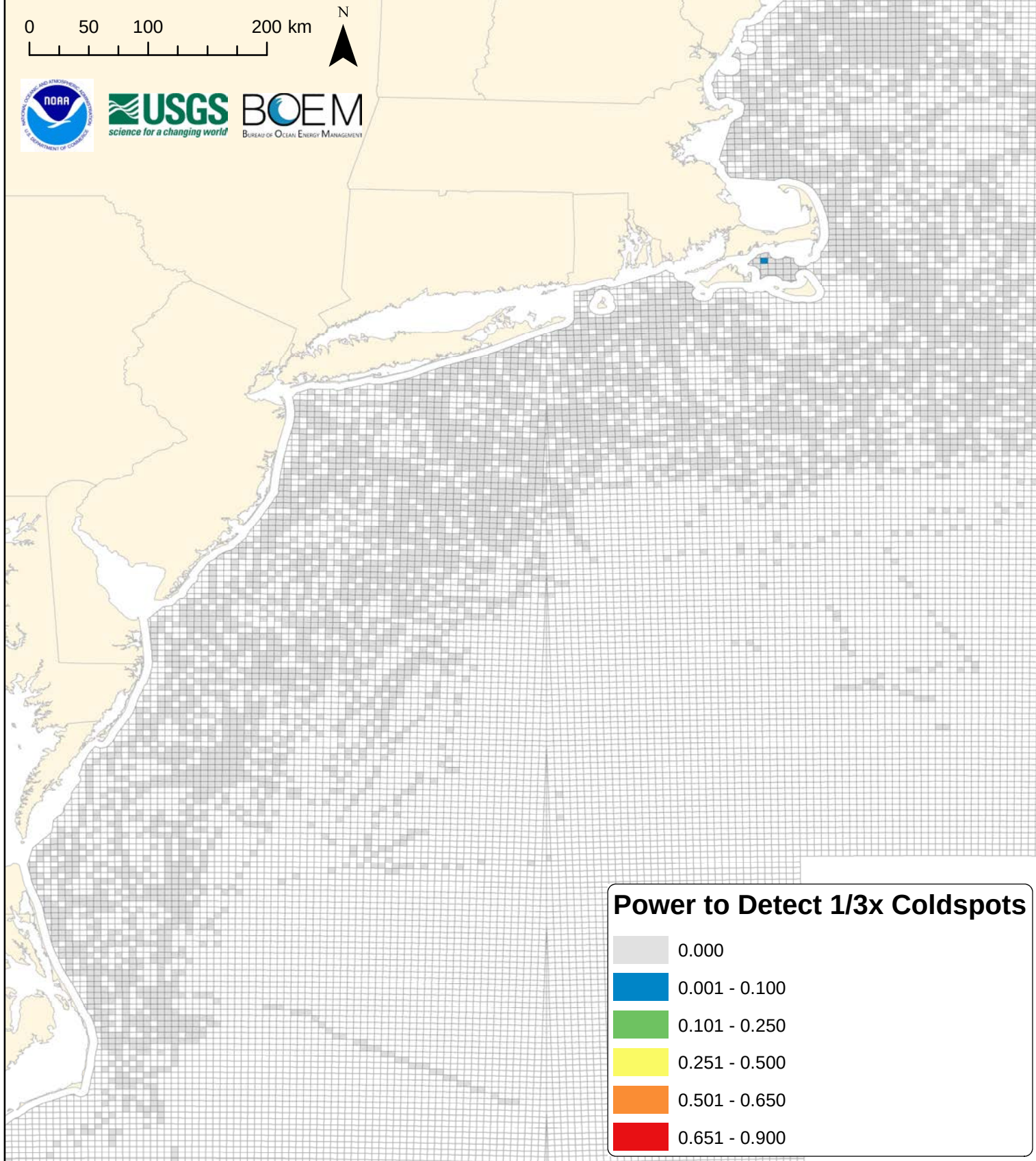
cote



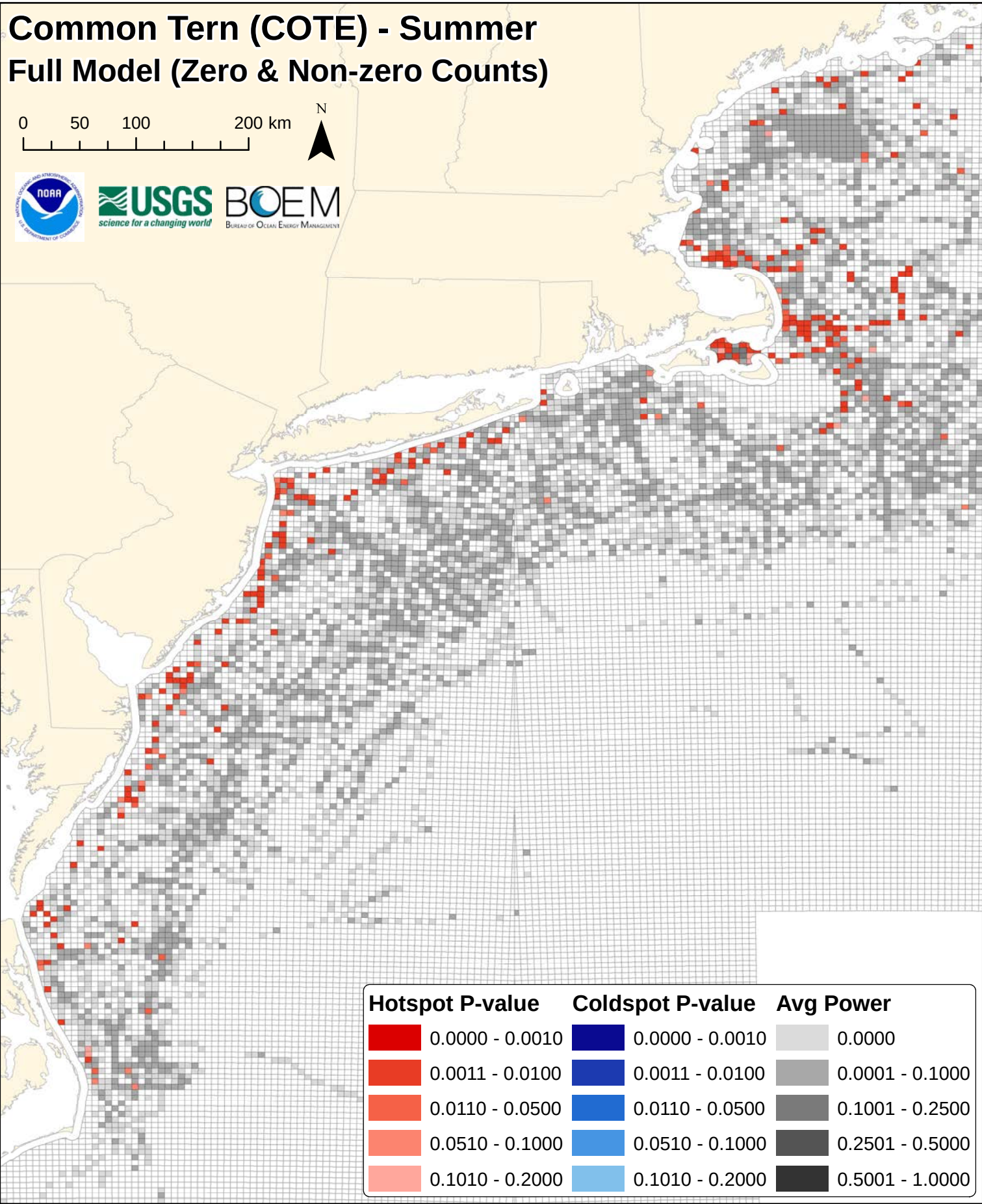
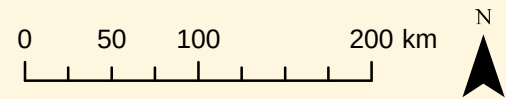
Common Tern (COTE) - Summer Full Model (Zero & Non-zero Counts)



Common Tern (COTE) - Summer Full Model (Zero & Non-zero Counts)

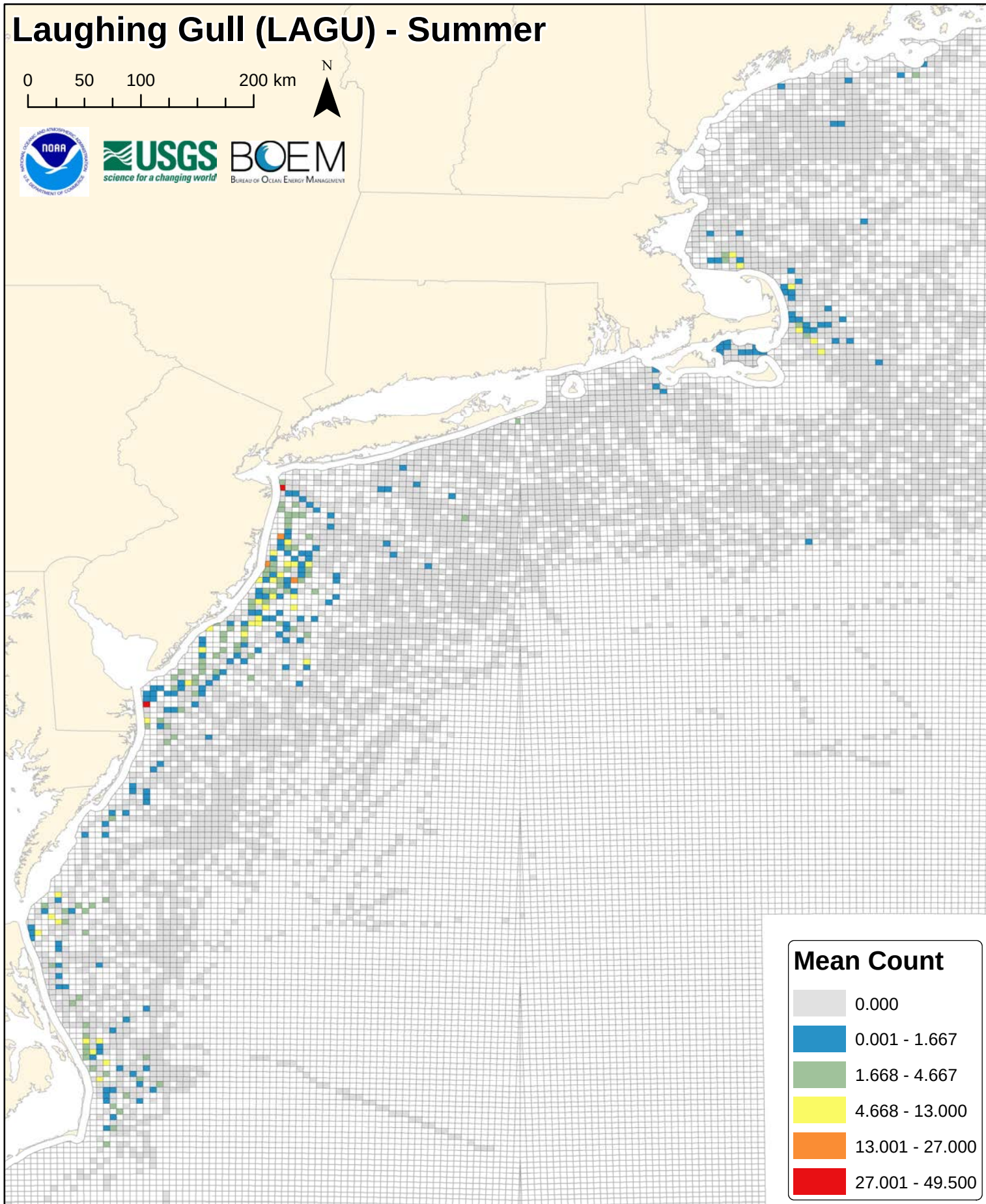


Common Tern (COTE) - Summer Full Model (Zero & Non-zero Counts)



Laughing Gull (LAGU) - Summer

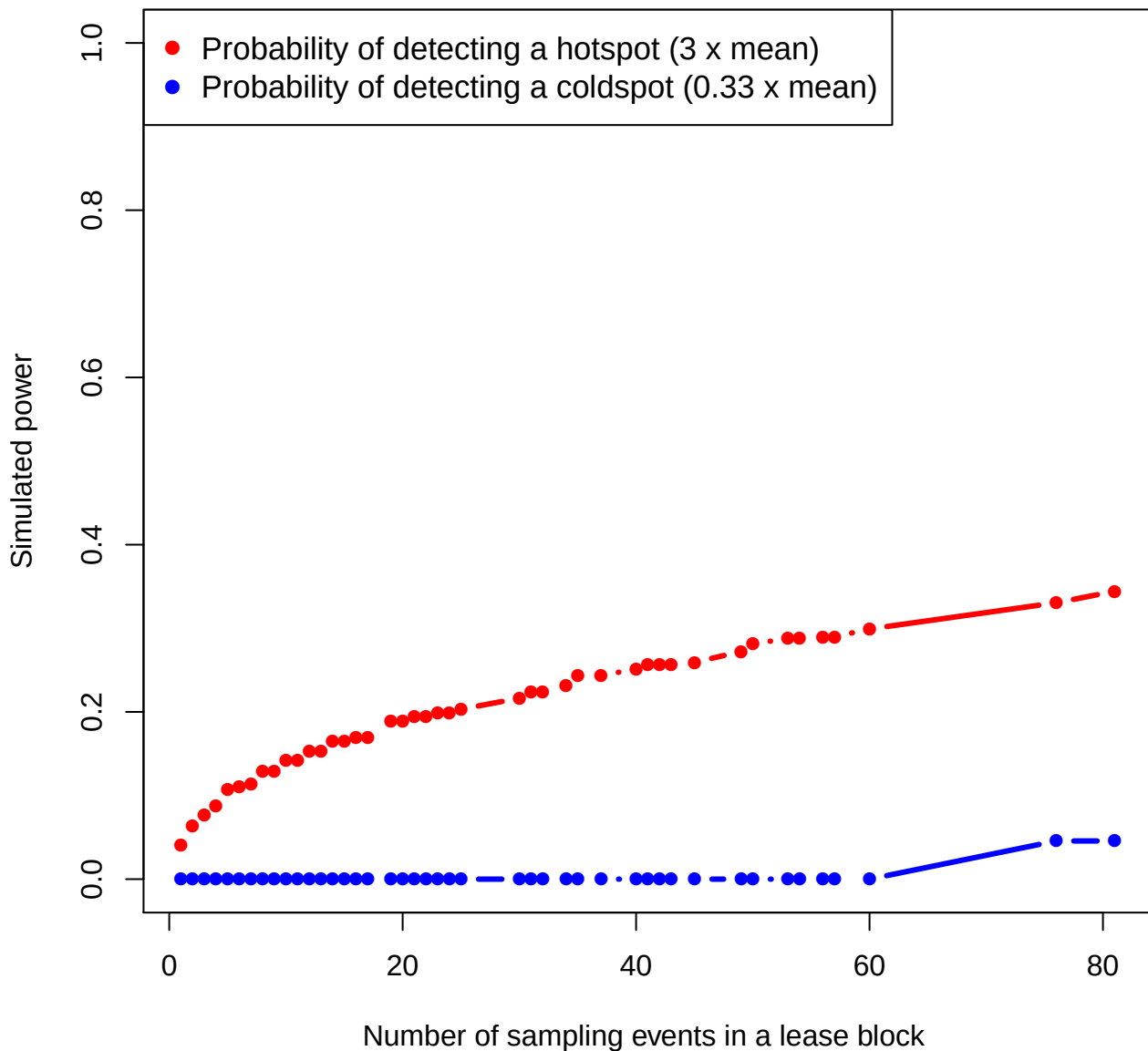
0 50 100 200 km



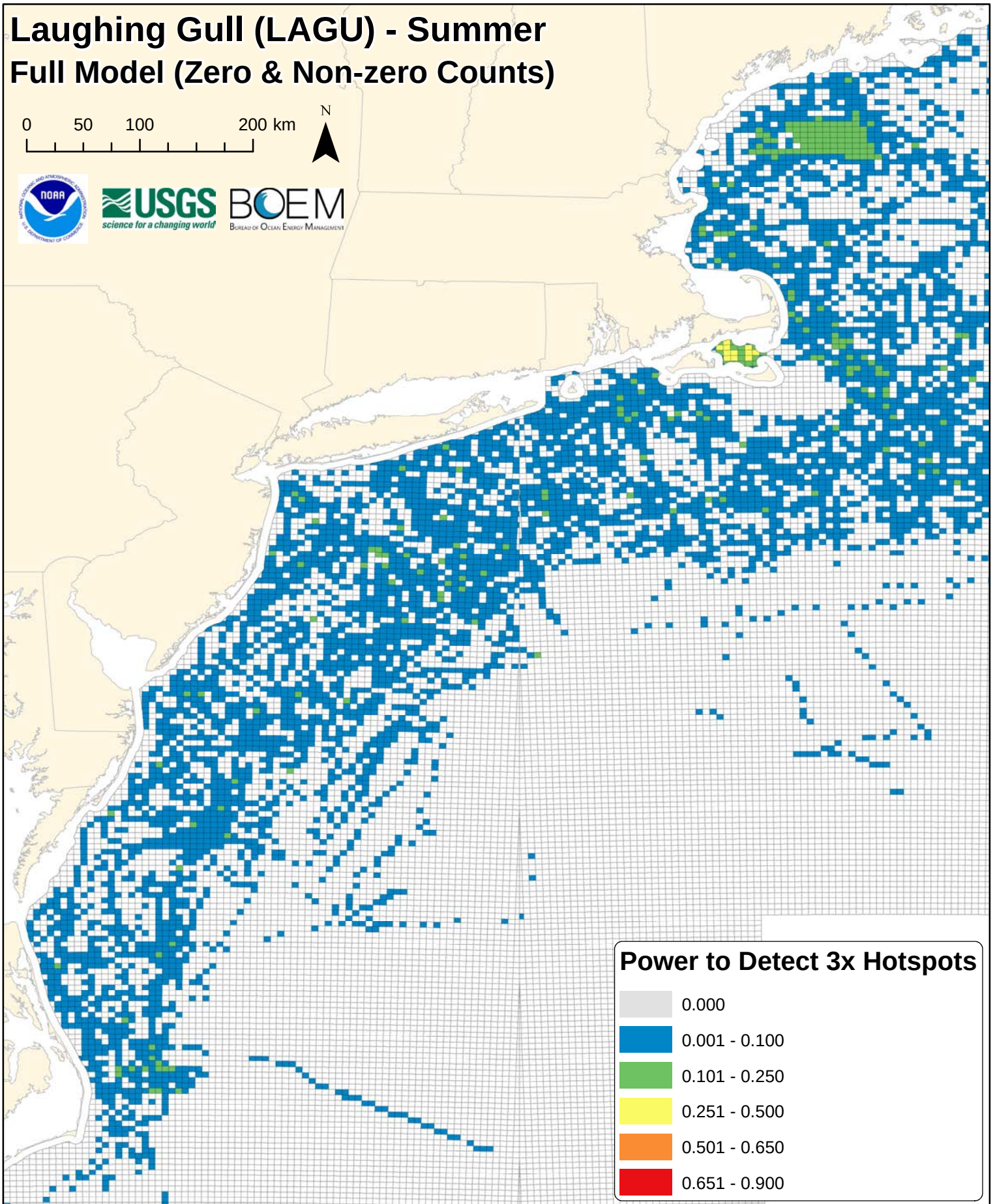
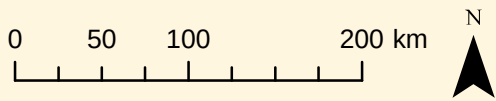
Mean Count

0.000
0.001 - 1.667
1.668 - 4.667
4.668 - 13.000
13.001 - 27.000
27.001 - 49.500

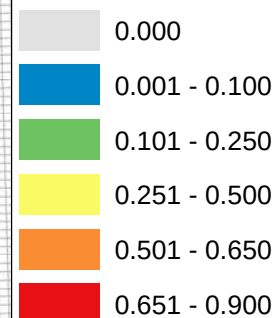
lagu



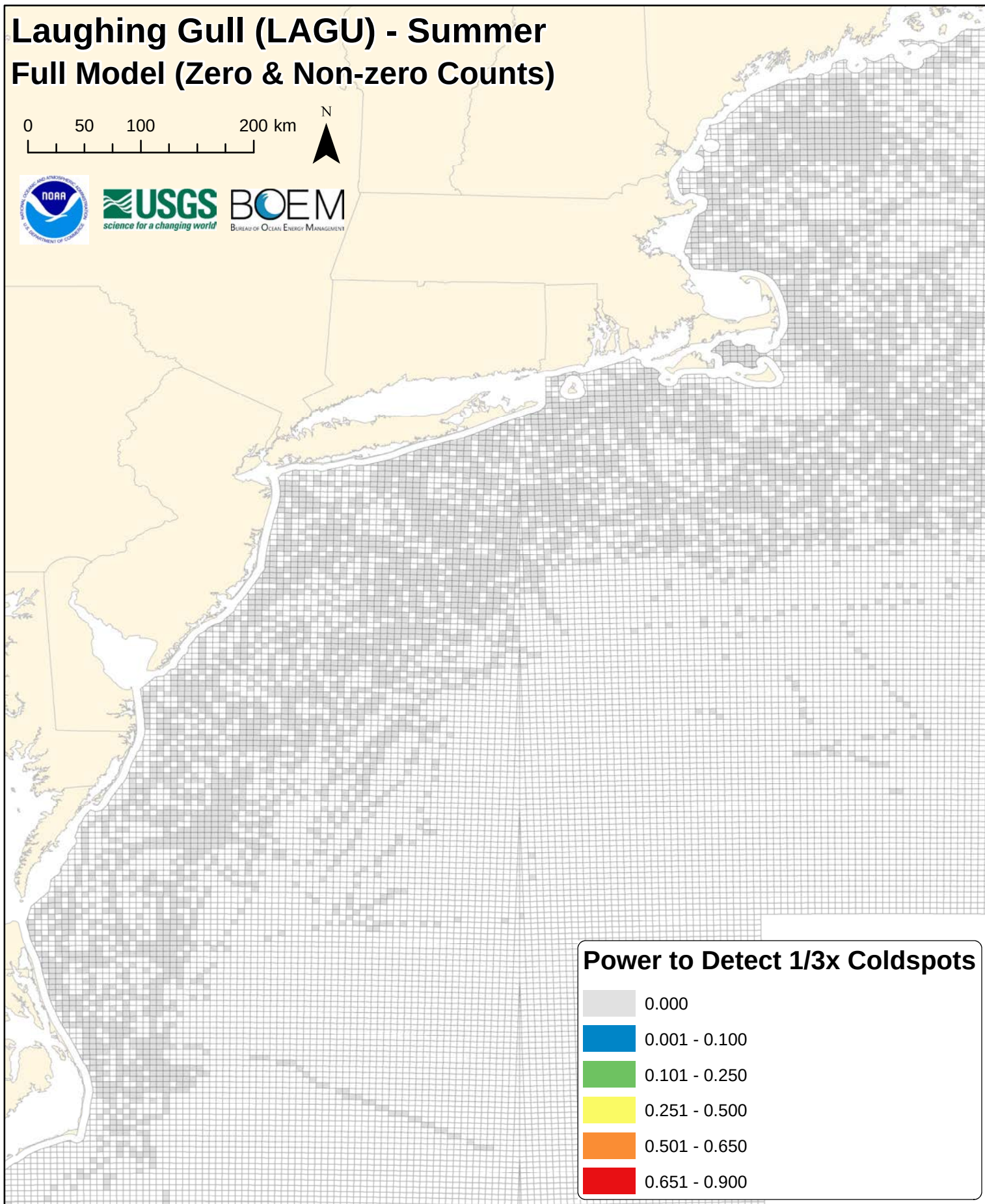
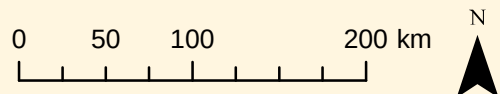
Laughing Gull (LAGU) - Summer Full Model (Zero & Non-zero Counts)



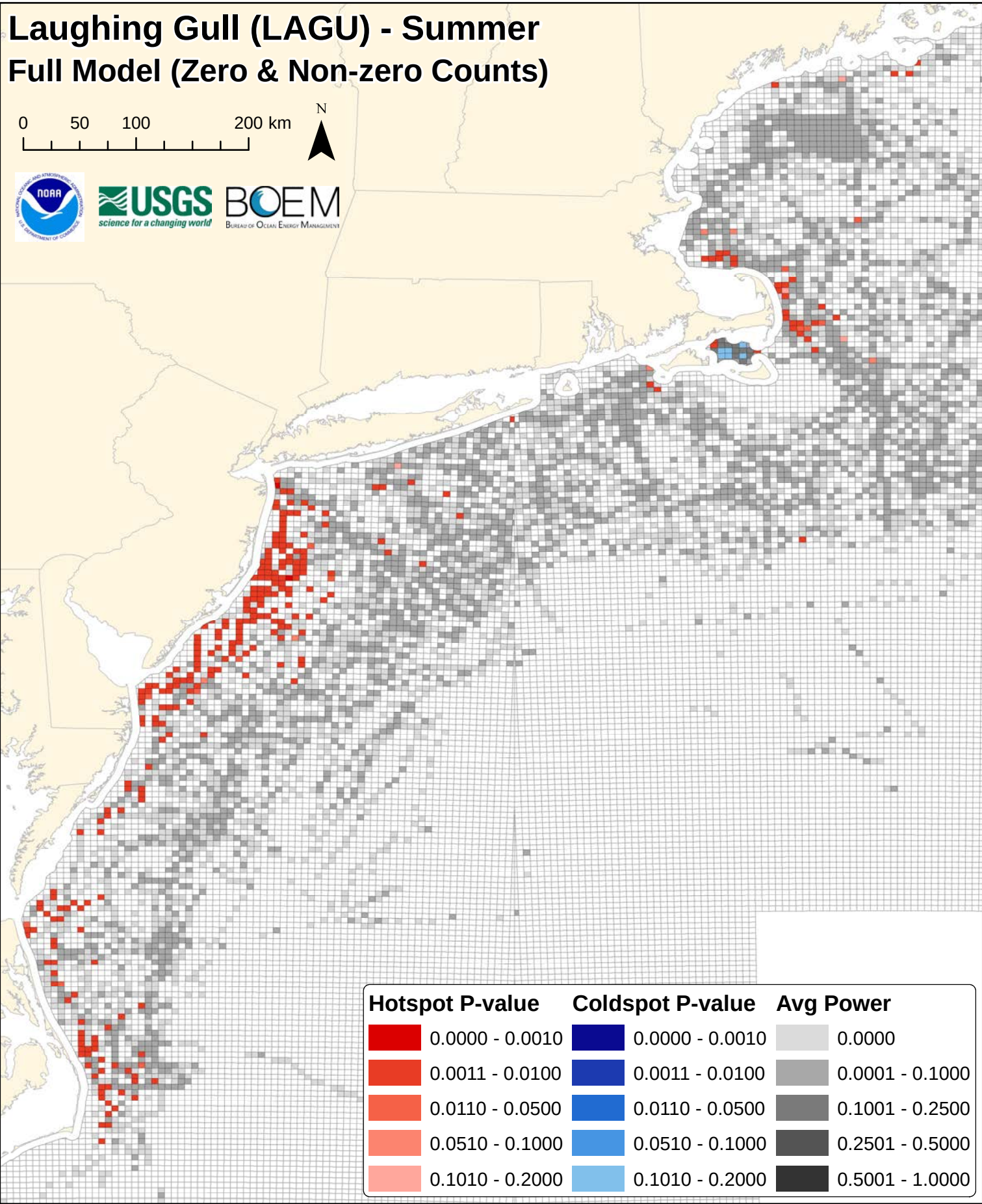
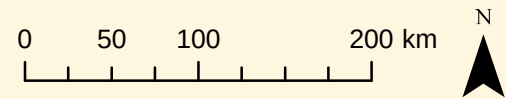
Power to Detect 3x Hotspots



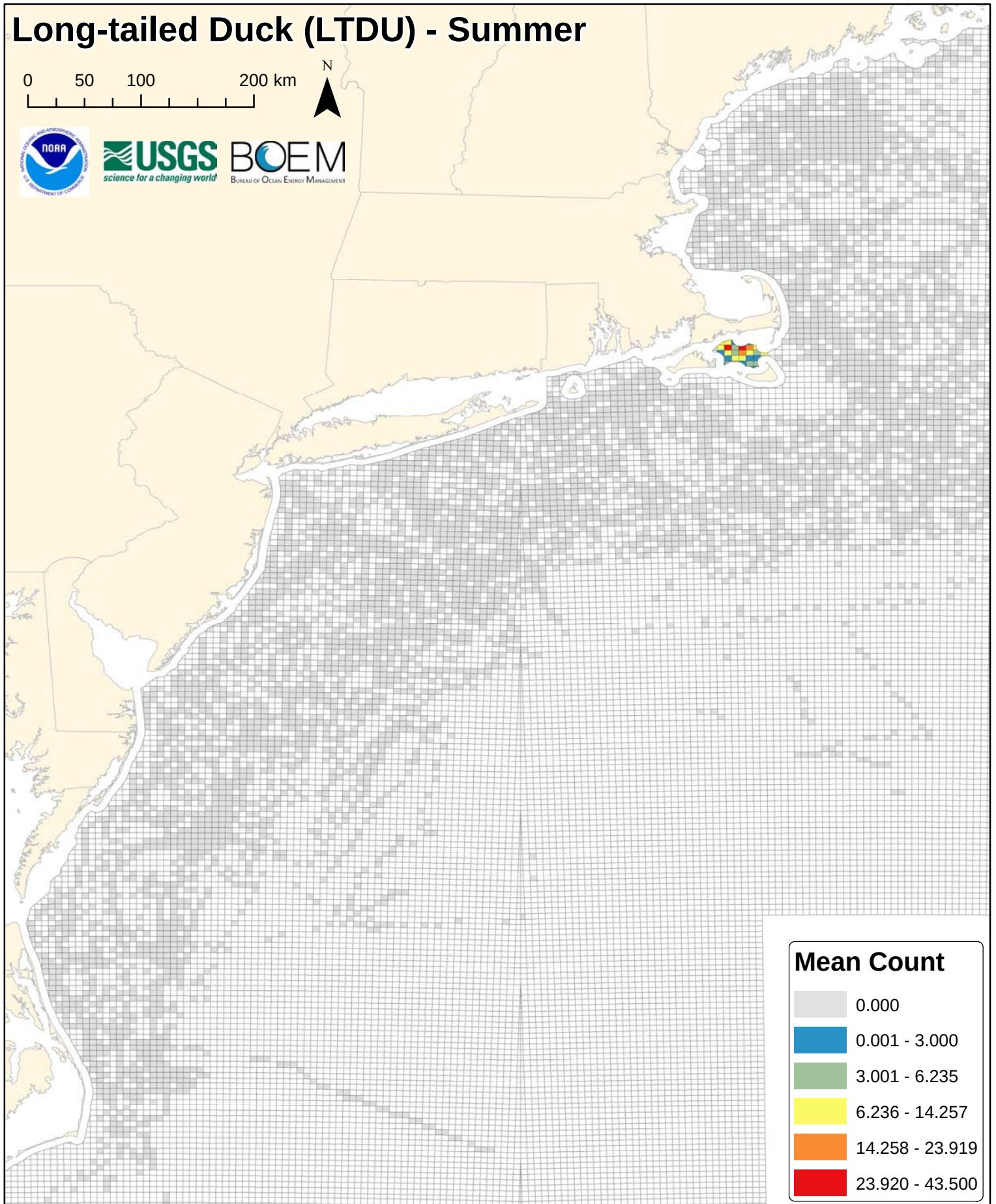
Laughing Gull (LAGU) - Summer Full Model (Zero & Non-zero Counts)



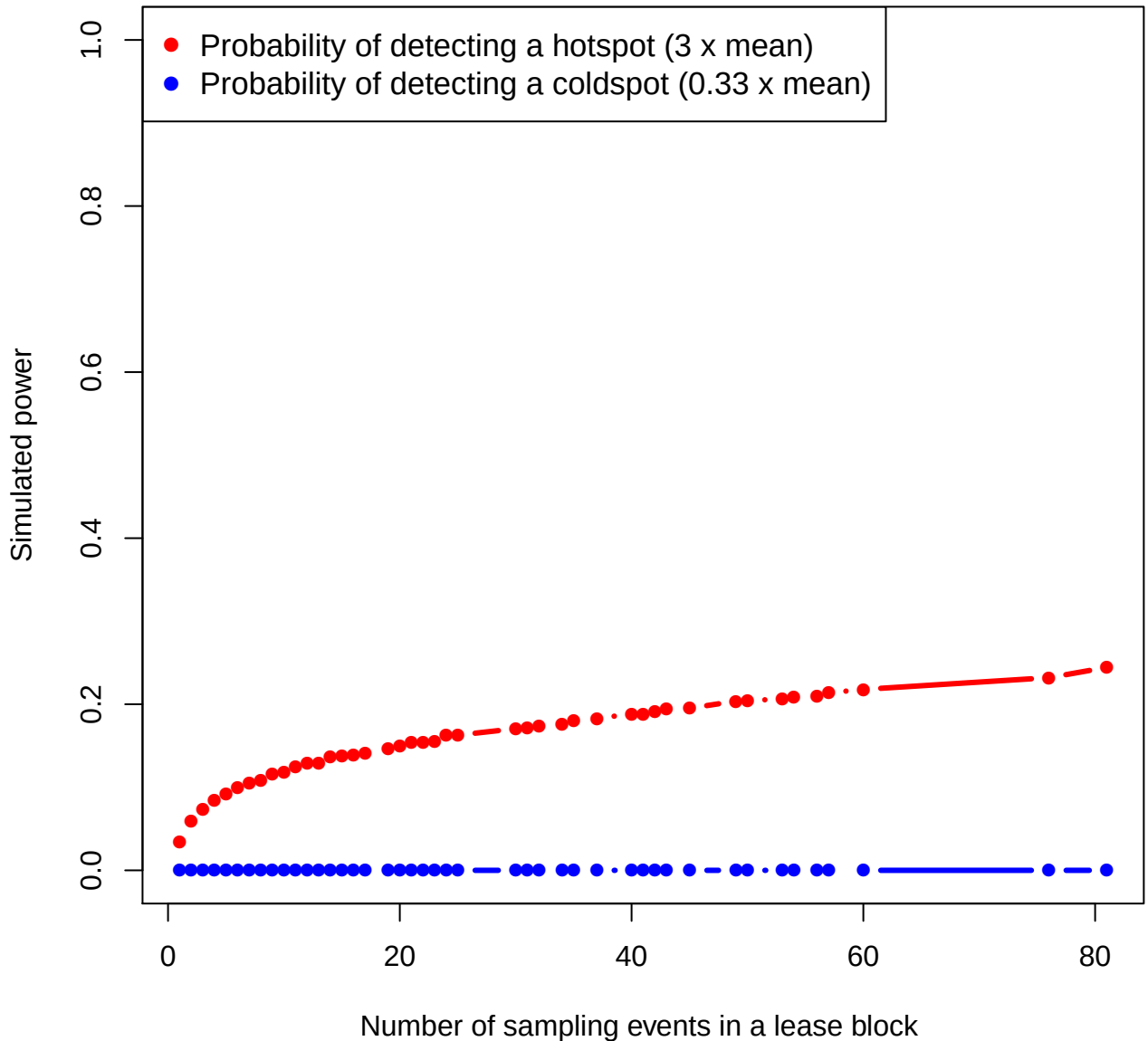
Laughing Gull (LAGU) - Summer Full Model (Zero & Non-zero Counts)



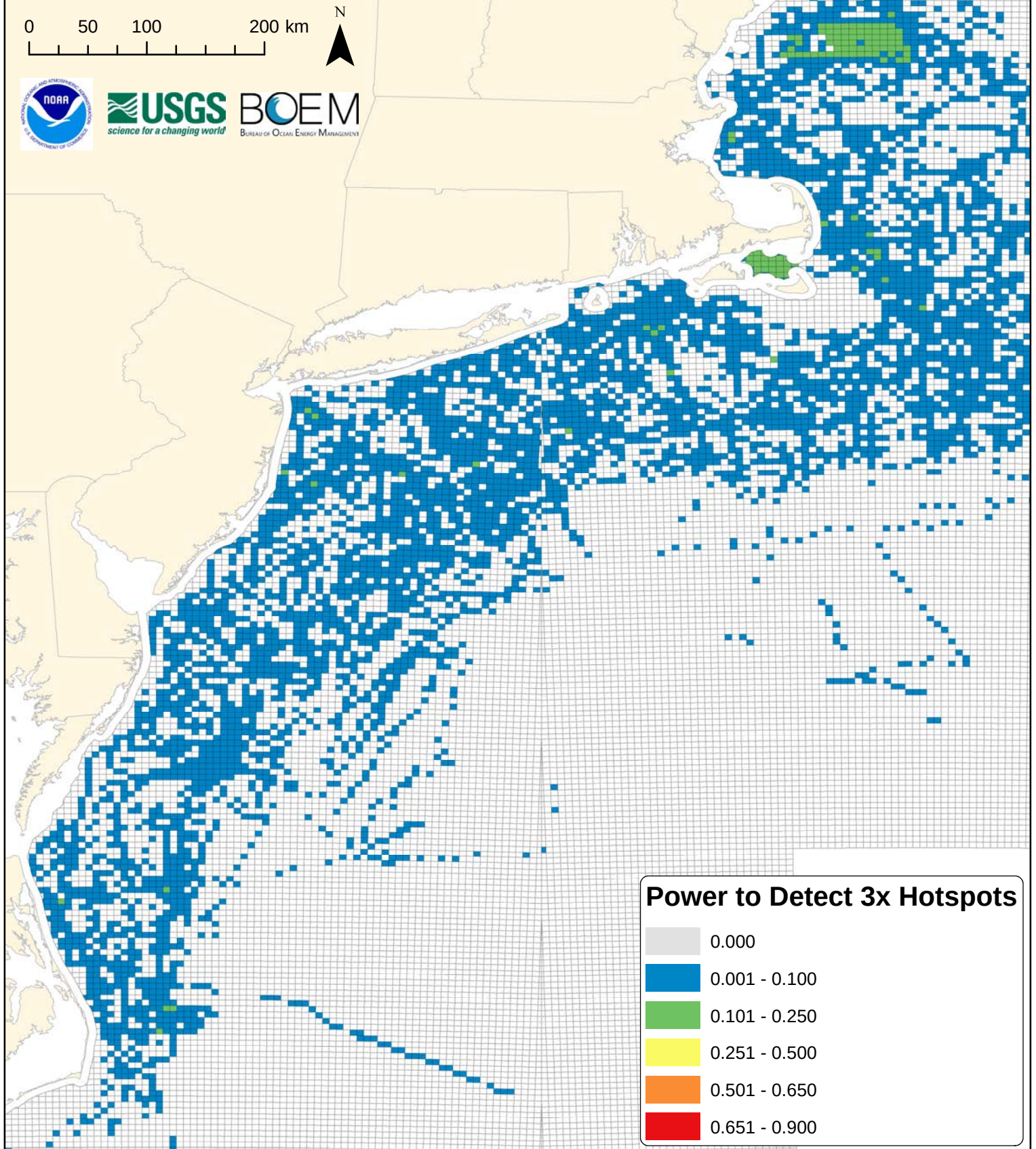
Long-tailed Duck (LTDU) - Summer



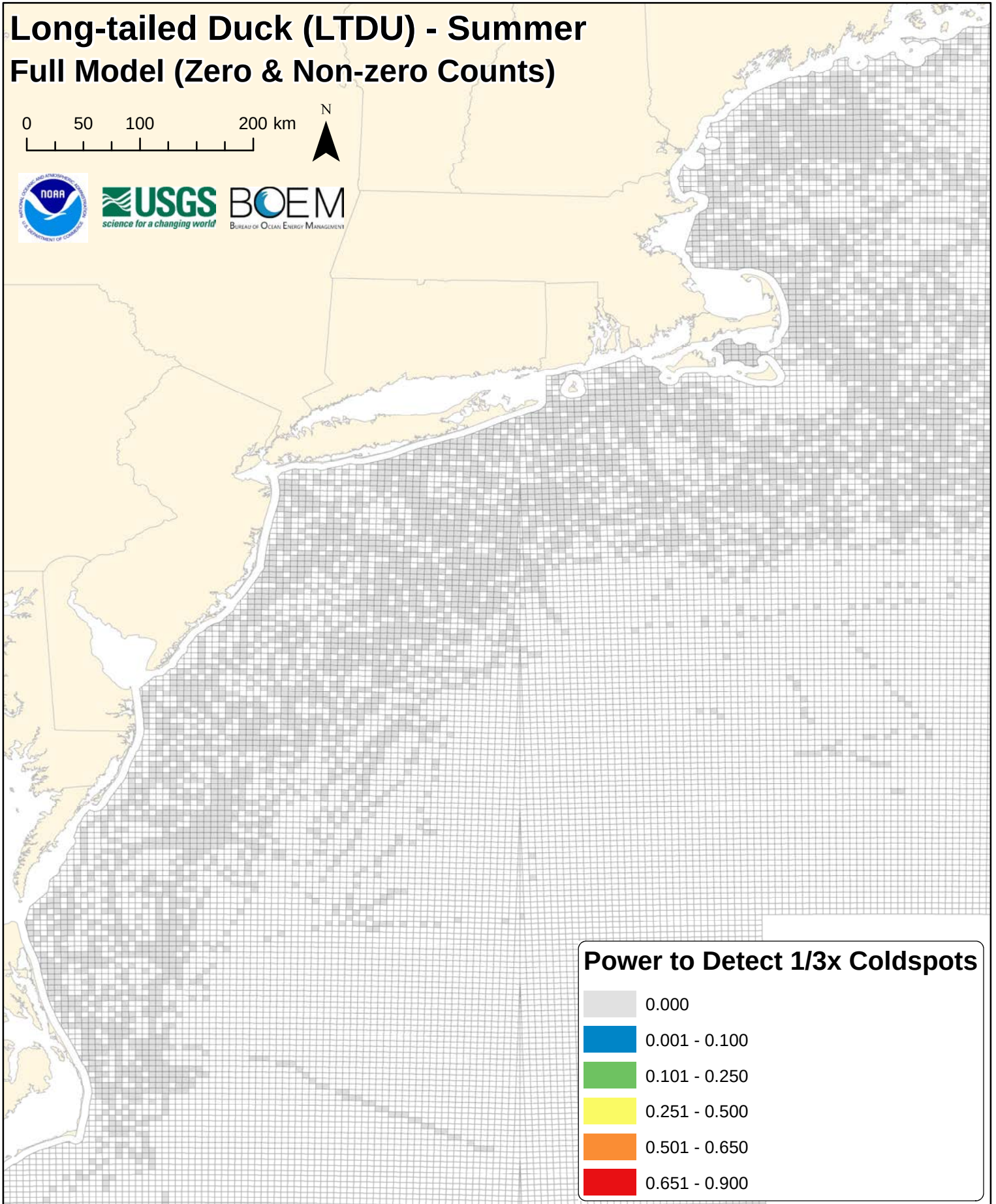
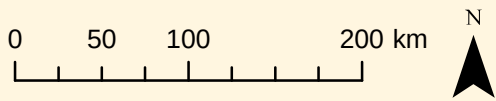
Itdu



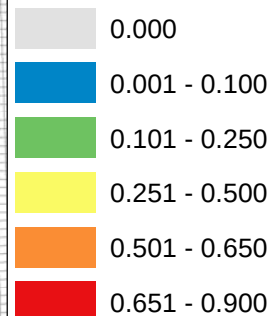
Long-tailed Duck (LTDU) - Summer Full Model (Zero & Non-zero Counts)



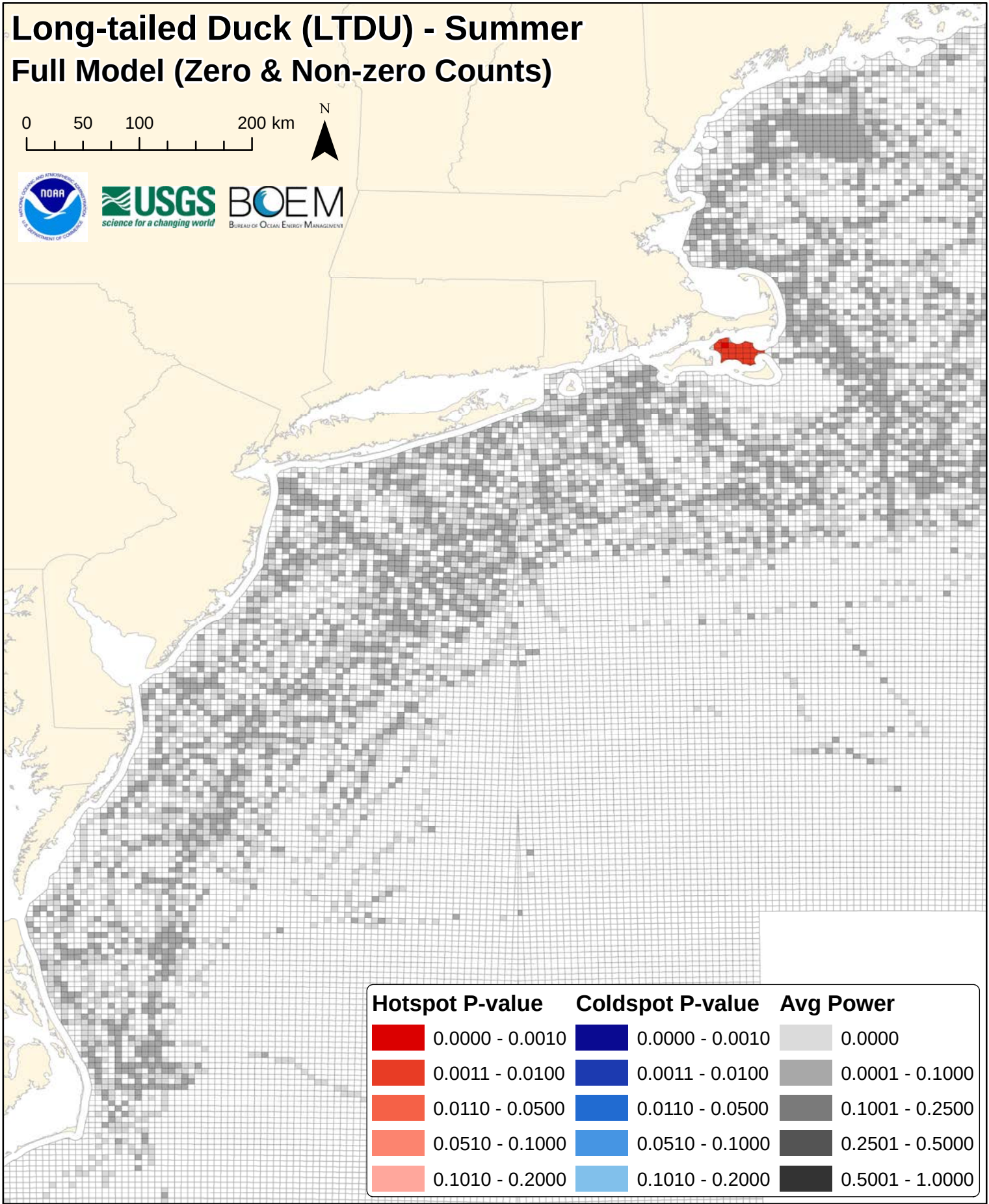
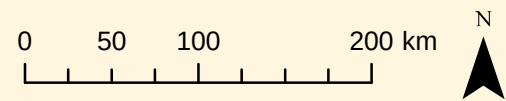
Long-tailed Duck (LTDU) - Summer Full Model (Zero & Non-zero Counts)



Power to Detect 1/3x Coldspots

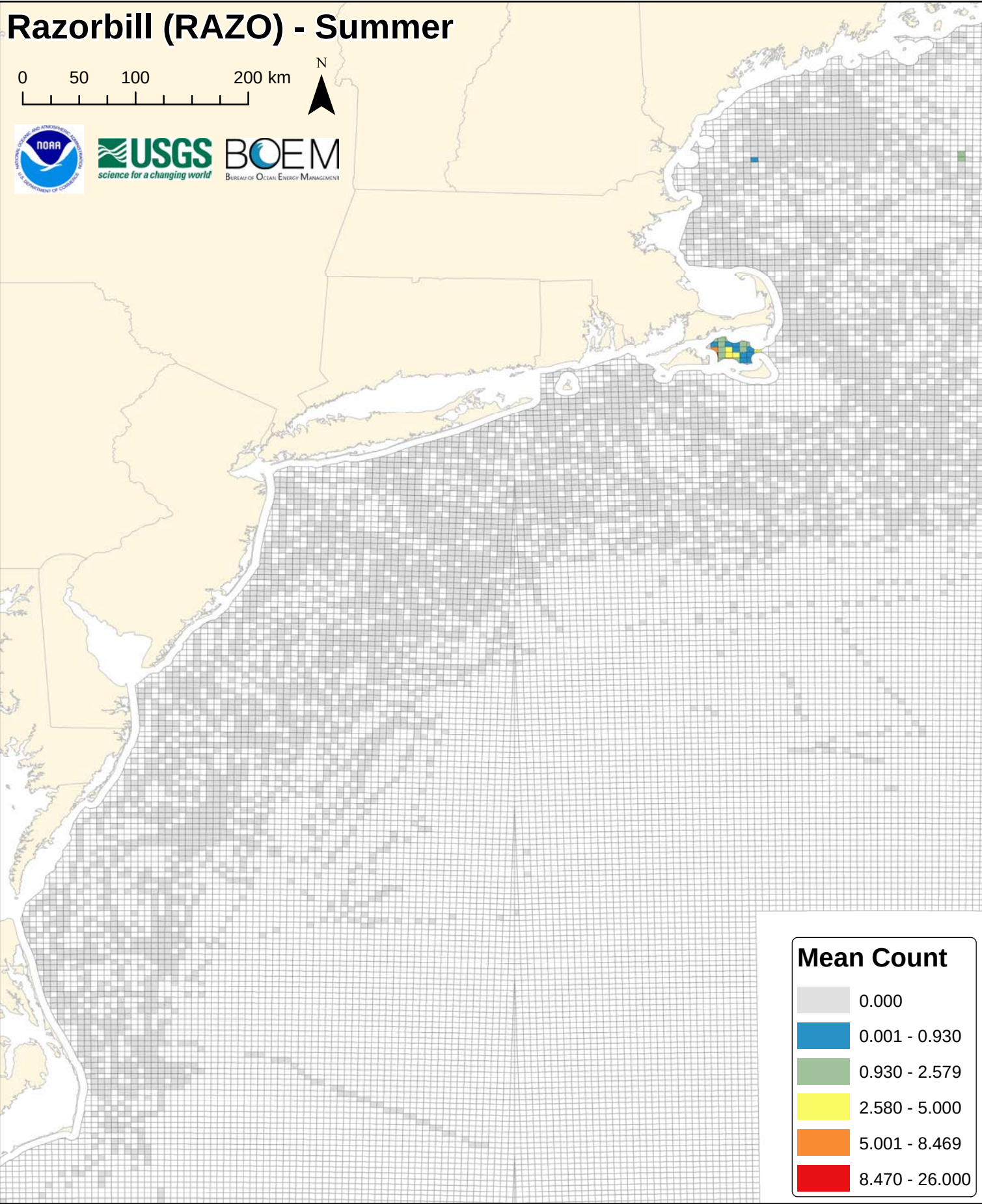
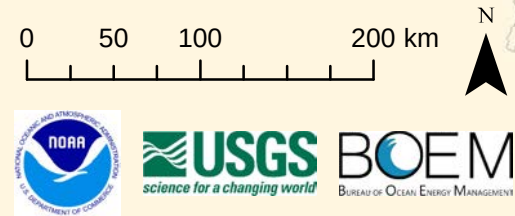


Long-tailed Duck (LTDU) - Summer Full Model (Zero & Non-zero Counts)

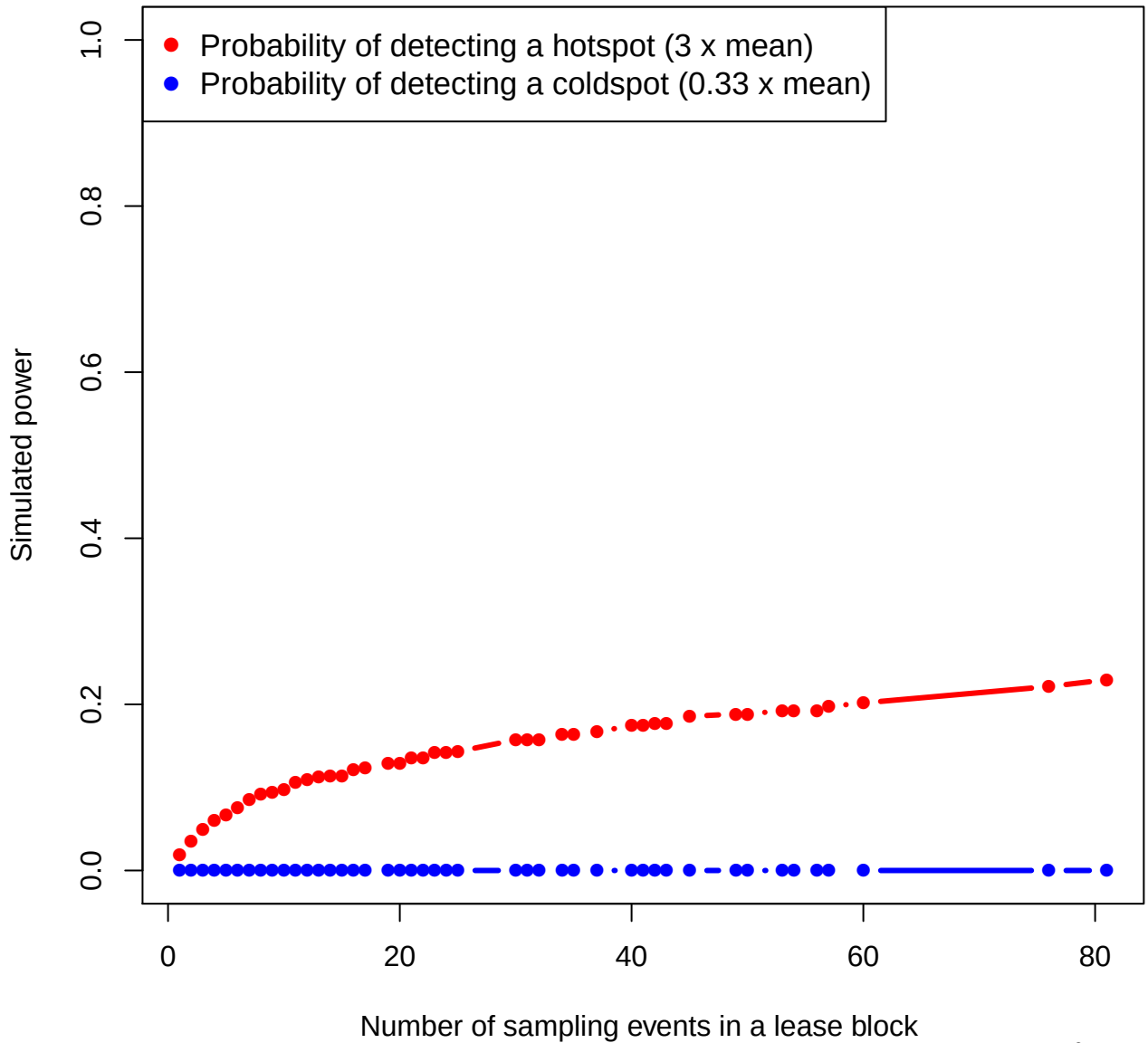


Hotspot P-value	Coldspot P-value	Avg Power
 0.0000 - 0.0010	 0.0000 - 0.0010	 0.0000
 0.0011 - 0.0100	 0.0011 - 0.0100	 0.0001 - 0.1000
 0.0110 - 0.0500	 0.0110 - 0.0500	 0.1001 - 0.2500
 0.0510 - 0.1000	 0.0510 - 0.1000	 0.2501 - 0.5000
 0.1010 - 0.2000	 0.1010 - 0.2000	 0.5001 - 1.0000

Razorbill (RAZO) - Summer

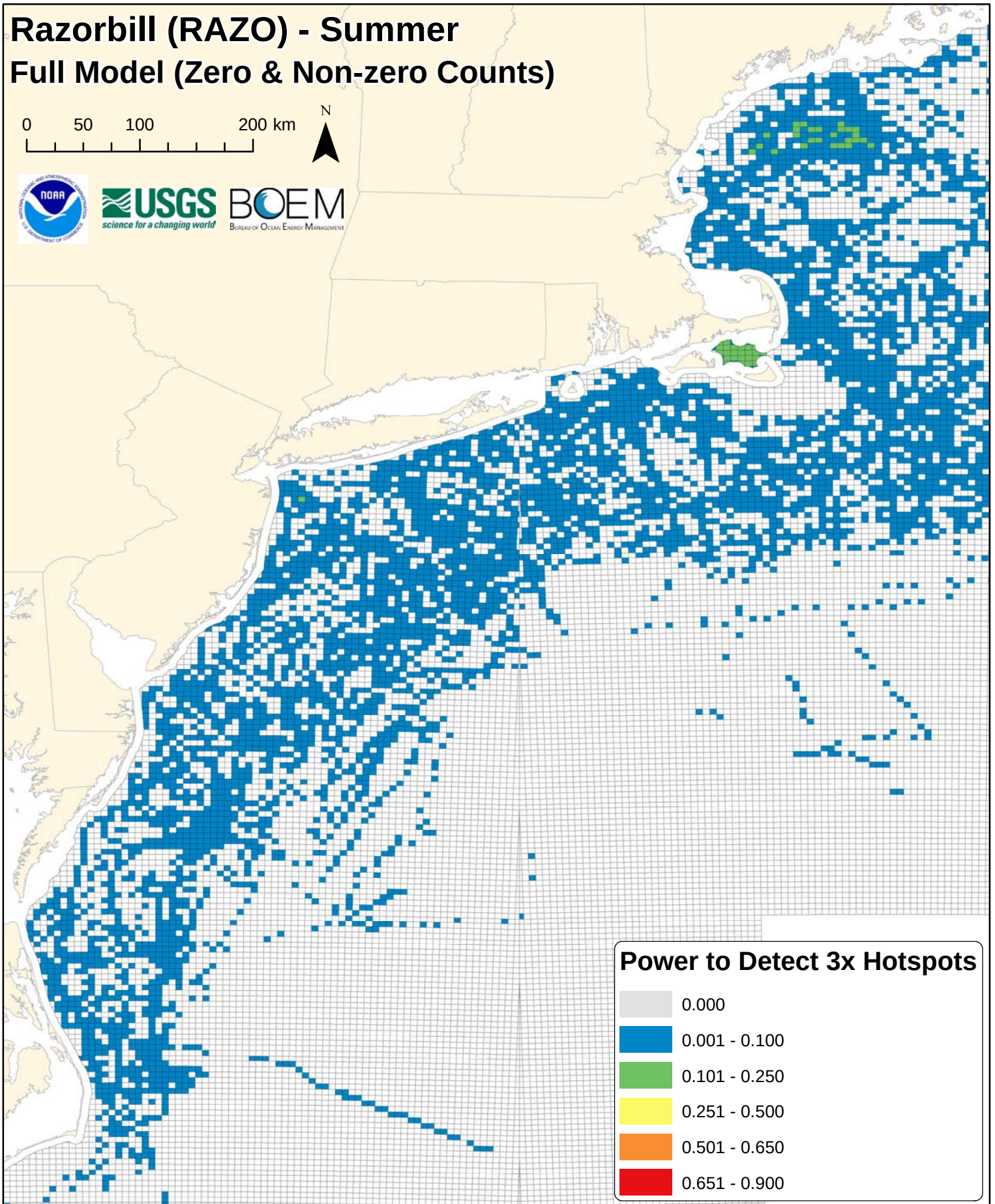


razo



Razorbill (RAZO) - Summer Full Model (Zero & Non-zero Counts)

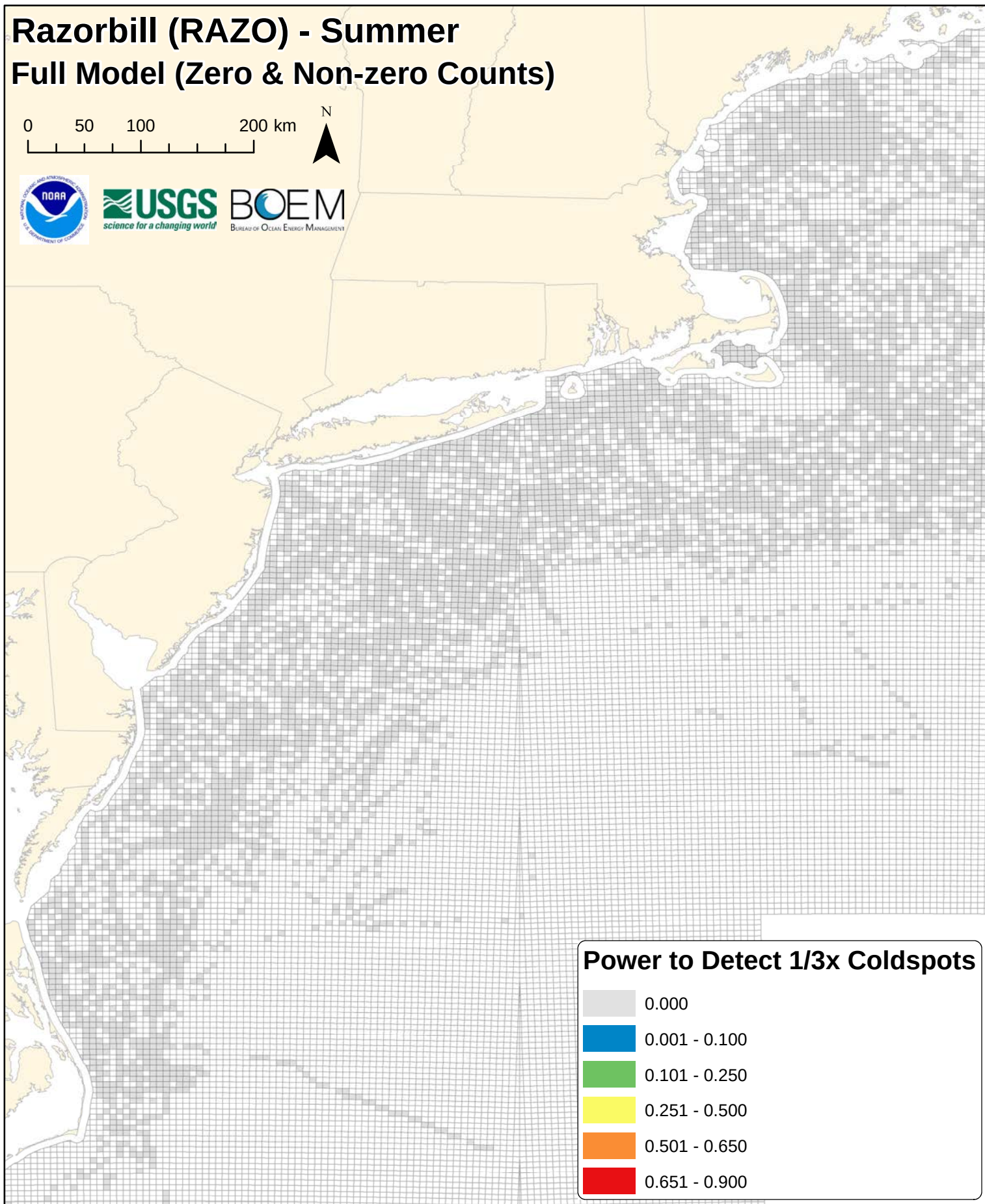
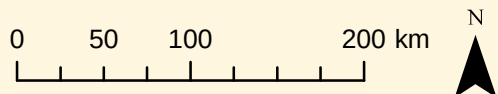
0 50 100 200 km



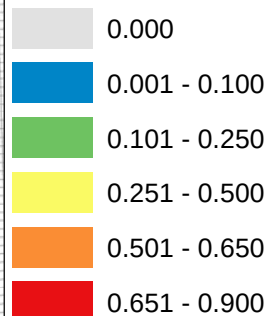
Power to Detect 3x Hotspots

0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

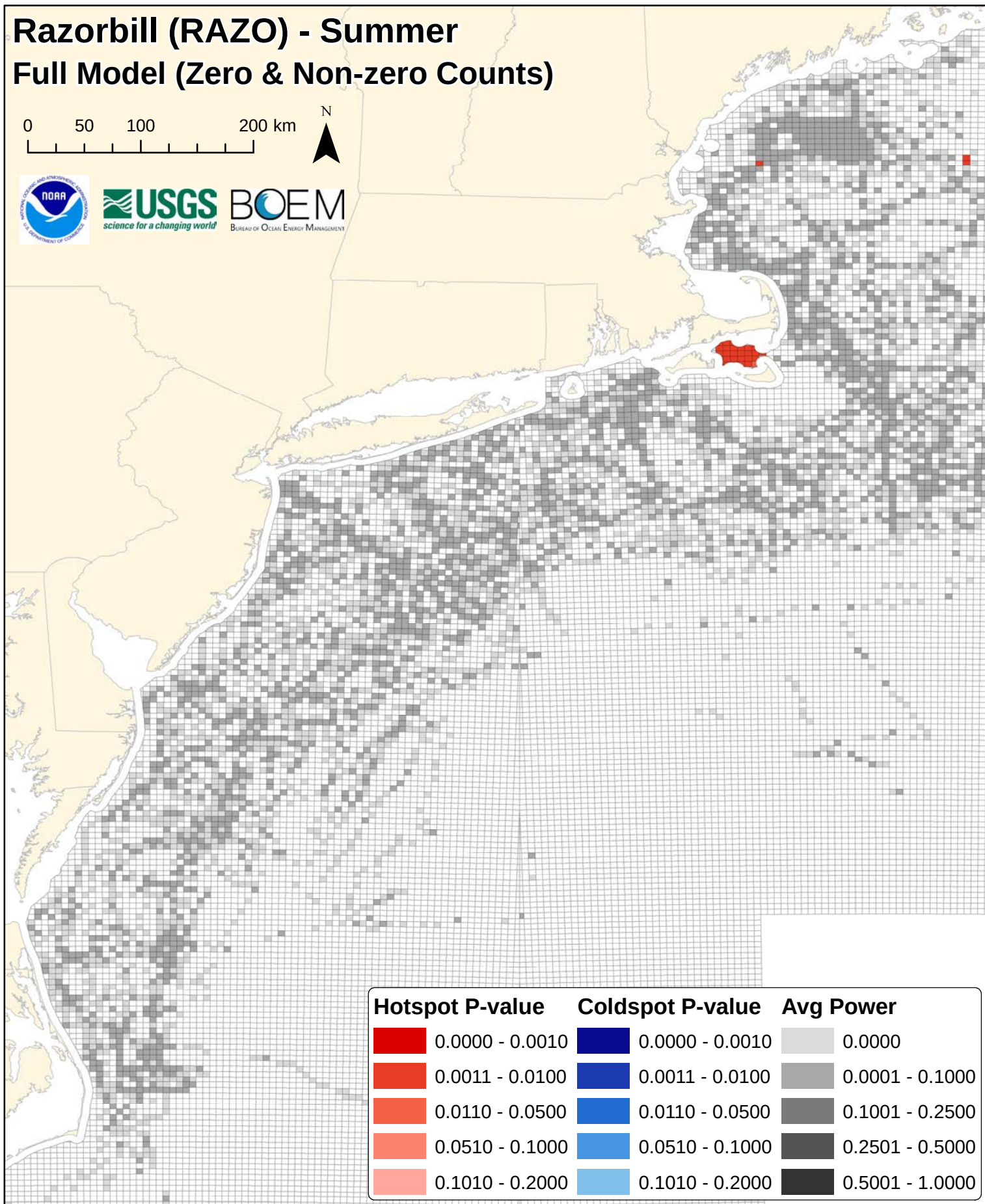
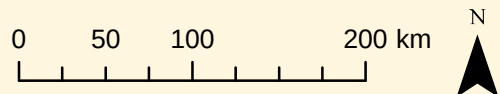
Razorbill (RAZO) - Summer Full Model (Zero & Non-zero Counts)



Power to Detect 1/3x Coldspots



Razorbill (RAZO) - Summer Full Model (Zero & Non-zero Counts)



Hotspot P-value	Coldspot P-value	Avg Power
0.0000 - 0.0010	0.0000 - 0.0010	0.0000
0.0011 - 0.0100	0.0011 - 0.0100	0.0001 - 0.1000
0.0110 - 0.0500	0.0110 - 0.0500	0.1001 - 0.2500
0.0510 - 0.1000	0.0510 - 0.1000	0.2501 - 0.5000
0.1010 - 0.2000	0.1010 - 0.2000	0.5001 - 1.0000

DIGITAL SUPPLEMENT G

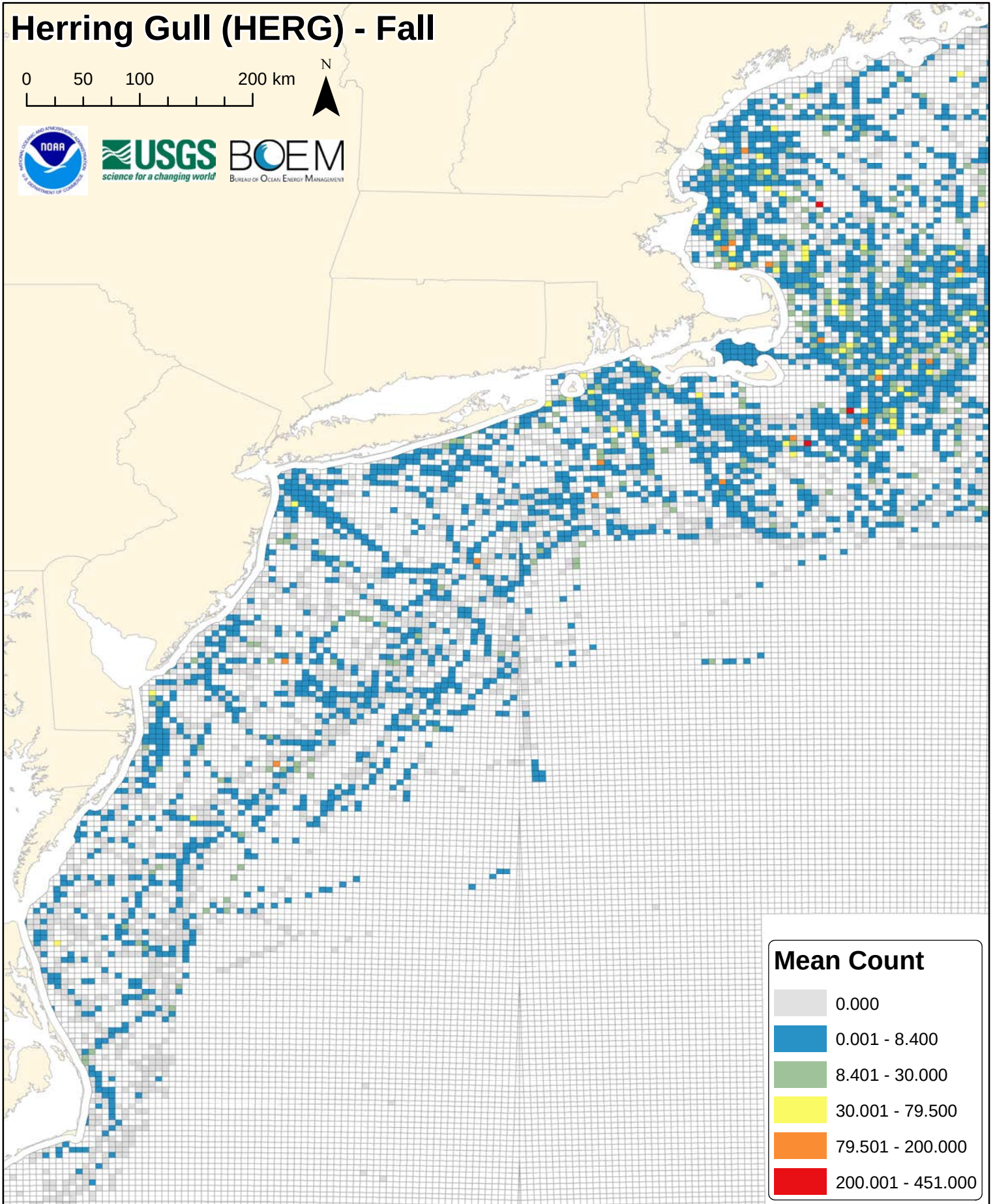
Full Hurdle Model (Zero & Non-Zero Counts) Results

SECTION II. Species-specific Power Analysis **Maps and Figures**

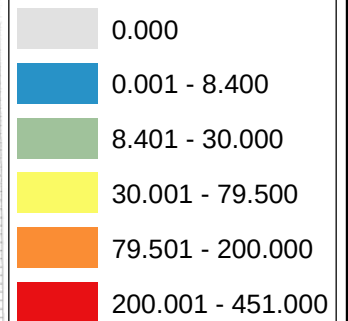
Figures G126-G185. Fall power analysis maps and figures (12 species x 5 figures per species).

Herring Gull (HERG) - Fall

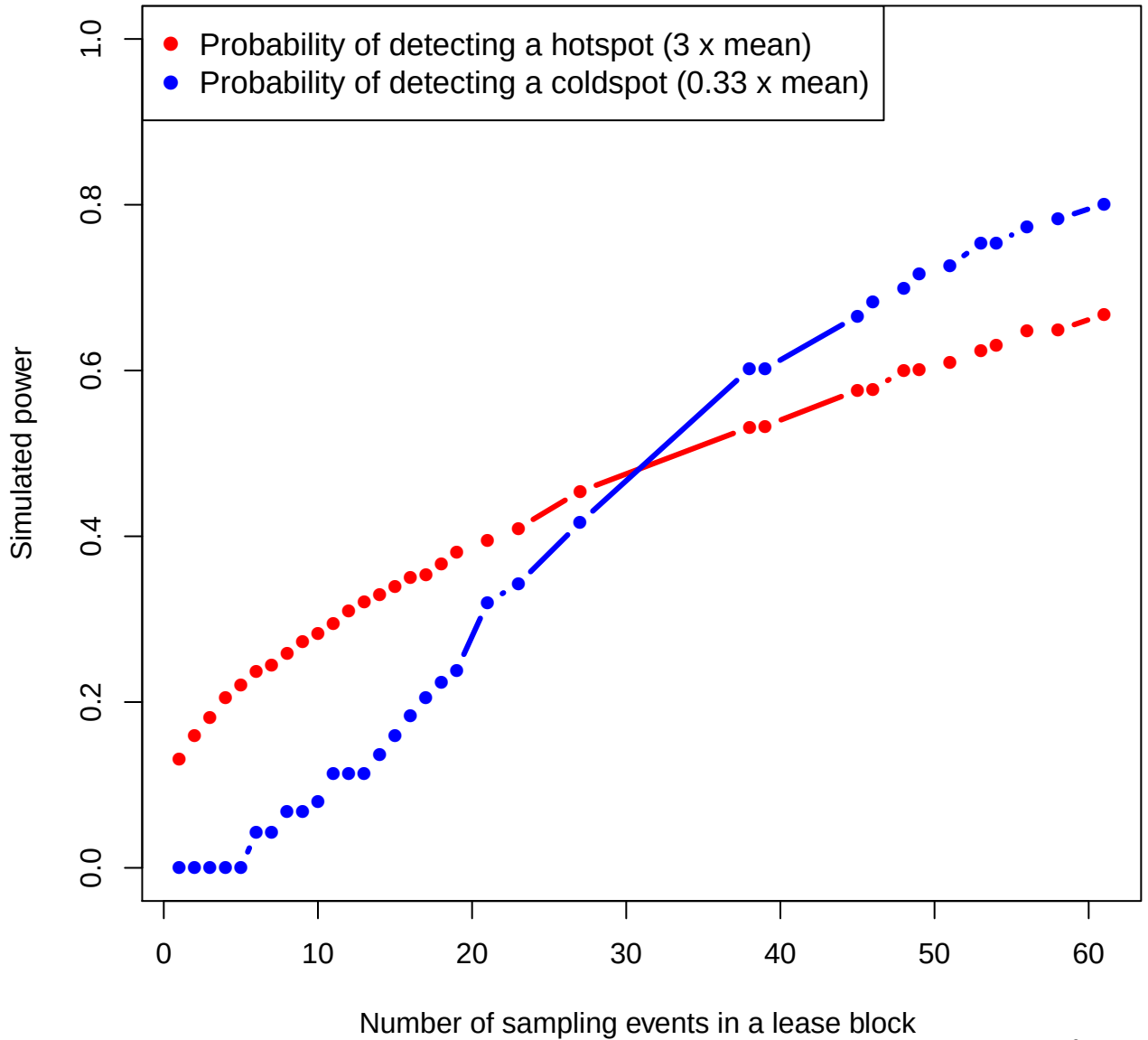
0 50 100 200 km



Mean Count

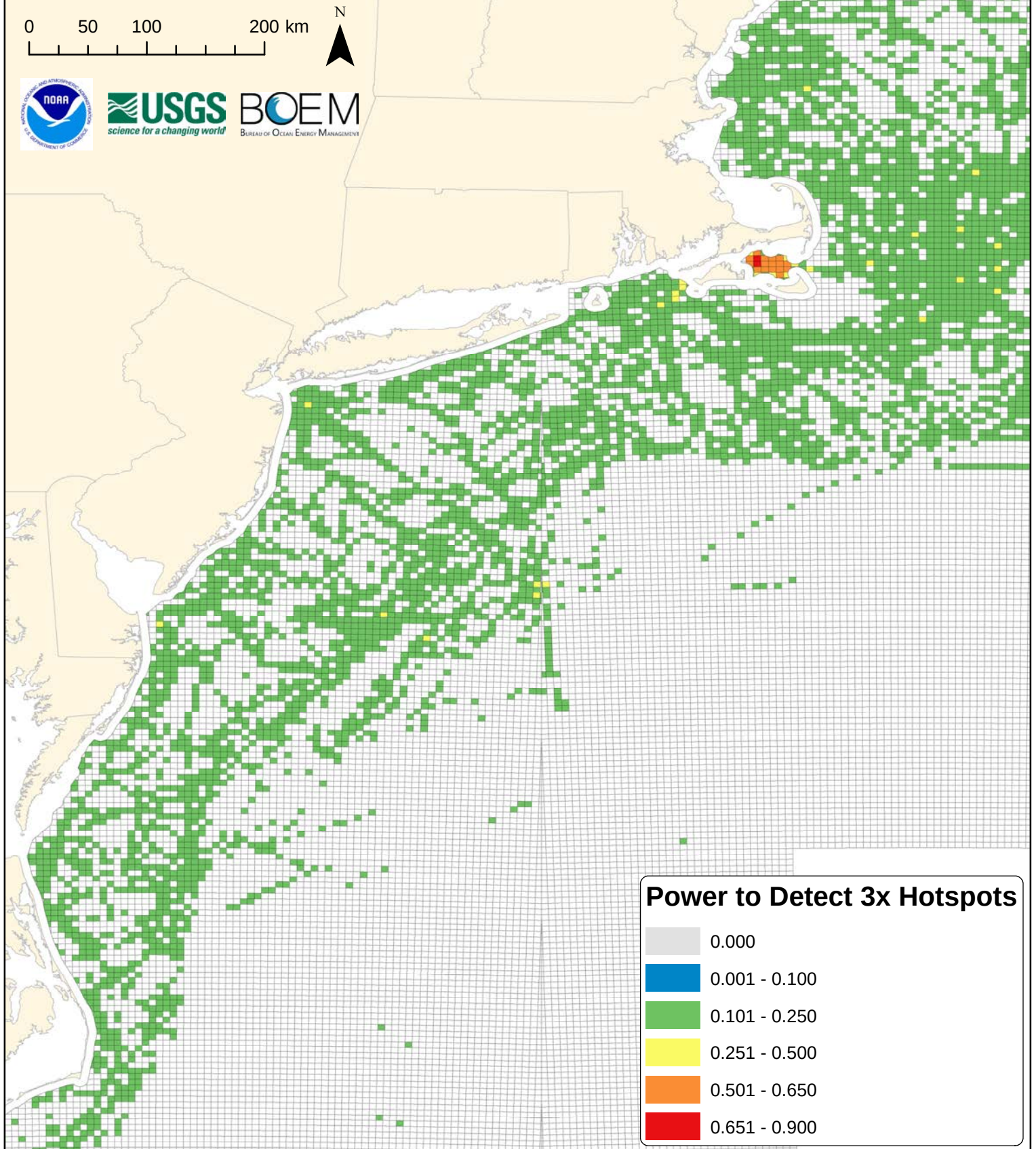


herg



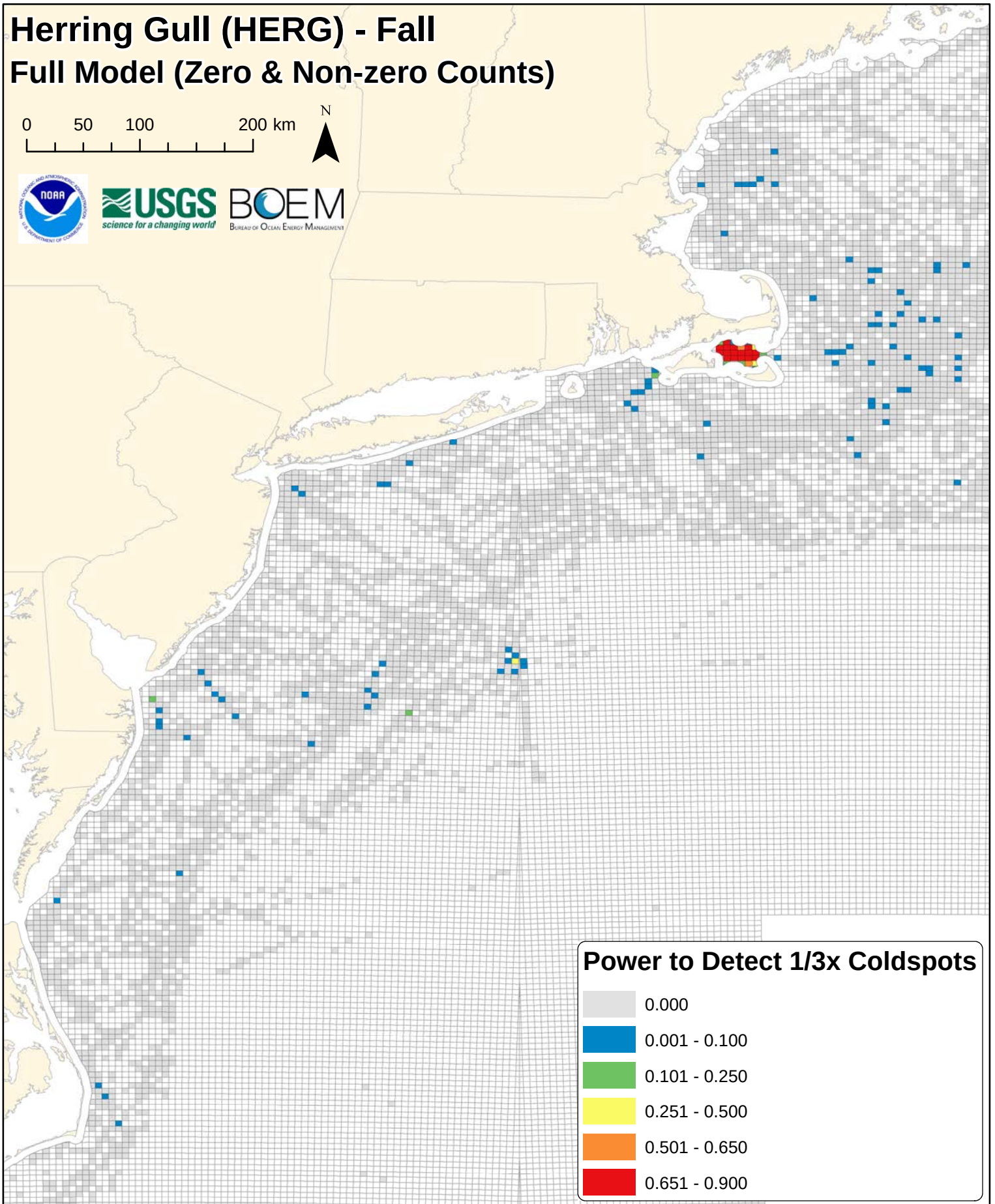
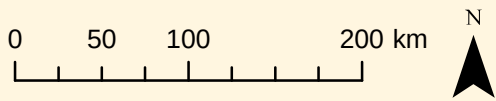
Herring Gull (HERG) - Fall

Full Model (Zero & Non-zero Counts)



Herring Gull (HERG) - Fall

Full Model (Zero & Non-zero Counts)

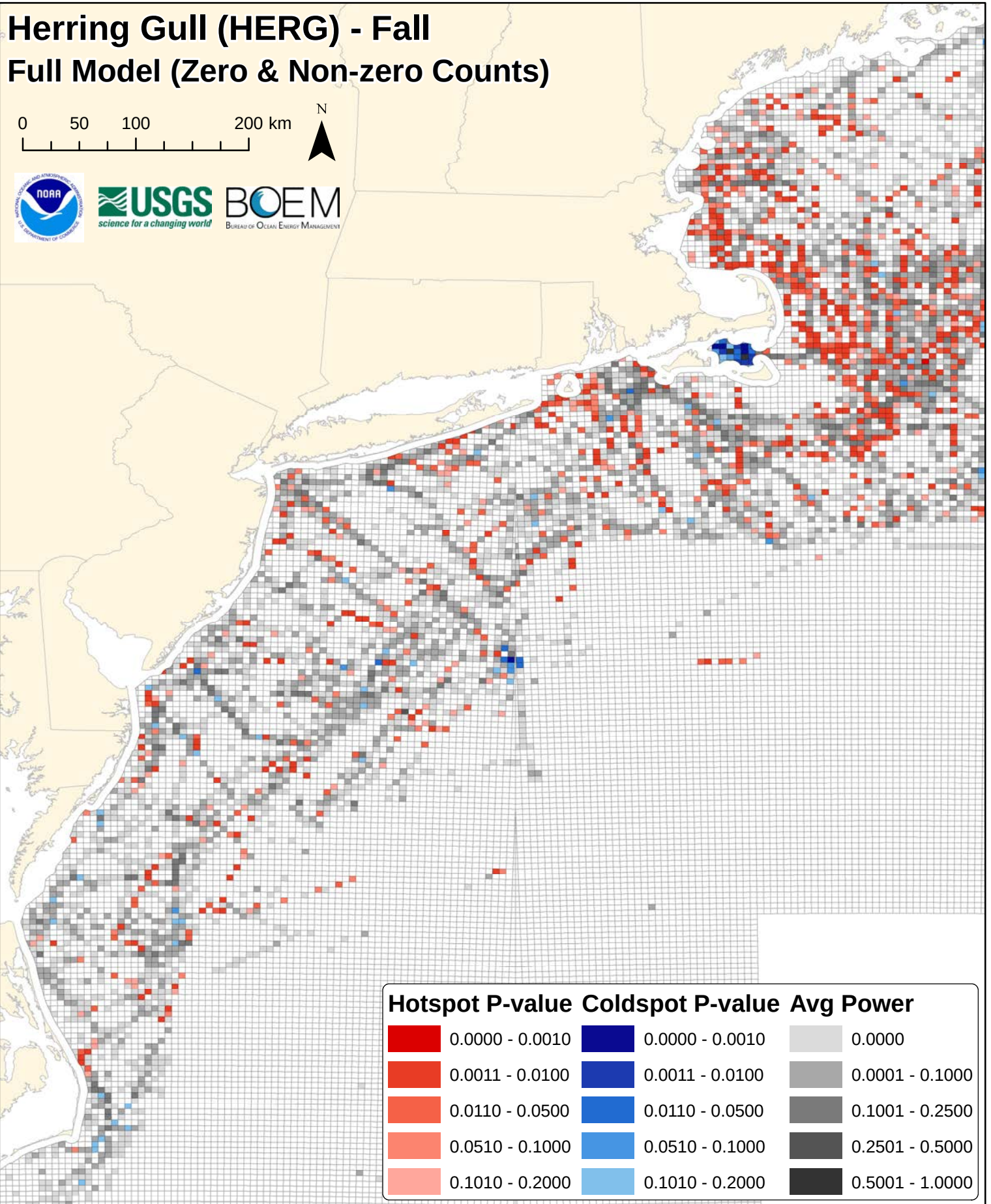


Herring Gull (HERG) - Fall

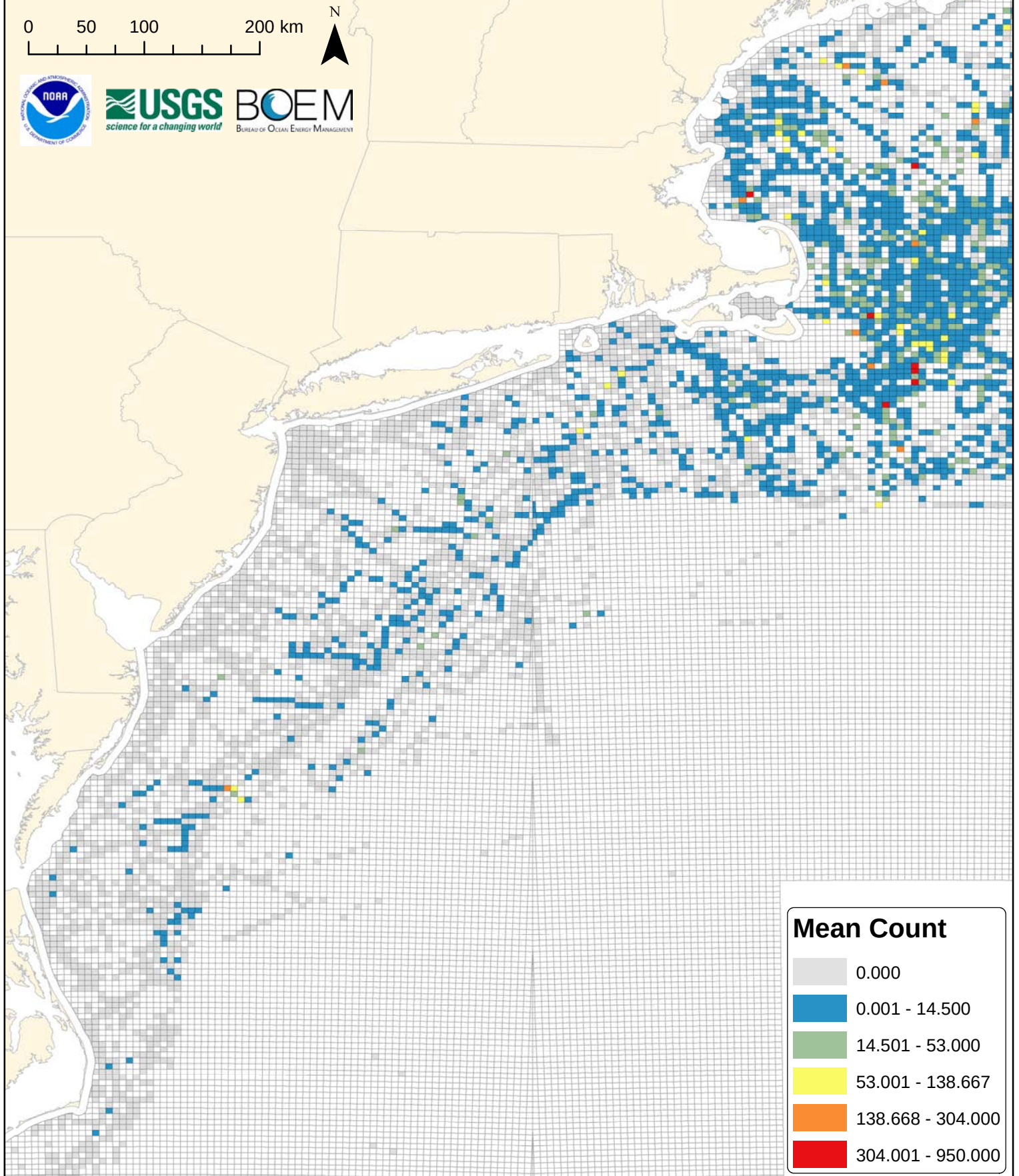
Full Model (Zero & Non-zero Counts)

0 50 100 200 km

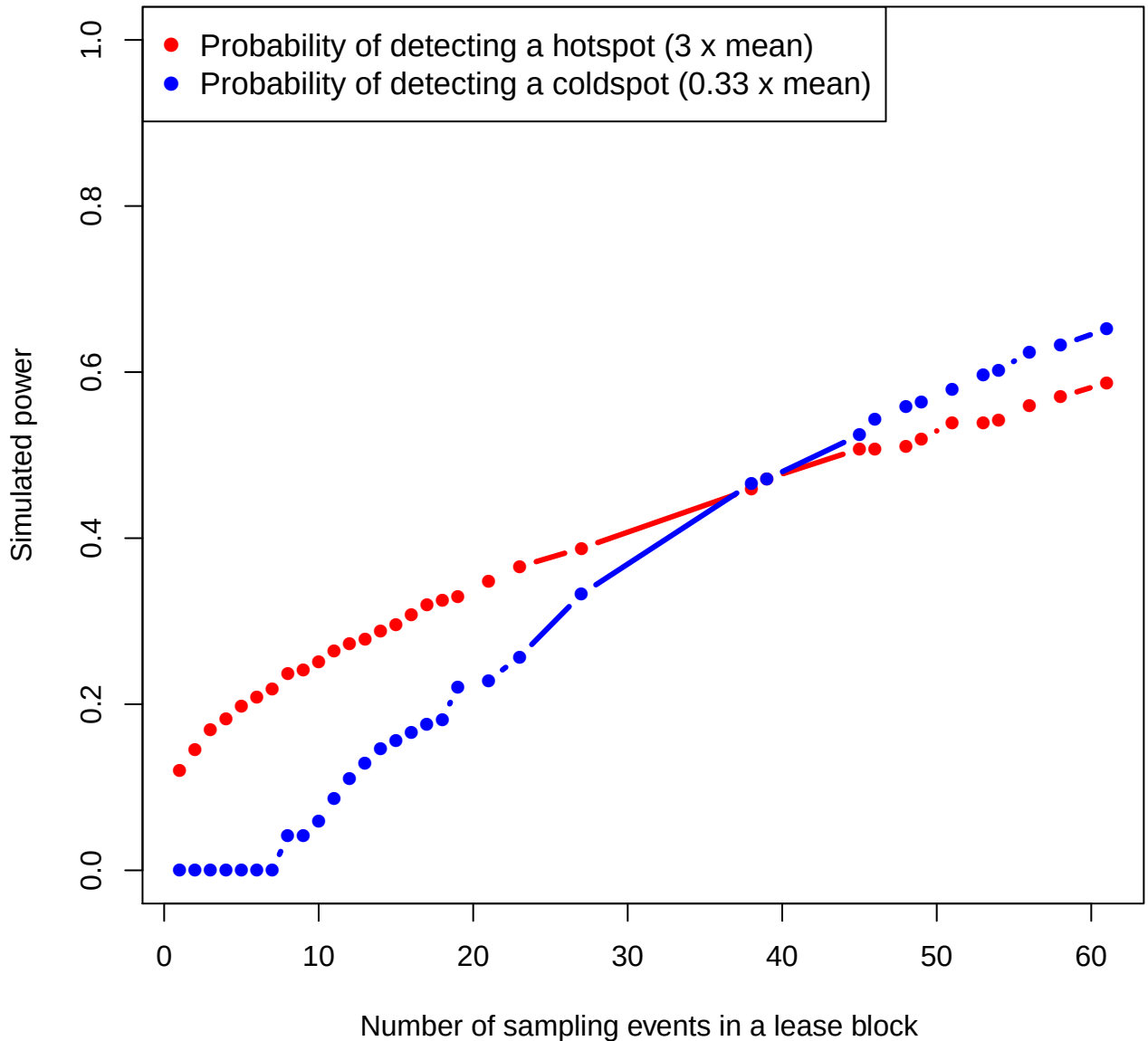
N



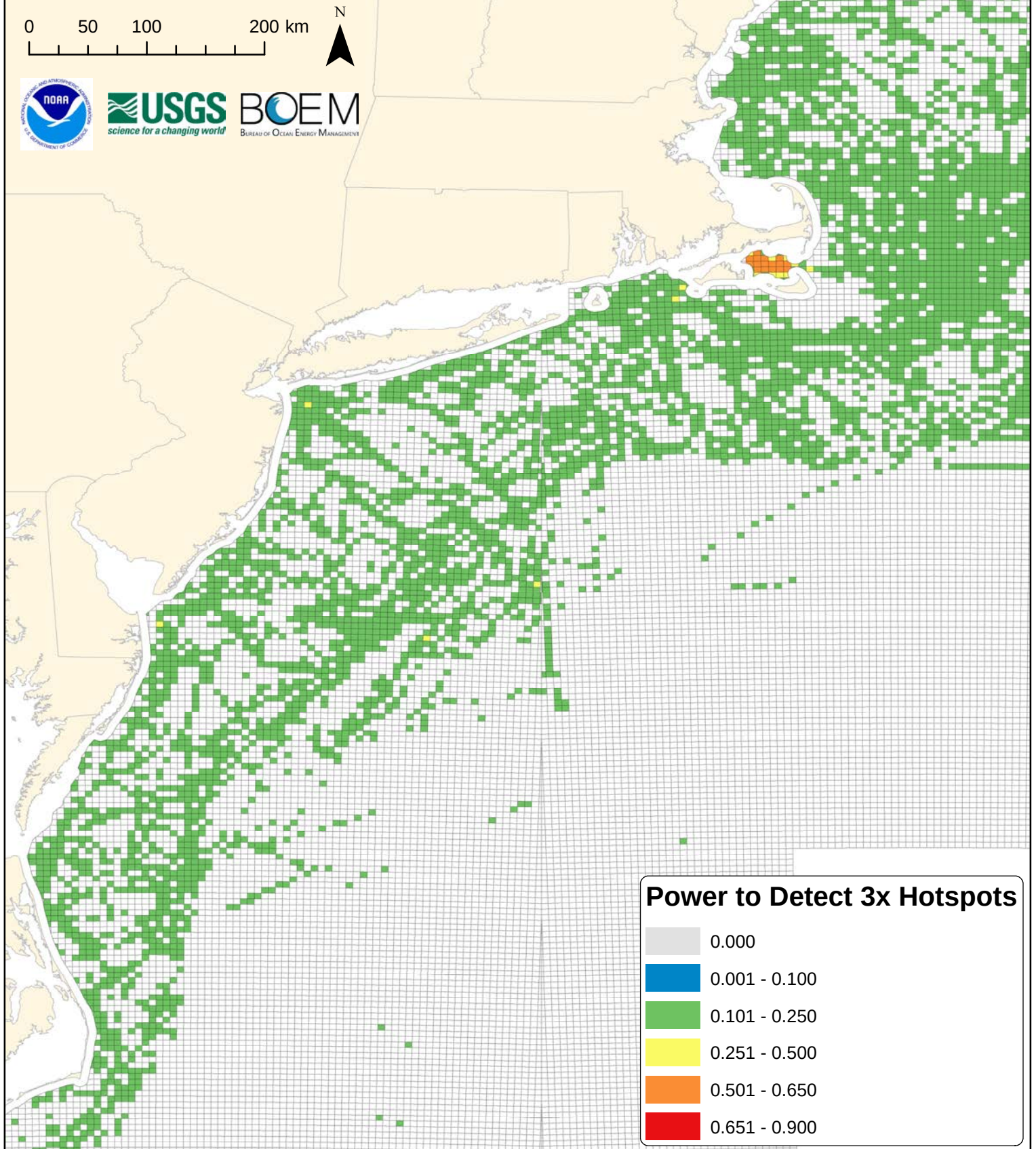
Greater Shearwater (GRSH) - Fall



grsh

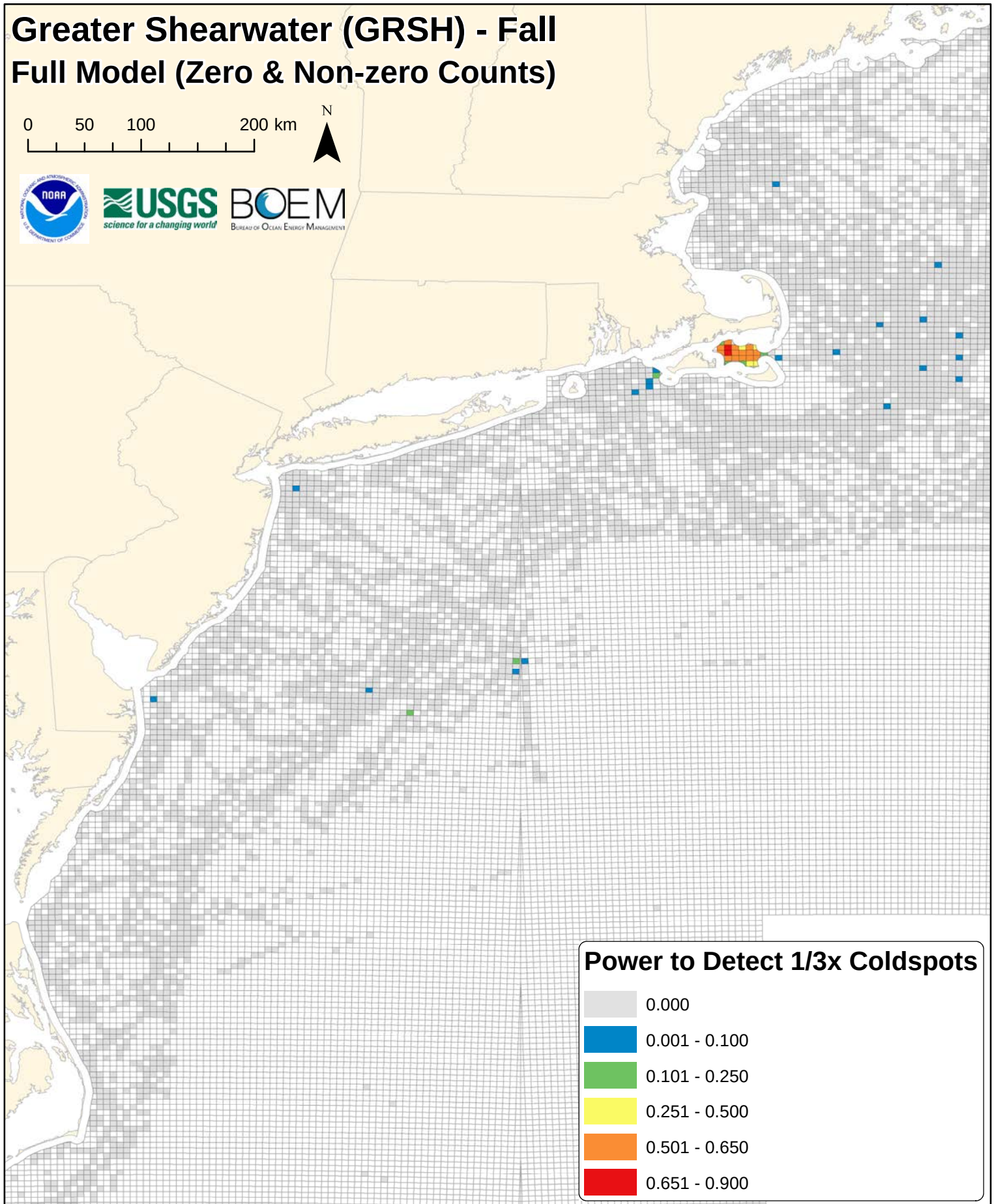


Greater Shearwater (GRSH) - Fall Full Model (Zero & Non-zero Counts)



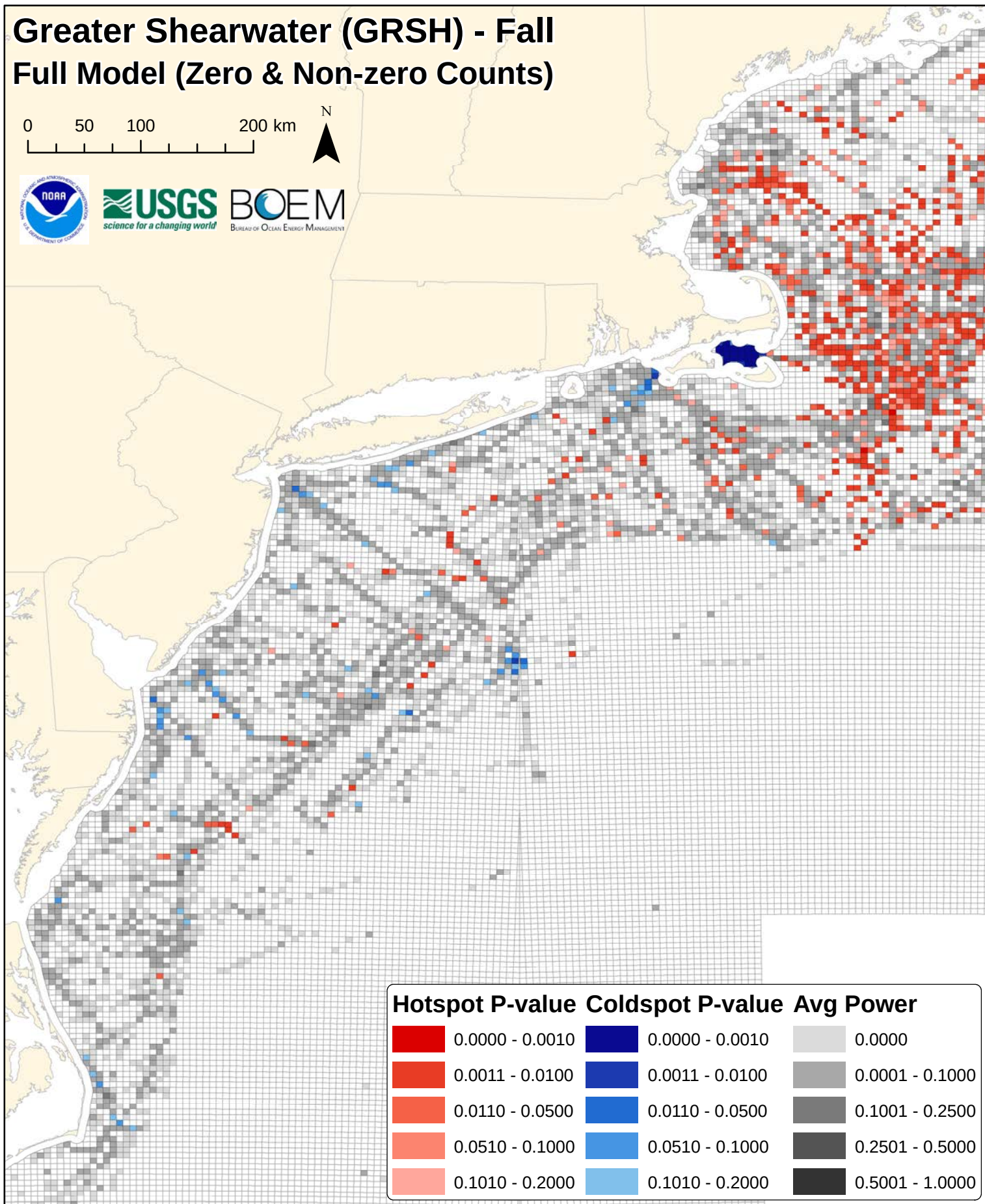
Greater Shearwater (GRSH) - Fall Full Model (Zero & Non-zero Counts)

0 50 100 200 km



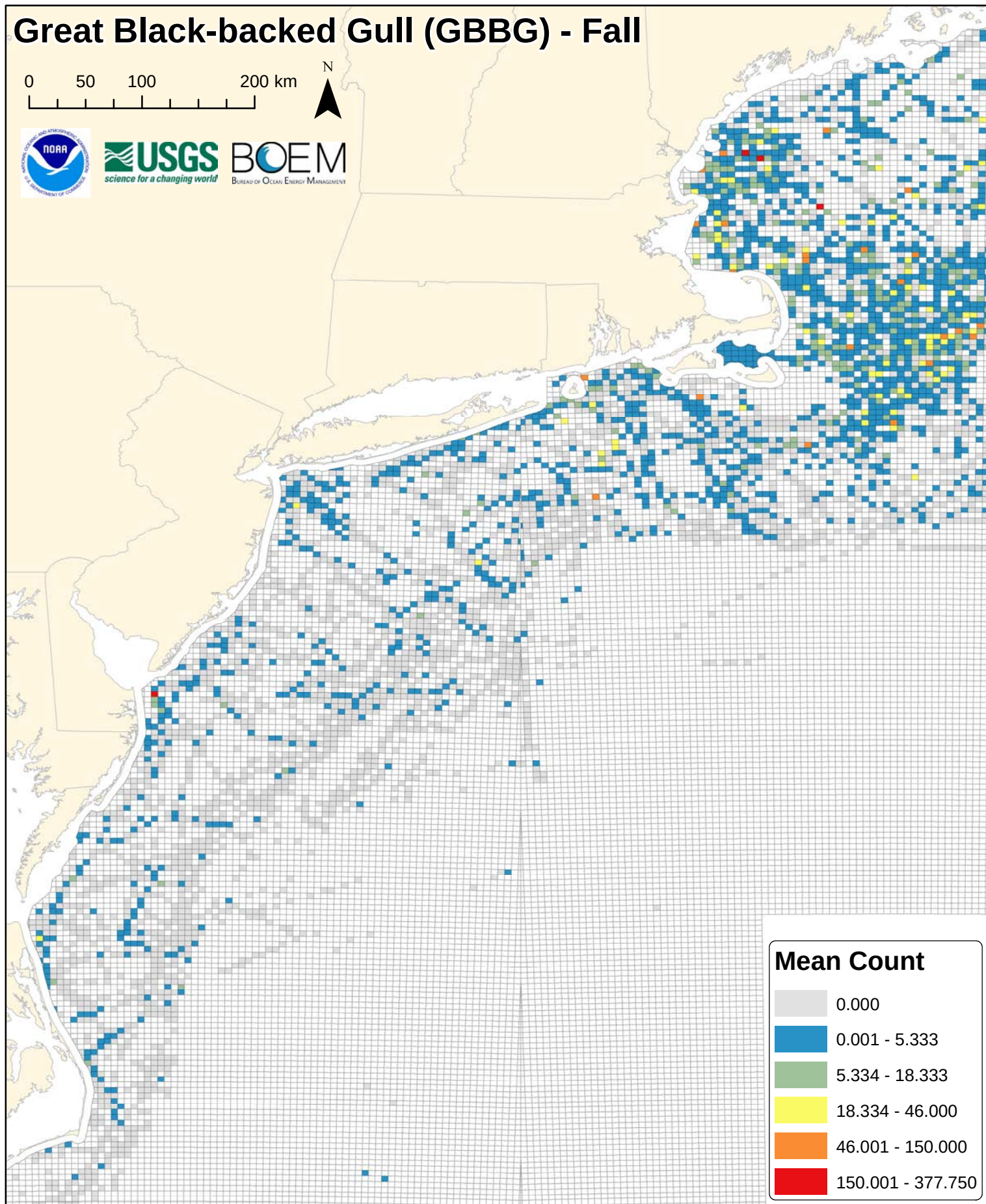
Greater Shearwater (GRSH) - Fall Full Model (Zero & Non-zero Counts)

0 50 100 200 km



Great Black-backed Gull (GBBG) - Fall

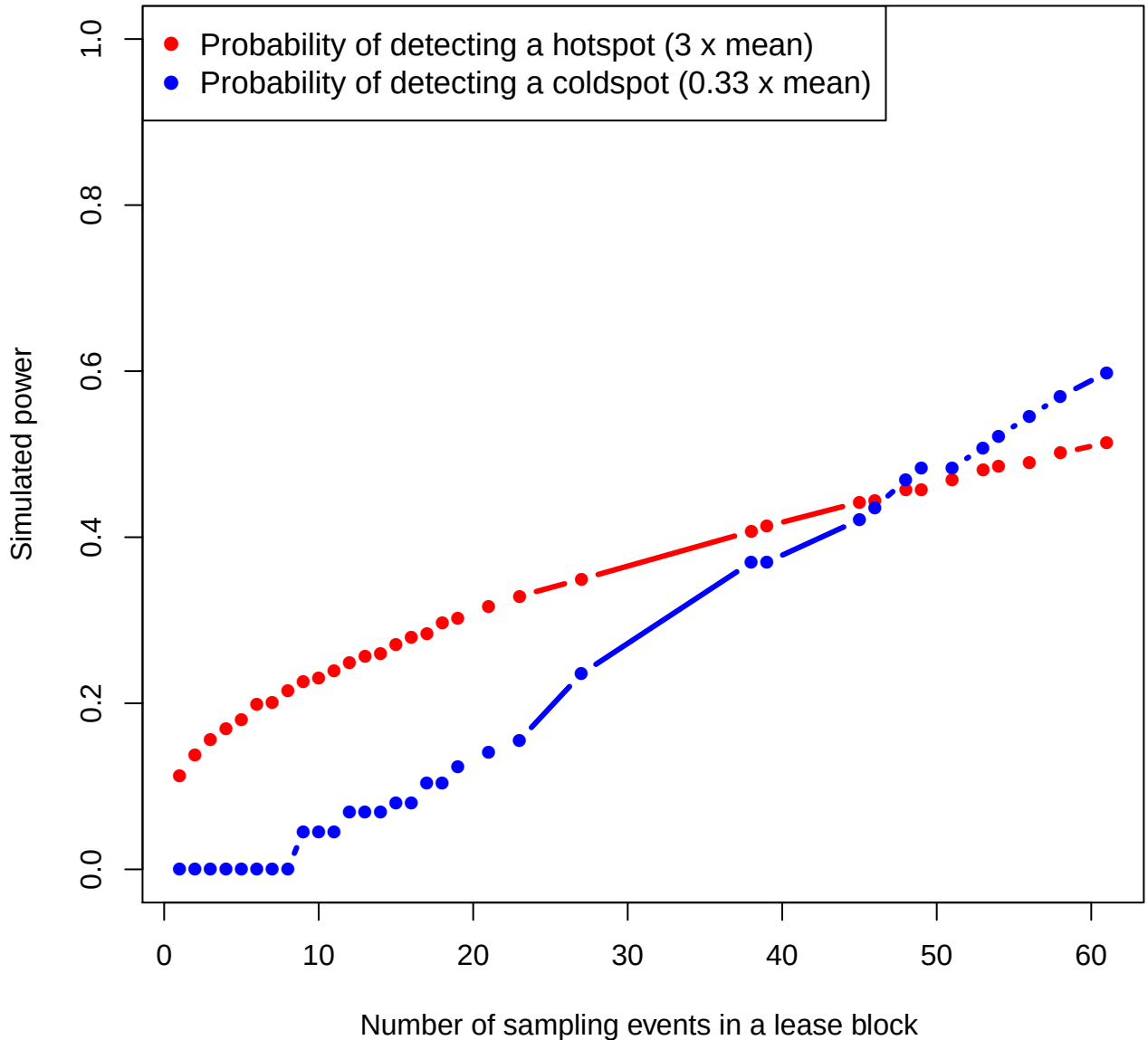
0 50 100 200 km



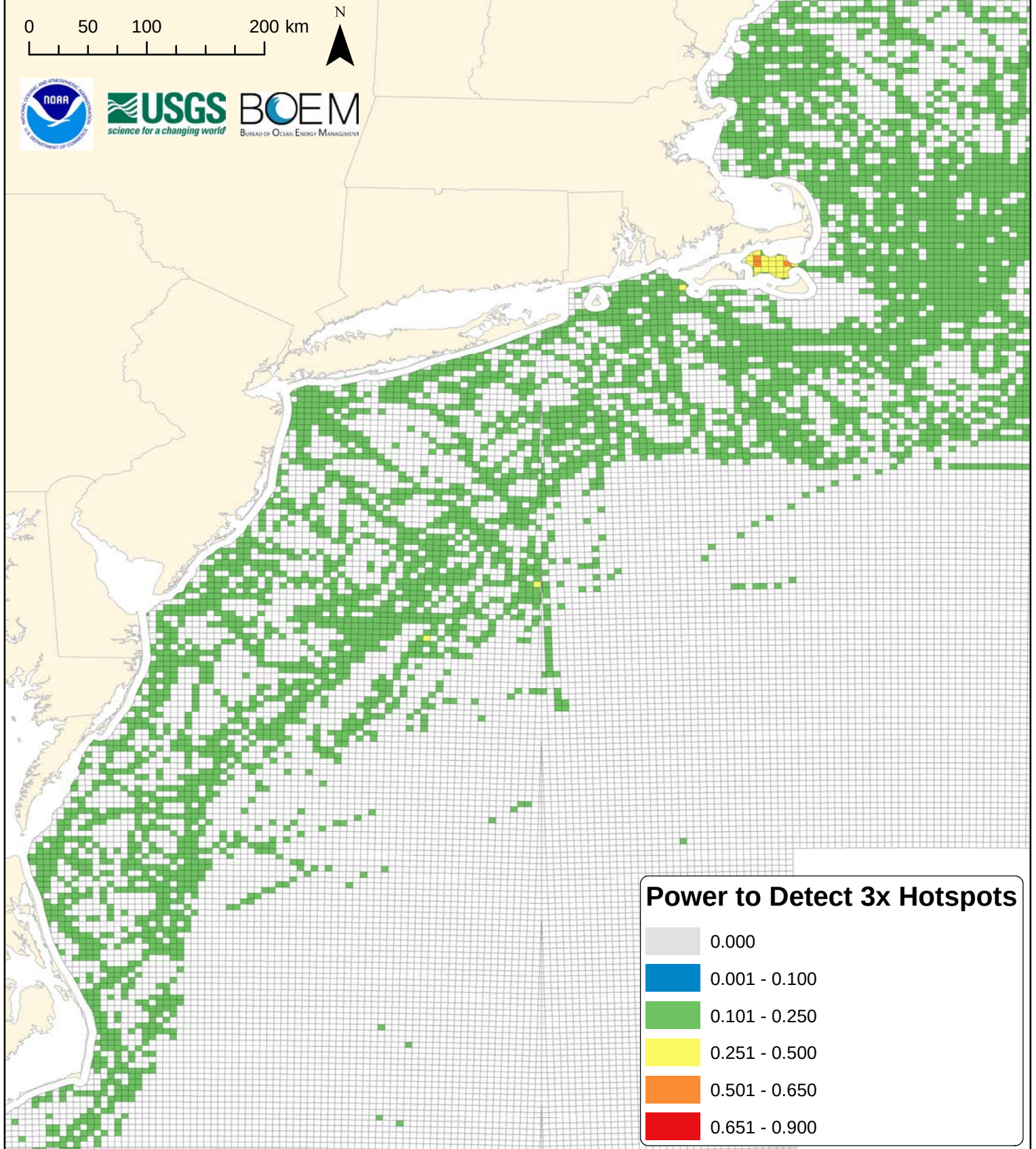
Mean Count

0.000
0.001 - 5.333
5.334 - 18.333
18.334 - 46.000
46.001 - 150.000
150.001 - 377.750

gbbg

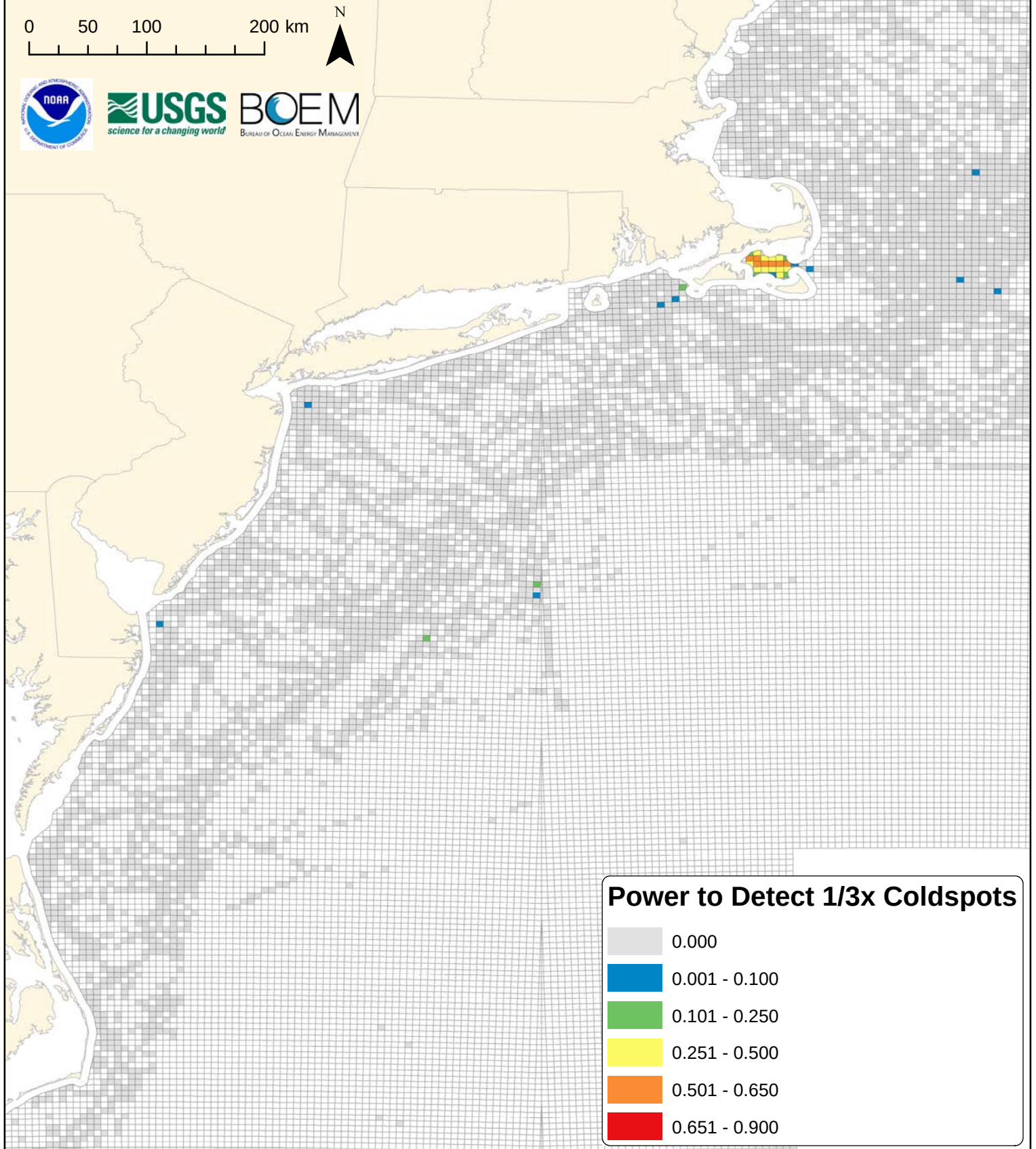


Great Black-backed Gull (GBBG) - Fall Full Model (Zero & Non-zero Counts)



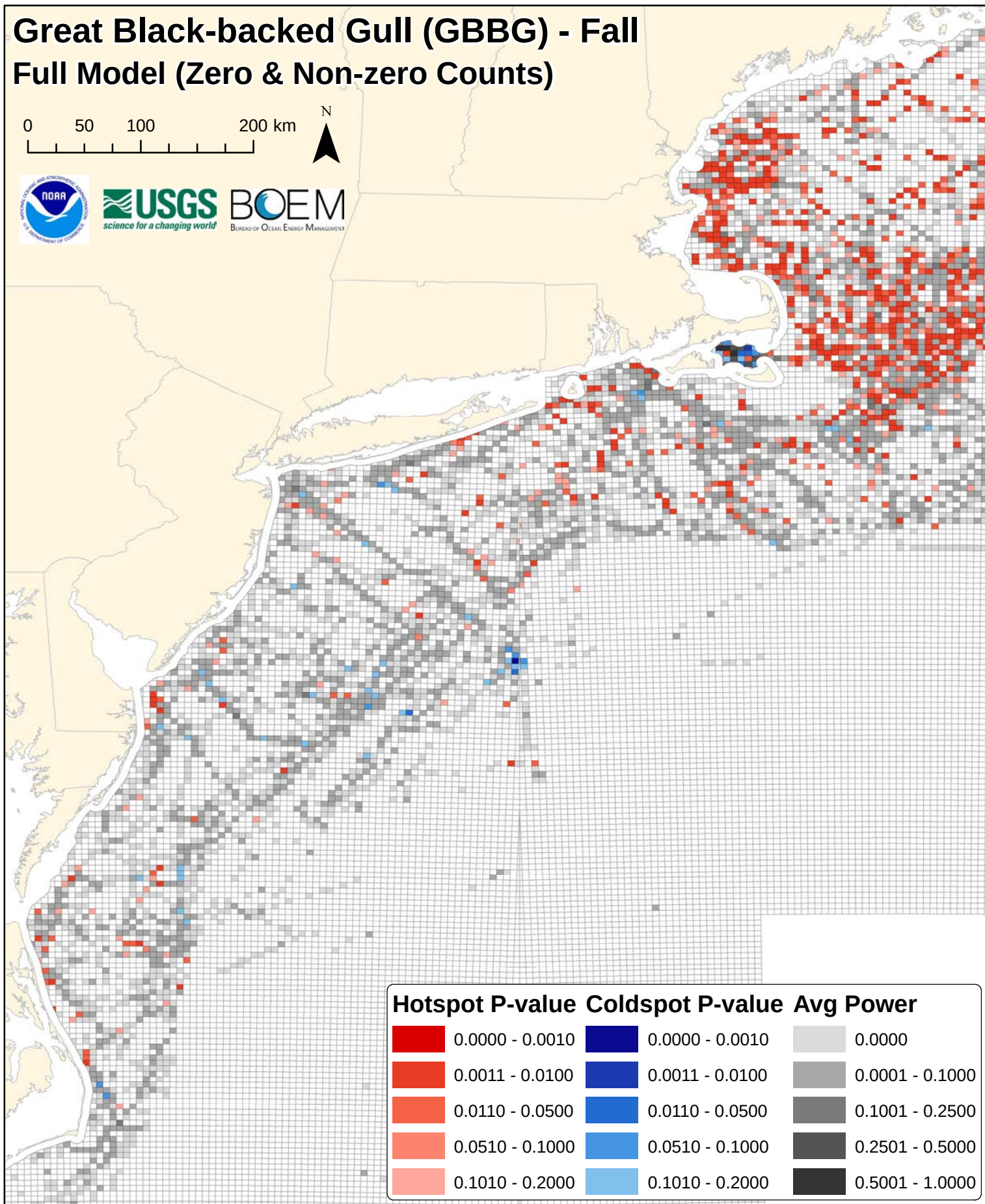
Great Black-backed Gull (GBBG) - Fall

Full Model (Zero & Non-zero Counts)

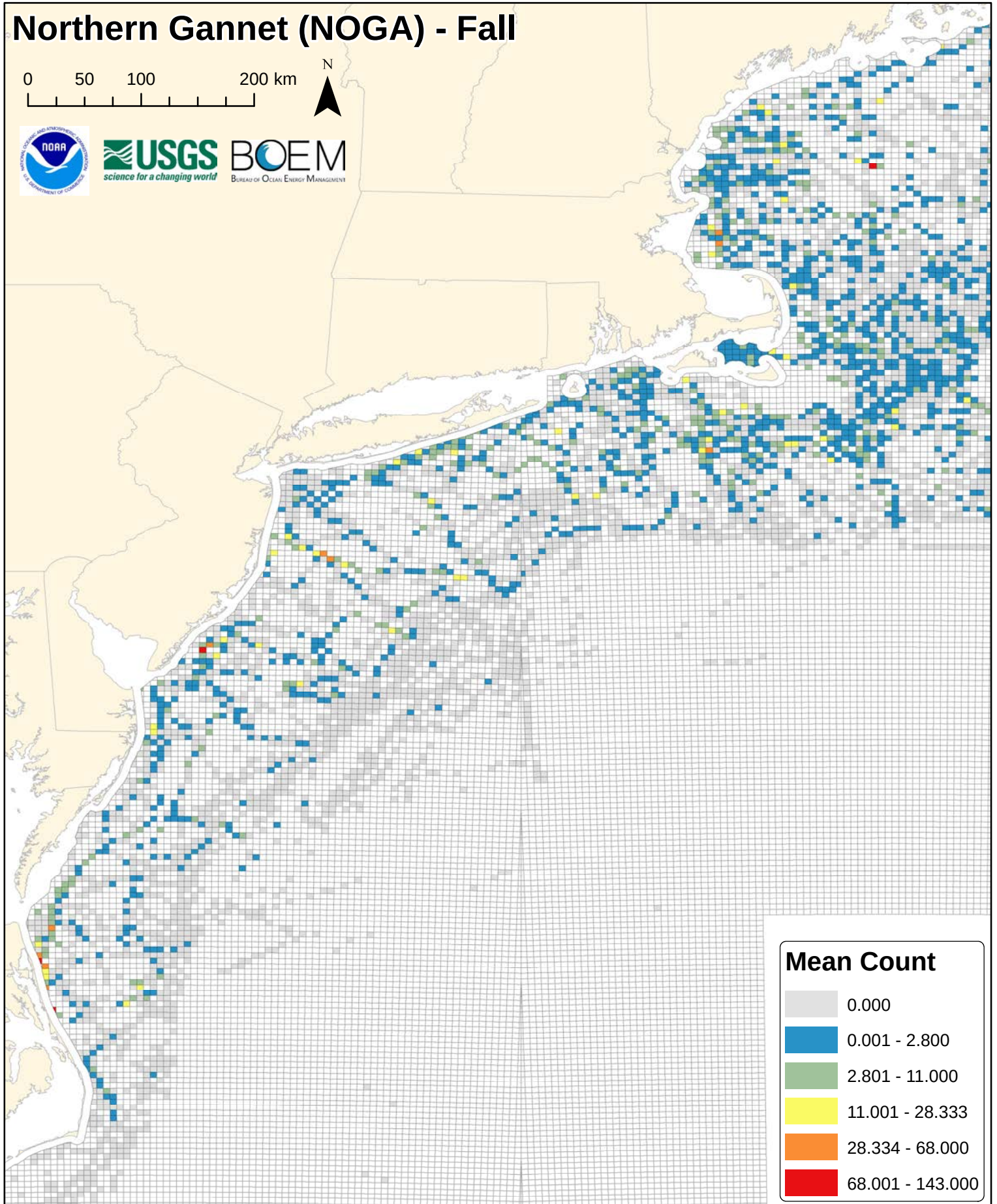


Great Black-backed Gull (GBBG) - Fall Full Model (Zero & Non-zero Counts)

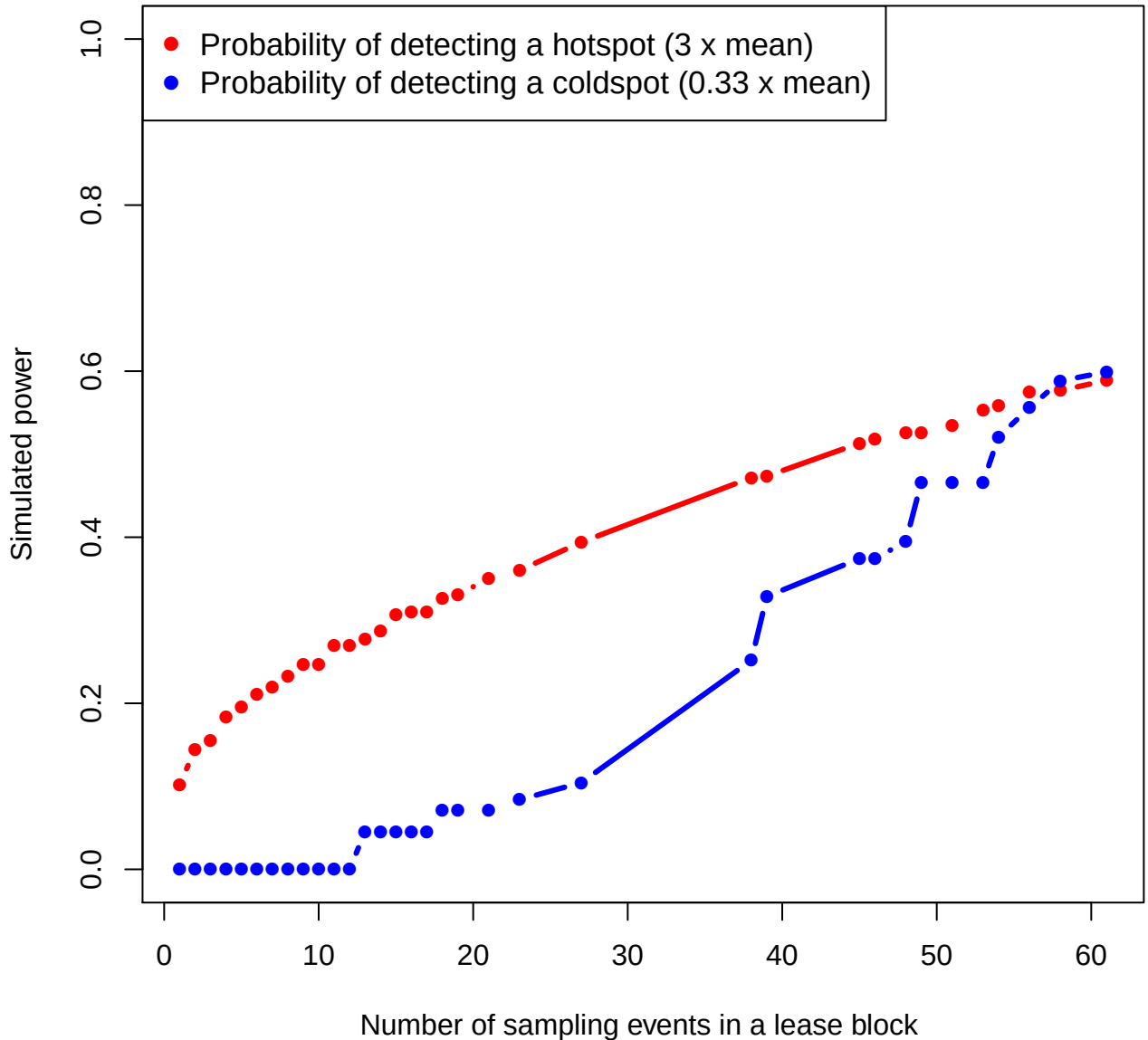
0 50 100 200 km



Northern Gannet (NOGA) - Fall

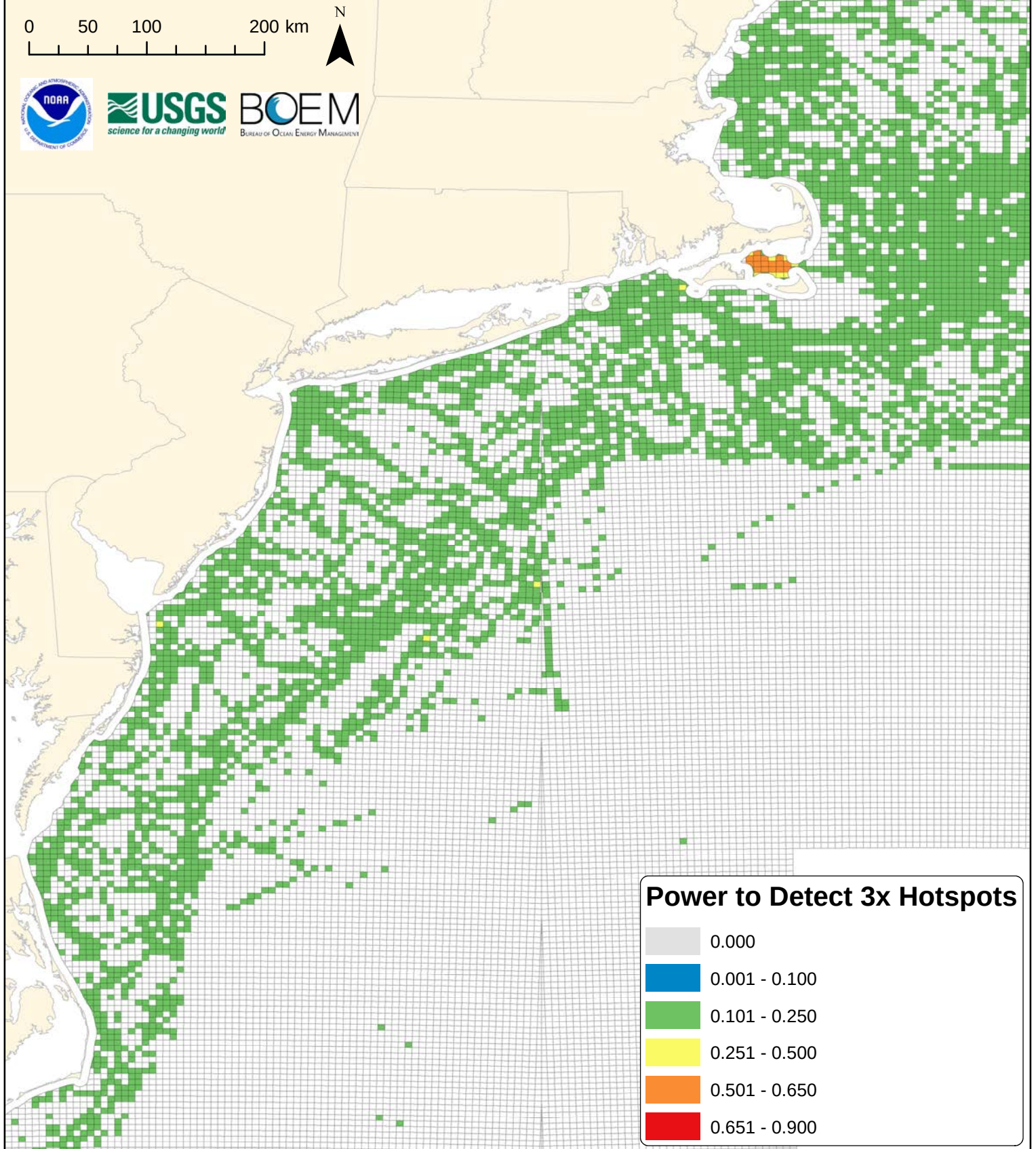


noga



Northern Gannet (NOGA) - Fall

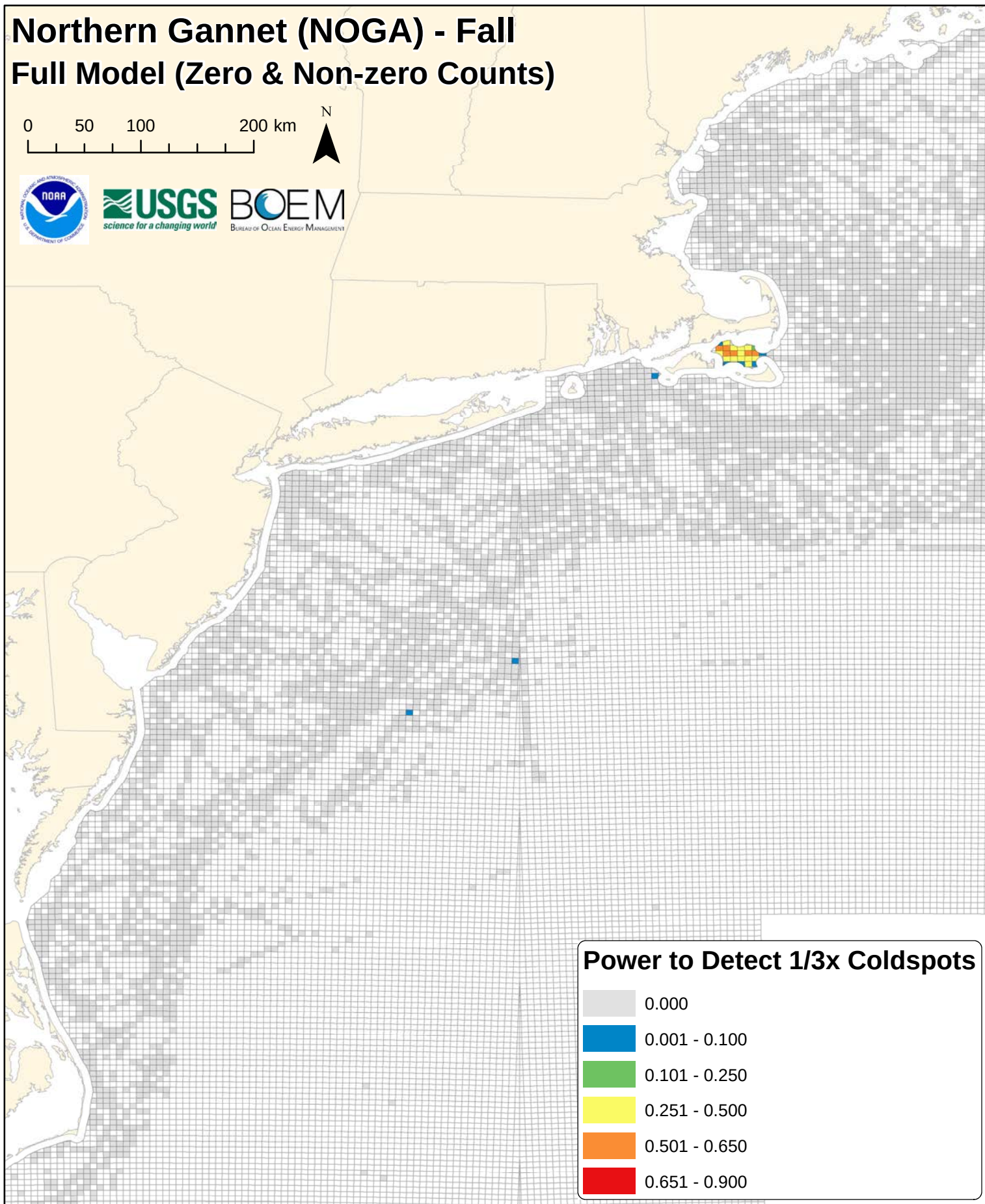
Full Model (Zero & Non-zero Counts)



Northern Gannet (NOGA) - Fall

Full Model (Zero & Non-zero Counts)

0 50 100 200 km

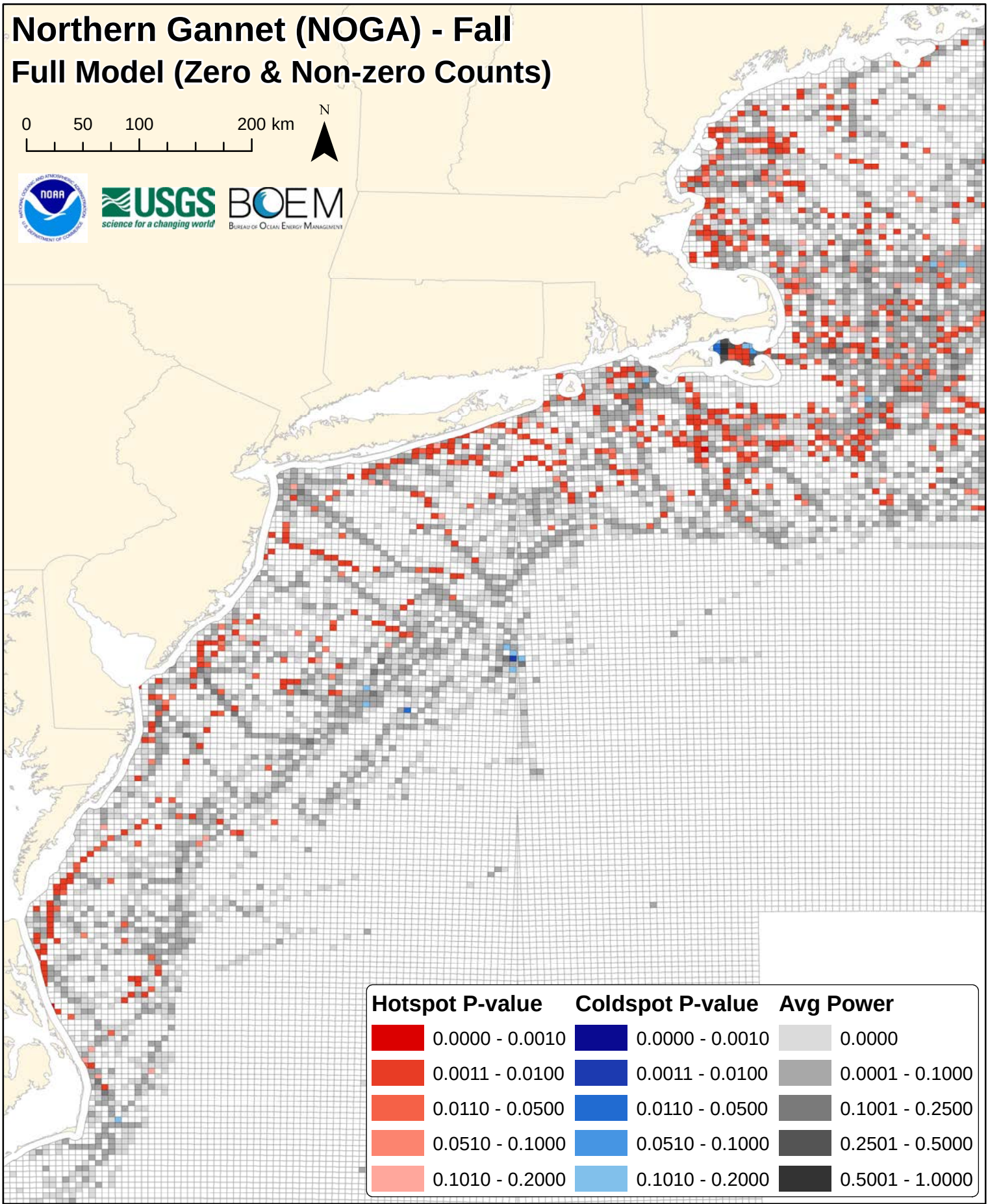
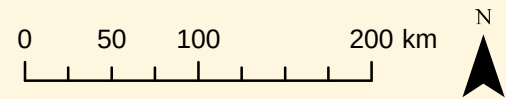


Power to Detect 1/3x Coldspots

0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

Northern Gannet (NOGA) - Fall

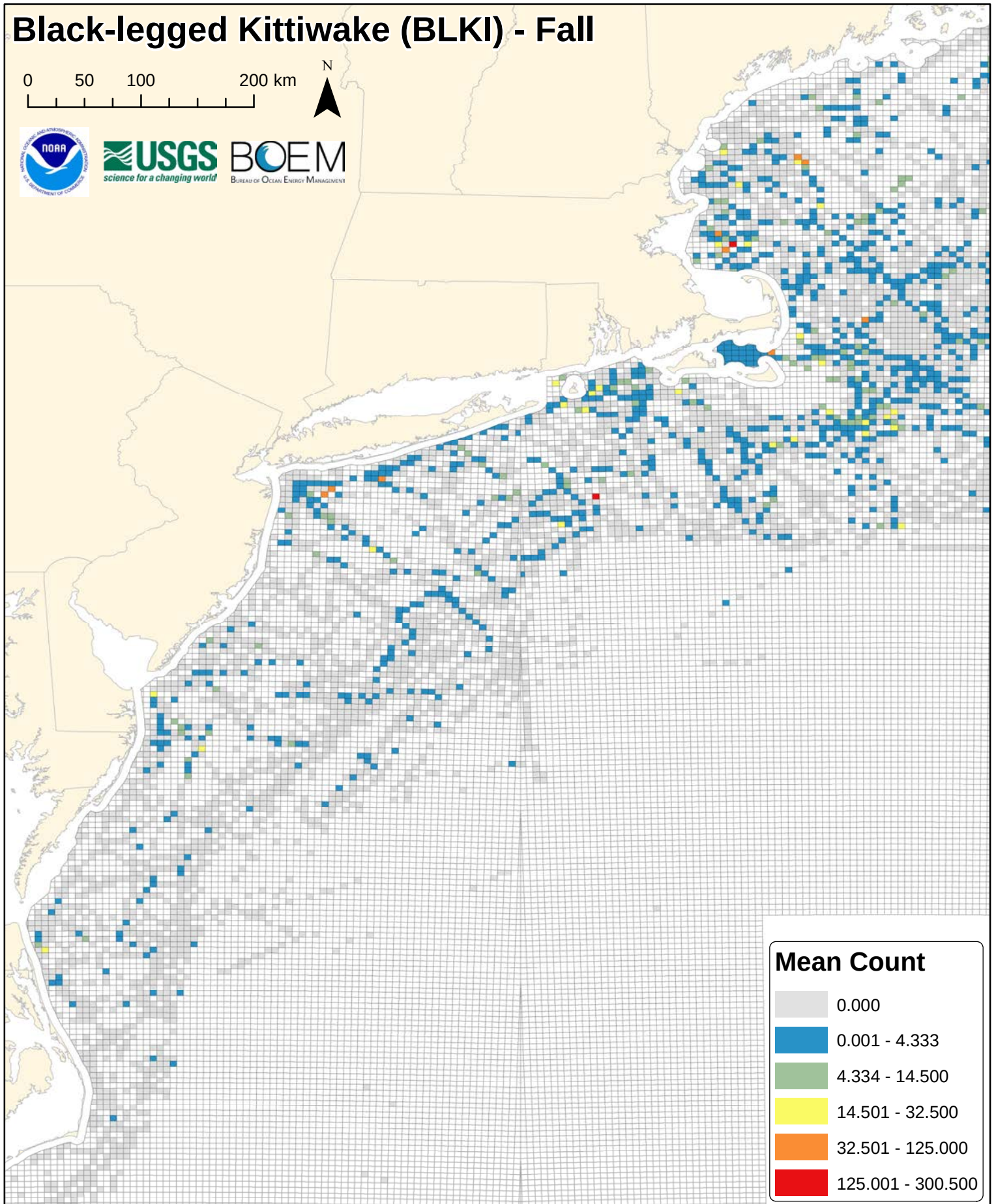
Full Model (Zero & Non-zero Counts)



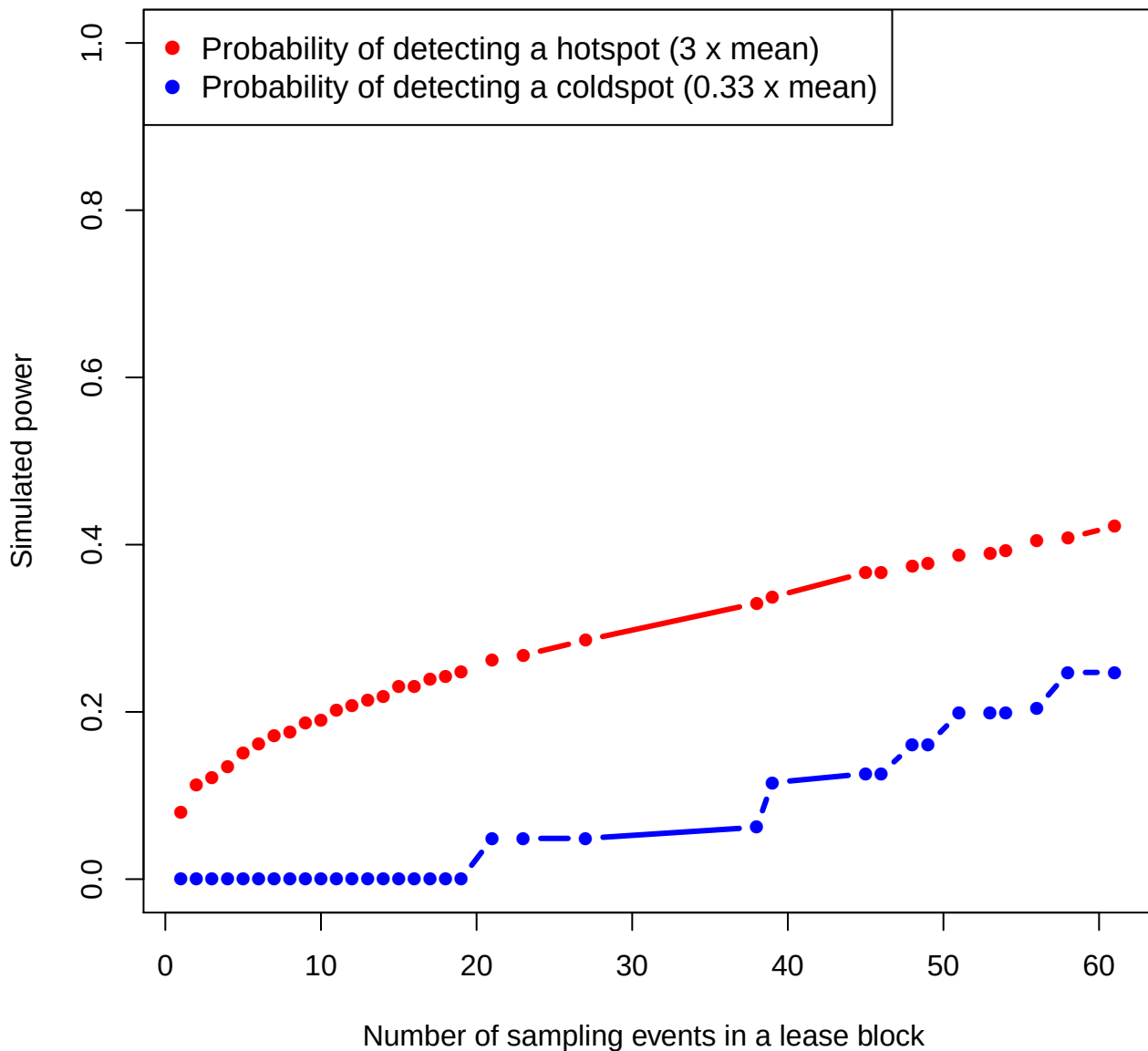
Hotspot P-value	Coldspot P-value	Avg Power
 0.0000 - 0.0010	 0.0000 - 0.0010	 0.0000
 0.0011 - 0.0100	 0.0011 - 0.0100	 0.0001 - 0.1000
 0.0110 - 0.0500	 0.0110 - 0.0500	 0.1001 - 0.2500
 0.0510 - 0.1000	 0.0510 - 0.1000	 0.2501 - 0.5000
 0.1010 - 0.2000	 0.1010 - 0.2000	 0.5001 - 1.0000

Black-legged Kittiwake (BLKI) - Fall

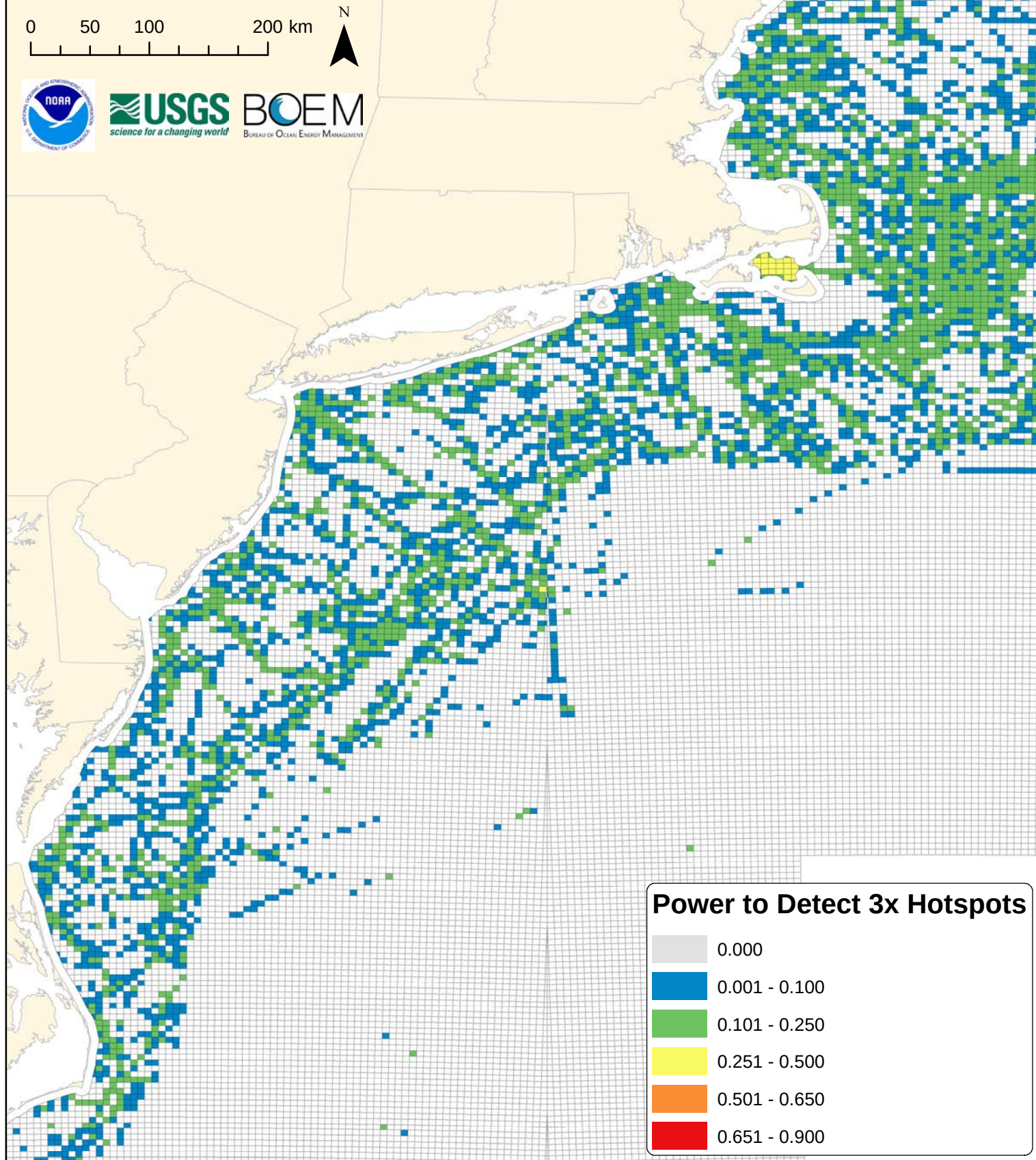
0 50 100 200 km



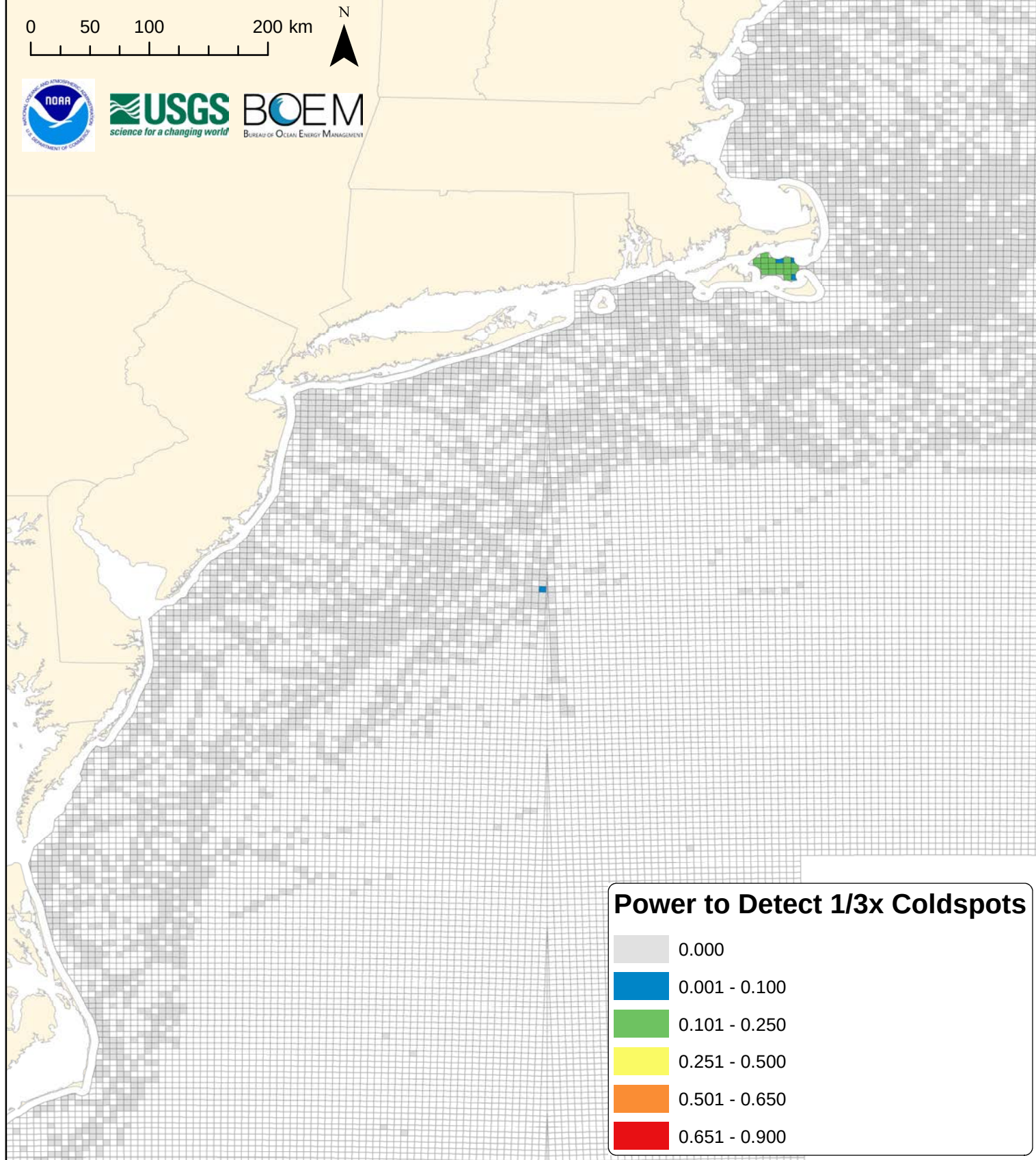
blki



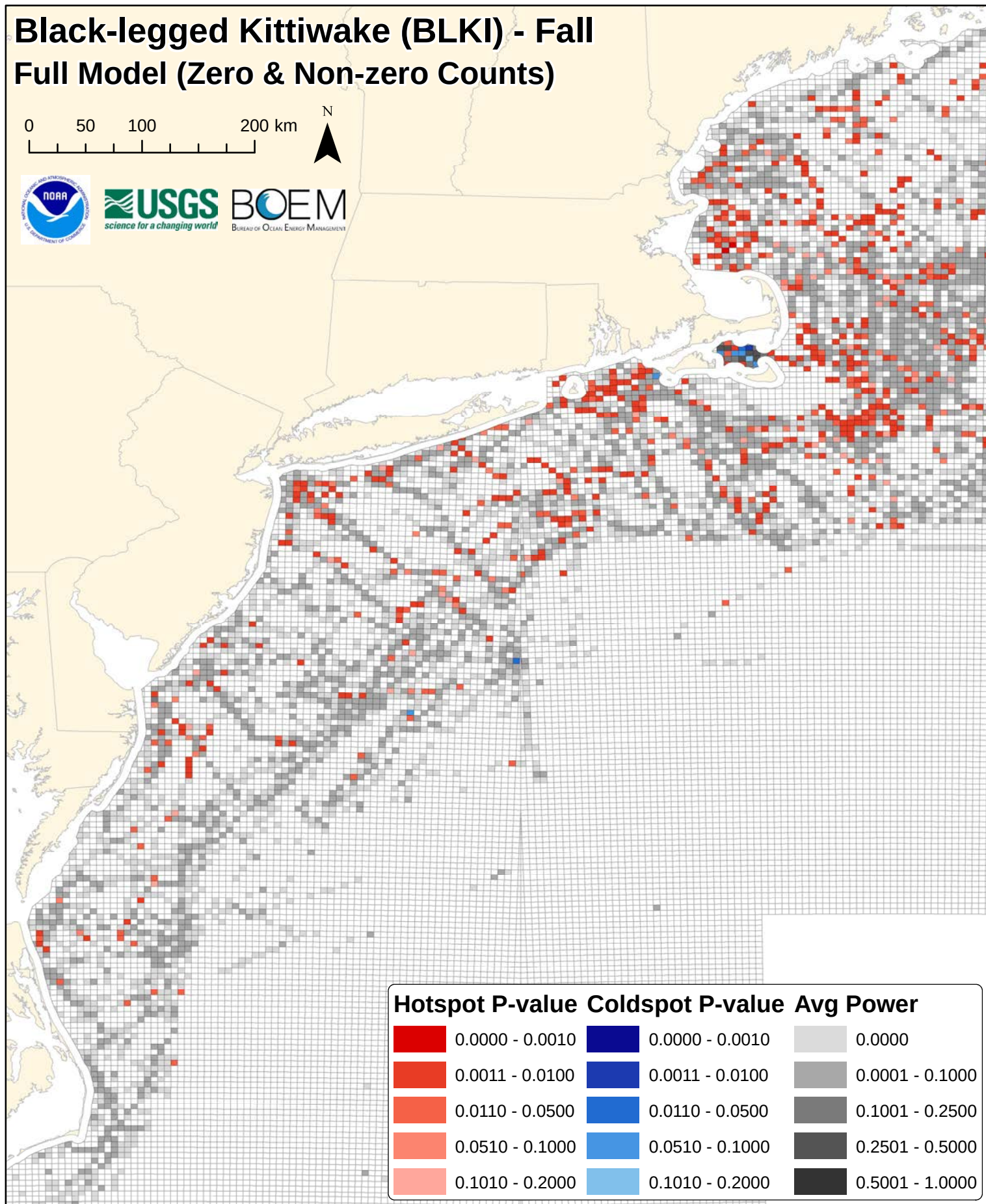
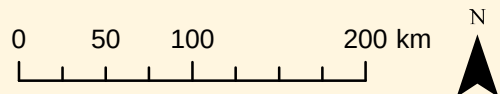
Black-legged Kittiwake (BLKI) - Fall Full Model (Zero & Non-zero Counts)



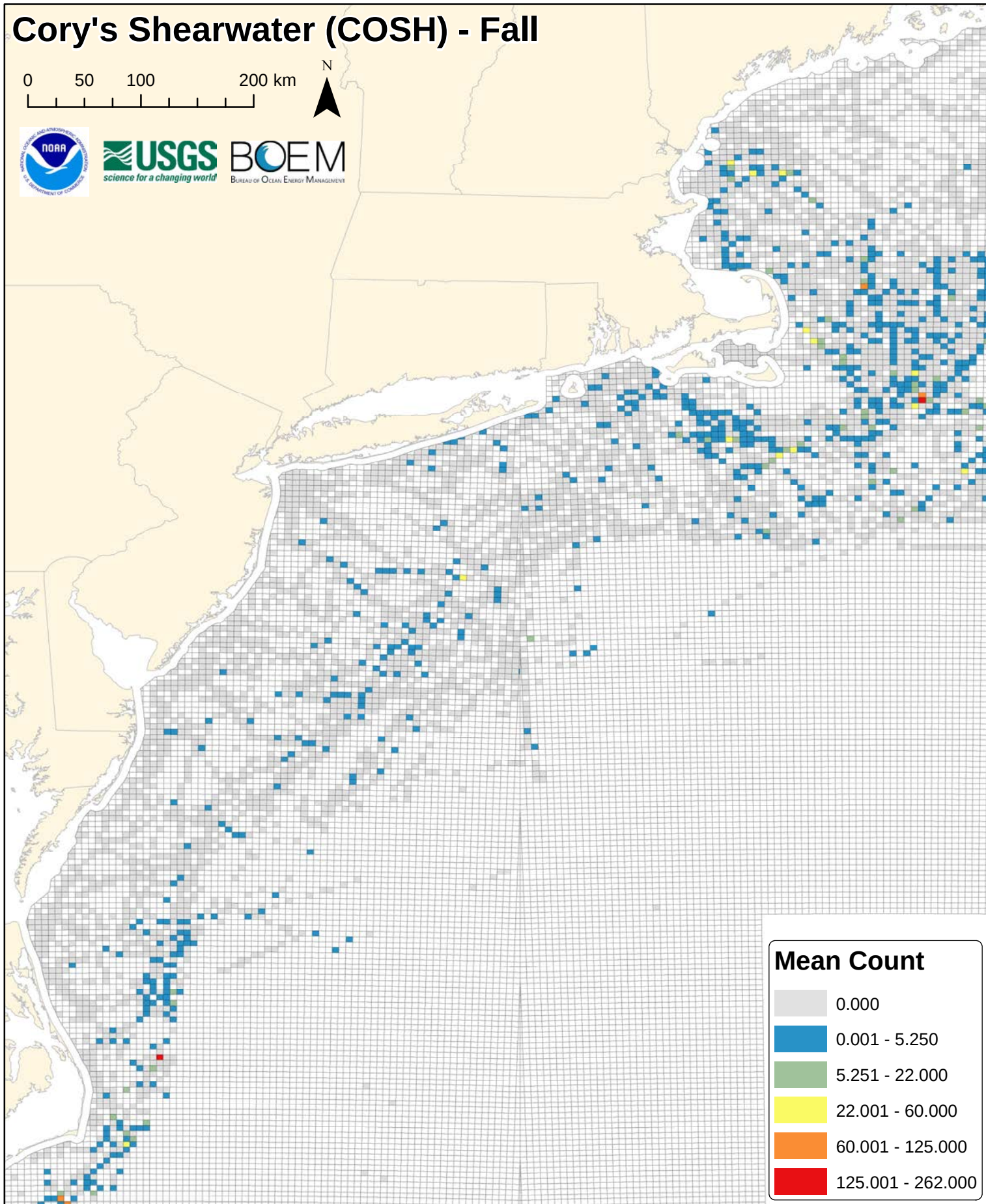
Black-legged Kittiwake (BLKI) - Fall Full Model (Zero & Non-zero Counts)



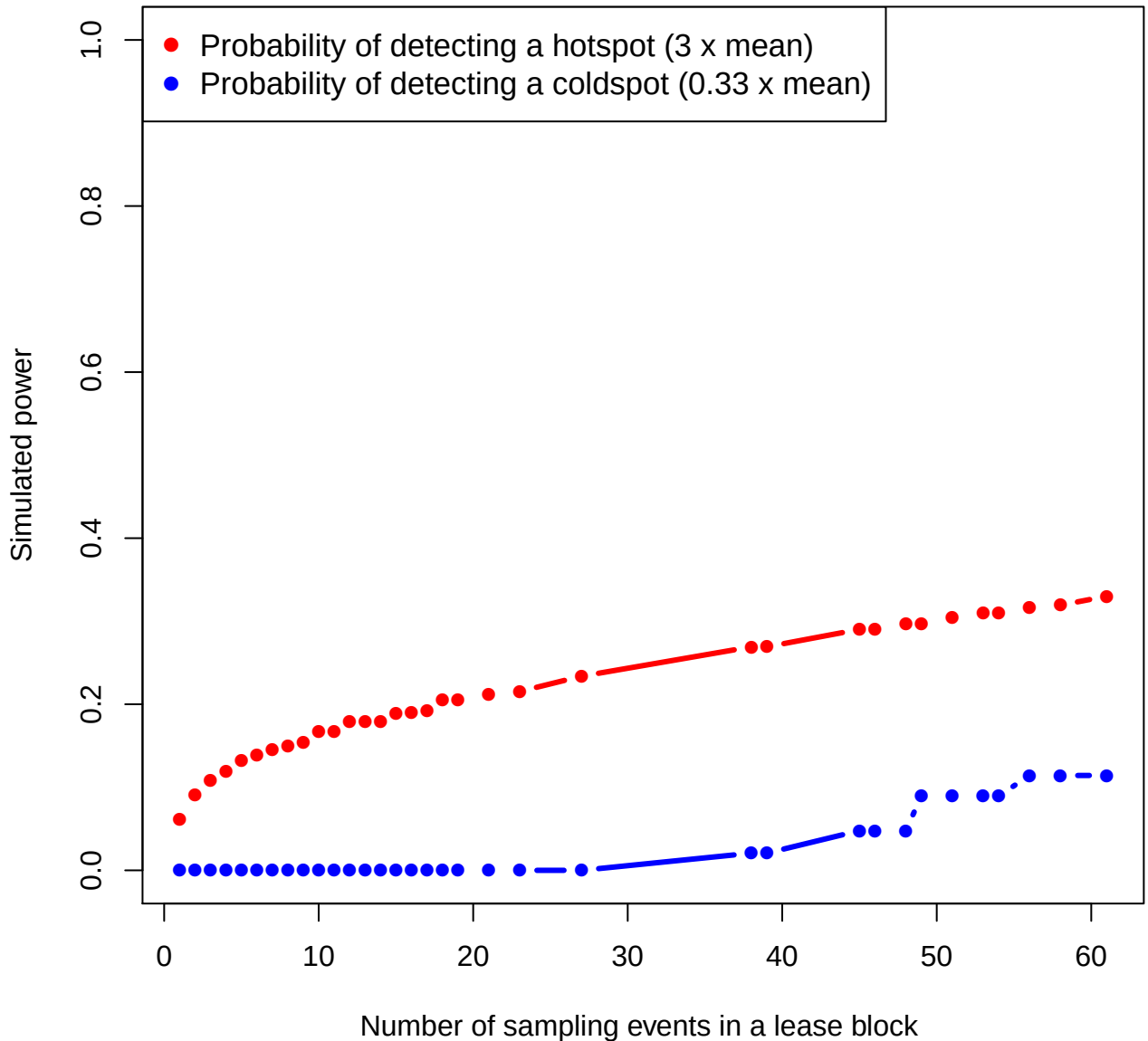
Black-legged Kittiwake (BLKI) - Fall Full Model (Zero & Non-zero Counts)



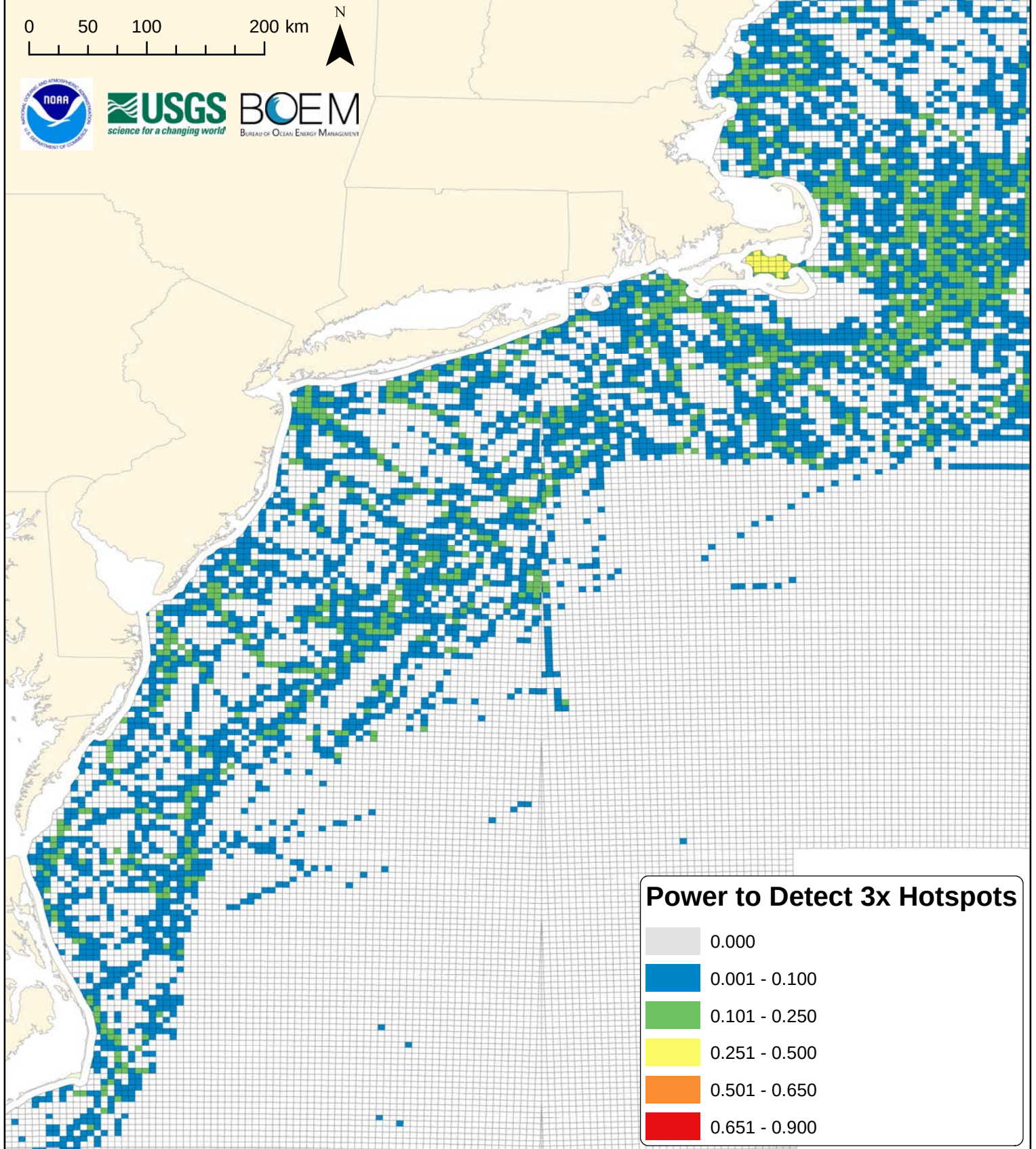
Cory's Shearwater (COSH) - Fall



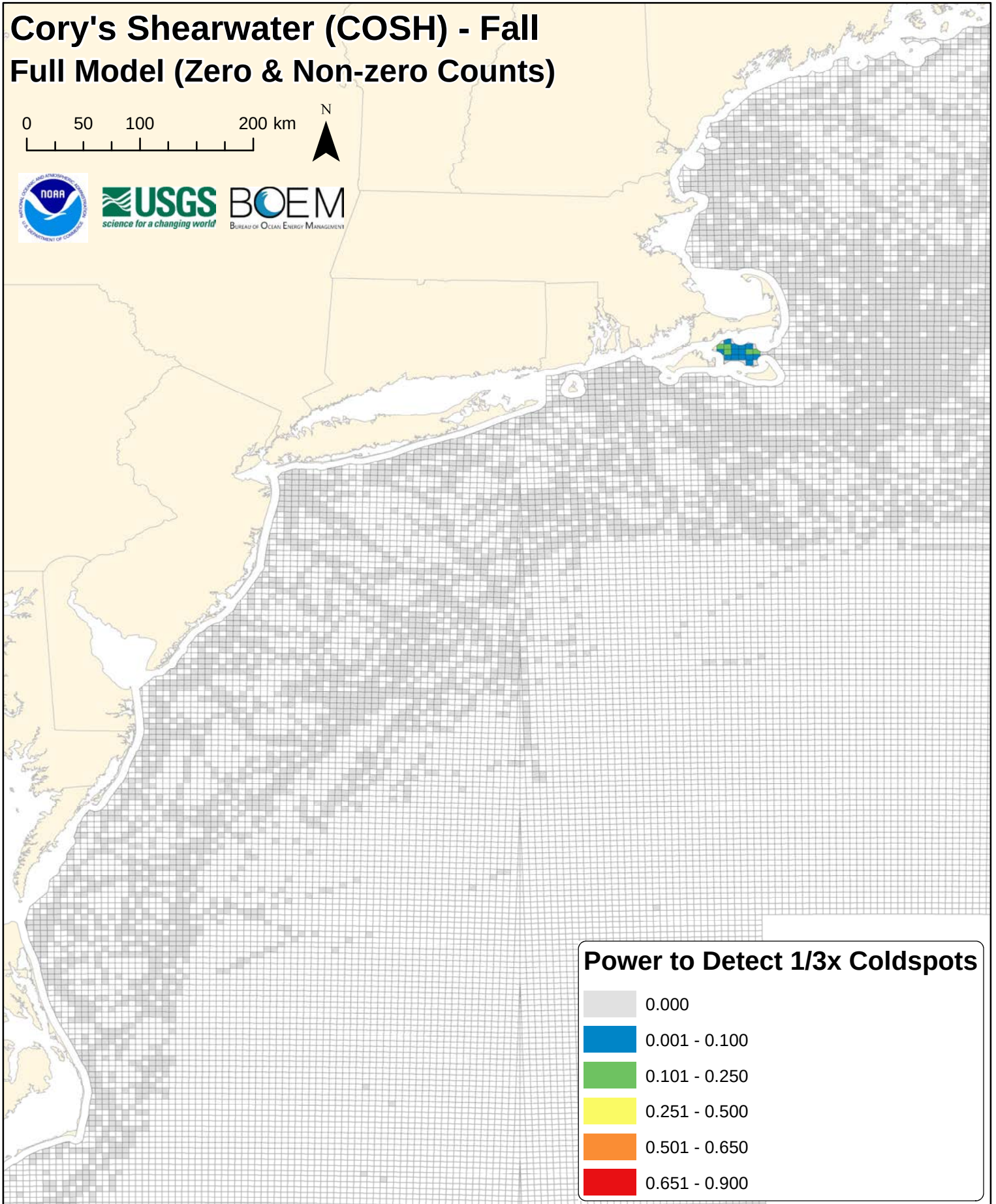
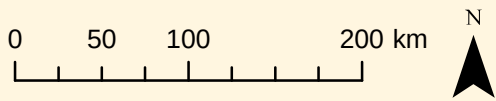
cosh



Cory's Shearwater (COSH) - Fall Full Model (Zero & Non-zero Counts)

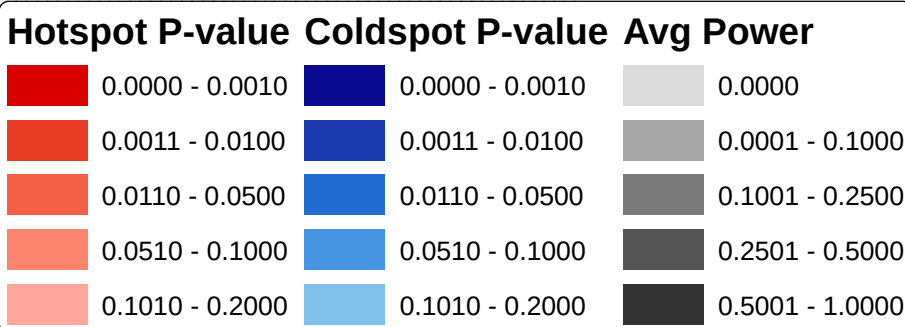
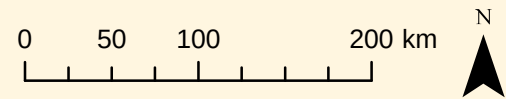


Cory's Shearwater (COSH) - Fall Full Model (Zero & Non-zero Counts)

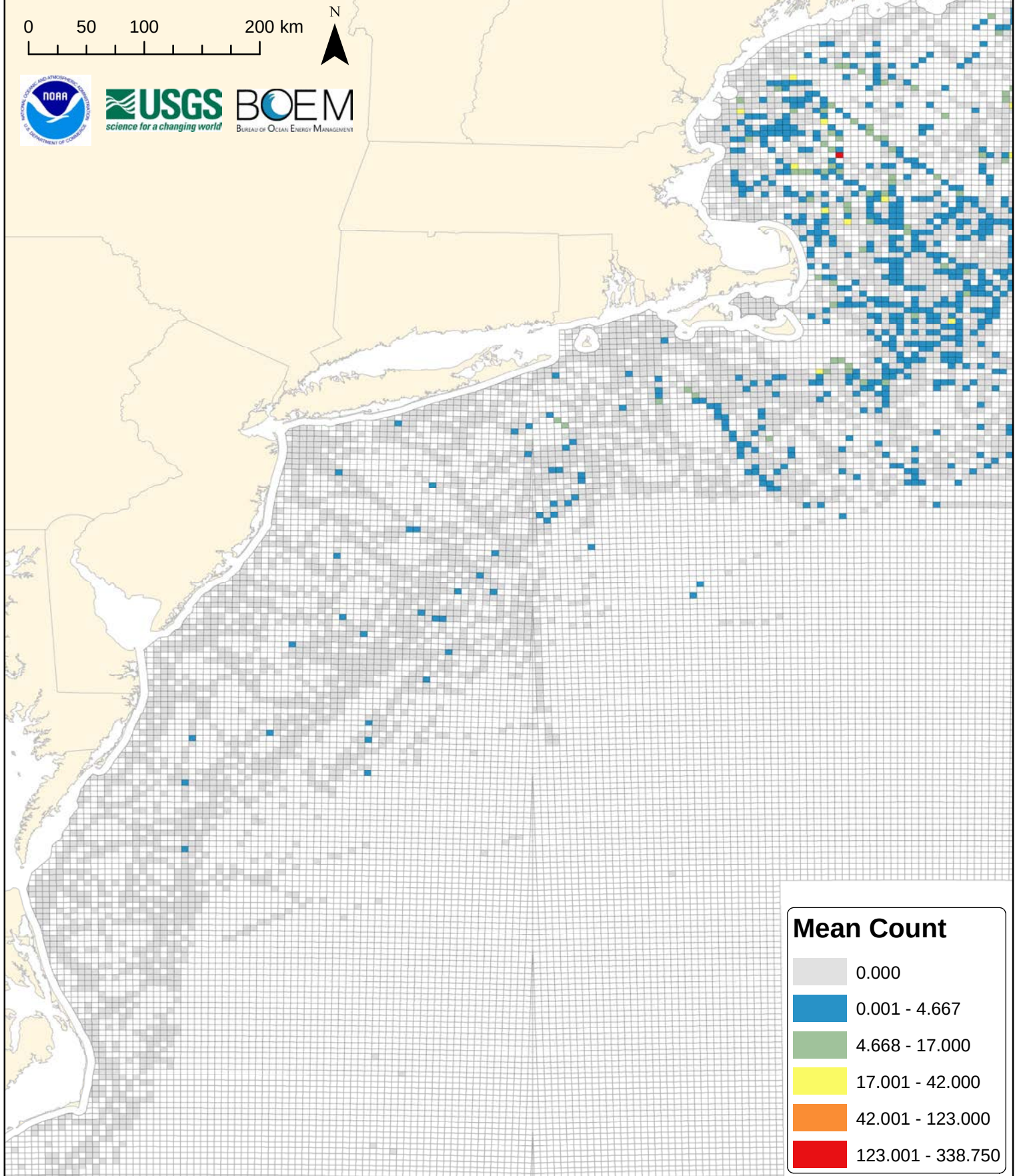


Cory's Shearwater (COSH) - Fall

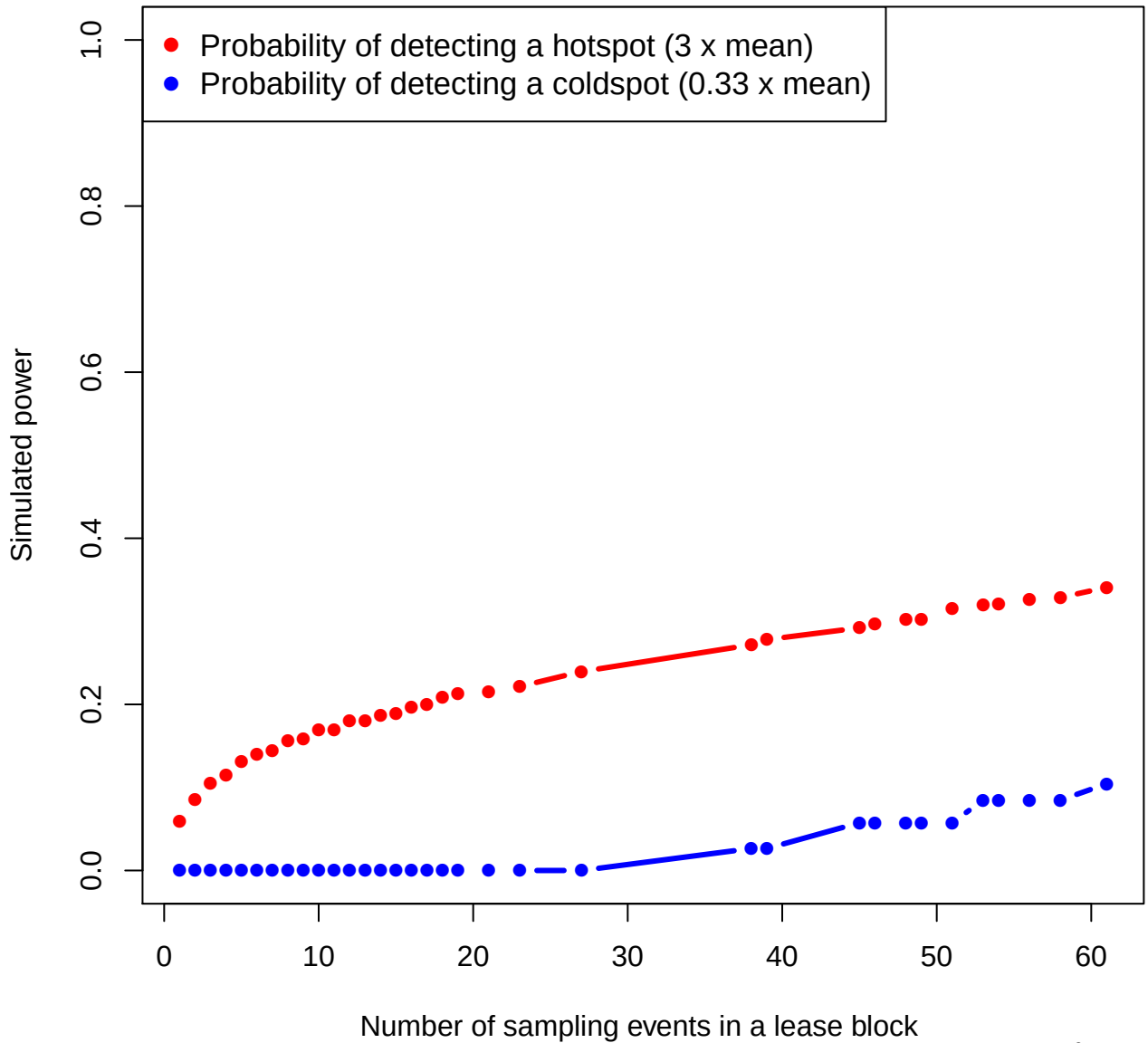
Full Model (Zero & Non-zero Counts)



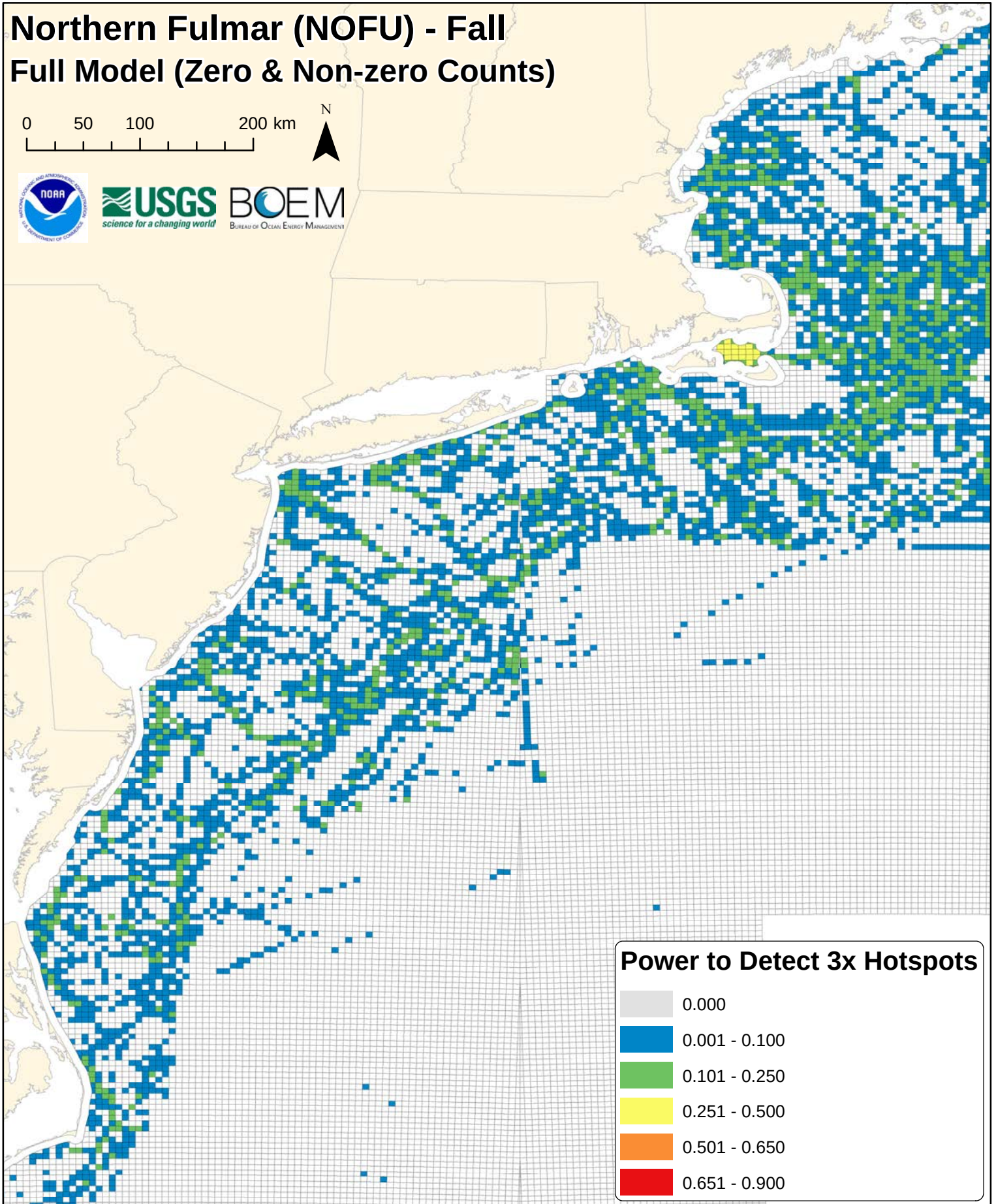
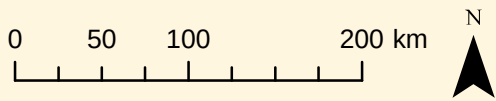
Northern Fulmar (NOFU) - Fall



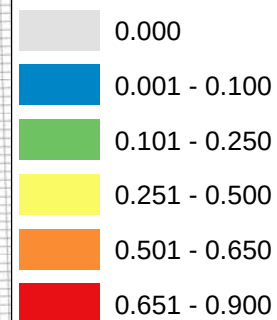
nofu



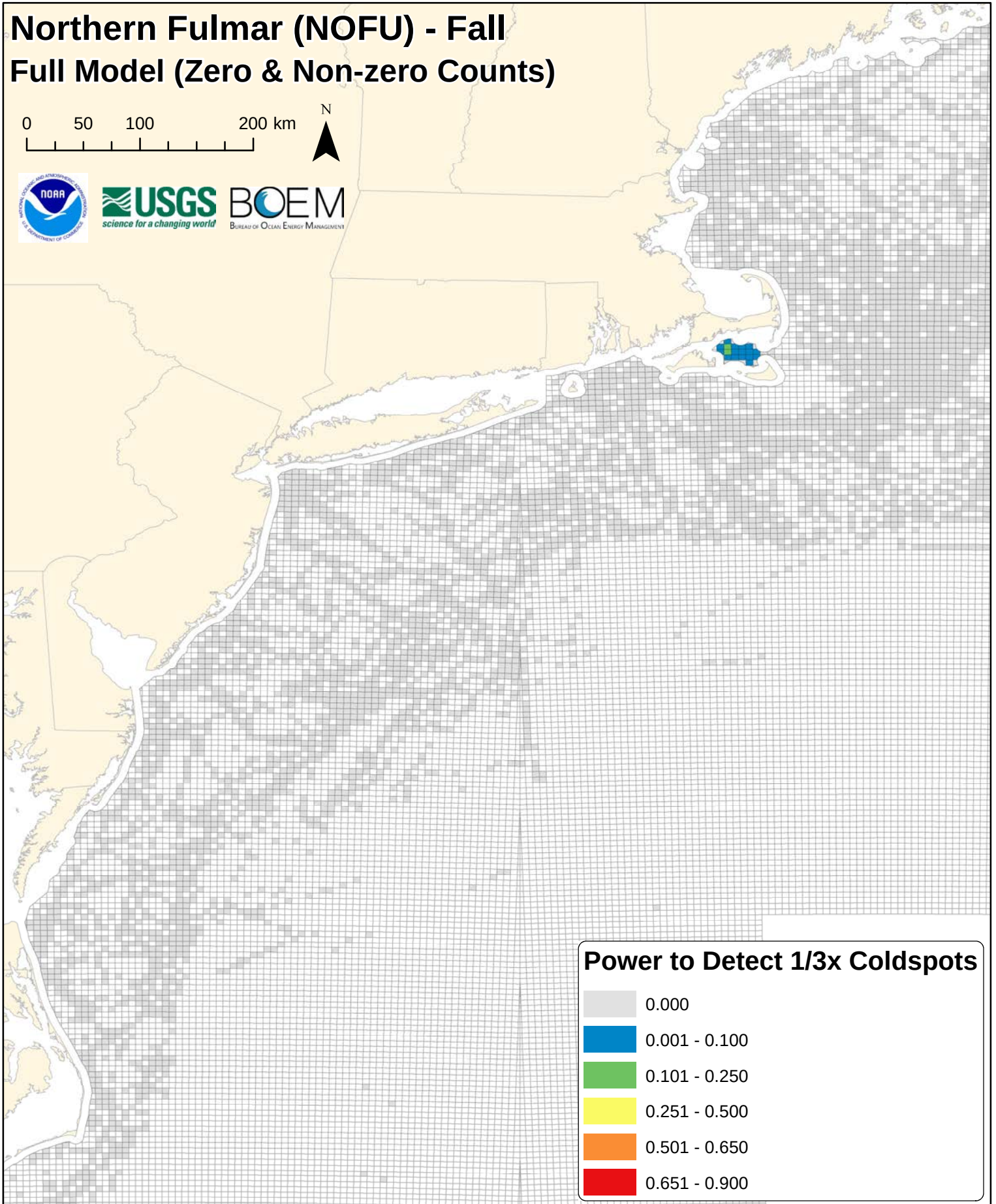
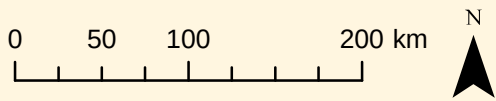
Northern Fulmar (NOFU) - Fall Full Model (Zero & Non-zero Counts)



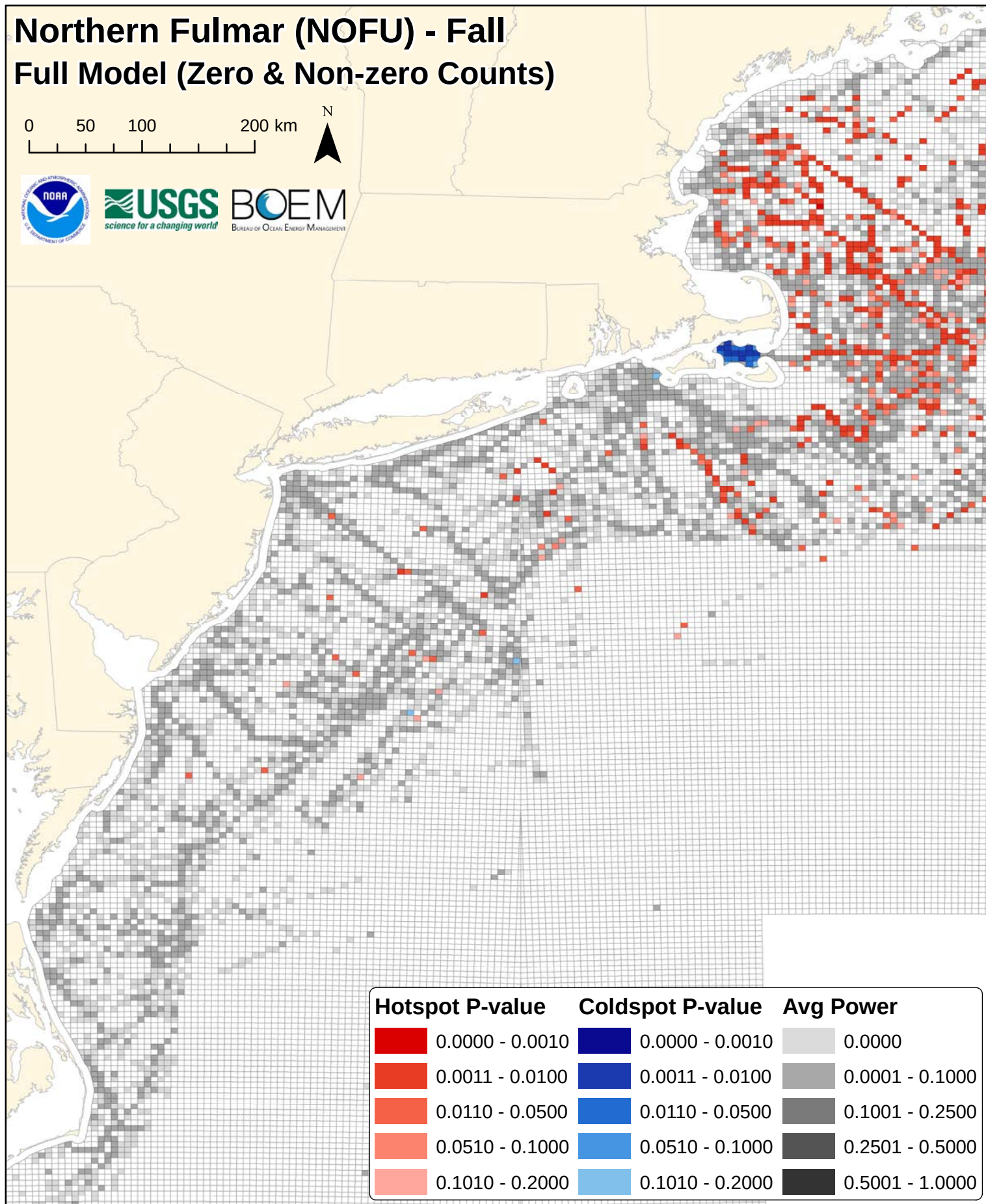
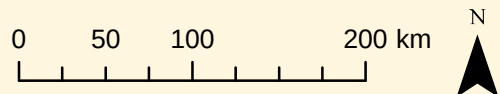
Power to Detect 3x Hotspots



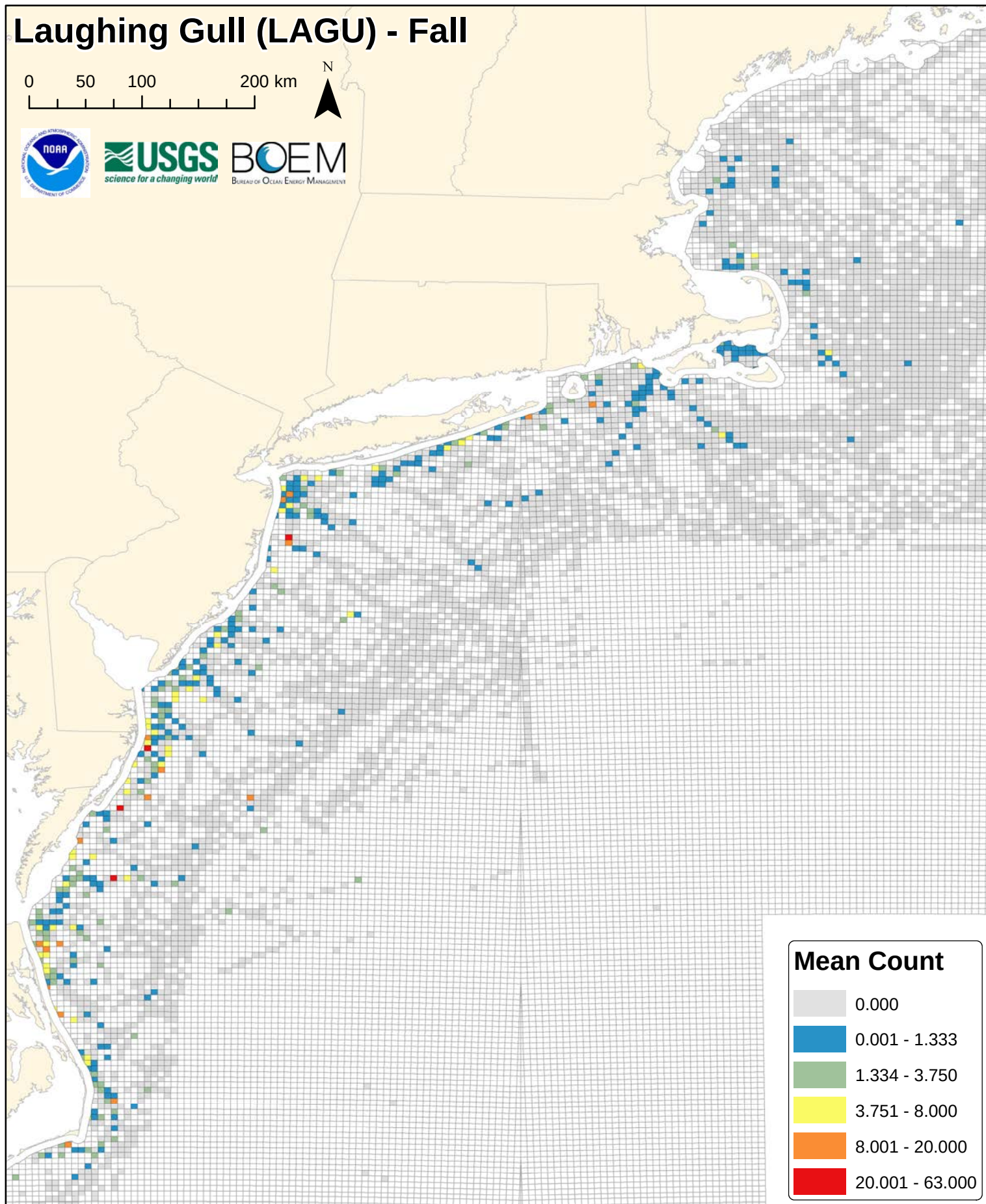
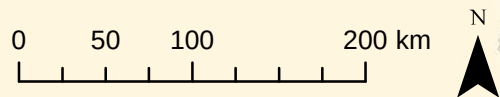
Northern Fulmar (NOFU) - Fall Full Model (Zero & Non-zero Counts)



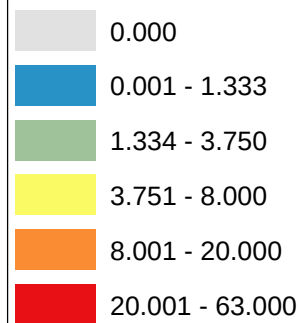
Northern Fulmar (NOFU) - Fall Full Model (Zero & Non-zero Counts)



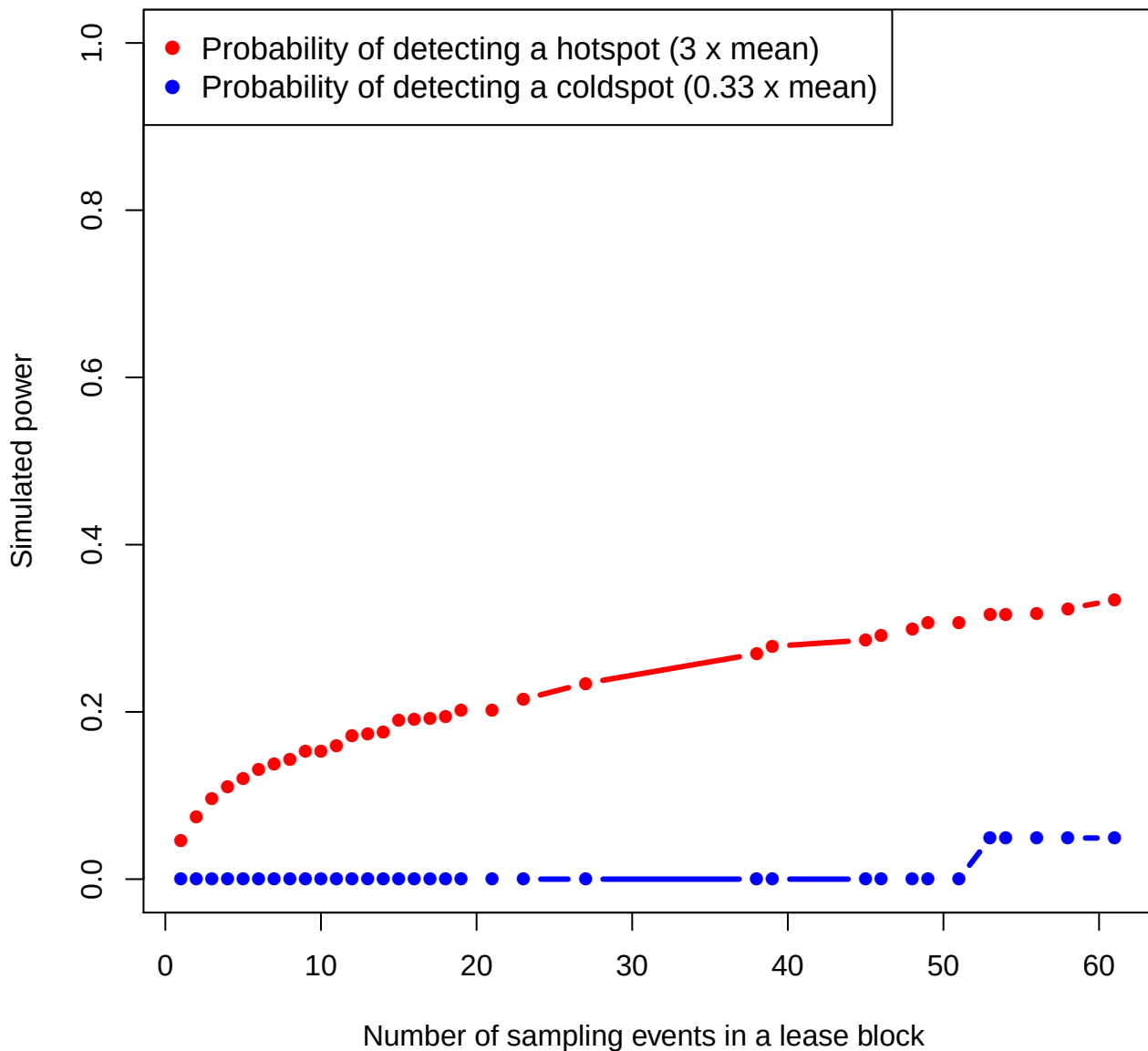
Laughing Gull (LAGU) - Fall



Mean Count

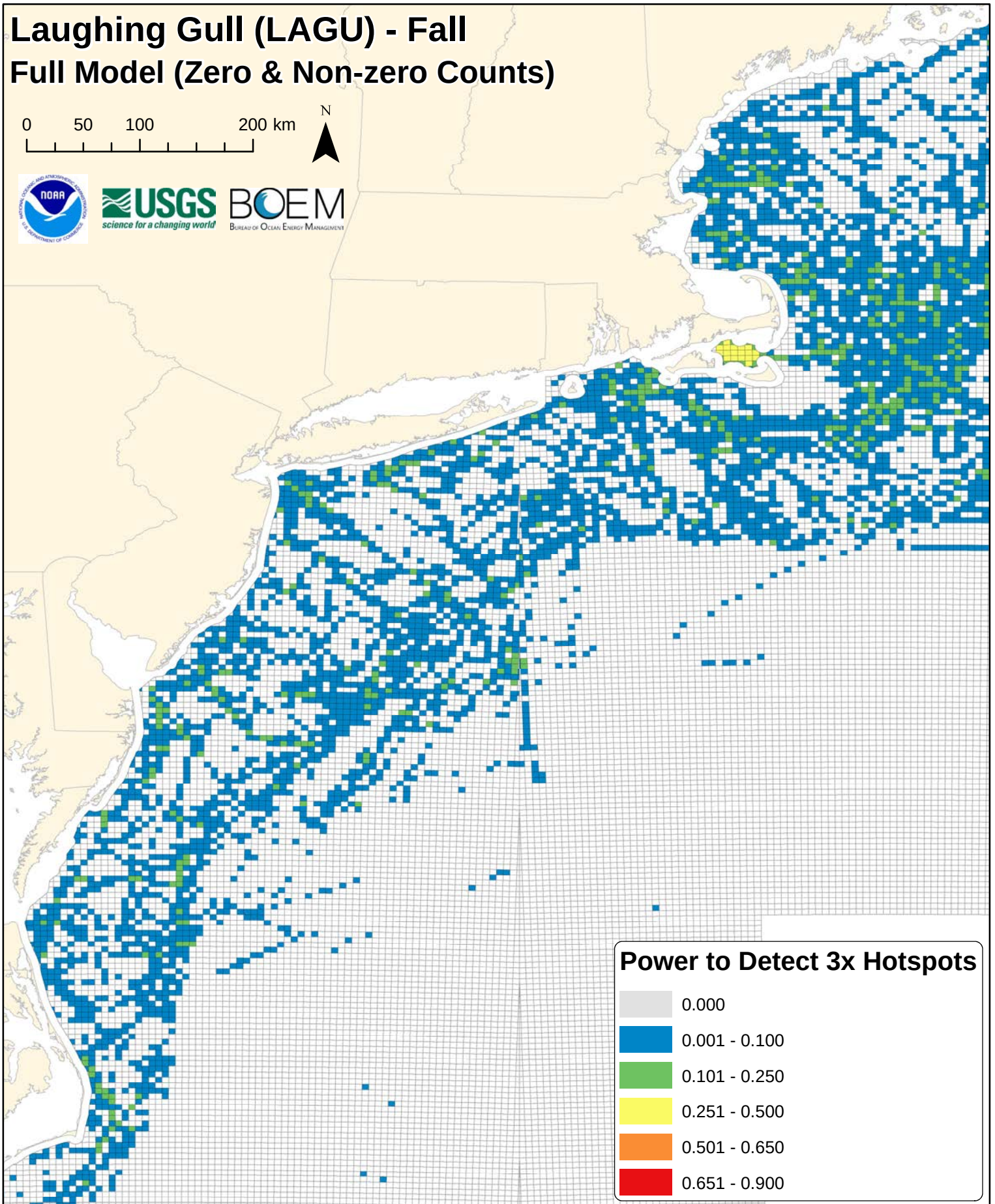
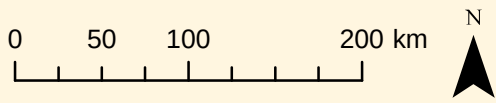


lagu

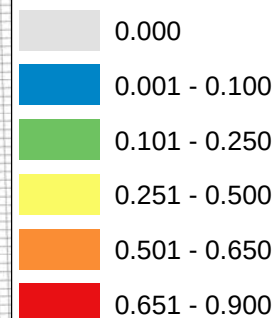


Laughing Gull (LAGU) - Fall

Full Model (Zero & Non-zero Counts)

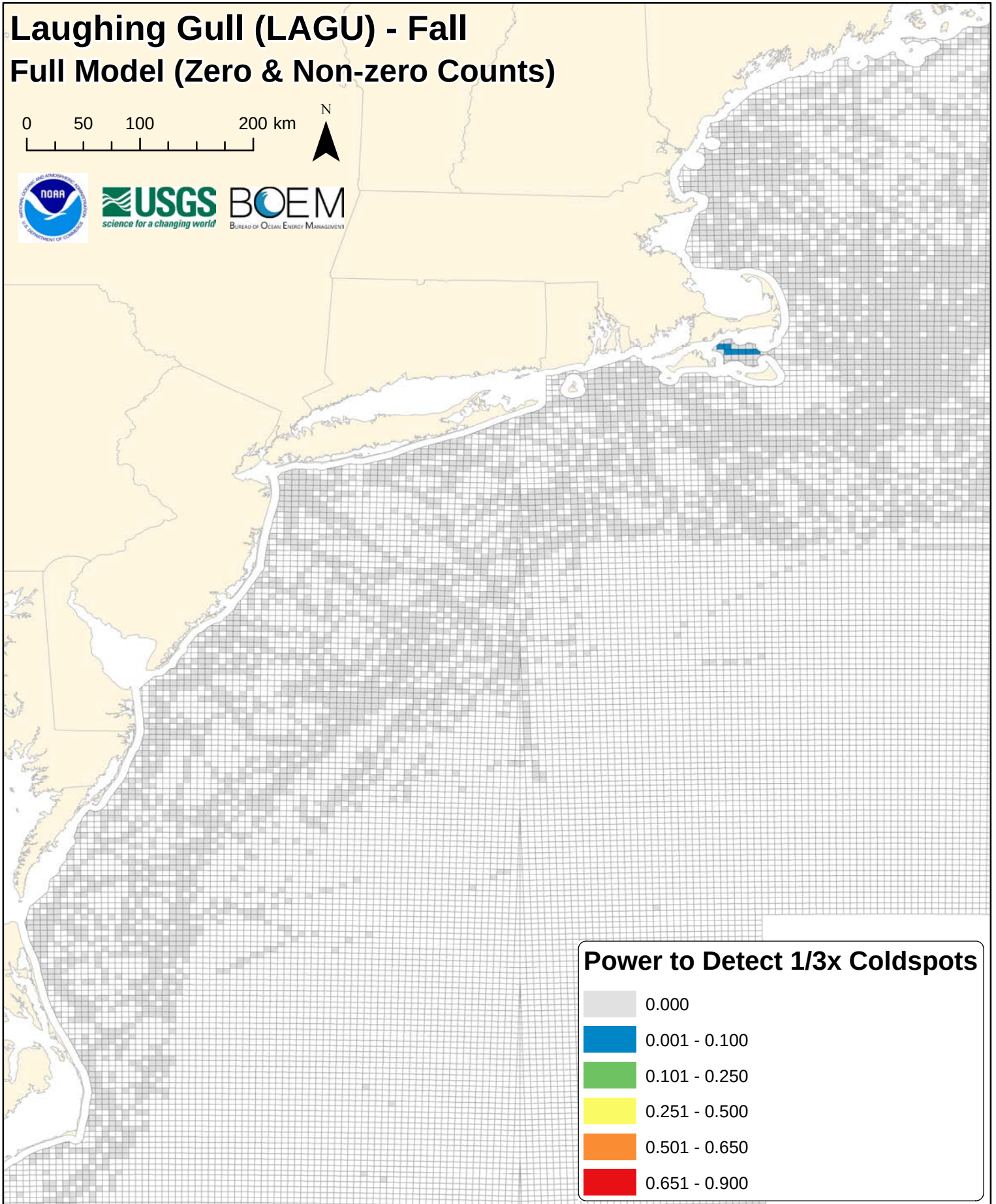
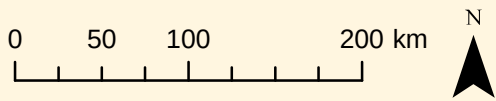


Power to Detect 3x Hotspots



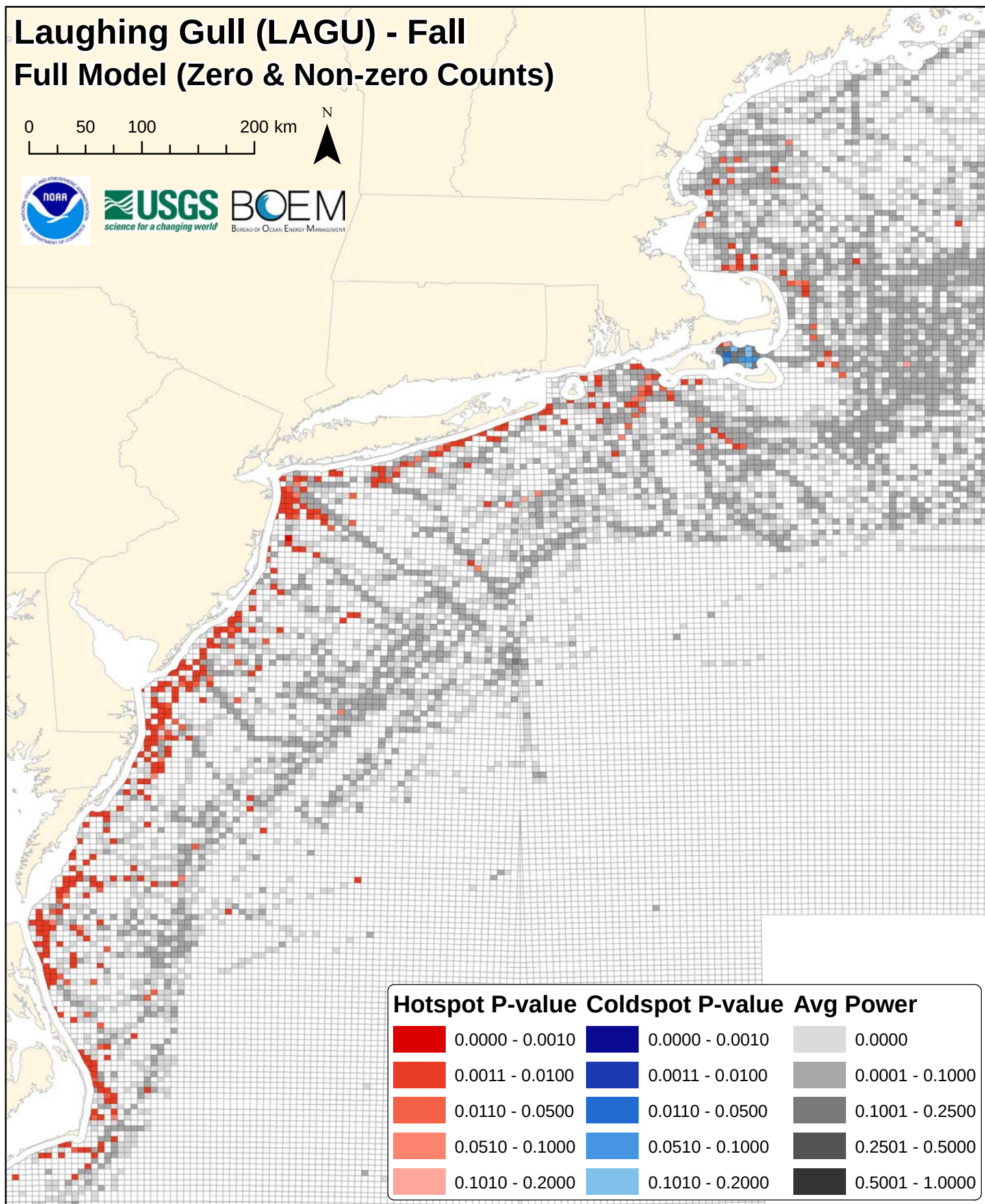
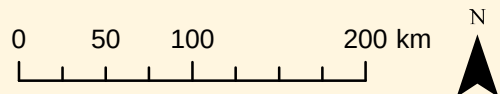
Laughing Gull (LAGU) - Fall

Full Model (Zero & Non-zero Counts)



Laughing Gull (LAGU) - Fall

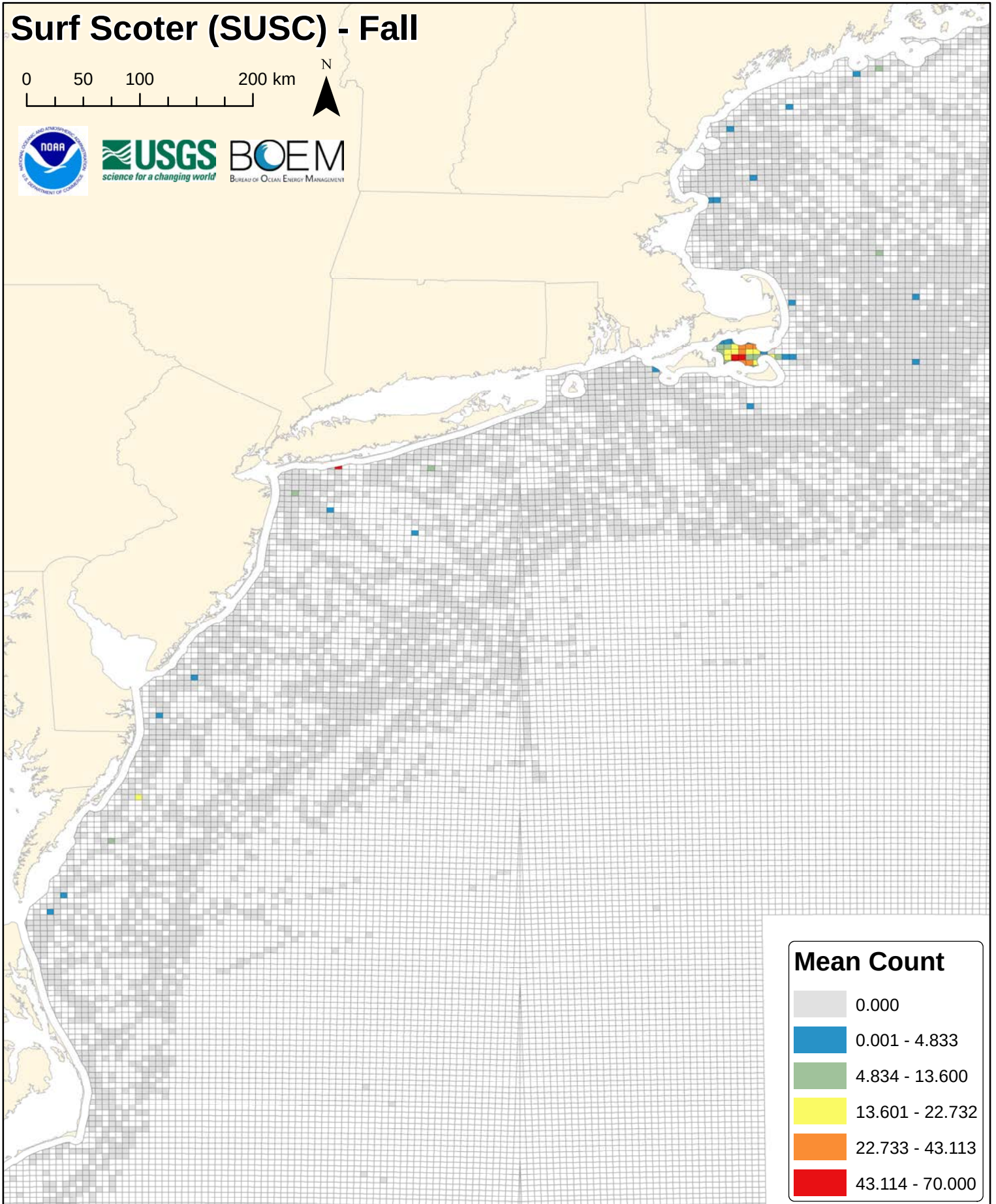
Full Model (Zero & Non-zero Counts)



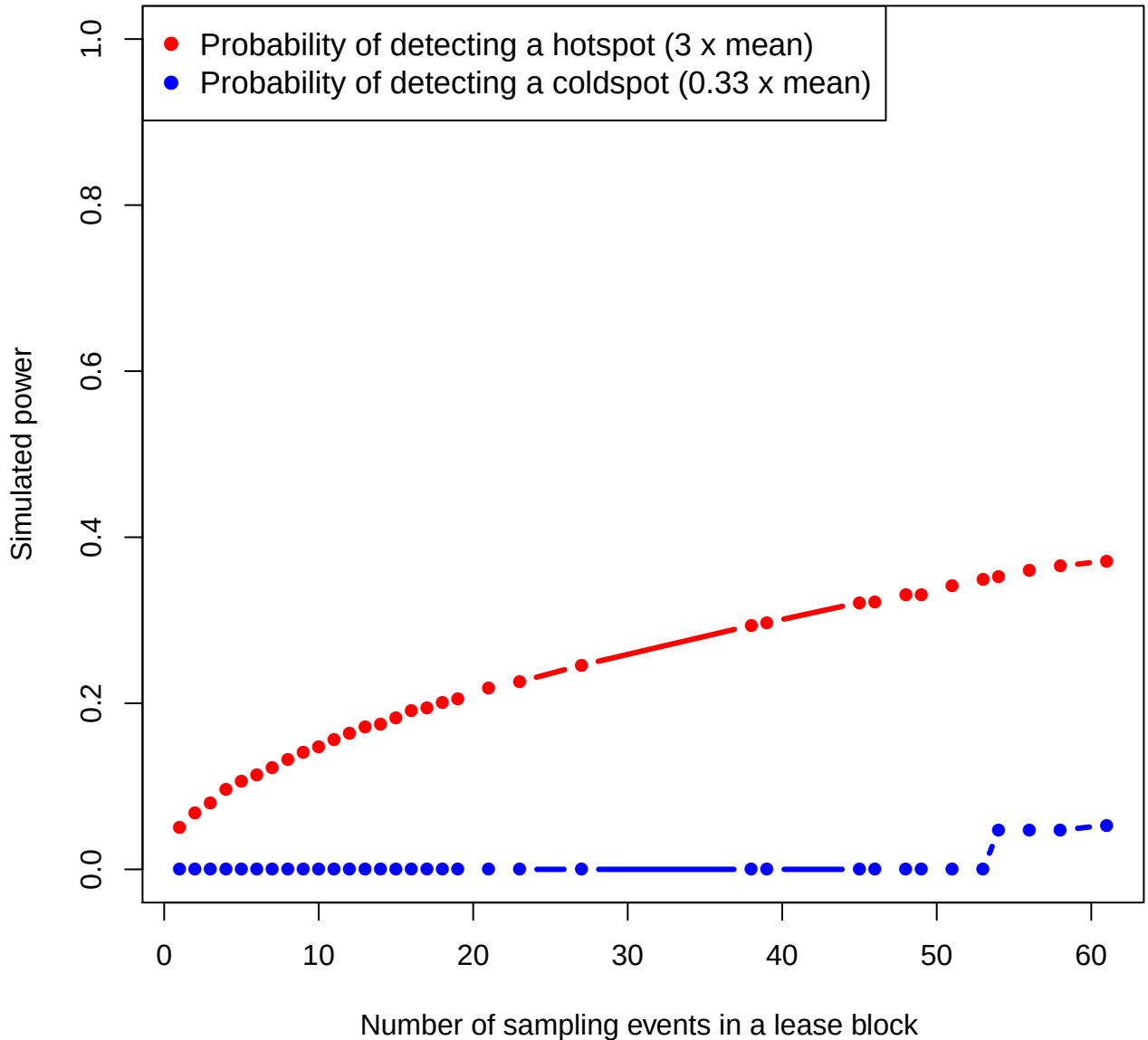
Hotspot P-value	Coldspot P-value	Avg Power
0.0000 - 0.0010	0.0000 - 0.0010	0.0000
0.0011 - 0.0100	0.0011 - 0.0100	0.0001 - 0.1000
0.0110 - 0.0500	0.0110 - 0.0500	0.1001 - 0.2500
0.0510 - 0.1000	0.0510 - 0.1000	0.2501 - 0.5000
0.1010 - 0.2000	0.1010 - 0.2000	0.5001 - 1.0000

Surf Scoter (SUSC) - Fall

0 50 100 200 km



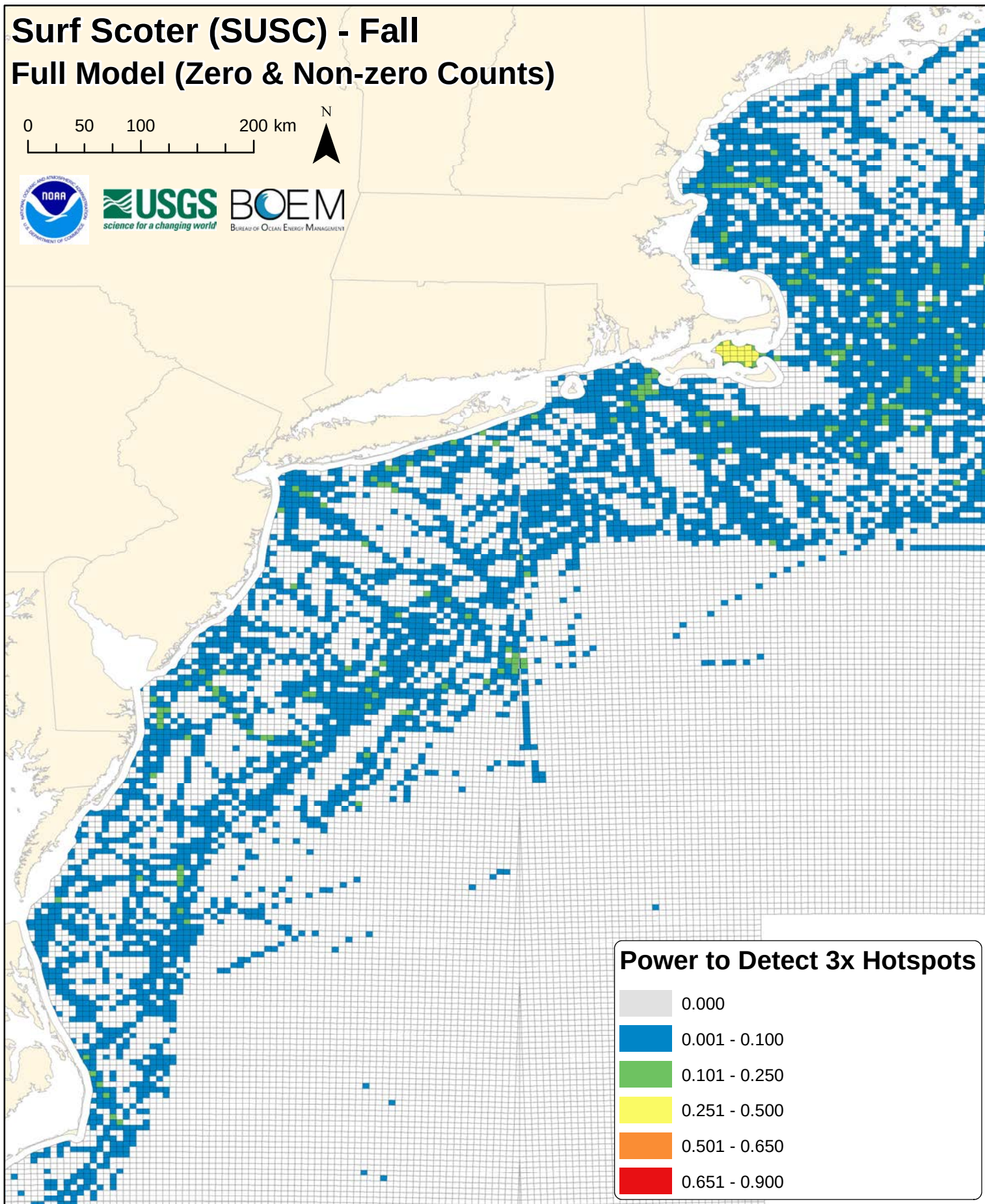
SUSC



Surf Scoter (SUSC) - Fall

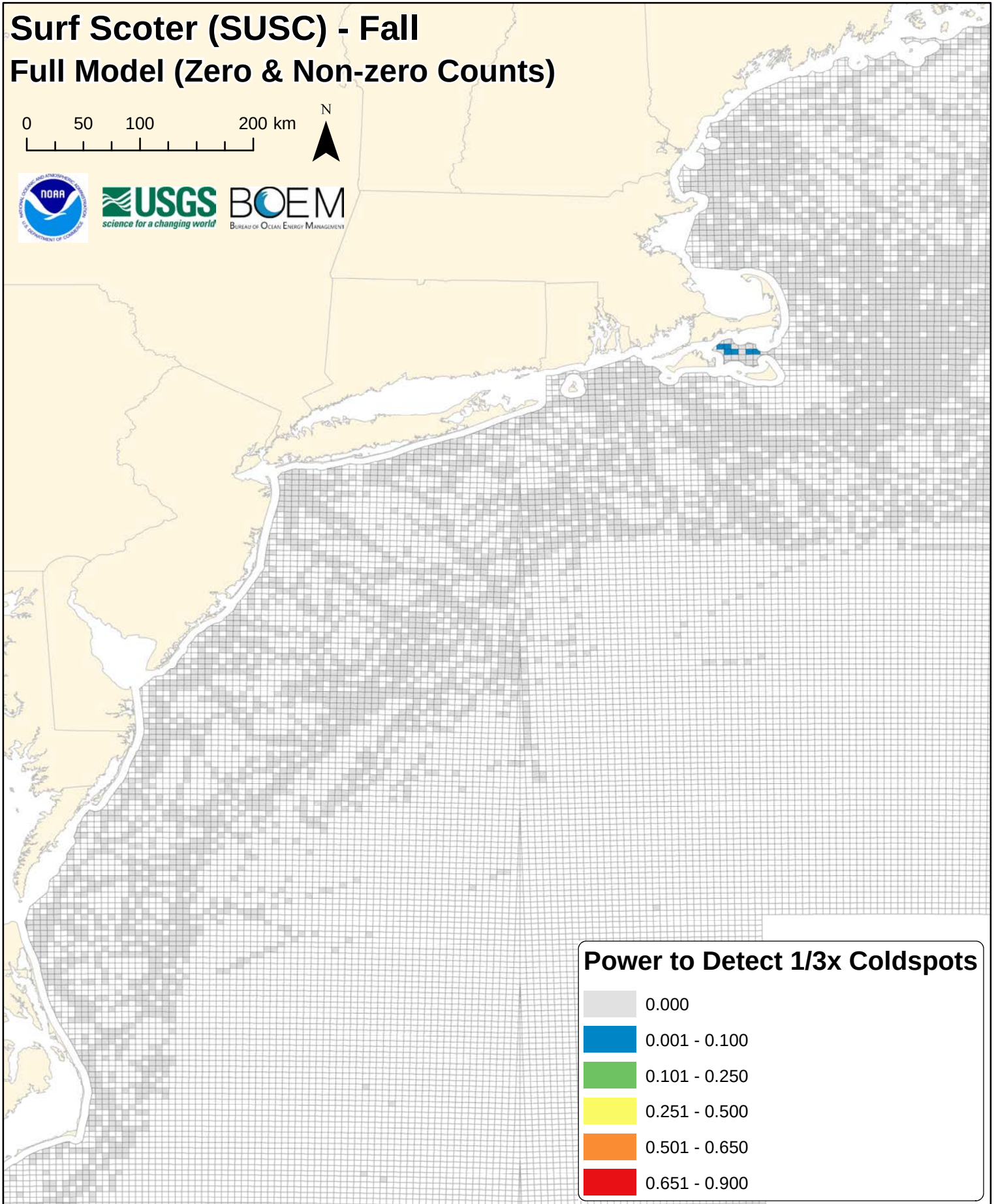
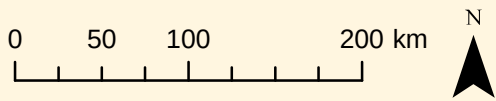
Full Model (Zero & Non-zero Counts)

0 50 100 200 km



Surf Scoter (SUSC) - Fall

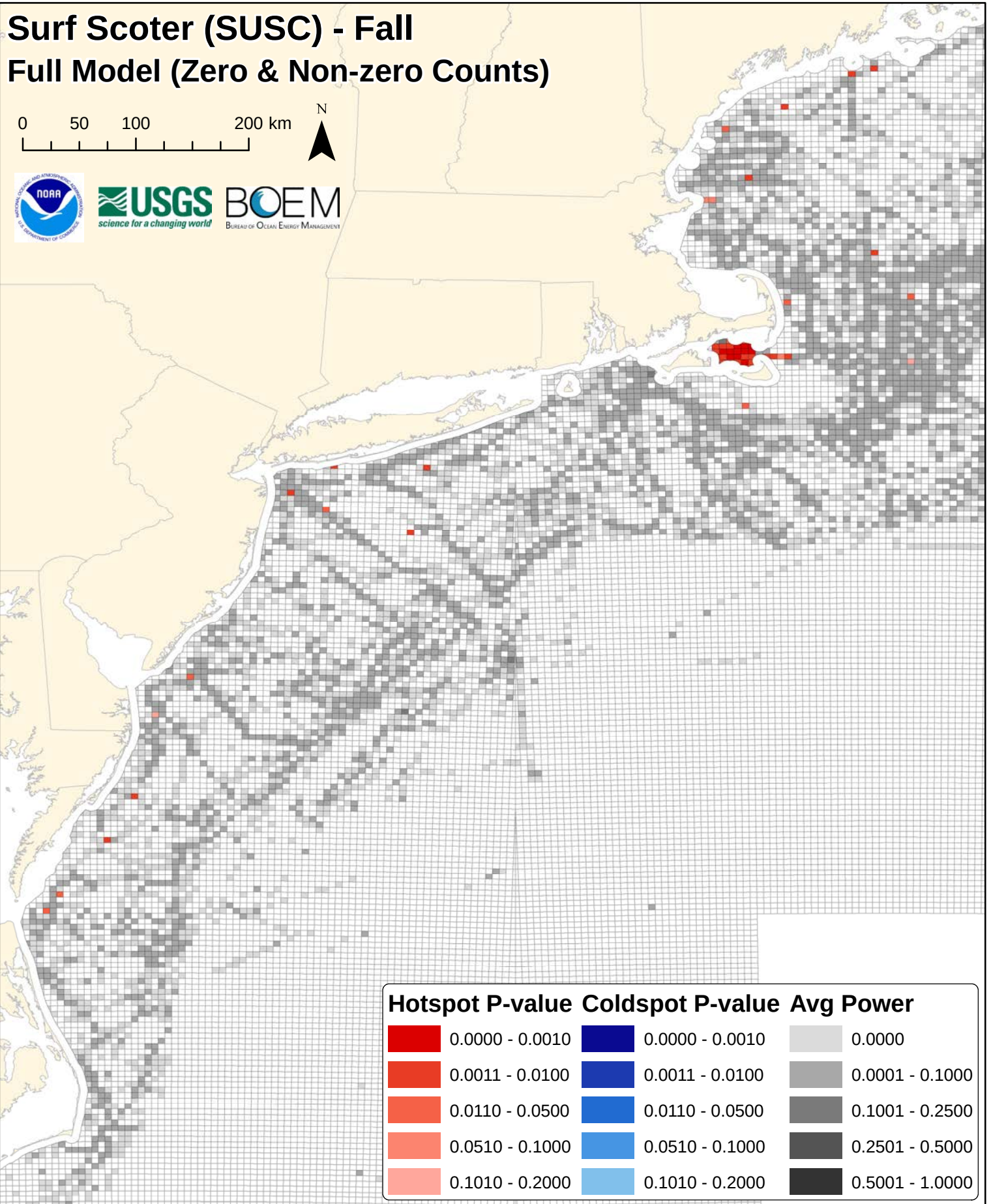
Full Model (Zero & Non-zero Counts)



Surf Scoter (SUSC) - Fall

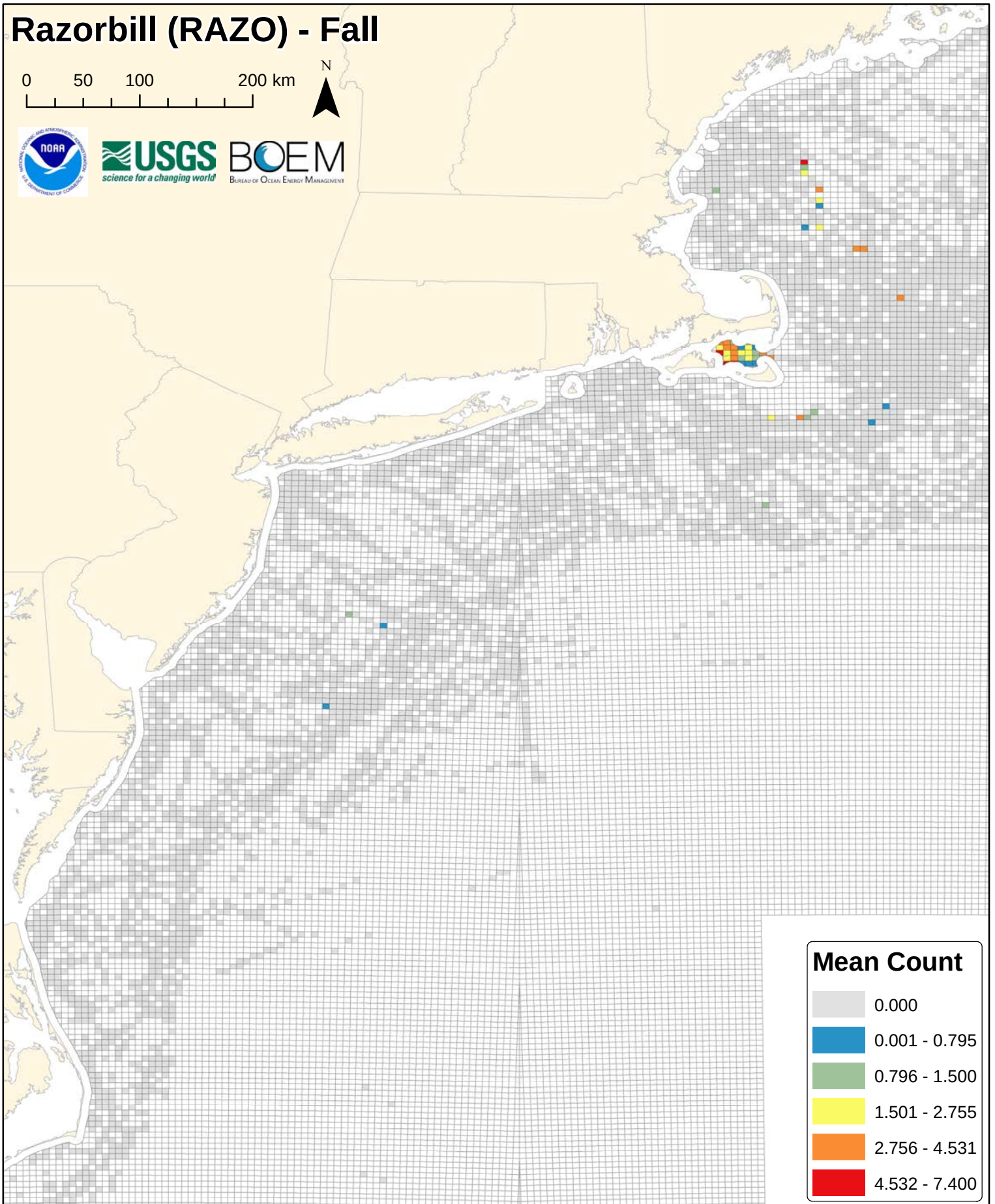
Full Model (Zero & Non-zero Counts)

0 50 100 200 km

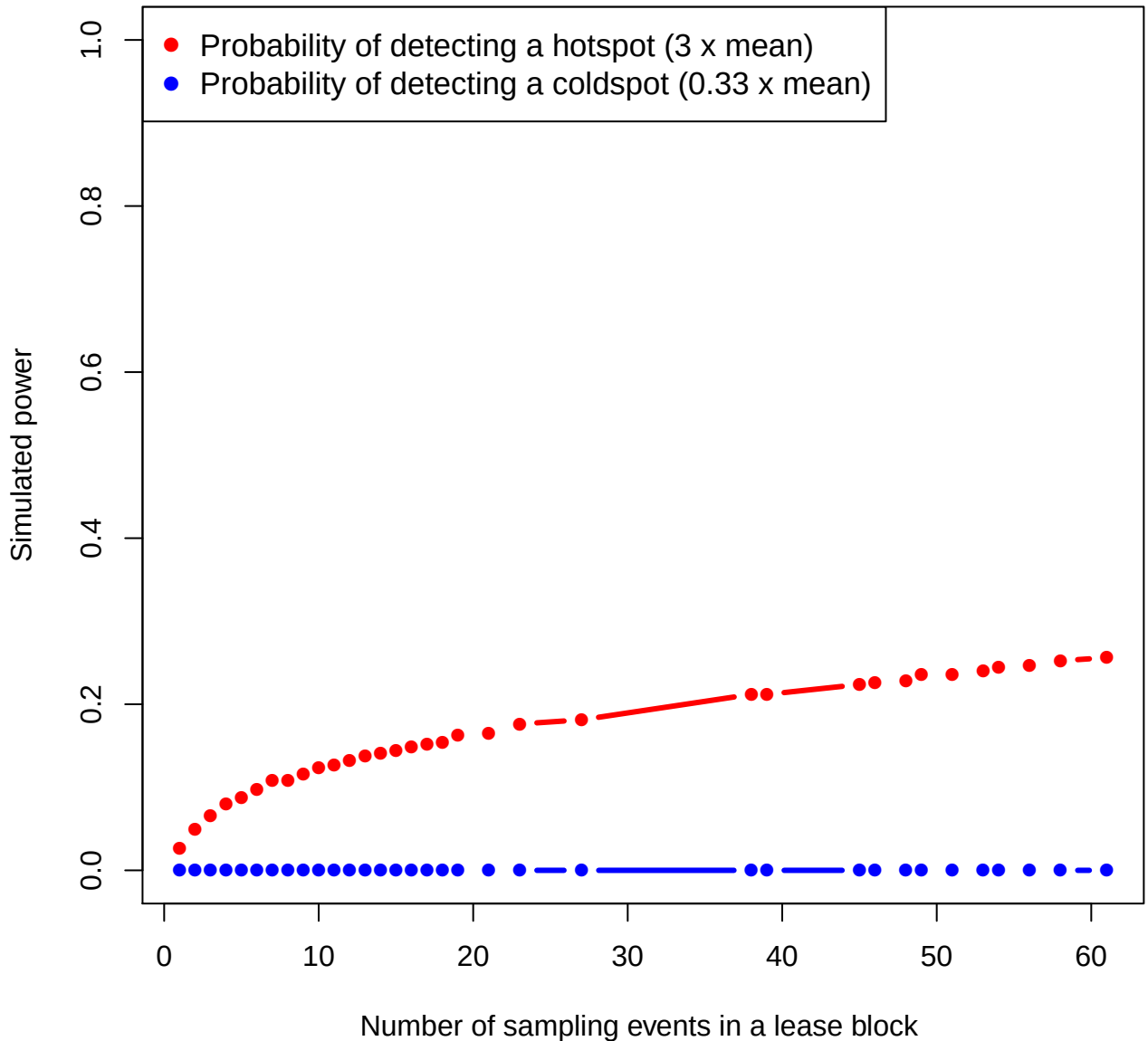


Razorbill (RAZO) - Fall

0 50 100 200 km

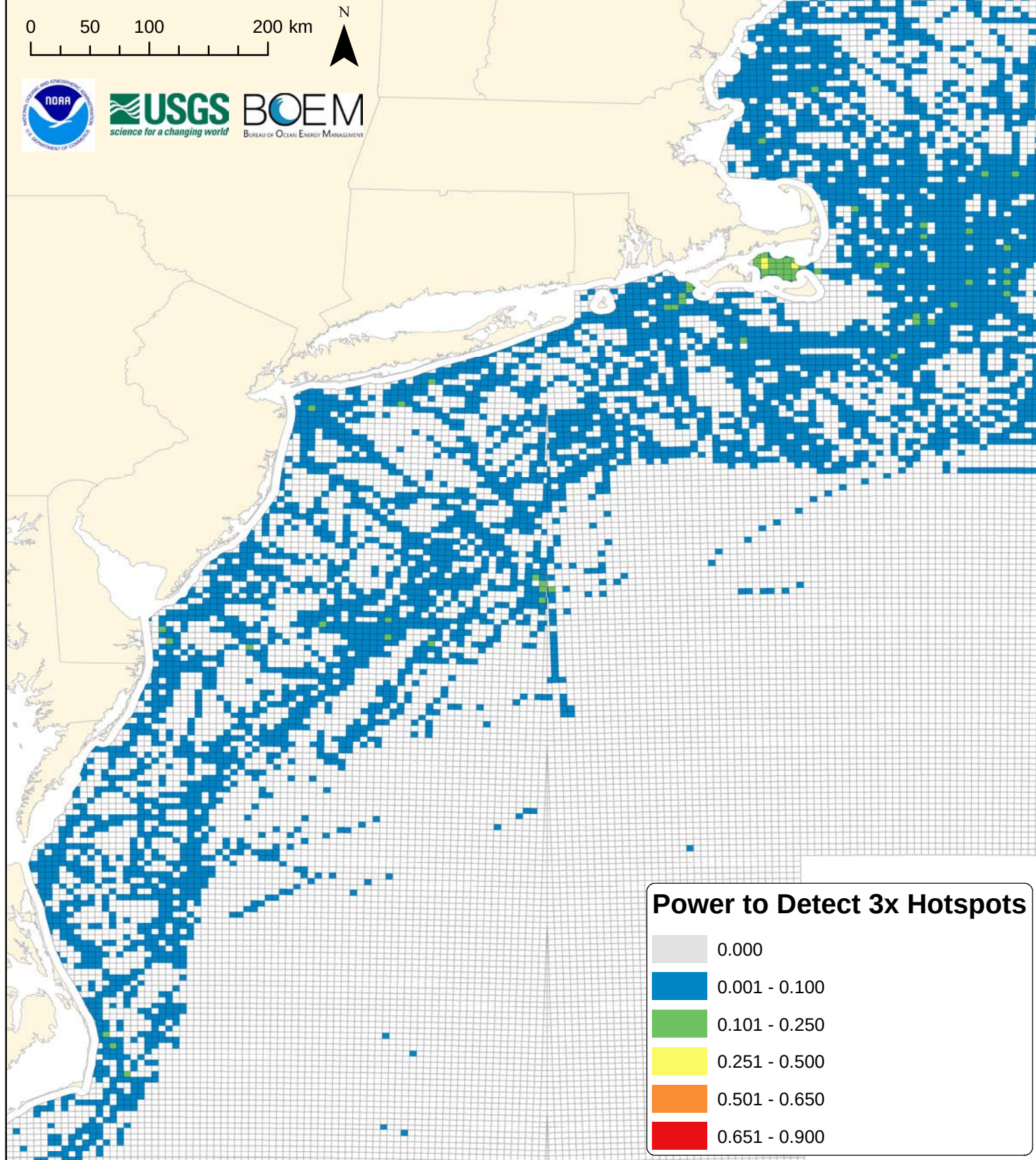


razo



Razorbill (RAZO) - Fall

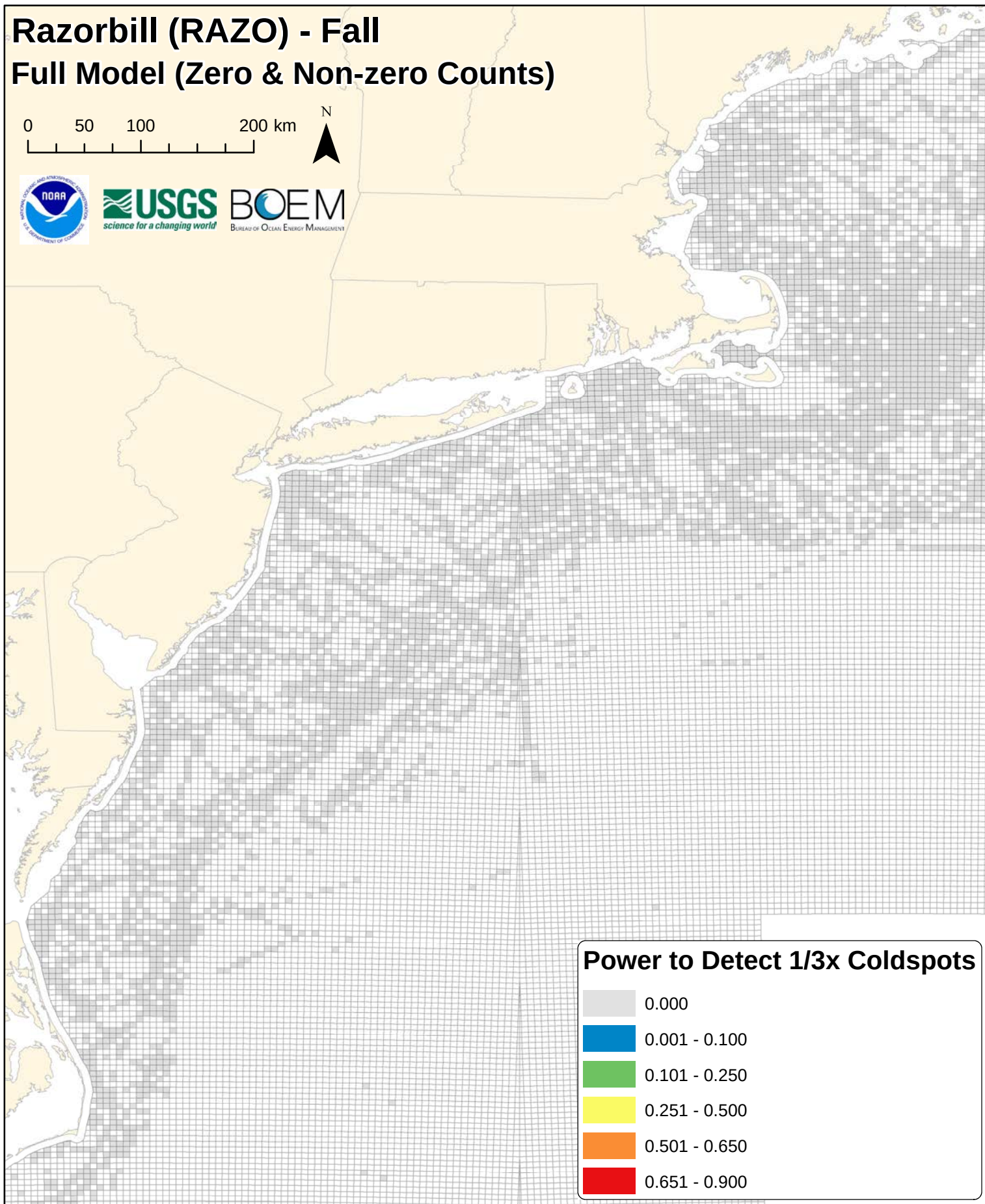
Full Model (Zero & Non-zero Counts)



Razorbill (RAZO) - Fall

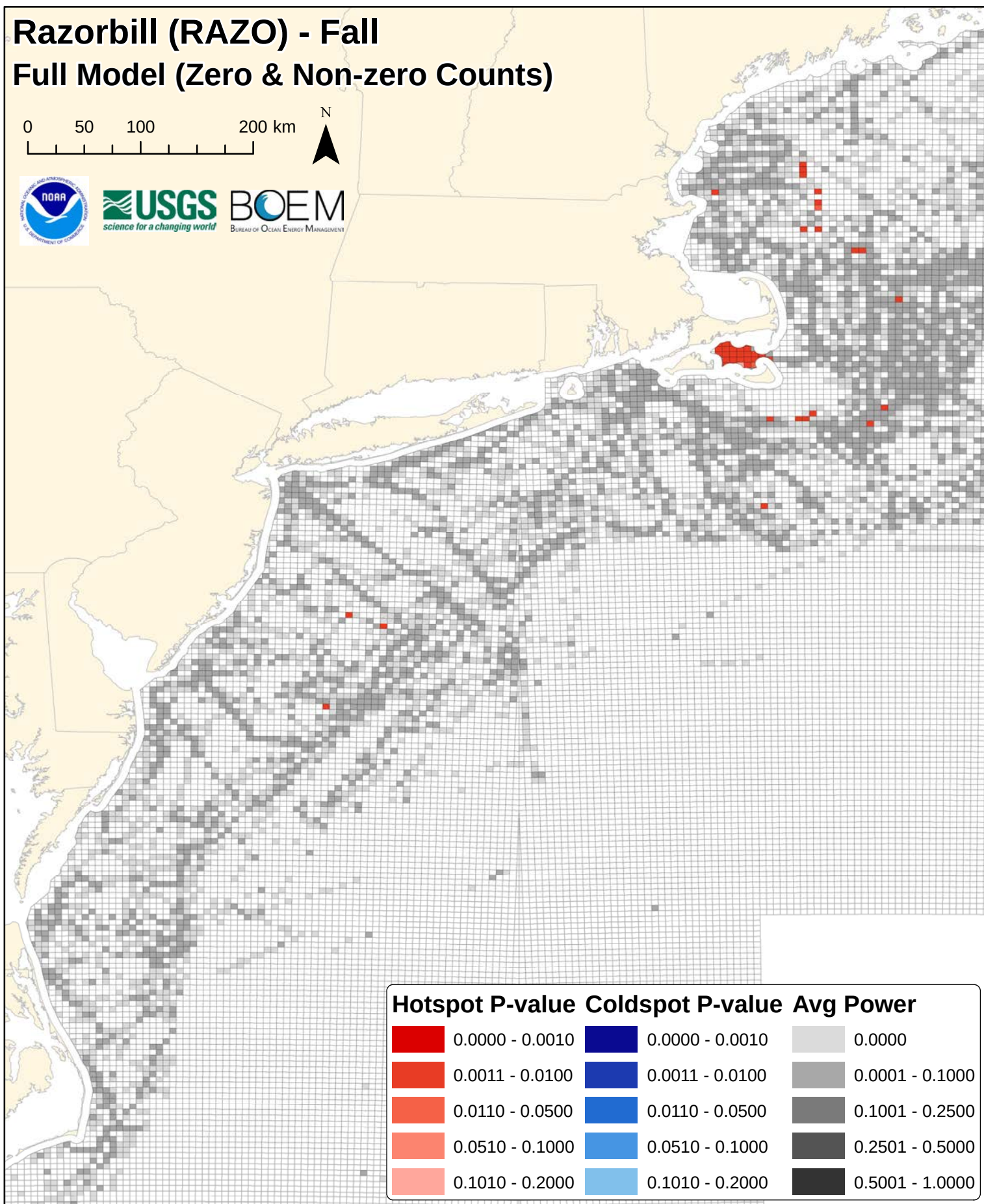
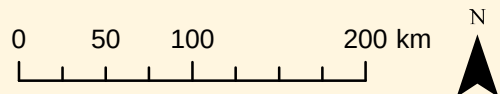
Full Model (Zero & Non-zero Counts)

0 50 100 200 km



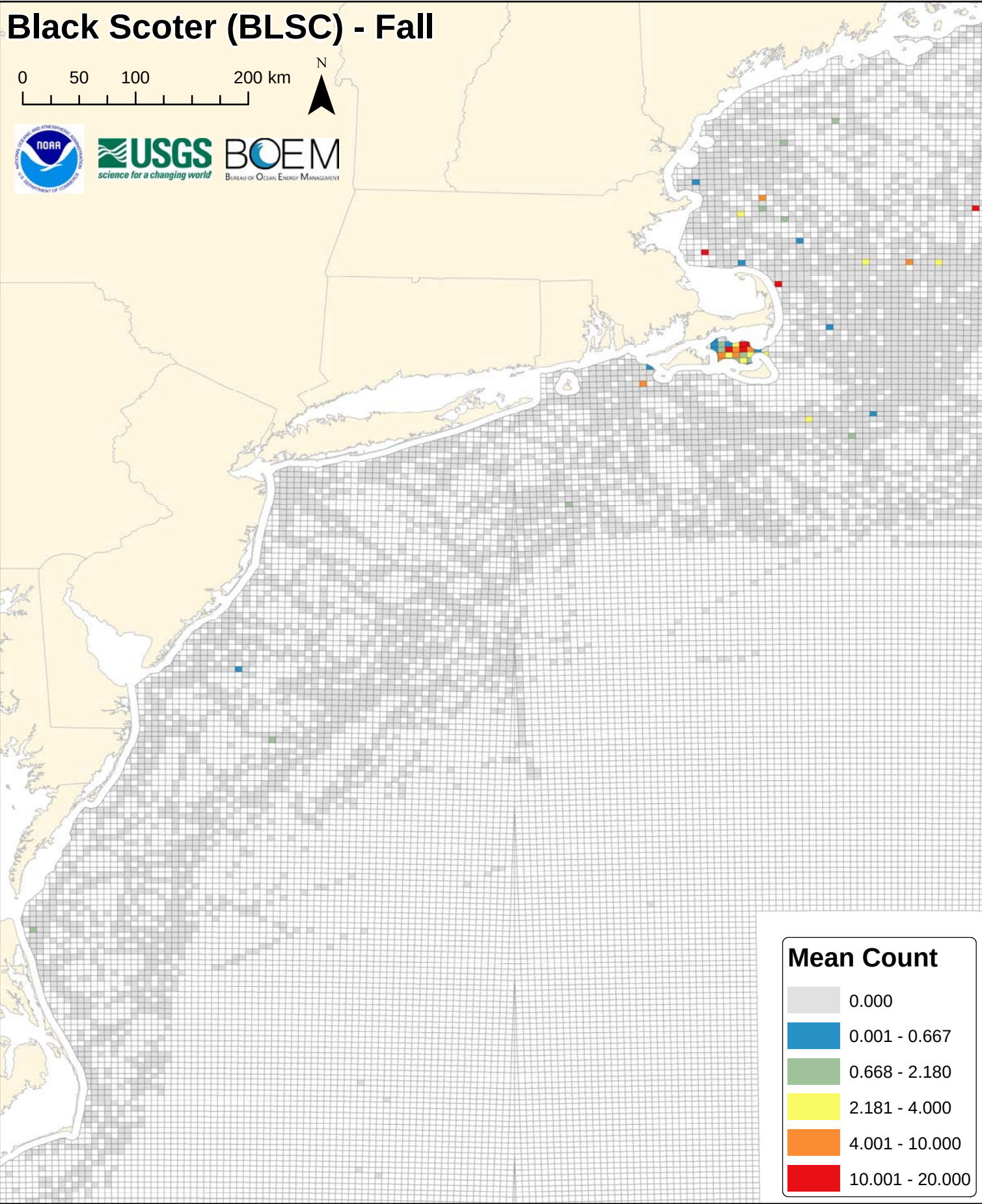
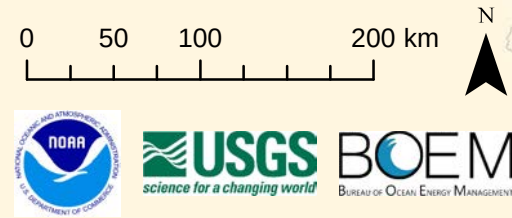
Razorbill (RAZO) - Fall

Full Model (Zero & Non-zero Counts)

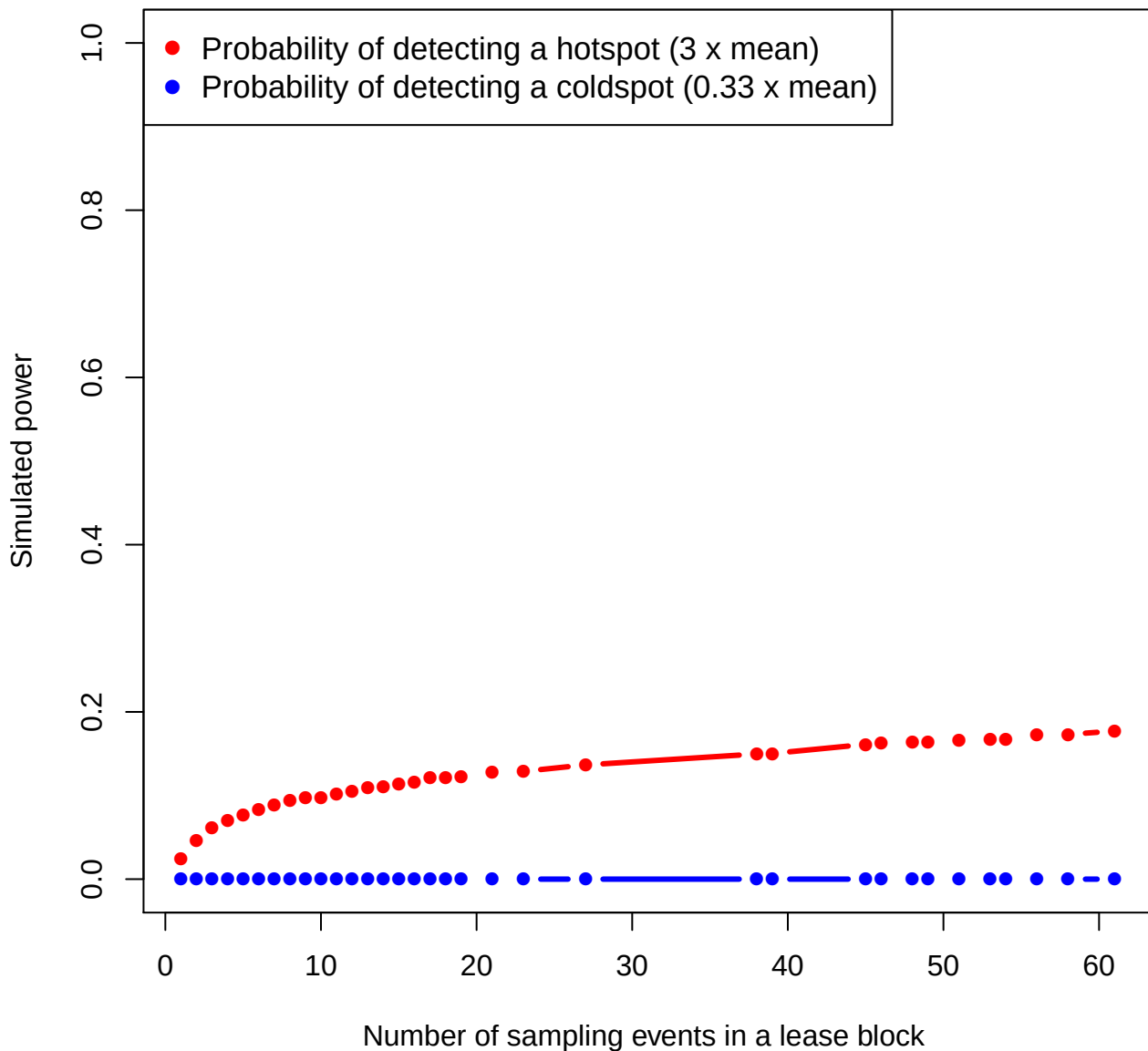


Hotspot P-value	Coldspot P-value	Avg Power
0.0000 - 0.0010	0.0000 - 0.0010	0.0000
0.0011 - 0.0100	0.0011 - 0.0100	0.0001 - 0.1000
0.0110 - 0.0500	0.0110 - 0.0500	0.1001 - 0.2500
0.0510 - 0.1000	0.0510 - 0.1000	0.2501 - 0.5000
0.1010 - 0.2000	0.1010 - 0.2000	0.5001 - 1.0000

Black Scoter (BLSC) - Fall



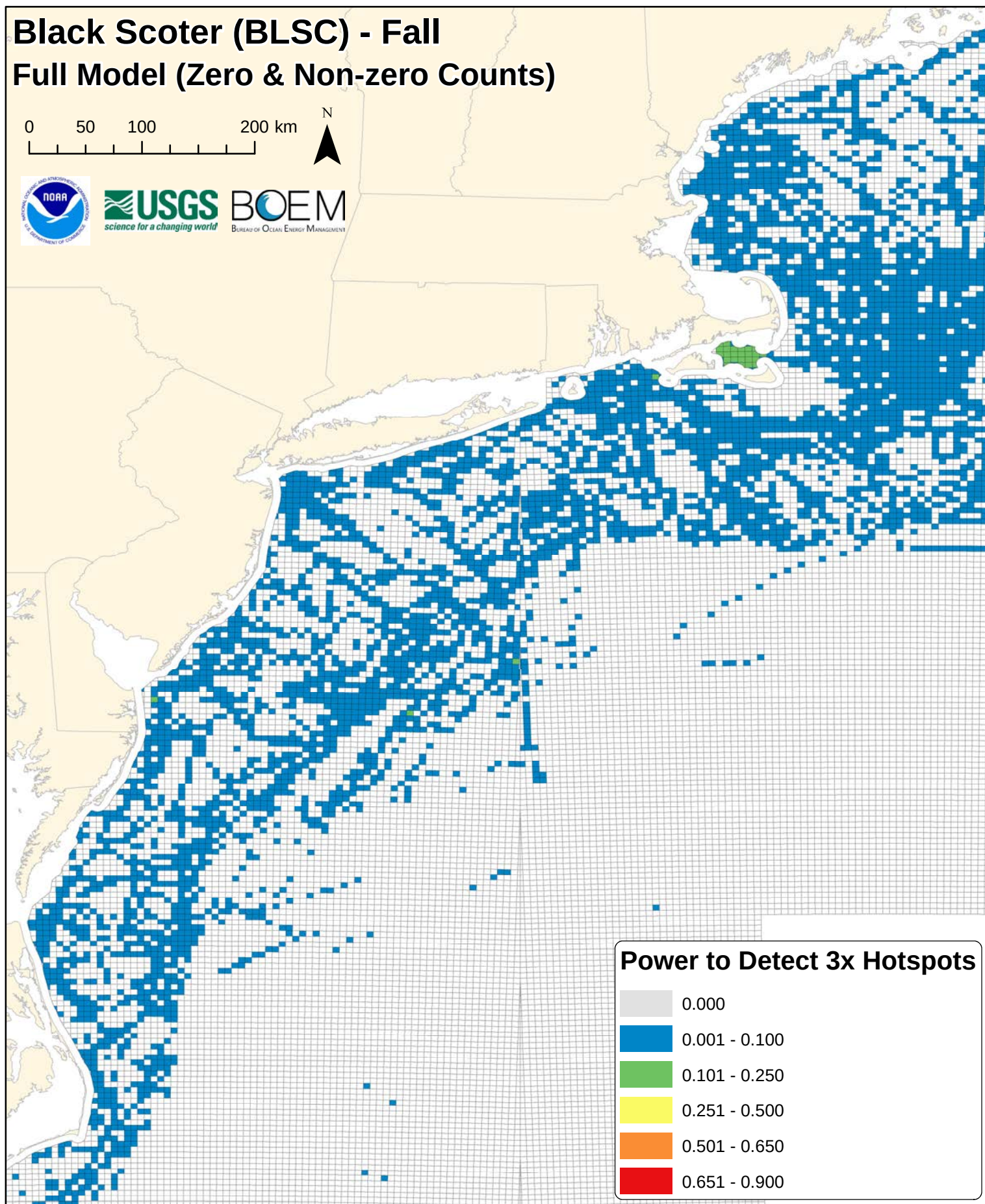
blsc



Black Scoter (BLSC) - Fall

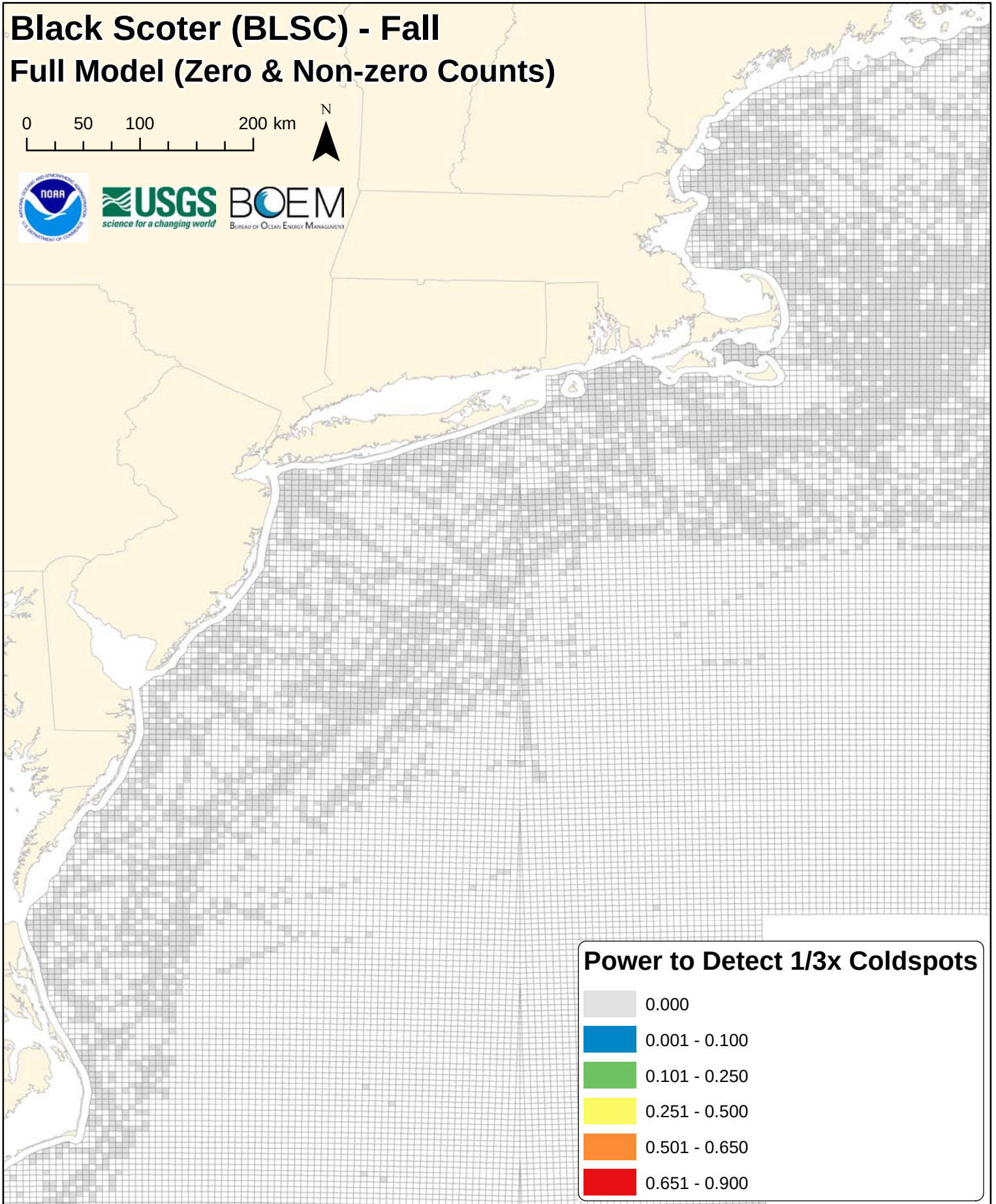
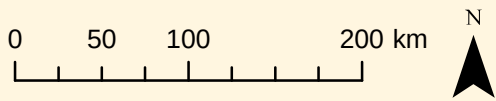
Full Model (Zero & Non-zero Counts)

0 50 100 200 km

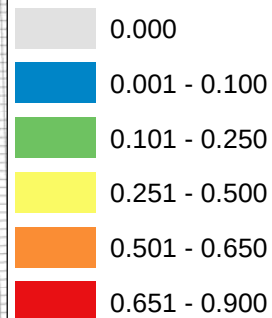


Black Scoter (BLSC) - Fall

Full Model (Zero & Non-zero Counts)

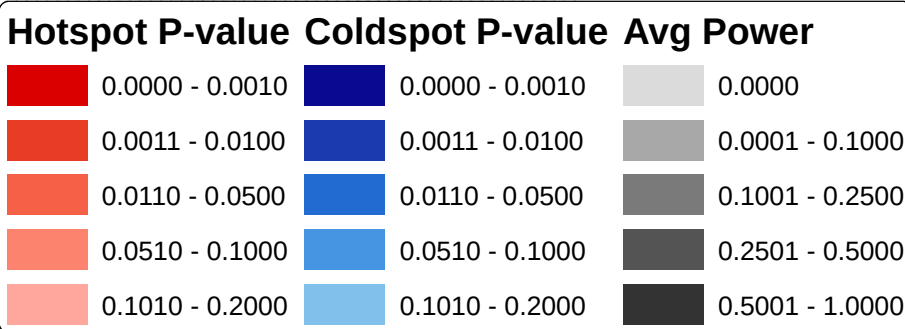
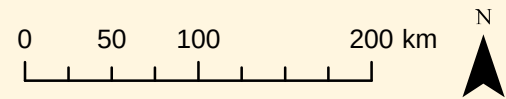


Power to Detect 1/3x Coldspots

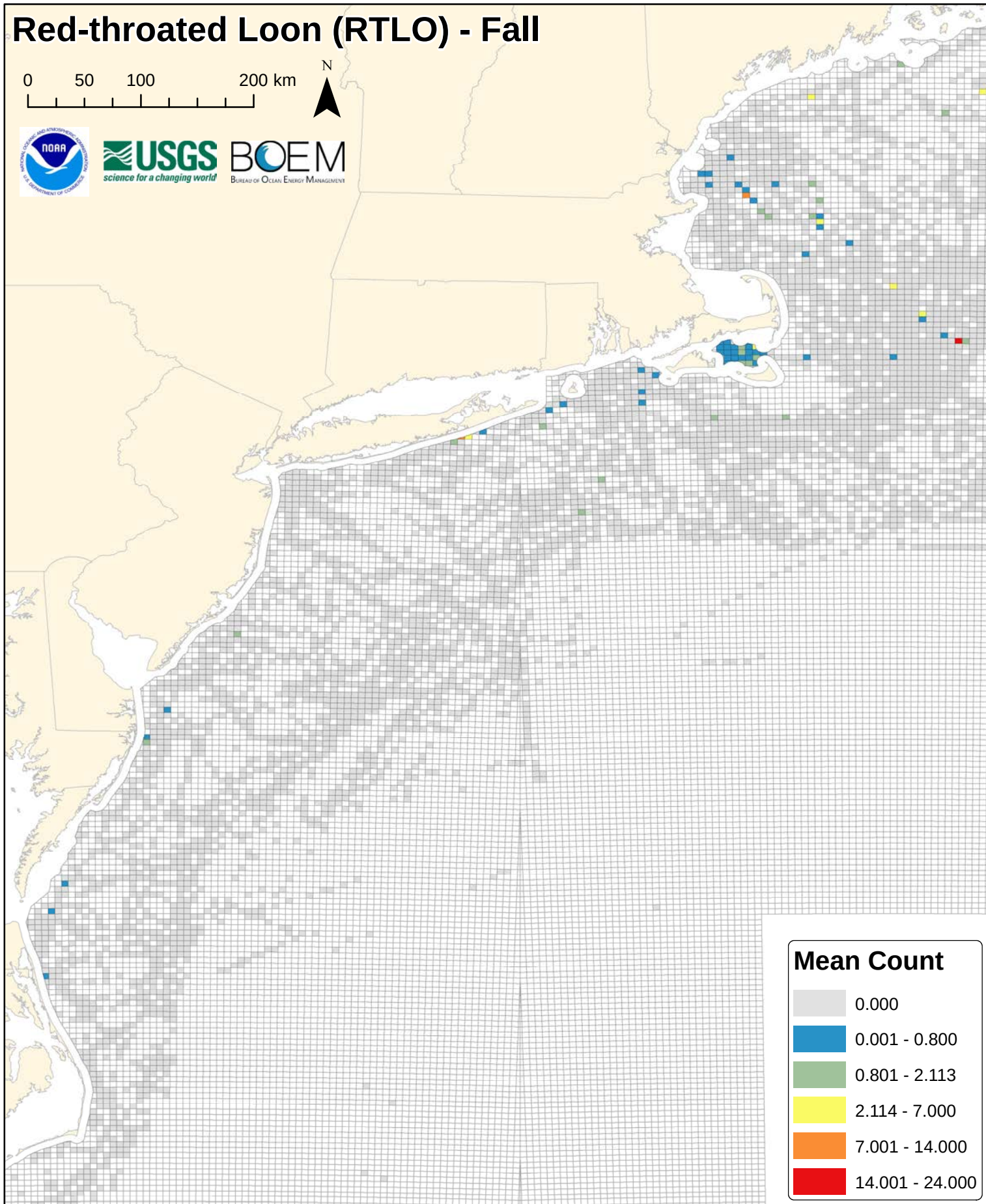


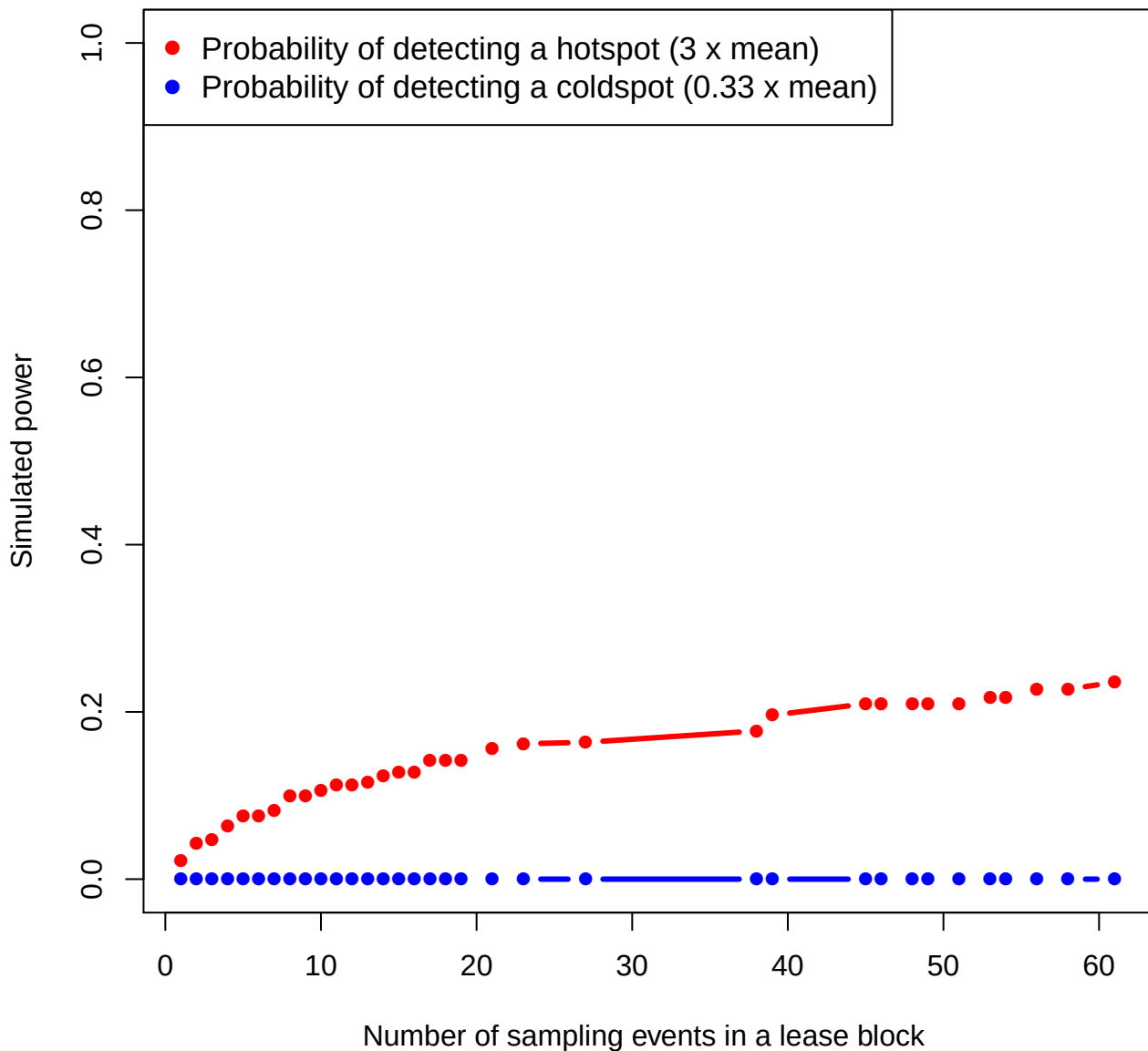
Black Scoter (BLSC) - Fall

Full Model (Zero & Non-zero Counts)

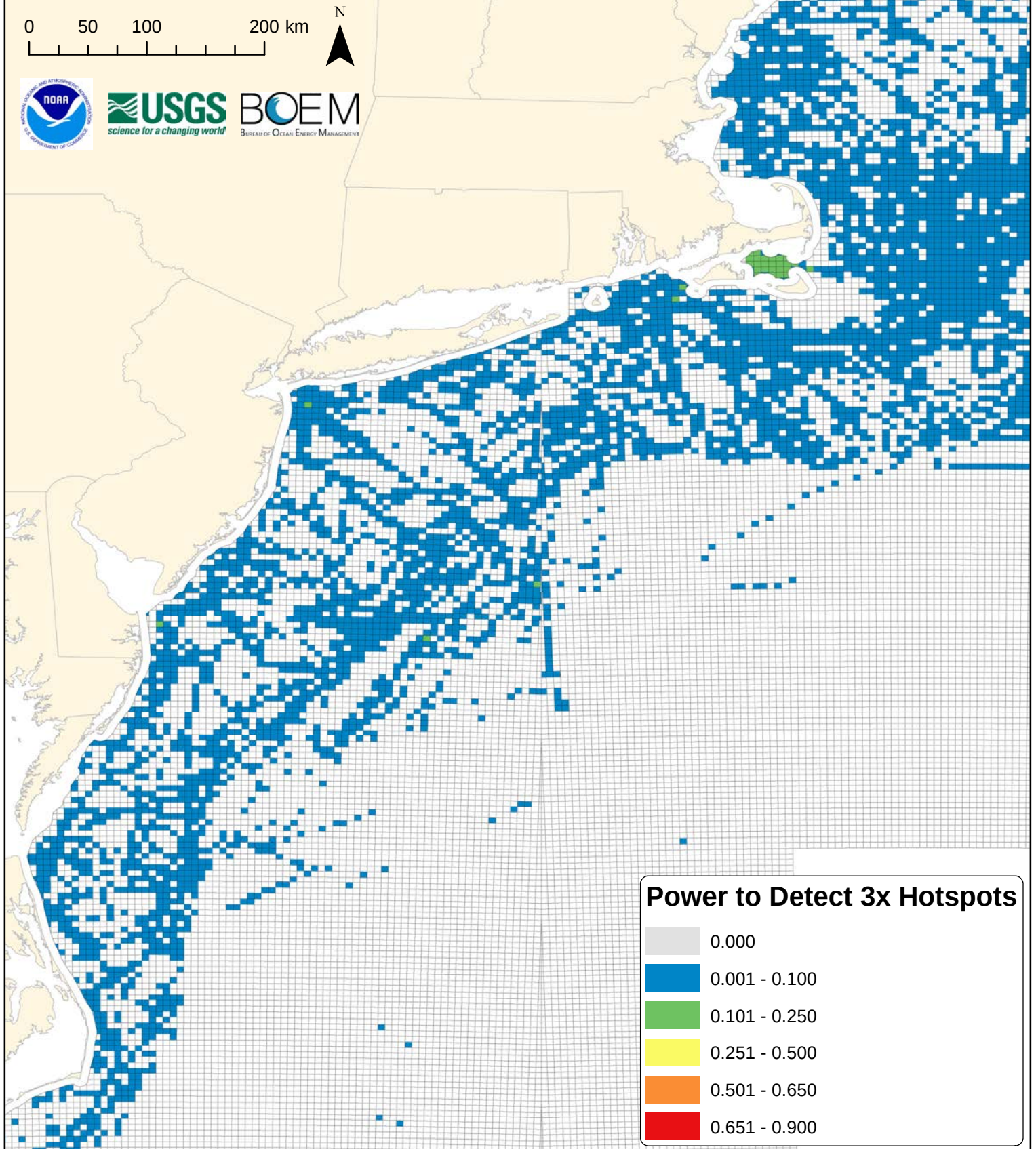


Red-throated Loon (RTLO) - Fall

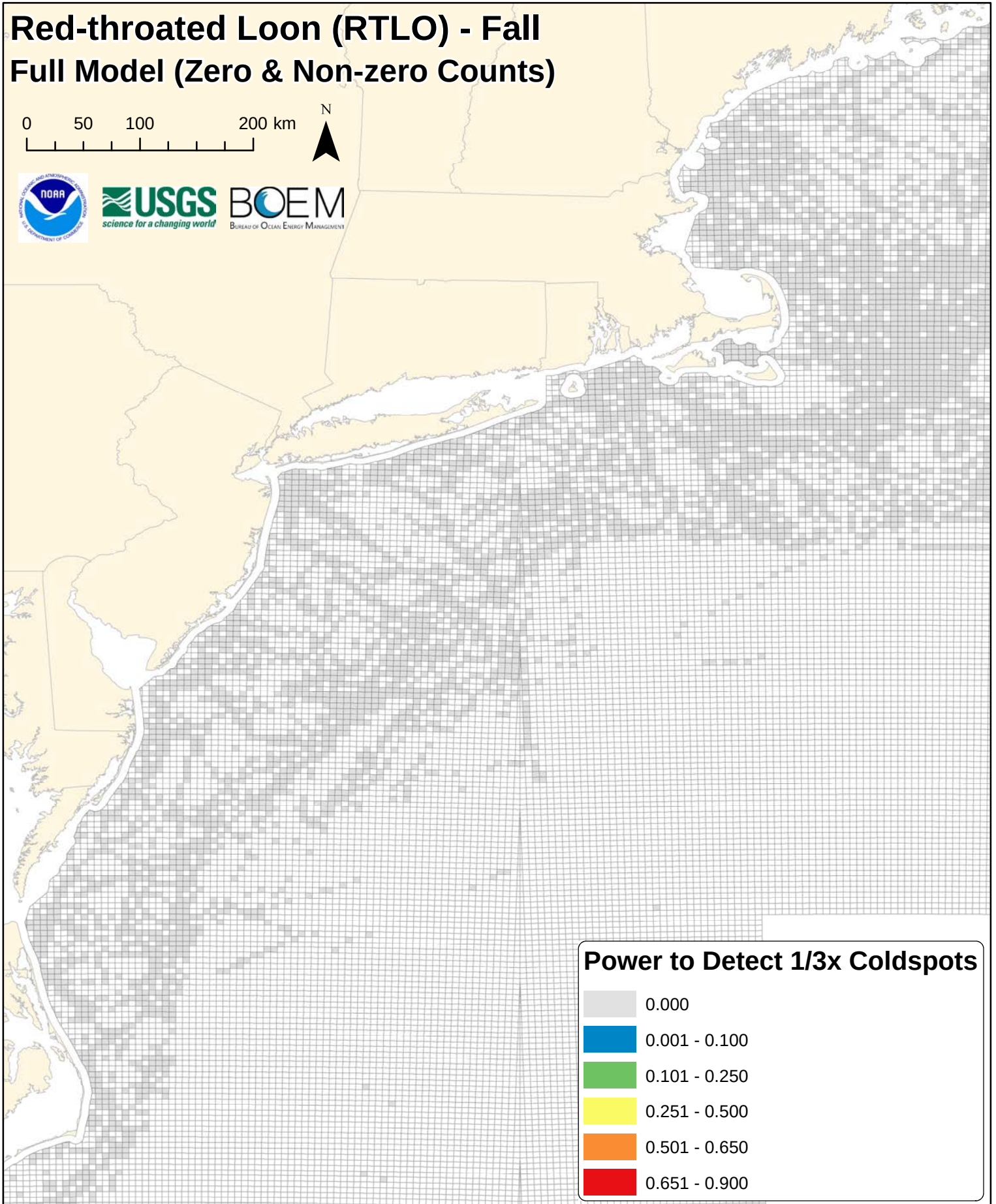
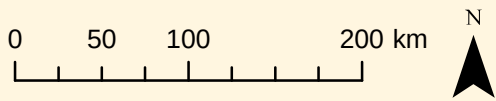




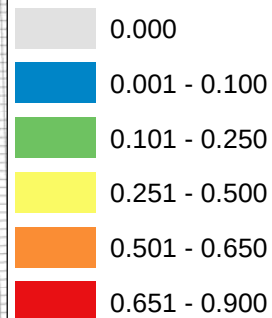
Red-throated Loon (RTLO) - Fall Full Model (Zero & Non-zero Counts)



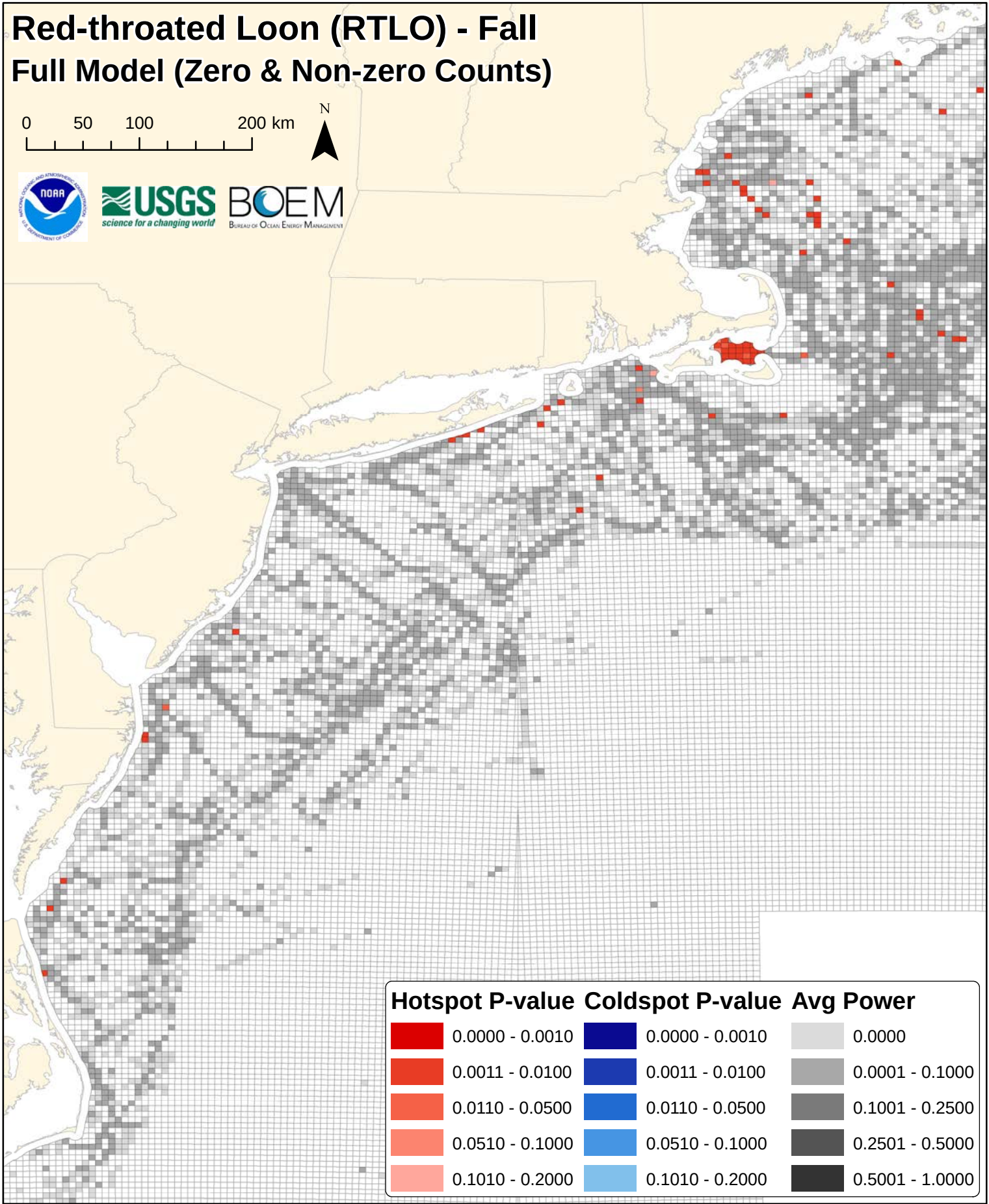
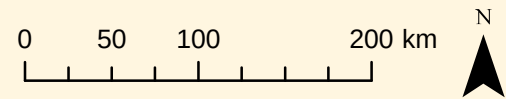
Red-throated Loon (RTLO) - Fall Full Model (Zero & Non-zero Counts)



Power to Detect 1/3x Coldspots



Red-throated Loon (RTLO) - Fall Full Model (Zero & Non-zero Counts)



Hotspot P-value	Coldspot P-value	Avg Power
 0.0000 - 0.0010	 0.0000 - 0.0010	 0.0000
 0.0011 - 0.0100	 0.0011 - 0.0100	 0.0001 - 0.1000
 0.0110 - 0.0500	 0.0110 - 0.0500	 0.1001 - 0.2500
 0.0510 - 0.1000	 0.0510 - 0.1000	 0.2501 - 0.5000
 0.1010 - 0.2000	 0.1010 - 0.2000	 0.5001 - 1.0000

DIGITAL SUPPLEMENT G

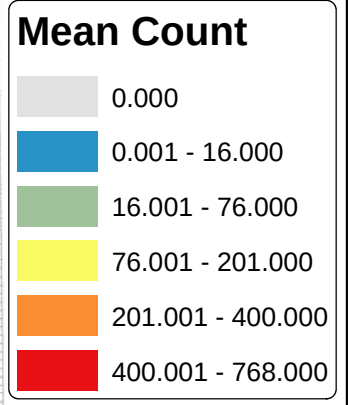
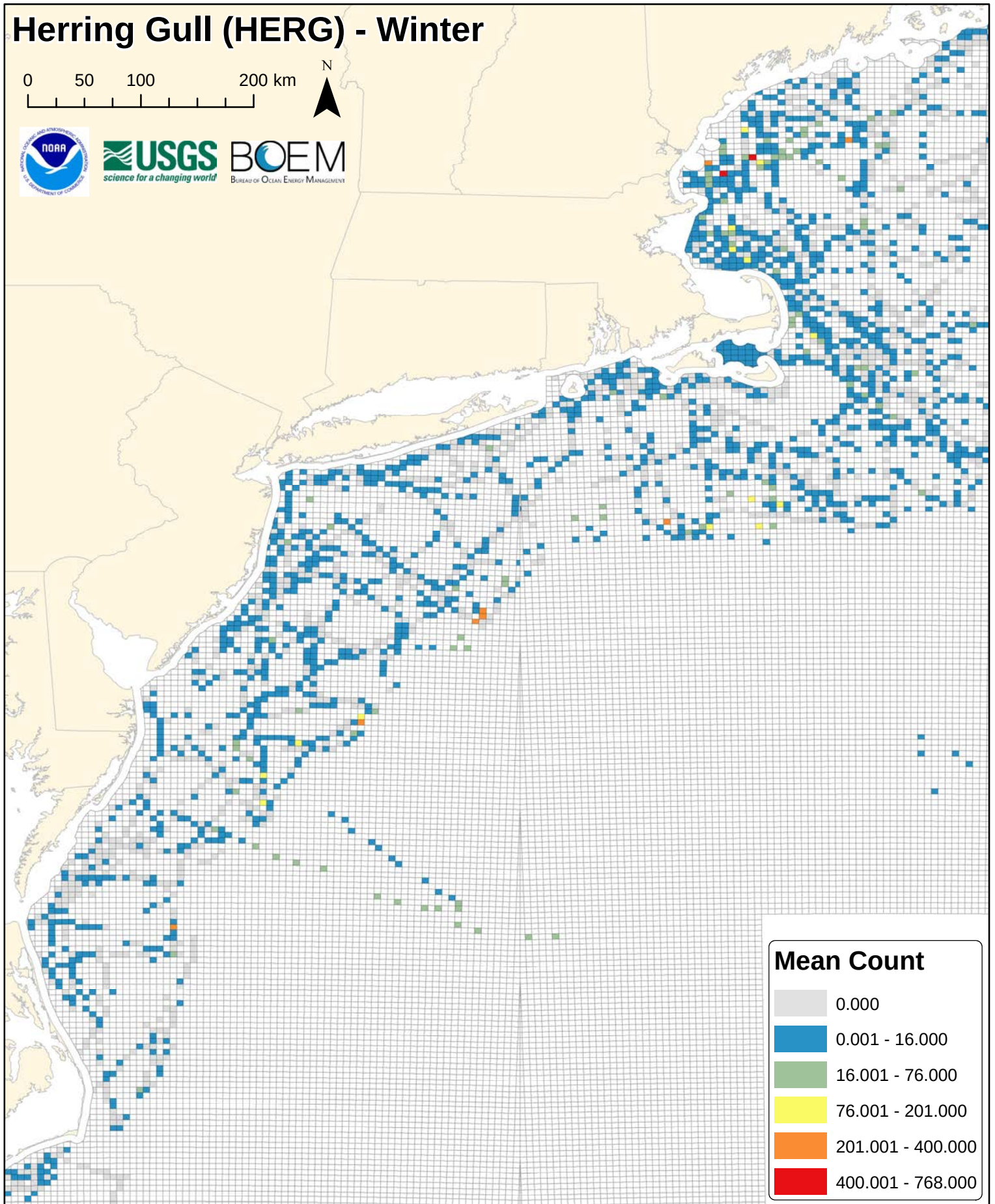
Full Hurdle Model (Zero & Non-Zero Counts) Results

SECTION II. Species-specific Power Analysis **Maps and Figures**

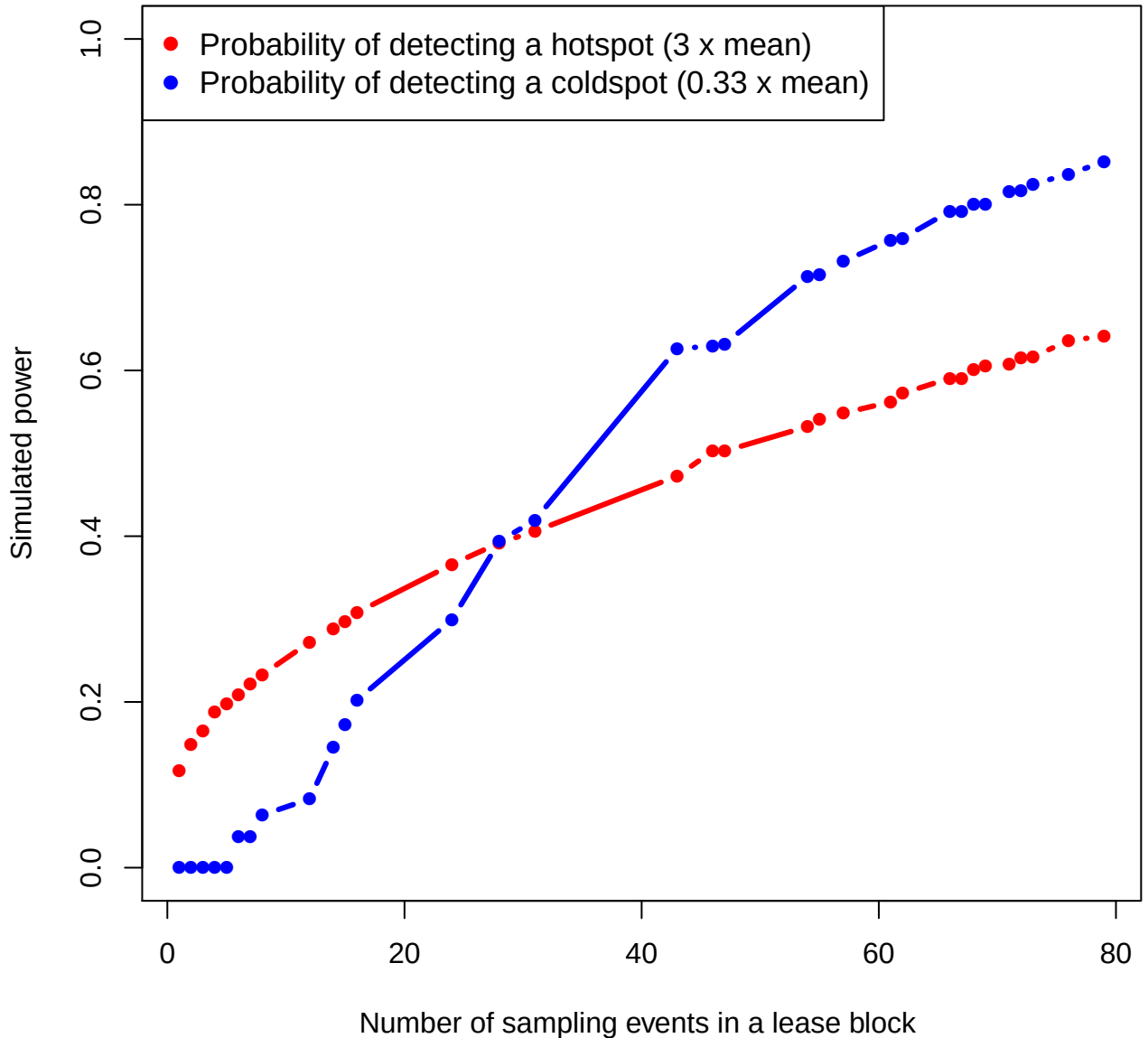
Figures G186-G235. Winter power analysis maps and figures (10 species x 5 figures per species).

Herring Gull (HERG) - Winter

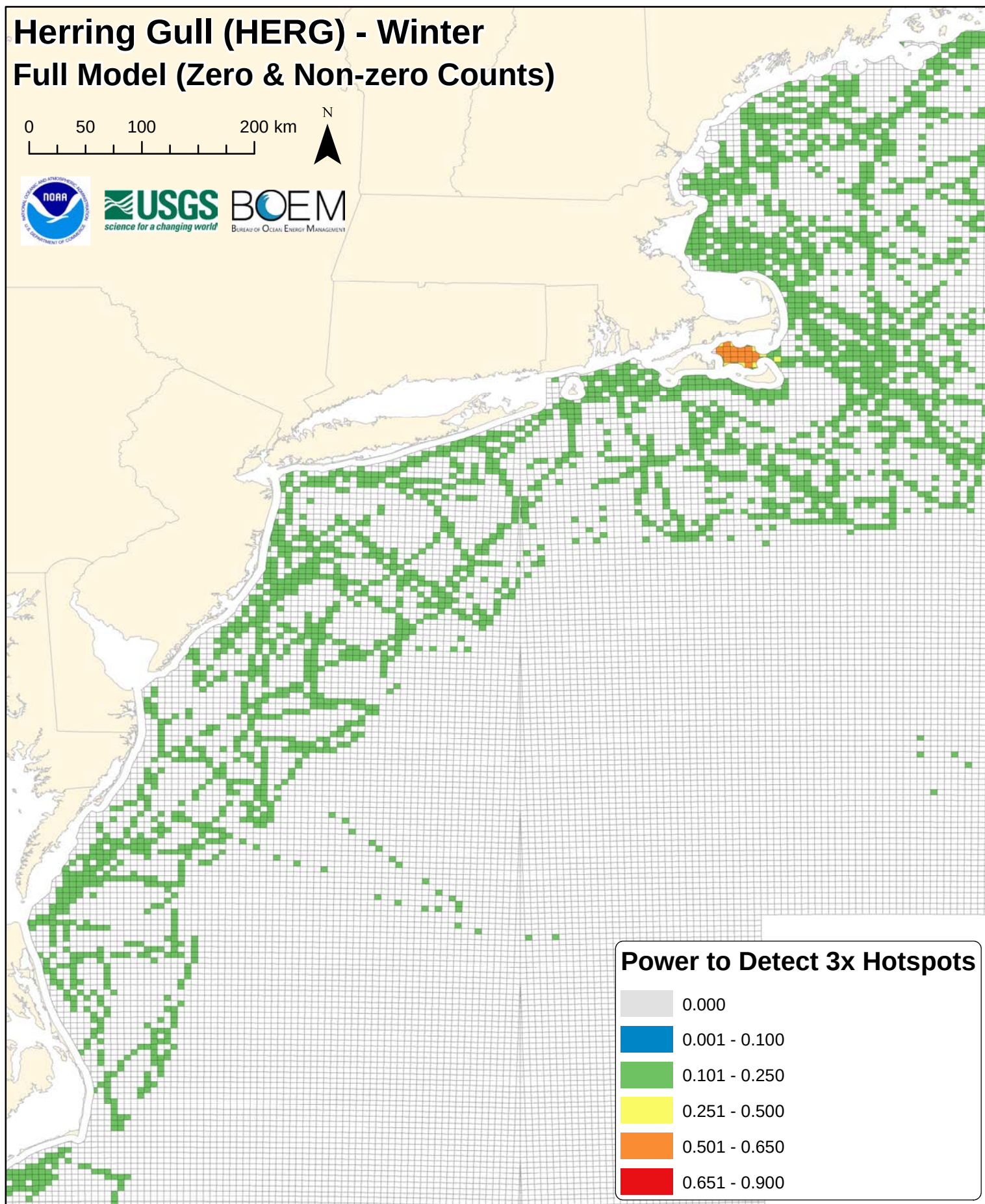
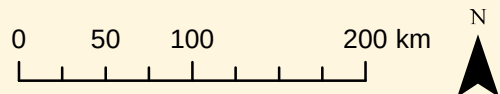
0 50 100 200 km



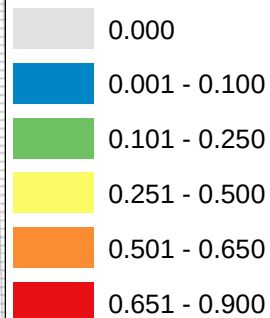
herg



Herring Gull (HERG) - Winter Full Model (Zero & Non-zero Counts)

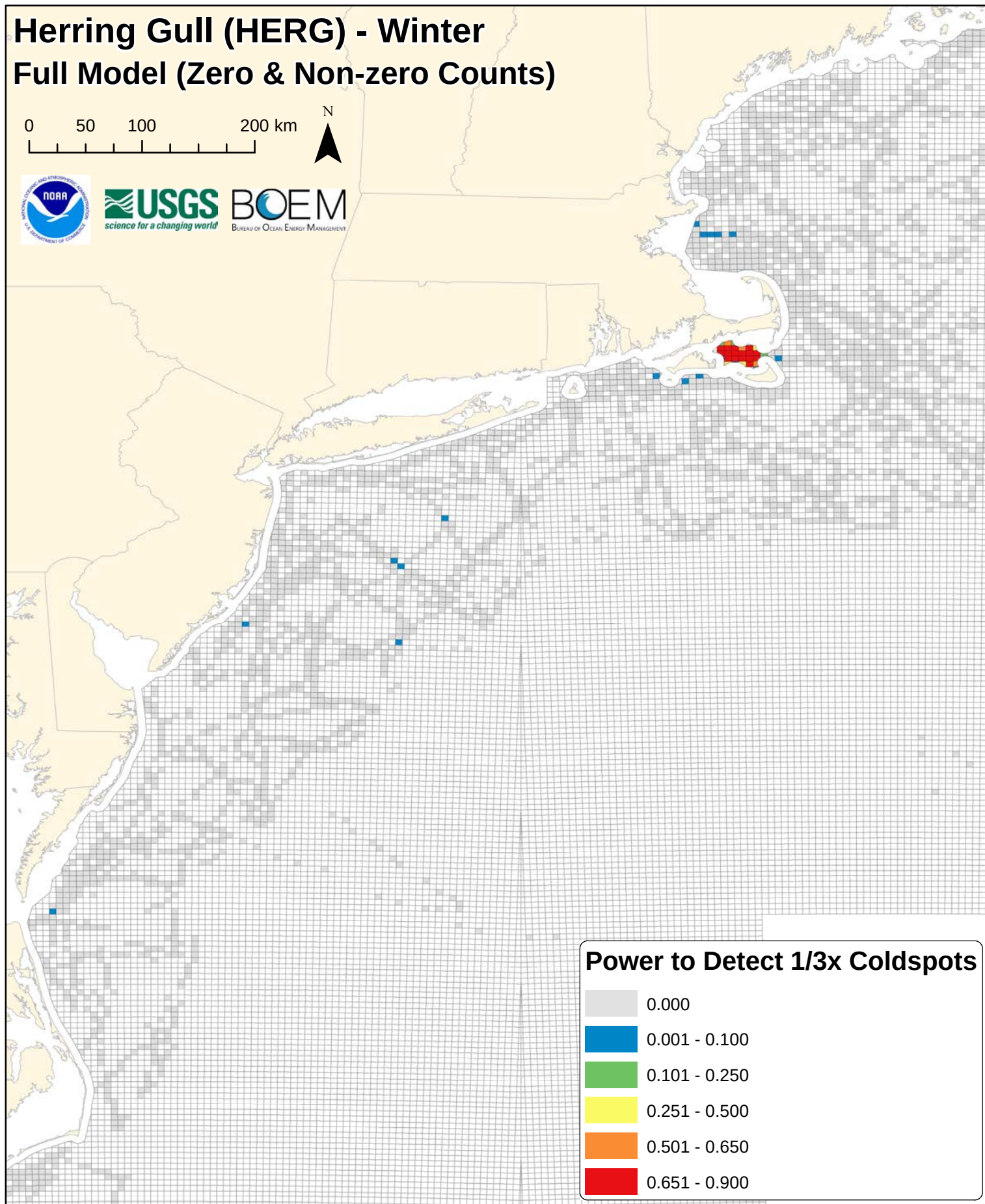


Power to Detect 3x Hotspots



Herring Gull (HERG) - Winter Full Model (Zero & Non-zero Counts)

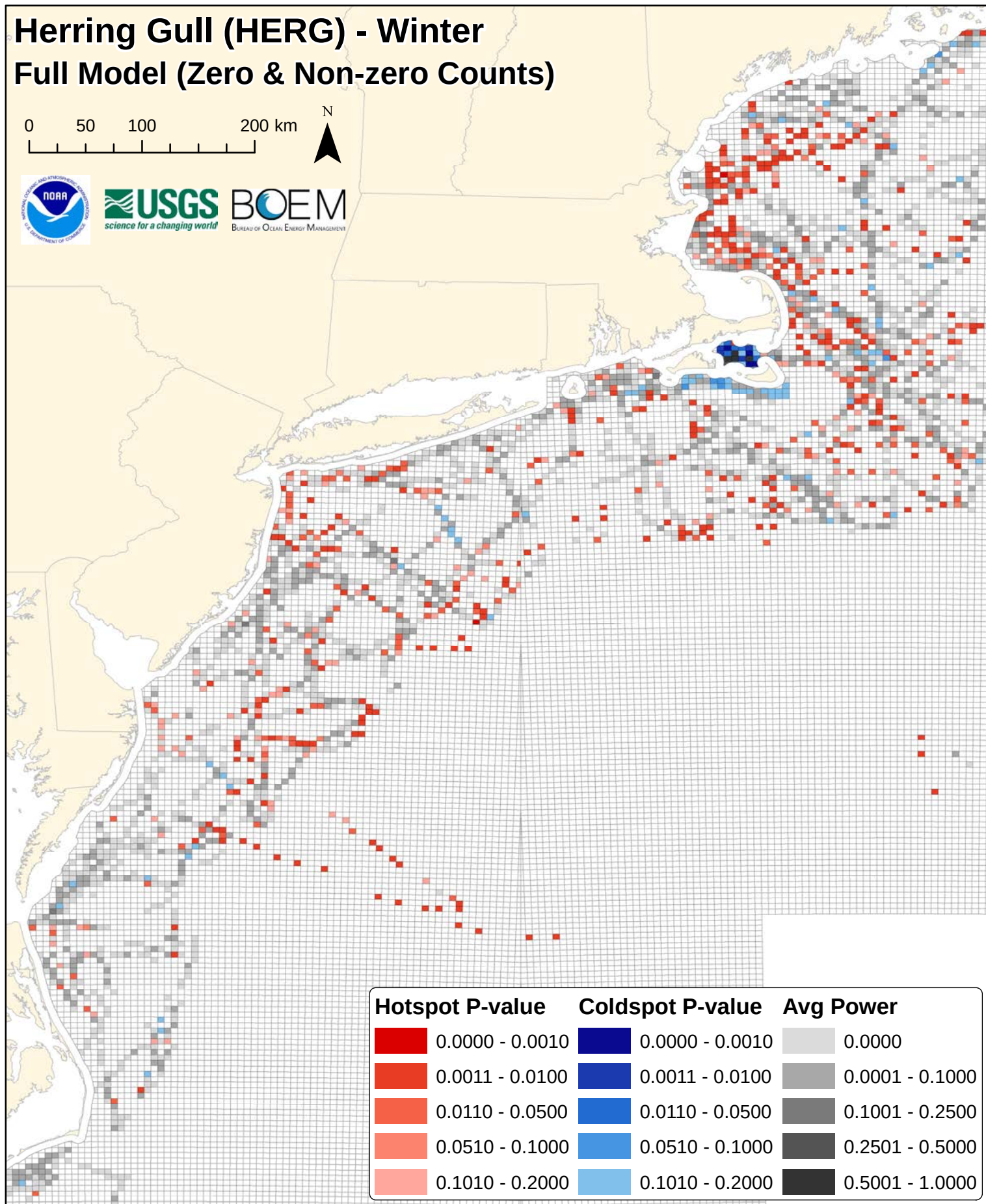
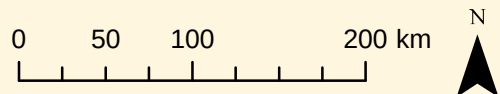
0 50 100 200 km



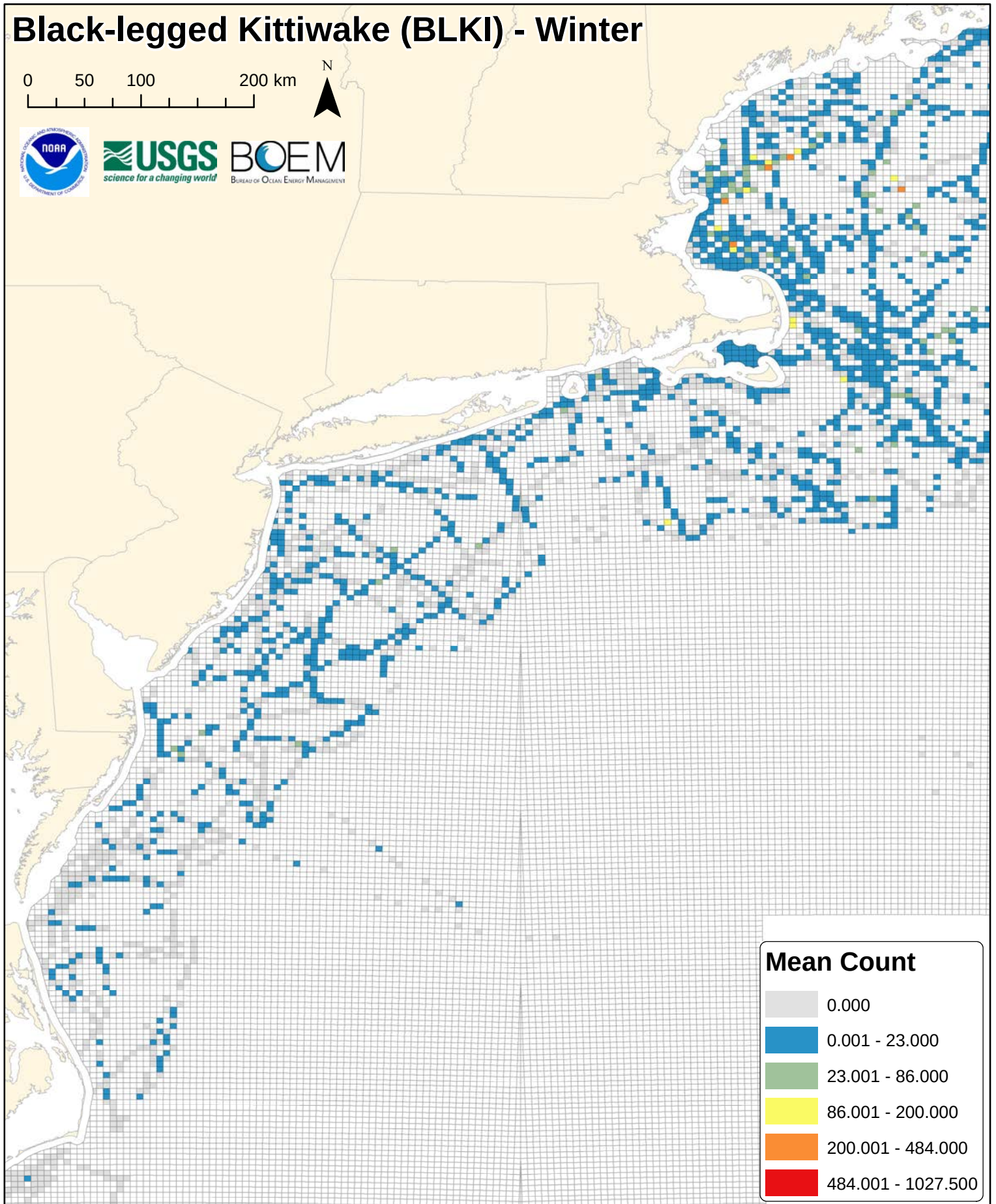
Power to Detect 1/3x Coldspots

0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

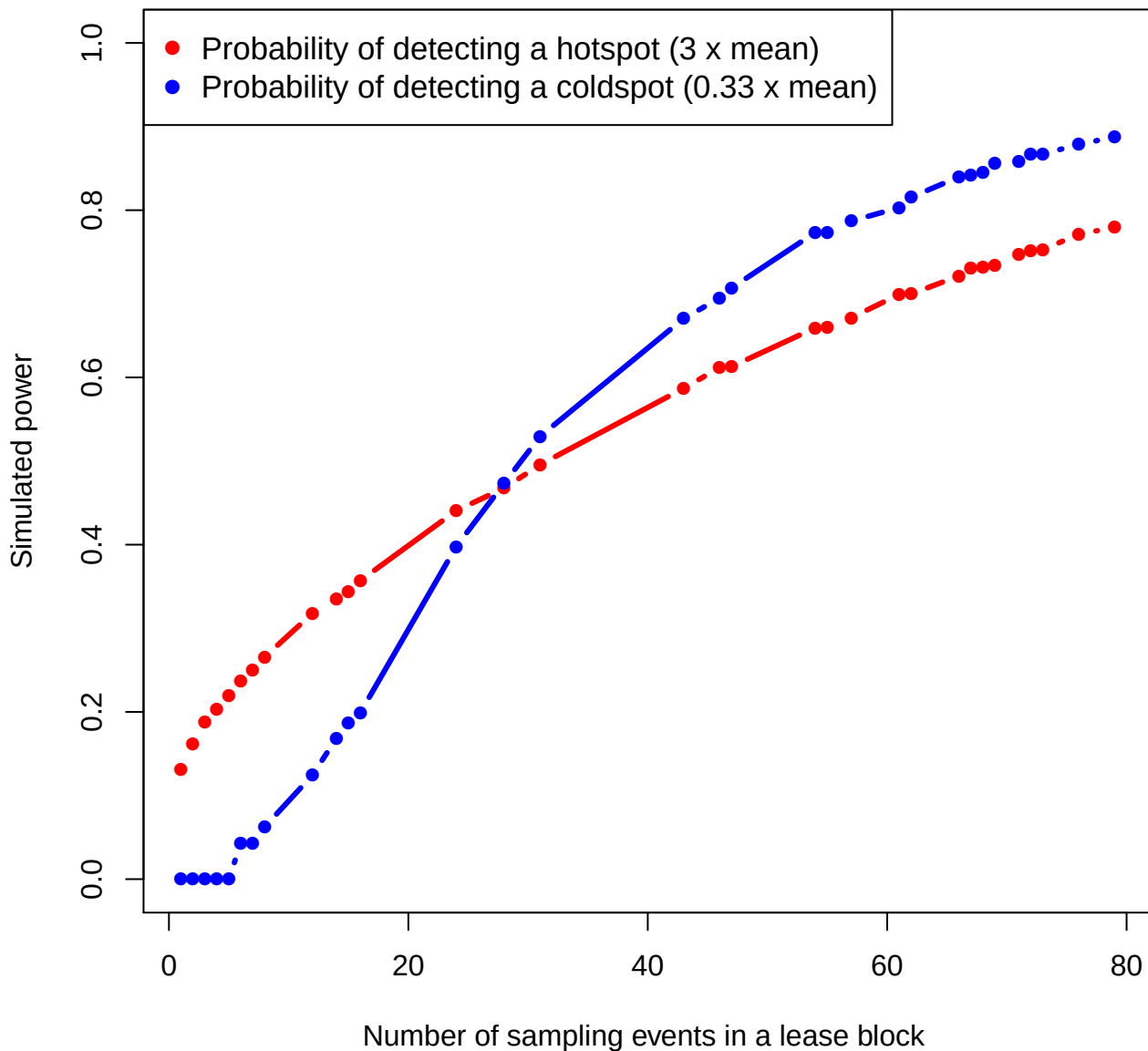
Herring Gull (HERG) - Winter Full Model (Zero & Non-zero Counts)



Black-legged Kittiwake (BLKI) - Winter

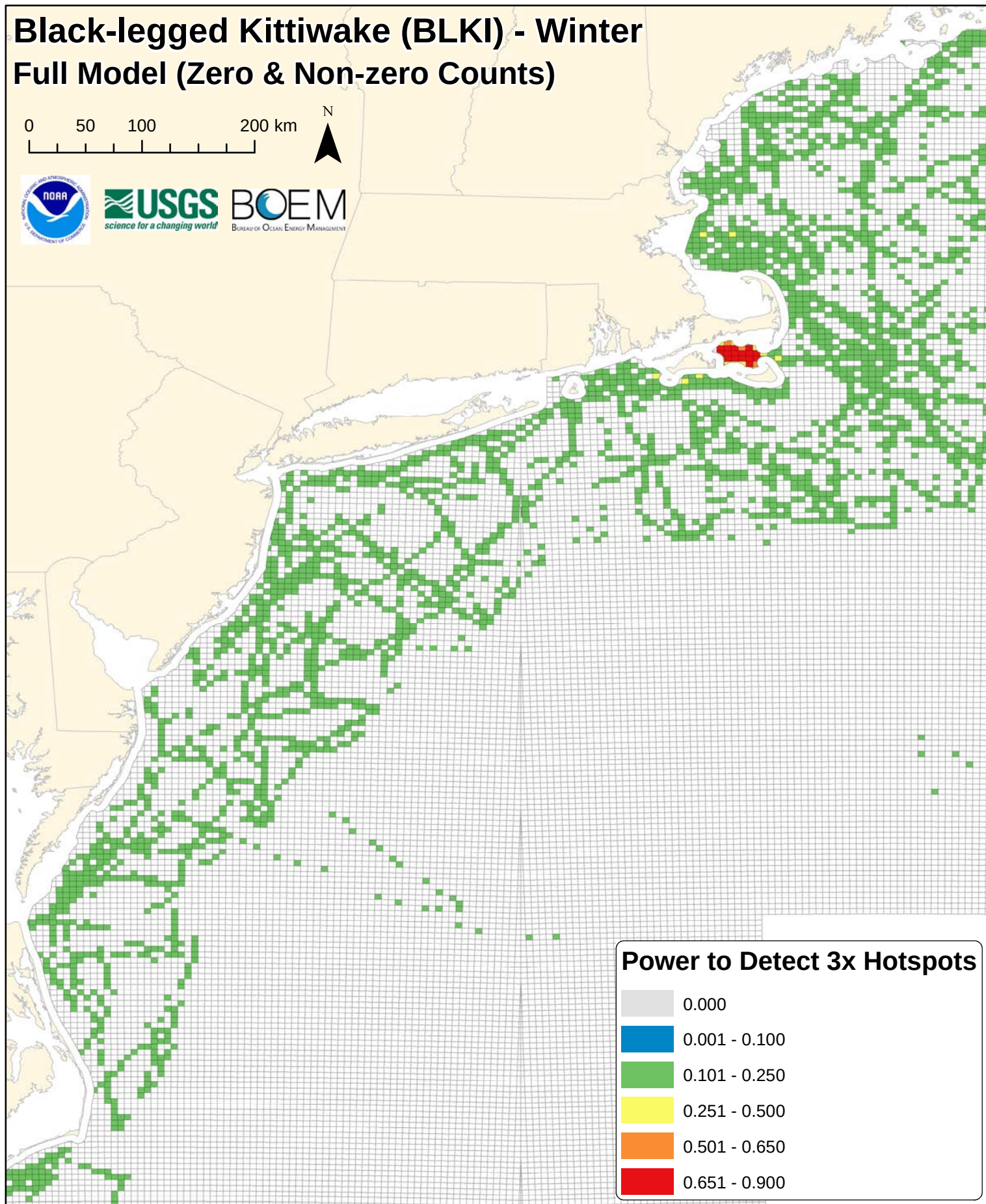


blki



Black-legged Kittiwake (BLKI) - Winter Full Model (Zero & Non-zero Counts)

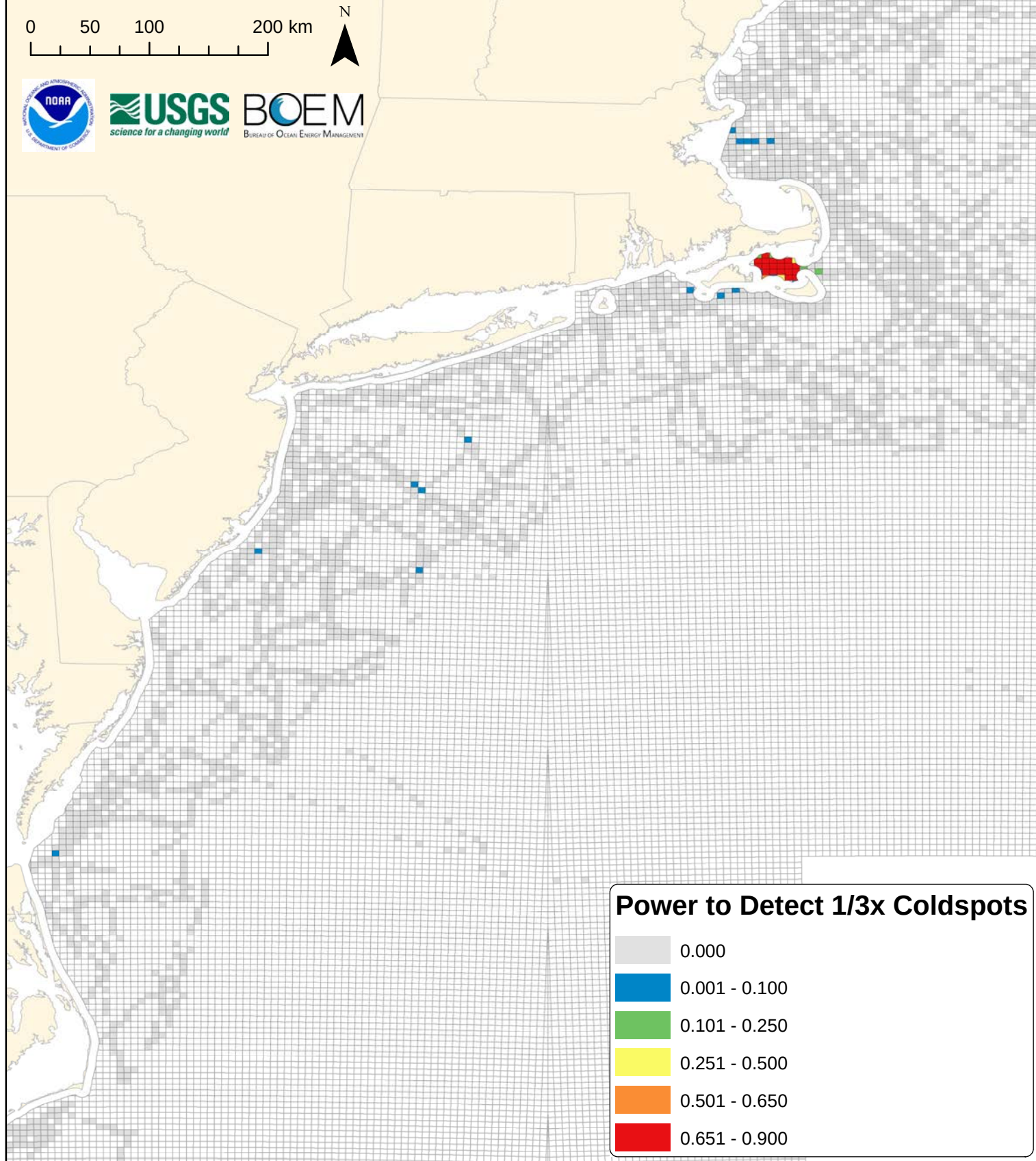
0 50 100 200 km



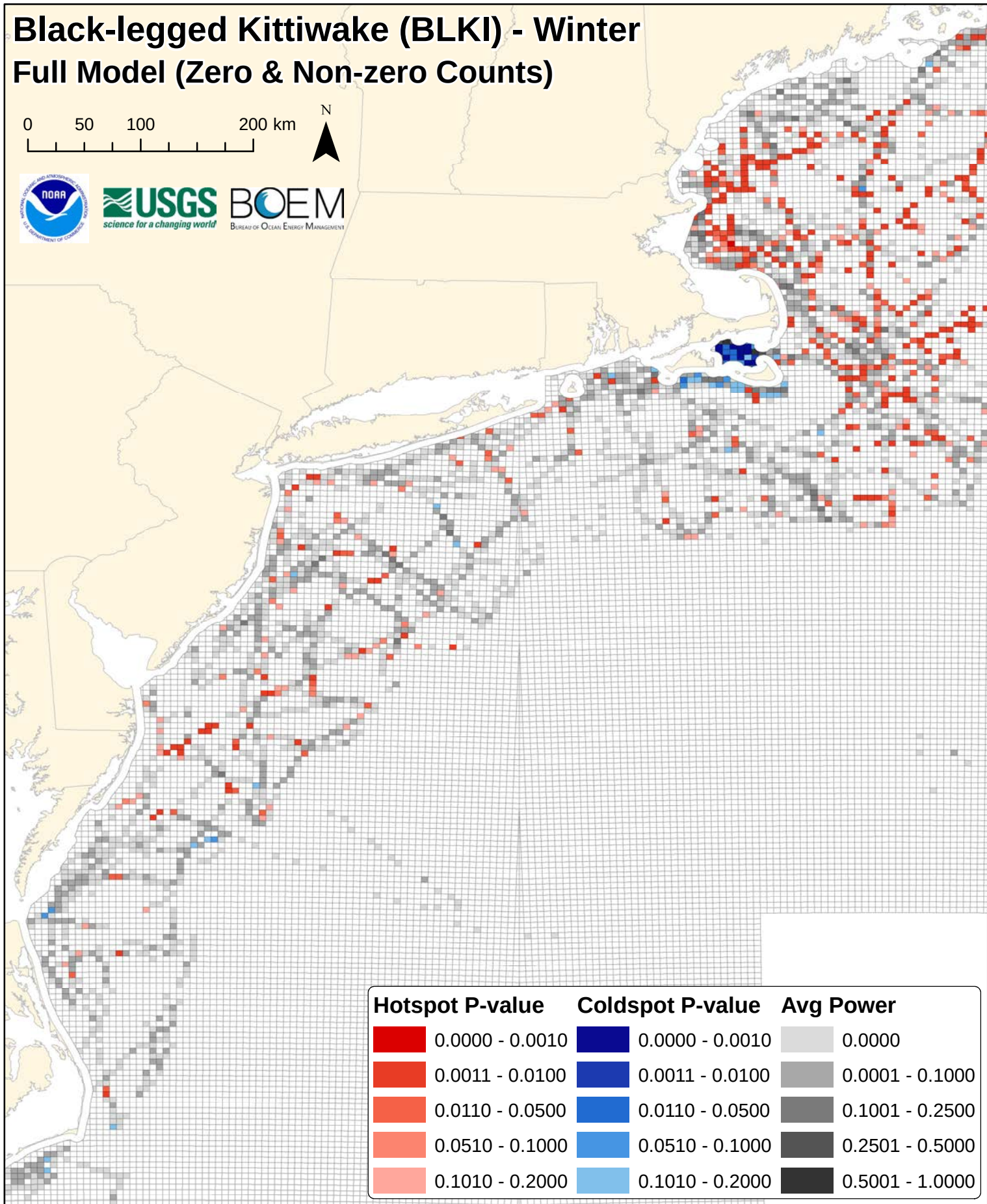
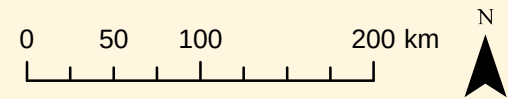
Power to Detect 3x Hotspots

0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

Black-legged Kittiwake (BLKI) - Winter Full Model (Zero & Non-zero Counts)

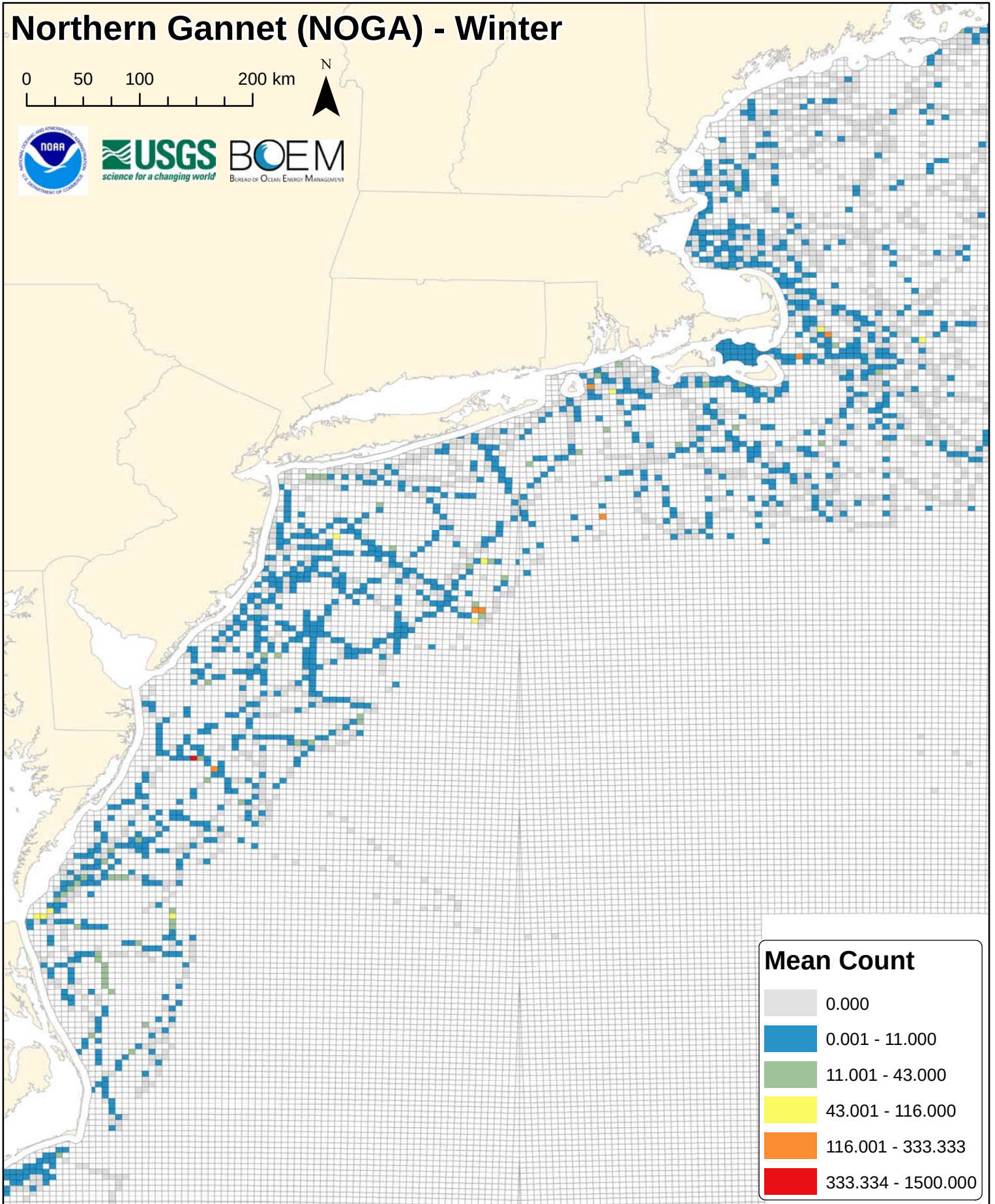


Black-legged Kittiwake (BLKI) - Winter Full Model (Zero & Non-zero Counts)



Northern Gannet (NOGA) - Winter

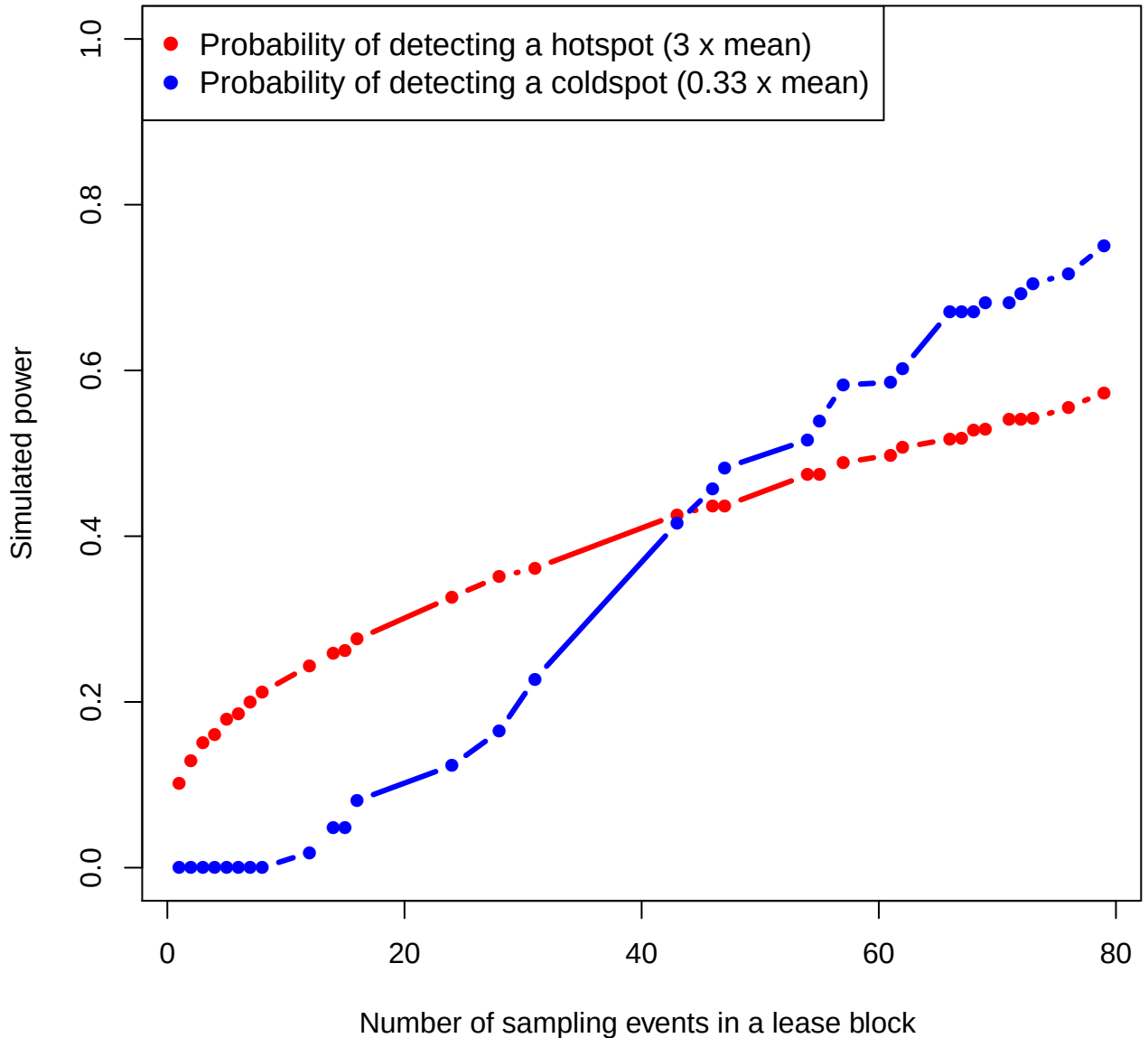
0 50 100 200 km



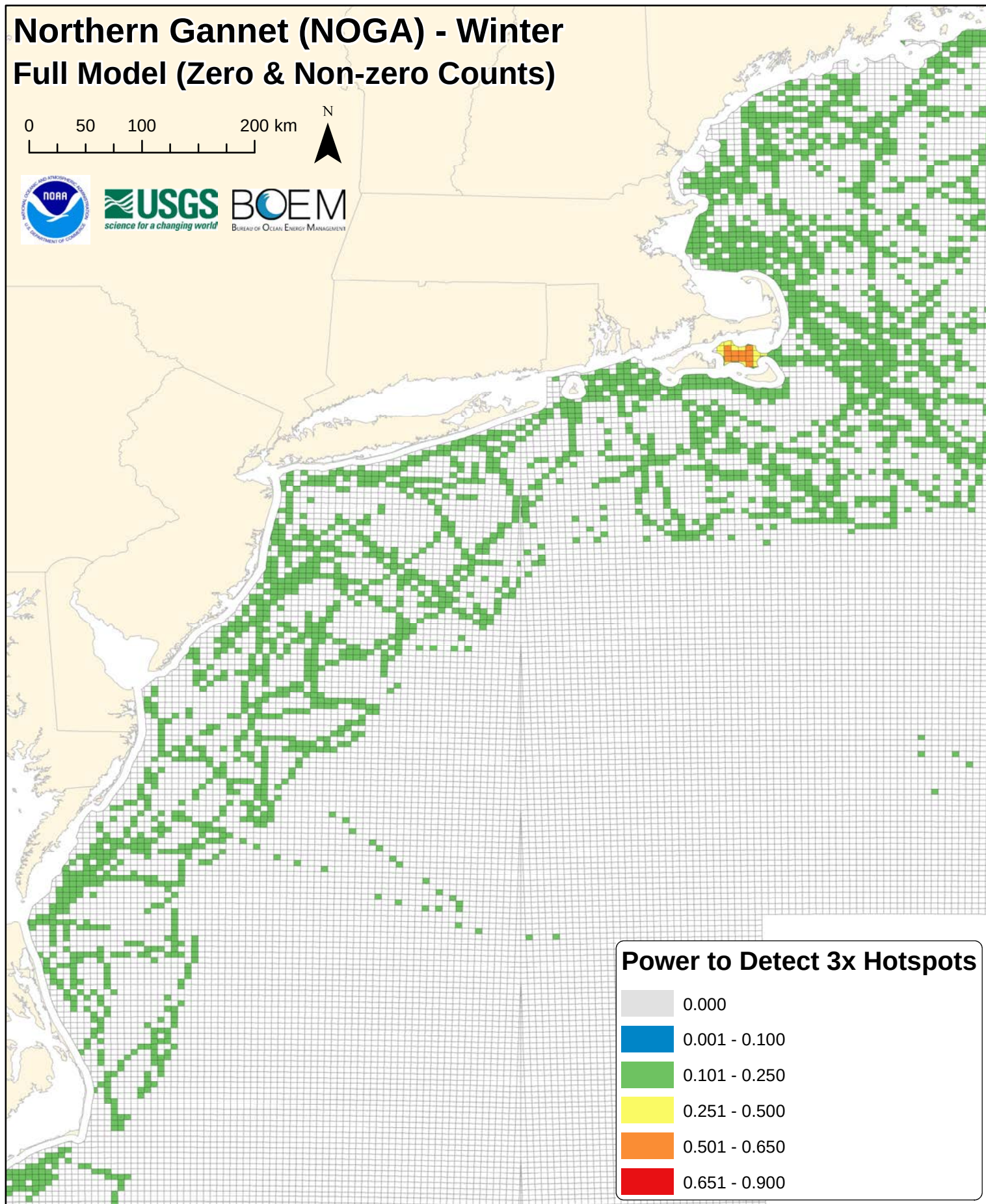
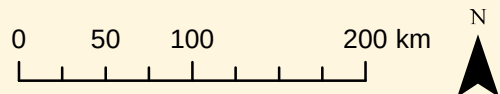
Mean Count

0.000
0.001 - 11.000
11.001 - 43.000
43.001 - 116.000
116.001 - 333.333
333.334 - 1500.000

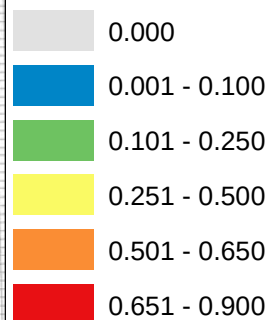
noga



Northern Gannet (NOGA) - Winter Full Model (Zero & Non-zero Counts)

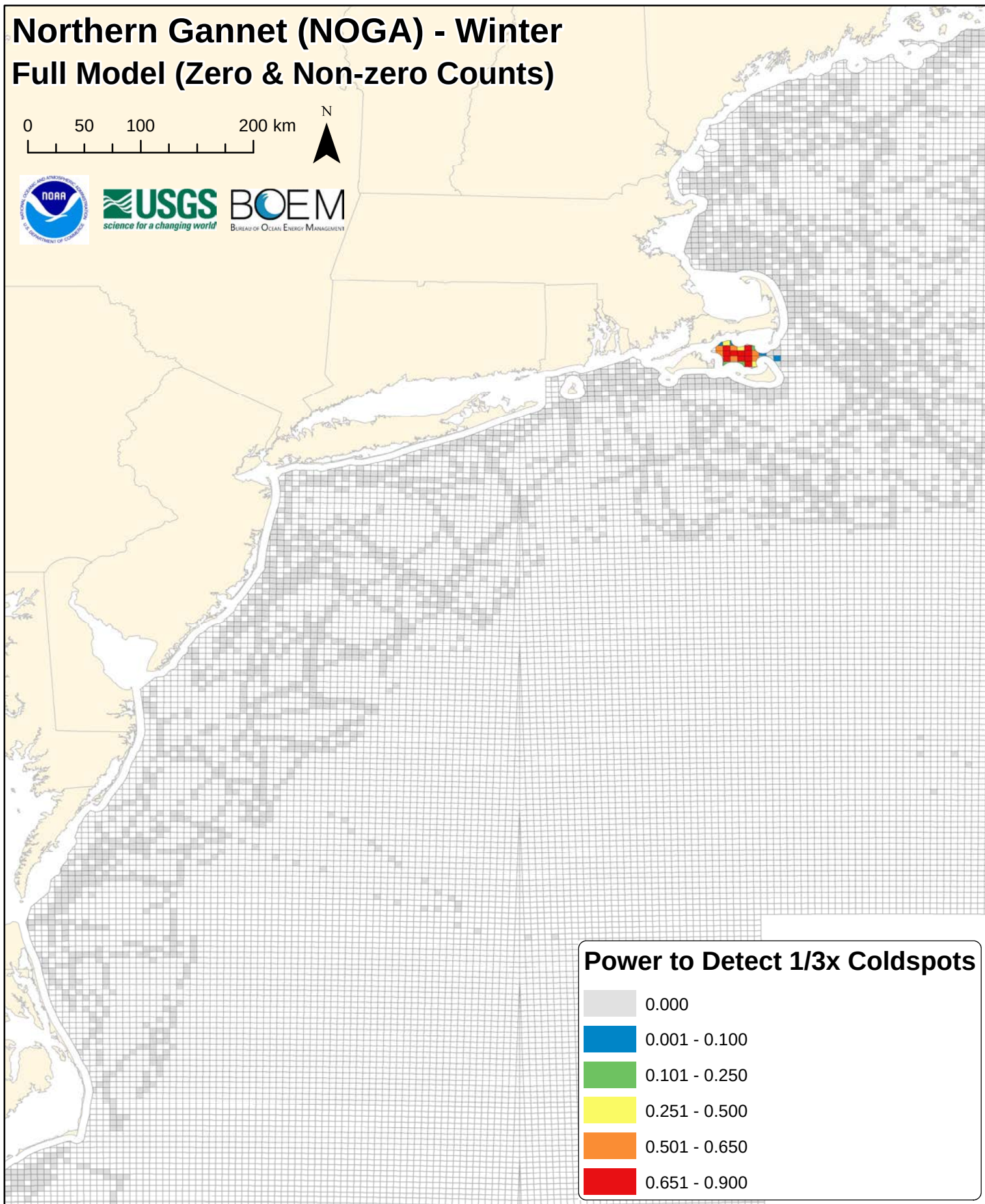


Power to Detect 3x Hotspots



Northern Gannet (NOGA) - Winter Full Model (Zero & Non-zero Counts)

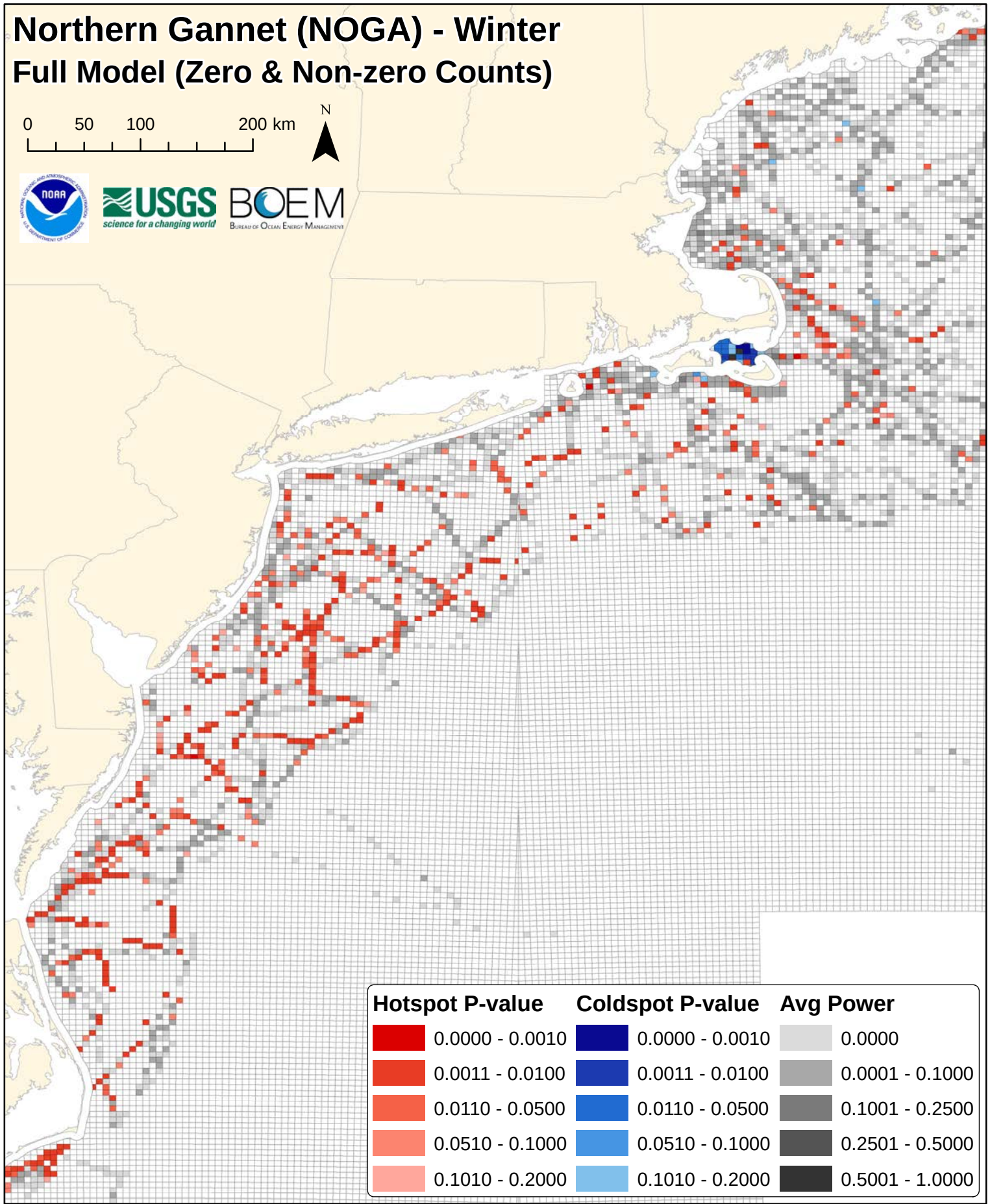
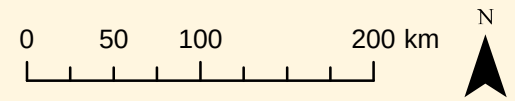
0 50 100 200 km



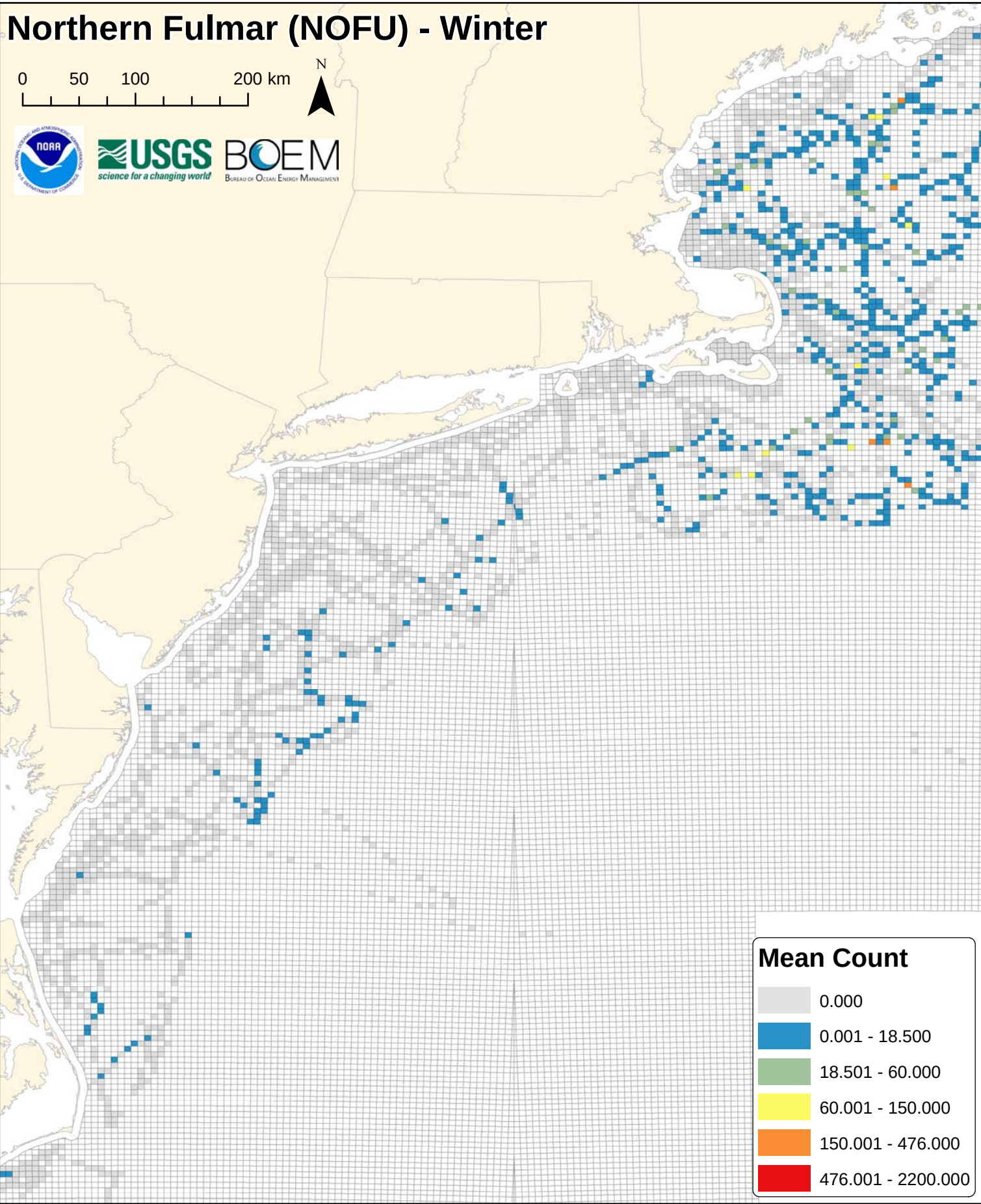
Power to Detect 1/3x Coldspots

0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

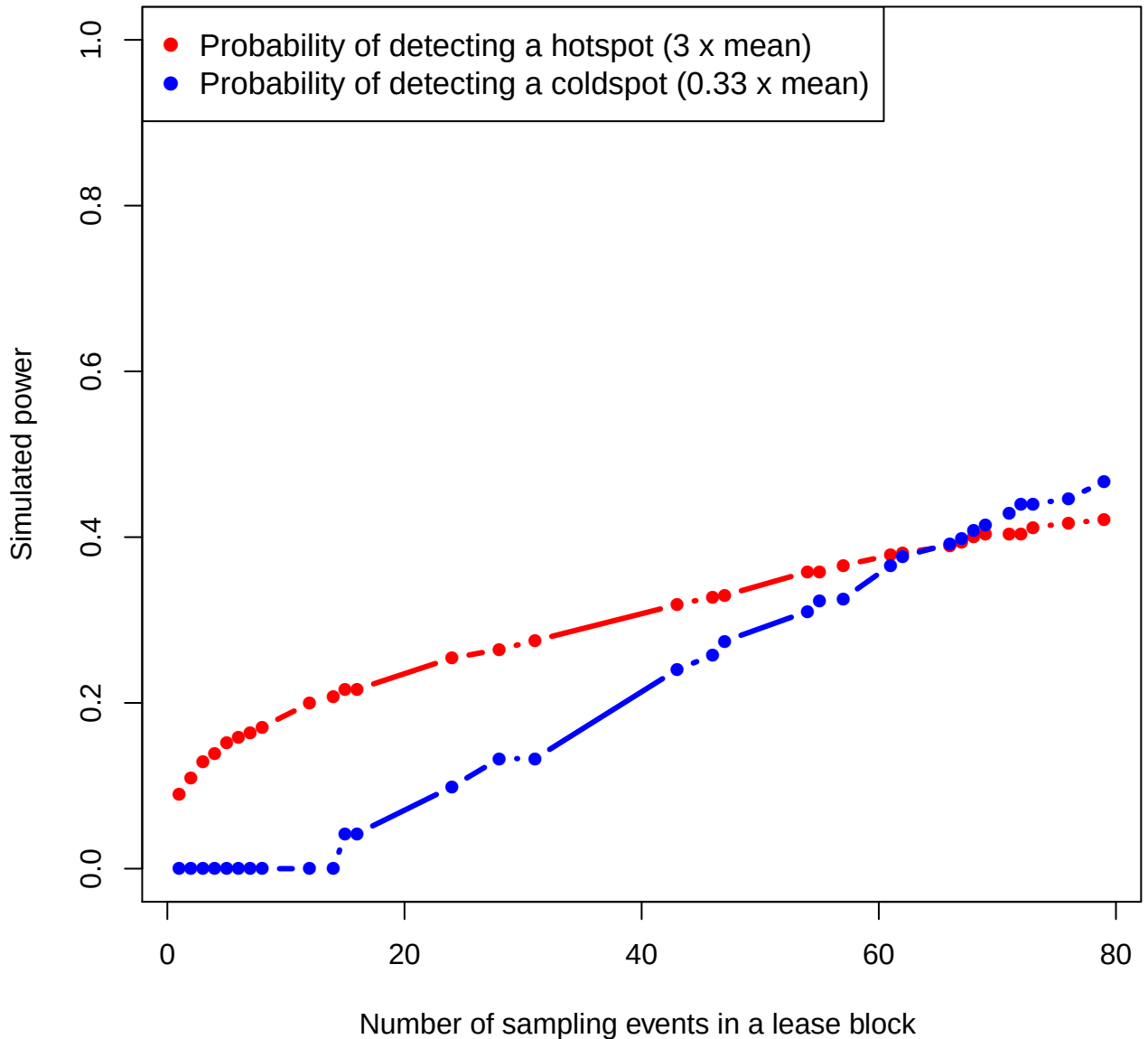
Northern Gannet (NOGA) - Winter Full Model (Zero & Non-zero Counts)



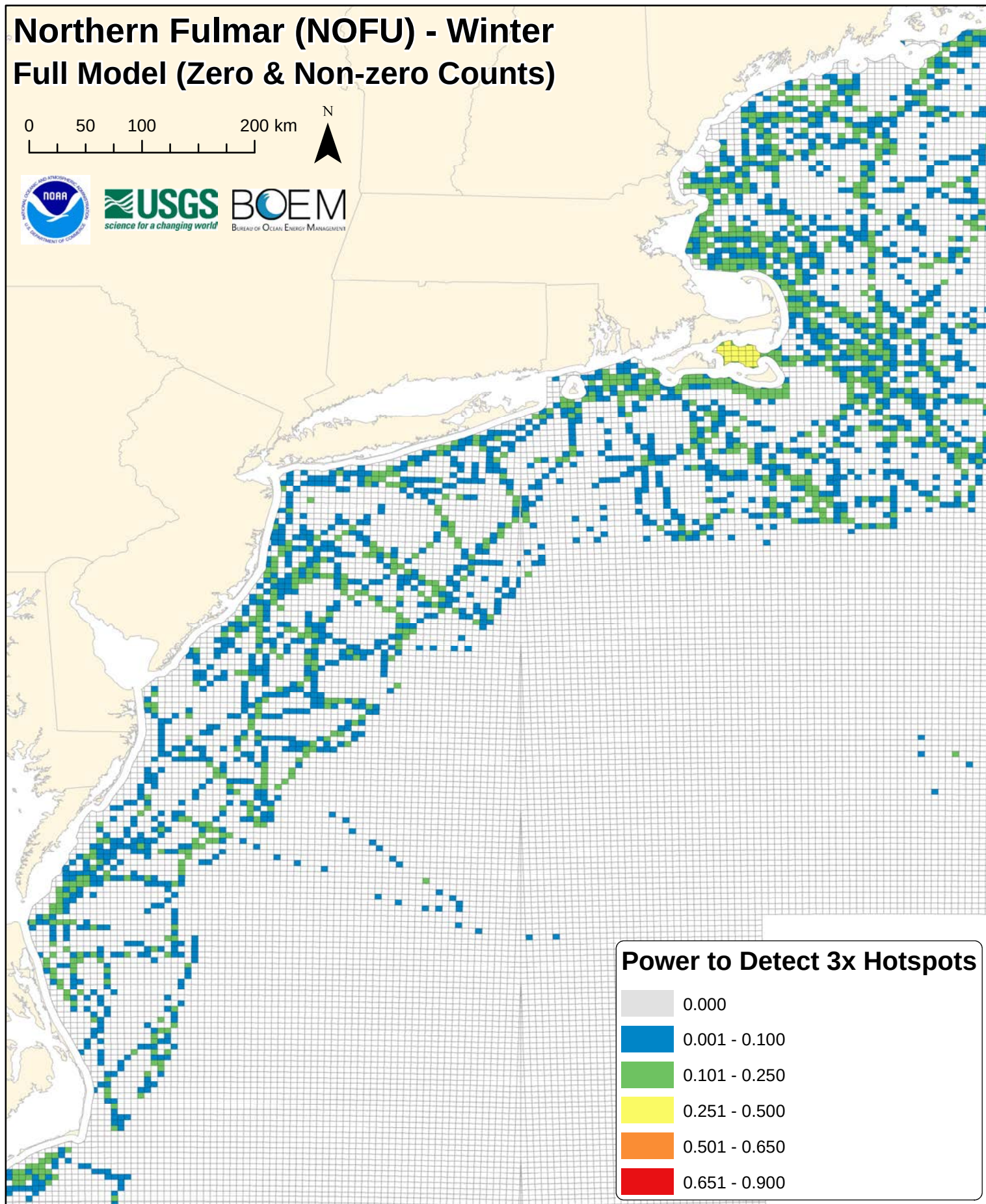
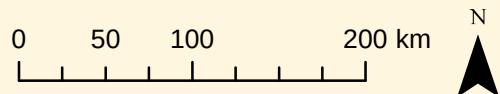
Hotspot P-value	Coldspot P-value	Avg Power
 0.0000 - 0.0010	 0.0000 - 0.0010	 0.0000
 0.0011 - 0.0100	 0.0011 - 0.0100	 0.0001 - 0.1000
 0.0110 - 0.0500	 0.0110 - 0.0500	 0.1001 - 0.2500
 0.0510 - 0.1000	 0.0510 - 0.1000	 0.2501 - 0.5000
 0.1010 - 0.2000	 0.1010 - 0.2000	 0.5001 - 1.0000



nofu

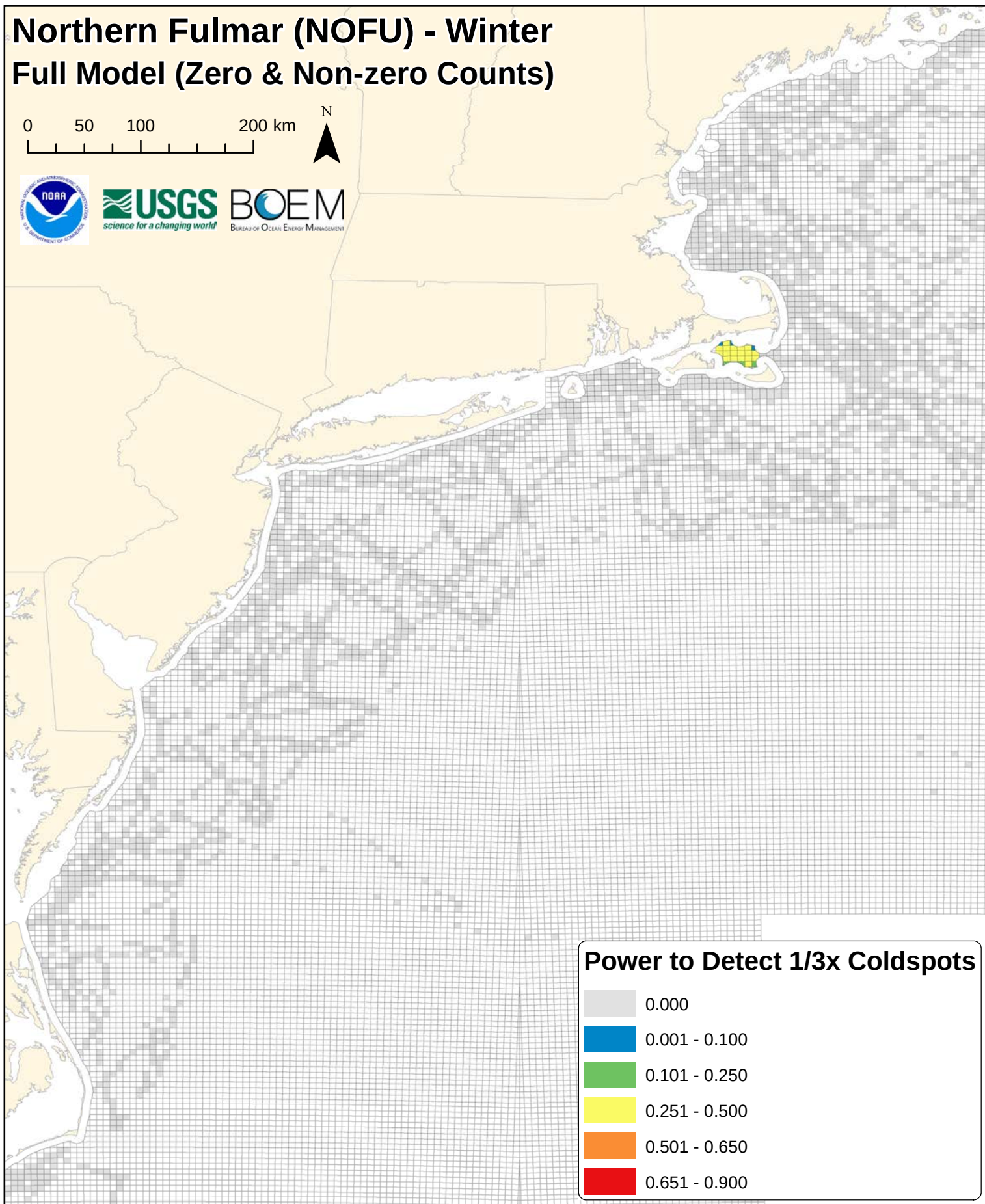


Northern Fulmar (NOFU) - Winter Full Model (Zero & Non-zero Counts)



Northern Fulmar (NOFU) - Winter Full Model (Zero & Non-zero Counts)

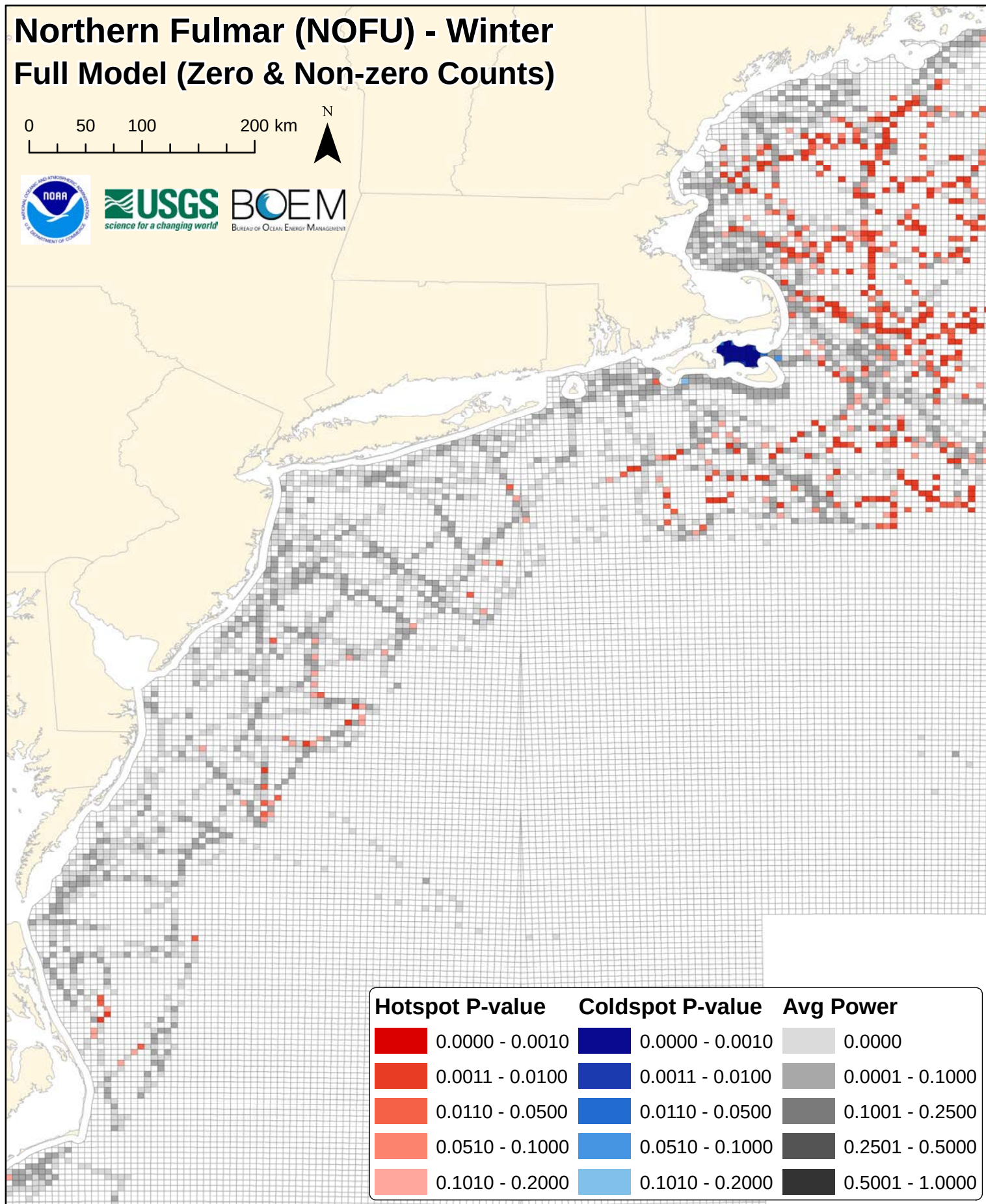
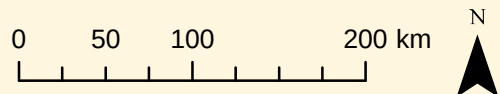
0 50 100 200 km



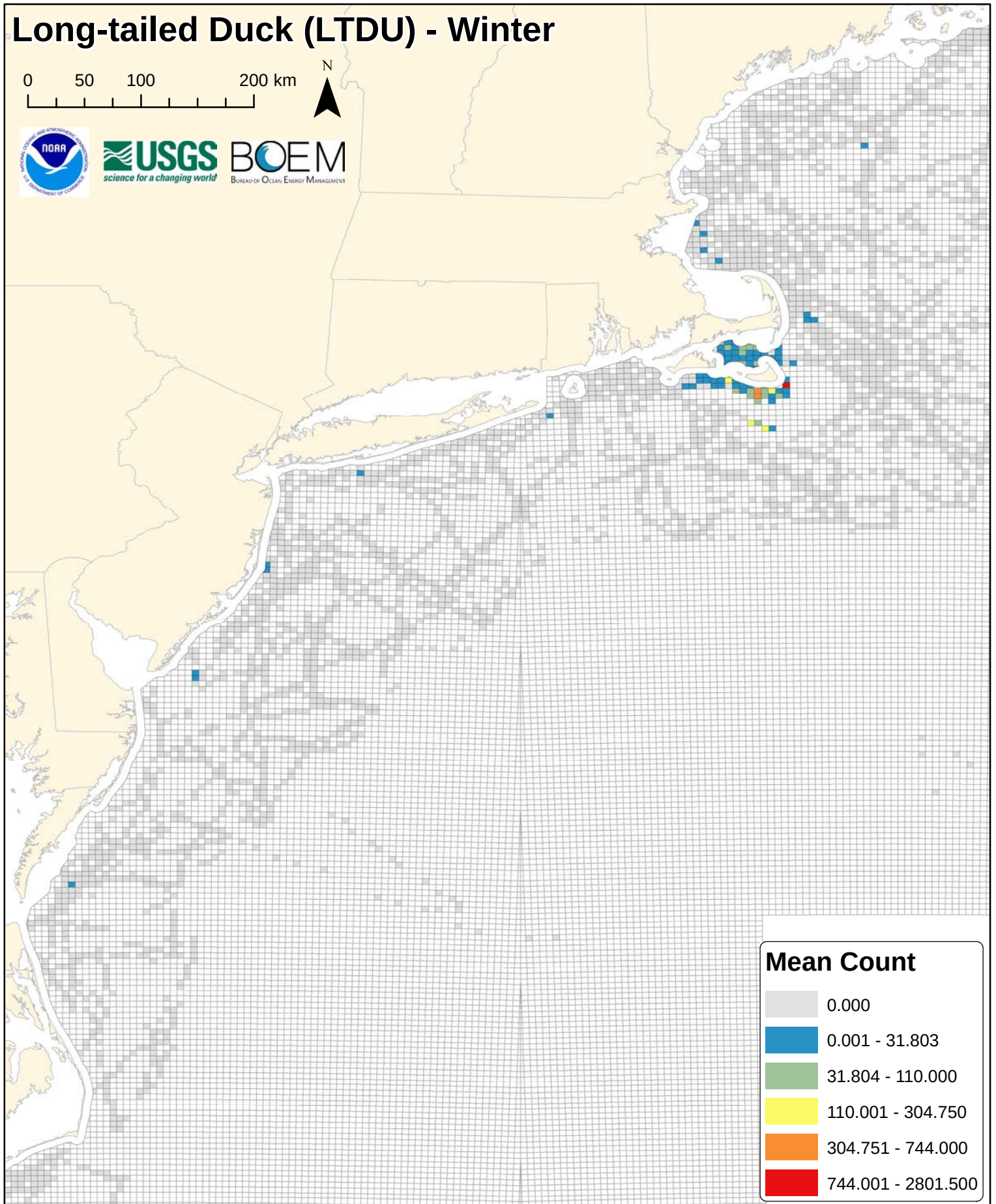
Power to Detect 1/3x Coldspots

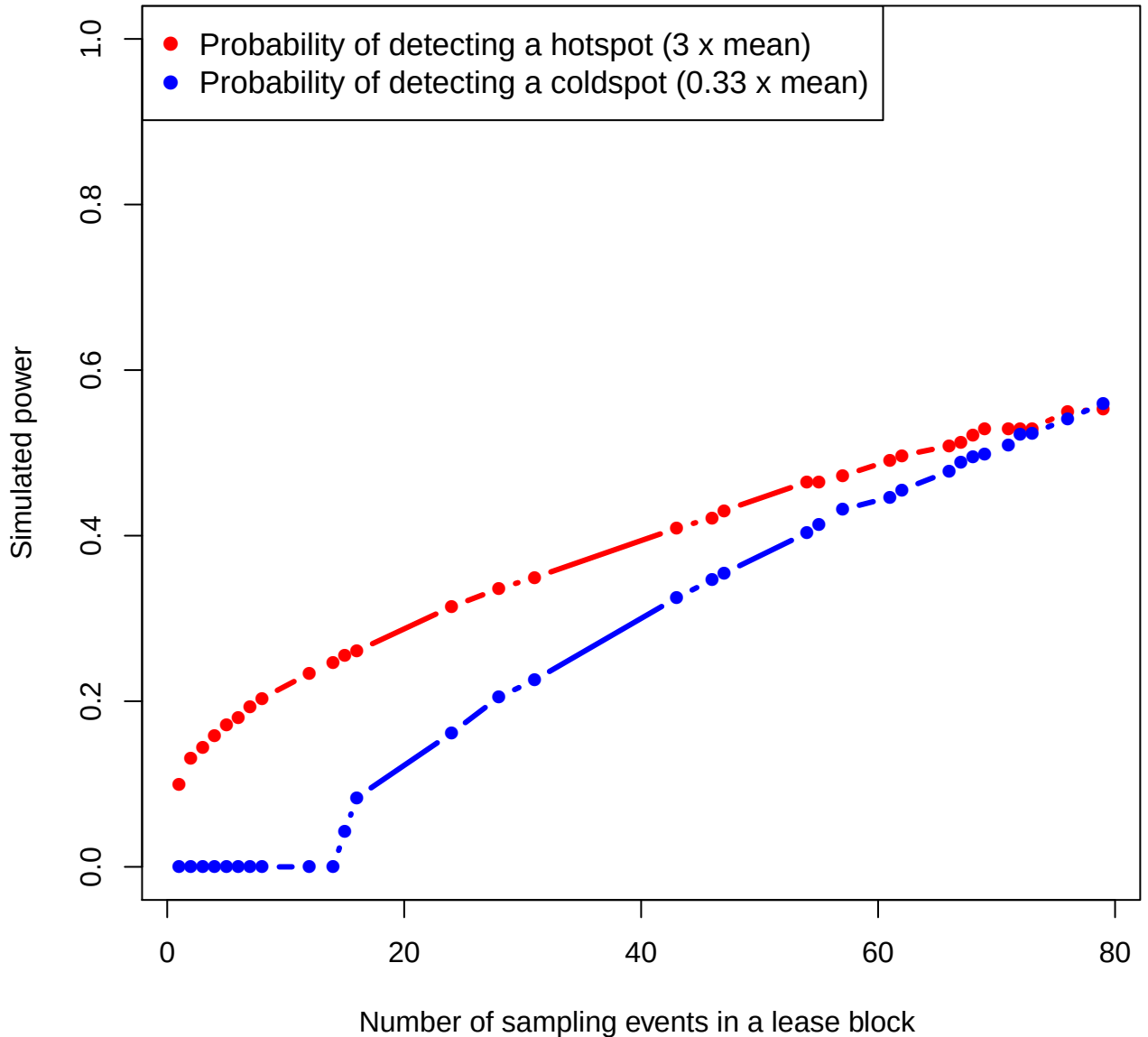
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

Northern Fulmar (NOFU) - Winter Full Model (Zero & Non-zero Counts)



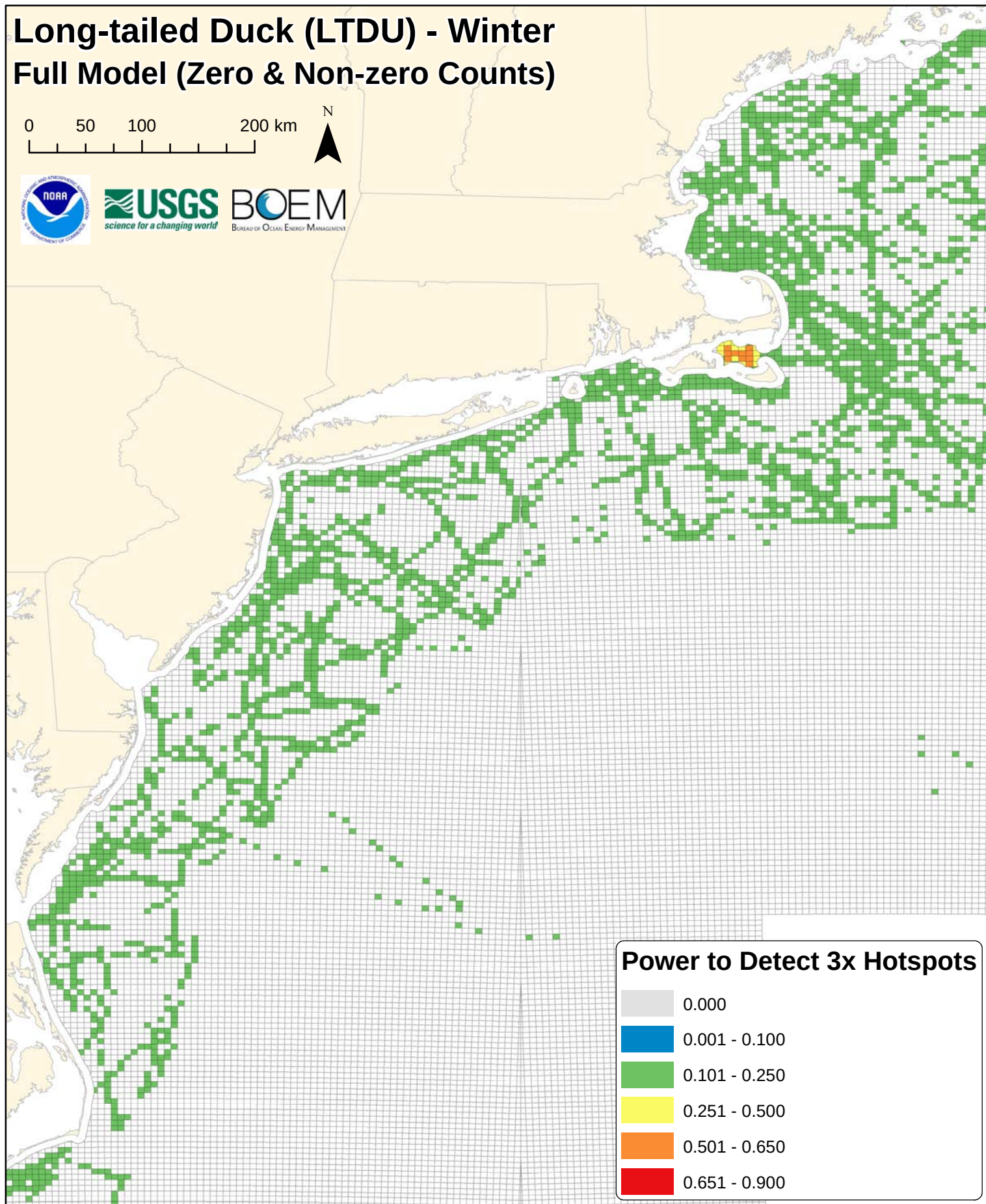
Long-tailed Duck (LTDU) - Winter





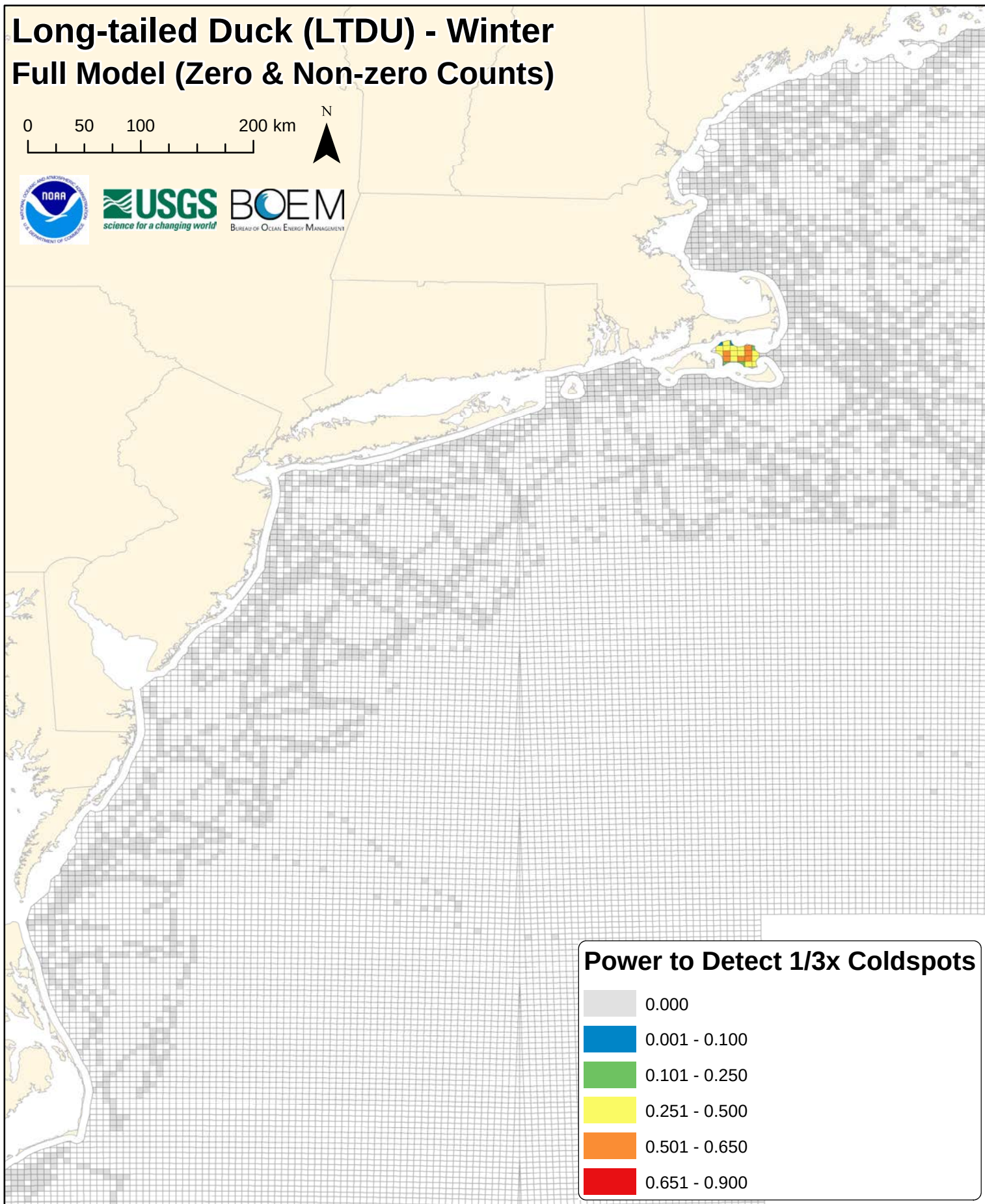
Long-tailed Duck (LTDU) - Winter Full Model (Zero & Non-zero Counts)

0 50 100 200 km

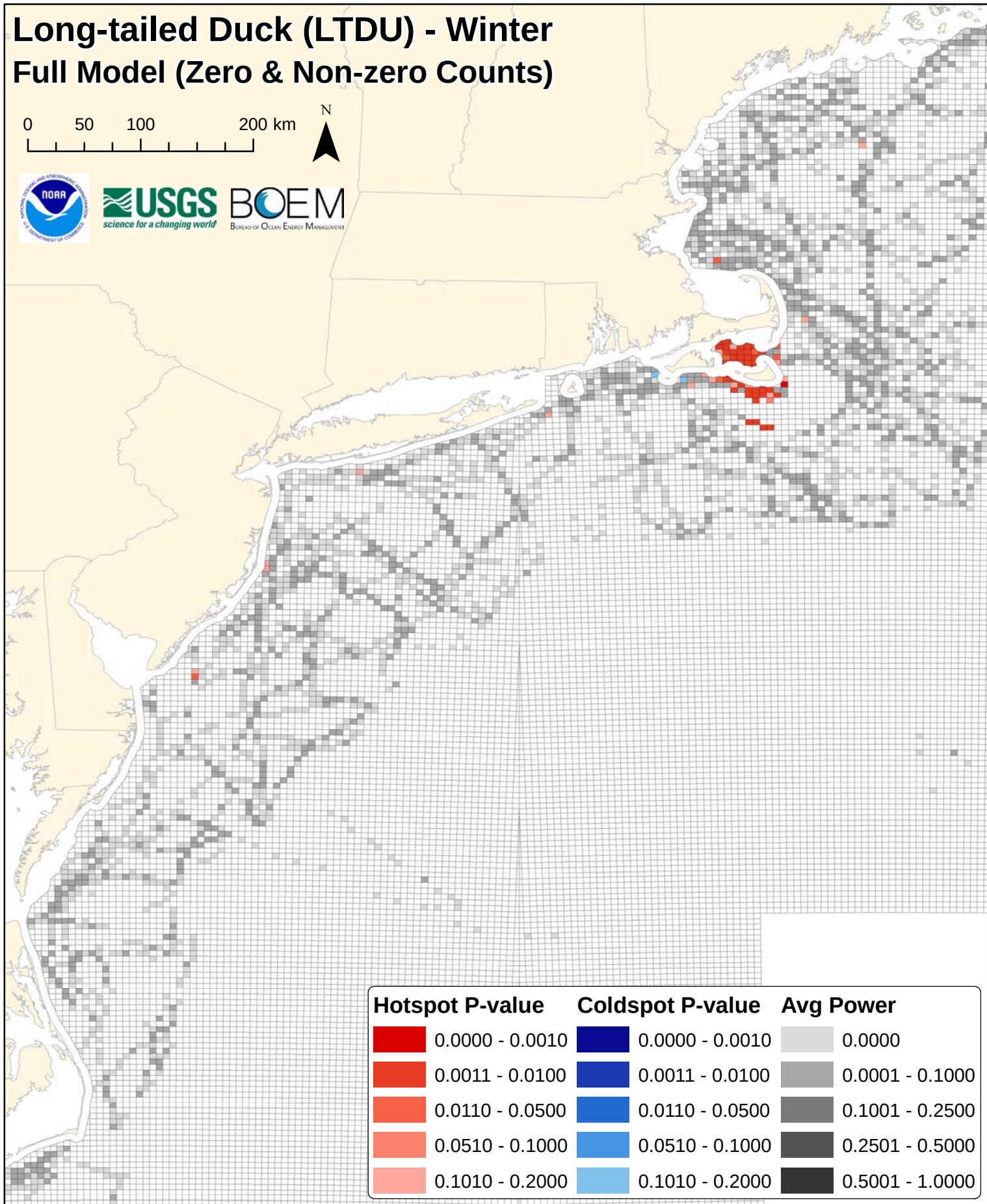
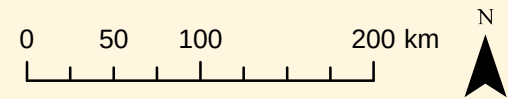


Long-tailed Duck (LTDU) - Winter Full Model (Zero & Non-zero Counts)

0 50 100 200 km



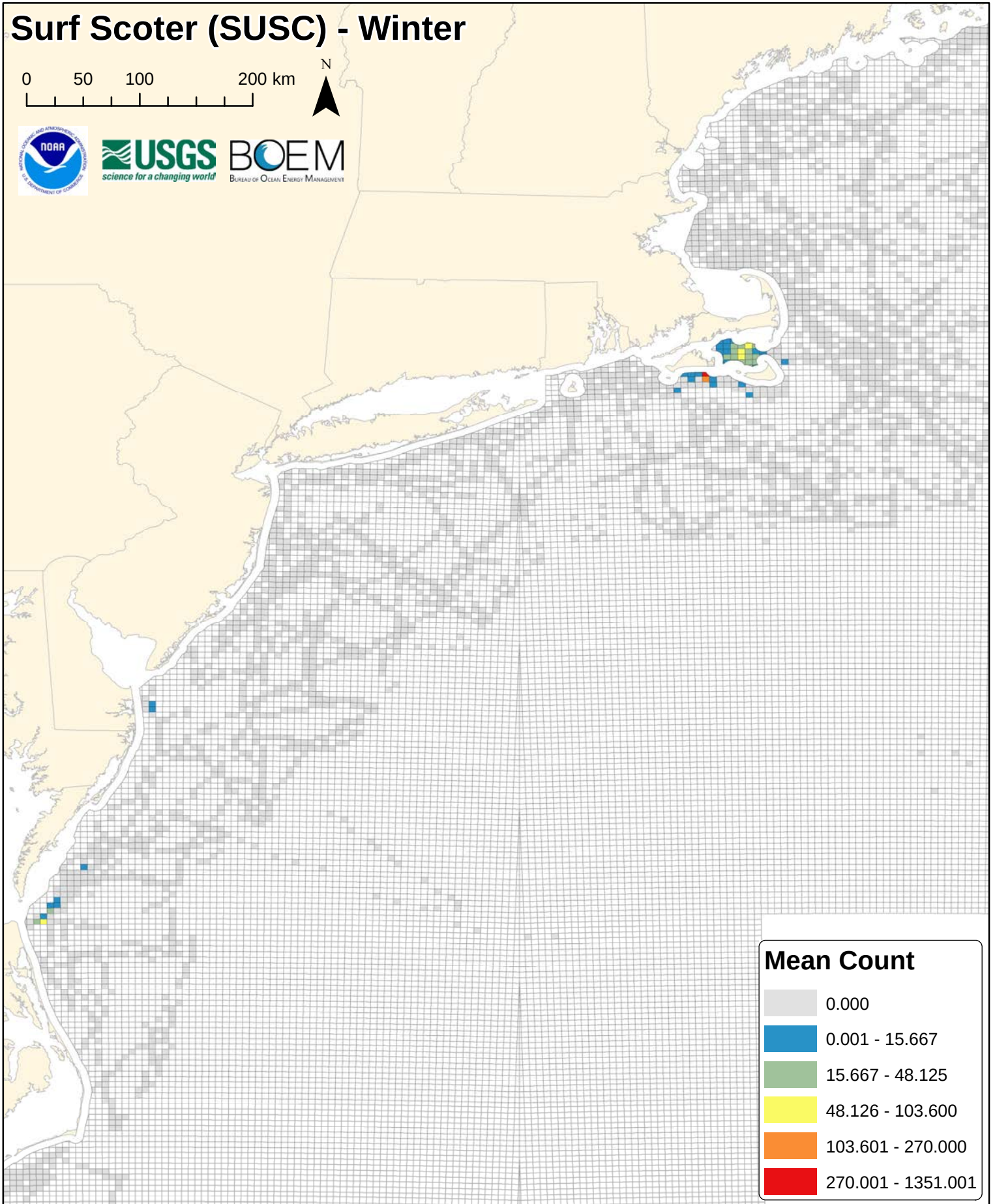
Long-tailed Duck (LTDU) - Winter Full Model (Zero & Non-zero Counts)



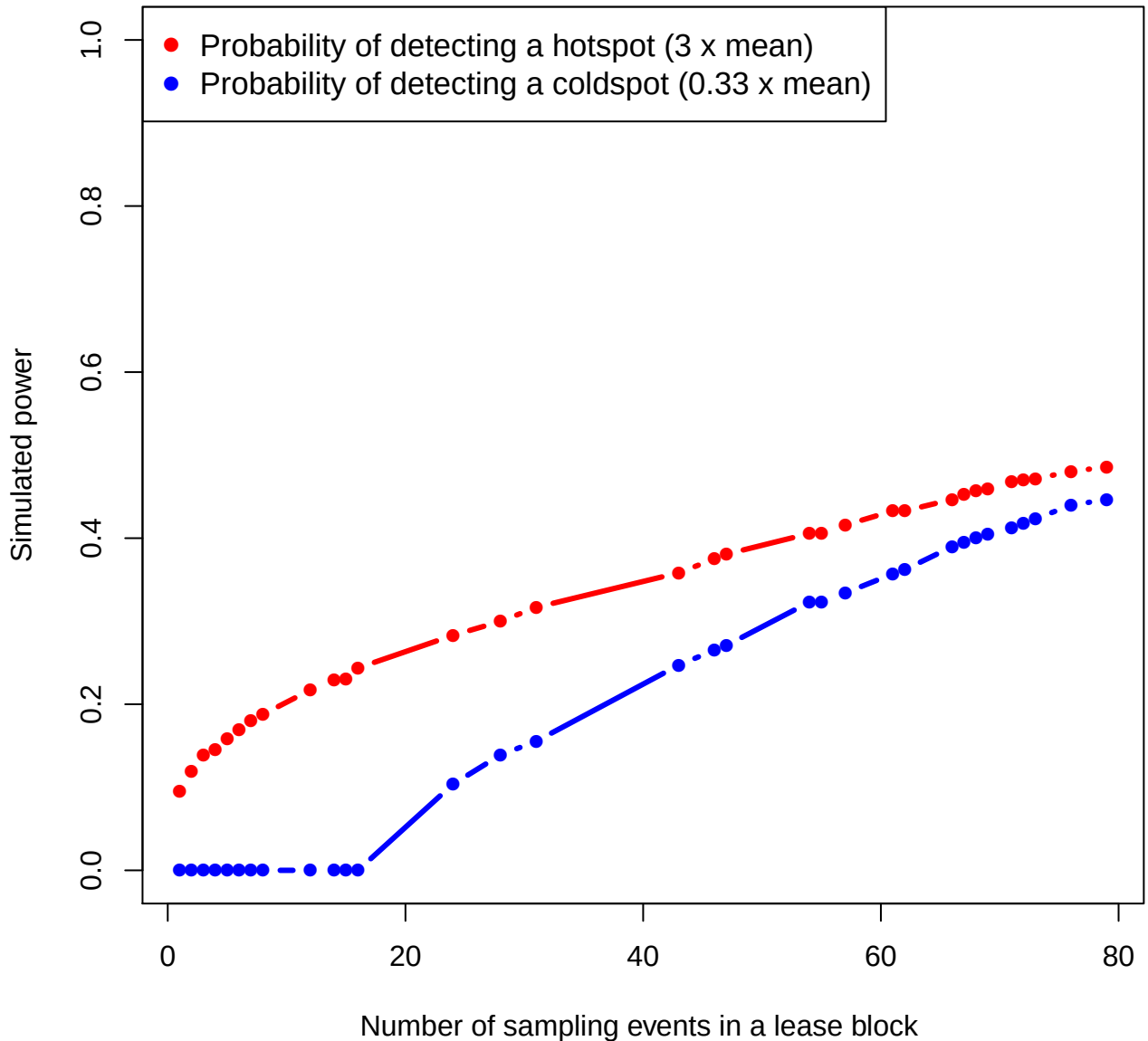
Hotspot P-value	Coldspot P-value	Avg Power
 0.0000 - 0.0010	 0.0000 - 0.0010	 0.0000
 0.0011 - 0.0100	 0.0011 - 0.0100	 0.0001 - 0.1000
 0.0110 - 0.0500	 0.0110 - 0.0500	 0.1001 - 0.2500
 0.0510 - 0.1000	 0.0510 - 0.1000	 0.2501 - 0.5000
 0.1010 - 0.2000	 0.1010 - 0.2000	 0.5001 - 1.0000

Surf Scoter (SUSC) - Winter

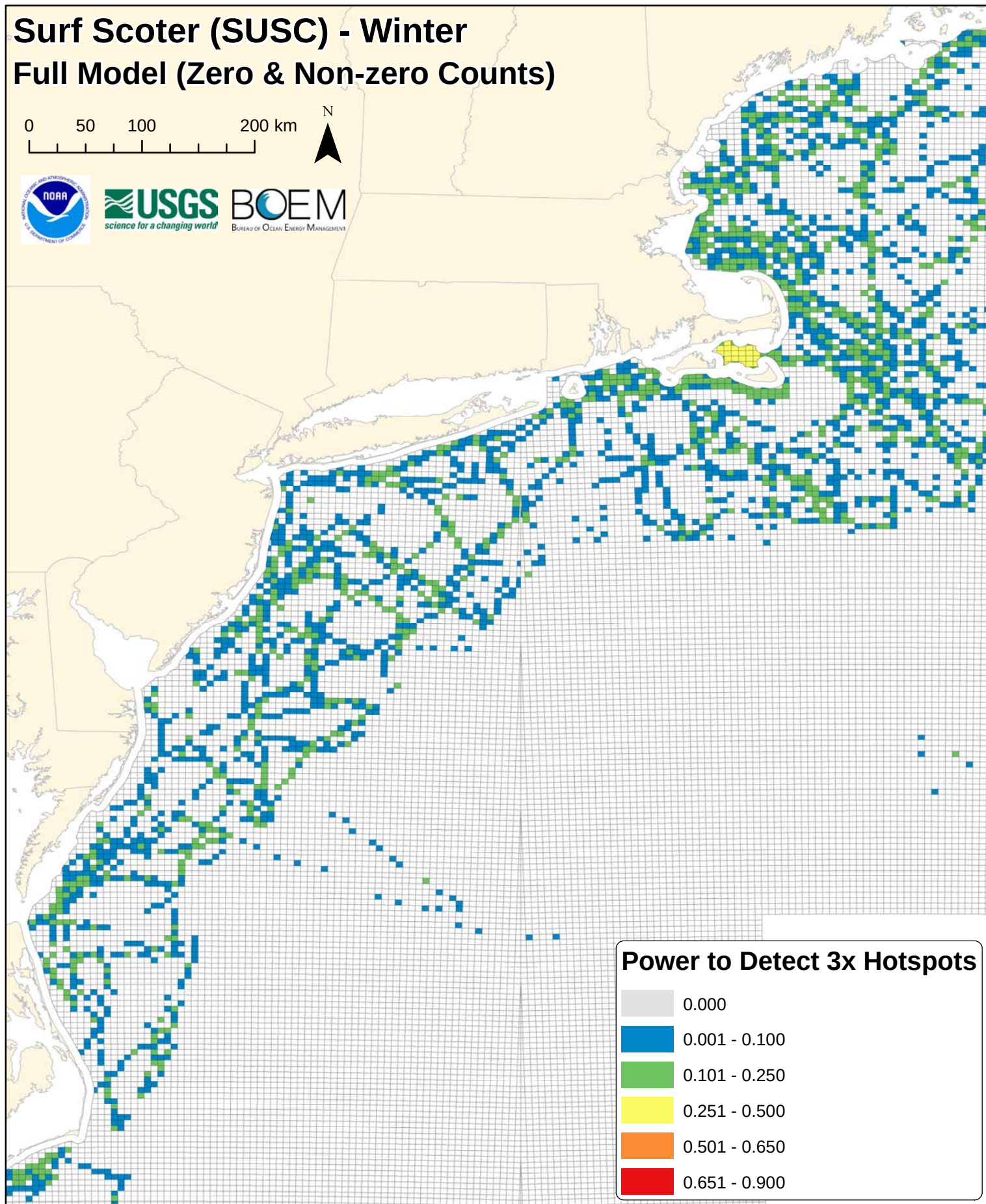
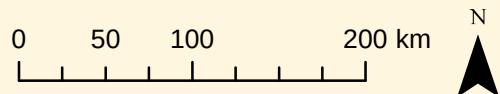
0 50 100 200 km



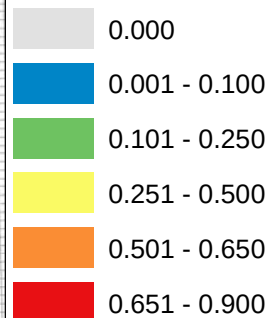
SUSC



Surf Scoter (SUSC) - Winter Full Model (Zero & Non-zero Counts)

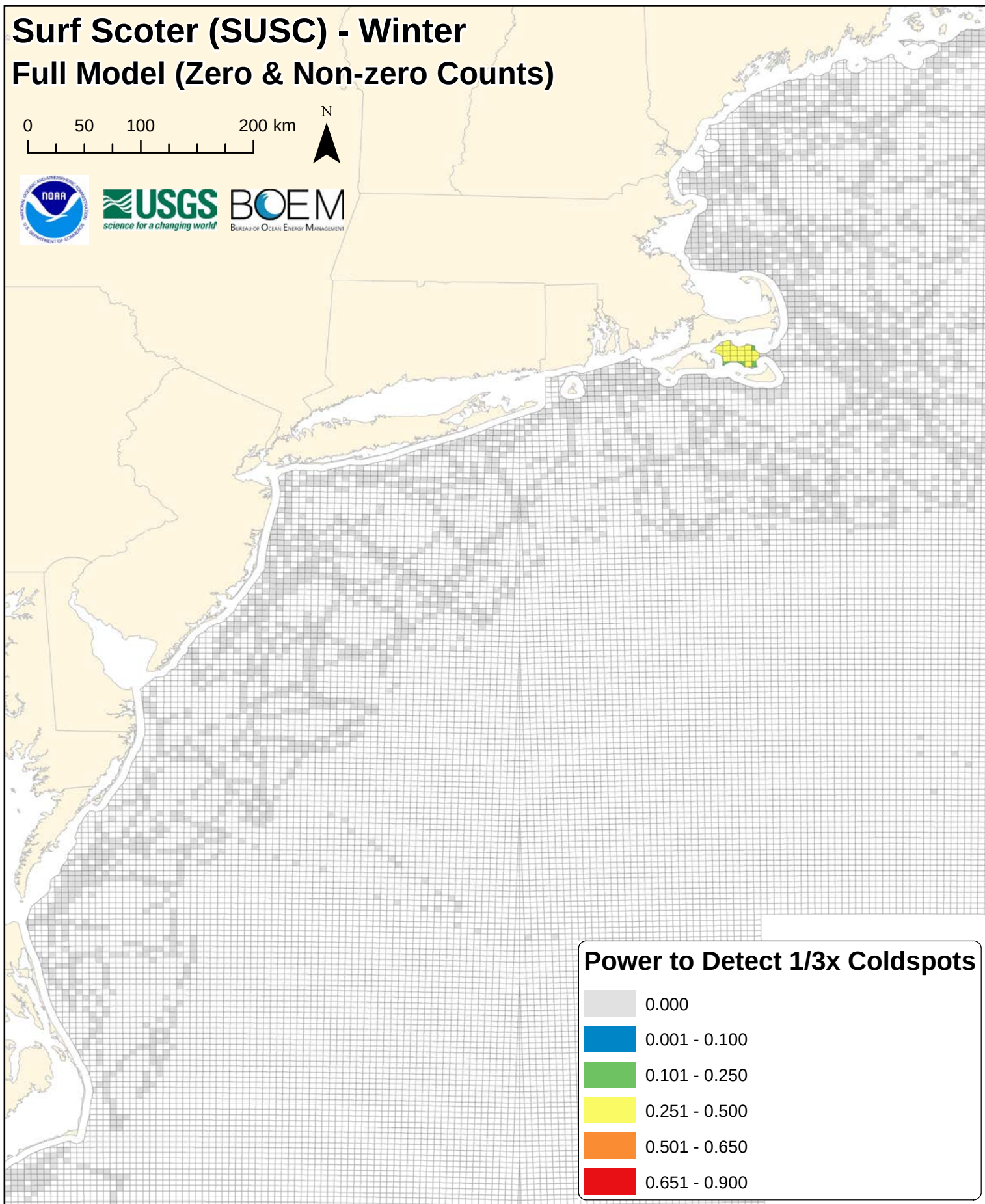


Power to Detect 3x Hotspots



Surf Scoter (SUSC) - Winter Full Model (Zero & Non-zero Counts)

0 50 100 200 km

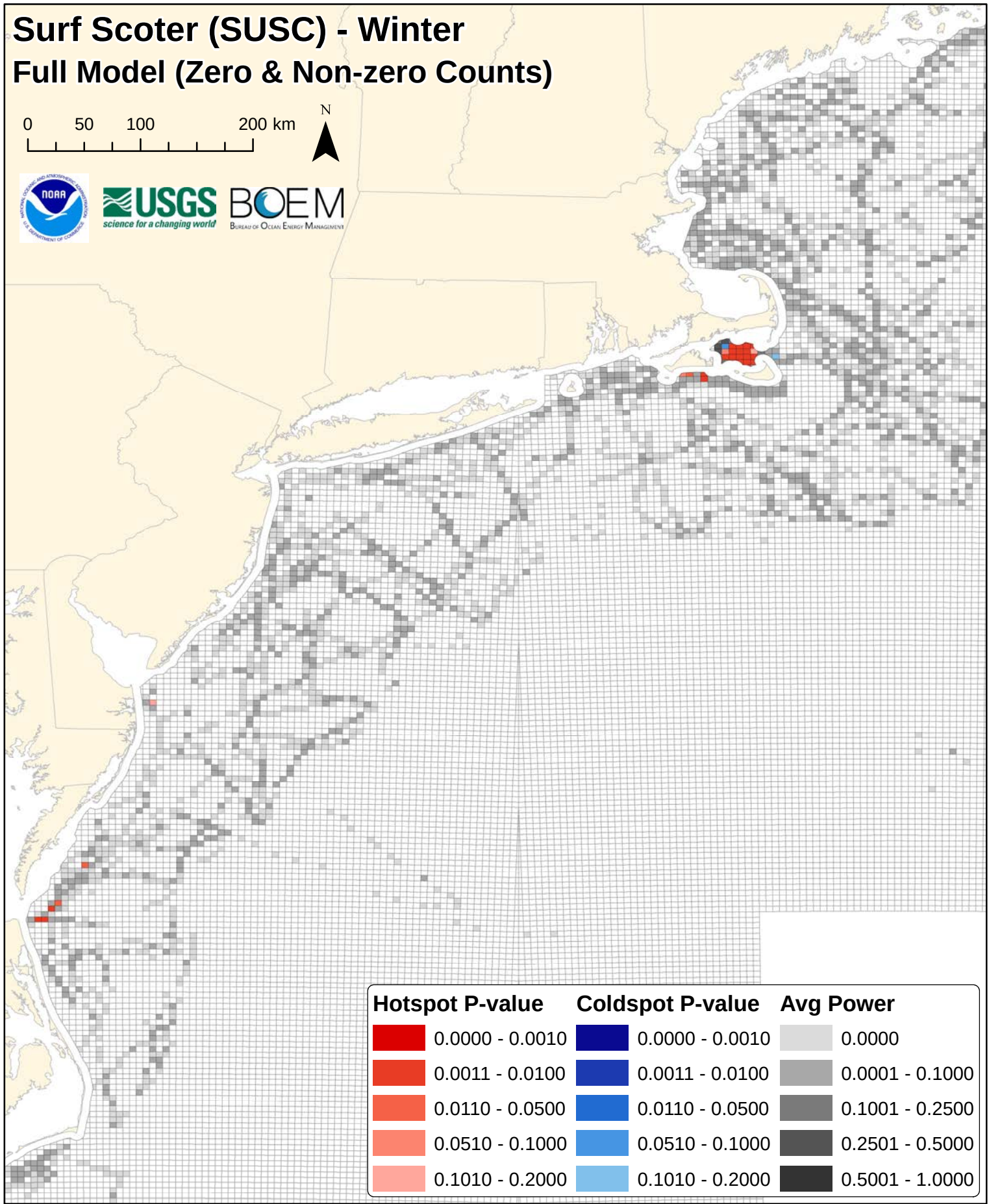
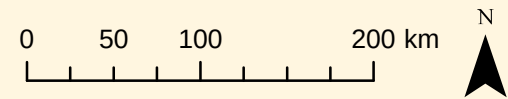


Power to Detect 1/3x Coldspots

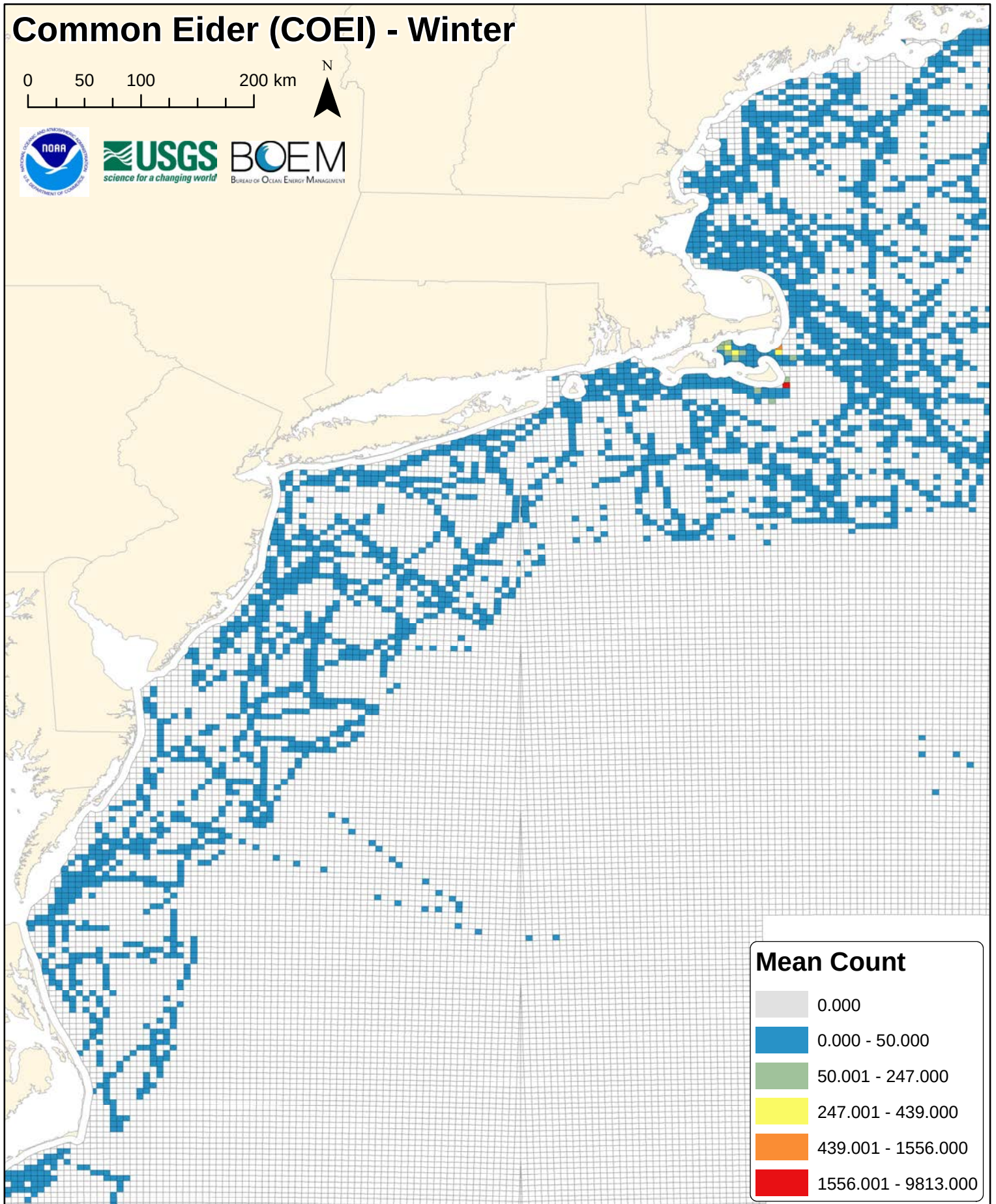
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

Surf Scoter (SUSC) - Winter

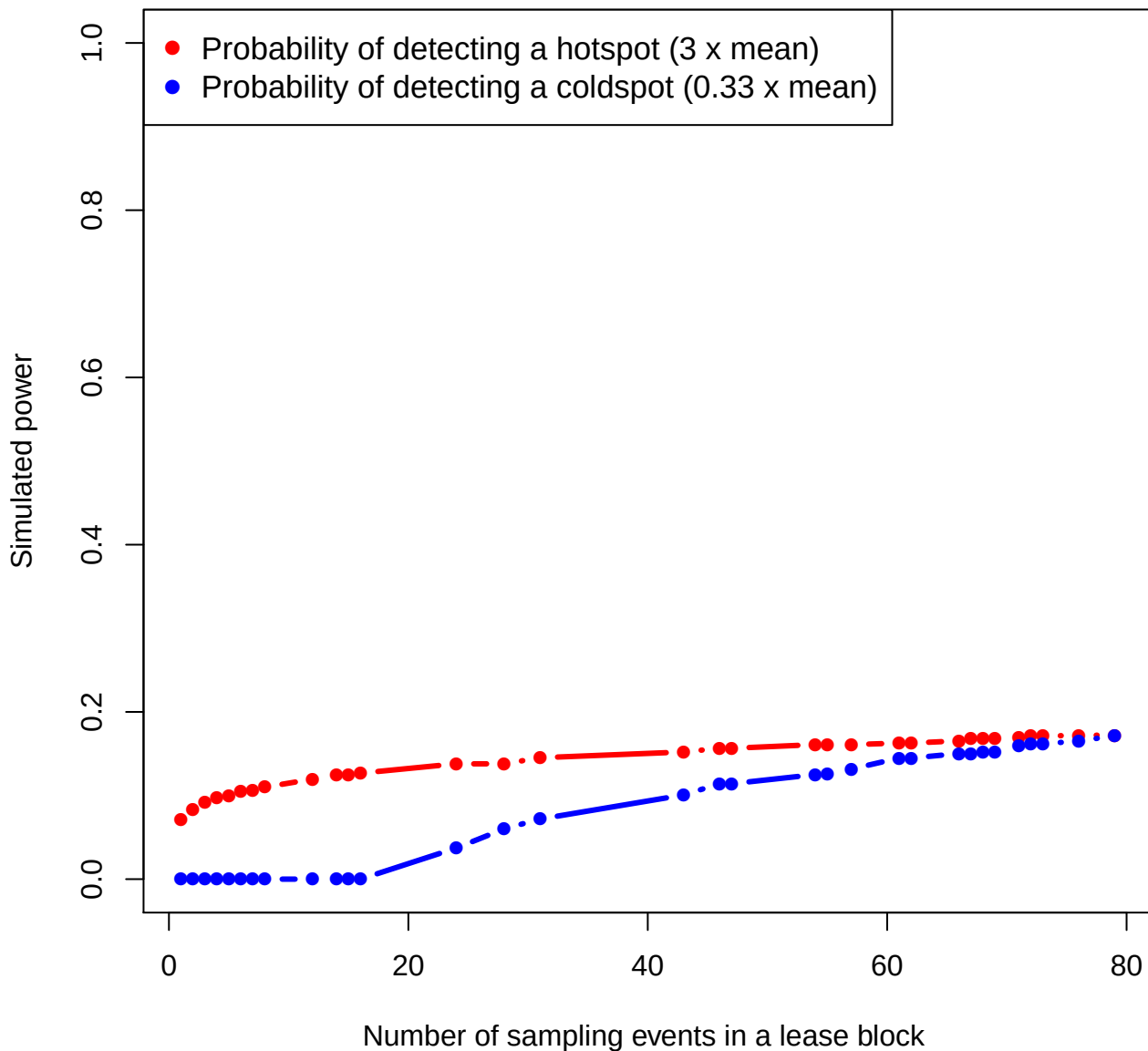
Full Model (Zero & Non-zero Counts)



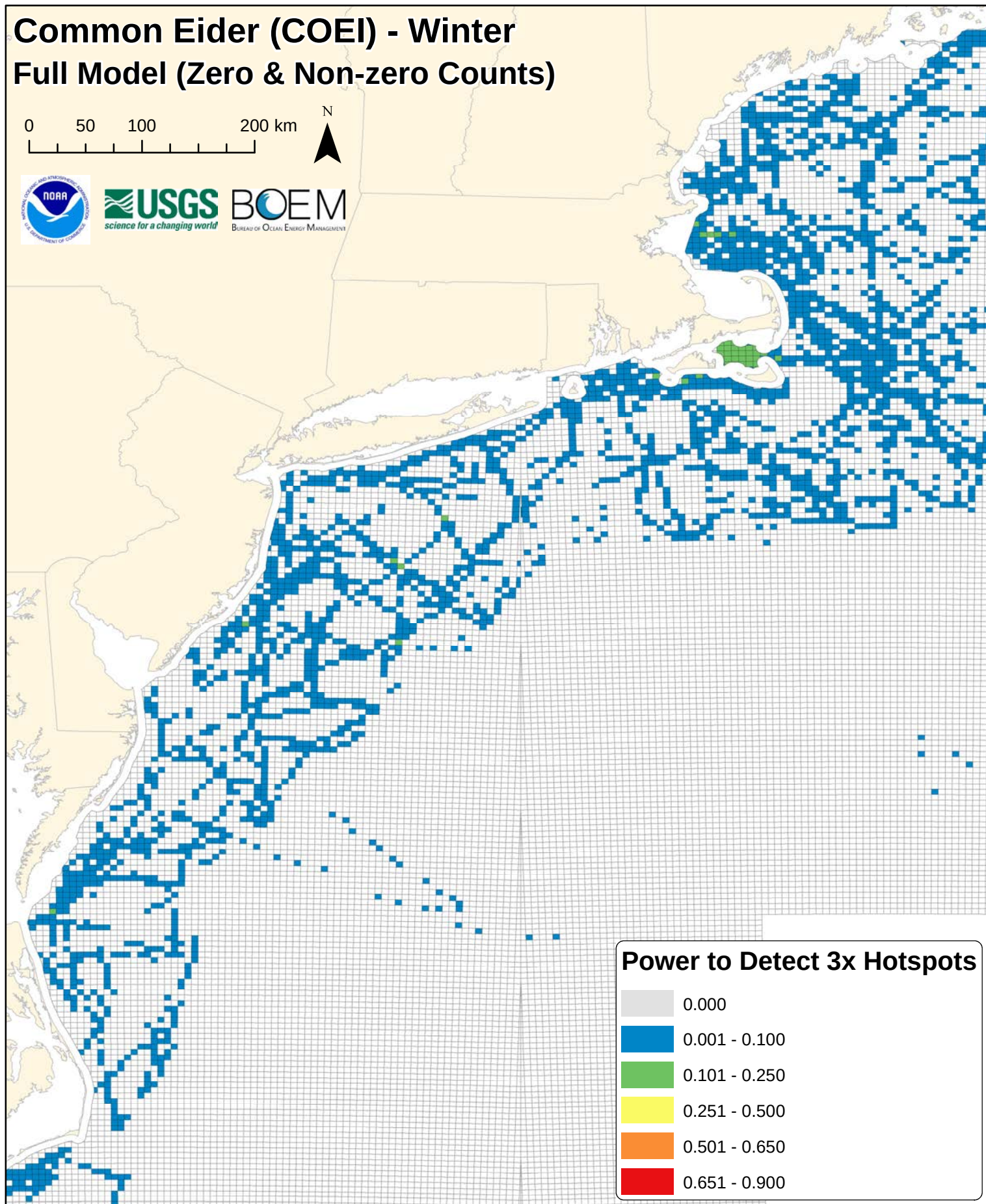
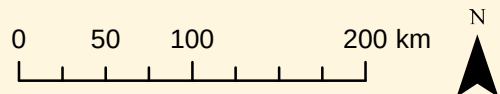
Common Eider (COEI) - Winter



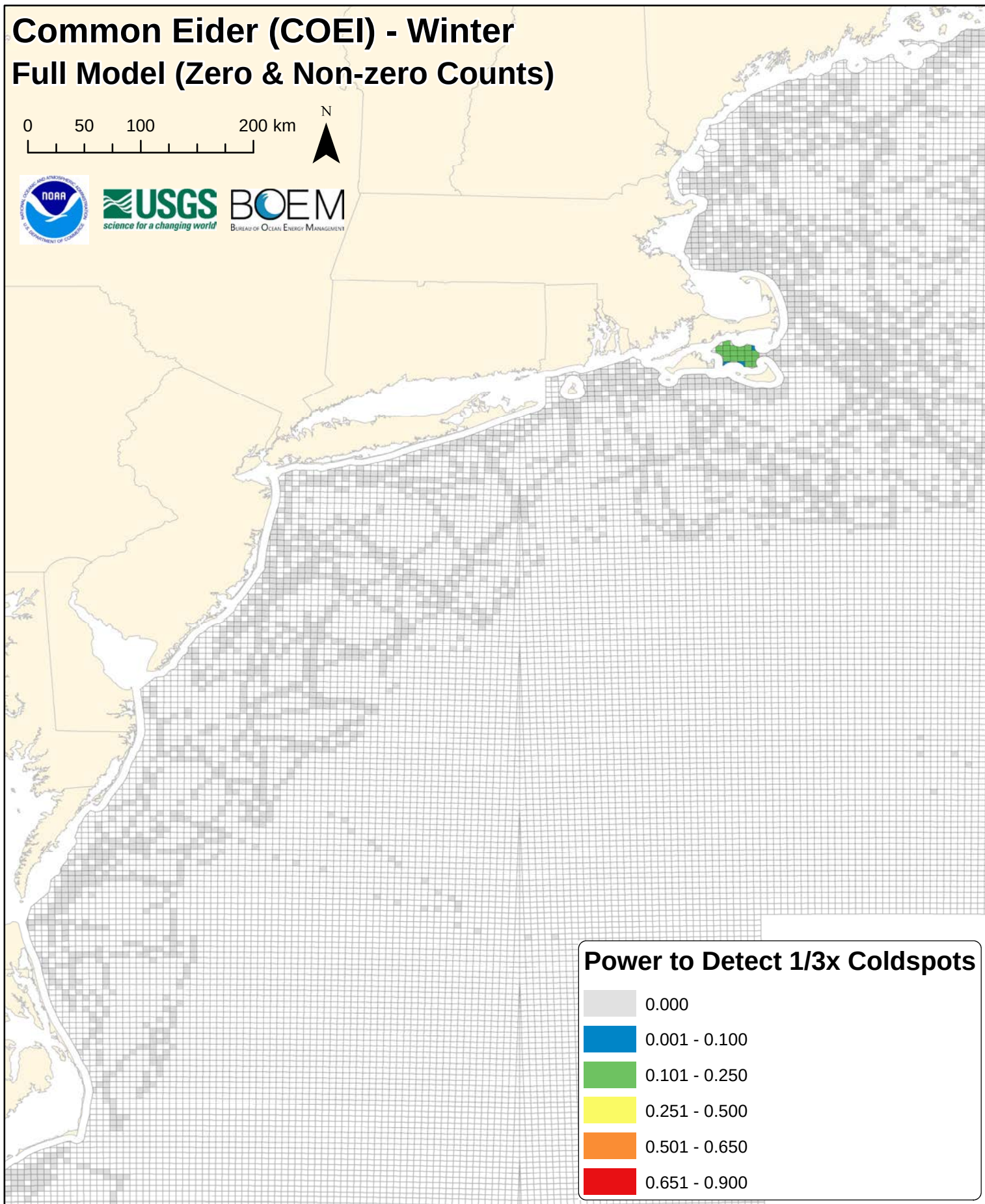
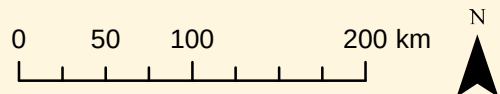
coei



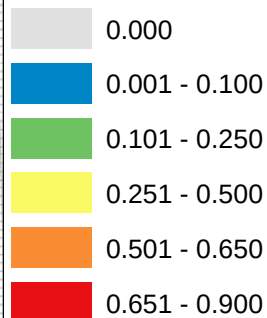
Common Eider (COEI) - Winter Full Model (Zero & Non-zero Counts)



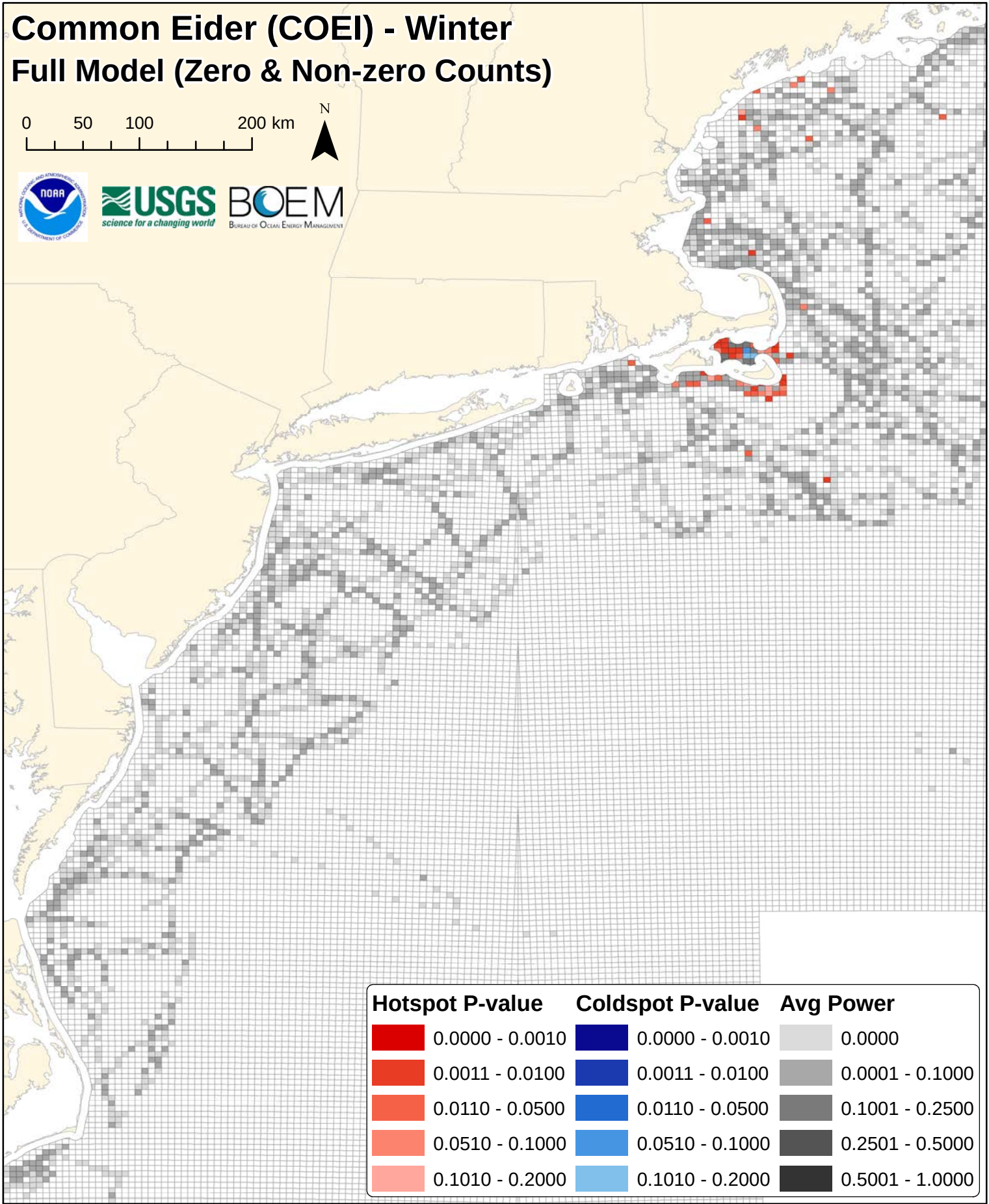
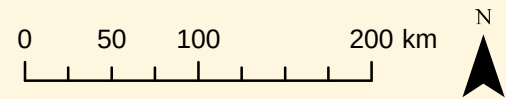
Common Eider (COEI) - Winter Full Model (Zero & Non-zero Counts)



Power to Detect 1/3x Coldspots



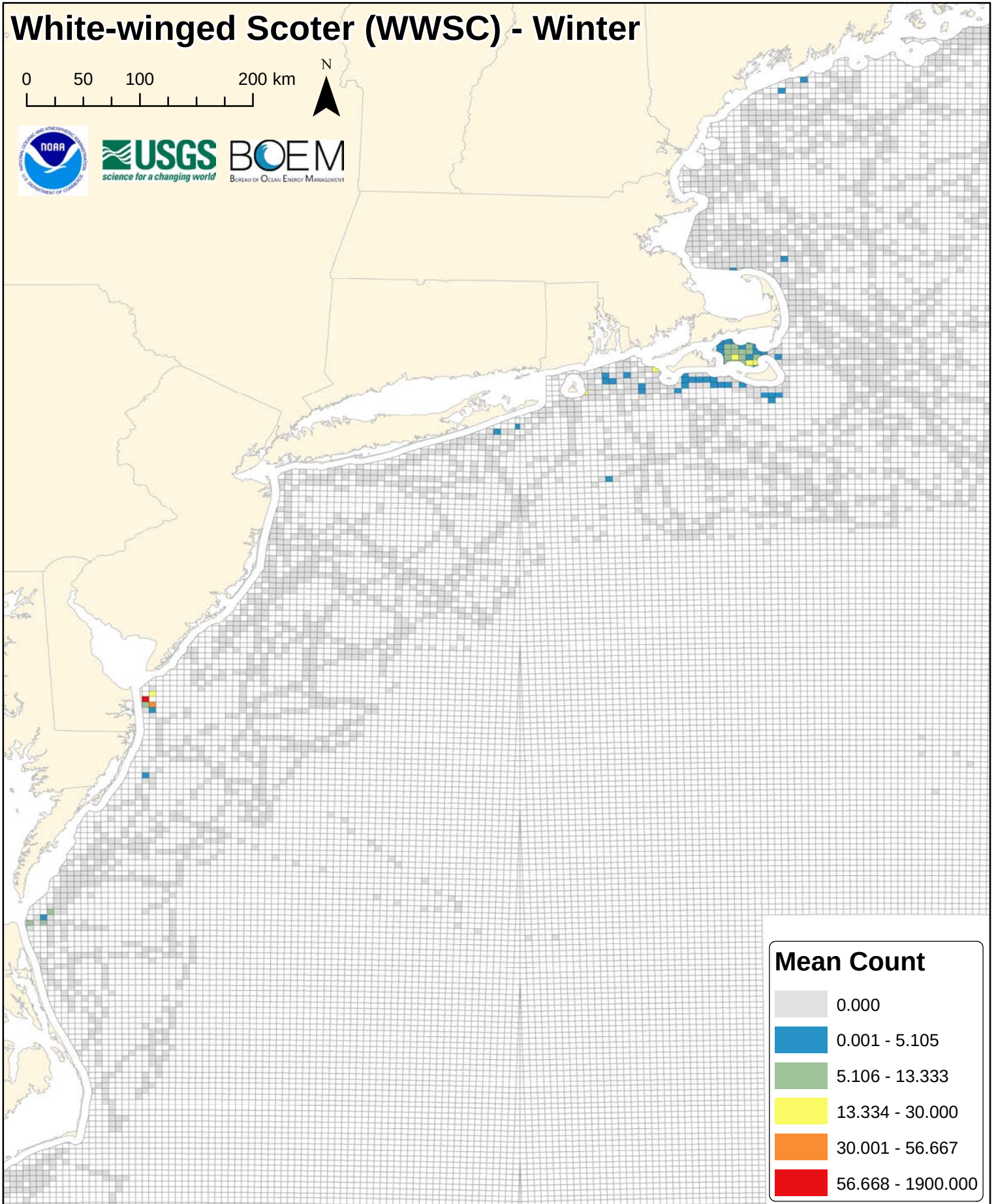
Common Eider (COEI) - Winter Full Model (Zero & Non-zero Counts)



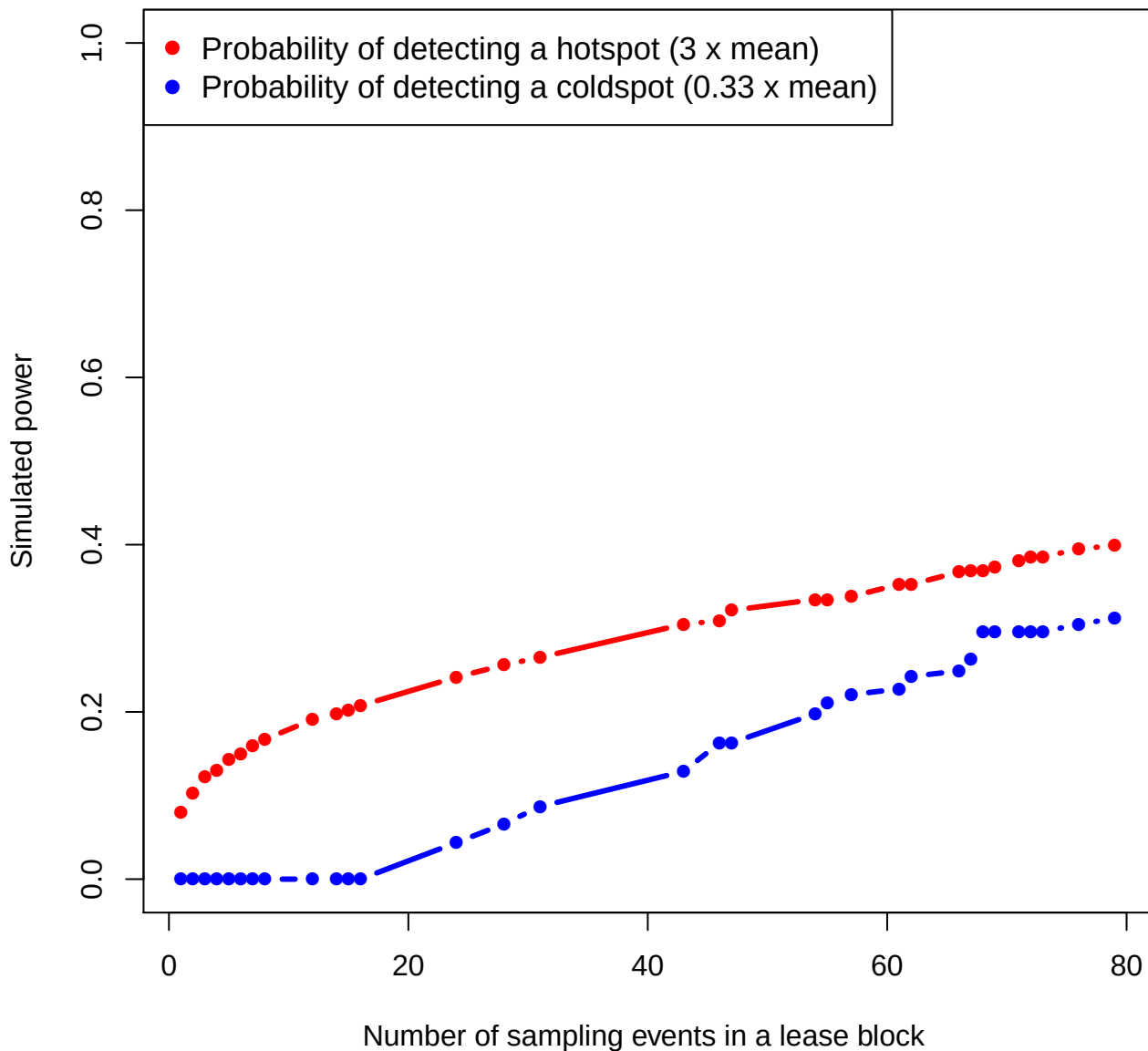
Hotspot P-value	Coldspot P-value	Avg Power
 0.0000 - 0.0010	 0.0000 - 0.0010	 0.0000
 0.0011 - 0.0100	 0.0011 - 0.0100	 0.0001 - 0.1000
 0.0110 - 0.0500	 0.0110 - 0.0500	 0.1001 - 0.2500
 0.0510 - 0.1000	 0.0510 - 0.1000	 0.2501 - 0.5000
 0.1010 - 0.2000	 0.1010 - 0.2000	 0.5001 - 1.0000

White-winged Scoter (WWSC) - Winter

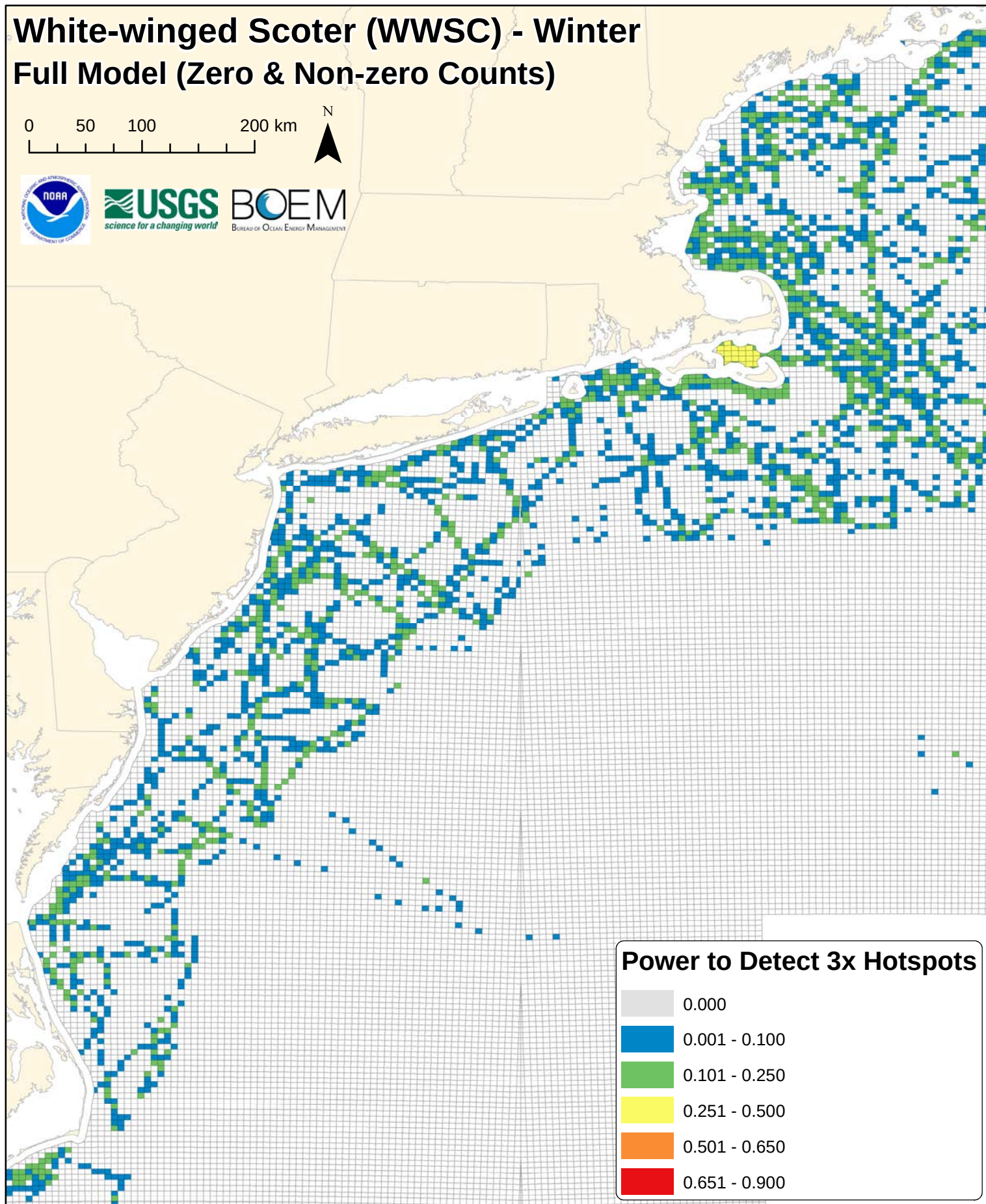
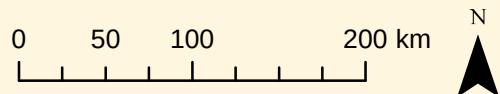
0 50 100 200 km



WWSC

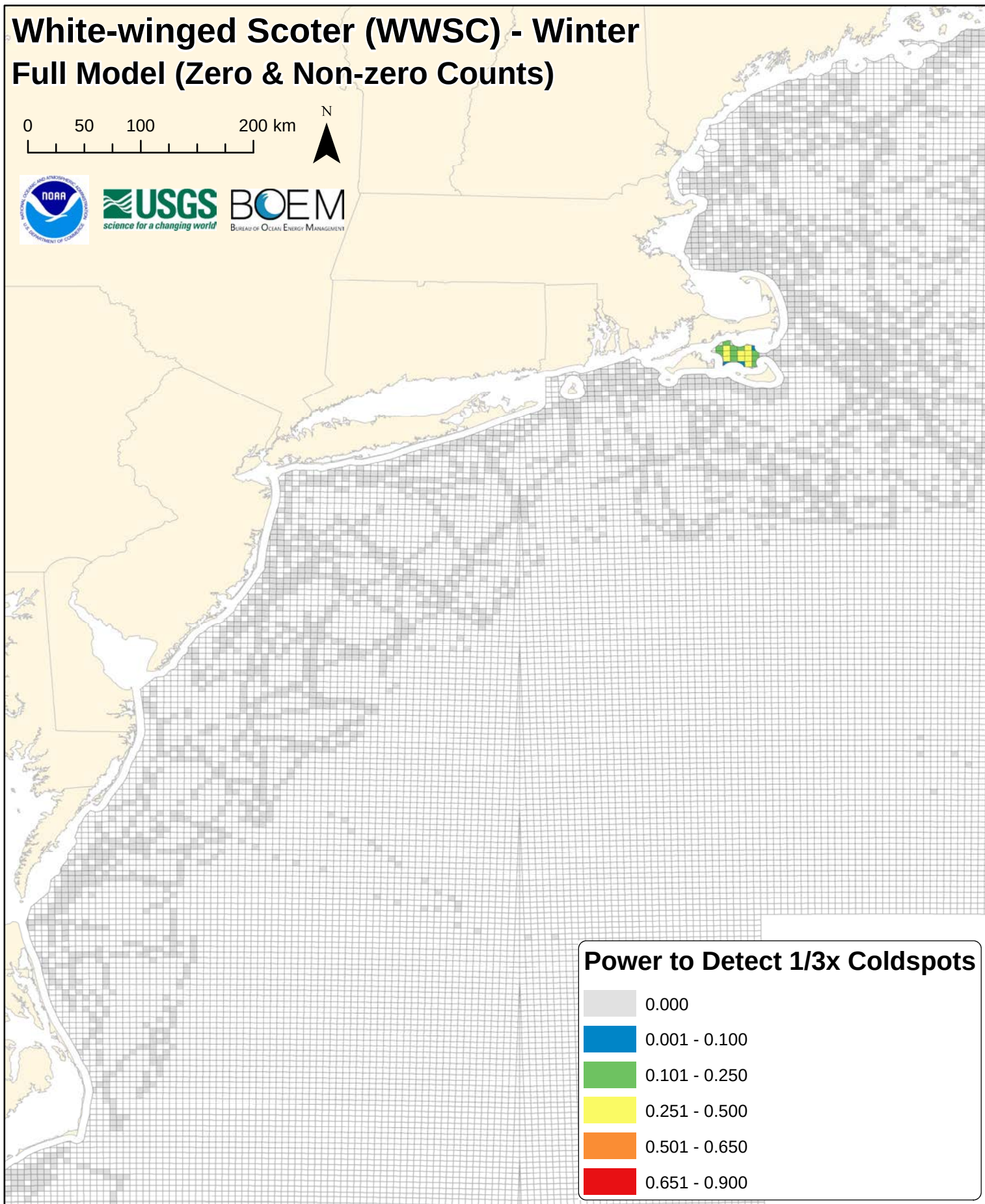


White-winged Scoter (WWSC) - Winter Full Model (Zero & Non-zero Counts)



White-winged Scoter (WWSC) - Winter Full Model (Zero & Non-zero Counts)

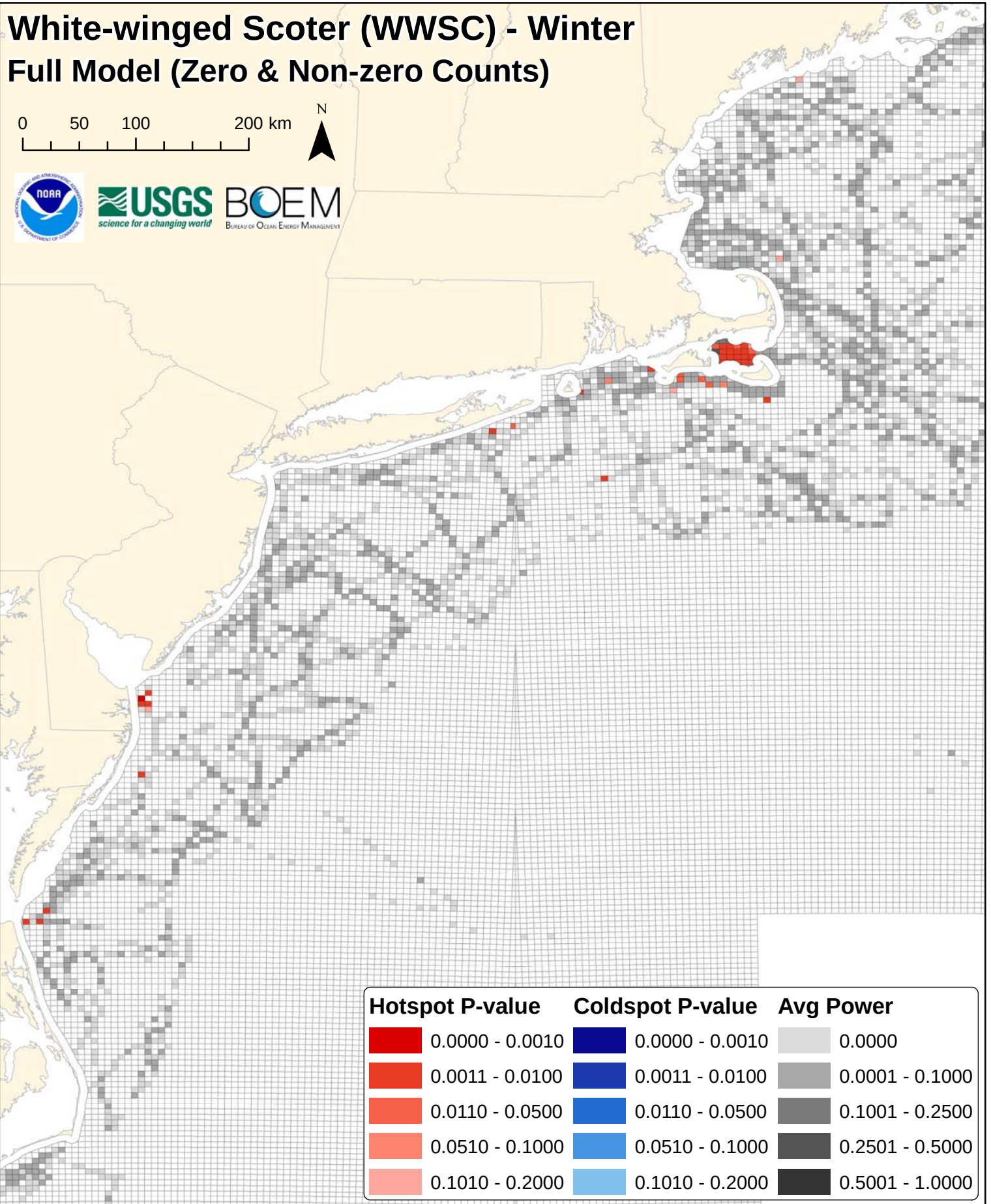
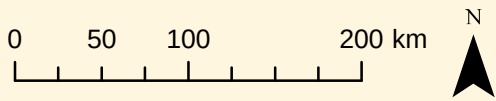
0 50 100 200 km



Power to Detect 1/3x Coldspots

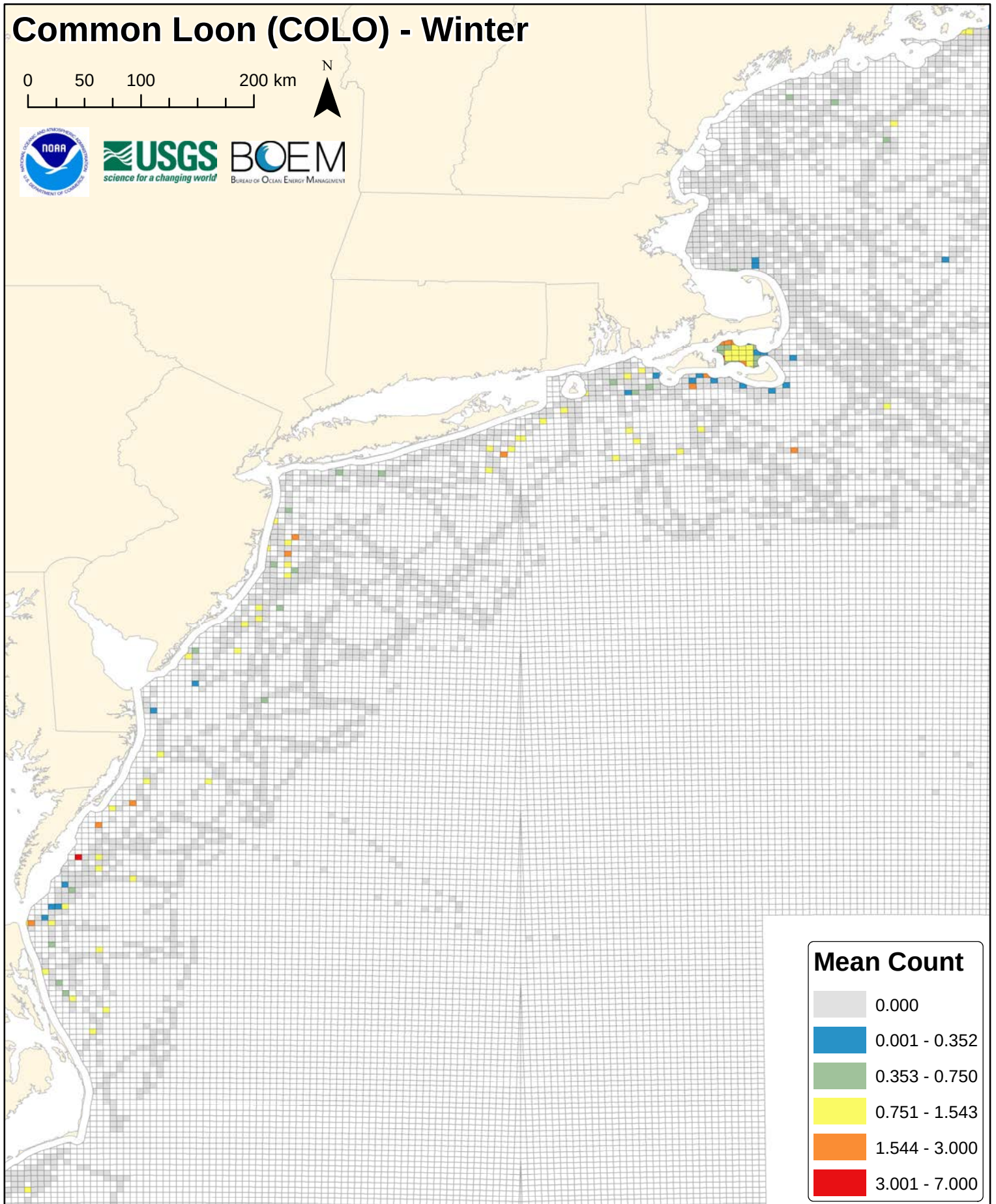
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

White-winged Scoter (WWSC) - Winter Full Model (Zero & Non-zero Counts)

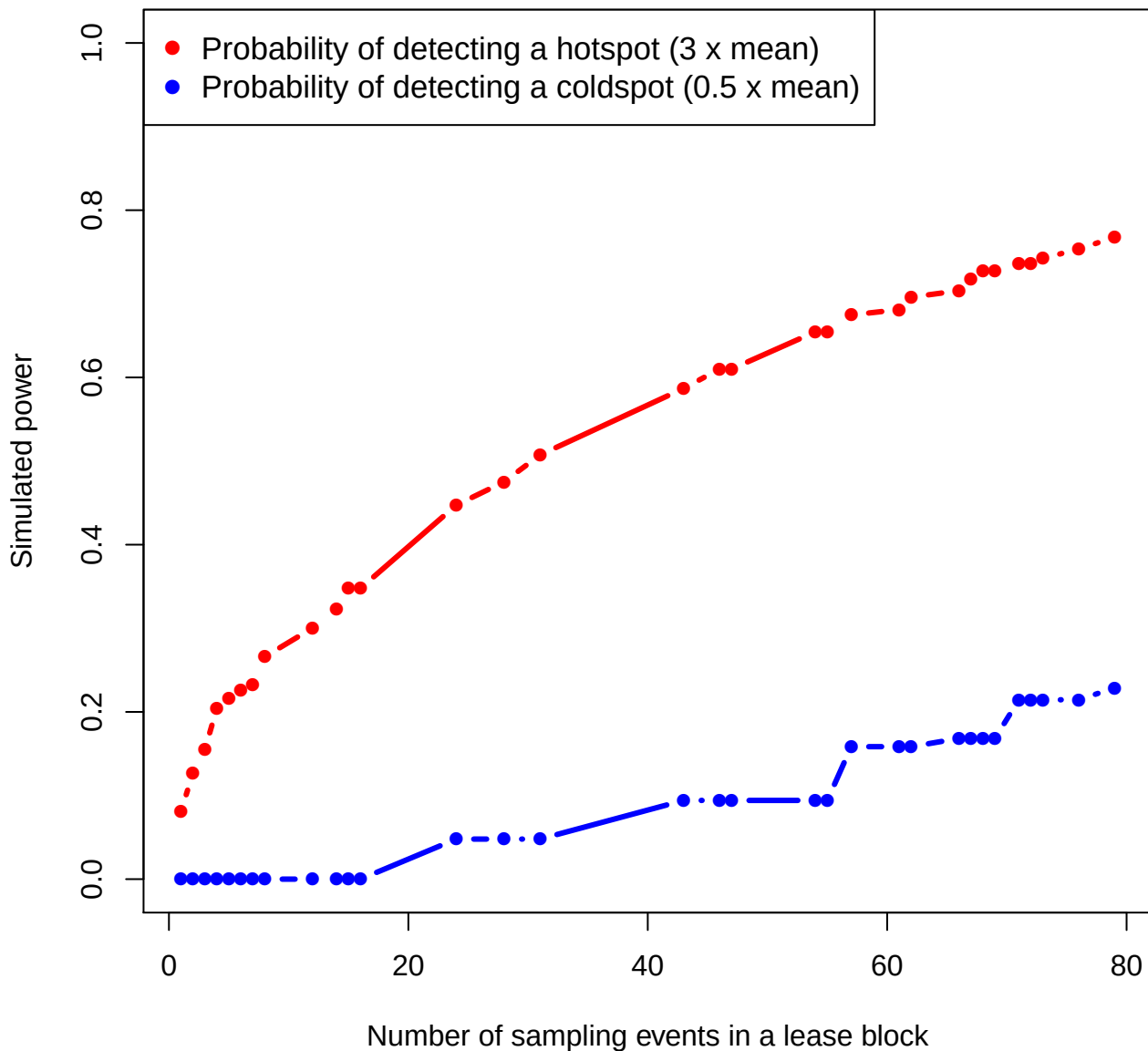


Hotspot P-value	Coldspot P-value	Avg Power
0.0000 - 0.0010	0.0000 - 0.0010	0.0000
0.0011 - 0.0100	0.0011 - 0.0100	0.0001 - 0.1000
0.0110 - 0.0500	0.0110 - 0.0500	0.1001 - 0.2500
0.0510 - 0.1000	0.0510 - 0.1000	0.2501 - 0.5000
0.1010 - 0.2000	0.1010 - 0.2000	0.5001 - 1.0000

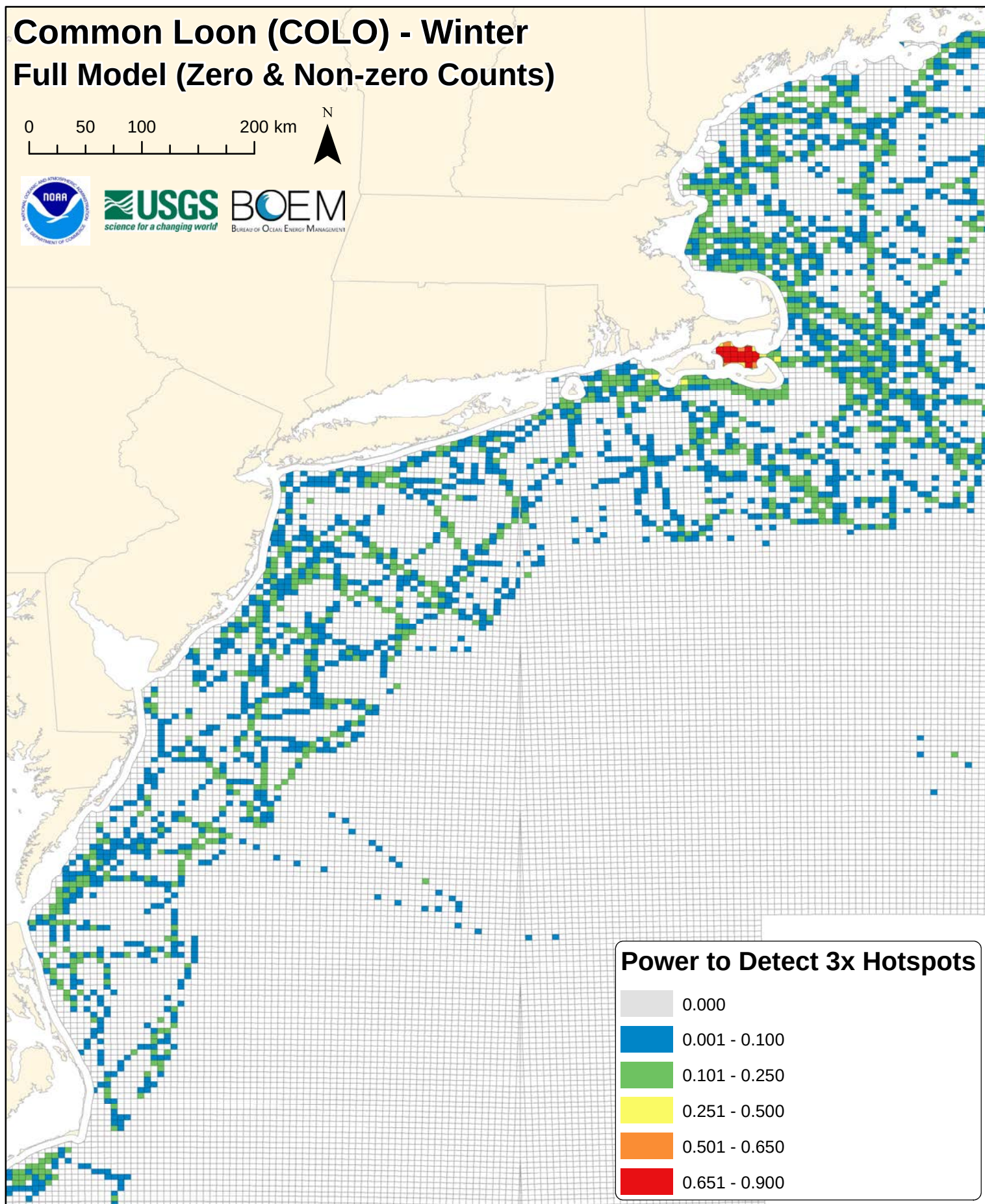
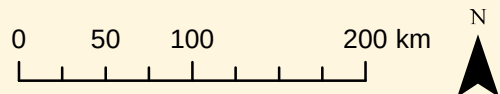
Common Loon (COLO) - Winter



colo

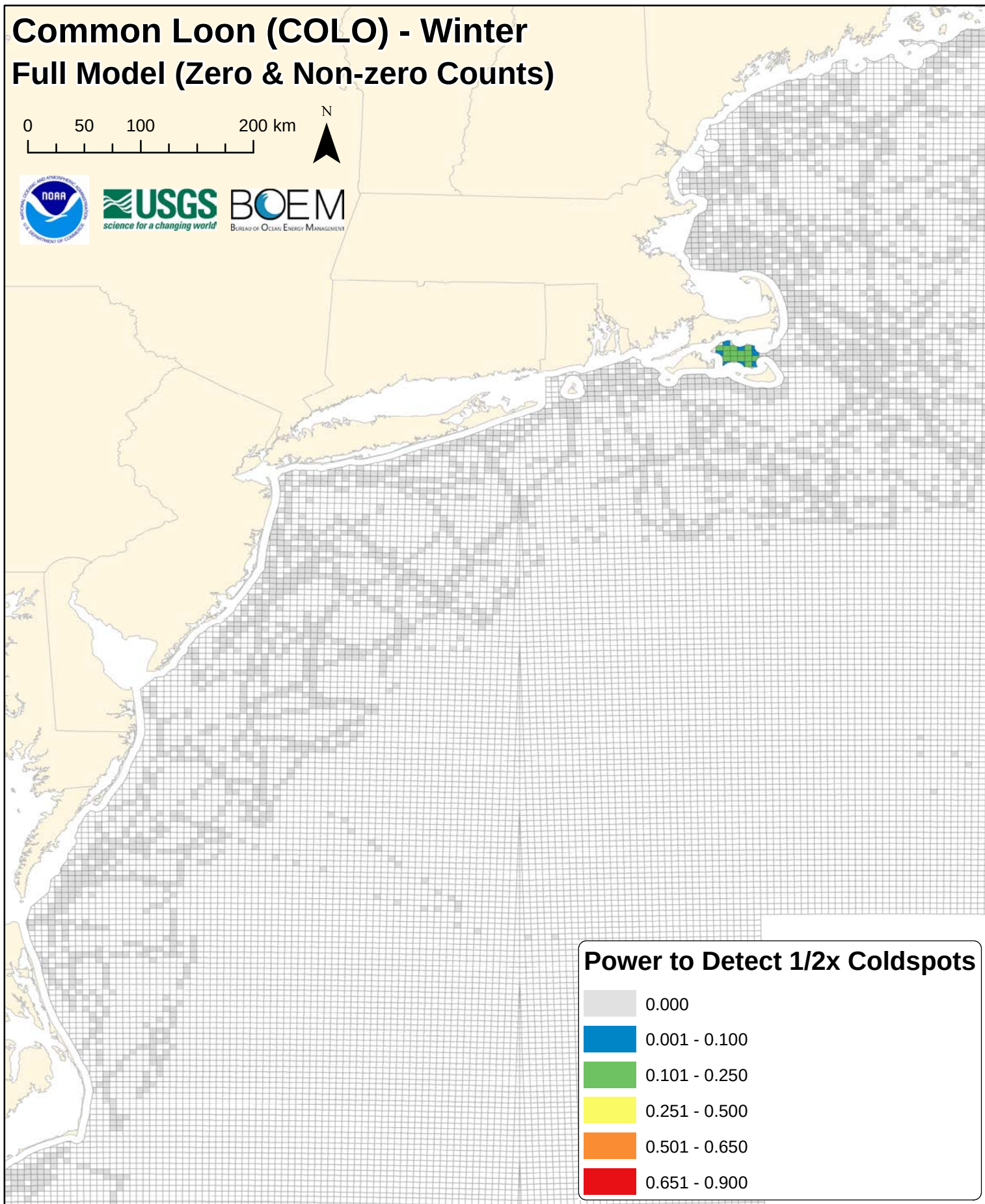


Common Loon (COLO) - Winter Full Model (Zero & Non-zero Counts)



Common Loon (COLO) - Winter Full Model (Zero & Non-zero Counts)

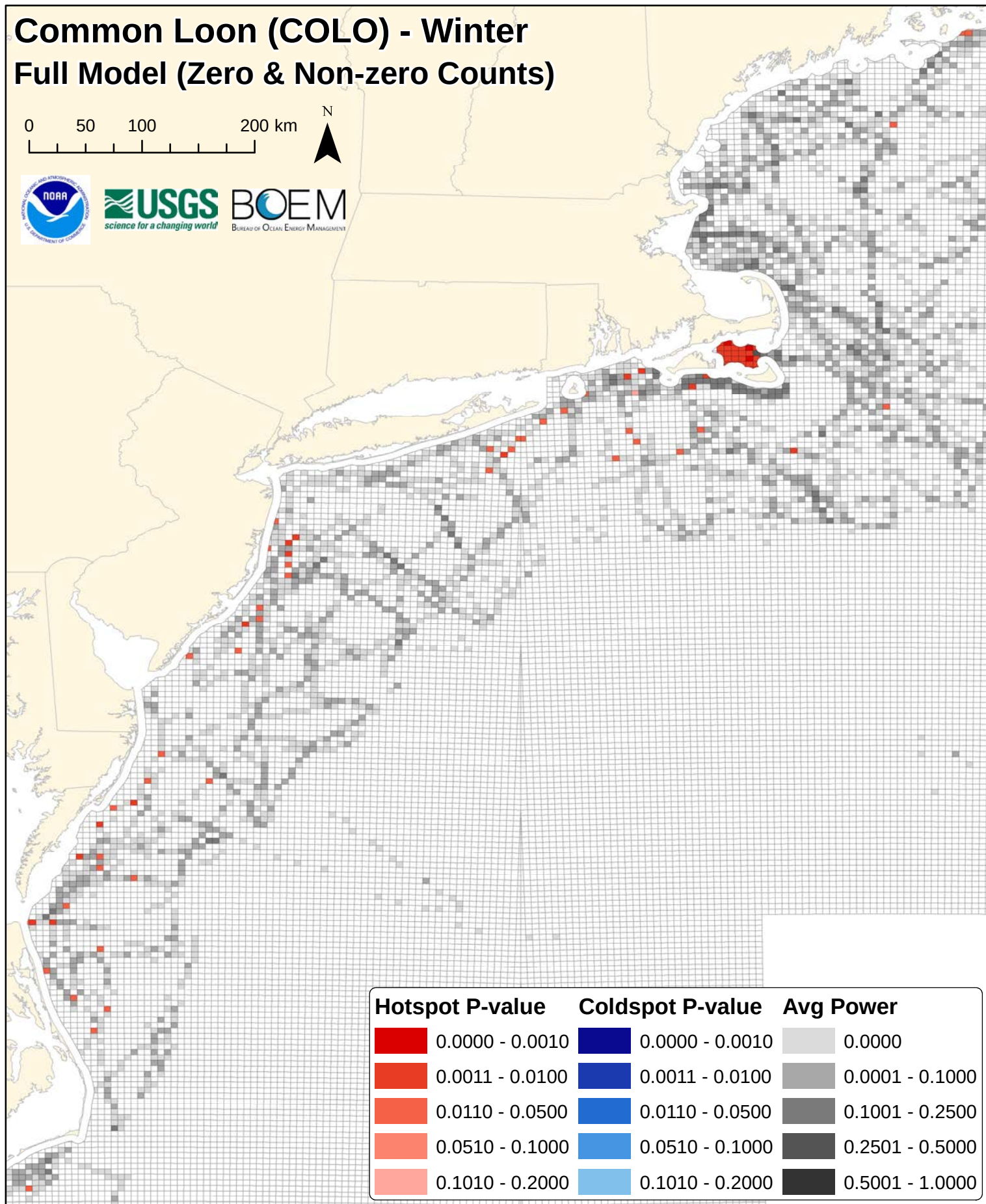
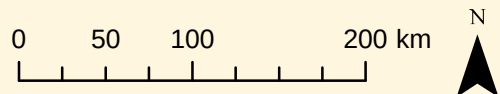
0 50 100 200 km



Power to Detect 1/2x Coldspots

0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

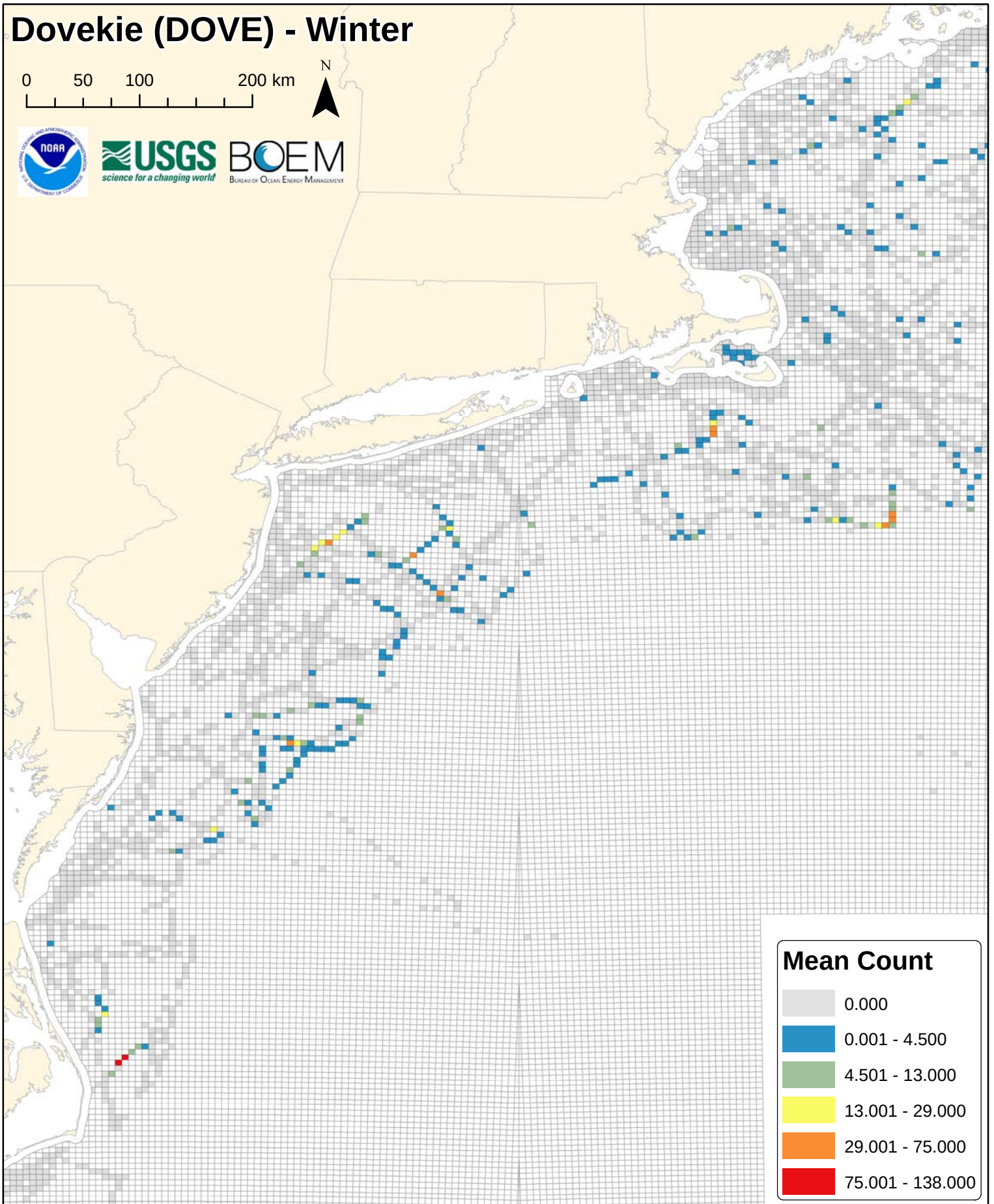
Common Loon (COLO) - Winter Full Model (Zero & Non-zero Counts)



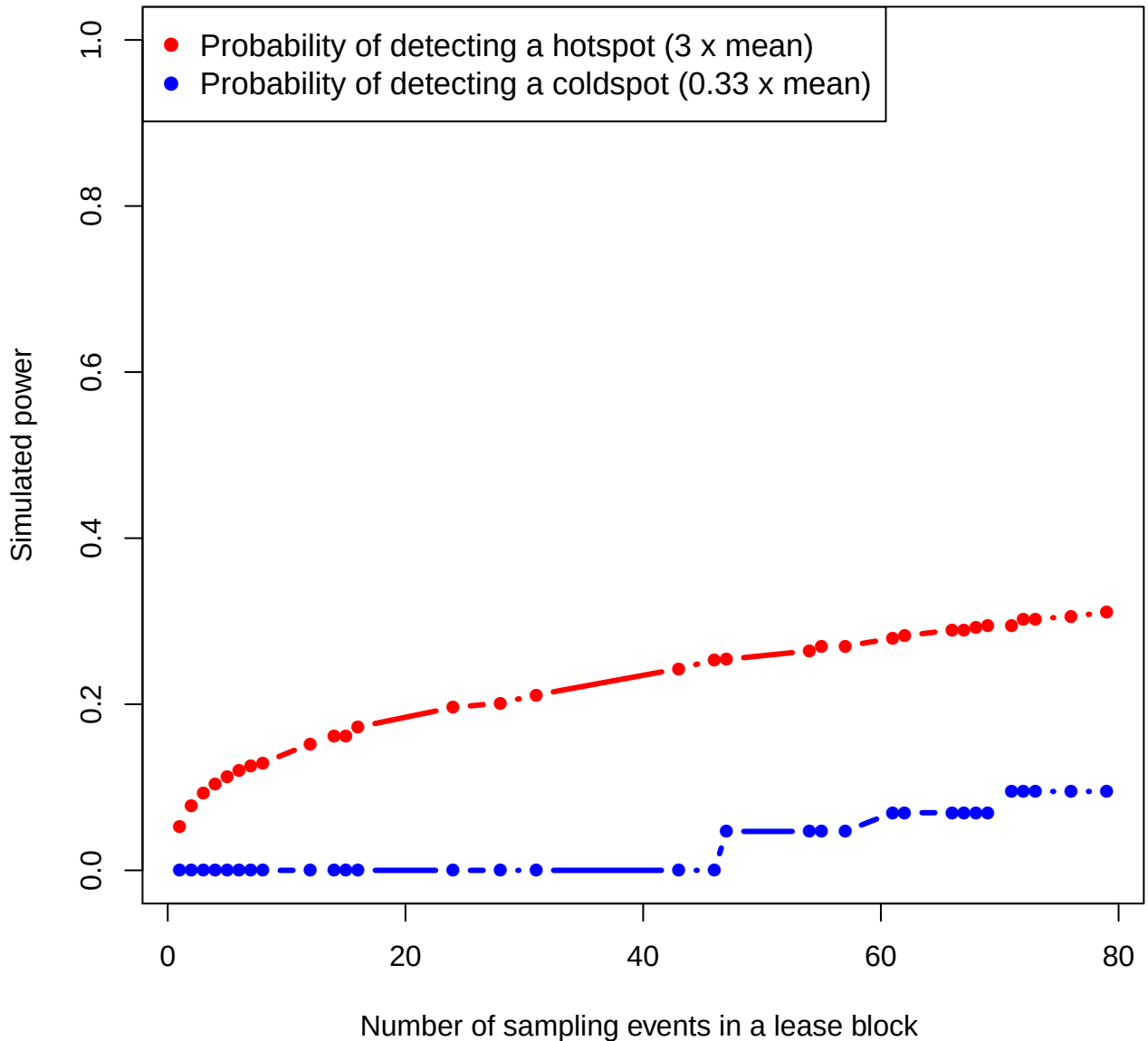
Hotspot P-value	Coldspot P-value	Avg Power
0.0000 - 0.0010	0.0000 - 0.0010	0.0000
0.0011 - 0.0100	0.0011 - 0.0100	0.0001 - 0.1000
0.0110 - 0.0500	0.0110 - 0.0500	0.1001 - 0.2500
0.0510 - 0.1000	0.0510 - 0.1000	0.2501 - 0.5000
0.1010 - 0.2000	0.1010 - 0.2000	0.5001 - 1.0000

Dovekie (DOVE) - Winter

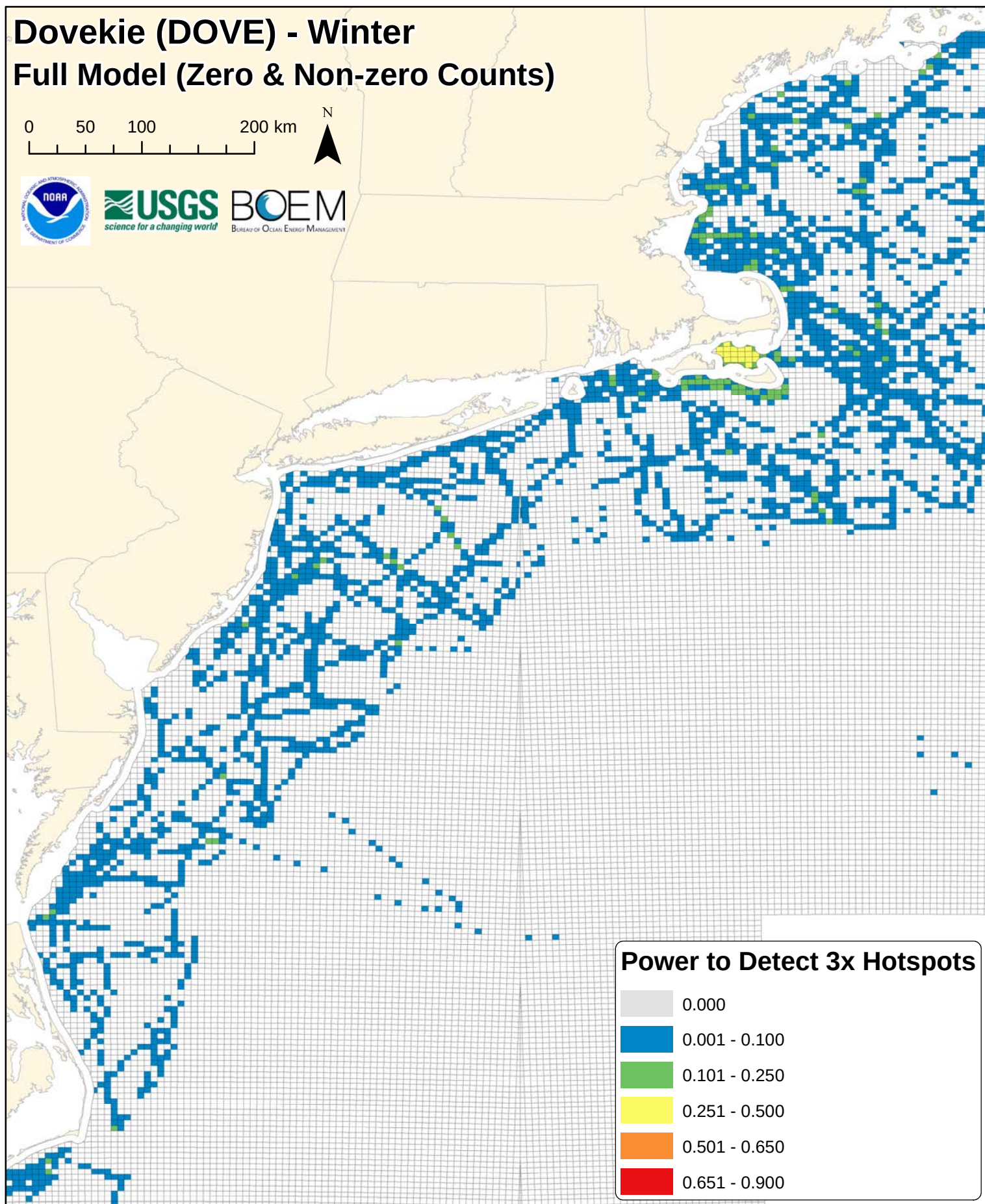
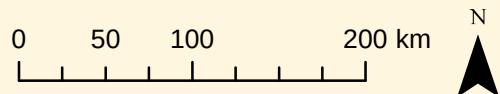
0 50 100 200 km



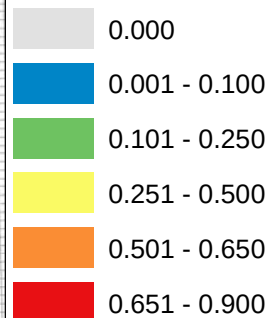
dove



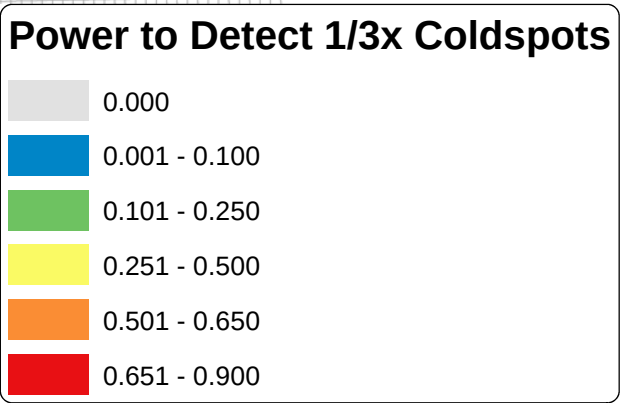
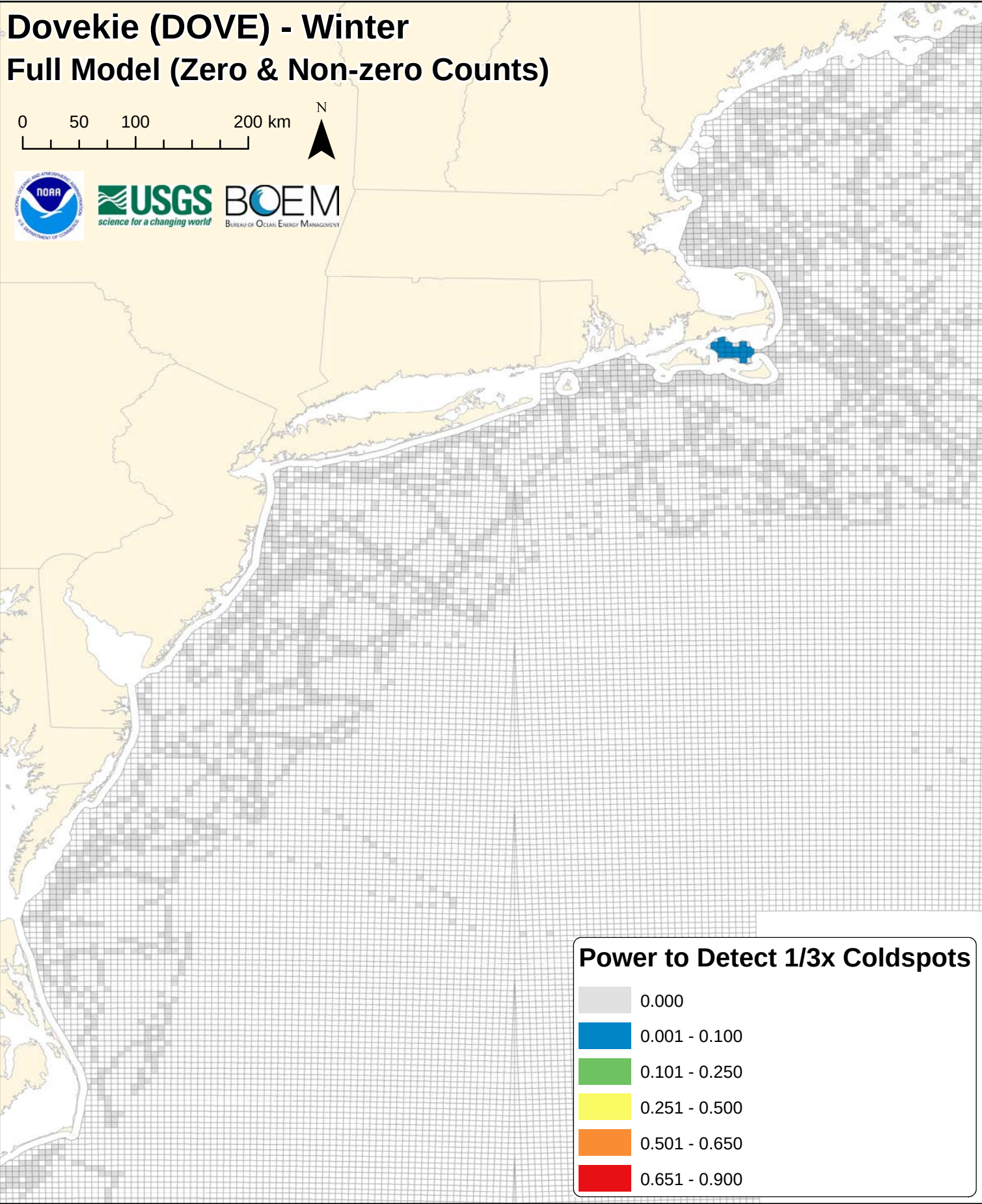
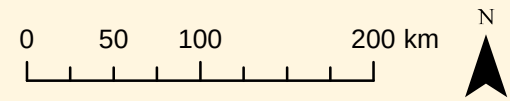
Dovekie (DOVE) - Winter Full Model (Zero & Non-zero Counts)



Power to Detect 3x Hotspots



Dovekie (DOVE) - Winter Full Model (Zero & Non-zero Counts)



Dovekie (DOVE) - Winter Full Model (Zero & Non-zero Counts)

