

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

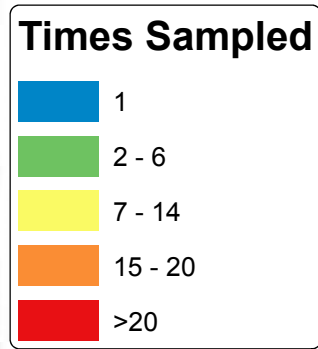
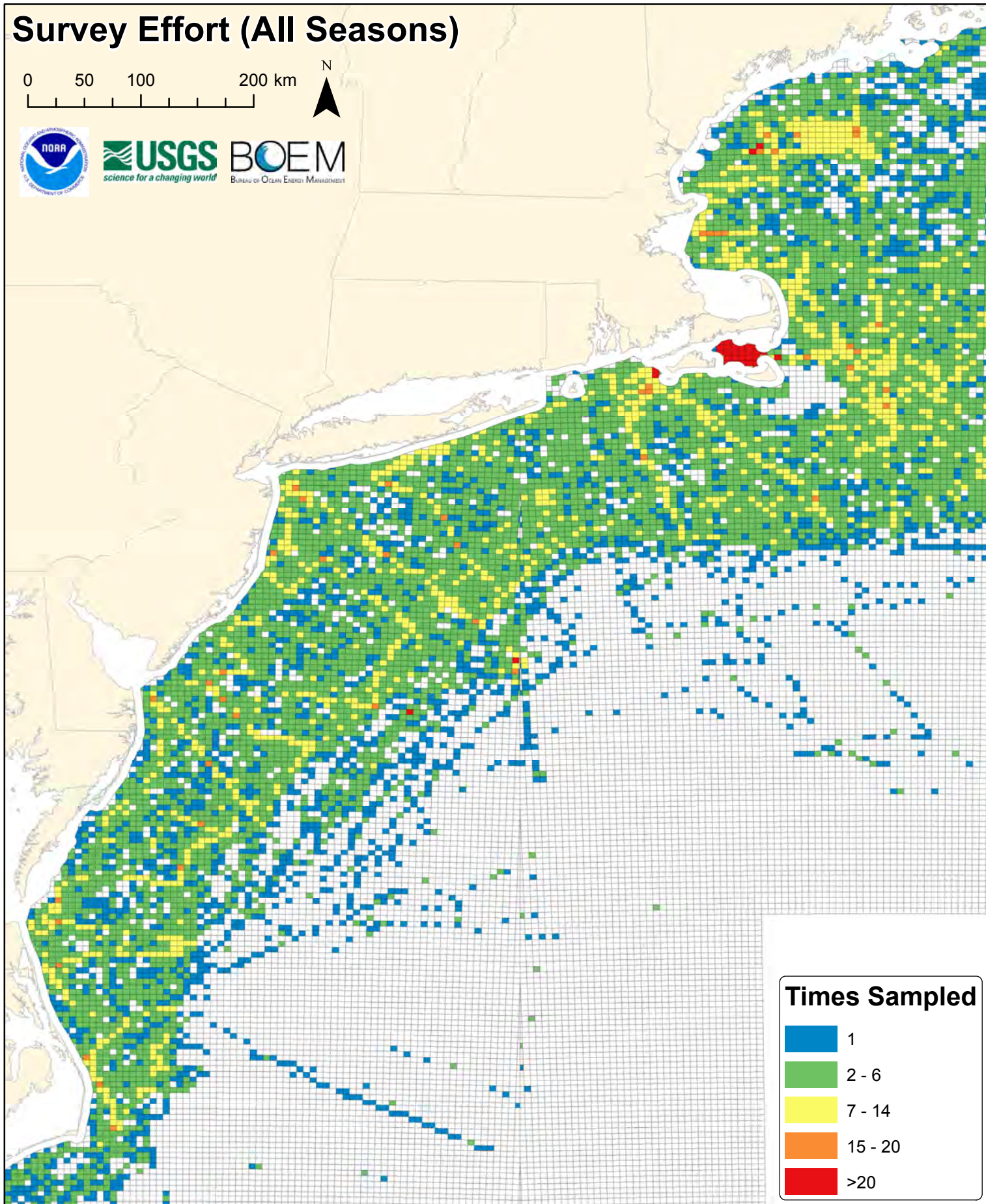
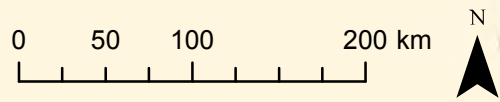
Full Hurdle Model (Zero & Non-Zero Counts) Results

SECTION I. Summary Statistic Maps Calculated for All Species

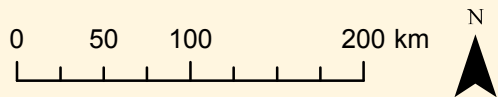
Figures G1-G7. All Seasons Combined

- 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

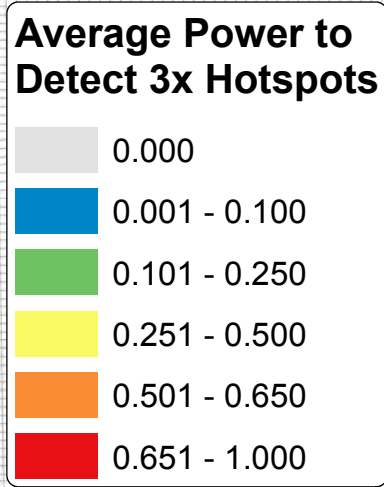
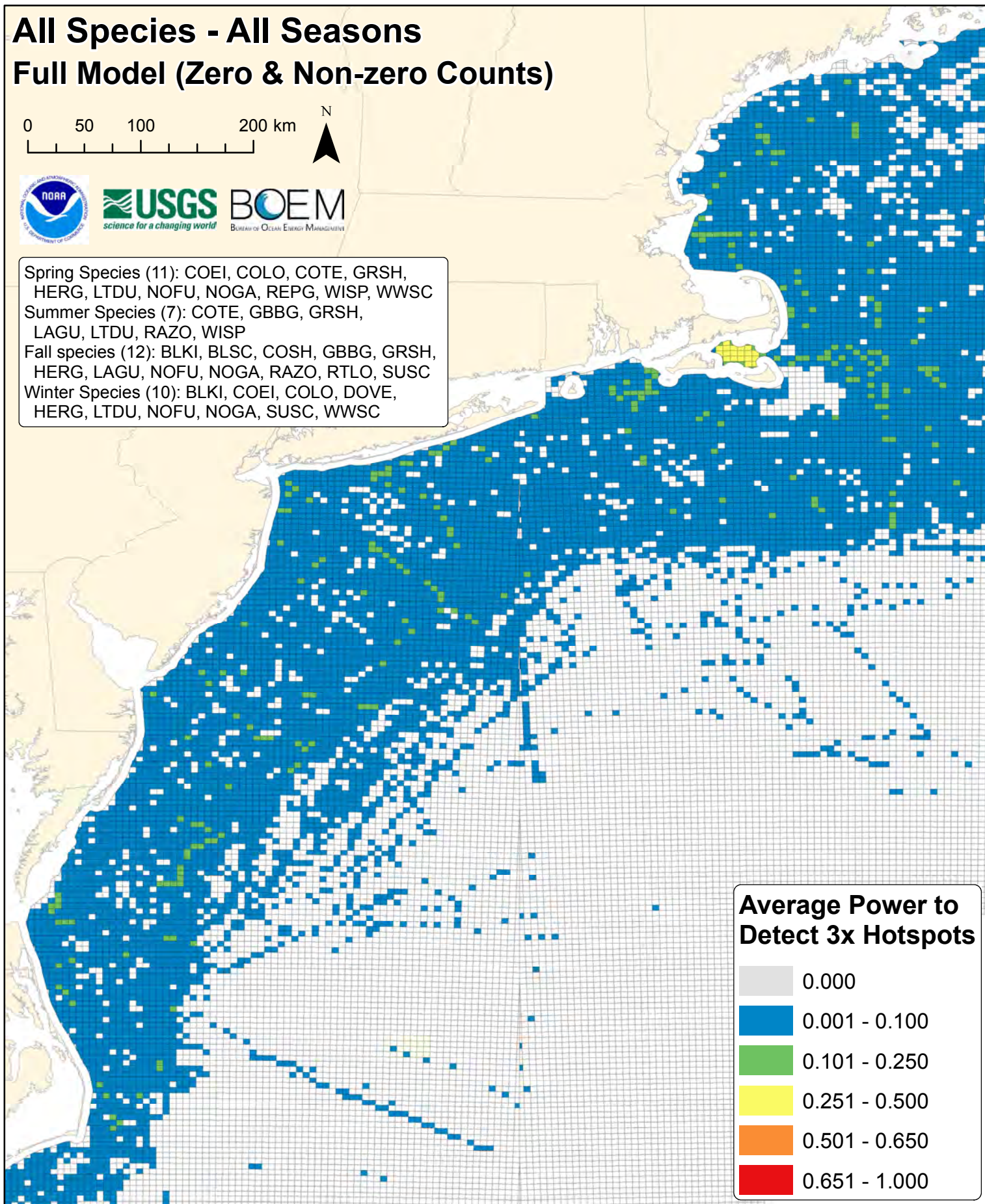
Survey Effort (All Seasons)



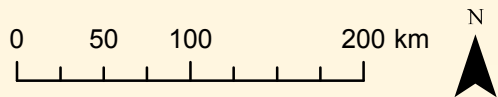
All Species - All Seasons Full Model (Zero & Non-zero Counts)



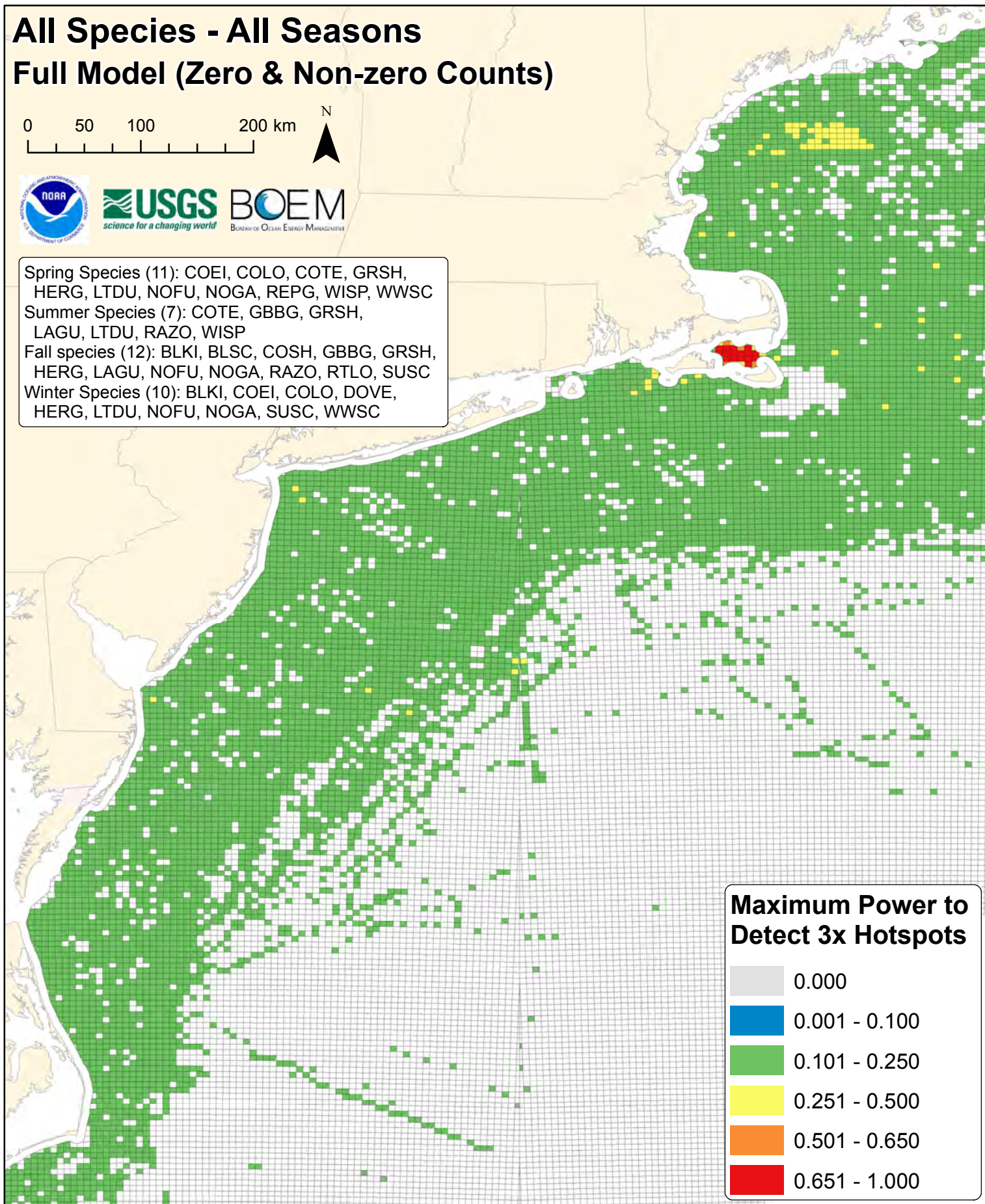
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Summer Species (7): COTE, GBBG, GRSH, LAGU, LTDU, RAZO, WISP
Fall species (12): BLKI, BLSC, COSH, GBBG, GRSH, HERG, LAGU, NOFU, NOGA, RAZO, RTLO, SUSC
Winter Species (10): BLKI, COEI, COLO, DOVE, HERG, LTDU, NOFU, NOGA, SUSC, WWSC



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

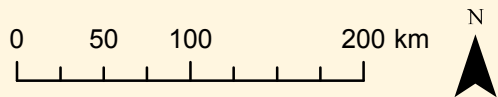


Spring Species (11): COEI, COLO, COTE, GRSH, HERG, LTDU, NOFU, NOGA, REPG, WISP, WWSC
Summer Species (7): COTE, GBBG, GRSH, LAGU, LTDU, RAZO, WISP
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Winter Species (10): BLKI, COEI, COLO, DOVE, HERG, LTDU, NOFU, NOGA, SUSC, WWSC

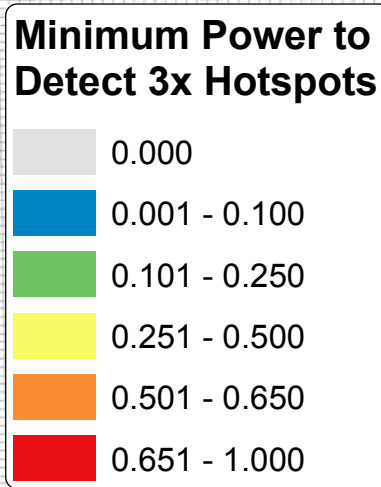
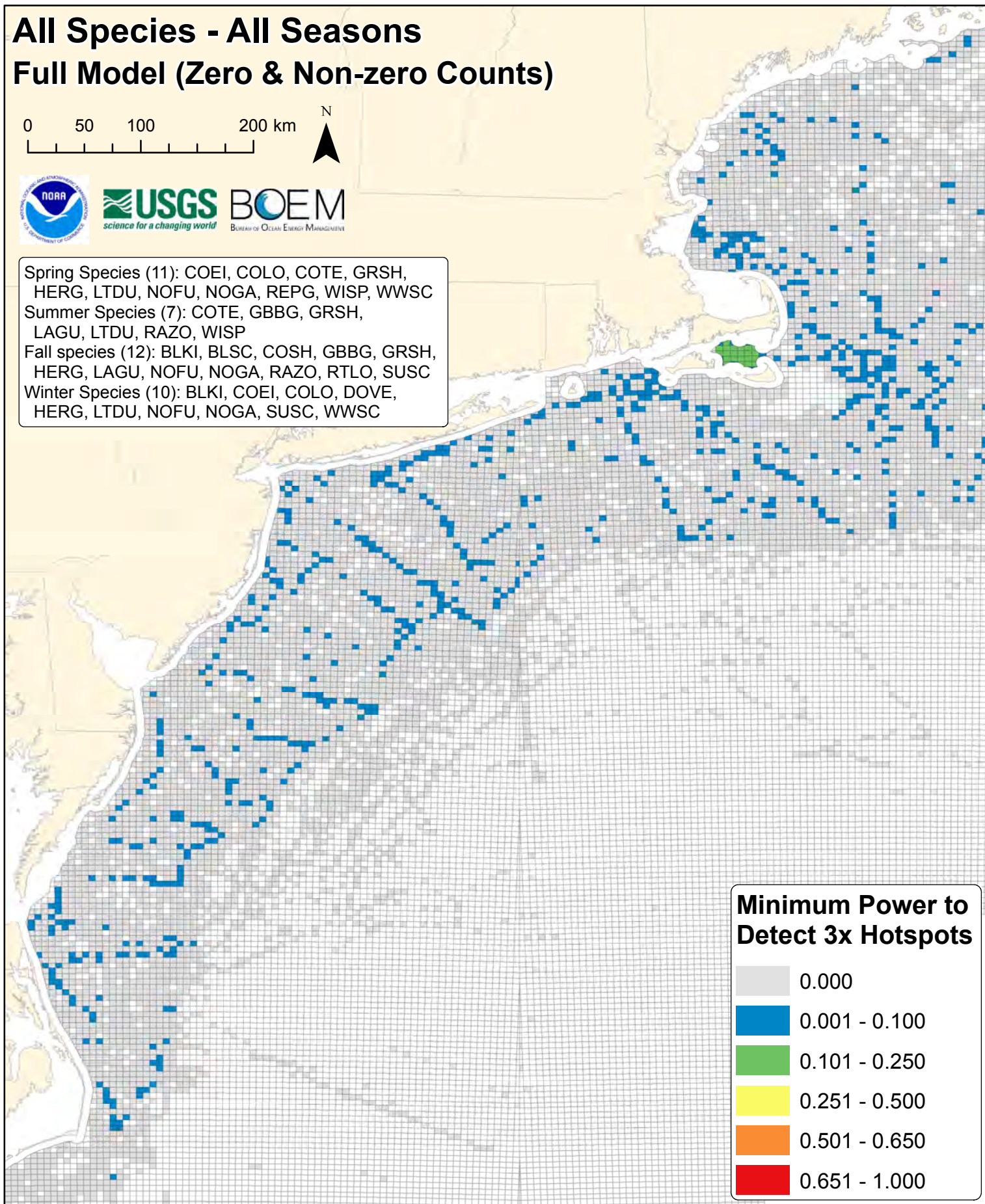


All Species - All Seasons

Full Model (Zero & Non-zero Counts)

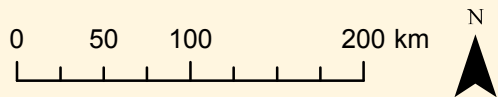


Spring Species (11): COEI, COLO, COTE, GRSH, HERG, LTDU, NOFU, NOGA, REPG, WISP, WWSC
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 Winter Species (10): BLKI, COEI, COLO, DOVE, HERG, LTDU, NOFU, NOGA, SUSC, WWSC

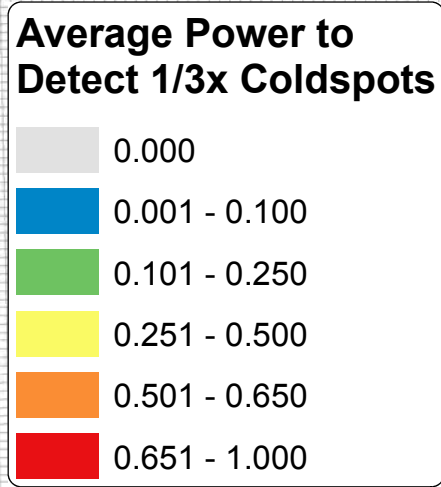
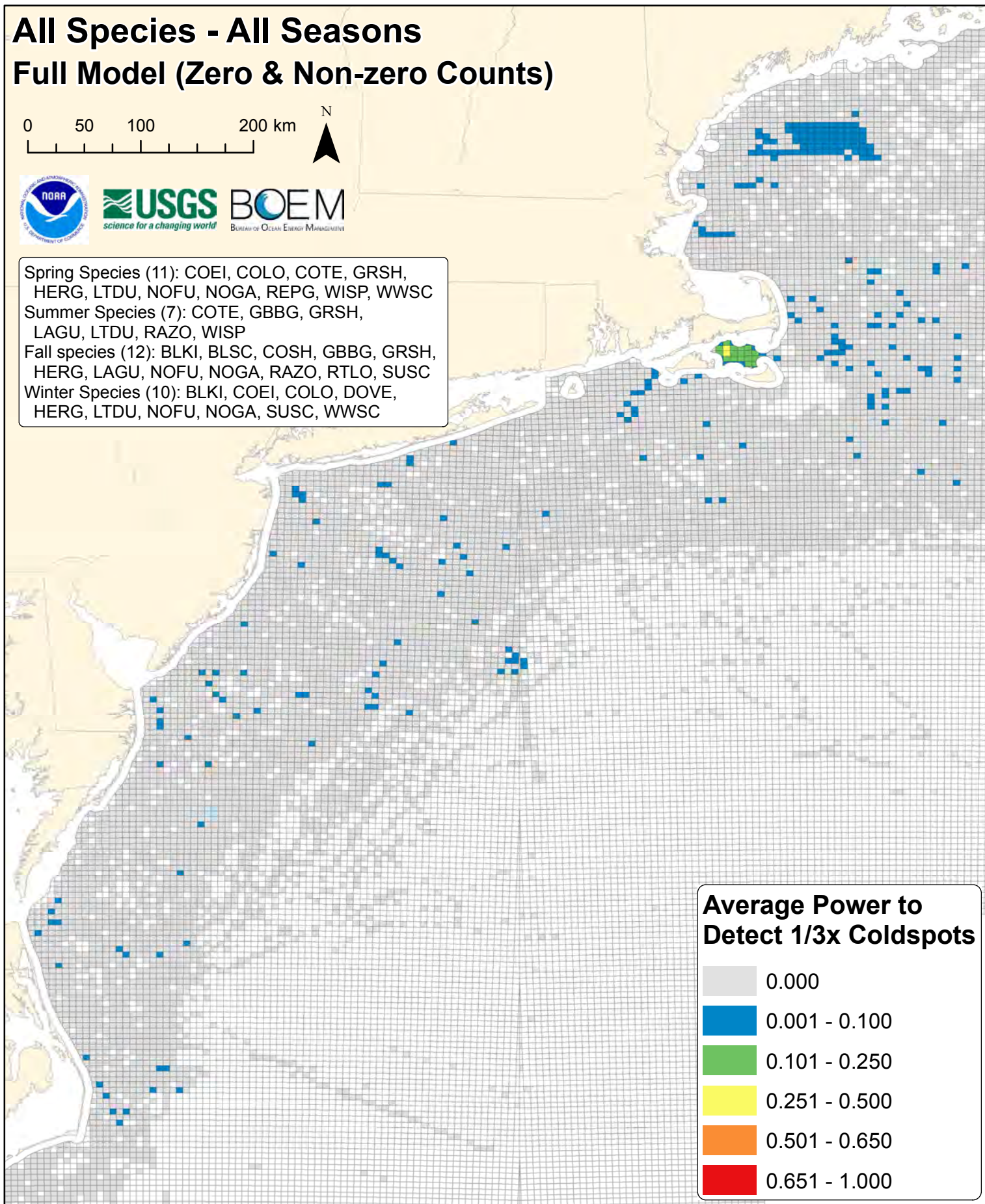


All Species - All Seasons

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

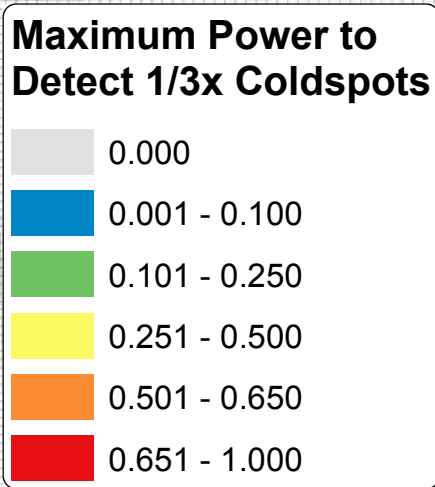
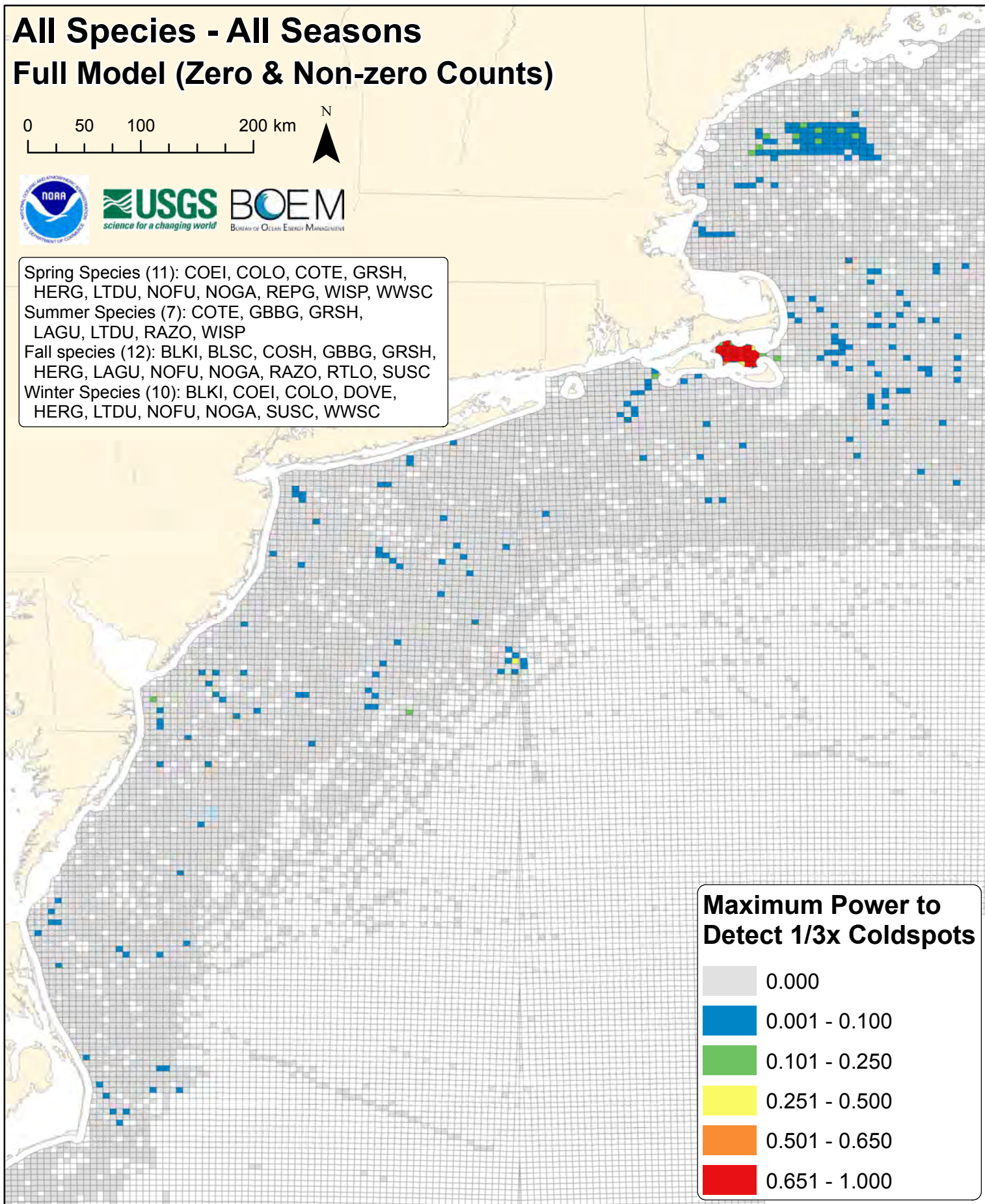


All Species - All Seasons

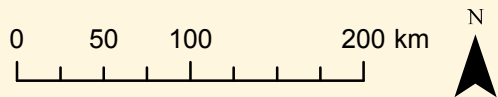
Full Model (Zero & Non-zero Counts)



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

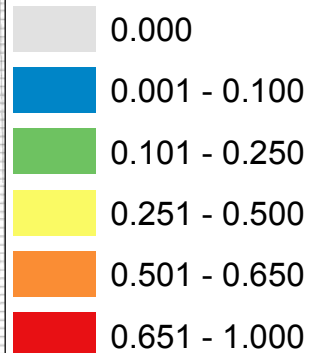


All Species - All Seasons Full Model (Zero & Non-zero Counts)



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

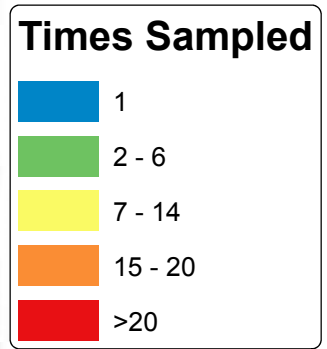
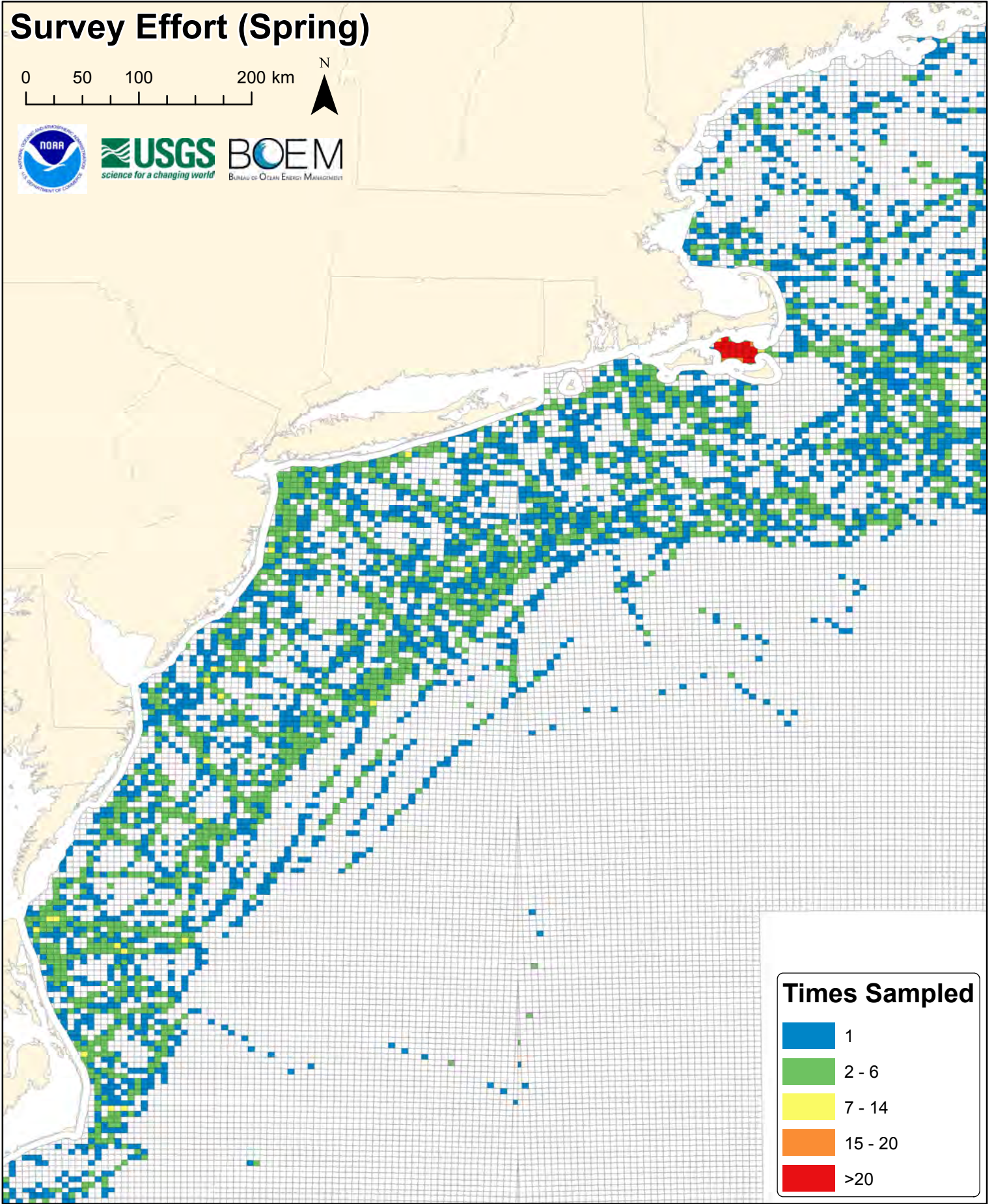
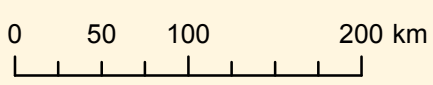
Full Hurdle Model (Zero & Non-Zero Counts) Results

SECTION I. Summary Statistic Maps Calculated for All Species

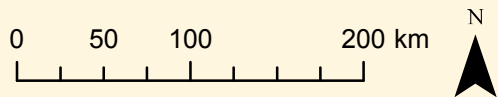
Figures G8-G14. Spring

- 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

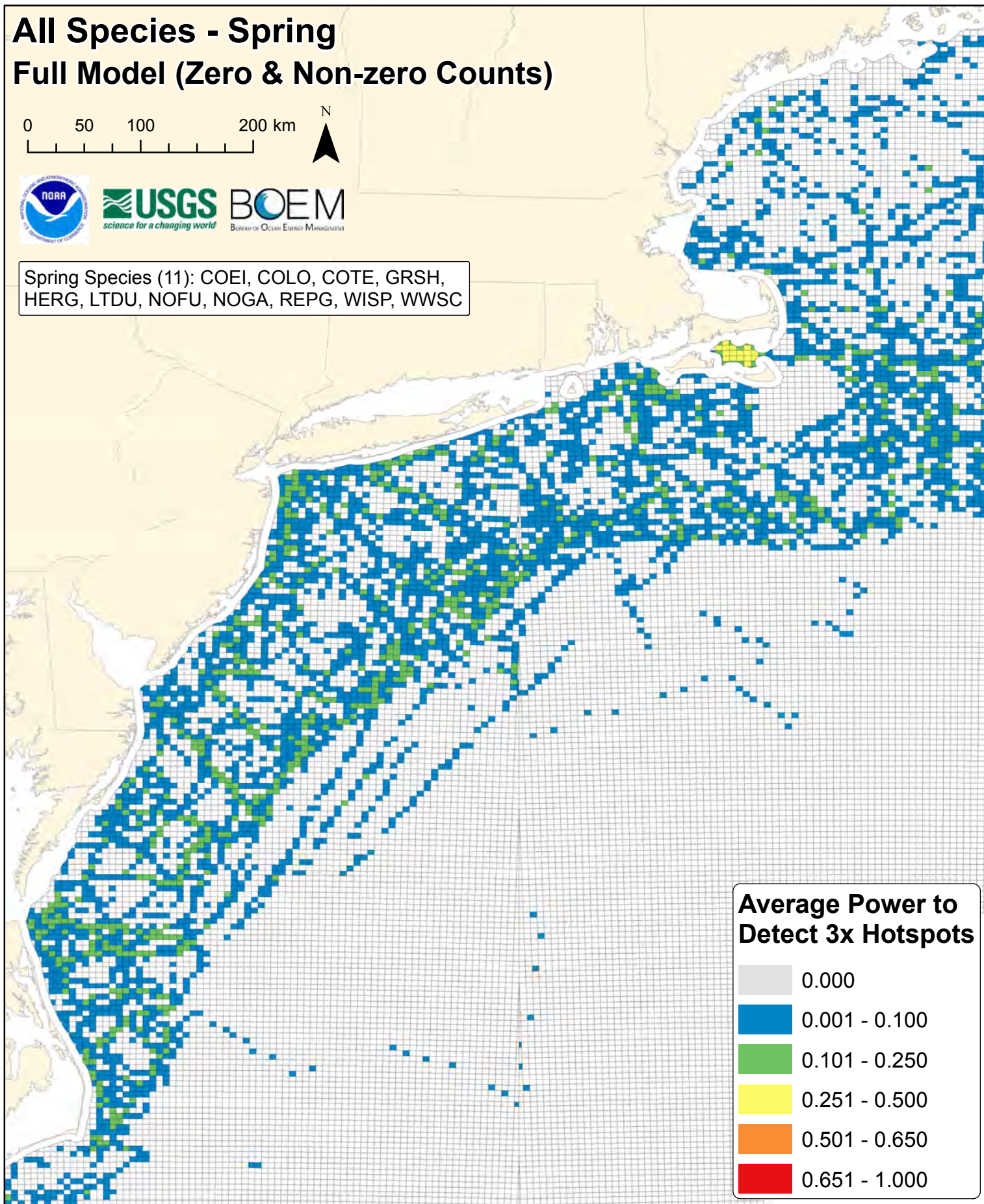
Survey Effort (Spring)



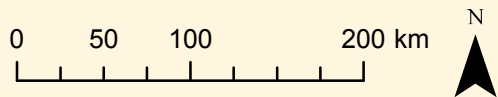
All Species - Spring Full Model (Zero & Non-zero Counts)



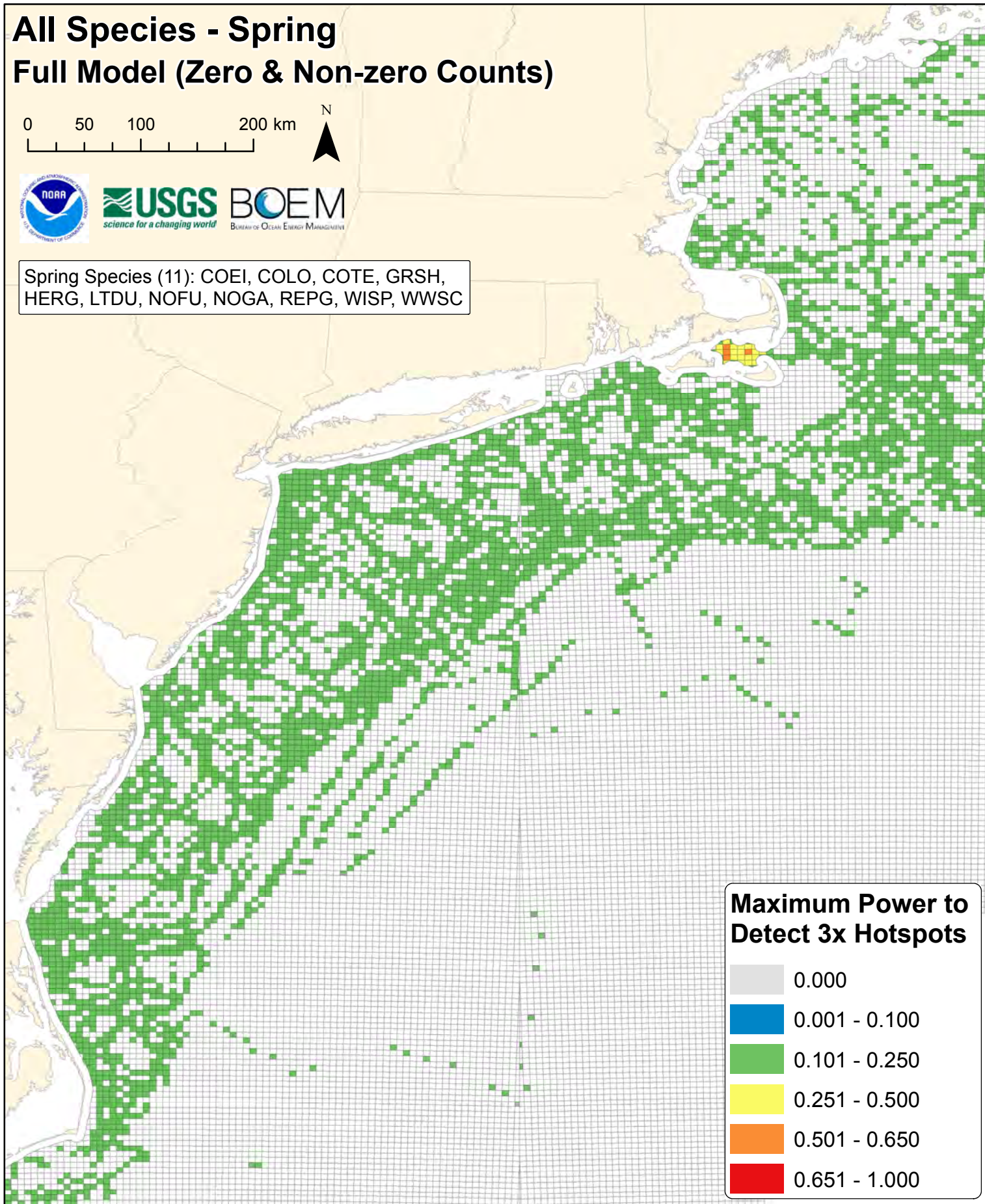
Spring Species (11): COEI, COLO, COTE, GRSH, HERG, LTDU, NOFU, NOGA, REPG, WISP, WWSC



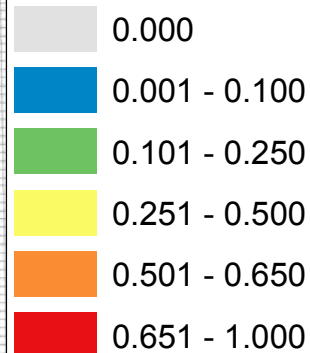
All Species - Spring Full Model (Zero & Non-zero Counts)



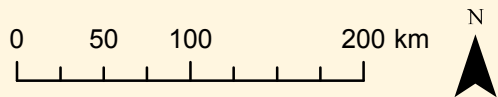
Spring Species (11): COEI, COLO, COTE, GRSH, HERG, LTDU, NOFU, NOGA, REPG, WISP, WWSC



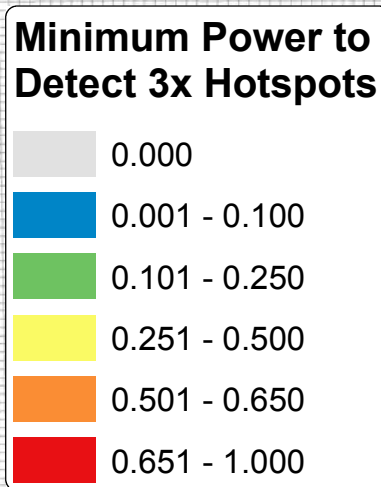
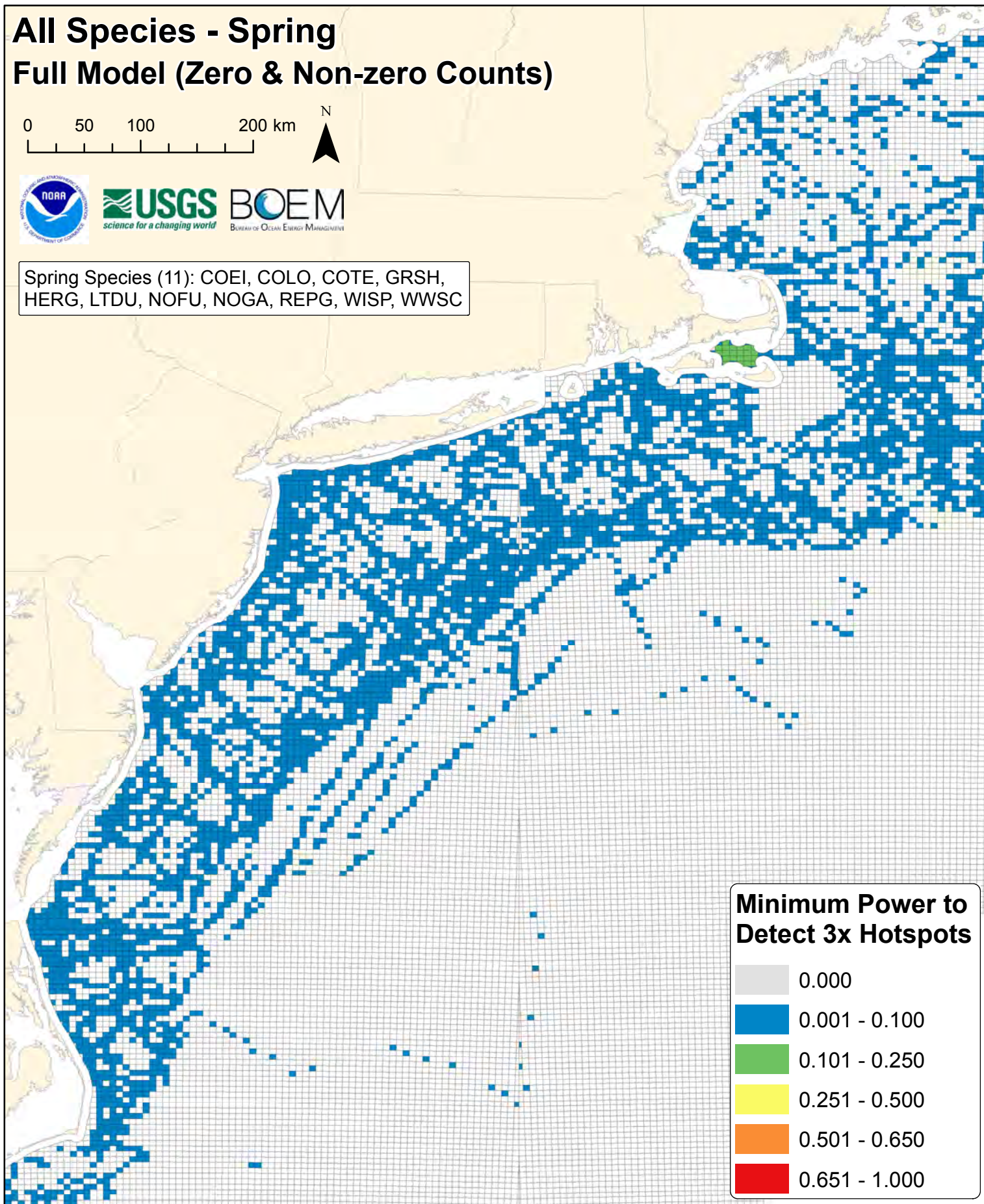
Maximum Power to Detect 3x Hotspots



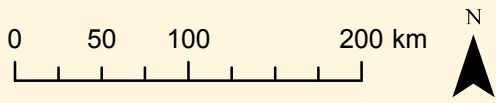
All Species - Spring Full Model (Zero & Non-zero Counts)



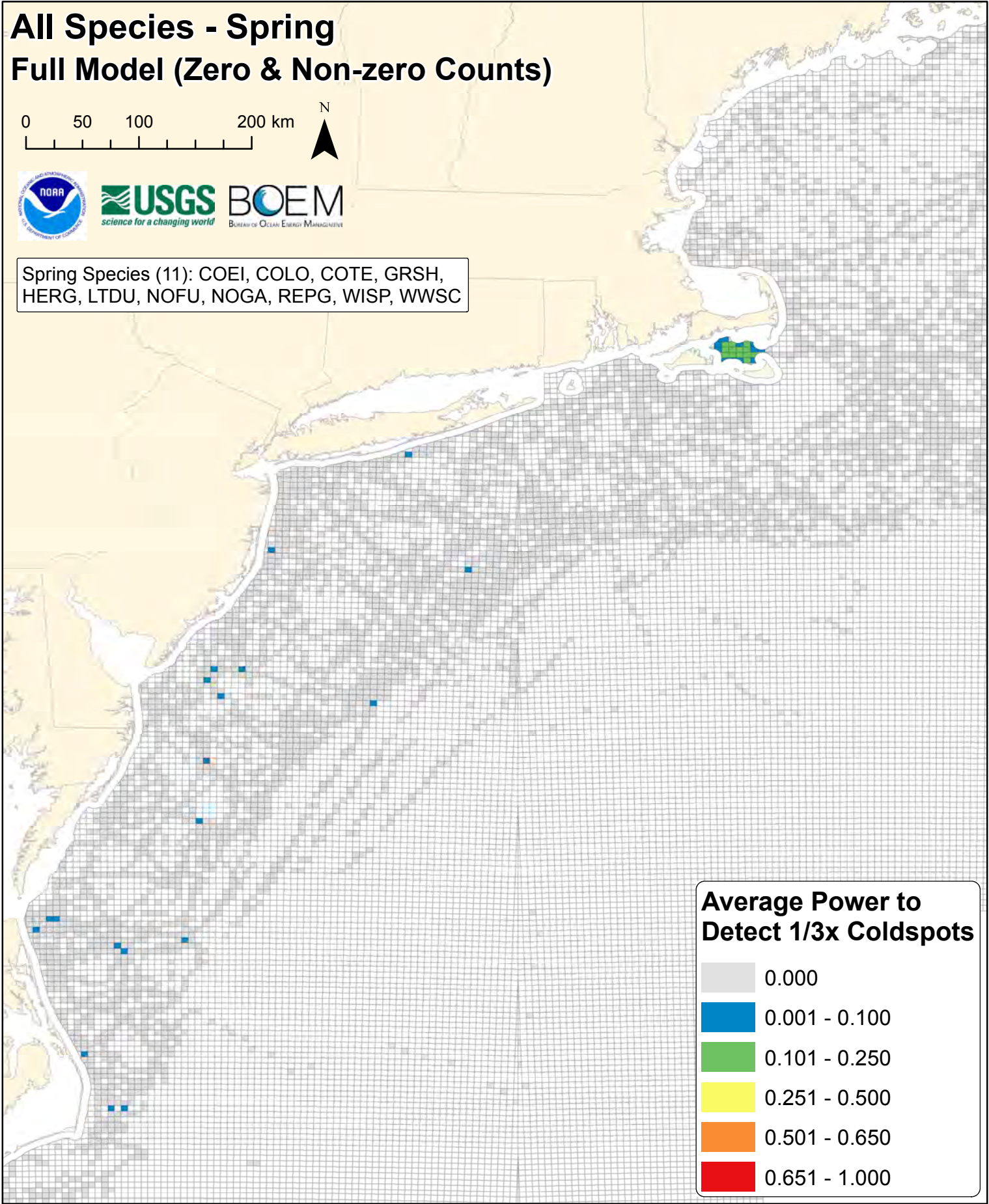
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All Species - Spring Full Model (Zero & Non-zero Counts)



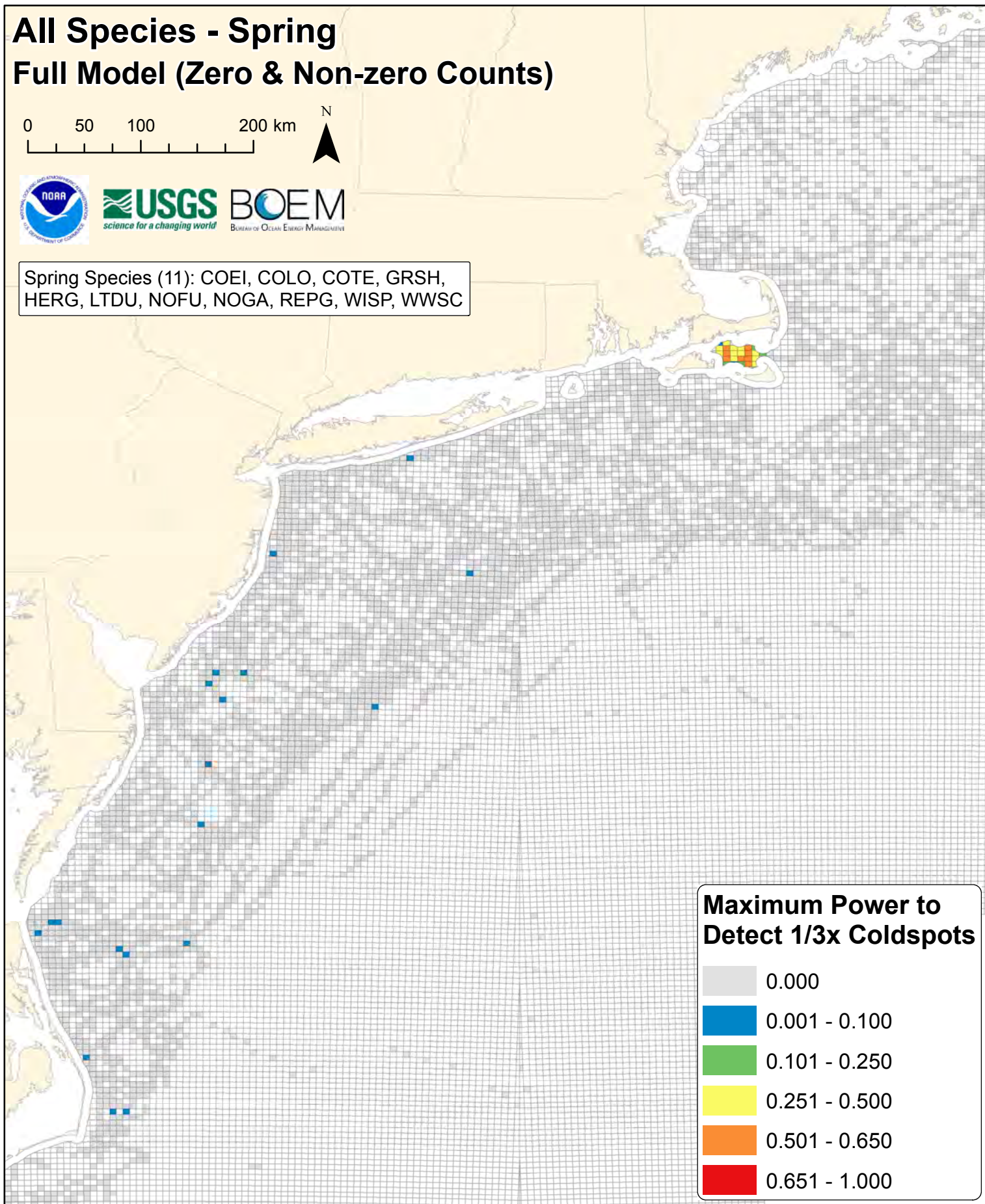
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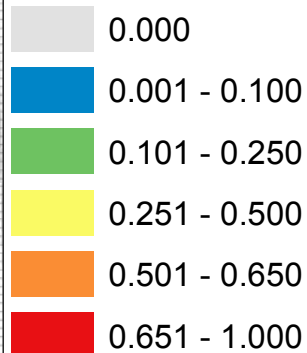
All Species - Spring Full Model (Zero & Non-zero Counts)



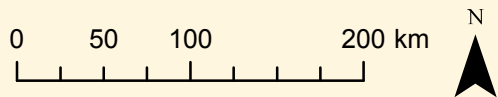
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Maximum Power to Detect 1/3x Coldspots

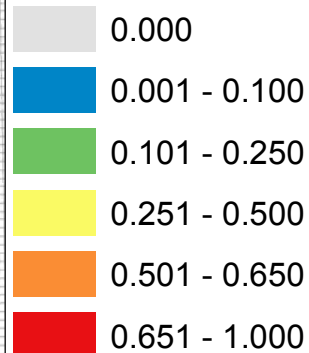


All Species - Spring Full Model (Zero & Non-zero Counts)



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

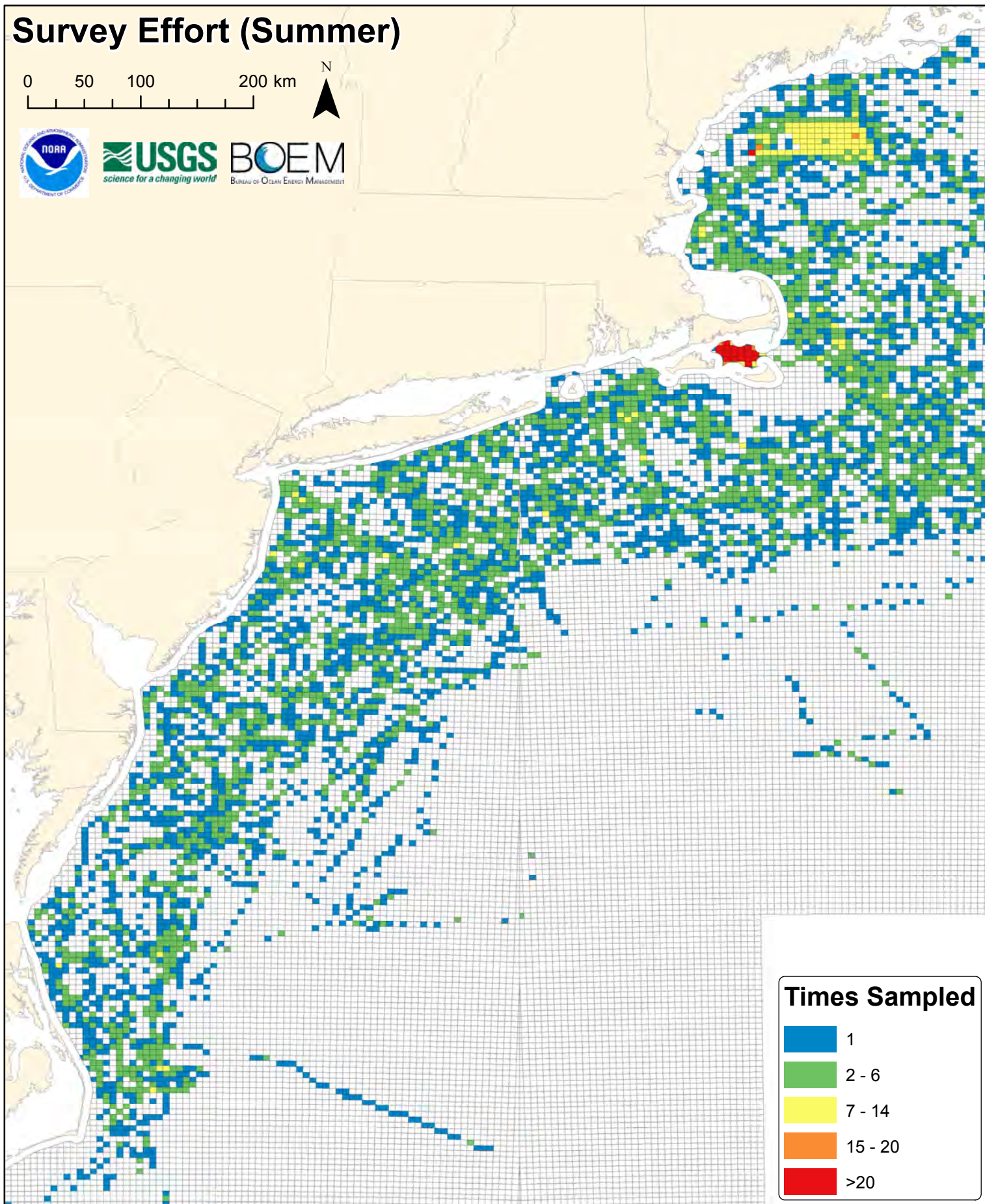
SECTION I. Summary Statistic Maps Calculated for All Species

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)

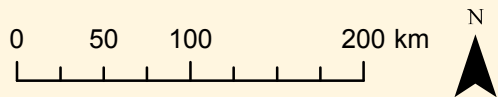
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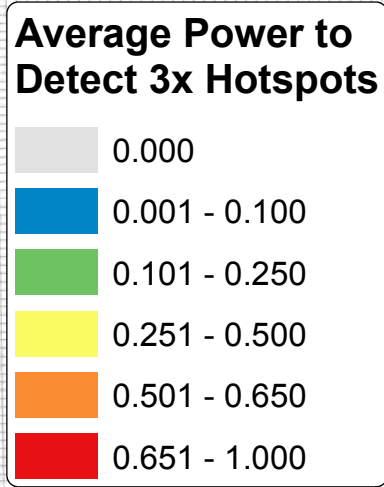
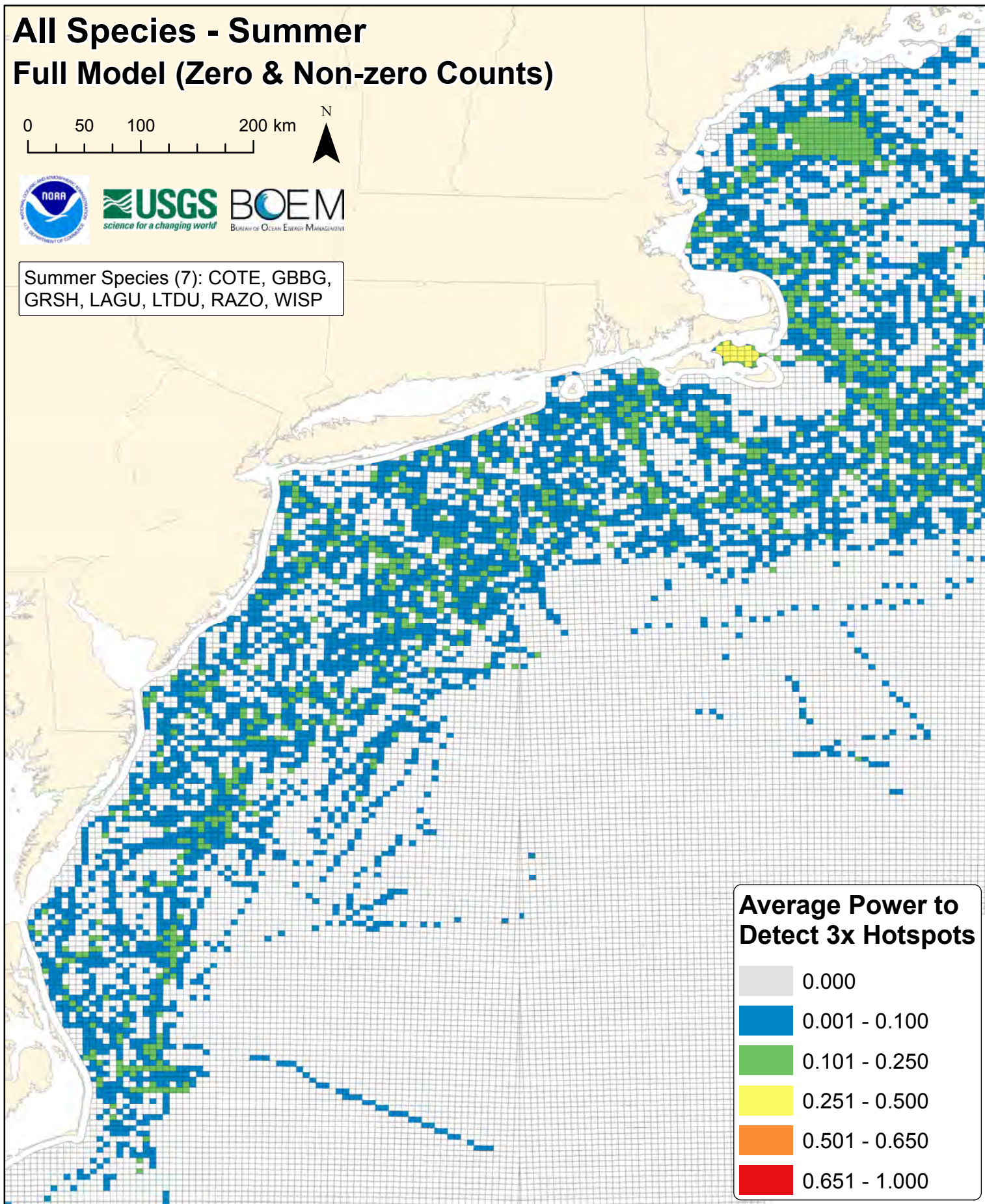
Times Sampled

-  1
-  2 - 6
-  7 - 14
-  15 - 20
-  >20

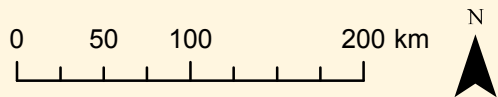
All Species - Summer Full Model (Zero & Non-zero Counts)



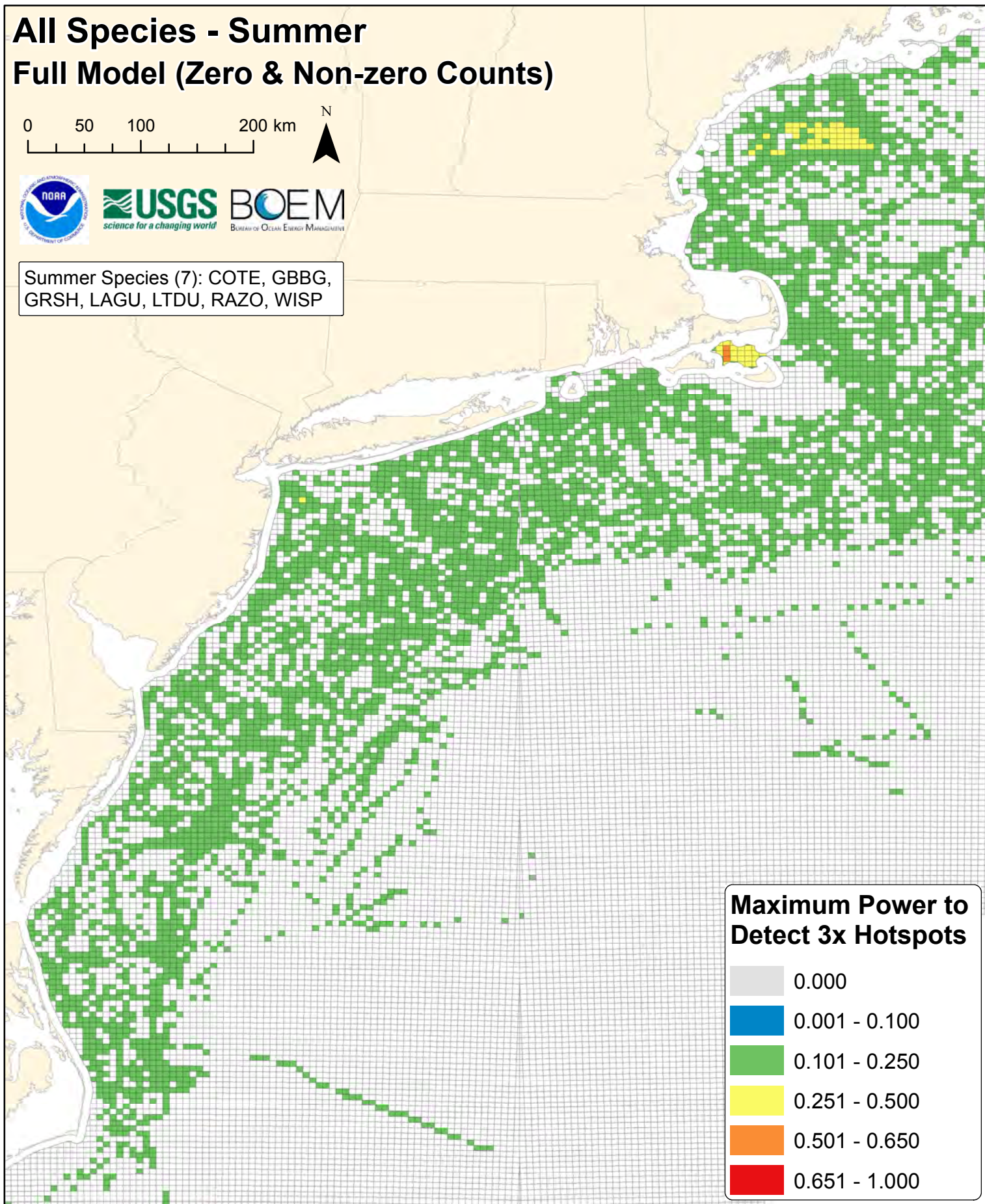
Summer Species (7): COTE, GBBG, GRSH, LAGU, LTDU, RAZO, WISP



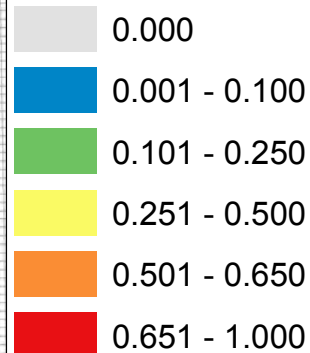
All Species - Summer Full Model (Zero & Non-zero Counts)



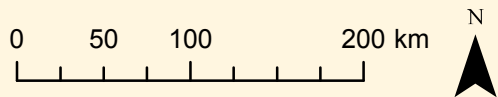
Summer Species (7): COTE, GBBG, GRSH, LAGU, LTDU, RAZO, WISP



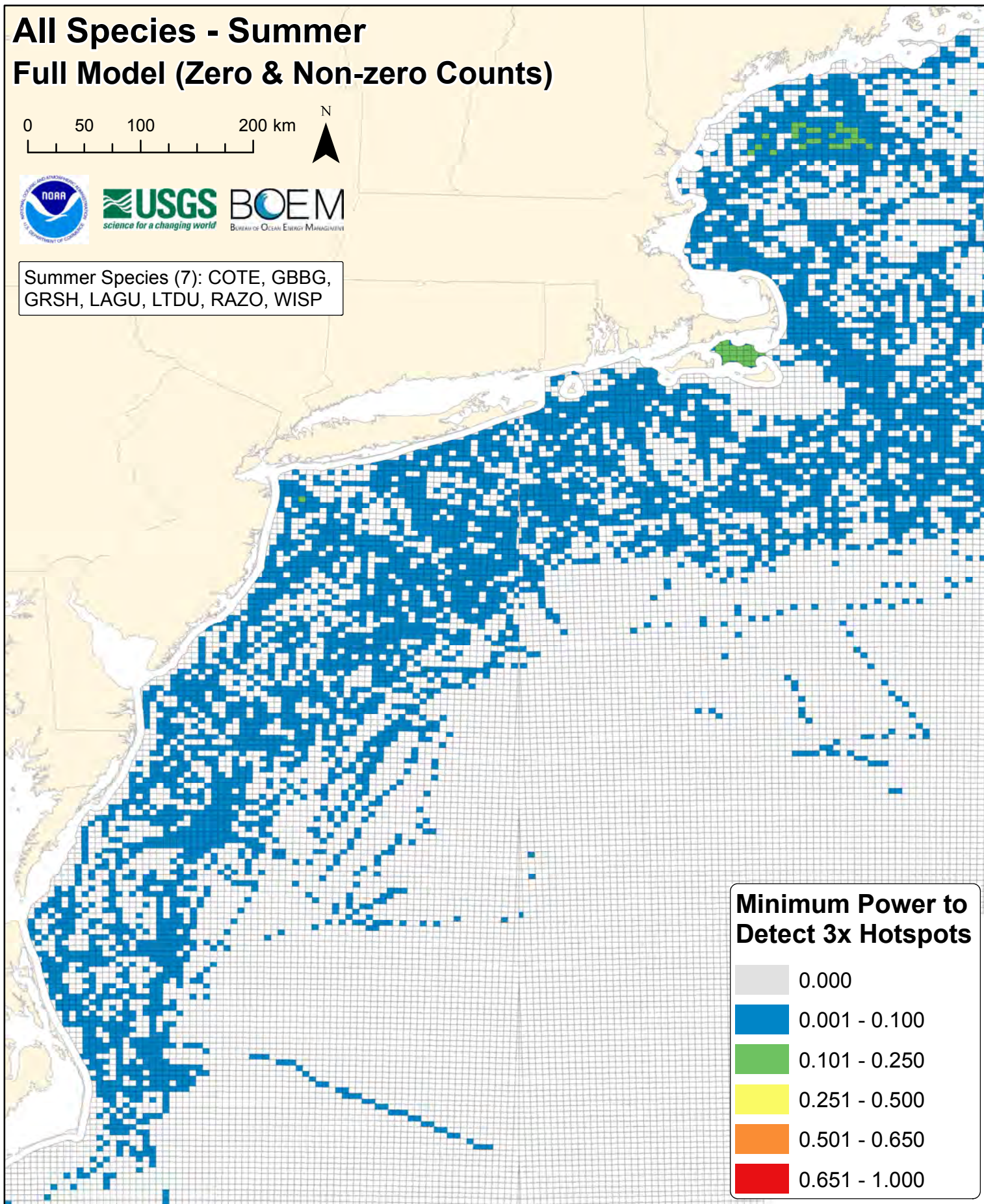
Maximum Power to Detect 3x Hotspots



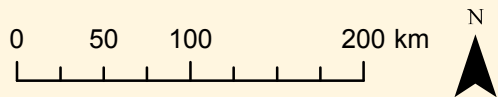
All Species - Summer Full Model (Zero & Non-zero Counts)



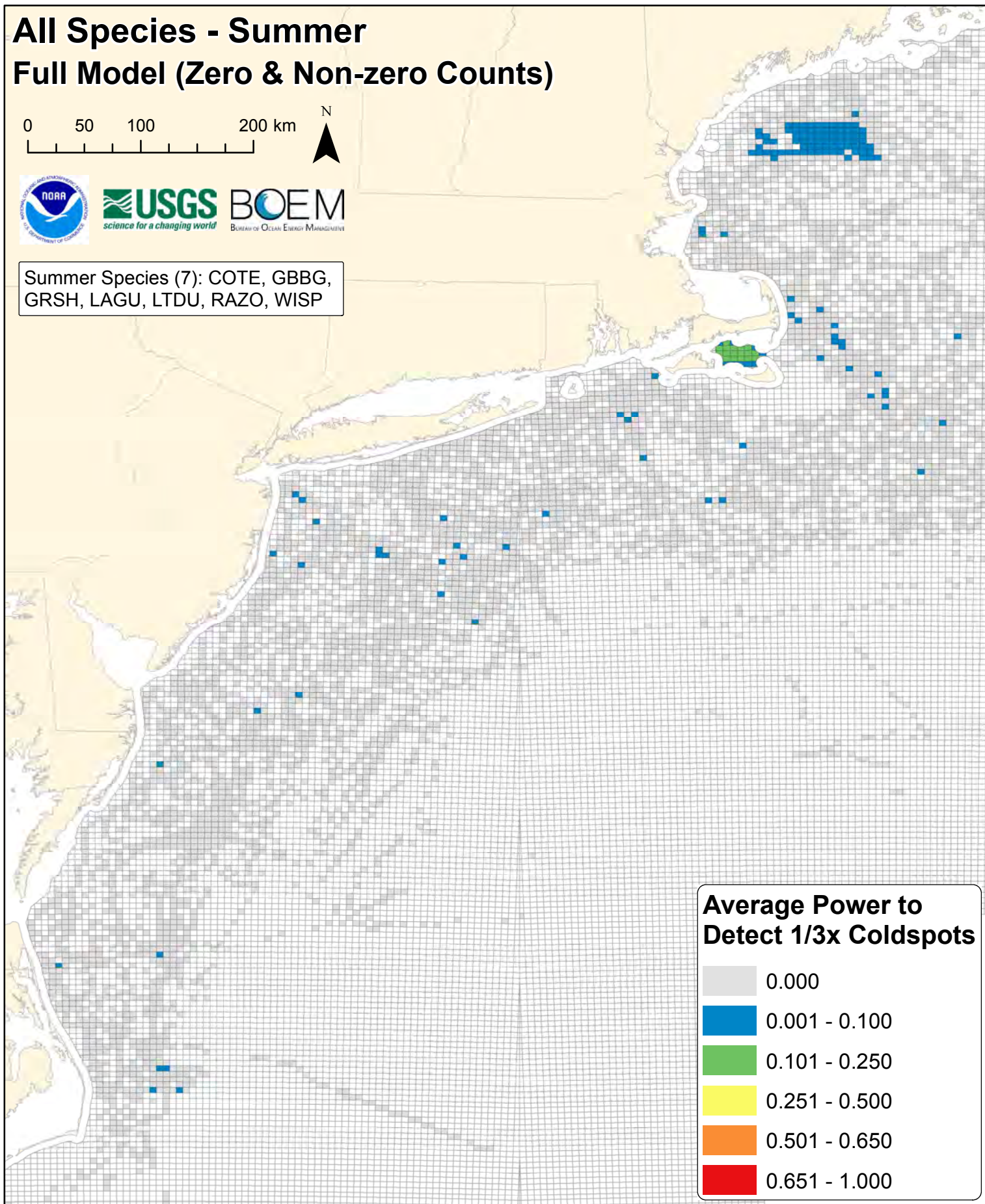
Summer Species (7): COTE, GBBG, GRSH, LAGU, LTDU, RAZO, WISP



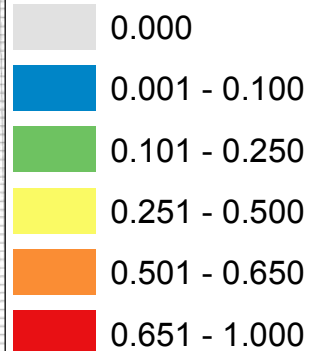
All Species - Summer Full Model (Zero & Non-zero Counts)



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



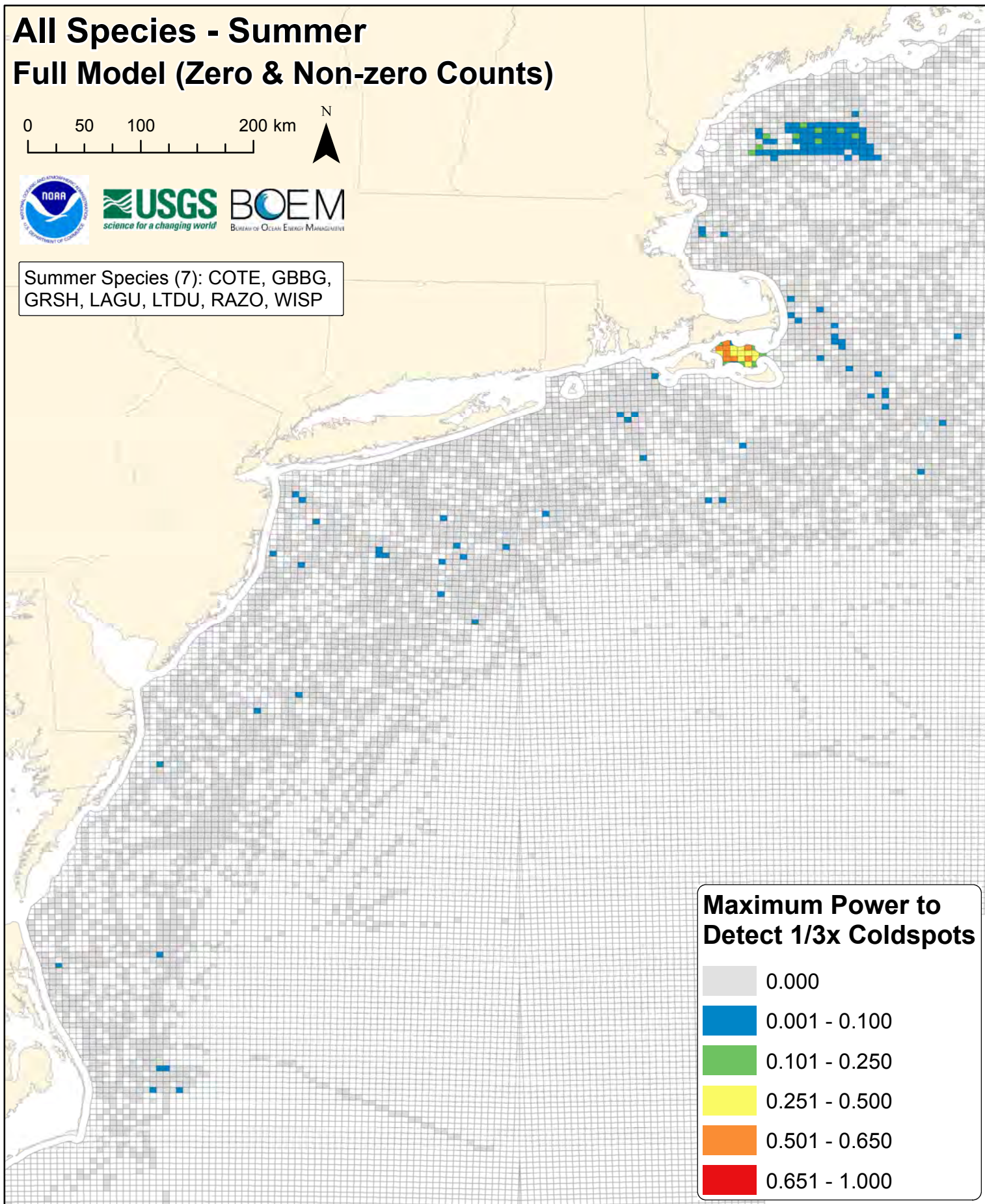
Average Power to Detect 1/3x Coldspots



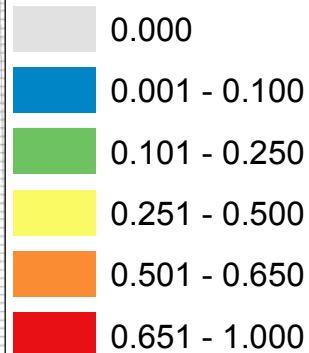
All Species - Summer Full Model (Zero & Non-zero Counts)



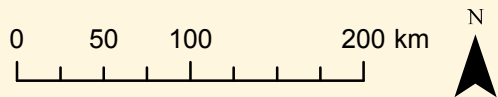
Summer Species (7): COTE, GBBG, GRSH, LAGU, LTDU, RAZO, WISP



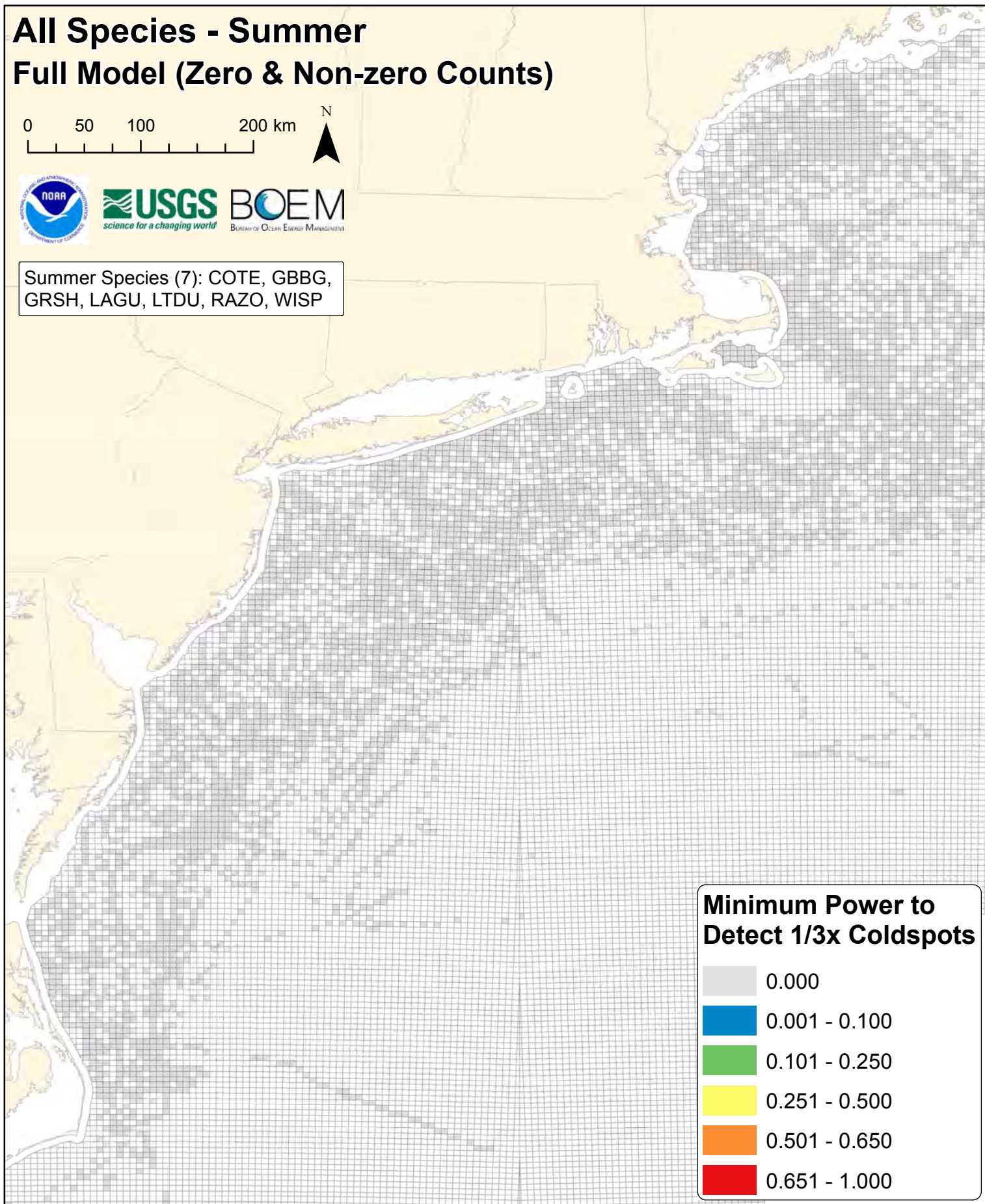
Maximum Power to Detect 1/3x Coldspots



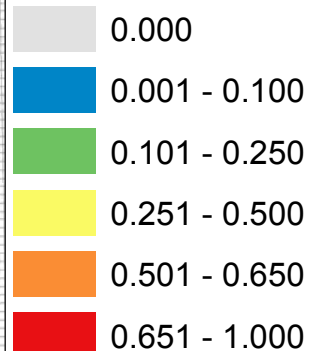
All Species - Summer Full Model (Zero & Non-zero Counts)



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



Minimum Power to Detect 1/3x Coldspots



DIGITAL SUPPLEMENT G

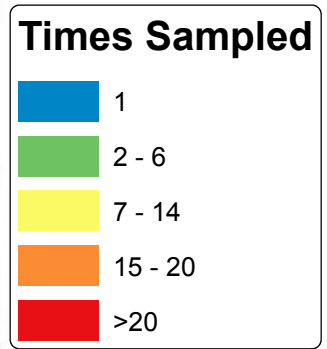
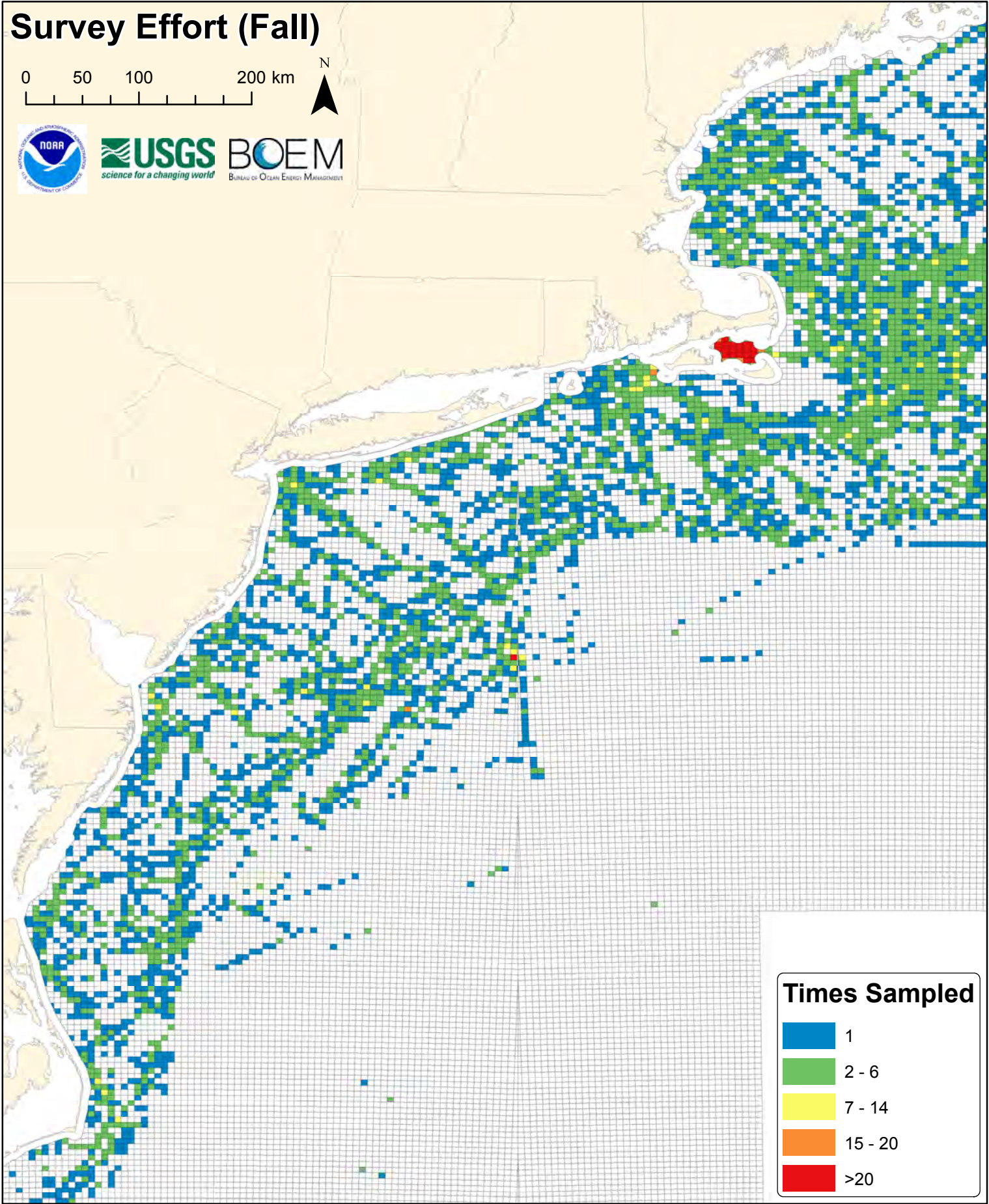
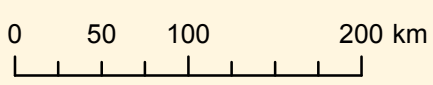
Full Hurdle Model (Zero & Non-Zero Counts) Results

SECTION I. Summary Statistic Maps Calculated for All Species

Figures G22-G28. Fall

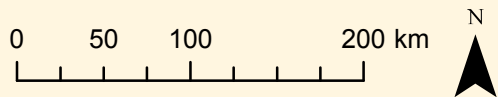
- Number of times each lease block was surveyed in fall
- Average, maximum, and minimum power to detect 3x hotspots of abundance
- Average, maximum, and minimum power to detect 1/3x coldspots of abundance

Survey Effort (Fall)

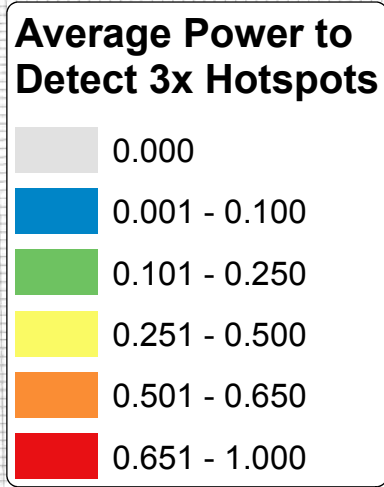
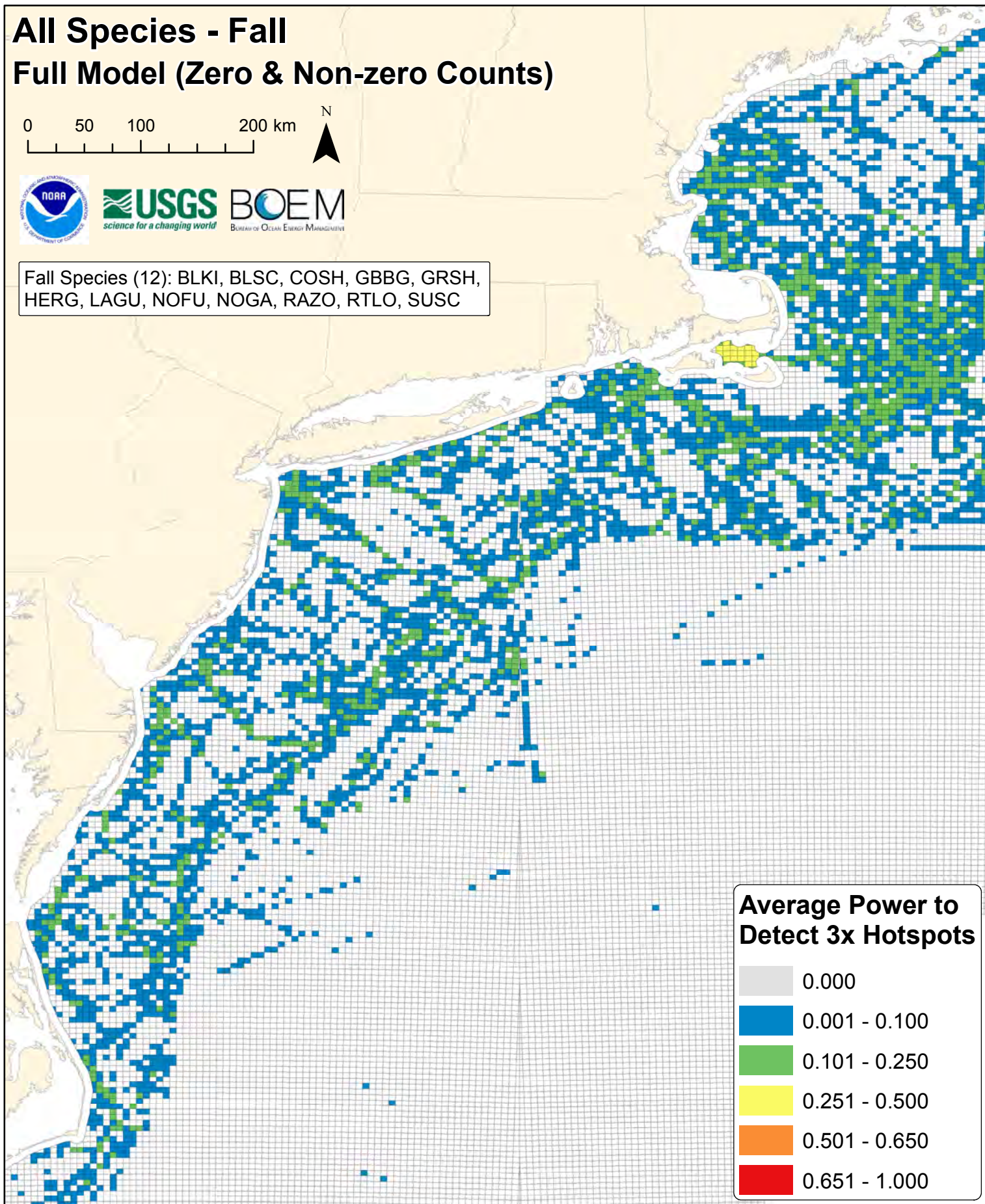


All Species - Fall

Full Model (Zero & Non-zero Counts)

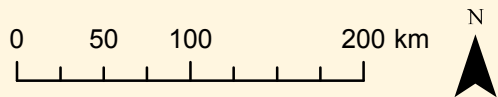


Fall Species (12): BLKI, BLSC, COSH, GBBG, GRSH, HERG, LAGU, NOFU, NOGA, RAZO, RTLO, SUSC

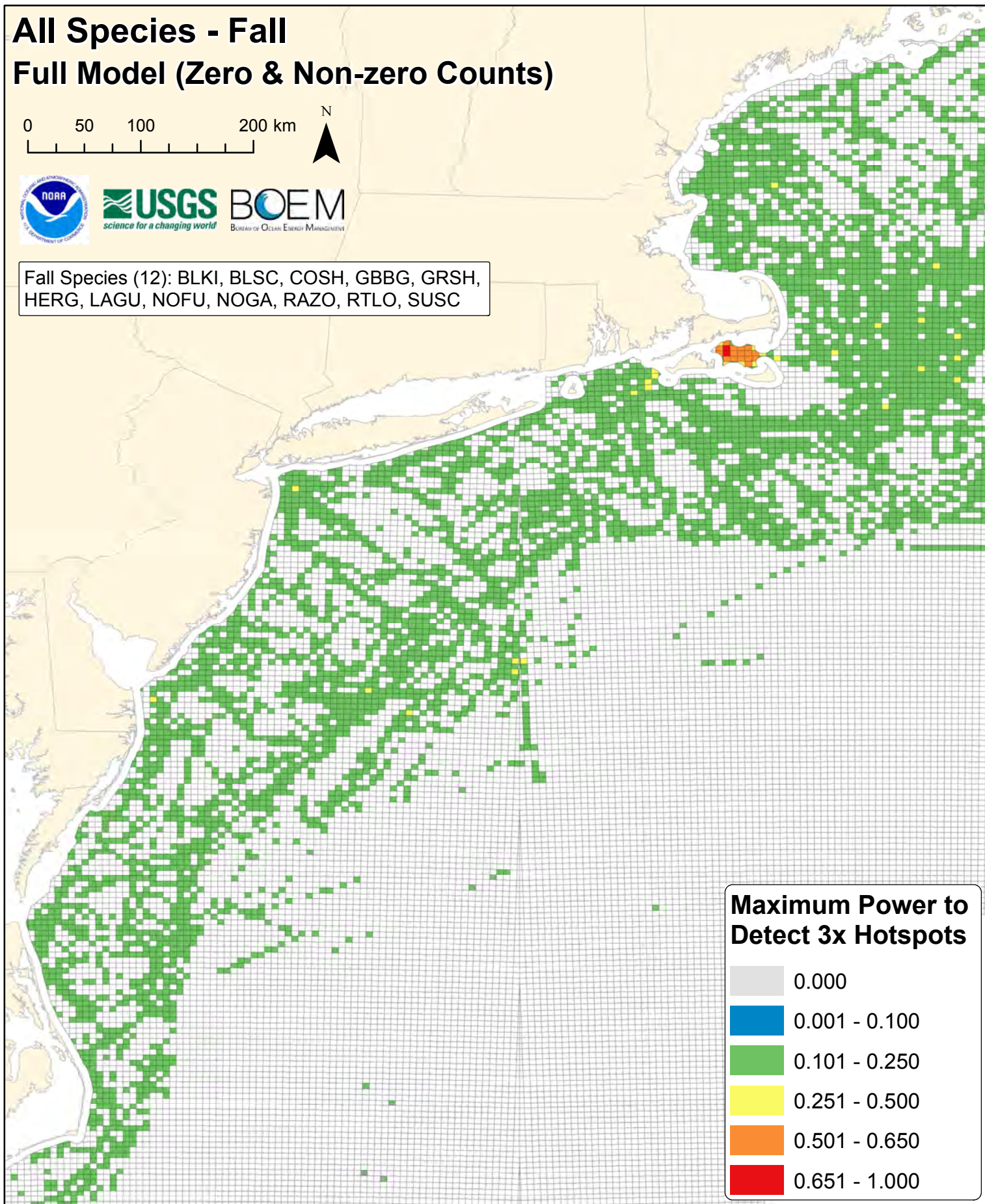


All Species - Fall

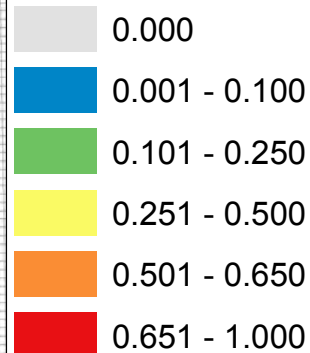
Full Model (Zero & Non-zero Counts)



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

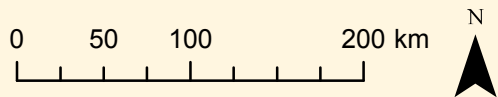


Maximum Power to Detect 3x Hotspots

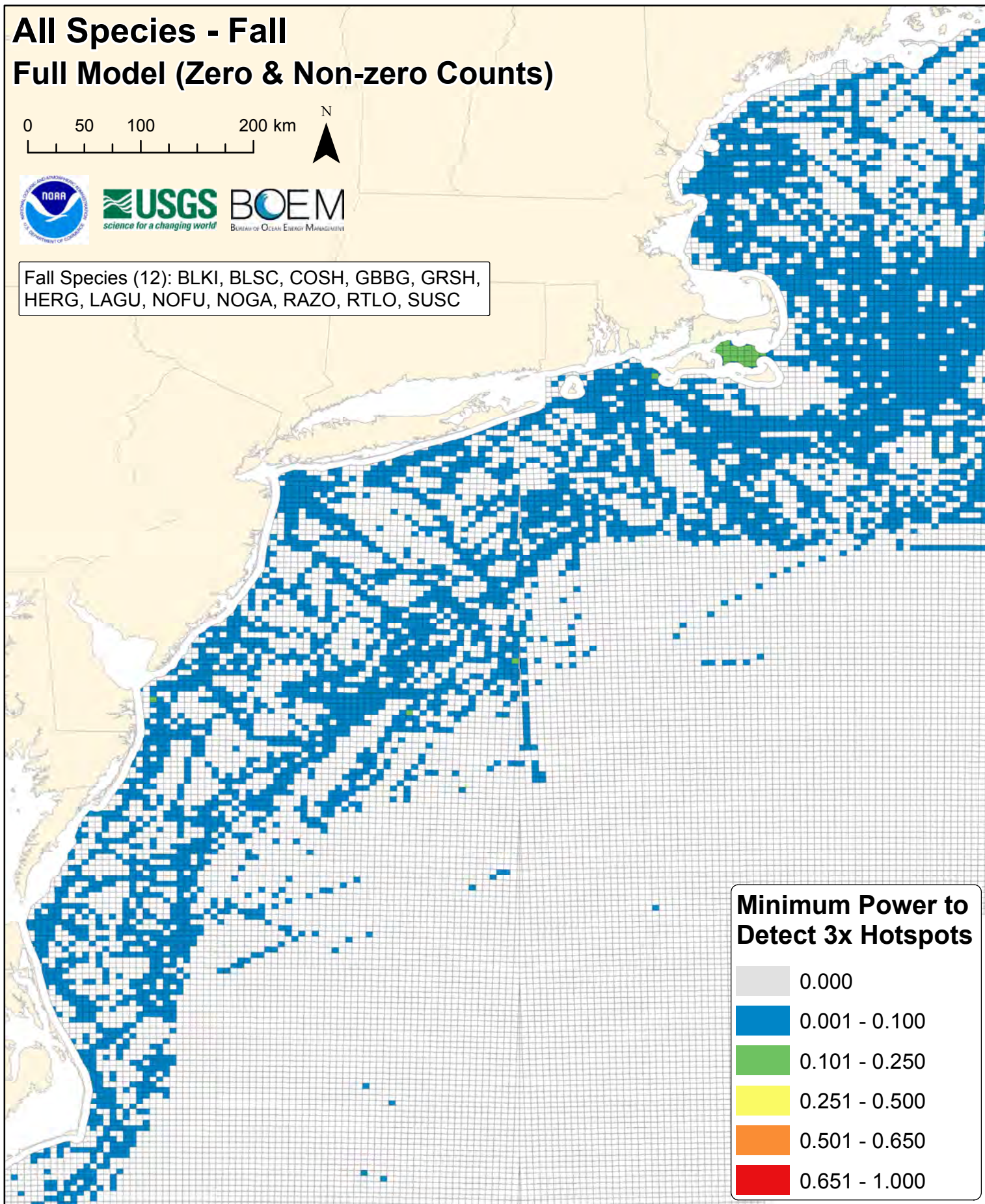


All Species - Fall

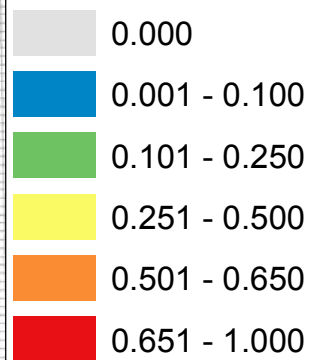
Full Model (Zero & Non-zero Counts)



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

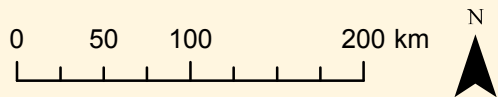


Minimum Power to Detect 3x Hotspots

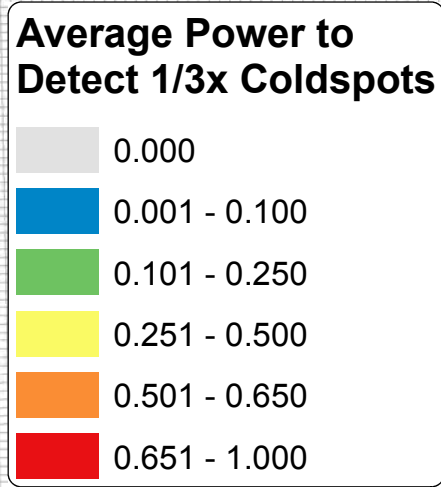
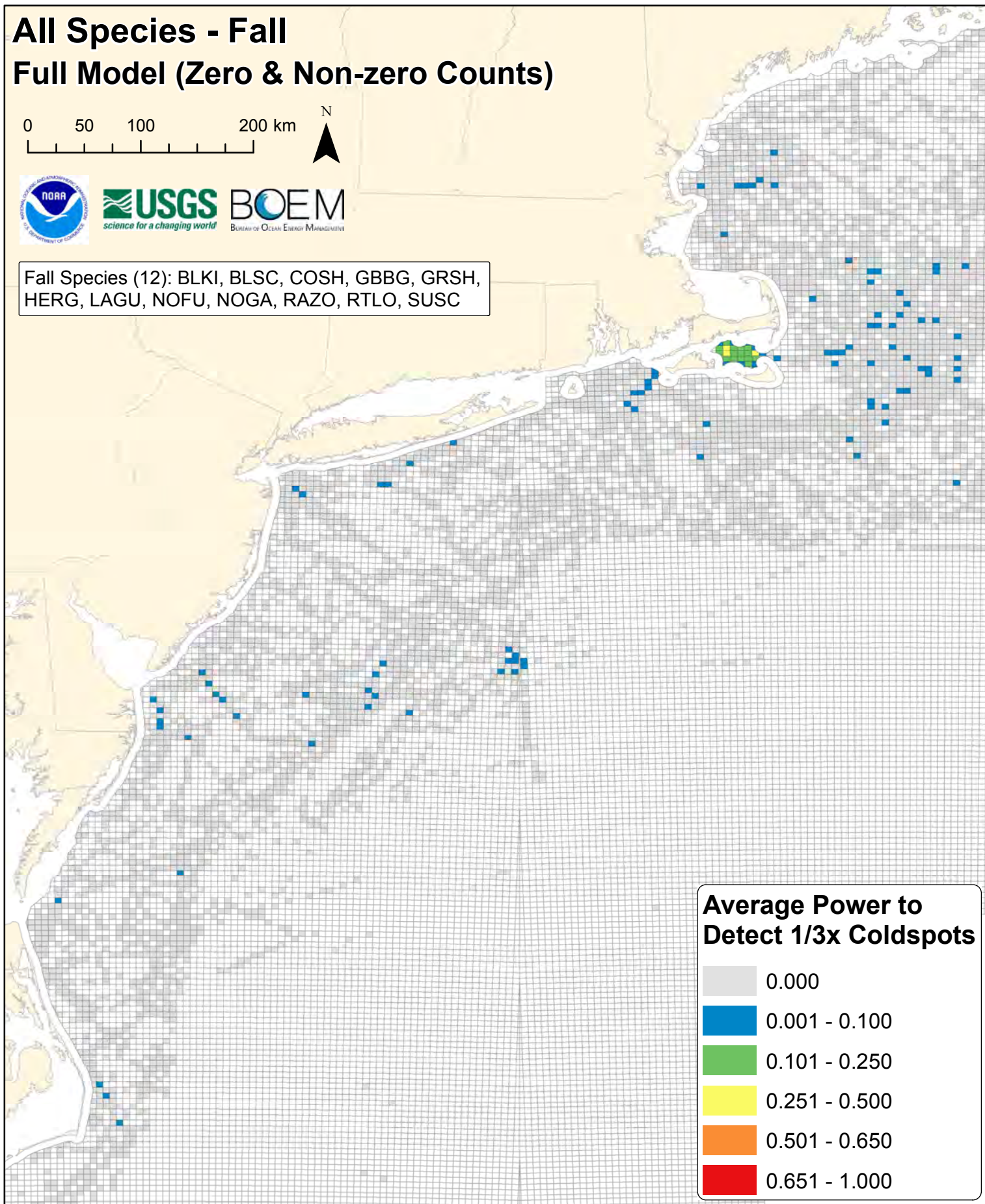


All Species - Fall

Full Model (Zero & Non-zero Counts)



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

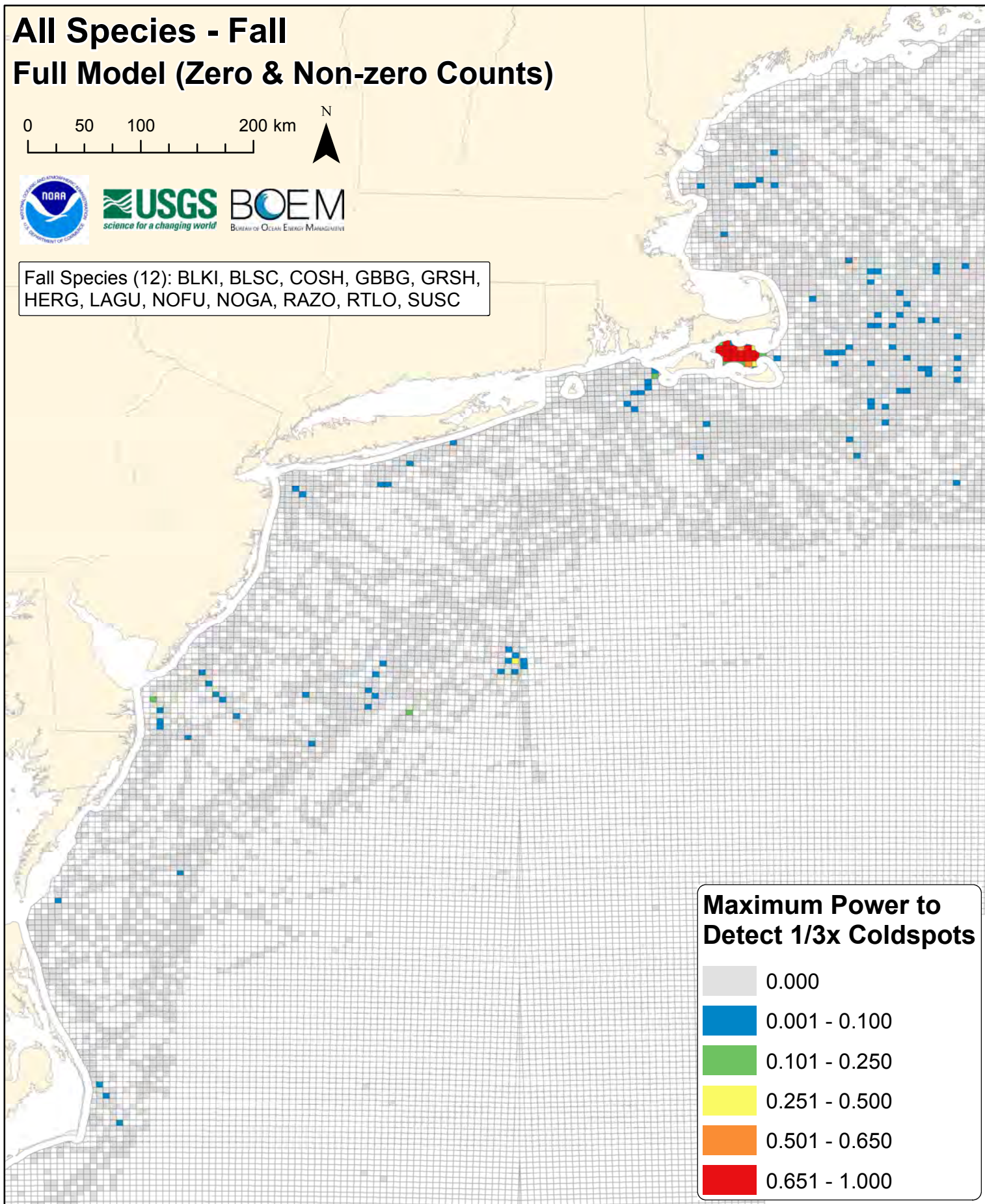


All Species - Fall

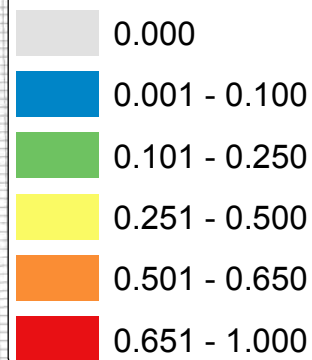
Full Model (Zero & Non-zero Counts)



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

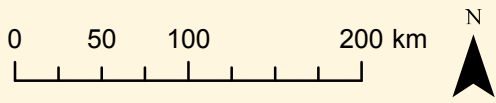


Maximum Power to Detect 1/3x Coldspots

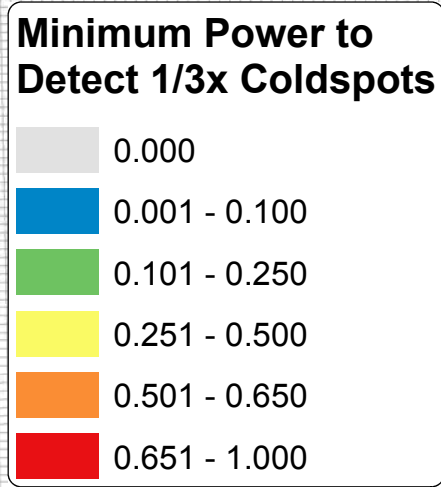
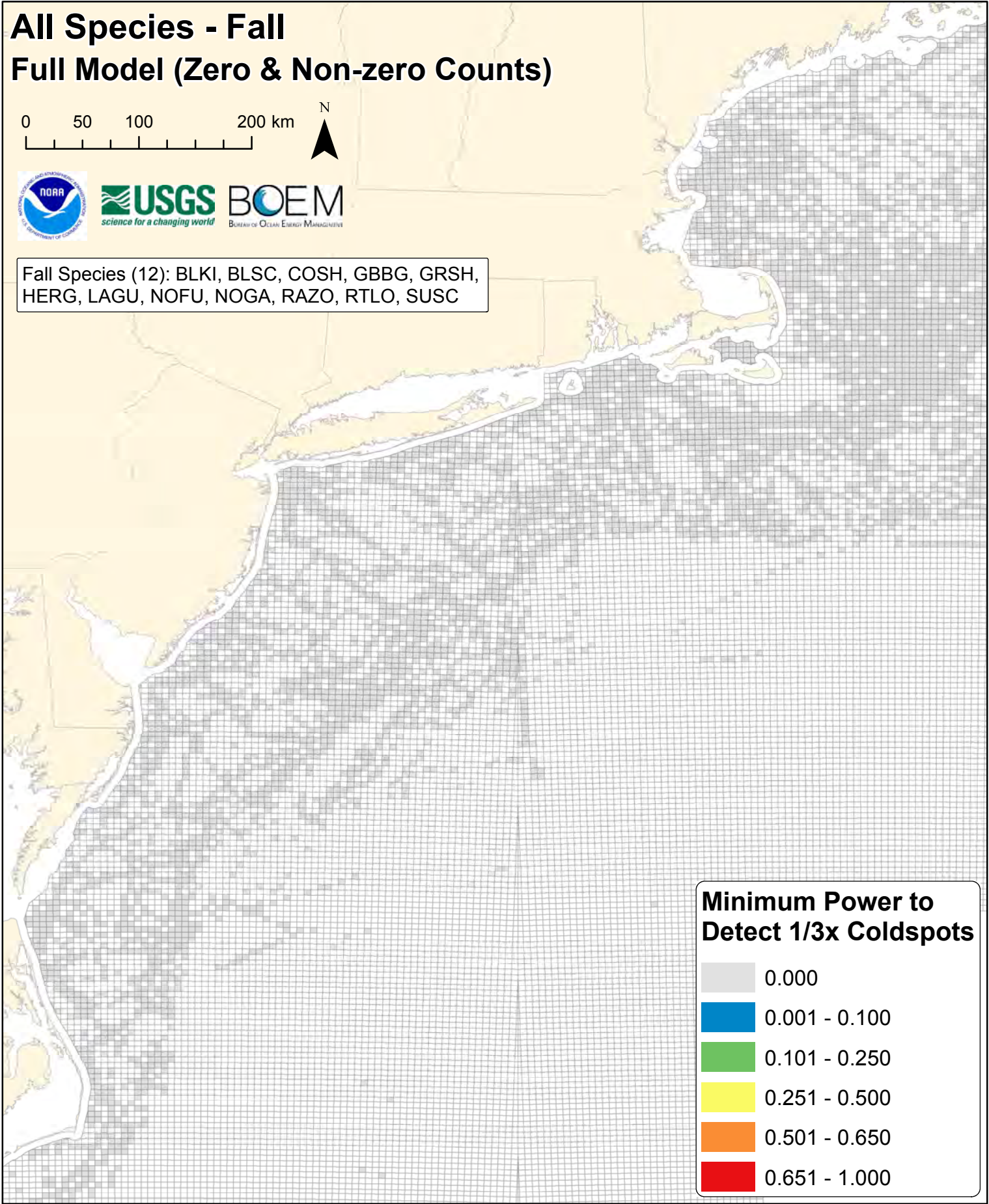


All Species - Fall

Full Model (Zero & Non-zero Counts)



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



DIGITAL SUPPLEMENT G

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

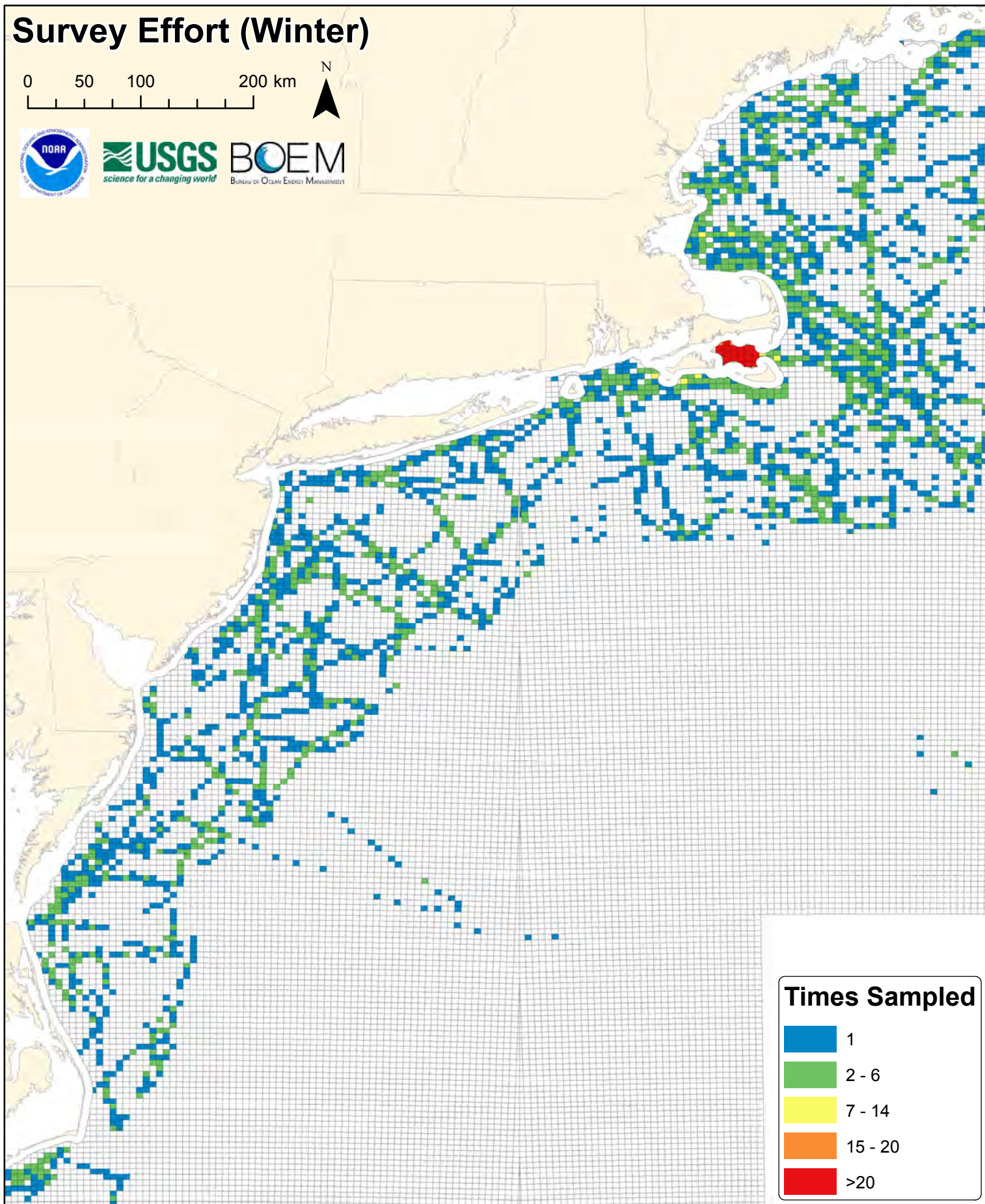
SECTION I. Summary Statistic Maps Calculated for All Species

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

Survey Effort (Winter)

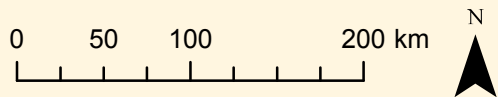
0 50 100 200 km



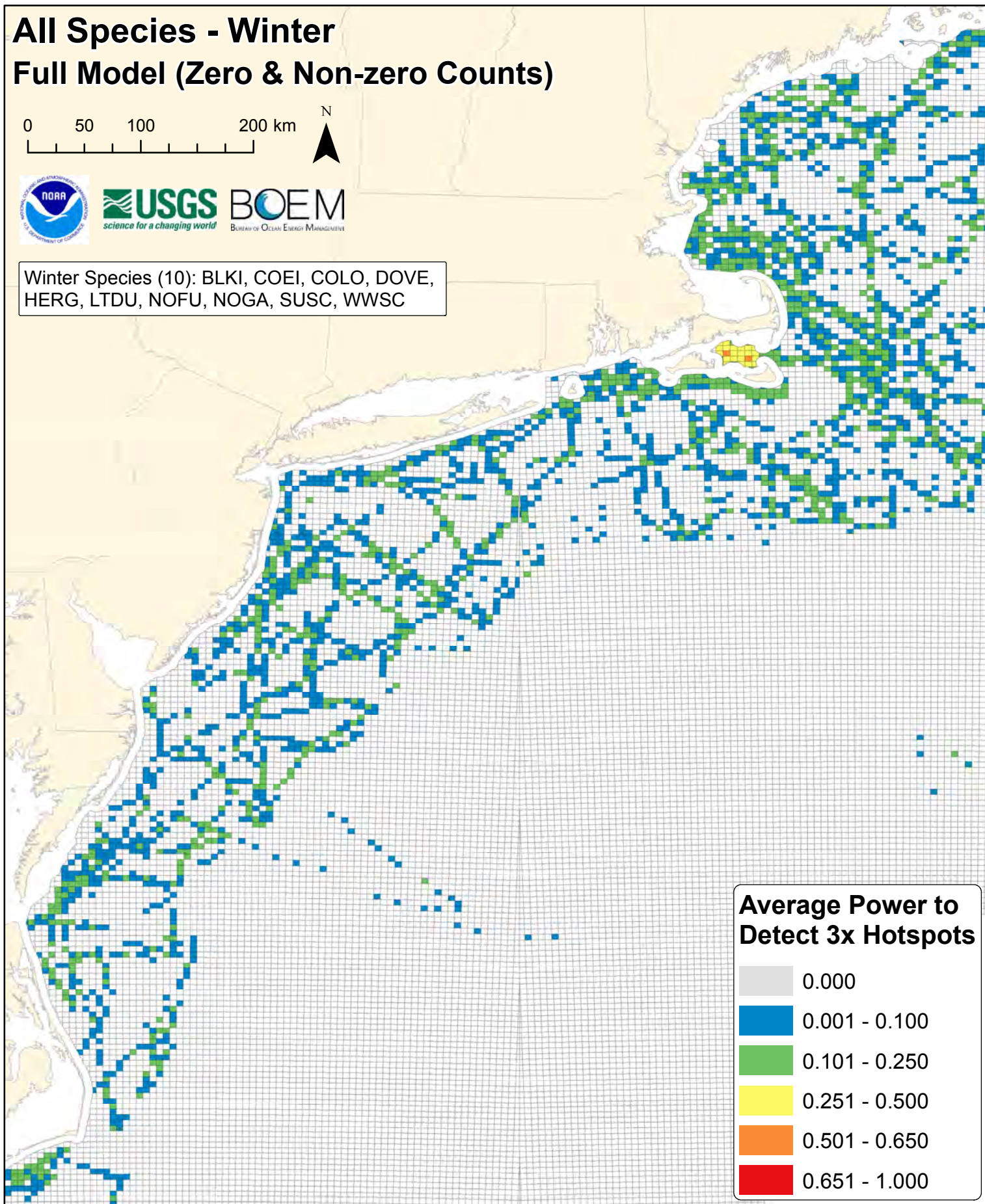
Times Sampled

- 1
- 2 - 6
- 7 - 14
- 15 - 20
- >20

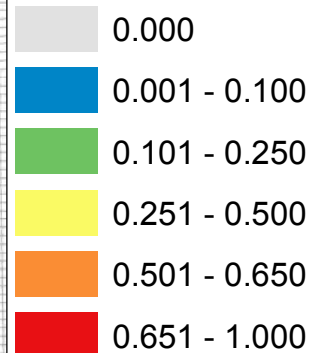
All Species - Winter Full Model (Zero & Non-zero Counts)



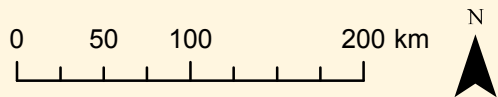
Winter Species (10): BLKI, COEI, COLO, DOVE,
HERG, LTDU, NOFU, NOGA, SUSC, WWSC



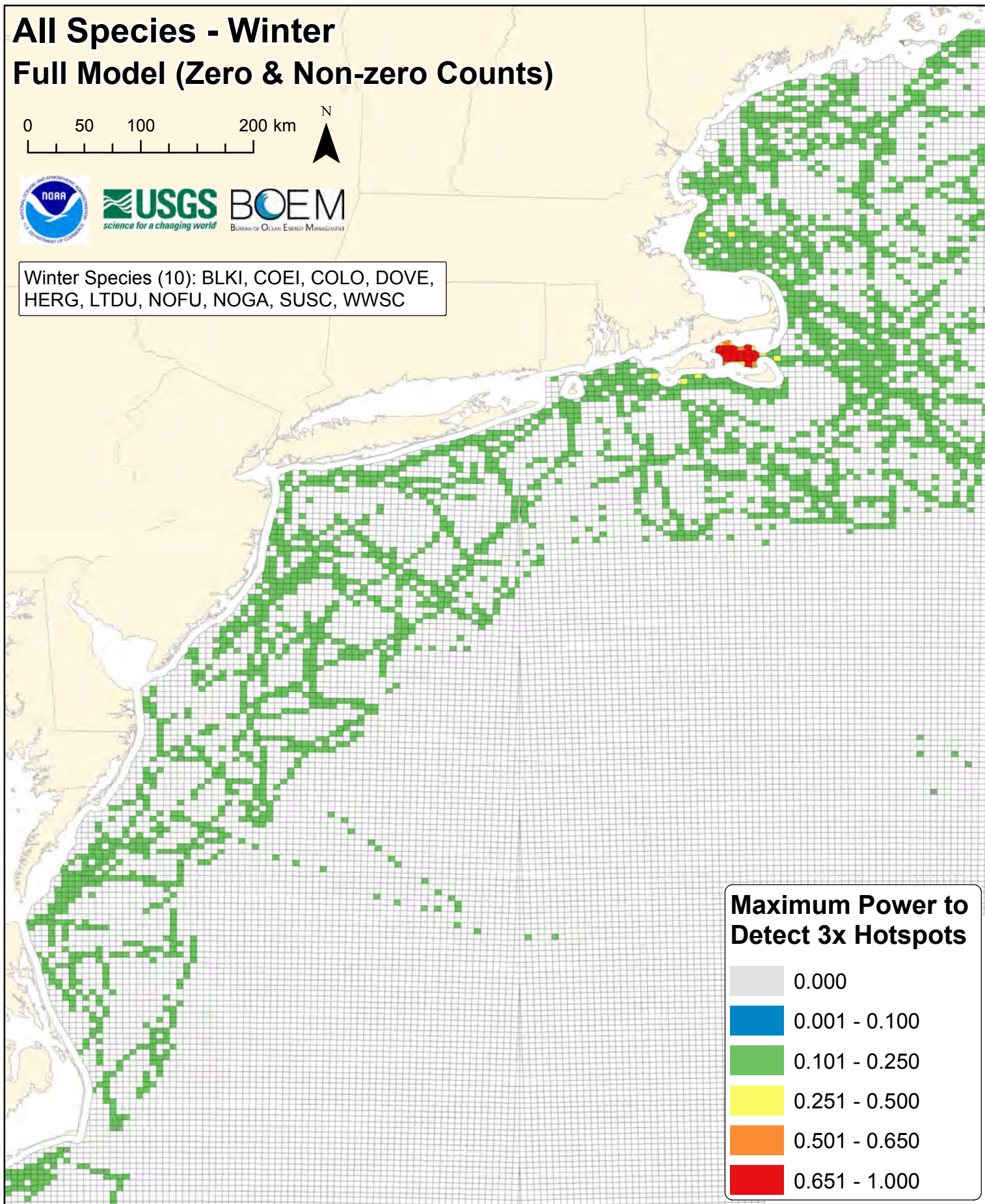
Average Power to Detect 3x Hotspots



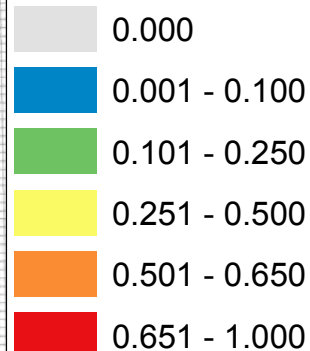
All Species - Winter Full Model (Zero & Non-zero Counts)



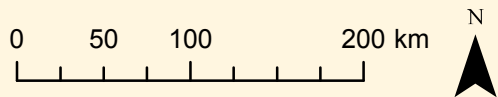
Winter Species (10): BLKI, COEI, COLO, DOVE, HERG, LTDU, NOFU, NOGA, SUSC, WWSC



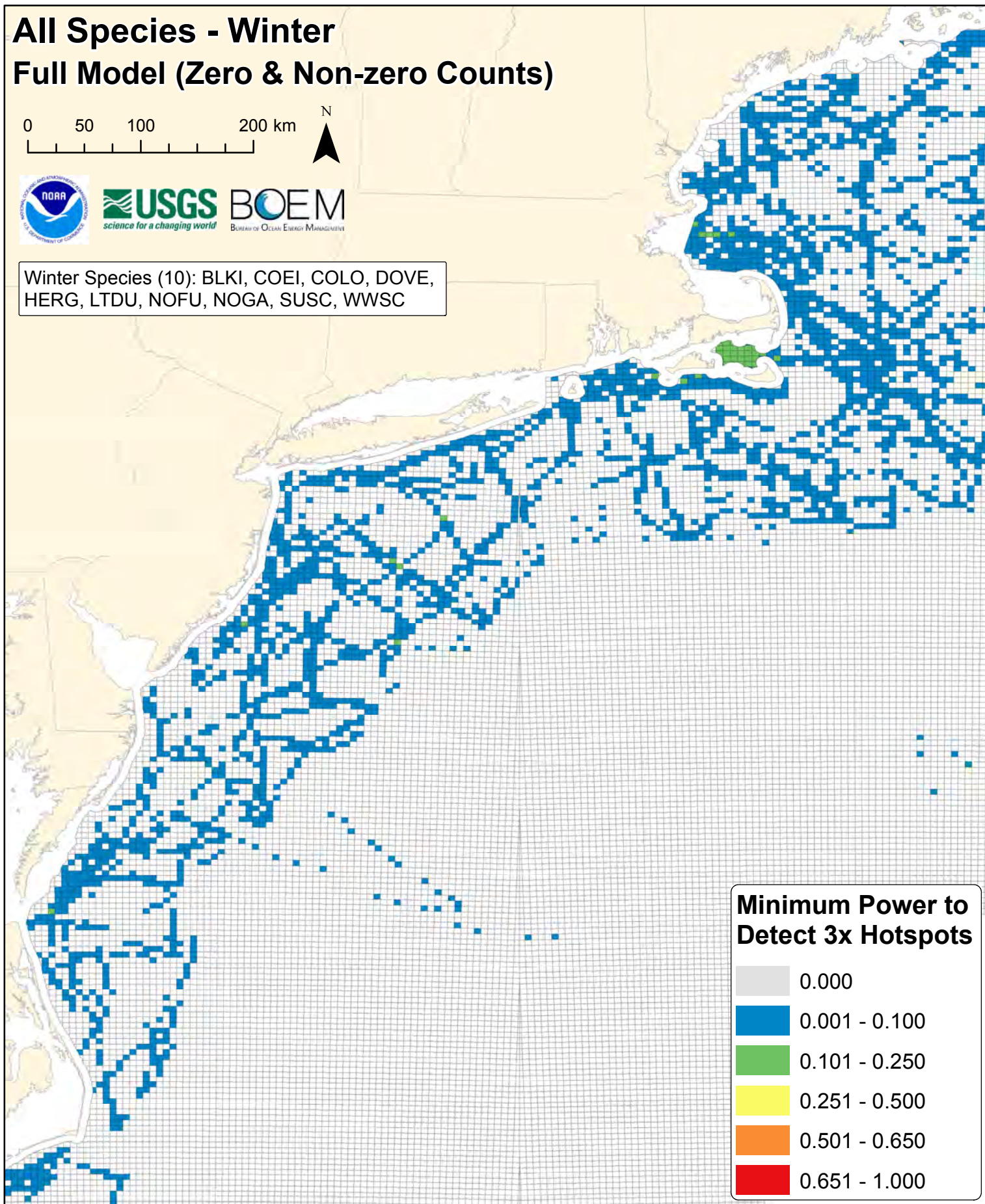
Maximum Power to Detect 3x Hotspots



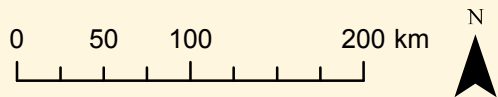
All Species - Winter Full Model (Zero & Non-zero Counts)



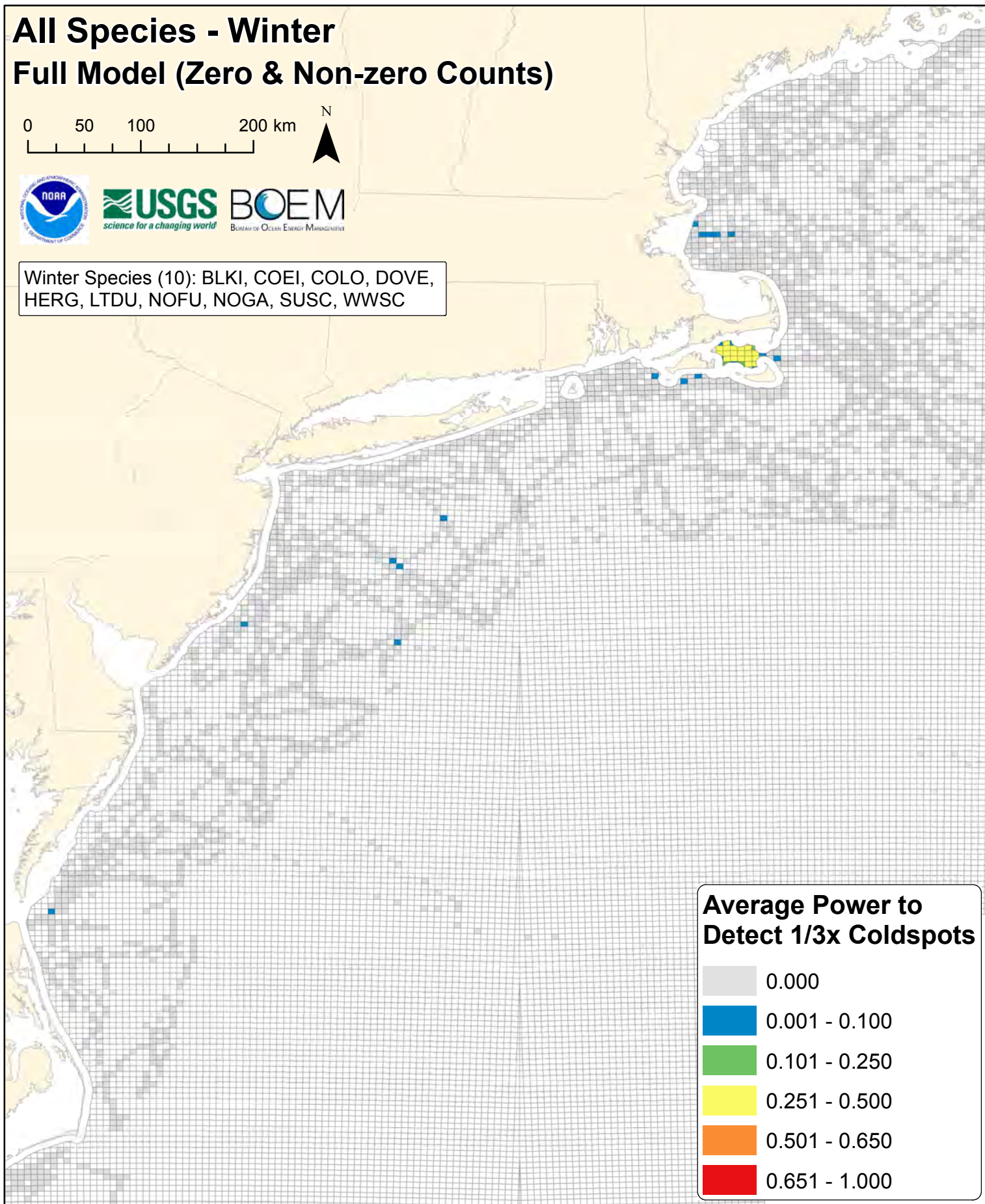
Winter Species (10): BLKI, COEI, COLO, DOVE,
HERG, LTDU, NOFU, NOGA, SUSC, WWSC



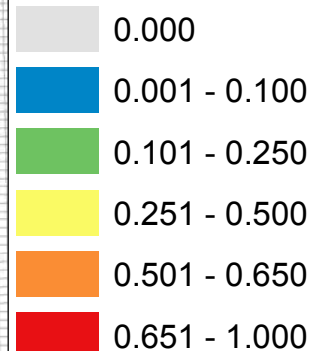
All Species - Winter Full Model (Zero & Non-zero Counts)



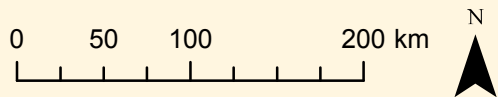
Winter Species (10): BLKI, COEI, COLO, DOVE, HERG, LTDU, NOFU, NOGA, SUSC, WWSC



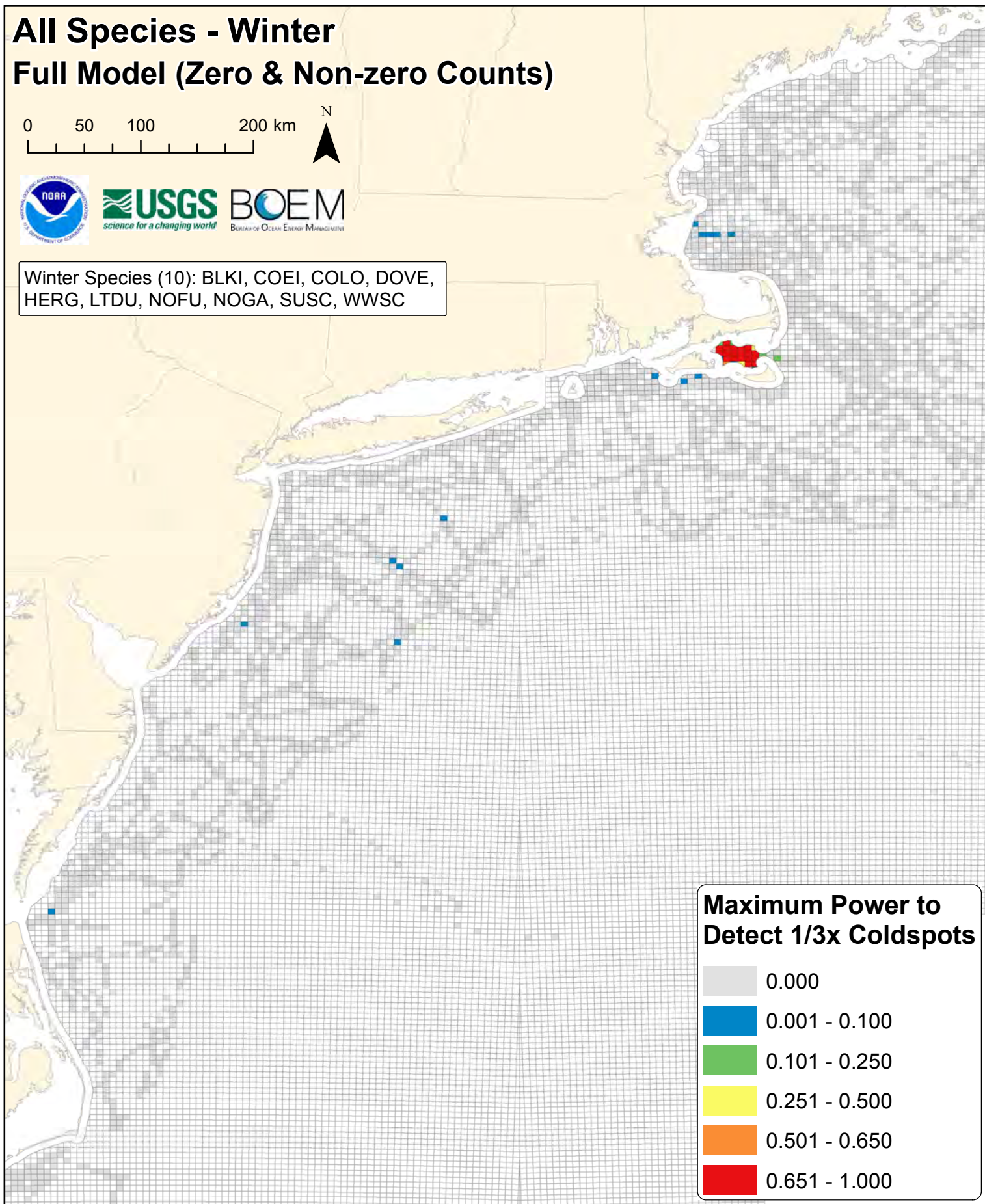
Average Power to Detect 1/3x Coldspots



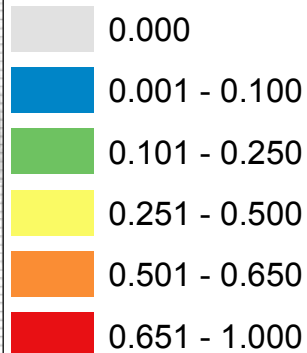
All Species - Winter Full Model (Zero & Non-zero Counts)



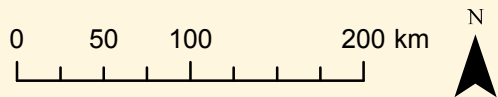
Winter Species (10): BLKI, COEI, COLO, DOVE, HERG, LTDU, NOFU, NOGA, SUSC, WWSC



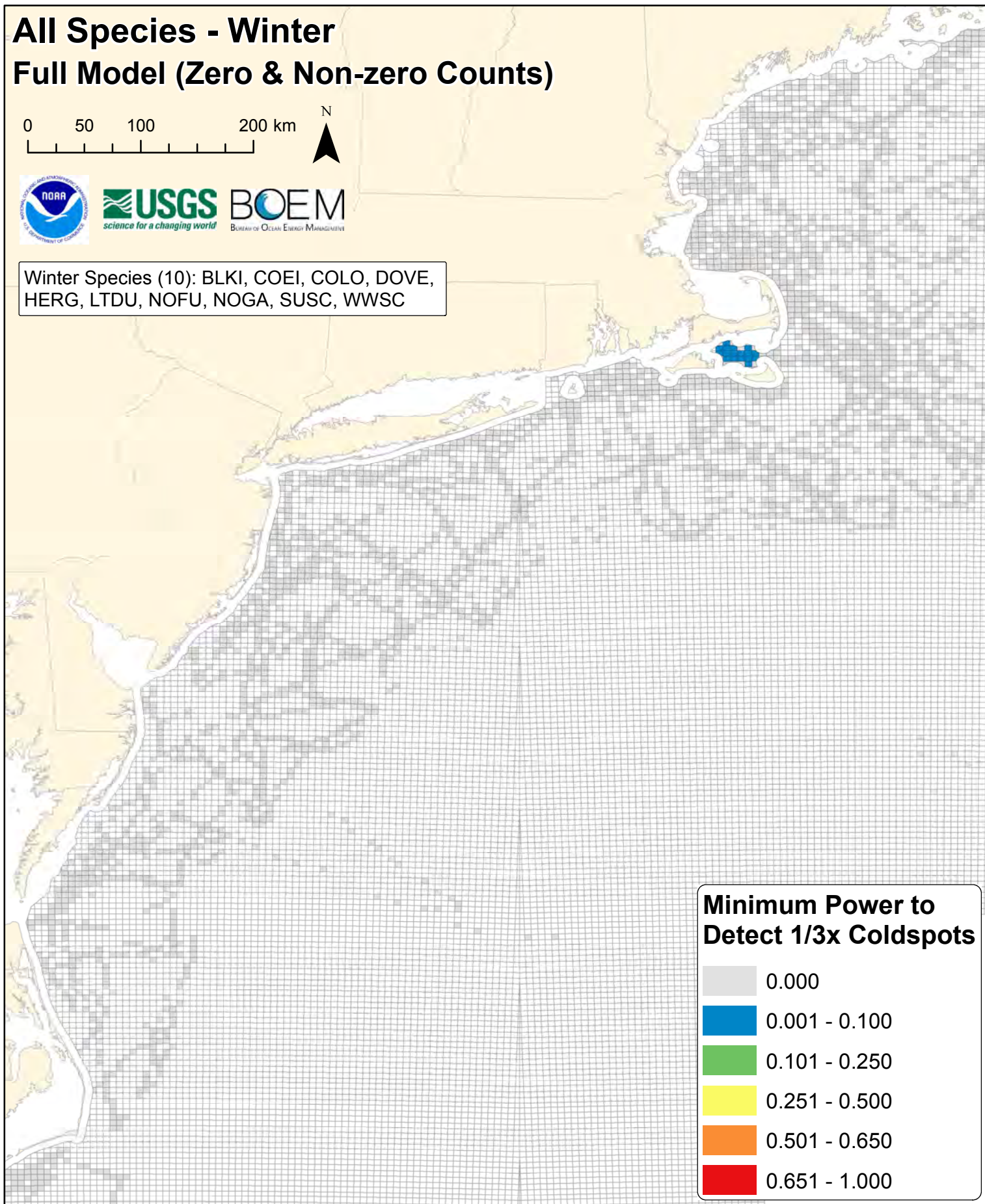
Maximum Power to Detect 1/3x Coldspots



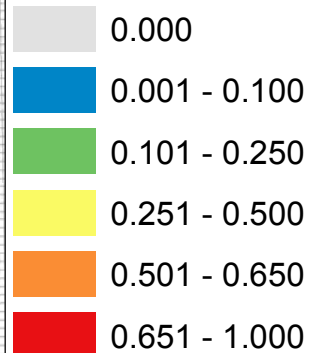
All Species - Winter Full Model (Zero & Non-zero Counts)



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



Minimum Power to Detect 1/3x Coldspots



DIGITAL SUPPLEMENT G

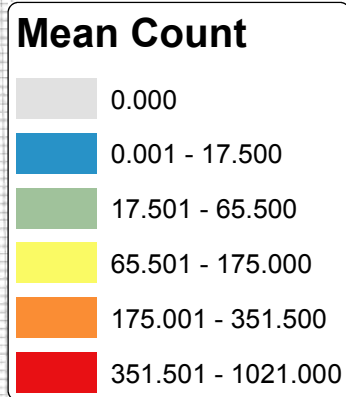
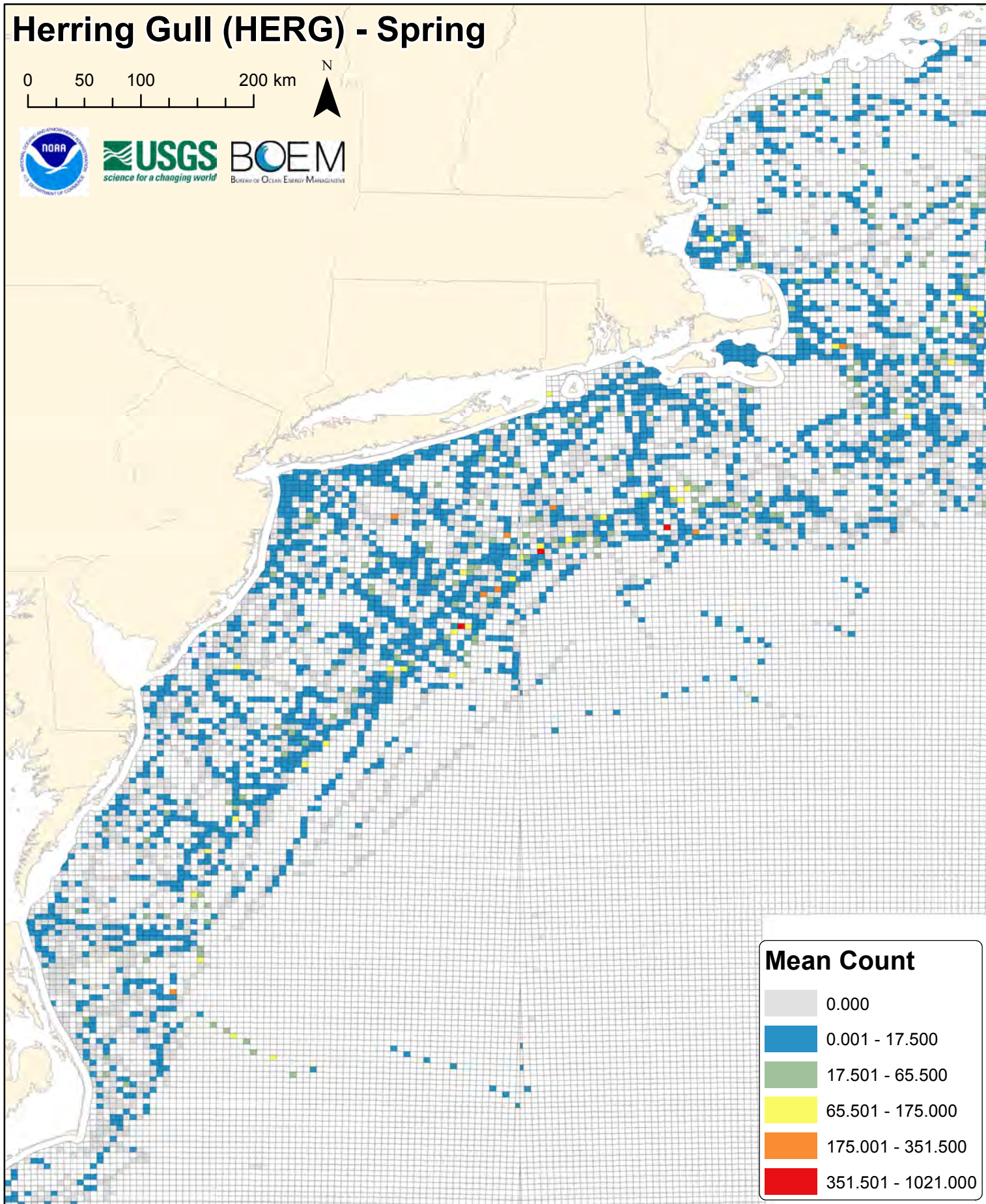
Full Hurdle Model (Zero & Non-Zero Counts) Results

SECTION II. Species-specific Power Analysis Maps and Figures

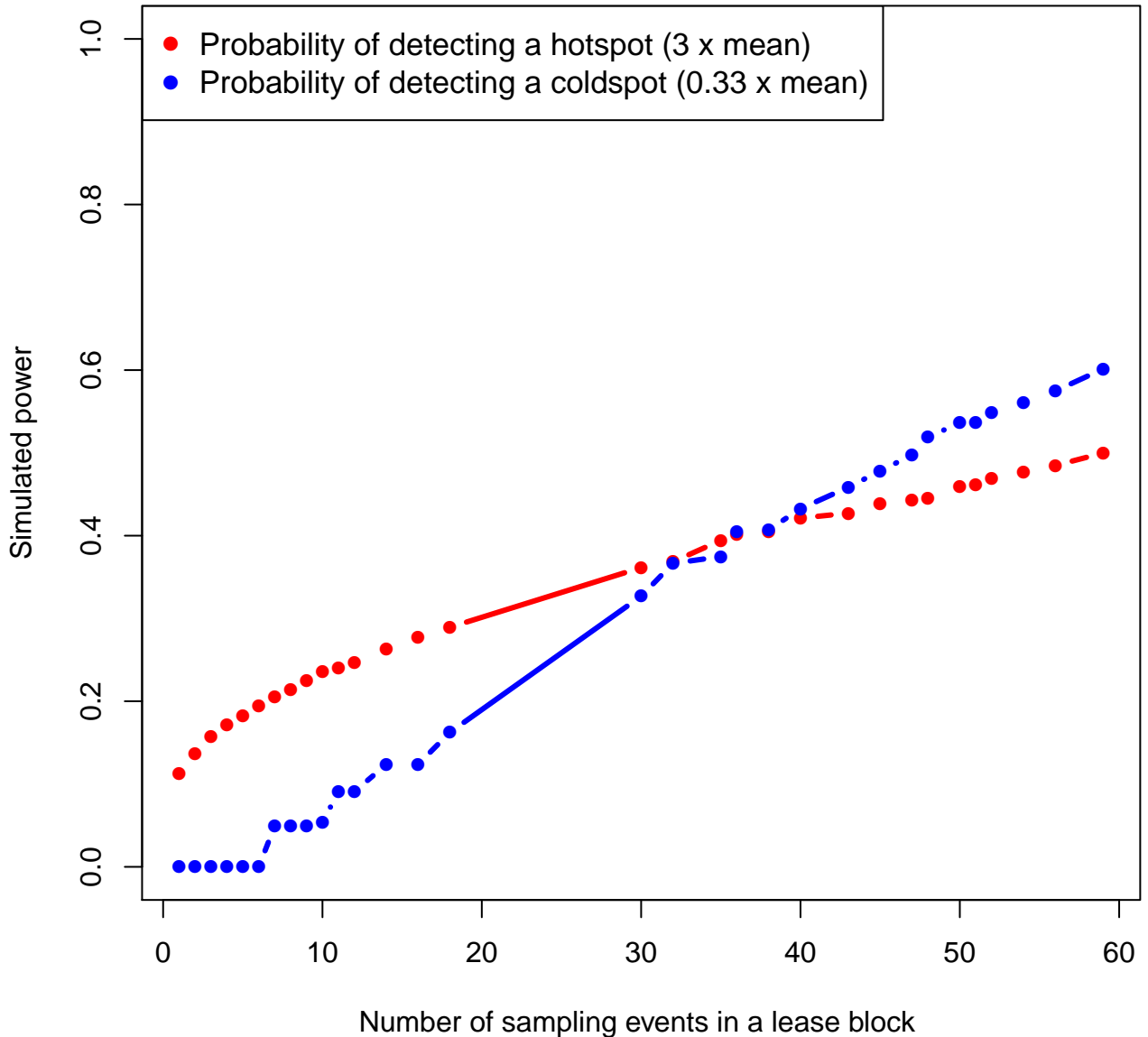
Figures G36-G90. Spring power analysis maps and figures (11 species x 5 figures per species).

Herring Gull (HERG) - Spring

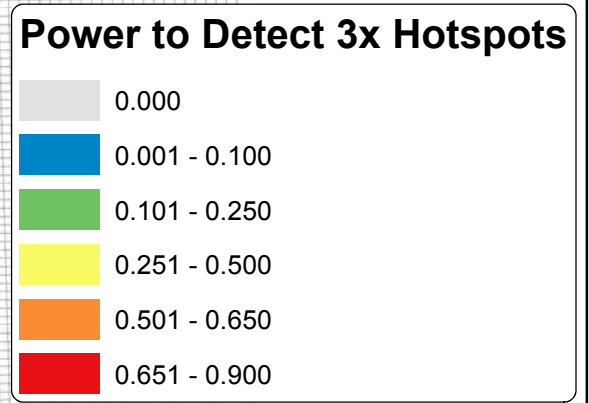
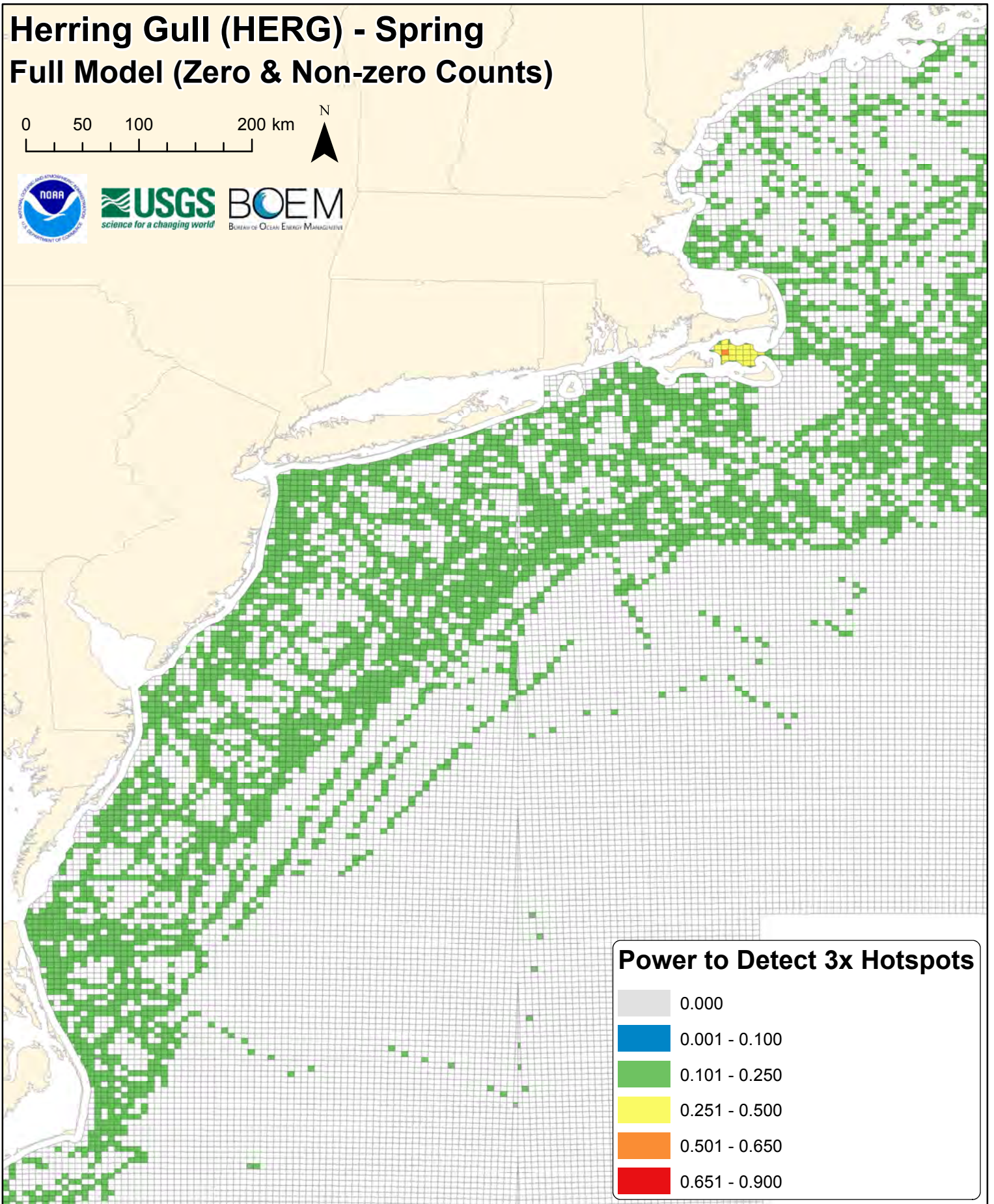
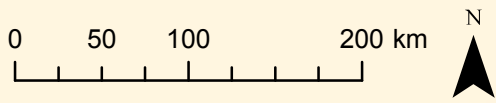
0 50 100 200 km



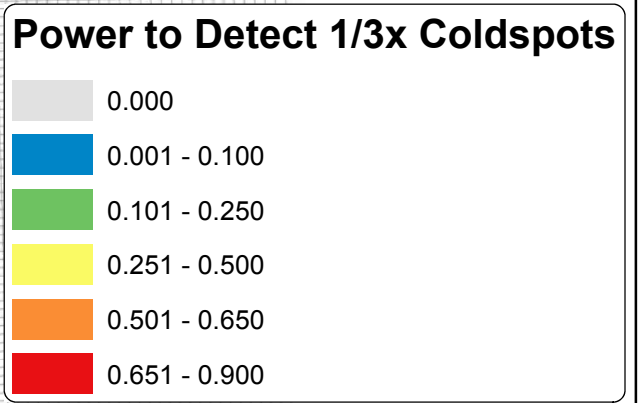
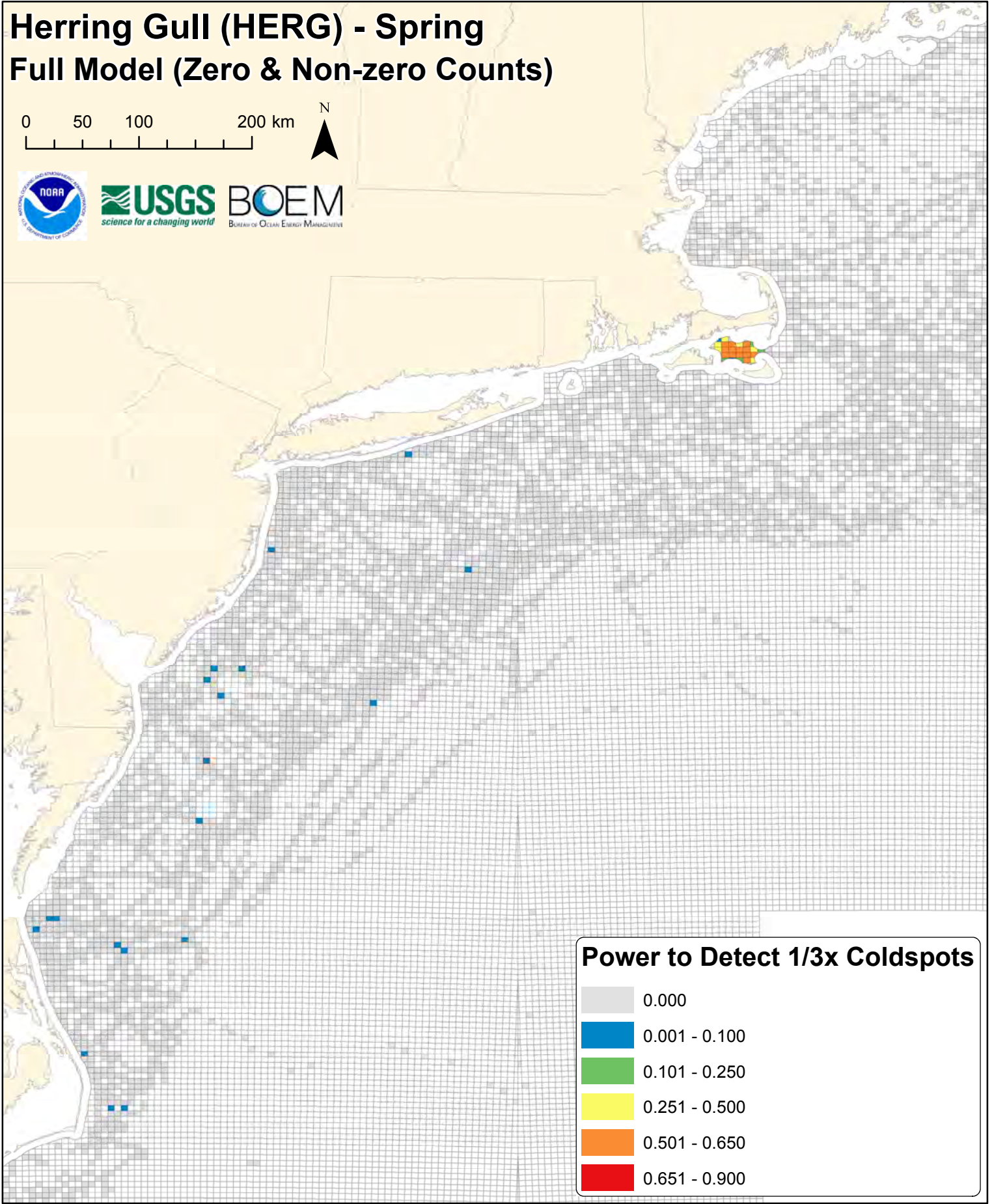
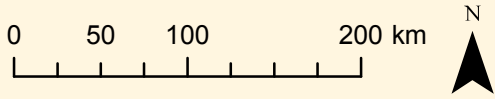
herg



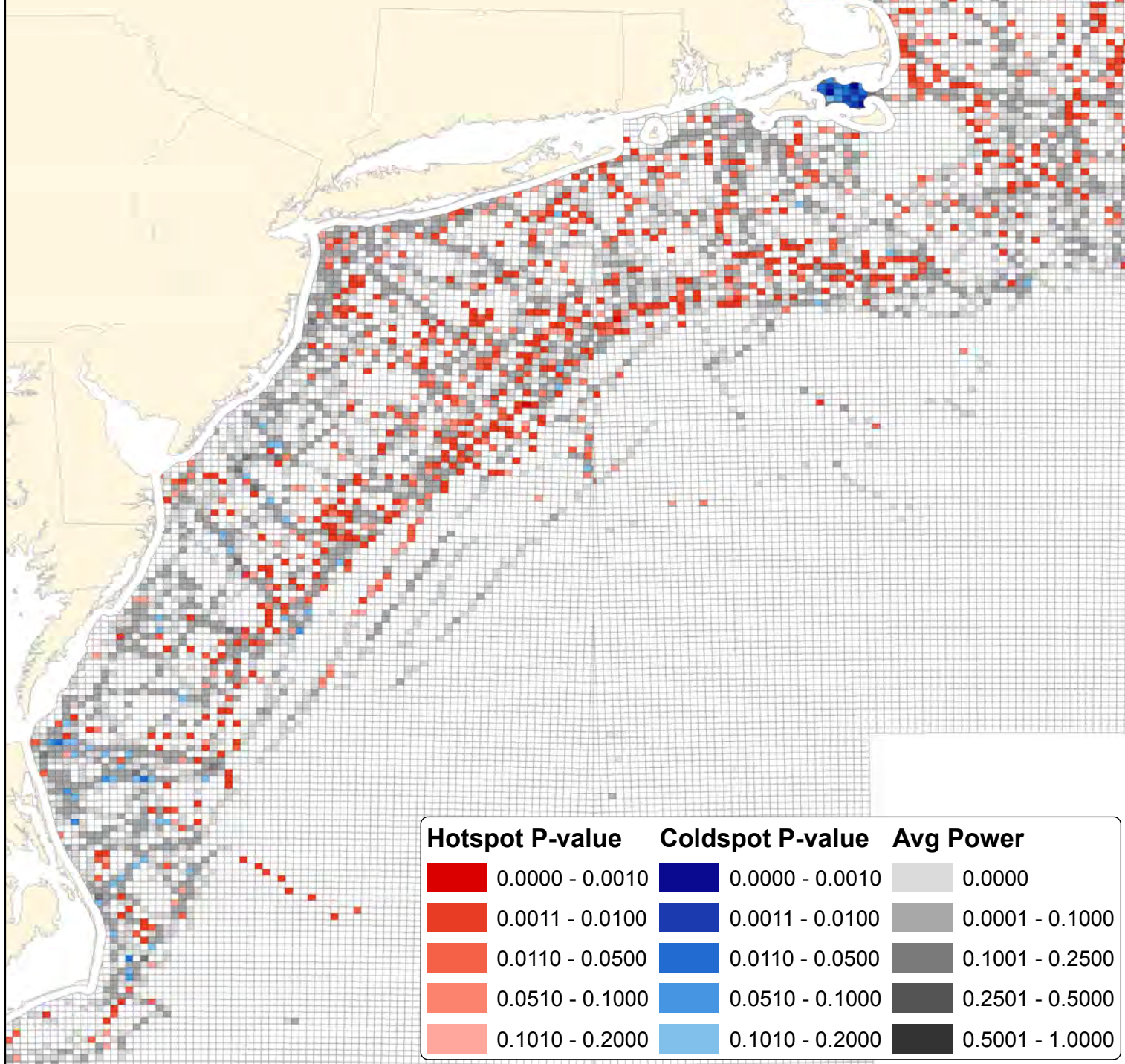
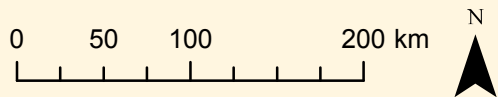
Herring Gull (HERG) - Spring Full Model (Zero & Non-zero Counts)


















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



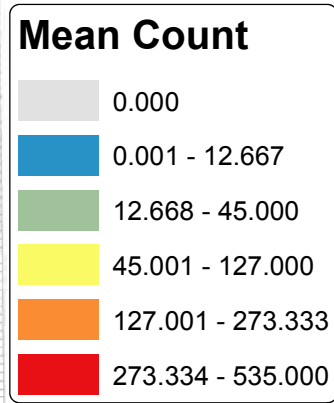
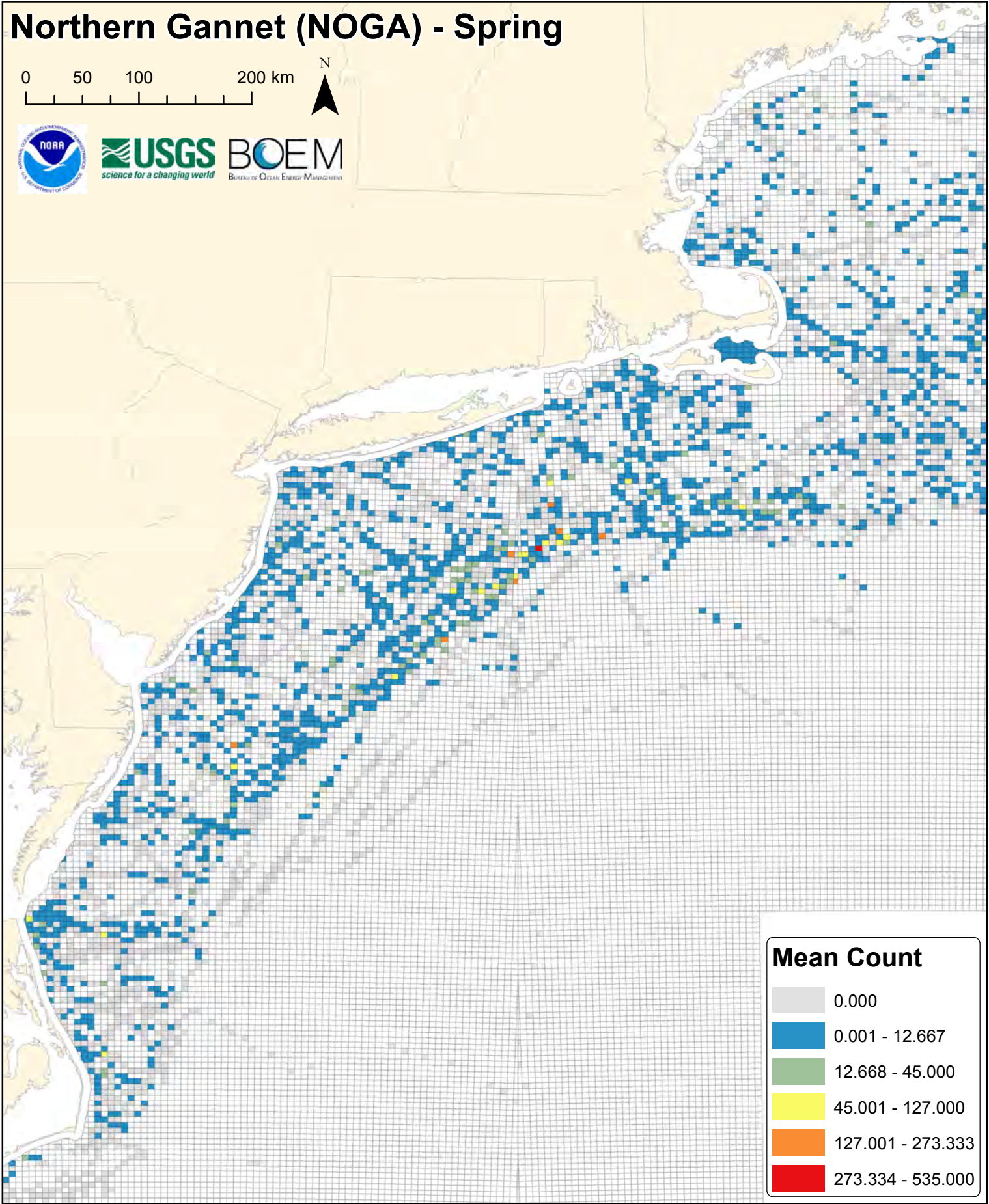
Herring Gull (HERG) - Spring Full Model (Zero & Non-zero Counts)



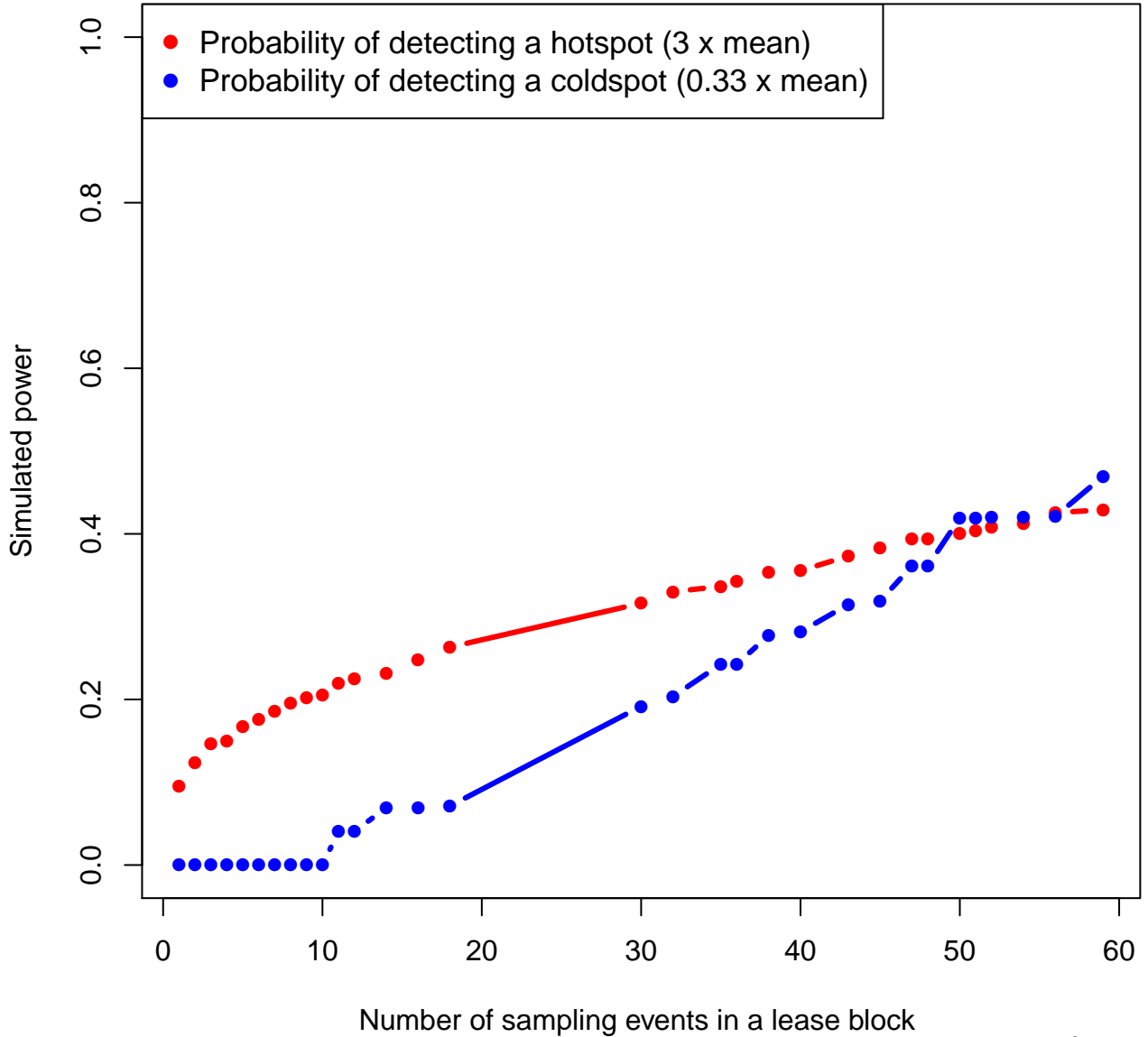
Hotspot P-value	Coldspot P-value	Avg Power
 0.0000 - 0.0010	 0.0000 - 0.0010	 0.0000
 0.0011 - 0.0100	 0.0011 - 0.0100	 0.0001 - 0.1000
 0.0110 - 0.0500	 0.0110 - 0.0500	 0.1001 - 0.2500
 0.0510 - 0.1000	 0.0510 - 0.1000	 0.2501 - 0.5000
 0.1010 - 0.2000	 0.1010 - 0.2000	 0.5001 - 1.0000

Northern Gannet (NOGA) - Spring

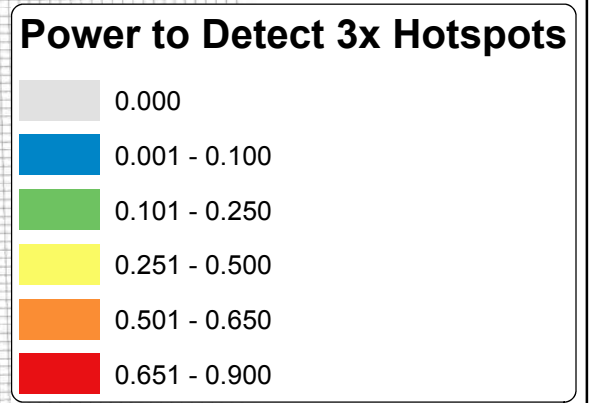
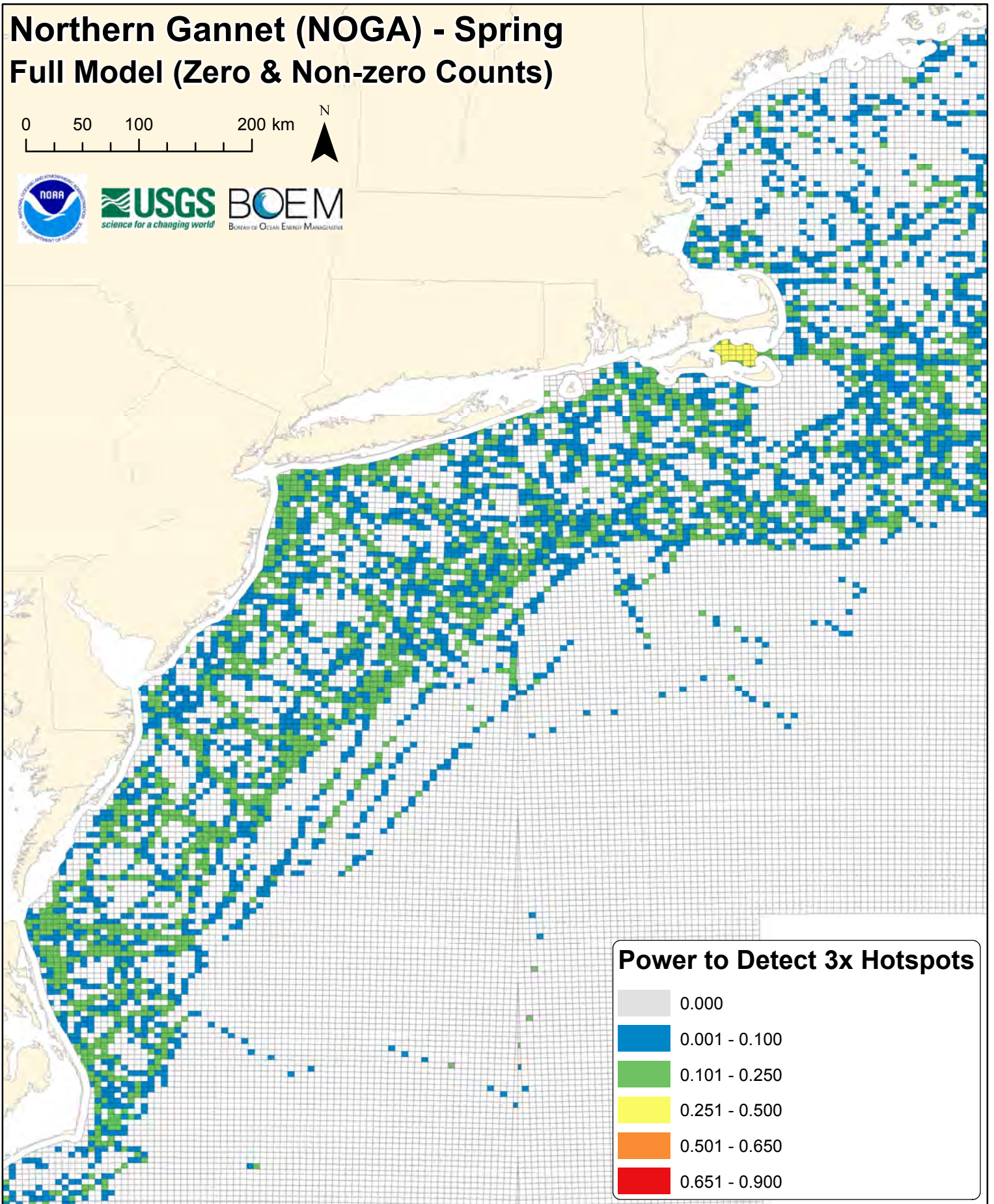
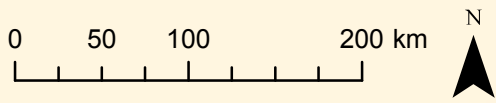
0 50 100 200 km



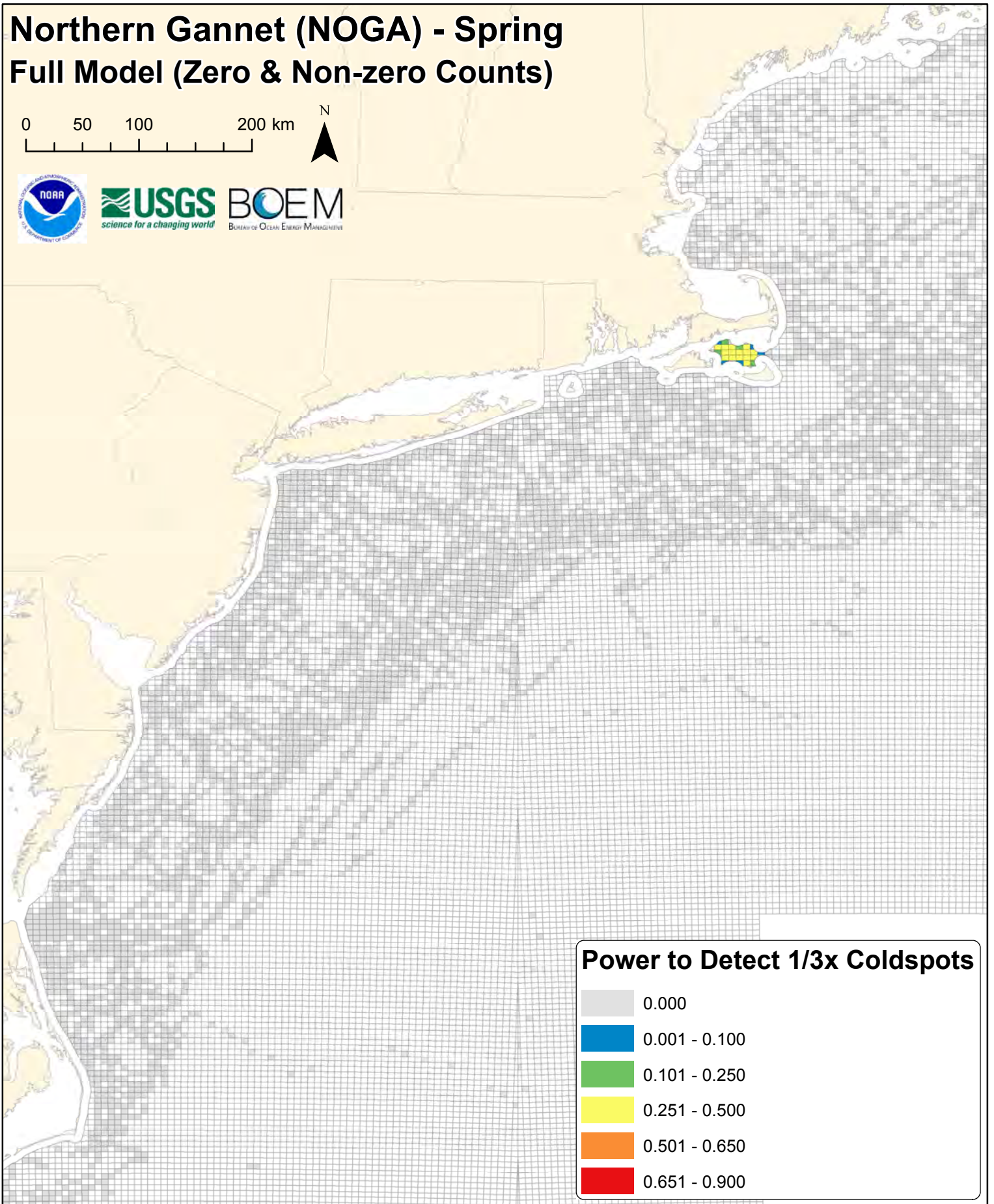
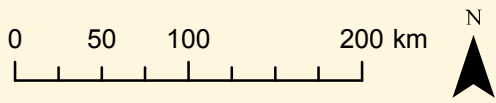
noga



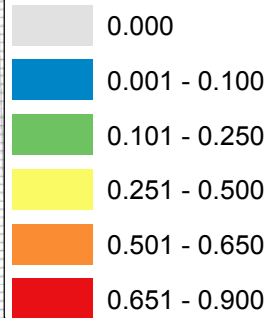
Northern Gannet (NOGA) - Spring Full Model (Zero & Non-zero Counts)



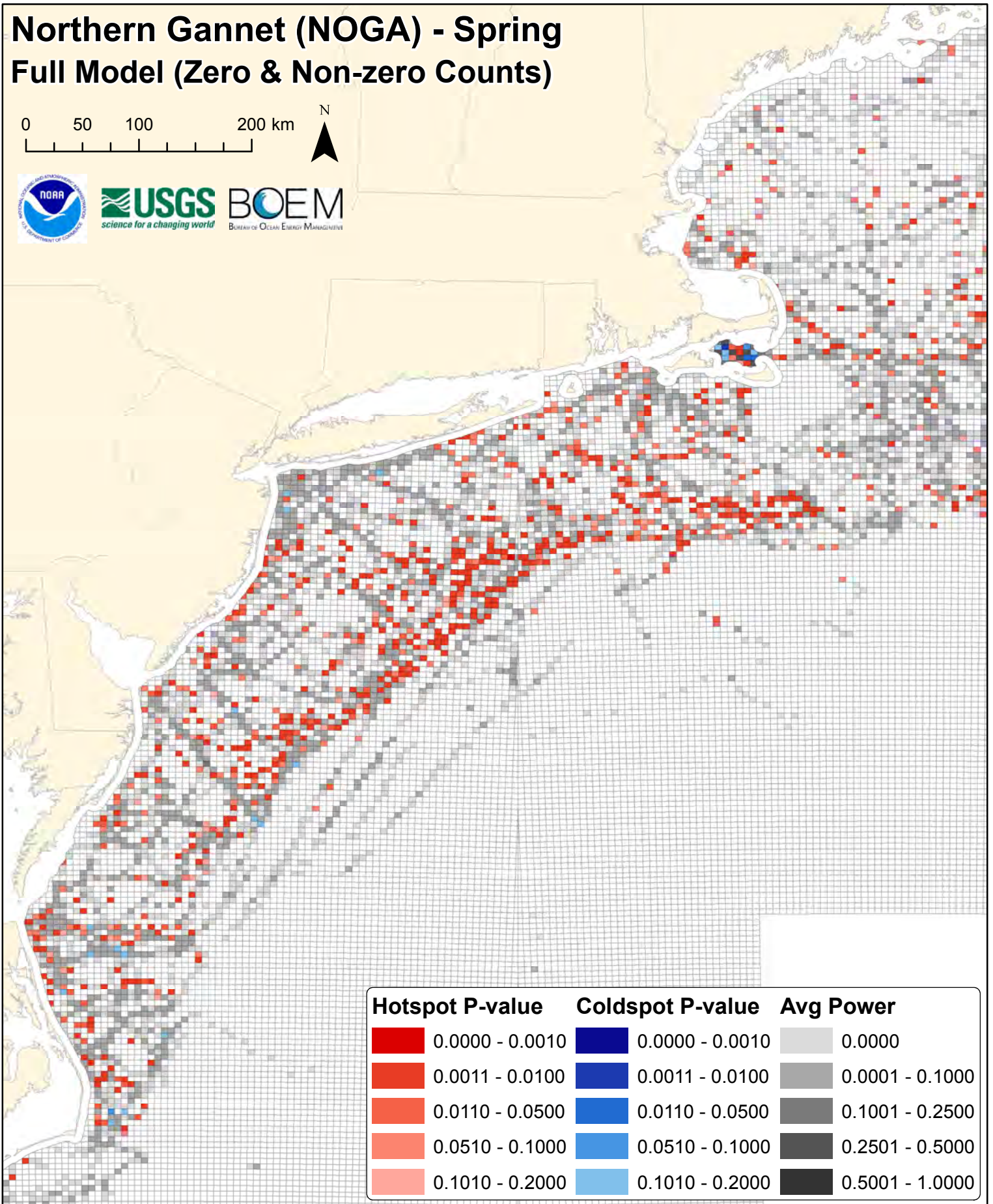
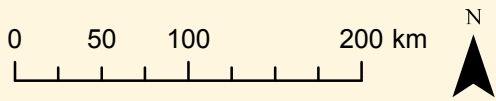
Northern Gannet (NOGA) - Spring Full Model (Zero & Non-zero Counts)


















Power to Detect 1/3x Coldspots



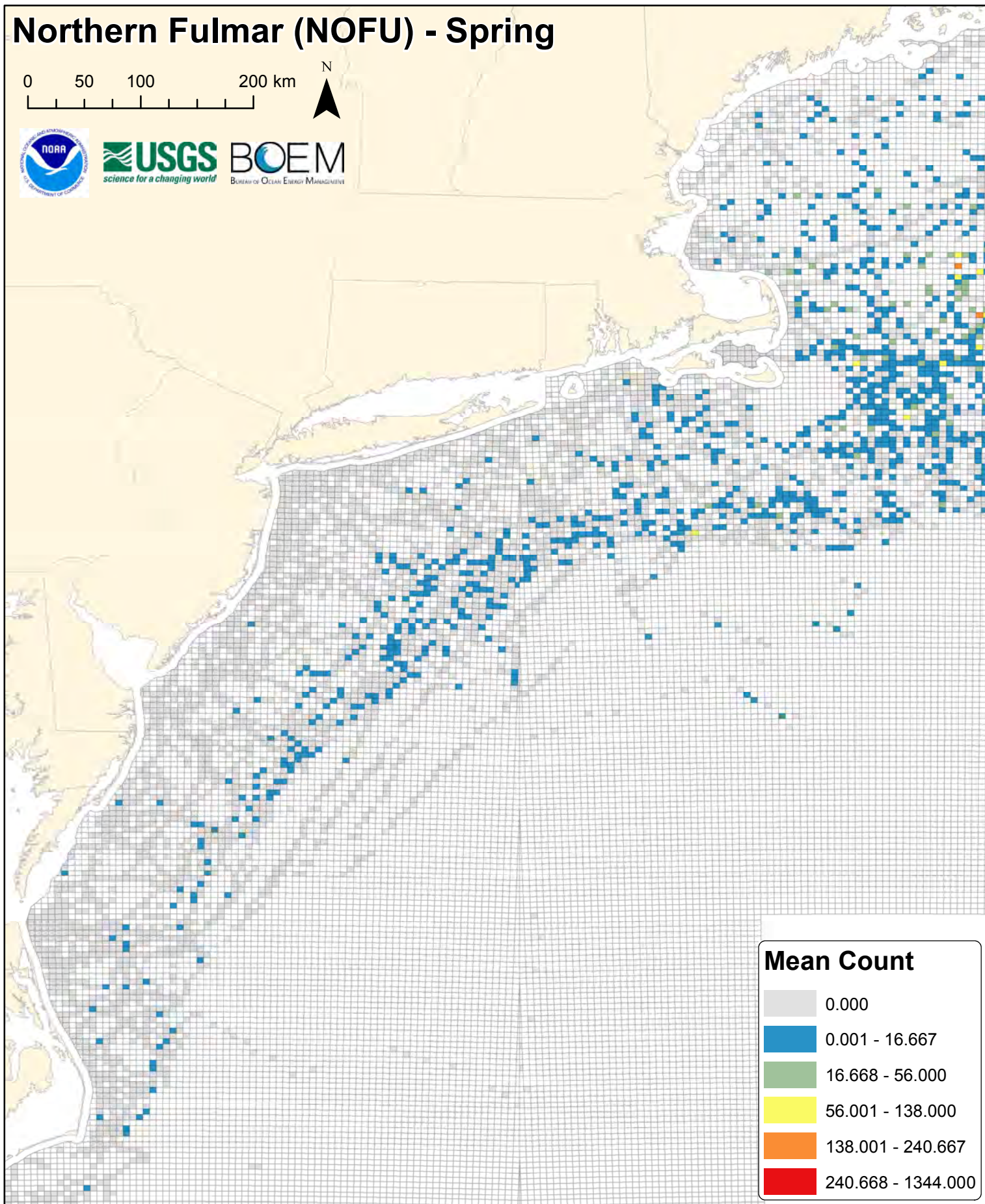
Northern Gannet (NOGA) - Spring Full Model (Zero & Non-zero Counts)



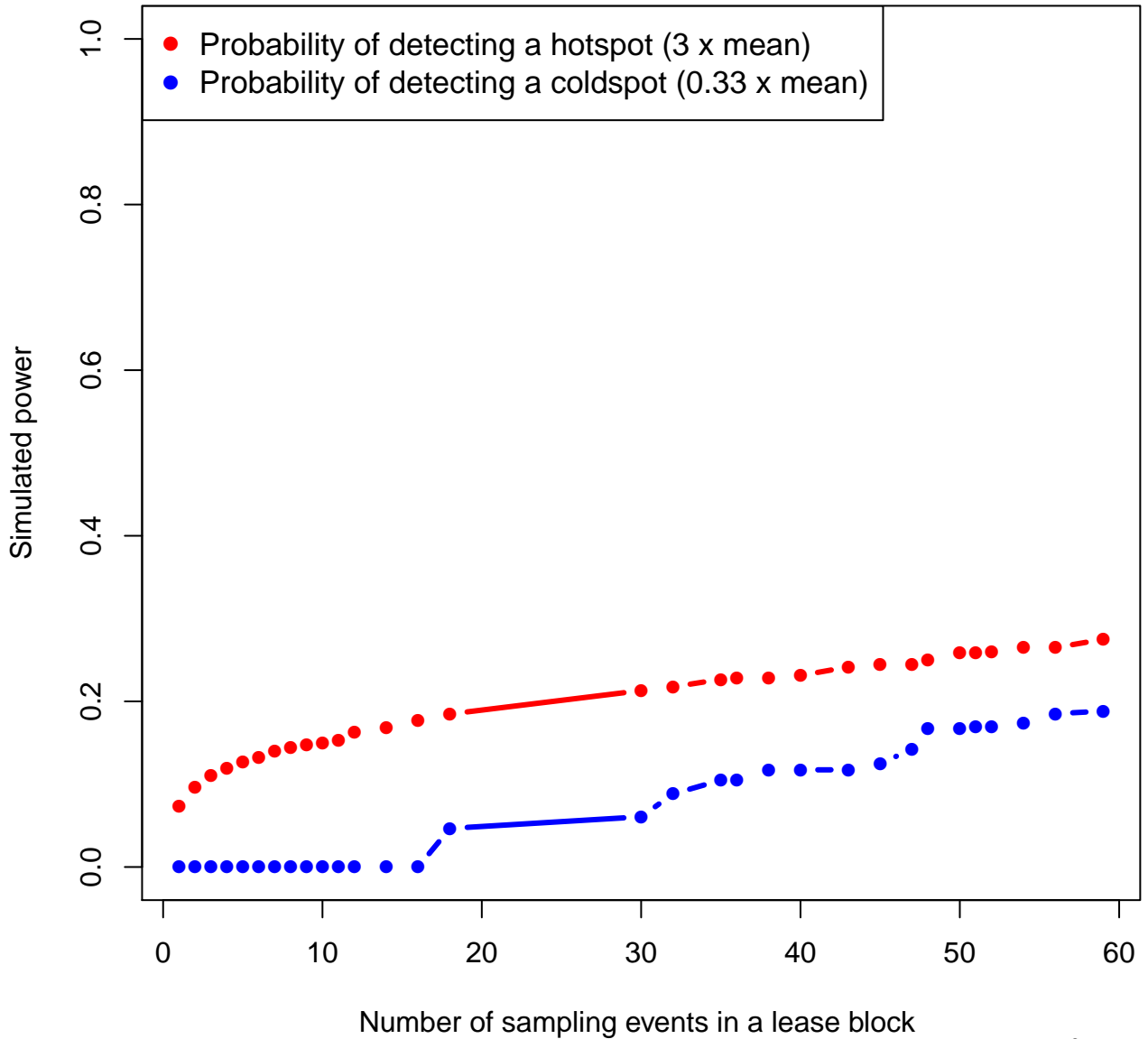
Hotspot P-value	Coldspot P-value	Avg Power
 0.0000 - 0.0010	 0.0000 - 0.0010	 0.0000
 0.0011 - 0.0100	 0.0011 - 0.0100	 0.0001 - 0.1000
 0.0110 - 0.0500	 0.0110 - 0.0500	 0.1001 - 0.2500
 0.0510 - 0.1000	 0.0510 - 0.1000	 0.2501 - 0.5000
 0.1010 - 0.2000	 0.1010 - 0.2000	 0.5001 - 1.0000

Northern Fulmar (NOFU) - Spring

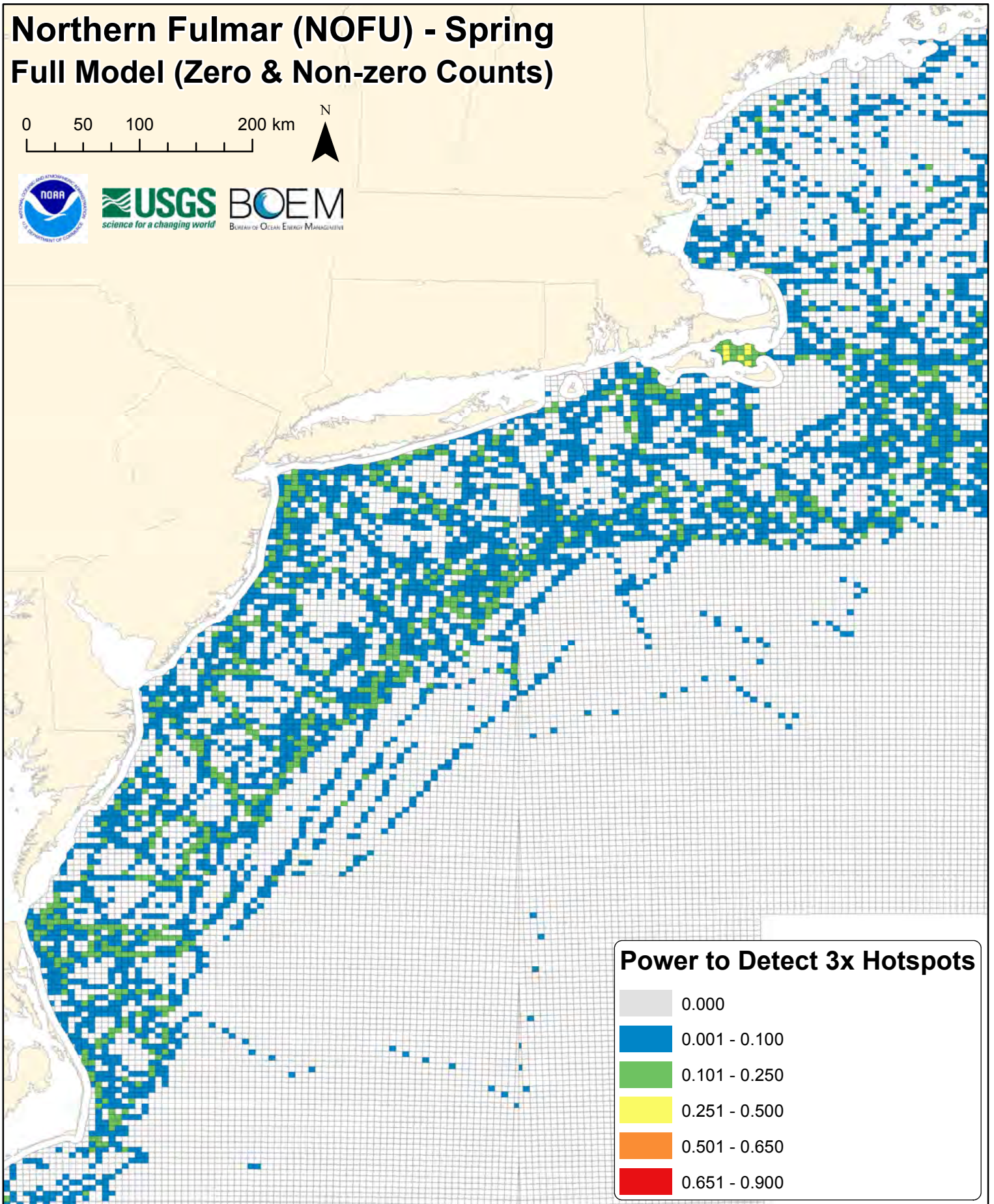
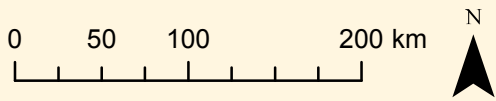
0 50 100 200 km



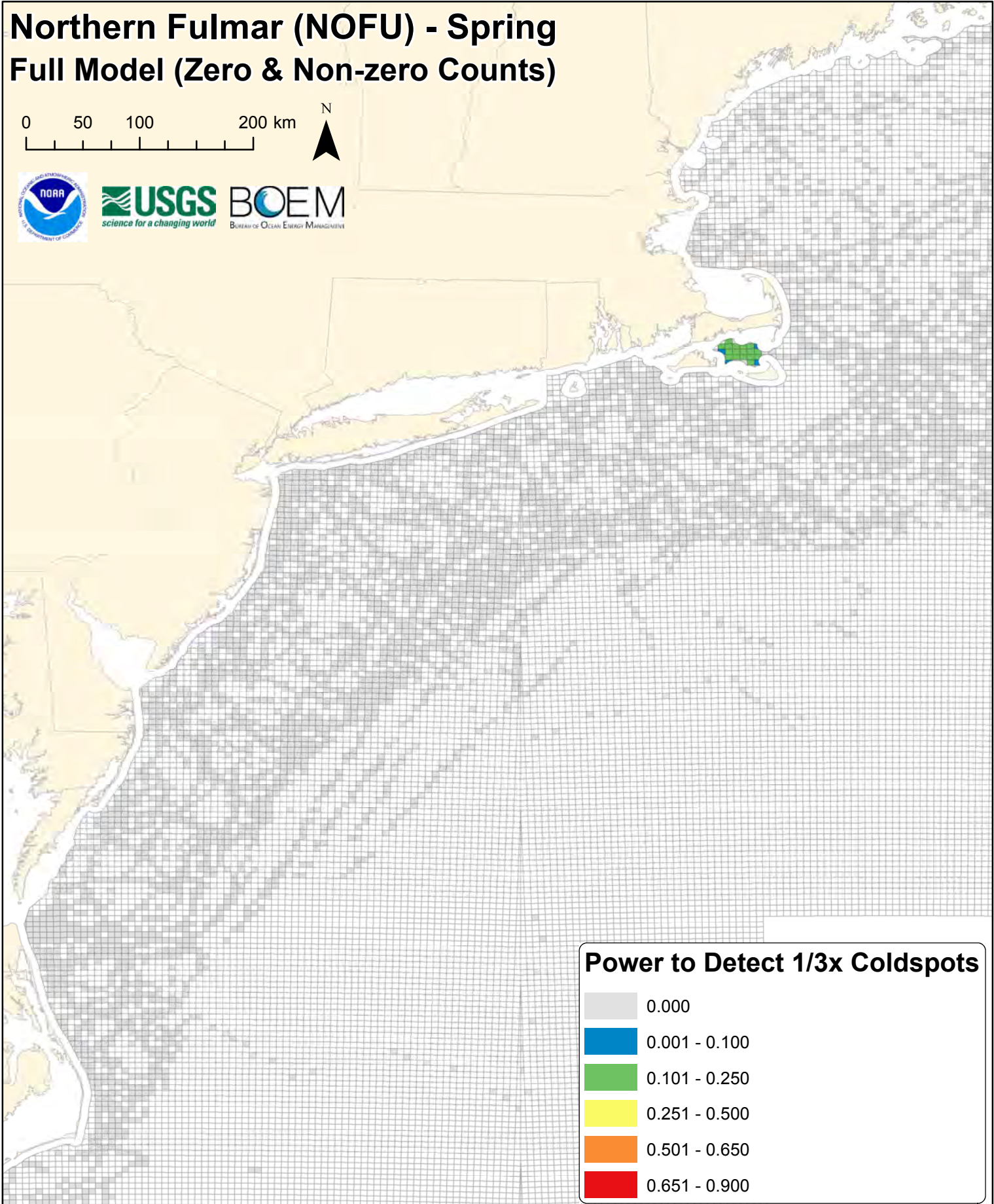
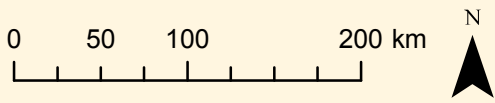
nofu



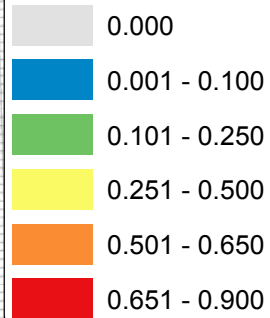
Northern Fulmar (NOFU) - Spring Full Model (Zero & Non-zero Counts)



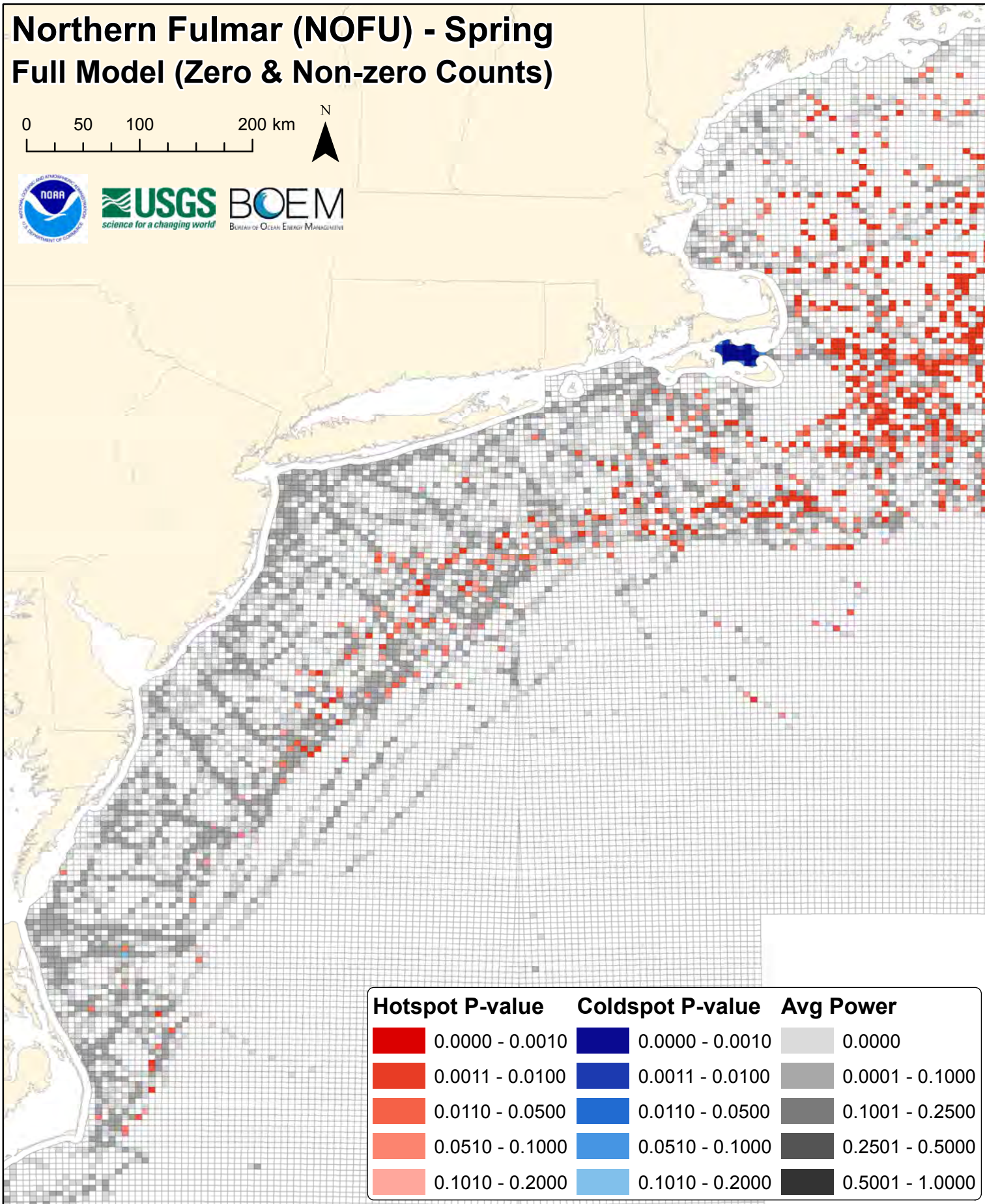
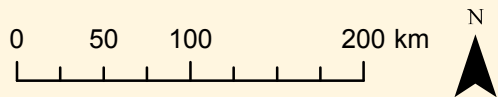
Northern Fulmar (NOFU) - Spring Full Model (Zero & Non-zero Counts)


















Power to Detect 1/3x Coldspots



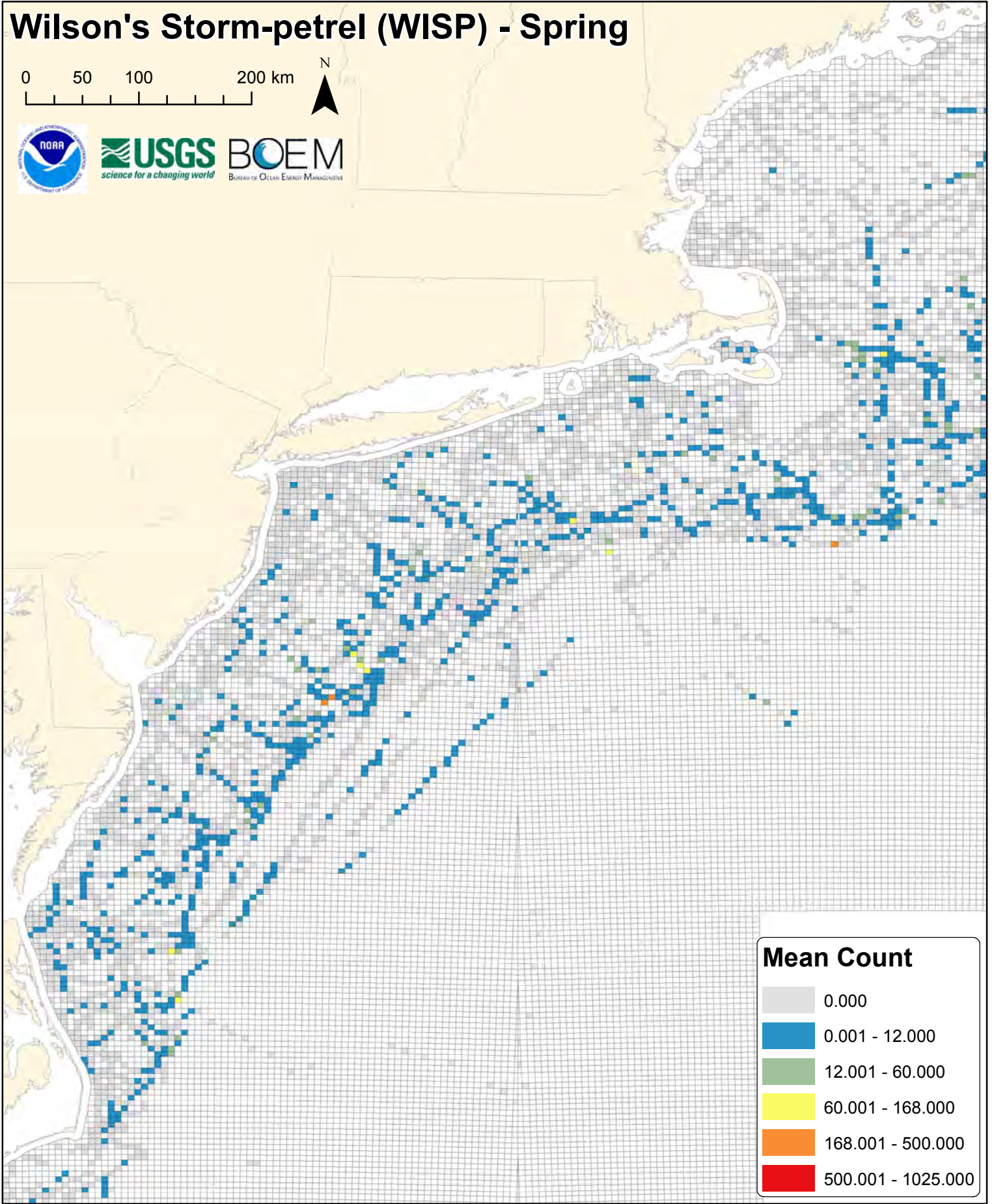
Northern Fulmar (NOFU) - Spring Full Model (Zero & Non-zero Counts)



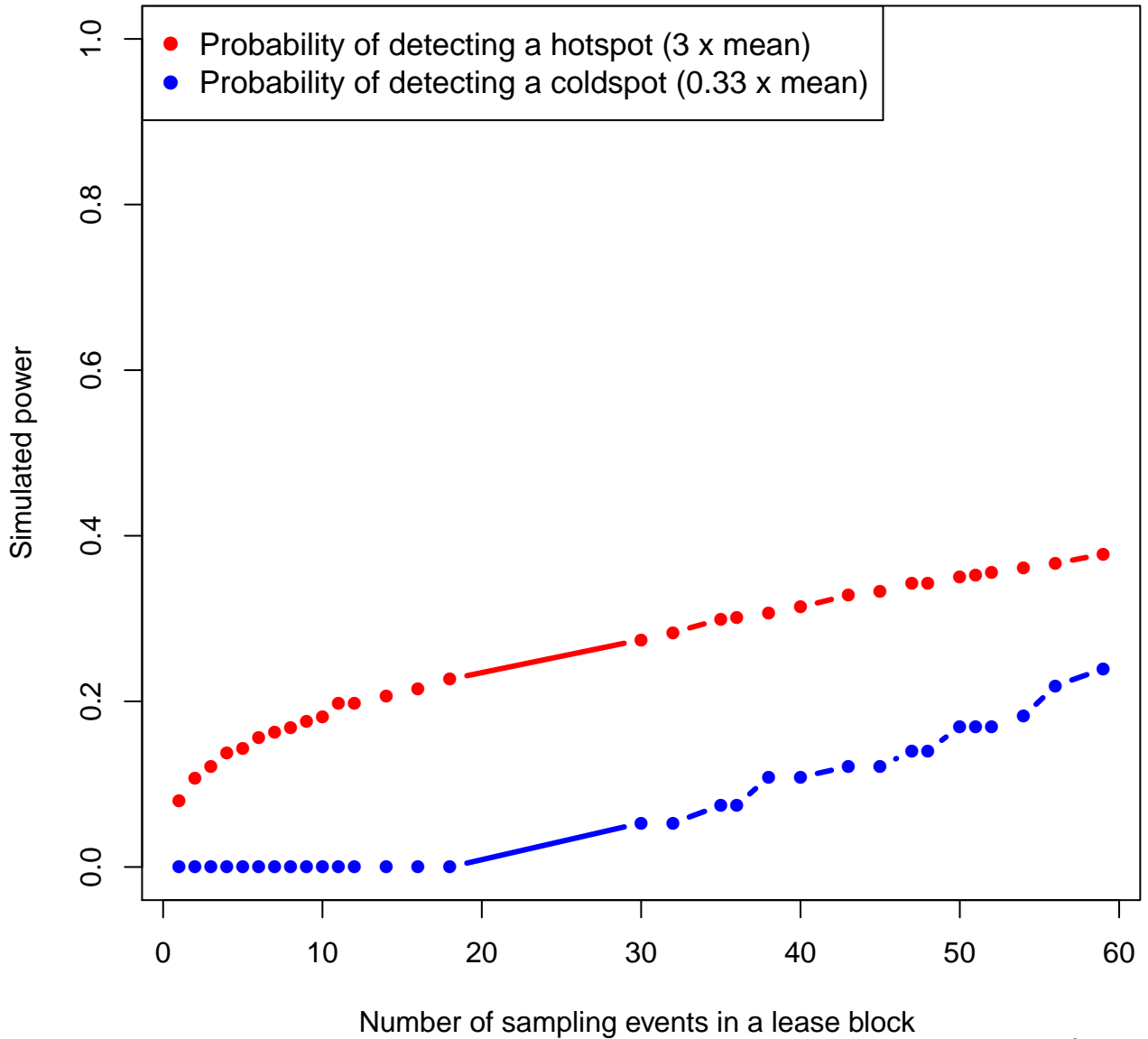
Hotspot P-value	Coldspot P-value	Avg Power
 0.0000 - 0.0010	 0.0000 - 0.0010	 0.0000
 0.0011 - 0.0100	 0.0011 - 0.0100	 0.0001 - 0.1000
 0.0110 - 0.0500	 0.0110 - 0.0500	 0.1001 - 0.2500
 0.0510 - 0.1000	 0.0510 - 0.1000	 0.2501 - 0.5000
 0.1010 - 0.2000	 0.1010 - 0.2000	 0.5001 - 1.0000

Wilson's Storm-petrel (WISP) - Spring

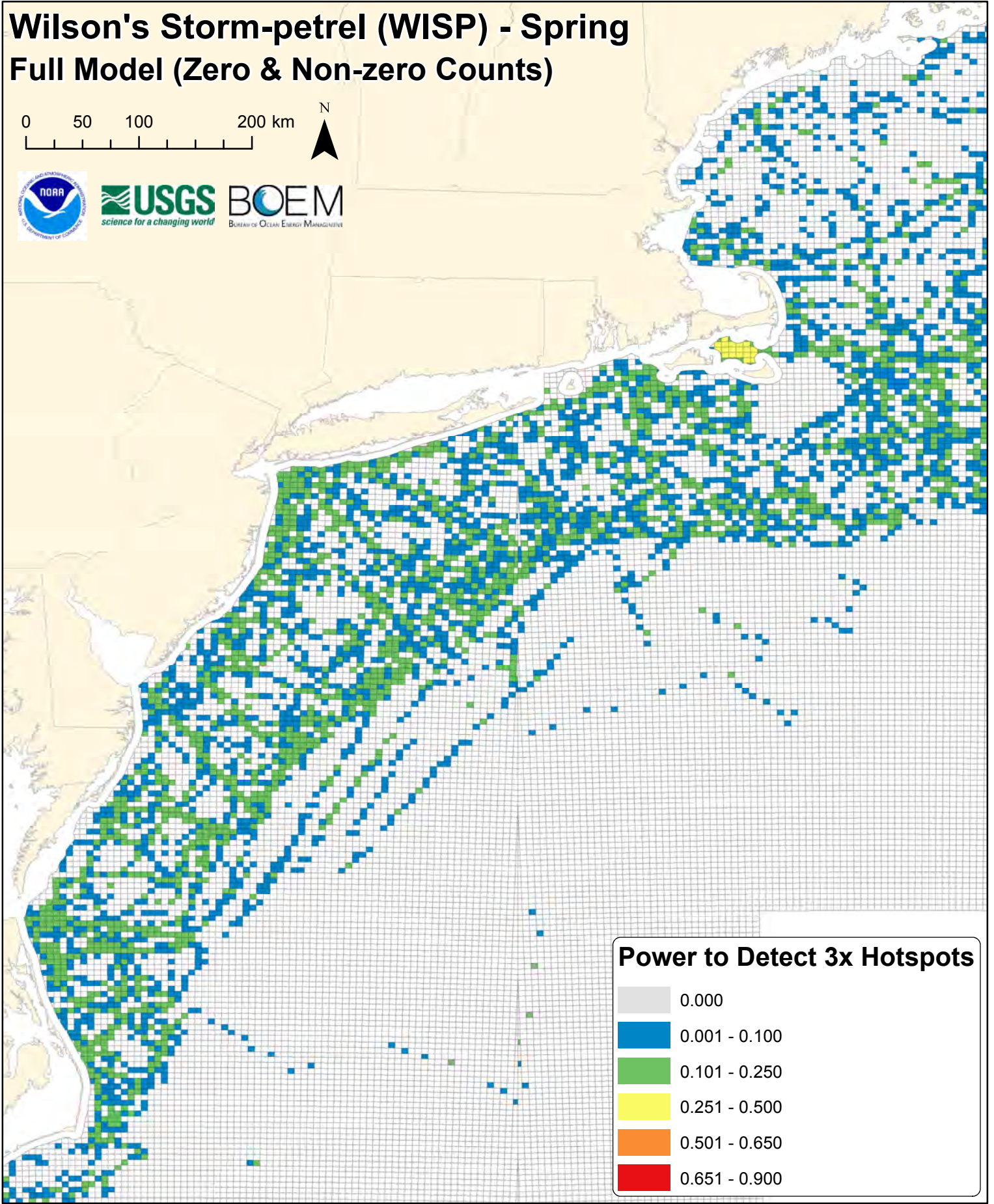
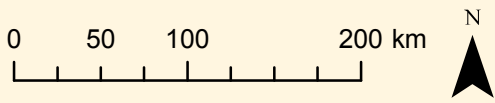
0 50 100 200 km



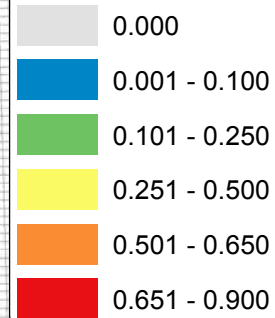
wisp



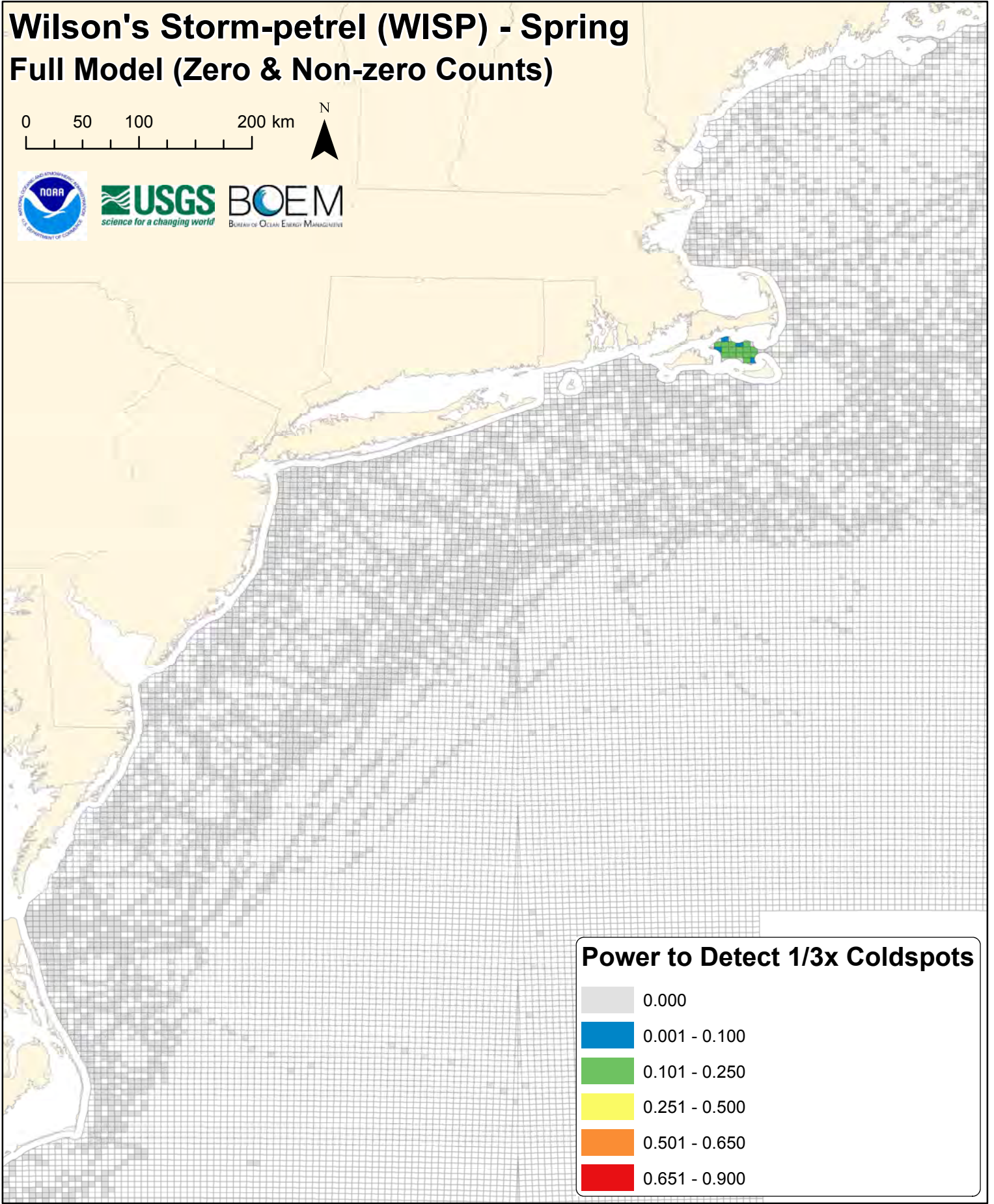
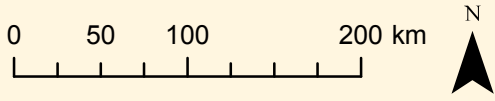
Wilson's Storm-petrel (WISP) - Spring Full Model (Zero & Non-zero Counts)



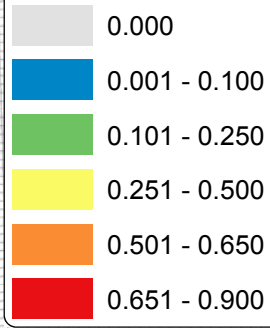
Power to Detect 3x Hotspots



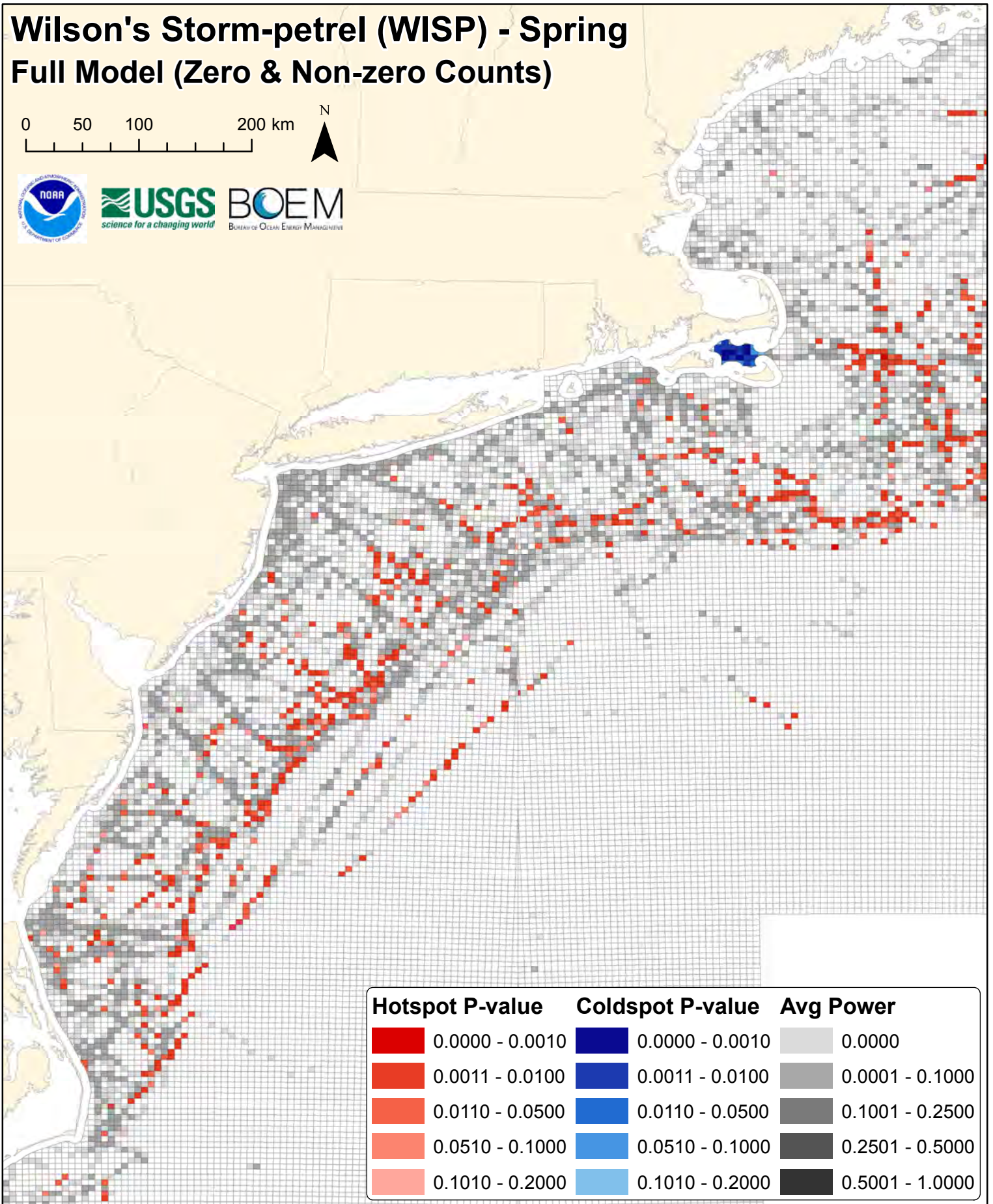
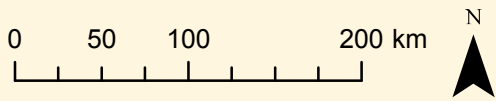
Wilson's Storm-petrel (WISP) - Spring Full Model (Zero & Non-zero Counts)


















Power to Detect 1/3x Coldspots



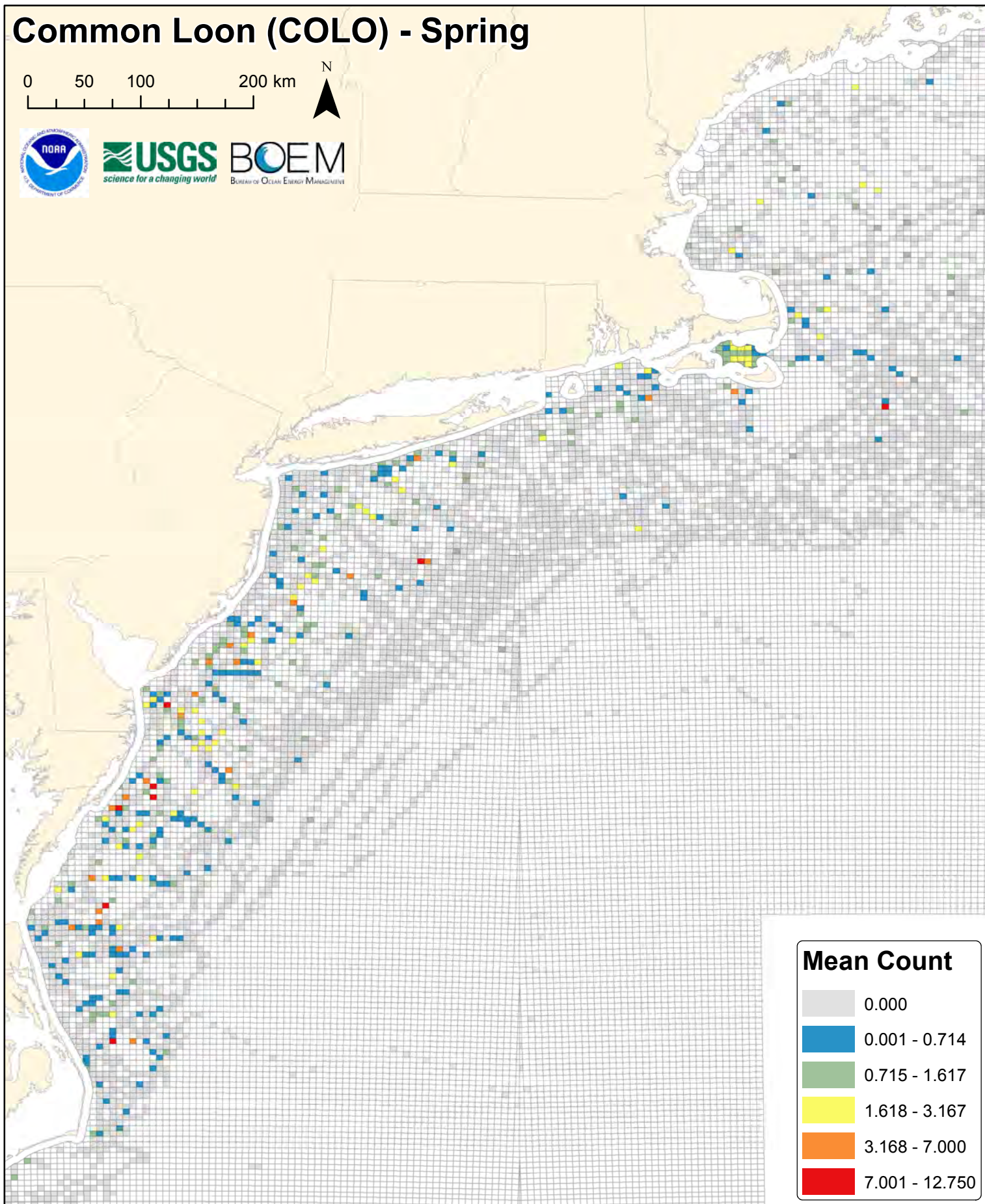
Wilson's Storm-petrel (WISP) - Spring Full Model (Zero & Non-zero Counts)



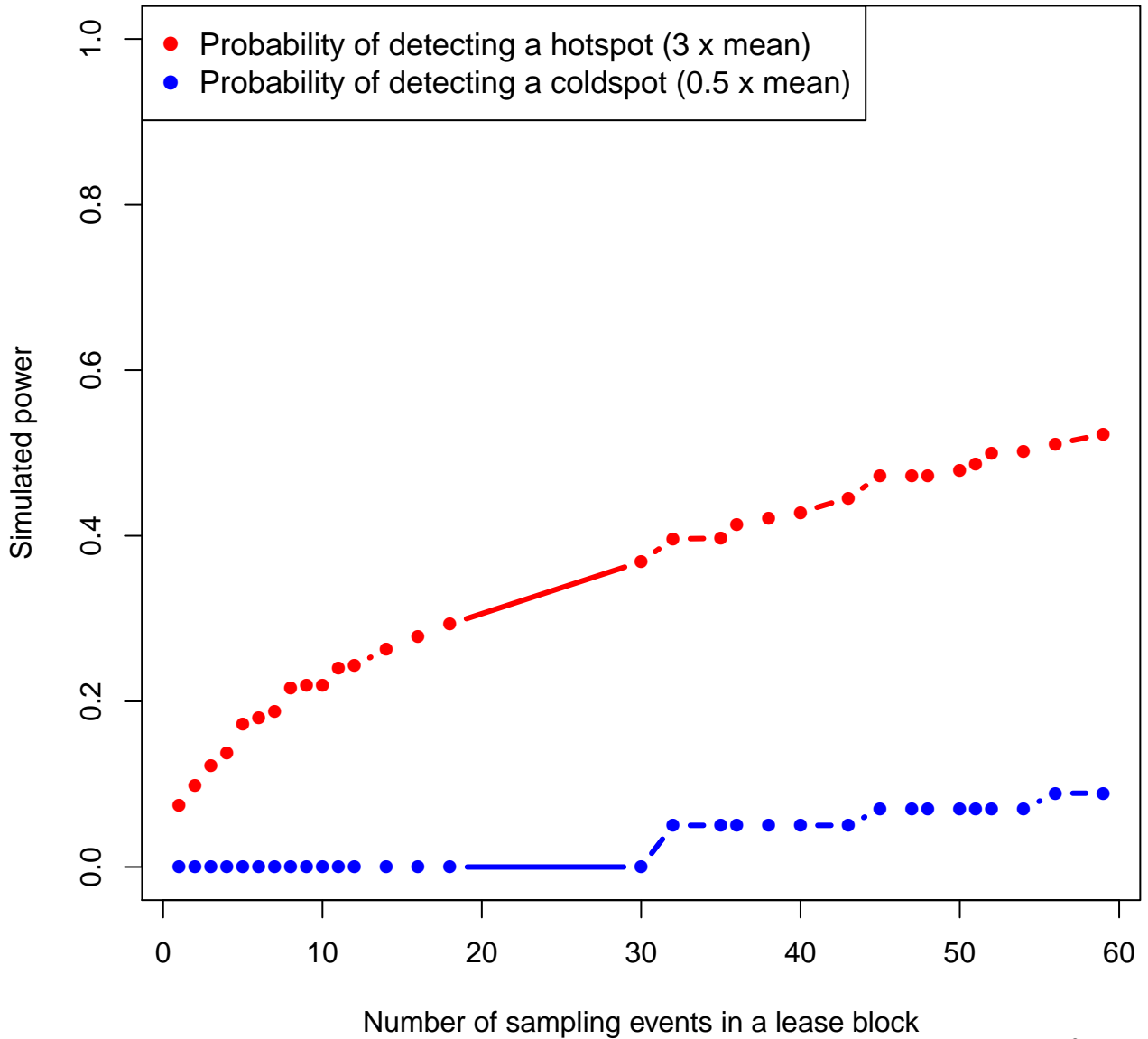
Hotspot P-value	Coldspot P-value	Avg Power
 0.0000 - 0.0010	 0.0000 - 0.0010	 0.0000
 0.0011 - 0.0100	 0.0011 - 0.0100	 0.0001 - 0.1000
 0.0110 - 0.0500	 0.0110 - 0.0500	 0.1001 - 0.2500
 0.0510 - 0.1000	 0.0510 - 0.1000	 0.2501 - 0.5000
 0.1010 - 0.2000	 0.1010 - 0.2000	 0.5001 - 1.0000

Common Loon (COLO) - Spring

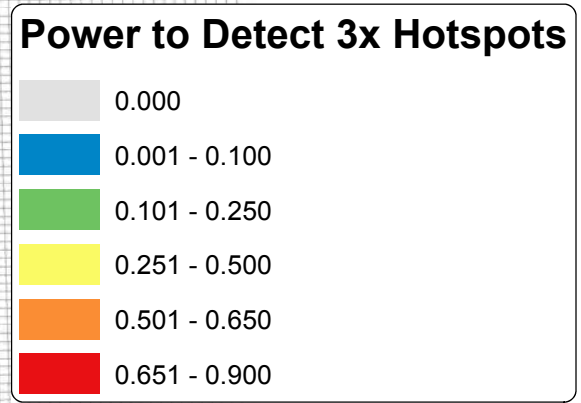
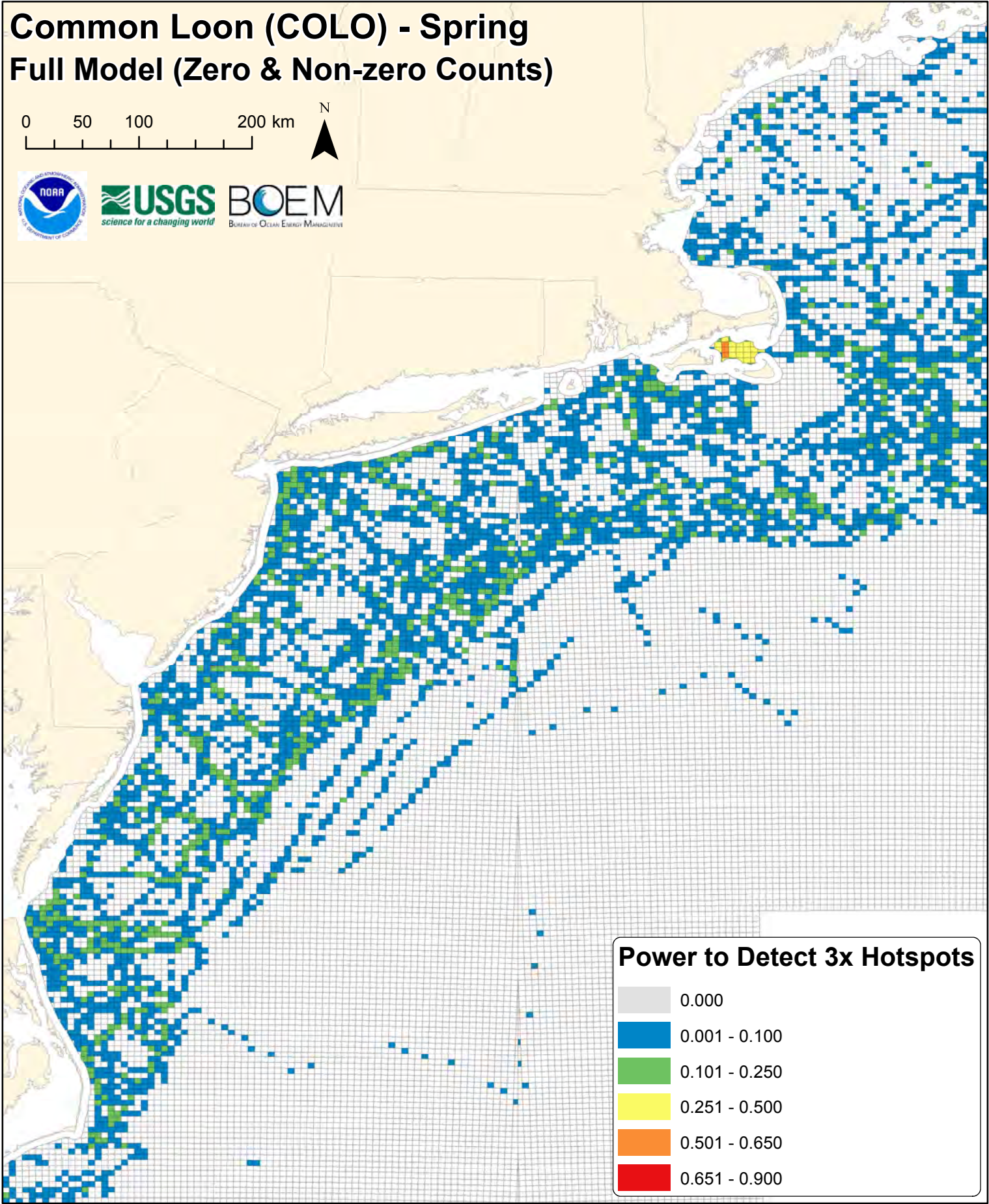
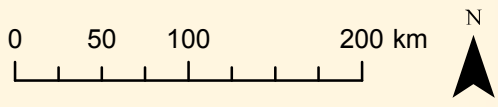
0 50 100 200 km



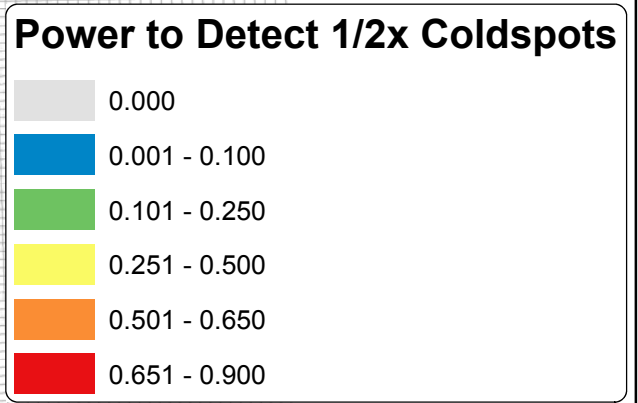
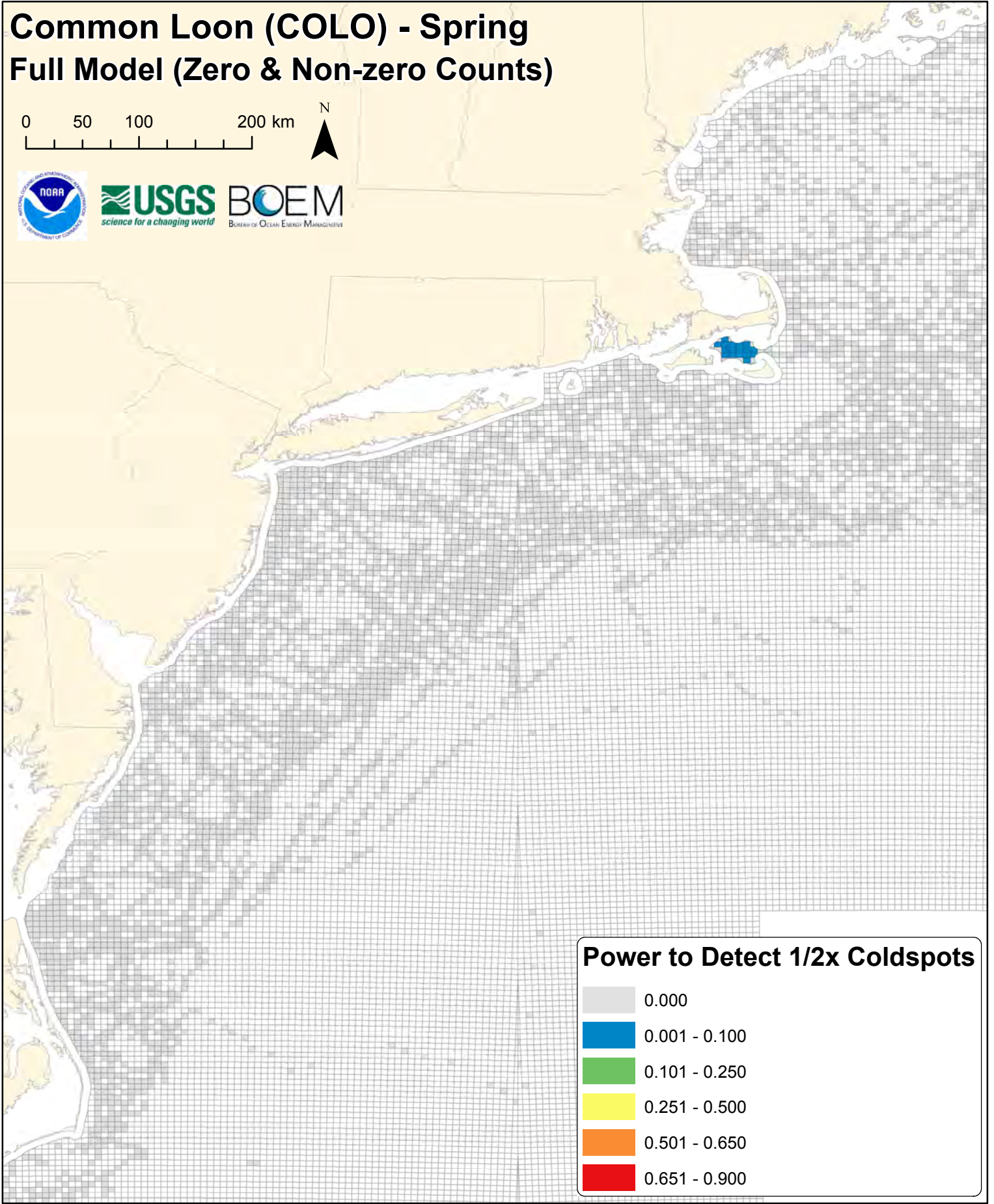
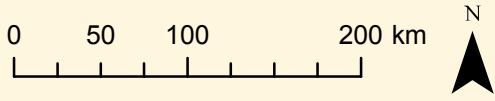
colo



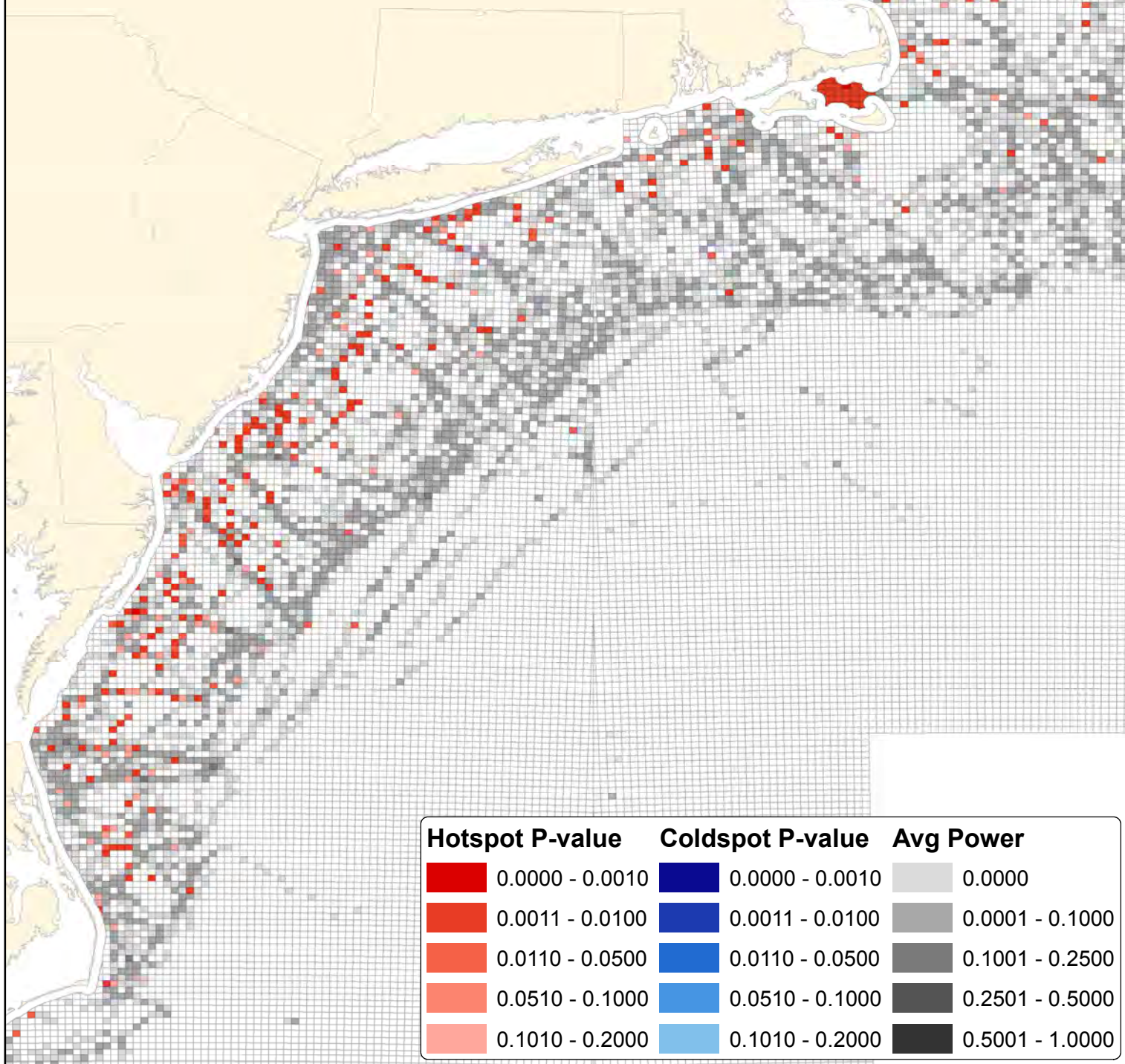
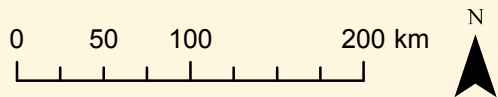
Common Loon (COLO) - Spring Full Model (Zero & Non-zero Counts)



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

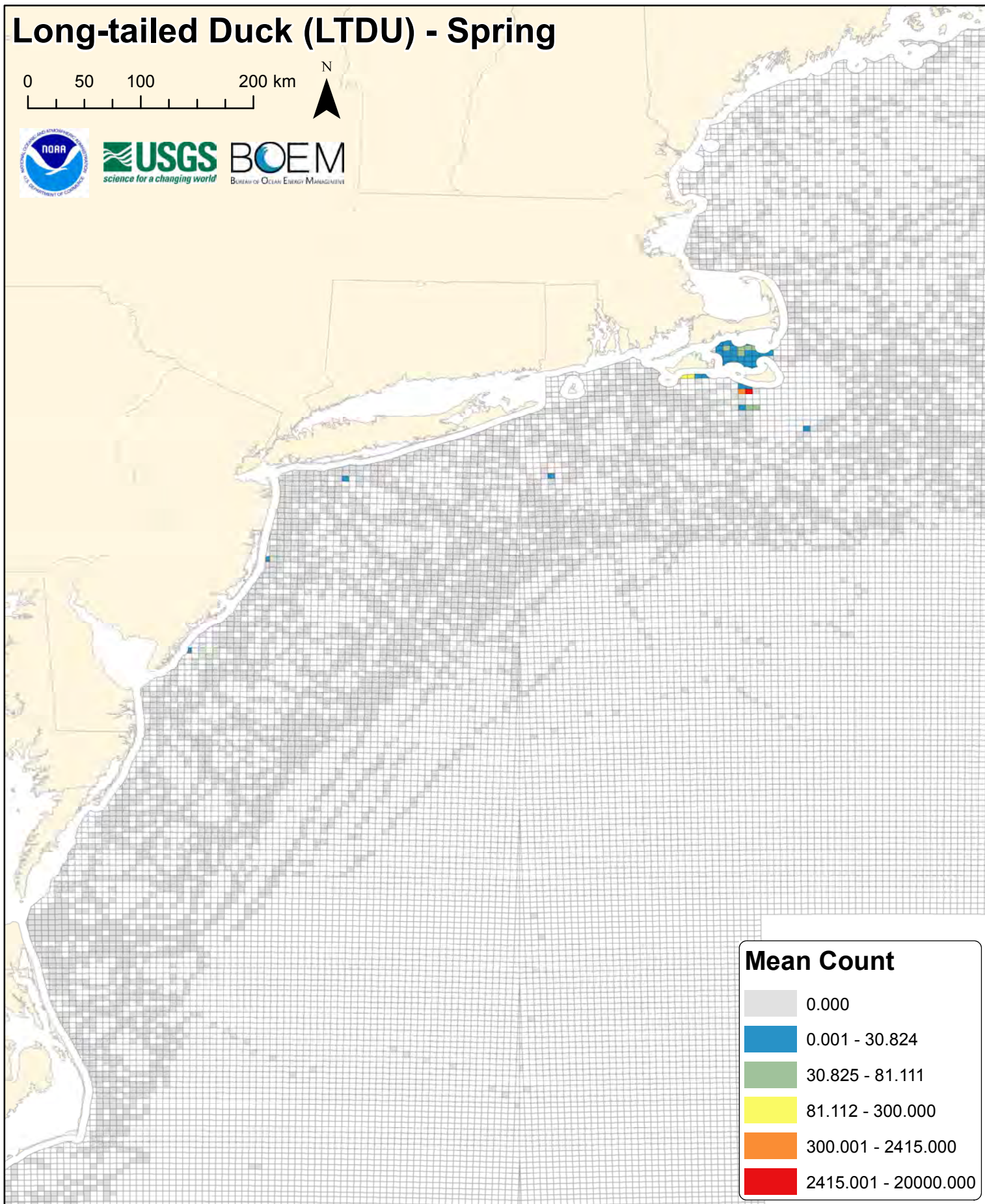


Common Loon (COLO) - Spring Full Model (Zero & Non-zero Counts)



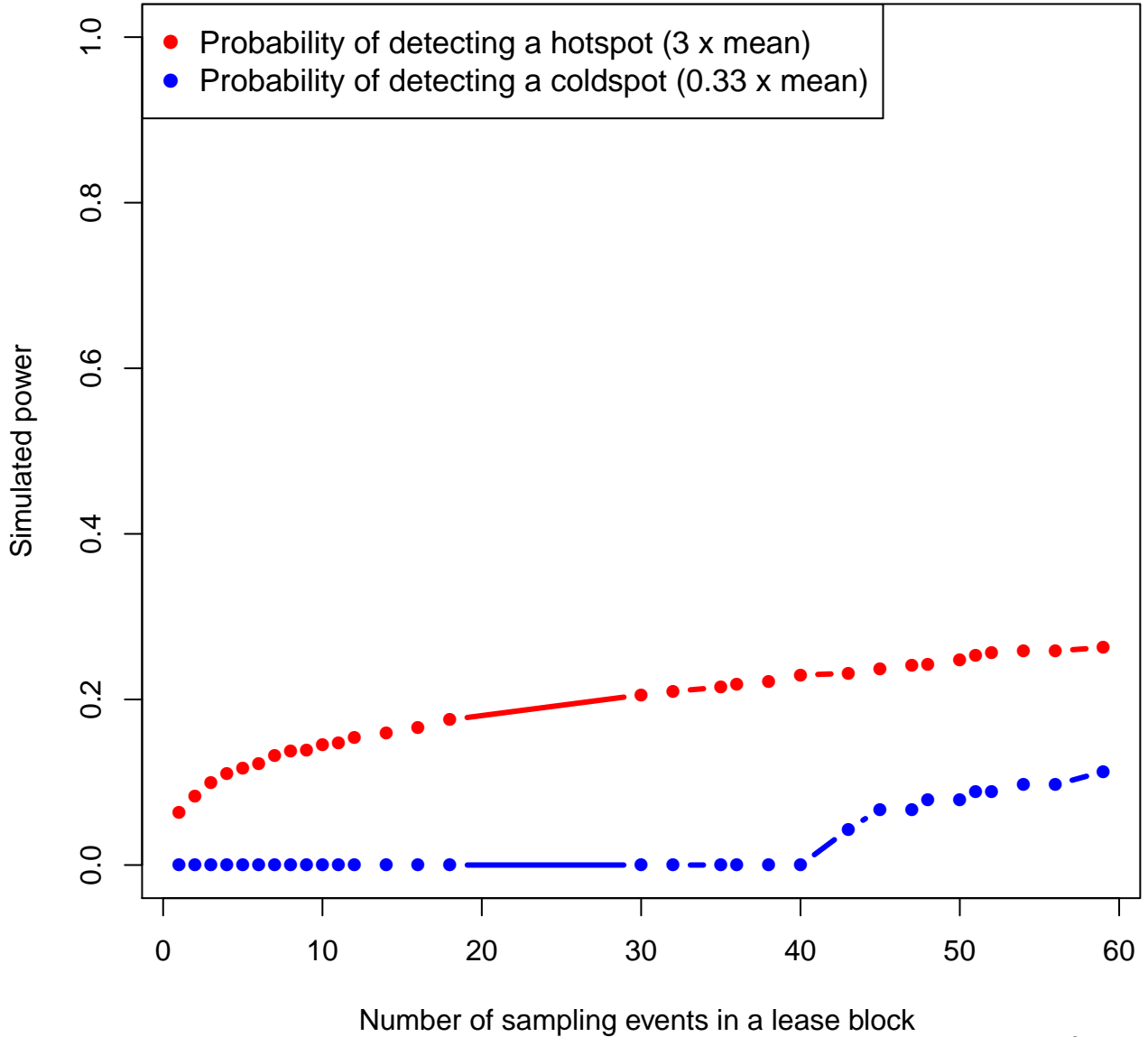
Long-tailed Duck (LTDU) - Spring

0 50 100 200 km

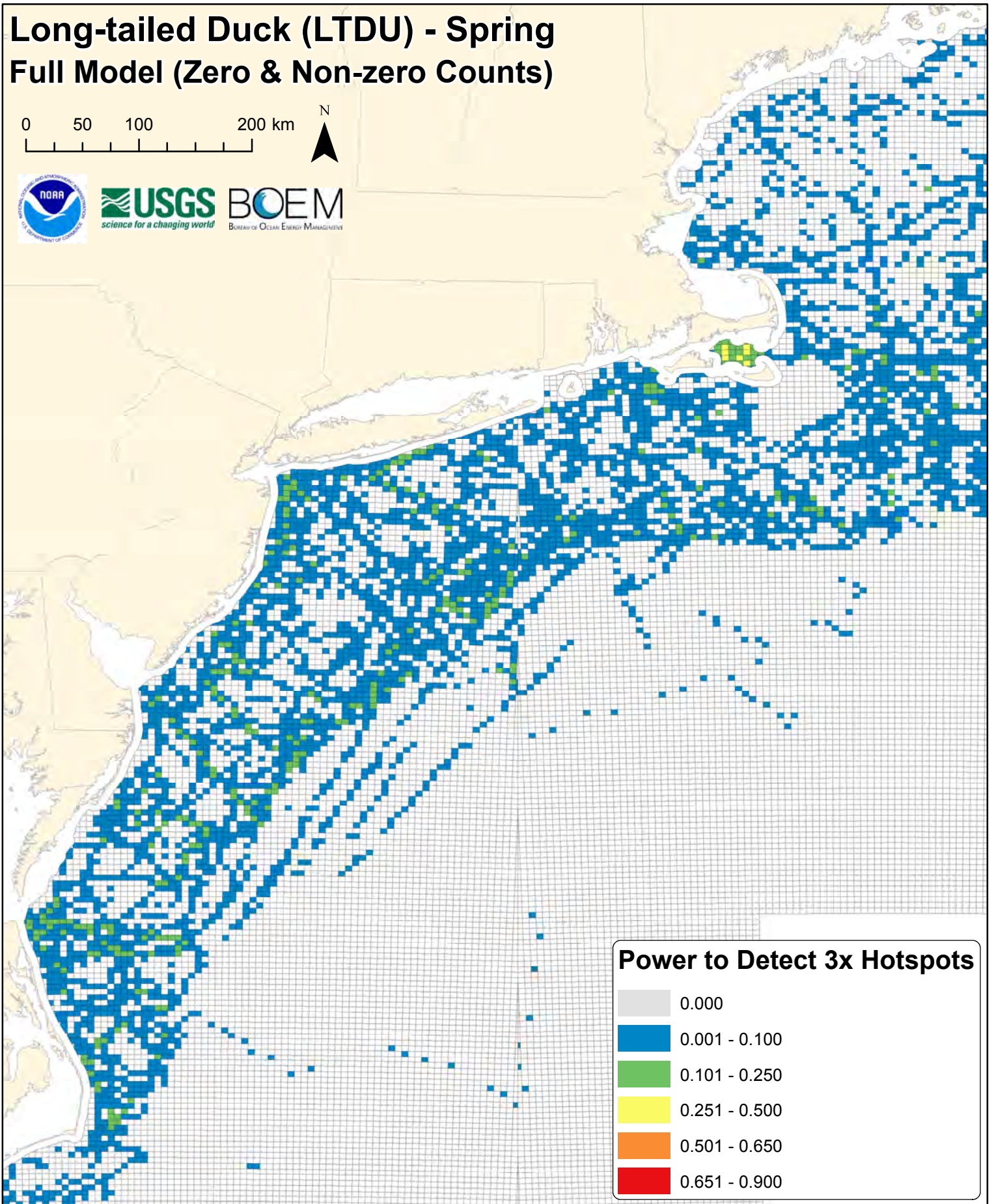
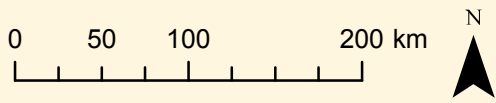


Mean Count	
0.000	Grey
0.001 - 30.824	Blue
30.825 - 81.111	Green
81.112 - 300.000	Yellow
300.001 - 2415.000	Orange
2415.001 - 20000.000	Red

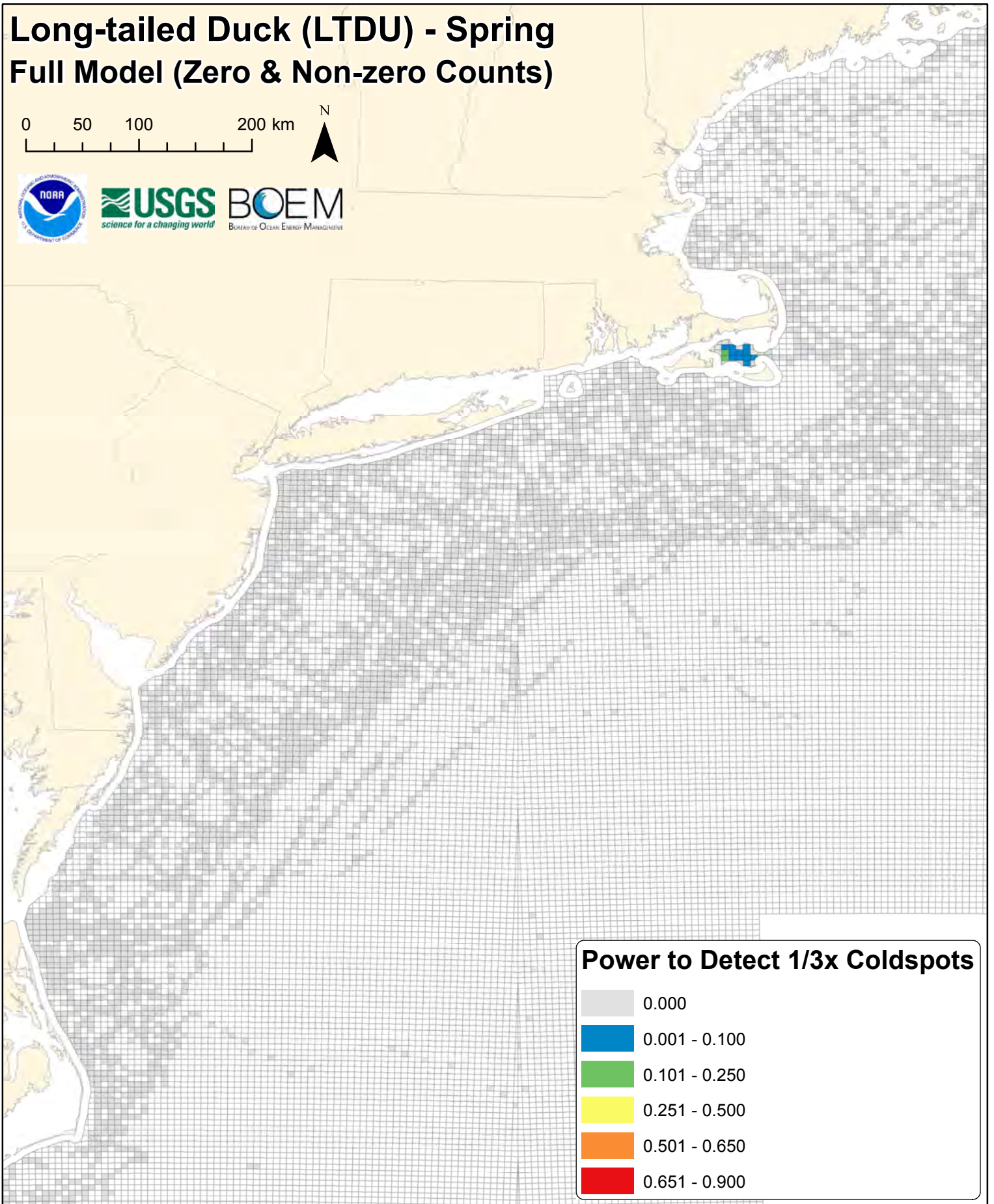
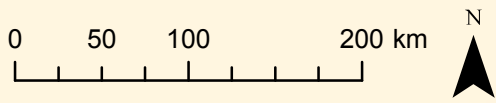
ltdu



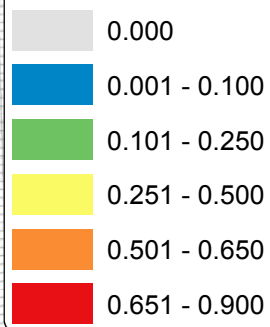
Long-tailed Duck (LTDU) - Spring Full Model (Zero & Non-zero Counts)



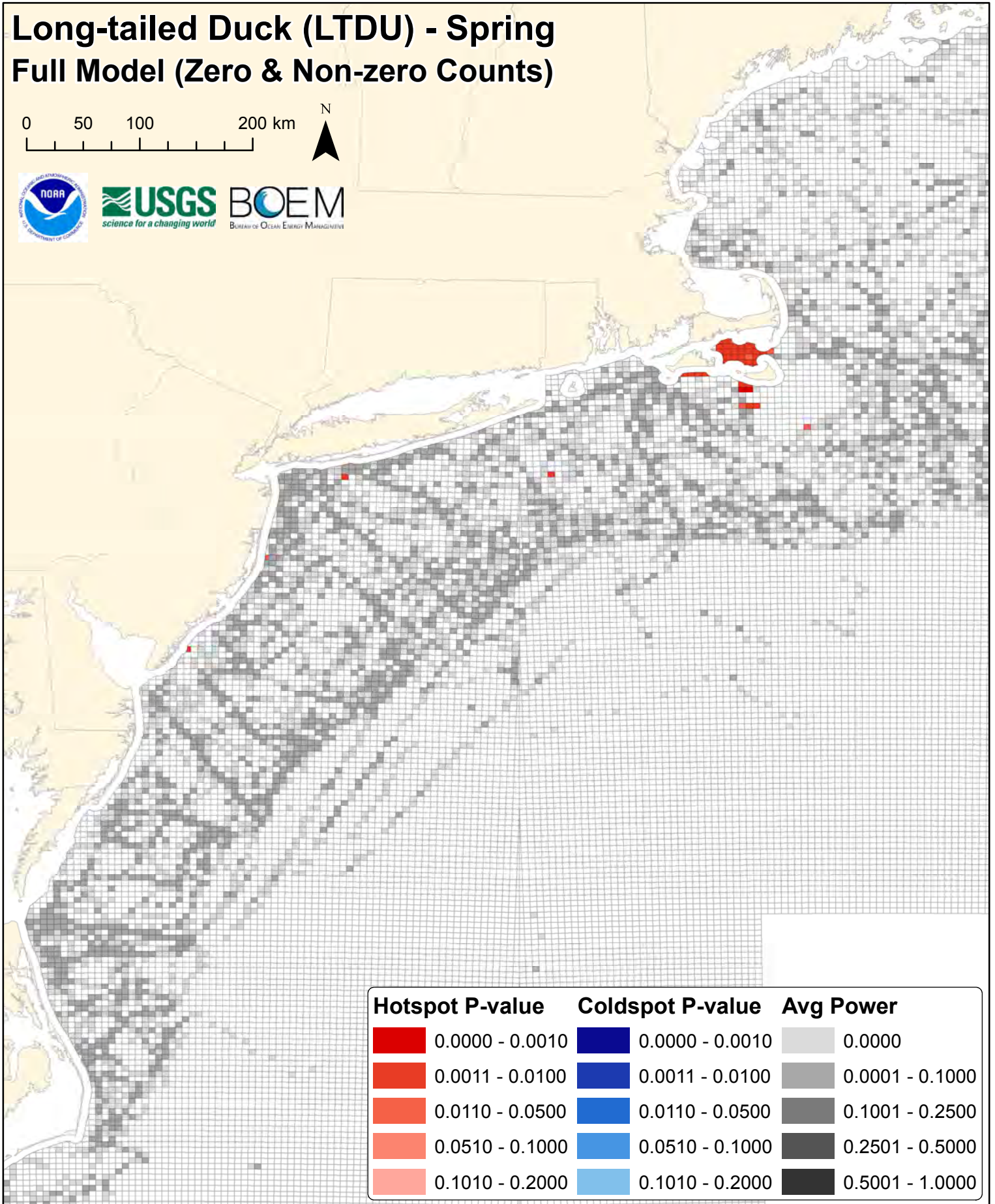
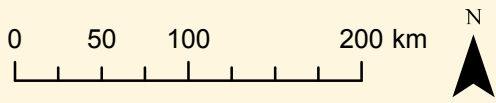
Long-tailed Duck (LTDU) - Spring Full Model (Zero & Non-zero Counts)


















Power to Detect 1/3x Coldspots



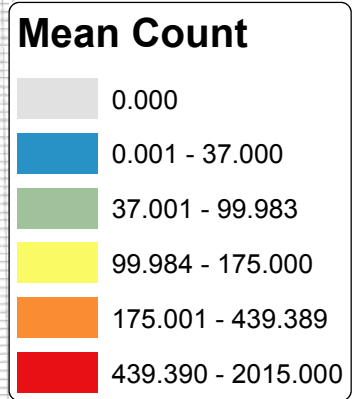
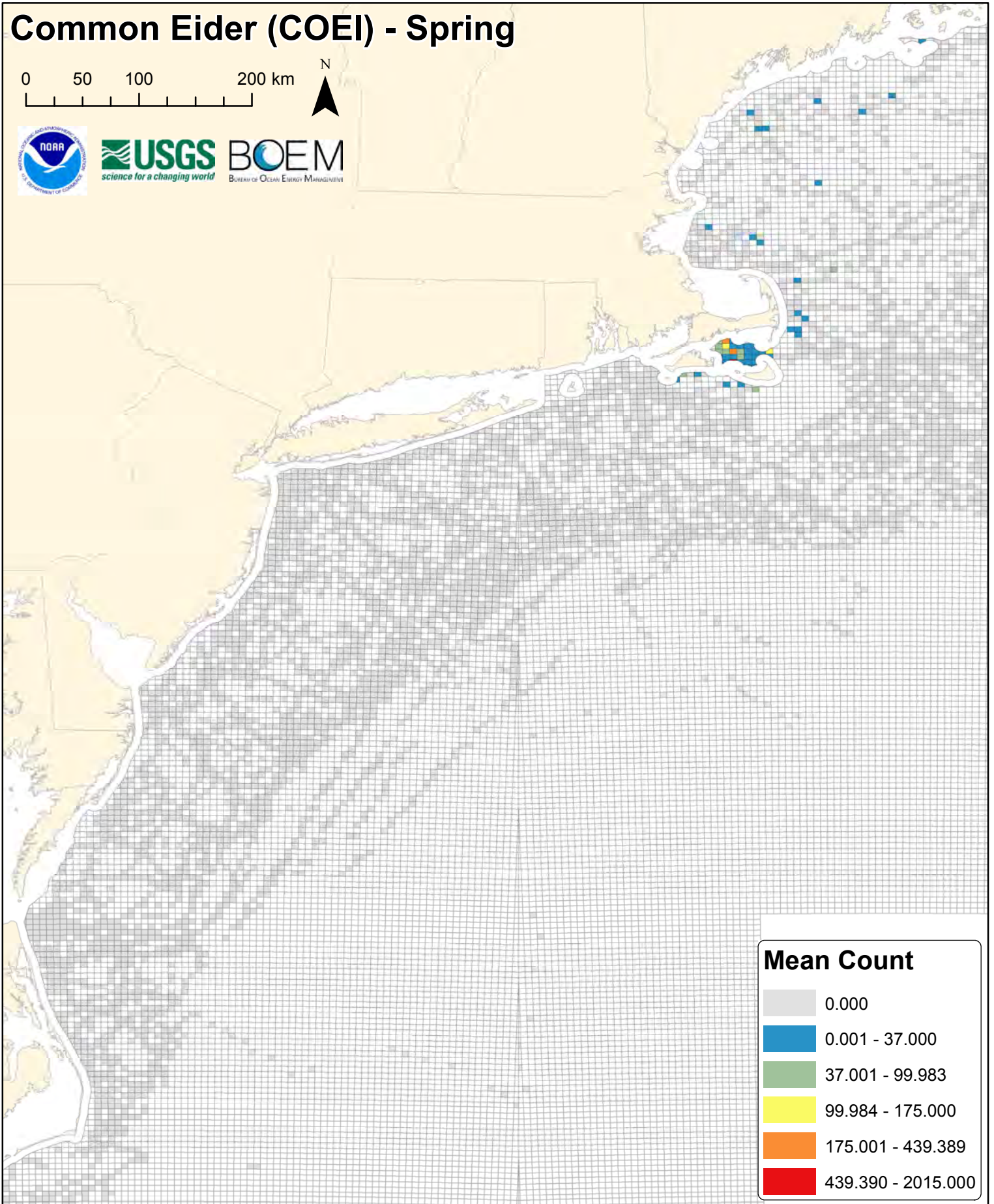
Long-tailed Duck (LTDU) - Spring Full Model (Zero & Non-zero Counts)



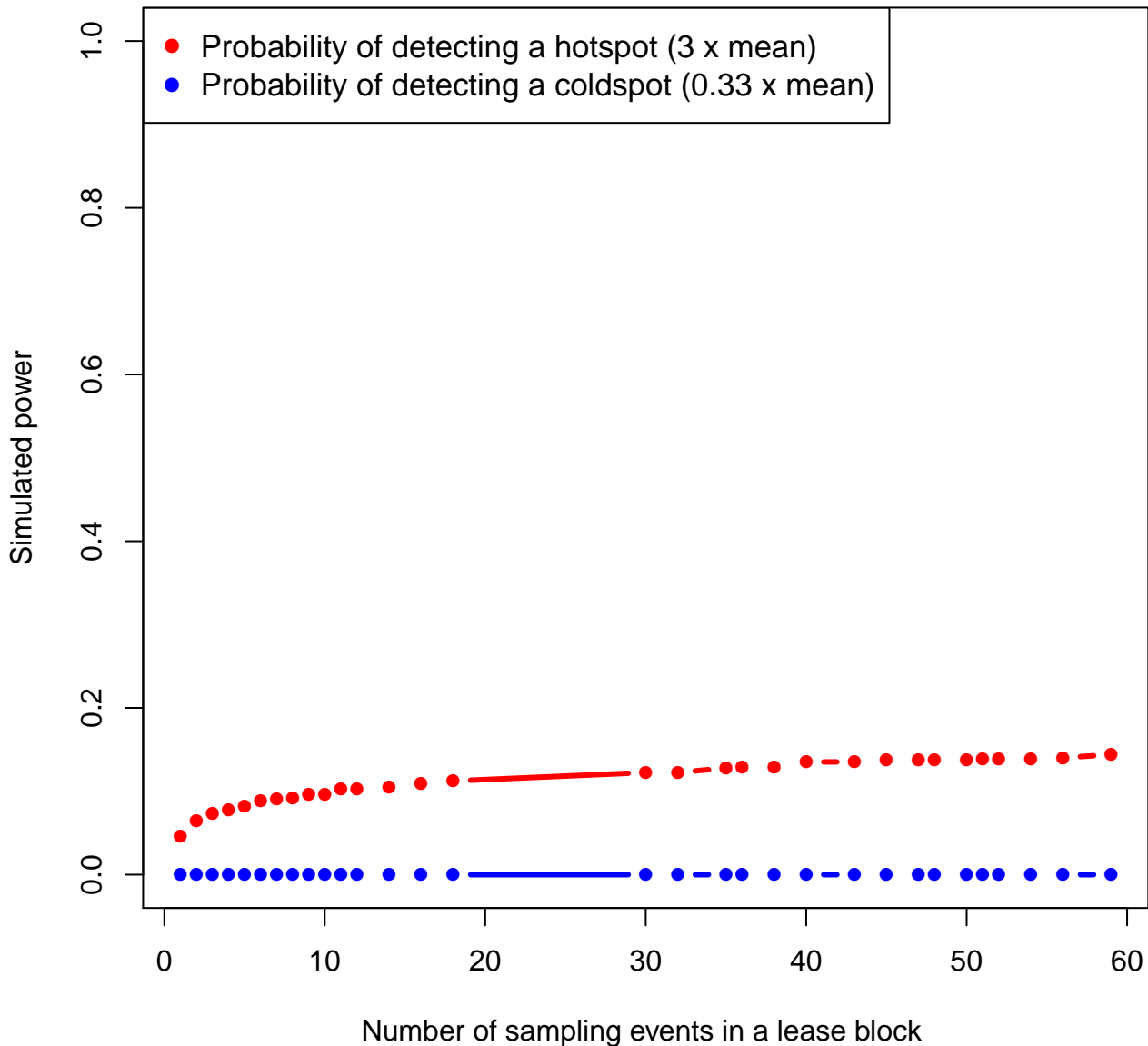
Hotspot P-value	Coldspot P-value	Avg Power
 0.0000 - 0.0010	 0.0000 - 0.0010	 0.0000
 0.0011 - 0.0100	 0.0011 - 0.0100	 0.0001 - 0.1000
 0.0110 - 0.0500	 0.0110 - 0.0500	 0.1001 - 0.2500
 0.0510 - 0.1000	 0.0510 - 0.1000	 0.2501 - 0.5000
 0.1010 - 0.2000	 0.1010 - 0.2000	 0.5001 - 1.0000

Common Eider (COEI) - Spring

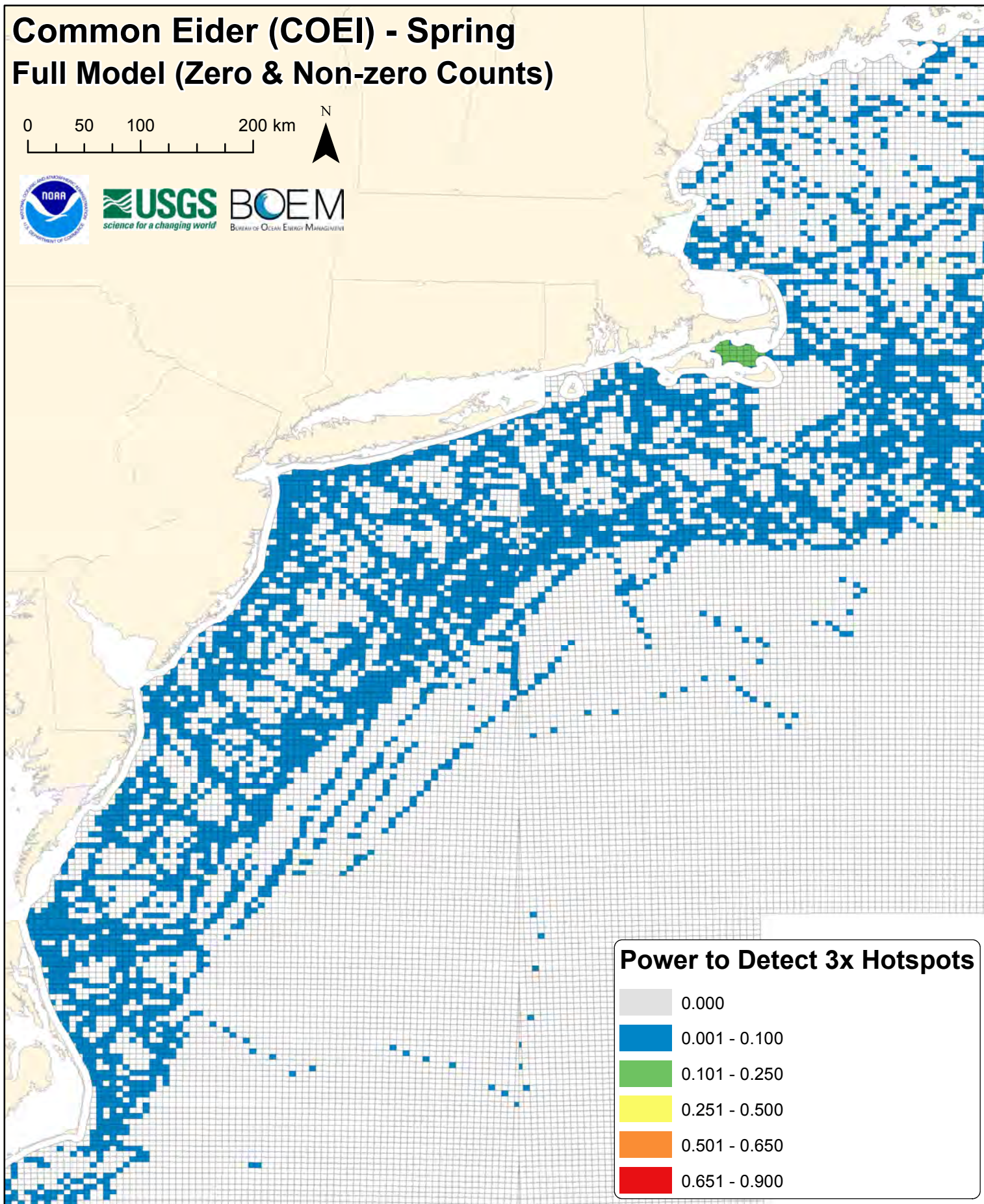
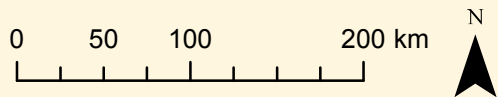
0 50 100 200 km



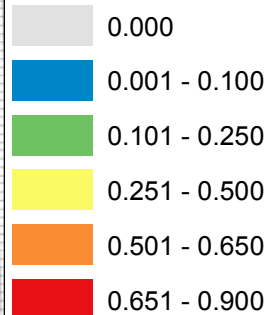
coei



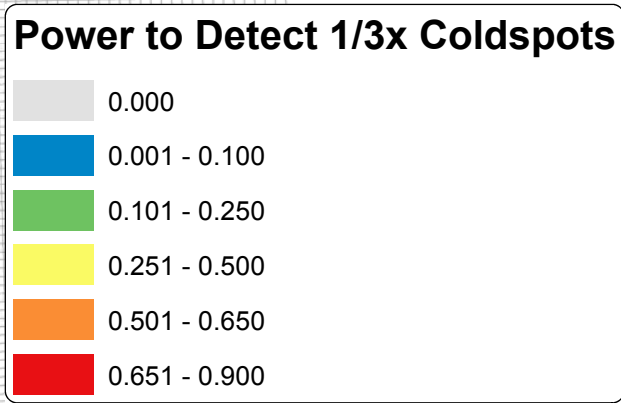
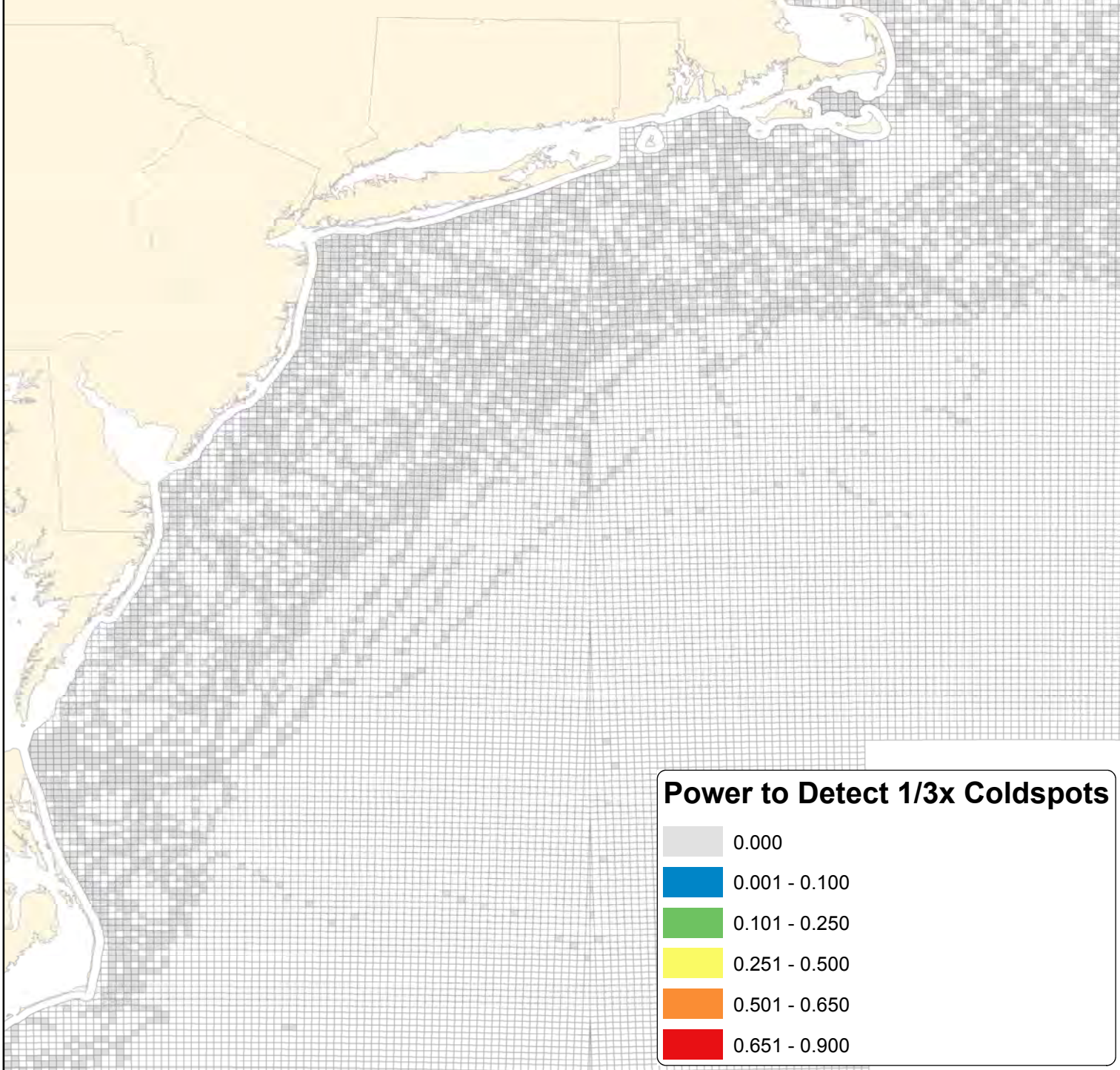
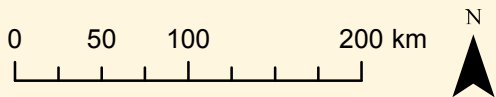
Common Eider (COEI) - Spring Full Model (Zero & Non-zero Counts)



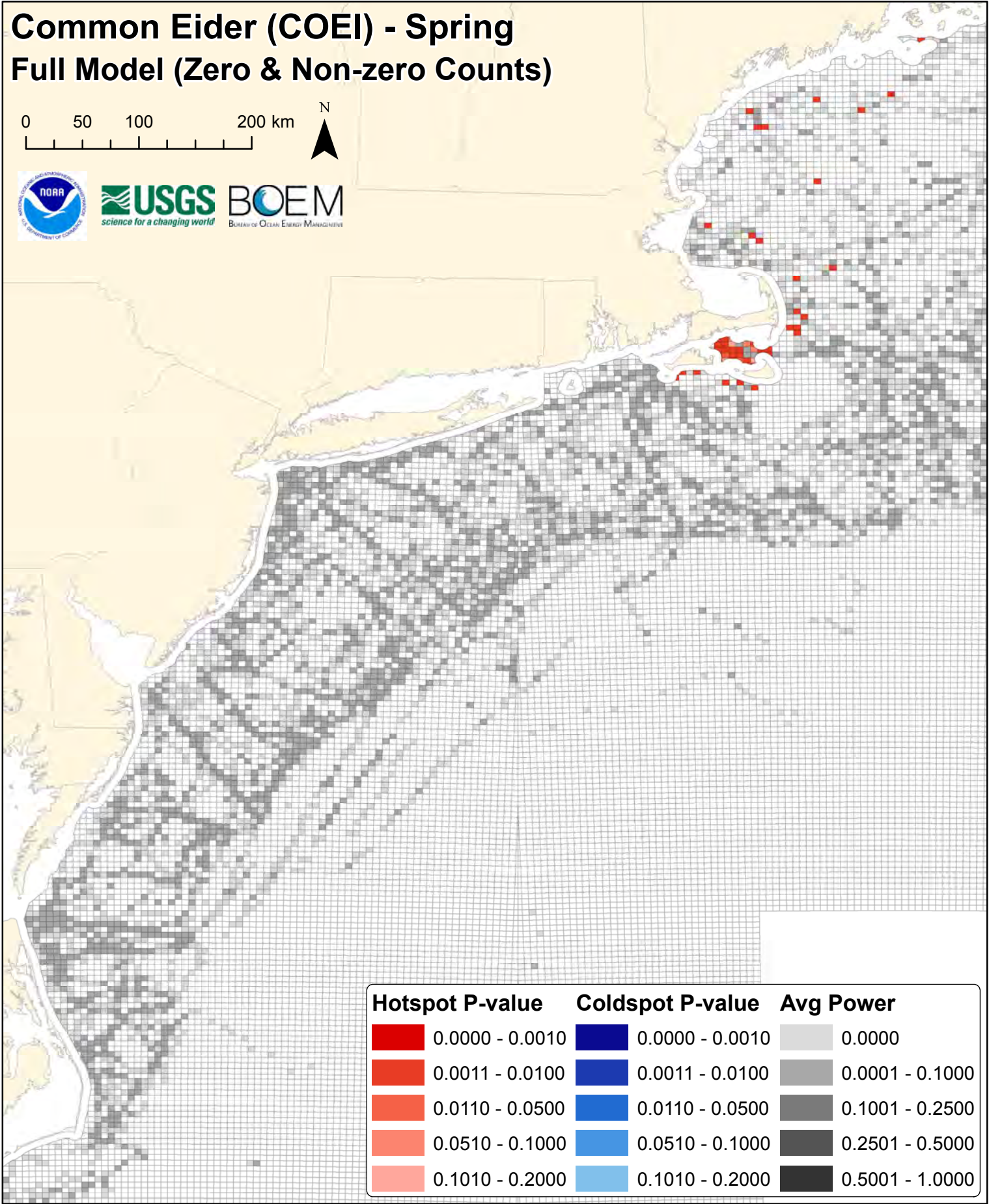
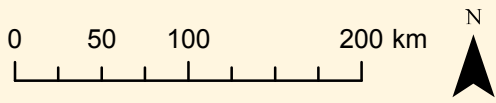
Power to Detect 3x Hotspots


















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



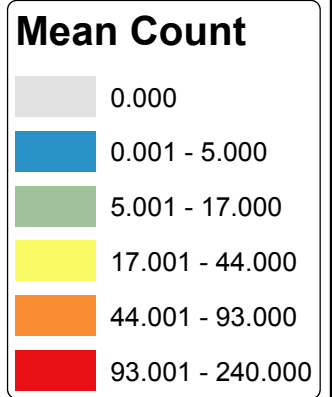
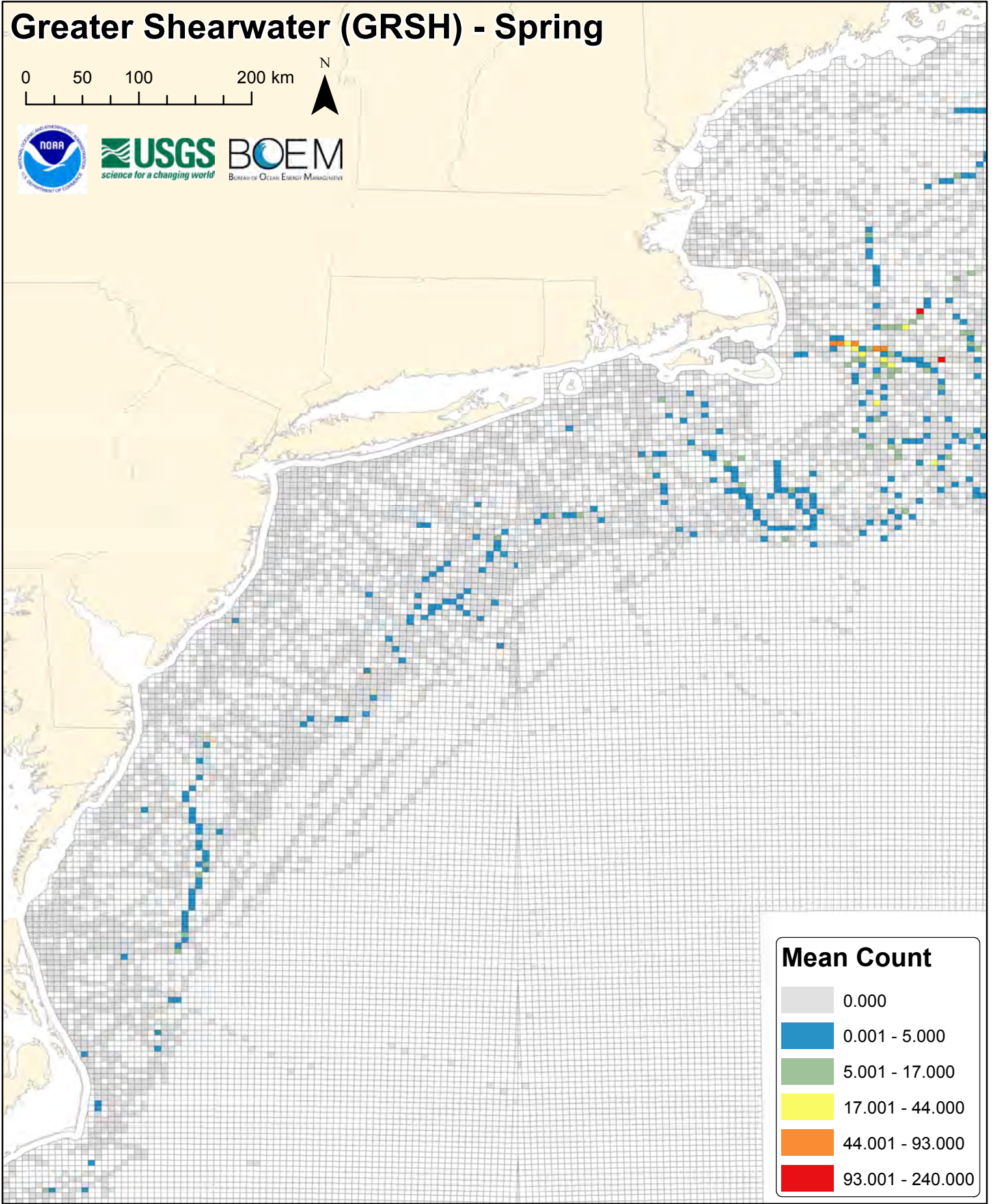
Common Eider (COEI) - Spring Full Model (Zero & Non-zero Counts)



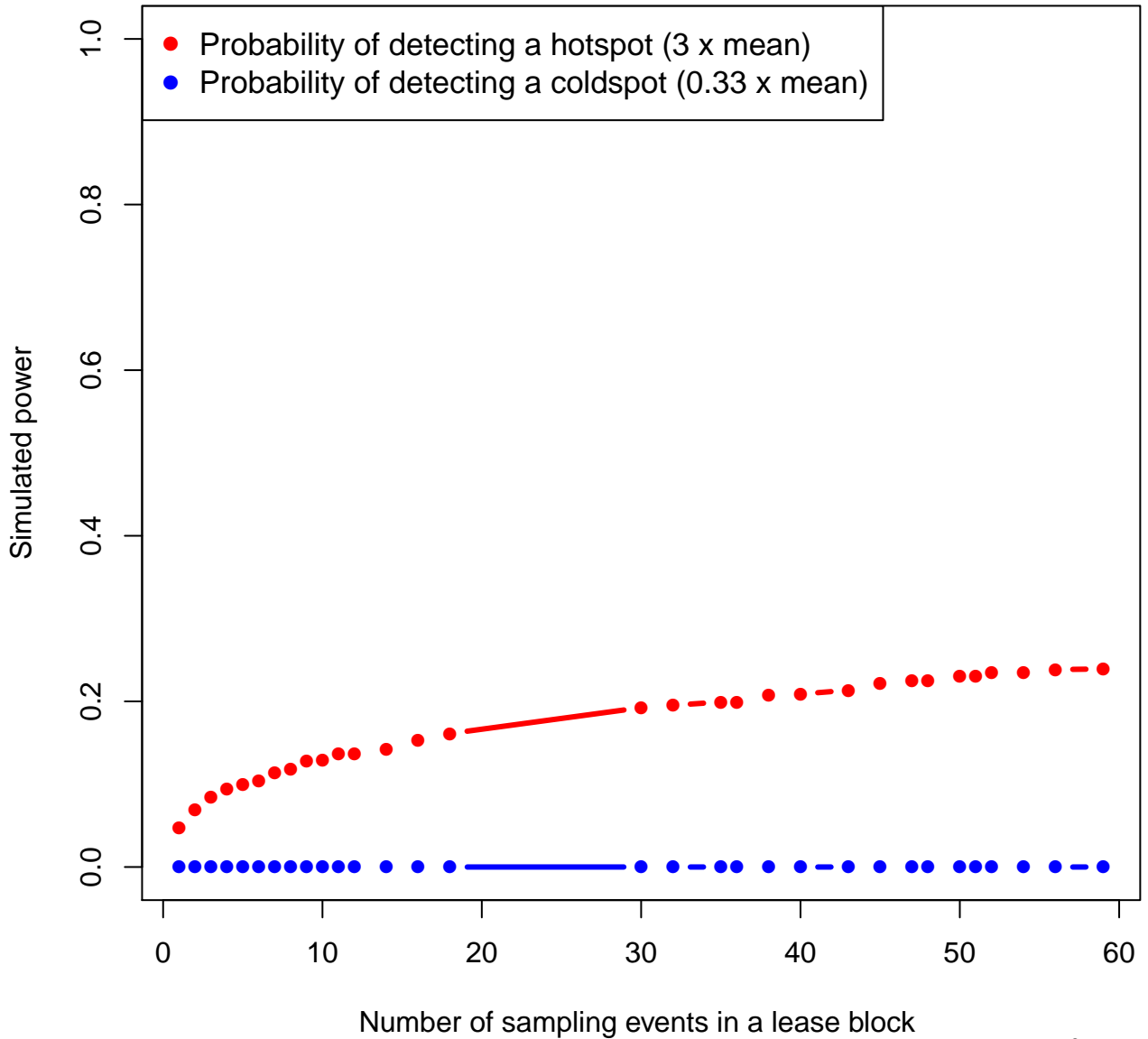
Hotspot P-value	Coldspot P-value	Avg Power
 0.0000 - 0.0010	 0.0000 - 0.0010	 0.0000
 0.0011 - 0.0100	 0.0011 - 0.0100	 0.0001 - 0.1000
 0.0110 - 0.0500	 0.0110 - 0.0500	 0.1001 - 0.2500
 0.0510 - 0.1000	 0.0510 - 0.1000	 0.2501 - 0.5000
 0.1010 - 0.2000	 0.1010 - 0.2000	 0.5001 - 1.0000

Greater Shearwater (GRSH) - Spring

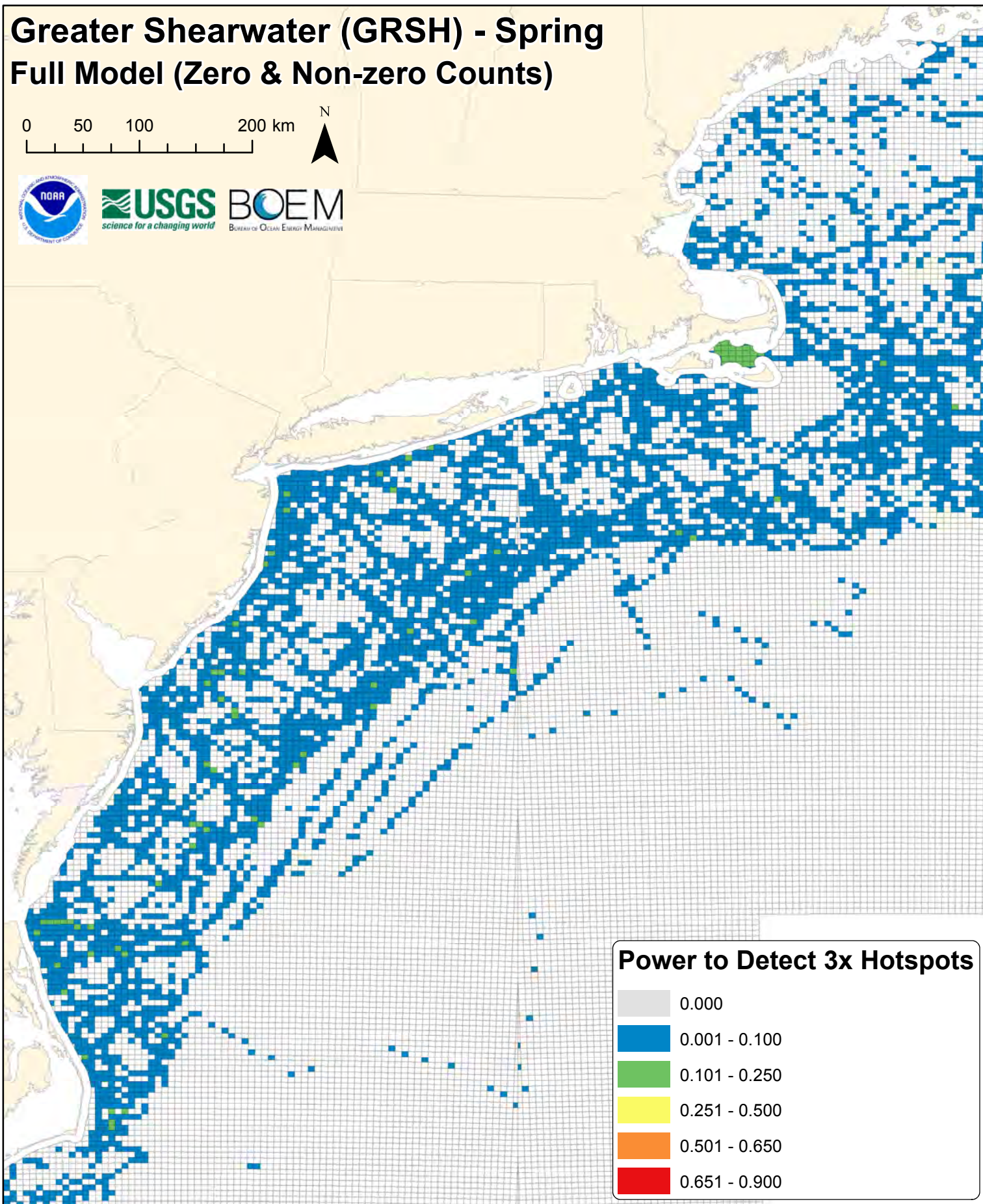
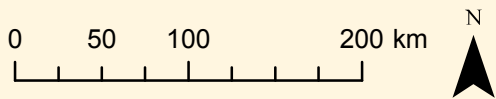
0 50 100 200 km



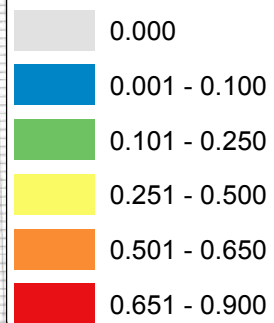
grsh



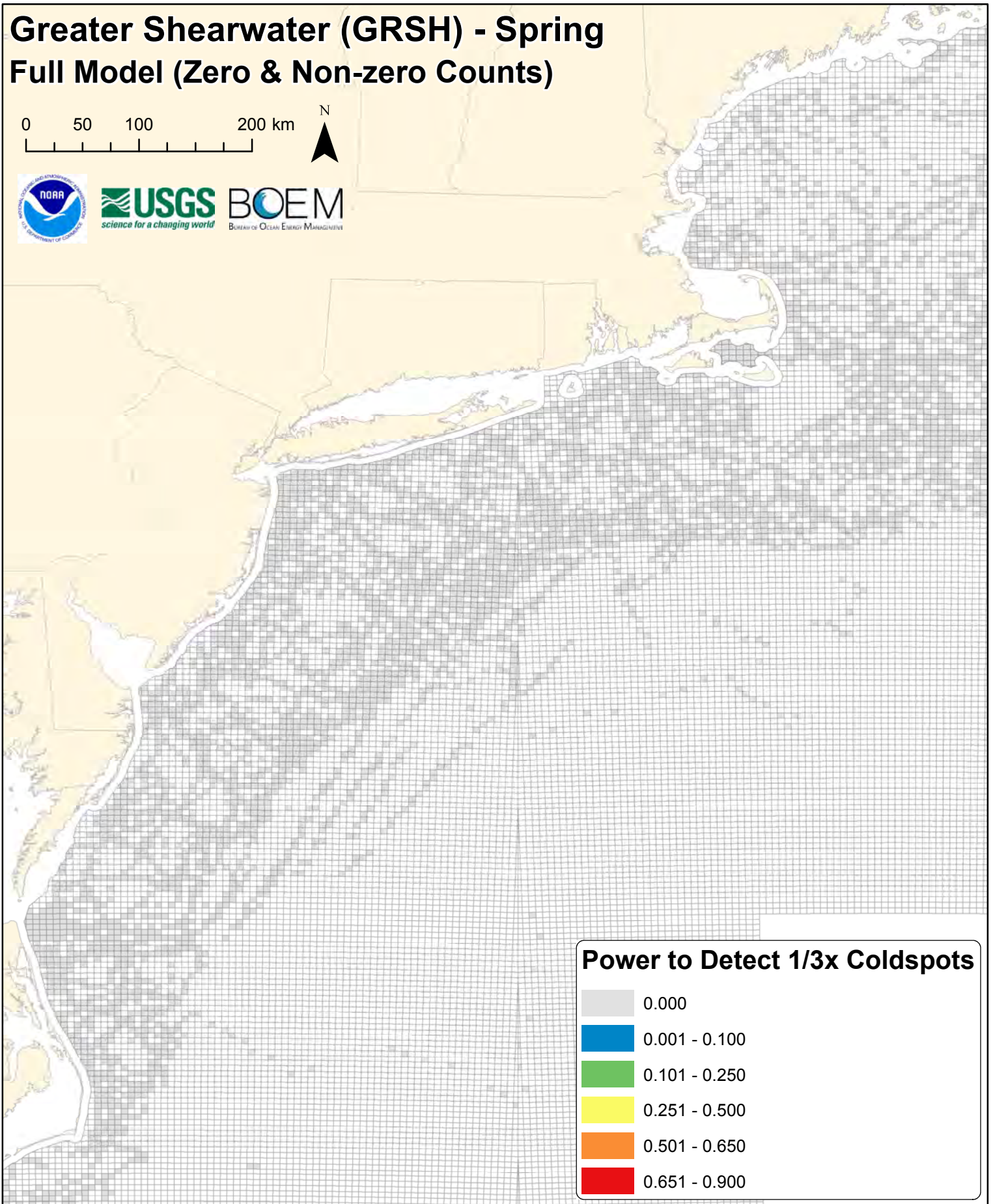
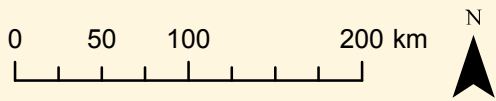
Greater Shearwater (GRSH) - Spring Full Model (Zero & Non-zero Counts)



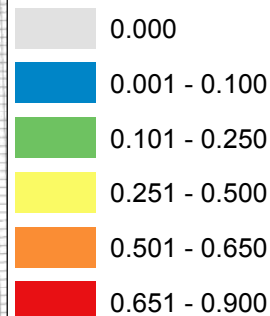
Power to Detect 3x Hotspots



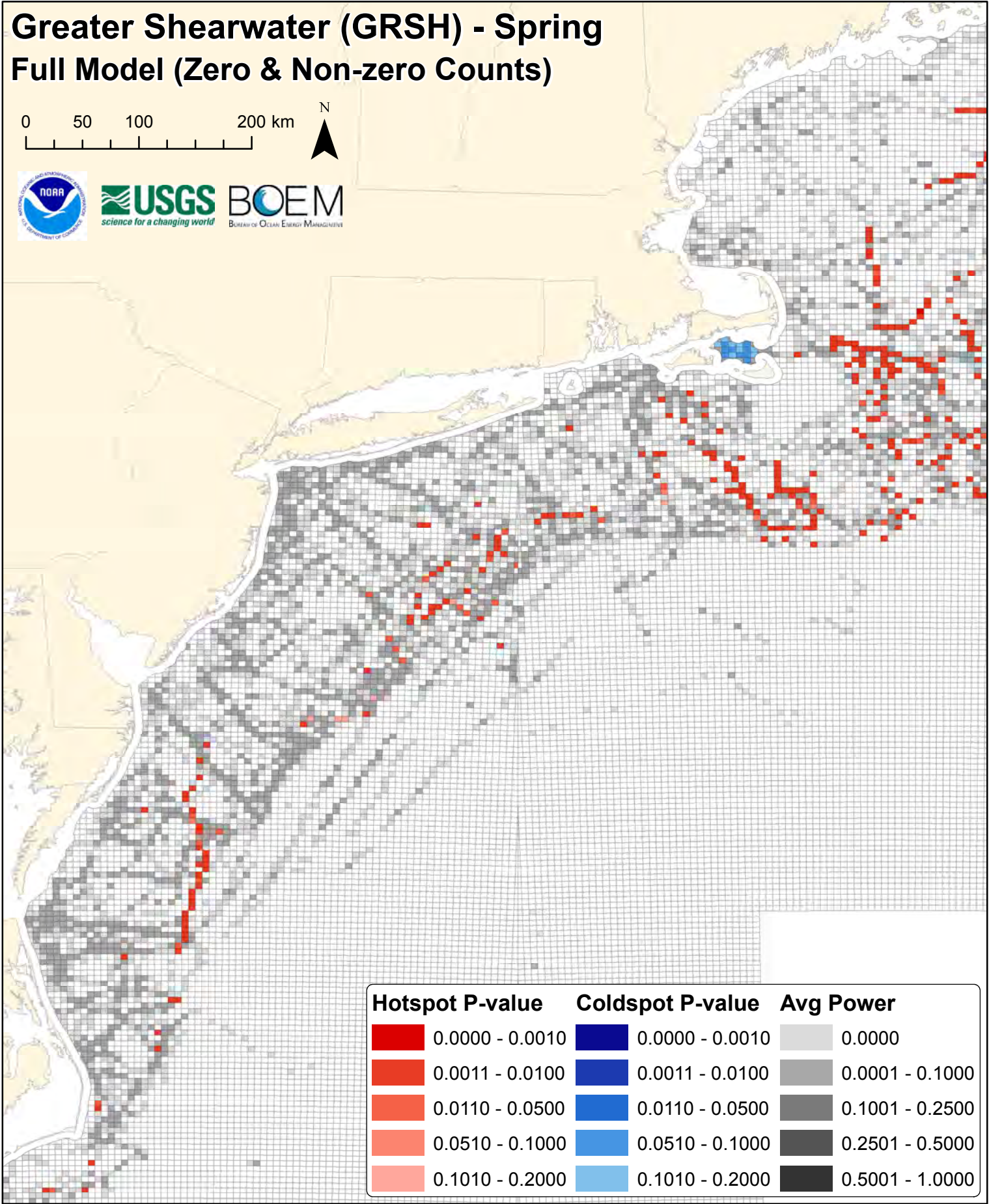
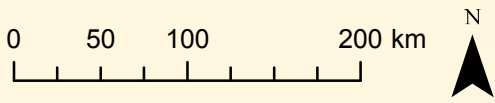
Greater Shearwater (GRSH) - Spring Full Model (Zero & Non-zero Counts)


















Power to Detect 1/3x Coldspots



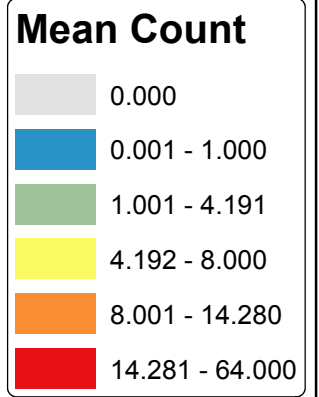
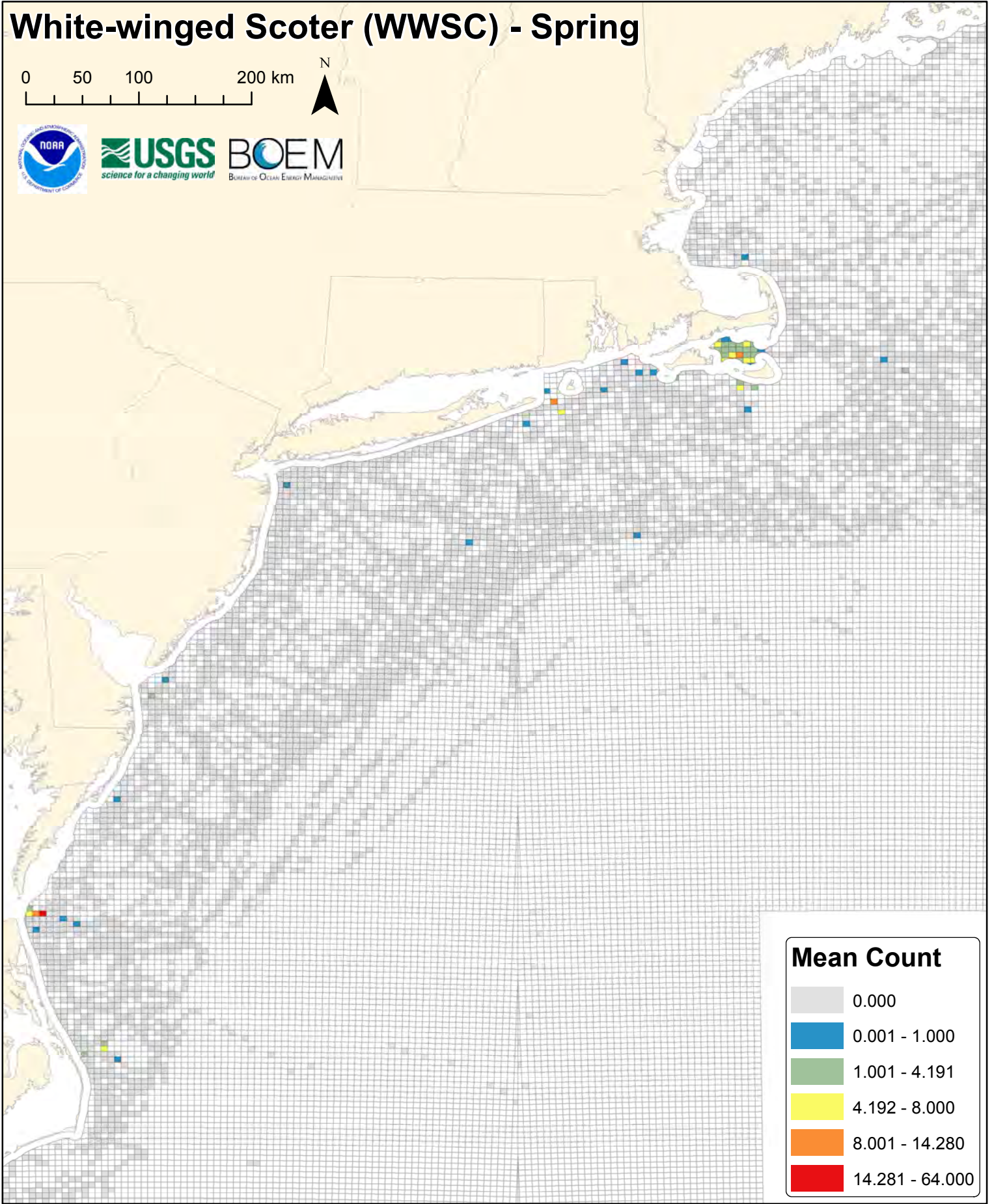
Greater Shearwater (GRSH) - Spring Full Model (Zero & Non-zero Counts)



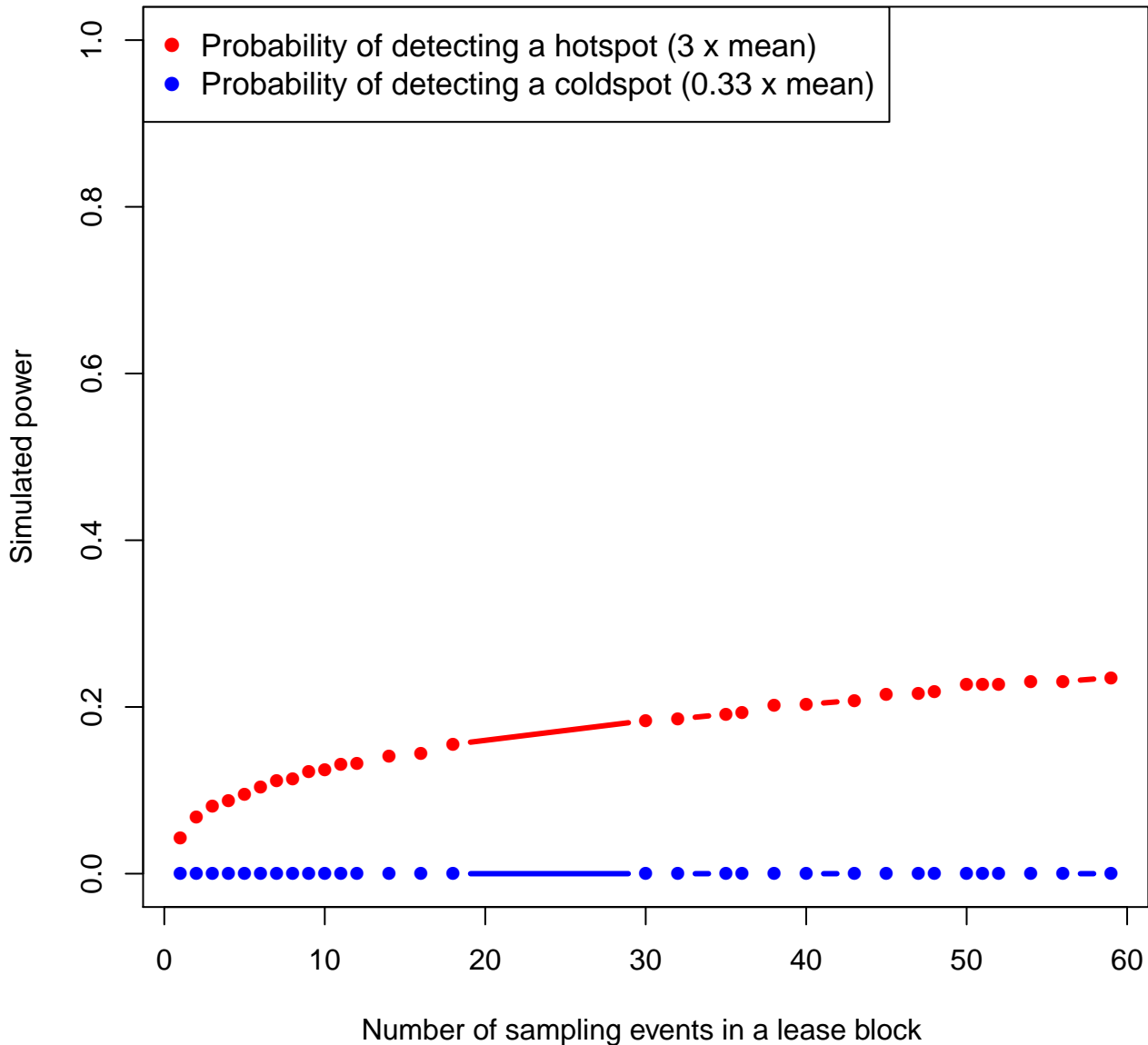
Hotspot P-value	Coldspot P-value	Avg Power
 0.0000 - 0.0010	 0.0000 - 0.0010	 0.0000
 0.0011 - 0.0100	 0.0011 - 0.0100	 0.0001 - 0.1000
 0.0110 - 0.0500	 0.0110 - 0.0500	 0.1001 - 0.2500
 0.0510 - 0.1000	 0.0510 - 0.1000	 0.2501 - 0.5000
 0.1010 - 0.2000	 0.1010 - 0.2000	 0.5001 - 1.0000

White-winged Scoter (WWSC) - Spring

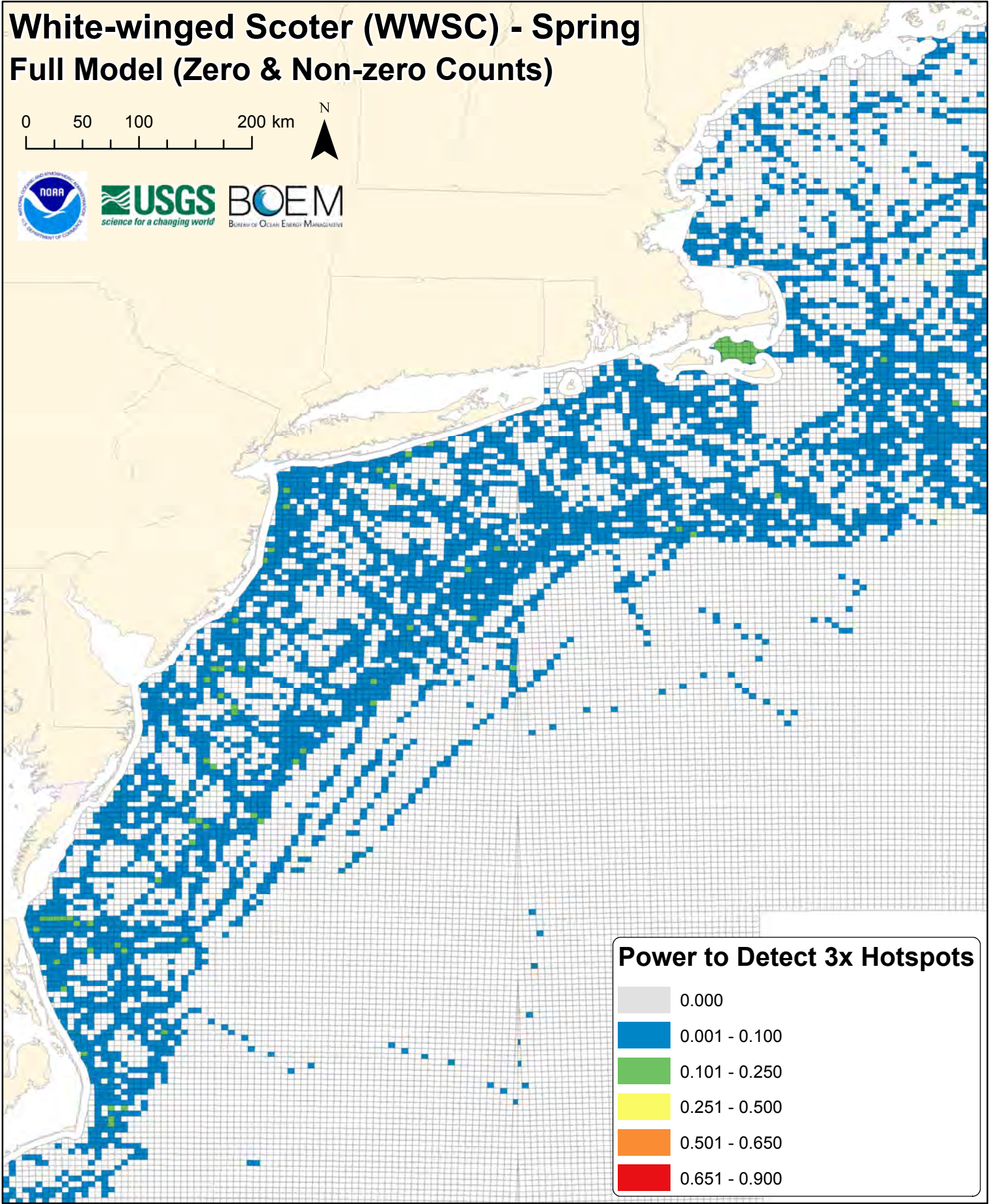
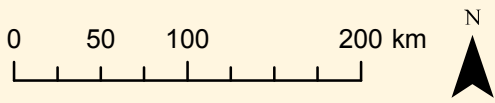
0 50 100 200 km



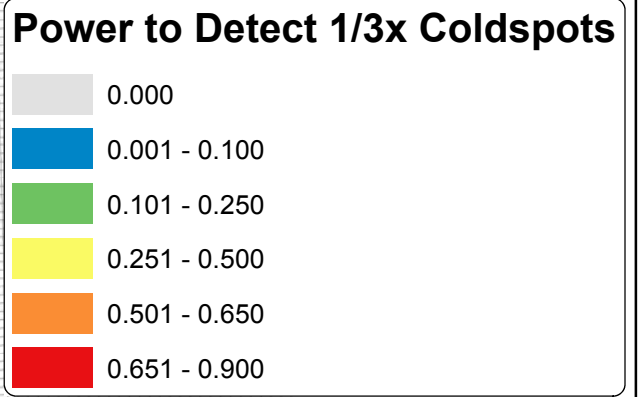
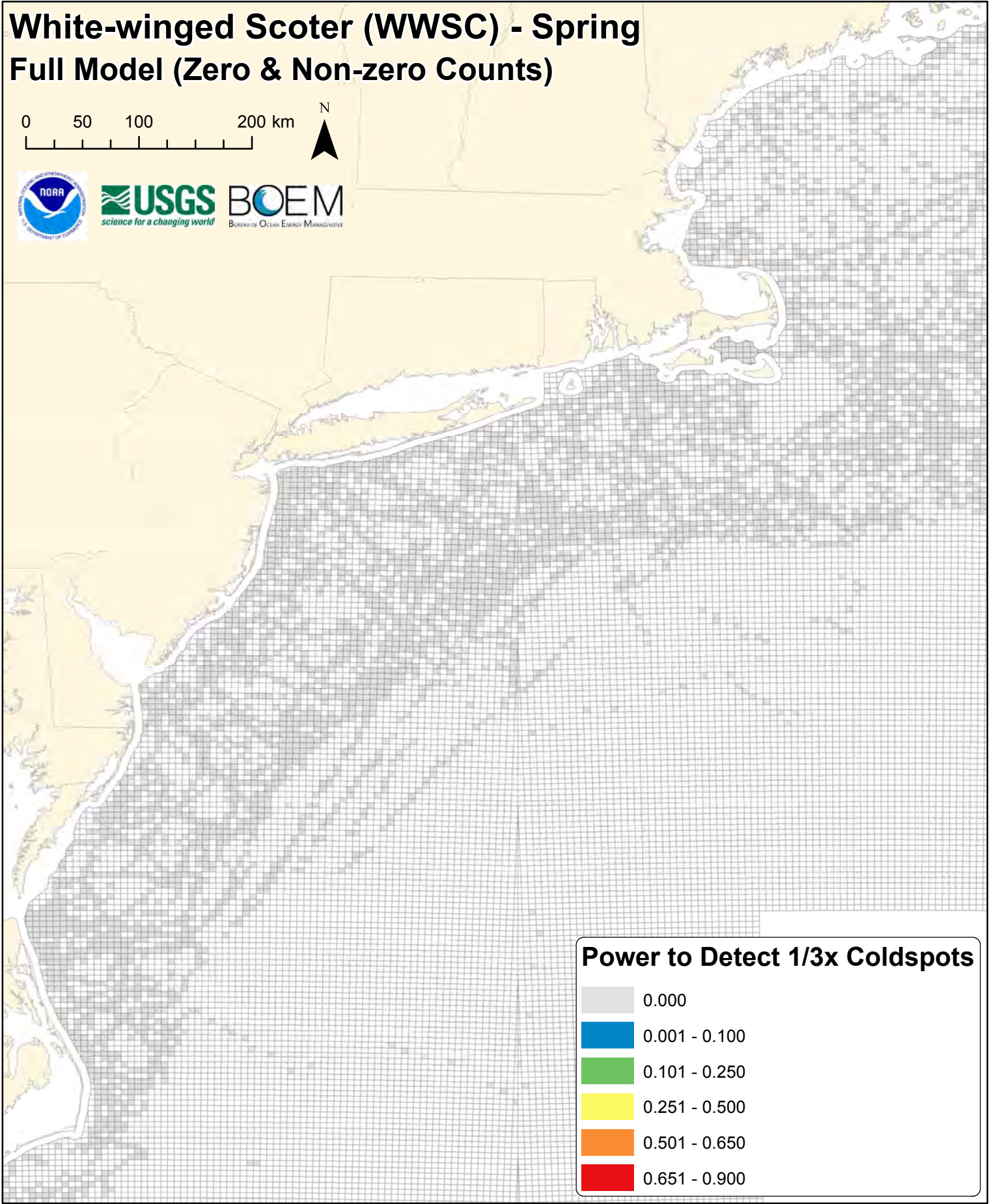
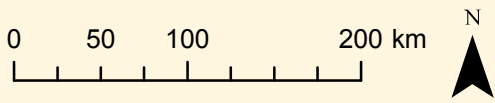
WWSC



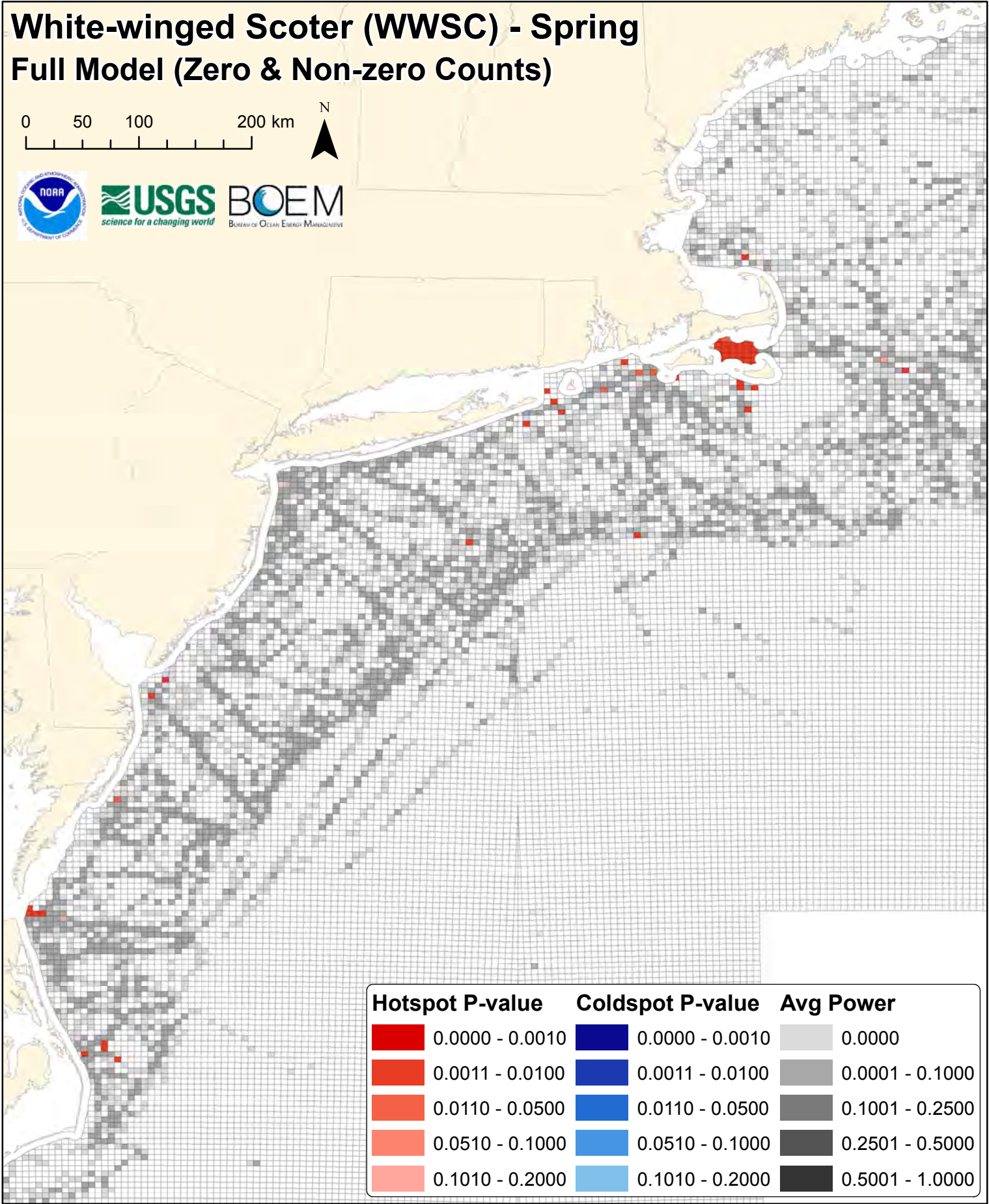
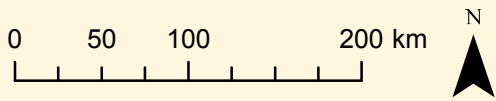
White-winged Scoter (WWSC) - Spring Full Model (Zero & Non-zero Counts)


















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



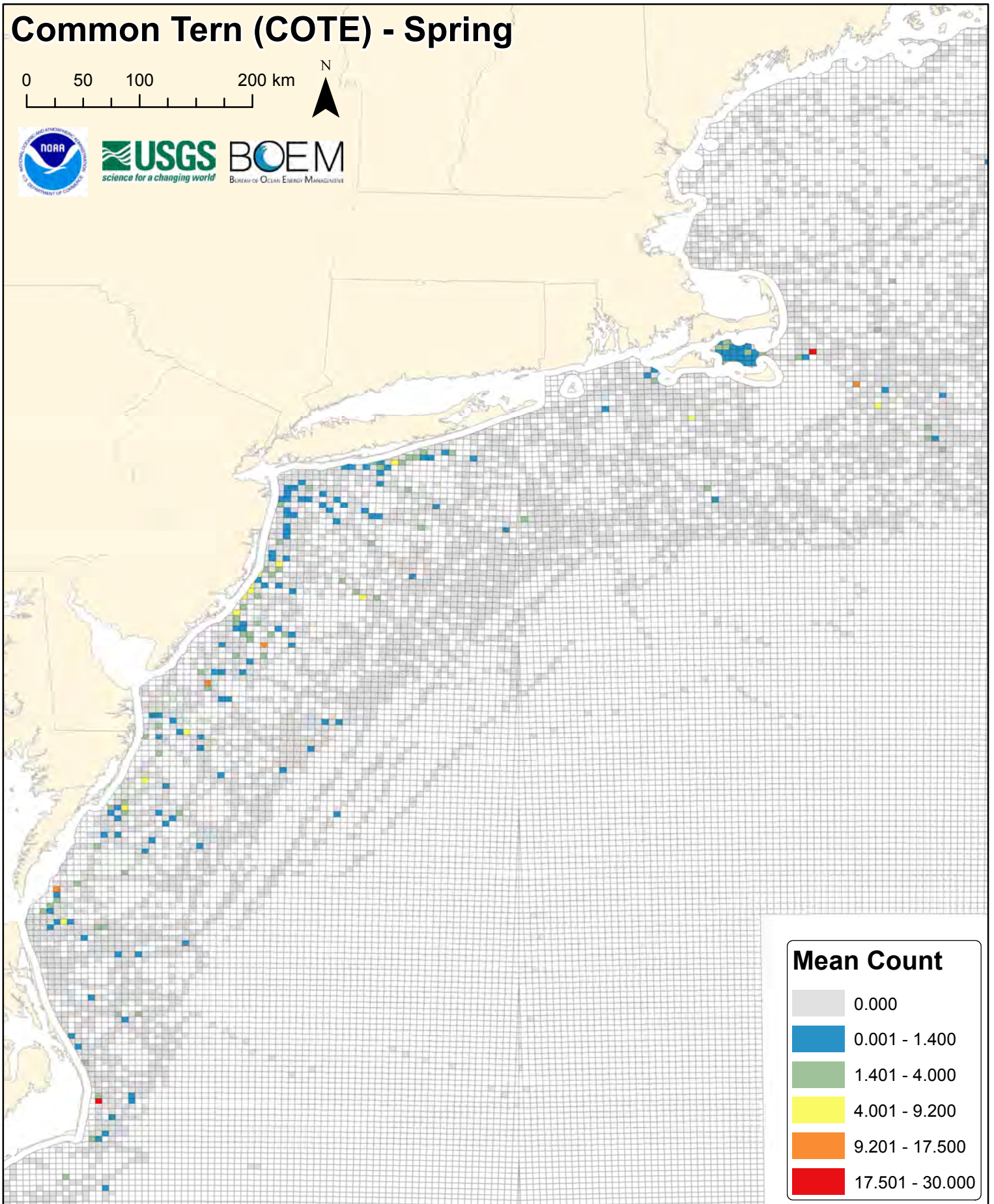
White-winged Scoter (WWSC) - Spring Full Model (Zero & Non-zero Counts)



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

Common Tern (COTE) - Spring

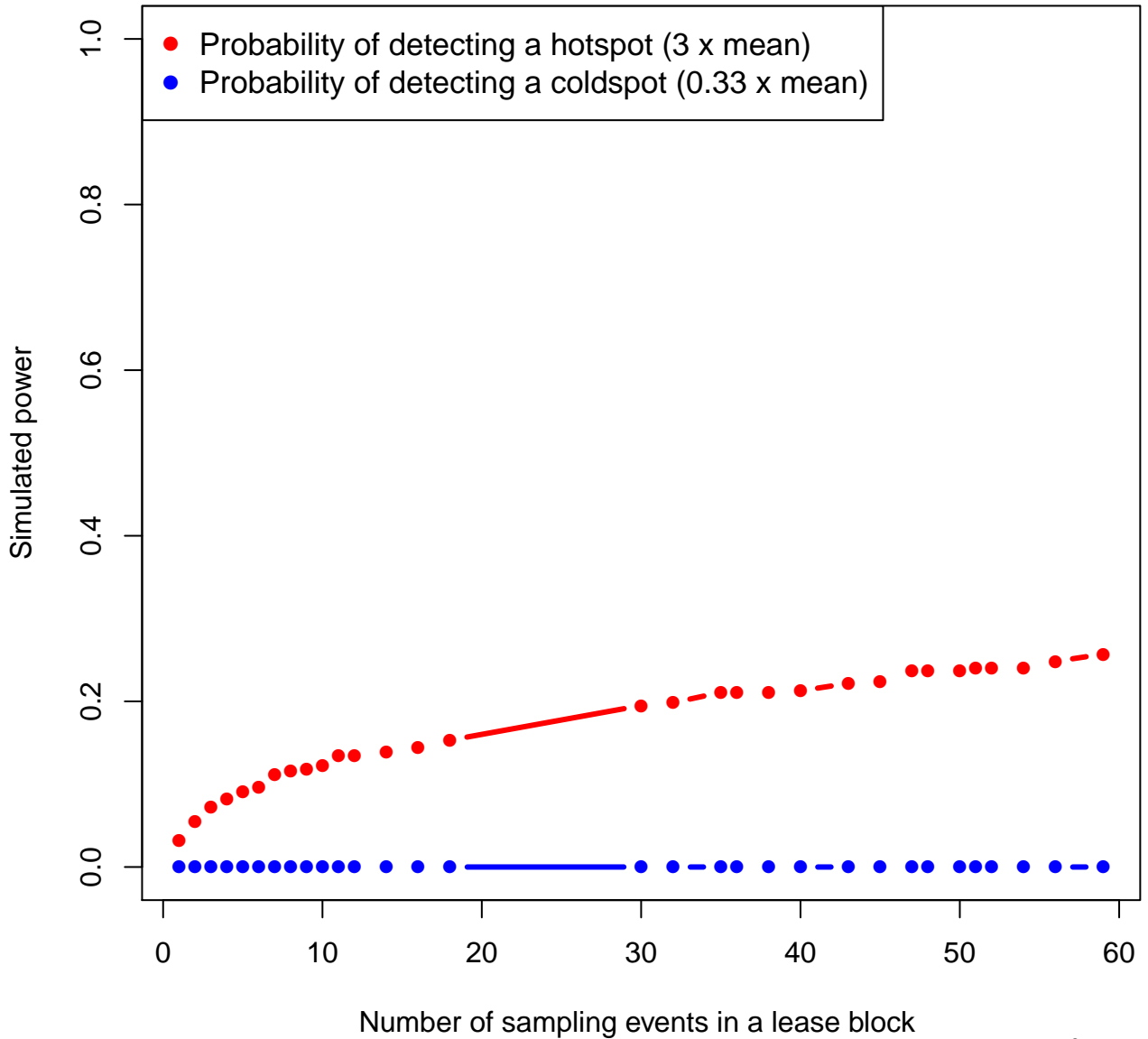
0 50 100 200 km



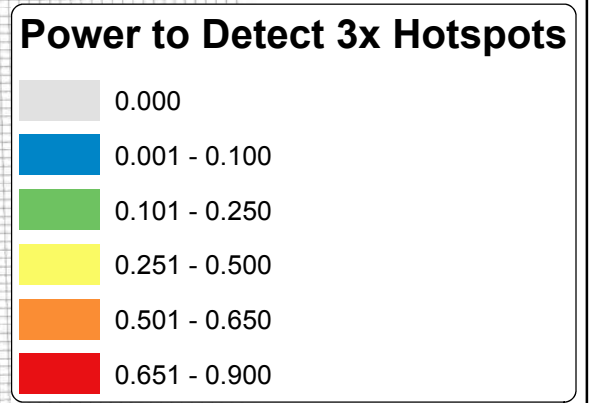
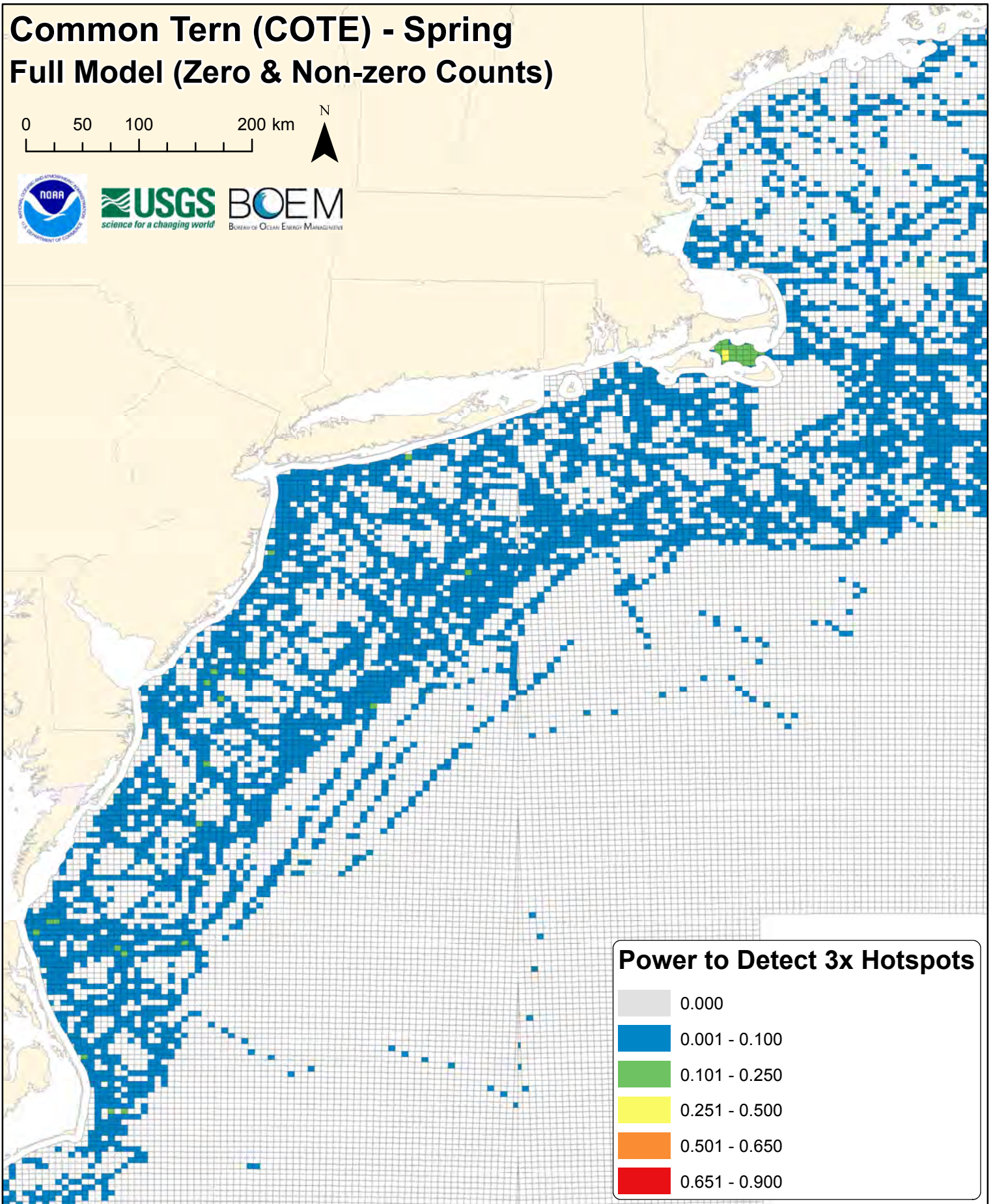
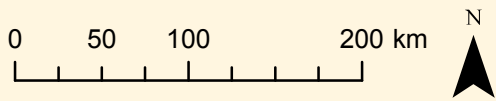
Mean Count

0.000
0.001 - 1.400
1.401 - 4.000
4.001 - 9.200
9.201 - 17.500
17.501 - 30.000

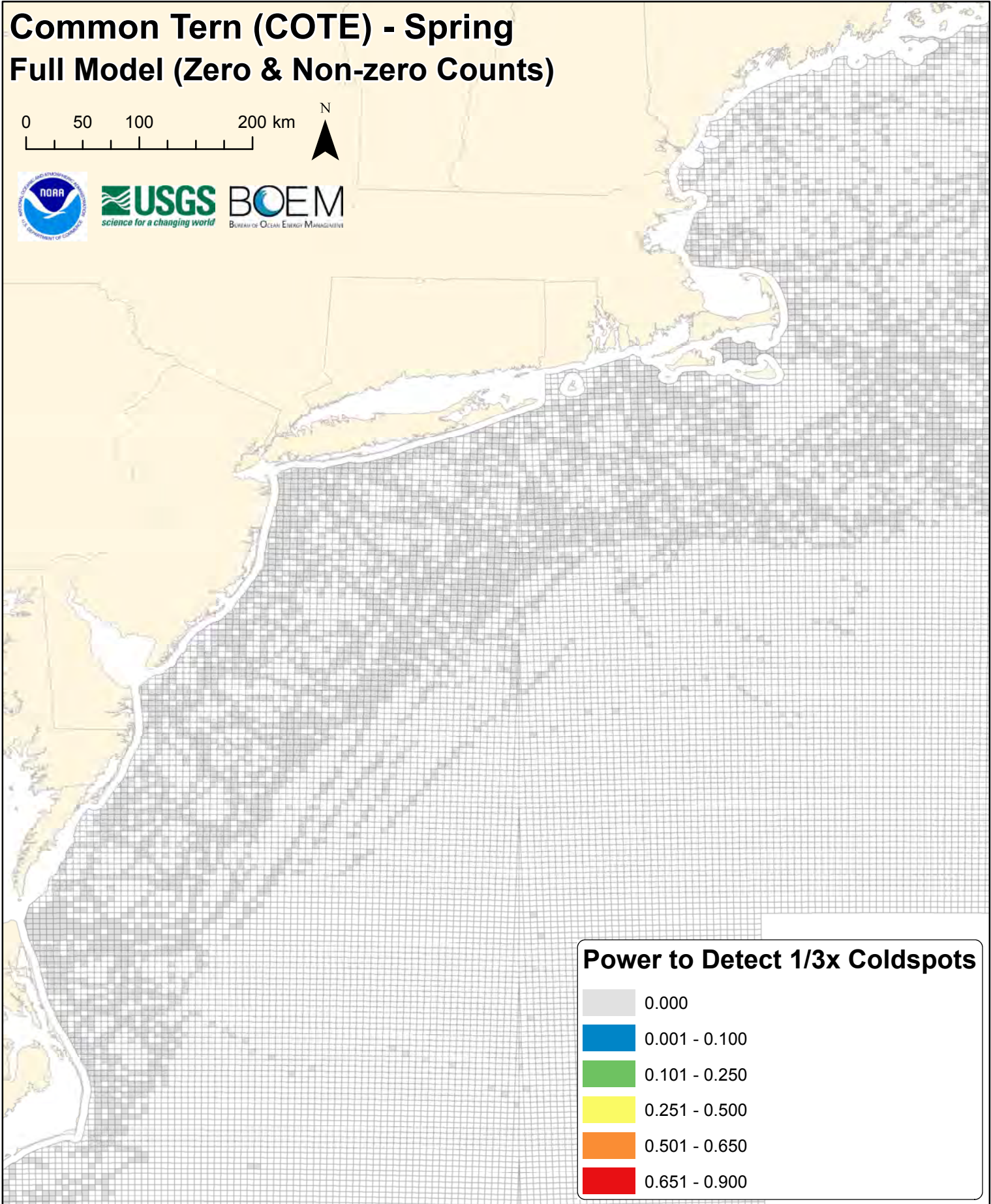
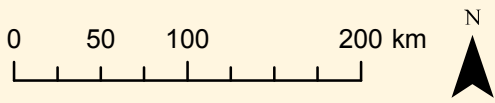
cote



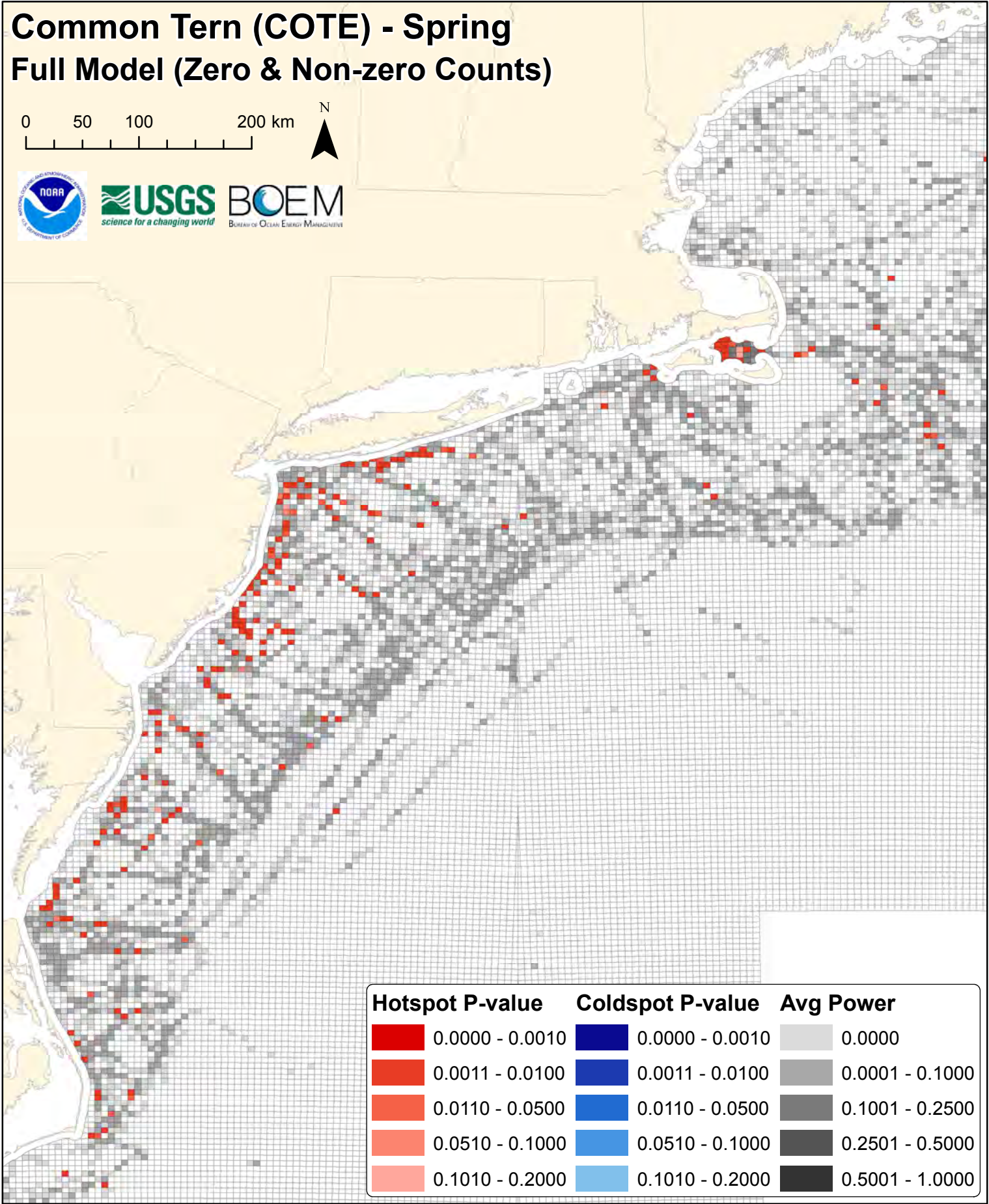
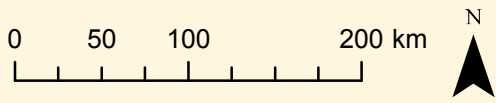
Common Tern (COTE) - Spring Full Model (Zero & Non-zero Counts)


















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



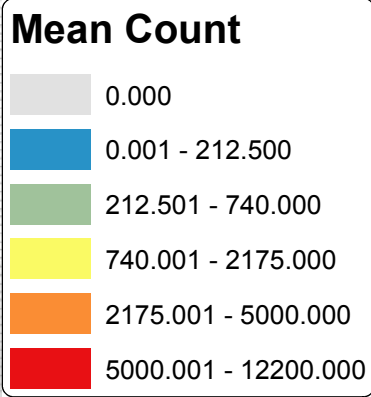
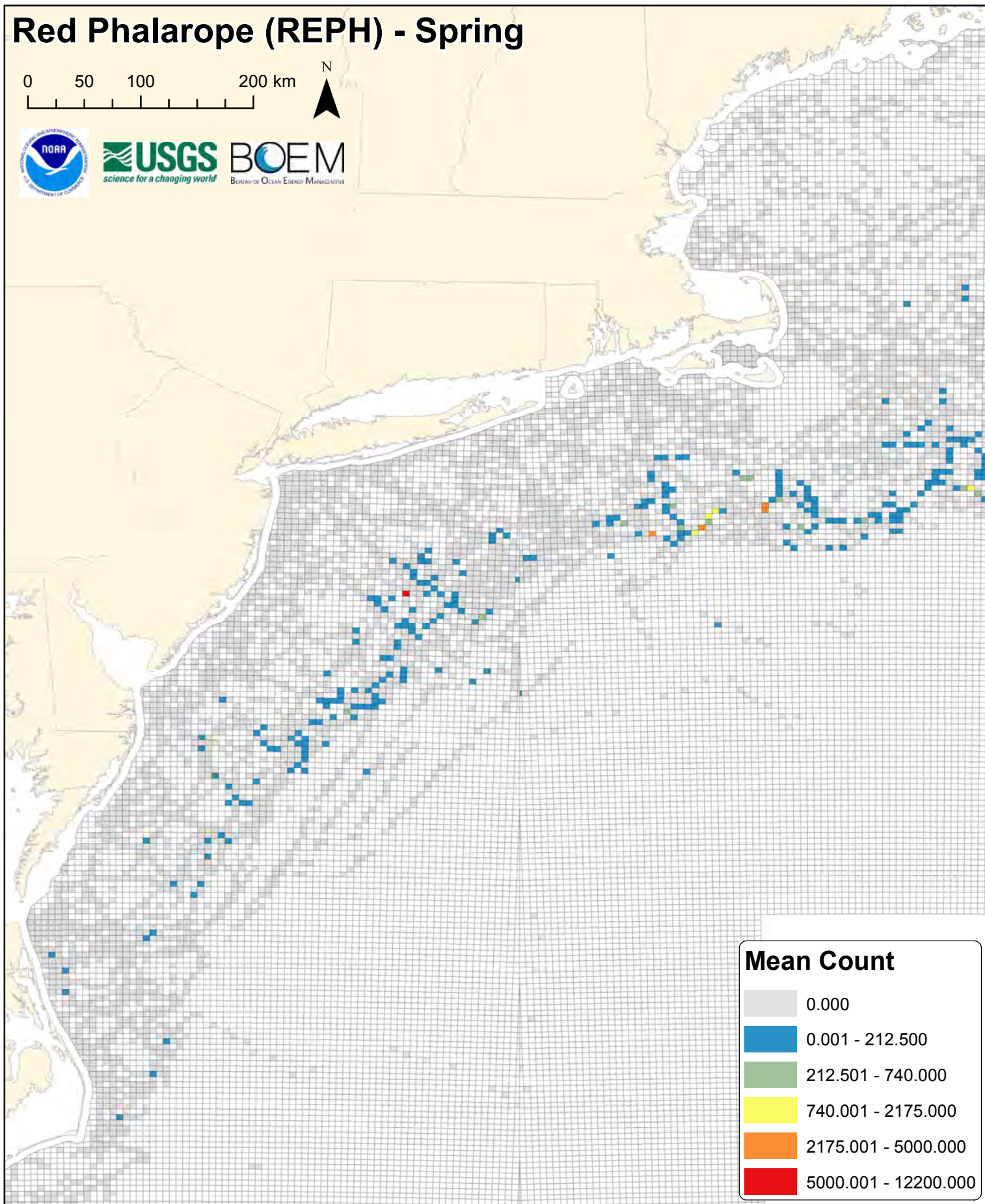
Common Tern (COTE) - Spring Full Model (Zero & Non-zero Counts)



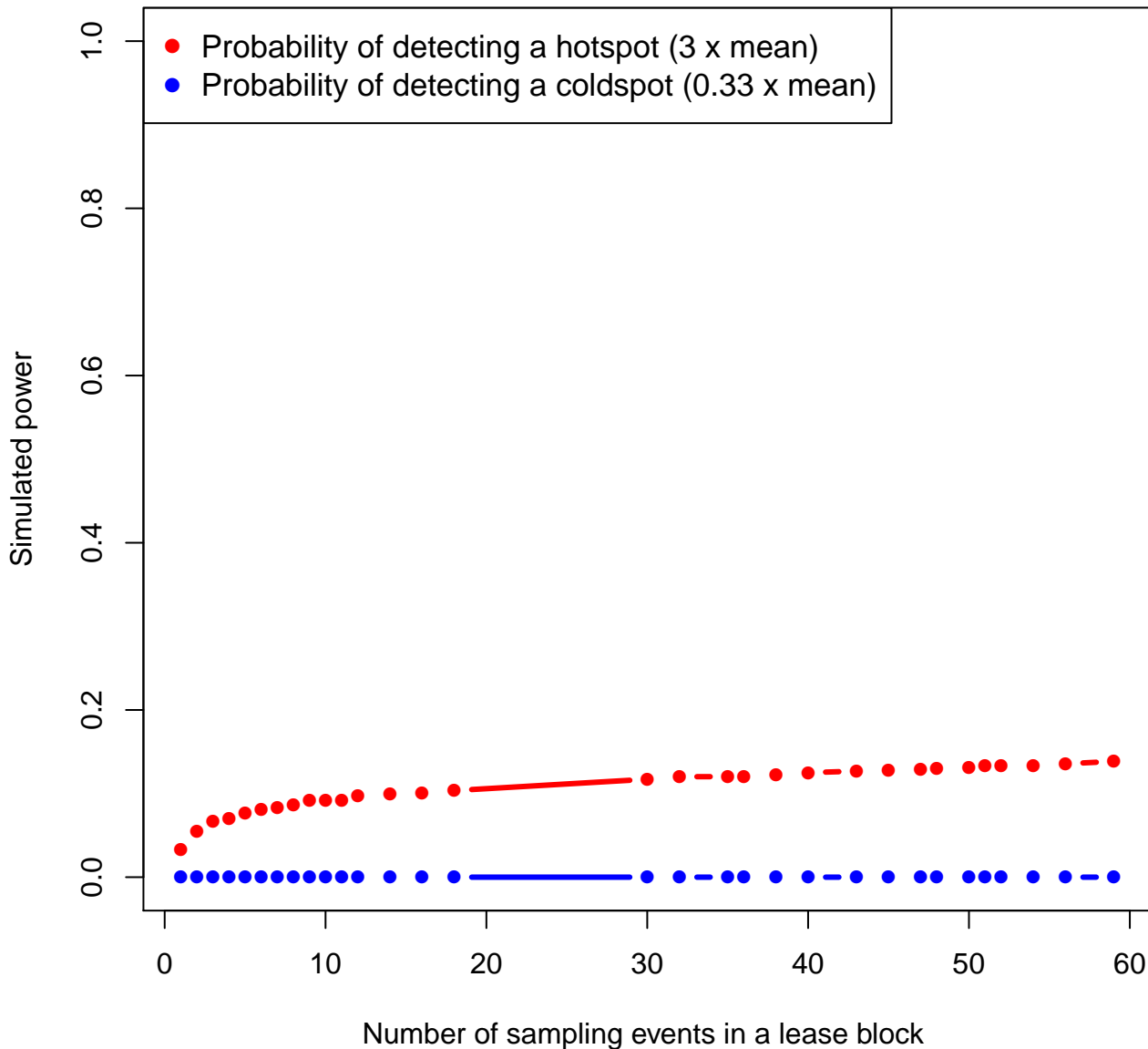
Hotspot P-value	Coldspot P-value	Avg Power
 0.0000 - 0.0010	 0.0000 - 0.0010	 0.0000
 0.0011 - 0.0100	 0.0011 - 0.0100	 0.0001 - 0.1000
 0.0110 - 0.0500	 0.0110 - 0.0500	 0.1001 - 0.2500
 0.0510 - 0.1000	 0.0510 - 0.1000	 0.2501 - 0.5000
 0.1010 - 0.2000	 0.1010 - 0.2000	 0.5001 - 1.0000

Red Phalarope (REPH) - Spring

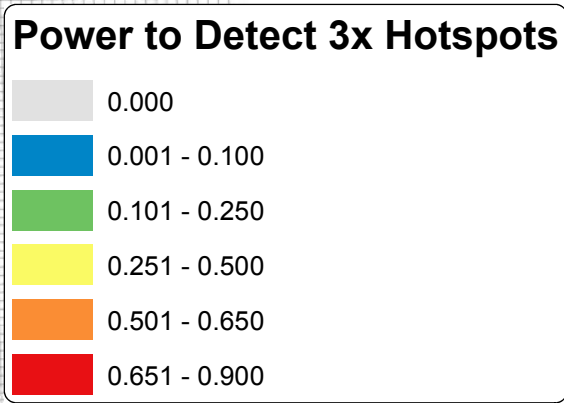
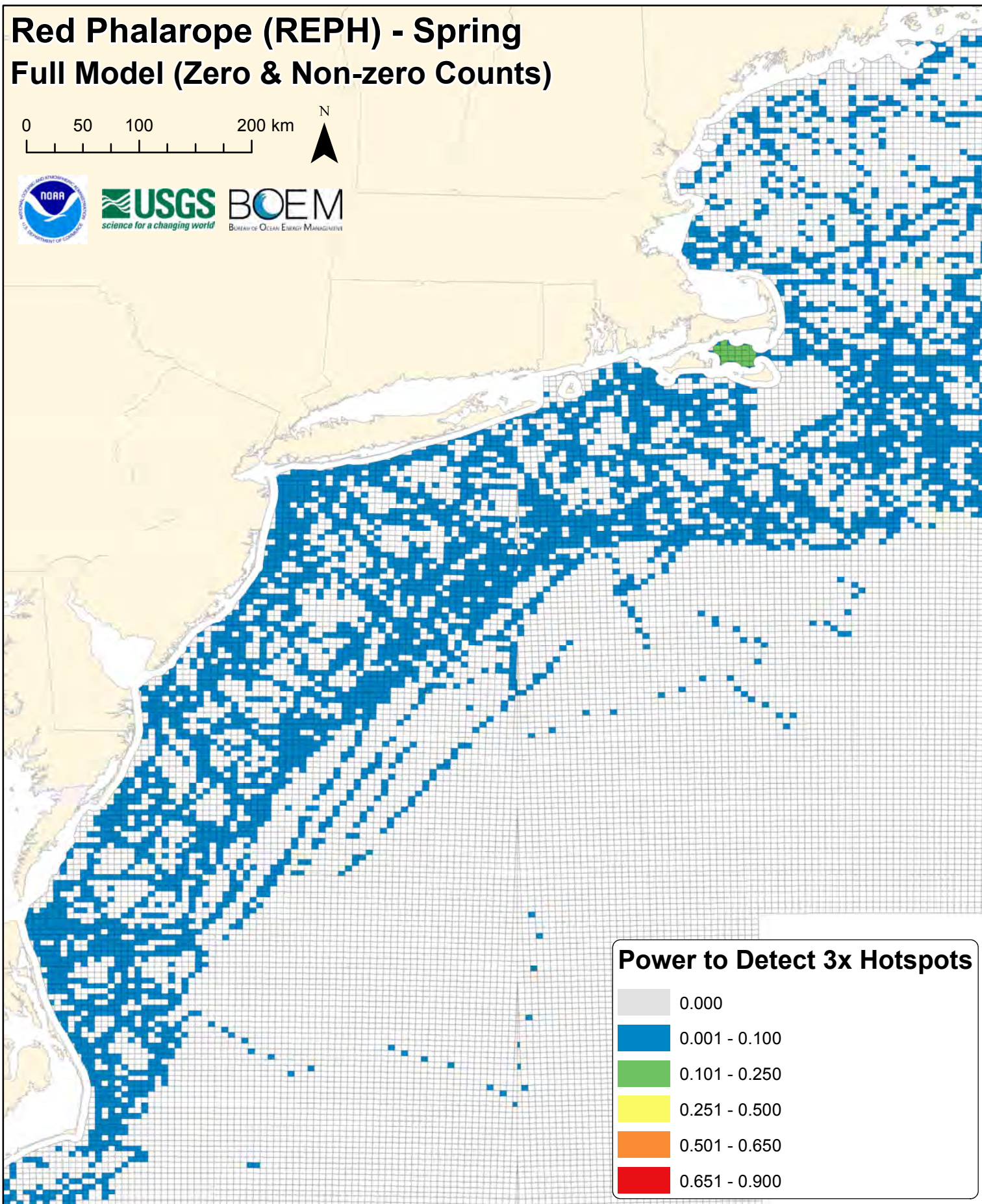
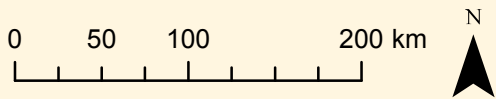
0 50 100 200 km



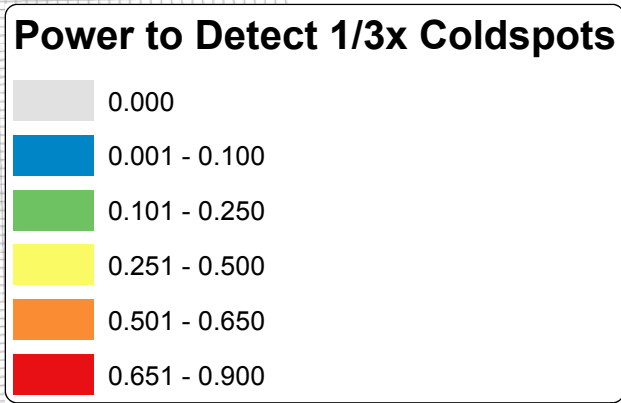
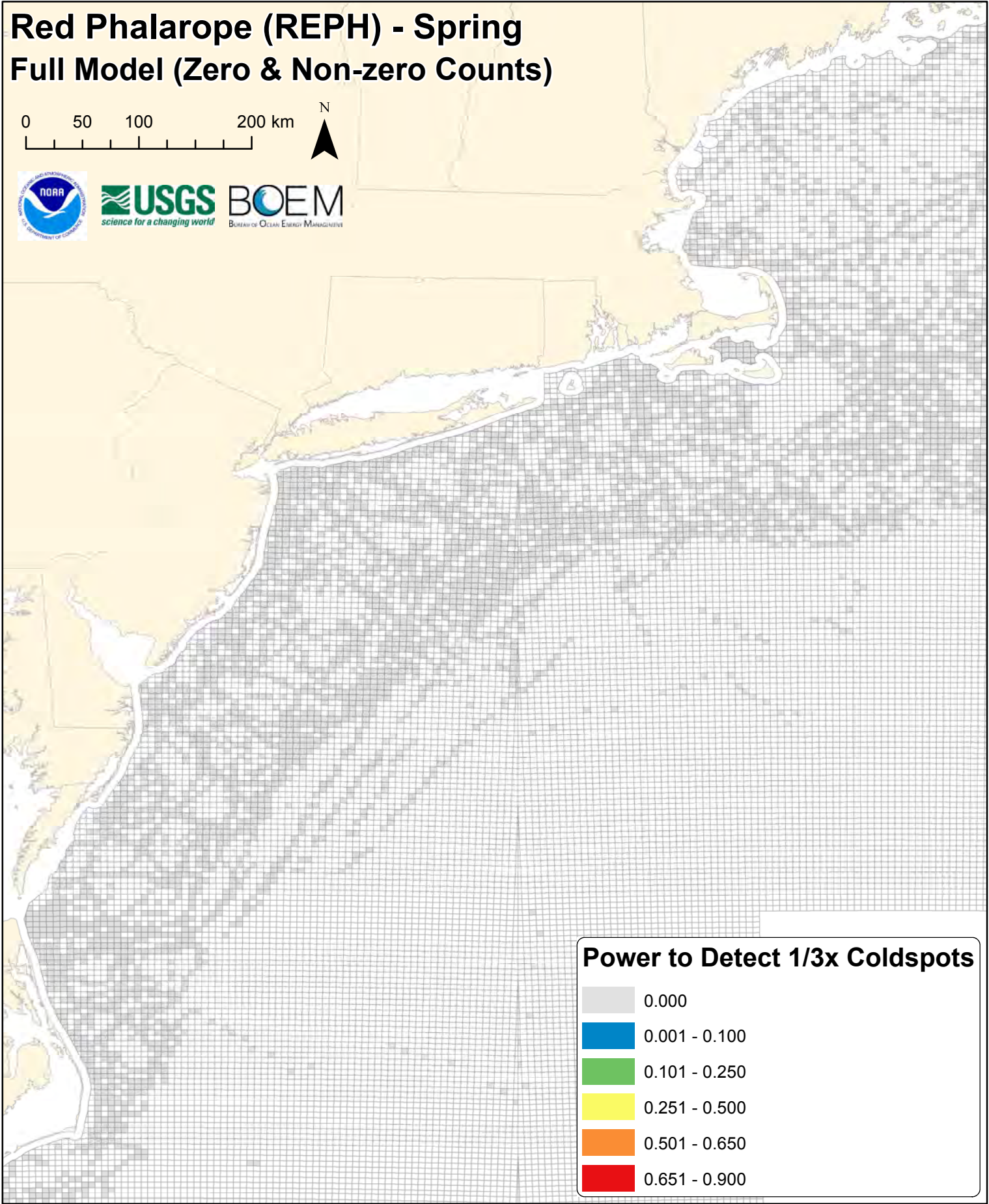
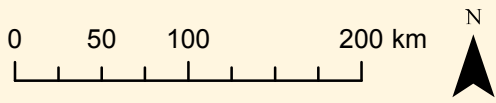
reph



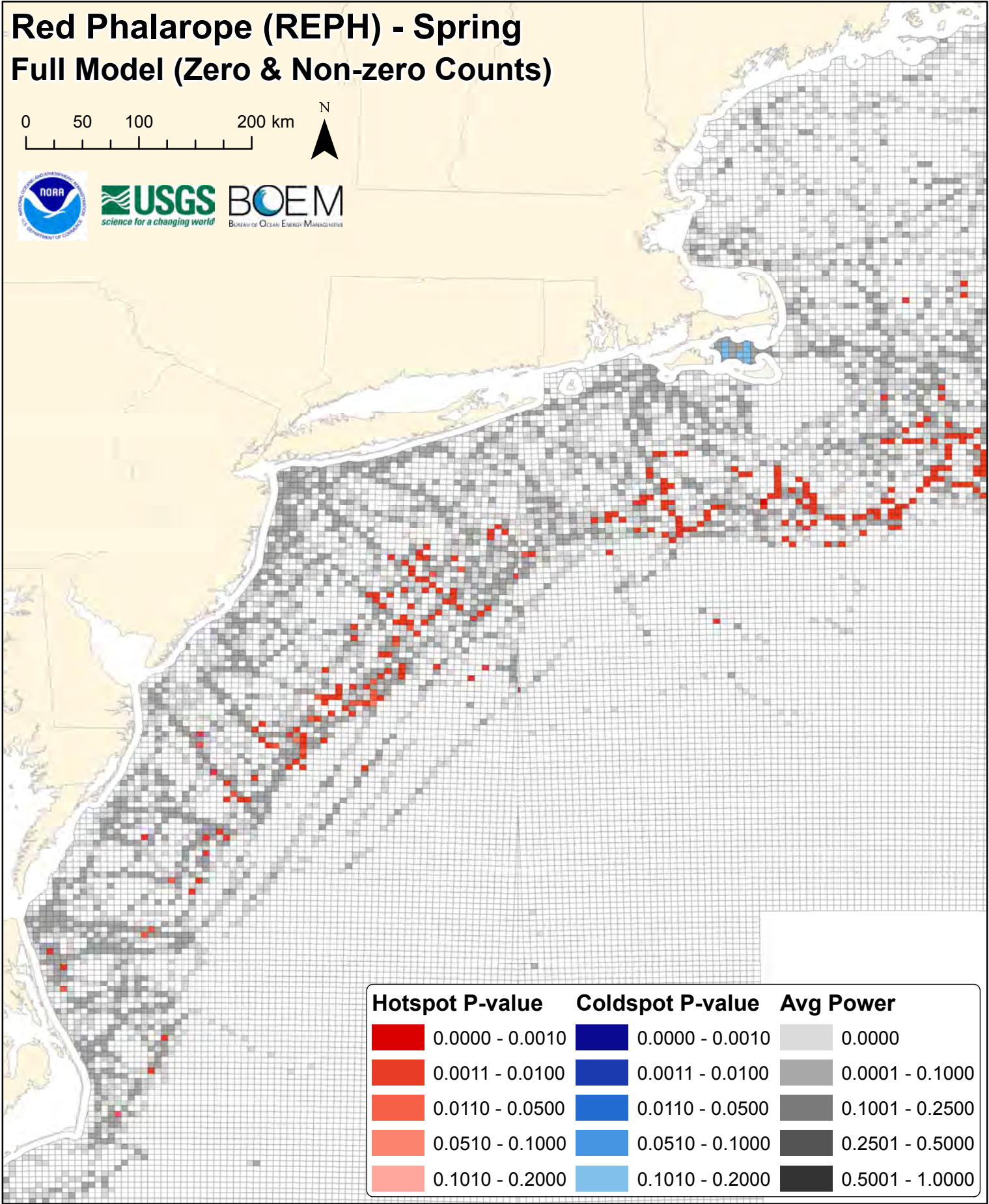
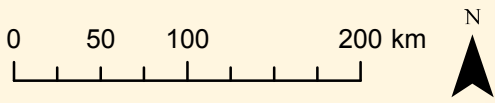
Red Phalarope (REPH) - Spring Full Model (Zero & Non-zero Counts)


















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



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

DIGITAL SUPPLEMENT G

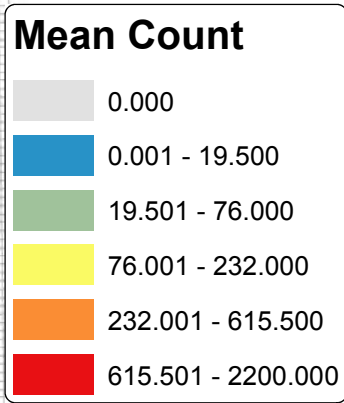
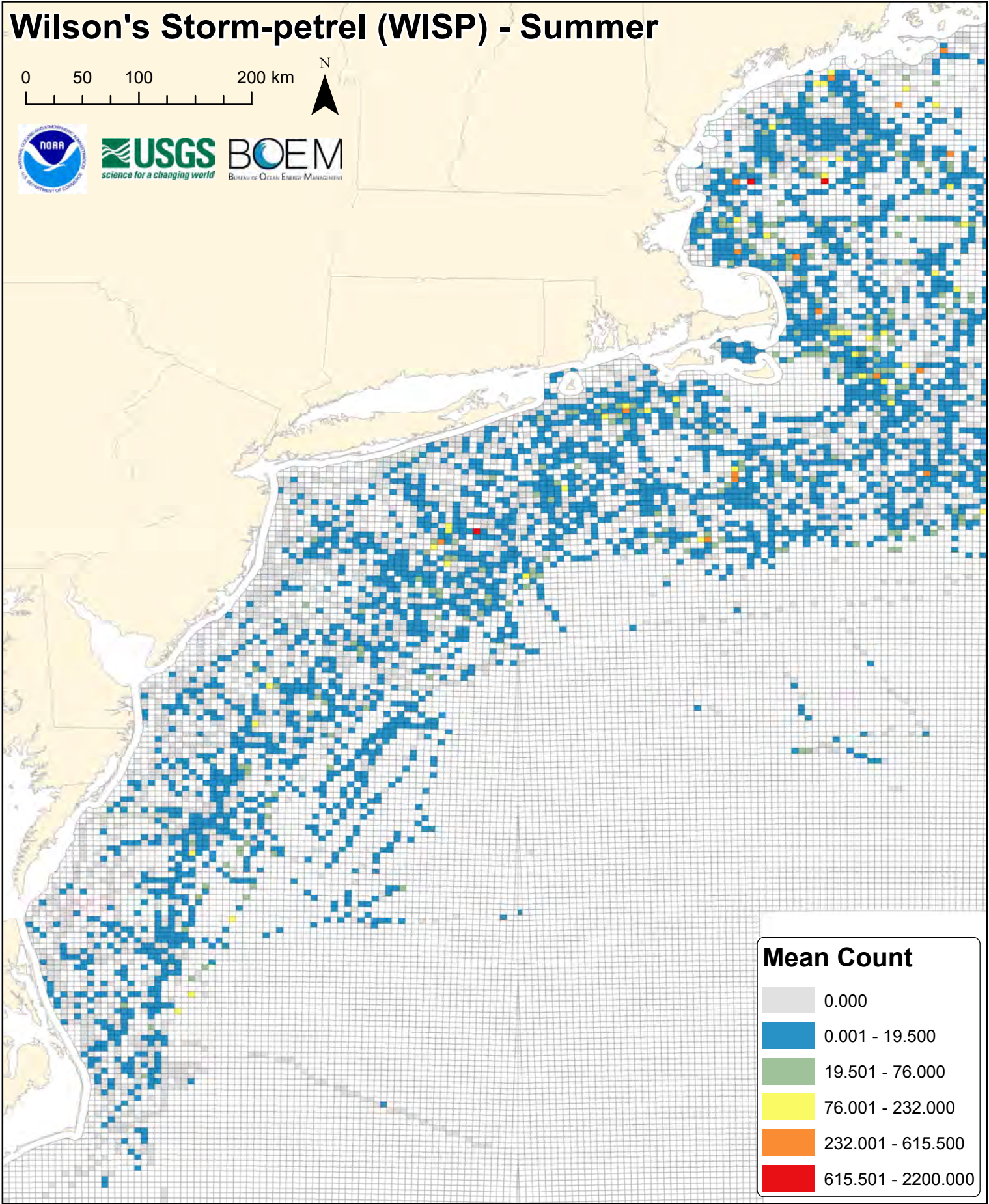
Full Hurdle Model (Zero & Non-Zero Counts) Results

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

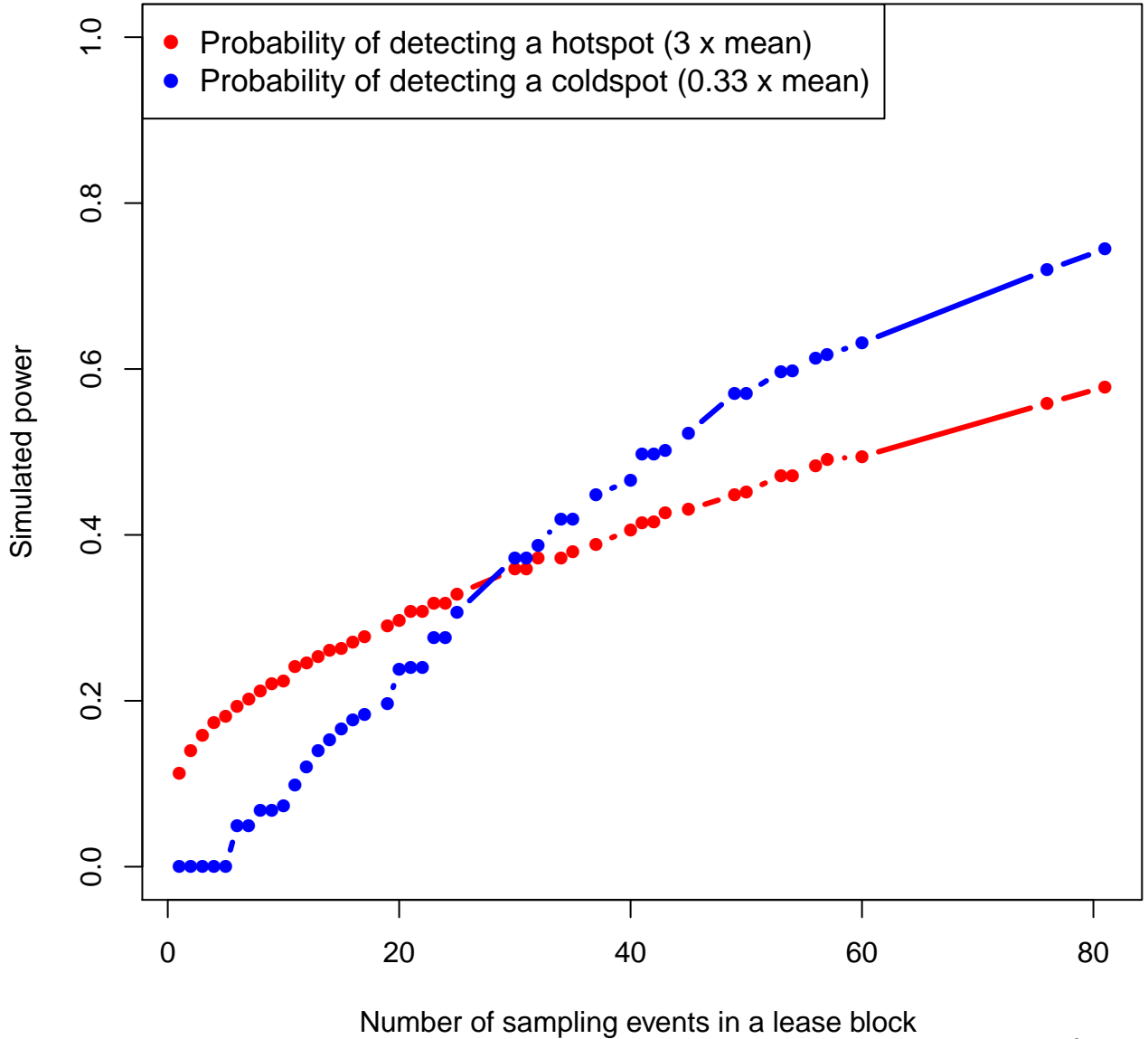
Figures G91-G125. Summer power analysis maps and figures (7 species x 5 figures per species).

Wilson's Storm-petrel (WISP) - Summer

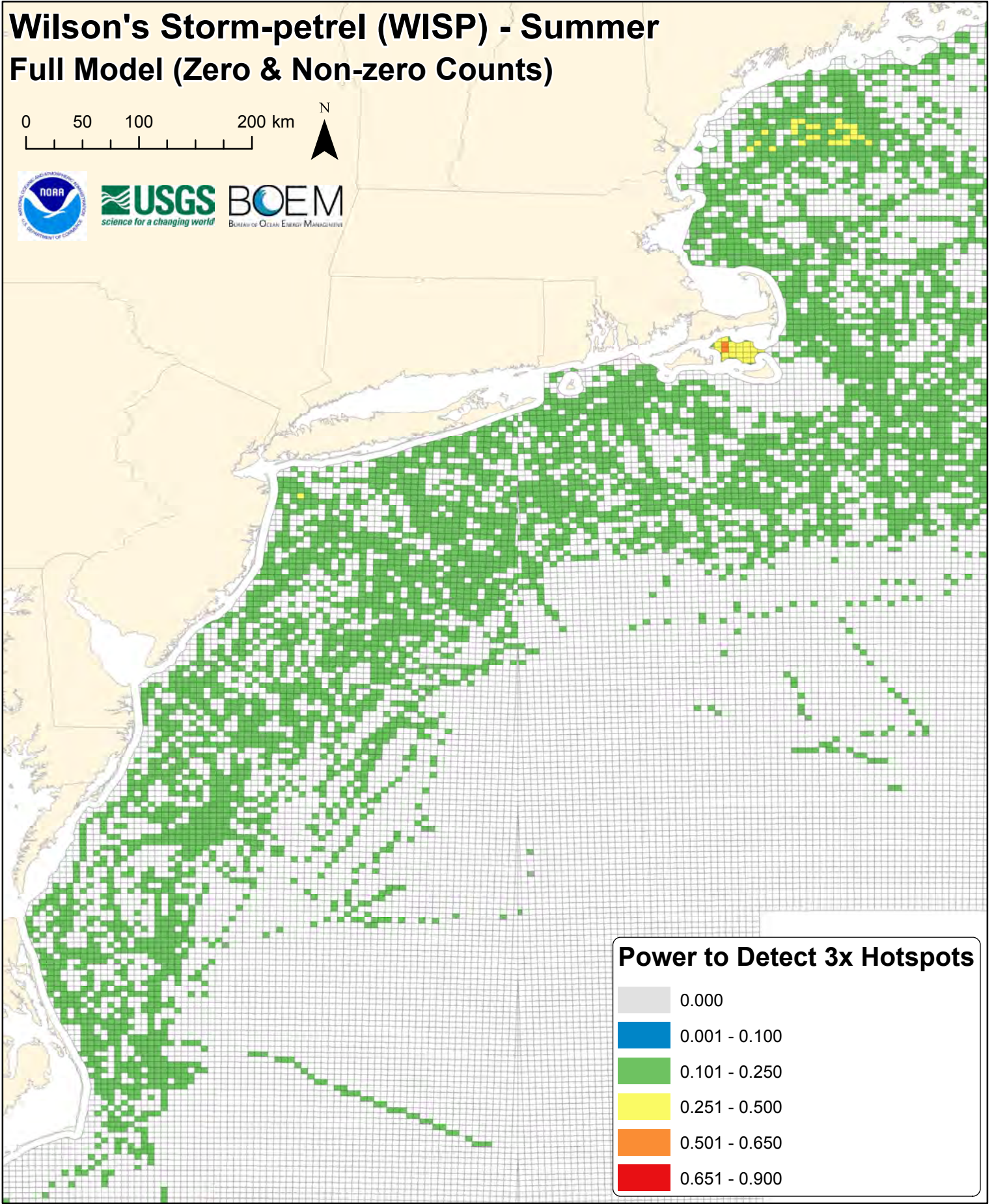
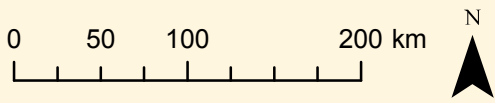
0 50 100 200 km



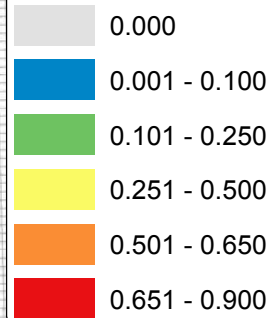
wisp



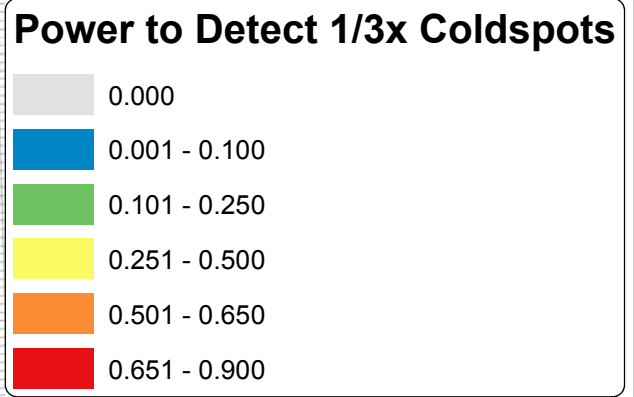
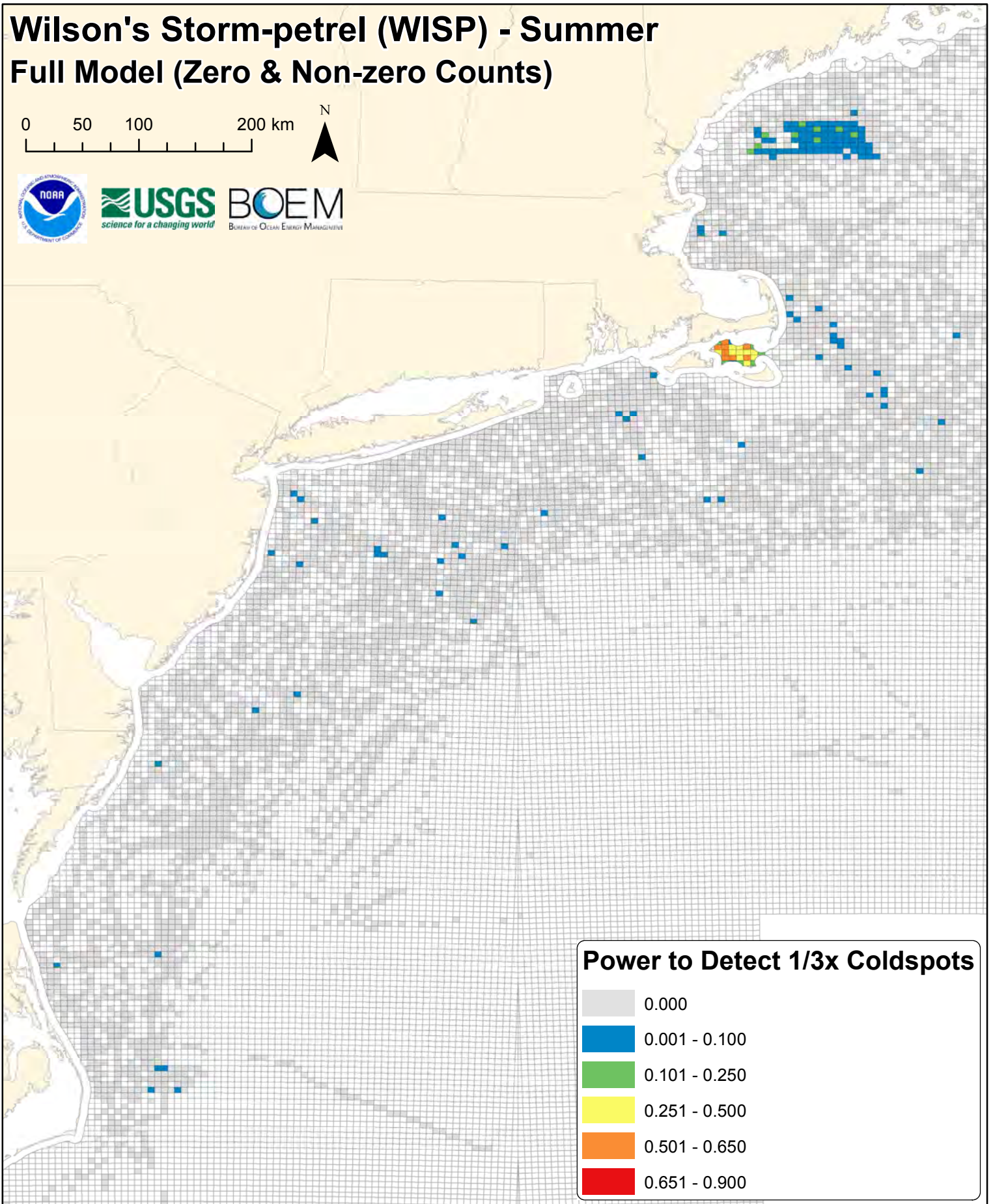
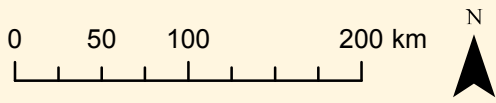
Wilson's Storm-petrel (WISP) - Summer Full Model (Zero & Non-zero Counts)



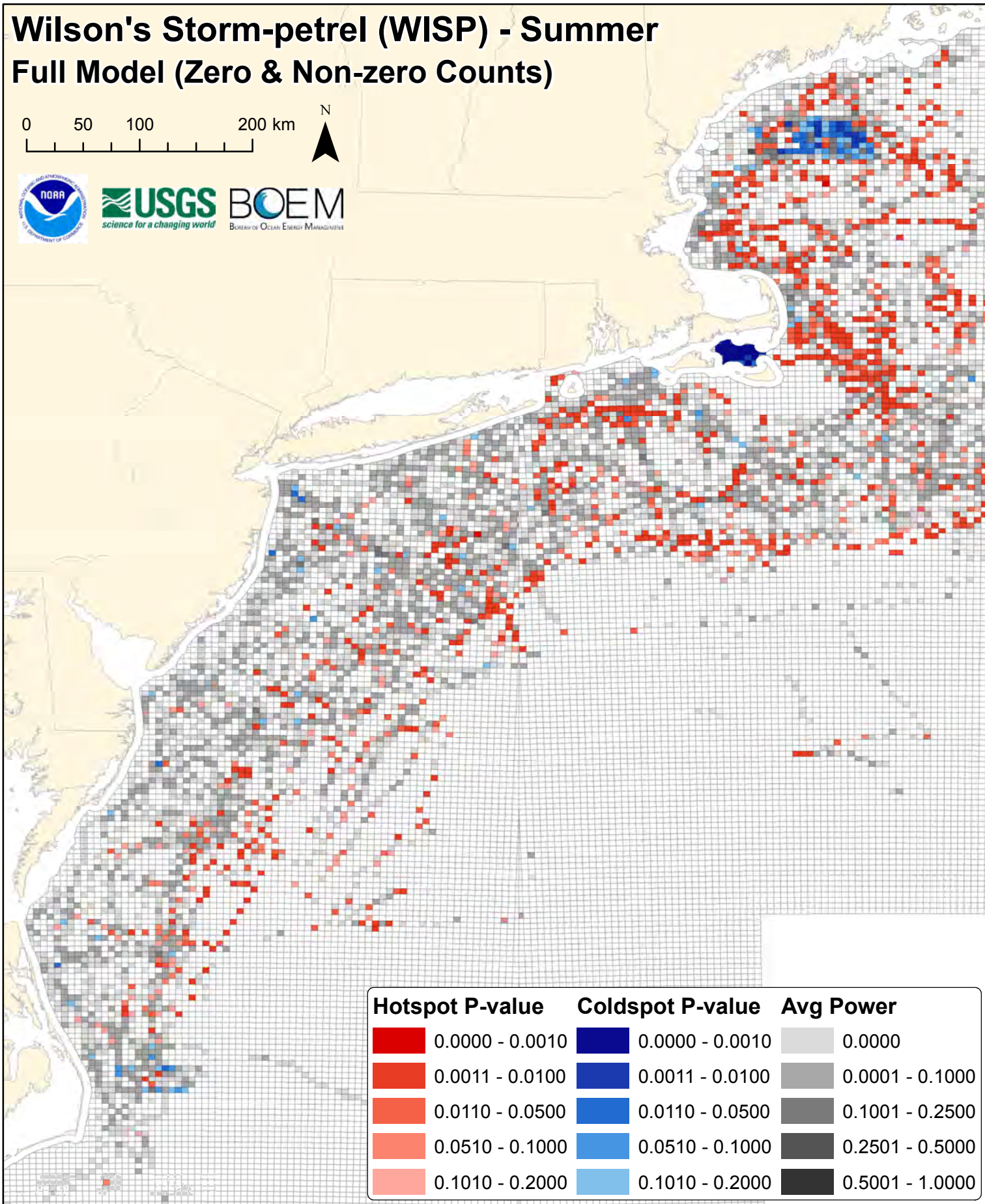
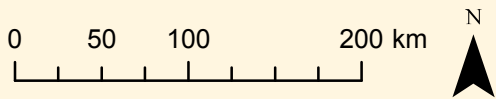
Power to Detect 3x Hotspots


















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



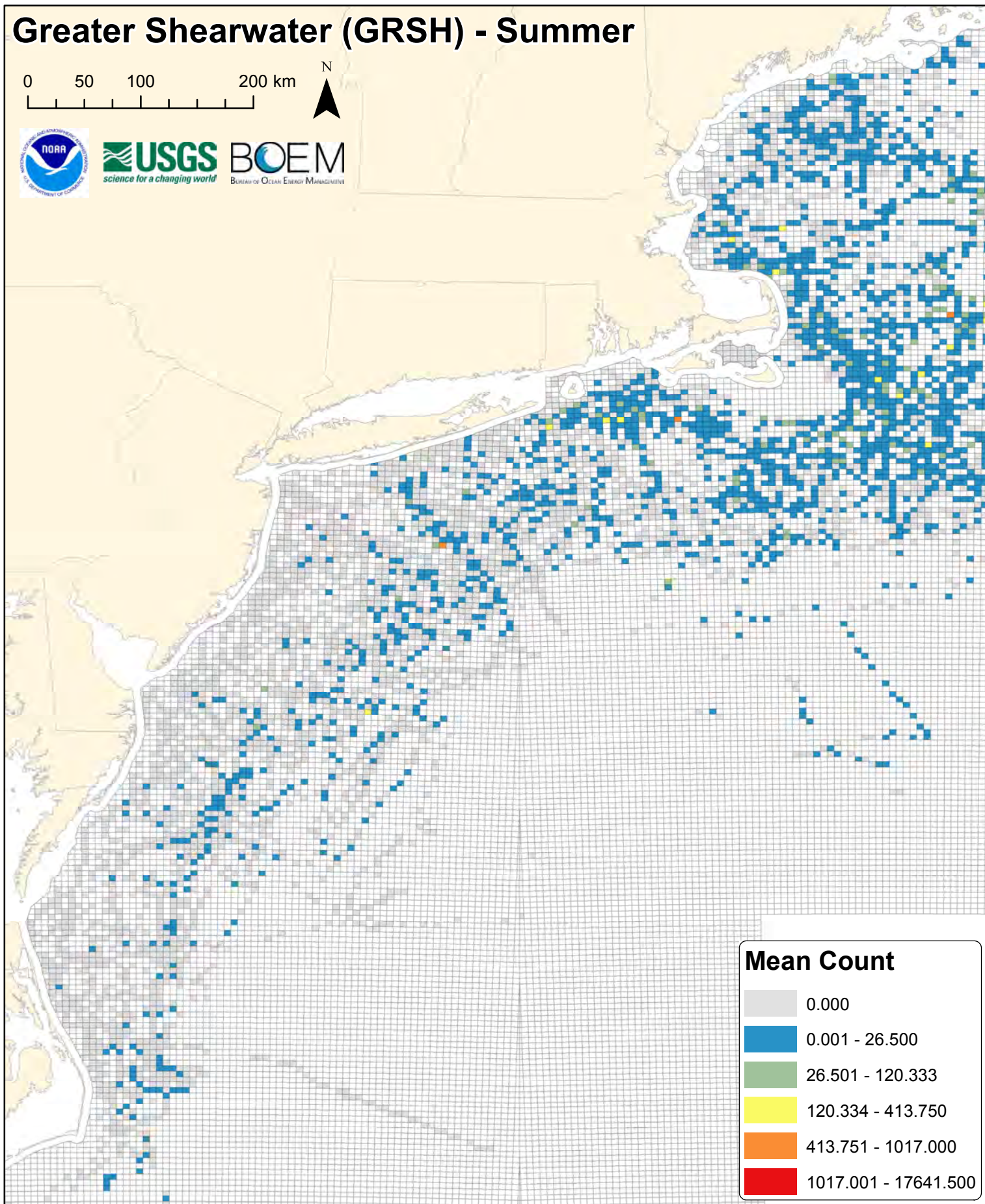
Wilson's Storm-petrel (WISP) - Summer Full Model (Zero & Non-zero Counts)



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

Greater Shearwater (GRSH) - Summer

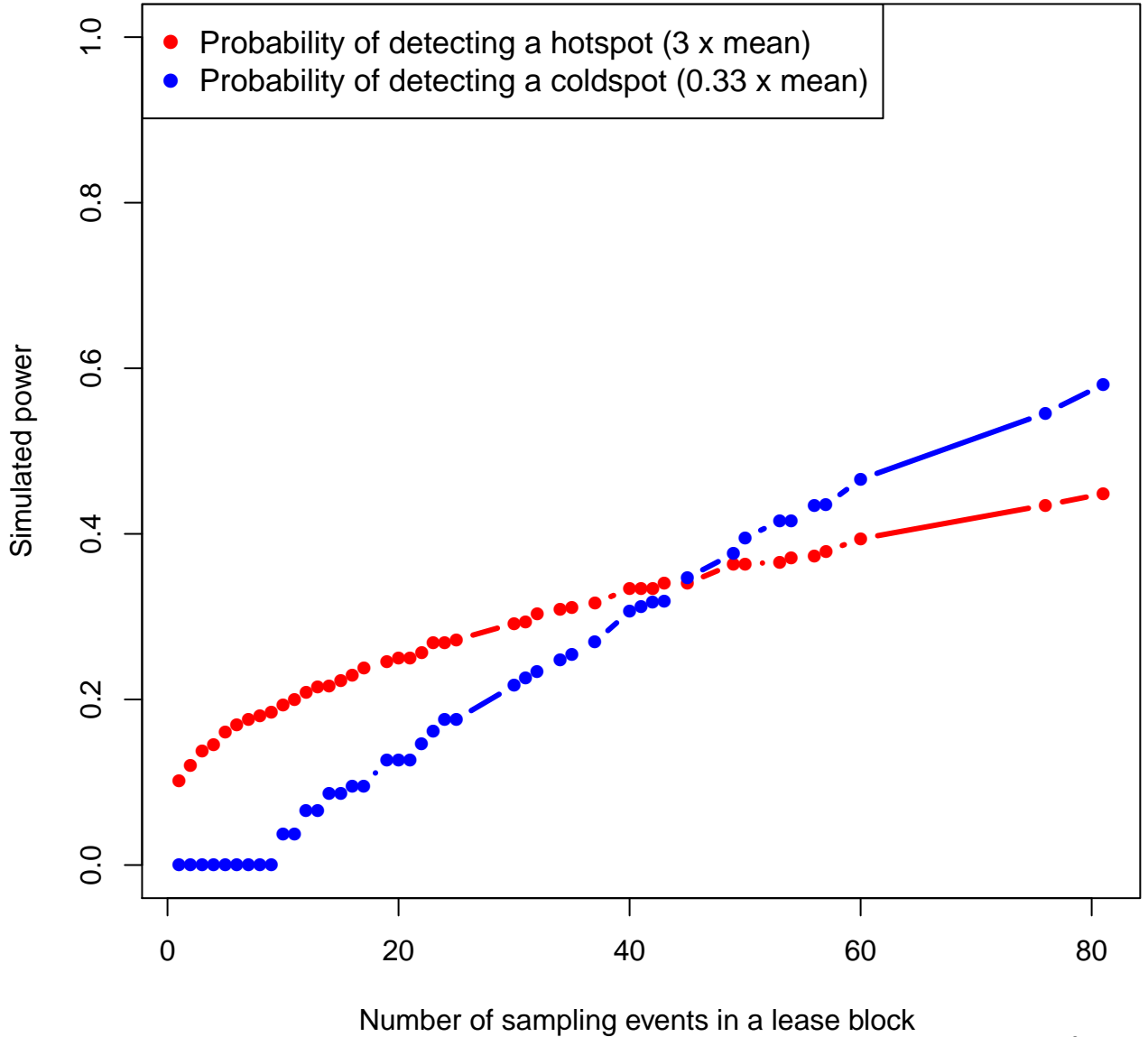
0 50 100 200 km



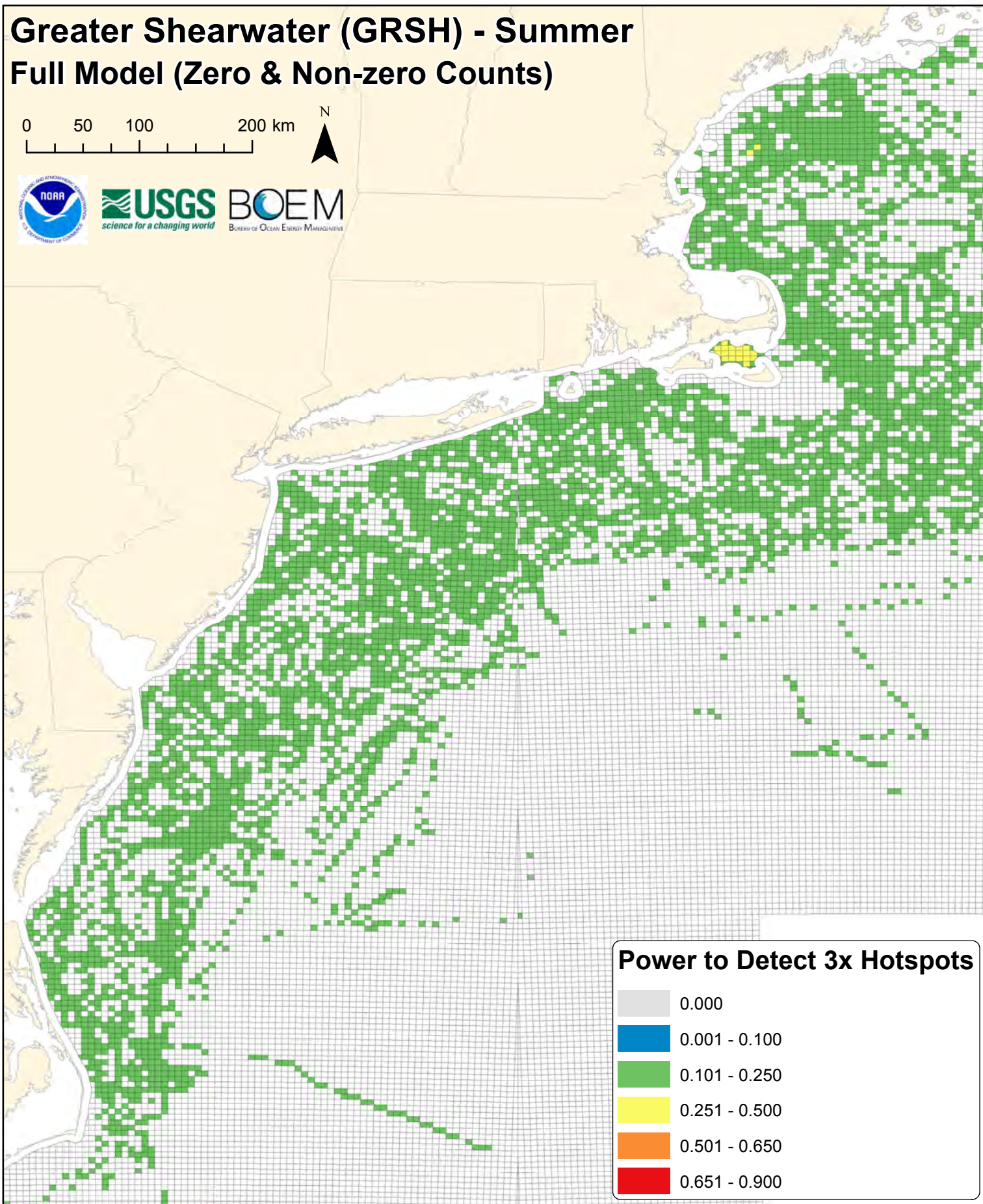
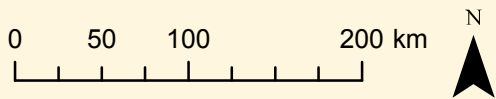
Mean Count

- 0.000
- 0.001 - 26.500
- 26.501 - 120.333
- 120.334 - 413.750
- 413.751 - 1017.000
- 1017.001 - 17641.500

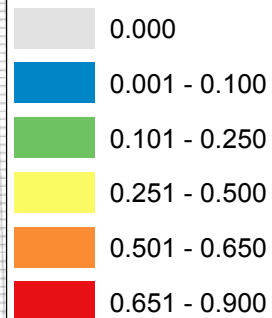
grsh



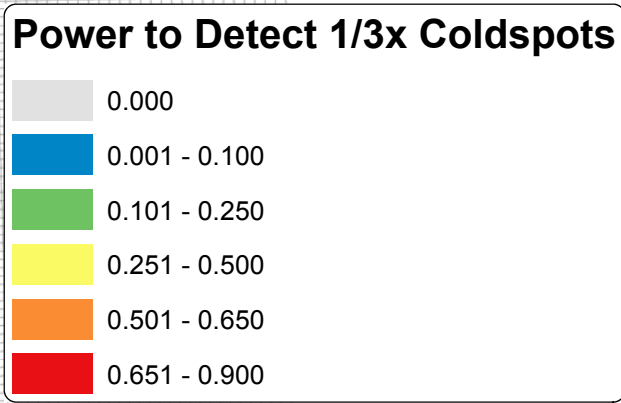
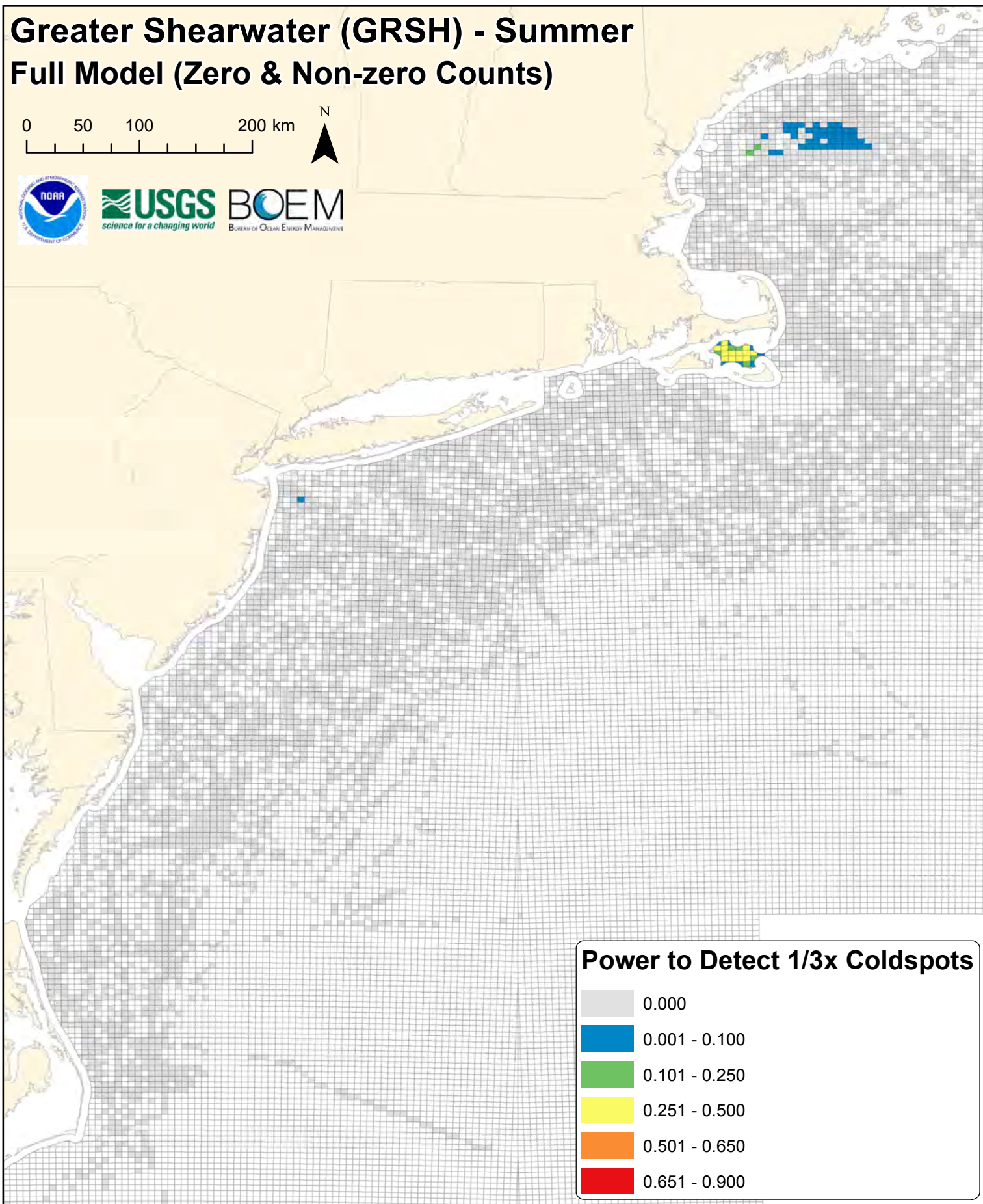
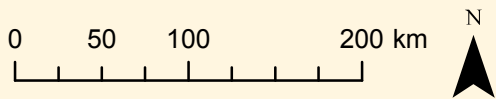
Greater Shearwater (GRSH) - Summer Full Model (Zero & Non-zero Counts)



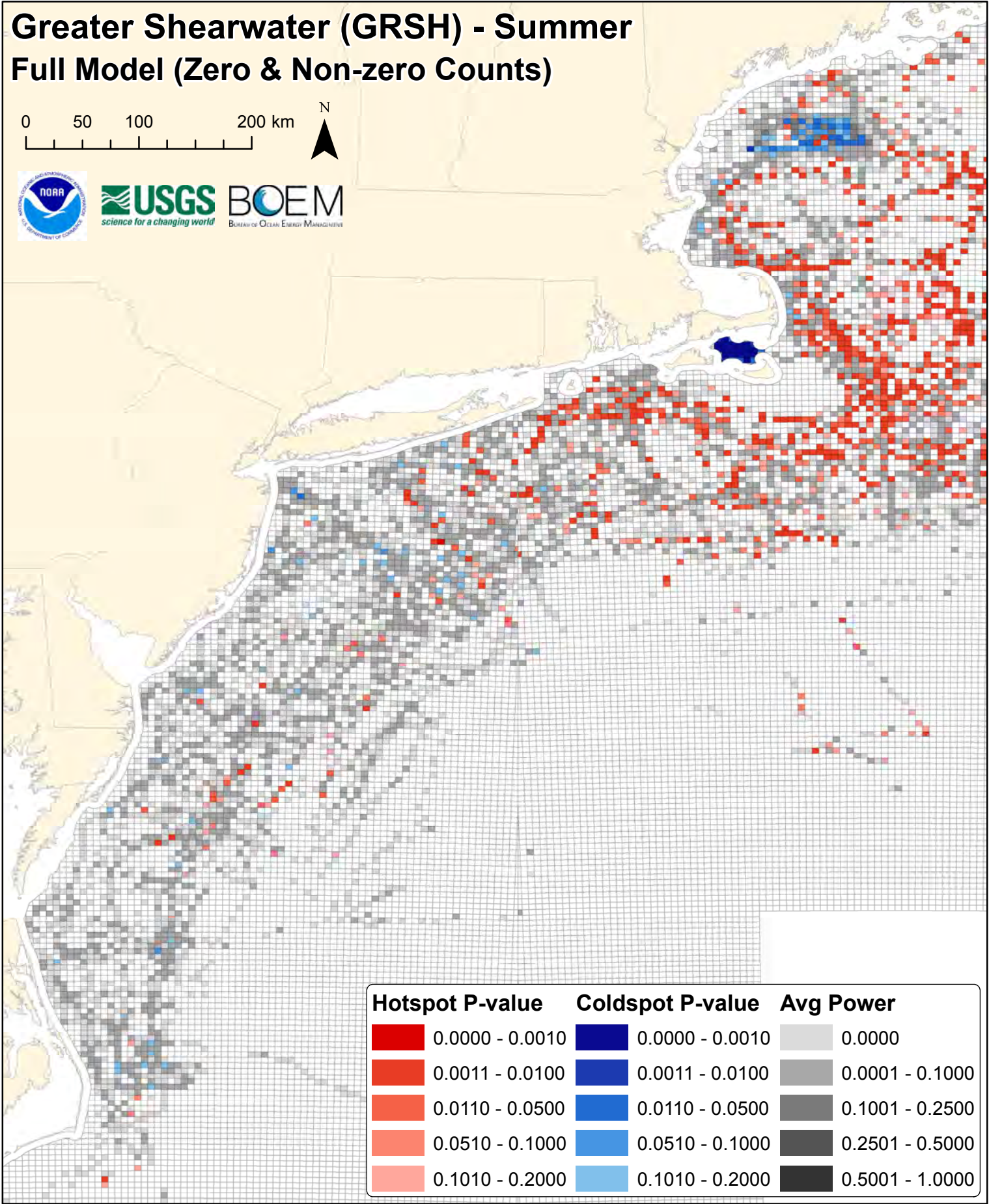
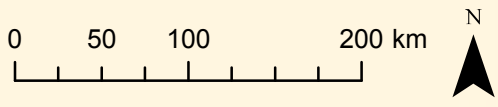
Power to Detect 3x Hotspots


















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



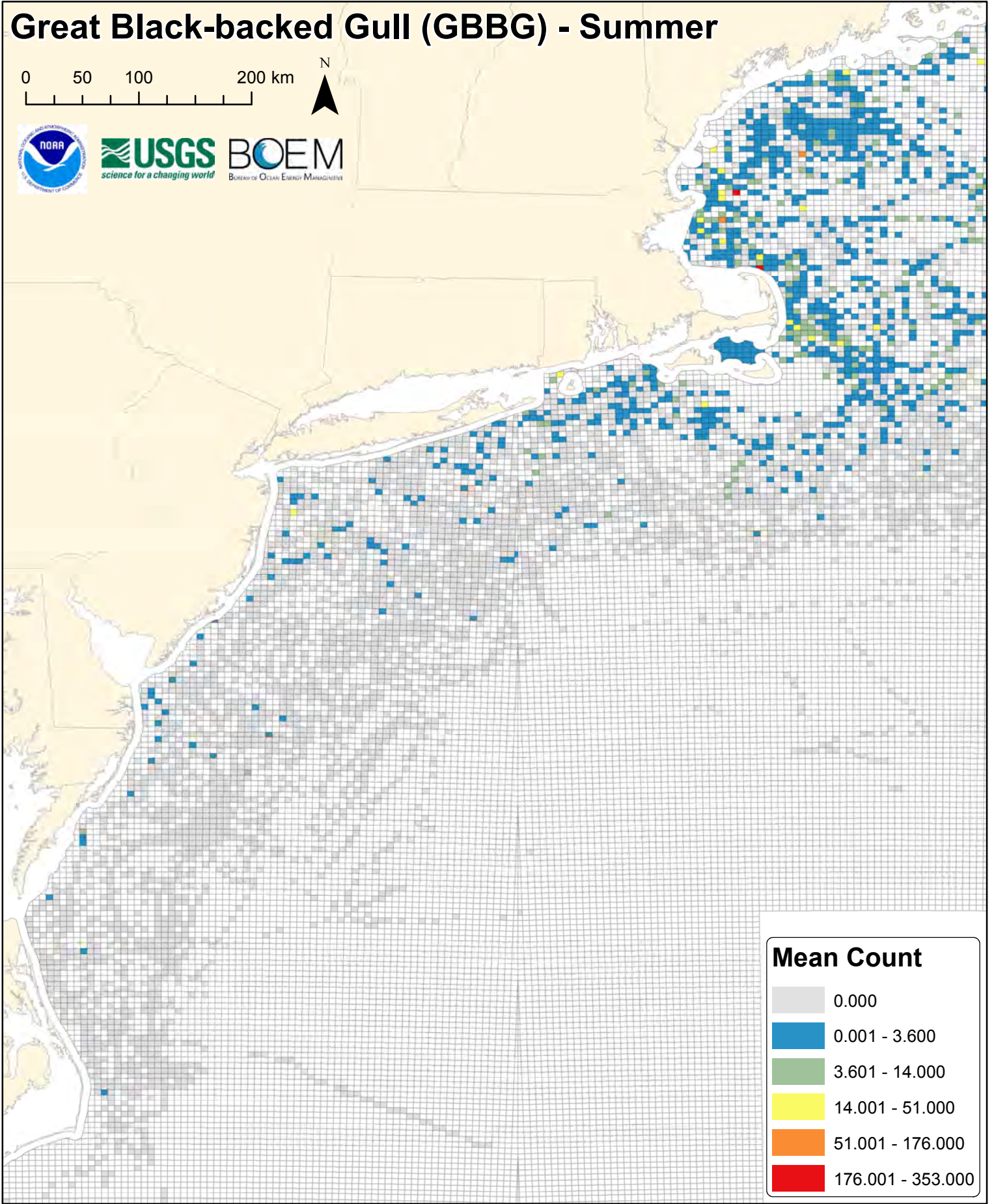
Greater Shearwater (GRSH) - Summer Full Model (Zero & Non-zero Counts)



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

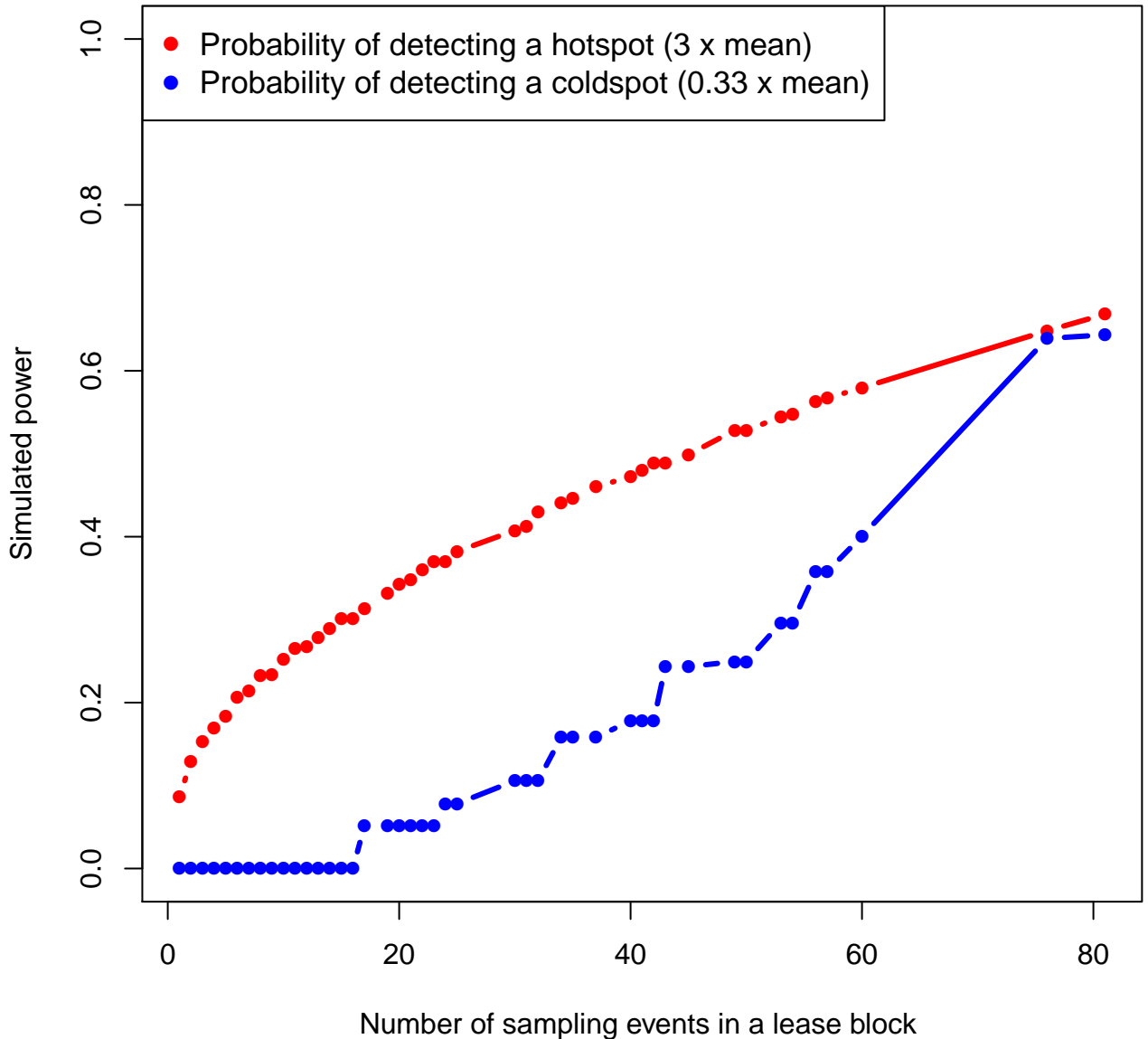
0 50 100 200 km



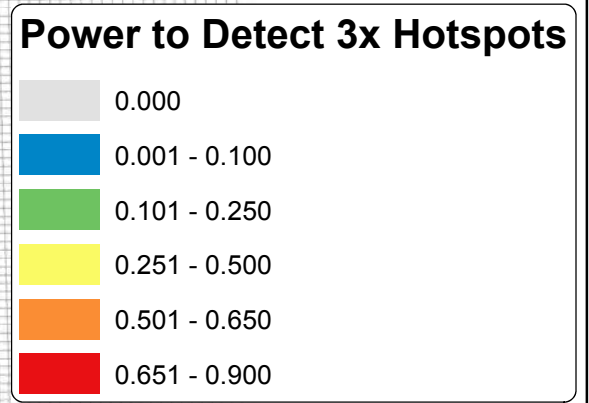
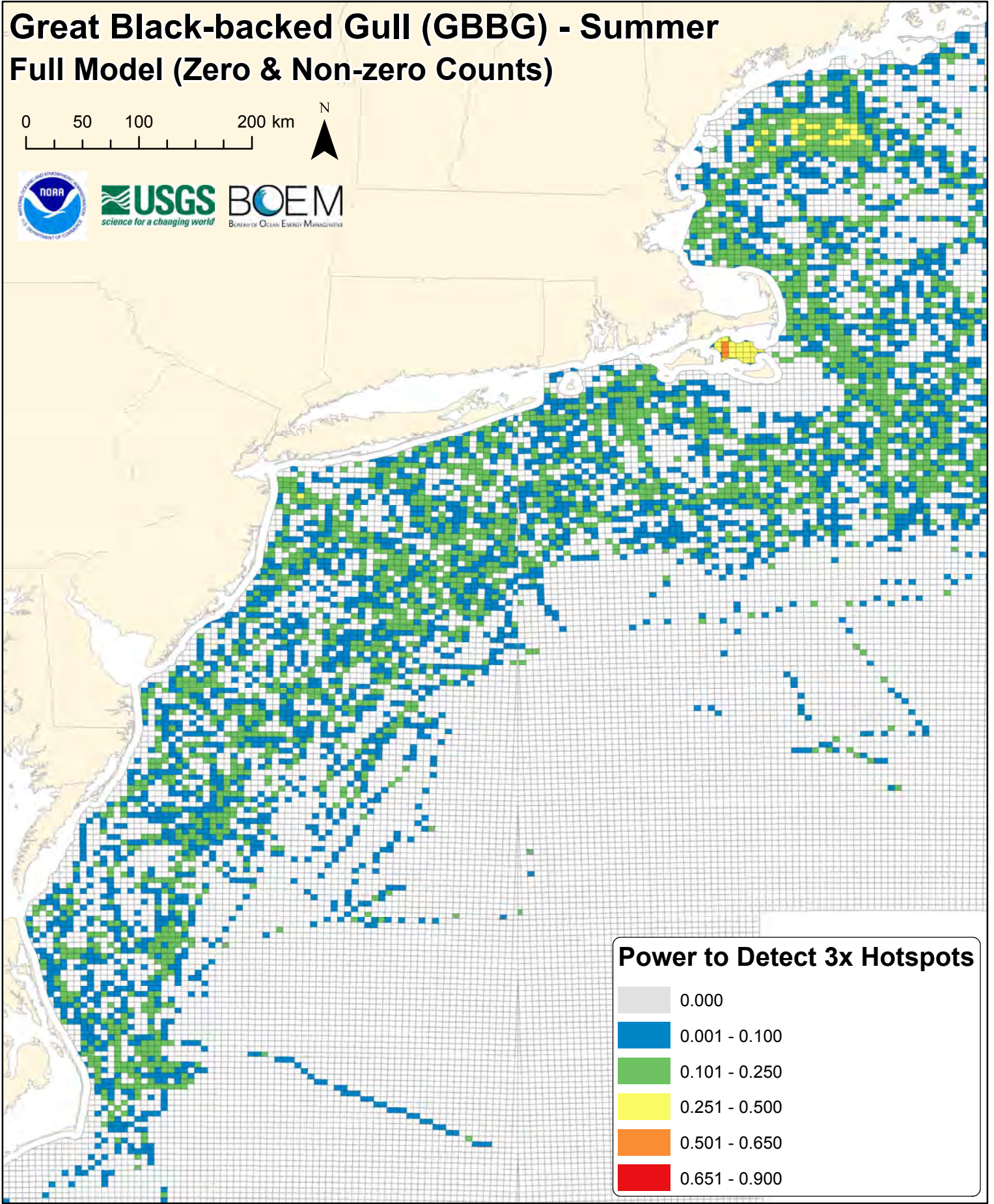
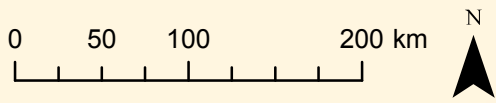
Mean Count

0.000
0.001 - 3.600
3.601 - 14.000
14.001 - 51.000
51.001 - 176.000
176.001 - 353.000

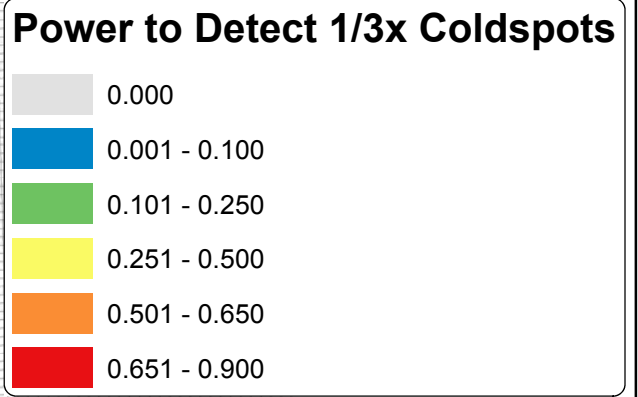
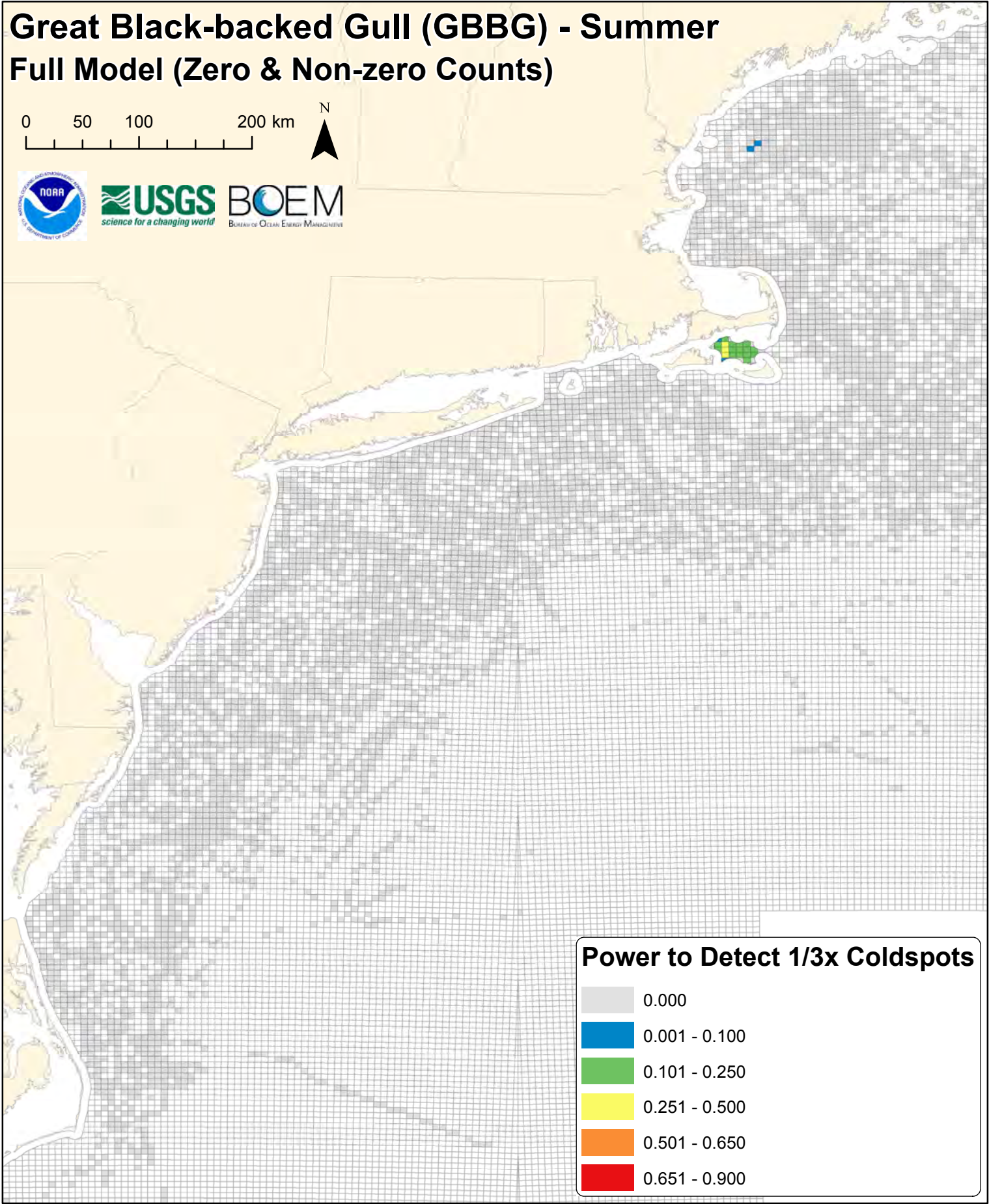
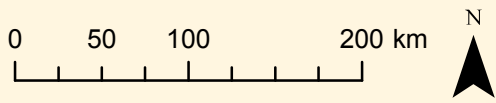
gbbg



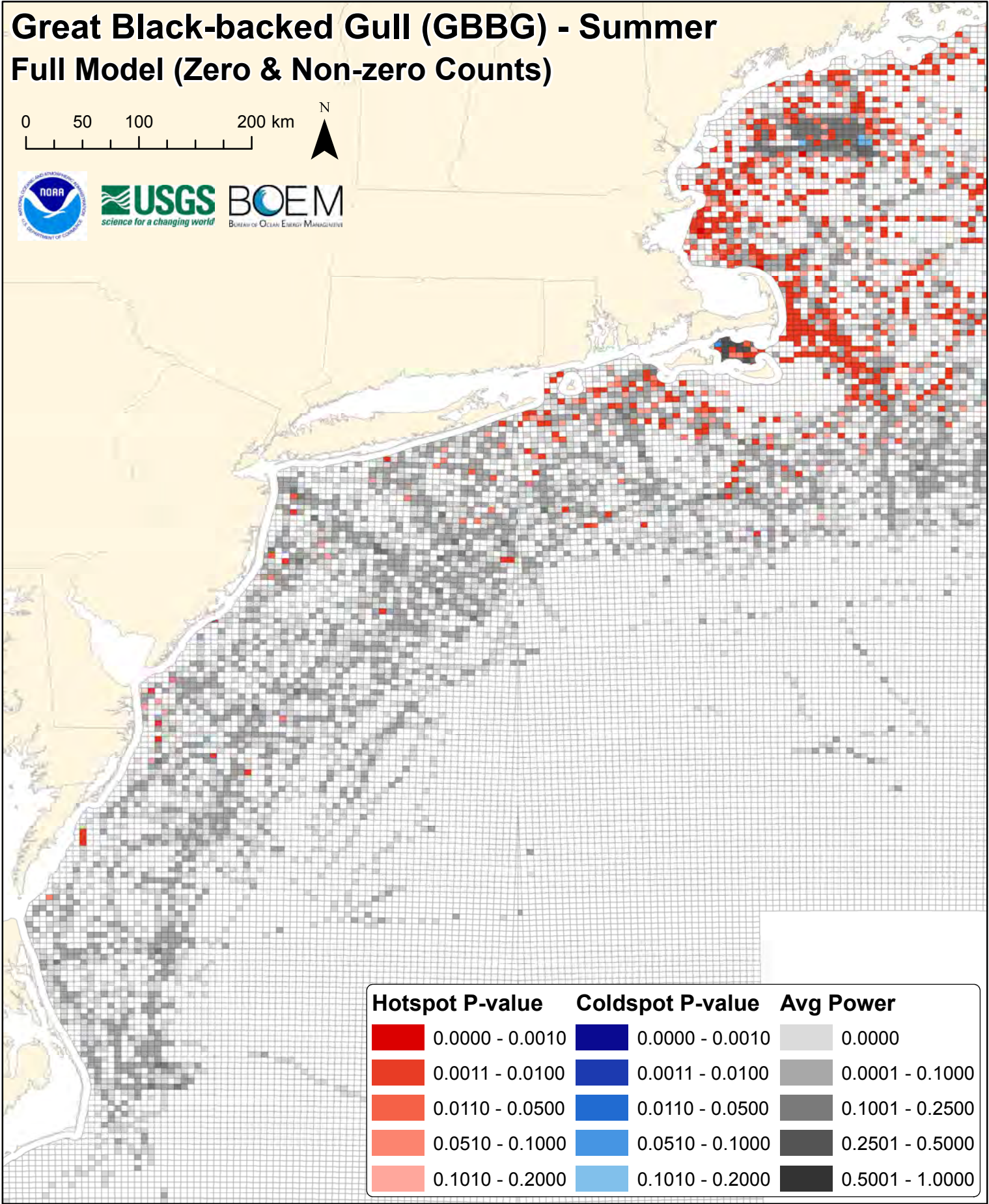
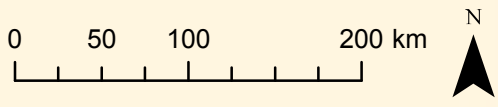
Great Black-backed Gull (GBBG) - Summer Full Model (Zero & Non-zero Counts)


















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



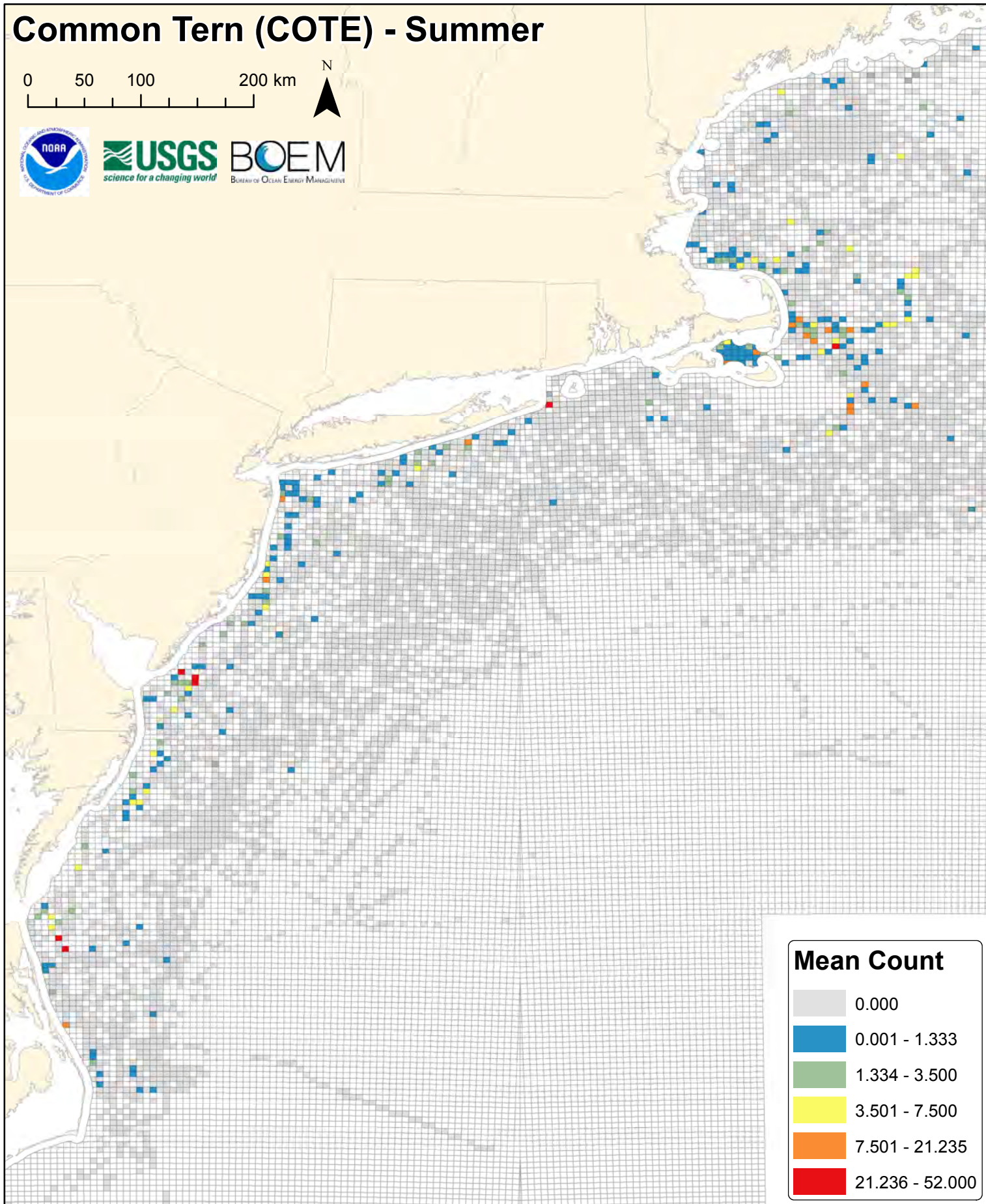
Great Black-backed Gull (GBBG) - Summer Full Model (Zero & Non-zero Counts)



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 Tern (COTE) - Summer

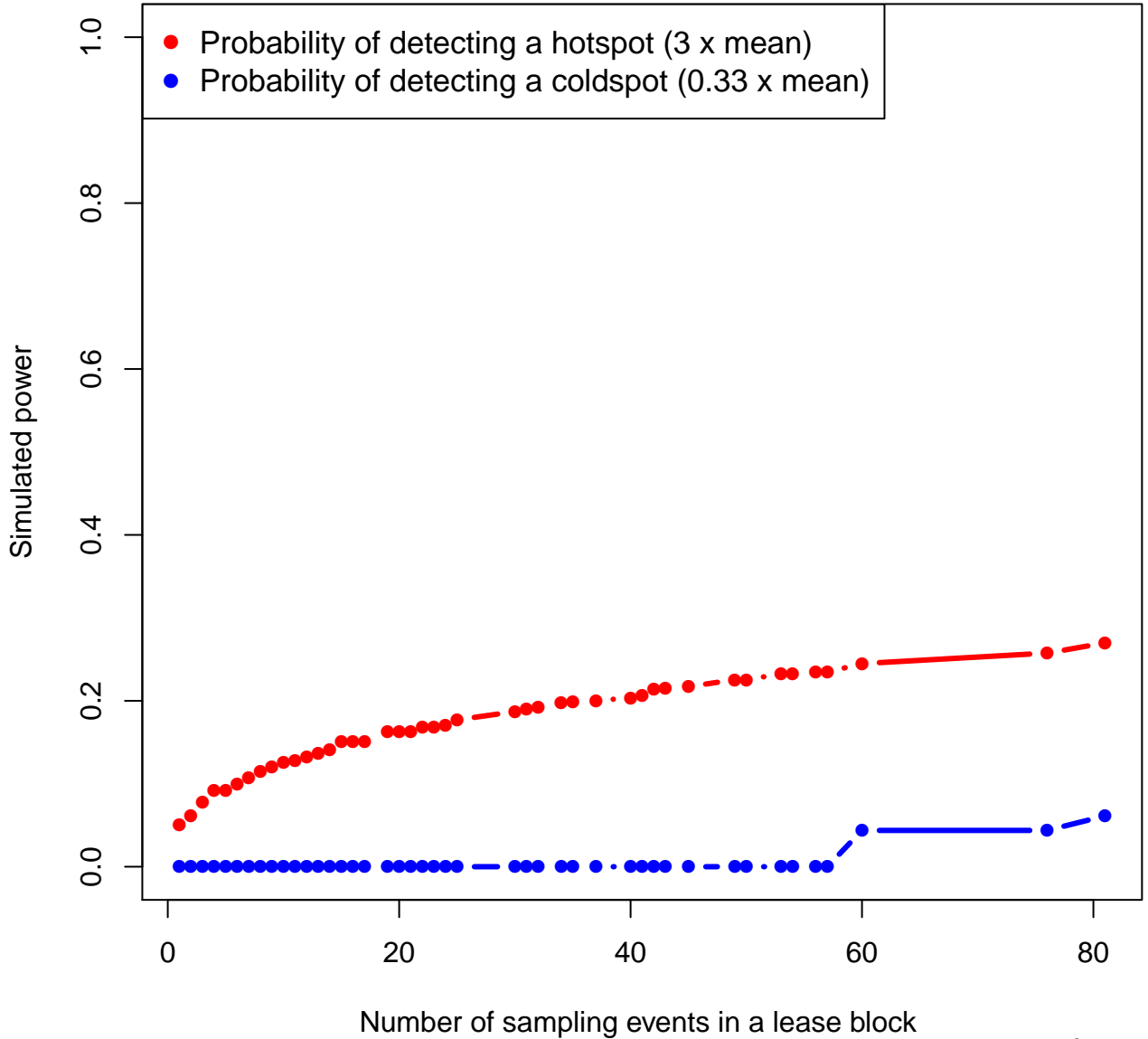
0 50 100 200 km



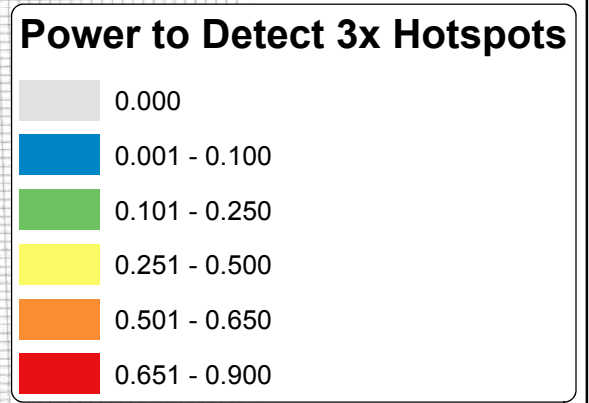
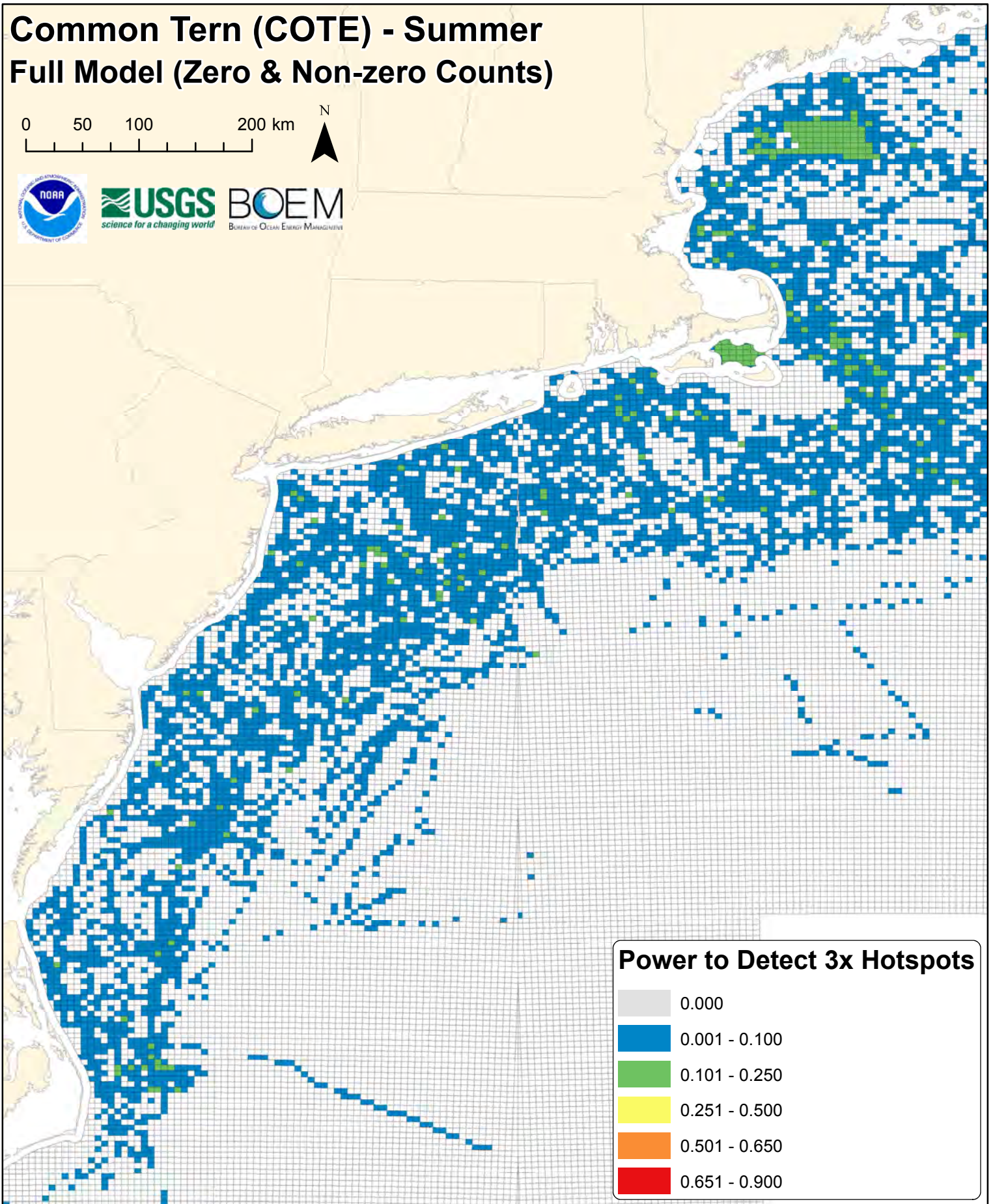
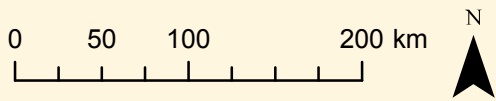
Mean Count

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

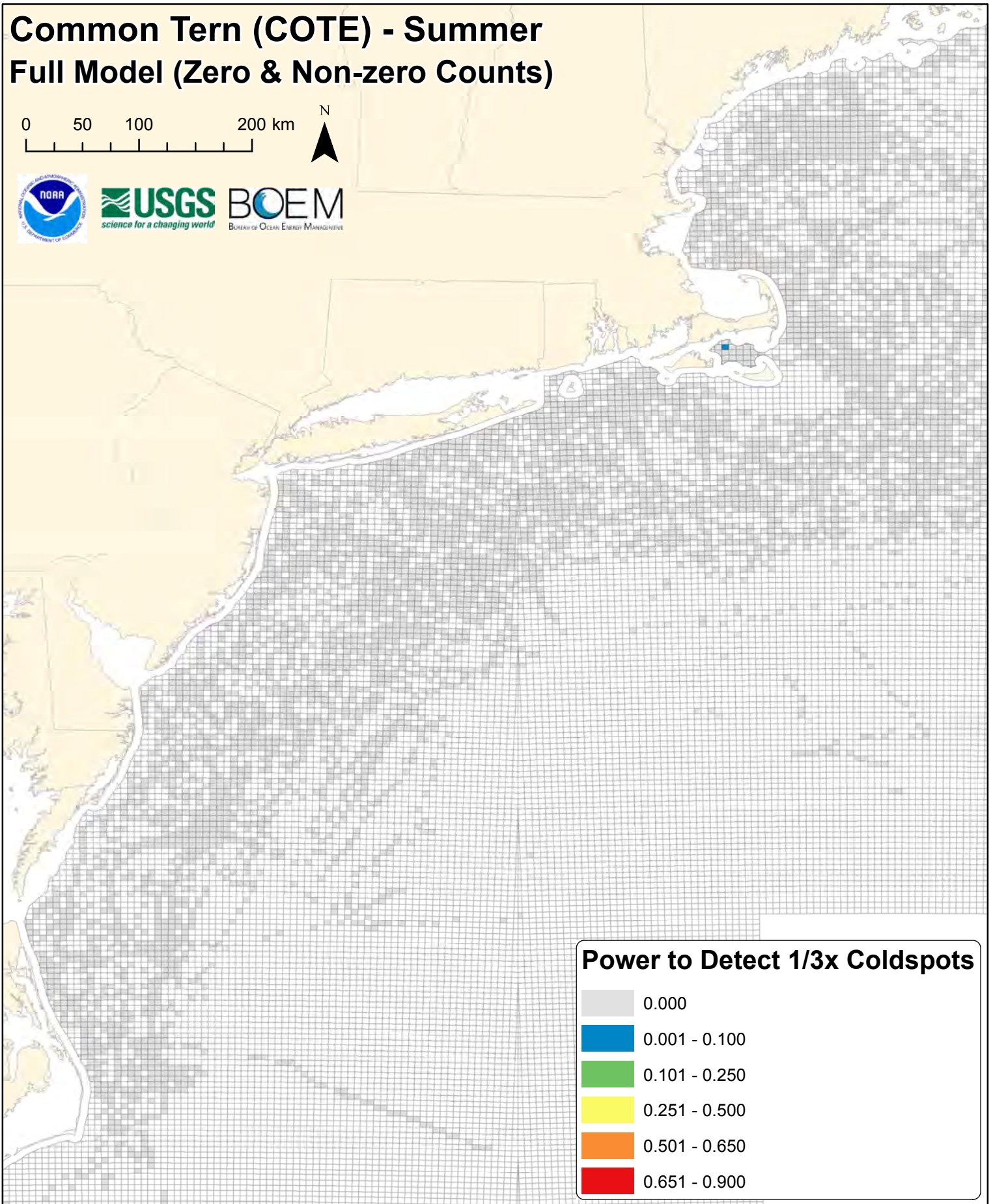
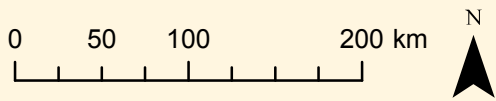
cote



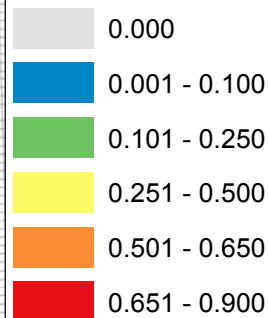
Common Tern (COTE) - Summer Full Model (Zero & Non-zero Counts)



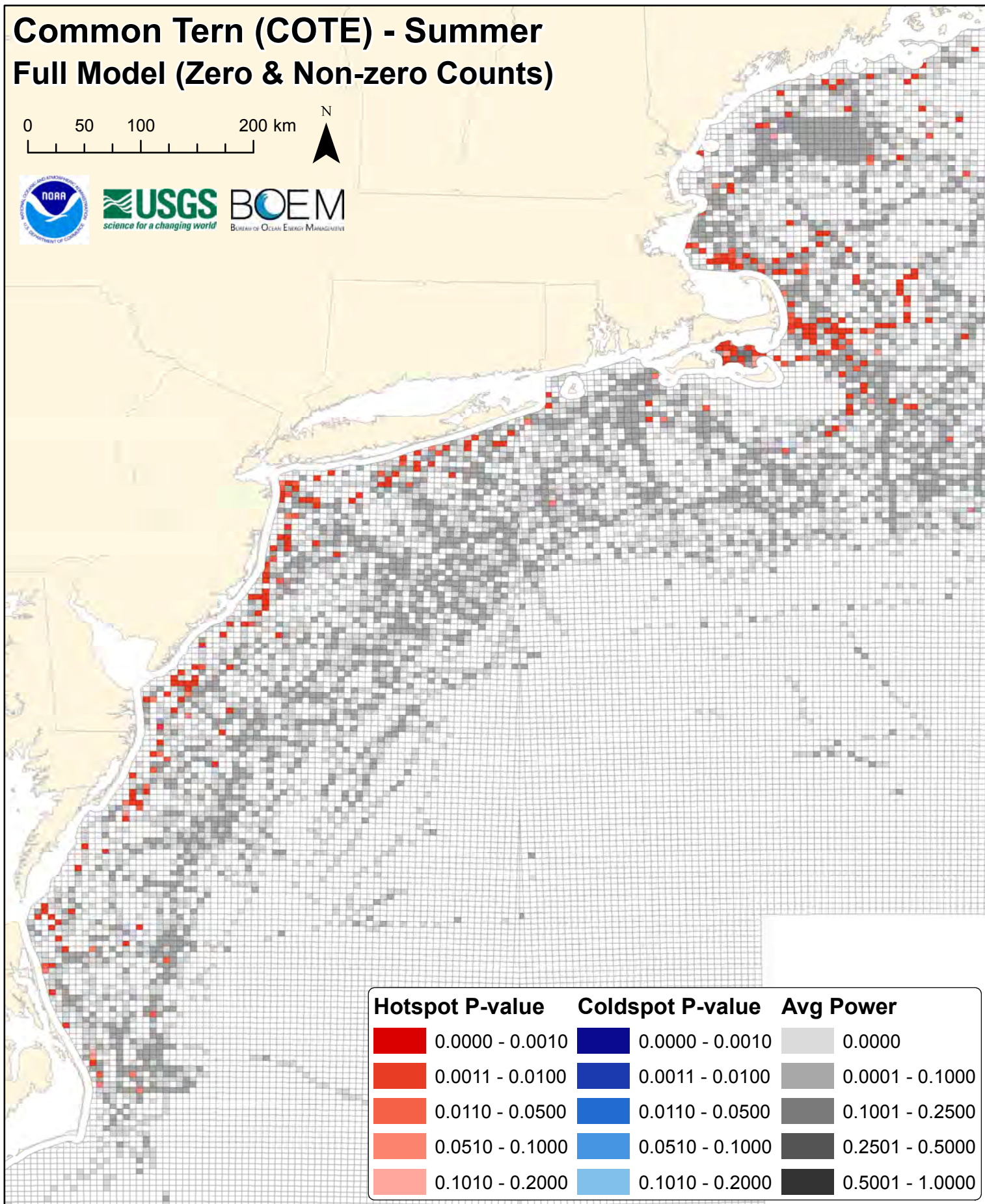
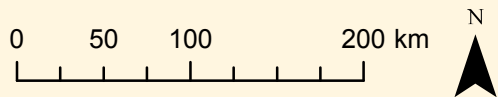
Common Tern (COTE) - Summer Full Model (Zero & Non-zero Counts)


















Power to Detect 1/3x Coldspots



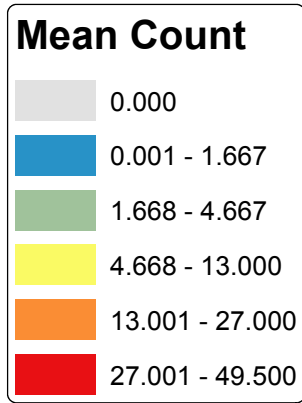
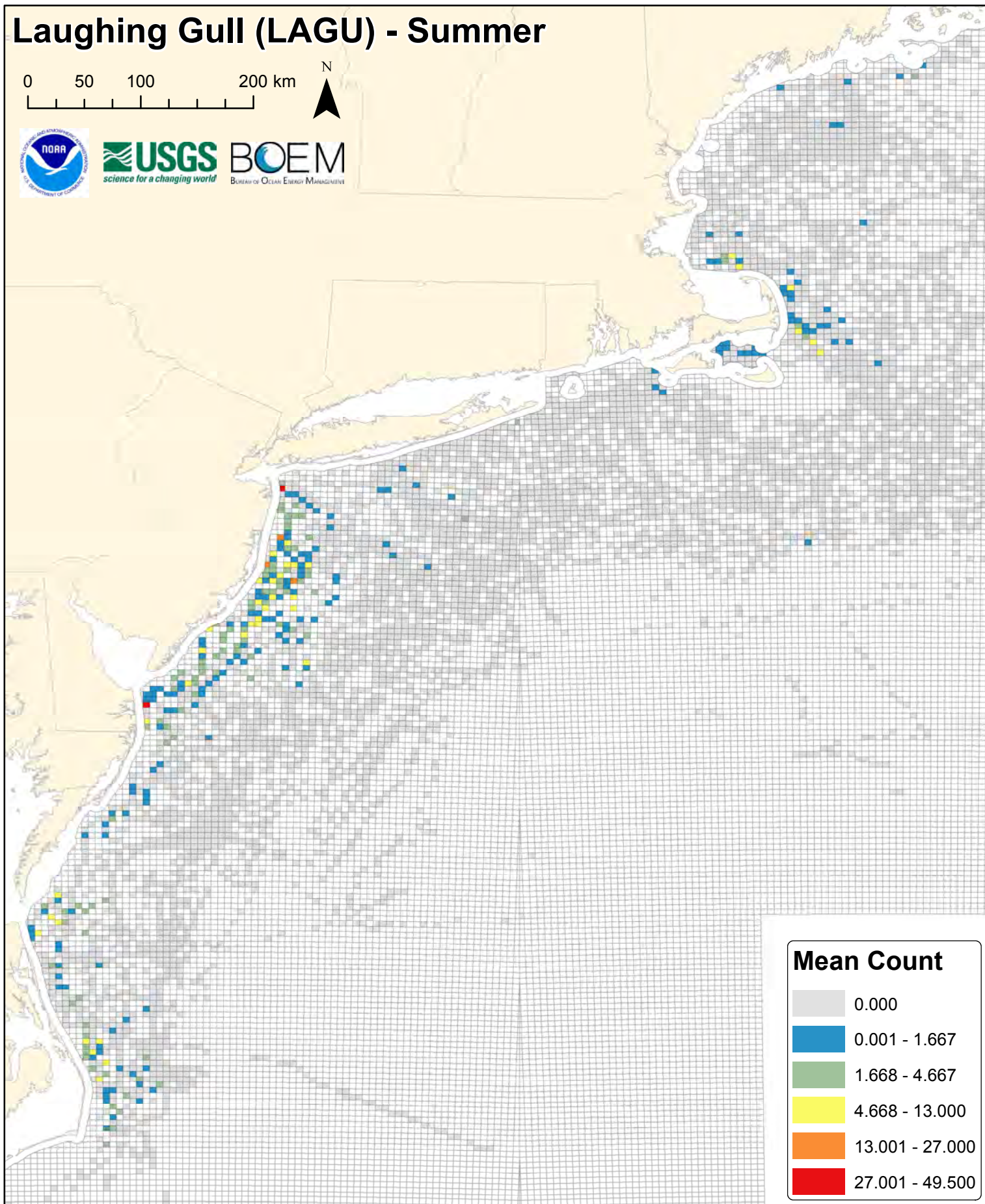
Common Tern (COTE) - Summer Full Model (Zero & Non-zero Counts)



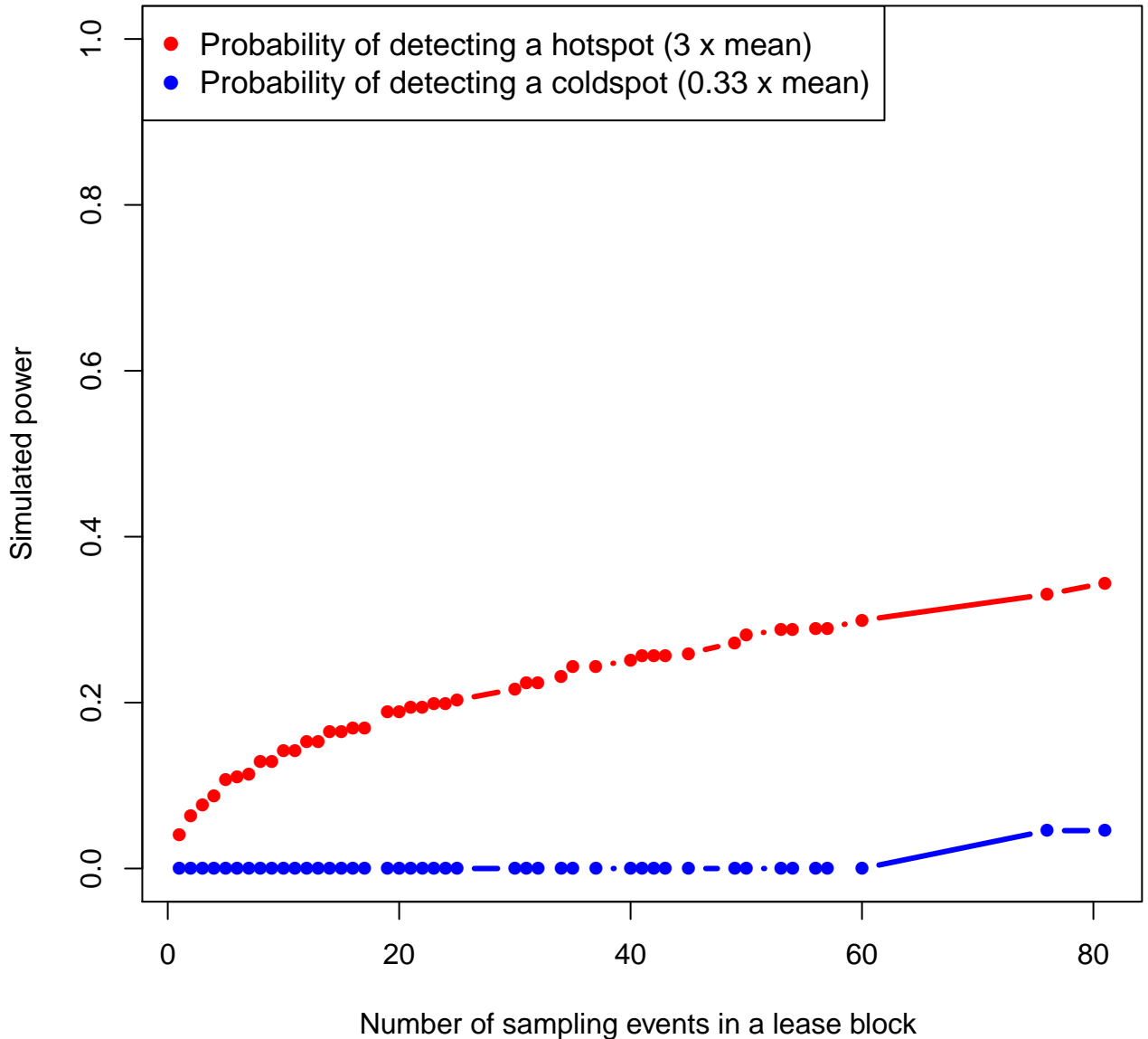
Hotspot P-value	Coldspot P-value	Avg Power
 0.0000 - 0.0010	 0.0000 - 0.0010	 0.0000
 0.0011 - 0.0100	 0.0011 - 0.0100	 0.0001 - 0.1000
 0.0110 - 0.0500	 0.0110 - 0.0500	 0.1001 - 0.2500
 0.0510 - 0.1000	 0.0510 - 0.1000	 0.2501 - 0.5000
 0.1010 - 0.2000	 0.1010 - 0.2000	 0.5001 - 1.0000

Laughing Gull (LAGU) - Summer

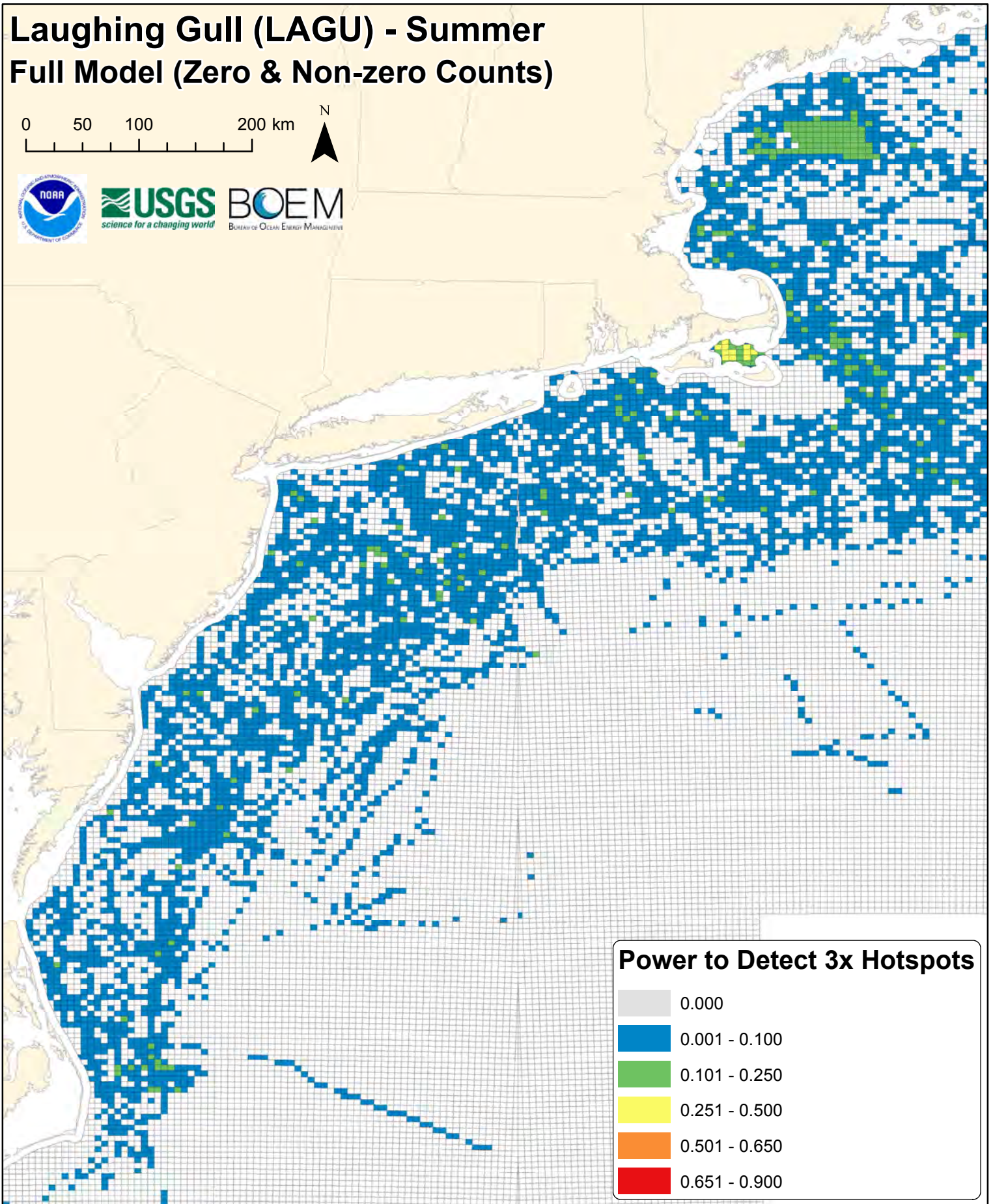
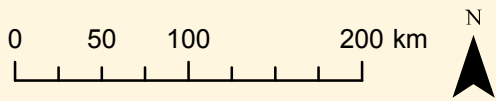
0 50 100 200 km



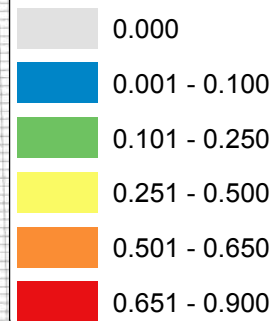
lagu



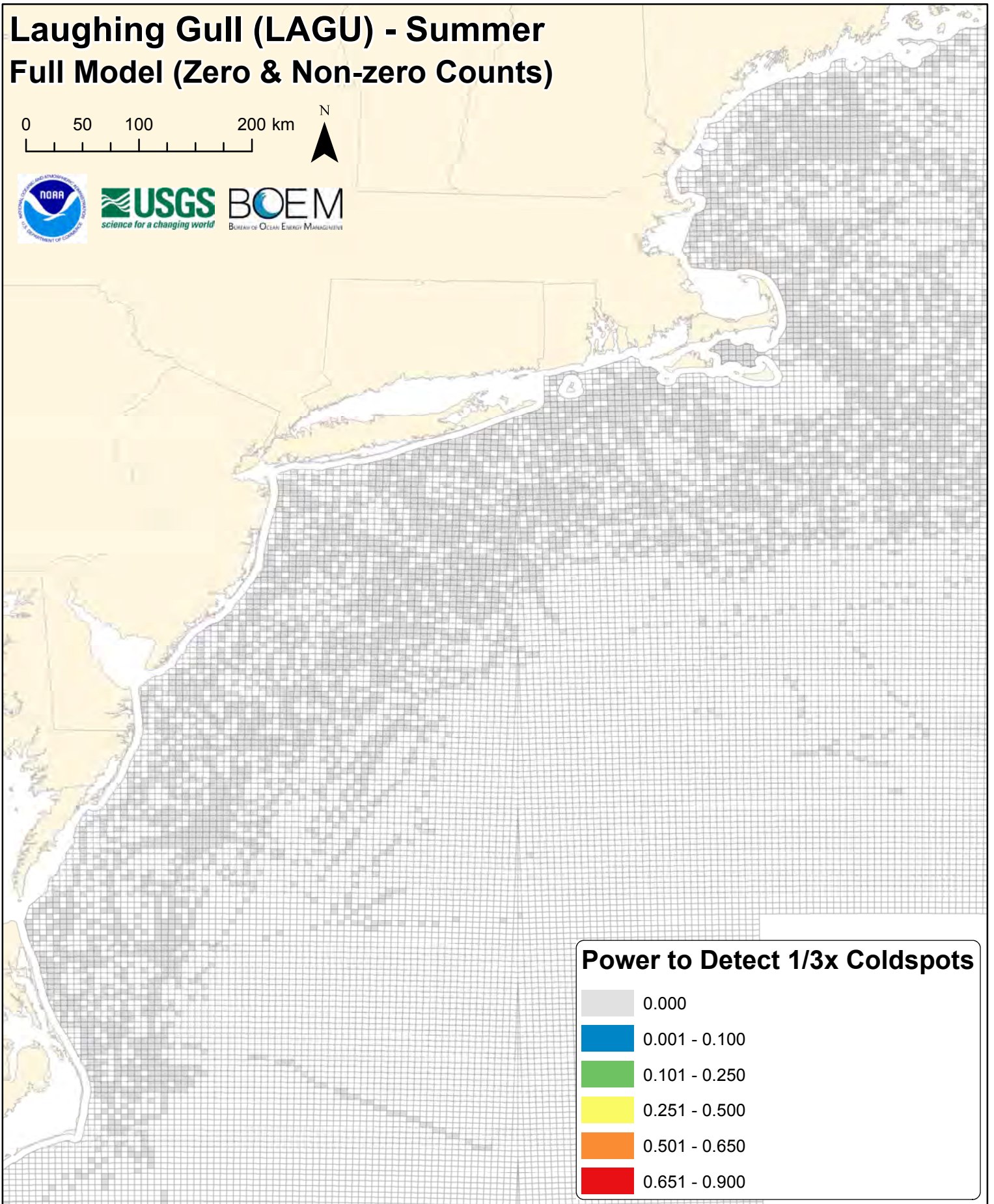
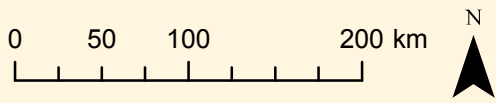
Laughing Gull (LAGU) - Summer Full Model (Zero & Non-zero Counts)



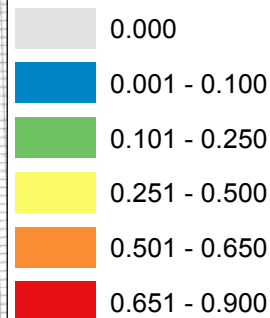
Power to Detect 3x Hotspots



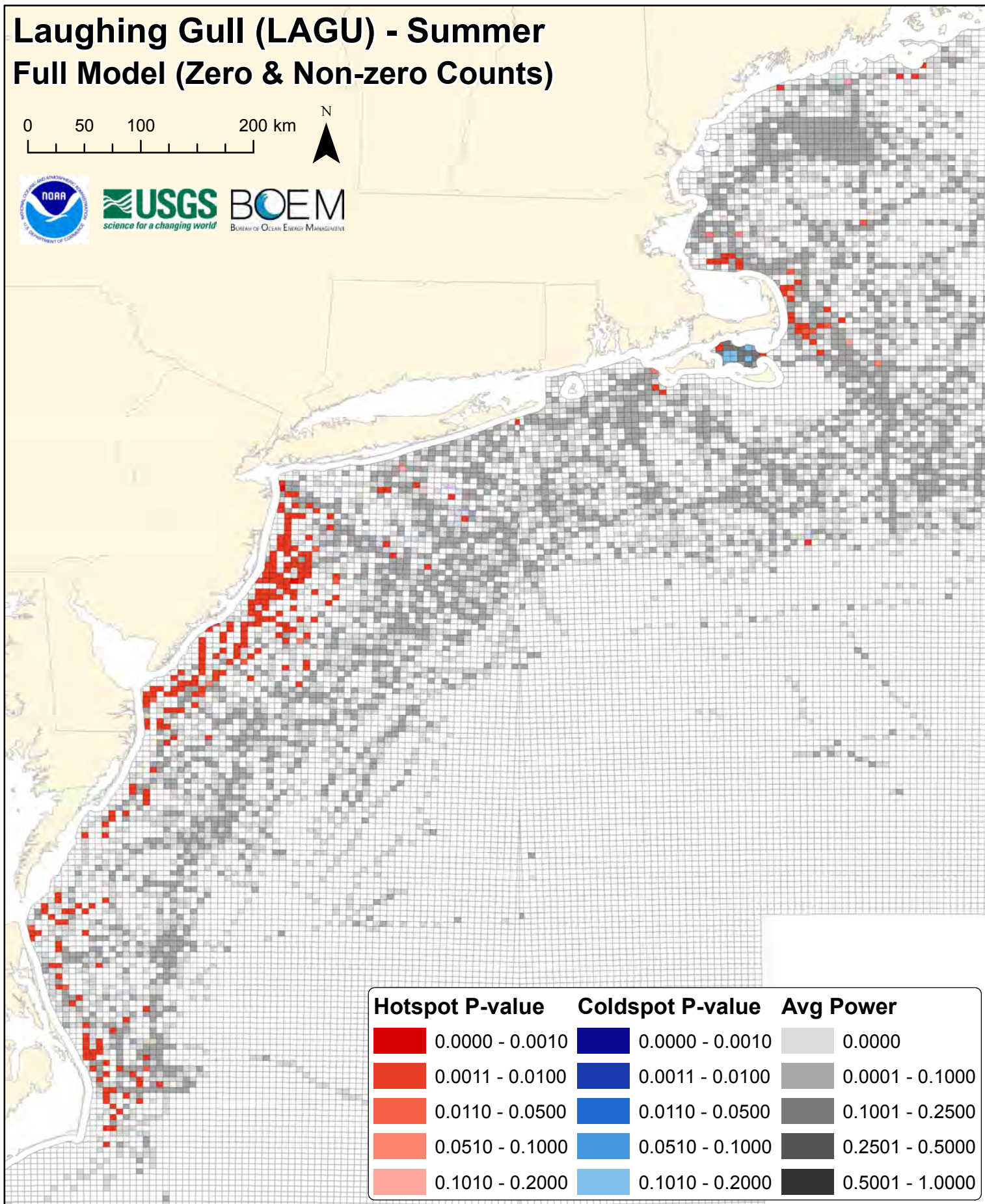
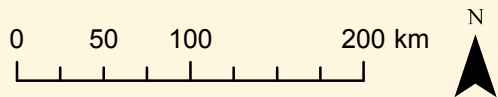
Laughing Gull (LAGU) - Summer Full Model (Zero & Non-zero Counts)


















Power to Detect 1/3x Coldspots

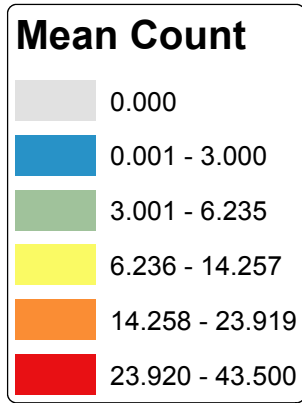
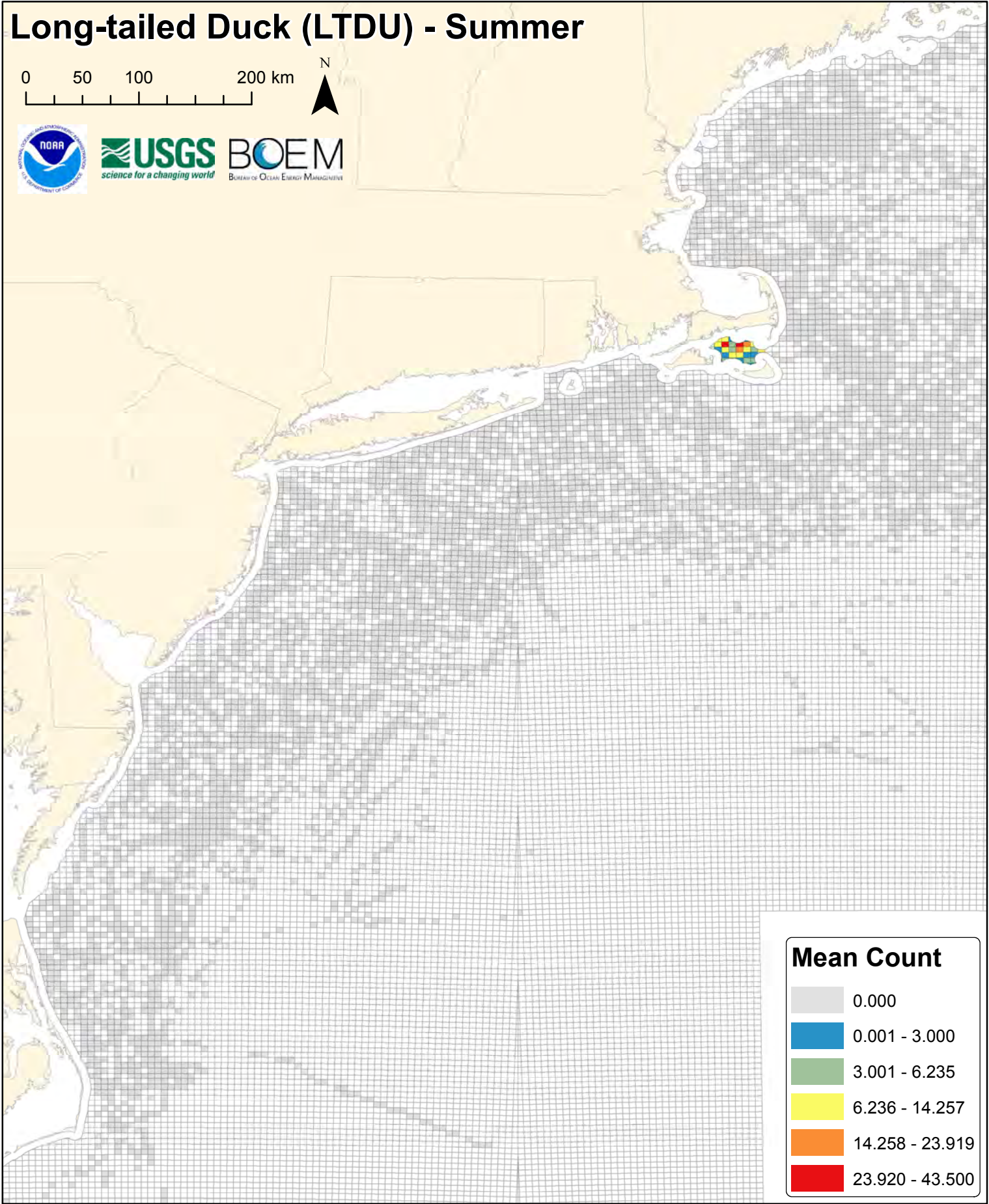
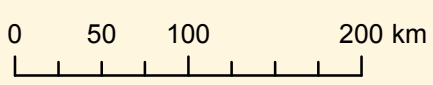


Laughing Gull (LAGU) - Summer Full Model (Zero & Non-zero Counts)

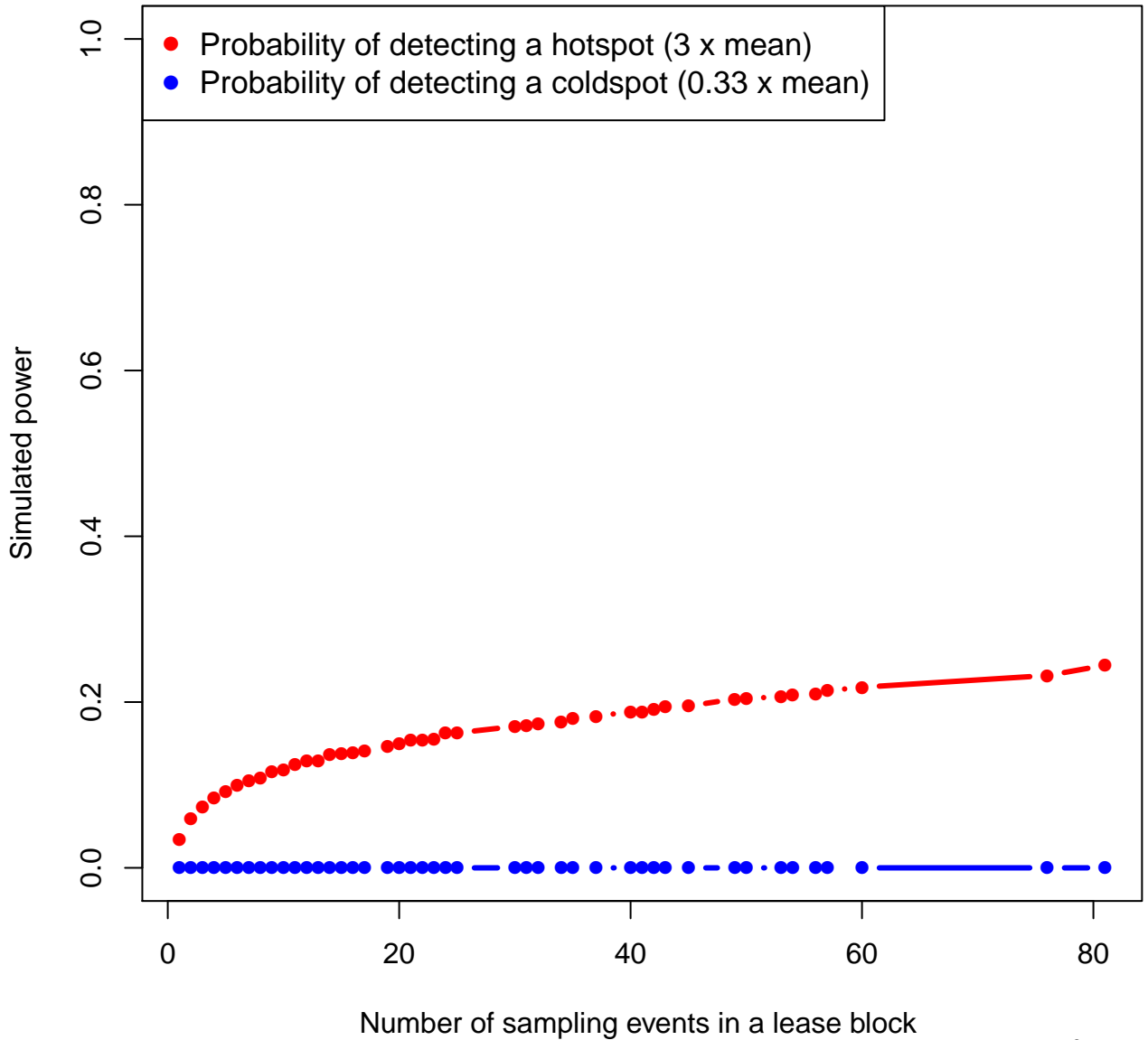


Hotspot P-value	Coldspot P-value	Avg Power
 0.0000 - 0.0010	 0.0000 - 0.0010	 0.0000
 0.0011 - 0.0100	 0.0011 - 0.0100	 0.0001 - 0.1000
 0.0110 - 0.0500	 0.0110 - 0.0500	 0.1001 - 0.2500
 0.0510 - 0.1000	 0.0510 - 0.1000	 0.2501 - 0.5000
 0.1010 - 0.2000	 0.1010 - 0.2000	 0.5001 - 1.0000

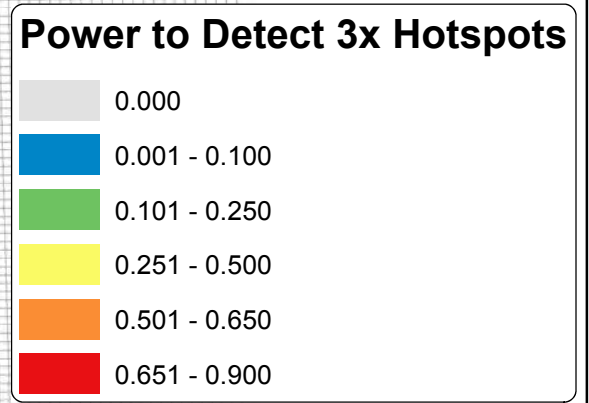
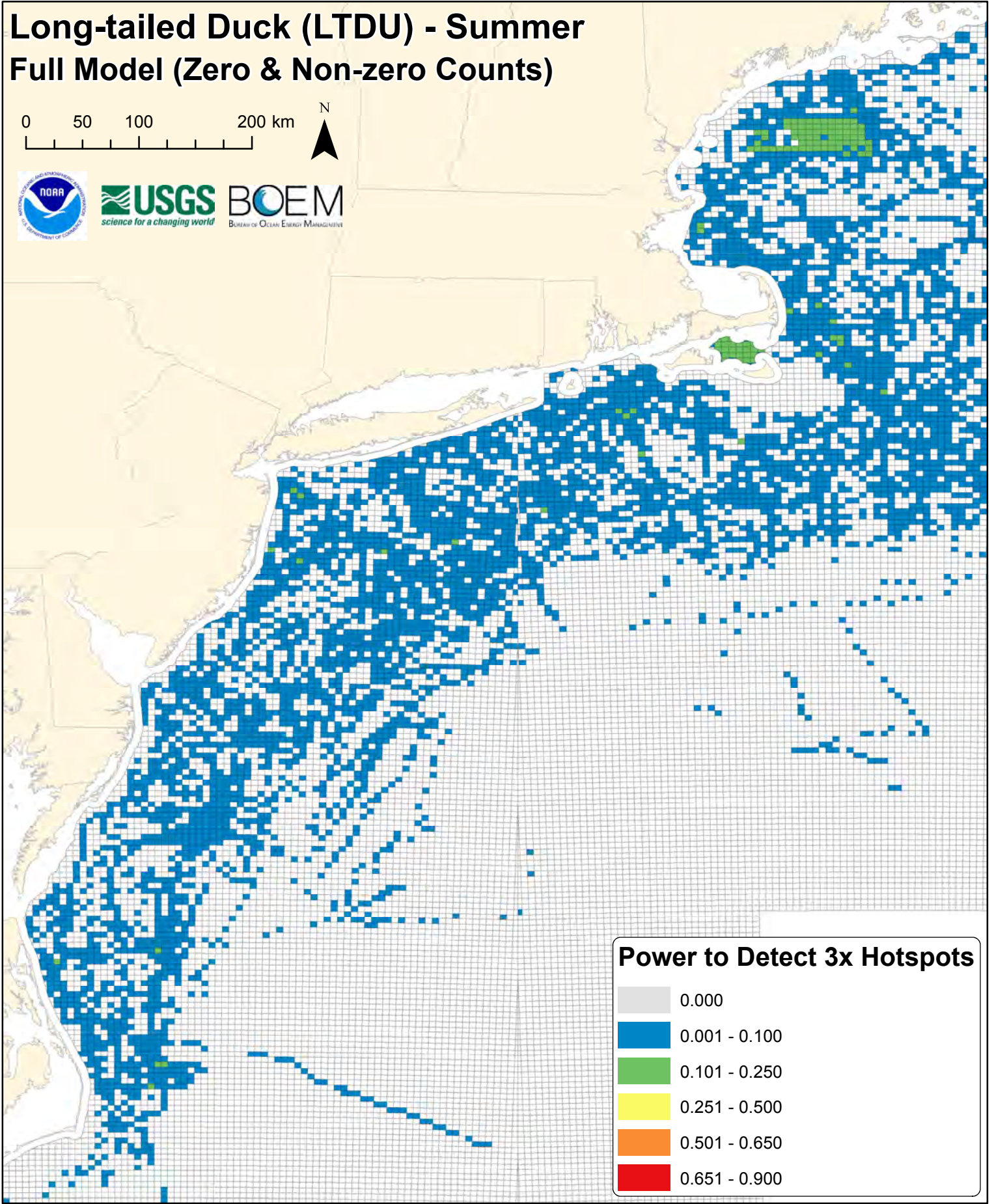
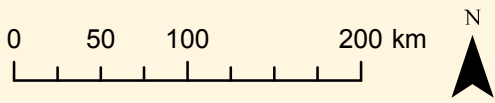
Long-tailed Duck (LTDU) - Summer



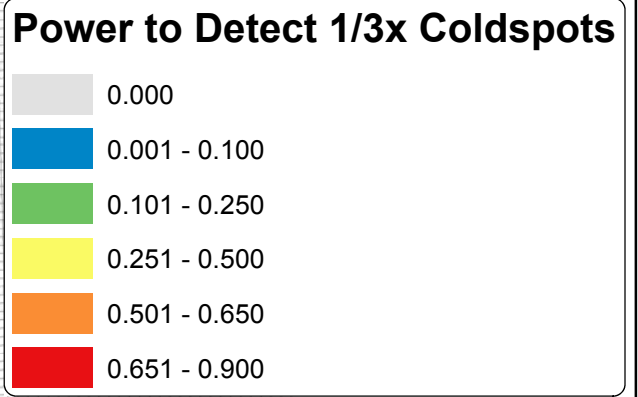
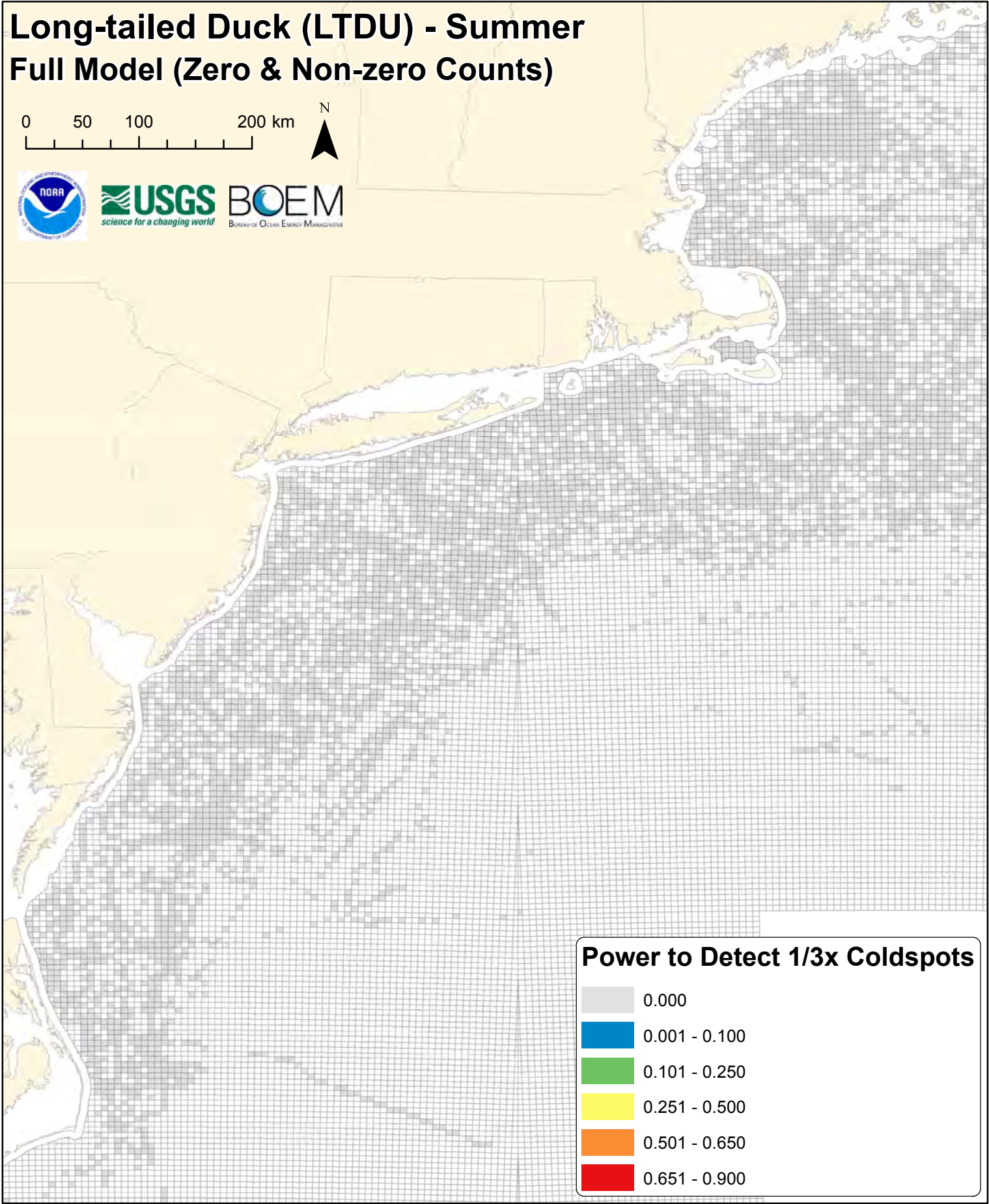
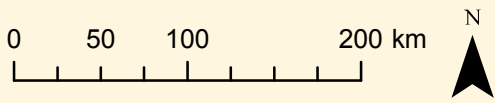
ltdu



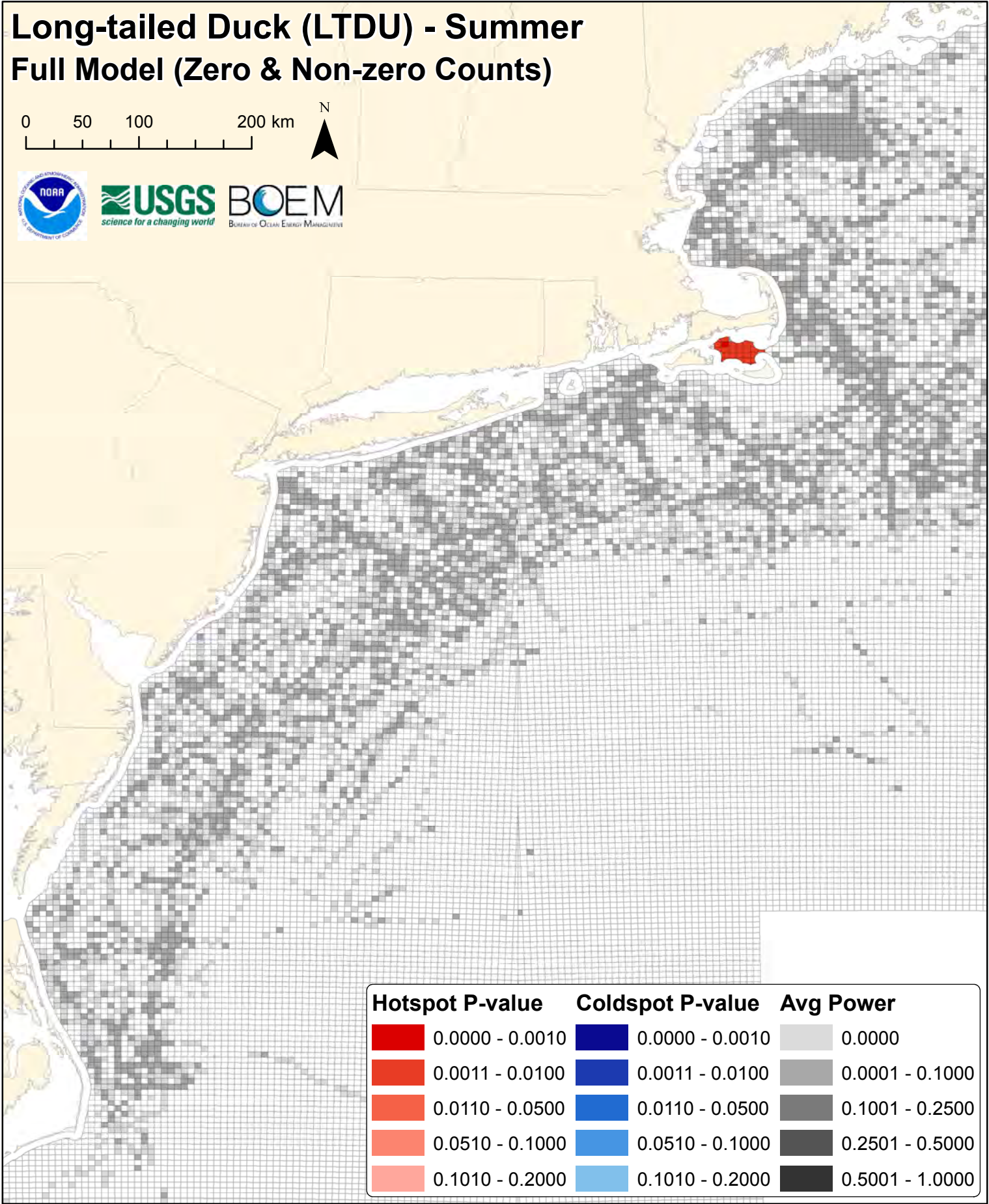
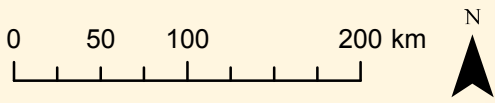
Long-tailed Duck (LTDU) - Summer Full Model (Zero & Non-zero Counts)


















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



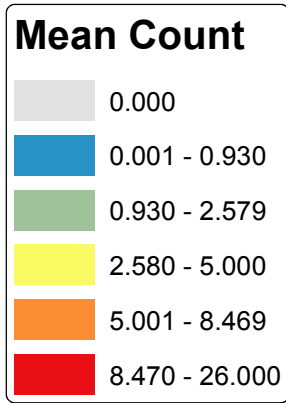
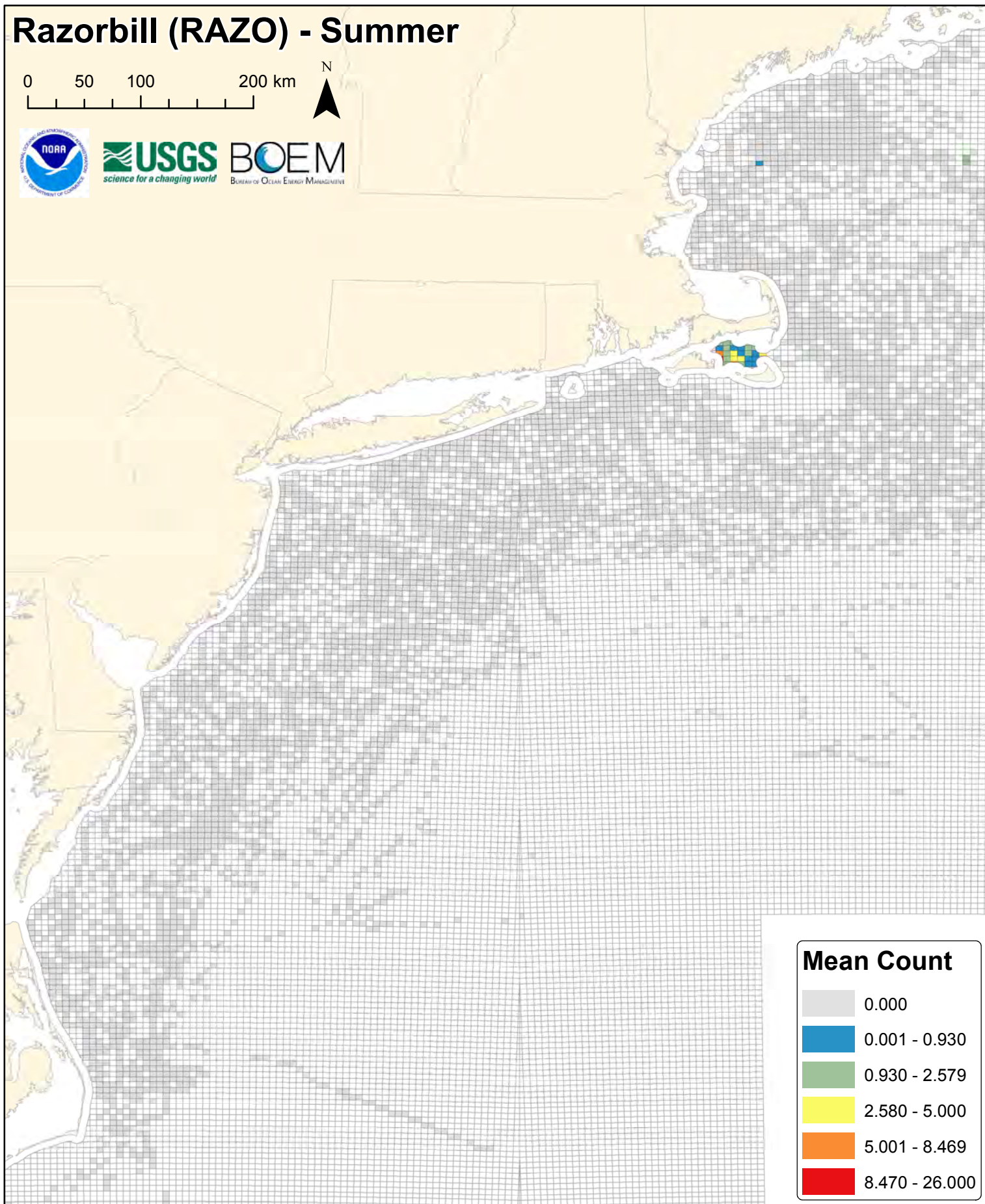
Long-tailed Duck (LTDU) - Summer Full Model (Zero & Non-zero Counts)



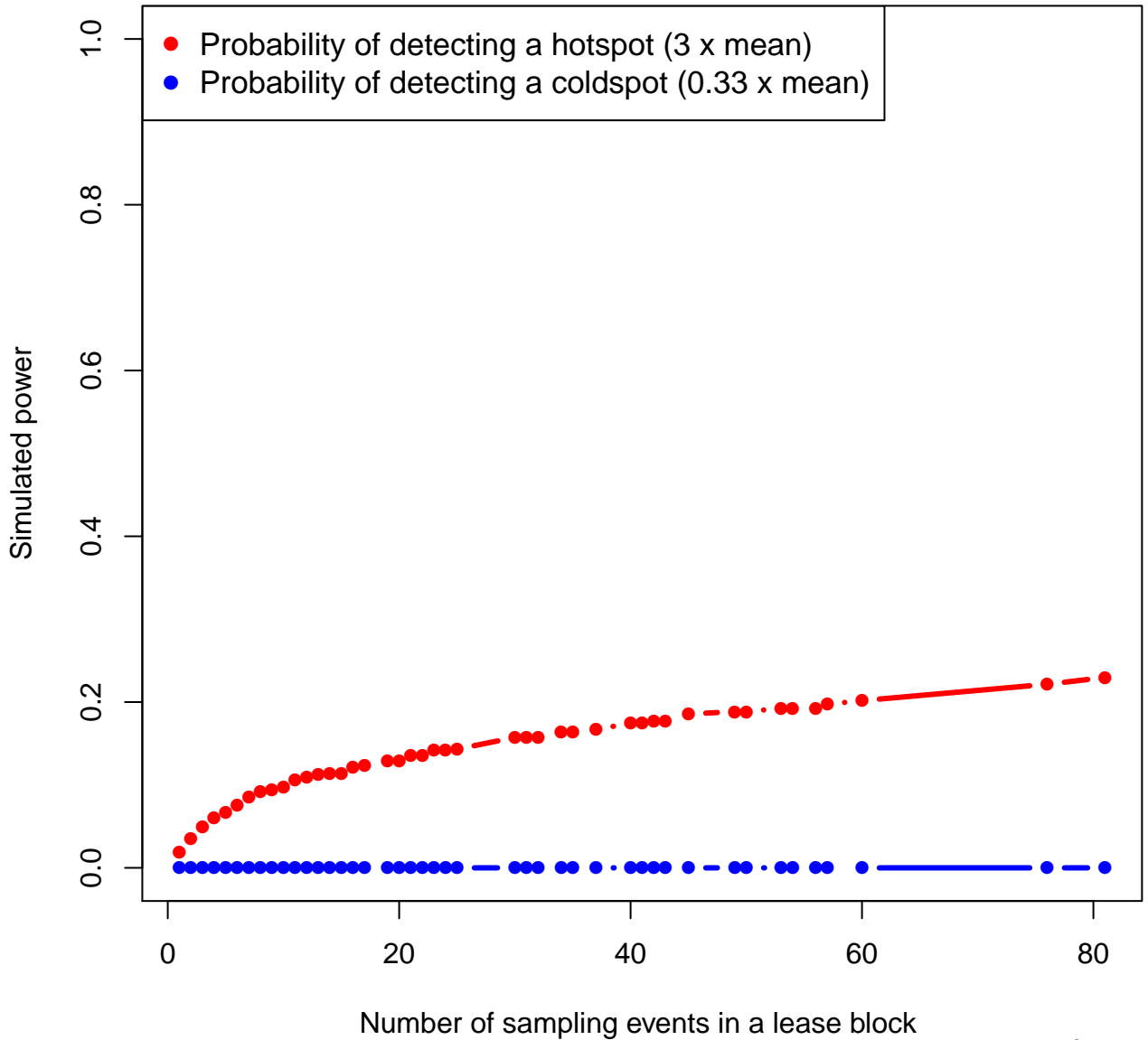
Hotspot P-value	Coldspot P-value	Avg Power
 0.0000 - 0.0010	 0.0000 - 0.0010	 0.0000
 0.0011 - 0.0100	 0.0011 - 0.0100	 0.0001 - 0.1000
 0.0110 - 0.0500	 0.0110 - 0.0500	 0.1001 - 0.2500
 0.0510 - 0.1000	 0.0510 - 0.1000	 0.2501 - 0.5000
 0.1010 - 0.2000	 0.1010 - 0.2000	 0.5001 - 1.0000

Razorbill (RAZO) - Summer

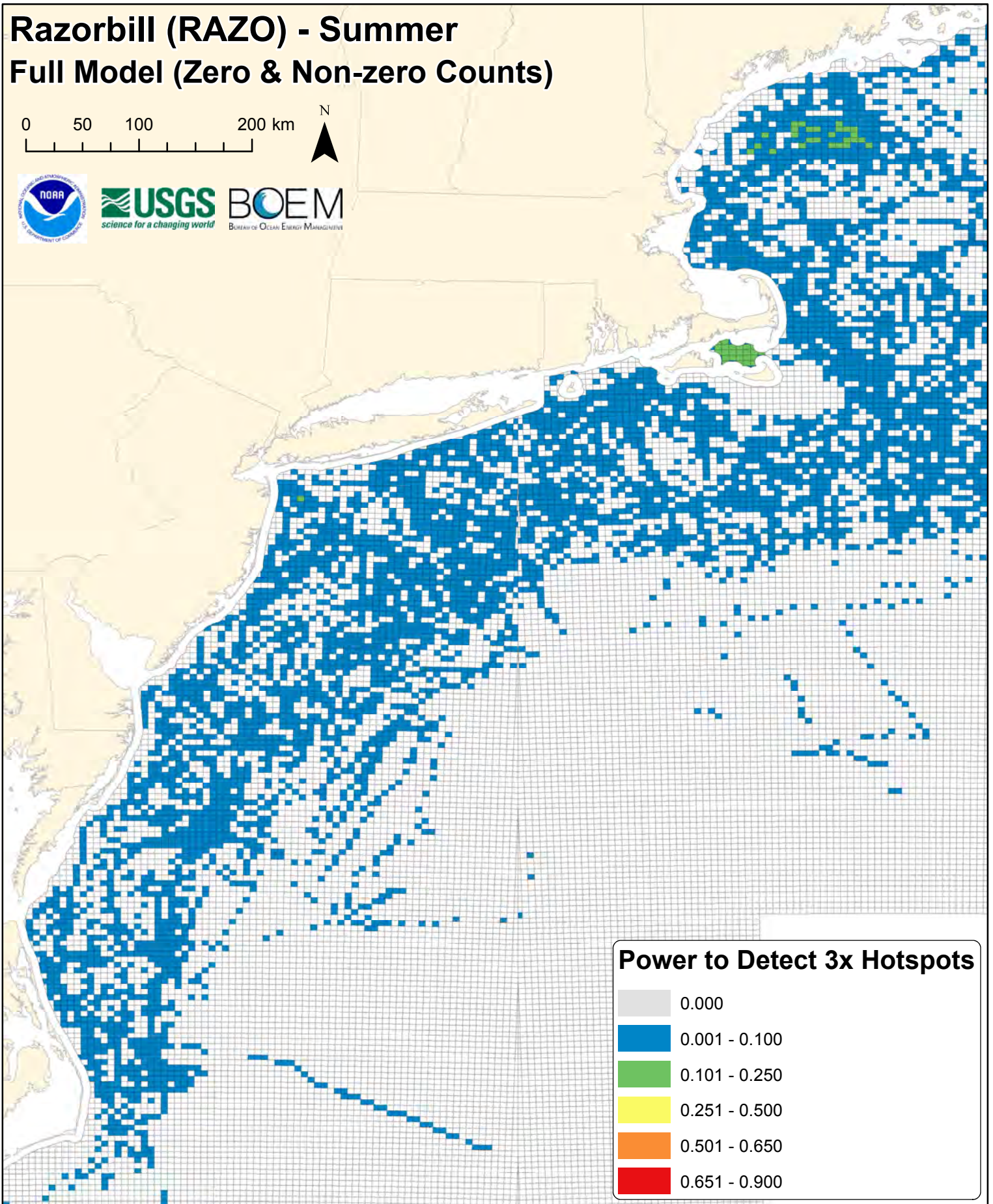
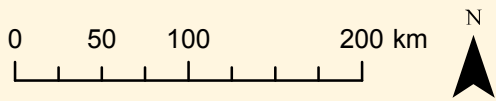
0 50 100 200 km



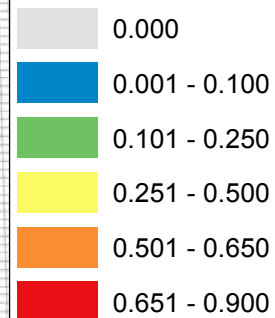
razo



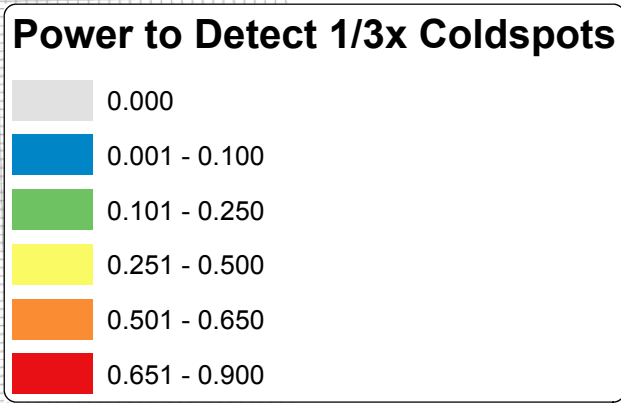
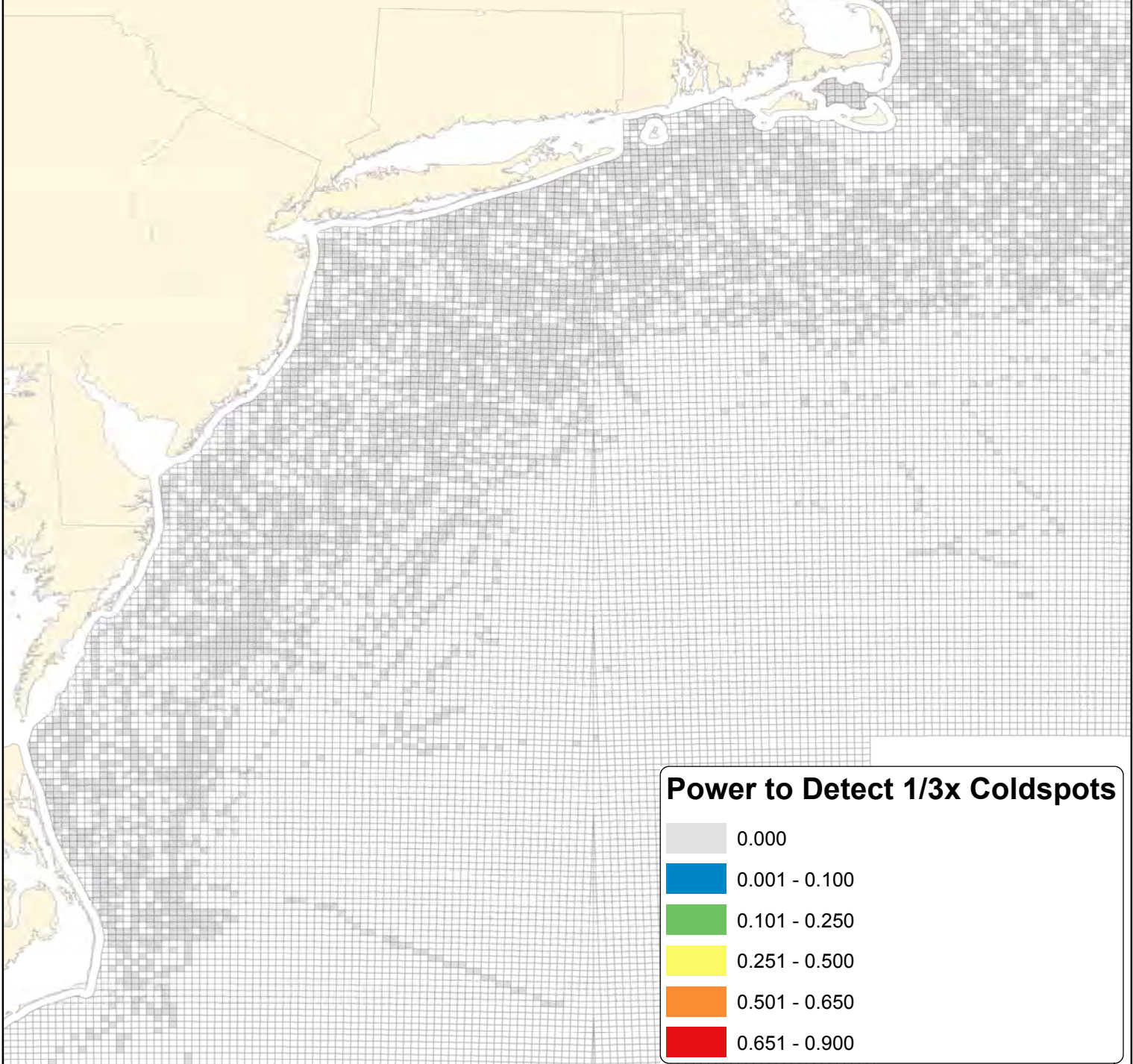
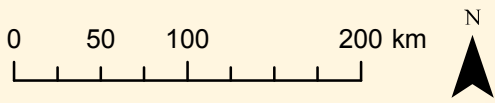
Razorbill (RAZO) - Summer Full Model (Zero & Non-zero Counts)



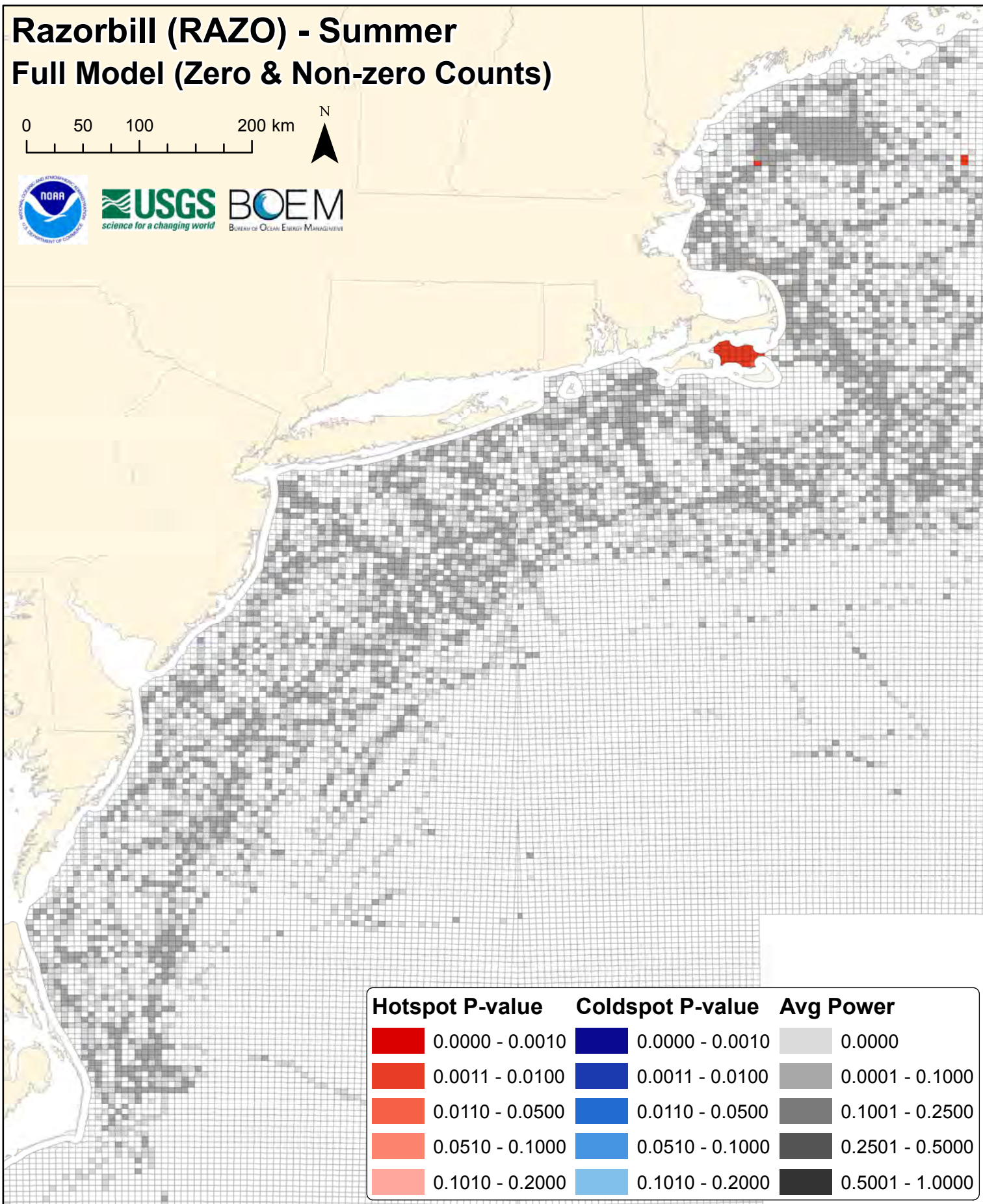
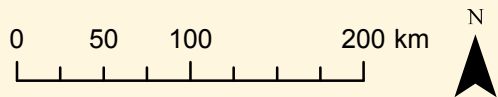
Power to Detect 3x Hotspots


















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



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

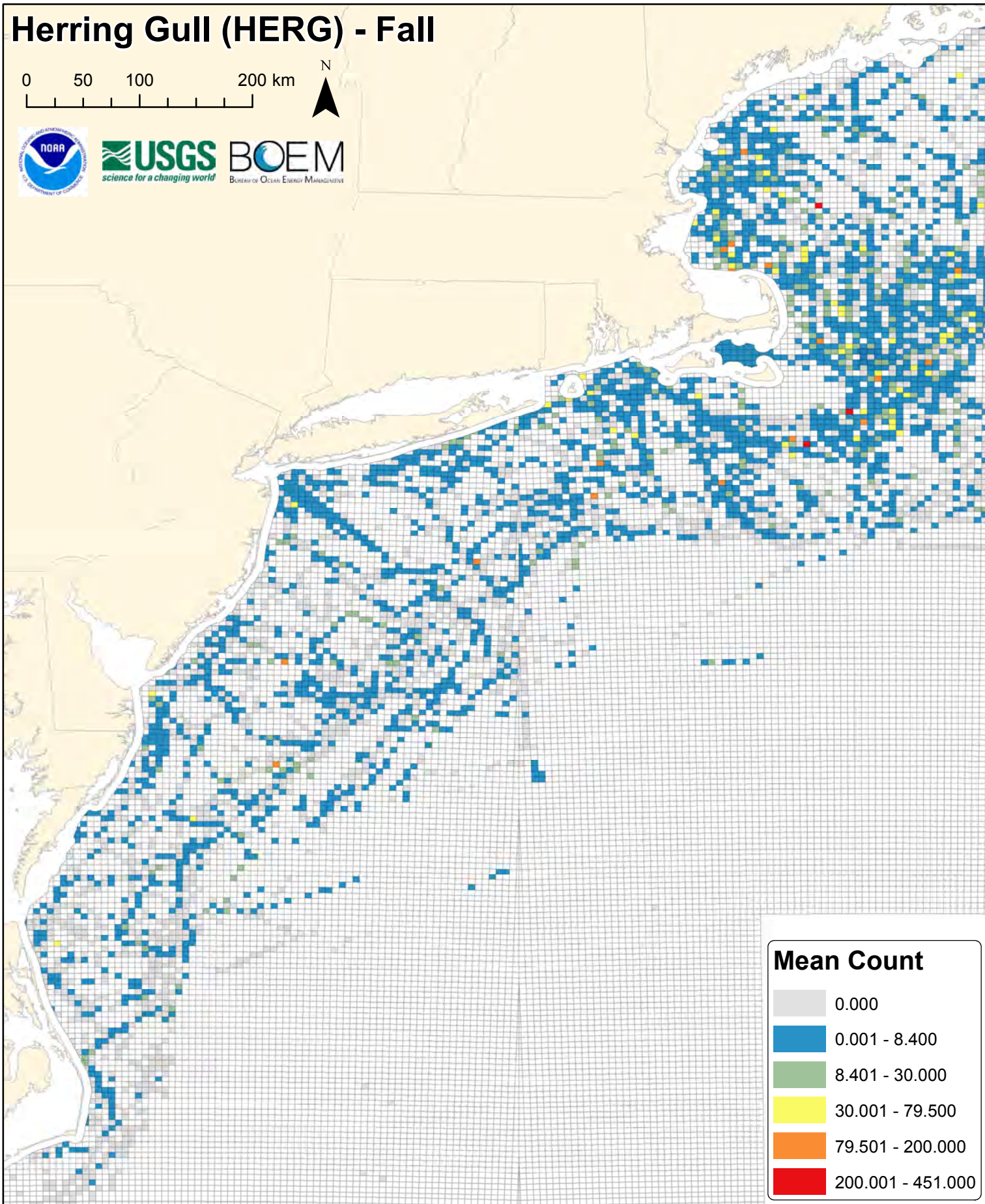
Full Hurdle Model (Zero & Non-Zero Counts) Results

SECTION II. Species-specific Power Analysis Maps and Figures

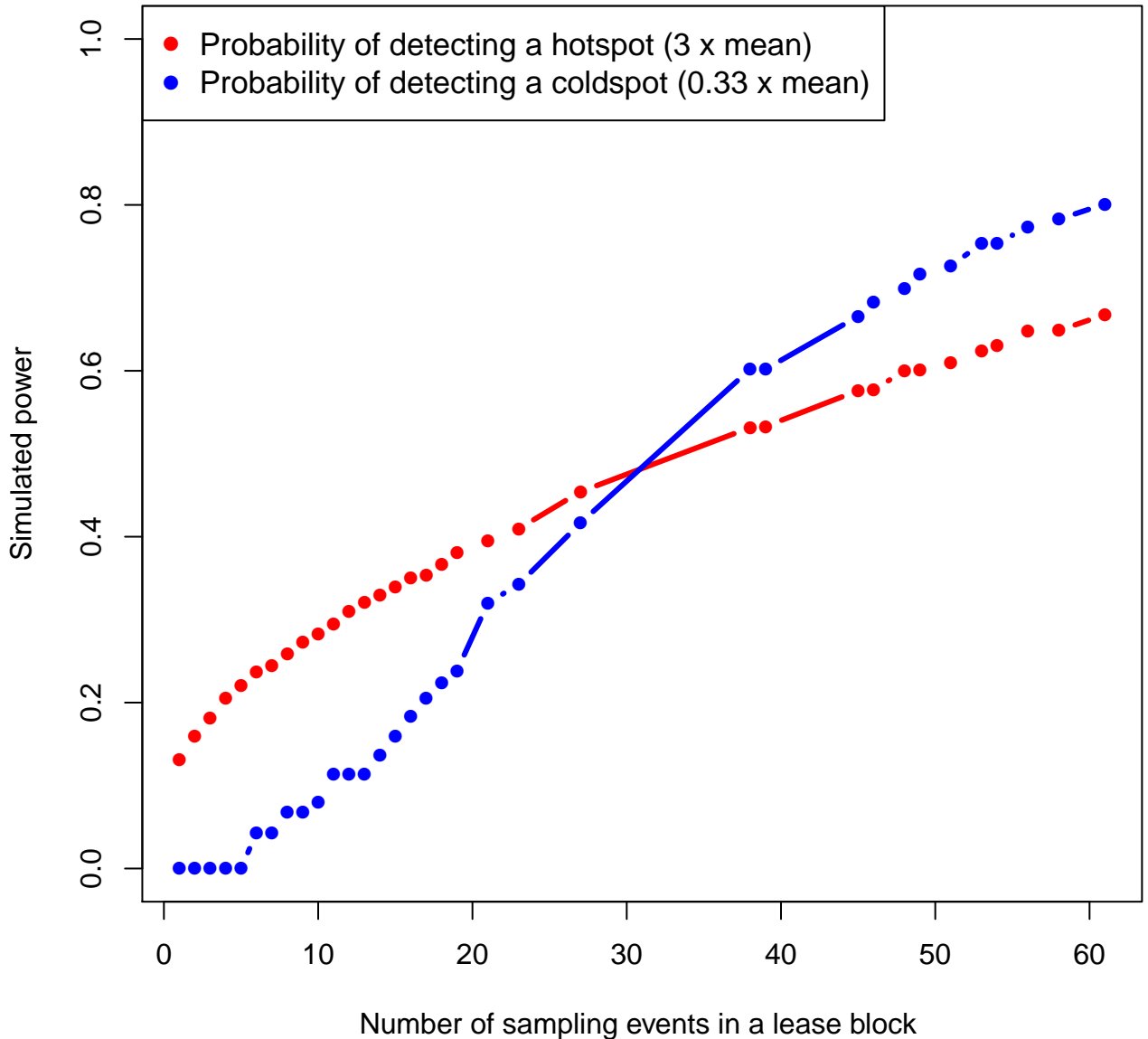
Figures G126-G185. Fall power analysis maps and figures (12 species x 5 figures per species).

Herring Gull (HERG) - Fall

0 50 100 200 km

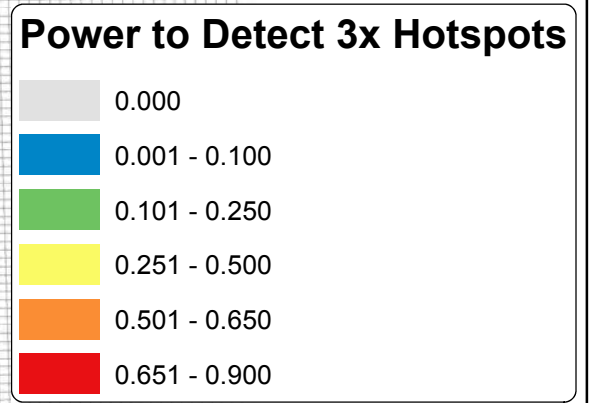
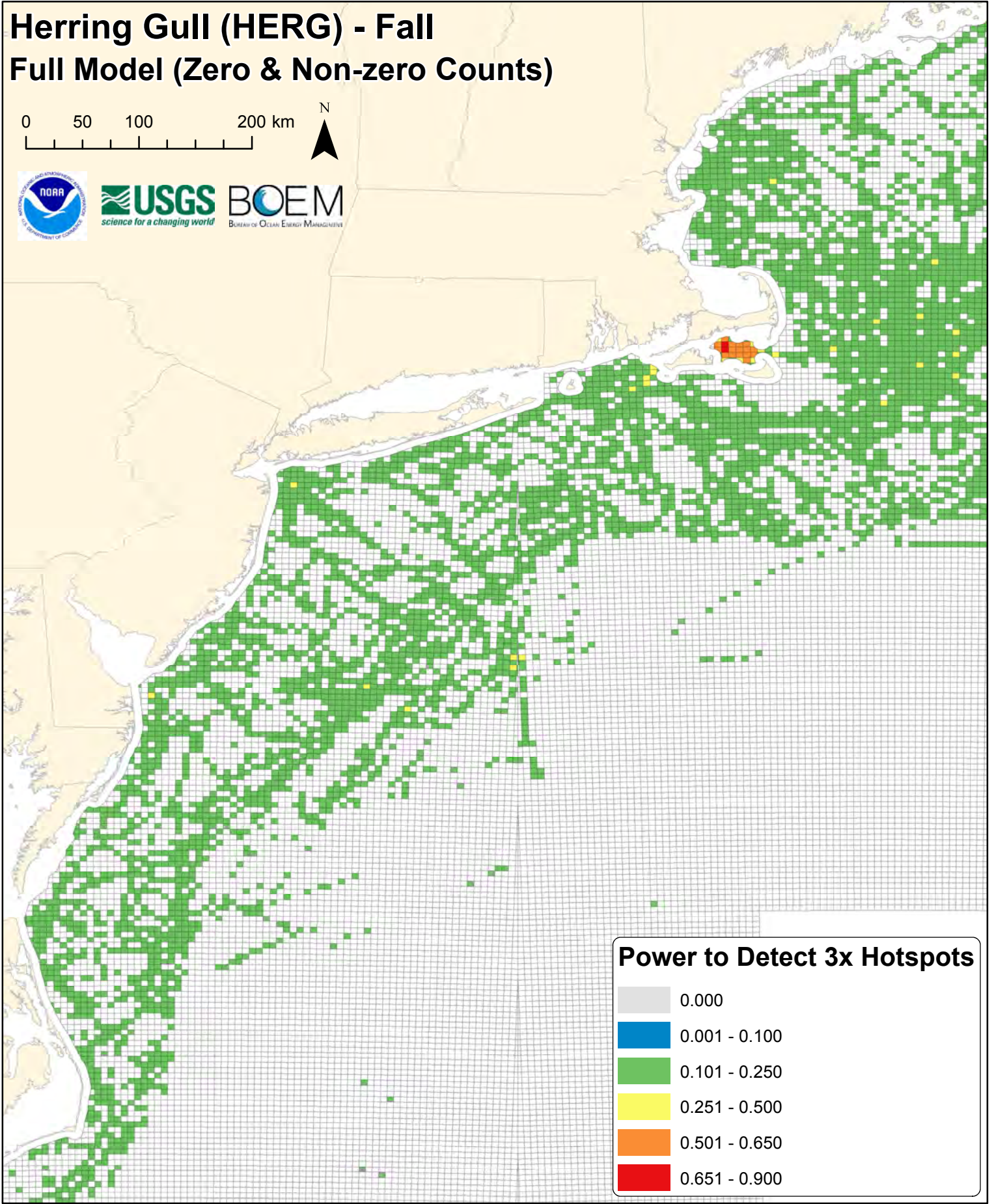
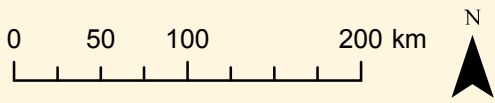


herg



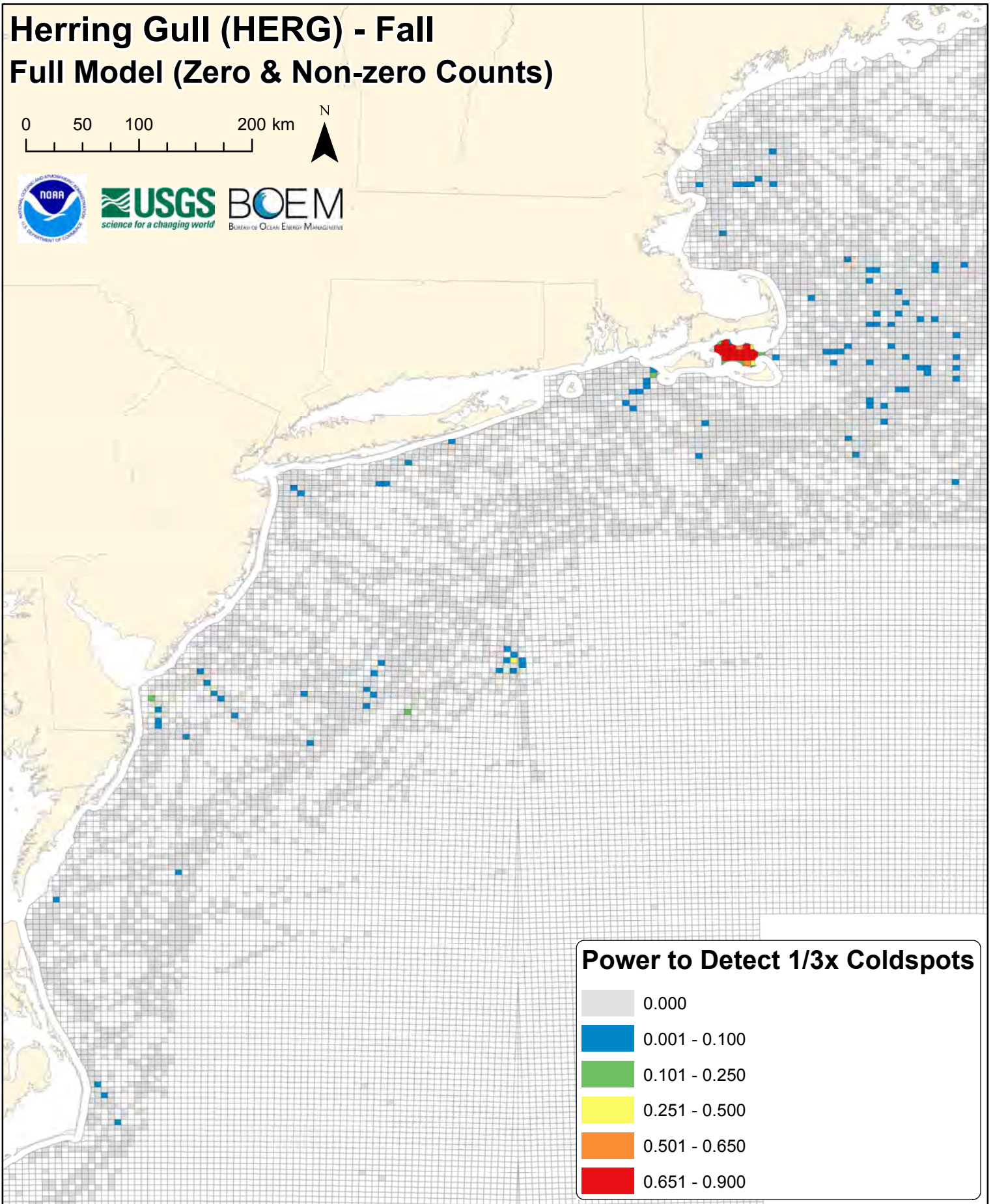
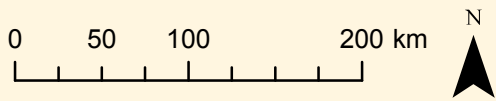
Herring Gull (HERG) - Fall

Full Model (Zero & Non-zero Counts)



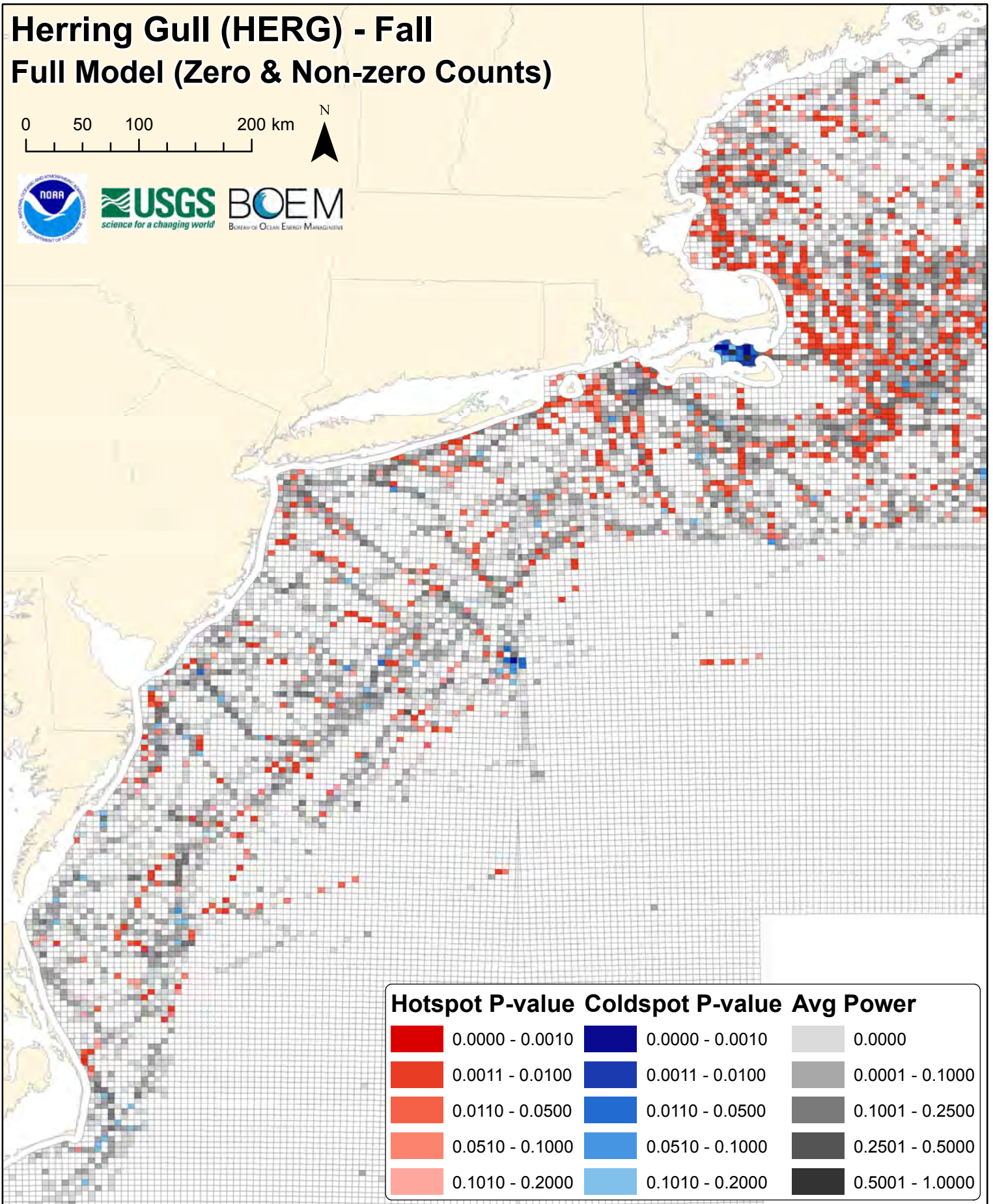
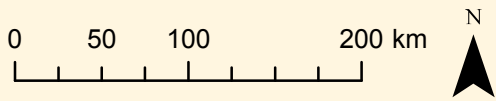
Herring Gull (HERG) - Fall

Full Model (Zero & Non-zero Counts)



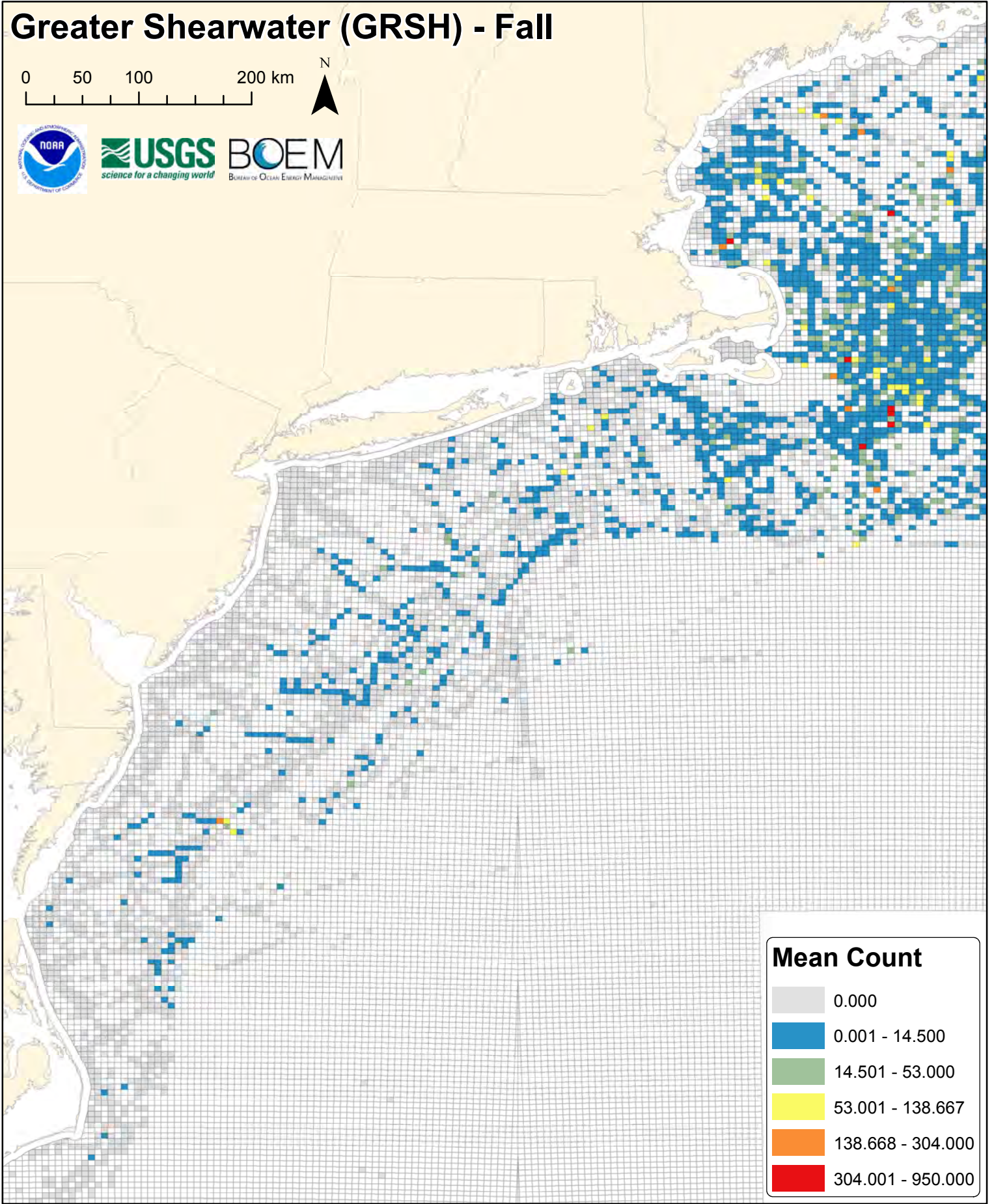
Herring Gull (HERG) - Fall

Full Model (Zero & Non-zero Counts)



Greater Shearwater (GRSH) - Fall

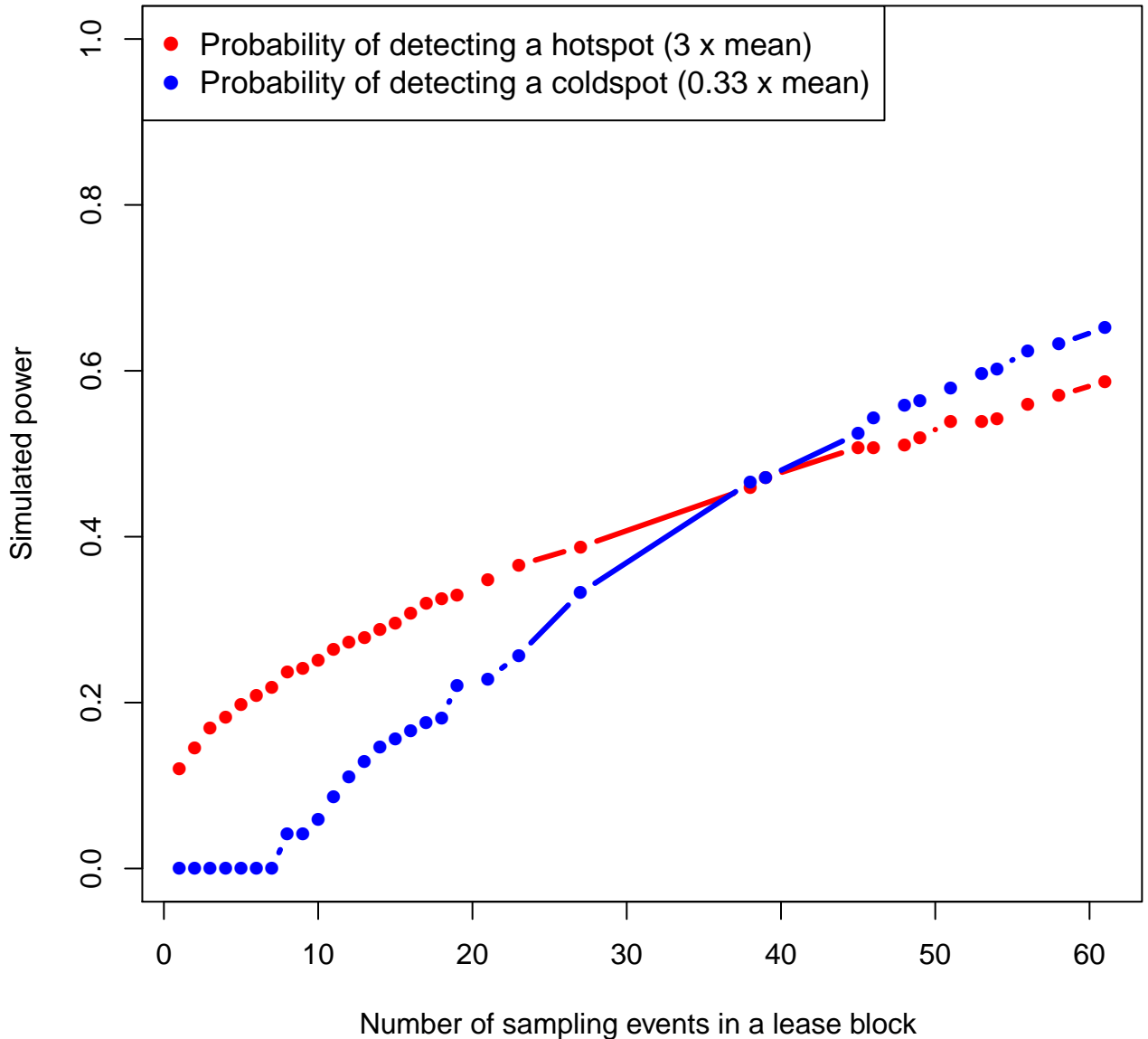
0 50 100 200 km



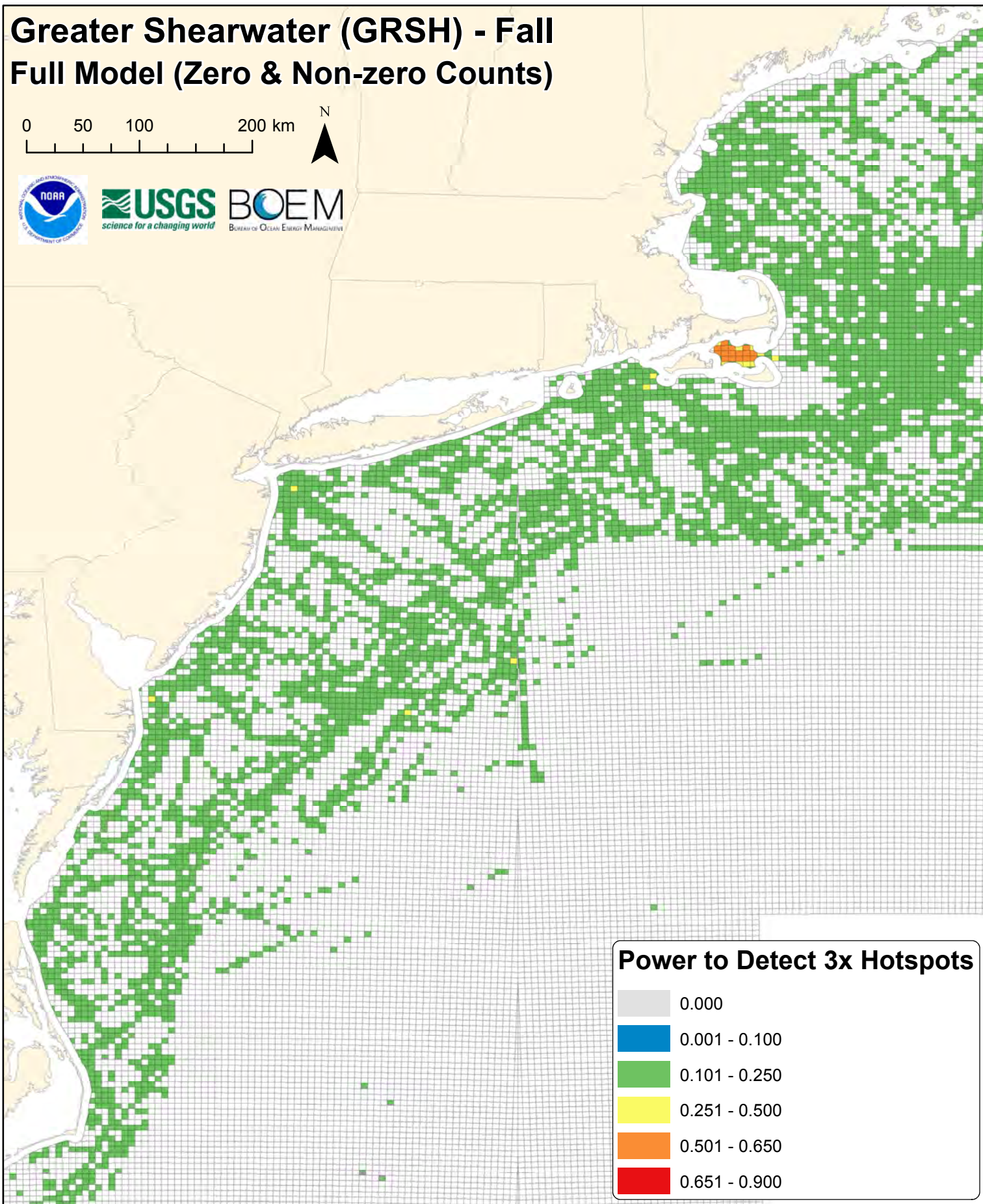
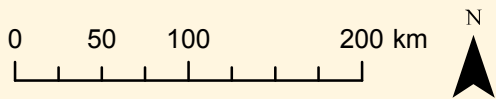
Mean Count

Grey	0.000
Blue	0.001 - 14.500
Green	14.501 - 53.000
Yellow	53.001 - 138.667
Orange	138.668 - 304.000
Red	304.001 - 950.000

grsh



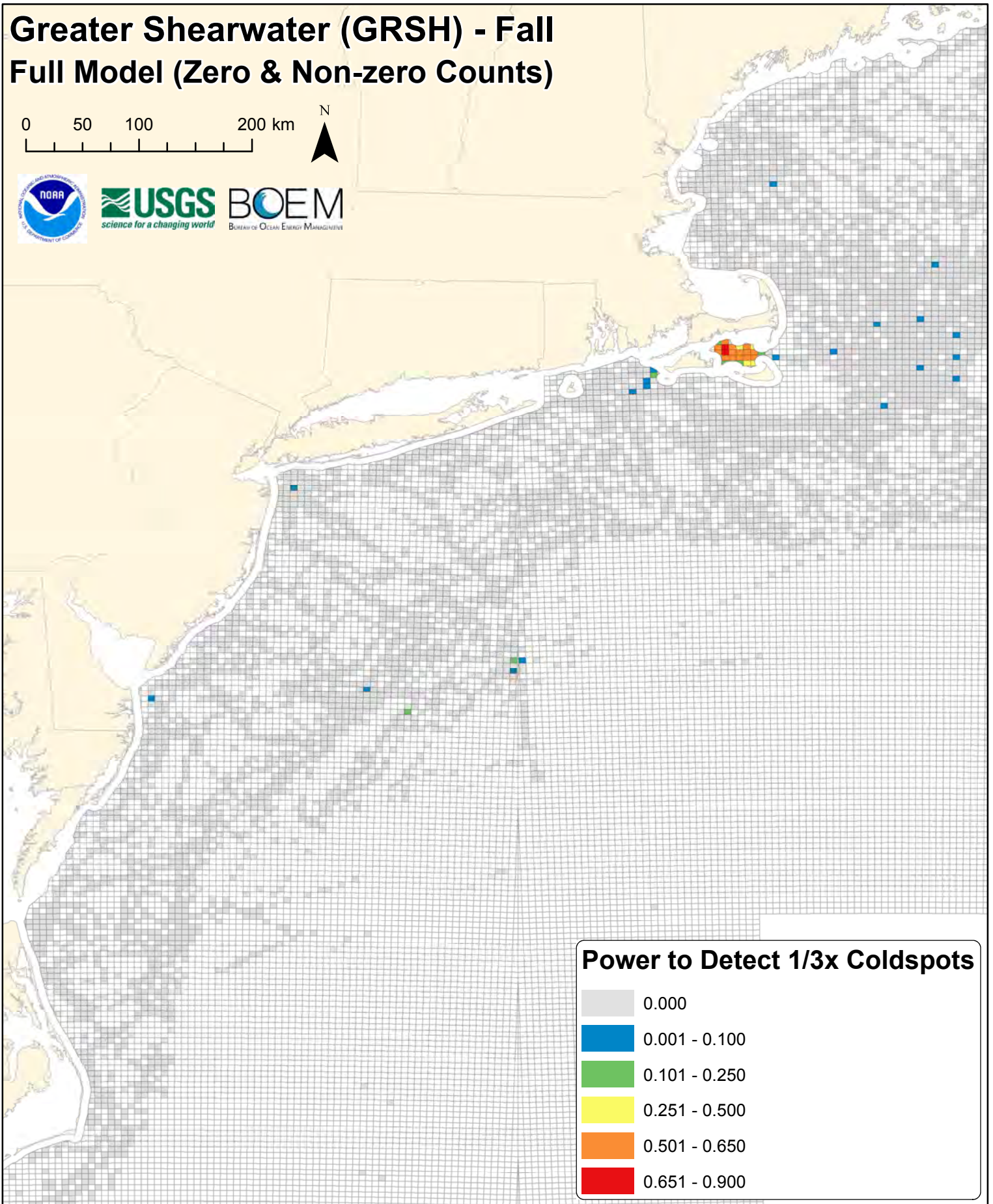
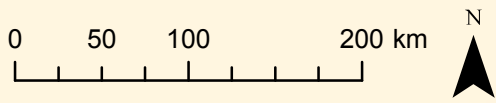
Greater Shearwater (GRSH) - Fall Full Model (Zero & Non-zero Counts)



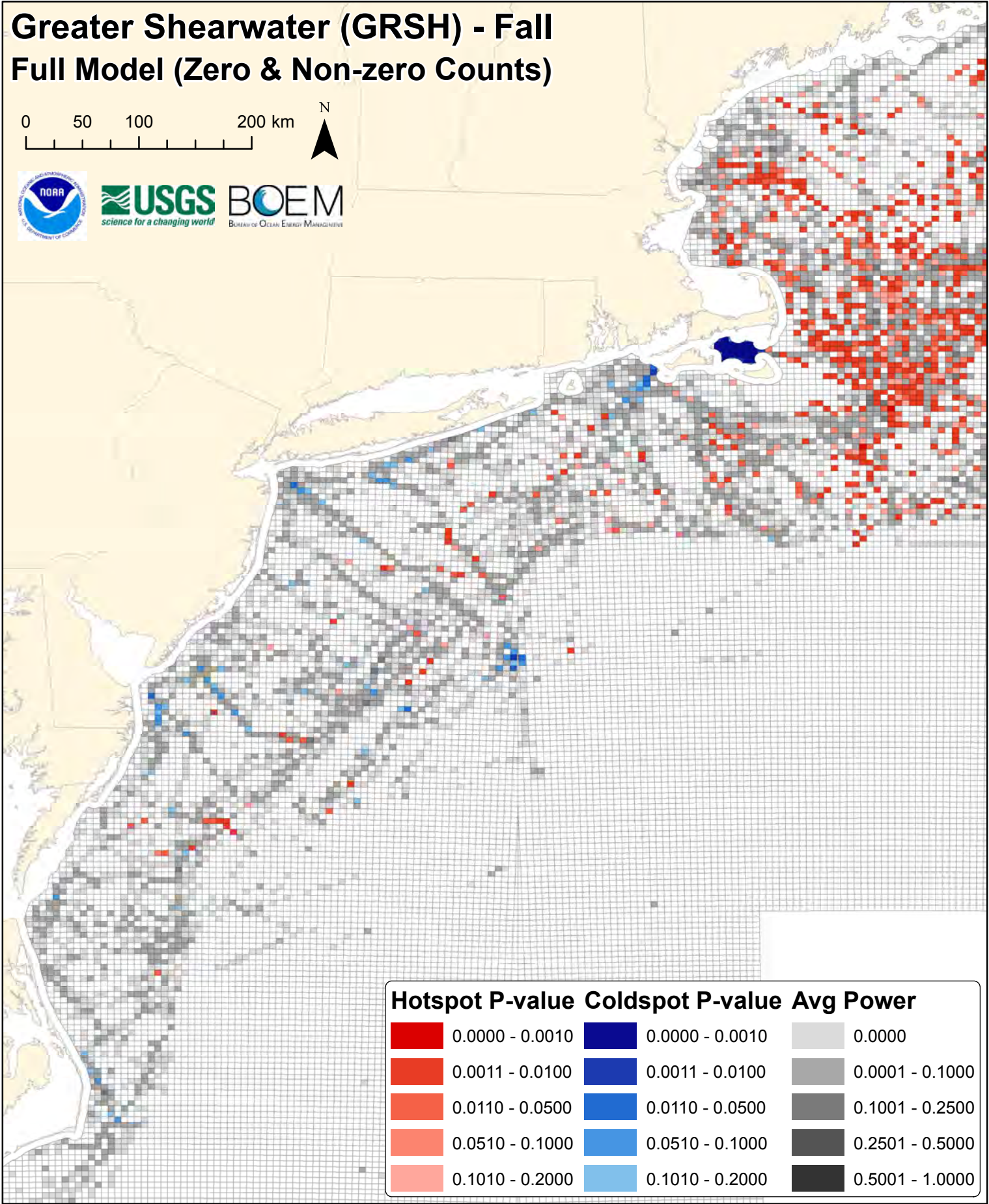
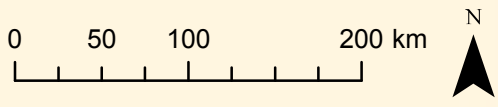
Power to Detect 3x Hotspots


















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



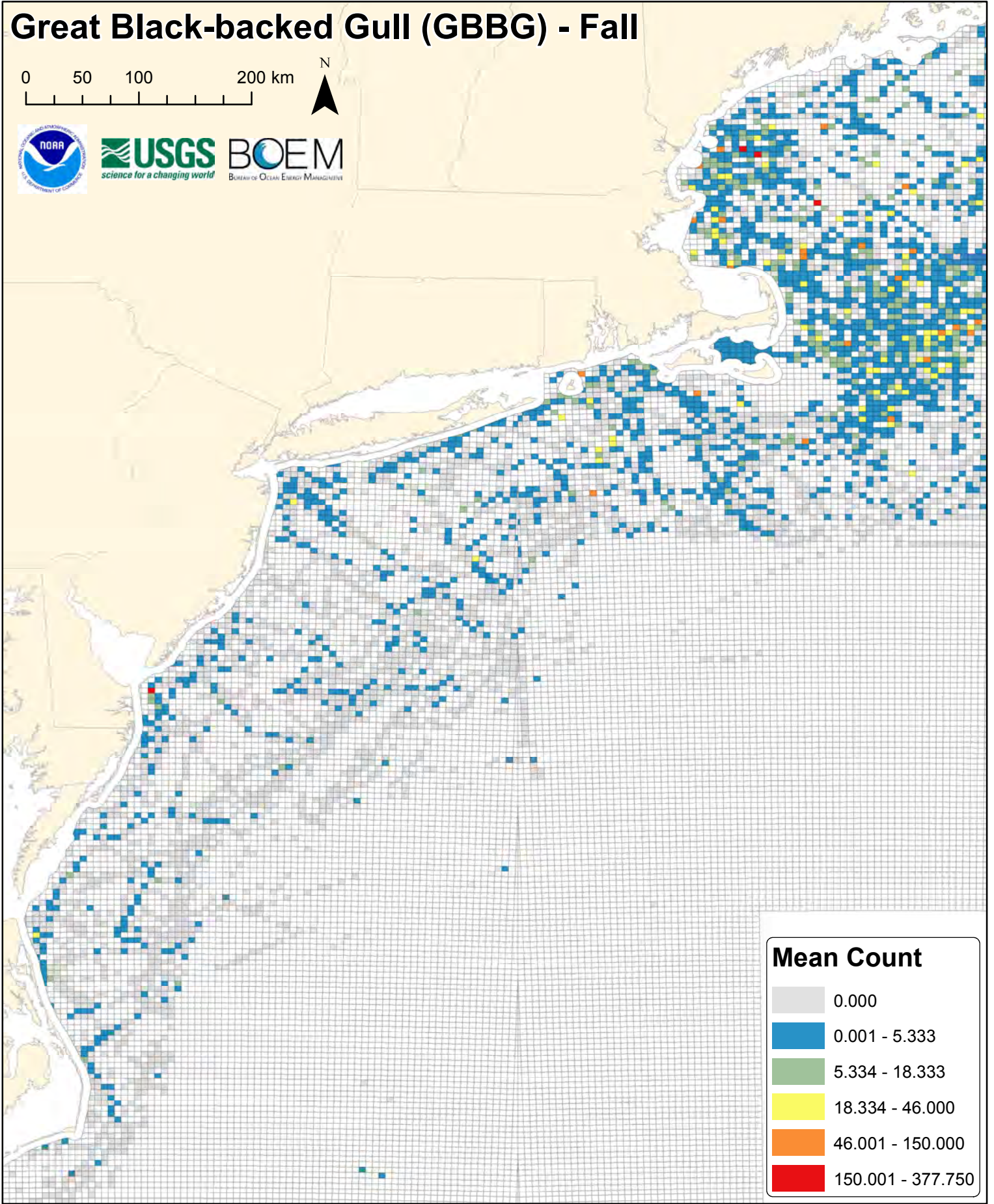
Greater Shearwater (GRSH) - Fall Full Model (Zero & Non-zero Counts)



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

Great Black-backed Gull (GBBG) - Fall

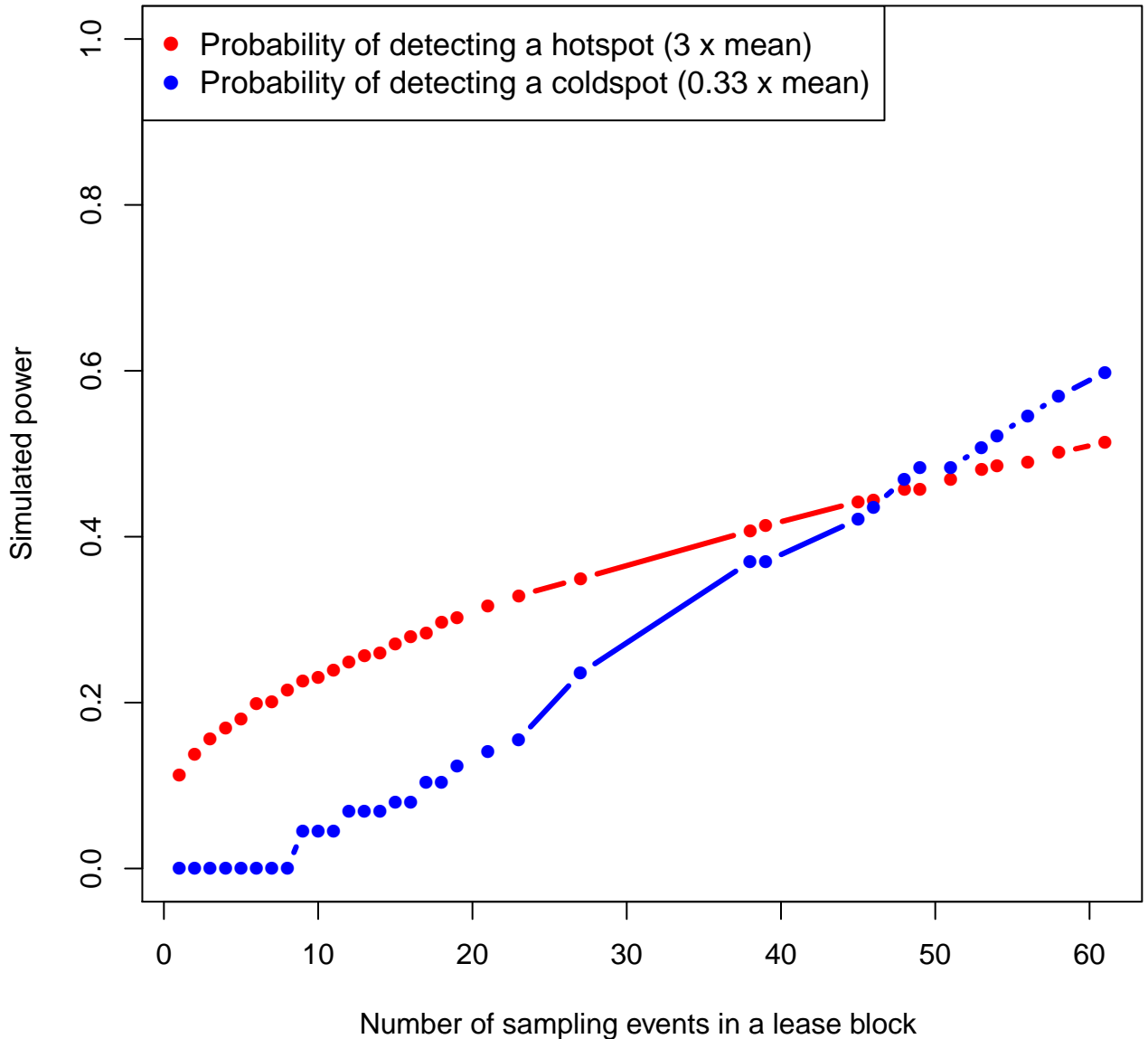
0 50 100 200 km



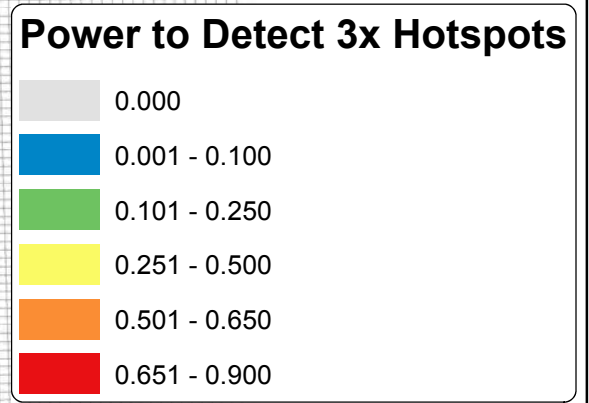
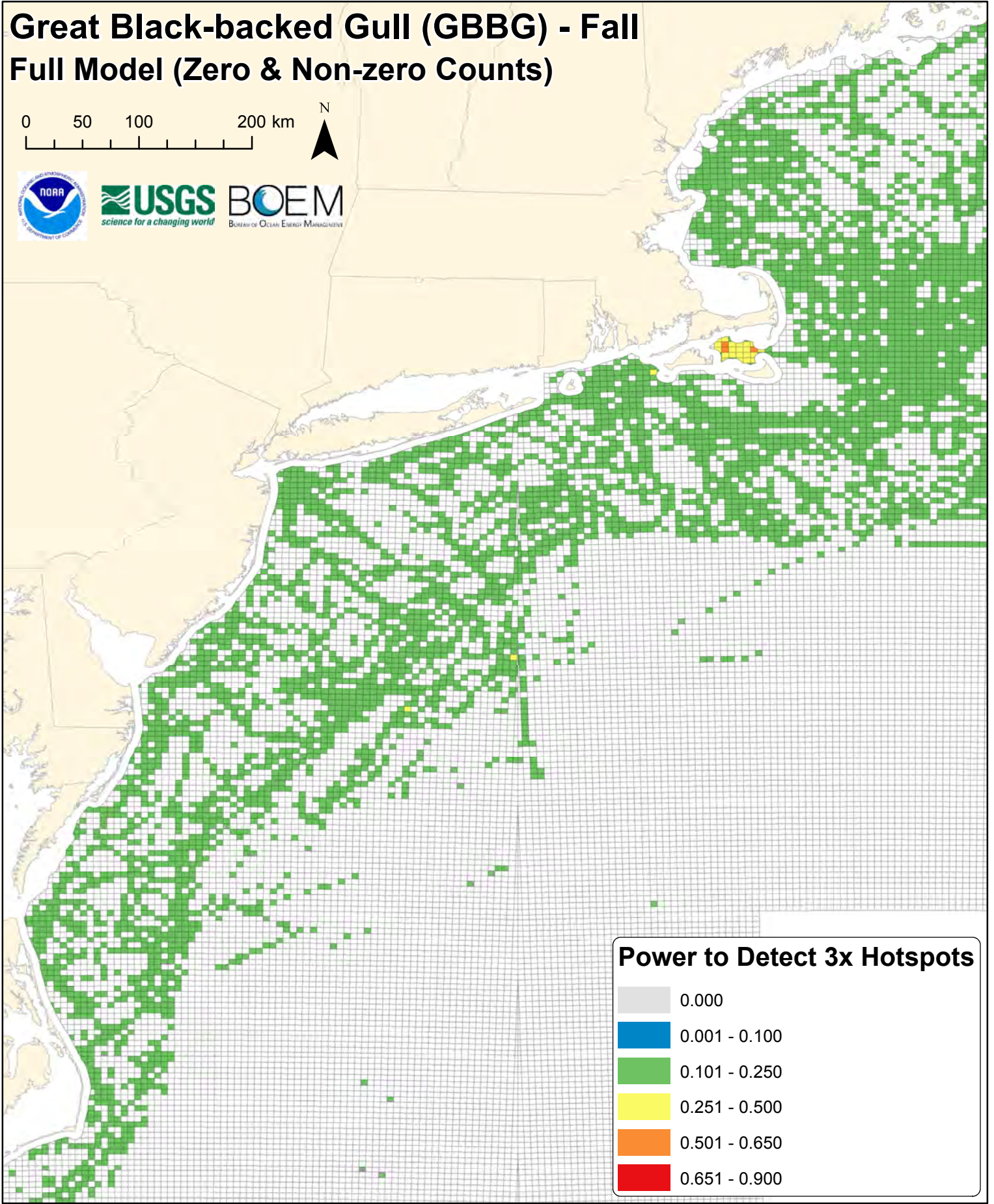
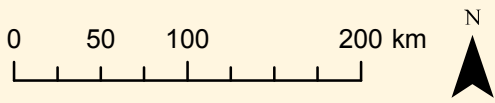
Mean Count

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

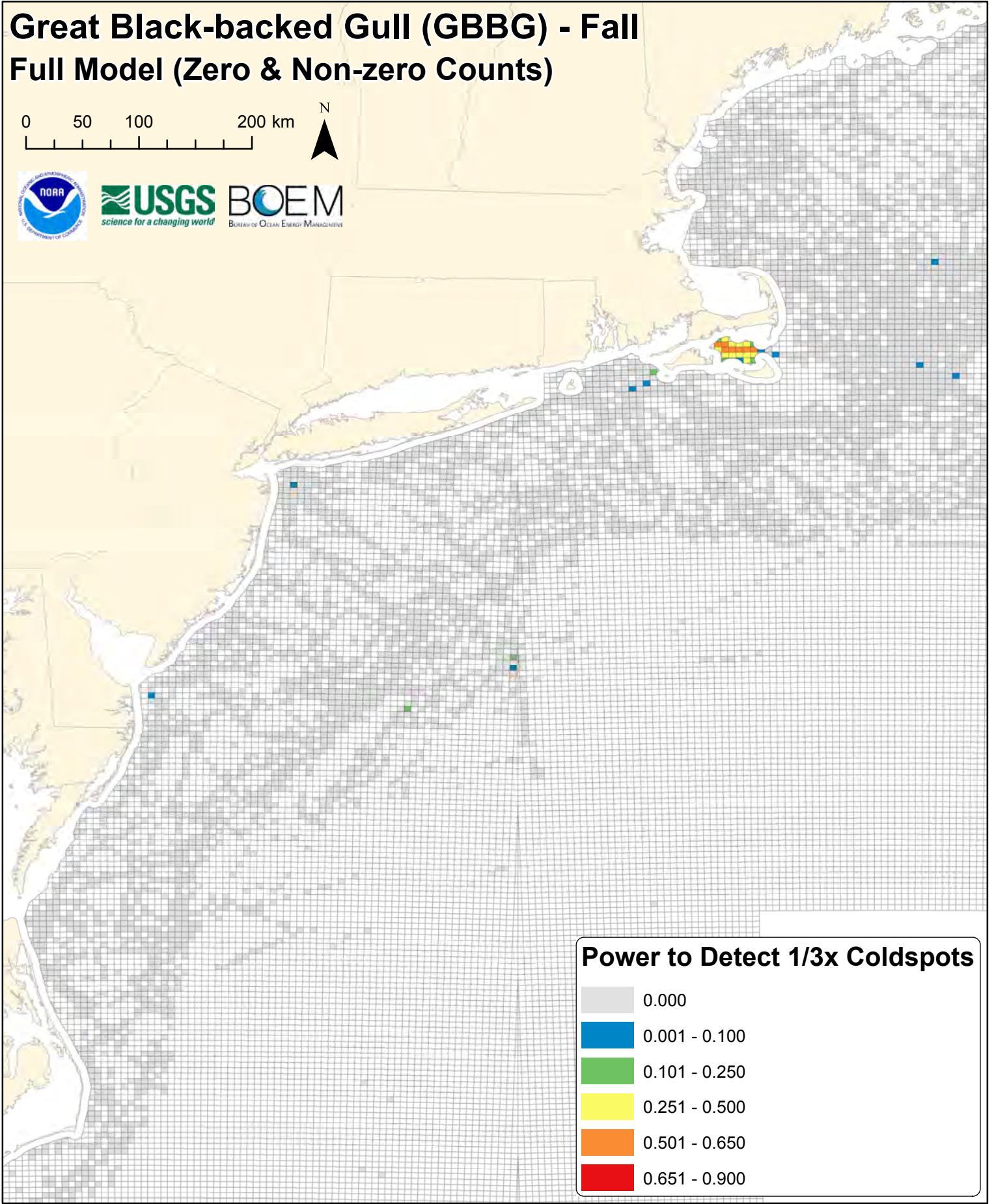
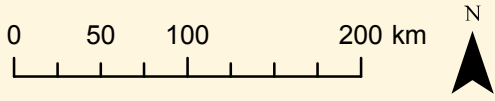
gbbg



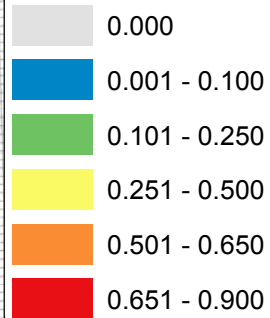
Great Black-backed Gull (GBBG) - Fall Full Model (Zero & Non-zero Counts)



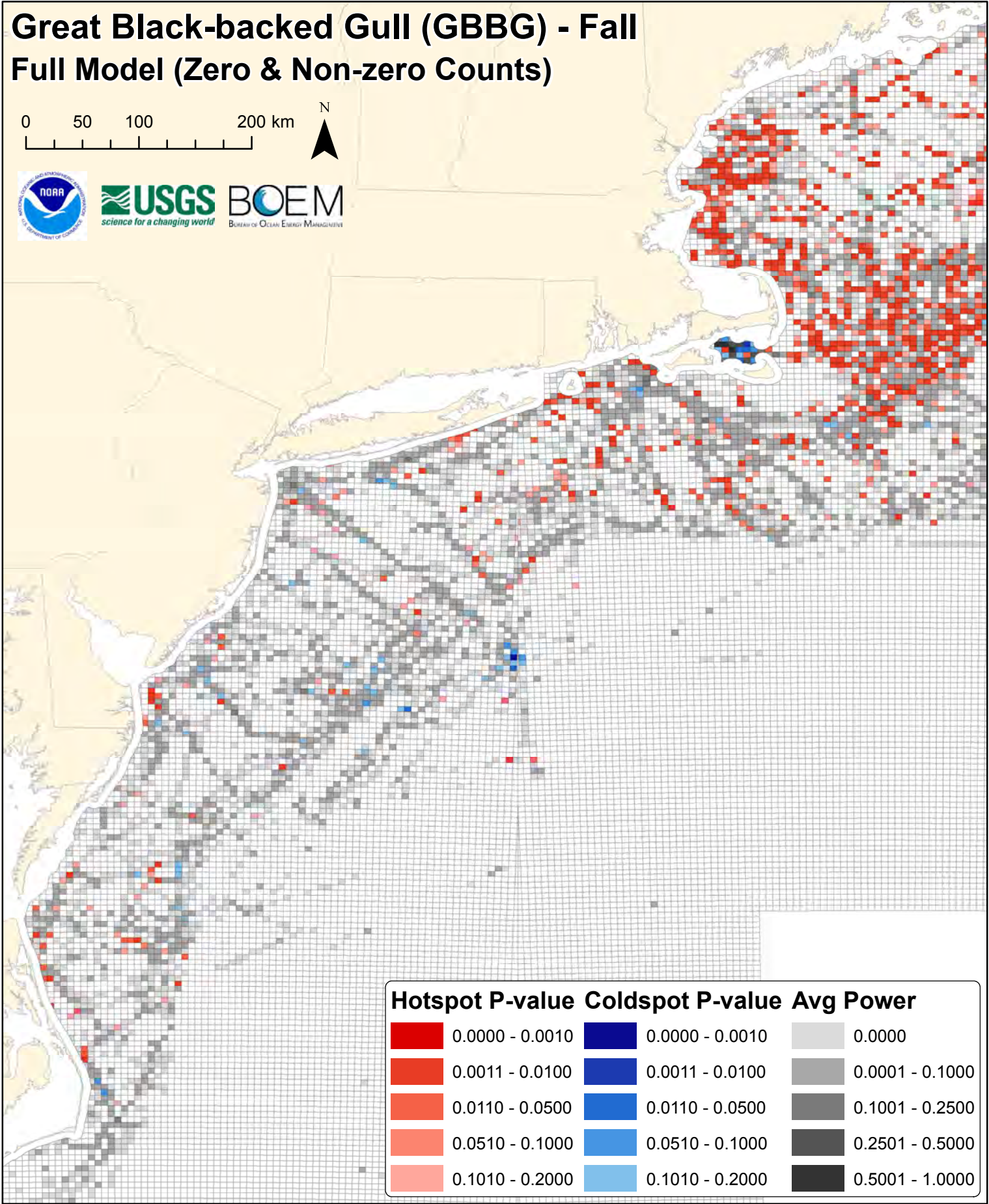
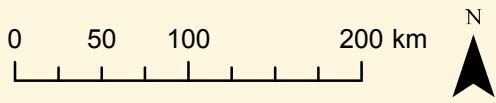
Great Black-backed Gull (GBBG) - Fall Full Model (Zero & Non-zero Counts)


















Power to Detect 1/3x Coldspots



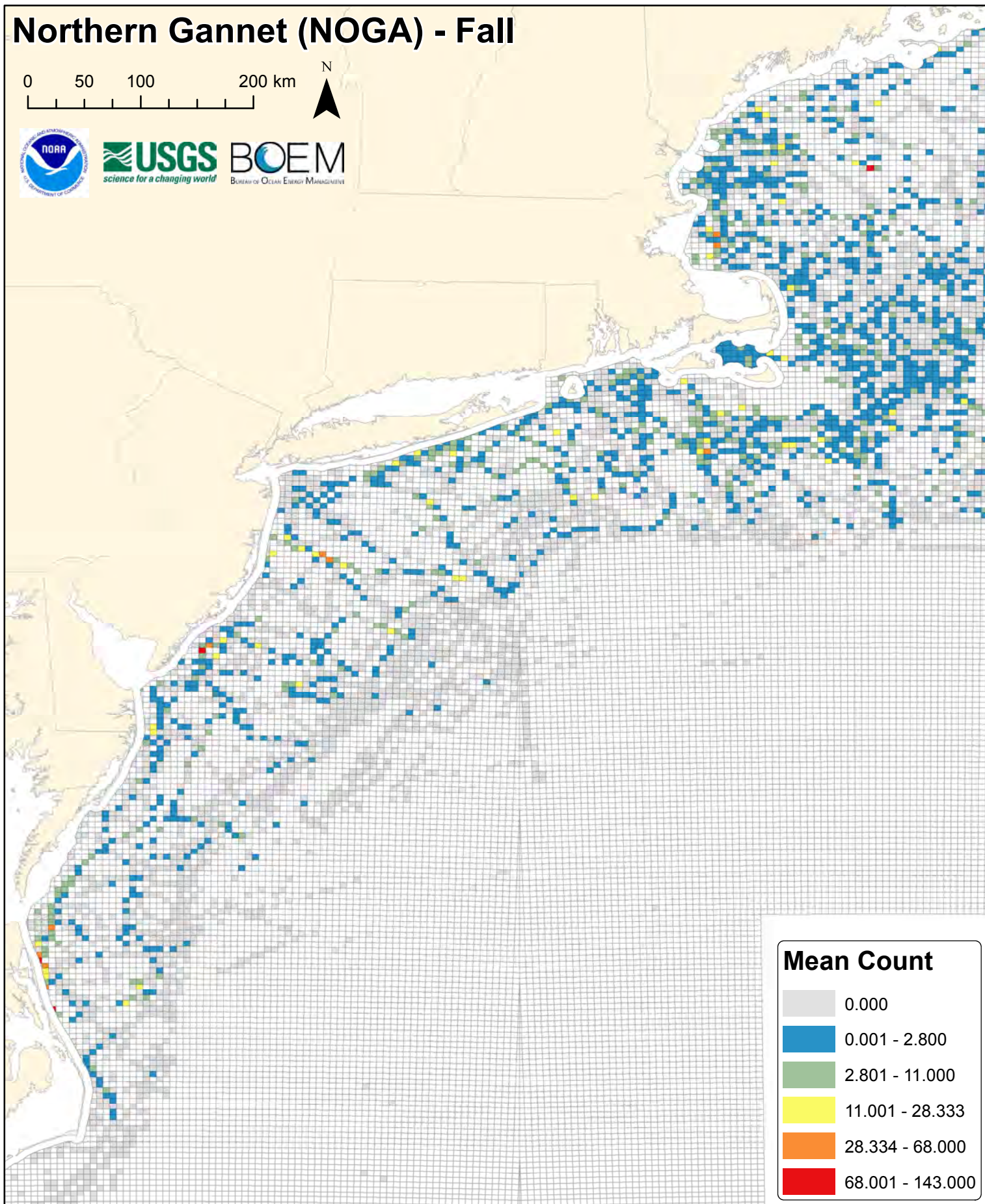
Great Black-backed Gull (GBBG) - Fall Full Model (Zero & Non-zero Counts)



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

Northern Gannet (NOGA) - Fall

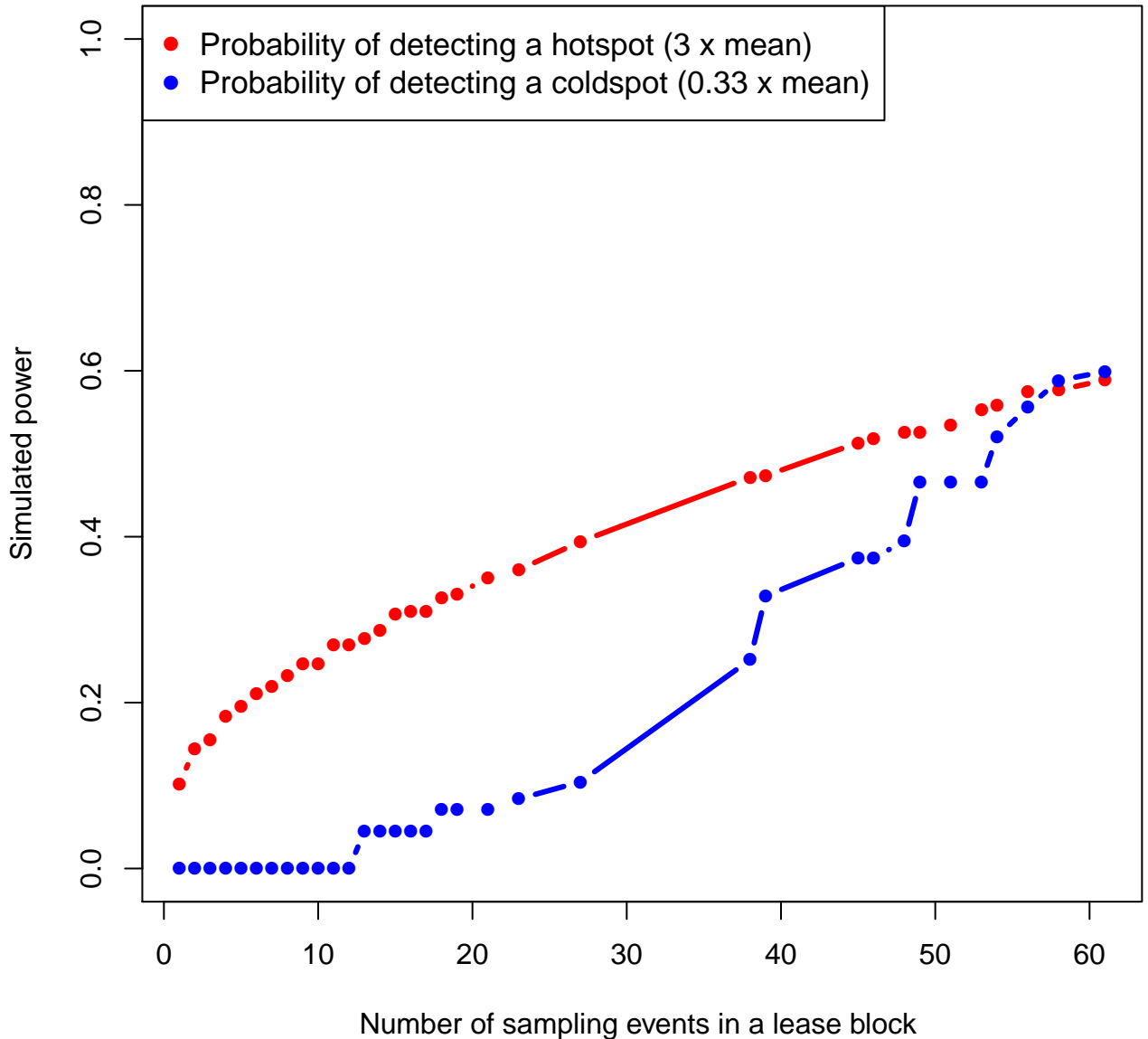
0 50 100 200 km



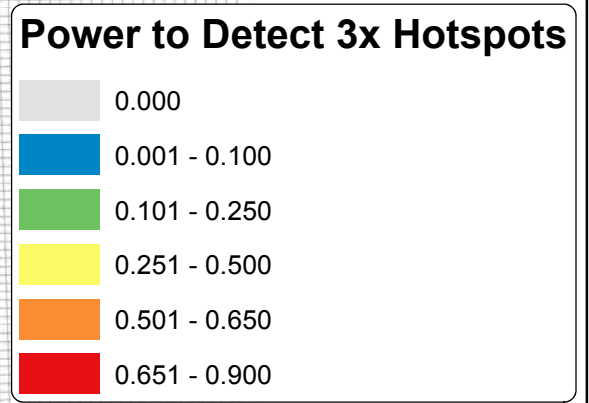
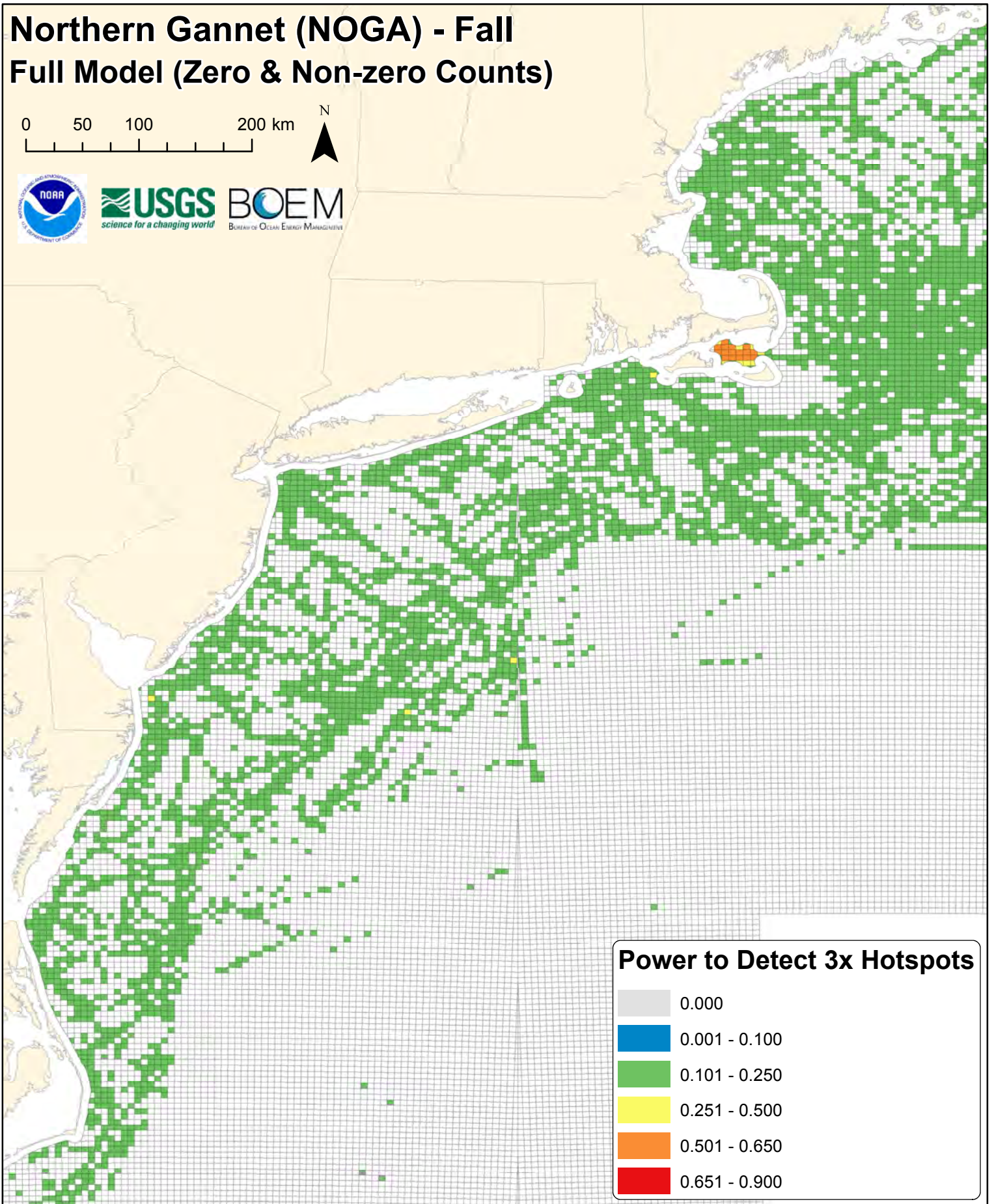
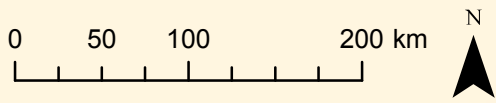
Mean Count

0.000
0.001 - 2.800
2.801 - 11.000
11.001 - 28.333
28.334 - 68.000
68.001 - 143.000

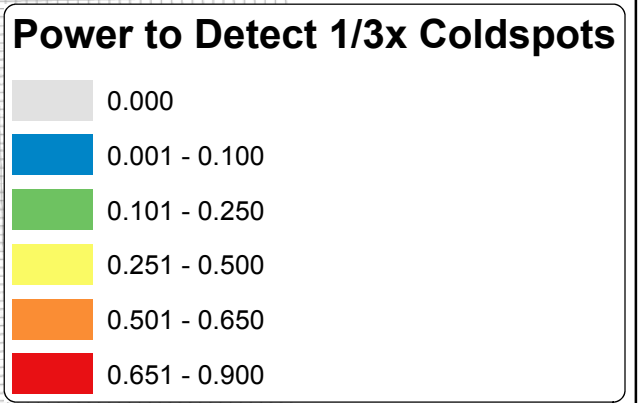
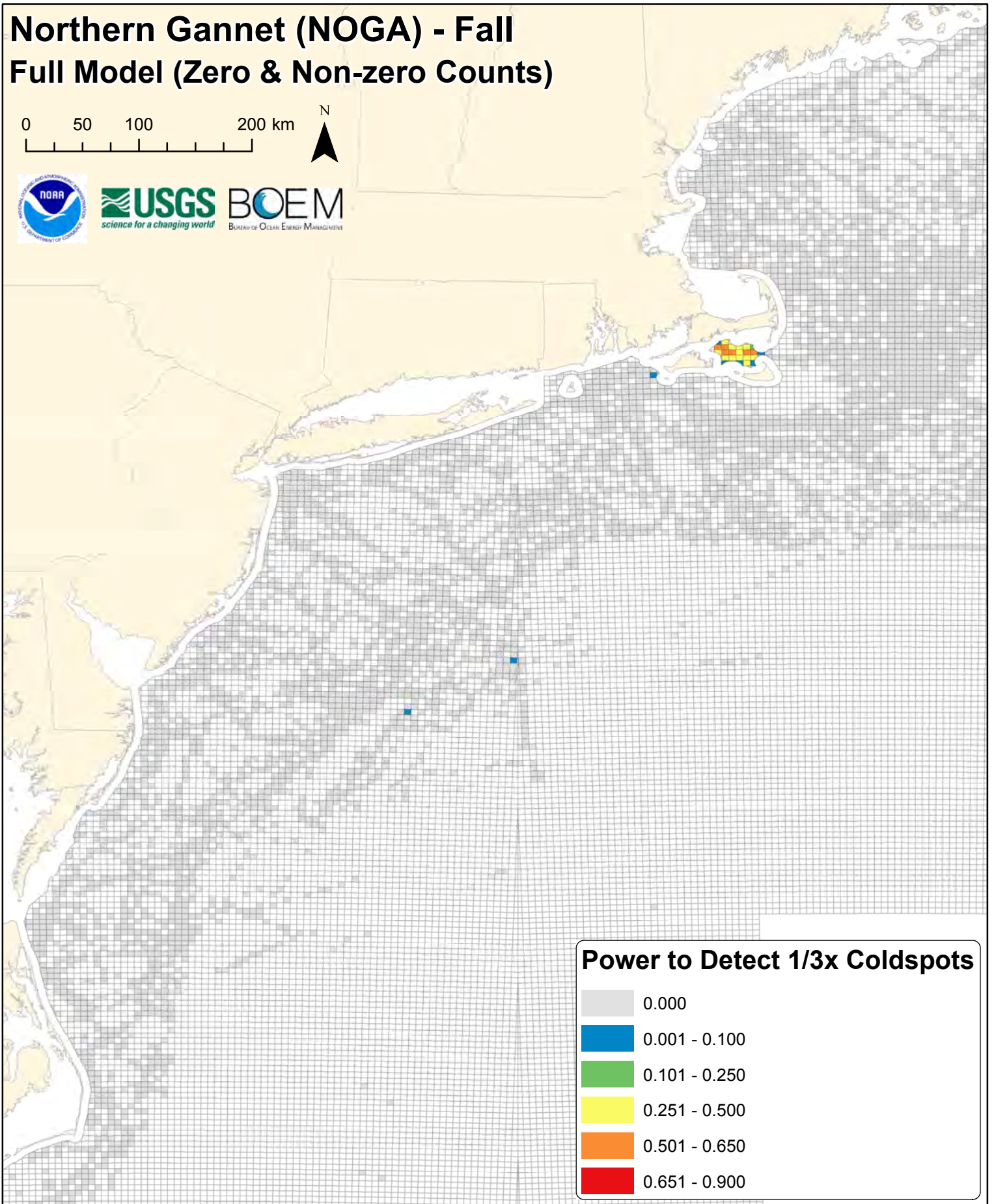
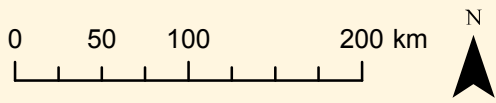
noga



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

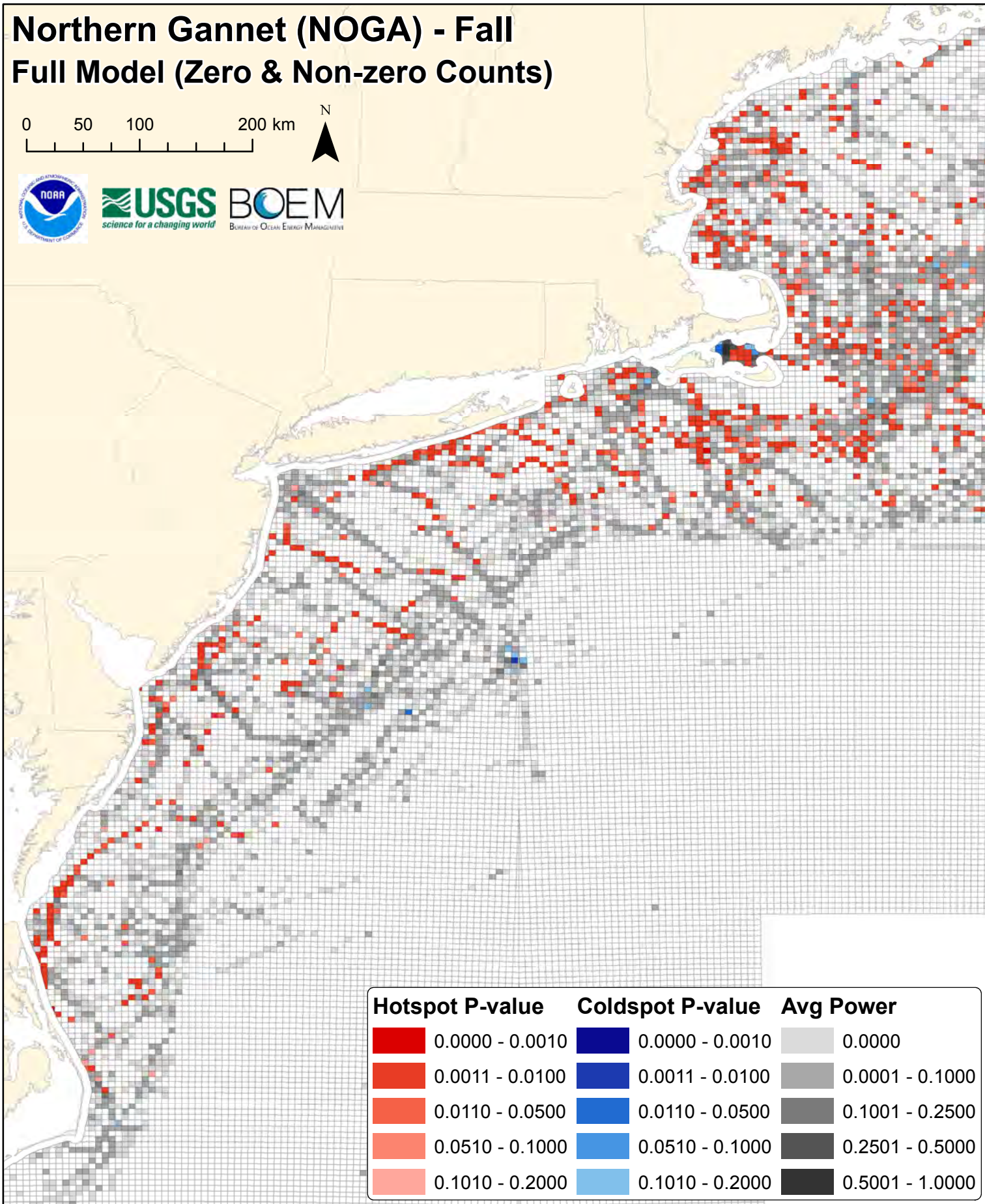
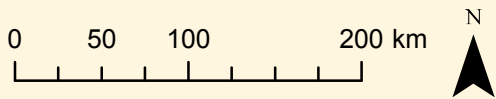

















Northern Gannet (NOGA) - Fall Full Model (Zero & Non-zero Counts)



Northern Gannet (NOGA) - Fall

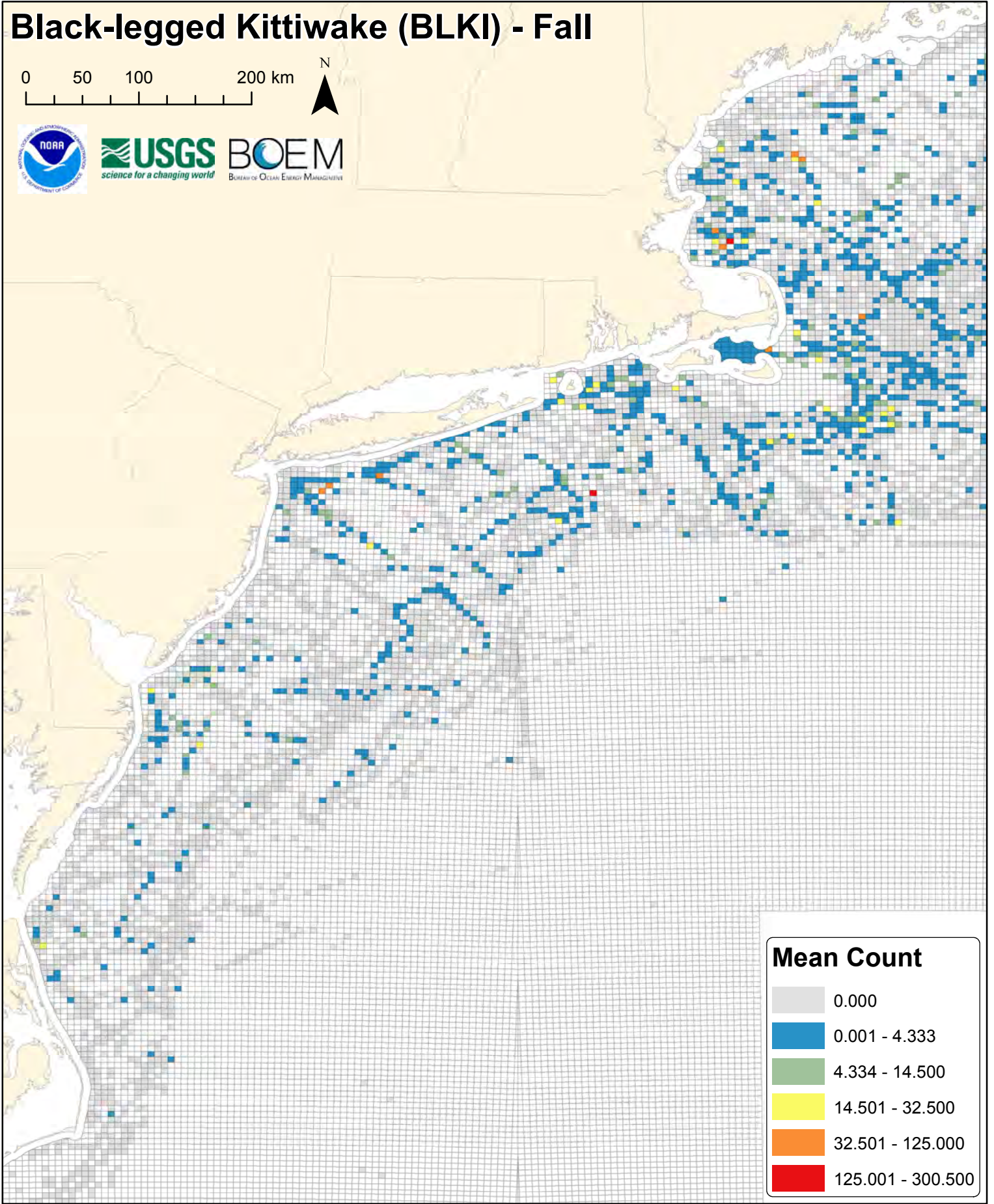
Full Model (Zero & Non-zero Counts)



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

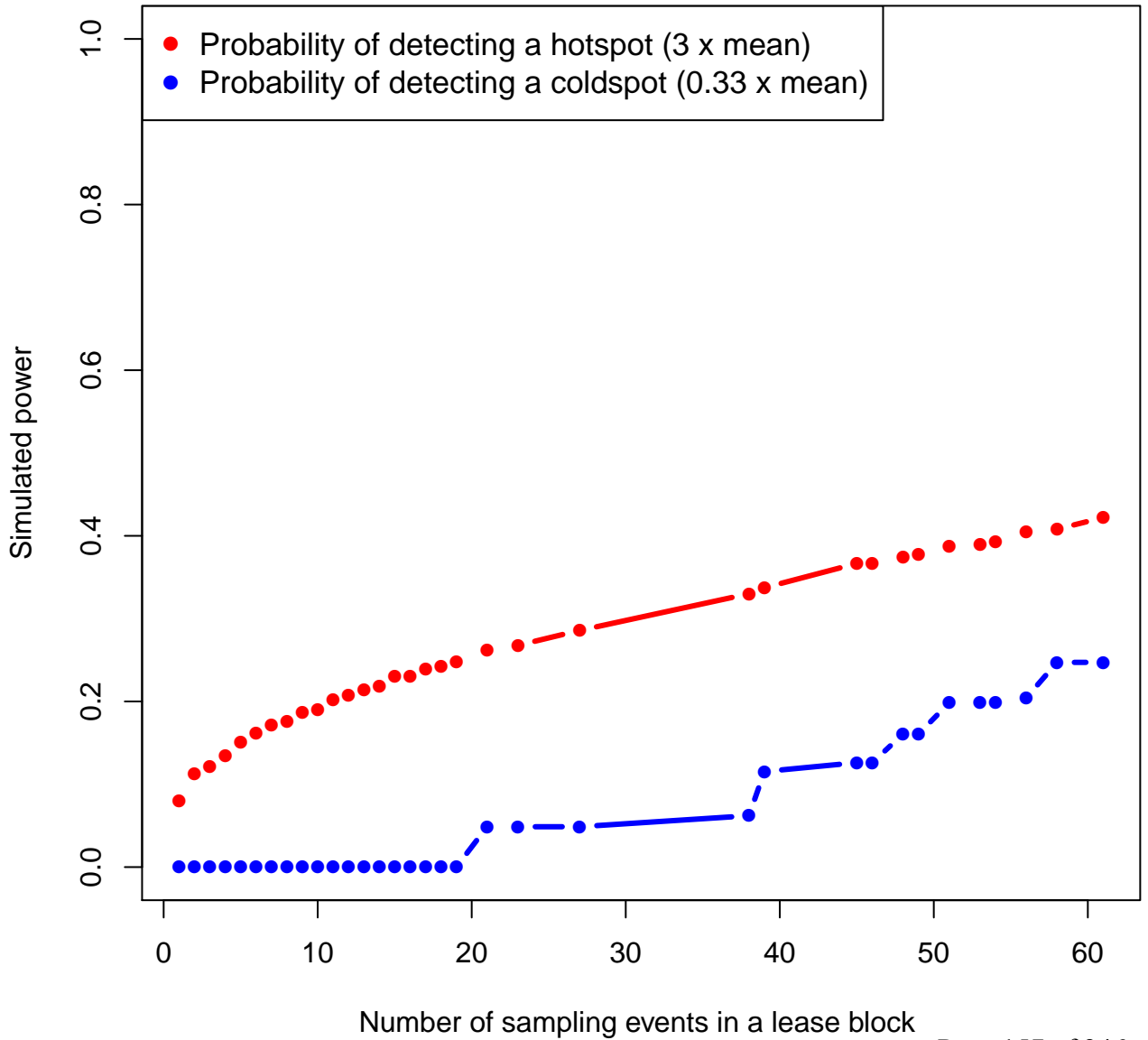
0 50 100 200 km



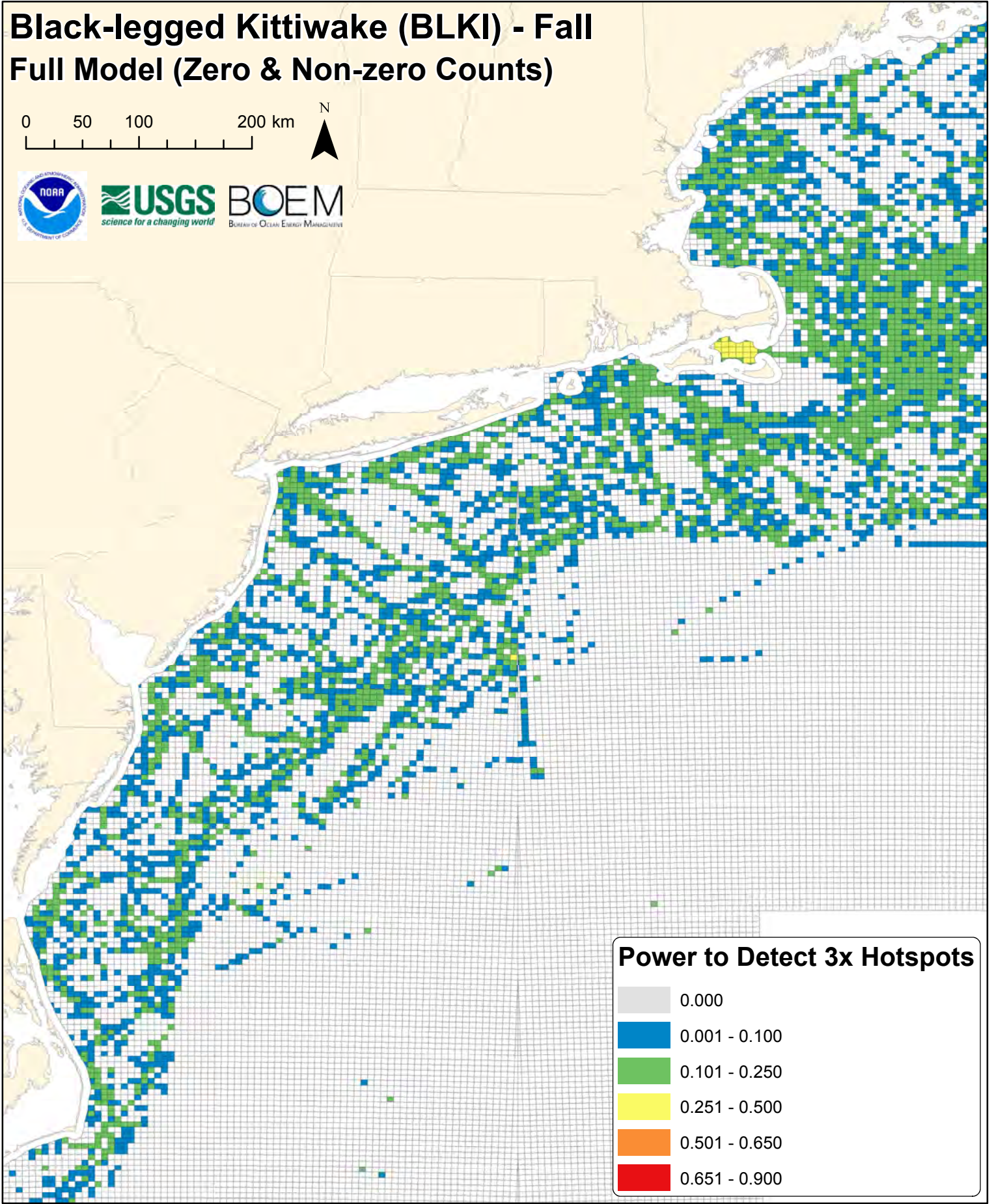
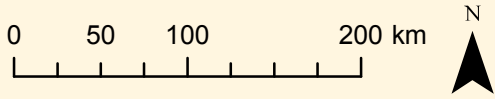
Mean Count

0.000
0.001 - 4.333
4.334 - 14.500
14.501 - 32.500
32.501 - 125.000
125.001 - 300.500

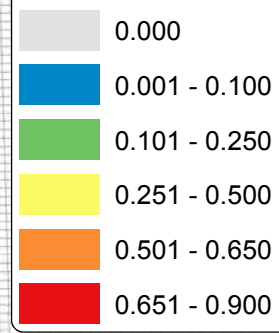
blki



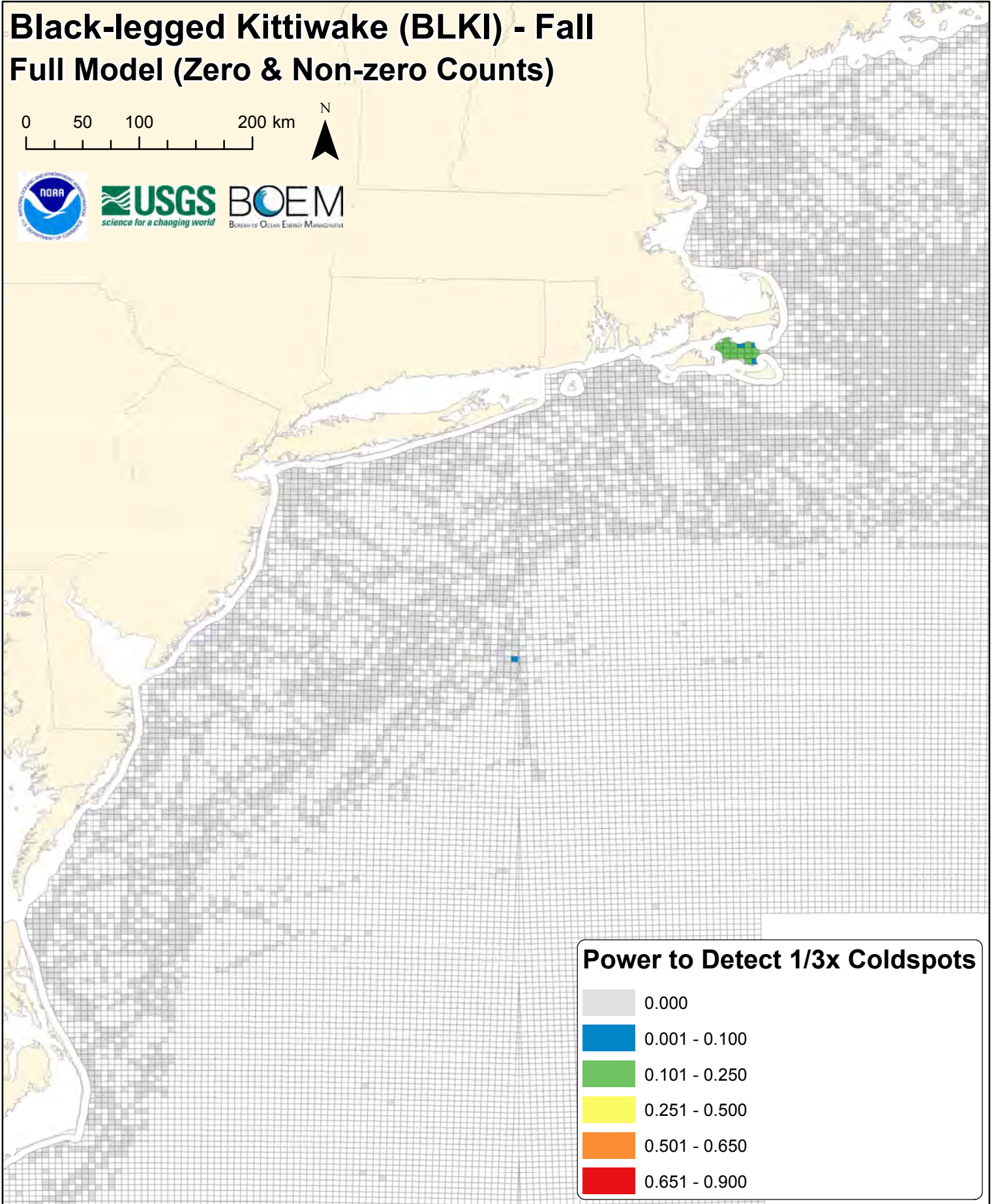
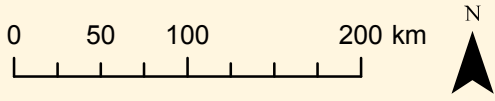
Black-legged Kittiwake (BLKI) - Fall Full Model (Zero & Non-zero Counts)



Power to Detect 3x Hotspots



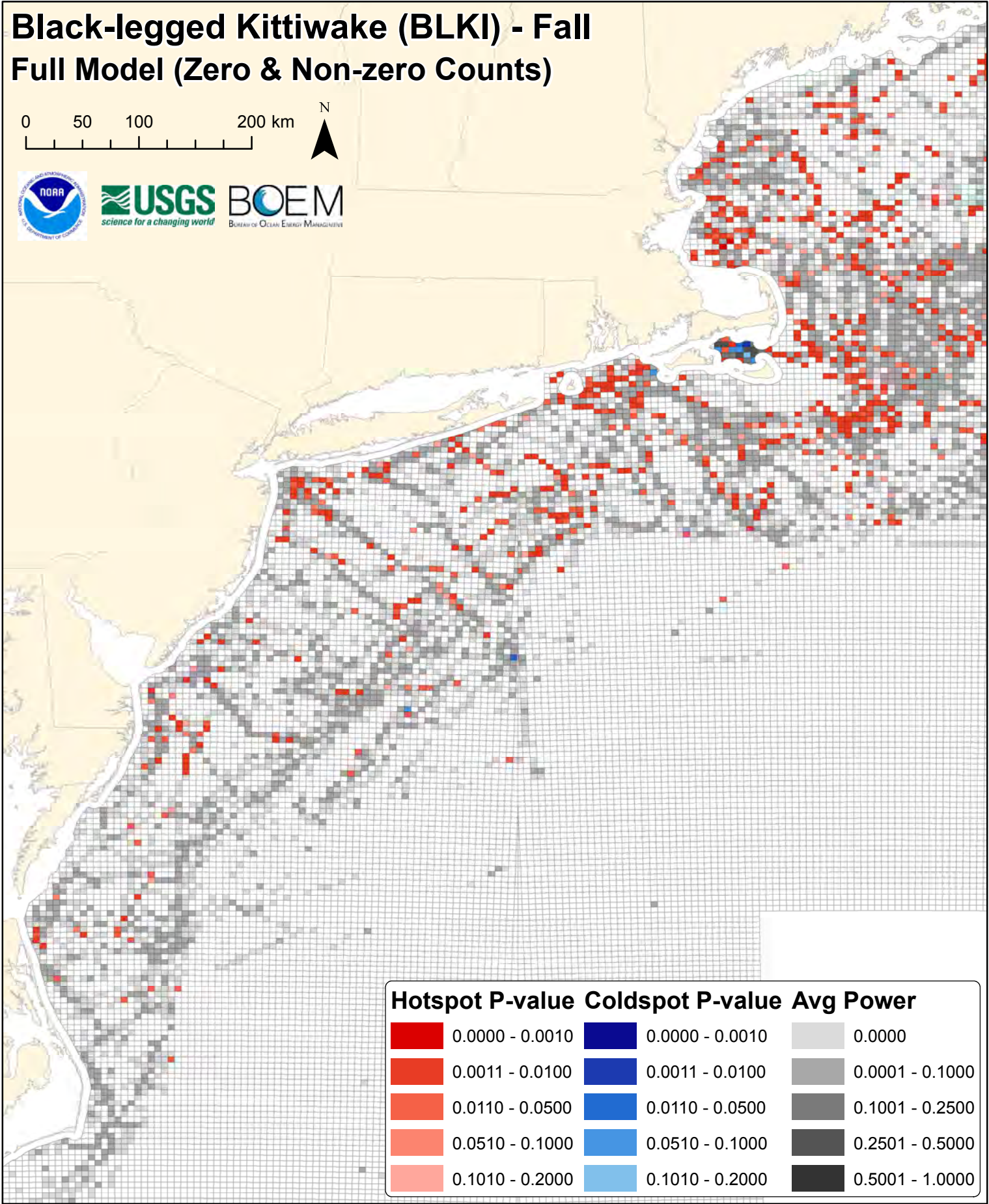
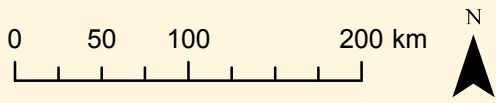
Black-legged Kittiwake (BLKI) - Fall Full Model (Zero & Non-zero Counts)


















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

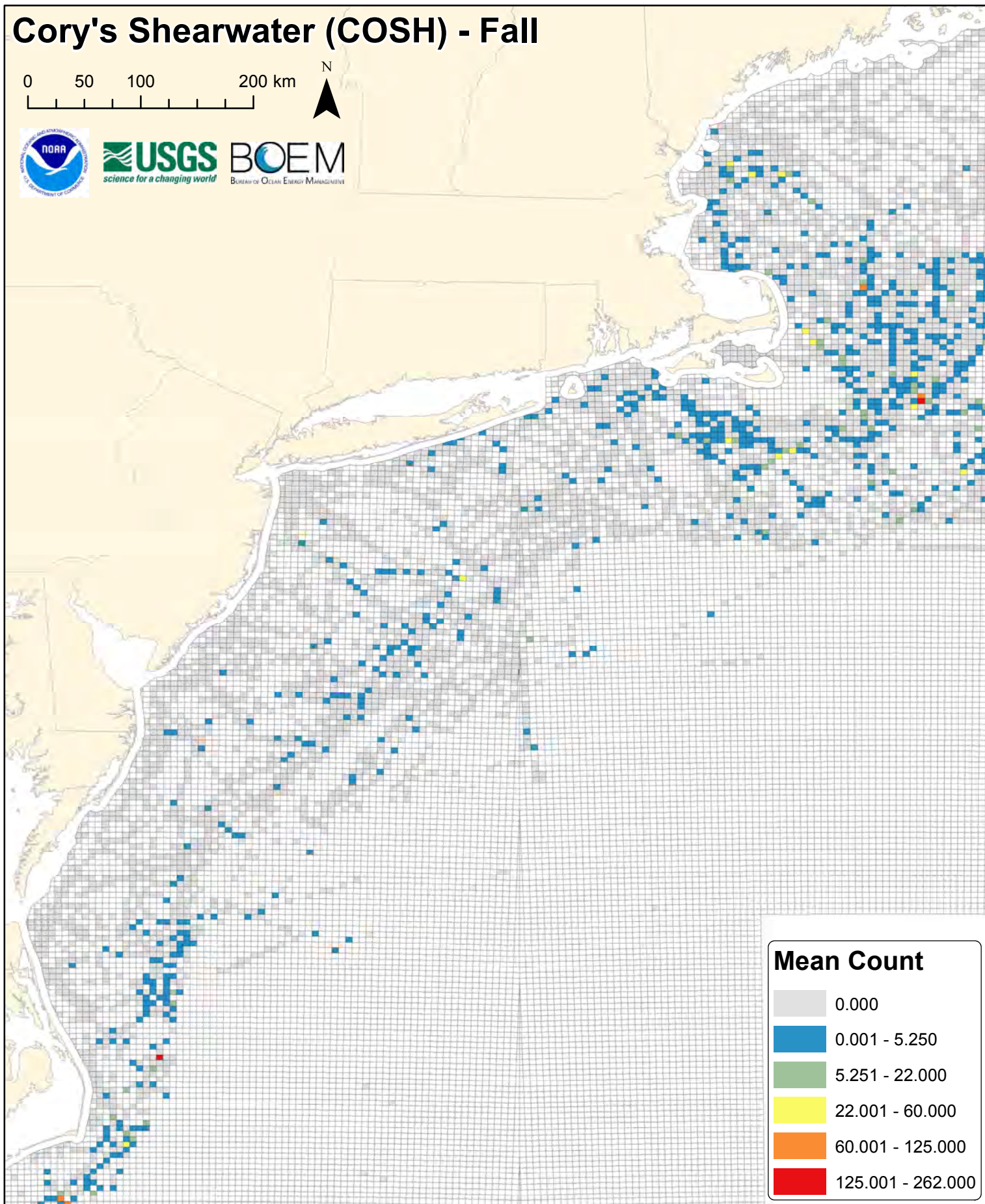
Black-legged Kittiwake (BLKI) - Fall Full Model (Zero & Non-zero Counts)



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

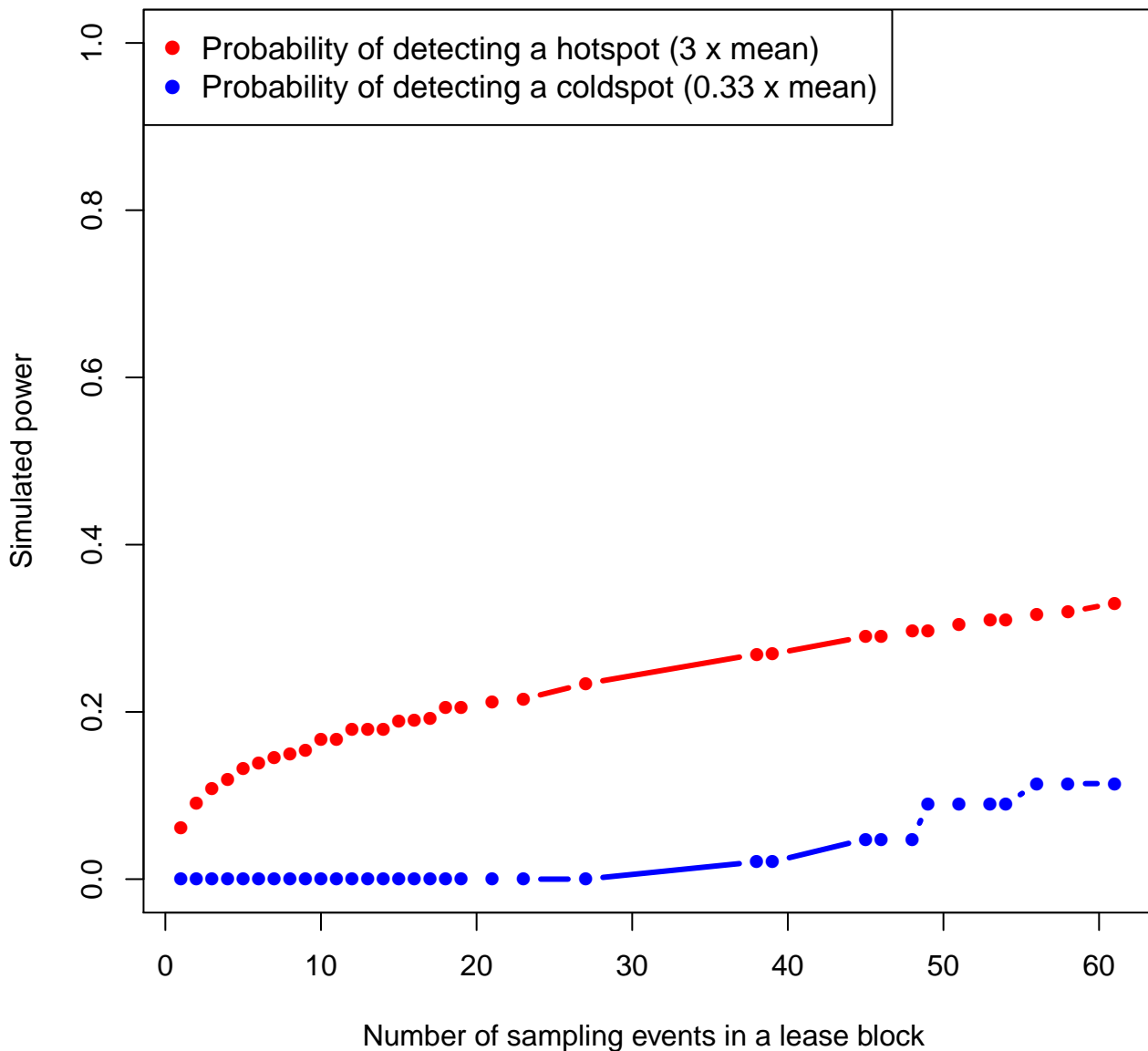
Cory's Shearwater (COSH) - Fall

0 50 100 200 km

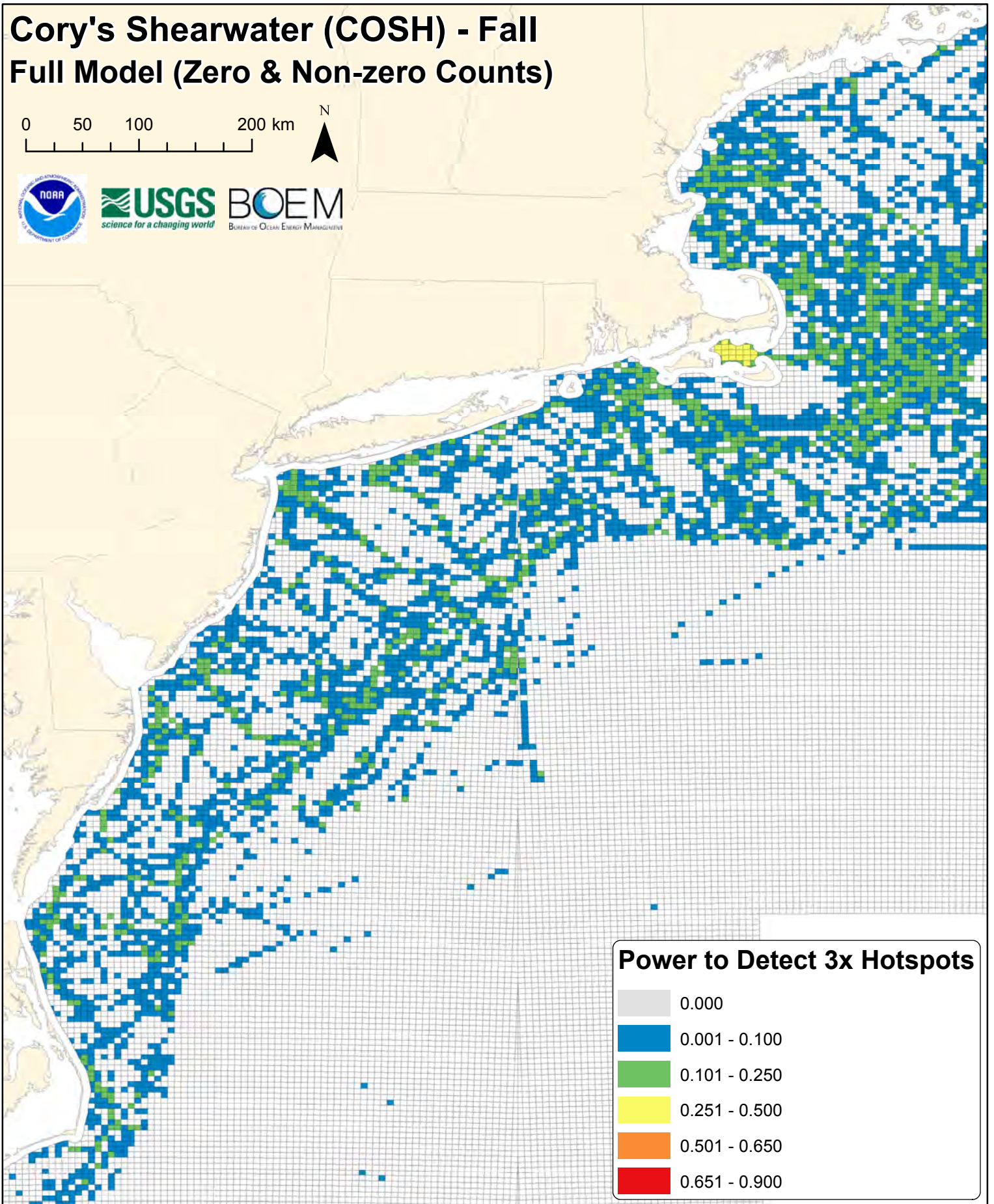
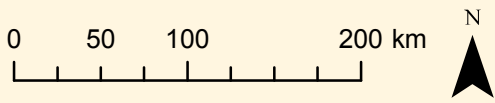


Mean Count	
0.000	0.000
0.001 - 5.250	0.001 - 5.250
5.251 - 22.000	5.251 - 22.000
22.001 - 60.000	22.001 - 60.000
60.001 - 125.000	60.001 - 125.000
125.001 - 262.000	125.001 - 262.000

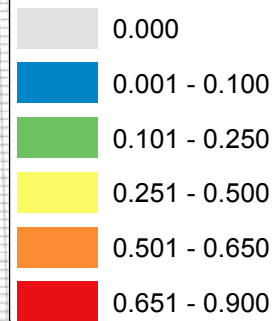
cosh



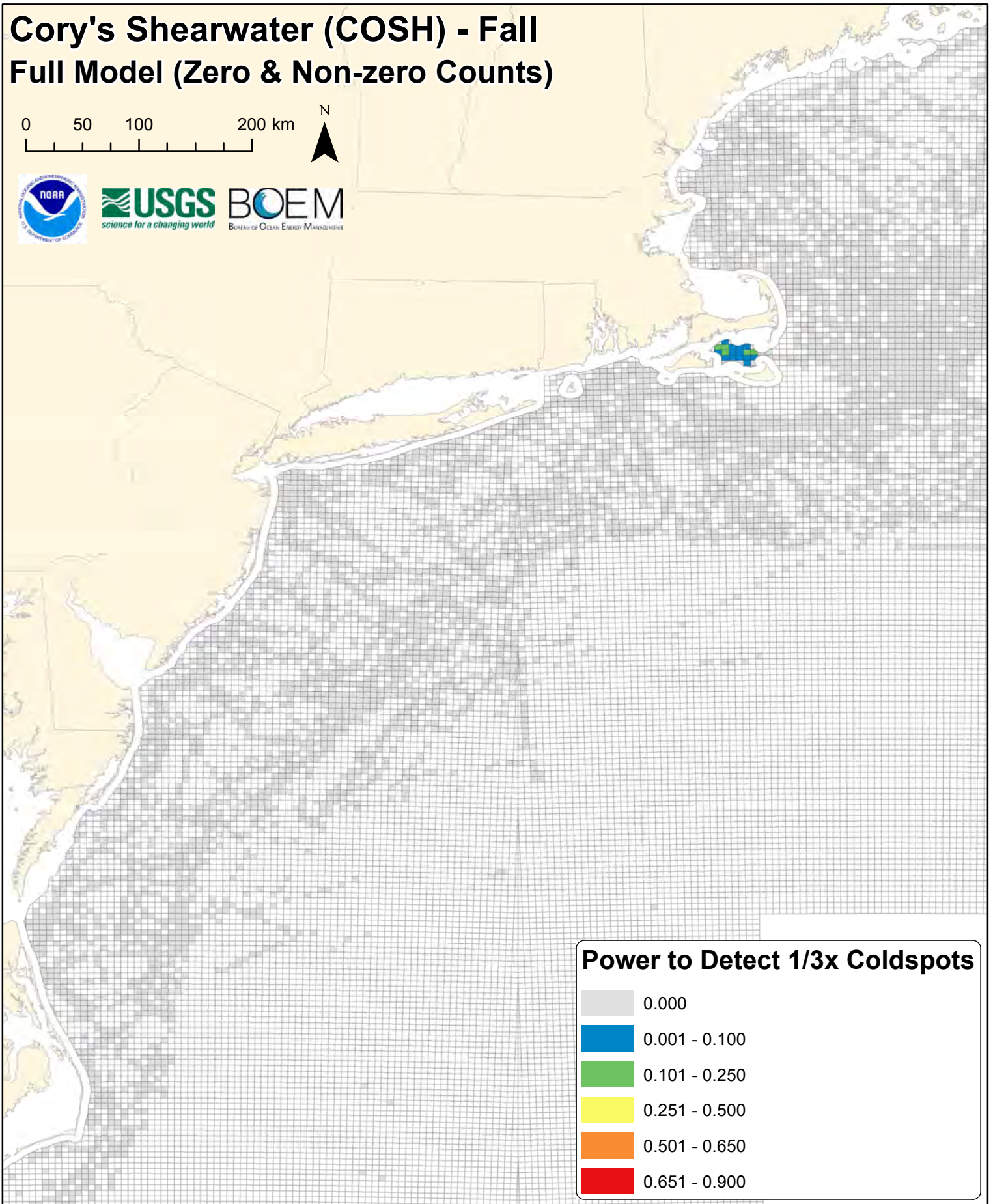
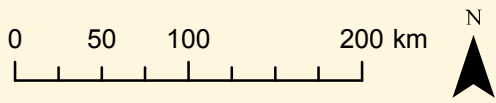
Cory's Shearwater (COSH) - Fall Full Model (Zero & Non-zero Counts)



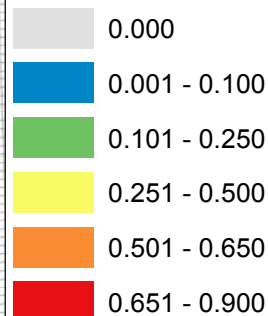
Power to Detect 3x Hotspots



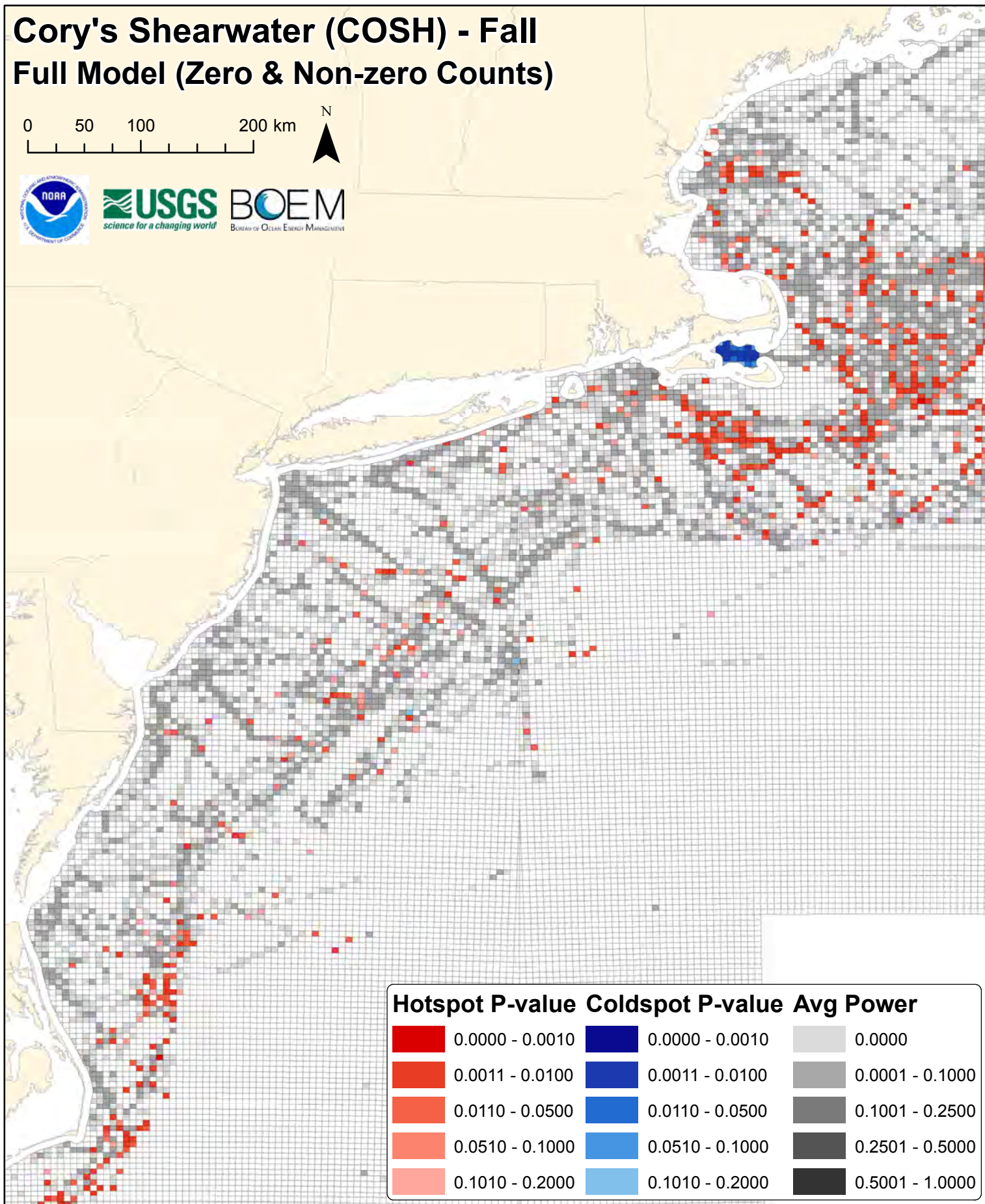
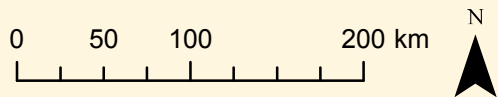
Cory's Shearwater (COSH) - Fall Full Model (Zero & Non-zero Counts)



Power to Detect 1/3x Coldspots

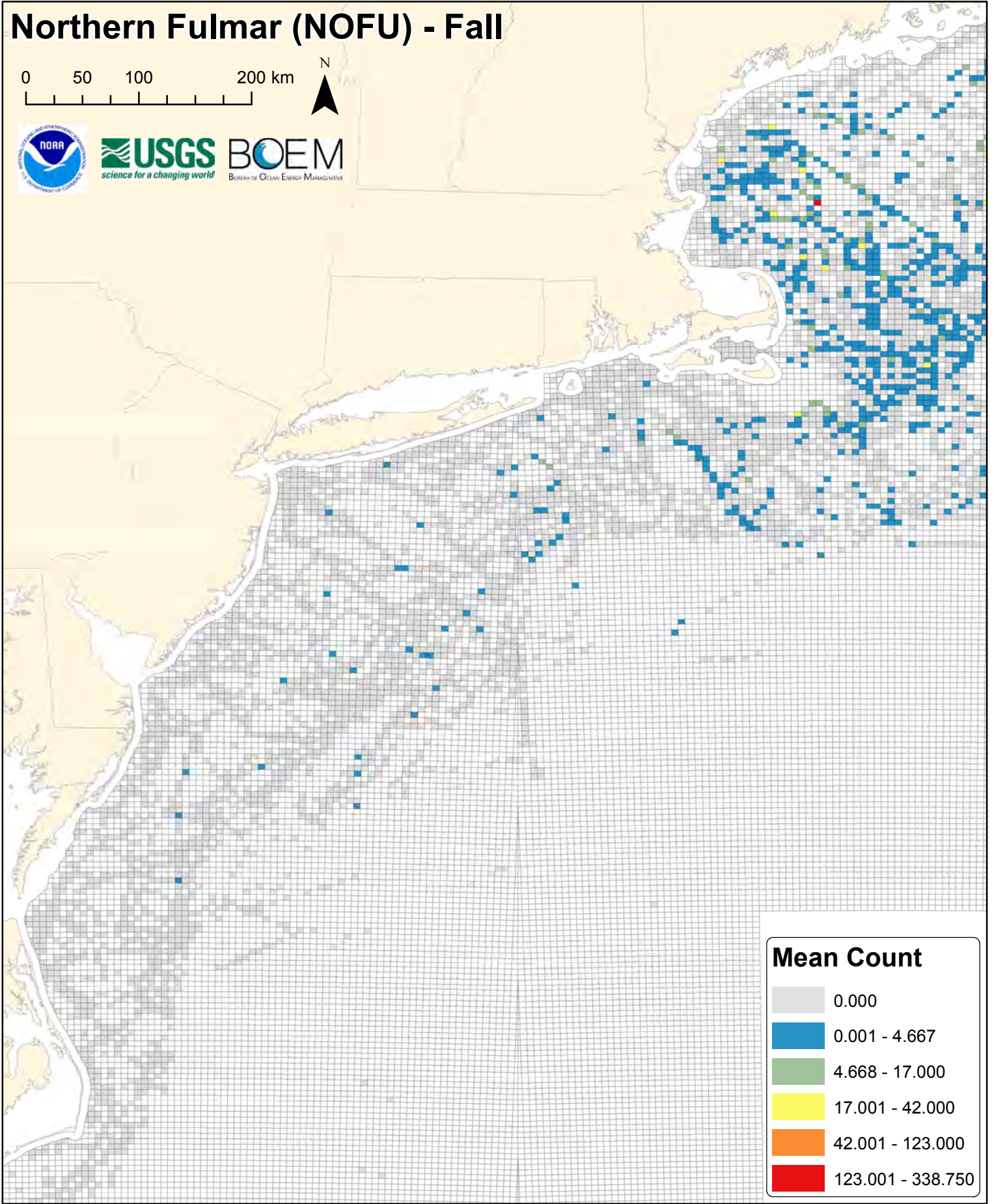


Cory's Shearwater (COSH) - Fall Full Model (Zero & Non-zero Counts)



Northern Fulmar (NOFU) - Fall

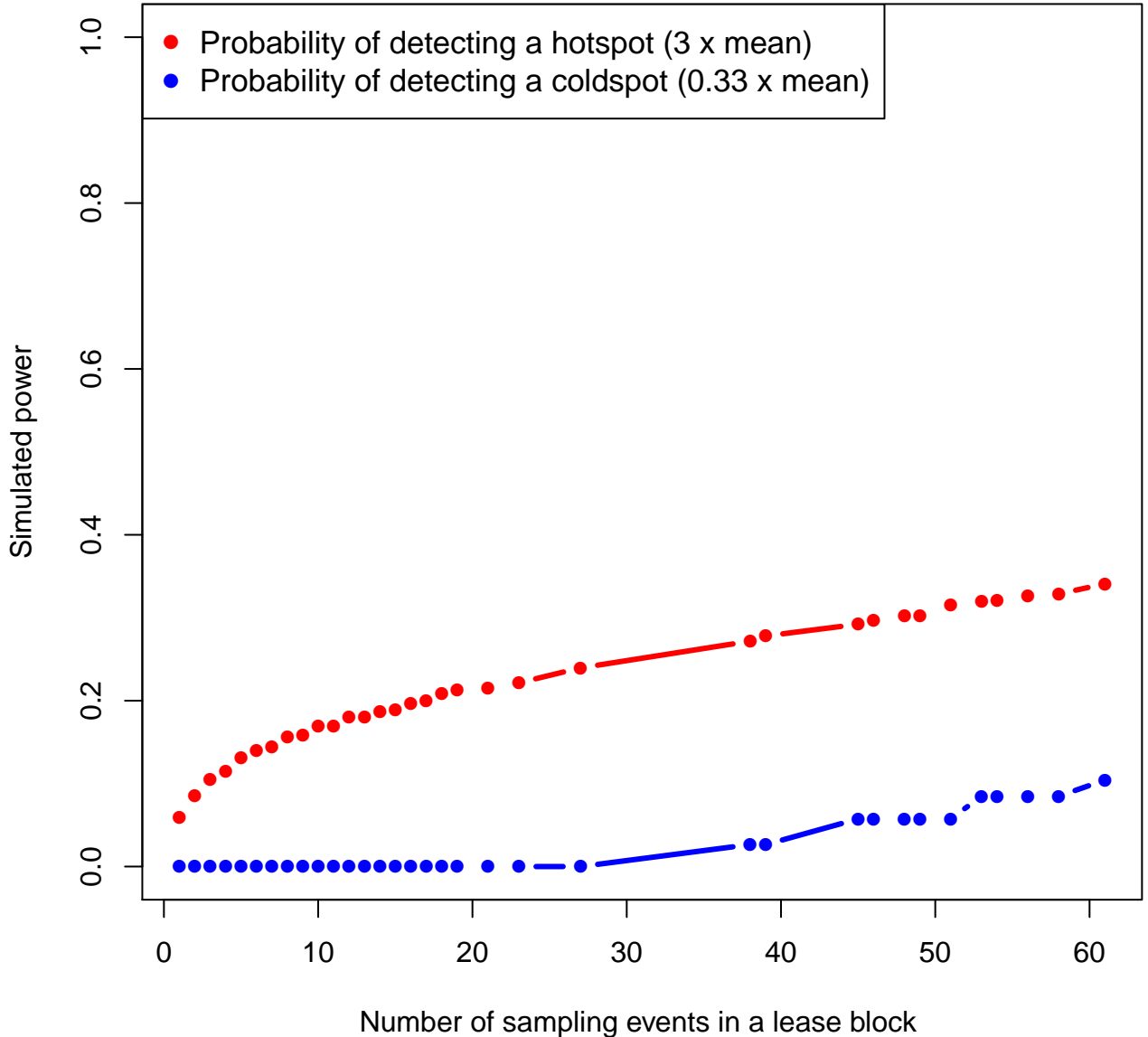
0 50 100 200 km



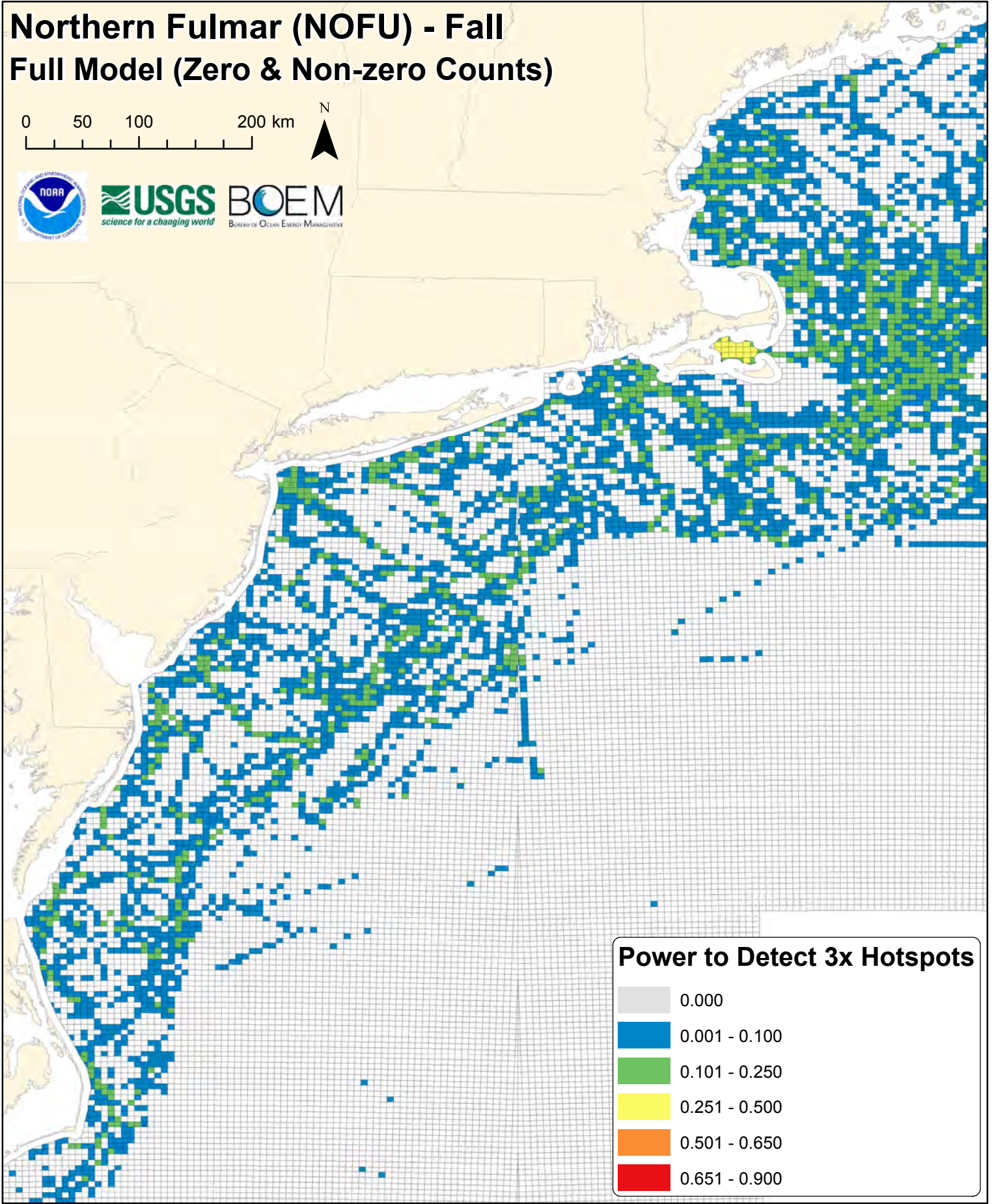
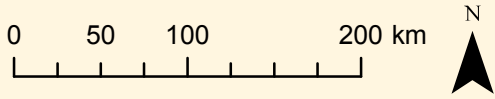
Mean Count

0.000
0.001 - 4.667
4.668 - 17.000
17.001 - 42.000
42.001 - 123.000
123.001 - 338.750

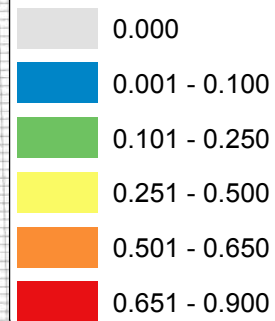
nofu



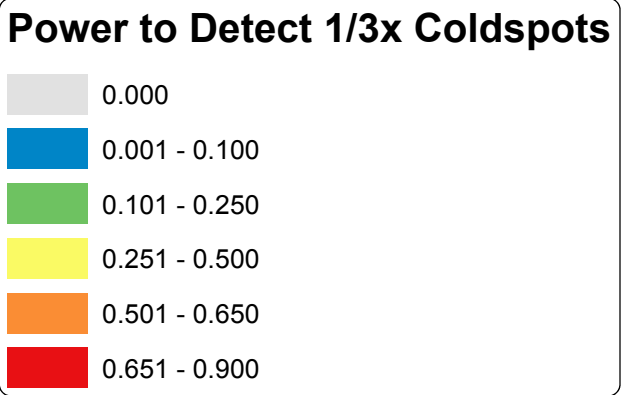
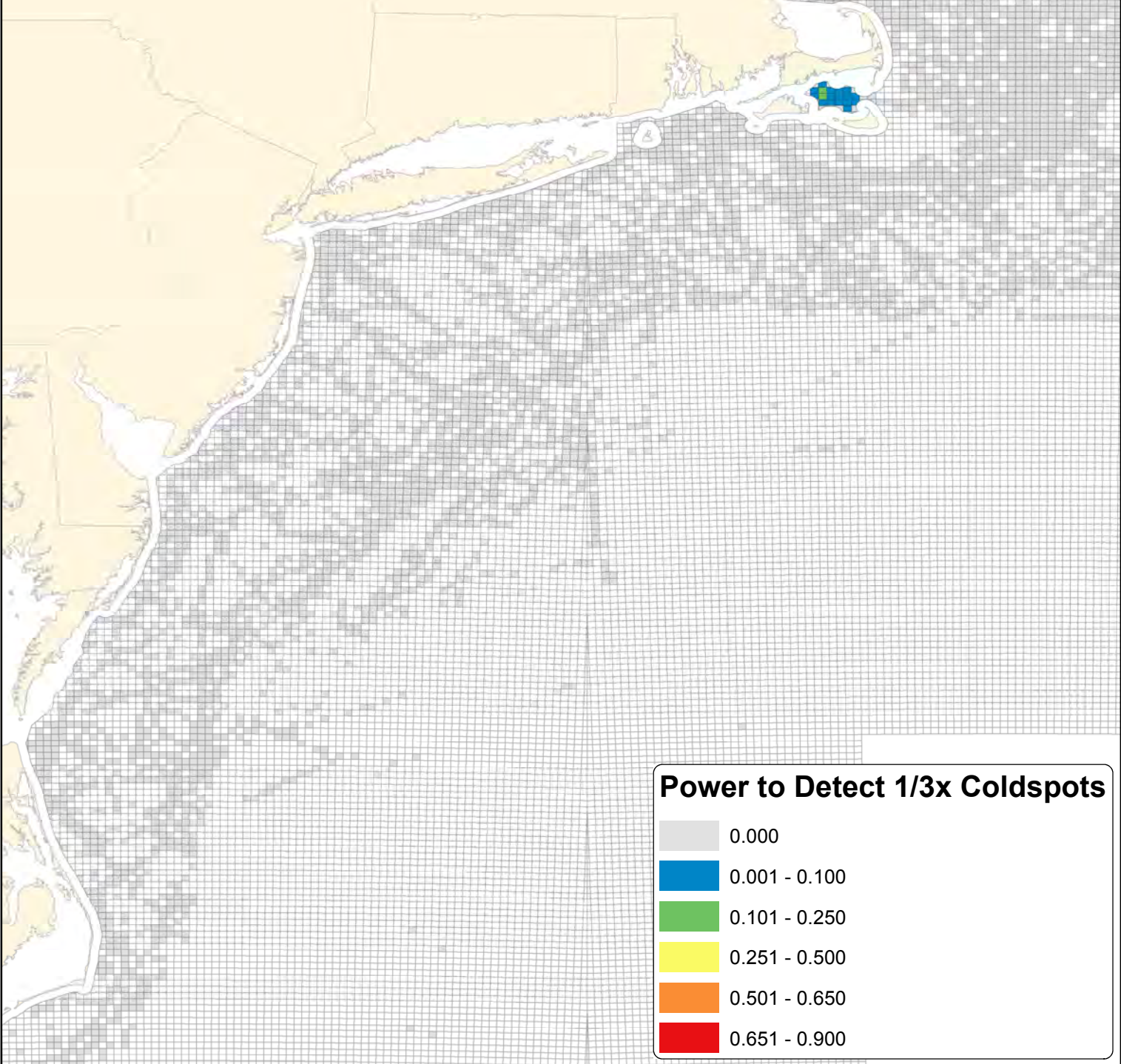
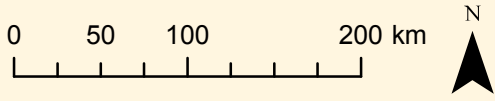
Northern Fulmar (NOFU) - Fall Full Model (Zero & Non-zero Counts)



Power to Detect 3x Hotspots

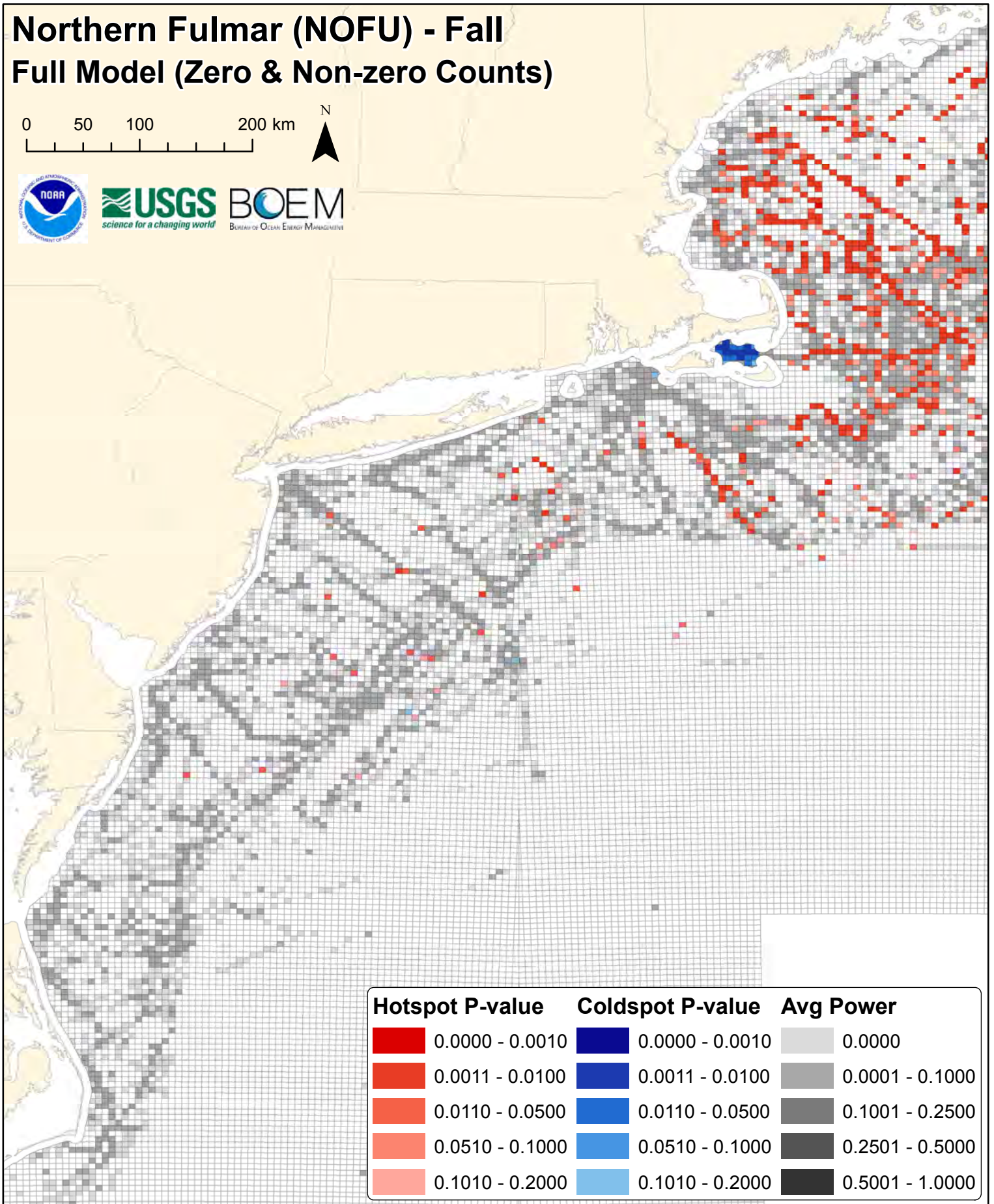
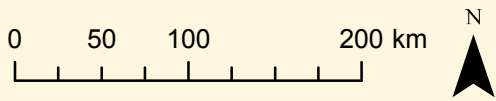

















Northern Fulmar (NOFU) - Fall Full Model (Zero & Non-zero Counts)



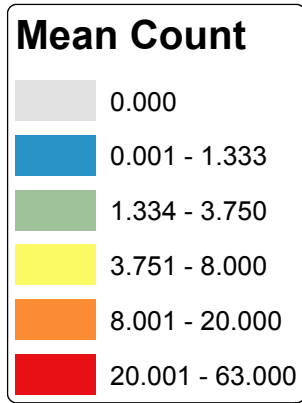
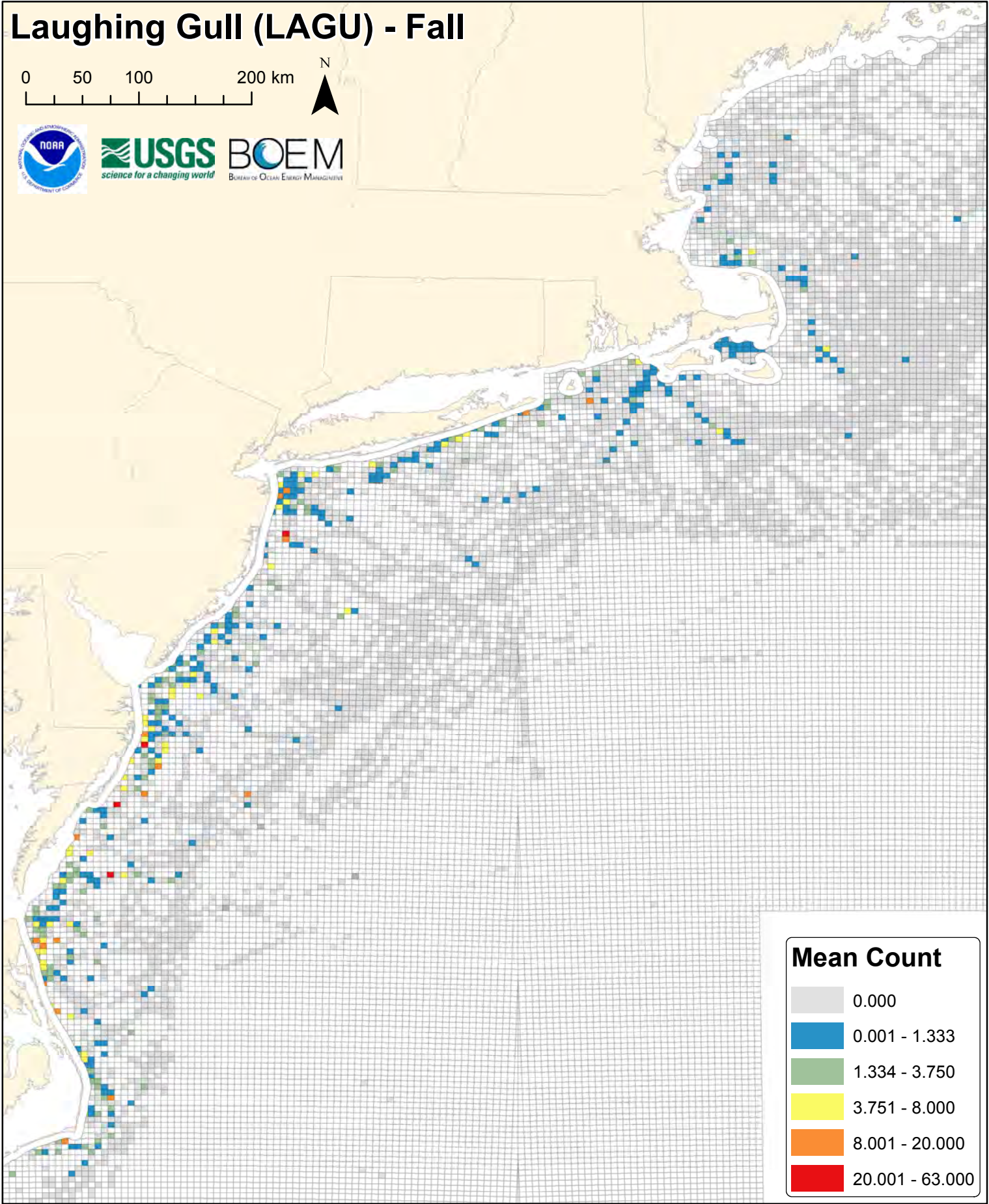
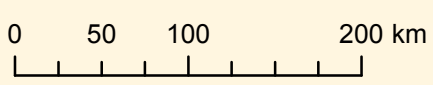
Northern Fulmar (NOFU) - Fall

Full Model (Zero & Non-zero Counts)

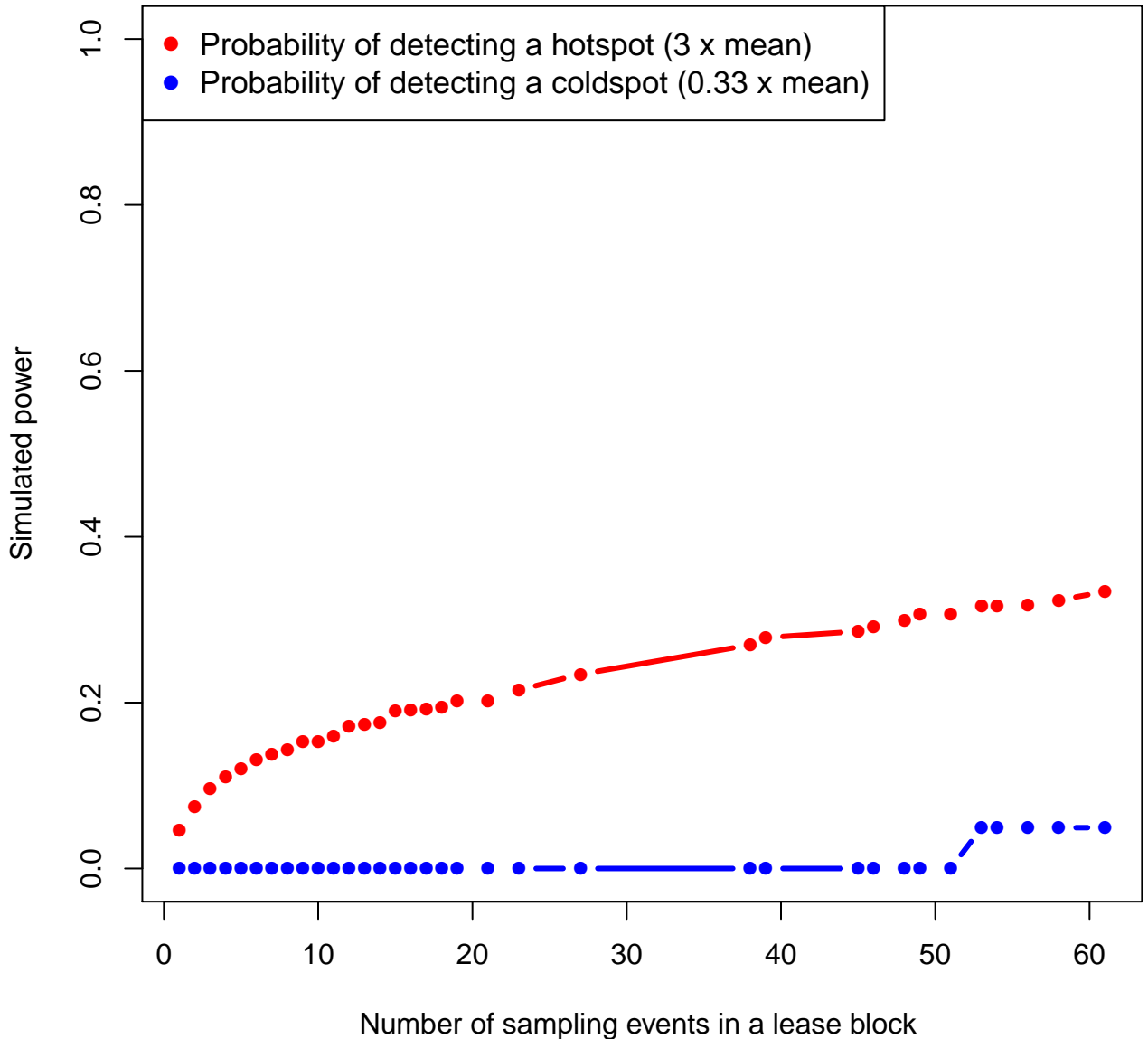


Hotspot P-value	Coldspot P-value	Avg Power
 0.0000 - 0.0010	 0.0000 - 0.0010	 0.0000
 0.0011 - 0.0100	 0.0011 - 0.0100	 0.0001 - 0.1000
 0.0110 - 0.0500	 0.0110 - 0.0500	 0.1001 - 0.2500
 0.0510 - 0.1000	 0.0510 - 0.1000	 0.2501 - 0.5000
 0.1010 - 0.2000	 0.1010 - 0.2000	 0.5001 - 1.0000

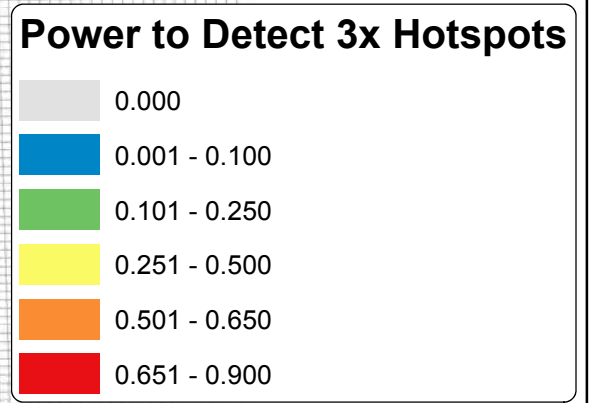
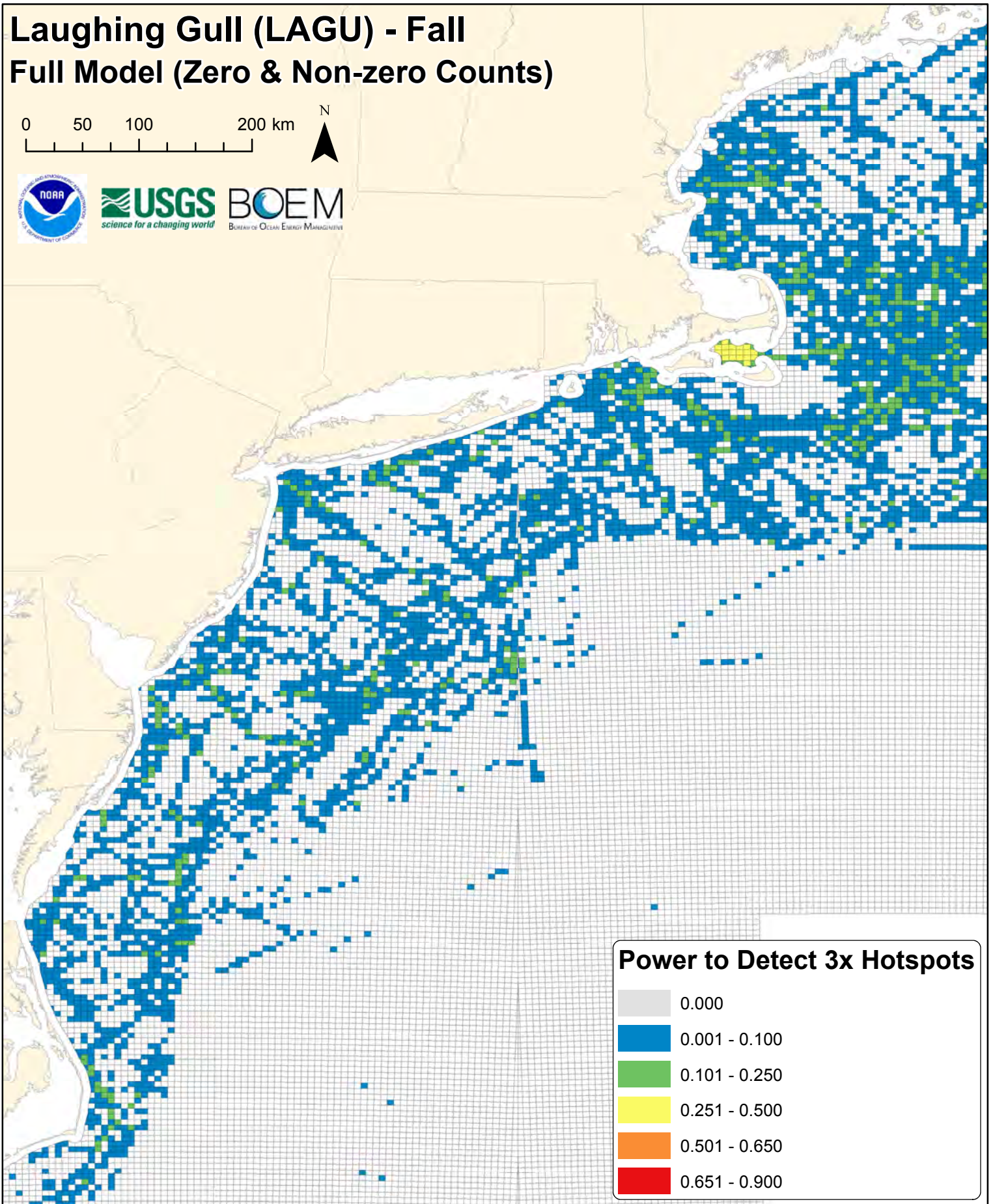
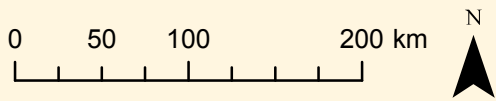
Laughing Gull (LAGU) - Fall



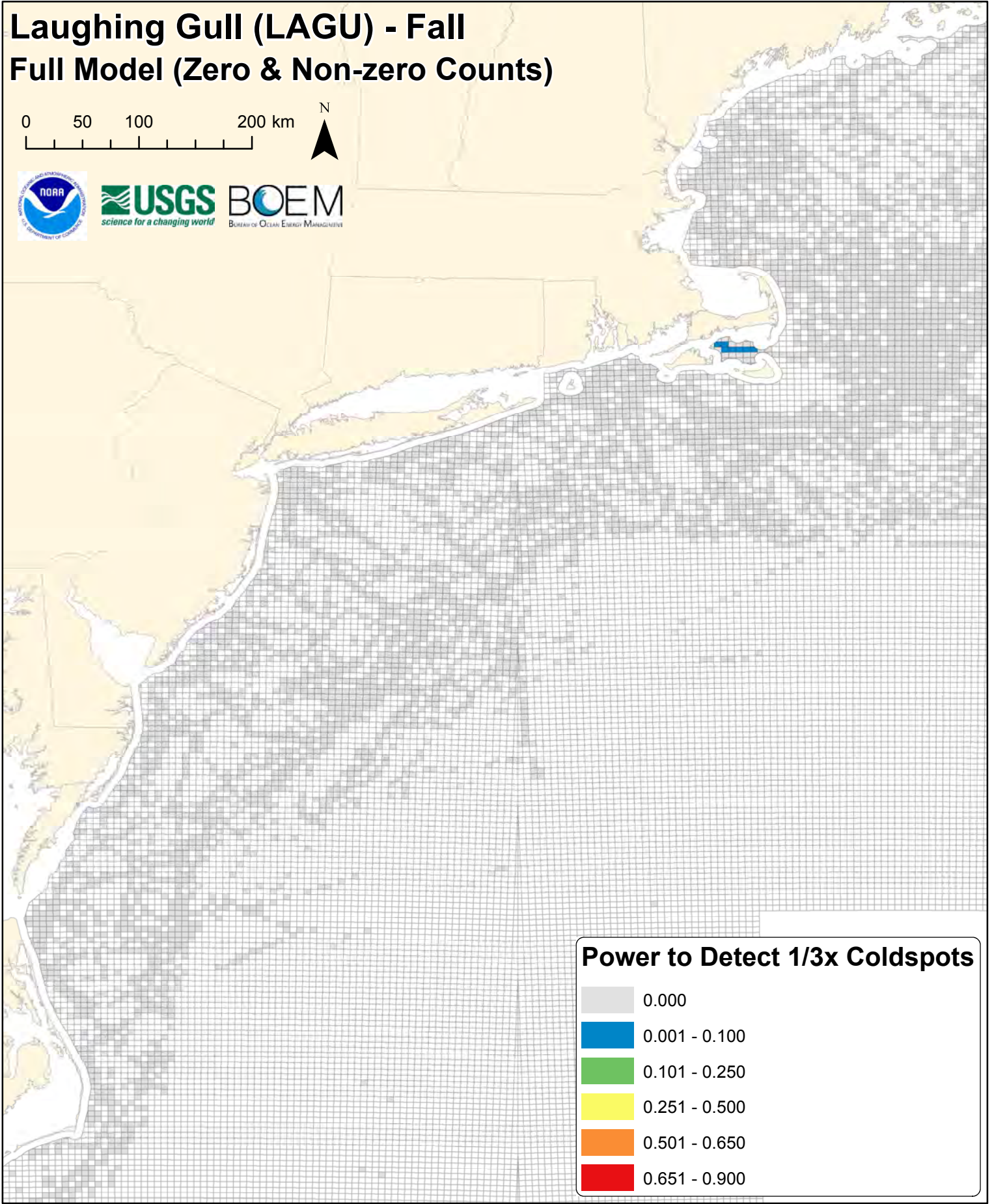
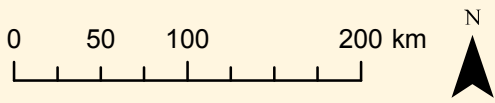
lagu



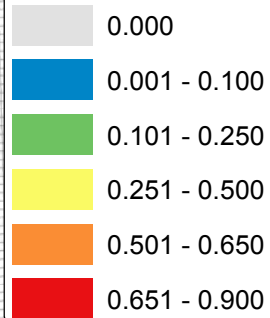
Laughing Gull (LAGU) - Fall Full Model (Zero & Non-zero Counts)



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

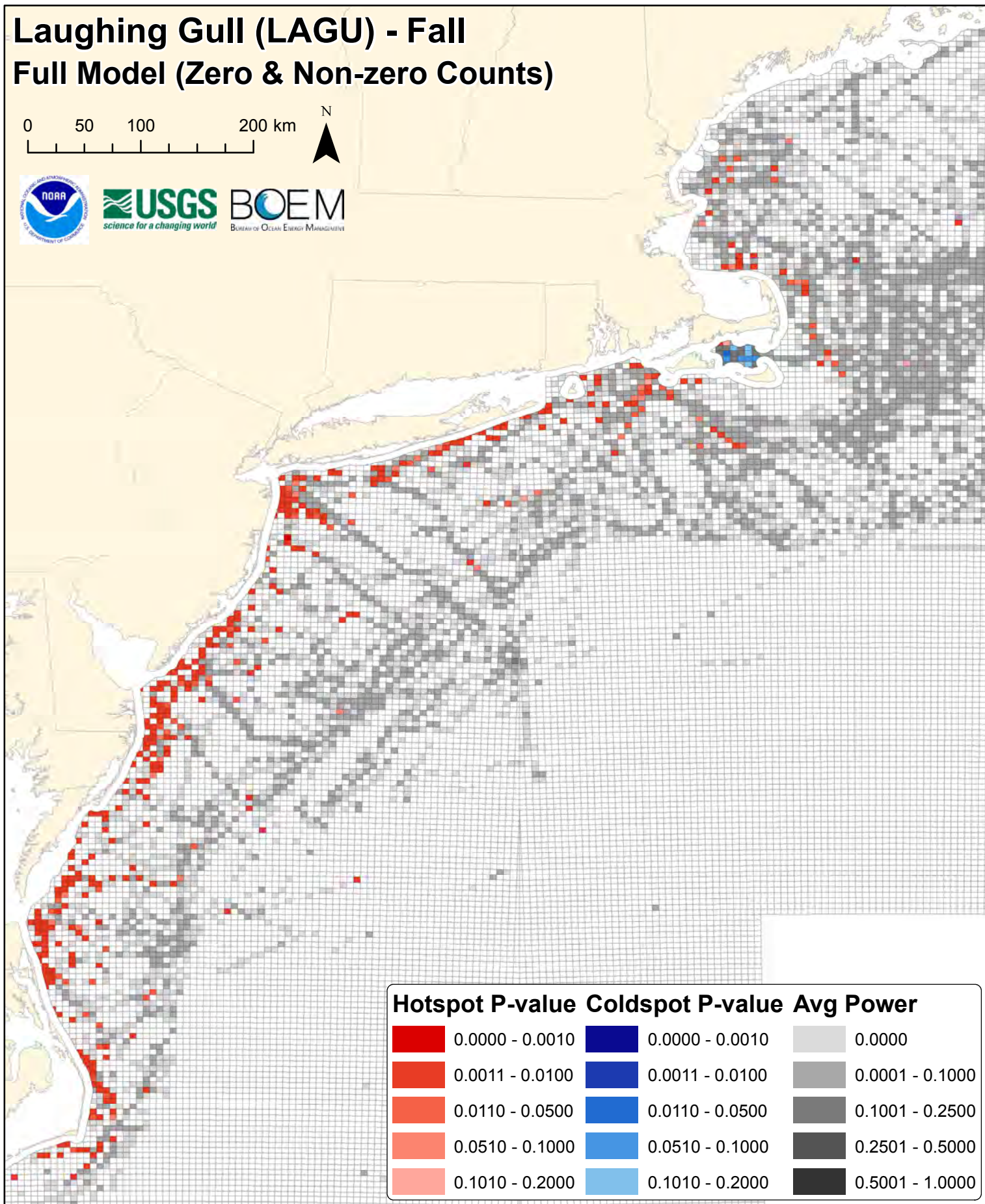
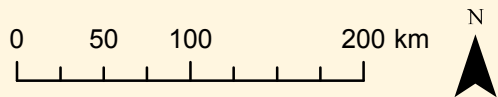

















Power to Detect 1/3x Coldspots



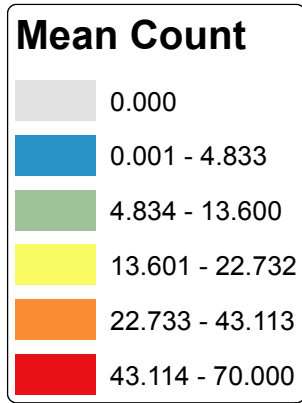
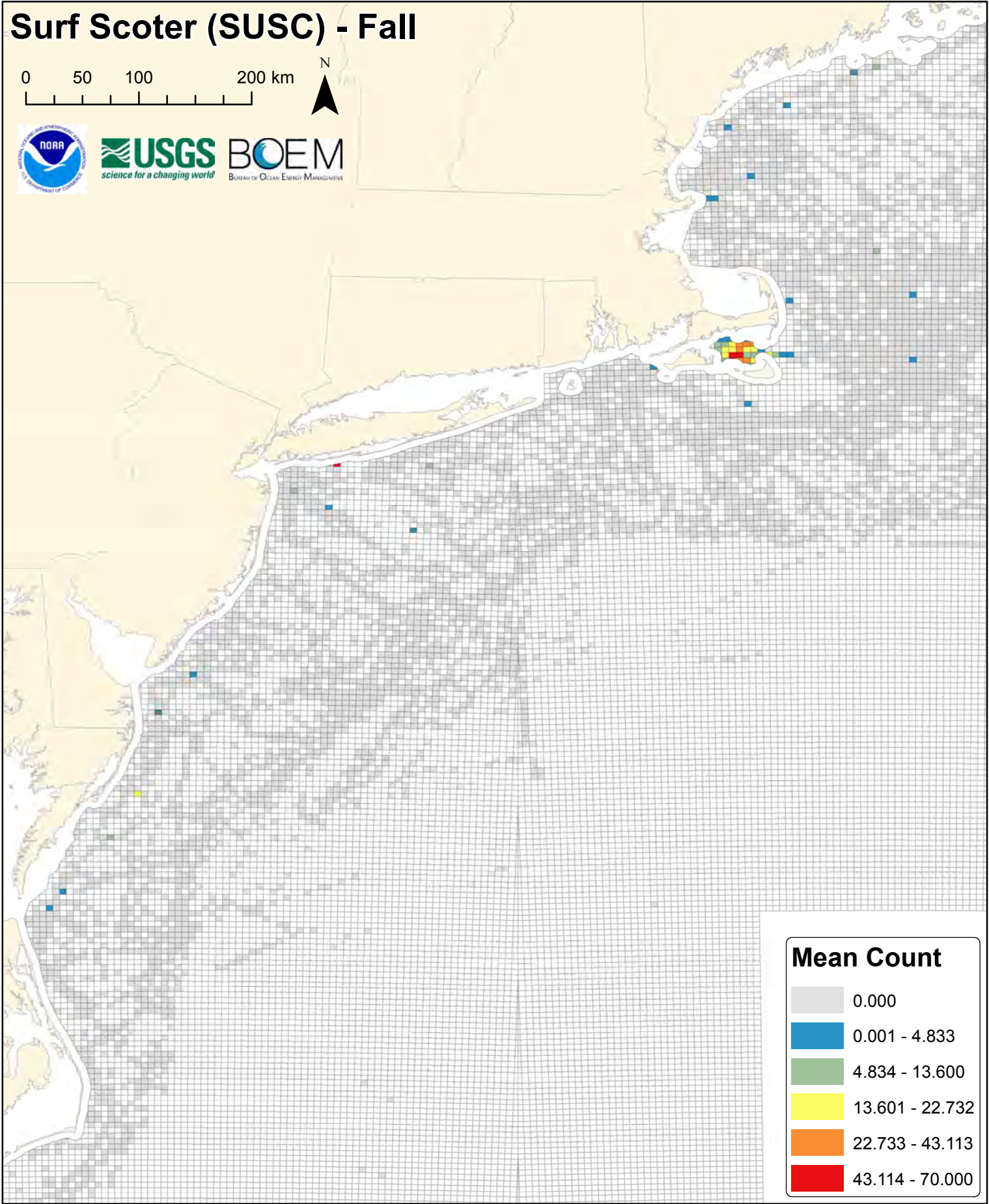
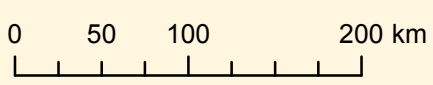
Laughing Gull (LAGU) - Fall

Full Model (Zero & Non-zero Counts)

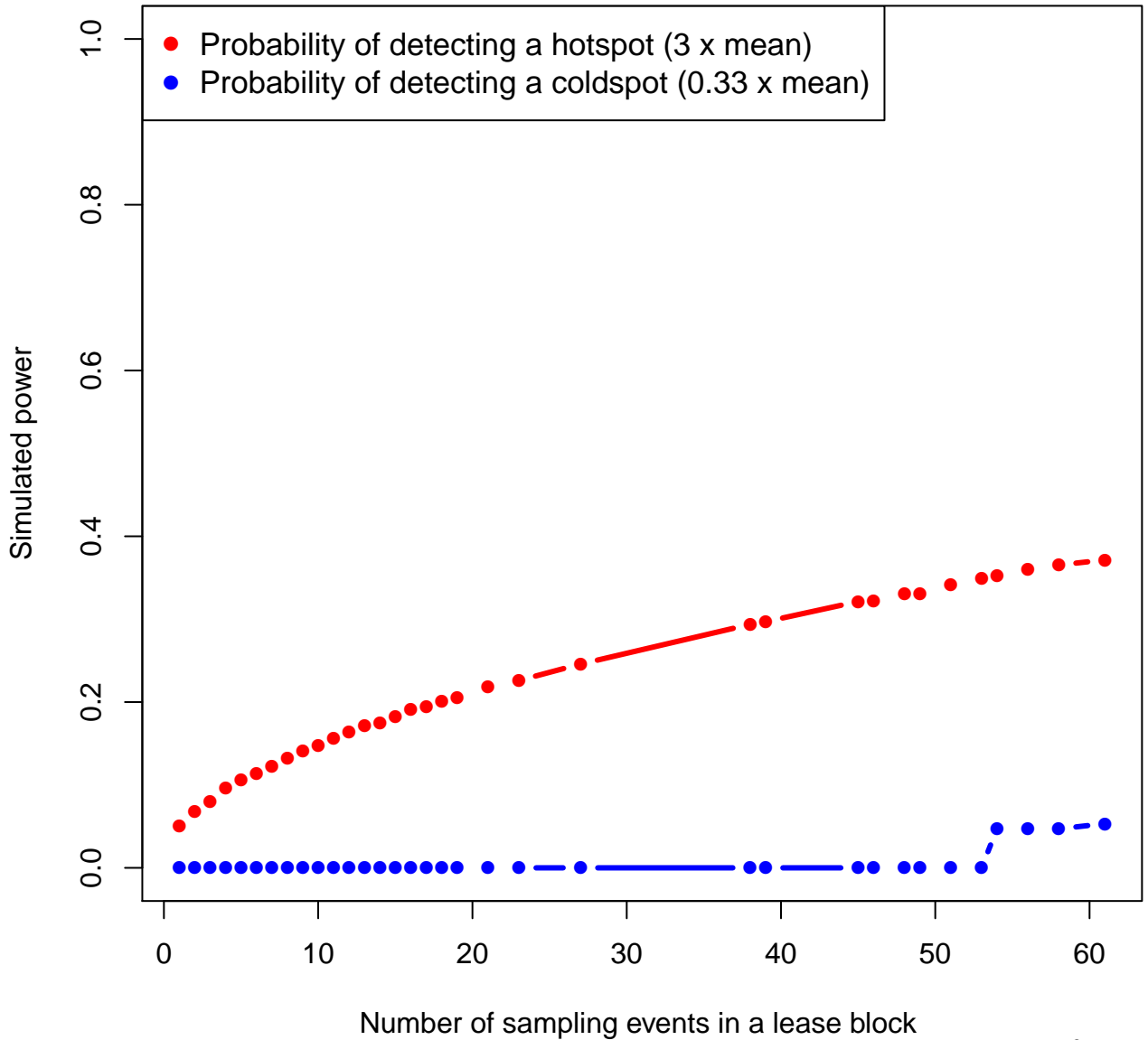


Hotspot P-value	Coldspot P-value	Avg Power
 0.0000 - 0.0010	 0.0000 - 0.0010	 0.0000
 0.0011 - 0.0100	 0.0011 - 0.0100	 0.0001 - 0.1000
 0.0110 - 0.0500	 0.0110 - 0.0500	 0.1001 - 0.2500
 0.0510 - 0.1000	 0.0510 - 0.1000	 0.2501 - 0.5000
 0.1010 - 0.2000	 0.1010 - 0.2000	 0.5001 - 1.0000

Surf Scoter (SUSC) - Fall

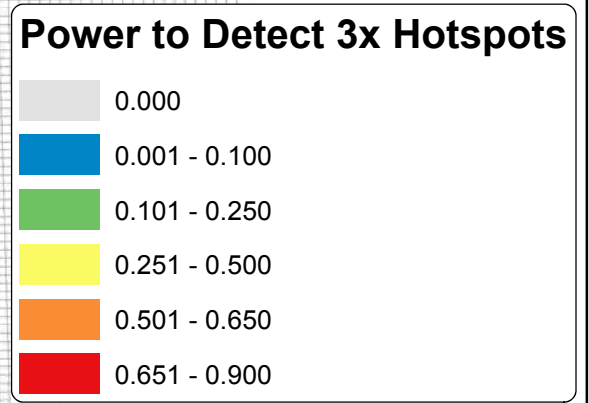
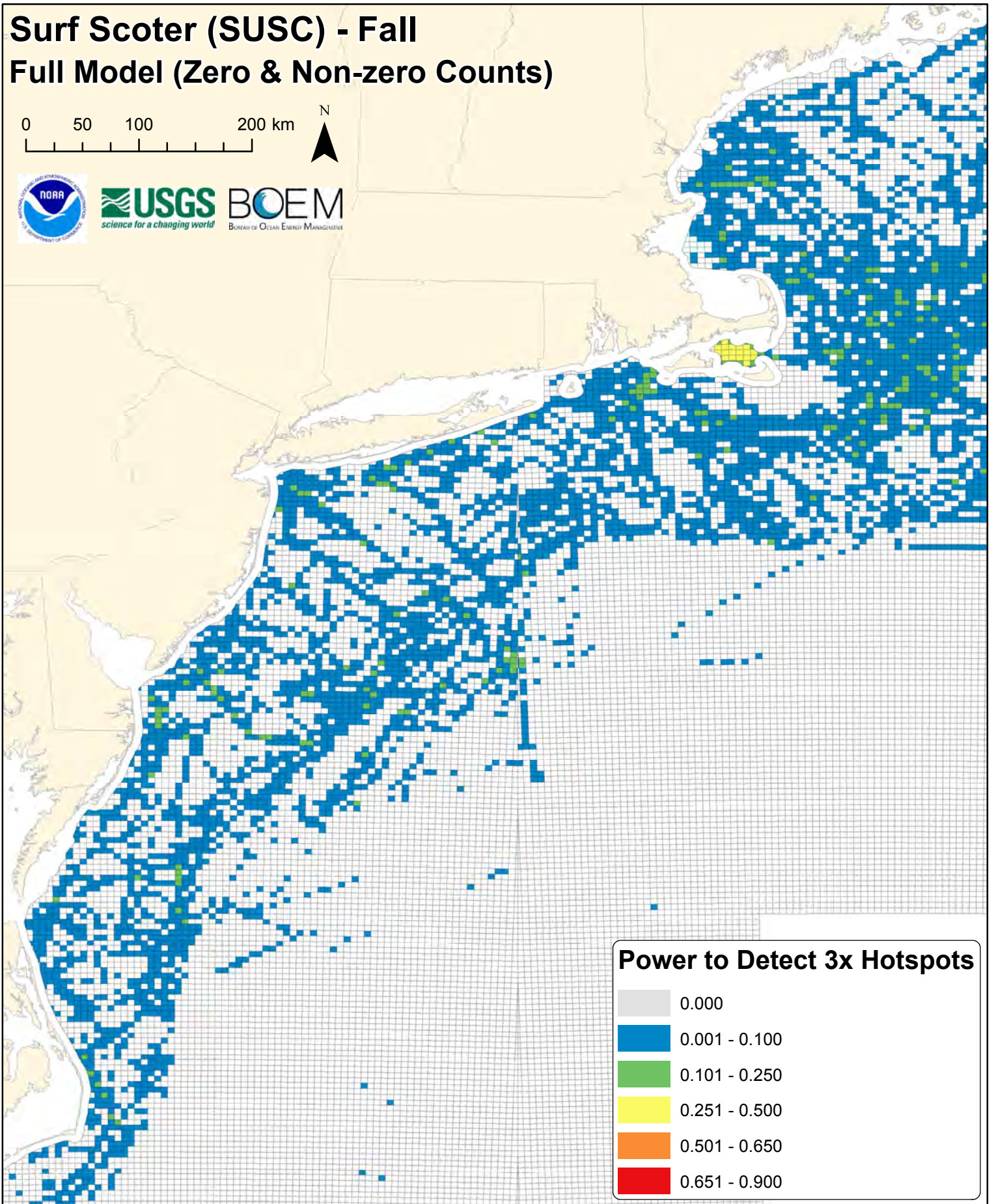
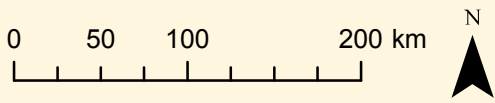


SUSC



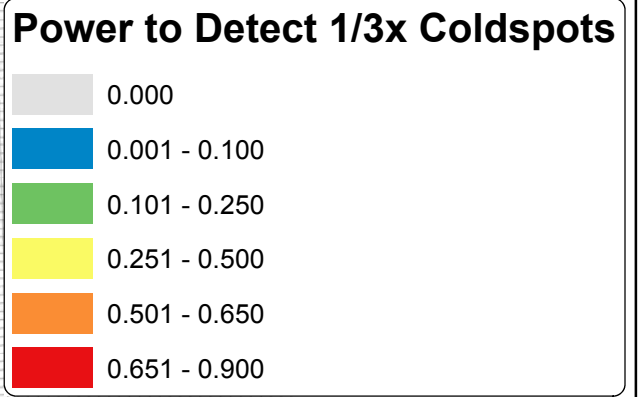
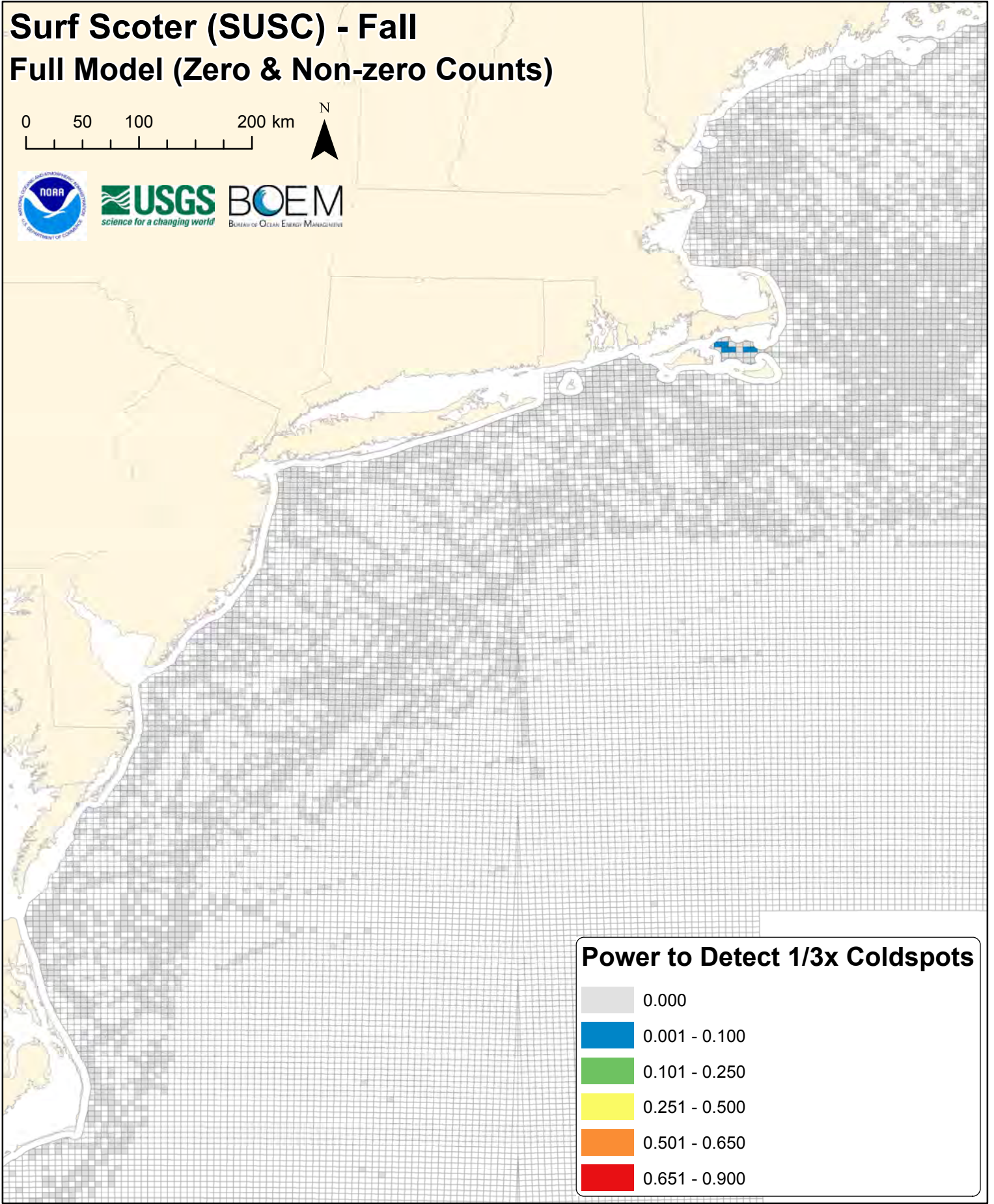
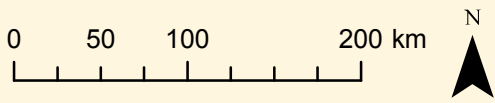
Surf Scoter (SUSC) - Fall

Full Model (Zero & Non-zero Counts)



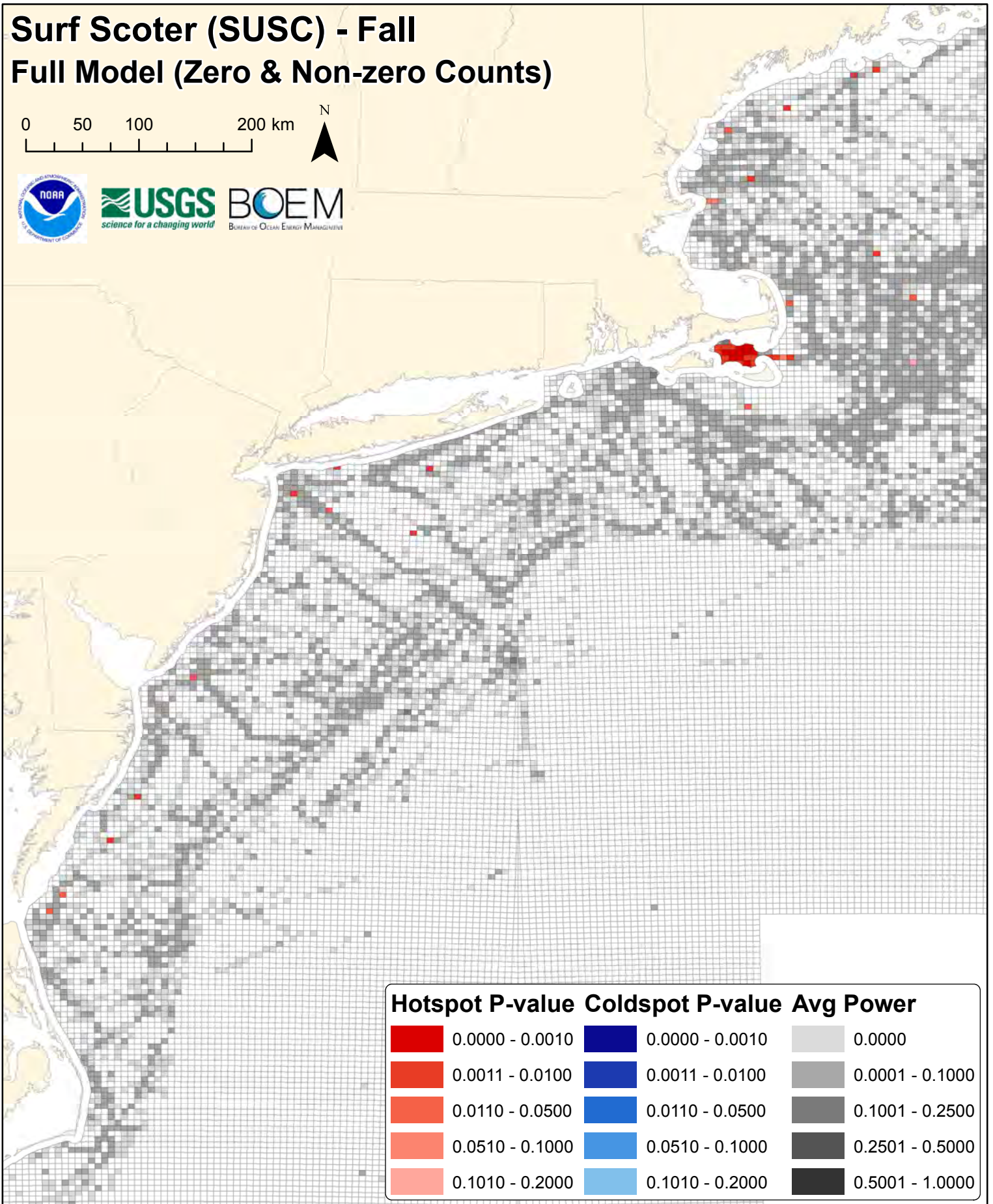
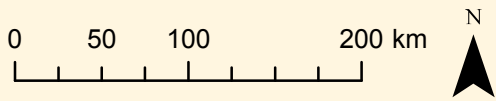
Surf Scoter (SUSC) - Fall

Full Model (Zero & Non-zero Counts)



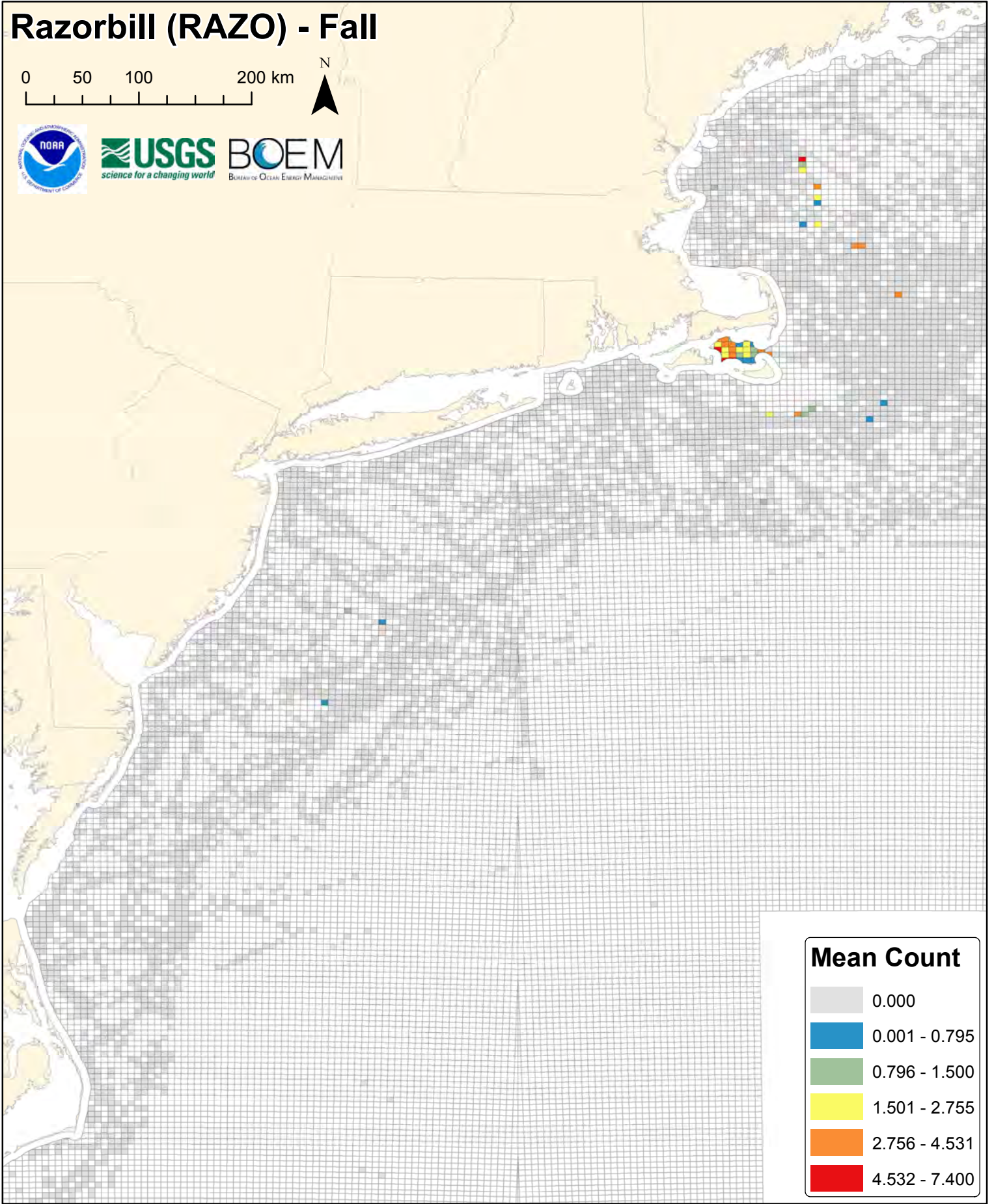
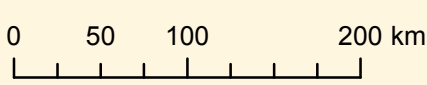
Surf Scoter (SUSC) - Fall

Full Model (Zero & Non-zero Counts)

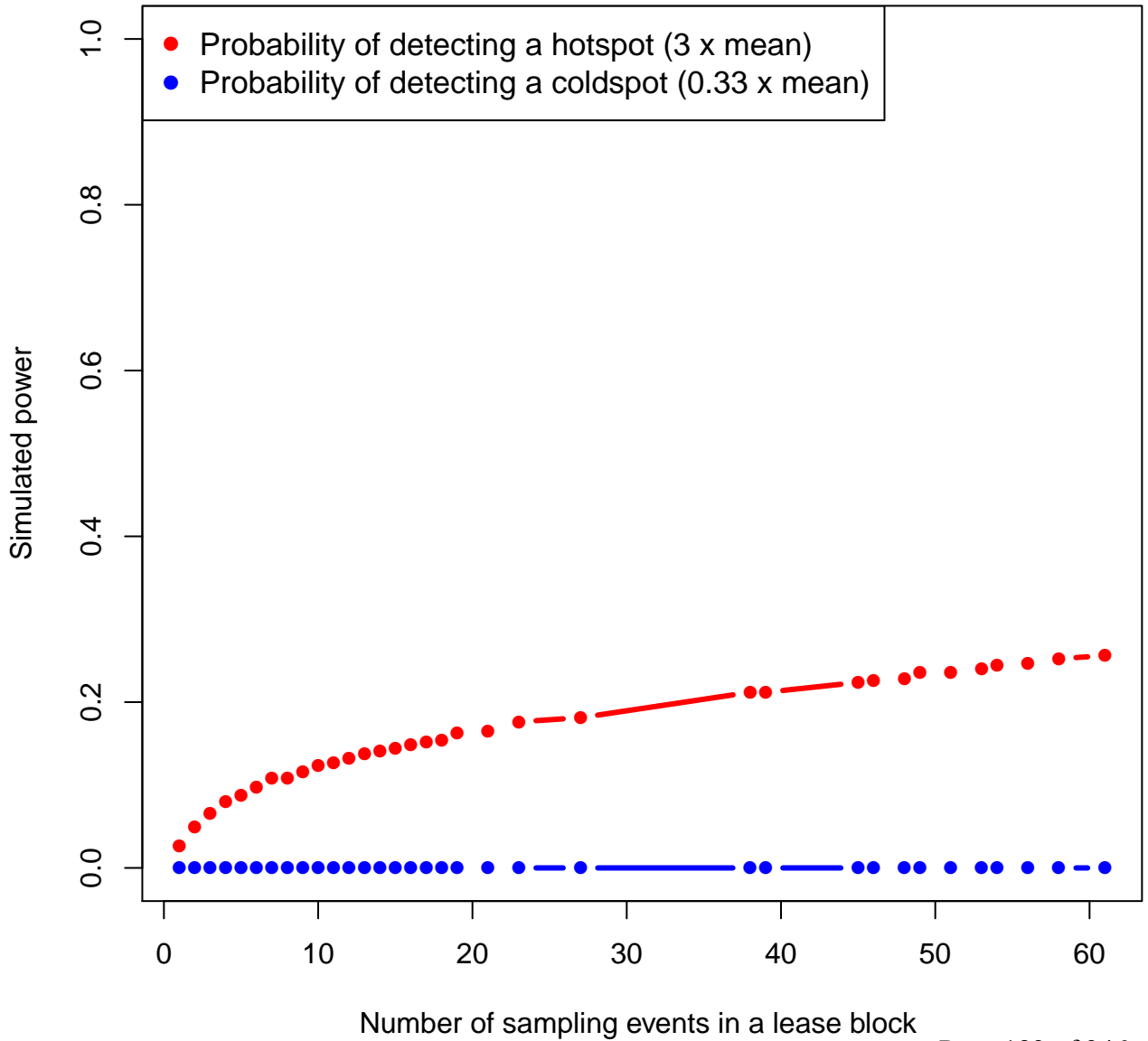


Hotspot P-value	Coldspot P-value	Avg Power
0.0000 - 0.0010	0.0000 - 0.0010	0.0000
0.0011 - 0.0100	0.0011 - 0.0100	0.0001 - 0.1000
0.0110 - 0.0500	0.0110 - 0.0500	0.1001 - 0.2500
0.0510 - 0.1000	0.0510 - 0.1000	0.2501 - 0.5000
0.1010 - 0.2000	0.1010 - 0.2000	0.5001 - 1.0000

Razorbill (RAZO) - Fall

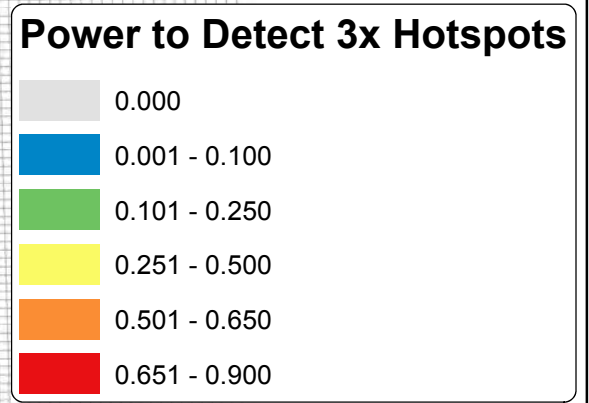
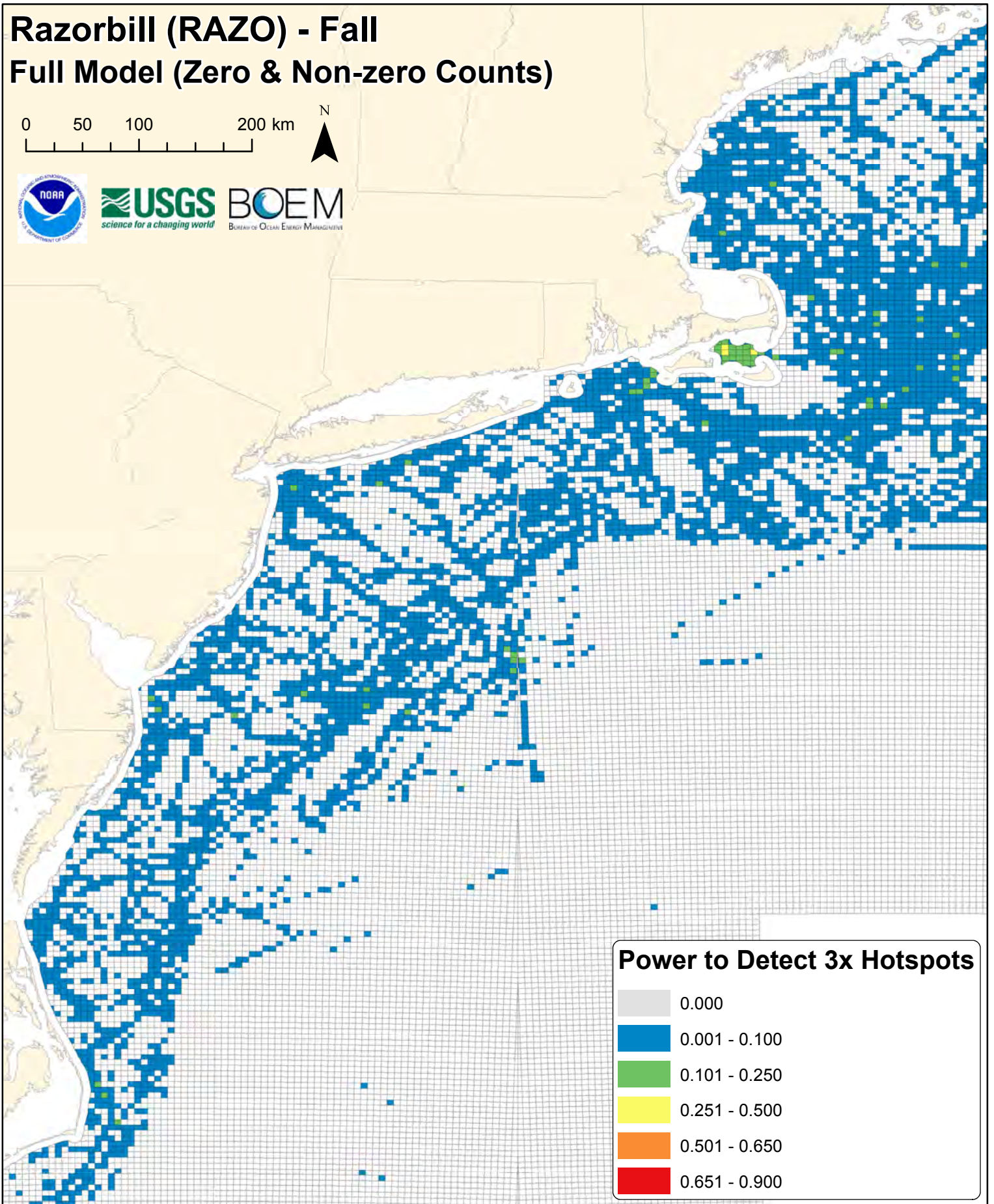
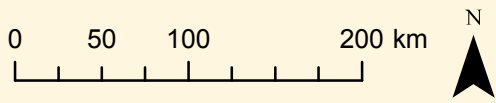


razo



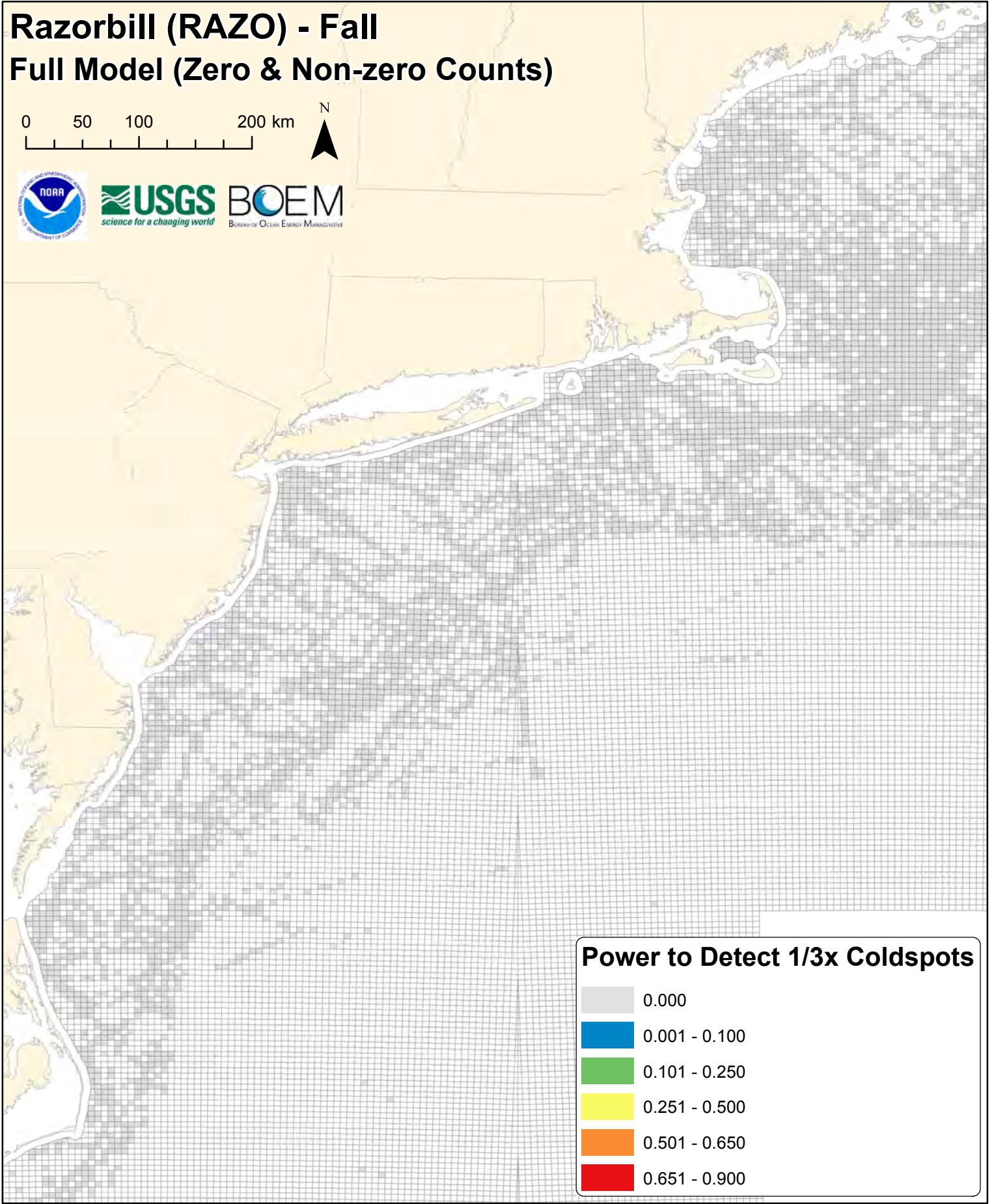
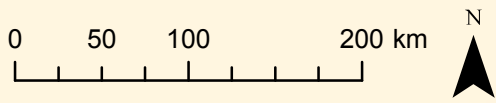
Razorbill (RAZO) - Fall

Full Model (Zero & Non-zero Counts)

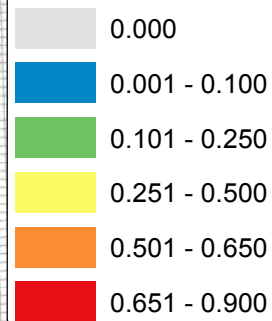


Razorbill (RAZO) - Fall

Full Model (Zero & Non-zero Counts)

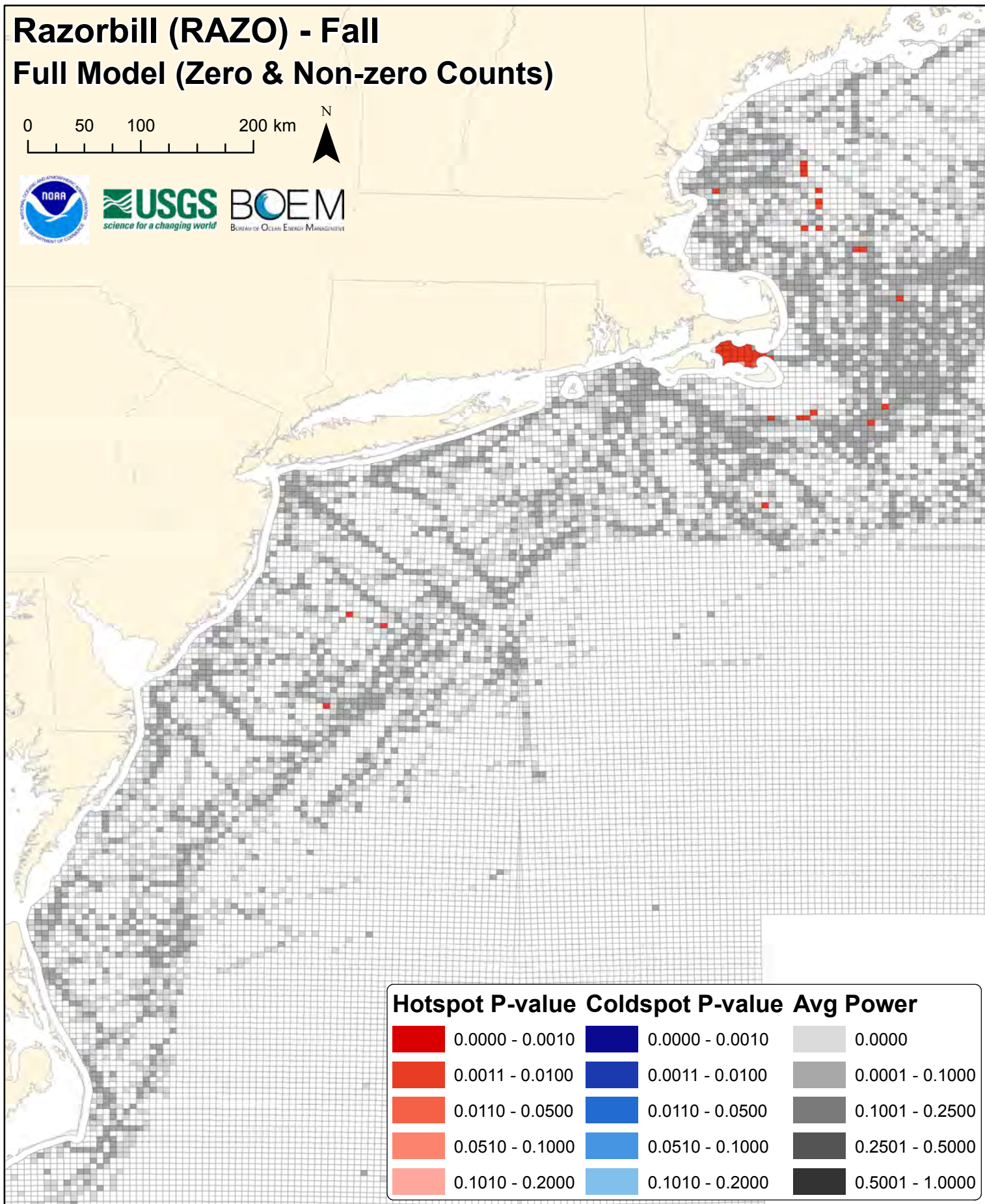

















Power to Detect 1/3x Coldspots



Razorbill (RAZO) - Fall

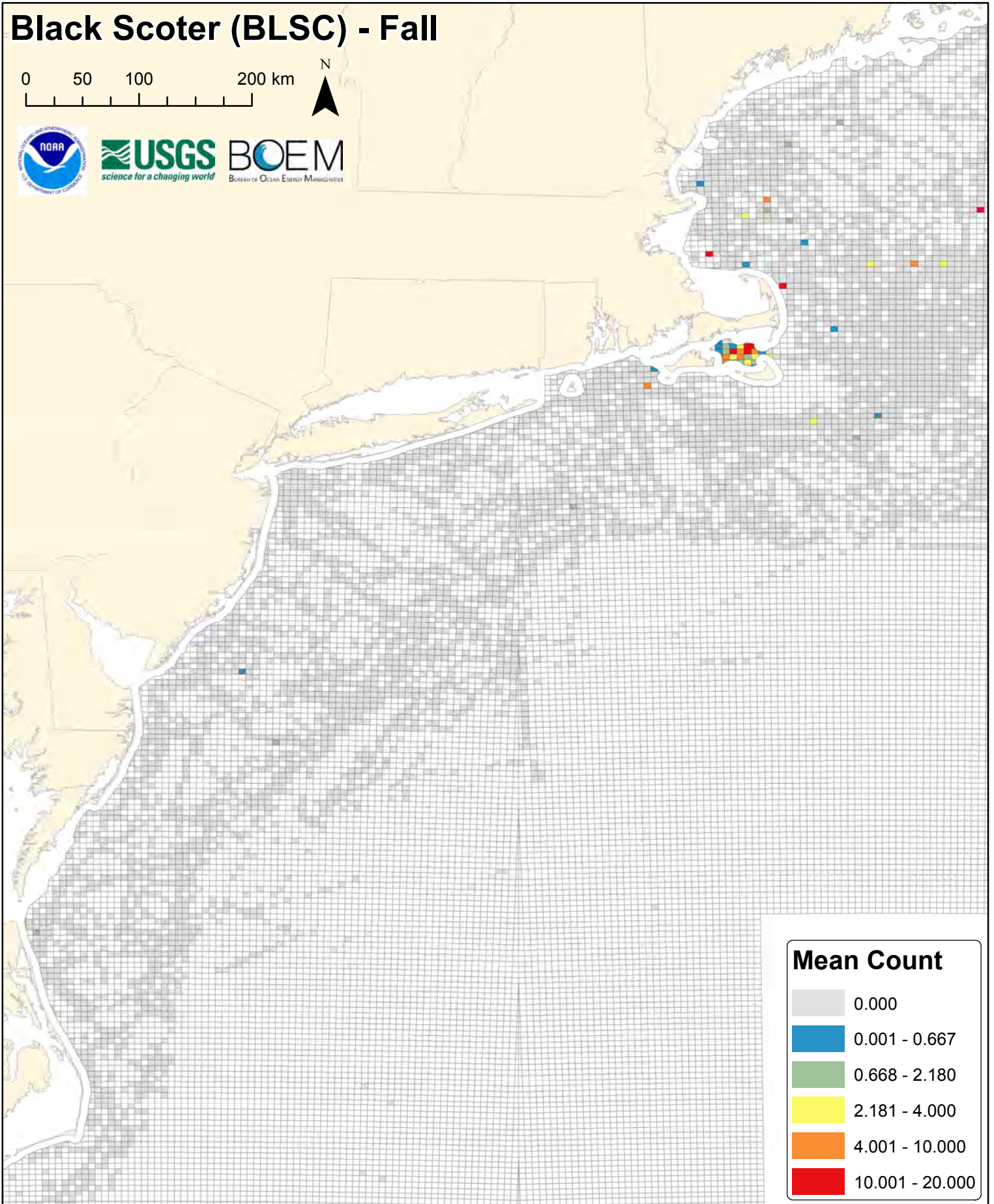
Full Model (Zero & Non-zero Counts)



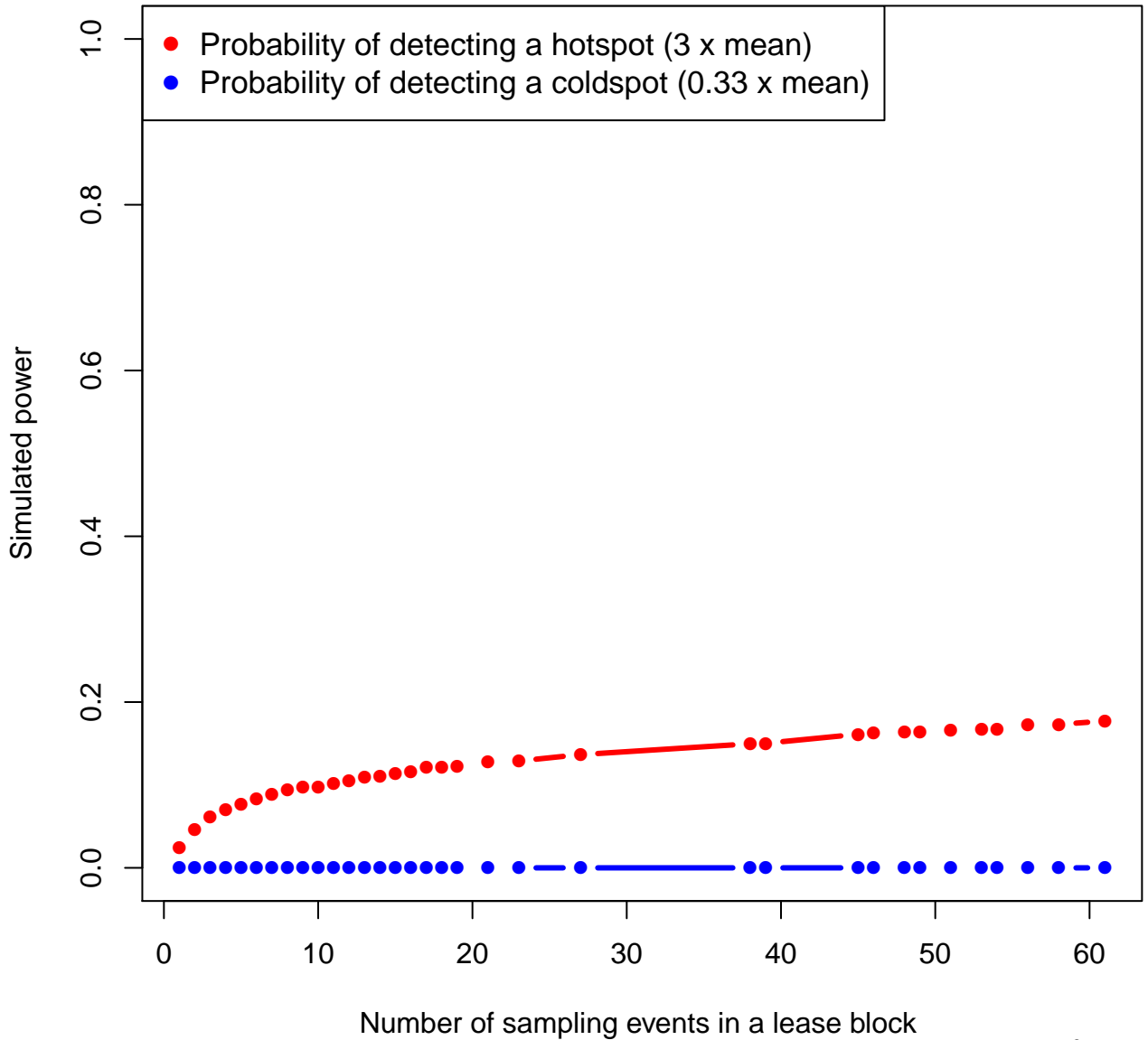
Hotspot P-value	Coldspot P-value	Avg Power
 0.0000 - 0.0010	 0.0000 - 0.0010	 0.0000
 0.0011 - 0.0100	 0.0011 - 0.0100	 0.0001 - 0.1000
 0.0110 - 0.0500	 0.0110 - 0.0500	 0.1001 - 0.2500
 0.0510 - 0.1000	 0.0510 - 0.1000	 0.2501 - 0.5000
 0.1010 - 0.2000	 0.1010 - 0.2000	 0.5001 - 1.0000

Black Scoter (BLSC) - Fall

0 50 100 200 km

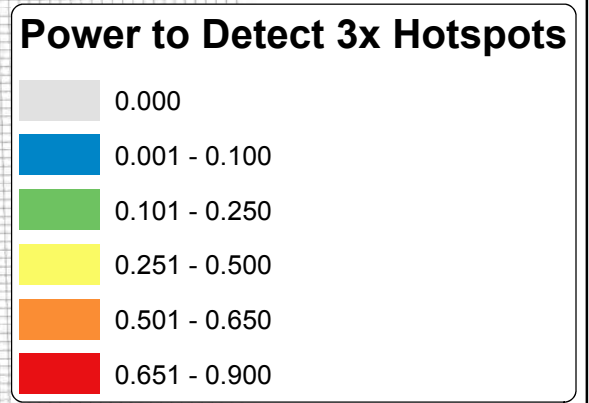
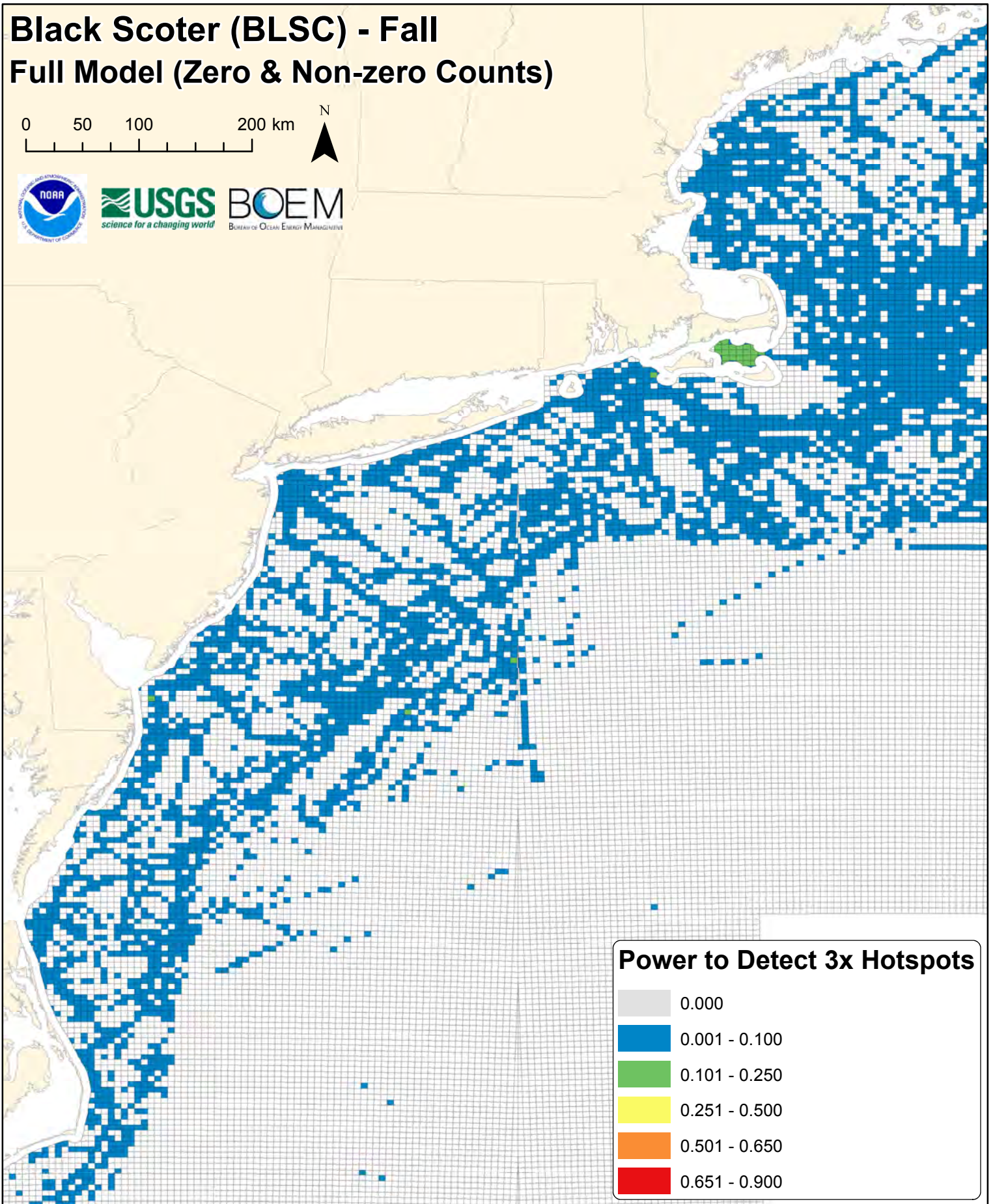
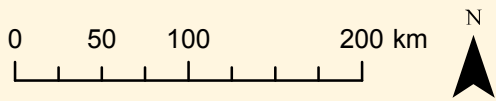


blsc



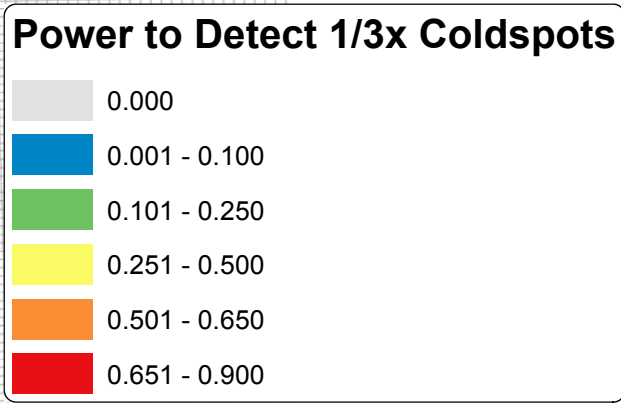
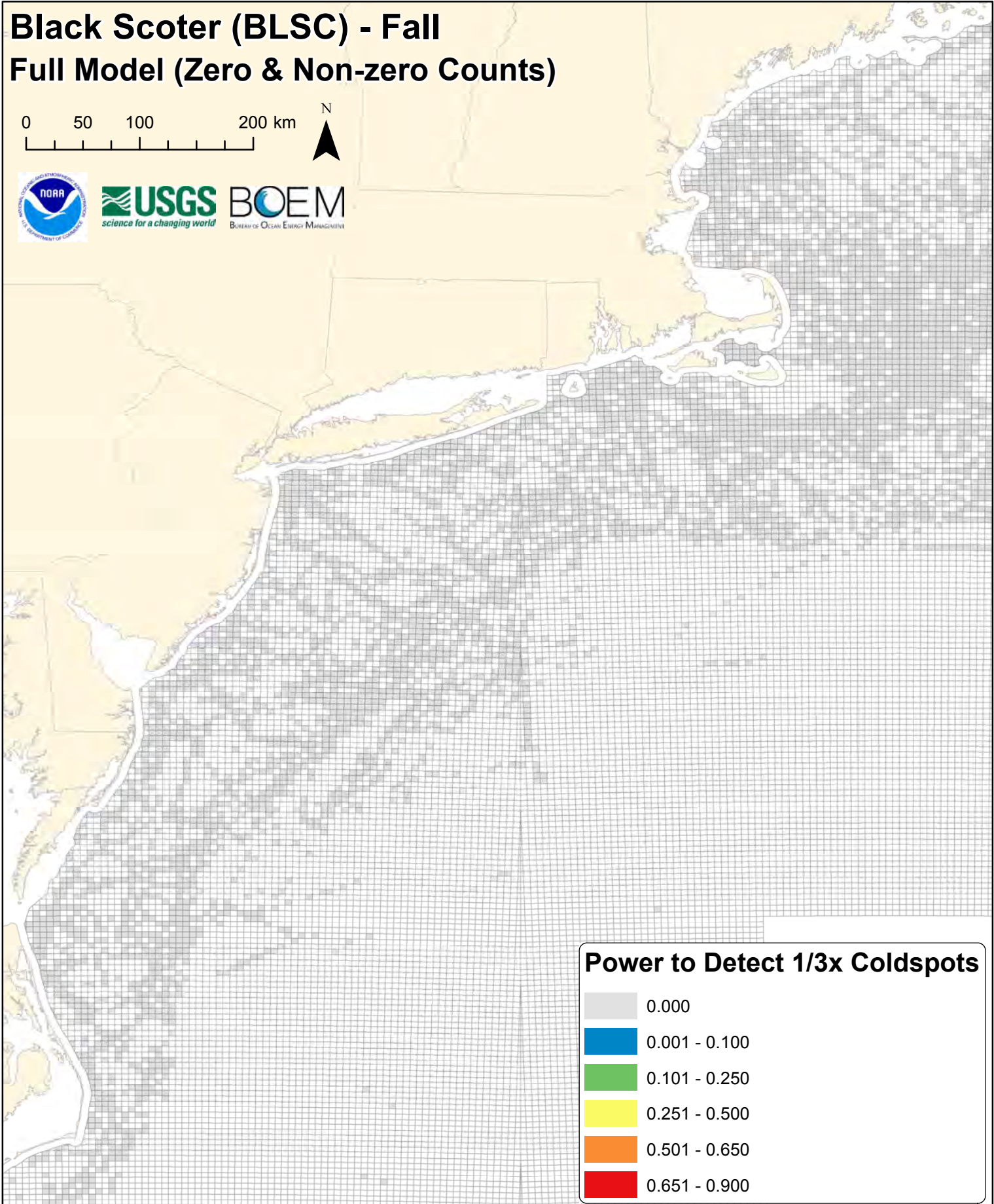
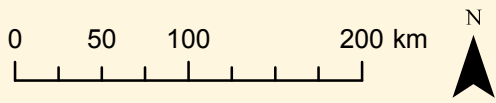
Black Scoter (BLSC) - Fall

Full Model (Zero & Non-zero Counts)



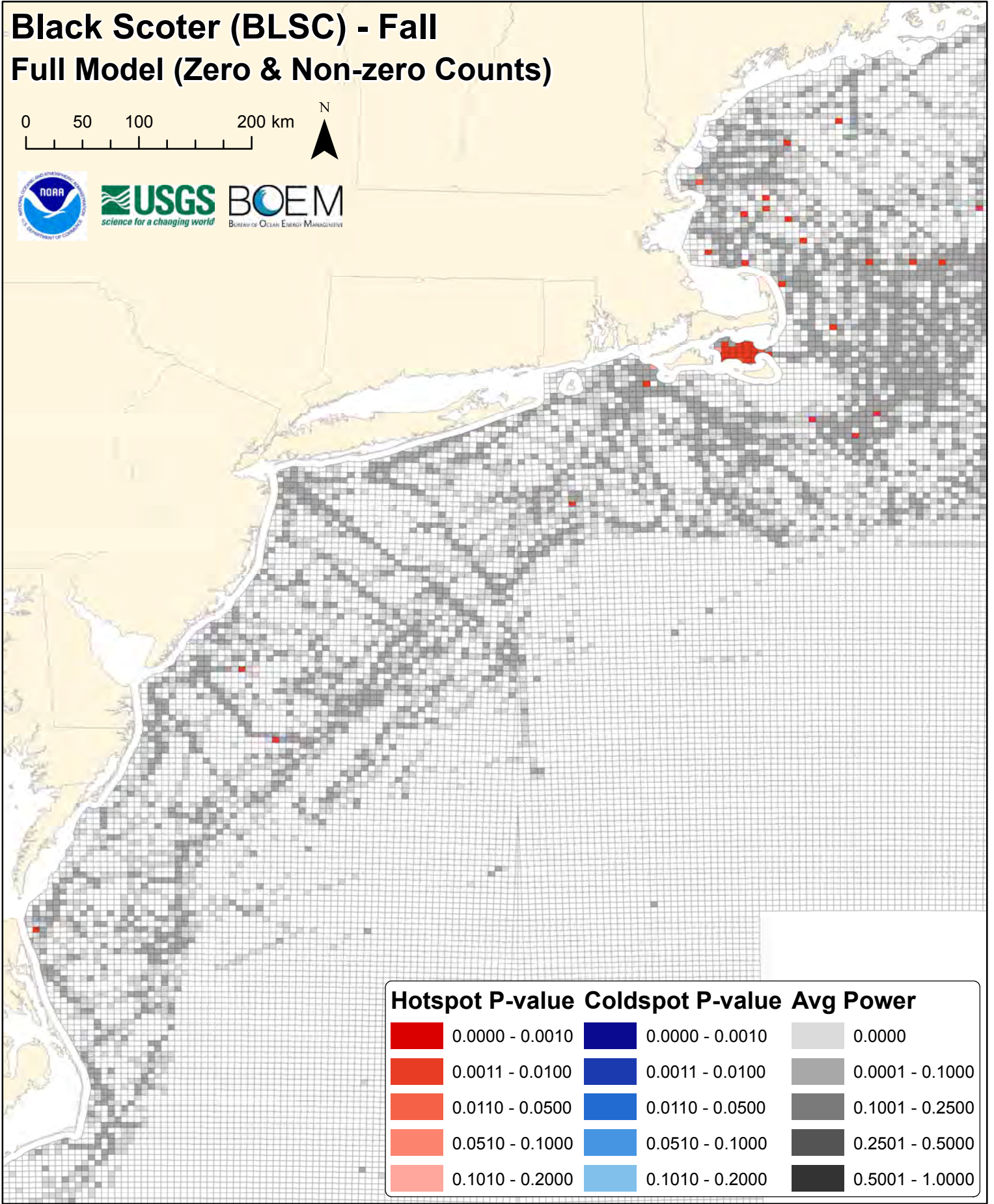
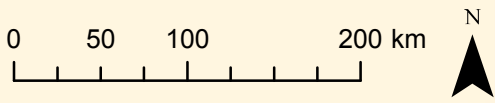
Black Scoter (BLSC) - Fall
















Full Model (Zero & Non-zero Counts)



Black Scoter (BLSC) - Fall

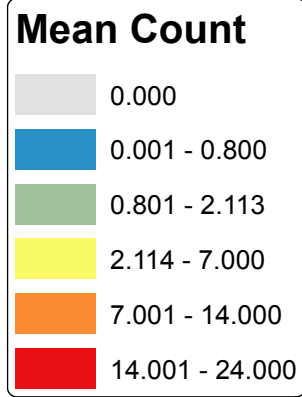
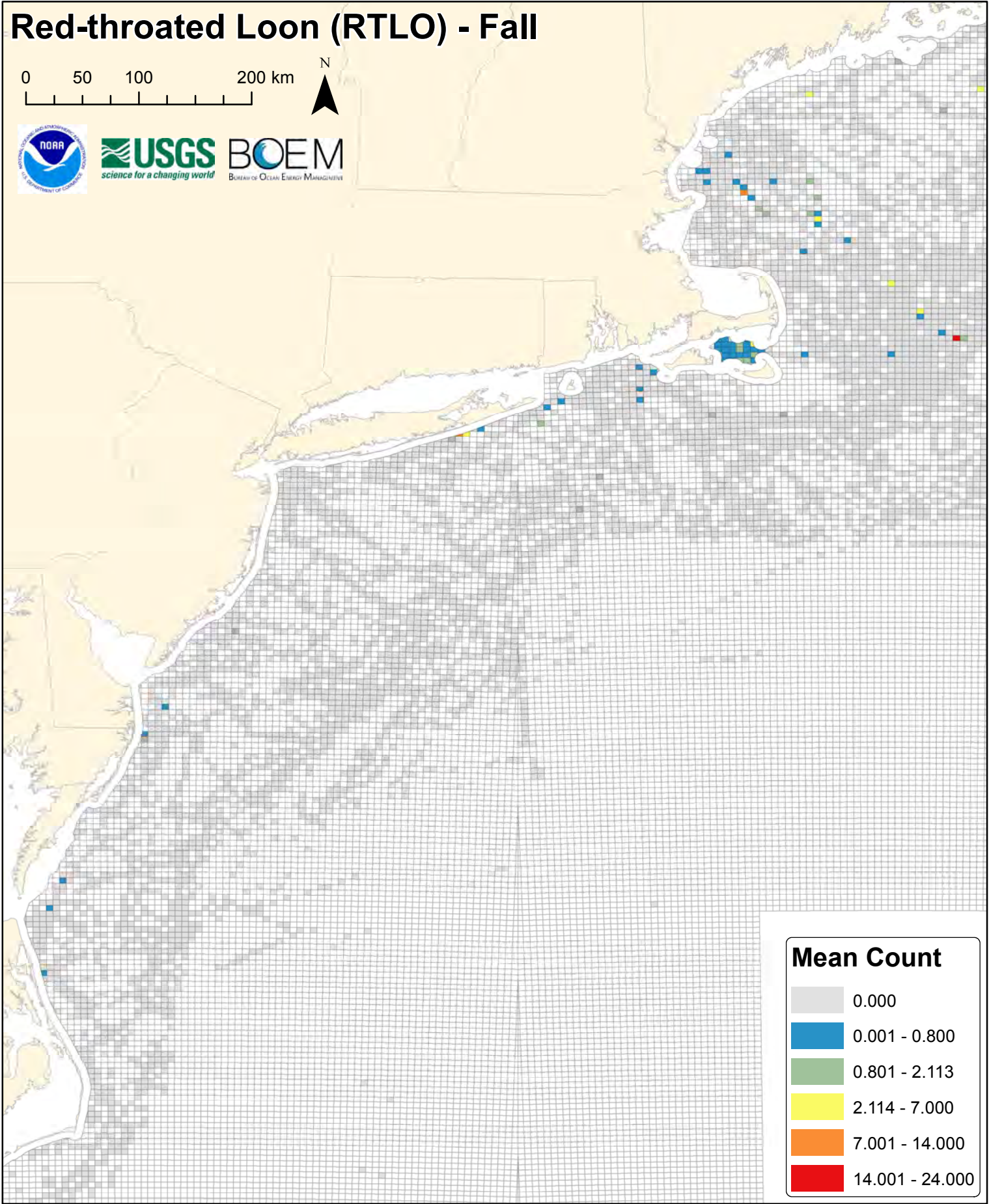
Full Model (Zero & Non-zero Counts)



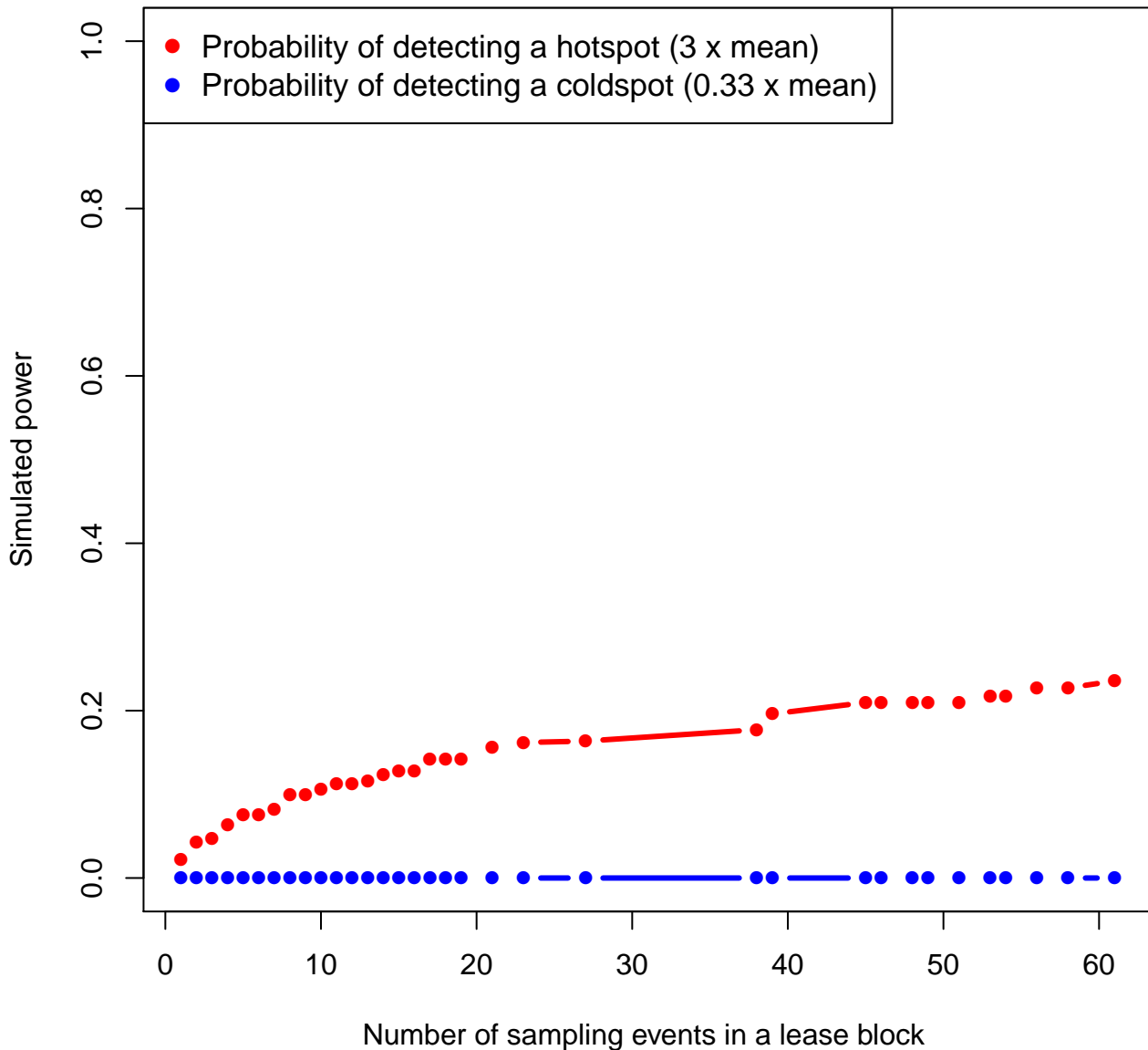
Hotspot P-value	Coldspot P-value	Avg Power
 0.0000 - 0.0010	 0.0000 - 0.0010	 0.0000
 0.0011 - 0.0100	 0.0011 - 0.0100	 0.0001 - 0.1000
 0.0110 - 0.0500	 0.0110 - 0.0500	 0.1001 - 0.2500
 0.0510 - 0.1000	 0.0510 - 0.1000	 0.2501 - 0.5000
 0.1010 - 0.2000	 0.1010 - 0.2000	 0.5001 - 1.0000

Red-throated Loon (RTLO) - Fall

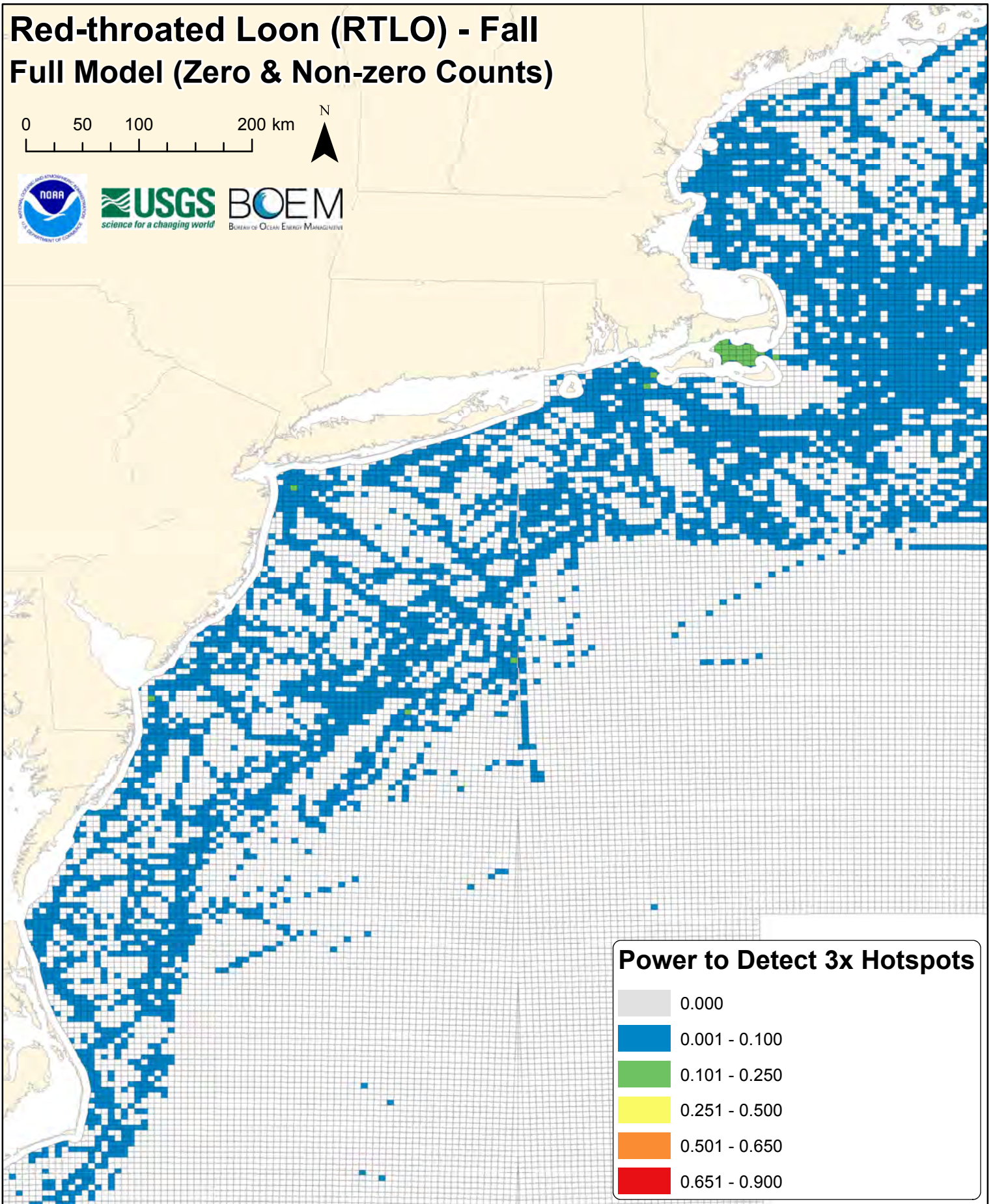
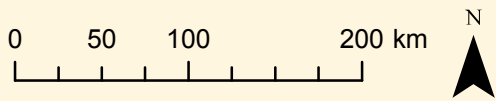
0 50 100 200 km



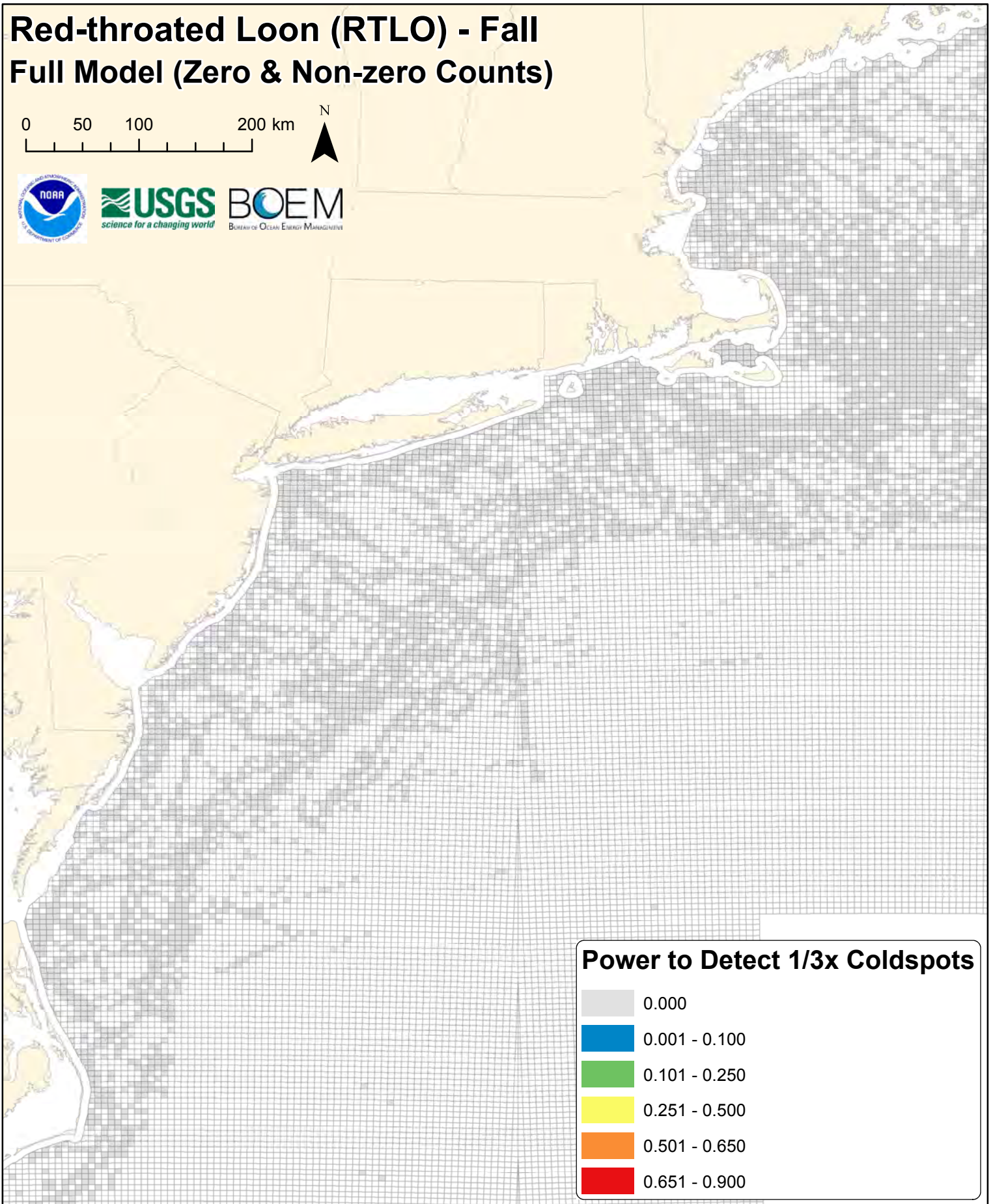
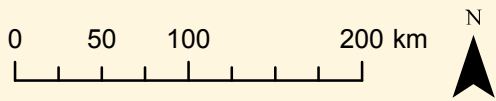
rtlo



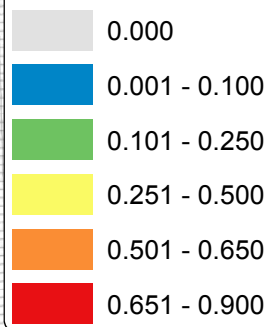
Red-throated Loon (RTLO) - Fall Full Model (Zero & Non-zero Counts)



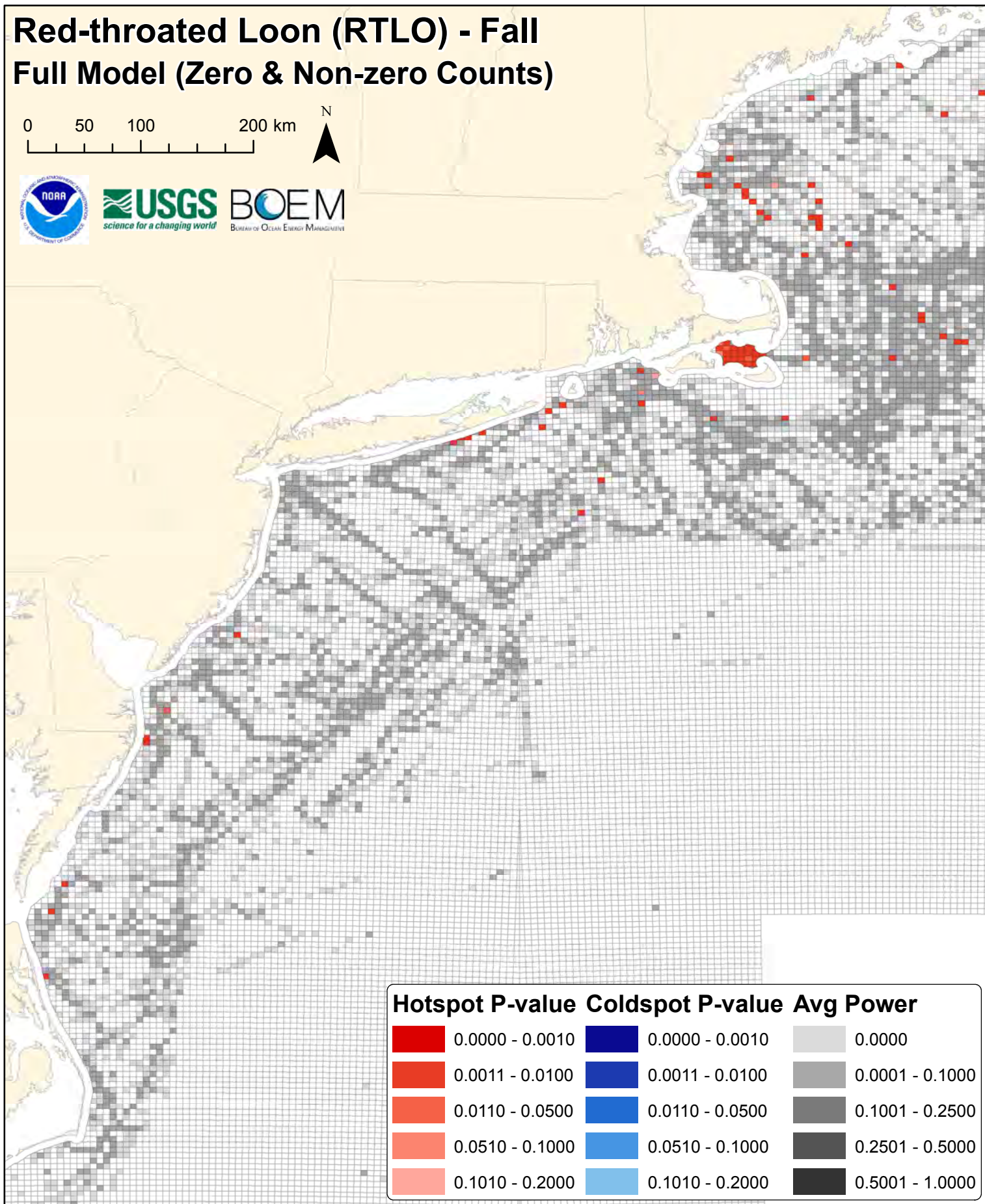
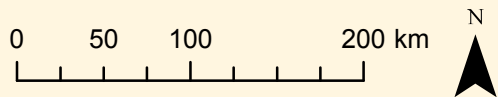
Red-throated Loon (RTLO) - Fall Full Model (Zero & Non-zero Counts)


















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

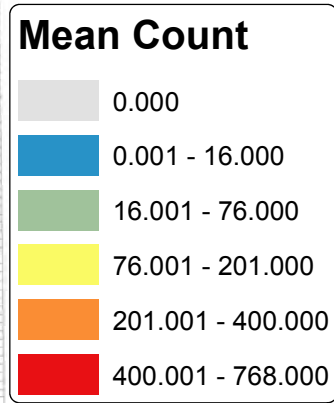
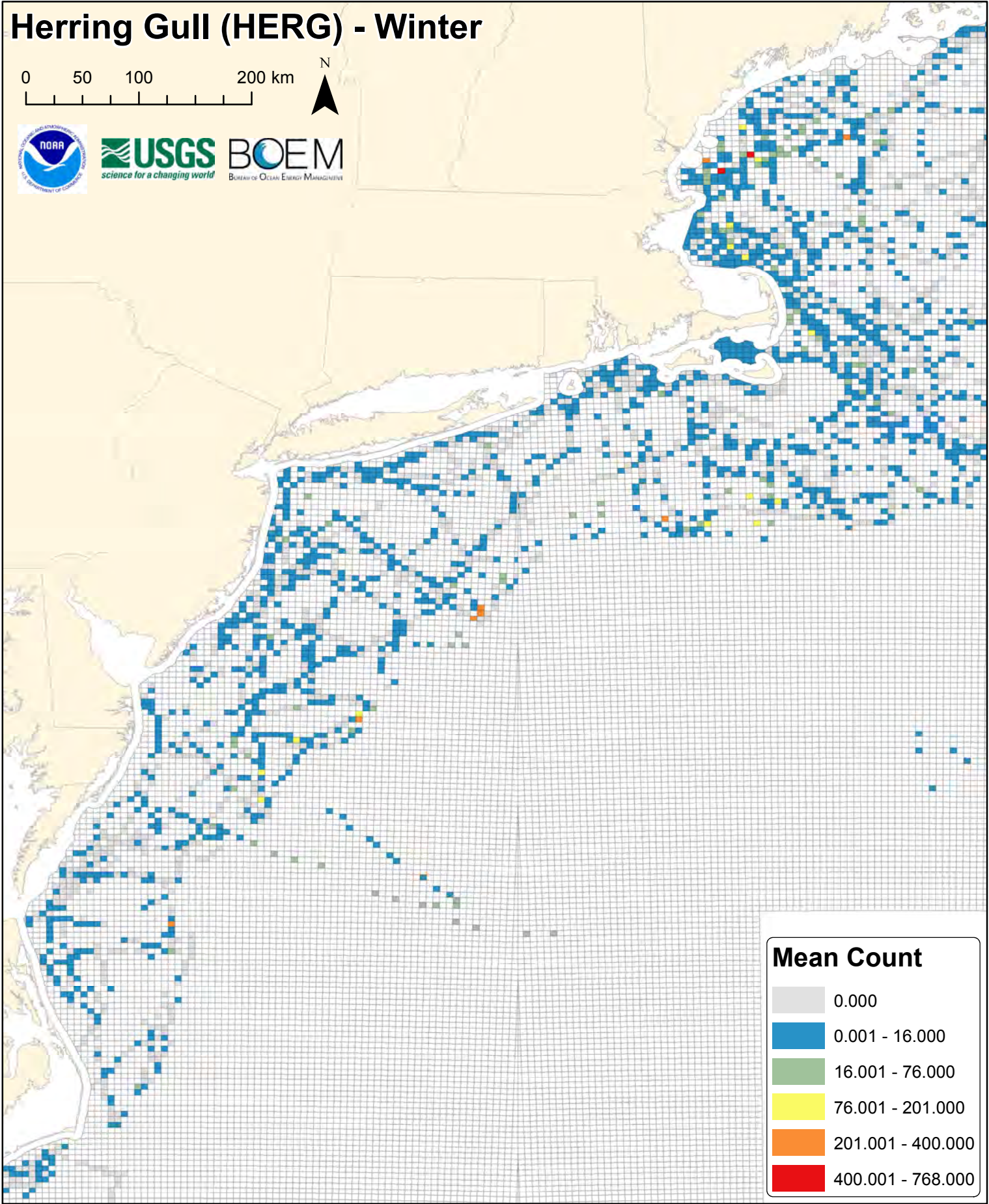
Full Hurdle Model (Zero & Non-Zero Counts) Results

SECTION II. Species-specific Power Analysis Maps and Figures

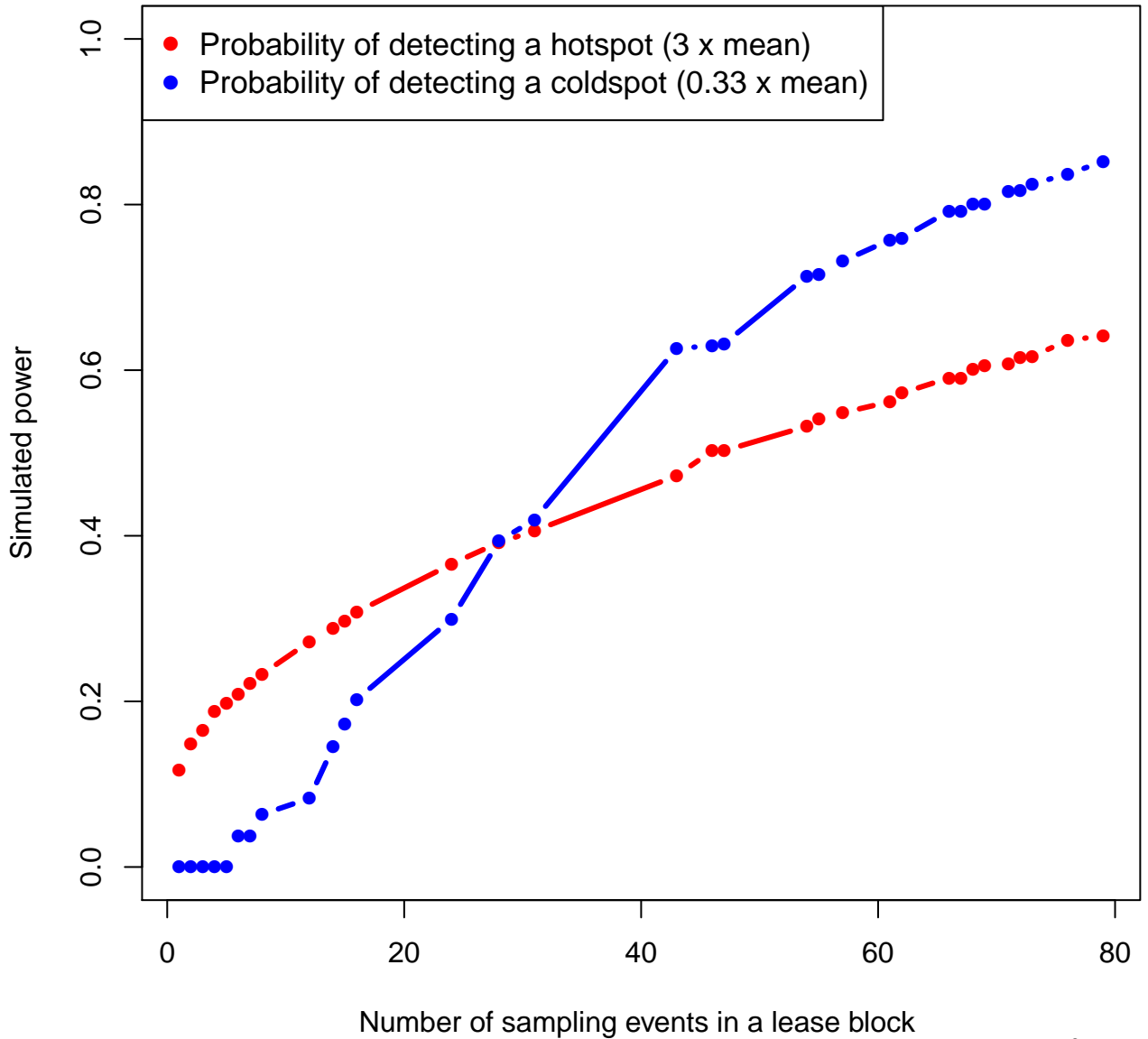
Figures G186-G235. Winter power analysis maps and figures (10 species x 5 figures per species).

Herring Gull (HERG) - Winter

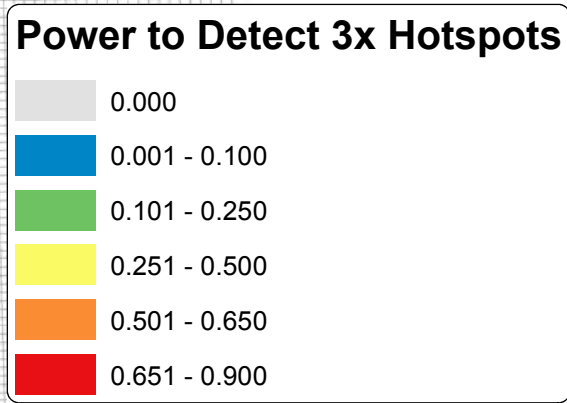
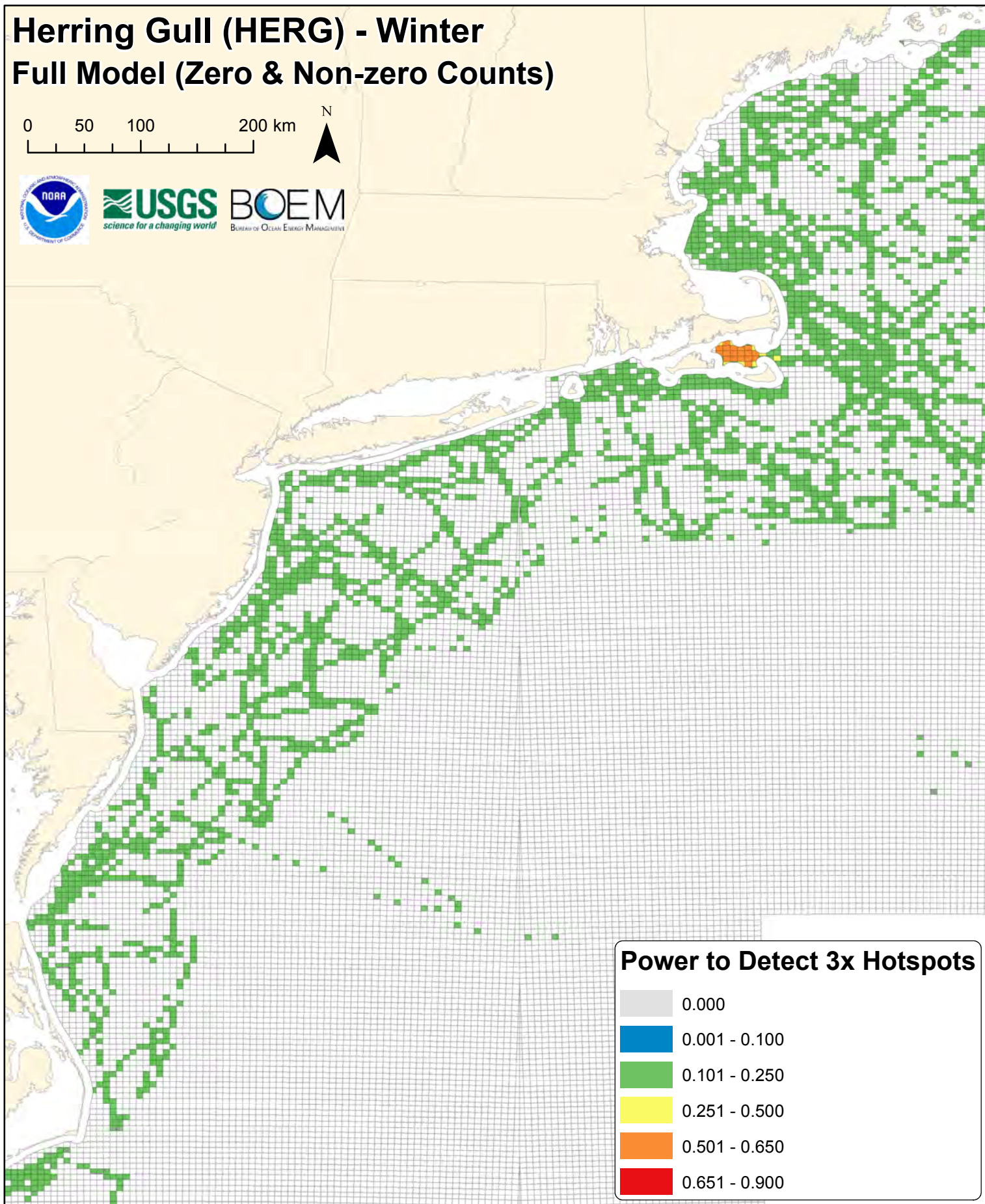
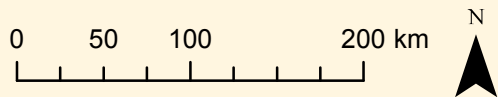
0 50 100 200 km



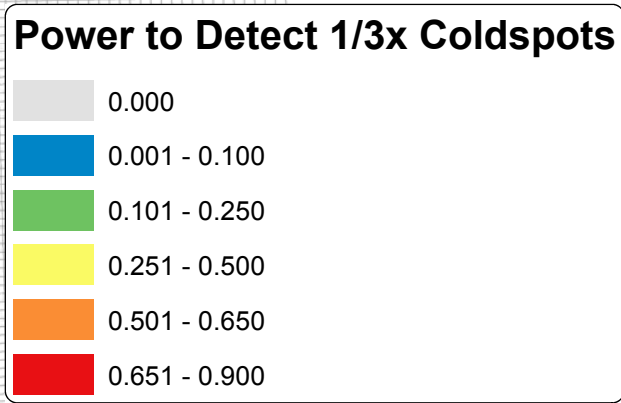
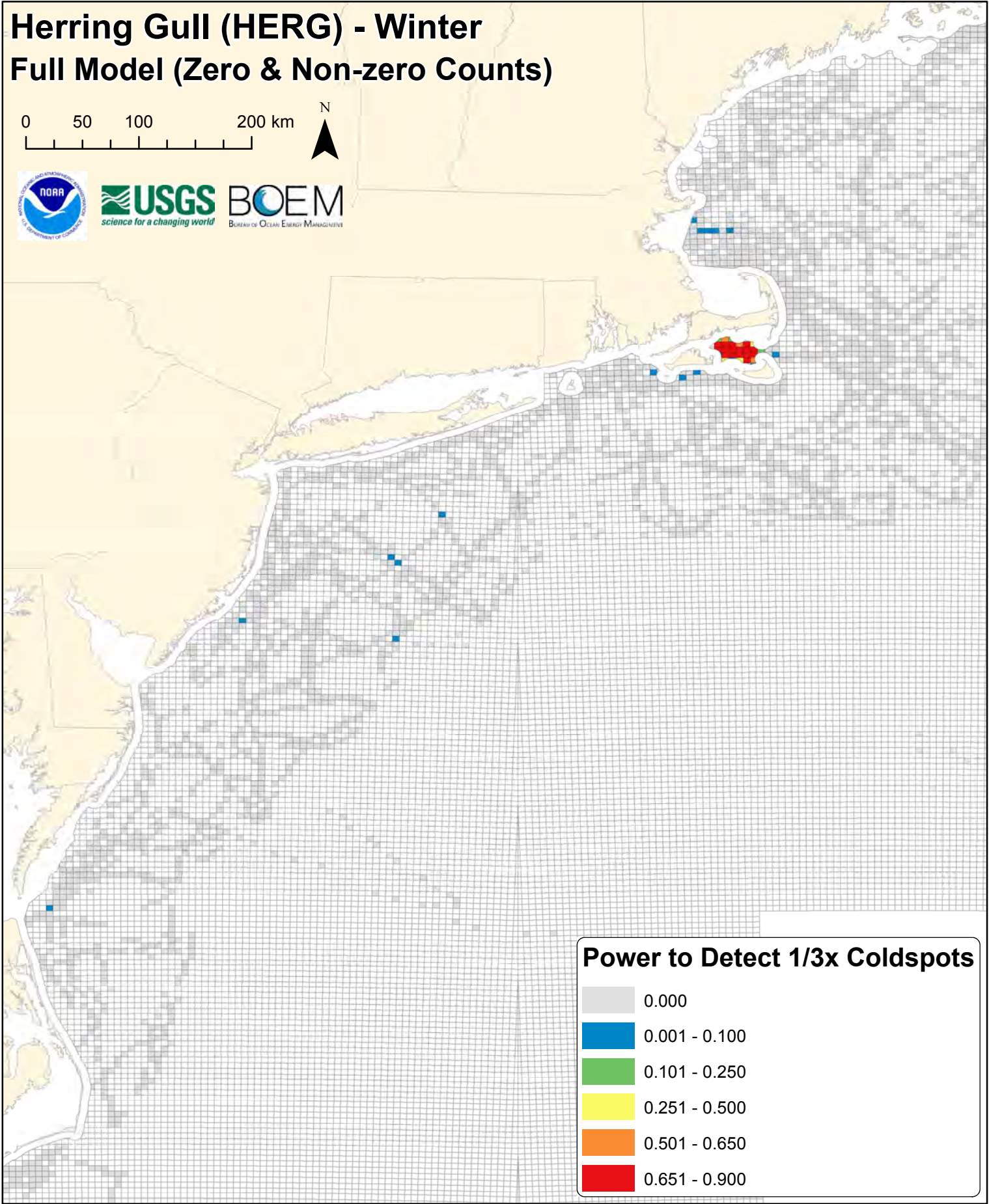
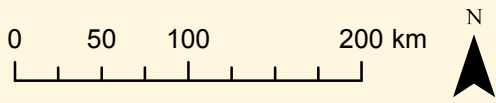
herg



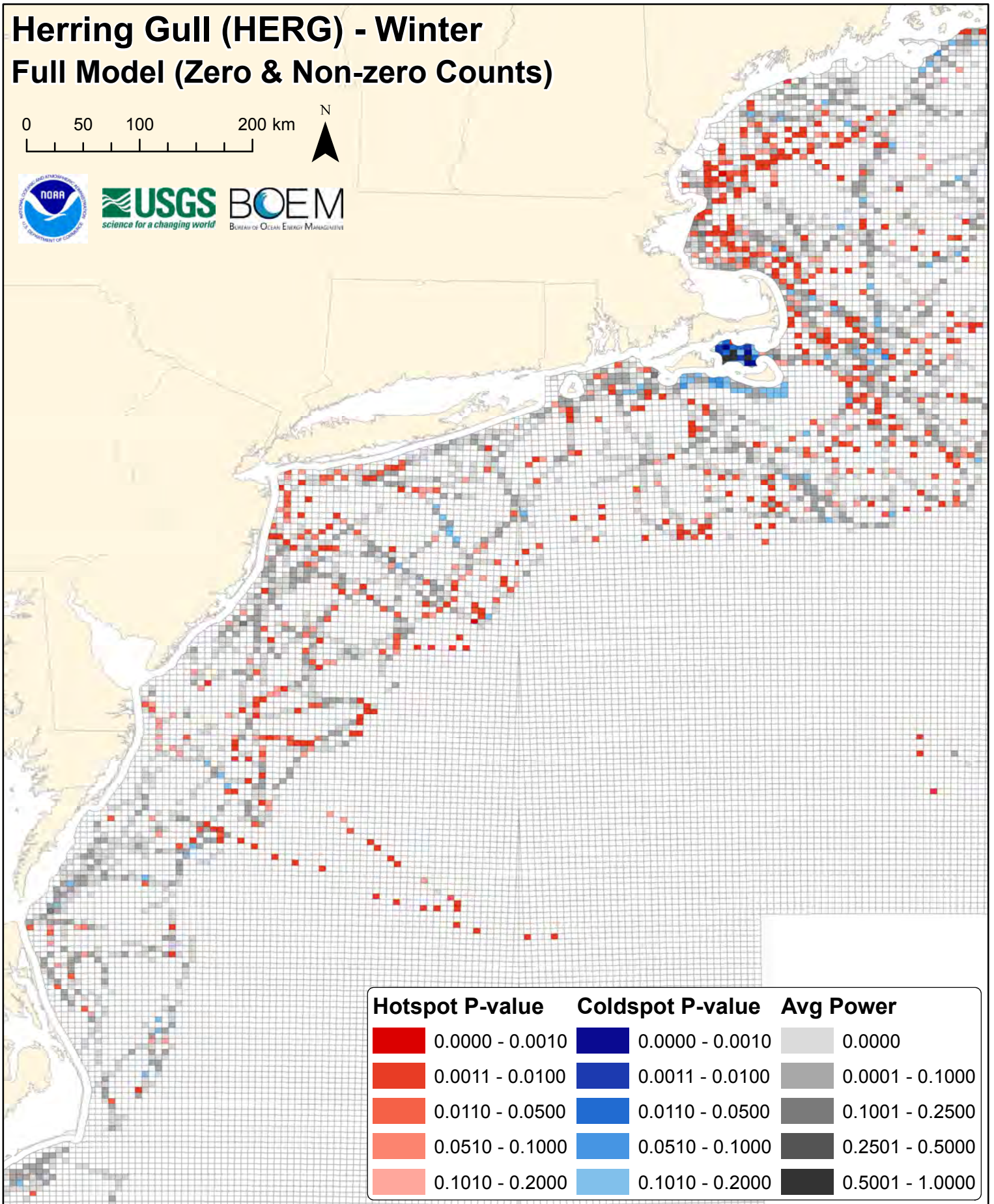
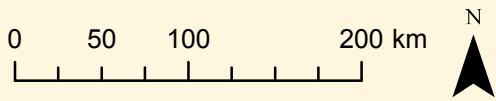
Herring Gull (HERG) - Winter Full Model (Zero & Non-zero Counts)


















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



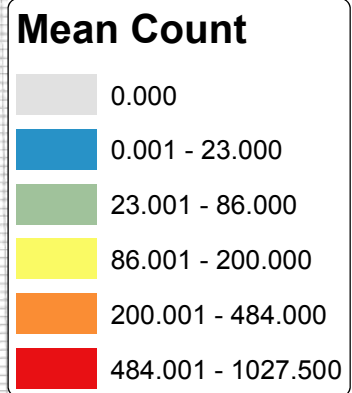
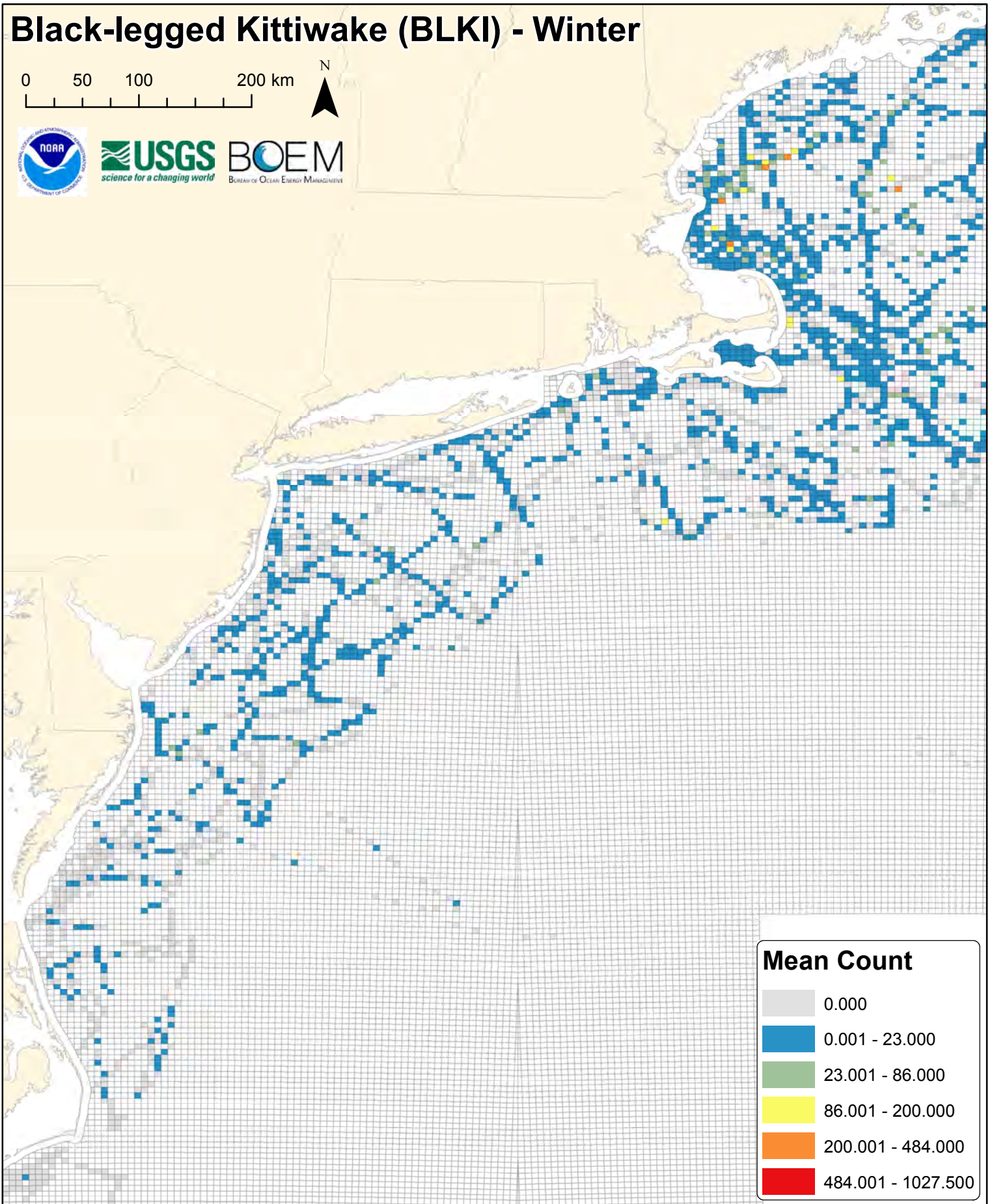
Herring Gull (HERG) - Winter Full Model (Zero & Non-zero Counts)



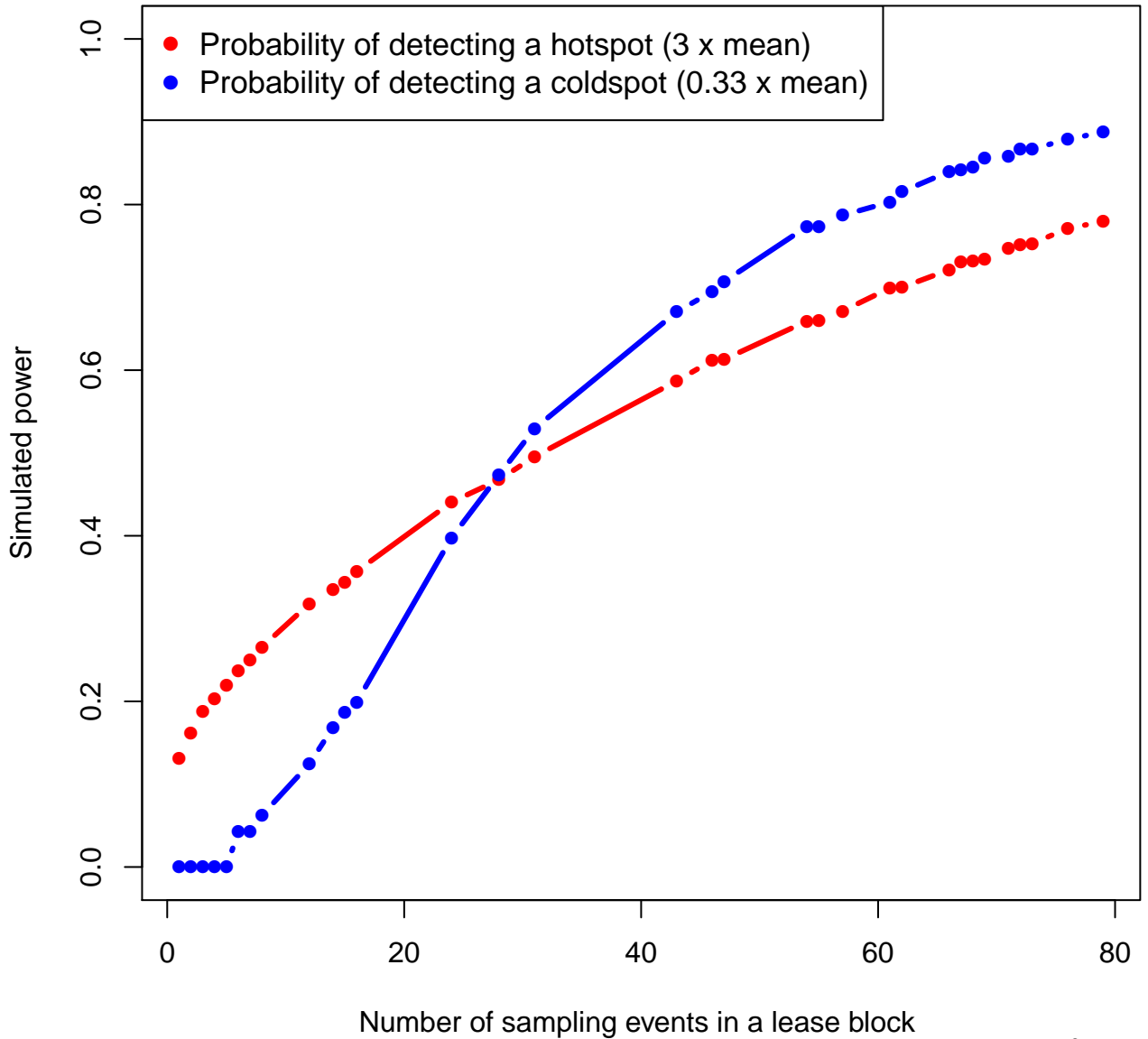
Hotspot P-value	Coldspot P-value	Avg Power
 0.0000 - 0.0010	 0.0000 - 0.0010	 0.0000
 0.0011 - 0.0100	 0.0011 - 0.0100	 0.0001 - 0.1000
 0.0110 - 0.0500	 0.0110 - 0.0500	 0.1001 - 0.2500
 0.0510 - 0.1000	 0.0510 - 0.1000	 0.2501 - 0.5000
 0.1010 - 0.2000	 0.1010 - 0.2000	 0.5001 - 1.0000

Black-legged Kittiwake (BLKI) - Winter

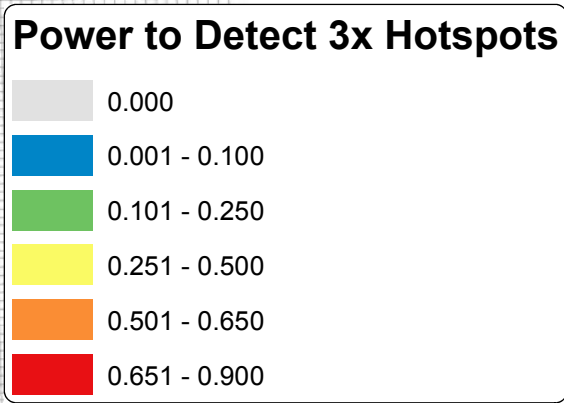
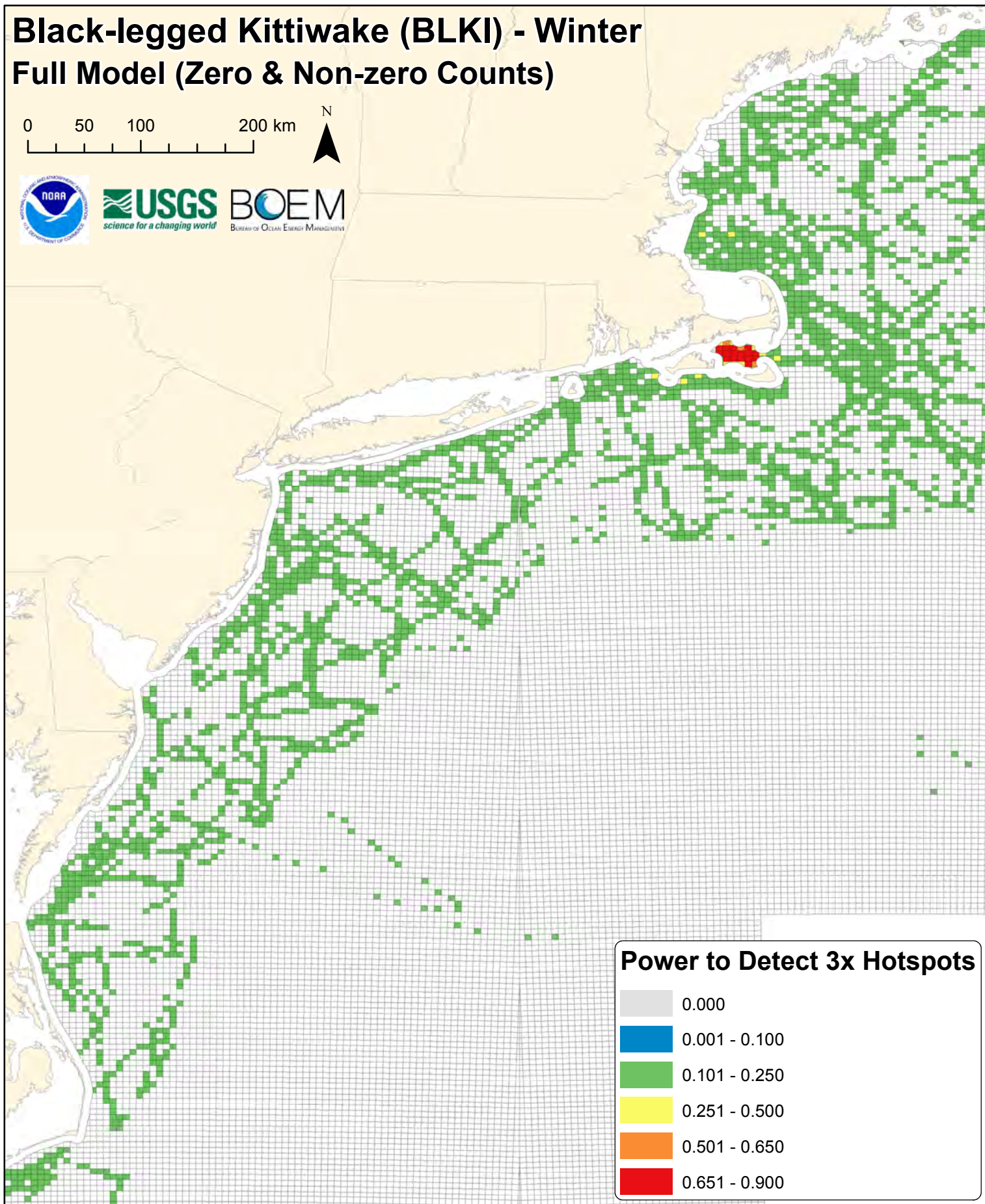
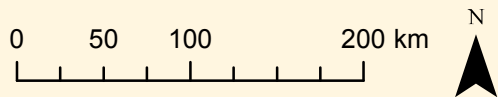
0 50 100 200 km



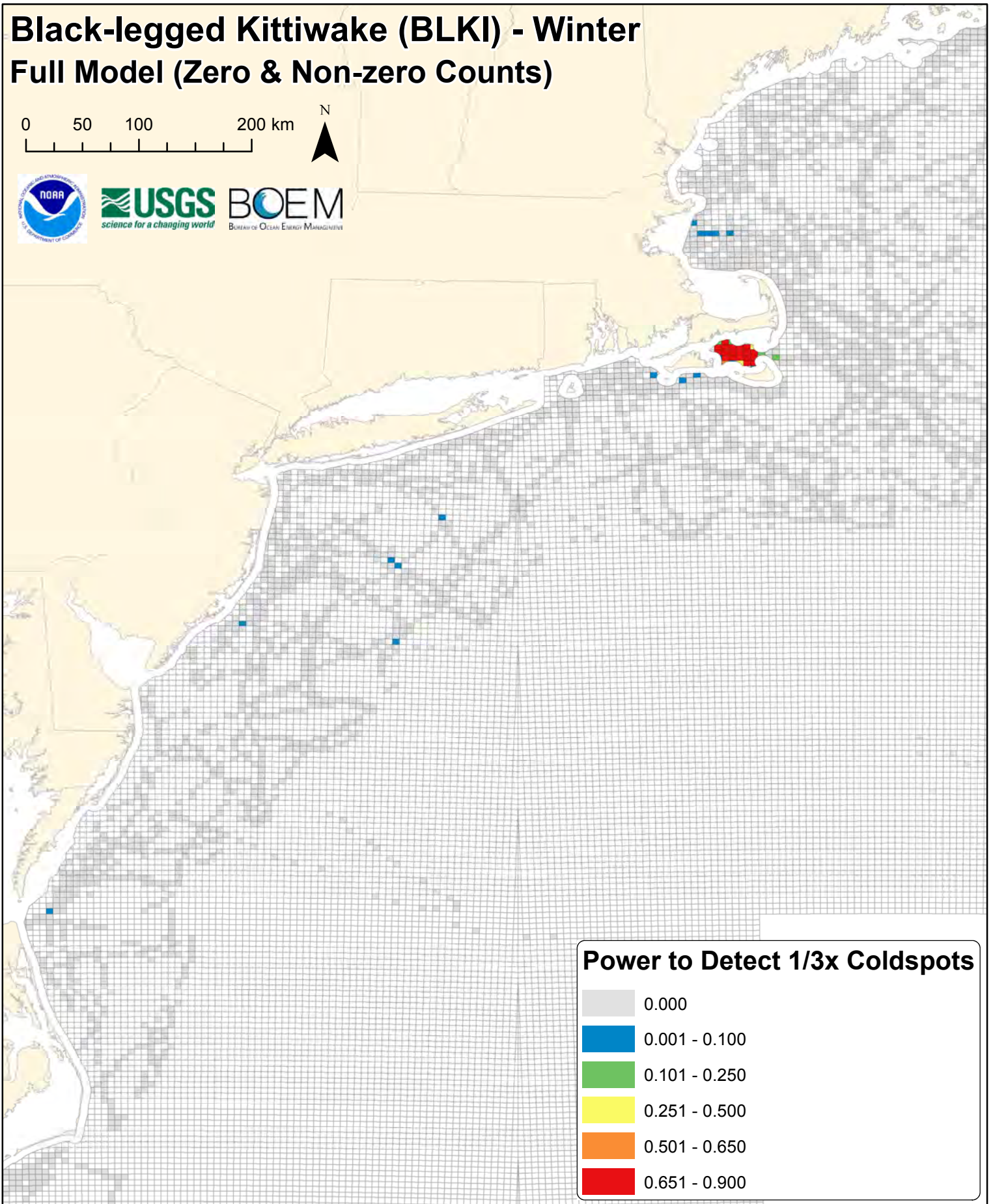
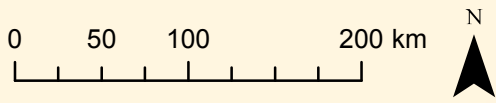
blki



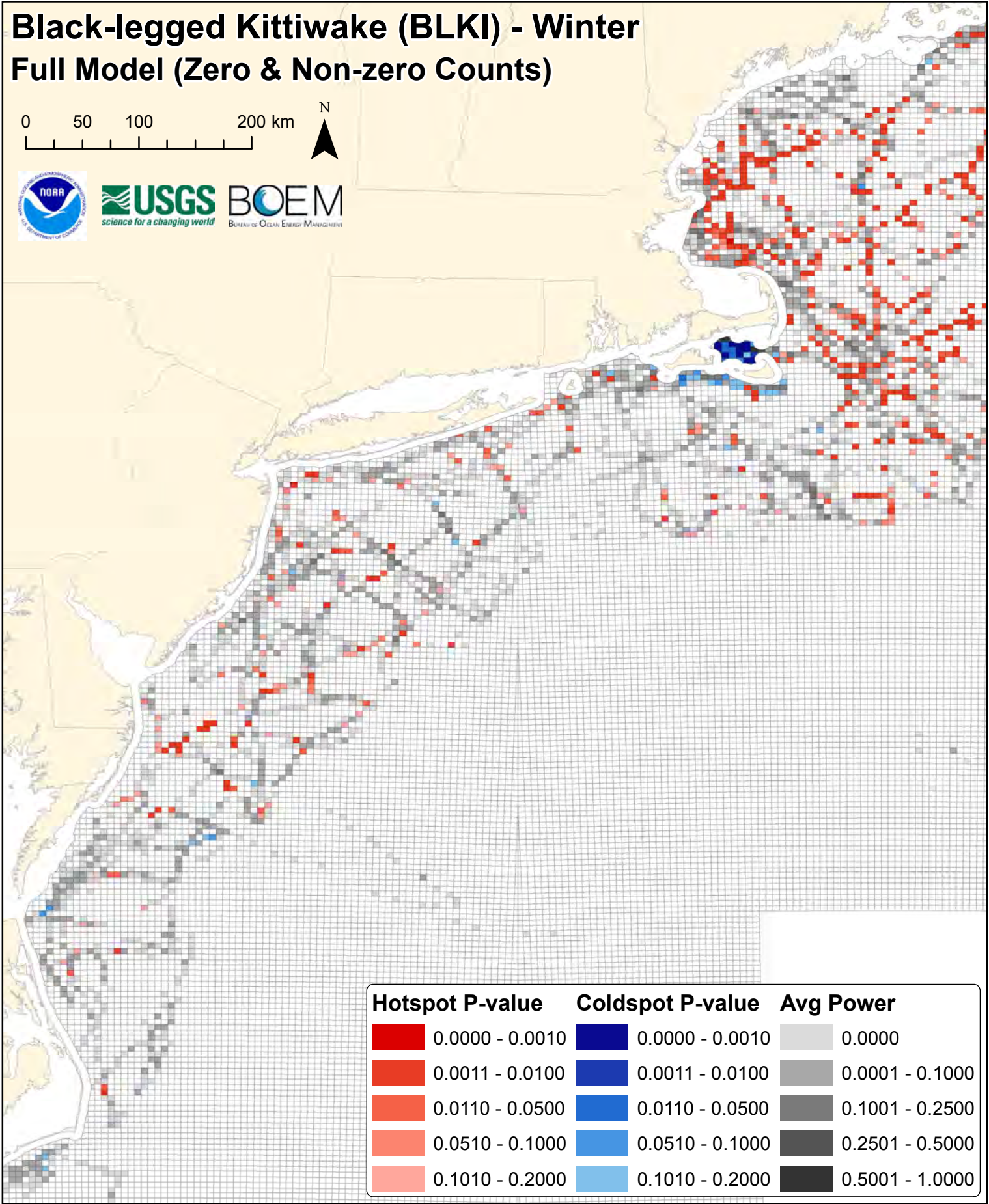
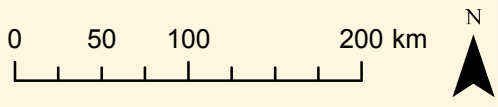
Black-legged Kittiwake (BLKI) - Winter Full Model (Zero & Non-zero Counts)


















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

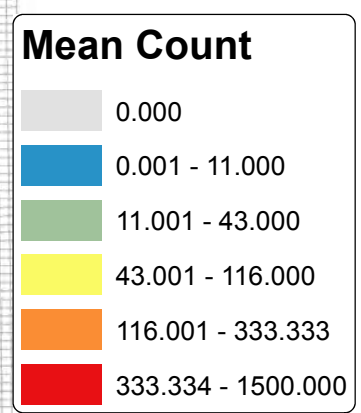
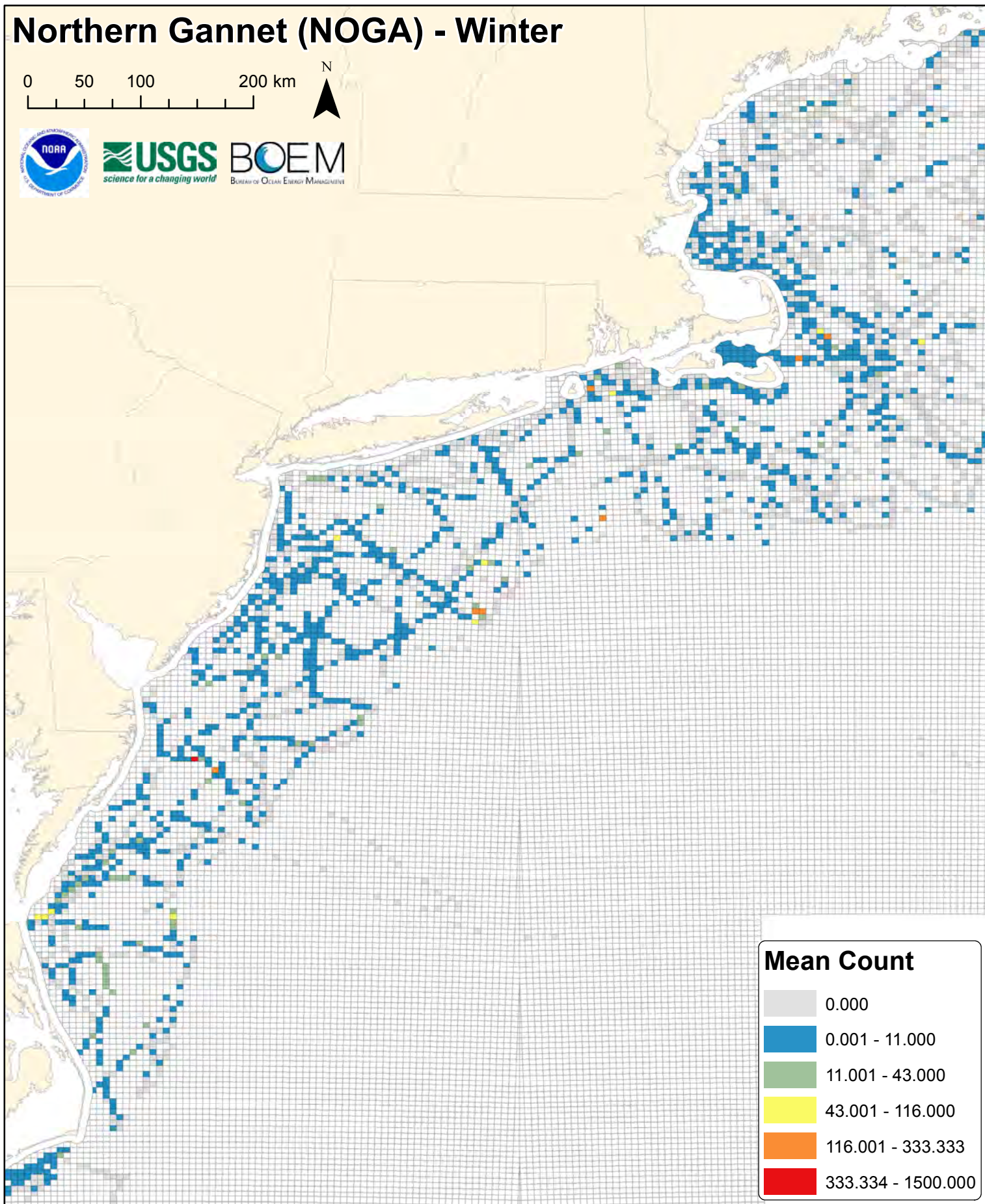
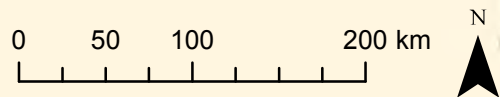


Black-legged Kittiwake (BLKI) - Winter Full Model (Zero & Non-zero Counts)

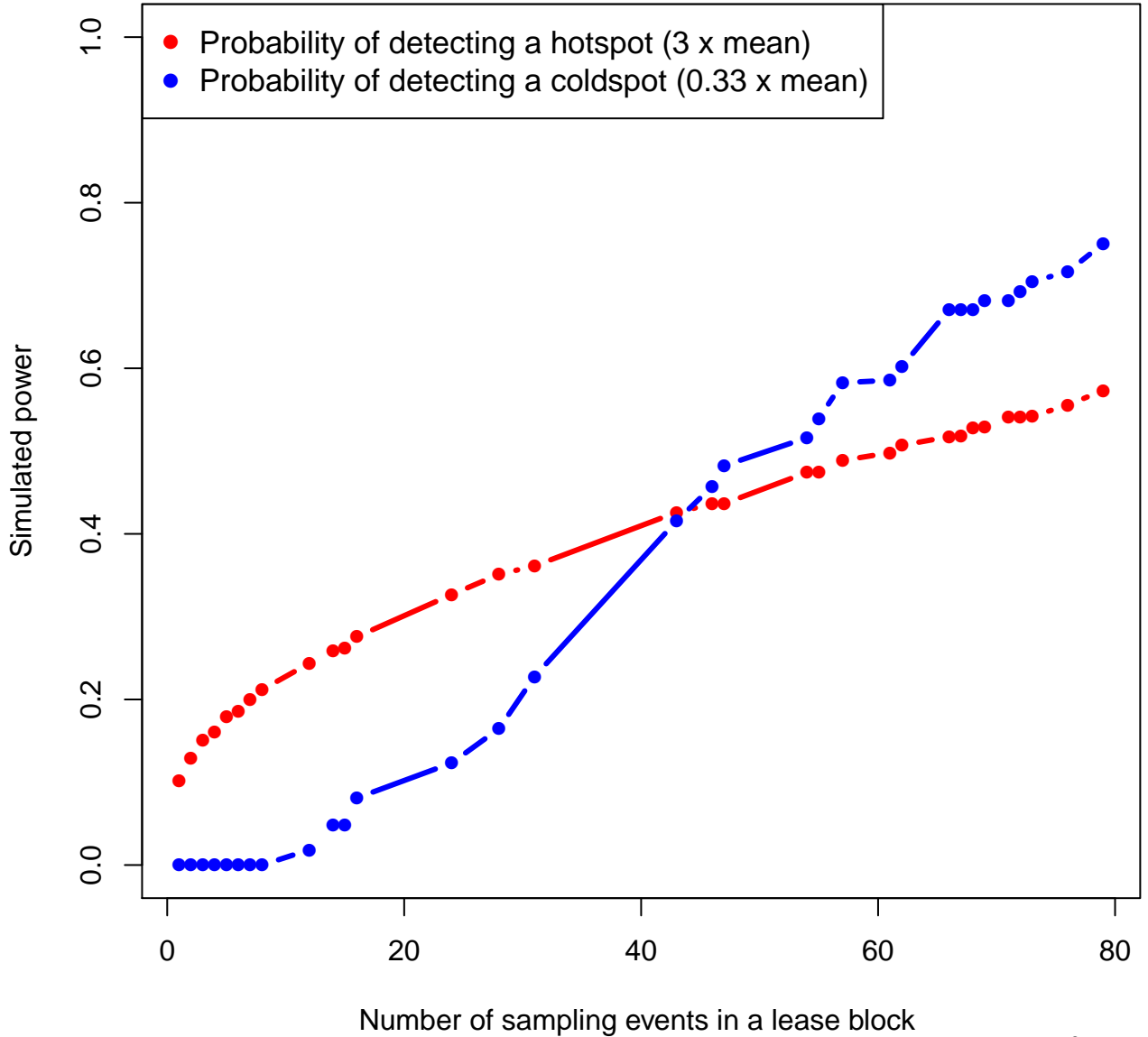


Hotspot P-value	Coldspot P-value	Avg Power
 0.0000 - 0.0010	 0.0000 - 0.0010	 0.0000
 0.0011 - 0.0100	 0.0011 - 0.0100	 0.0001 - 0.1000
 0.0110 - 0.0500	 0.0110 - 0.0500	 0.1001 - 0.2500
 0.0510 - 0.1000	 0.0510 - 0.1000	 0.2501 - 0.5000
 0.1010 - 0.2000	 0.1010 - 0.2000	 0.5001 - 1.0000

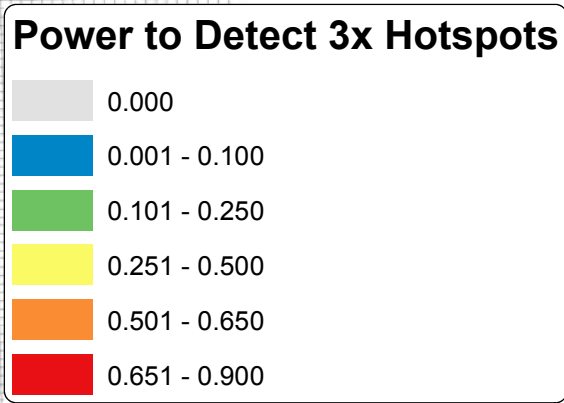
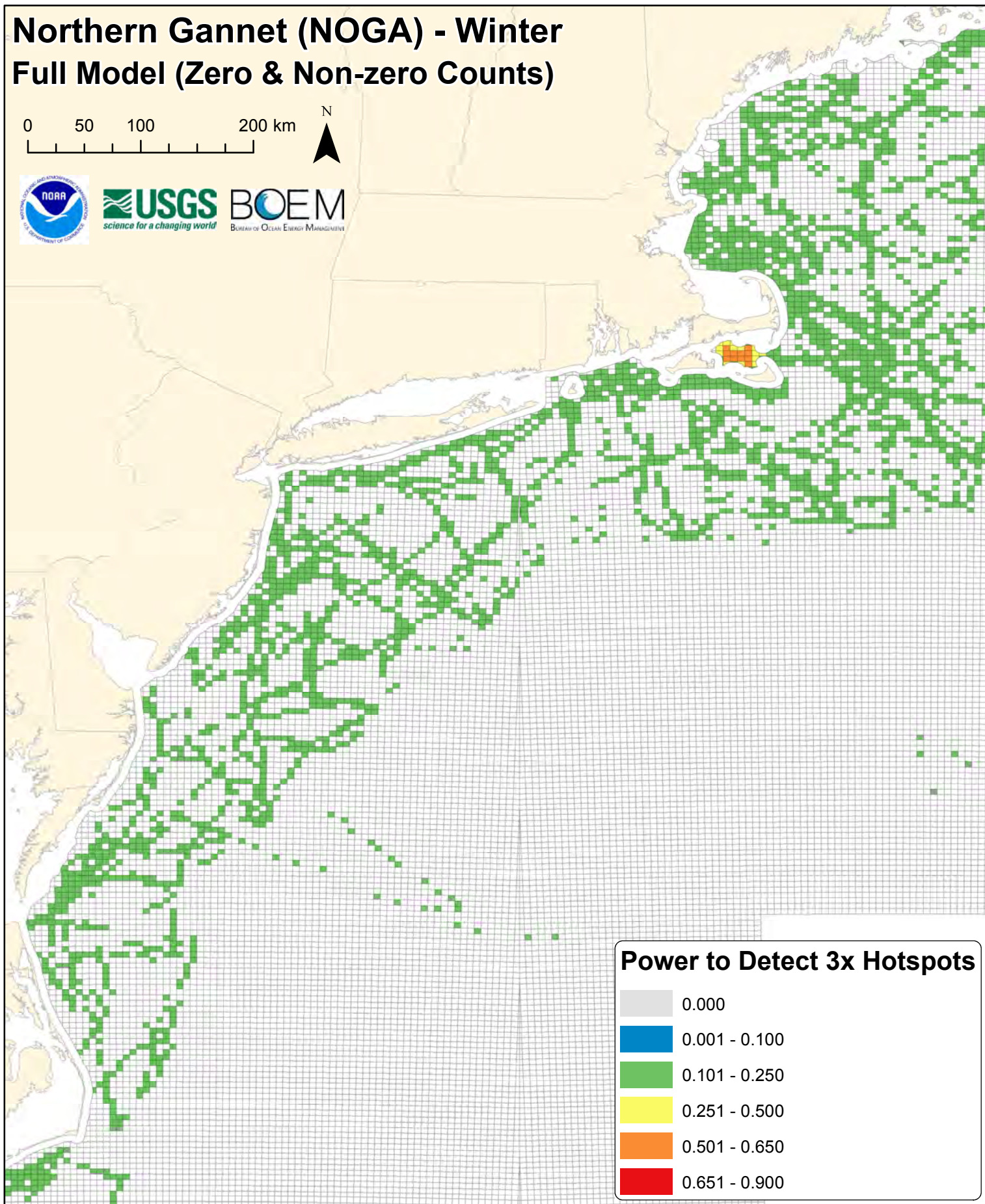
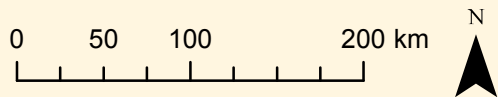
Northern Gannet (NOGA) - Winter



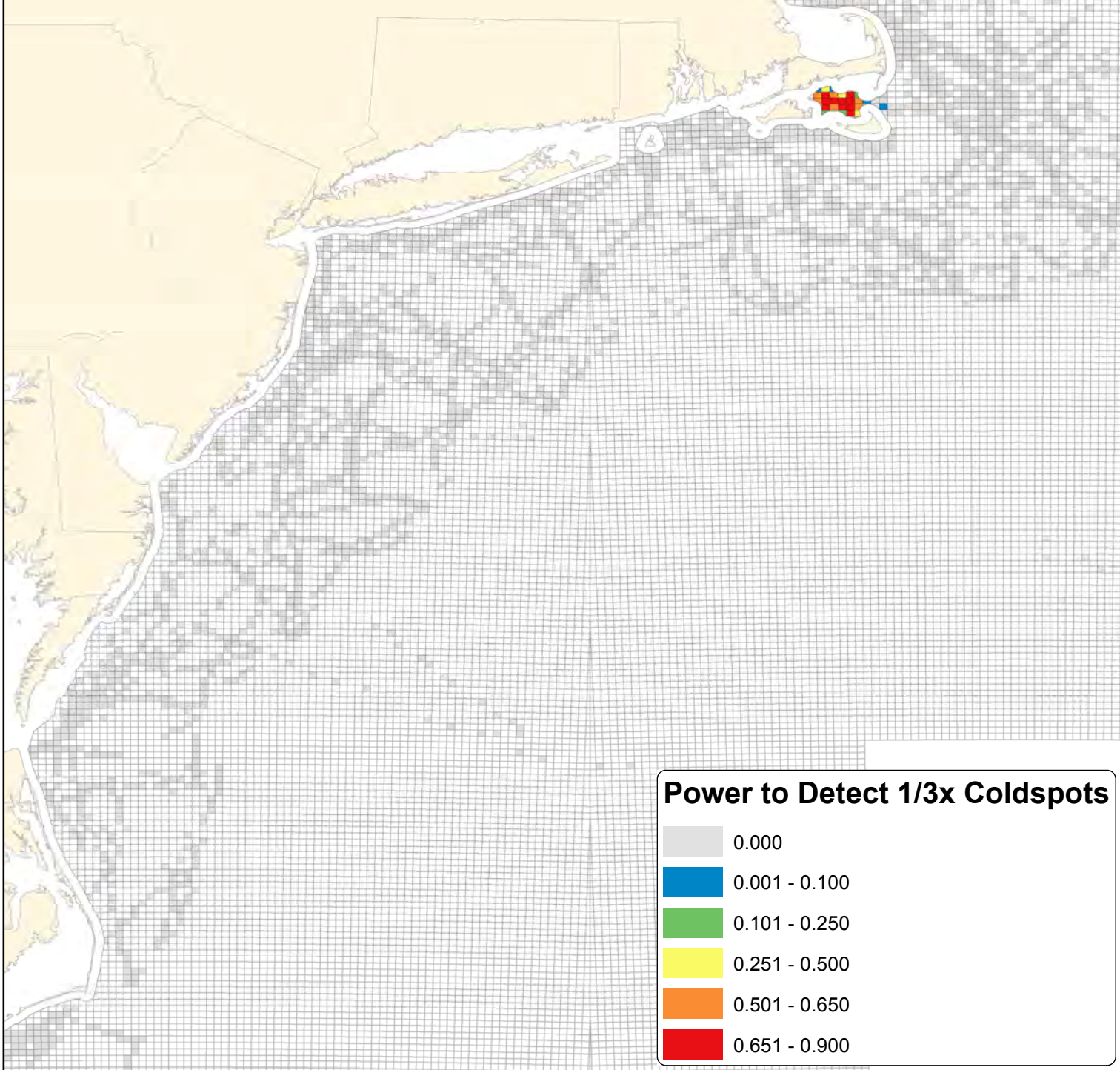
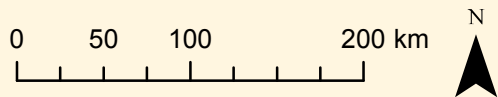
noga



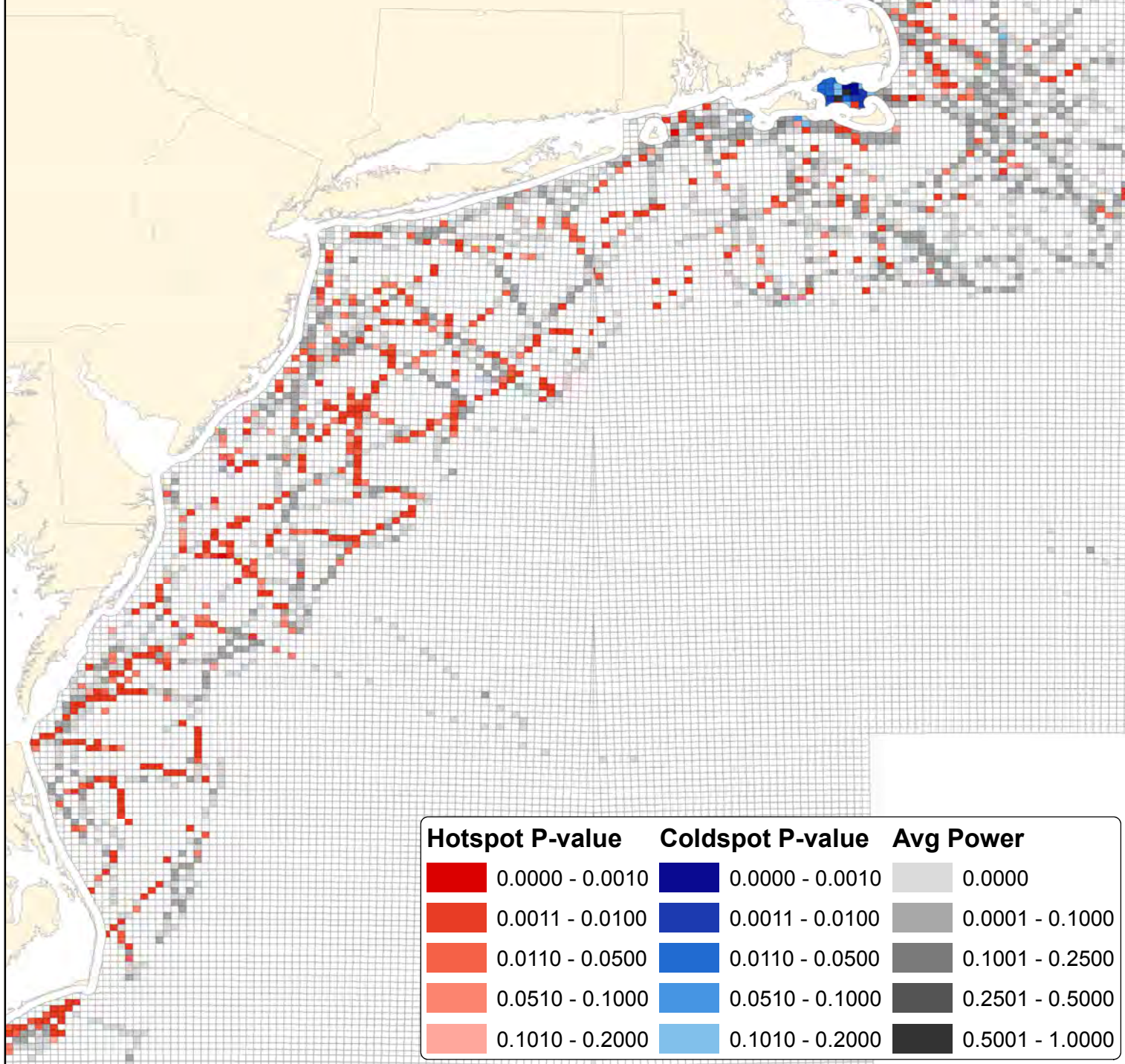
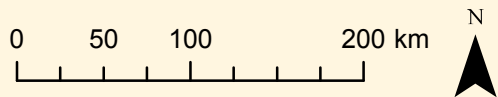
Northern Gannet (NOGA) - Winter Full Model (Zero & Non-zero Counts)


















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



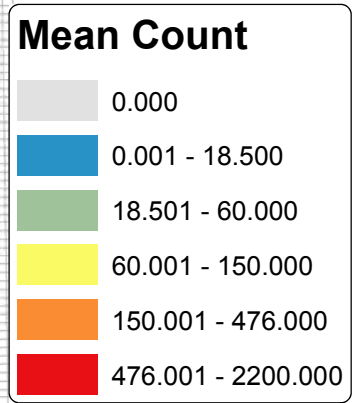
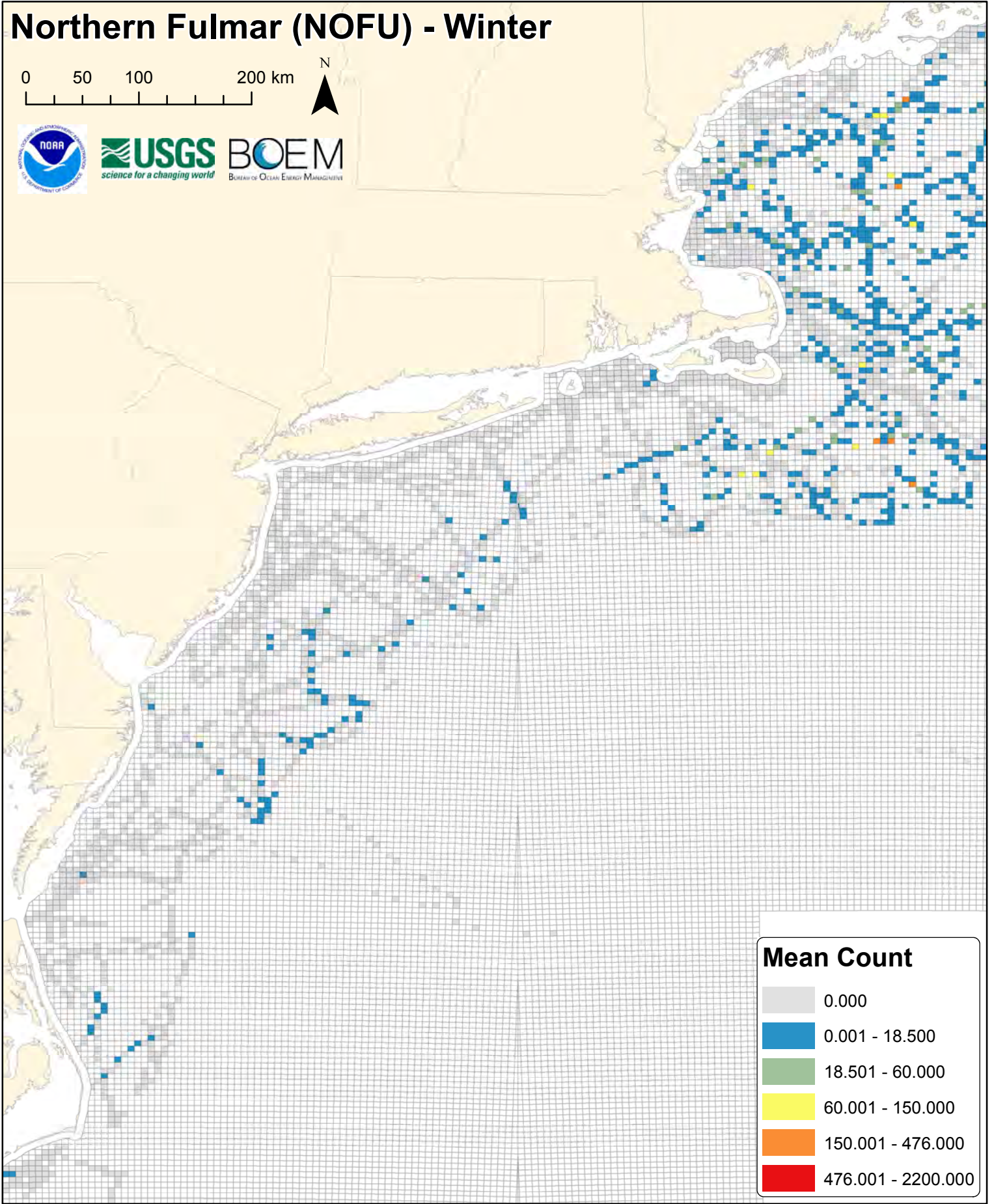
Northern Gannet (NOGA) - Winter Full Model (Zero & Non-zero Counts)



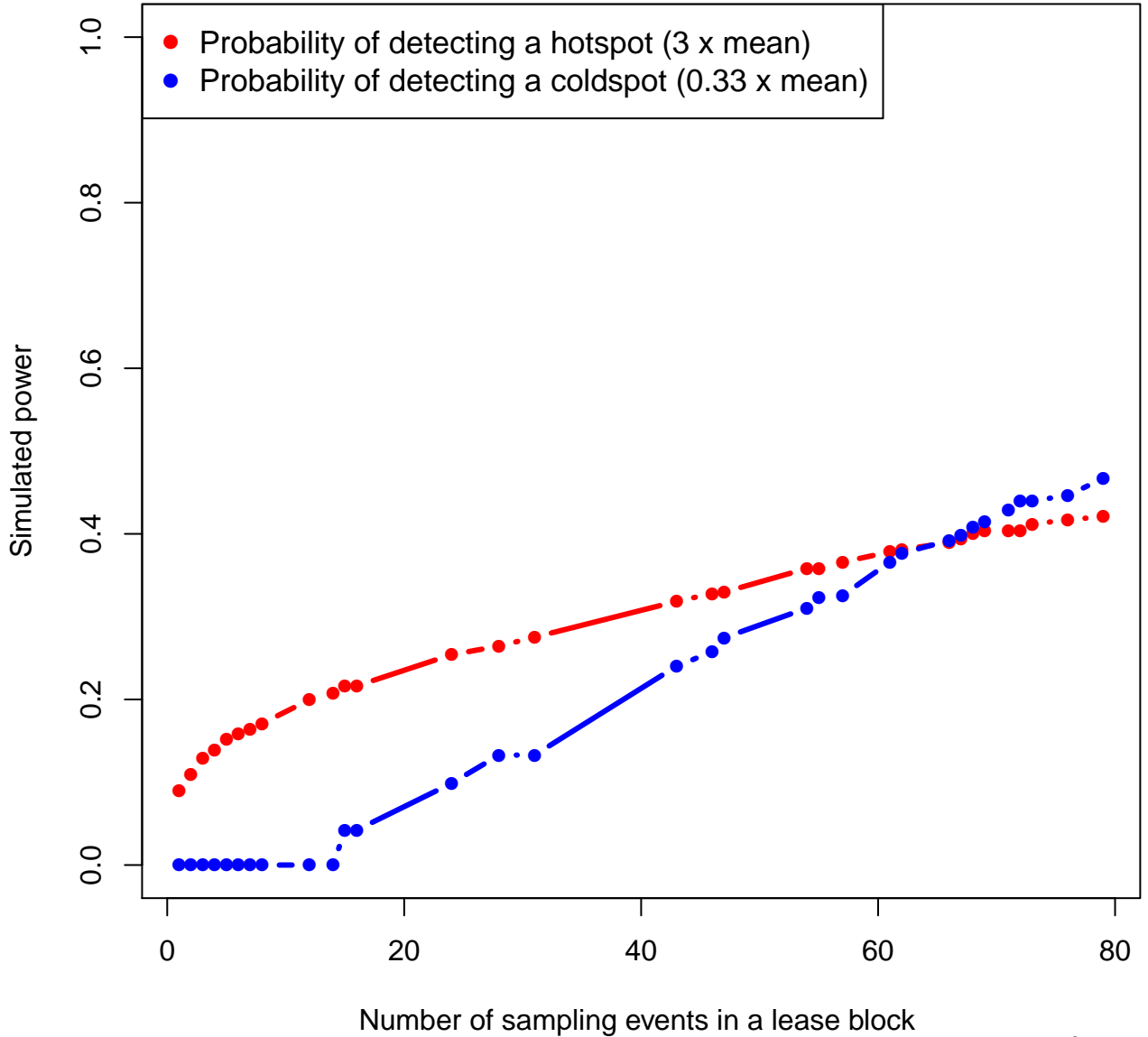
Hotspot P-value	Coldspot P-value	Avg Power
 0.0000 - 0.0010	 0.0000 - 0.0010	 0.0000
 0.0011 - 0.0100	 0.0011 - 0.0100	 0.0001 - 0.1000
 0.0110 - 0.0500	 0.0110 - 0.0500	 0.1001 - 0.2500
 0.0510 - 0.1000	 0.0510 - 0.1000	 0.2501 - 0.5000
 0.1010 - 0.2000	 0.1010 - 0.2000	 0.5001 - 1.0000

Northern Fulmar (NOFU) - Winter

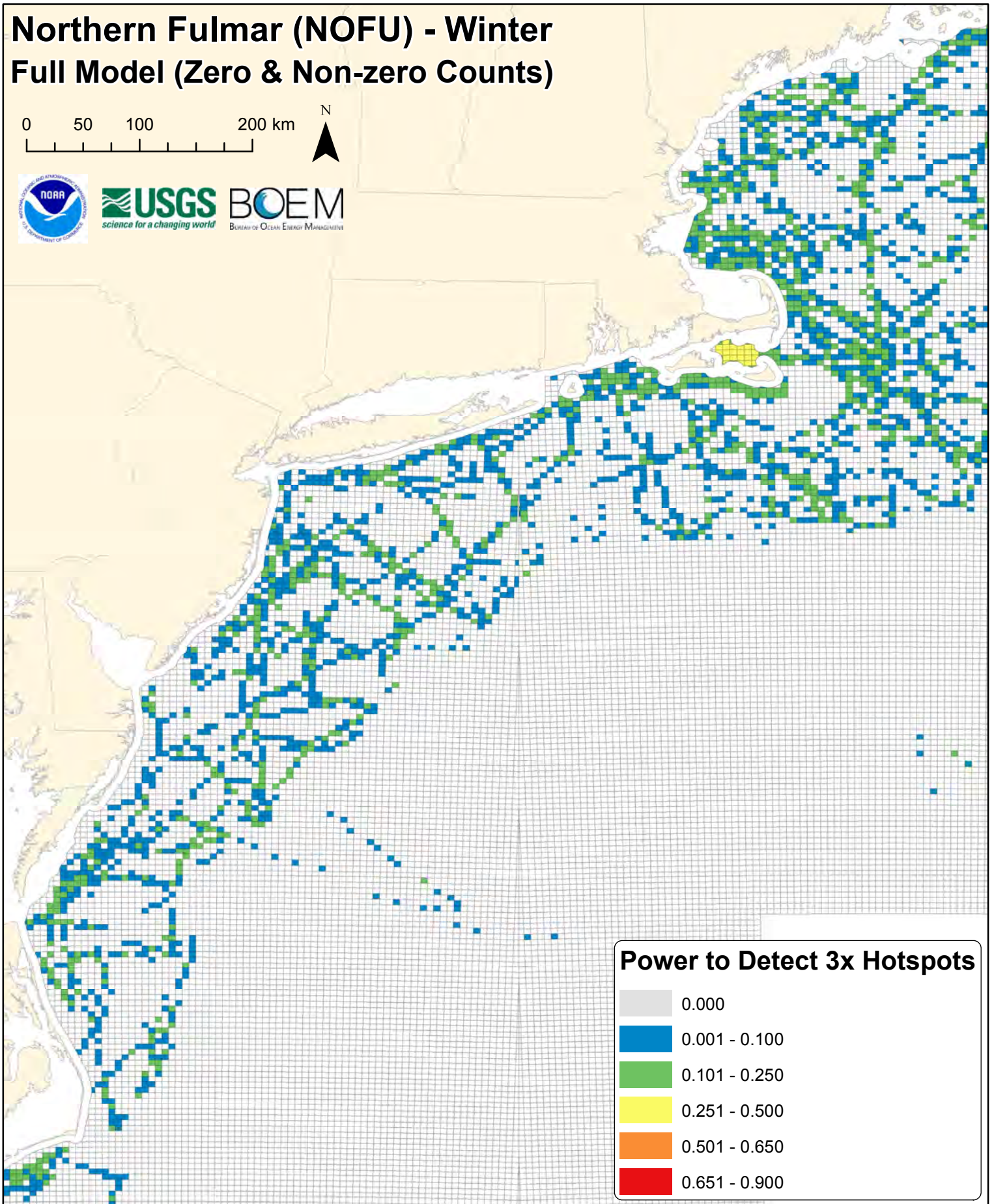
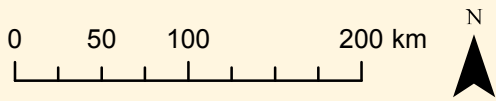
0 50 100 200 km



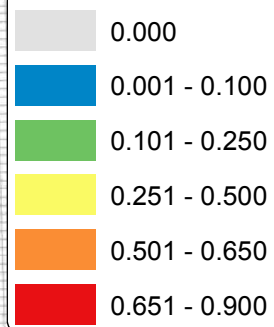
nofu



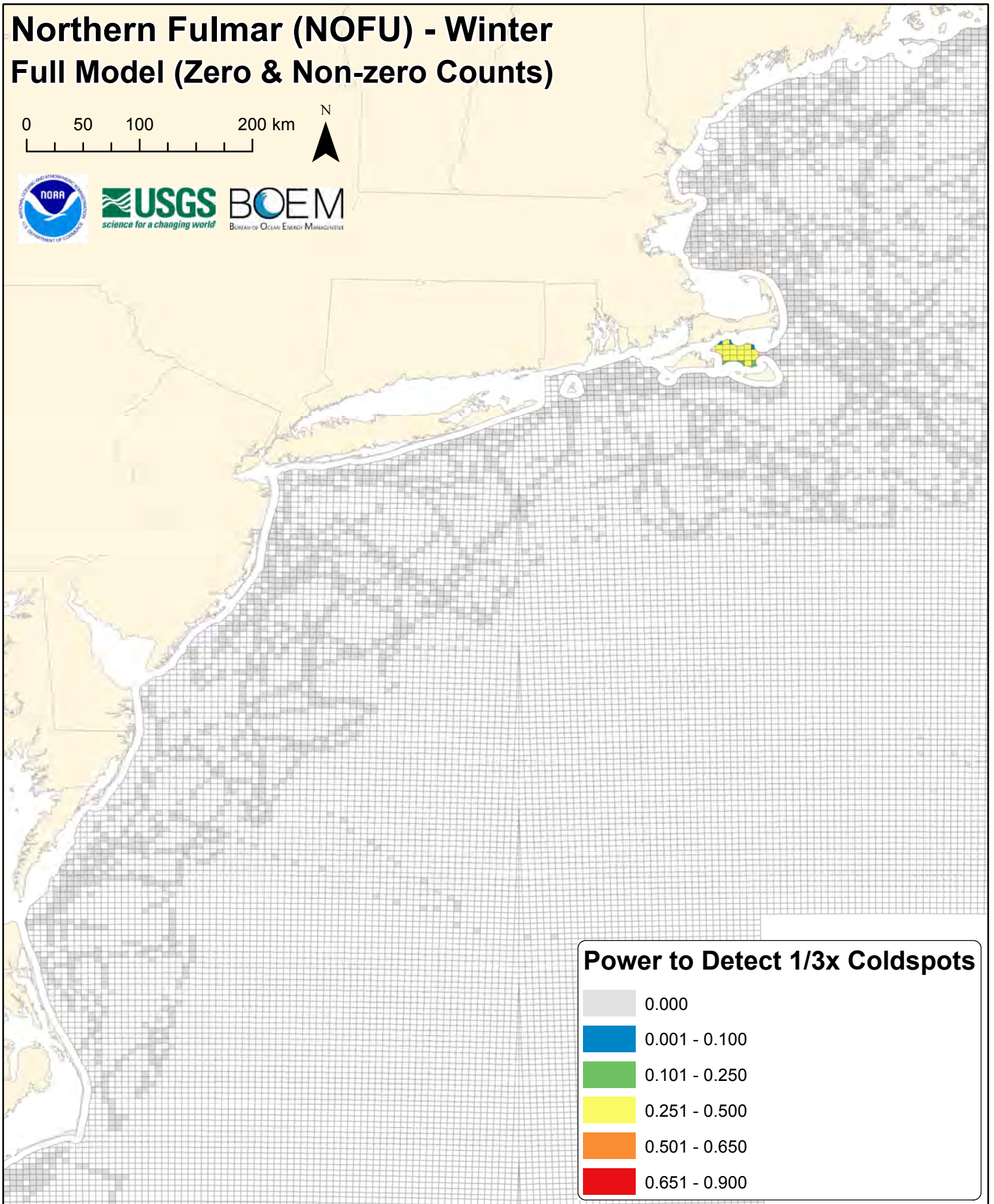
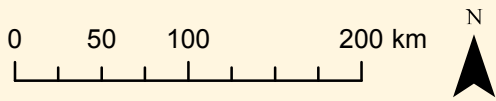
Northern Fulmar (NOFU) - Winter Full Model (Zero & Non-zero Counts)



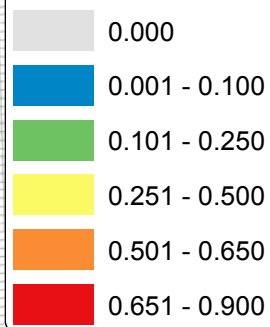
Power to Detect 3x Hotspots



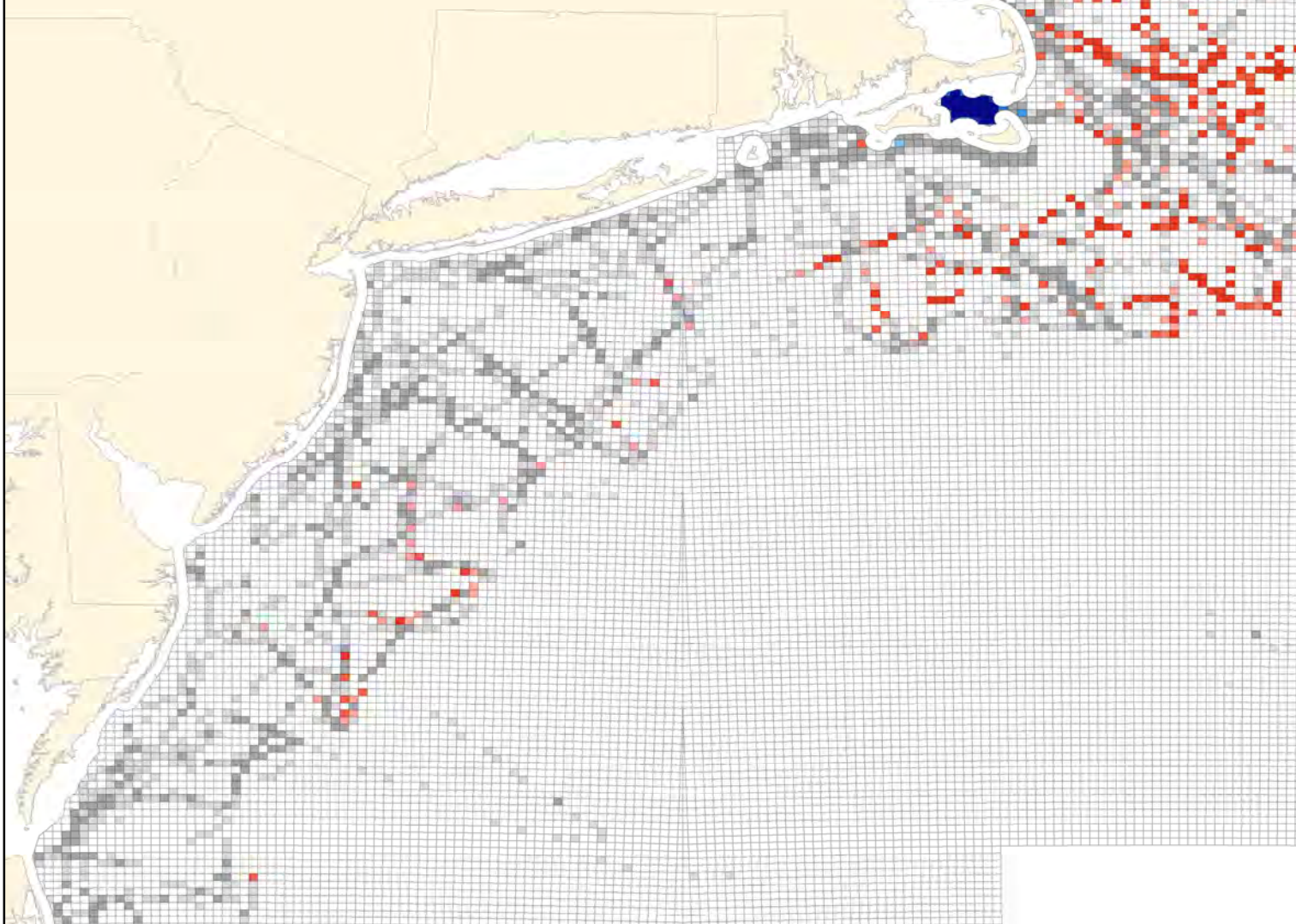
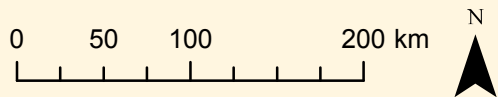
Northern Fulmar (NOFU) - Winter Full Model (Zero & Non-zero Counts)


















Power to Detect 1/3x Coldspots

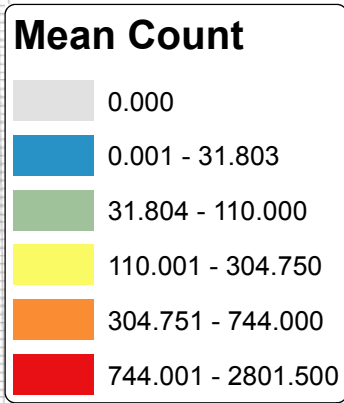
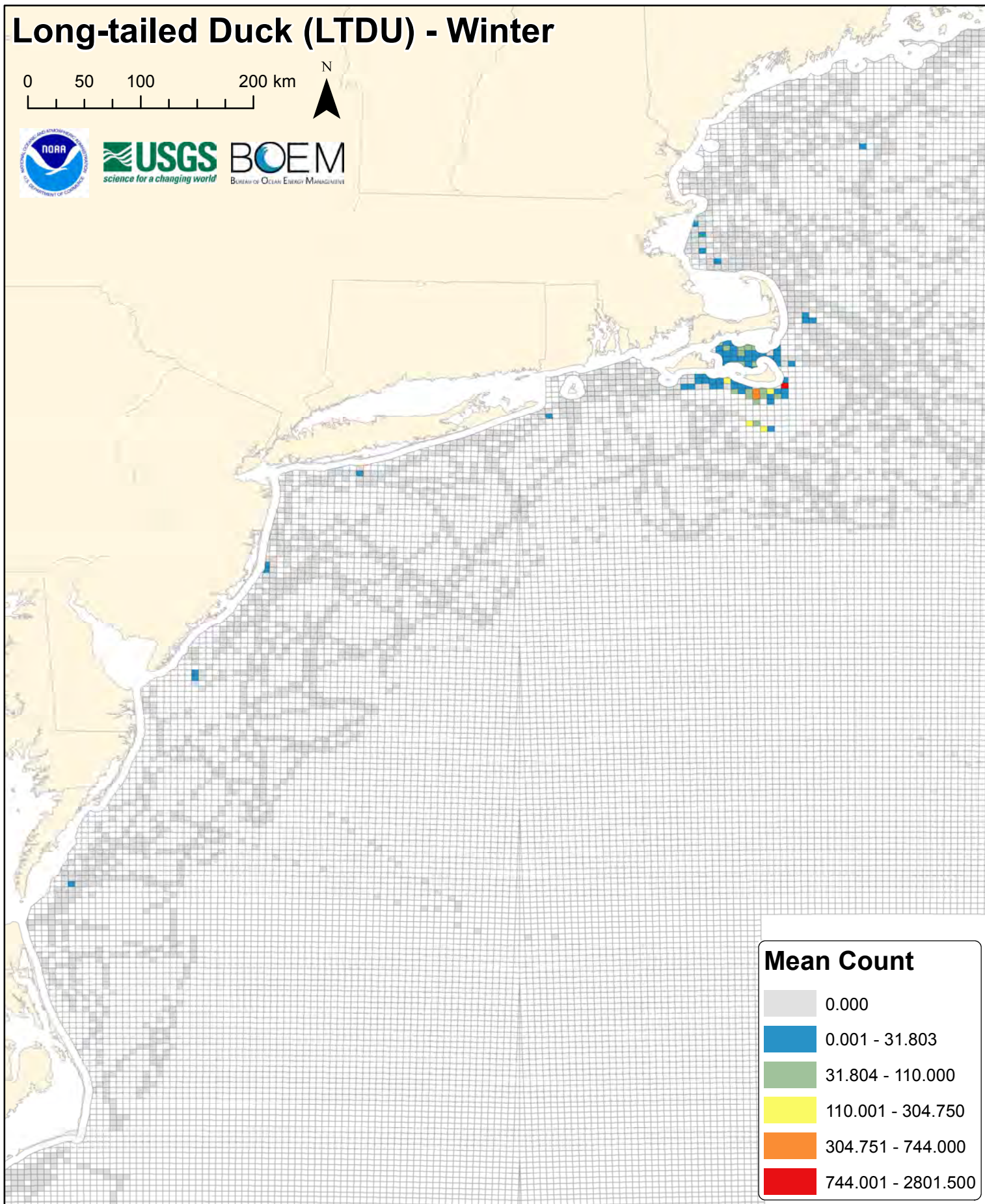
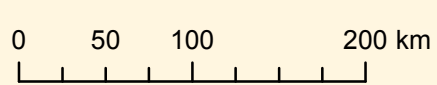


Northern Fulmar (NOFU) - Winter Full Model (Zero & Non-zero Counts)

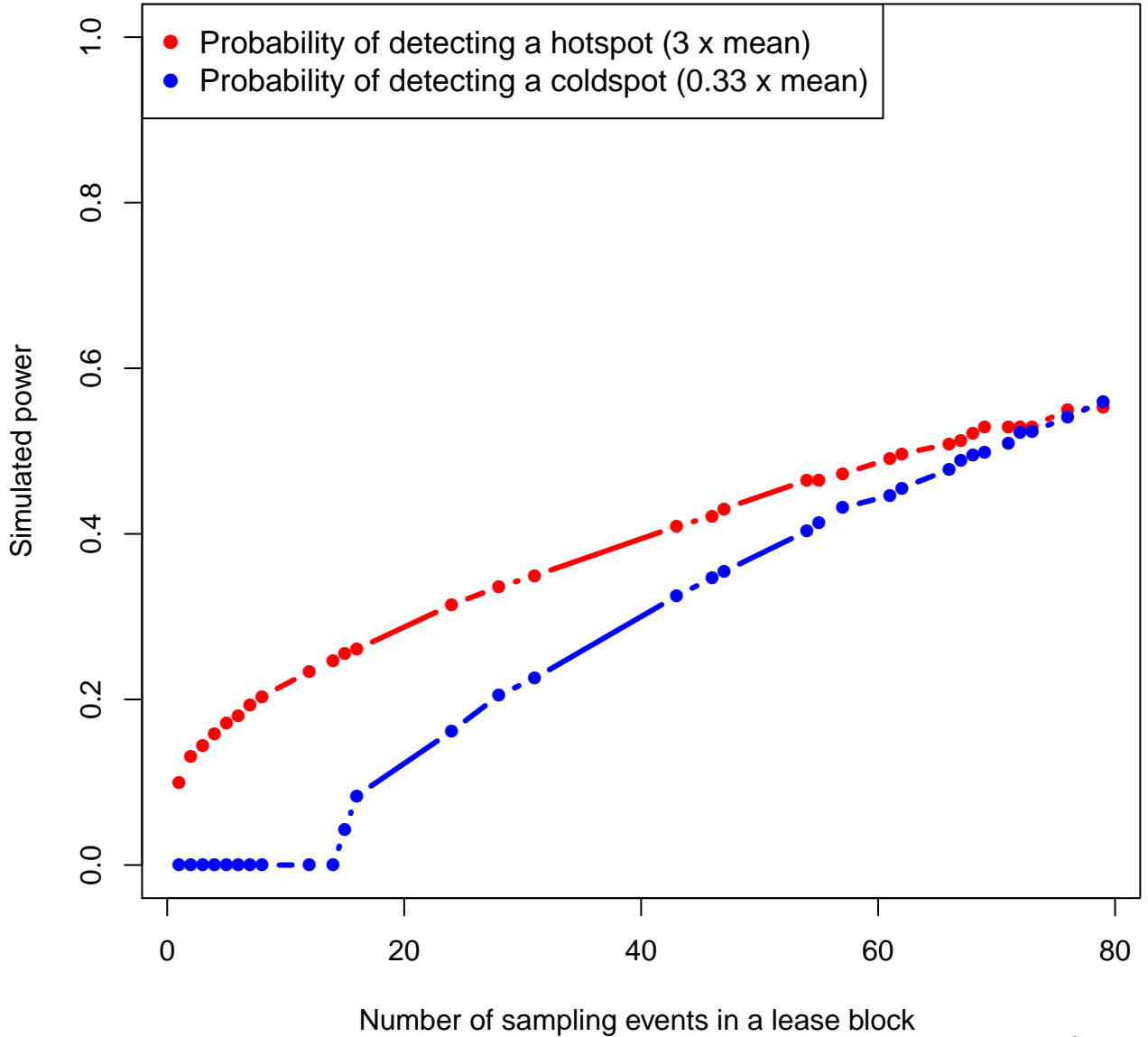


Hotspot P-value	Coldspot P-value	Avg Power
 0.0000 - 0.0010	 0.0000 - 0.0010	 0.0000
 0.0011 - 0.0100	 0.0011 - 0.0100	 0.0001 - 0.1000
 0.0110 - 0.0500	 0.0110 - 0.0500	 0.1001 - 0.2500
 0.0510 - 0.1000	 0.0510 - 0.1000	 0.2501 - 0.5000
 0.1010 - 0.2000	 0.1010 - 0.2000	 0.5001 - 1.0000

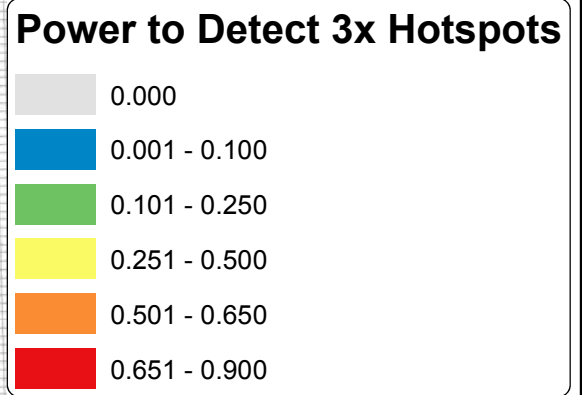
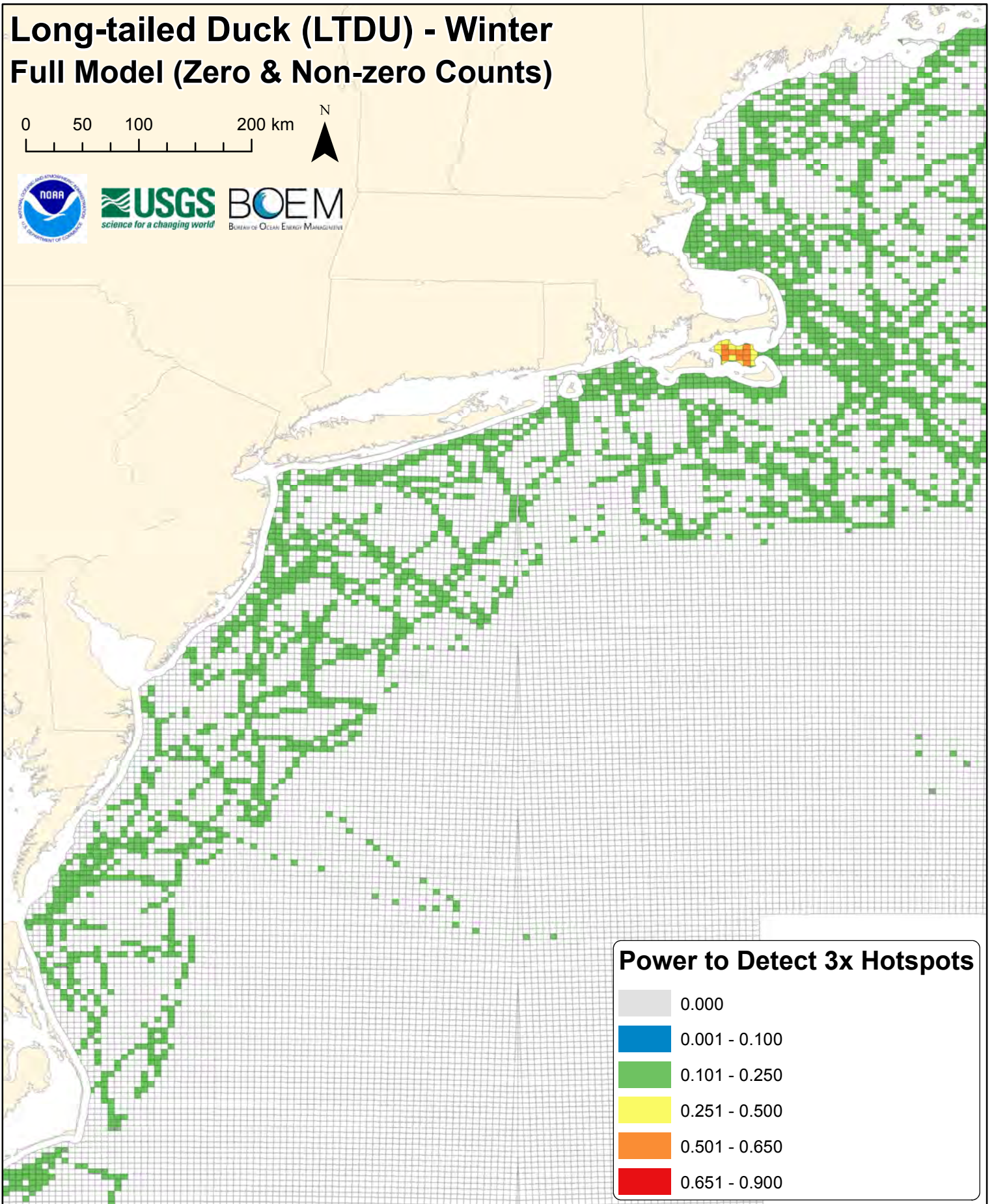
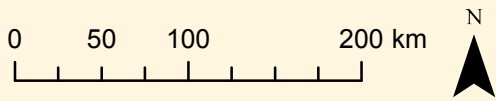
Long-tailed Duck (LTDU) - Winter



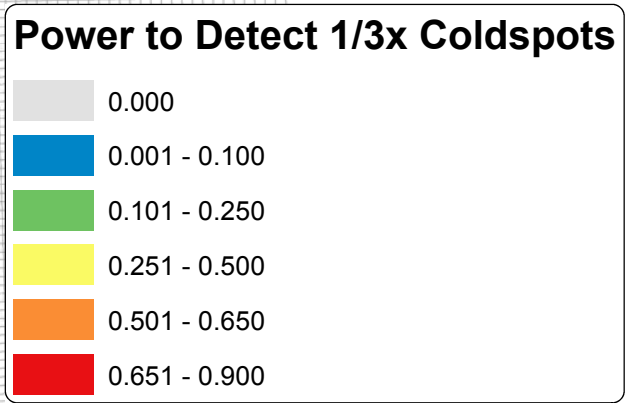
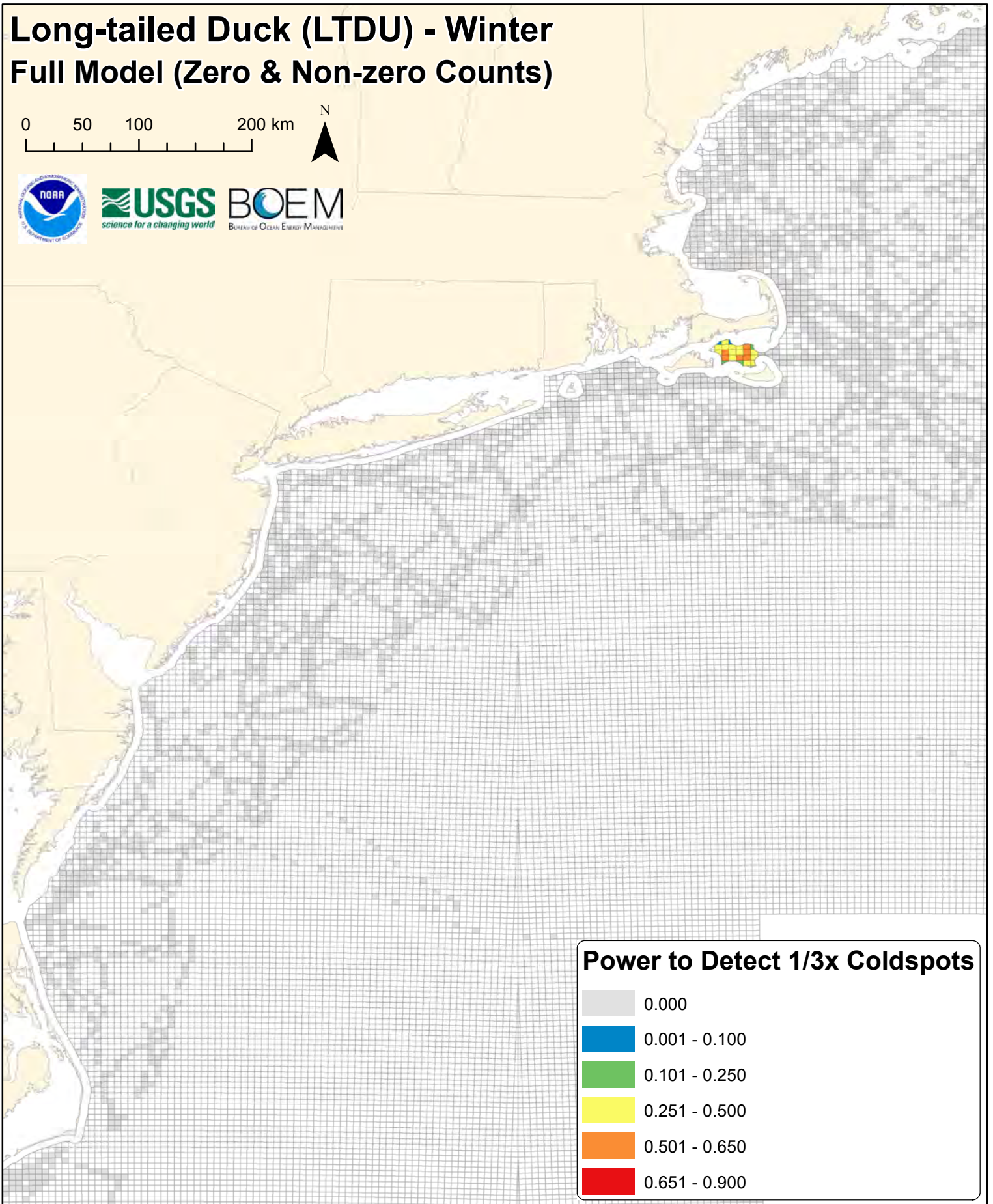
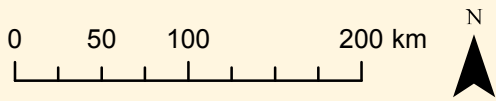
ltdu



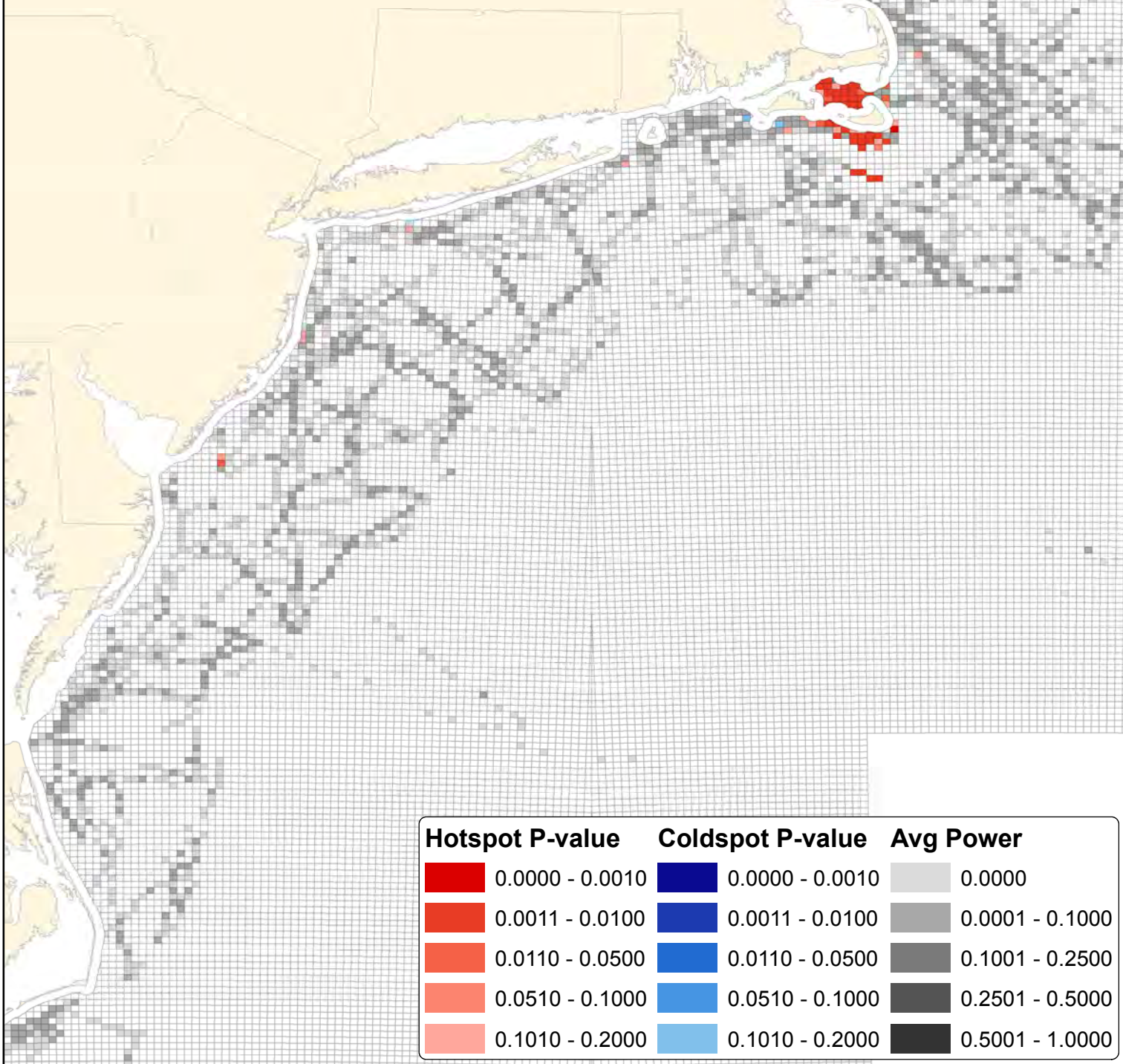
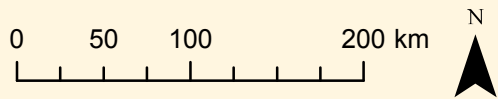
Long-tailed Duck (LTDU) - Winter Full Model (Zero & Non-zero Counts)


















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

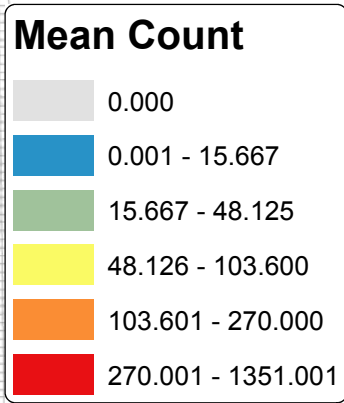
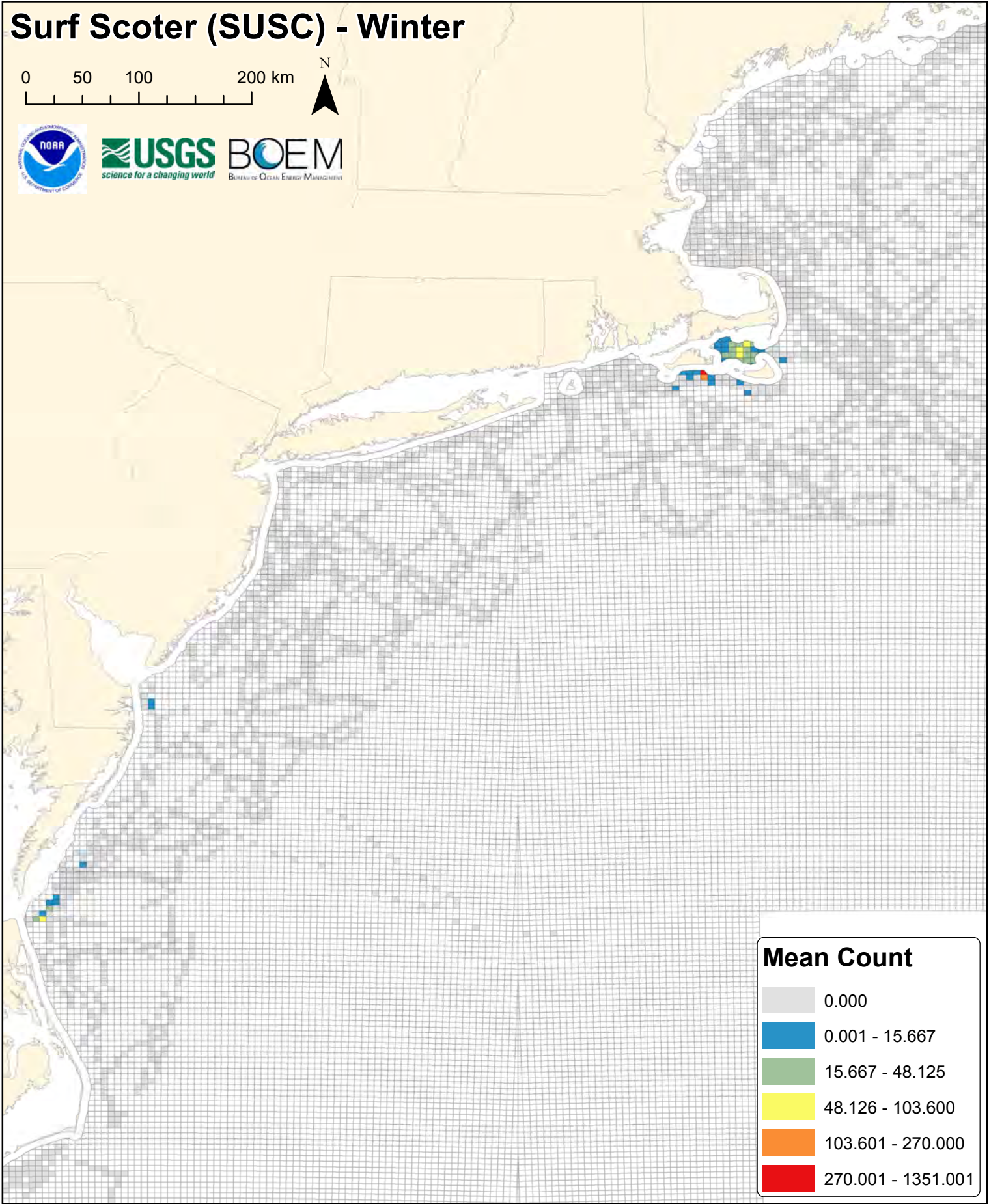
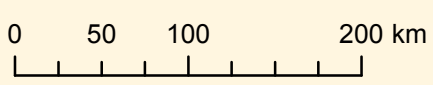


Long-tailed Duck (LTDU) - Winter Full Model (Zero & Non-zero Counts)

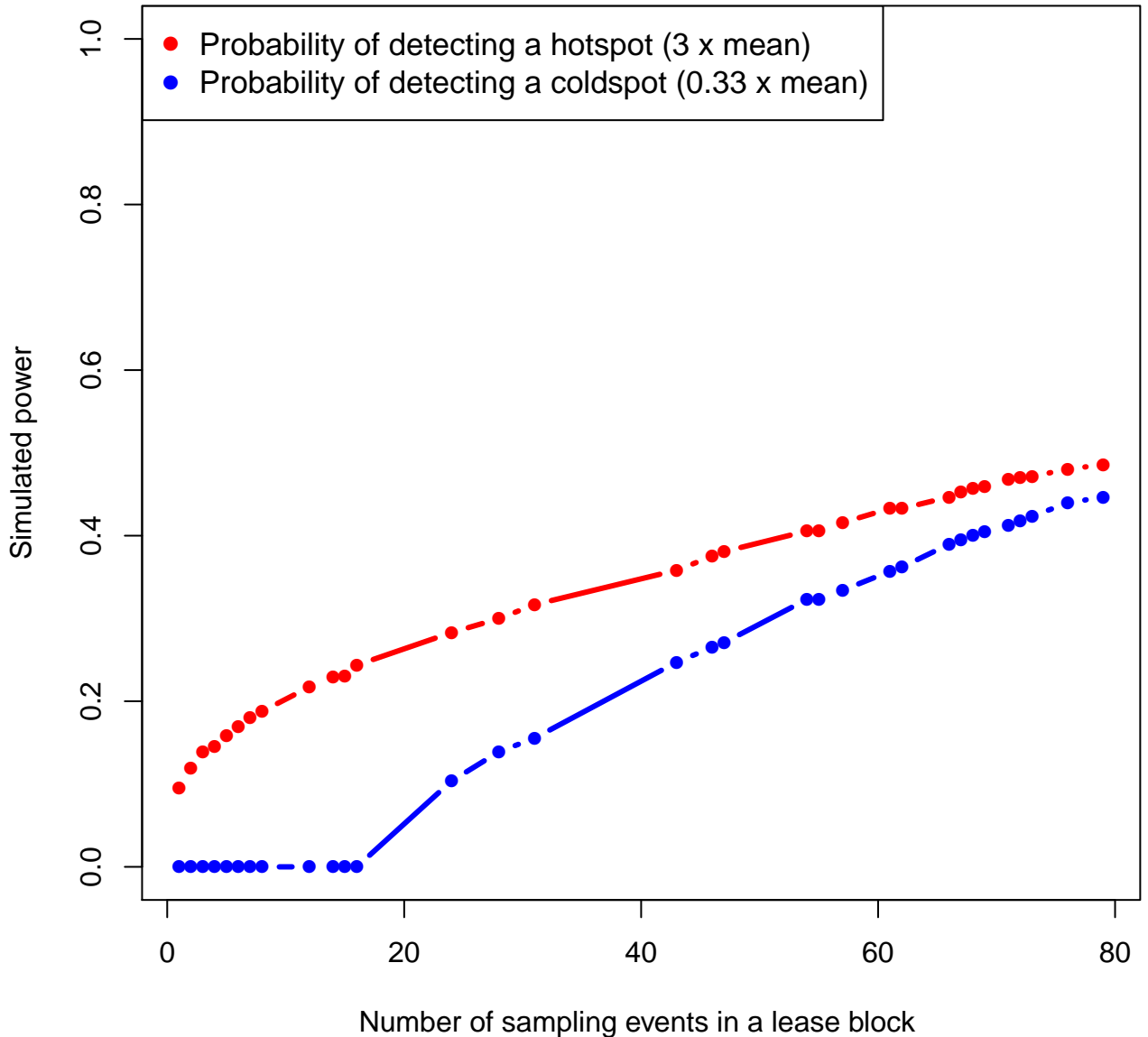


Hotspot P-value	Coldspot P-value	Avg Power
 0.0000 - 0.0010	 0.0000 - 0.0010	 0.0000
 0.0011 - 0.0100	 0.0011 - 0.0100	 0.0001 - 0.1000
 0.0110 - 0.0500	 0.0110 - 0.0500	 0.1001 - 0.2500
 0.0510 - 0.1000	 0.0510 - 0.1000	 0.2501 - 0.5000
 0.1010 - 0.2000	 0.1010 - 0.2000	 0.5001 - 1.0000

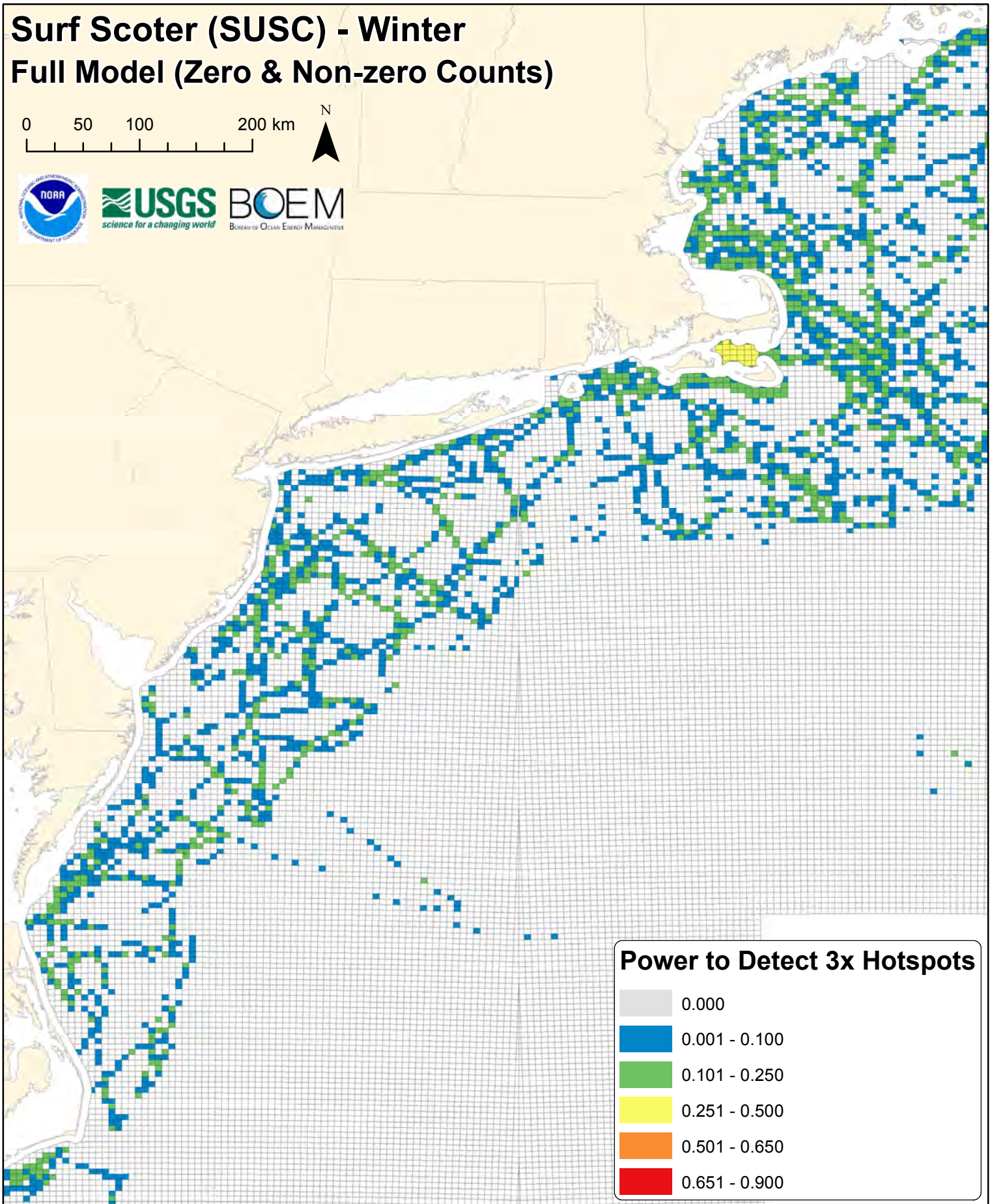
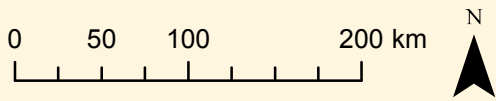
Surf Scoter (SUSC) - Winter



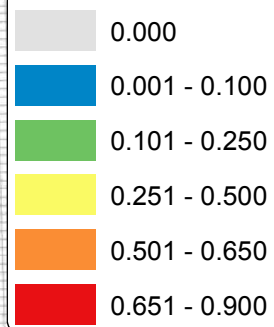
SUSC



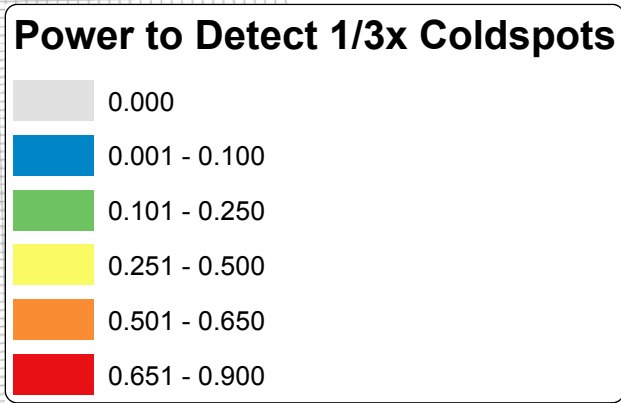
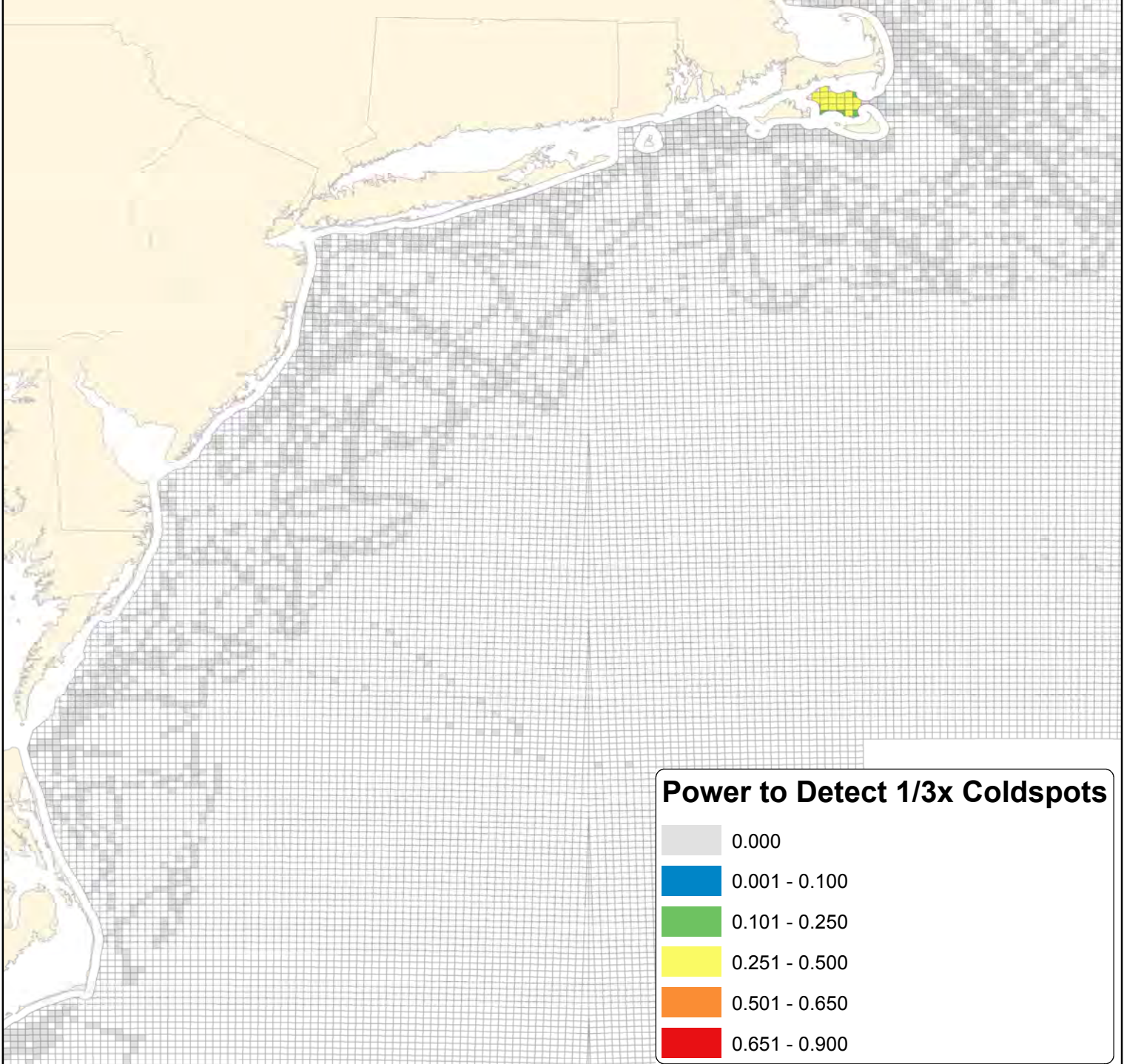
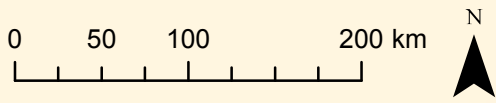
Surf Scoter (SUSC) - Winter Full Model (Zero & Non-zero Counts)



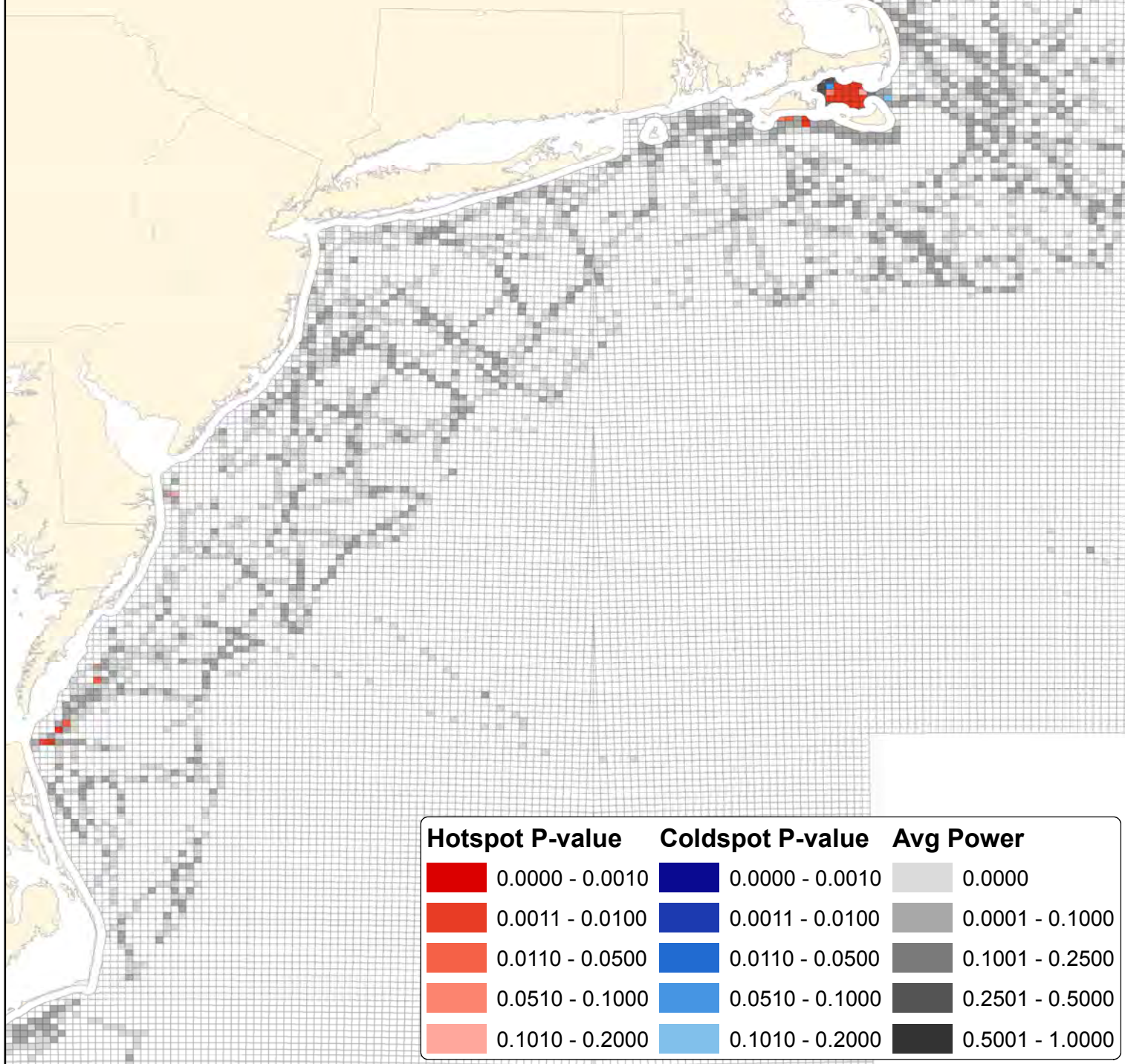
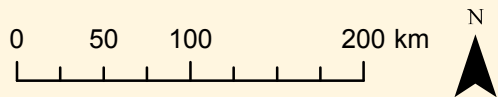
Power to Detect 3x Hotspots



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

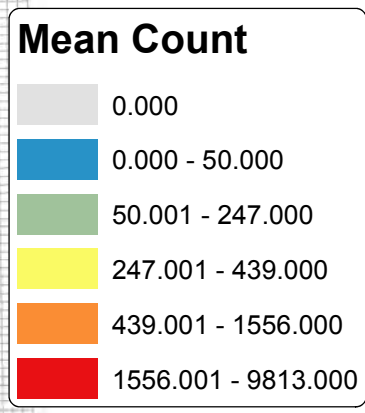
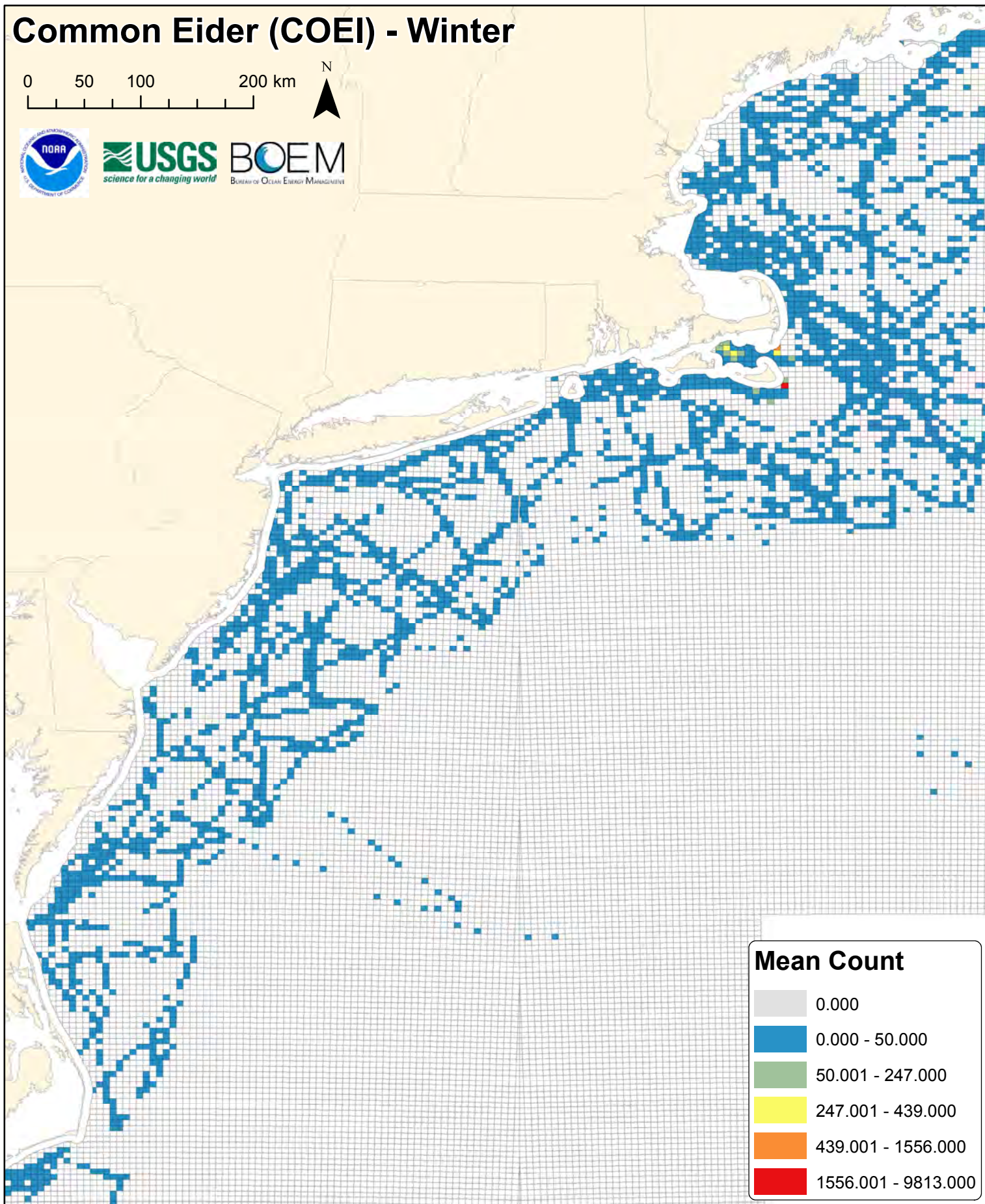


Surf Scoter (SUSC) - Winter Full Model (Zero & Non-zero Counts)

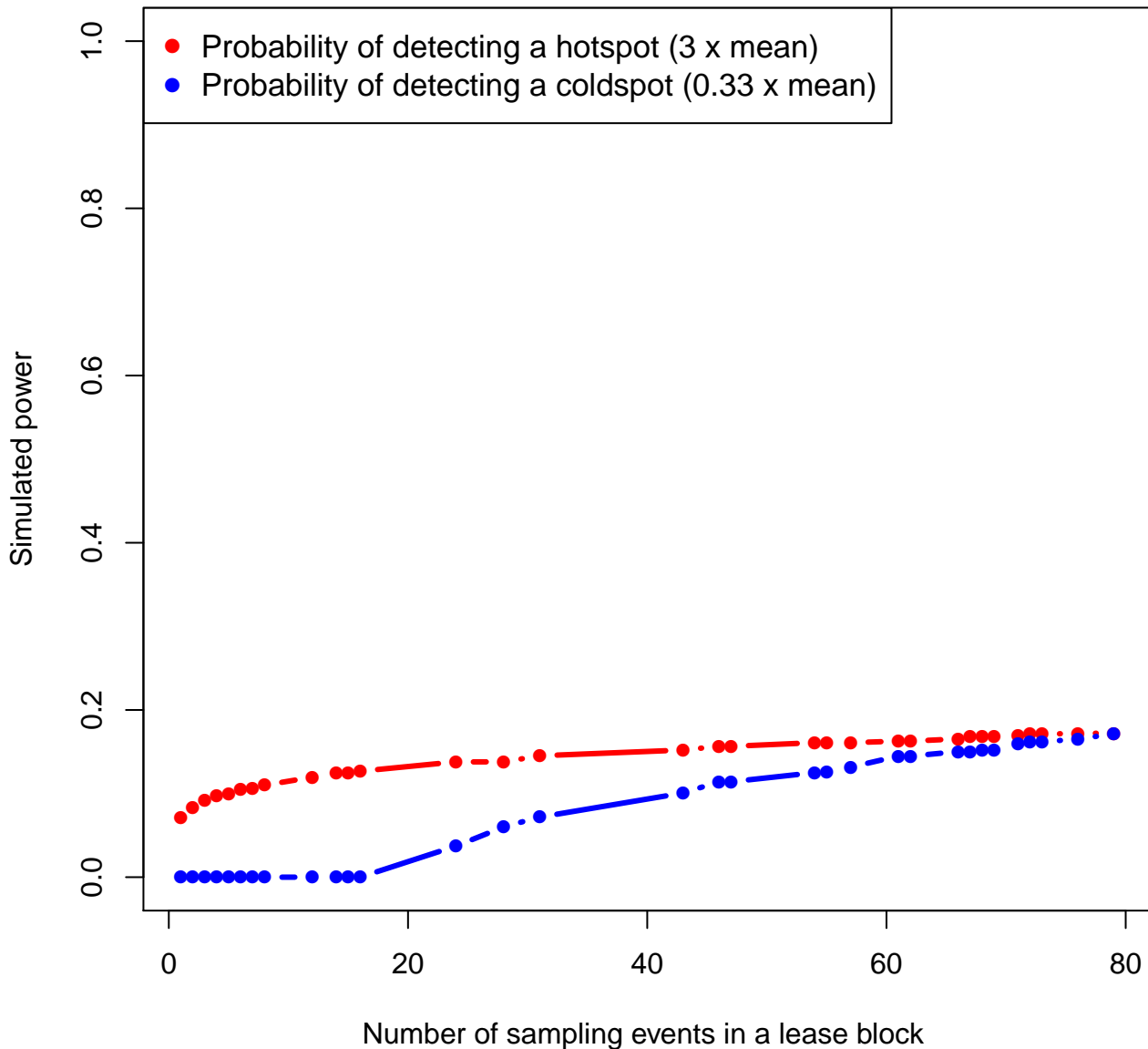


Common Eider (COEI) - Winter

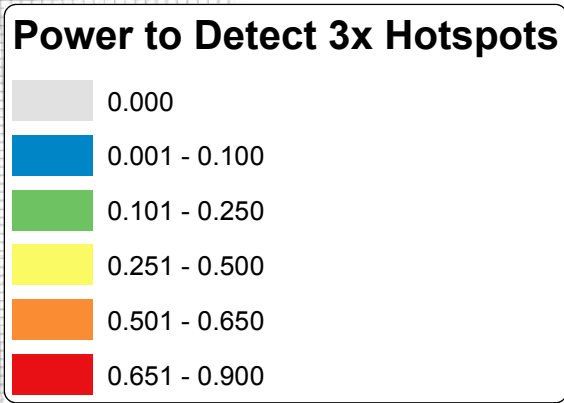
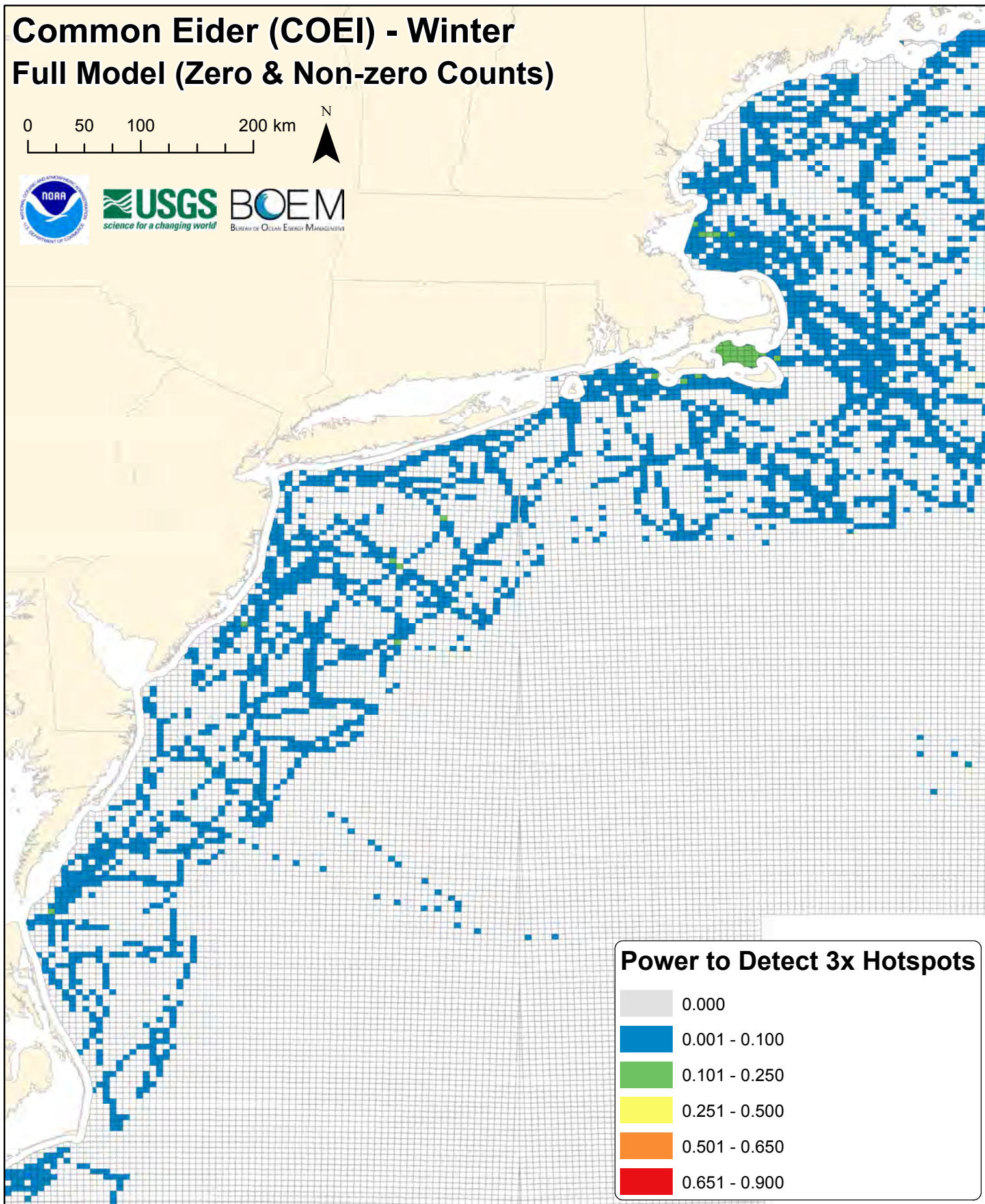
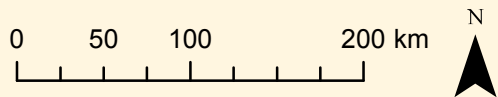
0 50 100 200 km



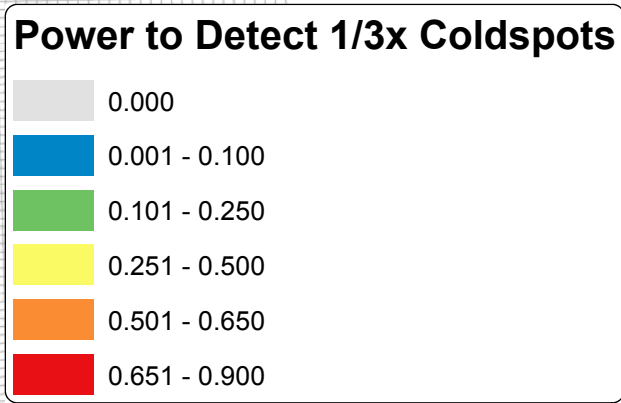
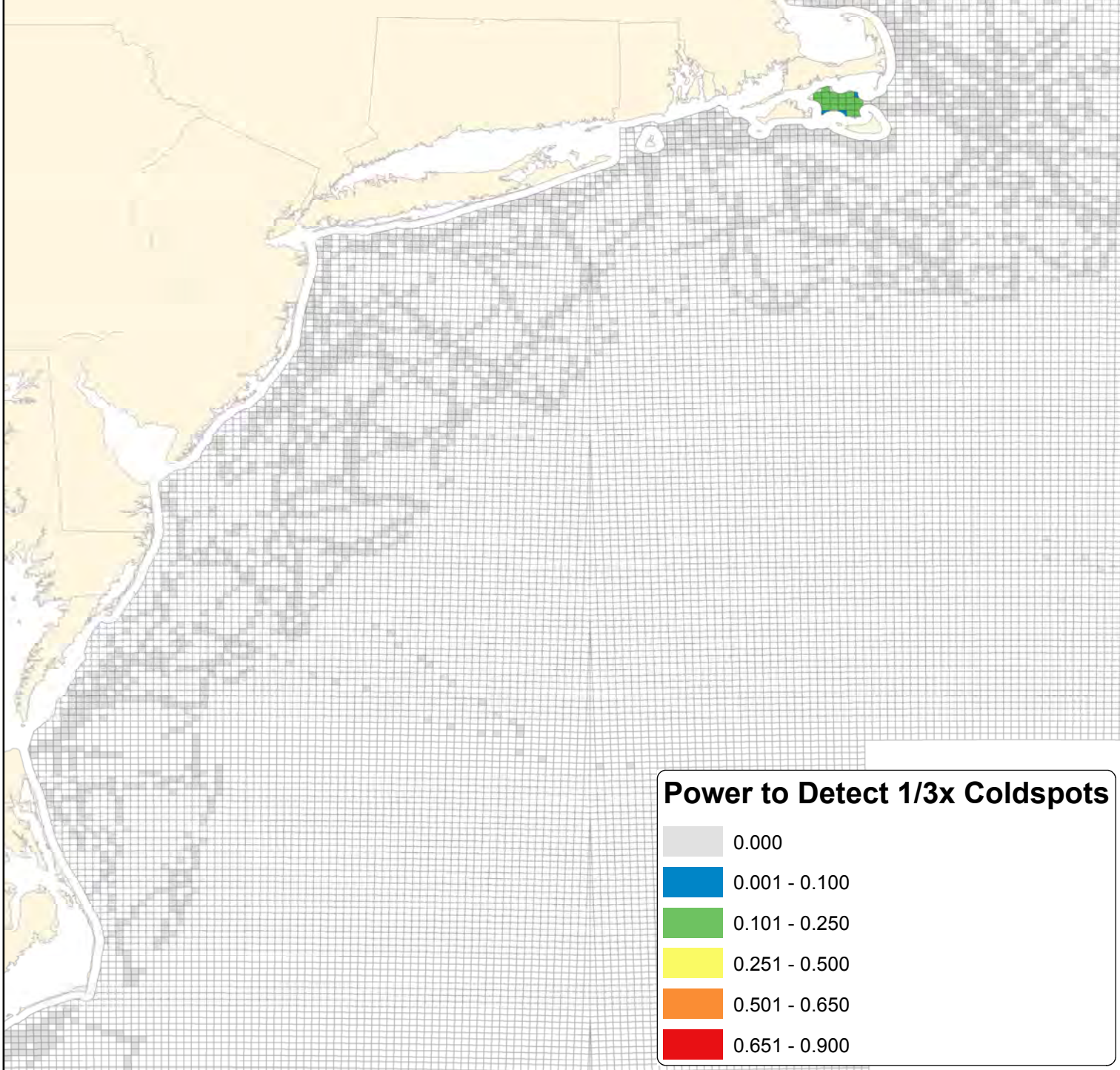
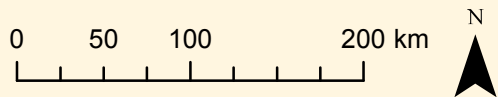
coei



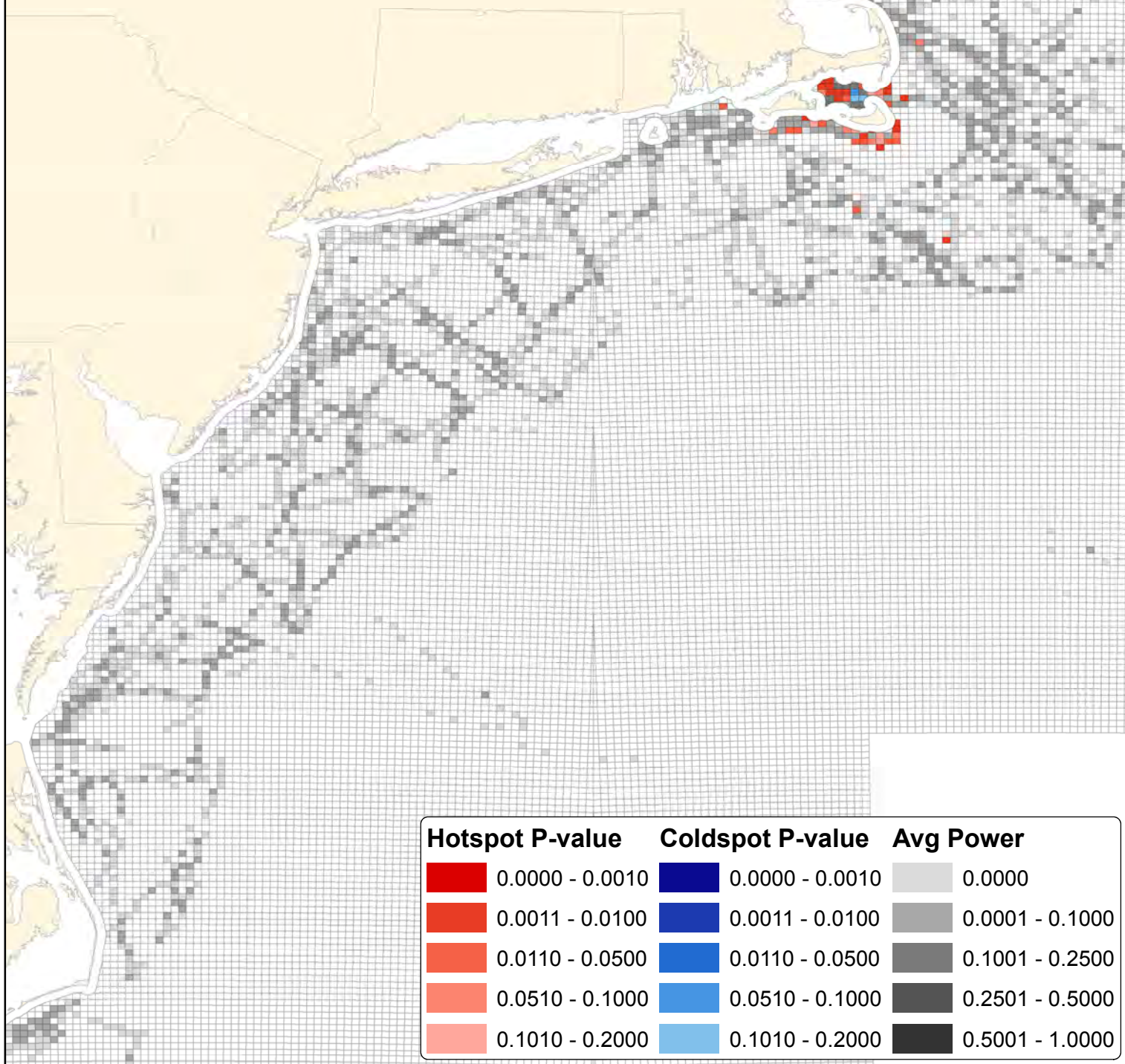
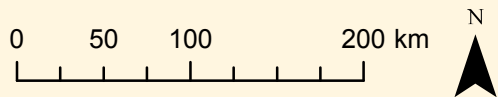
Common Eider (COEI) - Winter Full Model (Zero & Non-zero Counts)


















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



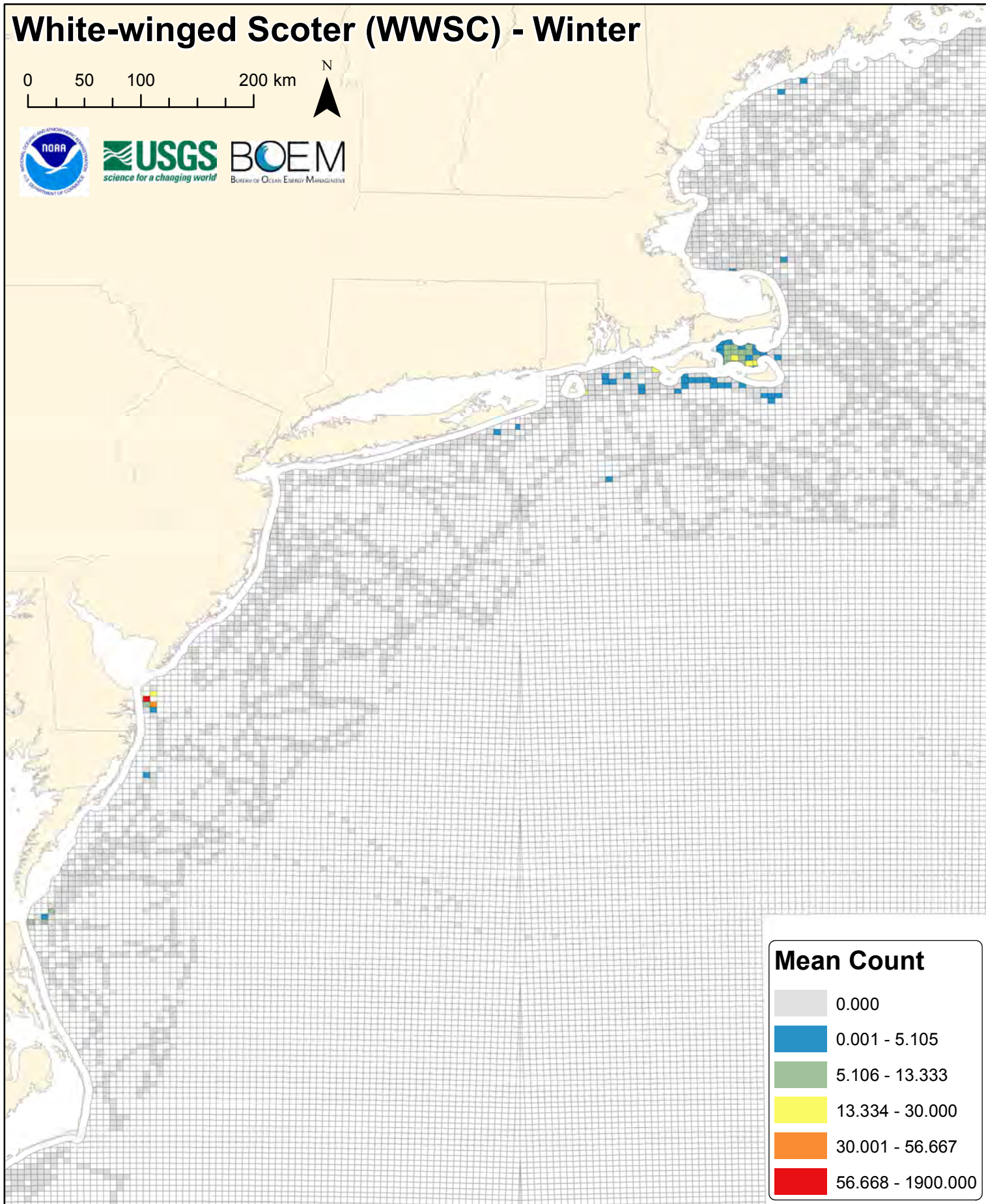
Common Eider (COEI) - Winter Full Model (Zero & Non-zero Counts)



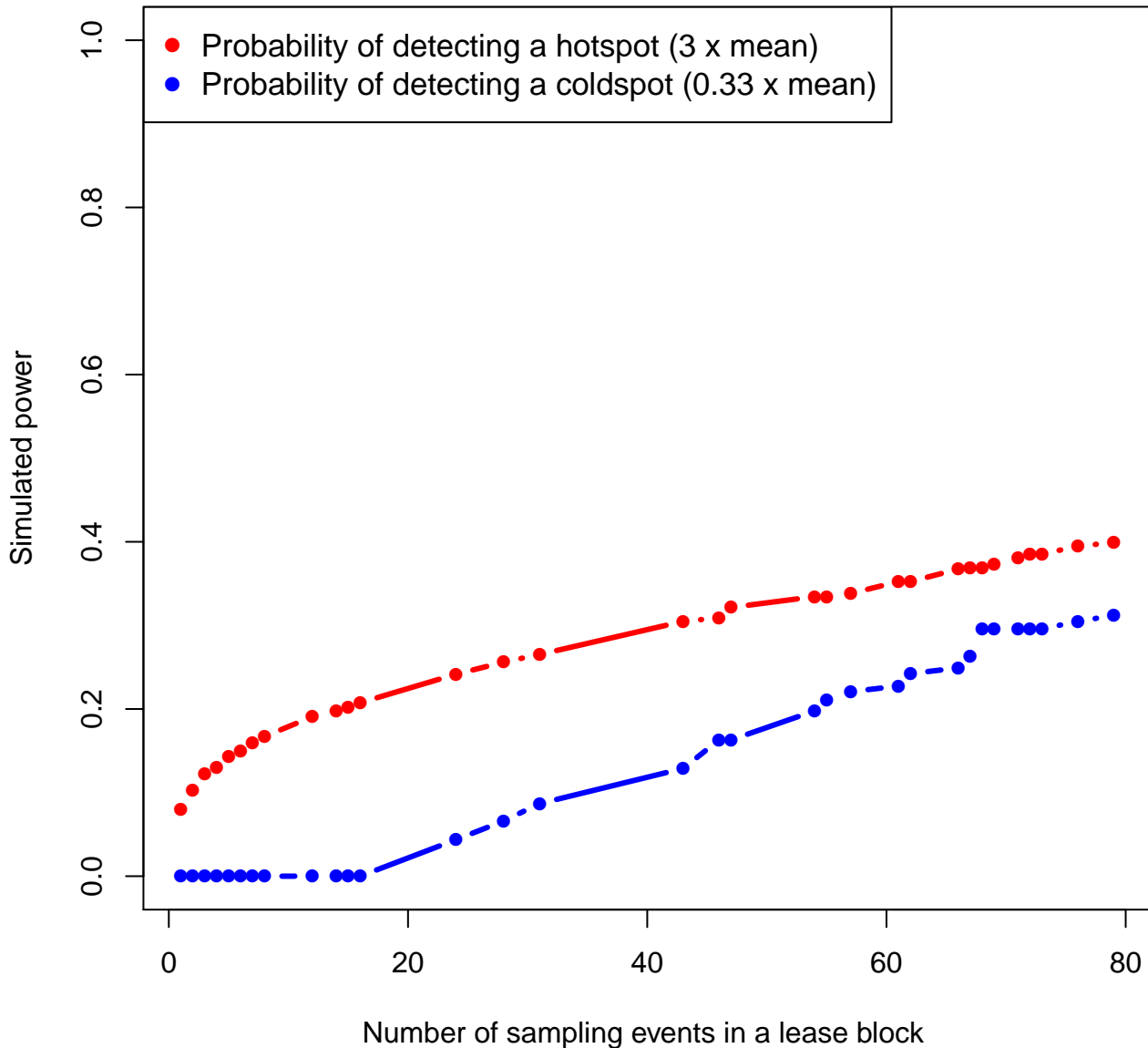
Hotspot P-value	Coldspot P-value	Avg Power
 0.0000 - 0.0010	 0.0000 - 0.0010	 0.0000
 0.0011 - 0.0100	 0.0011 - 0.0100	 0.0001 - 0.1000
 0.0110 - 0.0500	 0.0110 - 0.0500	 0.1001 - 0.2500
 0.0510 - 0.1000	 0.0510 - 0.1000	 0.2501 - 0.5000
 0.1010 - 0.2000	 0.1010 - 0.2000	 0.5001 - 1.0000

White-winged Scoter (WWSC) - Winter

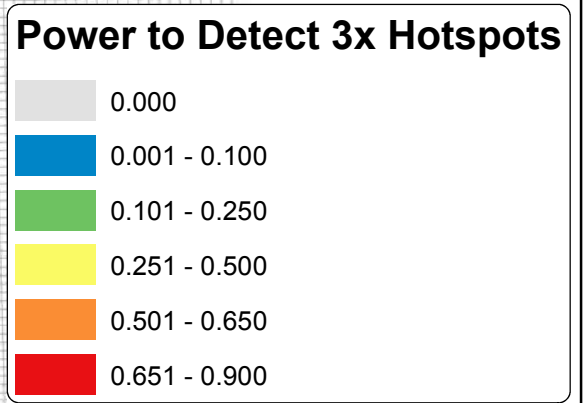
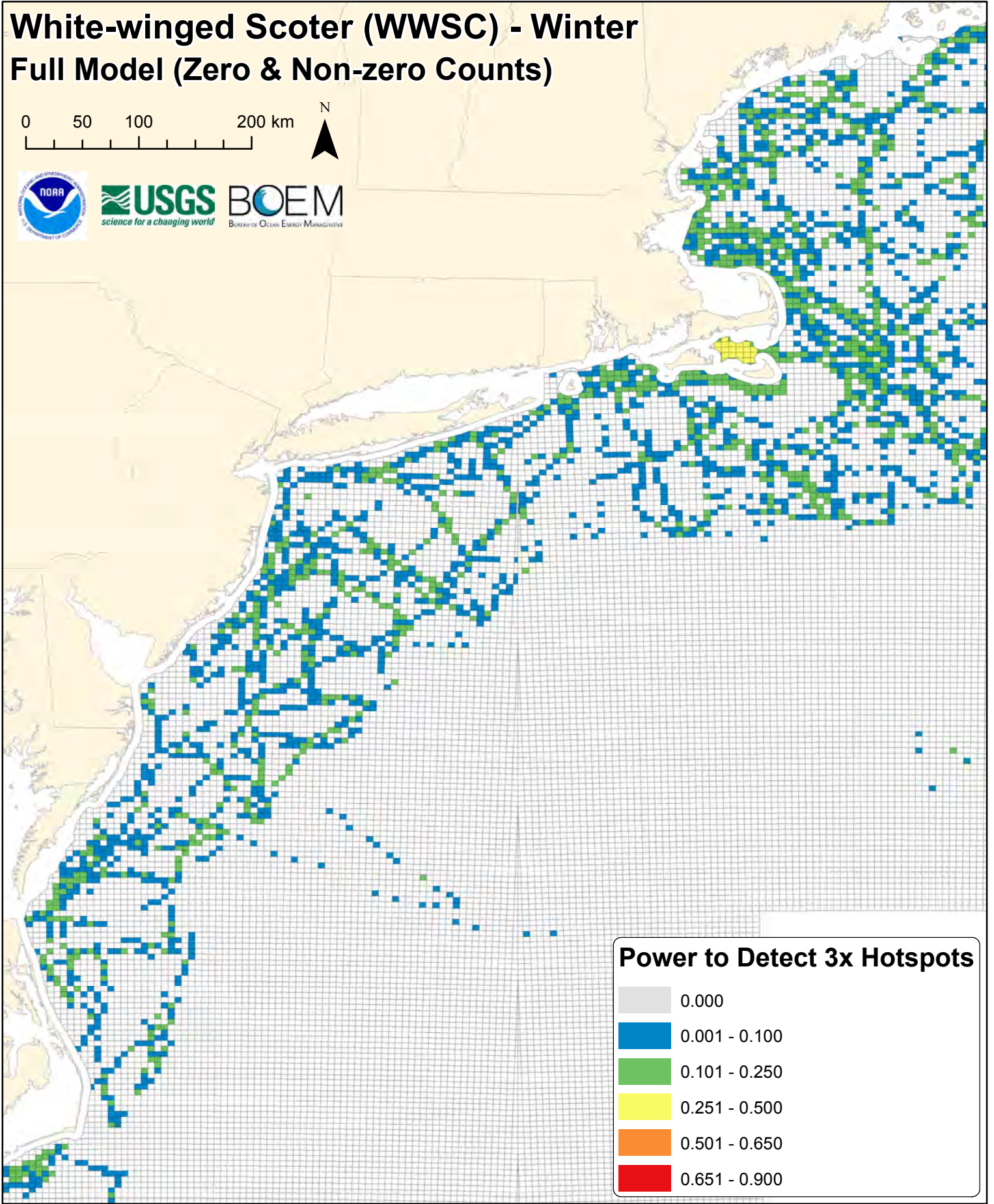
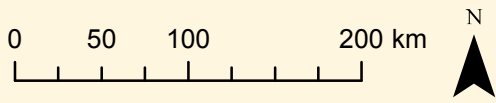
0 50 100 200 km



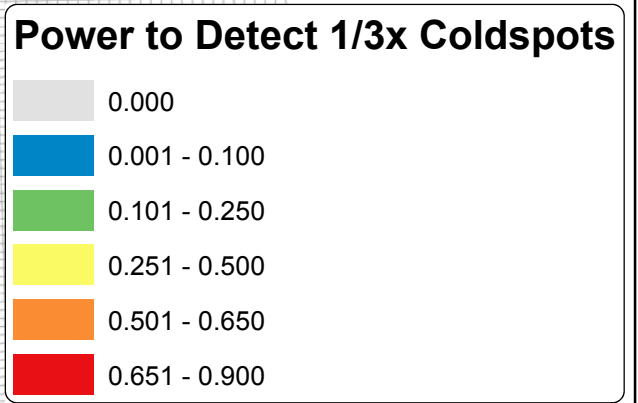
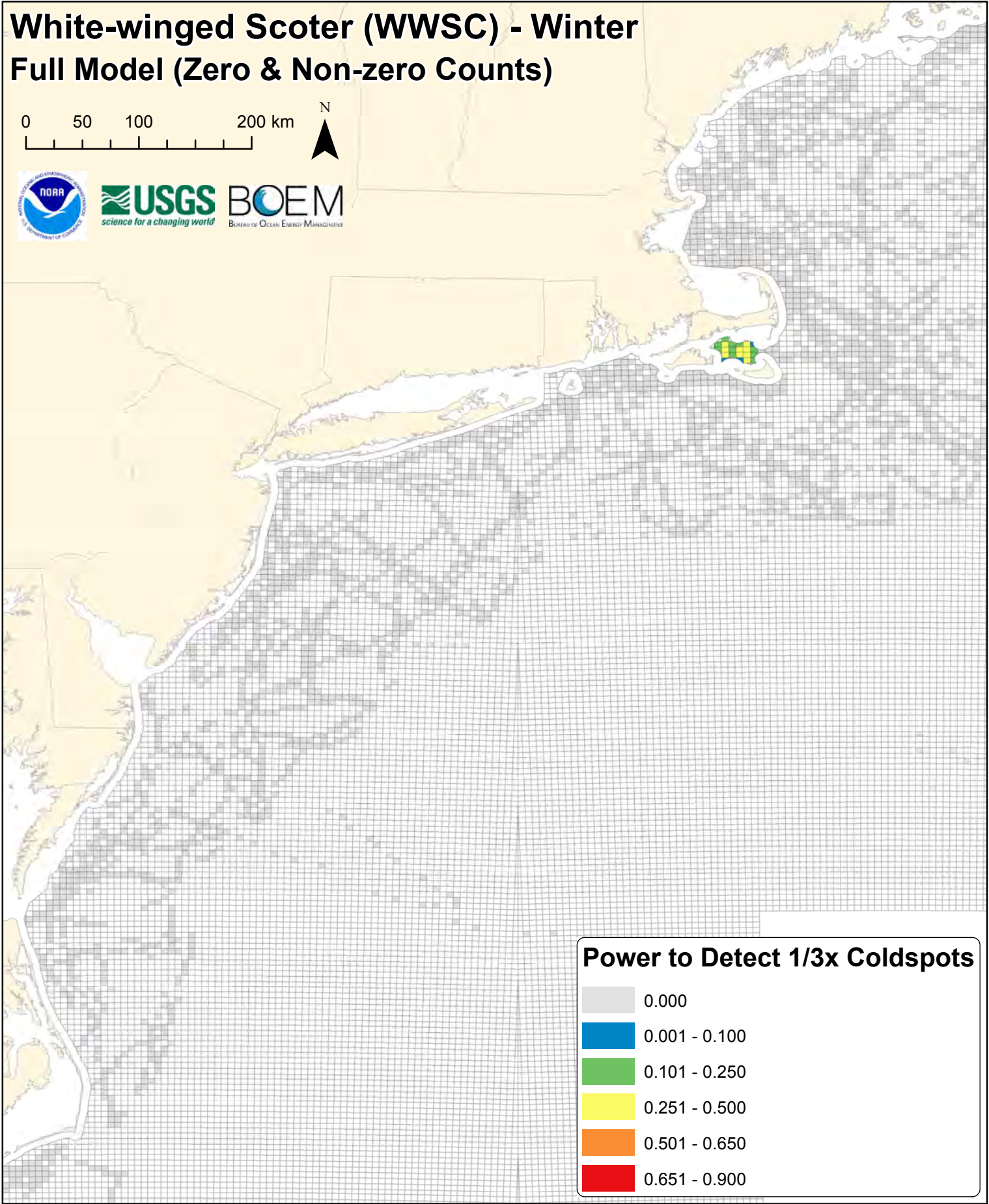
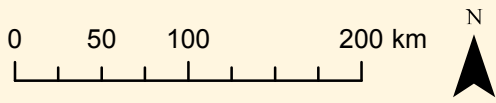
WWSC



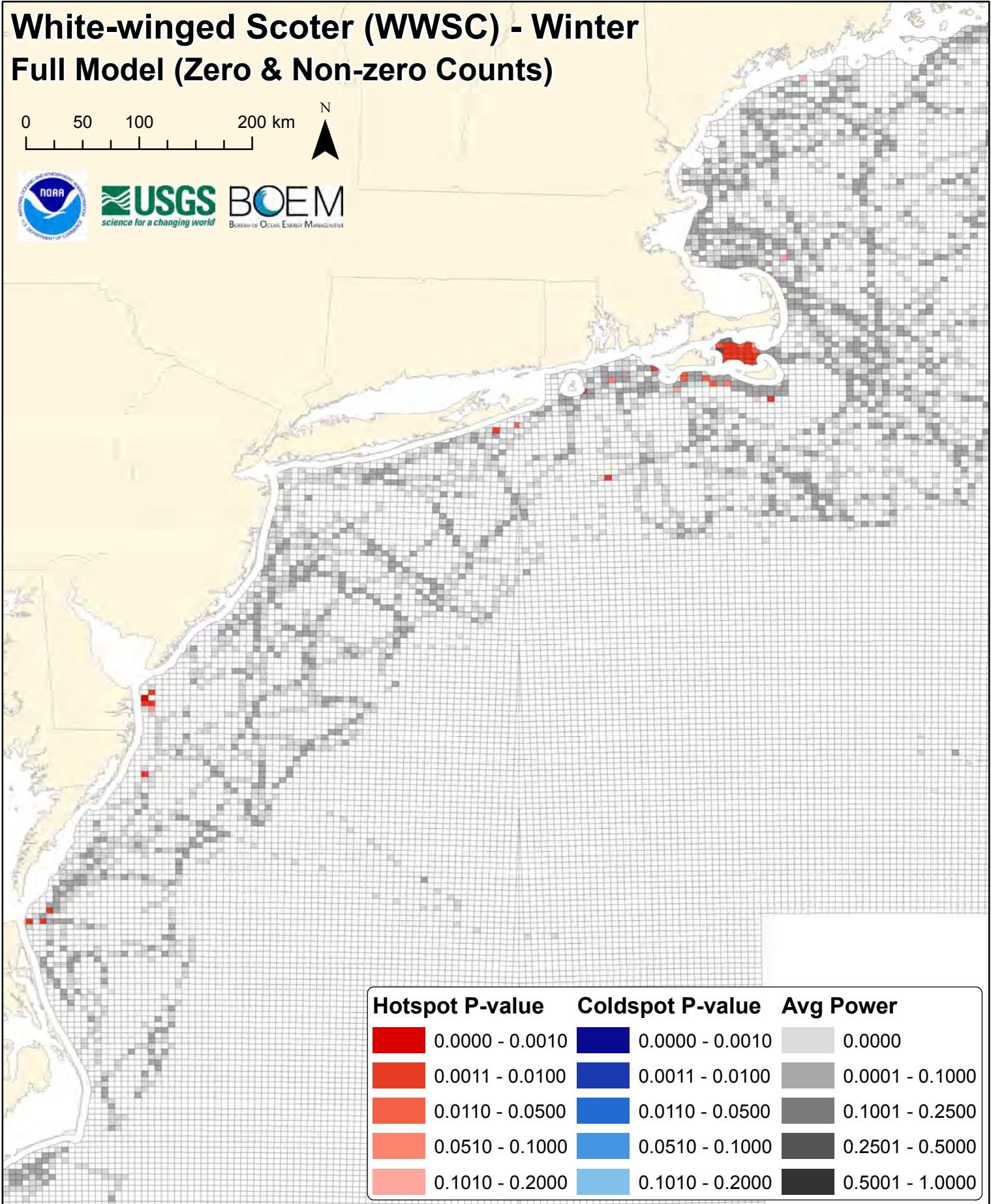
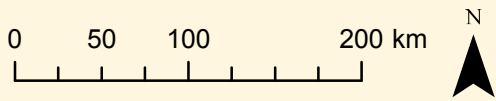
White-winged Scoter (WWSC) - Winter Full Model (Zero & Non-zero Counts)


















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



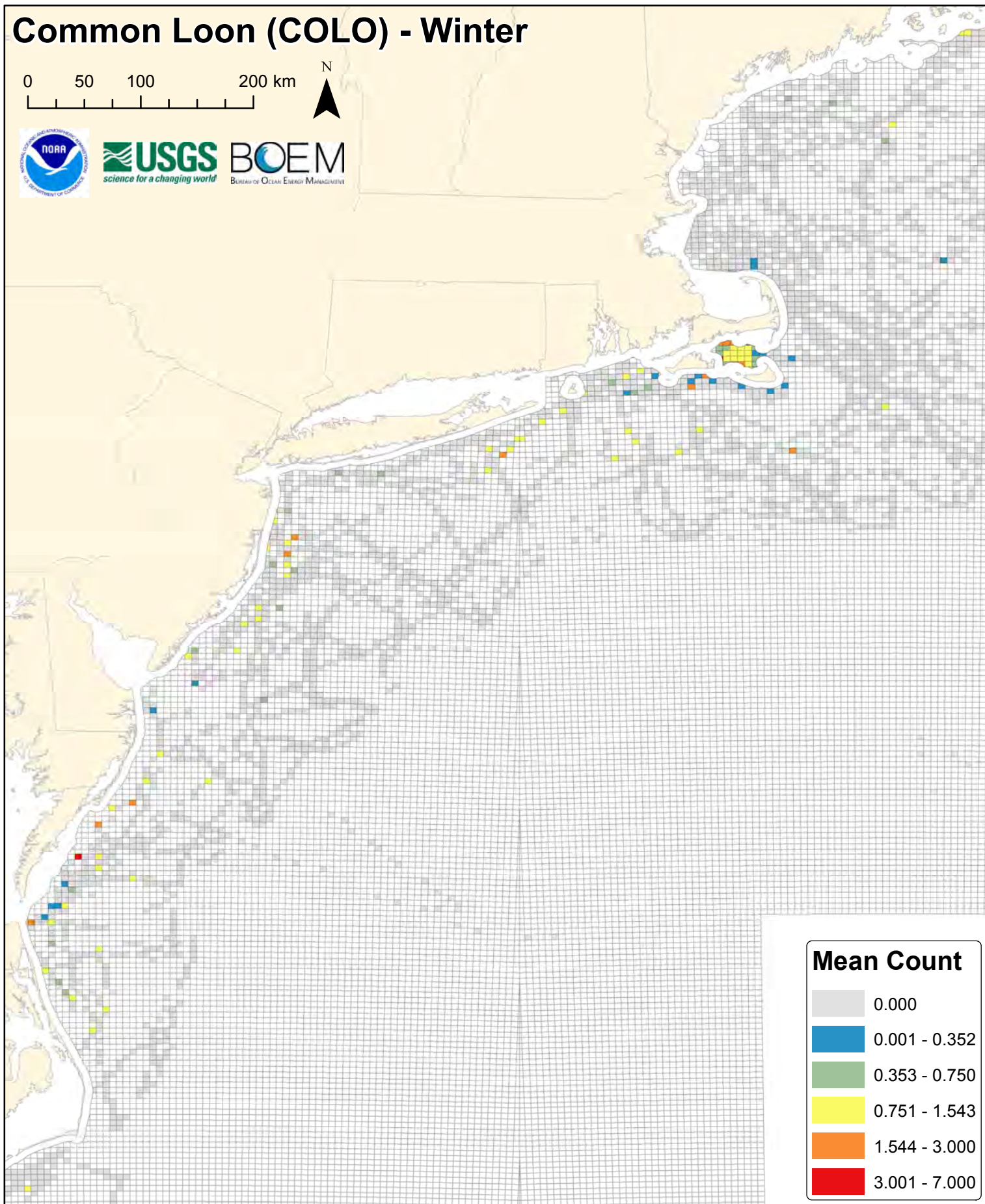
White-winged Scoter (WWSC) - Winter Full Model (Zero & Non-zero Counts)



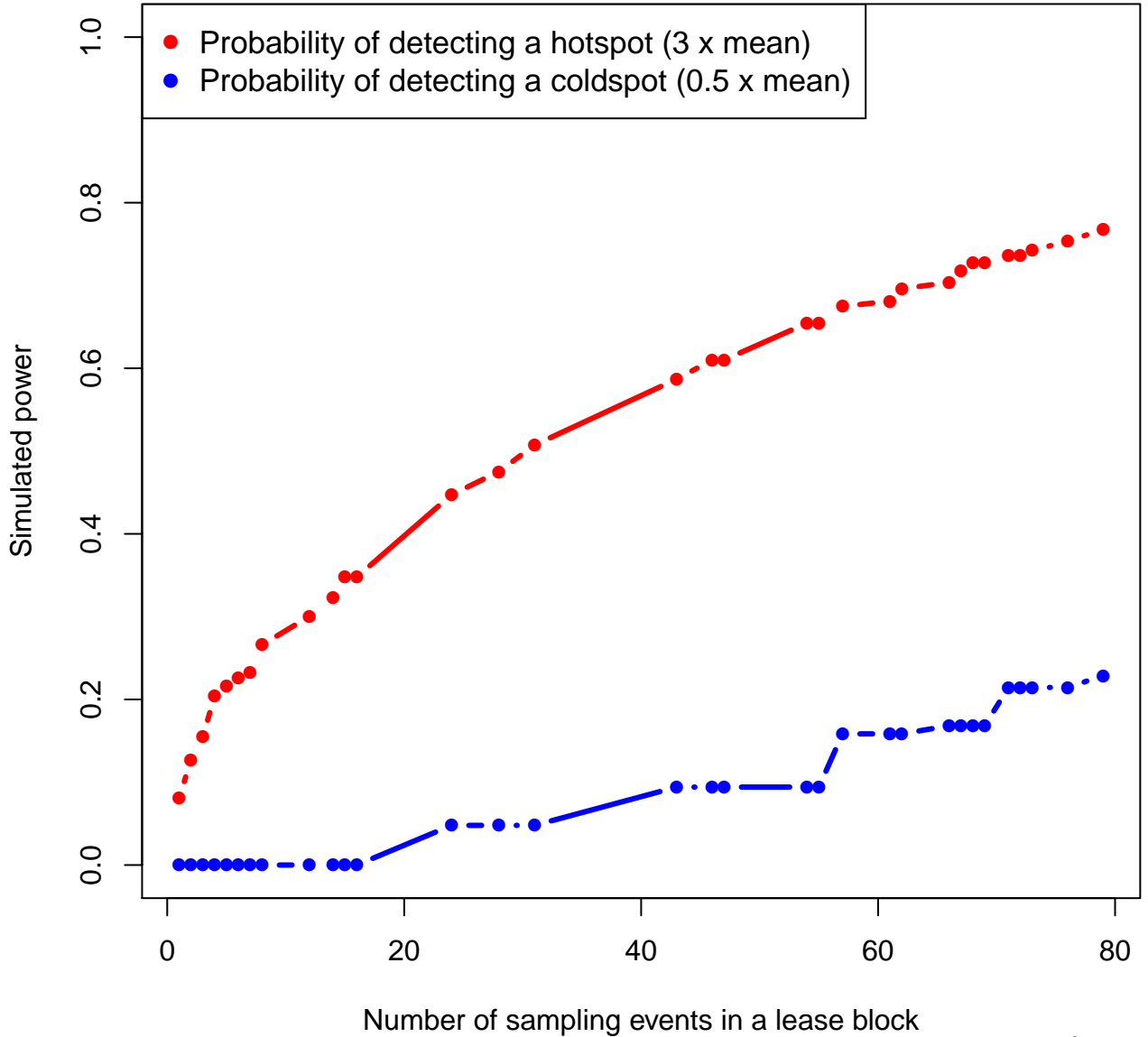
Hotspot P-value	Coldspot P-value	Avg Power
 0.0000 - 0.0010	 0.0000 - 0.0010	 0.0000
 0.0011 - 0.0100	 0.0011 - 0.0100	 0.0001 - 0.1000
 0.0110 - 0.0500	 0.0110 - 0.0500	 0.1001 - 0.2500
 0.0510 - 0.1000	 0.0510 - 0.1000	 0.2501 - 0.5000
 0.1010 - 0.2000	 0.1010 - 0.2000	 0.5001 - 1.0000

Common Loon (COLO) - Winter

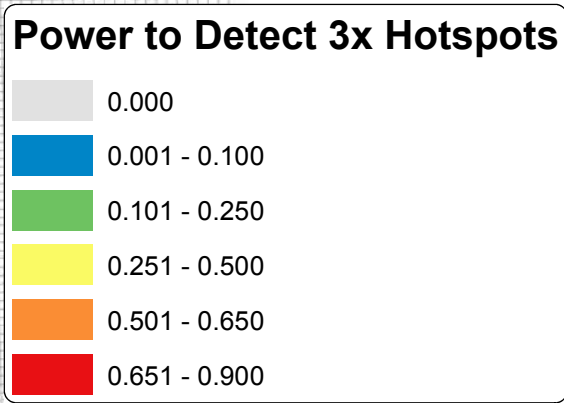
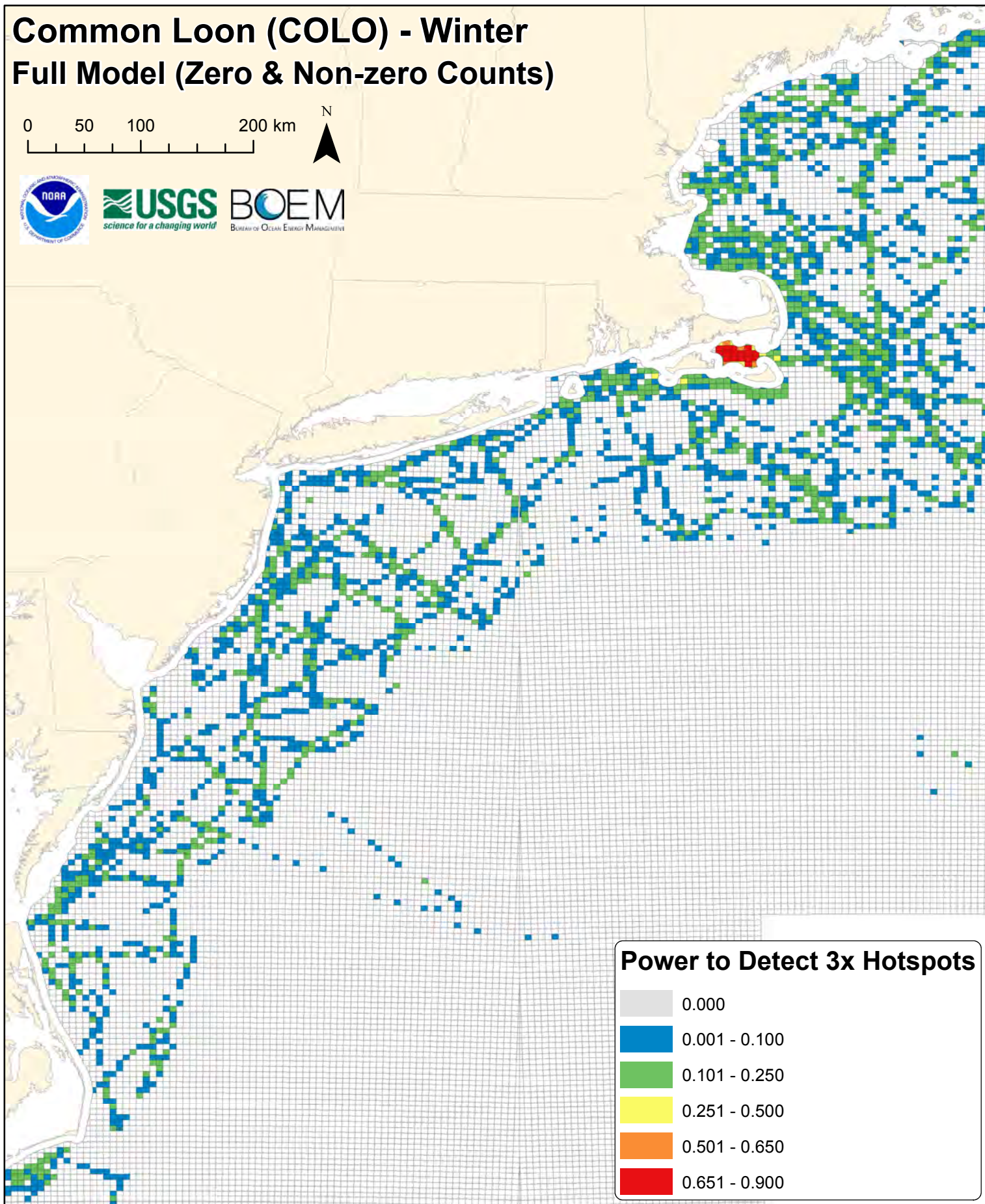
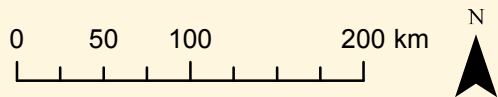
0 50 100 200 km



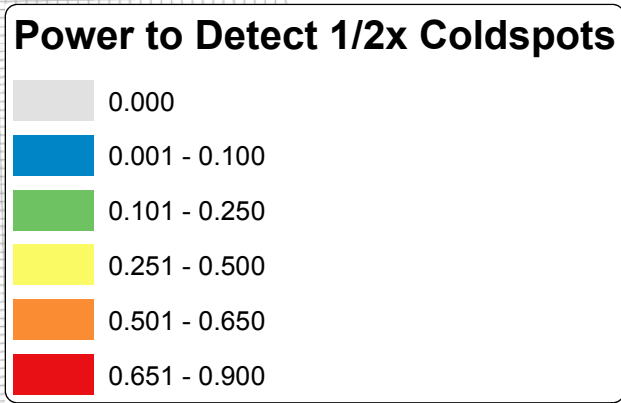
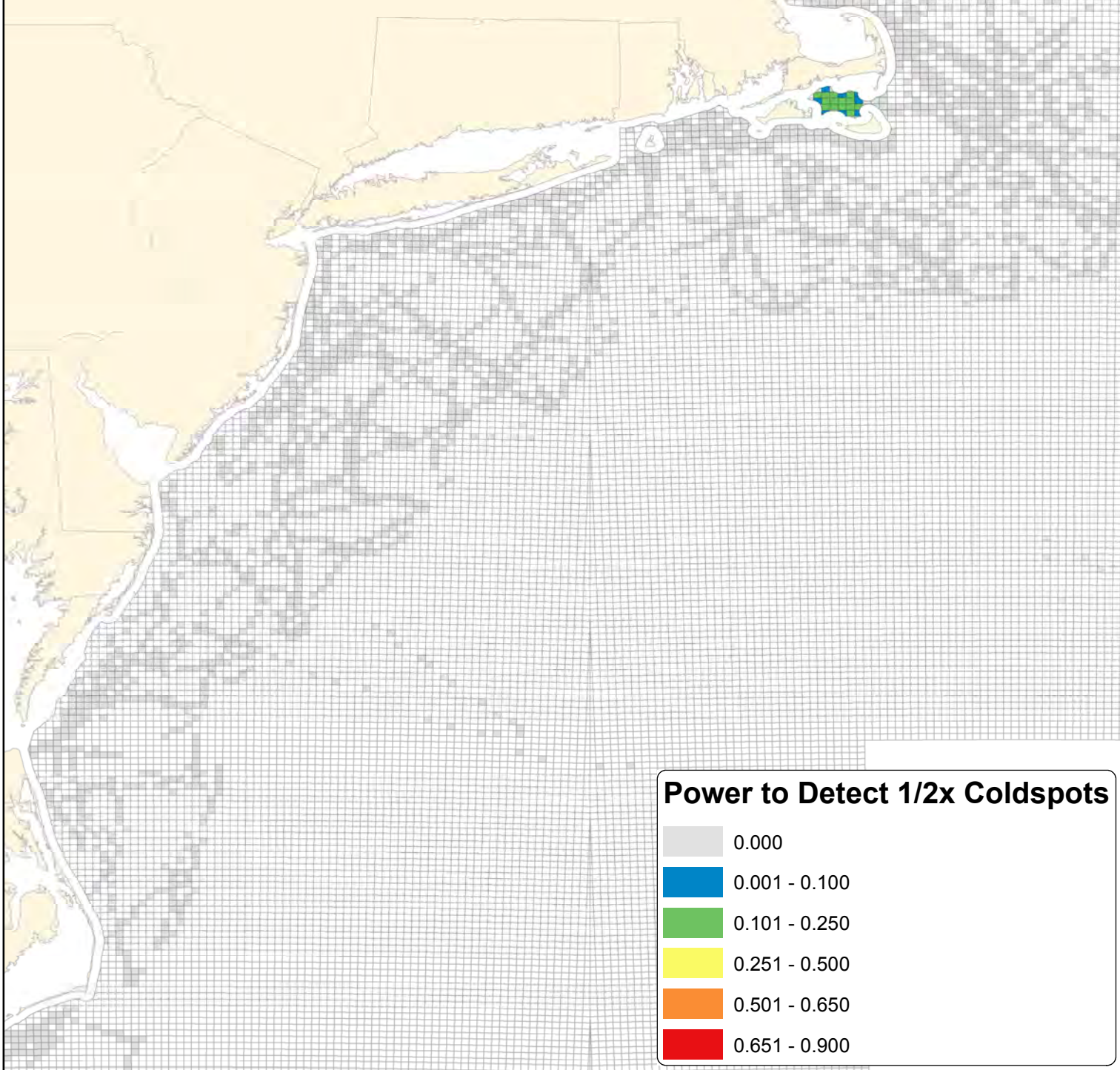
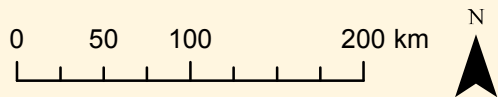
colo



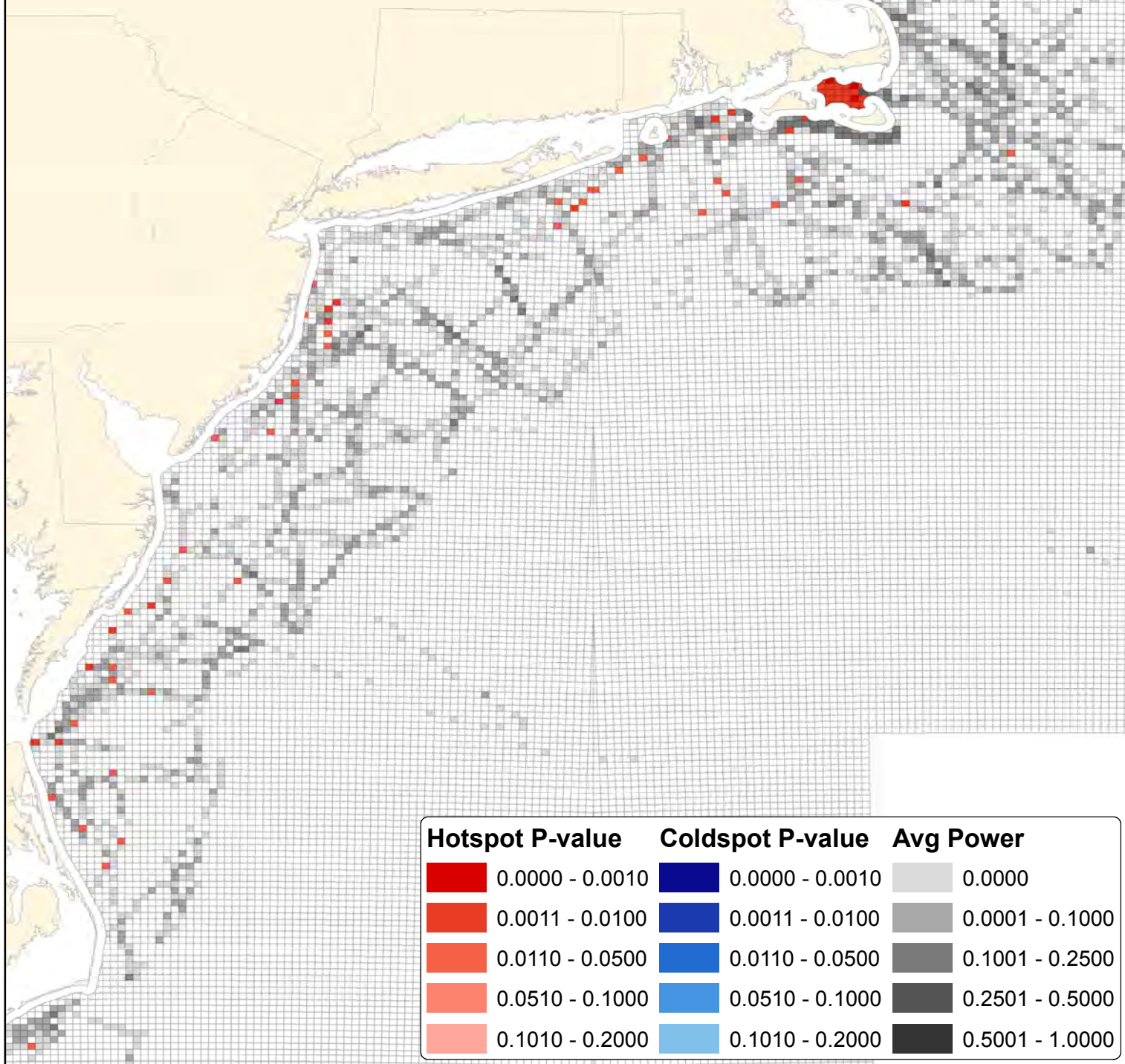
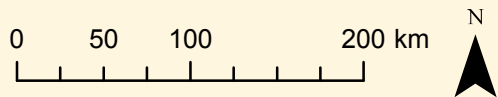
Common Loon (COLO) - Winter Full Model (Zero & Non-zero Counts)


















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



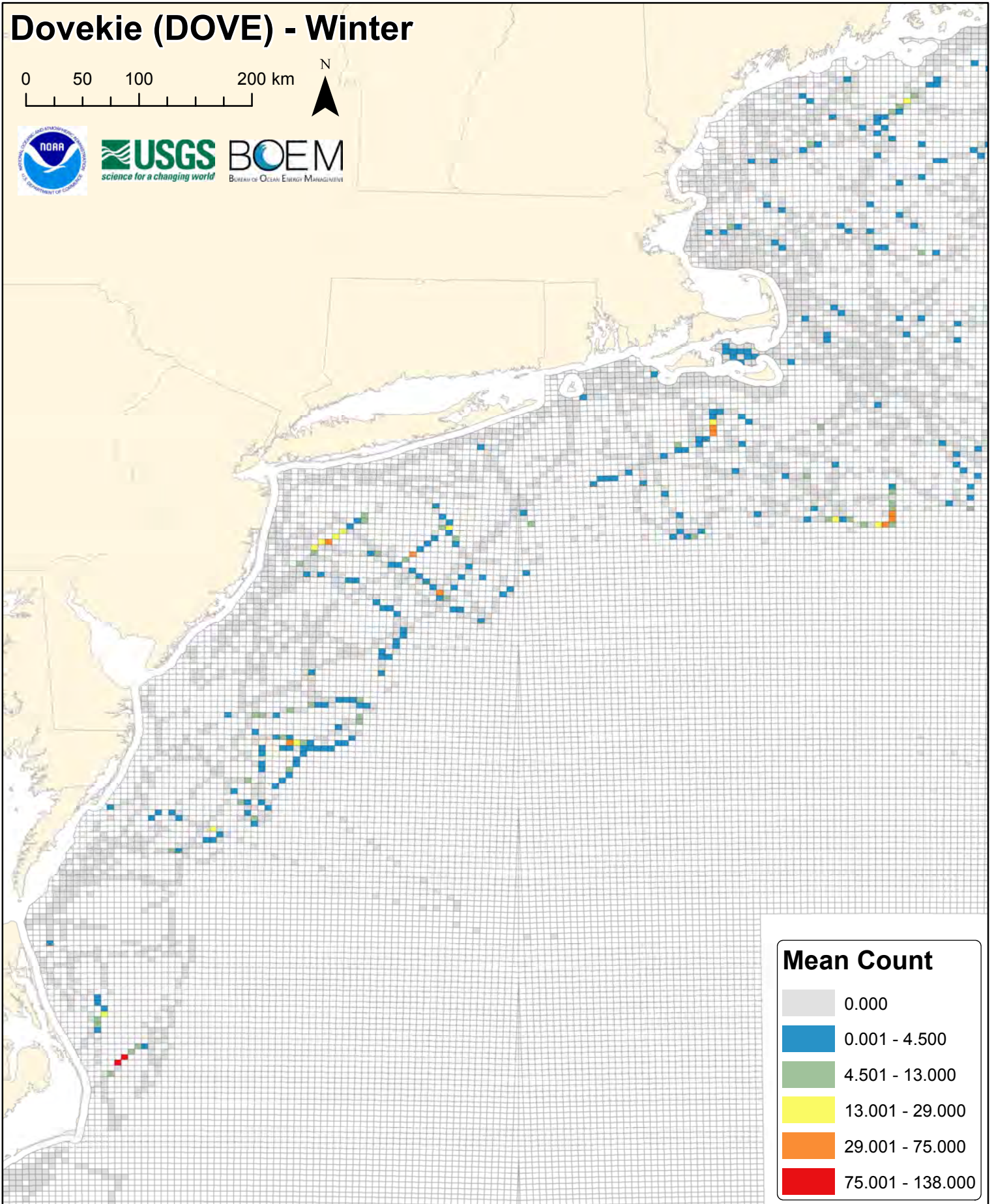
Common Loon (COLO) - Winter Full Model (Zero & Non-zero Counts)



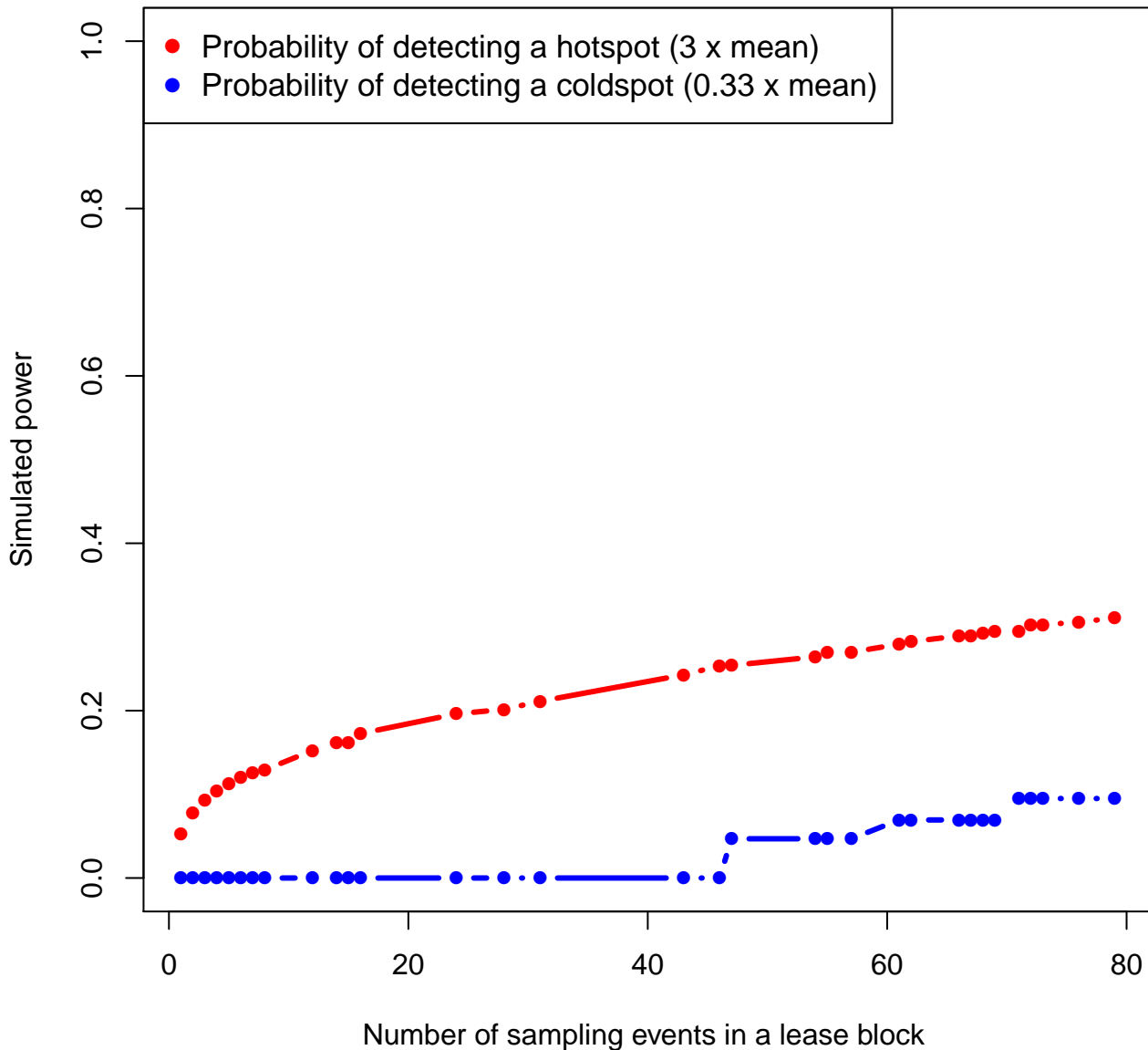
Hotspot P-value	Coldspot P-value	Avg Power
 0.0000 - 0.0010	 0.0000 - 0.0010	 0.0000
 0.0011 - 0.0100	 0.0011 - 0.0100	 0.0001 - 0.1000
 0.0110 - 0.0500	 0.0110 - 0.0500	 0.1001 - 0.2500
 0.0510 - 0.1000	 0.0510 - 0.1000	 0.2501 - 0.5000
 0.1010 - 0.2000	 0.1010 - 0.2000	 0.5001 - 1.0000

Dovekie (DOVE) - Winter

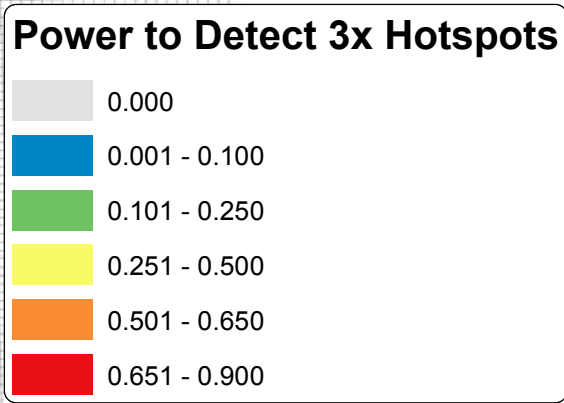
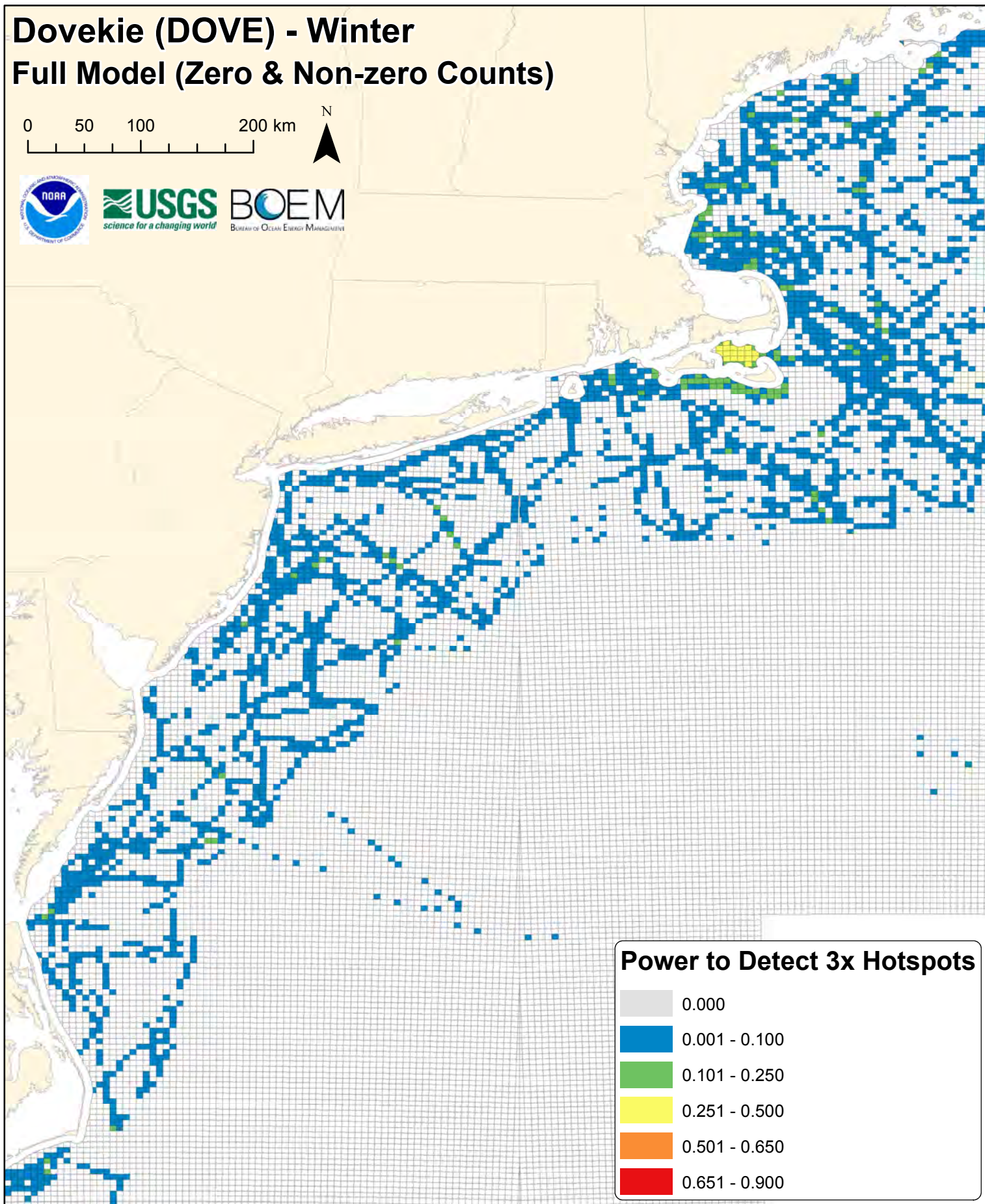
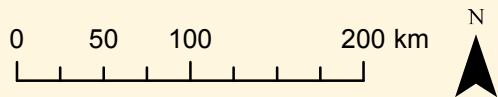
0 50 100 200 km



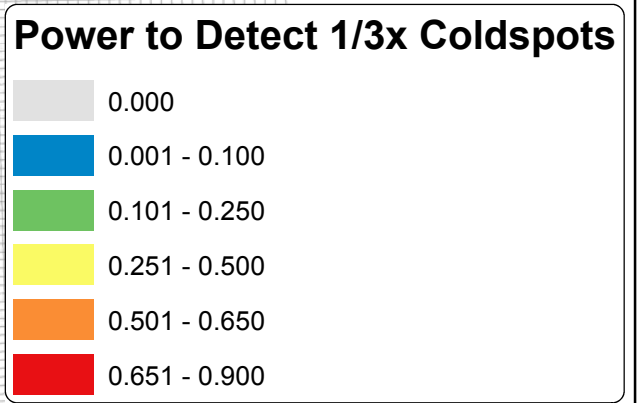
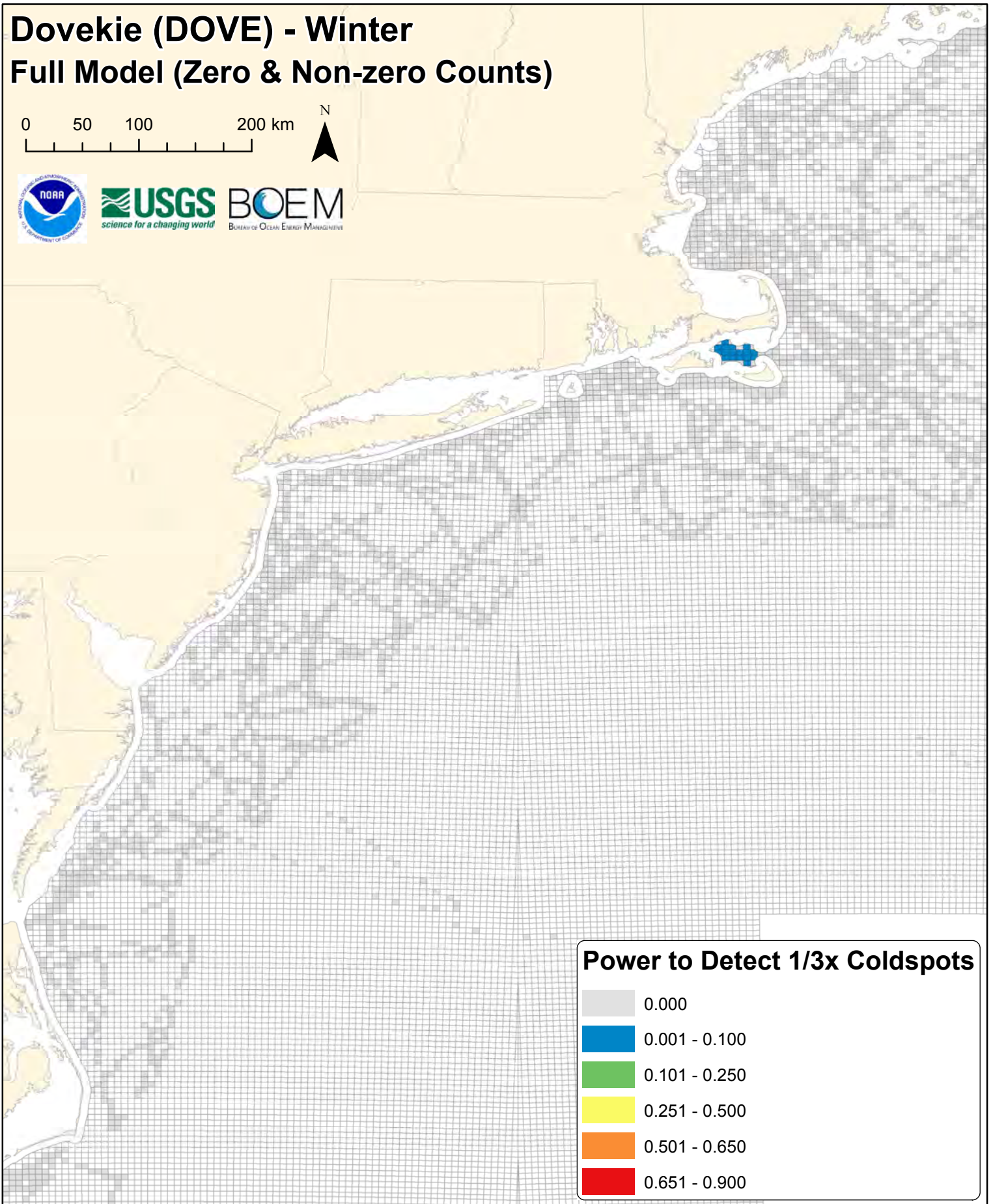
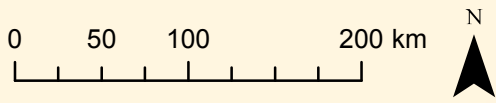
dove



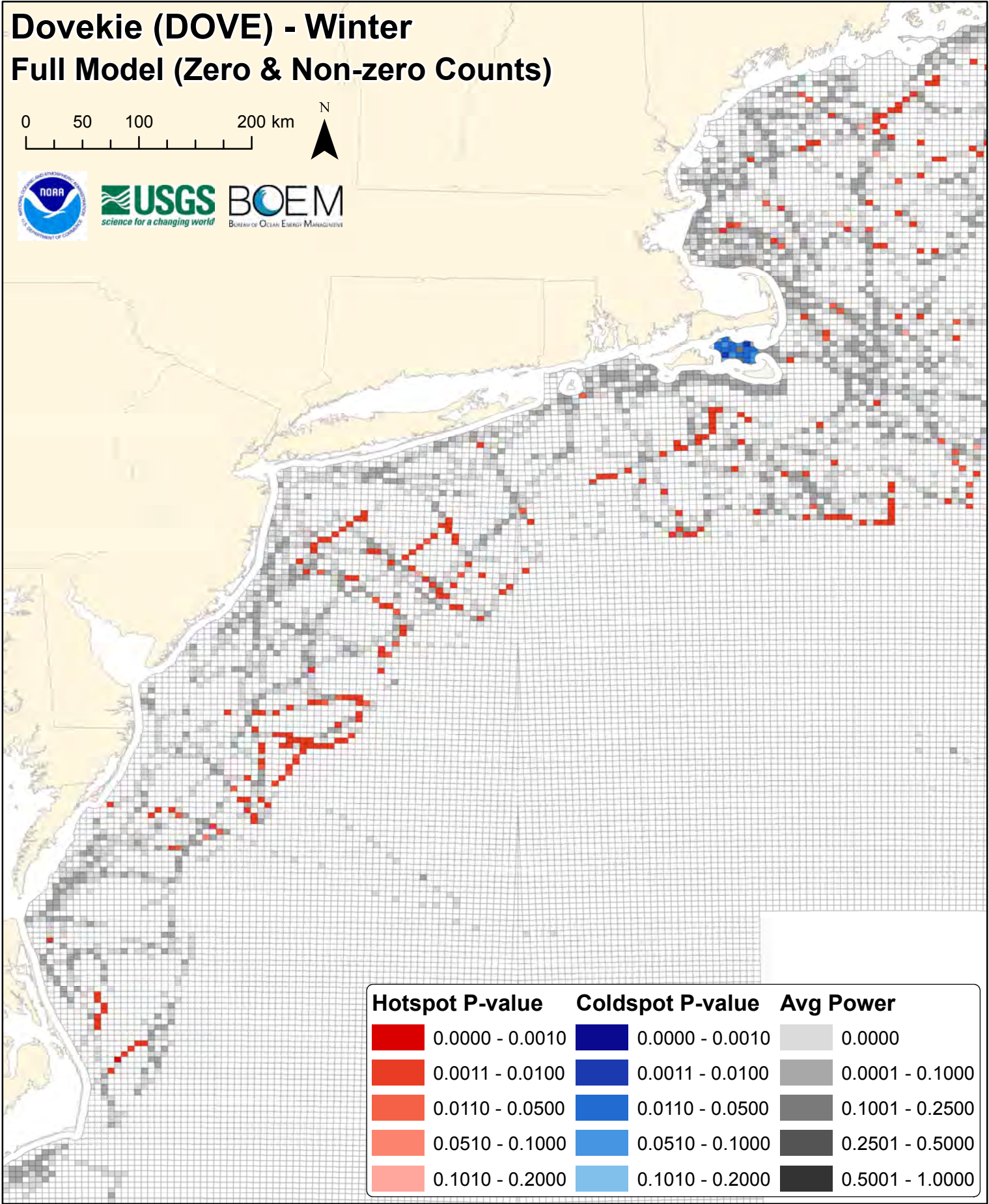
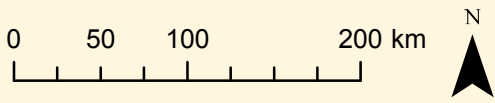
Dovekie (DOVE) - Winter Full Model (Zero & Non-zero Counts)


















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



Dovekie (DOVE) - 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