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

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[†]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.

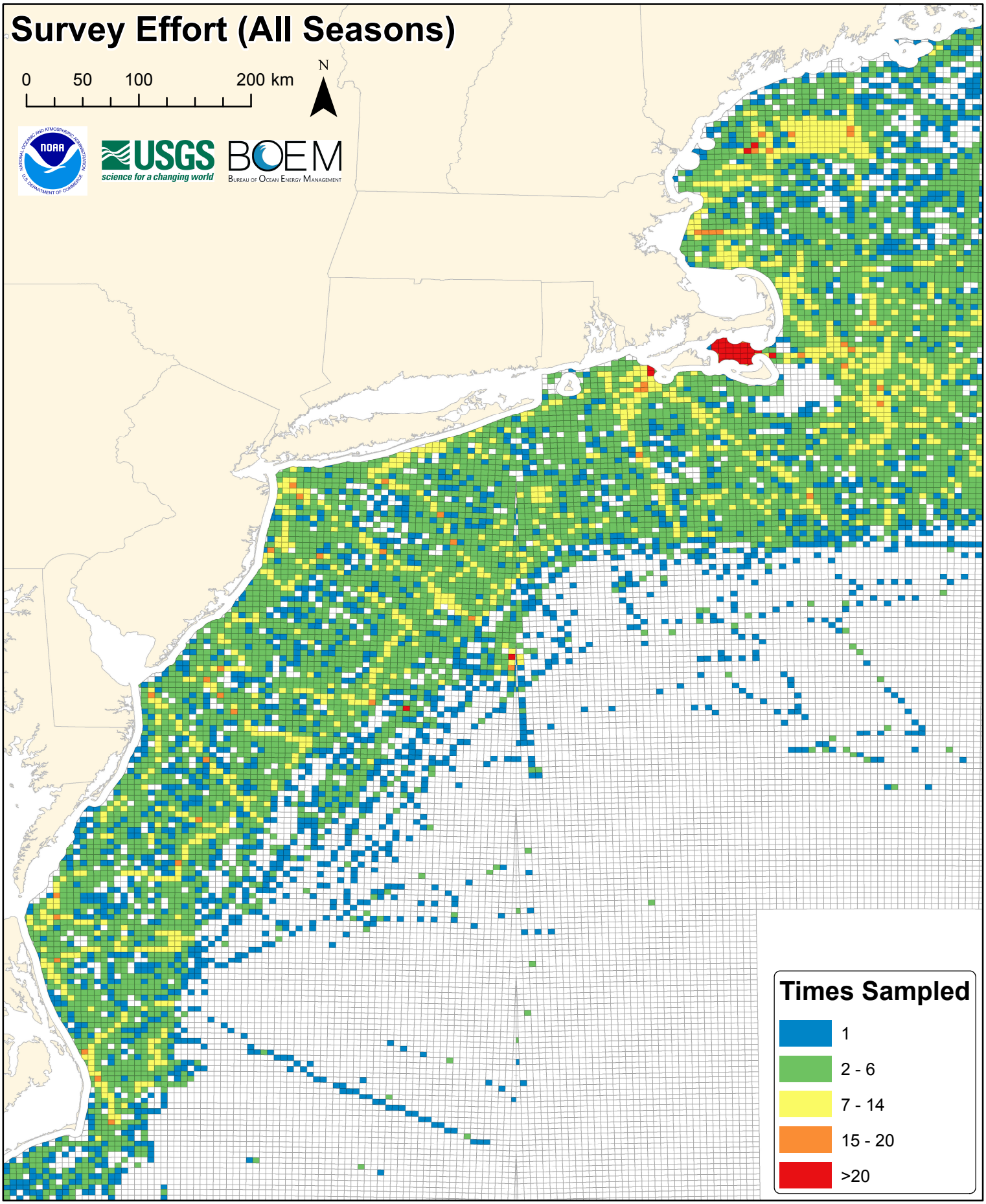
DIGITAL SUPPLEMENT G

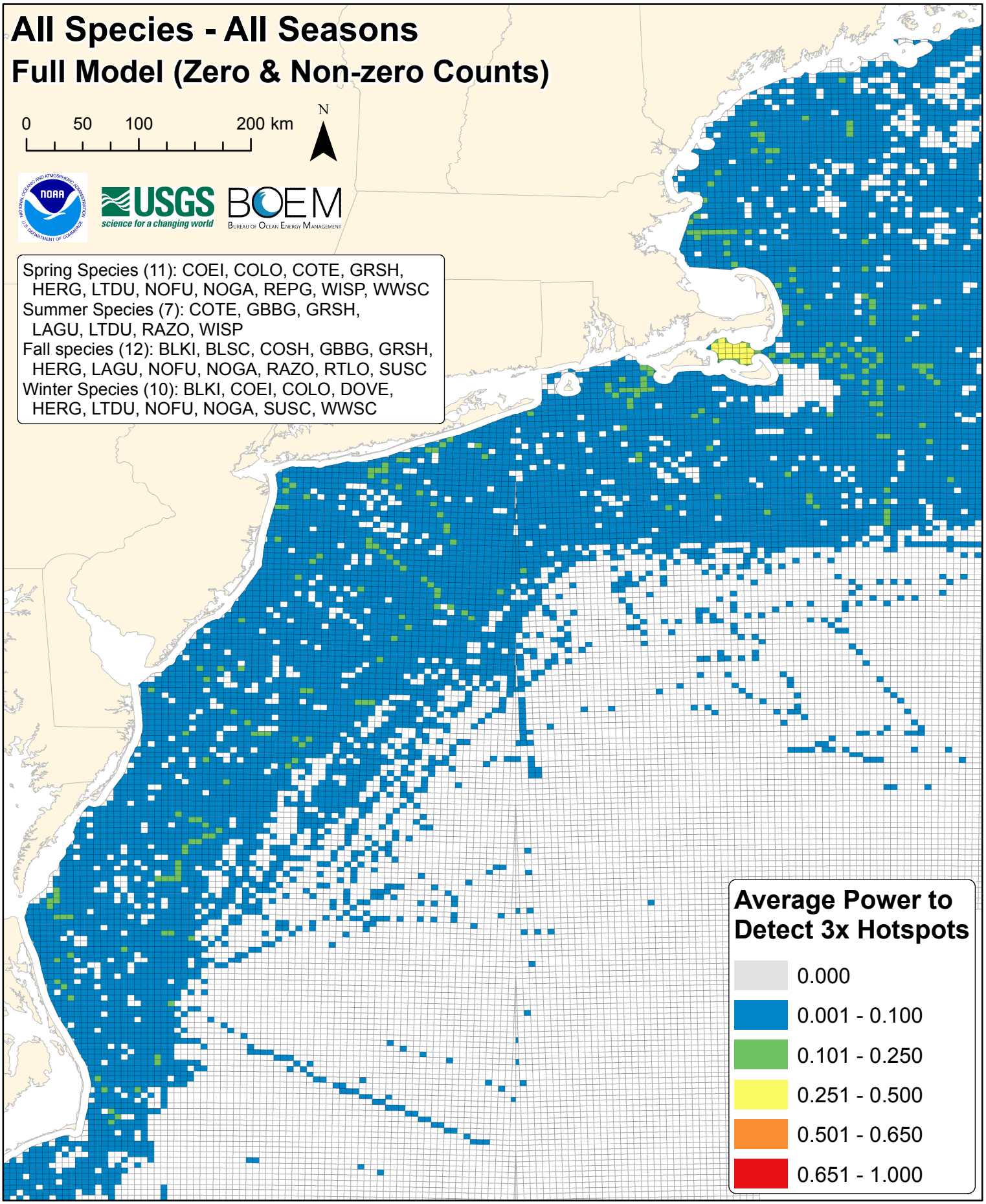
Full Hurdle Model (Zero & Non-Zero Counts) Results

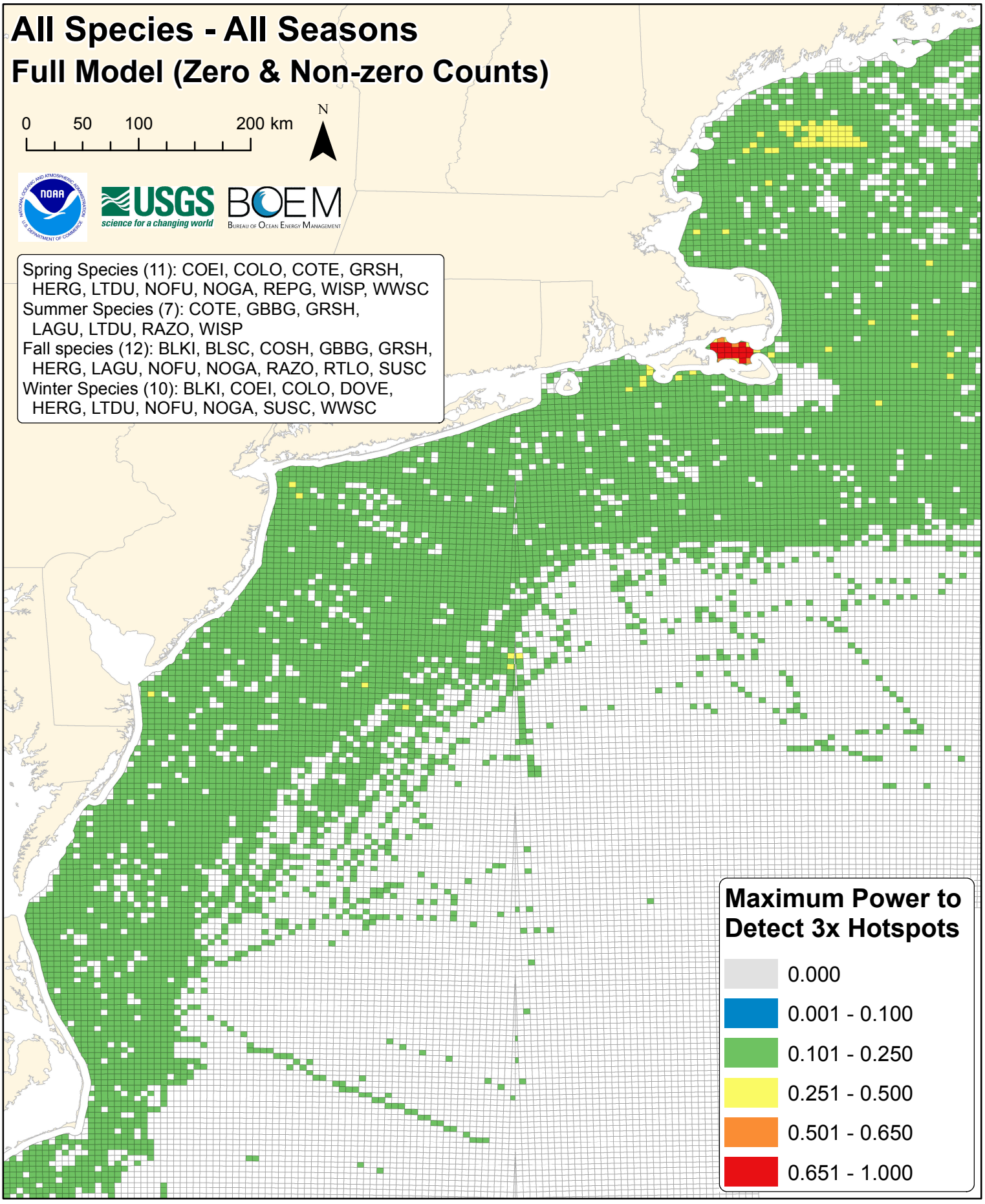
SECTION I. Summary Statistic Maps Calculated for All Species

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

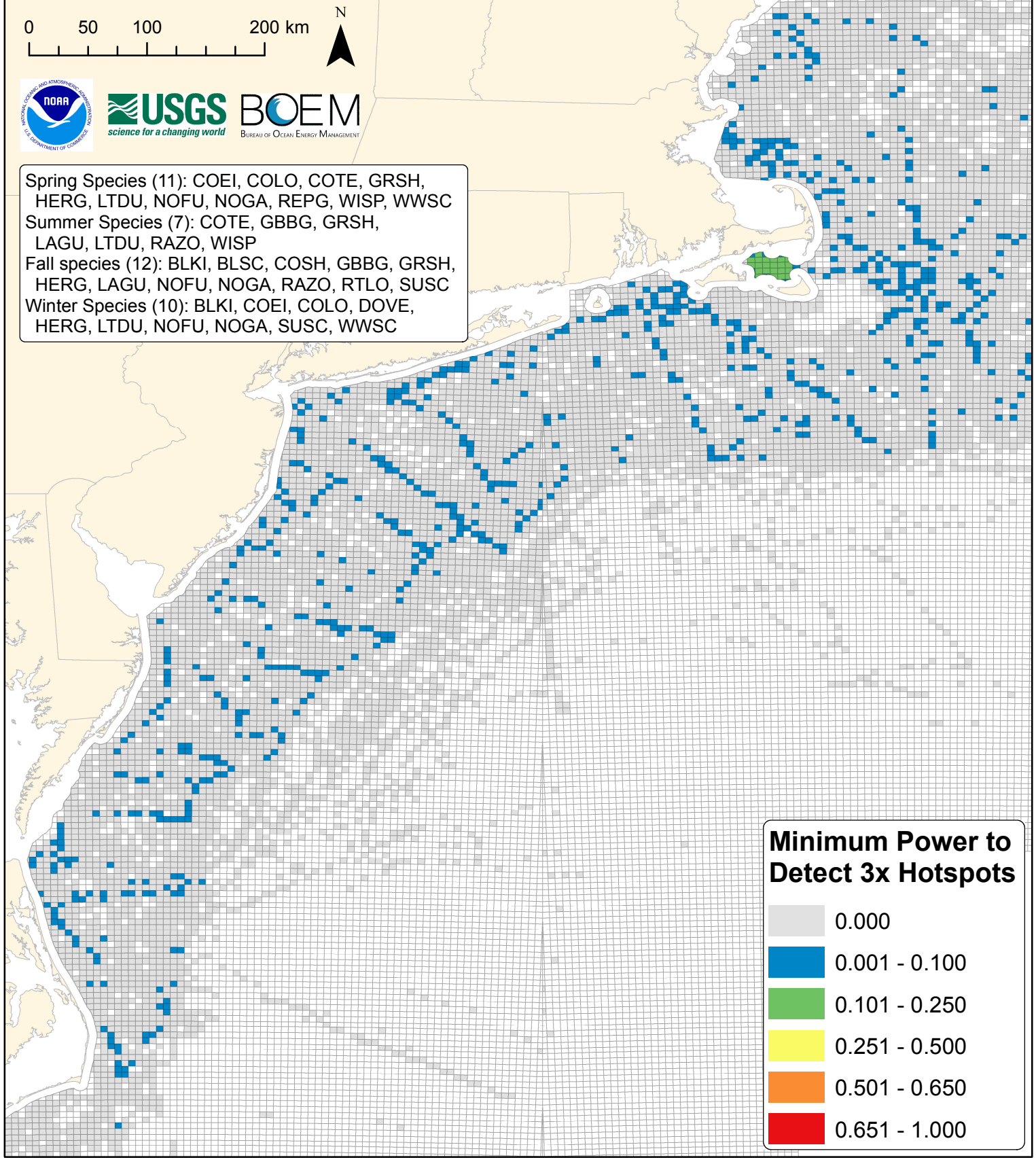

Survey Effort (All Seasons)
0 50 100 200 km
N
NOAA
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Times Sampled
1
2 - 6
7 - 14
15 - 20
>20

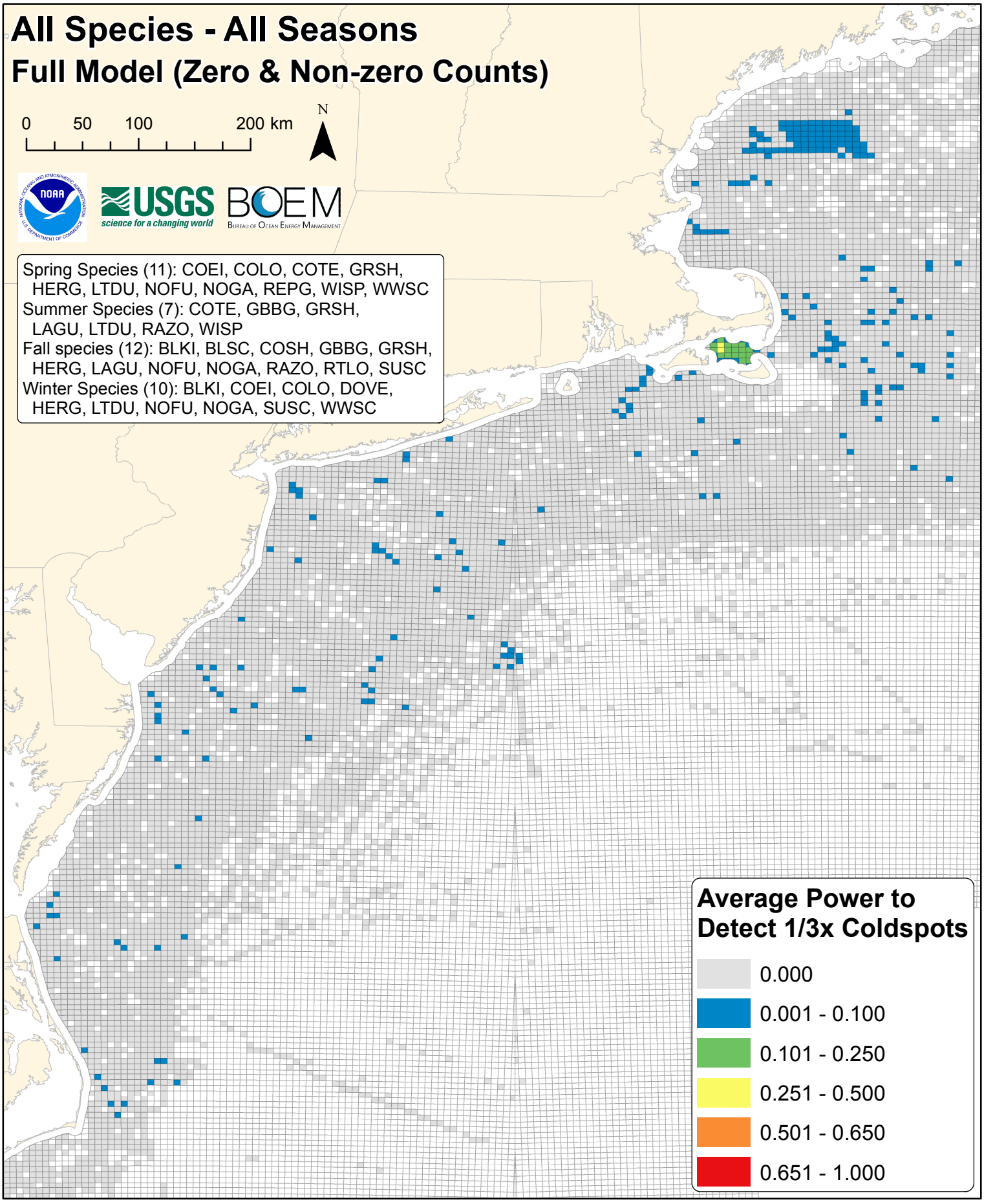

All Species - All Seasons
Full Model (Zero & Non-zero Counts)
0 50 100 200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Spring Species (11): COEI, COLO, COTE, GRSH, HERG, LTDU, NOFU, NOGA, REPG, WISP, WWSC
Summer Species (7): COTE, GBBG, GRSH, LAGU, LTDU, RAZO, WISP
Fall species (12): BLKI, BLSC, COSH, GBBG, GRSH, HERG, LAGU, NOFU, NOGA, RAZO, RTLO, SUSC
Winter Species (10): BLKI, COEI, COLO, DOVE, HERG, LTDU, NOFU, NOGA, SUSC, WWSC
Average Power to Detect 3x Hotspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 1.000

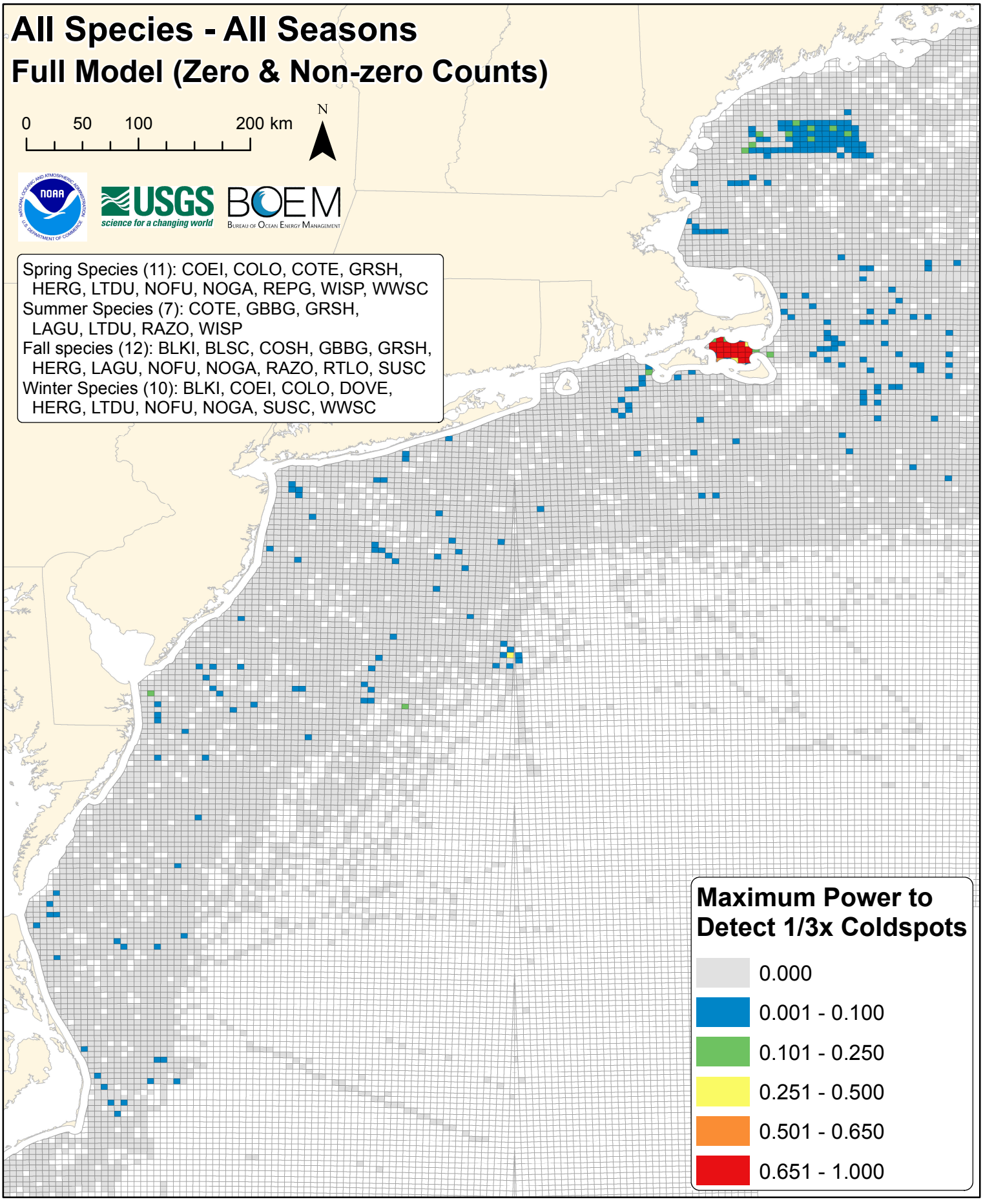

All Species - All Seasons
Full Model (Zero & Non-zero Counts)
0 50 100 200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Spring Species (11): COEI, COLO, COTE, GRSH, HERG, LTDU, NOFU, NOGA, REPG, WISP, WWSC
Summer Species (7): COTE, GBBG, GRSH, LAGU, LTDU, RAZO, WISP
Fall 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
Maximum Power to Detect 3x Hotspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 1.000

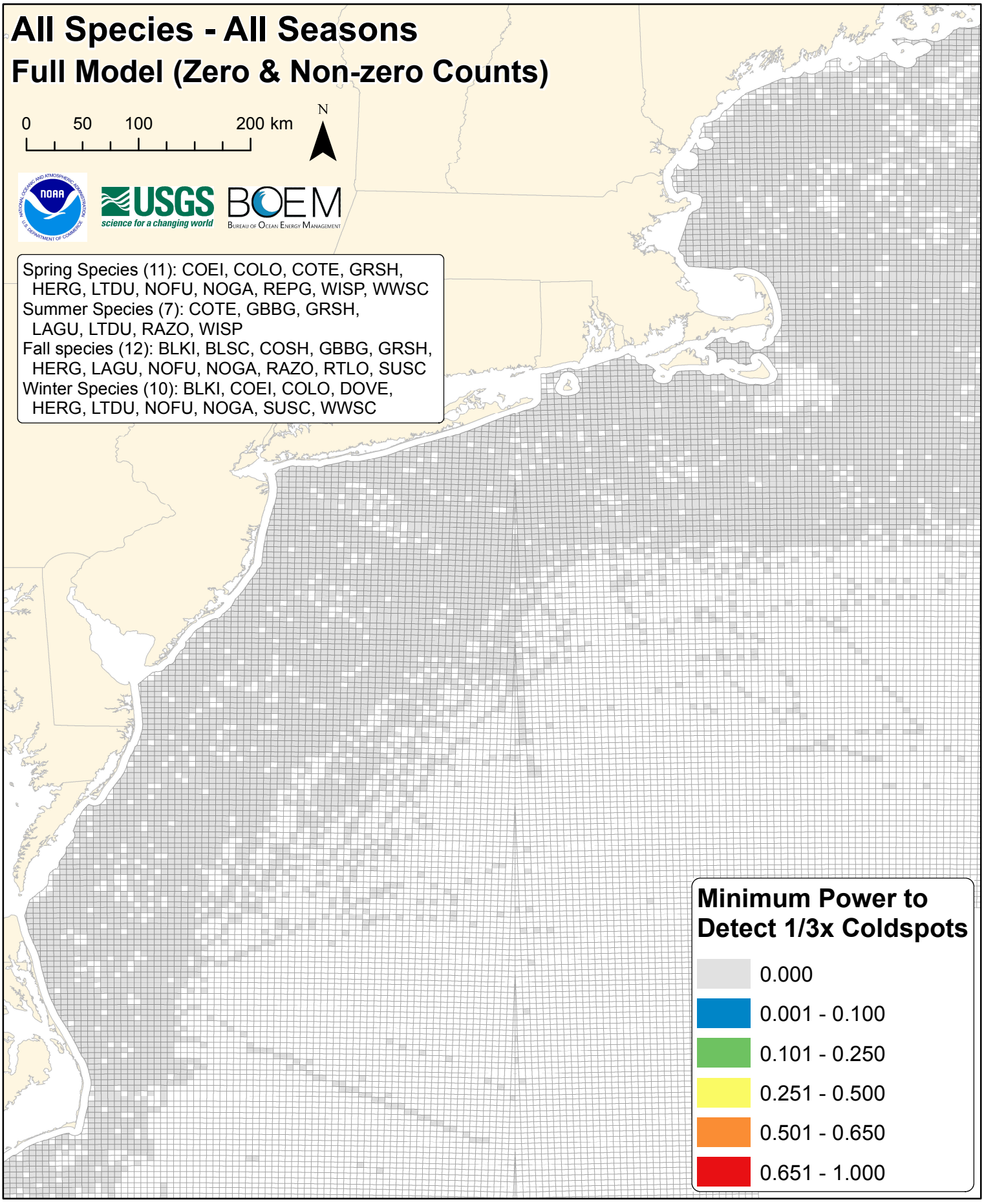
All Species - All Seasons

Full Model (Zero & Non-zero Counts)




All Species - All Seasons
Full Model (Zero & Non-zero Counts)
0 50 100 200 km
N
USGS science for a changing world
BOEM Bureau of Ocean Energy Management
Spring Species (11): COEI, COLO, COTE, GRSH, HERG, LTDU, NOFU, NOGA, REPG, WISP, WWSC
Summer Species (7): COTE, GBBG, GRSH, LAGU, LTDU, RAZO, WISP
Fall species (12): BLKI, BLSC, COSH, GBBG, GRSH, HERG, LAGU, NOFU, NOGA, RAZO, RTLO, SUSC
Winter Species (10): BLKI, COEI, COLO, DOVE, HERG, LTDU, NOFU, NOGA, SUSC, WWSC
Average Power to Detect 1/3x Coldspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 1.000


All Species - All Seasons
Full Model (Zero & Non-zero Counts)
0 50 100 200 km
N
USGS science for a changing world
BOEM Bureau of Ocean Energy Management
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
Maximum 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 - 1.000


All Species - All Seasons
Full Model (Zero & Non-zero Counts)
0 50 100 200 km
N
USGS science for a changing world
BOEM Bureau of Ocean Energy Management
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
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 1.000

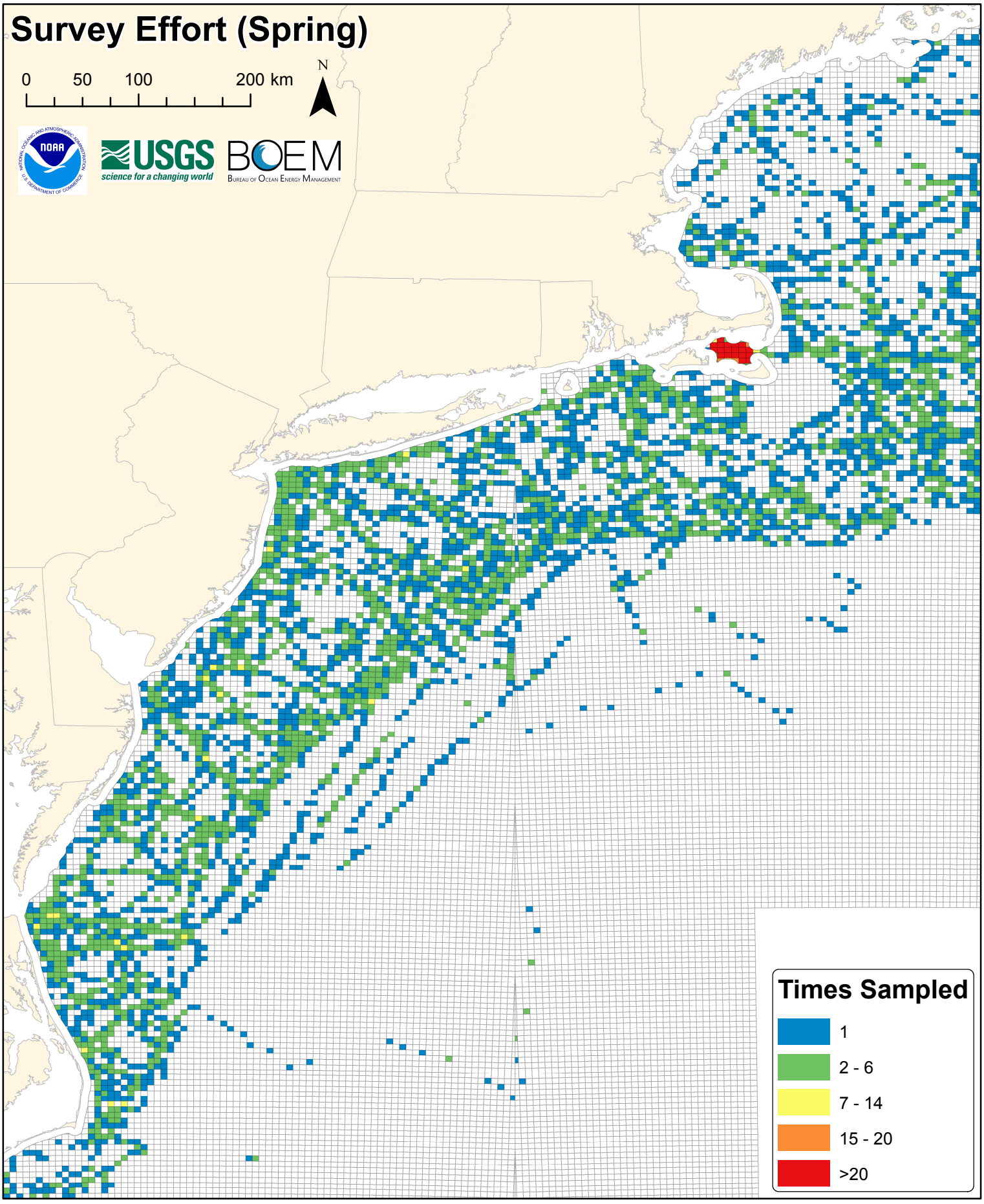
DIGITAL SUPPLEMENT G

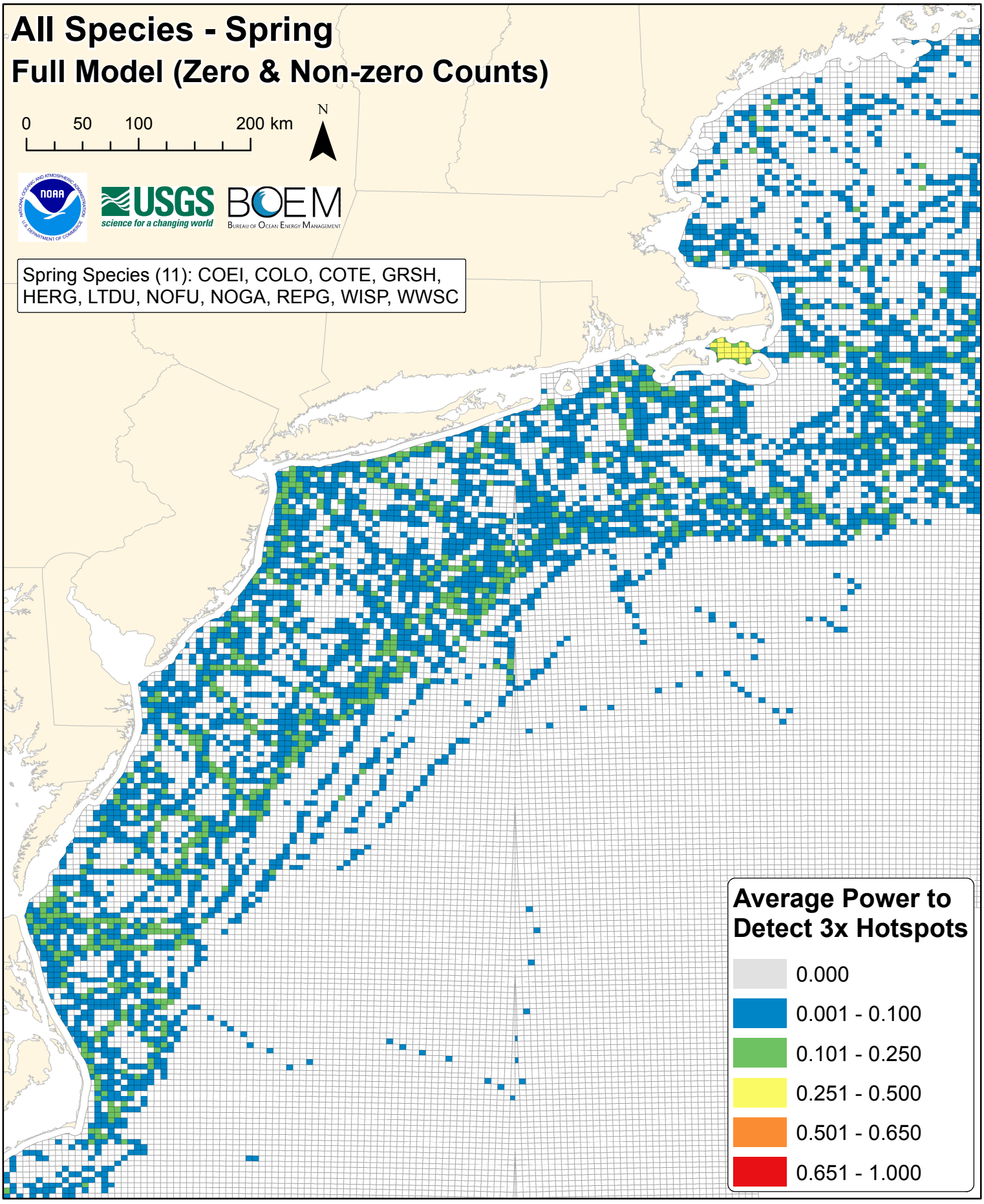
Full Hurdle Model (Zero & Non-Zero Counts) Results

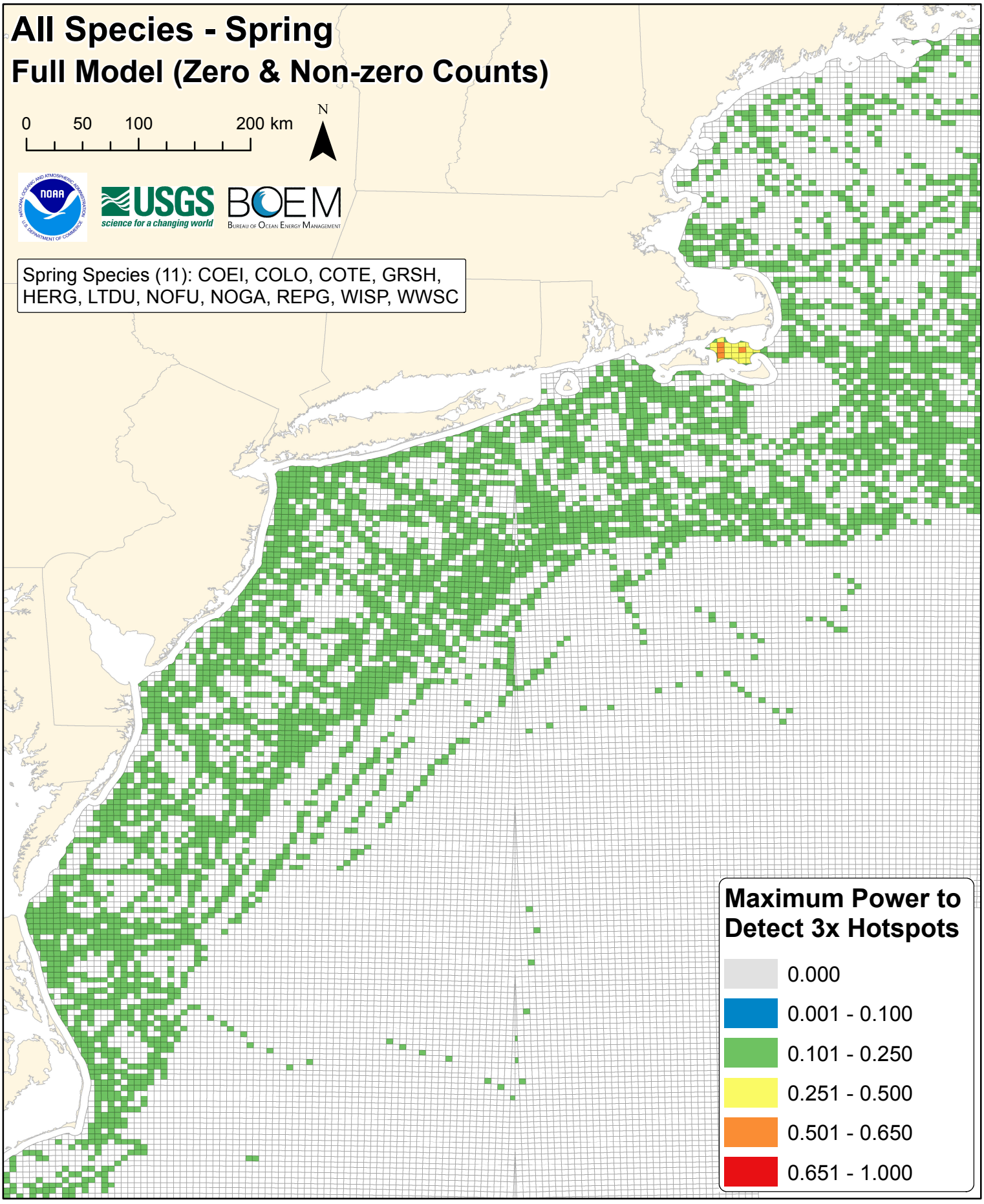
SECTION I. Summary Statistic Maps Calculated for All Species

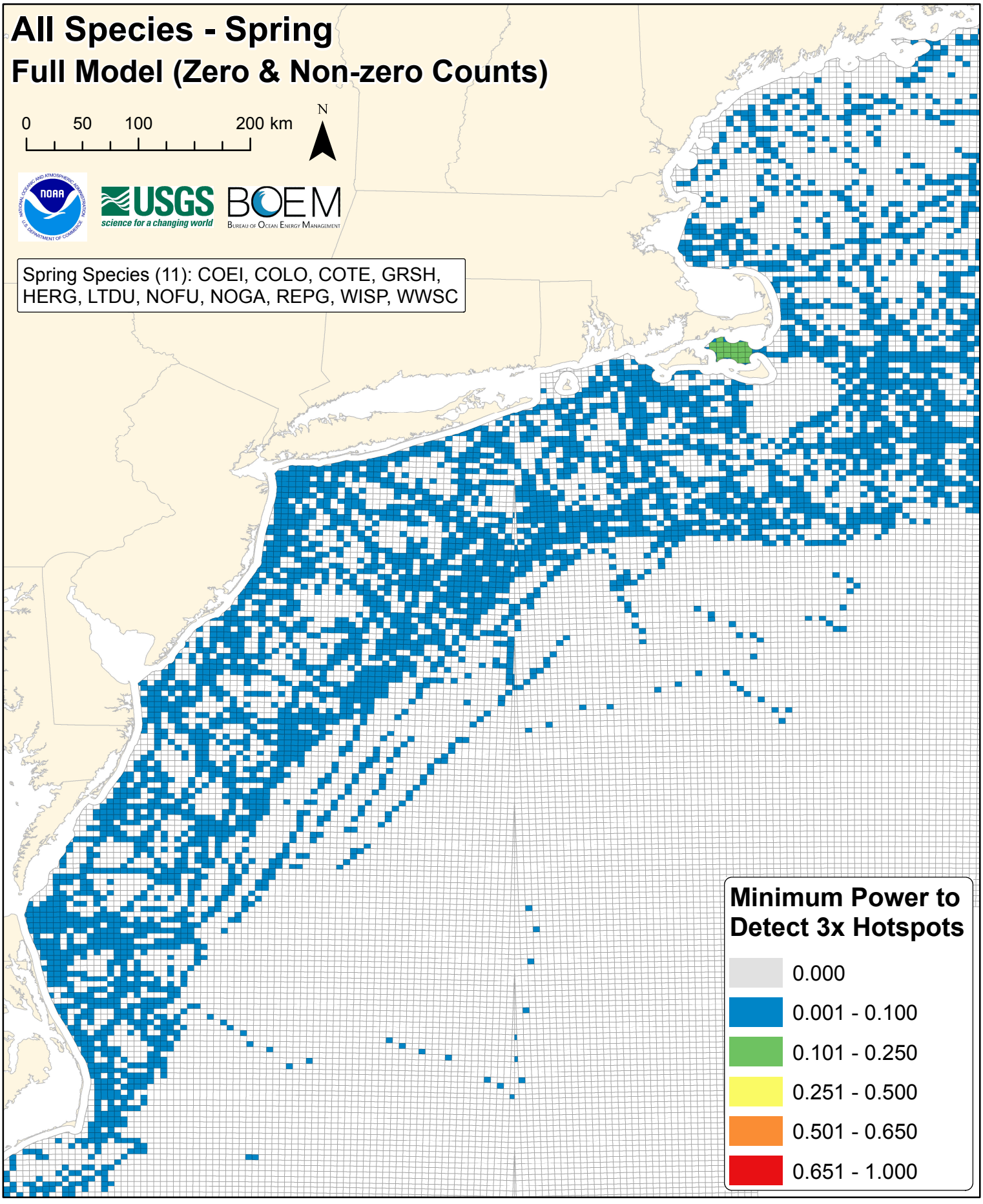
Figures G8-G14. Spring

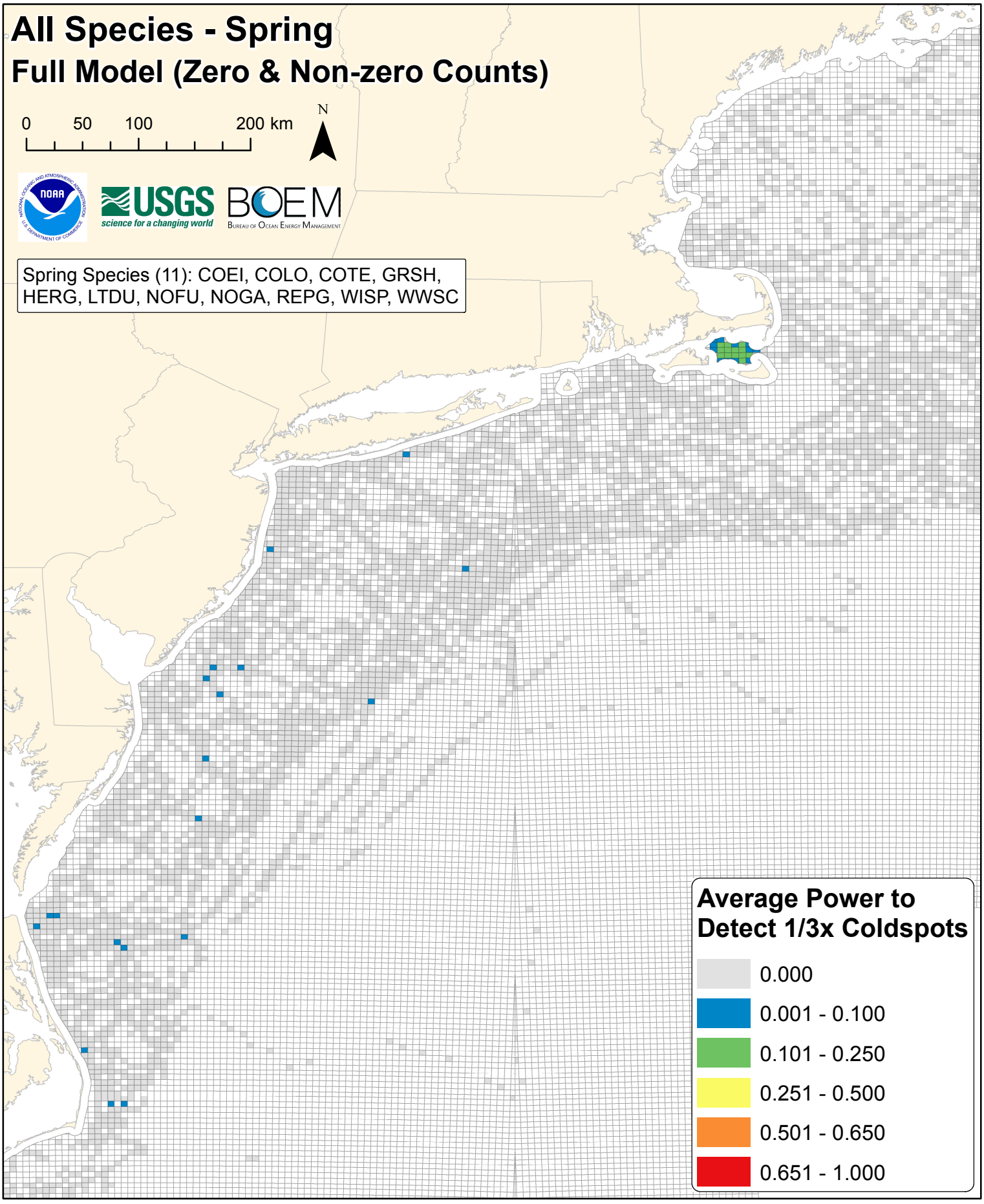
- Number of times each lease block was surveyed in spring
- Average, maximum, and minimum power to detect 3x hotspots of abundance
- Average, maximum, and minimum power to detect 1/3x coldspots of abundance

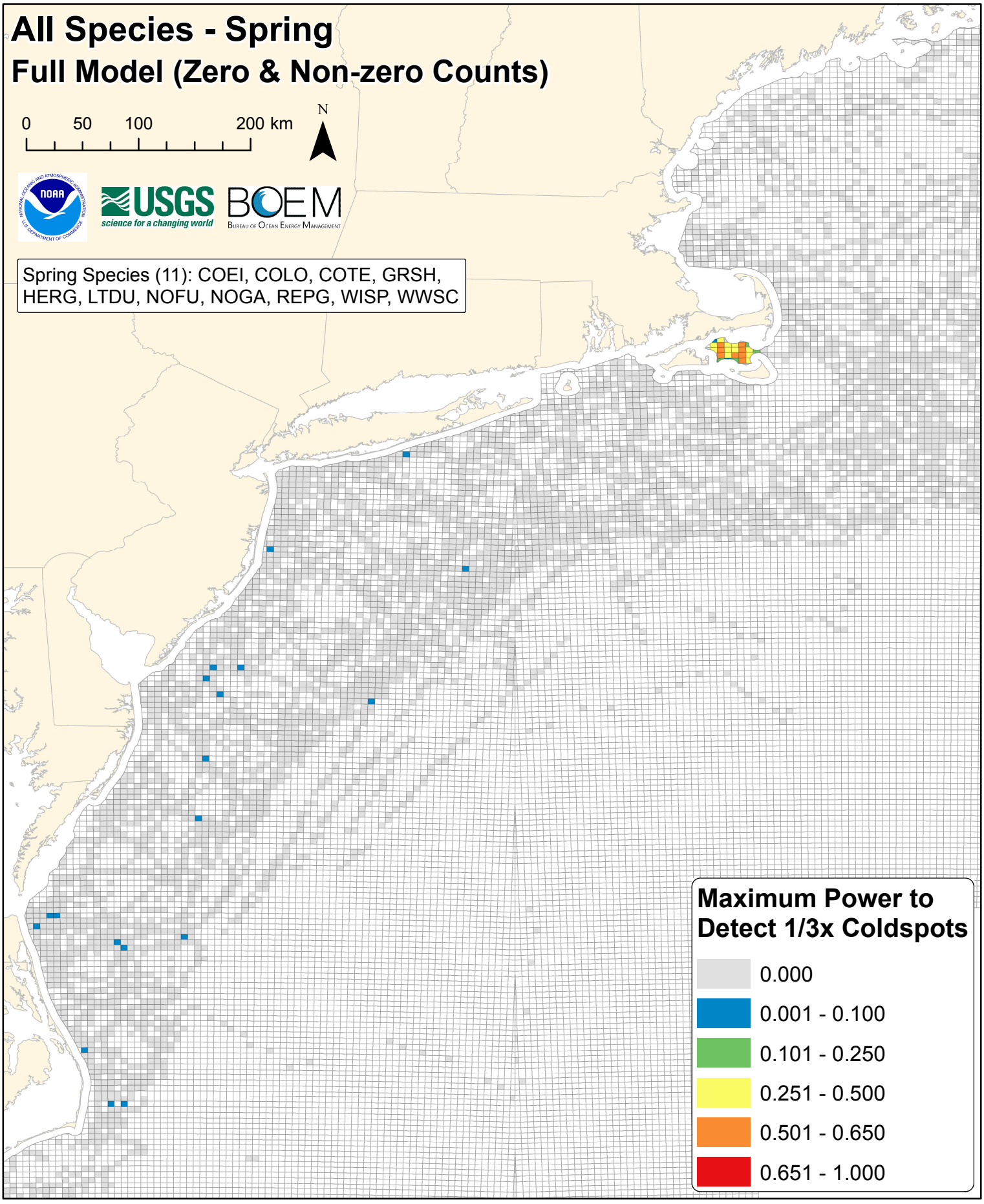

Survey Effort (Spring)
0 50 100 200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Times Sampled
1
2 - 6
7 - 14
15 - 20
>20

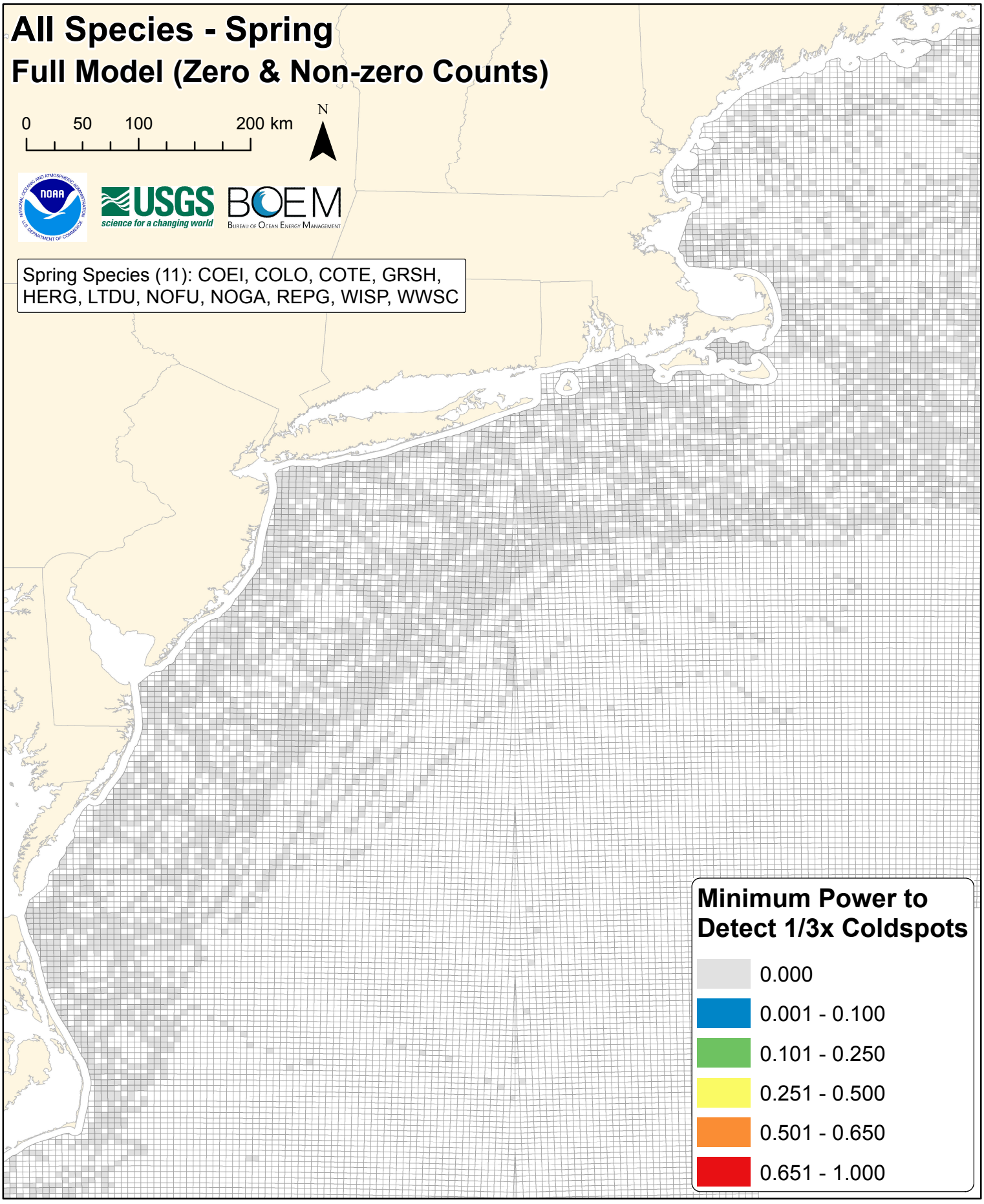

All Species - Spring
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Spring Species (11): COEI, COLO, COTE, GRSH, HERG, LTDU, NOFU, NOGA, REPG, WISP, WWSC
Average Power to Detect 3x Hotspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 1.000


All Species - Spring
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Spring Species (11): COEI, COLO, COTE, GRSH, HERG, LTDU, NOFU, NOGA, REPG, WISP, WWSC
Maximum Power to Detect 3x Hotspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 1.000


All Species - Spring
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Spring Species (11): COEI, COLO, COTE, GRSH, HERG, LTDU, NOFU, NOGA, REPG, WISP, WWSC
Minimum Power to Detect 3x Hotspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 1.000


All Species - Spring
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Spring Species (11): COEI, COLO, COTE, GRSH, HERG, LTDU, NOFU, NOGA, REPG, WISP, WWSC
Average 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 - 1.000


All Species - Spring
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Spring Species (11): COEI, COLO, COTE, GRSH, HERG, LTDU, NOFU, NOGA, REPG, WISP, WWSC
Maximum 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 - 1.000


All Species - Spring
Full Model (Zero & Non-zero Counts)
0 50 100 200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Spring Species (11): COEI, COLO, COTE, GRSH, HERG, LTDU, NOFU, NOGA, REPG, WISP, WWSC
Minimum 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 - 1.000

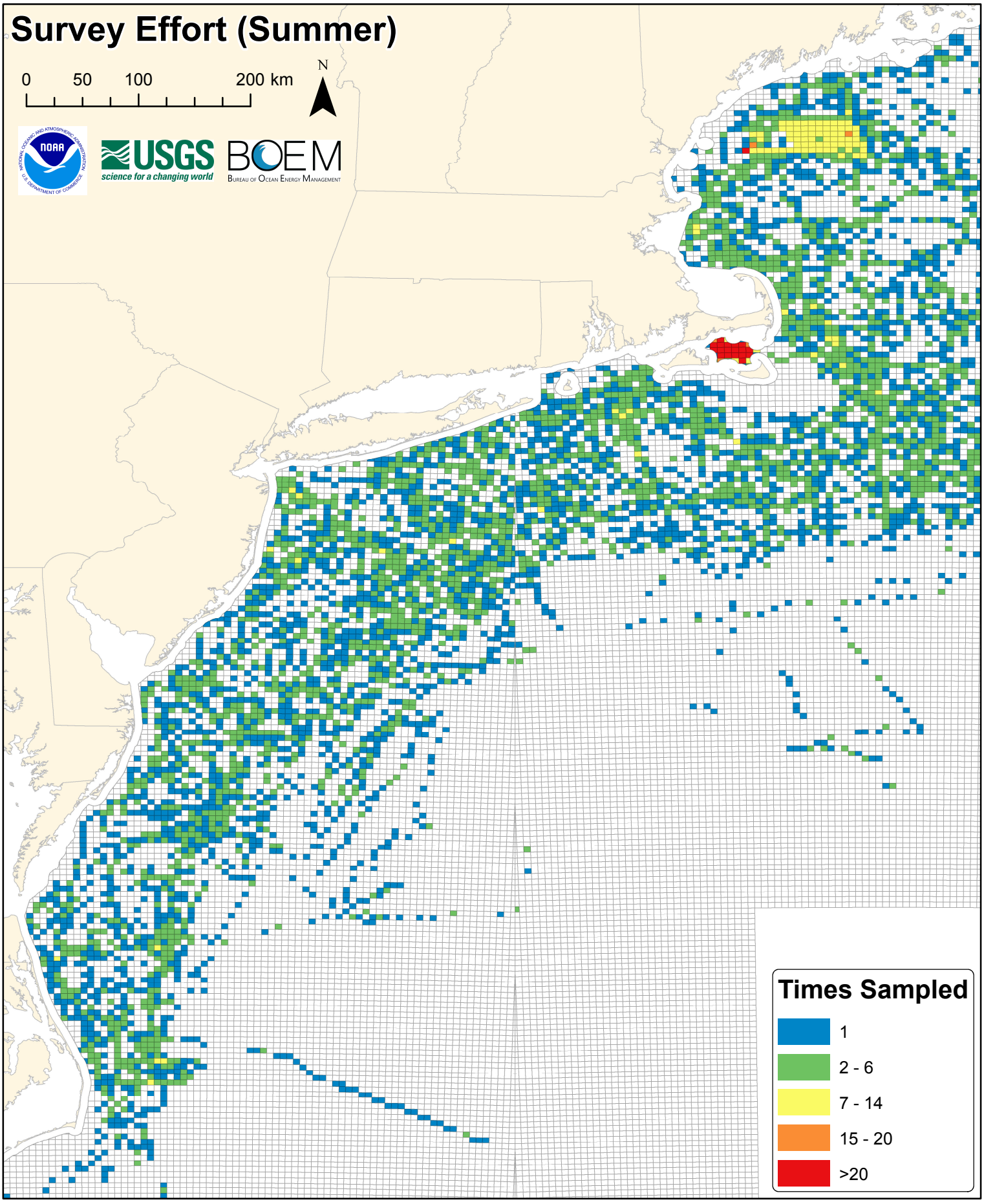
DIGITAL SUPPLEMENT G

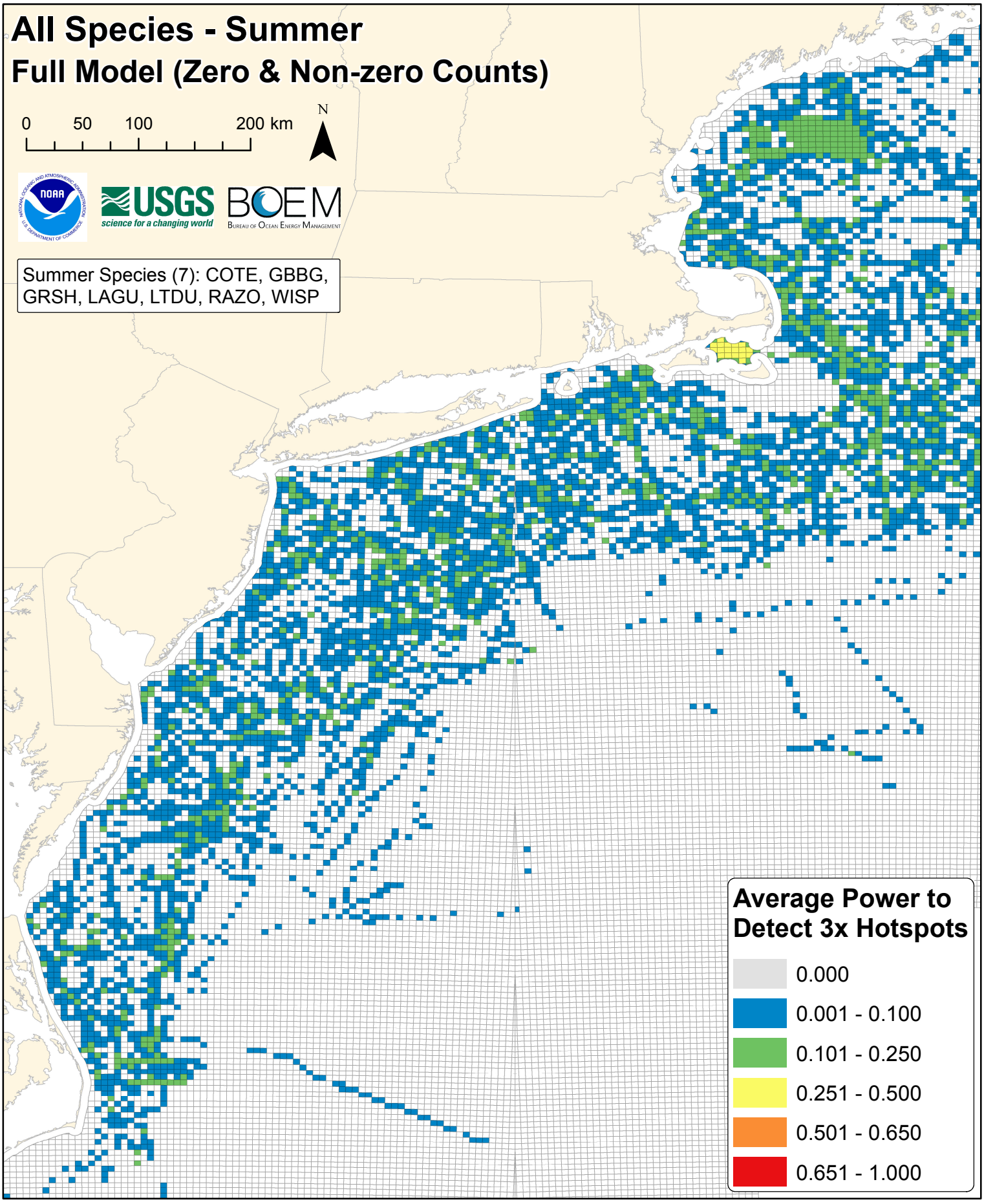
Full Hurdle Model (Zero & Non-Zero Counts) Results

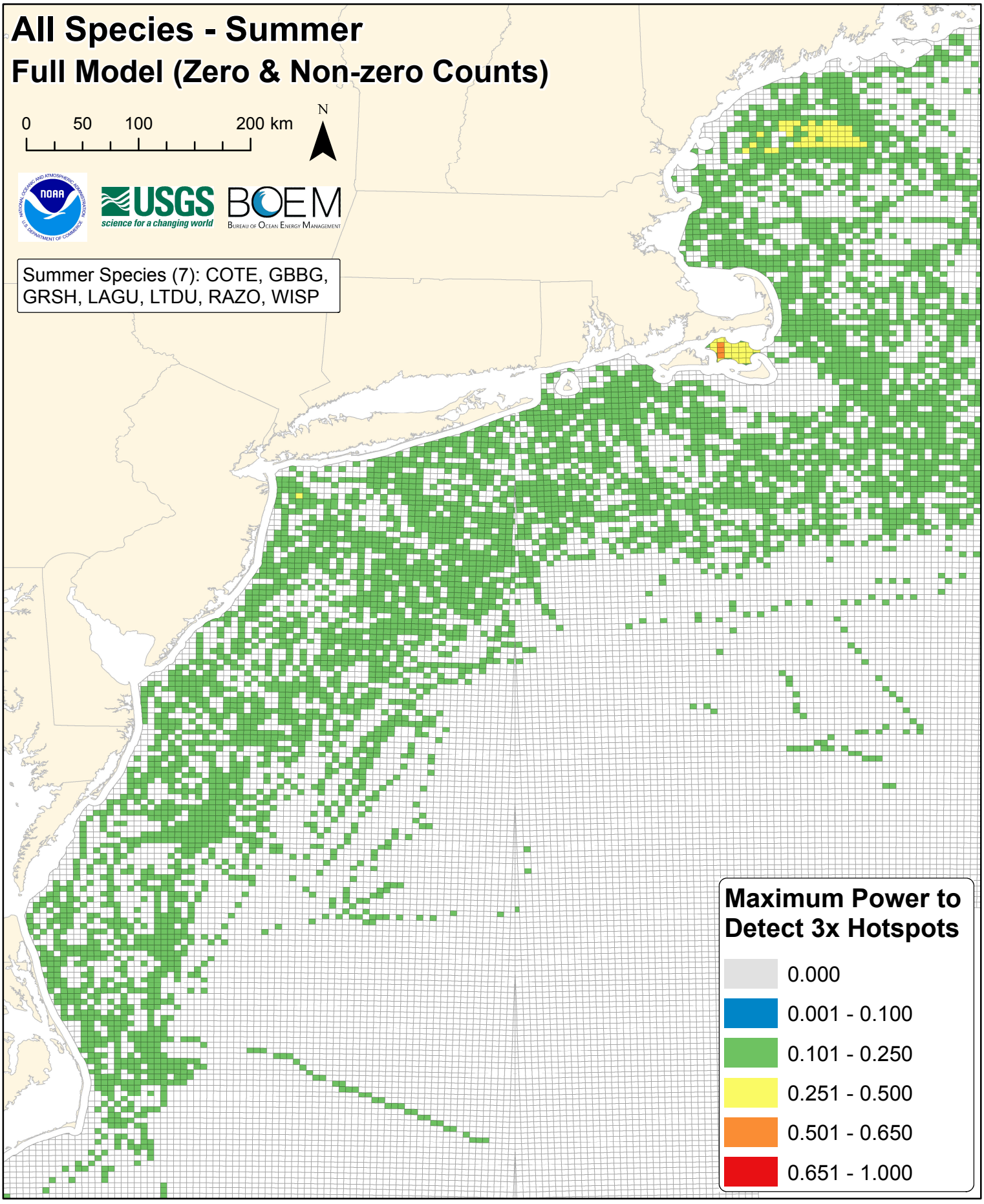
SECTION I. Summary Statistic Maps Calculated for All Species

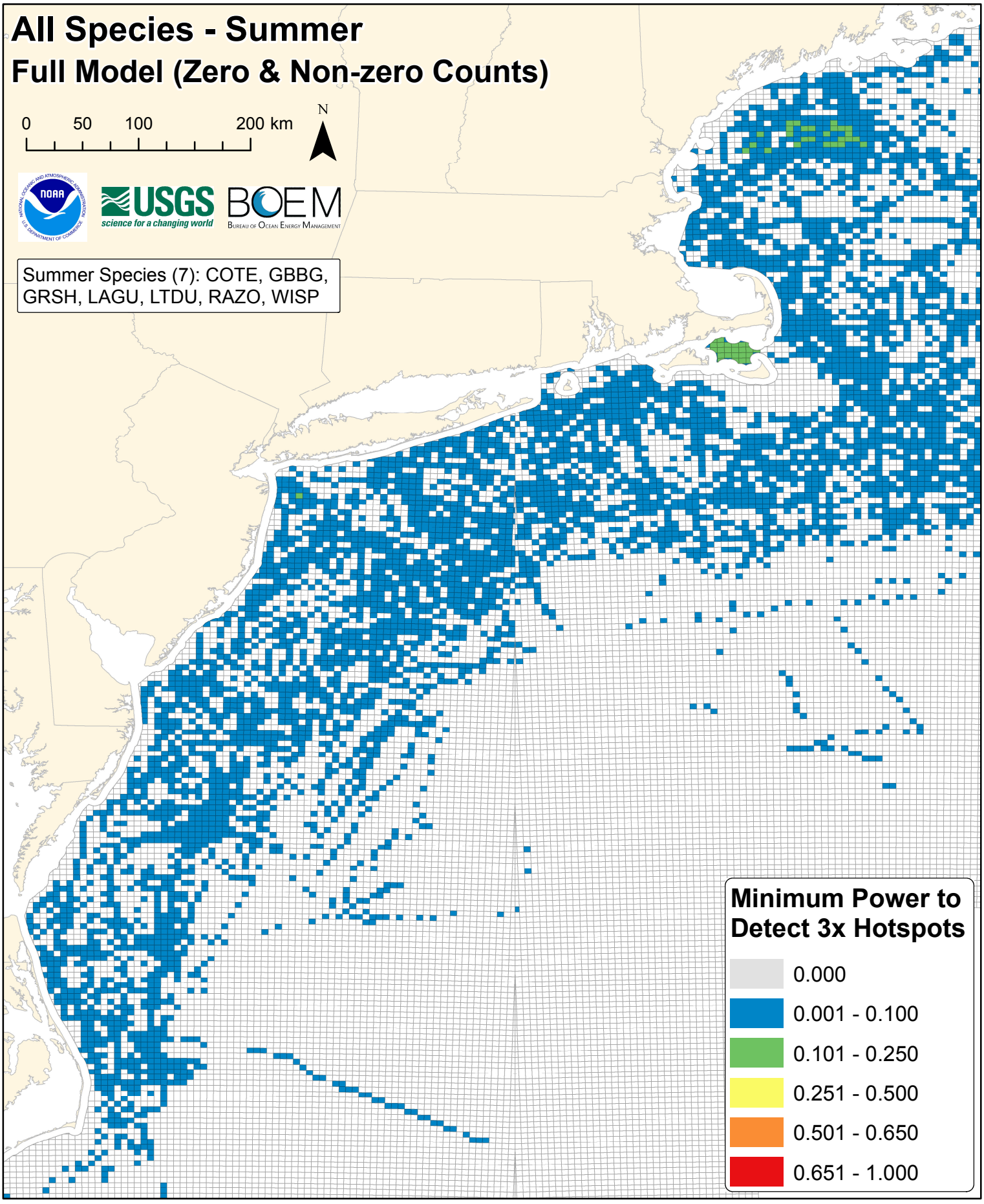
Figures G15-G21. Summer

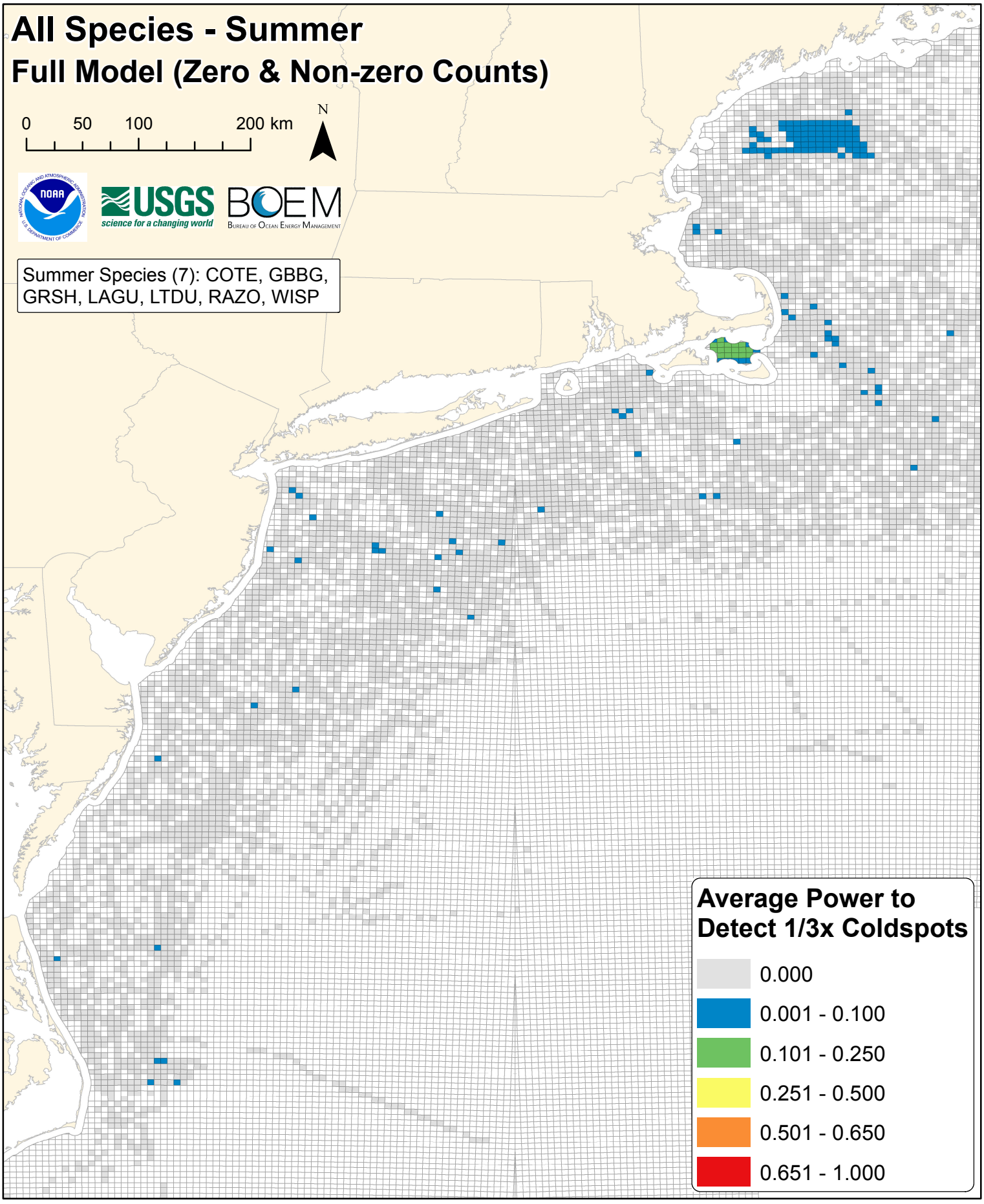
- Number of times each lease block was surveyed in summer
- Average, maximum, and minimum power to detect 3x hotspots of abundance
- Average, maximum, and minimum power to detect 1/3x coldspots of abundance

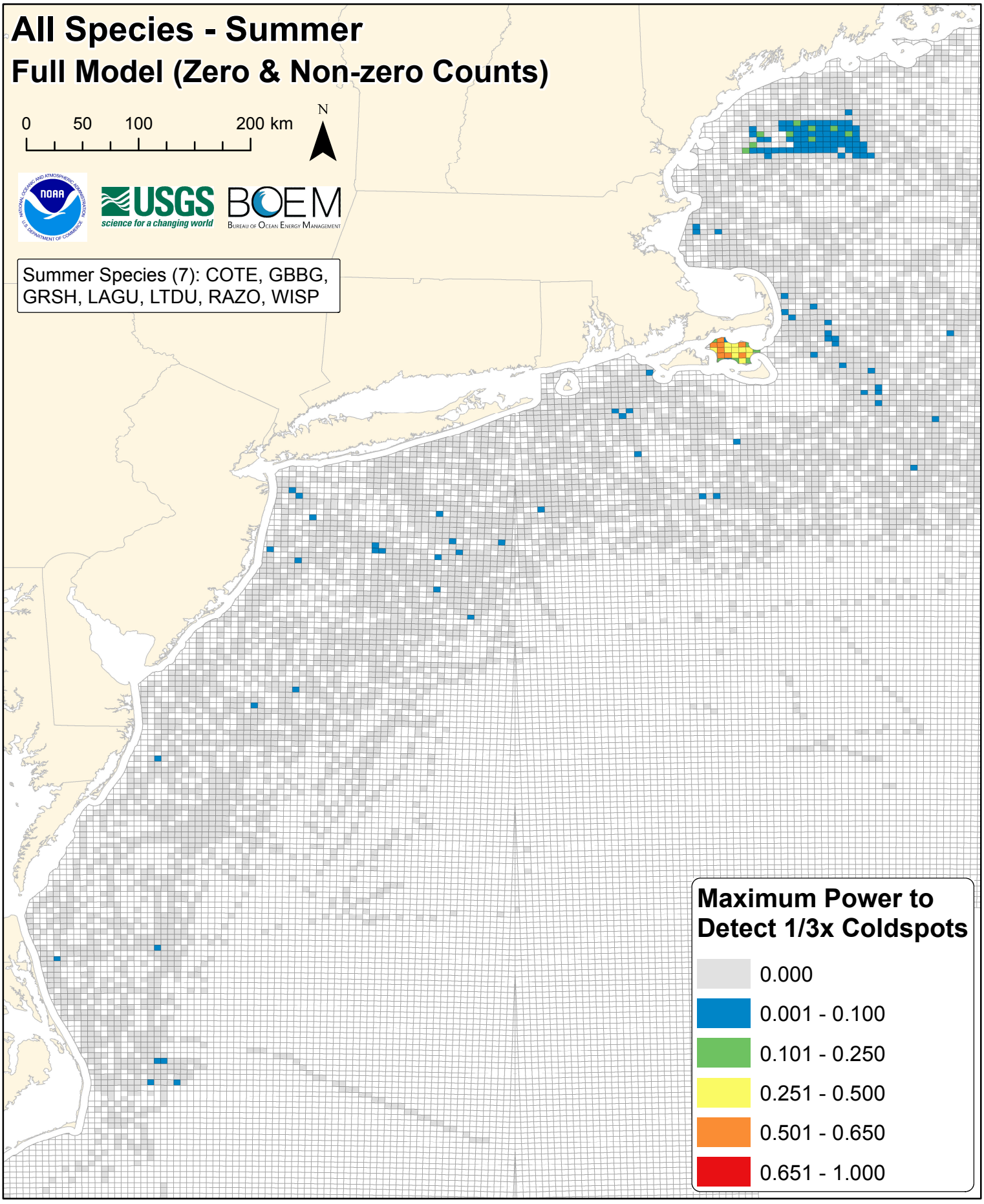

Survey Effort (Summer)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Times Sampled
1
2 - 6
7 - 14
15 - 20
>20

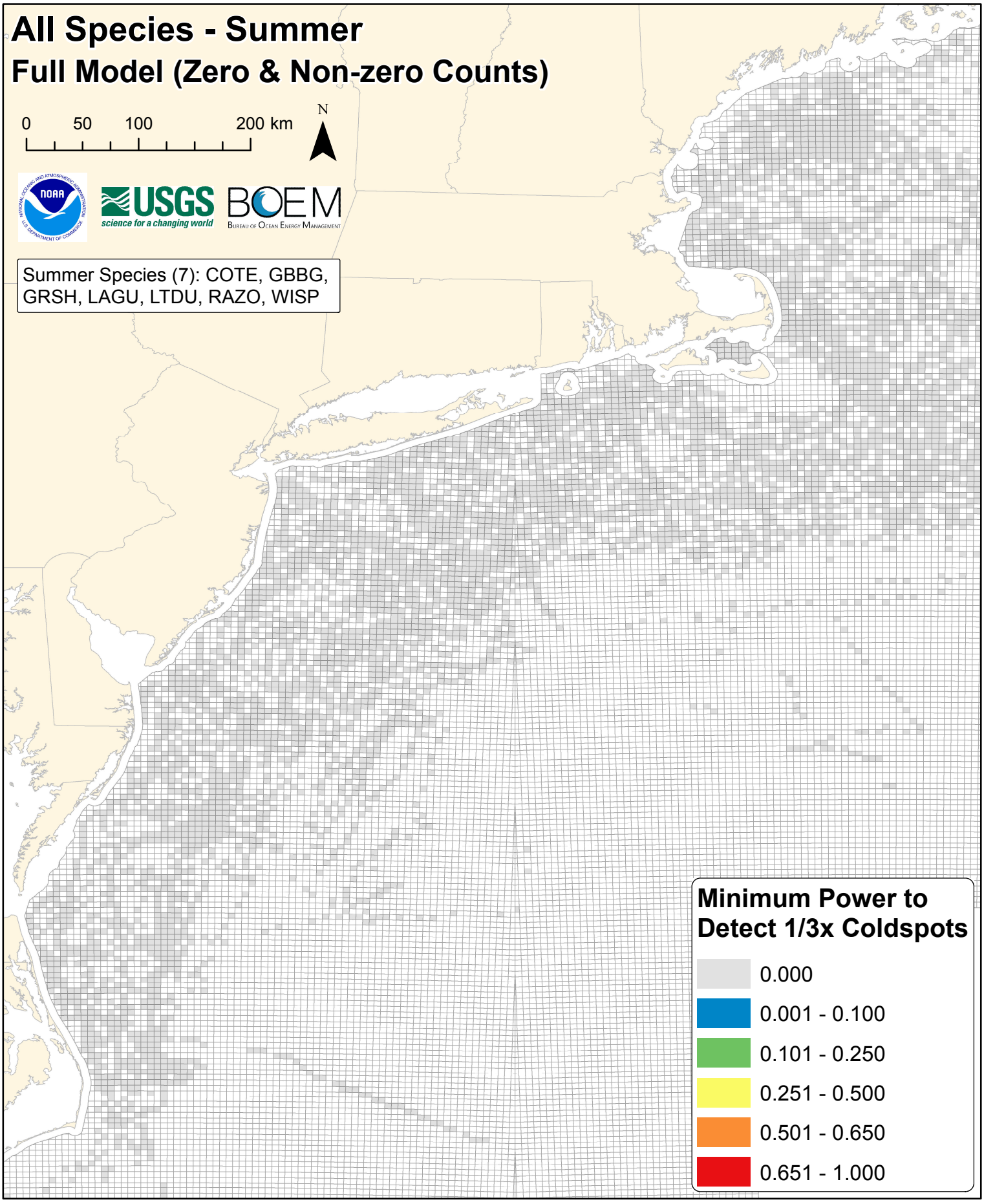

All Species - Summer
Full Model (Zero & Non-zero Counts)
0 50 100 200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Summer Species (7): COTE, GBBG, GRSH, LAGU, LTDU, RAZO, WISP
Average Power to Detect 3x Hotspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 1.000


All Species - Summer
Full Model (Zero & Non-zero Counts)
0 50 100 200 km
N
NOAA
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Summer Species (7): COTE, GBBG, GRSH, LAGU, LTDU, RAZO, WISP
Maximum Power to Detect 3x Hotspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 1.000


All Species - Summer
Full Model (Zero & Non-zero Counts)
0 50 100 200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Summer Species (7): COTE, GBBG, GRSH, LAGU, LTDU, RAZO, WISP
Minimum Power to Detect 3x Hotspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 1.000


All Species - Summer
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Summer Species (7): COTE, GBBG, GRSH, LAGU, LTDU, RAZO, WISP
Average 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 - 1.000


All Species - Summer
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Summer Species (7): COTE, GBBG, GRSH, LAGU, LTDU, RAZO, WISP
Maximum 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 - 1.000


All Species - Summer
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Summer Species (7): COTE, GBBG, GRSH, LAGU, LTDU, RAZO, WISP
Minimum 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 - 1.000

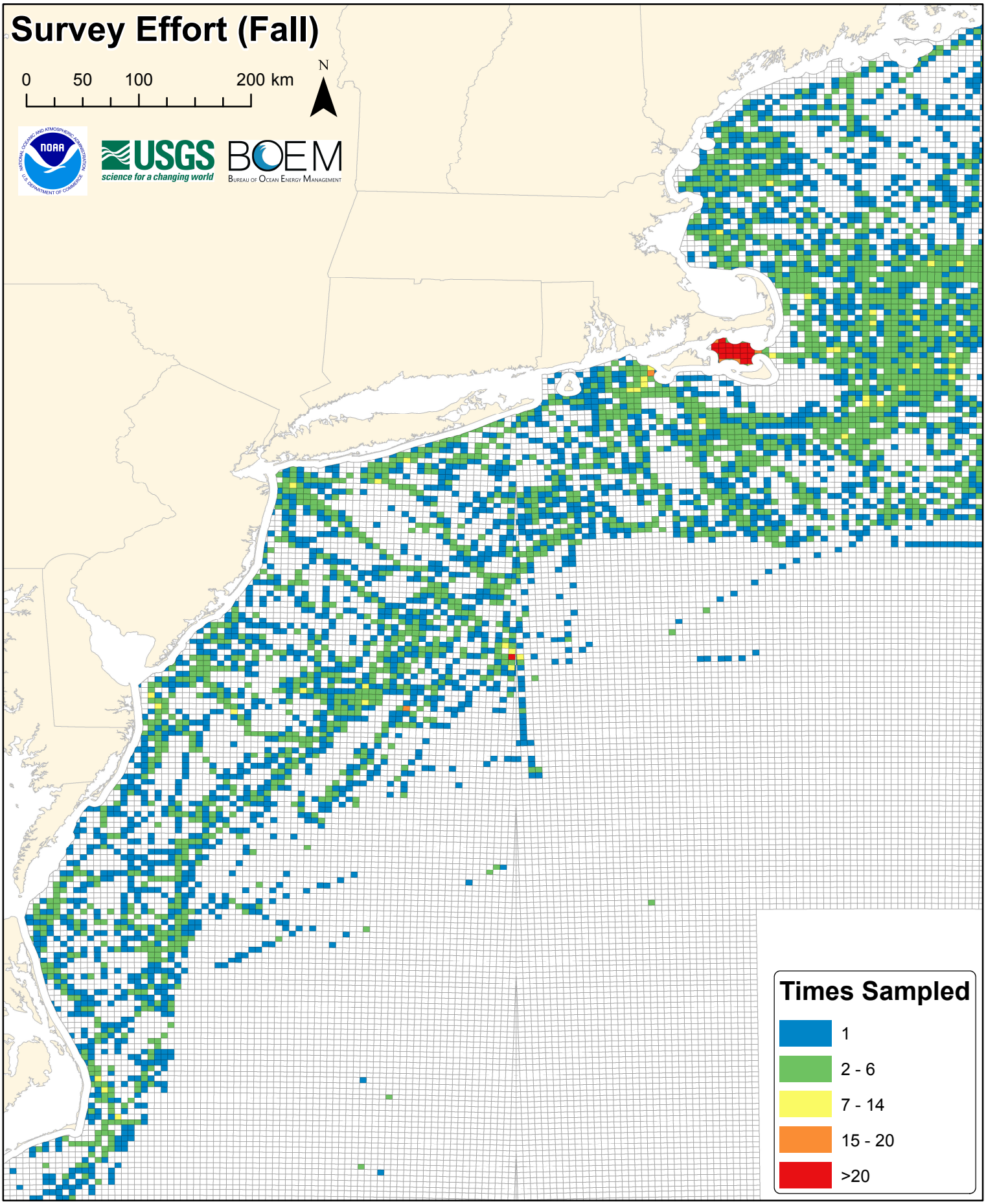
DIGITAL SUPPLEMENT G

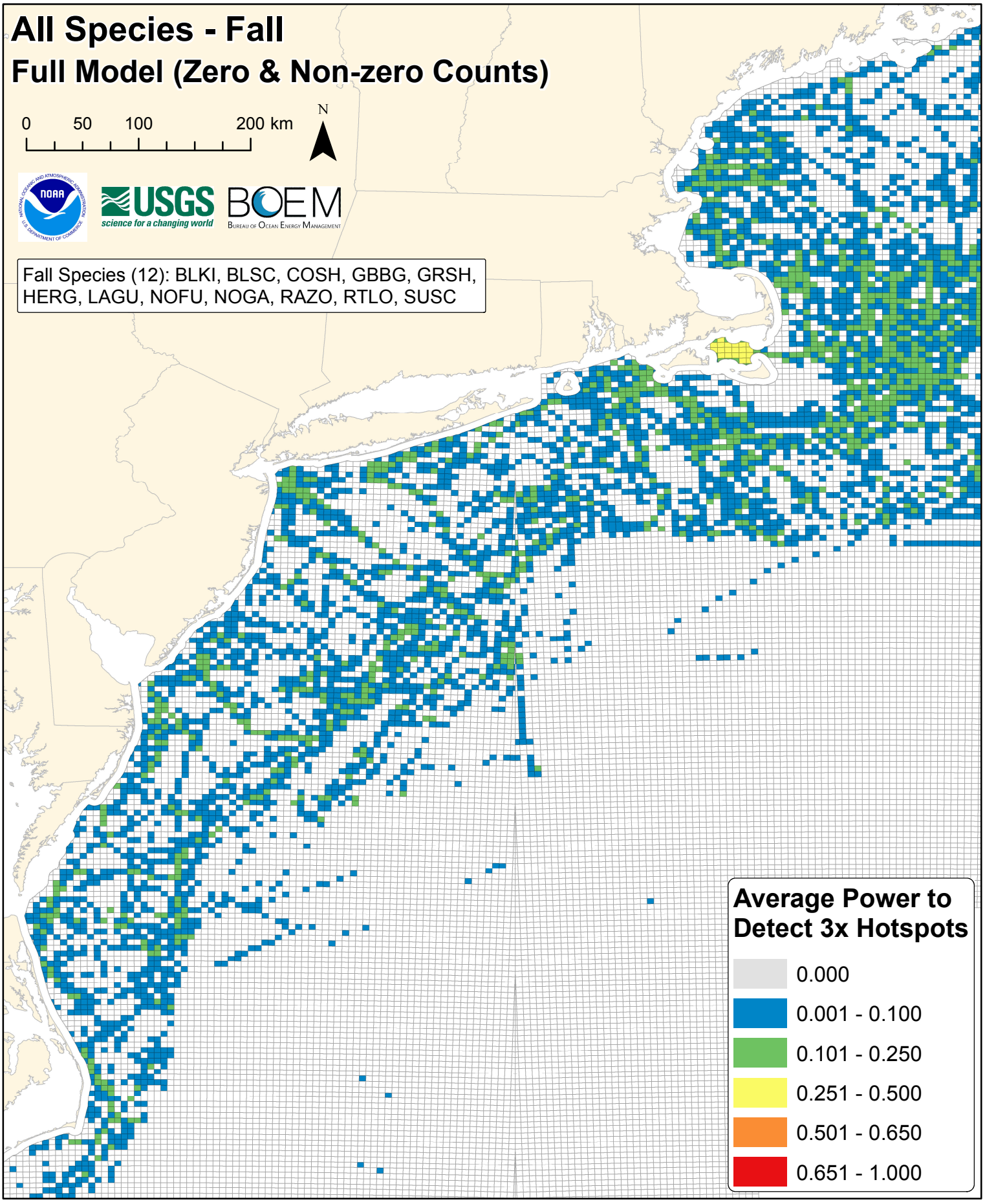
Full Hurdle Model (Zero & Non-Zero Counts) Results

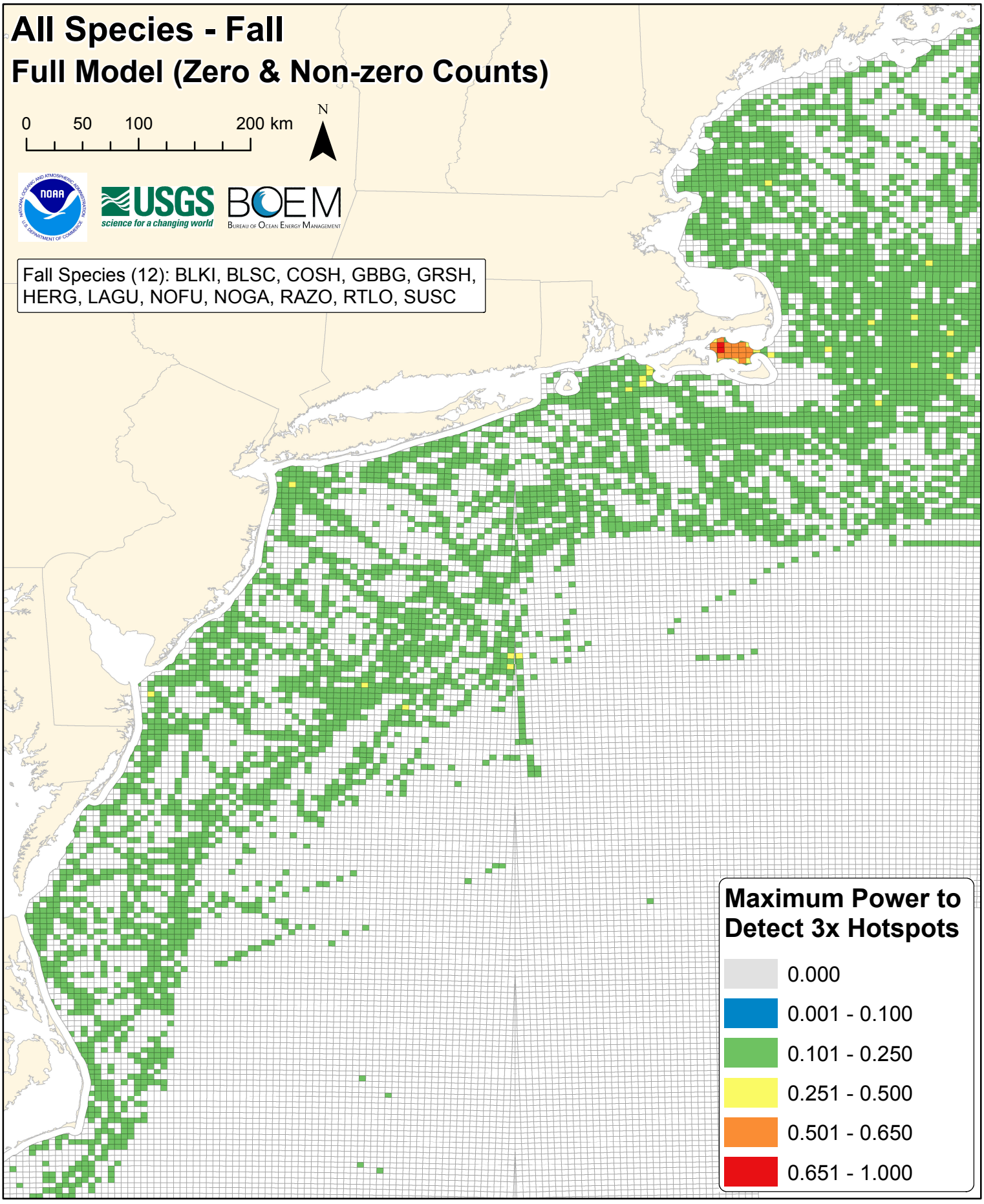
SECTION I. Summary Statistic Maps Calculated for All Species

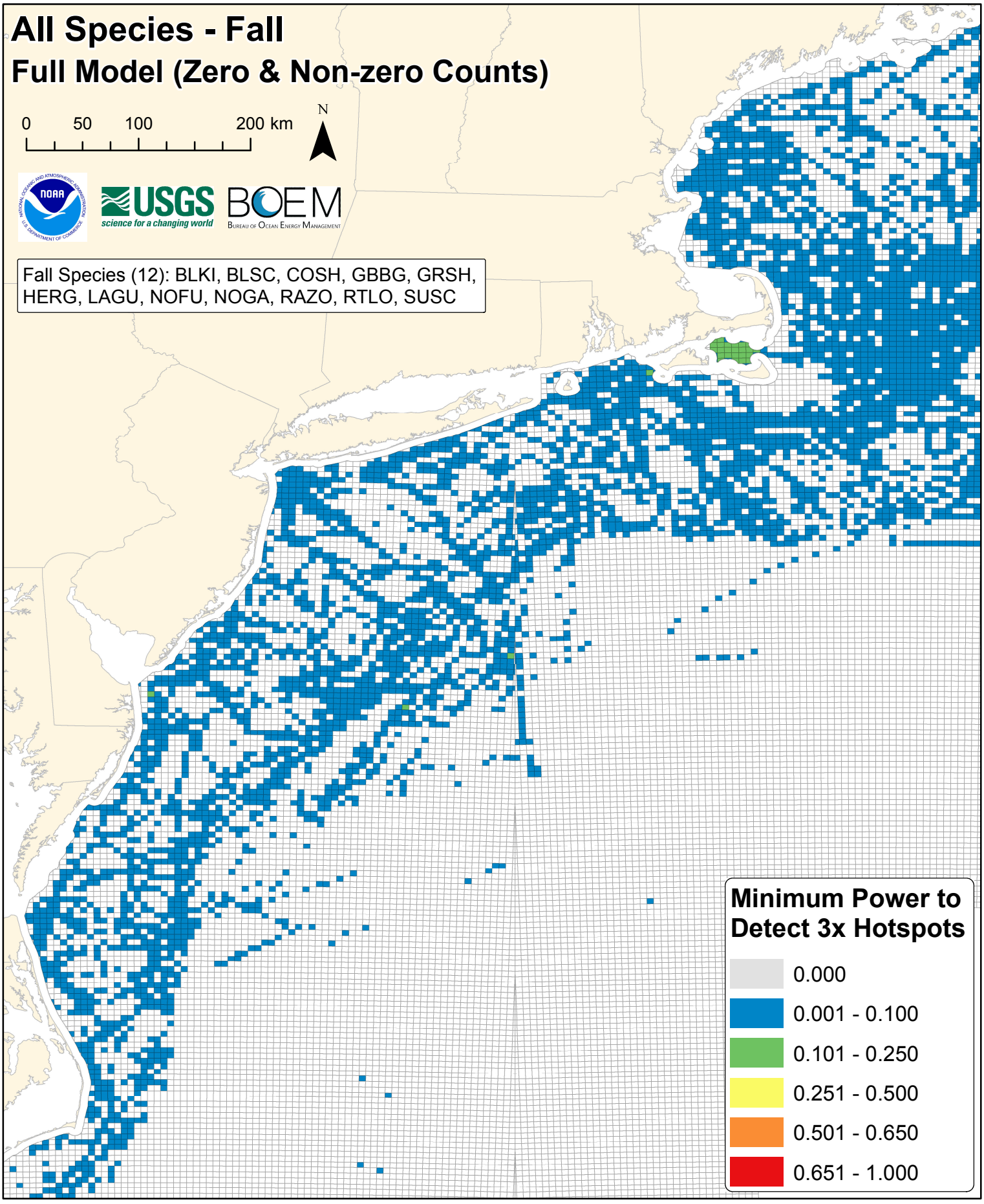
Figures G22-G28. Fall

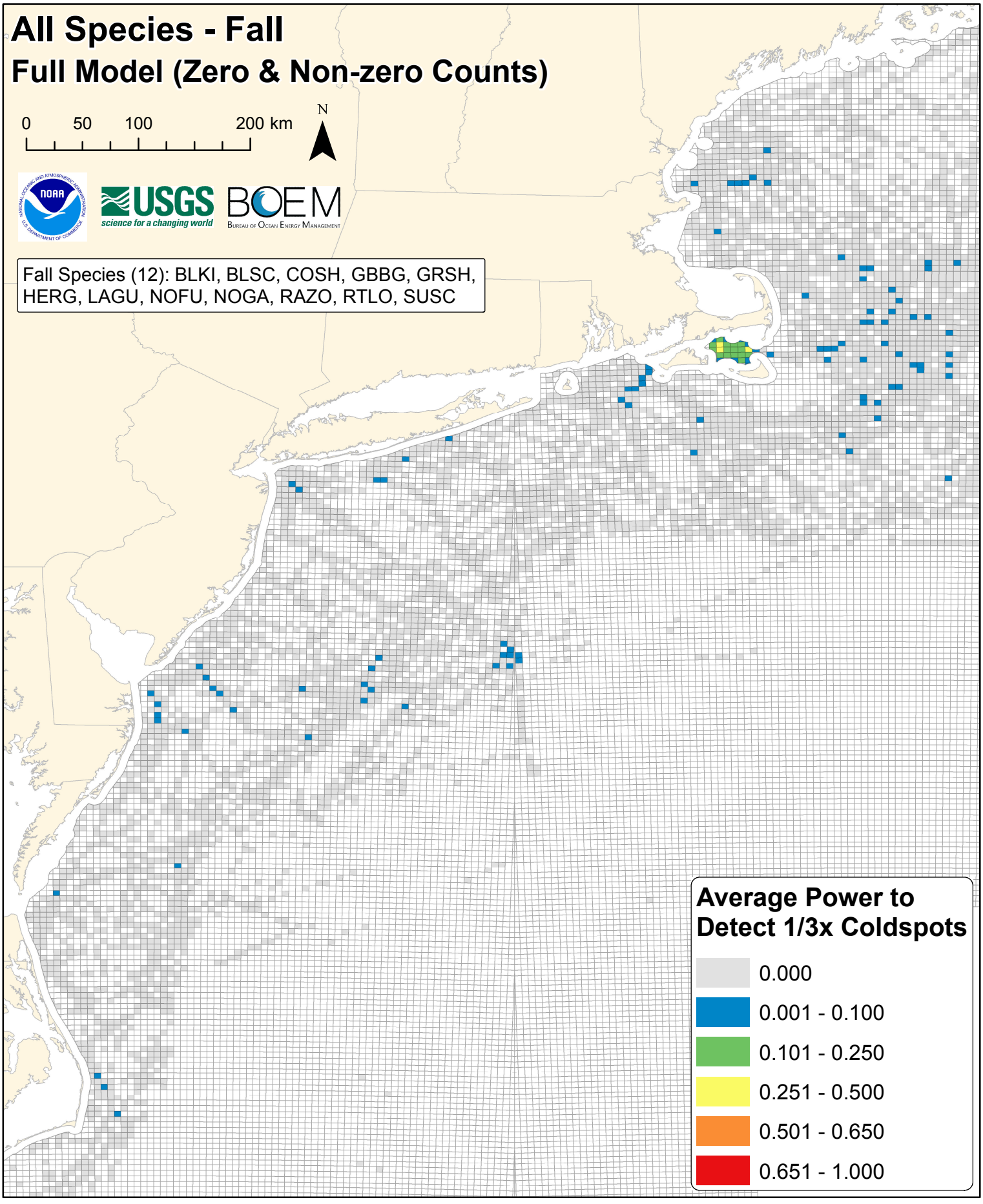
- Number of times each lease block was surveyed in fall
- Average, maximum, and minimum power to detect 3x hotspots of abundance
- Average, maximum, and minimum power to detect 1/3x coldspots of abundance

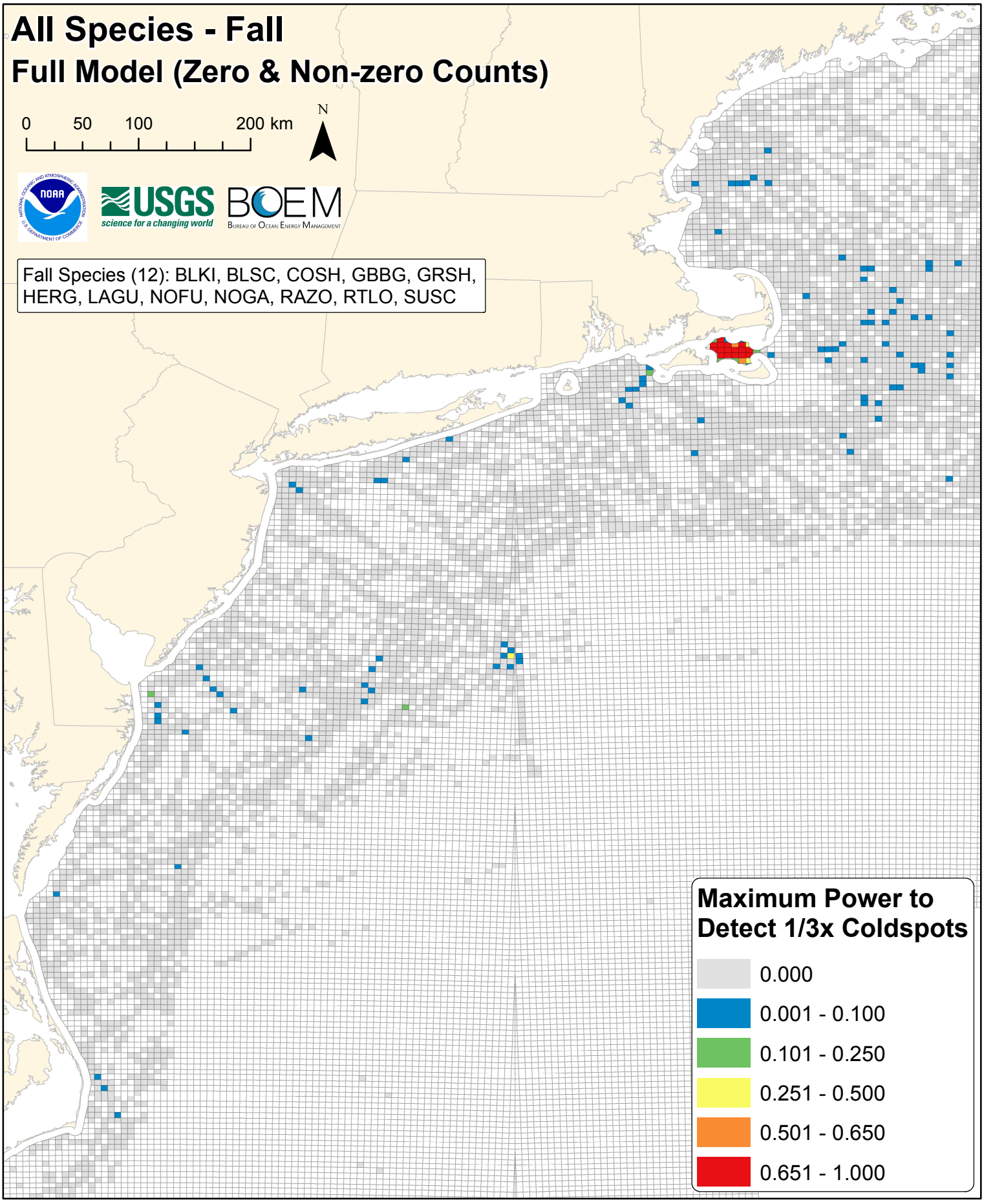

Survey Effort (Fall)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Times Sampled
1
2 - 6
7 - 14
15 - 20
>20

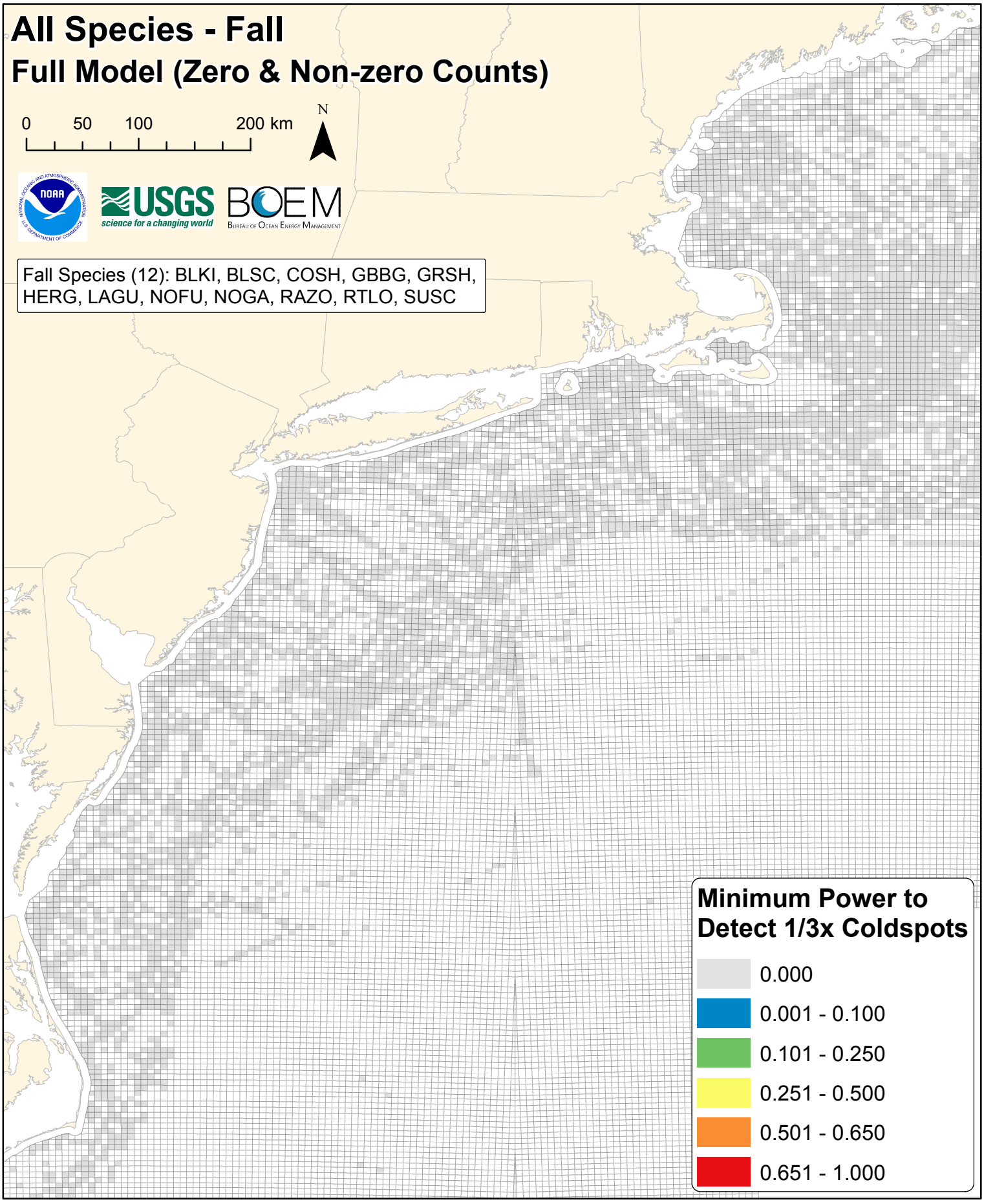

All Species - Fall
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Fall Species (12): BLKI, BLSC, COSH, GBBG, GRSH, HERG, LAGU, NOFU, NOGA, RAZO, RTLO, SUSC
Average Power to Detect 3x Hotspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 1.000


All Species - Fall
Full Model (Zero & Non-zero Counts)
0 50 100 200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Fall Species (12): BLKI, BLSC, COSH, GBBG, GRSH, HERG, LAGU, NOFU, NOGA, RAZO, RTLO, SUSC
Maximum Power to Detect 3x Hotspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 1.000


All Species - Fall
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Fall Species (12): BLKI, BLSC, COSH, GBBG, GRSH, HERG, LAGU, NOFU, NOGA, RAZO, RTLO, SUSC
Minimum Power to Detect 3x Hotspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 1.000


All Species - Fall
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Fall Species (12): BLKI, BLSC, COSH, GBBG, GRSH, HERG, LAGU, NOFU, NOGA, RAZO, RTLO, SUSC
Average 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 - 1.000


All Species - Fall
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Fall Species (12): BLKI, BLSC, COSH, GBBG, GRSH, HERG, LAGU, NOFU, NOGA, RAZO, RTLO, SUSC
Maximum 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 - 1.000


All Species - Fall
Full Model (Zero & Non-zero Counts)
0 50 100 200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Fall Species (12): BLKI, BLSC, COSH, GBBG, GRSH, HERG, LAGU, NOFU, NOGA, RAZO, RTLO, SUSC
Minimum 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 - 1.000

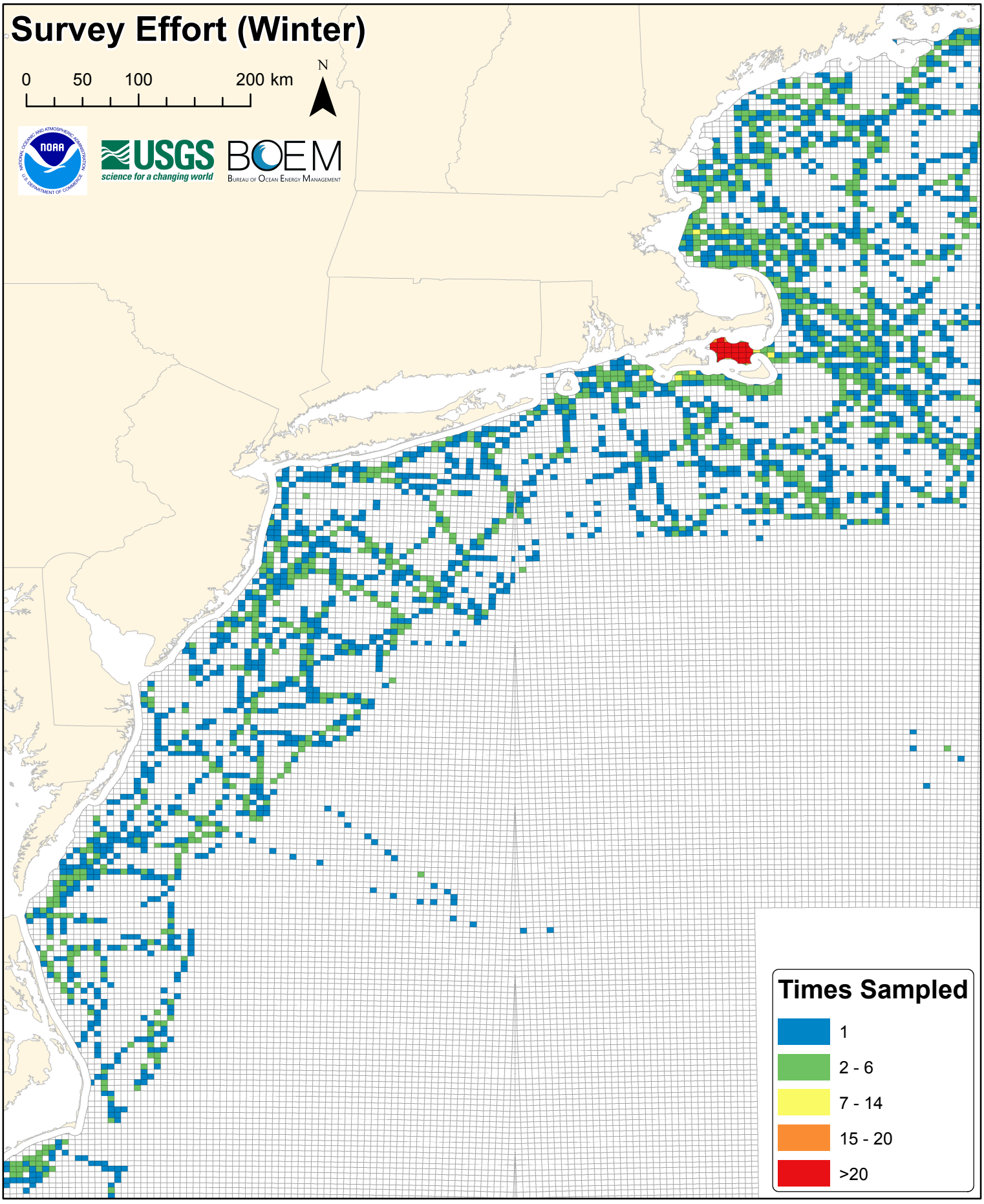
DIGITAL SUPPLEMENT G

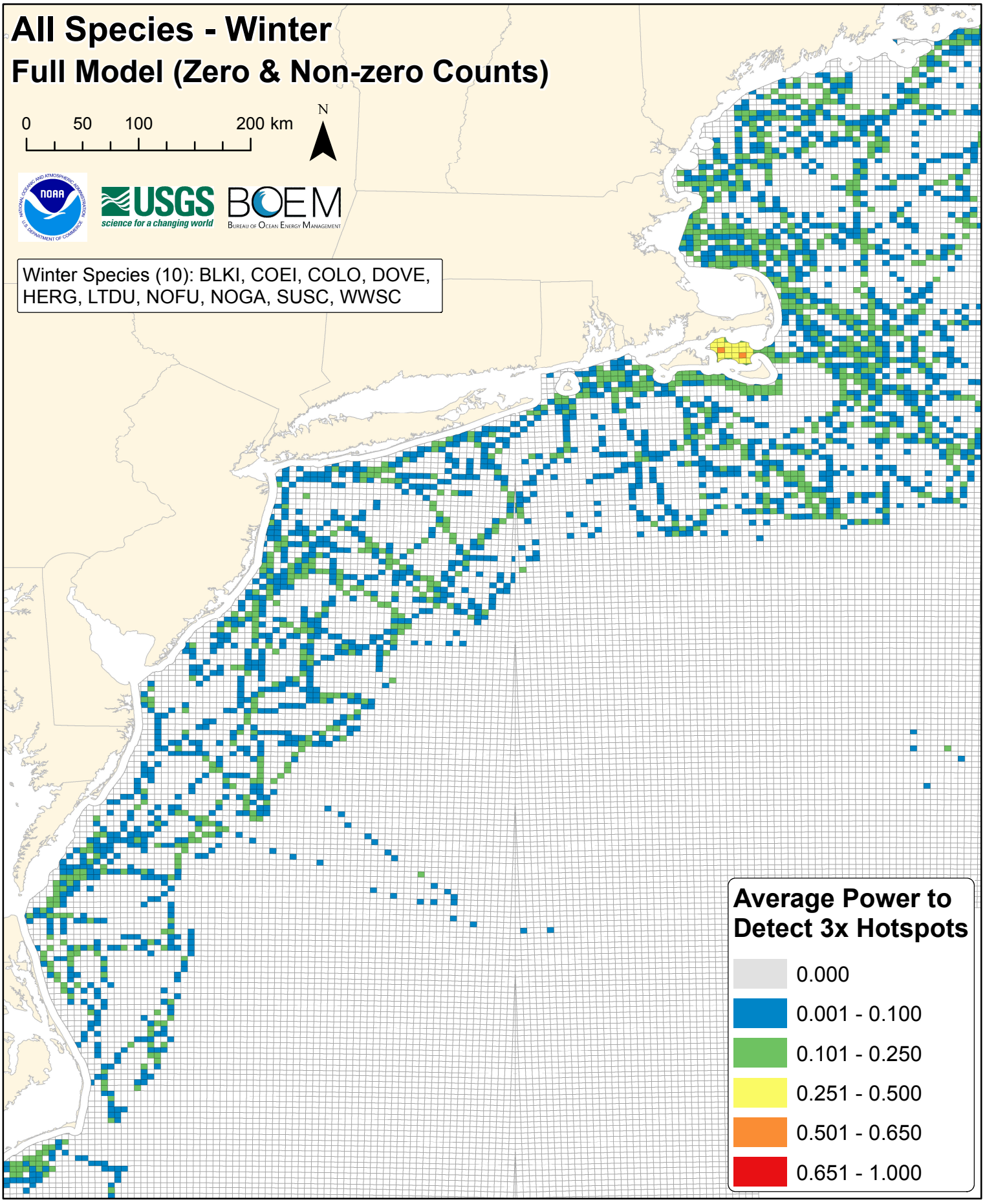
Full Hurdle Model (Zero & Non-Zero Counts) Results

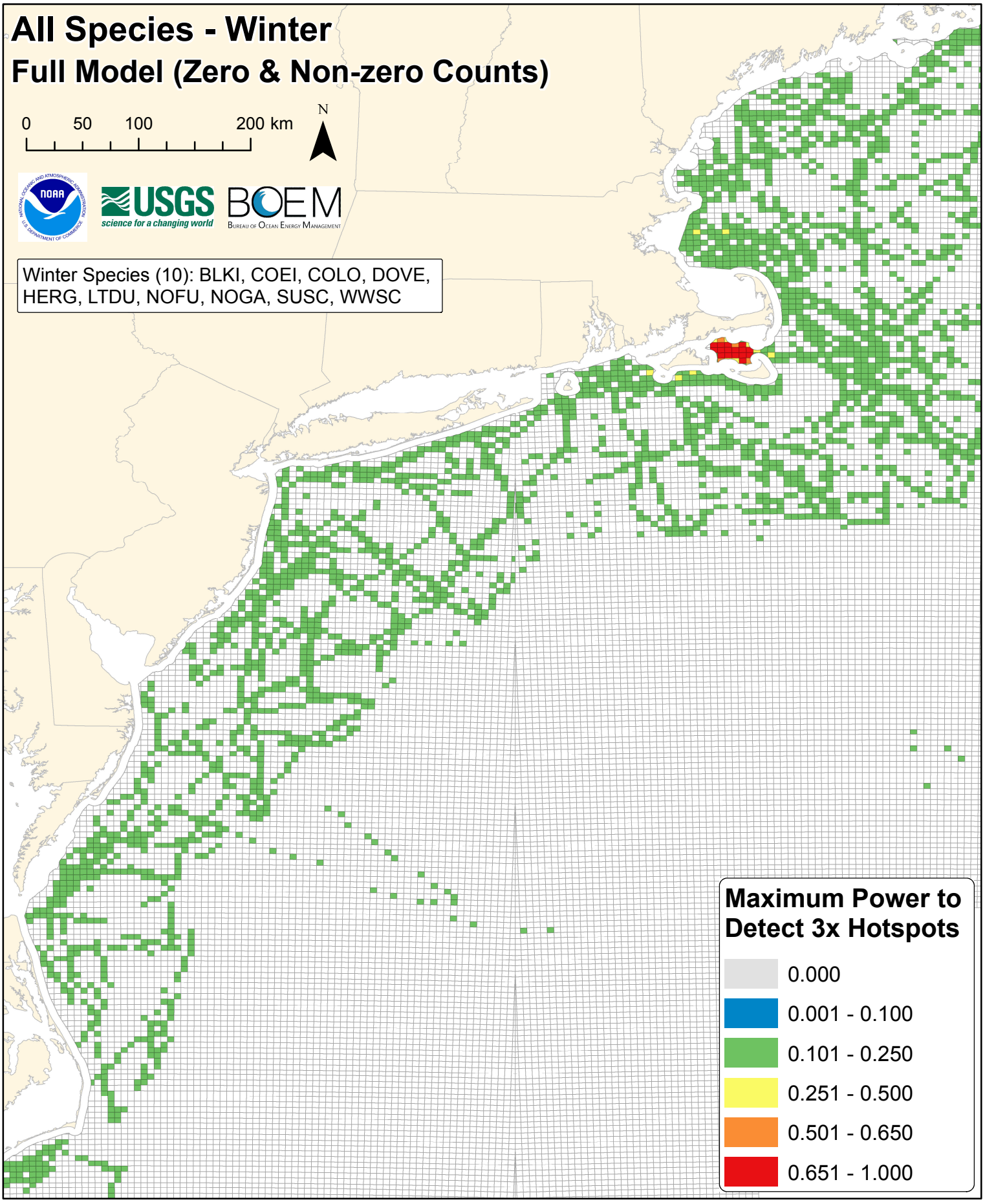
SECTION I. Summary Statistic Maps Calculated for All Species

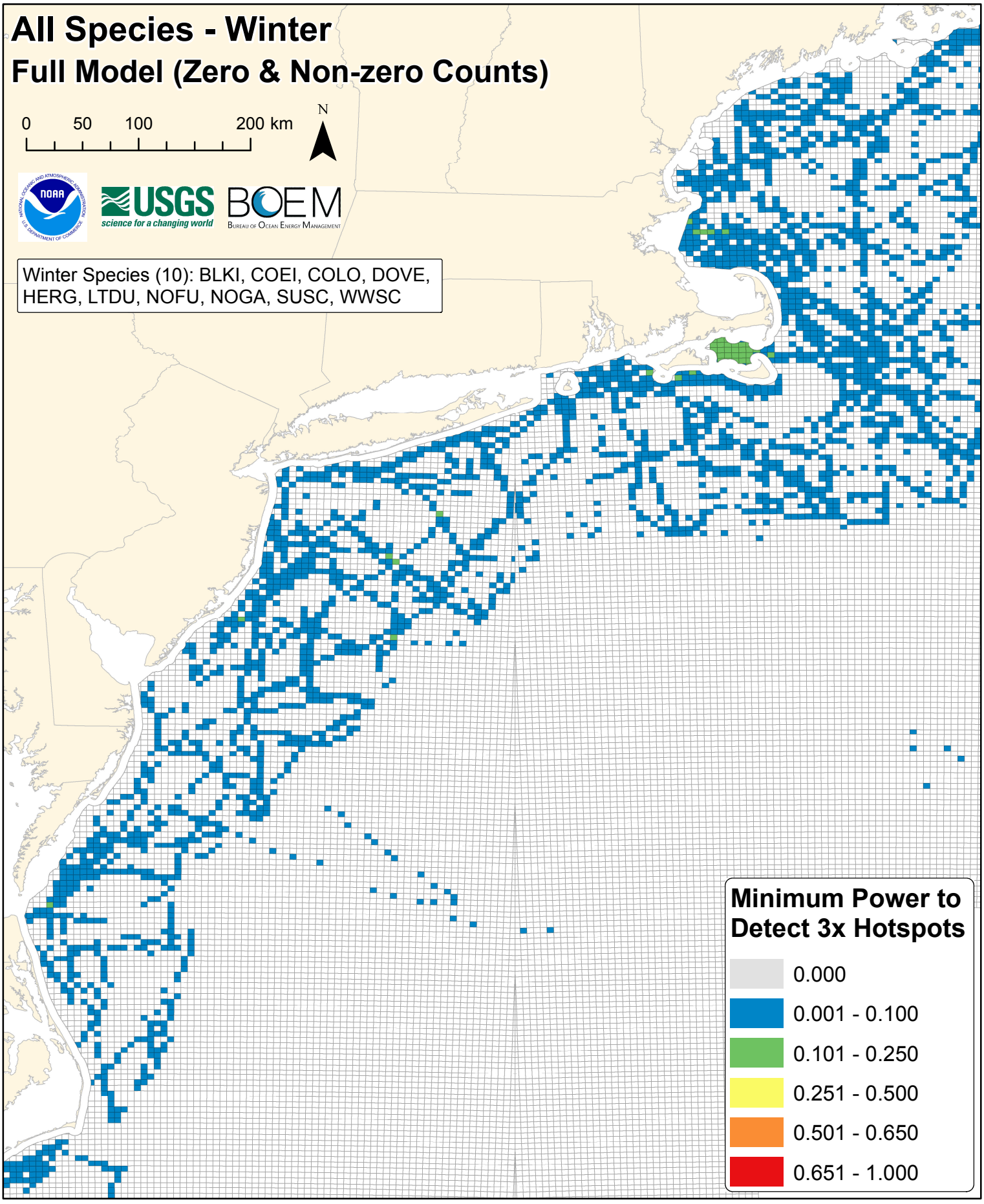
Figures G29-G35. Winter

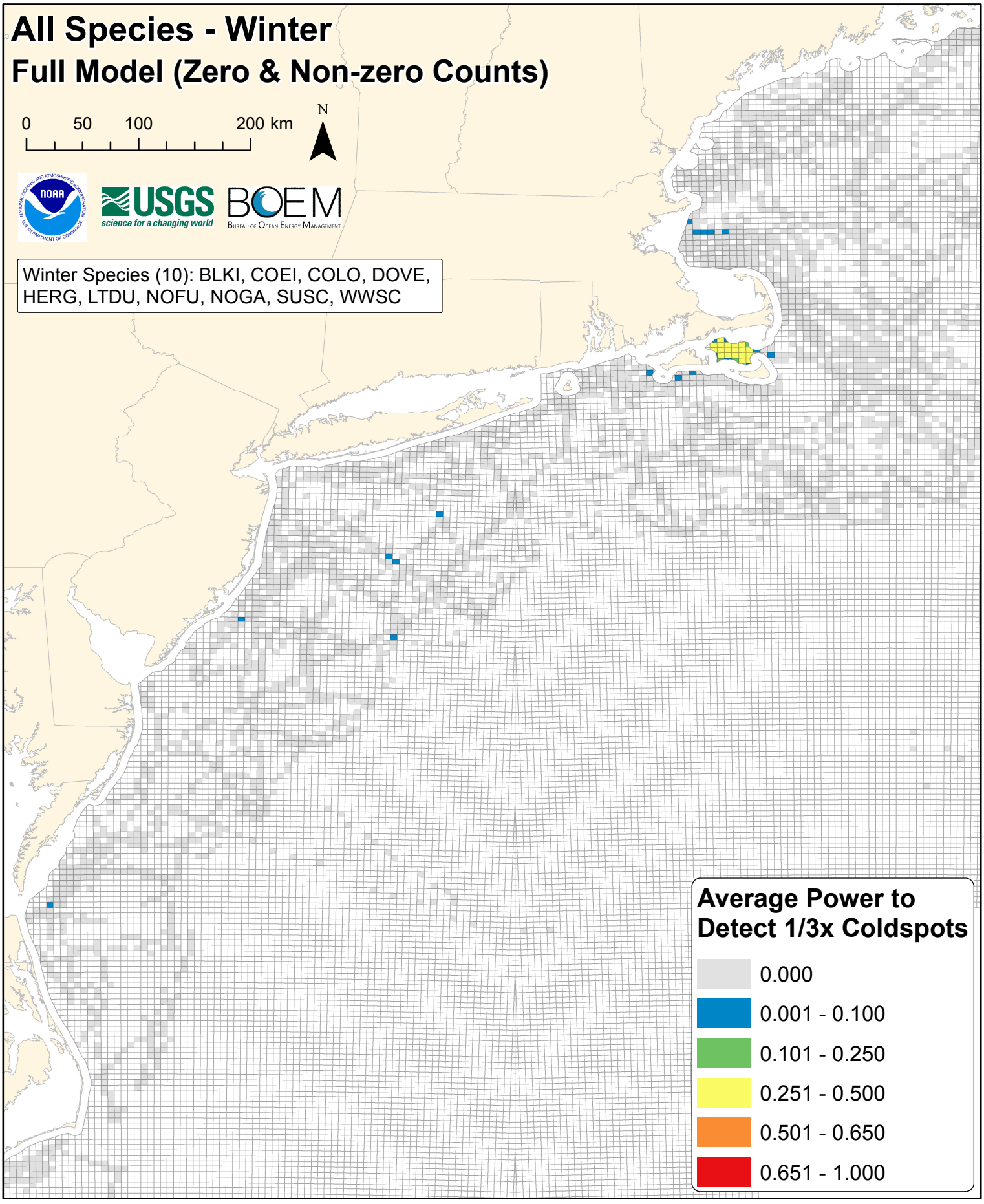
- Number of times each lease block was surveyed in winter
- Average, maximum, and minimum power to detect 3x hotspots of abundance
- Average, maximum, and minimum power to detect 1/3x coldspots of abundance

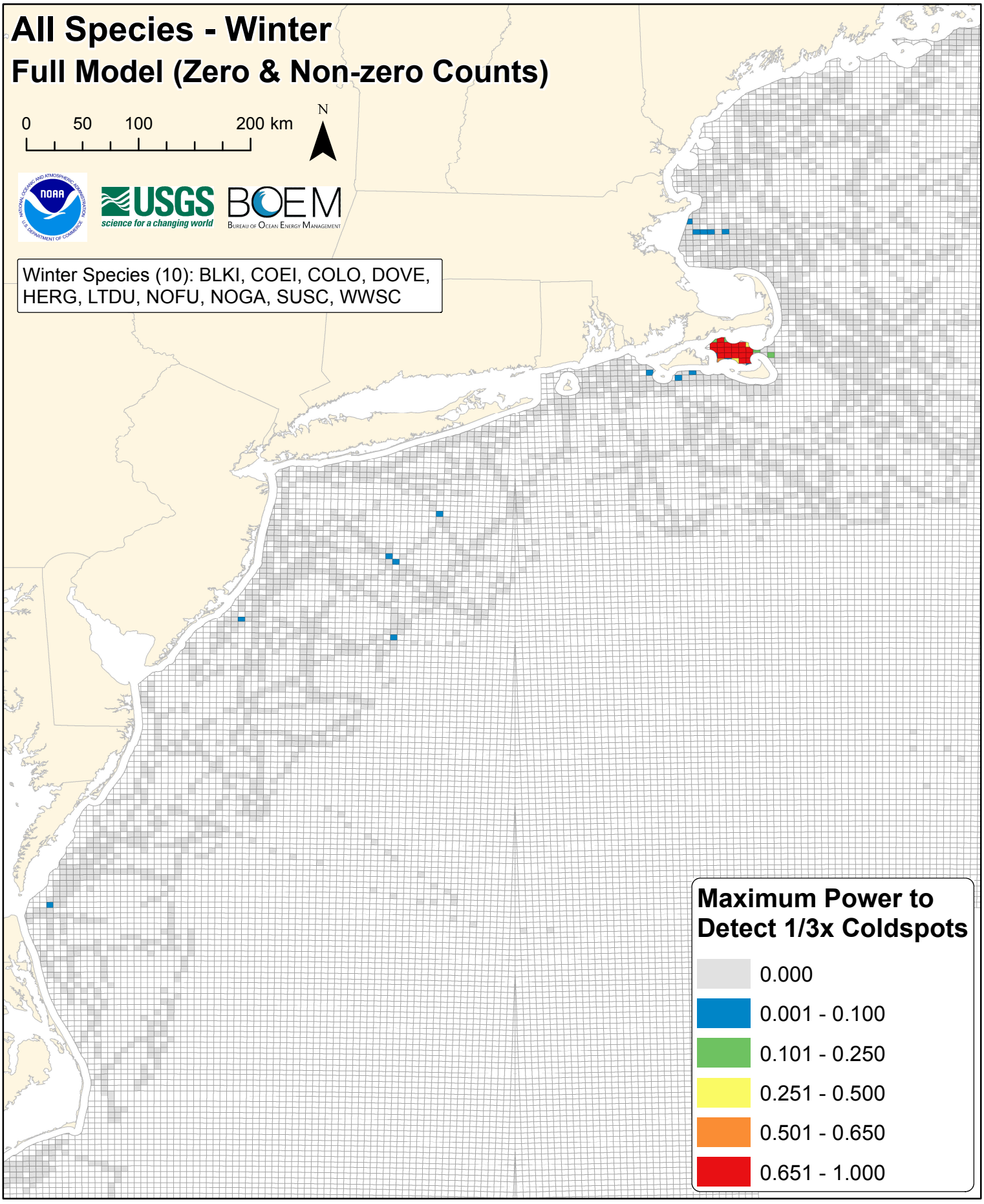

Survey Effort (Winter)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Times Sampled
1
2 - 6
7 - 14
15 - 20
>20

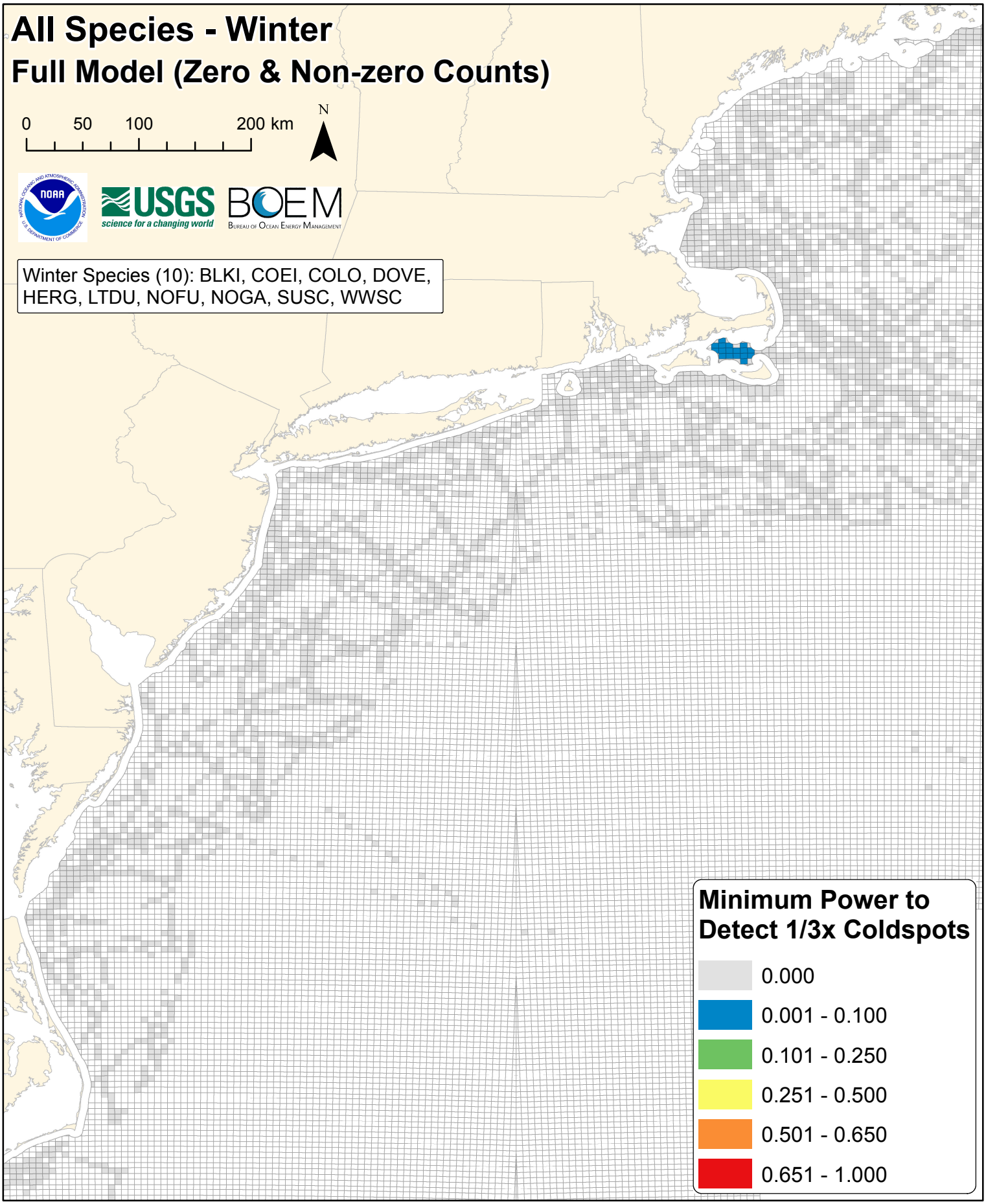

All Species - Winter
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Winter Species (10): BLKI, COEI, COLO, DOVE, HERG, LTDU, NOFU, NOGA, SUSC, WWSC
Average Power to Detect 3x Hotspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 1.000


All Species - Winter
Full Model (Zero & Non-zero Counts)
0 50 100 200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Winter Species (10): BLKI, COEI, COLO, DOVE, HERG, LTDU, NOFU, NOGA, SUSC, WWSC
Maximum Power to Detect 3x Hotspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 1.000


All Species - Winter
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Winter Species (10): BLKI, COEI, COLO, DOVE, HERG, LTDU, NOFU, NOGA, SUSC, WWSC
Minimum Power to Detect 3x Hotspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 1.000


All Species - Winter
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Winter Species (10): BLKI, COEI, COLO, DOVE, HERG, LTDU, NOFU, NOGA, SUSC, WWSC
Average 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 - 1.000


All Species - Winter
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Winter Species (10): BLKI, COEI, COLO, DOVE, HERG, LTDU, NOFU, NOGA, SUSC, WWSC
Maximum 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 - 1.000

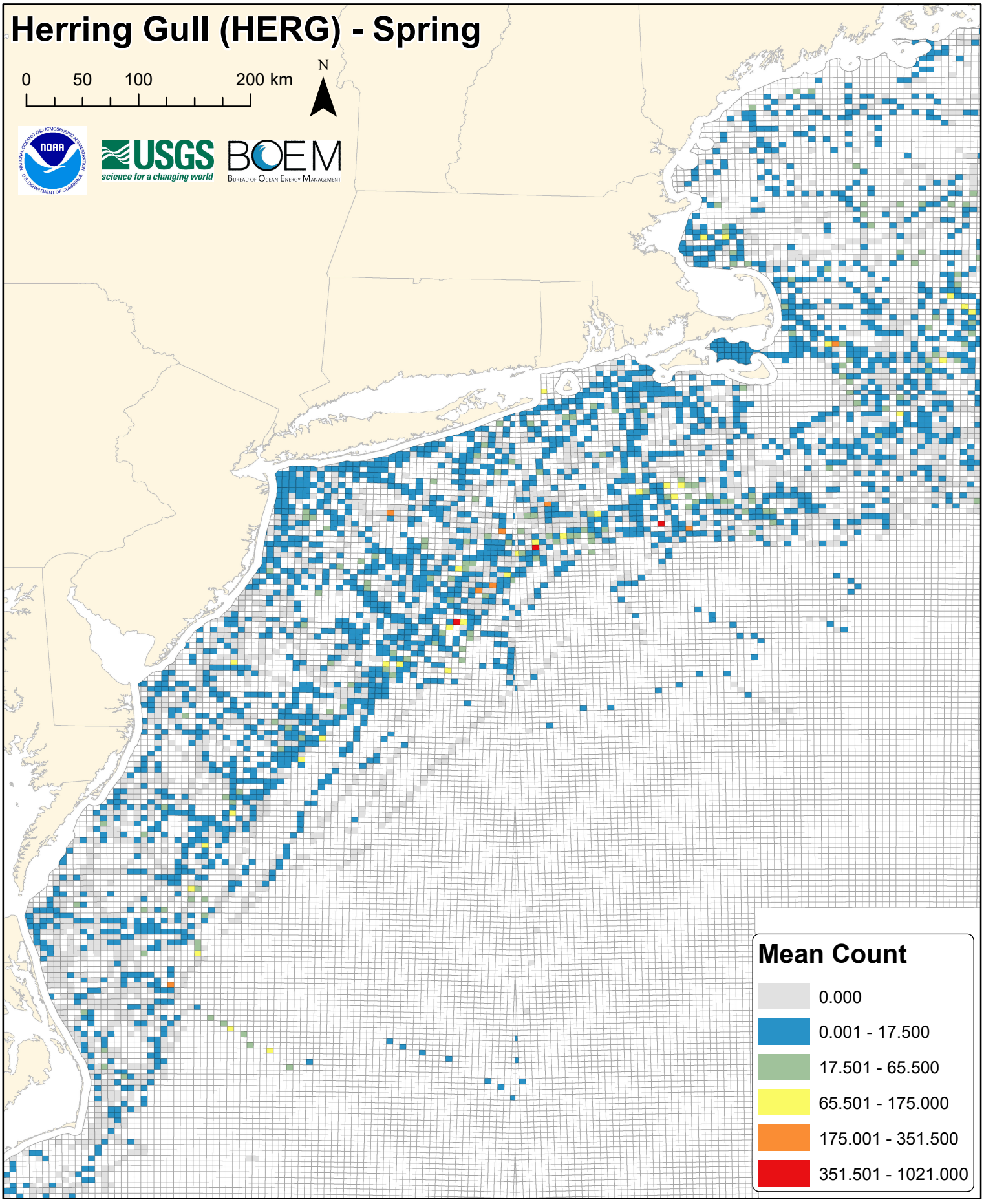

All Species - Winter
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Winter Species (10): BLKI, COEI, COLO, DOVE, HERG, LTDU, NOFU, NOGA, SUSC, WWSC
Minimum Power to Detect 1/3x Coldspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 1.000

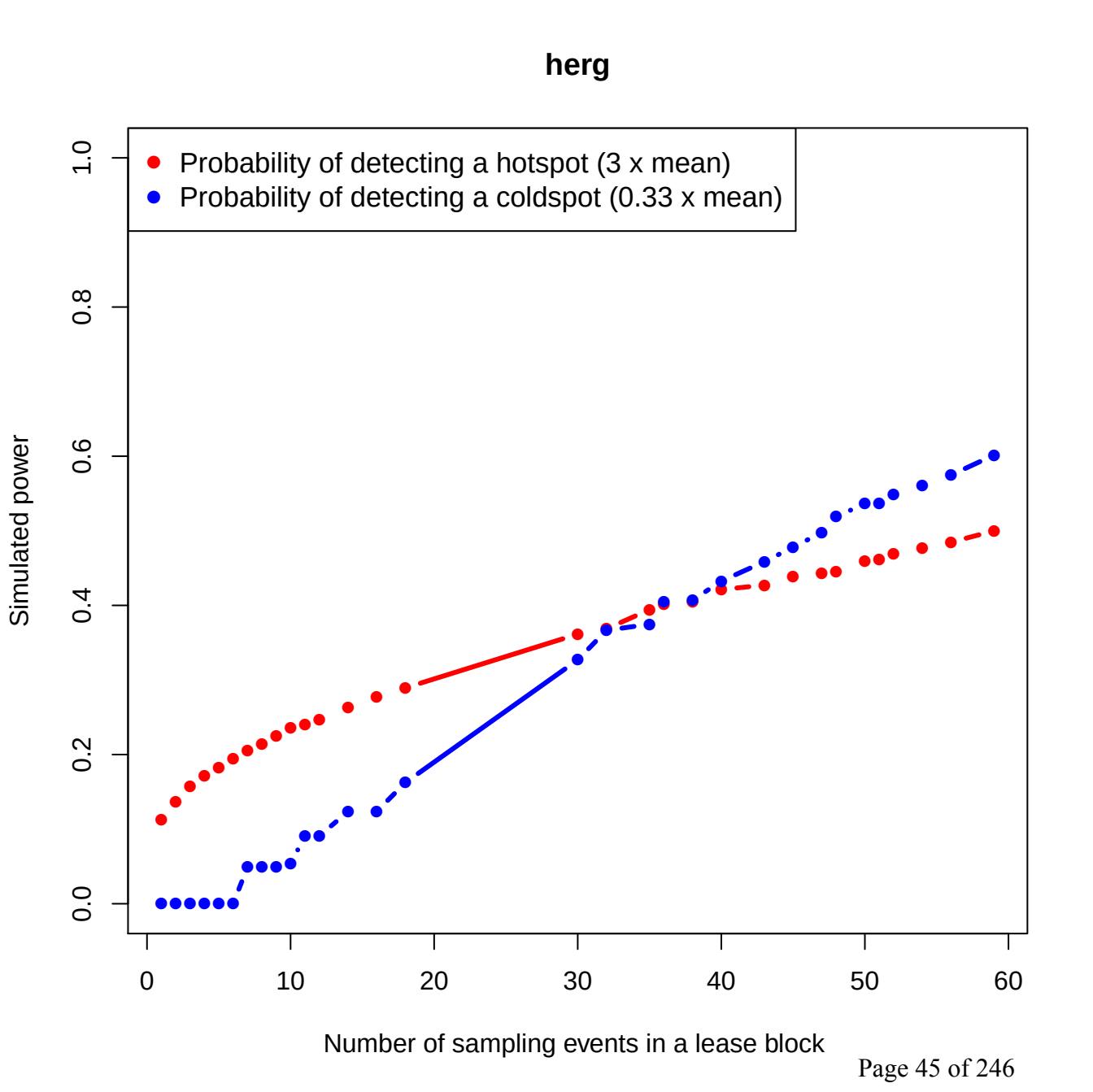
DIGITAL SUPPLEMENT G

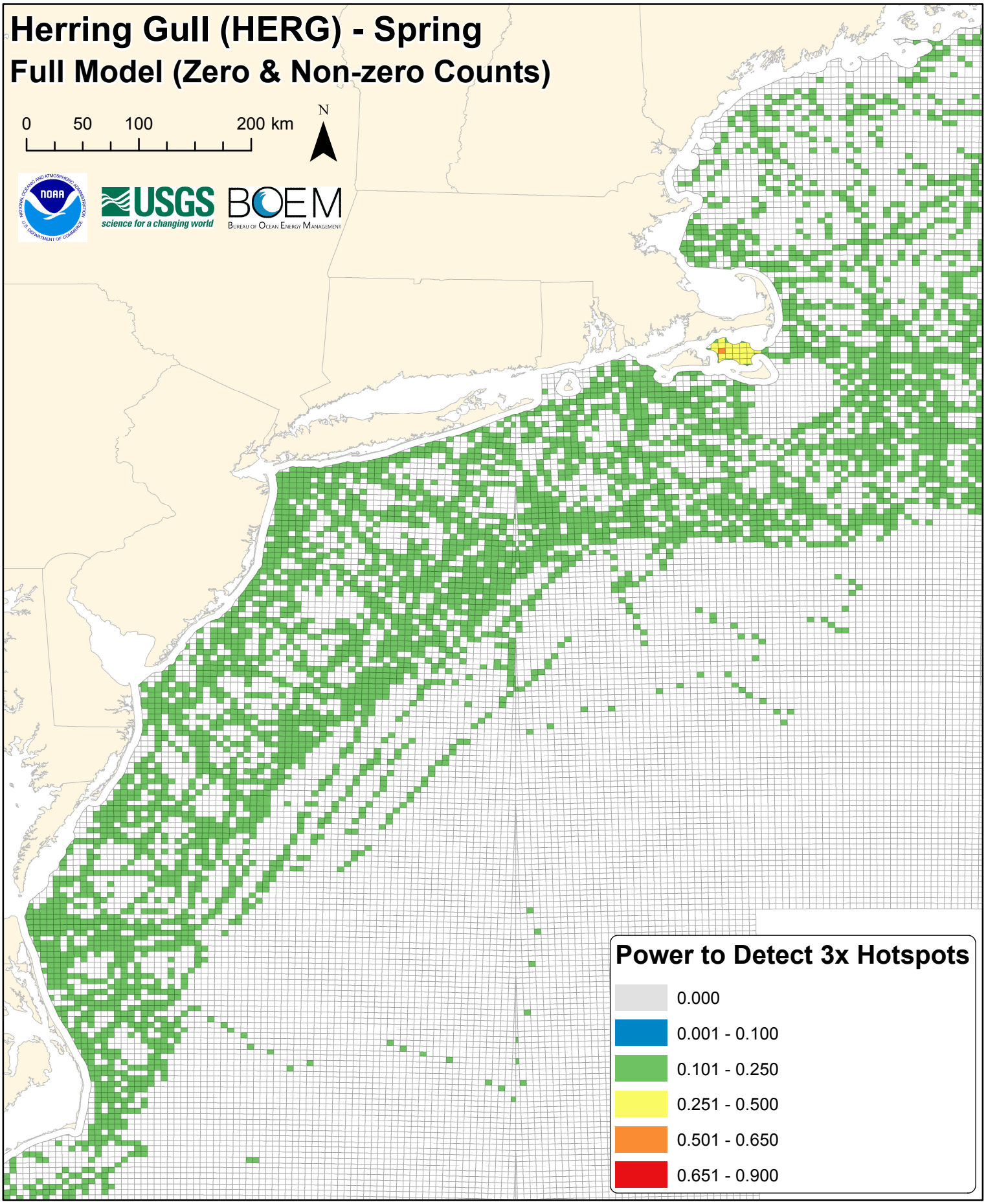
Full Hurdle Model (Zero & Non-Zero Counts) Results

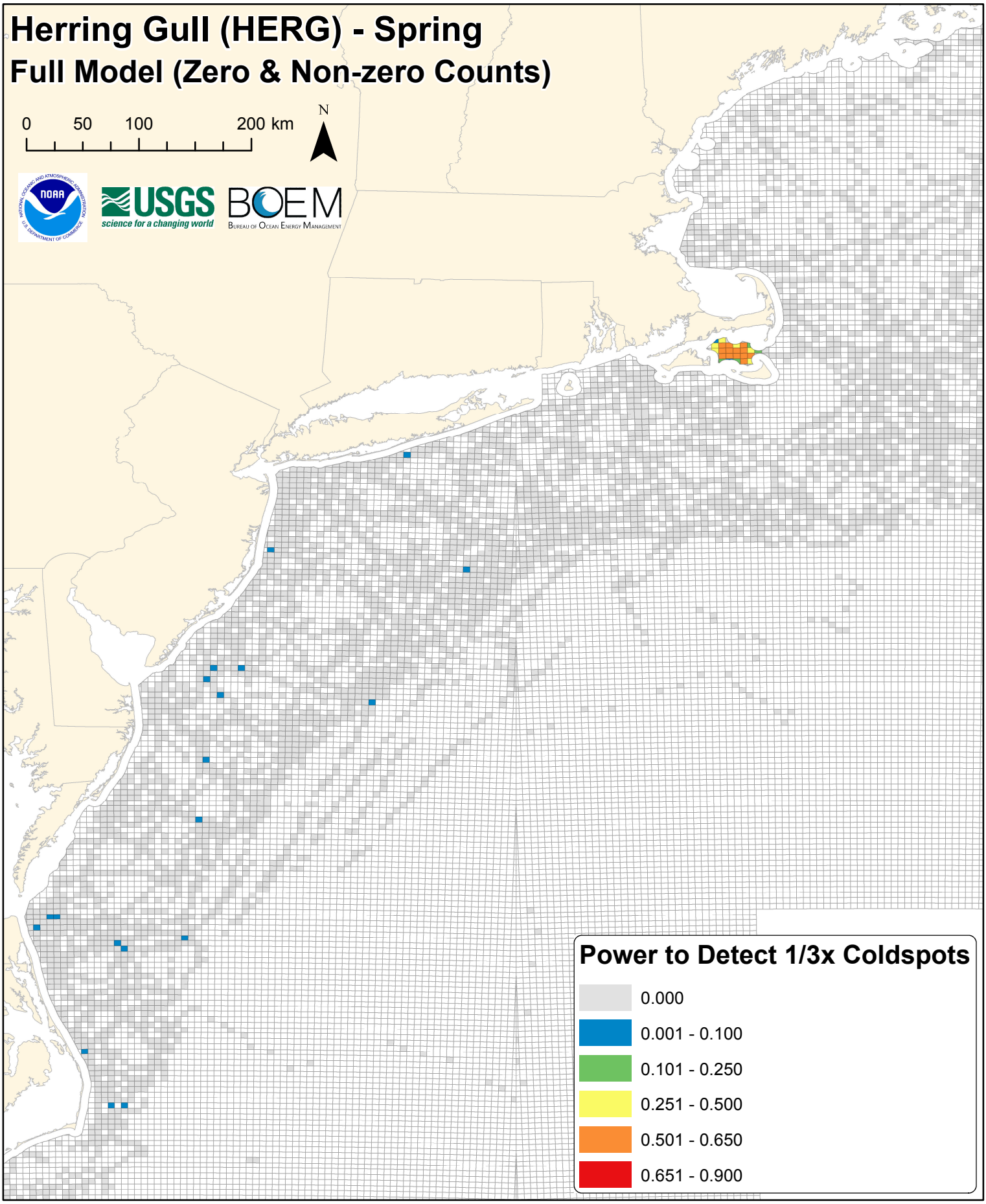
SECTION II. Species-specific Power Analysis Maps and Figures

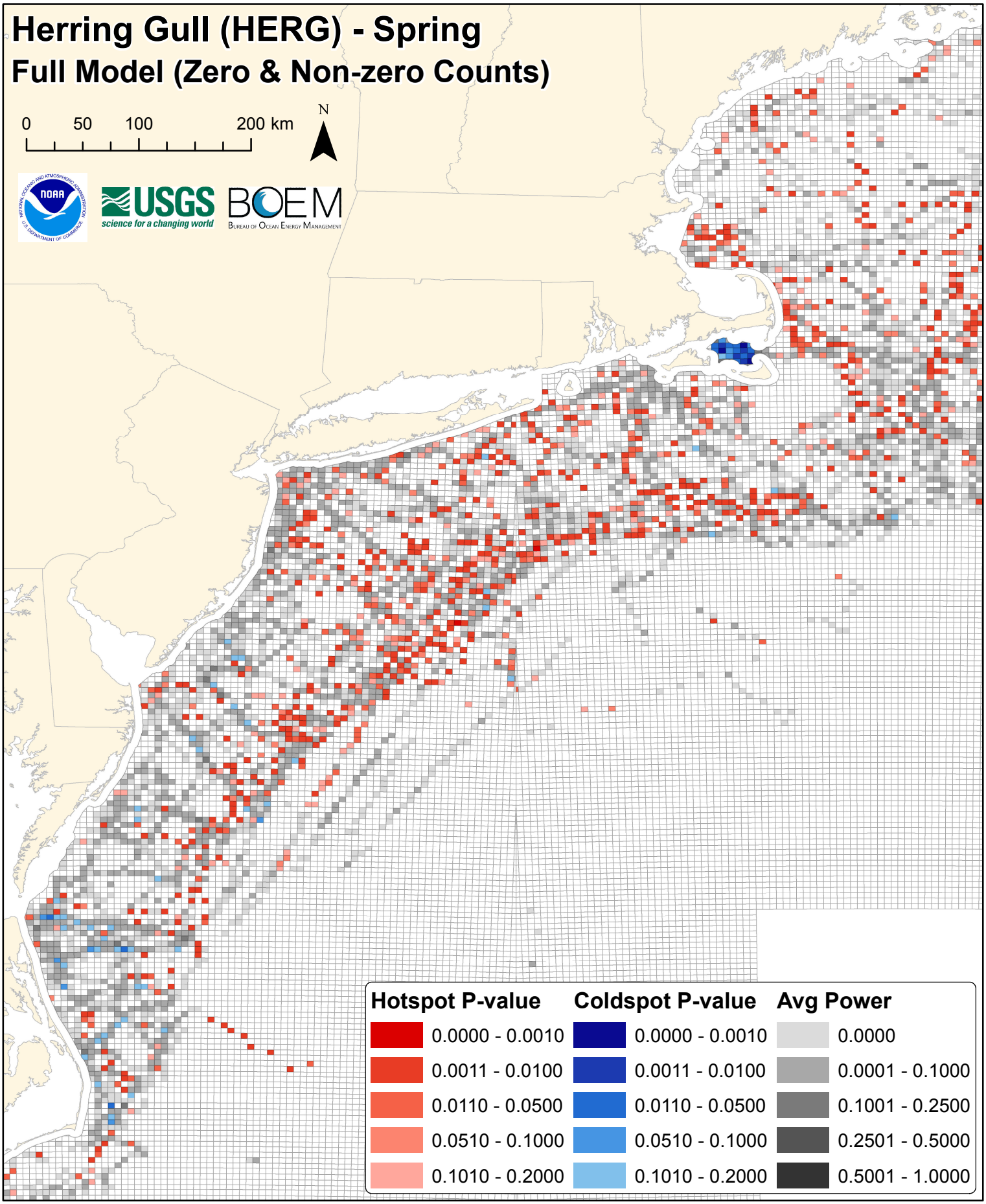
Figures G36-G90. Spring power analysis maps and figures (11 species x 5 figures per species).

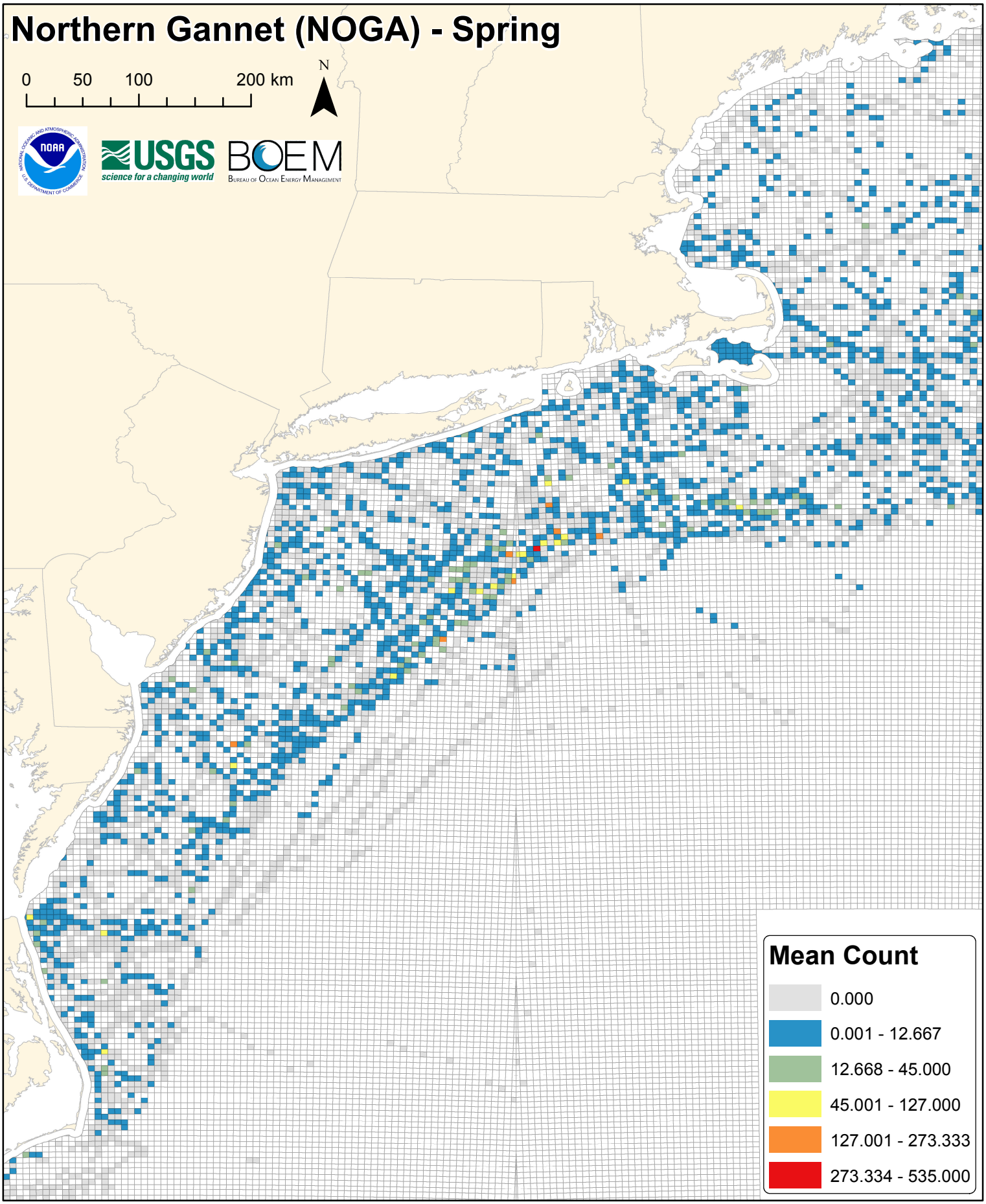

Herring Gull (HERG) - Spring
0
50
100
200 km
N
NOAA
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Mean Count
0.000
0.001 - 17.500
17.501 - 65.500
65.501 - 175.000
175.001 - 351.500
351.501 - 1021.000

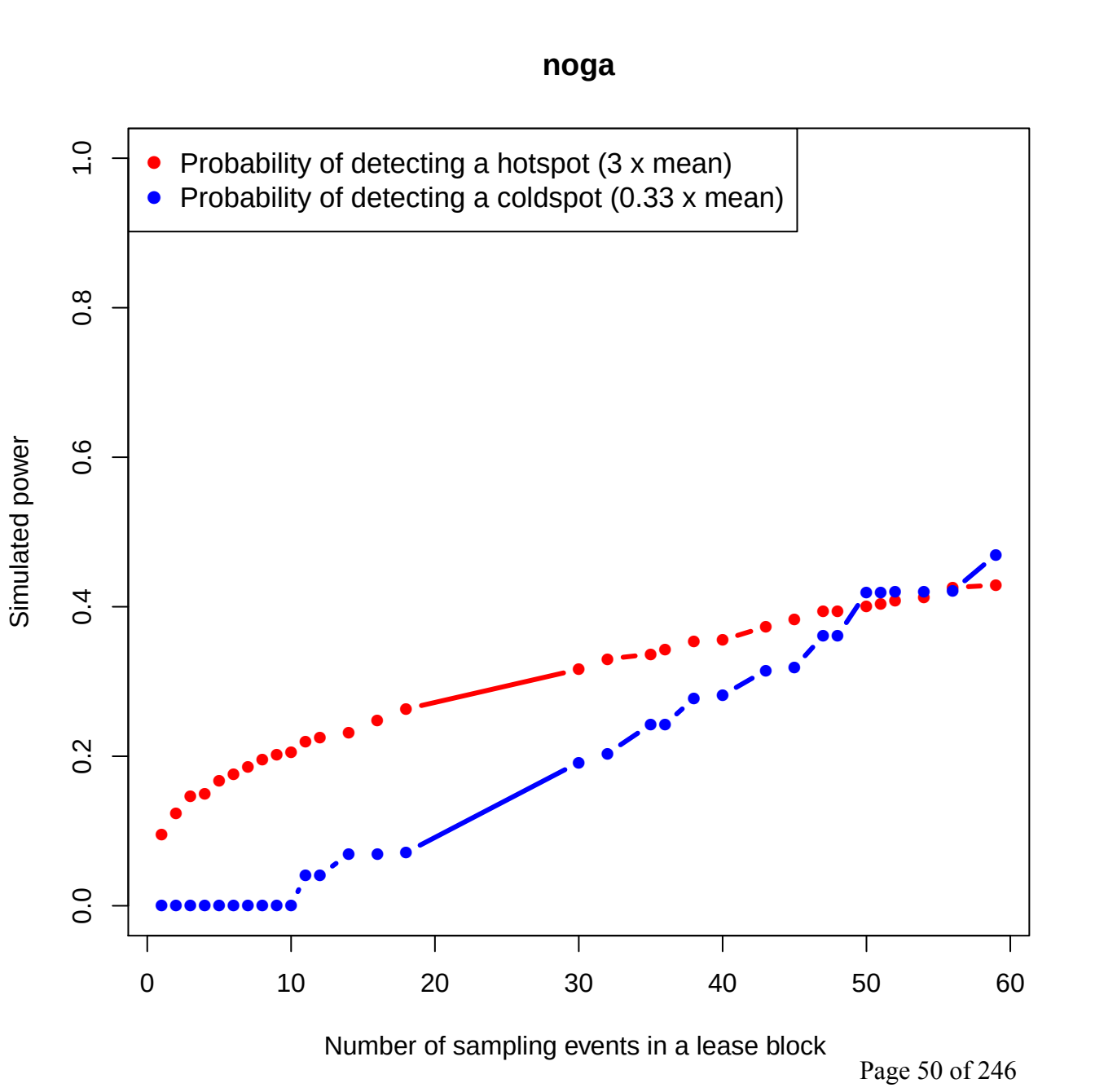

herg
Probability of detecting a hotspot (3 x mean)
Probability of detecting a coldspot (0.33 x mean)
Simulated power
0.0
0.2
0.4
0.6
0.8
1.0
0
10
20
30
40
50
60
Number of sampling events in a lease block

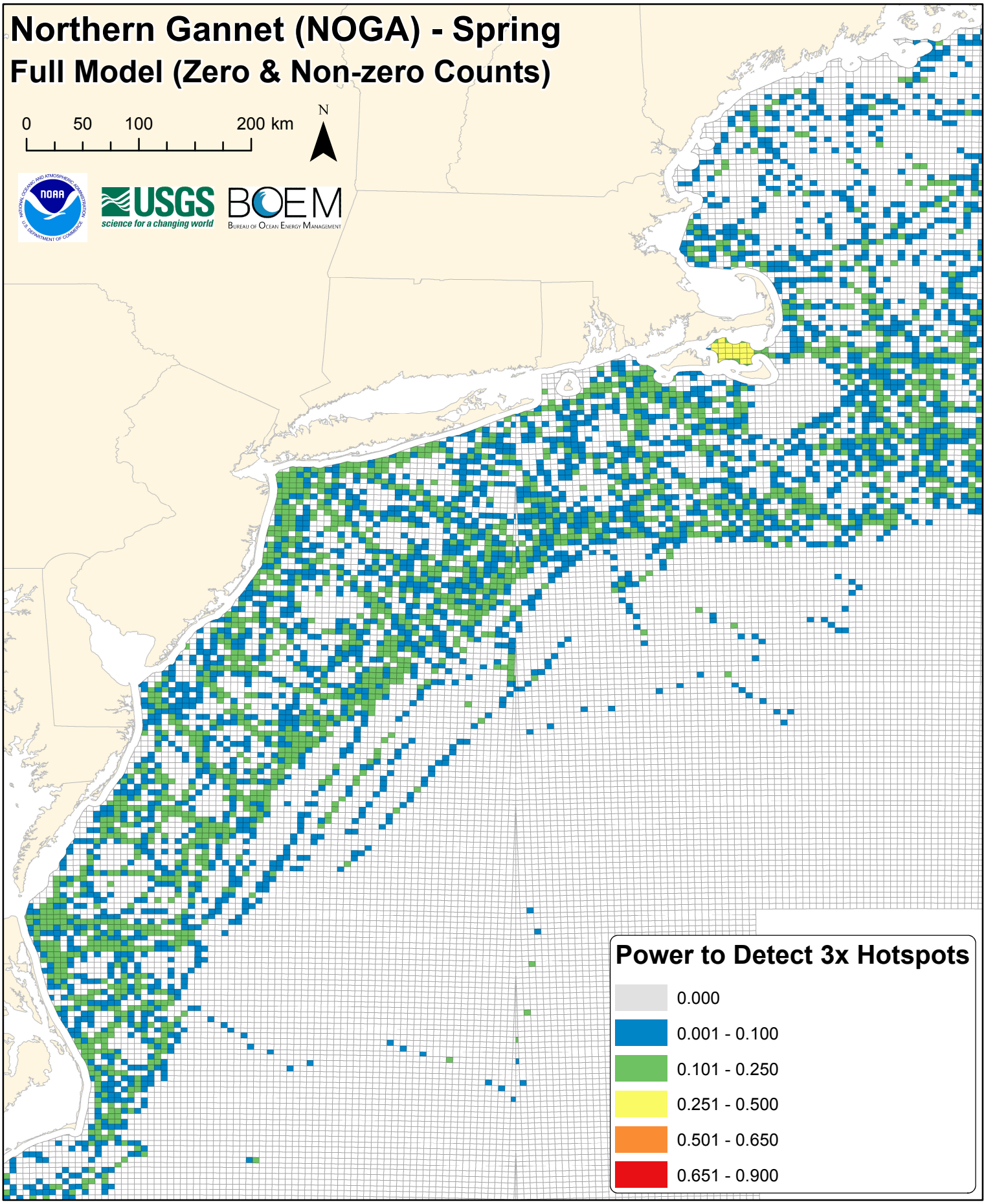

Herring Gull (HERG) - Spring
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
NOAA
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Power to Detect 3x Hotspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

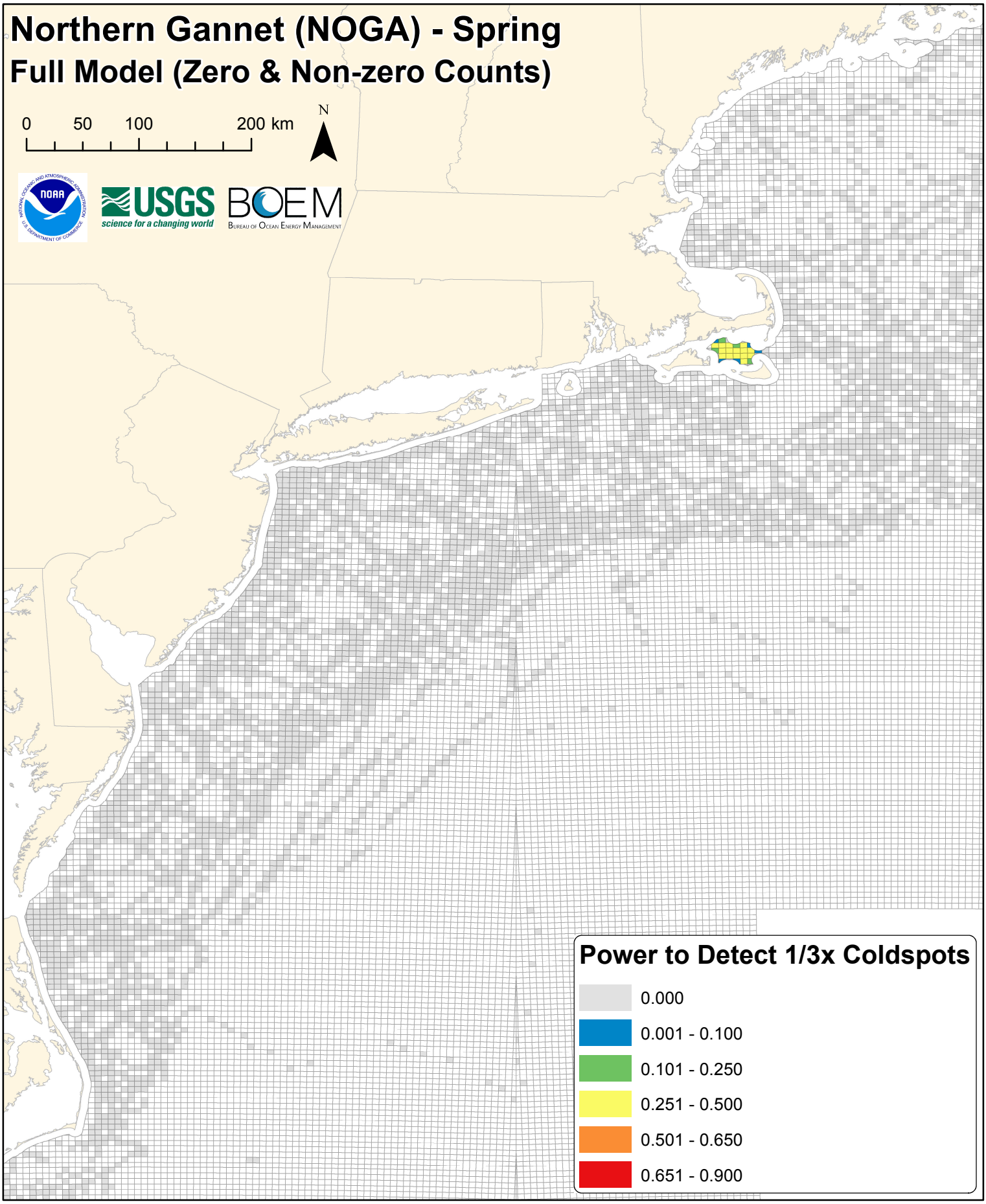

Herring Gull (HERG) - Spring
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Power to Detect 1/3x Coldspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

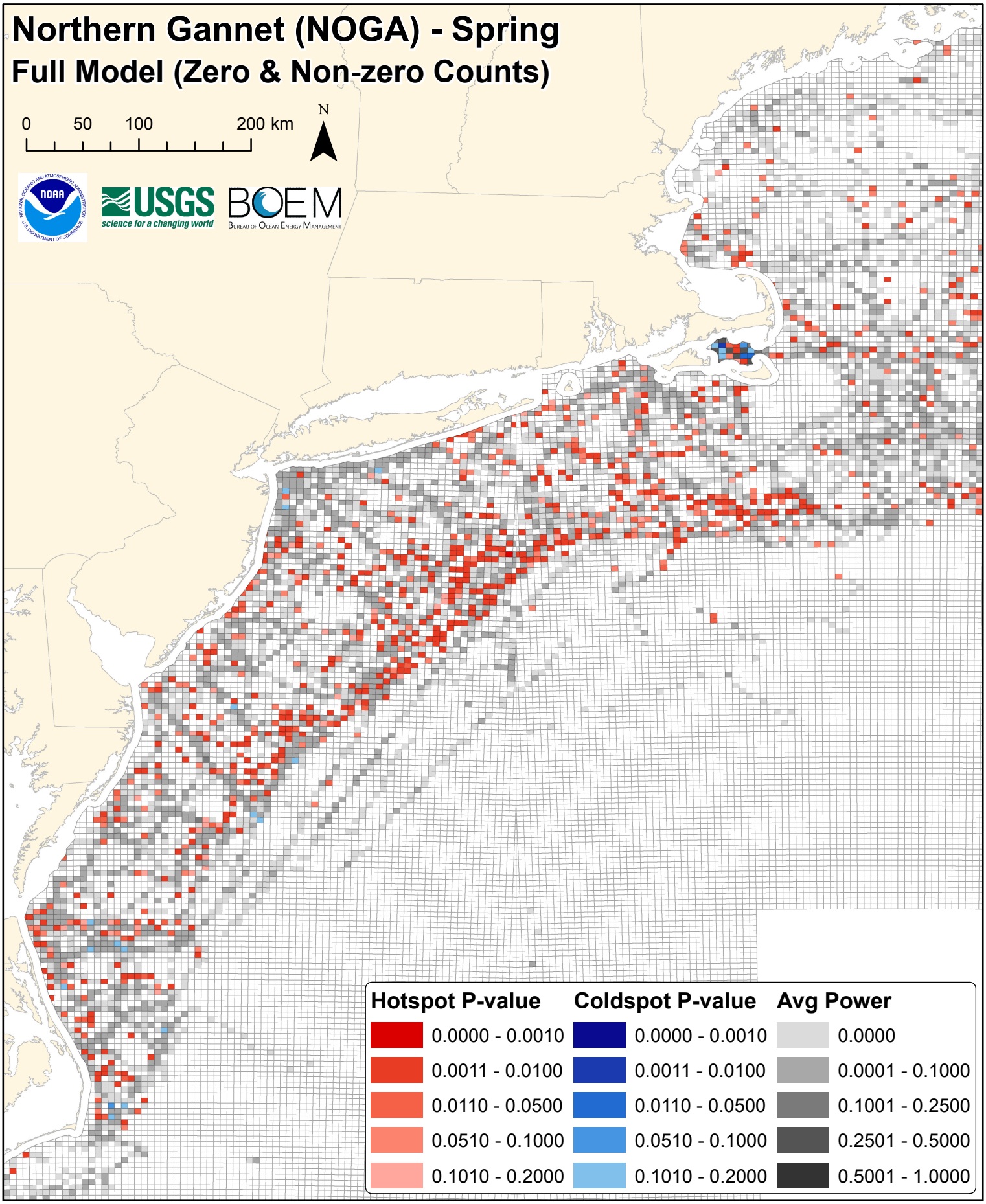

Herring Gull (HERG) - Spring
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Hotspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Coldspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Avg Power
0.0000
0.0001 - 0.1000
0.1001 - 0.2500
0.2501 - 0.5000
0.5001 - 1.0000

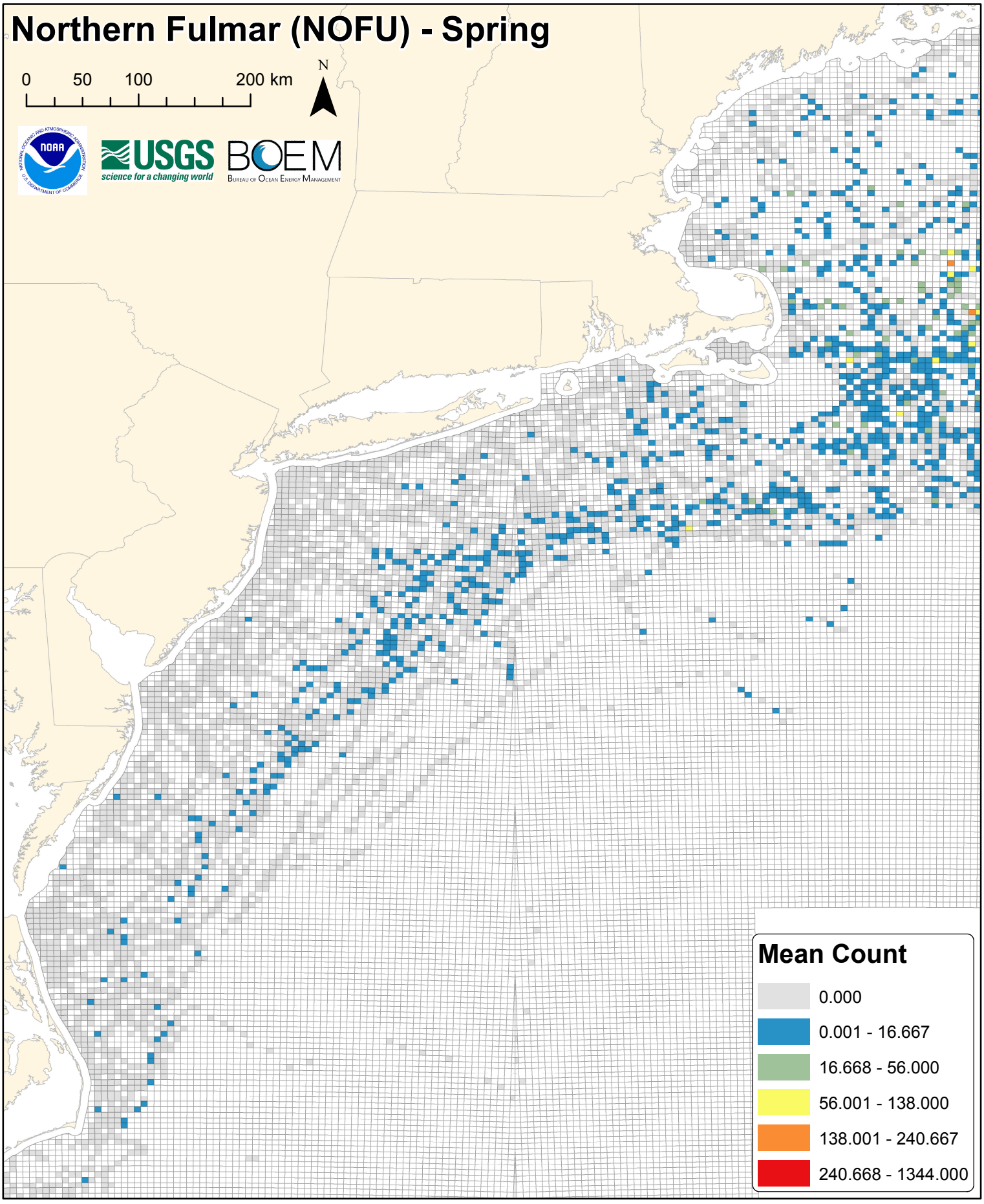

Northern Gannet (NOGA) - Spring
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Mean Count
0.000
0.001 - 12.667
12.668 - 45.000
45.001 - 127.000
127.001 - 273.333
273.334 - 535.000

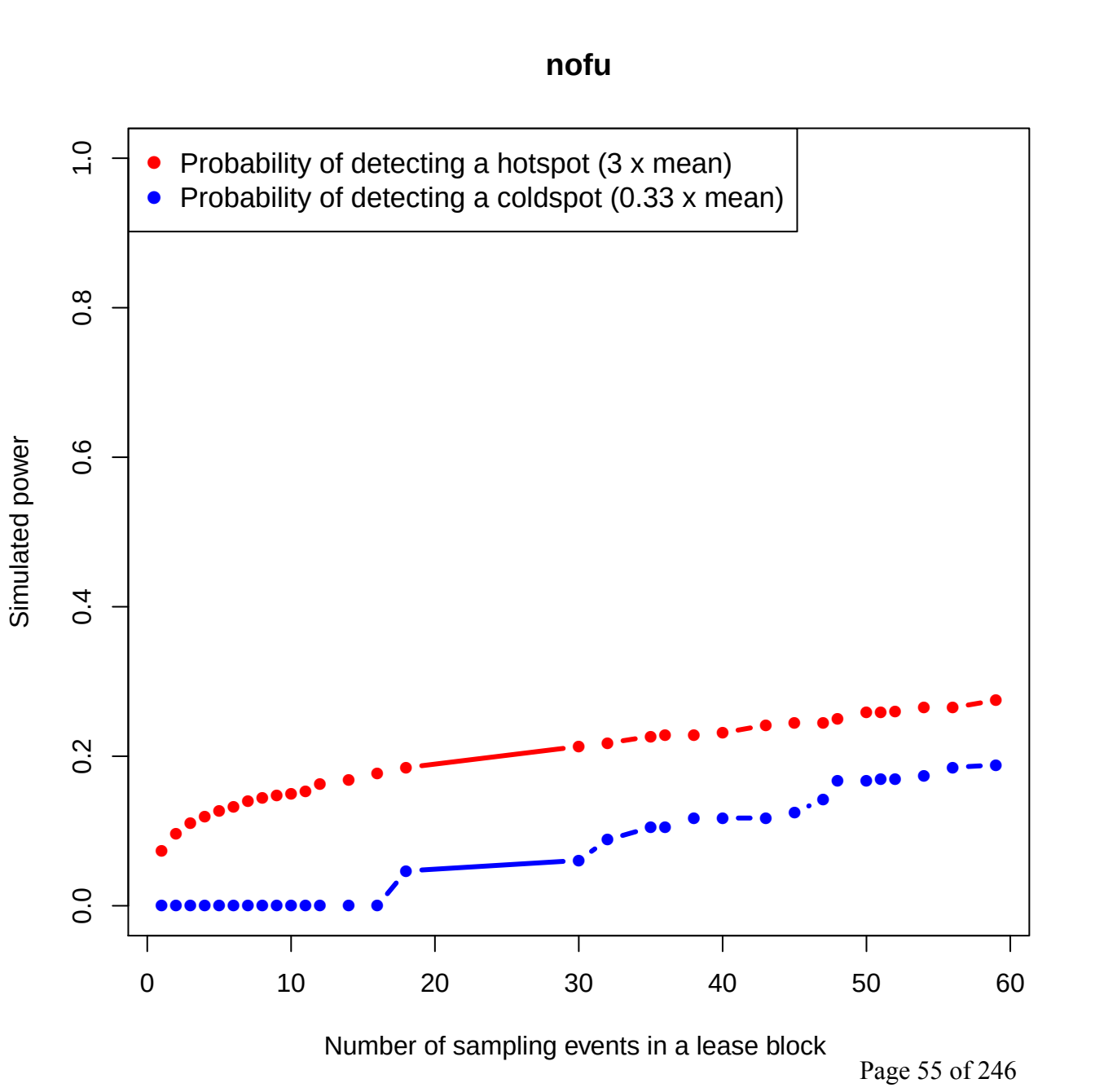

noga
Probability of detecting a hotspot (3 x mean)
Probability of detecting a coldspot (0.33 x mean)
Simulated power
0.0
0.2
0.4
0.6
0.8
1.0
0
10
20
30
40
50
60
Number of sampling events in a lease block

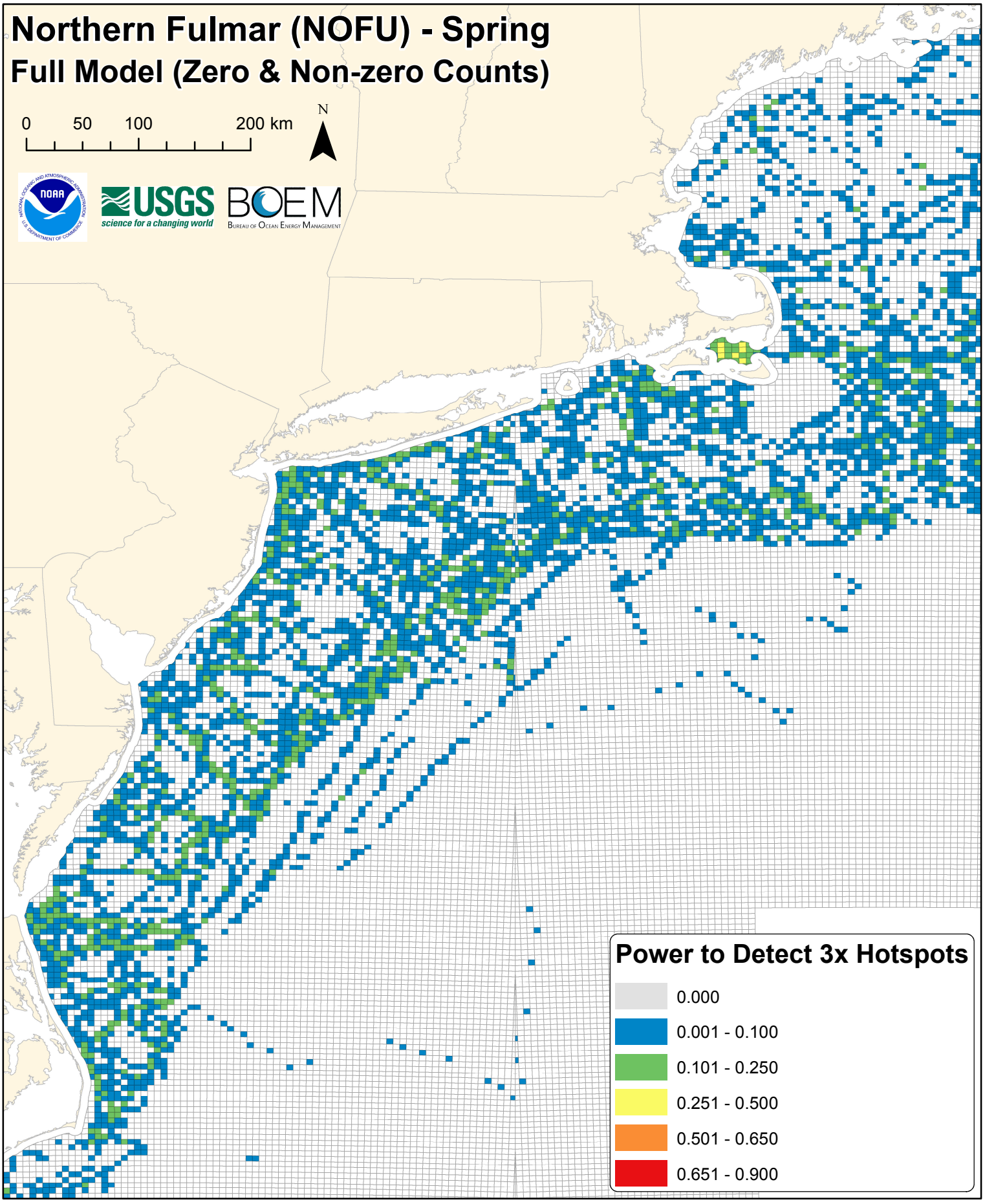

Northern Gannet (NOGA) - Spring
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Power to Detect 3x Hotspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

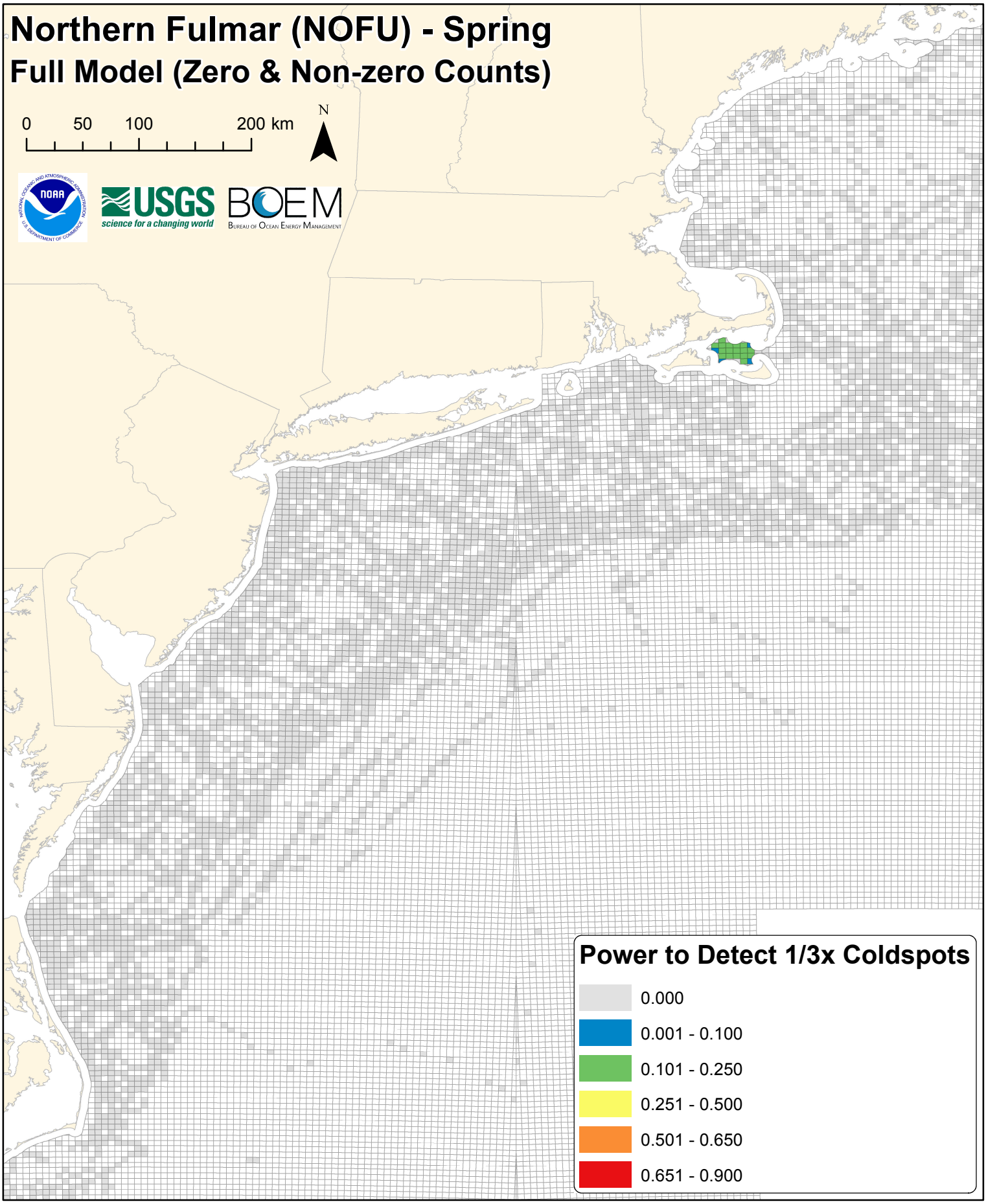

Northern Gannet (NOGA) - Spring
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Power to Detect 1/3x Coldspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

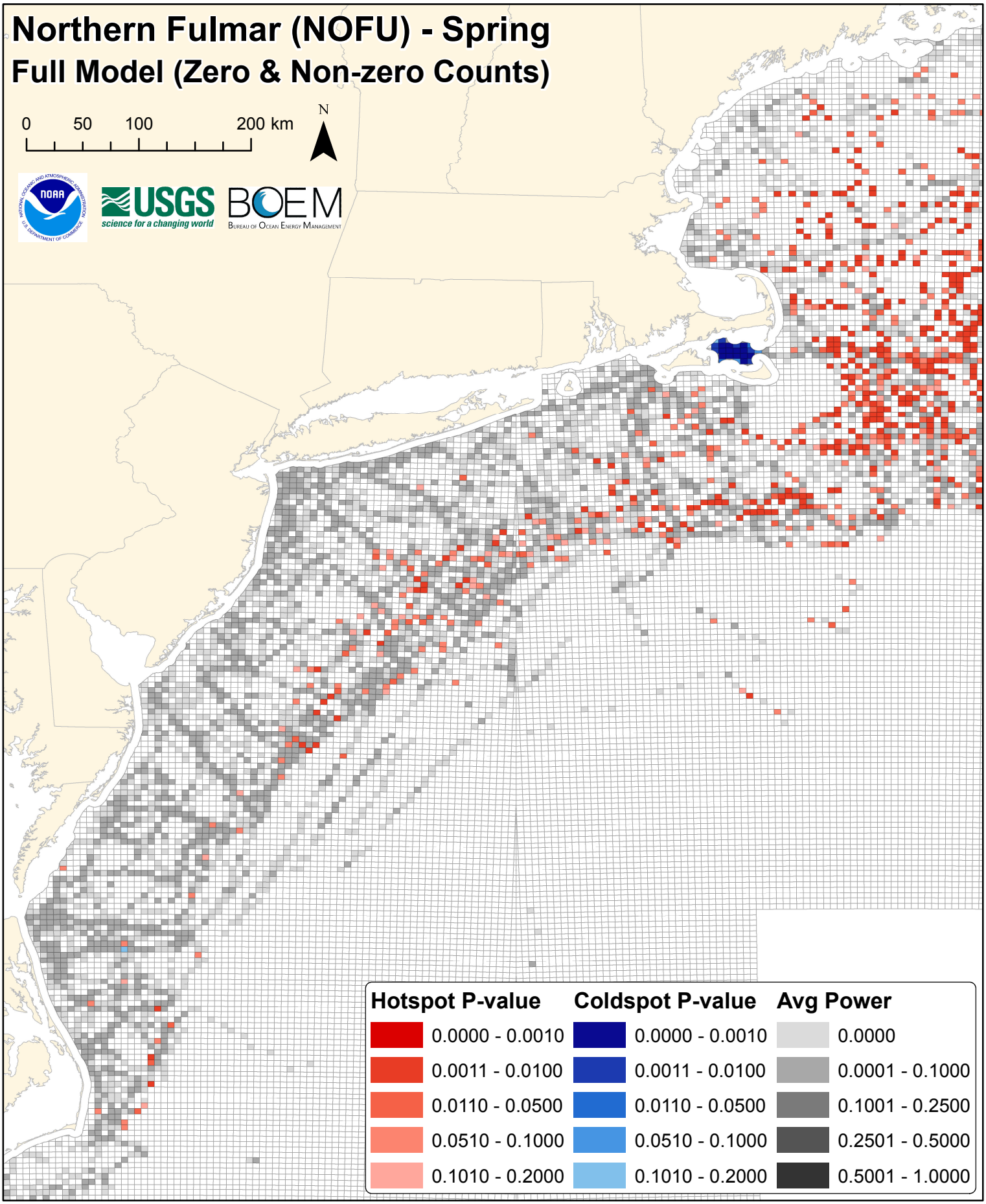

Northern Gannet (NOGA) - Spring
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Hotspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Coldspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Avg Power
0.0000
0.0001 - 0.1000
0.1001 - 0.2500
0.2501 - 0.5000
0.5001 - 1.0000

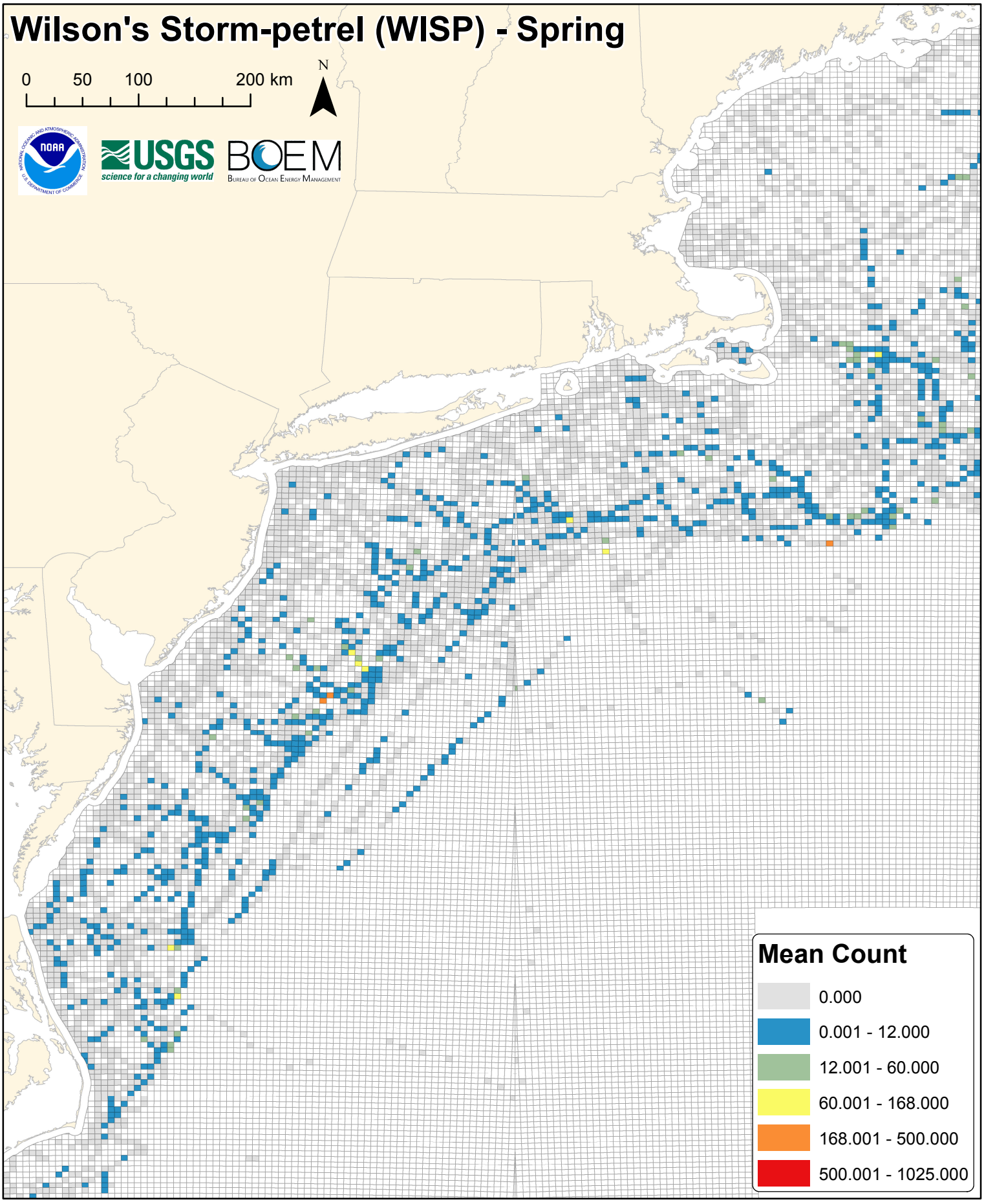

Northern Fulmar (NOFU) - Spring
0
50
100
200 km
N
NOAA
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Mean Count
0.000
0.001 - 16.667
16.668 - 56.000
56.001 - 138.000
138.001 - 240.667
240.668 - 1344.000

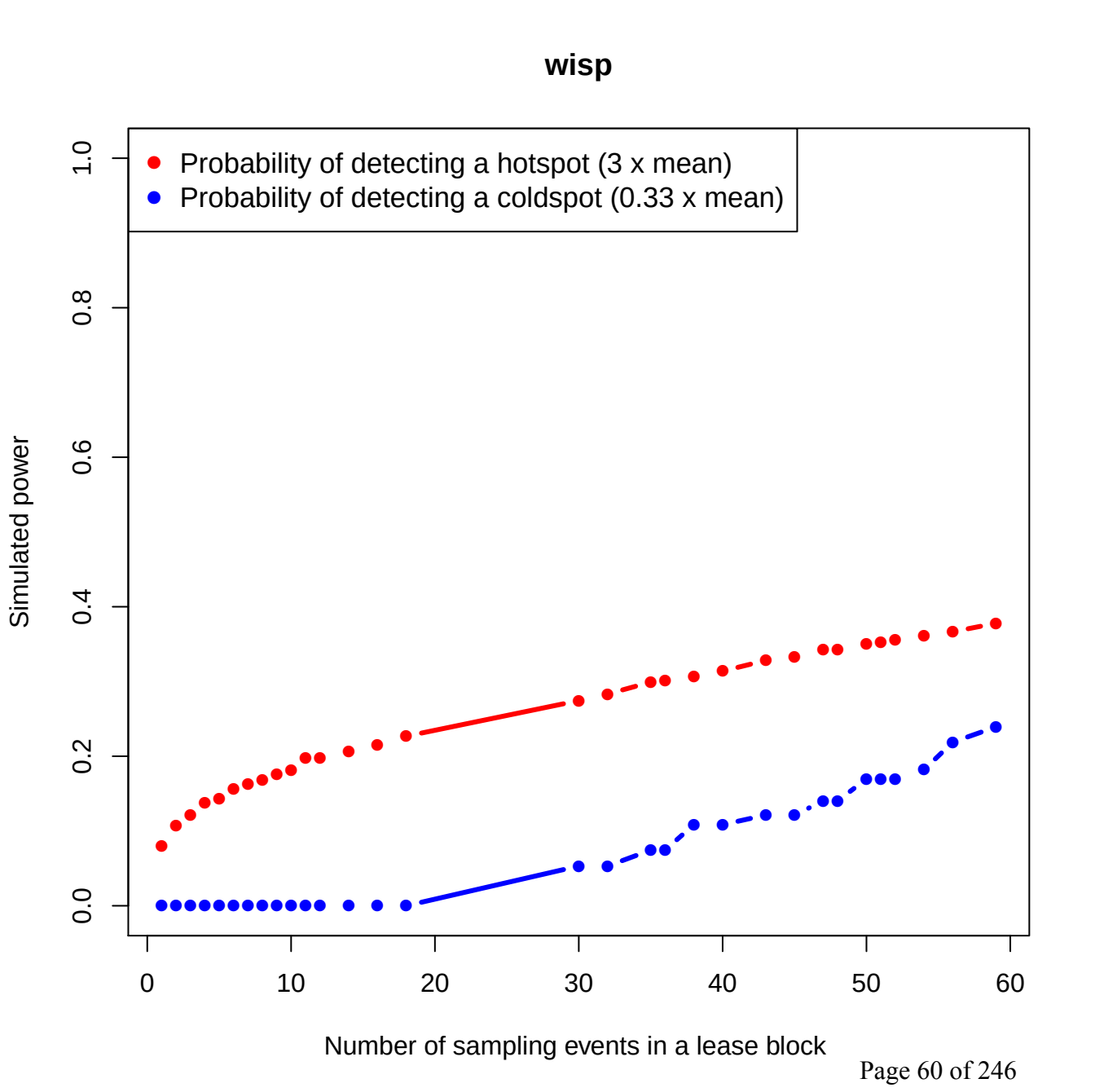

nofu
Probability of detecting a hotspot (3 x mean)
Probability of detecting a coldspot (0.33 x mean)
Simulated power
0.0
0.2
0.4
0.6
0.8
1.0
0
10
20
30
40
50
60
Number of sampling events in a lease block

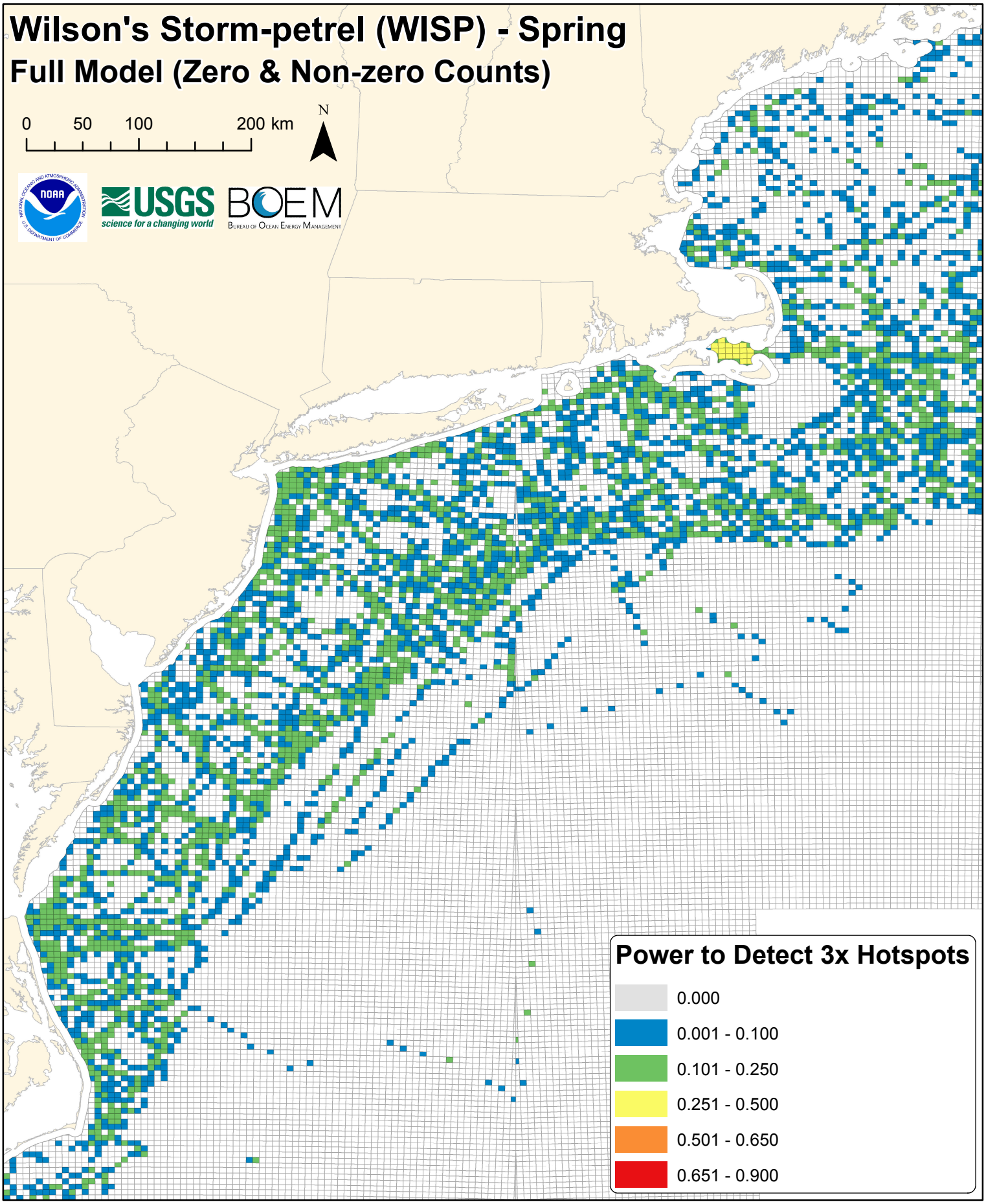

Northern Fulmar (NOFU) - Spring
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Power to Detect 3x Hotspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

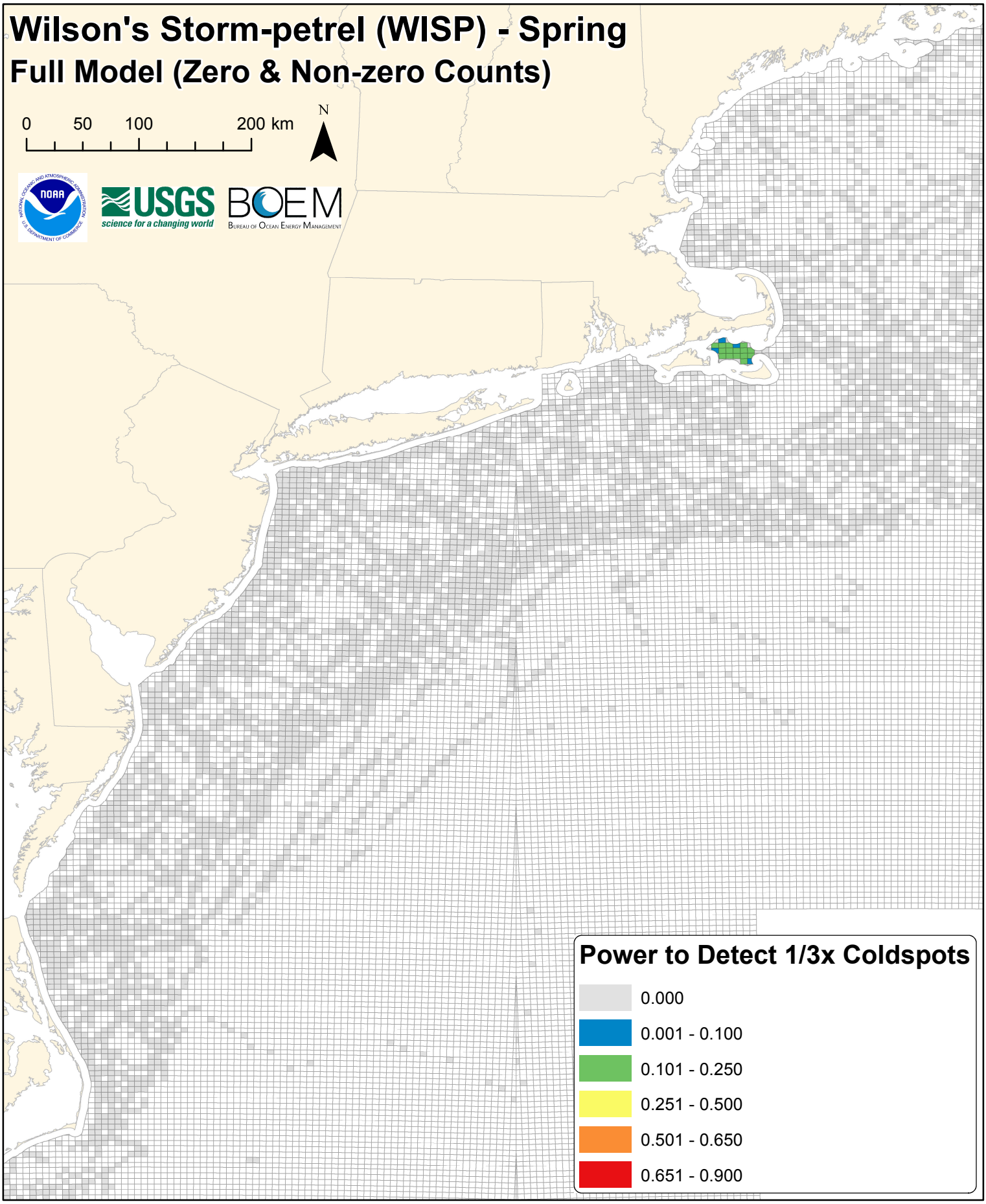

Northern Fulmar (NOFU) - Spring
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Power to Detect 1/3x Coldspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

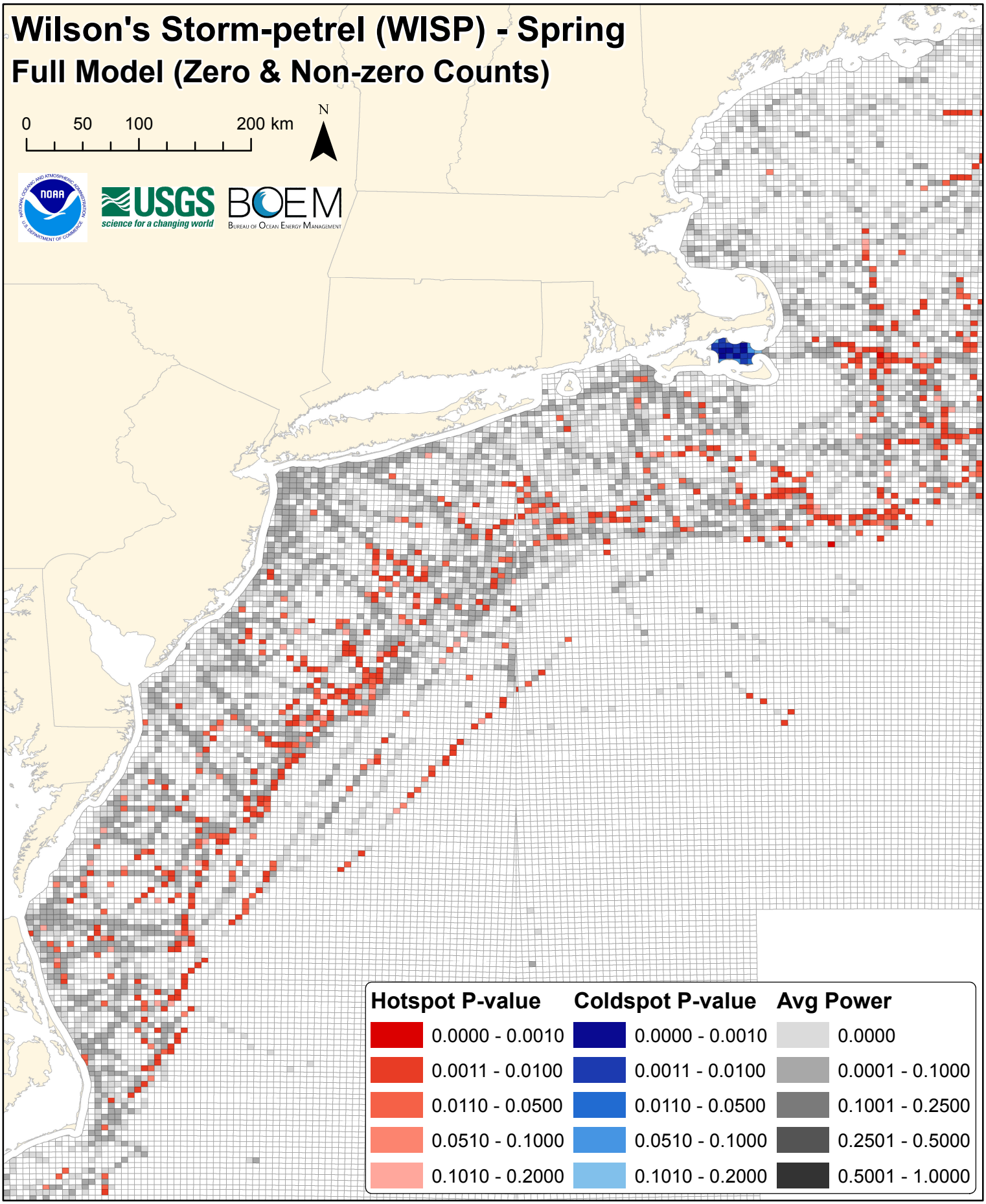

Northern Fulmar (NOFU) - Spring
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
NOAA
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Hotspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Coldspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Avg Power
0.0000
0.0001 - 0.1000
0.1001 - 0.2500
0.2501 - 0.5000
0.5001 - 1.0000

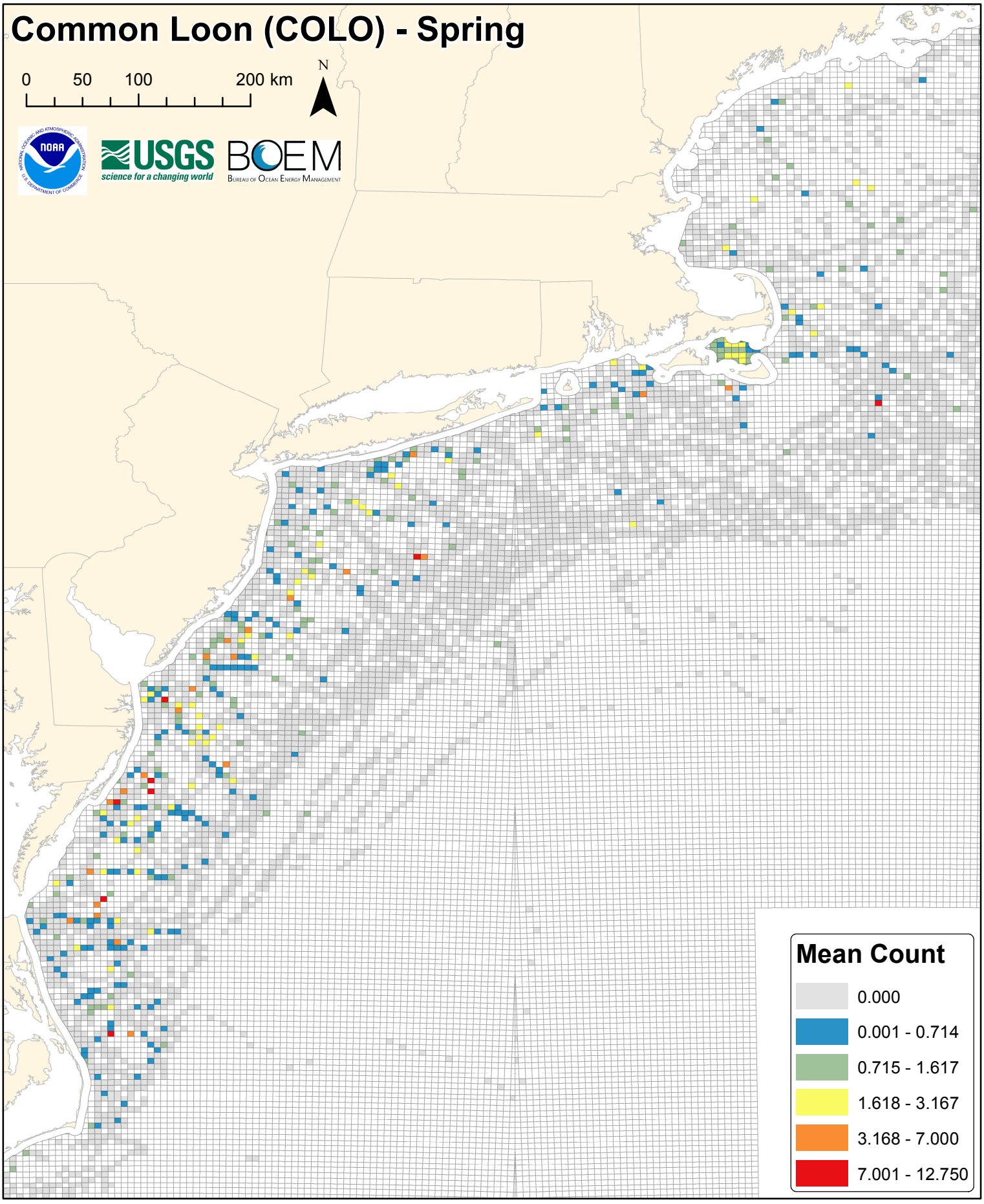

Wilson's Storm-petrel (WISP) - Spring
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Mean Count
0.000
0.001 - 12.000
12.001 - 60.000
60.001 - 168.000
168.001 - 500.000
500.001 - 1025.000

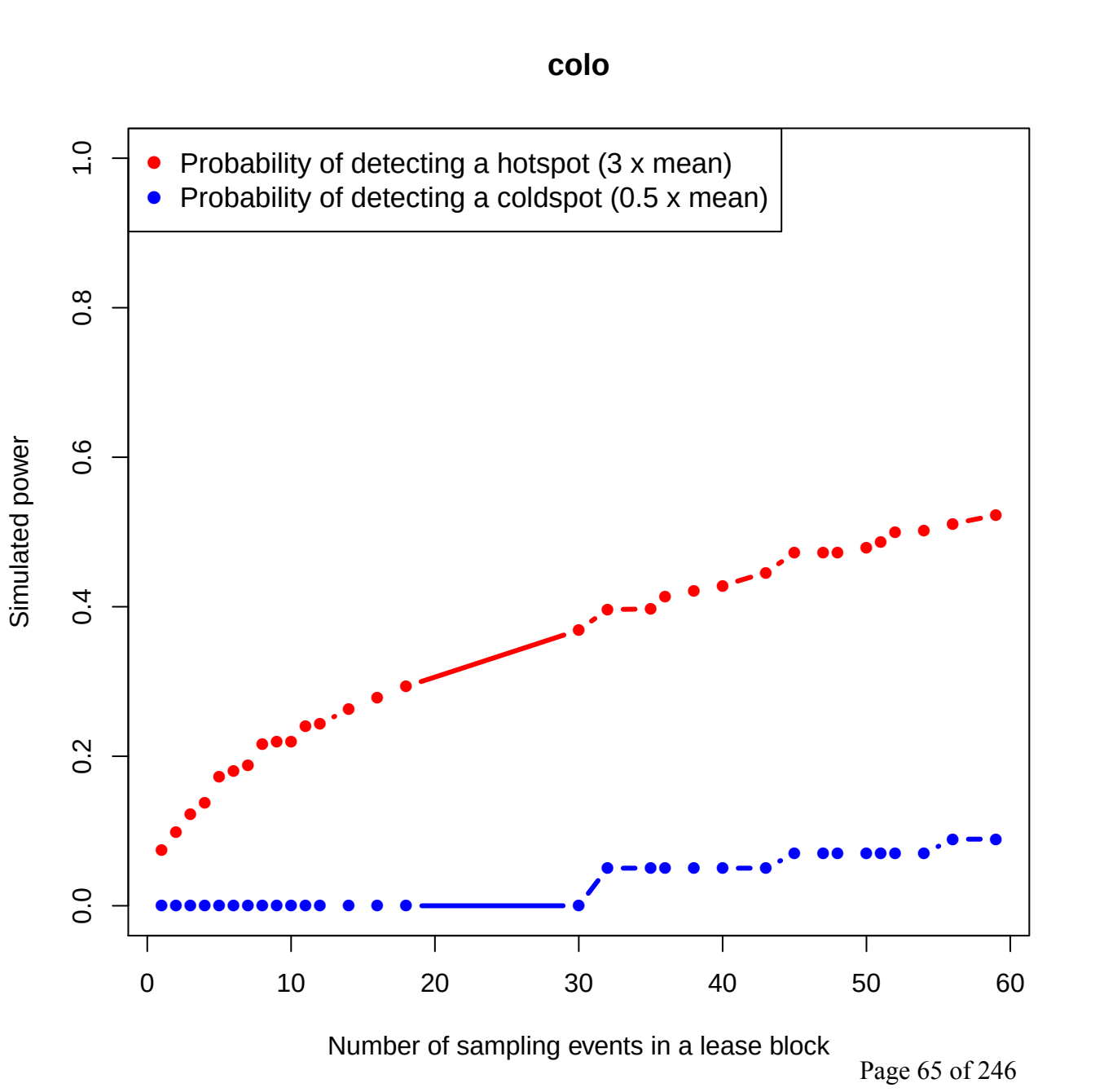

wisp
Probability of detecting a hotspot (3 x mean)
Probability of detecting a coldspot (0.33 x mean)
Simulated power
0.0
0.2
0.4
0.6
0.8
1.0
0
10
20
30
40
50
60
Number of sampling events in a lease block

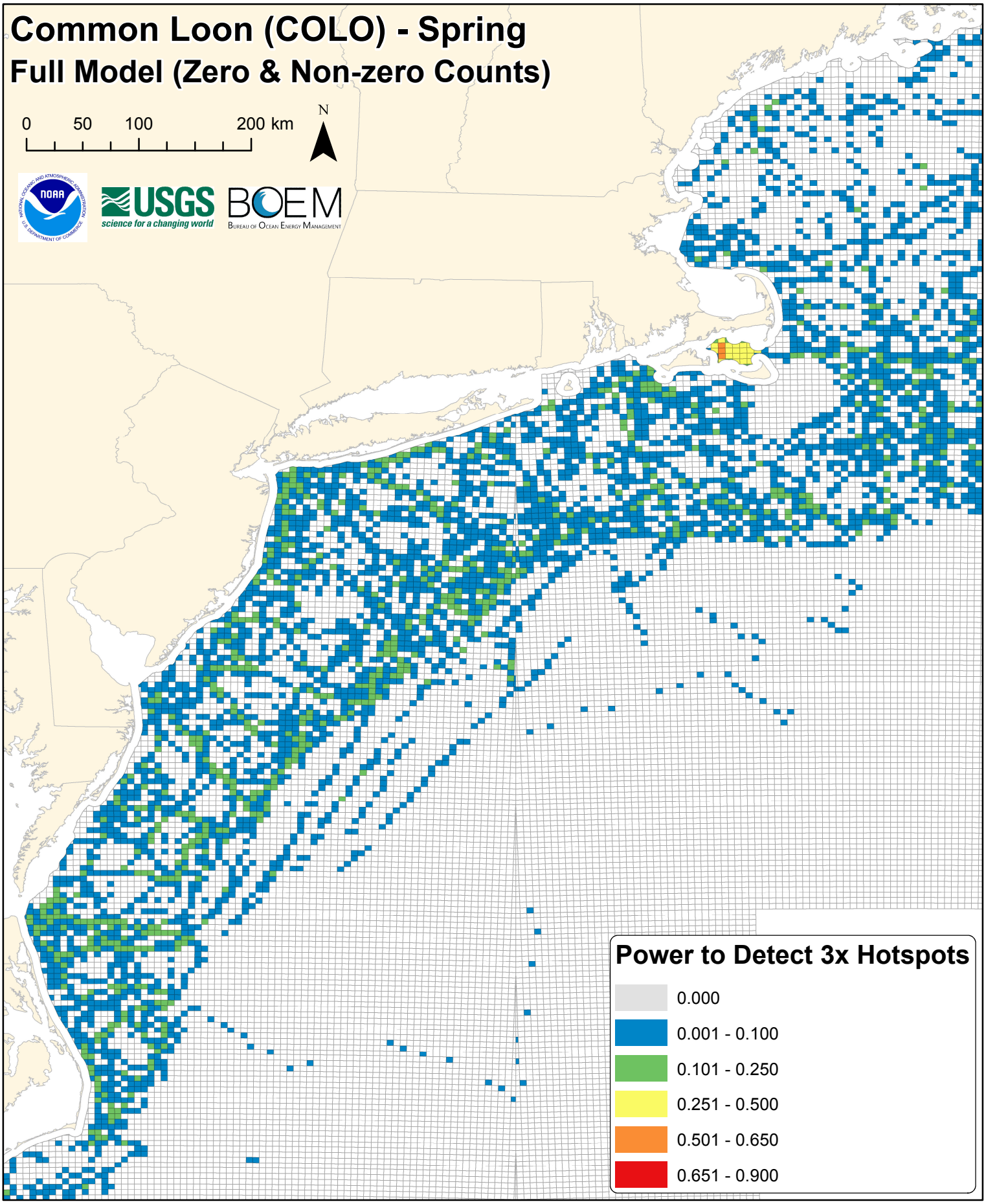

Wilson's Storm-petrel (WISP) - Spring
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Power to Detect 3x Hotspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

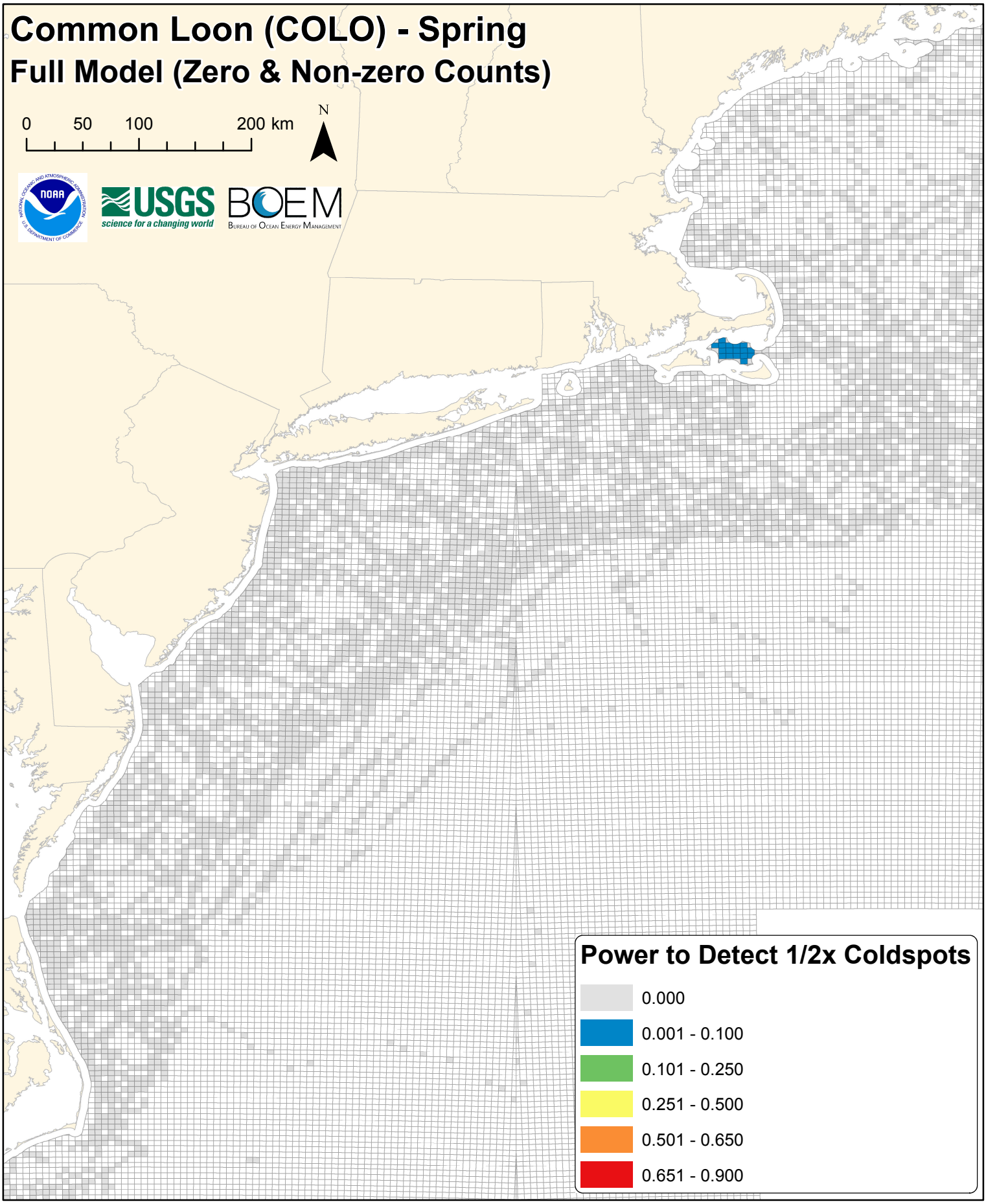

Wilson's Storm-petrel (WISP) - Spring
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Power to Detect 1/3x Coldspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

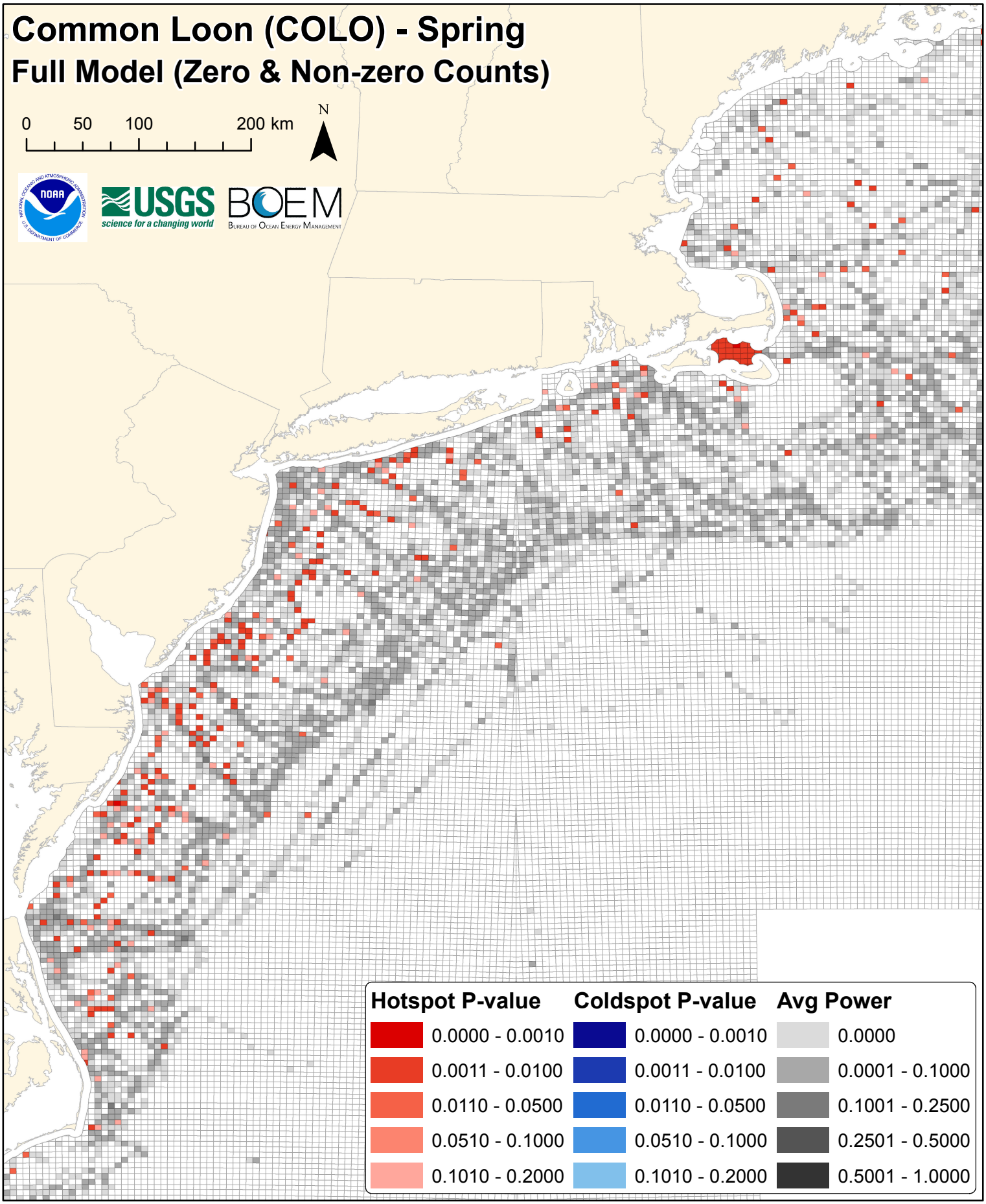

Wilson's Storm-petrel (WISP) - Spring
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Hotspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Coldspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Avg Power
0.0000
0.0001 - 0.1000
0.1001 - 0.2500
0.2501 - 0.5000
0.5001 - 1.0000

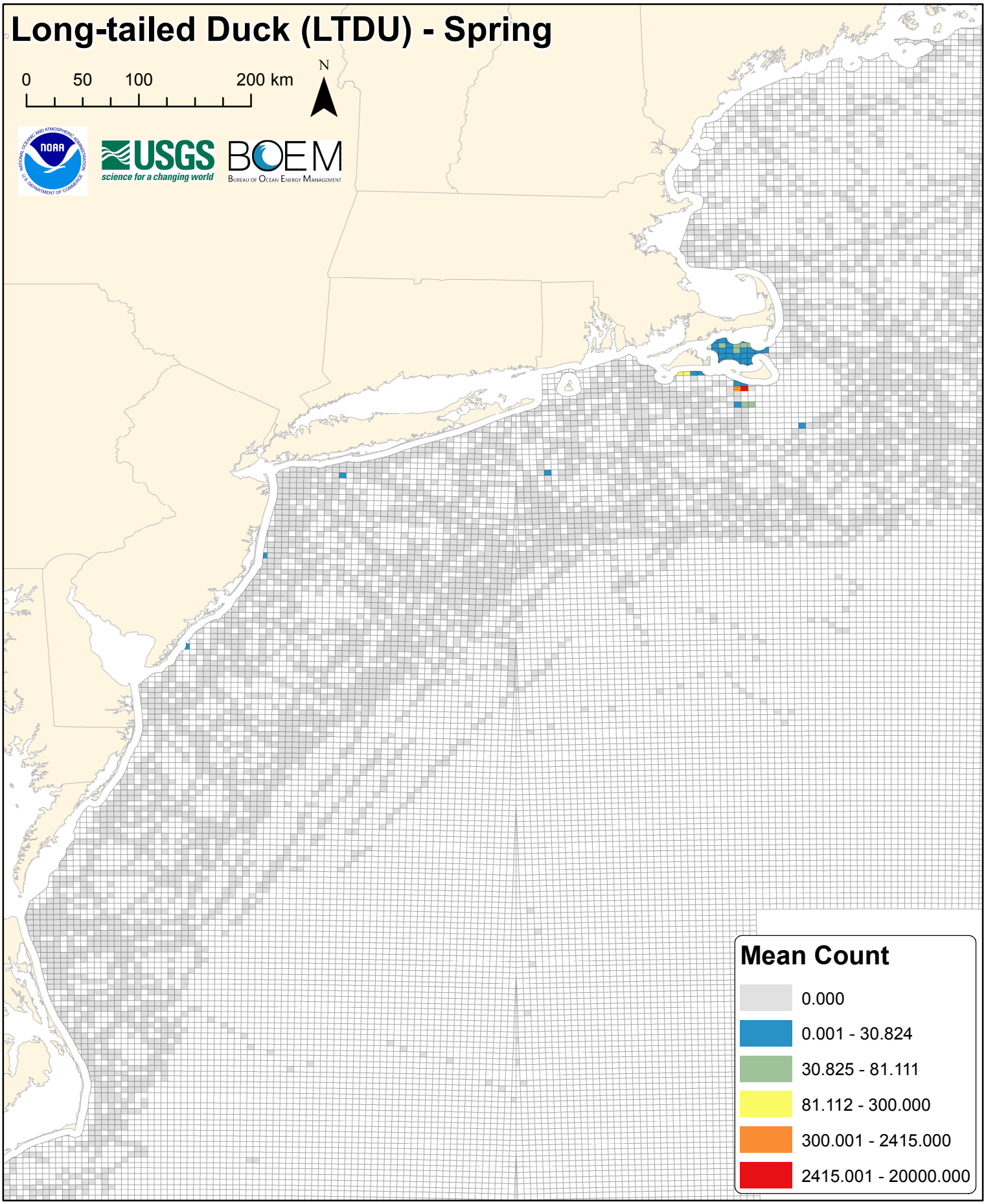

Common Loon (COLO) - Spring
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Mean Count
0.000
0.001 - 0.714
0.715 - 1.617
1.618 - 3.167
3.168 - 7.000
7.001 - 12.750

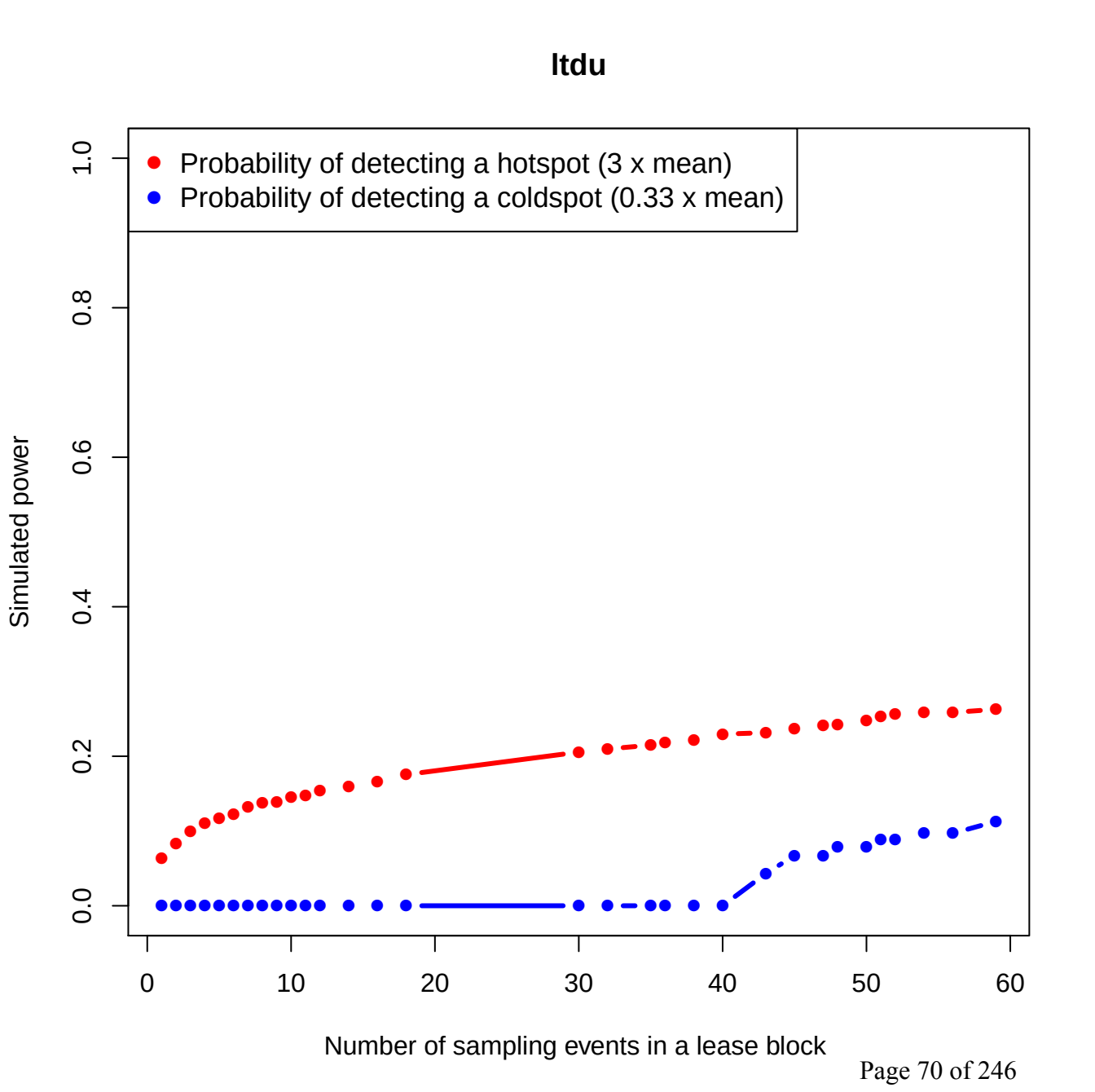

colo
Probability of detecting a hotspot (3 x mean)
Probability of detecting a coldspot (0.5 x mean)
Simulated power
0.0
0.2
0.4
0.6
0.8
1.0
0
10
20
30
40
50
60
Number of sampling events in a lease block

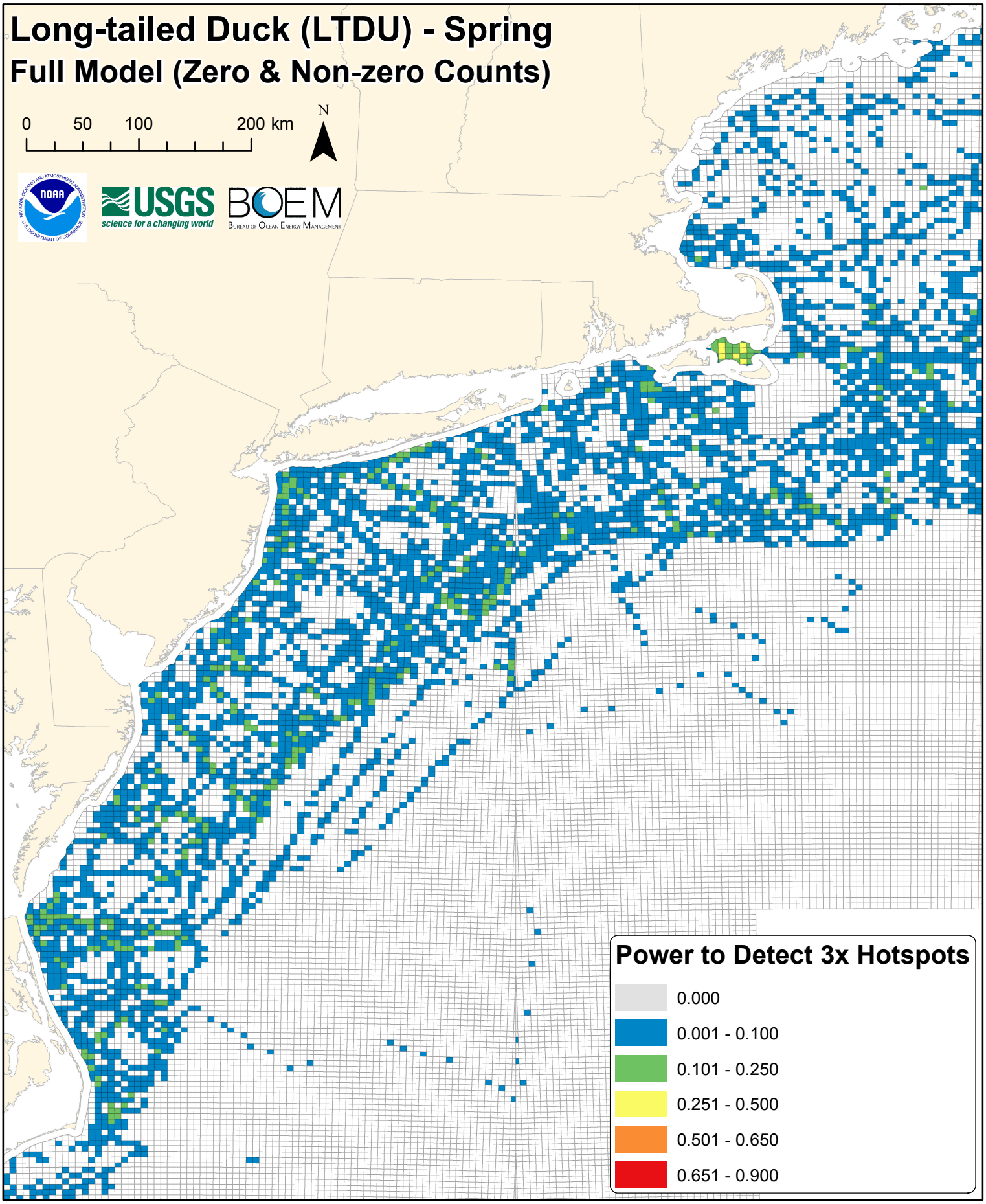

Common Loon (COLO) - Spring
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Power to Detect 3x Hotspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

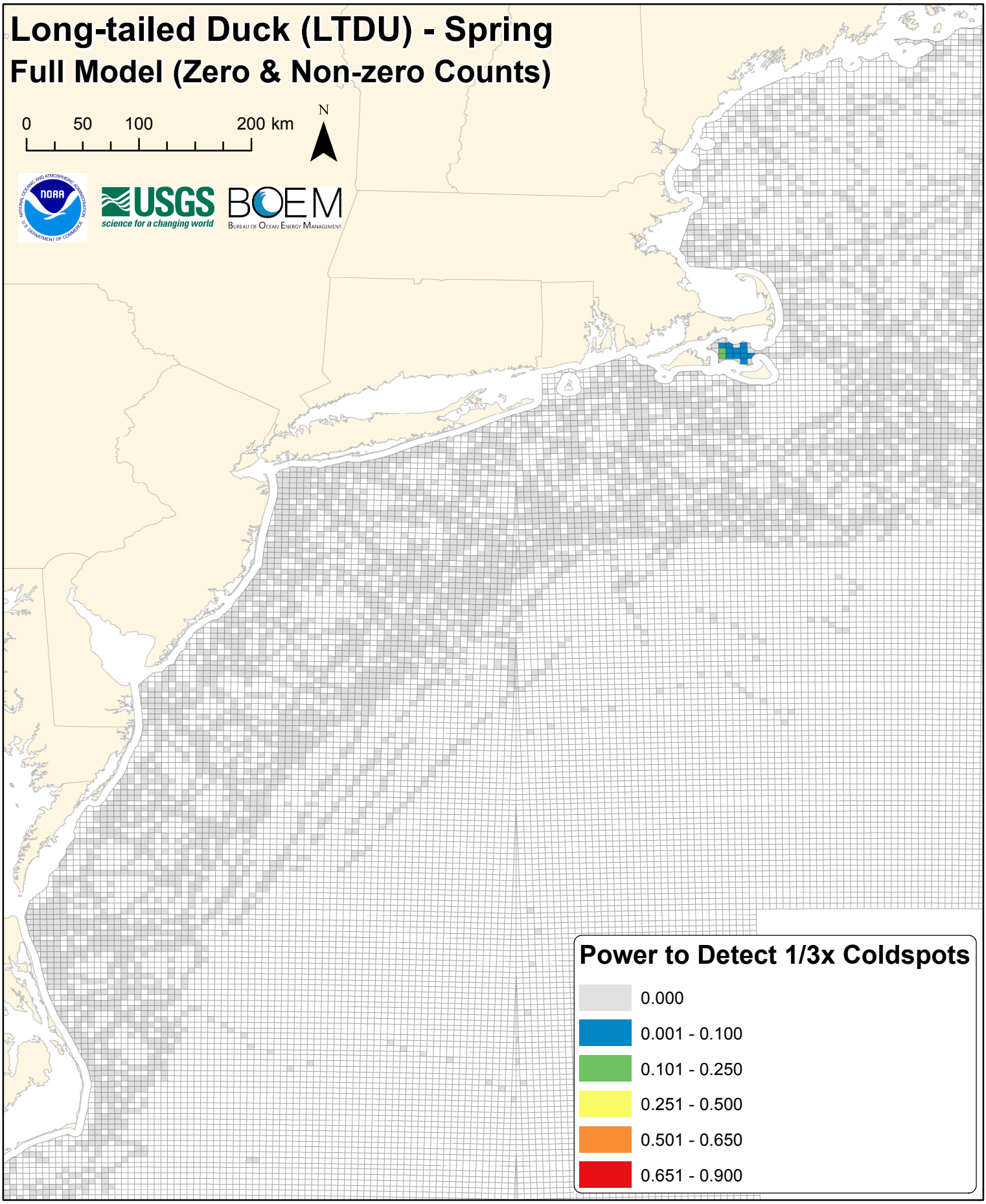

Common Loon (COLO) - Spring
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
NOAA
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Power to Detect 1/2x Coldspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

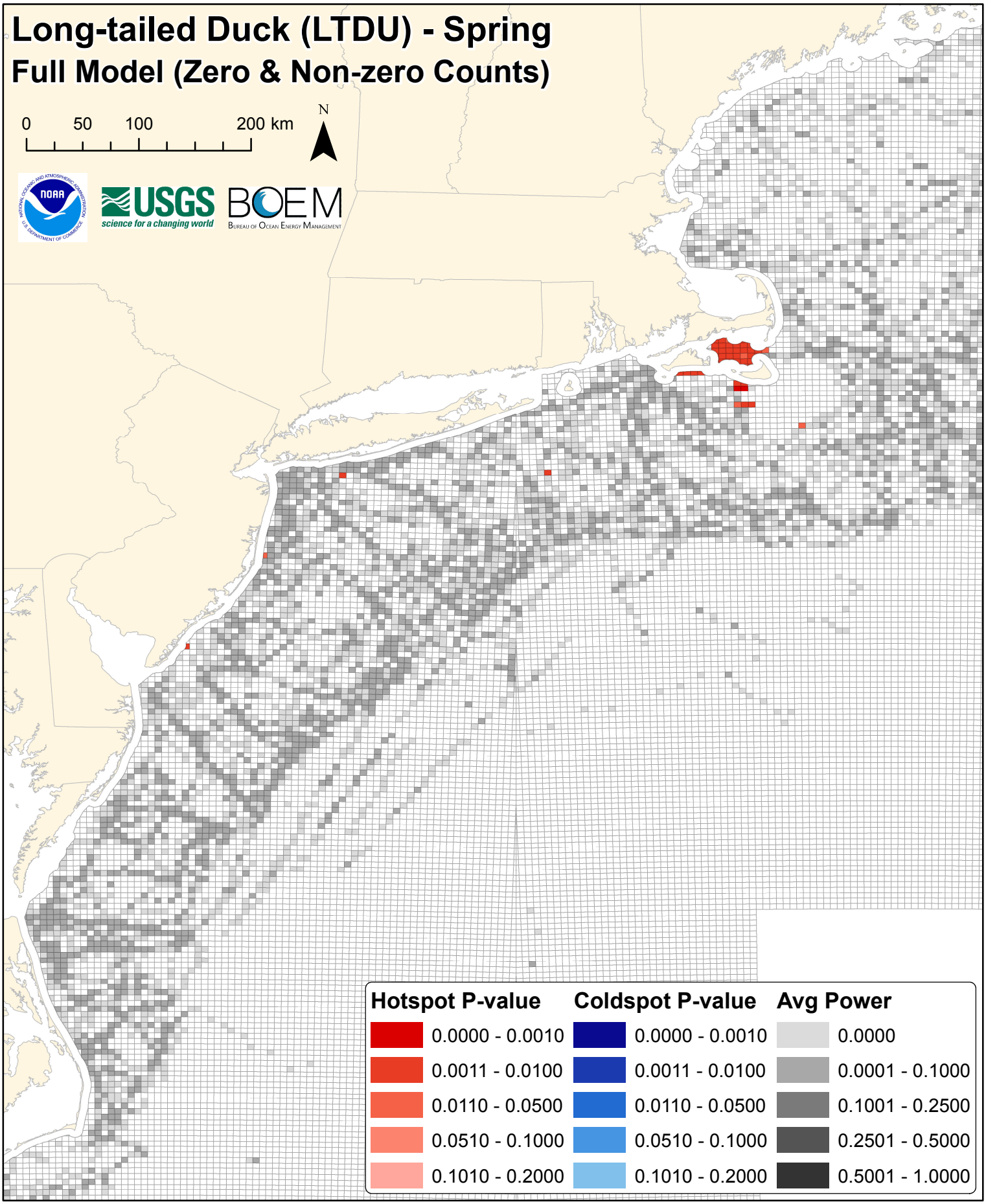

Common Loon (COLO) - Spring
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Hotspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Coldspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Avg Power
0.0000
0.0001 - 0.1000
0.1001 - 0.2500
0.2501 - 0.5000
0.5001 - 1.0000

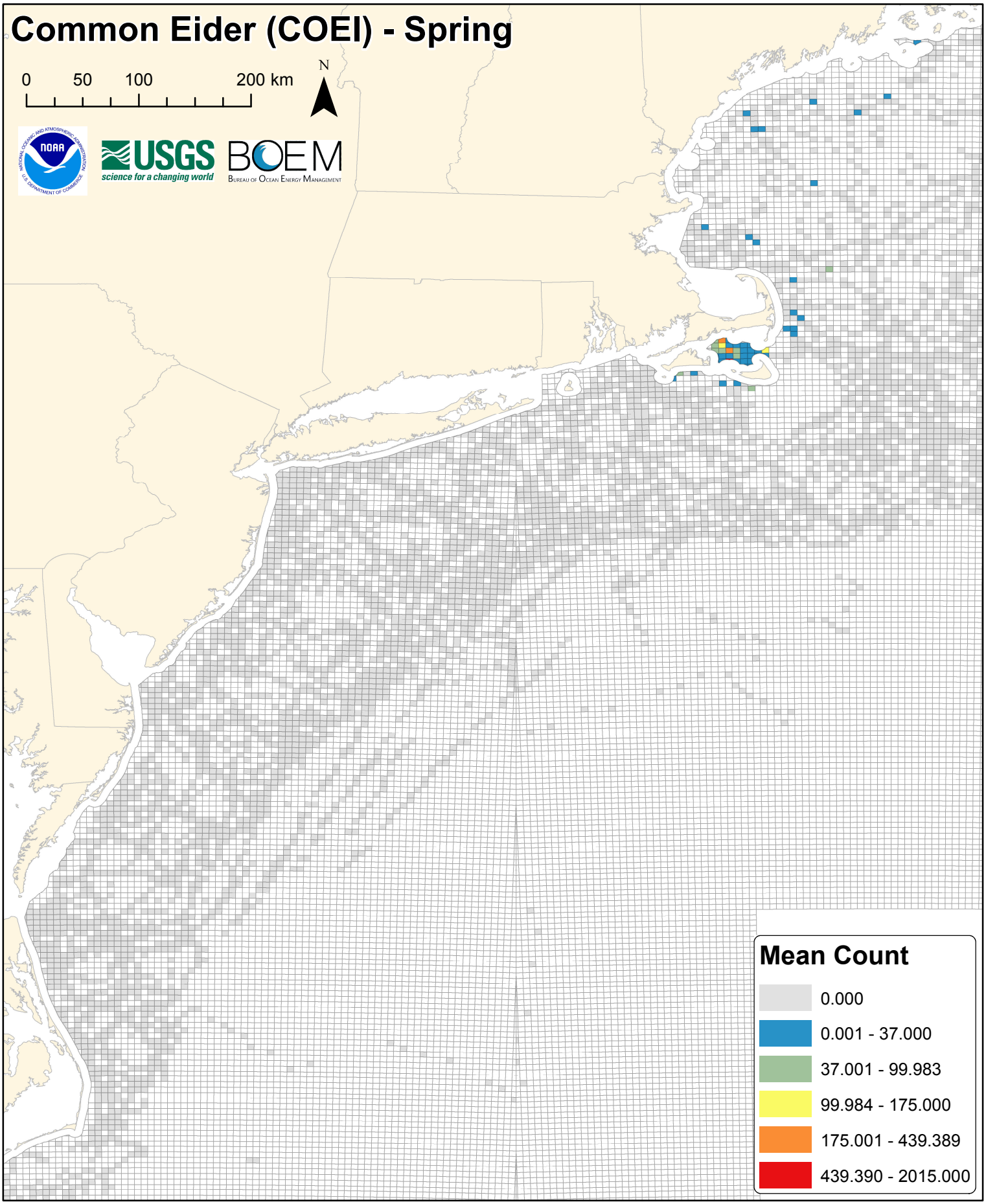

Long-tailed Duck (LTDU) - Spring
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Mean Count
0.000
0.001 - 30.824
30.825 - 81.111
81.112 - 300.000
300.001 - 2415.000
2415.001 - 20000.000

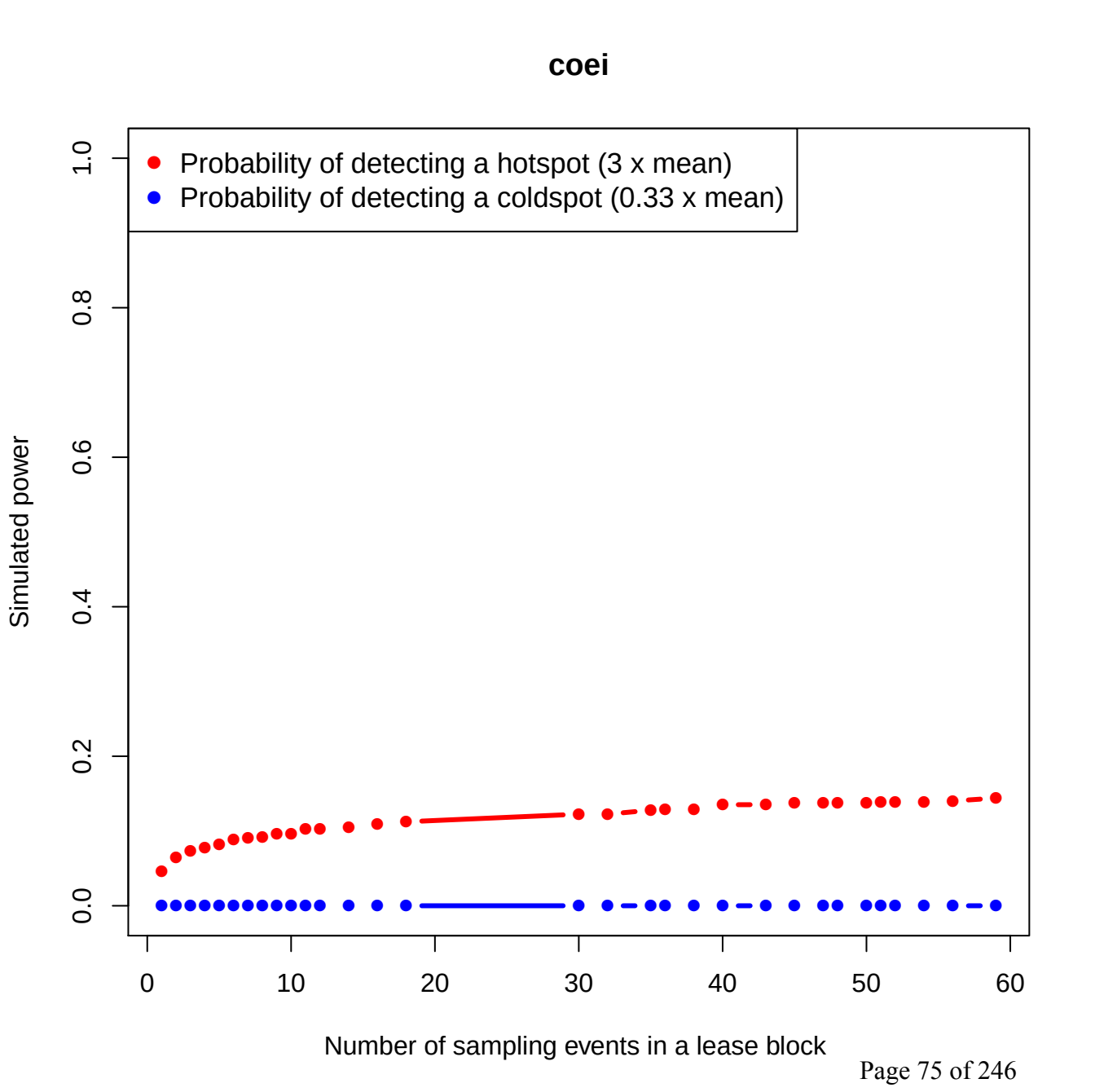

ltdu
Probability of detecting a hotspot (3 x mean)
Probability of detecting a coldspot (0.33 x mean)
Simulated power
0.0
0.2
0.4
0.6
0.8
1.0
0
10
20
30
40
50
60
Number of sampling events in a lease block

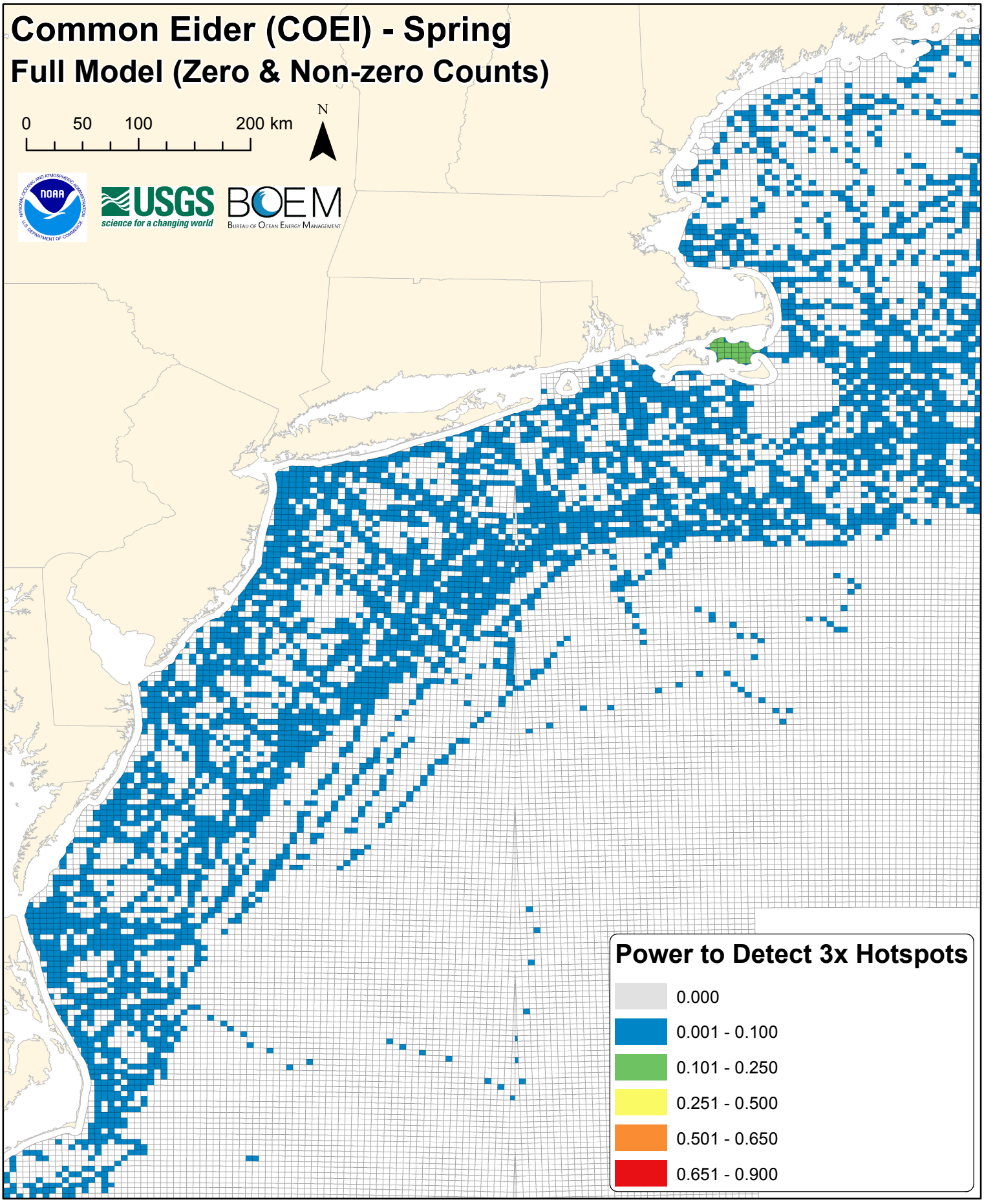

Long-tailed Duck (LTDU) - Spring
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Power to Detect 3x Hotspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

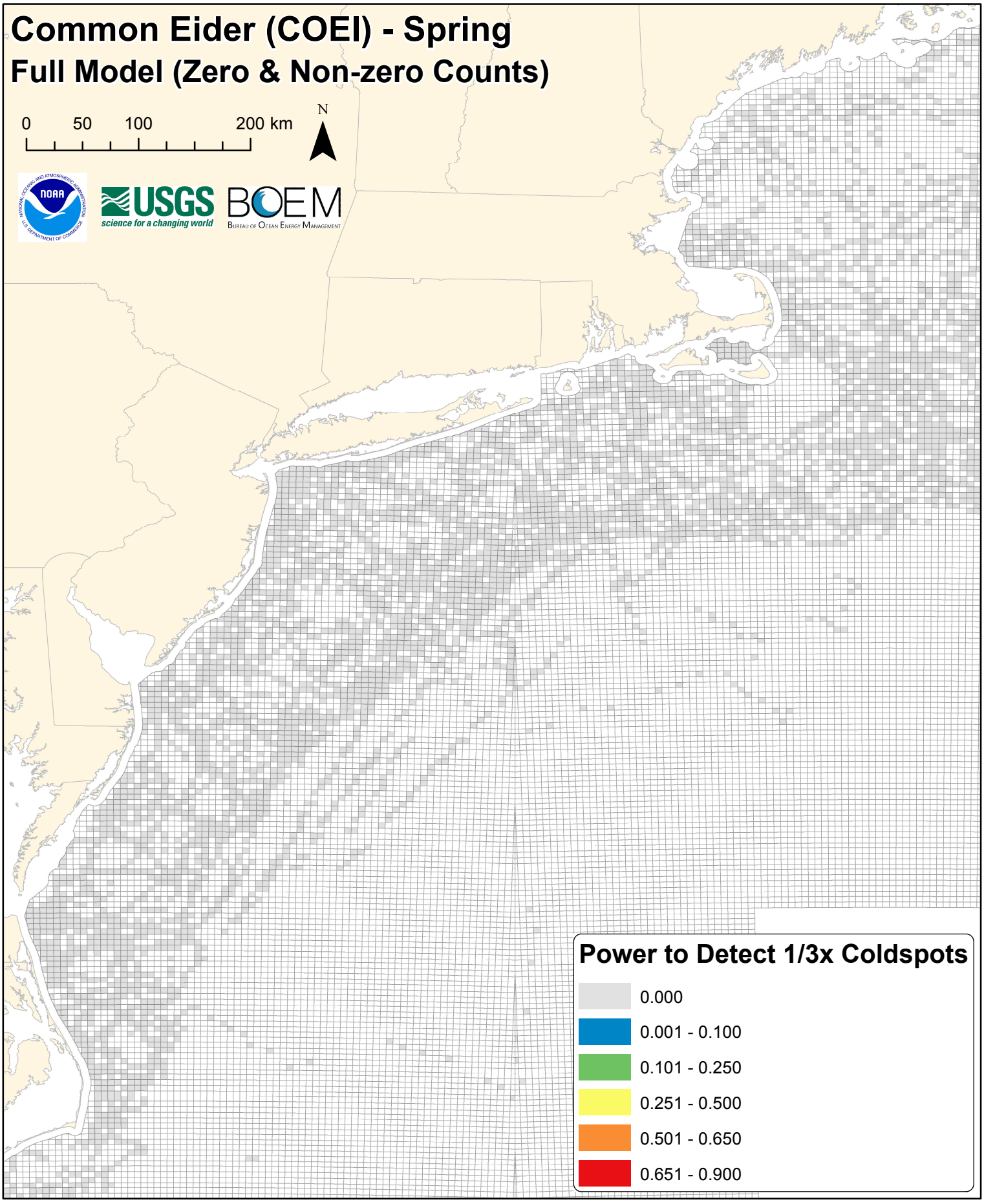

Long-tailed Duck (LTDU) - Spring
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Power to Detect 1/3x Coldspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

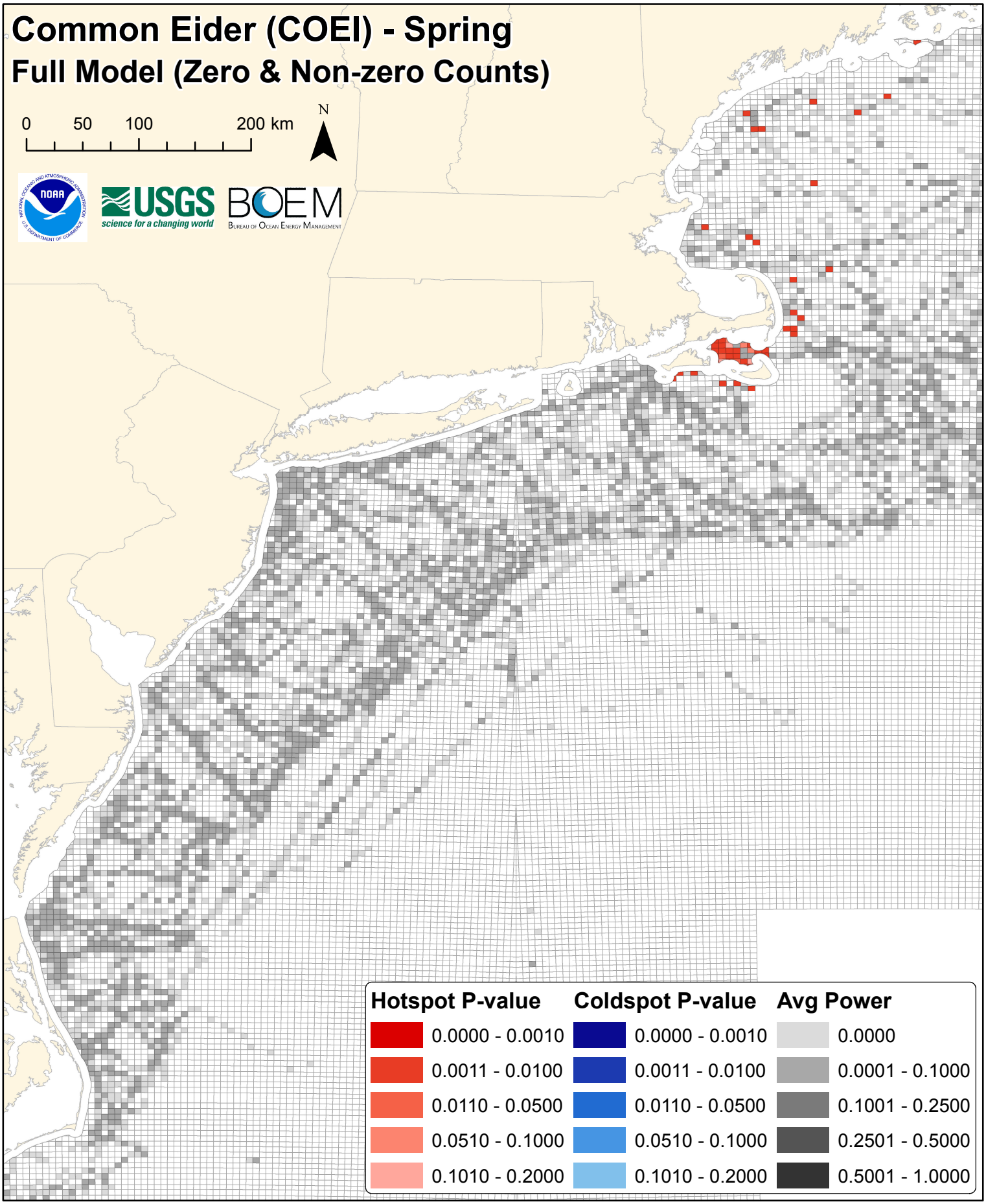

Long-tailed Duck (LTDU) - Spring
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Hotspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Coldspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Avg Power
0.0000
0.0001 - 0.1000
0.1001 - 0.2500
0.2501 - 0.5000
0.5001 - 1.0000

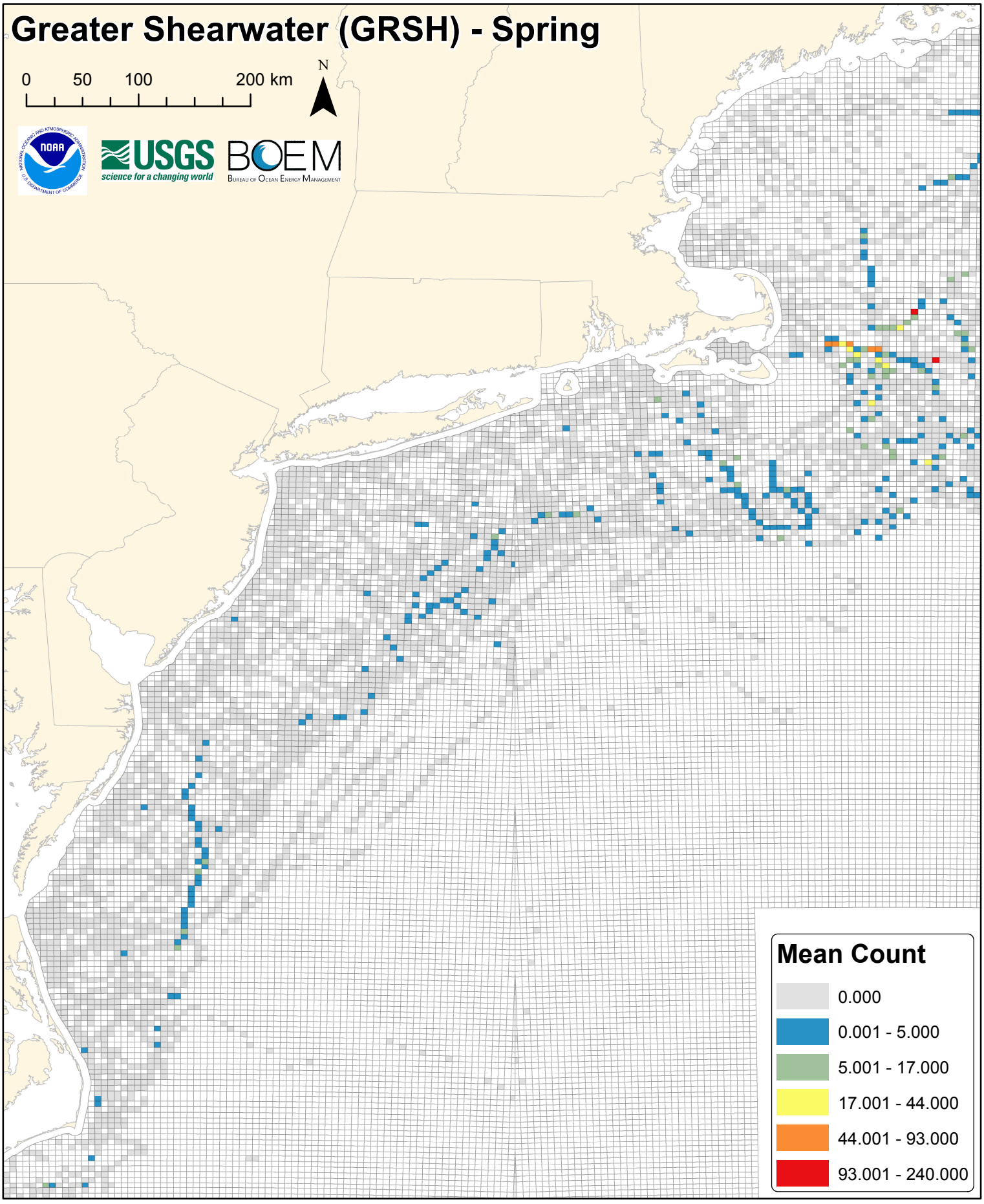

Common Eider (COEI) - Spring
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Mean Count
0.000
0.001 - 37.000
37.001 - 99.983
99.984 - 175.000
175.001 - 439.389
439.390 - 2015.000

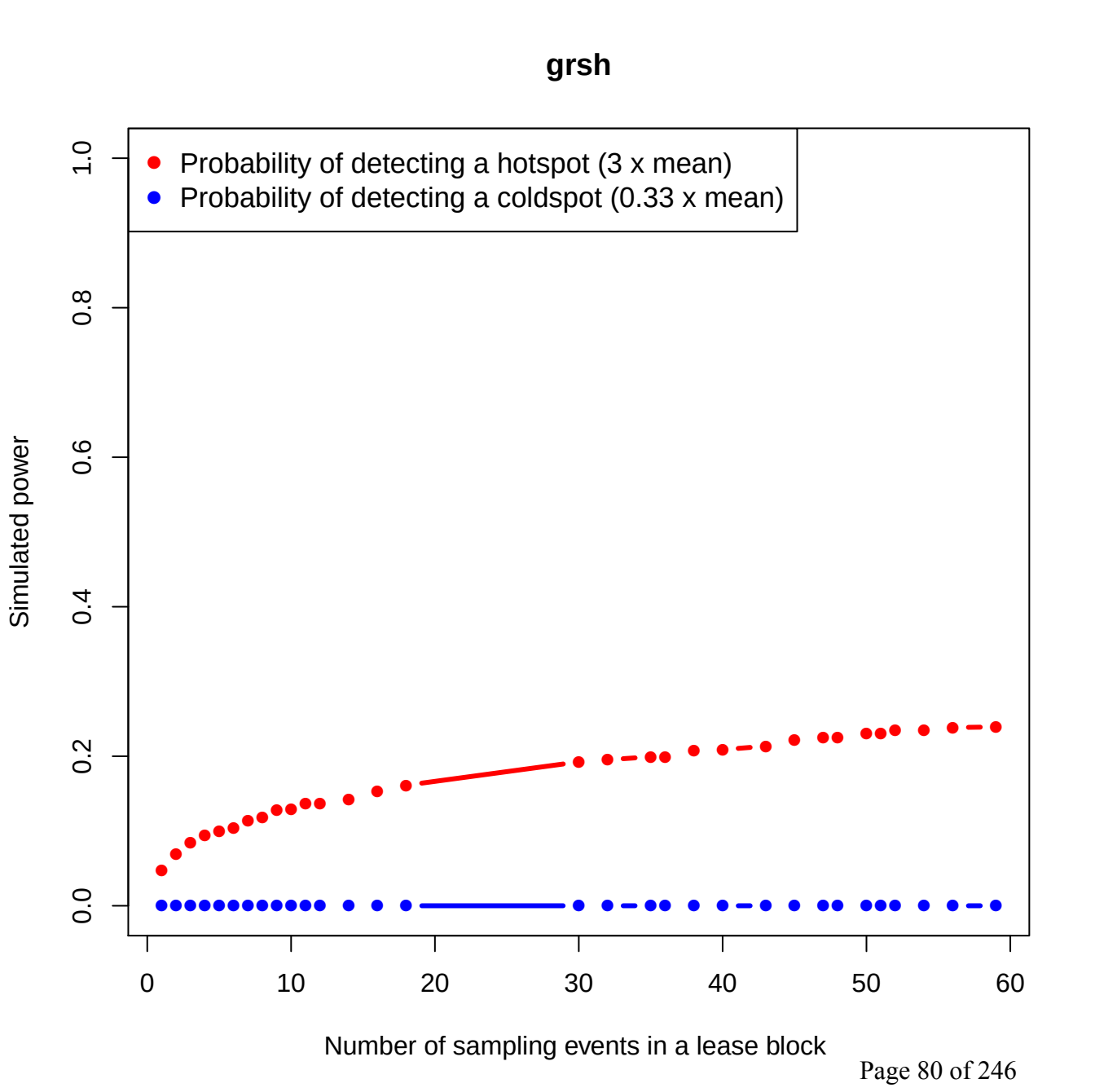

coei
Probability of detecting a hotspot (3 x mean)
Probability of detecting a coldspot (0.33 x mean)
Simulated power
0.0
0.2
0.4
0.6
0.8
1.0
0
10
20
30
40
50
60
Number of sampling events in a lease block

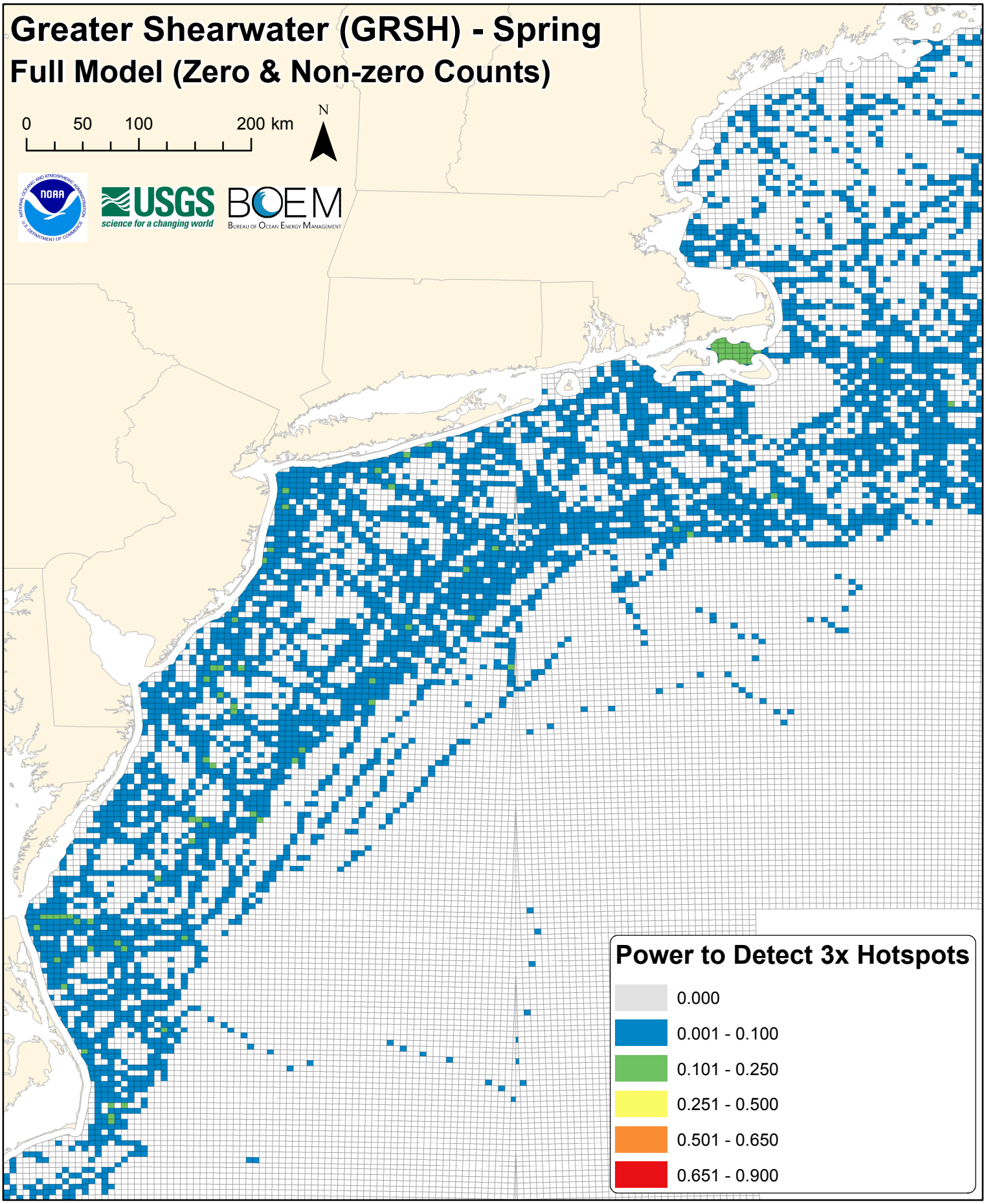

Common Eider (COEI) - Spring
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Power to Detect 3x Hotspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

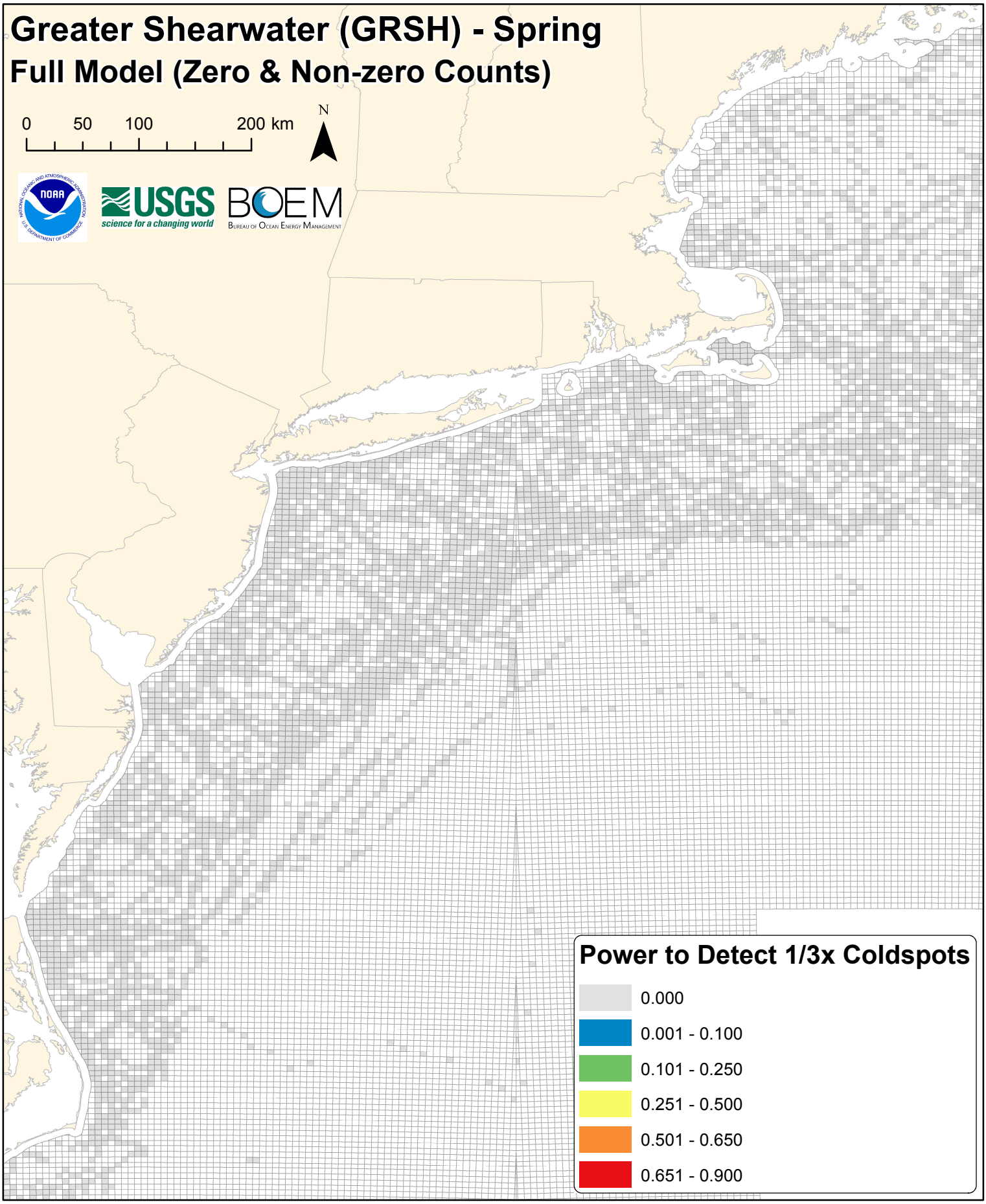

Common Eider (COEI) - Spring
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Power to Detect 1/3x Coldspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

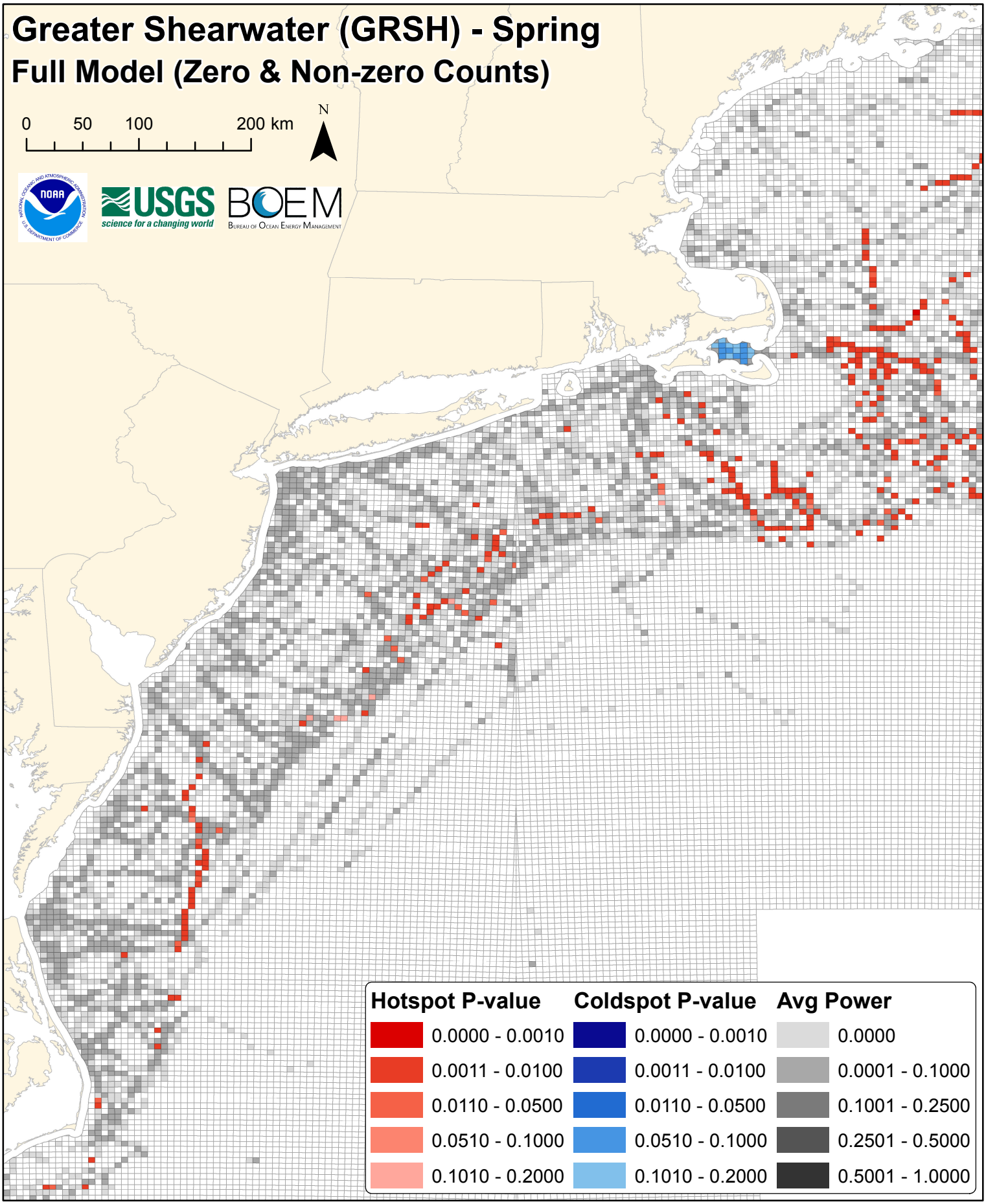

Common Eider (COEI) - Spring
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
NOAA
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Hotspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Coldspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Avg Power
0.0000
0.0001 - 0.1000
0.1001 - 0.2500
0.2501 - 0.5000
0.5001 - 1.0000

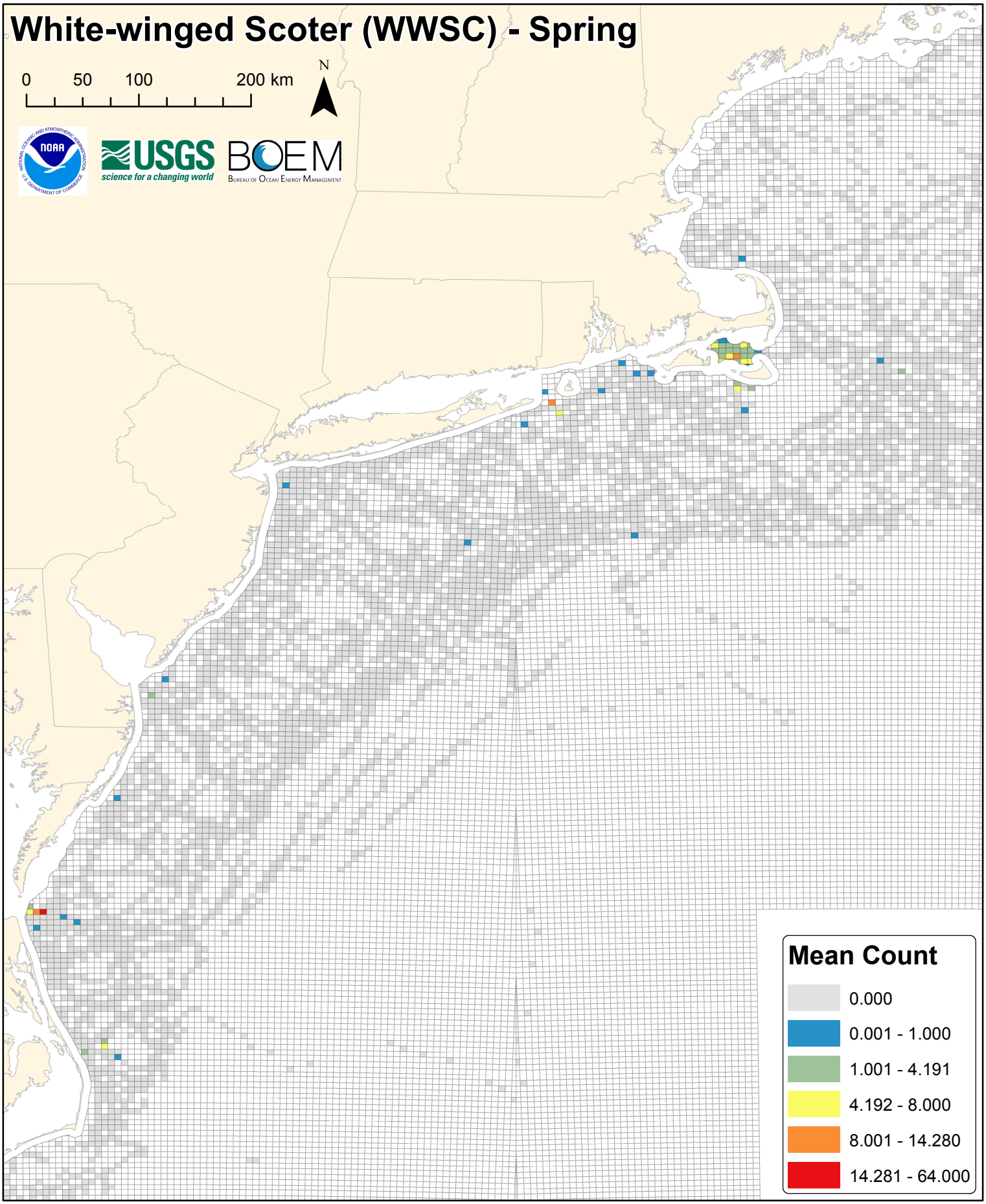

Greater Shearwater (GRSH) - Spring
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Mean Count
0.000
0.001 - 5.000
5.001 - 17.000
17.001 - 44.000
44.001 - 93.000
93.001 - 240.000

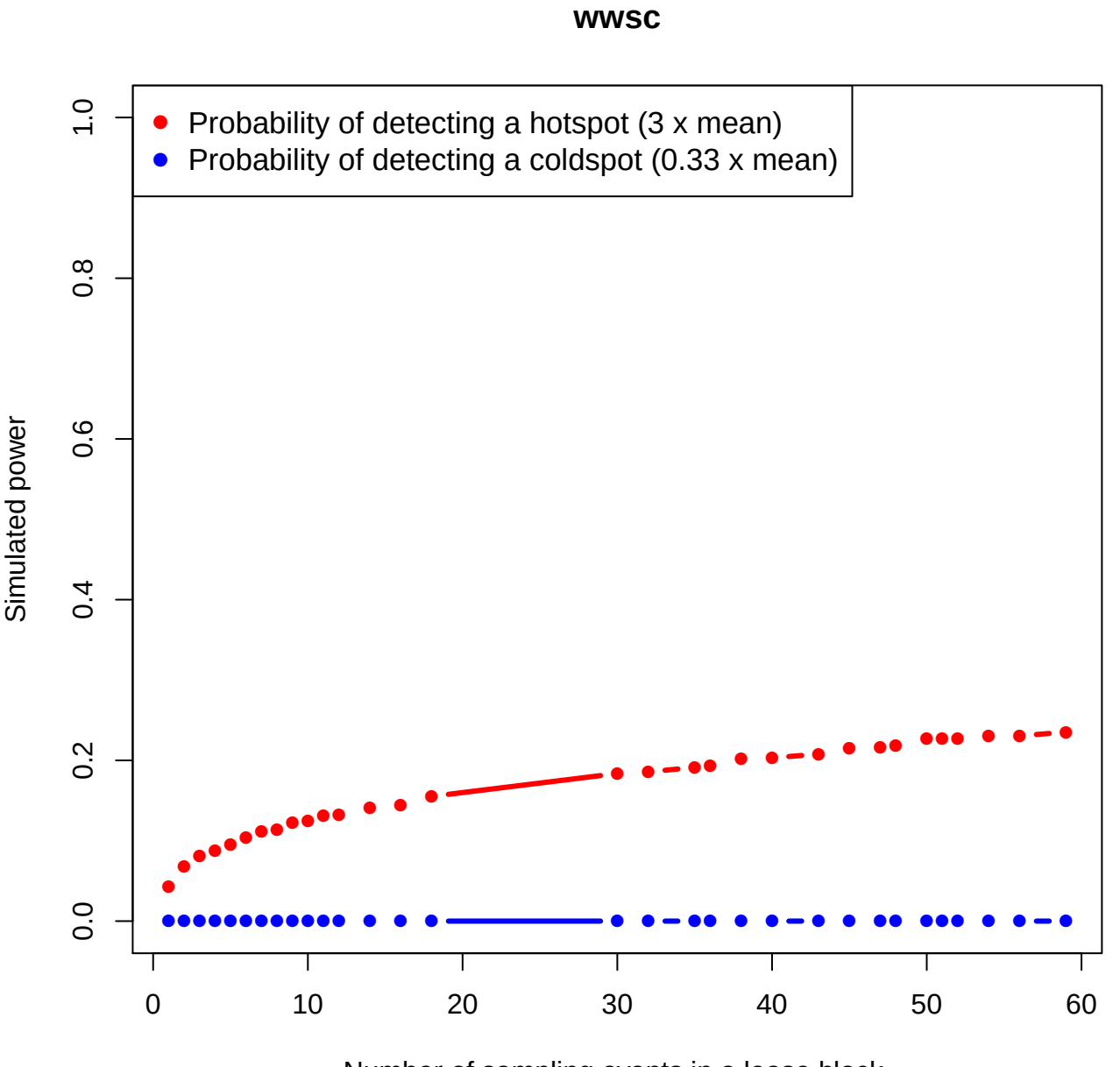

grsh
Probability of detecting a hotspot (3 x mean)
Probability of detecting a coldspot (0.33 x mean)
Simulated power
0.0
0.2
0.4
0.6
0.8
1.0
0
10
20
30
40
50
60
Number of sampling events in a lease block

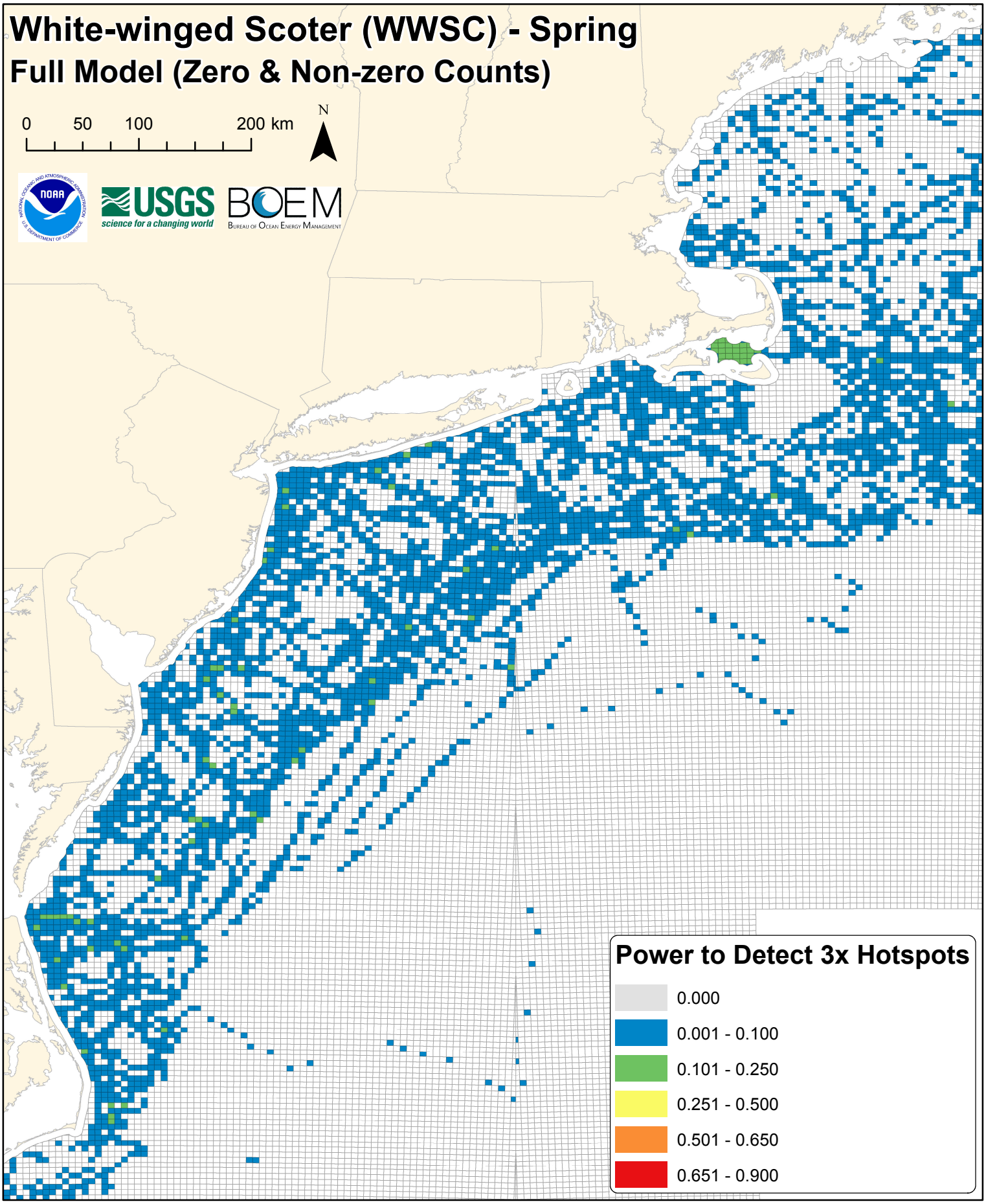

Greater Shearwater (GRSH) - Spring
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Power to Detect 3x Hotspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

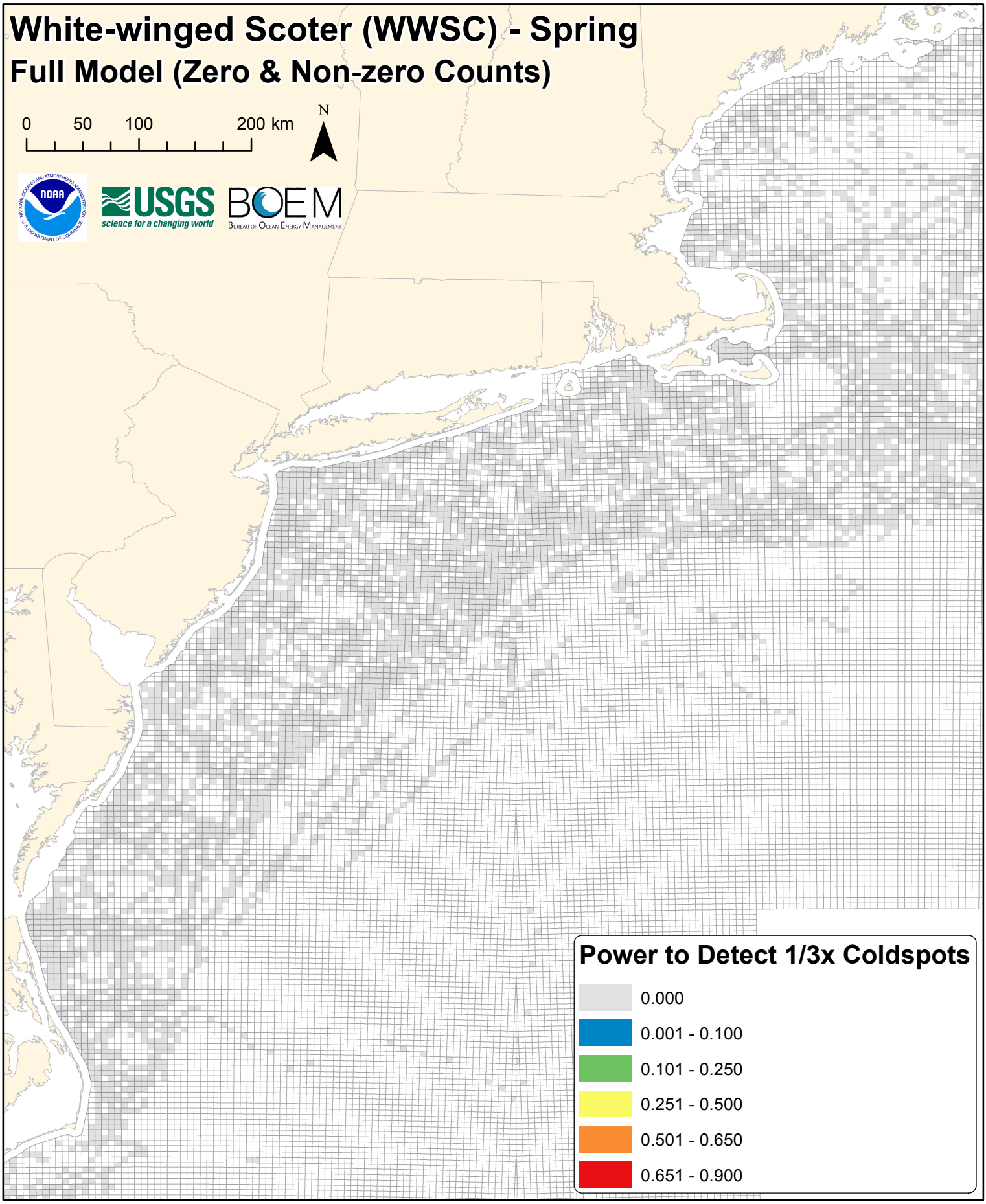

Greater Shearwater (GRSH) - Spring
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Power to Detect 1/3x Coldspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

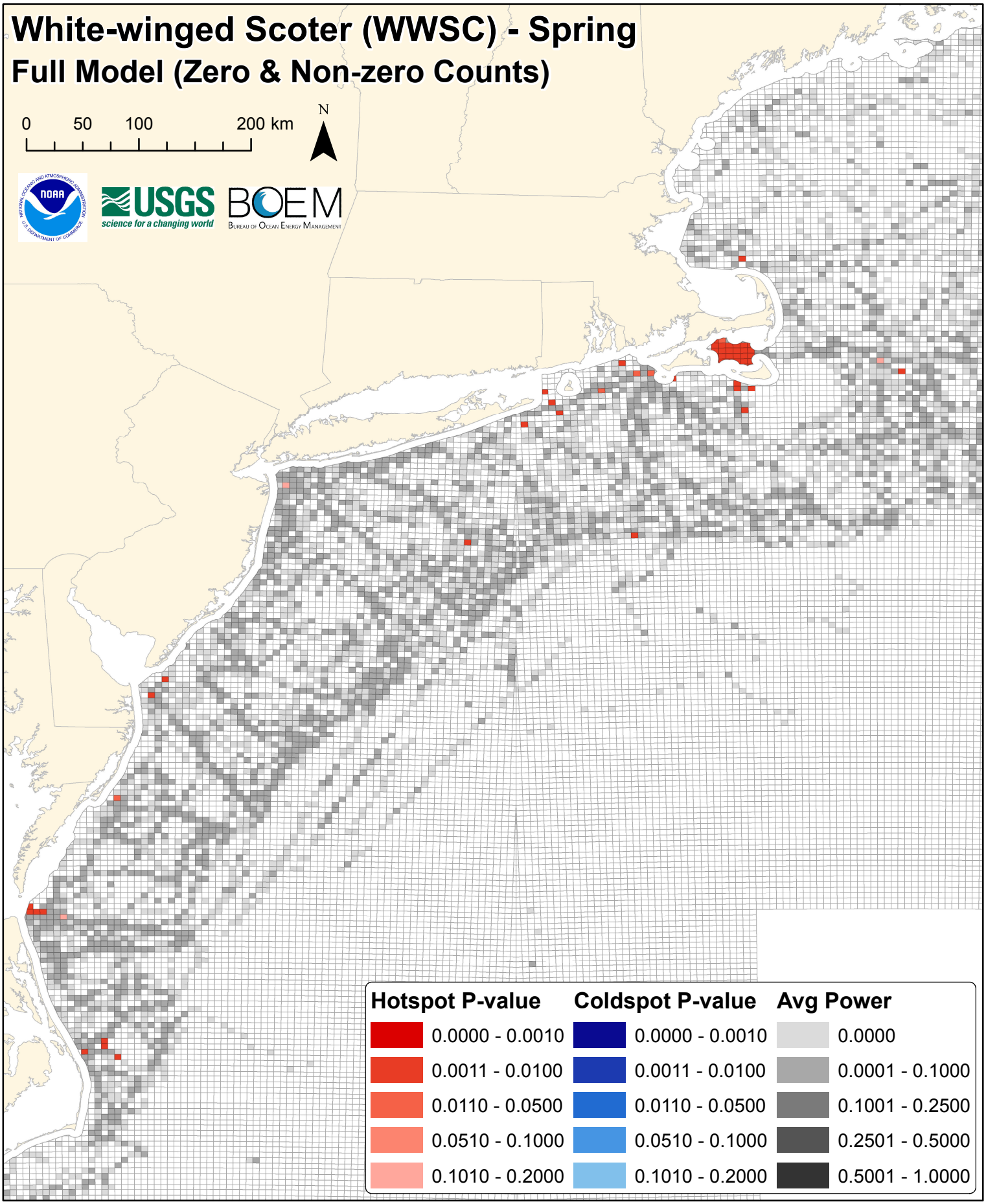

Greater Shearwater (GRSH) - Spring
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
NOAA
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Hotspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Coldspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Avg Power
0.0000
0.0001 - 0.1000
0.1001 - 0.2500
0.2501 - 0.5000
0.5001 - 1.0000

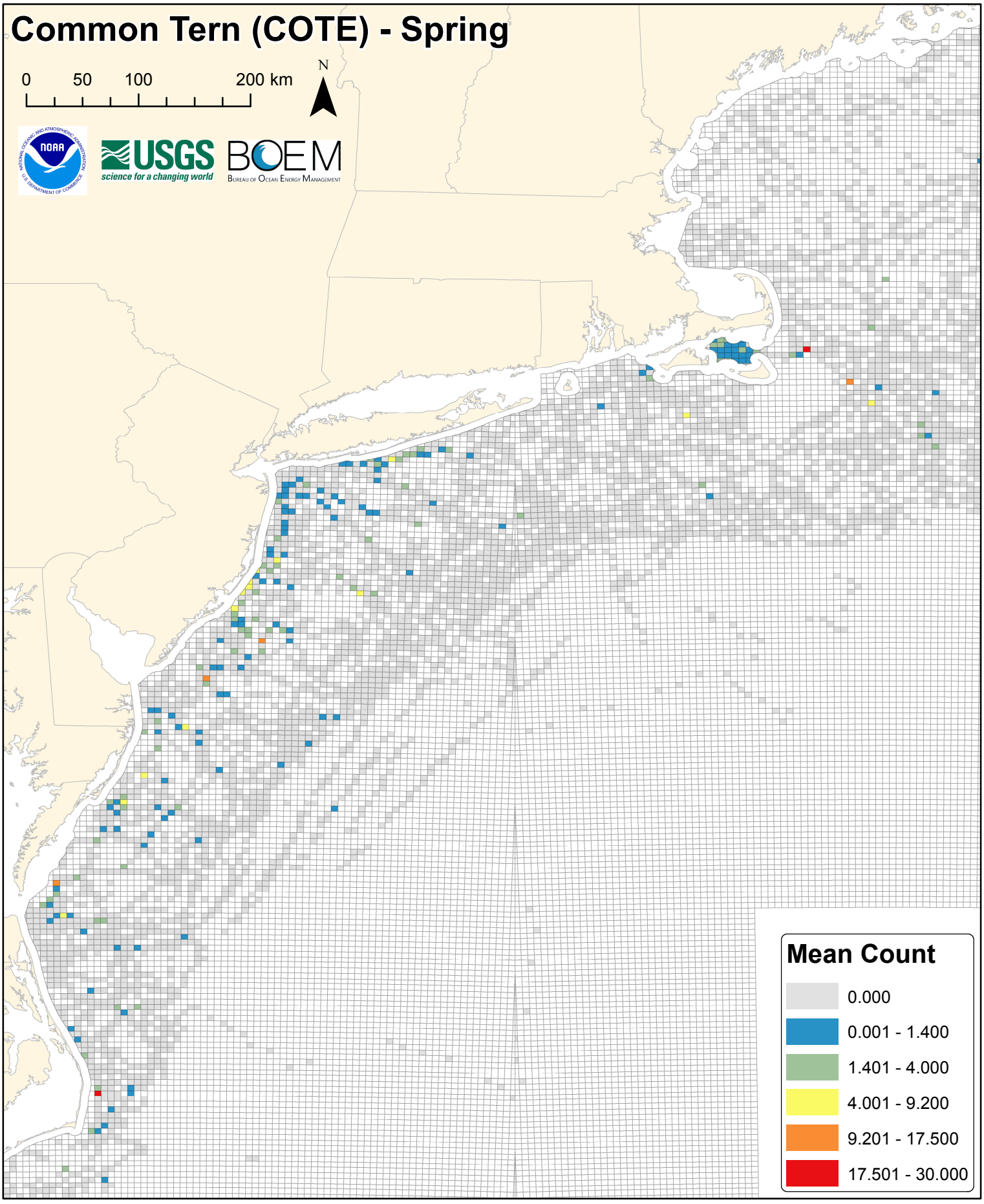

White-winged Scoter (WWSC) - Spring
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Mean Count
0.000
0.001 - 1.000
1.001 - 4.191
4.192 - 8.000
8.001 - 14.280
14.281 - 64.000

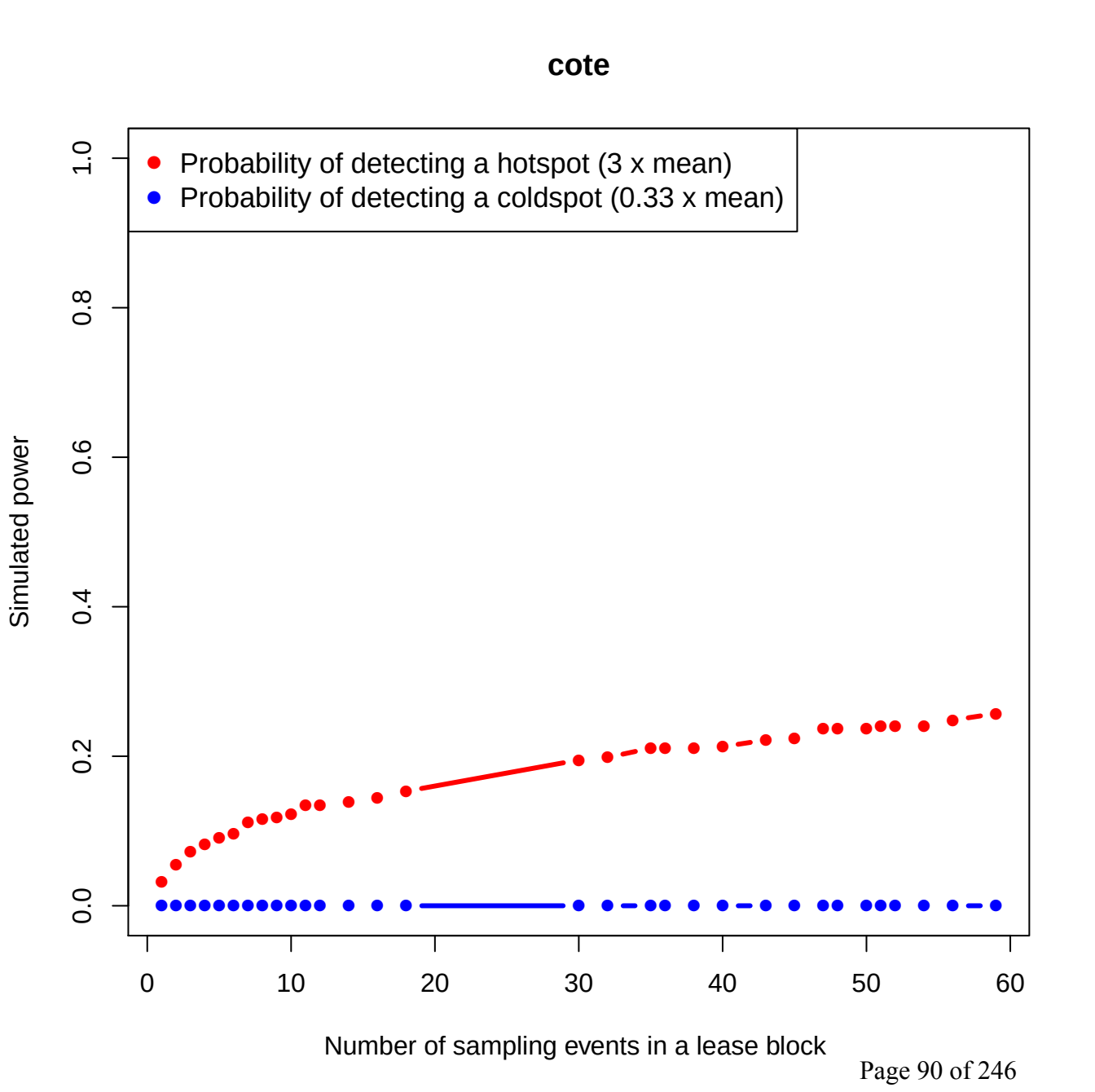

wwsc
Probability of detecting a hotspot (3 x mean)
Probability of detecting a coldspot (0.33 x mean)
Simulated power
0.0
0.2
0.4
0.6
0.8
1.0
0
10
20
30
40
50
60
Number of sampling events in a lease block

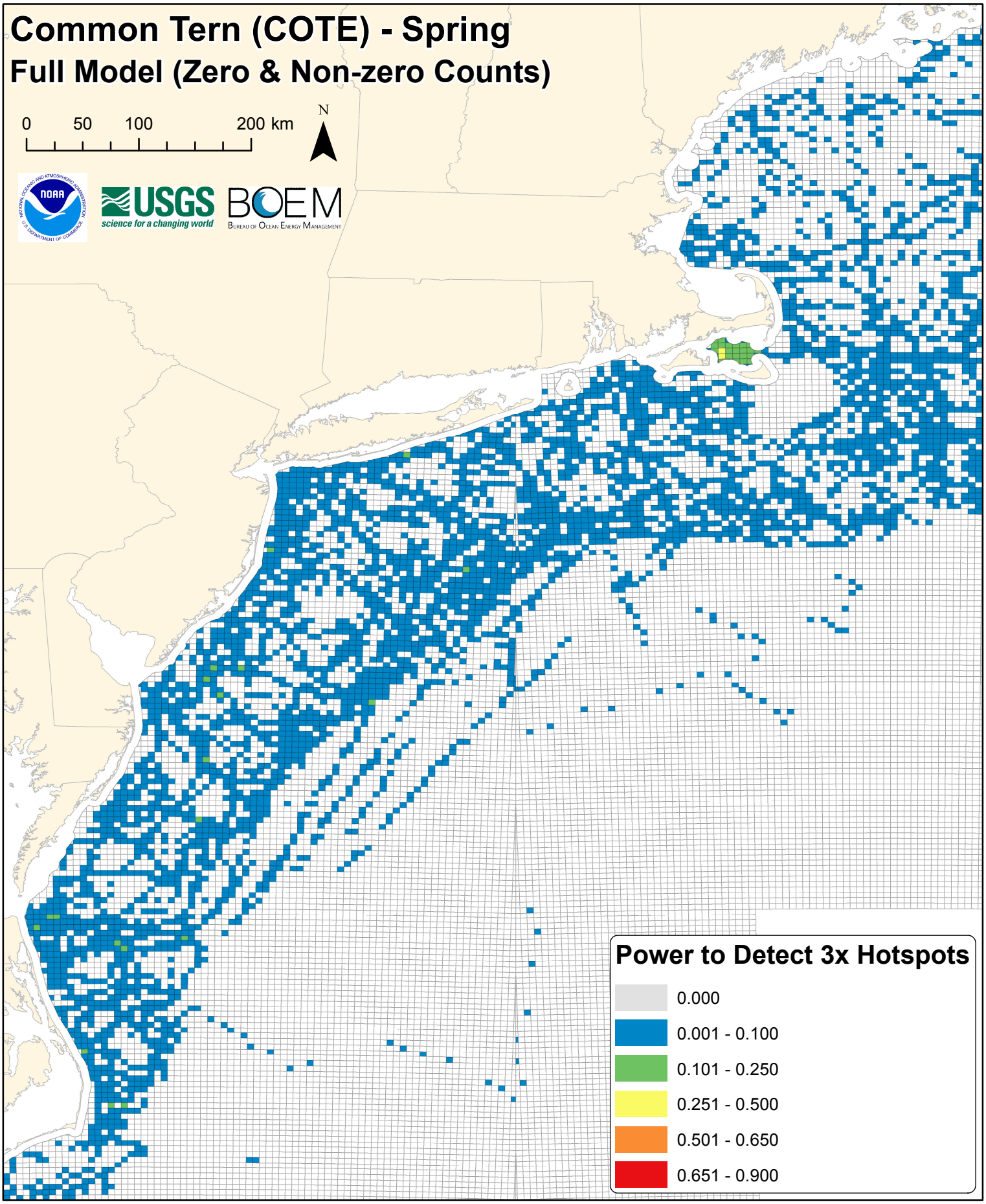

White-winged Scoter (WWSC) - Spring
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
NOAA
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Power to Detect 3x Hotspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

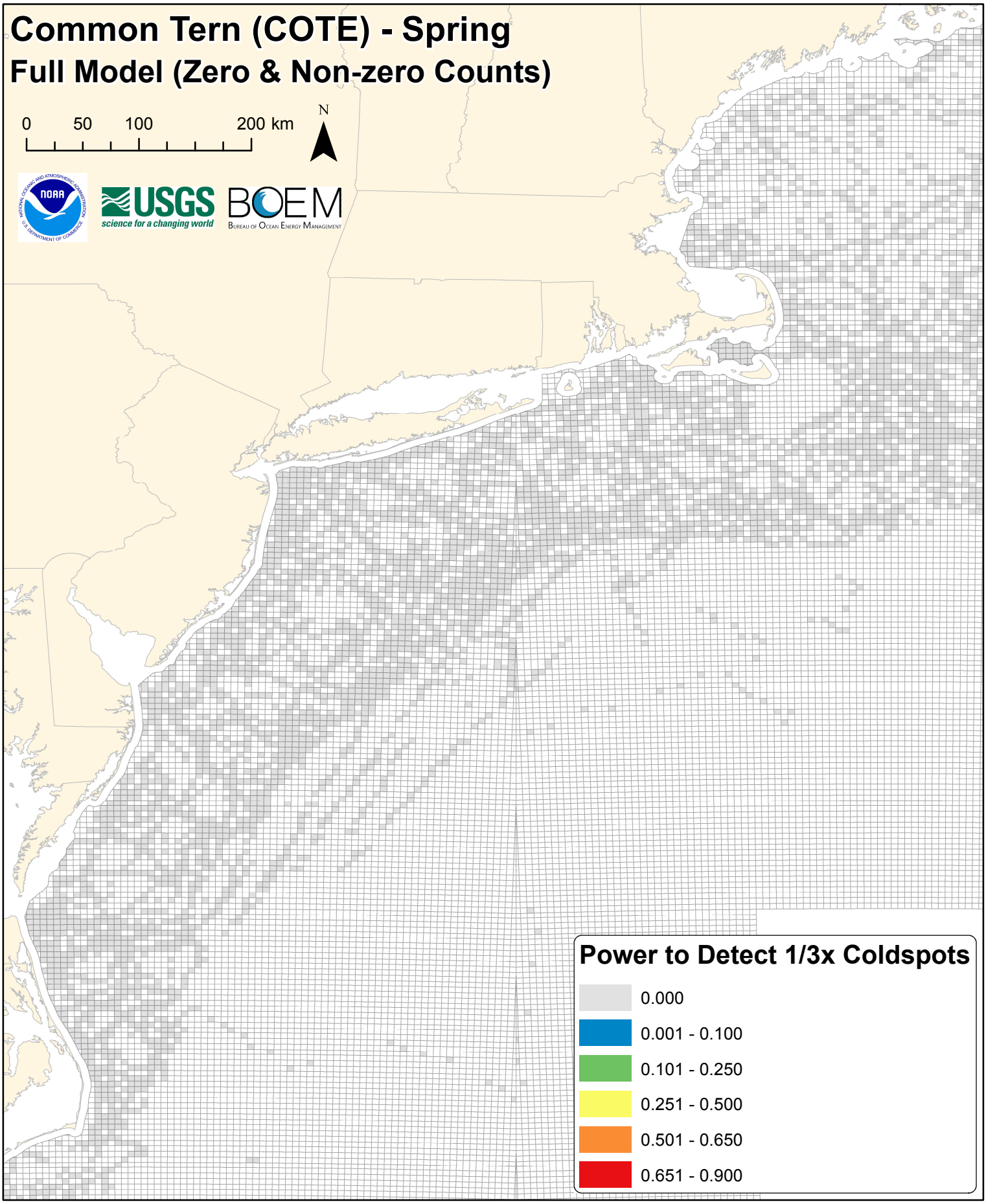

White-winged Scoter (WWSC) - Spring
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
NOAA
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Power to Detect 1/3x Coldspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

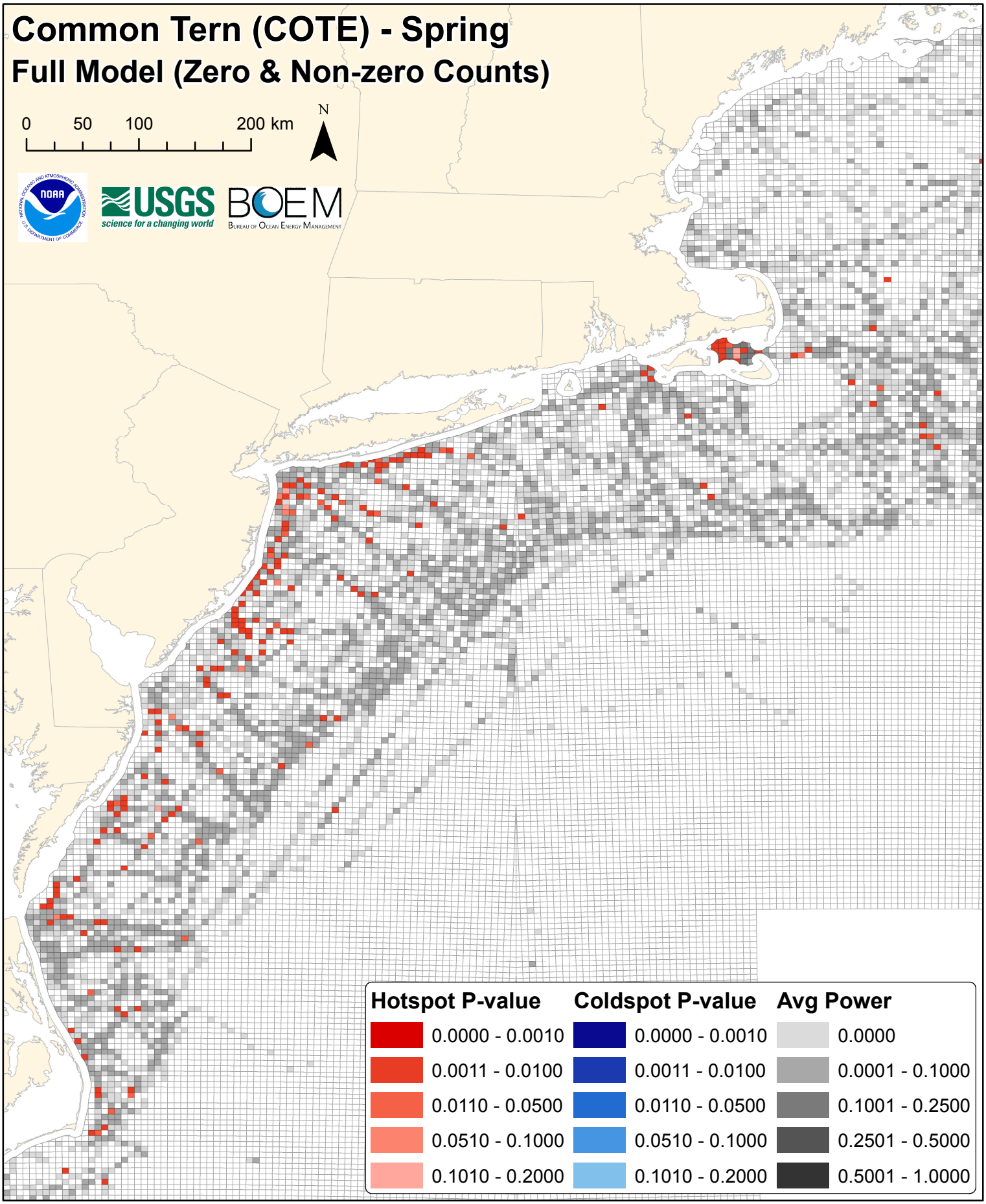

White-winged Scoter (WWSC) - Spring
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Hotspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Coldspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Avg Power
0.0000
0.0001 - 0.1000
0.1001 - 0.2500
0.2501 - 0.5000
0.5001 - 1.0000

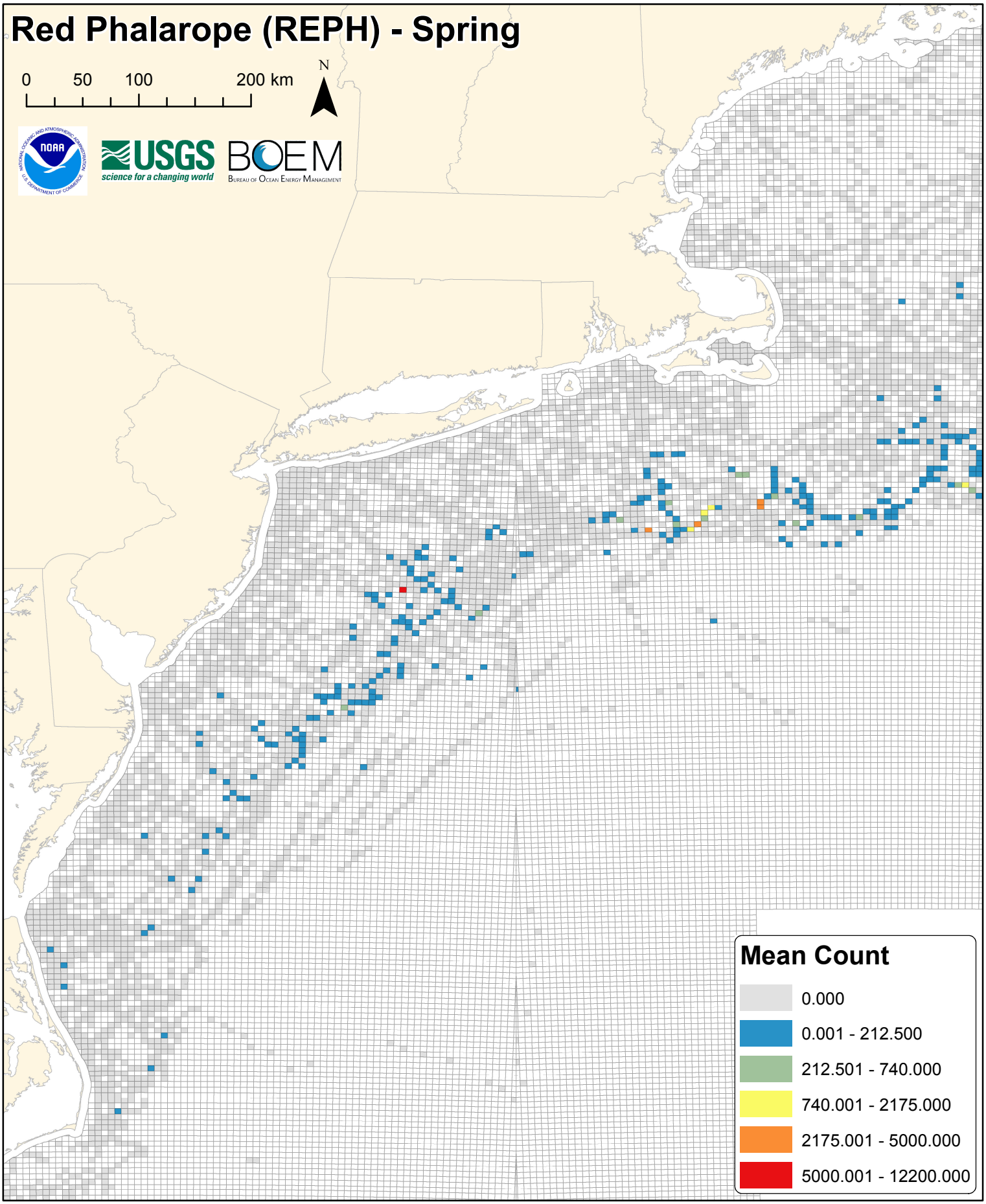

Common Tern (COTE) - Spring
0
50
100
200 km
N
NOAA
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Mean Count
0.000
0.001 - 1.400
1.401 - 4.000
4.001 - 9.200
9.201 - 17.500
17.501 - 30.000

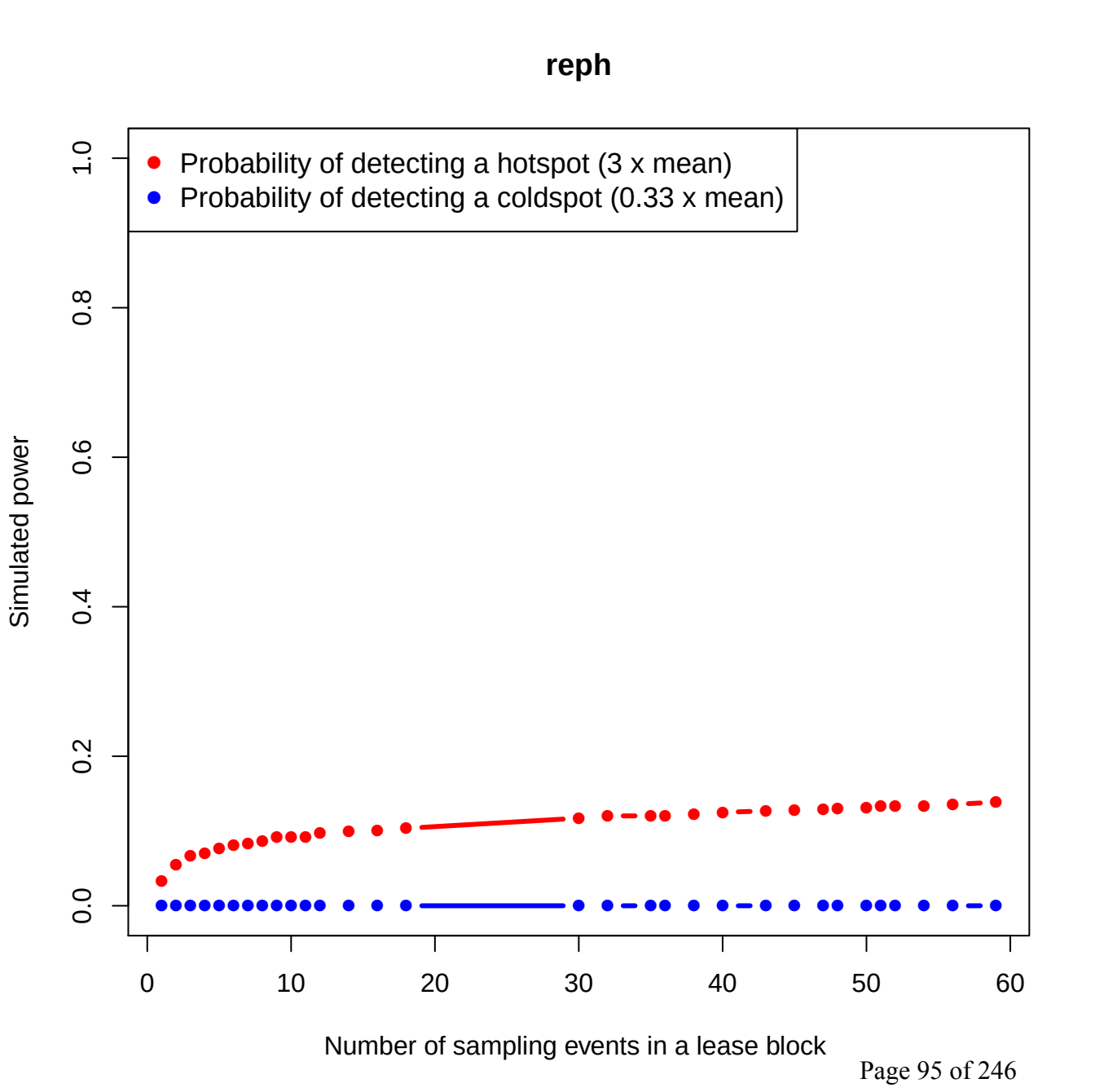

cote
Probability of detecting a hotspot (3 x mean)
Probability of detecting a coldspot (0.33 x mean)
Simulated power
0.0
0.2
0.4
0.6
0.8
1.0
0
10
20
30
40
50
60
Number of sampling events in a lease block

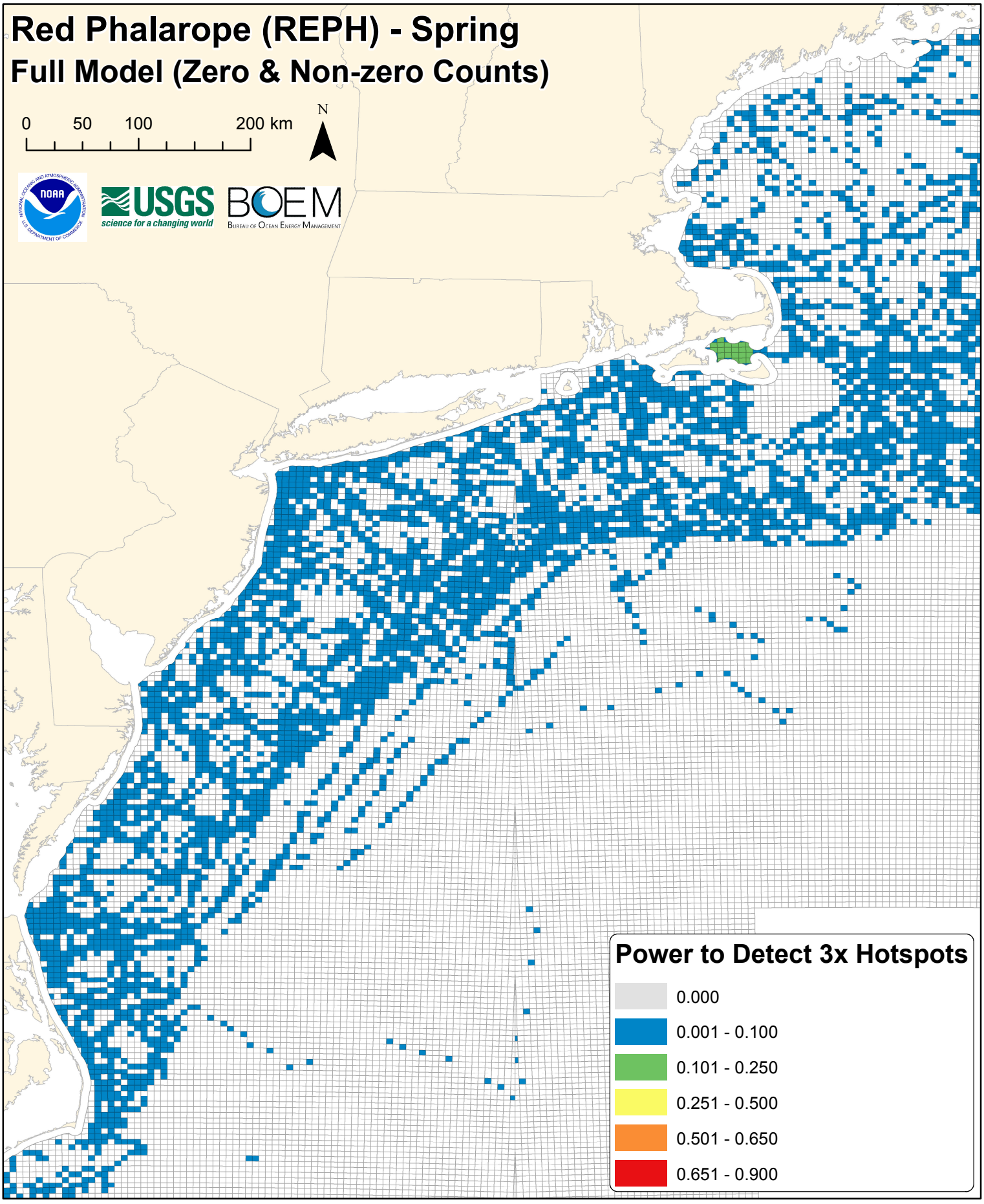

Common Tern (COTE) - Spring
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Power to Detect 3x Hotspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

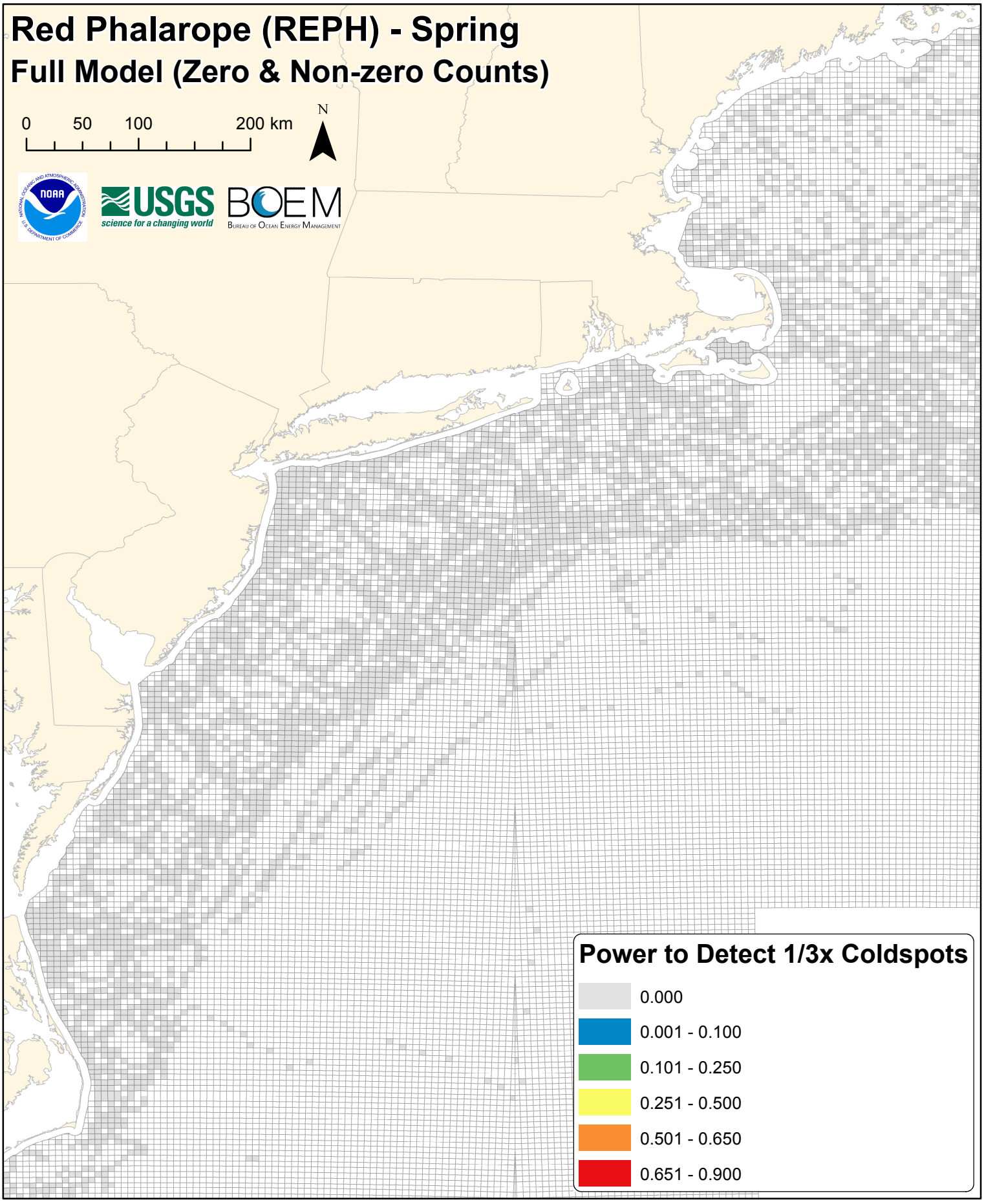

Common Tern (COTE) - Spring
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Power to Detect 1/3x Coldspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

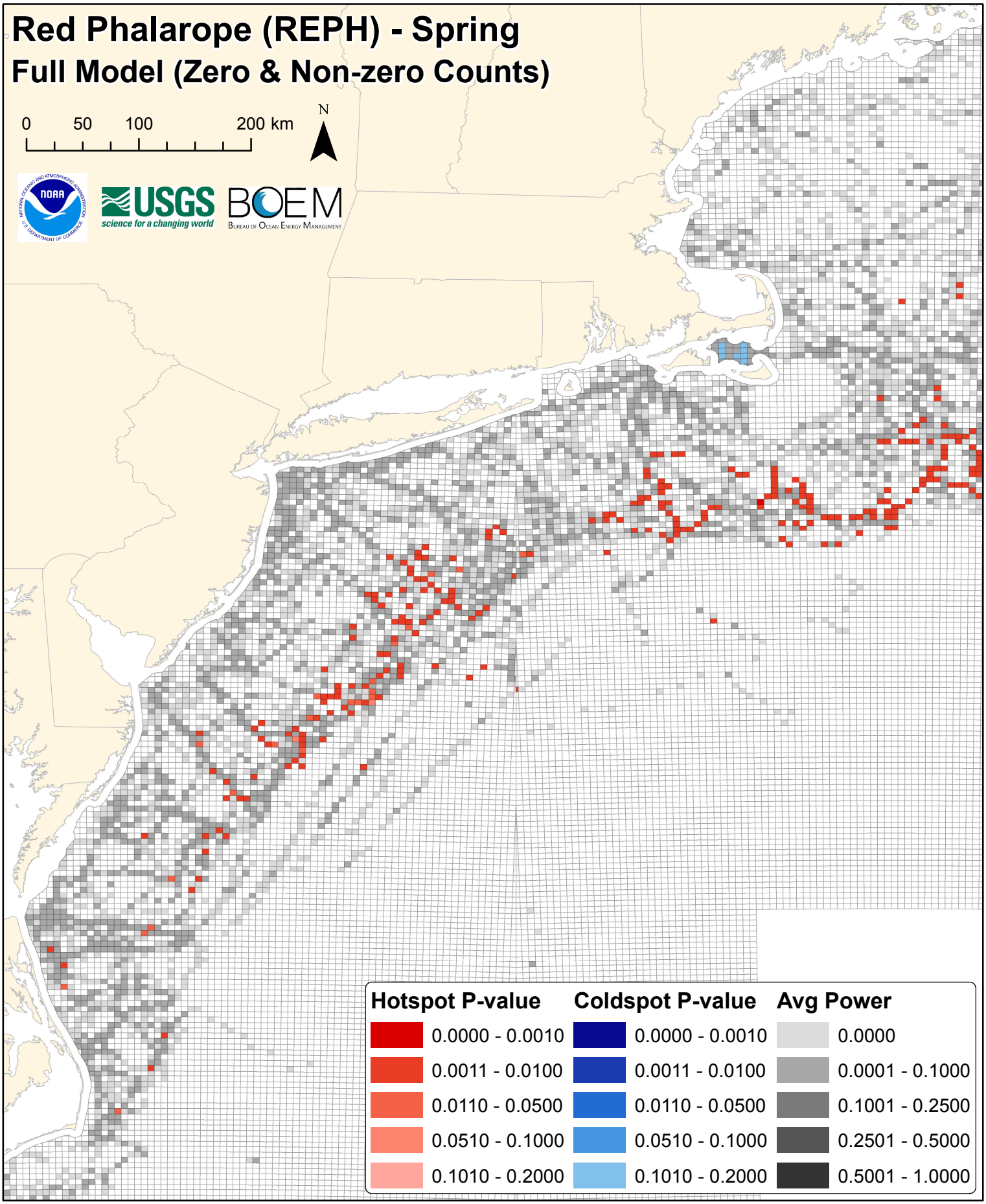

Common Tern (COTE) - Spring
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Hotspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Coldspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Avg Power
0.0000
0.0001 - 0.1000
0.1001 - 0.2500
0.2501 - 0.5000
0.5001 - 1.0000


Red Phalarope (REPH) - Spring
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Mean Count
0.000
0.001 - 212.500
212.501 - 740.000
740.001 - 2175.000
2175.001 - 5000.000
5000.001 - 12200.000


reph
Probability of detecting a hotspot (3 x mean)
Probability of detecting a coldspot (0.33 x mean)
Simulated power
0.0
0.2
0.4
0.6
0.8
1.0
0
10
20
30
40
50
60
Number of sampling events in a lease block


Red Phalarope (REPH) - Spring
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Power to Detect 3x Hotspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900


Red Phalarope (REPH) - Spring
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
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

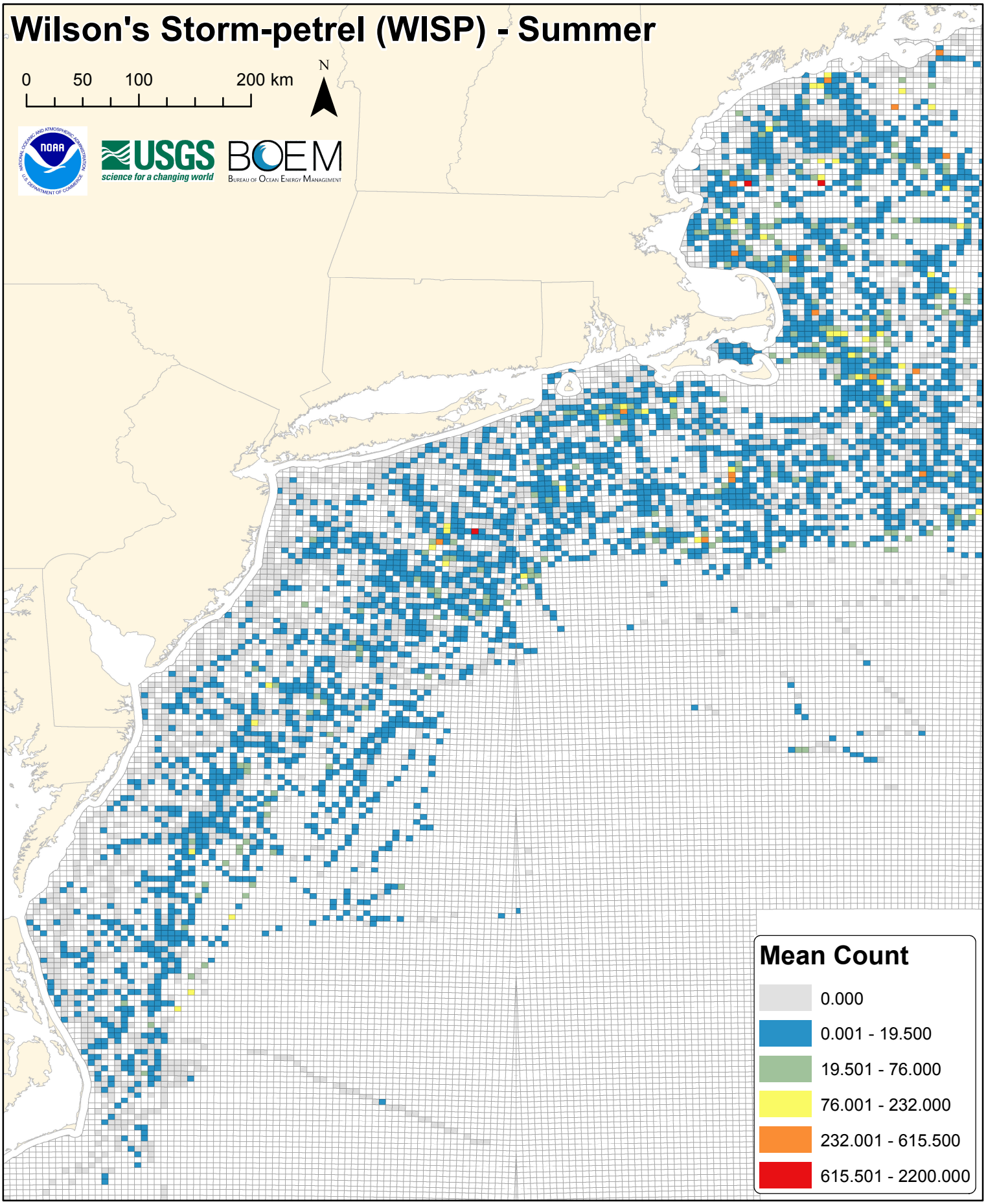

Red Phalarope (REPH) - Spring
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
NOAA
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Hotspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Coldspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Avg Power
0.0000
0.0001 - 0.1000
0.1001 - 0.2500
0.2501 - 0.5000
0.5001 - 1.0000

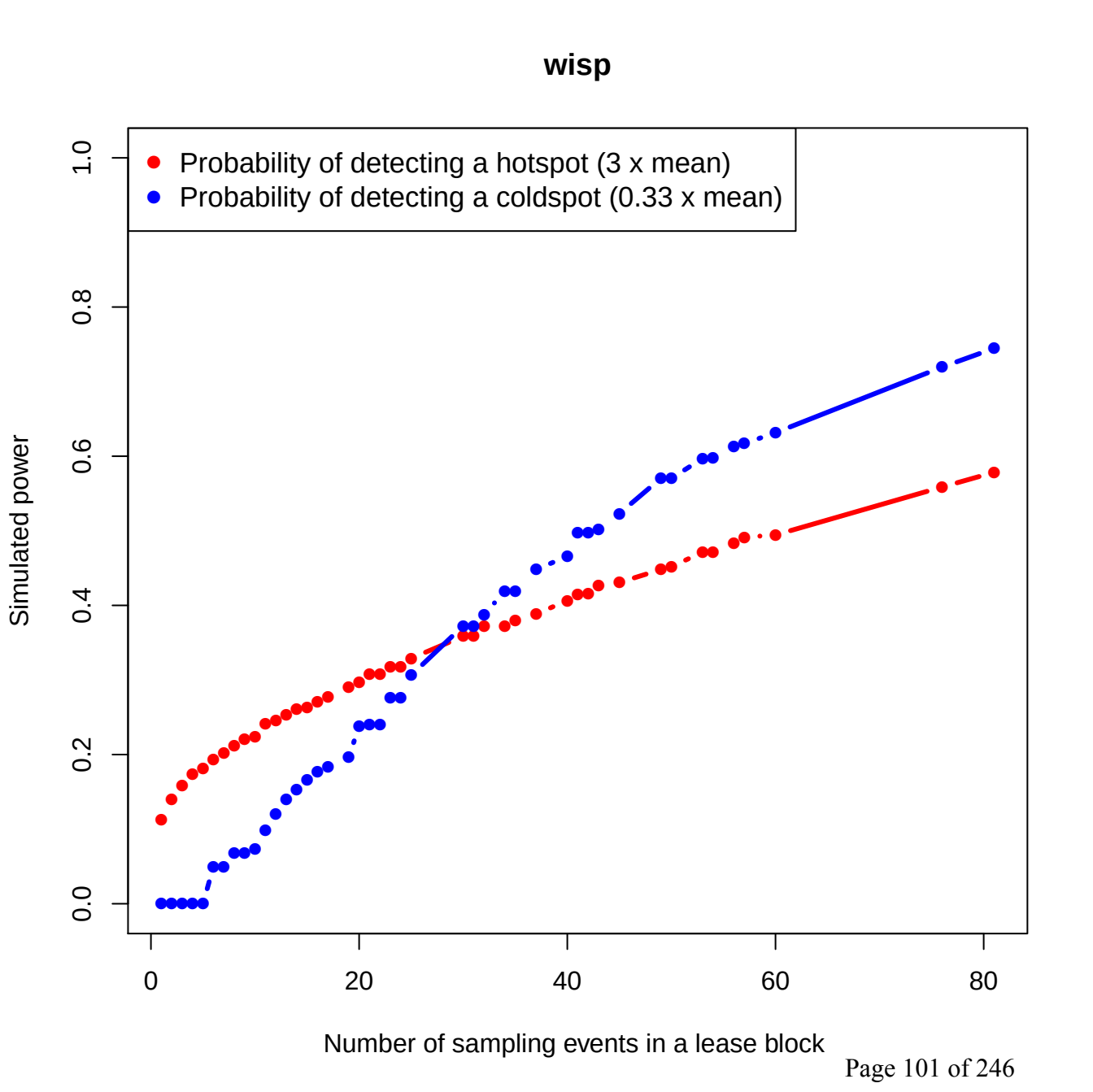
DIGITAL SUPPLEMENT G

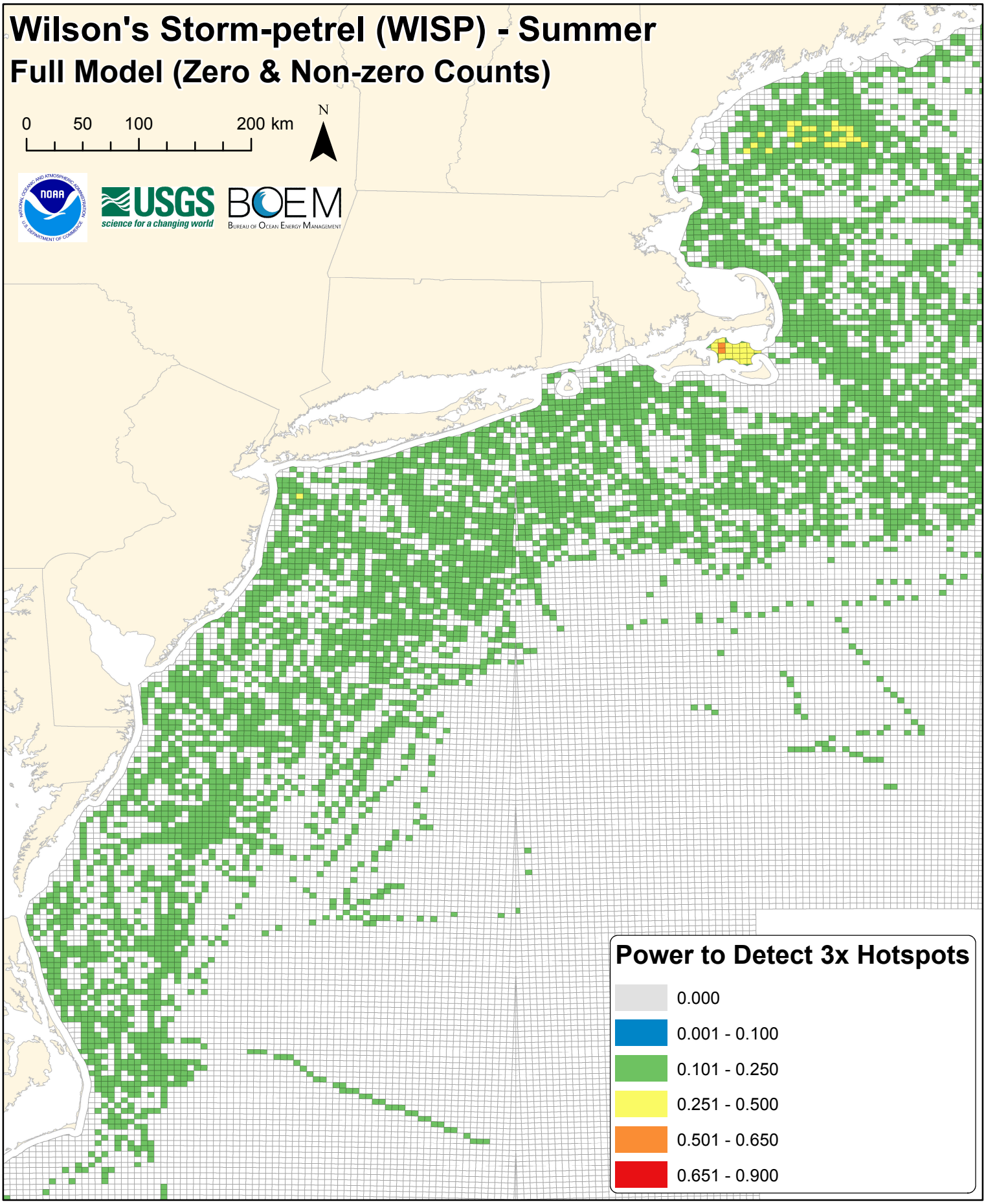
Full Hurdle Model (Zero & Non-Zero Counts) Results

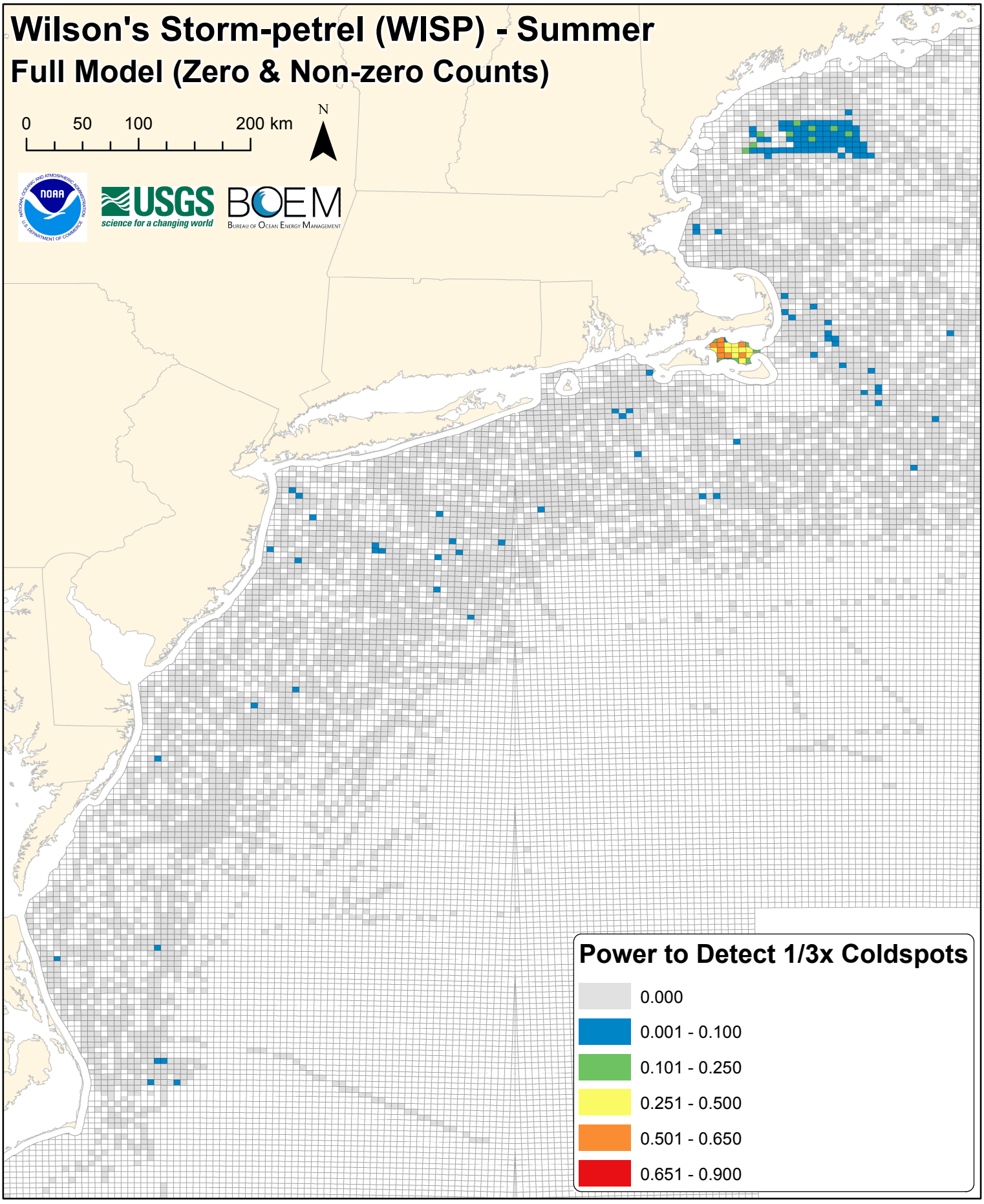
SECTION II. Species-specific Power Analysis Maps and Figures

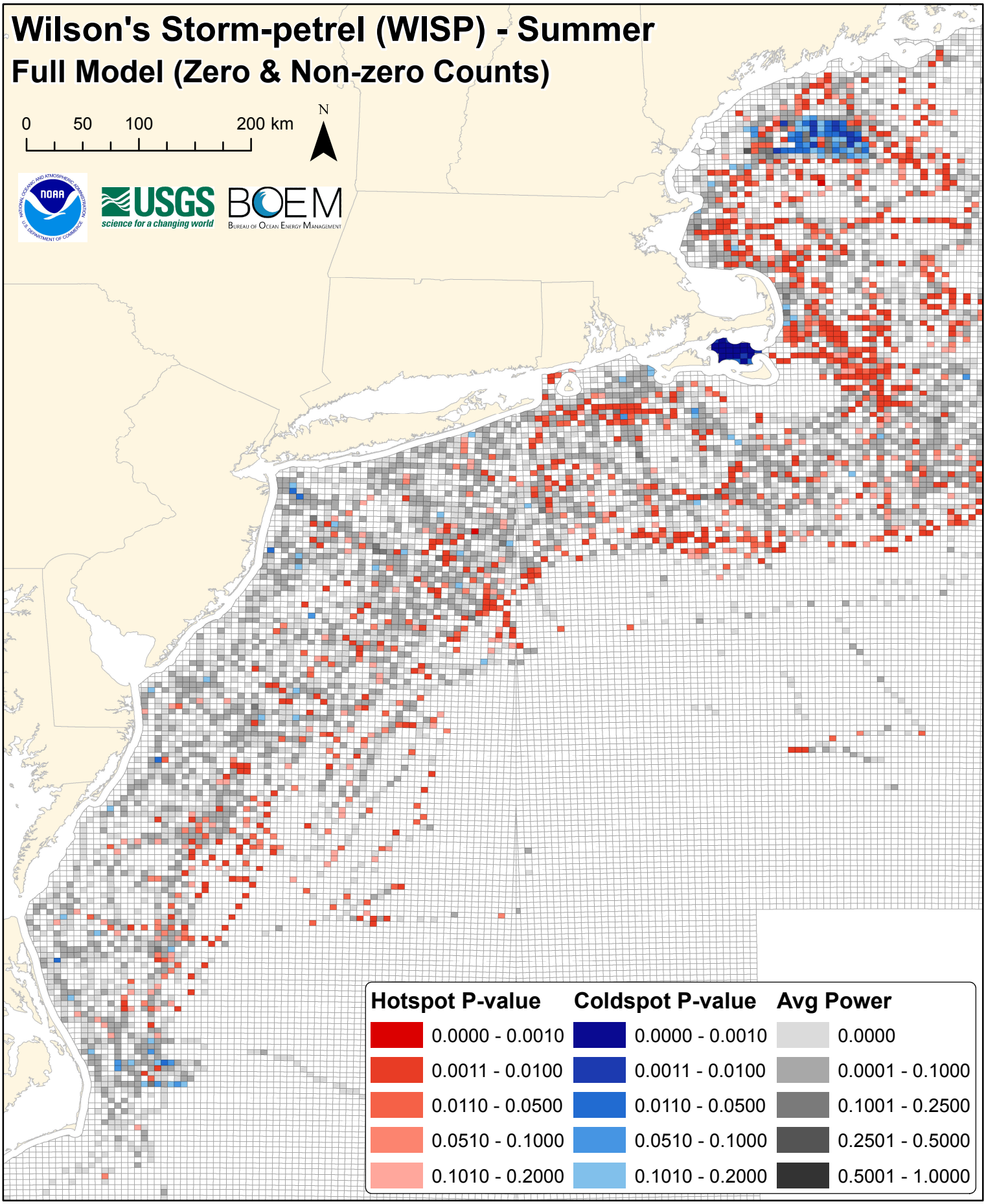
Figures G91-G125. Summer power analysis maps and figures (7 species x 5 figures per species).

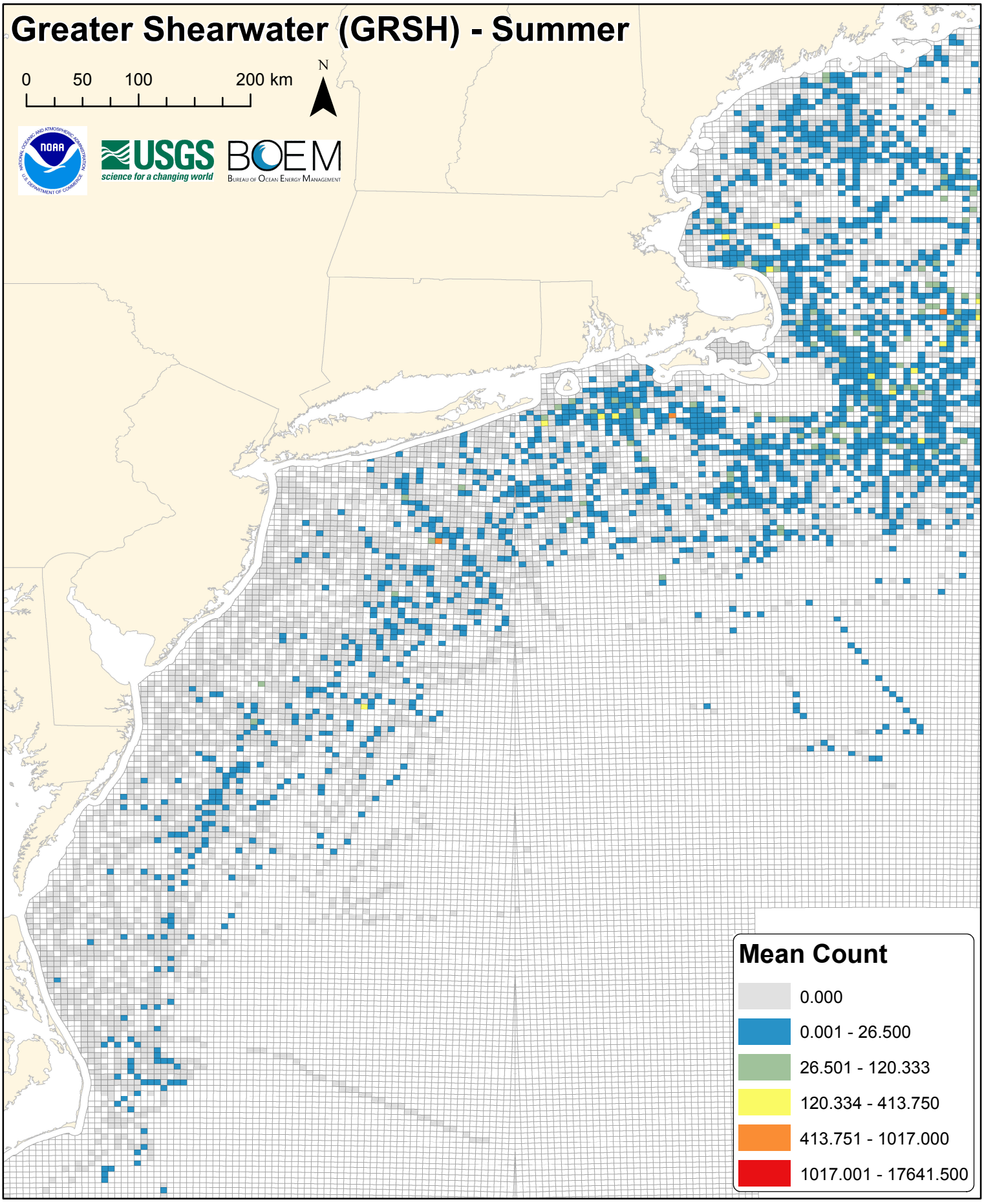

Wilson's Storm-petrel (WISP) - Summer
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Mean Count
0.000
0.001 - 19.500
19.501 - 76.000
76.001 - 232.000
232.001 - 615.500
615.501 - 2200.000

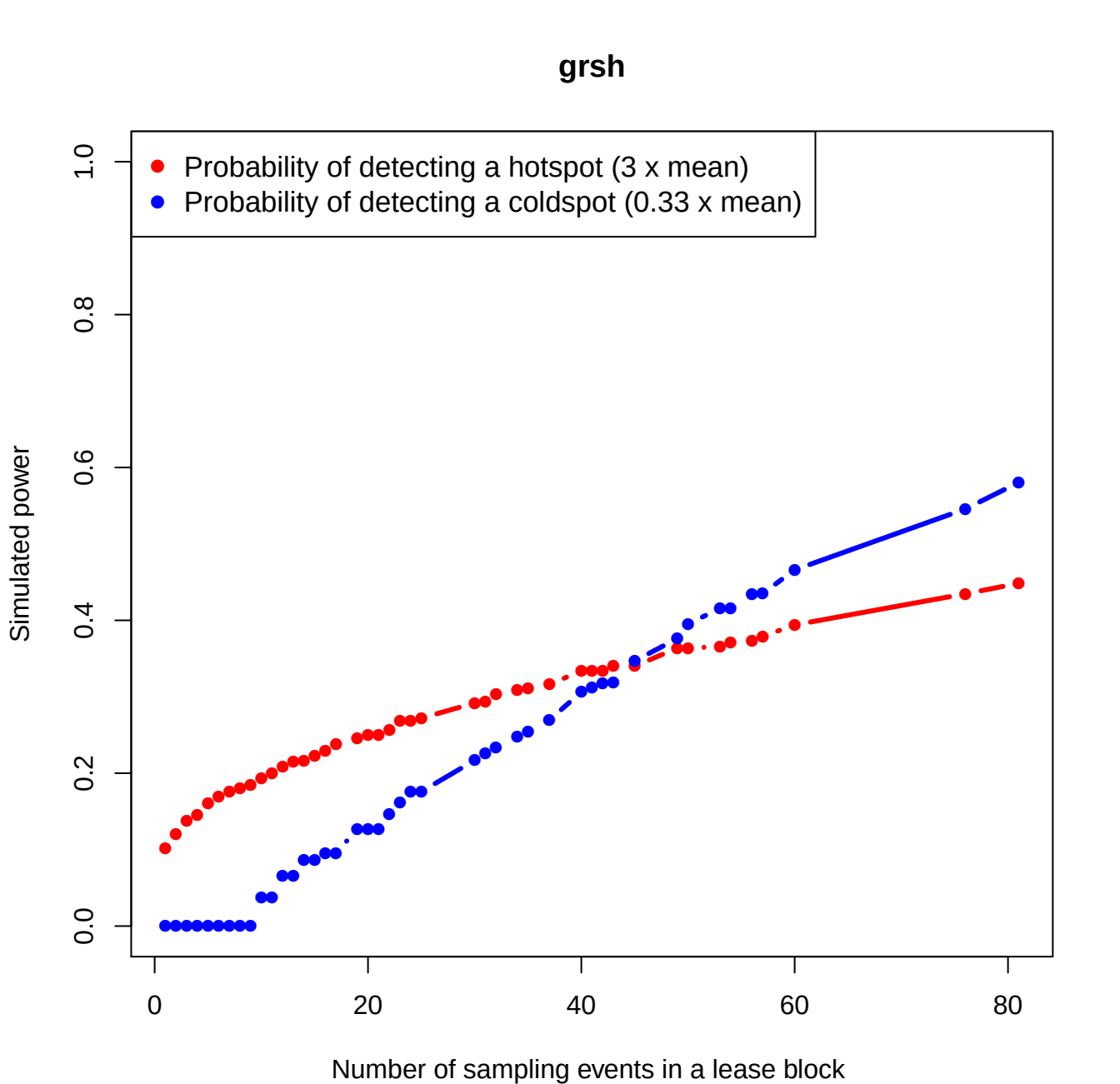

wisp
Probability of detecting a hotspot (3 x mean)
Probability of detecting a coldspot (0.33 x mean)
Simulated power
0.0
0.2
0.4
0.6
0.8
1.0
0
20
40
60
80
Number of sampling events in a lease block

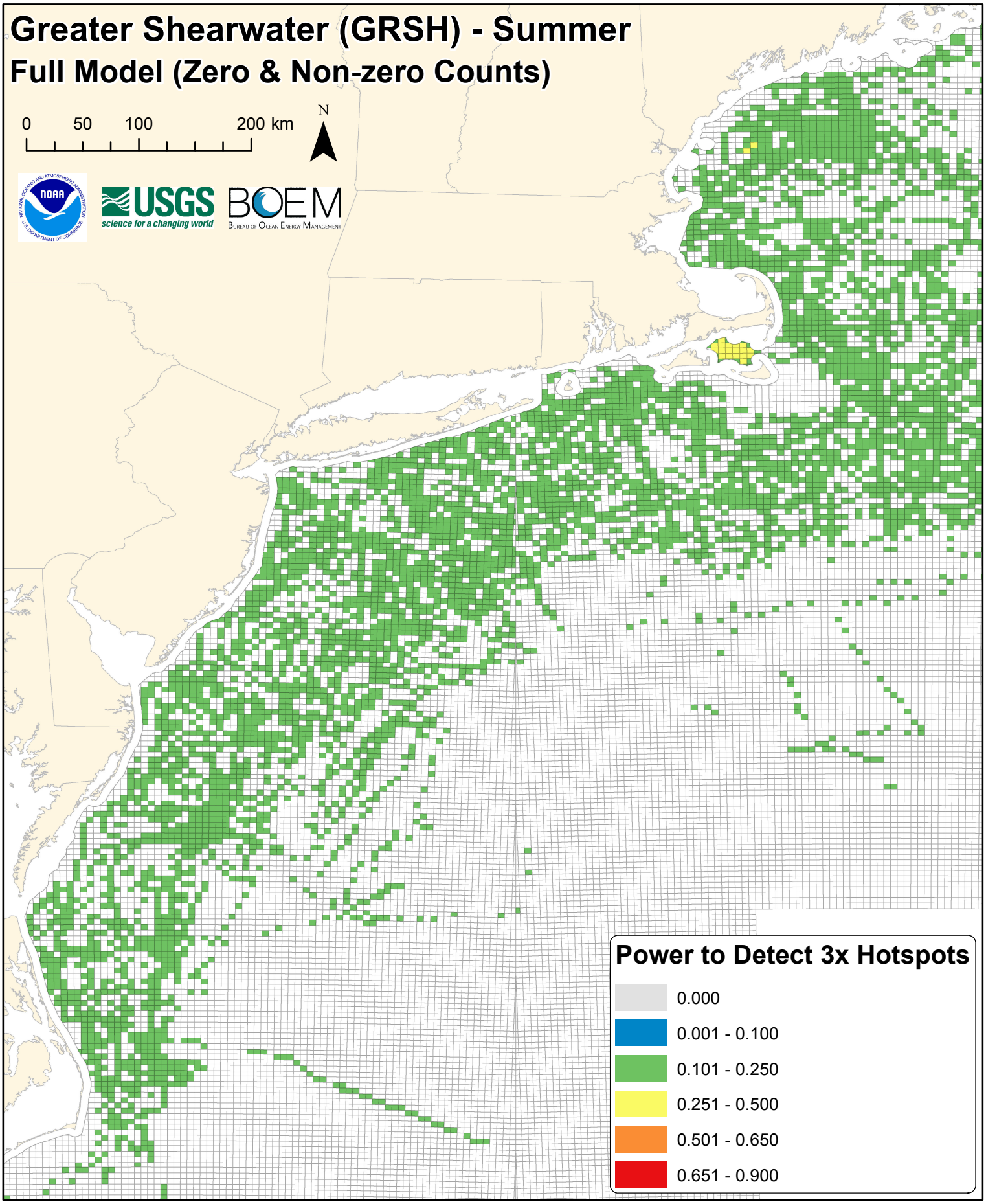

Wilson's Storm-petrel (WISP) - Summer
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Power to Detect 3x Hotspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

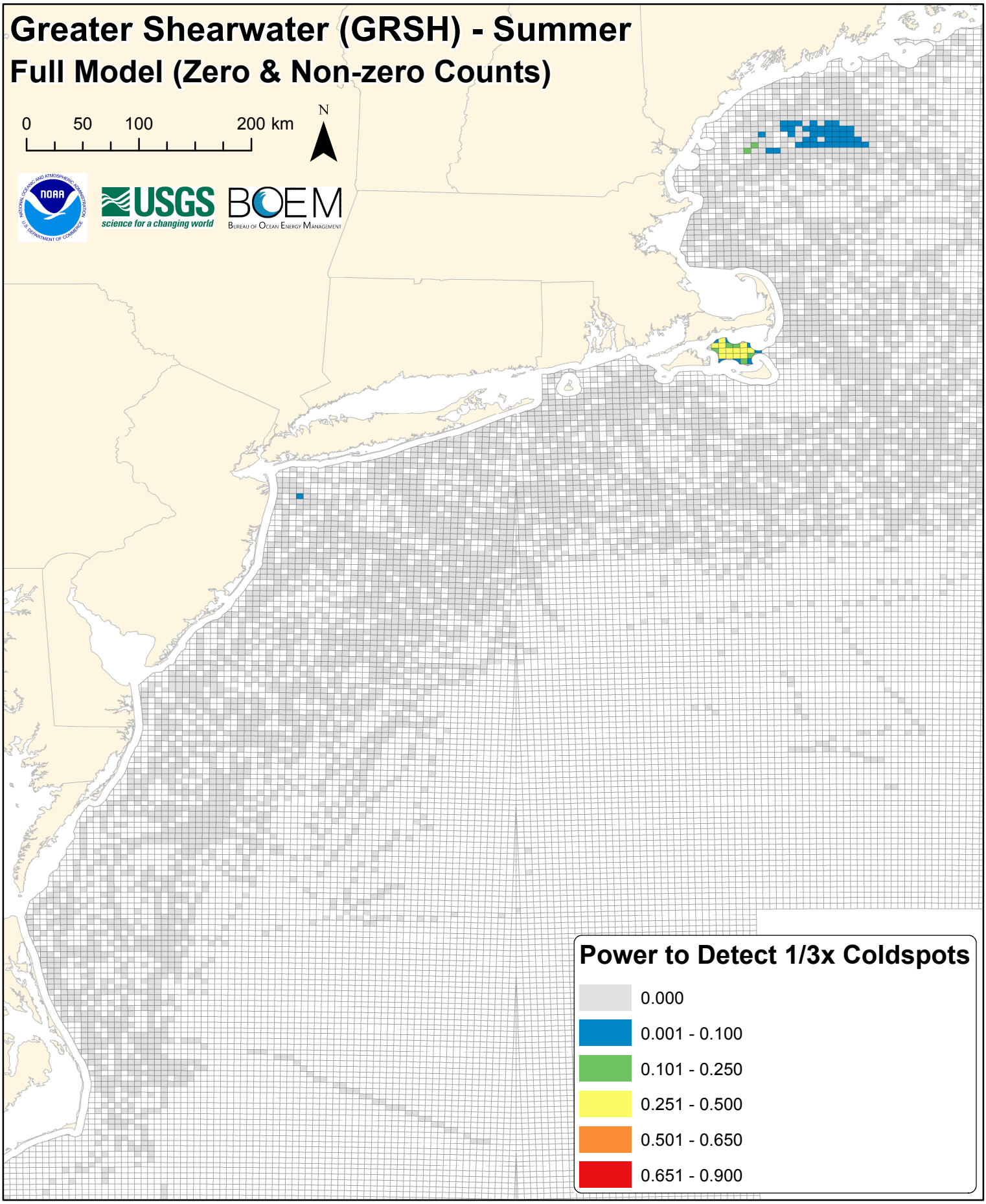

Wilson's Storm-petrel (WISP) - Summer
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Power to Detect 1/3x Coldspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

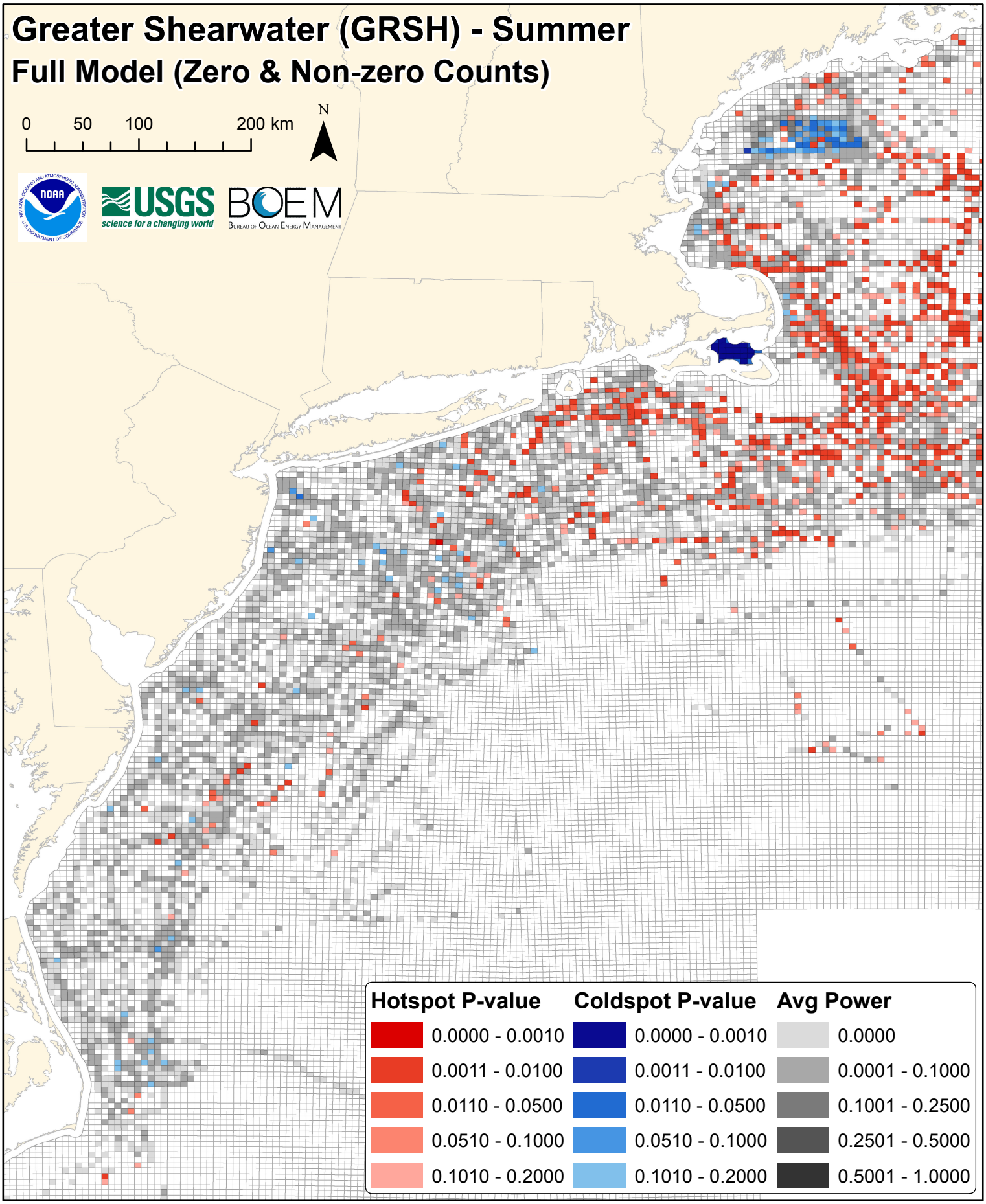

Wilson's Storm-petrel (WISP) - Summer
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Hotspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Coldspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Avg Power
0.0000
0.0001 - 0.1000
0.1001 - 0.2500
0.2501 - 0.5000
0.5001 - 1.0000

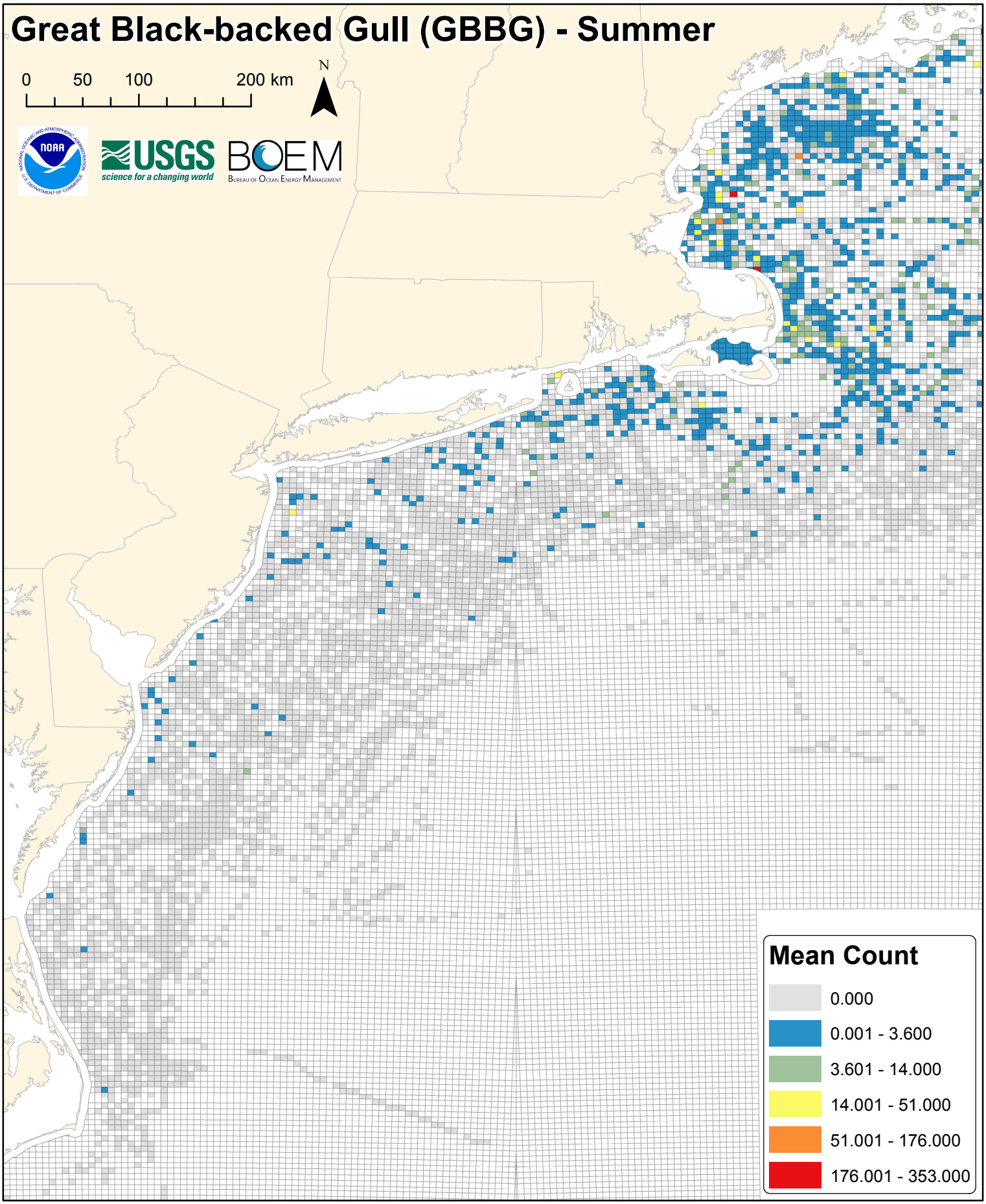

Greater Shearwater (GRSH) - Summer
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Mean Count
0.000
0.001 - 26.500
26.501 - 120.333
120.334 - 413.750
413.751 - 1017.000
1017.001 - 17641.500

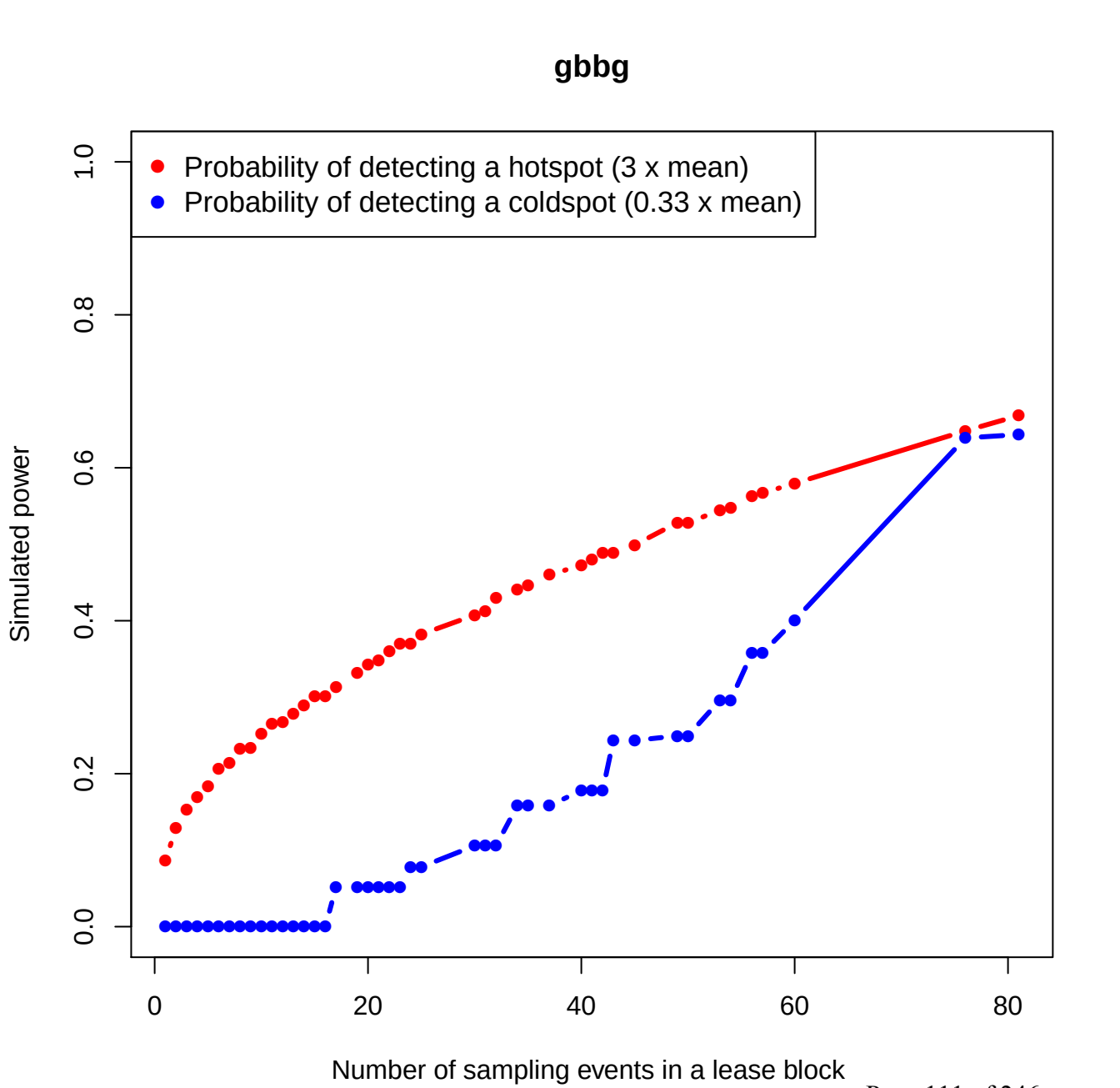

grsh
Probability of detecting a hotspot (3 x mean)
Probability of detecting a coldspot (0.33 x mean)
Simulated power
0.0
0.2
0.4
0.6
0.8
1.0
0
20
40
60
80
Number of sampling events in a lease block

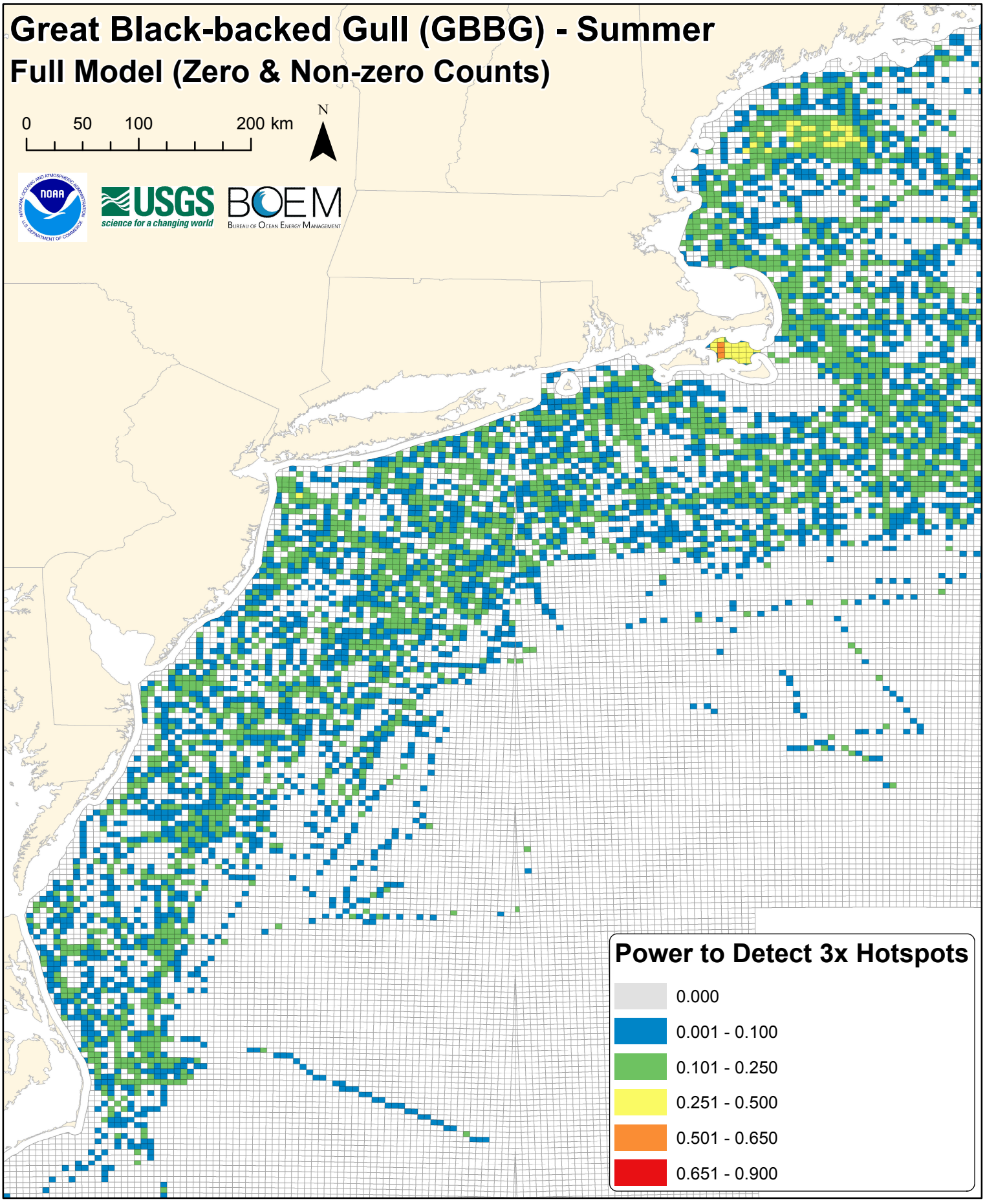

Greater Shearwater (GRSH) - Summer
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Power to Detect 3x Hotspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

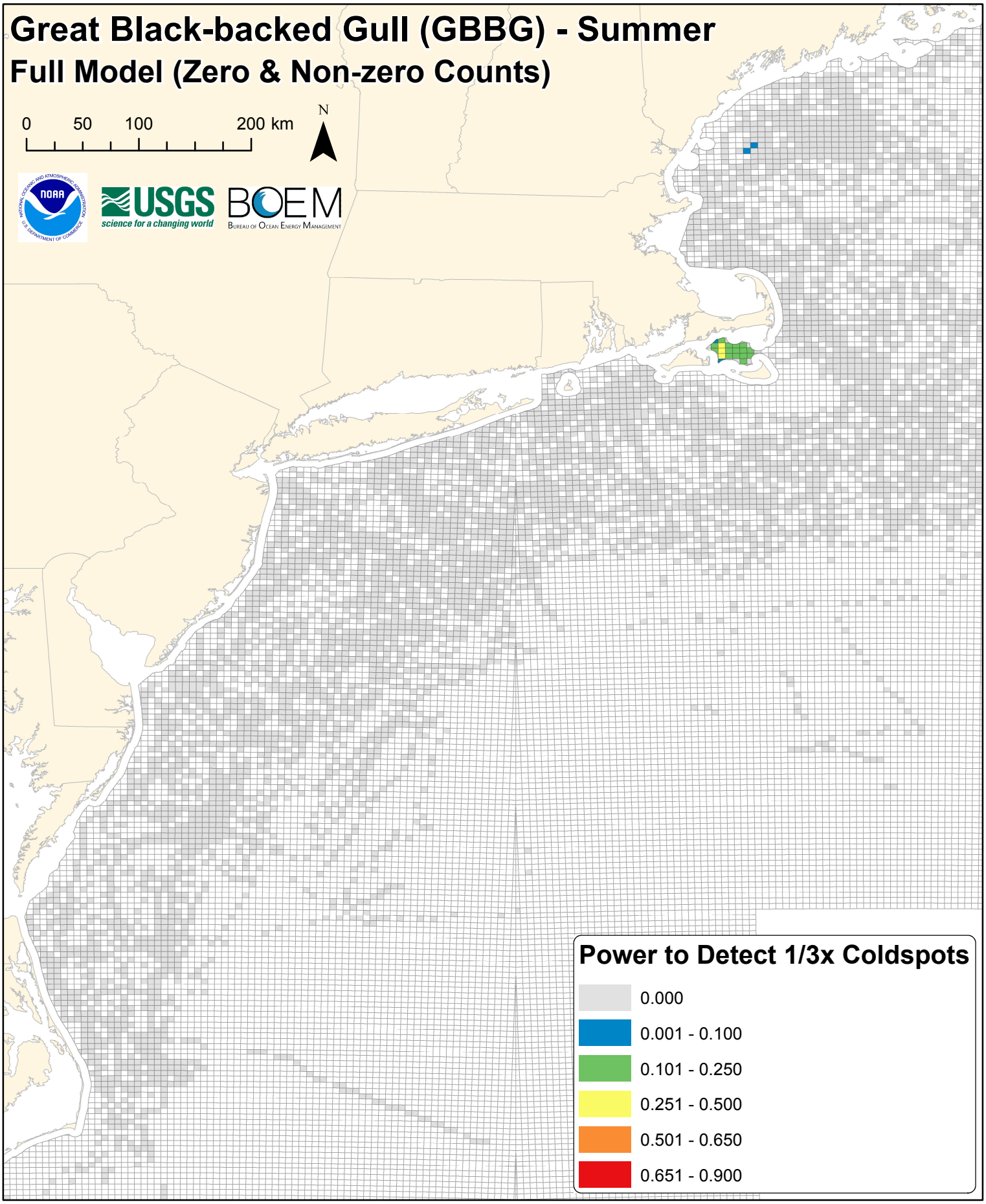

Greater Shearwater (GRSH) - Summer
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Power to Detect 1/3x Coldspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

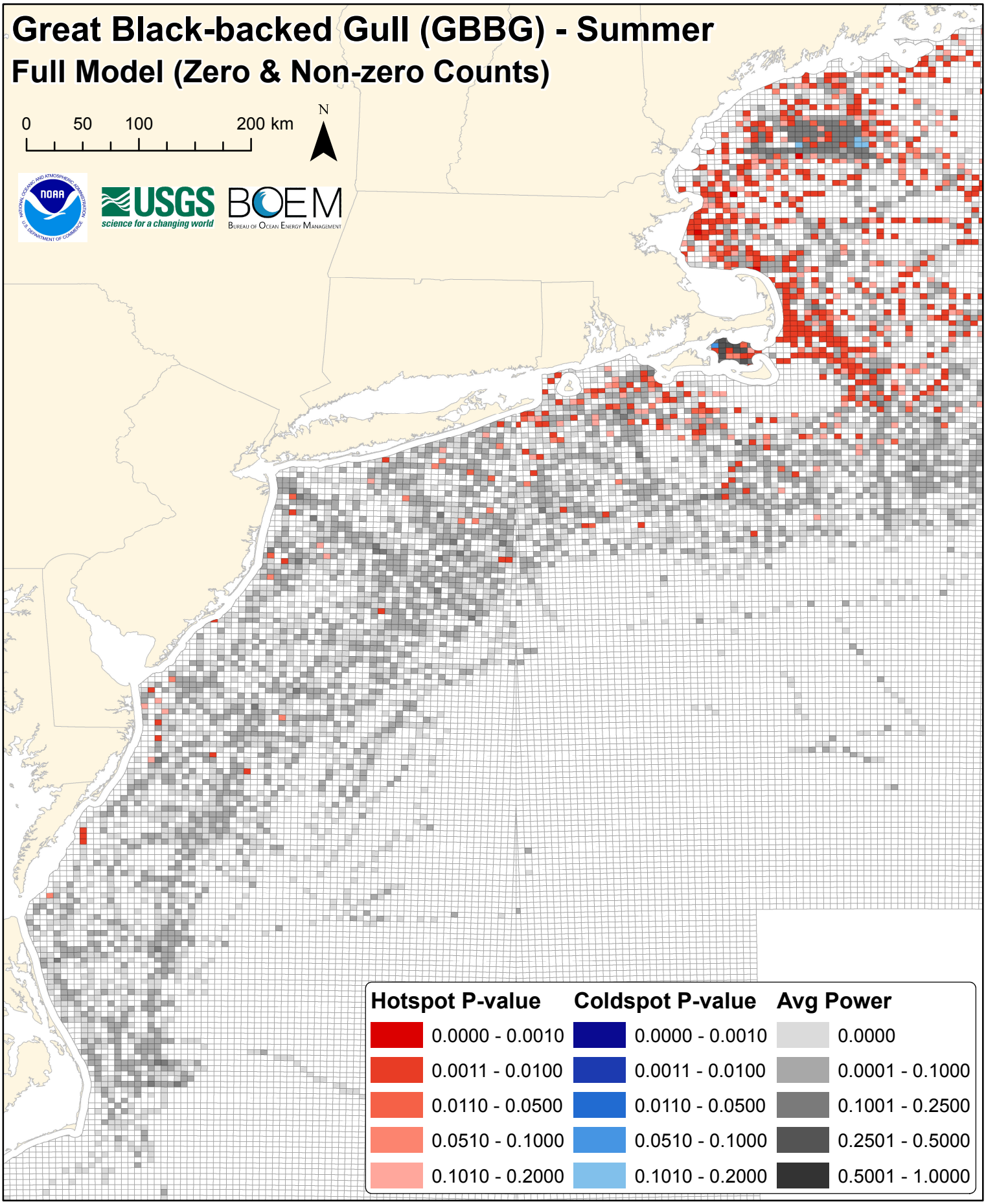

Greater Shearwater (GRSH) - Summer
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
NOAA
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Hotspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Coldspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Avg Power
0.0000
0.0001 - 0.1000
0.1001 - 0.2500
0.2501 - 0.5000
0.5001 - 1.0000

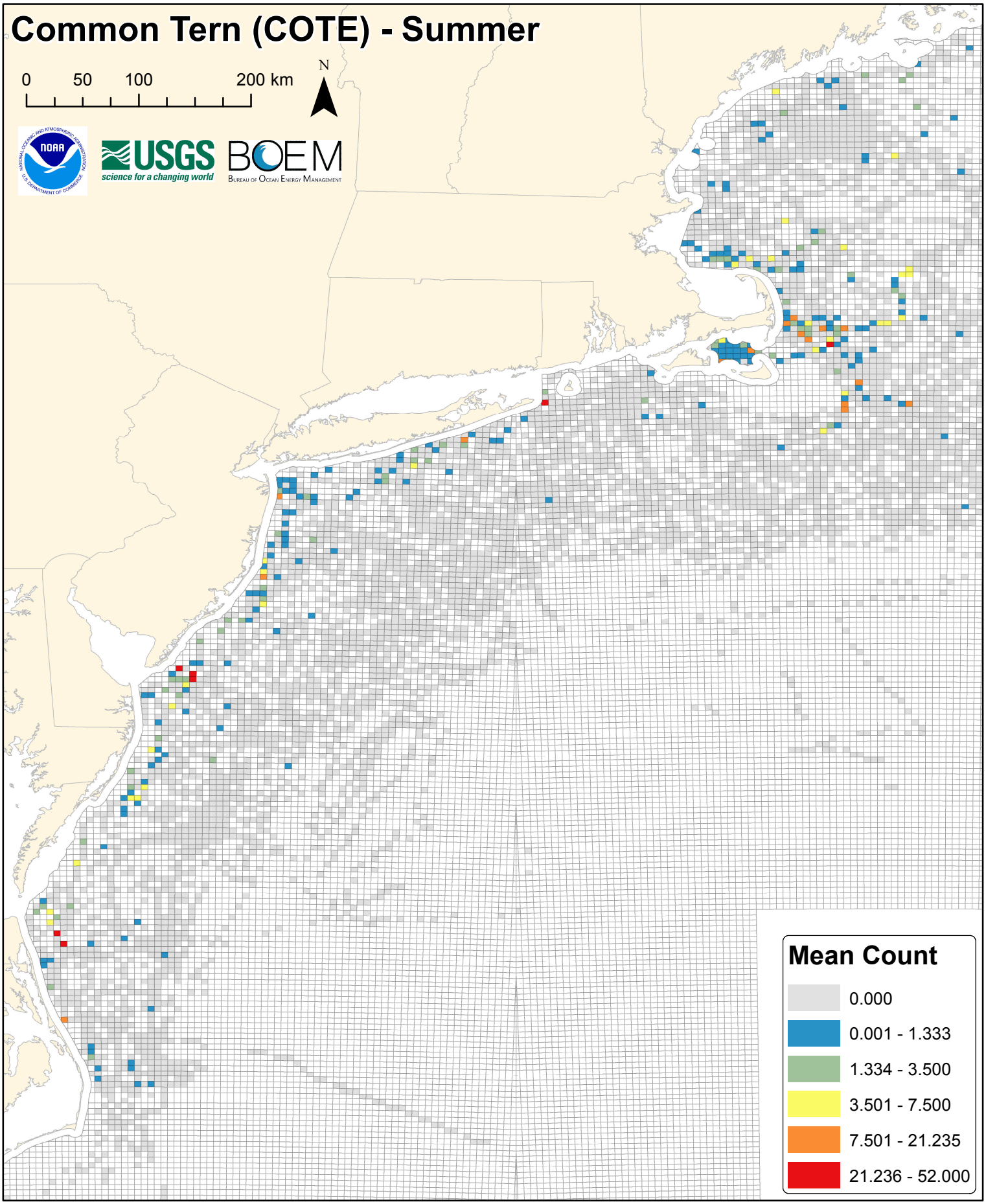

Great Black-backed Gull (GBBG) - Summer
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Mean Count
0.000
0.001 - 3.600
3.601 - 14.000
14.001 - 51.000
51.001 - 176.000
176.001 - 353.000

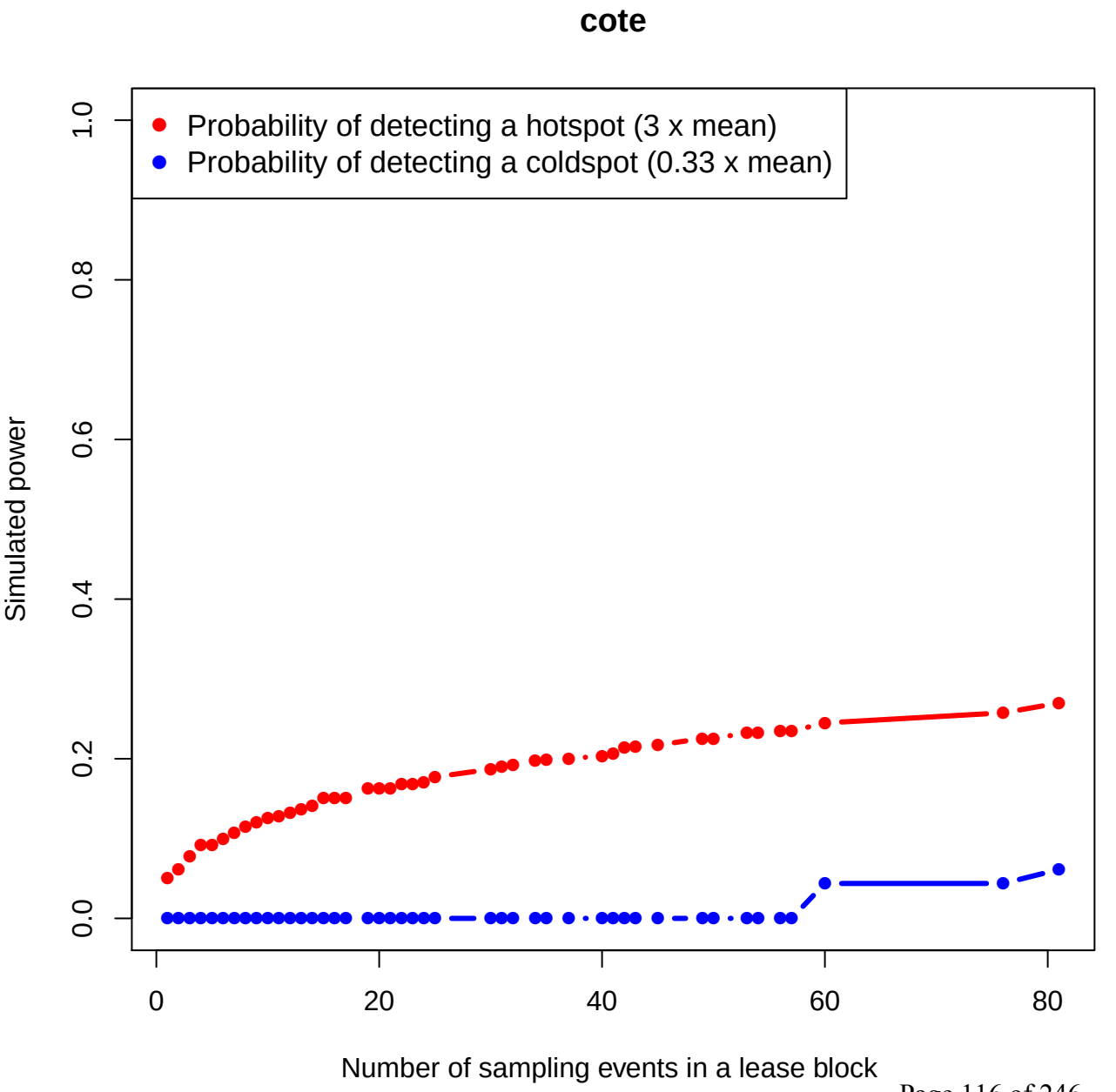

gbbg
Probability of detecting a hotspot (3 x mean)
Probability of detecting a coldspot (0.33 x mean)
Simulated power
0.0
0.2
0.4
0.6
0.8
1.0
0
20
40
60
80
Number of sampling events in a lease block

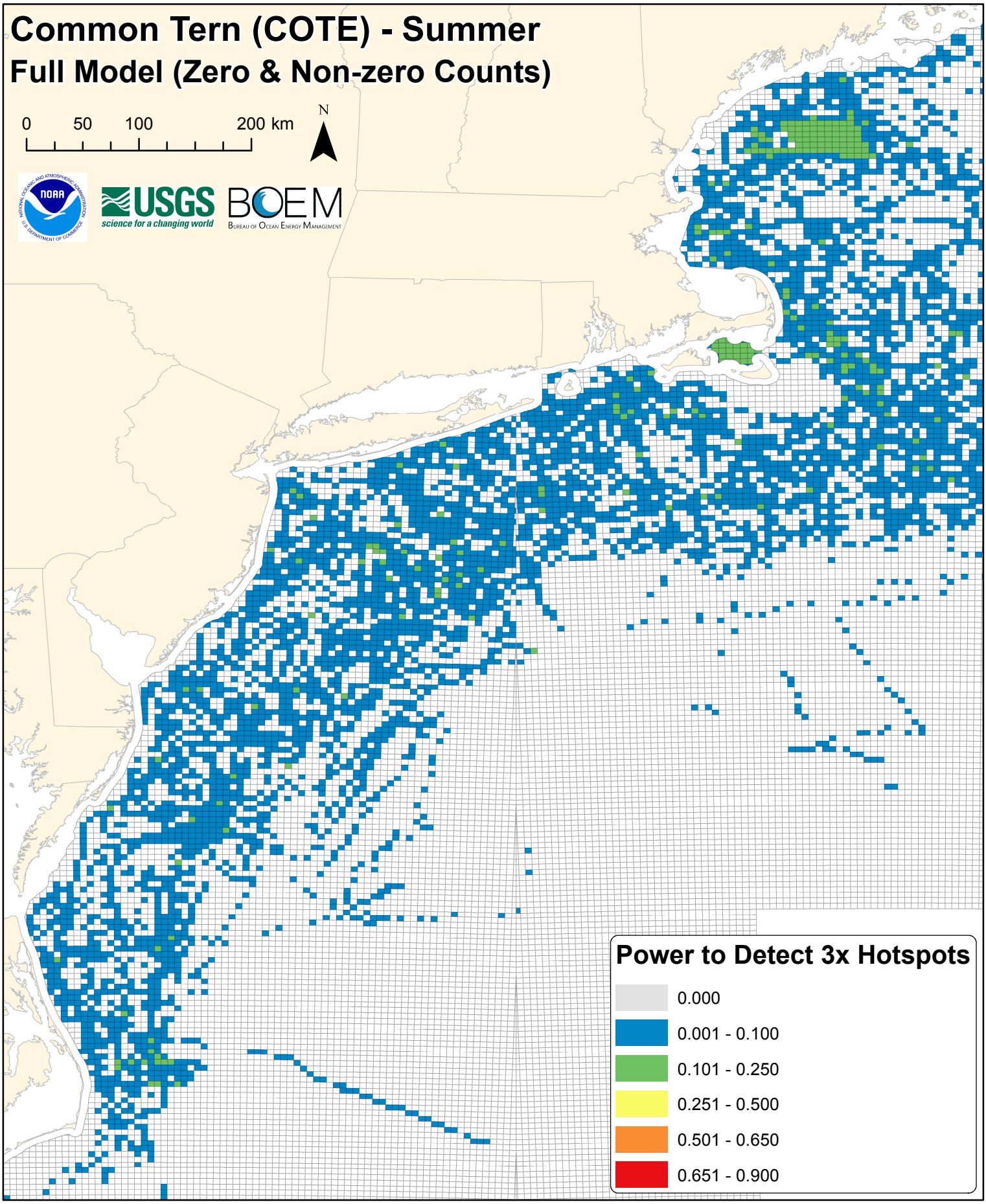

Great Black-backed Gull (GBBG) - Summer
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Power to Detect 3x Hotspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

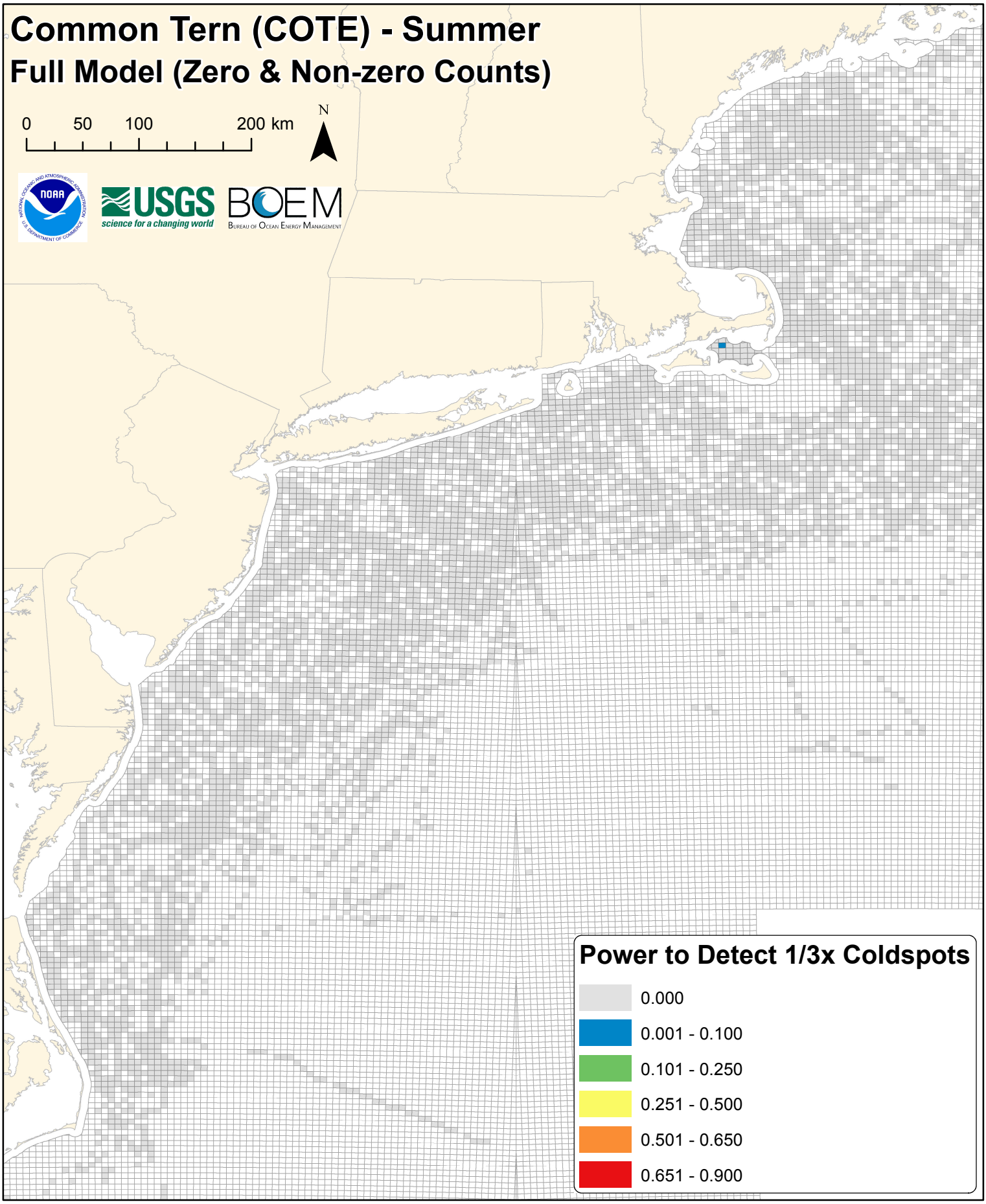

Great Black-backed Gull (GBBG) - Summer
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Power to Detect 1/3x Coldspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

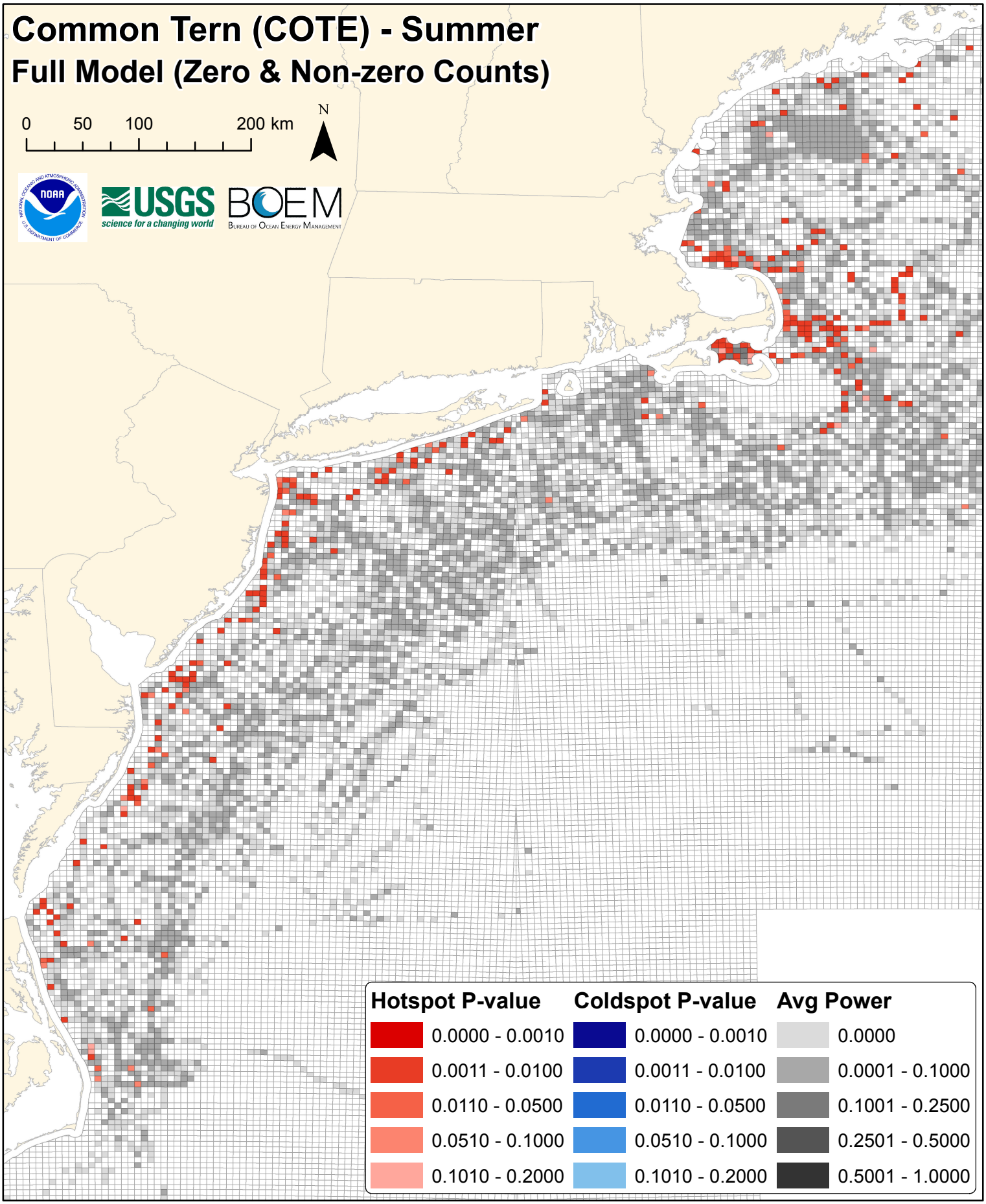

Great Black-backed Gull (GBBG) - Summer
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Hotspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Coldspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Avg Power
0.0000
0.0001 - 0.1000
0.1001 - 0.2500
0.2501 - 0.5000
0.5001 - 1.0000

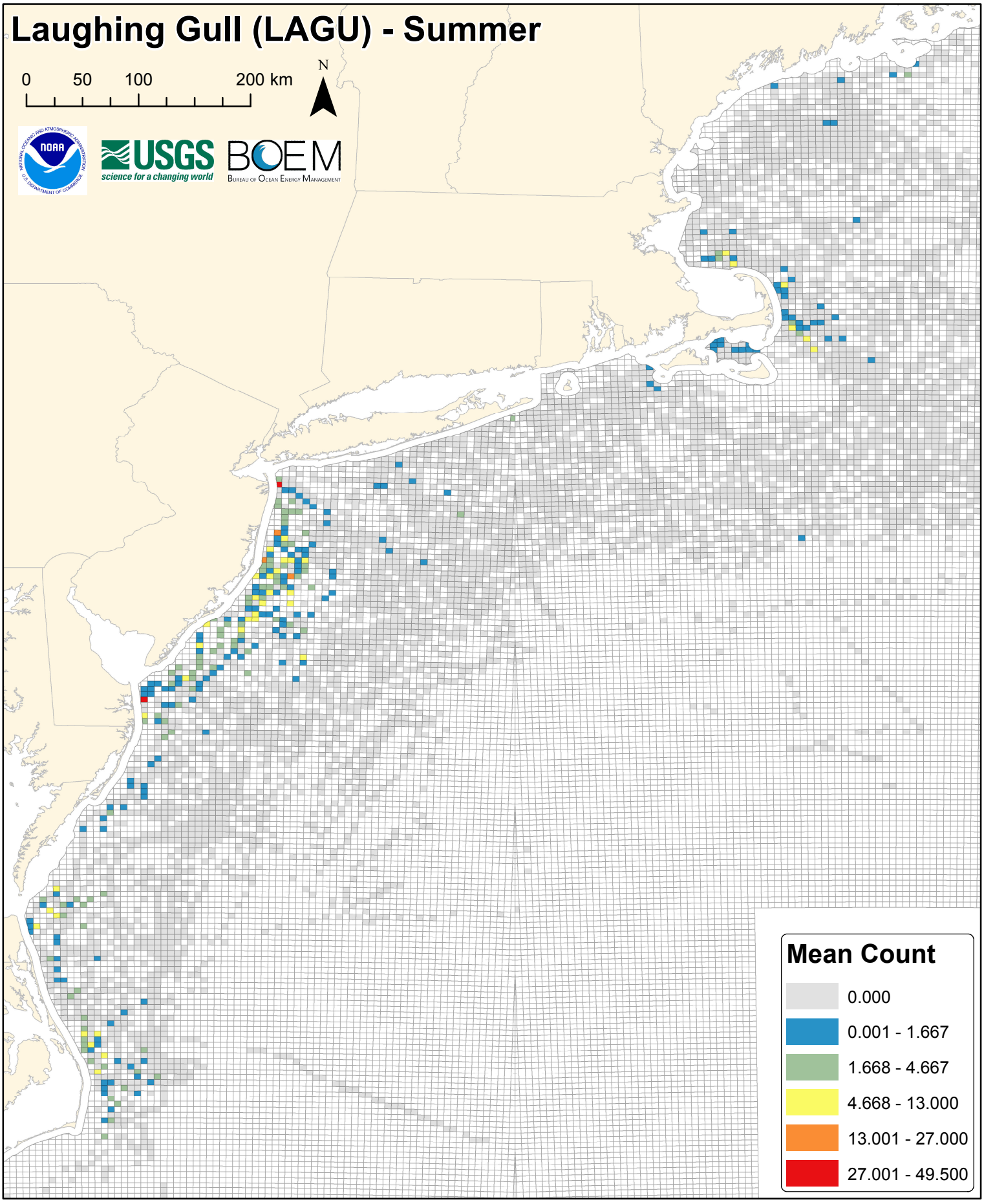

Common Tern (COTE) - Summer
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Mean Count
0.000
0.001 - 1.333
1.334 - 3.500
3.501 - 7.500
7.501 - 21.235
21.236 - 52.000

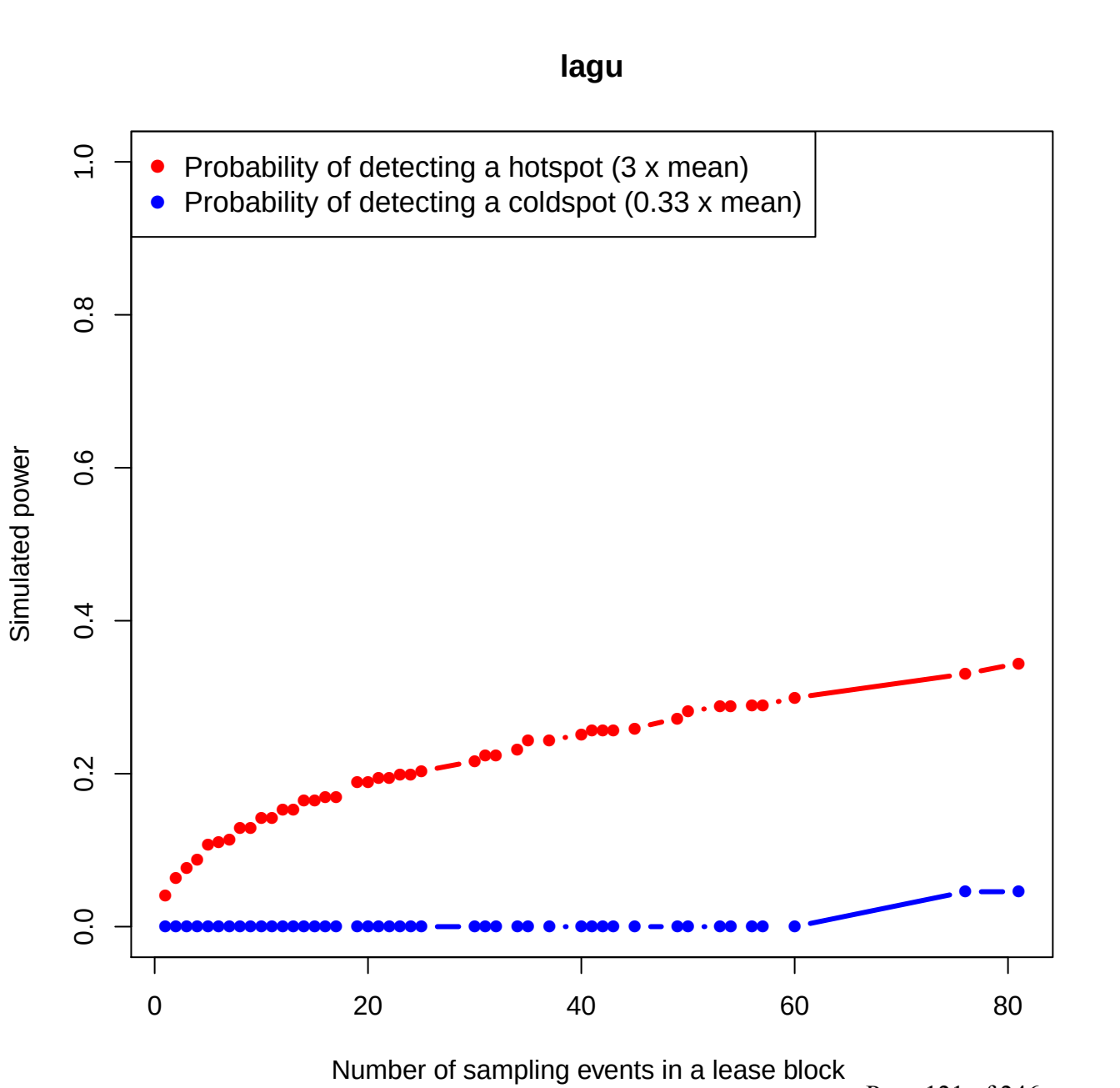

cote
Probability of detecting a hotspot (3 x mean)
Probability of detecting a coldspot (0.33 x mean)
Simulated power
0.0
0.2
0.4
0.6
0.8
1.0
0
20
40
60
80
Number of sampling events in a lease block

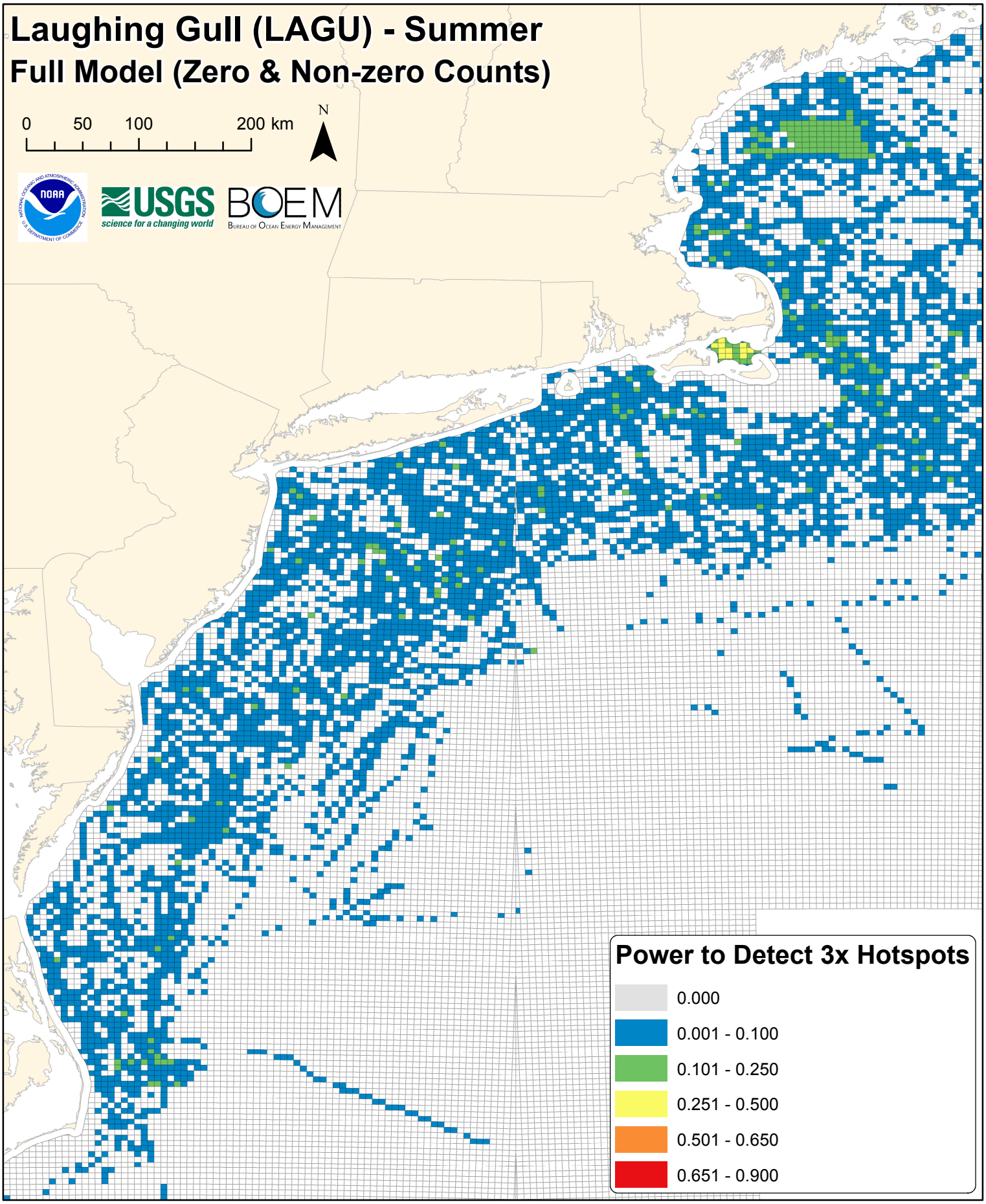

Common Tern (COTE) - Summer
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Power to Detect 3x Hotspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

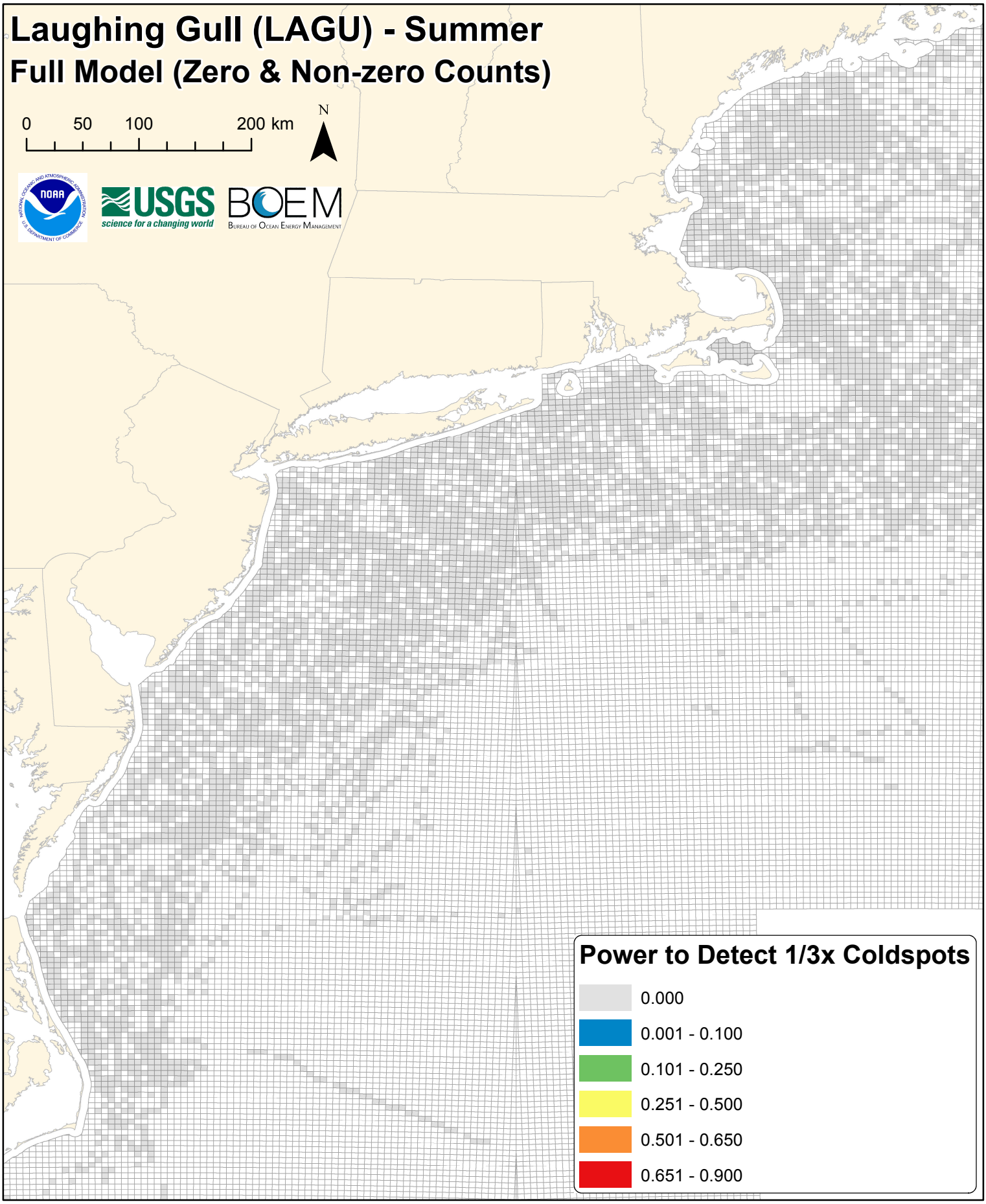

Common Tern (COTE) - Summer
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Power to Detect 1/3x Coldspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

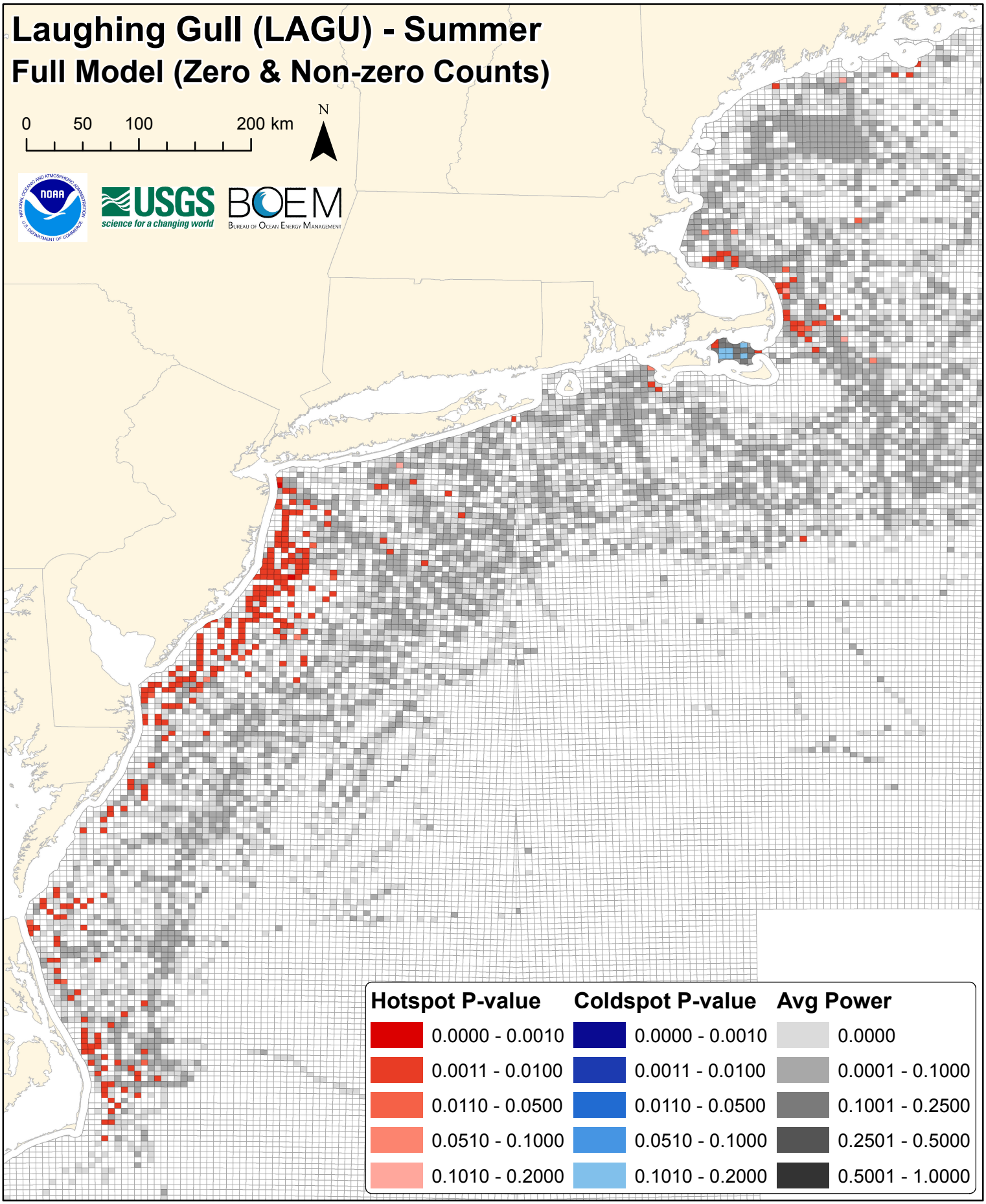

Common Tern (COTE) - Summer
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Hotspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Coldspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Avg Power
0.0000
0.0001 - 0.1000
0.1001 - 0.2500
0.2501 - 0.5000
0.5001 - 1.0000

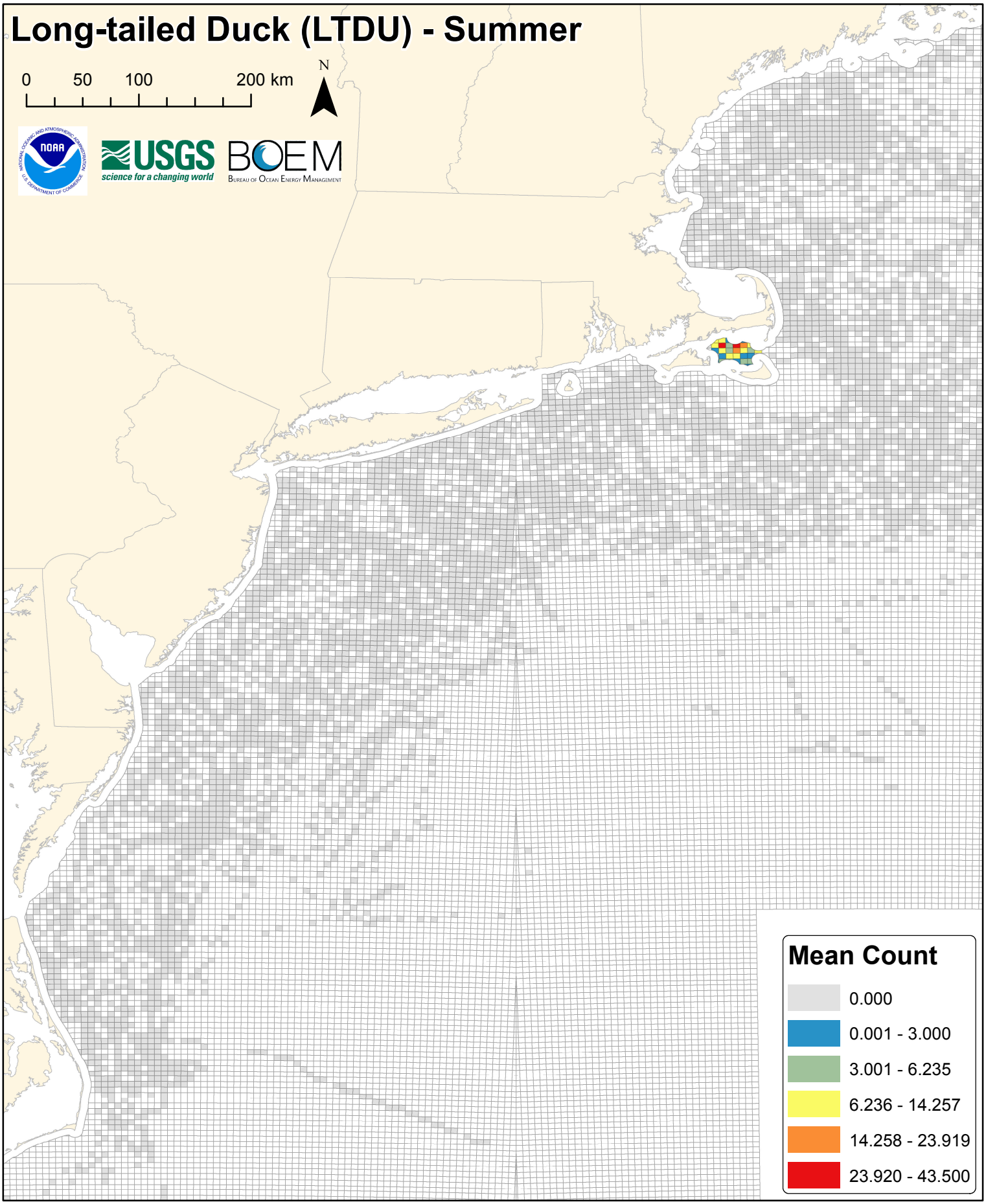

Laughing Gull (LAGU) - Summer
0
50
100
200 km
N
NOAA
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Mean Count
0.000
0.001 - 1.667
1.668 - 4.667
4.668 - 13.000
13.001 - 27.000
27.001 - 49.500

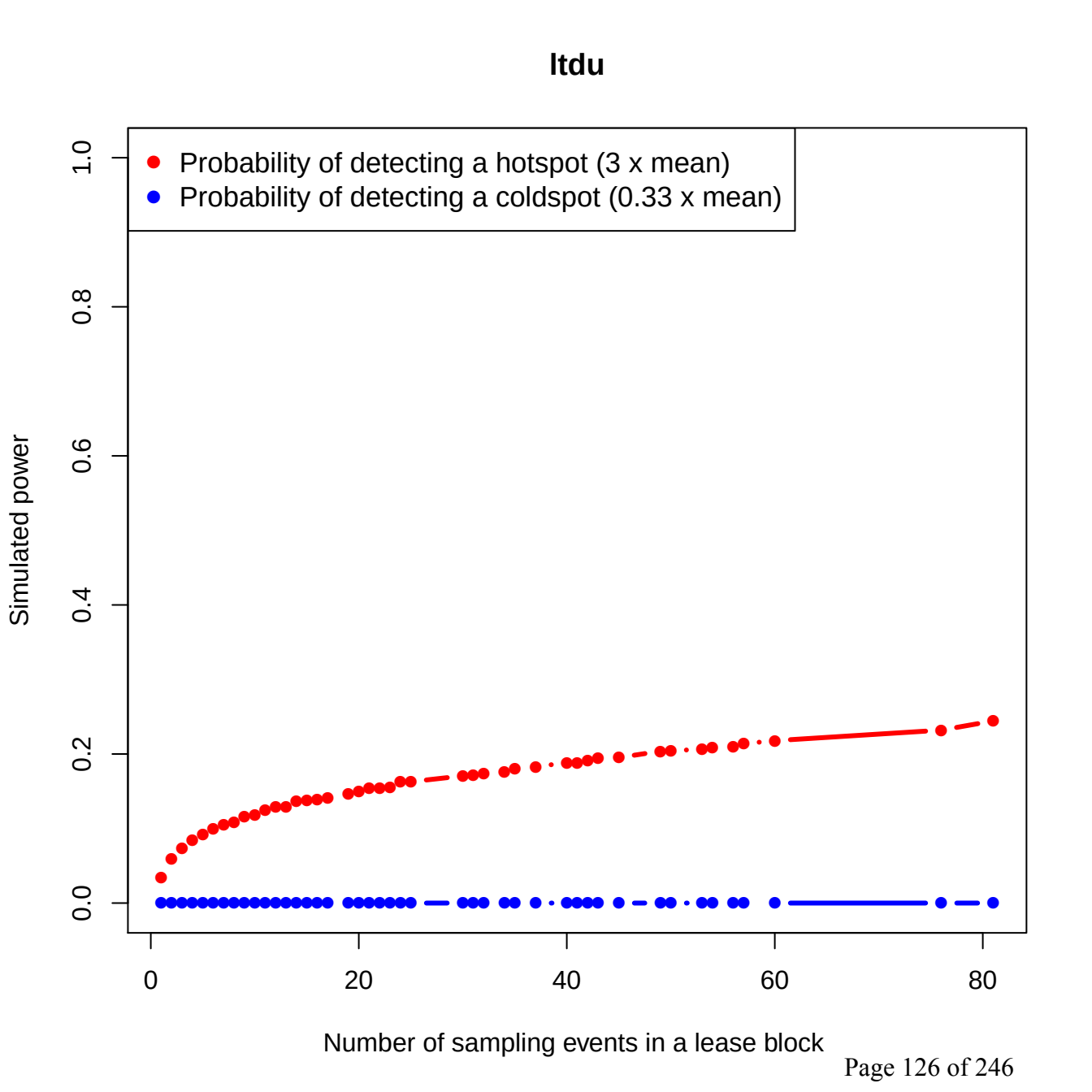

lagu
Probability of detecting a hotspot (3 x mean)
Probability of detecting a coldspot (0.33 x mean)
Simulated power
0.0
0.2
0.4
0.6
0.8
1.0
0
20
40
60
80
Number of sampling events in a lease block

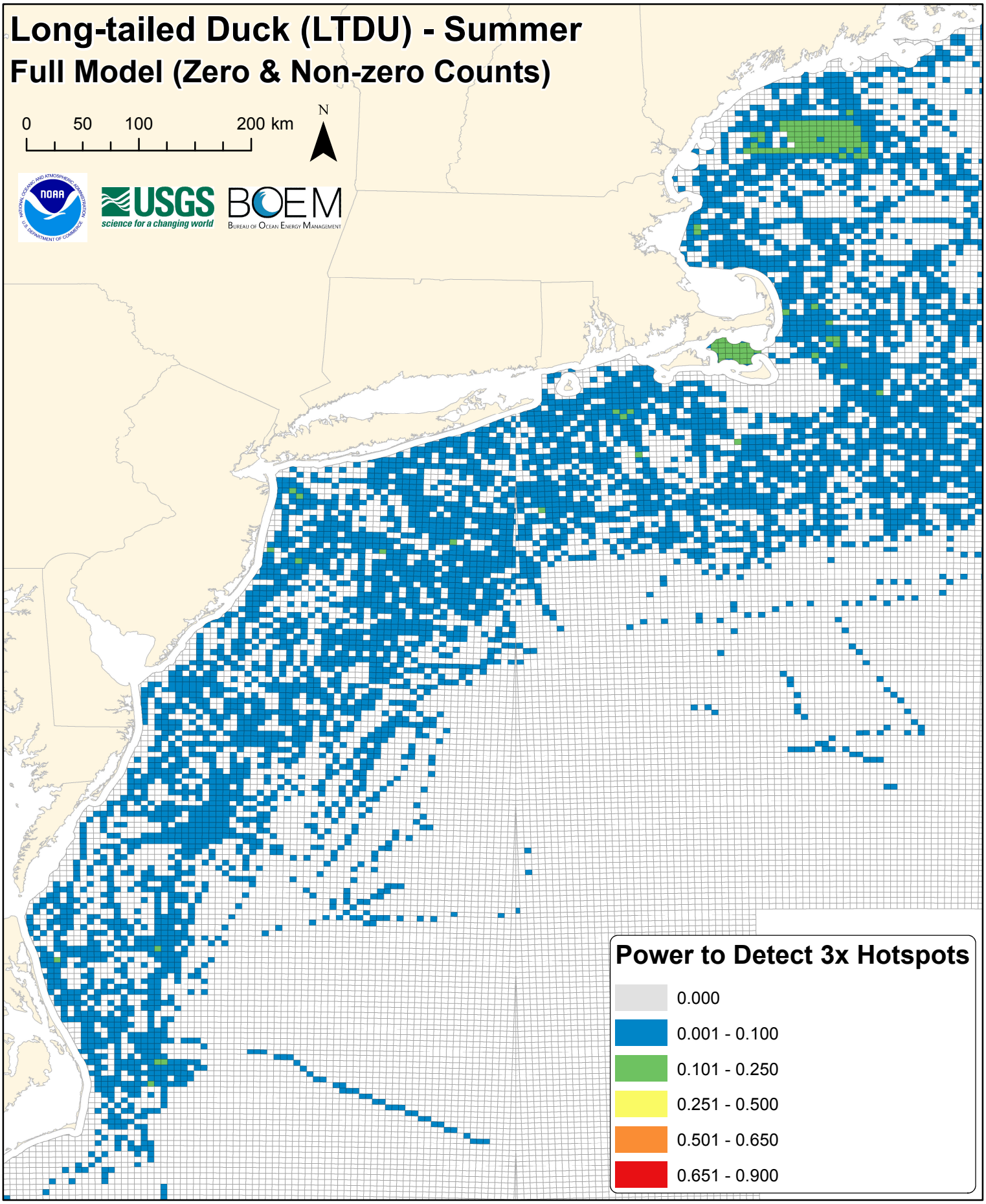

Laghing Gull (LAGU) - Summer
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Power to Detect 3x Hotspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

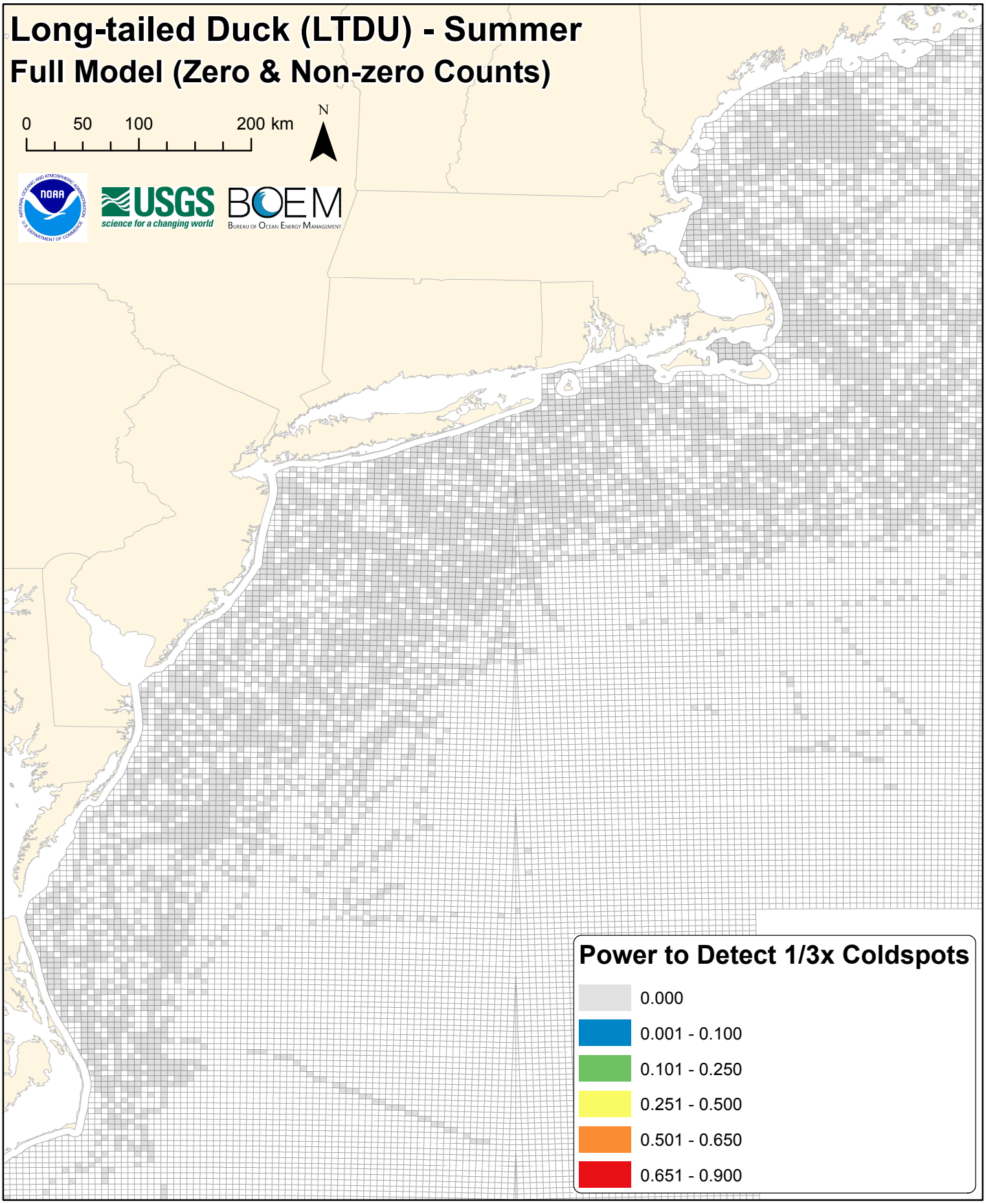

Laughing Gull (LAGU) - Summer
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Power to Detect 1/3x Coldspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

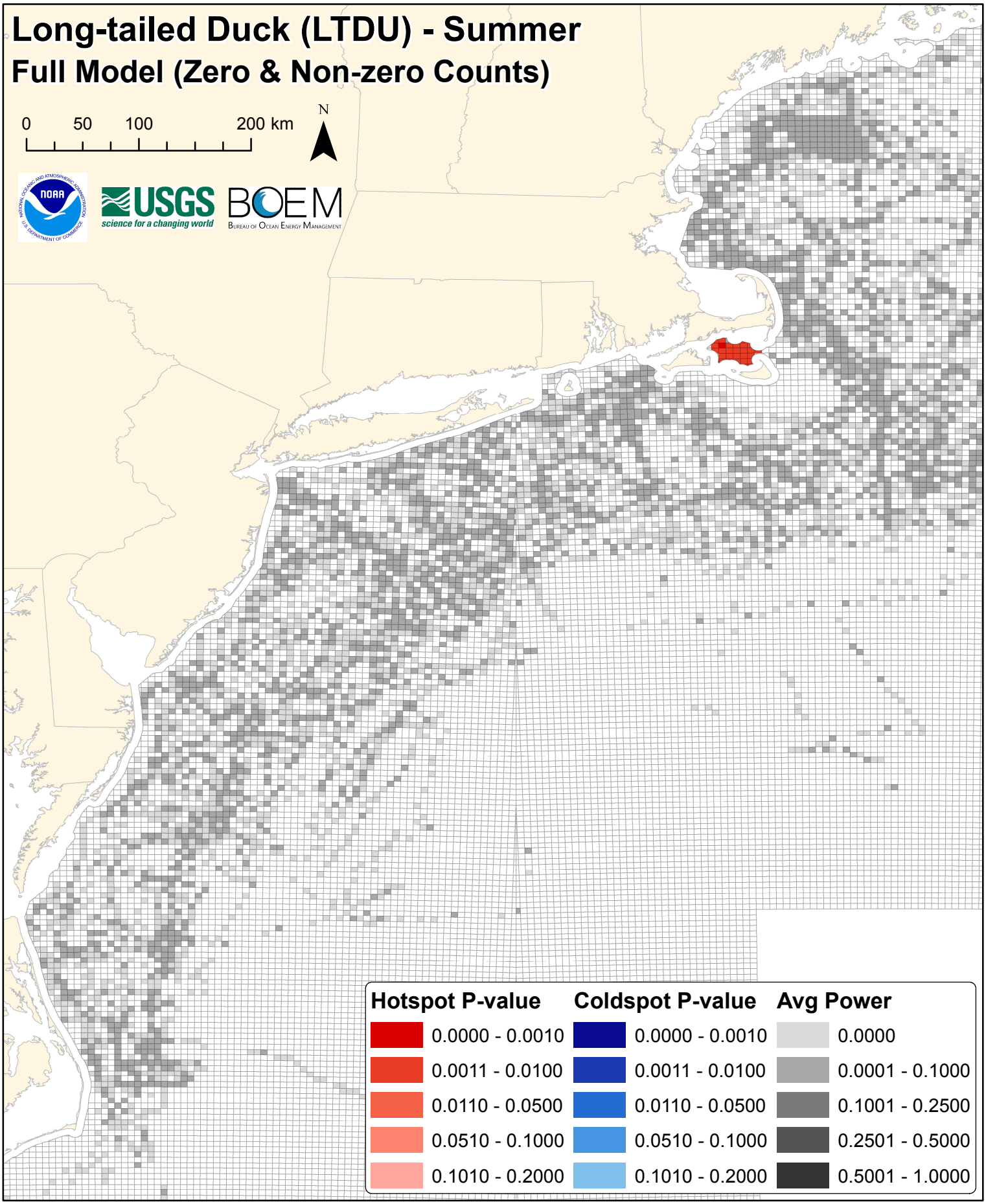

Laughing Gull (LAGU) - Summer
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Hotspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Coldspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Avg Power
0.0000
0.0001 - 0.1000
0.1001 - 0.2500
0.2501 - 0.5000
0.5001 - 1.0000

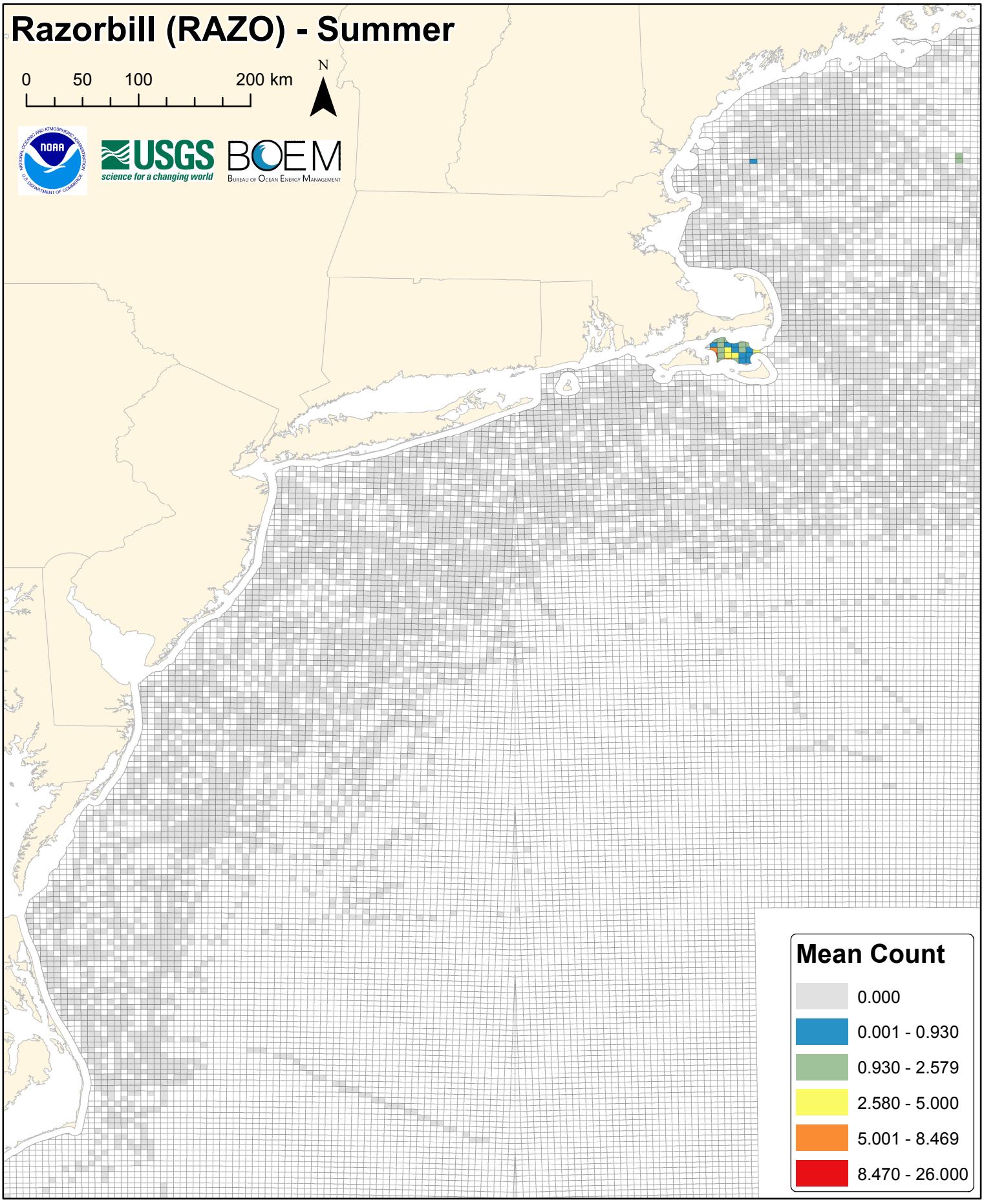

Long-tailed Duck (LTDU) - Summer
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Mean Count
0.000
0.001 - 3.000
3.001 - 6.235
6.236 - 14.257
14.258 - 23.919
23.920 - 43.500

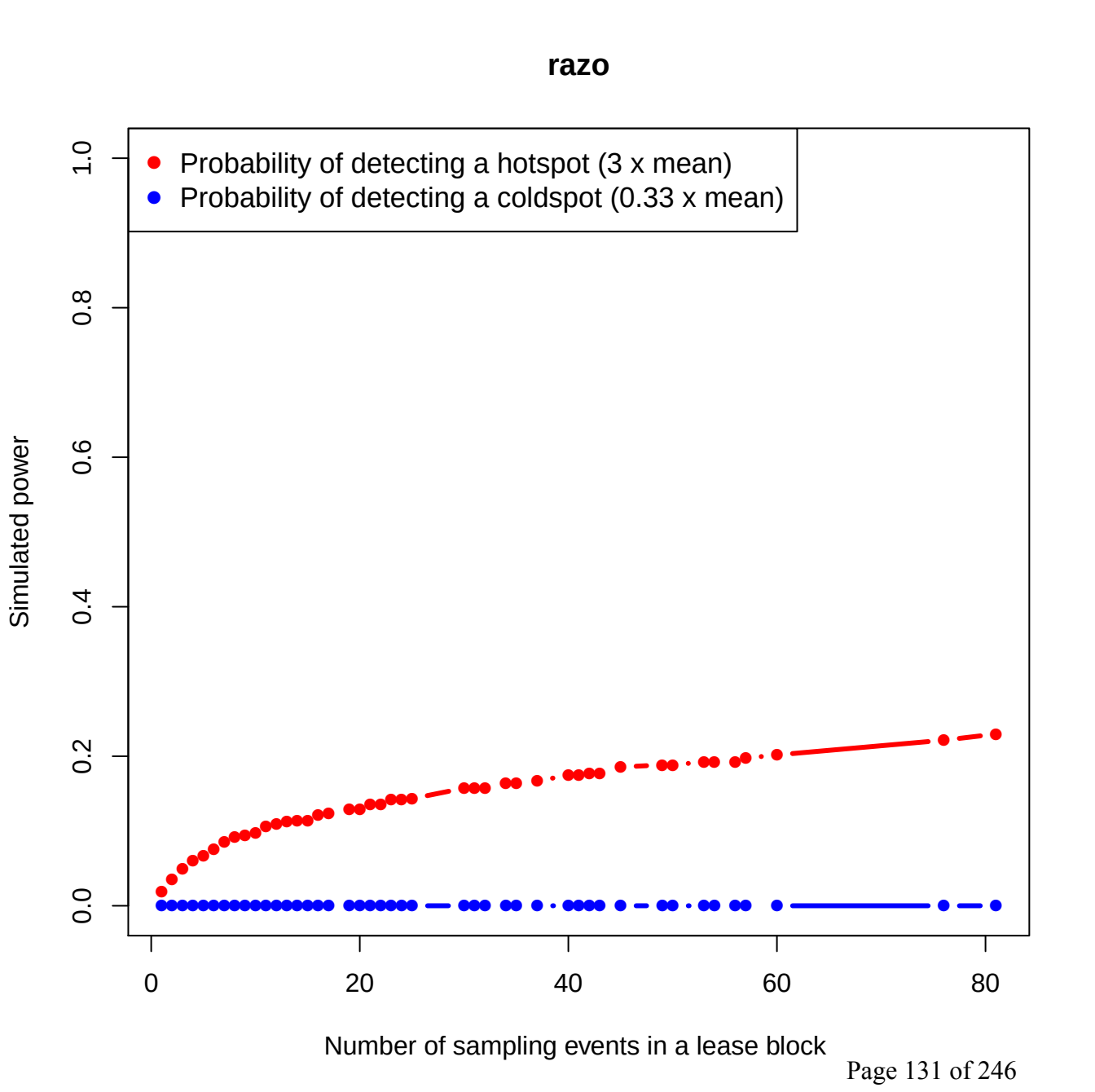

ltdu
Probability of detecting a hotspot (3 x mean)
Probability of detecting a coldspot (0.33 x mean)
Simulated power
0.0
0.2
0.4
0.6
0.8
1.0
0
20
40
60
80
Number of sampling events in a lease block

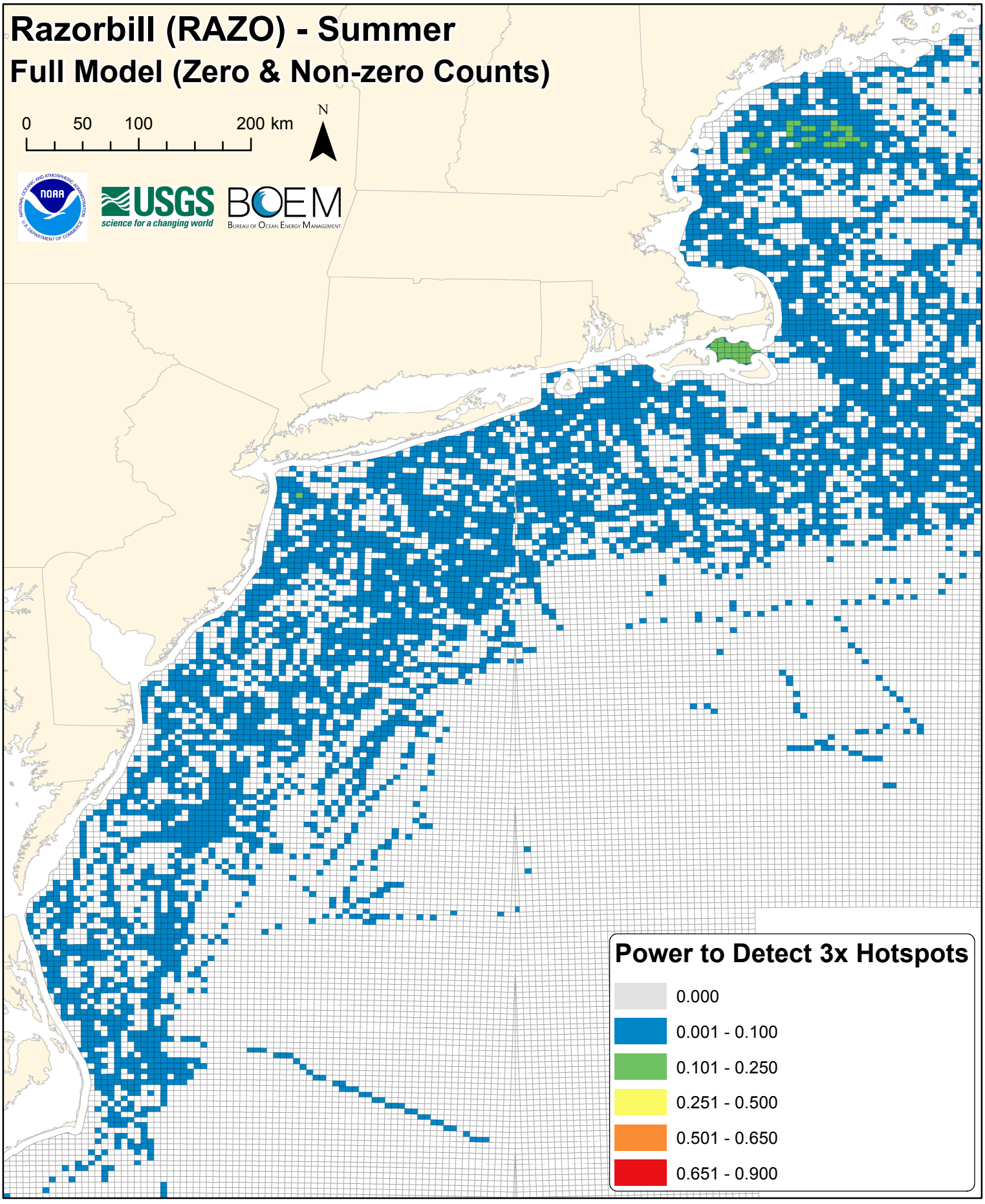

Long-tailed Duck (LTDU) - Summer
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Power to Detect 3x Hotspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

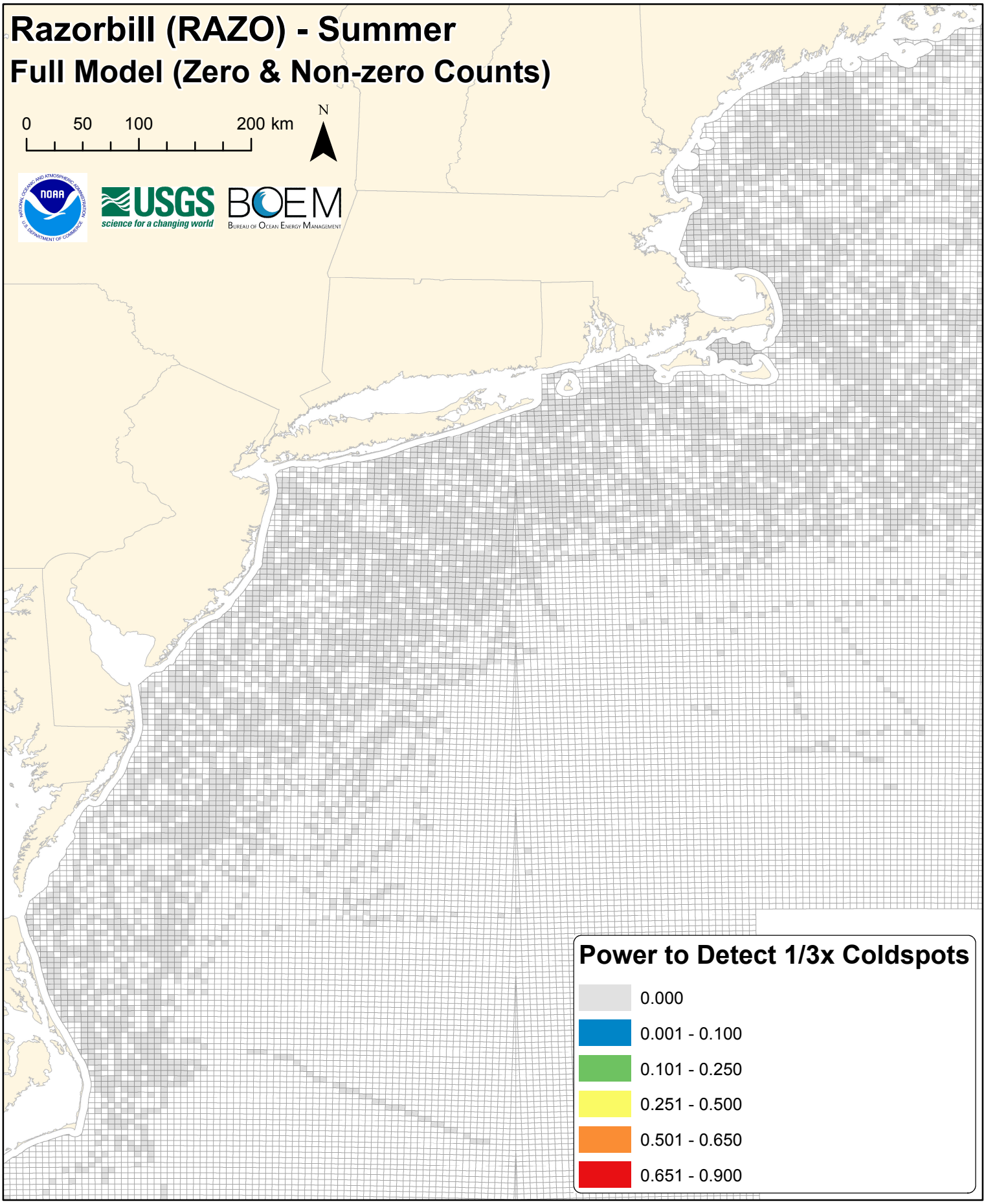

Long-tailed Duck (LTDU) - Summer
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Power to Detect 1/3x Coldspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

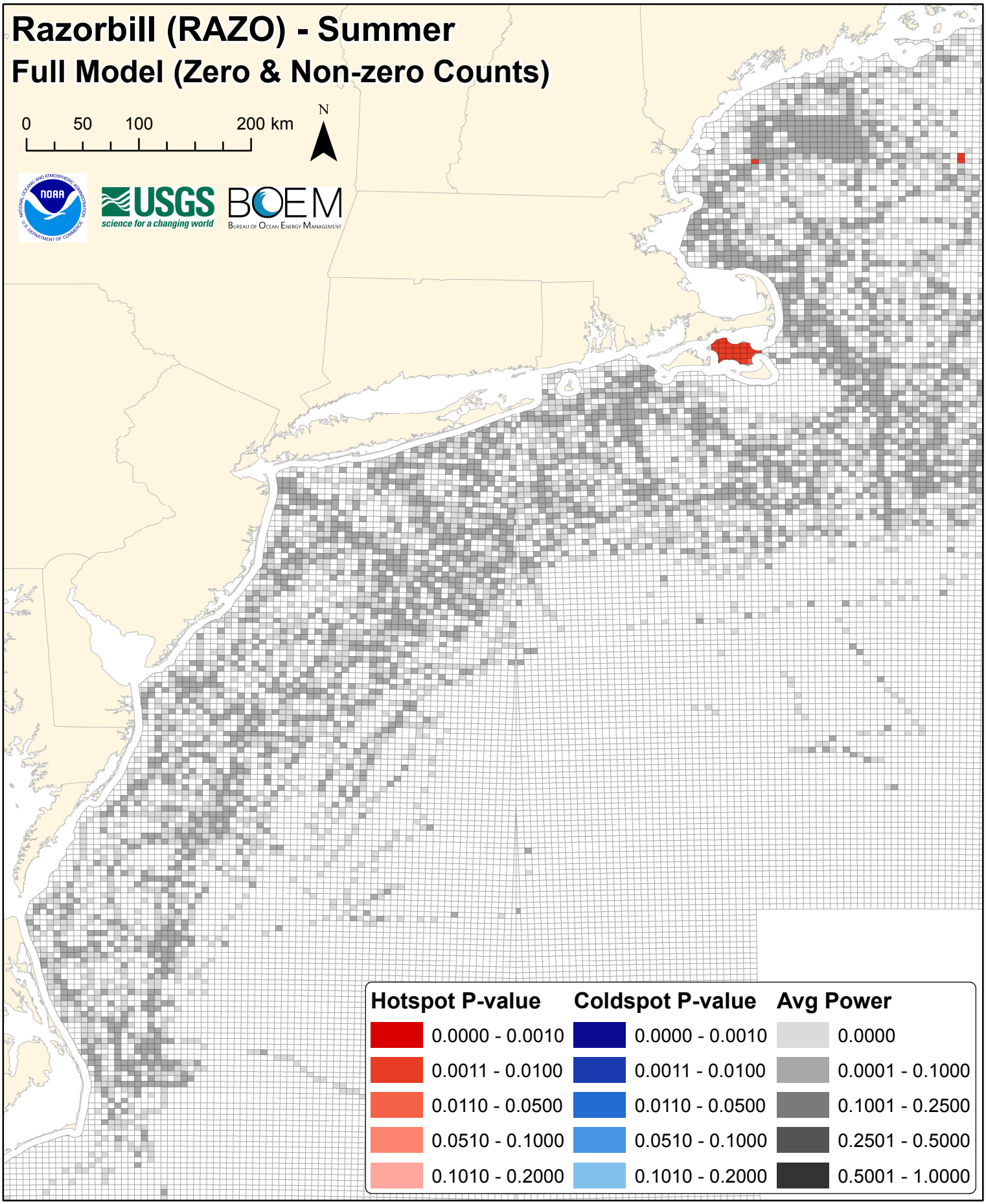

Long-tailed Duck (LTDU) - Summer
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Hotspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Coldspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Avg Power
0.0000
0.0001 - 0.1000
0.1001 - 0.2500
0.2501 - 0.5000
0.5001 - 1.0000


Razorbill (RAZO) - Summer
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Mean Count
0.000
0.001 - 0.930
0.930 - 2.579
2.580 - 5.000
5.001 - 8.469
8.470 - 26.000


razo
Probability of detecting a hotspot (3 x mean)
Probability of detecting a coldspot (0.33 x mean)
Simulated power
0.0
0.2
0.4
0.6
0.8
1.0
0
20
40
60
80
Number of sampling events in a lease block


Razorbill (RAZO) - Summer
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Power to Detect 3x Hotspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900


Razorbill (RAZO) - Summer
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
NOAA
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
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

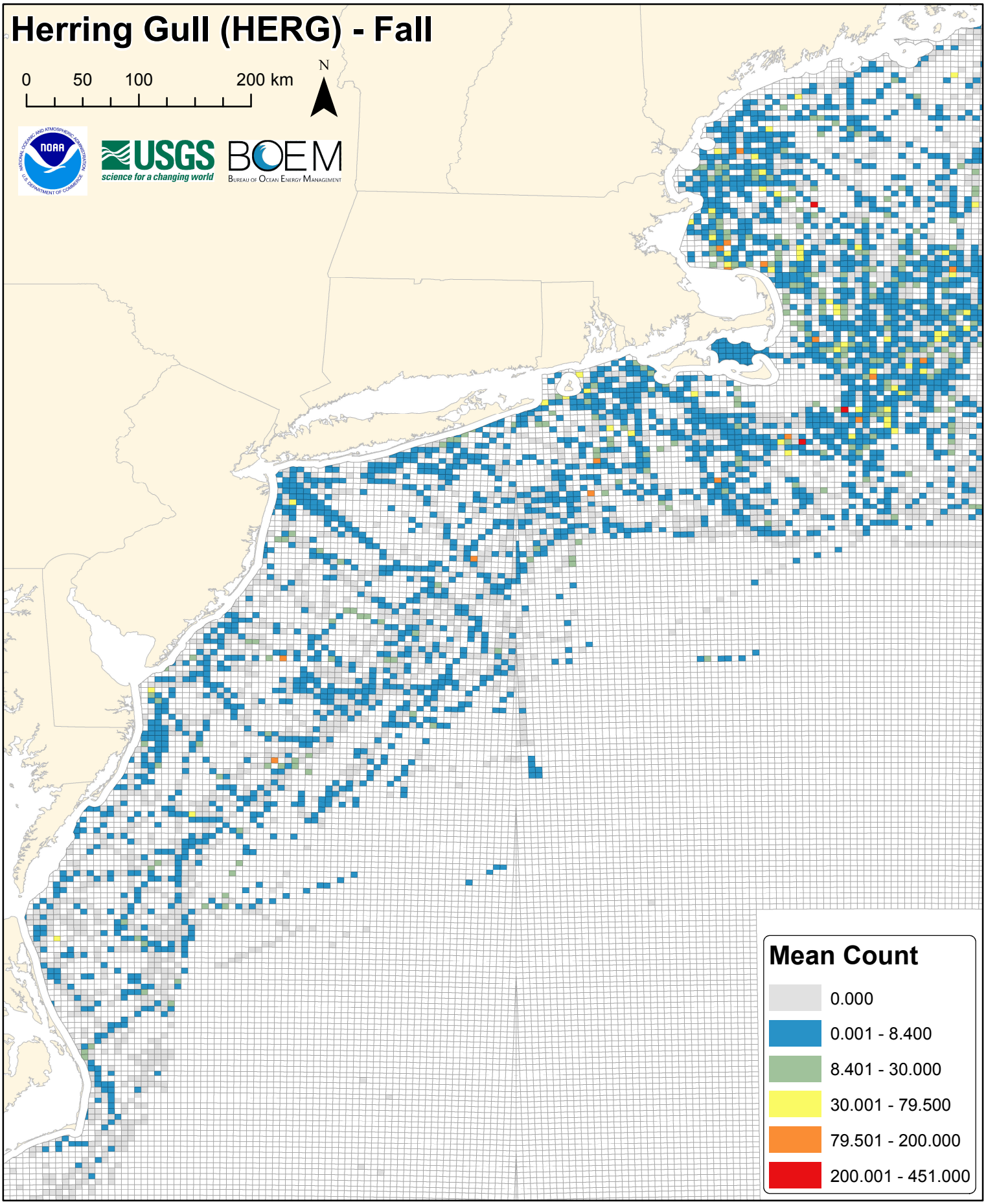

Razorbill (RAZO) - Summer
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
NOAA
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Hotspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Coldspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Avg Power
0.0000
0.0001 - 0.1000
0.1001 - 0.2500
0.2501 - 0.5000
0.5001 - 1.0000

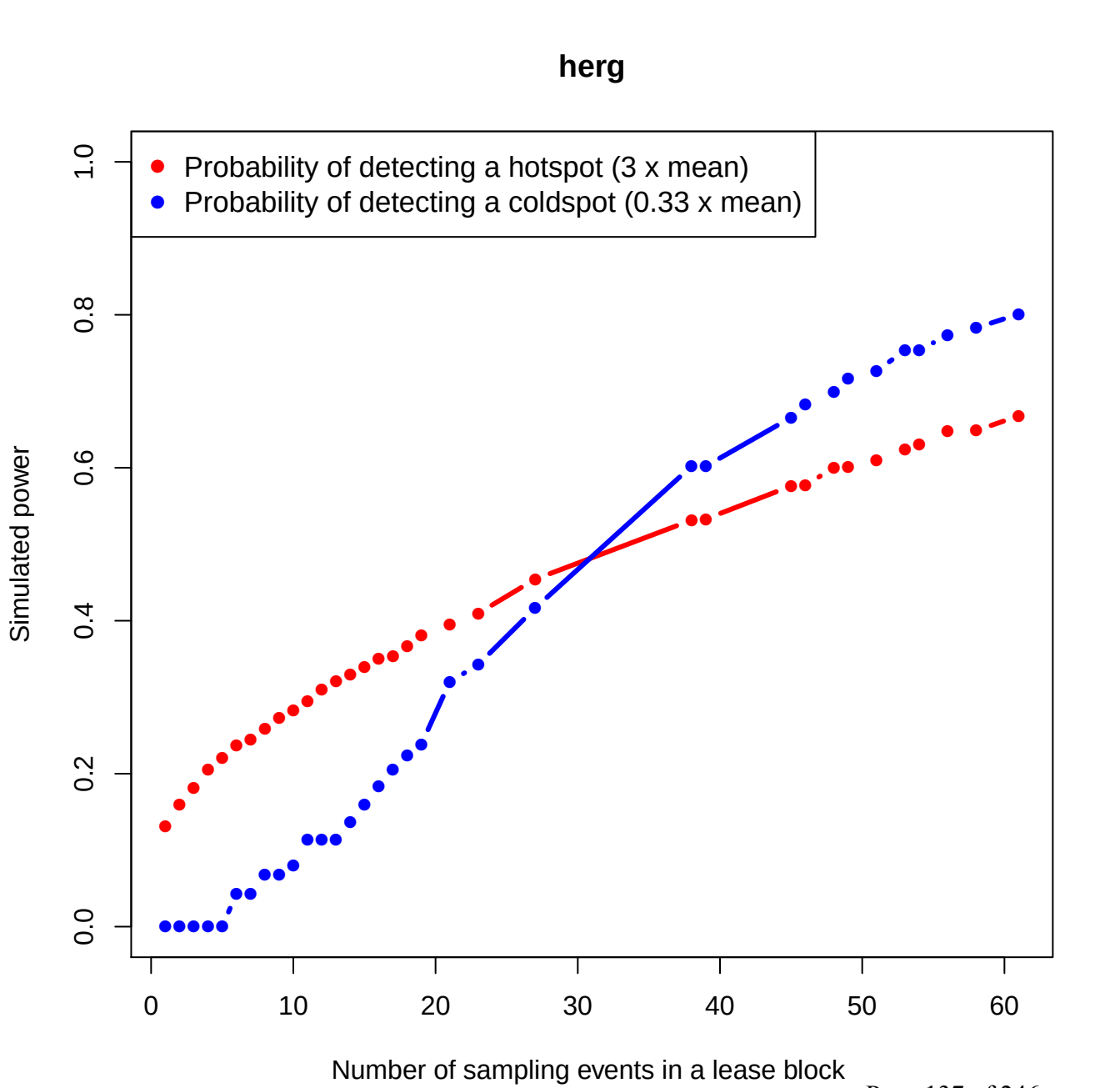
DIGITAL SUPPLEMENT G

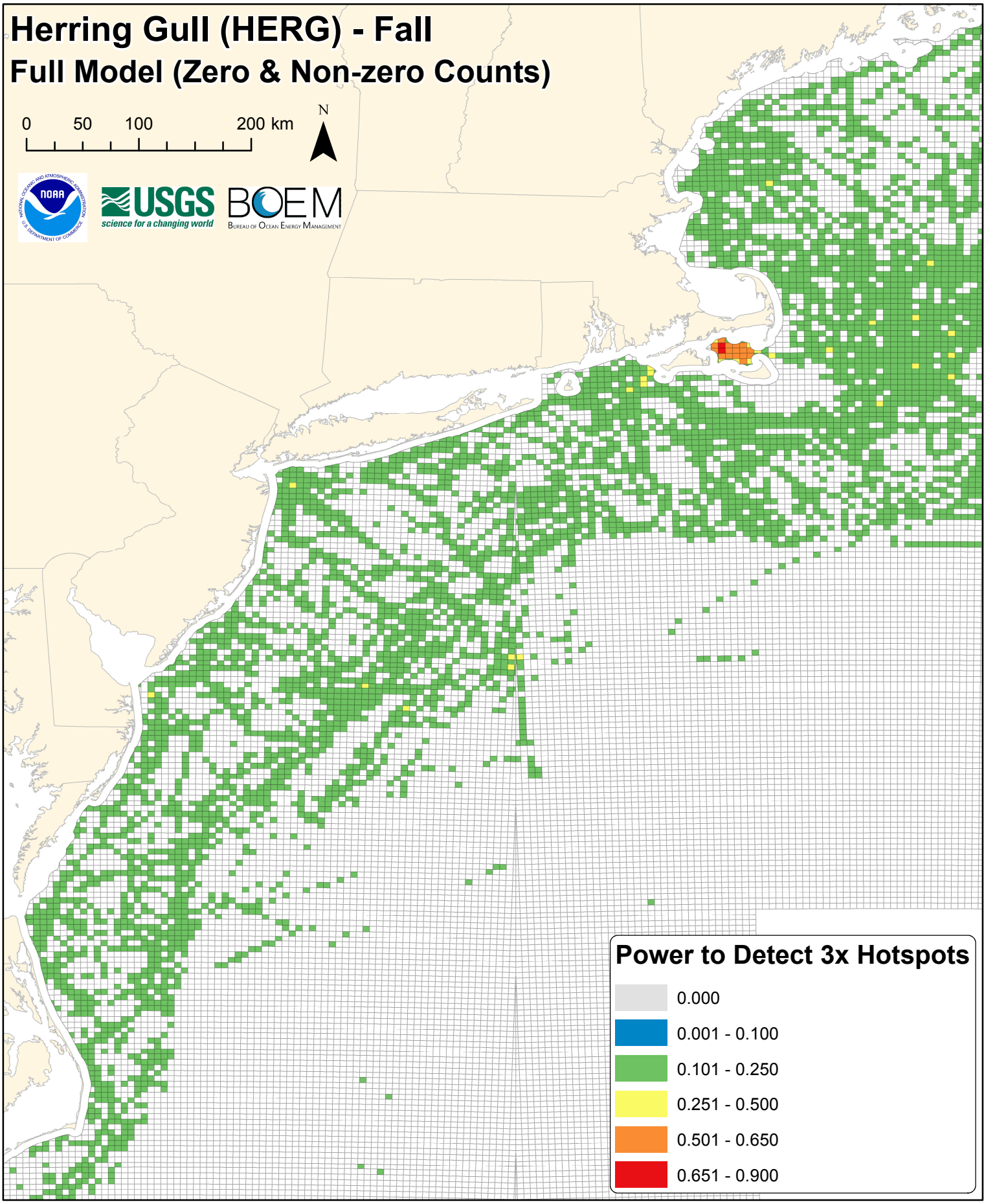
Full Hurdle Model (Zero & Non-Zero Counts) Results

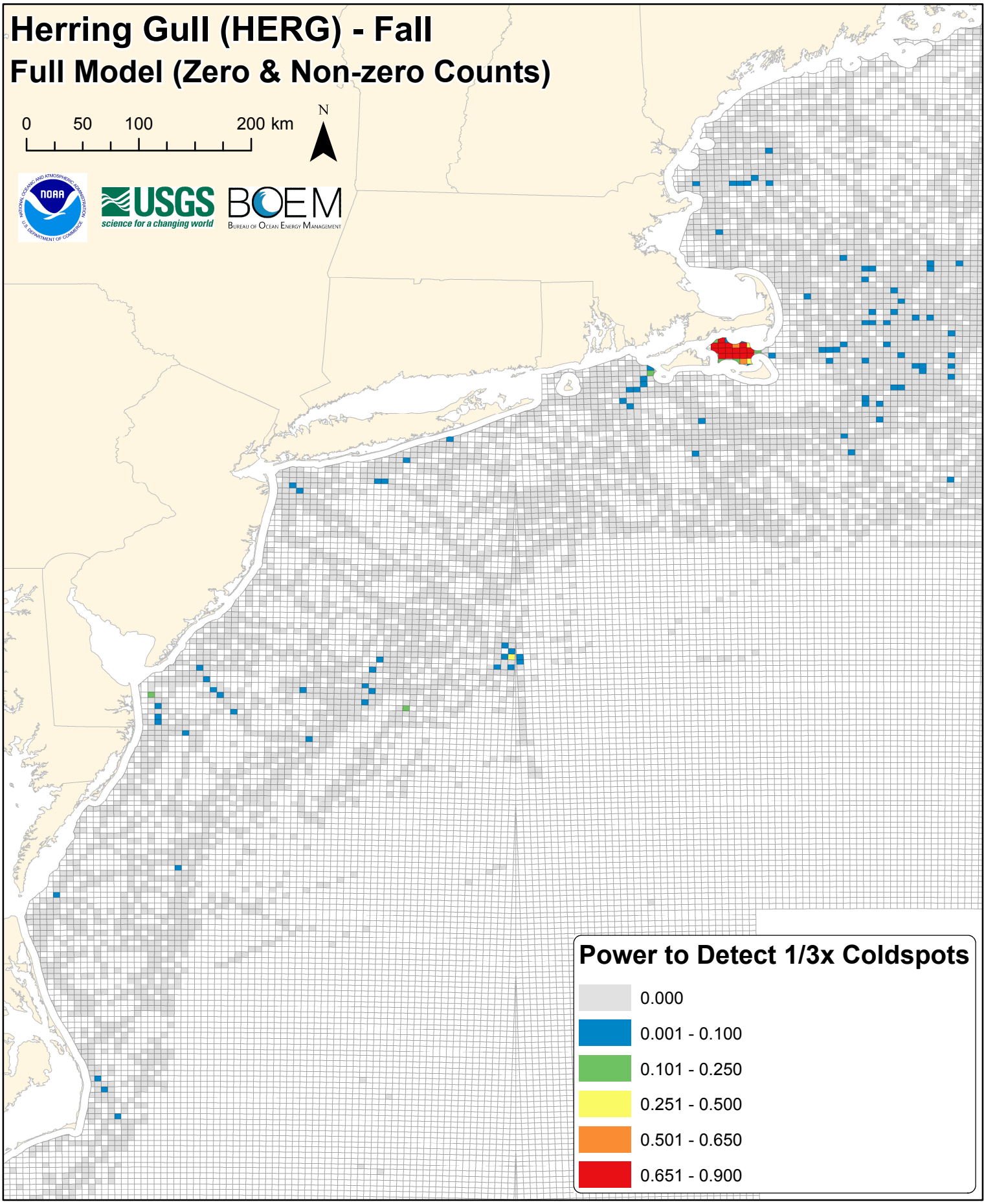
SECTION II. Species-specific Power Analysis Maps and Figures

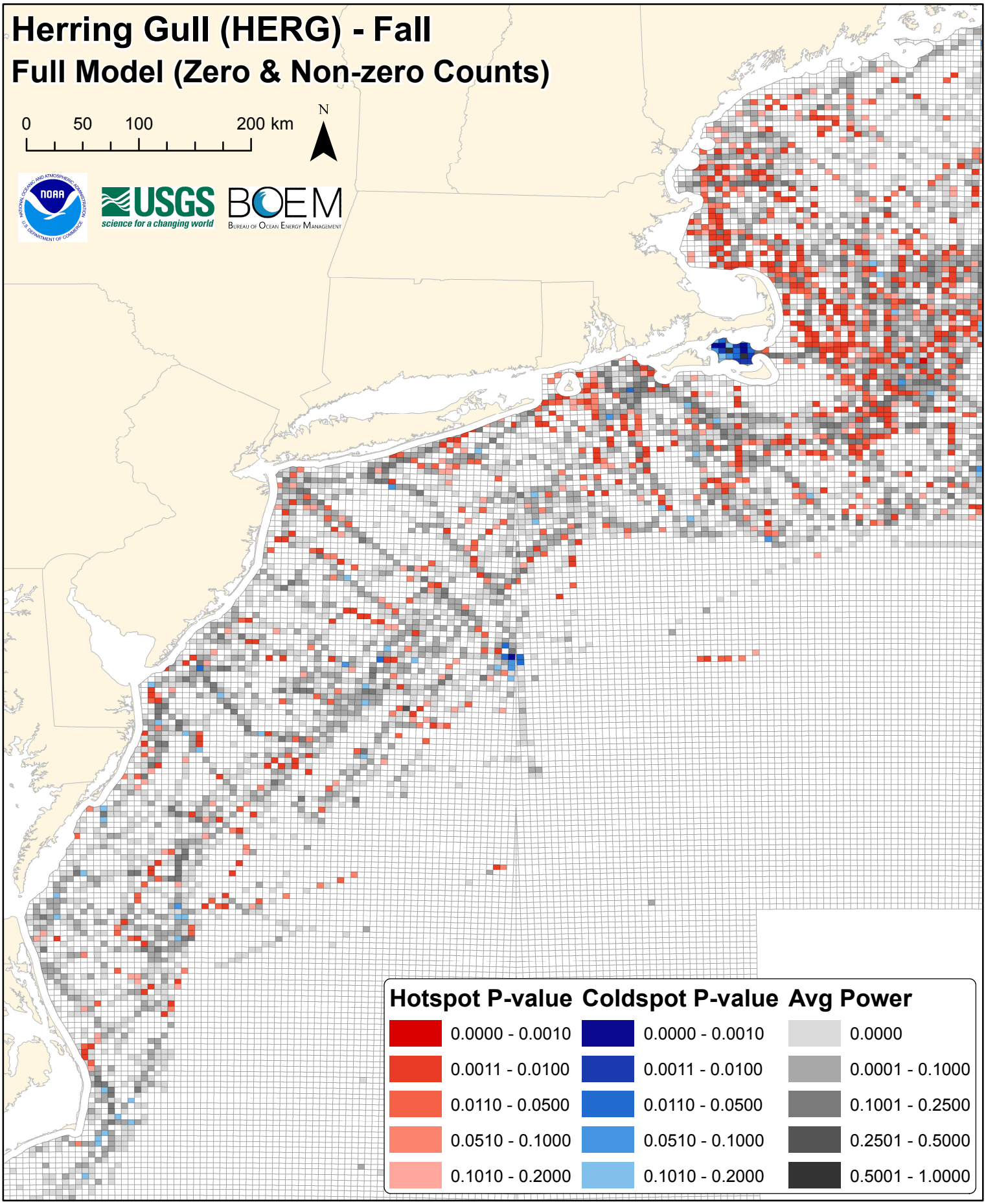
Figures G126-G185. Fall power analysis maps and figures (12 species x 5 figures per species).

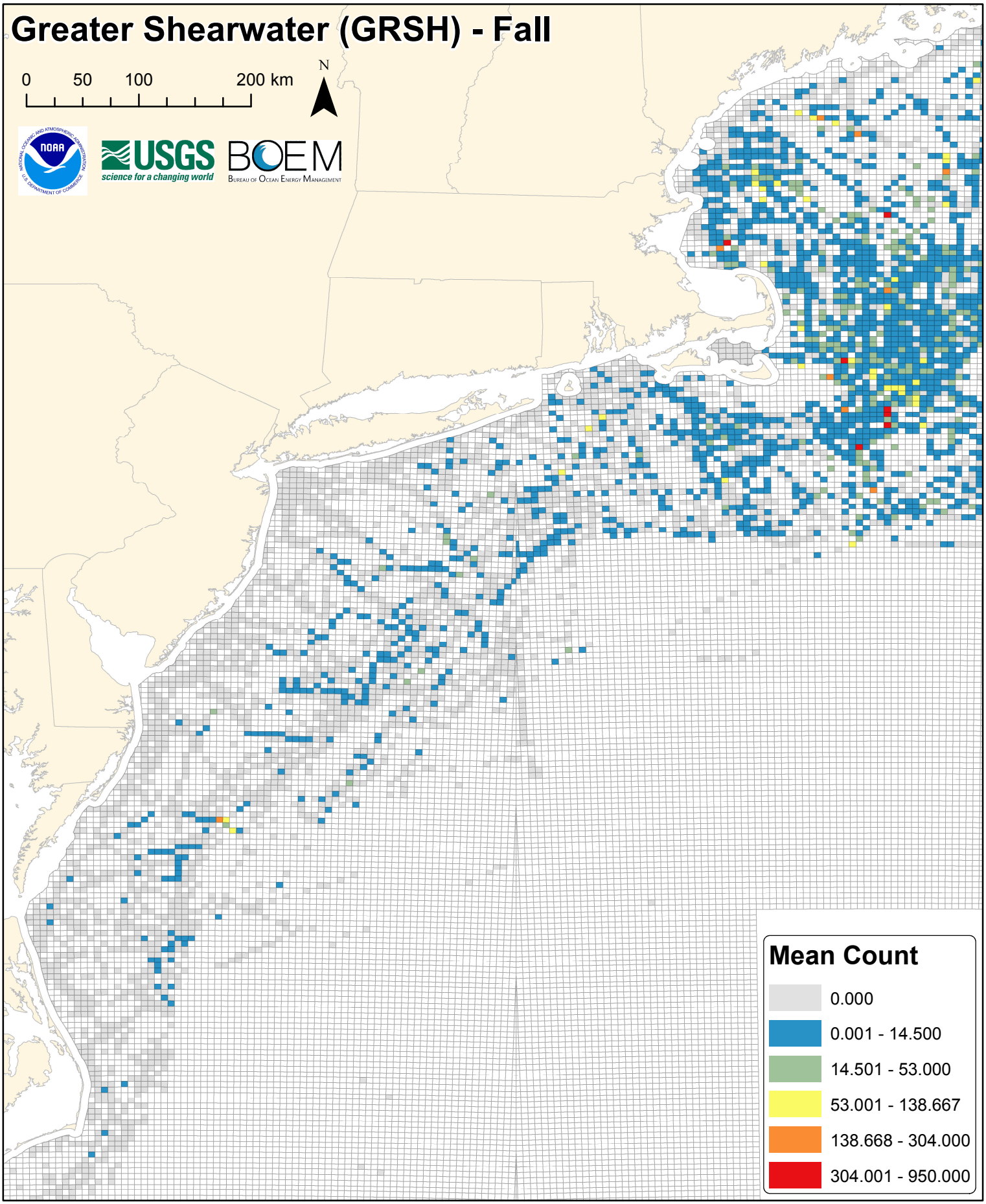

Herring Gull (HERG) - Fall
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Mean Count
0.000
0.001 - 8.400
8.401 - 30.000
30.001 - 79.500
79.501 - 200.000
200.001 - 451.000

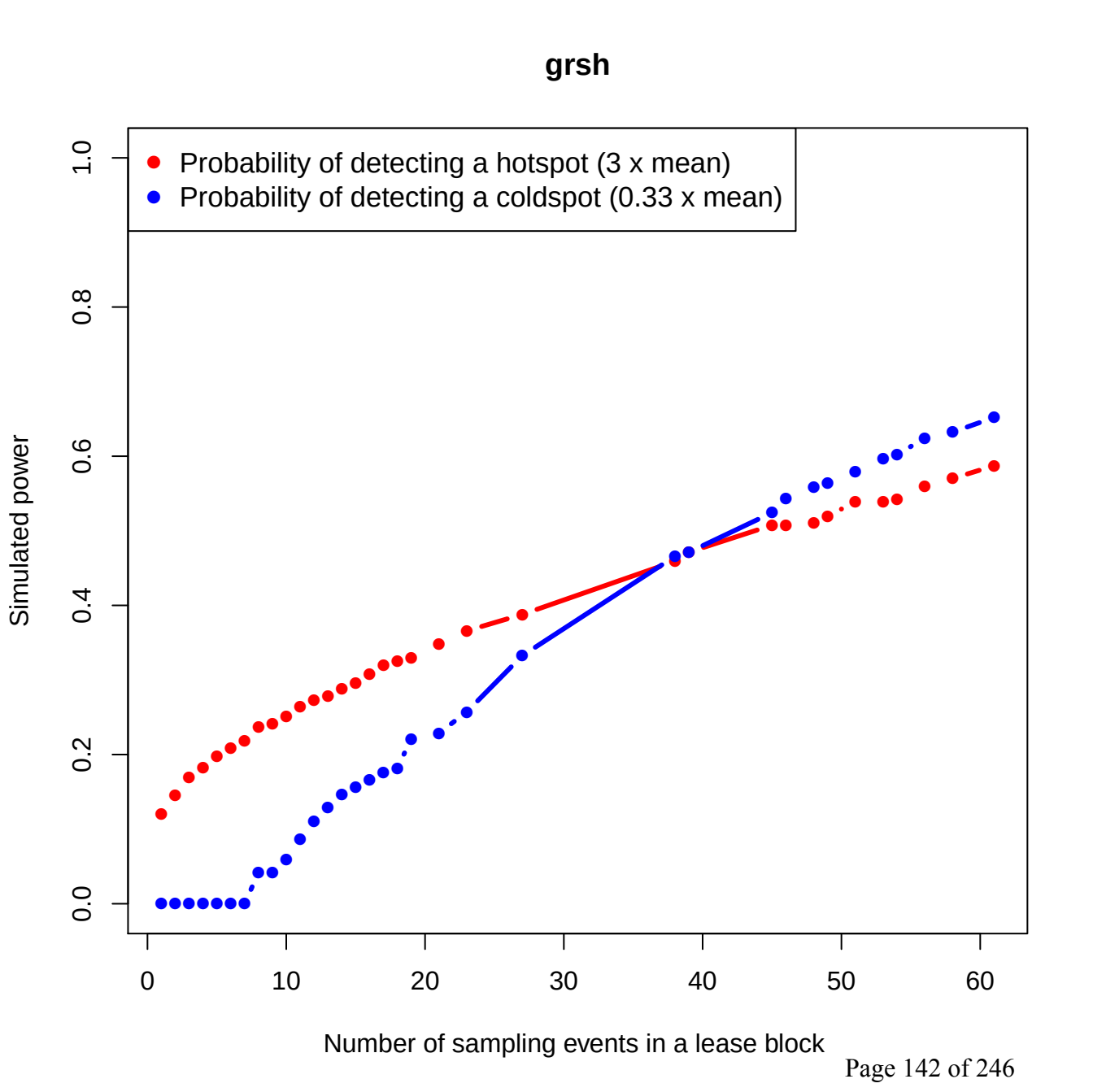

herg
Probability of detecting a hotspot (3 x mean)
Probability of detecting a coldspot (0.33 x mean)
Simulated power
0.0
0.2
0.4
0.6
0.8
1.0
0
10
20
30
40
50
60
Number of sampling events in a lease block

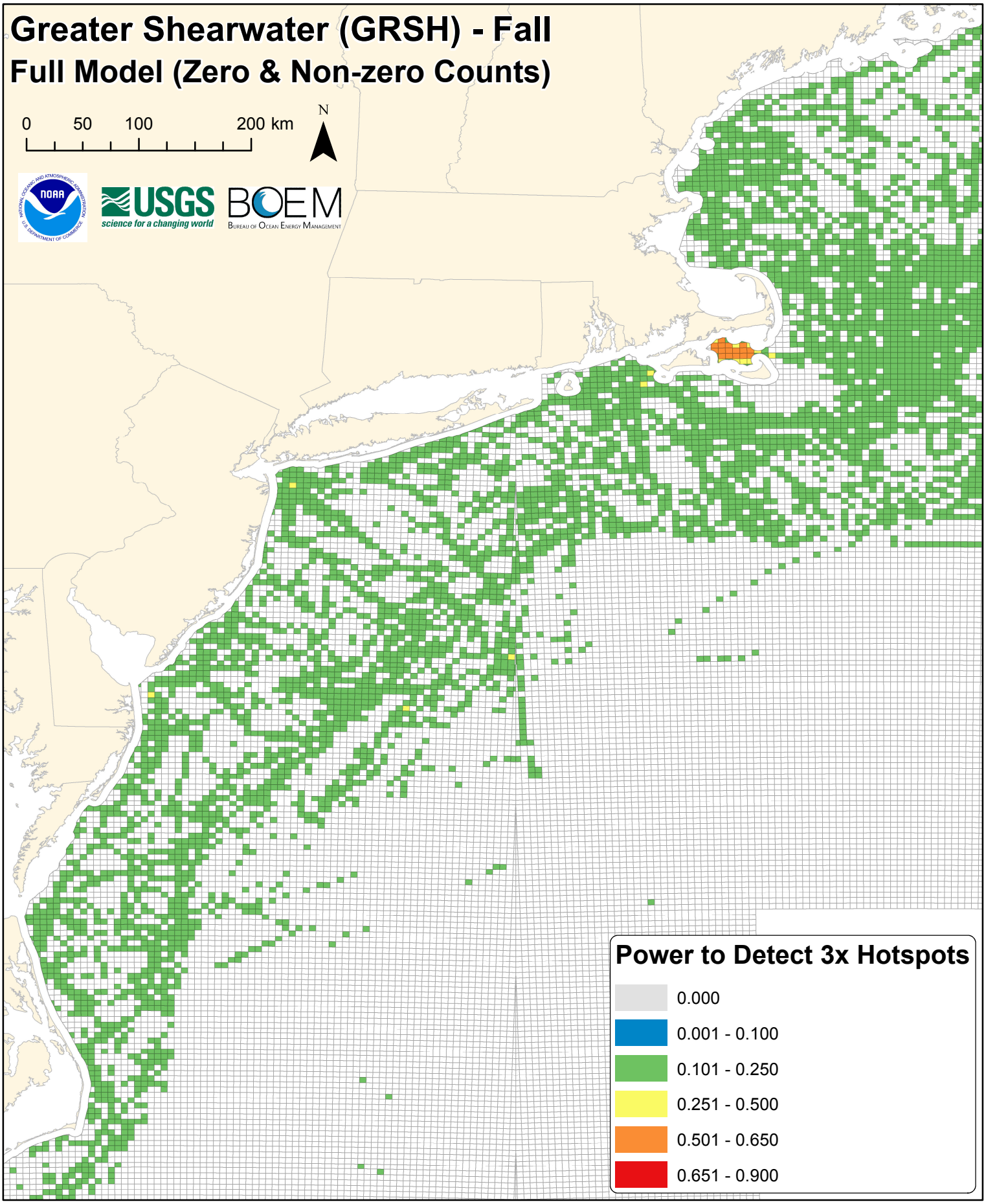

Herring Gull (HERG) - Fall
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Power to Detect 3x Hotspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

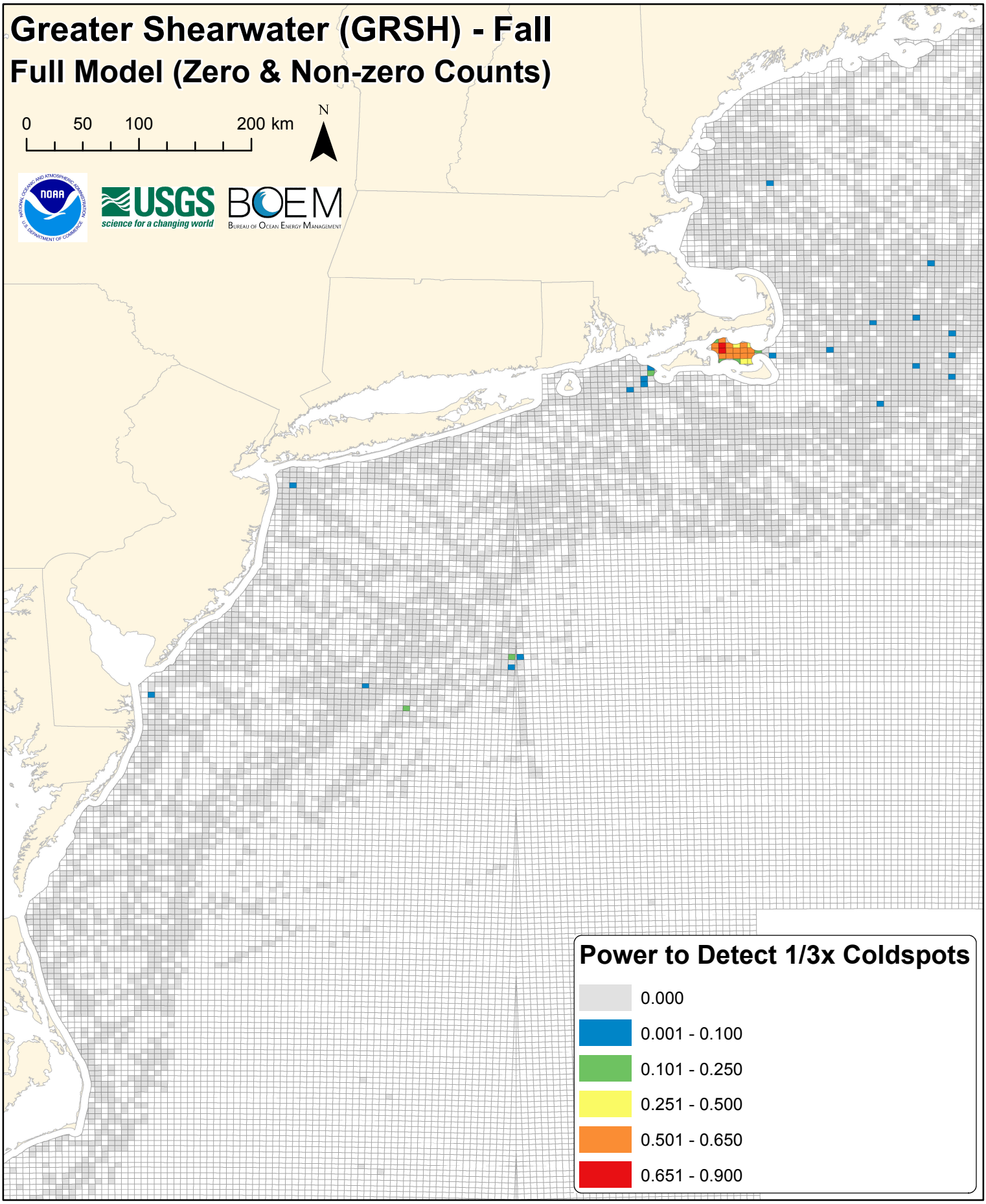

Herring Gull (HERG) - Fall
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
NOAA
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Power to Detect 1/3x Coldspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

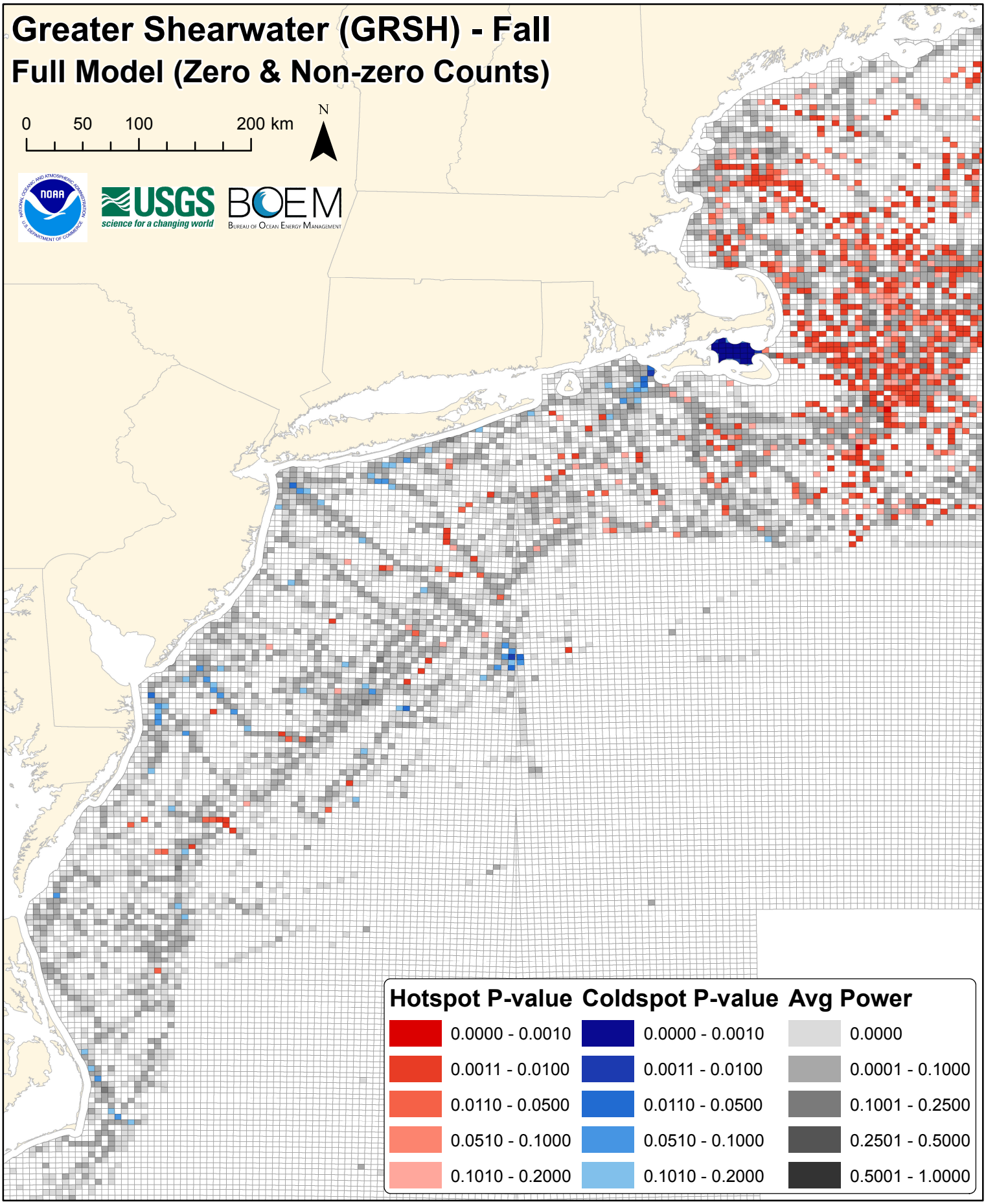

Herring Gull (HERG) - Fall
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
NOAA
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Hotspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Coldspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Avg Power
0.0000
0.0001 - 0.1000
0.1001 - 0.2500
0.2501 - 0.5000
0.5001 - 1.0000

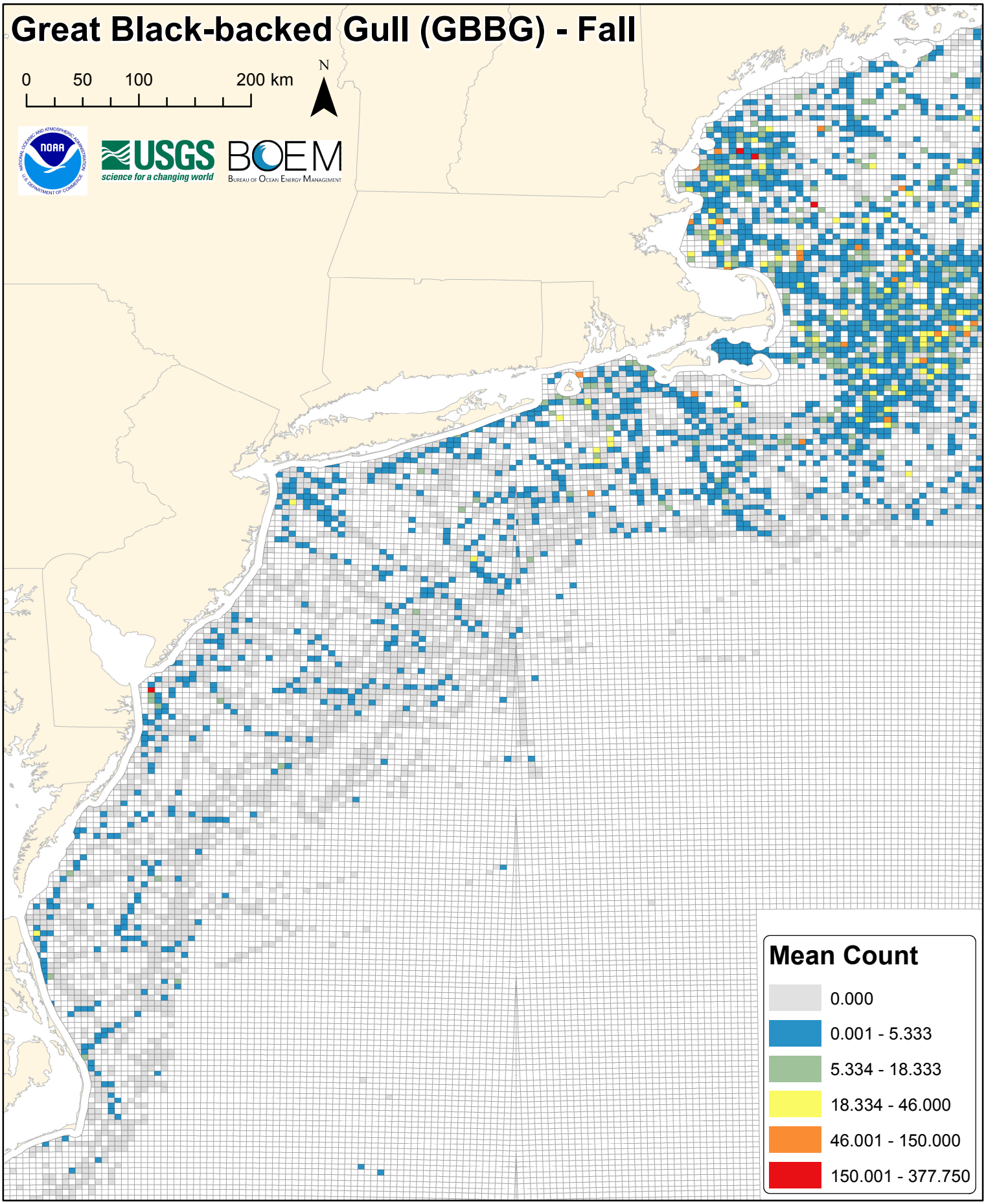

Greater Shearwater (GRSH) - Fall
0
50
100
200 km
N
NOAA
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Mean Count
0.000
0.001 - 14.500
14.501 - 53.000
53.001 - 138.667
138.668 - 304.000
304.001 - 950.000

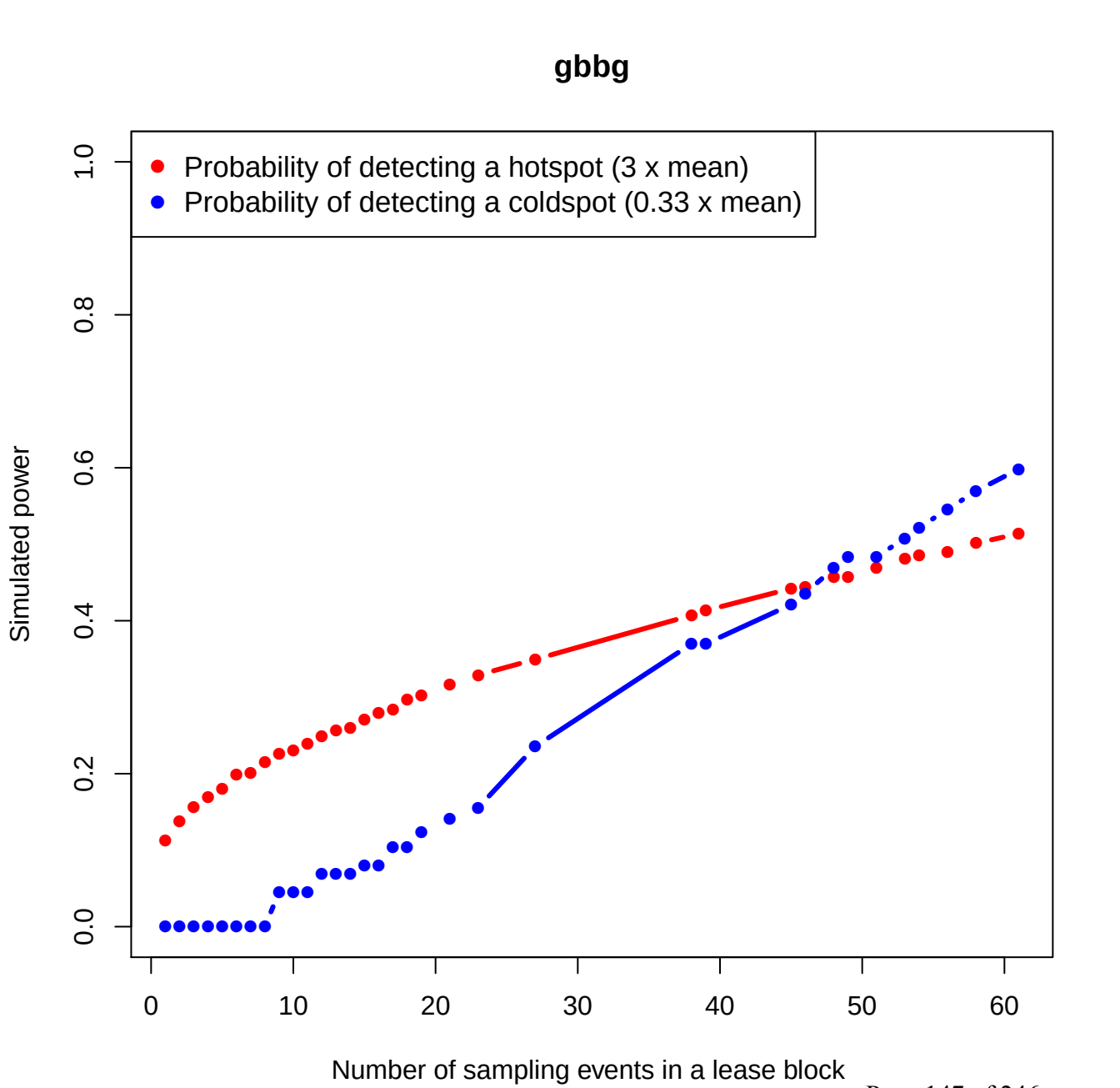

grsh
Probability of detecting a hotspot (3 x mean)
Probability of detecting a coldspot (0.33 x mean)
Simulated power
0.0
0.2
0.4
0.6
0.8
1.0
0
10
20
30
40
50
60
Number of sampling events in a lease block

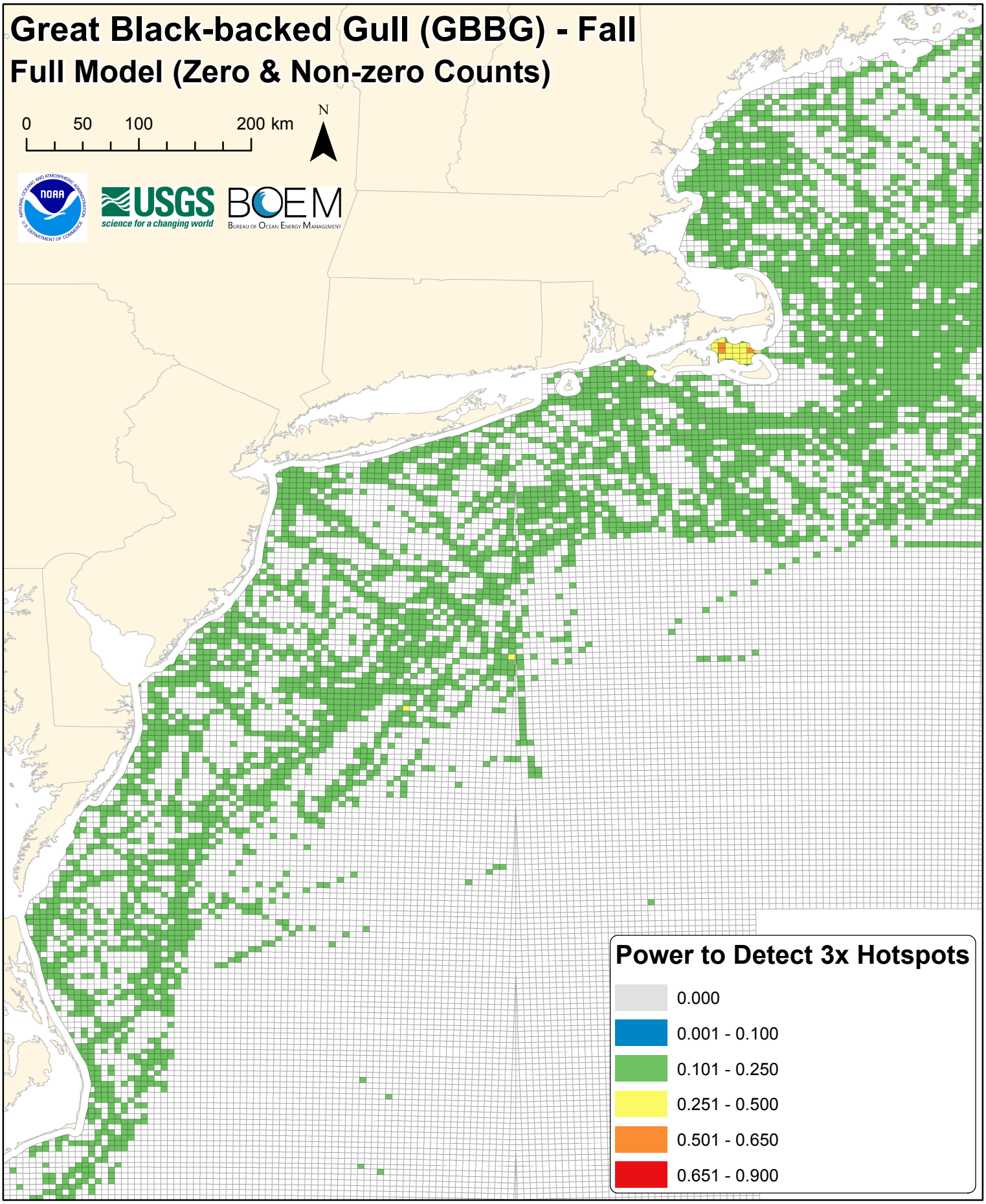

Greater Shearwater (GRSH) - Fall
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Power to Detect 3x Hotspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

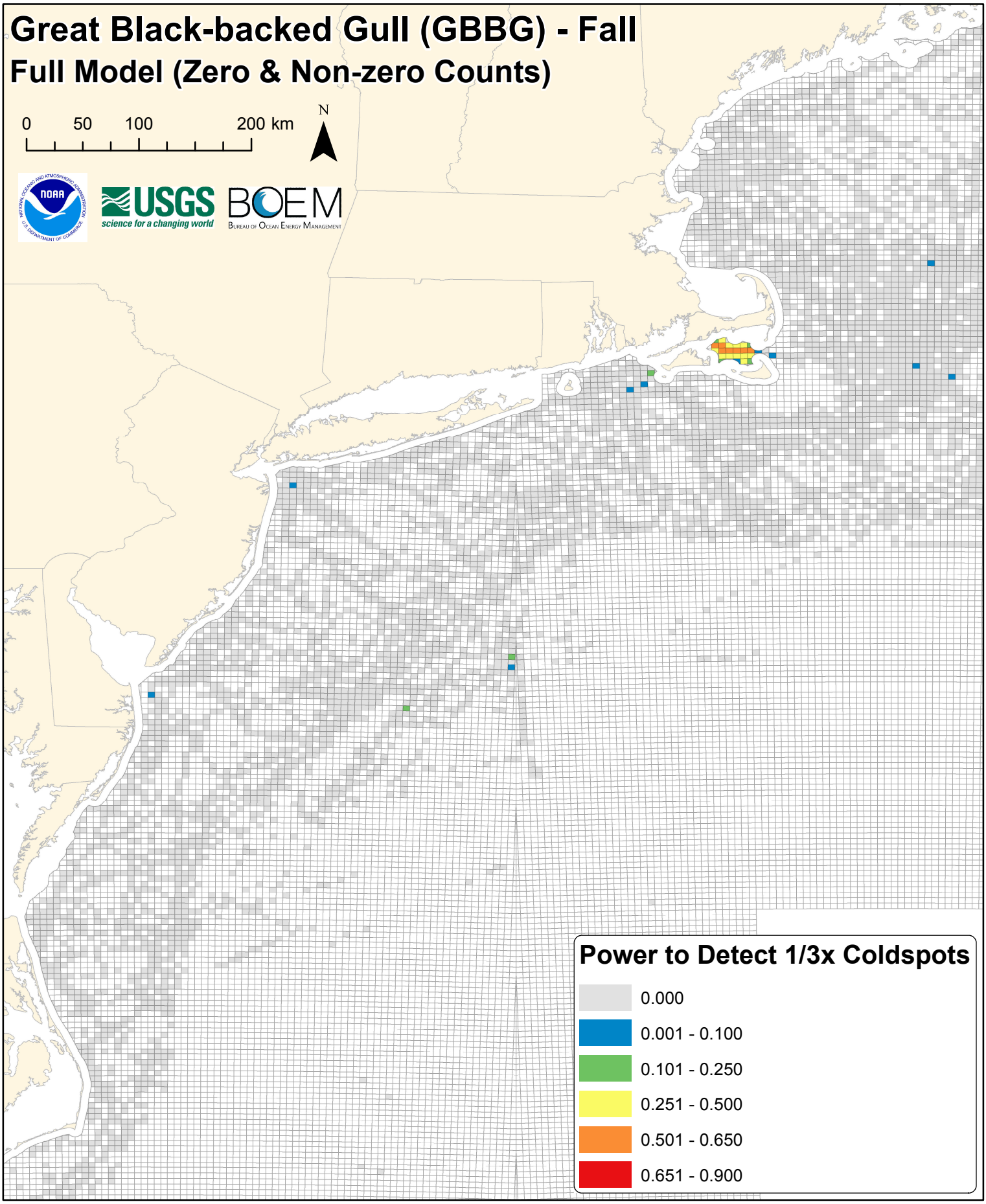

Greater Shearwater (GRSH) - Fall
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
NOAA
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Power to Detect 1/3x Coldspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

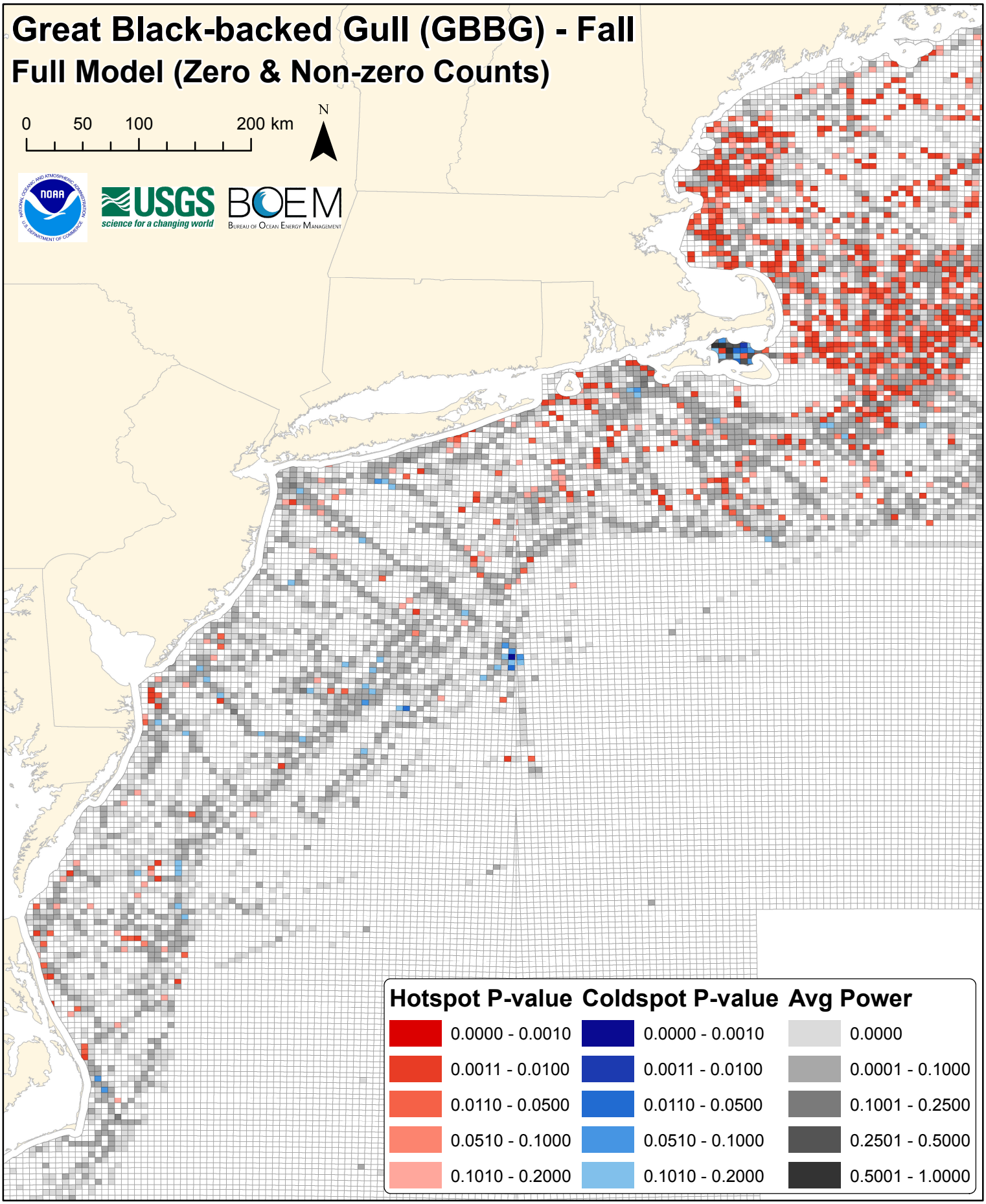

Greater Shearwater (GRSH) - Fall
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Hotspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Coldspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Avg Power
0.0000
0.0001 - 0.1000
0.1001 - 0.2500
0.2501 - 0.5000
0.5001 - 1.0000

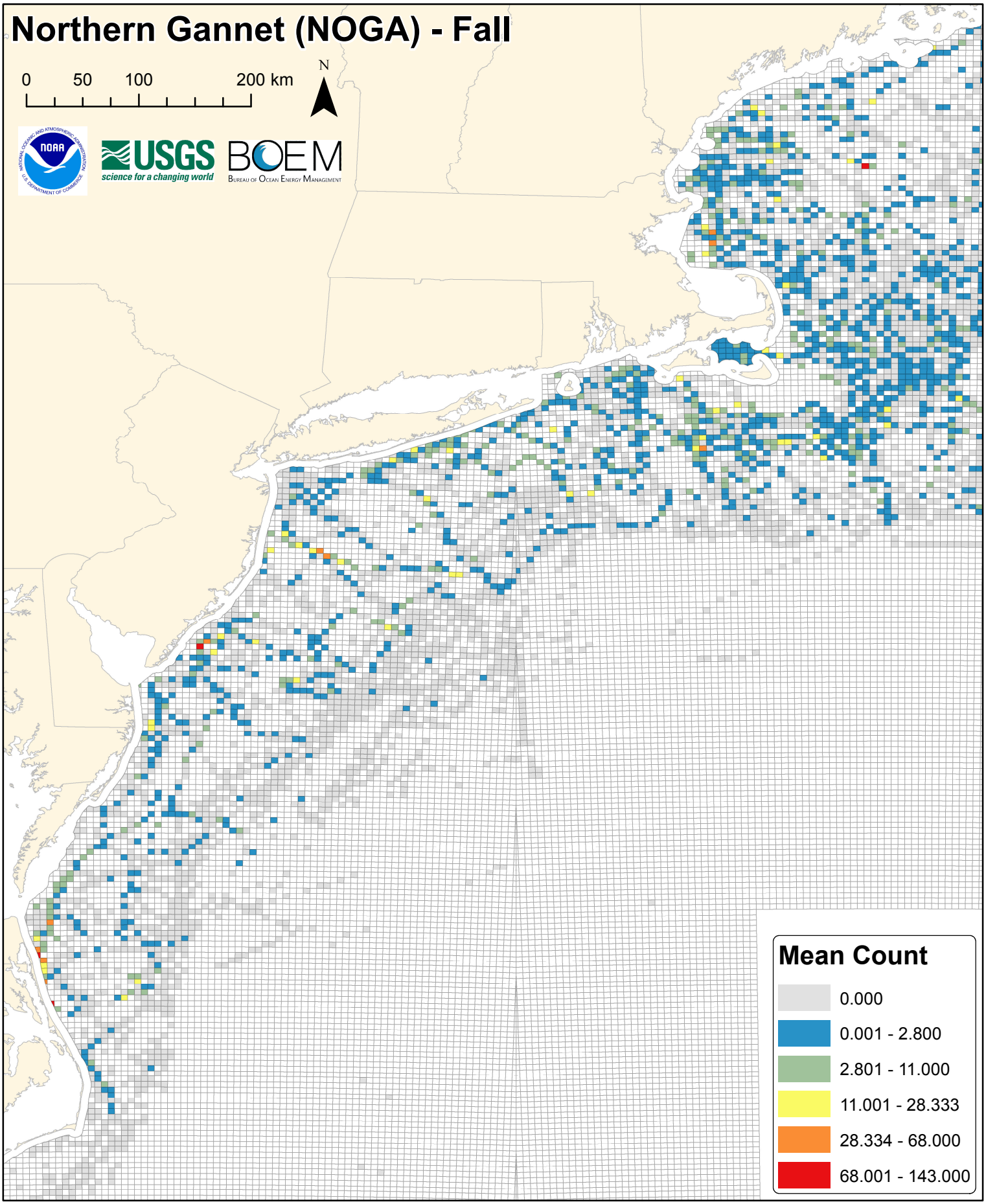

Great Black-backed Gull (GBBG) - Fall
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Mean Count
0.000
0.001 - 5.333
5.334 - 18.333
18.334 - 46.000
46.001 - 150.000
150.001 - 377.750

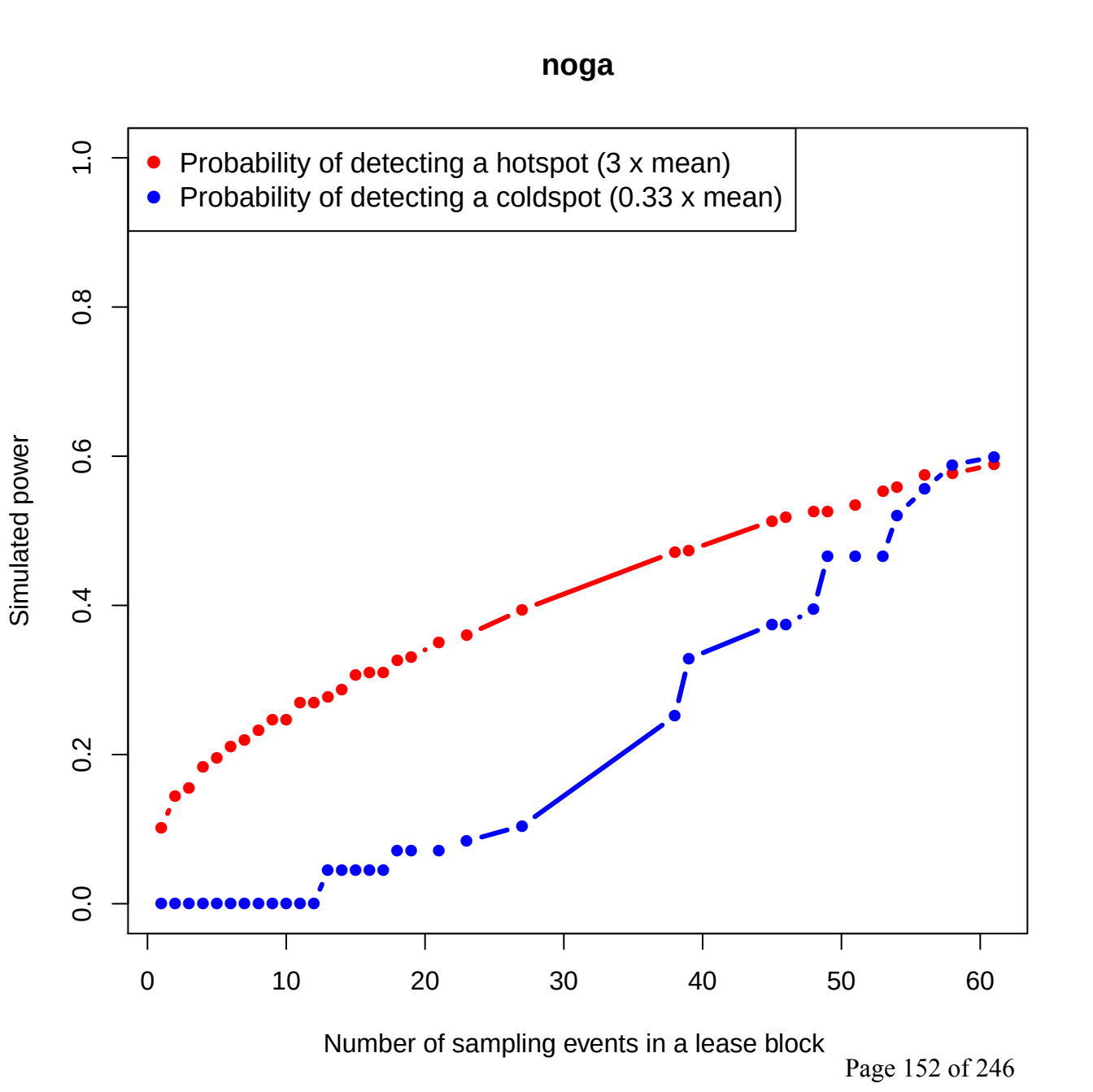

gbbg
Probability of detecting a hotspot (3 x mean)
Probability of detecting a coldspot (0.33 x mean)
Simulated power
0.0
0.2
0.4
0.6
0.8
1.0
0
10
20
30
40
50
60
Number of sampling events in a lease block

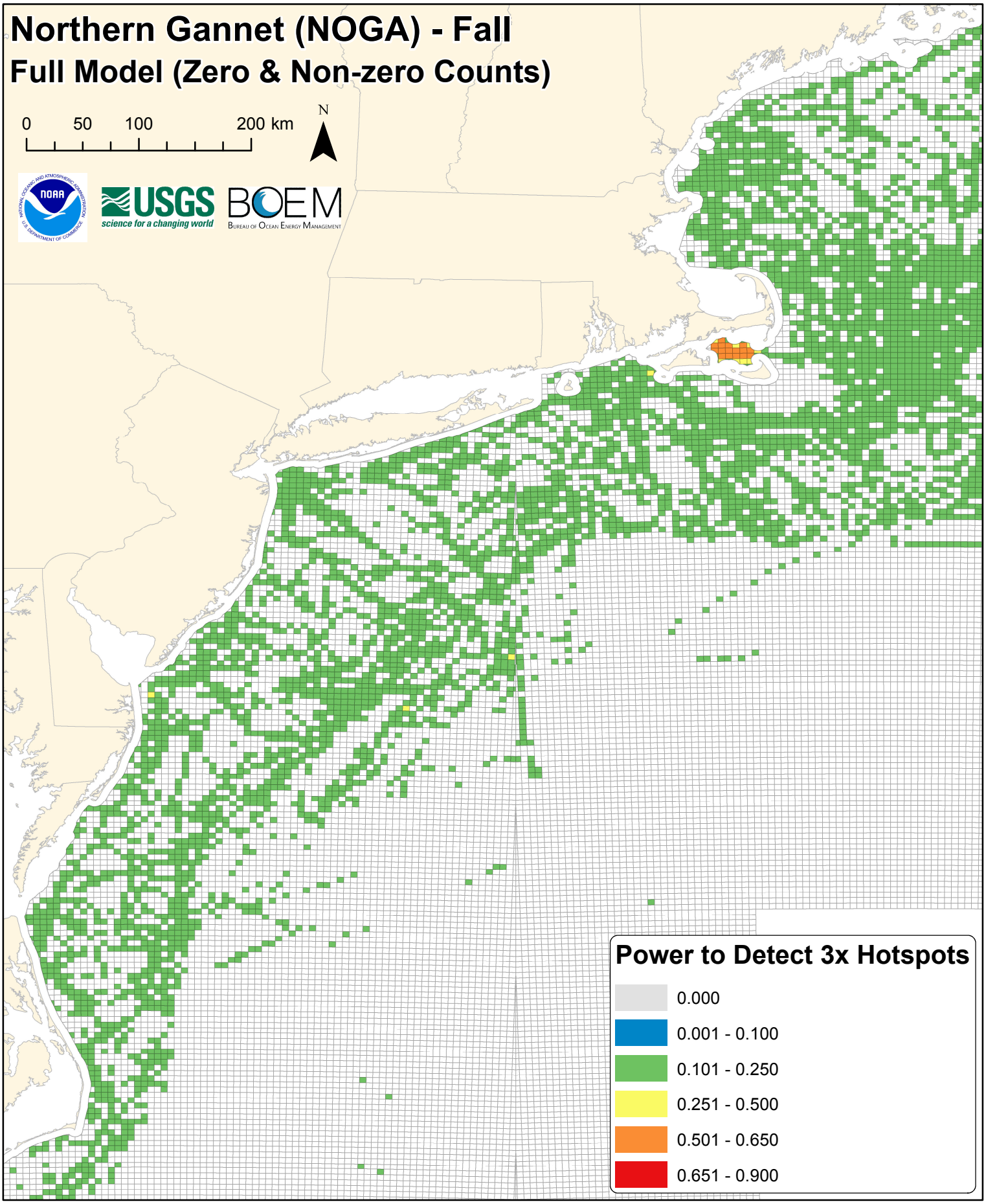

Great Black-backed Gull (GBBG) - Fall
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Power to Detect 3x Hotspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

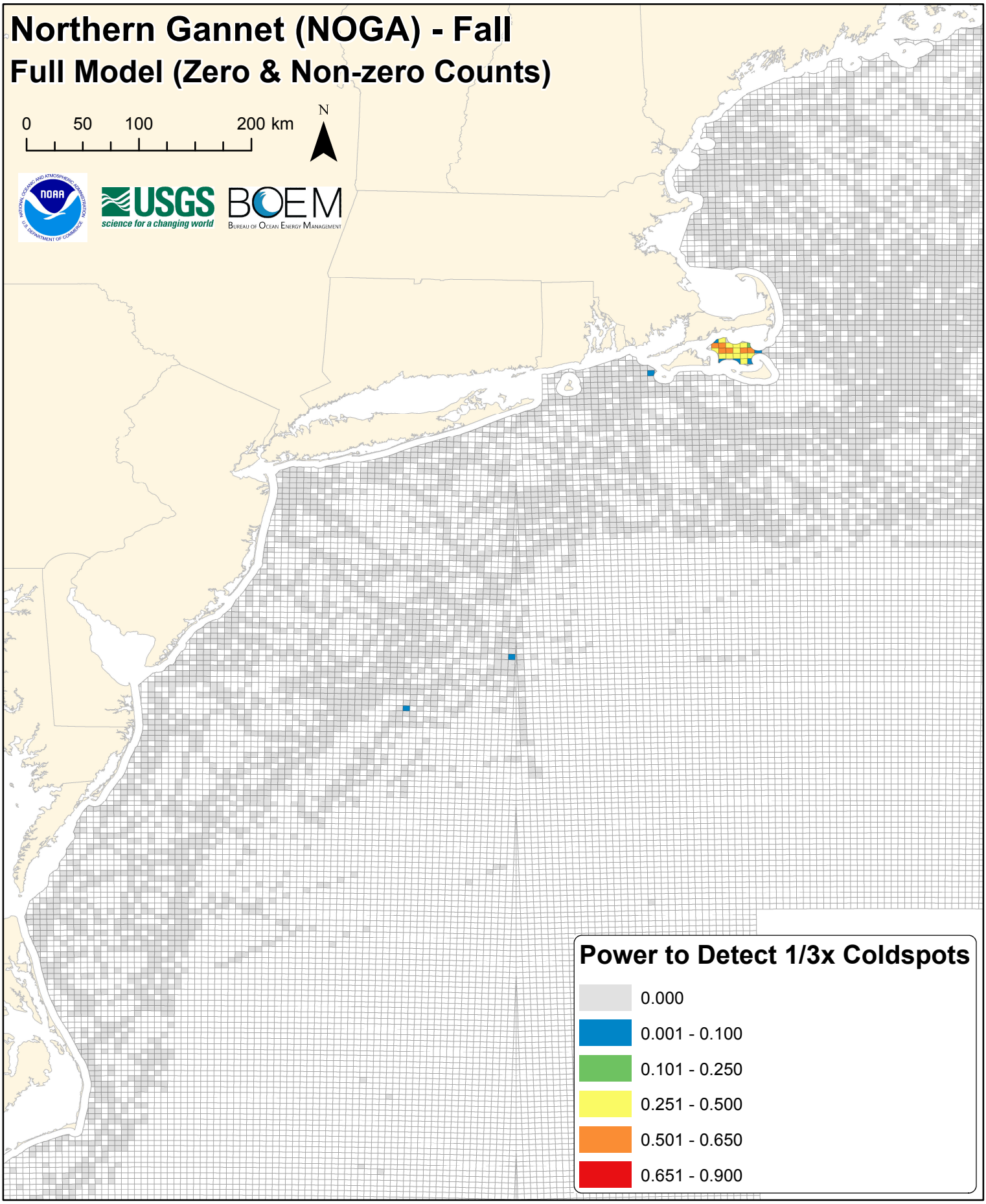

Great Black-backed Gull (GBBG) - Fall
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Power to Detect 1/3x Coldspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

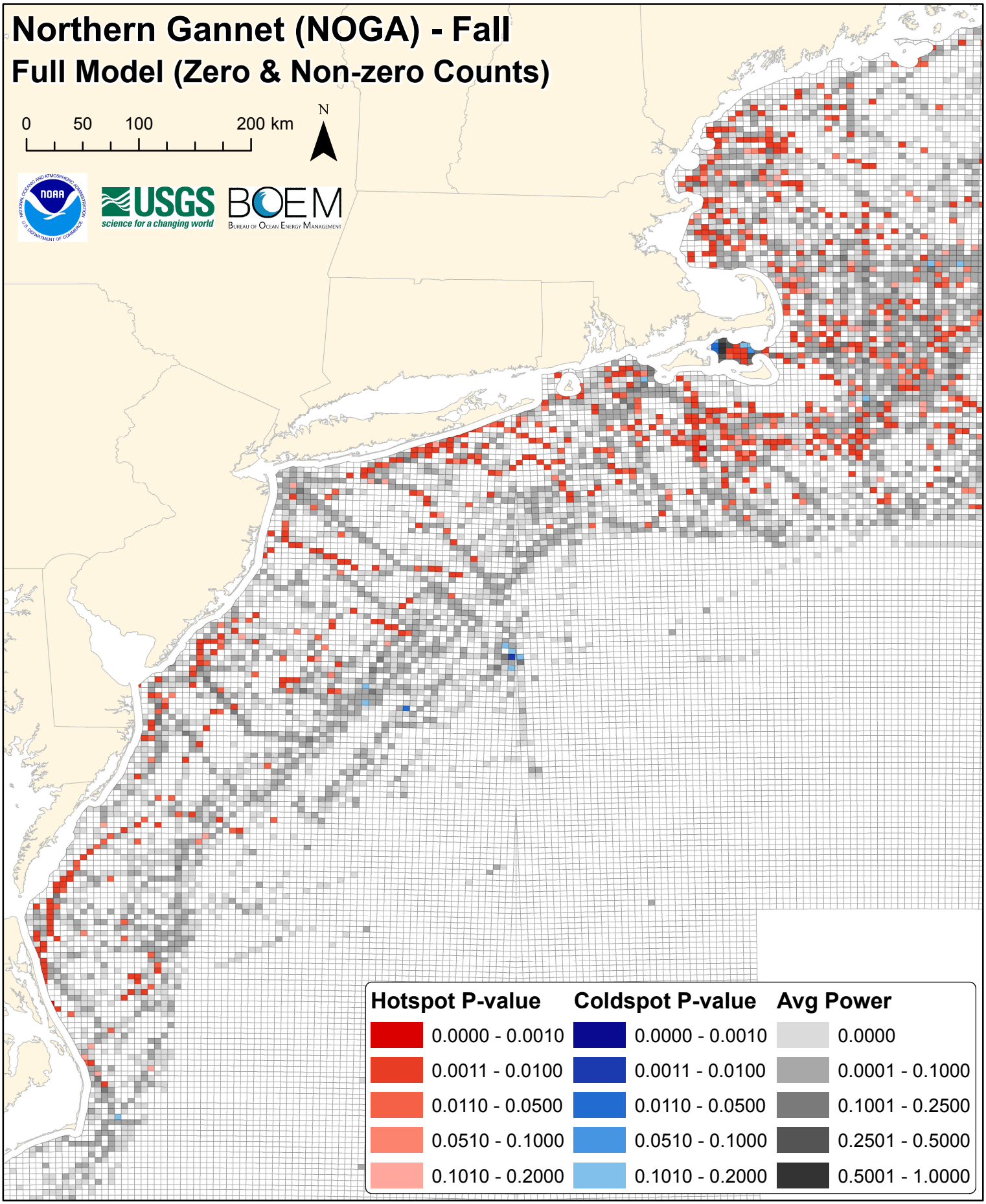

Great Black-backed Gull (GBBG) - Fall
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Hotspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Coldspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Avg Power
0.0000
0.0001 - 0.1000
0.1001 - 0.2500
0.2501 - 0.5000
0.5001 - 1.0000

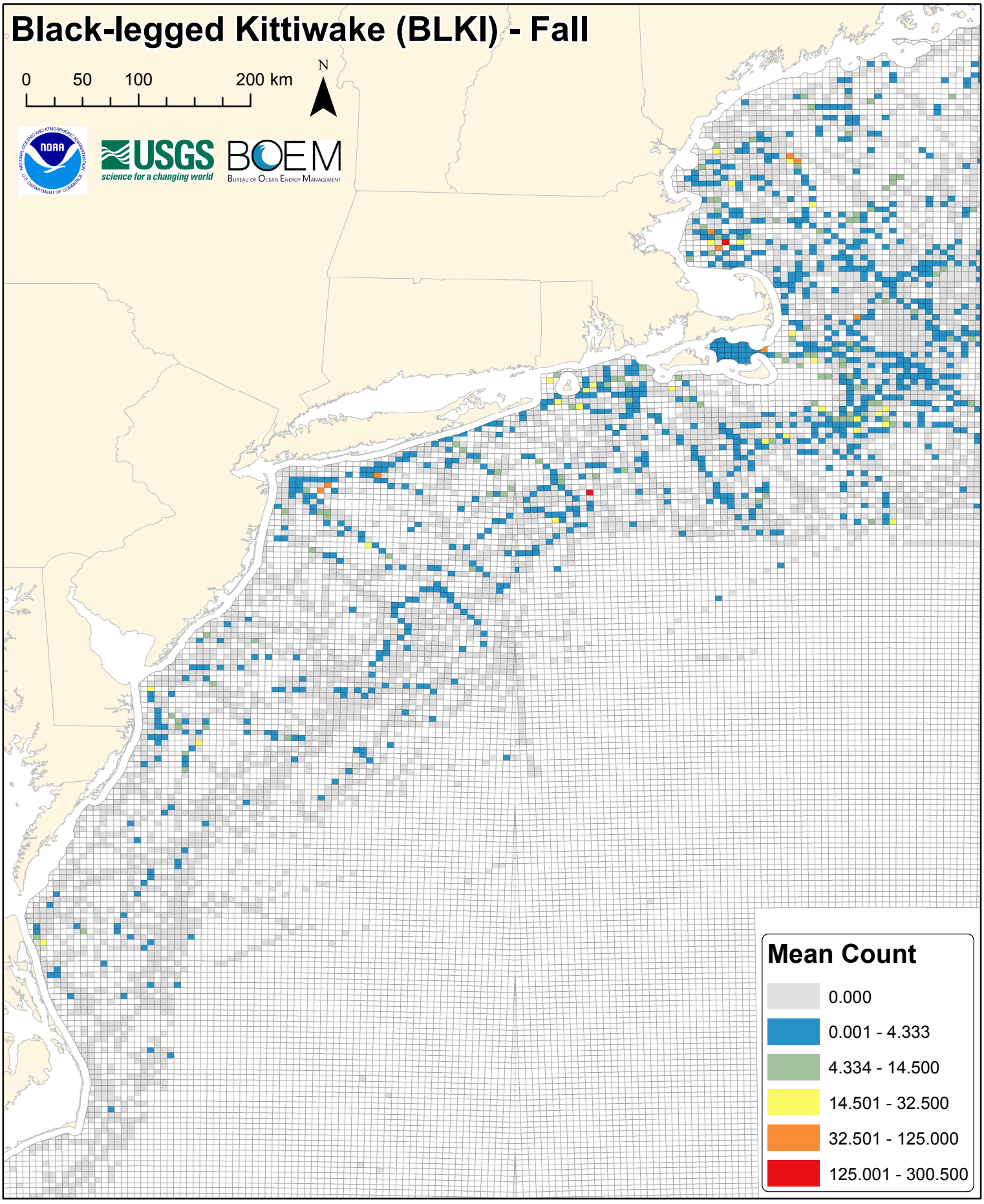

Northern Gannet (NOGA) - Fall
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Mean Count
0.000
0.001 - 2.800
2.801 - 11.000
11.001 - 28.333
28.334 - 68.000
68.001 - 143.000

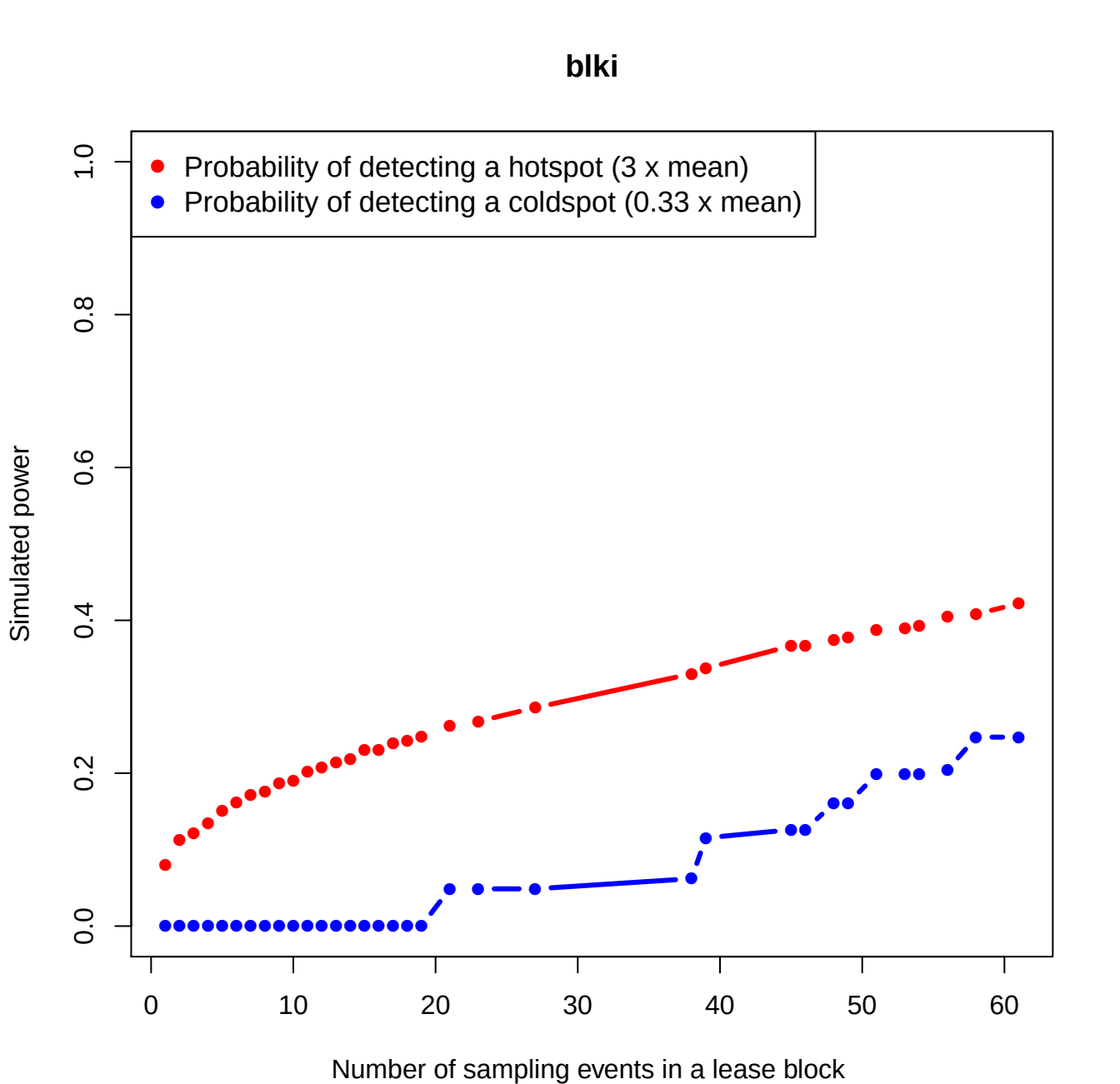

noga
Probability of detecting a hotspot (3 x mean)
Probability of detecting a coldspot (0.33 x mean)
Simulated power
0.0
0.2
0.4
0.6
0.8
1.0
0
10
20
30
40
50
60
Number of sampling events in a lease block

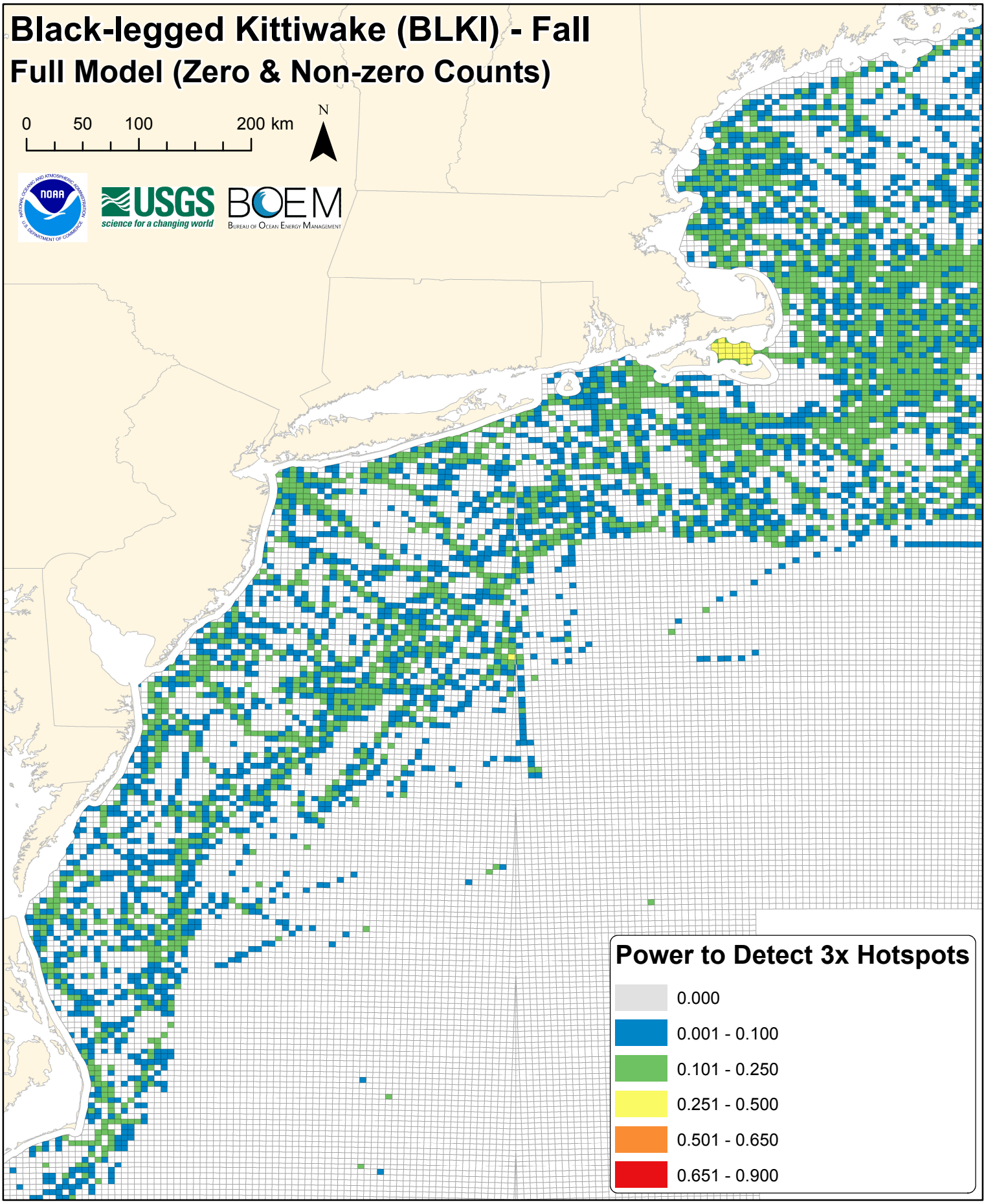

Northern Gannet (NOGA) - Fall
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Power to Detect 3x Hotspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

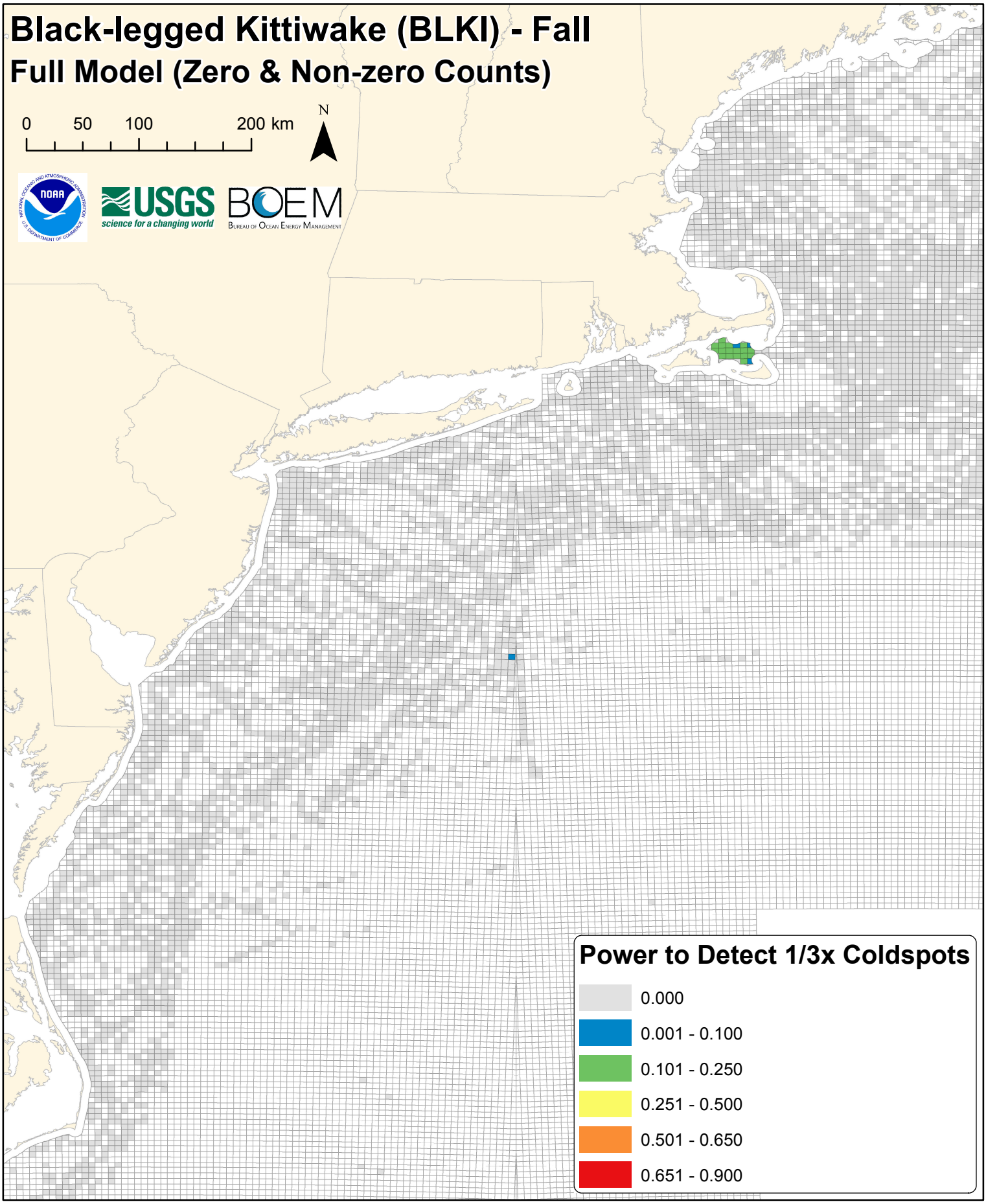

Northern Gannet (NOGA) - Fall
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Power to Detect 1/3x Coldspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

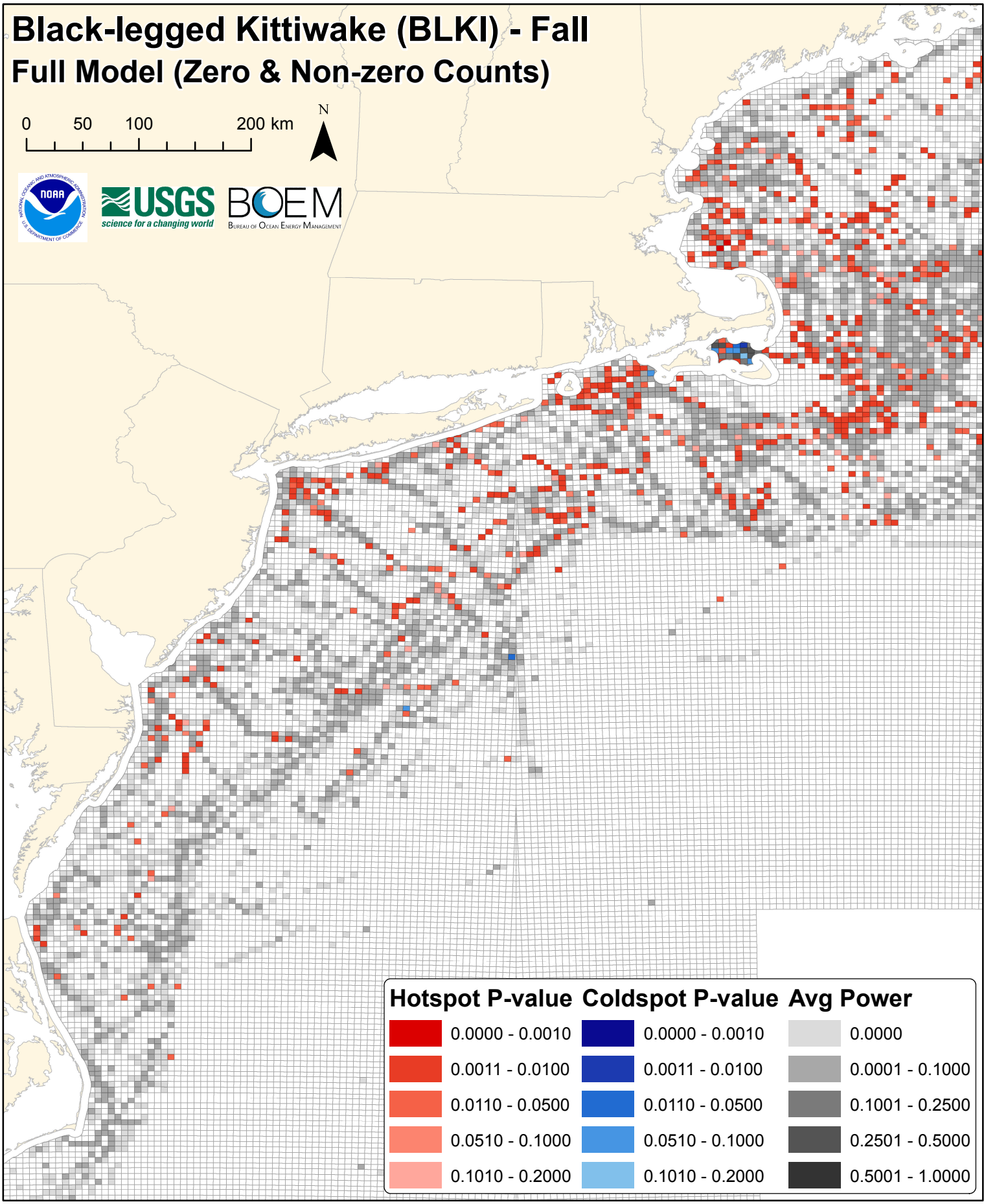

Northern Gannet (NOGA) - Fall
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Hotspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Coldspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Avg Power
0.0000
0.0001 - 0.1000
0.1001 - 0.2500
0.2501 - 0.5000
0.5001 - 1.0000

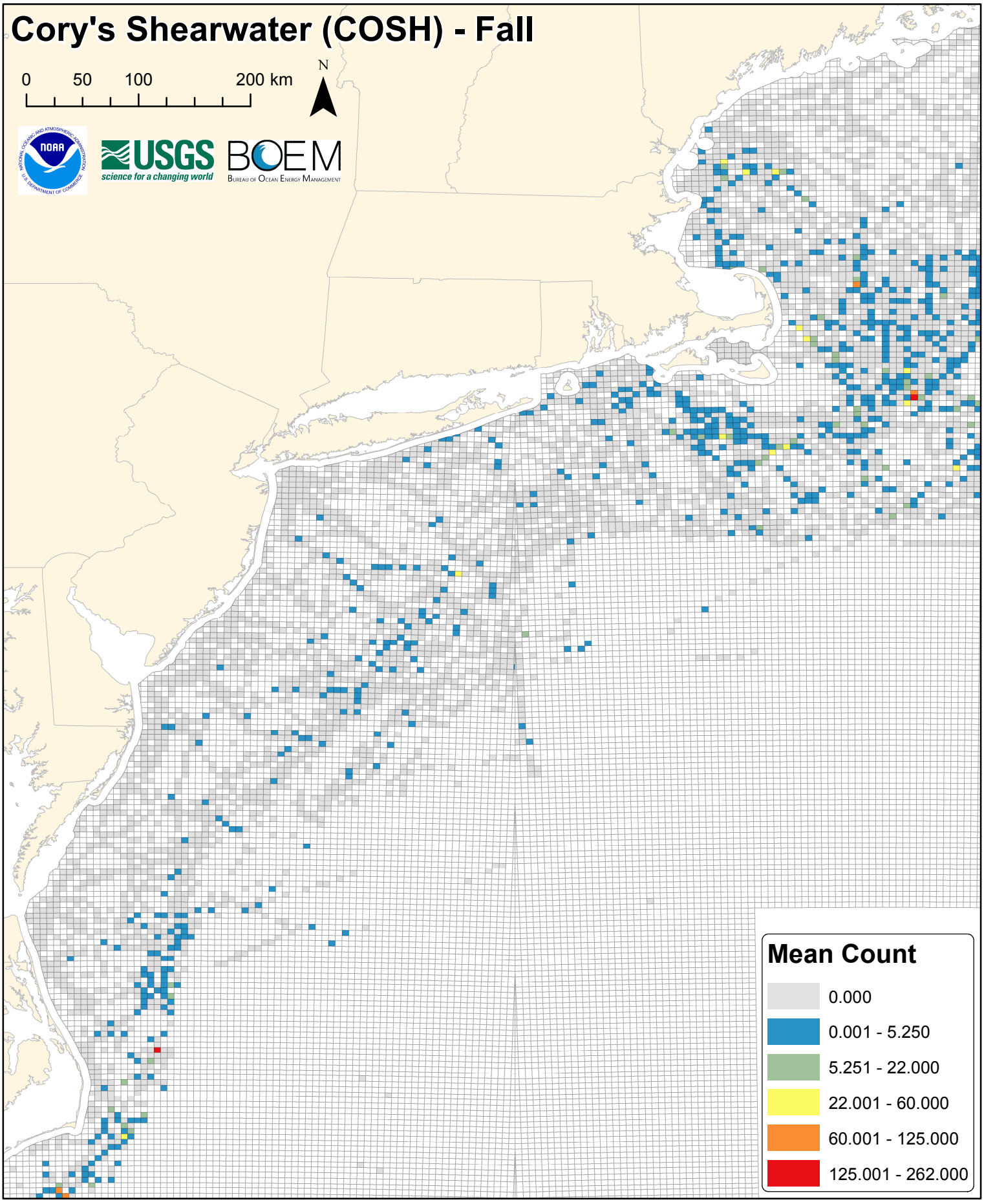

Black-legged Kittiwake (BLKI) - Fall
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Mean Count
0.000
0.001 - 4.333
4.334 - 14.500
14.501 - 32.500
32.501 - 125.000
125.001 - 300.500

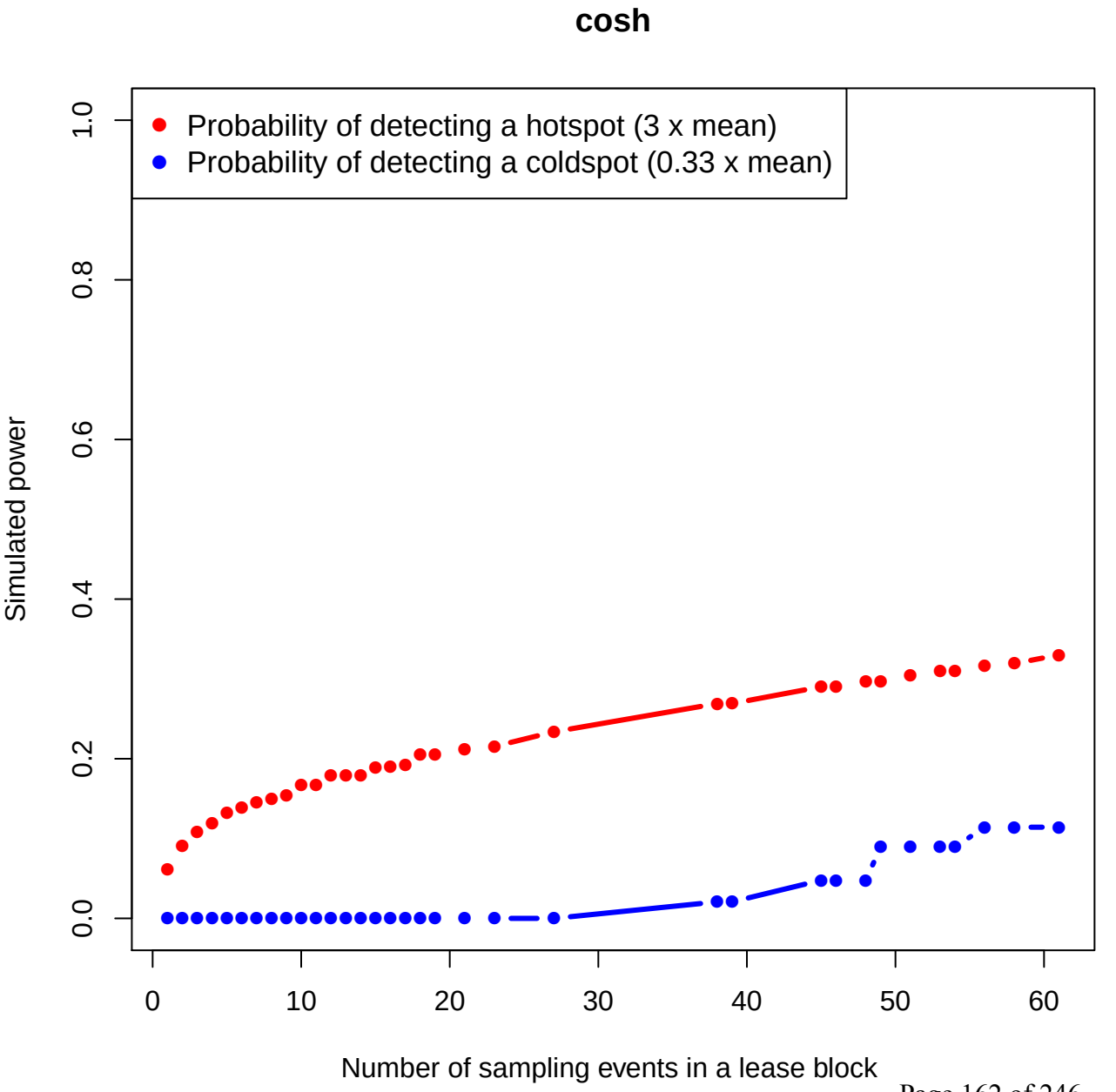

blki
Probability of detecting a hotspot (3 x mean)
Probability of detecting a coldspot (0.33 x mean)
Simulated power
0.0
0.2
0.4
0.6
0.8
1.0
0
10
20
30
40
50
60
Number of sampling events in a lease block

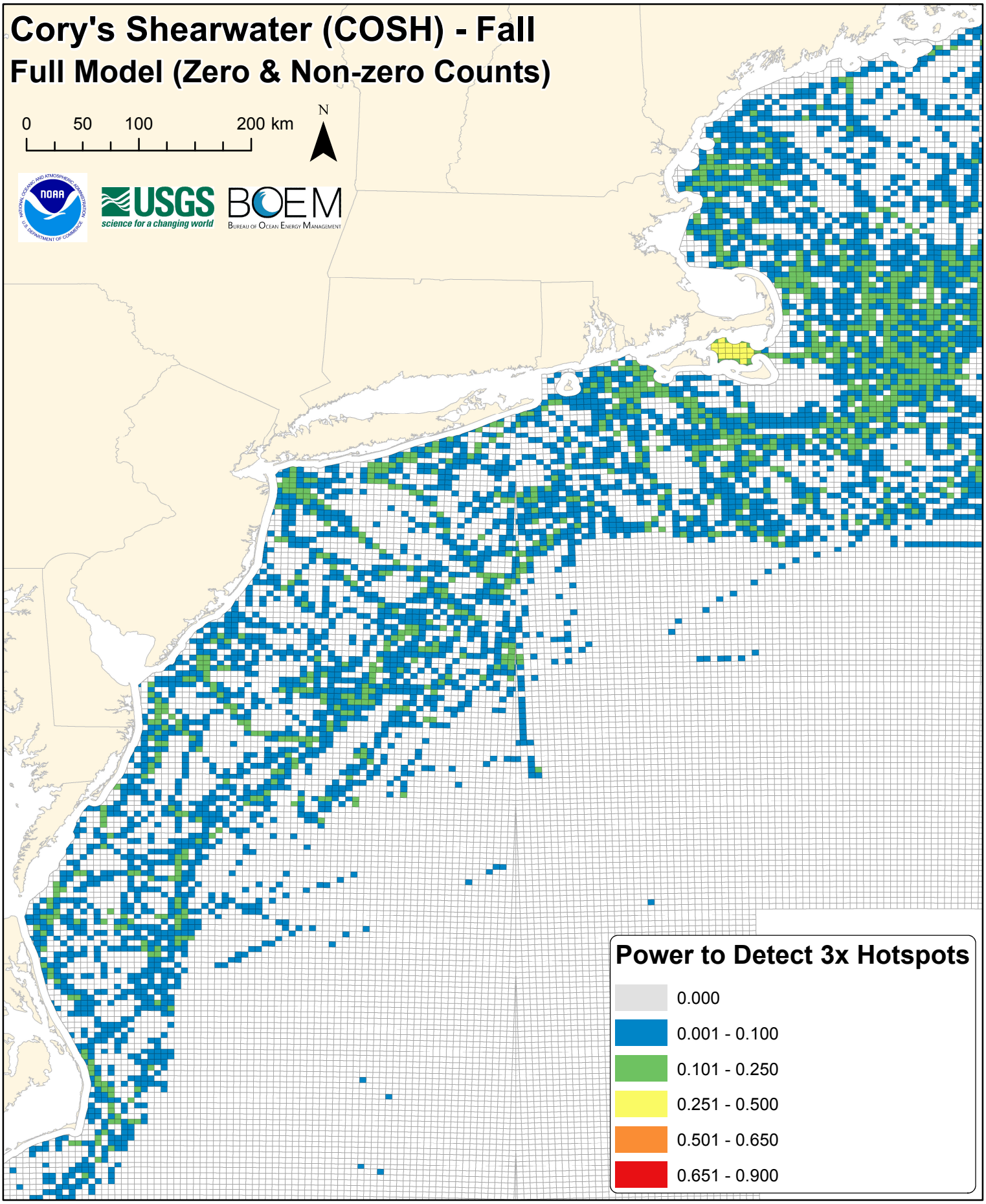

Black-legged Kittiwake (BLKI) - Fall
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Power to Detect 3x Hotspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

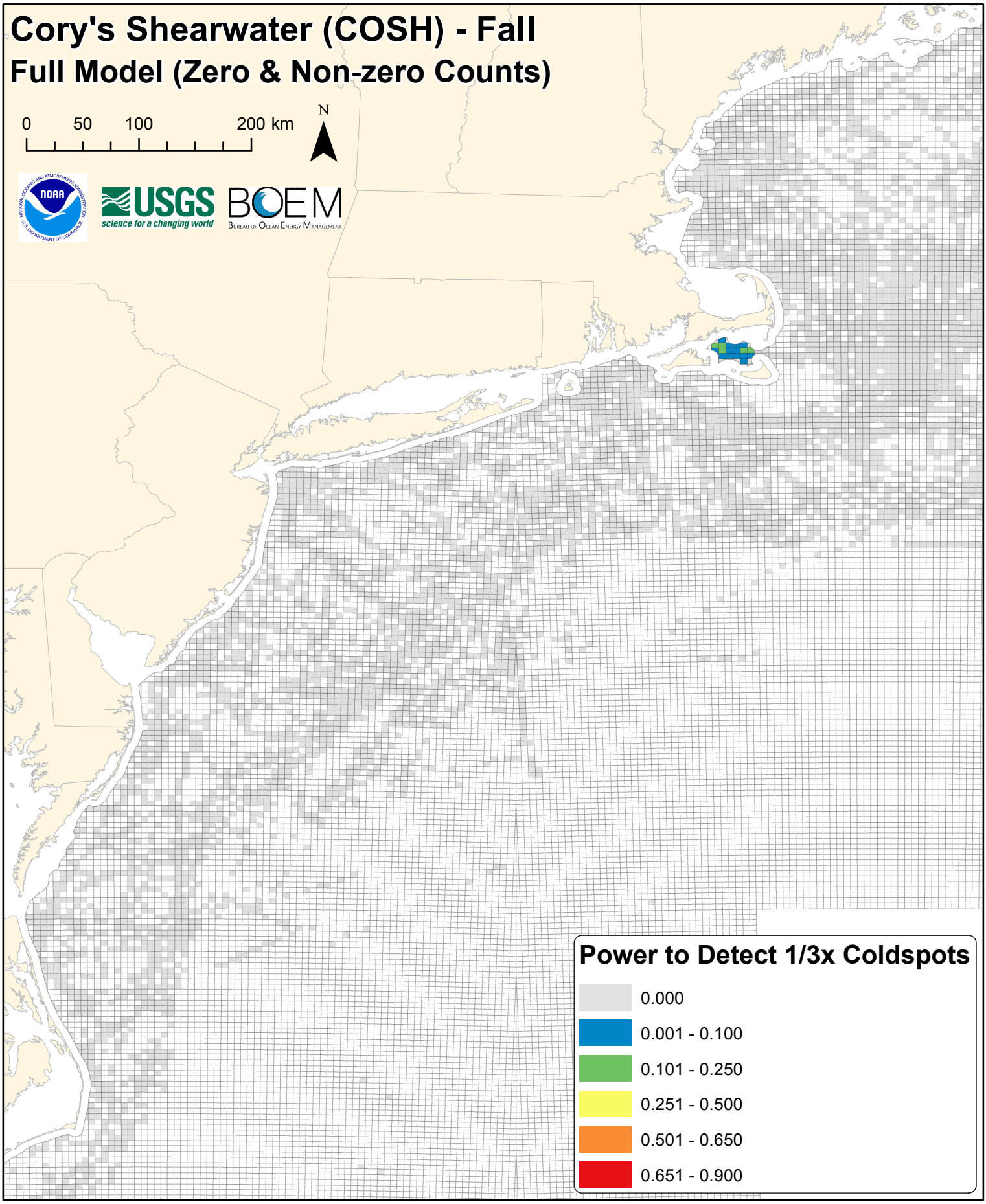

Black-legged Kittiwake (BLKI) - Fall
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Power to Detect 1/3x Coldspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

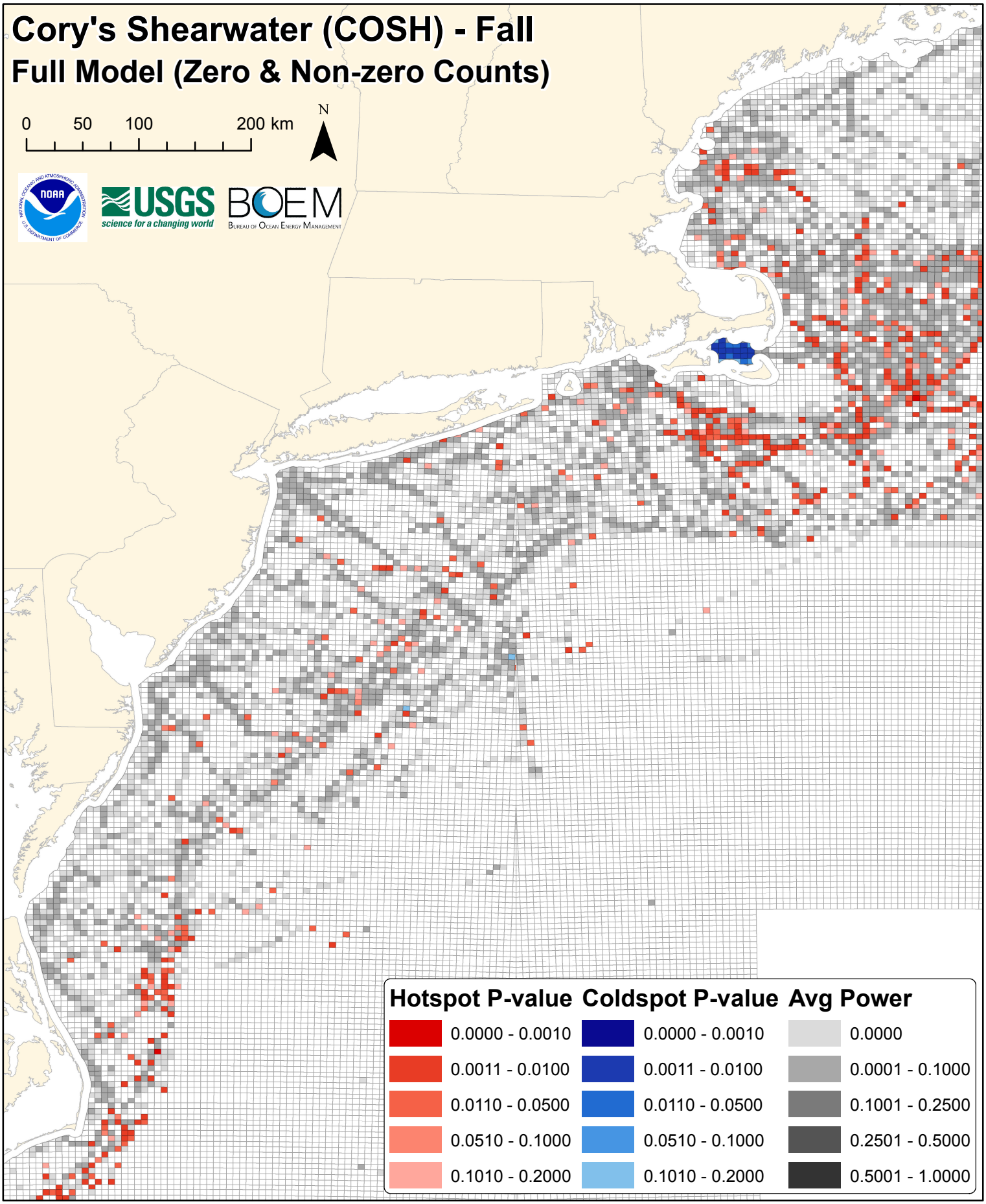

Black-legged Kittiwake (BLKI) - Fall
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Hotspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Coldspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Avg Power
0.0000
0.0001 - 0.1000
0.1001 - 0.2500
0.2501 - 0.5000
0.5001 - 1.0000

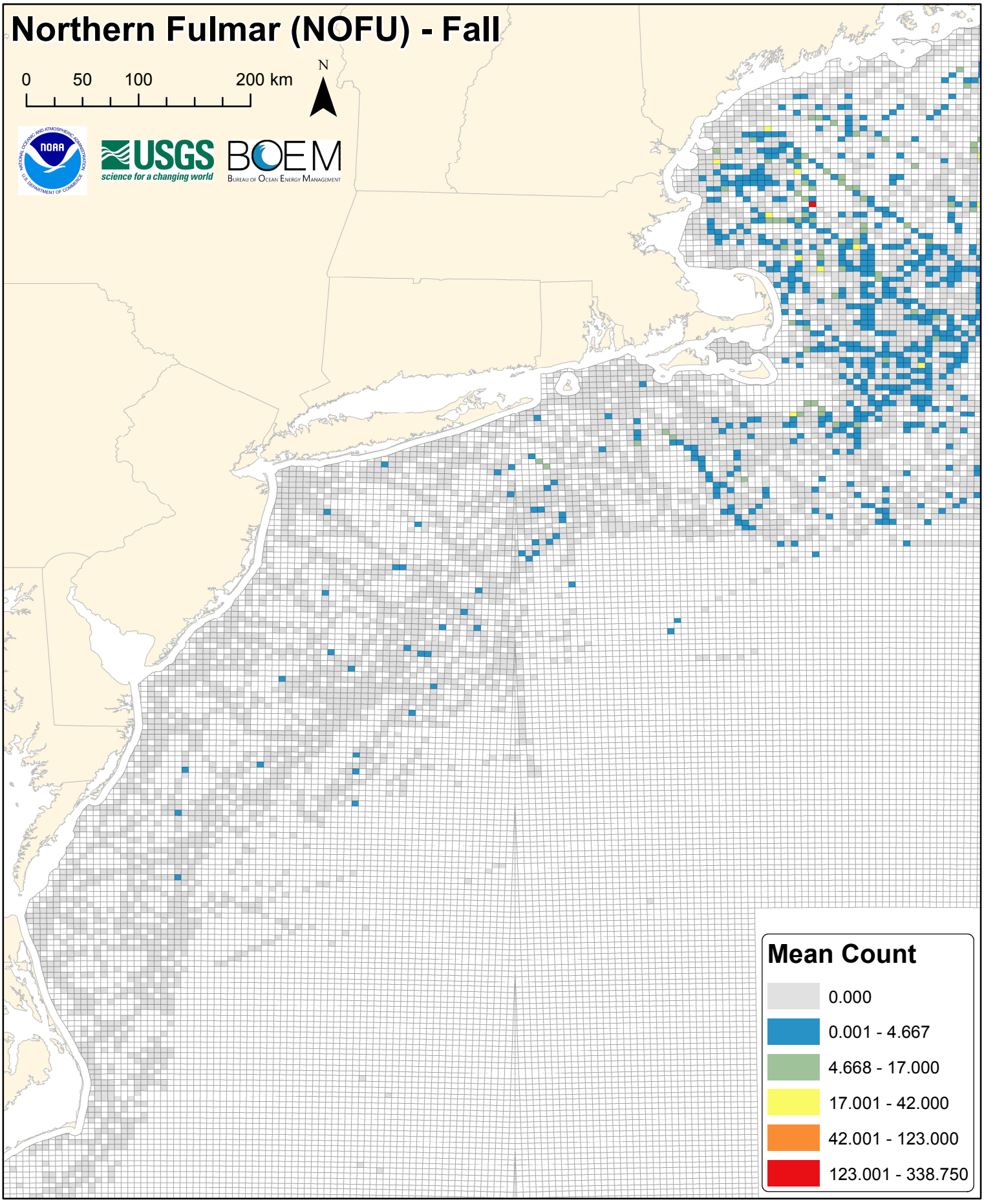

Cory's Shearwater (COSH) - Fall
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Mean Count
0.000
0.001 - 5.250
5.251 - 22.000
22.001 - 60.000
60.001 - 125.000
125.001 - 262.000

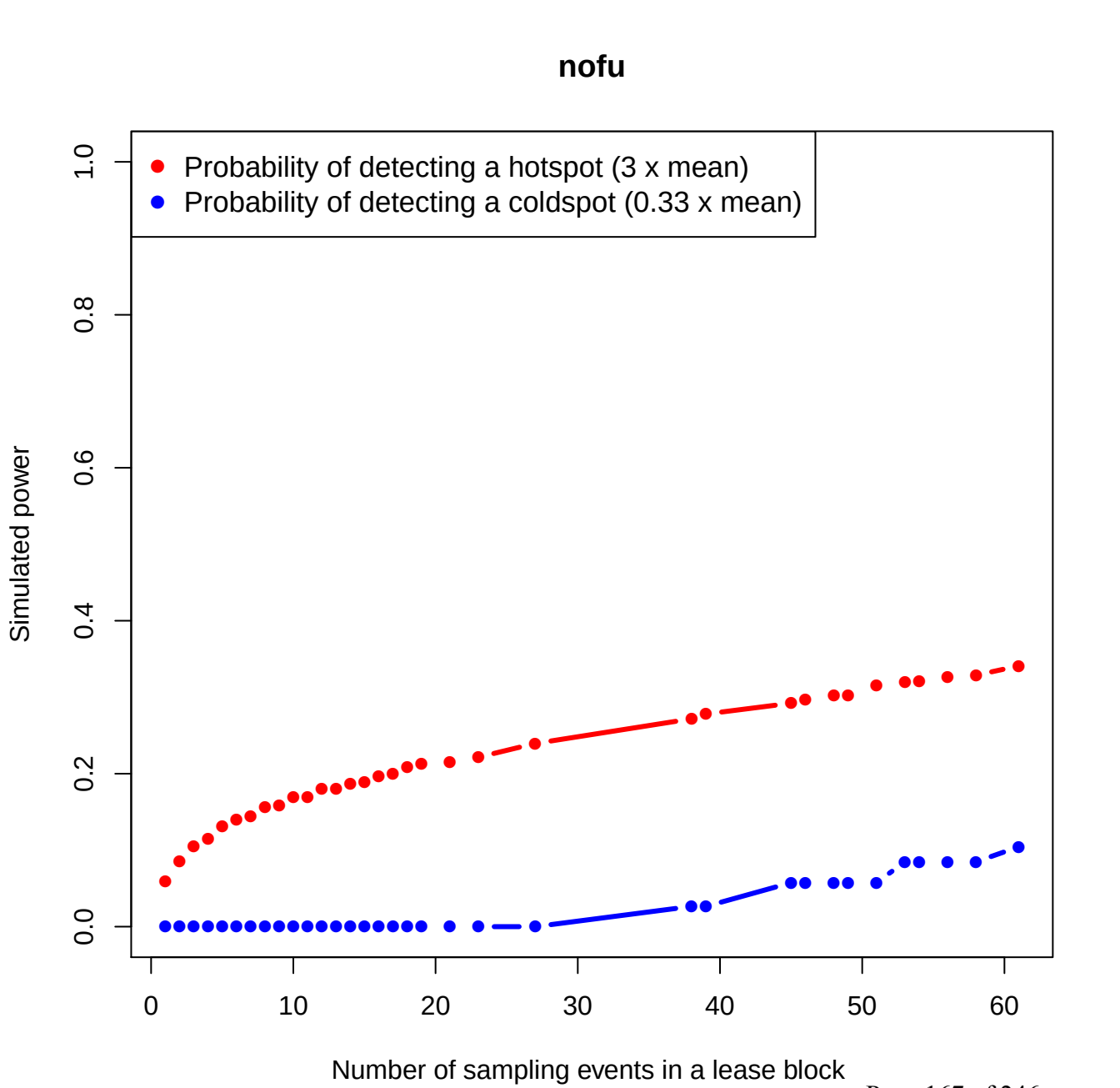

cosh
Probability of detecting a hotspot (3 x mean)
Probability of detecting a coldspot (0.33 x mean)
Simulated power
0.0
0.2
0.4
0.6
0.8
1.0
0
10
20
30
40
50
60
Number of sampling events in a lease block

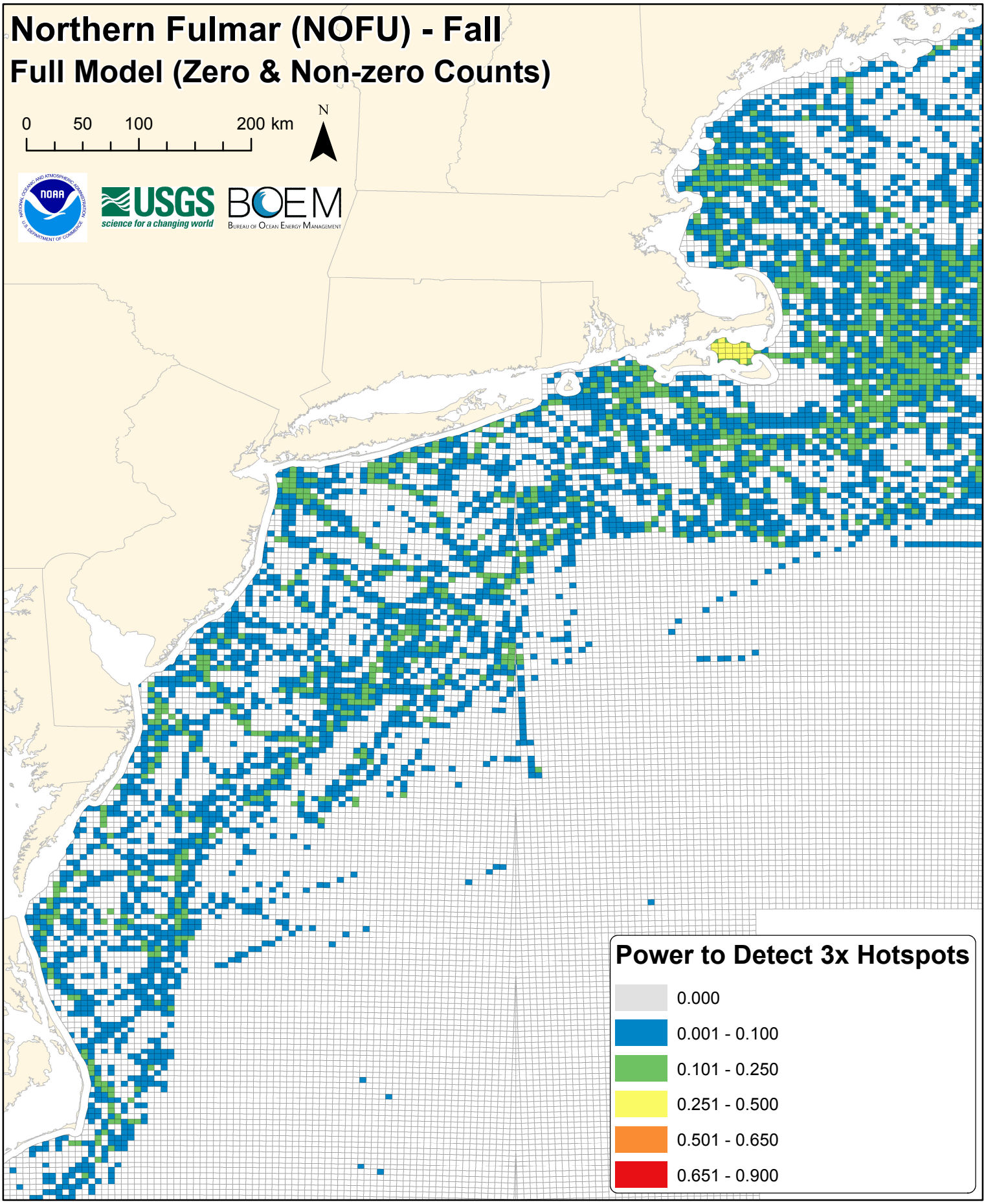

Cory's Shearwater (COSH) - Fall
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Power to Detect 3x Hotspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

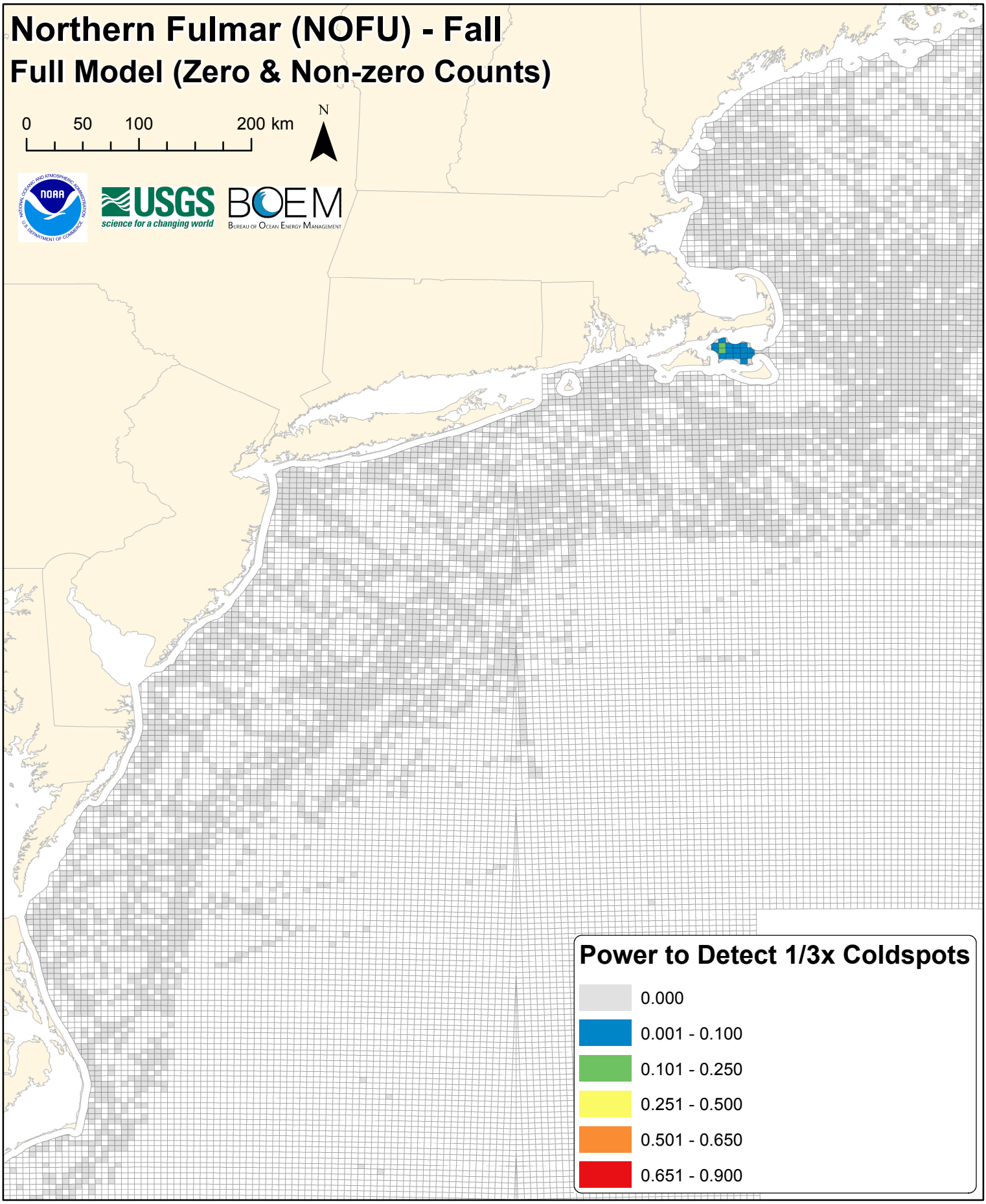

Cory's Shearwater (COSH) - Fall
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Power to Detect 1/3x Coldspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

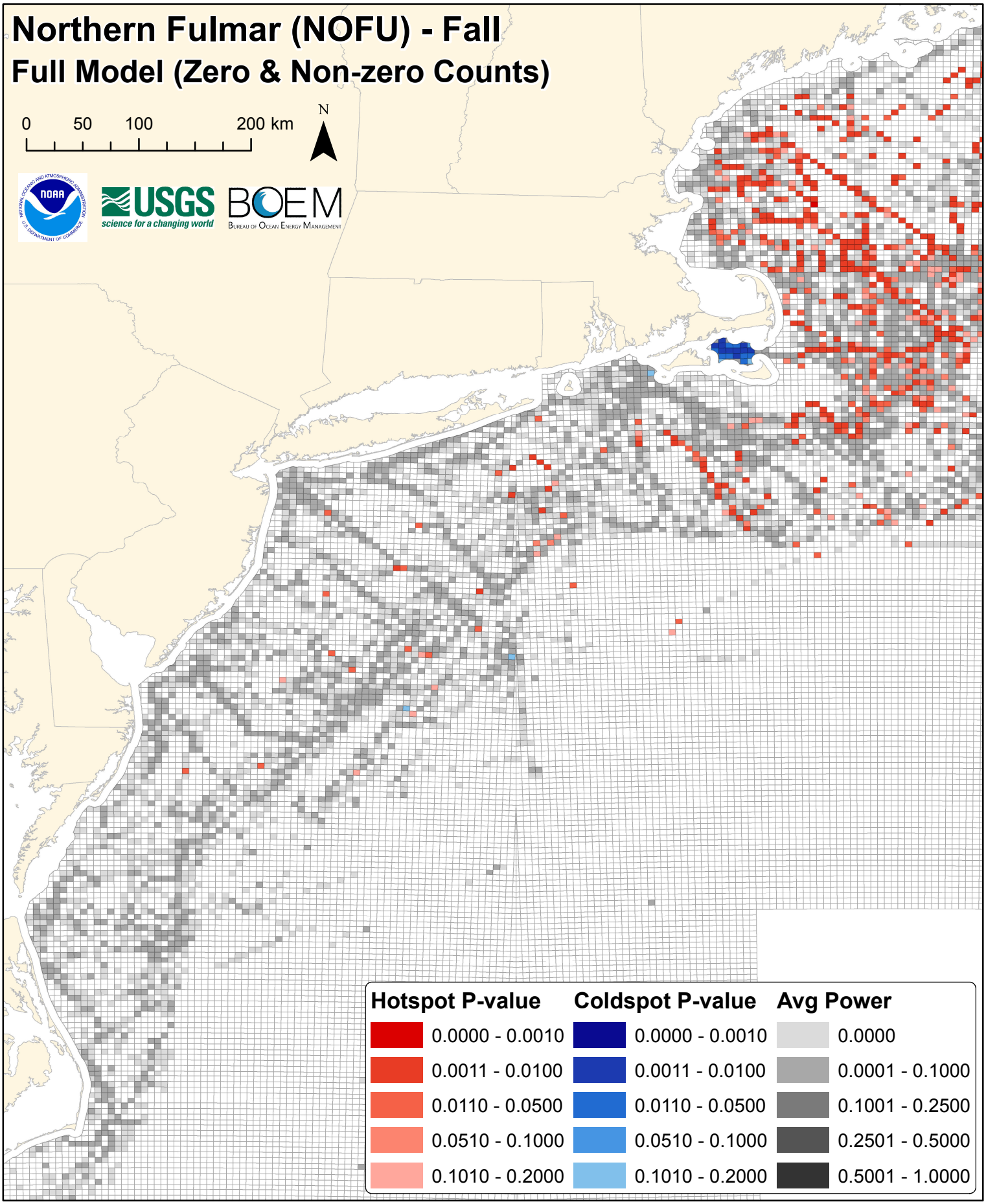

Cory's Shearwater (COSH) - Fall
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Hotspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Coldspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Avg Power
0.0000
0.0001 - 0.1000
0.1001 - 0.2500
0.2501 - 0.5000
0.5001 - 1.0000

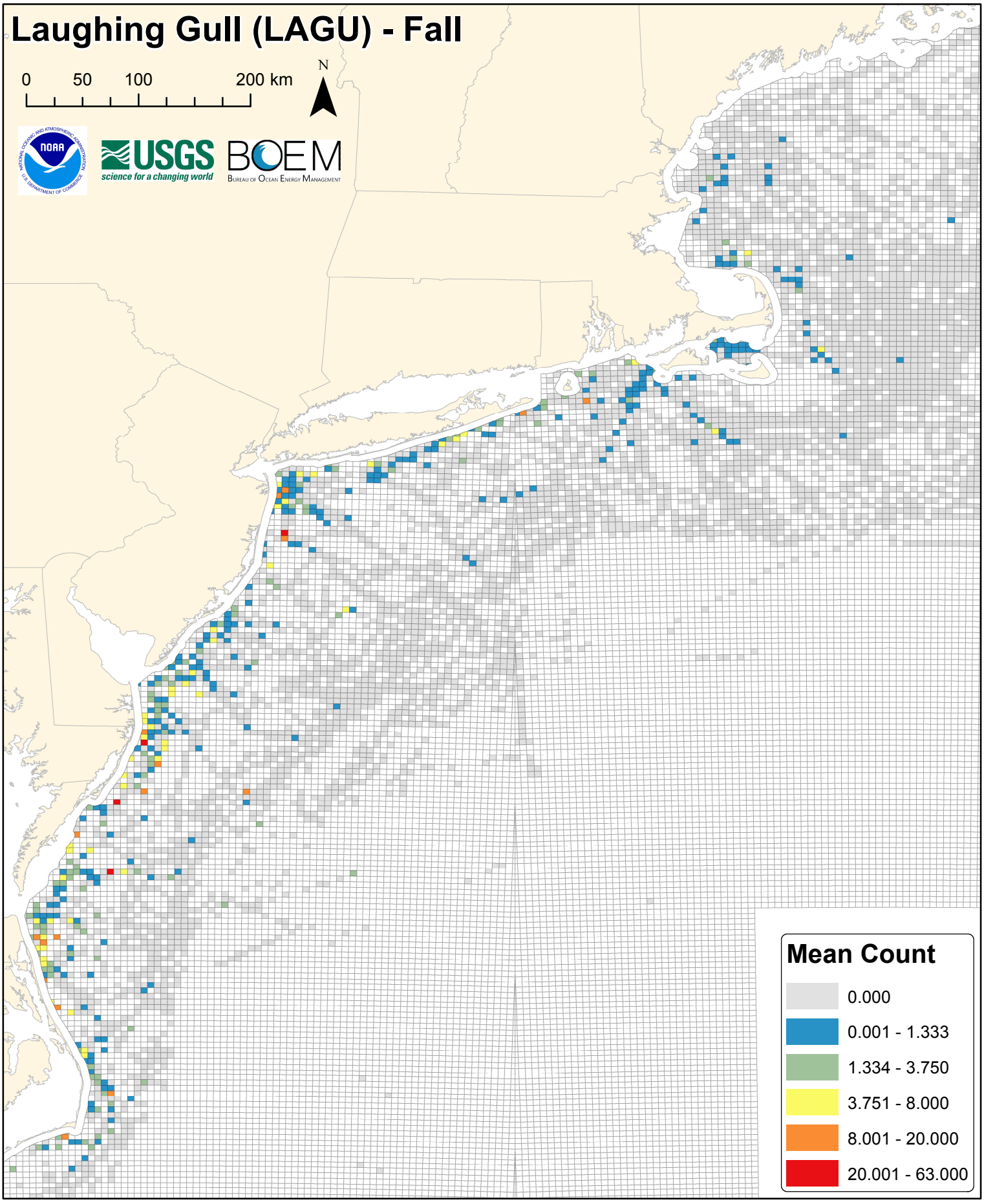

Northern Fulmar (NOFU) - Fall
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Mean Count
0.000
0.001 - 4.667
4.668 - 17.000
17.001 - 42.000
42.001 - 123.000
123.001 - 338.750

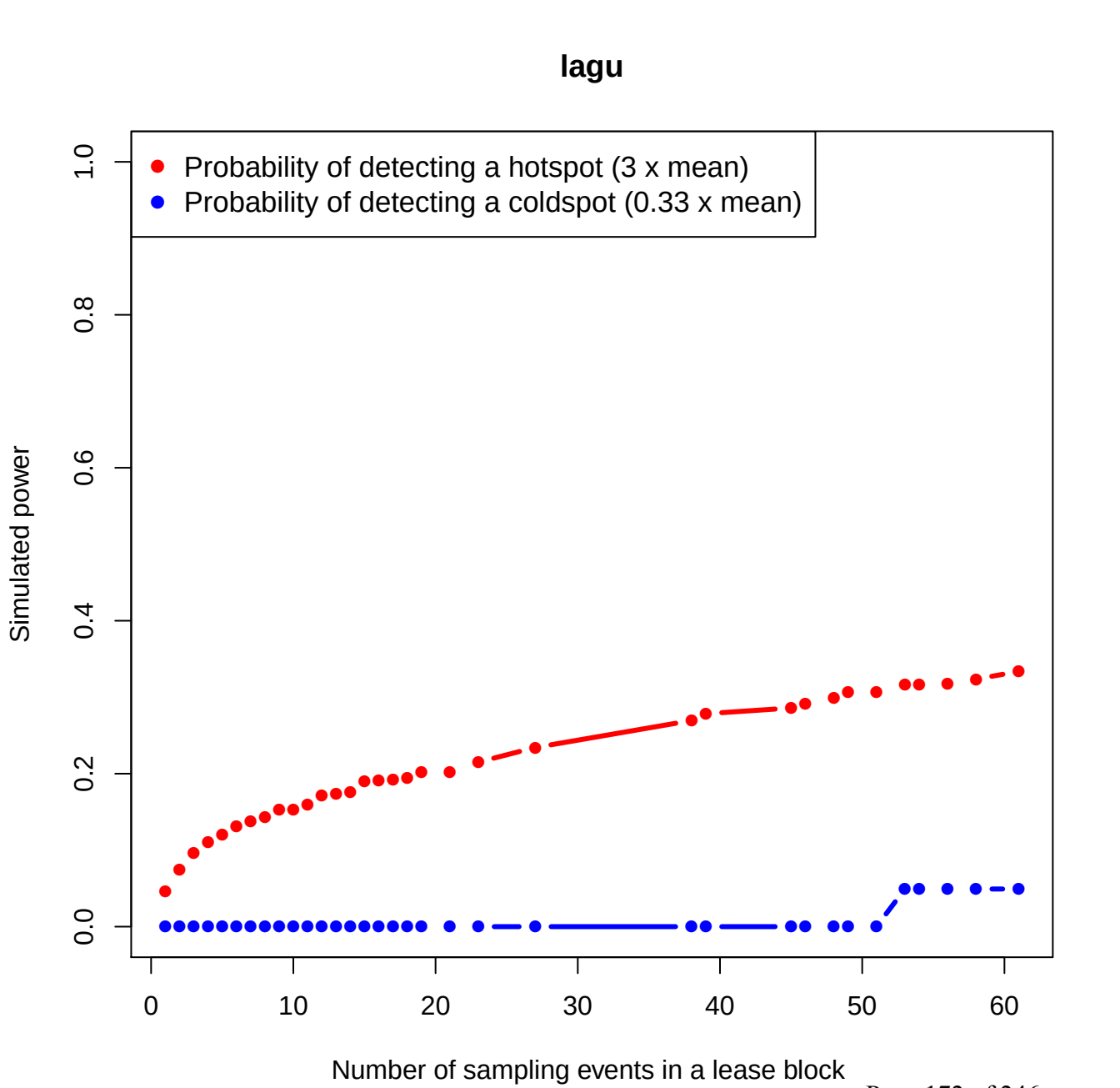

nofu
Probability of detecting a hotspot (3 x mean)
Probability of detecting a coldspot (0.33 x mean)
Simulated power
0.0
0.2
0.4
0.6
0.8
1.0
0
10
20
30
40
50
60
Number of sampling events in a lease block

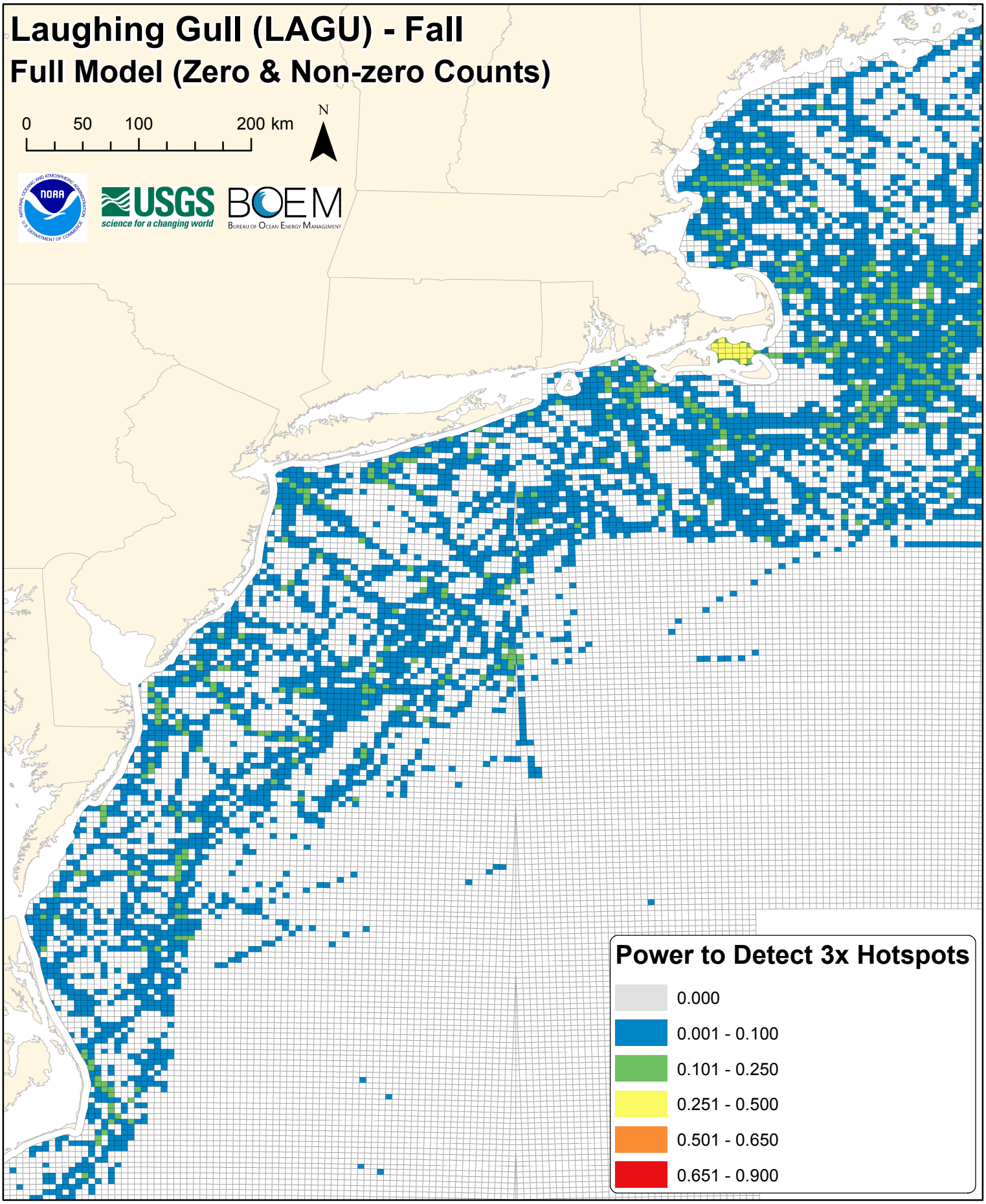

Northern Fulmar (NOFU) - Fall
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Power to Detect 3x Hotspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

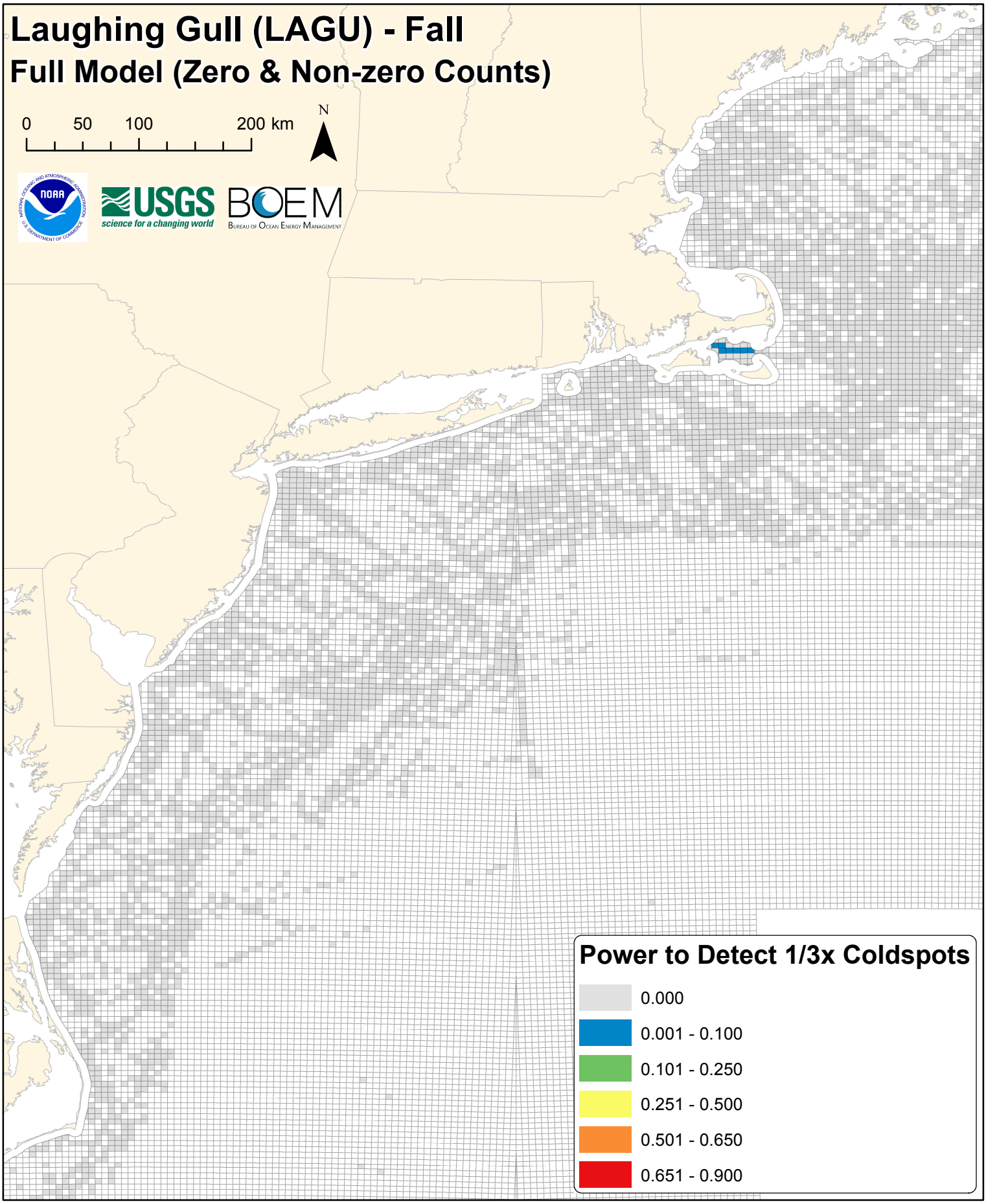

Northern Fulmar (NOFU) - Fall
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Power to Detect 1/3x Coldspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

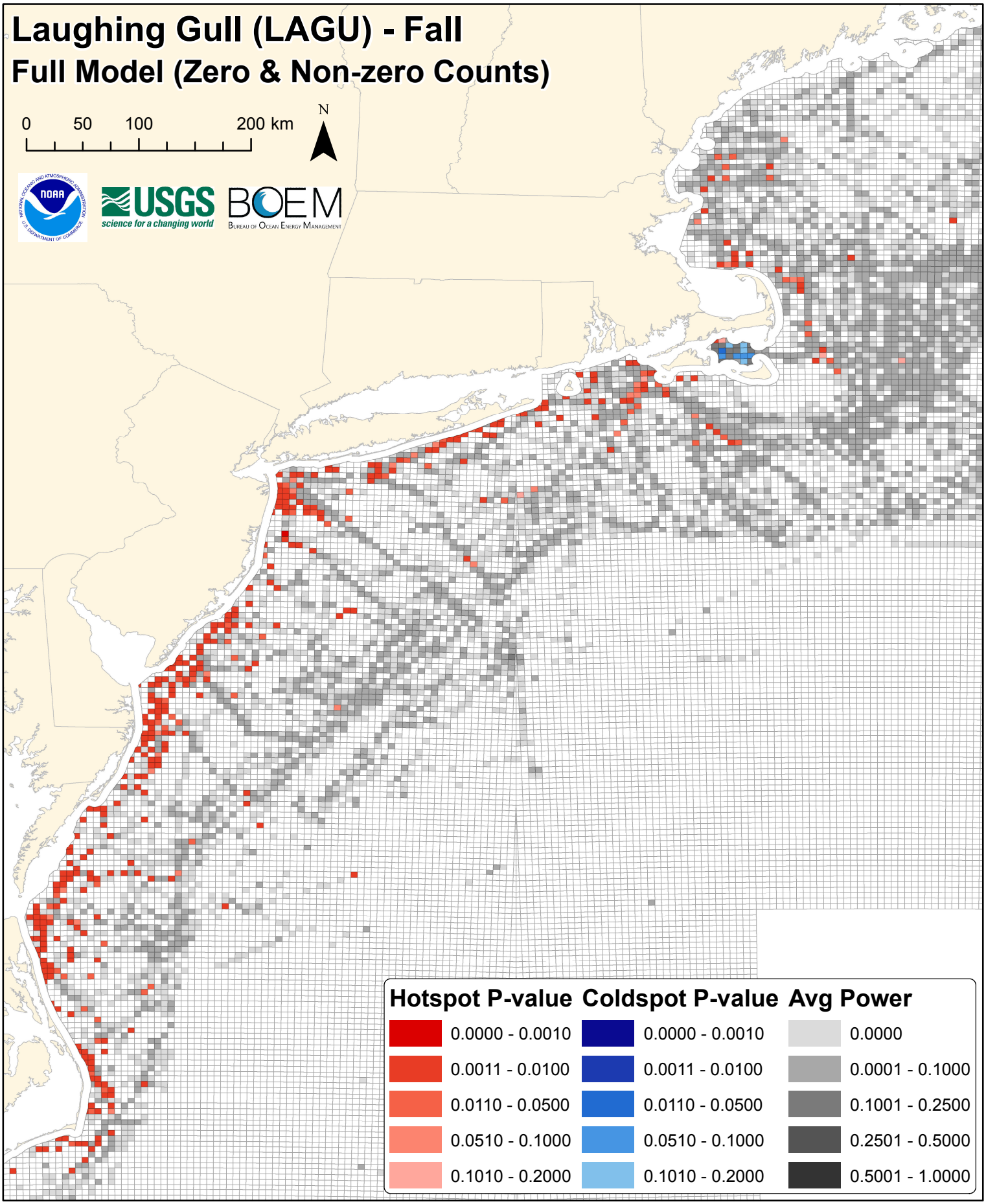

Northern Fulmar (NOFU) - Fall
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Hotspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Coldspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Avg Power
0.0000
0.0001 - 0.1000
0.1001 - 0.2500
0.2501 - 0.5000
0.5001 - 1.0000

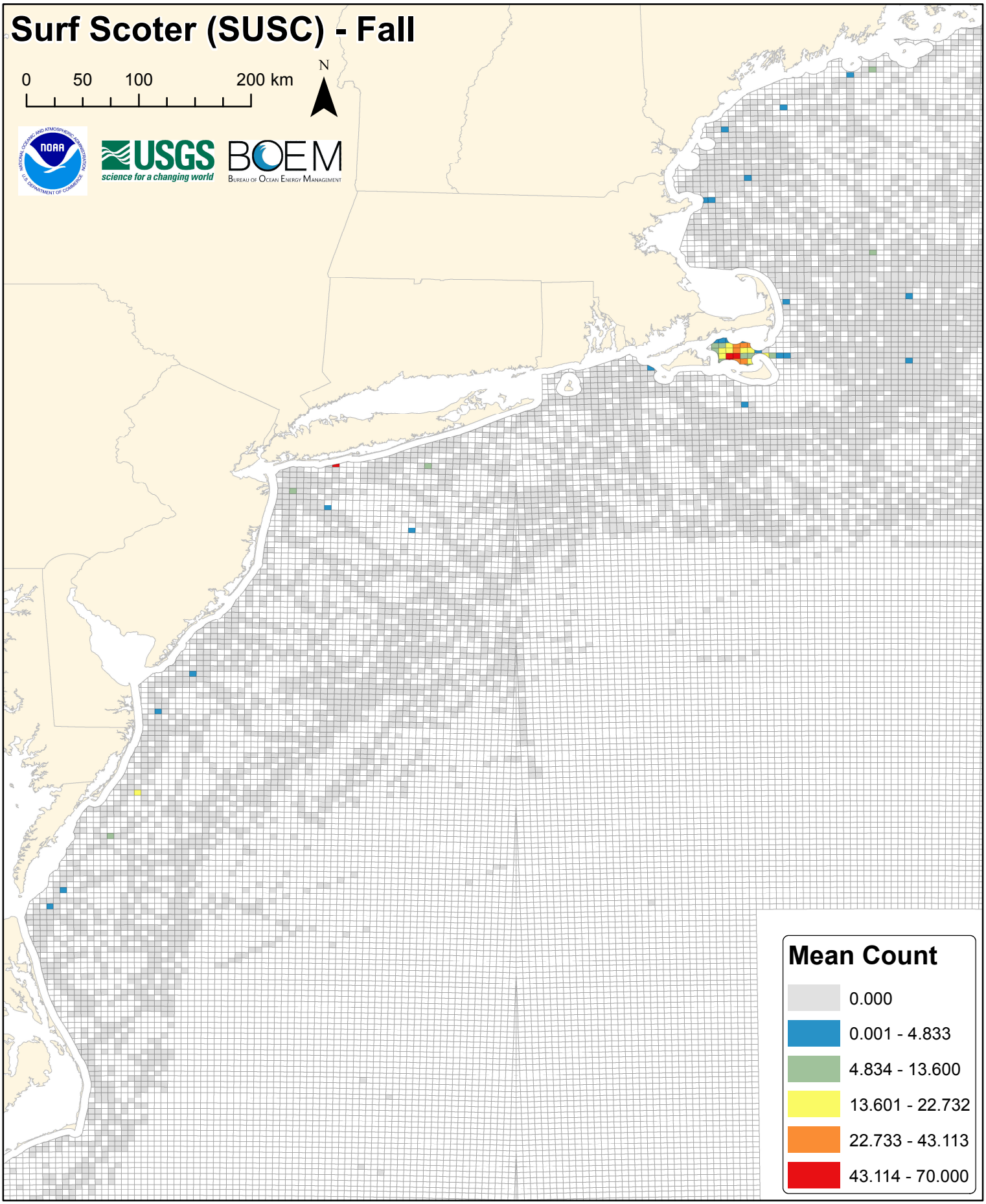

Laughing Gull (LAGU) - Fall
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Mean Count
0.000
0.001 - 1.333
1.334 - 3.750
3.751 - 8.000
8.001 - 20.000
20.001 - 63.000

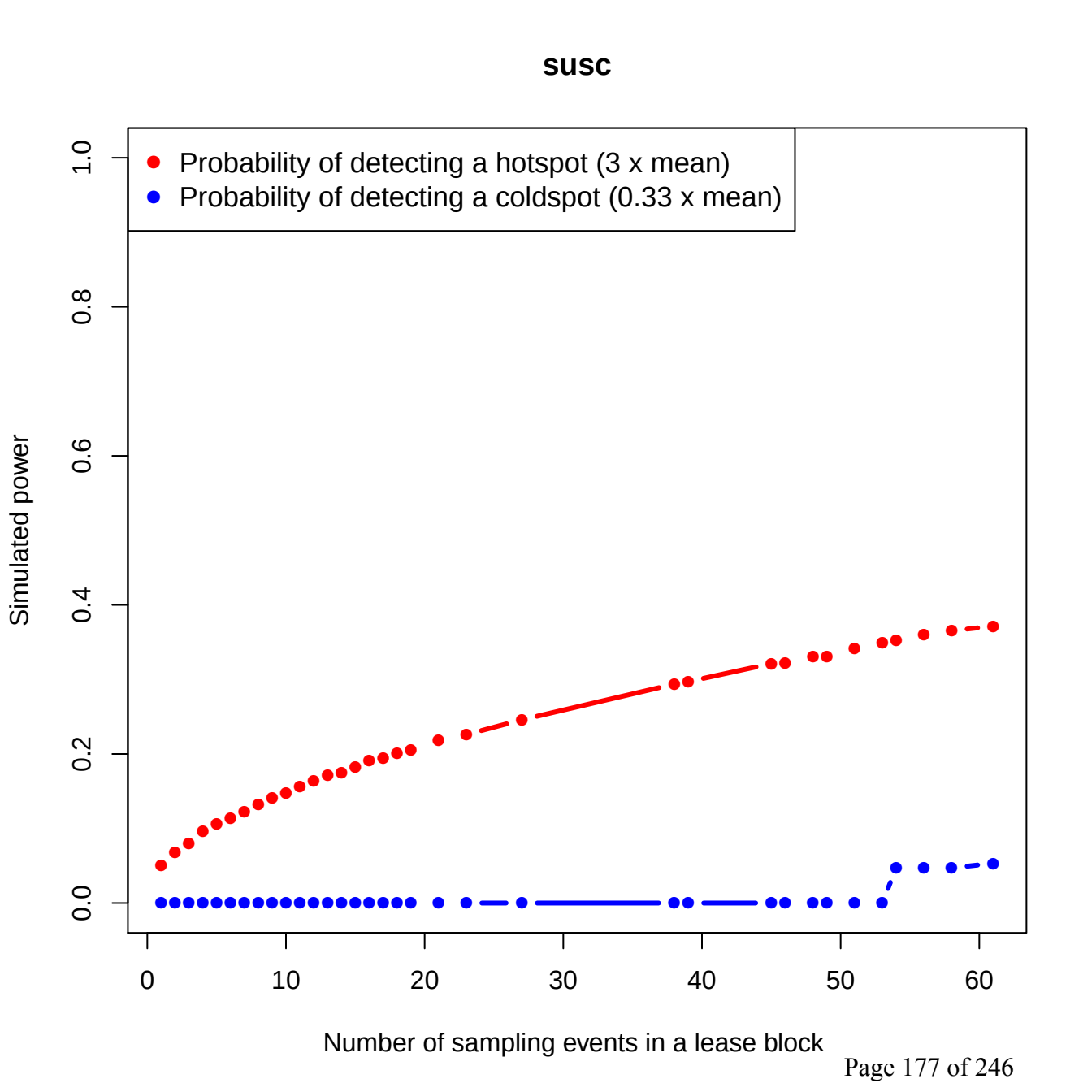

lagu
Probability of detecting a hotspot (3 x mean)
Probability of detecting a coldspot (0.33 x mean)
Simulated power
0.0
0.2
0.4
0.6
0.8
1.0
0
10
20
30
40
50
60
Number of sampling events in a lease block

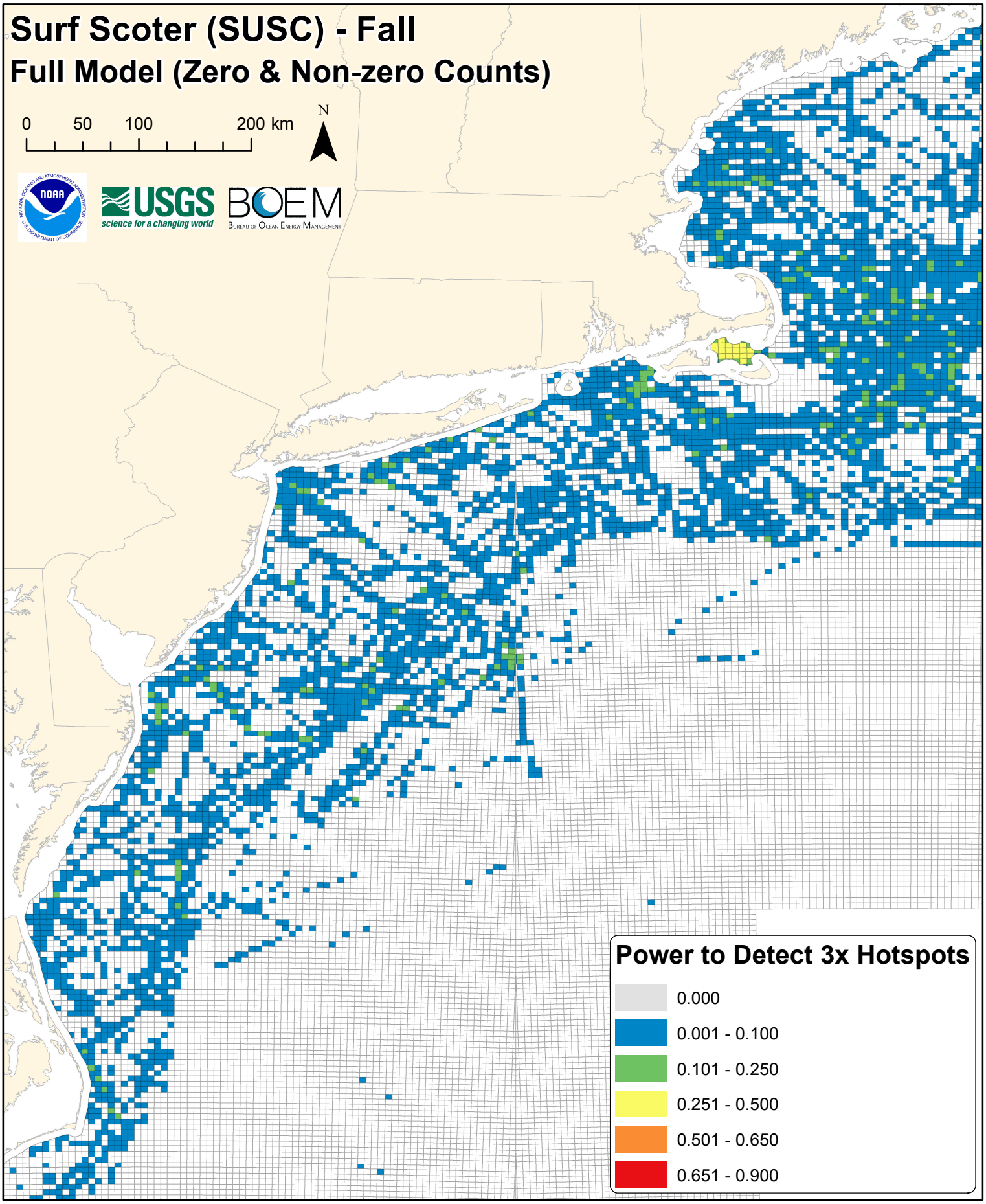

Laughing Gull (LAGU) - Fall
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Power to Detect 3x Hotspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

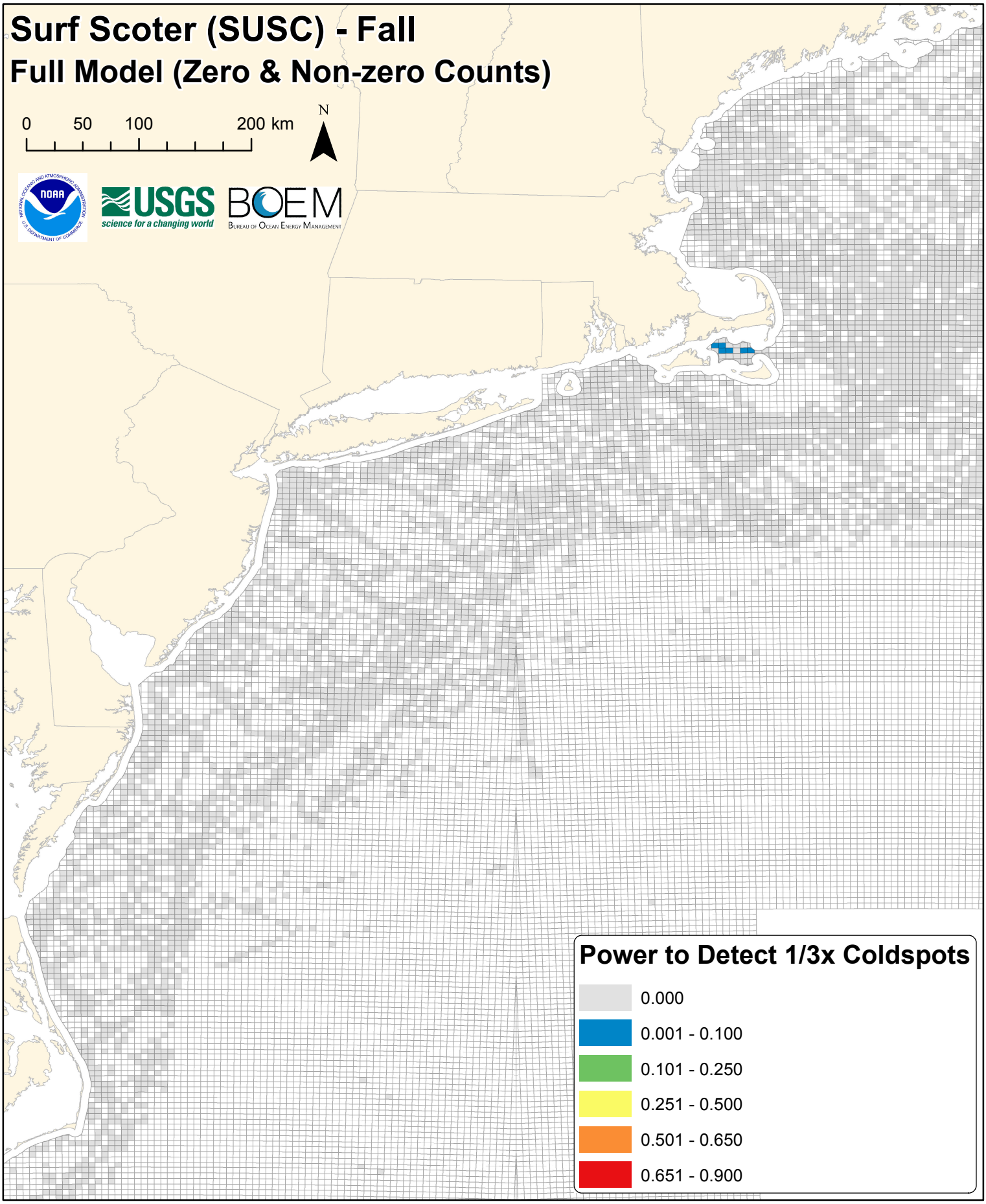

Laughing Gull (LAGU) - Fall
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Power to Detect 1/3x Coldspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

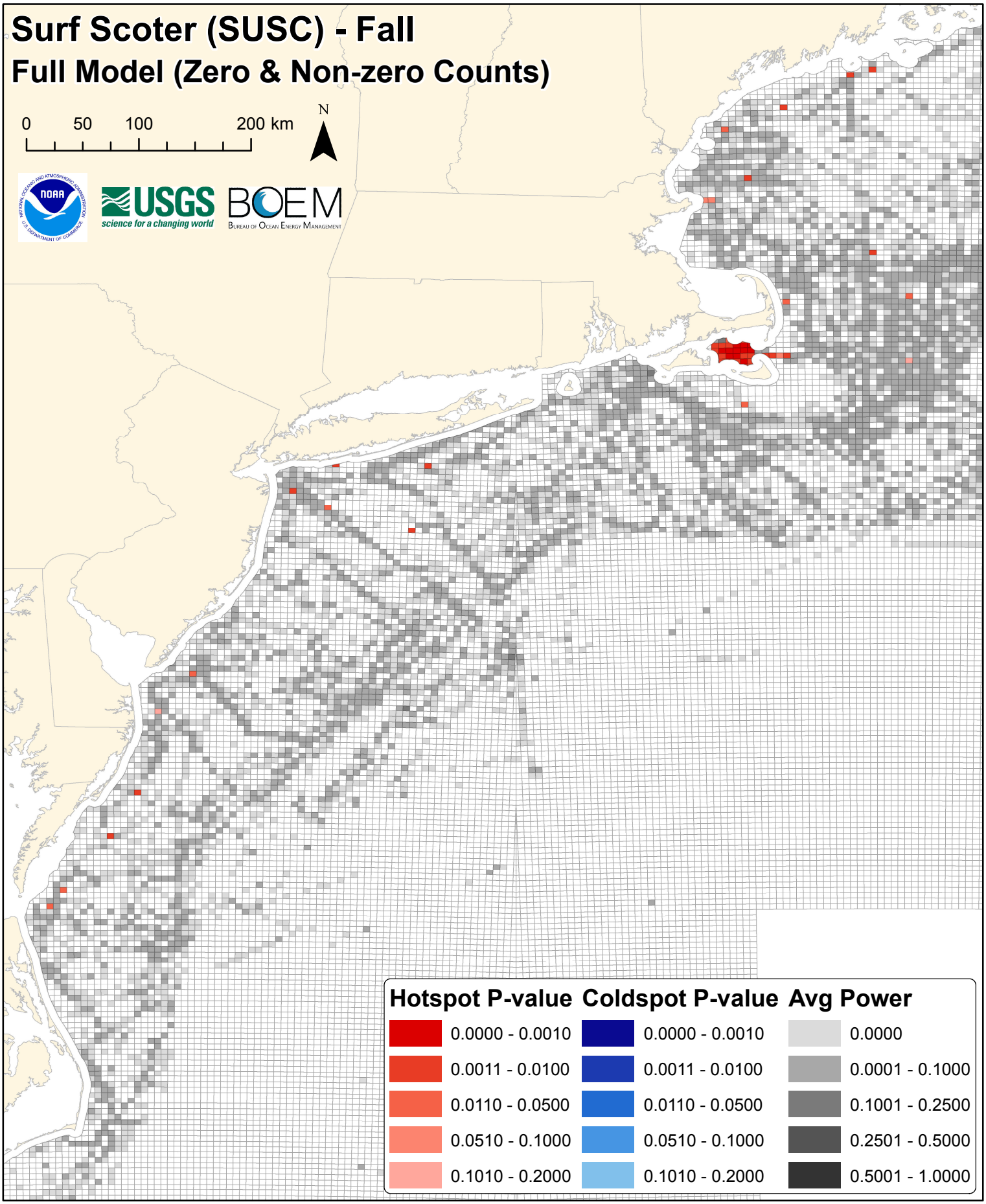

Laughing Gull (LAGU) - Fall
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Hotspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Coldspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Avg Power
0.0000
0.0001 - 0.1000
0.1001 - 0.2500
0.2501 - 0.5000
0.5001 - 1.0000

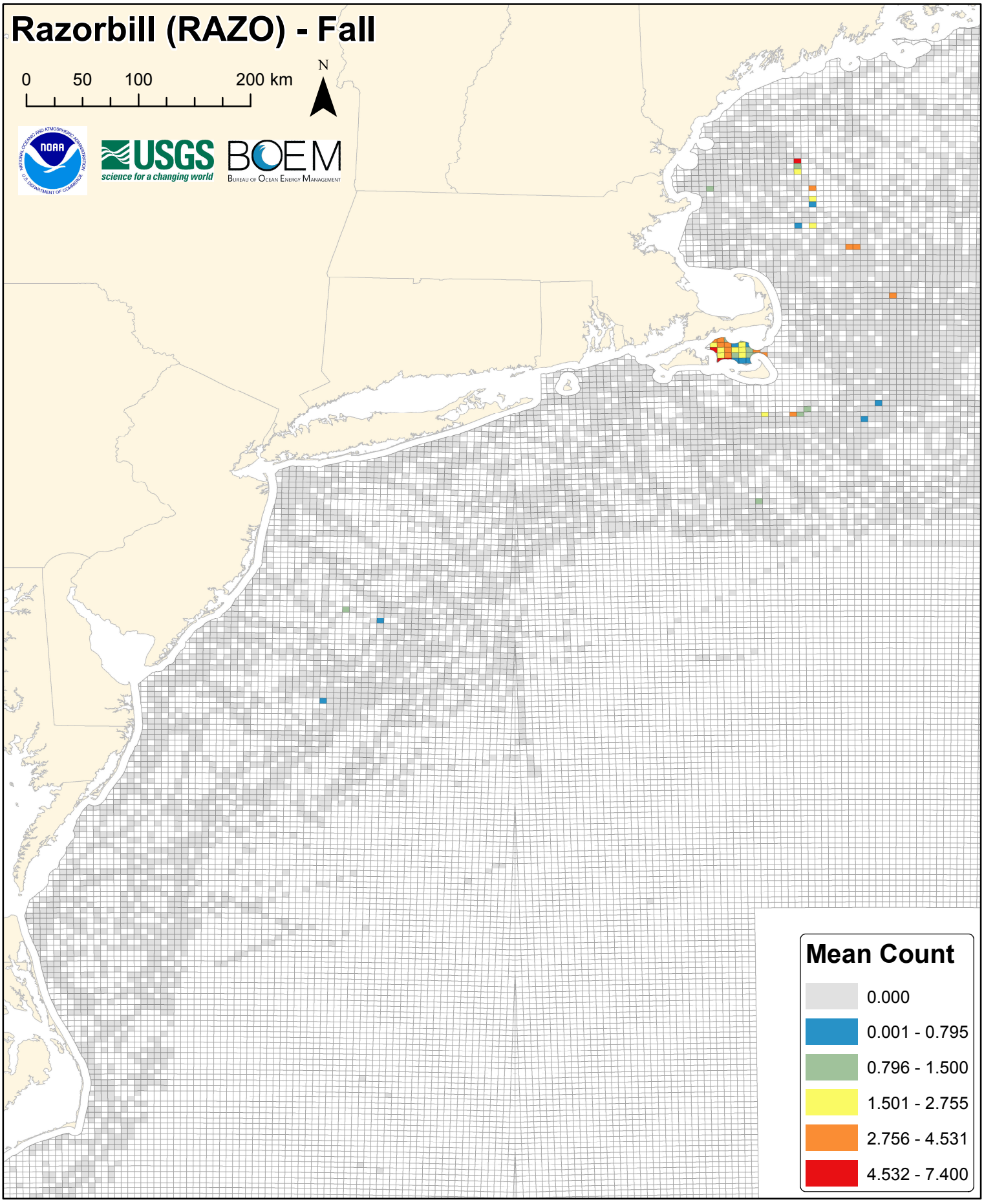

Surf Scoter (SUSC) - Fall
0
50
100
200 km
N
NOAA
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Mean Count
0.000
0.001 - 4.833
4.834 - 13.600
13.601 - 22.732
22.733 - 43.113
43.114 - 70.000

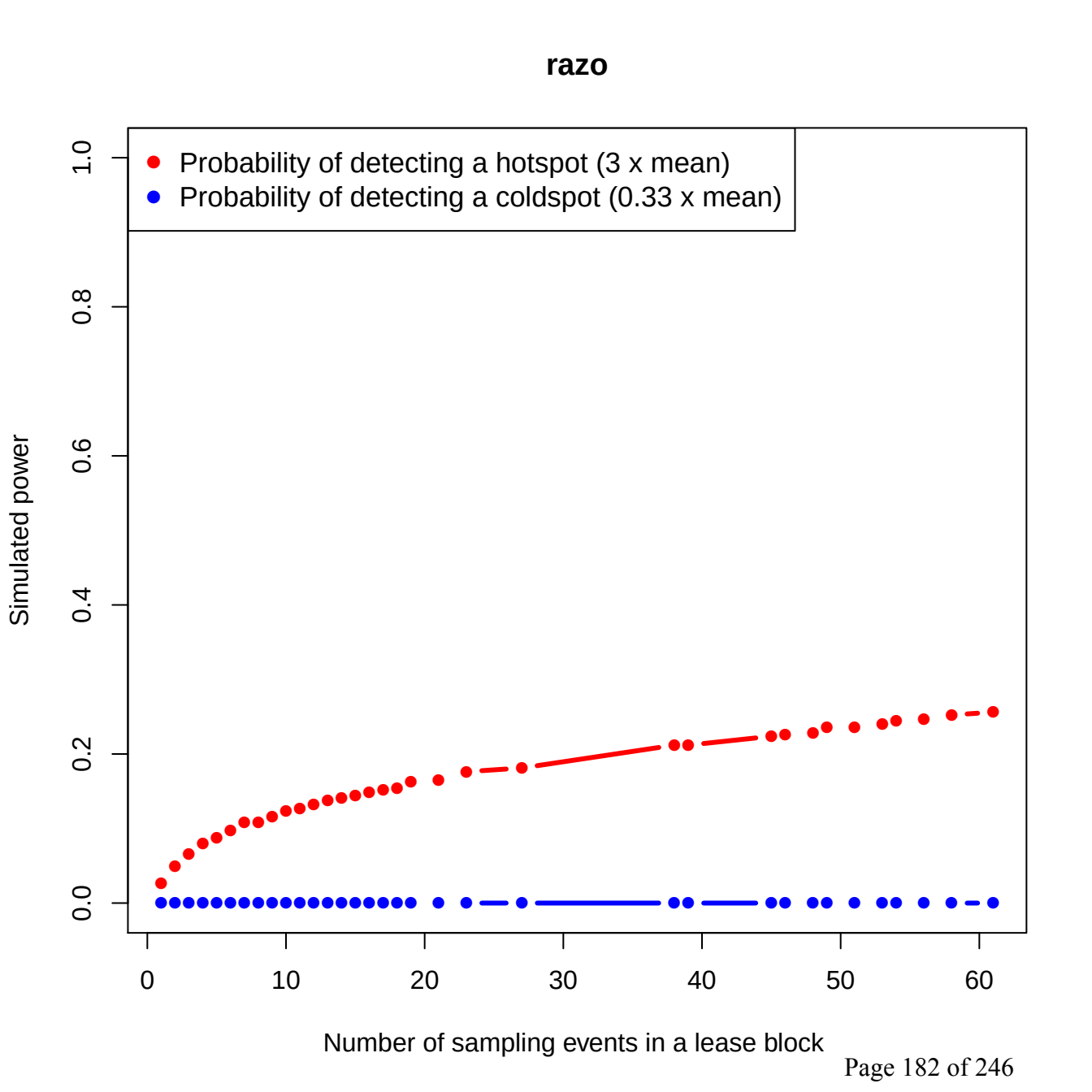

susc
Probability of detecting a hotspot (3 x mean)
Probability of detecting a coldspot (0.33 x mean)
Simulated power
0.0
0.2
0.4
0.6
0.8
1.0
0
10
20
30
40
50
60
Number of sampling events in a lease block

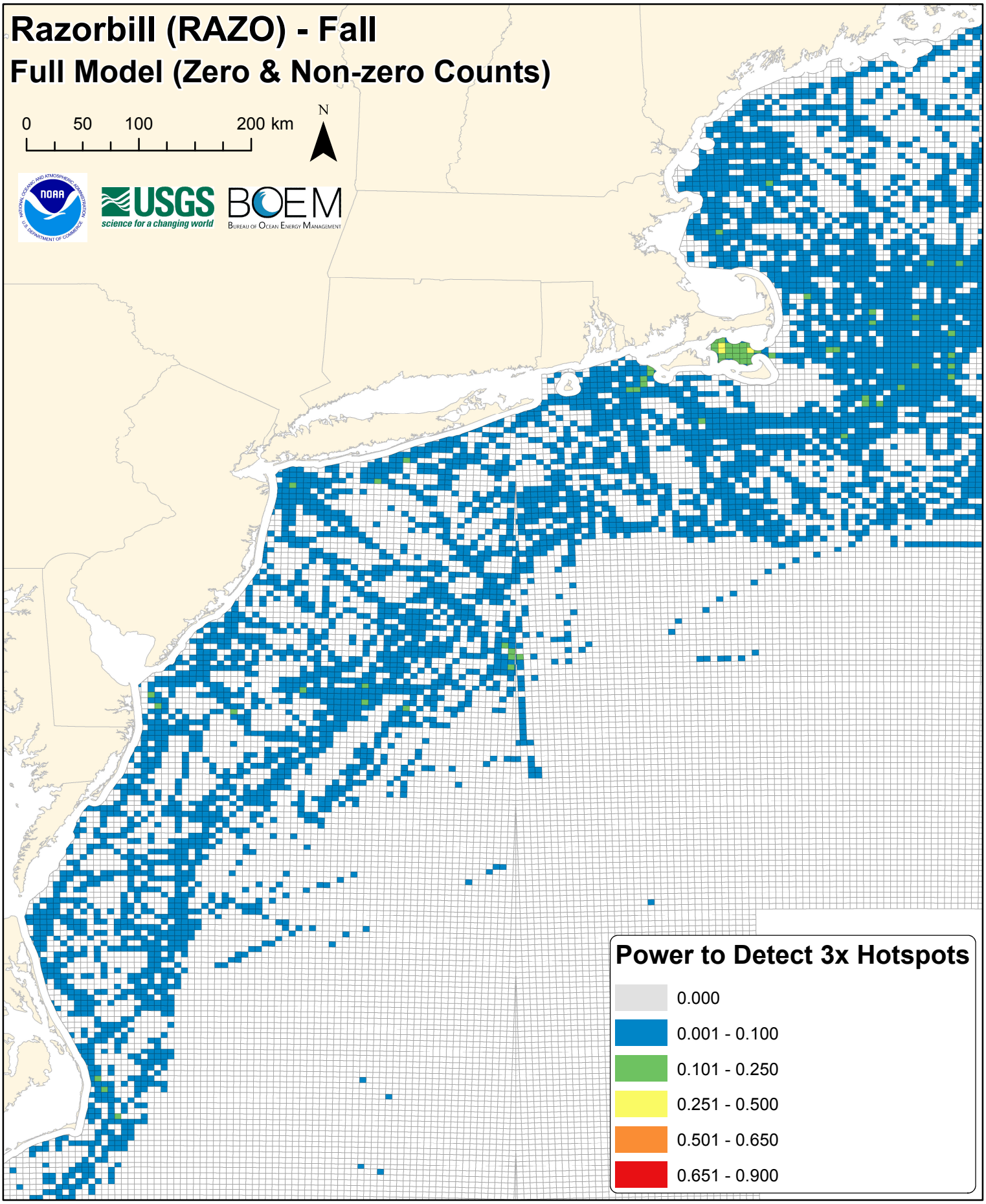

Surf Scoter (SUSC) - Fall
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Power to Detect 3x Hotspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

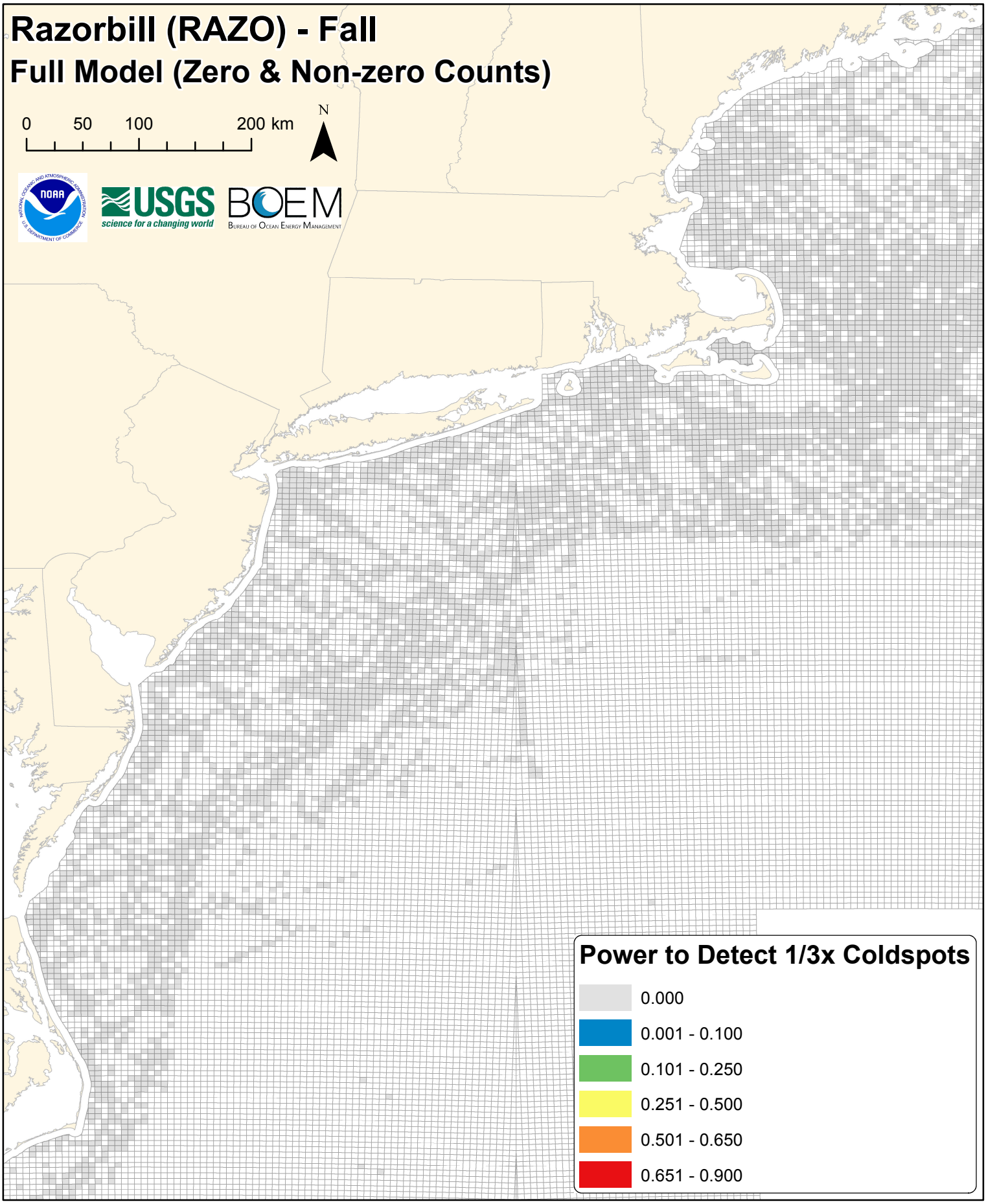

Surf Scoter (SUSC) - Fall
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Power to Detect 1/3x Coldspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

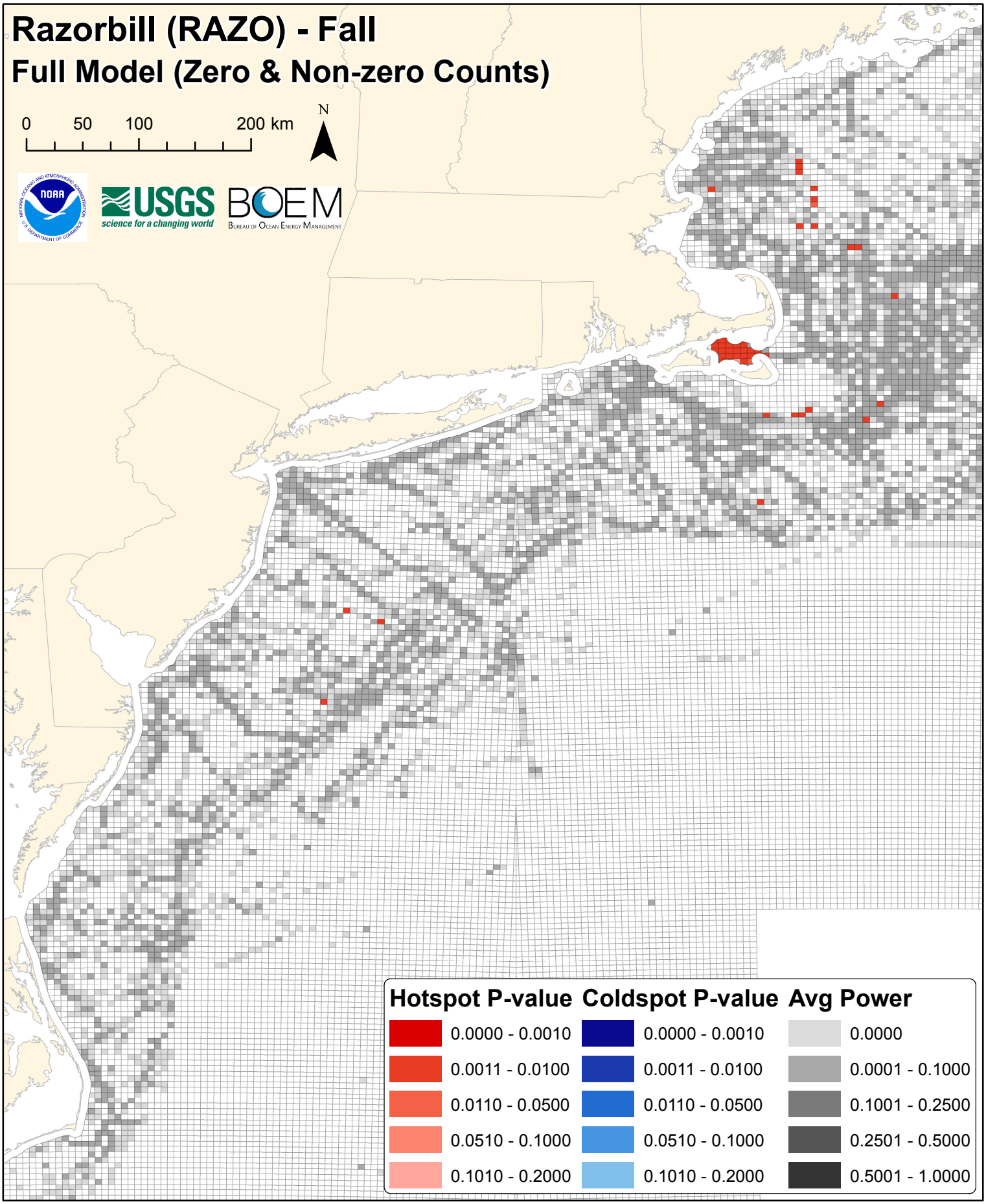

Surf Scoter (SUSC) - Fall
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Hotspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Coldspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Avg Power
0.0000
0.0001 - 0.1000
0.1001 - 0.2500
0.2501 - 0.5000
0.5001 - 1.0000

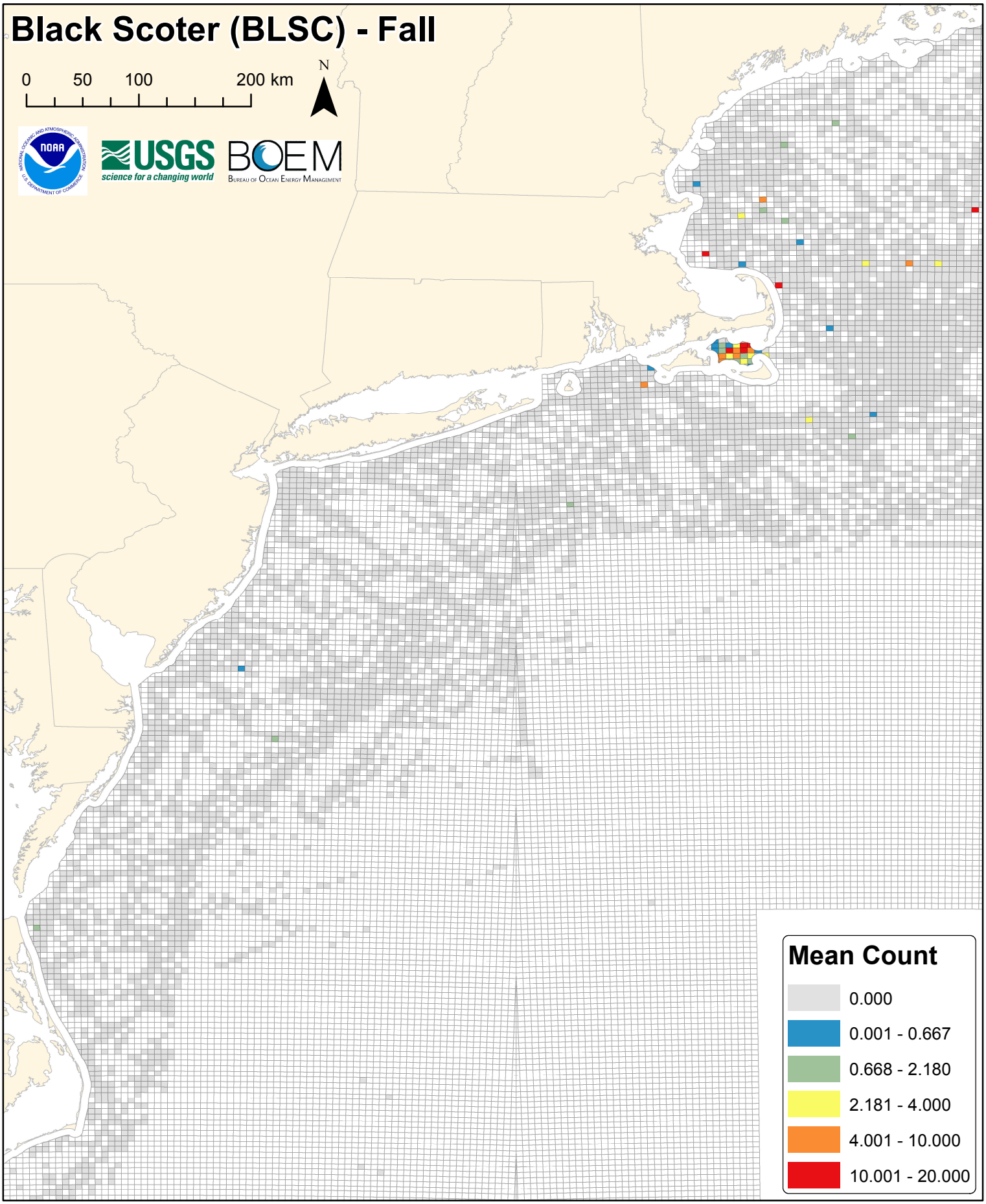

Razorbill (RAZO) - Fall
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Mean Count
0.000
0.001 - 0.795
0.796 - 1.500
1.501 - 2.755
2.756 - 4.531
4.532 - 7.400

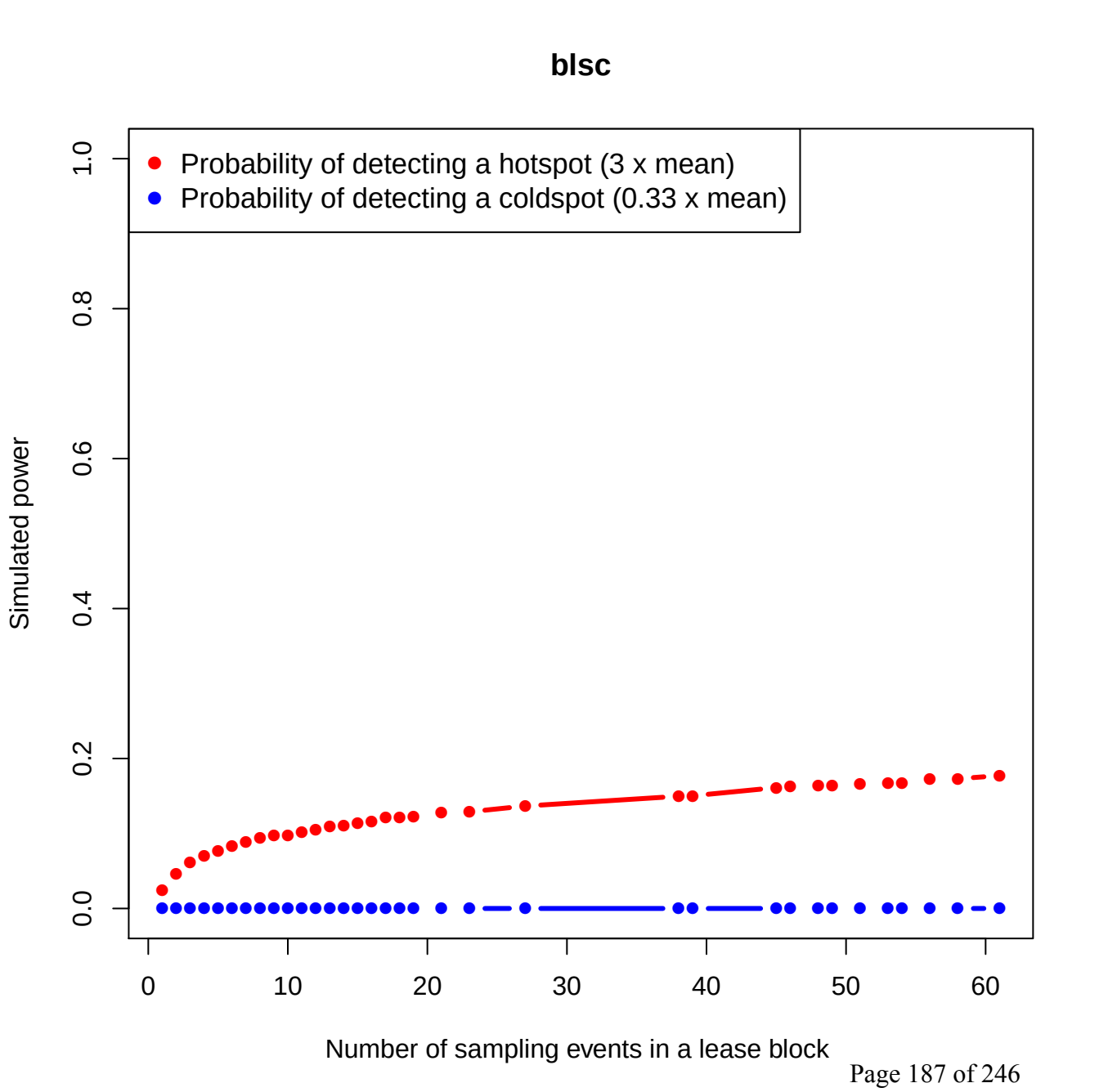

razo
Probability of detecting a hotspot (3 x mean)
Probability of detecting a coldspot (0.33 x mean)
Simulated power
0.0
0.2
0.4
0.6
0.8
1.0
0
10
20
30
40
50
60
Number of sampling events in a lease block

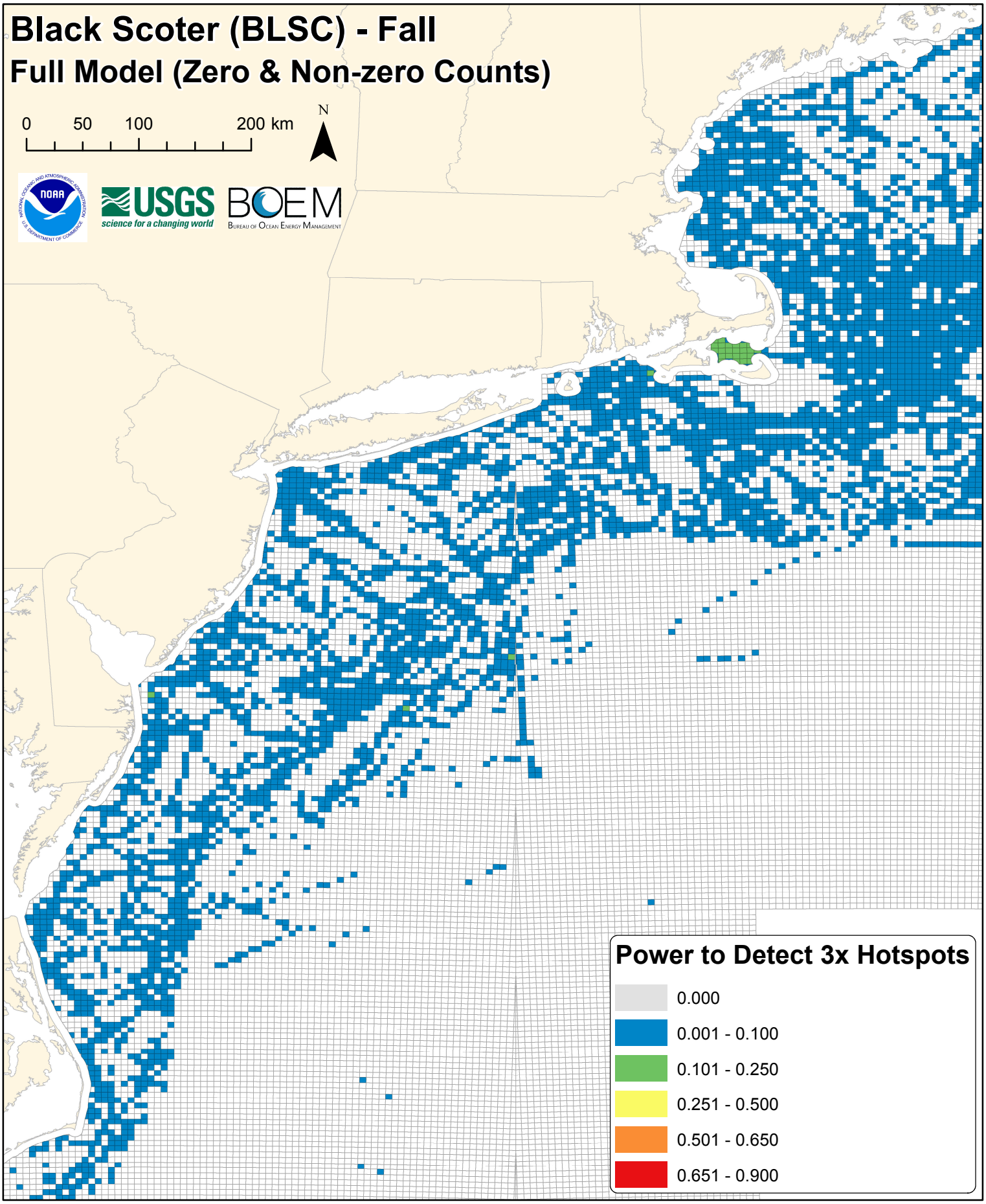

Razorbill (RAZO) - Fall
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Power to Detect 3x Hotspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

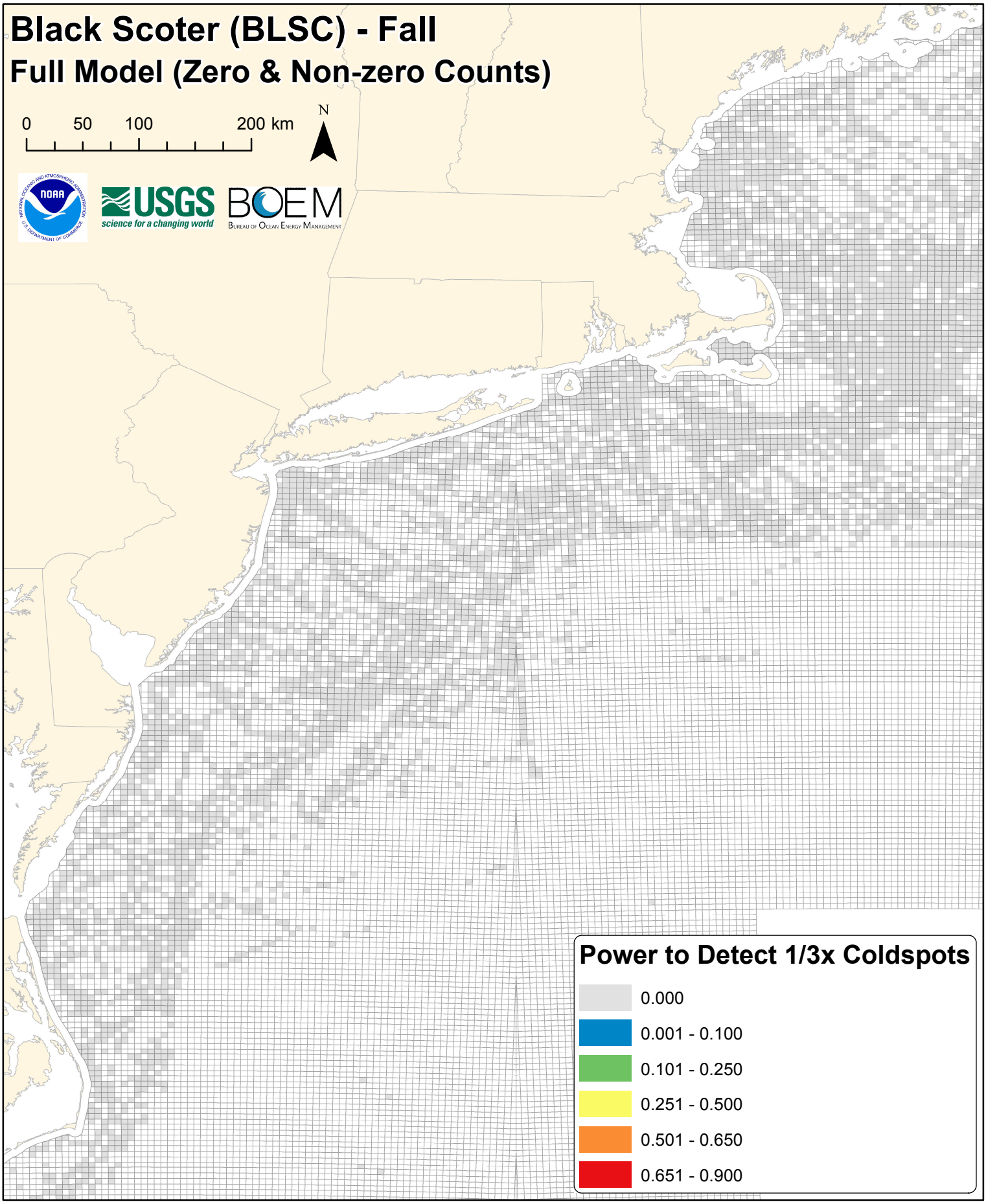

Razorbill (RAZO) - Fall
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Power to Detect 1/3x Coldspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

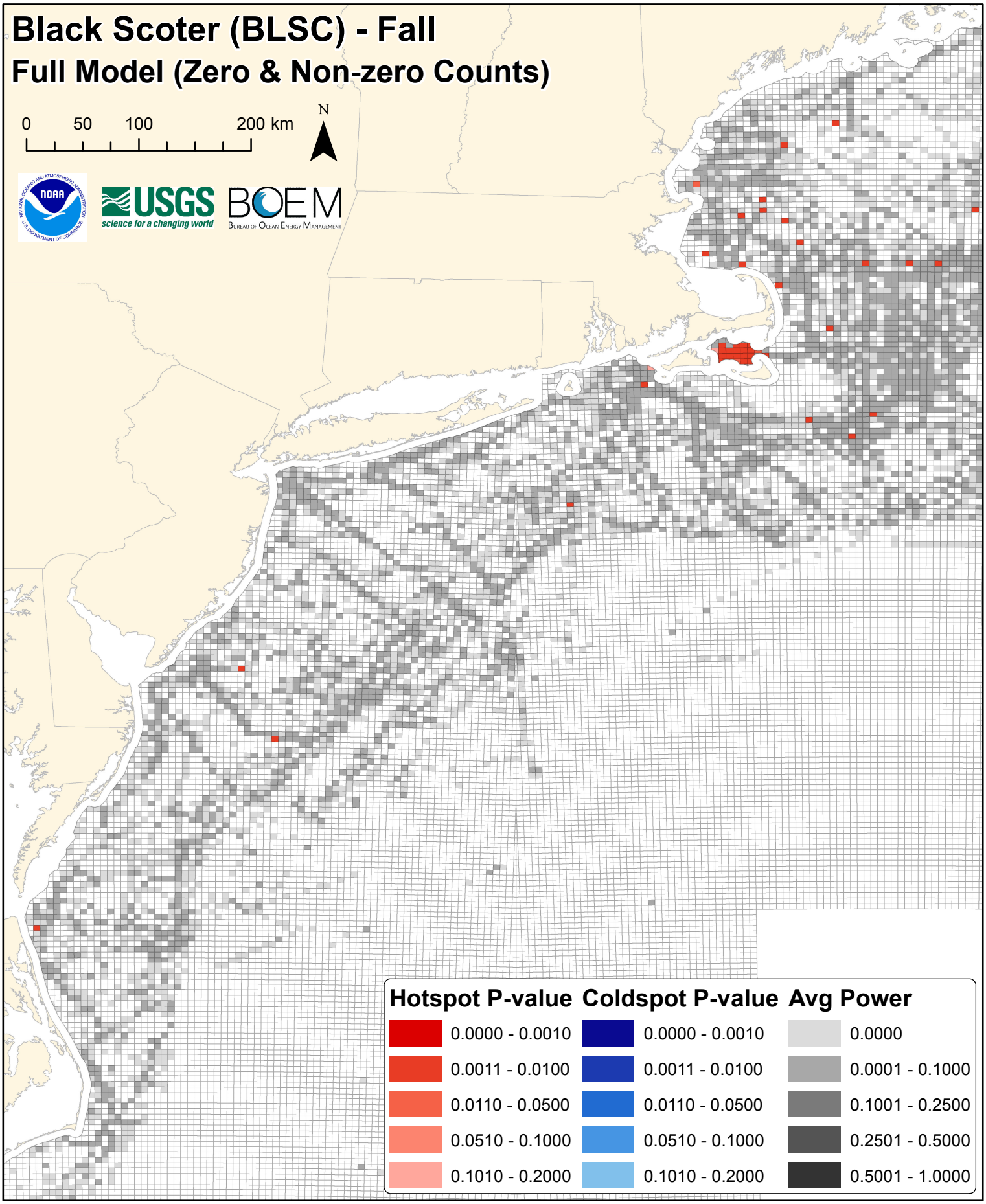

Razorbill (RAZO) - Fall
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Hotspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Coldspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Avg Power
0.0000
0.0001 - 0.1000
0.1001 - 0.2500
0.2501 - 0.5000
0.5001 - 1.0000

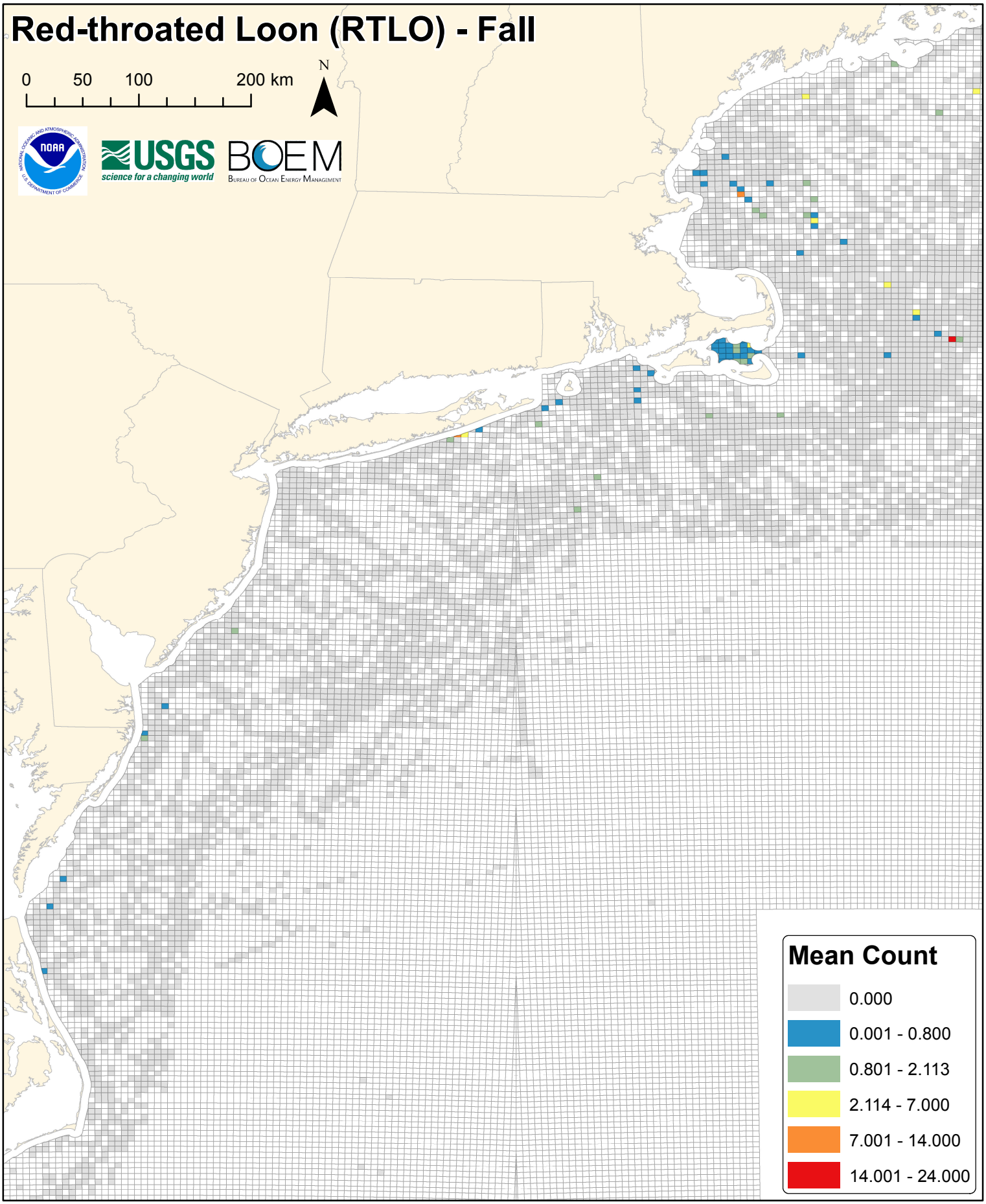

Black Scoter (BLSC) - Fall
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Mean Count
0.000
0.001 - 0.667
0.668 - 2.180
2.181 - 4.000
4.001 - 10.000
10.001 - 20.000

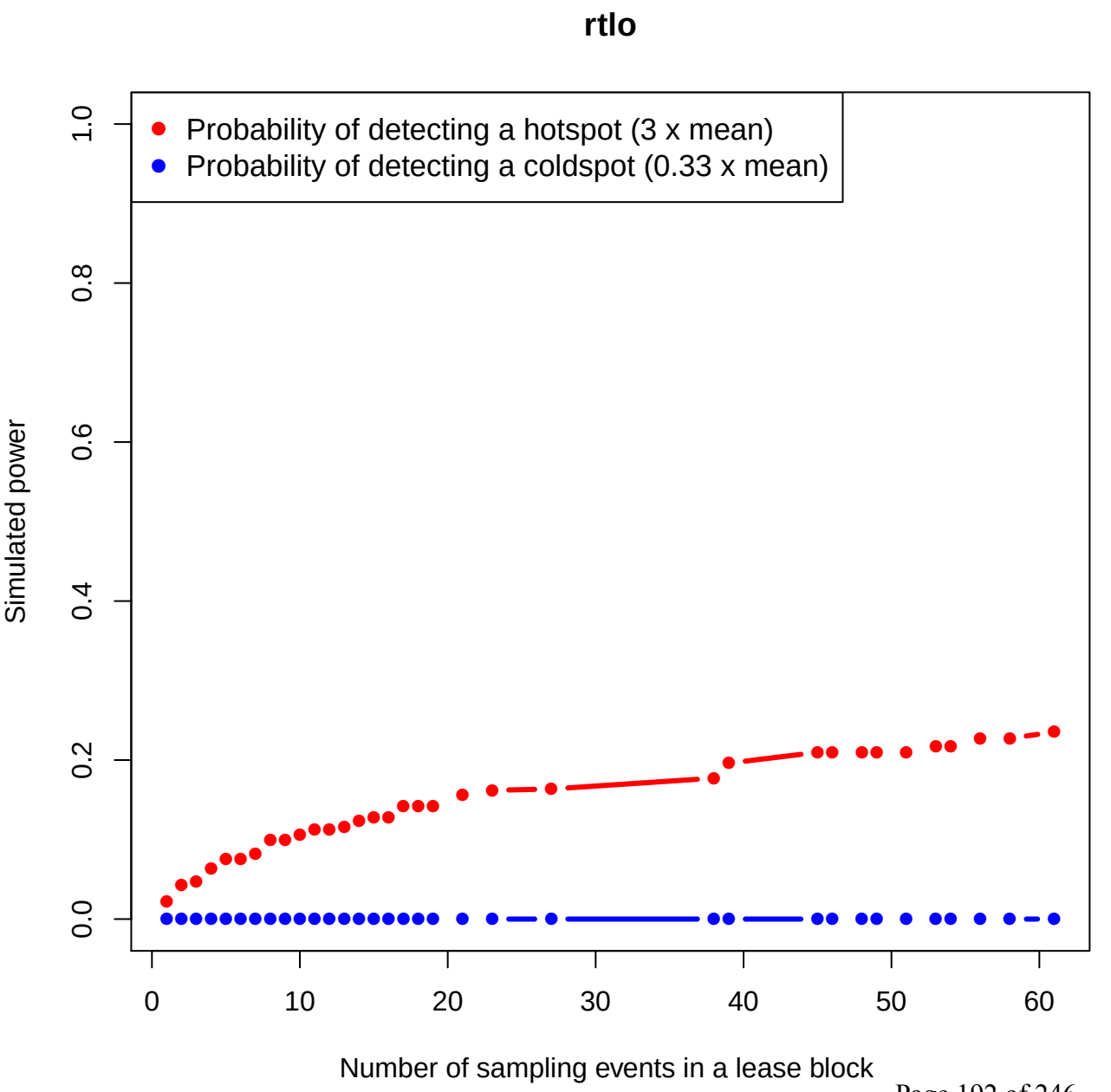

blsc
Probability of detecting a hotspot (3 x mean)
Probability of detecting a coldspot (0.33 x mean)
Simulated power
0.0
0.2
0.4
0.6
0.8
1.0
0
10
20
30
40
50
60
Number of sampling events in a lease block

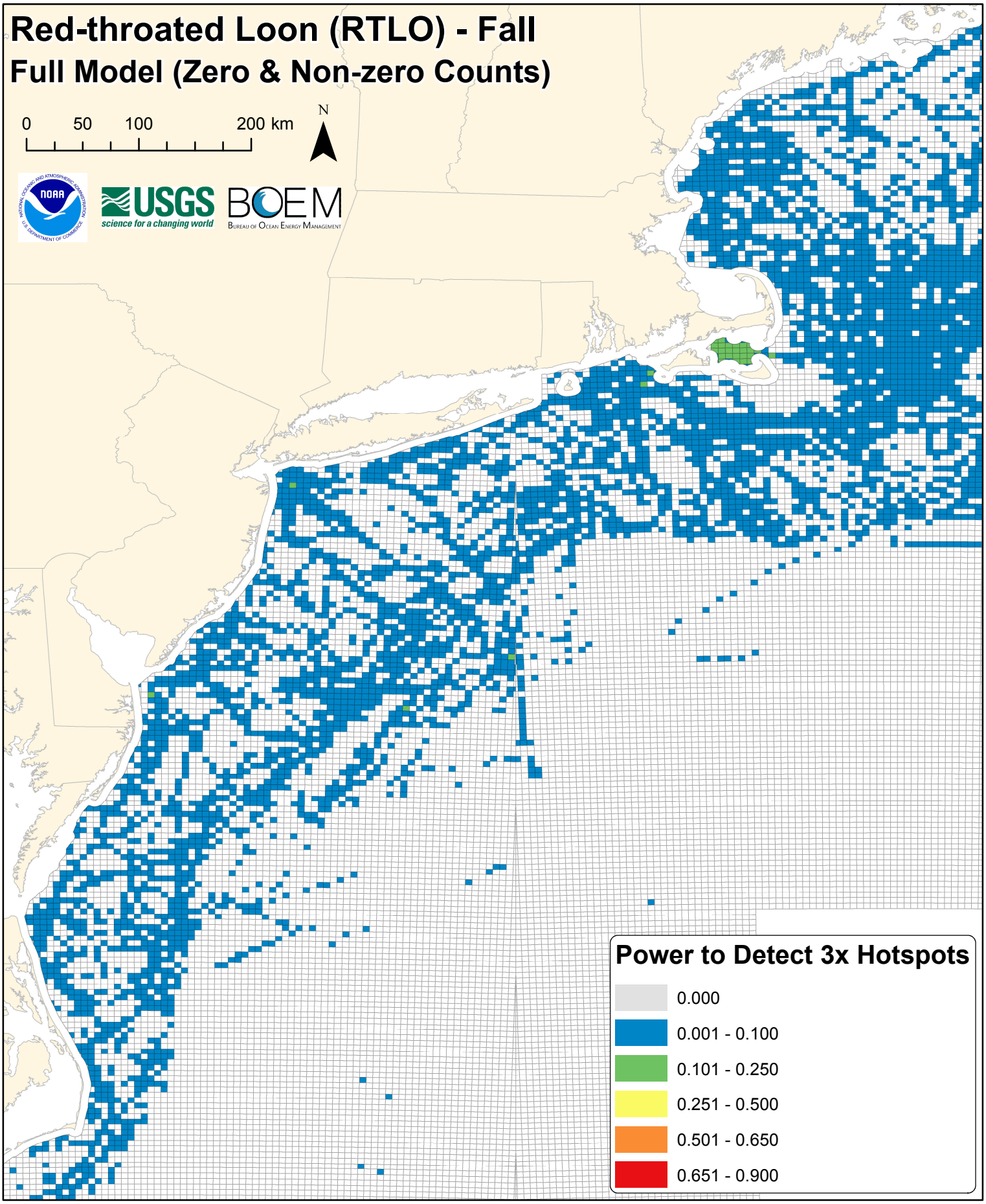

Black Scoter (BLSC) - Fall
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Power to Detect 3x Hotspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

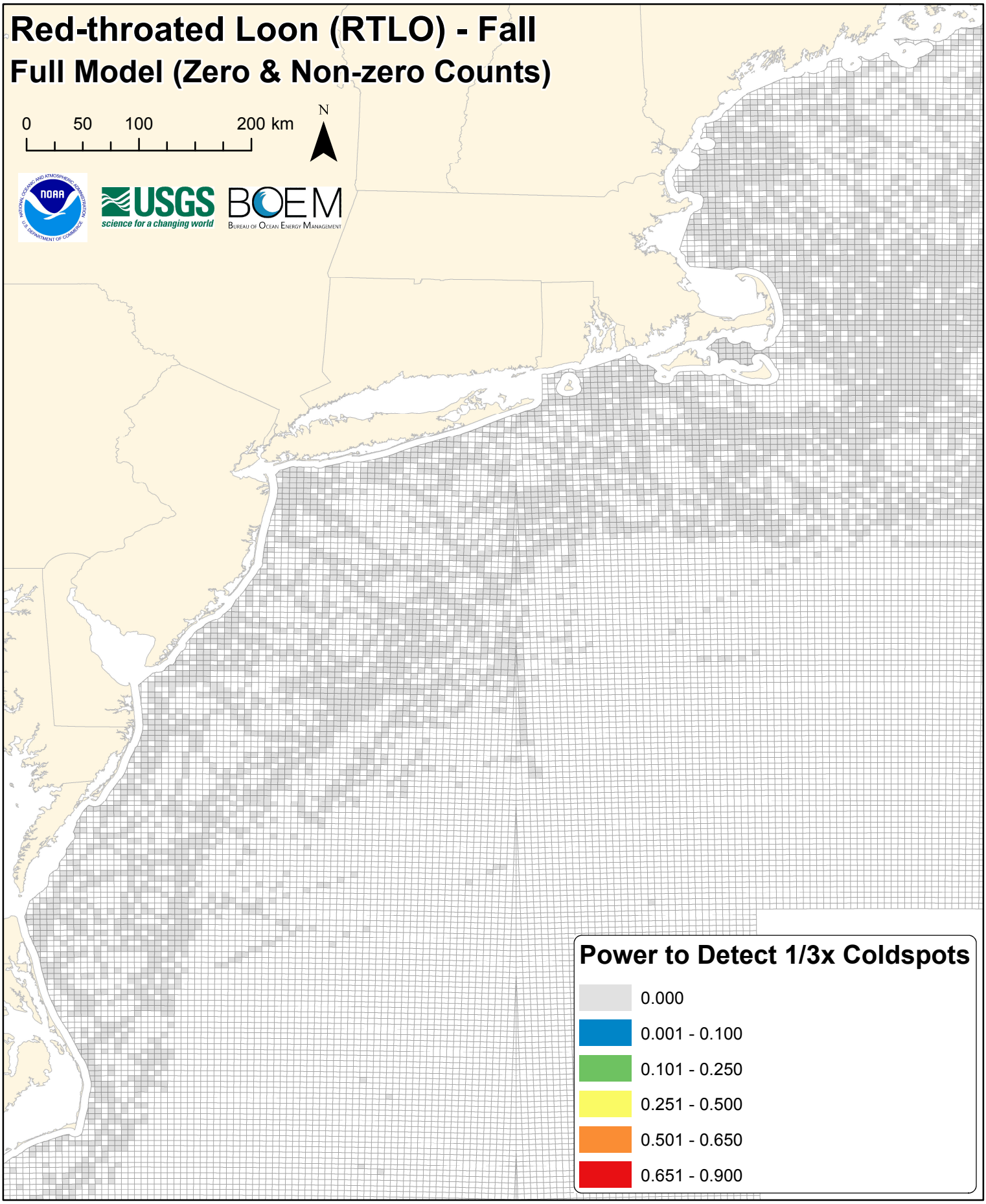

Black Scoter (BLSC) - Fall
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Power to Detect 1/3x Coldspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

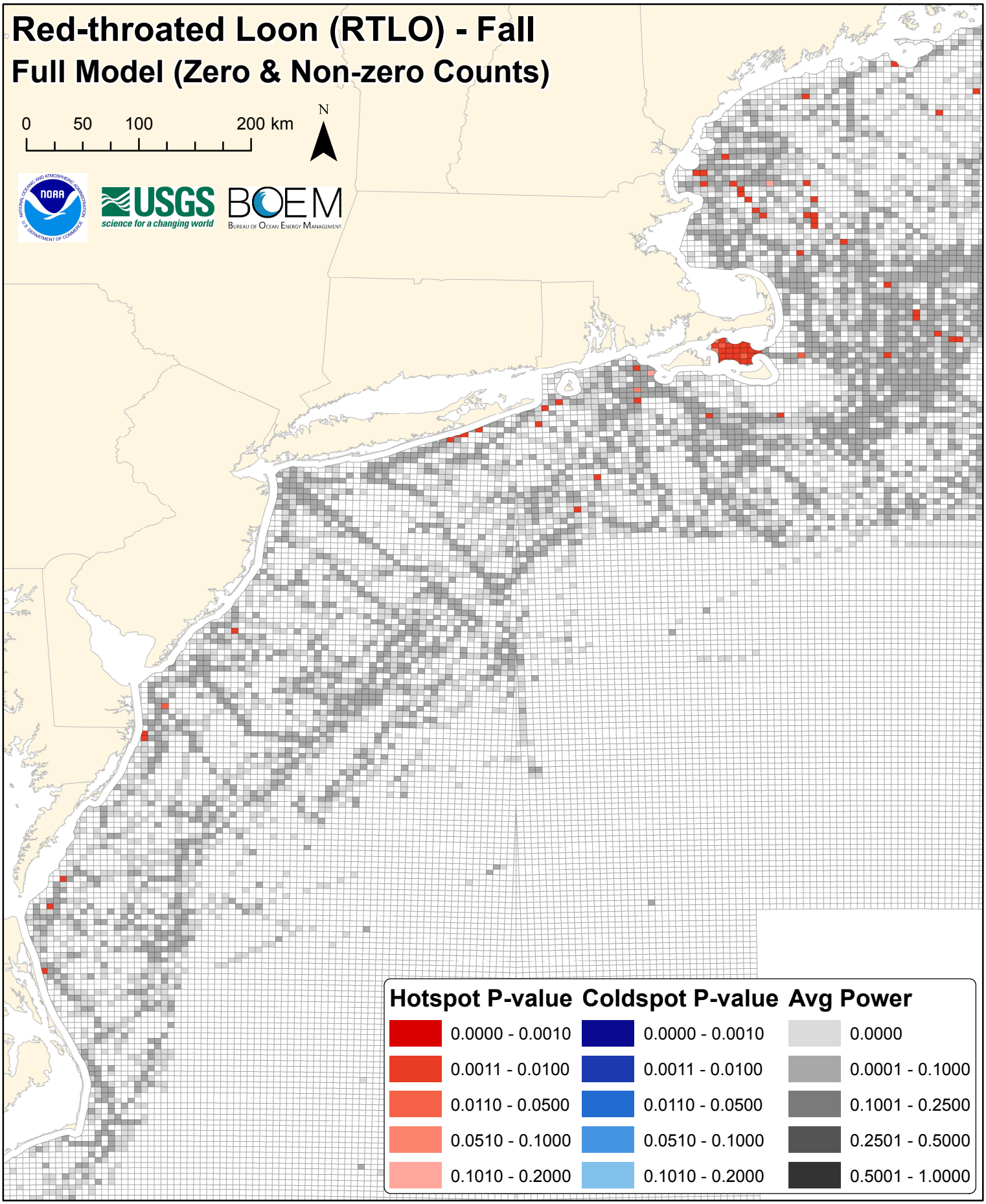

Black Scoter (BLSC) - Fall
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Hotspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Coldspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Avg Power
0.0000
0.0001 - 0.1000
0.1001 - 0.2500
0.2501 - 0.5000
0.5001 - 1.0000


Red-throated Loon (RTLO) - Fall
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Mean Count
0.000
0.001 - 0.800
0.801 - 2.113
2.114 - 7.000
7.001 - 14.000
14.001 - 24.000


rtlo
Probability of detecting a hotspot (3 x mean)
Probability of detecting a coldspot (0.33 x mean)
Simulated power
0.0
0.2
0.4
0.6
0.8
1.0
0
10
20
30
40
50
60
Number of sampling events in a lease block


Red-throated Loon (RTLO) - Fall
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Power to Detect 3x Hotspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900


Red-throated Loon (RTLO) - Fall
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
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

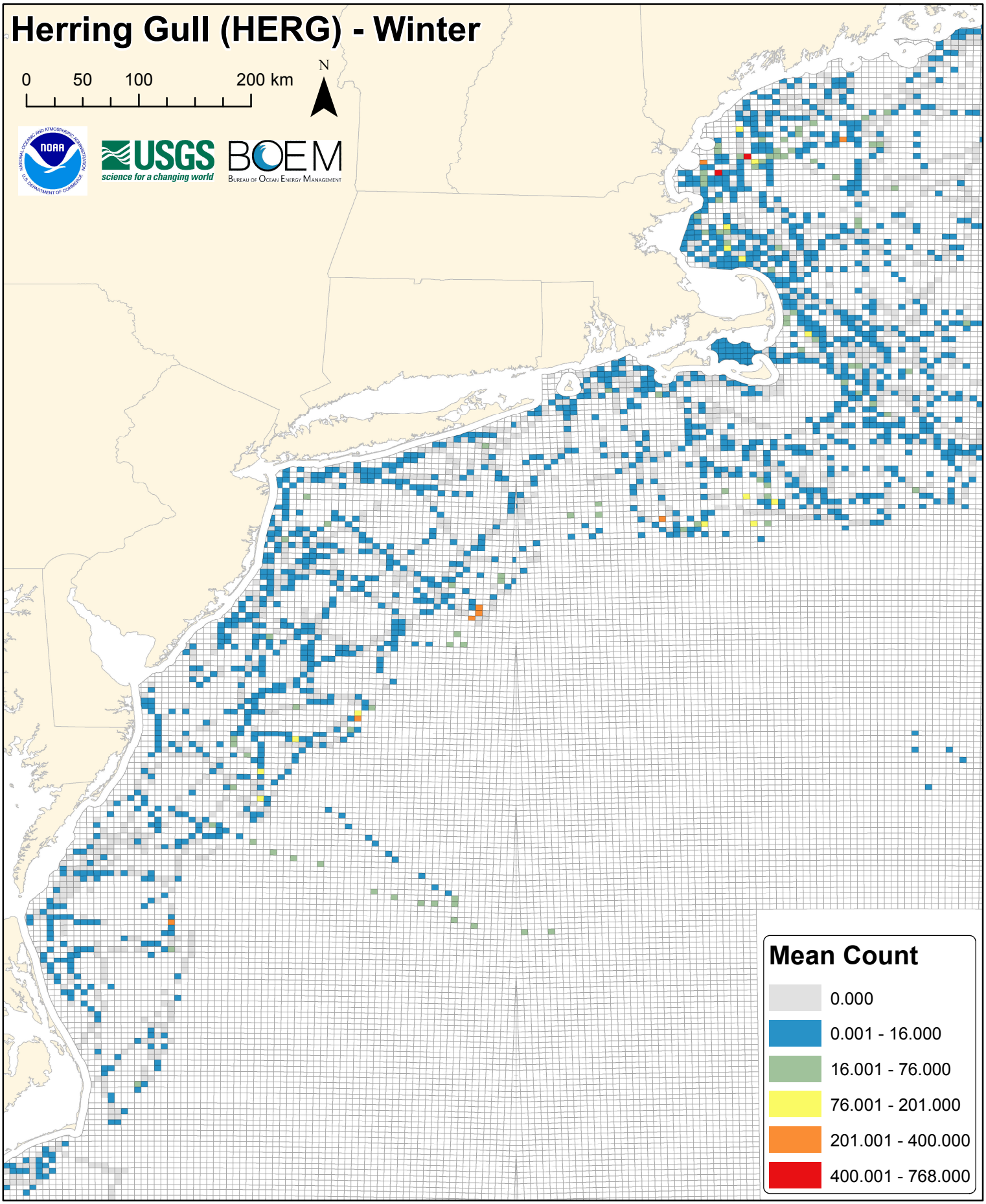

Red-throated Loon (RTLO) - Fall
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Hotspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Coldspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Avg Power
0.0000
0.0001 - 0.1000
0.1001 - 0.2500
0.2501 - 0.5000
0.5001 - 1.0000

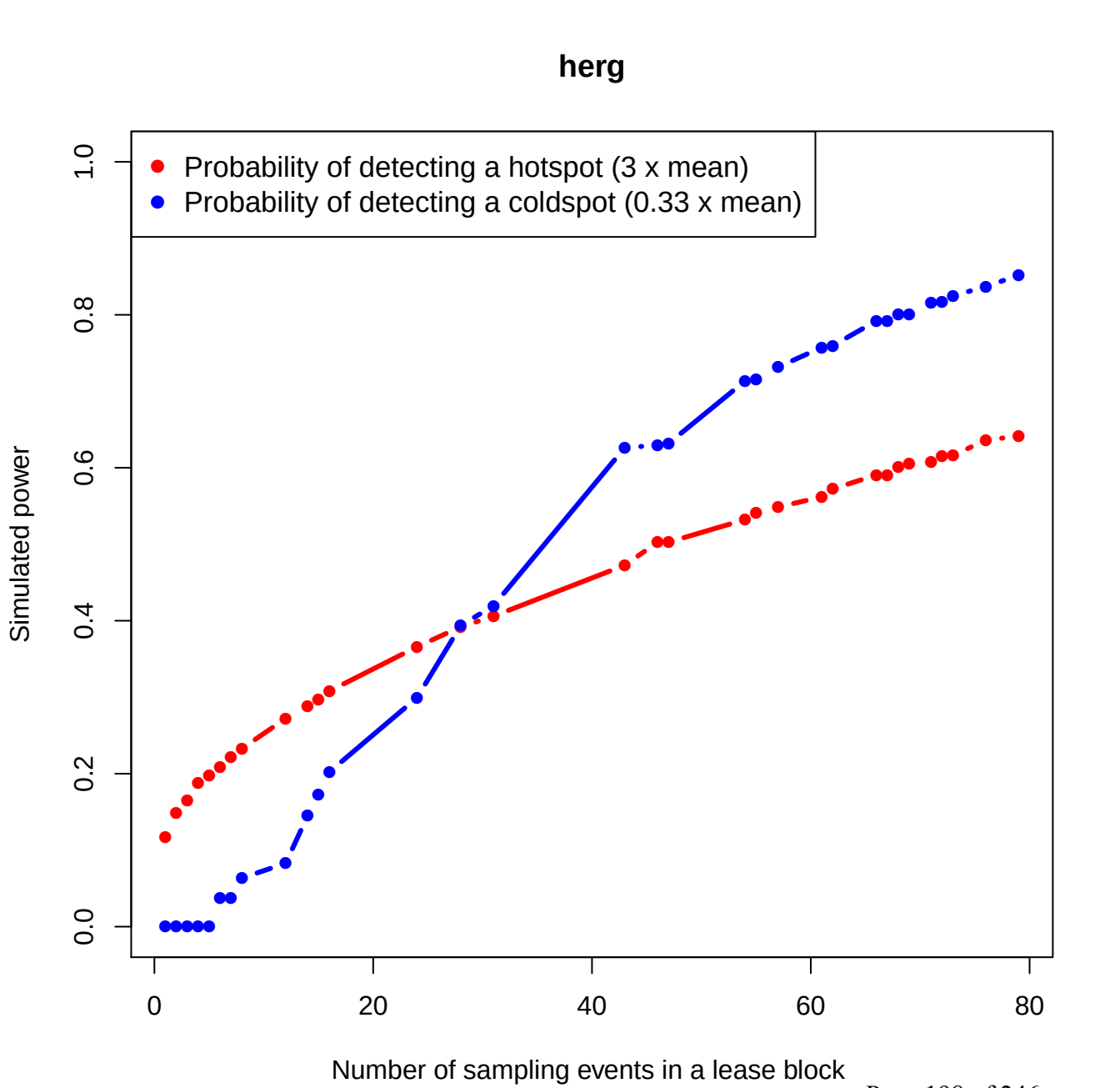
DIGITAL SUPPLEMENT G

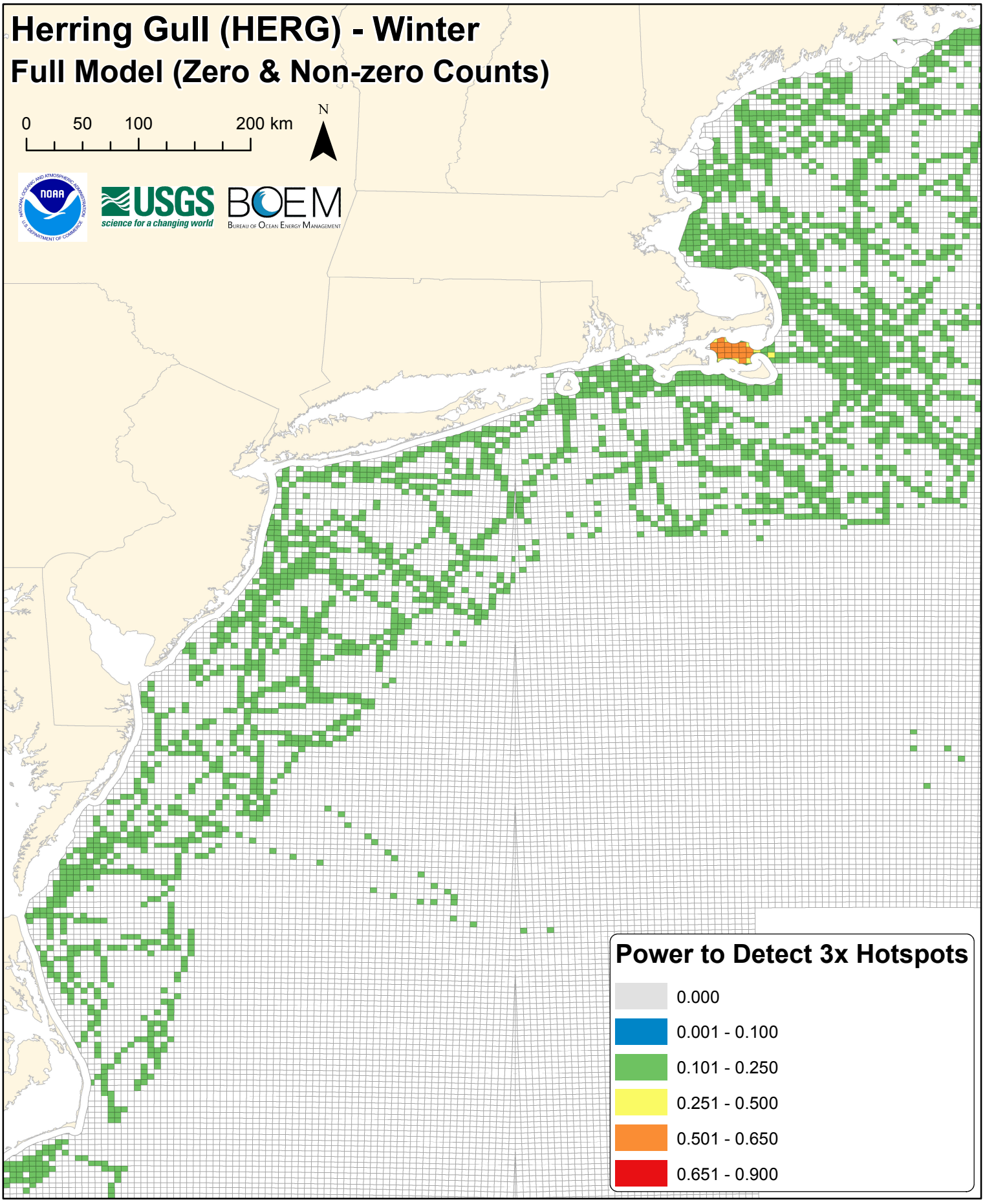
Full Hurdle Model (Zero & Non-Zero Counts) Results

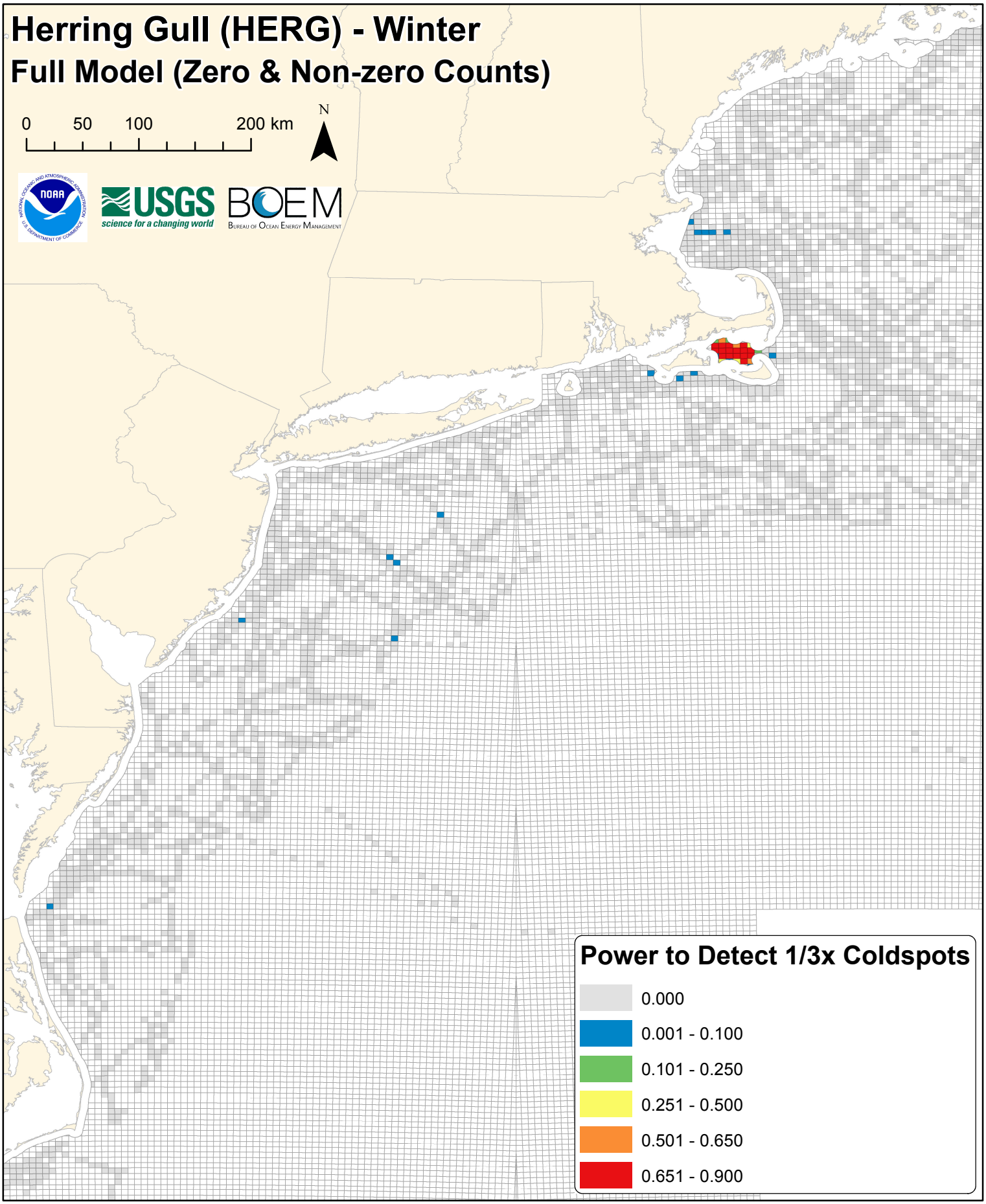
SECTION II. Species-specific Power Analysis Maps and Figures

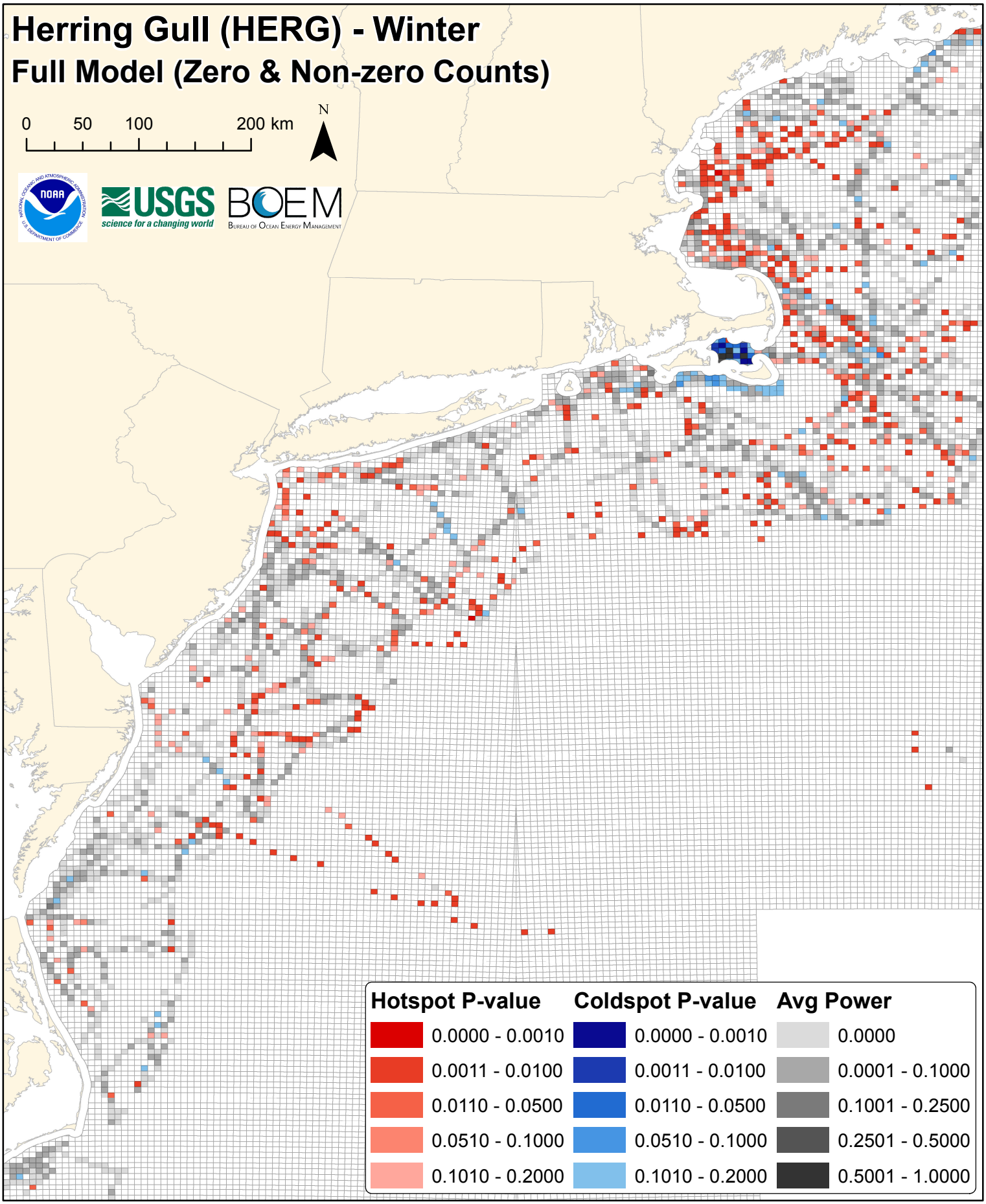
Figures G186-G235. Winter power analysis maps and figures (10 species x 5 figures per species).

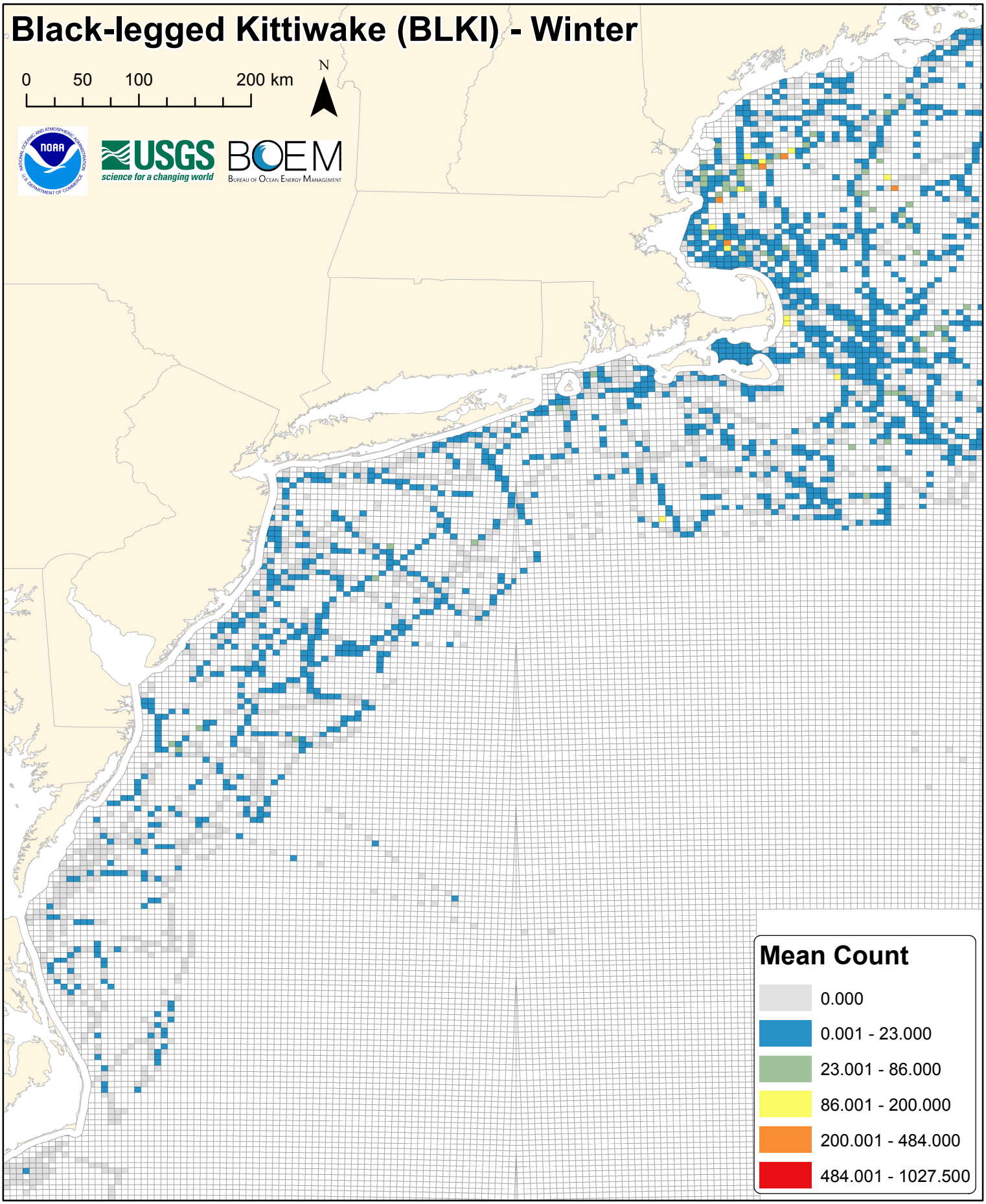

Herring Gull (HERG) - Winter
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Mean Count
0.000
0.001 - 16.000
16.001 - 76.000
76.001 - 201.000
201.001 - 400.000
400.001 - 768.000

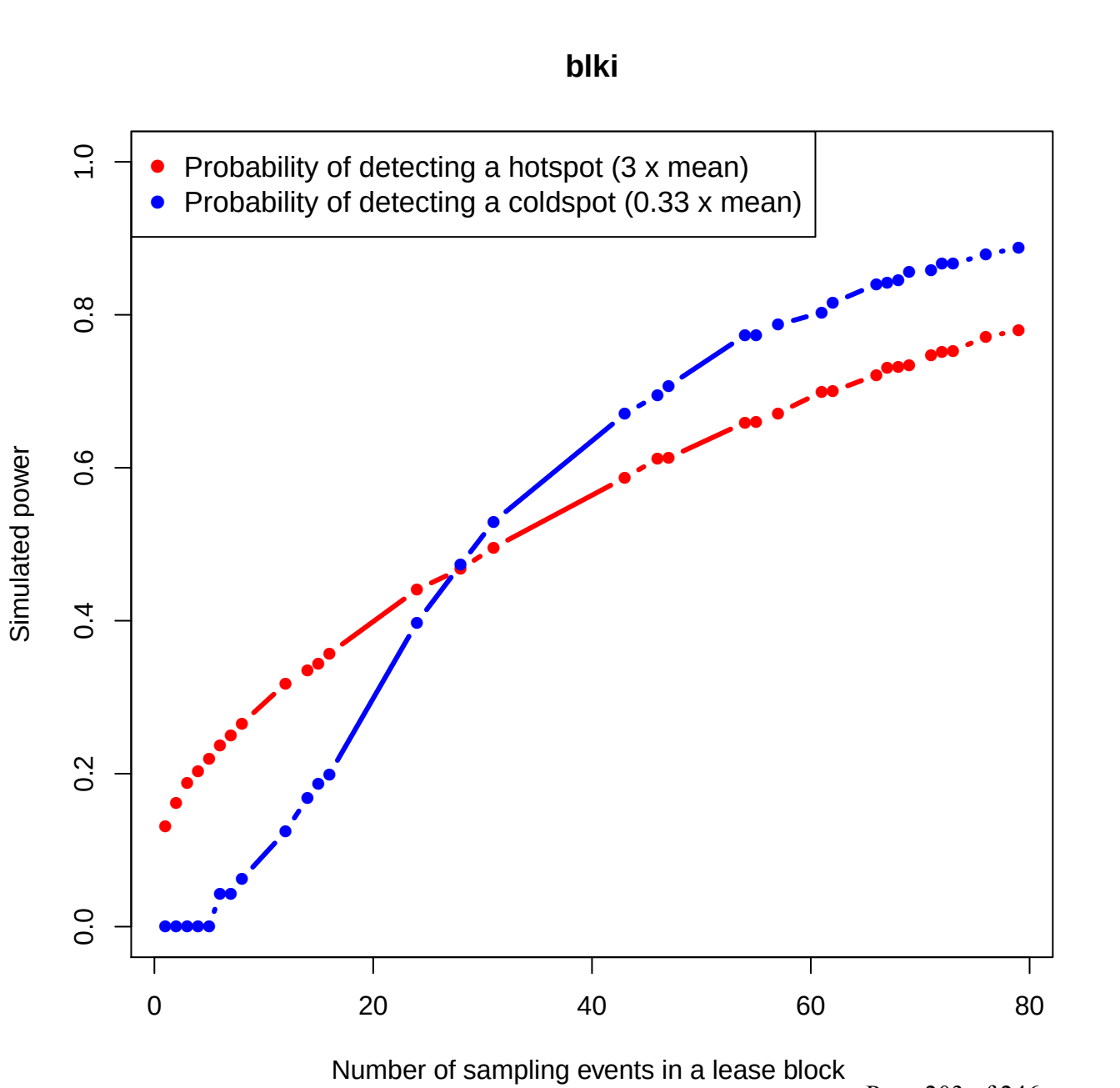

herg
Probability of detecting a hotspot (3 x mean)
Probability of detecting a coldspot (0.33 x mean)
Simulated power
0.0
0.2
0.4
0.6
0.8
1.0
0
20
40
60
80
Number of sampling events in a lease block

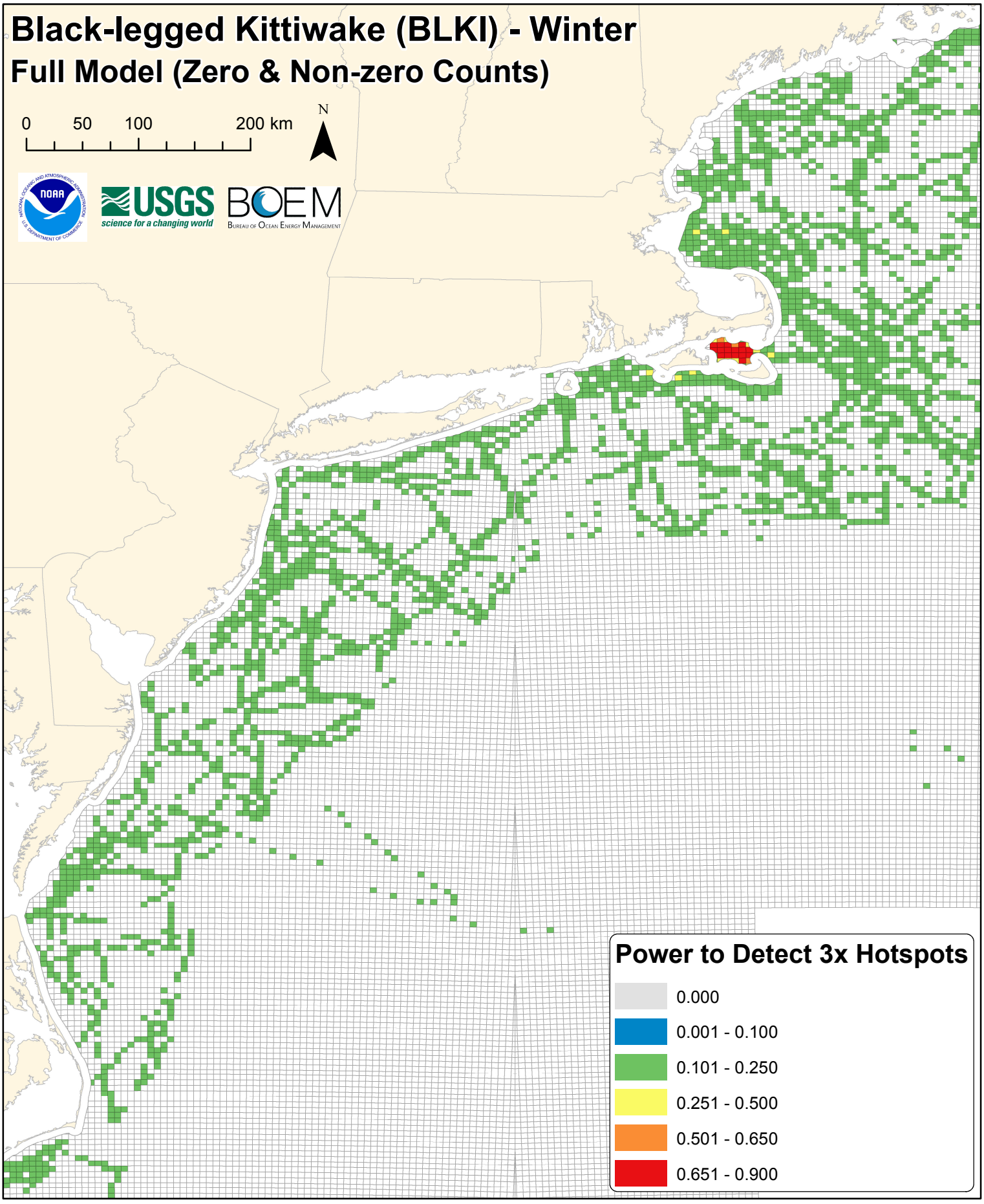

Herring Gull (HERG) - Winter
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
NOAA
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Power to Detect 3x Hotspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

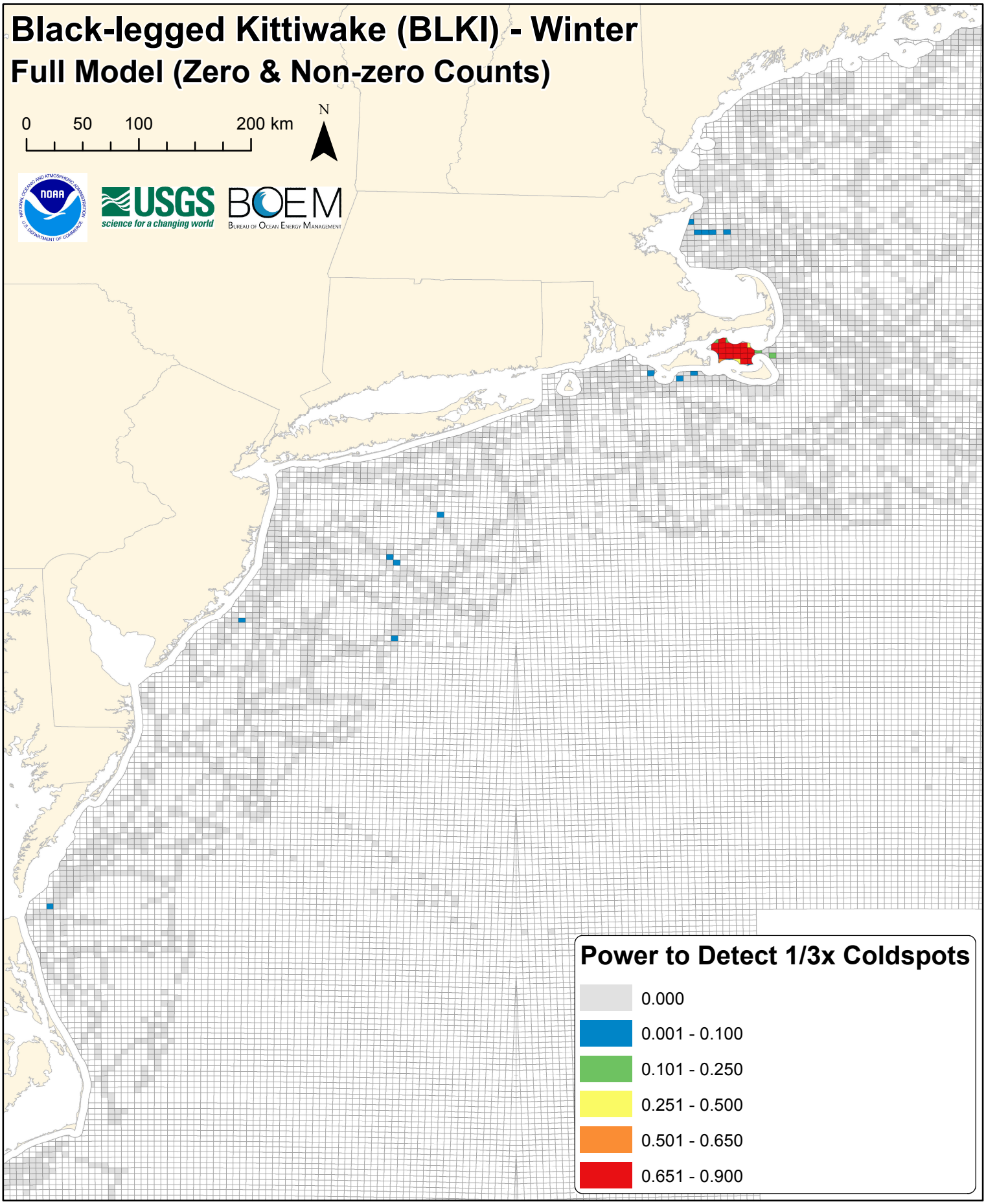

Herring Gull (HERG) - Winter
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Power to Detect 1/3x Coldspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

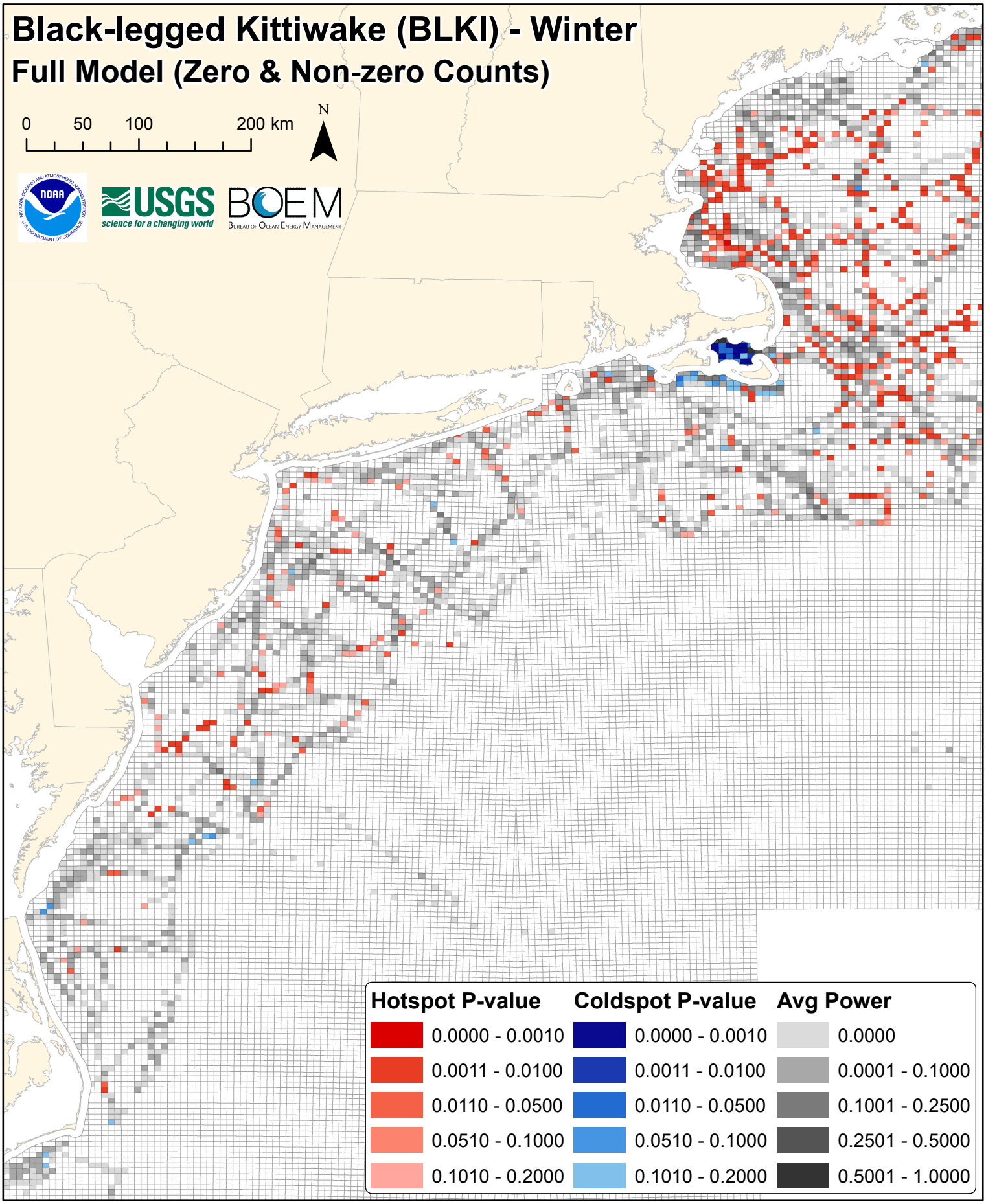

Herring Gull (HERG) - Winter
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Hotspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Coldspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Avg Power
0.0000
0.0001 - 0.1000
0.1001 - 0.2500
0.2501 - 0.5000
0.5001 - 1.0000

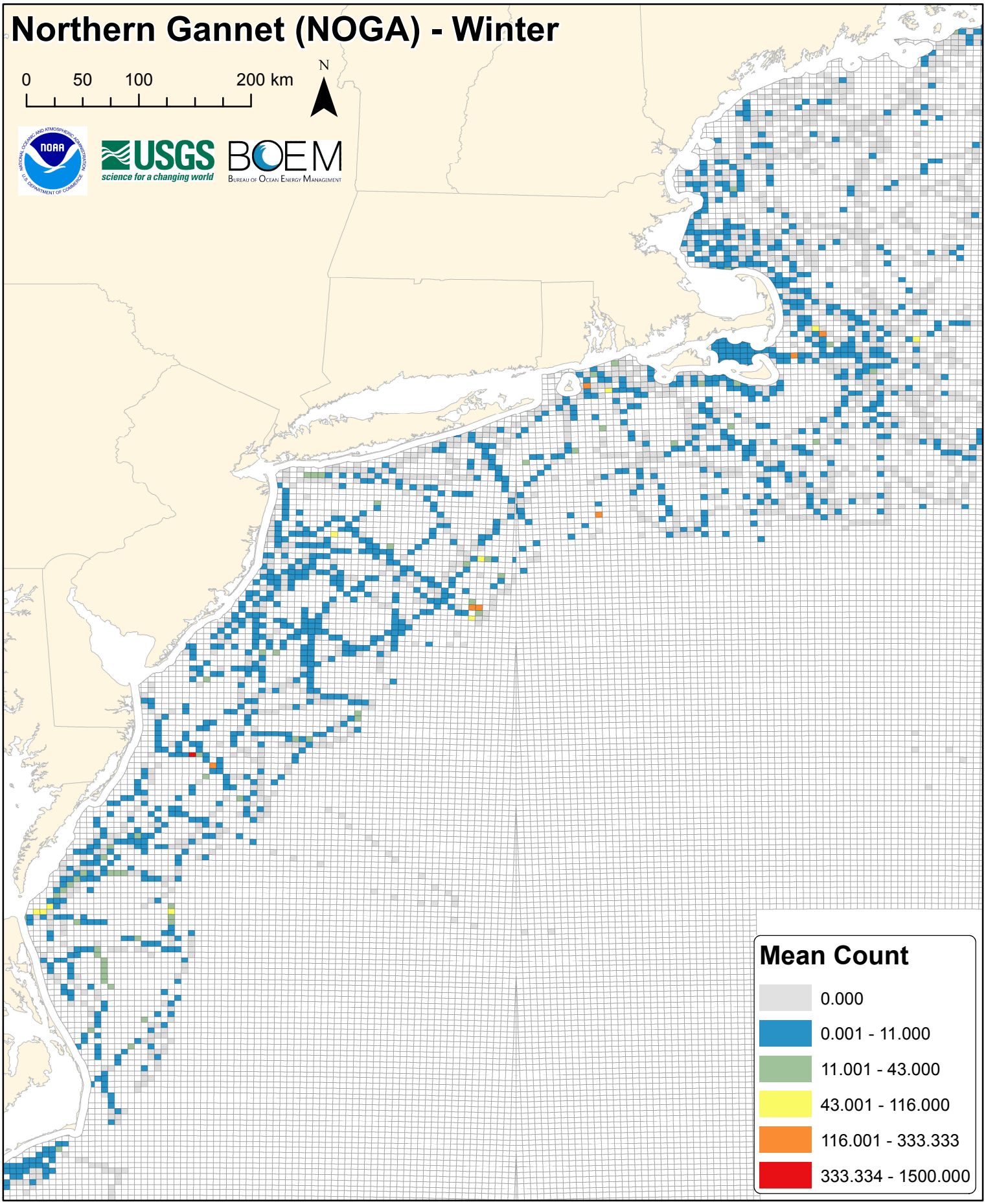

Black-legged Kittiwake (BLKI) - Winter
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Mean Count
0.000
0.001 - 23.000
23.001 - 86.000
86.001 - 200.000
200.001 - 484.000
484.001 - 1027.500

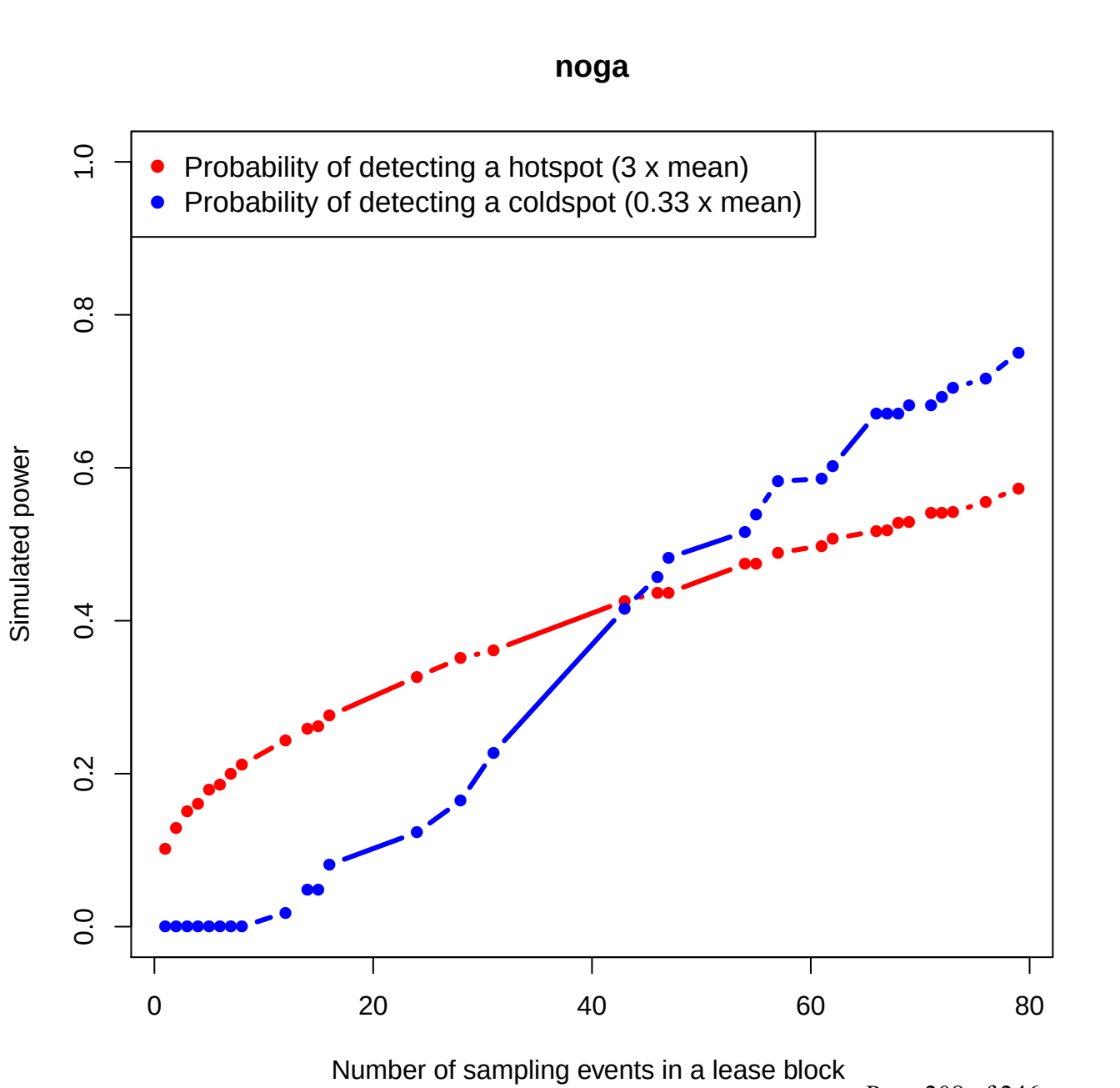

blki
Probability of detecting a hotspot (3 x mean)
Probability of detecting a coldspot (0.33 x mean)
Simulated power
0.0
0.2
0.4
0.6
0.8
1.0
0
20
40
60
80
Number of sampling events in a lease block

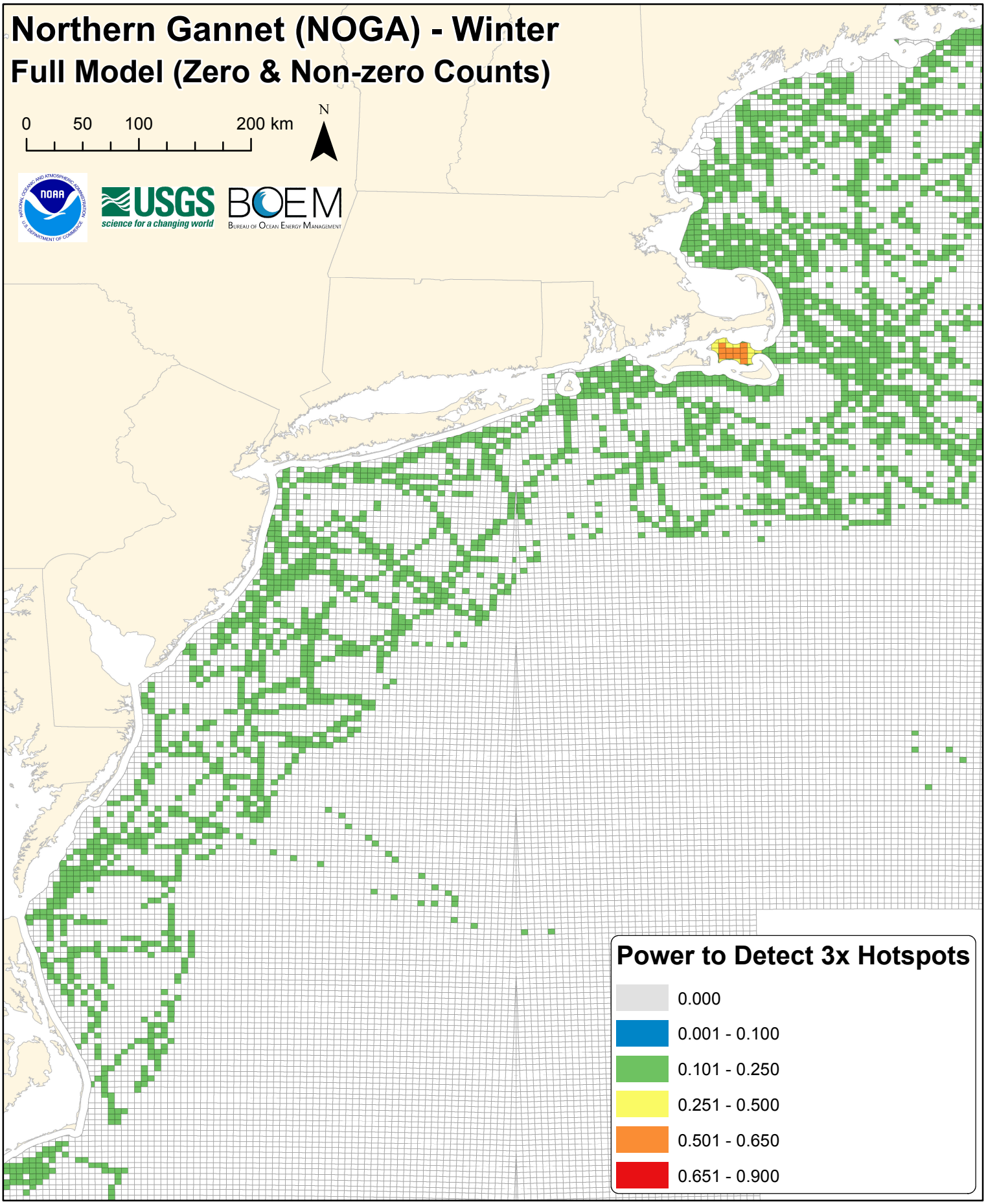

Black-legged Kittiwake (BLKI) - Winter
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Power to Detect 3x Hotspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

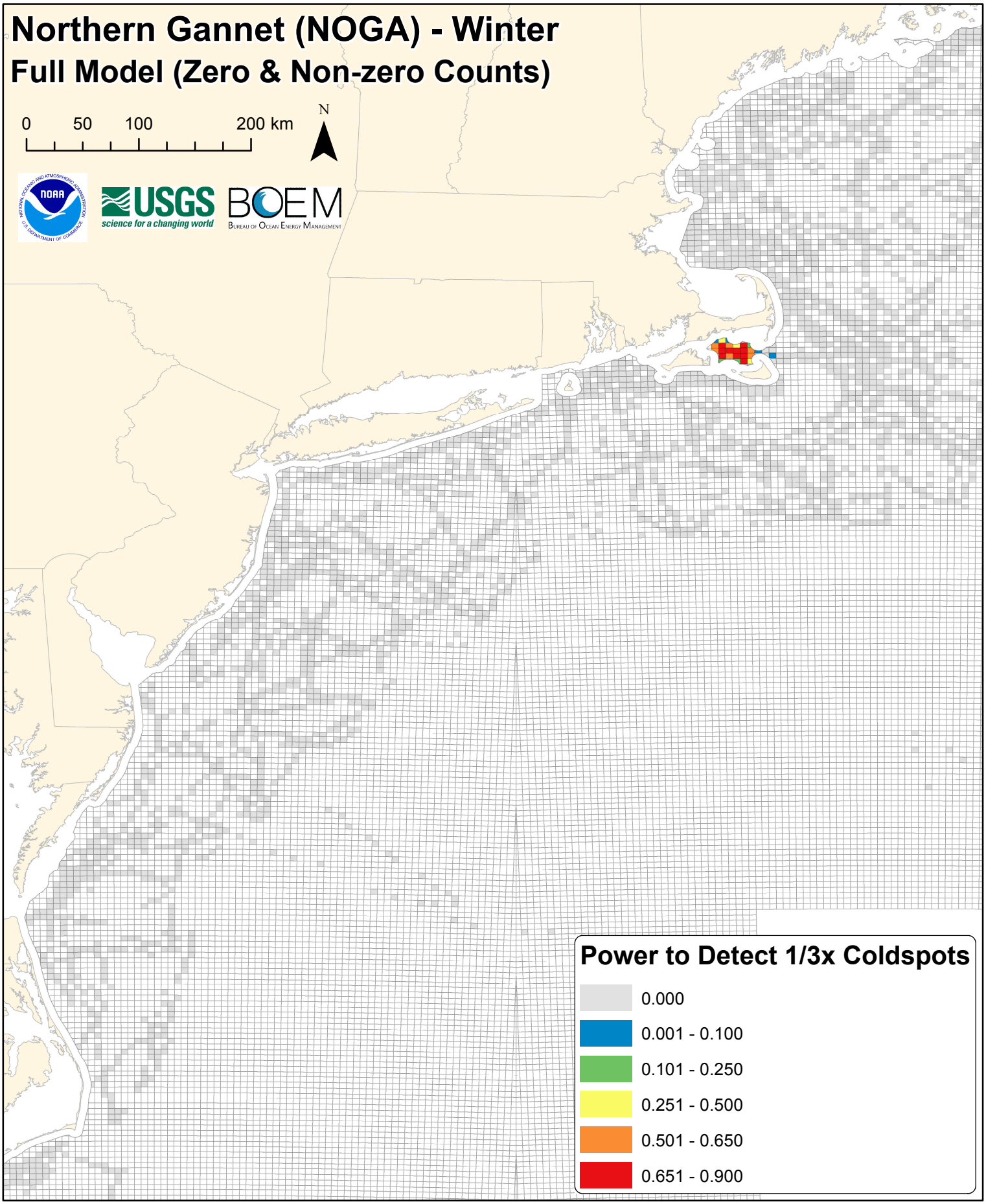

Black-legged Kittiwake (BLKI) - Winter
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Power to Detect 1/3x Coldspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

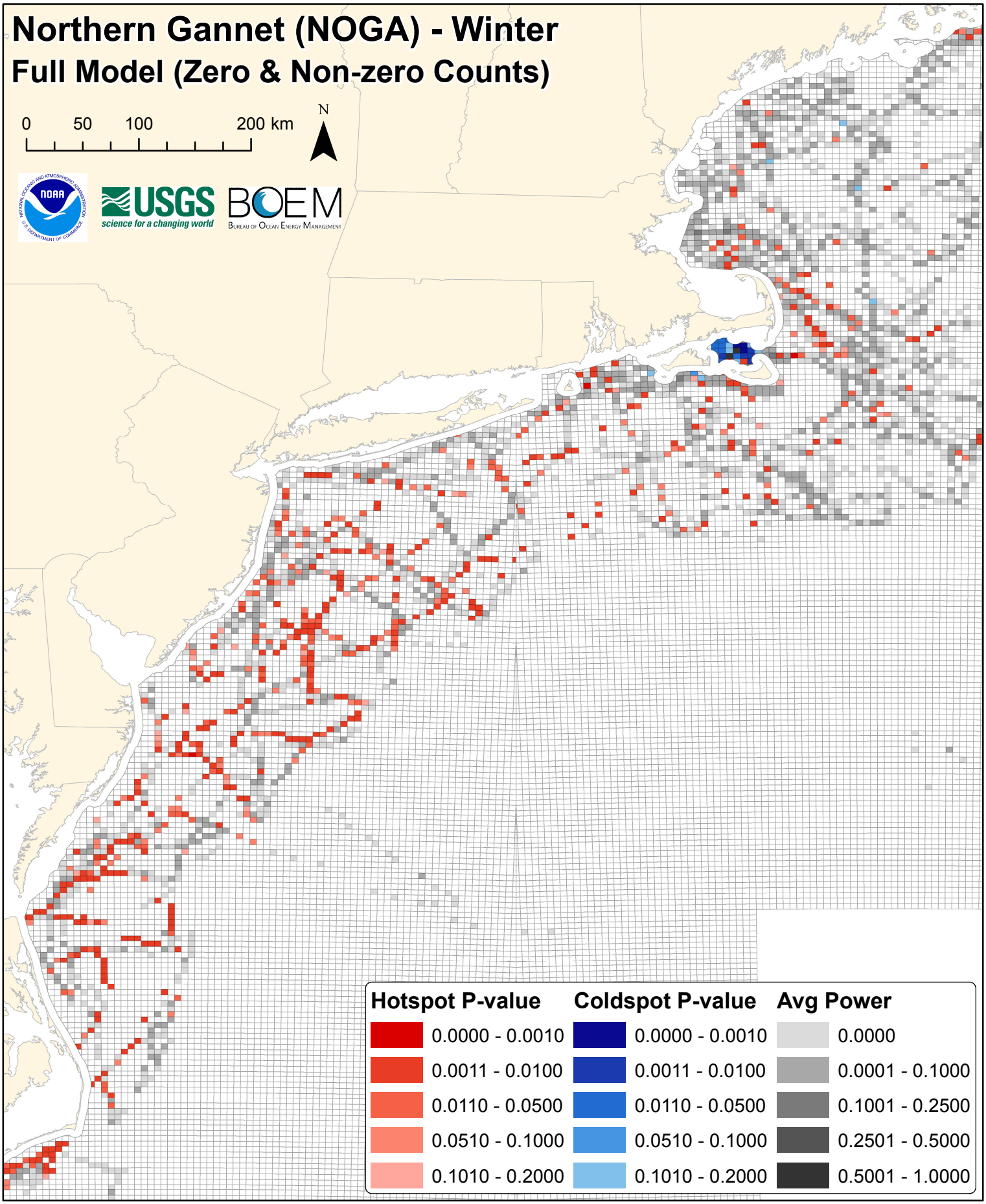

Black-legged Kittiwake (BLKI) - Winter
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Hotspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Coldspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Avg Power
0.0000
0.0001 - 0.1000
0.1001 - 0.2500
0.2501 - 0.5000
0.5001 - 1.0000

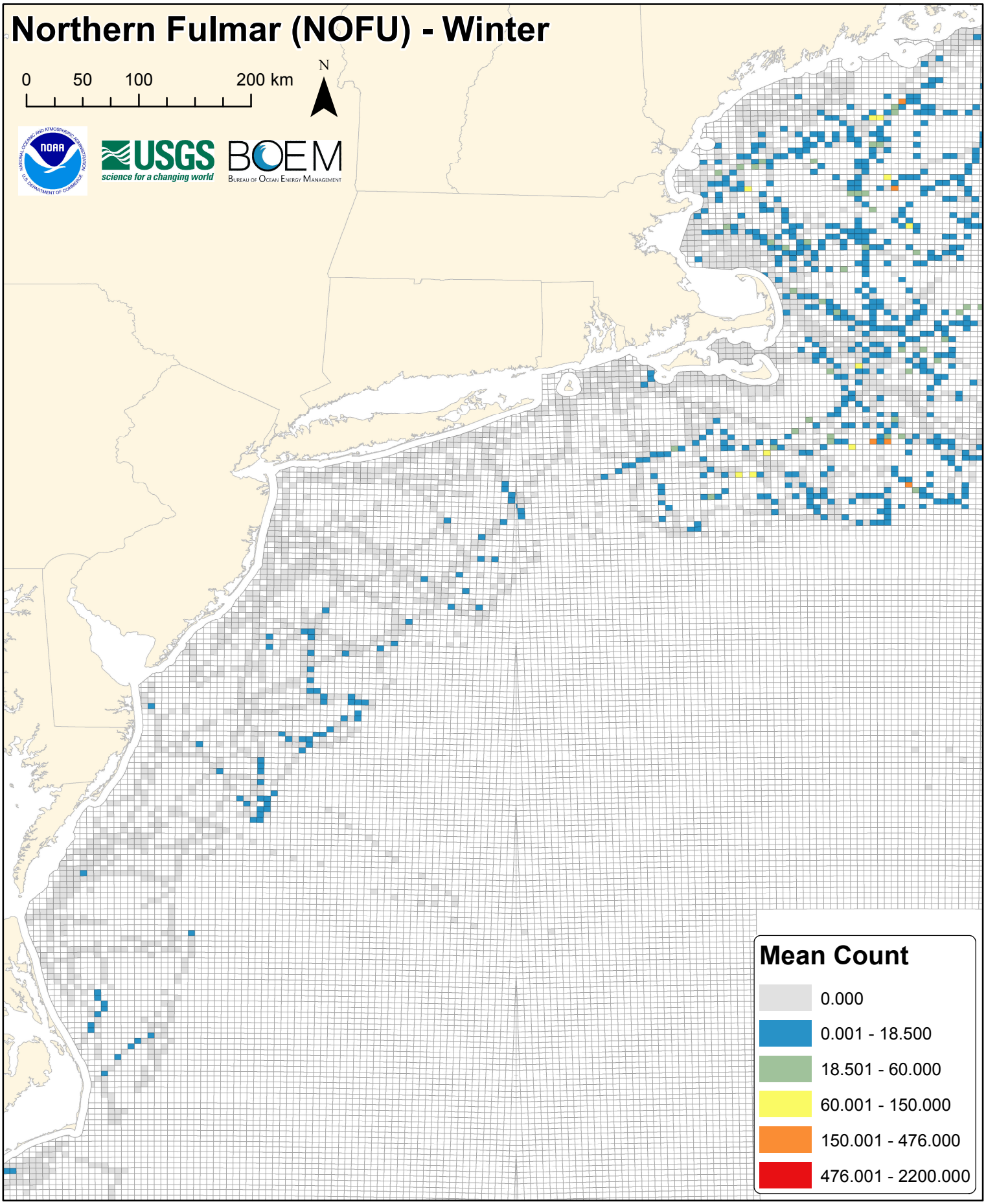

Northern Gannet (NOGA) - Winter
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Mean Count
0.000
0.001 - 11.000
11.001 - 43.000
43.001 - 116.000
116.001 - 333.333
333.334 - 1500.000

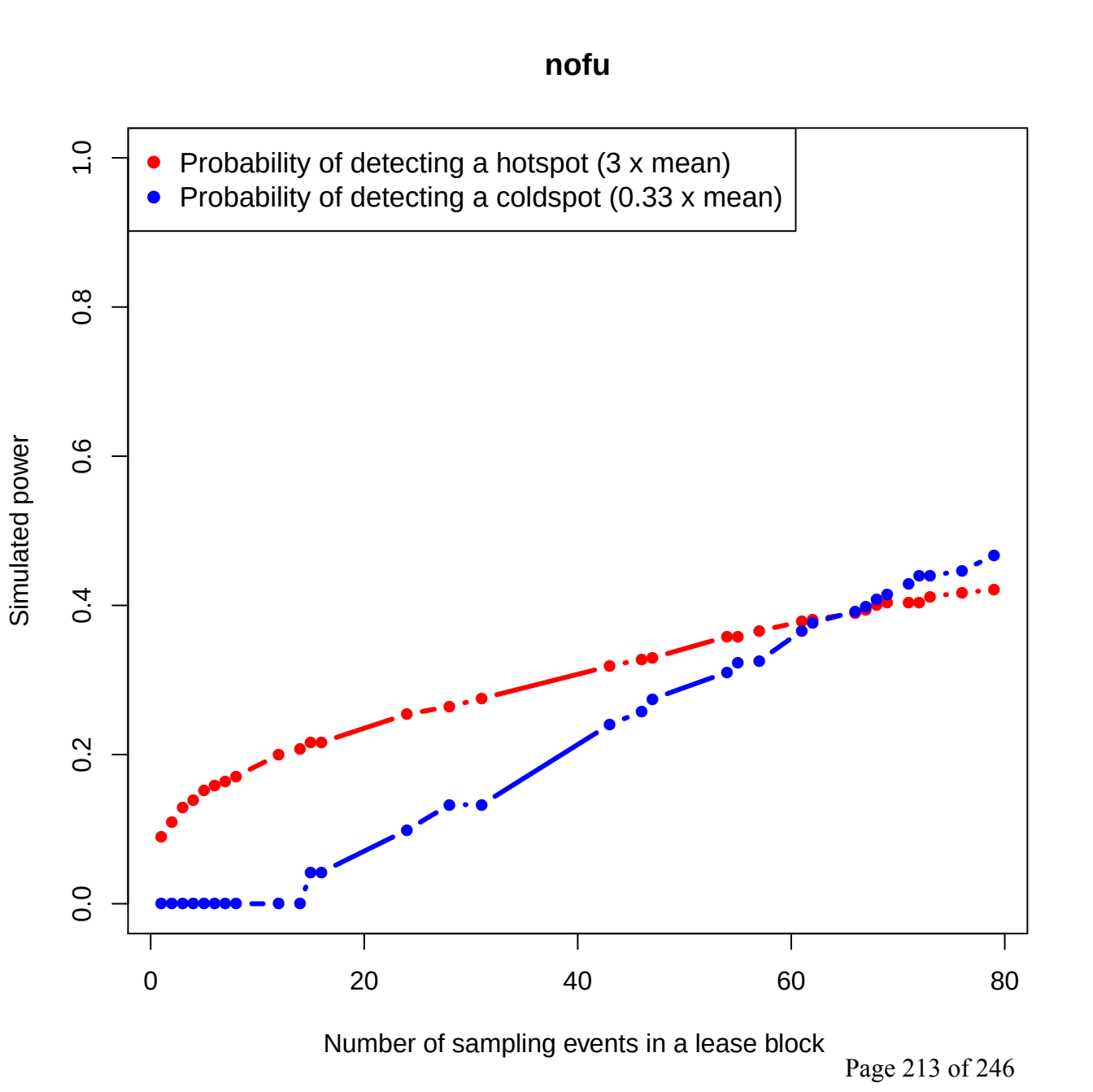

noga
Probability of detecting a hotspot (3 x mean)
Probability of detecting a coldspot (0.33 x mean)
Simulated power
0.0
0.2
0.4
0.6
0.8
1.0
0
20
40
60
80
Number of sampling events in a lease block

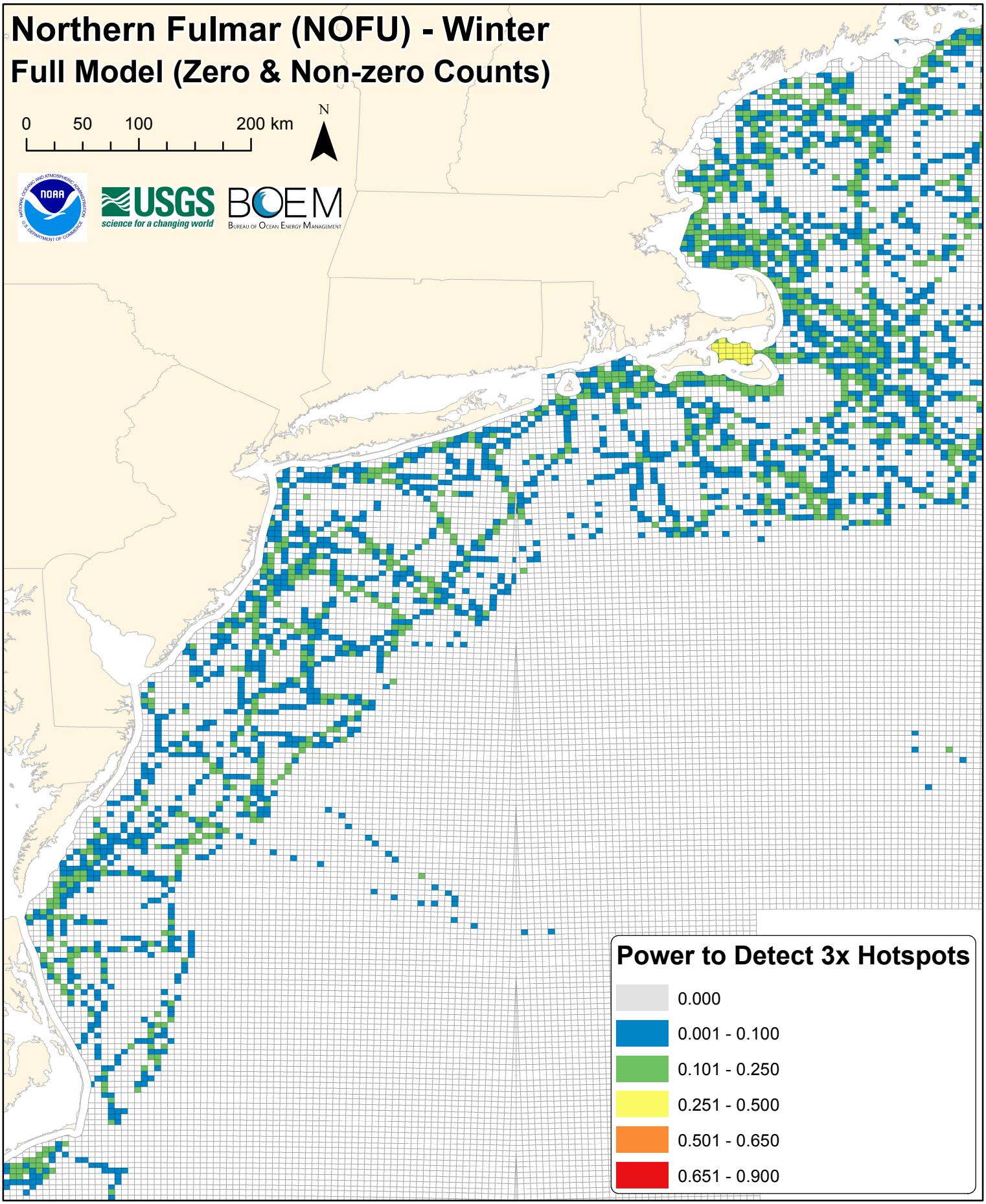

Northern Gannet (NOGA) - Winter
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Power to Detect 3x Hotspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

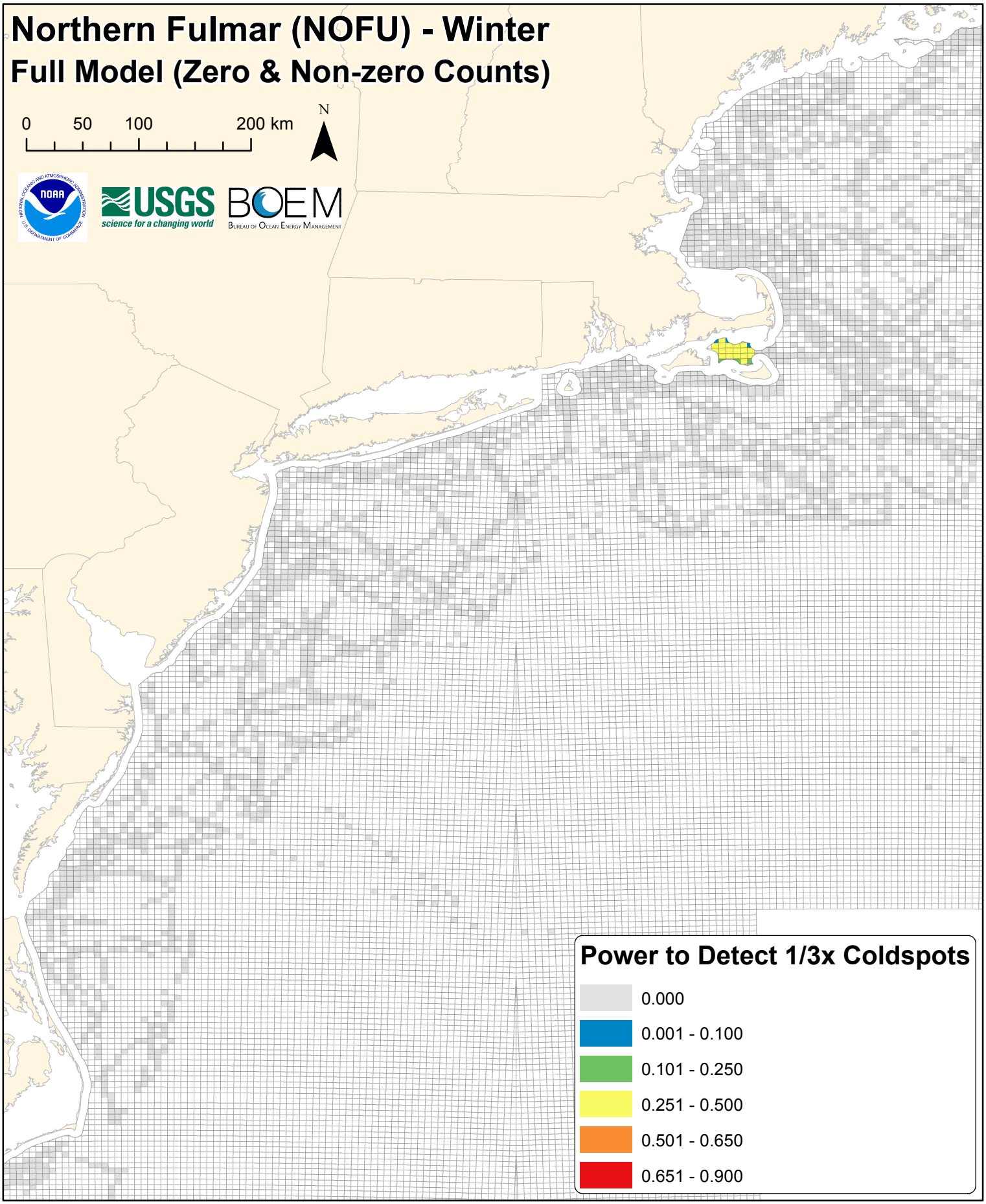

Northern Gannet (NOGA) - Winter
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Power to Detect 1/3x Coldspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

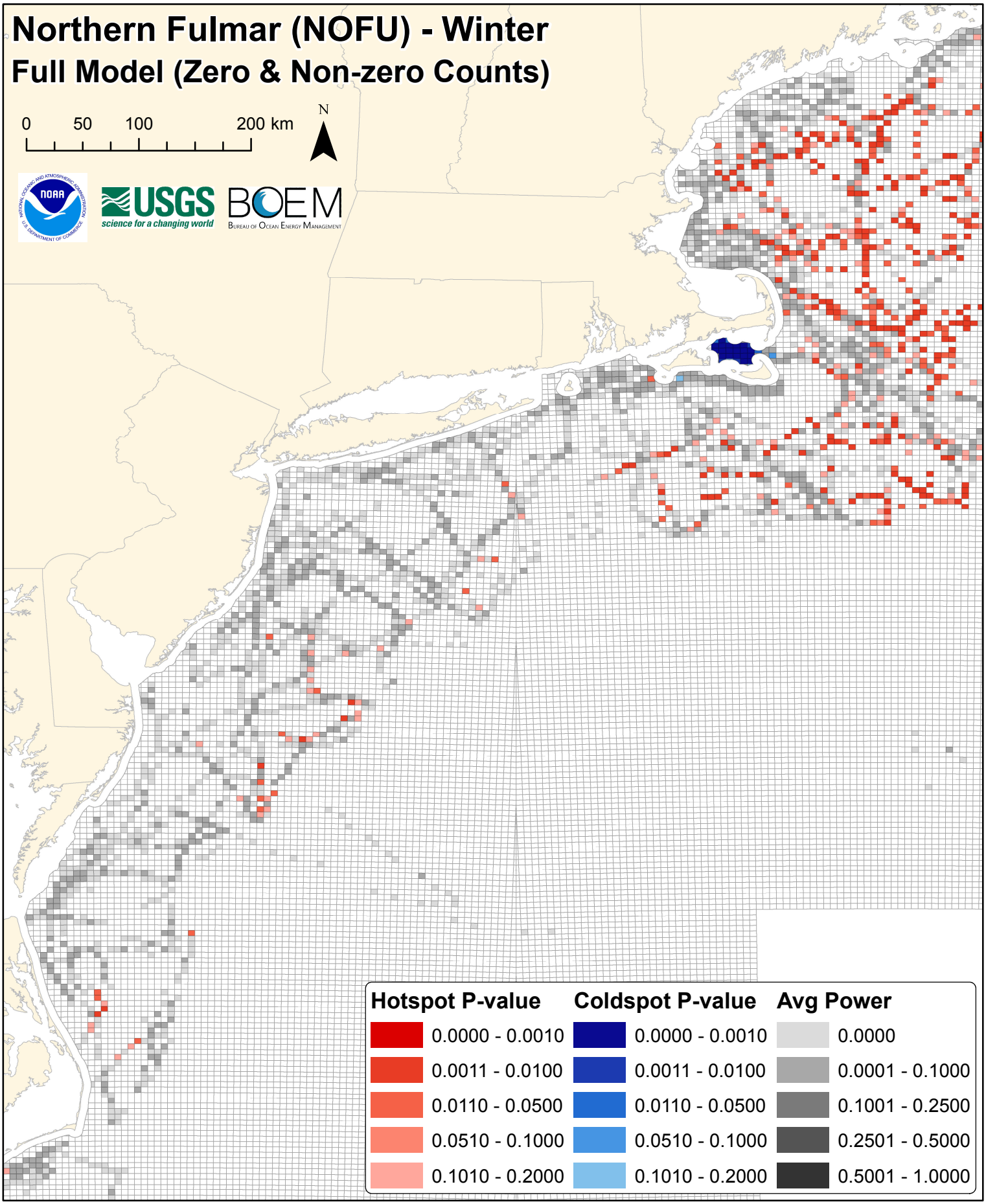

Northern Gannet (NOGA) - Winter
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Hotspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Coldspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Avg Power
0.0000
0.0001 - 0.1000
0.1001 - 0.2500
0.2501 - 0.5000
0.5001 - 1.0000

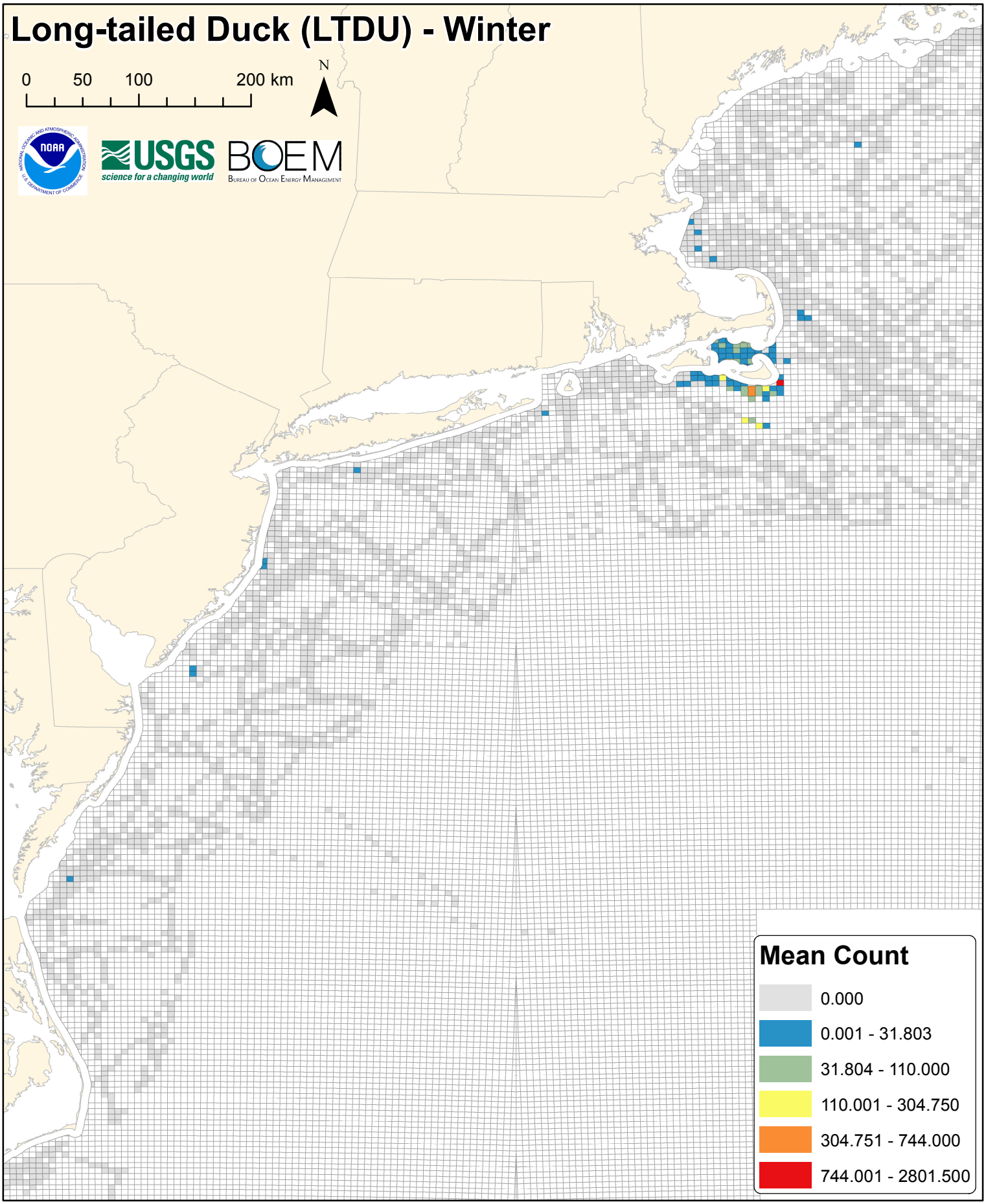

Northern Fulmar (NOFU) - Winter
0
50
100
200 km
N
NOAA
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Mean Count
0.000
0.001 - 18.500
18.501 - 60.000
60.001 - 150.000
150.001 - 476.000
476.001 - 2200.000

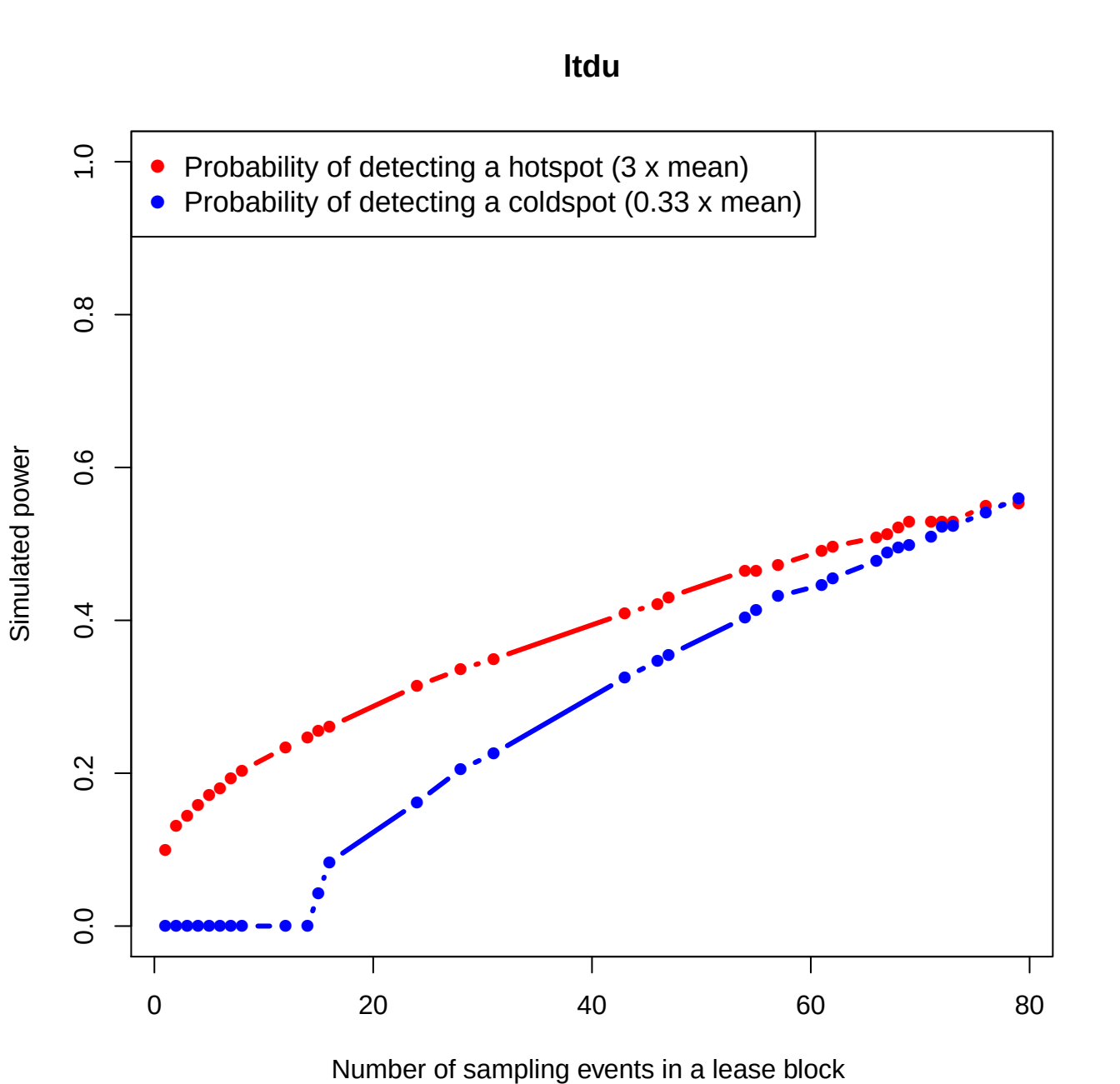

nofu
Probability of detecting a hotspot (3 x mean)
Probability of detecting a coldspot (0.33 x mean)
Simulated power
0.0
0.2
0.4
0.6
0.8
1.0
0
20
40
60
80
Number of sampling events in a lease block

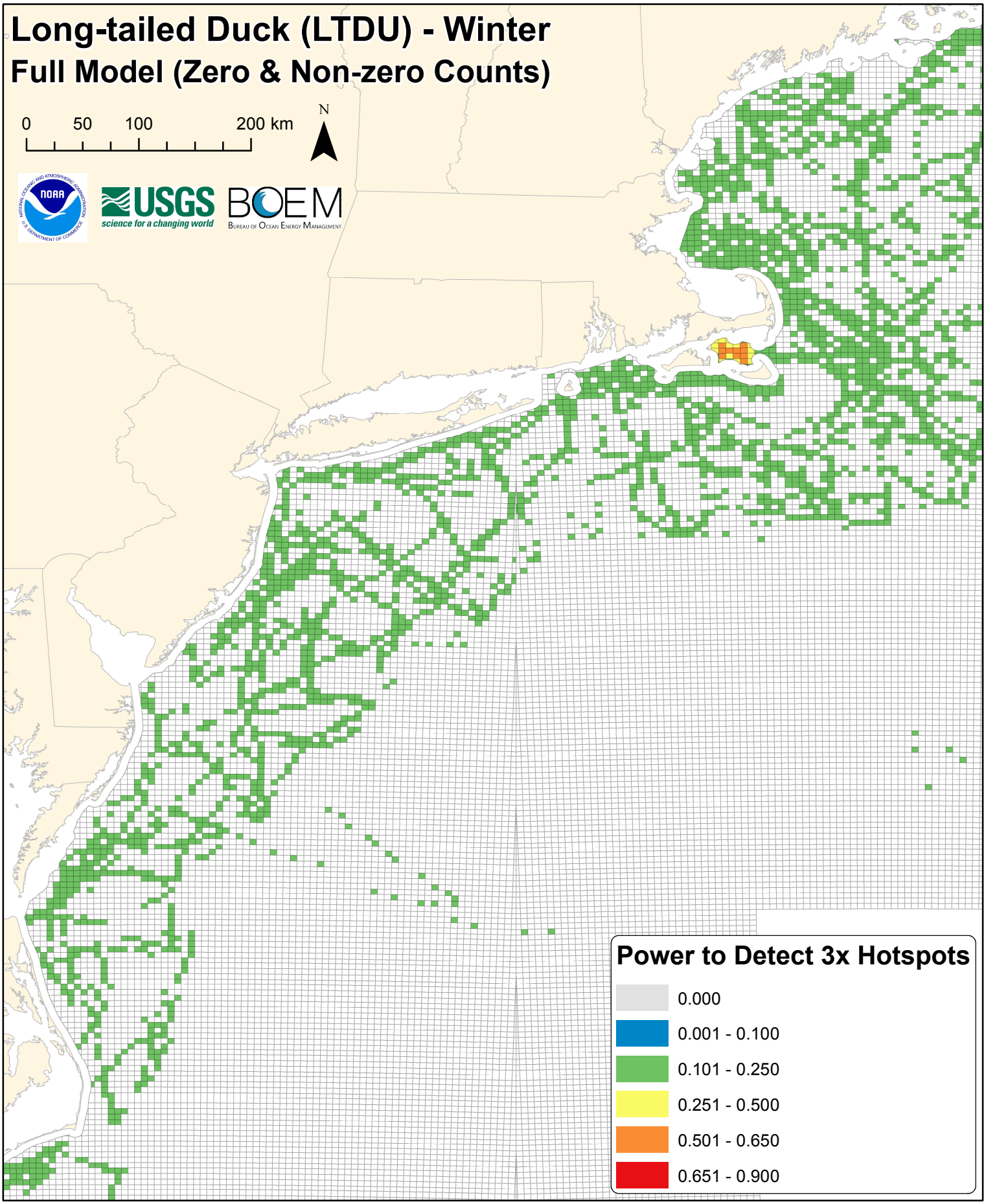

Northern Fulmar (NOFU) - Winter
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
NOAA
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Power to Detect 3x Hotspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

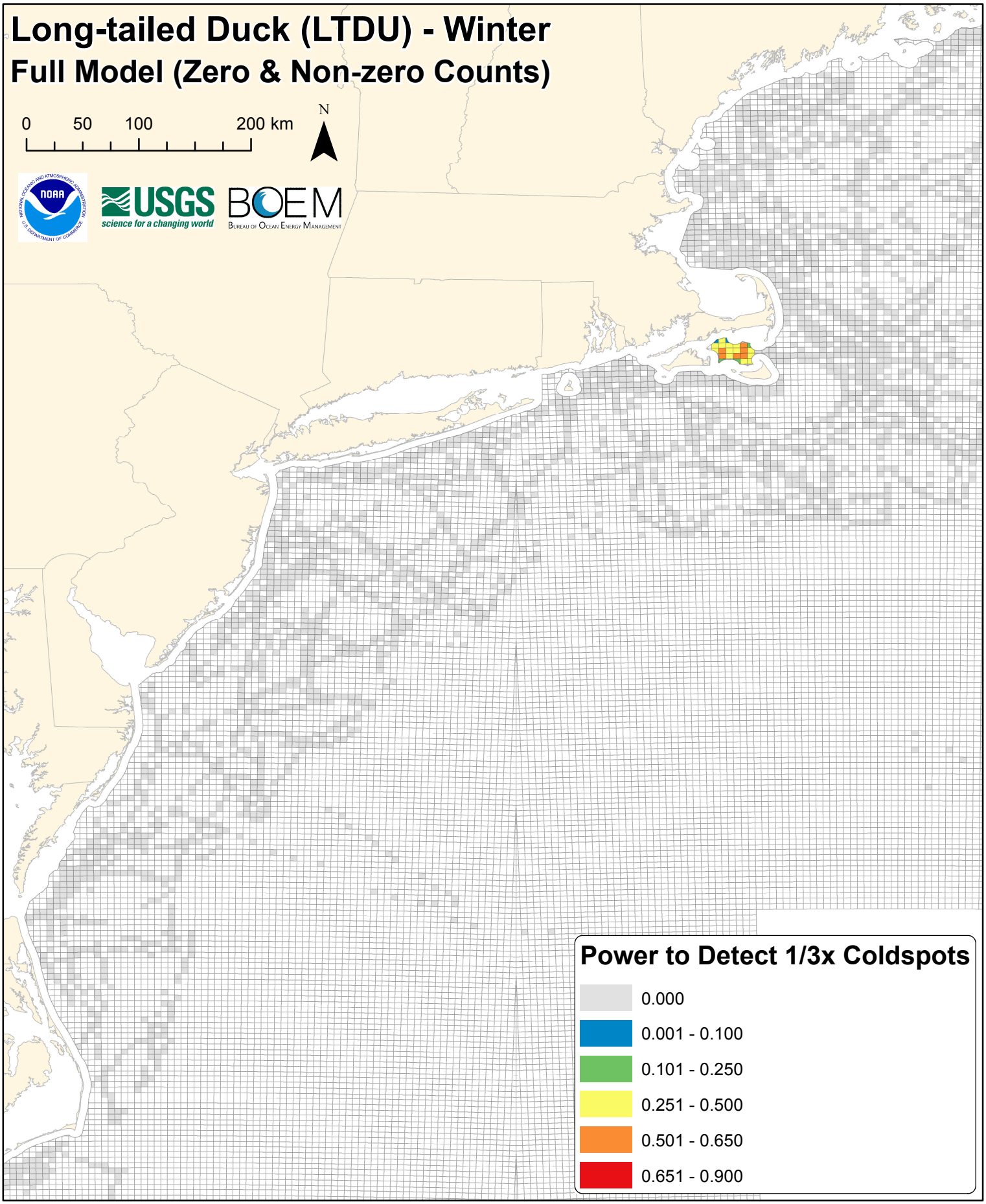

Northern Fulmar (NOFU) - Winter
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Power to Detect 1/3x Coldspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

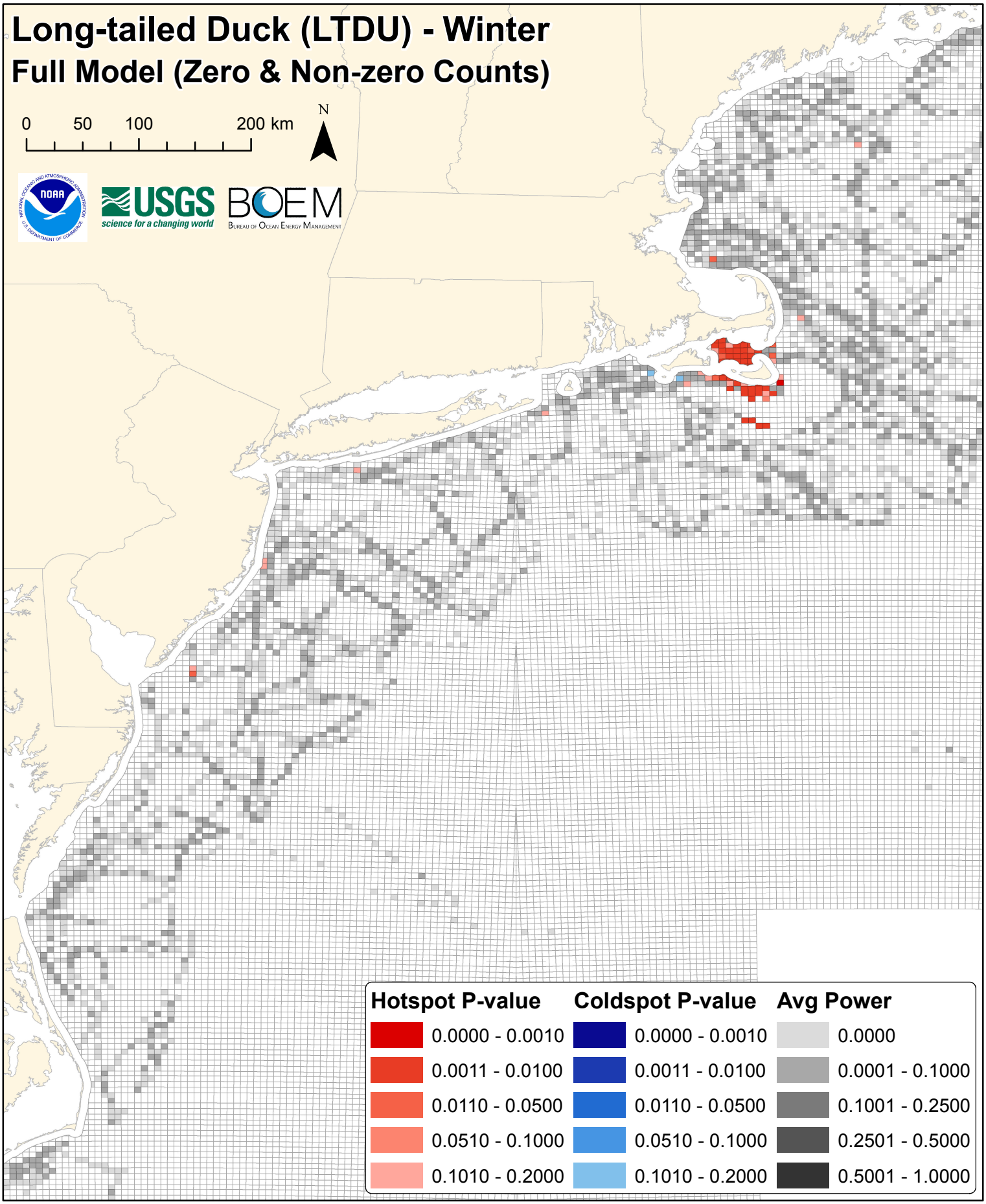

Northern Fulmar (NOFU) - Winter
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Hotspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Coldspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Avg Power
0.0000
0.0001 - 0.1000
0.1001 - 0.2500
0.2501 - 0.5000
0.5001 - 1.0000

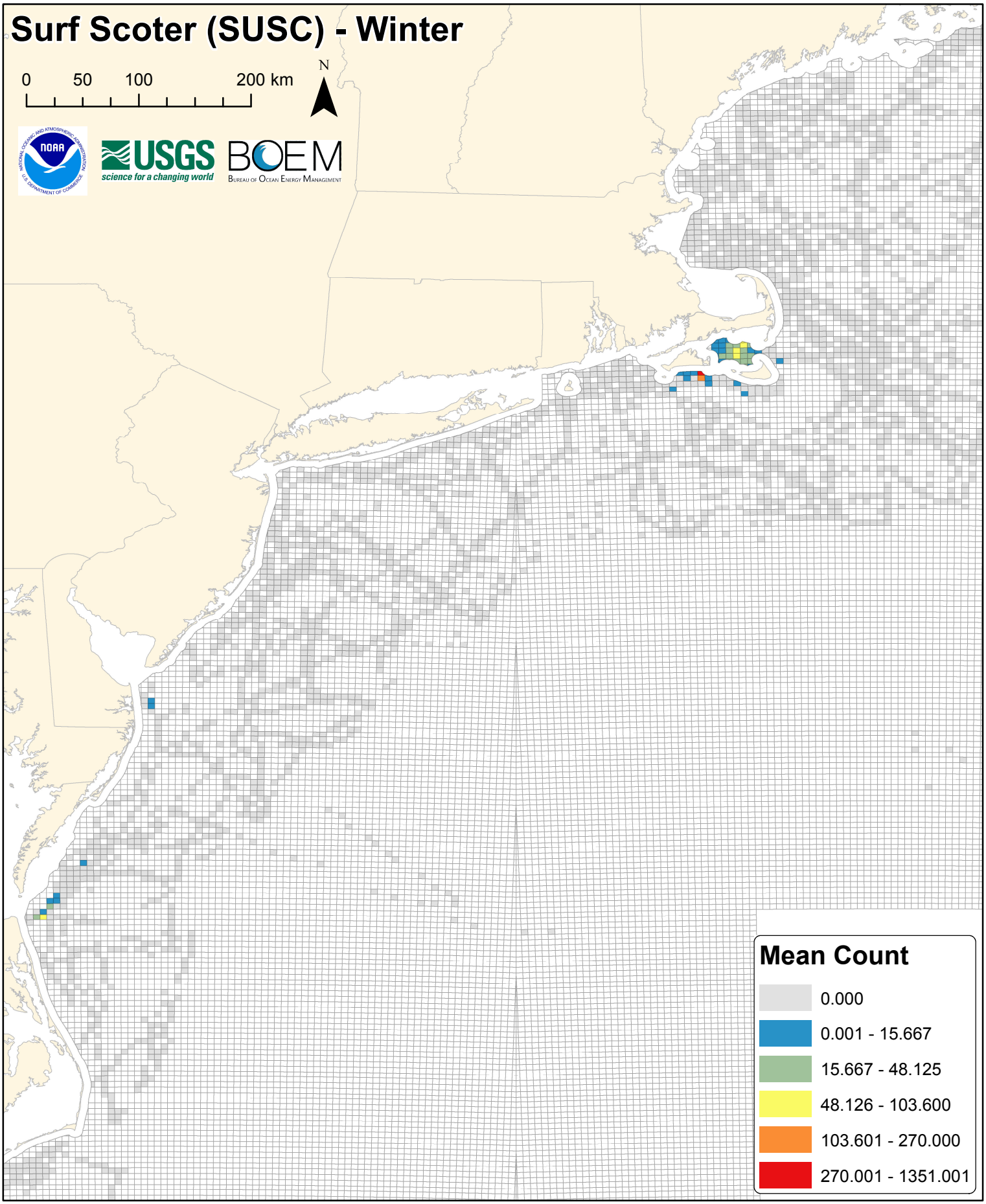

Long-tailed Duck (LTDU) - Winter
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Mean Count
0.000
0.001 - 31.803
31.804 - 110.000
110.001 - 304.750
304.751 - 744.000
744.001 - 2801.500

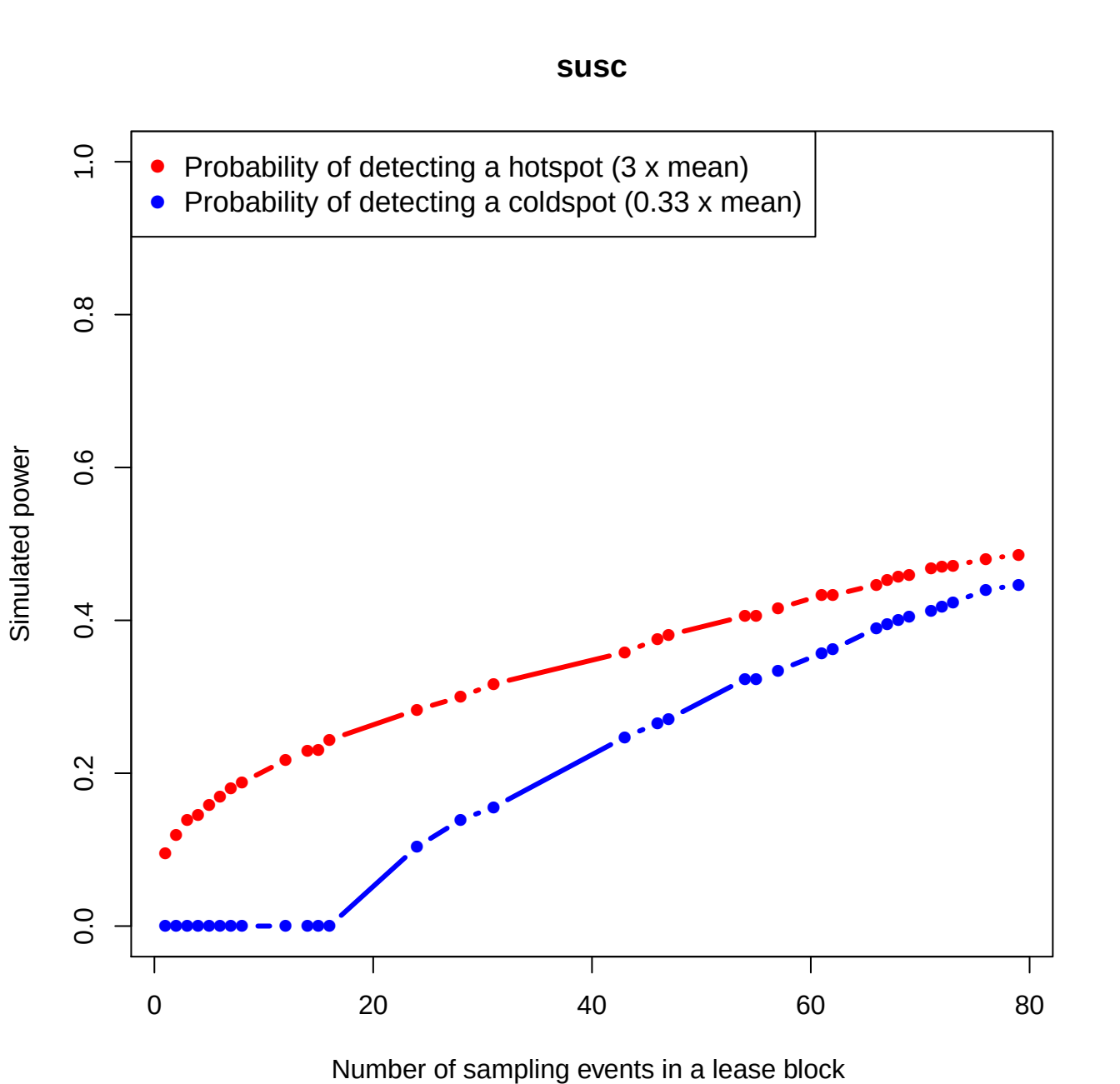

ltdu
Probability of detecting a hotspot (3 x mean)
Probability of detecting a coldspot (0.33 x mean)
Simulated power
0.0
0.2
0.4
0.6
0.8
1.0
0
20
40
60
80
Number of sampling events in a lease block

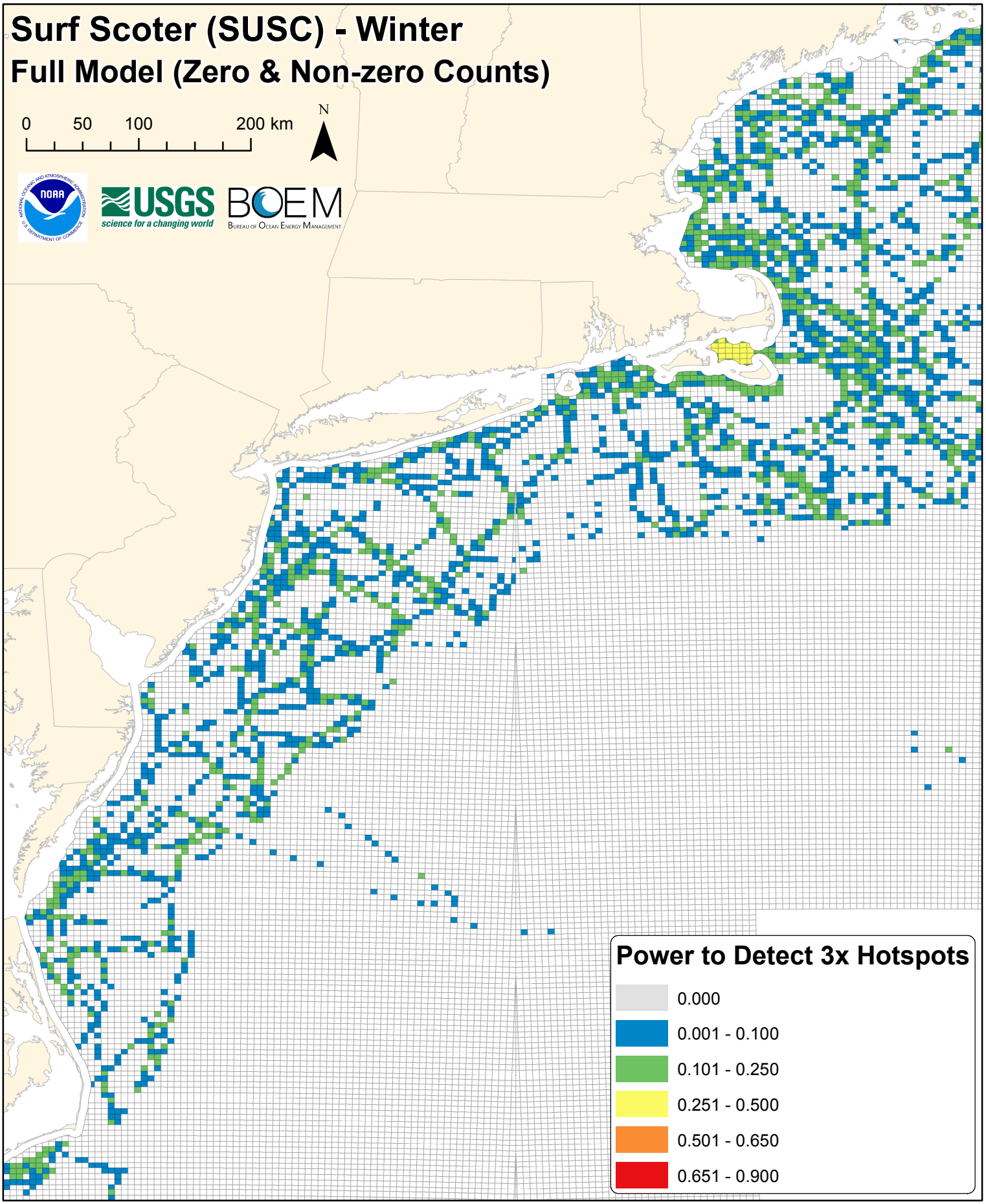

Long-tailed Duck (LTDU) - Winter
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Power to Detect 3x Hotspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

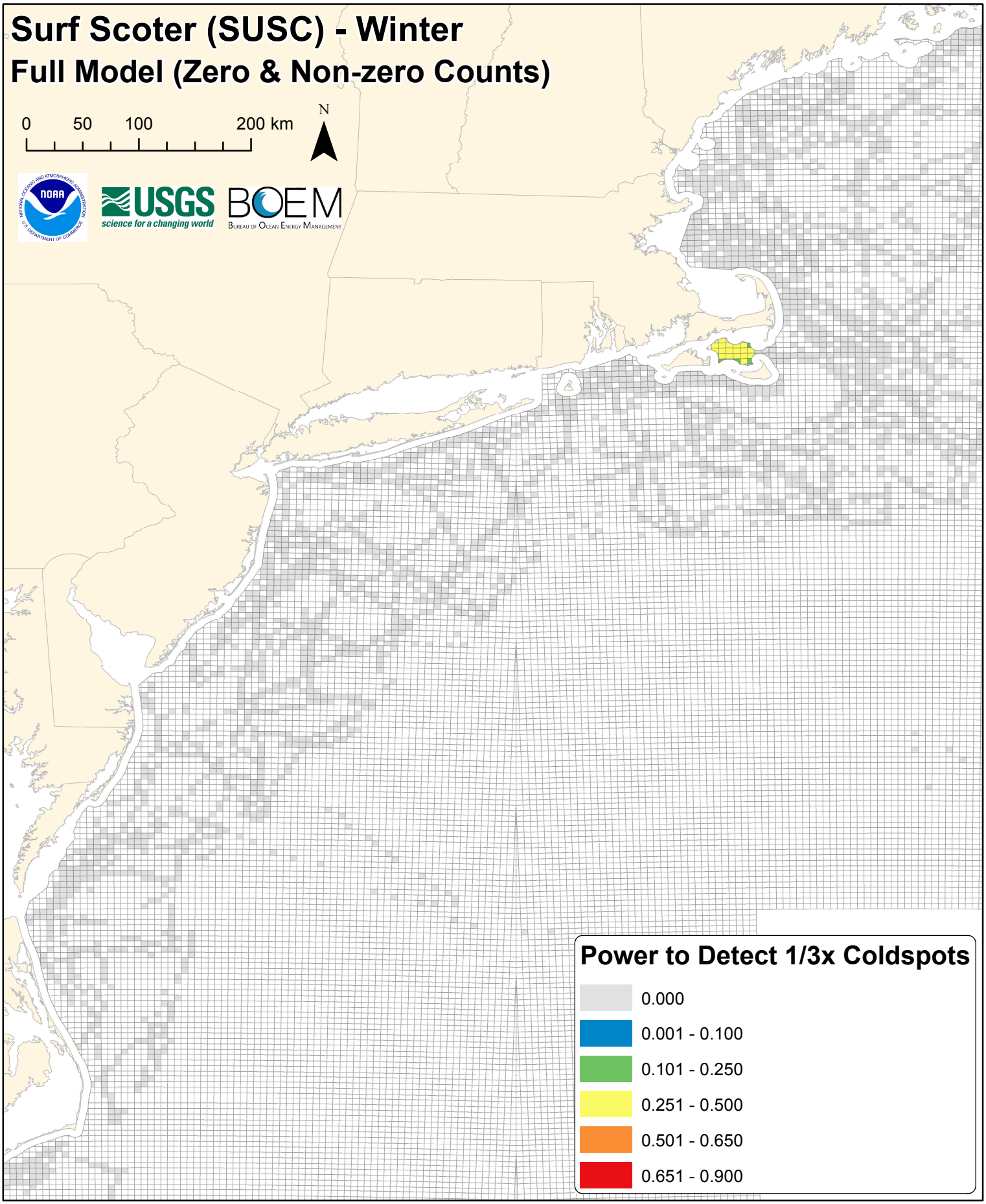

Long-tailed Duck (LTDU) - Winter
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Power to Detect 1/3x Coldspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

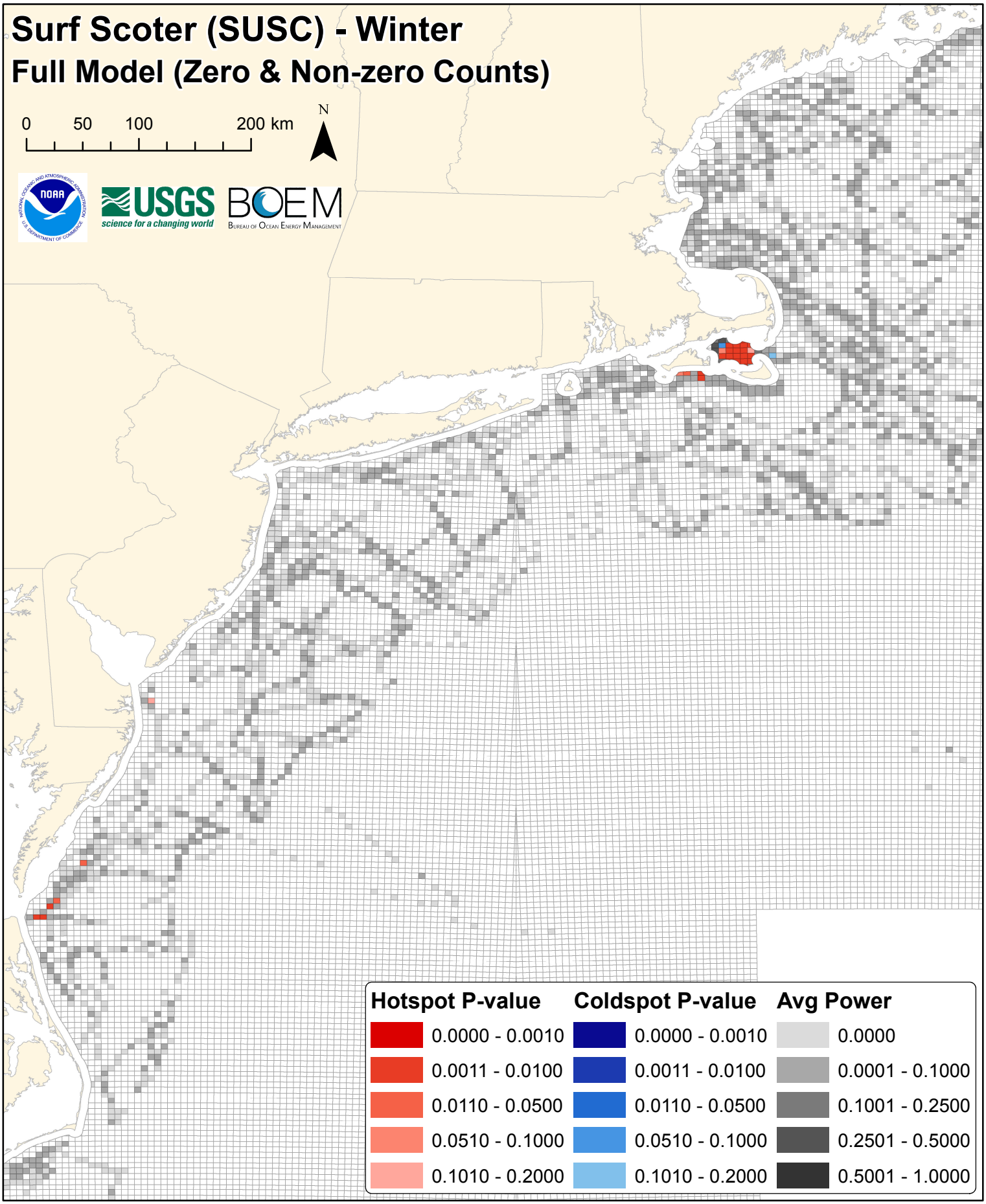

Long-tailed Duck (LTDU) - Winter
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Hotspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Coldspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Avg Power
0.0000
0.0001 - 0.1000
0.1001 - 0.2500
0.2501 - 0.5000
0.5001 - 1.0000

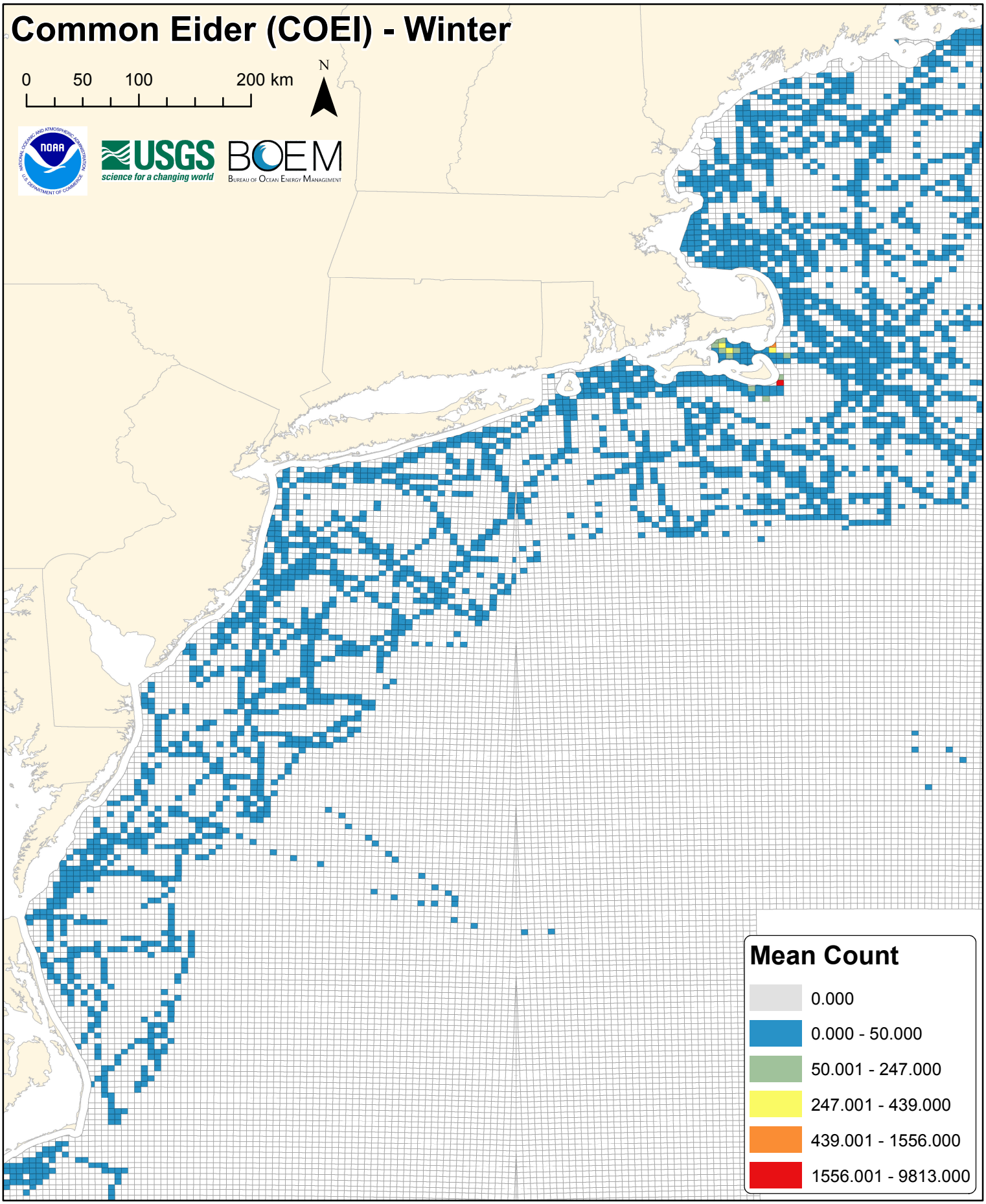

Surf Scoter (SUSC) - Winter
0
50
100
200 km
N
NOAA
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Mean Count
0.000
0.001 - 15.667
15.667 - 48.125
48.126 - 103.600
103.601 - 270.000
270.001 - 1351.001

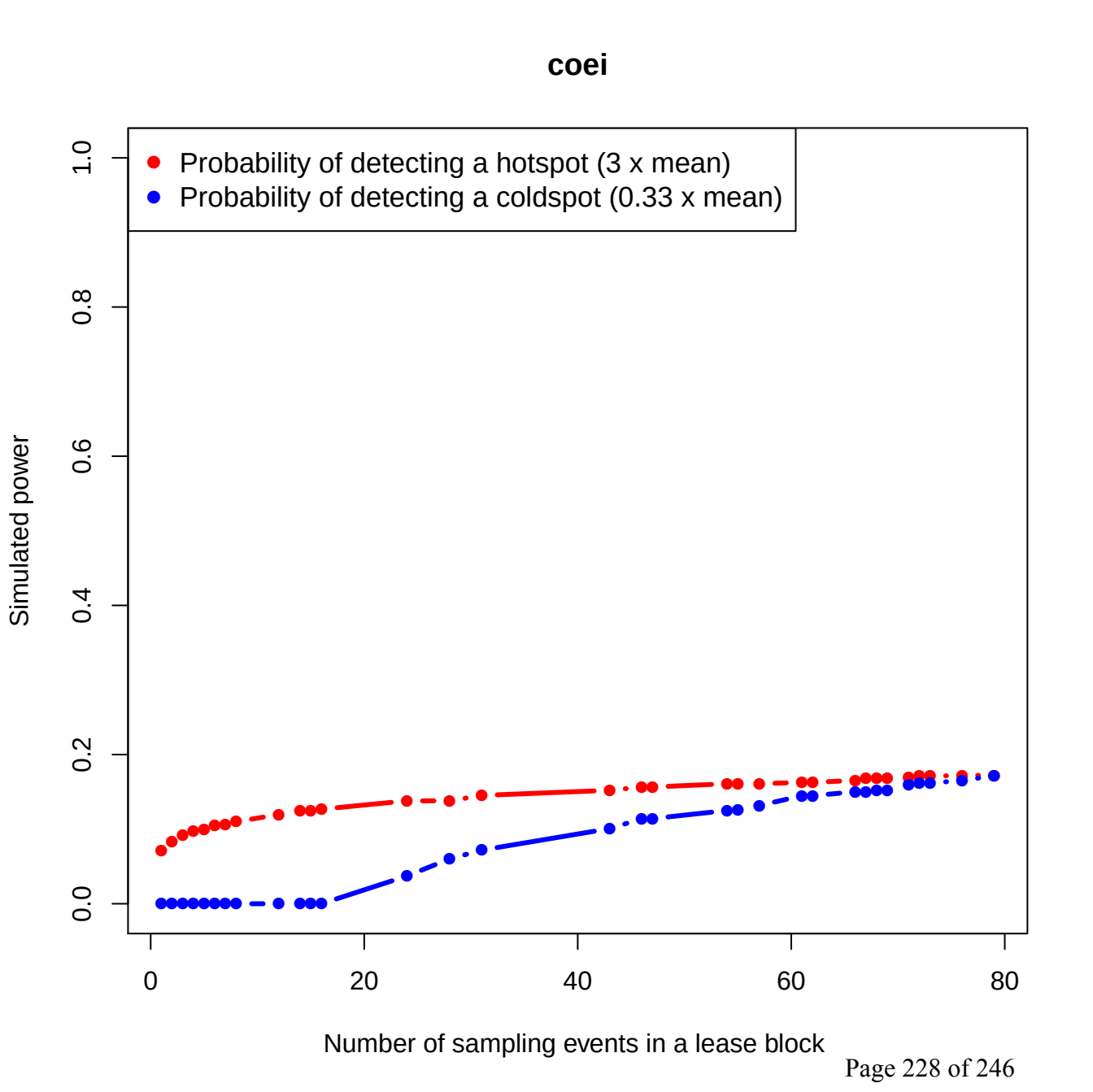

susc
Probability of detecting a hotspot (3 x mean)
Probability of detecting a coldspot (0.33 x mean)
Simulated power
0.0
0.2
0.4
0.6
0.8
1.0
0
20
40
60
80
Number of sampling events in a lease block

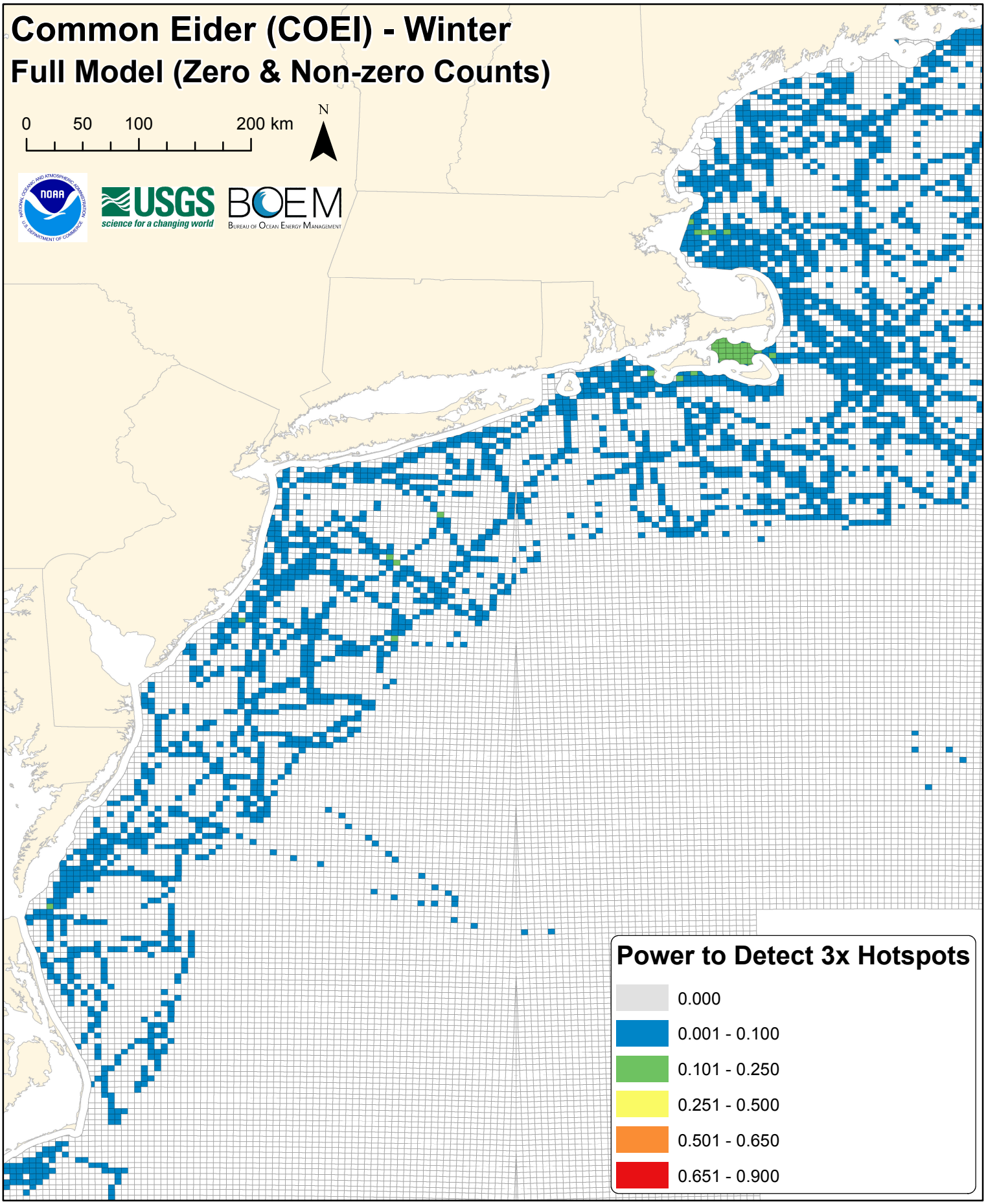

Surf Scoter (SUSC) - Winter
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Power to Detect 3x Hotspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

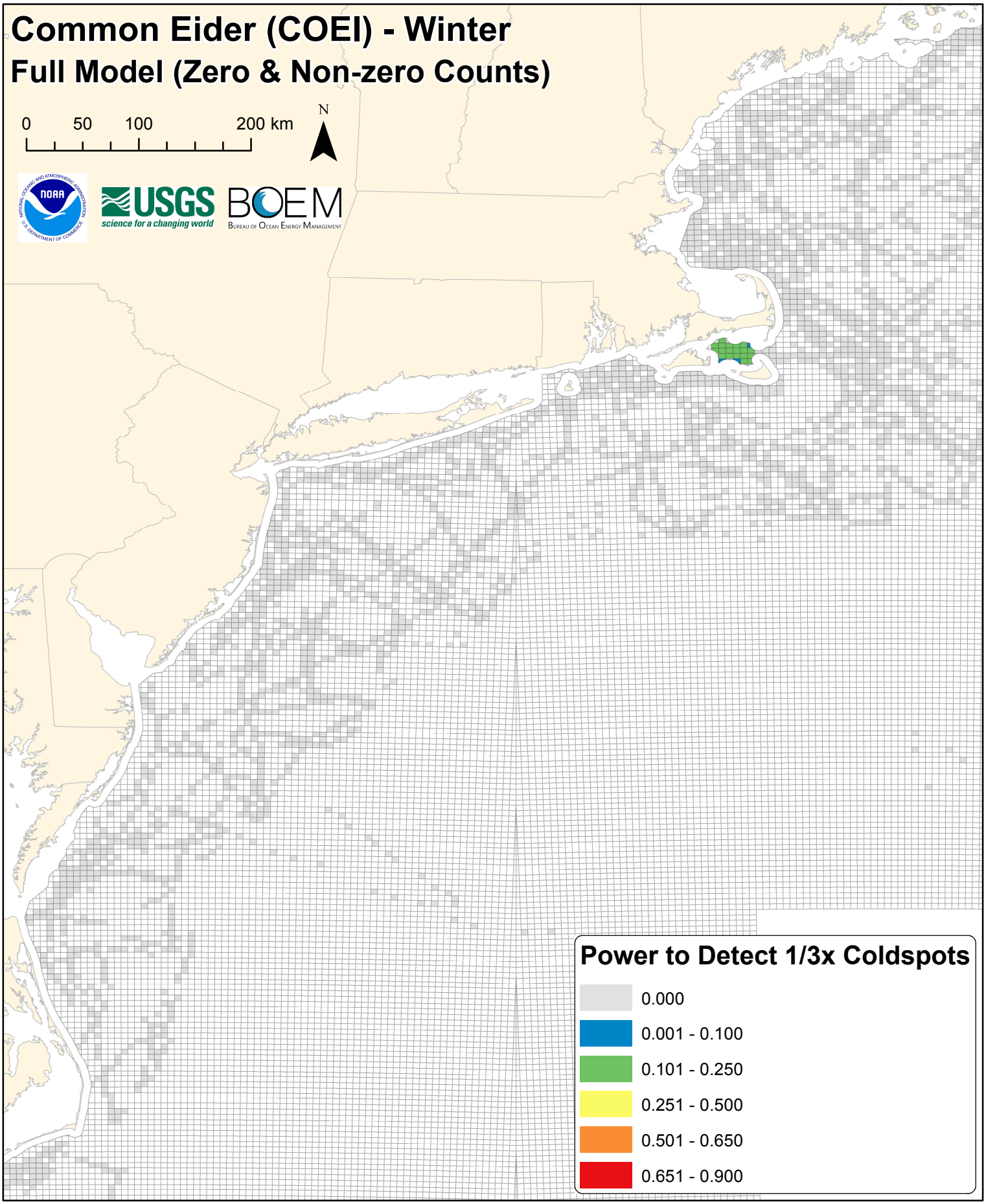

Surf Scoter (SUSC) - Winter
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Power to Detect 1/3x Coldspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

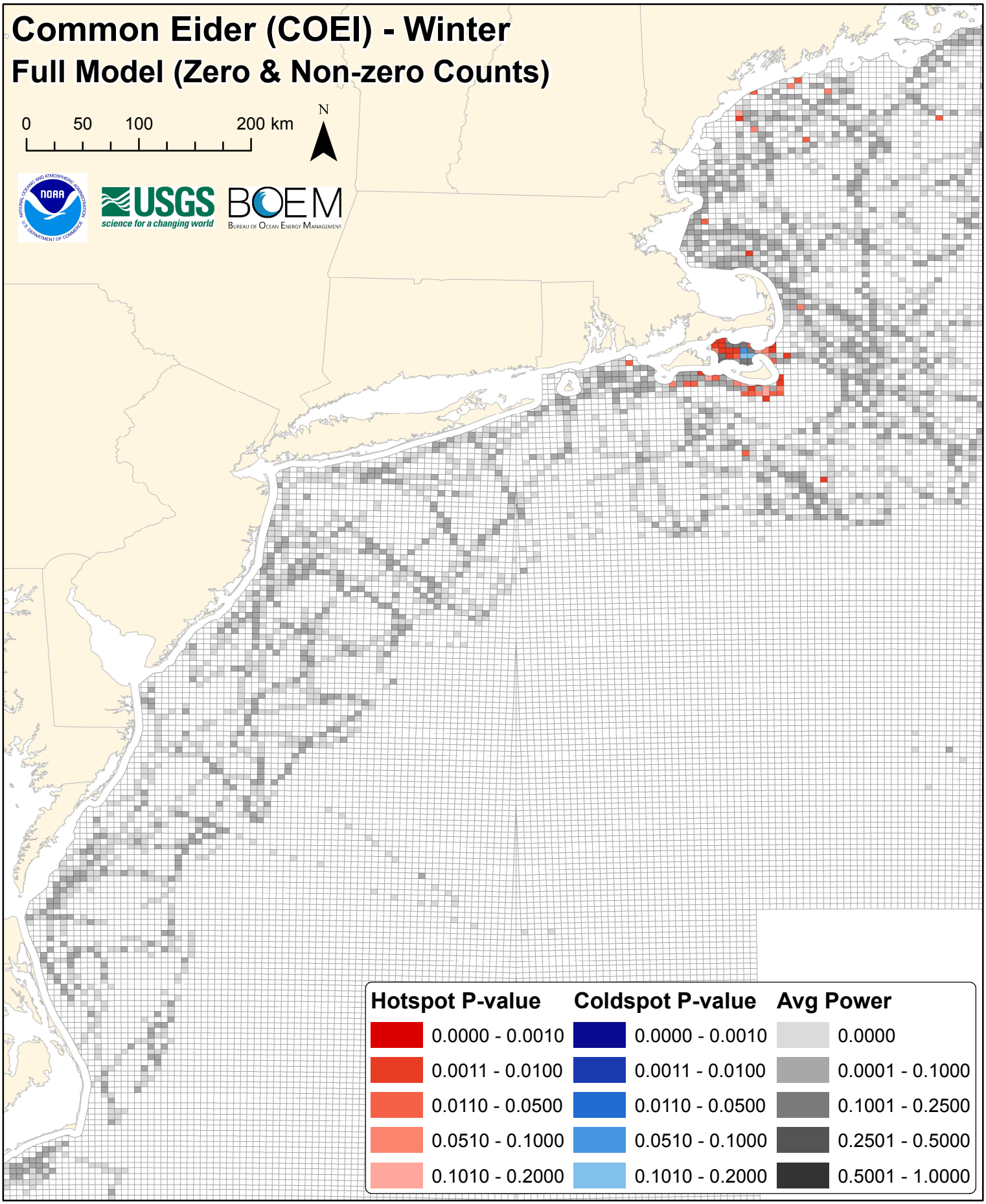

Surf Scoter (SUSC) - Winter
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
NOAA
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Hotspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Coldspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Avg Power
0.0000
0.0001 - 0.1000
0.1001 - 0.2500
0.2501 - 0.5000
0.5001 - 1.0000

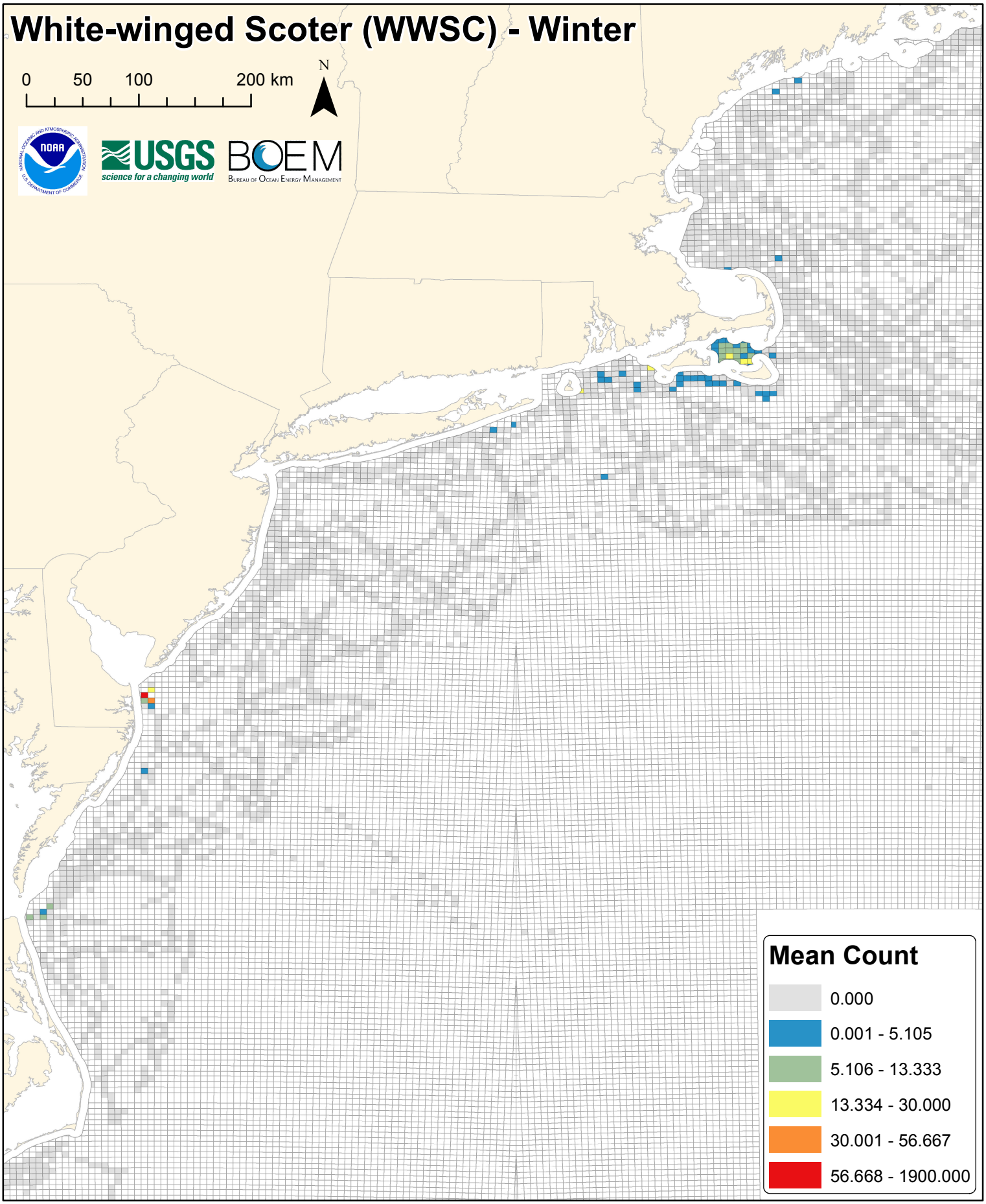

Common Eider (COEI) - Winter
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Mean Count
0.000
0.000 - 50.000
50.001 - 247.000
247.001 - 439.000
439.001 - 1556.000
1556.001 - 9813.000

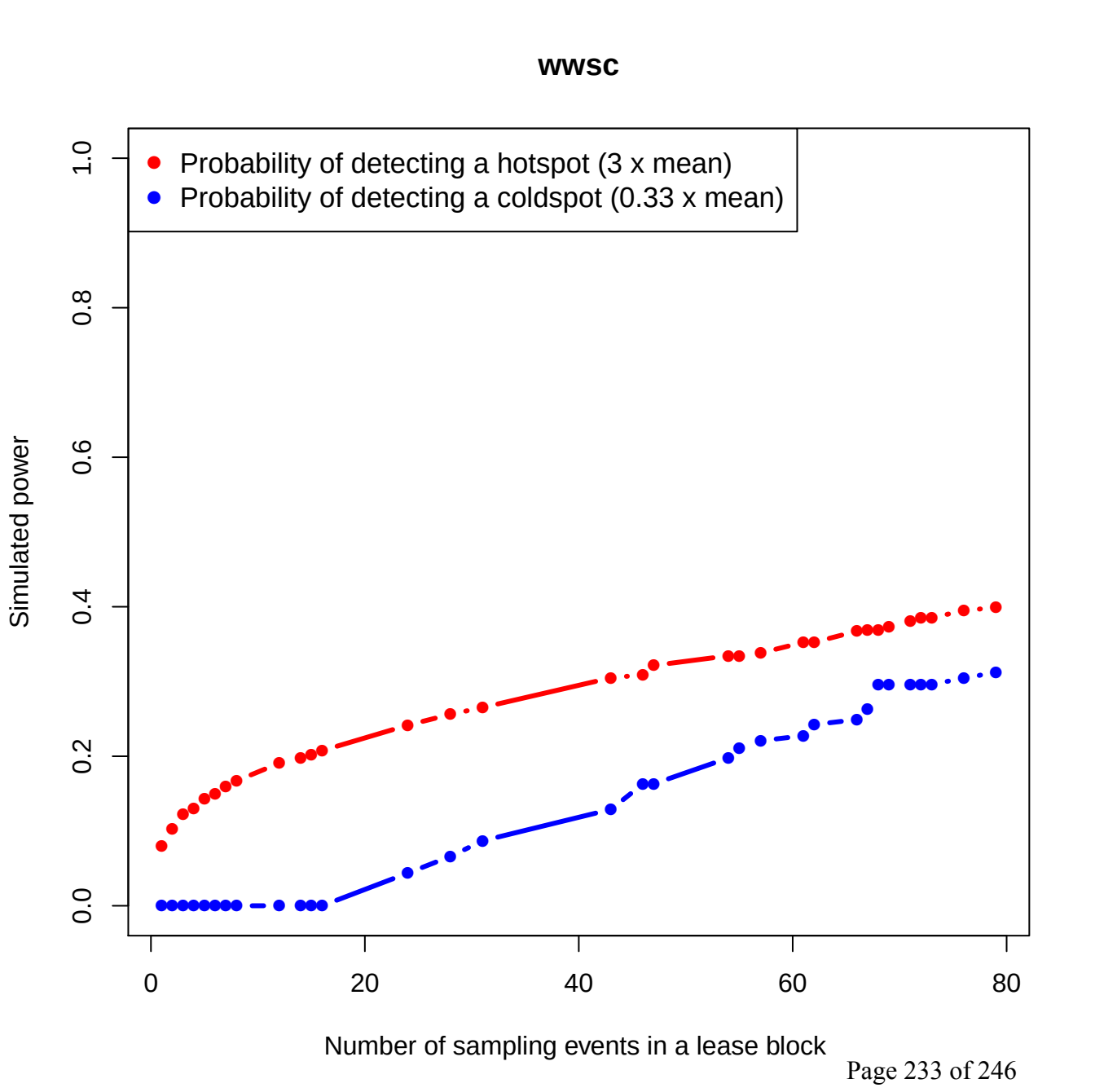

coei
Probability of detecting a hotspot (3 x mean)
Probability of detecting a coldspot (0.33 x mean)
Simulated power
0.0
0.2
0.4
0.6
0.8
1.0
0
20
40
60
80
Number of sampling events in a lease block

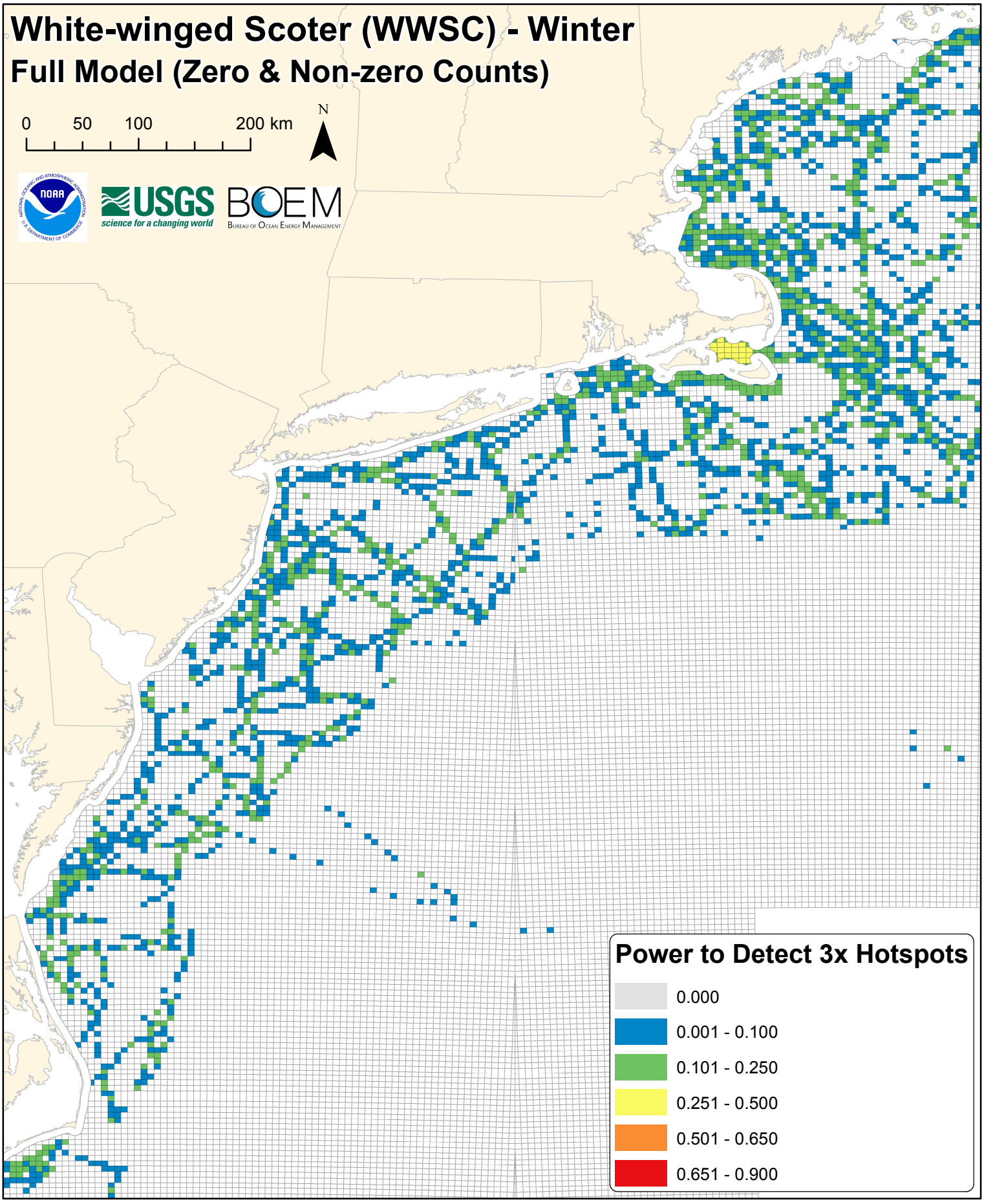

Common Eider (COEI) - Winter
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Power to Detect 3x Hotspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

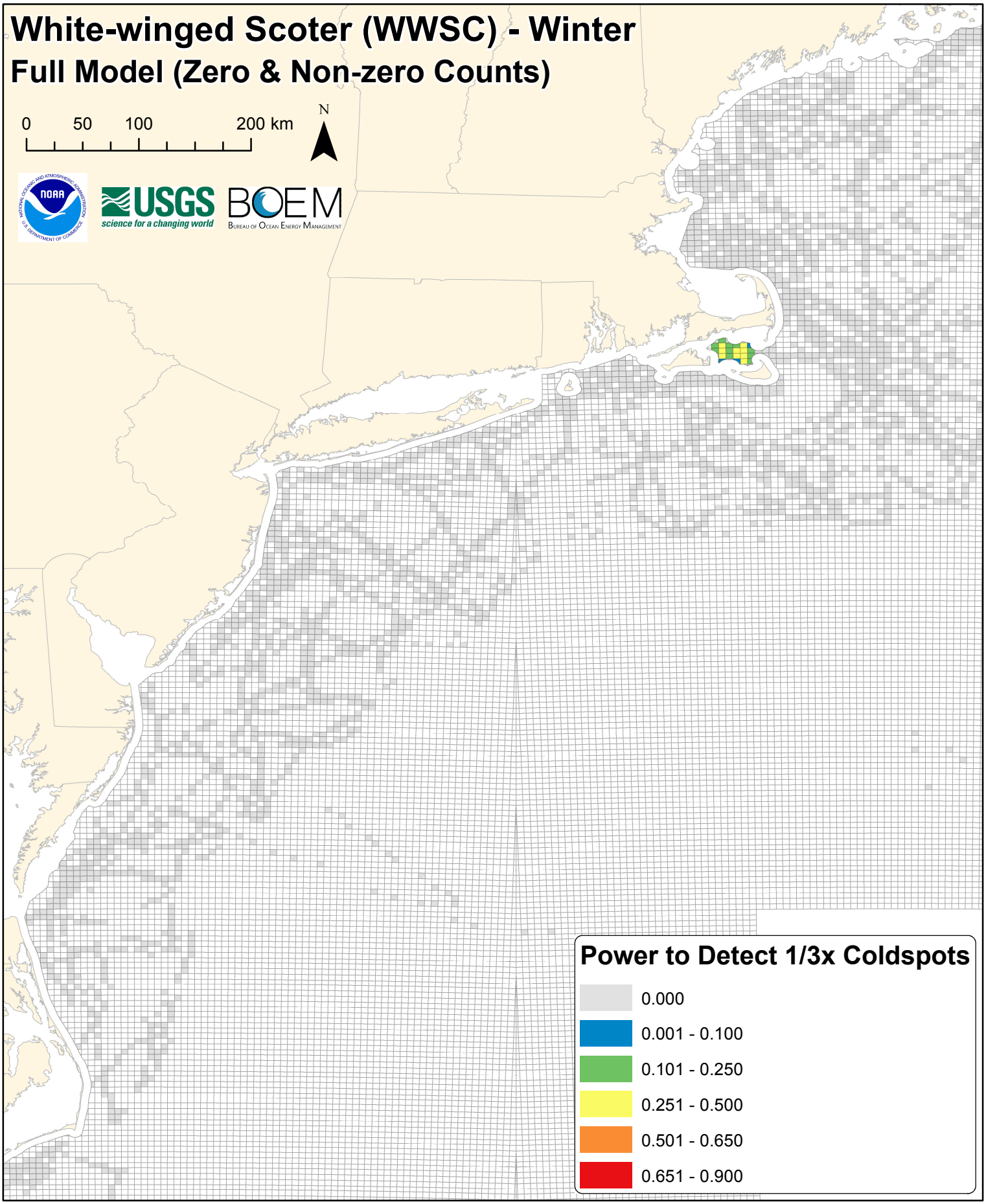

Common Eider (COEI) - Winter
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
NOAA
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Power to Detect 1/3x Coldspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

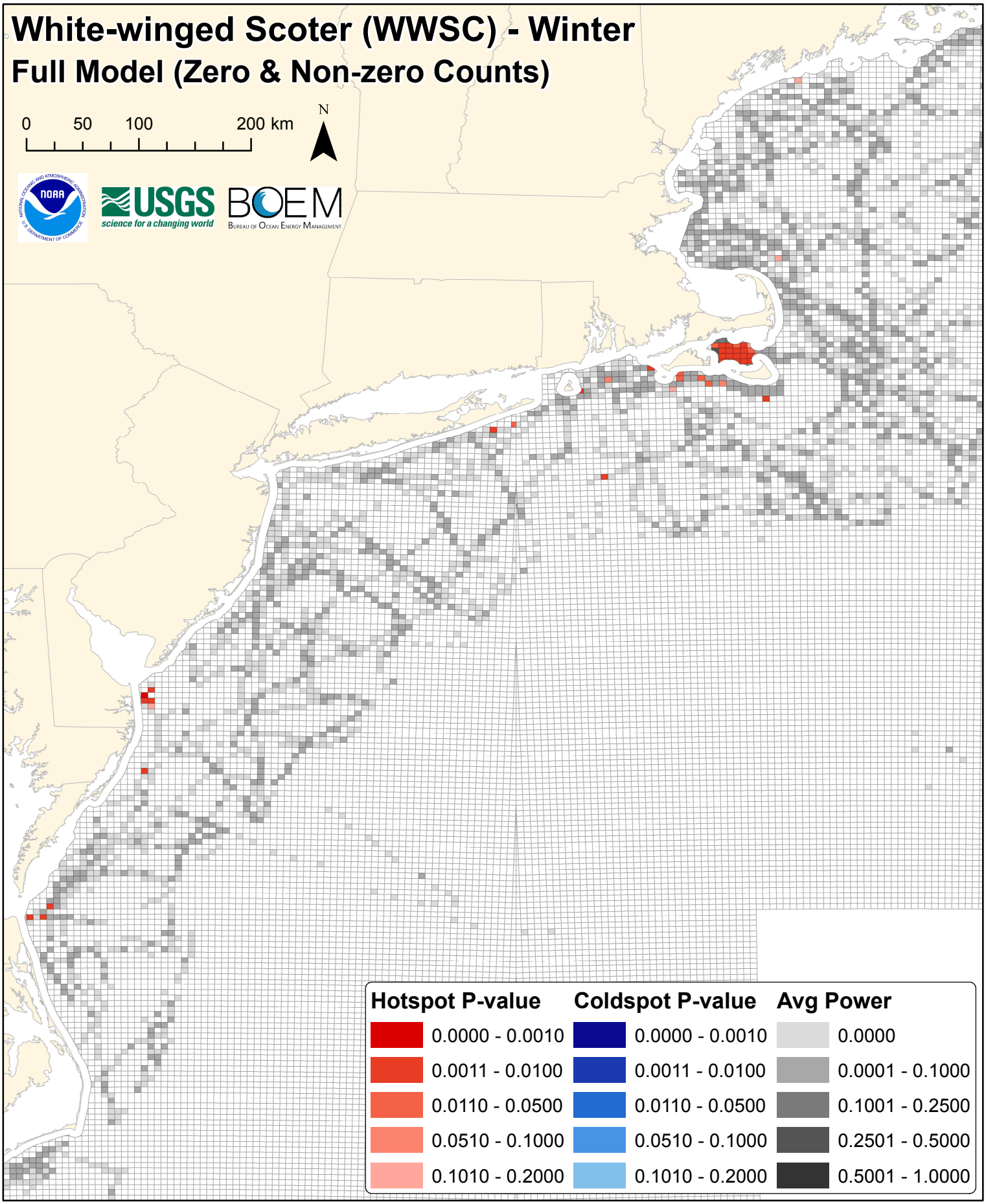

Common Eider (COEI) - Winter
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Hotspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Coldspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Avg Power
0.0000
0.0001 - 0.1000
0.1001 - 0.2500
0.2501 - 0.5000
0.5001 - 1.0000

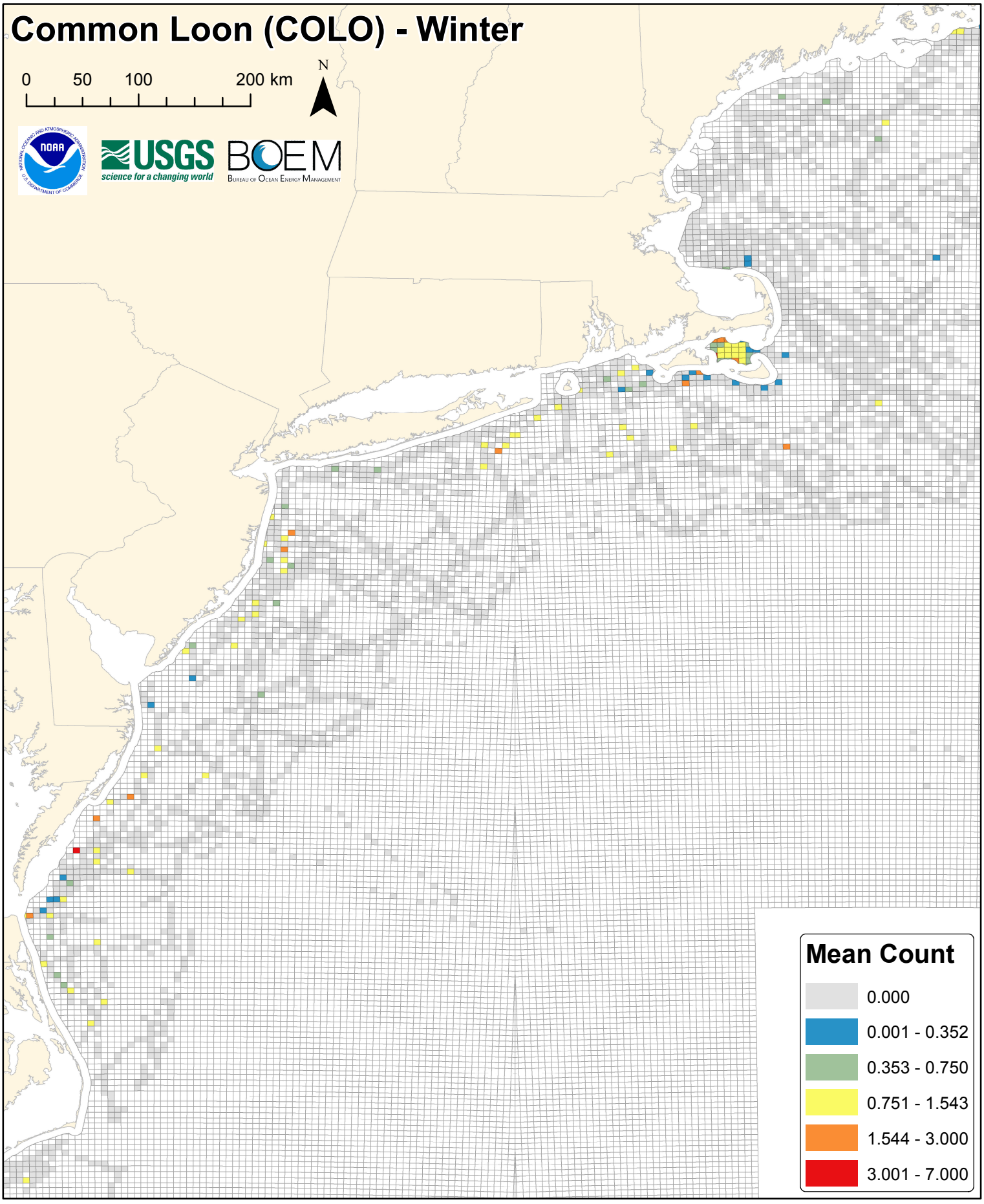

White-winged Scoter (WWSC) - Winter
0
50
100
200 km
N
NOAA
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Mean Count
0.000
0.001 - 5.105
5.106 - 13.333
13.334 - 30.000
30.001 - 56.667
56.668 - 1900.000

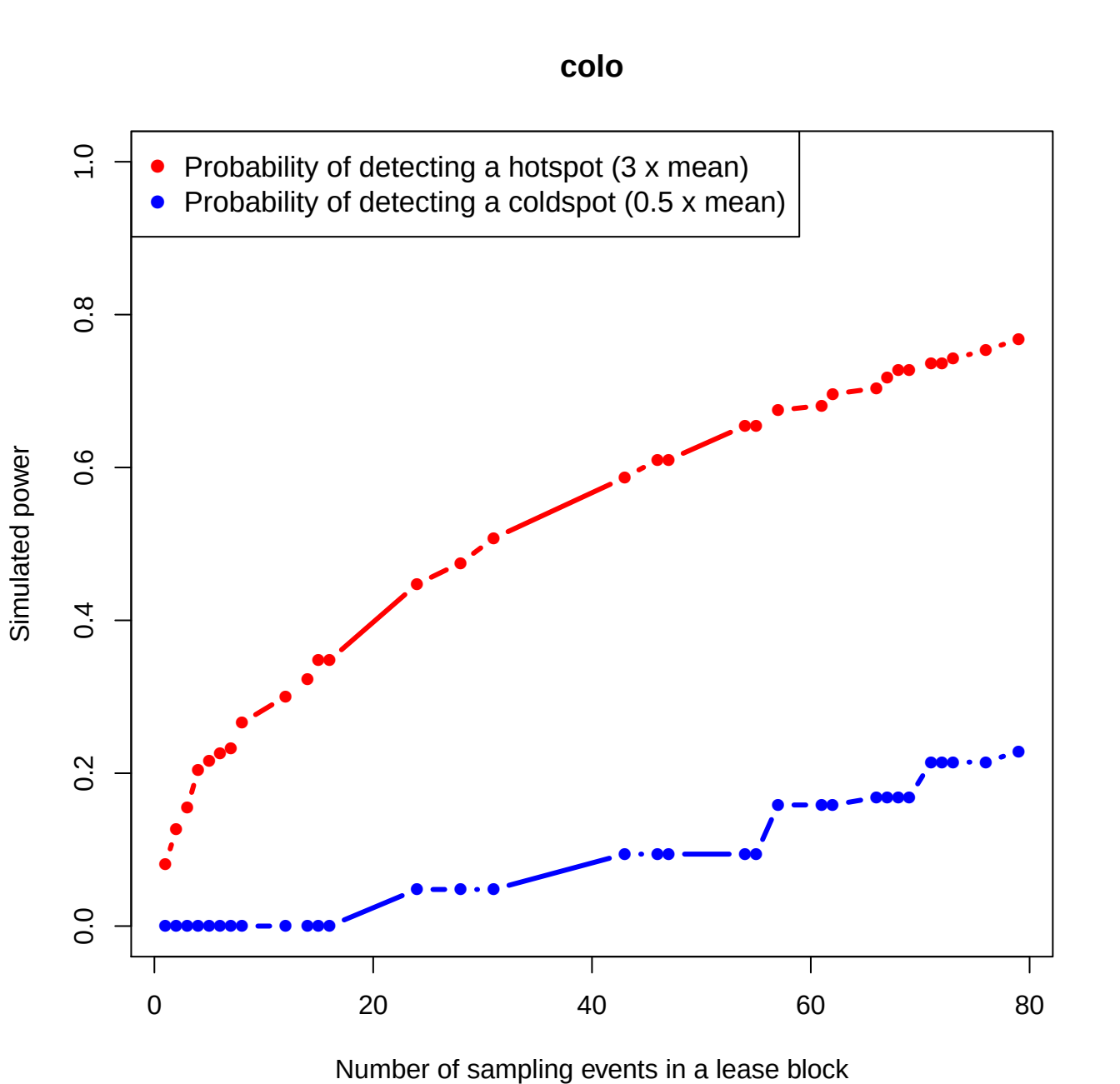

wwsc
Probability of detecting a hotspot (3 x mean)
Probability of detecting a coldspot (0.33 x mean)
Simulated power
0.0
0.2
0.4
0.6
0.8
1.0
0
20
40
60
80
Number of sampling events in a lease block

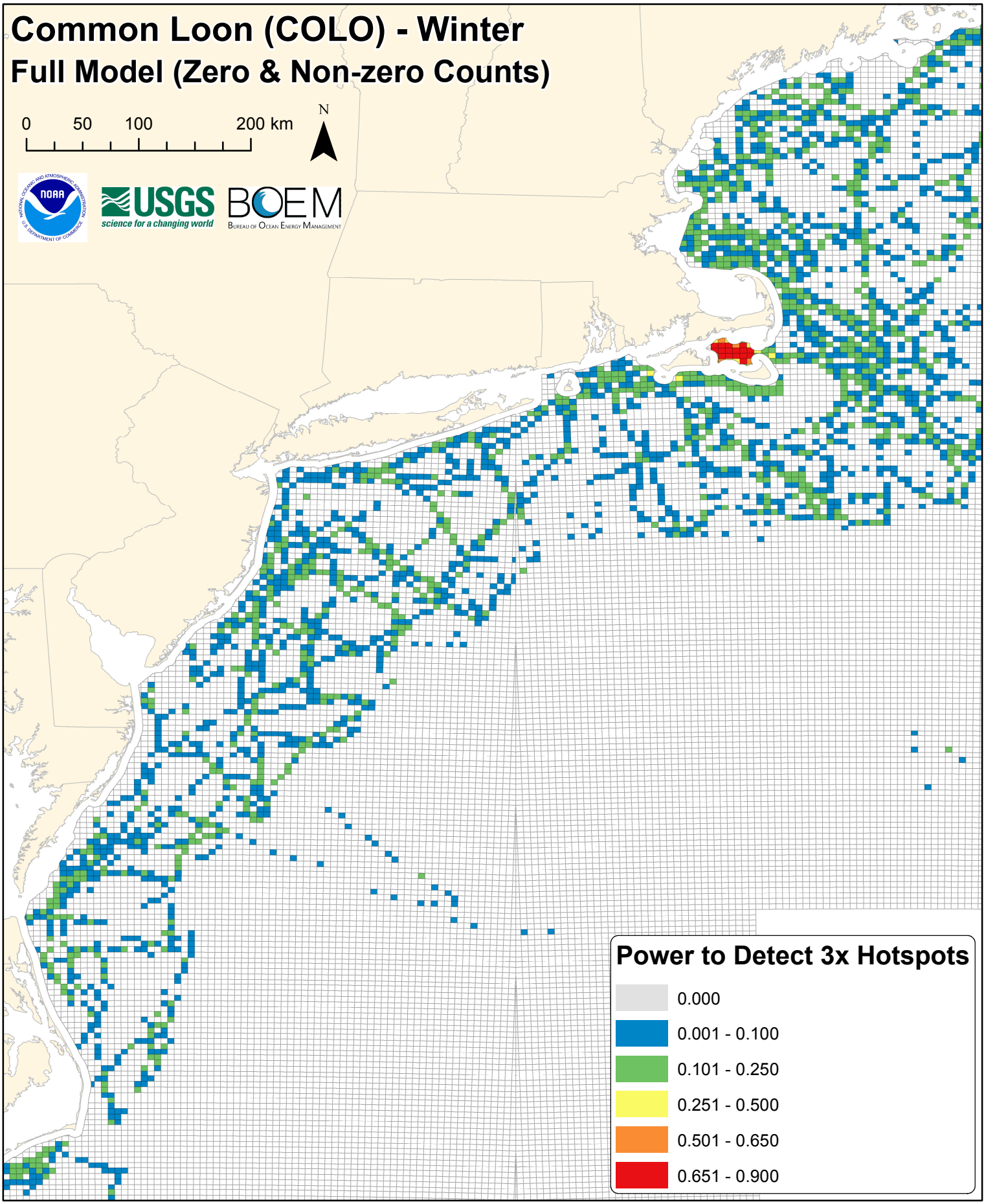

White-winged Scoter (WWSC) - Winter
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Power to Detect 3x Hotspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

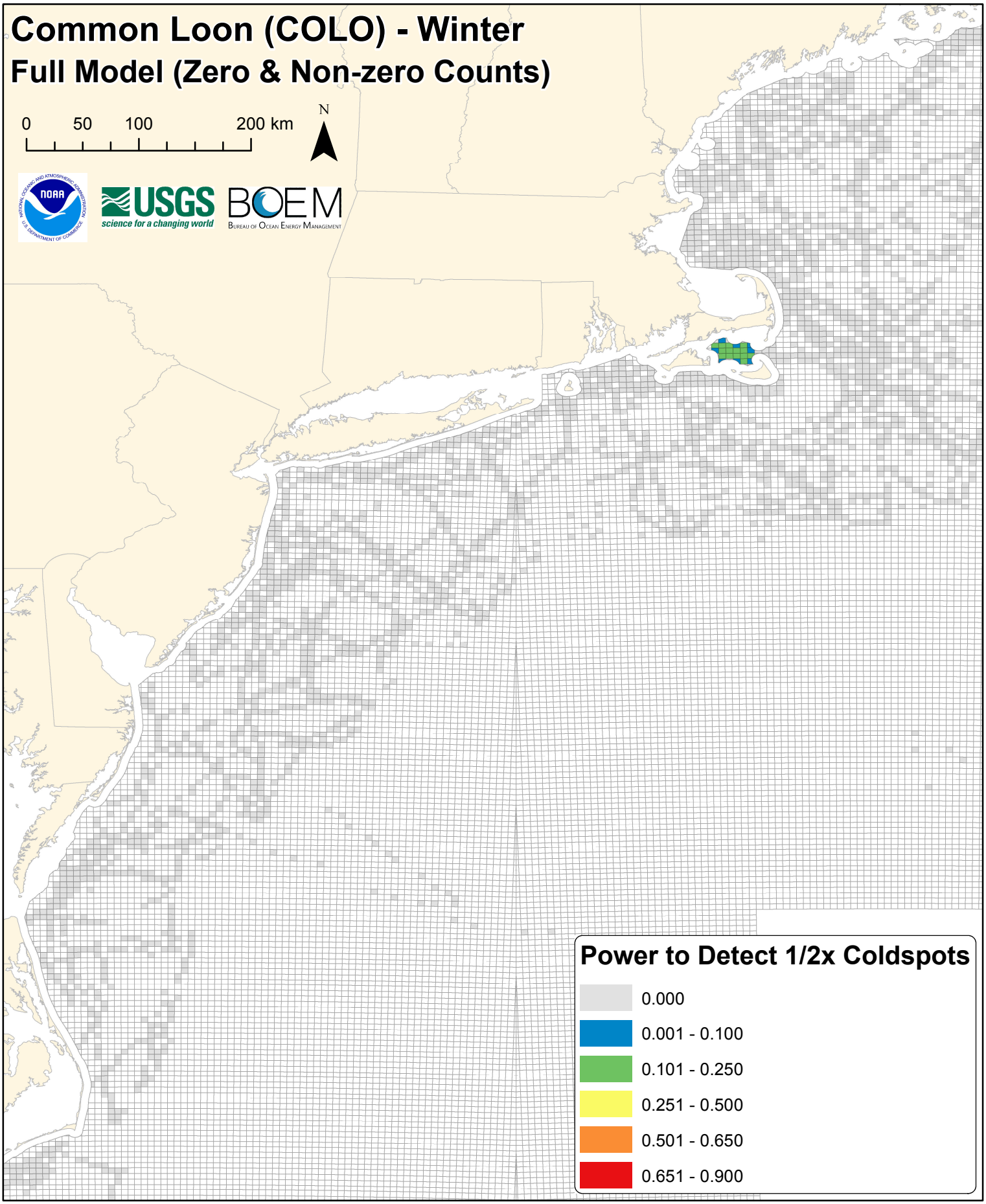

White-winged Scoter (WWSC) - Winter
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Power to Detect 1/3x Coldspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

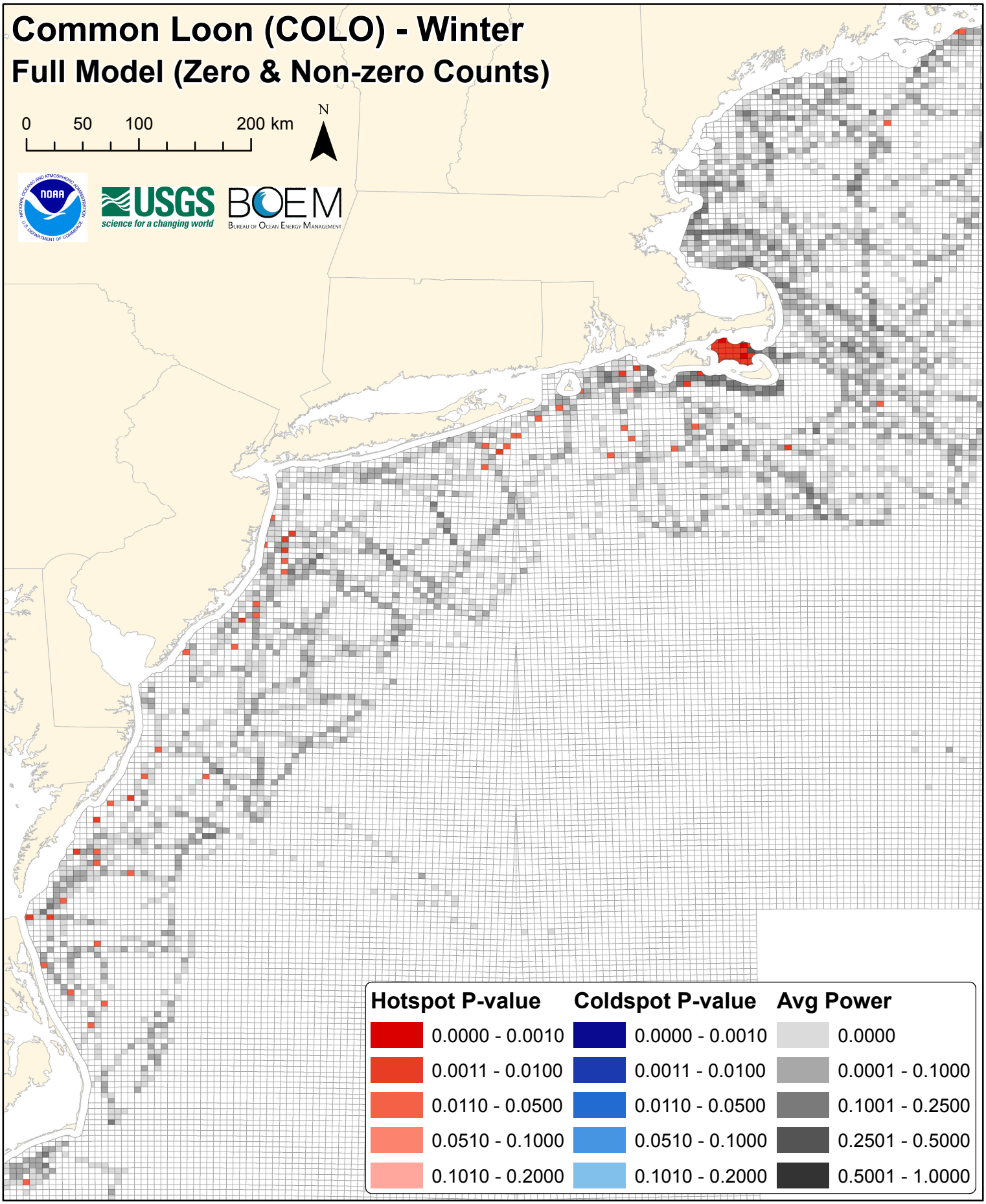

White-winged Scoter (WWSC) - Winter
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Hotspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Coldspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Avg Power
0.0000
0.0001 - 0.1000
0.1001 - 0.2500
0.2501 - 0.5000
0.5001 - 1.0000

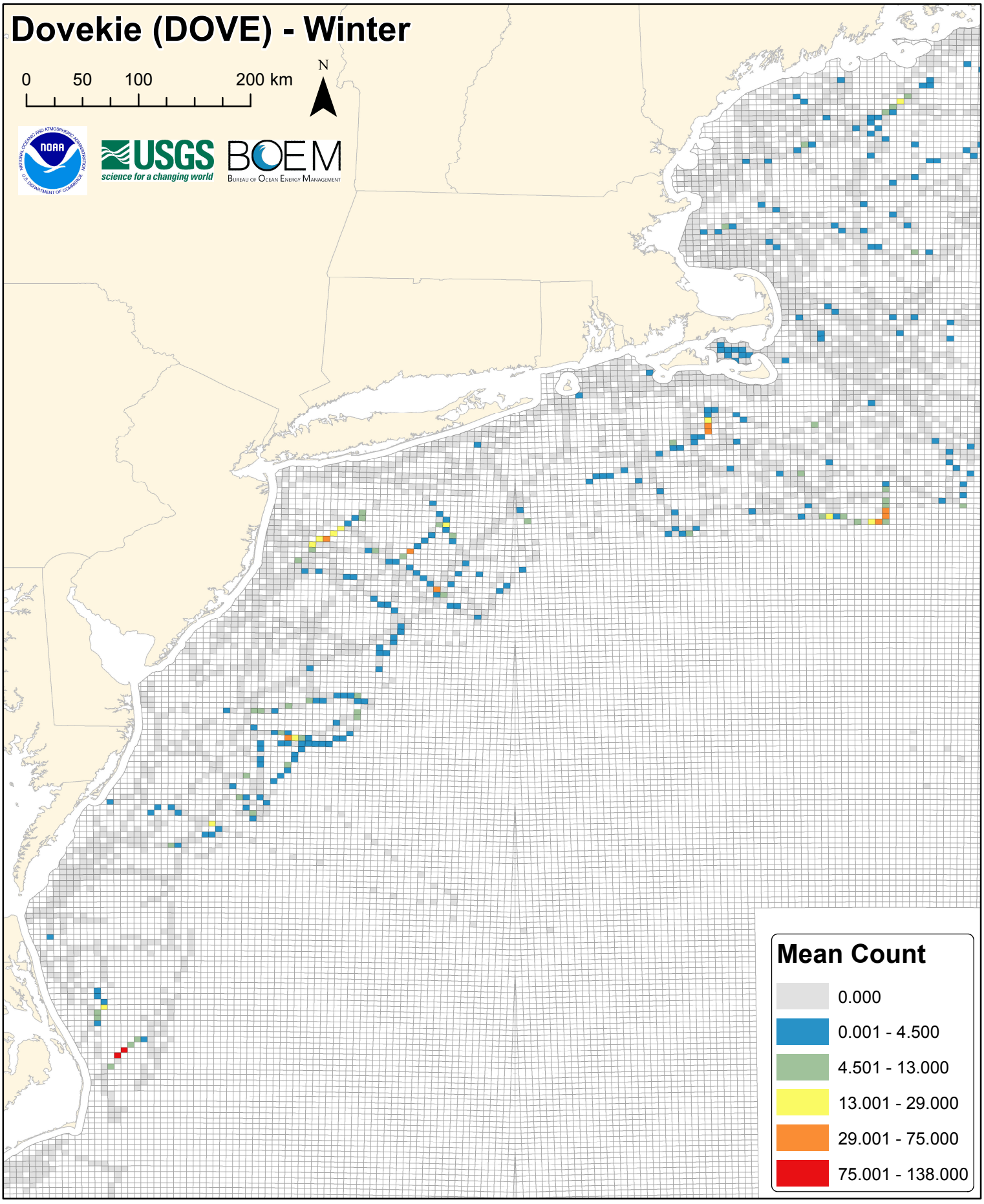

Common Loon (COLO) - Winter
0
50
100
200 km
N
NOAA
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Mean Count
0.000
0.001 - 0.352
0.353 - 0.750
0.751 - 1.543
1.544 - 3.000
3.001 - 7.000

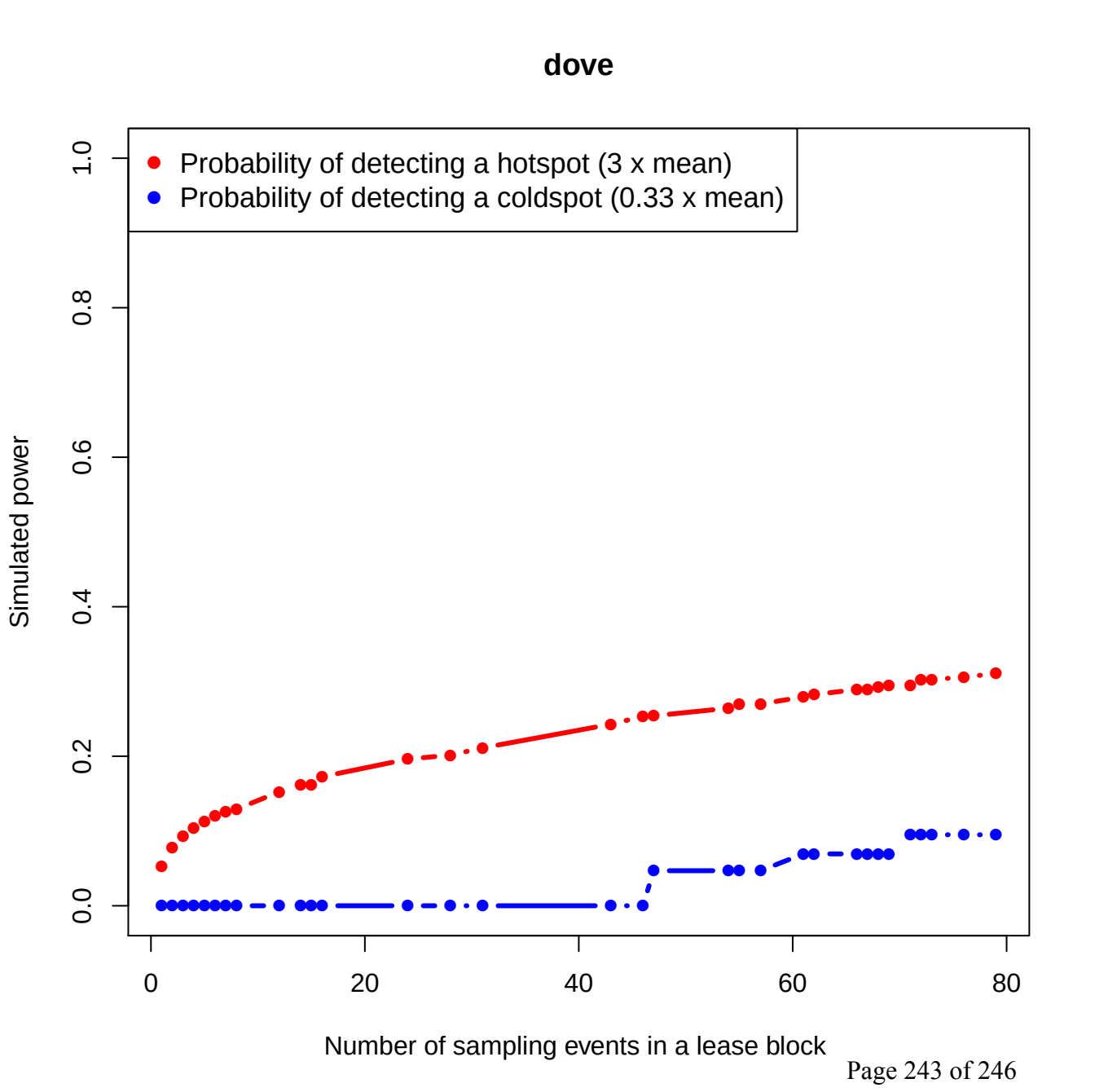

colo
Probability of detecting a hotspot (3 x mean)
Probability of detecting a coldspot (0.5 x mean)
Simulated power
0.0
0.2
0.4
0.6
0.8
1.0
0
20
40
60
80
Number of sampling events in a lease block

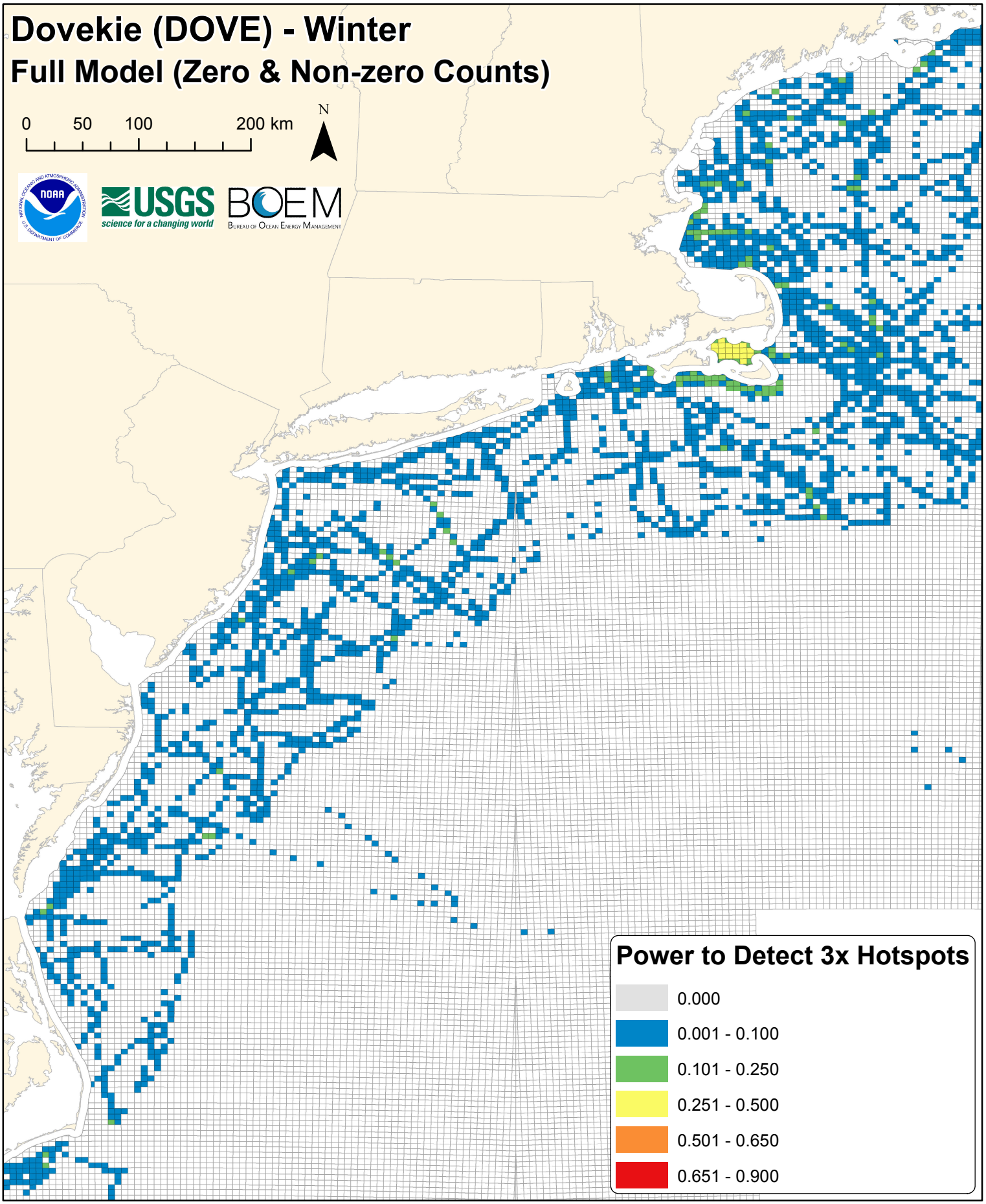

Common Loon (COLO) - Winter
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Power to Detect 3x Hotspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

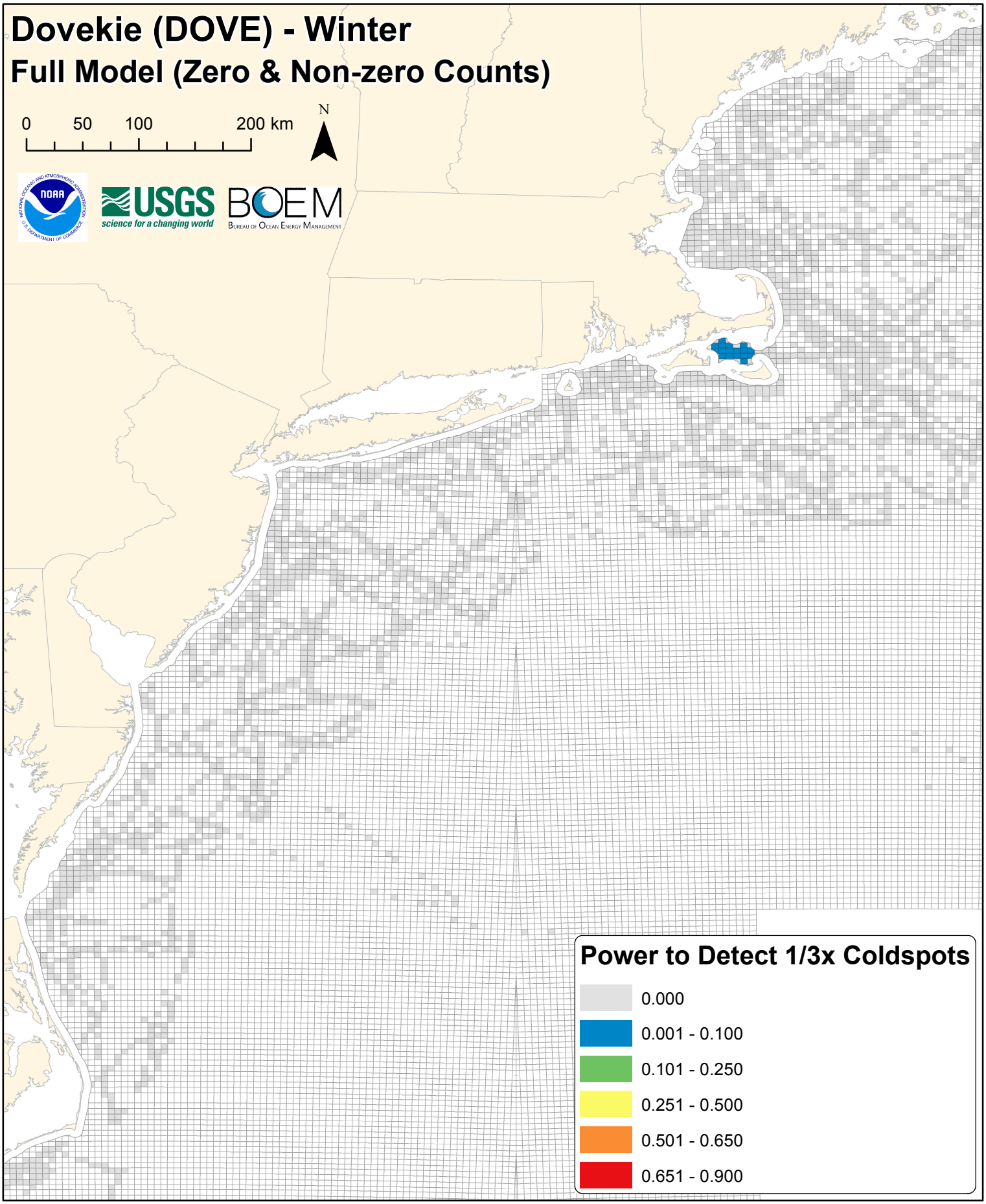

Common Loon (COLO) - Winter
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Power to Detect 1/2x Coldspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900

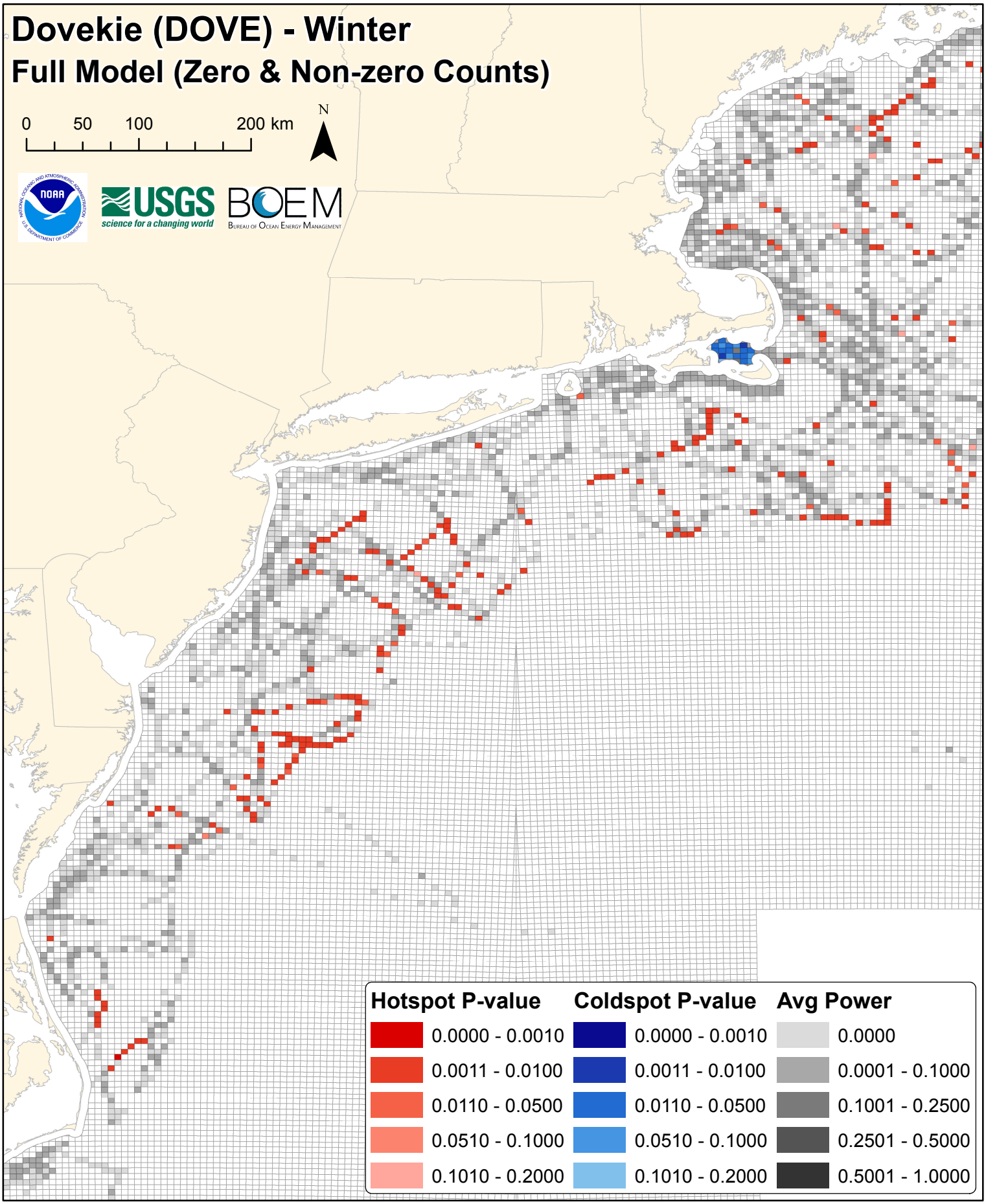

Common Loon (COLO) - Winter
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Hotspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Coldspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Avg Power
0.0000
0.0001 - 0.1000
0.1001 - 0.2500
0.2501 - 0.5000
0.5001 - 1.0000


Dovekie (DOVE) - Winter
0
50
100
200 km
N
NOAA
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Mean Count
0.000
0.001 - 4.500
4.501 - 13.000
13.001 - 29.000
29.001 - 75.000
75.001 - 138.000


dove
Probability of detecting a hotspot (3 x mean)
Probability of detecting a coldspot (0.33 x mean)
Simulated power
0.0
0.2
0.4
0.6
0.8
1.0
0
20
40
60
80
Number of sampling events in a lease block


Dovekie (DOVE) - Winter
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Power to Detect 3x Hotspots
0.000
0.001 - 0.100
0.101 - 0.250
0.251 - 0.500
0.501 - 0.650
0.651 - 0.900


Dovekie (DOVE) - Winter
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
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


Dovekie (DOVE) - Winter
Full Model (Zero & Non-zero Counts)
0
50
100
200 km
N
NOAA
USGS
science for a changing world
BOEM
Bureau of Ocean Energy Management
Hotspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Coldspot P-value
0.0000 - 0.0010
0.0011 - 0.0100
0.0110 - 0.0500
0.0510 - 0.1000
0.1010 - 0.2000
Avg Power
0.0000
0.0001 - 0.1000
0.1001 - 0.2500
0.2501 - 0.5000
0.5001 - 1.0000