

Science, Service, Stewardship



Discussion of Vertical Line Management Options

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Building Blocks of the Strategy

Whales (SPUE)

- Right Whales
- Humpback Whales
- Fin Whales
- Combined (unweighted)
- Combined (weighted)

Vertical Lines

- Trap/Pot
- Gillnet

Co-Occurrence

RW – VL
Humpback – VL
Fin – VL
Combined (uw) – VL
Combined (w) - VL

Spatial

Temporal

AREAS		TIMING	Management Measure
Territorial Range		Year Round	Vertical Line Reduction (%) <ul style="list-style-type: none"> ● 3 traps/trawl ● 5 traps/trawl ● 10 traps/trawl (1 end line) ● 10 traps/trawl (2 end lines) ● Closure
		Seasonal	
Whale Species	Rights	Year Round	
		Seasonal	
	Humpbacks	Year Round	
		Seasonal	
	Fins	Year Round	
		Seasonal	
	Combined (weighted)	Year Round	
		Seasonal	
Combined (unweighted)	Year Round		
	Seasonal		
Vertical Lines		Year Round	
		Seasonal	
Co-Occurrence	Rights	Year Round	
		Seasonal	
	Humpbacks	Year Round	
		Seasonal	
	Fins	Year Round	
		Seasonal	
	Combined (weighted)	Year Round	
		Seasonal	
	Combined (unweighted)	Year Round	
		Seasonal	



Scenarios

1. Line Reduction throughout the Range
 - a) traps/rawl: 3, 5, 10 (1 end line), 10 (2 end lines)
2. Select Areas based on Number of Vertical Lines
 - a) Year Round
 - b) Seasonal
 - i. traps/rawl: 3, 5, 10 (1 end line), 10 (2 end lines)
 - ii. Closure
3. Select Areas on the Basis of SPUE
 - a) Right Whales – Year Round
 - i. traps/rawl: 3, 5, 10 (1 end line), 10 (2 end lines)
 - ii. Closure
 - b) Right Whales – Seasonal
 - i. traps/rawl: 3, 5, 10 (1 end line), 10 (2 end lines)
 - ii. Closure
4. Select Areas on the Basis of Co-Occurrence
 - a) Combined (unweighted)
 - i. Year Round – traps/rawl: 3, 5, 10 (1 end line), 10 (2 end lines)
 - ii. Seasonal - Closure



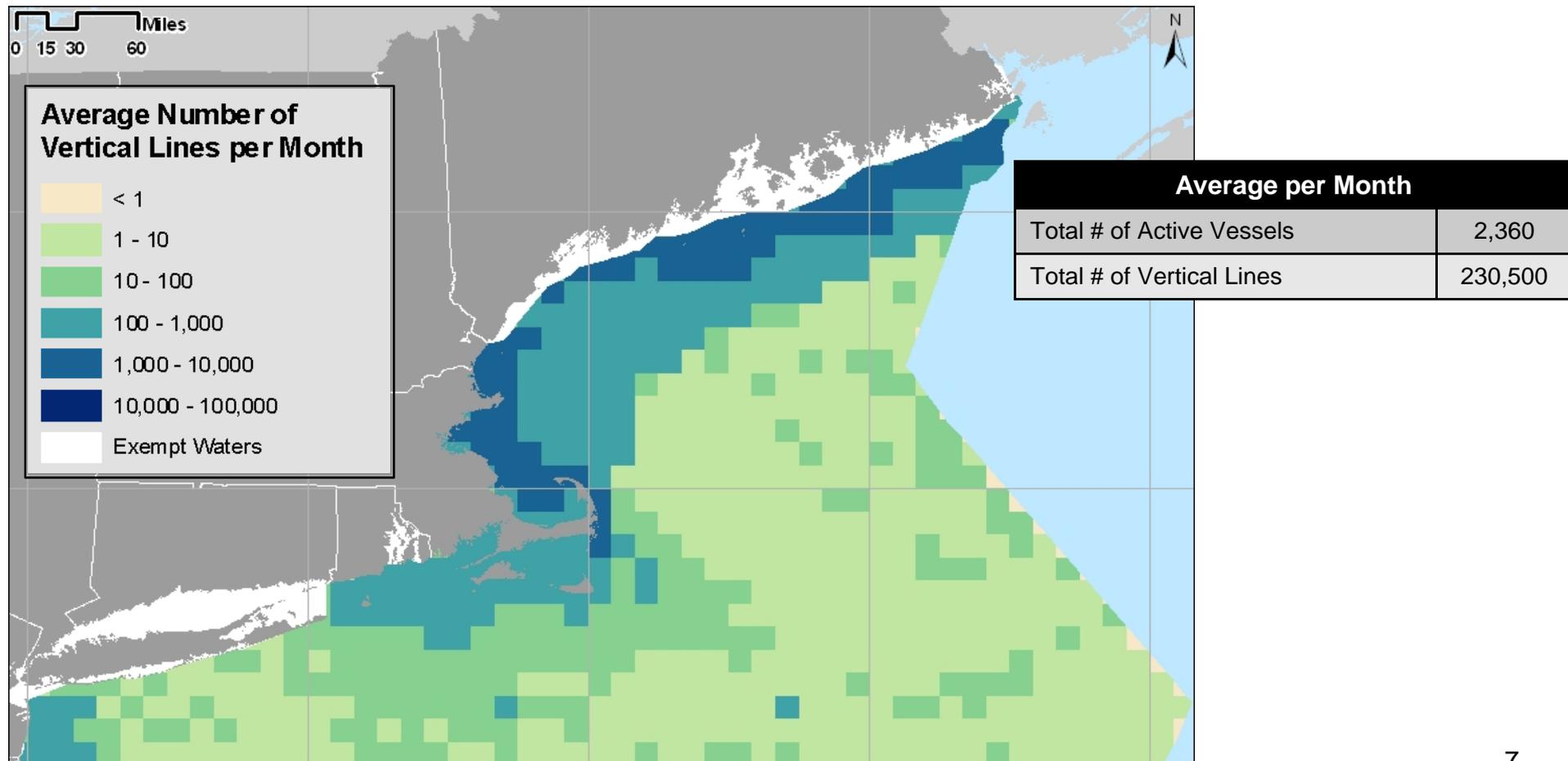
Scenario 1: Line Reduction throughout the Range of Large Whales

- Recognizes uncertainty in existing vertical line and/or whale data
- Broad based measure
- More accommodating of changes in the future in fishing effort, location, whale distribution, environmental changes
- Question how the reduction in vertical lines translates to risk reduction (e.g. may have 30% reduction in vertical lines overall but maybe 75% of that is in areas not frequently visited by large whales)

AREAS		TIMING	Management Measure
Territorial Range		Year Round	Vertical Line Reduction (%) <ul style="list-style-type: none"> 3 traps/trawl 5 traps/trawl 10 traps/trawl (1 end line) 10 traps/trawl (2 end lines) Closure
		Seasonal	
Whale Species	Rights	Year Round	
		Seasonal	
	Humpbacks	Year Round	
		Seasonal	
	Fins	Year Round	
		Seasonal	
	Combined (weighted)	Year Round	
		Seasonal	
	Combined (unweighted)	Year Round	
		Seasonal	
Vertical Lines		Year Round	
		Seasonal	
Co-Occurrence	Rights	Year Round	
		Seasonal	
	Humpbacks	Year Round	
		Seasonal	
	Fins	Year Round	
		Seasonal	
	Combined (weighted)	Year Round	
		Seasonal	
	Combined (unweighted)	Year Round	
		Seasonal	

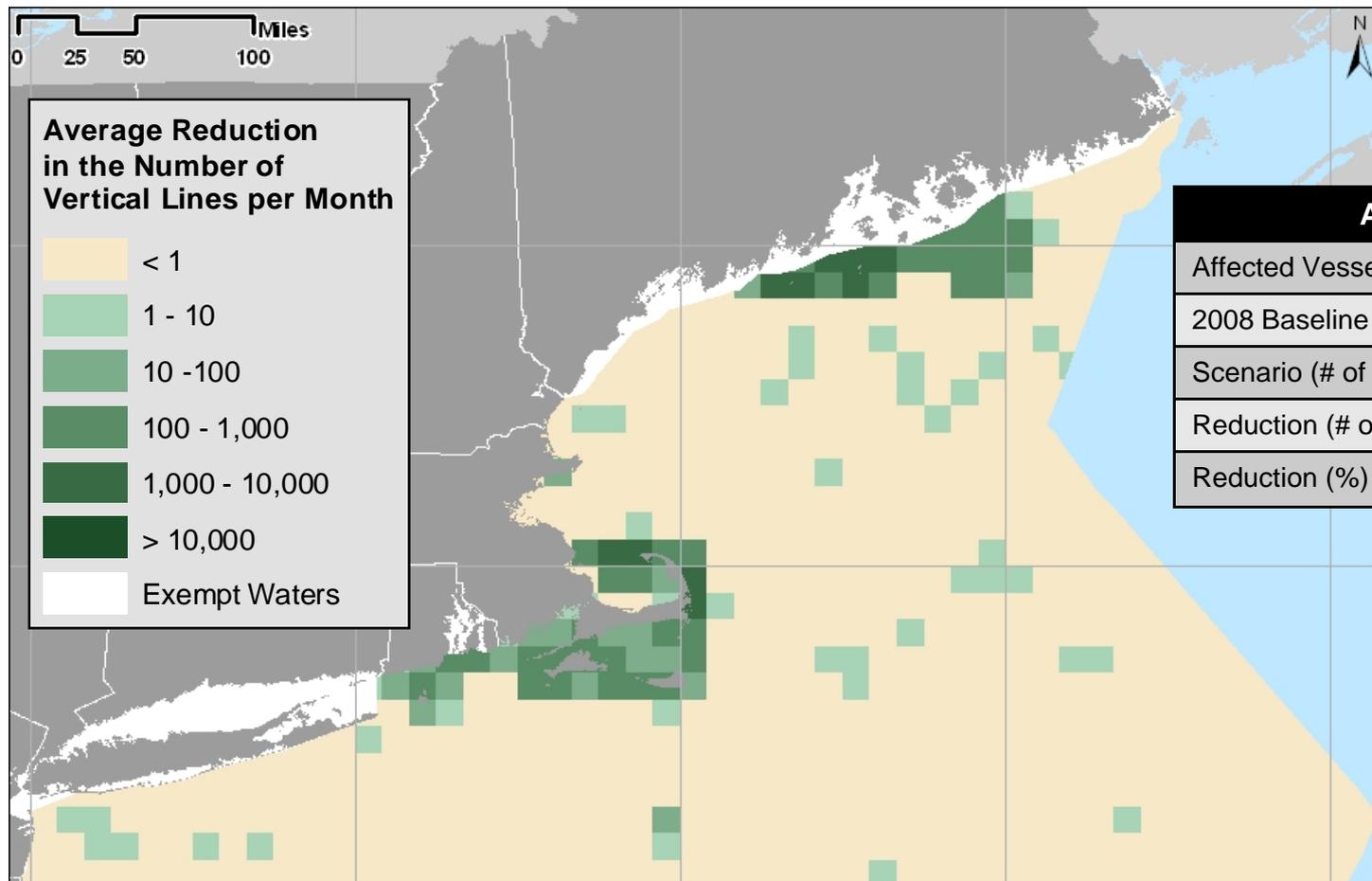


2008 Baseline (All Fisheries) Northeast Region ~ Non-Exempt Waters





Minimum 3 Traps/Trawl (1 Endline) Northeast Region

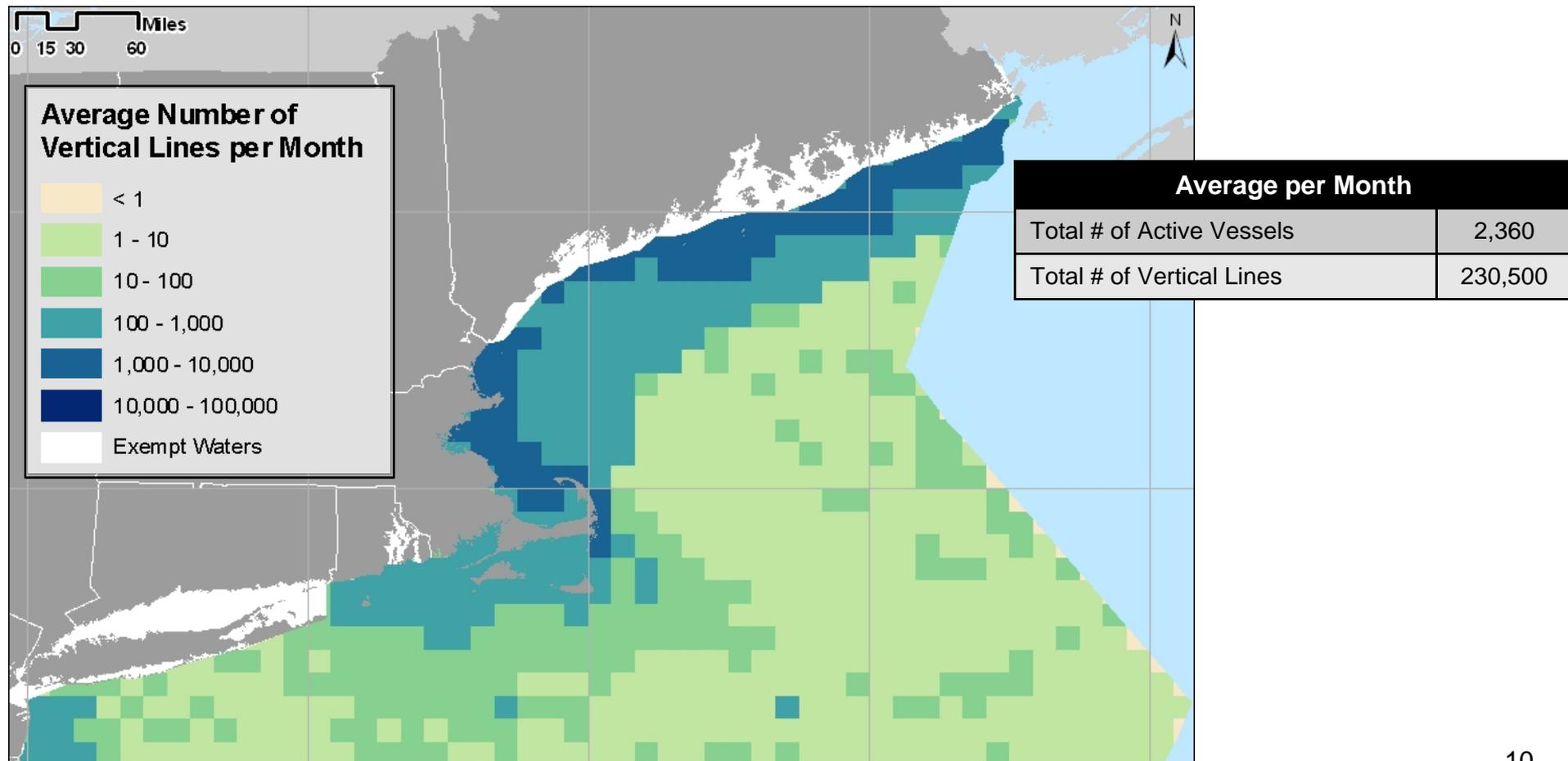


Average per Month	
Affected Vessels	450
2008 Baseline (# of Vertical Lines)	230,500
Scenario (# of Vertical Lines)	198,300
Reduction (# of Vertical Lines)	32,200
Reduction (%)	14%

AREAS		TIMING	Management Measure
Territorial Range		Year Round	Vertical Line Reduction (%) <ul style="list-style-type: none"> • 3 traps/trawl • 5 traps/trawl • 10 traps/trawl (1 end line) • 10 traps/trawl (2 end lines) • Closure
		Seasonal	
Whale Species	Rights	Year Round	
		Seasonal	
	Humpbacks	Year Round	
		Seasonal	
	Fins	Year Round	
		Seasonal	
	Combined (weighted)	Year Round	
		Seasonal	
Combined (unweighted)	Year Round		
	Seasonal		
Vertical Lines		Year Round	
		Seasonal	
Co-Occurrence	Rights	Year Round	
		Seasonal	
	Humpbacks	Year Round	
		Seasonal	
	Fins	Year Round	
		Seasonal	
	Combined (weighted)	Year Round	
		Seasonal	
	Combined (unweighted)	Year Round	
		Seasonal	

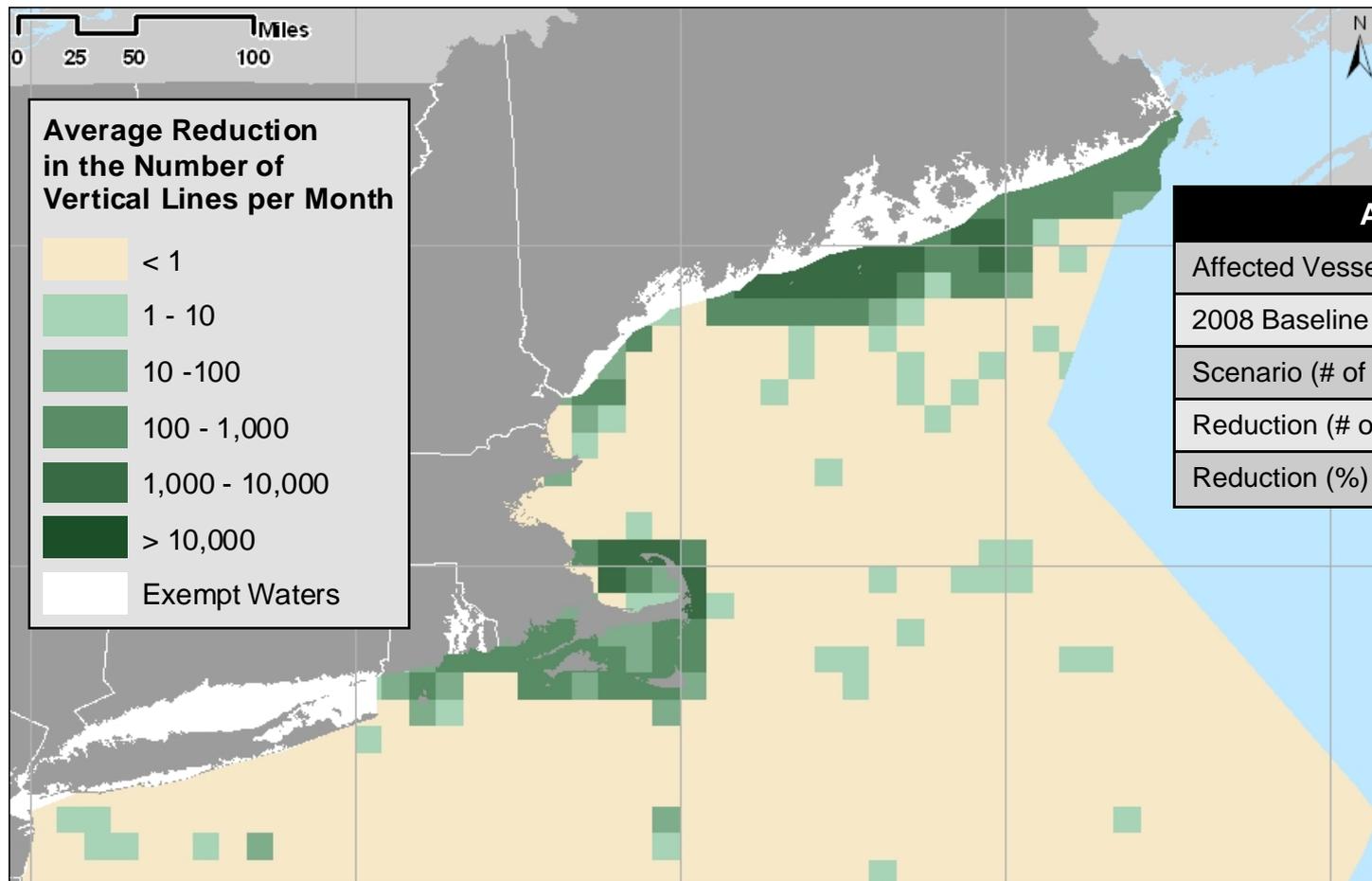


2008 Baseline (All Fisheries) Northeast Region ~ Non-Exempt Waters





Minimum 5 Traps/Trawl (1 Endline) Northeast Region

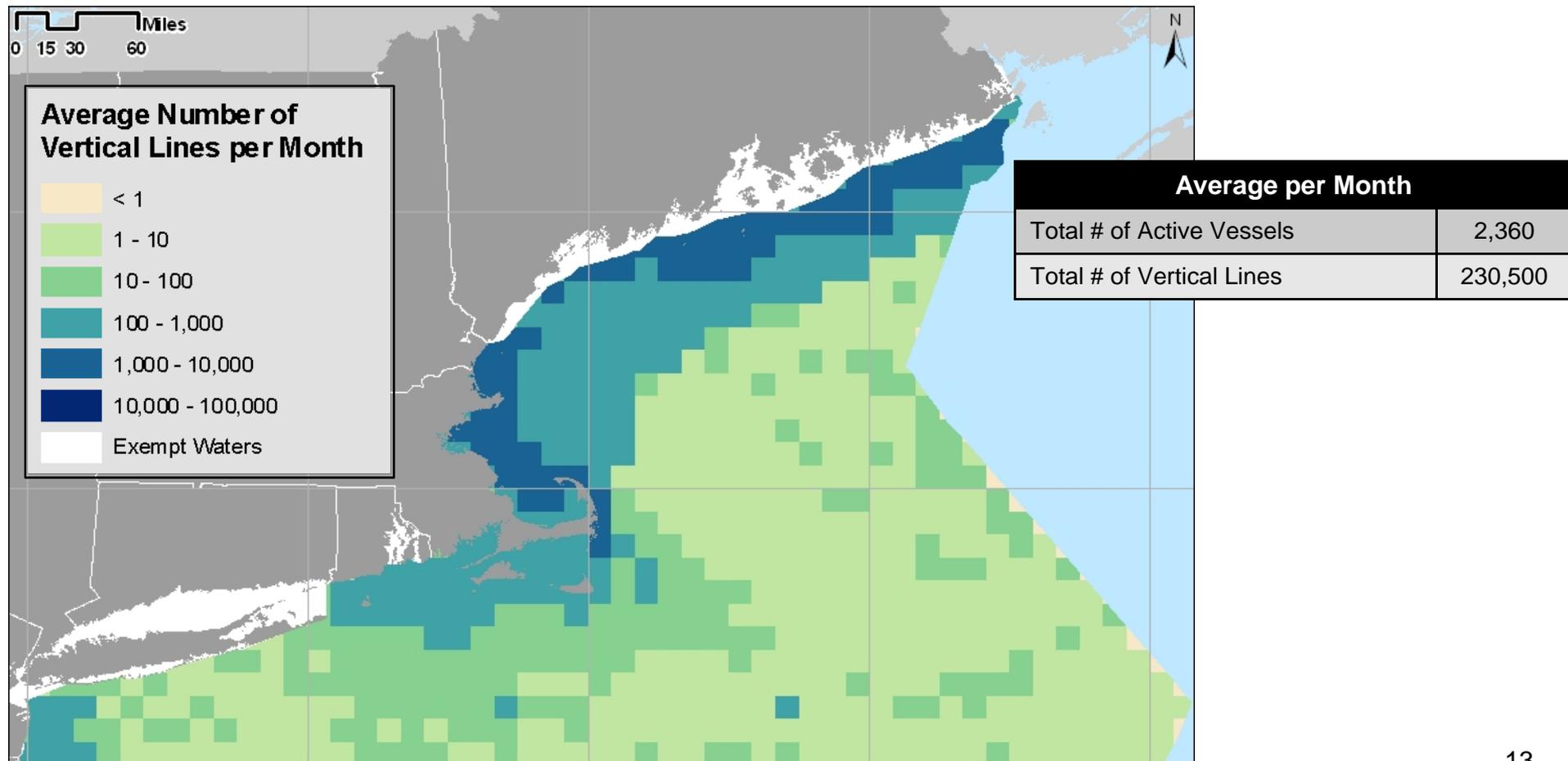


Average per Month	
Affected Vessels	810
2008 Baseline (# of Vertical Lines)	230,500
Scenario (# of Vertical Lines)	165,500
Reduction (# of Vertical Lines)	65,000
Reduction (%)	28%

AREAS		TIMING	Management Measure	
Territorial Range		Year Round	Vertical Line Reduction (%) <ul style="list-style-type: none"> • 3 traps/trawl • 5 traps/trawl • 10 traps/trawl (1 end line) • 10 traps/trawl (2 end lines) • Closure 	
		Seasonal		
Whale Species	Rights	Year Round		
		Seasonal		
	Humpbacks	Year Round		
		Seasonal		
	Fins	Year Round		
		Seasonal		
	Combined (weighted)	Year Round		
		Seasonal		
	Combined (unweighted)	Year Round		
		Seasonal		
	Vertical Lines			Year Round
				Seasonal
Co-Occurrence	Rights	Year Round		
		Seasonal		
	Humpbacks	Year Round		
		Seasonal		
	Fins	Year Round		
		Seasonal		
	Combined (weighted)	Year Round		
		Seasonal		
	Combined (unweighted)	Year Round		
		Seasonal		

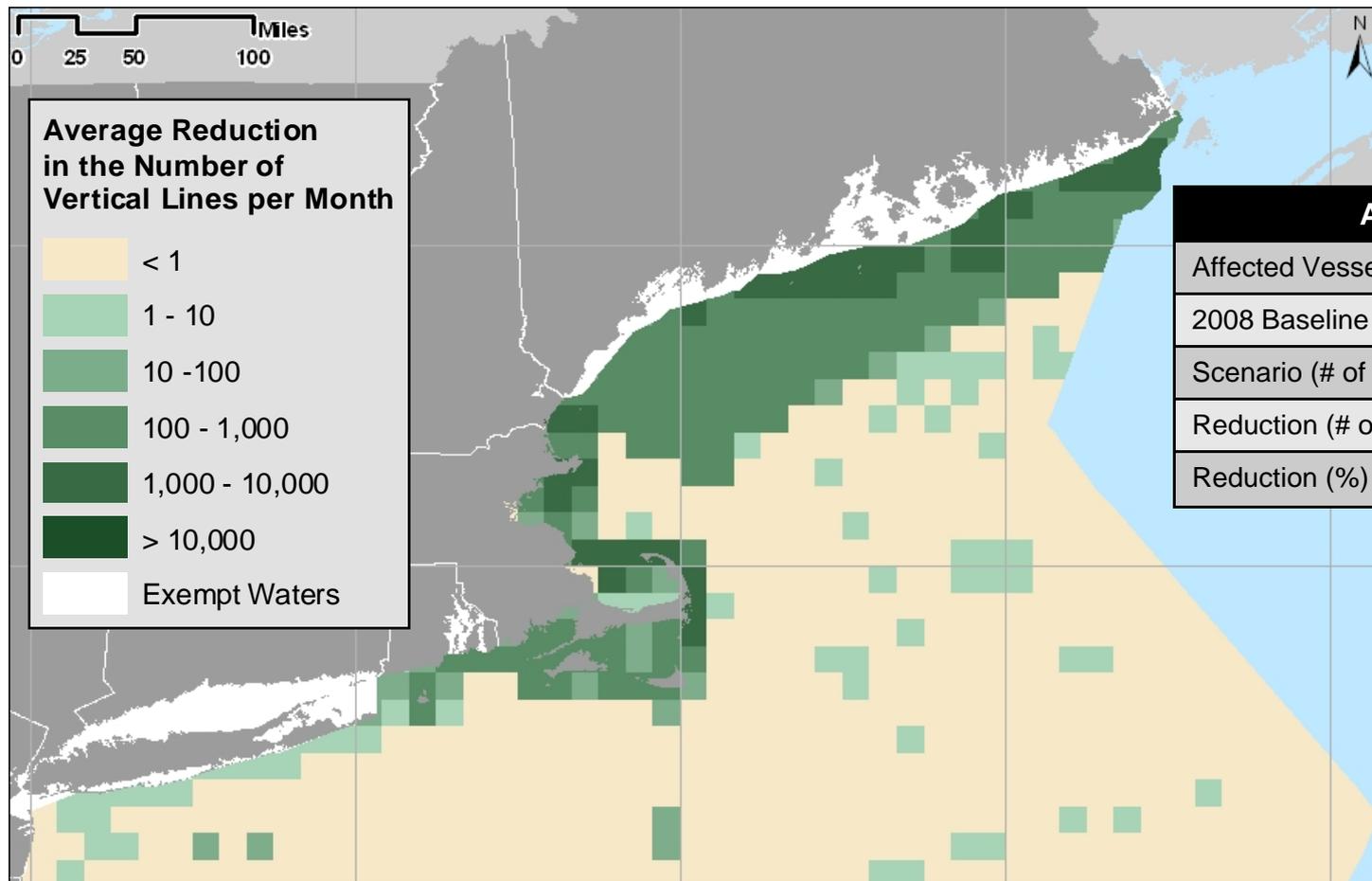


2008 Baseline (All Fisheries) Northeast Region ~ Non-Exempt Waters





Minimum 10 Traps/Trawl (1 Endline) Northeast Region



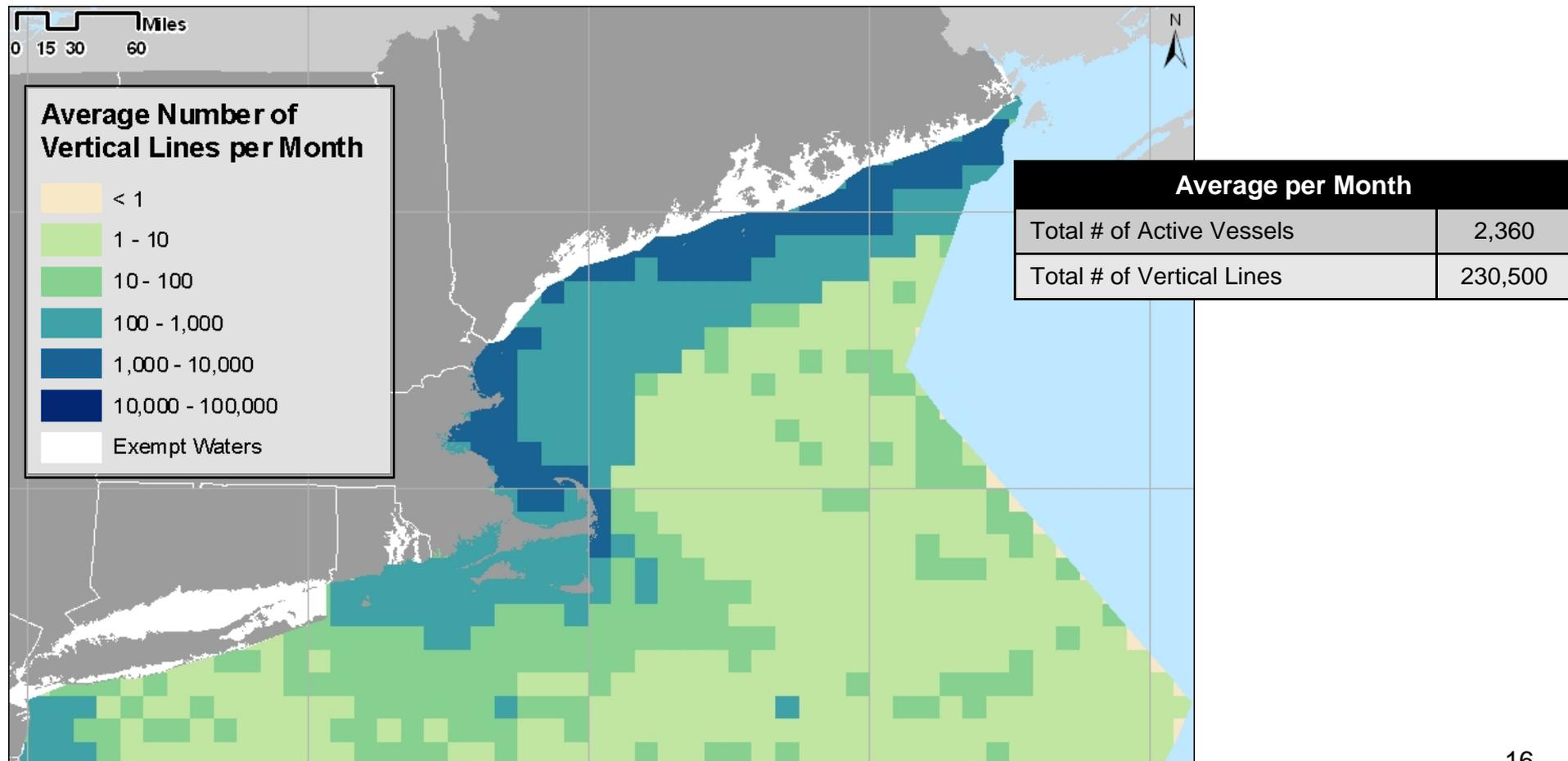
Average per Month	
Affected Vessels	1,740
2008 Baseline (# of Vertical Lines)	230,500
Scenario (# of Vertical Lines)*	96,000
Reduction (# of Vertical Lines)*	134,600
Reduction (%)	58%

*Do not sum due to rounding.

AREAS		TIMING		Management Measure	
Territorial Range		Year Round		Vertical Line Reduction (%) <ul style="list-style-type: none"> • 3 traps/trawl • 5 traps/trawl • 10 traps/trawl (1 end line) • 10 traps/trawl (2 end lines) • Closure 	
		Seasonal			
Whale Species	Rights	Year Round			
		Seasonal			
	Humpbacks	Year Round			
		Seasonal			
	Fins	Year Round			
		Seasonal			
	Combined (weighted)	Year Round			
		Seasonal			
	Combined (unweighted)	Year Round			
		Seasonal			
	Vertical Lines		Year Round		
			Seasonal		
Co-Occurrence	Rights	Year Round			
		Seasonal			
	Humpbacks	Year Round			
		Seasonal			
	Fins	Year Round			
		Seasonal			
	Combined (weighted)	Year Round			
		Seasonal			
	Combined (unweighted)	Year Round			
		Seasonal			

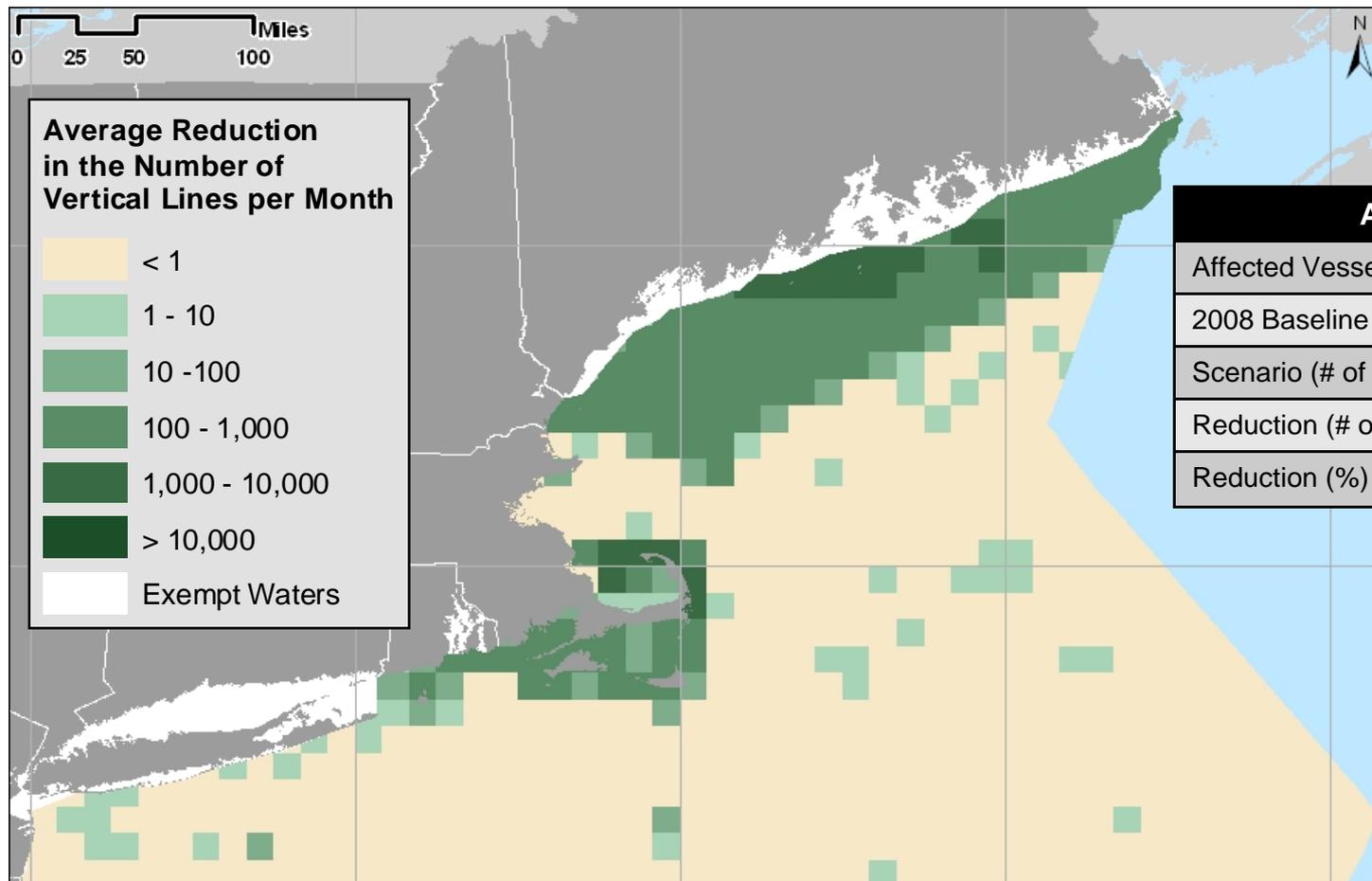


2008 Baseline (All Fisheries) Northeast Region ~ Non-Exempt Waters





Minimum 10 Traps/Trawl (2 Endlines) Northeast Region



Average per Month	
Affected Vessels	1,420
2008 Baseline (# of Vertical Lines)	230,500
Scenario (# of Vertical Lines)*	149,400
Reduction (# of Vertical Lines)*	81,200
Reduction (%)	35%

*Do not sum due to rounding.



Summary Northeast Region

Average per Month

	2008 Baseline	Minimum 3 Traps/Trawl (1 Endline)	Minimum 5 Traps/Trawl (1 Endline)	Minimum 10 Traps/Trawl (1 Endline)	Minimum 10 Traps/Trawl (2 Endlines)
Affected Vessels	-	450	810	1,740	1,420
Number of Vertical Lines*	230,500	198,300	165,500	96,000	149,400
Reduction in the Number of Vertical Lines*	-	32,200	65,000	134,600	81,200
% Reduction in Vertical Lines	-	14%	28%	58%	35%

*May not sum due to rounding.

AREAS		TIMING	Management Measure
Territorial Range		Year Round	Vertical Line Reduction (%) <ul style="list-style-type: none"> • 3 traps/trawl • 5 traps/trawl • 10 traps/trawl (1 end line) • 10 traps/trawl (2 end lines) • Closure
		Seasonal	
Whale Species	Rights	Year Round	
		Seasonal	
	Humpbacks	Year Round	
		Seasonal	
	Fins	Year Round	
		Seasonal	
	Combined (weighted)	Year Round	
		Seasonal	
Combined (unweighted)	Year Round		
	Seasonal		
Vertical Lines		Year Round	
		Seasonal	
Co-Occurrence	Rights	Year Round	
		Seasonal	
	Humpbacks	Year Round	
		Seasonal	
	Fins	Year Round	
		Seasonal	
	Combined (weighted)	Year Round	
		Seasonal	
	Combined (unweighted)	Year Round	
		Seasonal	



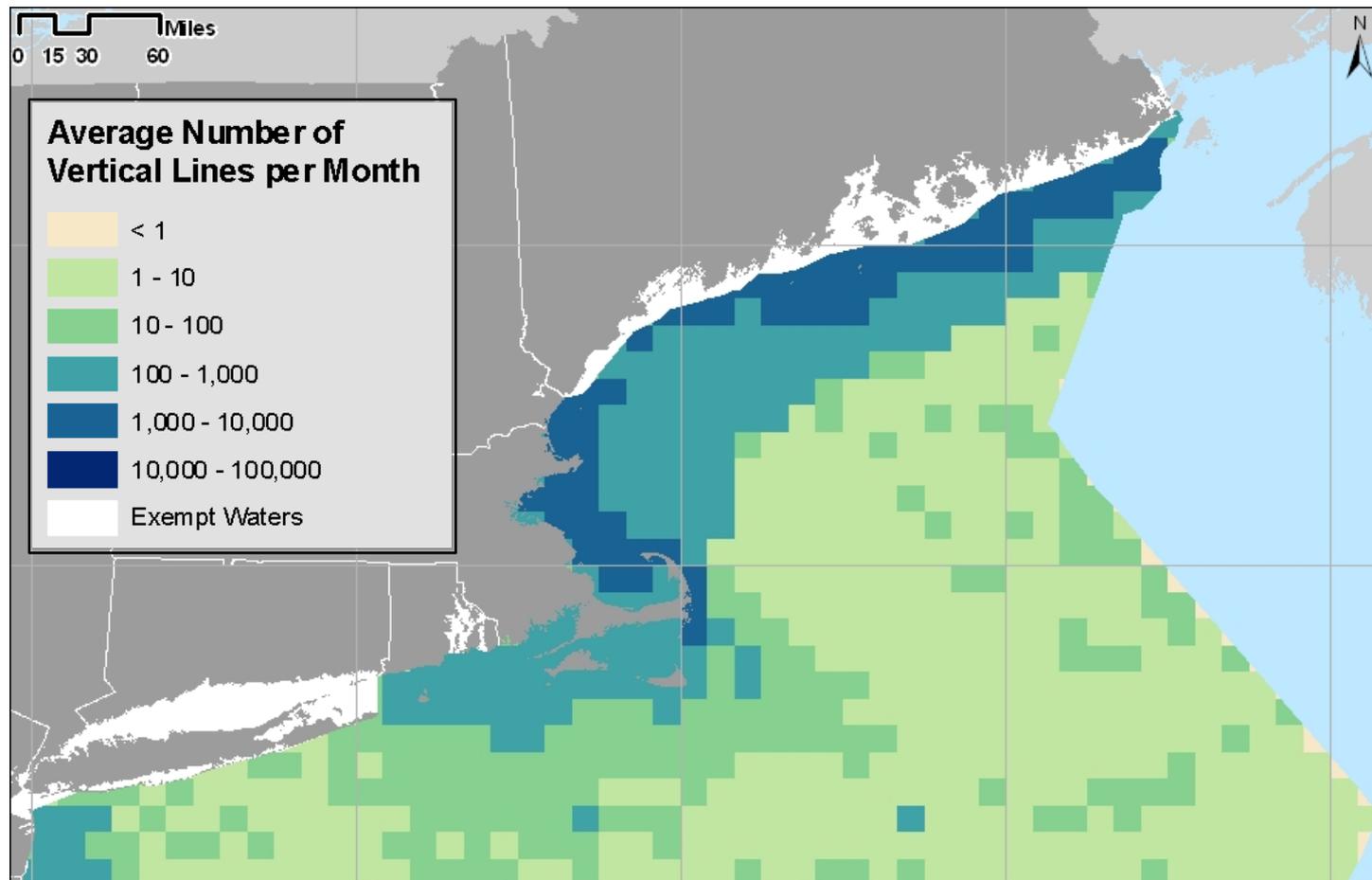
Scenario 2: Select Area Based on Number of Vertical Lines

- Recognizes uncertainty in existing whale data
- Assumes risk is more a function of line density than whale density
- More accommodating of changes in the future in whale distribution (perhaps due to environmental changes)
- We will consider year round and then seasonal scenarios

AREAS		TIMING		What Areas?
Territorial Range		Year Round		
		Seasonal		
Whale Species	Rights	Year Round		
		Seasonal		
	Humpbacks	Year Round		
		Seasonal		
	Fins	Year Round		
		Seasonal		
	Combined (weighted)	Year Round		
		Seasonal		
	Combined (unweighted)	Year Round		
		Seasonal		
Vertical Lines		Year Round		
		Seasonal		
Co-Occurrence	Rights	Year Round		
		Seasonal		
	Humpbacks	Year Round		
		Seasonal		
	Fins	Year Round		
		Seasonal		
	Combined (weighted)	Year Round		
		Seasonal		
	Combined (unweighted)	Year Round		
		Seasonal		

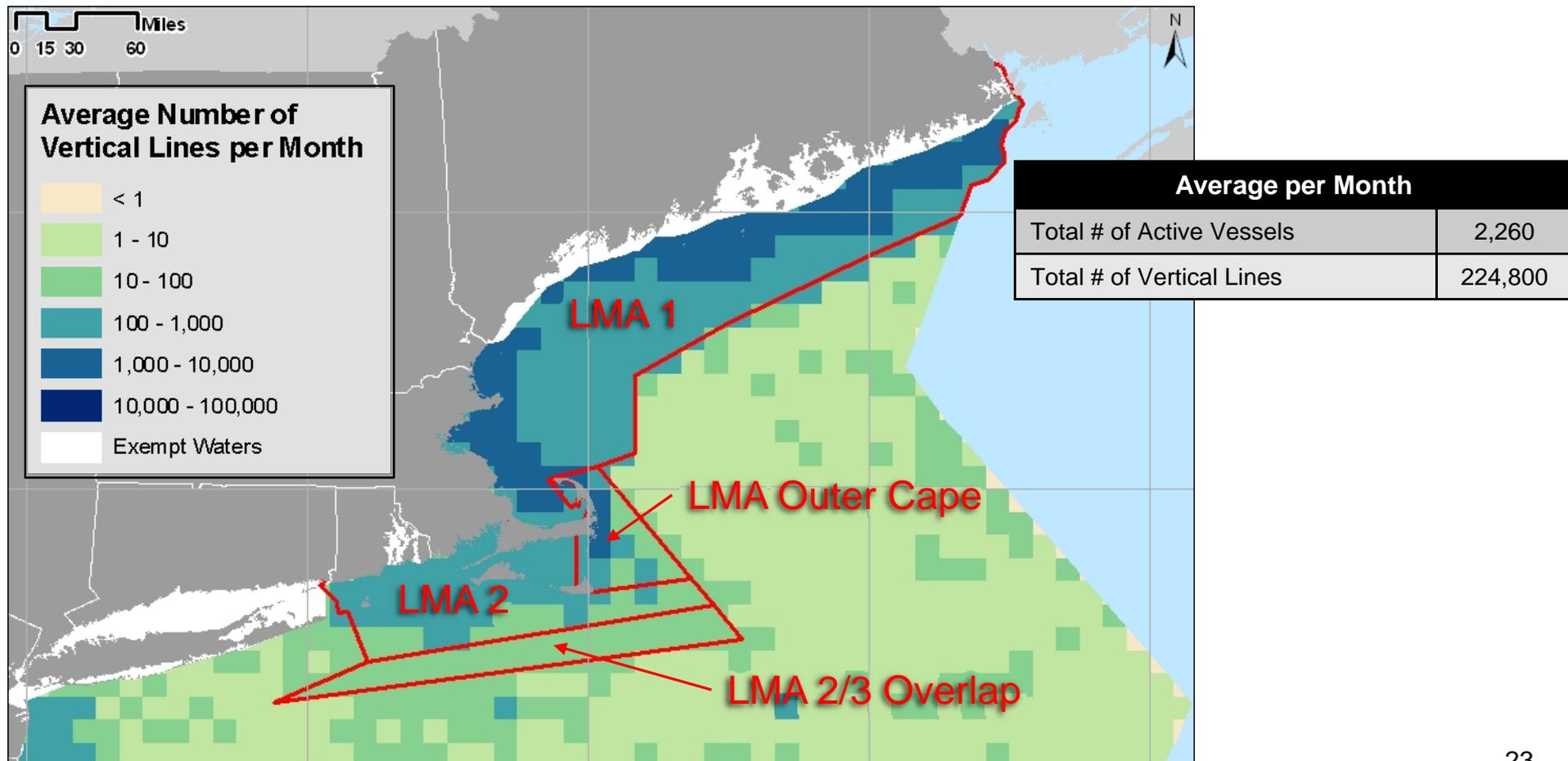


2008 Baseline (All Fisheries) Northeast Region ~ Non-Exempt Waters





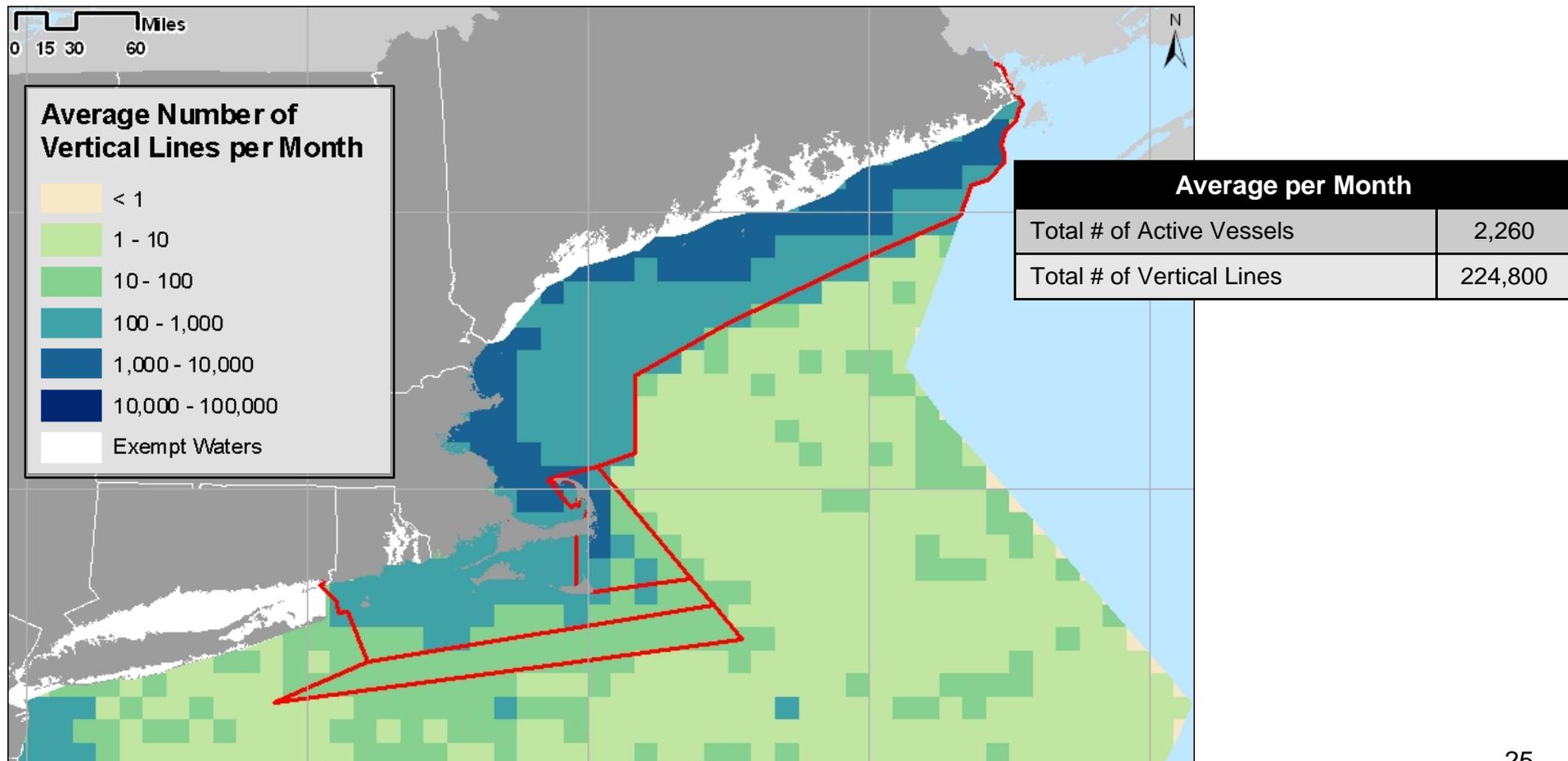
2008 Baseline (All Fisheries) LMA 1, LMA 2, LMA Outer Cape



AREAS		TIMING	Management Measure
Territorial Range		Year Round	Vertical Line Reduction (%) <ul style="list-style-type: none"> • 3 traps/trawl • 5 traps/trawl • 10 traps/trawl (1 end line) • 10 traps/trawl (2 end lines) • Closure
		Seasonal	
Whale Species	Rights	Year Round	
		Seasonal	
	Humpbacks	Year Round	
		Seasonal	
	Fins	Year Round	
		Seasonal	
	Combined (weighted)	Year Round	
		Seasonal	
Combined (unweighted)	Year Round		
	Seasonal		
Vertical Lines		Year Round	
		Seasonal	
Co-Occurrence	Rights	Year Round	
		Seasonal	
	Humpbacks	Year Round	
		Seasonal	
	Fins	Year Round	
		Seasonal	
	Combined (weighted)	Year Round	
		Seasonal	
	Combined (unweighted)	Year Round	
		Seasonal	

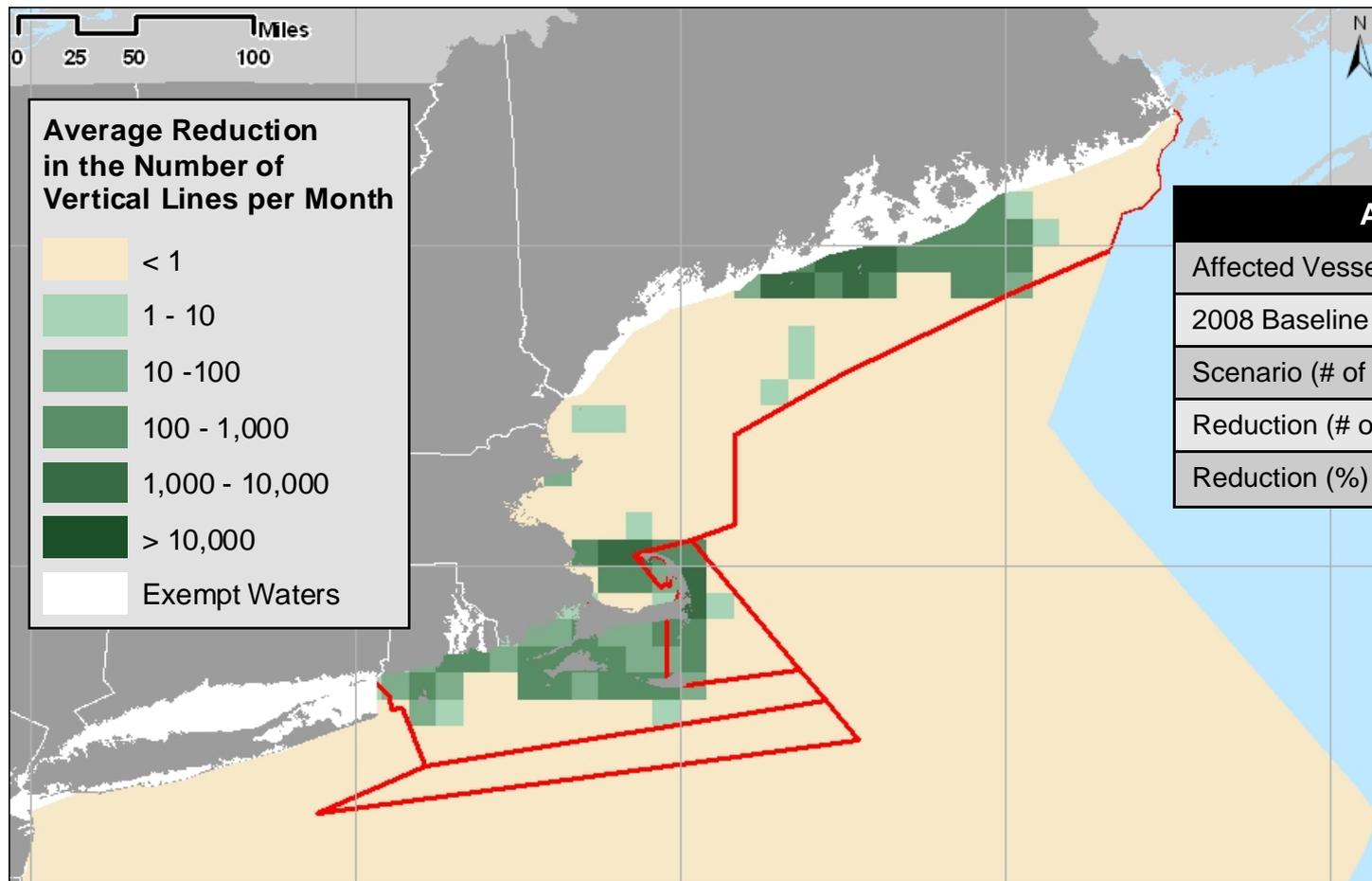


2008 Baseline (All Fisheries) LMA 1, LMA 2, LMA Outer Cape





Minimum 3 Traps/Trawl (1 Endline) LMA 1, LMA 2, LMA Outer Cape

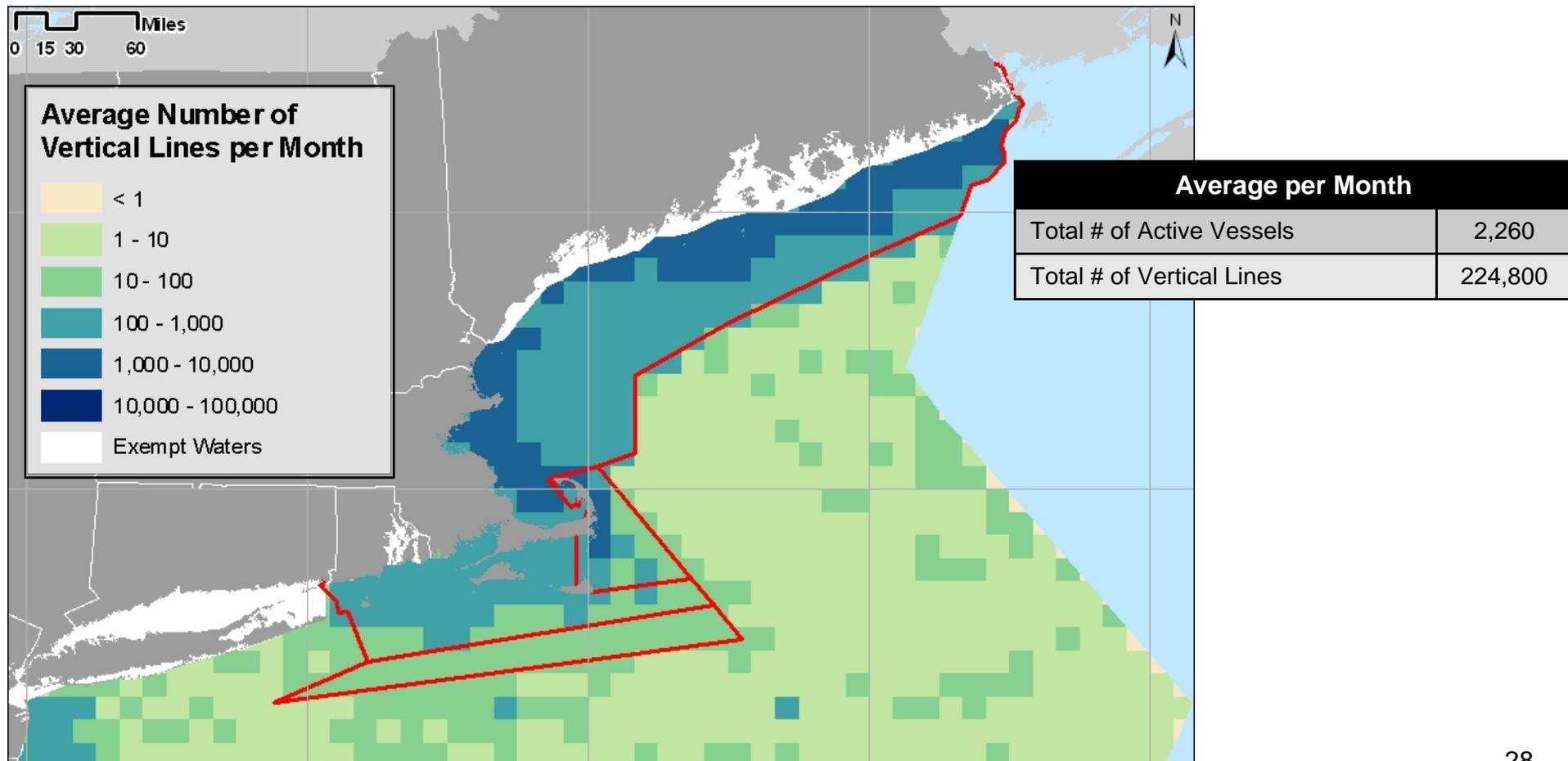


Average per Month	
Affected Vessels	450
2008 Baseline (# of Vertical Lines)	224,800
Scenario (# of Vertical Lines)	192,800
Reduction (# of Vertical Lines)	32,000
Reduction (%)	14%

AREAS		TIMING	Management Measure
Territorial Range		Year Round	Vertical Line Reduction (%) <ul style="list-style-type: none"> • 3 traps/trawl • 5 traps/trawl • 10 traps/trawl (1 end line) • 10 traps/trawl (2 end lines) • Closure
		Seasonal	
Whale Species	Rights	Year Round	
		Seasonal	
	Humpbacks	Year Round	
		Seasonal	
	Fins	Year Round	
		Seasonal	
	Combined (weighted)	Year Round	
		Seasonal	
Combined (unweighted)	Year Round		
	Seasonal		
Vertical Lines		Year Round	
		Seasonal	
Co-Occurrence	Rights	Year Round	
		Seasonal	
	Humpbacks	Year Round	
		Seasonal	
	Fins	Year Round	
		Seasonal	
	Combined (weighted)	Year Round	
		Seasonal	
	Combined (unweighted)	Year Round	
		Seasonal	

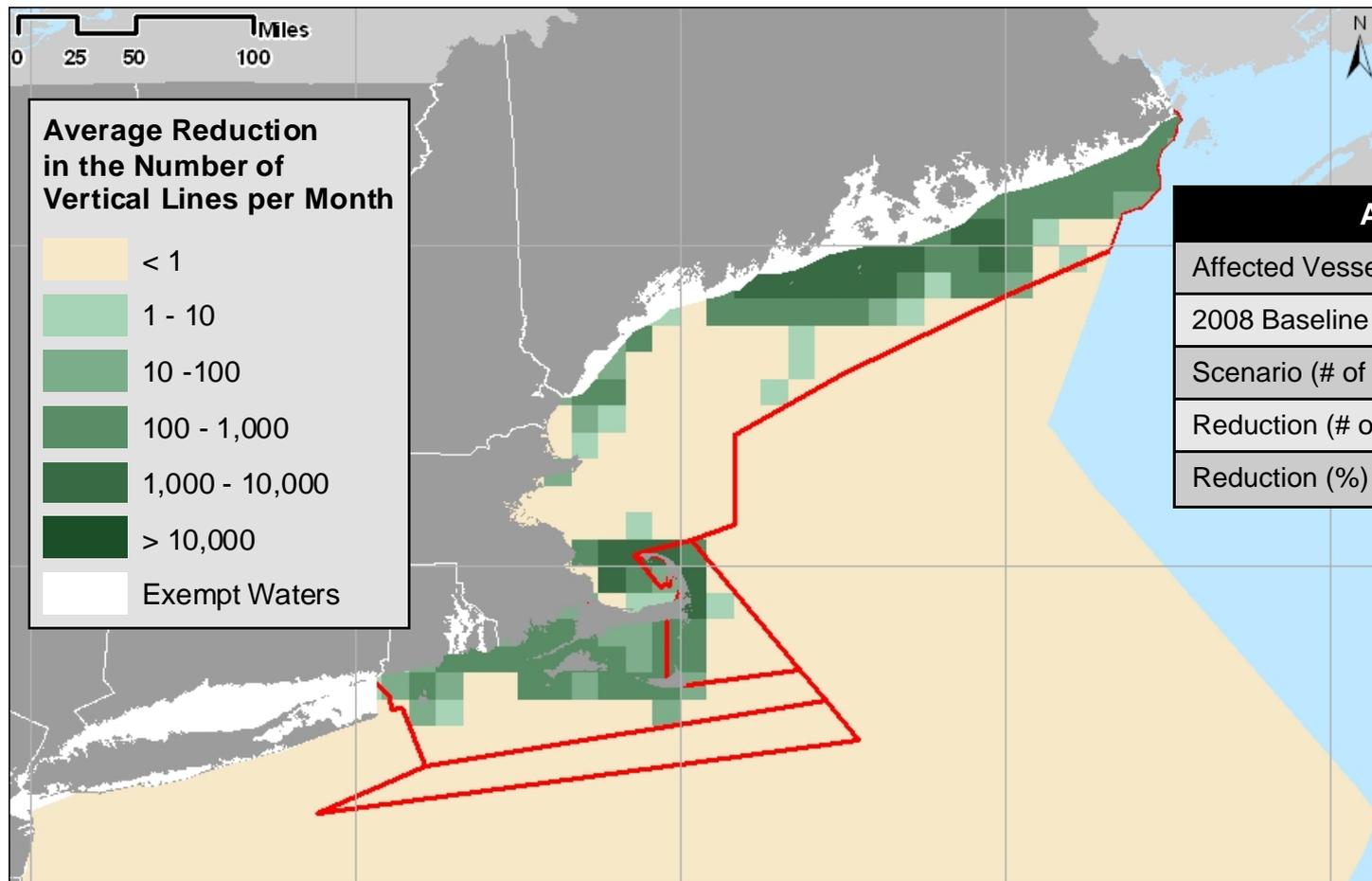


2008 Baseline (All Fisheries) LMA 1, LMA 2, LMA Outer Cape





Minimum 5 Traps/Trawl (1 Endline) LMA 1, LMA 2, LMA Outer Cape

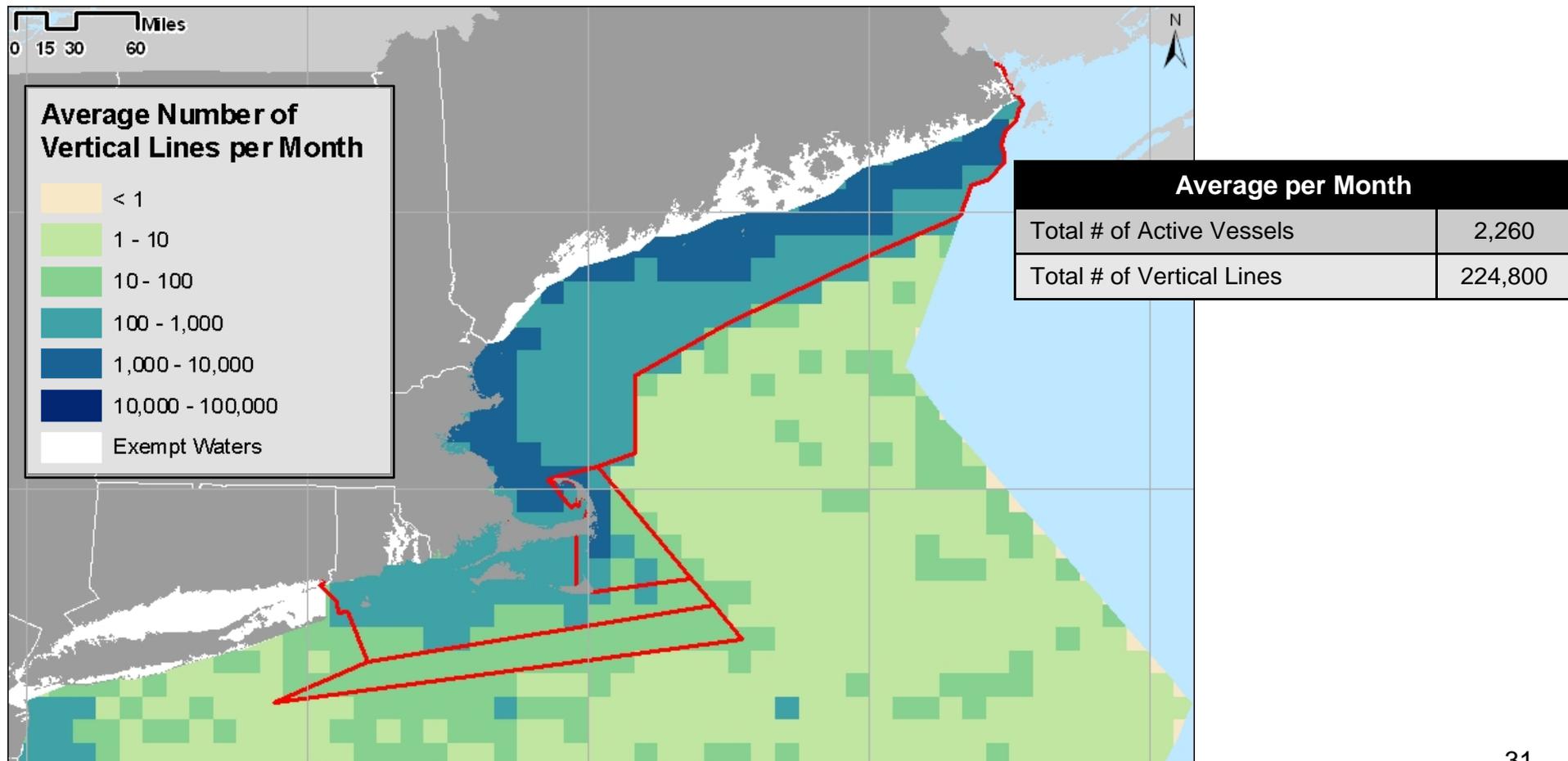


Average per Month	
Affected Vessels	800
2008 Baseline (# of Vertical Lines)	224,800
Scenario (# of Vertical Lines)	160,000
Reduction (# of Vertical Lines)	64,800
Reduction (%)	29%

AREAS		TIMING	Management Measure
Territorial Range		Year Round	Vertical Line Reduction (%) <ul style="list-style-type: none"> • 3 traps/trawl • 5 traps/trawl • 10 traps/trawl (1 end line) • 10 traps/trawl (2 end lines) • Closure
		Seasonal	
Whale Species	Rights	Year Round	
		Seasonal	
	Humpbacks	Year Round	
		Seasonal	
	Fins	Year Round	
		Seasonal	
	Combined (weighted)	Year Round	
		Seasonal	
Combined (unweighted)	Year Round		
	Seasonal		
Vertical Lines		Year Round	
		Seasonal	
Co-Occurrence	Rights	Year Round	
		Seasonal	
	Humpbacks	Year Round	
		Seasonal	
	Fins	Year Round	
		Seasonal	
	Combined (weighted)	Year Round	
		Seasonal	
	Combined (unweighted)	Year Round	
		Seasonal	

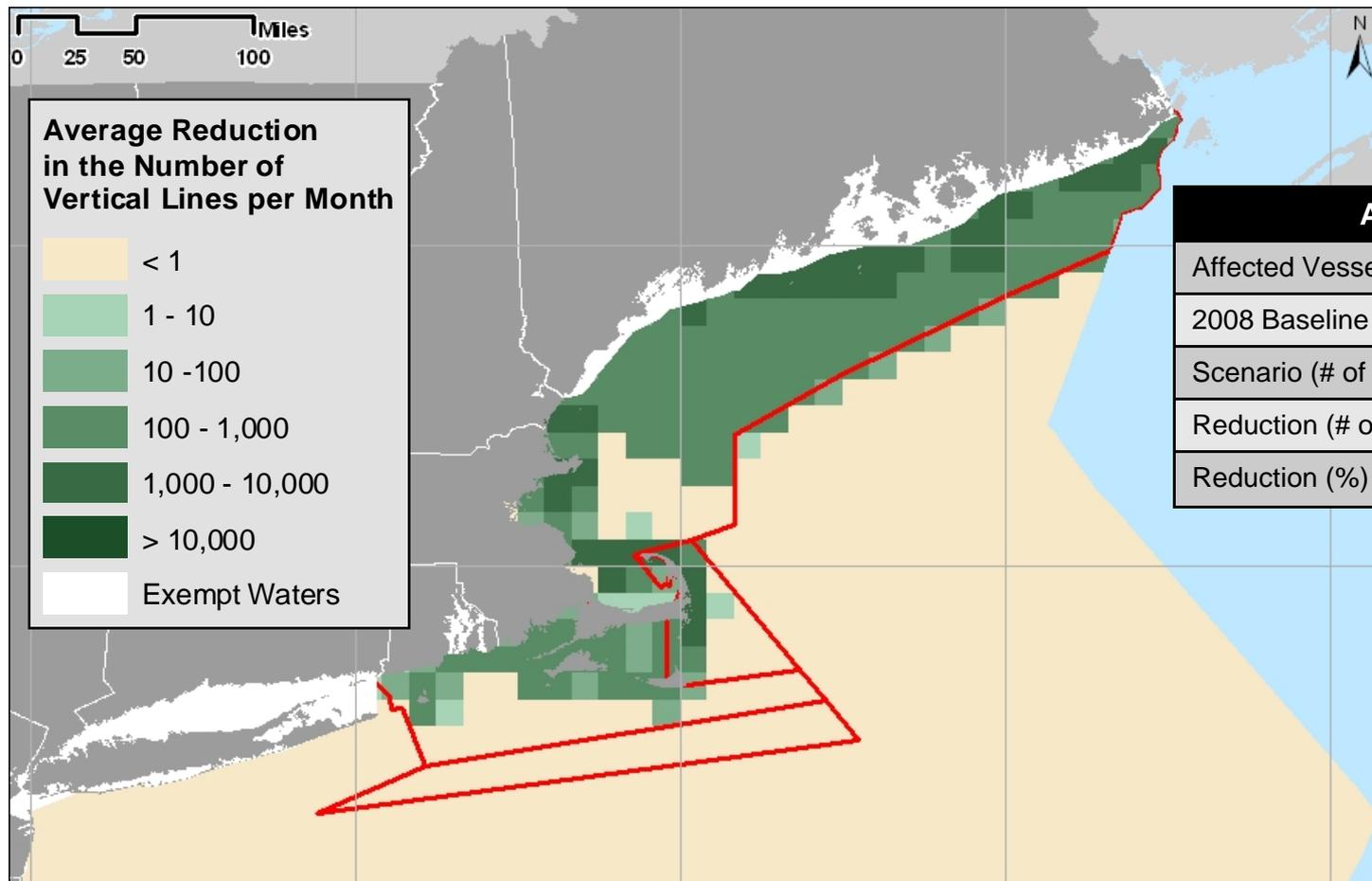


2008 Baseline (All Fisheries) LMA 1, LMA 2, LMA Outer Cape





Minimum 10 Traps/Trawl (1 Endline) LMA 1, LMA 2, LMA Outer Cape

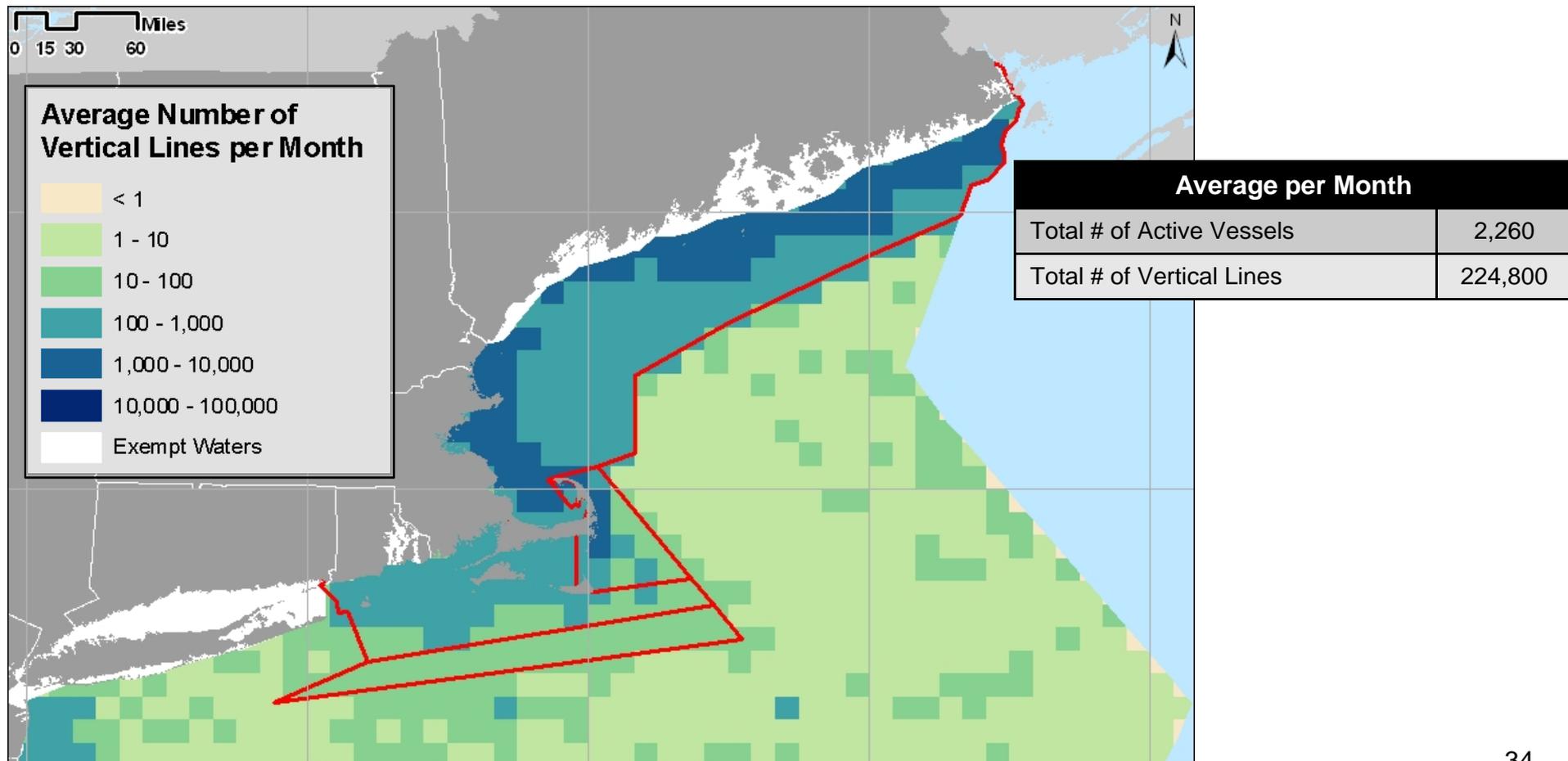


Average per Month	
Affected Vessels	1,730
2008 Baseline (# of Vertical Lines)	224,800
Scenario (# of Vertical Lines)	90,600
Reduction (# of Vertical Lines)	134,200
Reduction (%)	60%

AREAS		TIMING	Management Measure
Territorial Range		Year Round	Vertical Line Reduction (%) <ul style="list-style-type: none"> • 3 traps/trawl • 5 traps/trawl • 10 traps/trawl (1 end line) • 10 traps/trawl (2 end lines) • Closure
		Seasonal	
Whale Species	Rights	Year Round	
		Seasonal	
	Humpbacks	Year Round	
		Seasonal	
	Fins	Year Round	
		Seasonal	
	Combined (weighted)	Year Round	
		Seasonal	
Combined (unweighted)	Year Round		
	Seasonal		
Vertical Lines		Year Round	
		Seasonal	
Co-Occurrence	Rights	Year Round	
		Seasonal	
	Humpbacks	Year Round	
		Seasonal	
	Fins	Year Round	
		Seasonal	
	Combined (weighted)	Year Round	
		Seasonal	
	Combined (unweighted)	Year Round	
		Seasonal	

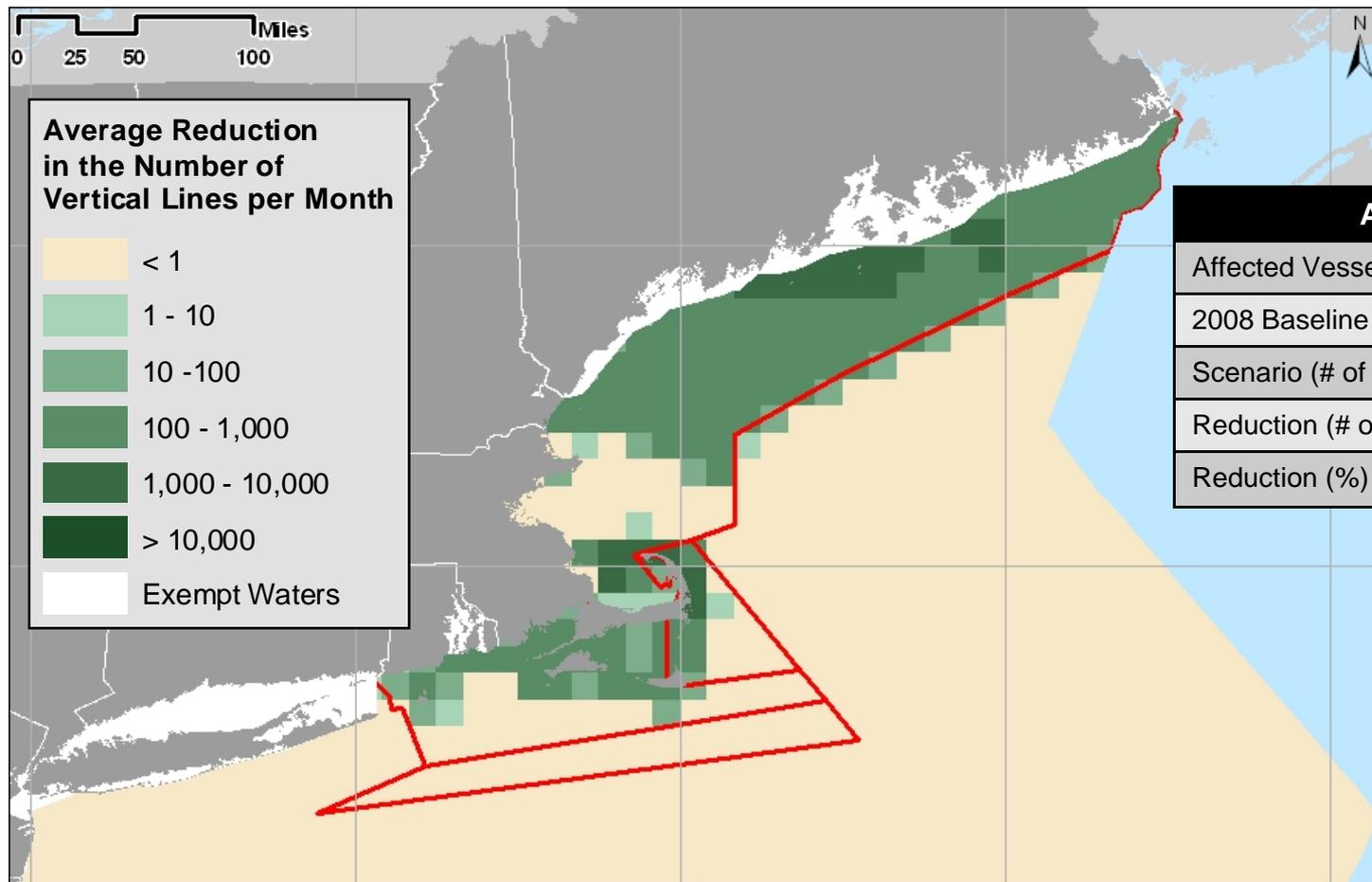


2008 Baseline (All Fisheries) LMA 1, LMA 2, LMA Outer Cape





Minimum 10 Traps/Trawl (2 Endlines) LMA 1, LMA 2, LMA Outer Cape



Average per Month	
Affected Vessels	1,420
2008 Baseline (# of Vertical Lines)	224,800
Scenario (# of Vertical Lines)	143,900
Reduction (# of Vertical Lines)	80,900
Reduction (%)	36%

AREAS		TIMING	Management Measure
Territorial Range		Year Round	Vertical Line Reduction (%) <ul style="list-style-type: none"> • 3 traps/trawl • 5 traps/trawl • 10 traps/trawl (1 end line) • 10 traps/trawl (2 end lines) • Closure
		Seasonal	
Whale Species	Rights	Year Round	
		Seasonal	
	Humpbacks	Year Round	
		Seasonal	
	Fins	Year Round	
		Seasonal	
	Combined (weighted)	Year Round	
		Seasonal	
Combined (unweighted)	Year Round		
	Seasonal		
Vertical Lines		Year Round	
		Seasonal	
Co-Occurrence	Rights	Year Round	
		Seasonal	
	Humpbacks	Year Round	
		Seasonal	
	Fins	Year Round	
		Seasonal	
	Combined (weighted)	Year Round	
		Seasonal	
	Combined (unweighted)	Year Round	
		Seasonal	

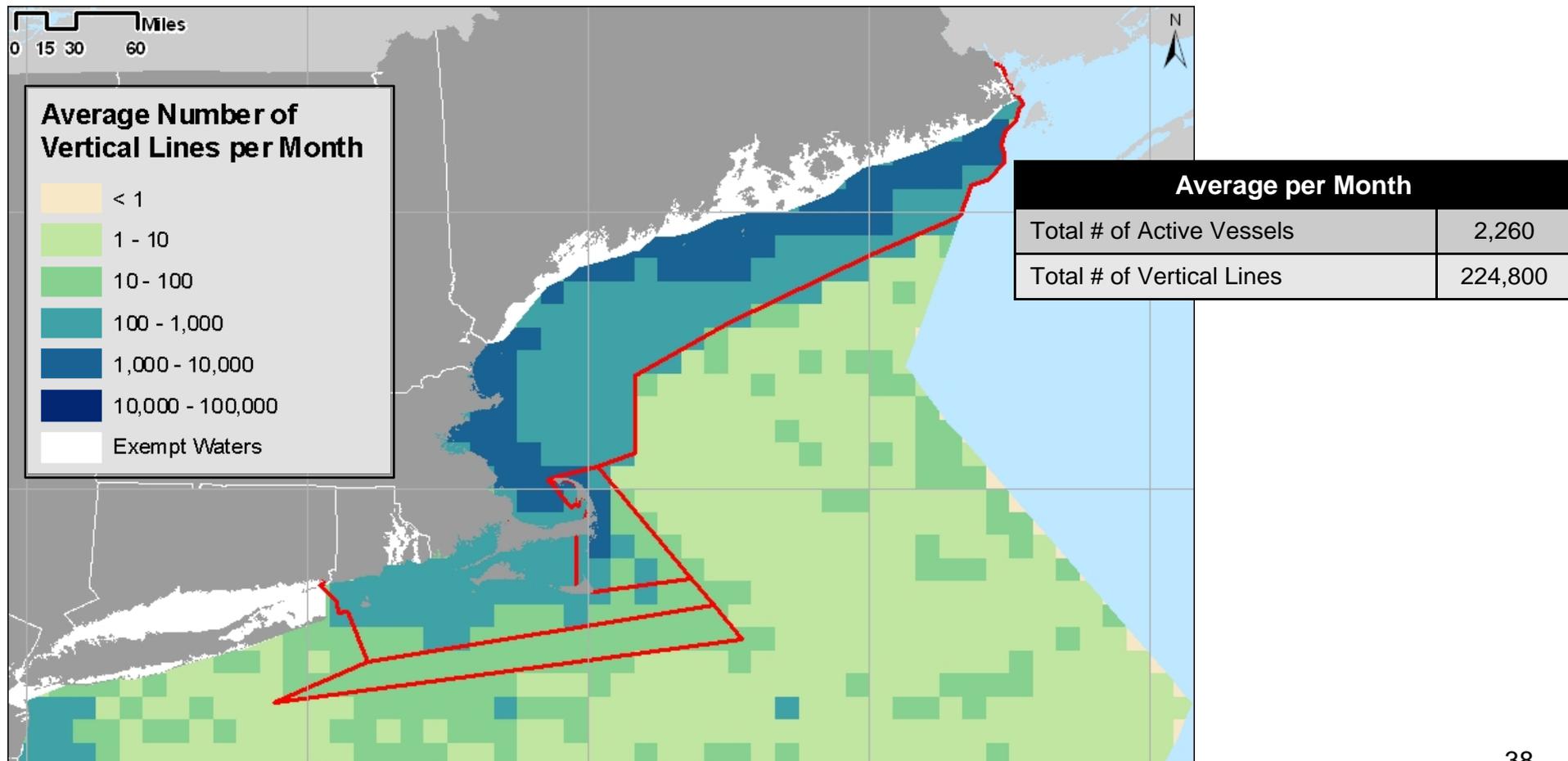


A Note About Closures

- The model allows for the development of closure scenarios.
- A closure would likely result in the displacement of fishing effort to other locations and/or the removal of fishing effort from the water.
- The magnitude of these changes would likely vary depending on a closure's location, timing, size, and the number and types of vessels affected.
- The model is capable of simulating these types changes; however, assumptions on how to best characterize the possible displacement of effort are open to debate.
- To illustrate a closure's maximum impact, we assume 100% removal of fishing effort for the scenarios presented.

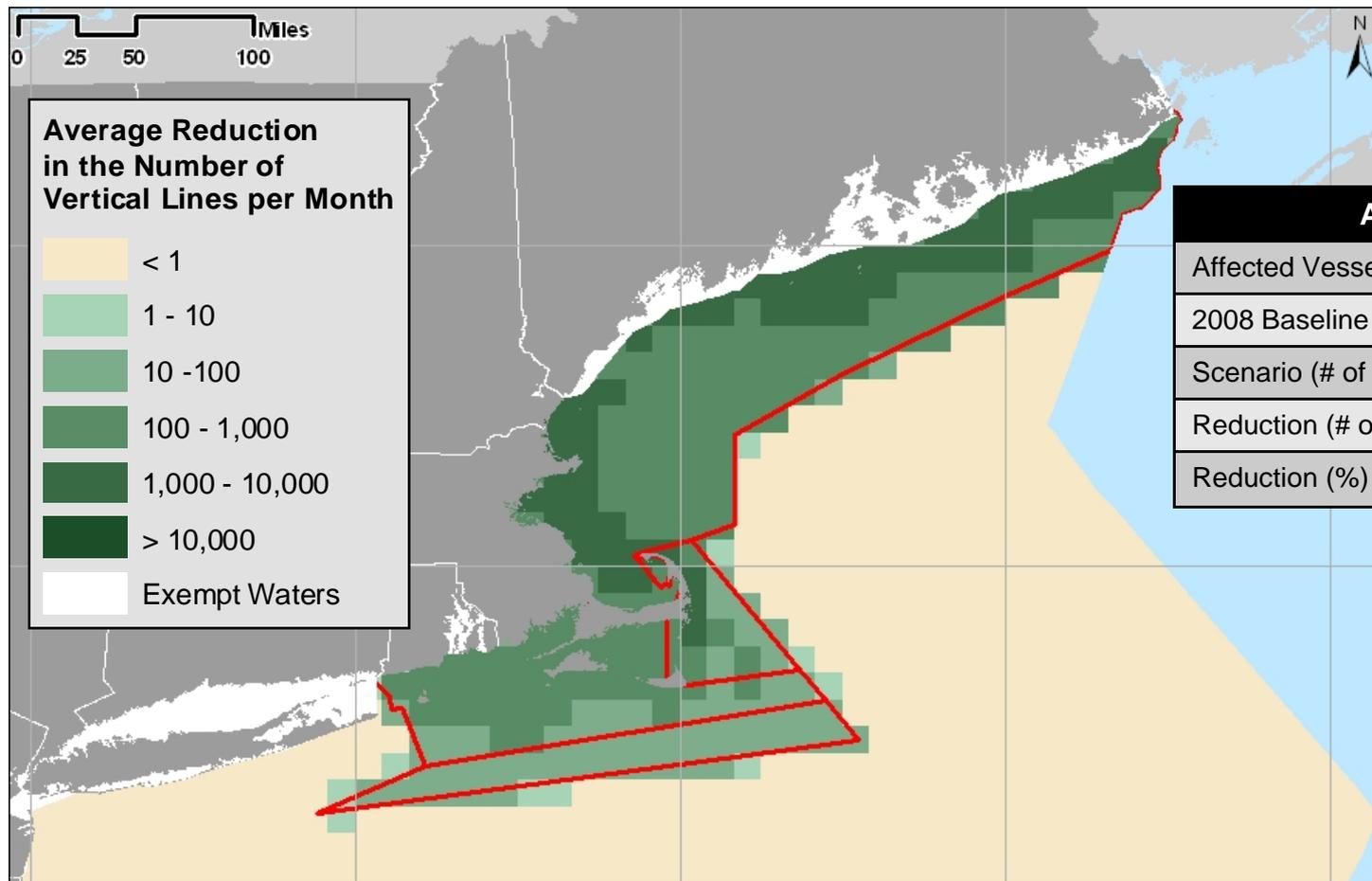


2008 Baseline (All Fisheries) LMA 1, LMA 2, LMA Outer Cape





Year-Round Closure LMA 1, LMA 2, LMA Outer Cape



Average Reduction in the Number of Vertical Lines per Month

Light Yellow	< 1
Light Green	1 - 10
Medium Green	10 - 100
Dark Green	100 - 1,000
Very Dark Green	1,000 - 10,000
Black	> 10,000
White	Exempt Waters

Average per Month	
Affected Vessels	2,260
2008 Baseline (# of Vertical Lines)	224,800
Scenario (# of Vertical Lines)	0
Reduction (# of Vertical Lines)	224,800
Reduction (%)	100%



Summary LMA 1, LMA 2, LMA Outer Cape

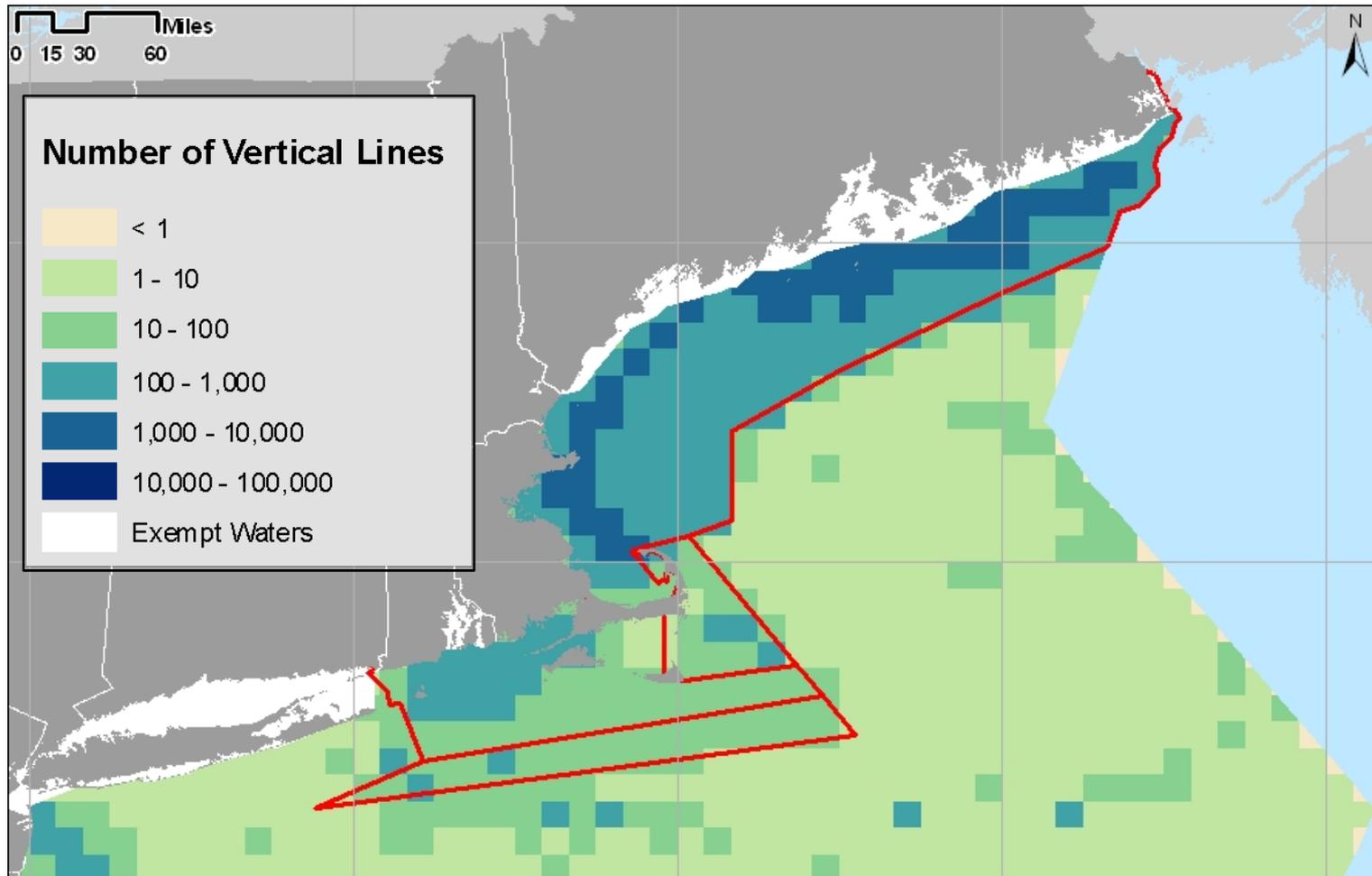
Average per Month

	2008 Baseline	Minimum 3 Traps/Trawl (1 Endline)	Minimum 5 Traps/Trawl (1 Endline)	Minimum 10 Traps/Trawl (1 Endline)	Minimum 10 Traps/Trawl (2 Endlines)	Closure
Affected Vessels	-	450	800	1,730	1,420	2,260
Number of Vertical Lines	224,800	192,800	160,000	90,600	143,900	0
Reduction in the Number of Vertical Lines	-	32,000	64,800	134,200	80,900	224,800
% Reduction in Vertical Lines	-	14%	29%	60%	36%	100%

AREAS		TIMING	Management Measure
Territorial Range		Year Round	Vertical Line Reduction (%) <ul style="list-style-type: none"> • 3 traps/trawl • 5 traps/trawl • 10 traps/trawl (1 end line) • 10 traps/trawl (2 end lines) • Closure
		Seasonal	
Whale Species	Rights	Year Round	
		Seasonal	
	Humpbacks	Year Round	
		Seasonal	
	Fins	Year Round	
		Seasonal	
	Combined (weighted)	Year Round	
		Seasonal	
Combined (unweighted)	Year Round		
	Seasonal		
Vertical Lines		Year Round	
		Seasonal	
Co-Occurrence	Rights	Year Round	
		Seasonal	
	Humpbacks	Year Round	
		Seasonal	
	Fins	Year Round	
		Seasonal	
	Combined (weighted)	Year Round	
		Seasonal	
	Combined (unweighted)	Year Round	
		Seasonal	

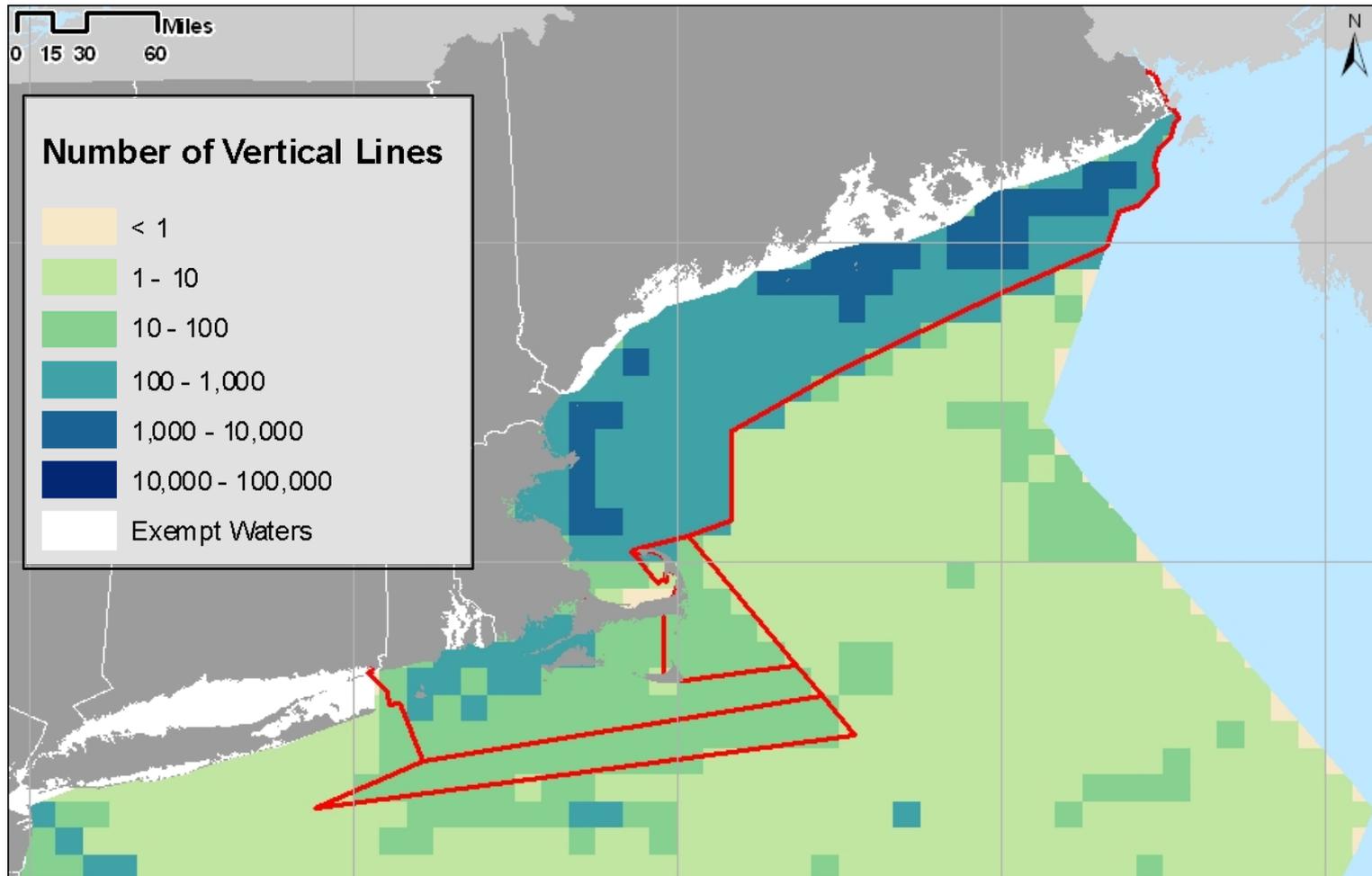


2008 Baseline (All Fisheries) LMA 1, LMA 2, LMA Outer Cape January



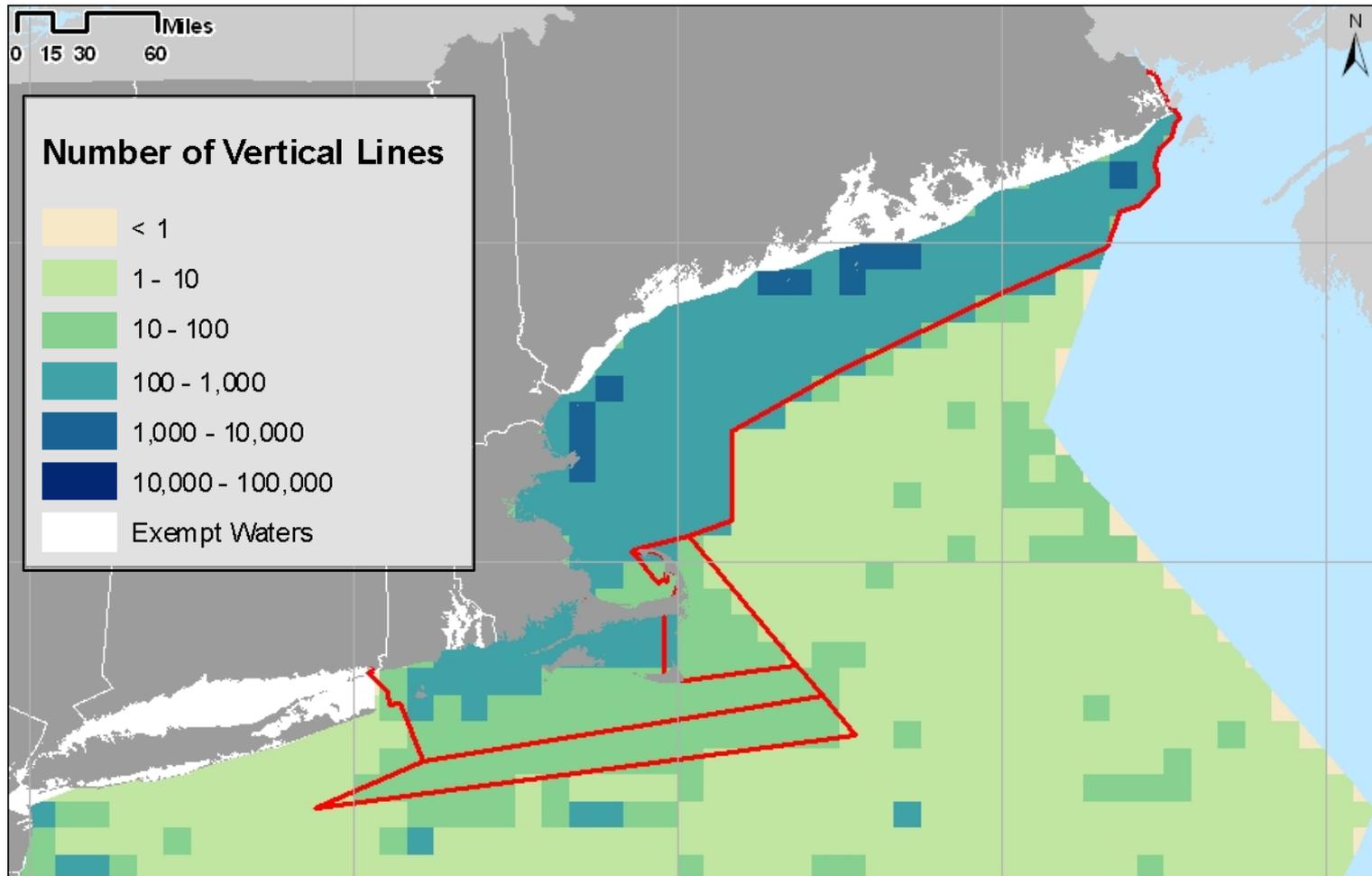


2008 Baseline (All Fisheries) LMA 1, LMA 2, LMA Outer Cape February



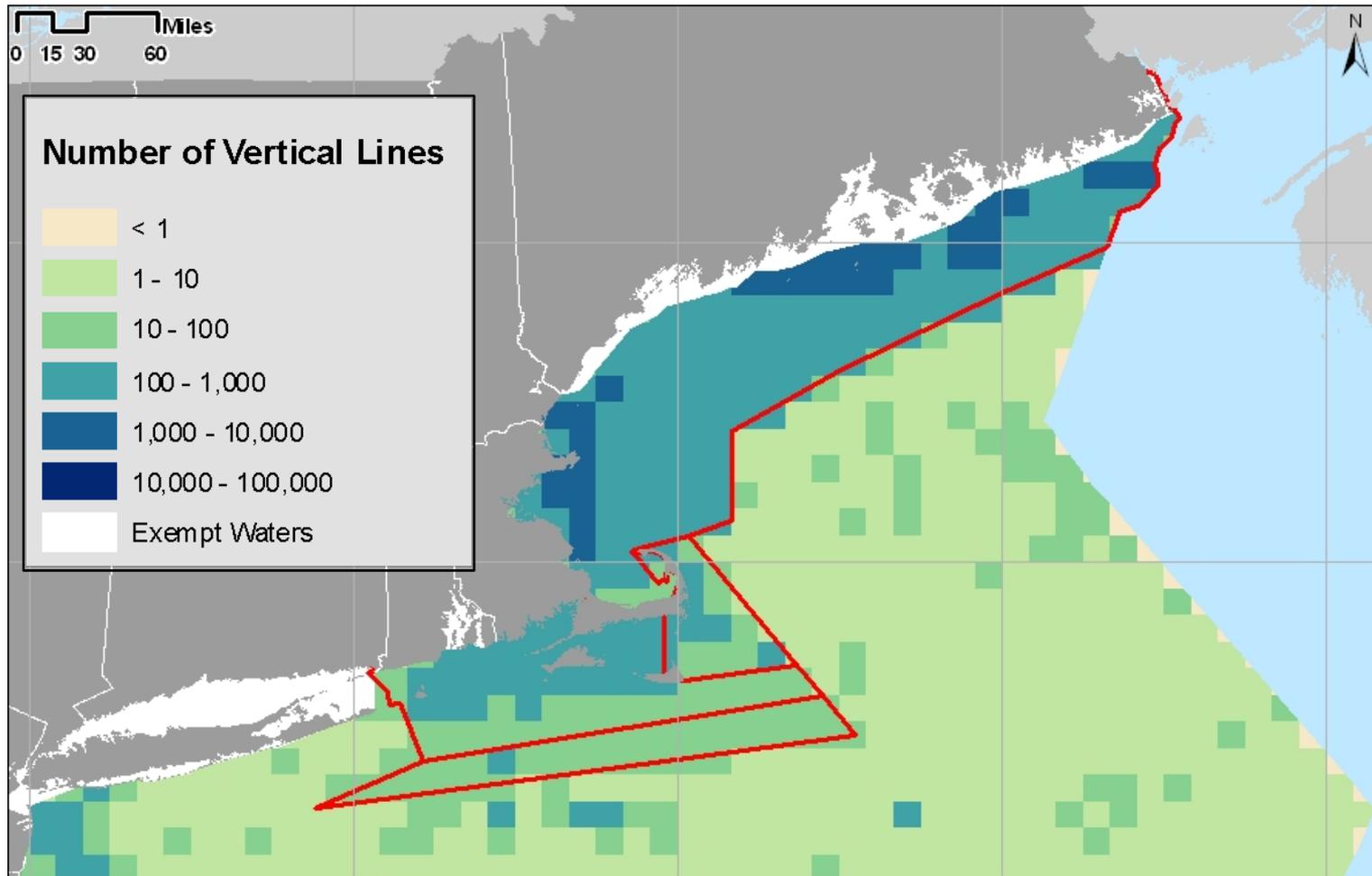


2008 Baseline (All Fisheries) LMA 1, LMA 2, LMA Outer Cape March



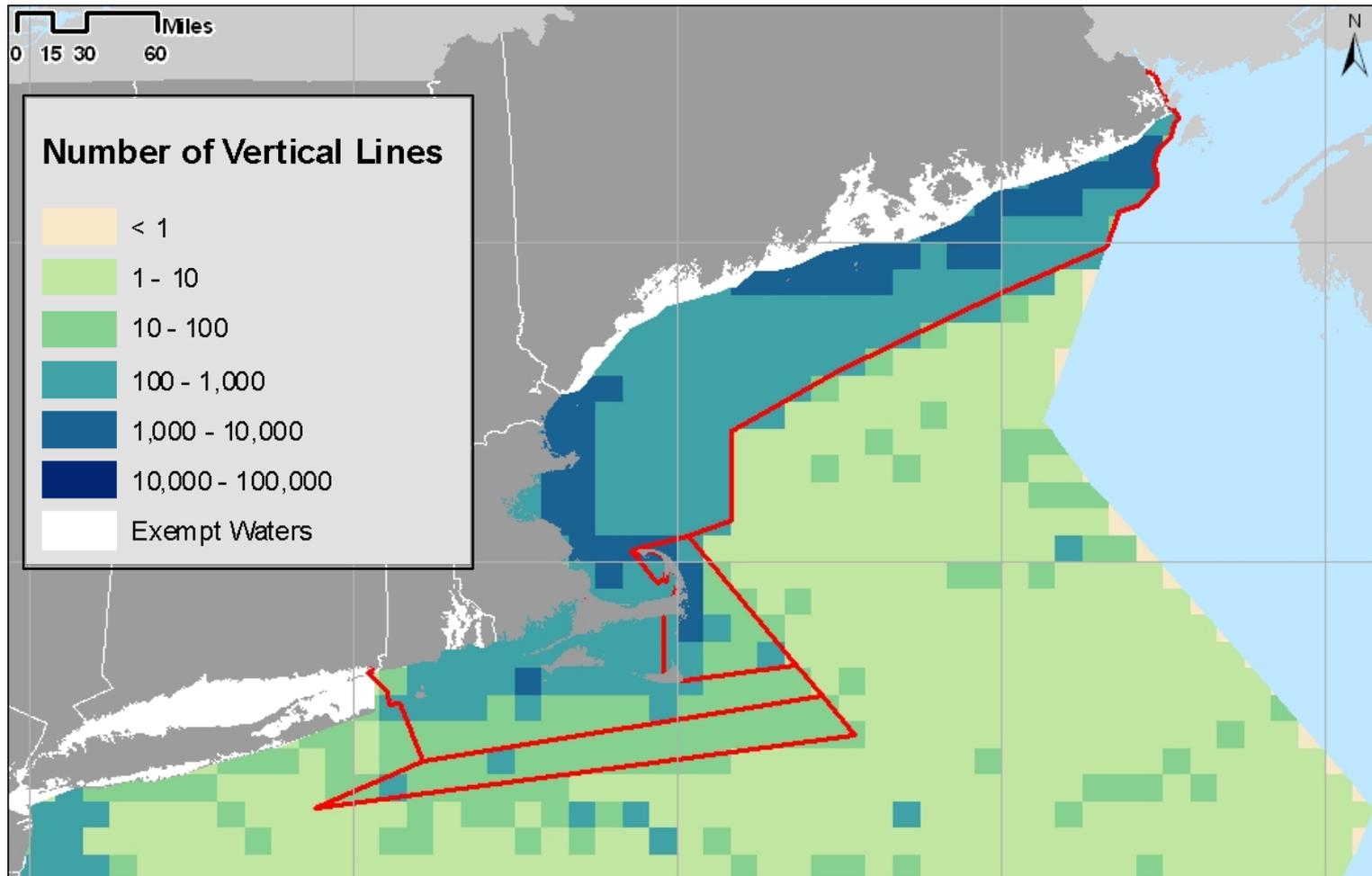


2008 Baseline (All Fisheries) LMA 1, LMA 2, LMA Outer Cape April



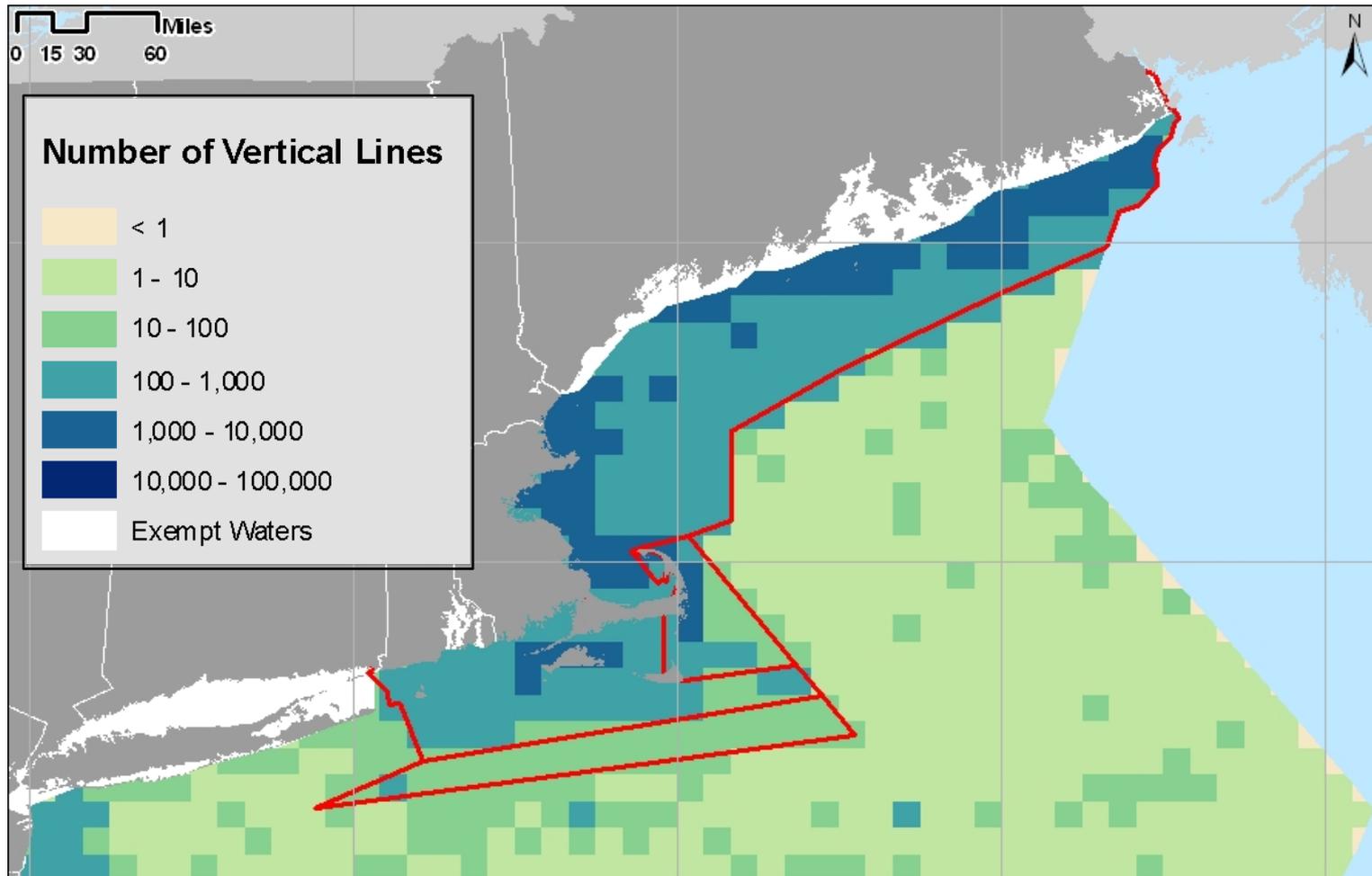


2008 Baseline (All Fisheries) LMA 1, LMA 2, LMA Outer Cape May



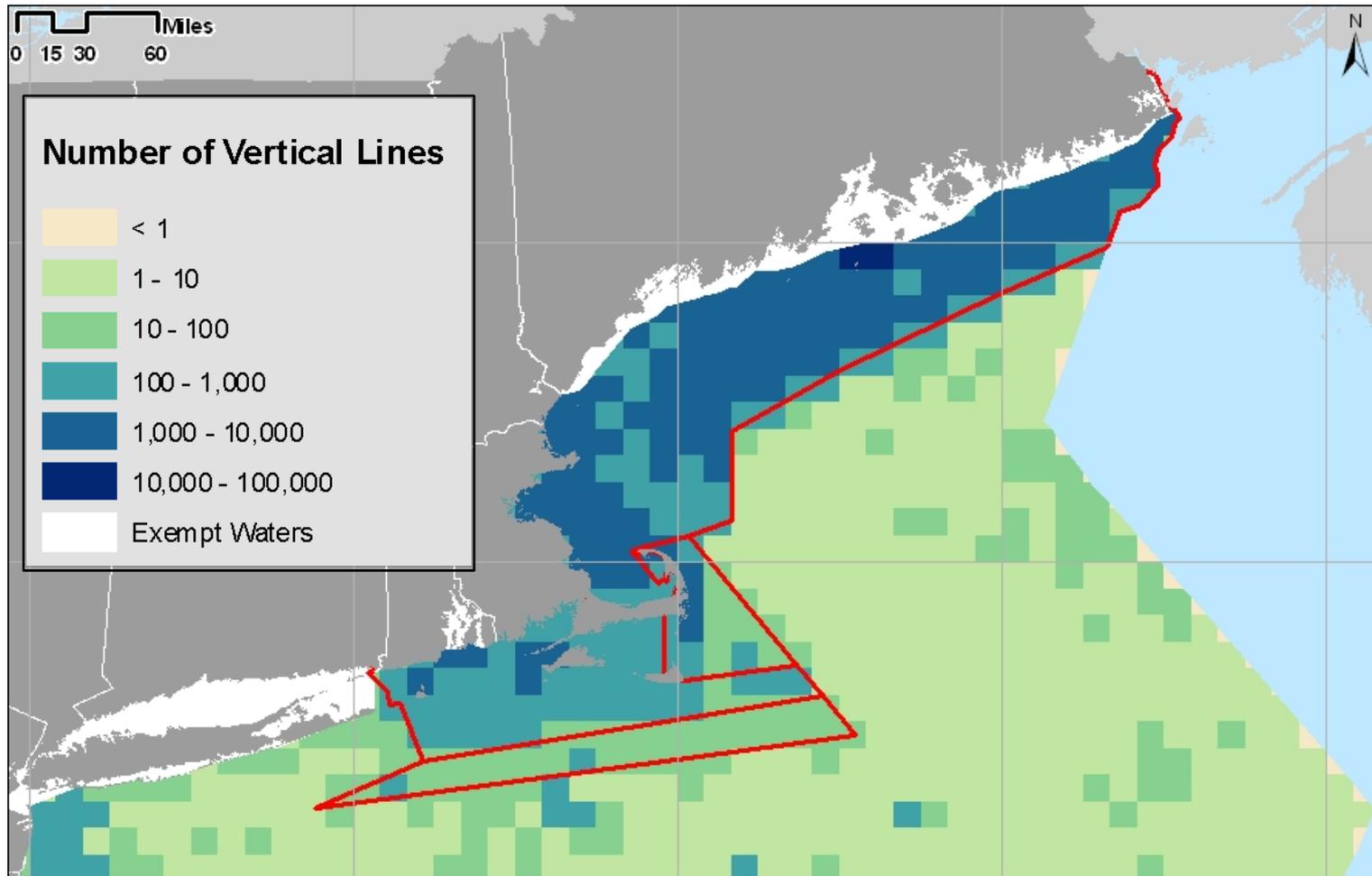


2008 Baseline (All Fisheries) LMA 1, LMA 2, LMA Outer Cape June



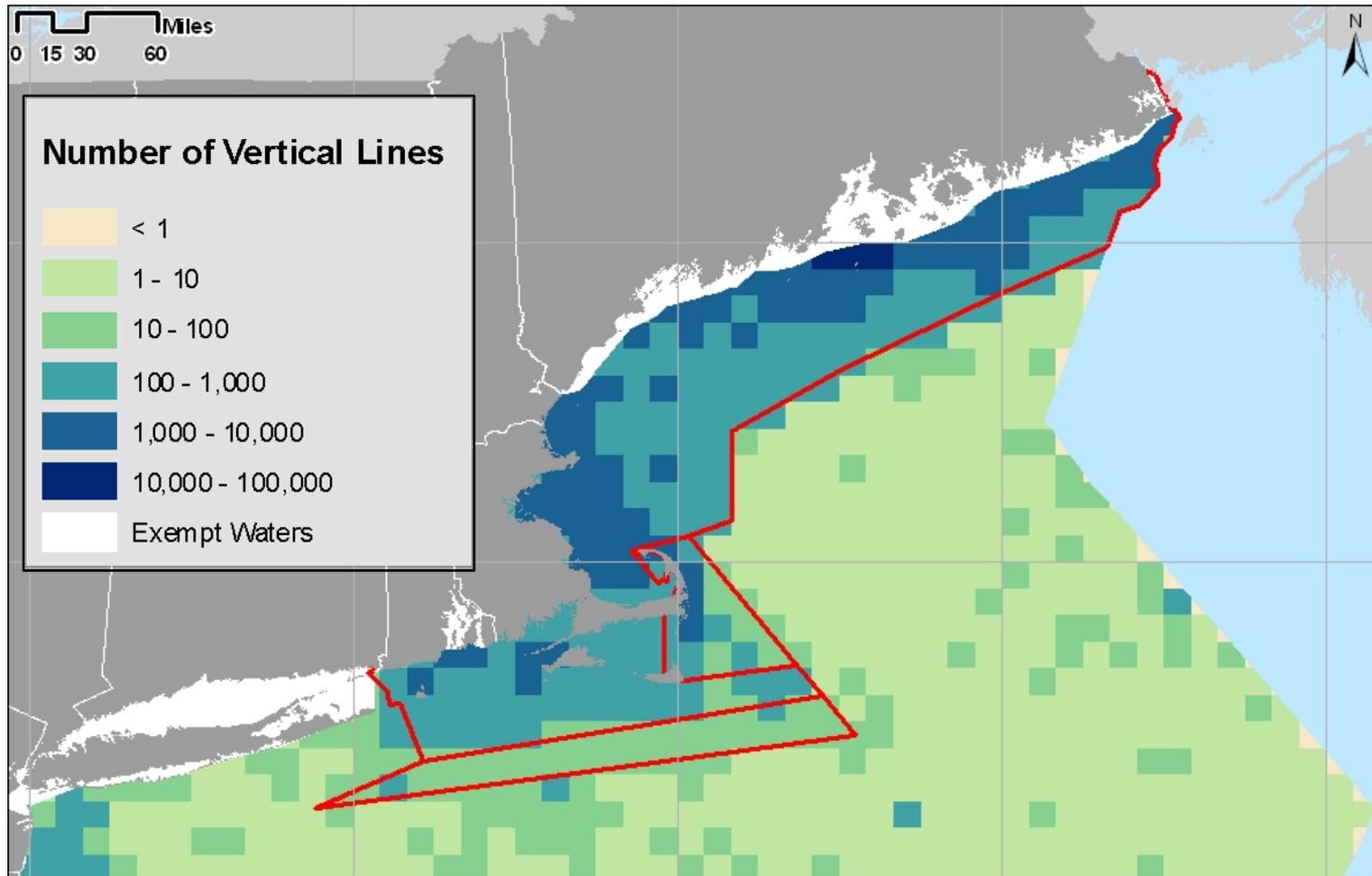


2008 Baseline (All Fisheries) LMA 1, LMA 2, LMA Outer Cape July



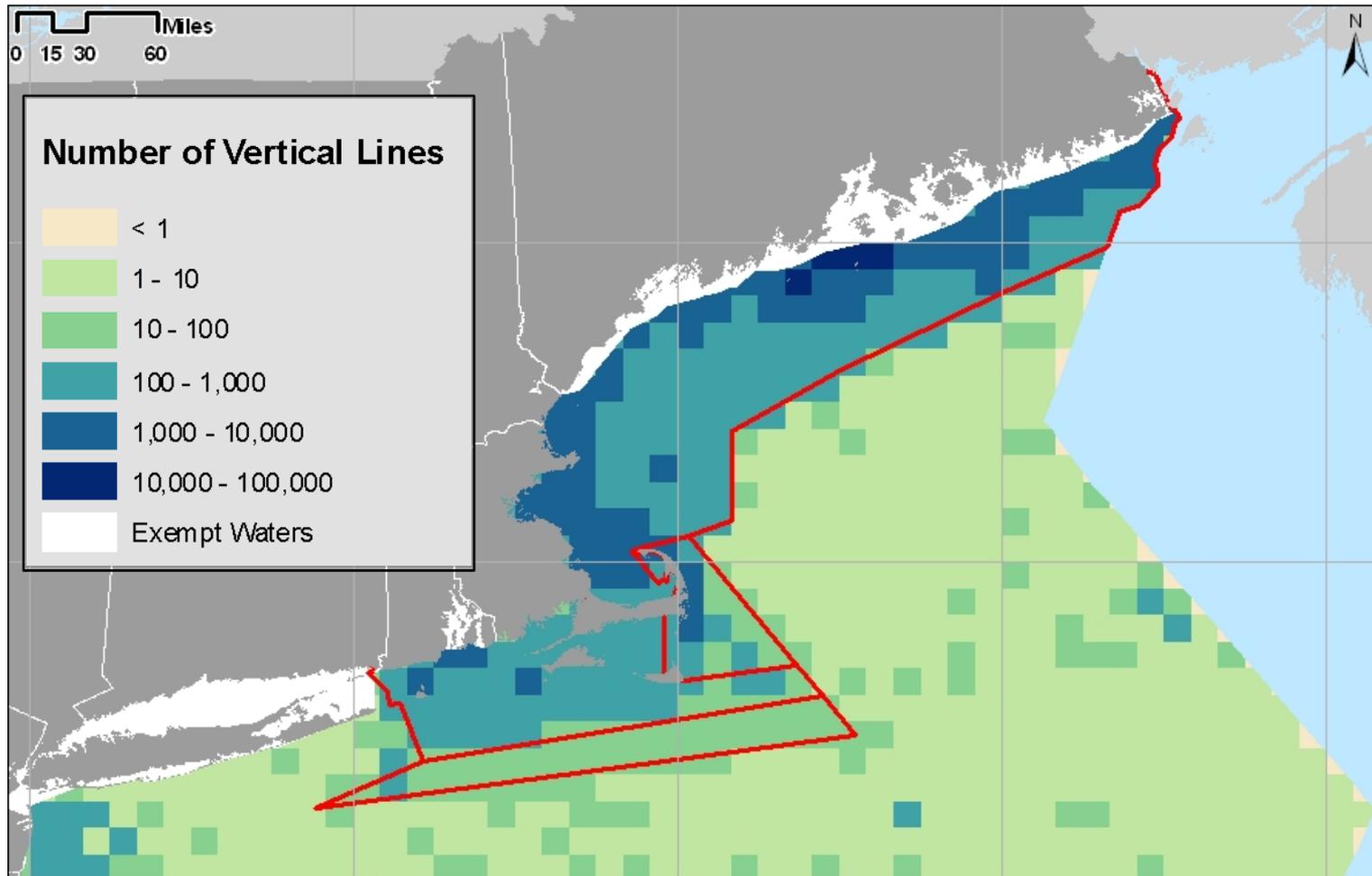


2008 Baseline (All Fisheries) LMA 1, LMA 2, LMA Outer Cape August



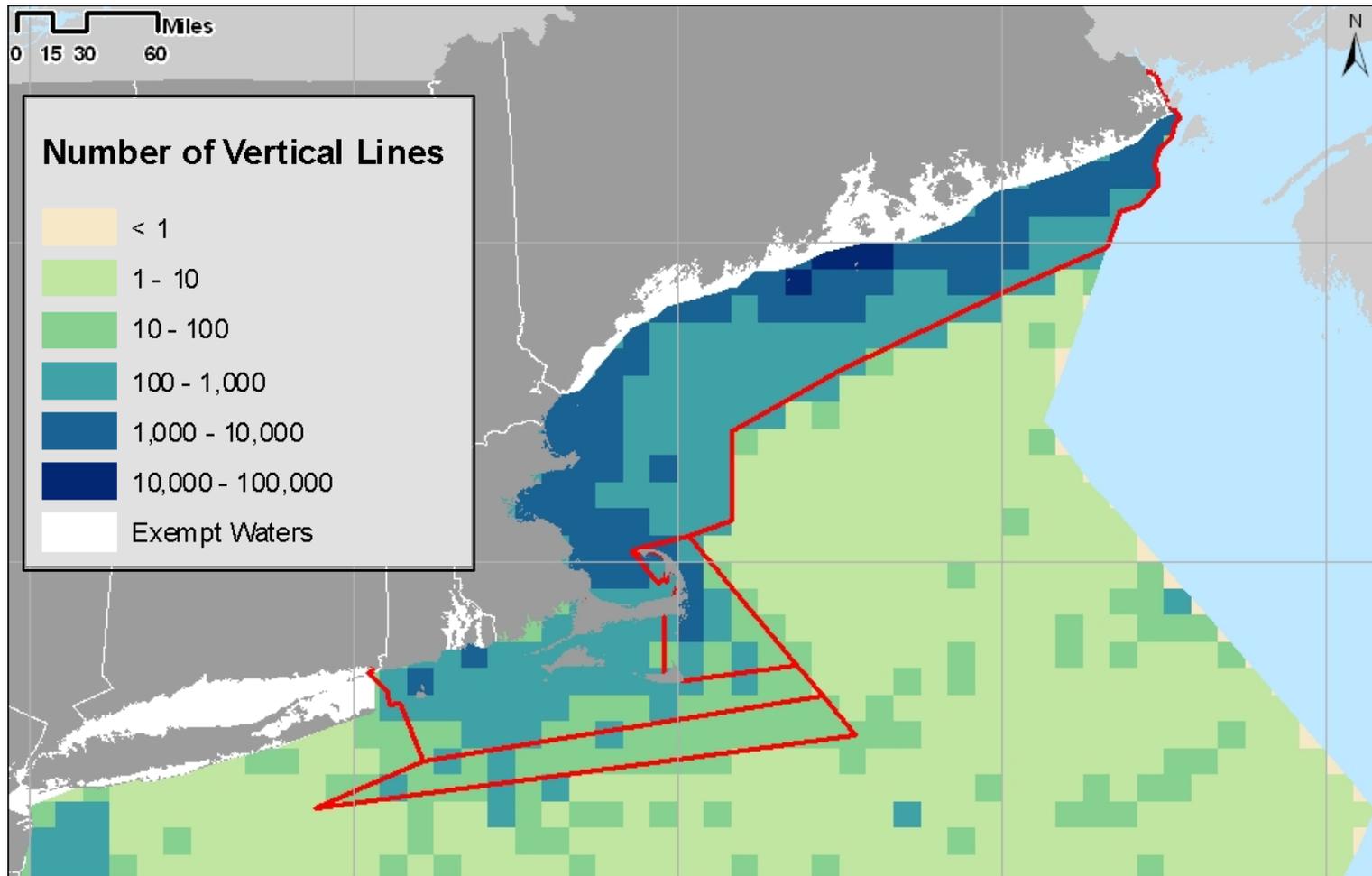


2008 Baseline (All Fisheries) LMA 1, LMA 2, LMA Outer Cape September



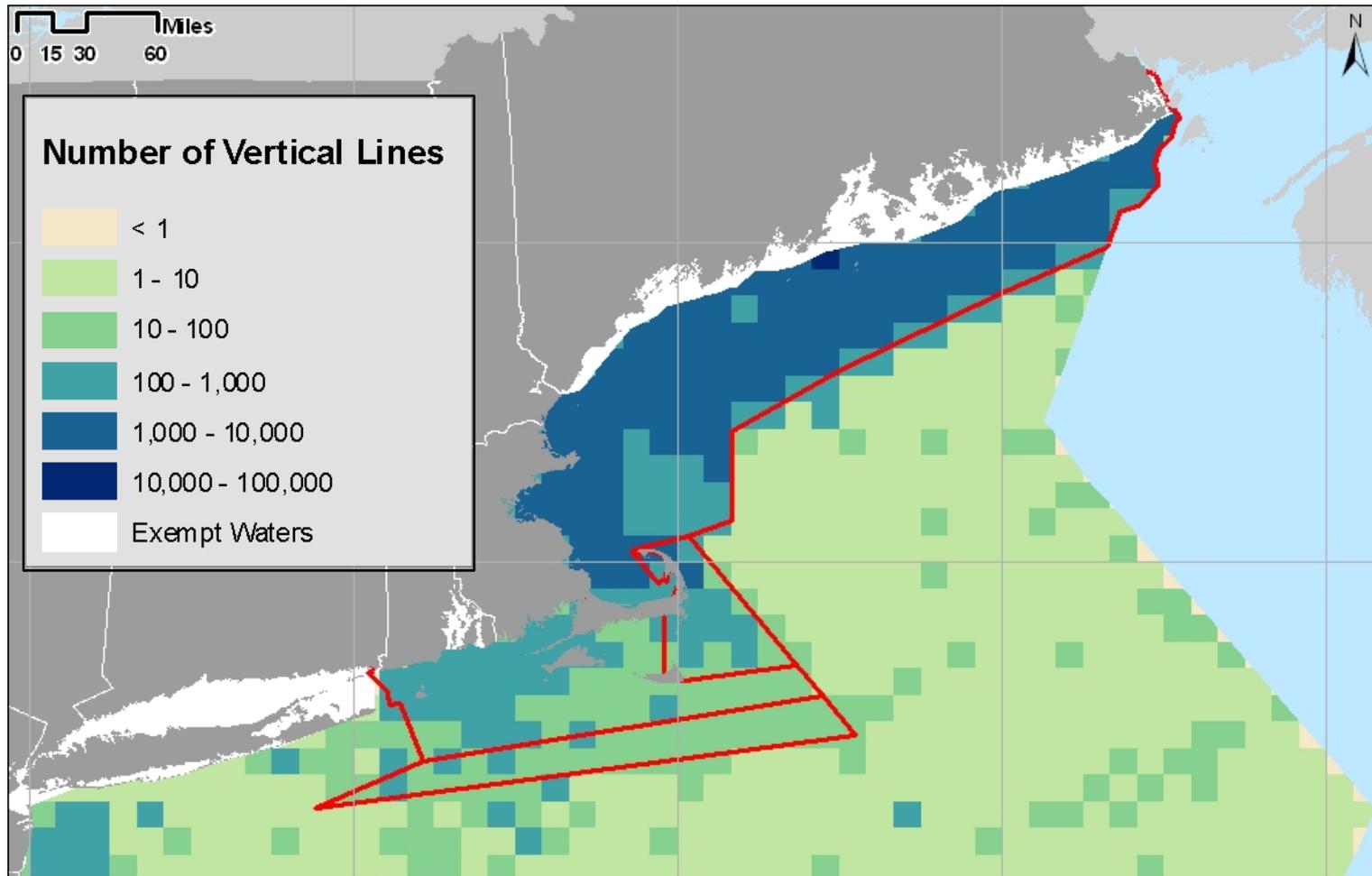


2008 Baseline (All Fisheries) LMA 1, LMA 2, LMA Outer Cape October



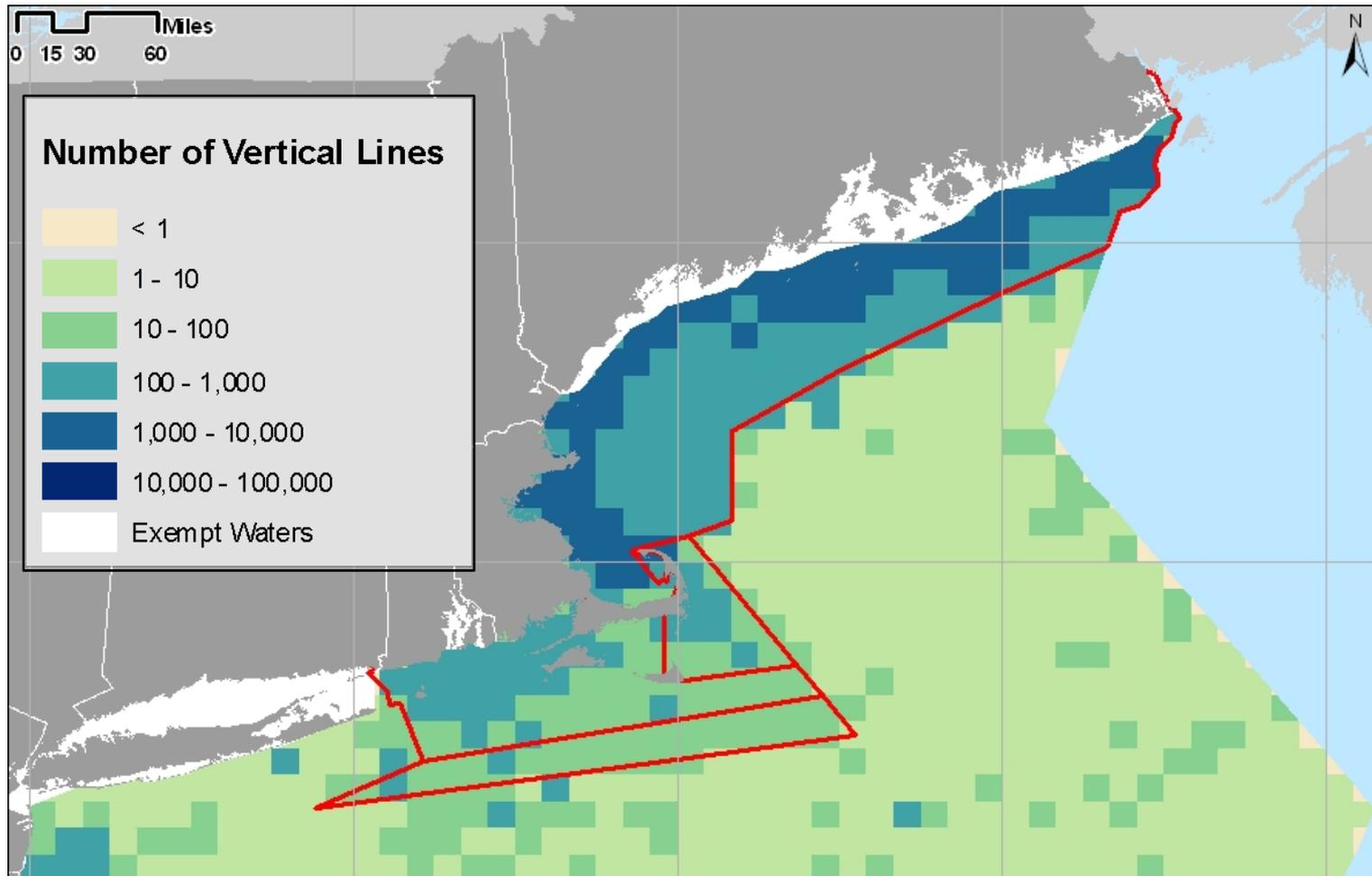


2008 Baseline (All Fisheries) LMA 1, LMA 2, LMA Outer Cape November





2008 Baseline (All Fisheries) LMA 1, LMA 2, LMA Outer Cape December





Conclusion

Managing by vertical lines by seasons is not supported by the data



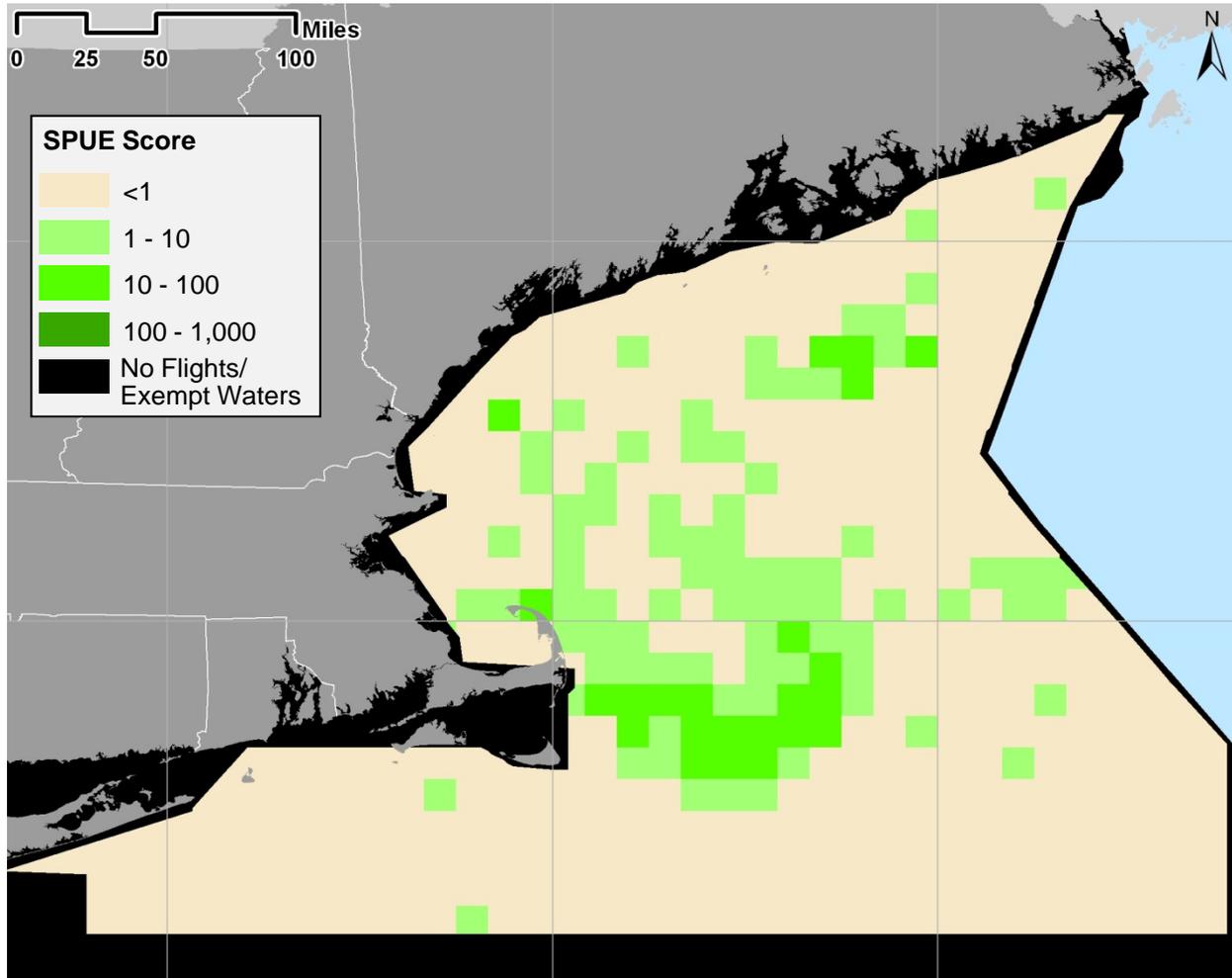
Scenario 3: Select Area Based on Sighting Per Unit Effort (SPUE) for Whales

- Recognizes uncertainty in existing vertical line data
- Assumes risk is more a function of whale density than vertical line density
- More accommodating of changes in the future in vertical line distribution (perhaps due to environmental changes)
- We will consider year round and then seasonal scenarios

AREAS		TIMING		What Areas?
Territorial Range		Year Round		
		Seasonal		
Whale Species	Rights	Year Round		
		Seasonal		
	Humpbacks	Year Round		
		Seasonal		
	Fins	Year Round		
		Seasonal		
	Combined (weighted)	Year Round		
		Seasonal		
Combined (unweighted)	Year Round			
	Seasonal			
Vertical Lines		Year Round		
		Seasonal		
Co-Occurrence	Rights	Year Round		
		Seasonal		
	Humpbacks	Year Round		
		Seasonal		
	Fins	Year Round		
		Seasonal		
	Combined (weighted)	Year Round		
		Seasonal		
	Combined (unweighted)	Year Round		
		Seasonal		

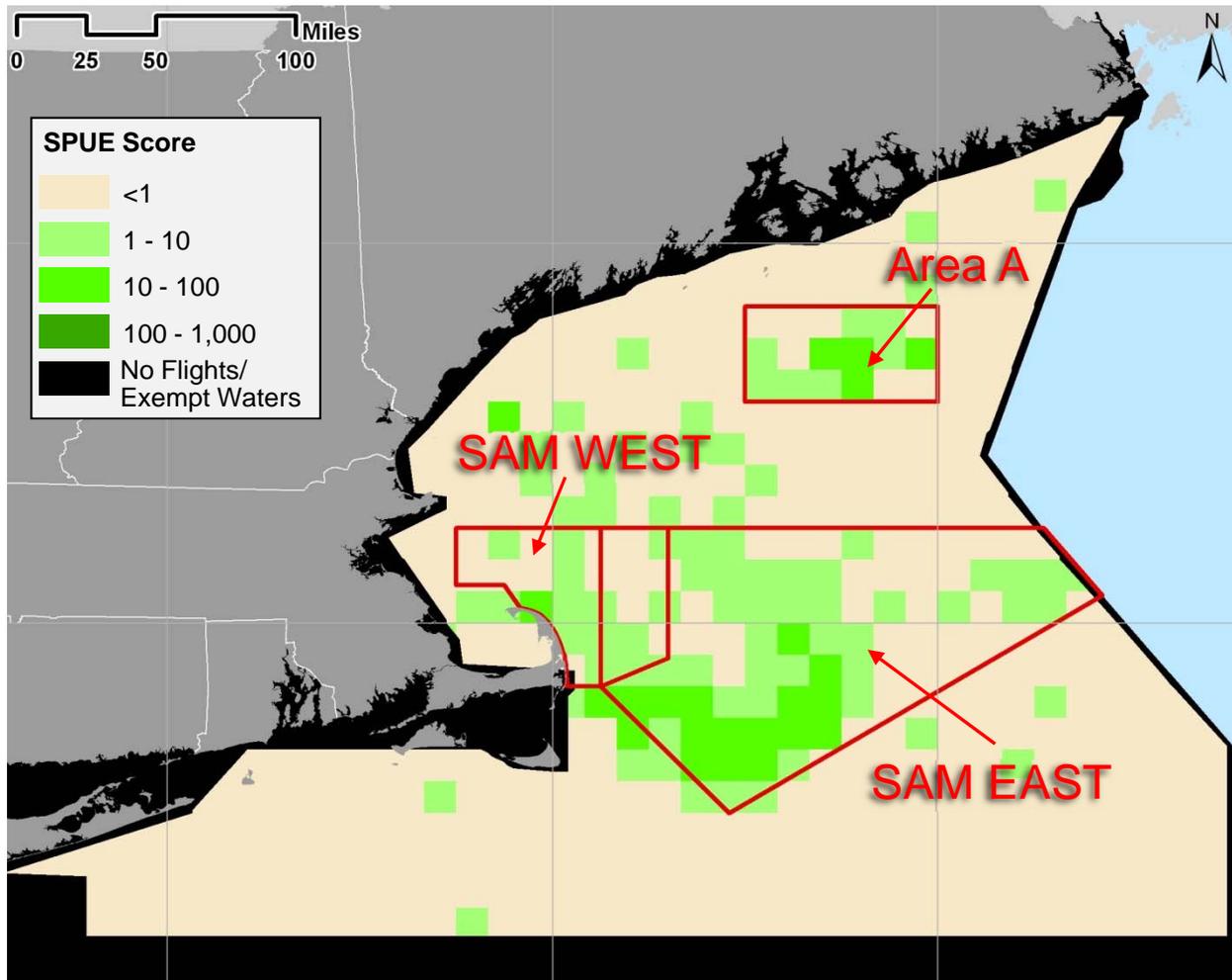


Right Whale SPUE (2002-2007) All Months





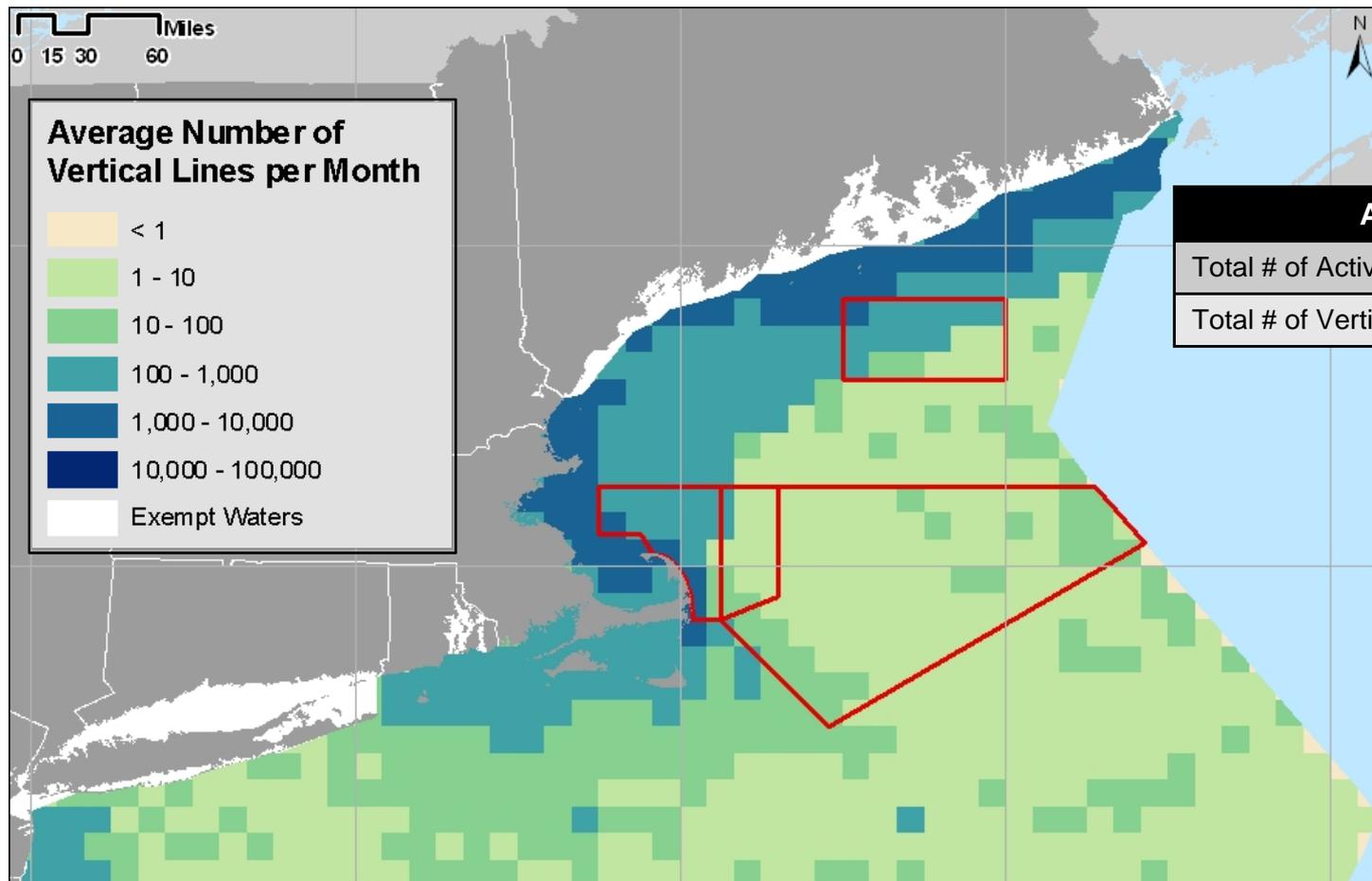
Right Whale SPUE (2002-2007) All Months ~ SAM East/ West, Area A



AREAS		TIMING	Management Measure
Territorial Range		Year Round	Vertical Line Reduction (%) <ul style="list-style-type: none"> • 3 traps/trawl • 5 traps/trawl • 10 traps/trawl (1 end line) • 10 traps/trawl (2 end lines) • closure
		Seasonal	
Whale Species	Rights	Year Round	
		Seasonal	
	Humpbacks	Year Round	
		Seasonal	
	Fins	Year Round	
		Seasonal	
	Combined (weighted)	Year Round	
		Seasonal	
Combined (unweighted)	Year Round		
	Seasonal		
Vertical Lines		Year Round	
		Seasonal	
Co-Occurrence	Rights	Year Round	
		Seasonal	
	Humpbacks	Year Round	
		Seasonal	
	Fins	Year Round	
		Seasonal	
	Combined (weighted)	Year Round	
		Seasonal	
	Combined (unweighted)	Year Round	
		Seasonal	



2008 Baseline (All Fisheries) SAM East/West, Area A



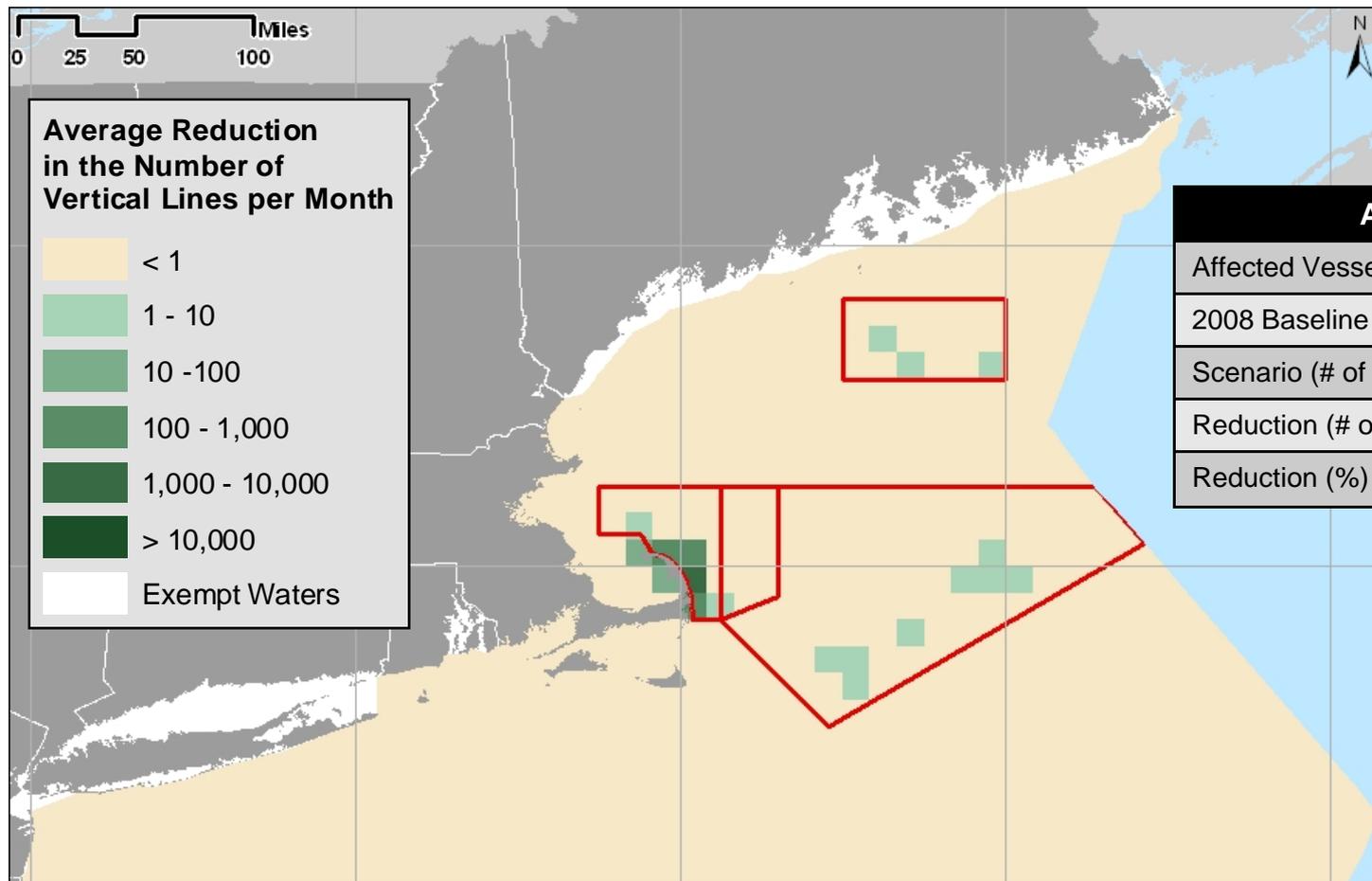
Average Number of Vertical Lines per Month

- < 1
- 1 - 10
- 10 - 100
- 100 - 1,000
- 1,000 - 10,000
- 10,000 - 100,000
- Exempt Waters

Average per Month	
Total # of Active Vessels	200
Total # of Vertical Lines	20,900



Minimum 3 Traps/Trawl (1 Endline) SAM East/West, Area A

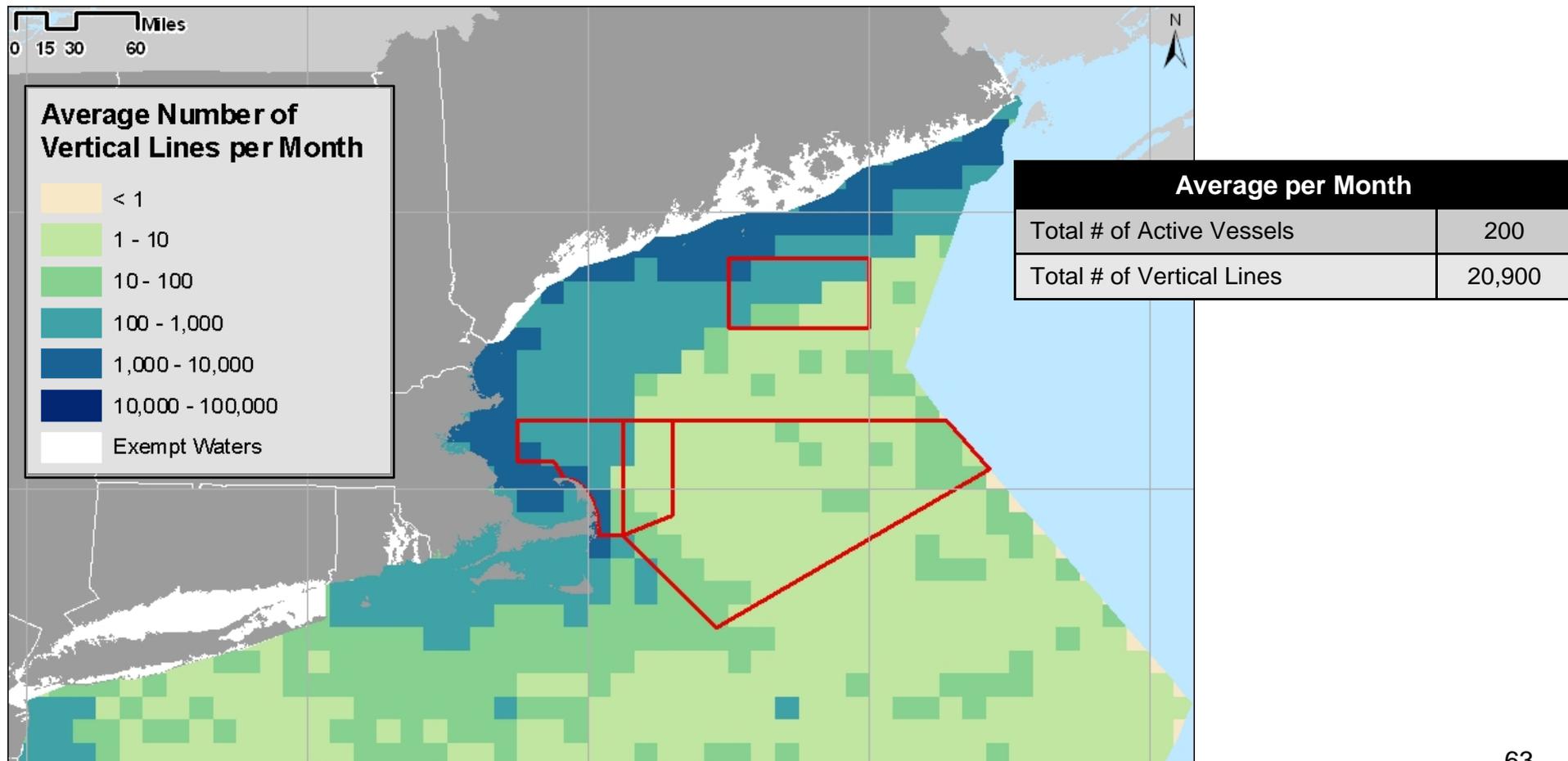


Average per Month	
Affected Vessels	20
2008 Baseline (# of Vertical Lines)	20,900
Scenario (# of Vertical Lines)	18,000
Reduction (# of Vertical Lines)	2,900
Reduction (%)	14%

AREAS		TIMING	Management Measure
Territorial Range		Year Round	Vertical Line Reduction (%) <ul style="list-style-type: none"> • 3 traps/trawl • 5 traps/trawl • 10 traps/trawl (1 end line) • 10 traps/trawl (2 end lines) • Closure
		Seasonal	
Whale Species	Rights	Year Round	
	Humpbacks	Seasonal	
		Year Round	
	Fins	Seasonal	
		Year Round	
	Combined (weighted)	Seasonal	
		Year Round	
	Combined (unweighted)	Seasonal	
Year Round			
Vertical Lines		Year Round	
		Seasonal	
Co-Occurrence	Rights	Year Round	
		Seasonal	
	Humpbacks	Year Round	
		Seasonal	
	Fins	Year Round	
		Seasonal	
	Combined (weighted)	Year Round	
		Seasonal	
	Combined (unweighted)	Year Round	
		Seasonal	

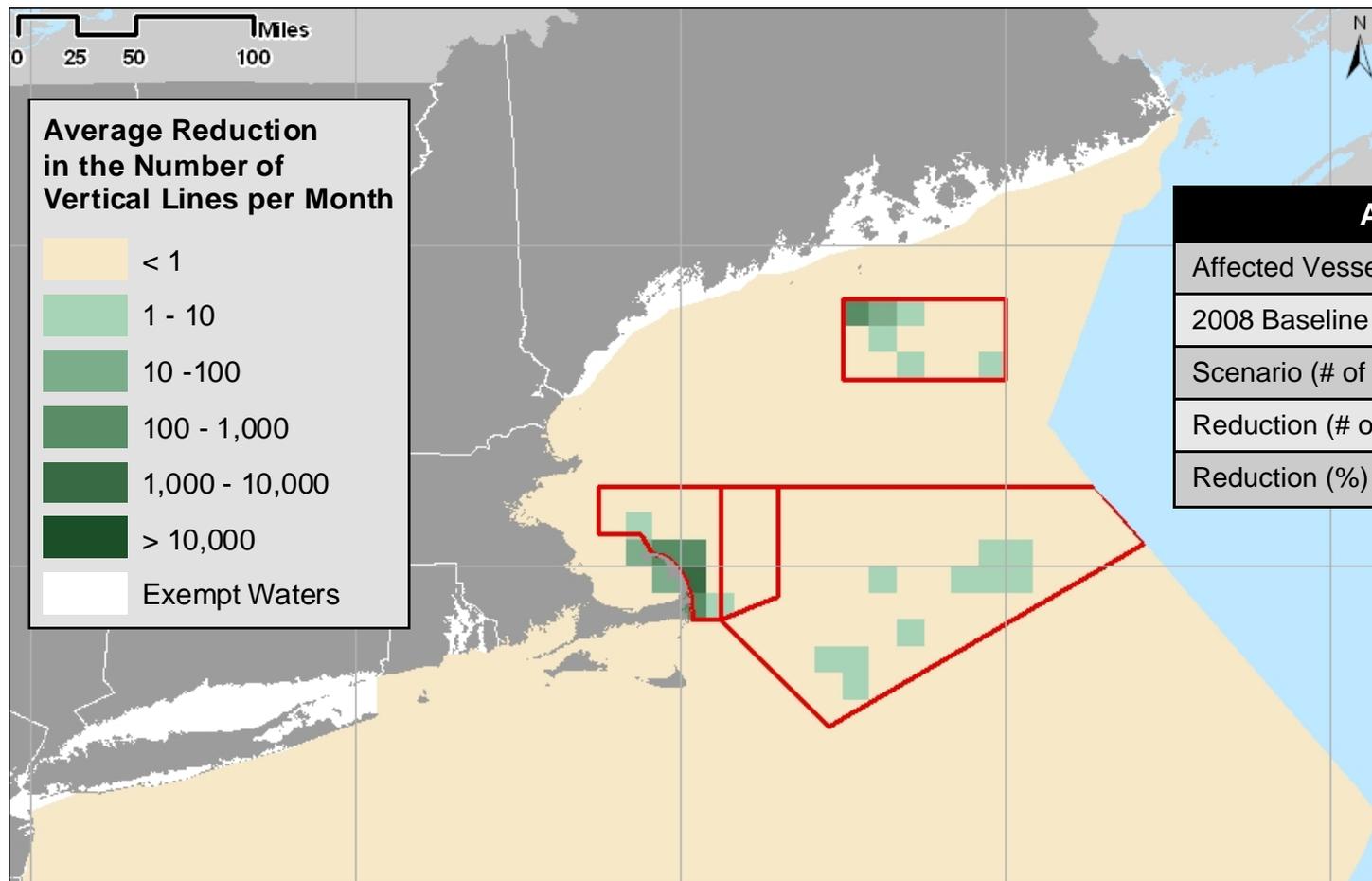


2008 Baseline (All Fisheries) SAM East/West, Area A





Minimum 5 Traps/Trawl (1 Endline) SAM East/West, Area A

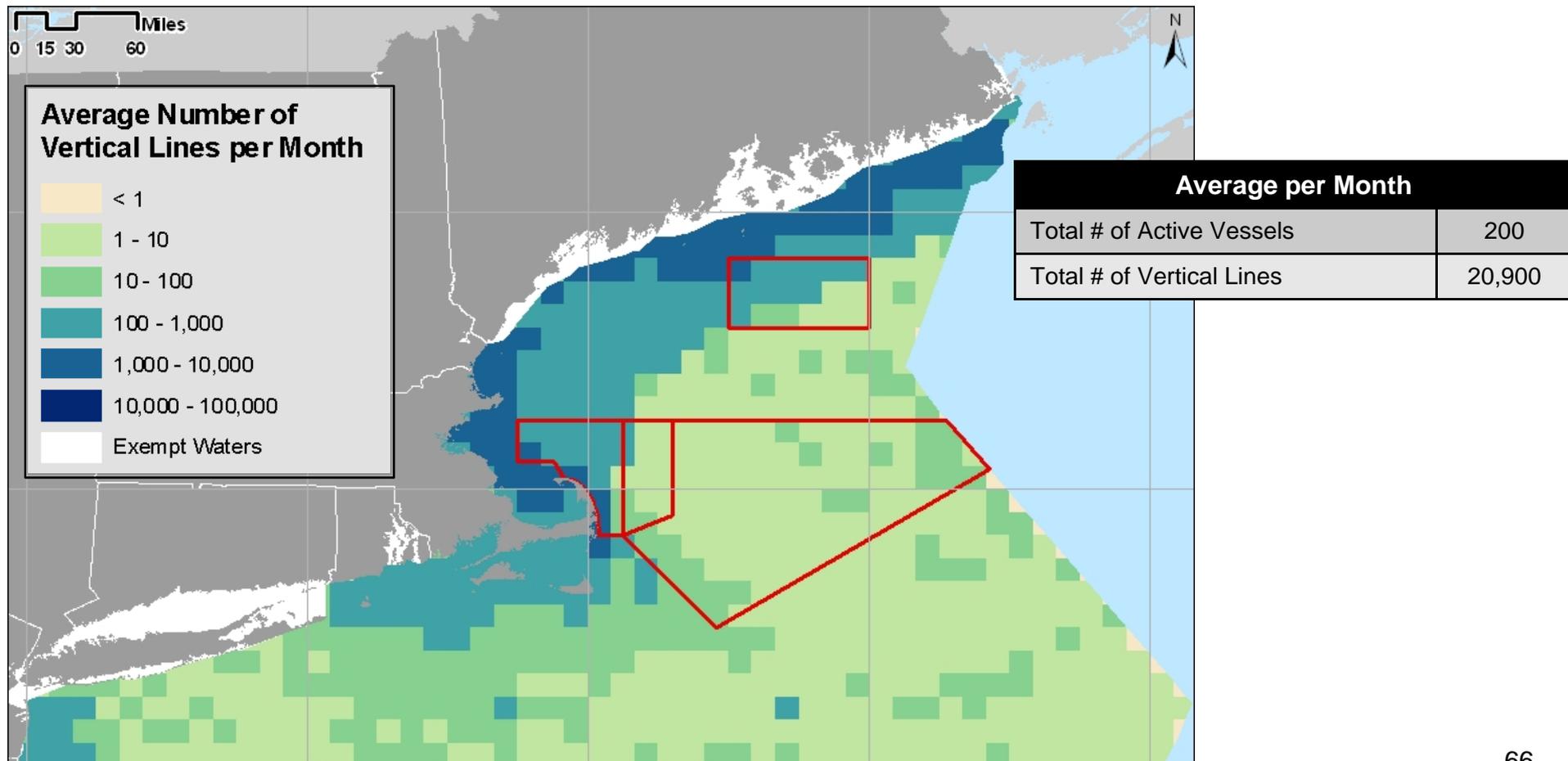


Average per Month	
Affected Vessels	30
2008 Baseline (# of Vertical Lines)	20,900
Scenario (# of Vertical Lines)	17,100
Reduction (# of Vertical Lines)	3,800
Reduction (%)	18%

AREAS		TIMING	Management Measure
Territorial Range		Year Round	Vertical Line Reduction (%) <ul style="list-style-type: none"> • 3 traps/trawl • 5 traps/trawl • 10 traps/trawl (1 end line) • 10 traps/trawl (2 end lines) • Closure
		Seasonal	
Whale Species	Rights	Year Round	
	Humpbacks	Seasonal	
		Year Round	
	Fins	Seasonal	
		Year Round	
	Combined (weighted)	Seasonal	
		Year Round	
	Combined (unweighted)	Seasonal	
Year Round			
Vertical Lines		Year Round	
		Seasonal	
Co-Occurrence	Rights	Year Round	
		Seasonal	
	Humpbacks	Year Round	
		Seasonal	
	Fins	Year Round	
		Seasonal	
	Combined (weighted)	Year Round	
		Seasonal	
	Combined (unweighted)	Year Round	
		Seasonal	

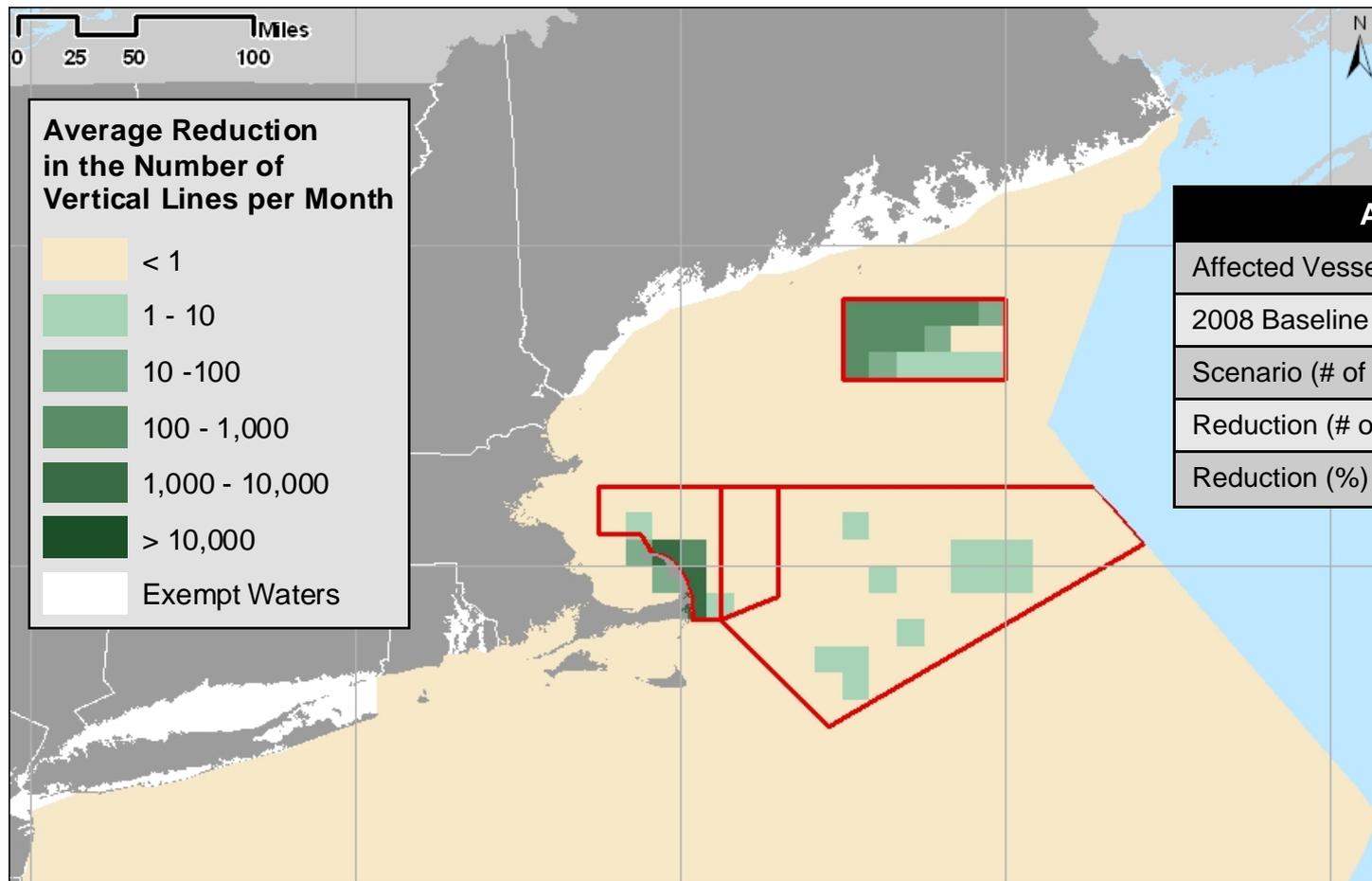


2008 Baseline (All Fisheries) SAM East/West, Area A





Minimum 10 Traps/Trawl (1 Endline) SAM East/West, Area A

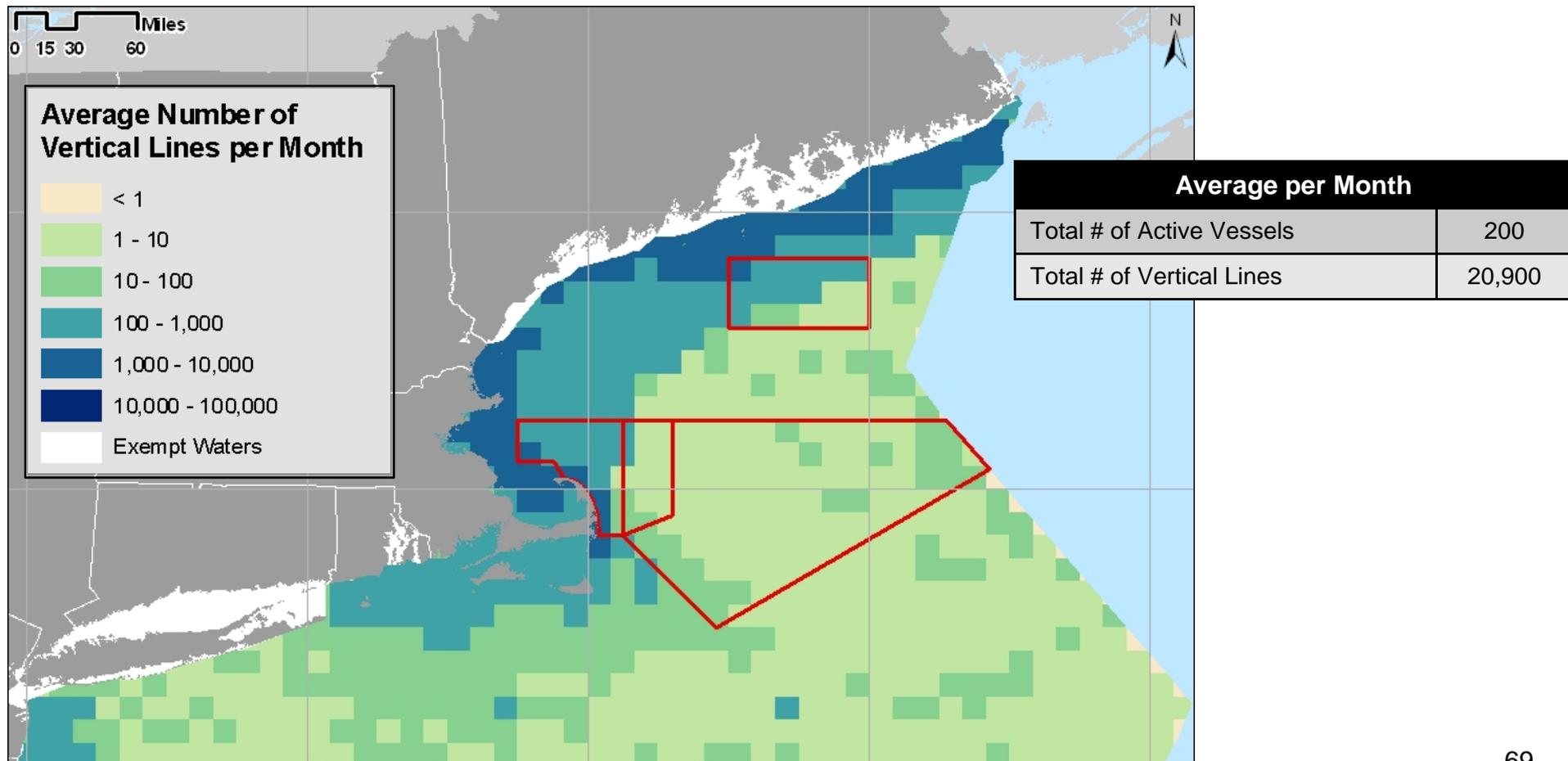


Average per Month	
Affected Vessels	90
2008 Baseline (# of Vertical Lines)	20,900
Scenario (# of Vertical Lines)	12,400
Reduction (# of Vertical Lines)	8,500
Reduction (%)	41%

AREAS		TIMING	Management Measure
Territorial Range		Year Round	Vertical Line Reduction (%) <ul style="list-style-type: none"> • 3 traps/trawl • 5 traps/trawl • 10 traps/trawl (1 end line) • 10 traps/trawl (2 end lines) • Closure
		Seasonal	
Whale Species	Rights	Year Round	
		Seasonal	
	Humpbacks	Year Round	
		Seasonal	
	Fins	Year Round	
		Seasonal	
	Combined (weighted)	Year Round	
		Seasonal	
Combined (unweighted)	Year Round		
	Seasonal		
Vertical Lines		Year Round	
		Seasonal	
Co-Occurrence	Rights	Year Round	
		Seasonal	
	Humpbacks	Year Round	
		Seasonal	
	Fins	Year Round	
		Seasonal	
	Combined (weighted)	Year Round	
		Seasonal	
	Combined (unweighted)	Year Round	
		Seasonal	

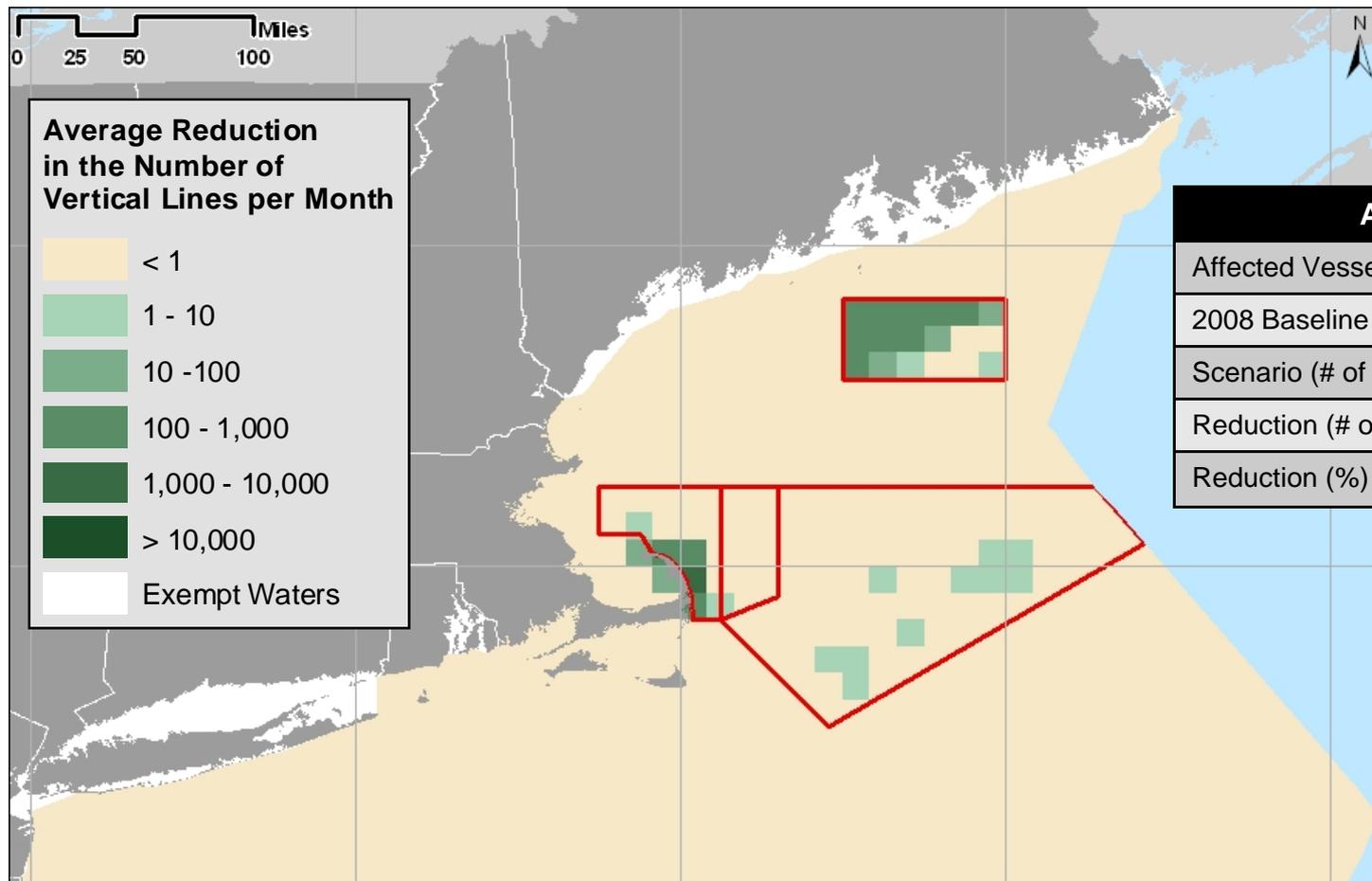


2008 Baseline (All Fisheries) SAM East/West, Area A





Minimum 10 Traps/Trawl (2 Endlines) SAM East/West, Area A

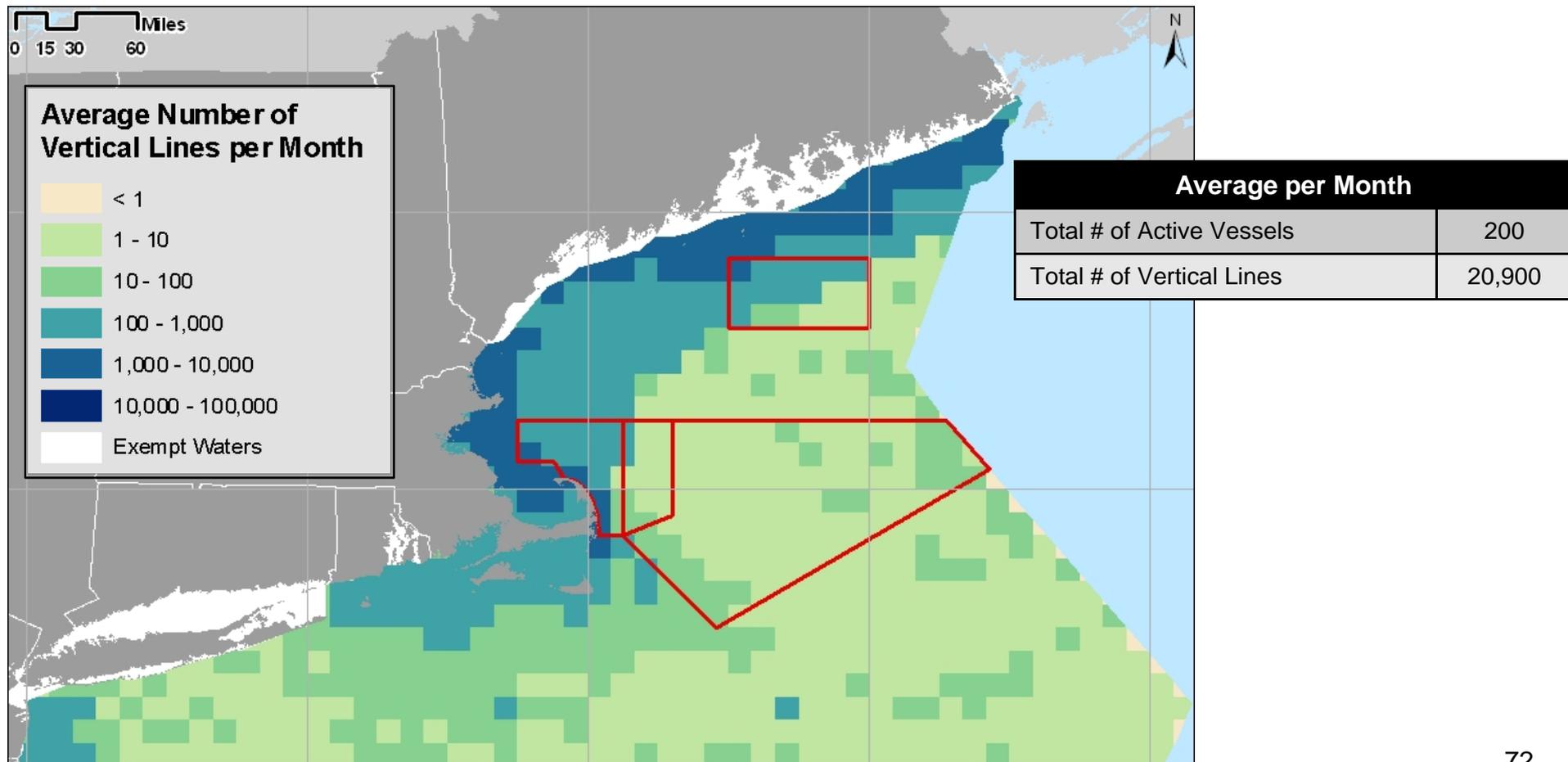


Average per Month	
Affected Vessels	90
2008 Baseline (# of Vertical Lines)	20,900
Scenario (# of Vertical Lines)	15,300
Reduction (# of Vertical Lines)	5,600
Reduction (%)	27%

AREAS		TIMING	Management Measure
Territorial Range		Year Round	Vertical Line Reduction (%) <ul style="list-style-type: none"> • 3 traps/trawl • 5 traps/trawl • 10 traps/trawl (1 end line) • 10 traps/trawl (2 end lines) • Closure
		Seasonal	
Whale Species	Rights	Year Round	
		Seasonal	
	Humpbacks	Year Round	
		Seasonal	
	Fins	Year Round	
		Seasonal	
	Combined (weighted)	Year Round	
		Seasonal	
Combined (unweighted)	Year Round		
	Seasonal		
Vertical Lines		Year Round	
		Seasonal	
Co-Occurrence	Rights	Year Round	
		Seasonal	
	Humpbacks	Year Round	
		Seasonal	
	Fins	Year Round	
		Seasonal	
	Combined (weighted)	Year Round	
		Seasonal	
	Combined (unweighted)	Year Round	
		Seasonal	

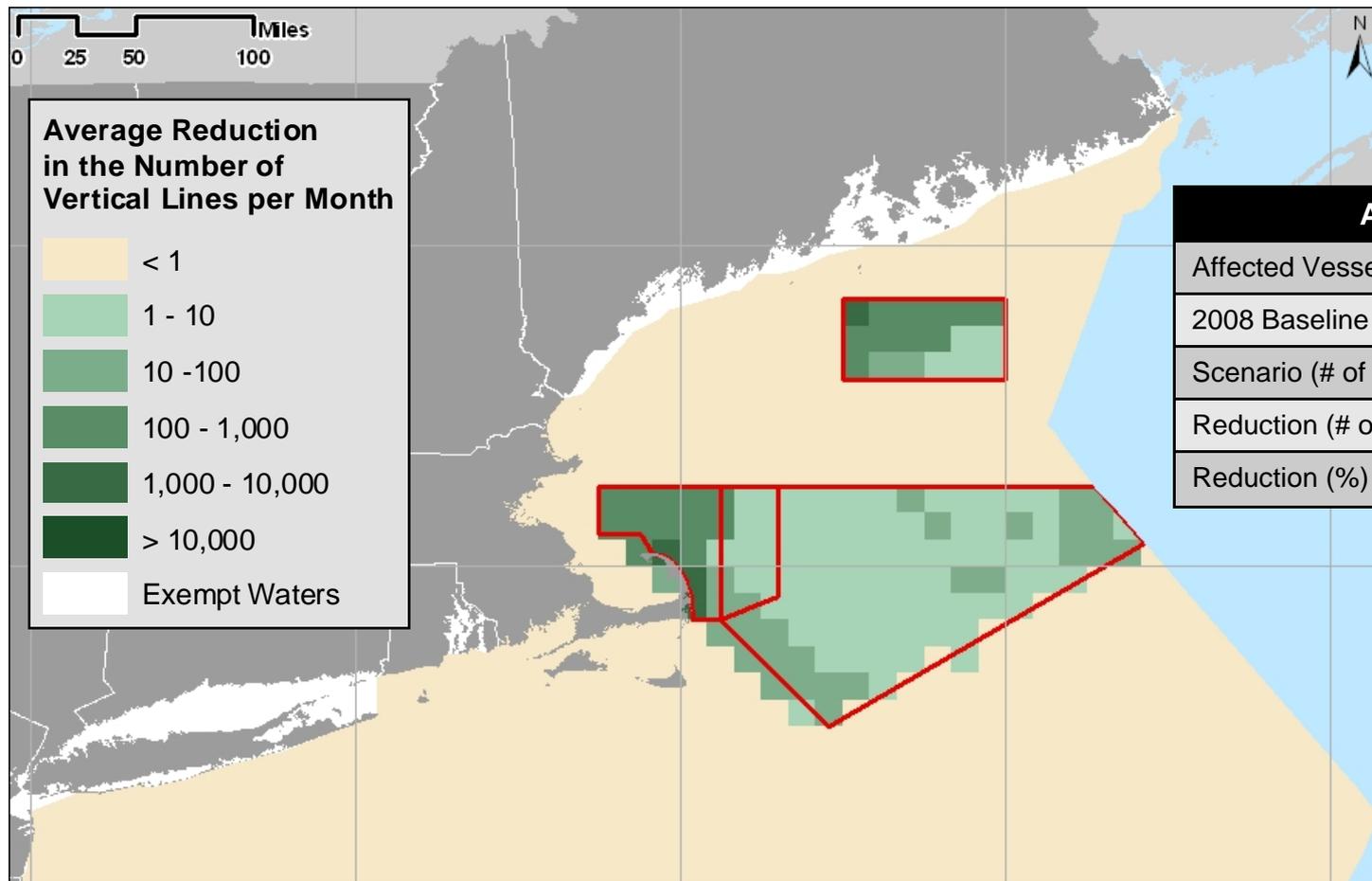


2008 Baseline (All Fisheries) SAM East/West, Area A





Year-Round Closure SAM East/West, Area A



Average Reduction in the Number of Vertical Lines per Month

Light Yellow	< 1
Light Green	1 - 10
Medium Green	10 - 100
Dark Green	100 - 1,000
Very Dark Green	1,000 - 10,000
Black	> 10,000
White	Exempt Waters

Average per Month	
Affected Vessels	200
2008 Baseline (# of Vertical Lines)	20,900
Scenario (# of Vertical Lines)	0
Reduction (# of Vertical Lines)	20,900
Reduction (%)	100%



Summary SAM East/West, Area A

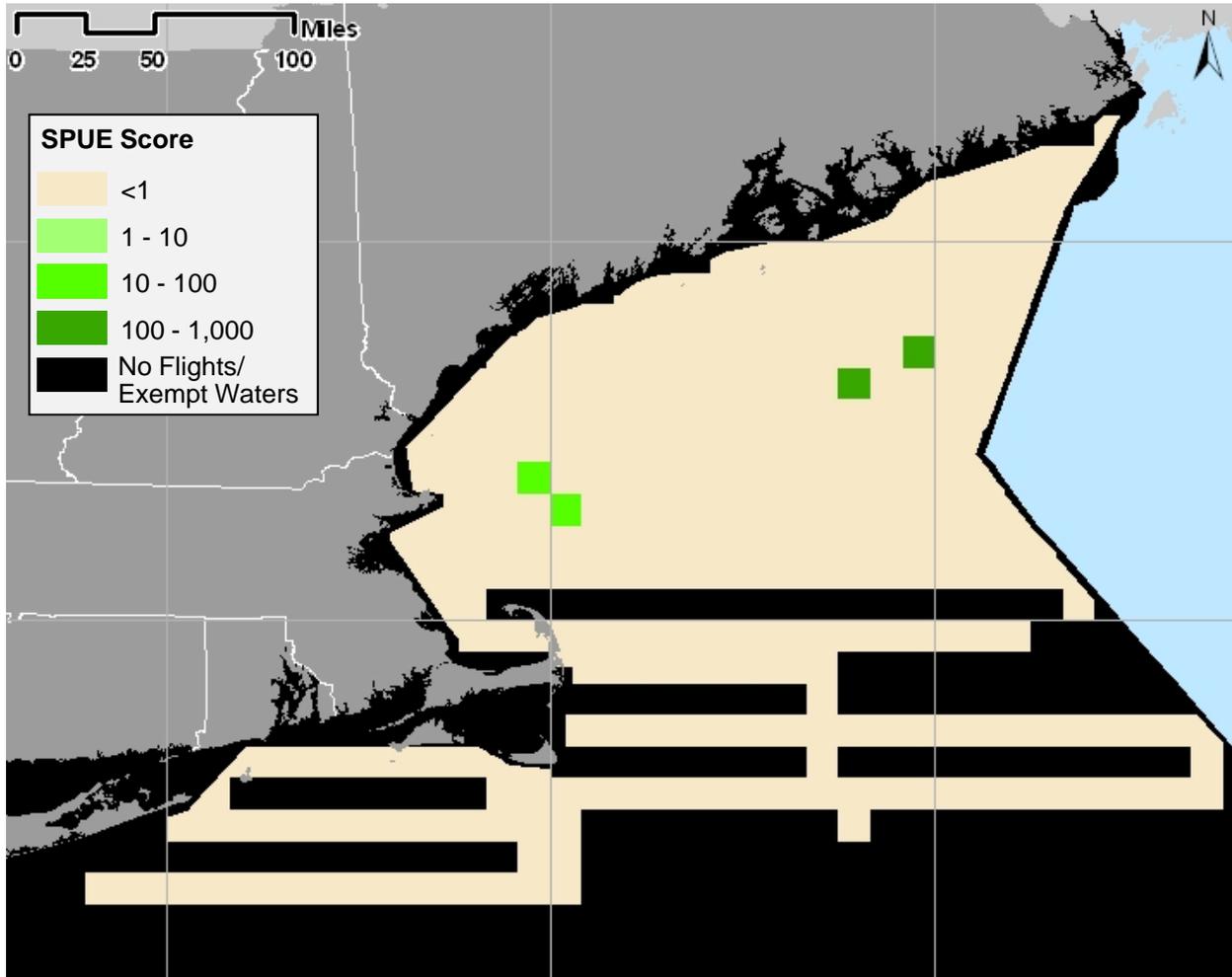
Average per Month

	2008 Baseline	Minimum 3 Traps/Trawl (1 Endline)	Minimum 5 Traps/Trawl (1 Endline)	Minimum 10 Traps/Trawl (1 Endline)	Minimum 10 Traps/Trawl (2 Endlines)	Closure
Affected Vessels	-	20	30	90	90	200
Number of Vertical Lines	20,900	18,000	17,100	12,400	15,300	0
Reduction in the Number of Vertical Lines	-	2,900	3,800	8,500	5,600	20,900
% Reduction in Vertical Lines	-	14%	18%	41%	27%	100%

AREAS		TIMING		What Areas?
Territorial Range		Year Round		
		Seasonal		
Whale Species	Rights	Year Round		
		Seasonal		
	Humpbacks	Year Round		
		Seasonal		
	Fins	Year Round		
		Seasonal		
	Combined (weighted)	Year Round		
		Seasonal		
Combined (unweighted)	Year Round			
	Seasonal			
Vertical Lines		Year Round		
		Seasonal		
Co-Occurrence	Rights	Year Round		
		Seasonal		
	Humpbacks	Year Round		
		Seasonal		
	Fins	Year Round		
		Seasonal		
	Combined (weighted)	Year Round		
		Seasonal		
Combined (unweighted)	Year Round			
	Seasonal			

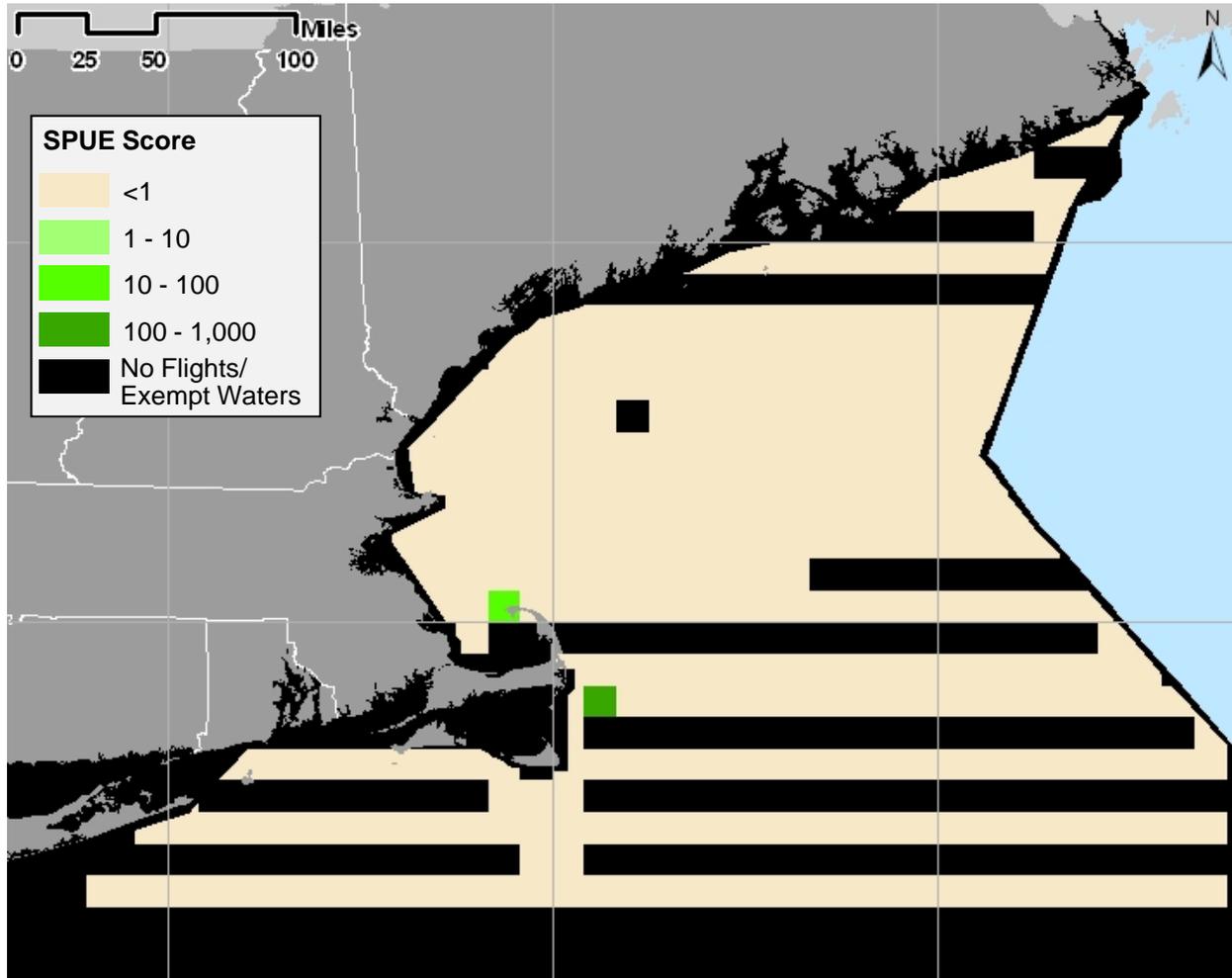


Right Whale SPUE (2002-2007) January



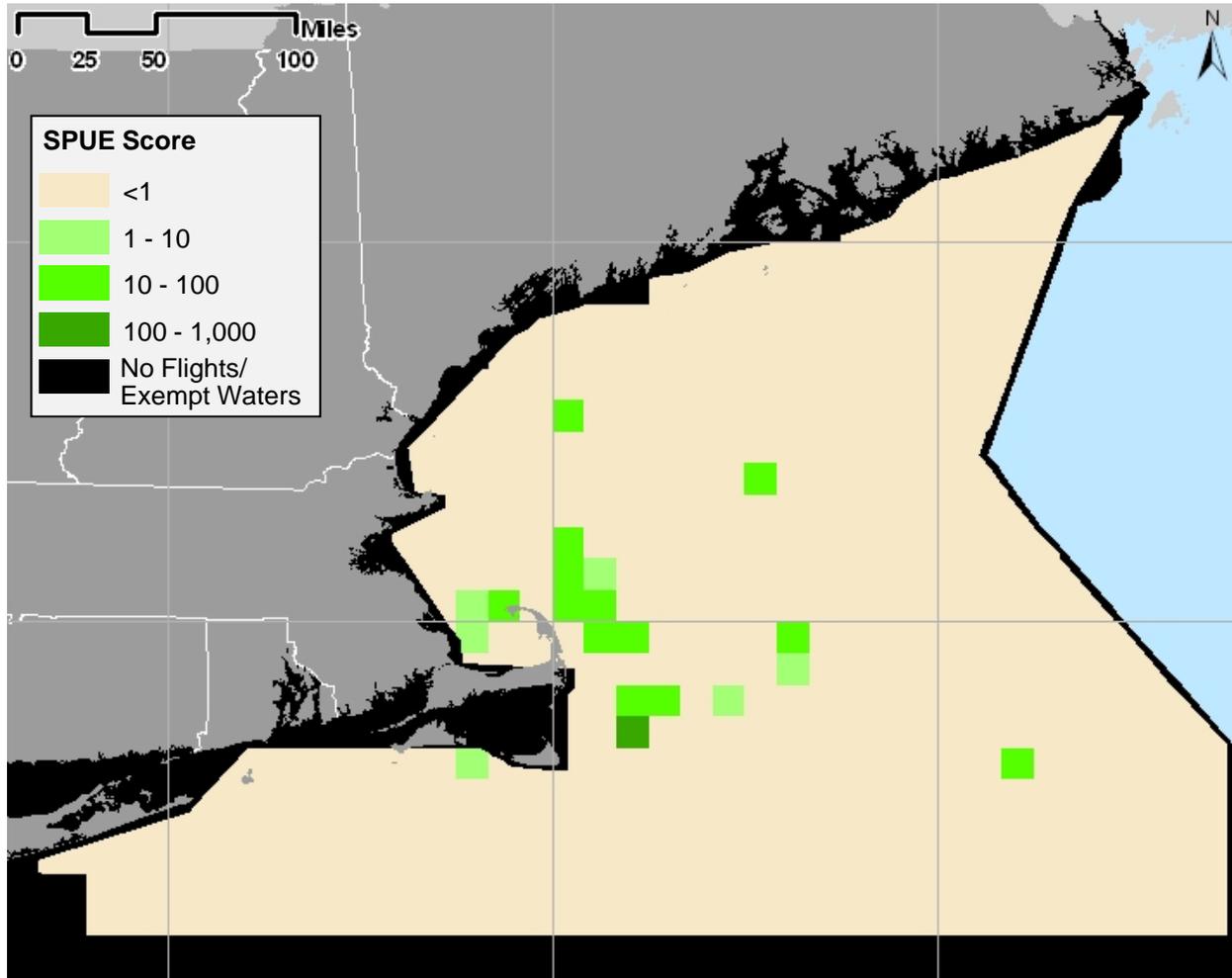


Right Whale SPUE (2002-2007) February



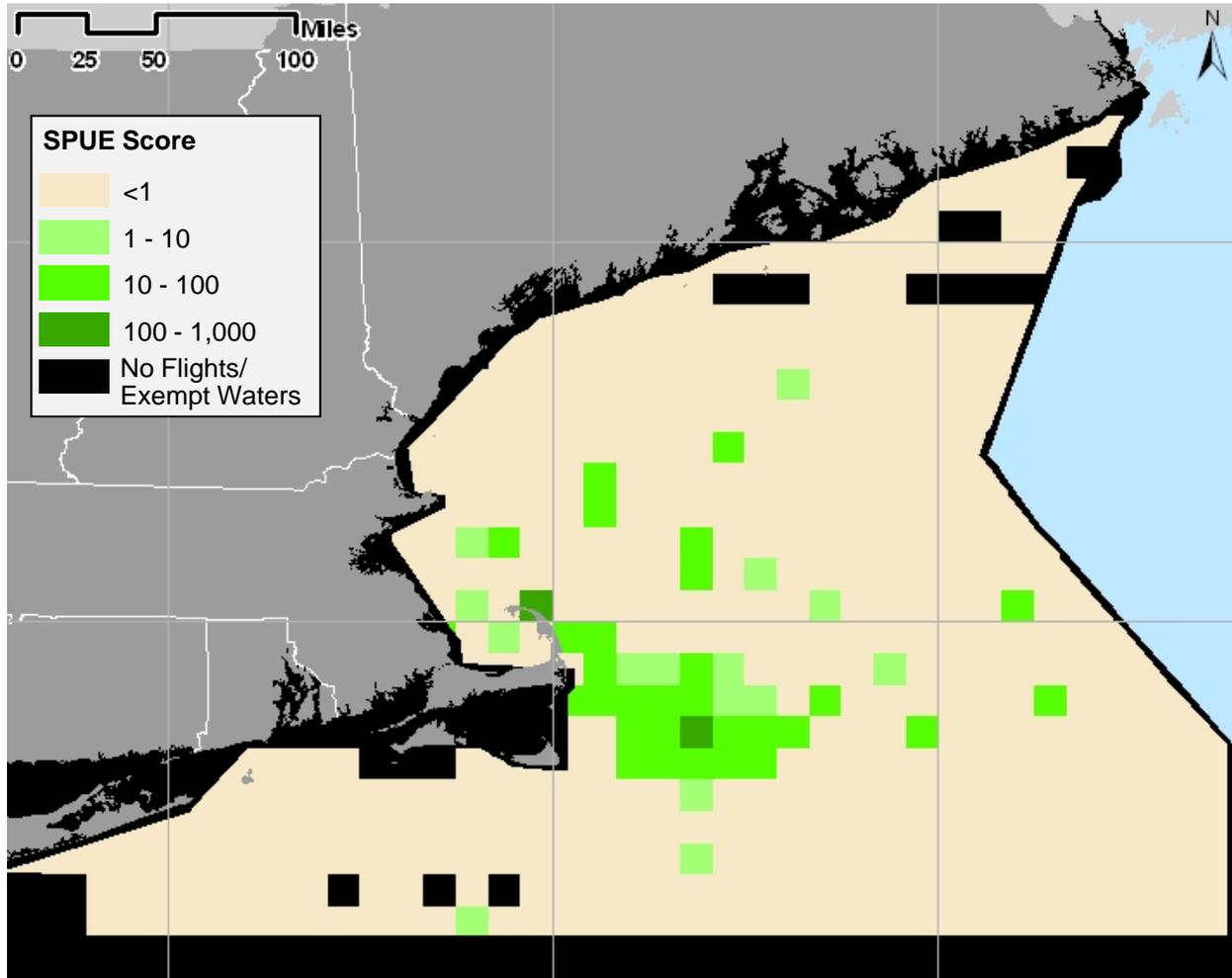


Right Whale SPUE (2002-2007) March



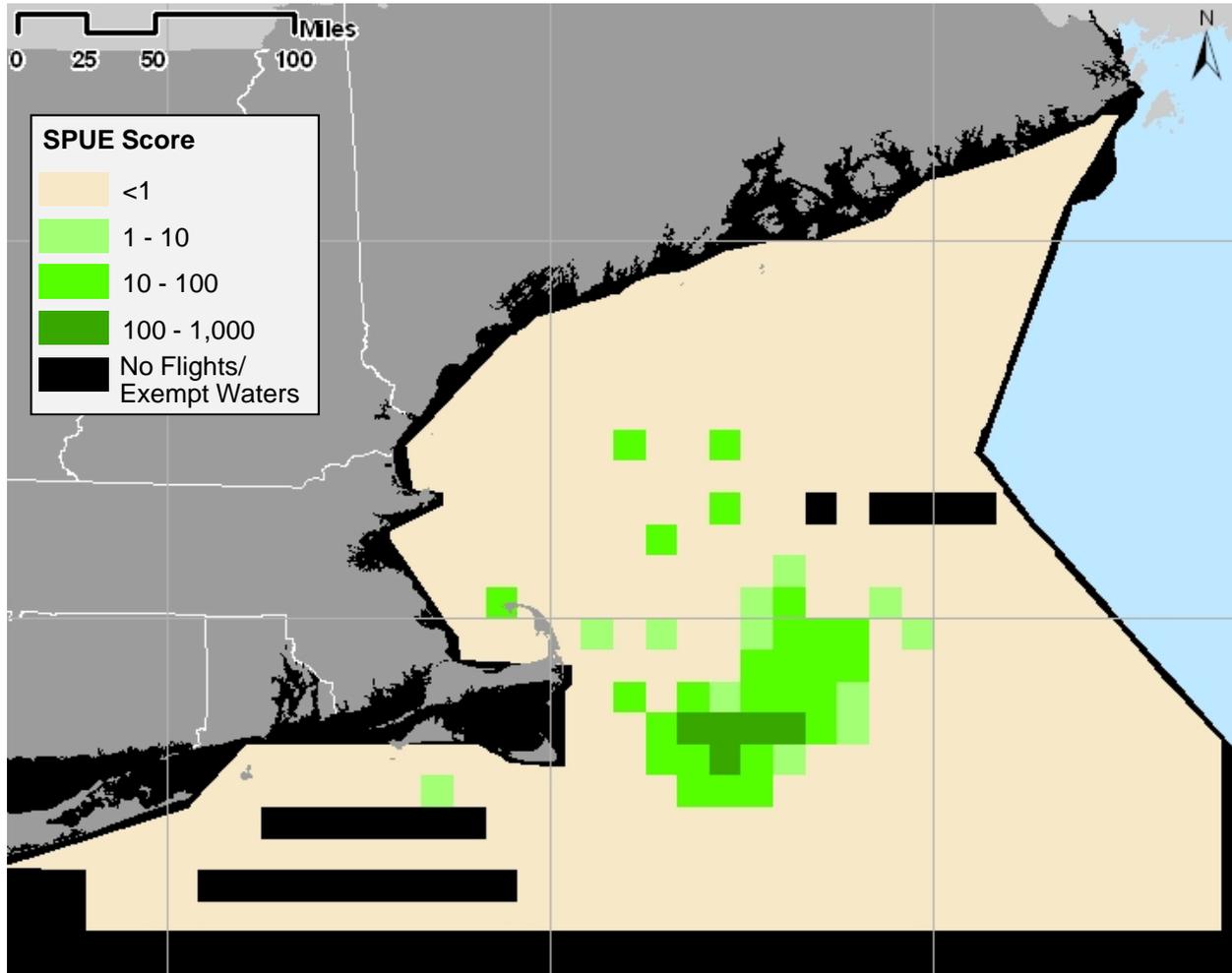


Right Whale SPUE (2002-2007) April



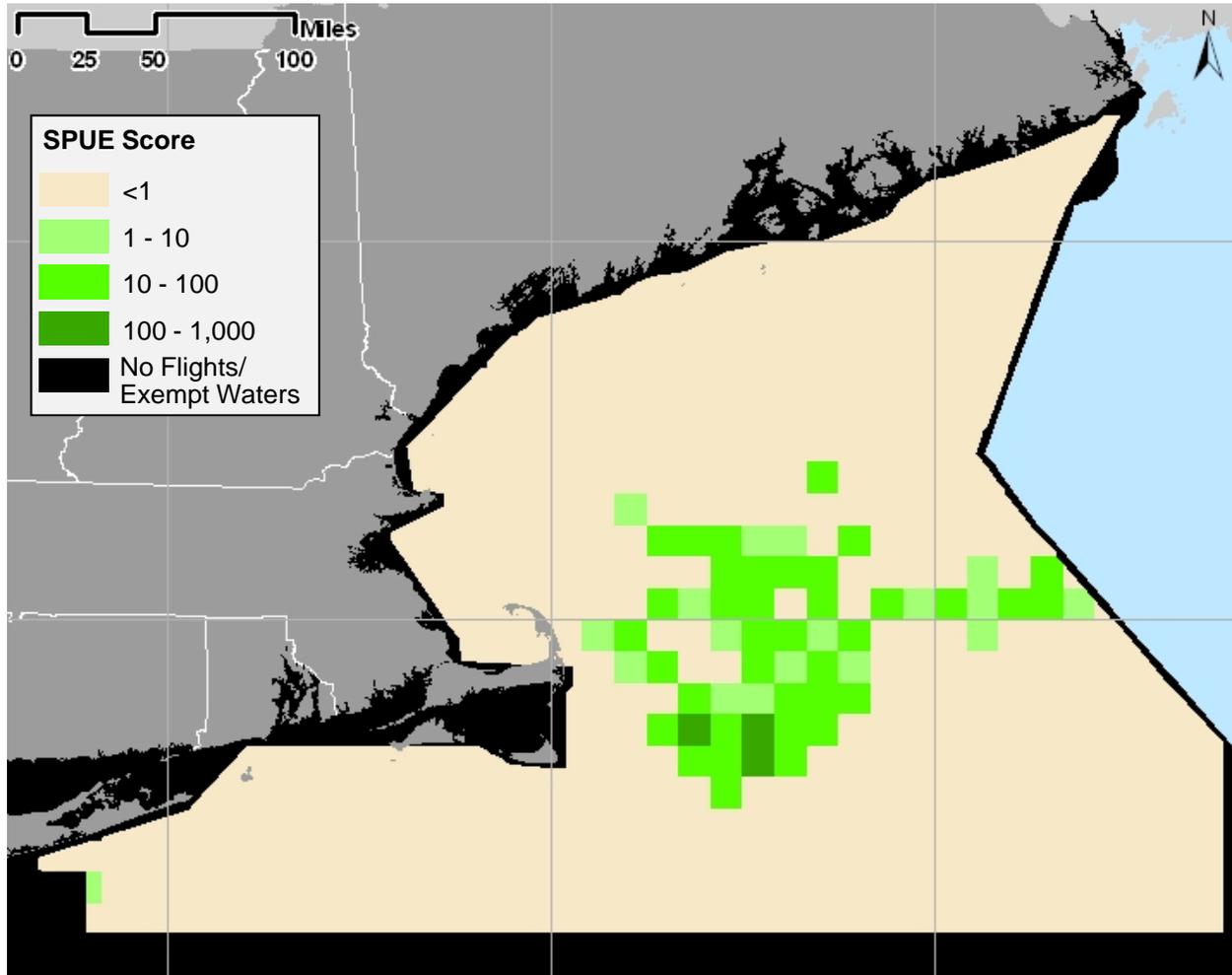


Right Whale SPUE (2002-2007) May



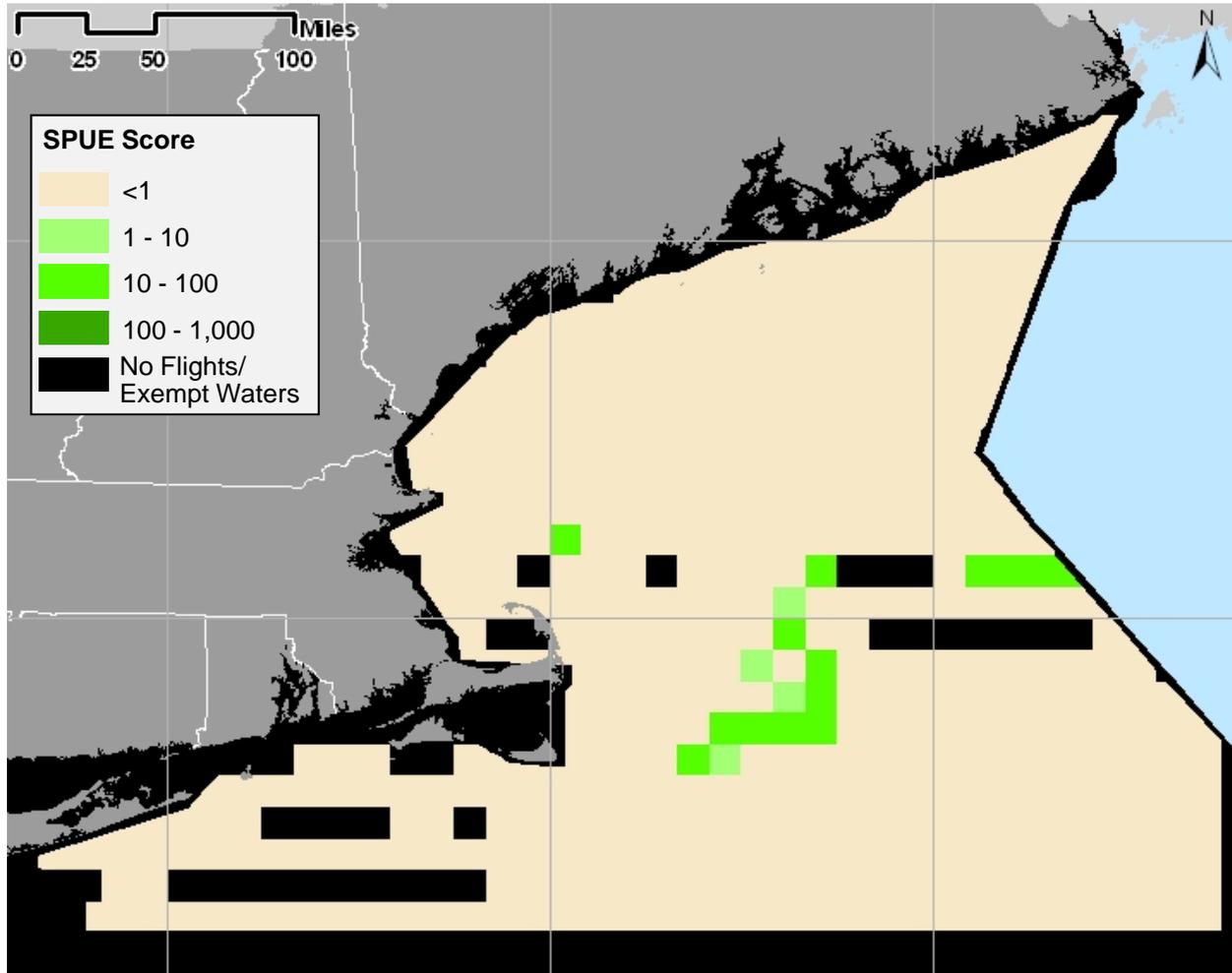


Right Whale SPUE (2002-2007) June



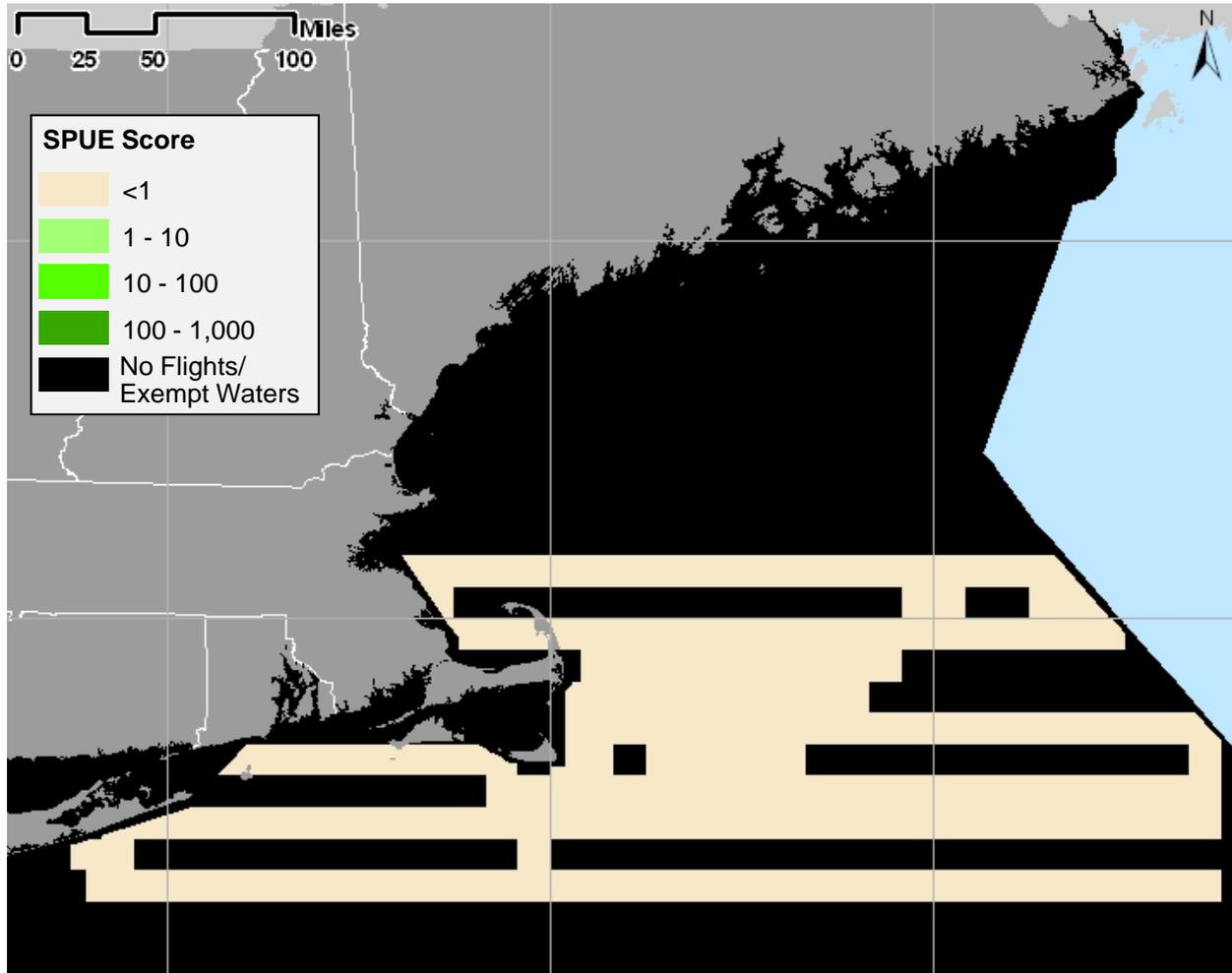


Right Whale SPUE (2002-2007) July



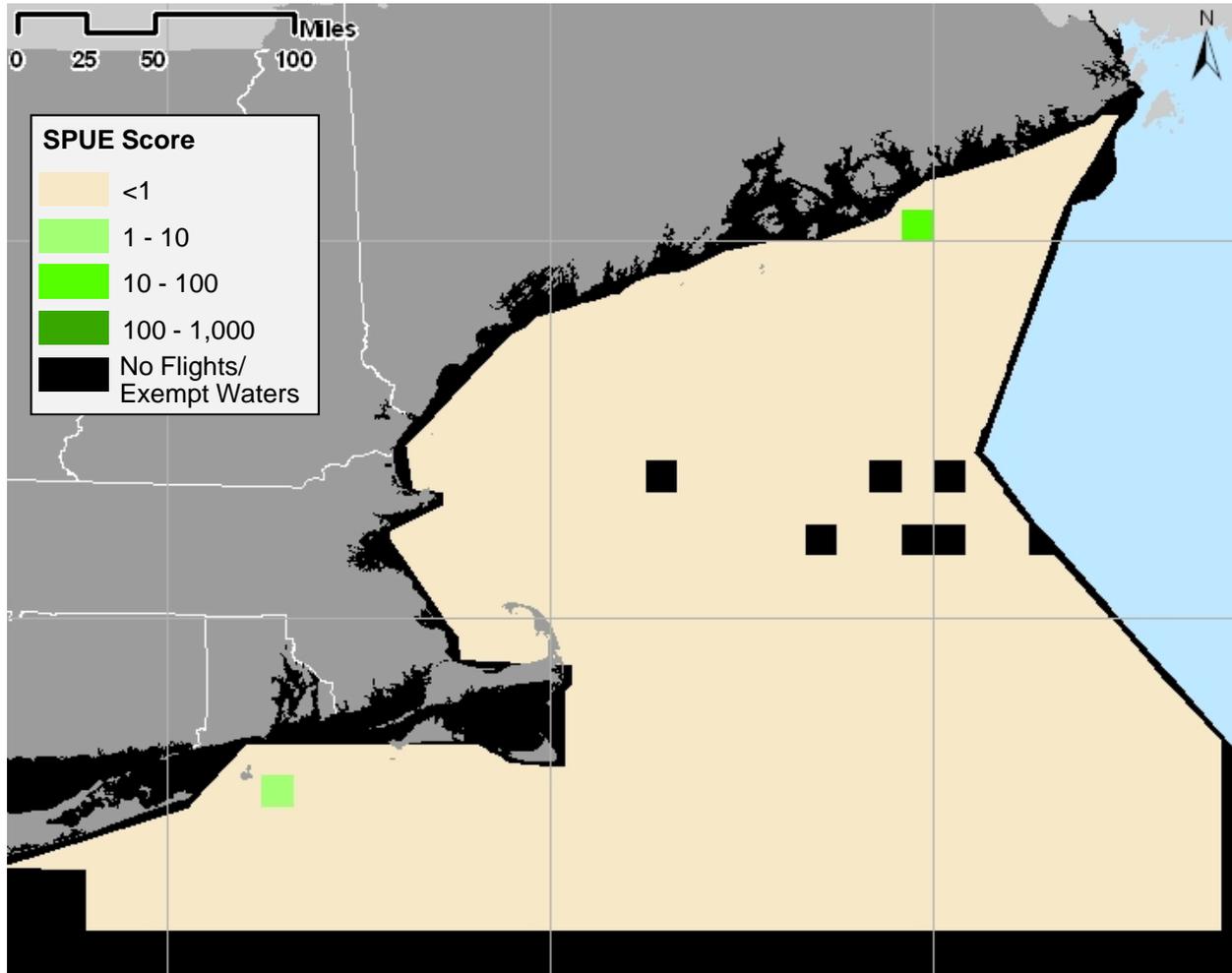


Right Whale SPUE (2002-2007) August



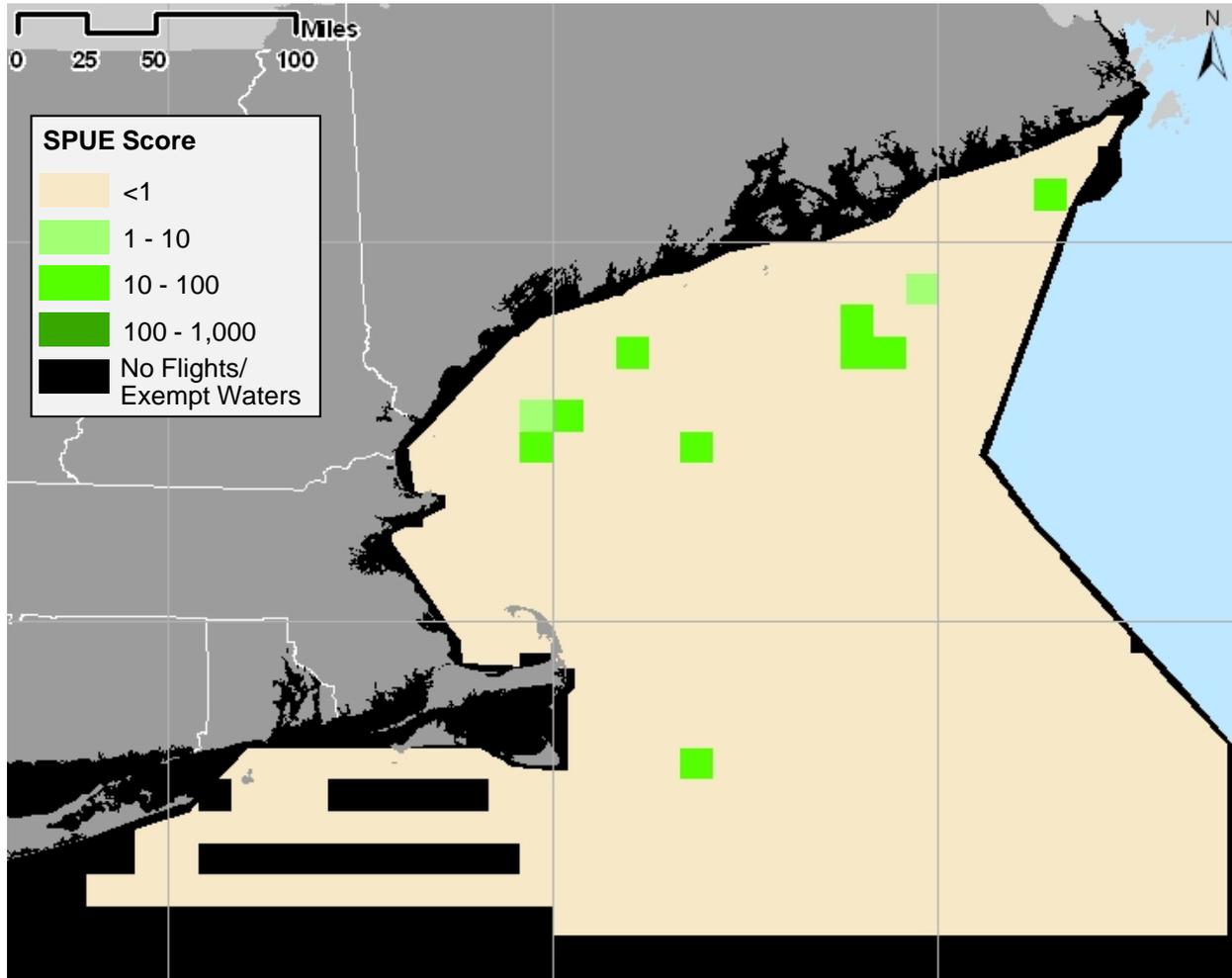


Right Whale SPUE (2002-2007) September



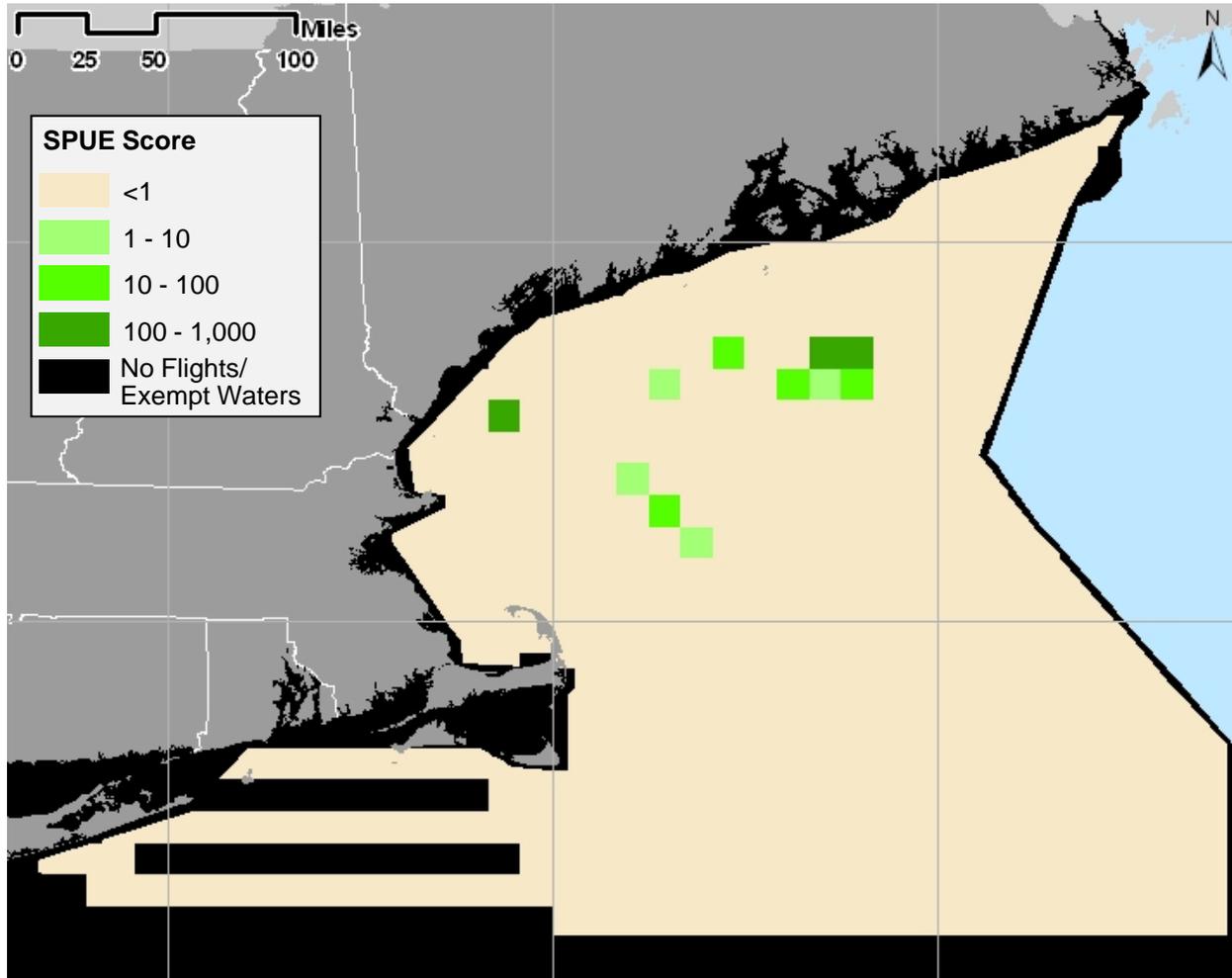


Right Whale SPUE (2002-2007) October



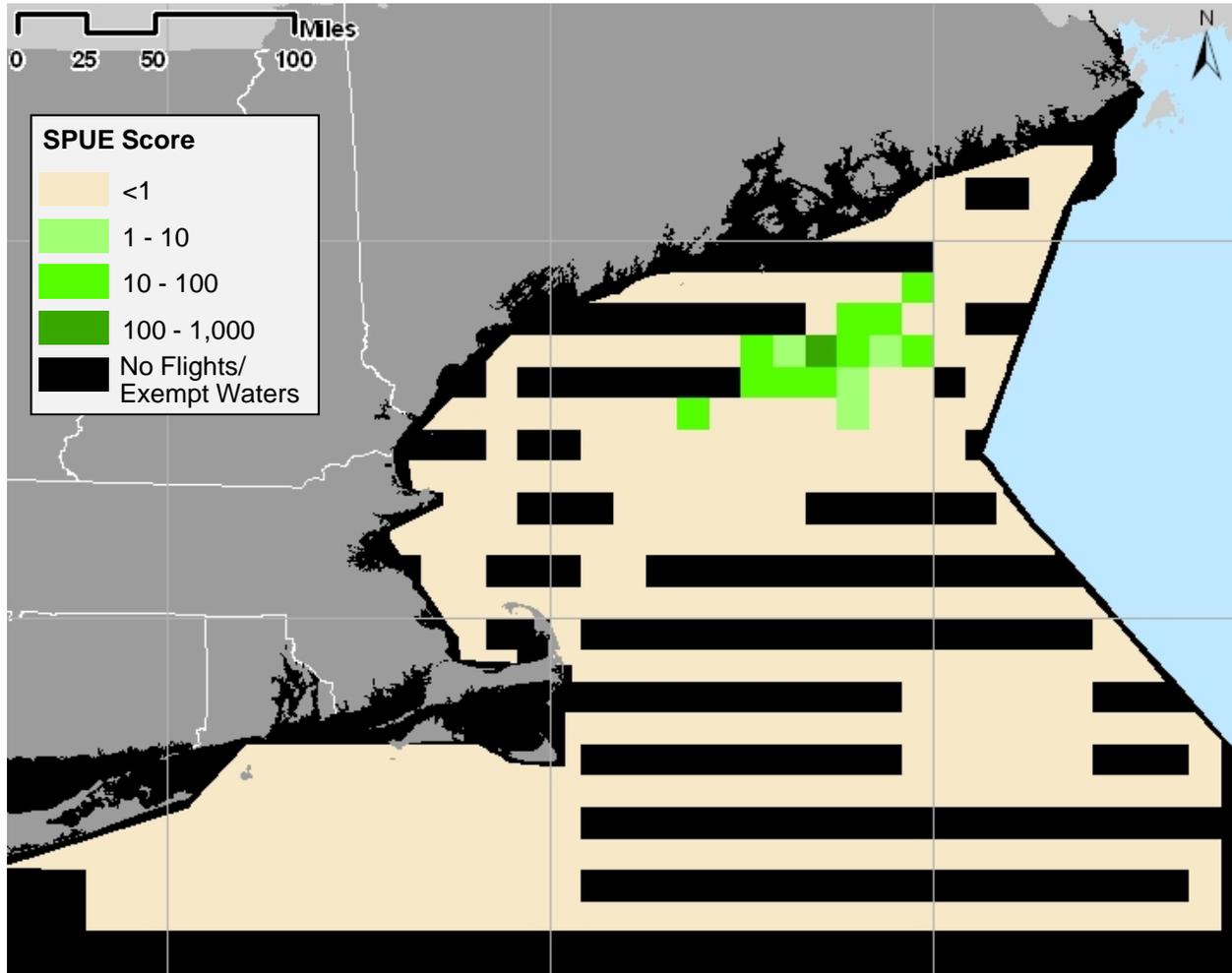


Right Whale SPUE (2002-2007) November



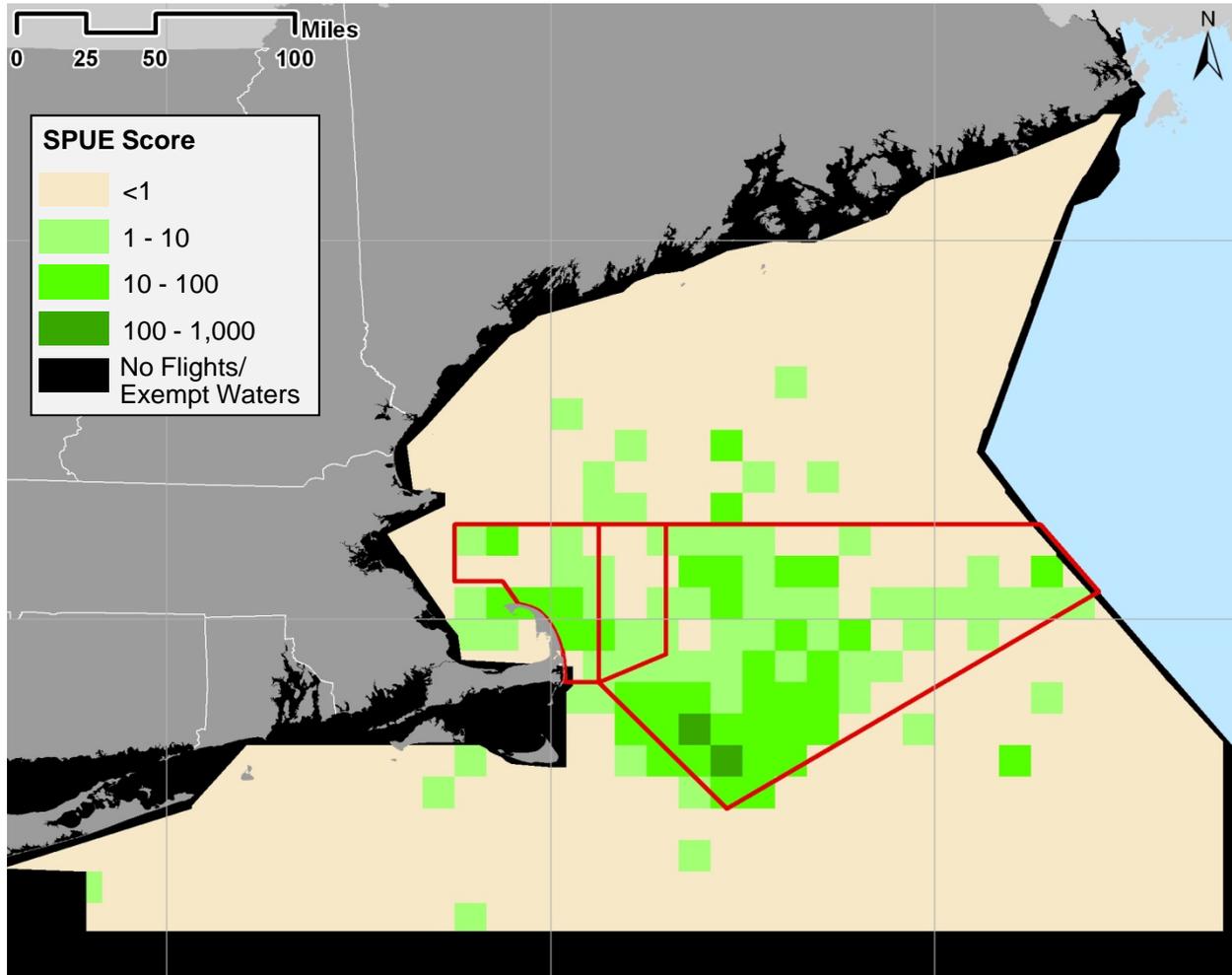


Right Whale SPUE (2002-2007) December



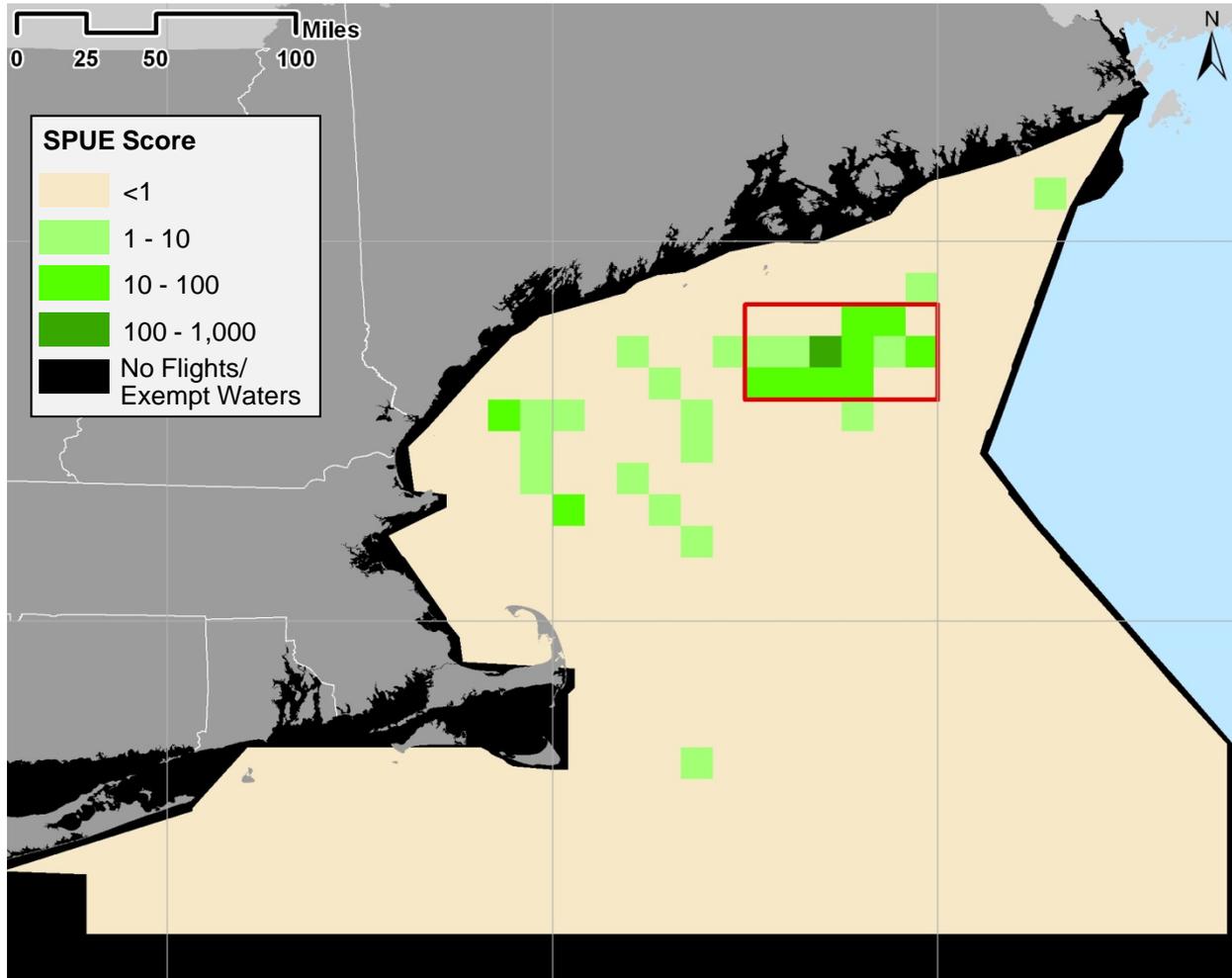


Right Whale SPUE (2002-2007) SAM West & East ~ March-June





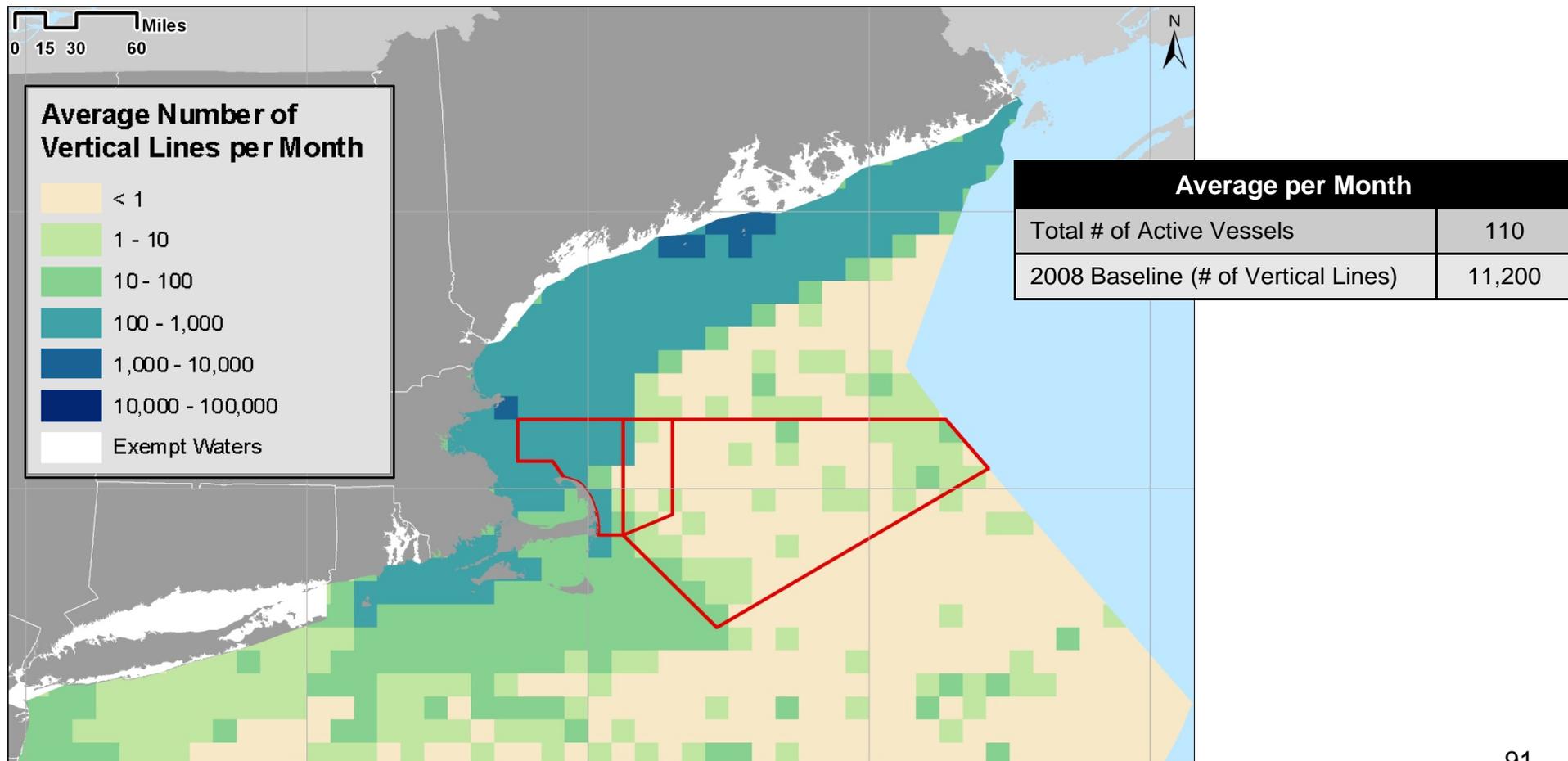
Right Whale SPUE (2002-2007) Area A ~ October-January



AREAS		TIMING	Management Measure
Territorial Range		Year Round	Vertical Line Reduction (%) <ul style="list-style-type: none"> • 3 traps/trawl • 5 traps/trawl • 10 traps/trawl (1 end line) • 10 traps/trawl (2 end lines) • Closure
		Seasonal	
Whale Species	Rights	Year Round	
		Seasonal	
	Humpbacks	Year Round	
		Seasonal	
	Fins	Year Round	
		Seasonal	
	Combined (weighted)	Year Round	
		Seasonal	
Combined (unweighted)	Year Round		
	Seasonal		
Vertical Lines		Year Round	
		Seasonal	
Co-Occurrence	Rights	Year Round	
		Seasonal	
	Humpbacks	Year Round	
		Seasonal	
	Fins	Year Round	
		Seasonal	
	Combined (weighted)	Year Round	
		Seasonal	
	Combined (unweighted)	Year Round	
		Seasonal	

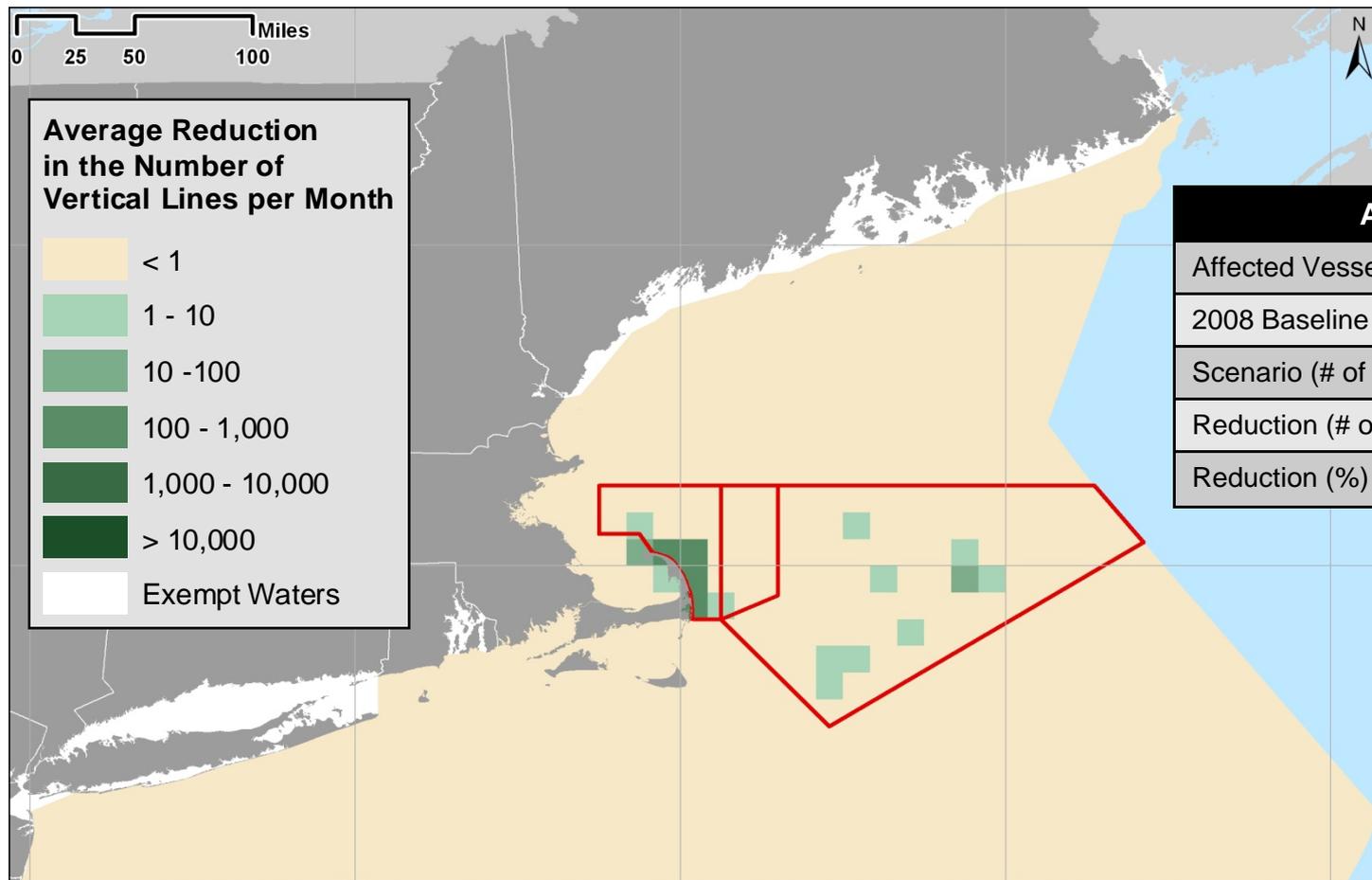


2008 Baseline (All Fisheries) SAM East/West ~ March-June





Minimum 3 Traps/Trawl (1 Endline) SAM East/West ~ March-June



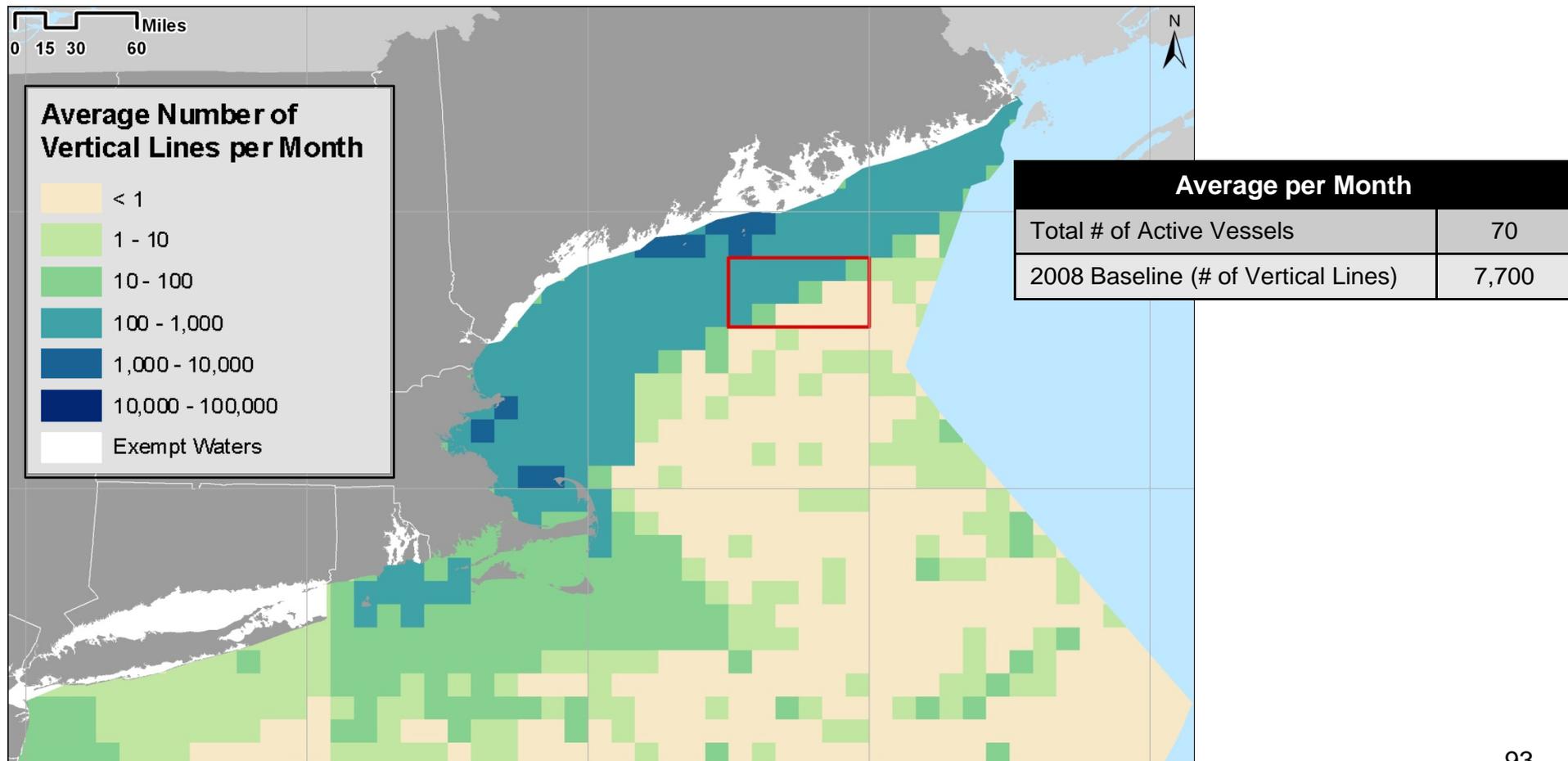
Average Reduction in the Number of Vertical Lines per Month

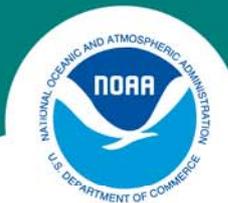
Lightest Yellow	< 1
Light Green	1 - 10
Medium Green	10 - 100
Dark Green	100 - 1,000
Very Dark Green	1,000 - 10,000
Darkest Green	> 10,000
White	Exempt Waters

Average per Month	
Affected Vessels	10
2008 Baseline (# of Vertical Lines)	11,200
Scenario (# of Vertical Lines)	9,100
Reduction (# of Vertical Lines)	2,100
Reduction (%)	19%

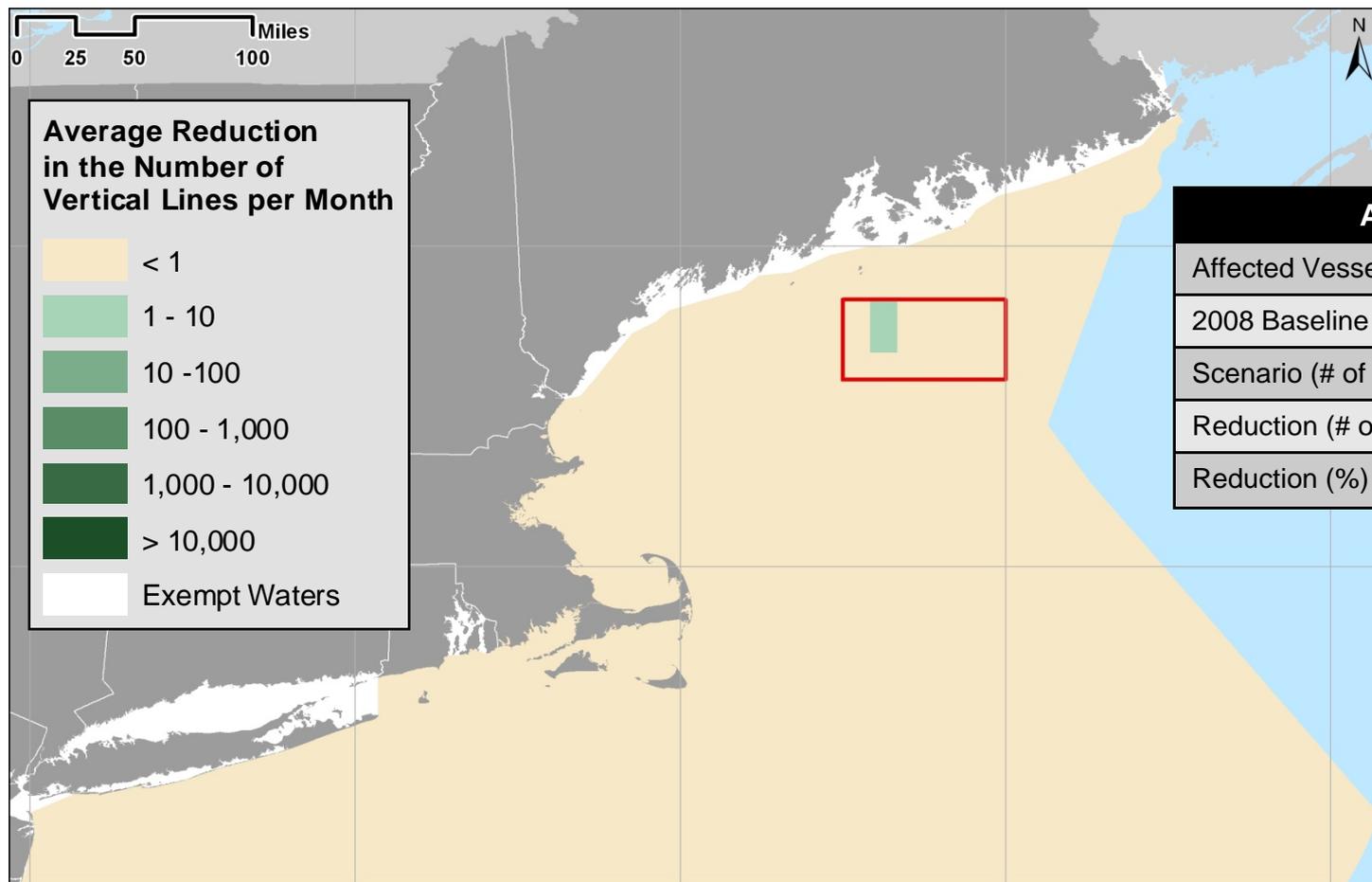


2008 Baseline (All Fisheries) Area A ~ October-January





Minimum 3 Traps/Trawl (1 Endline) Area A ~ October-January



Average Reduction in the Number of Vertical Lines per Month

Light yellow	< 1
Light green	1 - 10
Medium green	10 - 100
Dark green	100 - 1,000
Very dark green	1,000 - 10,000
Black	> 10,000
White	Exempt Waters

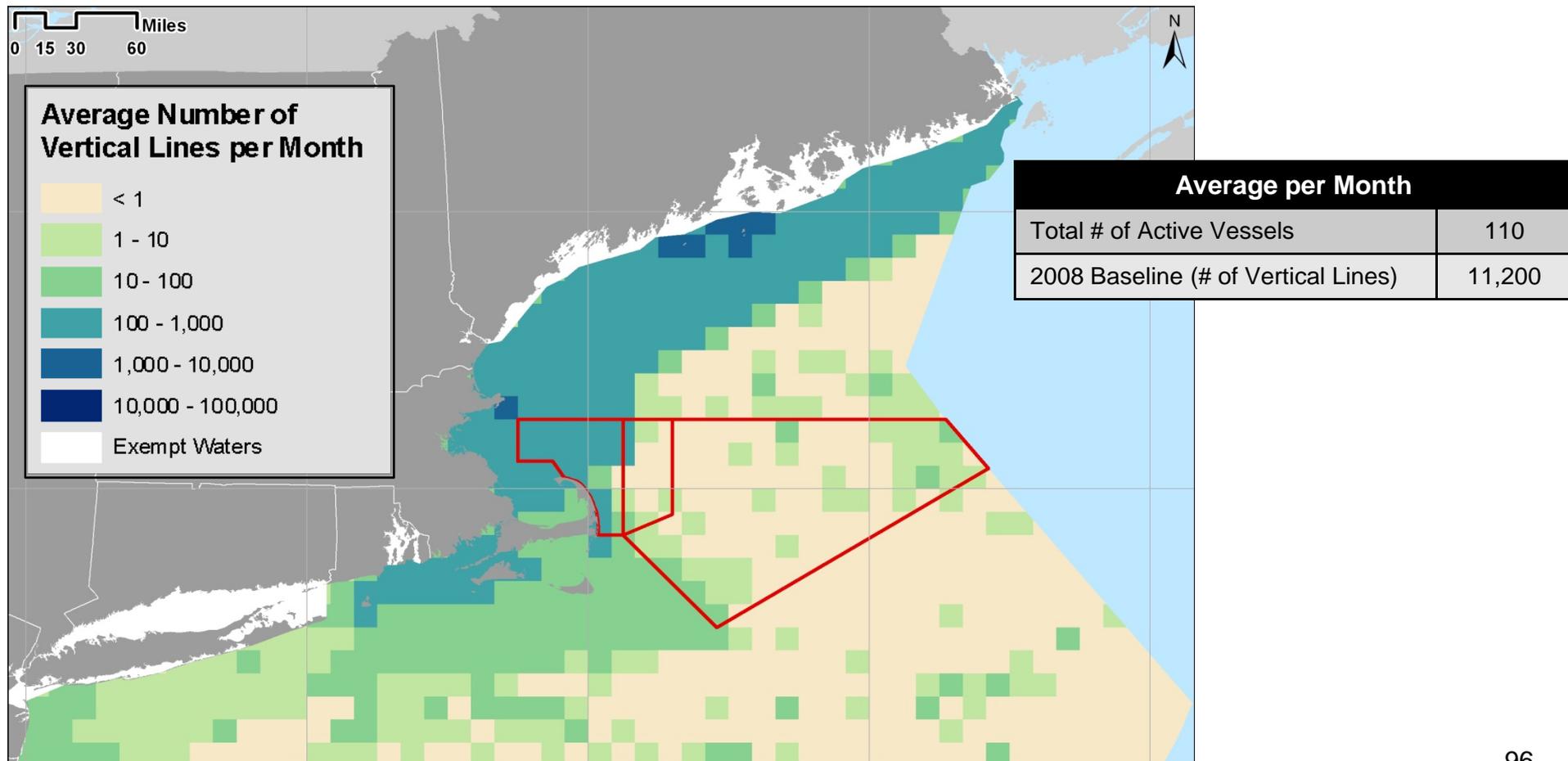
Average per Month

Affected Vessels	<10
2008 Baseline (# of Vertical Lines)	7,700
Scenario (# of Vertical Lines)	~7,700
Reduction (# of Vertical Lines)	<100
Reduction (%)	<1%

AREAS		TIMING	Management Measure
Territorial Range		Year Round	Vertical Line Reduction (%) <ul style="list-style-type: none"> • 3 traps/trawl • 5 traps/trawl • 10 traps/trawl (1 end line) • 10 traps/trawl (2 end lines) • Closure
		Seasonal	
Whale Species	Rights	Year Round	
		Seasonal	
	Humpbacks	Year Round	
		Seasonal	
	Fins	Year Round	
		Seasonal	
	Combined (weighted)	Year Round	
		Seasonal	
Combined (unweighted)	Year Round		
	Seasonal		
Vertical Lines		Year Round	
		Seasonal	
Co-Occurrence	Rights	Year Round	
		Seasonal	
	Humpbacks	Year Round	
		Seasonal	
	Fins	Year Round	
		Seasonal	
	Combined (weighted)	Year Round	
		Seasonal	
	Combined (unweighted)	Year Round	
		Seasonal	

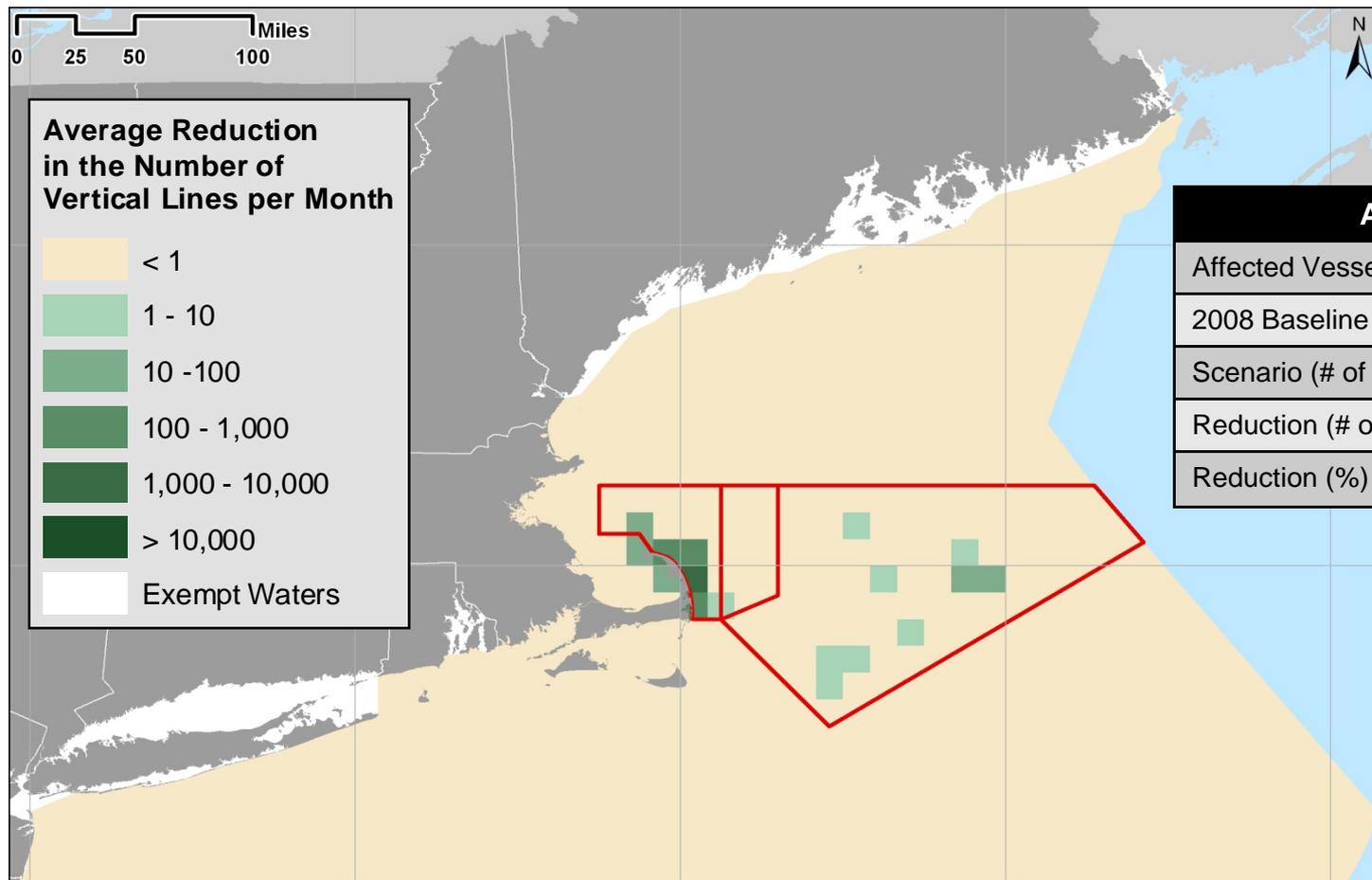


2008 Baseline (All Fisheries) SAM East/West ~ March-June





Minimum 5 Traps/Trawl (1 Endline) SAM East/West ~ March-June



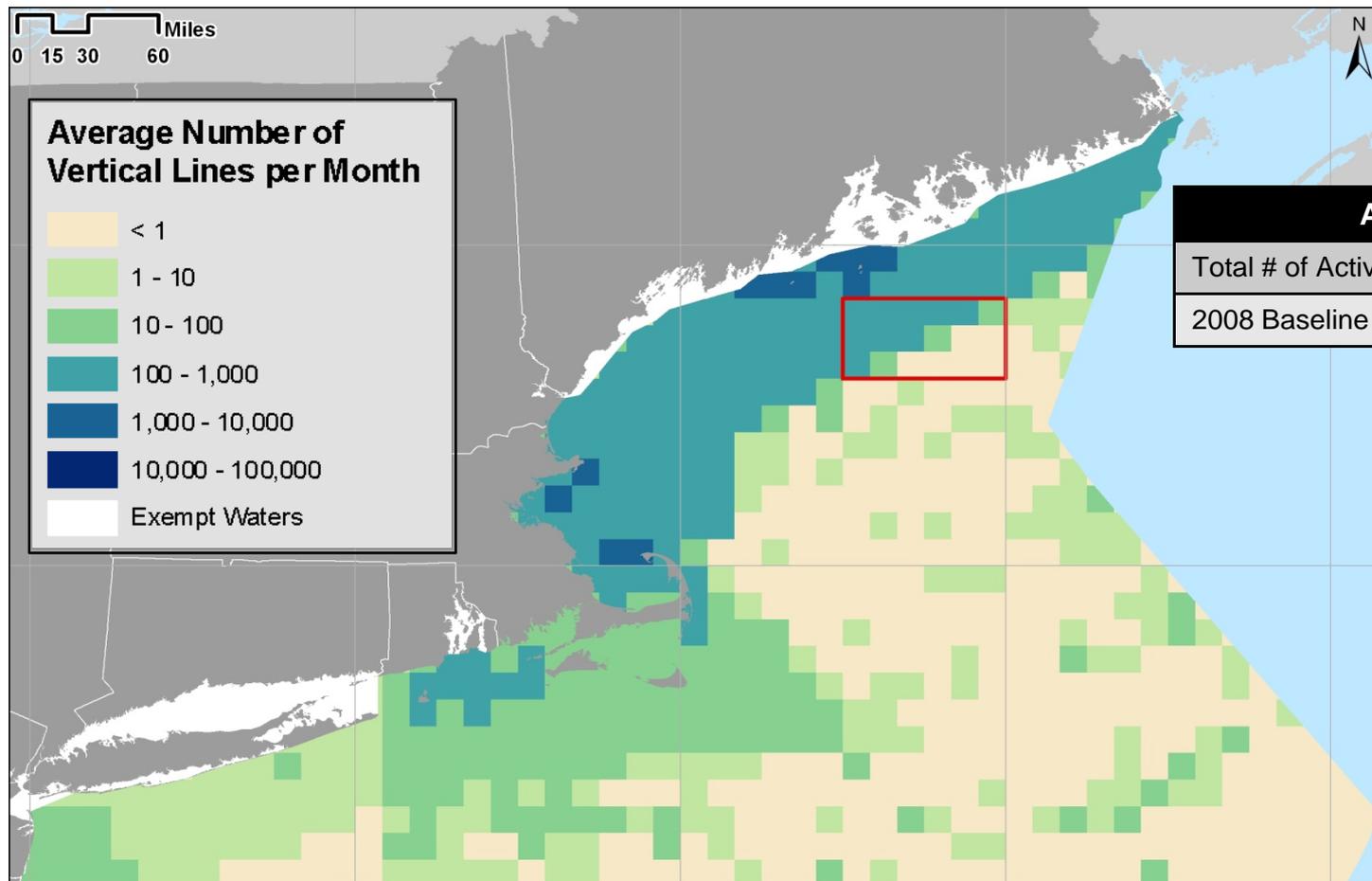
Average Reduction in the Number of Vertical Lines per Month

Lightest Yellow	< 1
Light Green	1 - 10
Medium Green	10 - 100
Dark Green	100 - 1,000
Very Dark Green	1,000 - 10,000
Black	> 10,000
White	Exempt Waters

Average per Month	
Affected Vessels	10
2008 Baseline (# of Vertical Lines)	11,200
Scenario (# of Vertical Lines)	8,700
Reduction (# of Vertical Lines)	2,500
Reduction (%)	22%



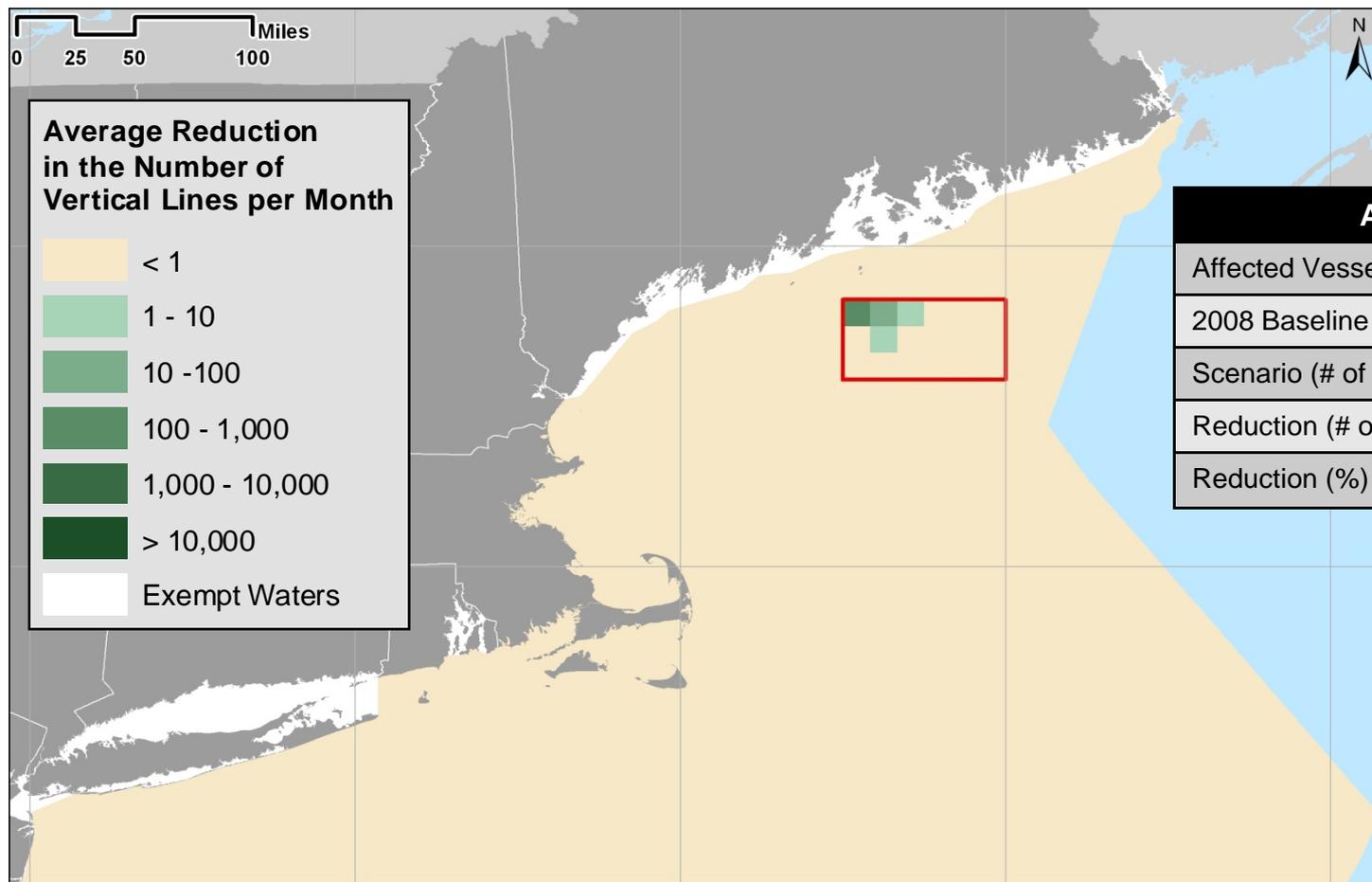
2008 Baseline (All Fisheries) Area A ~ October-January



Average per Month	
Total # of Active Vessels	70
2008 Baseline (# of Vertical Lines)	7,700



Minimum 5 Traps/Trawl (1 Endline) Area A ~ October-January



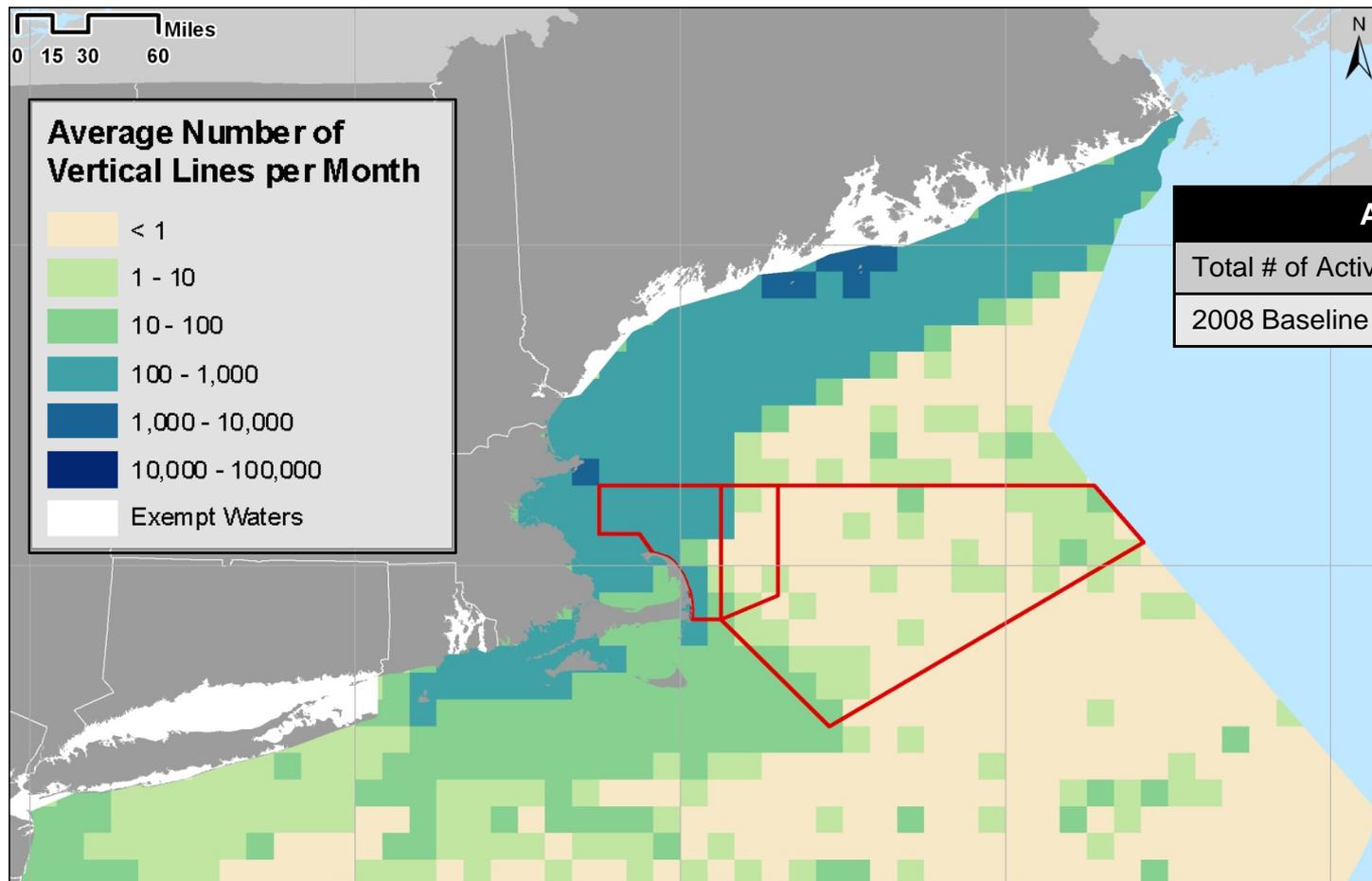
Average per Month	
Affected Vessels	10
2008 Baseline (# of Vertical Lines)	7,700
Scenario (# of Vertical Lines)*	7,400
Reduction (# of Vertical Lines)*	400
Reduction (%)	5%

*Do not sum due to rounding.

AREAS		TIMING	Management Measure
Territorial Range		Year Round	Vertical Line Reduction (%) <ul style="list-style-type: none"> • 3 traps/trawl • 5 traps/trawl • 10 traps/trawl (1 end line) • 10 traps/trawl (2 end lines) • Closure
		Seasonal	
Whale Species	Rights	Year Round	
		Seasonal	
	Humpbacks	Year Round	
		Seasonal	
	Fins	Year Round	
		Seasonal	
	Combined (weighted)	Year Round	
		Seasonal	
Combined (unweighted)	Year Round		
	Seasonal		
Vertical Lines		Year Round	
		Seasonal	
Co-Occurrence	Rights	Year Round	
		Seasonal	
	Humpbacks	Year Round	
		Seasonal	
	Fins	Year Round	
		Seasonal	
	Combined (weighted)	Year Round	
		Seasonal	
	Combined (unweighted)	Year Round	
		Seasonal	



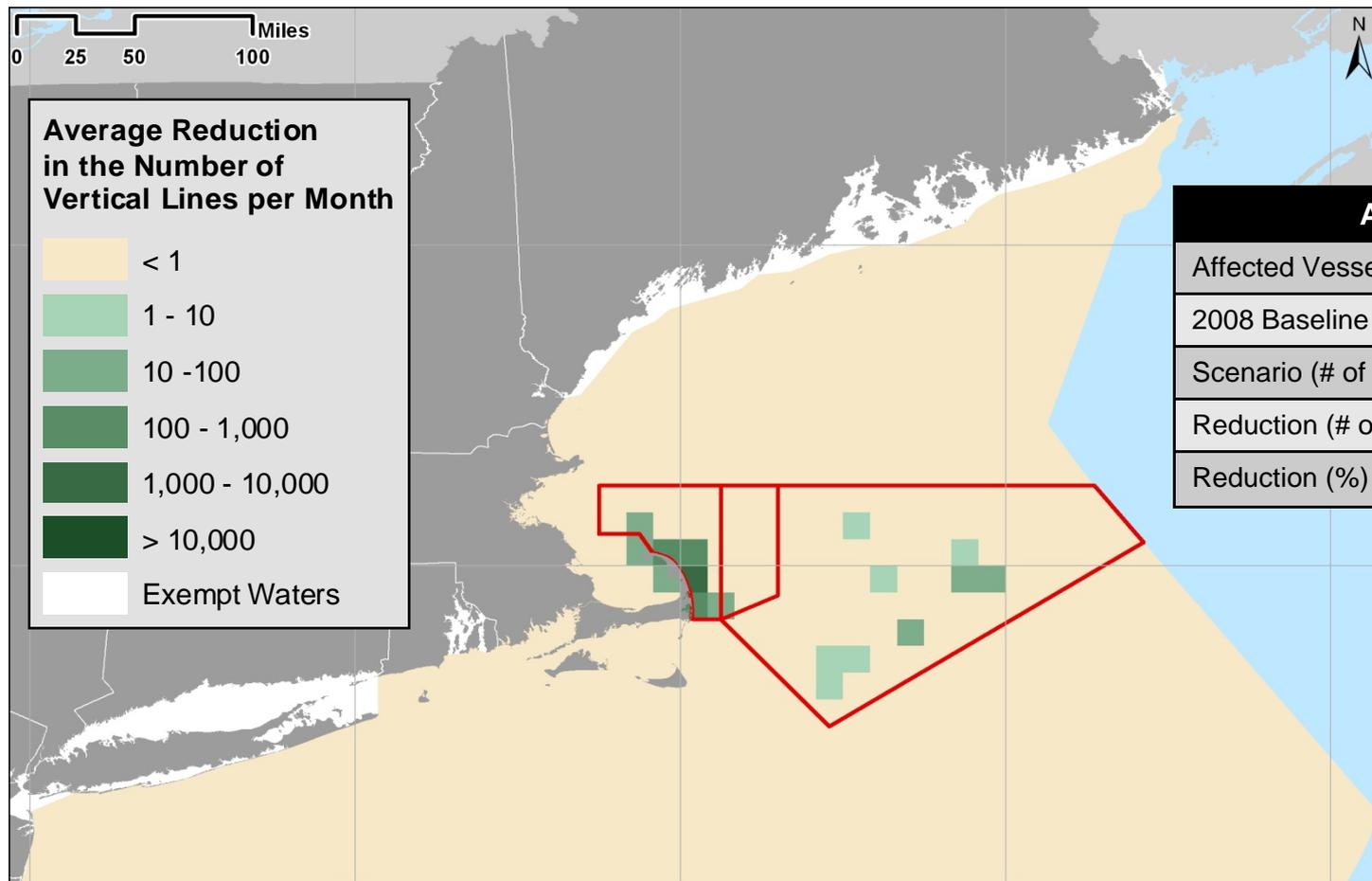
2008 Baseline (All Fisheries) SAM East/West ~ March-June



Average per Month	
Total # of Active Vessels	110
2008 Baseline (# of Vertical Lines)	11,200



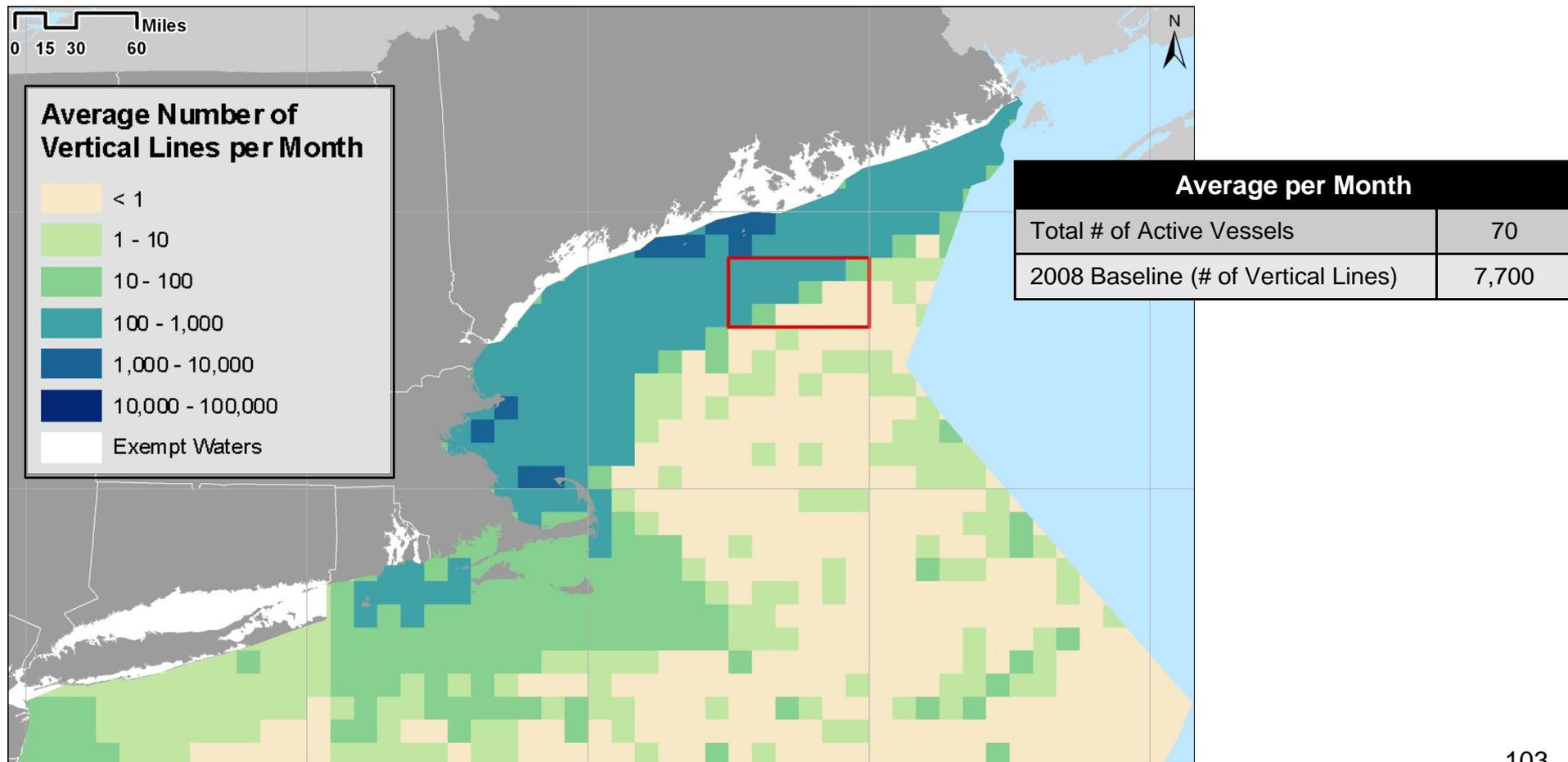
Minimum 10 Traps/Trawl (1 Endline) SAM East/West ~ March-June



Average per Month	
Affected Vessels	10
2008 Baseline (# of Vertical Lines)	11,200
Scenario (# of Vertical Lines)	8,400
Reduction (# of Vertical Lines)	2,900
Reduction (%)	26%

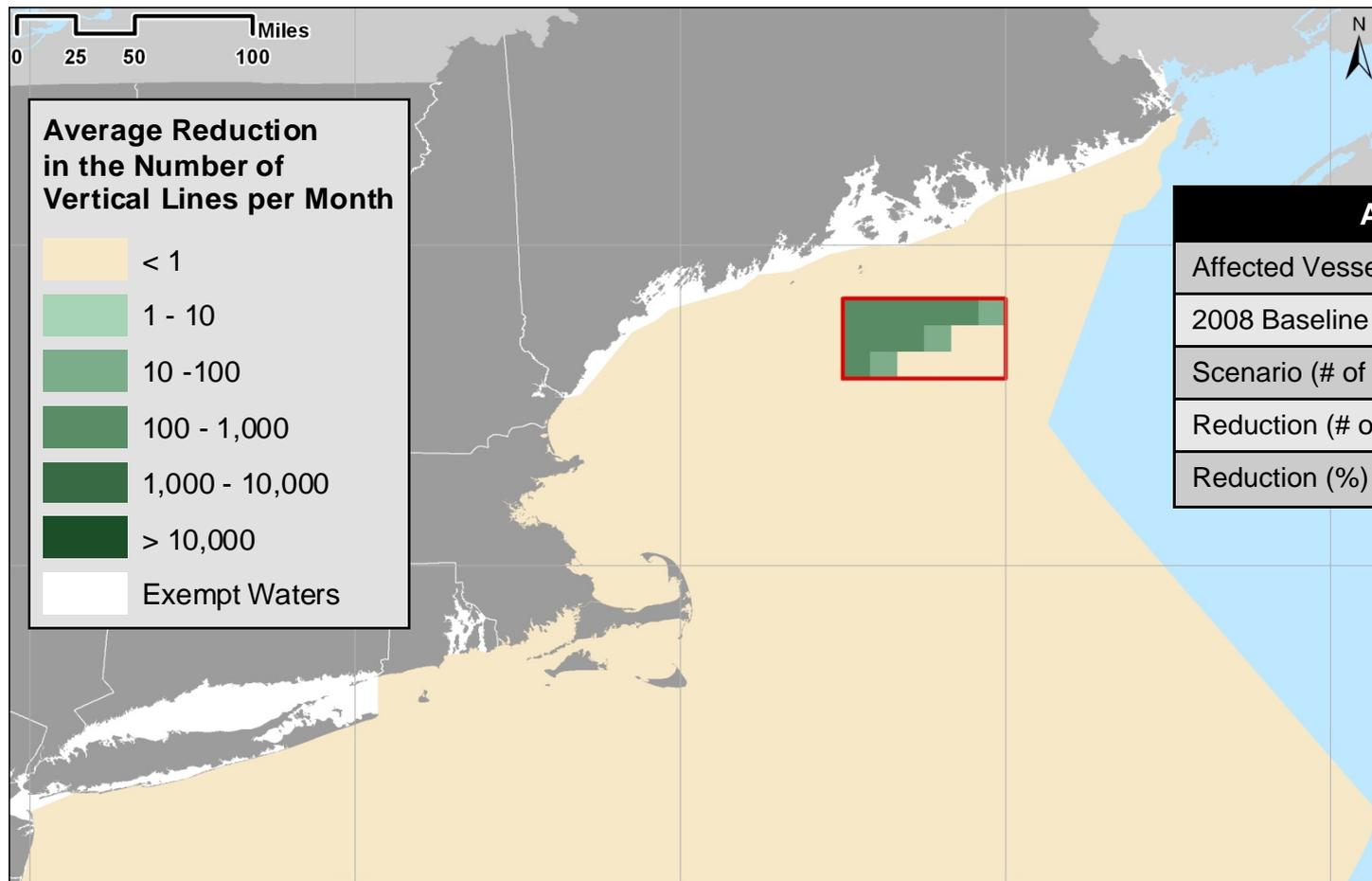


2008 Baseline (All Fisheries) Area A ~ October-January





Minimum 10 Traps/Trawl (1 Endline) Area A ~ October-January

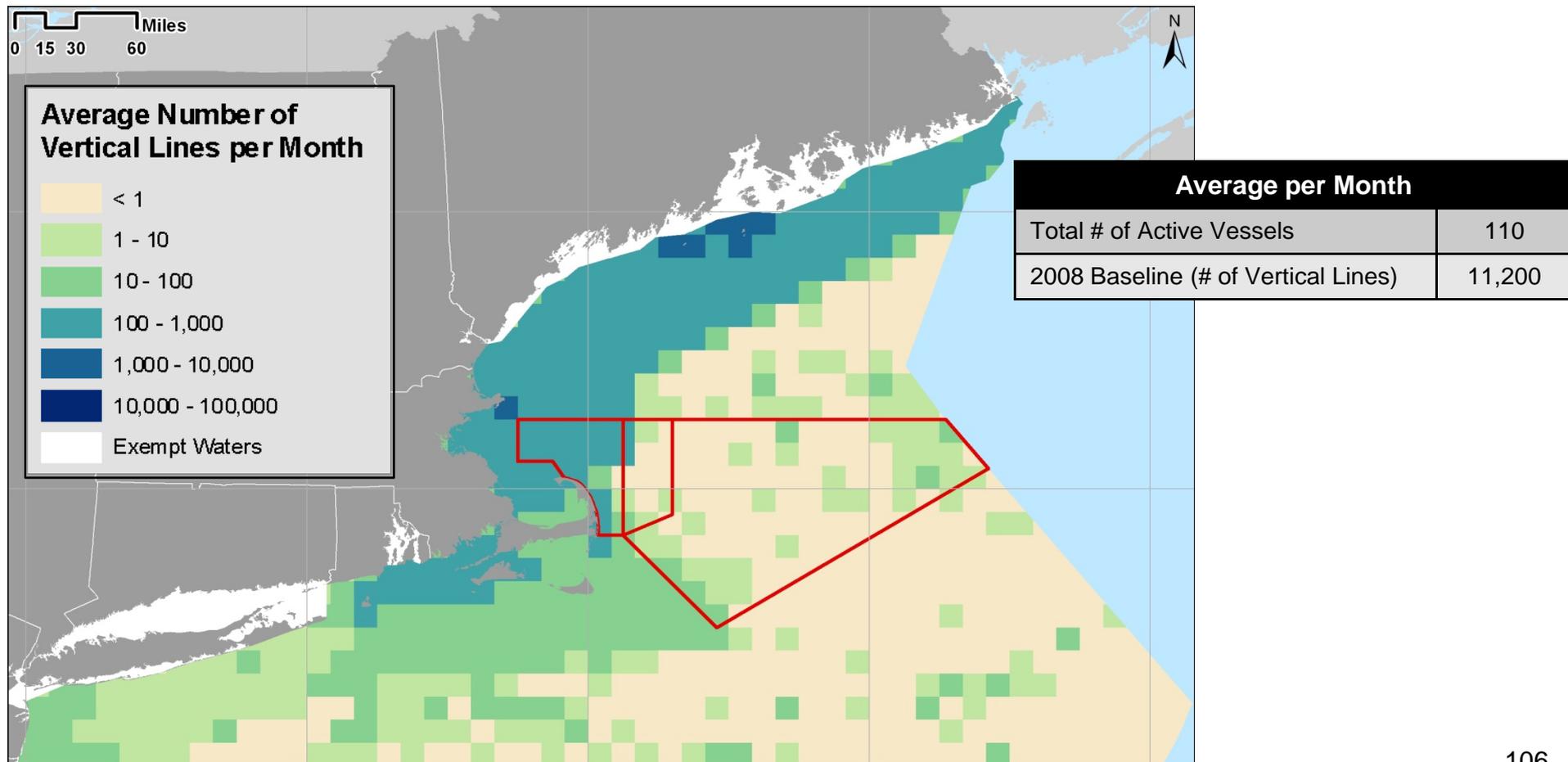


Average per Month	
Affected Vessels	70
2008 Baseline (# of Vertical Lines)	7,700
Scenario (# of Vertical Lines)	2,700
Reduction (# of Vertical Lines)	5,000
Reduction (%)	65%

AREAS		TIMING	Management Measure
Territorial Range		Year Round	Vertical Line Reduction (%) <ul style="list-style-type: none"> • 3 traps/trawl • 5 traps/trawl • 10 traps/trawl (1 end line) • 10 traps/trawl (2 end lines) • Closure
		Seasonal	
Whale Species	Rights	Year Round	
		Seasonal	
	Humpbacks	Year Round	
		Seasonal	
	Fins	Year Round	
		Seasonal	
	Combined (weighted)	Year Round	
		Seasonal	
Combined (unweighted)	Year Round		
	Seasonal		
Vertical Lines		Year Round	
		Seasonal	
Co-Occurrence	Rights	Year Round	
		Seasonal	
	Humpbacks	Year Round	
		Seasonal	
	Fins	Year Round	
		Seasonal	
	Combined (weighted)	Year Round	
		Seasonal	
	Combined (unweighted)	Year Round	
		Seasonal	

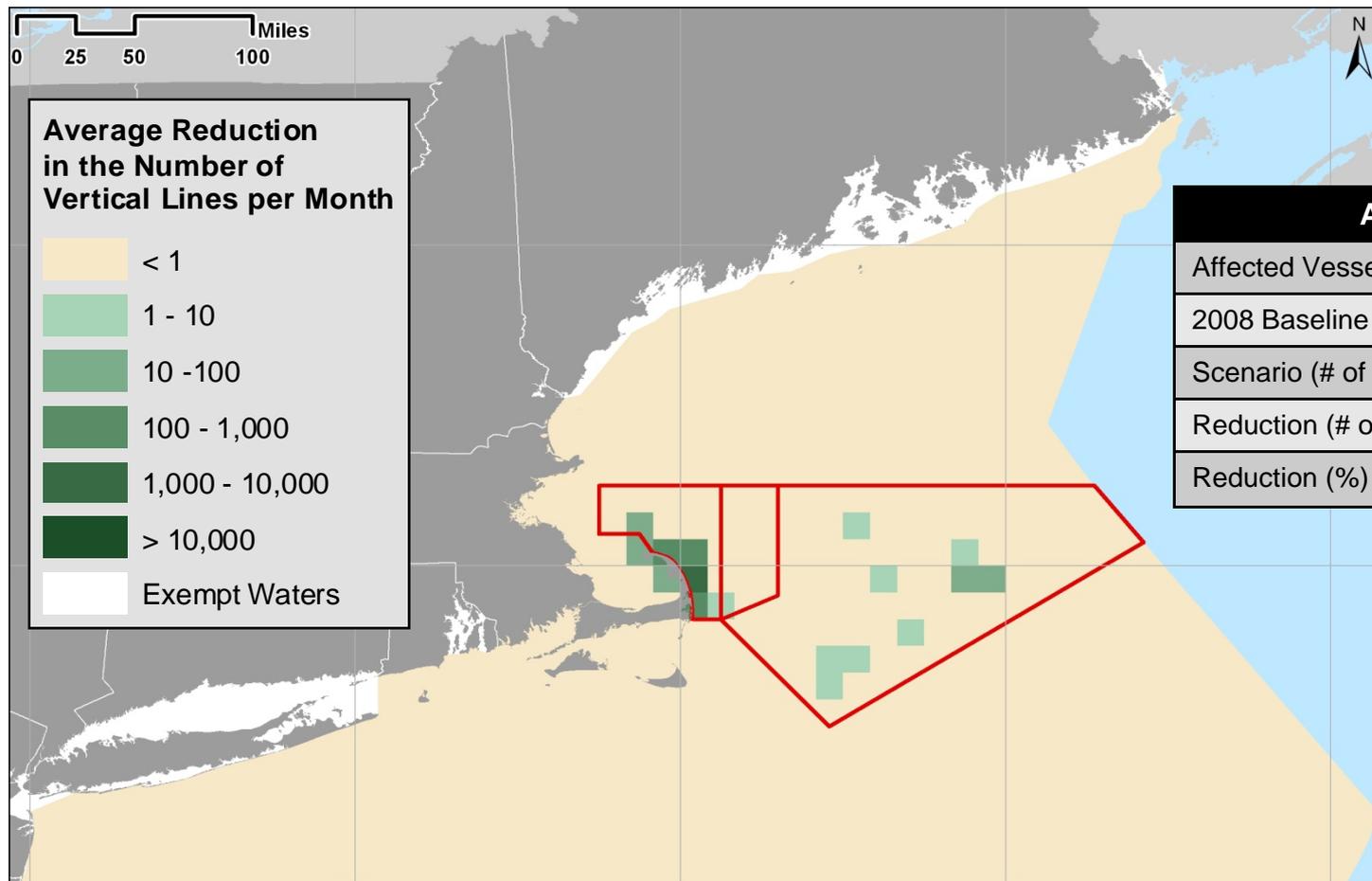


2008 Baseline (All Fisheries) SAM East/West ~ March-June





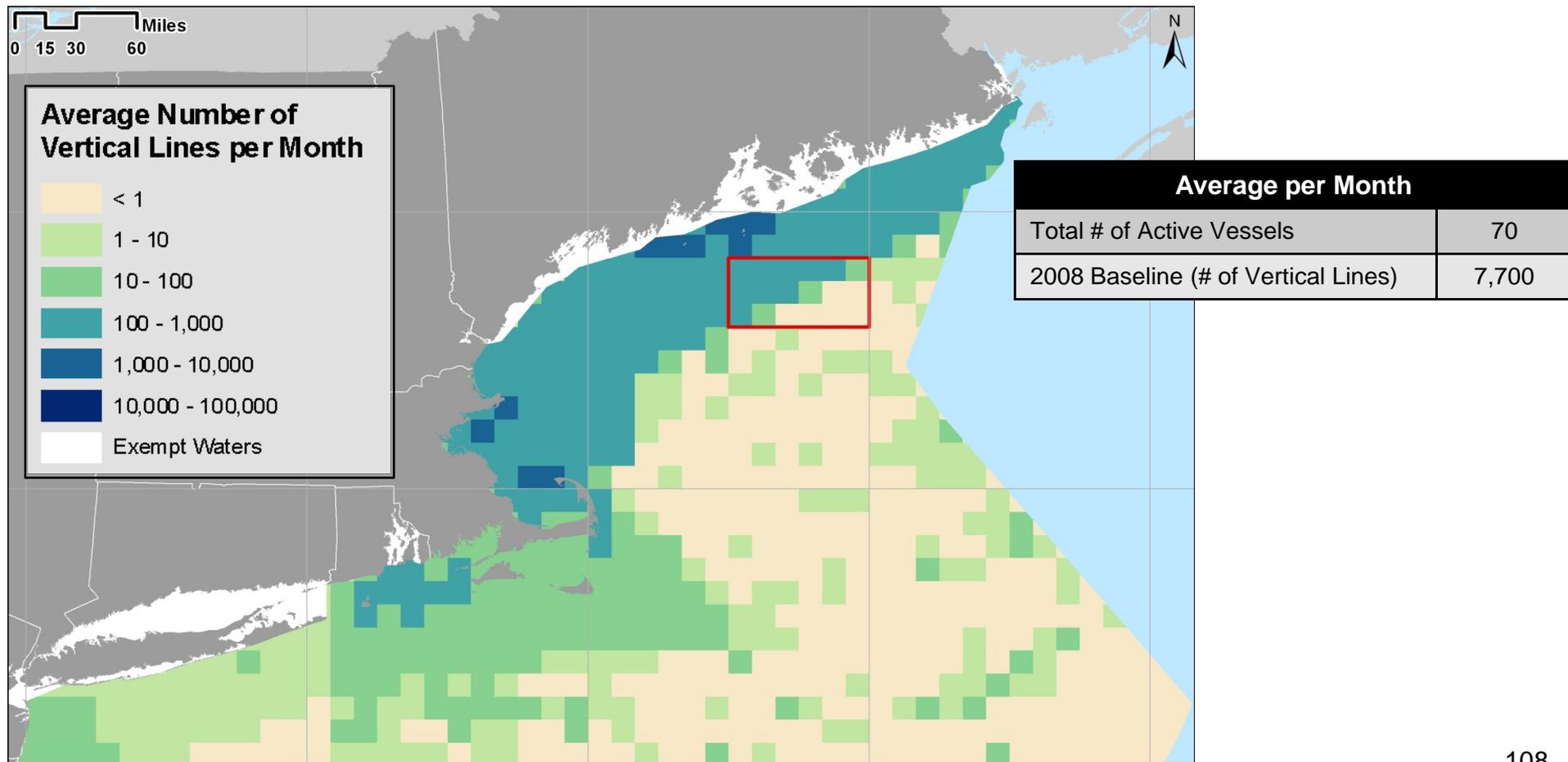
Minimum 10 Traps/Trawl (2 Endlines) SAM East/West ~ March-June



Average per Month	
Affected Vessels	10
2008 Baseline (# of Vertical Lines)	11,200
Scenario (# of Vertical Lines)	8,700
Reduction (# of Vertical Lines)	2,500
Reduction (%)	22%

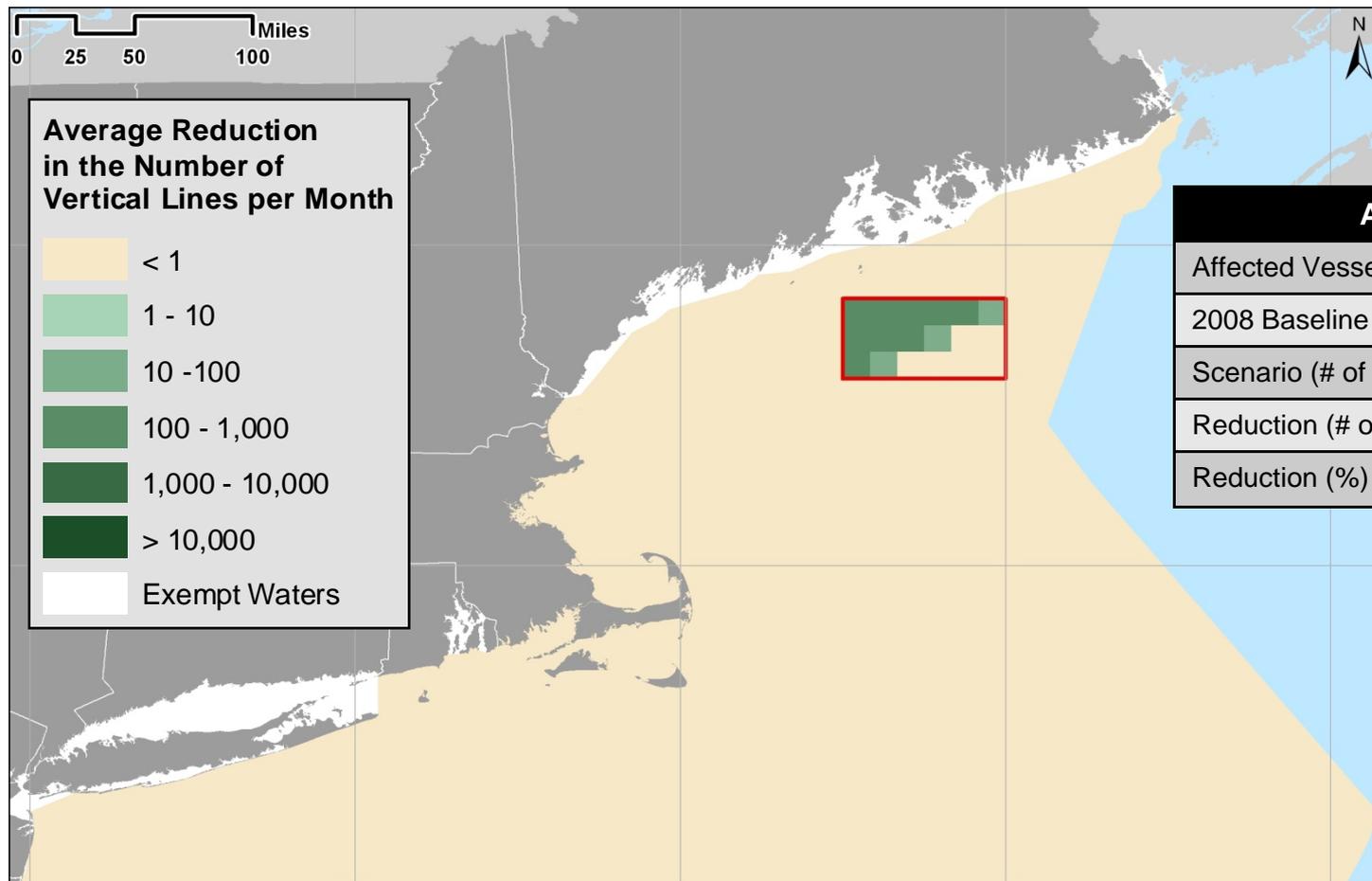


2008 Baseline (All Fisheries) Area A ~ October-January





Minimum 10 Traps/Trawl (2 Endlines) Area A ~ October-January

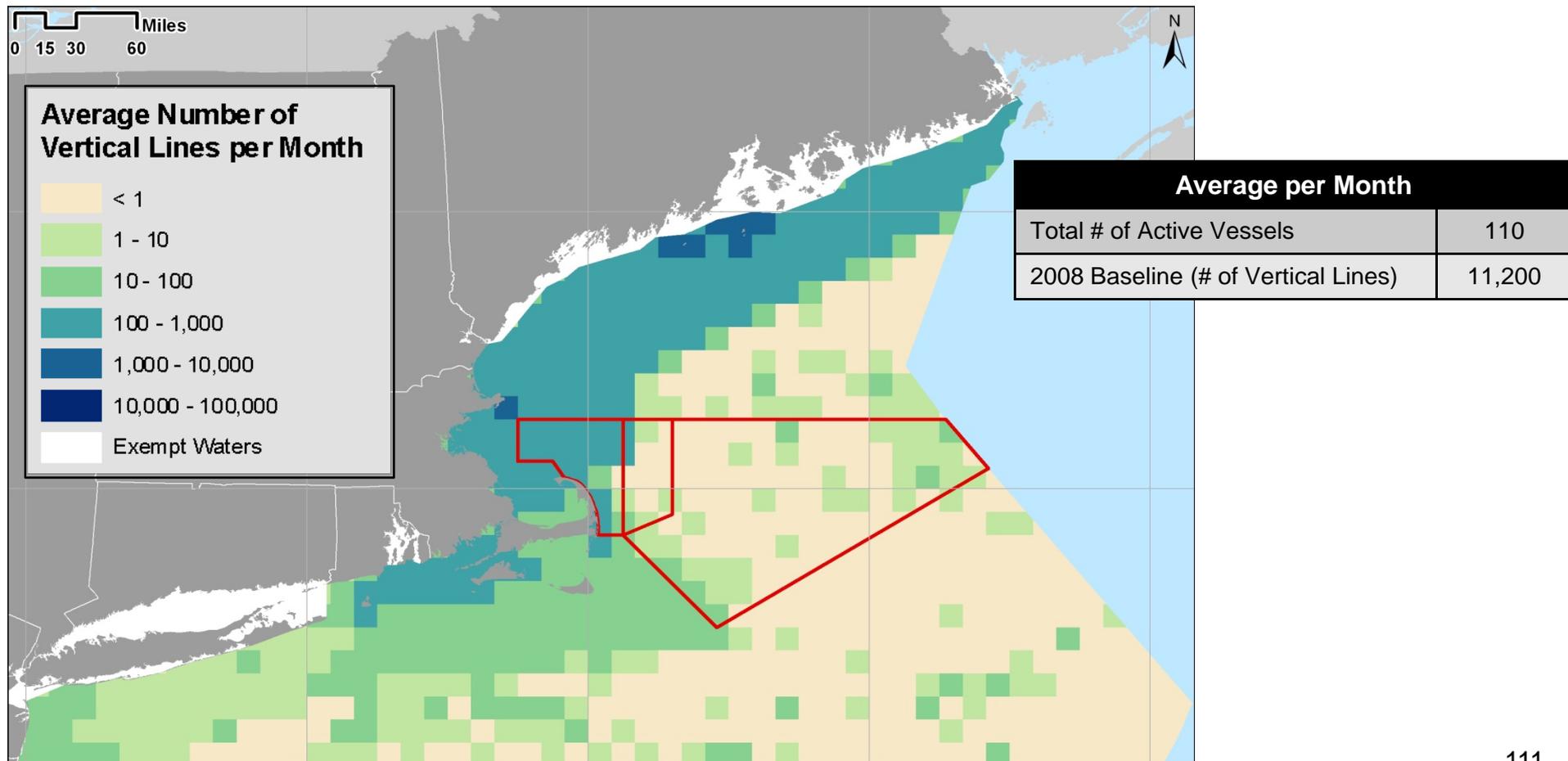


Average per Month	
Affected Vessels	70
2008 Baseline (# of Vertical Lines)	7,700
Scenario (# of Vertical Lines)	5,400
Reduction (# of Vertical Lines)	2,300
Reduction (%)	30%

AREAS		TIMING	Management Measure
Territorial Range		Year Round	Vertical Line Reduction (%) <ul style="list-style-type: none"> • 3 traps/trawl • 5 traps/trawl • 10 traps/trawl (1 end line) • 10 traps/trawl (2 end lines) • Closure
		Seasonal	
Whale Species	Rights	Year Round	
		Seasonal	
	Humpbacks	Year Round	
		Seasonal	
	Fins	Year Round	
		Seasonal	
	Combined (weighted)	Year Round	
		Seasonal	
Combined (unweighted)	Year Round		
	Seasonal		
Vertical Lines		Year Round	
		Seasonal	
Co-Occurrence	Rights	Year Round	
		Seasonal	
	Humpbacks	Year Round	
		Seasonal	
	Fins	Year Round	
		Seasonal	
	Combined (weighted)	Year Round	
		Seasonal	
	Combined (unweighted)	Year Round	
		Seasonal	

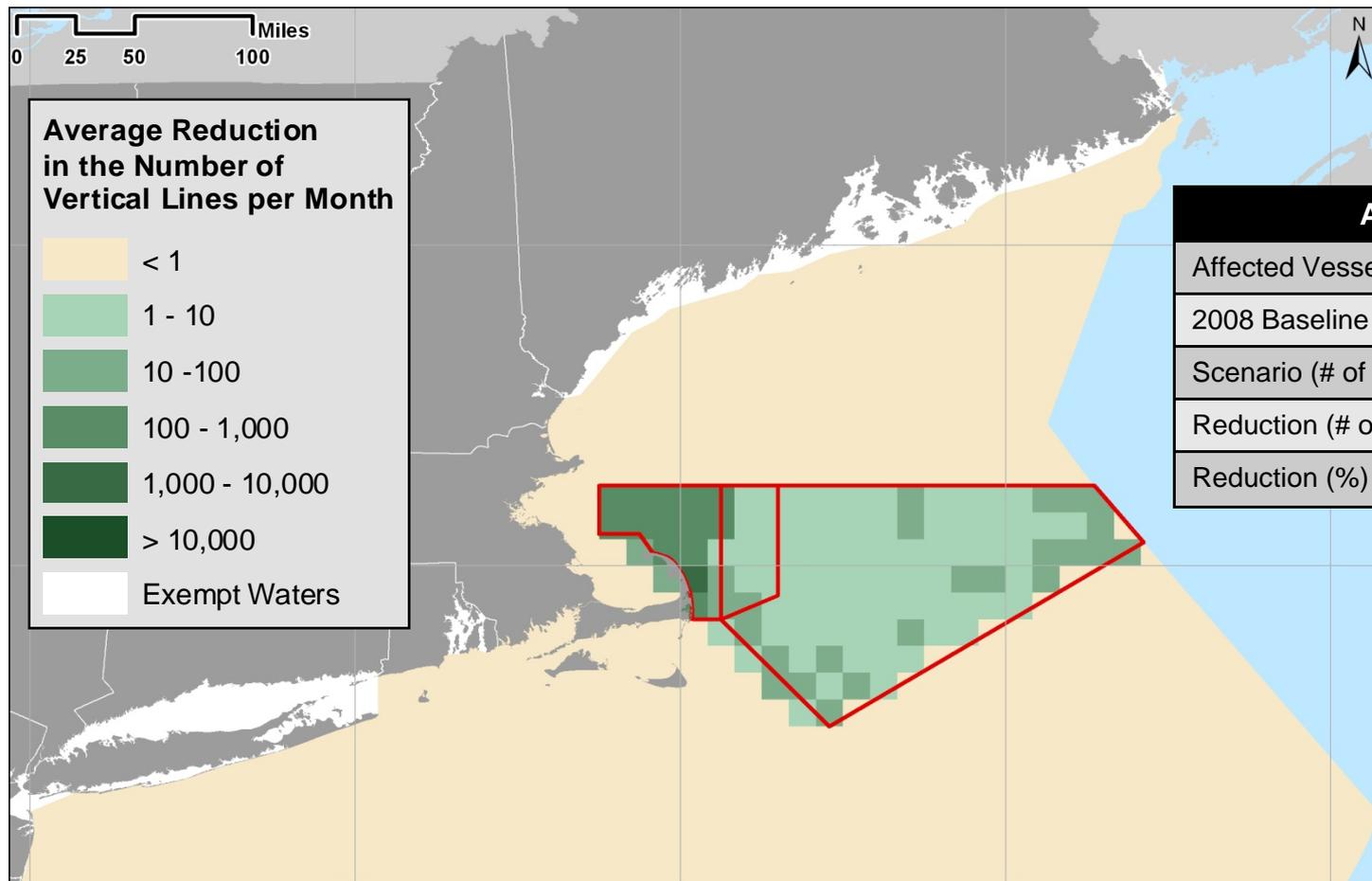


2008 Baseline (All Fisheries) SAM East/West ~ March-June





Seasonal Closure SAM East/West ~ March-June



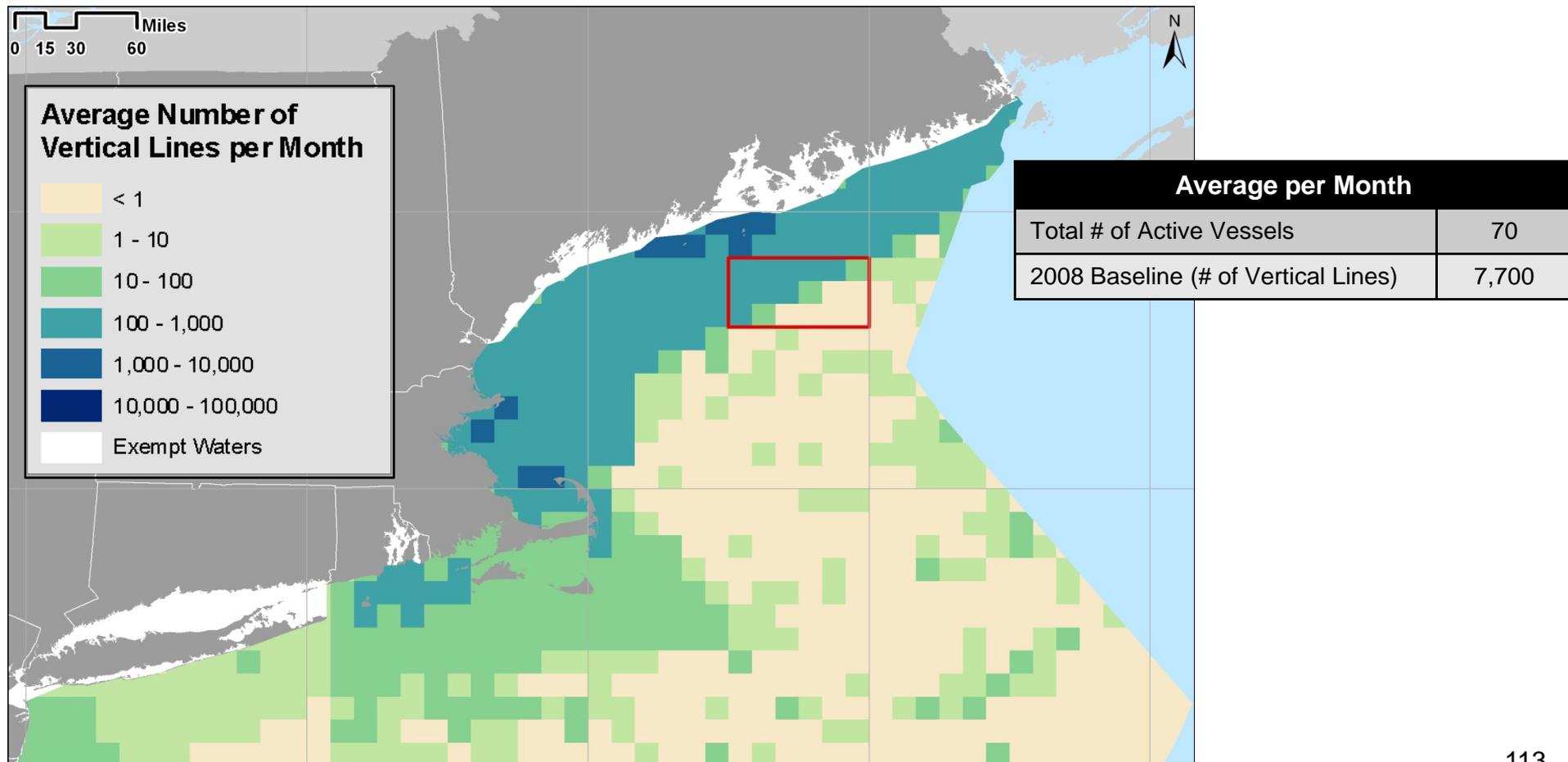
Average Reduction in the Number of Vertical Lines per Month

Lightest Yellow	< 1
Light Green	1 - 10
Medium Green	10 - 100
Dark Green	100 - 1,000
Very Dark Green	1,000 - 10,000
Black	> 10,000
White	Exempt Waters

Average per Month	
Affected Vessels	110
2008 Baseline (# of Vertical Lines)	11,200
Scenario (# of Vertical Lines)	0
Reduction (# of Vertical Lines)	11,200
Reduction (%)	100%

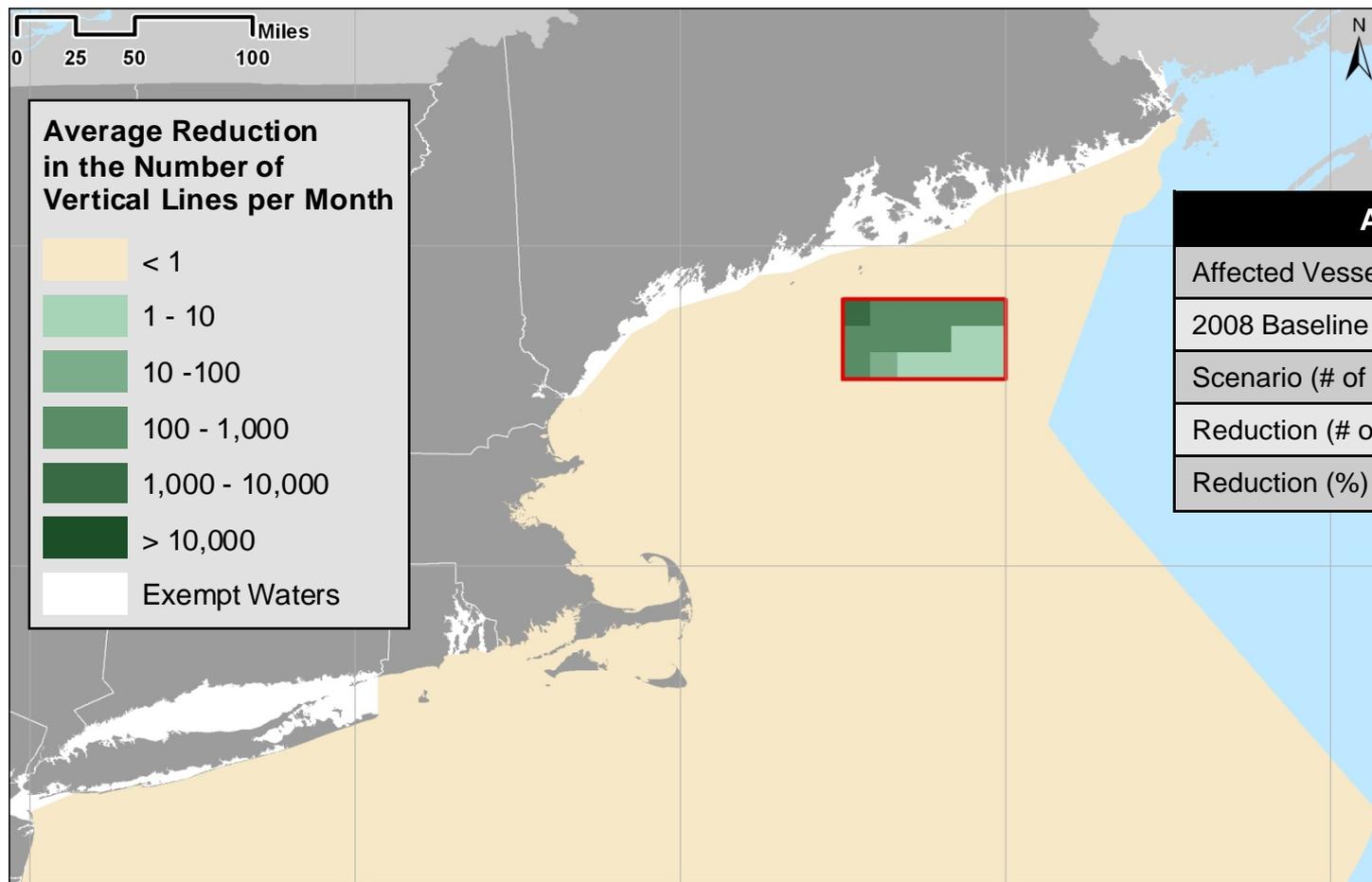


2008 Baseline (All Fisheries) Area A ~ October-January





Seasonal Closure Area A ~ October-January



Average per Month	
Affected Vessels	70
2008 Baseline (# of Vertical Lines)	7,700
Scenario (# of Vertical Lines)	0
Reduction (# of Vertical Lines)	7,700
Reduction (%)	100%



Summary SAM East/West ~ March-June

Average per Month

	2008 Baseline	Minimum 3 Traps/Trawl (1 Endline)	Minimum 5 Traps/Trawl (1 Endline)	Minimum 10 Traps/Trawl (1 Endline)	Minimum 10 Traps/Trawl (2 Endlines)	Closure
Affected Vessels	-	10	10	10	10	110
Number of Vertical Lines	11,200	9,100	8,700	8,400	8,700	0
Reduction in the Number of Vertical Lines	-	2,100	2,500	2,900	2,500	11,200
% Reduction in Vertical Lines	-	19%	22%	26%	22%	100%



Summary Area A ~ October-January

Average per Month

	2008 Baseline	Minimum 3 Traps/Trawl (1 Endline)	Minimum 5 Traps/Trawl (1 Endline)	Minimum 10 Traps/Trawl (1 Endline)	Minimum 10 Traps/Trawl (2 Endlines)	Closure
Affected Vessels	-	<10	10	70	70	70
Number of Vertical Lines*	7,700	7,700	7,400	2,700	5,400	0
Reduction in the Number of Vertical Lines*	-	<100	400	5,000	2,300	7,700
% Reduction in Vertical Lines	-	<1%	5%	65%	30%	100%

*May not sum due to rounding.



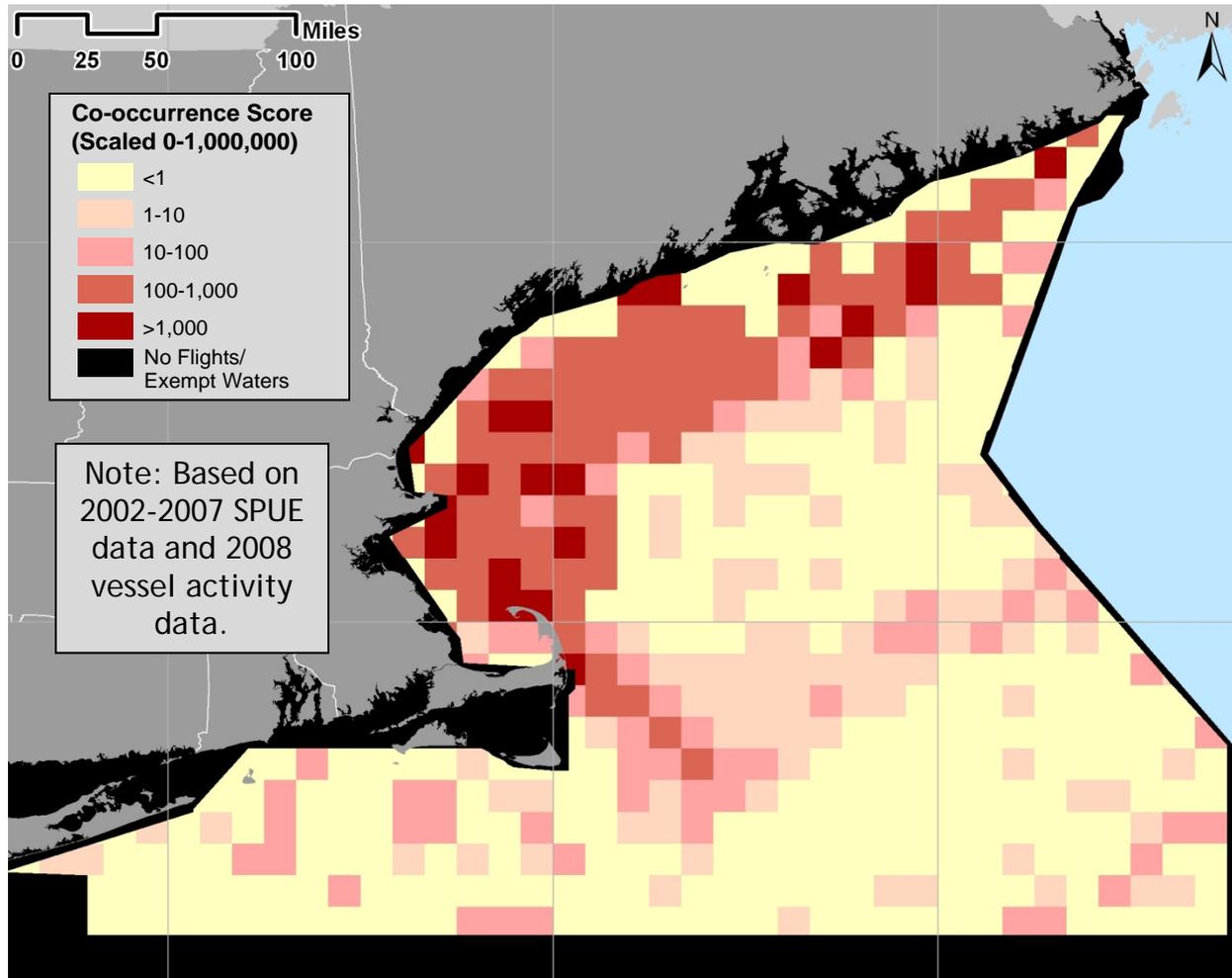
Scenario 4: Select Area Based on Co-Occurrence

- Uses best available information for vertical line and whale density
- Assumes risk is a function of whale density and vertical line density and that each contribute equally to risk
- We will consider year round and then seasonal scenarios

AREAS		TIMING	What Areas?
Territorial Range		Year Round	
		Seasonal	
Whale Species	Rights	Year Round	
		Seasonal	
	Humpbacks	Year Round	
		Seasonal	
	Fins	Year Round	
		Seasonal	
	Combined (weighted)	Year Round	
		Seasonal	
Combined (unweighted)	Year Round		
	Seasonal		
Vertical Lines		Year Round	
		Seasonal	
Co-Occurrence	Rights	Year Round	
		Seasonal	
	Humpbacks	Year Round	
		Seasonal	
	Fins	Year Round	
		Seasonal	
	Combined (weighted)	Year Round	
		Seasonal	
Combined (unweighted)	Year Round		
	Seasonal		

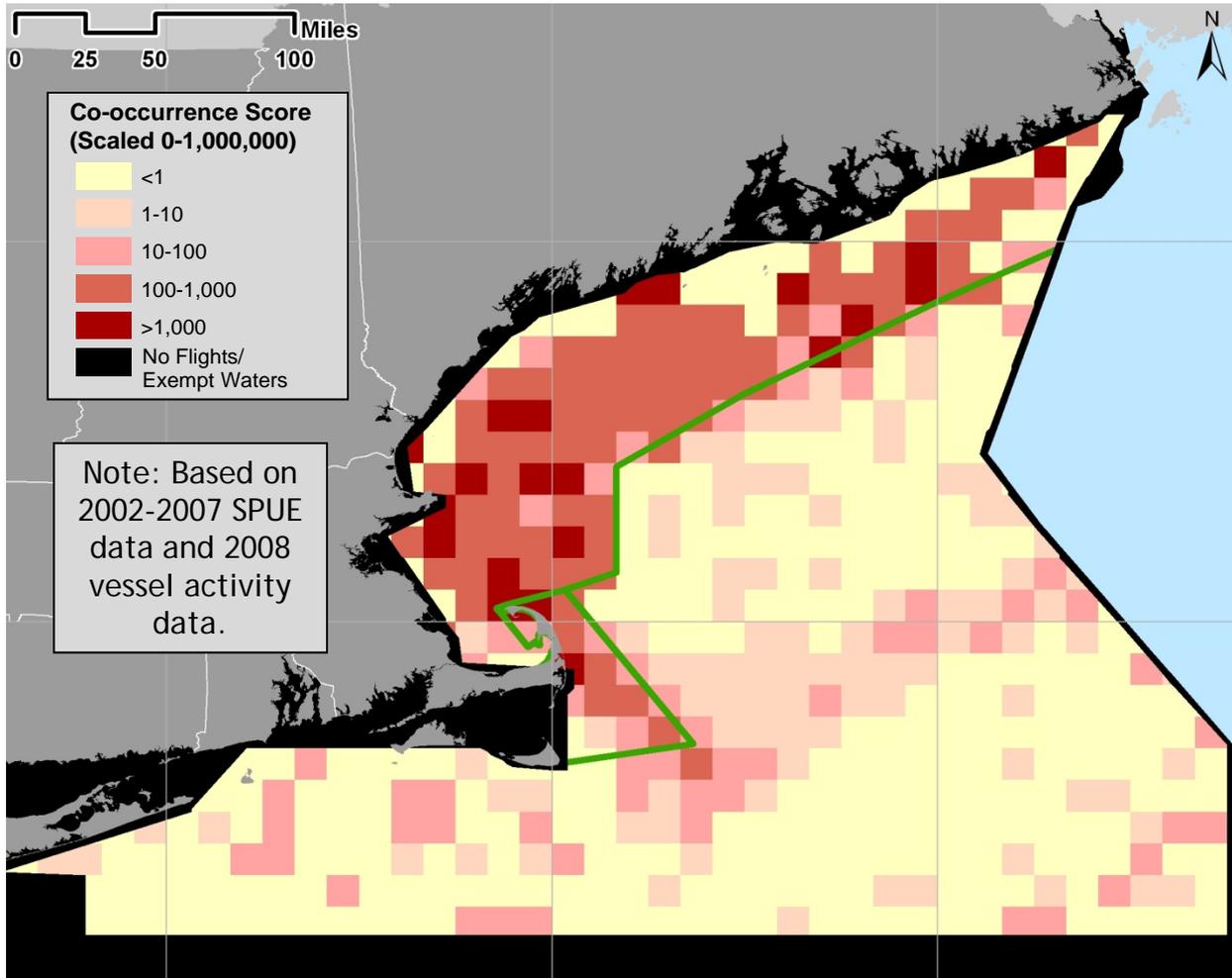


Co-occurrence (All Whales ~ All Fisheries) Average per Month





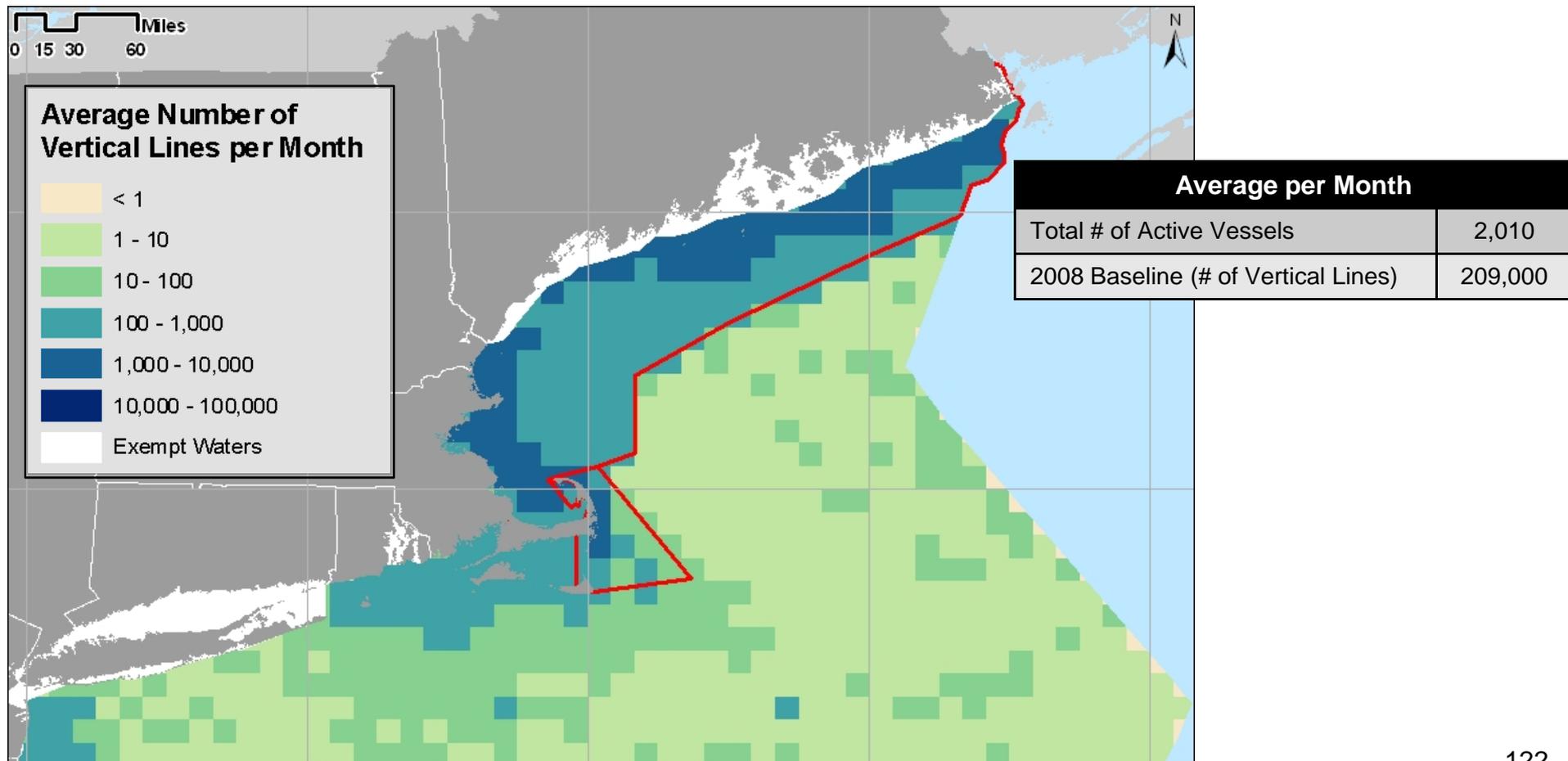
Co-occurrence (All Whales ~ All Fisheries) Average per Month LMA 1 & Outer Cape



AREAS		TIMING	Management Measure
Territorial Range		Year Round	Vertical Line Reduction (%) <ul style="list-style-type: none"> • 3 traps/trawl • 5 traps/trawl • 10 traps/trawl (1 end line) • 10 traps/trawl (2 end lines) • Closure
		Seasonal	
Whale Species	Rights	Year Round	
		Seasonal	
	Humpbacks	Year Round	
		Seasonal	
	Fins	Year Round	
		Seasonal	
	Combined (weighted)	Year Round	
		Seasonal	
Combined (unweighted)	Year Round		
	Seasonal		
Vertical Lines		Year Round	
		Seasonal	
Co-Occurrence	Rights	Year Round	
		Seasonal	
	Humpbacks	Year Round	
		Seasonal	
	Fins	Year Round	
		Seasonal	
	Combined (weighted)	Year Round	
		Seasonal	
	Combined (unweighted)	Year Round	
		Seasonal	

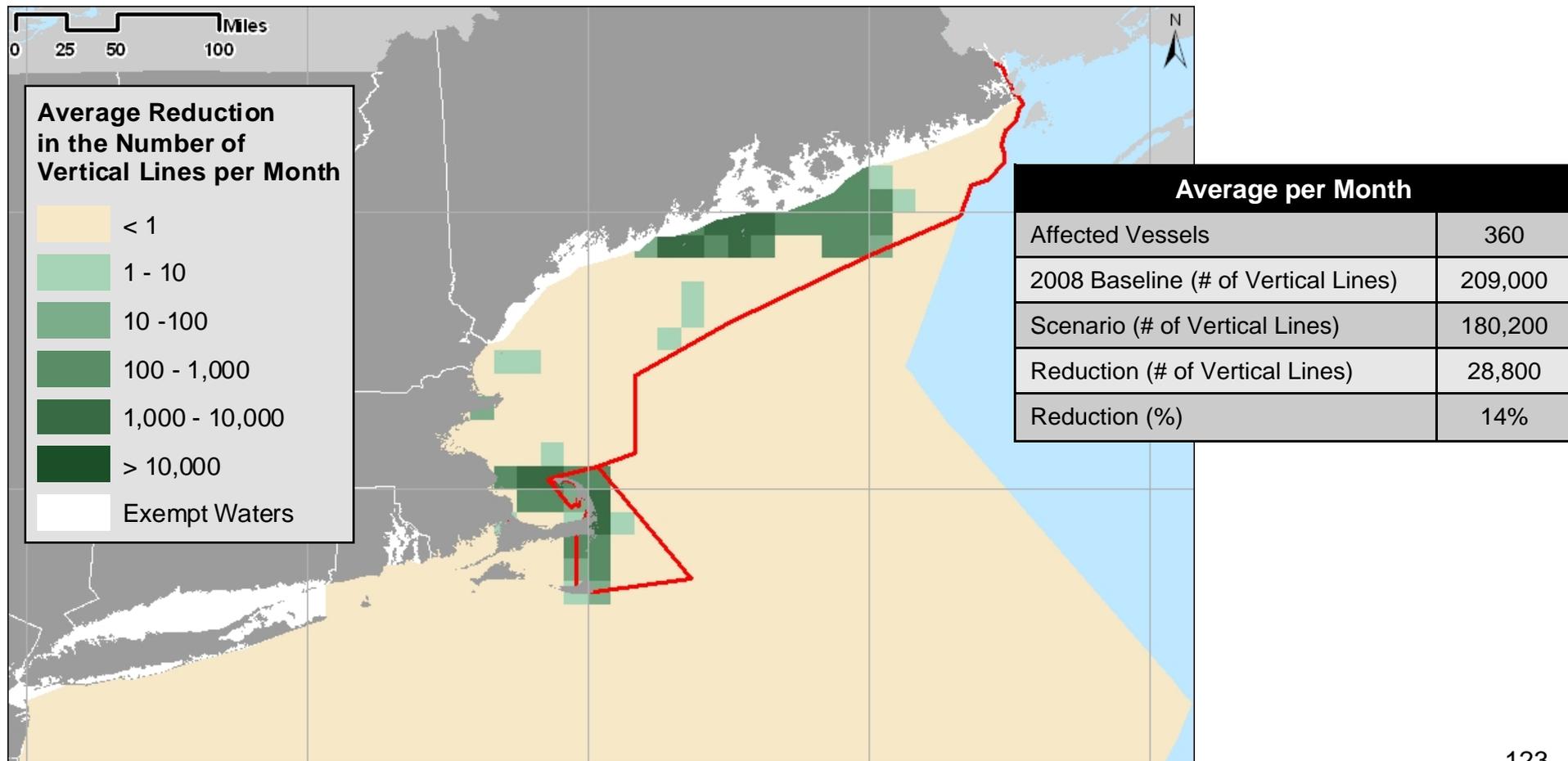


2008 Baseline (All Fisheries) LMA 1 & Outer Cape





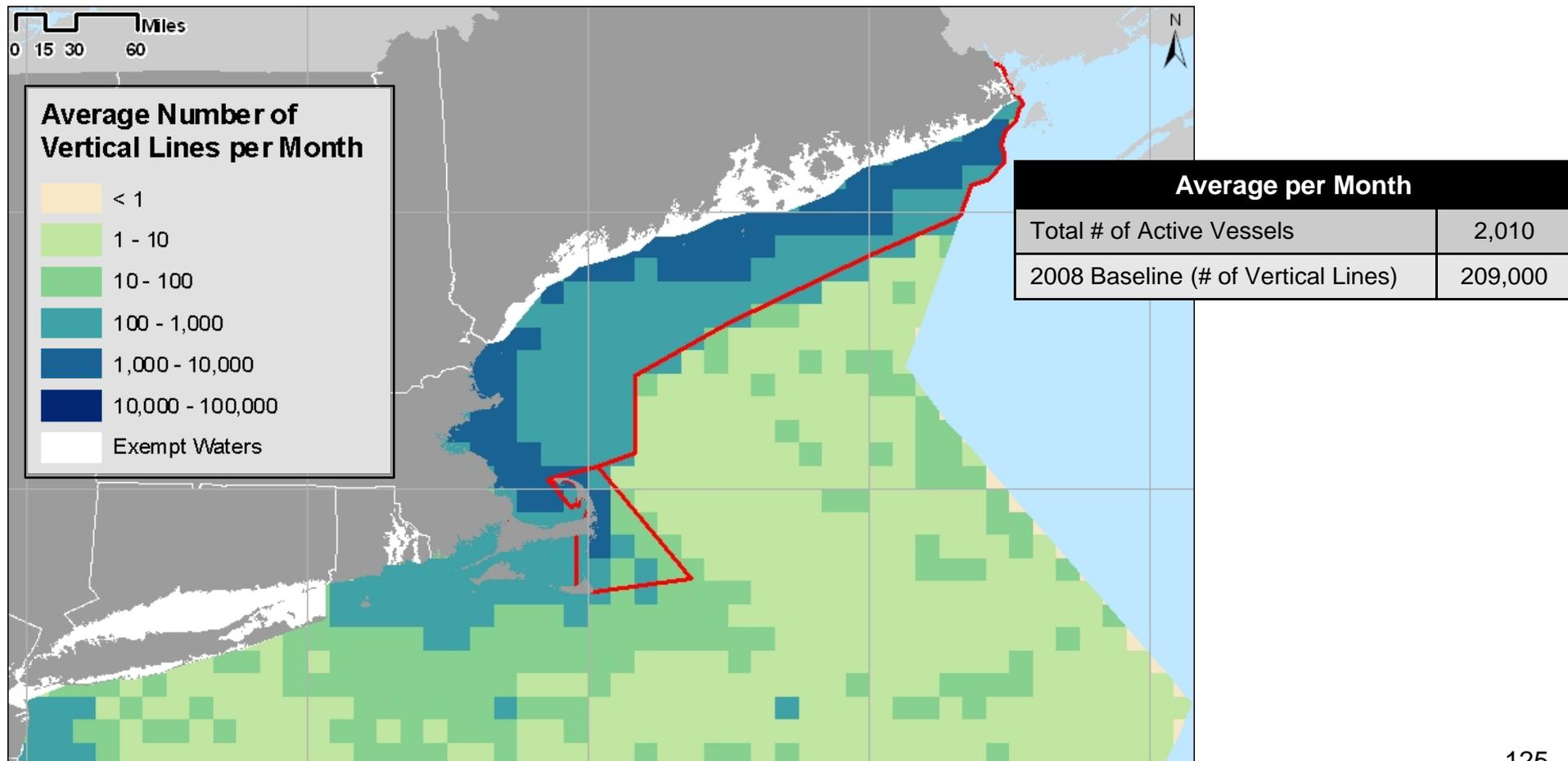
Minimum 3 Traps/Trawl (1 Endline) LMA 1 & Outer Cape



AREAS		TIMING	Management Measure
Territorial Range		Year Round	Vertical Line Reduction (%) <ul style="list-style-type: none"> • 3 traps/trawl • 5 traps/trawl • 10 traps/trawl (1 end line) • 10 traps/trawl (2 end lines) • Closure
		Seasonal	
Whale Species	Rights	Year Round	
		Seasonal	
	Humpbacks	Year Round	
		Seasonal	
	Fins	Year Round	
		Seasonal	
	Combined (weighted)	Year Round	
		Seasonal	
Combined (unweighted)	Year Round		
	Seasonal		
Vertical Lines		Year Round	
		Seasonal	
Co-Occurrence	Rights	Year Round	
		Seasonal	
	Humpbacks	Year Round	
		Seasonal	
	Fins	Year Round	
		Seasonal	
	Combined (weighted)	Year Round	
		Seasonal	
	Combined (unweighted)	Year Round	
		Seasonal	

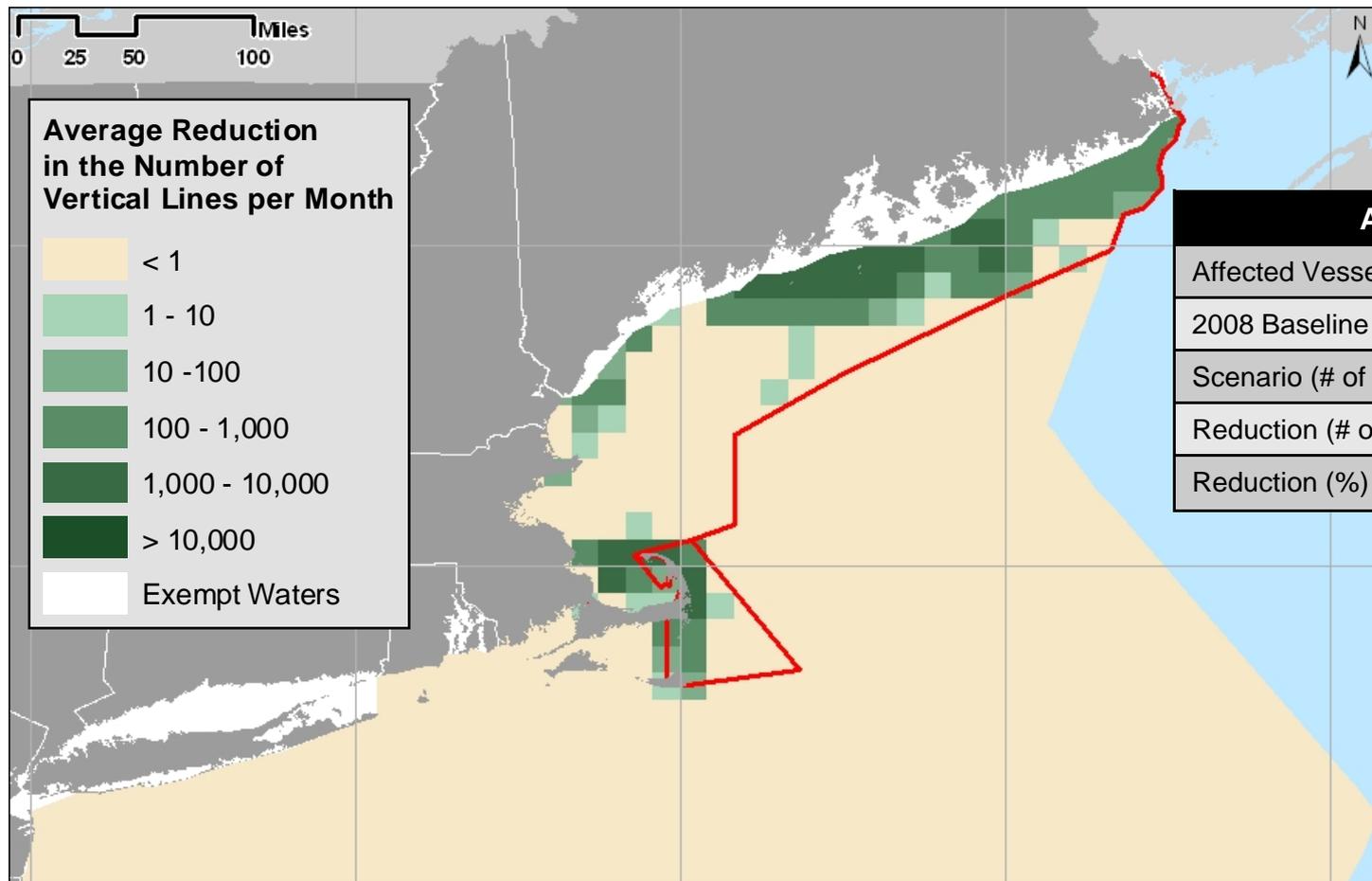


2008 Baseline (All Fisheries) LMA 1 & Outer Cape





Minimum 5 Traps/Trawl (1 Endline) LMA 1 & Outer Cape



Average Reduction in the Number of Vertical Lines per Month

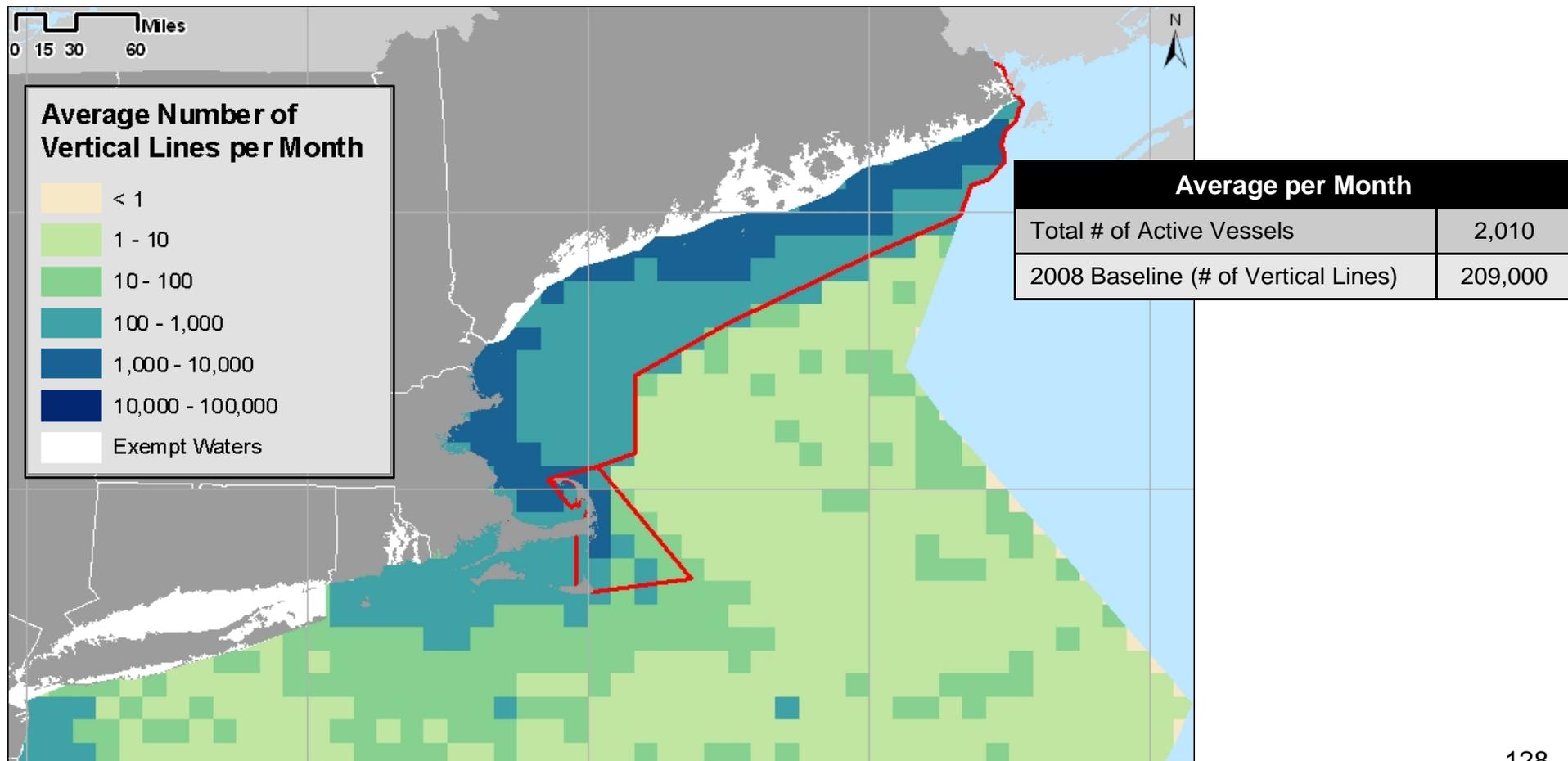
Light Yellow	< 1
Light Green	1 - 10
Medium Green	10 - 100
Dark Green	100 - 1,000
Very Dark Green	1,000 - 10,000
Black	> 10,000
White	Exempt Waters

Average per Month	
Affected Vessels	700
2008 Baseline (# of Vertical Lines)	209,000
Scenario (# of Vertical Lines)	148,600
Reduction (# of Vertical Lines)	60,400
Reduction (%)	29%

AREAS		TIMING	Management Measure
Territorial Range		Year Round	Vertical Line Reduction (%) <ul style="list-style-type: none"> • 3 traps/trawl • 5 traps/trawl • 10 traps/trawl (1 end line) • 10 traps/trawl (2 end lines) • Closure
		Seasonal	
Whale Species	Rights	Year Round	
		Seasonal	
	Humpbacks	Year Round	
		Seasonal	
	Fins	Year Round	
		Seasonal	
	Combined (weighted)	Year Round	
		Seasonal	
Combined (unweighted)	Year Round		
	Seasonal		
Vertical Lines		Year Round	
		Seasonal	
Co-Occurrence	Rights	Year Round	
		Seasonal	
	Humpbacks	Year Round	
		Seasonal	
	Fins	Year Round	
		Seasonal	
	Combined (weighted)	Year Round	
		Seasonal	
	Combined (unweighted)	Year Round	
		Seasonal	

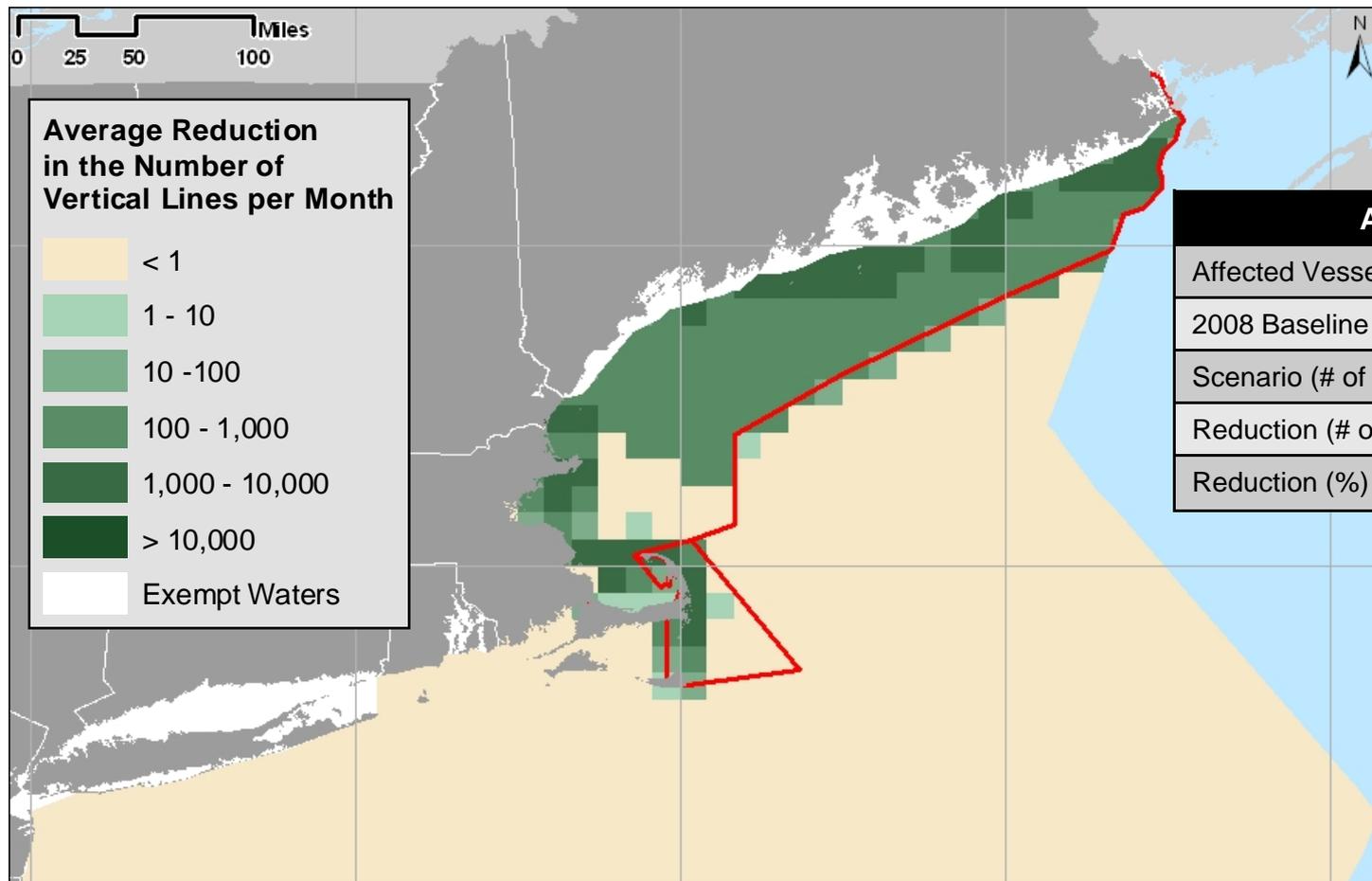


2008 Baseline (All Fisheries) LMA 1 & Outer Cape





Minimum 10 Traps/Trawl (1 Endline) LMA 1 & Outer Cape



Average Reduction in the Number of Vertical Lines per Month

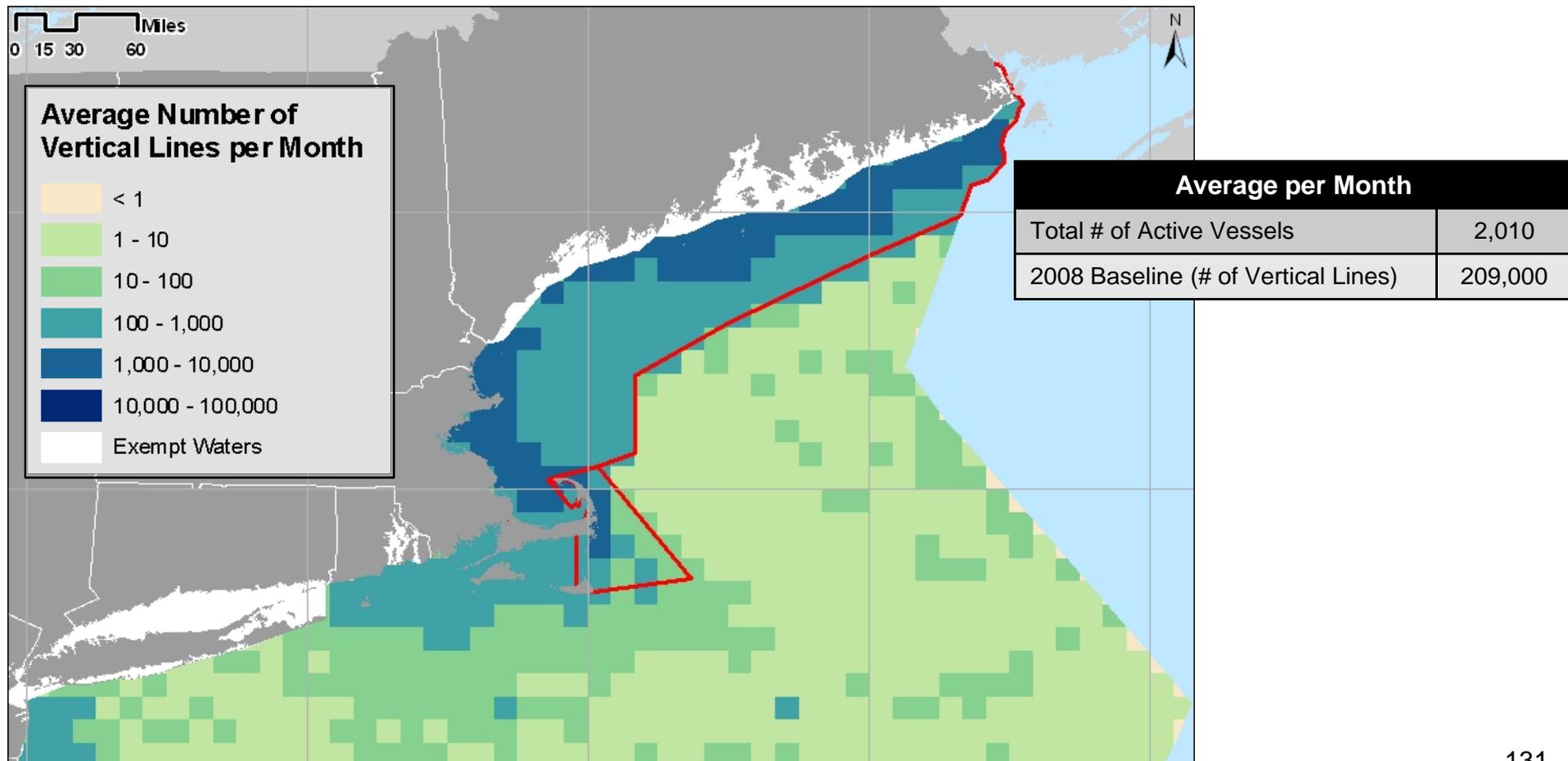
Light Yellow	< 1
Light Green	1 - 10
Medium Green	10 - 100
Dark Green	100 - 1,000
Very Dark Green	1,000 - 10,000
Black	> 10,000
White	Exempt Waters

Average per Month	
Affected Vessels	1,600
2008 Baseline (# of Vertical Lines)	209,000
Scenario (# of Vertical Lines)	80,000
Reduction (# of Vertical Lines)	128,900
Reduction (%)	62%

AREAS		TIMING	Management Measure
Territorial Range		Year Round	Vertical Line Reduction (%) <ul style="list-style-type: none"> • 3 traps/trawl • 5 traps/trawl • 10 traps/trawl (1 end line) • 10 traps/trawl (2 end lines) • Closure
		Seasonal	
Whale Species	Rights	Year Round	
		Seasonal	
	Humpbacks	Year Round	
		Seasonal	
	Fins	Year Round	
		Seasonal	
	Combined (weighted)	Year Round	
		Seasonal	
Combined (unweighted)	Year Round		
	Seasonal		
Vertical Lines		Year Round	
		Seasonal	
Co-Occurrence	Rights	Year Round	
		Seasonal	
	Humpbacks	Year Round	
		Seasonal	
	Fins	Year Round	
		Seasonal	
	Combined (weighted)	Year Round	
		Seasonal	
Combined (unweighted)	Year Round		
	Seasonal		

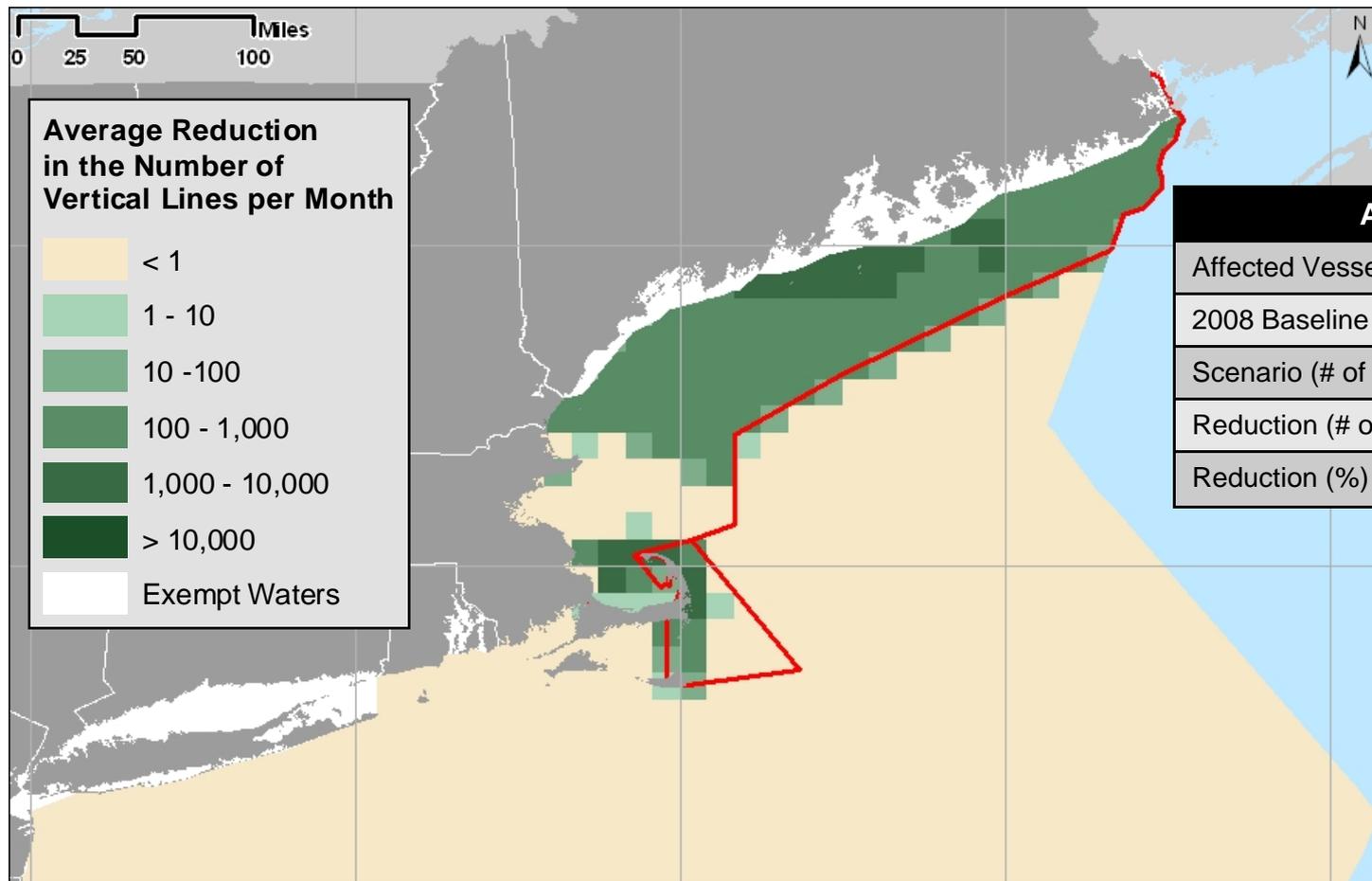


2008 Baseline (All Fisheries) LMA 1 & Outer Cape





Minimum 10 Traps/Trawl (2 Endlines) LMA 1 & Outer Cape



Average Reduction in the Number of Vertical Lines per Month

Light Yellow	< 1
Light Green	1 - 10
Medium Green	10 - 100
Dark Green	100 - 1,000
Very Dark Green	1,000 - 10,000
Black	> 10,000
White	Exempt Waters

Average per Month	
Affected Vessels	1,300
2008 Baseline (# of Vertical Lines)	209,000
Scenario (# of Vertical Lines)	132,700
Reduction (# of Vertical Lines)	76,300
Reduction (%)	37%



Summary Year-Round LMA 1 & Outer Cape

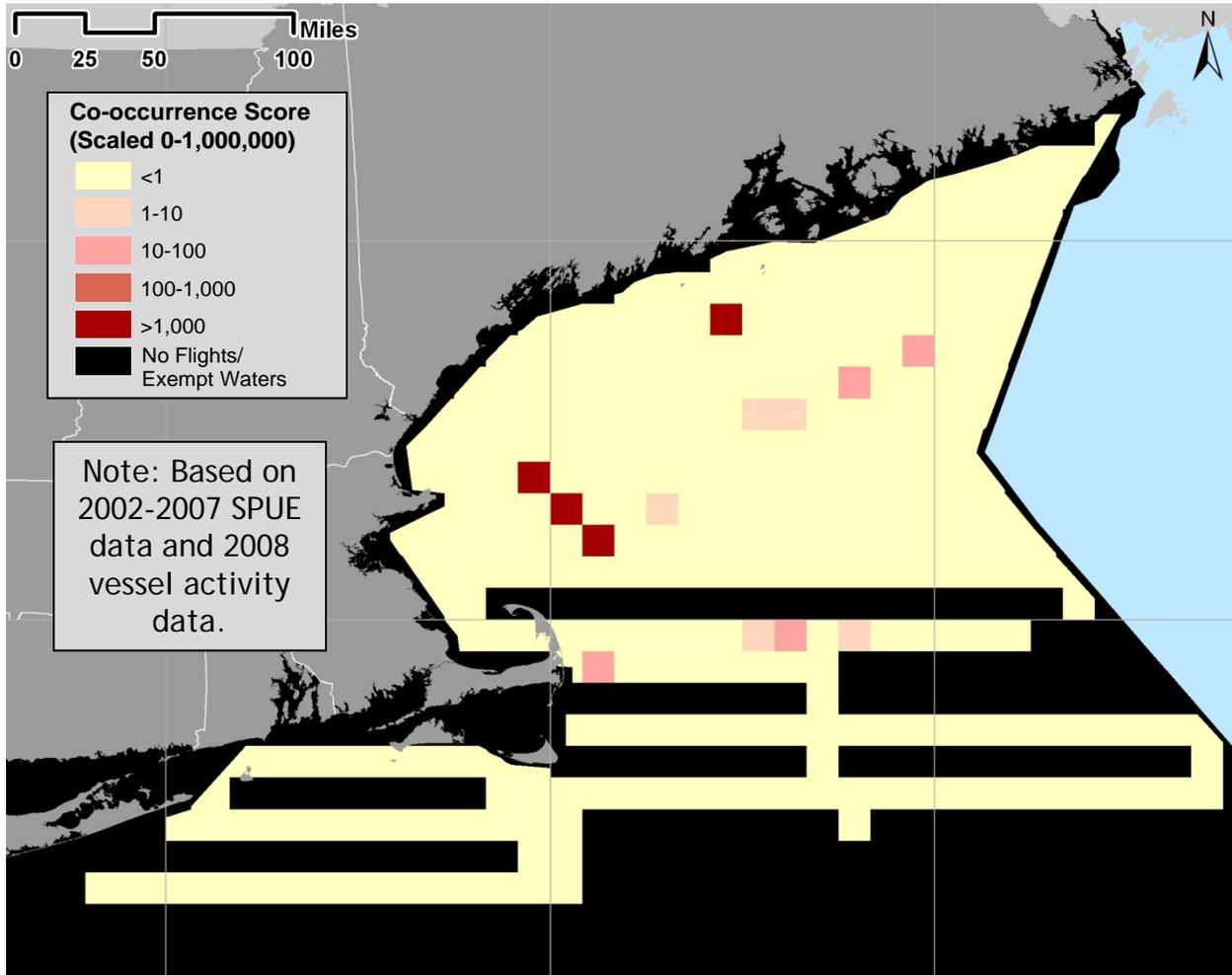
Average per Month

	2008 Baseline	Minimum 3 Traps/Trawl (1 Endline)	Minimum 5 Traps/Trawl (1 Endline)	Minimum 10 Traps/Trawl (1 Endline)	Minimum 10 Traps/Trawl (2 Endlines)
Affected Vessels	-	360	700	1,600	1,300
Number of Vertical Lines	209,000	180,200	148,600	80,000	132,700
Reduction in the Number of Vertical Lines	-	28,800	60,400	128,900	76,300
% Reduction in Vertical Lines	-	14%	29%	62%	37%

AREAS		TIMING	What Areas?
Territorial Range		Year Round	
		Seasonal	
Whale Species	Rights	Year Round	
		Seasonal	
	Humpbacks	Year Round	
		Seasonal	
	Fins	Year Round	
		Seasonal	
	Combined (weighted)	Year Round	
		Seasonal	
Combined (unweighted)	Year Round		
	Seasonal		
Vertical Lines		Year Round	
		Seasonal	
Co-Occurrence	Rights	Year Round	
		Seasonal	
	Humpbacks	Year Round	
		Seasonal	
	Fins	Year Round	
		Seasonal	
	Combined (weighted)	Year Round	
		Seasonal	
Combined (unweighted)	Year Round		
	Seasonal		

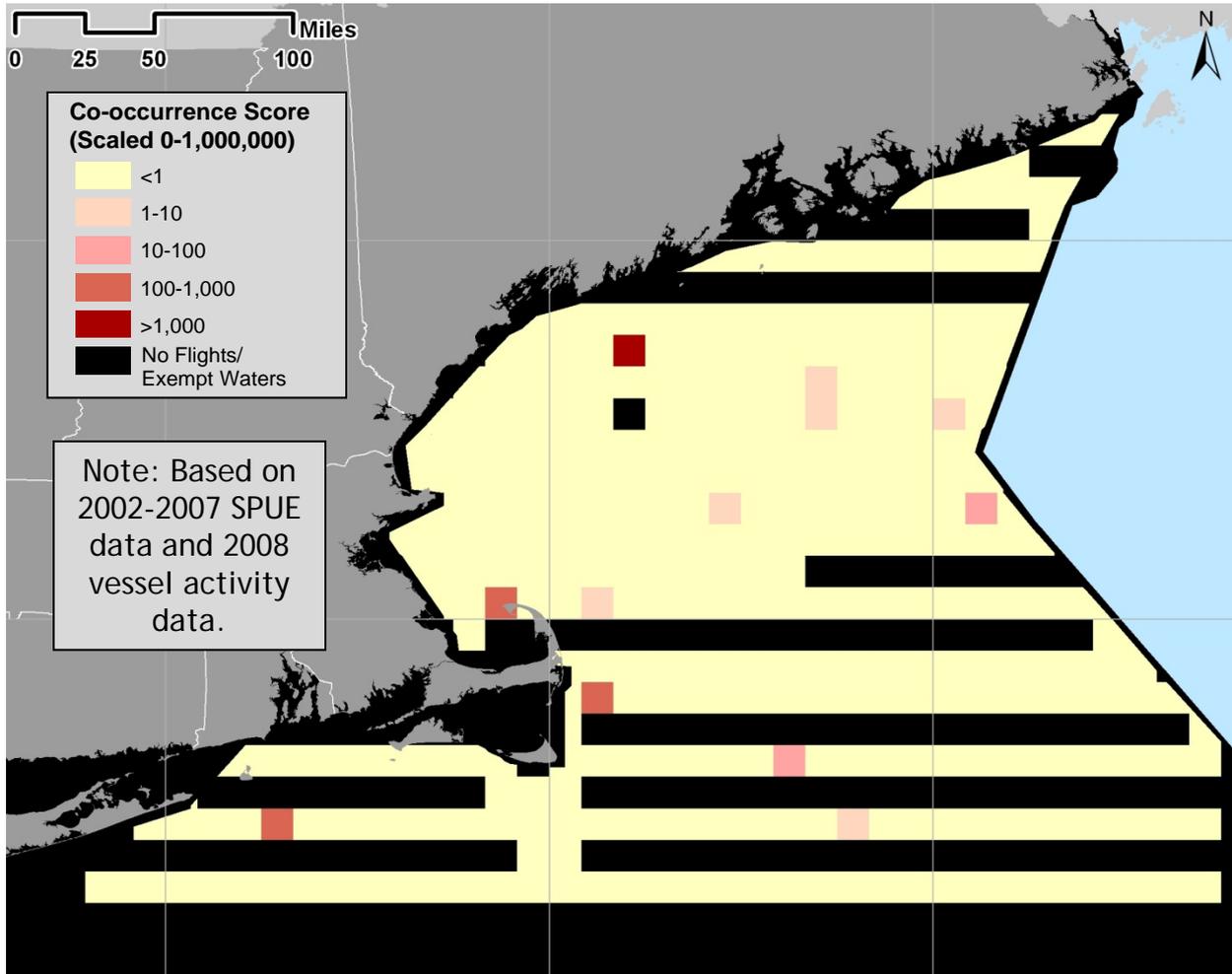


Co-occurrence (All Whales ~ All Fisheries) January



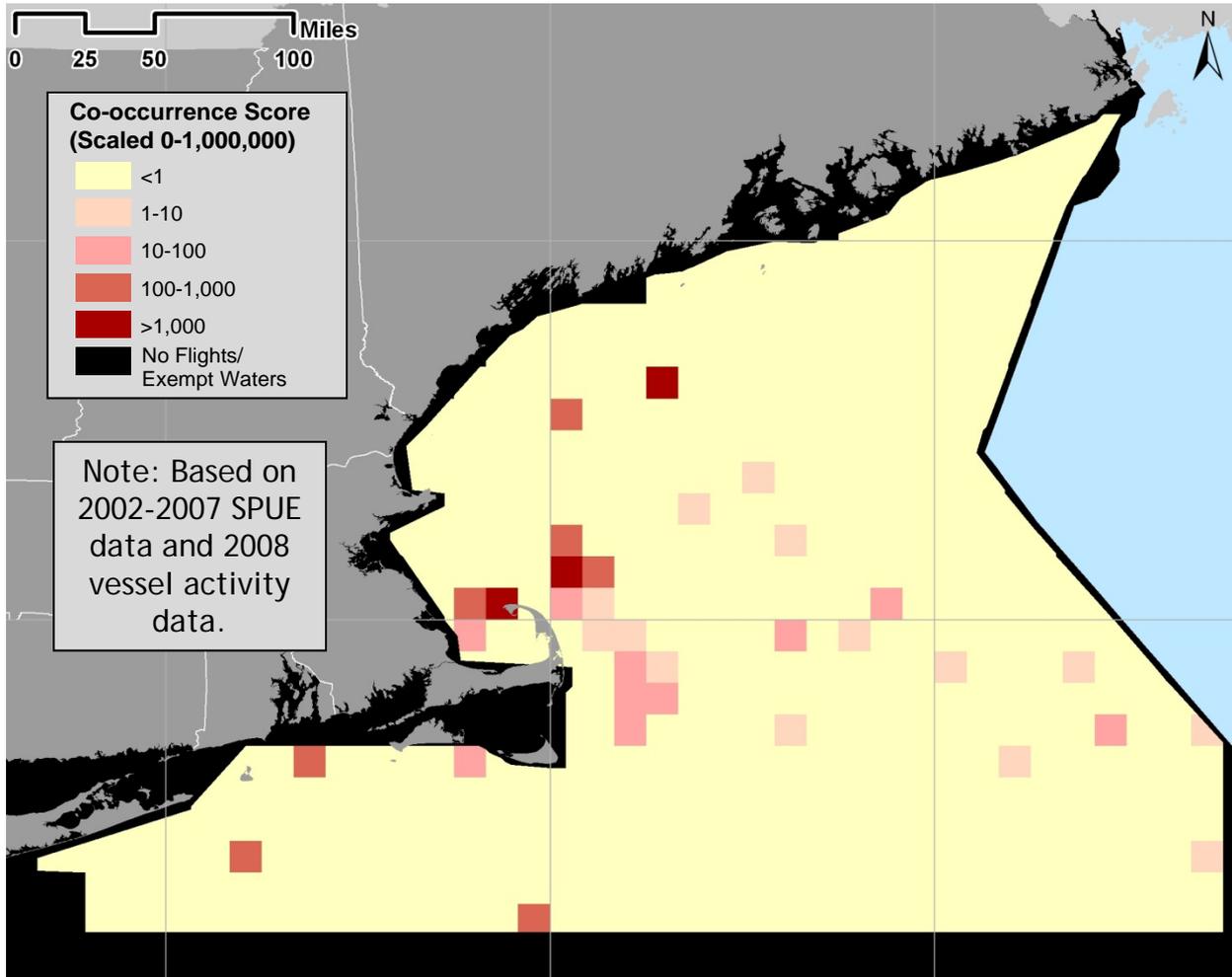


Co-occurrence (All Whales ~ All Fisheries) February



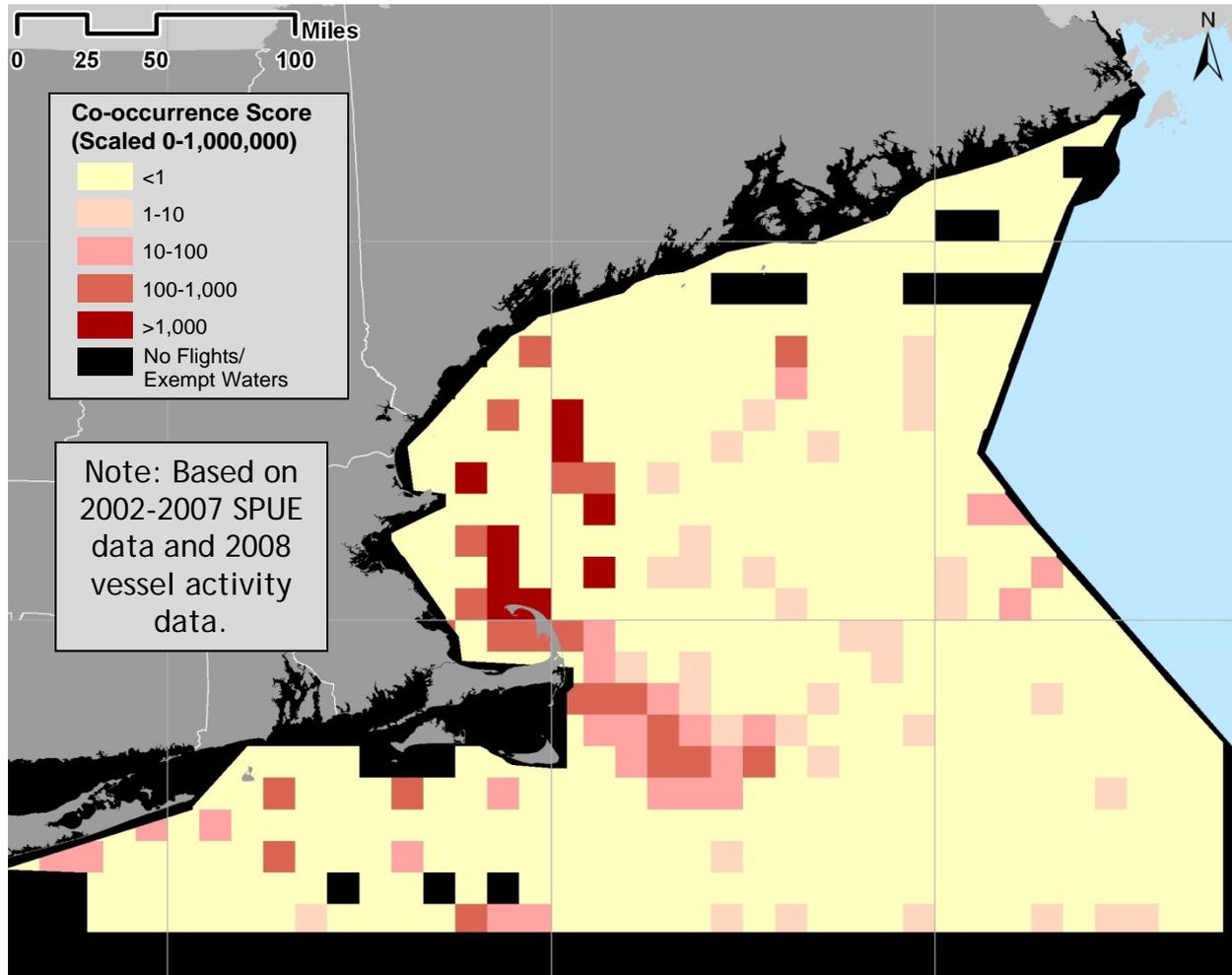


Co-occurrence (All Whales ~ All Fisheries) March



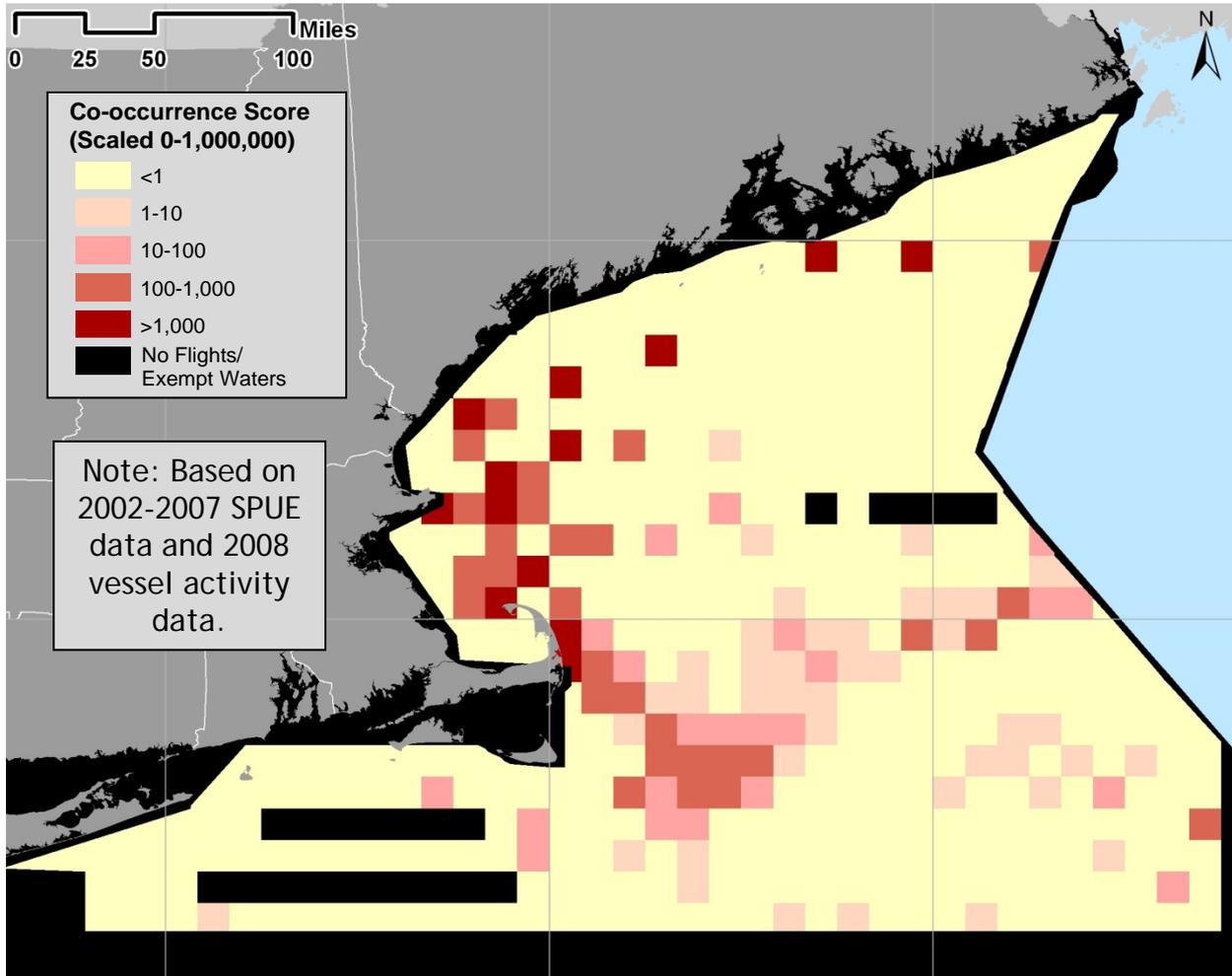


Co-occurrence (All Whales ~ All Fisheries) April



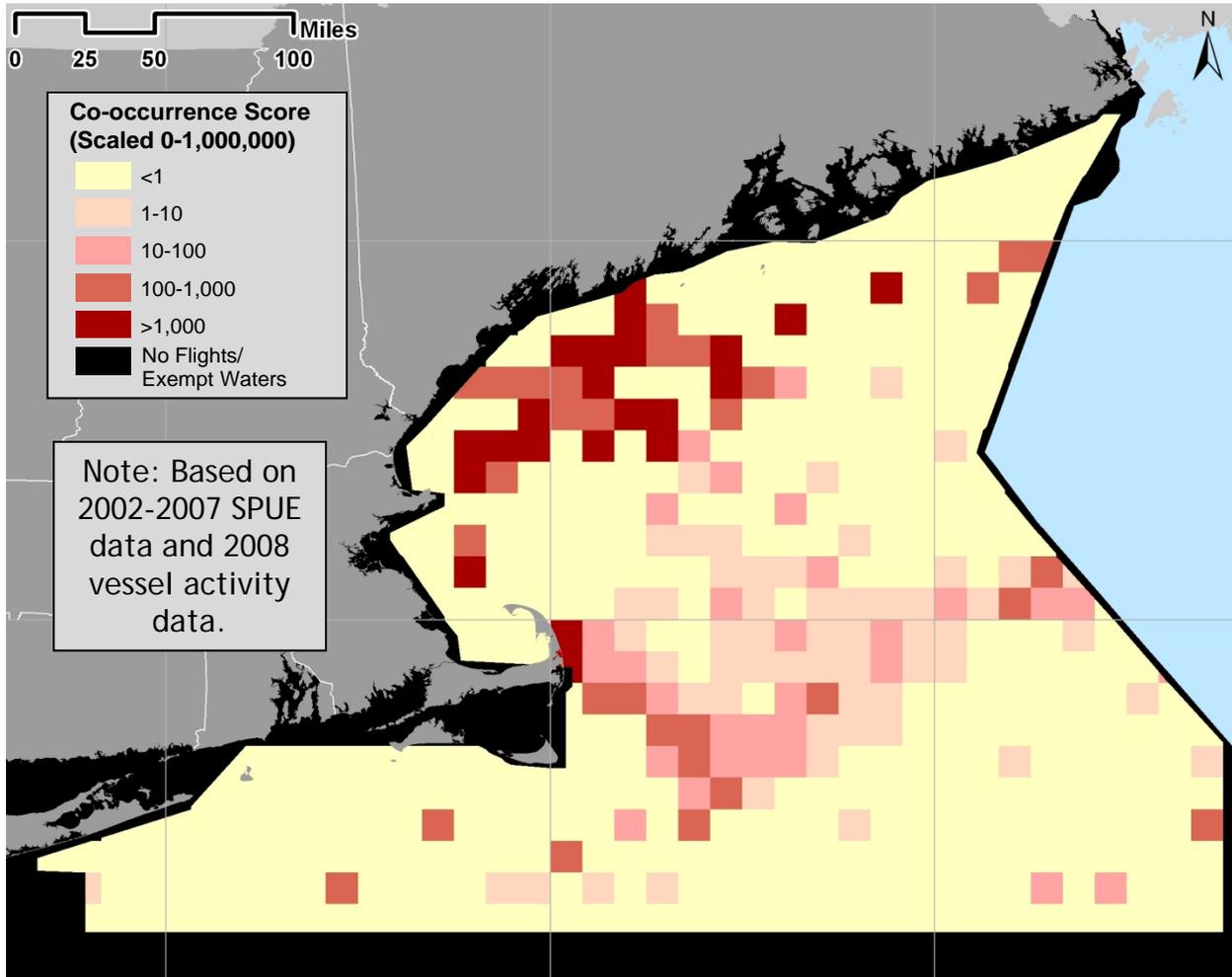


Co-occurrence (All Whales ~ All Fisheries) May



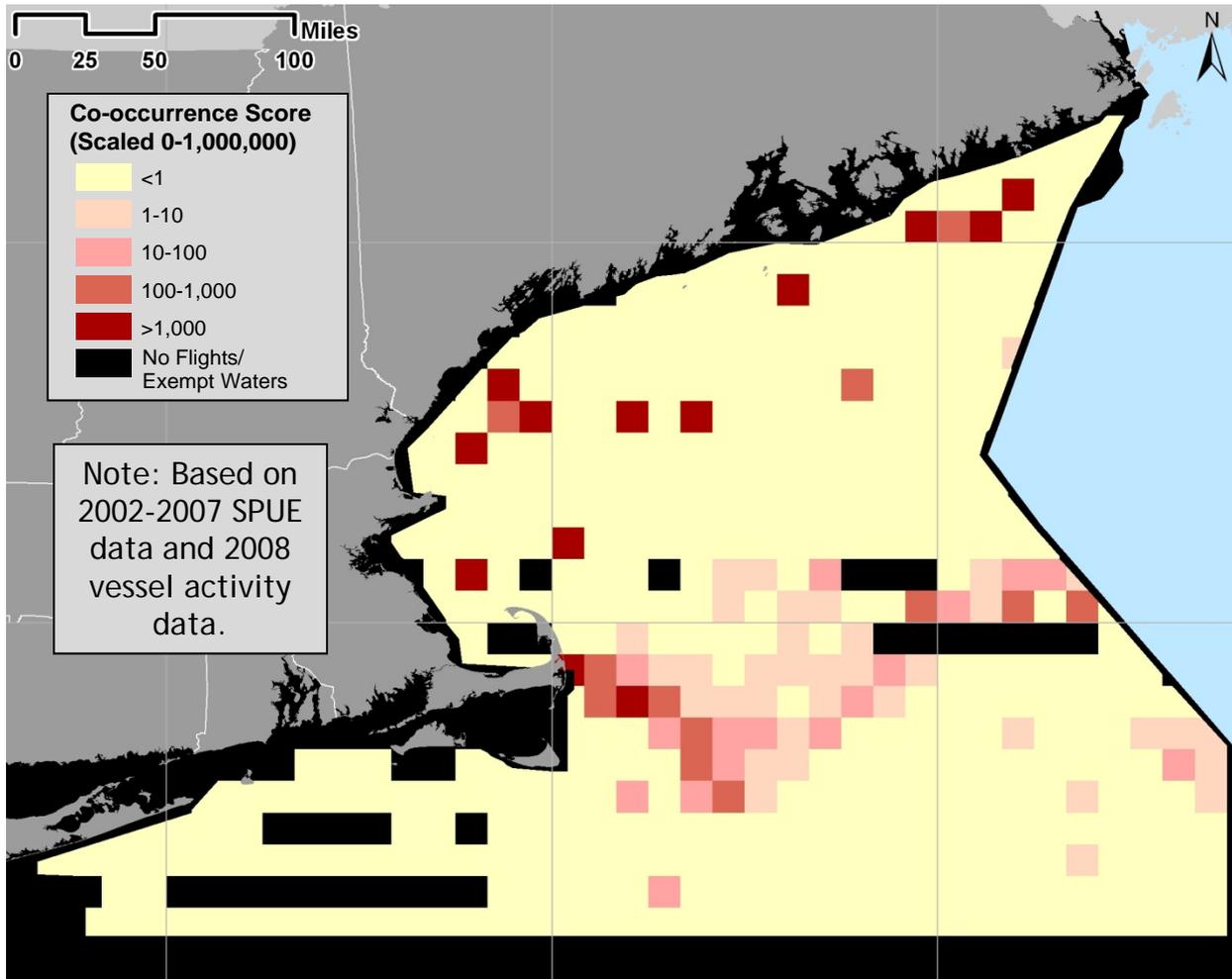


Co-occurrence (All Whales ~ All Fisheries) June



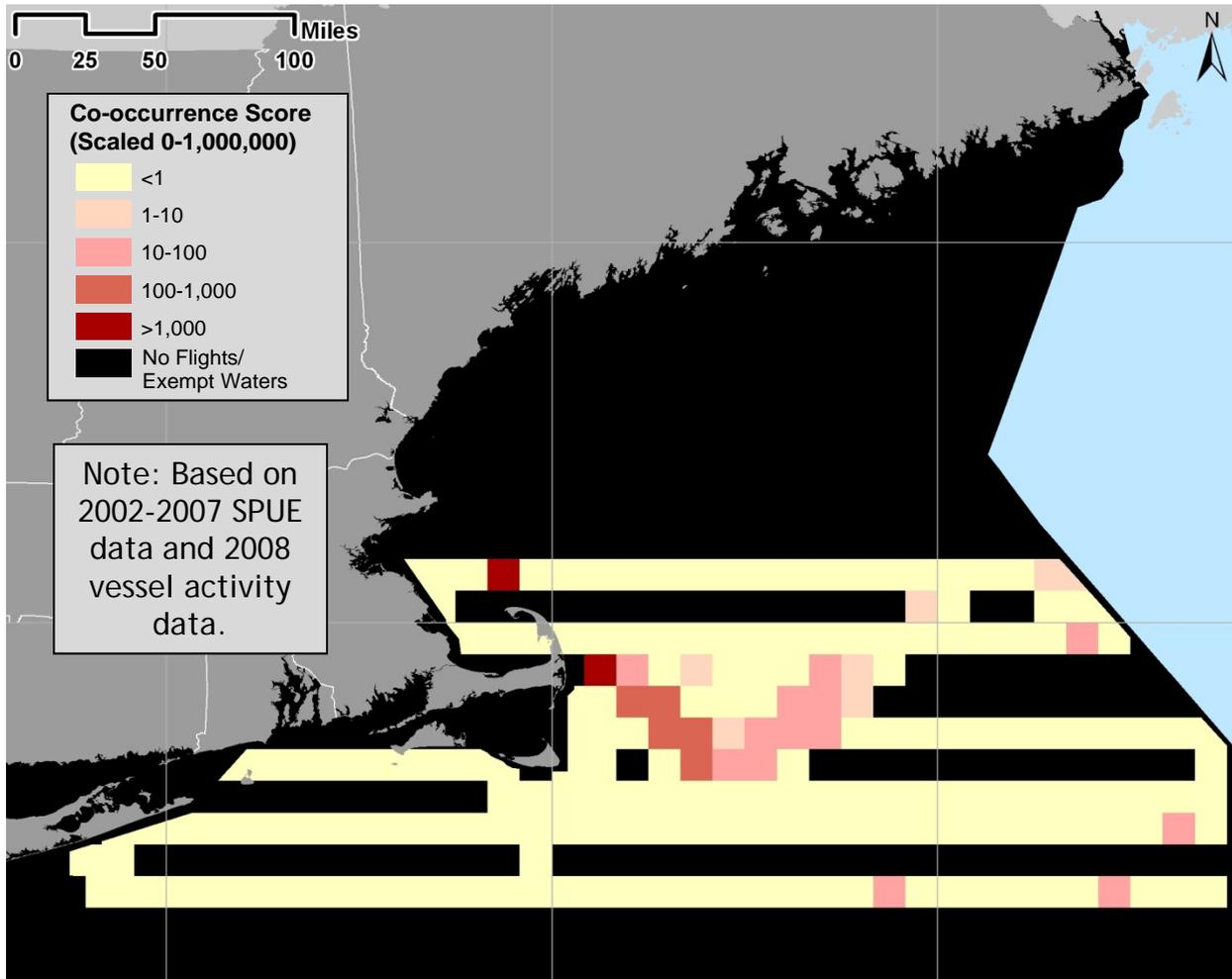


Co-occurrence (All Whales ~ All Fisheries) July



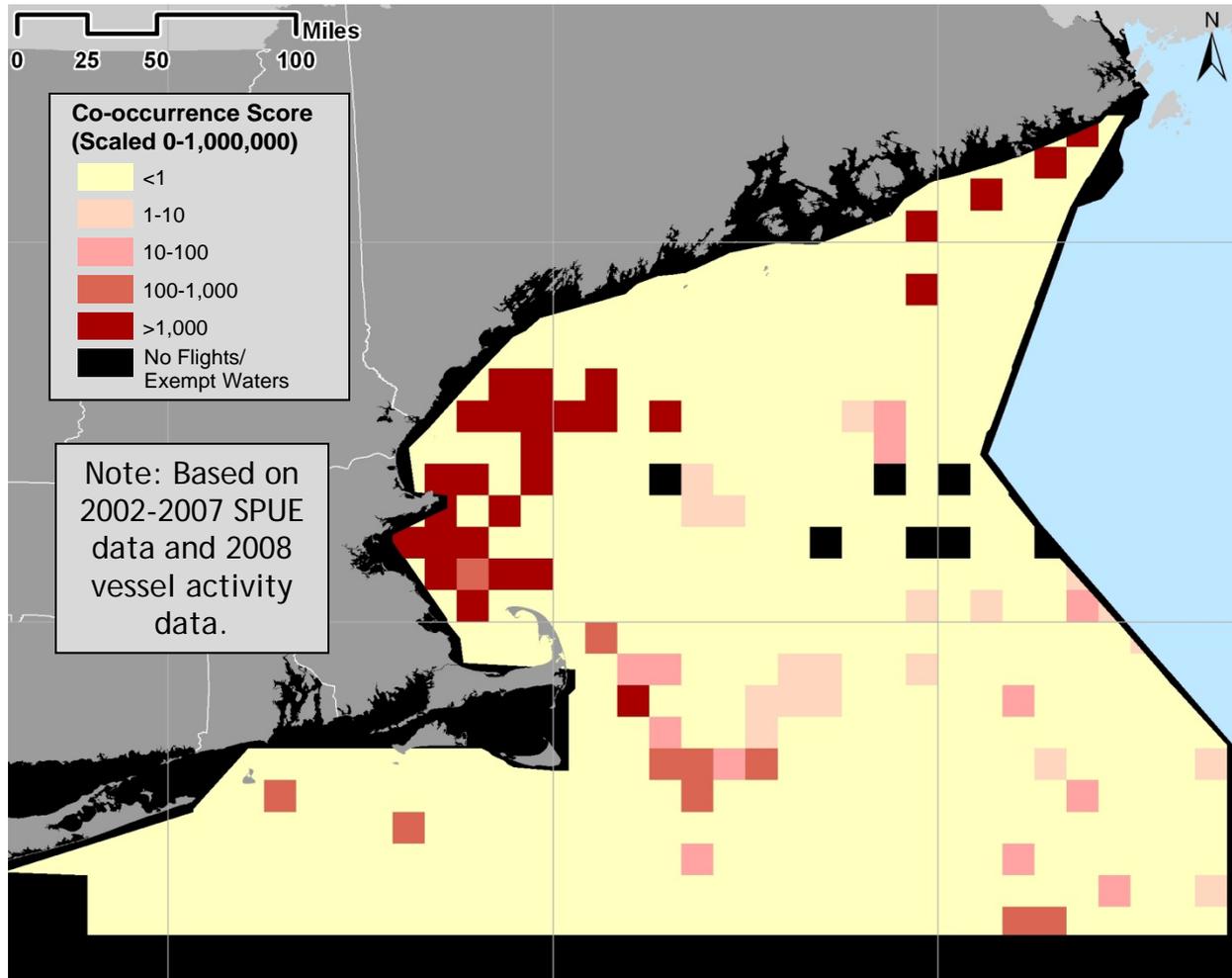


Co-occurrence (All Whales ~ All Fisheries) August



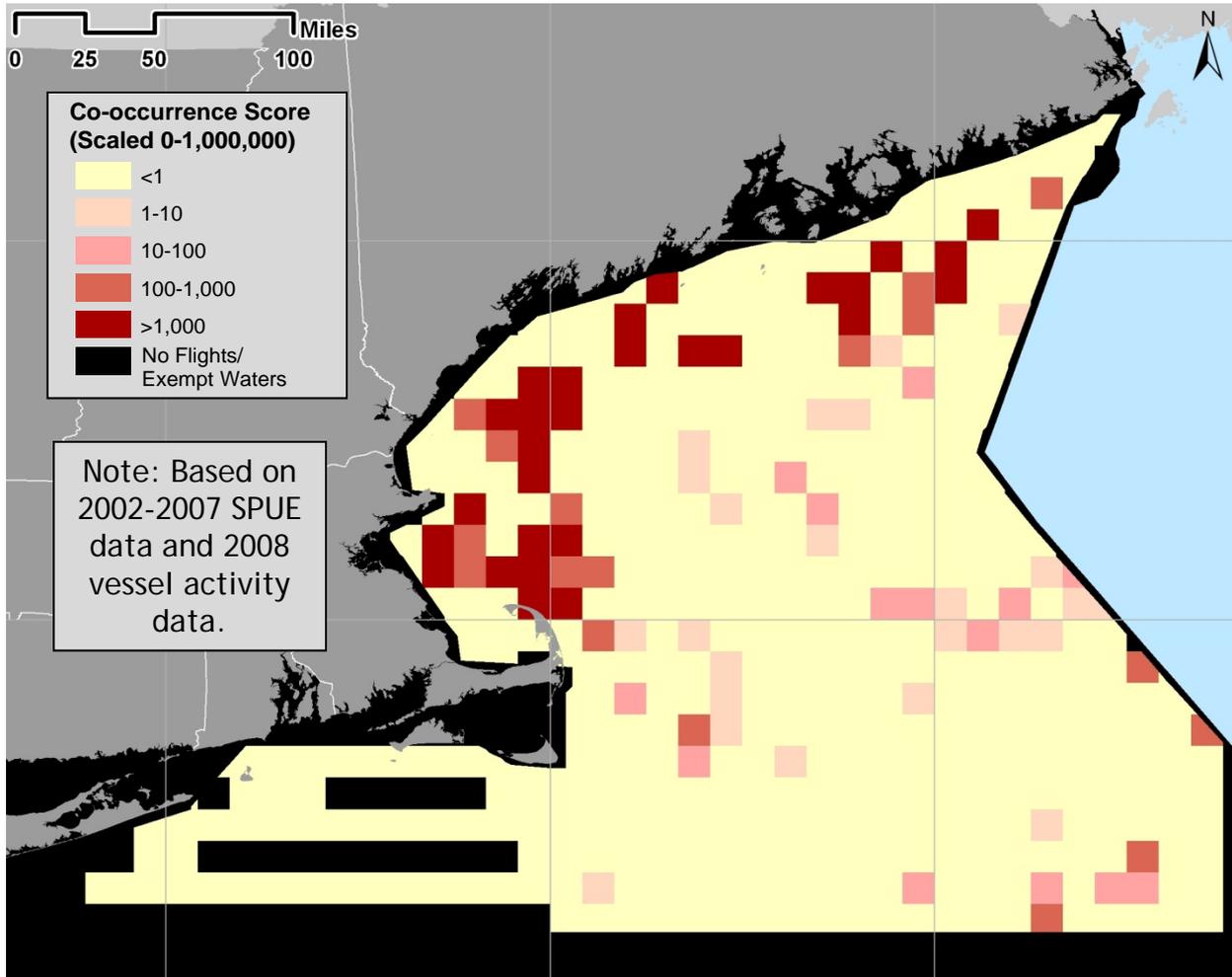


Co-occurrence (All Whales ~ All Fisheries) September



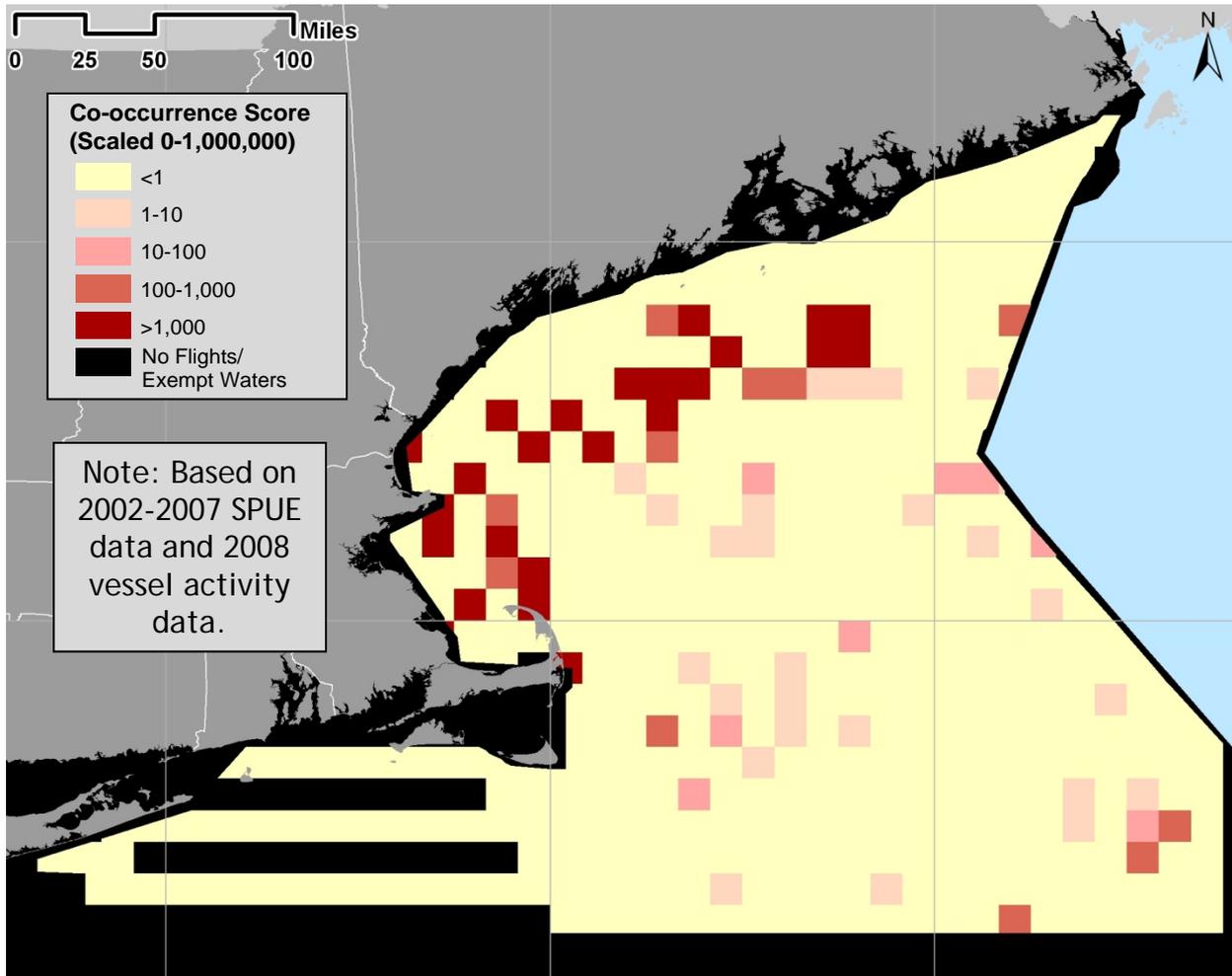


Co-occurrence (All Whales ~ All Fisheries) October



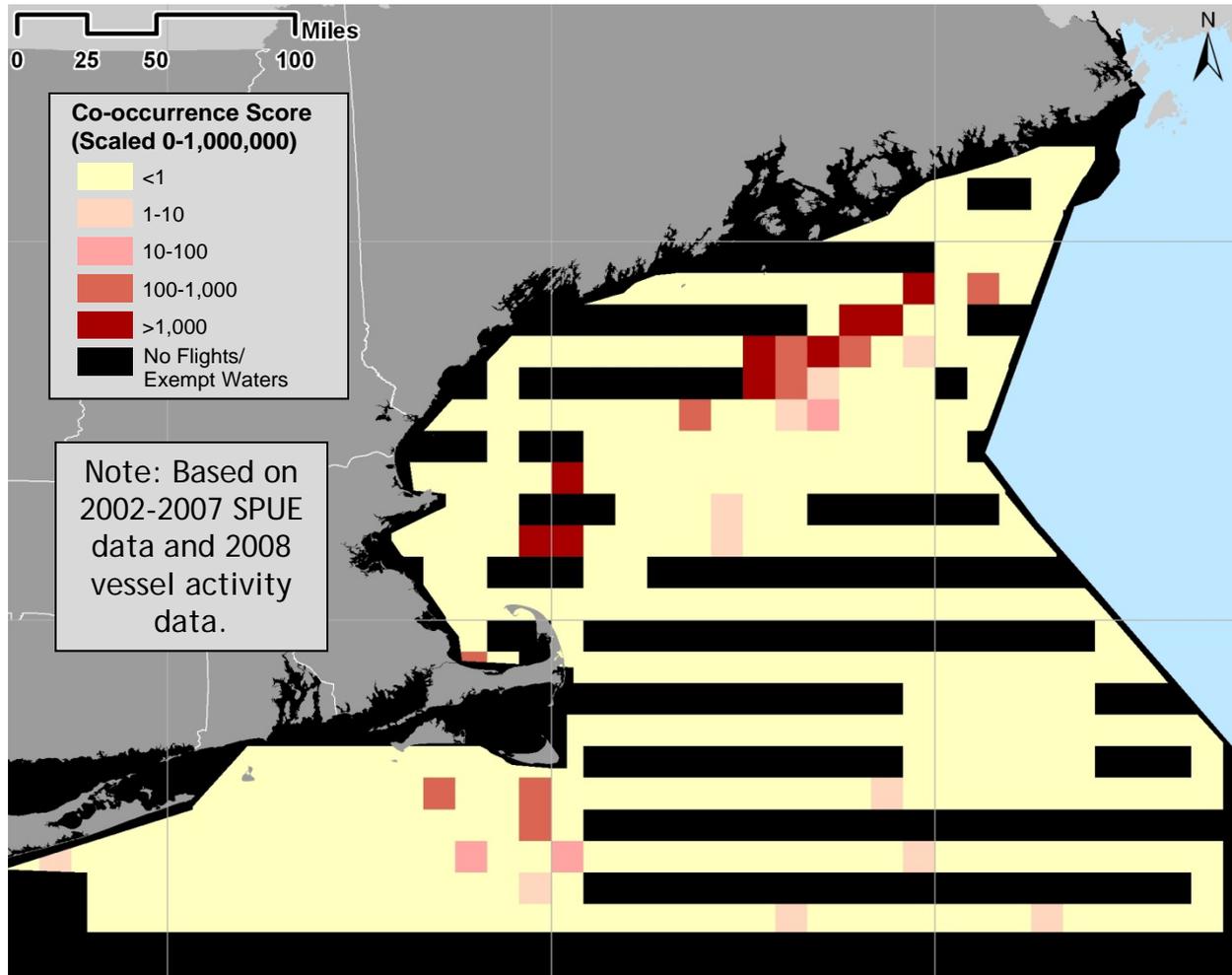


Co-occurrence (All Whales ~ All Fisheries) November



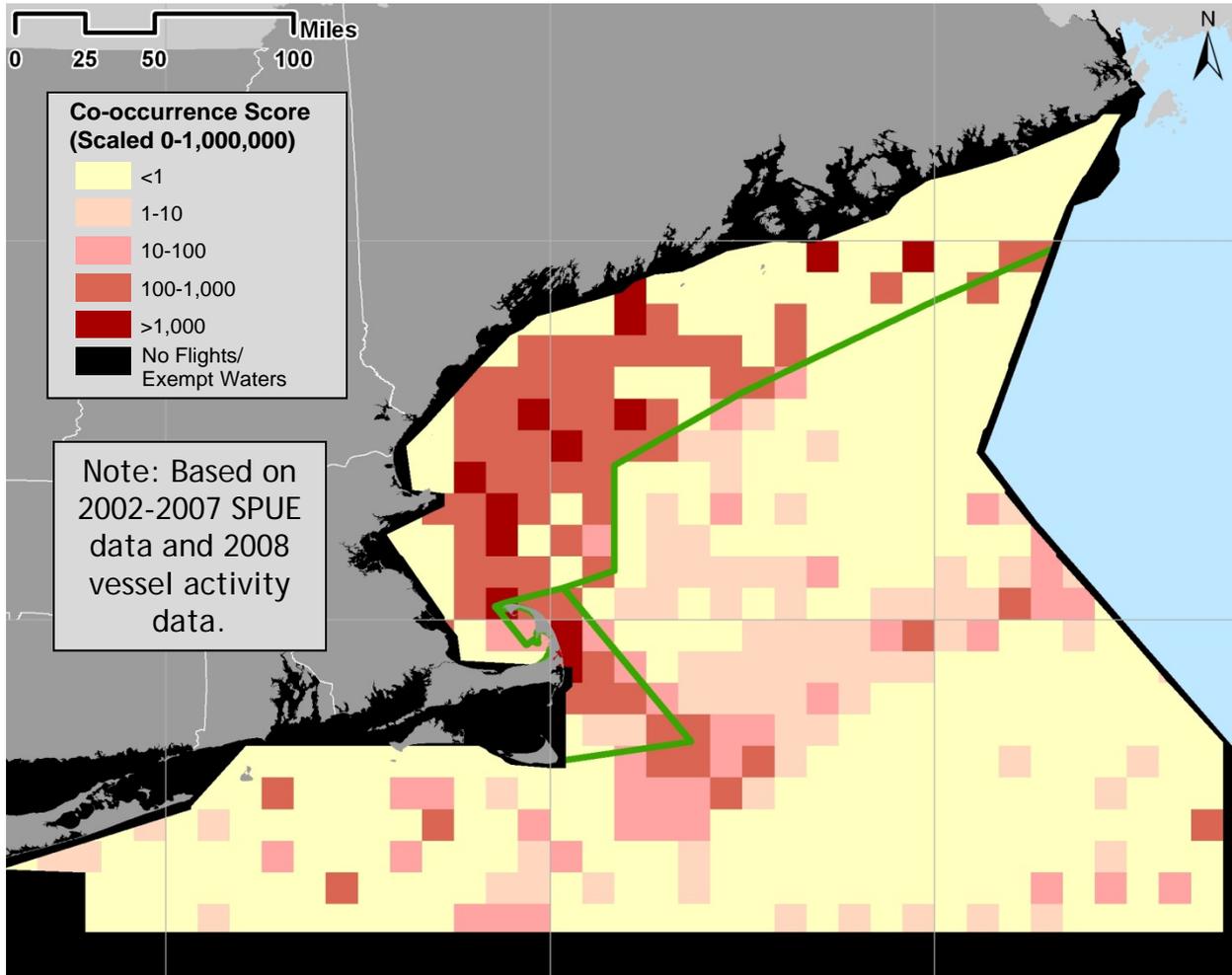


Co-occurrence (All Whales ~ All Fisheries) December



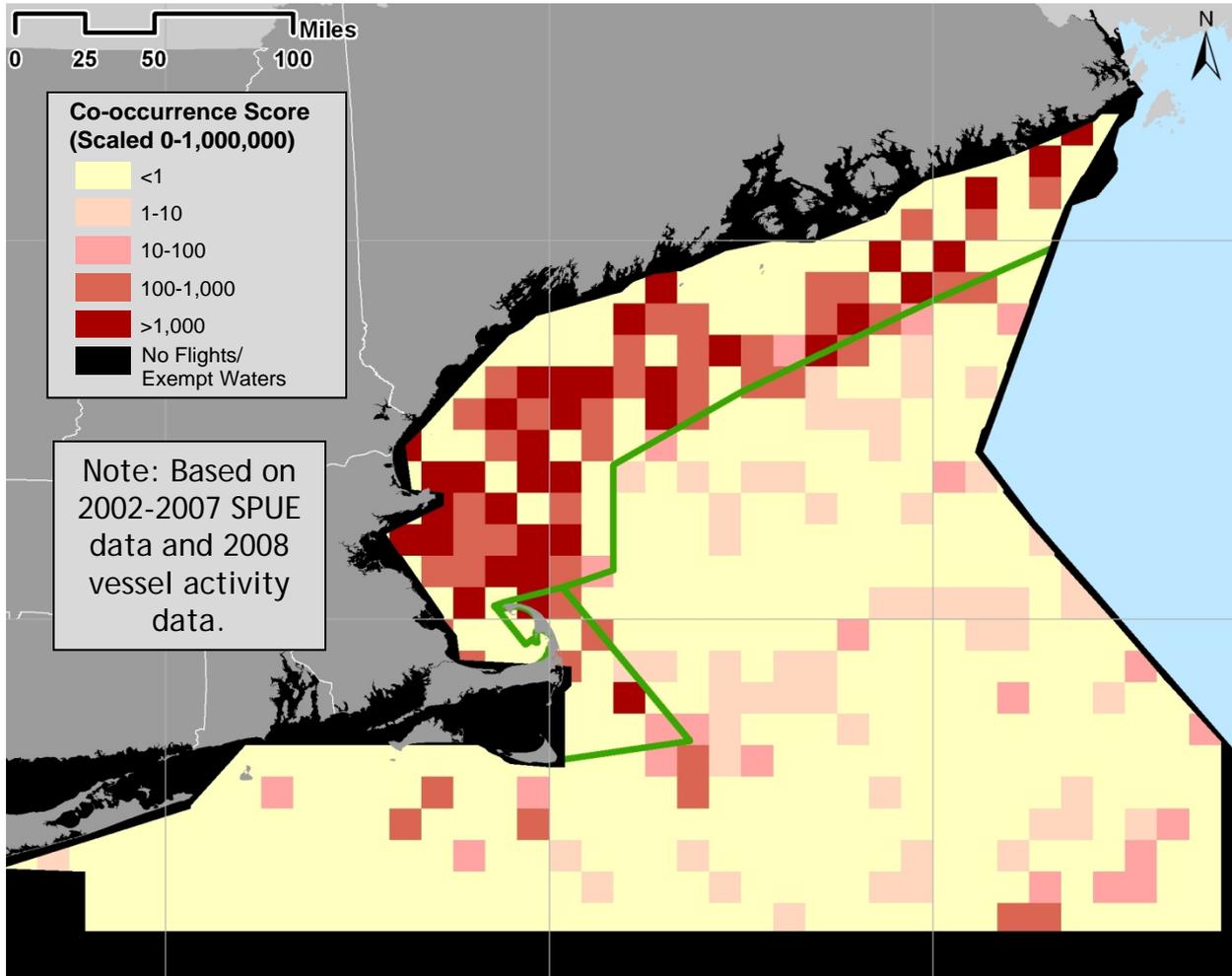


Co-occurrence (All Whales ~ All Fisheries) LMA 1 & Outer Cape ~ April-June





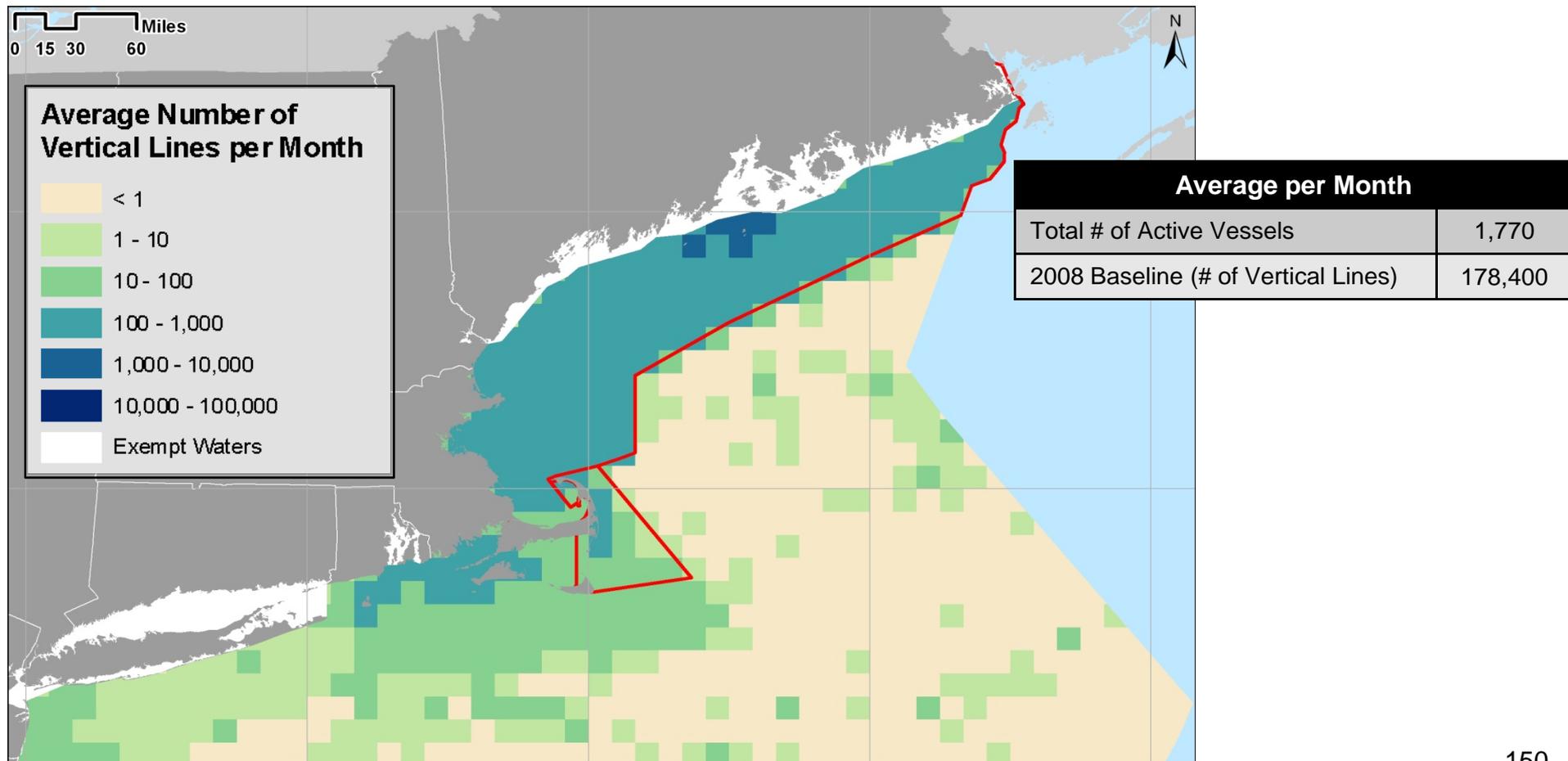
Co-occurrence (All Whales, All Fisheries) LMA 1 & Outer Cape ~ September-December



AREAS		TIMING	Management Measure
Territorial Range		Year Round	Vertical Line Reduction (%) <ul style="list-style-type: none"> • 3 traps/trawl • 5 traps/trawl • 10 traps/trawl (1 end line) • 10 traps/trawl (2 end lines) • Closure
		Seasonal	
Whale Species	Rights	Year Round	
		Seasonal	
	Humpbacks	Year Round	
		Seasonal	
	Fins	Year Round	
		Seasonal	
	Combined (weighted)	Year Round	
		Seasonal	
Combined (unweighted)	Year Round		
	Seasonal		
Vertical Lines		Year Round	
		Seasonal	
Co-Occurrence	Rights	Year Round	
		Seasonal	
	Humpbacks	Year Round	
		Seasonal	
	Fins	Year Round	
		Seasonal	
	Combined (weighted)	Year Round	
		Seasonal	
	Combined (unweighted)	Year Round	
		Seasonal	

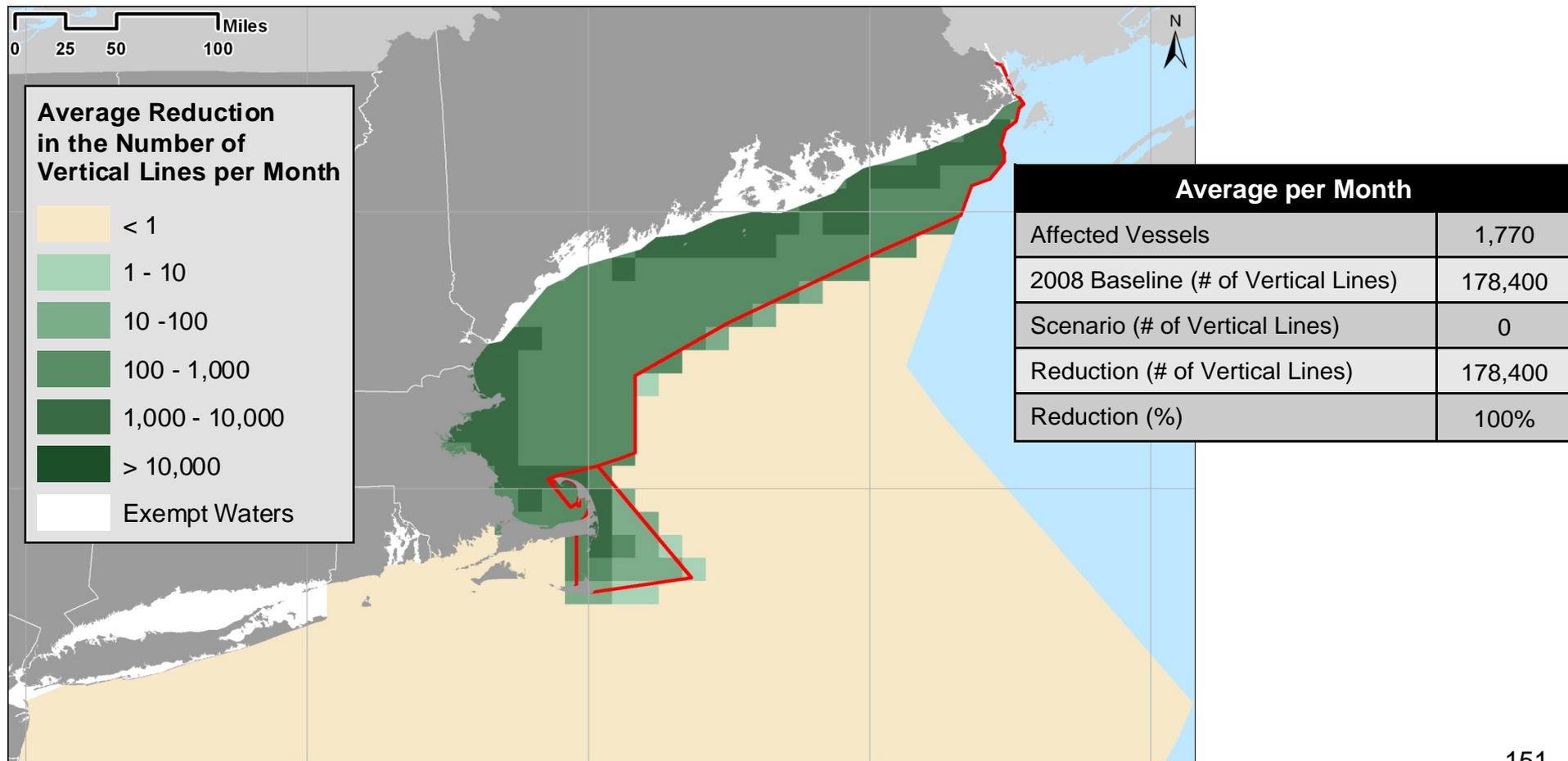


2008 Baseline (All Fisheries) LMA 1 & Outer Cape ~ April-June



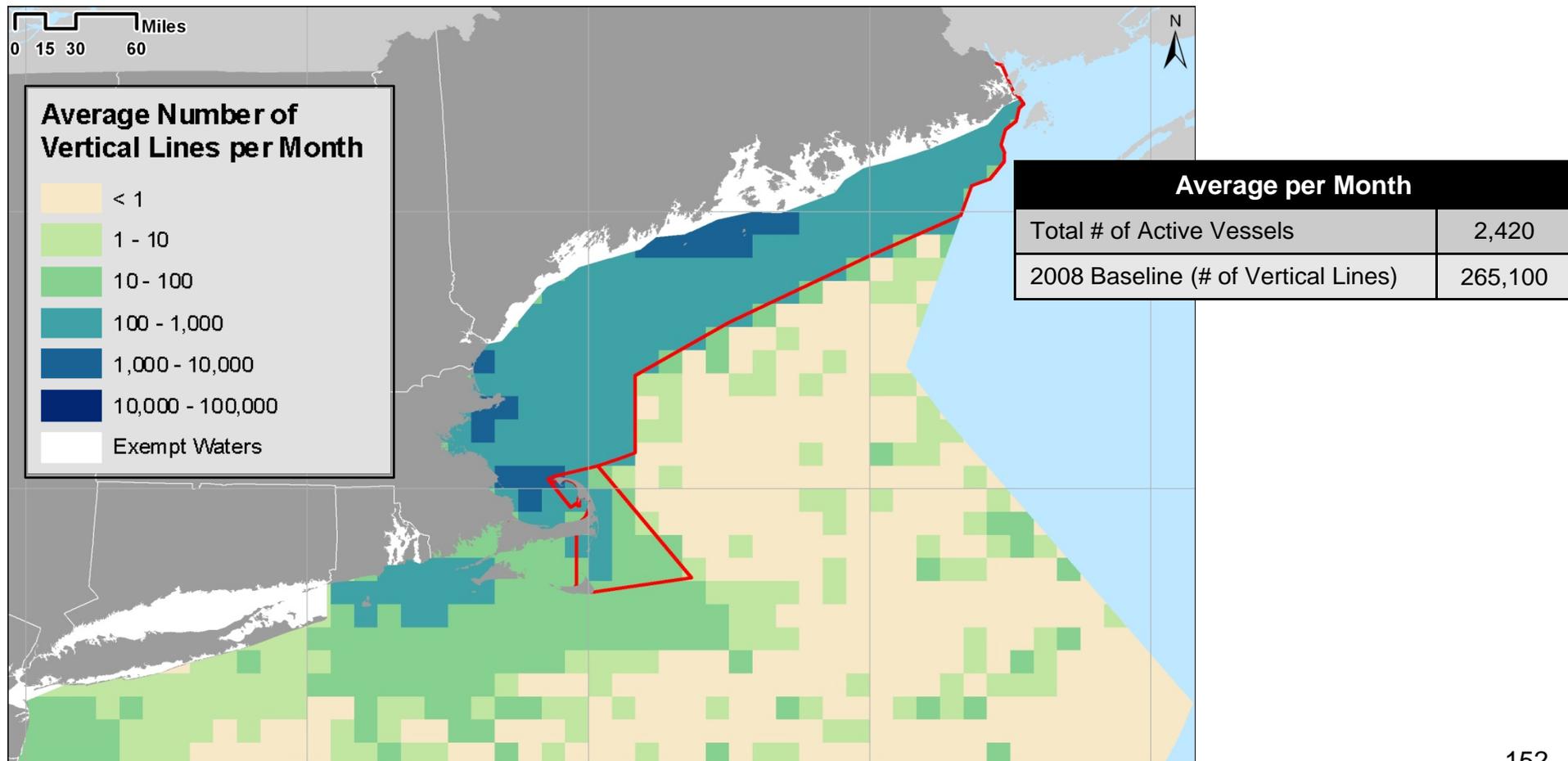


Seasonal Closure LMA 1 & Outer Cape ~ April-June



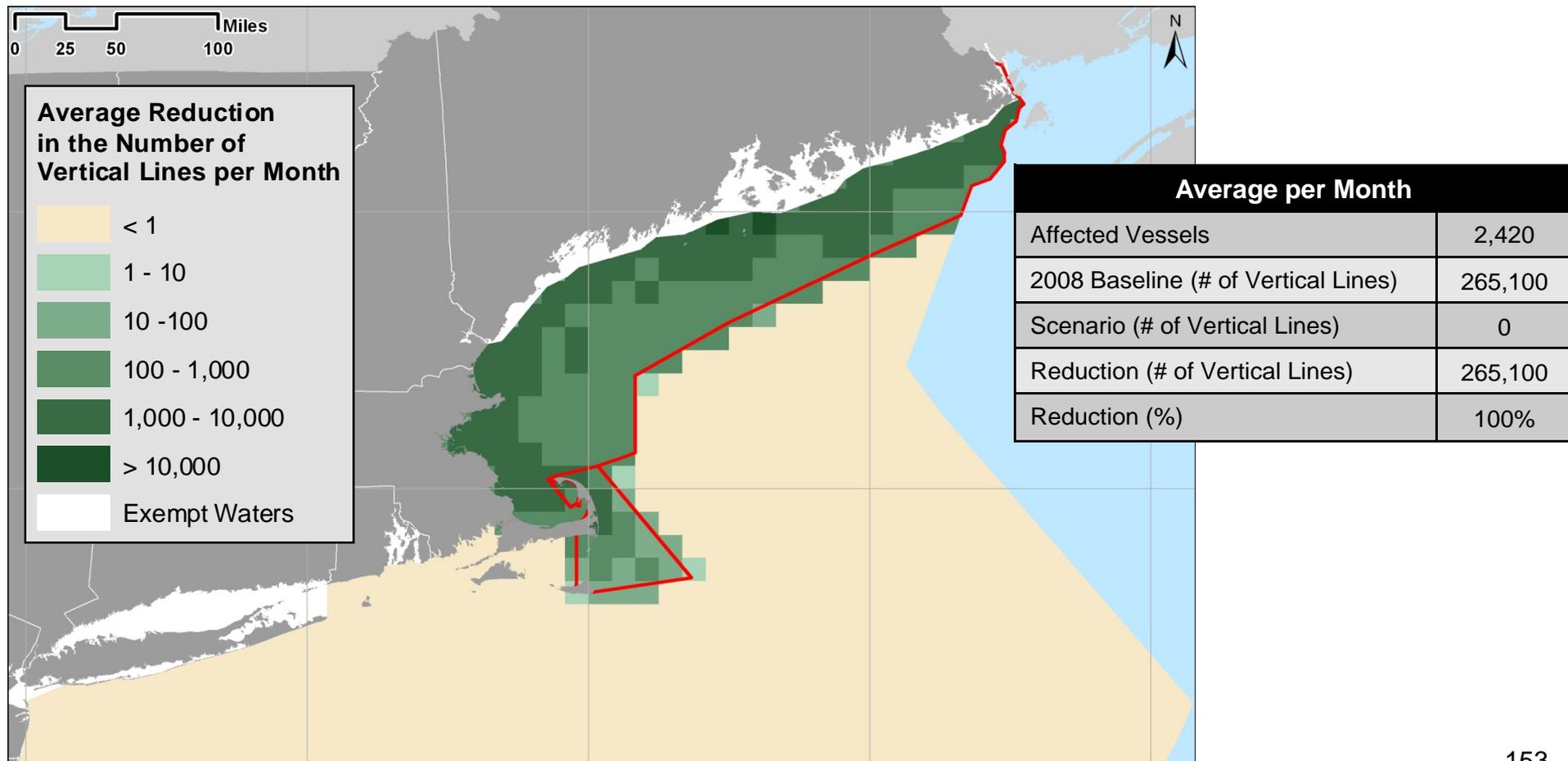


2008 Baseline (All Fisheries) LMA 1 & Outer Cape ~ September-December





Seasonal Closure LMA 1 & Outer Cape ~ September-December





Seasonal Closures LMA 1 & Outer Cape

Average per Month

	2008 Baseline April – June	Closure April – June	2008 Baseline Sept – Dec	Closure Sept - Dec
Affected Vessels	-	1,770	-	2,420
Average Number of Vertical Lines per Month	178,400	0	265,100	0
Reduction in Average Number of Vertical Lines per Month	-	178,400	-	265,100
% Reduction in Vertical Lines within the Scenario Area	-	100%	-	100%



Options for Managing LMA 1 and Outer Cape

Average Per Month

	2008 Baseline	Minimum 3 Traps/Trawl (1 Endline)	Minimum 5 Traps/Trawl (1 Endline)	Minimum 10 Traps/Trawl (1 Endline)	Minimum 10 Traps/Trawl (2 Endlines)	Closure April – June	Closure Sept - Dec
Affected Vessels	-	360	700	1,600	1,300	1,770	2,420
Number of Vertical Lines	209,000	180,200	148,600	80,000	132,700	0	0
Reduction Number of Vertical Lines	-	28,800	60,400	128,900	76,300	178,400	265,100
% Reduction in Vertical Lines	-	14%	29%	62%	37%	100% (during season)	100% (during season)

AREAS		TIMING	Management Measure
Territorial Range		Year Round	Vertical Line Reduction (%) <ul style="list-style-type: none"> ● 3 traps/trawl ● 5 traps/trawl ● 10 traps/trawl (1 end line) ● 10 traps/trawl (2 end lines) ● Closure
		Seasonal	
Whale Species	Rights	Year Round	
		Seasonal	
	Humpbacks	Year Round	
		Seasonal	
	Fins	Year Round	
		Seasonal	
	Combined (weighted)	Year Round	
		Seasonal	
	Combined (unweighted)	Year Round	
		Seasonal	
Vertical Lines		Year Round	
		Seasonal	
Co-Occurrence	Rights	Year Round	
		Seasonal	
	Humpbacks	Year Round	
		Seasonal	
	Fins	Year Round	
		Seasonal	
	Combined (weighted)	Year Round	
		Seasonal	
	Combined (unweighted)	Year Round	
		Seasonal	

AREAS		TIMING	Management Measure
Territorial Range		Year Round	Vertical Line Reduction (%) <ul style="list-style-type: none"> ● 3 traps/trawl ● 5 traps/trawl ● 10 traps/trawl (1 end line) ● 10 traps/trawl (2 end lines) ● Closure
		Seasonal	
Whale Species	Rights	Year Round	
		Seasonal	
	Humpbacks	Year Round	
		Seasonal	
	Fins	Year Round	
		Seasonal	
	Combined (weighted)	Year Round	
		Seasonal	
	Combined (unweighted)	Year Round	
		Seasonal	
Vertical Lines		Year Round	
		Seasonal	
Co-Occurrence	Rights	Year Round	
		Seasonal	
	Humpbacks	Year Round	
		Seasonal	
	Fins	Year Round	
		Seasonal	
	Combined (weighted)	Year Round	
		Seasonal	
	Combined (unweighted)	Year Round	
		Seasonal	