

SMAST Bycatch Avoidance Program

Catherine E. O'Keefe, Greg DeCelles
and Steven X. Cadrin

www.umassd.edu/smast/bycatch

Scallop PDT Meeting

9 April 2014



University of Massachusetts Dartmouth
School for Marine Science and Technology (SMAST)



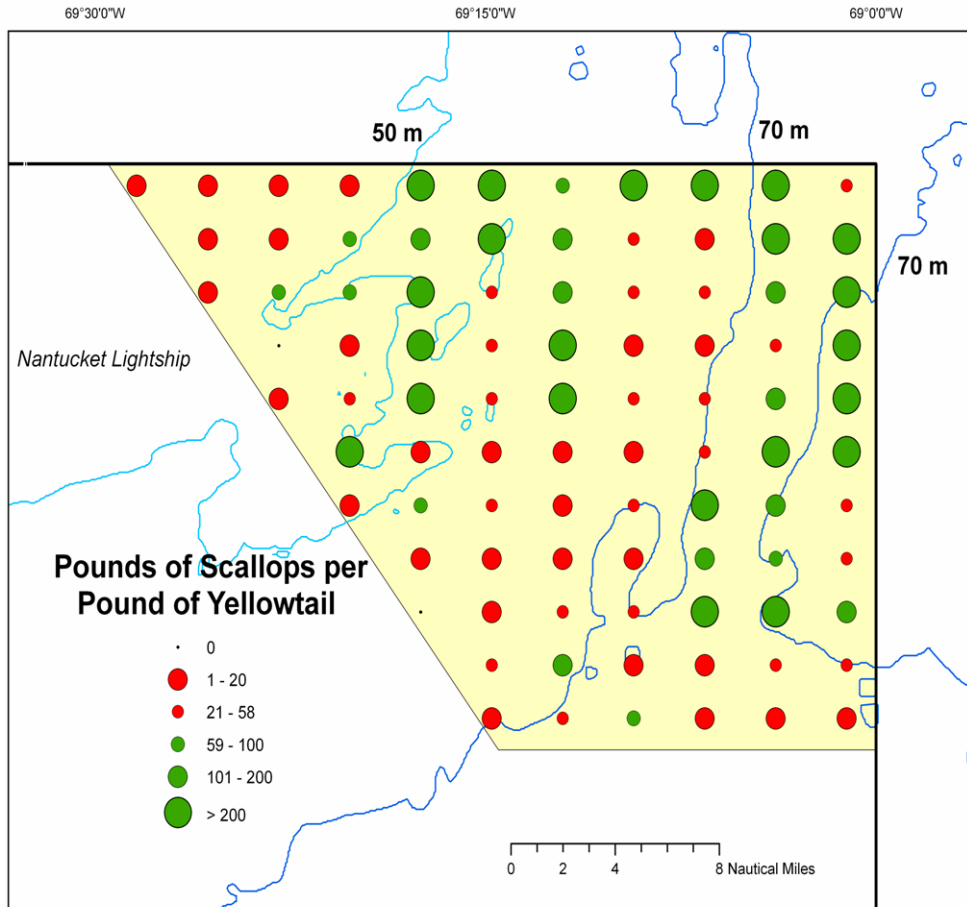
Forming a Partnership to Avoid Bycatch

- Phase 1: Distribute existing survey data prior to fishery to inform fleet about yellowtail and scallop distributions
- Phase 2: Real-time communication of yellowtail catch data for fleet avoidance of hotspots



Phase 1: Examine Existing Data

Nantucket Lightship Area 2010

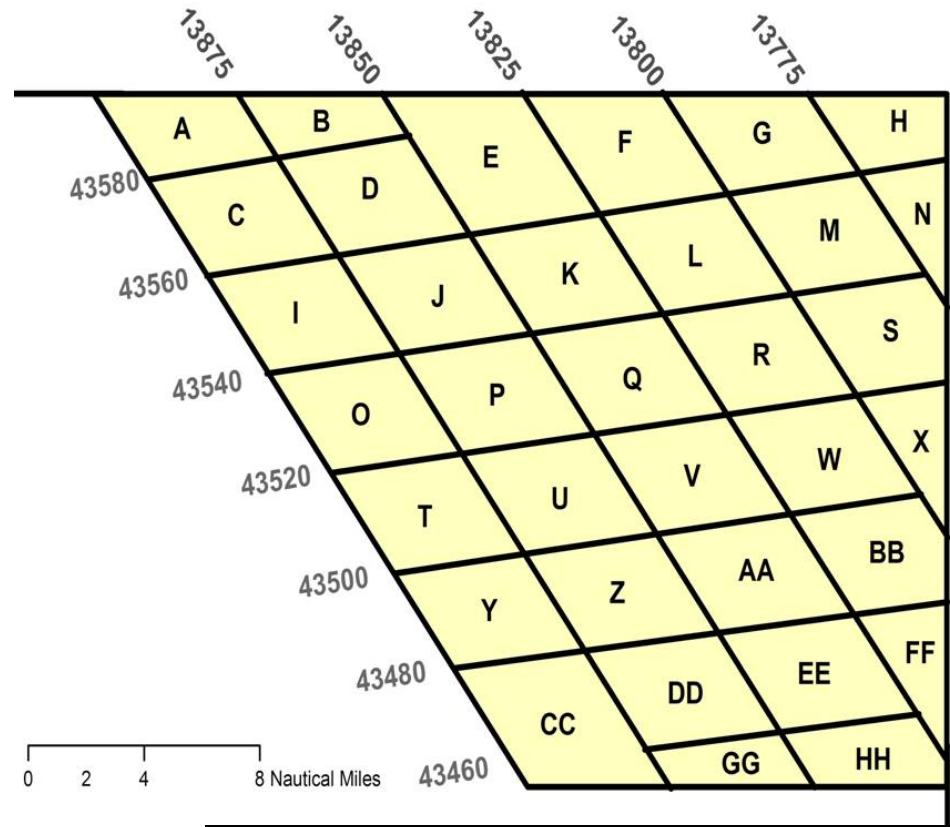


Adapted from DuPaul and Rudders, 2010

- 2009 Virginia Institute of Marine Science dredge survey
- Ratio of scallops to yellowtail based on scallop target and yellowtail catch limit
- Stop light analogy map provided information before fishery began

Phase 2: Real-Time Communication

- Access area divided into cells on Loran C lines
 - Fishermen report once every 24 hours on bycatch
1. Data compiled
 2. Cells classified
 3. Advisory sent back to fishing fleet



| | |
|--------------|----------|
| Cell: | Q |
|--------------|----------|

| | |
|----------------|----------|
| # Tows: | 6 |
|----------------|----------|

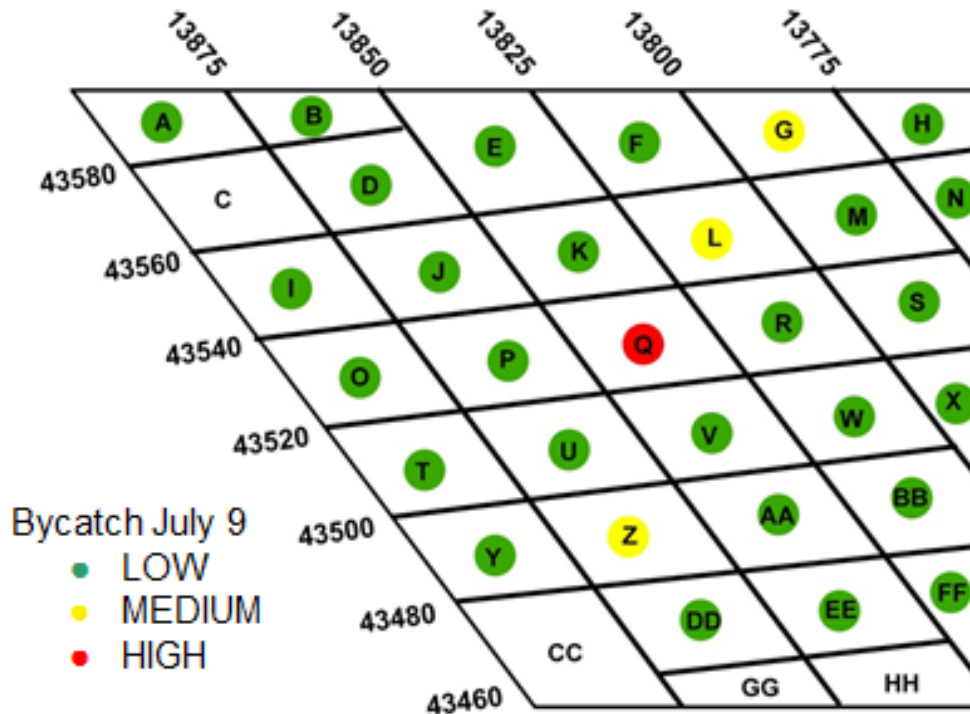
| | |
|---------------------------|-----------|
| Yellowtail Pounds: | 55 |
|---------------------------|-----------|



SMAST – SCALLOP INDUSTRY



NANTUCKET LIGHTSHIP YELLOWTAIL BYCATCH ADVISORY



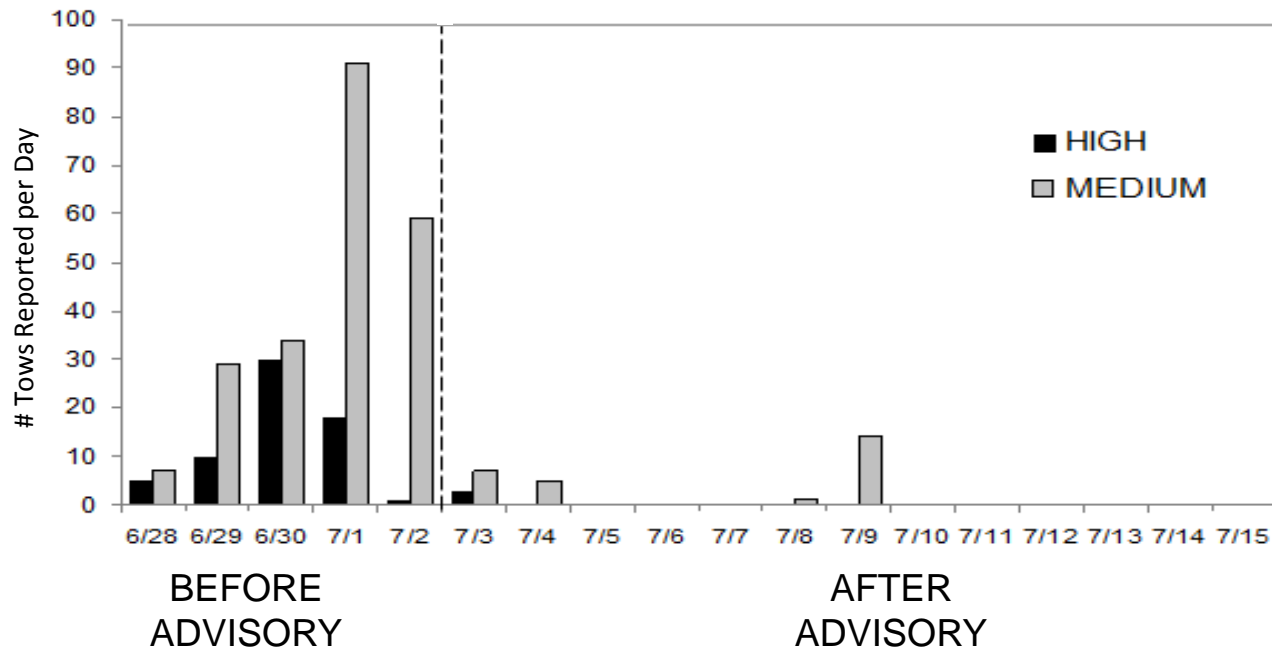
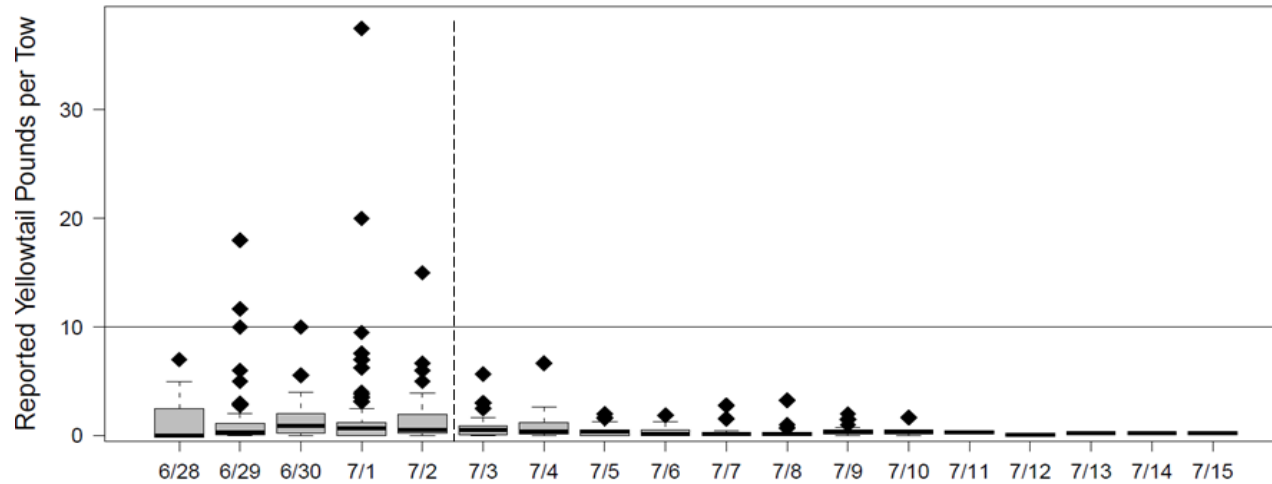
YT Update for 7/9:
10 boats reported 129 tows

YT catch was:
HIGH: Q
MEDIUM: G L Z
All other cells LOW

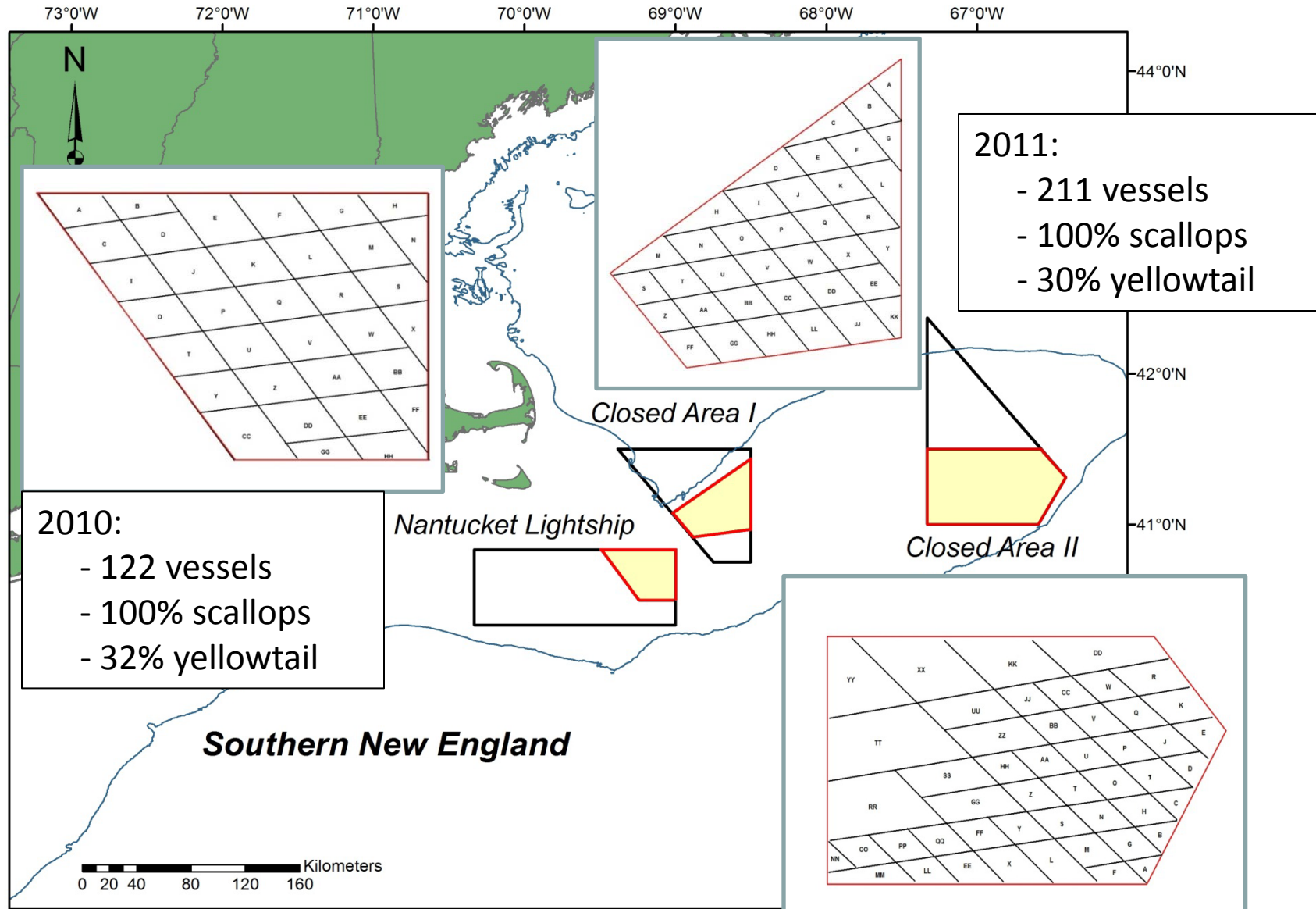
Cell Q remains a YT
hotspot.
Cells G L Z had high YT
catch.

Next Report 7/10.
Thank you!

Changing Fishing Behavior

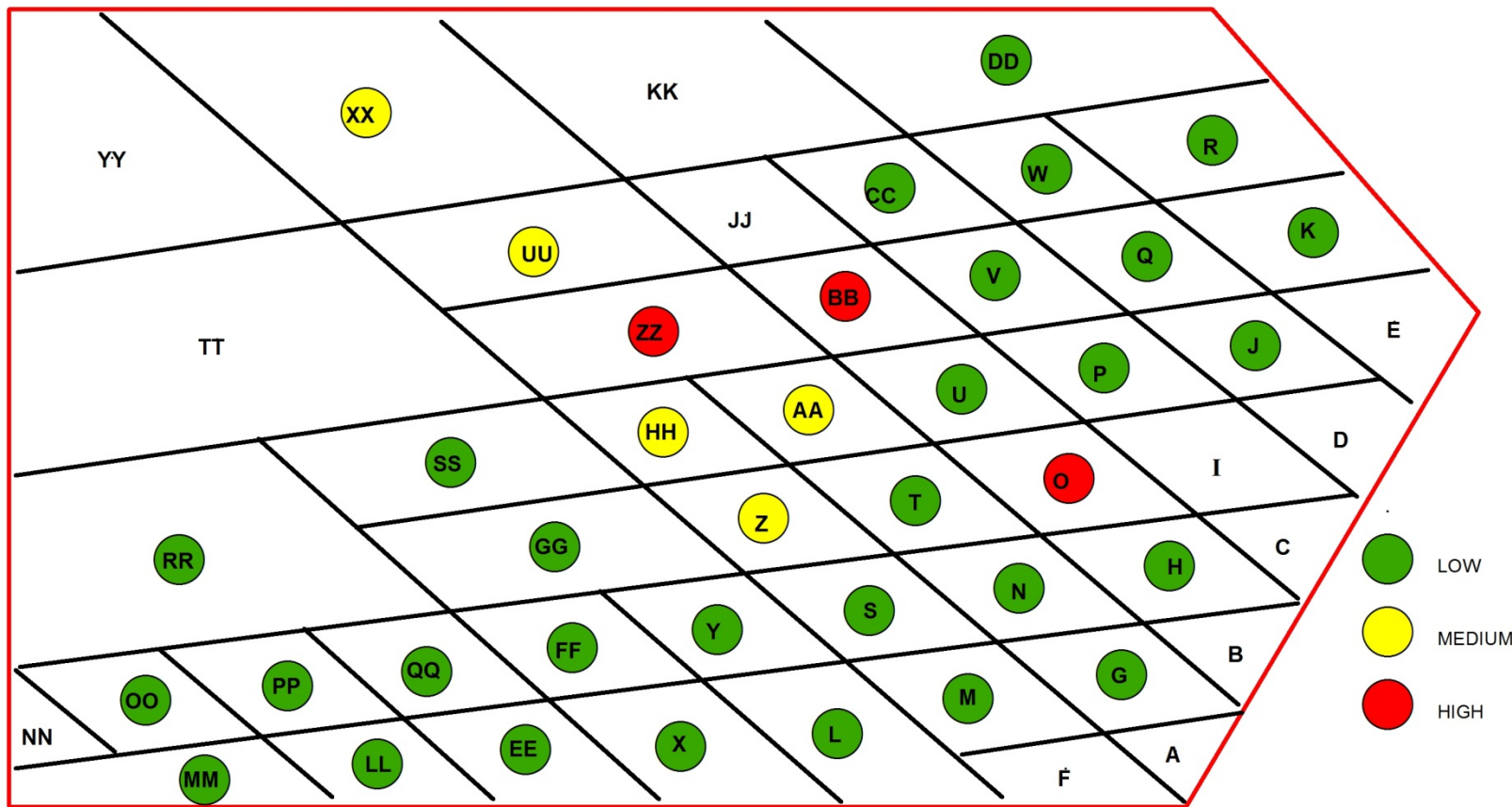


Access Area Program Repeatability

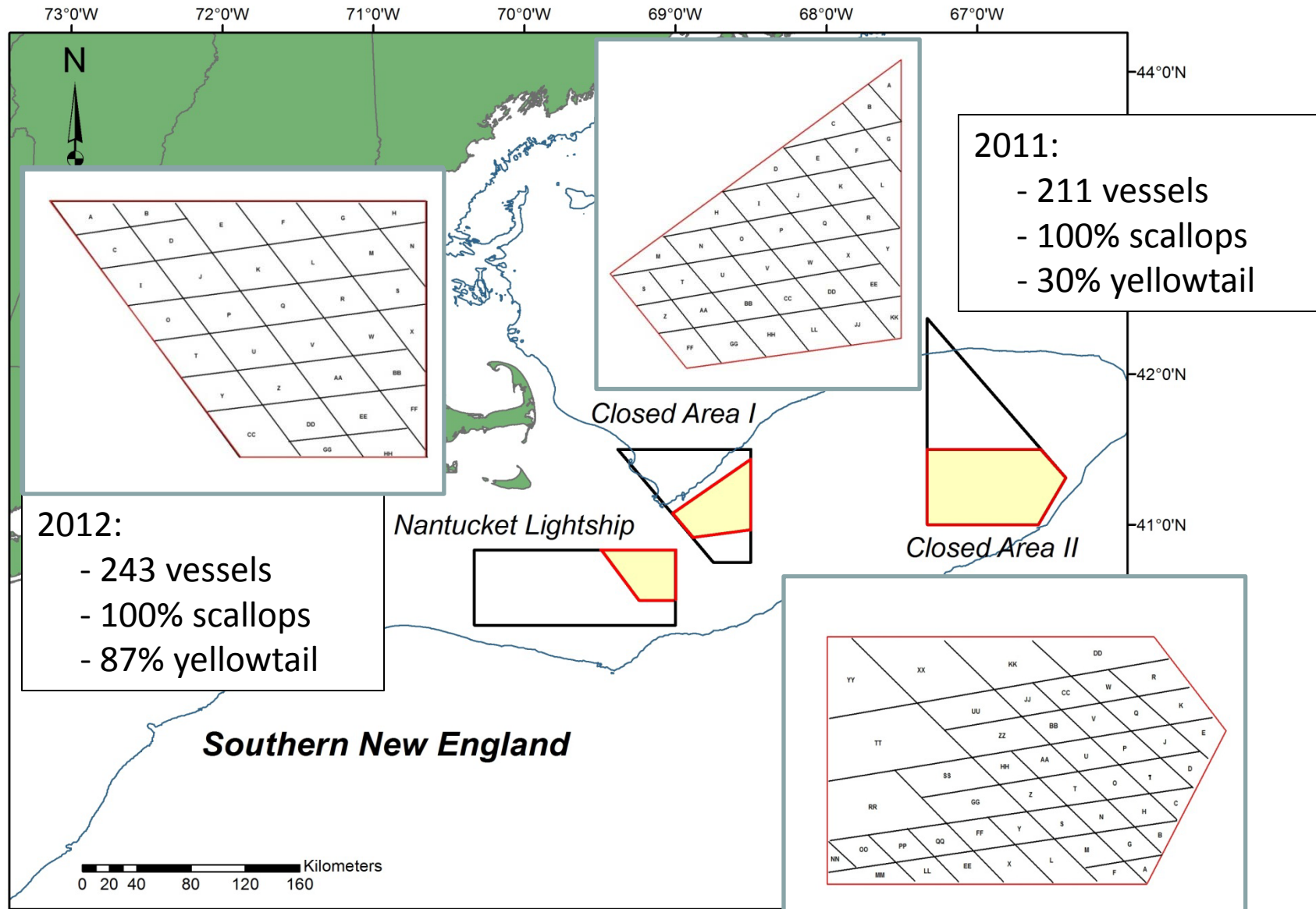


Closed Area II Yellowtail Bycatch

10/24/11

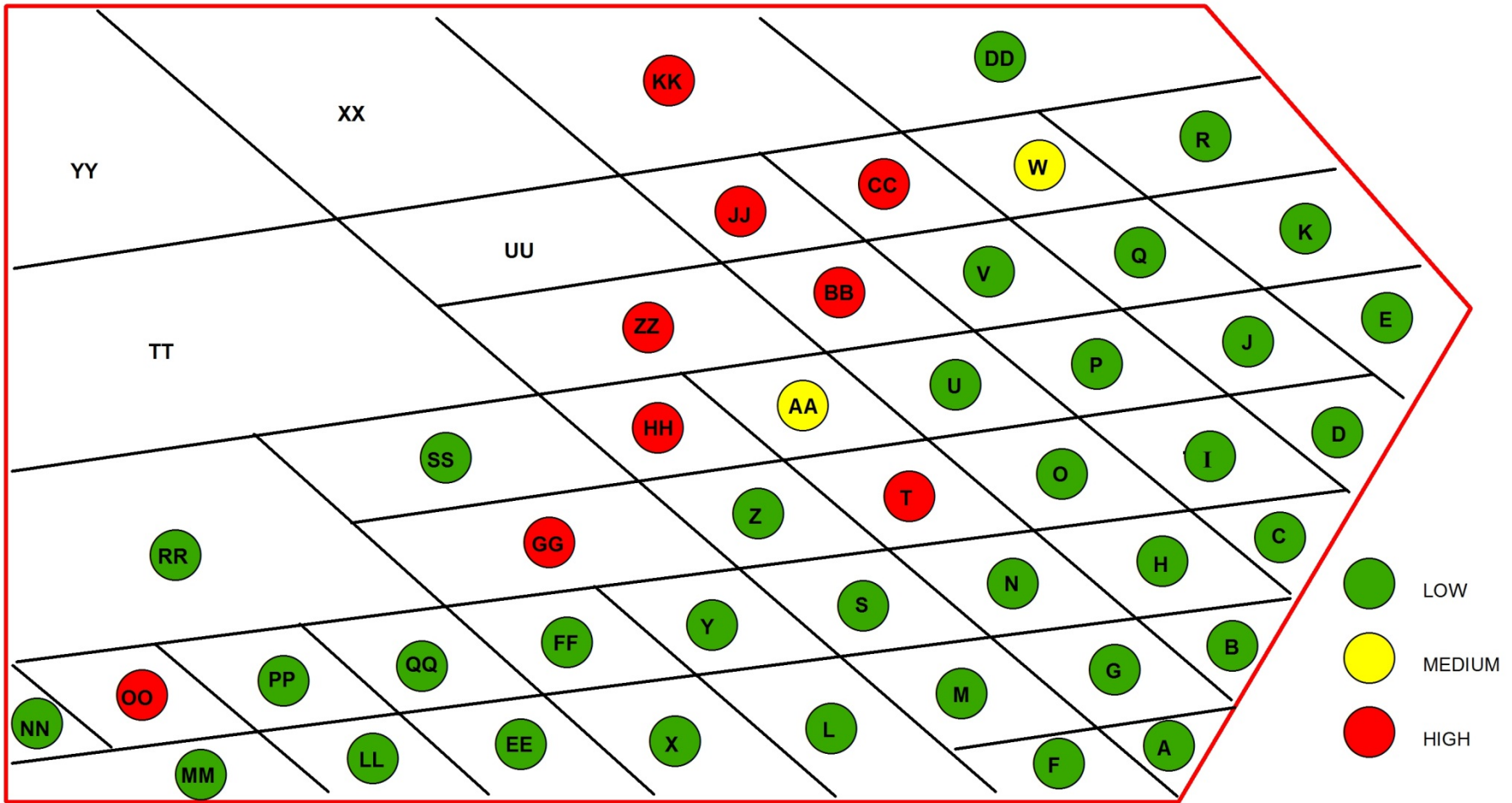


Access Area Program Repeatability

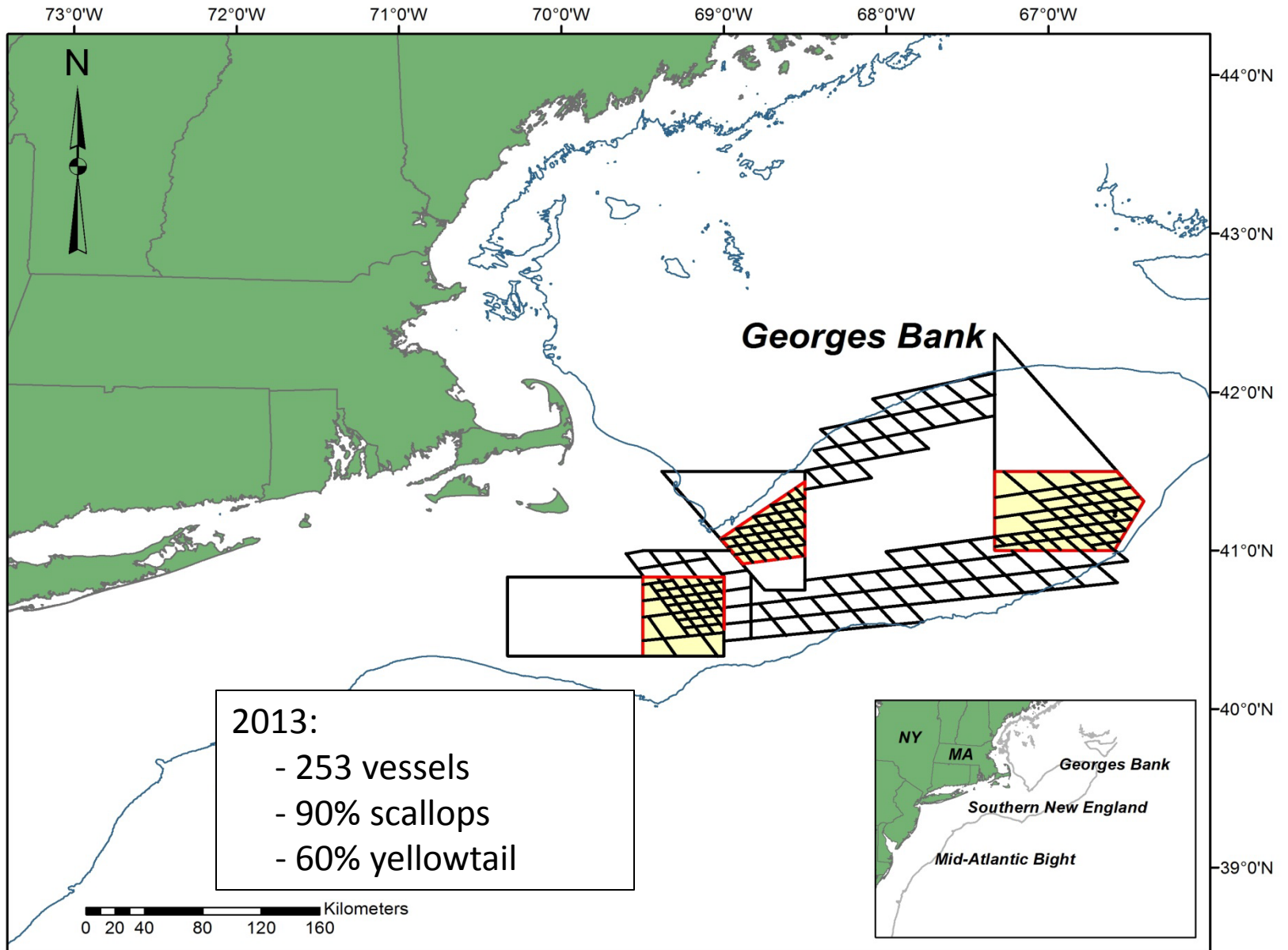


Closed Area II Yellowtail Bycatch

10/22/12

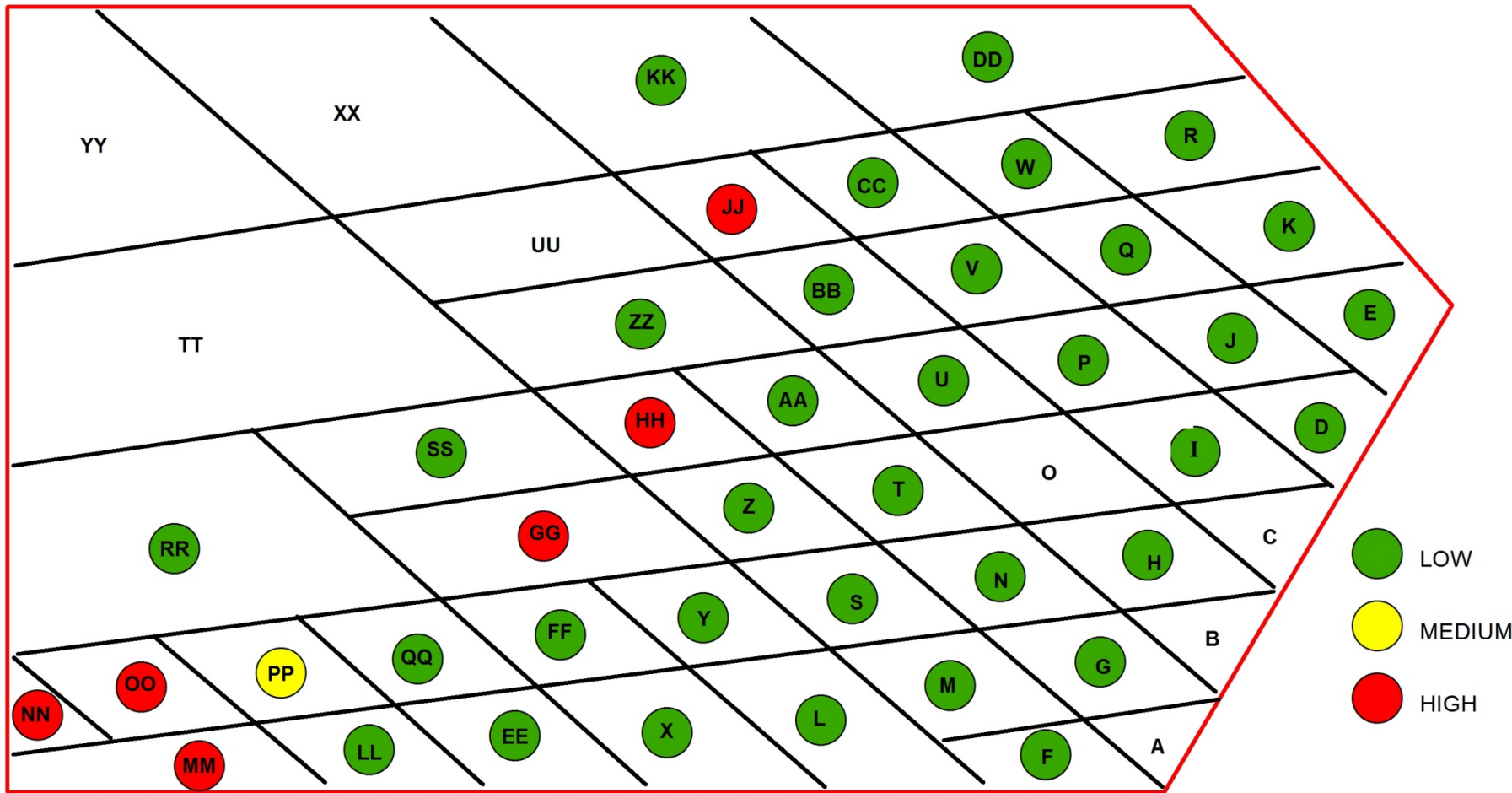


Program Expansion



Closed Area II Yellowtail Bycatch

8/13/13



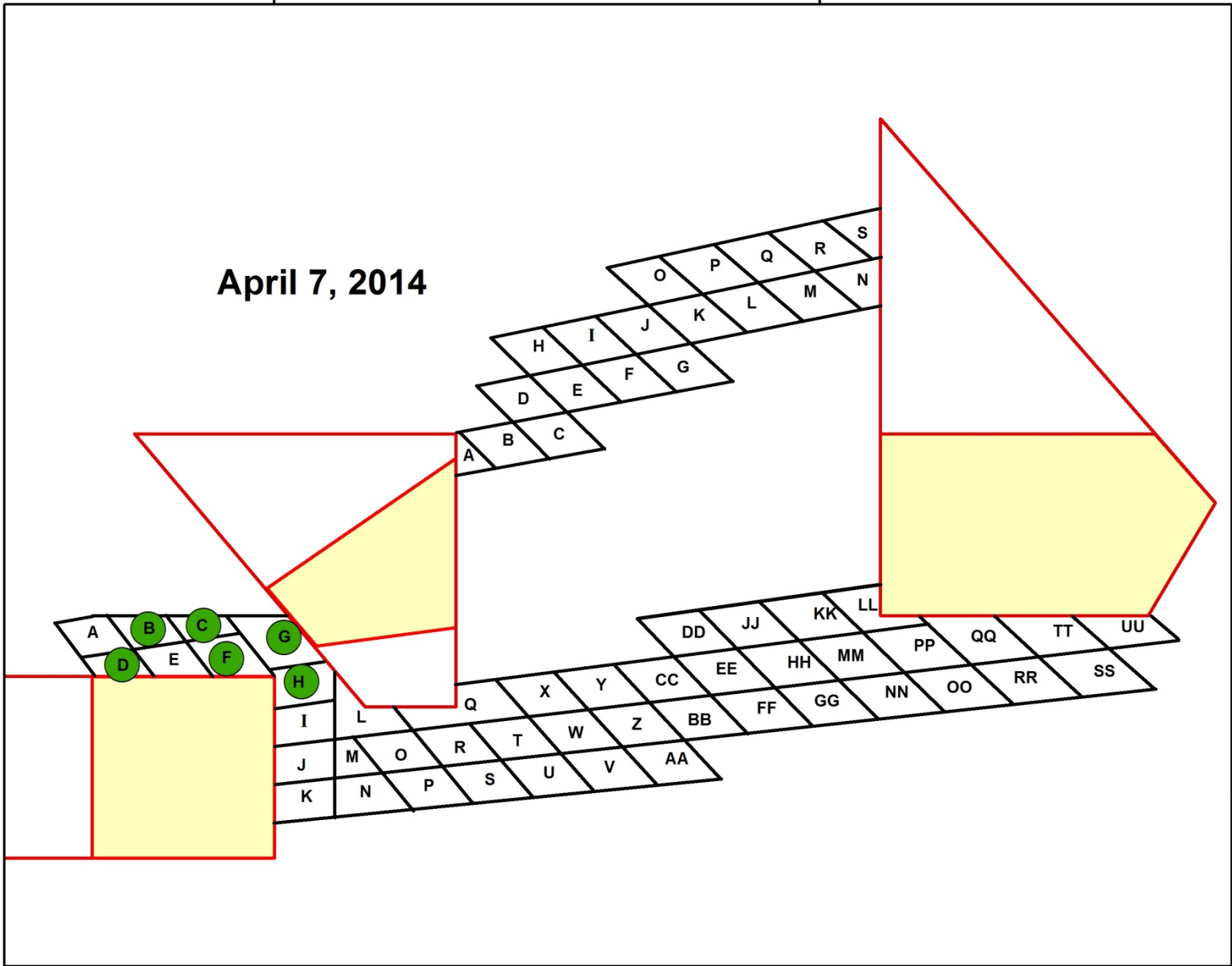
69°0'W

67°30'W

April 7, 2014

42°0'N

40°30'N



Industry Participation

- **2010:** 122 vessels
 - Collection of yellowtail information, no scallop information
- **2011:** 211 vessels signed up
 - Data reporting included scallop catch information
- **2012:** 243 vessels
 - Expanded to include 9 General Category vessels in open areas in Southern New England
- **2013:** 253 vessels
 - Expanded to include open areas on Georges Bank and Great South Channel



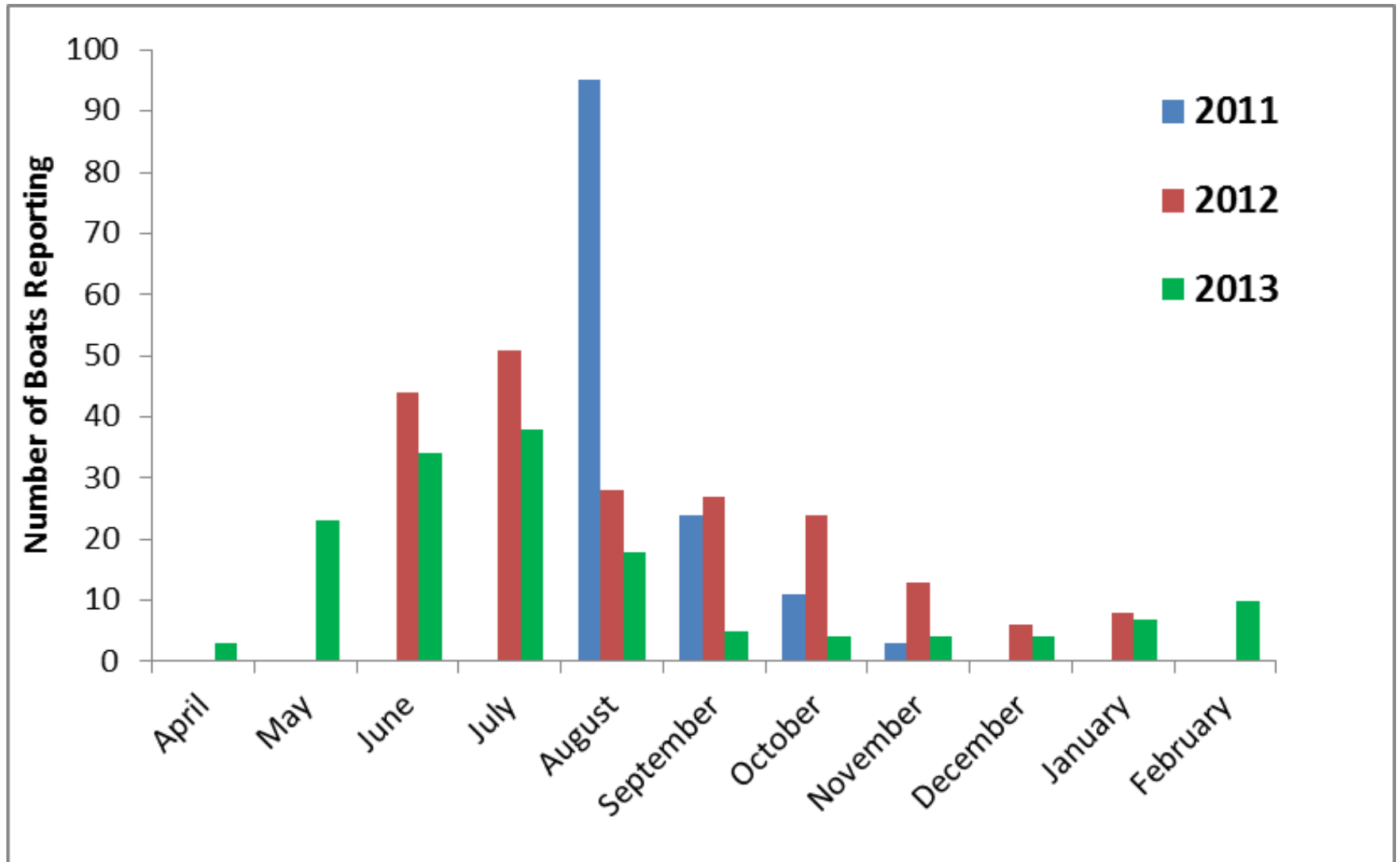
SMAST Bycatch Avoidance Program

Reporting Levels By Area

| | 2011 | | | 2012 | | | 2013 | | |
|--------------|------------|-------------|-------------|------------|-------------|--------------|-----------|-------------|--------------|
| | Boats | Reports | Tows | Boats | Reports | Tows | Boats | Reports | Tows |
| CA1 | 91 | 755 | 5717 | 60 | 602 | 8322 | 11 | 121 | 1441 |
| CA2 | 40 | 324 | 2704 | 86 | 950 | 9305 | 39 | 352 | 3660 |
| NLCA | | | | 44 | 256 | 3029 | 33 | 219 | 3126 |
| North Open | | | | | | | 11 | 60 | 924 |
| South Open | | | | | | | 24 | 330 | 4300 |
| Total | 112 | 1079 | 8241 | 108 | 1808 | 20656 | 73 | 1082 | 13451 |

- 2011: 211 boats signed up – **53%** Reporting
 - 522 trips in CA1, 174 in CA2
- 2012: 243 boats signed up – **44%** Reporting
 - 174 trips in CA1 and NLCA, 348 in CA2
- 2013: 253 boats signed up – **29%** Reporting
 - 118 trips in CA1, 182 in CA2, 116 in NLCA

Monthly Reporting Levels 2011-2013

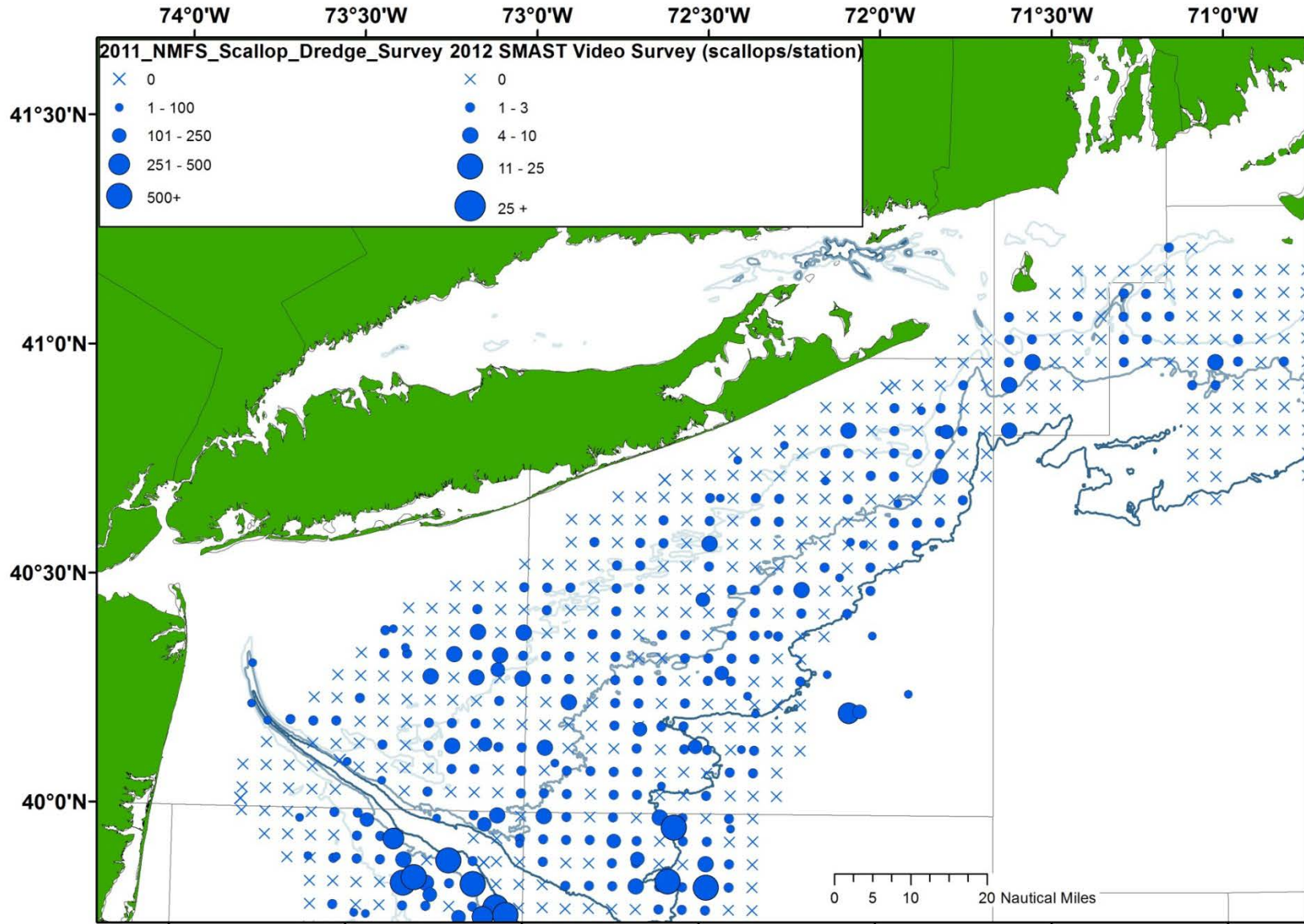




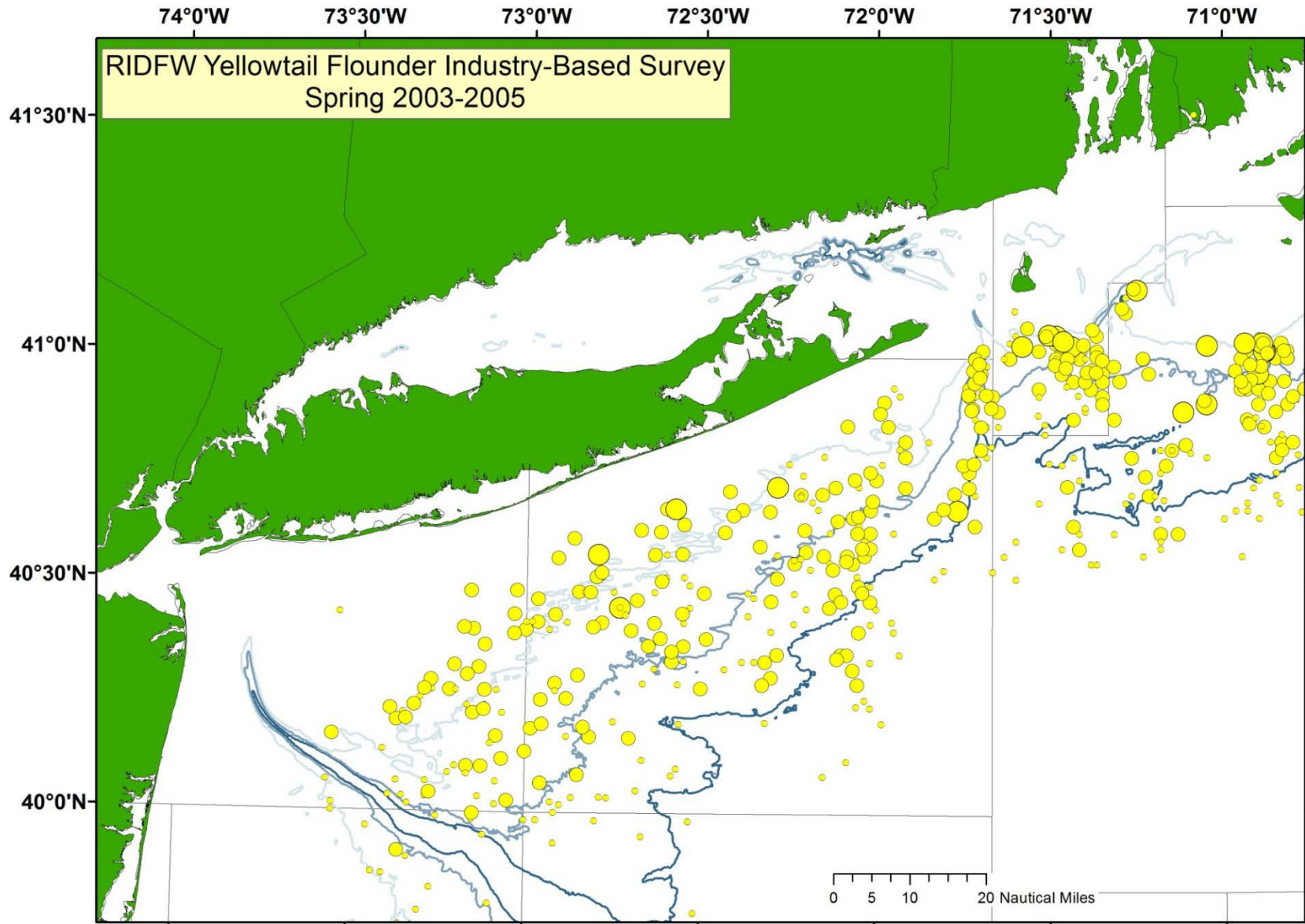
Bycatch Avoidance 2014

- Continued importance of bycatch avoidance
- Include expansion to Southern New England
- Create new reporting grid
- Include windowpane for all reporting areas
- Same protocols as previous years

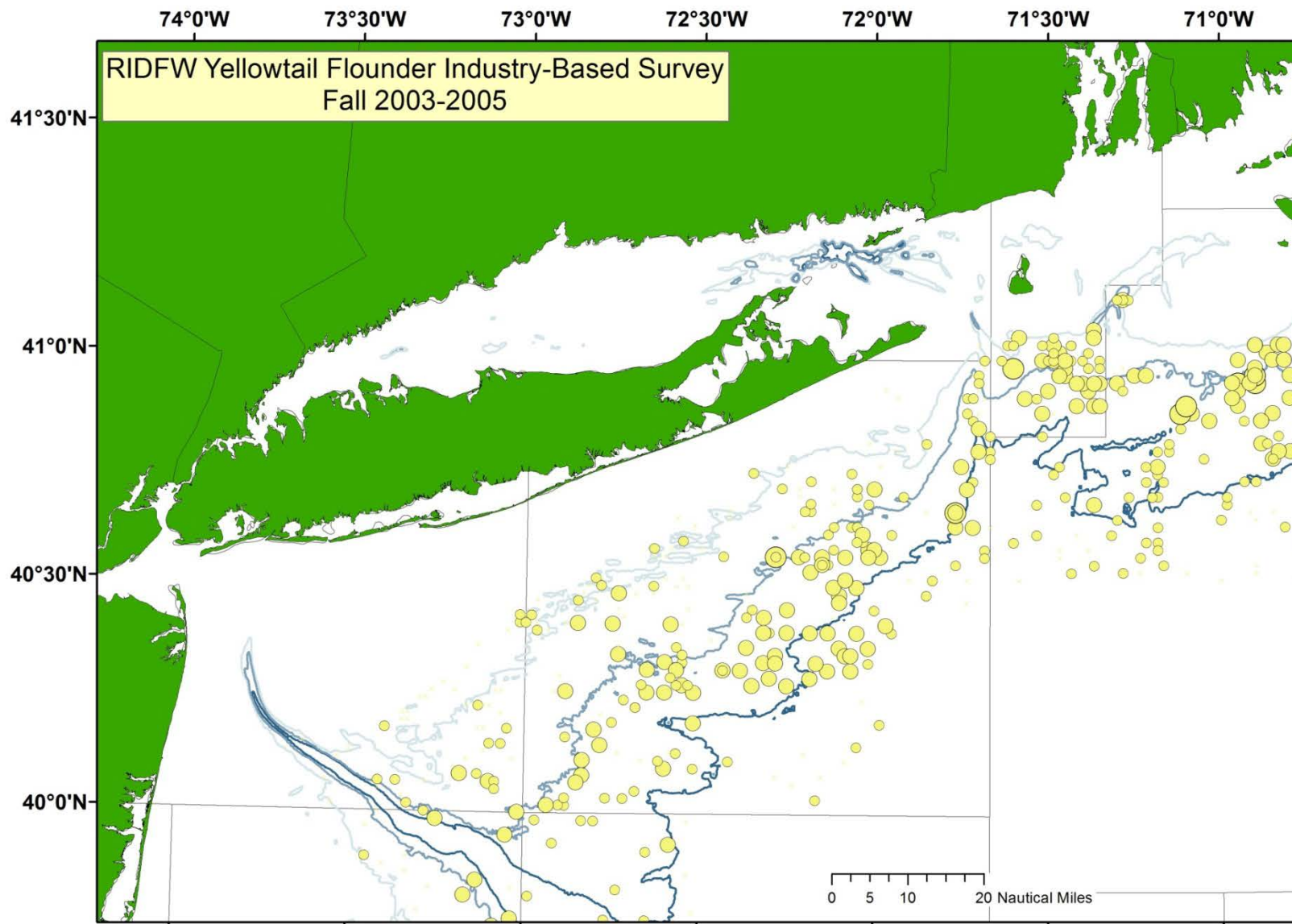
NMFS – SMAST Scallop Distribution



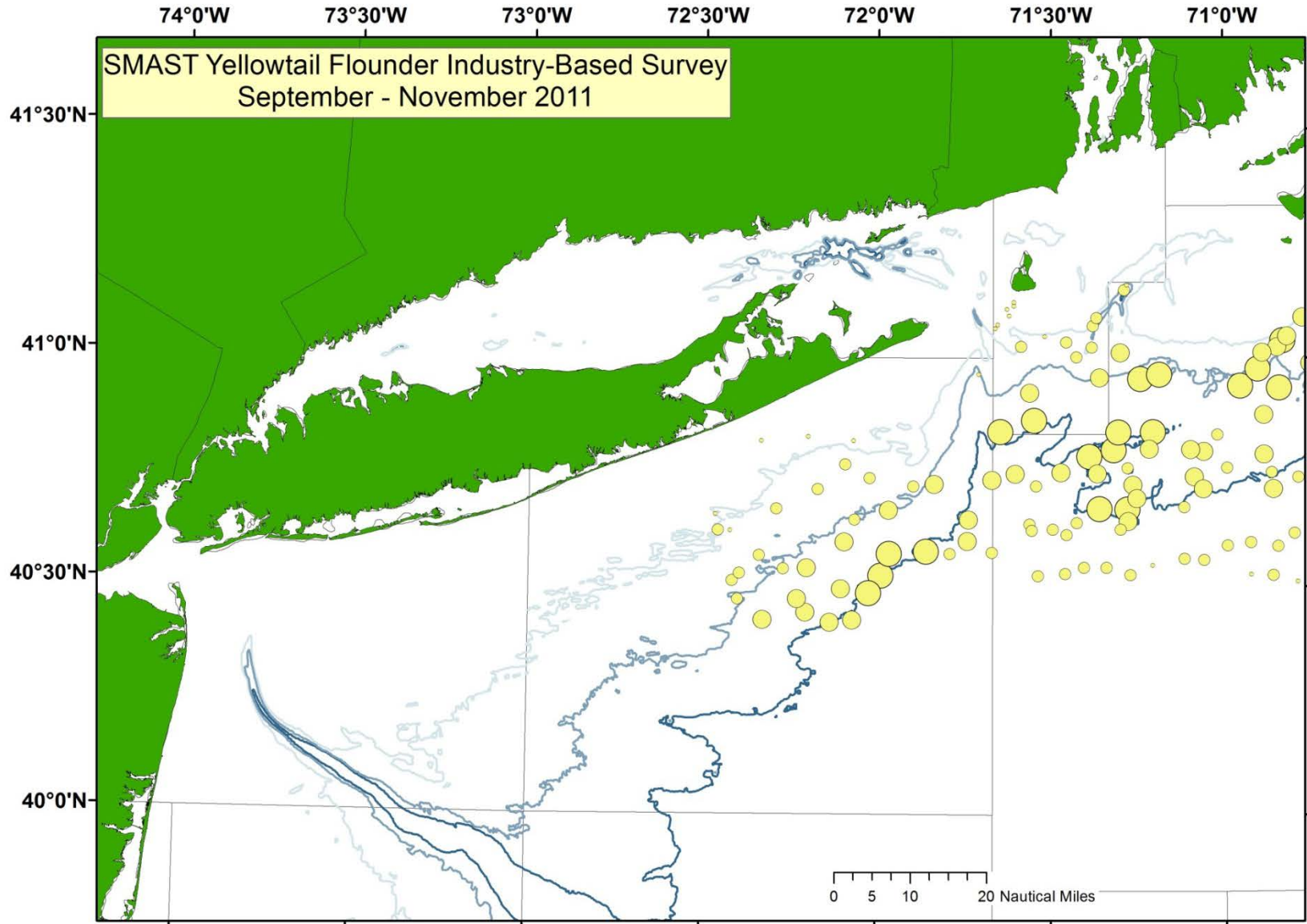
Rhode Island Yellowtail Spring Survey



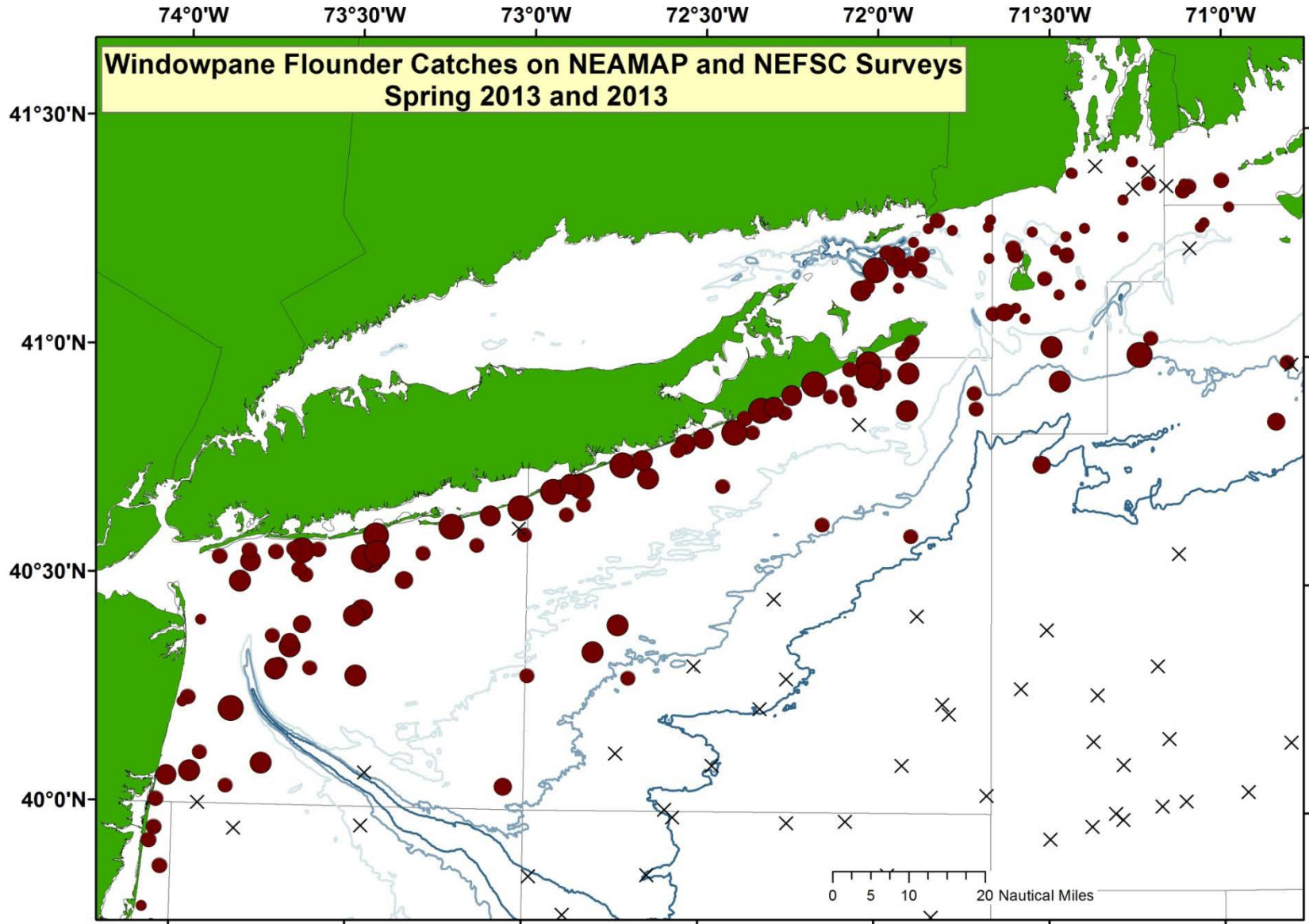
Rhode Island Yellowtail Flounder Fall Survey



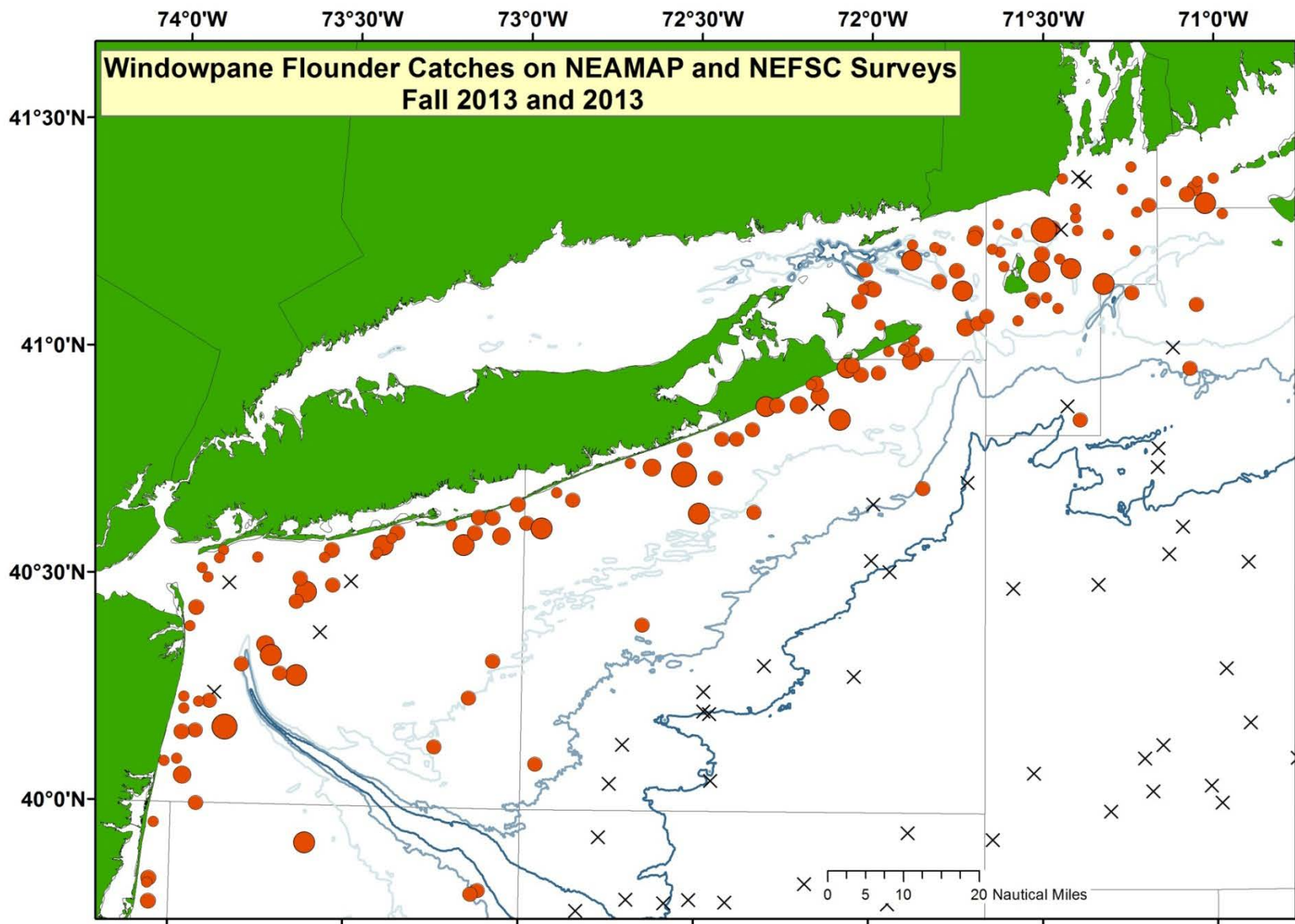
SMAST Yellowtail Fall Survey



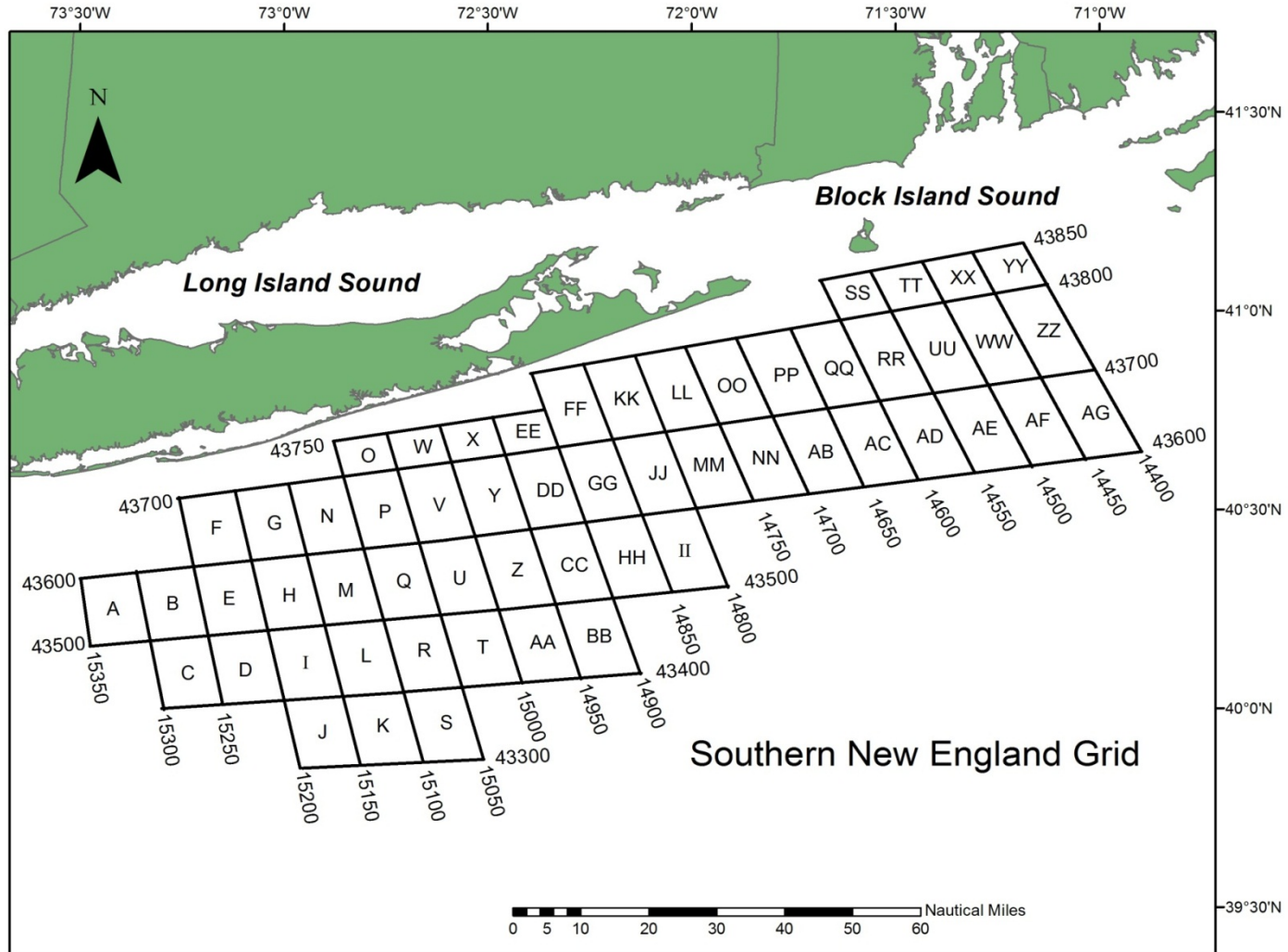
NEAMAP/NEFSC Windowpane Spring Survey



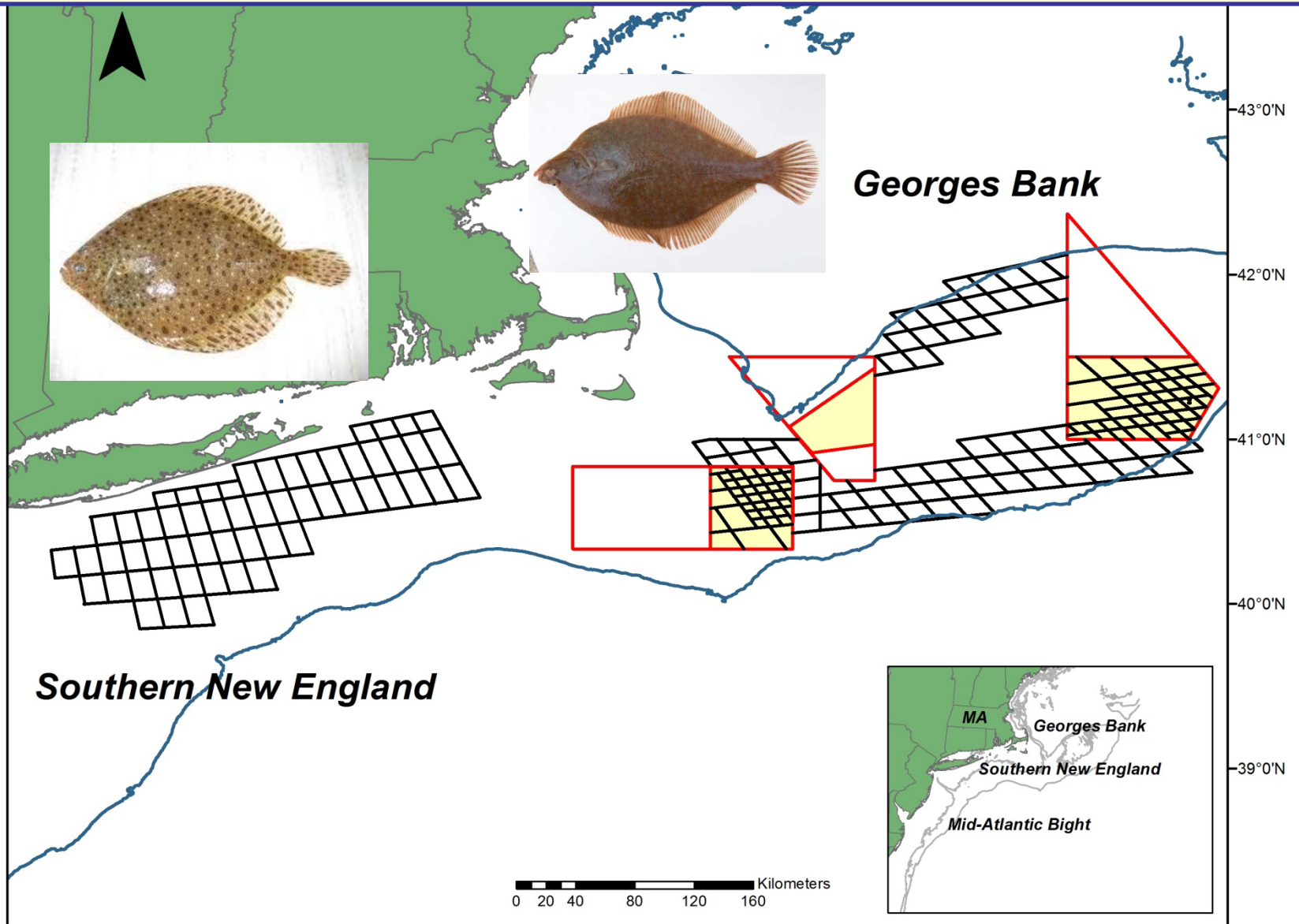
NEAMAP/NEFSC Windowpane Flounder Survey



SNE Reporting Region Proposal



2014 Program Expansion



2014 Bycatch Avoidance Program

- Master's student project focused on environmental variables as predictors for yellowtail distribution
 - Using 2011-2013 Bycatch Avoidance data, combined with other data sources
 - Results could be applied in Phase 1 of program in future years
- Comparing NEFOP data to avoidance program data
 - Report similarities and differences
 - Effectiveness of advise for changing fishing behavior

RSA Funding for Bycatch Avoidance

- 2012 Bycatch Avoidance Program (CAI, CAII, NLCA)
 - Scallop RSA = \$ 94,829
 - Fisheries Survival Fund = \$ 30,000
 - American Scallop Association = \$ 21,000
 - Total ~ \$ 146,000
- 2013 Bycatch Avoidance Program (CAI, CAII, NLCA, Georges Bank open areas)
 - Scallop RSA = \$147,096
 - Fisheries Survival Fund = \$30,000
 - American Scallop Association = \$11,000
 - Other Industry Donations = \$4,000
 - Total ~ \$ 192,000
- 2014 Bycatch Avoidance Program (CAII, NLCA, Georges Bank and Southern New England open areas)
 - Scallop RSA Proposal = \$152,765
 - Efforts to raise ~ \$ 50,000 from industry to support 2014 program

Conclusions

- Collaborative, iterative approach to yellowtail bycatch reduction was effective in changing fishing behavior
- Trust and communication influenced participation to address yellowtail bycatch
- Program may not have been effective without restrictive bycatch cap or area closures.

