

River Herring Bycatch Avoidance Program

Mid-water Trawl and Rhode Island Bottom Trawl



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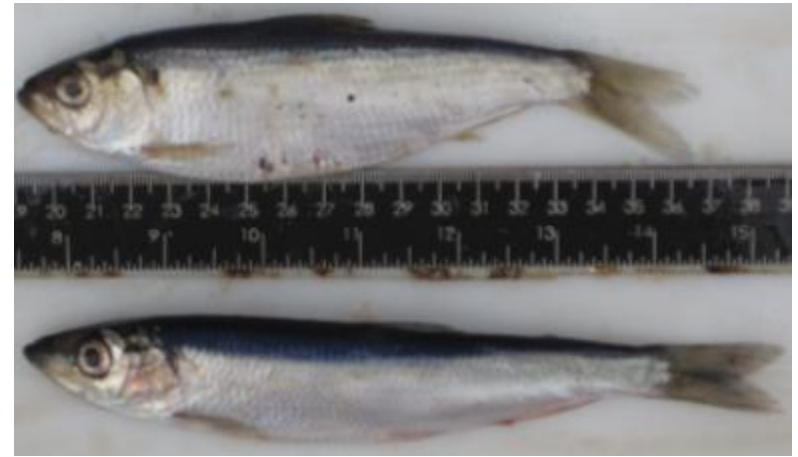
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Participating Fishing Vessels:

Sea Breeze Too	Western Venture
Ocean State	Osprey
Heather Lynn	Challenger
Darana R	Endeavour
Prevail	Voyager
Tiger Jo	Nordic Explorer
Dona Martita	Starlight
Retriever	Sunlight
Enterprise	Jean McCausland
Isabelle Taylor	Providian

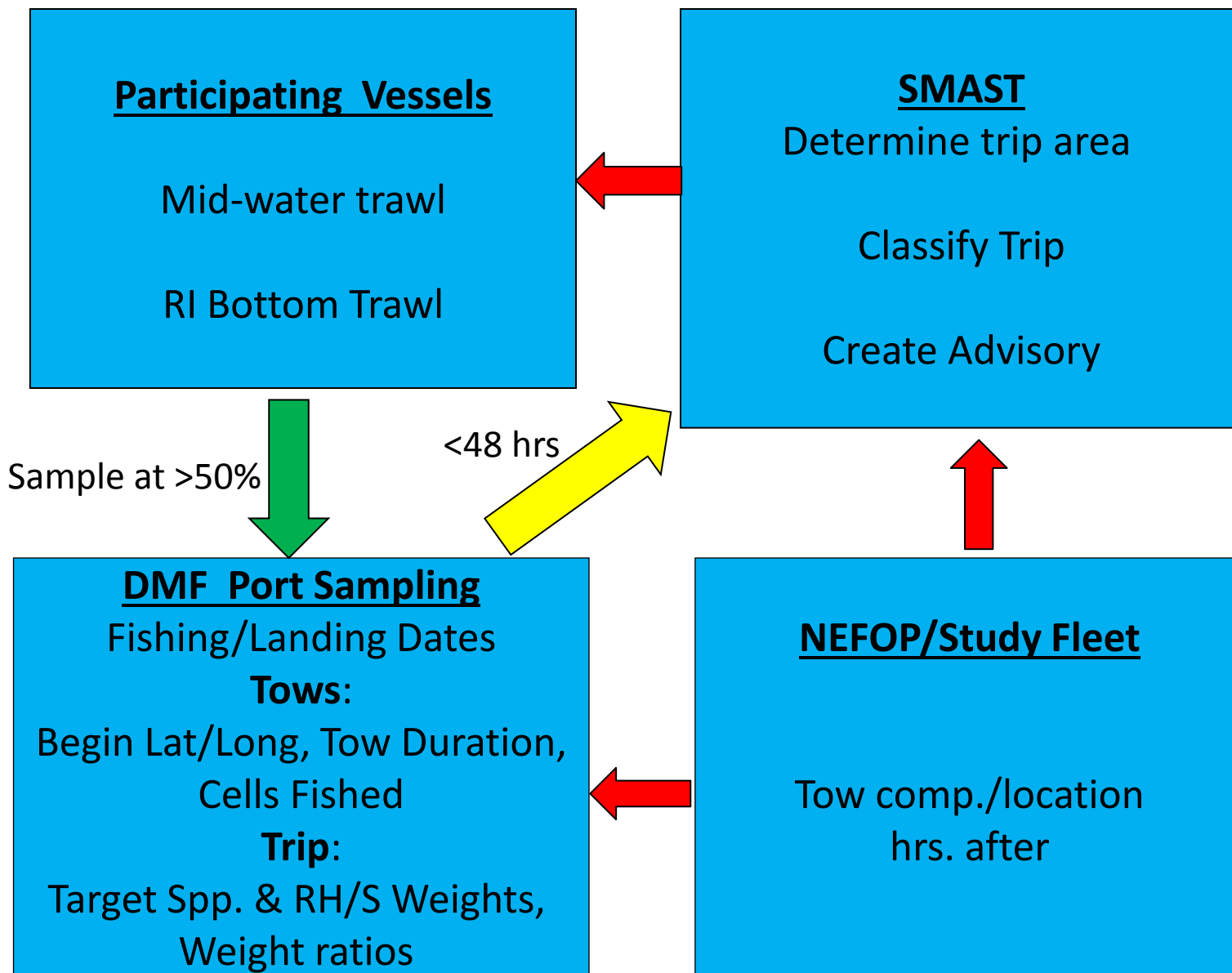
Voluntary Bycatch Avoidance Program

- Near real time information systems
 - Communicate high bycatch areas
- Evaluation
 - Industry Support
 - Collaboration
 - Fishing patterns
 - Bycatch reduction
 - Space/time patterns
- Future



River herring Avoidance System

Flow of Information



Observed bycatch Mid-Water trawls 2000-Sept2010

35 tows (of ≈ 350) $> 2,000\text{kg}$
80% of bycatch by weight

High: Alosine weight $> 1.25\%$ of target species weight

Moderate: Between 1.25% and 0.2%

Low: $< 0.2\%$

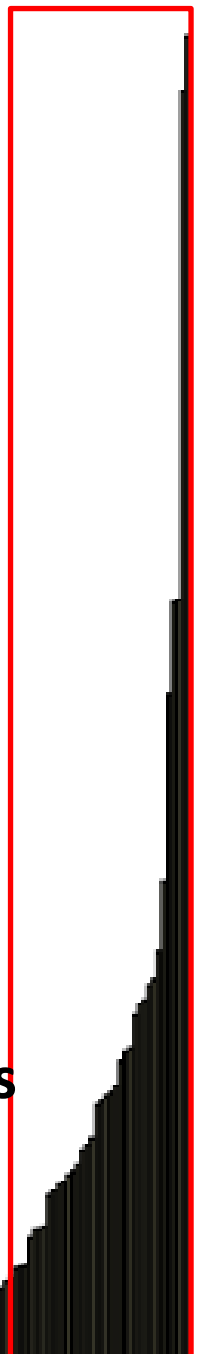
RI Bottom Trawl: Similar approach, different percents

Move towards river herring catch cap based thresholds

Total River Herring and Shad Weight (kg)

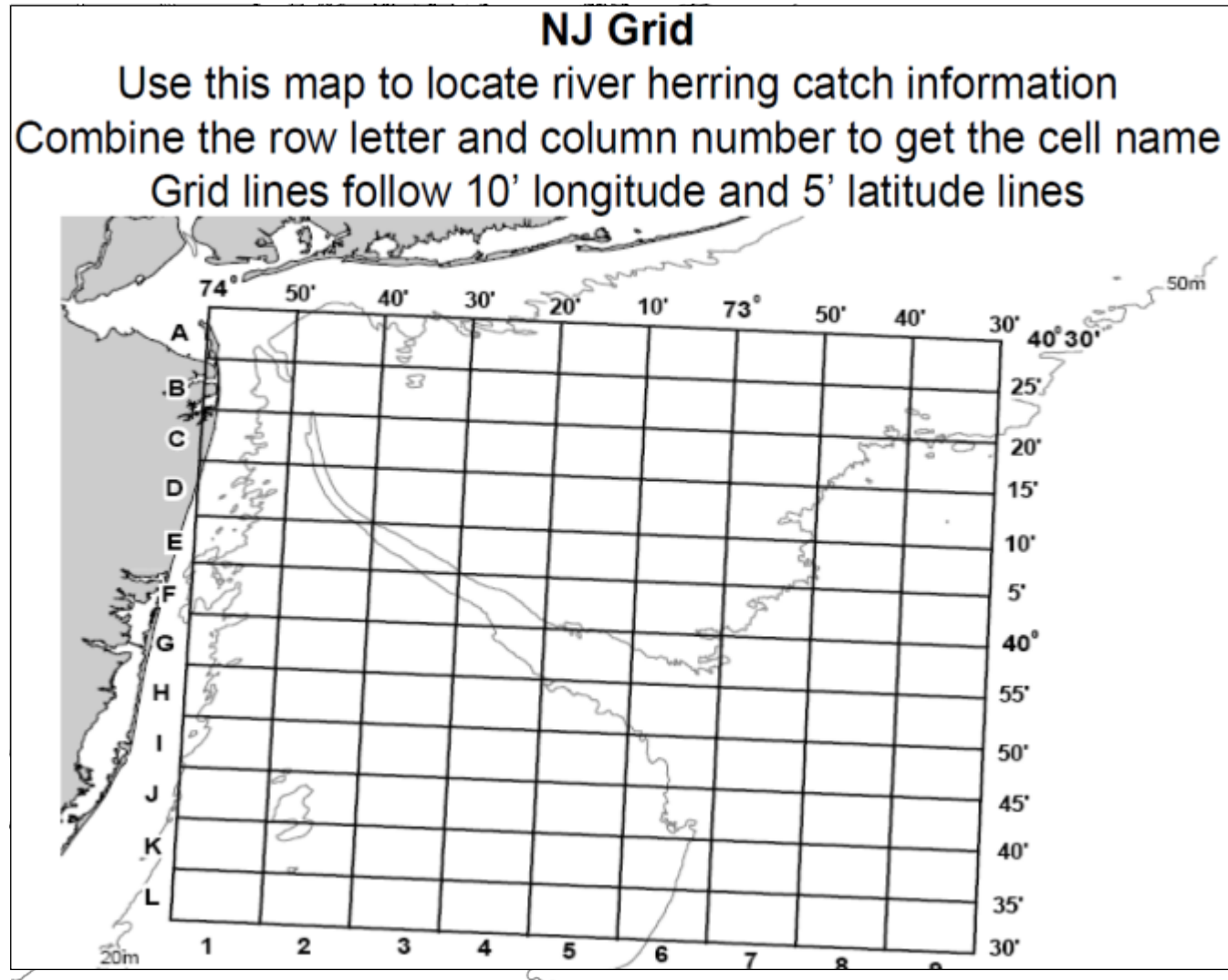


Observed Tow

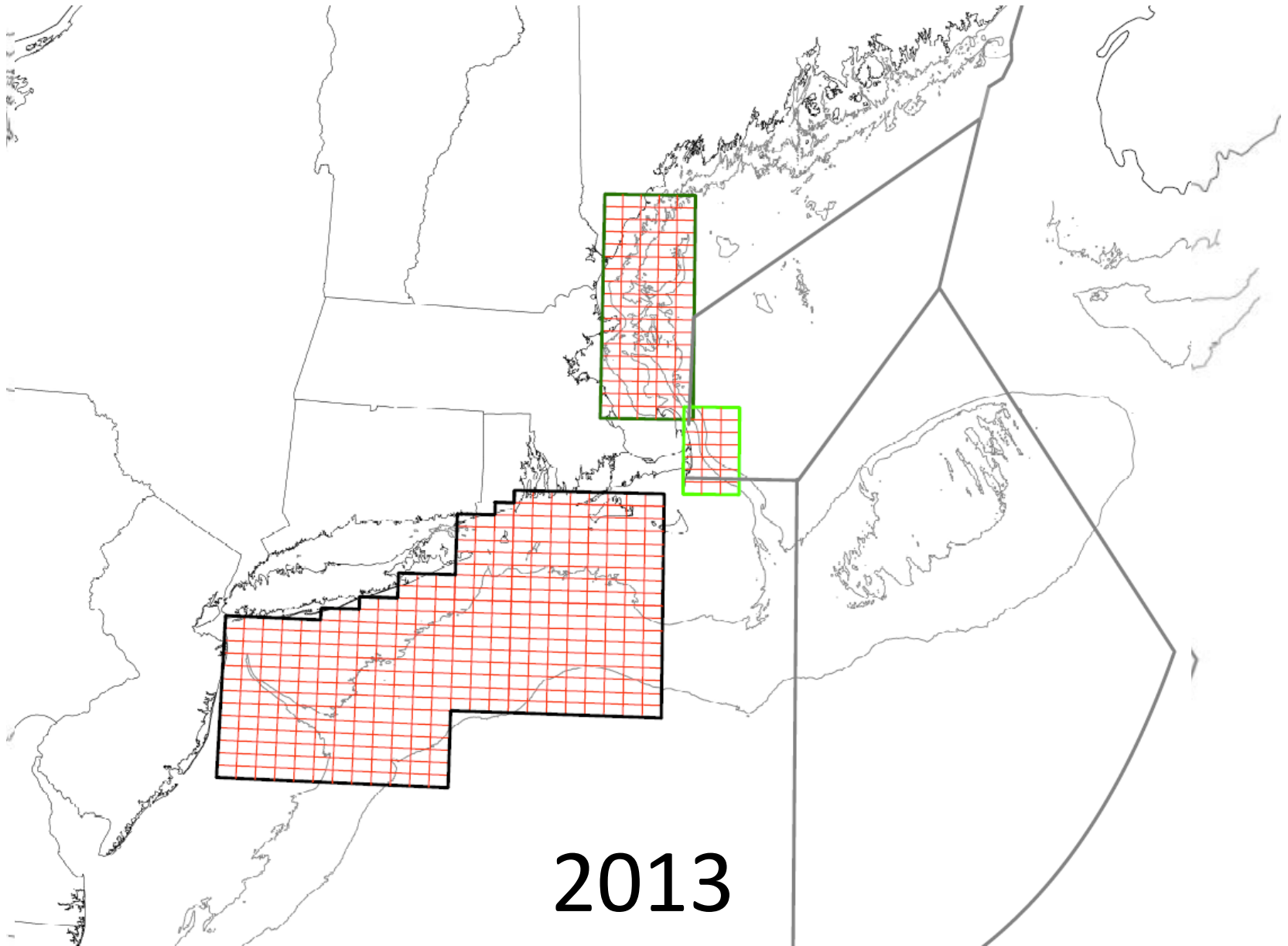


Communication approach

- Coded grids
 - Cells: $\approx 5 \times 8$ Nm



Avoidance Areas



Information System Evaluation: Industry Collaboration

- Participation
 - More vessels each year
 - All active mid-water trawl vessels
- Consistent Communication
 - Phone calls/Emails/In-person
 - MA DMF trip log completion
- Movement patterns
 - Re-entry into high bycatch cells
 - Direction of effort

Marine Fisheries
Department of Environmental Management

Midwater Trip Log & Catch Worksheet
To be completed for EVERY trip using midwater trawl gear

Vessel Name _____ Target Species _____ Area(s) Fished: 1A / 1B / 2 / 3
 Date Sailed _____ Date Landed _____ Port Landed _____
 Trip VTR # _____ Hail Weight _____ Observer Trip ID _____

Tow Information - To be filled out by captain for every trip

Tow #	Tow Location (Lat/Long)	Grid ID (Area/Cell)	Grid Cell #	Tow Date and Start Time	Tow Duration	Cell Color?	Hail Weight (Herring/Black) (lb or metric tons)
Ex.	41°17' x 71°40'	Area 2	C14	2/3/12 @ 0630	2.5 hrs	Yellow	320k lbs Herr.
1							
2							
3							
4							
5							
6							
7							

FOR OBSERVED TRIPS ONLY:

River Herring Bycatch Information – Data to be provided by Fisheries Observer when workup of catch and calculations are complete. To be completed for tows where ANY subsample baskets were taken, including observed AND unobserved tows. Please note any partially pumped tows.

Observer "Catch Composition Worksheet"

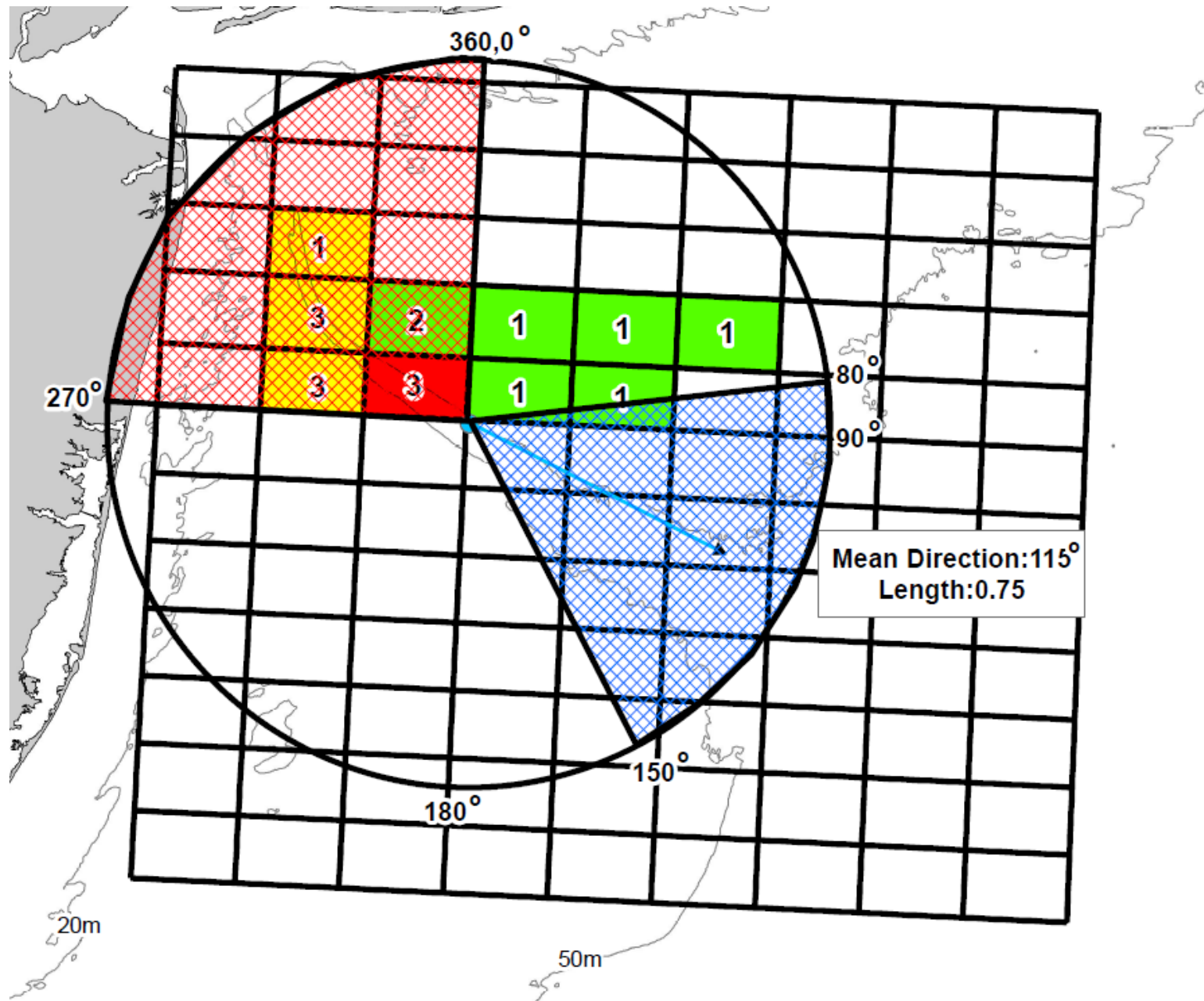
Add proportion of Alewife, Blackback, and American Shad bycatch (total) to column

Tow #	# basket samples	Alewife proportion	Blueback + Herring proportion	American Shad proportion	Total River Herring proportion	Hail Weight (lb or mt)	Total RH weight (lb or mt)	Captain's Tow Comments
Ex.	10	.0035	+.0021	+.0007	= .0063	320,000 lb	= 2,016 lb	Fished based on bottom, most fish in pool of low, temp, etc.
1								
2								
3								
4								
5								
6								
7								

Bycatch Communication – When you have an Observer onboard, every morning by 0900 hrs please send the tow information from previous calendar day to Sea.Herring@state.ma.us with:

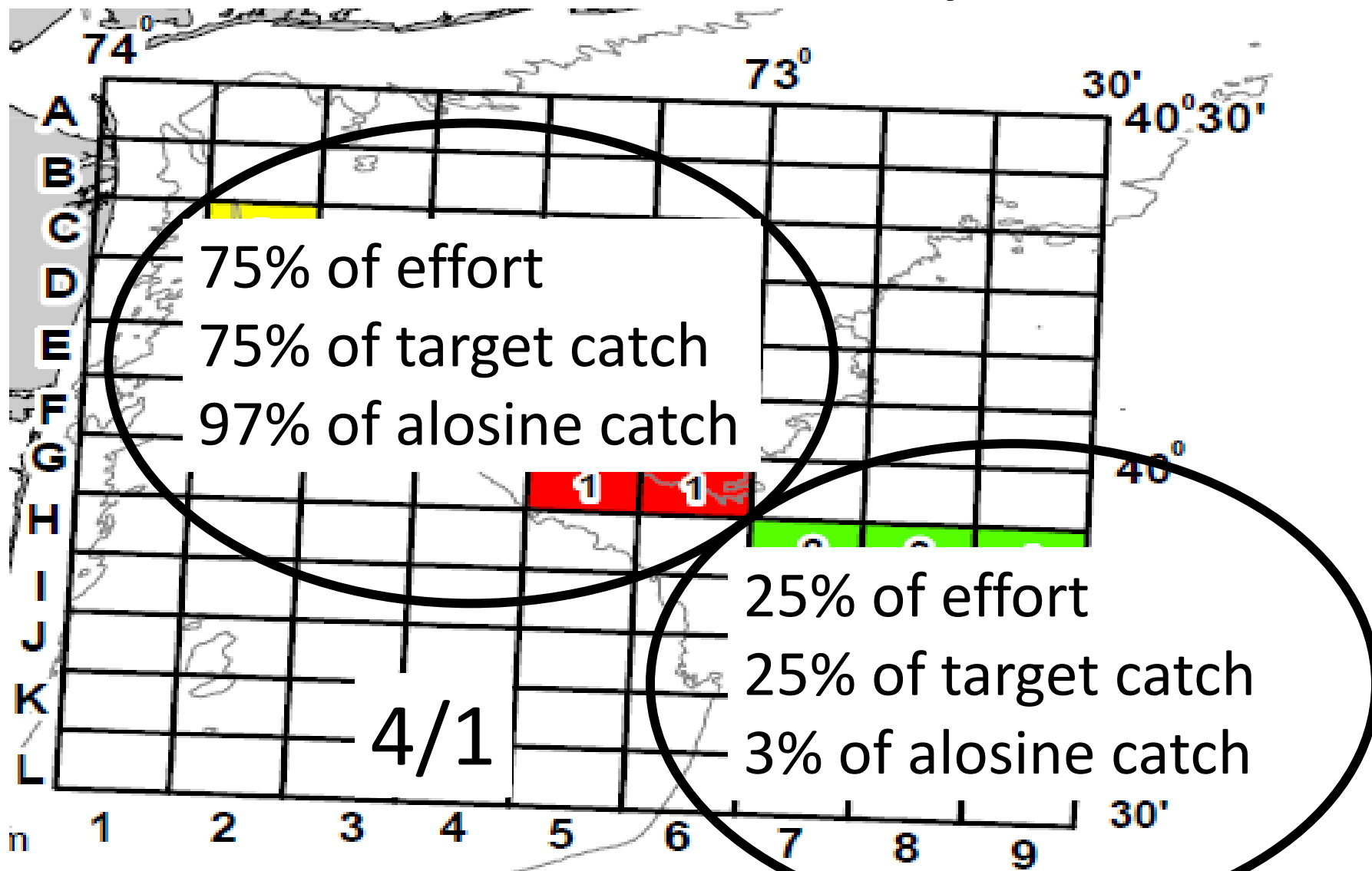
1) Grid ID & Cell (if none use Lat/Long), 2) Total RH proportion and 3) Hail Weight
 For example: Tow1: Area2-C14/.0063/320k lb, Tow2: Area2/...

Direction of Effort



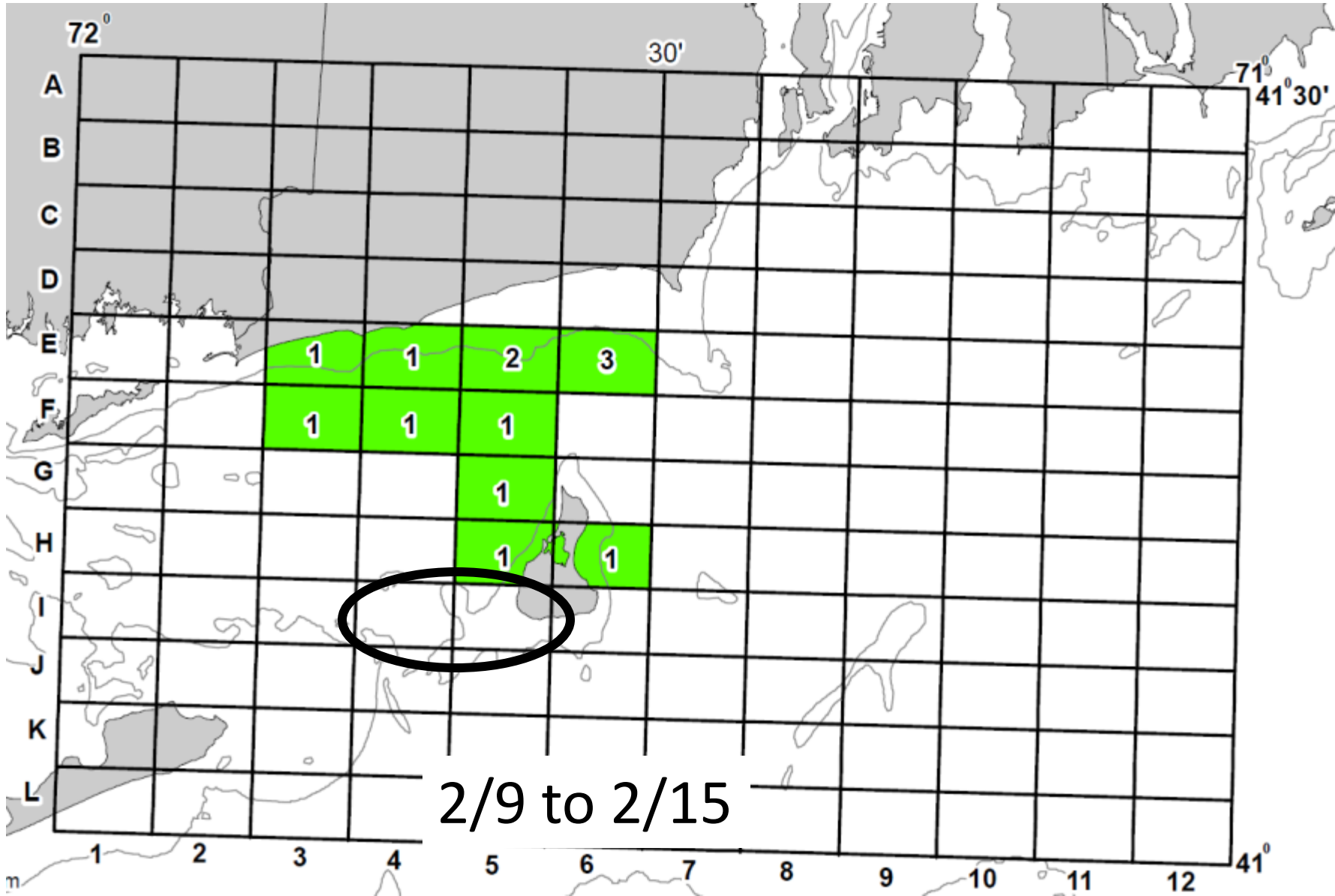
Spatial, Temporal Separation

Winter 2011: New Jersey, MWT



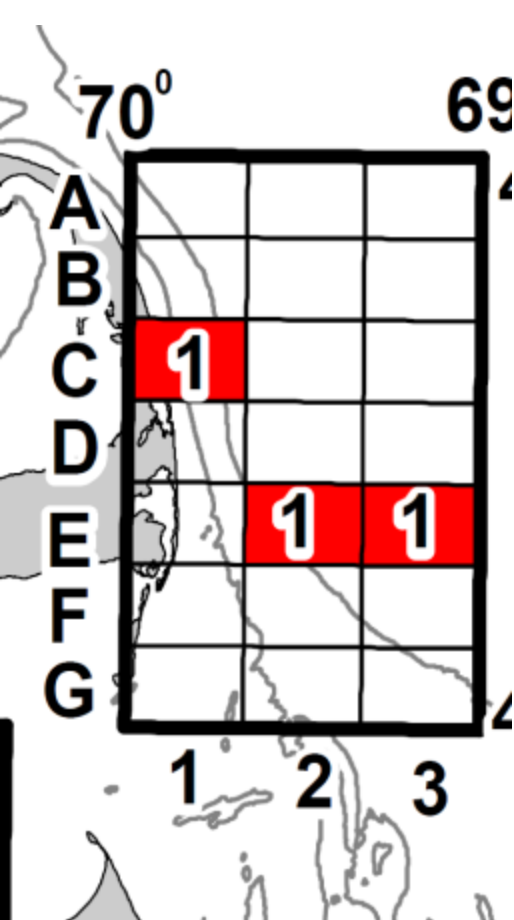
Spatial, Temporal Separation

Winter 2012: RI BT

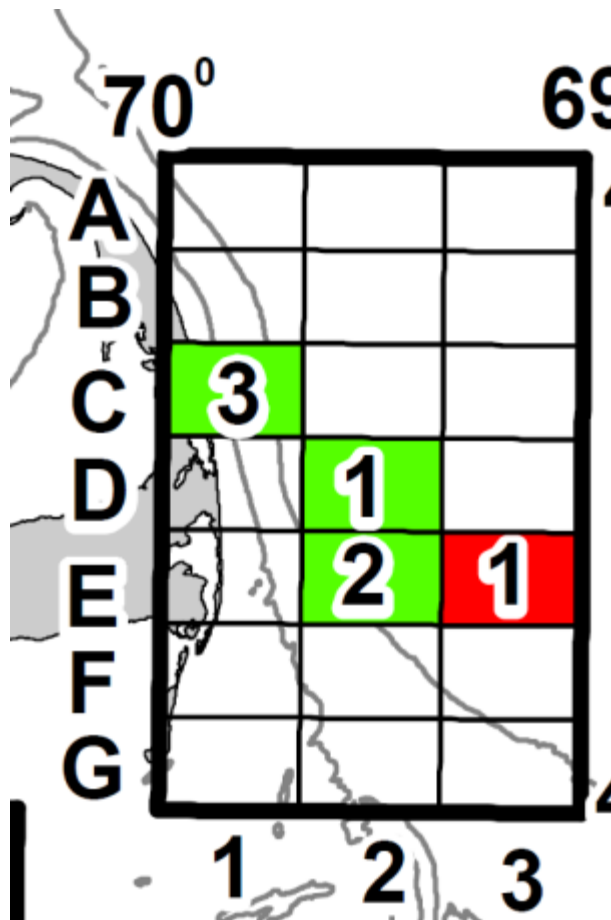


Spatial, Temporal Separation

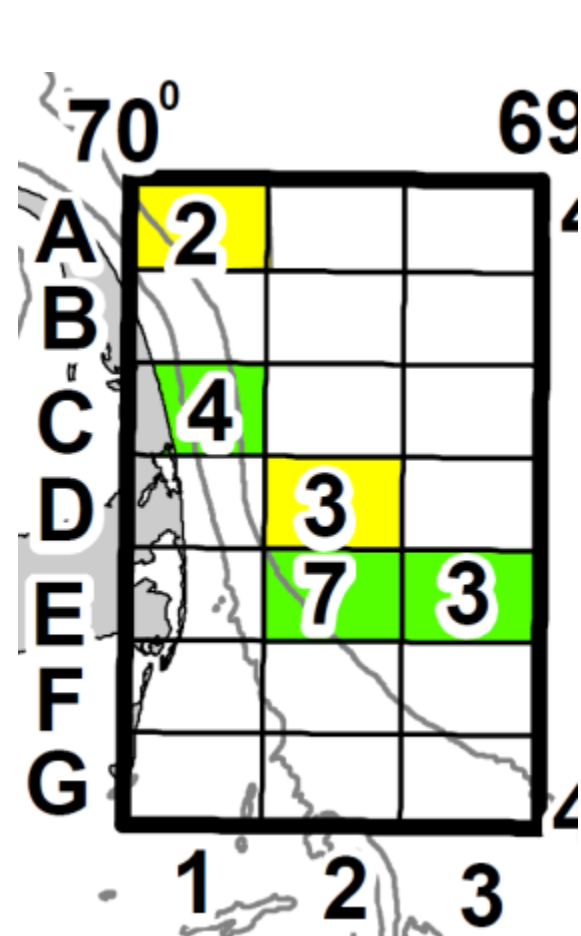
Winter 2013: East of Cape Cod, MWT



1/21/13



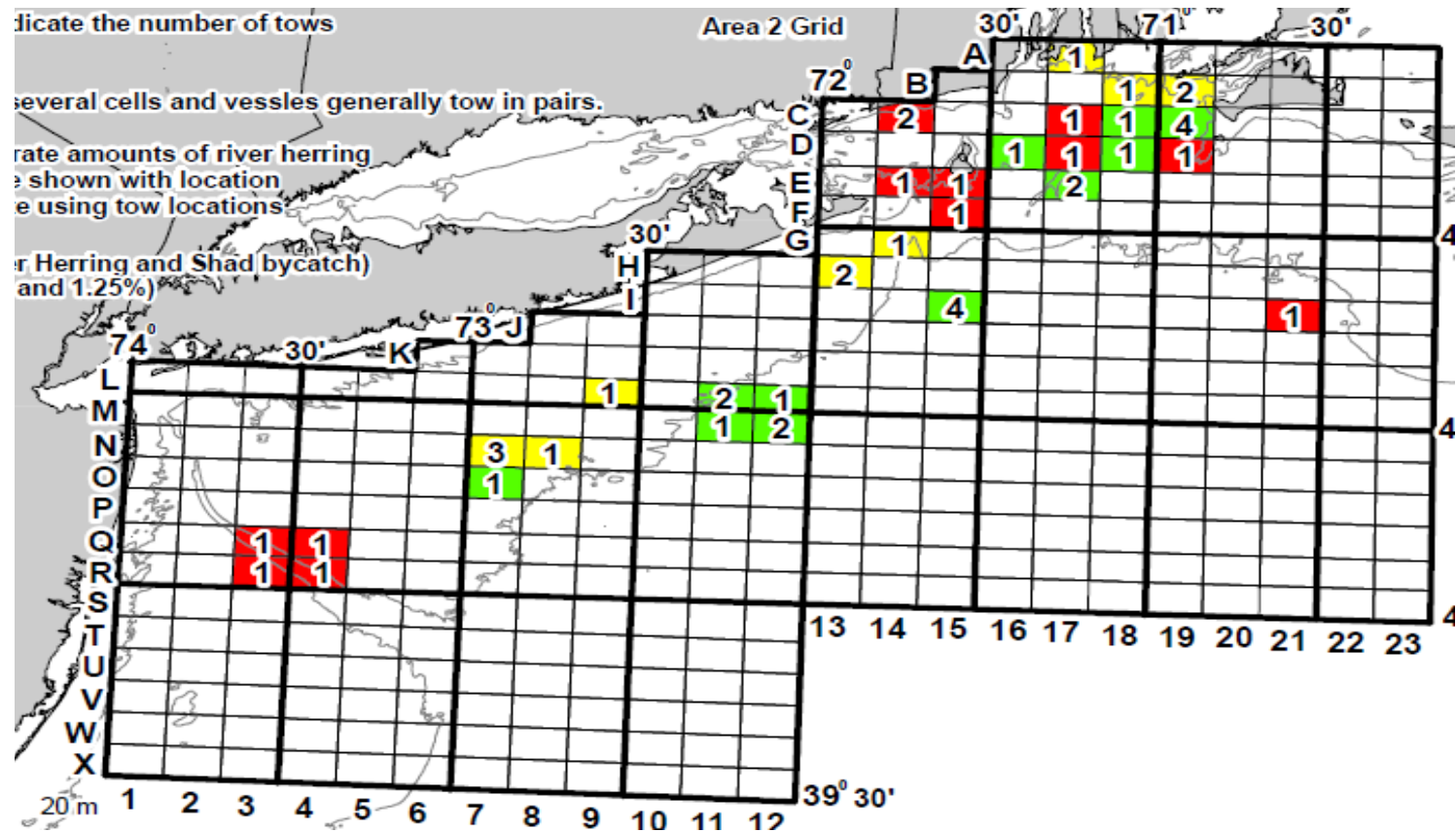
1/28/13



To Date

Winter 2013: Area 2, MWT and BT

- Lack of clear spatial, temporal pattern



- Evidence for intra-annual bycatch reduction in RI BT fishery
 - $\approx 65\%$ cell classified as “high” avoided
 - $\approx 10\%$ of re-entries into a “high” cells resulted in high bycatch event
 - 6 of the top 10 highest catches of river herring (kg)
 - 30% of all bycatch

Summary

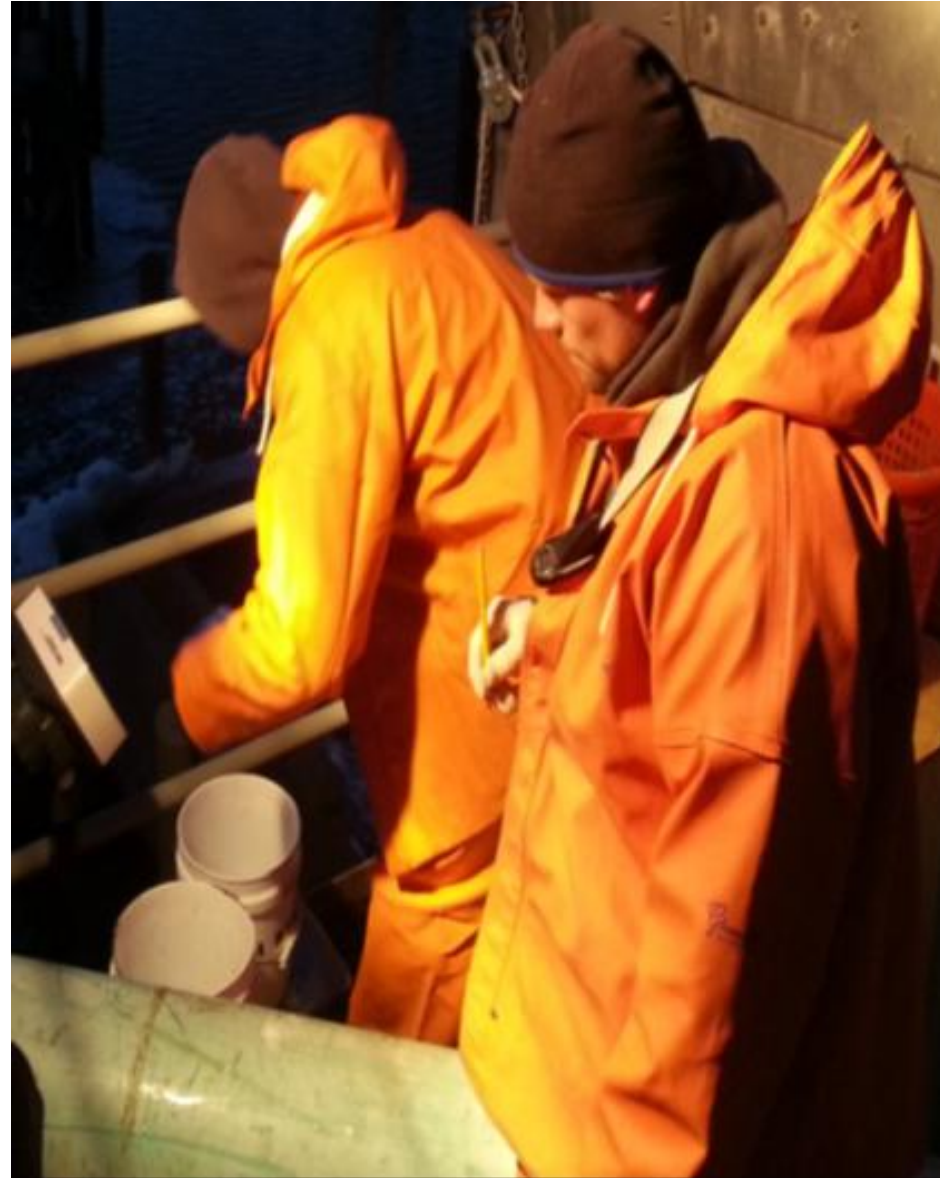
- Industry support
- Demonstrated separation
- Some numerical evidence
 - Lack of control group
 - More analysis in dissertation
- Under 380 mt threshold
 - Set by funding agency
 - 50% ↓ from 2004-2007 levels
- Increasing river herring populations?
 - Reports of increased run sizes



Future

Funding

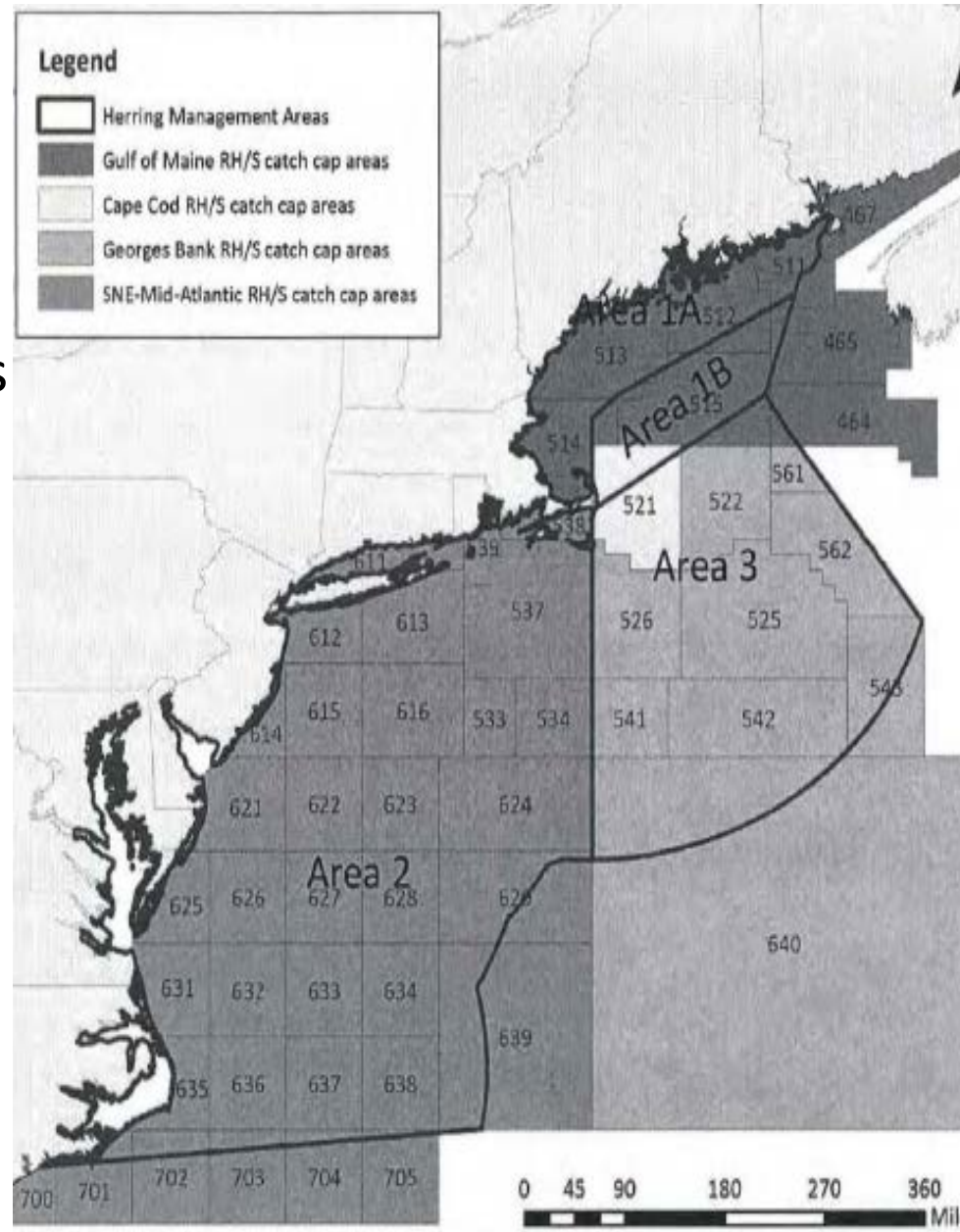
- National Fish and Wildlife Foundation
 - Grant extended
 - Fall 2013
 - Winter 2014?
- Nature Conservancy
 - Winter 2014
 - RI Bottom Trawl
 - Mid-water trawl?
- Atlantic Herring RSA
 - 2014-2015?



Future

River herring Caps

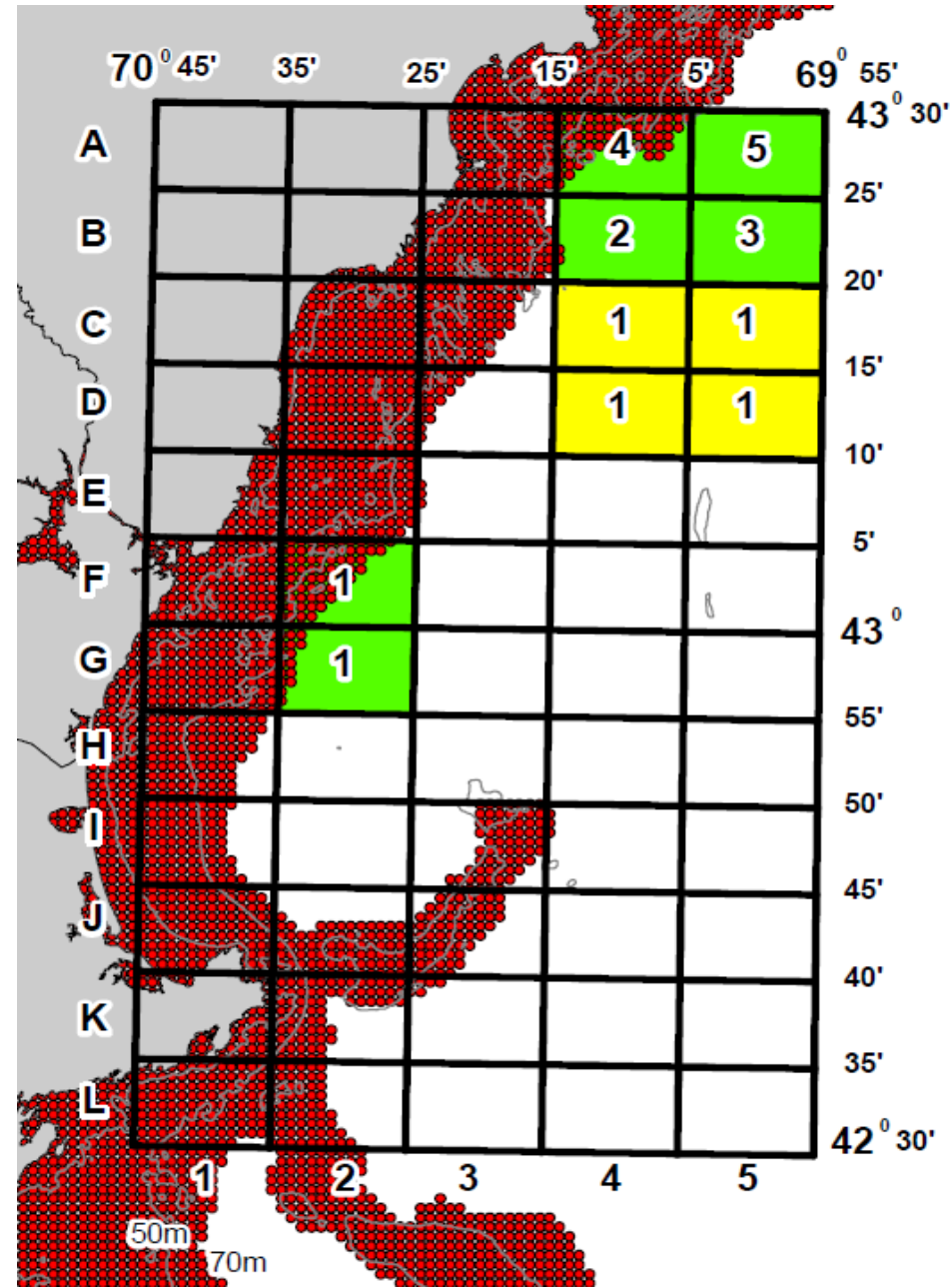
- Support Program
 - Substantial consequences
 - Tool to manage cap
- Undermine Program
 - Based on past catch
 - Maintain catch history



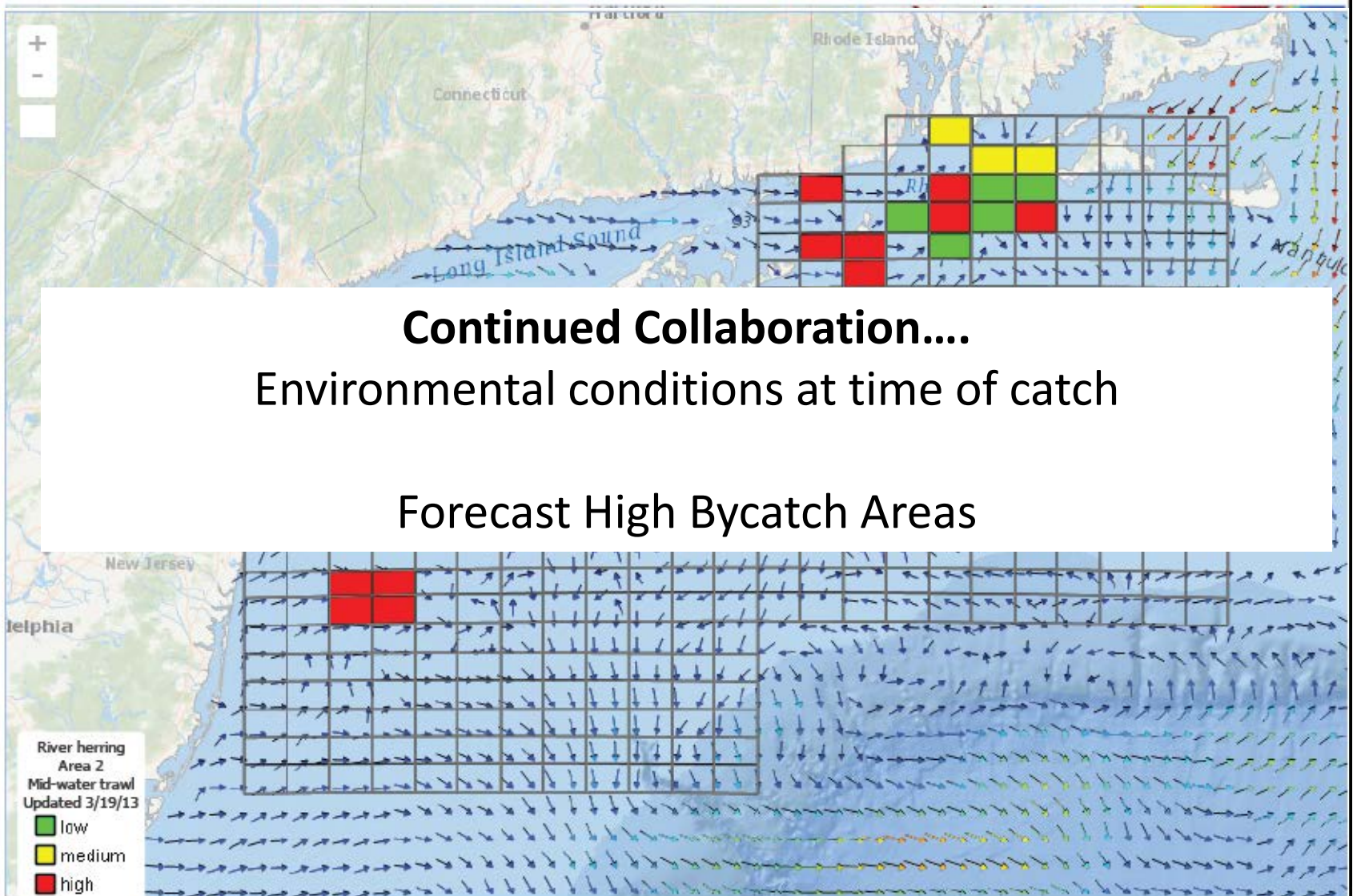
Future

Improvements

- Area Thresholds
 - Based on river herring caps
- At-sea information
 - Post-tow emails
- Predictive system?
 - Depth in Gulf of Maine
 - MyMaracoos



MyMARACOOS



Discussion/Questions

