Working towards healthy, self-sustaining populations for all Atlantic coast fish species or successful restoration well in progress by 2015

American Shad

Fishing / Recovery Plans

Fishing Plans

- Plans reviewed by the TC in Sept 2011 and more information requested from:
  - **DE River Fish and Wildlife Cooperative**
  - **Georgia**
  - **PRFC**
- Plans revised per TC requests and re-submitted; TC review Jan 2012
- TC recommends the Board consider approval of the above plans

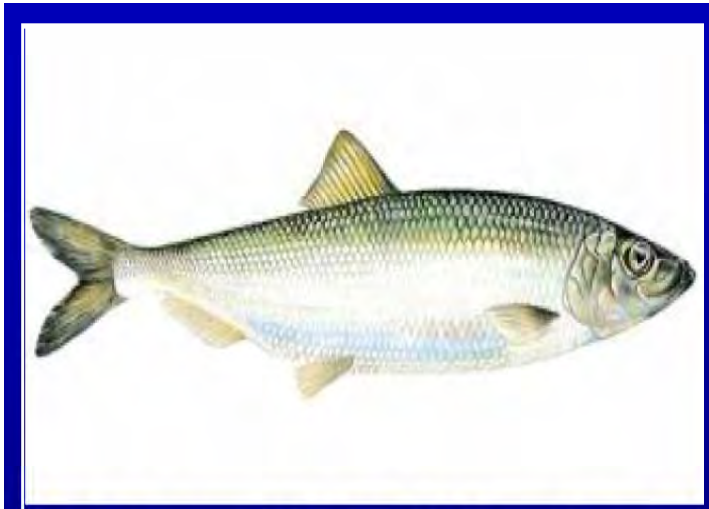
Fishing Plans

- NC requests fisheries in the Albemarle Sound/ Roanoke River, Tar-Pamlico, Neuse and Cape Fear Rivers
- TC recommends Board consider approval of fishing plan for Albemarle Sound/Roanoke River, Neuse, Roanoke, and Tar-Pamlico Rivers
  - TC found that the Cape Fear system is currently not sustainable, based on indices presented
  - TC recommends consideration of either closure of the system or a modified fishery w/monitoring
- NC Plan will still have to go through NC MFC review and public comment process

Recovery Plans

- TC recommends Board consider acceptance of recovery plans from: New Hampshire, Delaware, and Pennsylvania
- Plans to be re-submitted from: Maryland and District of Columbia
- Plans not submitted from: Maine, Rhode Island, Connecticut, New York, New Jersey, and Virginia.

River Herring and American Shad Bycatch Avoidance in Atlantic Herring and Mackerel Mid-Water Trawl Fisheries



Sustainable Fisheries Coalition

SMAST

Commonwealth of Massachusetts
DIVISION of MARINE FISHERIES

Peter Moore (Coordinator)
Numerous SFC Members

N.David Bethoney
Kevin Stokesbury
Dan Georgianna

Brad Schondelmeier
Bill Hoffman
Mike Armstrong

Project Goals

- Expand MA DMF portside sampling program
  - Where, when, how much
  - Biological information

- Reduce Alosine (River herring and Am. shad) bycatch

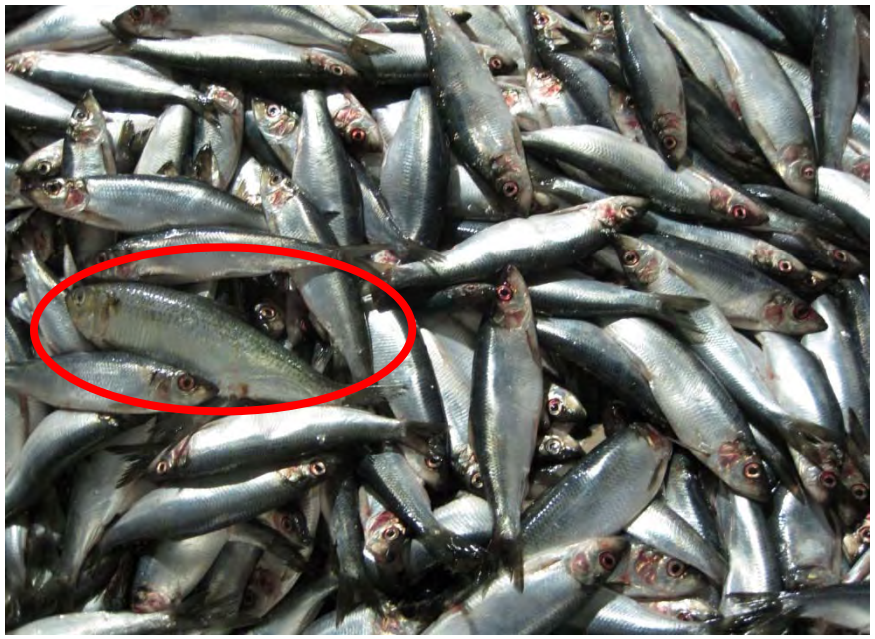
  - Develop near real-time bycatch information systems
    - Winter 2011 and 2012
    - Fall 2011

  - Test for environmental predictors of bycatch/abundance

MA DMF Portside Sampling

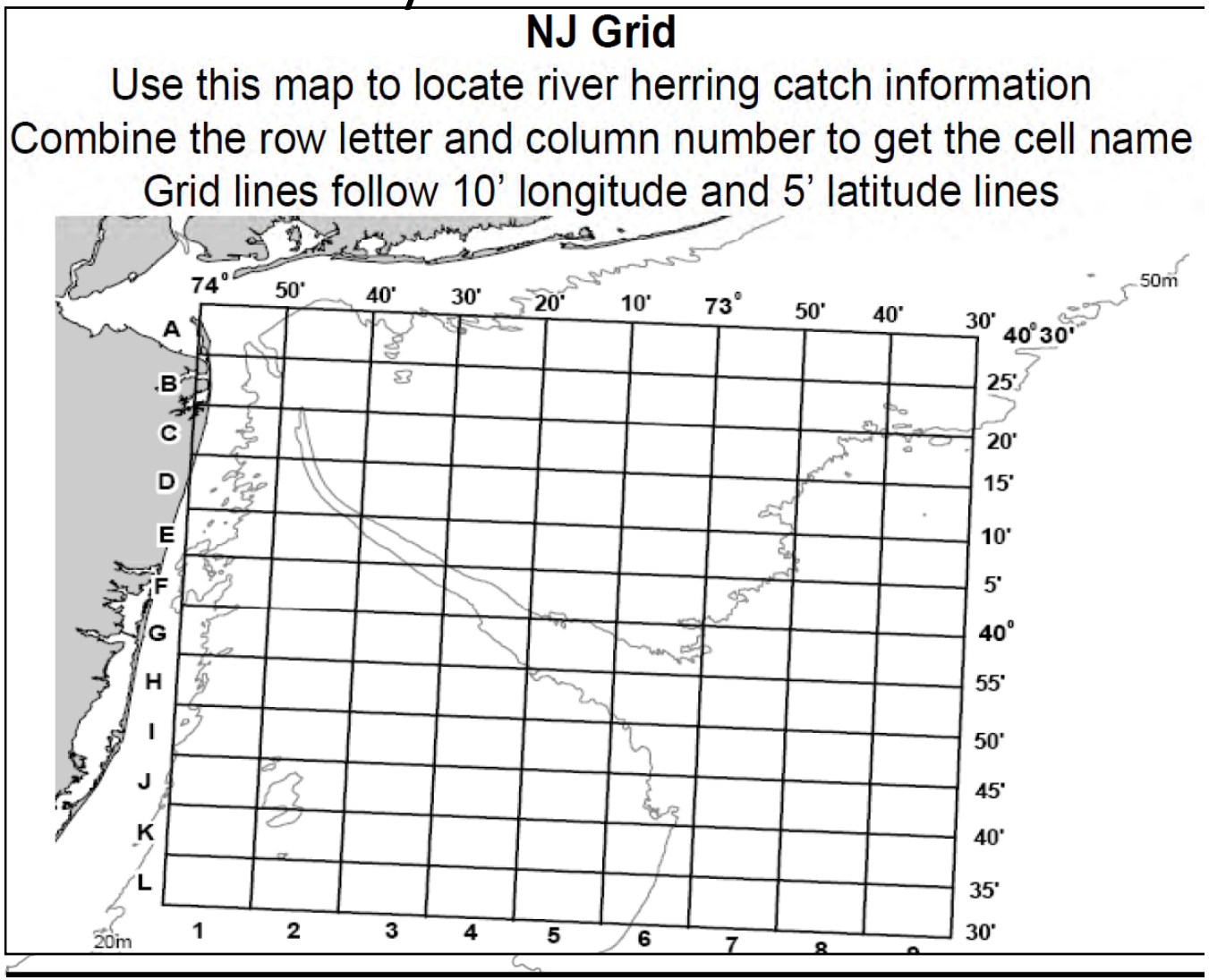
Goals

- Provide accurate and timely catch composition information
  - Systematic
  - Whole boat
- Sample 50% of trips landed in Massachusetts
  - Achieved through January
  - MA: 80-85% mid-water trawl landings (B.Hoffman personal comm.)
- Establish communication system
  - Face to face
  - Joint SMAST/MADMF email



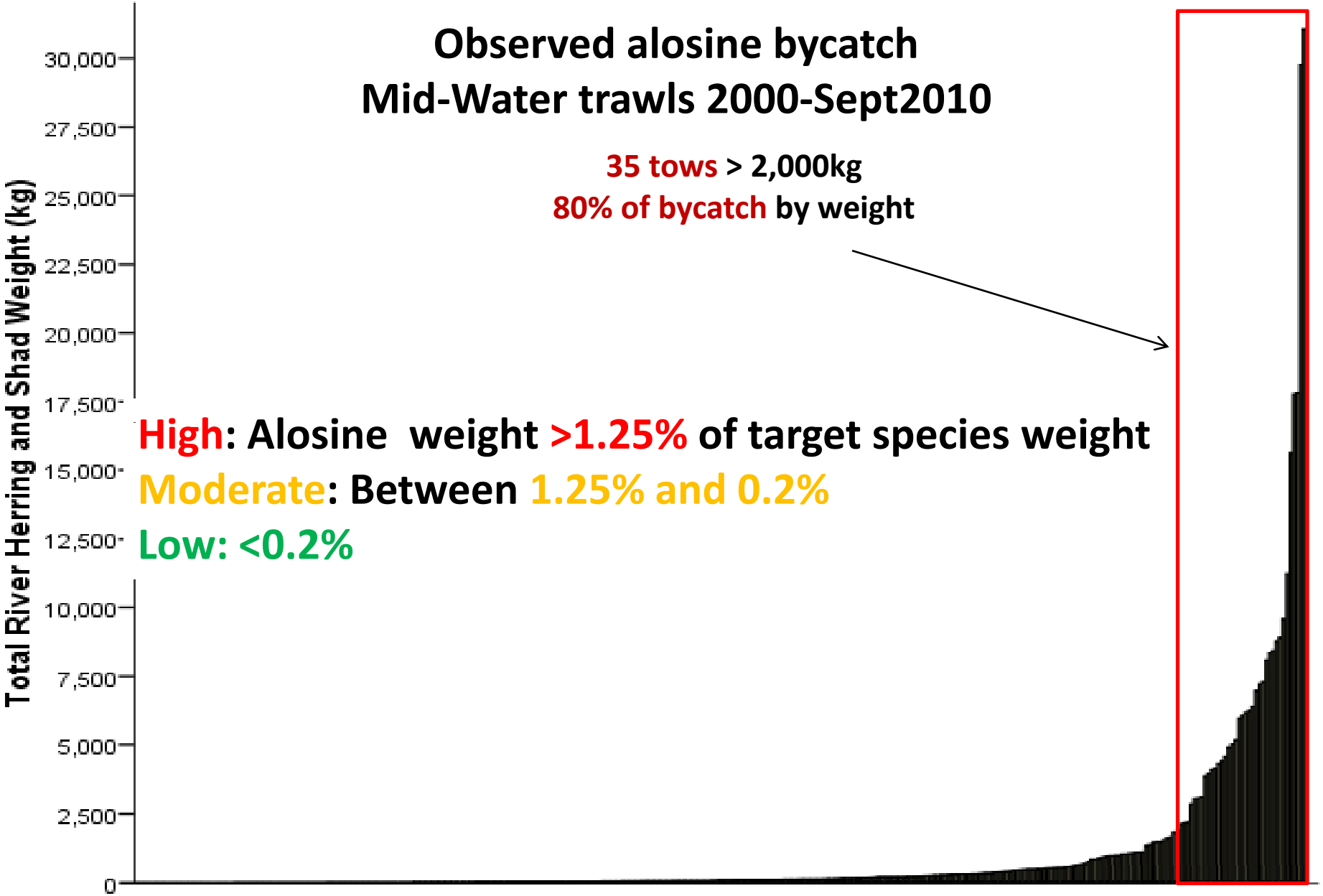
Near real time information system

- January-March 2011
  - High bycatch off New Jersey
- Coded grid
  - Cells:≈5x8Nm
  - Distributed to vessels



Observed alosine bycatch
Mid-Water trawls 2000-Sept2010

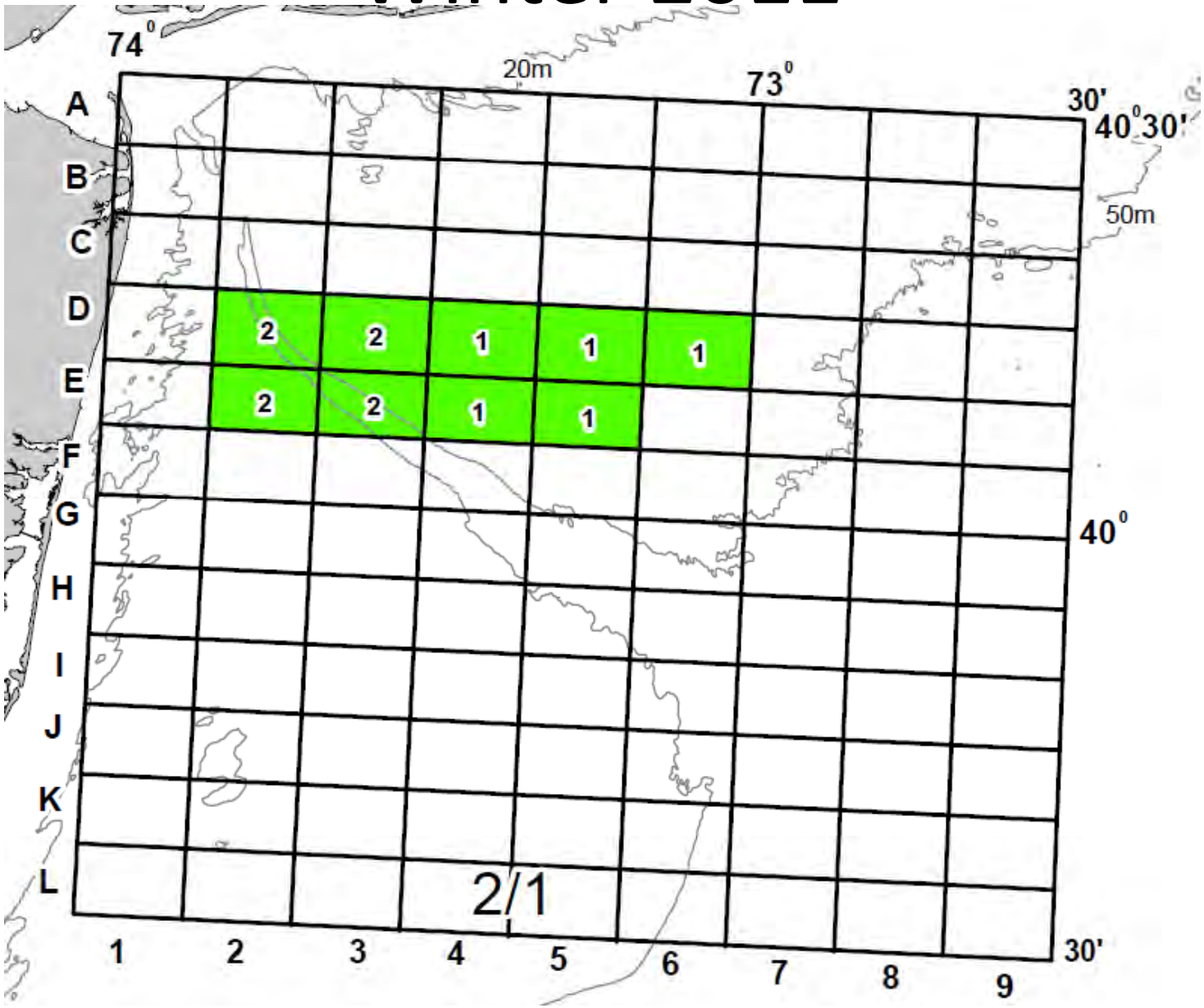
35 tows > 2,000kg
80% of bycatch by weight



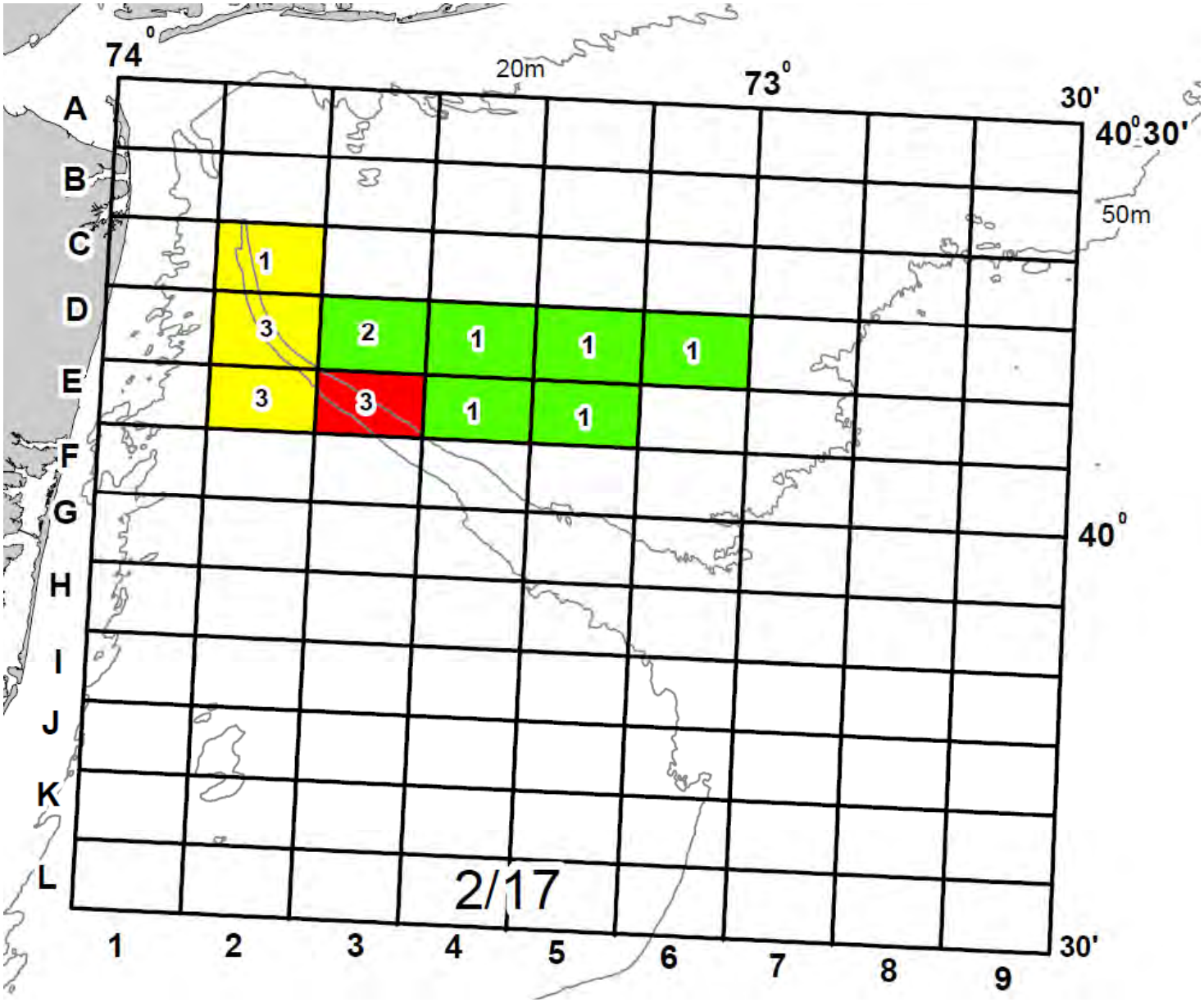
High: Alosine weight >1.25% of target species weight
Moderate: Between 1.25% and 0.2%
Low: <0.2%

343 of 1631 tows (20%) had >1kg of bycatch for a total of 359,795kg.
Top 10% (35 trips with most bycatch) account for 286,793kg (80%).

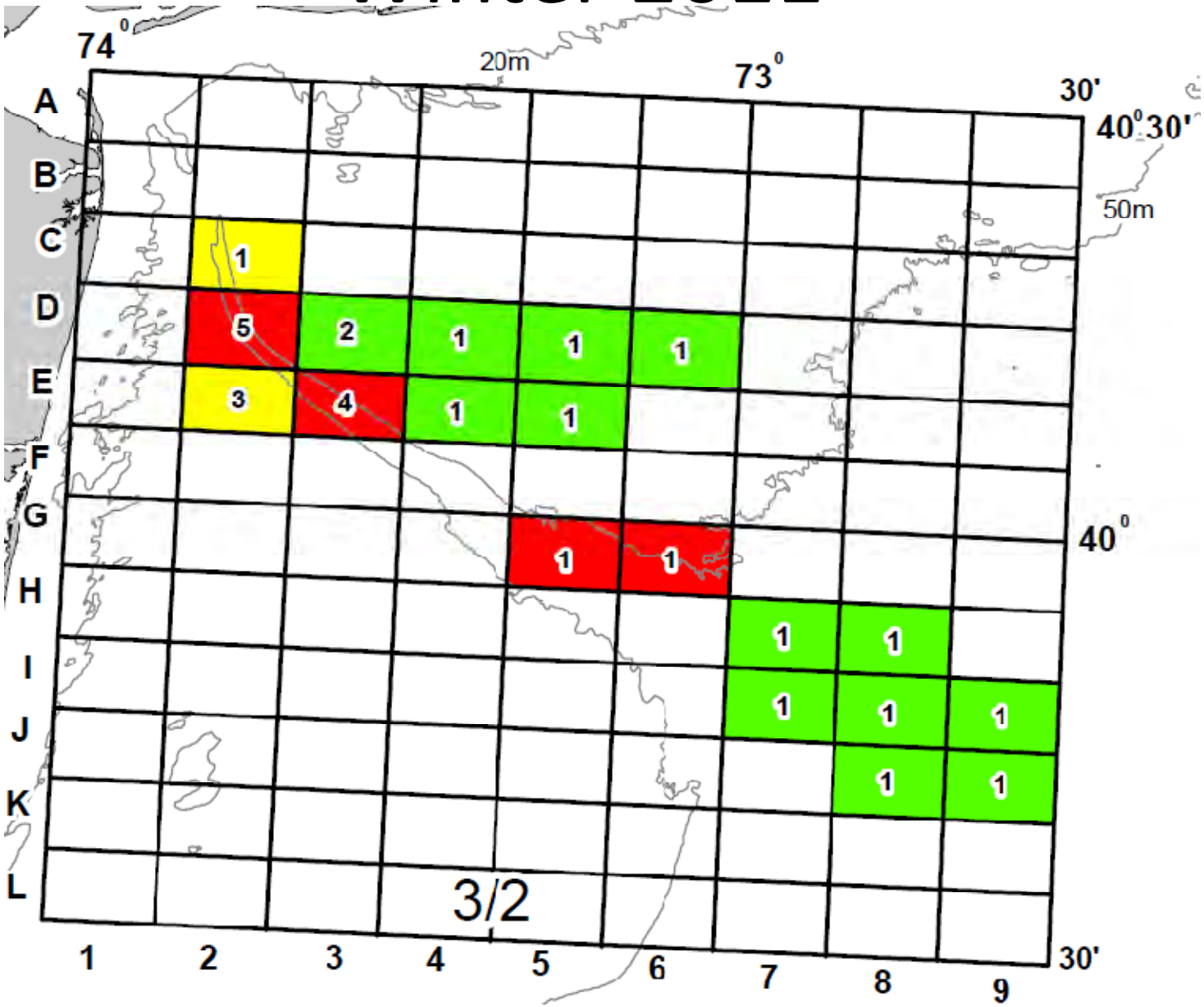
Information System Results Winter 2011



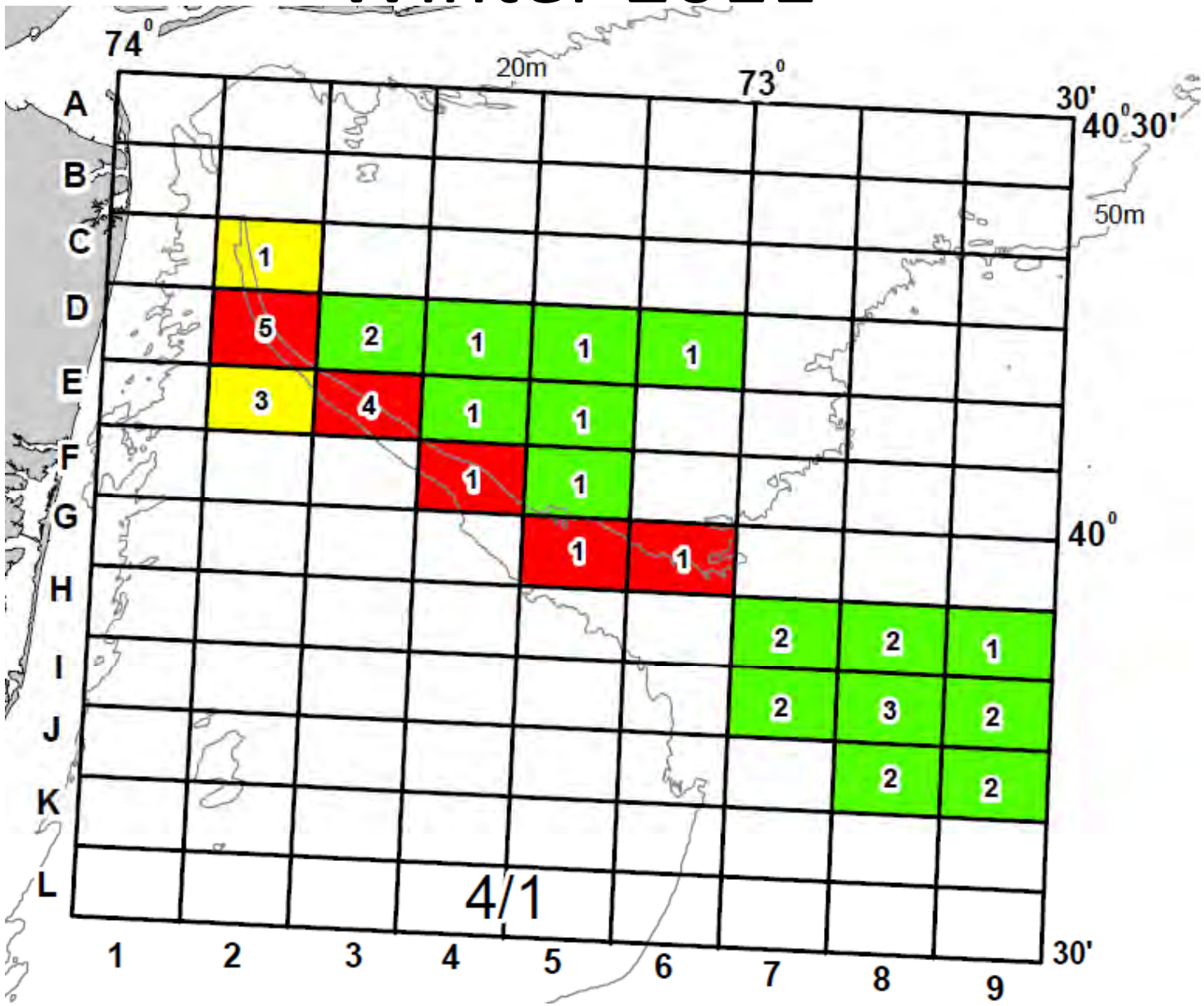
Information System Results Winter 2011



Information System Results Winter 2011



Information System Results
Winter 2011



Fall 2011

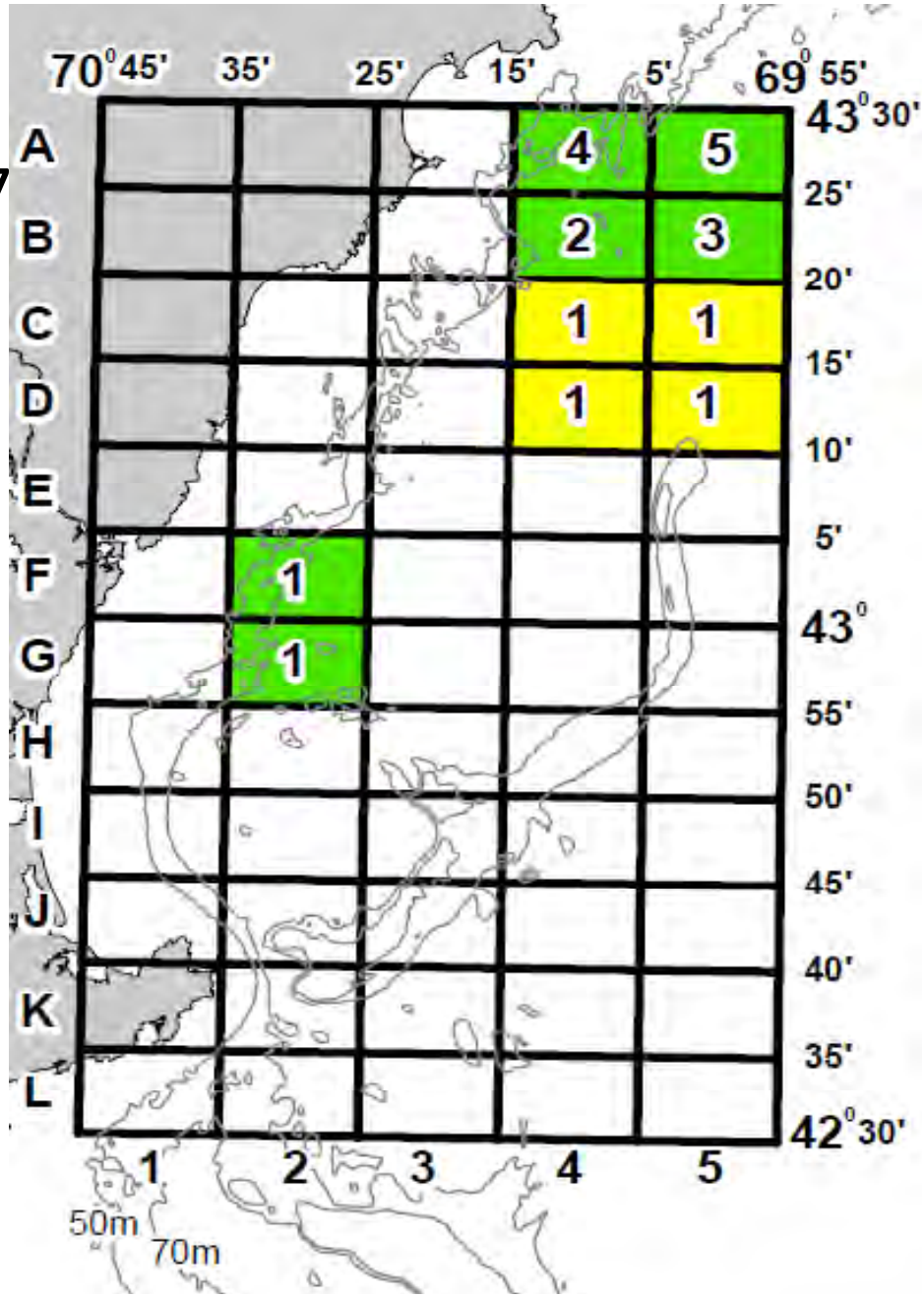
1A Mass/NH Opening

- Opened Oct 14- Closed Oct 27
- Information Grid
  - •15/17 MA landings sampled
  - •2 advisories issued
- Circulated Depth Information
  - >40 fth, alosines unlikely
  - Mean tow depth: 53 fth

  (P=.02, one tailed One sample t-test)
  - Deeper than previous years

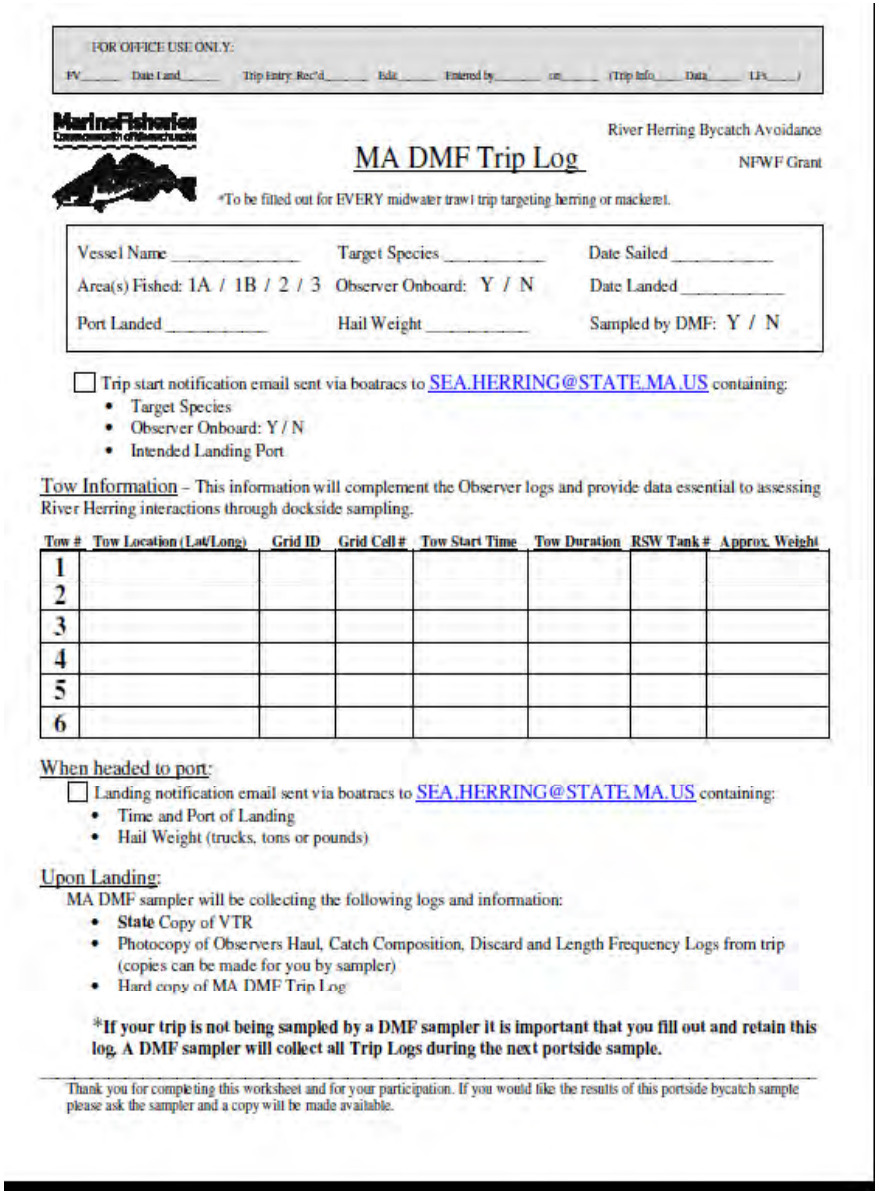
  with >10 observations

  (ANOVA, Tukey Post Hoc Ps<.01, except 2009 P=.43)



Evaluation

- Collaboration
  - 10 mid-water trawl vessels participating
  - Consistent communication
    - ≈100's of emails
    - Trip logs
    - Phone calls
  - Behavior
    - 5 cells classified as high:1 reentry
      - 25% of bycatch (2011 winter)
    - Fall depth advice
- Bycatch reduction
  - Direct measures
    - Bycatch rates: Participating vs. not
    - Change bycatch profile
  - Spatial/Temporal Separation
    - 14 "low" cells reentered
      - One changed directly to high
      - Eight remained low
    - ≈80%: mid-February to mid-March



FOR OFFICE USE ONLY:

FV_____ Date Land_____ Trip Entry: Rec'd_____ Edit_____ Entered by_____ on_____ (Trip Info____ Data____ LFs____)

MarineFisheries
Commonwealth of Massachusetts

River Herring Bycatch Avoidance
NFWF Grant

MA DMF Trip Log

*To be filled out for EVERY midwater trawl trip targeting herring or mackerel.

Vessel Name _____ Target Species _____ Date Sailed _____

Area(s) Fished: 1A / 1B / 2 / 3 Observer Onboard: Y / N Date Landed _____

Port Landed _____ Hail Weight _____ Sampled by DMF: Y / N

☐ Trip start notification email sent via boatracs to SEA.HERRING@STATE.MA.US containing:

- Target Species
- Observer Onboard: Y / N
- Intended Landing Port

Tow Information – This information will complement the Observer logs and provide data essential to assessing River Herring interactions through dockside sampling.

Tow #	Tow Location (Lat/Long)	Grid ID	Grid Cell #	Tow Start Time	Tow Duration	RSW Tank #	Approx. Weight
1							
2							
3							
4							
5							
6							

When headed to port:

☐ Landing notification email sent via boatracs to SEA.HERRING@STATE.MA.US containing:

- Time and Port of Landing
- Hail Weight (trucks, tons or pounds)

Upon Landing:

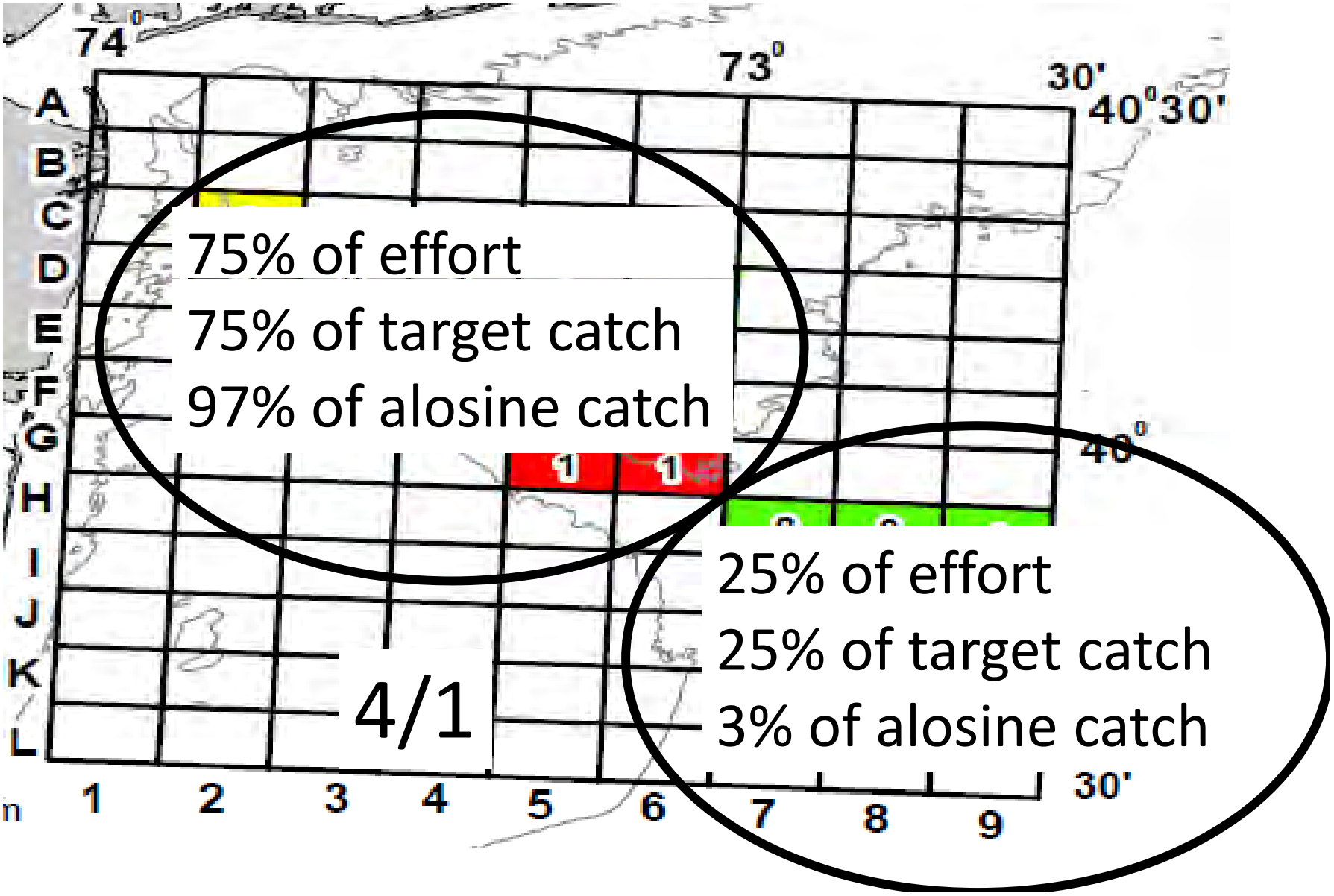
MA DMF sampler will be collecting the following logs and information:

- State Copy of VTR
- Photocopy of Observers Haul, Catch Composition, Discard and Length Frequency Logs from trip (copies can be made for you by sampler)
- Hard copy of MA DMF Trip Log

*If your trip is not being sampled by a DMF sampler it is important that you fill out and retain this log. A DMF sampler will collect all Trip Logs during the next portside sample.

Thank you for completing this worksheet and for your participation. If you would like the results of this portside bycatch sample please ask the sampler and a copy will be made available.

Information System Results
Winter 2011



This Winter

- Continuing work with Mid-water trawl fleet
  - Started with fishery (Late December)
  - RI and NJ grids

- Trying similar system for RI SMBT fleet

SMAST Bycatch Avoidance Programs

River herring and American shad bycatch avoidance in the Atlantic herring and mackerel fisheries

Managers of the Atlantic herring and mackerel fisheries are considering regulations to reduce river herring and shad bycatch. However, these regulations will likey come at considerable cost to the fisheries, and the effect of bycatch on river herring and shad populations is unknown. This collaborative project between the Sustainable Fisheries Coalition, Rhode Island bottom trawl fishermen, the Massachusetts Division of Marine Fisheries, and SMAST seeks to reduce river herring and shad bycatch without any changes to the current management or enforcement policies; aiding in the effort to rebuild river herring and shad populations without the cost of management action to fishermen. The project involves increasing portside sampling of Atlantic herring and mackerel landings, a near real-time information system on the location of river herring and shad bycatch events, and testing if oceangraphic features can be used to indicate areas with a high probability of bycatch.

Click on a location or time of interest from the list below for cumlative bycatch information.

- Bottom Trawl winter 2012 Grid:Updated 2/3/12
- Mid-water Trawl winter 2012 Grid:Updated 2/4/12
- Final Mid-water trawl winter 2011 Grid
- Final Mid-water trawl 1A 2011 Grid

SMAST Yellowtail Bycatch Avoidance Program

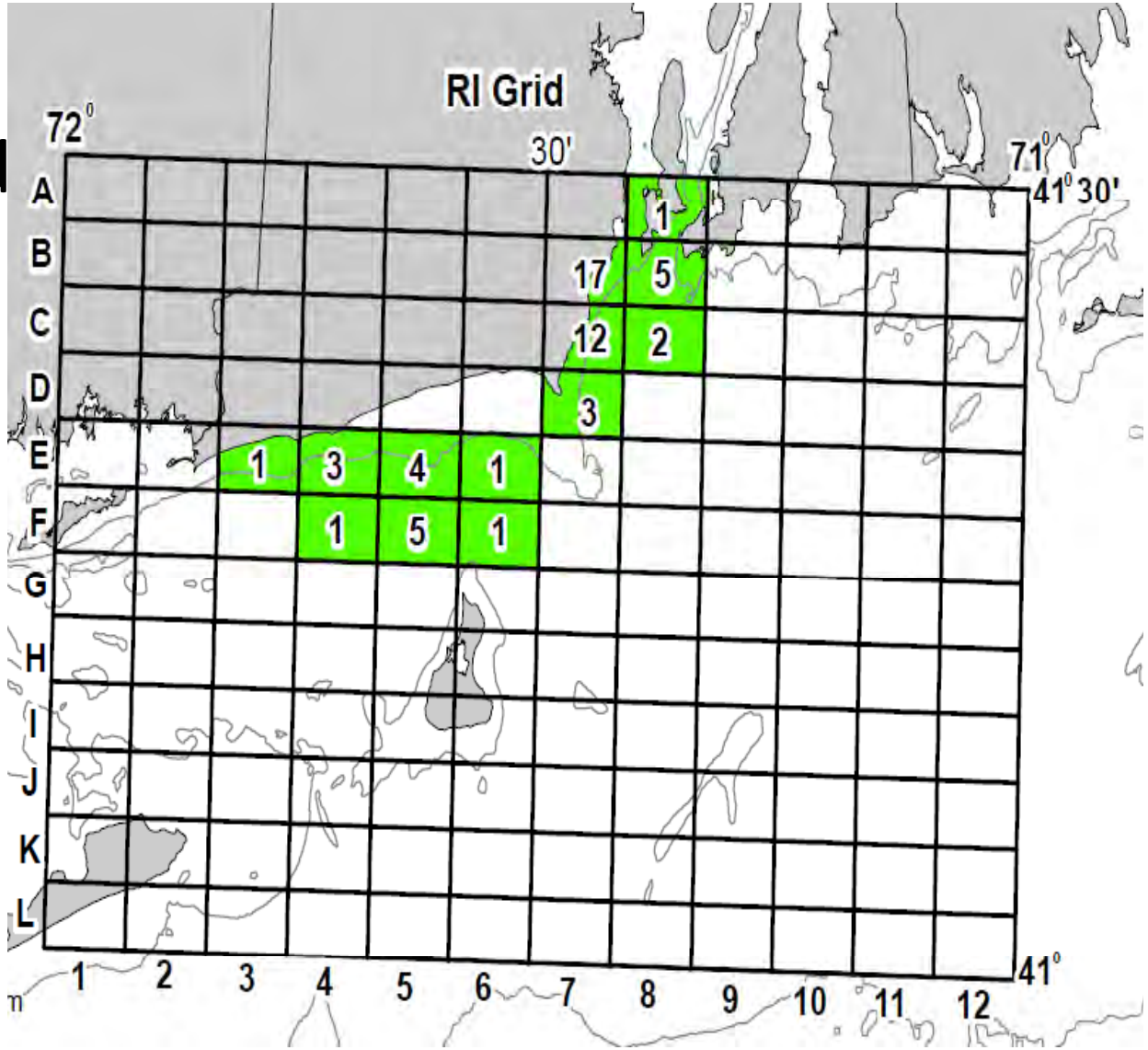
The scallop fishing fleet is working with SMAST to avoid bycatch of yellowtail flounder in areas of Georges Bank again in 2011. Following the successful Yellowtail Bycatch Avoidance Program implemented in the Nantucket Lightship fishing area in 2010, the scallop fleet is enthusiastic about using the real-time communication system in Closed Area I and Closed Area II for the 2011 fishing season. Harvest of large scallop beds in these areas could be constrained by bycatch of yellowtail flounder because of the low limits of yellowtail available. SMAST devised a yellowtail bycatch avoidance system where the scallop fleet voluntarily provides real-time yellowtail catch data through email, and SMAST compiles the fleet information and emails the locations of yellowtail "hotspots" back to the fleet. In 2010, only 30% of the yellowtail allocation was harvested from Nantucket Lightship, keeping the area open to harvest all of the lucrative scallop allocation. With twice the scallop allocation on the line in 2011, the bycatch avoidance program will be a critical tool for the fishermen to use to avoid the catch of flounder.

SMAST Yellowtail Bycatch Avoidance Program started in Closed Area I and Closed Area II in August 2011.

- How to Participate in Yellowtail Bycatch Avoidance
- How Cells Are Classified
- Latest Bycatch Update

RI SMBT

- 5 vessels
- ≈50 trips sampled
  - 2007-2011 ≈75
- Different thresholds
- Reduced spatial scale



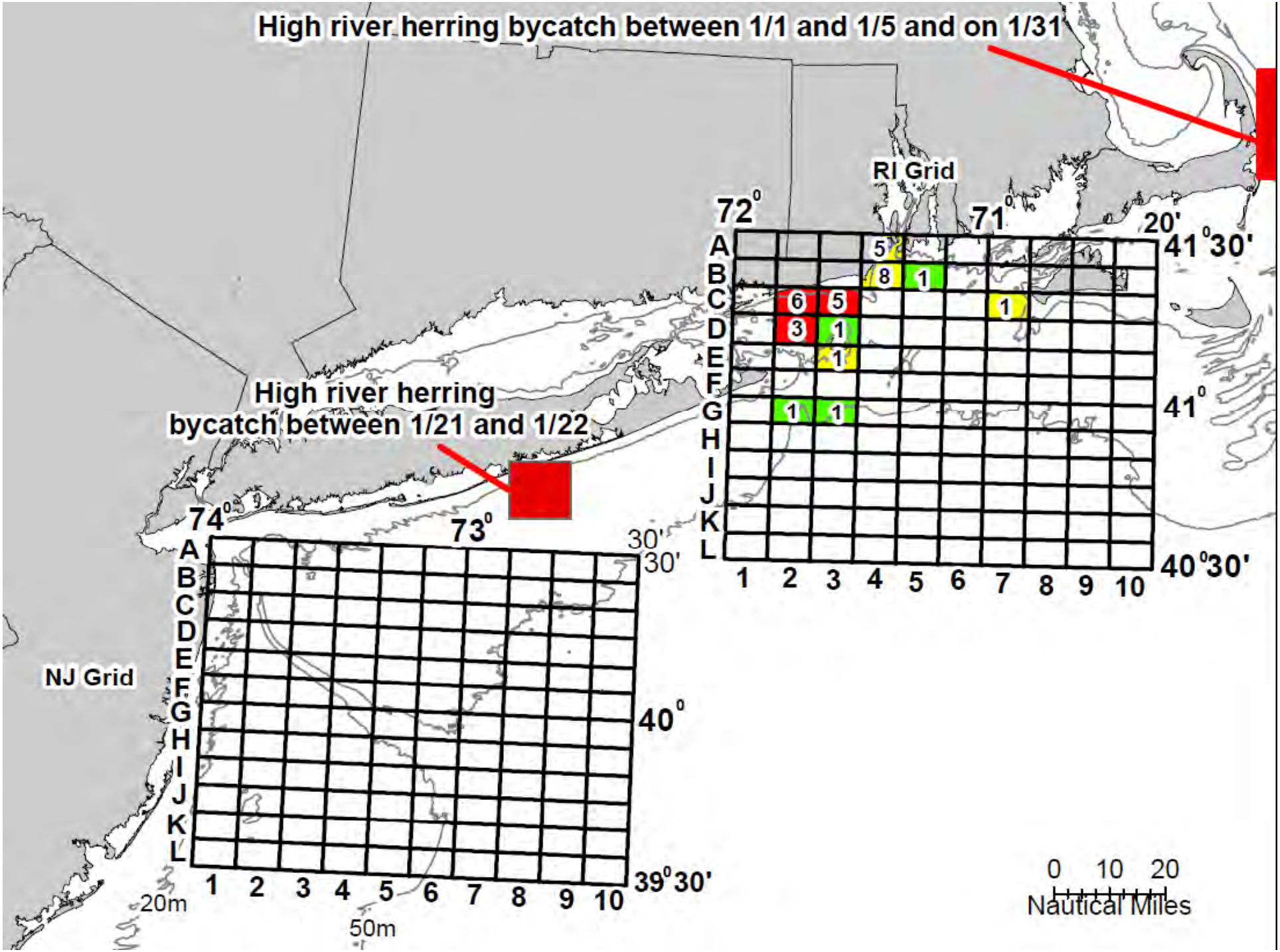
Environmental Predictors of Bycatch

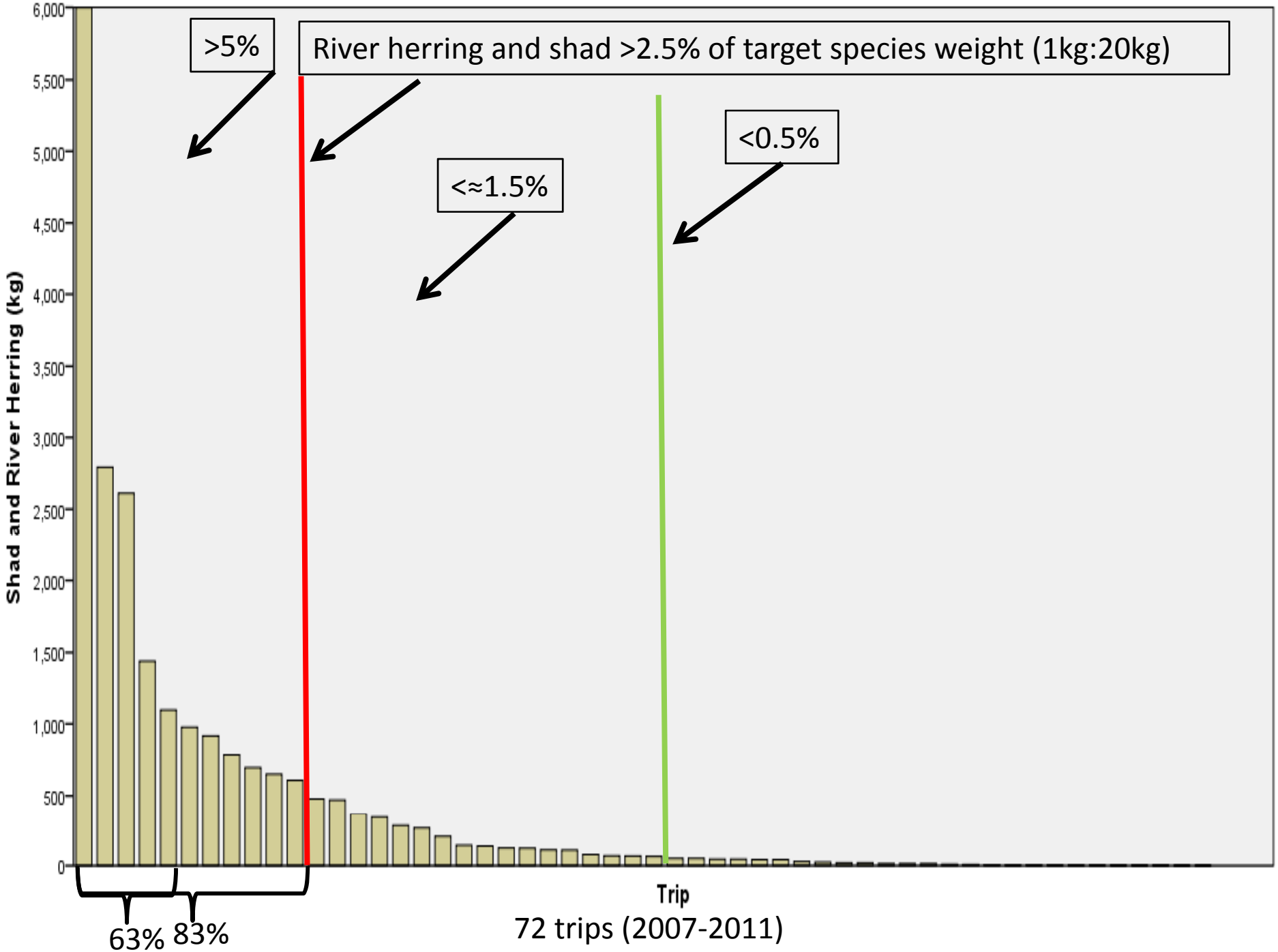
- Evidence of Associations
  - Predictable, seasonal migrations
  - Distribution linked to specific environmental conditions
- Goals: Identify, Assess, Share
- Catch At Sea (2000-2010)
  - NMFS Bottom trawl: Build
    - Binary catch variable
    - In-situ measurements
  - NEFOP Midwater trawl: Test
    - Finite Volume Community Ocean Model (FVCOM)
  - Restrict to winter

Acknowledgements

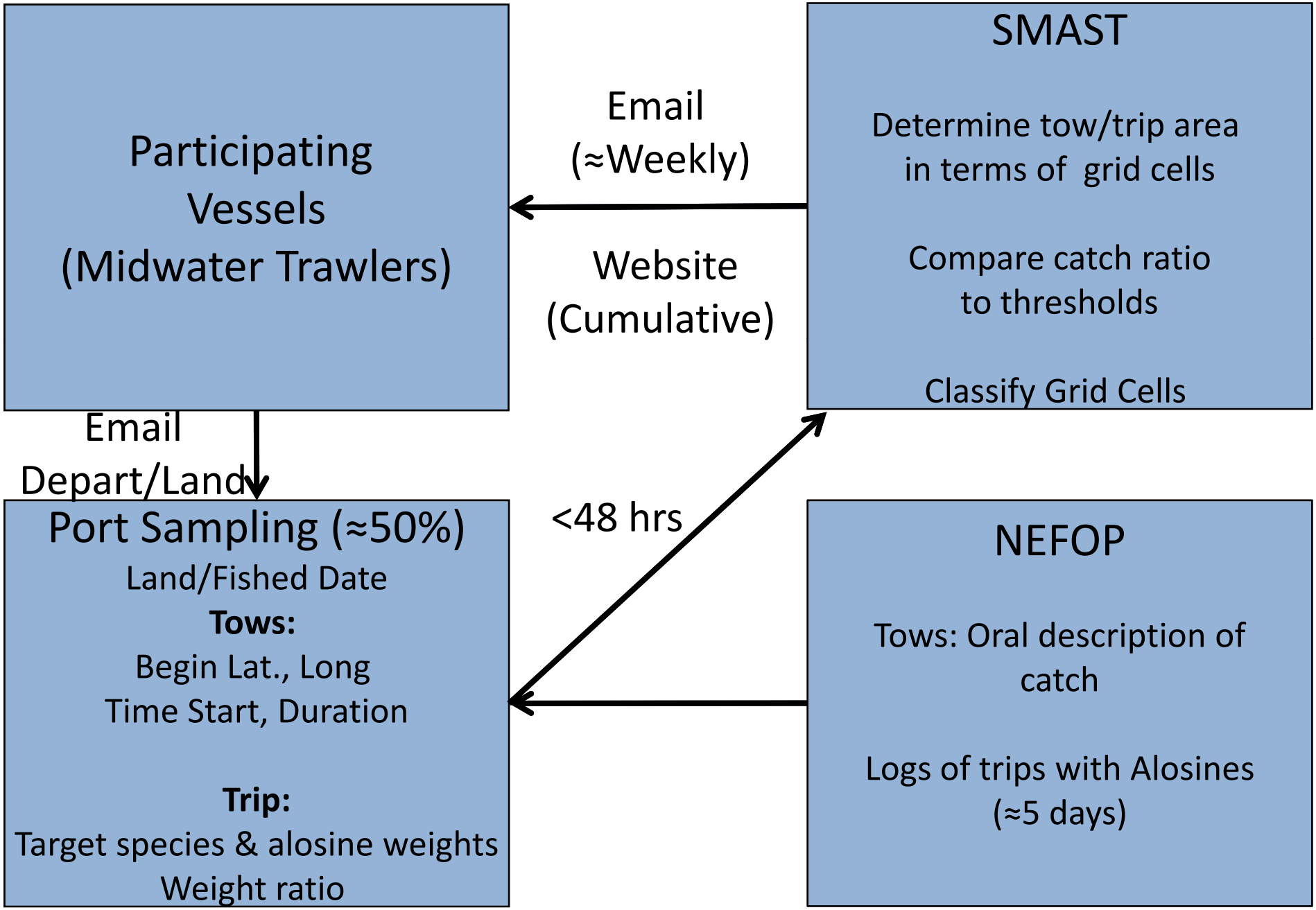
- SFC Mid-water trawl vessels and crew
  - F/Vs Western Venture, Osprey, Challenger, Endeavour, Dona Martita, Nordic Explorer, Retriever, Enterprise, Starlight, Sunlight, Jean McCausland, Isabella Taylor
- SFC on-shore members
- RI vessels and crew
  - F/Vs Sea Breeze Too, Ocean State, Heather Lynn, Darana R, Tiger Jo
- Port-samplers
- Northeast Fisheries Observer Program
- AIS Inc.
- Funding:
  - **National Fish and Wildlife Foundation**
  - **Nature Conservancy**

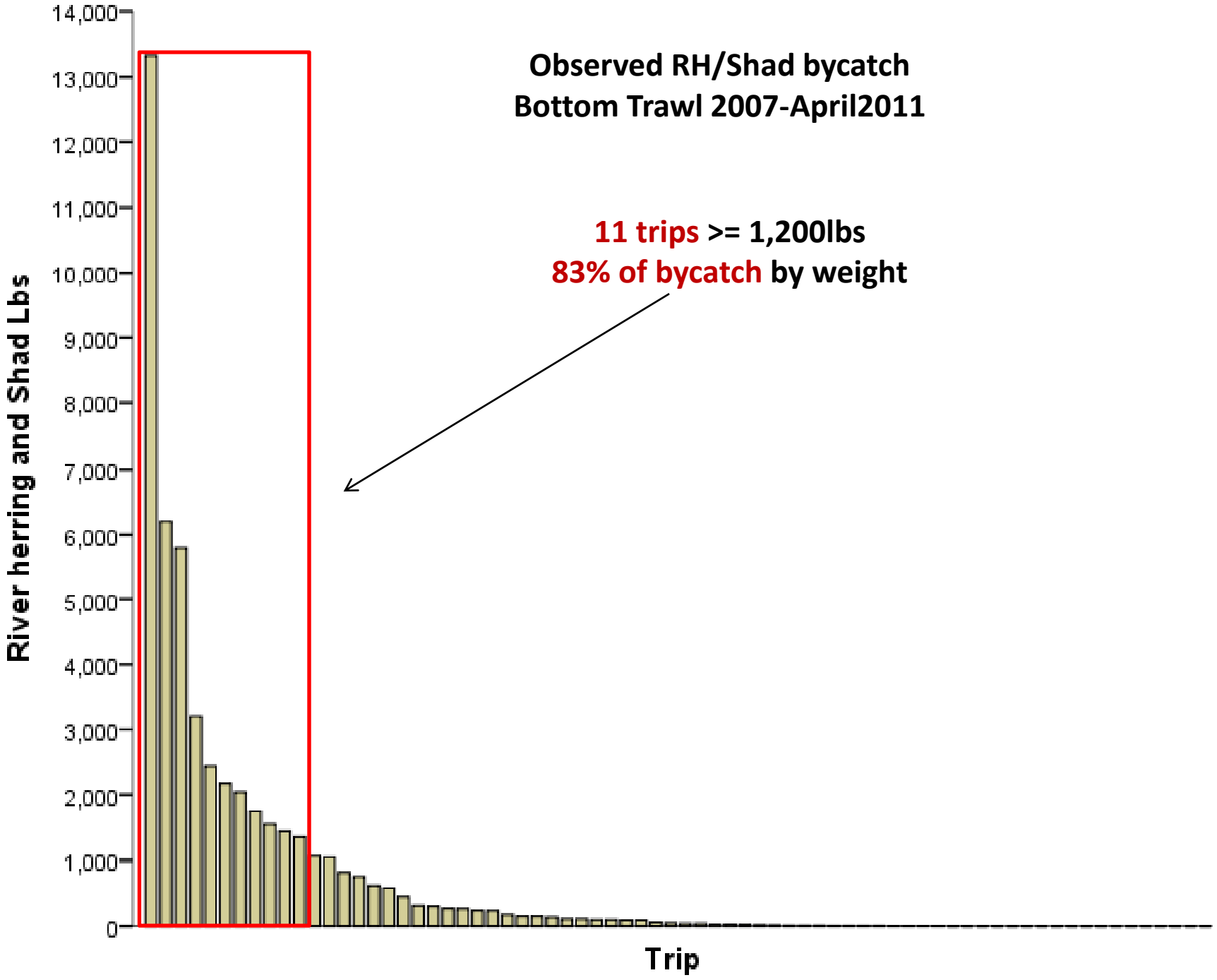

Questions/Comments

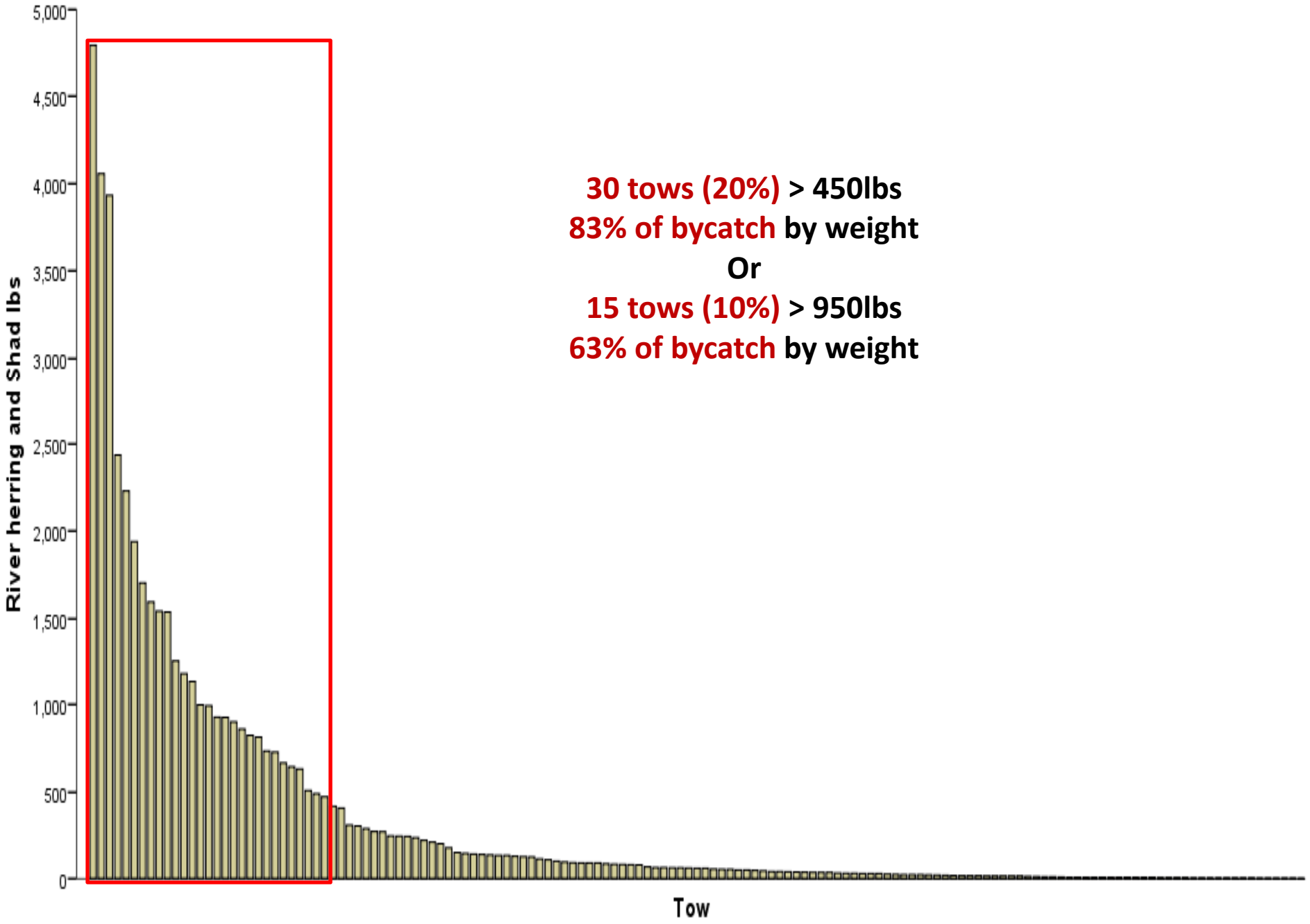

High river herring bycatch between 1/1 and 1/5 and on 1/31
RI Grid
72°
71°
20'
41°30'
41°
40°30'
A
B
C
D
E
F
G
H
I
J
K
L
1 2 3 4 5 6 7 8 9 10
5
8
1
6
5
1
3
1
1
1
1
High river herring
bycatch between 1/21 and 1/22
74°
73°
30'
30'
NJ Grid
40°
39°30'
20m
50m
0 10 20
Nautical Miles


>5%
River herring and shad >2.5% of target species weight (1kg:20kg)
<≈1.5%
<0.5%
Shad and River Herring (kg)
6,000
5,500
5,000
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
Trip
63%
83%
72 trips (2007-2011)

Communication Flow




Observed RH/Shad bycatch
Bottom Trawl 2007-April2011
11 trips >= 1,200lbs
83% of bycatch by weight
River herring and Shad Lbs
14,000
13,000
12,000
11,000
10,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
Trip



30 tows (20%) > 450lbs
83% of bycatch by weight
Or
15 tows (10%) > 950lbs
63% of bycatch by weight

Environmental Predictors of Catch

- Exploratory approach
  - Use statistics as a tool to answer biological question
- Build with survey data
    - Binary abundance variable
    - Simple factors (i.e. temperature vs. Chlorophyll)
      - In-situ values
      - Easier to forecast
  - Logistic Regressions
    - Probability of presence, given predictors
    - Test parameters individually
    - Determine variables that differentiate groups
      - Discriminate Function Analysis
- Test with NEFOP data
- Limit to winter

Port Sampling

Port Sampling is an efficient method to gather large amounts of bycatch data from pelagic fisheries

- Full access to fish during offload.
  - Increase number of sub-samples
  - Systematically collect representative samples
- Less expensive vs. at sea sampling
- Offload pump rates are slower/drawn out, increase number of sub-samples
- No observer effect
- Work in controlled environment
- More accurate weights; accurate scales, stable platform
- Processing plants utilize plant staff to remove 100% bycatch from catch

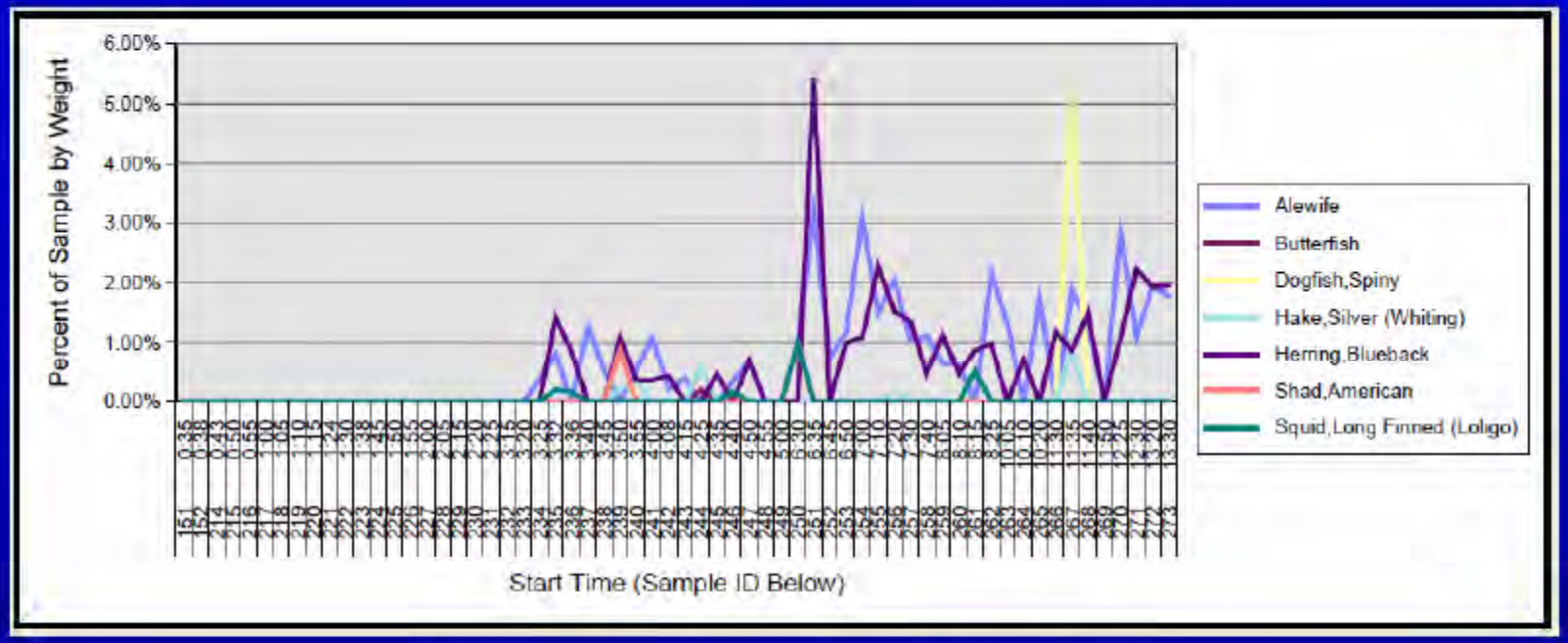
Port sampling does not replace at-sea sampling

- Real-time results
- Estimates for fish not brought aboard
- Weights for fish removed before going into tank
- Tow by tow information

Sorting a subsample

Slide by B.Hoffman

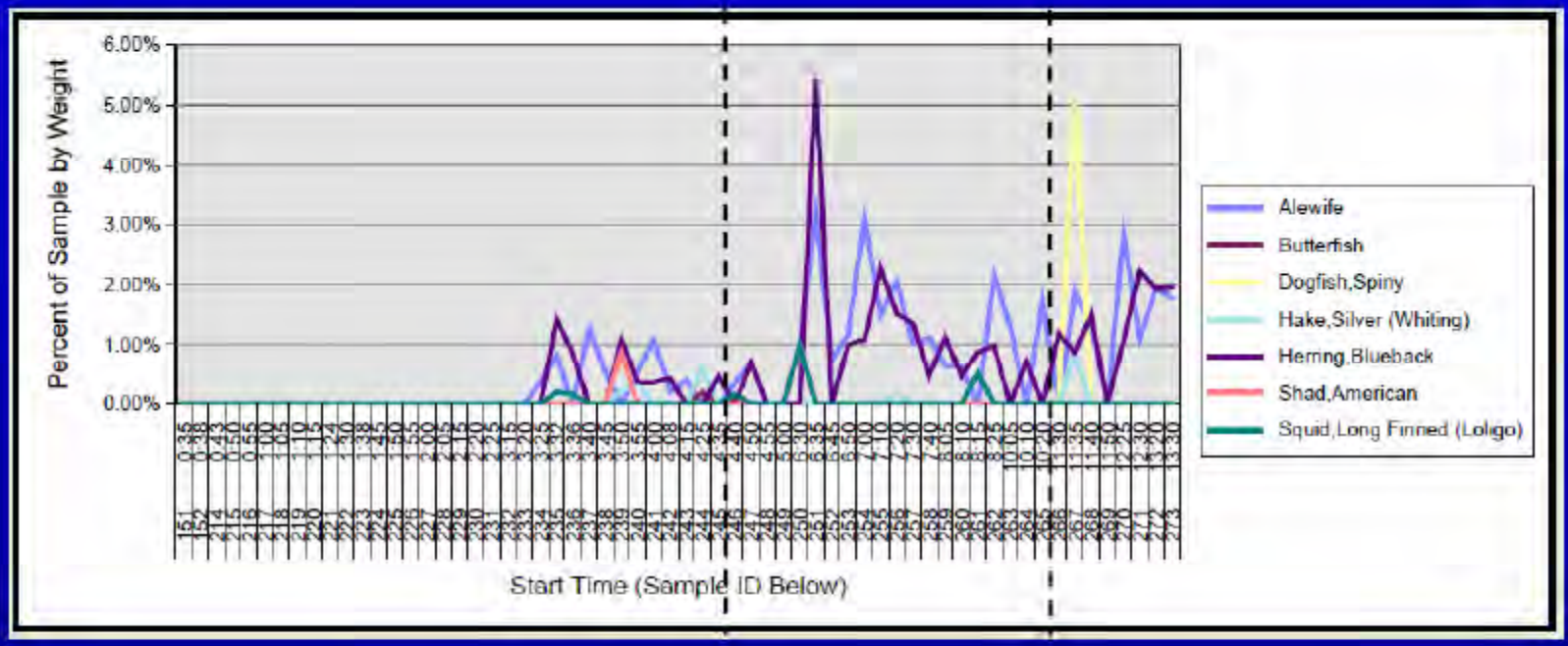
Massachusetts *MarineFisheries*

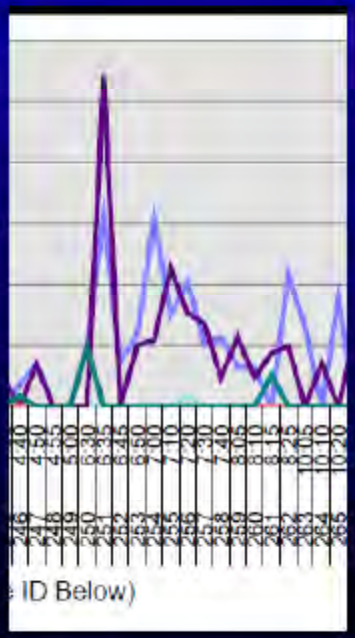


Species Name	% of Catch	Expanded Weight (kg)
Alewife	0.62%	2,332
Butterfish	0.00%	12
Dogfish,Spiny	0.08%	316
Hake,Silver (Whiting)	0.04%	135
Herring,Atlantic,Sea	98.11%	367,908
Herring,Blueback	0.54%	2,042
Mackerel,Atlantic	0.54%	2,019
Shad,American	0.03%	112
Squid,Long Finned (Loligo)	0.03%	125

Number of samples = 62

Slide by B.Hoffman

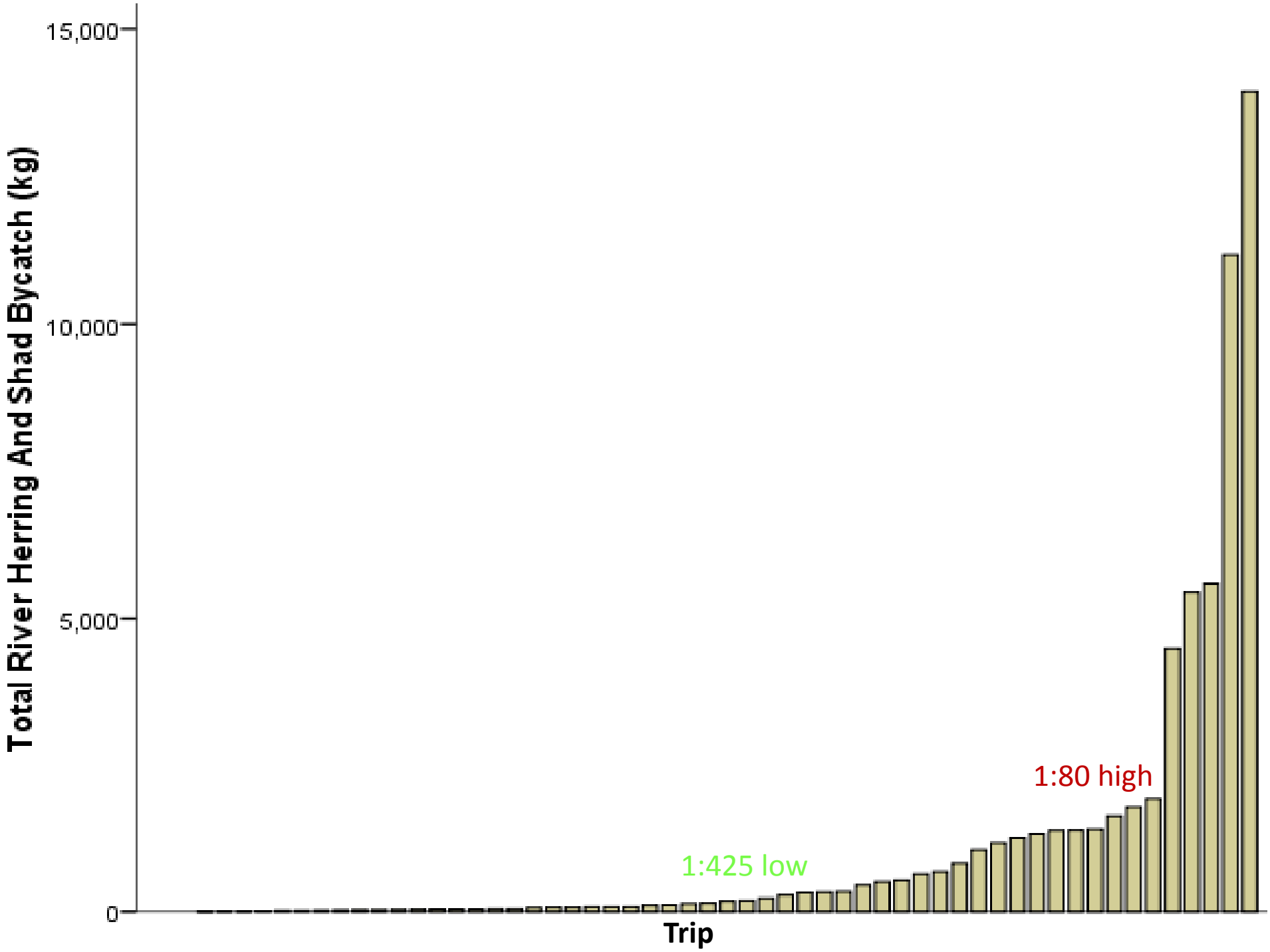




Species Name	% of Catch	Expanded Weight (kg)	Diff
Alewife	1.40%	5,245	2.2
Hake,Silver (Whiting)	0.17%	636	
Herring,Atlantic,Sea	97.33%	364,993	
Herring,Blueback	1.39%	5,197	2.5
Mackerel,Atlantic	1.13%	4,223	
Shad,American	0.98%	3,689	
Squid,Long Finned (Loligo)	0.56%	2,111	32.9

Number of samples= 20

Slide by B Hoffman


15,000
10,000
5,000
0
Total River Herring And Shad Bycatch (kg)
Trip
1:425 low
1:80 high

Thresholds

MA DMF Portside

Rank (total bycatch)	Ratio (RH/S to Target kg)
1	1:49
2	1:26
3	1:63
4	1:81
5	1:72
6	1:64
14-55	>1:425

River Herring/Shad:Target Species

<1:80, high

1:80- 1:425, moderate

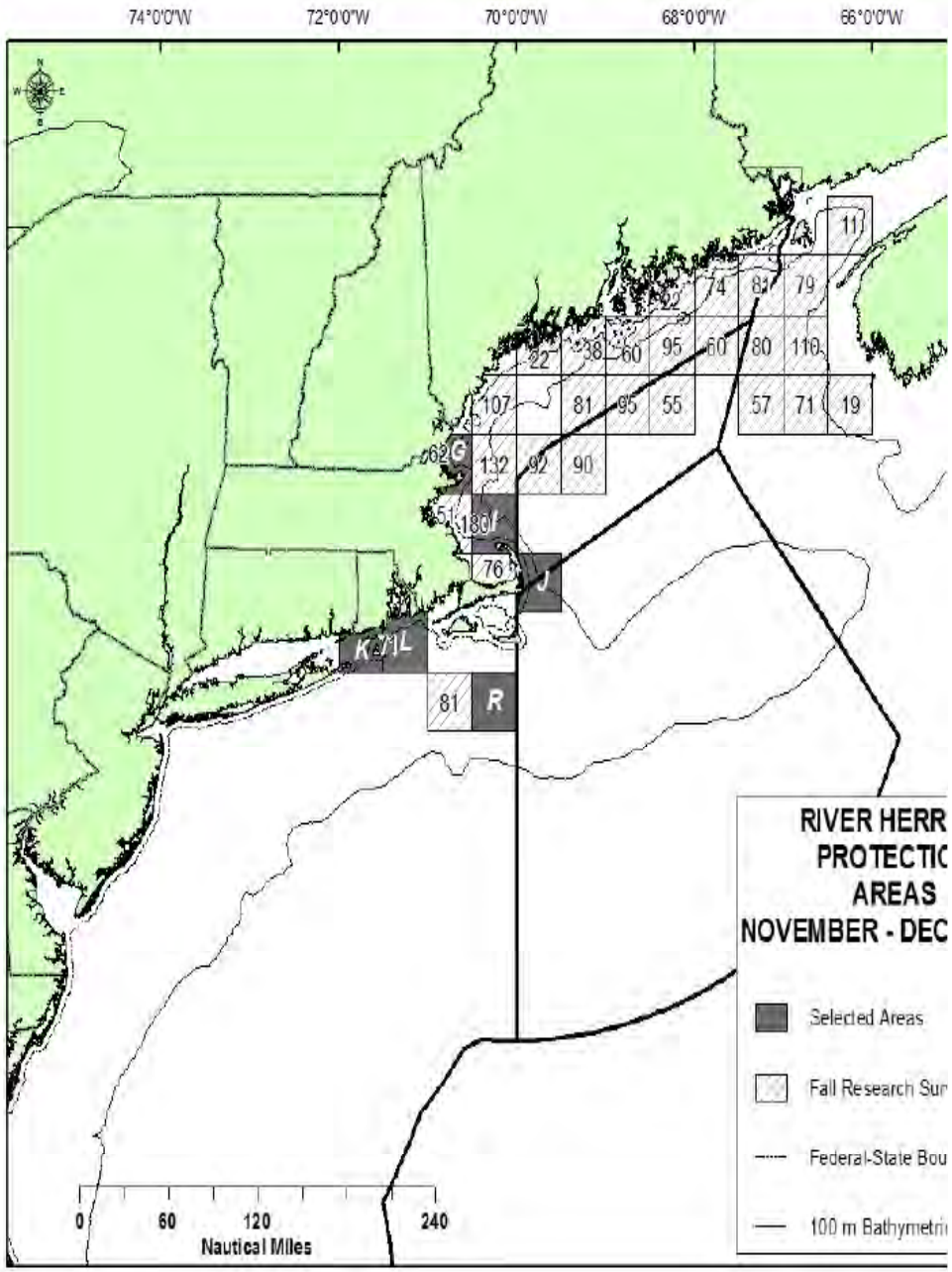
>1:425, low

Matches Observer Data

Top 10% <1:43

→ **Top 10%**

→ **Less than 900 kg RH/S**


74°0'0"W
72°0'0"W
70°0'0"W
68°0'0"W
66°0'0"W
RIVER HERR
PROTECTIC
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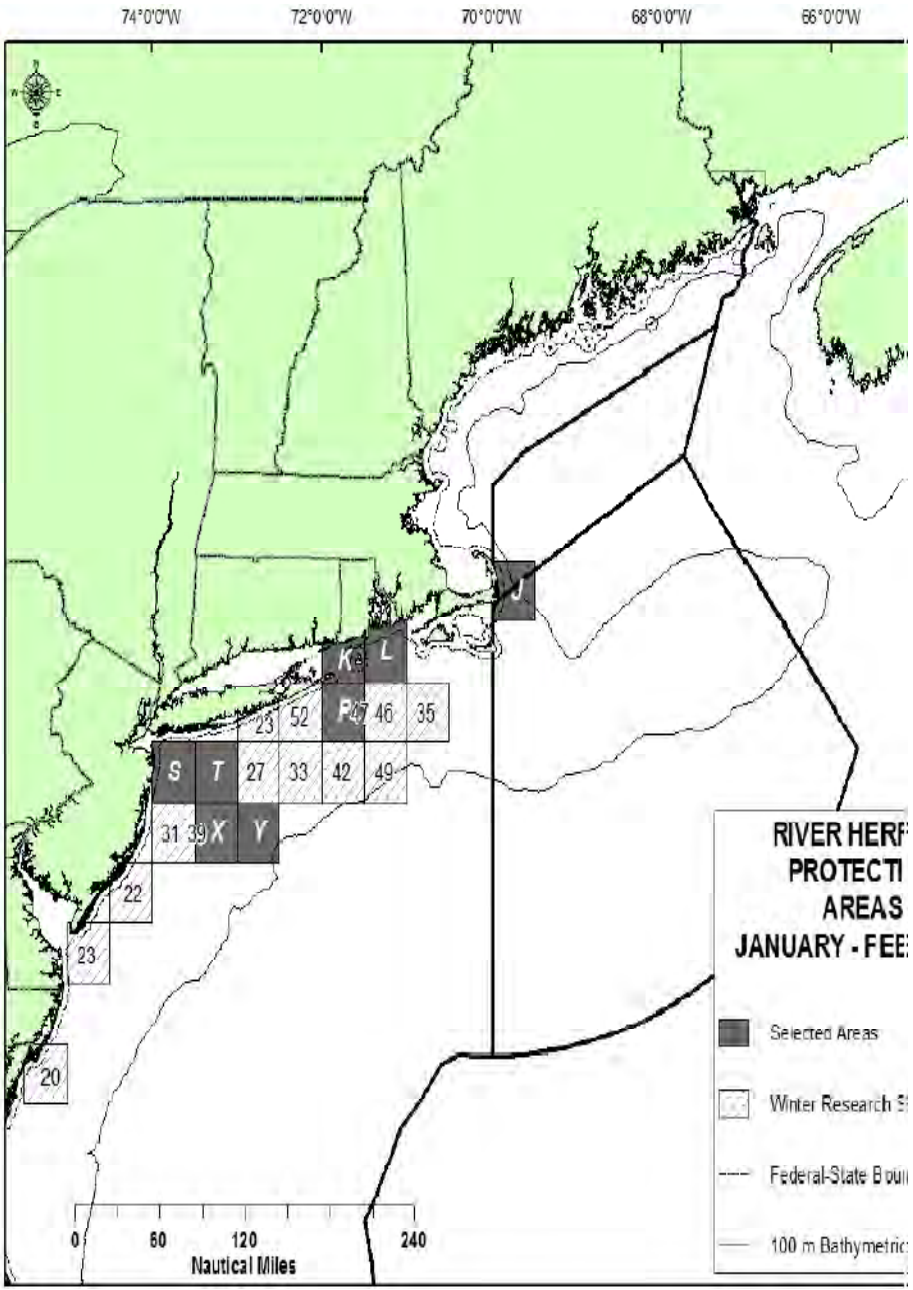
100 m Bathymetri
0
60
120
240
Nautical Miles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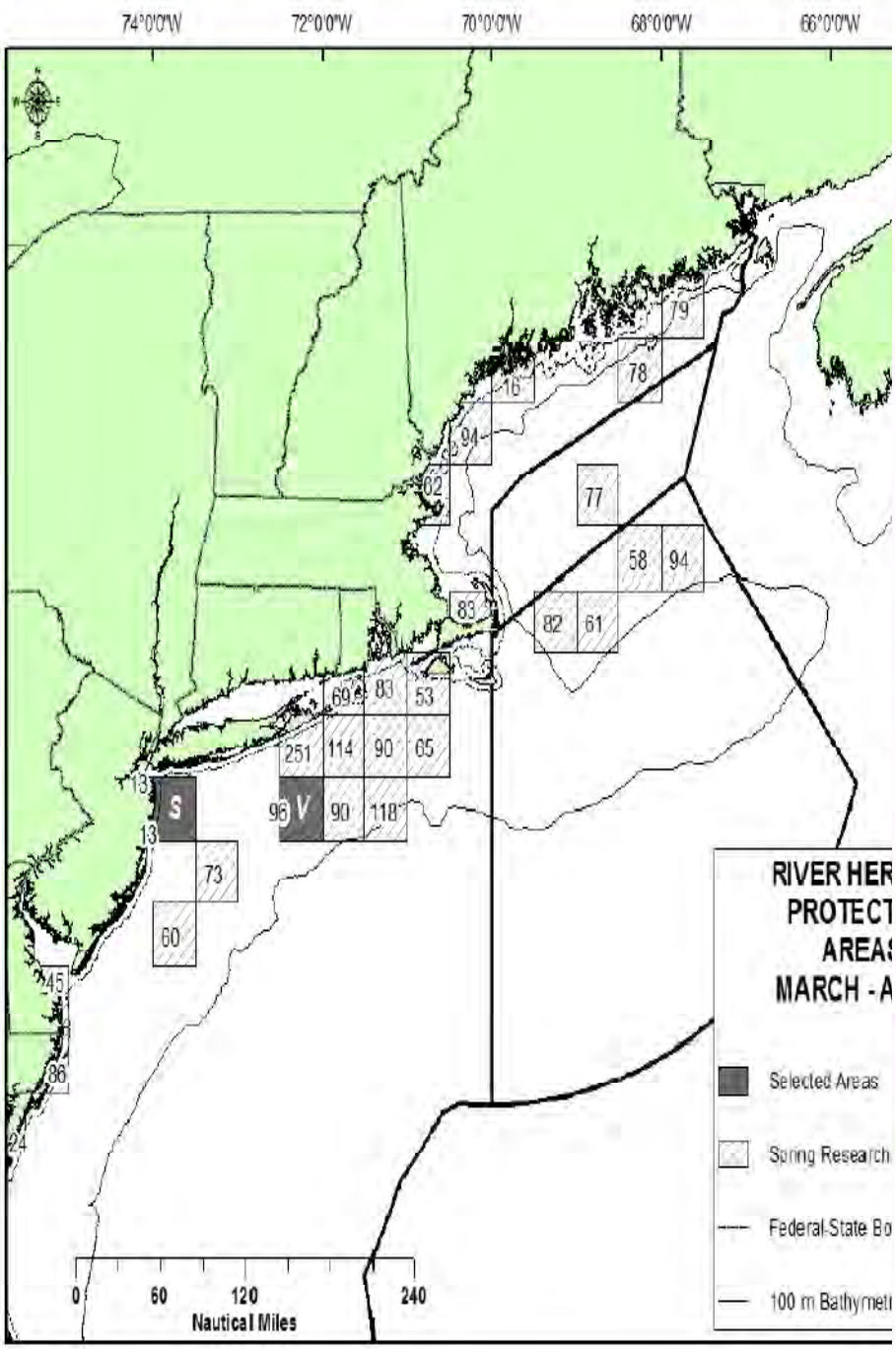
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114
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73
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86
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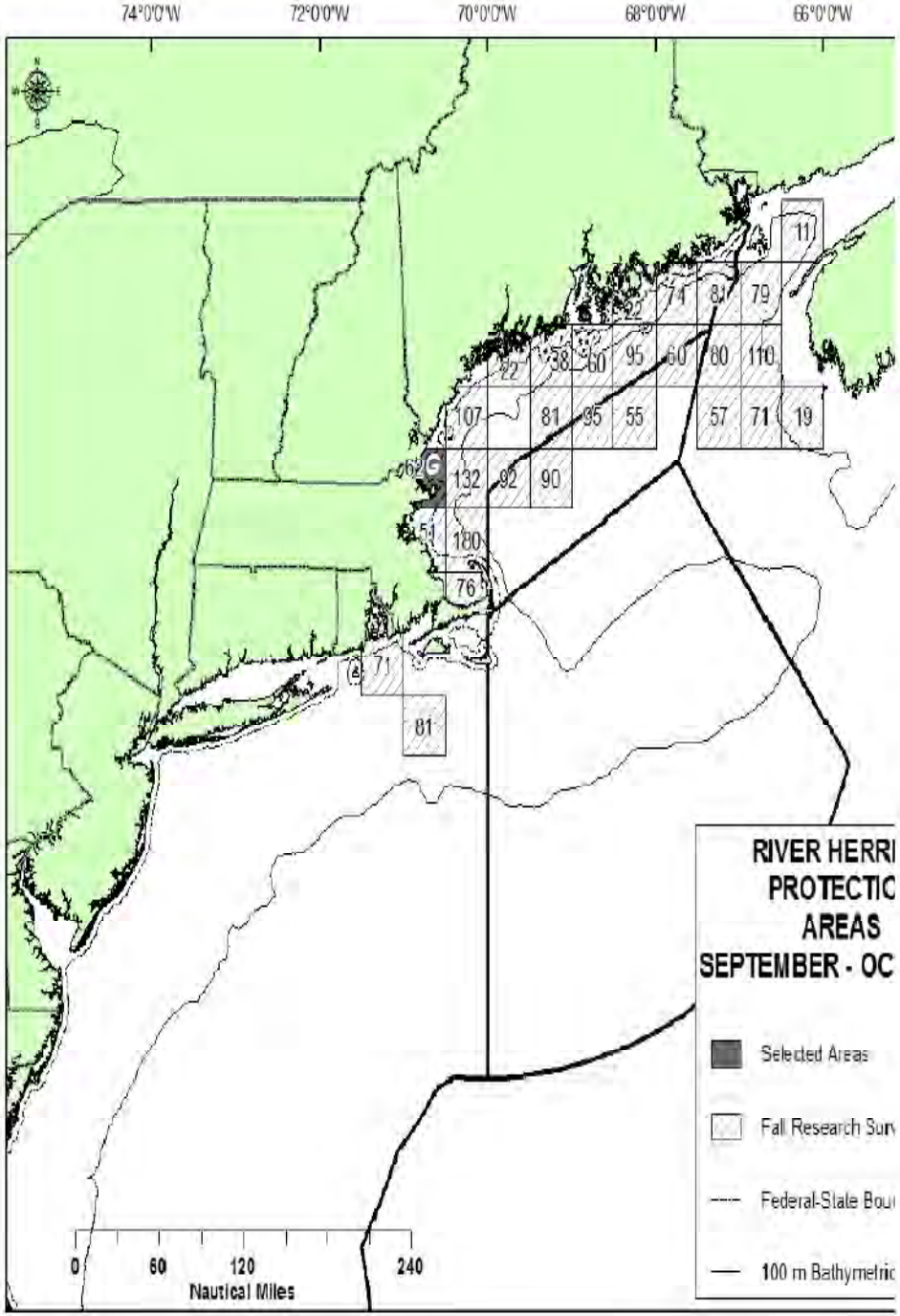
Nautical Miles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66°0'0"W
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Selected Areas
Fall Research Sur
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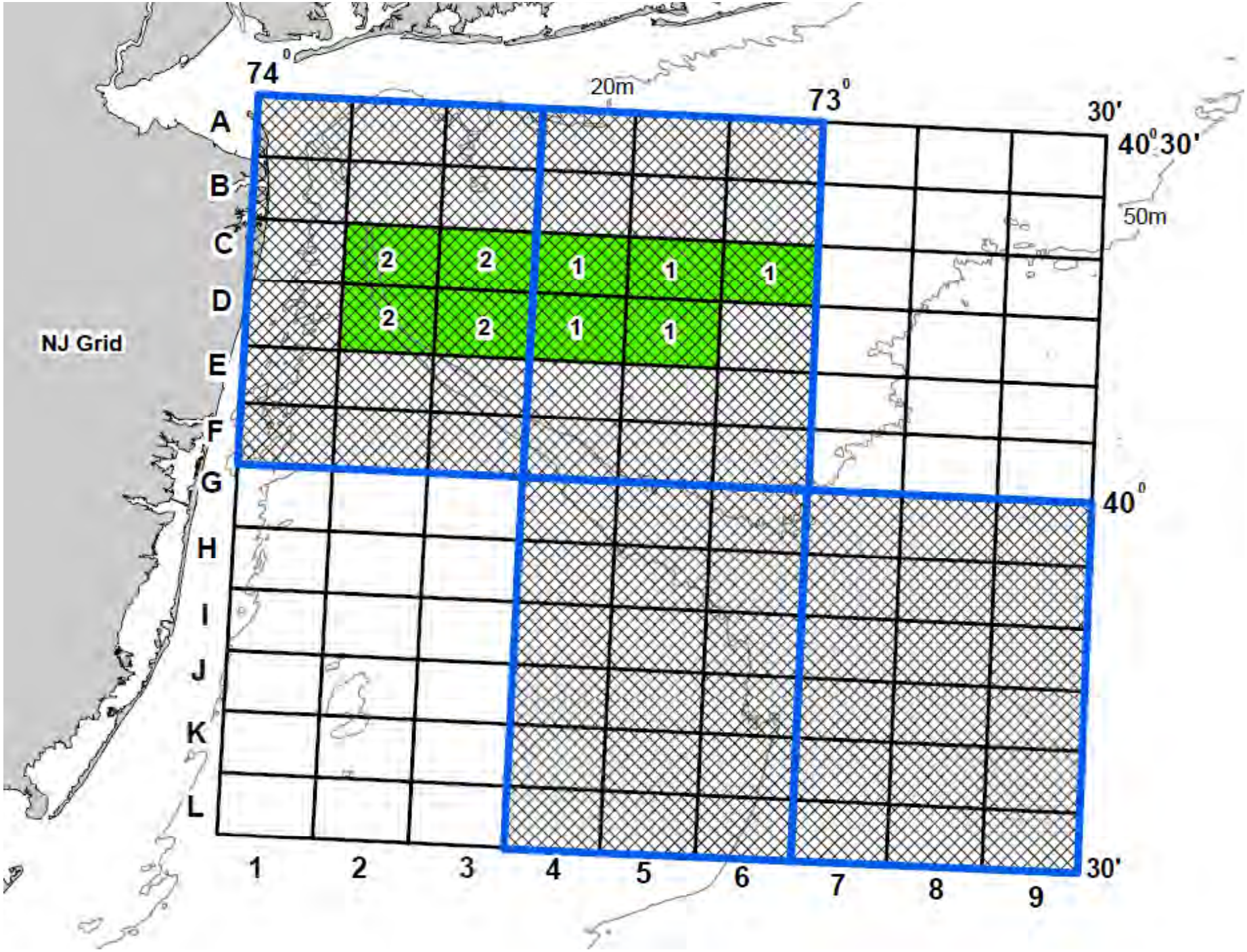
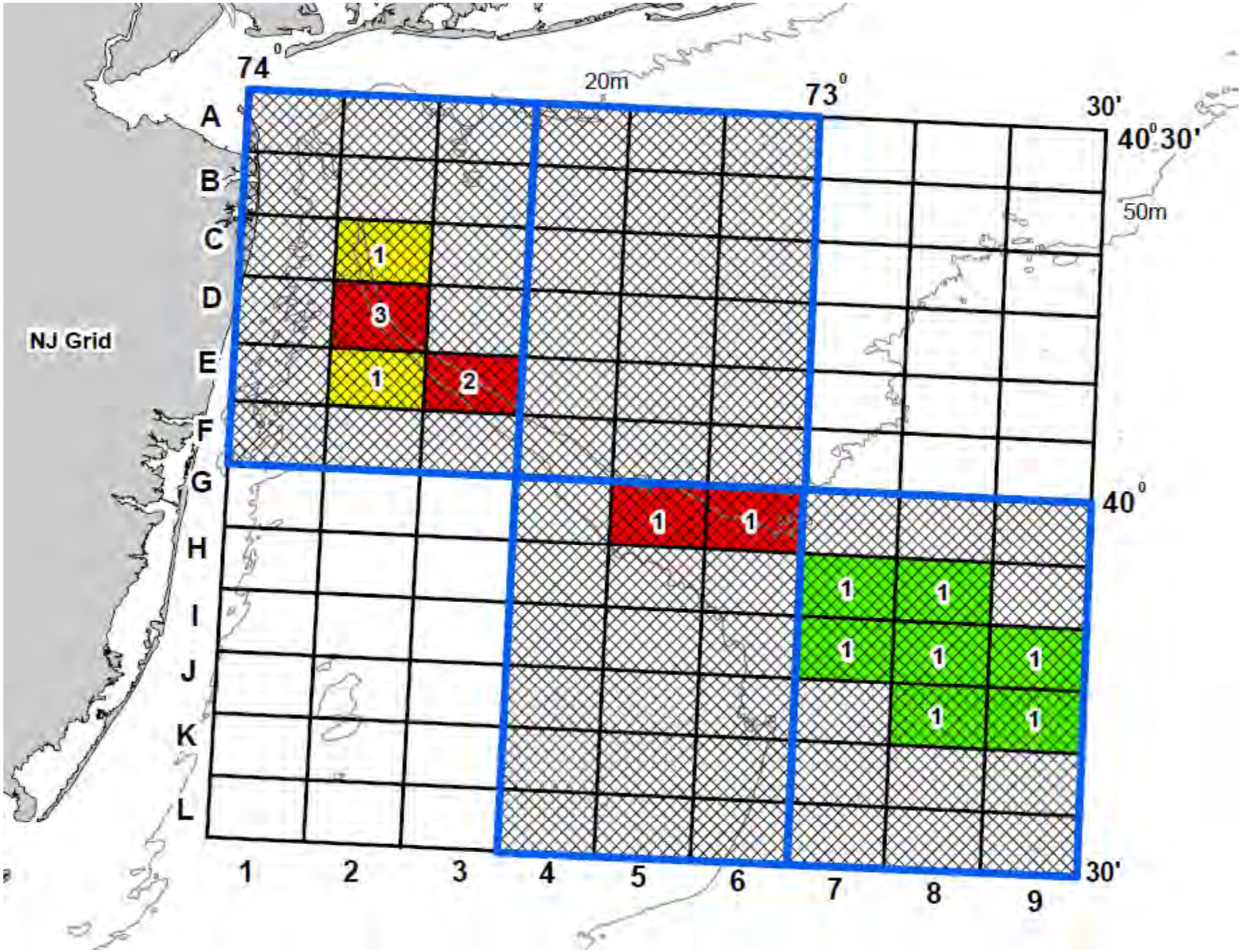
Nautical Miles


74°
20m
73°
30'
40°30'
50m
40°
30'
A
B
C
D
E
F
G
H
I
J
K
L
1
2
3
4
5
6
7
8
9
NJ Grid
2
2
1
1
1
2
2
1
1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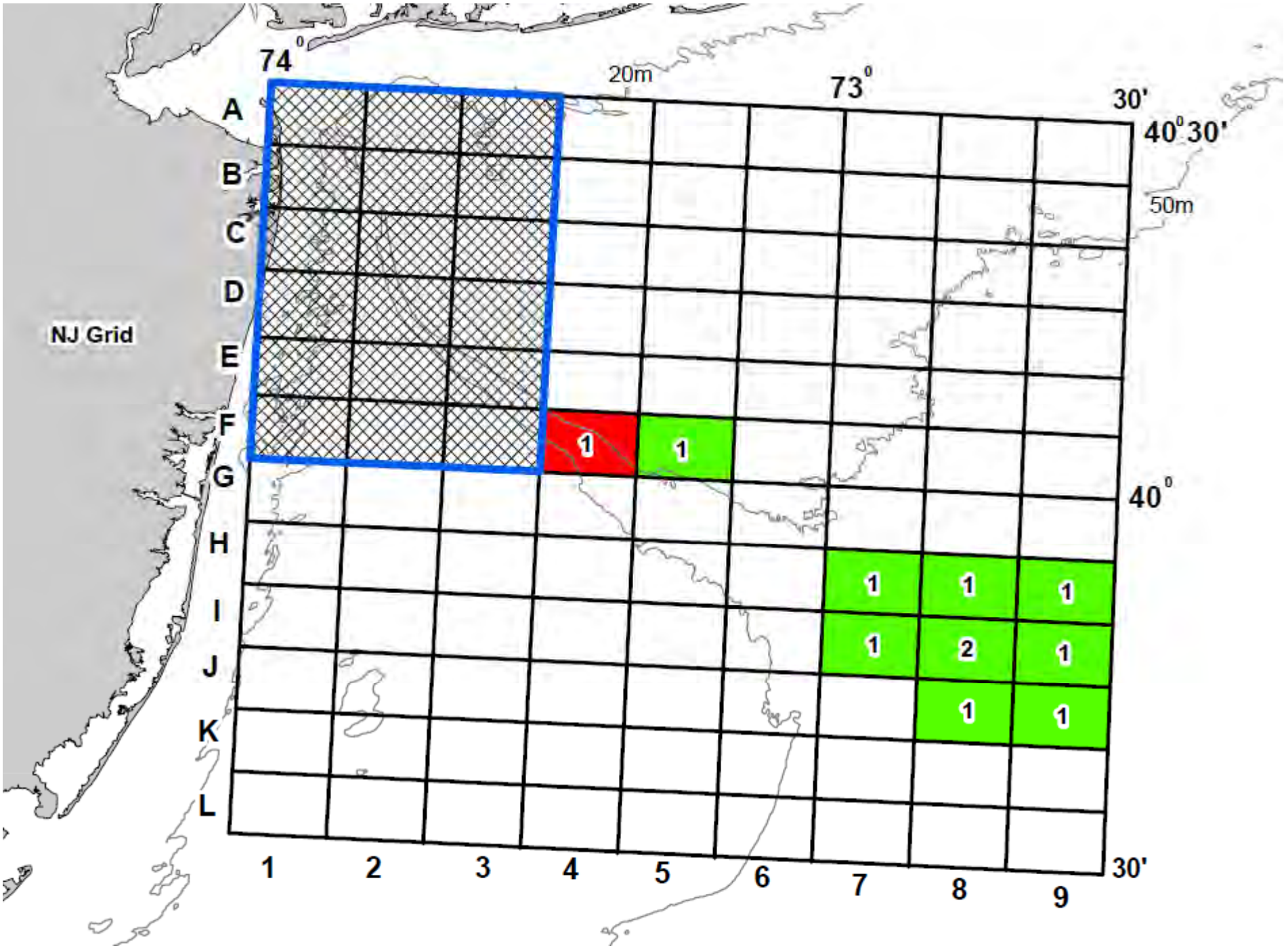
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Reduce Predation

- Confusion: Sensory overload
- Morphological differences increase predation risk
  - Size
  - Color
  - Shape

50-70cm

35-46cm

Atlantic herring, Juvenile Shad, River herring: <30cm

Conserve Energy

- Swimming efficiency
  - Hydrodynamic studies
  - Optimal speeds
- Long distance migrations
- Canoe Paddle vs. Torpedo

Depart

FROM:WESTERN VENTURE
MESSAGE:HERRING Y NEWBEDFORD

FROM:ENDEV
MESSAGE:ENDEAVOUR AND CHALLENGER LEFT GLOUCESTER AT 1600HRS ON 08/16/11GOIN TO GEORGES FOR HERRINGS NO OB ONBOARD

Landing

FROM:SUNLIGHT
MESSAGE:LANDING 03,30,11, 1600

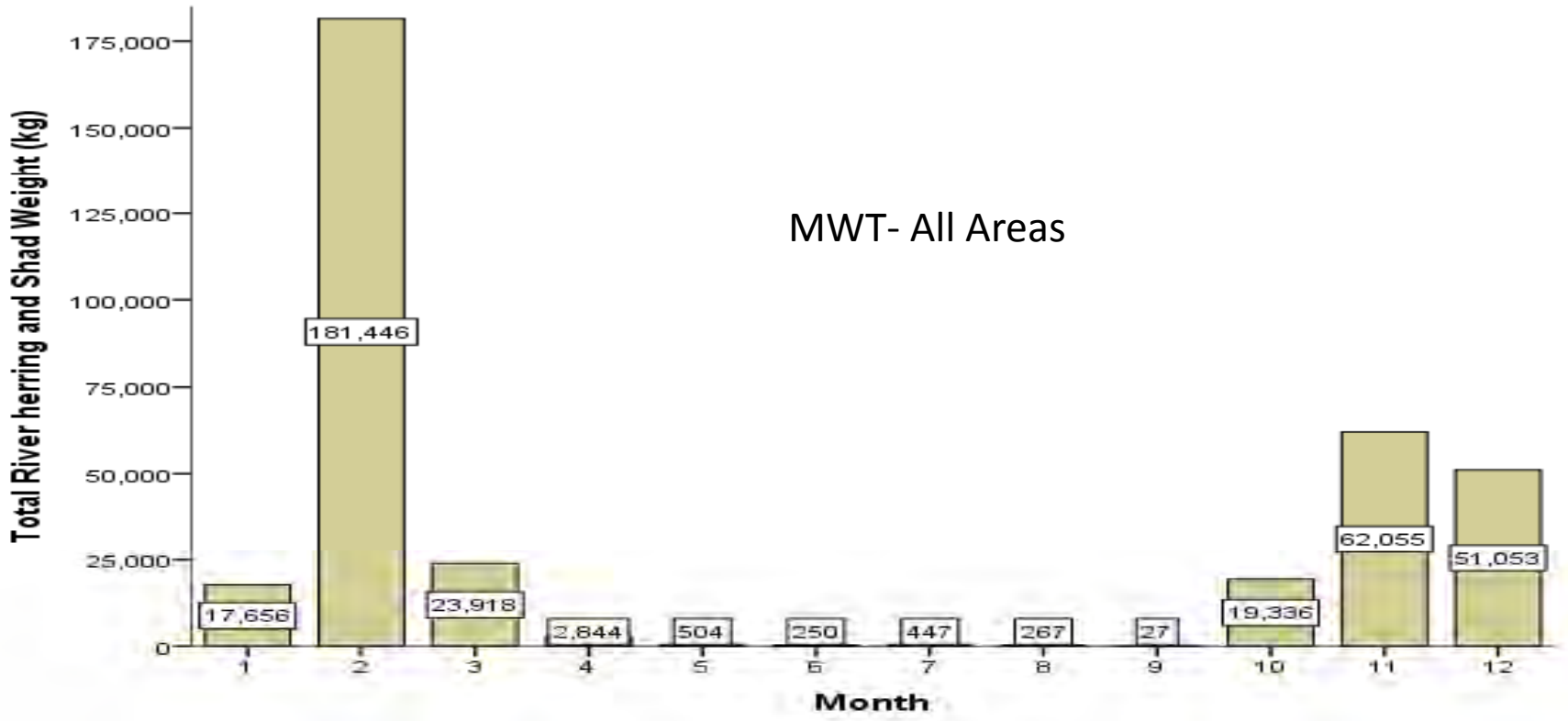
FROM:ENDEV
MESSAGE:ENDEAVOUR ETA AT GLOUCESTER 1000HRS ON 08/19/11 GOT 180TONN OFF HERRINGS NO OB ONBOARD
CHALLENGER ETA AT GLOUCESTER 0900HRS ON 08/19/11 GOT 280TONN OFF HERRINGS NO OB ONBOARD

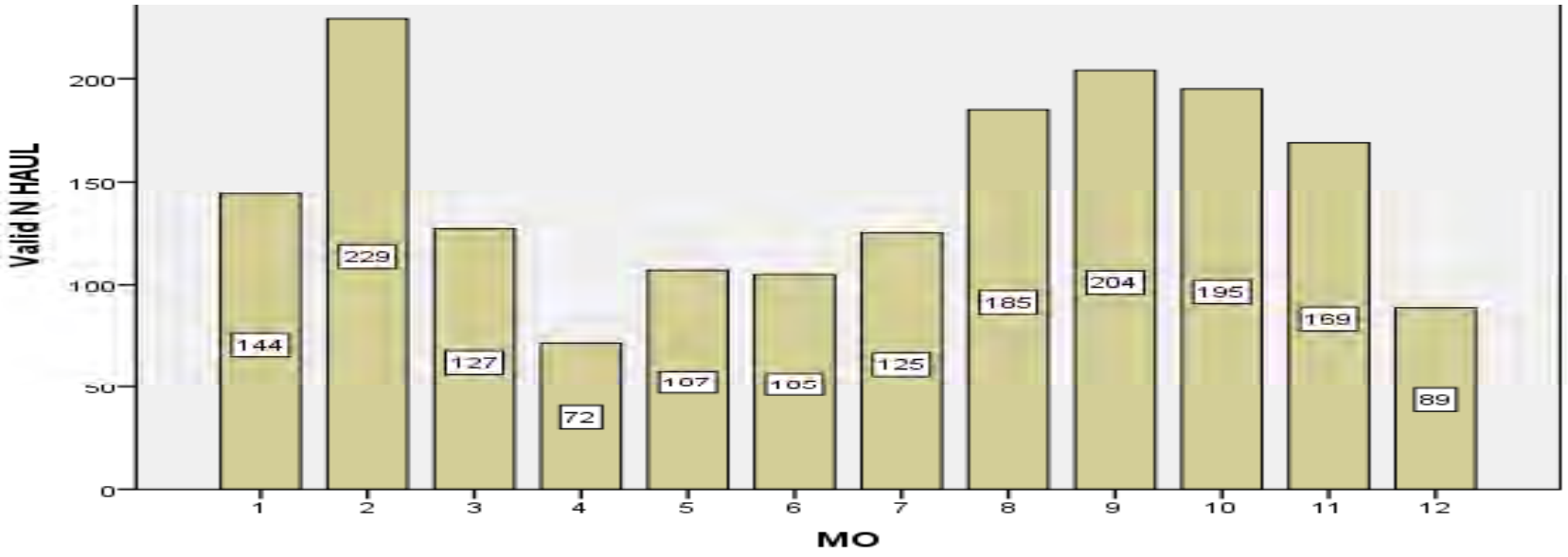
Advisories

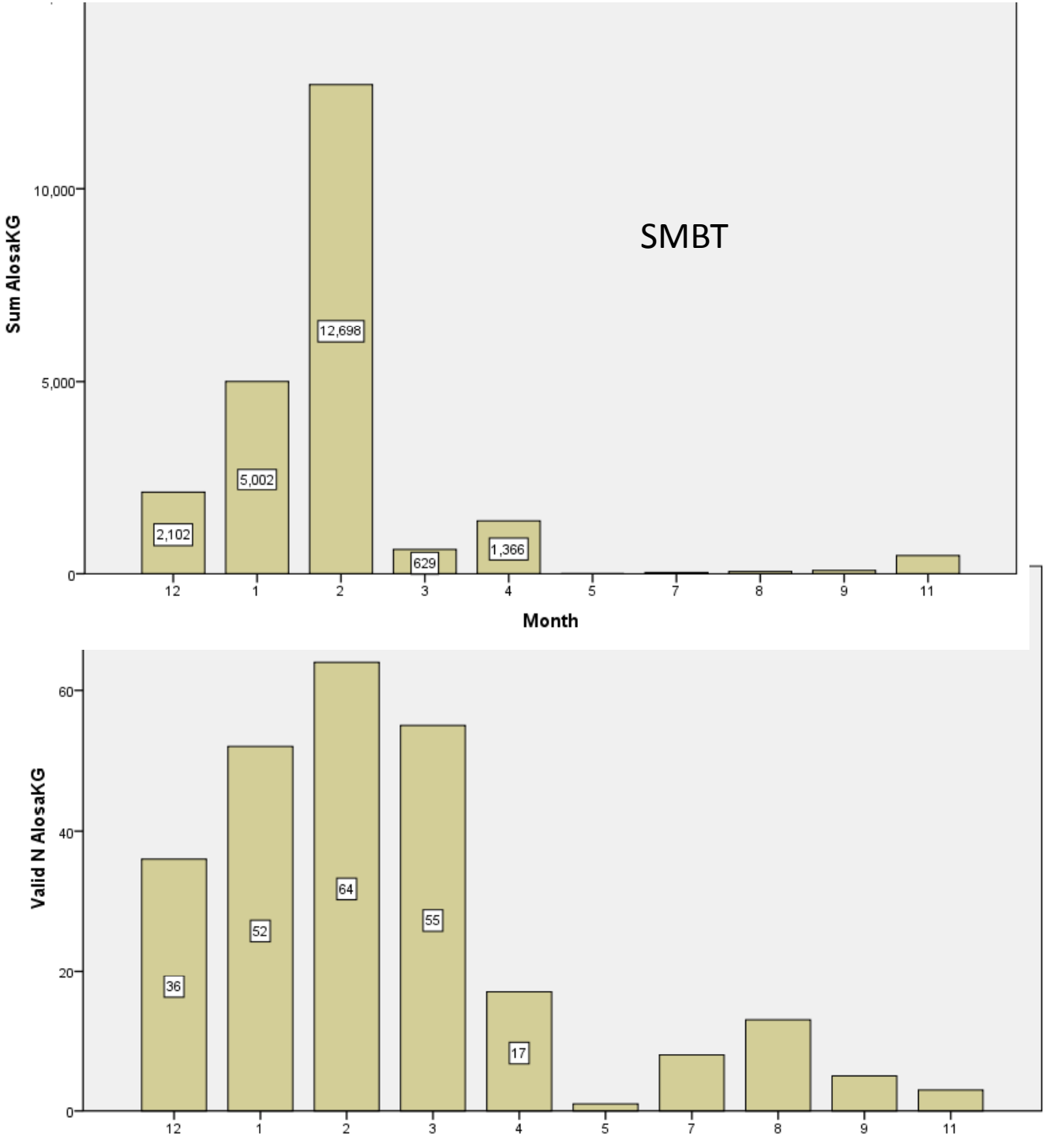
NJ Grid RH bycatch: High-E3 Mod.-C2,D2
Low-H7-8, I 7-9, J8-9

Since Jan1: 5 trips
sampled, none in grids, 4 with low RH bycatch, 1 moderate within lat,longs:
40 44.66', 40 34.74', 72 25.62, 72 6.83'

MWT- All Areas






SMBT
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Amendment 5 to the Atlantic Herring FMP:

Measures to Address River Herring Bycatch

Lori Steele, NEFMC Staff, Herring PDT Chair

ASMFC Shad/River Herring Board, February 7, 2012

A5 Timeline

- Draft EIS approved Sept 2011 NEFMC meeting
- Preliminary Draft EIS submitted late November
- Formal Draft EIS submitted late January 2012
- Amendment 5 comment period Mar-Apr 2012
- Public hearings March 2012
- Final selection of measures April 2012 Council Meeting
- ASMFC Spring Meeting, May 2012
- Completion/submission of Final Measures/FEIS ASAP, May/June 2012
- Implementation January 1, 2013

Goals and Objectives

GOAL (AMENDMENT 5)

To develop an amendment to the Herring FMP to improve catch monitoring and ensure compliance with the Magnuson-Stevens Act (MSA)

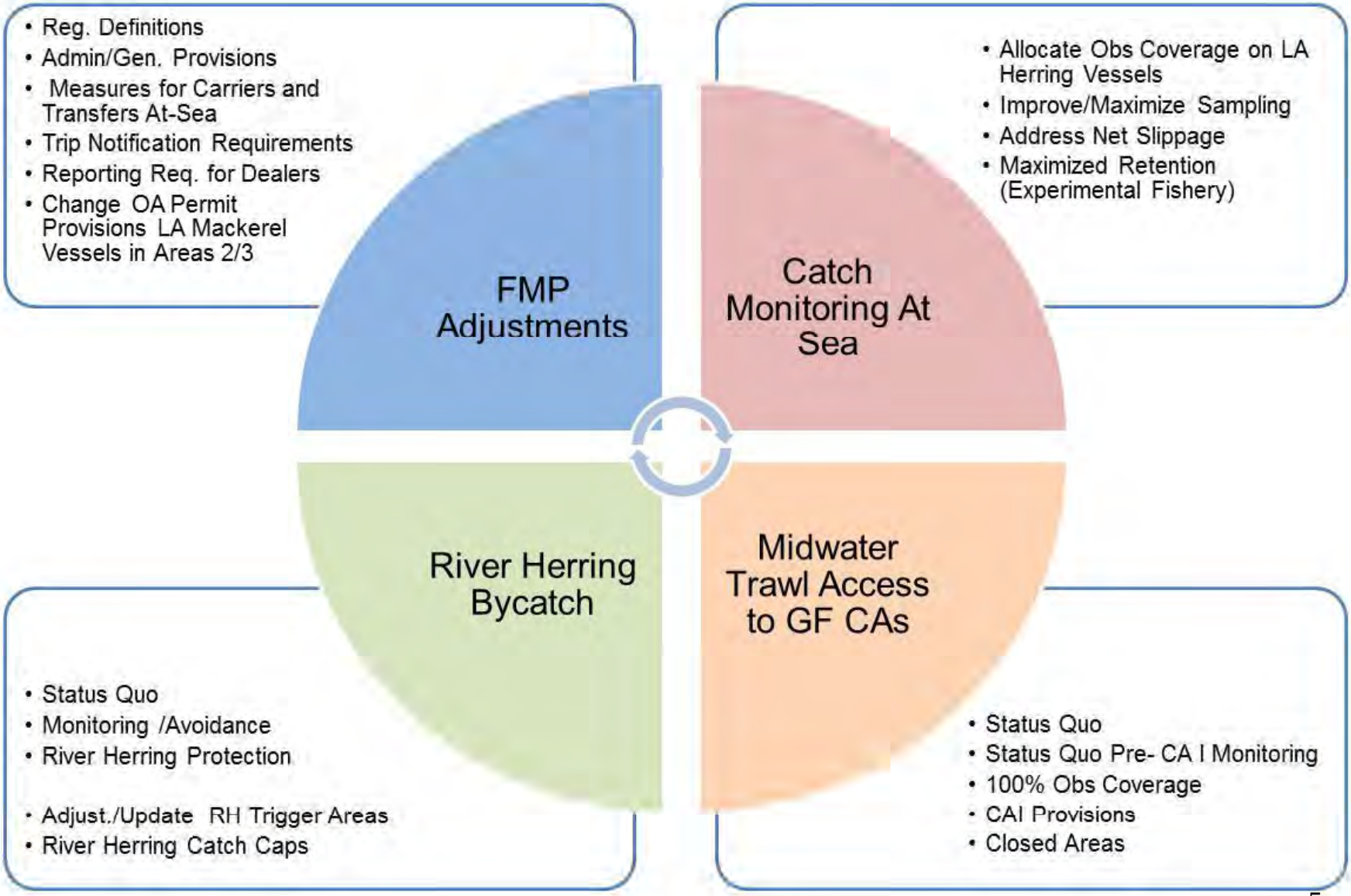
OBJECTIVES (AMENDMENT 5)

1. To implement measures to improve the long-term monitoring of catch (landings and bycatch) in the herring fishery;
2. To implement other measures as necessary to ensure compliance with the MSA;
3. To implement measures to address bycatch in the Atlantic herring fishery;
4. In the context of Objectives 1 -4 (above), to consider the health of the herring resource and the role of herring as a forage fish and a predator fish throughout its range

Amendment 5 Alts Under Consideration

- Fishery Management Program – Regulatory Definitions, Admin/General Provisions, Carrier Vessels, Transfers at Sea, Trip Notifications, Dealer Reporting, Mackerel Open Access Permits
- Catch Monitoring At-Sea – Allocation of Observer Coverage on LA Vessels, Maximizing Sampling, Net Slippage, Maximized Retention Experimental Fishery
- Measures to Address River Herring Bycatch – Monitoring/Avoidance, Protection, Trigger-Based Approaches
- MWT Access to Groundfish Closed Areas – Observer Coverage, CAI Provisions, Closed Areas

Amendment 5 Alts Under Consideration



River Herring Alternatives

(Section 3.3)

- Spatial Management Alternatives
- Link to management goals and measures/options under consideration
- Different measures may be selected in different areas, depending on goals
- Options for applying to Category A/B/C/D permit holders

Alternative 1 – No Action

Alternative 2 – RH Monitoring/Avoidance

Alternative 3 – RH Protection

Herring Vessels

Table 51 Number of Vessels by Atlantic Herring Permit Category, 2008-2010

Herring Permit Category		Year		
		2008	2009	2010
	A	45	45	42
	B	5	4	4
	C	58	55	55
	D	2,409	2,394	2,258

Alternative 2: River Herring Monitoring/Avoidance

(Section 3.3.2)

- Monitor river herring bycatch and encourage avoidance
- Areas based on at least one observed tow of river herring catch greater than 40 pounds 2005-2009

Option1 – 100% Observer Coverage

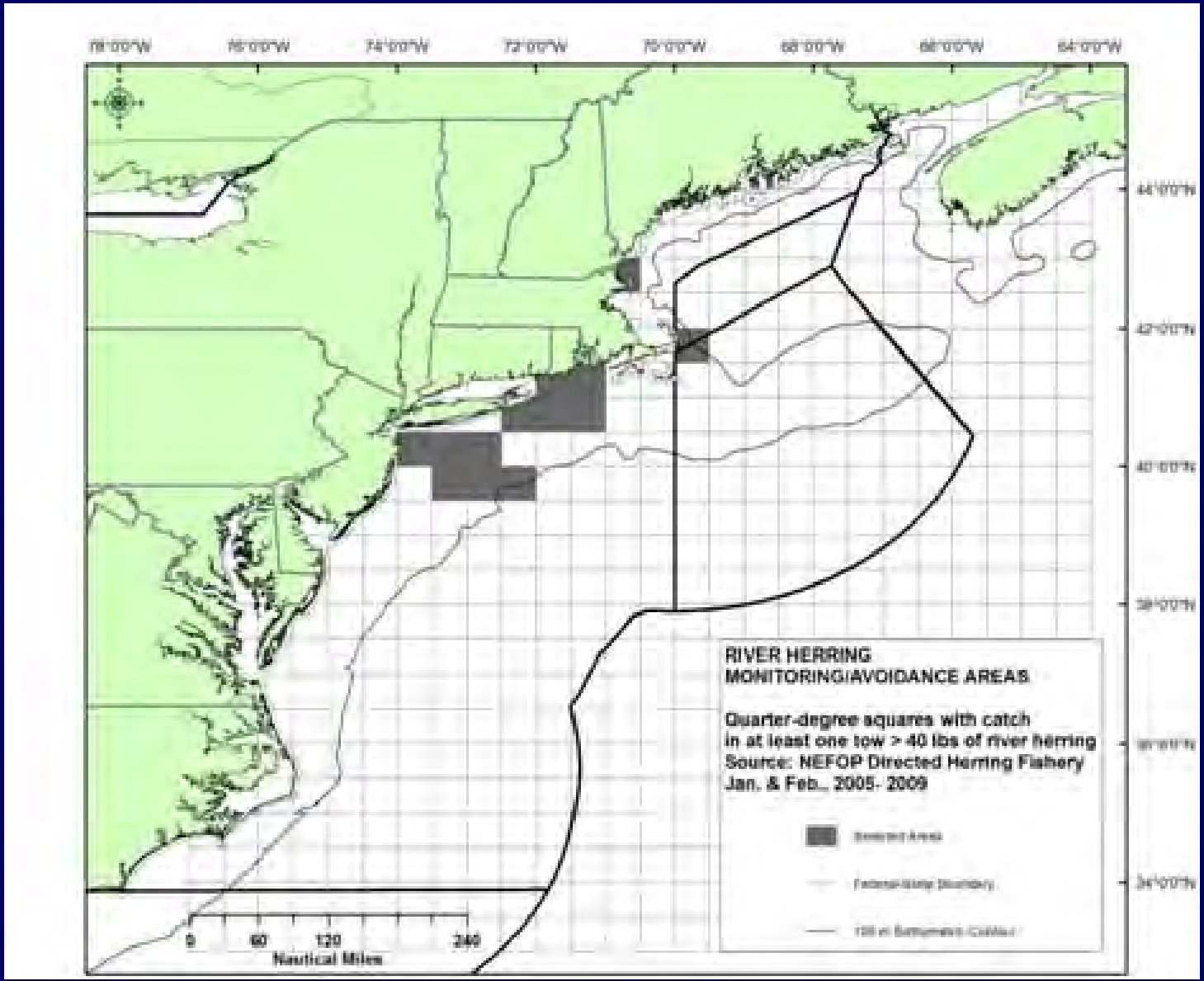
Option 2 – Closed Area I Sampling Provisions

Option 3 – Trigger-Based Monitoring

Option 4 – SMAST/MA DMF Project

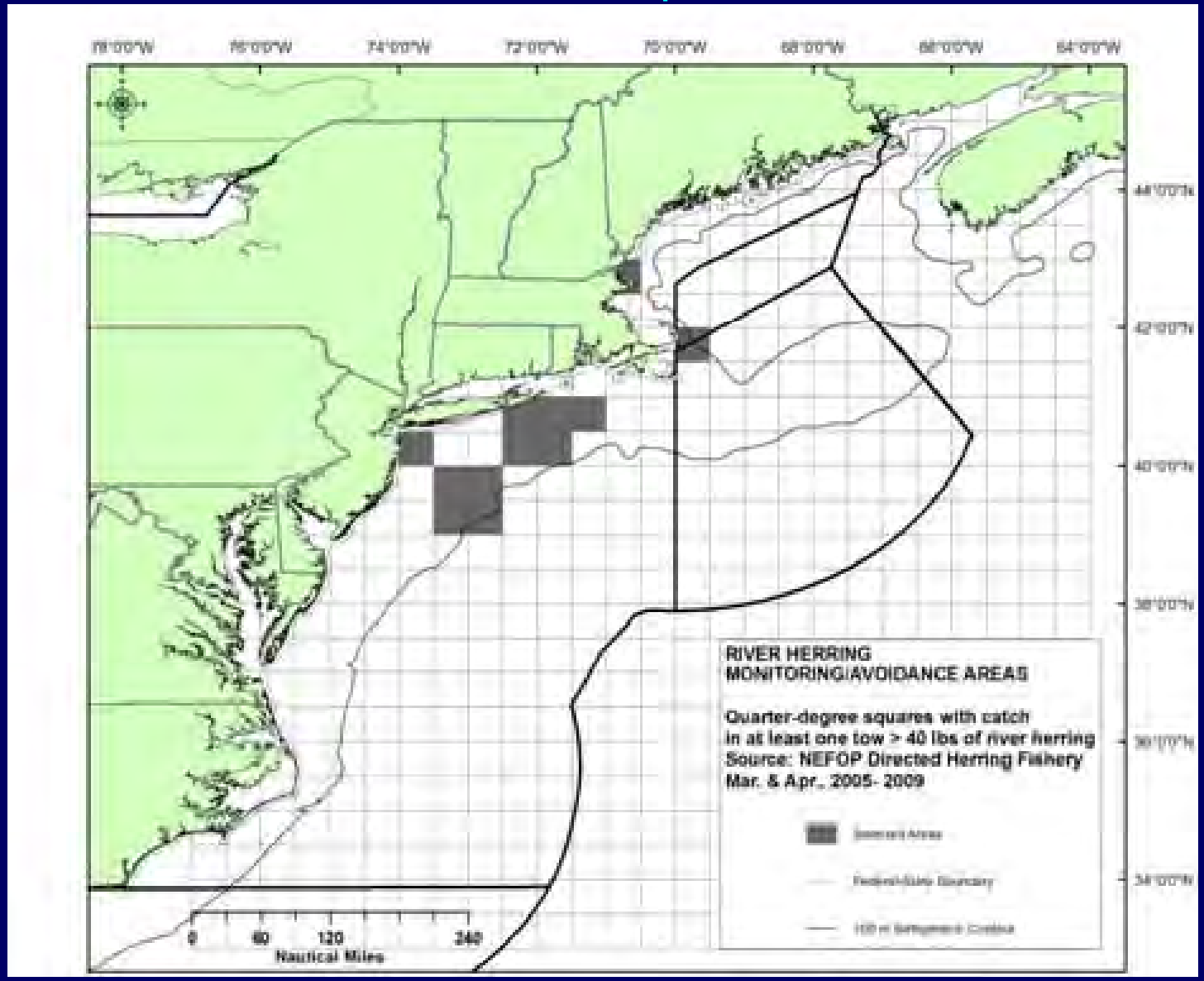
Alternative 2: River Herring Monitoring/Avoidance

January/February



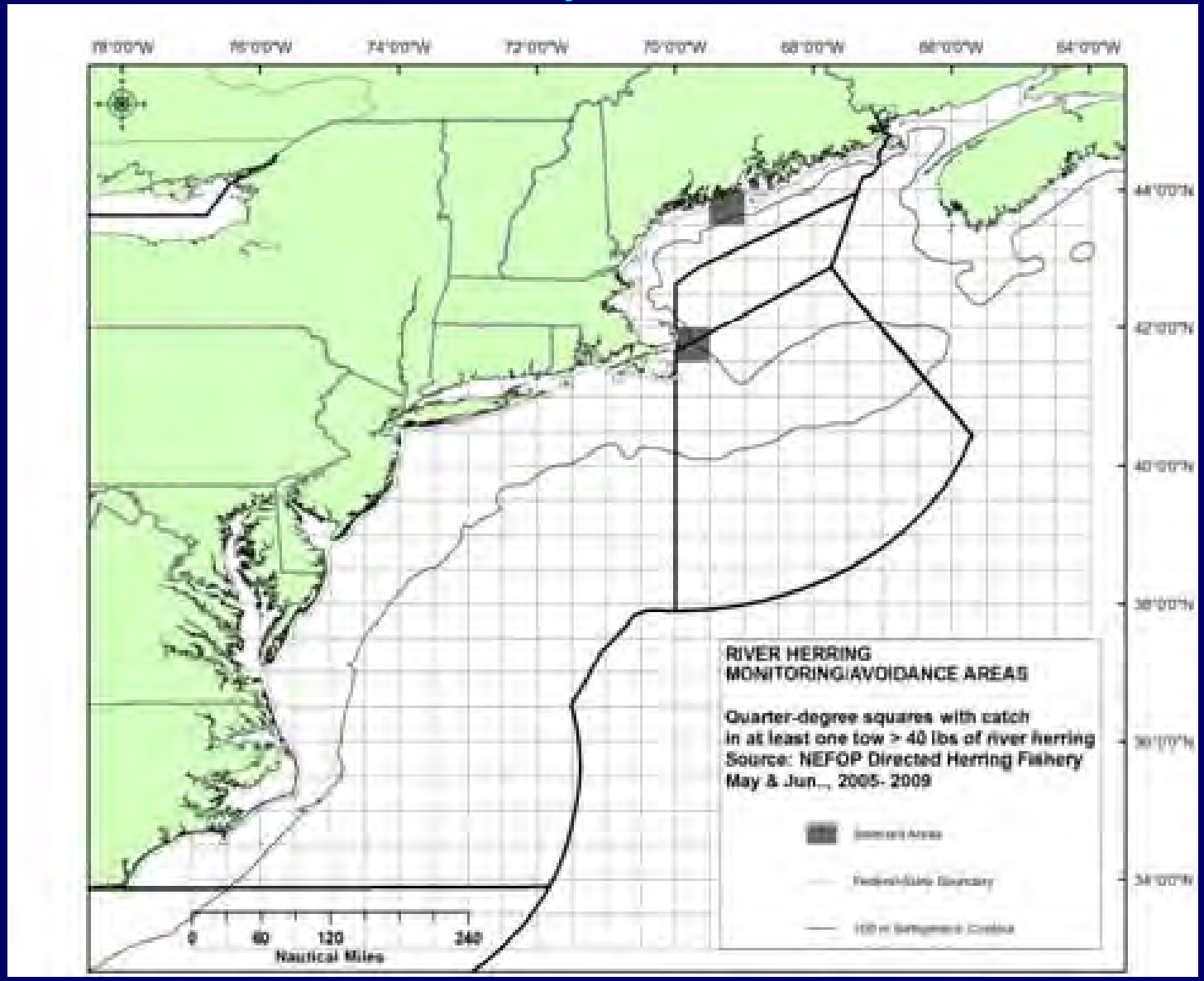
Alternative 2: River Herring Monitoring/Avoidance

March/April



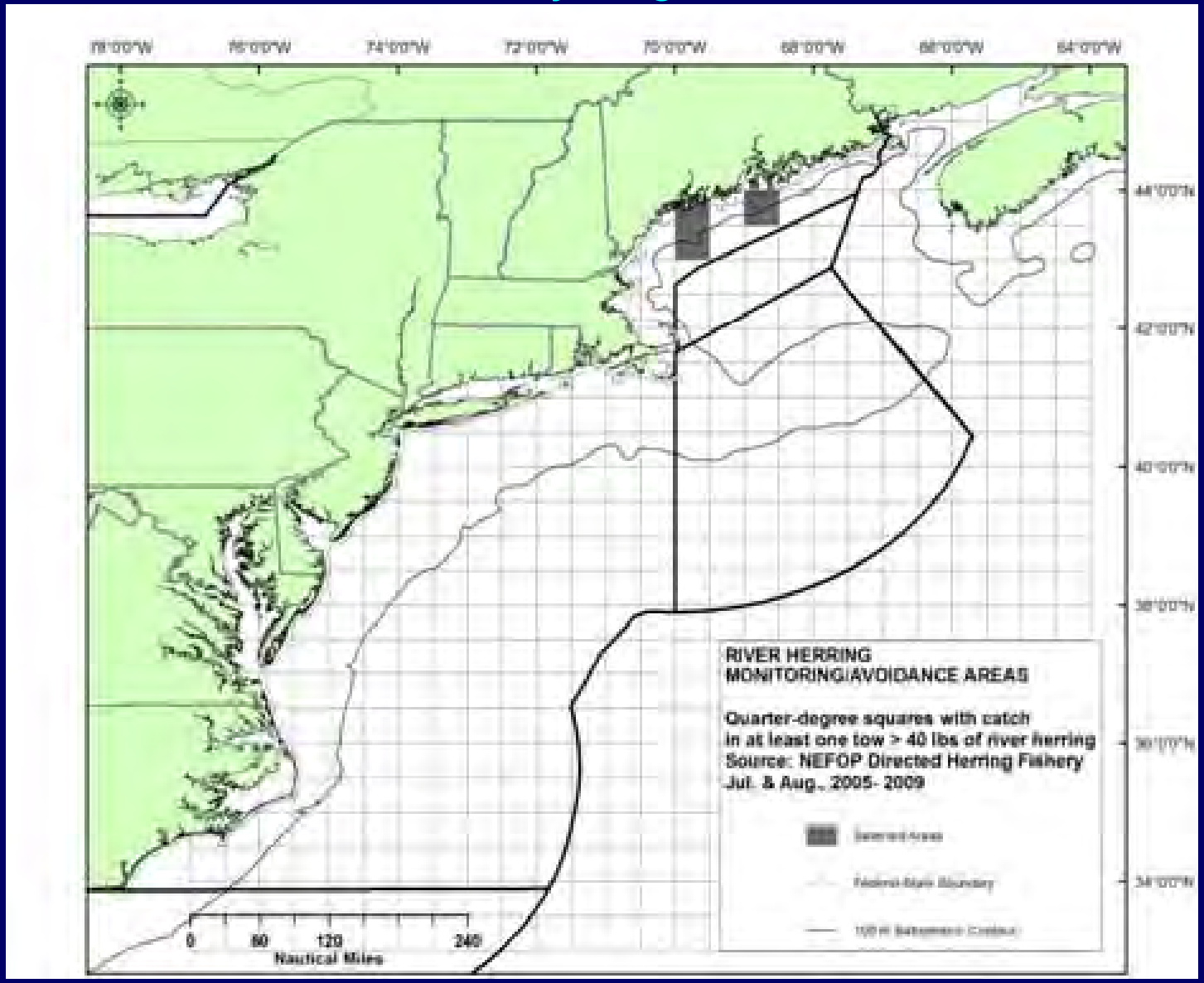
Alternative 2: River Herring Monitoring/Avoidance

May/June



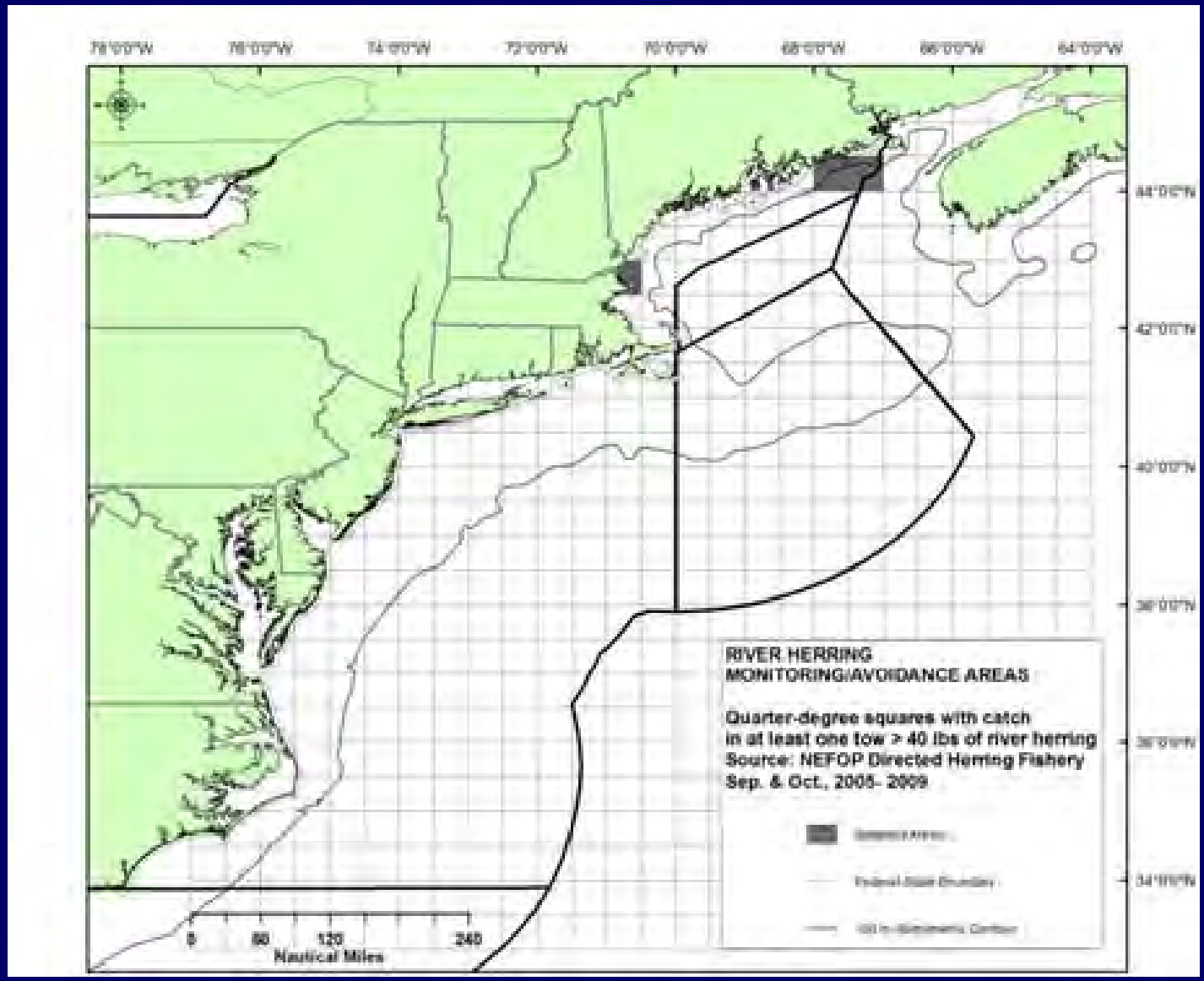
Alternative 2: River Herring Monitoring/Avoidance

July/August



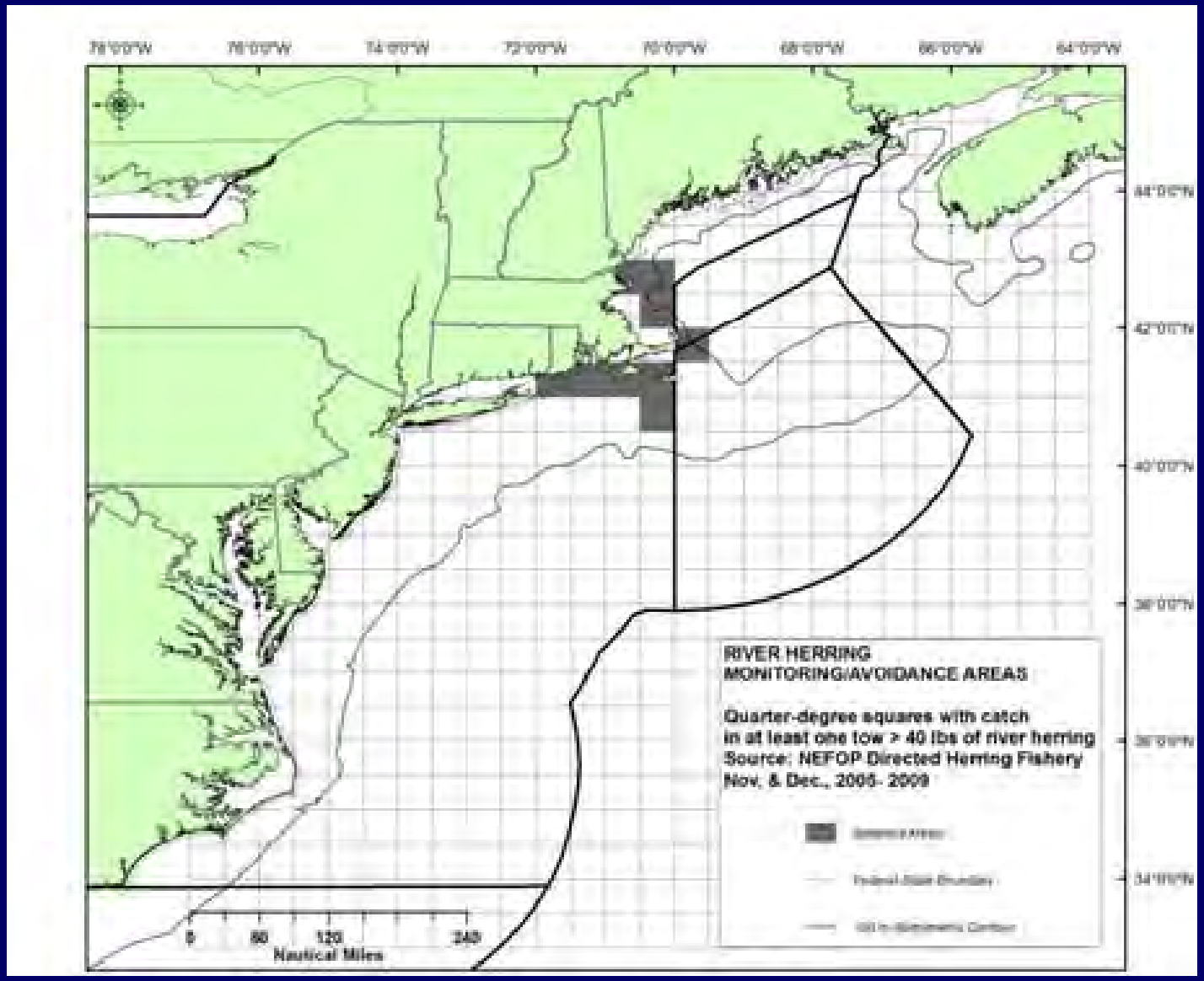
Alternative 2: River Herring Monitoring/Avoidance

September/October



Alternative 2: River Herring Monitoring/Avoidance

November/December



Alternative 3: River Herring Protection

(Section 3.3.3)

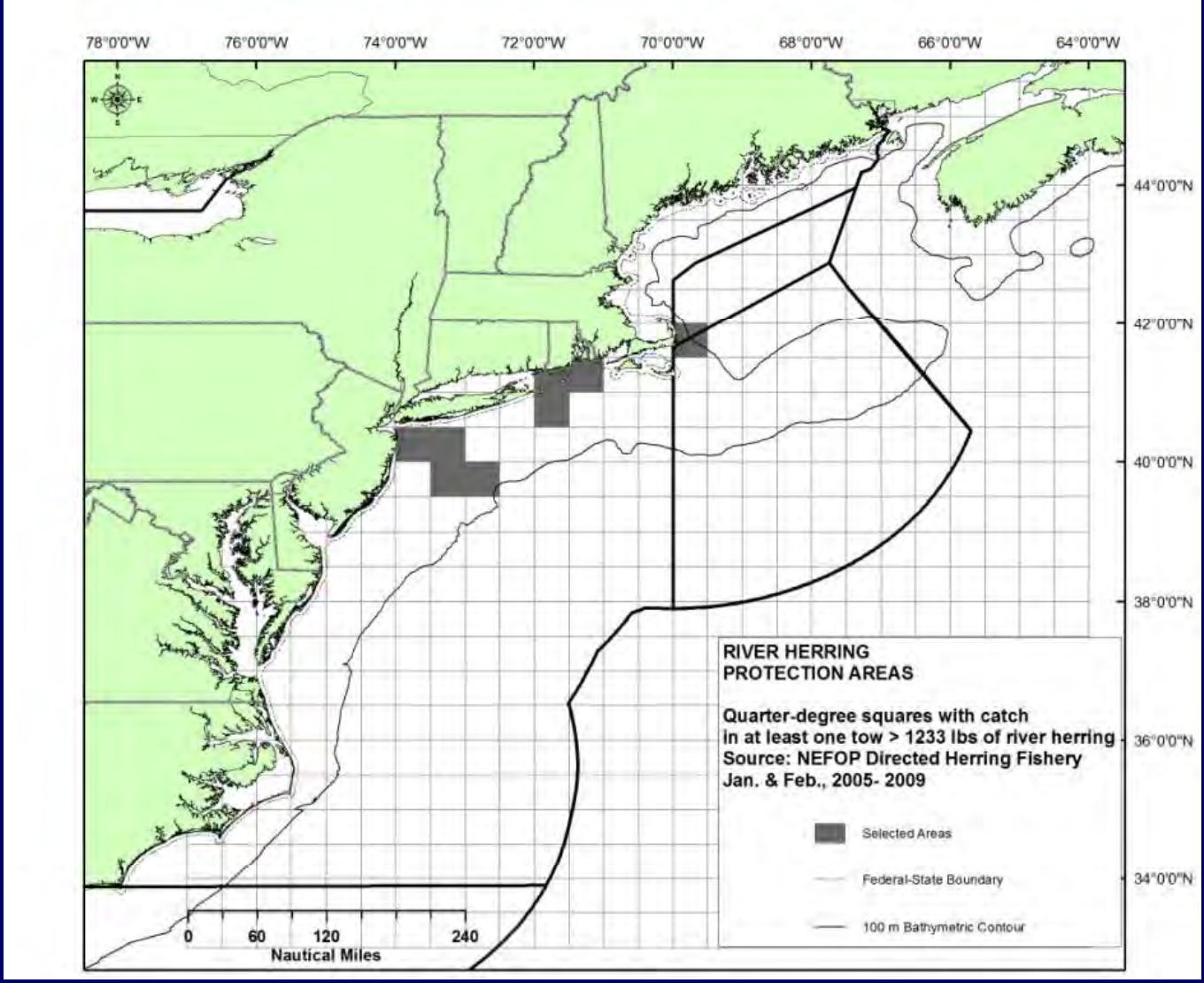
- Protect river herring in areas where fishery encounters are most likely
- Areas based on at least one observed tow of river herring catch greater than 1,233 pounds 2005-2009

Option1 – Closed Areas

Option 2 – Trigger-Based Monitoring

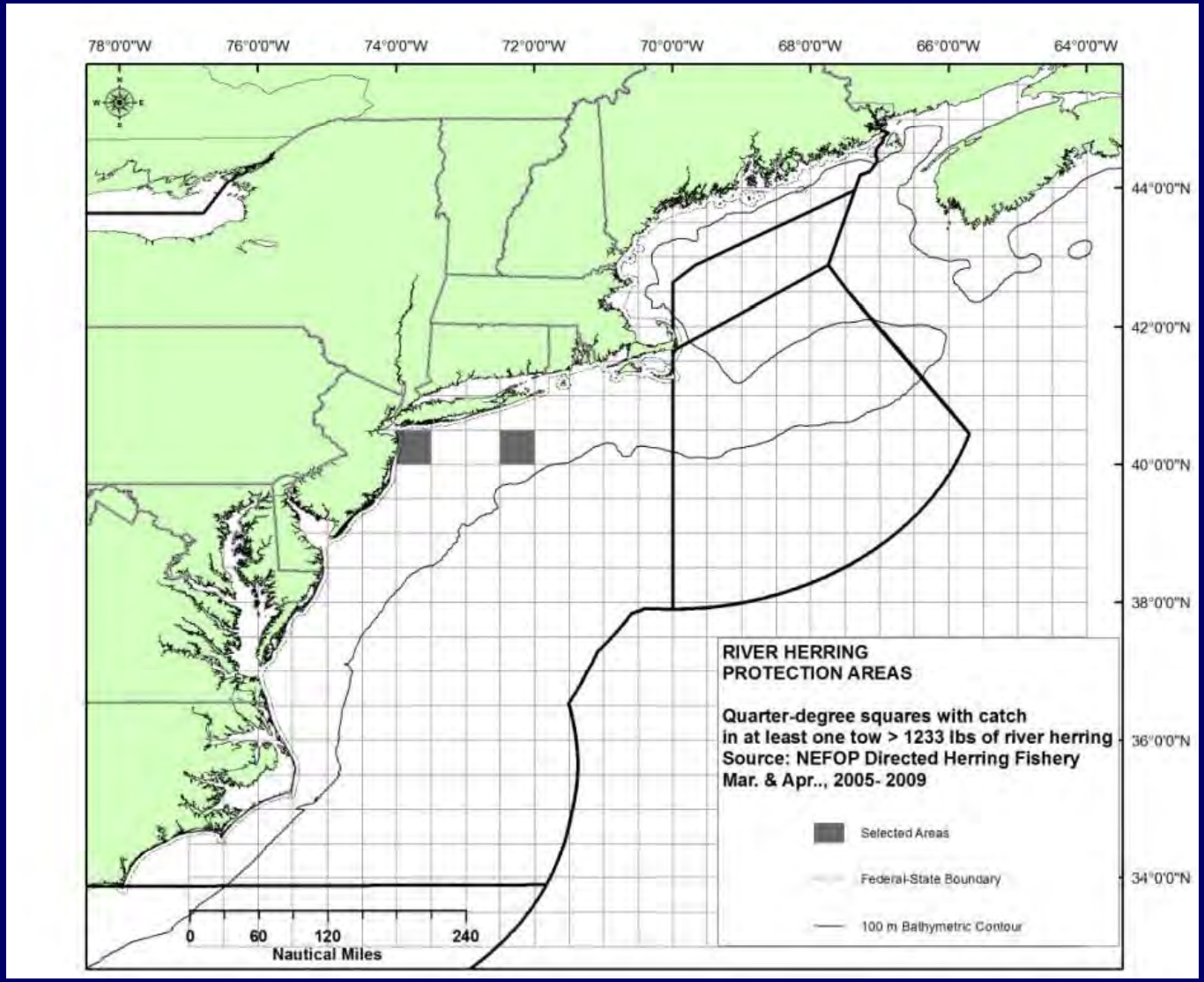
Alternative 3: River Herring Protection

January/February



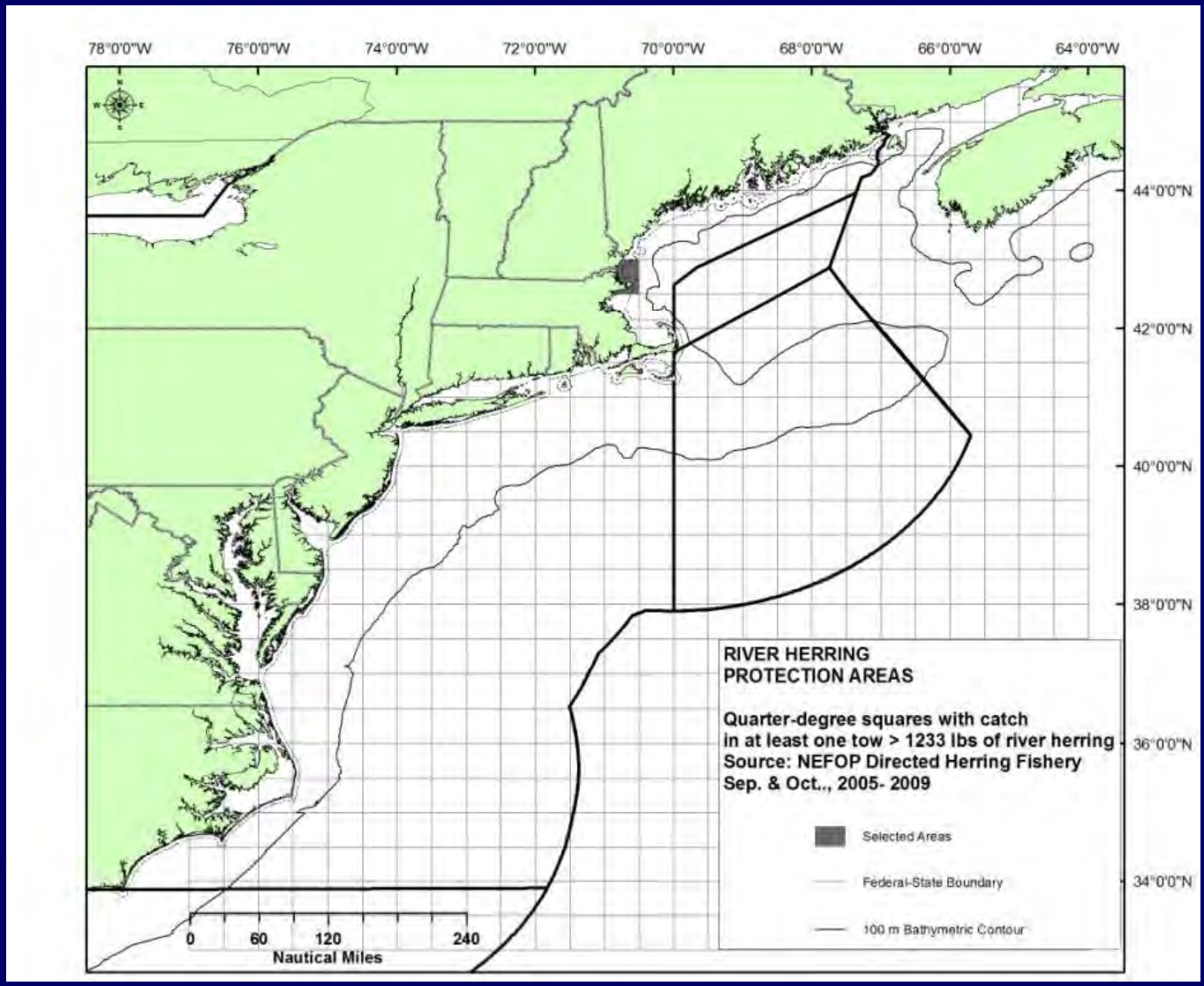
Alternative 3: River Herring Protection

March/April



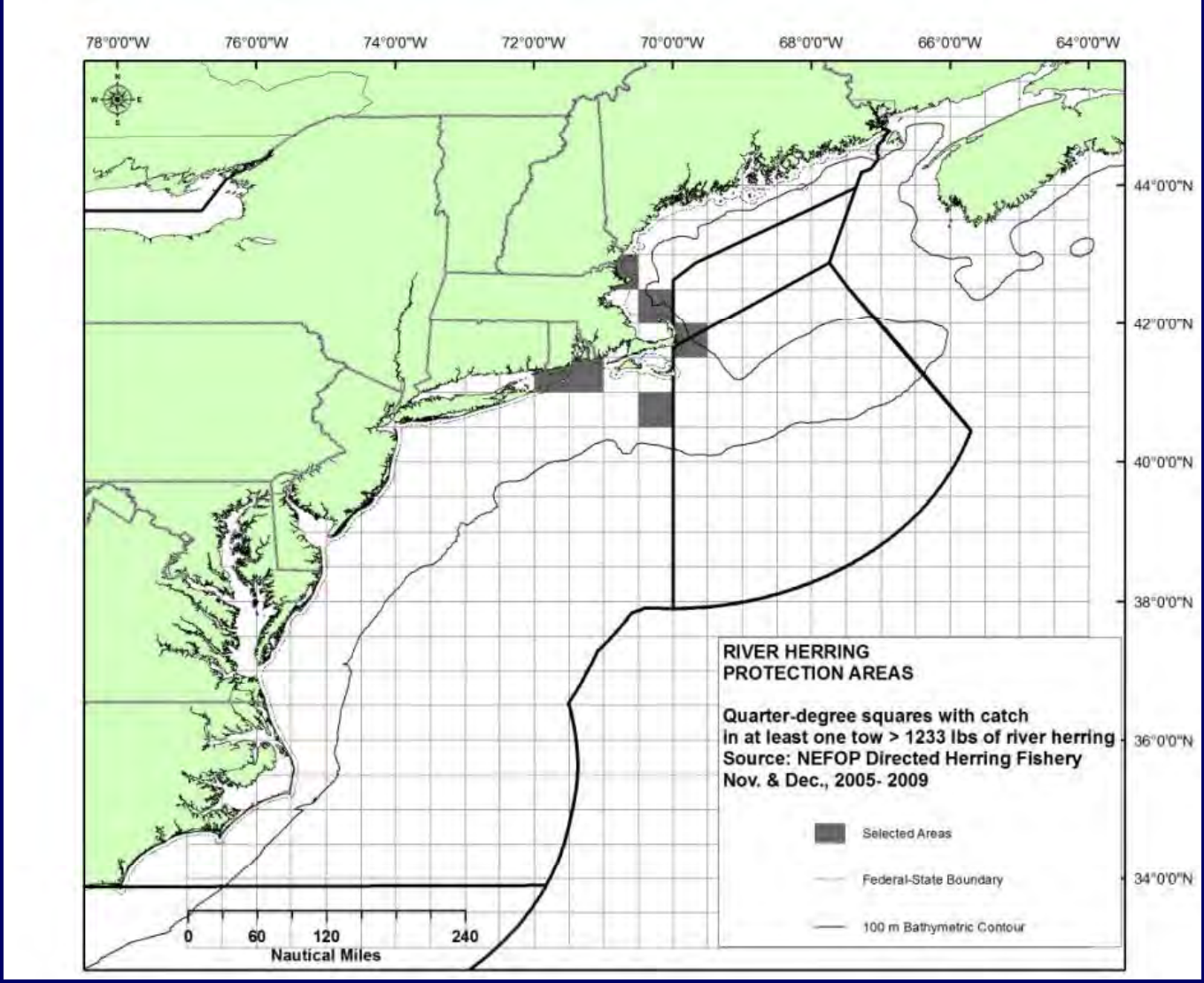
Alternative 3: River Herring Protection

September/October



Alternative 3: River Herring Protection

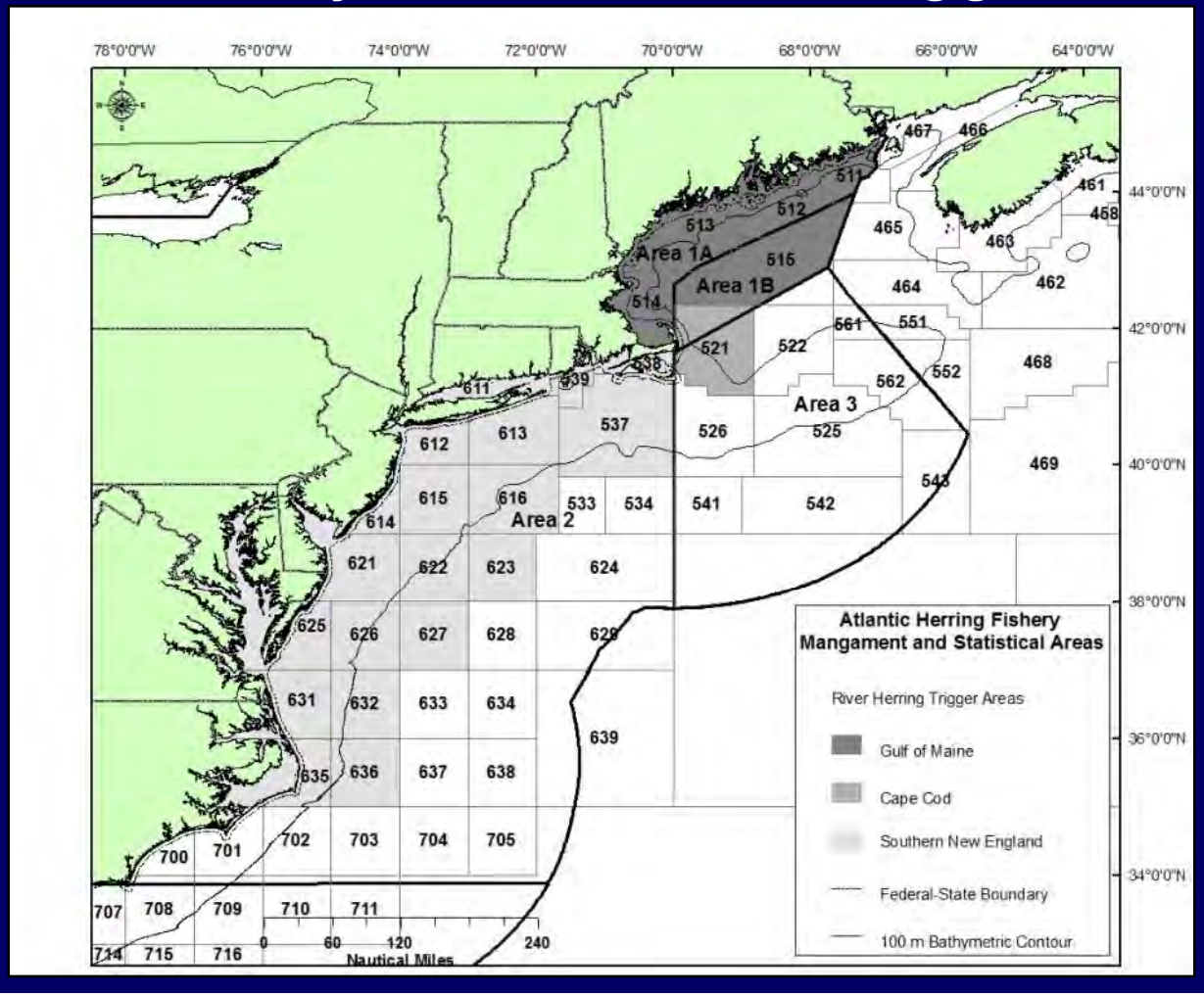
November/December



Trigger-Based Monitoring/Protection Options

Alternatives 2 and 3

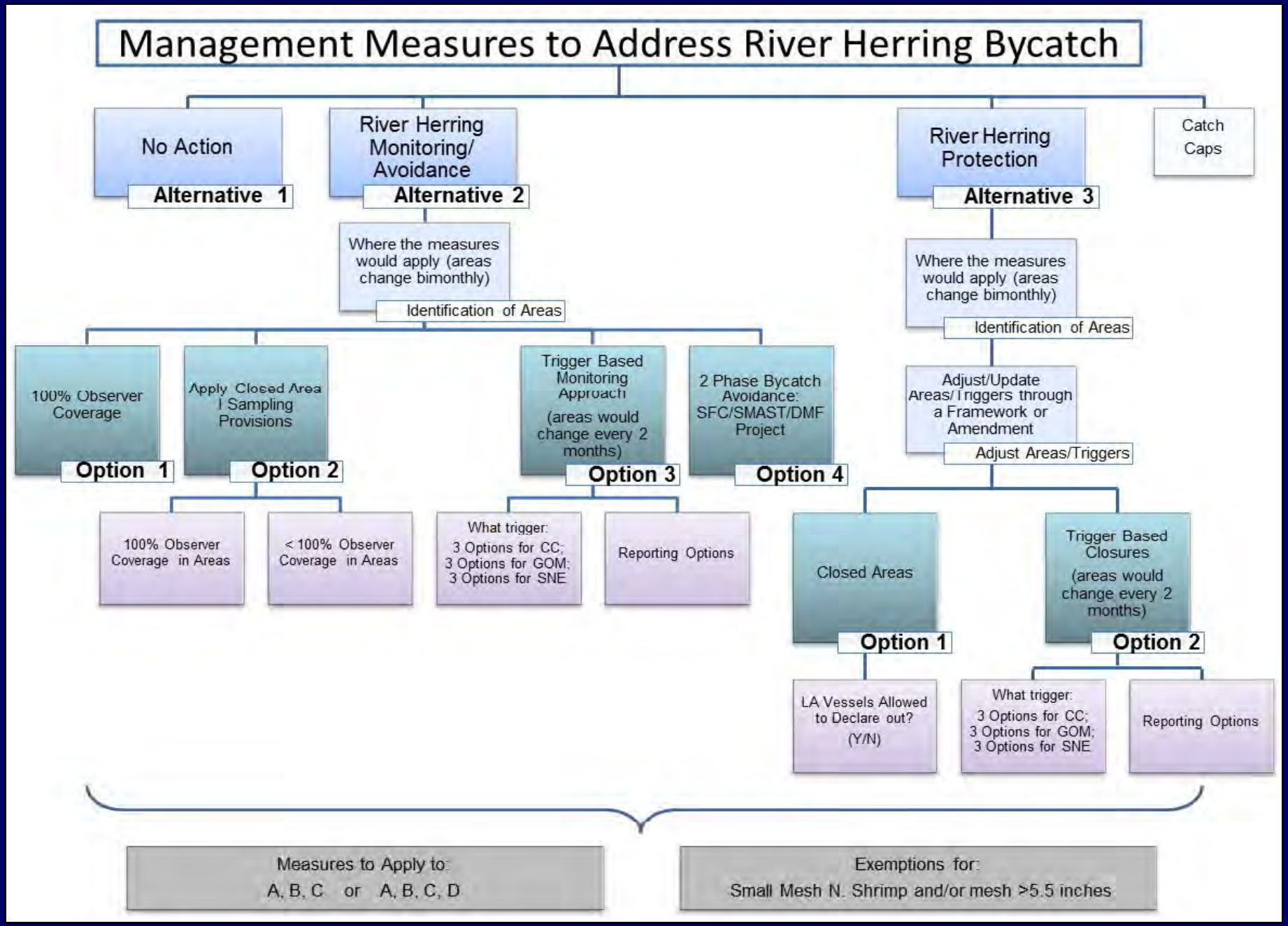
Apply monitoring/avoidance or protection measures in a trigger area only, when a catch trigger is reached



River Herring Catch Caps

Section 3.3.5

- Placeholder to be considered by the Council after ASMFC completes a stock assessment
- Can be implemented in the future through a framework adjustment or specifications process
- Consistent with MA Council approach for setting catch caps through specifications in the future
- Catch trigger options in Amendment 5 lay the technical groundwork


Management Measures to Address River Herring Bycatch
No Action
Alternative 1
River Herring Monitoring/ Avoidance
Alternative 2
River Herring Protection
Alternative 3
Catch Caps
Where the measures would apply (areas change bimonthly)
Identification of Areas
100% Observer Coverage
Option 1
Apply Closed Area I Sampling Provisions
Option 2
Trigger Based Monitoring Approach
(areas would change every 2 months)
Option 3
2 Phase Bycatch Avoidance: SFC/SMAST/DMF Project
Option 4
100% Observer Coverage in Areas
< 100% Observer Coverage in Areas
What trigger:
3 Options for CC;
3 Options for GOM;
3 Options for SNE
Reporting Options
Where the measures would apply (areas change bimonthly)
Identification of Areas
Adjust/Update Areas/Triggers through a Framework or Amendment
Adjust Areas/Triggers
Closed Areas
Option 1
Trigger Based Closures
(areas would change every 2 months)
Option 2
LA Vessels Allowed to Declare out?
(Y/N)
What trigger:
3 Options for CC;
3 Options for GOM;
3 Options for SNE
Reporting Options
Measures to Apply to:
A, B, C or A, B, C, D
Exemptions for:
Small Mesh N. Shrimp and/or mesh >5.5 inches

Catch Monitoring Program

Many measures proposed for catch monitoring program will address river herring bycatch.

- Quota monitoring and reporting provisions
- Reporting requirements for federally-permitted dealers (3.1.6)
- Increased observer coverage (3.2.1)
- Maximized retention experimental fishery (3.2.4)
- Measures to maximize sampling and address net slippage (3.2.2 and 3.2.3)

Reporting Requirements for Dealers

Section 3.1.6

- Option 1: No Action
- Option 2: Require to Accurately Weigh All Fish
  - Sub-Option: If dealers do not sort by species, they would be required to document (annually) how they estimate the relative composition of a mixed catch
  - Sub-Option: If dealers do not sort by species, they would be required to document (for each landing submission) how they estimate the relative composition of a mixed catch
  - Sub-Option: Require federally permitted Atlantic herring dealers to obtain vessel representative confirmation of SAFIS transaction records to minimize data entry errors at the first point of sale

Alternatives to Allocate Observer Coverage on Limited Access Herring Vessels

(Section 3.2.1)

1. Targets/priorities for allocating coverage
2. Provisions/process for reviewing/allocating/prioritizing coverage
3. Options for funding observer coverage
4. Provisions for utilizing service providers and authorizing waivers in specific circumstances that may prevent deployment of an observer

ALTERNATIVE	PRIORITIES/ TARGETS FOR ALLOCATING OBSERVER DAYS	PROCESS FOR REVIEWING/ ALLOCATING DAYS	FUNDING	OBSERVER SERVICE PROVIDERS/WAIVERS	ADDITIONAL COMMENTS
ALT 1: NO ACTION	• SBRM • CAI and other areas/times required in A5	• No Action (SBRM)	• No Action (Federal funds, subject to resource limitations and priorities)	No Action (N/A)	
ALT 2: 100% OBSERVER COVERAGE	• 100% of declared herring trips for A/B/C vessels	• No Action • SBRM process plus additional days required on A/B/C vessels	• Option 1: No Action • Option 2: Federal and Industry Funds	• Consistent with scallop/groundfish regs; option to include States as service providers	• Herring PDT analysis evaluates NEFOP observer coverage and provides input re. certification for States that may provide sea sampling services
ALT 3: REQUIRE SBRM COVERAGE LEVELS AS MINIMUM	• SBRM coverage levels would be mandated as minimum levels– no reprioritizing • CAI and other areas/times required in A5	• No Action (SBRM)	Same as Alt 2	Same as Alt 2	• Herring PDT analysis evaluates distribution of LA herring vessels across current SBRM fleets to identify the fleets to which this alt applies
ALT 4: ALLOCATE COVERAGE BASED ON COUNCIL TARGETS	• 30% CV for haddock/herring and 20% CV on for RH catch estimates for A/B/C vessels • CAI and other areas/times required in A5	• Option 1: Supplemental NEFSC/SBRM Analysis • Option 2: Herring PDT Supplemental Analysis	Same as Alt 2	Same as Alt 2	• Herring PDT analysis shows example of supplemental analysis that can be provided to the Council to determine priorities when allocating observer days on LA herring vessels

Measures to Maximize Sampling and Address Net Slippage

(Section 3.2.2)

SLIPPAGE = Unobserved catch, i.e., catch that is discarded prior to being observed, sorted, sampled, and/or brought on board the fishing vessel. Slippage can include the release of fish from a codend or seine prior to completion of pumping or the release of an entire catch or bag while the catch is still in the water.

- Fish that cannot be pumped and that remain in the net at the end of pumping operations are considered to be *operational discards* and not slipped catch. Observer protocols include documenting fish that remain in the net in a discard log before they are released, and existing regulations require vessel operators to assist the observer in this process. Management measures in this amendment to address this issue and improve the observers' ability to inspect nets after pumping to document operational discards.
- Discards that occur at-sea after catch brought on board and sorted are also not considered slipped catch.

Measures to Maximize Sampling and Address Net Slippage

- Measures to Maximize Sampling – Safe Sampling Station, Reasonable Assistance, Notification Requirements, Communication, Visual Access to Codend
- Released Catch Affidavit for Slippage Events
- Closed Area I Sampling Provisions (All fish must be pumped across the deck for sampling, including operational discards)
- Catch Deduction and Possible Trip Termination for Slippage Events
- Alternative for Maximized Retention Experimental Fishery

Section	Measure	Measure Description	CM Goals /Objectives Met
3.2.2	**Additional Measures to Improve/Maximize Sampling At-Sea**		
3.2.2.1	**Option 1: No Action**		
3.2.2.2	**Option 2: Implement Additional Measures to Improve Sampling**		
	Sub-Option 2A	Requirement to provide at-sea Observers with a safe sampling station, a safe method to obtain samples, and a storage space for baskets and sampling gear	
	Sub-Option 2B	Requirement to provide at-sea Observers with reasonable assistance to enable Observers to carry out their duties	
	Sub-Option 2C	Requirement to provide Observers notice when pumping may be starting and when to allow sampling of the catch, and when pumping is coming to an end.	
	Sub-Option 2D	Requirement for an Observer on any vessel taking on fish wherever/whenever possible	
	Sub-Option 2E	In pair trawl operations, additional communication requirement between boats if fish are being pumped to both vessels to keep the Observer informed of catch.	
	Sub-Option 2F	Requirement to provide and assist NMFS certified Observers in obtaining visual access to the codend (or purse seine bunt) and any of its contents after pumping has ended, before the pump is removed	

3.2

Catch Monitoring At-Sea:

More Detail

Section	Measure	Measure Description	CM Goals/ Objectives Met
3.2.3	**Measures to Address Net Slippage**		
3.2.3.1	**Option 1**	**No Action**	Status Quo in Fishery
3.2.3.2	**Option 2**	**Require Released Catch Affidavit for Slippage Events**	
3.2.3.3	**Option 3**	**Closed Area I Sampling Provisions**	
3.2.3.4	**Option 4**	**Catch Deduction (and Possible Trip Termination) for Slippage Events**	
	Sub-Option 4A	Catch deduction and possible trip termination	
	Sub-Option 4B	Closed area I provisions with catch deduction and possible trip termination	
	Sub-Option 4C	Closed area I provisions with trip termination only **(10 Events)**	
	Sub-Option 4D	Closed area I provisions with trip termination only **(5 Events)**	

3.2

Catch Monitoring At-Sea:

More Detail

Section	Measure	Measure Description	Goals/Objectives Met
3.2.4	Maximized Retention Alternative (Experimental Fishery)		
3.2.4.1	Alternative 1	No Action	Status Quo in Fishery
3.2.4.2	Alternative 2	Evaluation of Maximized Retention Through the Annual Issuance of Exempted Fishing Permits	Unclear

3.2

Catch Monitoring At-Sea:

More Detail

Measure Description	Potential Impacts of the Catch Monitoring at Sea Alternatives (Section 3.2)			
	VEC 1: Atlantic Herring	VEC 2: Non-Target Species /Other Fisheries	VECs 3 and 4: Essential Fish Habitat and Protected Resources	VEC 5: Fishery Related Business and Communities
Section 3.2.1.2, Alternative 2 - 100% Observer Coverage: Funding Option 2 - federal and industry funds States as Service Providers Option 2 - states authorized	Positive Benefits to resource would be highest under this alternative because it increases the likelihood of better documenting herring catch the most; may improve the precision of estimates of discards and/or landed bycatch; long-term effects may have low positive effects; relationship between observer coverage and precision important to consider at high levels of coverage	Positive May be difficult, if not impossible, to generate bycatch estimates for non-target species like river herring with a CV of zero; may increase precision and capture rare events; may not be feasible; analysis of coverage shows increase in precision may not occur; although could shift funding from other fisheries	Neutral/Unknown Measures are not likely to affect EFH; the effects to Protected Resources are dependent on the amount of funding	Potentially High Negative Impacts depend on funding options for observer coverage; would only create negative impacts on herring-related businesses or communities if Federal funds were not used to pay for the additional observer coverage; full cost of 100% coverage of the A/B/C herring fishery is likely to be approximately $2.5M per year
Section 3.2.1.3, Alternative 3 - Require SBRM Coverage Levels as Minimum: Funding Option 2 - federal and industry funds	Low Positive May improve the precision of estimates of discards and/or landed bycatch; long-term effects may have low positive effects	Unknown May improve estimates of bycatch due to increased sample sizes, although could shift sampling resources away from other fisheries, meaning less precise estimates of bycatch and greater uncertainty of impacts to resource	Neutral Measures are not likely to affect EFH or Protected Resources that may be encountered by the herring fishery	Potentially Low Negative Impacts depend on funding options for observer coverage; would negatively impact herring-related businesses if the industry has to pay for coverage
Section 3.2.1.4, Alternative 4 - Council Specified Targets: Funding Option 2 - federal and industry funds	Low Positive May improve the precision of estimates of discards and/or landed bycatch; long-term effects may have low positive effects	Positive Allocation of additional observer coverage of river herring and haddock may lead to a great understanding and reliability of their bycatch estimates; would not impact the SBRM allocation scheme, and would therefore not cause other fisheries to be under-sampled	Neutral/Low Positive Measures are not likely to affect EFH; Protected Resources may benefit from additional monitoring	Potentially Negative Impacts depend on funding options for observer coverage; would negatively impact herring-related businesses if the industry has to pay for coverage; depends on the Council-specified targets/priorities

Potential Impacts of the Catch Monitoring at Sea Alternatives (Section 3.2) Continued

Measure Description	VEC 1: Atlantic Herring	VEC 2: Non-Target Species /Other Fisheries	VECs 3 and 4: Essential Fish Habitat and Protected Resources	VEC 5: Fishery Related Businesses and Communities
Section 3.2.2.2, Additional Measures Improve Sampling: Option 2A - requirements for a safe sampling station Option 2B - requirements for reasonable assistance Option 2C - requirements to provide notice Option 2D - requirements for trips with multiple vessels Option 2E - pair trawl communication Option 2F - visual access to net/codend	Neutral May have little impact on the Atlantic herring resource; several of the measures may provide some additional information on the contents of slipped nets, discards, and landed catch, but likely to be qualitative	Low Positive Several of the measures may provide some additional information on the contents of slipped nets, discards, and landed catch, but likely to be qualitative	Neutral Measures are not likely to affect EFH or Protected Resources	Neutral Minimal direct economic impacts on the herring fishery; the proposed steps for improving or maximizing sampling at sea are currently a part of every herring vessels' normal operating practices, according to interviewed captains; it is unknown how this measure may affect purse seine operations; any economic impacts to the herring fishery will be through increased administrative and regulatory burden, but expected to be slight
Section 3.2.3.2, Measures to Address Net Slippage: Option 2 - require released catch affidavit for slippage events	Unknown May improve accounting of Atlantic herring catch but still represents an estimate; may therefore be redundant and unlikely to affect herring resource	Neutral May improve accounting of non-target species/other fisheries catch, but still represents an estimate	Neutral Released catch affidavits are not likely to affect EFH or Protected Resources	Neutral Minimal impacts on the directed herring fishery
Section 3.2.3.3, Measures to Address Net Slippage: Option 3 - CAI Sampling Provisions	Positive Likely to improve accounting of Atlantic herring catch; may improve statistics used in stock assessment and reduce uncertainty to an unknown degree	Low Positive Likely to improve accounting of non-target species/other fisheries	Low Positive Observer coverage levels are not likely to affect EFH; information gathering for Protected Resources may benefit from increased coverage	Potentially Low Negative Minimal direct economic impacts on the herring fishery; however there may be new challenges associated with bringing operational discards on board for some vessels; increased times spent pumping fish to be sampled and observed; it is unknown how this measure may affect purse seine operations

Potential Impacts of the Catch Monitoring at Sea Alternatives (Section 3.2) Continued

Measure Description	VEC 1: Atlantic Herring	VEC 2: Non-Target Species /Other Fisheries	VECs 3 and 4: Essential Fish Habitat and Protected Resources	VEC 5: Fishery Related Businesses and Communities
	Potentially Low Positive	Neutral/Potentially Low Positive	Unknown	Negative
Section 3.2.3.4, Measures to Address Net Slippage: Option 4 - catch deduction (and possible trip termination) for slippage events Option 4A -catch deduction, possible trip termination Option 4B - with CAI provisions Option 4C - with CAI provisions (10 events) Option 4D - with CAI provisions (5 events)	would likely result in sub-ACLs being attained more quickly with subsequent directed fishery closures occurring sooner; possible increase in herring abundance	Effects difficult to predict; trip termination could reduce the amount of effective fishing effort in an area throughout the course of the fishing season, thereby reducing bycatch and mortality of non-target species; the extent of the impacts will be determined by how fishing effort shifts and whether or not the fleet moves into an area(s) with a higher potential of encountering these species.	Not likely to affect EFH; impacts to Protected Resources will vary based on reaction of the fleet to the new measures	Trip termination increases costs to participants; sub-ACL deductions could reduce catch and revenue, although this is likely to have an effect only in Areas 1A and 1B unless sub-ACLs are fully utilized in other areas; aggregate revenues expected to decline by $12,000-$15,000 per slippage event in areas where ACLs are fully utilized; potential safety concerns with trip termination and measures that are perceived as punitive
	Unknown/Low Positive	Unknown/Low Positive	Neutral	Unknown
Section 3.2.4.2, Alternative 2: Evaluation of maximized retention through the annual issuance of exempted fishing permits	Would likely have little effect on the herring resource because it would not affect the mortality rate exerted on the stock; dealers may record previously undocumented catch	Could increase the scientific knowledge available to fisheries managers about bycatch of non-target species; impacts to mackerel fishery would need to be evaluated by NMFS when the alternative is developed	Exempted fishing permits are not likely to affect EFH or Protected Resources	Could degrade the quality of the catch by damaging in while in the fish hold; retention of non-marketable fish in the hold of a vessel reduces the amount of marketable fish which can be landed; magnitude of these effects are unknown at this time.

Impacts of Measures Under Consideration

Impacts of Measures to Address River Herring Bycatch

- Coincidence of River Herring/Shad
- River Herring Catch Comparison
- Migration Patterns/Assessment of the Monitoring/Avoidance Areas
- Assessment of the Protection Areas
- Impacts of Spatial Closures and Triggers on Herring Fishery
  - Mapping fishing effort relative to proposed monitoring/avoidance/protection areas
  - Projections re. when triggers may be reached
- Impacts on VECs

Impacts of Measures Under Consideration

Impacts of Measures to Address River Herring Bycatch

Table 159 River Herring Catch Comparison for 2010 Data

	2010 River Herring Catch		
Fishery	Catch (lbs.)		Source
Maine Directed Alewife Landings	1,342,293		Maine DMR
All Fleets (estimated)	531,314	*	NEFSC
Directed Herring Fleet (estimated)	165,915	**	Herring PDT
*** High of 3.6 mil lbs. in 1997 (1989-2010)**			
**** High of 1.9 mil lbs. in 2007 (2005-2010)**			

Impacts of Measures Under Consideration

Impacts of Measures to Address River Herring Bycatch

Are there any adjacent fishery-based areas?

Are there any adjacent survey-based areas?

Does the fishery-based area overlap a survey-based area?

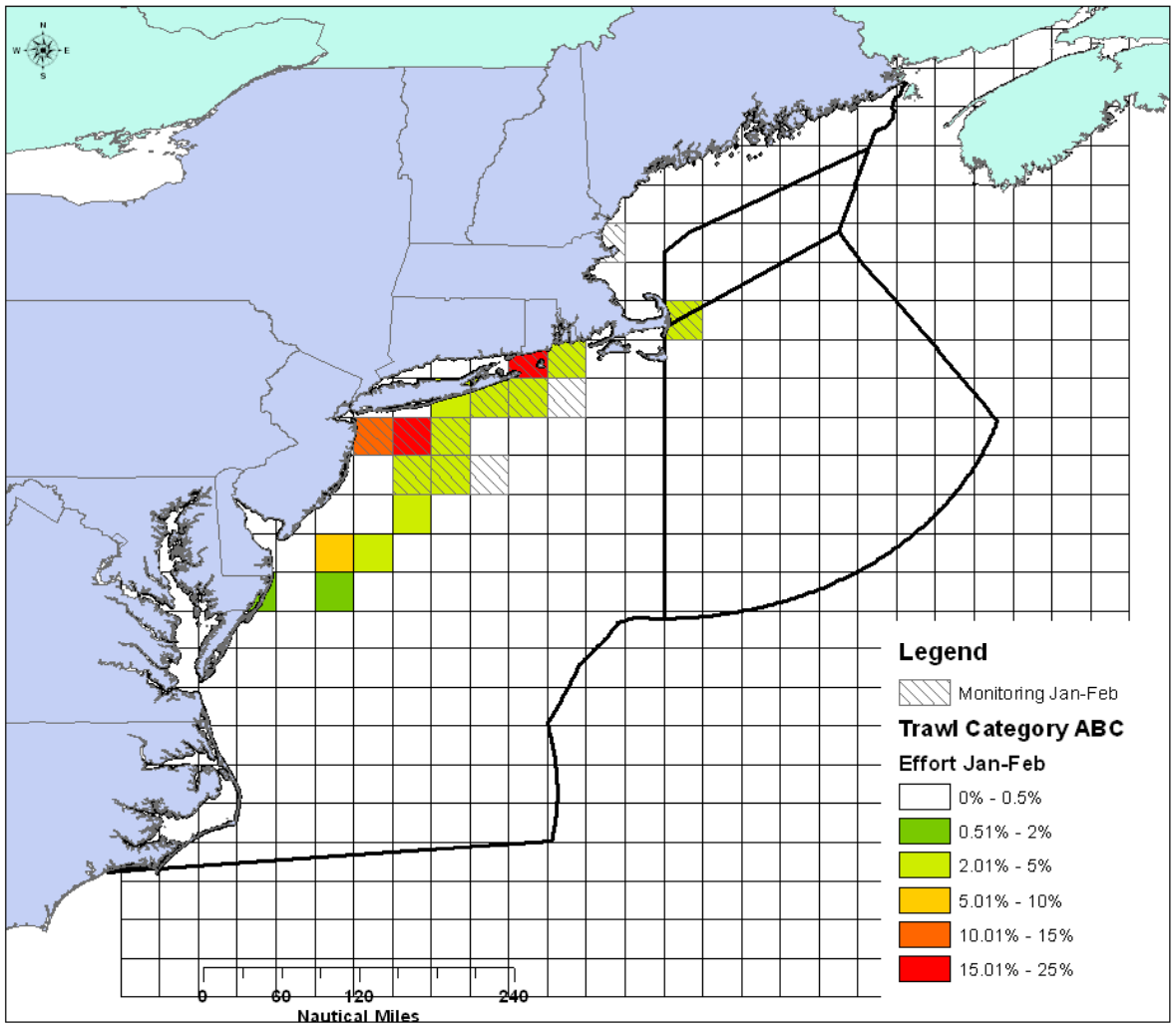
Table 161 Comparison of River Herring Monitoring/Avoidance for January-February (Fishery-Based Areas) with Winter Survey-Based Areas

	Monitoring/Avoidance Areas January - February												
Map reference	G	J	K	L	O	P	Q	S	T	U	X	Y	Z
Quarter-degree square	42704	41694	41712	41711	40723	40714	40713	40732	40731	40722	39733	39724	39723
How many observer tows were greater than 40 lbs of river herring?	1	5	31	43	1	5	3	3	8	3	12	4	2
Are there any adjacent fishery-based areas?	NO	NO	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Are there any adjacent winter survey-based areas?	NO	NO	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Does the fishey-based area overlap a survey-based area?	NO	NO	NO	NO	YES	YES	YES	NO	NO	YES	YES	NO	NO

Impacts of Measures Under Consideration

Impacts of Measures to Address River Herring Bycatch

Figure 108 Trawl Effort (ABC only) and Monitoring Areas, January – February



Impacts of Measures Under Consideration

Impacts of Measures to Address River Herring Bycatch

Table 180 Fishing Time (%) Inside and Outside the Monitoring Areas

		Fishing Time (%)		
Gear	Category	Not Monitored	Monitored	Grand Total
PUR		88.8%	11.2%	100.0%
TR	ABC	55.3%	44.7%	100.0%
	D	76.3%	23.7%	100.0%
Grand Total		62.2%	37.8%	100.0%

Table 182 Herring Catch (%) Inside and Outside the Monitoring Areas

		Herring Catch (%)		
Gear	Category	Not Monitored	Monitored	Grand Total
PUR		94.4%	5.6%	100.0%
TR	ABC	54.2%	45.8%	100.0%
	D	75.8%	24.2%	100.0%
Grand Total		59.4%	40.6%	100.0%

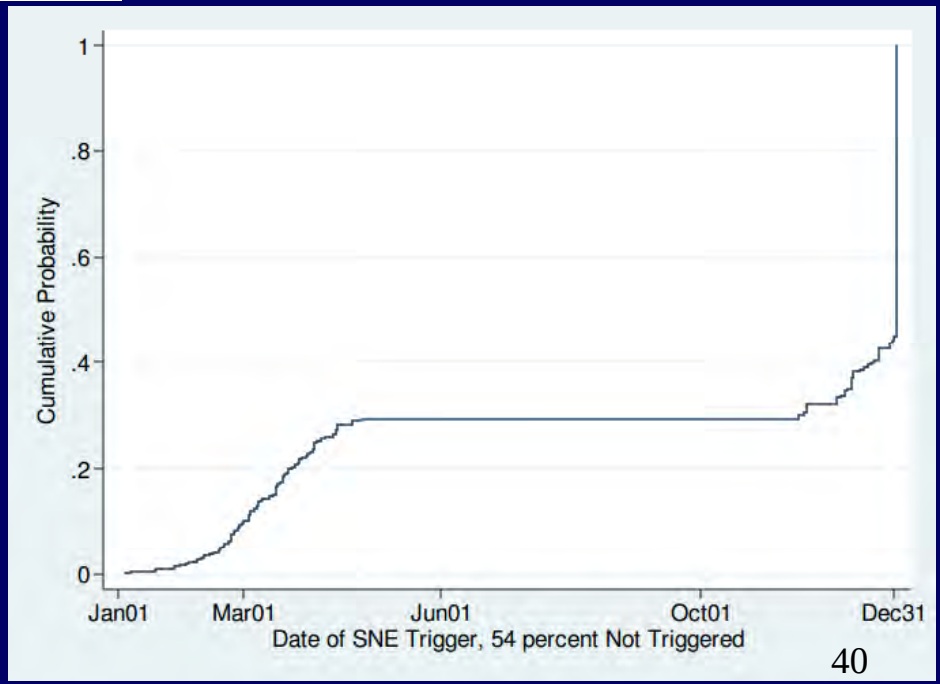
Impacts of River Herring Bycatch Measures

Impacts of Trigger-Based Management Approaches

Area	SUB-OPTIONS		
	3A (Max)	3B (Median)	3C (Mean)
CC	1,159,700	93,400	269,600
GOM	294,000	92,400	127,100
SNE	729,500	585,000	478,500

Table 4 Sub-Options for River Herring Catch Triggers (Pounds)

Figure 131 Probability of Southern New England (Max) Trigger Being Exceeded with 100% Observer Coverage



Impacts of Measures Under Consideration

Impacts of Measures to Address River Herring Bycatch

	Economic- Atlantic herring fishery participants	
Possible Measure	**Positive Impacts**	**Negative Impacts**
No Action (A1)	No additional positive impacts.	No additional negative impacts.
Fixed Bimonthly Monitoring Areas (Alt.2, Opt.1-3)	There are no economic benefits to the directed Atlantic herring fishery, relative to the status quo (no action alternative).	The SBRM-prioritized monitoring of fishing fleets can be considered the optimal pattern of observer coverage. To the extent that Fixed Bimonthly Monitoring Areas results in diversion of scarce observer days away from this optimal pattern of observer coverage, there is an economic loss. This is a loss of information which will result in less data available about bycatch in other fisheries and, presumably, stock assessments with larger errors. If the Fixed Bimonthly Monitoring Areas do not shift observer days away from the optimal pattern, then there is no information loss. If additional observer coverage is paid for by industry, this represents a negative economic impact. This can be calculated by estimating the additional observer coverage days and multiplying by the cost of an observer day. The Closed Area I Sampling Provisions would entail slightly higher regulatory and compliance costs than the other options being considered.
Fixed Bimonthly Avoidance Areas (Alt.2, Opt.4)		
Fixed Bimonthly Protection Areas (Alt. 3, Opt.1)	There are no direct economic benefits to the directed Atlantic herring fishery, relative to the status quo (no action alternative).	Decreases in revenue in the directed Atlantic Herring Fishery and/or increases in costs of fishing for participants in the directed Atlantic Herring Fishery. The largest impacts are likely to be felt by trawl fishery participants during the winter season due to the high overlap between the Protection Areas and the current spatio-temporal distribution of fishing effort.
Triggered Bimonthly Protection Areas (Alt.3, Opt.2)	There are no direct economic benefits to the directed Atlantic herring fishery, relative to the status quo (no action alternative).	Decreases in revenue in the directed Atlantic Herring Fishery and/or increases in costs of fishing for participants in the directed Atlantic Herring Fishery. The largest impacts are likely to be felt by trawl fishery participants during the winter season due to the high overlap between the Protection Areas and the current spatio-temporal distribution of fishing effort. These costs are likely to be lower than Alt 3, Opt 1; however, there is substantial uncertainty associated with projecting when the Triggers might be reached.

Measure Description	Potential Impacts of the Management Measures to Address River Herring Bycatch (Section 3.3)			
	VEC 1: Atlantic Herring	VEC 2: Non-Target Species /Other Fisheries	VECs 3 and 4: Essential Fish Habitat and Protected Resources	VEC 5: Fishery Related Businesses and Communities
Section 3.3.2.2.1, 3.3.2.2.2, and 3.3.2.2.3; Alternative 2 - Monitoring/Avoidance Management Options: Option 1 - 100% Observer Coverage Option 2 - CAI sampling provisions Option 3 - trigger based monitoring	Low Positive No direct biological impact on the herring resource; indirect long-term benefits likely to result from improvements to catch sampling, increased sampling, and a reduction in unobserved catch	Positive May improve understanding of river herring encounters in the Atlantic herring fishery through focused monitoring and could lead to possible reductions in river herring mortality if the fleet avoids those areas; more monitoring may mean more bycatch/discards information in specific areas where river herring may be missed; monitoring specific areas instead of across the full range of the species may miss important river herring encounters by the fleet	Low Positive Observer coverage levels are not likely to affect EFH; information gathering for Protected Resources may benefit from increased coverage	Negative Potential for increased costs associated with industry payment for observers; could trigger additional losses, thereby affecting bait supplies; slightly higher regulatory/compliance costs; indirect users of the river herring resource may benefit if higher stock levels of river herring are achieved; uncertainty of trigger mechanisms makes business planning difficult; complexity of trigger reporting options likely to be very challenging for fishery participants to provide accurate catch information in a real-time manner; impact may be mitigated for shrimp fishery and large-mesh bottom trawl vessels if exemption is approved
Section 3.3.2.2.4, Alternative 2 - Monitoring/Avoidance Management Options: Option 4 - two phase bycatch avoidance approach based on SFC project	Neutral No direct biological impact on the herring resource; indirect long-term benefits if the industry can work cooperatively to develop a long-term avoidance strategy	Potentially Positive Could be reductions in river herring mortality in the bimonthly avoidance areas; would need to be adequate incentives in place for the fleet to avoid the areas	Neutral The shift in effort is not likely to affect EFH or Protected Resources	Low Positive Collaboration with trusted institutions may allow herring fishery participants to participate in observations and facilitate monitoring/sampling that will lead to appropriate adjustments of Monitoring/Avoidance Areas and to the development of avoidance strategies; could ultimately reduce costs associated with bycatch avoidance because the industry would likely prioritize cost-effectiveness when developing strategies

Potential Impacts of the Management Measures to Address River Herring Bycatch (Section 3.3)

Measure Description	VEC 1: Atlantic Herring	VEC 2: Non-Target Species /Other Fisheries	VECs 3 and 4: Essential Fish Habitat and Protected Resources	VEC 5: Fishery Related Businesses and Communities
Section 3.3.3.2.1, Alternative 3 - River Herring Protection: Option 1 - closed areas	Low Positive Not likely to affect total removals of herring from the fishery; many of the blocks proposed for seasonal closure under Alternative 3 overlap substantially with the herring fishery, suggesting that directed herring fishing effort may be reduced, at least seasonally, in some of the areas; other fishing activity is likely to occur, though, and any short-term benefits to the resource are likely small and difficult to quantify	Positive May provide river herring protection during at-sea migrations, leading to reductions in mortality; fixed protection areas would not provide river herring mortality protection outside of protection areas; open areas could therefore have increased river herring encounter rates, depending on year-to-year variability associated with river herring distribution	Unknown Closed areas levels are not likely to affect EFH; Protected Resources impacts are unknown due to uncertainty in shift of effort	Negative Decreases in revenue in the directed fishery and/or increases in costs of fishing may occur with the closures; trawl fishery participants during the winter season may experience hardship due to the overlap with Protection Areas; may be straight-forward option to enforce; economic and social costs may be incurred though the variability of the hotspots; impact may be mitigated for shrimp fishery and large-mesh bottom trawl vessels if exemption is approved
Section 3.3.3.2.2, Alternative 3 - River Herring Protection: Option 2 - trigger based closed areas	Low Positive Not likely to affect total removals of herring from the fishery; many of the blocks proposed for seasonal closure under Alternative 3 overlap substantially with the herring fishery, suggesting that directed herring fishing effort may be reduced, at least seasonally, in some of the areas; other fishing activity is likely to occur, though, and any short-term benefits to the resource are likely small and difficult to quantify	Low Positive May provide river herring protection during at-sea migrations, reducing mortality; fixed protection areas would not provide river herring protection outside of the areas; open areas could therefore have increased river herring encounter rates, depending on year-to-year variability associated with river herring distribution; triggered closures may not be implemented quickly enough to protect river herring during migration	Unknown Closed areas levels are not likely to affect EFH; Protected Resources impacts are unknown due to uncertainty in shift of effort	Negative Decreases in revenue in the directed fishery and/or increases in costs of fishing may occur with the closures; trawl fishery participants during the winter season may experience hardship due to the overlap with Protection Areas; economic and social costs may be incurred though the variability of the hotspots, complexity of reporting catch under triggers, and uncertainty associated with reaching the triggers during the fishing year

A5 Timeline – What's Next?

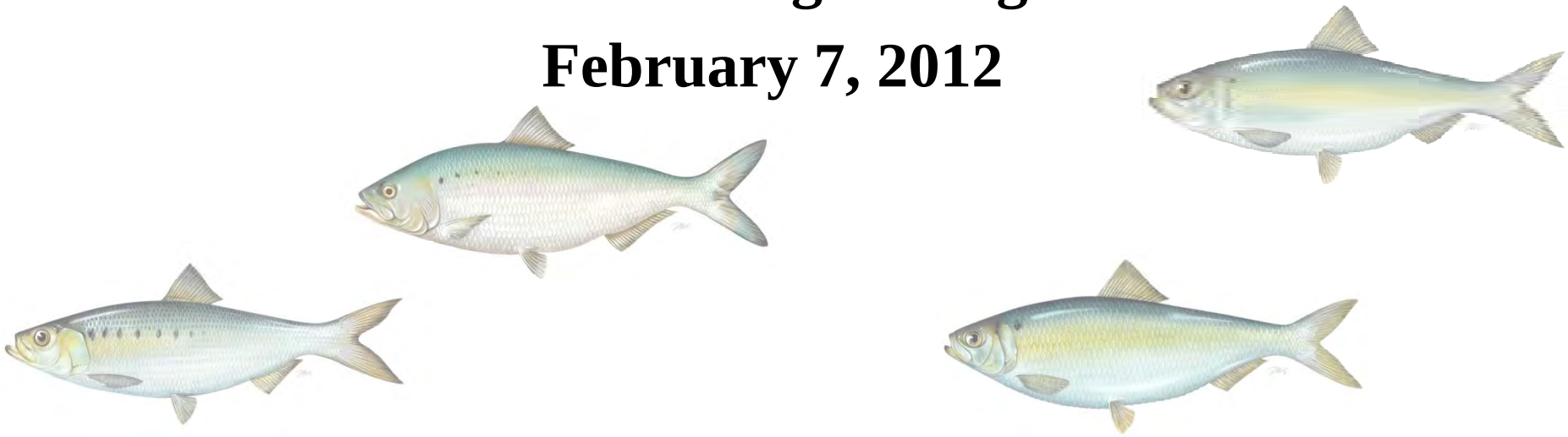
- Draft EIS approved Sept 2011 NE Council meeting
- Preliminary Draft EIS submitted late November
- Formal Draft EIS submitted late January 2012
- Amendment 5 comment period Mar-Apr 2012
- Public hearings March 2012
- Final selection of measures April 2012 Council Meeting
- Completion/submission of Final Measures/FEIS ASAP, May/June 2012
- Implementation January 1, 2013

Working towards healthy, self-sustaining populations for all Atlantic coast fish species or successful restoration well in progress by 2015

Amendment 5 Alternatives

Shad and River Herring Management Board

February 7, 2012



River Herring Bycatch Sections 3.3.2.2.1 - 4

- **Alternative 1 – Status Quo**
- **Alternative 2 - Monitoring/Avoidance**
  - ➢ Areas identified bimonthly as the ¼ degree squares w/at least 1 observed tow of RH catch > 40 pounds.
    - Option 1 - 100% Observer Coverage
    - Option 2 – Closed Area I sampling provisions
    - Option 3 - trigger based monitoring
    - Option 4 - two phase bycatch avoidance approach based on SFC project

River Herring Bycatch

Table 3 Sub-Options for River Herring Catch Triggers (Pounds)

Area	SUB-OPTIONS		
	3A (Max)	3B (Median)	3C (Mean)
CC	1,159,700	93,400	269,600
GOM	294,000	92,400	127,100
SNE	729,500	585,000	478,500

River Herring Bycatch

- **Alternative 3 – RH Protection**
  - ➢Protection Areas identified bimonthly as ¼ degree squares w/at least 1 observed tow of RH catch > than 1,233 pounds
  - Option 1 - Closed areas
  - Option 2 - Trigger based closed areas

Table 4 Sub-Options for River Herring Catch Triggers (Pounds)

Area	SUB-OPTIONS		
	3A (Max)	3B (Median)	3C (Mean)
CC	1,159,700	93,400	269,600
GOM	294,000	92,400	127,100
SNE	729,500	585,000	478,500

Fisheries Management Program

- **Section 3.1.4: Trip Notification Requirements**
  - Option 1 – Status Quo
  - Option 2 – Modify/extend pre-trip notification requirements and add VMS gear declaration
  - Option 3 – Extend pre-landing notification requirement
- **Section 3.1.6: Reporting Requirements for Federally-Permitted Dealers**
  - Option 1 – Status Quo
  - Option 2 – Require dealers to weigh all fish

Catch Monitoring

- **Section 3.2.1: Allocation of observer coverage**
  - Option 1 – Status Quo
  - Option 2 – 100% observer coverage
  - Option 3 – Require SBRM levels as minimum
  - Option 4 – Based on Council Specified Targets

Catch Monitoring

- **Section 3.2.2.2: Additional Measures to Improve Sampling**
  - Option 2A - requirements for safe sampling station
  - Option 2B - requirements for reasonable assistance
  - Option 2C - requirements to provide notice
  - Option 2D - requirements for trips with multiple vessels
  - Option 2E - pair trawl communication
  - Option 2F - visual access to net/codend

Catch Monitoring

- **Section 3.2.4: Maximized Retention**
  - Option 1 – Status Quo
  - Option 2 – Evaluate maximized retention through the annual issuance of exempted fishing permits

Catch Monitoring

- **Section 3.2.3.2: Measures to Address Net Slippage**
  - Option 2 - require released catch affidavit for slippage
  - Option 3 - CAI Sampling Provisions
  - Option 4 - catch deduction (and possible trip termination) for slippage events

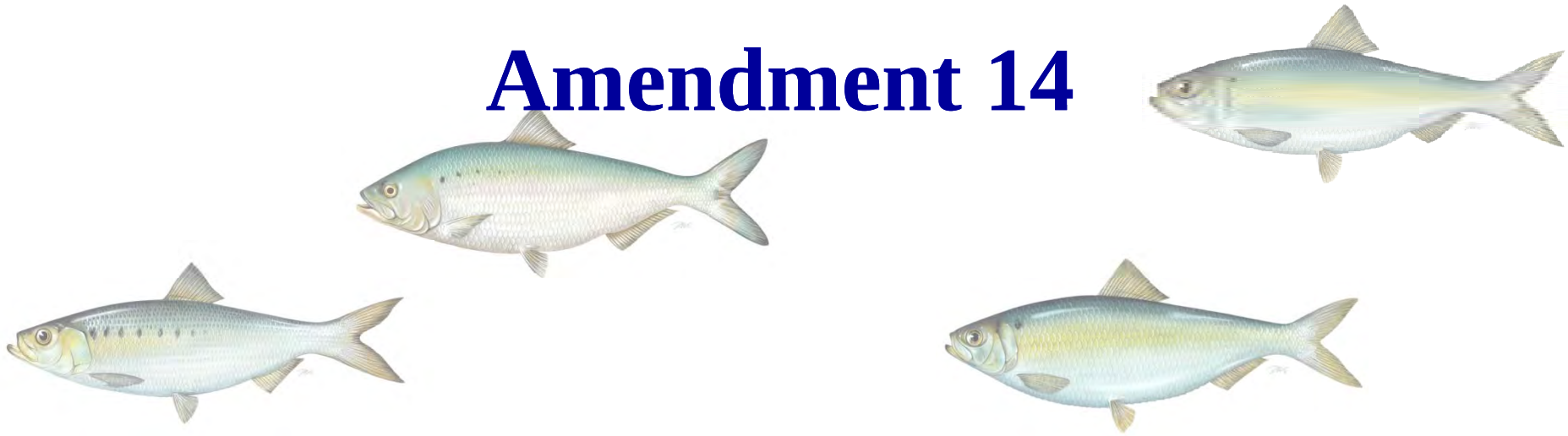
Catch Caps

- **Section 3.3.5: Additional measures that can be implemented**

Working towards healthy, self-sustaining populations for all Atlantic coast fish species or successful restoration well in progress by 2015

MAFMC

Amendment 14



MAFMC

- Early Feb 2012 Resubmit to NMFS
- Mar/April 2012 Public hearings
- Early May 2012 Comment Period Closes
- May 2012 Consider public comments, tweak alternatives if/as necessary
- June 2012 Council takes final Action
- Sept 2012 Proposed Rule
- Feb 1, 2013 Final Rule Publishes
- Mar 1, 2013 Rule Effective