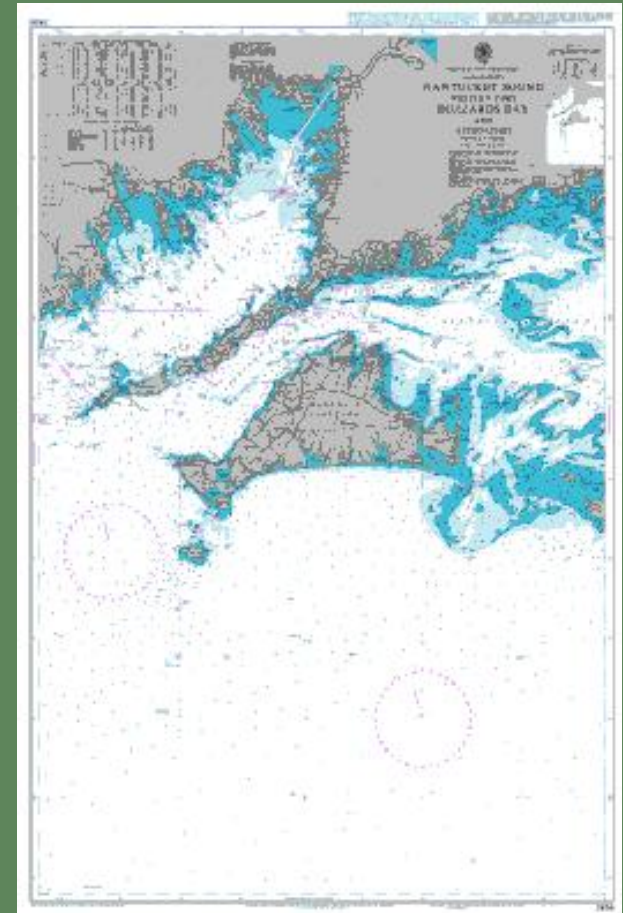
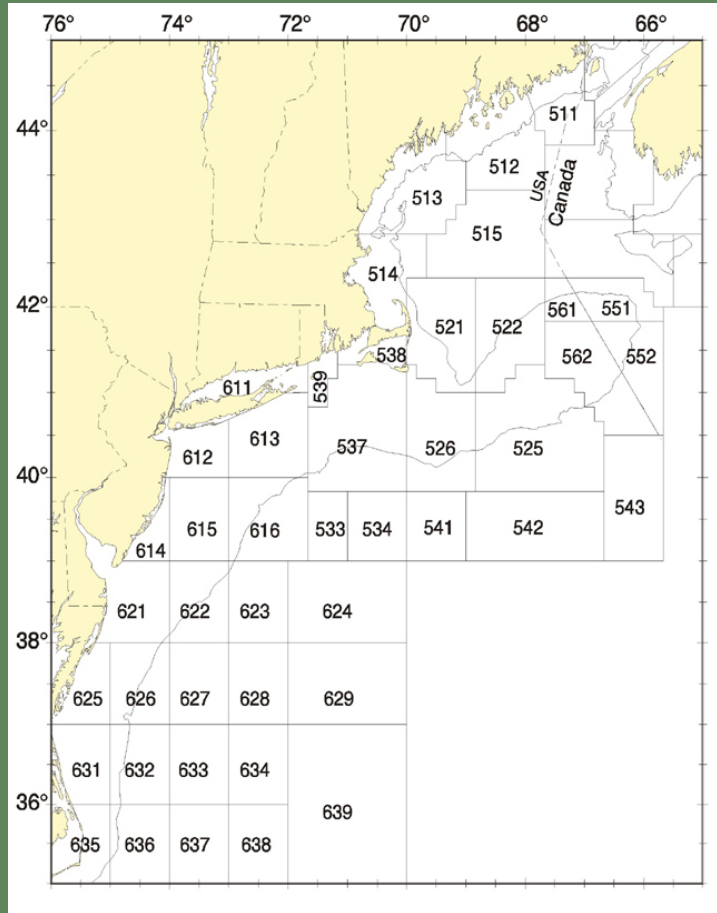


unraveling land-sea connections in the herring fishery using GIS

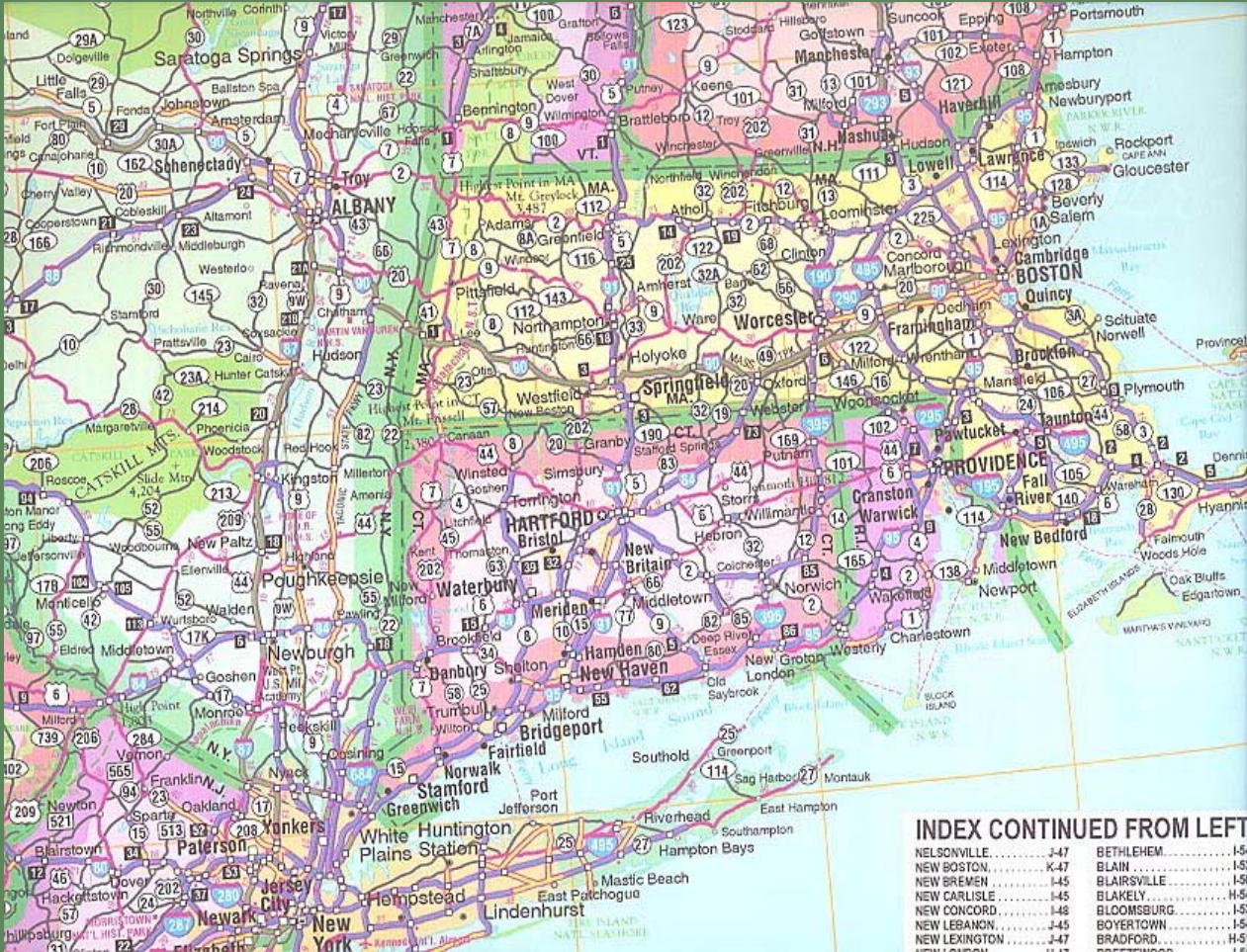


Patricia Pinto da Silva
Charles Fulcher
NOAA Fisheries, NEFSC Woods Hole, MA

first impressions



is there a connection?



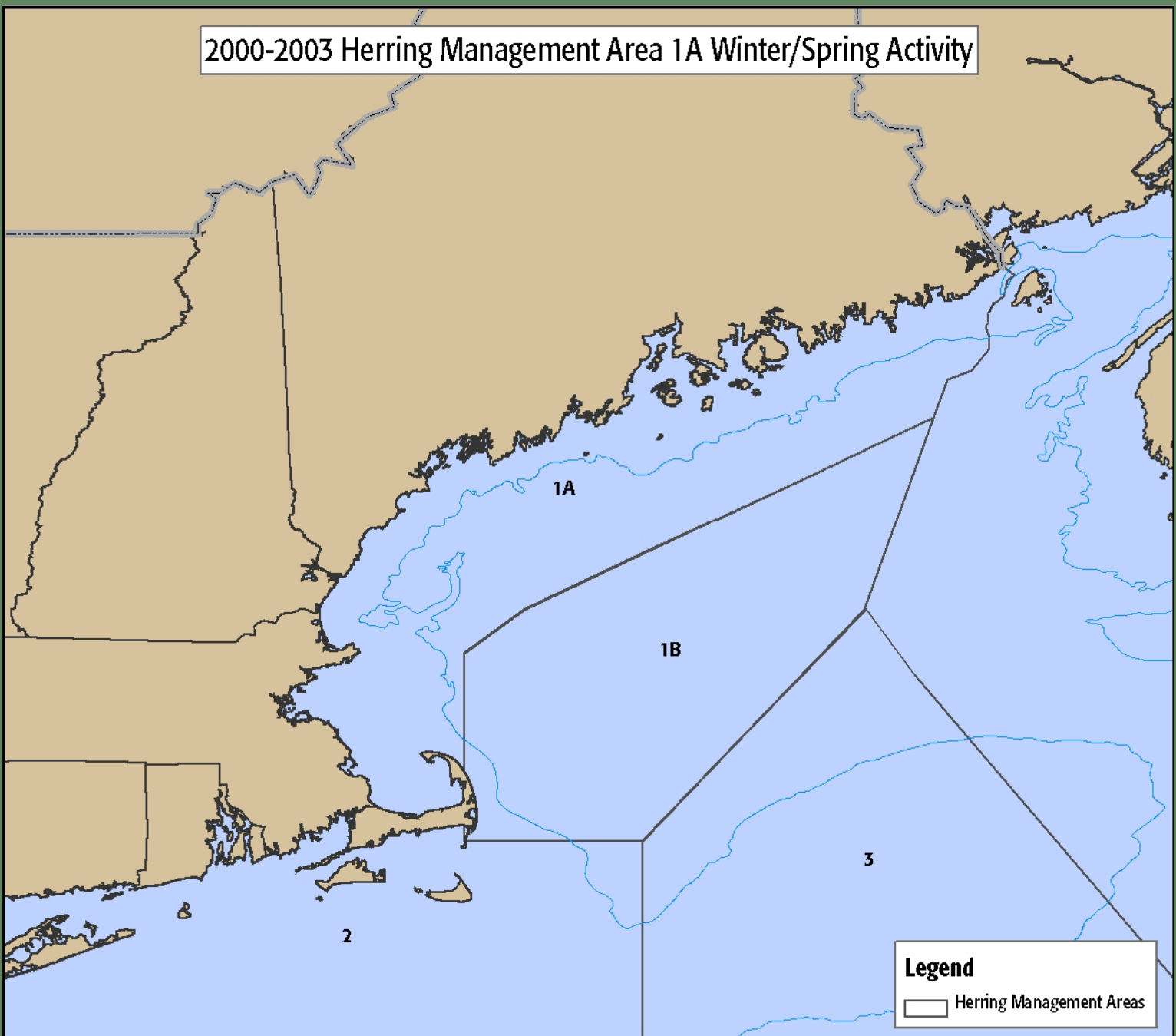
how this got started...

- Hiring Charles
- Herring Amendment 1
 - Need to understand the fishery
 - Outdated AHE
 - Significant changes in the fishery

requirements

- MSFCMA
 - National Standard 8 – impacts on fishing communities
- NEPA
 - Affected Human Environment/Baseline information

2000-2003 Herring Management Area 1A Winter/Spring Activity

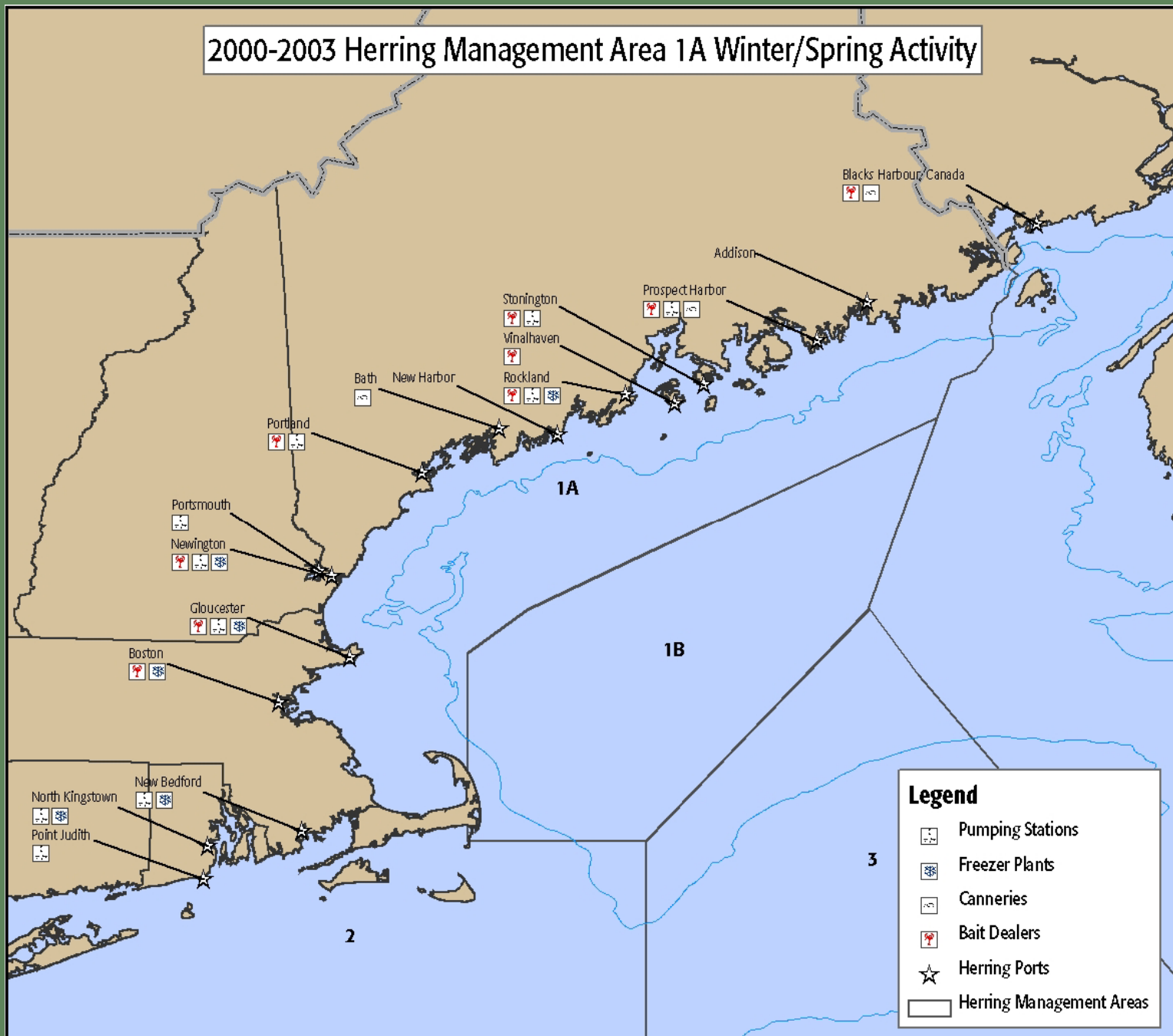


Legend
Herring Management Areas

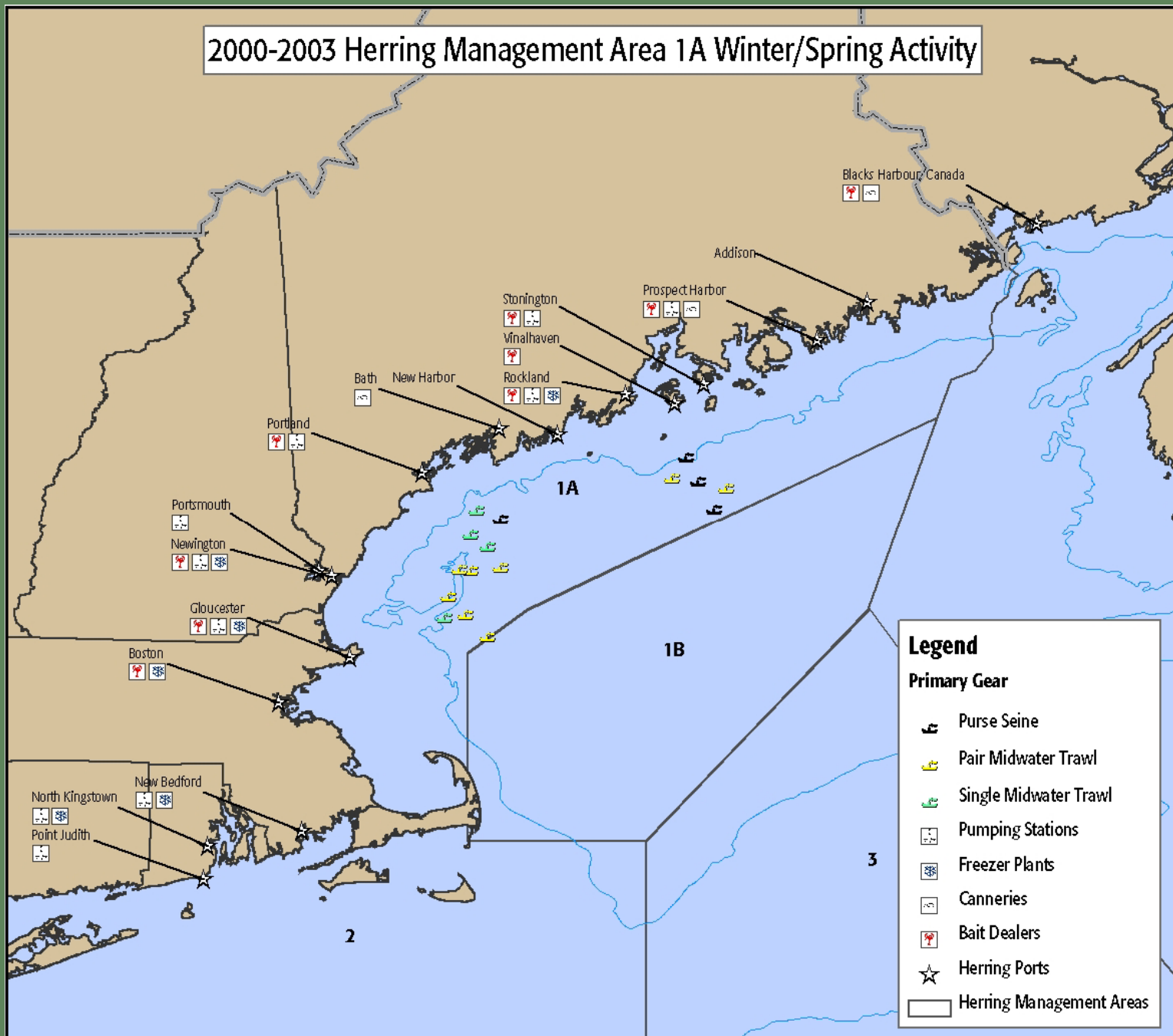
communities of interest

- We started with all locations where herring is landed in the region.
- Added locations that serve as 'essential providers' for the fishery, such as locations with...
 - Pumping stations
 - Canneries
 - Freezer plants
 - Primary lobster bait dealers

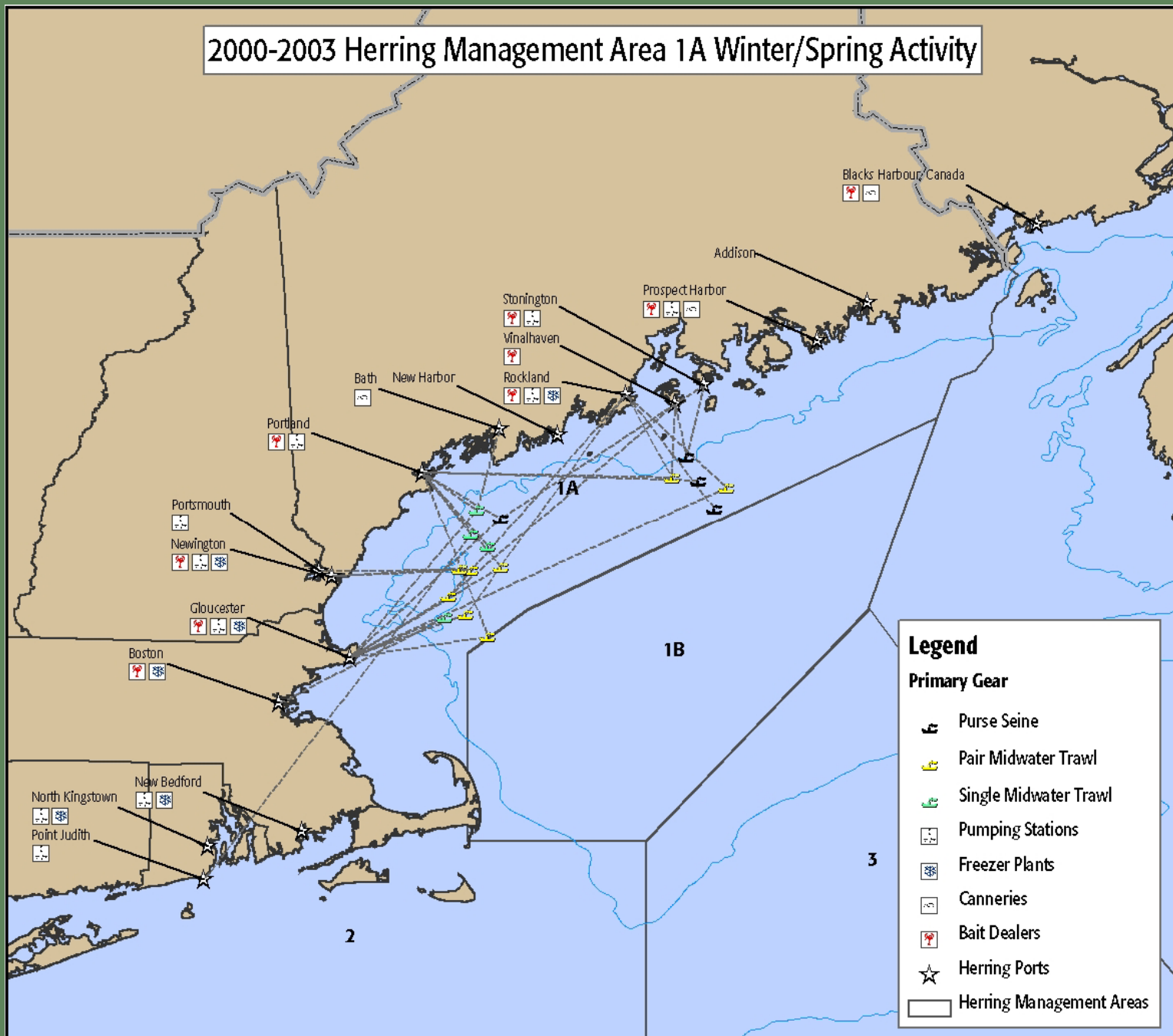
2000-2003 Herring Management Area 1A Winter/Spring Activity



2000-2003 Herring Management Area 1A Winter/Spring Activity












2000-2003 Herring Management Area 1A Winter/Spring Activity

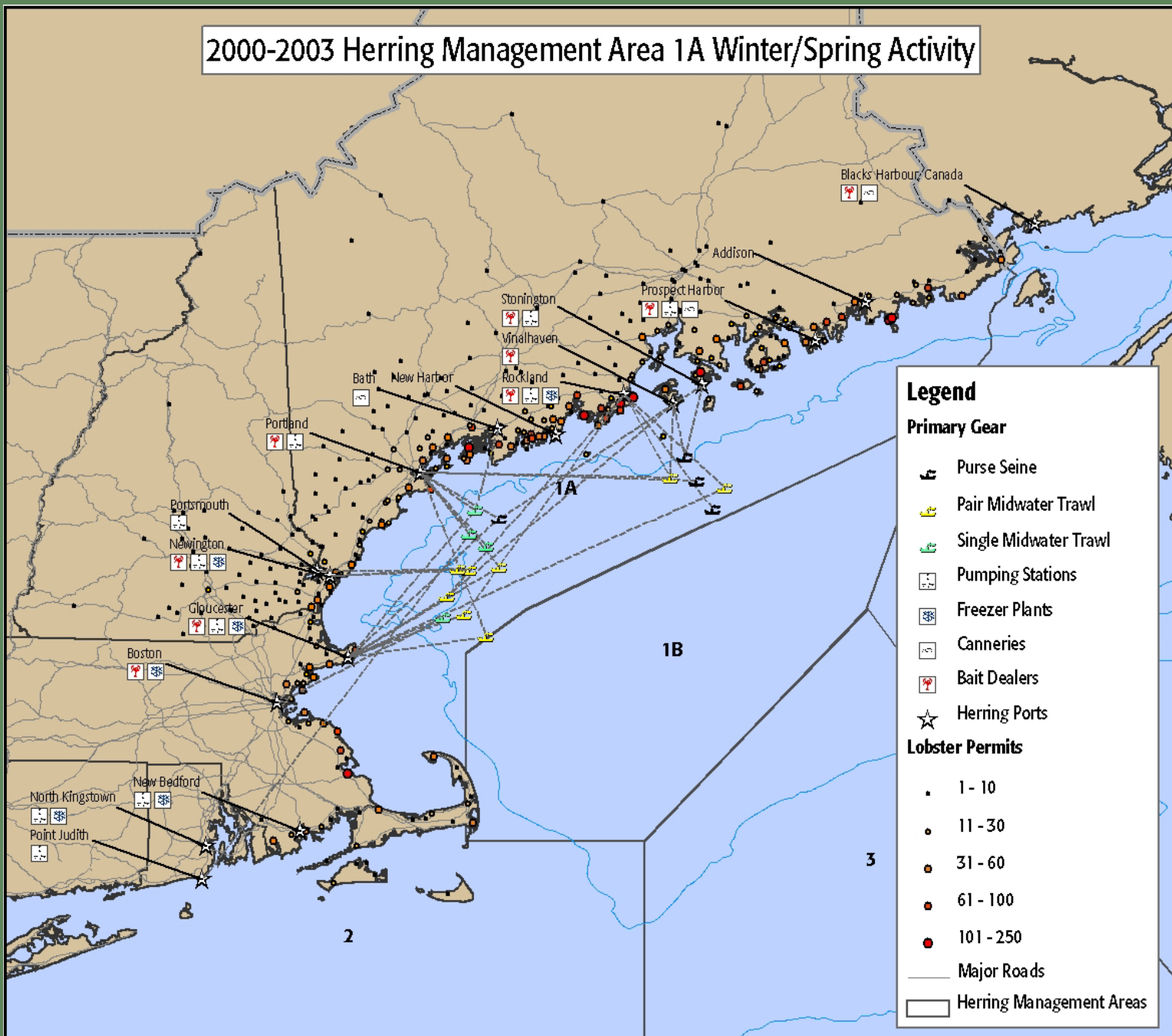


Legend

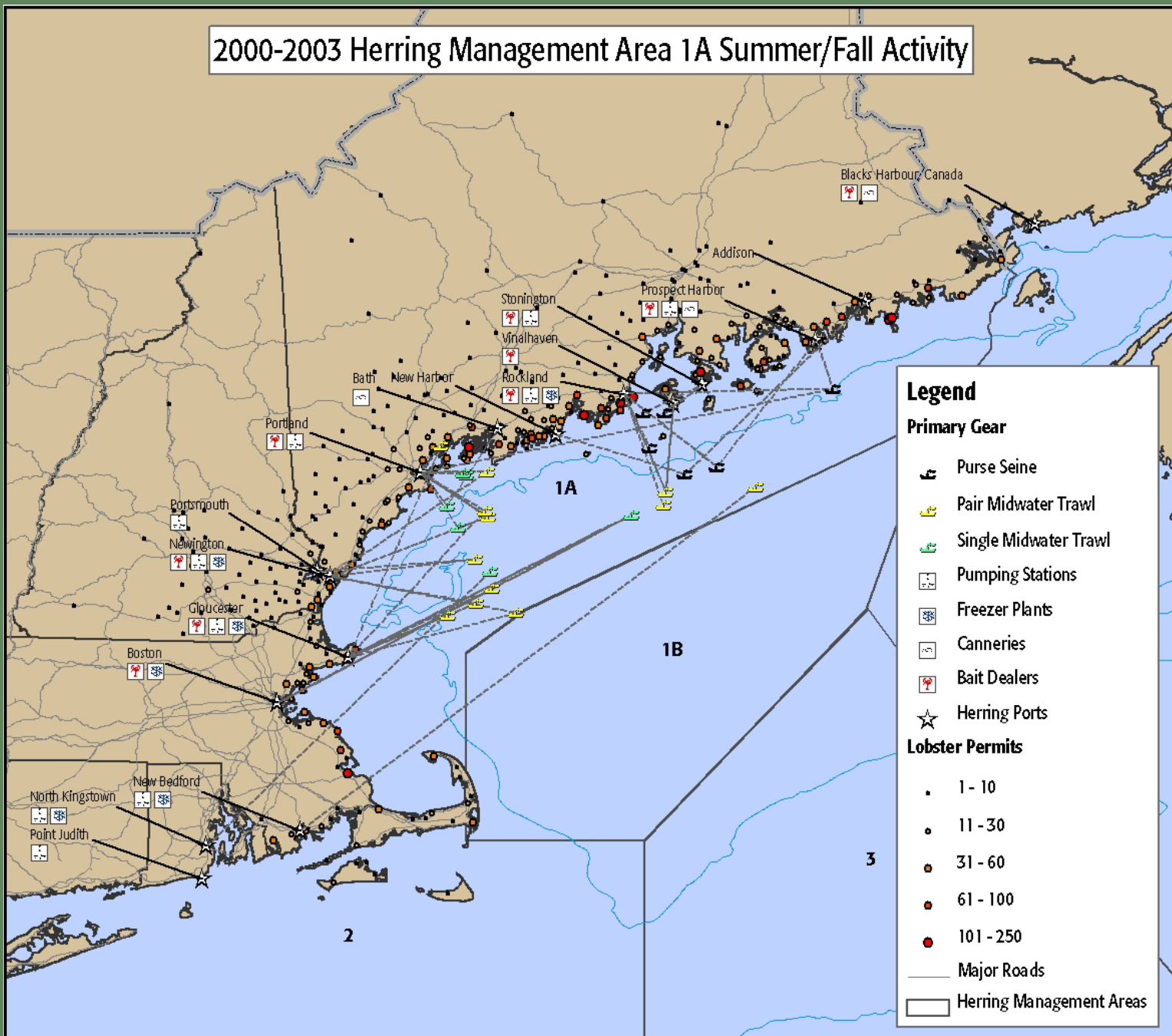
Primary Gear

-  Purse Seine
-  Pair Midwater Trawl
-  Single Midwater Trawl
-  Pumping Stations
-  Freezer Plants
-  Canneries
-  Bait Dealers
-  Herring Ports
-  Herring Management Areas

2000-2003 Herring Management Area 1A Winter/Spring Activity



2000-2003 Herring Management Area 1A Summer/Fall Activity



maps show...

- Geographic distribution of different gear groups
- Geographic distribution of herring use (north bait, south processing)
- Port connections - vessels work with same buyers over time
- Seasonal changes in the fishery
- How changes in one area might affect other areas, locations, stakeholders...
- Etc...

supporting data - qualitative

- Description of gear/fishery
- Profiles of each community
- Interviews with each processing plant, bait dealer and even some secondary dealers
- Site visits – (good for ground-truthing)

supporting data - quantitative

- VTR data
- Dealer data
- State lobster permit data
- Census data

practical issues

- Each map is different
- Making tough choices about what information to present and how to present it.
 - No map is 'complete'
 - Keeping it readable
- Maps plus support documents = too many pages of text.

maps don't show...

- Entire fishery – it is broken down into activity by management area
- Number of trips taken (though we've produced other maps for the tilefish fishery that do show this)
- Only shows active vessels
- Location and description of related organizations
- Over simplification of the fishery - other stakeholders
 - Groundfish fishermen, mackerel fishermen, protected species representatives, former stop seine locations, weirs, etc...
- Historical information
- Information on crew
- Etc...

application to fishery research and management

- Bringing land and sea back together
- Improving accessibility of information
- Ocean literacy – demystifying fisheries
- Outreach – host for information collected by social scientists that could be accessible to broad stakeholders
 - Community profiles, oral histories, photos, bibliographies.

others involved

- Lori Steele – NEFMC – amendment coordinator
- Andrew Kitts – SSB – economic analysis
- Patricia Clay, Julie Olson, Sarah Smith, Julie Ekstrom – community profiles
- Madeleine Hall-Arber – MIT/Sea Grant – interviews and site visits
- Kohl Kanwit – Maine DMR – lobster permit information and comments on maps
- Massachusetts DMR, New Hampshire DMR – lobster permit information