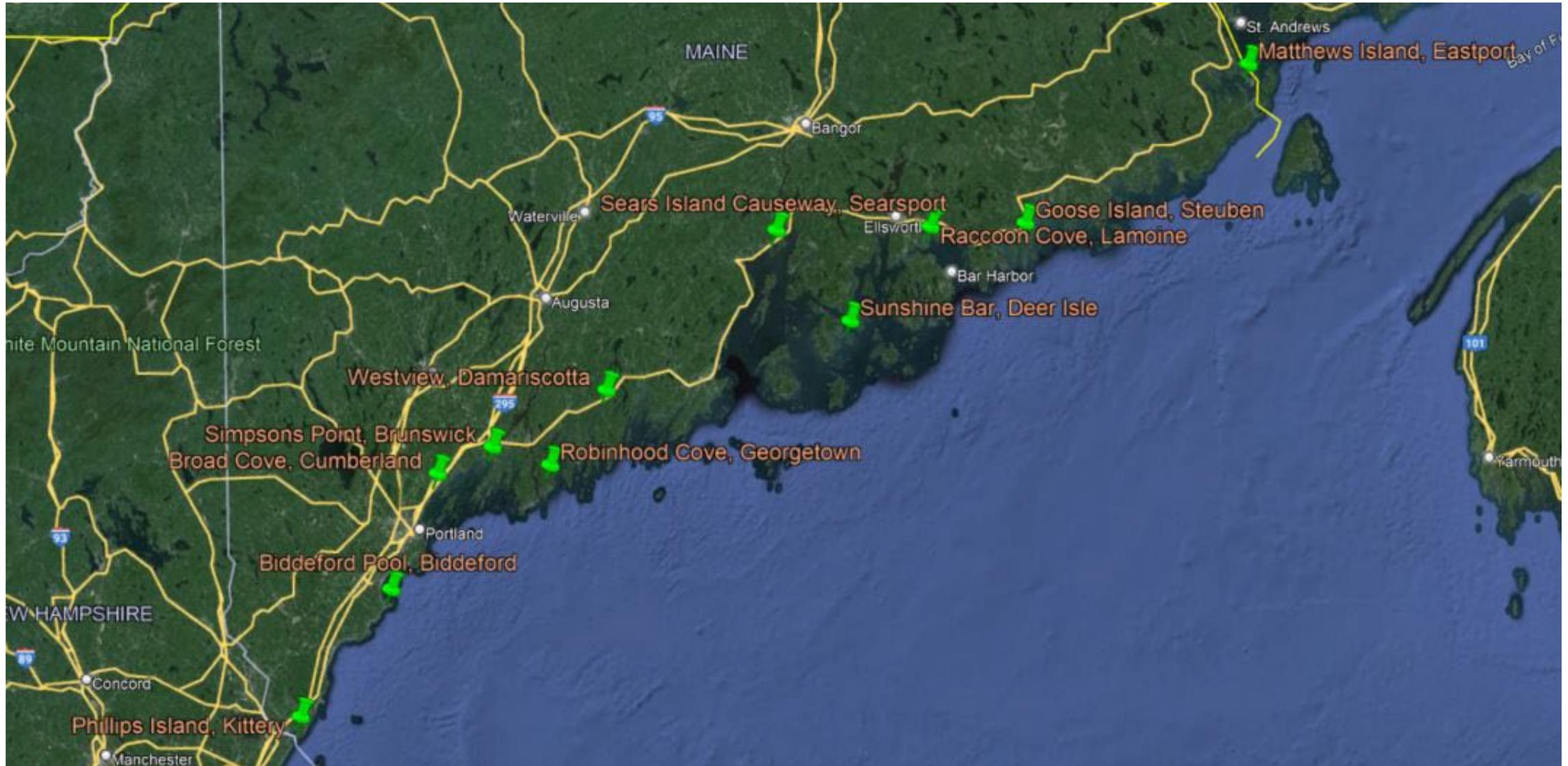


Casco Bay Estuary Partnership Monitoring Network

Maine Department of Marine Resources
Spring 2024 Monitoring Efforts Updates

Bryant Lewis

Nearshore Marine Resources Program: Long Term Intertidal Monitoring

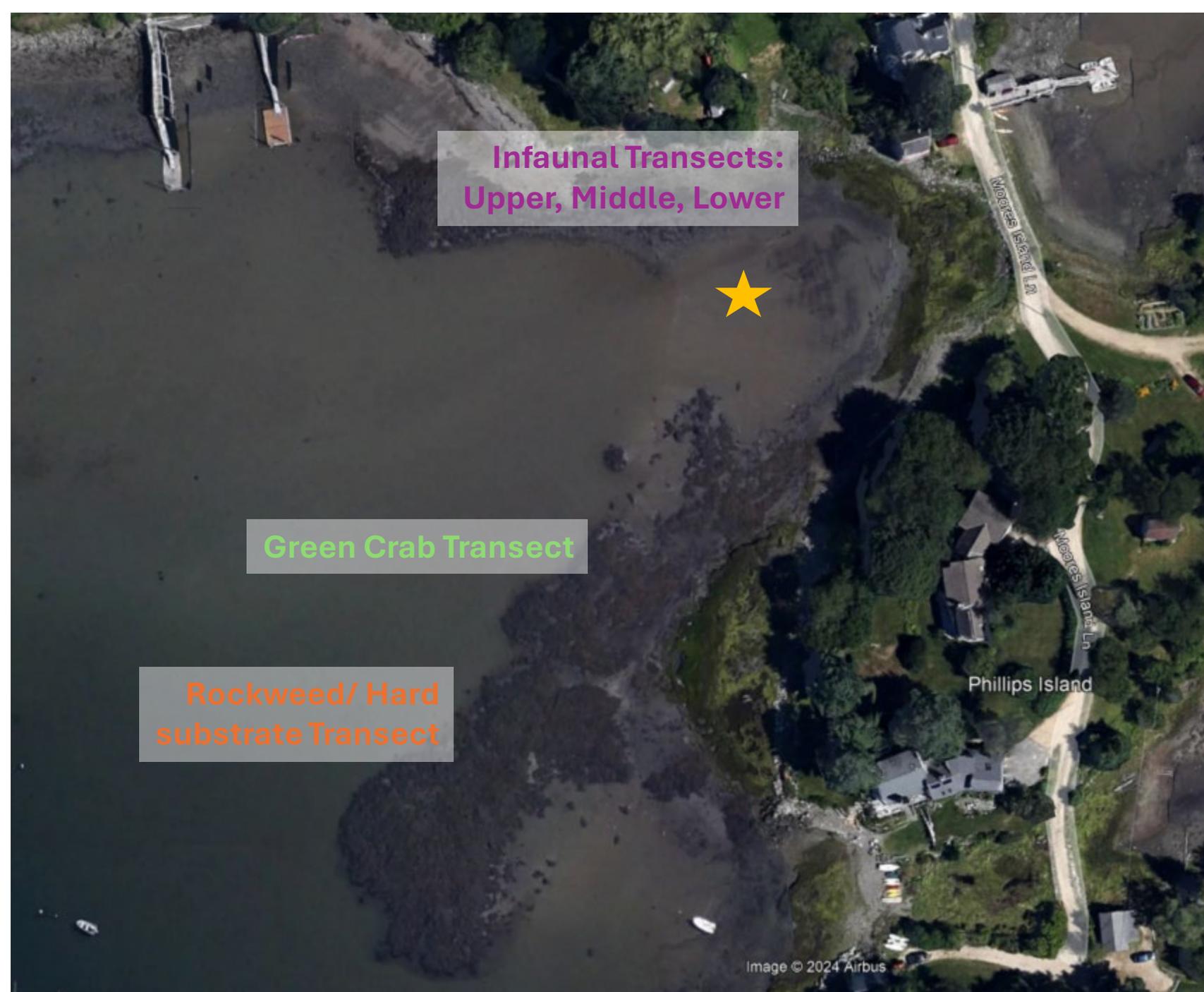


12 sites along coast: Kittery to Eastport

(still working on approval for some sites; need to identify one more site between Damariscotta and Searsport)

Survey each site monthly:

- Transect/Quadrat methodology
- Quantitative surveys for target species
- Presence/absence for non-target species
- 3 Infaunal transects: upper, middle, lower intertidal
- 1 green crab transect
- 1 rockweed/hard substrate transect
- Two temperature loggers (★)
 - 1" below mud
 - Above mud
- Recruitment boxes starting in 2025



DMR Boothbay Harbor Environmental Monitoring Program

Sea Water Temperature Record

The sea water temperature record of the DMR Boothbay Harbor (BBH) Environmental Monitoring Program, extending over more than a century, constitutes one of the longest running, continuous series of sea temperature observations for any point on the North American Atlantic Coast. Observations began in March 1905 and have continued, with minimal interruption, to the present day. Please see *Station History* below for a more detailed description of temperature measurement protocols over time.



Real-time sea water temperature via our Boothbay Harbor Pier Portal, along with daily sea water temperature data at our Open Data Portal, or in PDF, CSV (comma-separated values) or XLSX (Microsoft Excel) format are available below. PDF files may require [Adobe Reader software \(download here, free\)](#). Please contact [Jessica Waller](#) if you require an alternate format.

- [Real-time sea water temperature and trends from 1905 to now \(graphs and downloads\)](#)
- [Daily sea water temperatures, 1905 - 2021, Open Data Portal](#)
- [Daily sea water temperatures, 1905 - 2019, PDF file, 2.1 MB](#)
- [Daily sea water temperatures, 1905 - 2019, CSV file, 0.8 kb](#)
- [Daily sea water temperatures, 1905 - 2019, XLSX file, 1.0 MB](#)

Other Observations and Statistics Reported

Currently, observations of air temperature, barometric pressure, sea water temperature, relative humidity, wind speed, wind direction, dissolved oxygen, partial pressure of carbon dioxide, and pH are recorded at hourly intervals.

Hourly/daily/monthly/annual summaries of DMR BBH Environmental Monitoring Program data can be obtained by contacting [Jessica Waller](#).



Station Description

The DMR Boothbay Harbor Environmental Monitoring Program is operated by the Maine Department of Marine Resources with the goal of maintaining a continuous source of high-quality physical environmental data for the Maine coast. The station is located at the Department's Fisheries Laboratory in West Boothbay Harbor, Maine (43°50'40" N, 69°38'30" W). All of the station's sensors are deployed at or near the laboratory pier in a sheltered cove on the west side of Boothbay Harbor. The main harbor is very sheltered,

and the cove is more so. Wave heights during a severe storm may reach three or four feet in the main harbor but rarely reach even two feet in the cove. This area experiences heavy commercial and recreational boat traffic during the summer months. Mean tide range has been calculated by the National Ocean Service at 8.8 feet and the spring tide range is given as 10.1 feet. While the harbor typically remains open throughout the year, the cove often develops a thin layer of ice which would extend from shore to shore if it weren't broken up by the passage of various small vessels. Freshwater influences within the harbor consist of a few small streams which provide drainage for the immediate area. Two larger rivers, the Sheepscot to the southwest and the Damariscotta to the northeast, are nearby.

The sea water temperature sensor is located at -5.5 feet MLW (relative to mean low water). Air temperature and relative humidity sensors are mounted on the dock in a down-looking radiation shield. Wind speed/direction sensors are tower mounted on the dock approximately 30 feet above sea level. However, both the eastern and western horizons are obscured slightly by the Boothbay Harbor Laboratory and trees.



Boothbay Harbor Pier Station Data Portal

- <https://www.maine.gov/dmr/science/weather-tides/boothbay-harbor-environmental-data>

DMR Lobster Monitoring Programs

Programs



Sublegal

Inshore Trawl Survey
Ventless Trap Survey
Sea Sampling



Adult

Inshore Trawl Survey
Sea Sampling
Landings

Young of Year

Settlement Survey



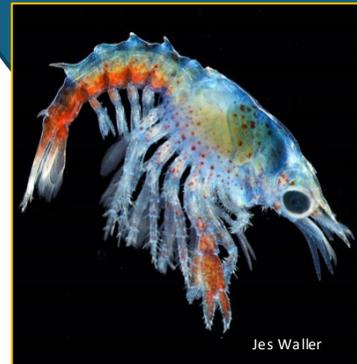
Reproduction

Sea Sampling



Larvae

BBH Larval Survey

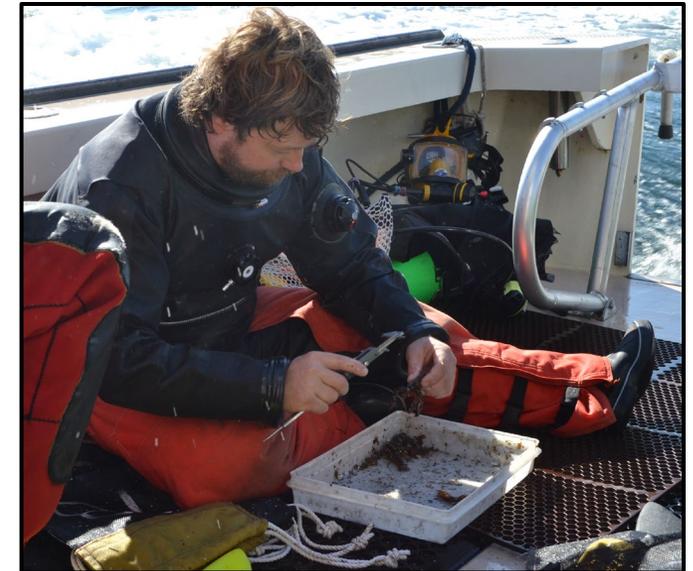
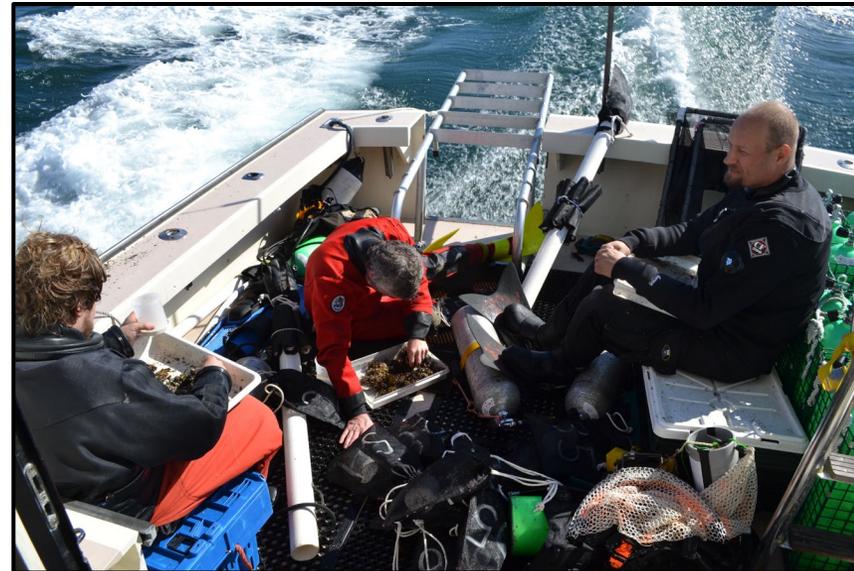


Jes Waller

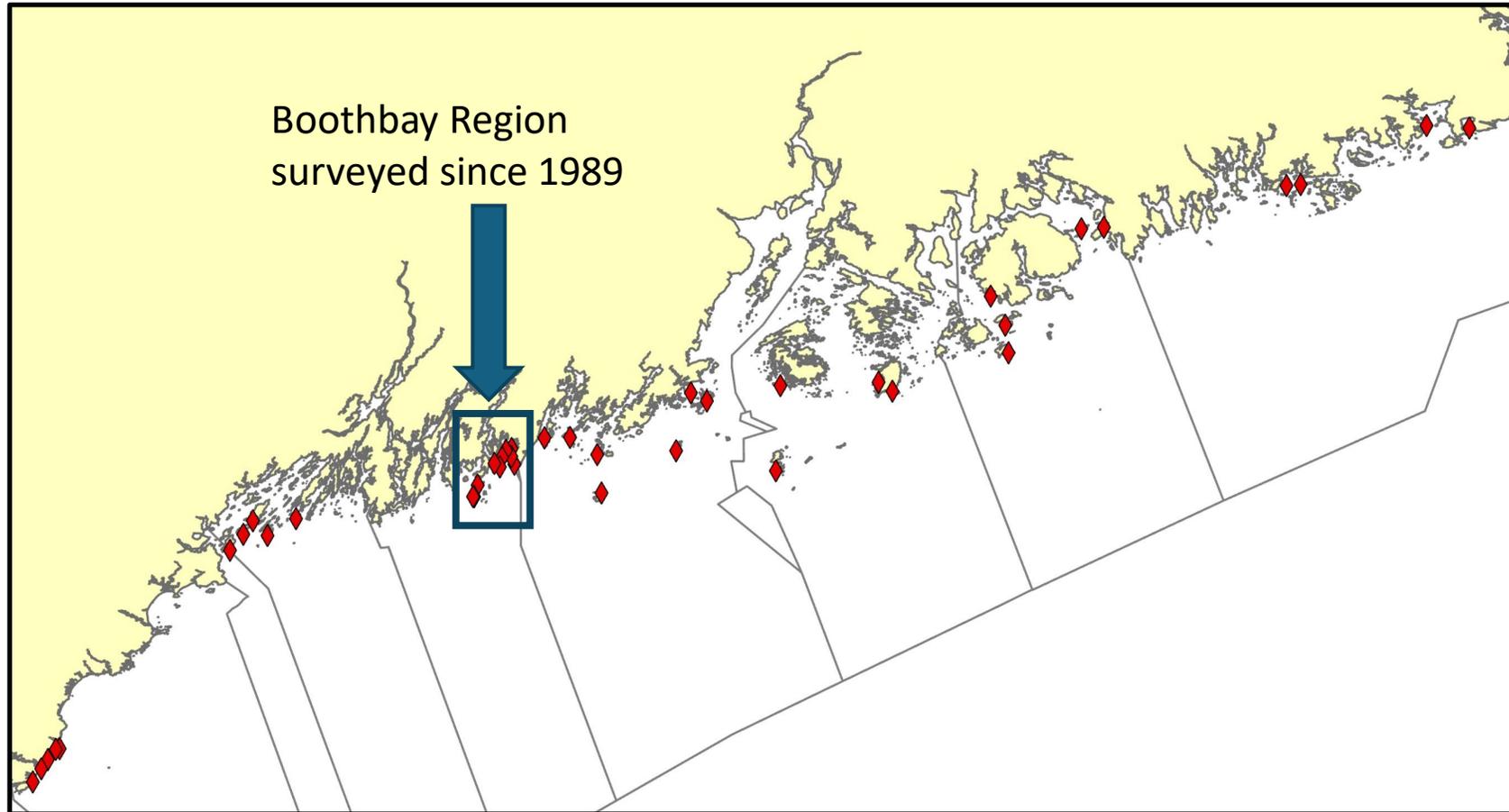


Lobster Settlement Survey

- Fishery independent survey, 1-5 fathom
- Started in 1989 in Boothbay Region
 - DMR expanded to all zones in 2000
- Tracking young of year – newly settled lobsters
- Dive survey - Suction sampling methods
- Produces index of settlement



Lobster Settlement Survey: 1-5 fathom

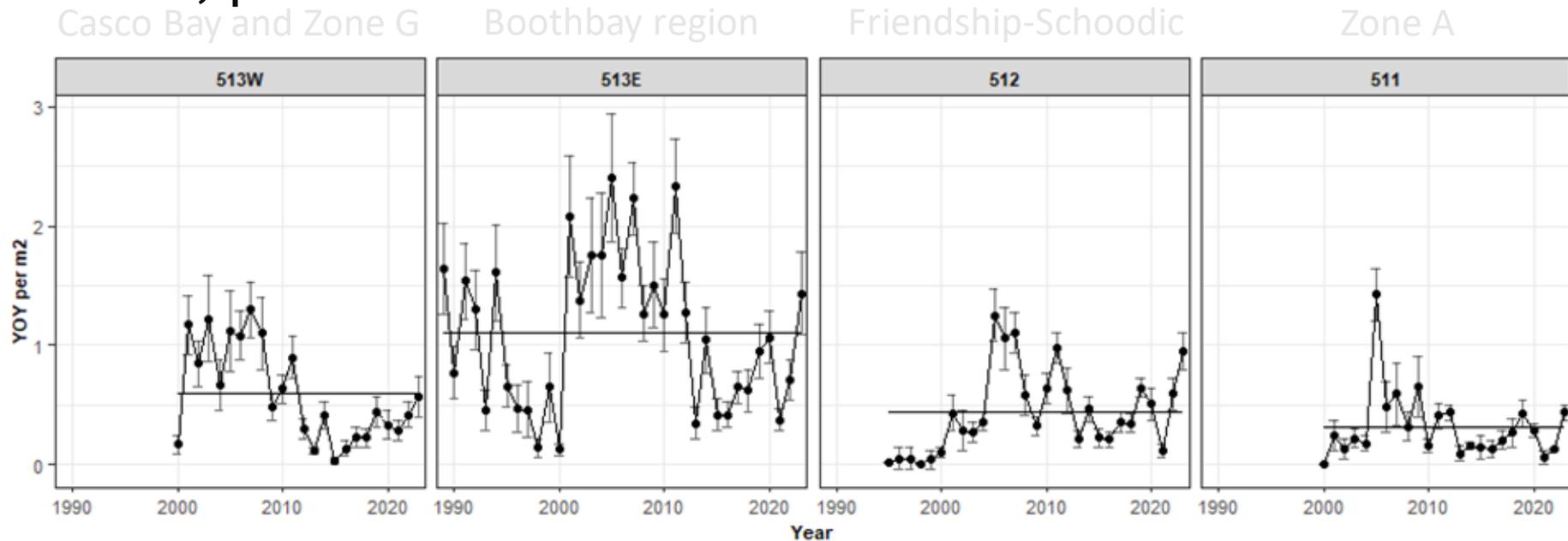
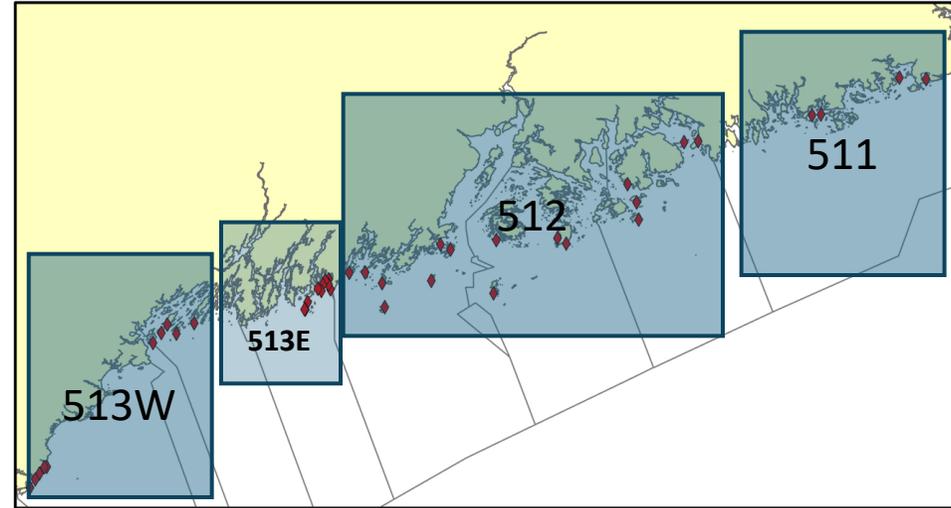


Since 2000,
minimum of 4
sites in each
lobster
management
zone

Total of 40 sites
sampled by divers
annually

YOY Settlement

- **Preliminary data for 2023!**
- Settlement \uparrow from lows in 2021
- 2023 first year at/above time series averages coastwide since 2011
- While positive, point is not a trend



Standard Error represented by thin vertical bars.

JUSTIN PA

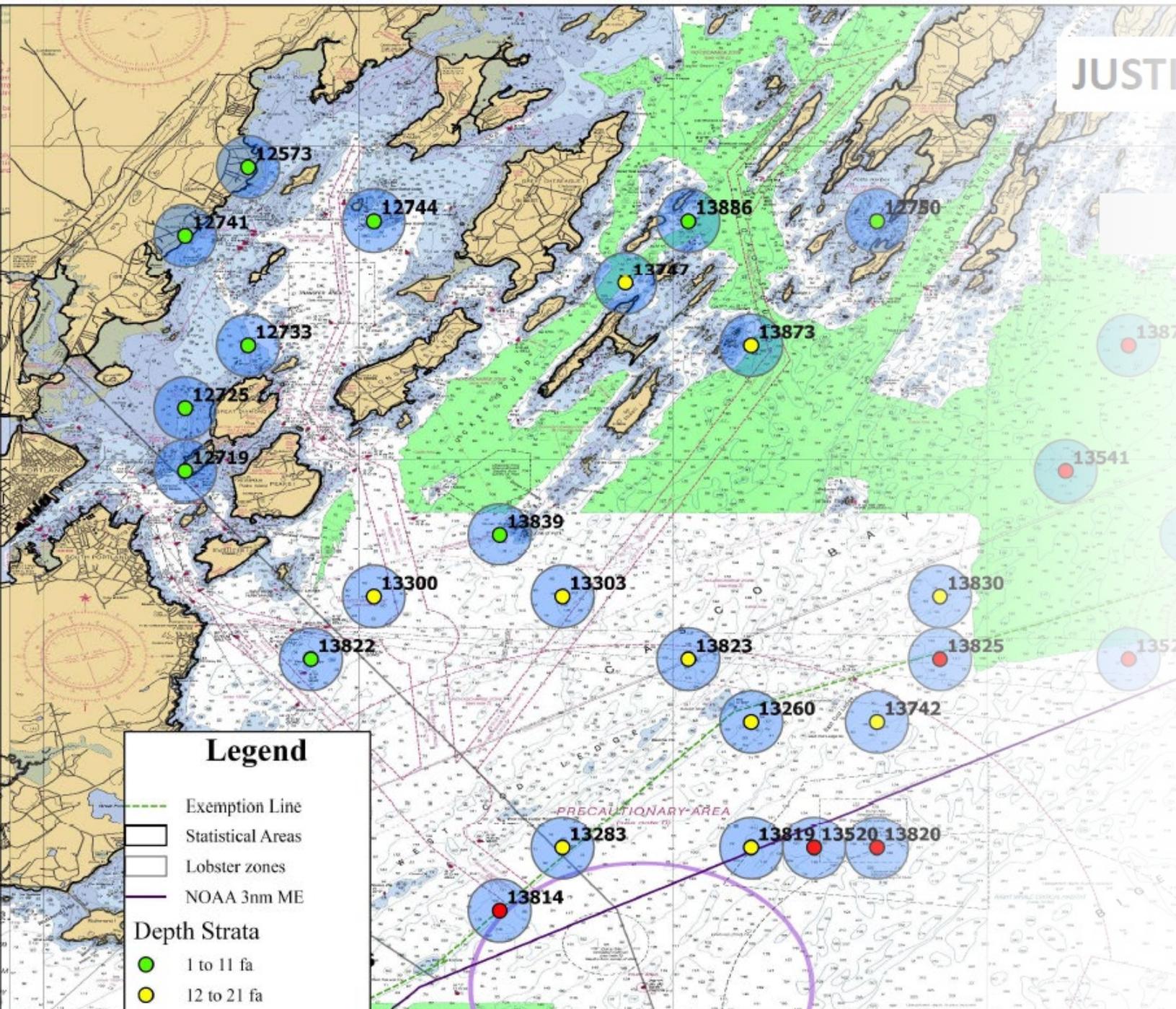
Ventless Trap Lobster Survey

Legend

- Exemption Line
- Statistical Areas
- Lobster zones
- NOAA 3nm ME

Depth Strata

- 1 to 11 fa
- 12 to 21 fa



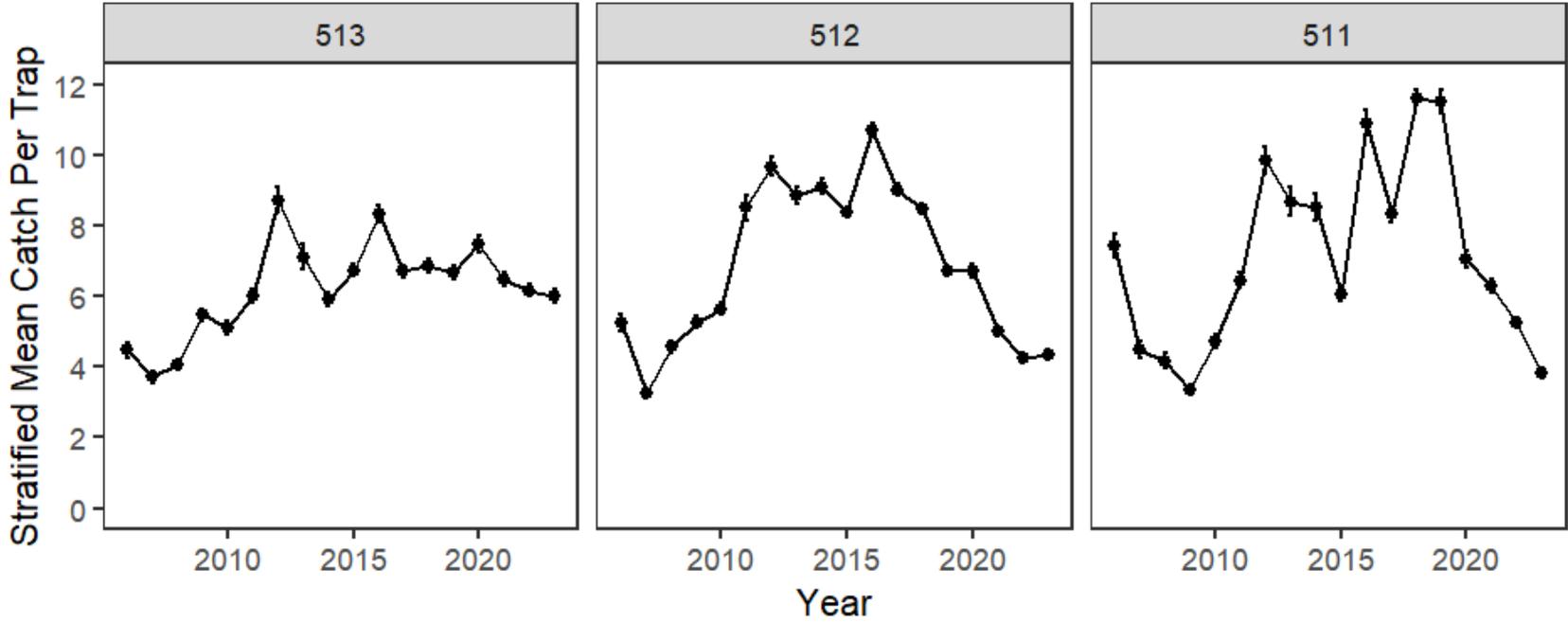
Ventless Trap Survey

- Fishery independent survey, 2-30 fathom
- Started in 2006 – regional program RI-ME
- Targets juvenile lobsters (90% sublegal lobsters)
- June, July, & August
- Random stratified sites by depth and statistical area

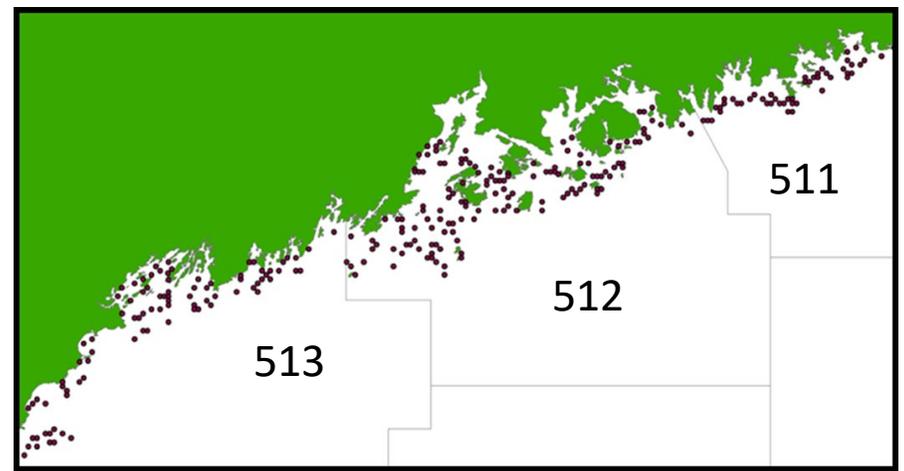


Ventless Trap Survey: recruit (71-80mm) lobsters

NH to Friendship Friendship to Schoodic Schoodic to Cutler



- Relatively stable levels in west
- 512 ↔ to 2022
- 511 continued ↓

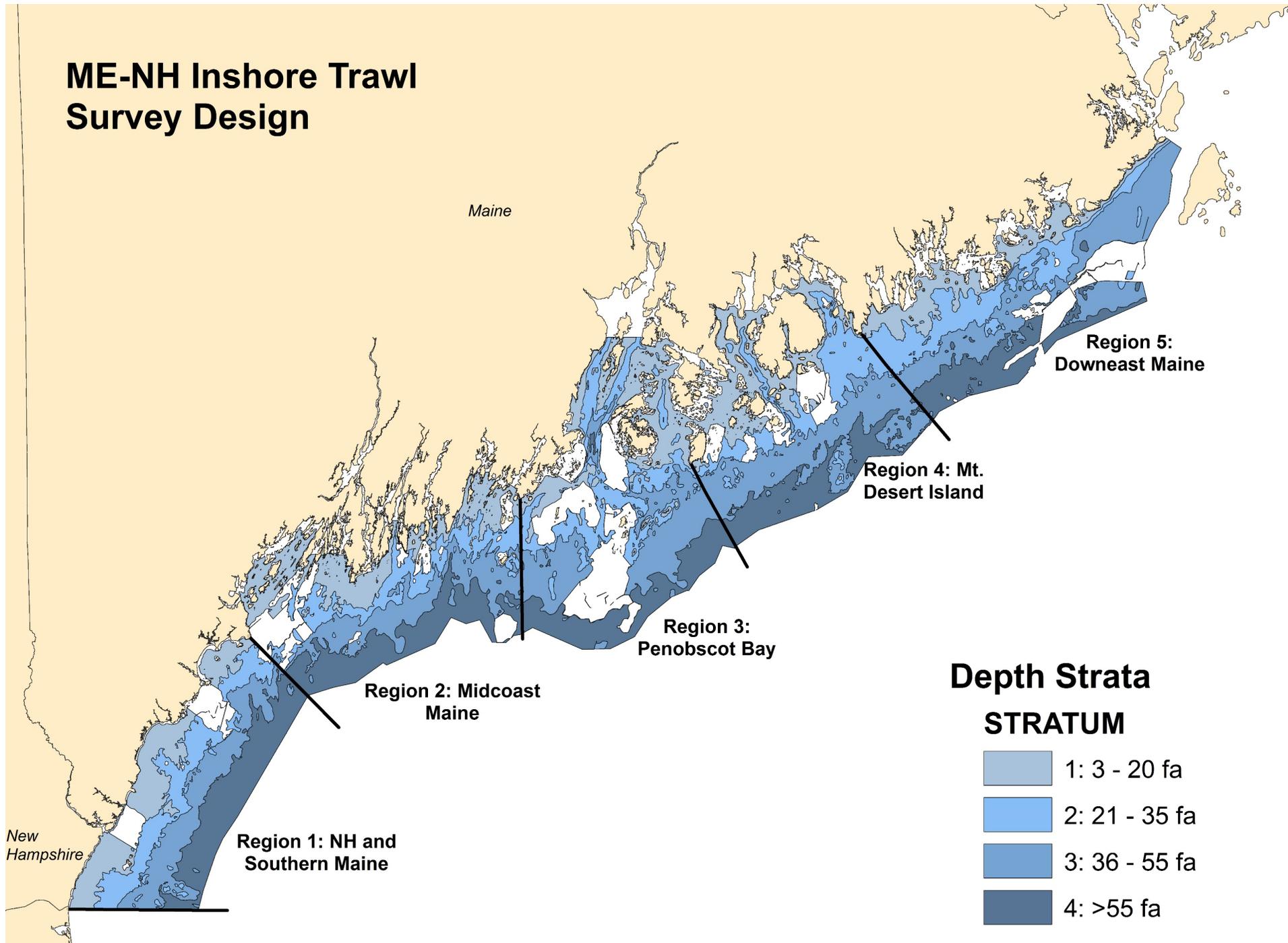


Maine-NH Inshore Trawl Survey

- Fishery independent survey
- 2000-current: Fall and Spring
- Multi-species survey with random stratified design with modified shrimp net to provide indices of abundance
- 120 tows per season, standard tow is 20 minutes at 2.5 knots



ME-NH Inshore Trawl Survey Design



- Up to 75 fathom
- Out to 12nm

Depth Strata

STRATUM

1: 3 - 20 fa
2: 21 - 35 fa
3: 36 - 55 fa
4: >55 fa

New Hampshire

Maine

Region 1: NH and Southern Maine

Region 2: Midcoast Maine

Region 3: Penobscot Bay

Region 4: Mt. Desert Island

Region 5: Downeast Maine

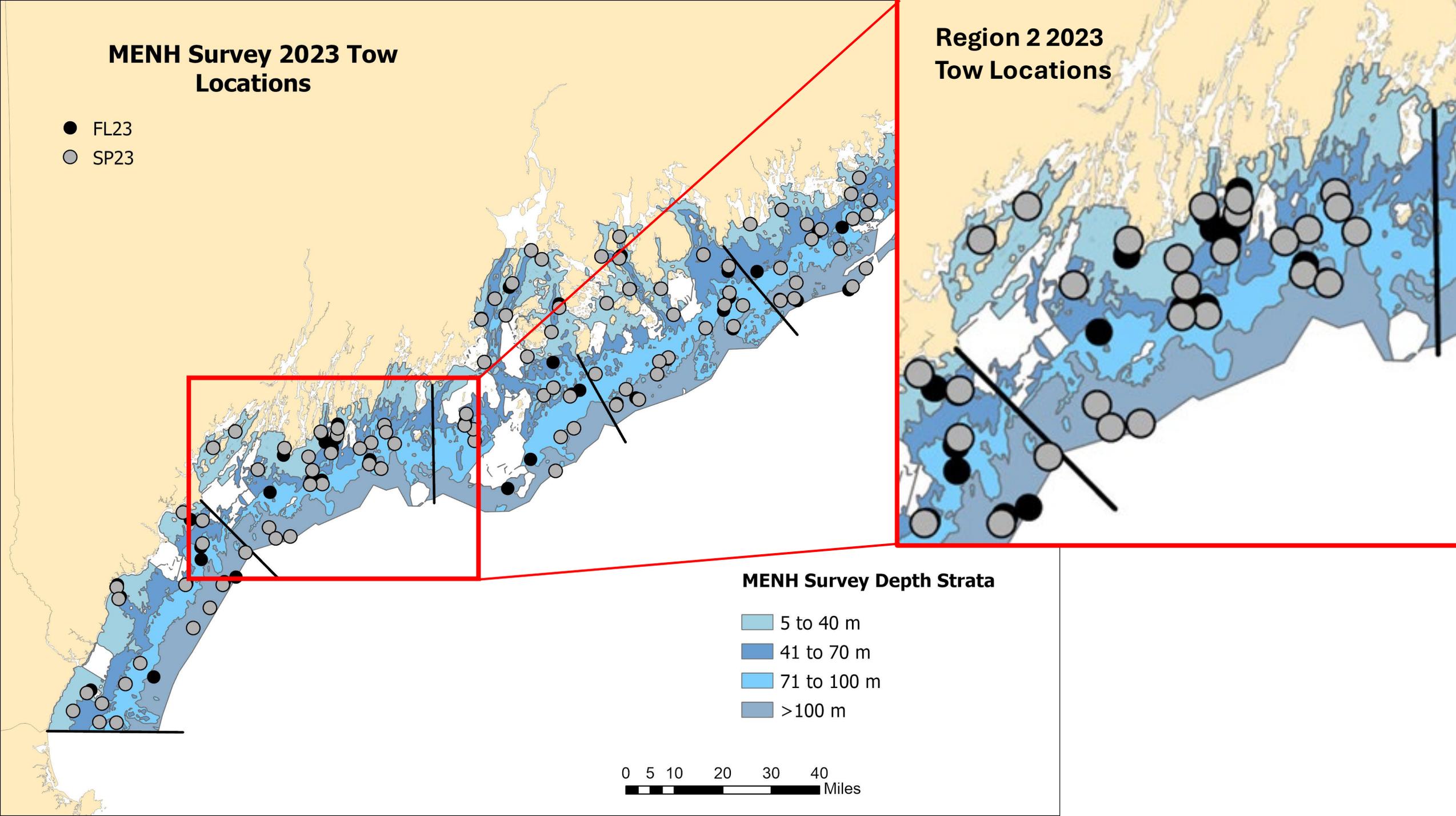
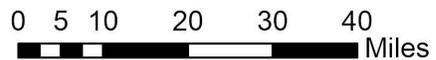
MENH Survey 2023 Tow Locations

- FL23
- SP23

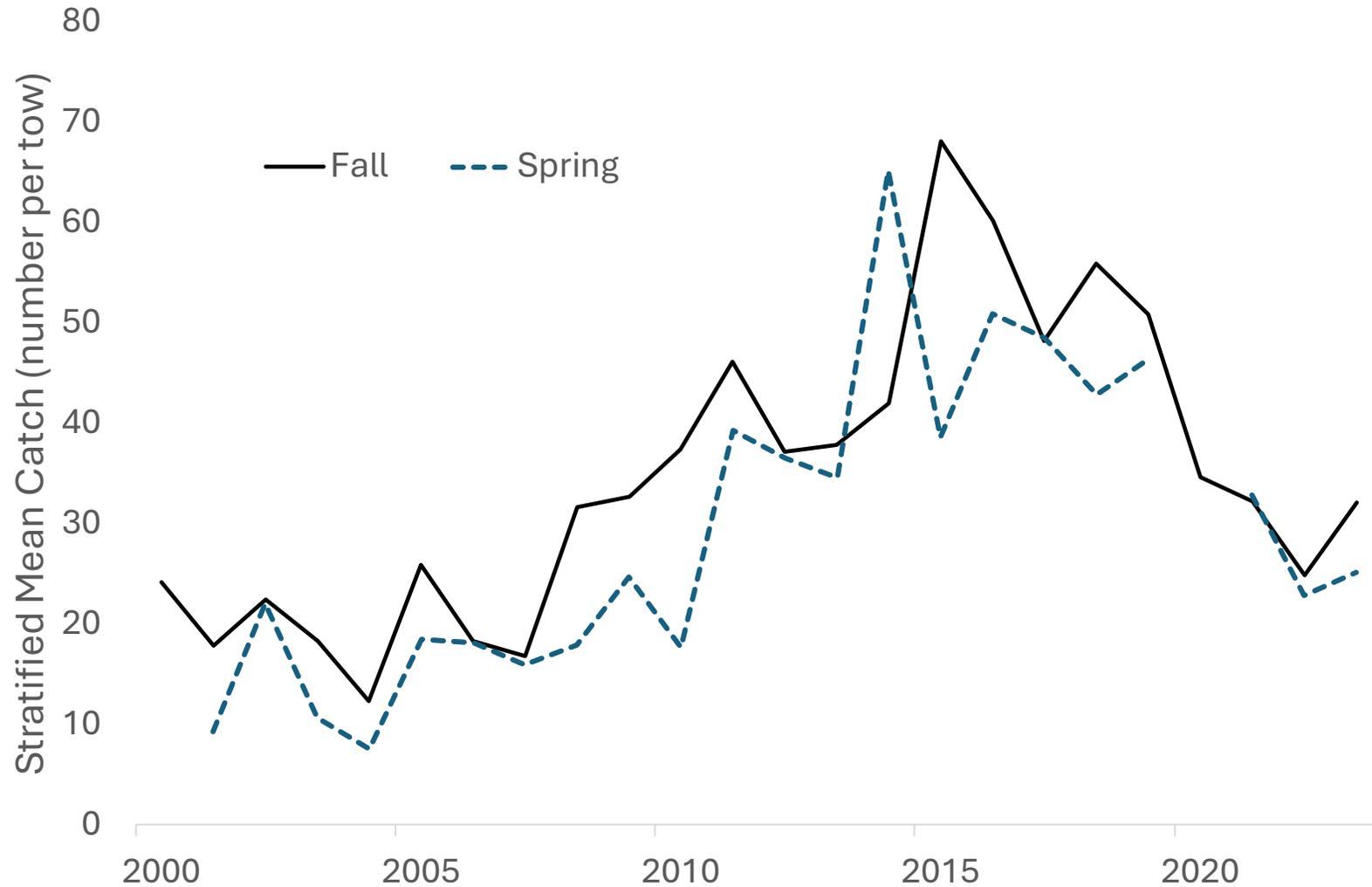
Region 2 2023 Tow Locations

MENH Survey Depth Strata

- 5 to 40 m
- 41 to 70 m
- 71 to 100 m
- >100 m



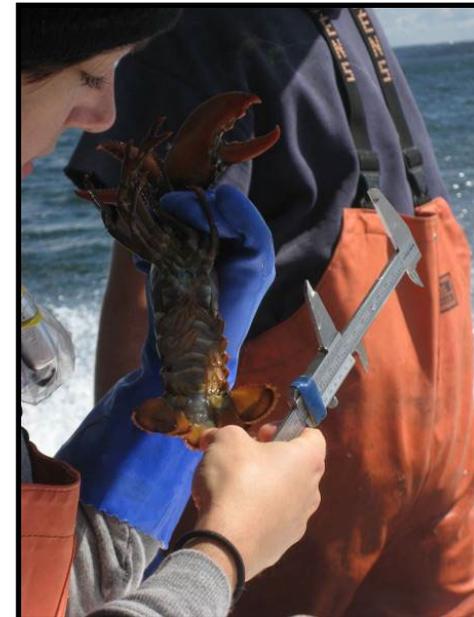
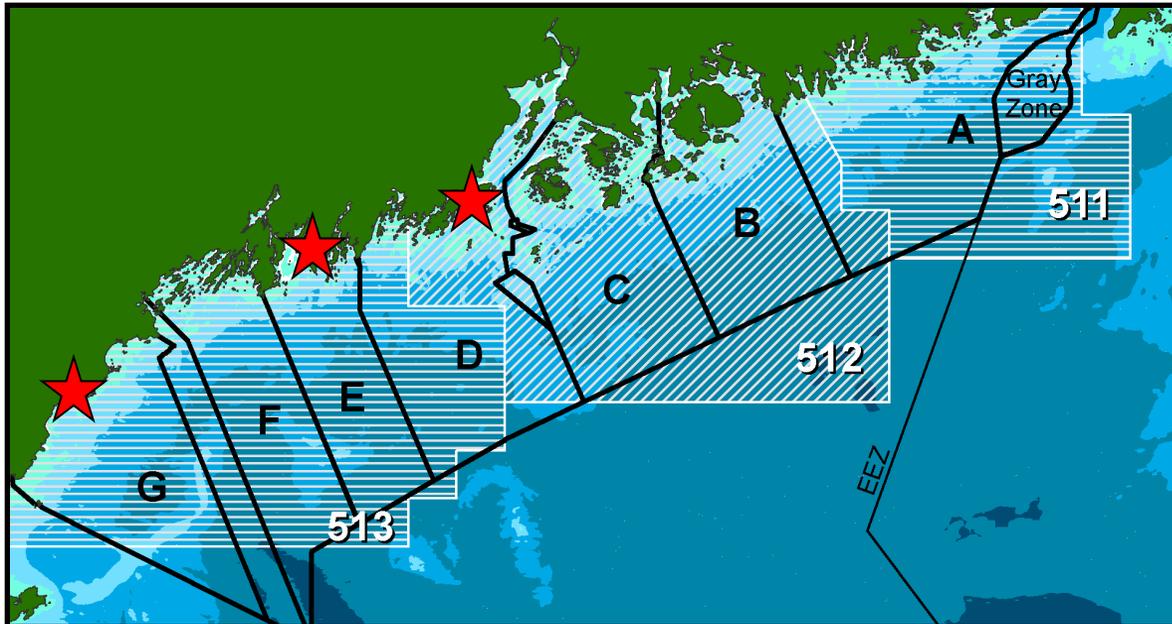
Trawl Survey: Recruit (71-80mm) lobsters



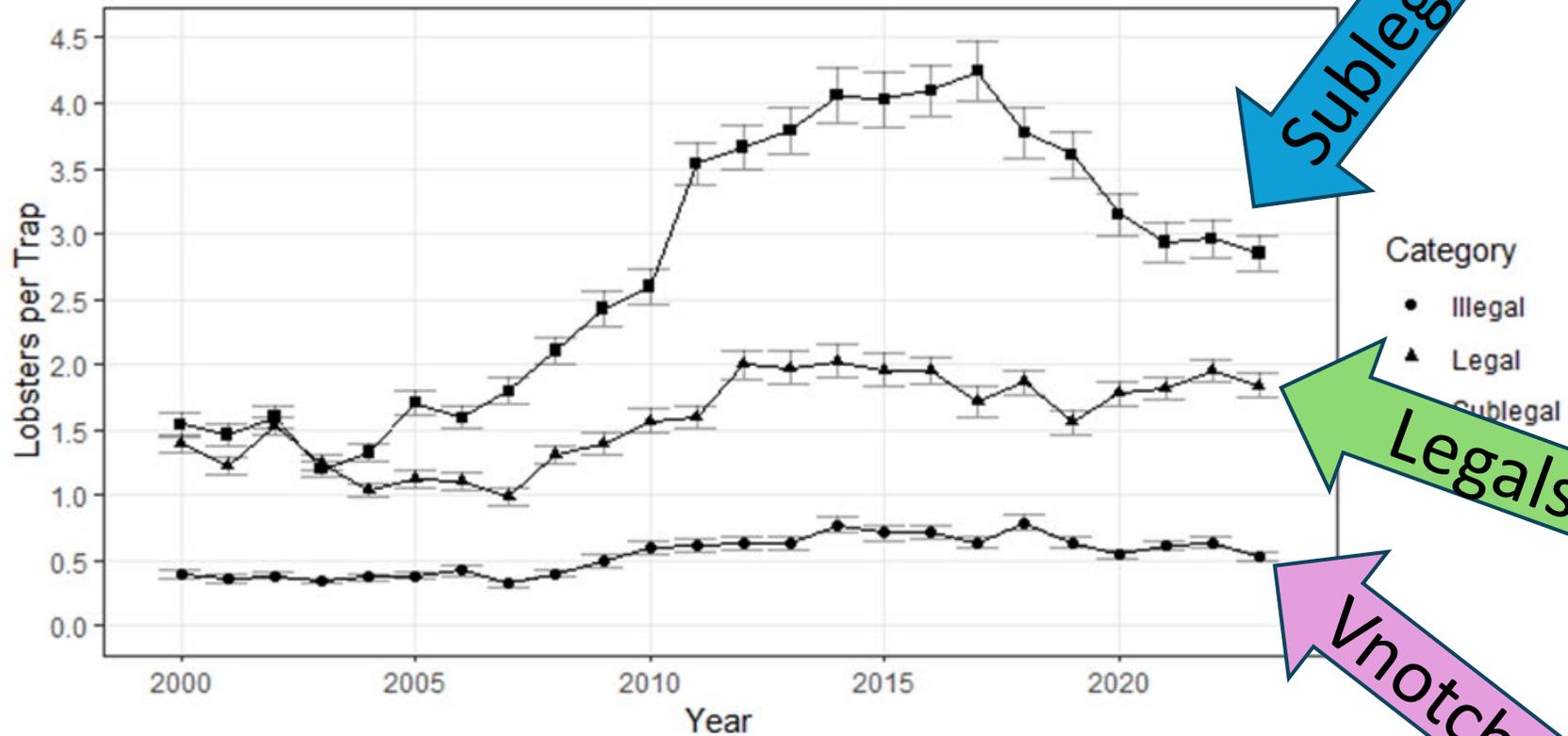
- Average catch ↑ until peaks in 2014/15
- Average catch generally ↓ since peak
- Spring 2023 ticked slightly up
- Fall 2023 improved over 2022, but only back to 2021 levels

Commercial Sea Sampling

- Fishery Dependent Survey: commercial trips
- 1985-1998: 3 trips per month, May-November
- 1998-current: 3 trips per month per zone, May-November
- 2006-current: 1 trip per month per statistical area Dec-April
- Biological, effort, and trip information collected



Sea Sampling Overall



Standard Error represented by thin vertical bars. Figure includes trip data from May to November, 2000-2023.

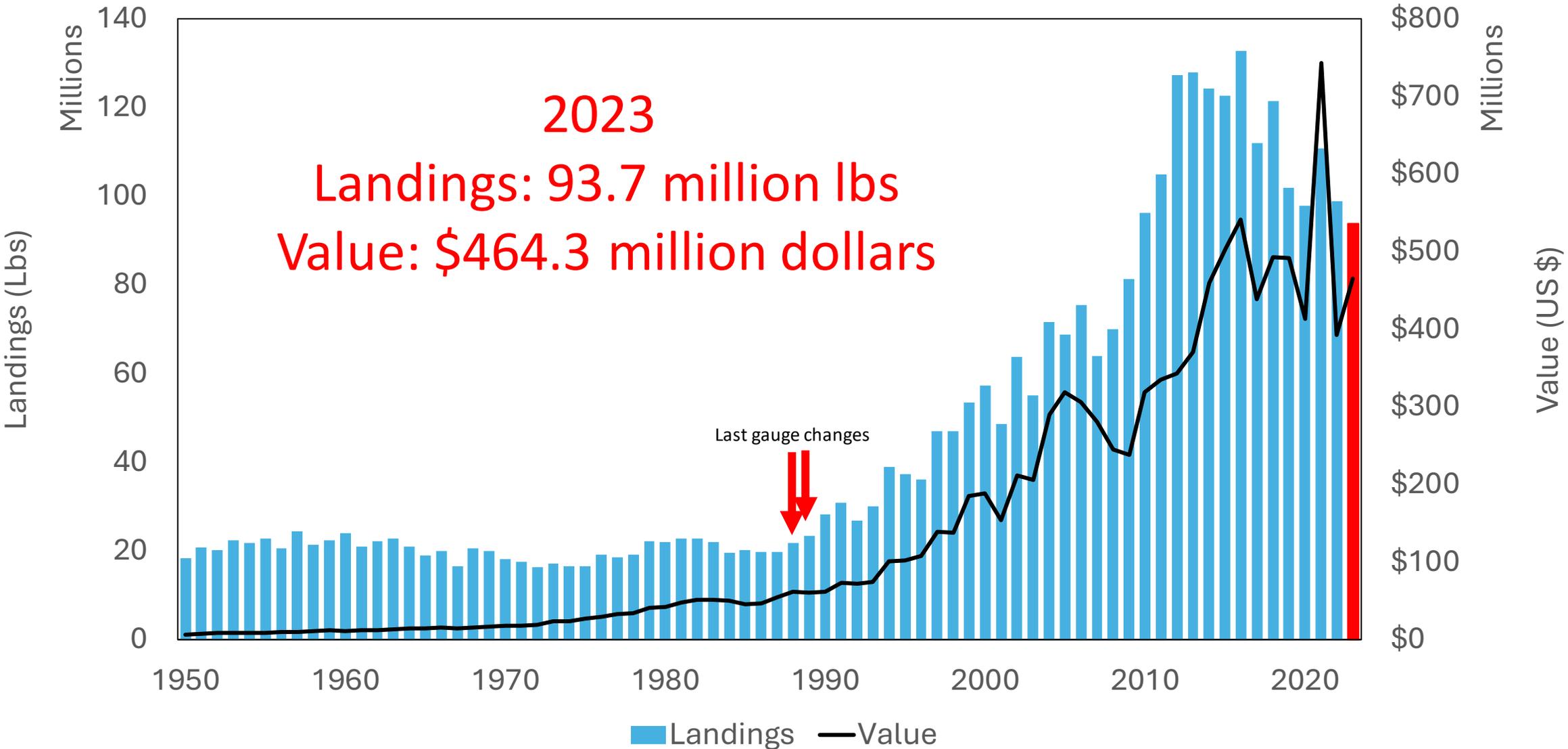
Sublegals

Legals

Vnotch & eggers

- Sublegals are off 2017 peak, but leveled off last 3 years higher than historic
- Legals and vnotches relatively stable over time

Maine Landings and Value



Landings by Zone

