



2024 Lobster Monitoring Update

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COMMERCIAL SEA SAMPLING PROGRAM

In 2024, the Sea Sampling Program completed its 40th season. There were 184 trips completed on 145 boats from 55 different ports throughout the coast of Maine. We measured 212,838 lobsters from 42,631 commercial lobster traps. These data are essential to the ASMFC Lobster Stock Assessments by providing general biological and discard information to inform management models.

Historically, the Sea Sampling Program covered 3 trips in each lobster management zone each month from May-November, and, during the winter months, at least one trip per statistical area every month. In September 2024, the program was expanded to 4 trips per zone per month May-November, and 3 trips per statistical area during the winter months. This expansion was in response to feedback from the lobster industry regarding the population of lobsters inshore vs. offshore.

Sublegal Catch Per Trap by Zone

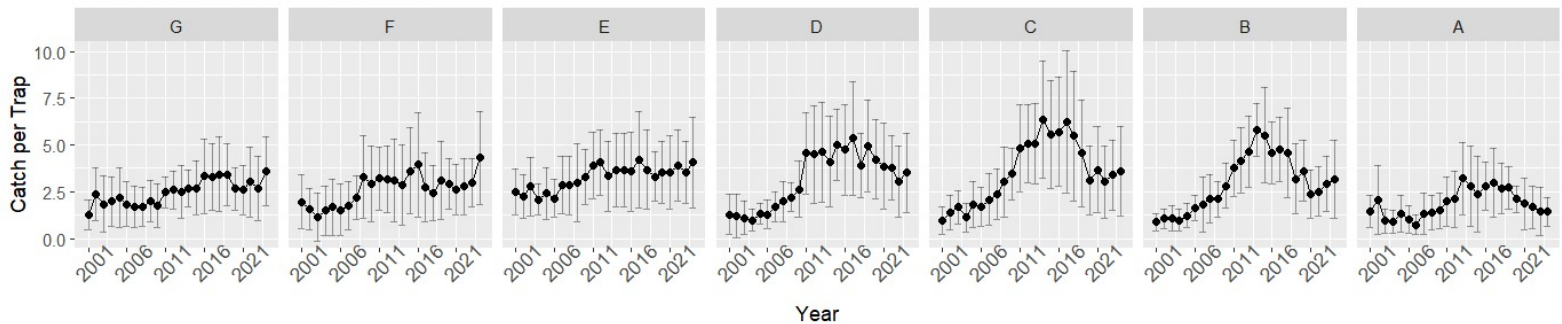


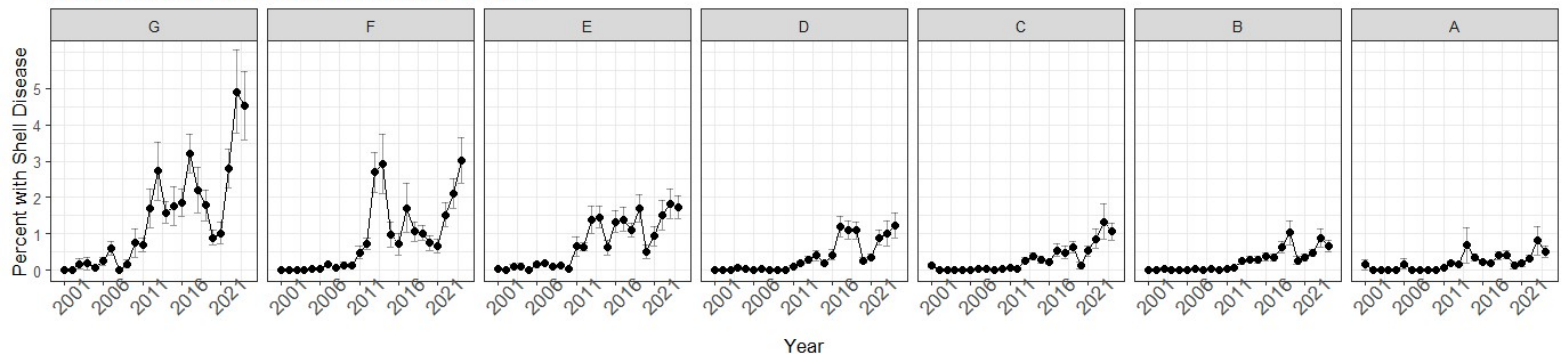
Figure 1. (Above) Sea Sampling sublegal (<83mm CL) catch per trap (total # lobsters/total traps measured by trip) by zone (2001-2024).

- When looking at trends per zone, sublegal catch in western zones remains stable or on the rise, while eastern zones recently experienced steady declines since the peak, however, in 2024, there were increases in sublegals seen across all zones.
- In 2024, sublegal lobster catch increased above the levels seen in recent years. While still below the observed peak in 2017, sublegal catch per trap remains above pre-2011 levels.

Figure 2. (Below) Shell disease prevalence (% of all lobsters measured) by zone (2001-2024).

- Overall, proportion of shell disease remains low (<5%) compared with Southern New England rates (20-30%).
- Shell disease is observed primarily on eggbearing females of all sizes and oversized lobsters.
- Historically, the months of May and June observe some of the highest rates of shell disease in Maine.
- The data presented for year 2020 are not comparable to data from other years, as sampling during this time was limited due to the global COVID-19 pandemic.

Lobster at-Sea Sampling: Shell Disease by Zone



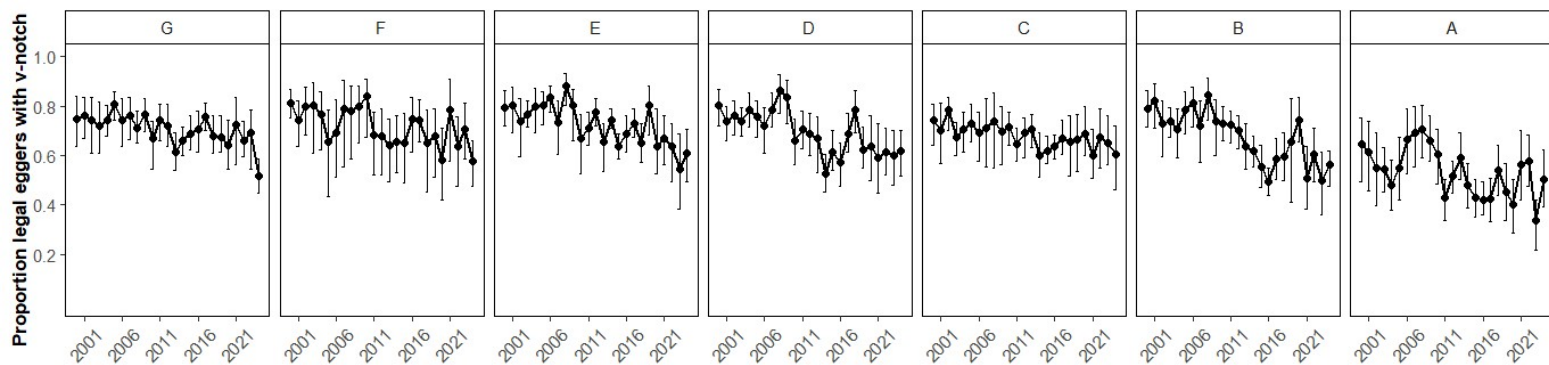
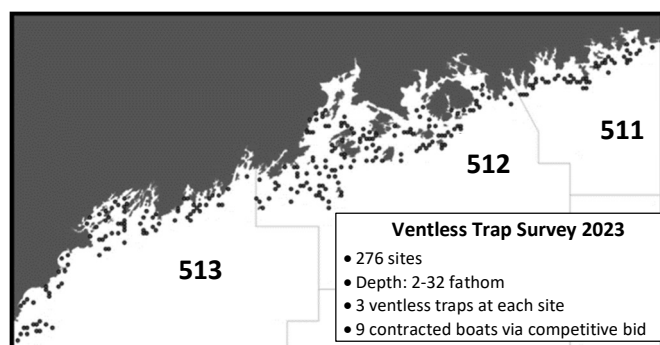


Figure 3. (Above) Proportion of legal sized egg-bearing females with a v-notch, by zone (2000-2024).

- Though there has been variability by year, v-notch rates have been in overall decline across all zones, from around 80% down to 60% or less of egg bearing females having a notch.

VENTLESS TRAP SURVEY



The Ventless Trap Survey deploys traps with 1" mesh and no vents in order to monitor sublegal lobsters as an indicator of the future abundance of legal lobsters. Sites are initially randomly selected and stratified by depth and statistical area, adjusted as needed by scientific staff, and then finalized after review and approval by collaborating fishermen.

- In recent years, catch-per-trap of sublegals has been on a declining trend in eastern and midcoast Maine (511 and 512), whereas western Maine (513) appears more stable, possibly on the rise.
- 2024 Sublegal catch observed a slight increase in all statistical areas, but levels in eastern areas are more similar to the lowest levels observed over the time of the survey.

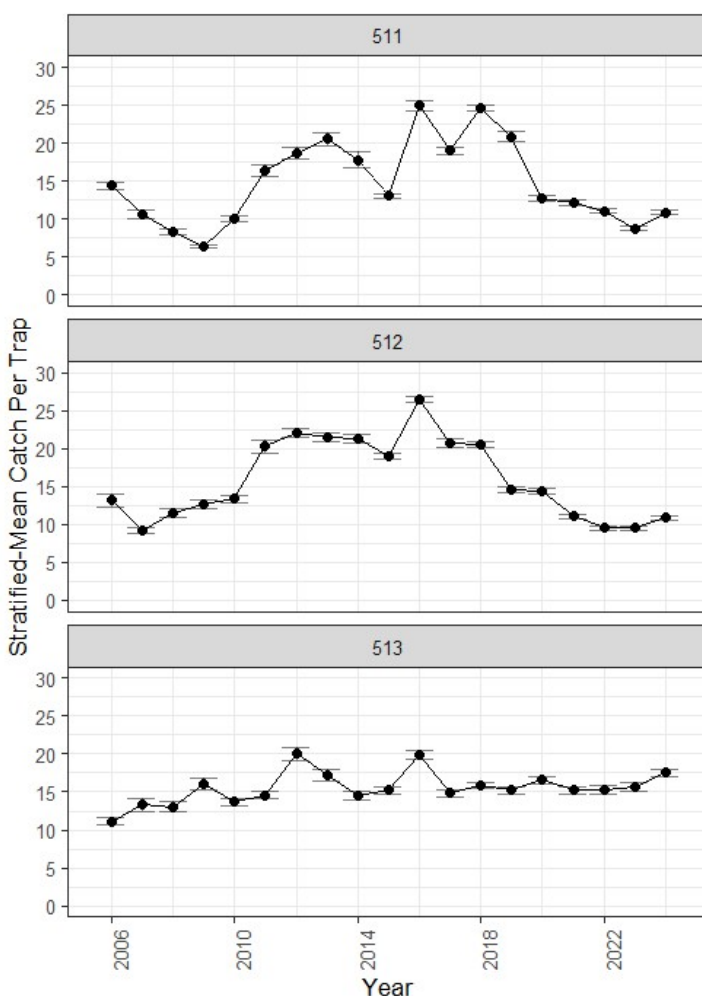


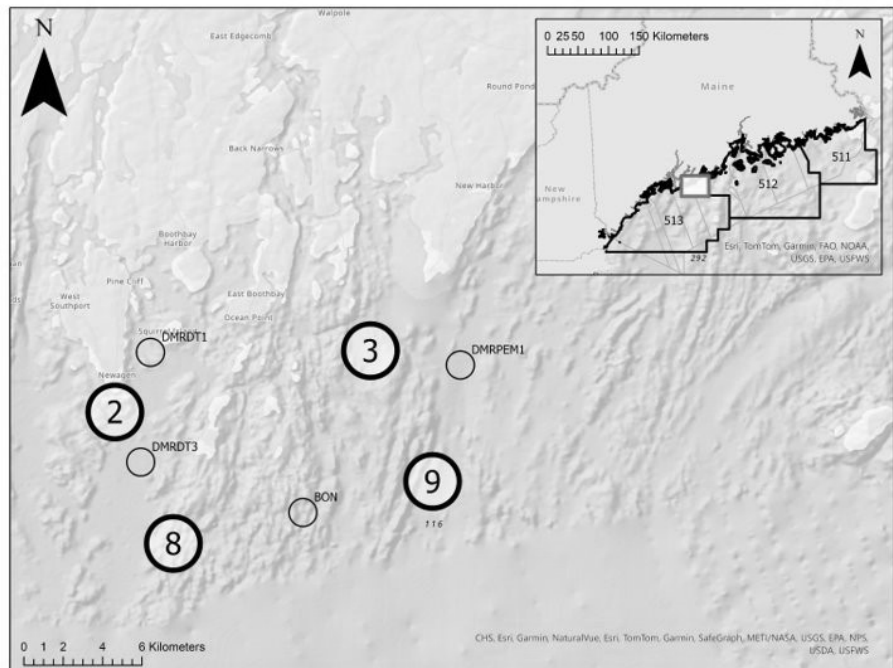
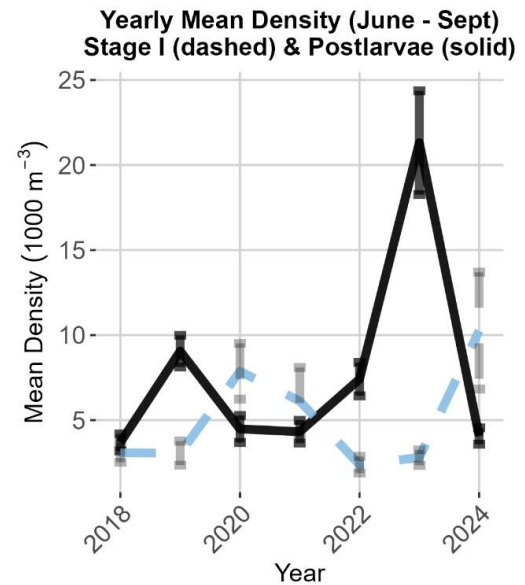
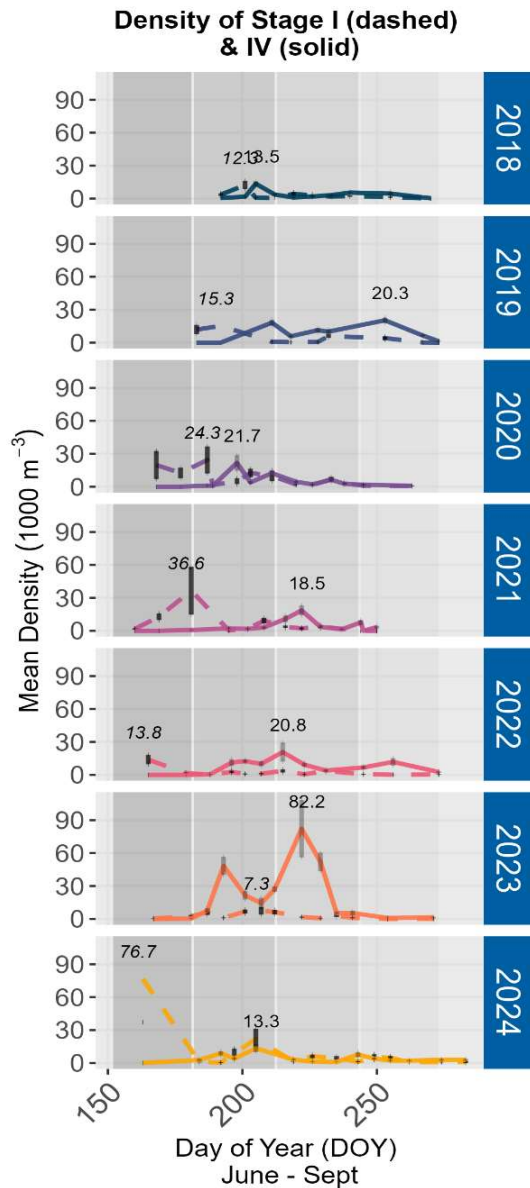
Figure 4. Ventless Trap Survey mean sublegal (<83mm CL) catch per trap stratified by depth by statistical area for 2006-2024

LARVAL SURVEY

The Larval Lobster Survey is conducted semi-weekly at the four numbered sites in midcoast Maine June - September. Three neuston net tows are conducted at each site to sample larvae (Stage I, II, III, and IV / Postlarvae). This was the first year we also collected full water column salinity, temperature, dissolved oxygen, and pH data at all eight circled sites.

- The average post-larval density in 2024 is similar to 2020 and 2021 annual levels.
- We had one of the earliest start dates, and captured a large pulse of Stage I larvae.
- Stage IV presence was lower than 2023 but consistently present throughout the season.

Figure 5. Larval Lobster Survey results: (Left) Seasonal trends (months shaded June – September) for Stage I and Stage IV lobsters with maximum daily mean indicated for each stage; (below) annual trends from 2018 – 2024 and (bottom) map of sites in the Boothbay region.



SETTLEMENT SURVEY

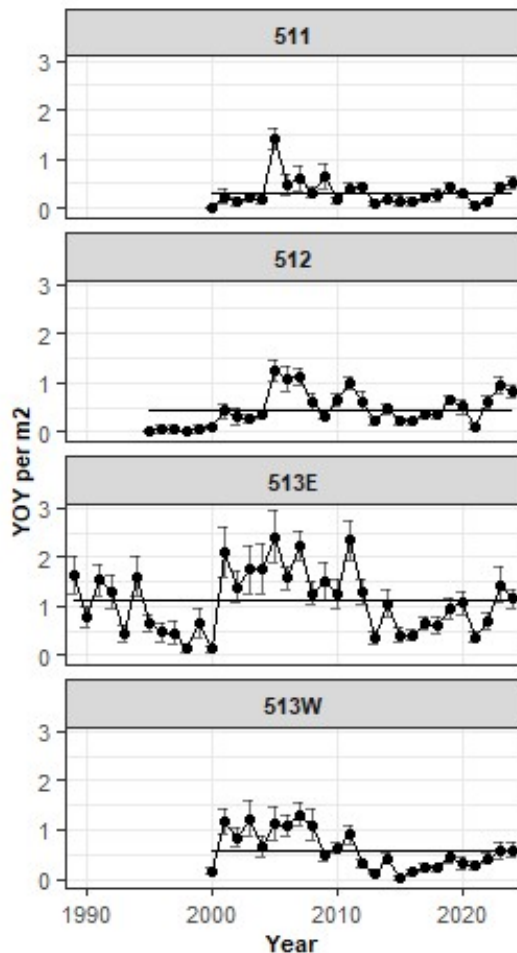


Figure 6. Settlement Survey Indices by statistical area (1989-2024) with time series average.

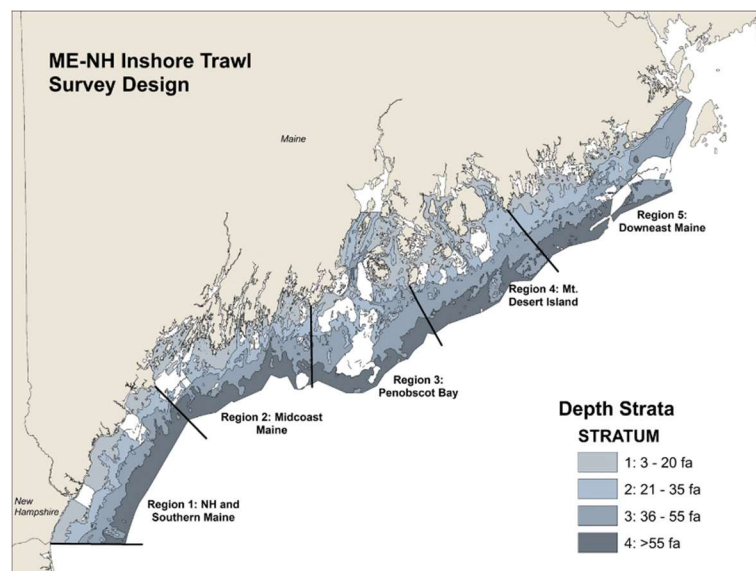
- The settlement index is derived from a SCUBA diving survey which uses suction sampling methods to collect newly settled young-of-year (YOY) lobsters (average # YOY/m²) in cobble habitat < 5 fathom depth.
- Regions in 2024 (511, 512) had settlement similar to 2023 and above the timeseries average. Average densities in 512 have been relatively strong over the past two years. Western regions (513E, 513W) were also similar to the previous year but remained at the timeseries average.
- A separate settlement survey conducted by the University of Maine and Ready Seafood, compliments the DMR's survey by utilizing passive collectors set at multiple depths and paired with a subset of Ventless Trap Survey locations.
 - The addition of this survey has given researchers the ability to look for potential settlement in deeper water, outside the range of the long-term survey.
 - In shallow water habitat (<5fa) along the coast, the two survey methods have been in agreement on annual settlement signals.
- Sampling has shifted later in the year by a number of weeks. This has given us greater confidence that we are capturing the full settlement season.

MENH Inshore Trawl Survey

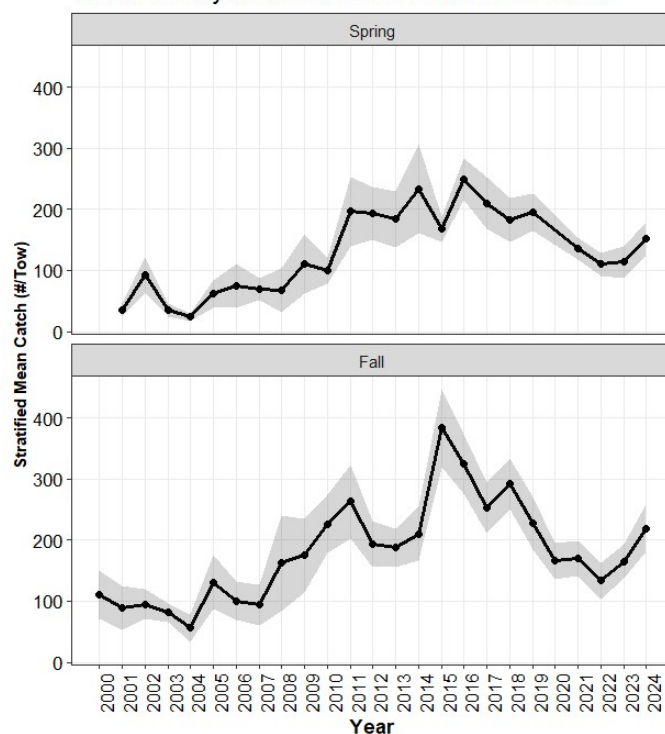
The Maine-New Hampshire Inshore Trawl Survey is a resource assessment survey performed along the coastal waters of Maine and New Hampshire. Bi-annual surveys, spring and fall, have been conducted since the fall of 2000. This survey is a collaborative research project using a commercial fishing vessel as the platform with randomly selected sites, adjusted for towability.

- The spring and fall surveys observed a general declining trend between 2016 and 2022 but have shown increases in the past two years.

Figure 7. (Below top) Map of survey depth strata and regions (below bottom) Spring and Fall MENH Inshore Trawl Survey stratified mean catch of lobsters per tow.



MENH Survey American Lobster Indices- All Sizes



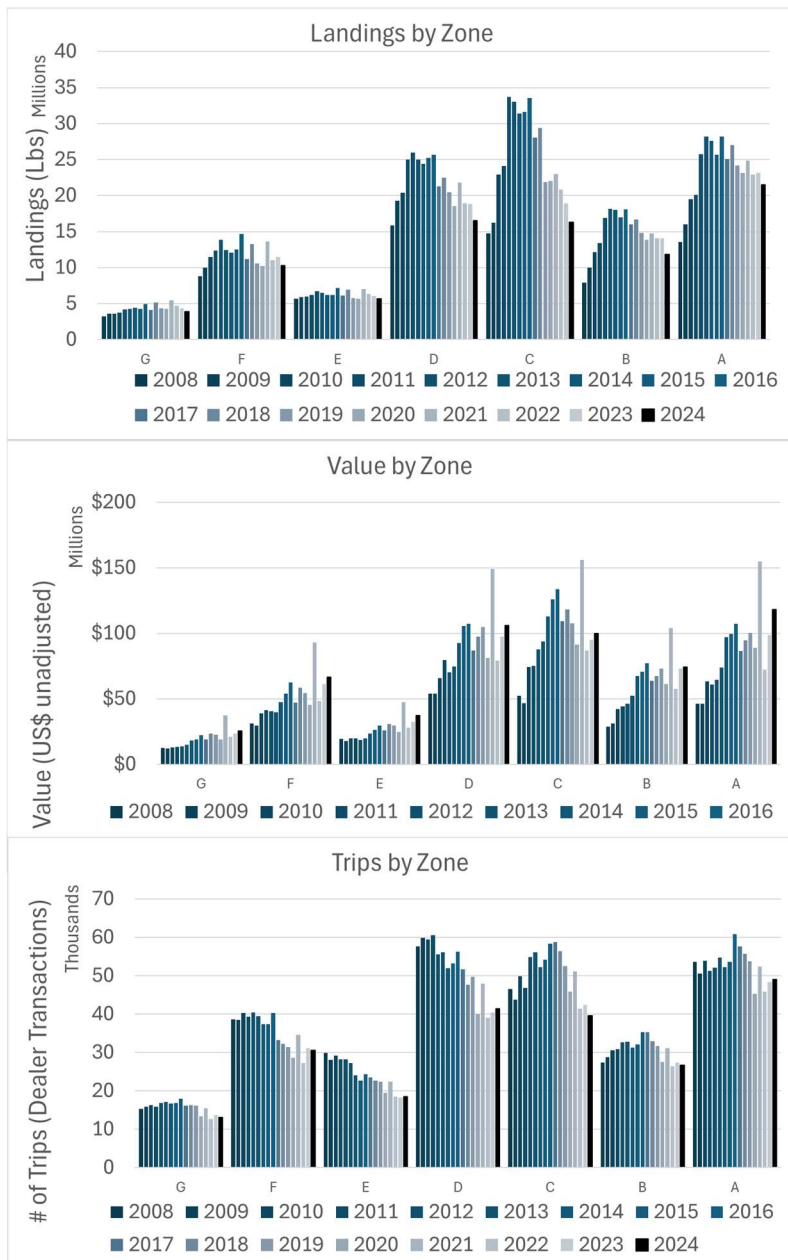
For more information, please visit us at www.maine.gov/dmr/science-research/species/lobster/

For questions related to survey participation and results, contact Kathleen Reardon at Kathleen.Reardon@Maine.gov

FISHERY DIRECT DATA PILOT PROGRAM

In response to industry comments about wanting more lobster data further from shore and data on juvenile lobsters in deeper water this year we are starting the Fishery Direct Data Program. We have selected 10 captains spread among all the lobster management zones to collect their own data from lobsters in a portion of their commercial gear and from 3 ventless traps they have within their commercial trawls in federal waters. This new data source will allow DMR to fill seasonal data gaps in some further offshore areas and will allow us to investigate the size frequency distribution of lobsters caught in deeper waters.

LANDINGS



2024 SURVEYS SUMMARY

- The Commercial Sea Sampling Program, Ventless Trap Survey, Lobster Settlement Survey, and both the spring and fall MENH Inshore Trawl Surveys were completed in full in 2024.
- Observed trends in numbers of sublegal lobsters have been more stable in western areas, while declining in eastern areas since the peaks, however, 2024 data showed increases in all regions from 2023. There is agreement in all three surveys that track sublegal trends including Sea Sampling, Ventless Trap Survey, and Inshore Trawl Survey.
- The Larval Survey returned to levels of stage IV densities consistent with earlier years. The survey continues to expand environmental monitoring paired with survey sites to aid in interpreting fluctuations in density.
- The 2024 Settlement Survey saw higher levels in Eastern Maine and levels at the timeseries averages in Western Maine.
- Settlement surveys conducted by researchers collaborating with the DMR, but using a different methodology, have shown similar trends in settlement within the traditionally surveyed shallow water habitat and have also seen utilization of deeper habitat by newly settled lobsters.
- From 2024 survey results, lobster abundance of recruit lobsters did not continue to decline and appears to have rebounded slightly from what was a slow decline across the state. Field work in the coming year will help to form a more complete analysis of the trends observed here.
- All landings data is based on Dealer Data that was 100% mandatory at the trip level starting in 2008. All landings data is preliminary for 2023 and 2024 and may be revised through the data audit process.

Figure 8, 9, 10. Landings, value, and trips by zone, 2008-2024.