

Community Engaged Conservation in Action

Supporting River Herring Recovery in the Gulf of Maine

Anne Zegers



GULF OF MAINE
River Herring
Network



Who We Are



GULF OF MAINE
River Herring
Network

“Connecting the people that work on the fish that connects us all”

Who we are



Alewife Harvesters of Maine



"Conserving to preserve Maine's heritage."



MAINE
MARITIME
ACADEMY



What we do

Facilitate river herring research and management

- Member-to-member communication
- Developing tools
- Supporting community monitoring programs
 - Provide sampling protocols, datasheets and equipment
 - Data QA/QC
 - Distribution of partner-submitted data



MCCF/ T.Yoder

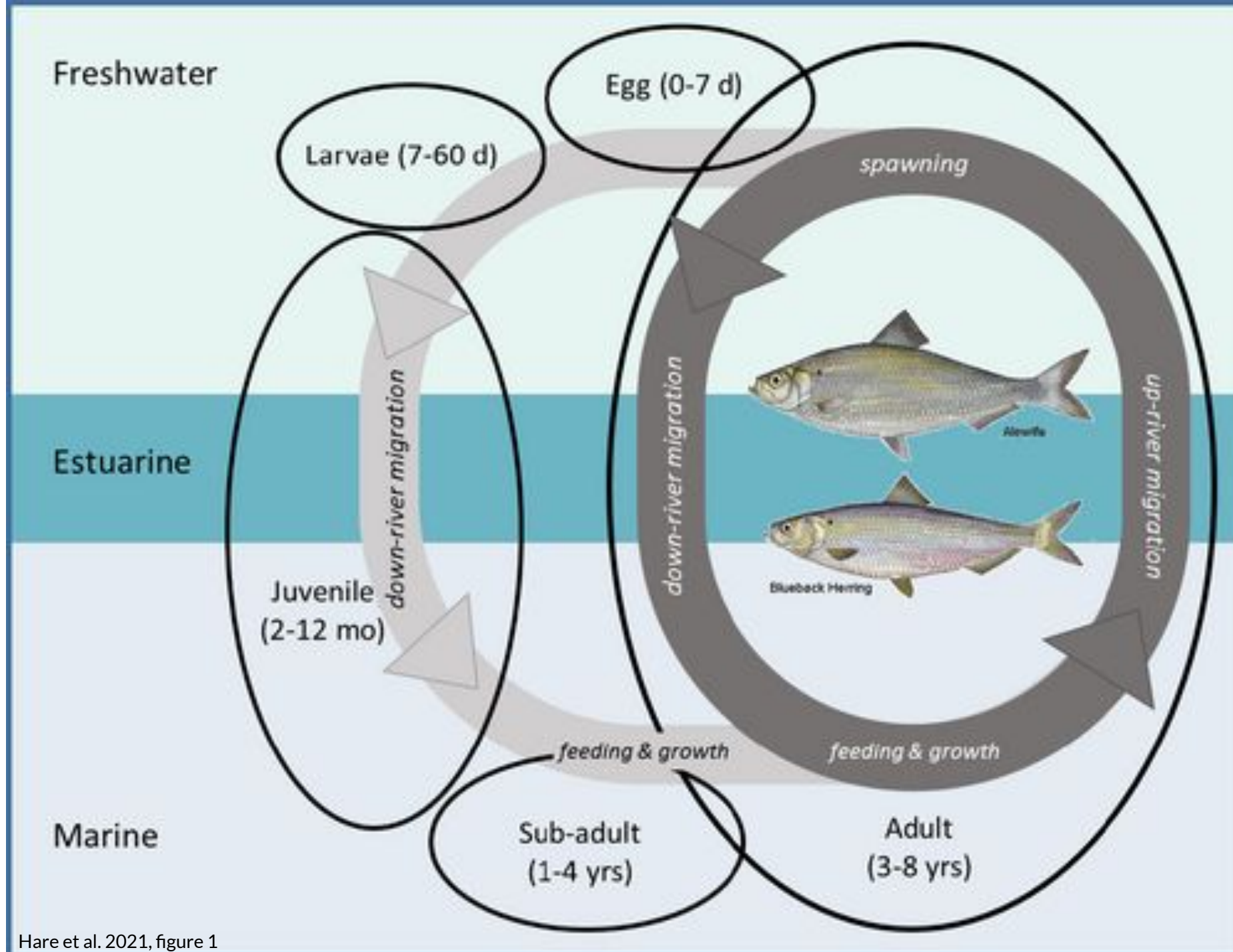
January 19, 2025 GOM RHN Research Symposium at University of Maine at Augusta

River Herring

2 species; similar life history

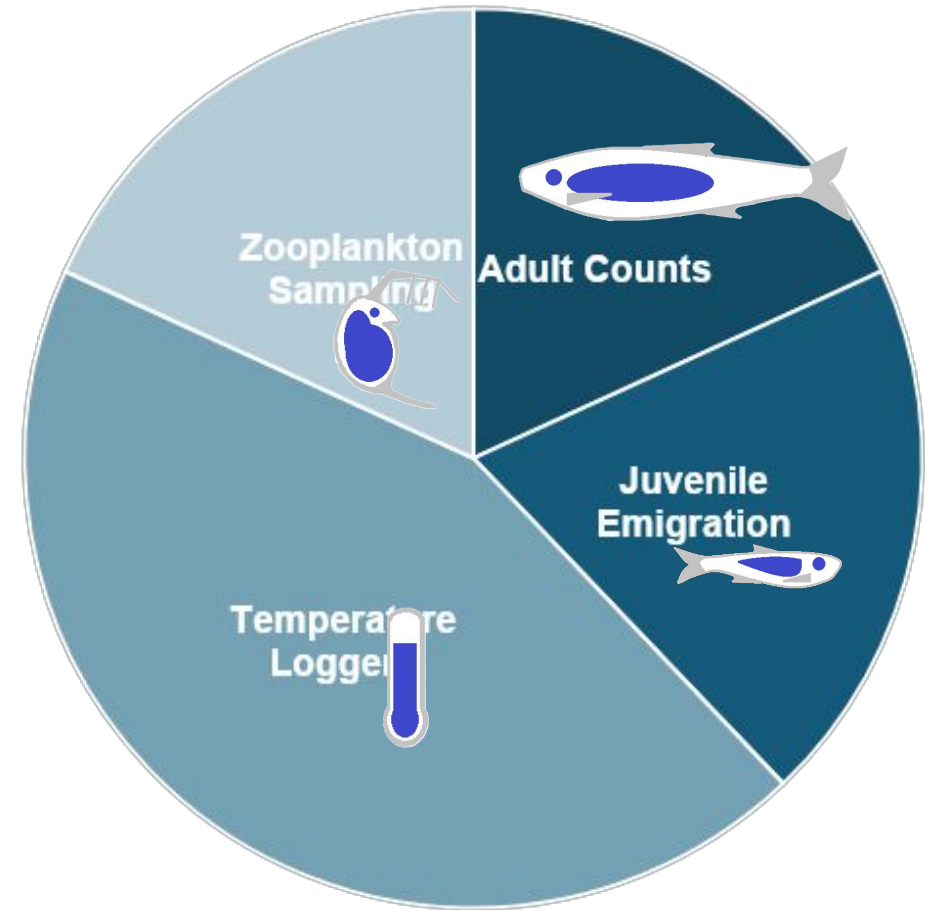
River herring are anadromous:

- Born in freshwater
 - Eat large zooplankton
- Leave spawning/rearing habitat
- Pass through estuaries
- Spend 1-4 years in marine habitat
- Return to freshwater to spawn
 - Repeat spawning common



2024 GoM RHN Community Monitoring Stations

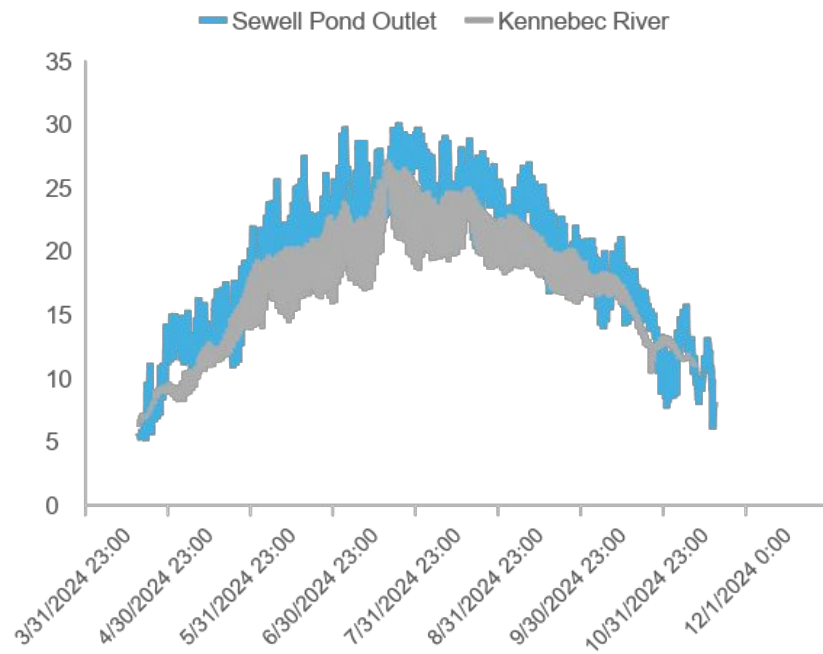
Monitoring Type	Number of Stations
Zooplankton Sampling	12
Adult Counts	12
Juvenile Emigration	13
Temperature Loggers	29



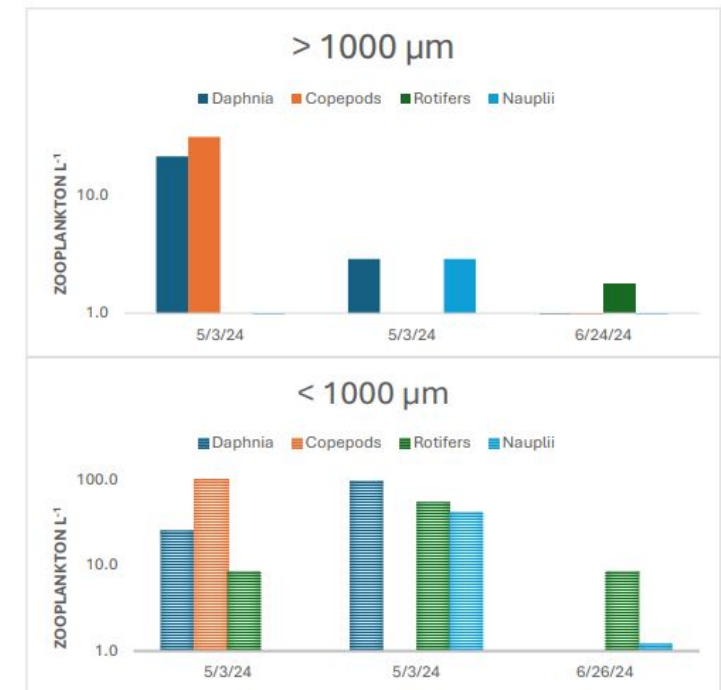
Environmental Monitoring

Establish paired long-term temperature series

2024 Arrowsic Temperature Loggers



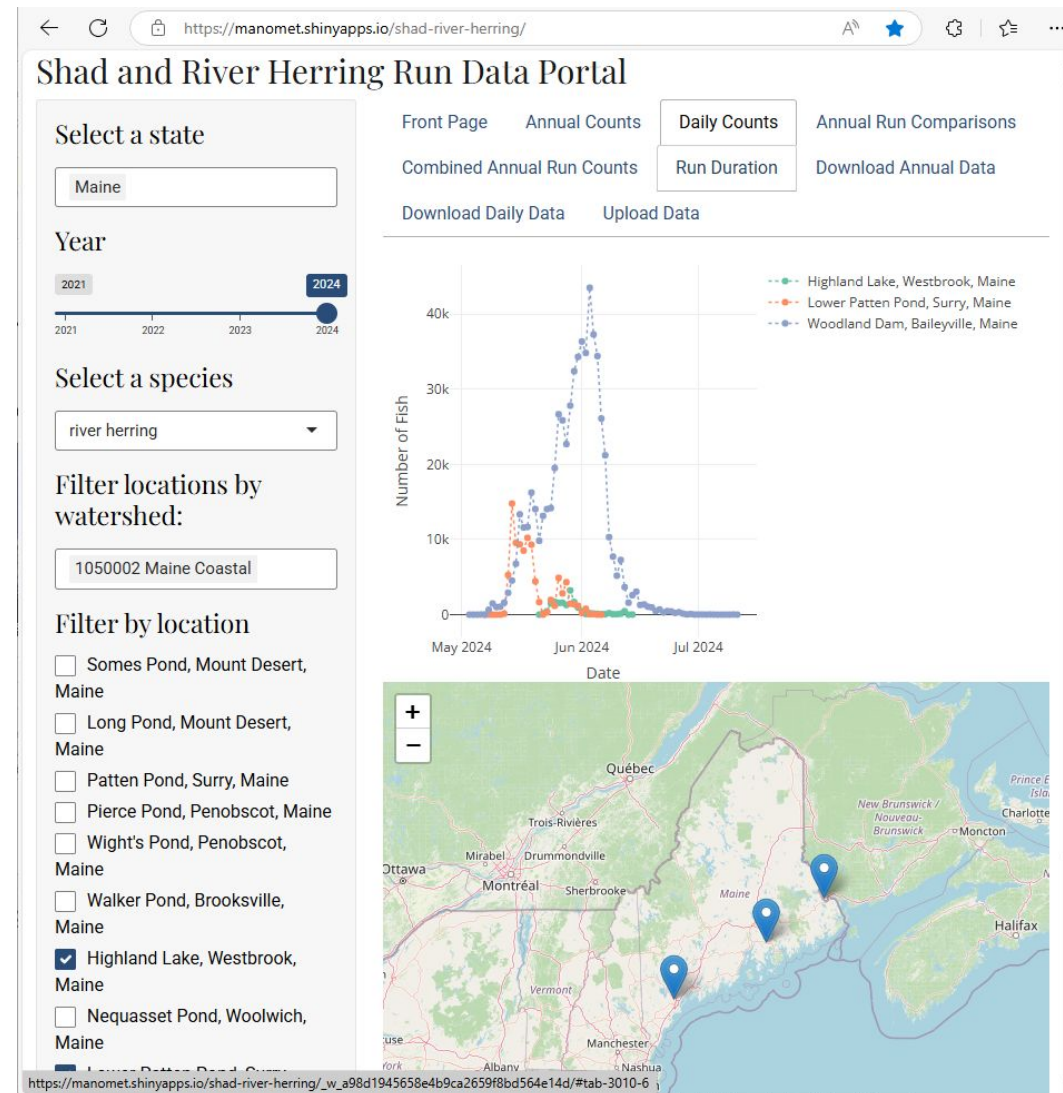
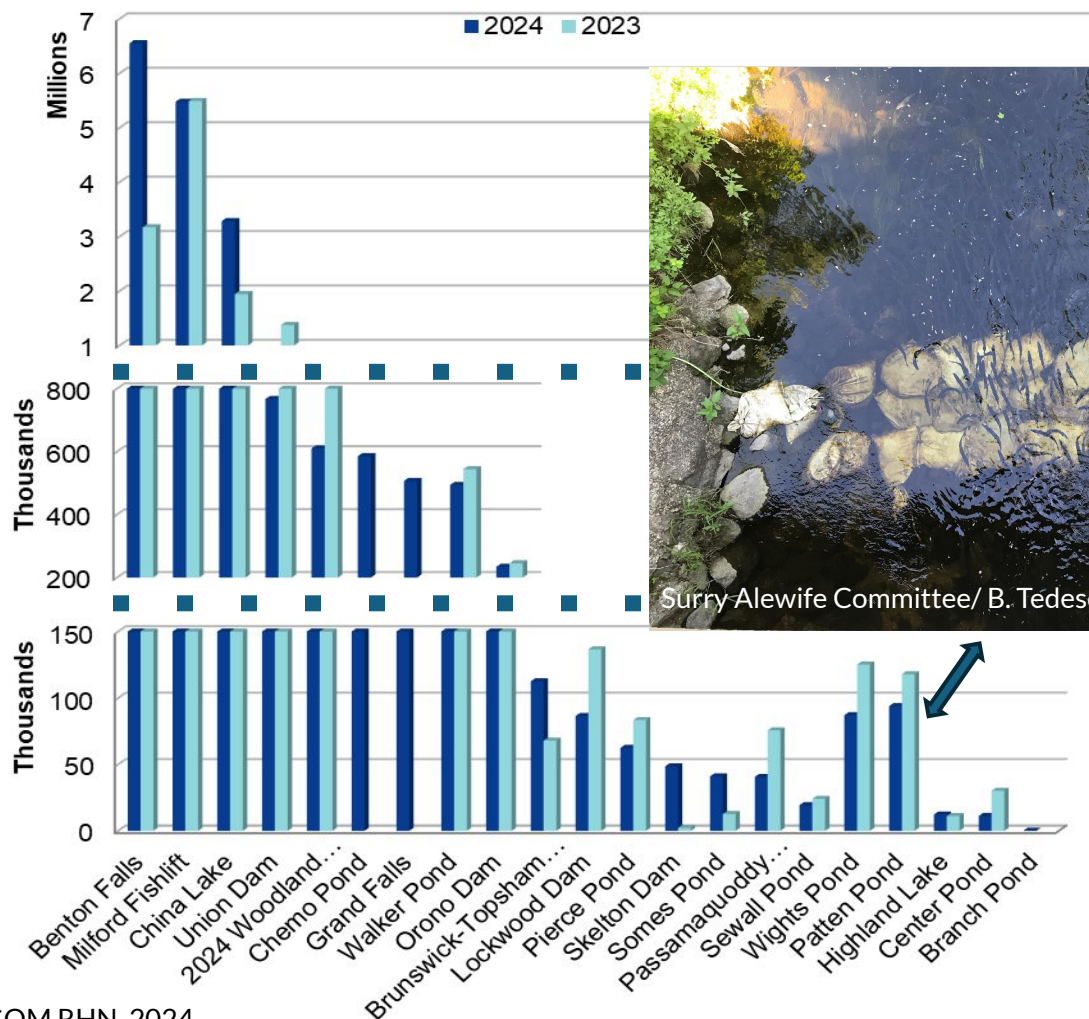
Tracking changes in zooplankton communities in spawning/rearing habitat



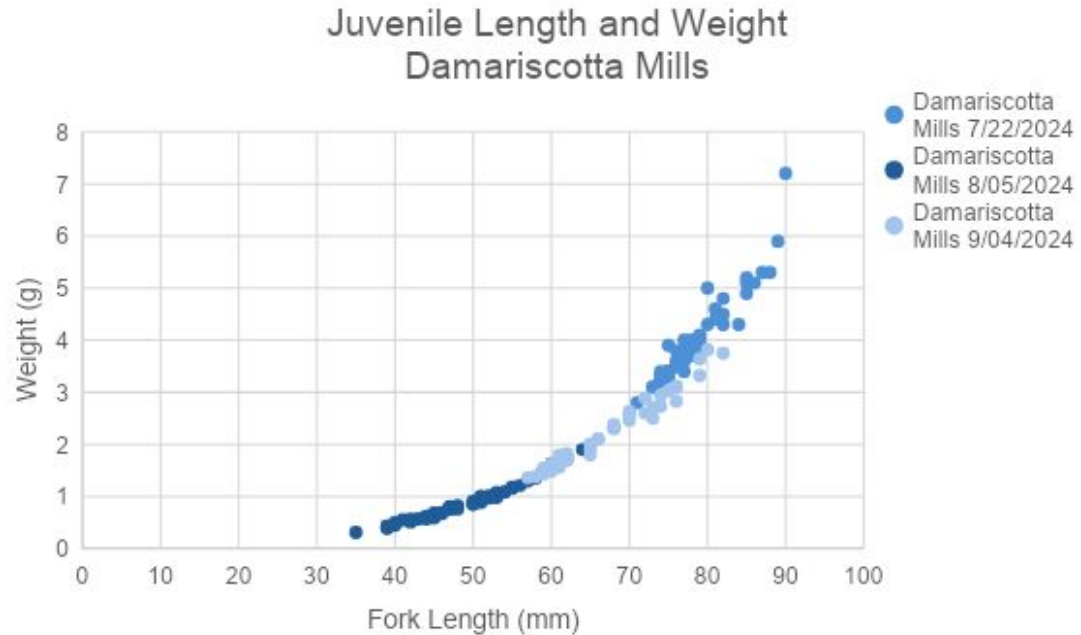
Jones & Reese, 2024,
MMA Corning School of Ocean Studies

Adult Counts

2024 Estimated Adult Returns



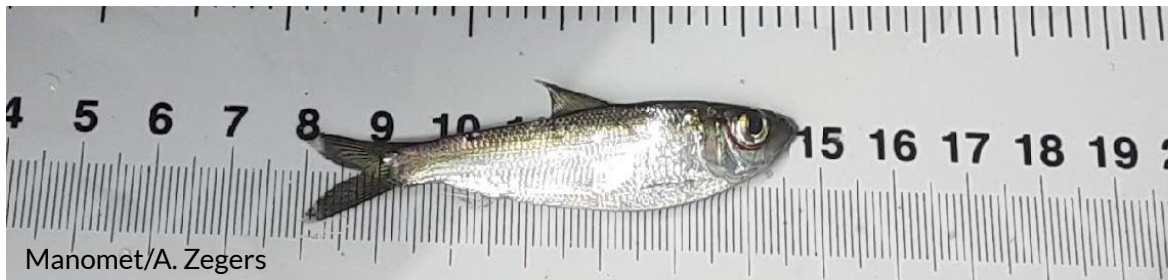
Juvenile Emigration



GOM RHN, 2024



Manomet/A. Zegers



Manomet/A. Zegers

- Length
 - Weight
 - Otolith
 - age + growth rate
- + Zooplankton abundances → Productivity
 → Extrapolate age from l & w

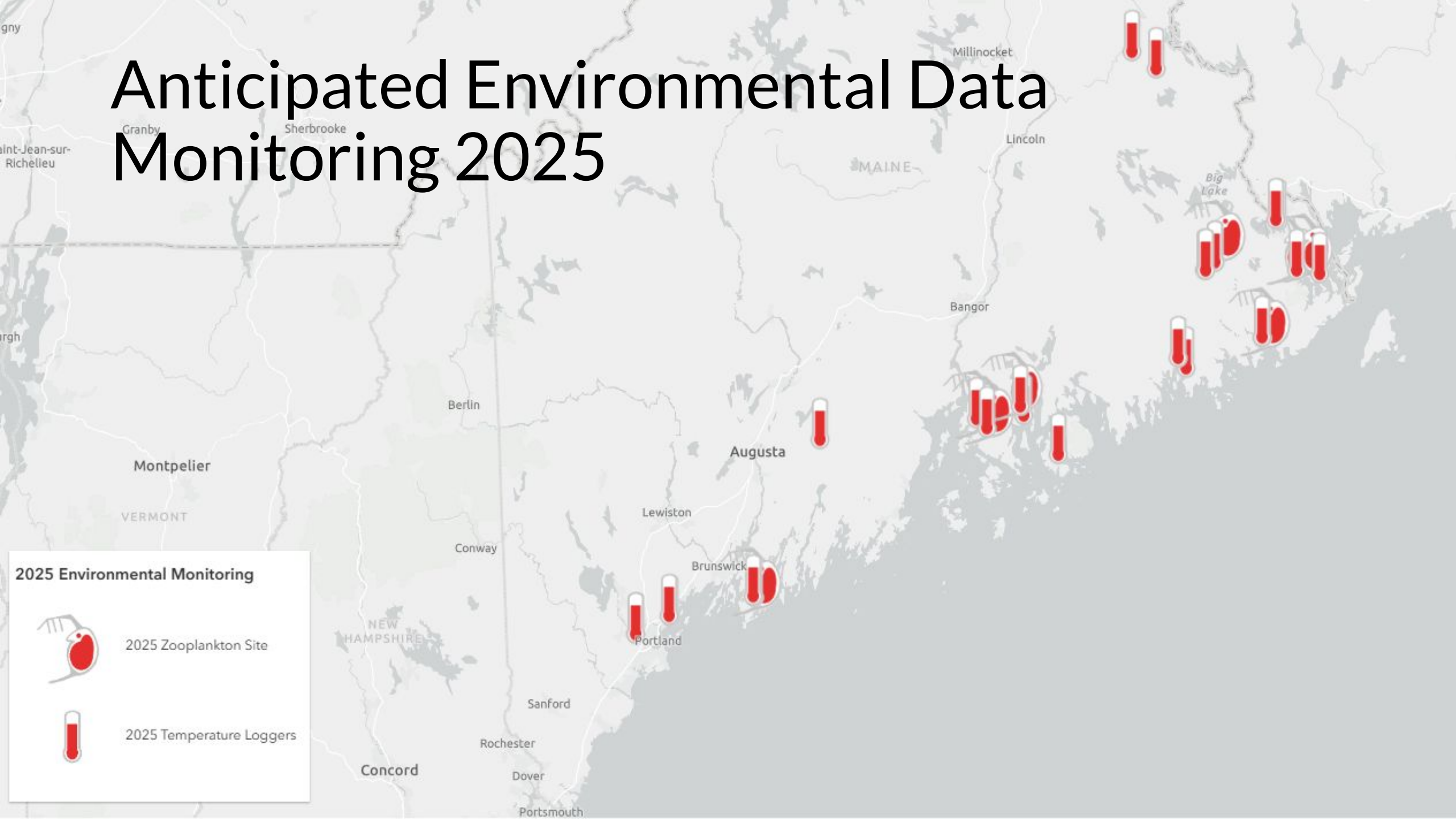
Environmental Data Monitoring 2024

2024 Environmental Monitoring

2024 Zooplankton Site

2024 Temperature Loggers

Anticipated Environmental Data Monitoring 2025



2025 Environmental Monitoring

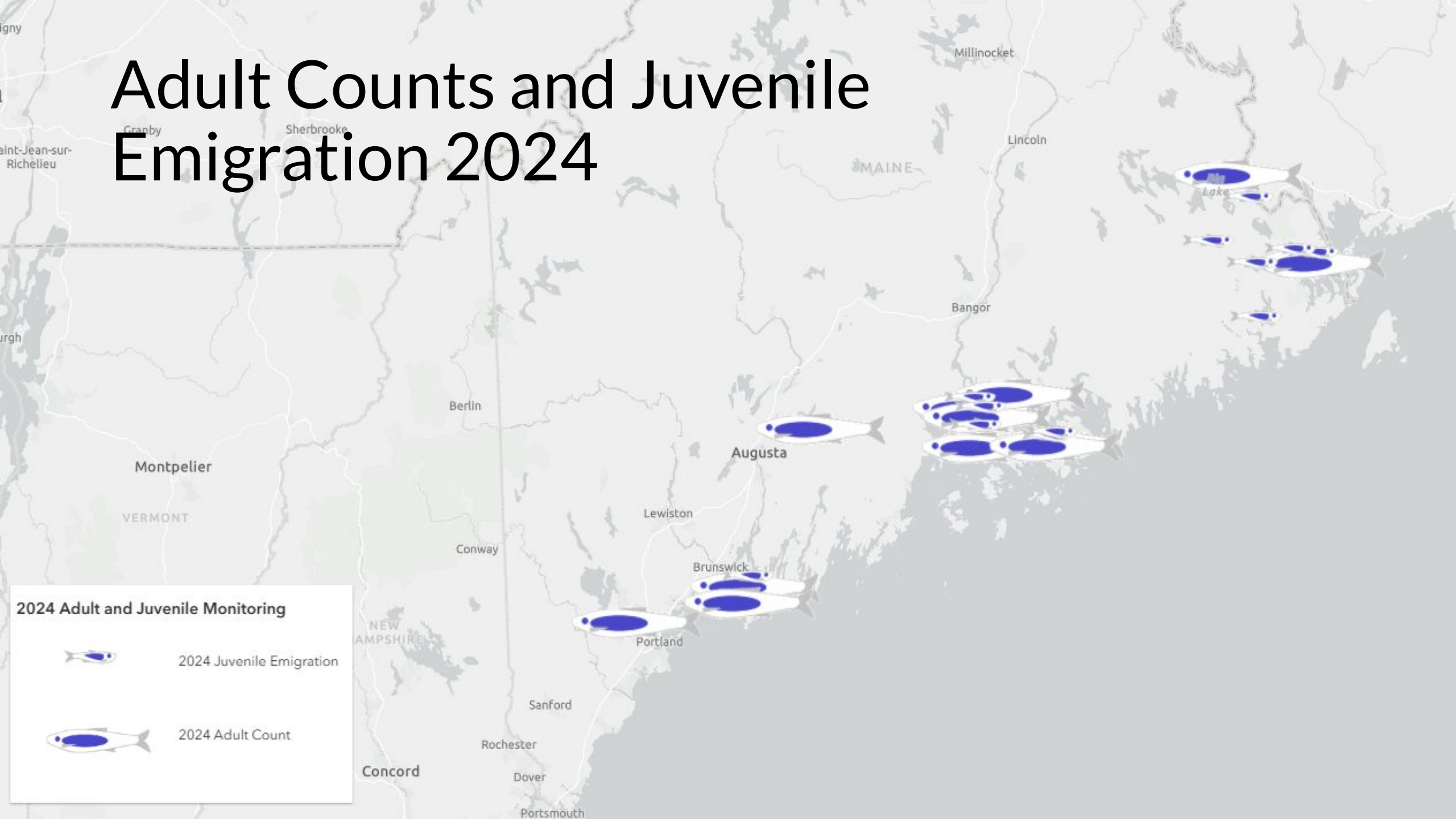


2025 Zooplankton Site



2025 Temperature Loggers

Adult Counts and Juvenile Emigration 2024



2024 Adult and Juvenile Monitoring

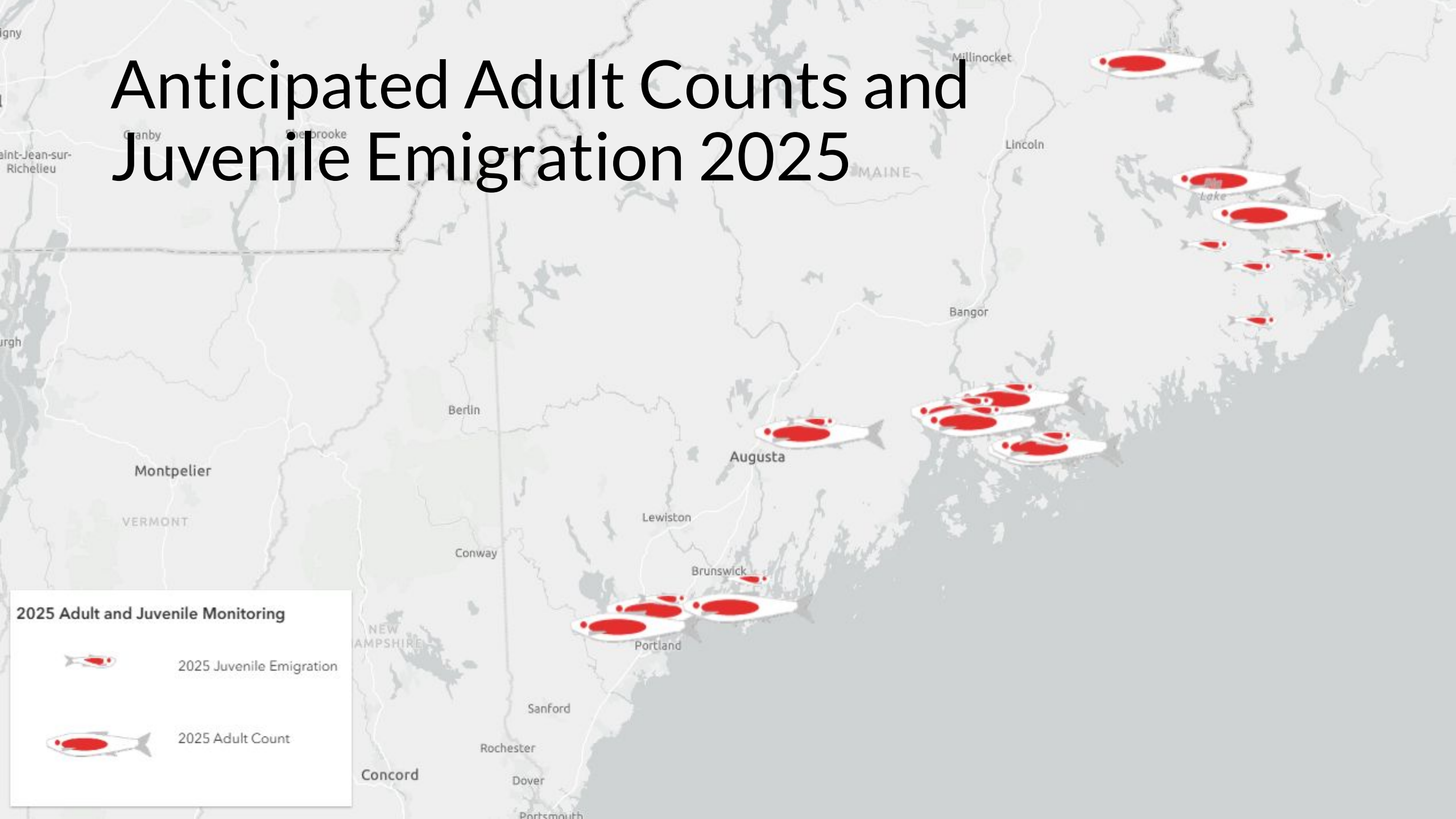


2024 Juvenile Emigration



2024 Adult Count

Anticipated Adult Counts and Juvenile Emigration 2025

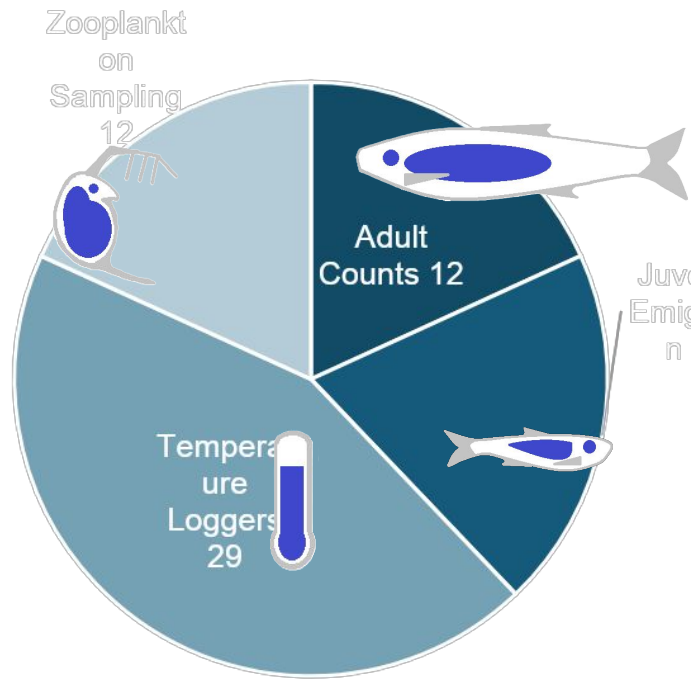


2025 Adult and Juvenile Monitoring

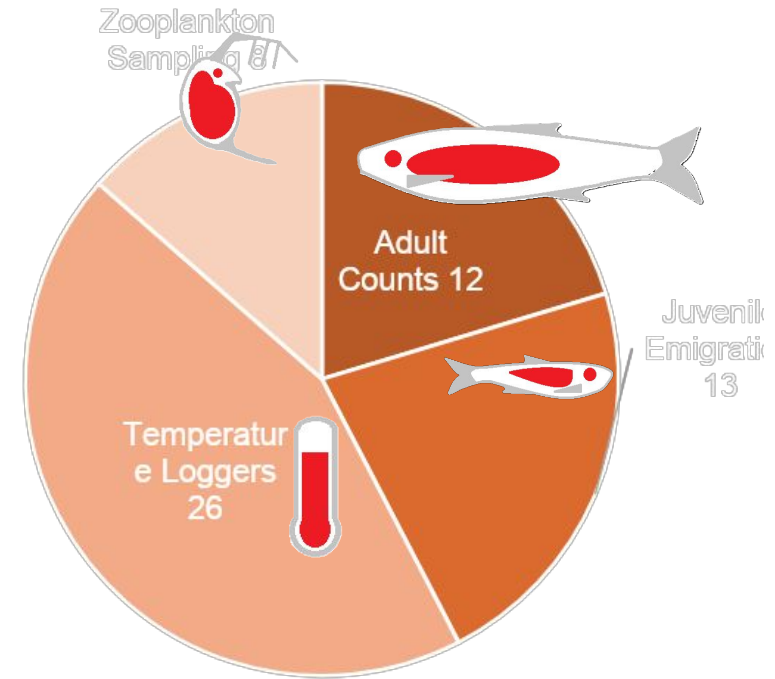
 2025 Juvenile Emigration

 2025 Adult Count

2025 Monitoring Programs

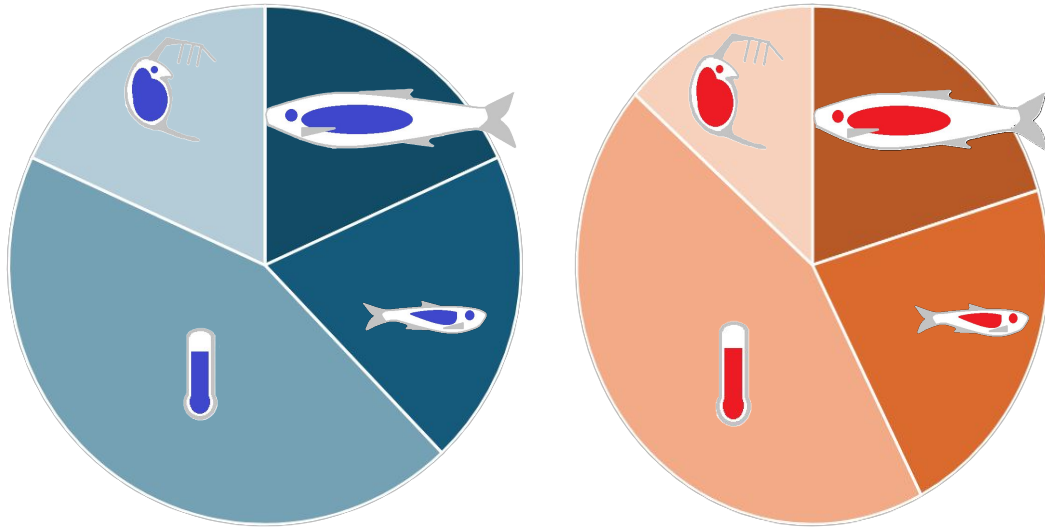


2024 GOM RHN Monitoring Sites
Total sites: 66



Anticipated 2025 GOM RHN
Monitoring Sites: 59

2025 Monitoring Programs



Zooplankton Site Reduction

4 sites eliminated; change in sampling regime at remaining sites

- 1x ☐ 2x monthly sampling
- Prioritize sites with active juvenile & temperature monitoring

Sites were eliminated due to:

- Insufficient other monitoring at site
- Site location makes bimonthly sampling impractical
- Baseline data established; no changes anticipated until fish passage restored



Manomet/A. Zegers

What's Next for the River Herring Network?

- Monitoring
 - Finish 2023/2024 juvenile aging
 - Paired age and zooplankton data
- Organize workshops for long-term community monitoring
- Continue rollout of ECOFish count platform

Shad and River Herring Run Data Portal

Select a state

Maine

Year

2021 2022 2023 2024

Select a species

river herring

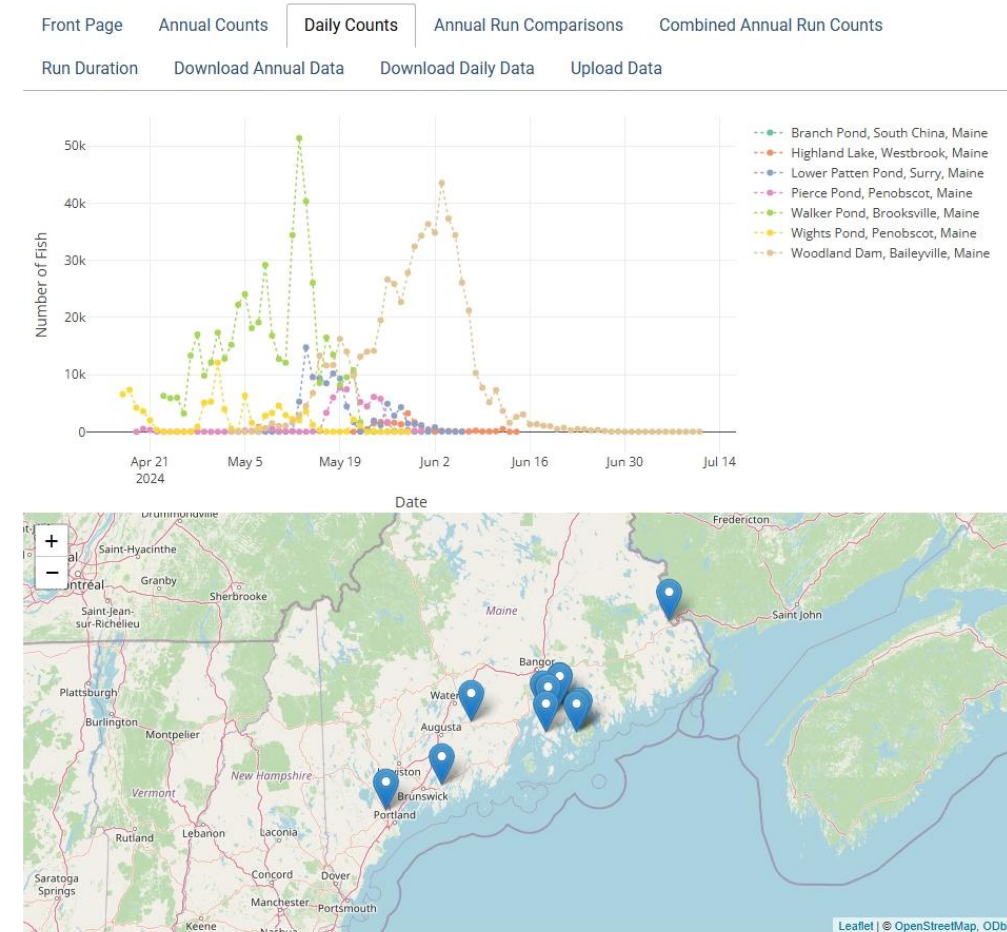
Filter locations by watershed:

1050001 Saint Croix River 1050002 Maine Coastal
1050003 St. George-Sheepscot 1060001 Presumpscot

Filter by location

- ☒ Branch Pond, South China, Maine
- ☒ Highland Lake, Westbrook, Maine
- ☒ Long Pond, Mount Desert, Maine
- ☒ Lower Patten Pond, Surry, Maine
- ☒ Nequasset Pond, Woolwich, Maine
- ☒ Patten Pond, Surry, Maine
- ☒ Pierce Pond, Penobscot, Maine
- ☒ Somes Pond, Mount Desert, Maine
- ☒ Walker Pond, Brooksville, Maine
- ☒ Wight's Pond, Penobscot, Maine
- ☒ Wights Pond, Penobscot, Maine
- ☒ Woodland Dam, Baileyville, Maine

☒ Check or uncheck all

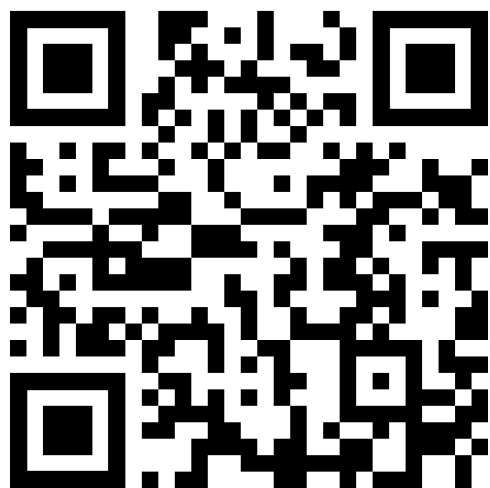




GULF OF MAINE River Herring Network

Find:

- Tools for Communities
- Research
- Restoration
- Co-Management
- Harvest
- Resources



<https://www.gomriverherringnetwork.org/>

Shad and River Herring Run Data Portal

Select a state

Maine

Year

1972

2024

Select a species

river herring

Filter locations by watershed:

01050002 Maine Coastal
01020005 Penobscot River
01030003 Lower Kennebec River
01040002 Lower Androscoggin River
01050001 Saint Croix River
01050003 St. George-Sheepscoot River
01060001 Presumpscot
01060002 Saco River

Filter by location:

- ☒ Chemo Pond, Bradley, Maine
- ☒ Milford Dam, Old Town, Maine
- ☒ Orono Dam, Orono, Maine
- ☒ Benton Falls Dam, Benton, Maine
- ☒ Lockwood Dam, Waterville, Maine
- ☒ Brunswick Dam, Brunswick, Maine

Front Page

Annual Counts

Daily Counts

Annual Run Comparison

Combined Annual Run Counts

Run Duration

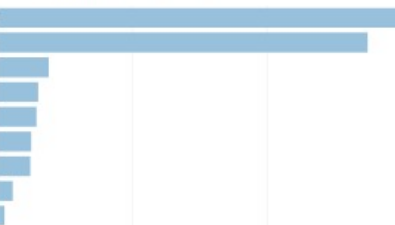
Download Annual Data

Download Daily Data

Upload Data

Annual Counts by Site in 2024

Benton Falls Dam, Benton, Maine
Milford Dam, Old Town, Maine
Ellsworth Dam, Ellsworth, Maine
Woodland Dam, Baileyville, Maine
Chemo Pond, Bradley, Maine
Grand Falls, Baileyville, Maine
Walker Pond, Brooksville, Maine
Orono Dam, Orono, Maine
Brunswick Dam, Brunswick, Maine



<https://manomet.shinyapps.io/shad-river-herring/>



Acknowledgements

- Hare, J.A., Borggaard, D.L., Alexander, M.A., Bailey, M.M., Bowden, A.A., Damon-Randall, K., Didden, J.T., Hasselman, D.J., Kerns, T., McCrary, R., McDermott, S., Nye, J.A., Pierce, J., Schultz, E.T., Scott, J.D., Starks, C., Sullivan, K. and Beth Tooley, M. (2021), A Review of River Herring Science in Support of Species Conservation and Ecosystem Restoration. Mar Coast Fish, 13: 627-664. <https://doi.org/10.1002/mcf2.10174>
- Jones, M., Reese, C. (2024), Plankton Education and Ecology Final Report. Corning School of Marine Studies, Maine Maritime Academy
- Maine Center for Coastal Fisheries, Manomet Fisheries, “Zen and River Herring” Webinar, 10/29/2020

Passage



Beaverdam passage monitoring		Fishway Cleaning and repair	
Times/ Year	Duration (hours)	Times / Year	Duration (hours)
3-5	7-10	3-5	7-10
>30	<0.5	>30	1
6-10	>10	6-10	>10
1-2	2-4	1-2	<0.5
6-10	2-4	NA	NA
6-10	2-4	NA	NA
NA	NA	6-10	1
NA	NA	1-2	2-4
3-5	2-4	1-2	2-4
NA	NA	NA	NA
6-10	1	1-2	1
>30	>10	11-20	>10

Unpublished stewardship survey data; Cleaver et al