

# Interim Annual Performance Report

Office of  
**CONSERVATION  
INVESTMENT**



Office of Conservation Investment  
U.S. Fish and Wildlife Service



**RI F-61-R-23 Assessment of Recreationally Important Finfish**

**Performance Report Approval Status:**

Awaiting Non-federal Review and Approval

**Recipient:**

RHODE ISLAND. DEPARTMENT OF

**Recipient Grant ID:**

**Federal Award Number:**

F25AF00835

**Funding Program(s) Name:**

Sport Fish Restoration (Saltwater/Marine)

**Federal Award Start and End Date:**

Jan 01, 2025 to Dec 31, 2029

**Performance Reporting Period:**

Jan 01, 2025 to Dec 31, 2025

**Federal Award Recipient Contact(s):**

Veronica Masson

**Federal Award Specialist(s):**

Joshua Newhard

**TRACS Group**

Rhode Island Division of Fish and Wildlife

**Type of Performance Report:**

Interim Annual Performance Report

**Public Description:**

The purpose of this grant is to support the scientific assessment of finfish in the marine waters of Rhode Island. Activities to be performed include trawl and seine surveys, habitat and environmental assessments, research on sharks, support for recreational fisheries and

sampling of recreational anglers, surveys for age and growth, aerial surveys for bait fish, and the development of a Marine Fishes of Rhode Island book. Expected outcomes include a better understanding of the marine fisheries populations in Rhode Island waters. Intended beneficiaries are fisheries managers, who require this information for their decision-making processes, and recreational anglers in the state. Subrecipient activities will include agreements with the University of Rhode Island and The Nature Conservancy.

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# Interim Annual Performance Report - RI F-61-R-23 Assessment of Recreationally Important Finfish

**Project Statement: RI F-61-R-23 Assessment of Recreationally Important Finfish**  
**Project Statement Approval Status: Final Approved**

**Objective Name: - 1 - Narragansett Bay Monthly Fishery Resource Assessment**

**Strategy:** Research, Survey, Data Collection and Analysis

**Proposed Objective:** Conduct investigations (legacy)

**Pertains to R3:** No

**Activity Performed:** Fish and wildlife species data acquisition and analysis (legacy)

**# of Investigations:** 60

**Principal Investigator:** Christopher Parkins

**Geographic Location:**

- General Location: Rhode Island
- Includes Marine Federal Waters: No
- Detailed Location:
- Location Description:

**Activity Report Comments**

Please see attached report.

\* Totals to date represents a cumulative total of all periods of performance and may exceed the objective.

Objective Report	
Period of Performance	# of Investigations
Jan 1, 2025 to Dec 31, 2025	11
Jan 1, 2026 to Dec 31, 2026	
Jan 1, 2027 to Dec 31, 2027	
Jan 1, 2028 to Dec 31, 2028	
Jan 1, 2029 to Dec 31, 2029	
<b>Totals to Date*</b>	11

**Species Tags**

Species Tags
Marine fishes <i>Marine fishes</i>

**Activity Performed Attachments**

# Interim Annual Performance Report - RI F-61-R-23 Assessment of Recreationally Important Finfish

Note: Some attachments listed here may not appear in the Appendix due to file incompatibility. All attachments can be accessed using the links below.

Descriptive Name	Field Tags	Attachment Type
Job1_2_F-61_Coastal_Trawl	<ul style="list-style-type: none"><li>Activity Report Comment</li></ul>	Performance Report / Performance Hard Copy Report

## **Objective Name: - 2 - Seasonal Fishery Assessment in Narragansett Bay, Rhode Island and Block Island Sound**

**Strategy:** Research, Survey, Data Collection and Analysis

**Proposed Objective:** Conduct investigations (legacy)

**Pertains to R3:** No

**Activity Performed:** Fish and wildlife species data acquisition and analysis (legacy)

**# of Investigations:** 10

**Principal Investigator:** Christopher Parkins

**Geographic Location:**

- General Location: Rhode Island
- Includes Marine Federal Waters: No
- Detailed Location:
- Location Description:

### **Activity Report Comments**

Details for this project are included in the file attached to Objective 1.

\* Totals to date represents a cumulative total of all periods of performance and may exceed the objective.

# Interim Annual Performance Report - RI F-61-R-23 Assessment of Recreationally Important Finfish

Objective Report	
Period of Performance	# of Investigations
Jan 1, 2025 to Dec 31, 2025	2
Jan 1, 2026 to Dec 31, 2026	
Jan 1, 2027 to Dec 31, 2027	
Jan 1, 2028 to Dec 31, 2028	
Jan 1, 2029 to Dec 31, 2029	
<b>Totals to Date*</b>	2

## Species Tags

Species Tags
<b>Marine fishes</b> <i>Marine fishes</i>

## Activity Performed Attachments

Note: Some attachments listed here may not appear in the Appendix due to file incompatibility. All attachments can be accessed using the links below.

Descriptive Name	Field Tags	Attachment Type
No Files Attached		

## **Objective Name: - 3 - Young of the Year (YOY) Survey of Selected Rhode Island Coastal Ponds**

**Strategy:** Research, Survey, Data Collection and Analysis

**Proposed Objective:** Conduct investigations (legacy)

**Pertains to R3:** No

**Activity Performed:** Fish and wildlife species data acquisition and analysis (legacy)

**# of Investigations:** 5

**Principal Investigator:** Katherine Rodrigue

**Geographic Location:**

- General Location: Rhode Island
- Includes Marine Federal Waters: No
- Detailed Location:
- Location Description:

# Interim Annual Performance Report - RI F-61-R-23 Assessment of Recreationally Important Finfish

## Activity Report Comments

Please see attached reports.

\* Totals to date represents a cumulative total of all periods of performance and may exceed the objective.

Objective Report	
Period of Performance	# of Investigations
Jan 1, 2025 to Dec 31, 2025	1
Jan 1, 2026 to Dec 31, 2026	
Jan 1, 2027 to Dec 31, 2027	
Jan 1, 2028 to Dec 31, 2028	
Jan 1, 2029 to Dec 31, 2029	
<b>Totals to Date*</b>	<b>1</b>

## Species Tags

Species Tags
<b>Marine fishes</b> <i>Marine fishes</i>

## Activity Performed Attachments

Note: Some attachments listed here may not appear in the Appendix due to file incompatibility. All attachments can be accessed using the links below.

Descriptive Name	Field Tags	Attachment Type
Job3b_Block_Island_Seine_2026 (2)	<ul style="list-style-type: none"> <li>Activity Report Comment</li> </ul>	Performance Report / Performance Hard Copy Report
Job3_CPS_F61-2026	<ul style="list-style-type: none"> <li>Activity Report Comment</li> </ul>	Performance Report / Performance Hard Copy Report

## **Objective Name: - 4 - Juvenile Marine Finfish Survey**

**Strategy:** Research, Survey, Data Collection and Analysis

**Proposed Objective:** Conduct investigations (legacy)

**Pertains to R3:** No

# Interim Annual Performance Report - RI F-61-R-23 Assessment of Recreationally Important Finfish

**Activity Performed:** Fish and wildlife species data acquisition and analysis (legacy)

**# of Investigations:** 5

**Principal Investigator:** Anna Gerber-Williams

**Geographic Location:**

- General Location: Rhode Island
- Includes Marine Federal Waters: No
- Detailed Location:
- Location Description:

## Activity Report Comments

Please see attached report.

\* Totals to date represents a cumulative total of all periods of performance and may exceed the objective.

Objective Report	
Period of Performance	# of Investigations
Jan 1, 2025 to Dec 31, 2025	1
Jan 1, 2026 to Dec 31, 2026	
Jan 1, 2027 to Dec 31, 2027	
Jan 1, 2028 to Dec 31, 2028	
Jan 1, 2029 to Dec 31, 2029	
<b>Totals to Date*</b>	1

## Species Tags

Species Tags
<b>Marine fishes</b> <i>Marine fishes</i>

## Activity Performed Attachments

Note: Some attachments listed here may not appear in the Appendix due to file incompatibility. All attachments can be accessed using the links below.

Descriptive Name	Field Tags	Attachment Type
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# Interim Annual Performance Report - RI F-61-R-23 Assessment of Recreationally Important Finfish

Job4_F-61_Bay Seine	<ul style="list-style-type: none"> <li>Activity Report Comment</li> </ul>	Performance Report / Performance Hard Copy Report
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## **Objective Name: - 5 - Monitoring and assessment of recreationally important fish habitats**

**Strategy:** Research, Survey, Data Collection and Analysis

**Proposed Objective:** Conduct investigations (legacy)

**Pertains to R3:** No

**Activity Performed:** Fish and wildlife species data acquisition and analysis (legacy)

**# of Investigations:** 15

**Principal Investigator:** Patrick Barrett

**Geographic Location:**

- General Location: Rhode Island
- Includes Marine Federal Waters: No
- Detailed Location:
- Location Description:

### **Activity Report Comments**

Please see attached report for details.

\* Totals to date represents a cumulative total of all periods of performance and may exceed the objective.

Objective Report	
Period of Performance	# of Investigations
Jan 1, 2025 to Dec 31, 2025	3
Jan 1, 2026 to Dec 31, 2026	
Jan 1, 2027 to Dec 31, 2027	
Jan 1, 2028 to Dec 31, 2028	
Jan 1, 2029 to Dec 31, 2029	
<b>Totals to Date*</b>	3

### **Species Tags**

# Interim Annual Performance Report - RI F-61-R-23 Assessment of Recreationally Important Finfish

Species Tags
<b>eastern oyster</b> <i>Crassostrea virginica</i>
<b>Sugar Kelp</b> <i>Saccharina latissima</i>
<b>eelgrass; seawrack</b> <i>Zostera marina</i>

## Activity Performed Attachments

Note: Some attachments listed here may not appear in the Appendix due to file incompatibility. All attachments can be accessed using the links below.

Descriptive Name	Field Tags	Attachment Type
Job5_F-61_Fish_Habitat_Monitoring_2025	<ul style="list-style-type: none"> <li>Activity Report Comment</li> </ul>	Performance Report / Performance Hard Copy Report

## **Objective Name: - 6.1 - Protecting and Minimizing Adverse Impacts to Marine Fish Habitat - Permit Review**

**Strategy:** Environmental Review

**Proposed Objective:** Review projects/plans

**Pertains to R3:** No

**Activity Performed:** Review of proposed projects/plans

**# of Projects/Plans Reviewed:** 300

**Geographic Location:**

- General Location: Rhode Island
- Includes Marine Federal Waters: No
- Detailed Location:
- Location Description:

## Activity Report Comments

Please see attached report for details.

\* Totals to date represents a cumulative total of all periods of performance and may exceed the

# Interim Annual Performance Report - RI F-61-R-23 Assessment of Recreationally Important Finfish

objective.

Objective Report	
Period of Performance	# of Projects/Plans Reviewed
Jan 1, 2025 to Dec 31, 2025	83
Jan 1, 2026 to Dec 31, 2026	
Jan 1, 2027 to Dec 31, 2027	
Jan 1, 2028 to Dec 31, 2028	
Jan 1, 2029 to Dec 31, 2029	
<b>Totals to Date*</b>	83

## Activity Performed Attachments

Note: Some attachments listed here may not appear in the Appendix due to file incompatibility. All attachments can be accessed using the links below.

Descriptive Name	Field Tags	Attachment Type
Job6_F-61_Habitat_Protection_2026	<ul style="list-style-type: none"> <li>Activity Report Comment</li> </ul>	Performance Report / Performance Hard Copy Report

## **Objective Name: - 6.2 - Protecting and Minimizing Adverse Impacts to Marine Fish Habitat**

**Strategy:** Technical Assistance

**Proposed Objective:** Provide technical assistance to organizations

**Pertains to R3:** No

**Activity Performed:** Assistance to other organizations

**# of Organizations:** 1

**Geographic Location:**

- General Location: Rhode Island
- Includes Marine Federal Waters: No
- Detailed Location:
- Location Description:

## Activity Report Comments

# Interim Annual Performance Report - RI F-61-R-23 Assessment of Recreationally Important Finfish

Details for this objective are found in the report attached in Objective 6.1.

\* Totals to date represents a cumulative total of all periods of performance and may exceed the objective.

Objective Report	
Period of Performance	# of Organizations
Jan 1, 2025 to Dec 31, 2025	1
Jan 1, 2026 to Dec 31, 2026	
Jan 1, 2027 to Dec 31, 2027	
Jan 1, 2028 to Dec 31, 2028	
Jan 1, 2029 to Dec 31, 2029	
<b>Totals to Date*</b>	<b>1</b>

## Activity Performed Attachments

Note: Some attachments listed here may not appear in the Appendix due to file incompatibility. All attachments can be accessed using the links below.

Descriptive Name	Field Tags	Attachment Type
No Files Attached		

## **Objective Name: - 6.3 - Protecting and Minimizing Adverse Impacts to Marine Fish Habitat - Technical Assistance with planning and policy development for sport fish habitat**

**Strategy:** Technical Assistance

**Proposed Objective:** Provide technical assistance to organizations

**Pertains to R3:** No

**Activity Performed:** Assistance to other organizations

**# of Organizations:** 10

**Geographic Location:**

- General Location: Rhode Island
- Includes Marine Federal Waters: No
- Detailed Location:

# Interim Annual Performance Report - RI F-61-R-23 Assessment of Recreationally Important Finfish

- Location Description:

## Activity Report Comments

Details for this objective can be found in the report attached to Objective 6.1.

\* Totals to date represents a cumulative total of all periods of performance and may exceed the objective.

Objective Report	
Period of Performance	# of Organizations
Jan 1, 2025 to Dec 31, 2025	16
Jan 1, 2026 to Dec 31, 2026	
Jan 1, 2027 to Dec 31, 2027	
Jan 1, 2028 to Dec 31, 2028	
Jan 1, 2029 to Dec 31, 2029	
<b>Totals to Date*</b>	16

## Activity Performed Attachments

Note: Some attachments listed here may not appear in the Appendix due to file incompatibility. All attachments can be accessed using the links below.

Descriptive Name	Field Tags	Attachment Type
No Files Attached		

## **Objective Name: - 7 - Providence River Estuary Seine Narrative**

**Strategy:** Research, Survey, Data Collection and Analysis

**Proposed Objective:** Conduct investigations (legacy)

**Pertains to R3:** No

**Activity Performed:** Fish and wildlife species data acquisition and analysis (legacy)

**# of Investigations:** 5

**Principal Investigator:** Anna Gerber-Williams

**Geographic Location:**

- General Location: Rhode Island

# Interim Annual Performance Report - RI F-61-R-23 Assessment of Recreationally Important Finfish

- Includes Marine Federal Waters: No
- Detailed Location:
- Location Description:

## Activity Report Comments

Please see attached report for details.

\* Totals to date represents a cumulative total of all periods of performance and may exceed the objective.

Objective Report	
Period of Performance	# of Investigations
Jan 1, 2025 to Dec 31, 2025	1
Jan 1, 2026 to Dec 31, 2026	
Jan 1, 2027 to Dec 31, 2027	
Jan 1, 2028 to Dec 31, 2028	
Jan 1, 2029 to Dec 31, 2029	
<b>Totals to Date*</b>	<b>1</b>

## Species Tags

Species Tags
<b>Marine fishes</b> <i>Marine fishes</i>

## Activity Performed Attachments

Note: Some attachments listed here may not appear in the Appendix due to file incompatibility. All attachments can be accessed using the links below.

Descriptive Name	Field Tags	Attachment Type
Job7_PRE_Seine_F-61_Report_2026	<ul style="list-style-type: none"> <li>• Activity Report Comment</li> </ul>	Performance Report / Performance Hard Copy Report

## **Objective Name: - 8.1 - Sportfish Assessment and Management in Rhode Island**

**Waters - Stock Assessment Analysis**

**Strategy:** Research, Survey, Data Collection and Analysis

**Proposed Objective:** Conduct investigations (legacy)

**Pertains to R3:** No

**Activity Performed:** Fish and wildlife species data acquisition and analysis (legacy)

**# of Investigations:** 50

**Principal Investigator:** Julia Livermore

**Geographic Location:**

- General Location: Rhode Island
- Includes Marine Federal Waters: No
- Detailed Location:
- Location Description:

**Activity Report Comments**

Please see attached report for details.

\* Totals to date represents a cumulative total of all periods of performance and may exceed the objective.

Objective Report	
Period of Performance	# of Investigations
Jan 1, 2025 to Dec 31, 2025	25
Jan 1, 2026 to Dec 31, 2026	
Jan 1, 2027 to Dec 31, 2027	
Jan 1, 2028 to Dec 31, 2028	
Jan 1, 2029 to Dec 31, 2029	
<b>Totals to Date*</b>	25

**Species Tags**

# Interim Annual Performance Report - RI F-61-R-23 Assessment of Recreationally Important Finfish

Species Tags		
<b>menhaden; Atlantic menhaden; bugfish; bunker; fatback; mossbunker</b> <i>Brevoortia tyrannus</i>	<b>black sea bass</b> <i>Centropristis striata</i>	<b>weakfish; gray trout; sea trout</b> <i>Cynoscion regalis</i>
<b>rockfish; striped bass</b> <i>Morone saxatilis</i>	<b>summer flounder; fluke; Summer Flounder</b> <i>Paralichthys dentatus</i>	<b>winter flounder</b> <i>Pleuronectes americanus</i>
<b>bluefish</b> <i>Pomatomus saltatrix</i>	<b>piked dogfish; spiny dogfish; dogfish; grayfish; spurdog</b> <i>Squalus acanthias</i>	<b>scup; porgy</b> <i>Stenotomus chrysops</i>
<b>tautog</b> <i>Tautoga onitis</i>		

## Activity Performed Attachments

Note: Some attachments listed here may not appear in the Appendix due to file incompatibility. All attachments can be accessed using the links below.

Descriptive Name	Field Tags	Attachment Type
Job8_F-61_Stock Assessment_2026	<ul style="list-style-type: none"> <li>Activity Report Comment</li> </ul>	Performance Report / Performance Hard Copy Report

## **Objective Name: - 8.2 - Sportfish Assessment and Management in Rhode Island Waters - Participation in Technical Committees**

**Strategy:** Technical Assistance

**Proposed Objective:** Participate on technical committees

**Pertains to R3:** No

**Activity Performed:** Participation on technical committees

**# of Technical Committees:** 100

**Geographic Location:**

- General Location: Rhode Island
- Includes Marine Federal Waters: No

# Interim Annual Performance Report - RI F-61-R-23 Assessment of Recreationally Important Finfish

- Detailed Location:
- Location Description:

## Activity Report Comments

Please see details for this objective in the report attached for Objective 8.1.

\* Totals to date represents a cumulative total of all periods of performance and may exceed the objective.

Objective Report	
Period of Performance	# of Technical Committees
Jan 1, 2025 to Dec 31, 2025	17
Jan 1, 2026 to Dec 31, 2026	
Jan 1, 2027 to Dec 31, 2027	
Jan 1, 2028 to Dec 31, 2028	
Jan 1, 2029 to Dec 31, 2029	
<b>Totals to Date*</b>	17

## Activity Performed Attachments

Note: Some attachments listed here may not appear in the Appendix due to file incompatibility. All attachments can be accessed using the links below.

Descriptive Name	Field Tags	Attachment Type
No Files Attached		

### **Objective Name: - 9 - Age and Growth Study**

**Strategy:** Research, Survey, Data Collection and Analysis

**Proposed Objective:** Conduct investigations (legacy)

**Pertains to R3:** No

**Activity Performed:** Fish and wildlife species data acquisition and analysis (legacy)

**# of Investigations:** 5

**Principal Investigator:** Nicole Lengyel Costa

**Geographic Location:**

# Interim Annual Performance Report - RI F-61-R-23 Assessment of Recreationally Important Finfish

- General Location: Rhode Island
- Includes Marine Federal Waters: No
- Detailed Location:
- Location Description:

## Activity Report Comments

Please see attached report for details.

\* Totals to date represents a cumulative total of all periods of performance and may exceed the objective.

Objective Report	
Period of Performance	# of Investigations
Jan 1, 2025 to Dec 31, 2025	1
Jan 1, 2026 to Dec 31, 2026	
Jan 1, 2027 to Dec 31, 2027	
Jan 1, 2028 to Dec 31, 2028	
Jan 1, 2029 to Dec 31, 2029	
<b>Totals to Date*</b>	<b>1</b>

## Species Tags

Species Tags		
<b>menhaden; Atlantic menhaden; bugfish; bunker; fatback; mossbunker</b> <i>Brevoortia tyrannus</i>	<b>black sea bass</b> <i>Centropristis striata</i>	<b>weakfish; gray trout; sea trout</b> <i>Cynoscion regalis</i>
<b>rockfish; striped bass</b> <i>Morone saxatilis</i>	<b>summer flounder; fluke; Summer Flounder</b> <i>Paralichthys dentatus</i>	<b>winter flounder</b> <i>Pleuronectes americanus</i>
<b>bluefish</b> <i>Pomatomus saltatrix</i>	<b>scup; porgy</b> <i>Stenotomus chrysops</i>	<b>tautog</b> <i>Tautoga onitis</i>

## Activity Performed Attachments

# Interim Annual Performance Report - RI F-61-R-23 Assessment of Recreationally Important Finfish

Note: Some attachments listed here may not appear in the Appendix due to file incompatibility. All attachments can be accessed using the links below.

Descriptive Name	Field Tags	Attachment Type
Job9_2025_F-61-Age and Growth	<ul style="list-style-type: none"><li>Activity Report Comment</li></ul>	Performance Report / Performance Hard Copy Report

## **Objective Name: 10 - Winter Flounder Spawning Stock Biomass (SSB) in Rhode Island Coastal Ponds**

**Strategy:** Research, Survey, Data Collection and Analysis

**Proposed Objective:** Conduct investigations (legacy)

**Pertains to R3:** No

**Activity Performed:** Fish and wildlife species data acquisition and analysis (legacy)

**# of Investigations:** 5

**Principal Investigator:** Richard Balouskus

**Geographic Location:**

- General Location: Rhode Island
- Includes Marine Federal Waters: No
- Detailed Location:
- Location Description:

### **Activity Report Comments**

Please see attached report for details.

\* Totals to date represents a cumulative total of all periods of performance and may exceed the objective.

# Interim Annual Performance Report - RI F-61-R-23 Assessment of Recreationally Important Finfish

Objective Report	
Period of Performance	# of Investigations
Jan 1, 2025 to Dec 31, 2025	1
Jan 1, 2026 to Dec 31, 2026	
Jan 1, 2027 to Dec 31, 2027	
Jan 1, 2028 to Dec 31, 2028	
Jan 1, 2029 to Dec 31, 2029	
<b>Totals to Date*</b>	<b>1</b>

## Species Tags

Species Tags
<b>winter flounder</b> <i>Pleuronectes americanus</i>

## Activity Performed Attachments

Note: Some attachments listed here may not appear in the Appendix due to file incompatibility. All attachments can be accessed using the links below.

Descriptive Name	Field Tags	Attachment Type
Job10_F-61_WFL_SSB_Fyke_2026	<ul style="list-style-type: none"> <li>Activity Report Comment</li> </ul>	Performance Report / Performance Hard Copy Report

## **Objective Name: 11 - Narragansett Bay Atlantic Menhaden Monitoring Program**

**Strategy:** Research, Survey, Data Collection and Analysis

**Proposed Objective:** Conduct investigations (legacy)

**Pertains to R3:** No

**Activity Performed:** Fish and wildlife species data acquisition and analysis (legacy)

**# of Investigations:** 5

**Principal Investigator:** Nicole Lengyel Costa

**Geographic Location:**

- General Location: Rhode Island
- Includes Marine Federal Waters: No
- Detailed Location:
- Location Description:

# Interim Annual Performance Report - RI F-61-R-23 Assessment of Recreationally Important Finfish

## Activity Report Comments

Please see attached report for details.

\* Totals to date represents a cumulative total of all periods of performance and may exceed the objective.

Objective Report	
Period of Performance	# of Investigations
Jan 1, 2025 to Dec 31, 2025	1
Jan 1, 2026 to Dec 31, 2026	
Jan 1, 2027 to Dec 31, 2027	
Jan 1, 2028 to Dec 31, 2028	
Jan 1, 2029 to Dec 31, 2029	
<b>Totals to Date*</b>	1

## Species Tags

Species Tags
menhaden; Atlantic menhaden; bugfish; bunker; fatback; mossbunker <i>Brevoortia tyrannus</i>

## Activity Performed Attachments

Note: Some attachments listed here may not appear in the Appendix due to file incompatibility. All attachments can be accessed using the links below.

Descriptive Name	Field Tags	Attachment Type
Job11_F-61_Menhaden	<ul style="list-style-type: none"> <li>Activity Report Comment</li> </ul>	Performance Report / Performance Hard Copy Report

## **Objective Name: 12 - Narragansett Bay Ventless Fish Pot, Multi-species Monitoring and Assessment Program**

**Strategy:** Research, Survey, Data Collection and Analysis

**Proposed Objective:** Conduct investigations (legacy)

**Pertains to R3:** No

# Interim Annual Performance Report - RI F-61-R-23 Assessment of Recreationally Important Finfish

**Activity Performed:** Fish and wildlife species data acquisition and analysis (legacy)

**# of Investigations:** 5

**Principal Investigator:** Richard Balouskus

**Geographic Location:**

- General Location: Rhode Island
- Includes Marine Federal Waters: No
- Detailed Location:
- Location Description:

## Activity Report Comments

Please see attached report for details.

\* Totals to date represents a cumulative total of all periods of performance and may exceed the objective.

Objective Report	
Period of Performance	# of Investigations
Jan 1, 2025 to Dec 31, 2025	1
Jan 1, 2026 to Dec 31, 2026	
Jan 1, 2027 to Dec 31, 2027	
Jan 1, 2028 to Dec 31, 2028	
Jan 1, 2029 to Dec 31, 2029	
<b>Totals to Date*</b>	<b>1</b>

## Species Tags

Species Tags
<b>black sea bass</b> <i>Centropristis striata</i>
<b>Marine fishes</b> <i>Marine fishes</i>
<b>tautog</b> <i>Tautoga onitis</i>

## Activity Performed Attachments

# Interim Annual Performance Report - RI F-61-R-23 Assessment of Recreationally Important Finfish

Note: Some attachments listed here may not appear in the Appendix due to file incompatibility. All attachments can be accessed using the links below.

Descriptive Name	Field Tags	Attachment Type
Job12_F-61_FishPot	<ul style="list-style-type: none"><li>Activity Report Comment</li></ul>	Performance Report / Performance Hard Copy Report

## **Objective Name: 13 - Marine Fishes of Rhode Island**

**Strategy:** Outreach/Communication

**Proposed Objective:** Produce products

**Pertains to R3:** No

**No quantifiable result to report.**

**Explanation:**

This objective only has an output of 1, however work was conducted on this objective and details may be found on the attached report at the end of this document.

## **Objective Name: 14 - University of Rhode Island Weekly Fish Trawl**

**Strategy:** Research, Survey, Data Collection and Analysis

**Proposed Objective:** Conduct investigations (legacy)

**Pertains to R3:** No

**Activity Performed:** Fish and wildlife species data acquisition and analysis (legacy)

**# of Investigations:** 5

**Principal Investigator:** Julia Livermore

**Geographic Location:**

- General Location: Rhode Island
- Includes Marine Federal Waters: No
- Detailed Location:
- Location Description:

**Activity Report Comments**

# Interim Annual Performance Report - RI F-61-R-23 Assessment of Recreationally Important Finfish

Please see attached report for details.

\* Totals to date represents a cumulative total of all periods of performance and may exceed the objective.

Objective Report	
Period of Performance	# of Investigations
Jan 1, 2025 to Dec 31, 2025	1
Jan 1, 2026 to Dec 31, 2026	
Jan 1, 2027 to Dec 31, 2027	
Jan 1, 2028 to Dec 31, 2028	
Jan 1, 2029 to Dec 31, 2029	
<b>Totals to Date*</b>	<b>1</b>

## Species Tags

Species Tags
<b>Marine fishes</b> <i>Marine fishes</i>

## Activity Performed Attachments

Note: Some attachments listed here may not appear in the Appendix due to file incompatibility. All attachments can be accessed using the links below.

Descriptive Name	Field Tags	Attachment Type
Job14_GSO_Fish_trawl_report_2025_DEM_Dra...	<ul style="list-style-type: none"> <li>Activity Report Comment</li> </ul>	Performance Report / Performance Hard Copy Report

## **Objective Name: 15: Recreational Coastal Shark Monitoring**

**Strategy:** Research, Survey, Data Collection and Analysis

**Proposed Objective:** Conduct investigations (legacy)

**Pertains to R3:** No

**No quantifiable result to report.**

**Explanation:**

Plans for the 2026 shark tagging season (late summer to early fall) are currently being finalized in coordination with the Atlantic Shark Institute (ASI), with agreement anticipated by April 2026. Ten acoustic tags have been purchased and rigged for deployment for the upcoming season.

Additional shark species that are becoming more common and/or have limited movement ecology data in Southern New England have been added to our targeted species list. These additional species include spinners, sandbar, dusky, and hammerhead sharks. Collecting this information is critical for understanding the movement ecology of shifting migratory species in response to anthropogenic stressors and for informing management, particularly with respect to recreational fisheries regulations. Tagging efforts will also be conducted by RIDEM researchers in addition to ASI to maximize tag deployment and species coverage.

## **Objective Name: 16 - Enhancements to MRIP Data Collection**

**Strategy:** Research, Survey, Data Collection and Analysis

**Proposed Objective:** Conduct investigations (legacy)

**Pertains to R3:** No

**Activity Performed:** Utilization data acquisition and analysis (legacy)

**# of Investigations:** 5

**Principal Investigator:** John Lake

**Geographic Location:**

- General Location: Rhode Island
- Includes Marine Federal Waters: No
- Detailed Location:
- Location Description:

### **Activity Report Comments**

Please see attached report.

\* Totals to date represents a cumulative total of all periods of performance and may exceed the objective.

# Interim Annual Performance Report - RI F-61-R-23 Assessment of Recreationally Important Finfish

Objective Report	
Period of Performance	# of Investigations
Jan 1, 2025 to Dec 31, 2025	1
Jan 1, 2026 to Dec 31, 2026	
Jan 1, 2027 to Dec 31, 2027	
Jan 1, 2028 to Dec 31, 2028	
Jan 1, 2029 to Dec 31, 2029	
<b>Totals to Date*</b>	1

## Species Tags

Species Tags
<b>all marine finfish species</b> <i>all marine finfish species</i>

## Activity Performed Attachments

Note: Some attachments listed here may not appear in the Appendix due to file incompatibility. All attachments can be accessed using the links below.

Descriptive Name	Field Tags	Attachment Type
Job16_17_F-61_2025	<ul style="list-style-type: none"> <li>Activity Report Comment</li> </ul>	Performance Report / Performance Hard Copy Report

## **Objective Name: 17.1 - Recreational Fisheries Management Support - Participate in Events**

**Strategy:** Outreach/Communication

**Proposed Objective:** Participate in or sponsor events

**Pertains to R3:** Yes

**Activity Performed:** Outreach events

**# of Events:** 50

**Geographic Location:**

- General Location: Rhode Island
- Includes Marine Federal Waters: No
- Detailed Location:
- Location Description:

# Interim Annual Performance Report - RI F-61-R-23 Assessment of Recreationally Important Finfish

## Activity Report Comments

For details please see report attached under Objective 16.

\* Totals to date represents a cumulative total of all periods of performance and may exceed the objective.

Objective Report	
Period of Performance	# of Events
Jan 1, 2025 to Dec 31, 2025	10
Jan 1, 2026 to Dec 31, 2026	
Jan 1, 2027 to Dec 31, 2027	
Jan 1, 2028 to Dec 31, 2028	
Jan 1, 2029 to Dec 31, 2029	
<b>Totals to Date*</b>	10

## Activity Performed Attachments

Note: Some attachments listed here may not appear in the Appendix due to file incompatibility. All attachments can be accessed using the links below.

Descriptive Name	Field Tags	Attachment Type
No Files Attached		

## **Objective Name: 17.2 - Recreational Fisheries Management Support - Print Publications**

**Strategy:** Outreach/Communication

**Proposed Objective:** Produce products

**Pertains to R3:** Yes

**Activity Performed:** Print products

**# of Products:** 25,000

**Geographic Location:**

- General Location: Rhode Island
- Includes Marine Federal Waters: No
- Detailed Location:

# Interim Annual Performance Report - RI F-61-R-23 Assessment of Recreationally Important Finfish

- Location Description:

## Activity Report Comments

For details on this objective, please see report attached to Objective 16.

\* Totals to date represents a cumulative total of all periods of performance and may exceed the objective.

Objective Report	
Period of Performance	# of Products
Jan 1, 2025 to Dec 31, 2025	3
Jan 1, 2026 to Dec 31, 2026	
Jan 1, 2027 to Dec 31, 2027	
Jan 1, 2028 to Dec 31, 2028	
Jan 1, 2029 to Dec 31, 2029	
<b>Totals to Date*</b>	3

## Activity Performed Attachments

Note: Some attachments listed here may not appear in the Appendix due to file incompatibility. All attachments can be accessed using the links below.

Descriptive Name	Field Tags	Attachment Type
No Files Attached		

## **Objective Name: 17.3 - Recreational Fisheries Management Support - Digital products**

**Strategy:** Outreach/Communication

**Proposed Objective:** Produce products

**Pertains to R3:** Yes

**Activity Performed:** Digital products

**# of Products:** 75

**Geographic Location:**

- General Location: Rhode Island

# Interim Annual Performance Report - RI F-61-R-23 Assessment of Recreationally Important Finfish

- Includes Marine Federal Waters: No
- Detailed Location:
- Location Description:

## Activity Report Comments

For details on this objective, please see attached report under Objective 16.

\* Totals to date represents a cumulative total of all periods of performance and may exceed the objective.

Objective Report	
Period of Performance	# of Products
Jan 1, 2025 to Dec 31, 2025	1
Jan 1, 2026 to Dec 31, 2026	
Jan 1, 2027 to Dec 31, 2027	
Jan 1, 2028 to Dec 31, 2028	
Jan 1, 2029 to Dec 31, 2029	
<b>Totals to Date*</b>	<b>1</b>

## Activity Performed Attachments

Note: Some attachments listed here may not appear in the Appendix due to file incompatibility. All attachments can be accessed using the links below.

Descriptive Name	Field Tags	Attachment Type
No Files Attached		

**Performance Reporting Questionnaire**

**1. What progress has been made towards completing the objective(s) of the project?**

Please see the attached progress reports for details on each of the different objectives.

**2. Please describe and justify any changes in the implementation of your objective(s) or approach(es).**

Please see attached progress reports for each of the objectives for any changes.

**3. If applicable, please share if the project resulted in any unexpected benefits, promising practices, new understandings, cost efficiencies, management recommendations, or lessons learned.**

Not Applicable

**4. For Survey projects only: If applicable, does this project continue work from a previous grant? If so, how do the current results compare to prior results? (Recipients may elect to add attachments such as tables, figures, or graphs to provide further detail when answering this question.)**

Not Applicable

**5. If applicable, identify and attach selected publications, photographs, screenshots of websites, or other documentation (including articles in popular literature, scientific literature, or other public information products) that have resulted from this project that highlight the accomplishments of the project.**

Not Applicable

**6. Is this a project you wish to highlight for communication purposes?**

No

**Questionnaire Attachments**

Note: Some attachments listed here may not appear in the Appendix due to file incompatibility. All attachments can be accessed using the links below.

Descriptive Name	Field Tags	Attachment Type
Job13_2025_F-61-MARINE FISHES OF RI	<ul style="list-style-type: none"> <li>Objective Completion Progress</li> </ul>	Performance Report / Performance Hard Copy Report

## **Appendix**

ASSESSMENT OF RECREATIONALLY IMPORTANT  
FINFISH STOCKS IN RHODE ISLAND COASTAL WATERS

2025 ANNUAL PERFORMANCE REPORT

Federal Aid in Sportfish Restoration  
F-61-R, Segment 23  
JOB 13

MARINE FISHES OF RHODE ISLAND

Prepared by  
Thomas E. Angell  
Principal Biologist (Marine)  
[thomas.angell@dem.ri.gov](mailto:thomas.angell@dem.ri.gov)

Rhode Island Department of Environmental Management  
Division of Marine Fisheries  
3 Fort Wetherill Road  
Jamestown, RI 02835

March 2026

STATE: Rhode Island

PROJECT NUMBER: F-61-R  
SEGMENT NUMBER: 23

PROJECT TITLE: Assessment of Recreationally Important Finfish Stocks in Rhode Island Coastal Waters

JOB NUMBER: 13

JOB TITLE: Marine Fishes of Rhode Island

PERIOD COVERED: January 1, 2025 – December 31, 2025

JOB OBJECTIVE:

The goal of this project is to produce a manuscript updating the marine fish species that have been reported to occur or are known to occur in, or close to, the marine waters of the state of Rhode Island historically and currently. This work will act as a reference guide and educational resource for recreational fishermen, commercial fishermen, fisheries scientists, and the general public alike. The finished product is not intended to be, nor is it, a comprehensive collection of existing knowledge of the species contained within. It will summarize existing knowledge on the occurrence and distribution of fish species observed within or near Rhode Island state marine waters, based on historic records and information collected through several field surveys conducted in the recent past and currently by the Rhode Island Division of Marine Fisheries (RIDMF). It will also provide additional information for each species thought to be of interest to readers including common names in multiple languages, RI state sportfish and worldwide all-tackle size records, physical descriptions and identifying/distinguishing family and species characteristics, general and local distribution, diet, ecological/commercial/recreational/social importance, management, and assessed conservation status. The information will be presented systematically and will include original scientific illustrations by a professional wildlife illustrator of selected native and seasonally abundant fish species, as well as online images for most of the species not professionally illustrated; rare species and suspected misidentifications will not be illustrated. This work is designed to be a stand-alone manuscript, but also to be compatible with and be a companion volume to the "Inland Fishes of Rhode Island" book produced by Alan Libby of the Rhode Island Division of Fish and Wildlife (RIDFW) in 2013.

SUMMARY:

This job was added to the F-61-R Segment 21 grant (January 1, 2013 – December 31, 2019) in January 2013 (Job 13) and has continued through subsequent grant segment 22 (January 1, 2020 – December 31, 2024) and grant segment 23 (January 1, 2025 – December 31, 2029). Little progress was made on this job during 2013-2016, except for contracting the services of a professional wildlife illustrator to produce renditions of a selected number of species, mainly those native to or that are seasonally abundant in

Rhode Island marine waters. This professional wildlife illustrator also produced the illustrations for the “Inland Fishes of Rhode Island” book authored by Alan Libby of the Rhode Island Division of Fish and Wildlife (RIDFW) in 2013. There were 55 marine species encountered in RIDFW freshwater surveys (in brackish waters) that were illustrated (56 illustrations; 1 species with both sexes illustrated) and their electronic digital files made available for use in the marine fishes’ manuscript. For each marine species, a black & white ink illustration and a full color illustration will be produced. A new contract with the illustrator was signed and Job 13 was re-assigned to the current staff member in late 2016 or early 2017.

The basic format and foundation of the book was laid out in 2017 during Segment 21 of this project (January 1, 2014 – December 31, 2019) and included the following components: cover page, table of contents, acknowledgements, dedication, introduction, description of the data sources (field surveys) that collected the data with maps of survey sampling locations and survey activity photographs, tabular lists of species observed in RIDMF surveys (all surveys combined and by individual survey) and species reported to be observed historically by others with environmental and life history attributes, family descriptions, species name and author (scientific and common name), other names (multiple languages), species identification characteristics and physical description, species distribution maps (general and local), current management regime (where applicable), current RI sportfish and worldwide all-tackle records (where applicable), references cited, glossary, and a taxonomic index. Online searches began for published literature and other information pertinent to the desired book components and a database of these resources was compiled.

Work conducted on Job 13 during the remainder of Segment 21 included continued online literature searches and additions to the literature resources database, and the beginning of developing text for each of the book components described above. Initial online searches identified 284 fish species for inclusion. Discussions with RIDMF staff and the professional wildlife illustrator identified 50-65 fish species that would be appropriate for illustration and work began on this task. An unfortunate series of unforeseen complications occurred during 2018-2019, including the death of the illustrator’s wife and 2 separate medical issues for the illustrator. There was 1 black & white ink sketch completed during this project segment, but no full color illustrations were completed. There were 9 other species for which initial pencil sketches were prepared. Table 1 summarizes the progress made during Segment 21.

Work conducted on Job 13 during Segment 22 (January 1, 2020 – December 31, 2024) included the continuation of online literature and information searches, providing additions to the literature and information sources database, and the development of text for each of the book components. During this project segment, an additional RIDMF survey database was discovered leading to the inclusion of twelve (12) new species previously unreported in RI state waters. Additional reviews of historic records of occurrence revealed an additional eight (8) species overlooked in initial reviews. This resulted in an increase in the total number of species claimed to occur in, or near, Rhode Island state waters from 284 to 302. Significant progress was made at

developing text for the book components for each species and the initial draft was completed for all textual book components during this project segment. A total of 46 completed sets of species illustrations (black & white ink sketches and full color illustrations) were produced during this project segment. Table 2 summarizes the progress made during Segment 22.

Work conducted on Job 13 during Segment 23 (January 1, 2025 – December 31, 2029) and current reporting period (January 1, 2025 – December 31, 2025) focused on preparing the manuscript for publication, which primarily consisted of editing, proof-reading, and developing a format and design for the book components. To accomplish this task, a team of four (4) RIDMF staff members (author included) was formed, and each member assigned a role and tasks to be addressed. Adobe InDesign software was purchased as the editor to use for formatting and creating the layout and design for the book components. The species appearing in the book will be divided into three (3) main sections: species confirmed to occur in, or near, RI state waters either as endemic species or seasonally present over an extended time (“Marine Fishes of Rhode Island”); species confirmed to have been observed in or near RI state waters but only on rare or infrequent occasions (“Interesting Occurrences”); and species determined to be misidentifications based on their known native range and absence from observation records since first reported. The freshwater species encountered by RIDMF surveys (in brackish waters) do not belong in a book of marine fishes and will only be listed and without further details. During this reporting period (January 1, 2025 – December 31, 2025), several of the book components have been reviewed and edited and are ready for further formatting and placement in the Adobe InDesign publication file. Table 3 summarizes the progress made for the current reporting period January 1, 2025 – December 31, 2025.

For this reporting period (January 1, 2025 – December 31, 2025), a total of fifteen (5) species illustrations were completed by the illustrator (Robert Jon Golder). There have been email correspondences (≈10) and one (1) in-person meetings with the illustrator during this report period when completed illustrations and invoices were delivered to RIDMF (Table 3).

A total of 256 species will appear in the “Marine Fishes of Rhode Island” book as “confirmed observations”. Of these, 179 species were observed in recent RIDMF surveys, and 77 species were reported to be observed by entities other than RIDMF, either recently or historically. Of these 256 species, a total of 102 species will be professionally illustrated by the contracted wildlife illustrator, including 5 species with both sexes illustrated, for a total of 112 illustrations. An additional 35 species will have online images provided by NOAA Fisheries, and another 27 species will be sketched illustrations by an RIDMF staff member.

TARGET DATE: December 31, 2026

SIGNIFICANT DEVIATIONS: None

RECOMMENDATIONS: **If necessary**, continue into the grant segment reporting period of January 1, 2027 – December 31, 2027.

REMARKS:

- It is anticipated that the process of publishing the book will begin and be completed during this current grant award period (January 1, 2026 – December 31, 2026). All efforts will be made to have the book published before December 31, 2026.

Table 1. Summary of book components completed during Segment 21 grant award (January 1, 2014 - December 31, 2019) (\* = species illustrations from “Inland Fishes of Rhode Island” of marine species encountered in RIDFW freshwater surveys).

<b>Book Components</b>	<b>Number completed</b>	<b>Total Number Required</b>
Cover page	1	1
Table of Contents	1	1
Acknowledgements	1	1
Dedication	1	1
Introduction	1	1
Description of Data Sources	7	7
Survey sampling maps	7	7
Survey activity photos	4	7
Tables	6	6
Glossary	In progress	1
Taxonomic Index	1	1
Family Description	60	117
Common Name / Scientific Name	284	284
Other Names (multilingual)	204	284
RI Sportfish Record	284	284
All-Tackle Record	284	284
Species ID / Description	70	284
General / Local Distribution	73	284
Diet	71	284
Importance	73	284
Management	178	284
Illustrations	56* (55 species)*	105 (100 species)
Species - text completed	66	284
Species - text incomplete	218	284

Table 2. Summary of book components completed during Segment 22 grant award (January 1, 2020 - December 31, 2024) (\*\* = completed in Segment 21).

<b>Book Components</b>	<b>Number completed</b>	<b>Total Number Required</b>
Cover page	**	1
Table of Contents	**	1
Acknowledgements	**	1
Dedication	**	1
Introduction	**	1
Description of Data Sources	1	8
Survey sampling maps	1	8
Survey activity photos	4	8
Tables	2	8
Glossary	1	1
Taxonomic Index	1	1
Family Description	61	121
Common Name / Scientific Name	20	302
Other Names (multilingual)	100	302
RI Sportfish Record	20	302
All-Tackle Record	20	302
Species ID / Description	234	302
General / Local Distribution	211	302
Diet	233	302
Importance	231	302
Management	126	302
Illustrations	56** (55 species**) / 56	112 (102 species)
Species - text completed	238	302
Species - text incomplete	0	302

Table 3. Summary of book components completed during Segment 23 grant award (January 1, 2025 - December 31, 2029) (\*\* = completed in Segment 21, \*\*\* = completed in Segment 22).

<b>Book Components</b>	<b>Number completed</b>	<b>Total Number Required</b>
Cover page	**	1
Table of Contents	**	1
Acknowledgements	**	1
Dedication	**	1
Introduction	**	1
Description of Data Sources	***	8
Survey sampling maps	***	8
Survey activity photos	***	8
Tables	***	8
Glossary	***	1
Taxonomic Index	***	1
Family Description	***	121
Common Name / Scientific Name	***	302
Other Names (Multilingual)	***	302
RI Sportfish Record	***	302
All-Tackle Record	***	302
Species ID / Description	***	302
General / Local Distribution	***	302
Diet	***	302
Importance	***	302
Management	***	302
Illustrations	5	112 (102 species)
Species - text completed	***	302
Species - text incomplete	***	302

Table 4. Summary of book components reviewed and edited during the current project reporting period of January 1, 2025 – December 31, 2025.

<b>Book Components</b>	<b>Review/Edits completed</b>	<b>Total Number Required</b>
Cover page	Yes	1
Table of Contents	Yes	1
Acknowledgements	Yes	1
Dedication	Yes	1
Introduction	Yes	1
Description of Data Sources	Yes	8
Survey sampling maps	Yes	8
Survey activity photos	Yes	8
Tables	Yes	8
Glossary	Yes	1
Taxonomic Index	Yes	1
Family Description	32	121
Common Name / Scientific Name	256	256
Other Names (Multilingual)	256	256
RI Sportfish Record	256	256
All-Tackle Record	256	256
Species ID / Description	63	256
General / Local Distribution	63	256
Diet	63	256
Importance	63	256
Management	63	256
Professional Illustrations	112	112 (102 species)
Online Species Images	36	36
Sketched Drawings	27	27

**ASSESSMENT OF RECREATIONALLY IMPORTANT  
FINFISH STOCKS IN RHODE ISLAND WATERS**

COASTAL FISHERY RESOURCE ASSESSMENT  
TRAWL SURVEY  
2025

PERFORMANCE REPORT  
F-61-R SEGMENT 21  
JOBS 1 AND 2



Christopher Parkins  
Principal Marine Biologist  
Scott D. Olszewski  
Acting Chief

Rhode Island Department of Environmental Management  
Division of Marine Fisheries

March 2026

Annual Performance Report

STATE: Rhode Island

PROJECT NUMBER: F-61-R  
SEGMENT NUMBER: 21

PROJECT TITLE: Assessment of Recreationally Important Finfish Stocks in Rhode Island Waters

JOB NUMBER: 1

TITLE: Narragansett Bay Monthly Fishery Resource Assessment

JOB OBJECTIVE: To collect, summarize and analyze bottom trawl data for biological and fisheries management purposes.

PERIOD COVERED: January 1, 2025 – December 31, 2025.

PROJECT SUMMARY: Job 1, summary accomplished:

A: 143 twenty-minute bottom trawls were successfully completed.

B: Data on weight, length, sex and numbers were gathered on 68 species. Hydrographic data were gathered as well. Additionally, anecdotal notations were made on other plant and animal species. Although not previously discussed, these notations are in keeping with past practice.

TARGET DATE: December 2025

SCHEDULE OF PROGRESS: On schedule.

SIGNIFICANT DEVIATIONS: 11 months were completed without delay. The month of November was not completed due to vessel issues.

JOB NUMBER: 2

TITLE: Seasonal Fishery Resource Assessment of Narragansett Bay, Rhode Island Sound and Block Island Sound

JOB OBJECTIVE: To collect, summarize and analyze bottom trawl data for biological and fisheries management purposes.

PERIOD COVERED: Spring (April – May)/ Fall (September – October) 2025

PROJECT SUMMARY: Job 2, summary accomplished:

A: 44, twenty-minute tows were successfully completed during the Spring 2025 survey (26 NB. – 6 RIS – 12 BIS).

B: 44, twenty-minute tow were successfully completed during the Fall 2025 survey (26 NB. – 6 RIS – 12 BIS)

C: Data on weight, length, sex and numbers were gathered on 60 species. Hydrographic data were gathered as well. Additionally, anecdotal notations were made on other plant and animal species. Although not previously discussed, these notations are in keeping with past practice.

TARGET DATE: DECEMBER 2025.

SCHEDULE OF PROGRESS: On schedule.

SIGNIFICANT DEVIATIONS: None

JOBS 1 & 2

RECOMMENDATIONS: Continuation of both the Monthly and Seasonal Trawl surveys into 2026, Data provided by these surveys is used extensively in the Atlantic States Marine Fisheries Commission Fishery Management process and Fishery Management Plans.

RESULTS AND DISCUSSION: 143 tows were completed during 2025 Job 1 (Monthly survey). 68 species accounted for a combined weight of 4533.66 kgs. and 155,642 length measurements being added to the existing Narragansett Bay monthly trawl data set  
By contrast, 88 tows were completed during 2025 Job 2 (Seasonal survey) 60 species accounted for a combined weight of 4855.70 kgs. and 140,304 length measurements added to the existing seasonal data set.

For 2025 a total of 205 tows (143 monthly and 88 seasonal) and an additional 2 species were added to our database. With the completion of the 2025 surveys, combined survey(s) Jobs (1&2) data now reflects the completion of 8,408 tows with data collected on 157 species over the entire timeseries.

PREPARED BY: \_\_\_\_\_  
Christopher J. Parkins  
Principal Marine Biologist  
Principal Investigator  
Date

APPROVED BY: \_\_\_\_\_  
Scott Olszewski  
Chief  
RIDEM – Division of Marine Fisheries  
Date

## Coastal Fishery Resource Assessment – Trawl Survey

### Introduction:

The Rhode Island Division of Fish and Wildlife - Marine Fisheries Section, began monitoring finfish populations in Narragansett Bay in 1968, continuing through 1977. These data provided monthly identification of finfish and crustacean assemblages. As management strategies changed and focus turned to the near inshore waters, outside of Narragansett Bay, a comprehensive fishery resource assessment program was instituted in 1979. (Lynch T. R. Coastal Fishery Resource Assessment, 2007)

Since the inception of the Rhode Island Seasonal Trawl Survey (April 1979) and the Narragansett Bay Monthly Trawl Survey (January 1990), 8,408 tows have been conducted within Rhode Island territorial waters with data collected on 156 species. This performance report reflects the efforts of the 2024 survey year as it relates to the past 45 years. (Lynch T. R. Coastal Fishery Resource Assessment, 2007), (Olszewski S.D. Coastal Fishery Resource Assessment 2014)

### Methods:

The methodology used in the allocation of sampling stations employs both random and fixed station allocation. Fixed station allocation began in 1988 in Rhode Island Sound and Block Island Sound. This was based on the frequency of replicate stations selected by depth stratum since 1979. With the addition of the Narragansett Bay monthly portion of the survey in 1990, an allocation system of fixed and randomly selected stations has been employed depending on the segment (Monthly vs. Seasonal) of the annual surveys.

Sampling stations were established by dividing Narragansett Bay into a grid of cells. The seasonal trawl survey is conducted in the spring and fall of each year. 44 stations are sampled each season; however, this number has ranged from 26 to 72 over the survey time series due to mechanical and weather conditions. The stations sampled in Narragansett Bay are a combination of fixed and random sites. 13 fixed during the monthly portion and 26, (14 of which are randomly selected) during the seasonal portion. The random sites are randomly selected from a predefined grid. All stations sampled in Rhode Island and Block Island Sounds are fixed.

### Depth Stratum Identification

Area	Stratum	Area nm2	Depth Range (m)
Narragansett Bay	1	15.50	<=6.09
	2	51.00	>=6.09
Rhode Island Sound	3	0.25	<=9.14
	4	2.25	9.14 – 18.28
	5	13.5	18.28 – 27.43
	6	9.75	>=27.43
Block Island Sound	7	3.50	<=9.14
	8	10.50	9.14 – 18.28
	9	11.50	18.28 – 27.43
	10	12.25	27.43 – 36.57
	11	4.00	>=36.57

At each station, an otter trawl equipped with a ¼ mesh inch liner is towed for twenty minutes. The Coastal Trawl survey net is 210 x 4.5”, 2 seam (40’ / 55’), the mesh size is 4.5” and the sweep is 5/16” chain, hung 12” spacing, 13 links per space. Figure 1 depicts the RI Coastal Trawl survey net plan.

The research vessel used in the Coastal Trawl Survey is the R/V John H. Chafee. Built in 2002, the Research Vessel is a 50’ Wesmac hull, powered by a 3406 Caterpillar engine generating 700 hp.

Data on wind direction and speed, sea condition, air temperature and cloud cover as well as surface and bottom water temperatures, are recorded at each station. Catch is sorted by species. Length (cm/mm) is recorded for all finfish, skates, squid, scallops, Whelk lobster, blue crabs and horseshoe crabs. Similarly, weights (g/kg) and number are recorded as well. Anecdotal information is also recorded for incidental plant and animal species.

Survey changes- Beginning January 2012 the Rhode Island Coastal Trawl Survey began using an updated set of trawl doors. Throughout 2012, a comparative gear calibration study was completed to determine if a significant change to the survey catch data exists. The analysis of this calibration study was completed in 2013 and is available upon request.

**RIDEM R/V John H. Chafee**



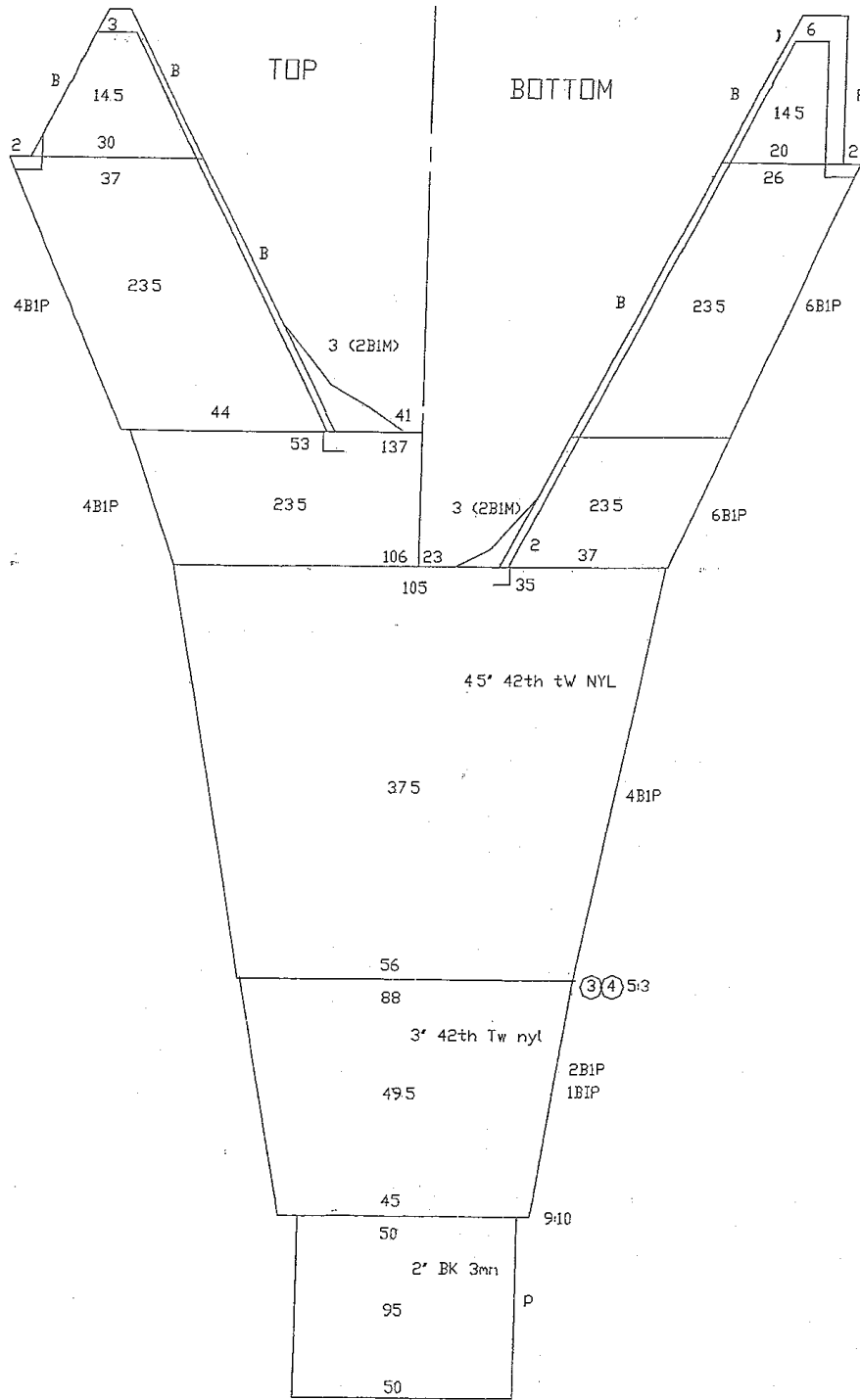
Acknowledgements:

Special thanks are again extended to Captain Patrick Brown, Assistant Captain Sean Fitzgerald, Steve Bradfield and the entire seasonal staff and volunteers. The support given over the years has been greatly appreciated.

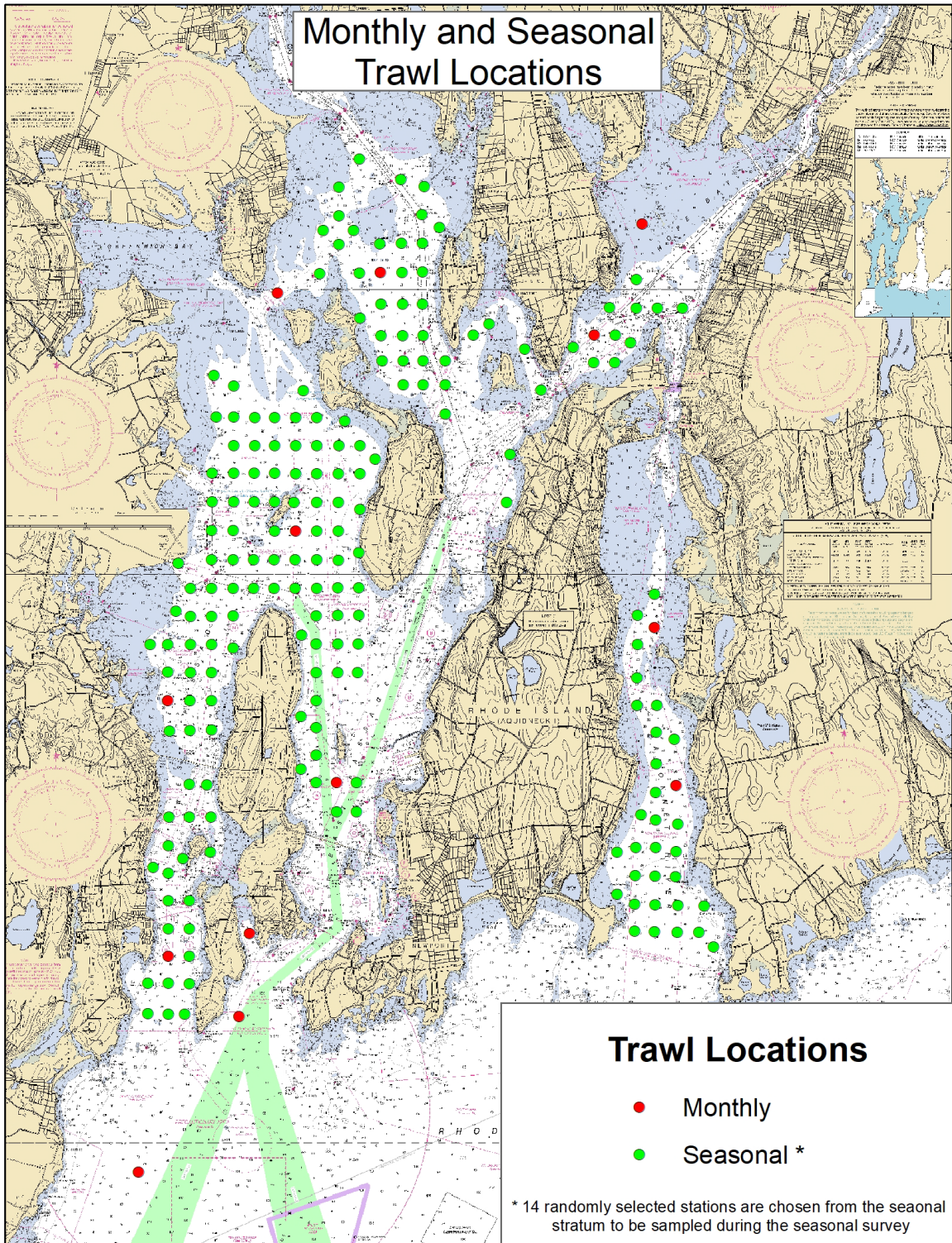


Figure 1

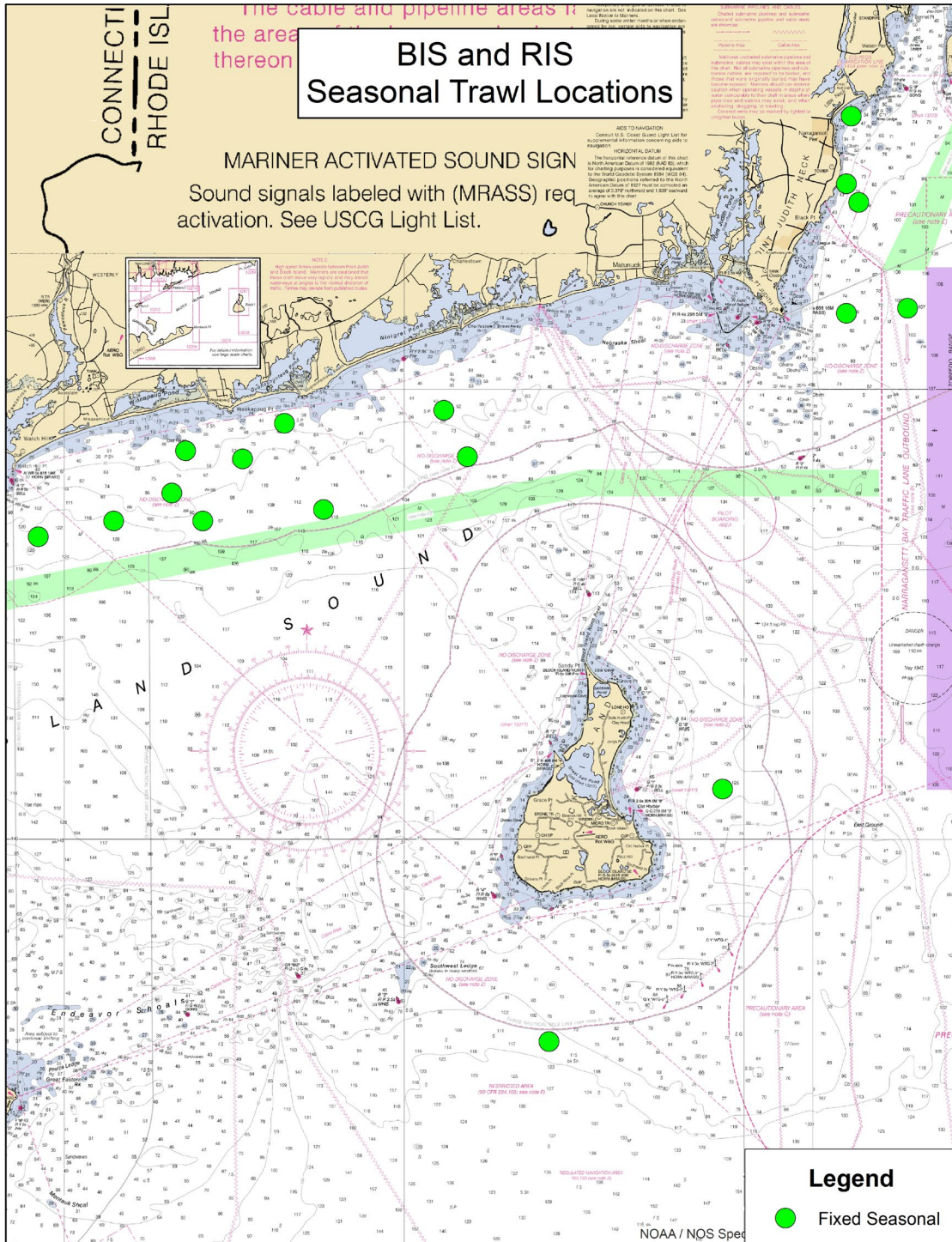
210 x 4.5" 2sm (40'/55')



**Map 1: Monthly (fixed) and Seasonal (grid) Stations in Narragansett Bay**



**Map 2: Seasonal Fixed Stations in Rhode Island Sound and Block Island Sound**



**Results: Job 1.** Monthly Coastal Trawl Survey; 12 fixed stations in Narragansett Bay and 1 in Rhode Island Sound.

A total of 68 species were observed and recorded during the 2025 Narragansett Bay Monthly Trawl Survey totaling 155642 individuals or 1088.4 fish per tow. In weight, the catch accounted for 4533.66 kg. or 31.7 kg. per tow. (Figures 2 and 3) The top ten species by number and catch are represented in figures 4 and 5. The catch between demersal and pelagic species is represented in figures 6 and 7 and shows a clear shift from demersal species to a more pelagic or multi-habitat species.

**Figure 2 (Total Catch in Number)**

Scientific Name	Common Name	Total
ANCHOA MITCHILLI	Bay Anchovy	40036
DORYTEUTHIS PEALEII	Longfin Squid	30531
PEPRILUS TRIACANTHUS	Butterfish	25780
STENOTOMUS CHRYSOPS	Scup	19292
CLUPEA HARENGUS	Atlantic Herring	10563
BREVOORTIA TYRANNUS	Atlantic Menhaden	9761
MENIDIA MENIDIA	Atlantic Silverside	8330
SELENE SETAPINNIS	Atlantic Moonfish	2806
ALOSA PSEUDOHARENGUS	Alewife	2156
MERLUCCIOUS BILINEARIS	Silver Hake	1580
CYNOSCIION REGALIS	Weakfish	942
ALOSA AESTIVALIS	Blueback Herring	423
CENTROPRISTIS STRIATA	Black Sea Bass	303
ALOSA SAPIDISSIMA	American Shad	268
POMATOMUS SALTATRIX	Bluefish	198
GADUS MORHUA	Atlantic Cod	140
MUSTELUS CANIS	Smooth Dogfish	121
UROPHYCIS CHUSS	Red Hake	120
LEUCORAJA ERINACEA	Little Skate	117
UROPHYCIS REGIA	Spotted Hake	106
SCOPHTHALMUS AQUOSUS	Windowpane Flounder	105
PARALICHTHYS DENTATUS	Summer Flounder	99
TAUTOGA ONITIS	Tautog	86
PLEURONECTES AMERICANUS	Winter Flounder	77
HOMARUS AMERICANUS	American Lobster	70
CANCER IRRORATUS	Rock Crab	69
PRIONOTUS CAROLINUS	Northern Sea Robin	63
LEIOSTOMUS XANTHURUS	Spot	58
RAJA EGLANTERIA	Clearnose Skate	57
PRIONOTUS EVOLANS	Striped Sea Robin	53
MORONE SAXATILIS	Striped Bass	22
AMMODYTES AMERICANUS	Sand Lance	18

LEUCORAJA OCELLATA	Winter Skate	11
PARALICHTHYS OBLONGUS	Fourspot Flounder	11
GASTEROSTEUS ACULEATUS	Threespine Stickleback	11
TRACHURUS LATHAMI	Rough Scad	11
BUSYCOTYPUS CANALICULATUS	Channeled Whelk	11
CALLINECTES SAPIDUS	Blue Crab	11
BUSYCON CARICA	Knobbed Whelk	10
PETROMYZON MARINUS	Sea Lamprey	8
CITHARICHTHYS ARCTIFRONS	Gulfstream Flounder	8
SCOMBER SCOMBRUS	Atlantic Mackerel	6
LIMULUS POLYPHEMUS	Horseshoe Crab	6
CANCER BOREALIS	Jonah Crab	6
MICROPOGONIAS UNDULATUS	Atlantic Croaker	5
MENTICIRRHUS SAXATILIS	Northern Kingfish	5
MYOXOCEPHALUS OCTODECEMSPINOS	Longhorn Sculpin	5
ENCHELYOPUS CIMBRIUS	Fourbeard Rockling	4
SPHOEROIDES MACULATUS	Northern Puffer	3
MICROGADUS TOMCOD	Atlantic Tomcod	3
SQUILLA EMPUSA	Mantis Shrimp	3
OSMERUS MORDAX	Rainbow Smelt	2
UROPHYCIS TENUIS	White Hake	2
DECAPTERUS PUNCTATUS	Round Scad	2
MYLIOBATIS FREMINVILLII	Bullnose Ray	1
ETRUMEUS TERES	Round Herring	1
FISTULARIA TABACARIA	Cornetfish	1
SARDA SARDA	Atlantic Bonito	1
PRIACANTHUS ARENATUS	Bigeye	1
TAUTOGOLABRUS ADSPERSUS	Cunner	1
OPSANUS TAU	Oyster Toadfish	1
MULLUS AURATUS	Red Goatfish	1
SELAR CRUMENOPHTHALMUS	Bigeye Scad	1
ANGUILLA ROSTRATA	American Eel	1
SYNODUS FOETENS	Inshore Lizardfish	1
CARANX HIPPOS	Creville Jack	1
LARIMUS FASCIATUS	Banded Drum	1
PEPRILUS PARU	Harvestfish	1

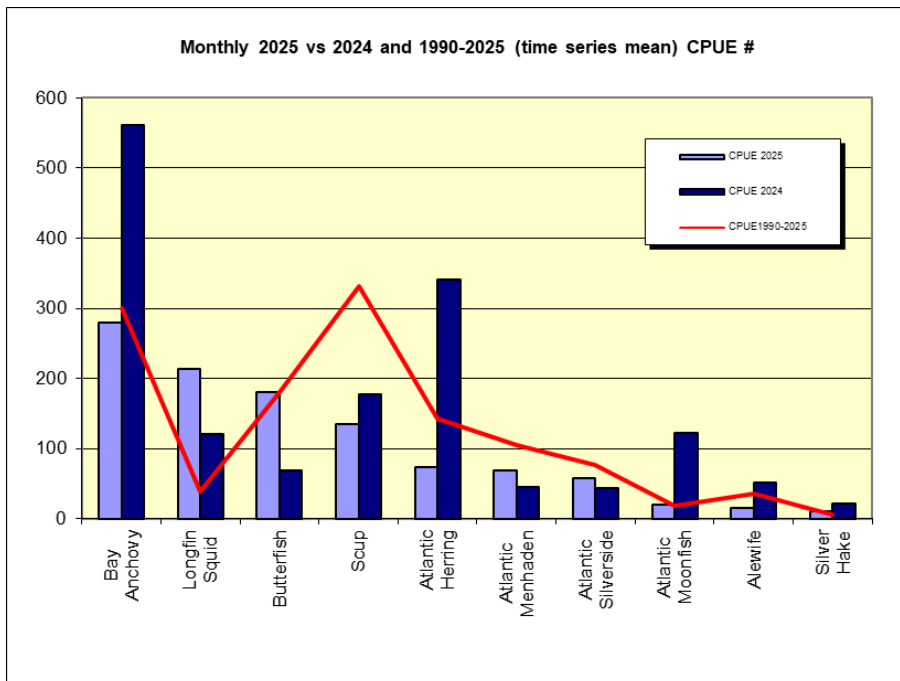
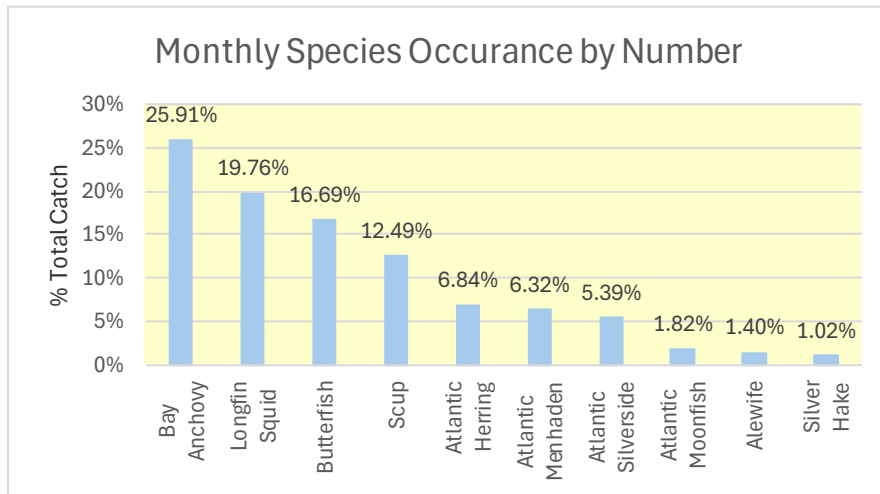
**Figure 3 (Total Catch in Kilograms)**

Scientific Name	Common Name	Total Weight (kg)
STENOTOMUS CHRYSOPS	Scup	1993.413
PEPRILUS TRIACANTHUS	Butterfish	751.327
DORYTEUTHIS PEALEII	Longfin Squid	415.680
MERLUCCIOUS BILINEARIS	Silver Hake	165.765
MUSTELUS CANIS	Smooth Dogfish	137.021
BREVOORTIA TYRANNUS	Atlantic Menhaden	118.518
CLUPEA HARENGUS	Atlantic Herring	114.409
TAUTOGA ONITIS	Tautog	102.740
CYNOSCIION REGALIS	Weakfish	79.090
MORONE SAXATILIS	Striped Bass	76.160
RAJA EGLANTERIA	Clearnose Skate	65.687
ANCHOA MITCHILLI	Bay Anchovy	60.798
CENTROPRISTIS STRIATA	Black Sea Bass	60.547
LEUCORAJA ERINACEA	Little Skate	58.269
ALOSA PSEUDOHARENGUS	Alewife	56.466
PARALICHTHYS DENTATUS	Summer Flounder	52.287
MENIDIA MENIDIA	Atlantic Silverside	33.385
HOMARUS AMERICANUS	American Lobster	25.813
PRIONOTUS EVOLANS	Striped Sea Robin	19.312
SCOPHTHALMUS AQUOSUS	Windowpane Flounder	15.881
PLEURONECTES AMERICANUS	Winter Flounder	15.562
LIMULUS POLYPHEMUS	Horseshoe Crab	13.900
POMATOMUS SALTATRIX	Bluefish	13.846
PRIONOTUS CAROLINUS	Northern Sea Robin	11.468
CANCER IRRORATUS	Rock Crab	11.419
UROPHYCIS CHUSS	Red Hake	11.232
ALOSA SAPIDISSIMA	American Shad	7.411
LEIOSTOMUS XANTHURUS	Spot	7.351
UROPHYCIS REGIA	Spotted Hake	6.664
SELENE SETAPINNIS	Atlantic Moonfish	5.707
ALOSA AESTIVALIS	Blueback Herring	4.641
LEUCORAJA OCELLATA	Winter Skate	3.248
PARALICHTHYS OBLONGUS	Fourspot Flounder	2.248
BUSYCOTYPUS CANALICULATUS	Channeled Whelk	1.946
MYOXOCEPHALUS OCTODECEMSPINOS	Longhorn Sculpin	1.791
SARDA SARDA	Atlantic Bonito	1.750
CALLINECTES SAPIDUS	Blue Crab	1.566
BUSYCON CARICA	Knobbed Whelk	1.384
GADUS MORHUA	Atlantic Cod	1.007

SCOMBER SCOMBRUS	Atlantic Mackerel	0.959
CANCER BOREALIS	Jonah Crab	0.826
MENTICIRRHUS SAXATILIS	Northern Kingfish	0.720
MYLIOBATIS FREMINVILLII	Bullnose Ray	0.645
UROPHYCIS TENUIS	White Hake	0.610
MICROPOGONIAS UNDULATUS	Atlantic Croaker	0.525
PETROMYZON MARINUS	Sea Lamprey	0.502
SPHOEROIDES MACULATUS	Northern Puffer	0.355
TRACHURUS LATHAMI	Rough Scad	0.286
ENCHELYOPUS CIMBRIUS	Fourbeard Rockling	0.195
TAUTOGOLABRUS ADSPERSUS	Cunner	0.194
AMMODYTES AMERICANUS	Sand Lance	0.150
CARANX HIPPOS	Crevalle Jack	0.130
MICROGADUS TOMCOD	Atlantic Tomcod	0.128
LARIMUS FASCIATUS	Banded Drum	0.126
PEPRILUS PARU	Harvestfish	0.105
CITHARICHTHYS ARCTIFRONS	Gulfstream Flounder	0.089
OPSANUS TAU	Oyster Toadfish	0.088
SQUILLA EMPUSA	Mantis Shrimp	0.075
SELAR CRUMENOPHTHALMUS	Bigeye Scad	0.046
ANGUILLA ROSTRATA	American Eel	0.038
ETRUMEUS TERES	Round Herring	0.035
DECAPTERUS PUNCTATUS	Round Scad	0.030
PRIACANTHUS ARENATUS	Bigeye	0.028
GASTEROSTEUS ACULEATUS	Threespine Stickleback	0.020
MULLUS AURATUS	Red Goatfish	0.020
SYNODUS FOETENS	Inshore Lizardfish	0.014
OSMERUS MORDAX	Rainbow Smelt	0.010
FISTULARIA TABACARIA	Cornetfish	0.010

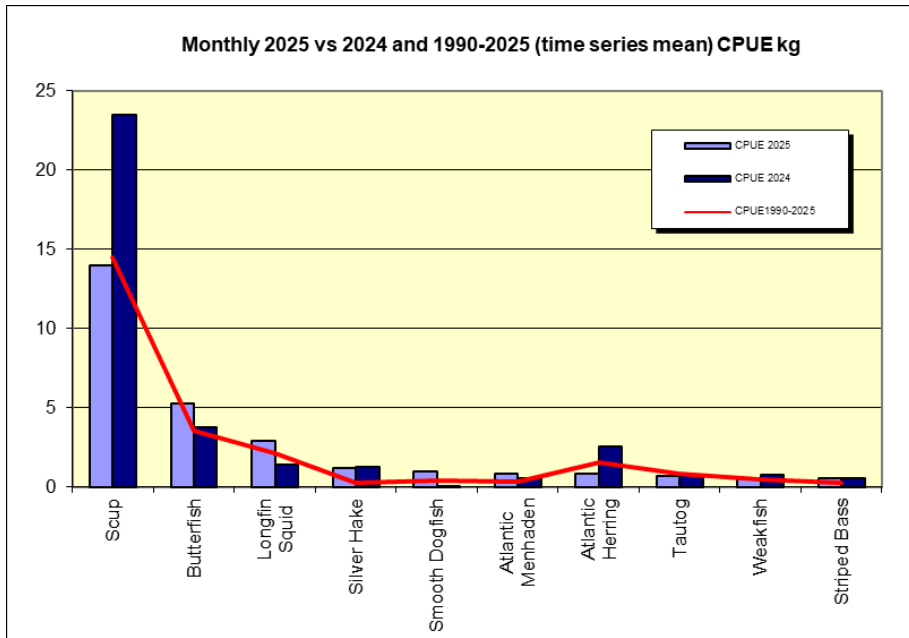
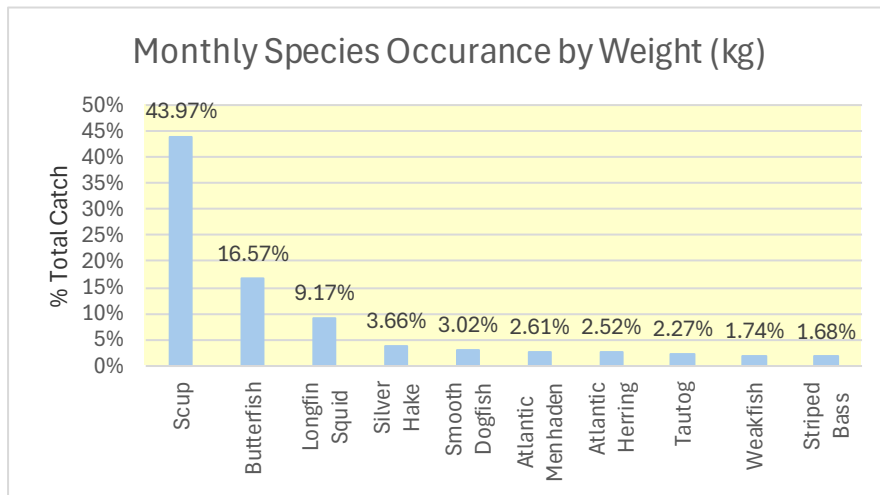
**Figure 4 Monthly Survey Top Ten Species Catch in Number**

Scientific Name	Common Name	%
ANCHOA MITCHILLI	Bay Anchovy	25.91%
DORYTEUTHIS PEALEII	Longfin Squid	19.76%
PEPRILUS TRIACANTHUS	Butterfish	16.69%
STENOTOMUS CHRYSOPS	Scup	12.49%
CLUPEA HARENGUS	Atlantic Herring	6.84%
BREVOORTIA TYRANNUS	Atlantic Menhaden	6.32%
MENIDIA MENIDIA	Atlantic Silverside	5.39%
SELENE SETAPINNIS	Atlantic Moonfish	1.82%
ALOSA PSEUDOHARENGUS	Alewife	1.40%
MERLUCCIUS BILINEARIS	Silver Hake	1.02%



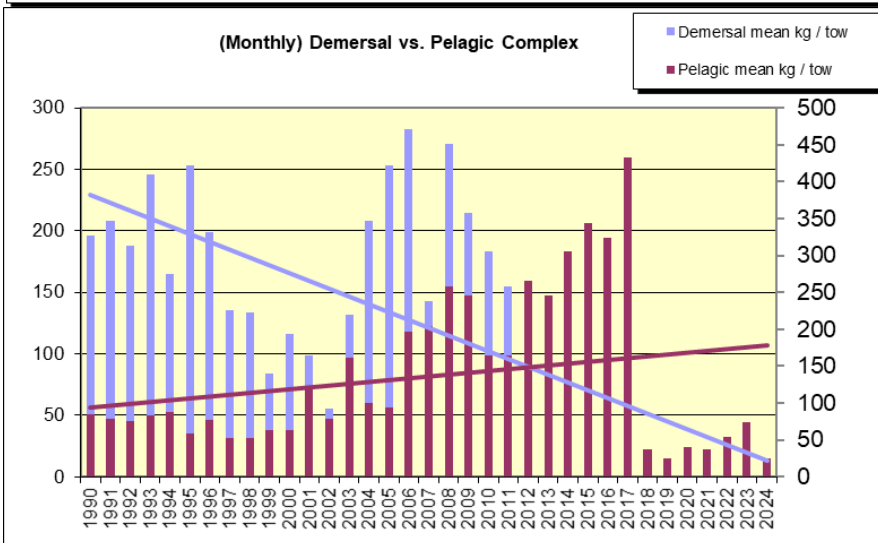
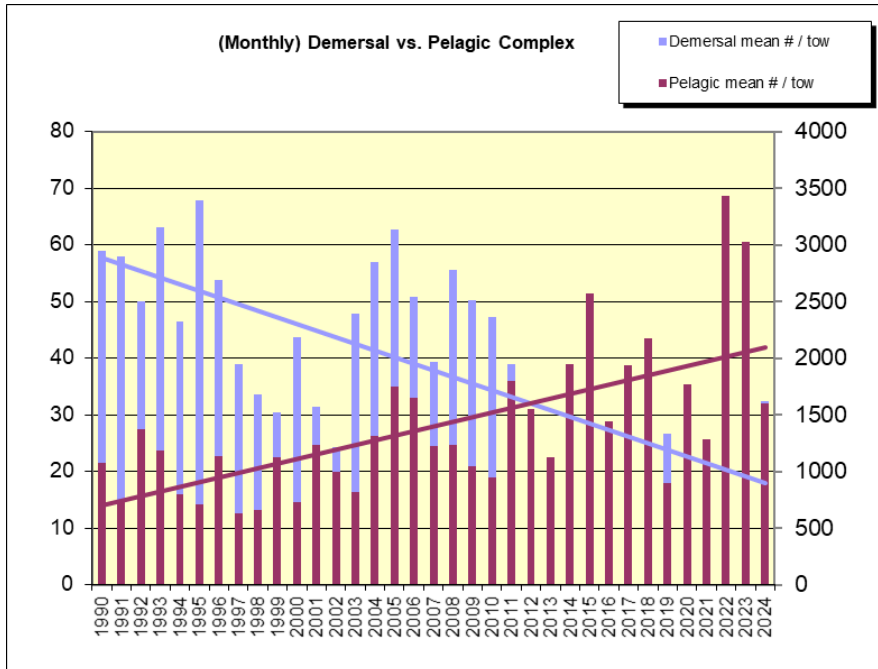
**Figure 5 Top Ten Species Catch in Kilograms**

Scientific Name	Common Name	%
STENOTOMUS CHRYSOPS	Scup	43.97%
PEPRILUS TRIACANTHUS	Butterfish	16.57%
DORYTEUTHIS PEALEII	Longfin Squid	9.17%
MERLUCCIIUS BILINEARIS	Silver Hake	3.66%
MUSTELUS CANIS	Smooth Dogfish	3.02%
BREVOORTIA TYRANNUS	Atlantic Menhaden	2.61%
CLUPEA HARENGUS	Atlantic Herring	2.52%
TAUTOGA ONITIS	Tautog	2.27%
CYNOSEIUM REGALIS	Weakfish	1.74%
MORONE SAXATILIS	Striped Bass	1.68%



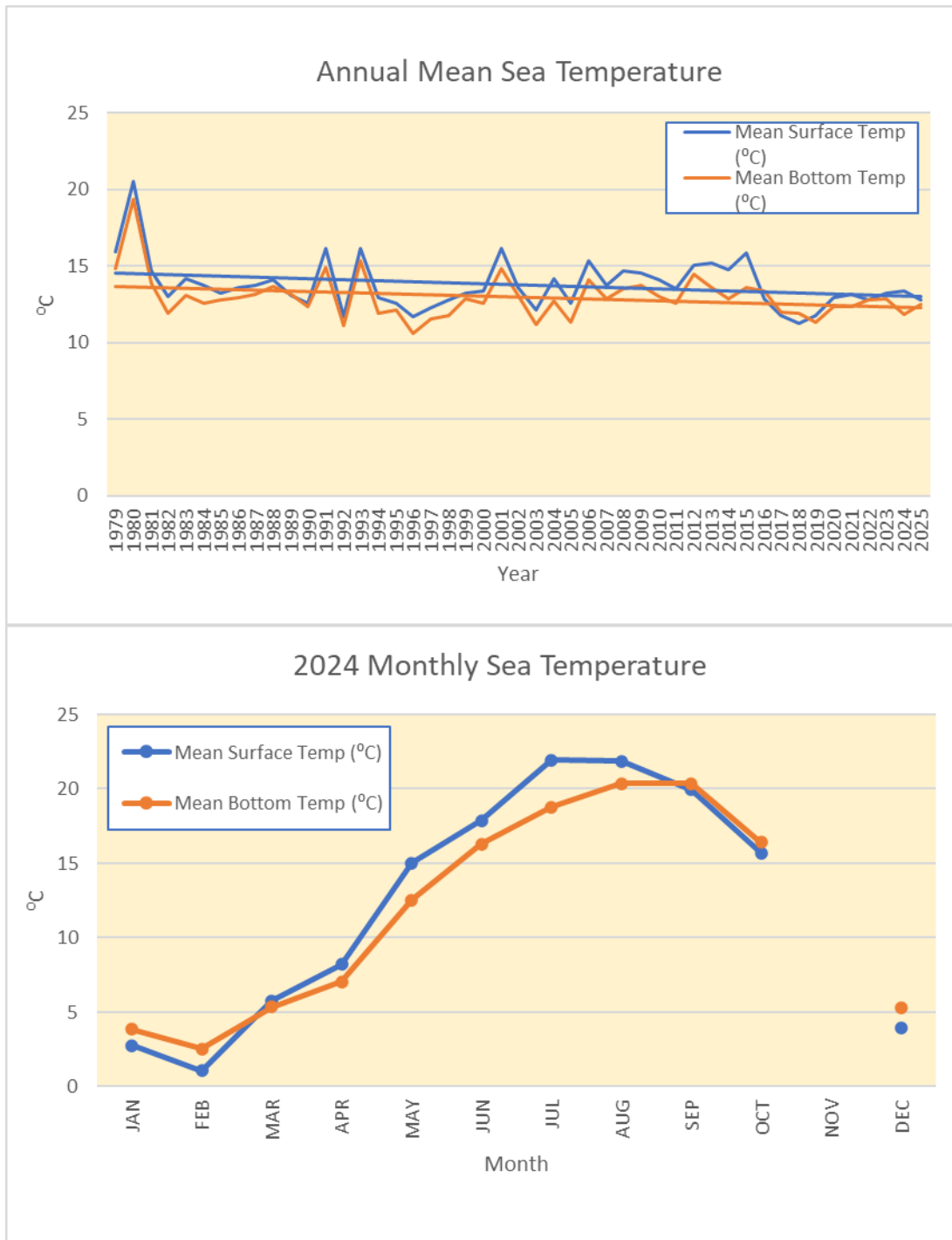
**Figure 6 and 7: Demersal vs. Pelagic Species Complex**

Demersal Species		Pelagic/Multi-Habitat Species	
Smooth Dogfish	Hogchoker	Atlantic Herring	Bluefish
Spiny Dogfish	Longhorn Sculpin	Alewife	Striped Bass
Skates	Sea Raven	Blueback Herring	Black Sea Bass
Silver Hake	Northern Searobin	Shad	Scup
Red Hake	Striped Searobin	Menhaden	Weakfish
Spotted Hake	Cunner	Bay Anchovy	Longfin Squid
Summer Flounder	Tautog	Rainbow Smelt	
4-Spot Flounder	Ocean Pout	Silverside	
Winter Flounder	Goosefish	Butterfish	
Windowpane Flounder	Lobster	Atlantic Moonfish	



## Monthly Survey Temperature Profile (Annual mean surface and bottom temperature)

Surface and bottom temperatures are collected at every station. The bottom temperature was collected by Niskin bottle until June 2019 at the average or maximum depth for each station. From June 2019 onward bottom temperature is the average over an entire tow as record by a Starmon TD® temperature and depth sensor attached to the footrope of the net.



**Results: Job 2.** The Seasonal Coastal Trawl Survey is defined by 12 fixed stations in Narragansett Bay, 14 random stations in Narragansett Bay, 6 fixed stations in Rhode Island Sound, 12 fixed stations in Block Island Sound. 60 species were observed and recorded during the 2025 Rhode Island Seasonal Trawl Survey, totaling 140,304 individuals or 1594.36 fish per tow. In weight, the catch accounted for 4855.70 kg. or 55.17 kg. per tow. (Figures 8 and 9) The top ten species by number and catch are represented in figures 10 and 11. The change between demersal and pelagic species is represented in figures 12 and 13 and shows a clear shift from demersal species to a more pelagic or multi-habitat species.

**Figure 8 (Total Catch in Number)**

Scientific Name	Common Name	Total
ANCHOA MITCHILLI	Bay Anchovy	42226
STENOTOMUS CHRYSOPS	Scup	38863
DORYTEUTHIS PEALEII	Longfin Squid	26321
PEPRILUS TRIACANTHUS	Butterfish	24556
BREVOORTIA TYRANNUS	Atlantic Menhaden	17701
SELENE SETAPINNIS	Atlantic Moonfish	5032
CLUPEA HARENGUS	Atlantic Herring	2860
POMATOMUS SALTATRIX	Bluefish	1290
ALOSA PSEUDOHARENGUS	Alewife	1089
CYNOSCION REGALIS	Weakfish	881
GADUS MORHUA	Atlantic Cod	662
ALOSA AESTIVALIS	Blueback Herring	570
PRIONOTUS CAROLINUS	Northern Sea Robin	546
LEIOSTOMUS XANTHURUS	Spot	536
ALOSA SAPIDISSIMA	American Shad	422
MENIDIA MENIDIA	Atlantic Silverside	371
MERLUCCIIUS BILINEARIS	Silver Hake	326
CENTROPRISTIS STRIATA	Black Sea Bass	176
MUSTELUS CANIS	Smooth Dogfish	123
SCOPHTHALMUS AQUOSUS	Windowpane Flounder	99
PARALICHTHYS DENTATUS	Summer Flounder	90
RAJA EGLANTERIA	Clearnose Skate	82
PLEURONECTES AMERICANUS	Winter Flounder	48
CANCER IRRORATUS	Rock Crab	44
LEUCORAJA ERINACEA	Little Skate	43
UROPHYCIS REGIA	Spotted Hake	42
SCOMBER SCOMBRUS	Atlantic Mackerel	38
HOMARUS AMERICANUS	American Lobster	35
FISTULARIA TABACARIA	Cornetfish	29
PRIONOTUS EVOLANS	Striped Sea Robin	27

CALLINECTES SAPIDUS	Blue Crab	27
LEUCORAJA OCELLATA	Winter Skate	24
MENTICIRRHUS SAXATILIS	Northern Kingfish	24
AMMODYTES AMERICANUS	Sand Lance	23
MORONE SAXATILIS	Striped Bass	13
SPHOEROIDES MACULATUS	Northern Puffer	11
BUSYCOTYPUS CANALICULATUS	Channeled Whelk	11
TAUTOGA ONITIS	Tautog	10
LIMULUS POLYPHEMUS	Horseshoe Crab	10
MICROPOGONIAS UNDULATUS	Atlantic Croaker	9
CITHARICHTHYS ARCTIFRONS	Gulfstream Flounder	8
BUSYCON CARICA	Knobbed Whelk	5
UROPHYCIS CHUSS	Red Hake	4
SELAR CRUMENOPHTHALMUS	Bigeye Scad	4
CARANX HIPPOS	Crevalle Jack	4
DECAPTERUS PUNCTATUS	Round Scad	3
PETROMYZON MARINUS	Sea Lamprey	2
PARALICHTHYS OBLONGUS	Fourspot Flounder	2
MYOXOCEPHALUS OCTODECEMSPINOS	Longhorn Sculpin	2
SPHYRAENA BOREALIS	Northern Sennet	2
SQUILLA EMPUSA	Mantis Shrimp	2
MYLIOBATIS FREMINVILLII	Bullnose Ray	1
ANCHOA HEPSETUS	Striped Anchovy	1
ENCHELYOPUS CIMBRIUS	Fourbeard Rockling	1
SARDA SARDA	Atlantic Bonito	1
PHOLIS GUNNELLUS	Rock Gunnel	1
MULLUS AURATUS	Red Goatfish	1
MONACANTHUS HISPIDUS	Planehead Filefish	1
MICROGADUS TOMCOD	Atlantic Tomcod	1
CANCER BOREALIS	Jonah Crab	1

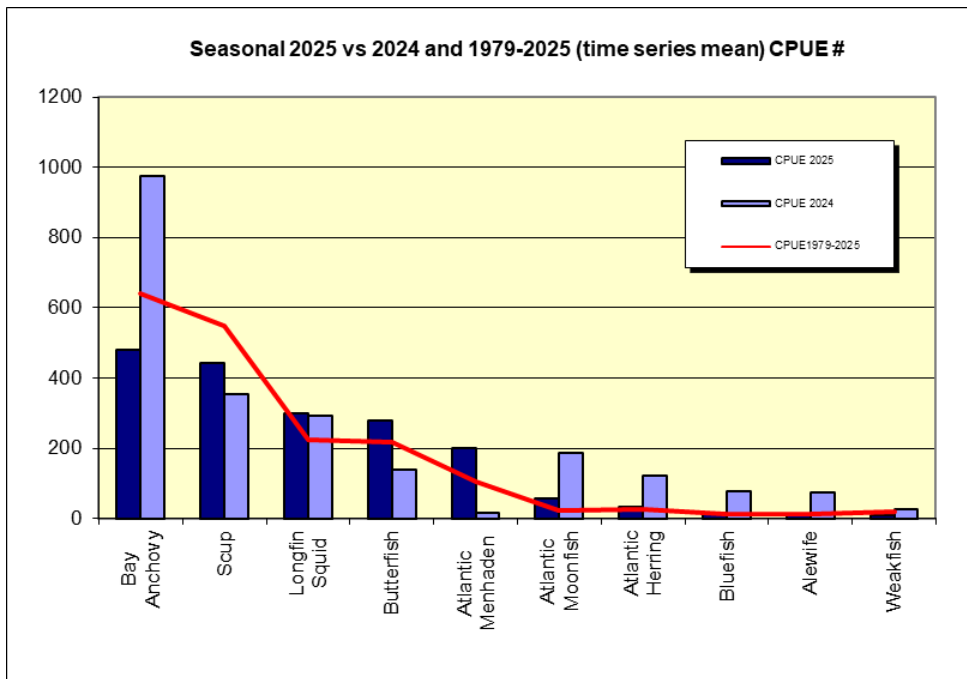
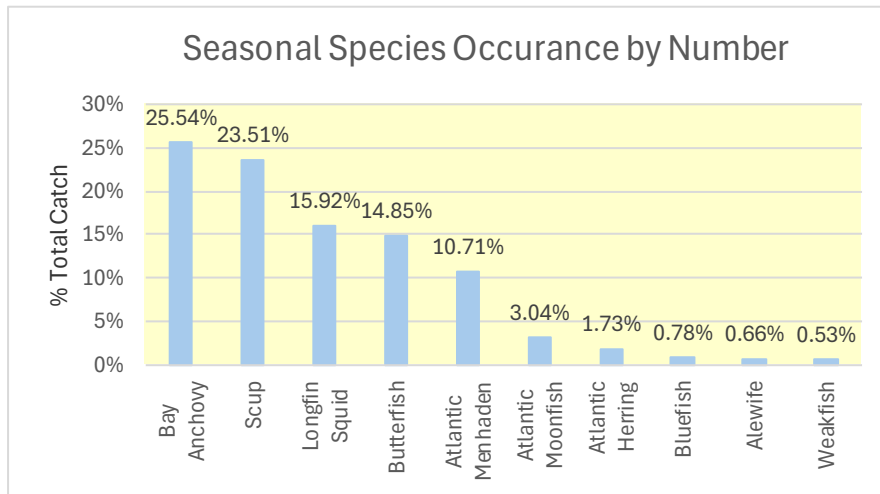
**Figure 9 (Total Catch in Kilograms)**

Scientific Name	Common Name	Total Weight (kg)
STENOTOMUS CHRYSOPS	Scup	3102.399
PEPRILUS TRIACANTHUS	Butterfish	435.014
DORYTEUTHIS PEALEII	Longfin Squid	287.196
MUSTELUS CANIS	Smooth Dogfish	164.970
RAJA EGLANTERIA	Clearnose Skate	107.146
LEIOSTOMUS XANTHURUS	Spot	85.573
PRIONOTUS CAROLINUS	Northern Sea Robin	77.420
CYNOSCION REGALIS	Weakfish	61.996
POMATOMUS SALTATRIX	Bluefish	54.396
ANCHOA MITCHILLI	Bay Anchovy	53.958
BREVOORTIA TYRANNUS	Atlantic Menhaden	52.149
CENTROPRISTIS STRIATA	Black Sea Bass	46.362
PARALICHTHYS DENTATUS	Summer Flounder	44.075
MERLUCCIIUS BILINEARIS	Silver Hake	29.849
LEUCORAJA ERINACEA	Little Skate	25.200
ALOSA PSEUDOHARENGUS	Alewife	24.648
MORONE SAXATILIS	Striped Bass	21.999
CLUPEA HARENGUS	Atlantic Herring	21.392
LIMULUS POLYPHEMUS	Horseshoe Crab	20.830
SELENE SETAPINNIS	Atlantic Moonfish	17.101
SCOPHTHALMUS AQUOSUS	Windowpane Flounder	13.608
HOMARUS AMERICANUS	American Lobster	12.497
PLEURONECTES AMERICANUS	Winter Flounder	11.740
LEUCORAJA OCELLATA	Winter Skate	10.840
ALOSA SAPIDISSIMA	American Shad	10.478
SCOMBER SCOMBRUS	Atlantic Mackerel	8.837
CANCER IRRORATUS	Rock Crab	8.523
ALOSA AESTIVALIS	Blueback Herring	8.389
PRIONOTUS EVOLANS	Striped Sea Robin	7.964
TAUTOGA ONITIS	Tautog	5.760
UROPHYCIS REGIA	Spotted Hake	4.899
CALLINECTES SAPIDUS	Blue Crab	4.141
MENTICIRRHUS SAXATILIS	Northern Kingfish	2.810
SARDA SARDA	Atlantic Bonito	1.750
MENIDIA MENIDIA	Atlantic Silverside	1.727
BUSYCOTYPUS CANALICULATUS	Channeled Whelk	1.695
MICROPOGONIAS UNDULATUS	Atlantic Croaker	1.080
SPHOEROIDES MACULATUS	Northern Puffer	0.737
BUSYCON CARICA	Knobbed Whelk	0.715

MYLIOBATIS FREMINVILLII	Bullnose Ray	0.645
MYOXOCEPHALUS OCTODECEMSPINOS	Longhorn Sculpin	0.604
FISTULARIA TABACARIA	Cornetfish	0.582
GADUS MORHUA	Atlantic Cod	0.463
AMMODYTES AMERICANUS	Sand Lance	0.295
SELAR CRUMENOPHTHALMUS	Bigeye Scad	0.275
CITHARICHTHYS ARCTIFRONS	Gulfstream Flounder	0.196
CANCER BOREALIS	Jonah Crab	0.188
CARANX HIPPOS	Creville Jack	0.155
SPHYRAENA BOREALIS	Northern Sennet	0.107
UROPHYCIS CHUSS	Red Hake	0.070
SQUILLA EMPUSA	Mantis Shrimp	0.070
ENCHELYOPUS CIMBRIUS	Fourbeard Rockling	0.035
PHOLIS GUNNELLUS	Rock Gunnel	0.035
DECAPTERUS PUNCTATUS	Round Scad	0.034
MULLUS AURATUS	Red Goatfish	0.030
PETROMYZON MARINUS	Sea Lamprey	0.015
PARALICHTHYS OBLONGUS	Fourspot Flounder	0.015
MONACANTHUS HISPIDUS	Planehead Filefish	0.014
ANCHOA HEPSETUS	Striped Anchovy	0.010
MICROGADUS TOMCOD	Atlantic Tomcod	0.001

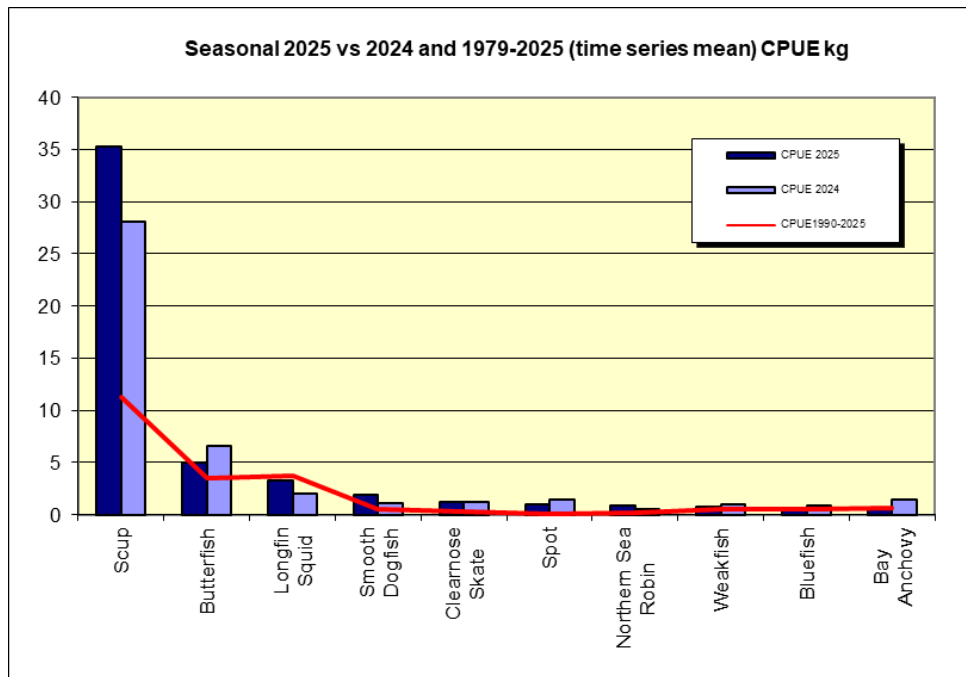
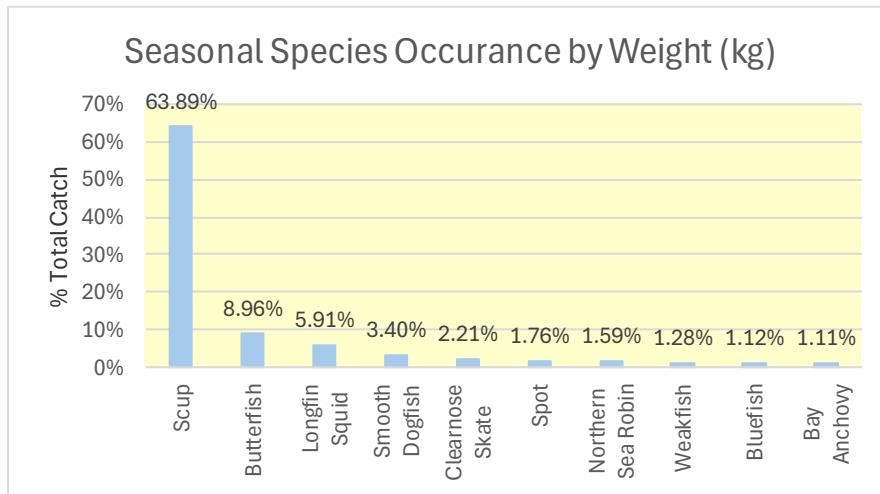
**Figure 10 Top Ten Species Catch in Number**

Scientific Name	Common Name	%
ANCHOA MITCHILLI	Bay Anchovy	25.54%
STENOTOMUS CHRYSOPS	Scup	23.51%
DORYTEUTHIS PEALEII	Longfin Squid	15.92%
PEPRILUS TRIACANTHUS	Butterfish	14.85%
BREVOORTIA TYRANNUS	Atlantic Menhaden	10.71%
SELENE SETAPINNIS	Atlantic Moonfish	3.04%
CLUPEA HARENGUS	Atlantic Herring	1.73%
POMATOMUS SALTATRIX	Bluefish	0.78%
ALOSA PSEUDOHARENGUS	Alewife	0.66%
CYNOSCION REGALIS	Weakfish	0.53%



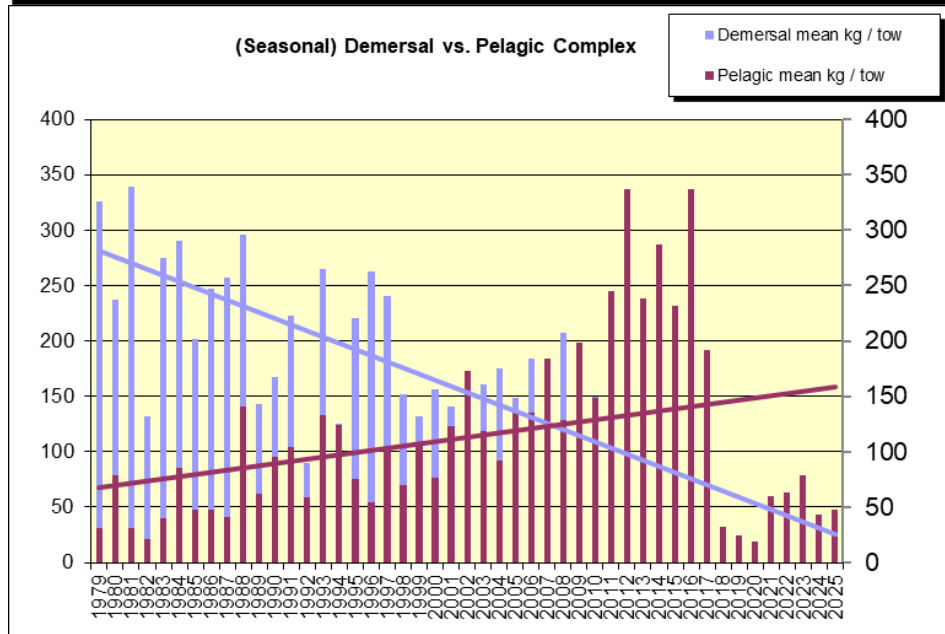
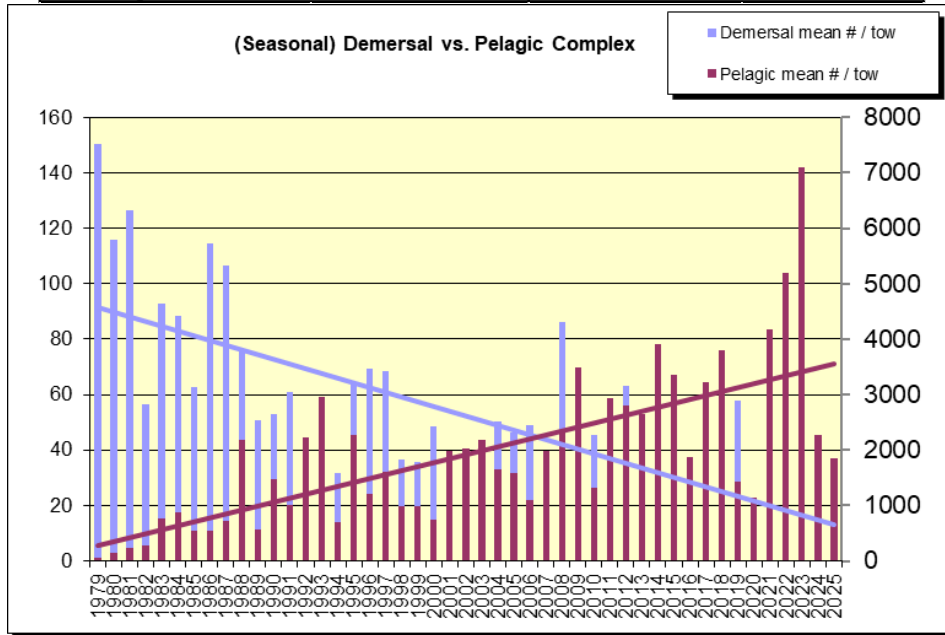
**Figure 11 Top Ten Species Catch in Kilograms**

Scientific Name	Common Name	%
STENOTOMUS CHRYSOPS	Scup	63.89%
PEPRILUS TRIACANTHUS	Butterfish	8.96%
DORYTEUTHIS PEALEII	Longfin Squid	5.91%
MUSTELUS CANIS	Smooth Dogfish	3.40%
RAJA EGLANTERIA	Clearnose Skate	2.21%
LEIOSTOMUS XANTHURUS	Spot	1.76%
PRIONOTUS CAROLINUS	Northern Sea Robin	1.59%
CYNOSCION REGALIS	Weakfish	1.28%
POMATOMUS SALTATRIX	Bluefish	1.12%
ANCHOA MITCHILLI	Bay Anchovy	1.11%

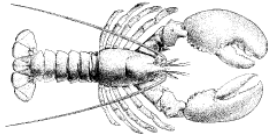


**Figure 12 and 13: Demersal vs. Pelagic Species Complex**

Demersal Species		Pelagic/Multi-Habitat Species	
Smooth Dogfish	Hogchoker	Atlantic Herring	Bluefish
Spiny Dogfish	Longhorn Sculpin	Alewife	Striped Bass
Skates	Sea Raven	Blueback Herring	Black Sea Bass
Silver Hake	Northern Searobin	Shad	Scup
Red Hake	Striped Searobin	Menhaden	Weakfish
Spotted Hake	Cunner	Bay Anchovy	Longfin Squid
Summer Flounder	Tautog	Rainbow Smelt	
4-Spot Flounder	Ocean Pout	Silverside	
Winter Flounder	Goosefish	Butterfish	
Windowpane Flounder	Lobster	Atlantic Moonfish	

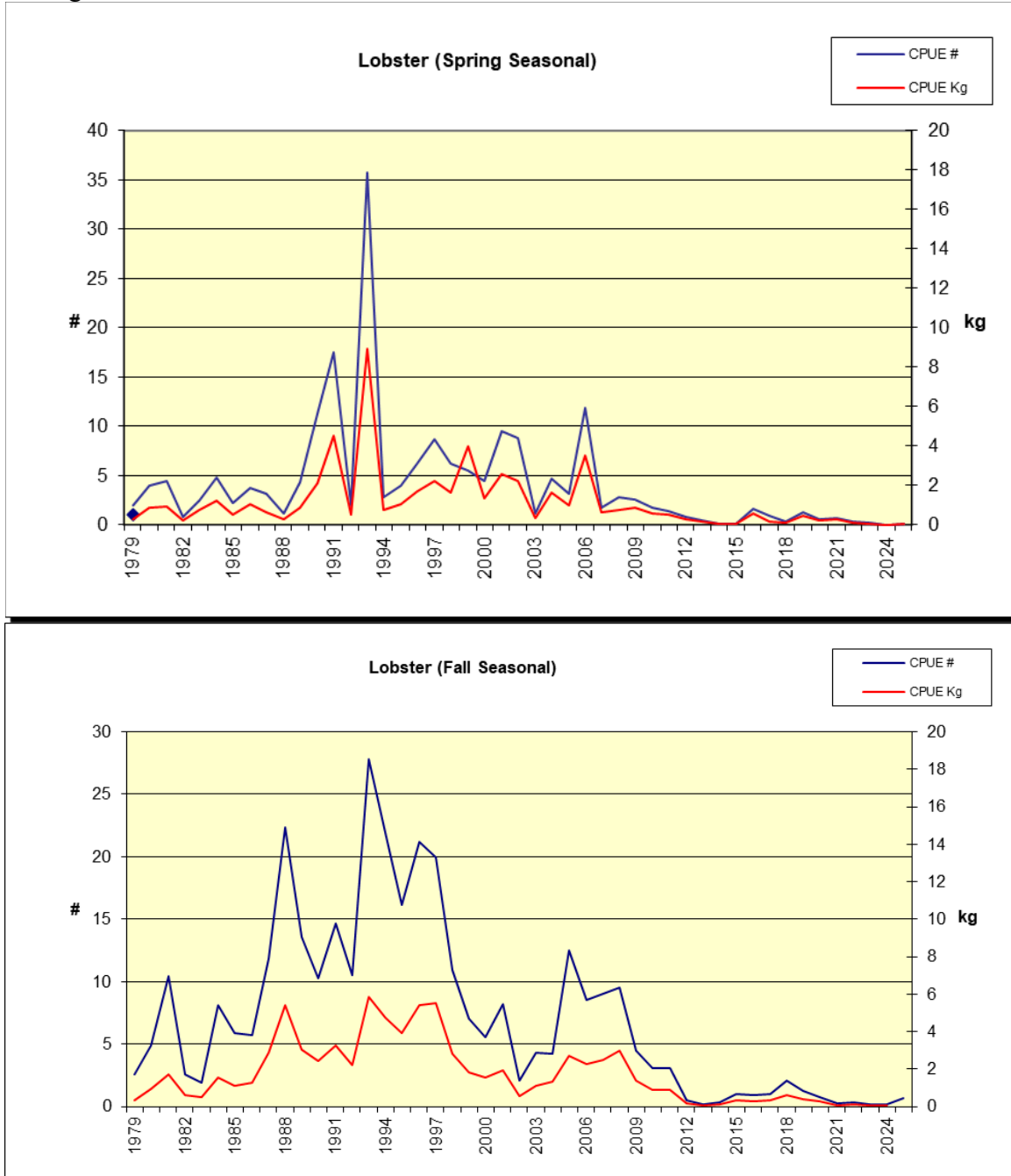


The following species represented are of high importance and are currently managed under fishery management plans through the Atlantic States Marine Fisheries Commission, New England Fishery Management Council, or the National Marine Fisheries Service. The seasonal portion of the Rhode Island Coastal Trawl Survey is an accurate indicator of relative abundance based on the biology and life history of a particular species. Values presented are expressed in either relative number or kilograms per tow. All data collected from both the Seasonal and Monthly Coastal Trawl Surveys are available upon request.



American Lobster *Homarus americanus*

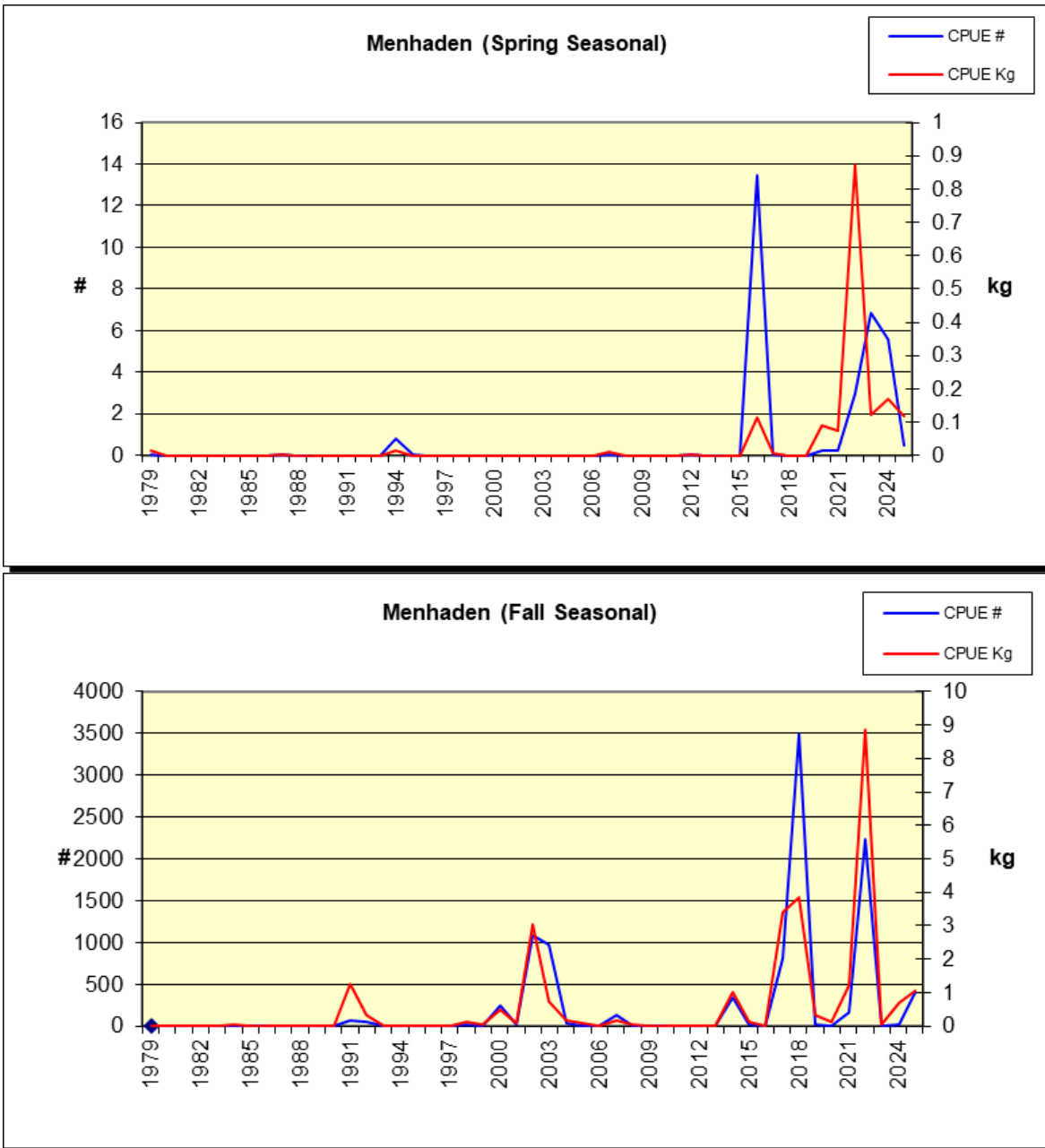
Stock Status: Southern New England Stock: overfished. Depleted Poor condition.  
Management: ASMFC Amendment III, Addendum XXVI





Atlantic Menhaden *Brevoortia tyrannus*

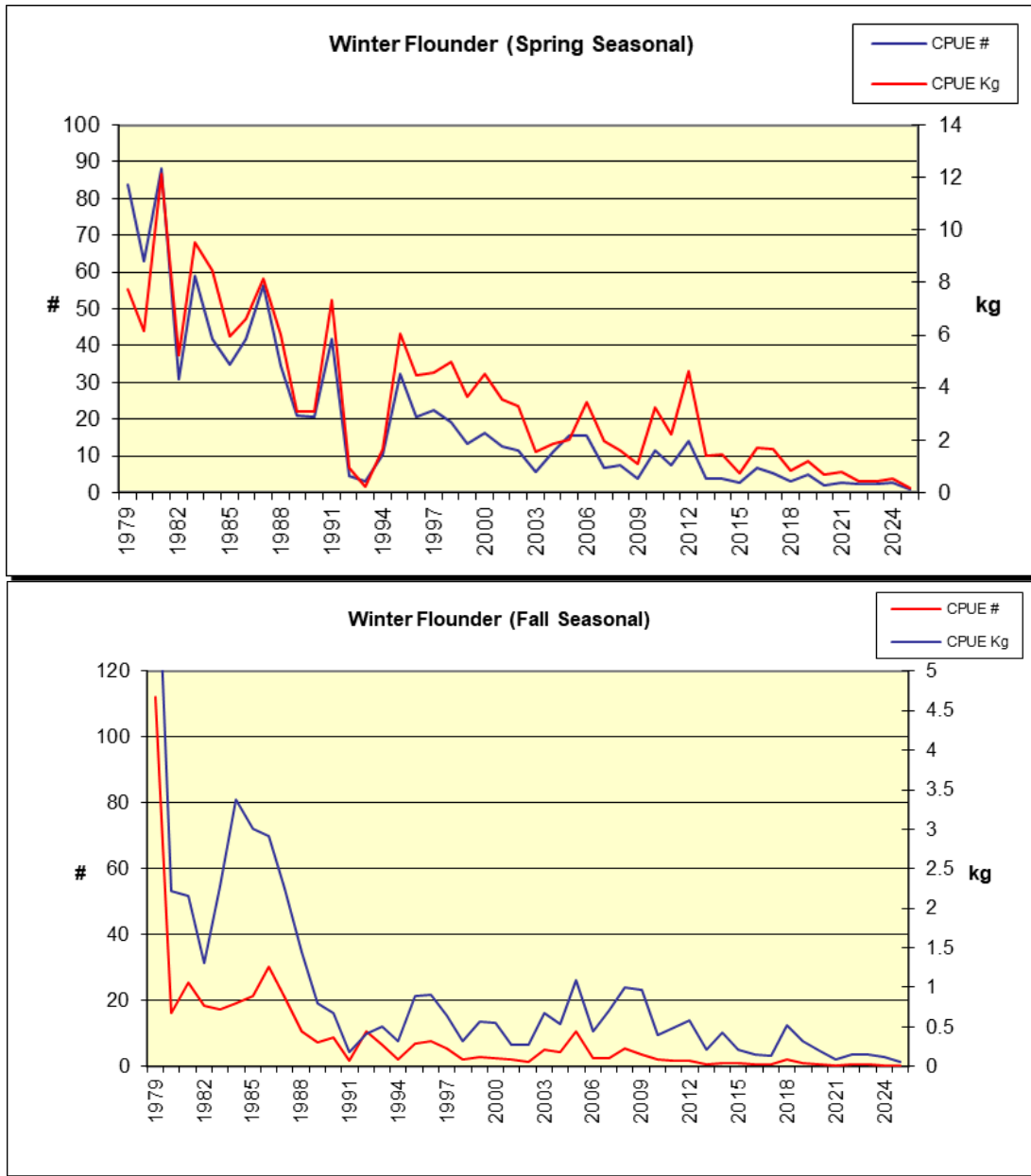
Stock Status: Not Overfished and overfishing is not occurring.  
Management: ASMFC Amendment III, Addendum I

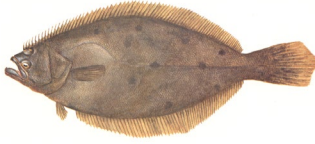




Winter Flounder *Pleuronectes americanus*

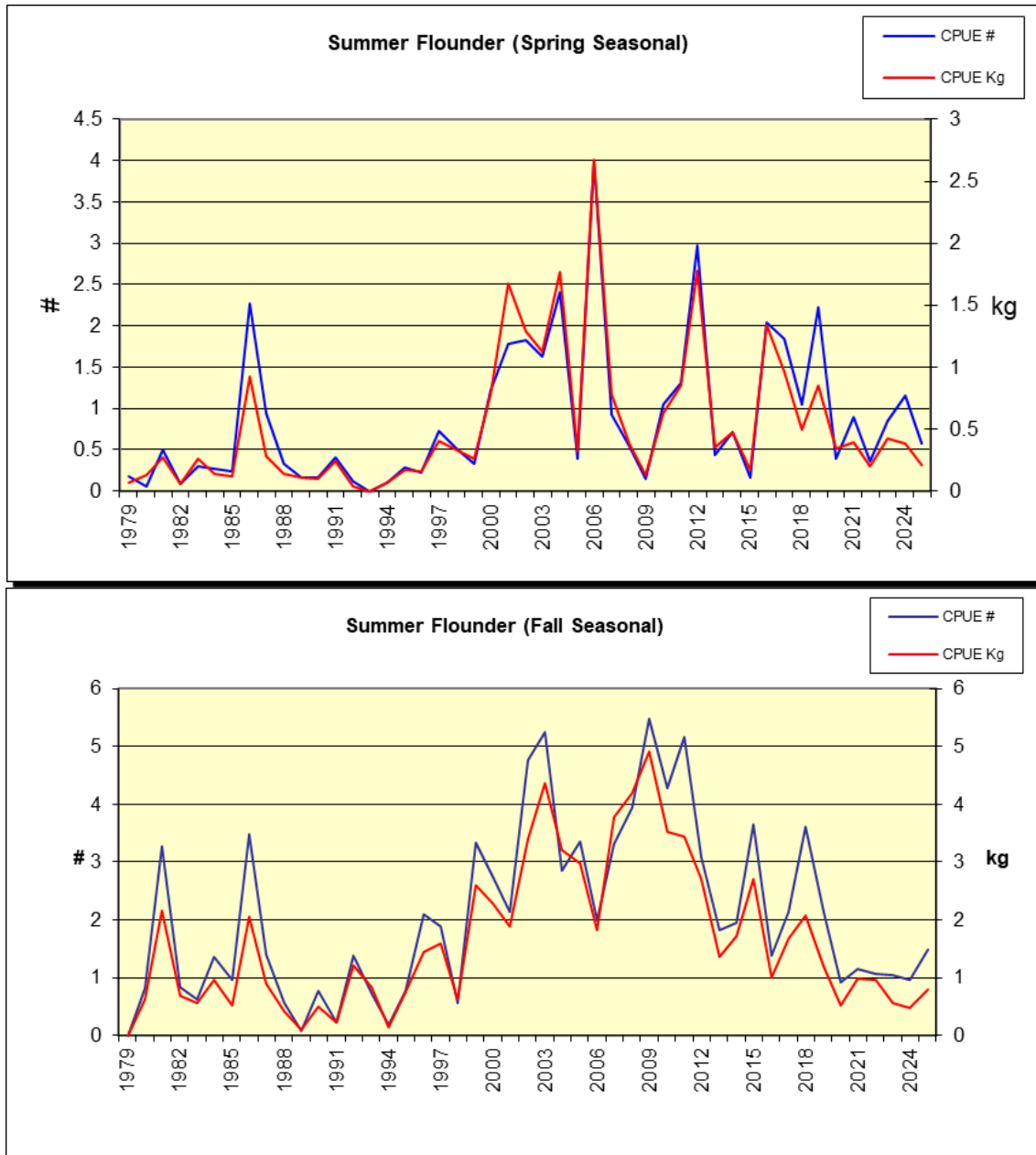
Stock Status: Overfished but overfishing is not occurring.  
Management: ASMFC Amendment I, Addendum III





Summer Flounder *Paralichthys dentatus*

Stock Status: Not overfished and overfishing is occurring.  
Management: ASMFC Amendment XIII Addendum XXXII

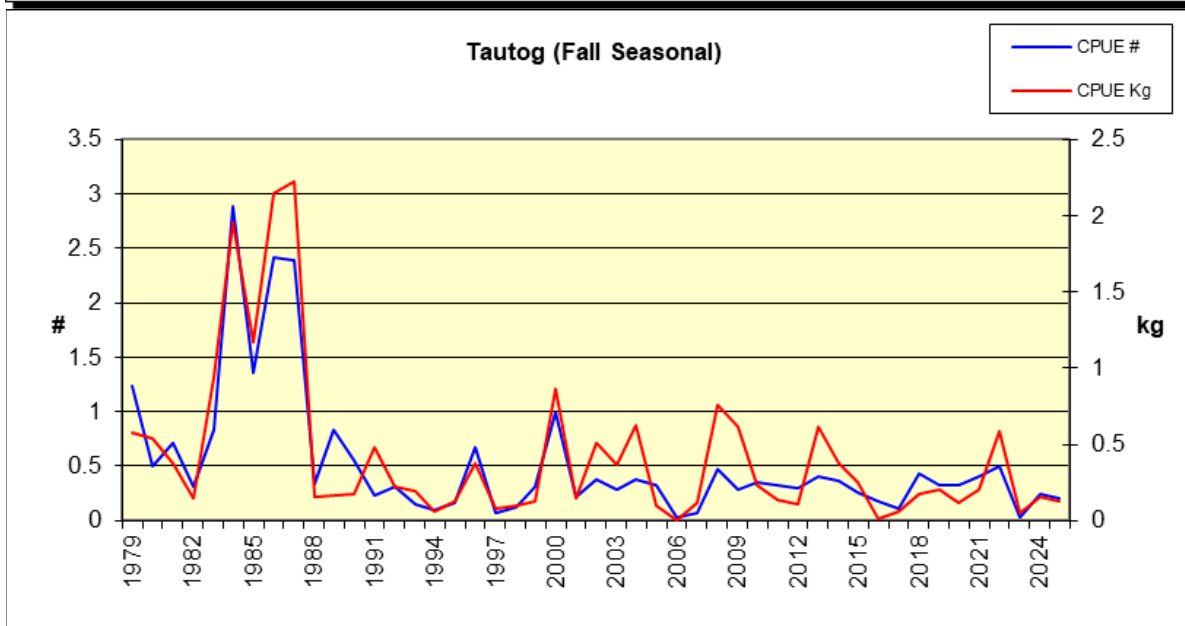
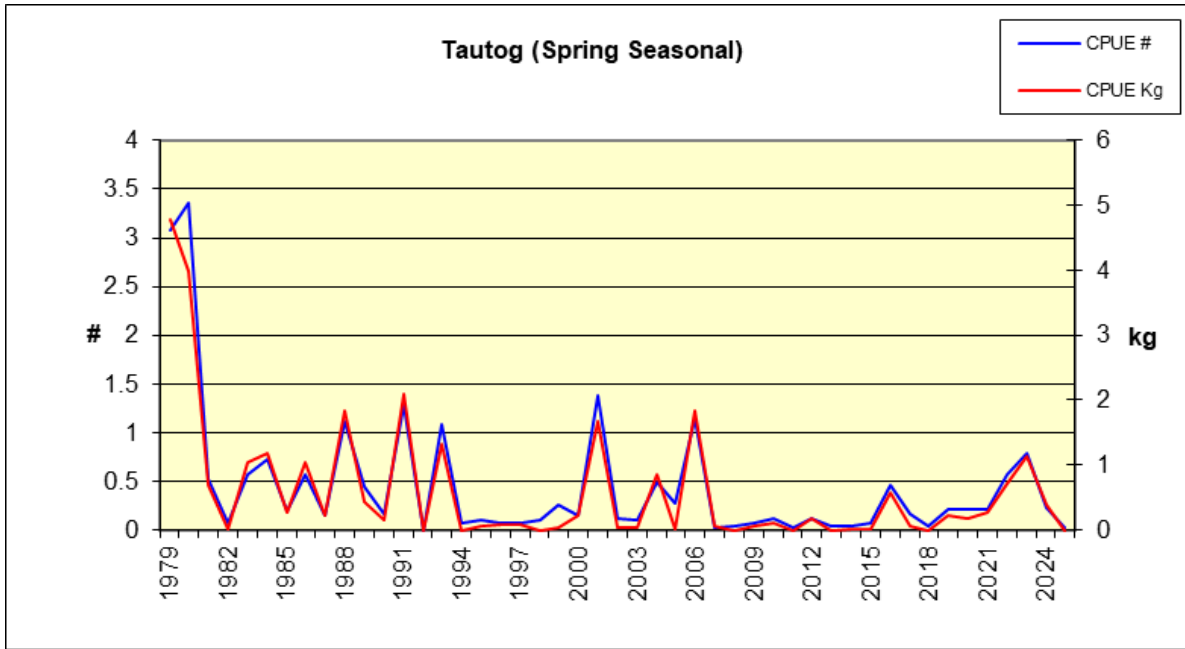


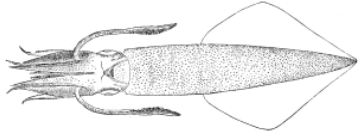


Tautog *Tautoga onitis*

Stock Status: Not Overfished and Overfishing is not occurring based on Regional (Rhode Island and Massachusetts) Stock Assessment

Management: ASMFC Amendment I, Addendum VI

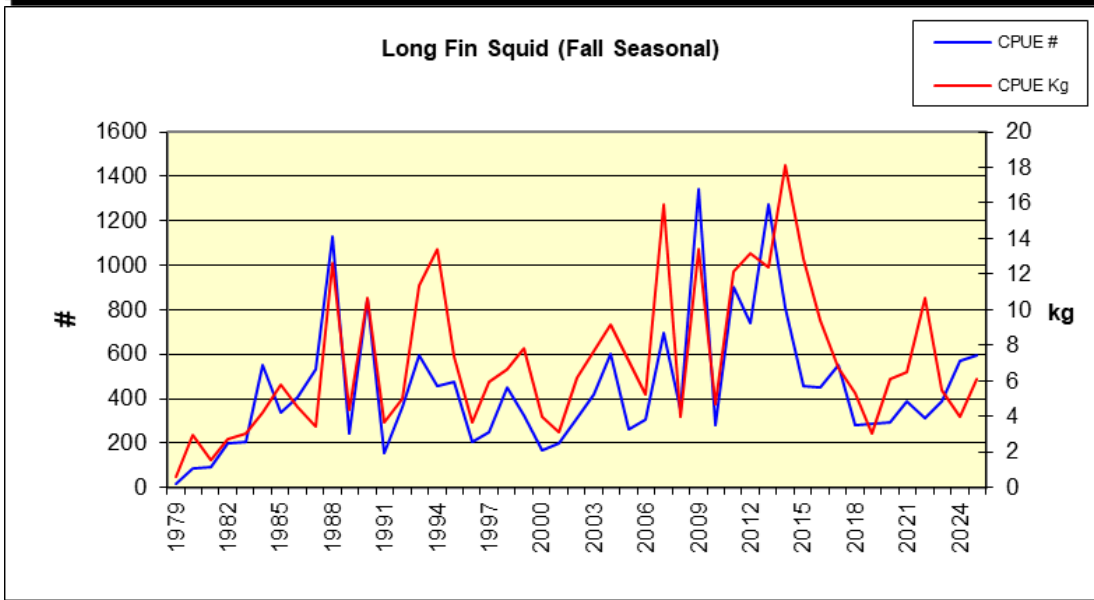
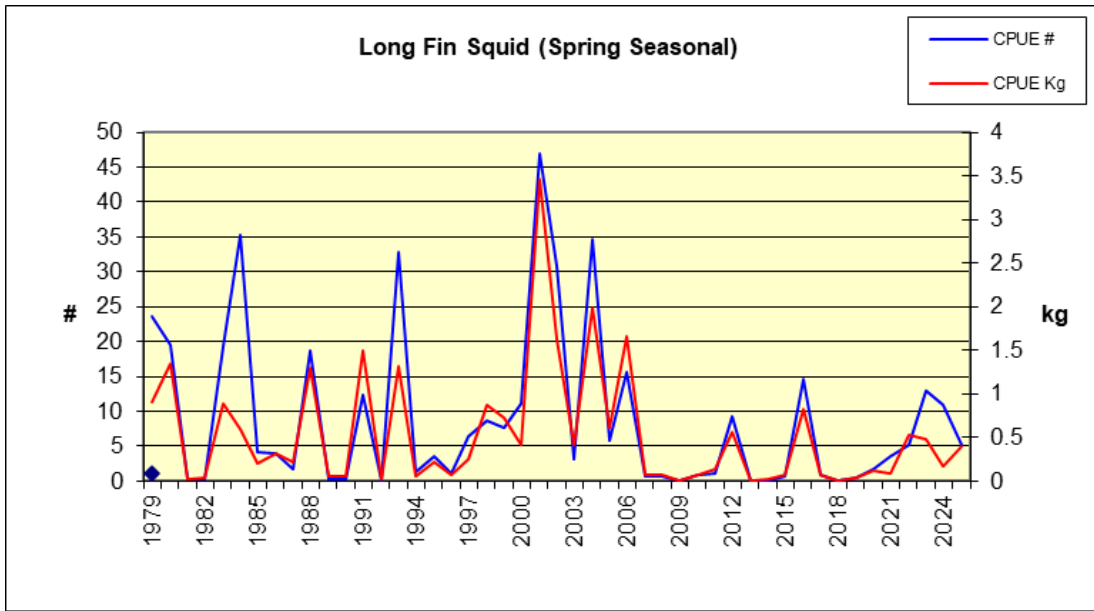




Longfin Squid *Doryteuthis pealeii*

Stock Status: Overfishing undetermined not overfished

Management: NMFS, MAFMC, Atlantic Mackerel, Squid Butterfish FMP

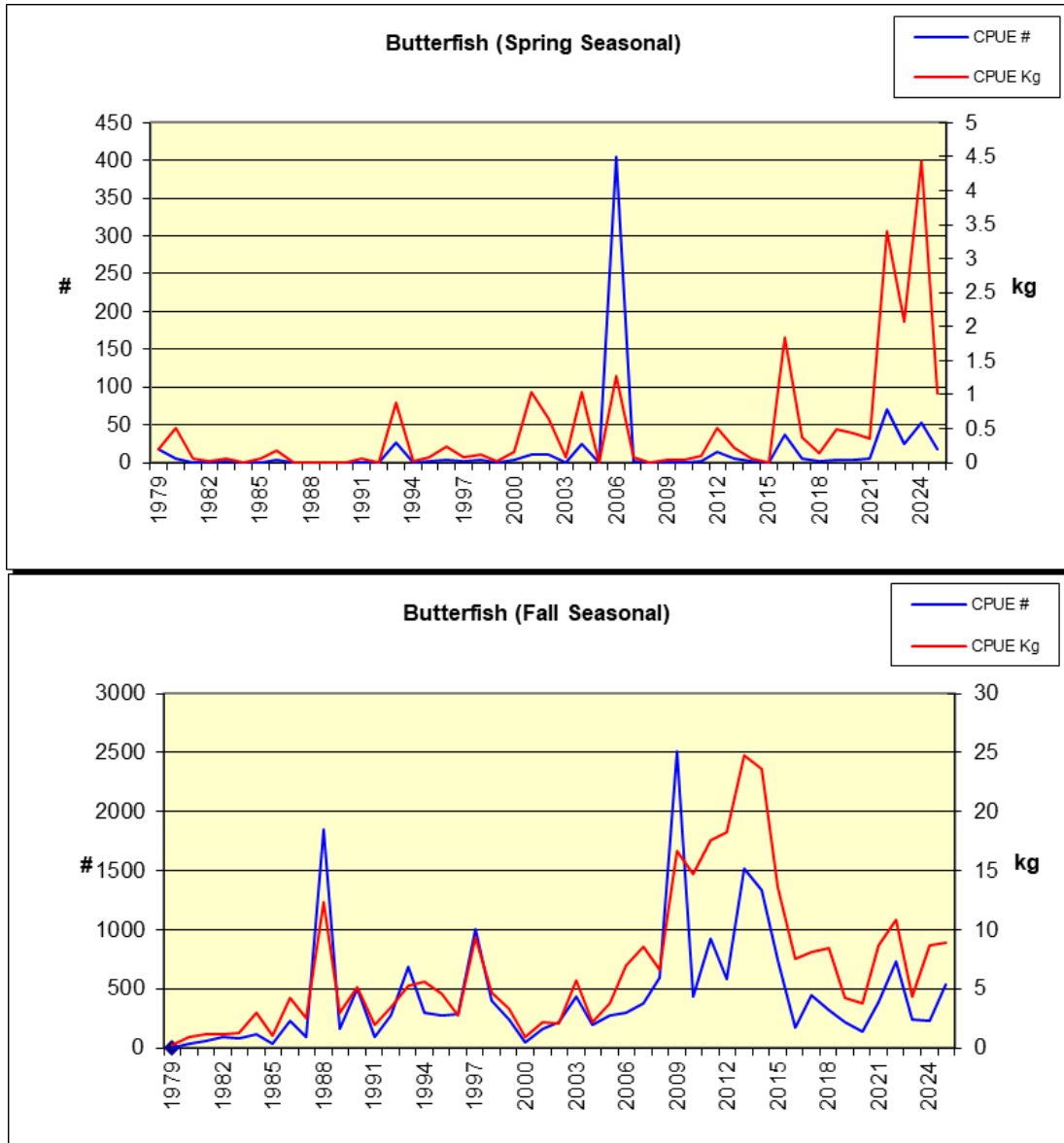




Butterfish *Peprilus triacanthus*

Stock Status: Variable / Uncertain

Management: Mid Atlantic Fishery Management Council, Atlantic Mackerel, Squid Butterfish FMP, ACL

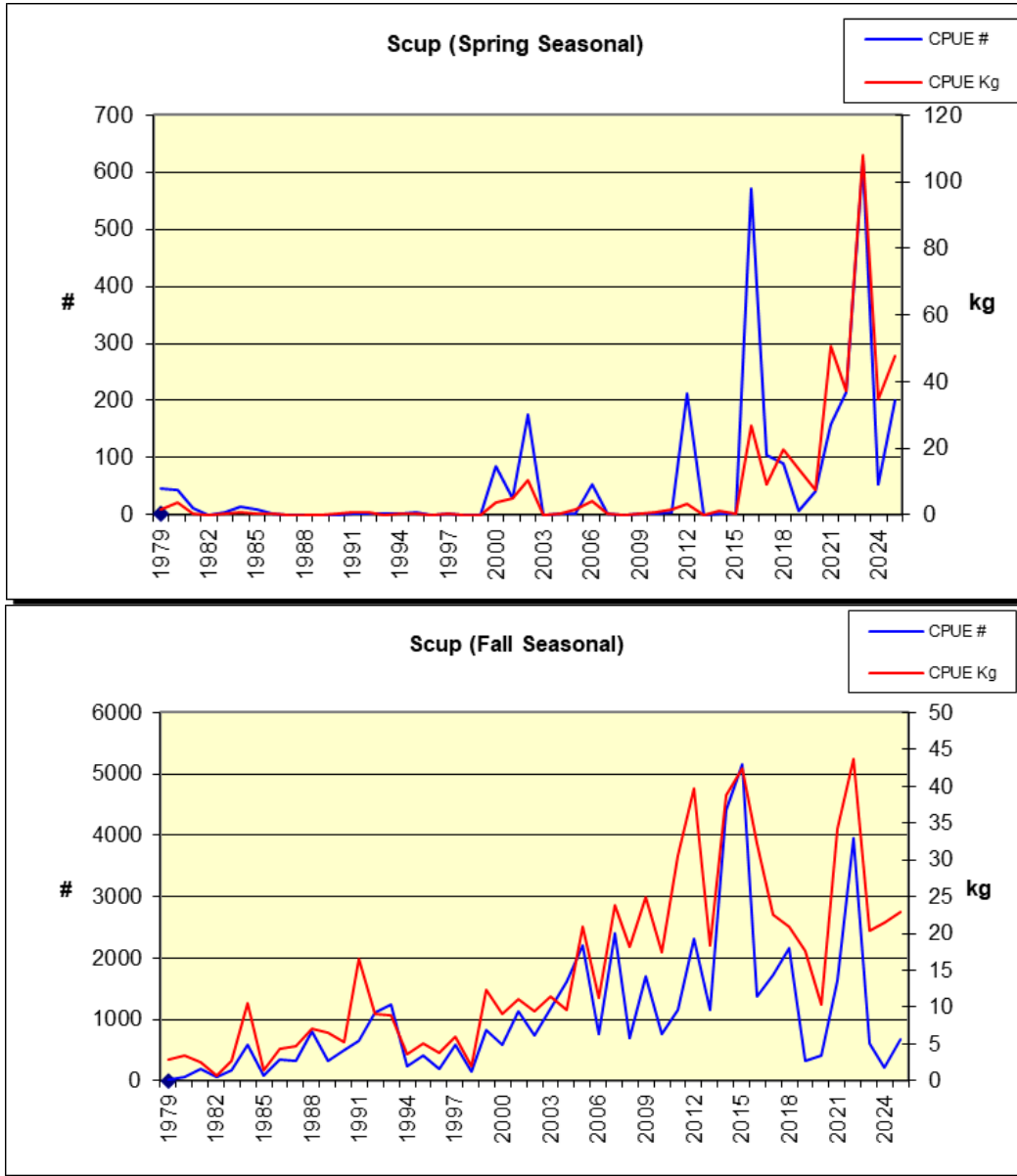




Scup *Stenotomus chrysops*

Stock Status: Rebuilt, not overfished and overfishing is not occurring

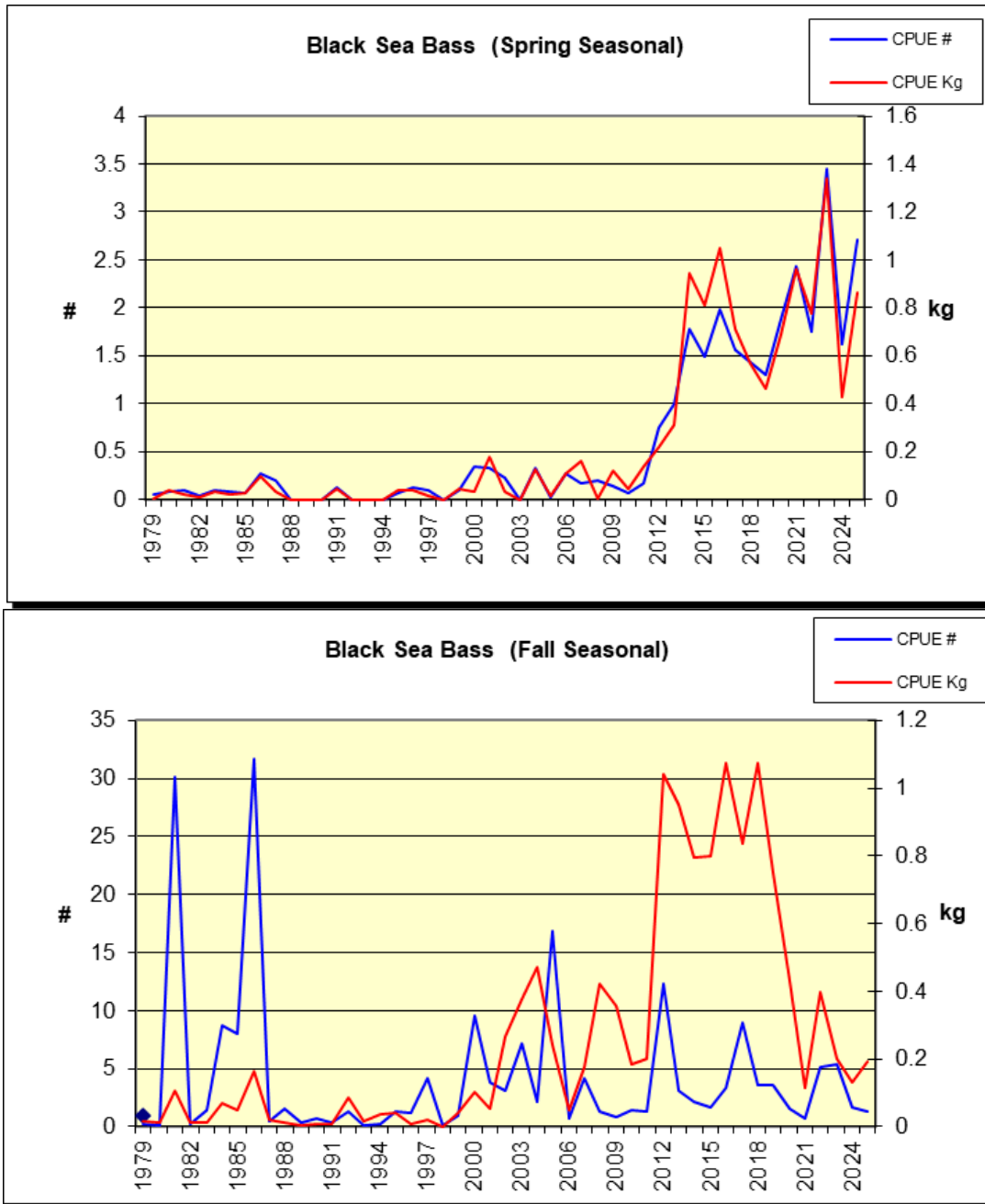
Management: ASMFC Amendment XIII, Addendum XXXI, Summer Flounder, Scup Black Sea Bass FMP





Black Sea Bass *Centropristis striata*

Stock Status: Rebuilt, not overfished overfishing is not occurring  
Management: ASMFC Amendment XIII, Addendum XXXI



References:

ASMFC 2014. Current Fishery Management Plans; Stock Status Reports

Bigelow and Schroeder 2002. Fishes of the Gulf of Maine; Third Edition

NMFS 2014. Current Fishery Stock Status.

Lynch, Timothy R. 2007. Assessment of Recreationally Important Finfish Stocks in Rhode Island Waters, Coastal Fishery Resource Assessment, Performance Report.

The Rhode Island Chapter of The Nature Conservancy  
Annual Performance Report

Submitted to

The Rhode Island Department of Environmental Management  
Division of Fish and Wildlife

Title: Block Island Seine Survey

Cooperative Agreement Award Number: 3425240

Award Term: January 15, 2025 to December 31, 2029

Reporting Period: January 15, 2025 to December 31, 2029

Prepared By

Diandra Hall (Great Salt Pond Scientist)  
Aurora Duncan (Block Island Marine Program Assistant)

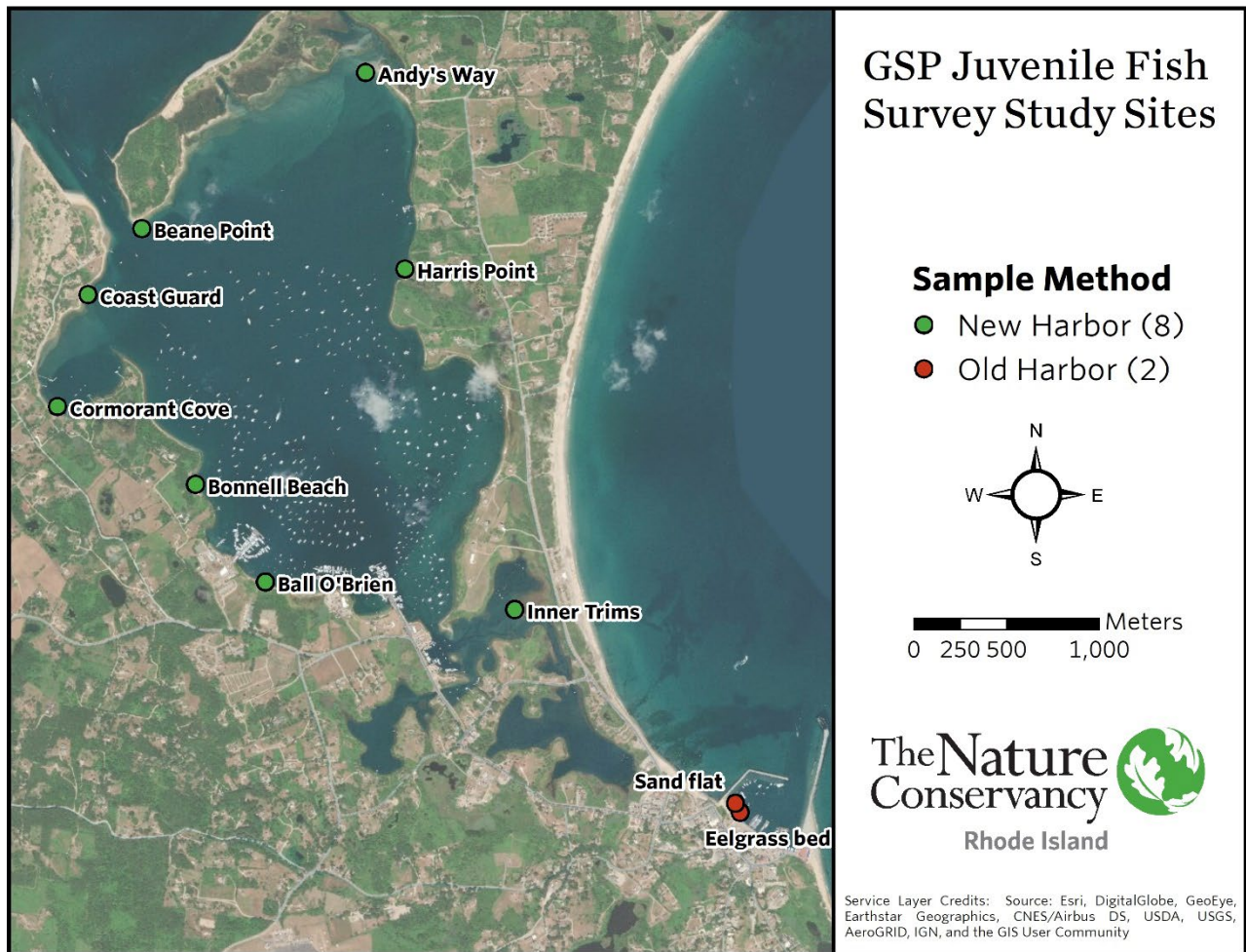
Approved By

Scott Comings, Associate State Director

The Nature Conservancy Rhode Island Chapter  
159 Waterman Street  
Providence, RI 02906



Map of study area and sampling locations.



## **SUMMARY**

During the 2025 season, a total of 60 seines were hauled across 10 sites in May through October, resulting in the enumeration of 16,385 individuals. Of the animals caught, 15,387 of those individuals were finfish, and 998 were other marine invertebrates. A total of 2,867 individuals were measured, and 47 species were identified. All scoped work was completed. All raw data have been shared with the appropriate Rhode Island Department of Environmental Management, Division of Marine Fisheries staff for incorporation into existing datasets.

## **TARGET DATE**

December 31, 2025

## **NEXT STEPS**

Investigators intend to continue sampling with the same methodology during the field season of 2026 under the new cooperative agreement. The Block Island project team will continue coordinating with the primary investigators of the Coastal Ponds and Providence River Estuary juvenile fish surveys to evaluate variations in fish assemblages across study areas in Rhode Island.

## **REMARKS**

For the entire Block Island time series (2014-2025), captured individuals of the target species: winter flounder, summer flounder, tautog, scup and black sea bass were enumerated and measured. The abundance indices for the target species only highlight young-of-the-year individuals, but all are included in the figures and tables located in the Appendix. Other species of interest and their relative abundances were also included in this report. These species include members of the Clupeidae family: Atlantic herring, as well as four forage fish species: Atlantic silverside, mummichog, sheepshead minnow, and striped killifish. Adults and juveniles of these fish species were not differentiated for data analysis or descriptive purposes. Of all the species caught, only finfish were included in the results of this report. All crustaceans and other marine invertebrates were excluded.

## **INTRODUCTION**

Estuaries are some of the most productive and ecologically significant ecosystems on Earth, yet they are also among the most threatened (Suchanek 1994; Lotze et al. 2006; Murphy et al. 2021). These coastal habitats are notably important to juvenile fishes, providing foraging opportunities, reduced predation risks, and a mosaic of habitats suitable for a variety of life stages (Able 2005; Seitz et al. 2020; Pessanha et al. 2021). Estuaries are also important spawning grounds for many fish species and contribute directly to the production of recruits into recreational and commercial fisheries (Jänes et al. 2021). As such, these coastal habitats are commonly referred to as nurseries by fisheries scientists and managers and assessing fish nursery function within estuarine and marine environments can help prioritize protection and restoration efforts (Beck et al. 2001; Peterson 2003).

Along the East Coast of the United States, estuaries are estimated to support more than two-thirds of the economically important finfish species (Boesch and Turner 1984; Lellis-Dibble et al. 2008). In Rhode Island, the commercial and recreational fishing industries have a longstanding history sustained by the natural resources and waterbodies of Narragansett Bay, Rhode Island Sound, and Block Island Sound. Block Island's waterbody, the Great Salt Pond, is one of the most unique examples of an estuary since it is located offshore and distinguished as a body of salt water surrounded by salt water. It is also positioned between Rhode Island Sound, Block Island Sound, and two biogeographic regions, making it ideal grounds for fish seeking habitat that could not survive on the continental shelf (Able 2005). While past assessments have supported this clam, a subsequent literature review revealed

limited historical and empirical data on fisheries assessments in the Great Salt Pond (Neumann 1993; Katz 2000). This missing information is critically important to have because it has been estimated that more than 70% of Rhode Island's recreationally and commercially important finfish spend at least one part of their life history in coastal habitats like the Great Salt Pond, particularly young-of-the-year (Meng et al. 1999; RIDEM DMF 2024).

In 2014, the Division of Marine Fisheries (DMF) and The Nature Conservancy (TNC) entered into a cooperative agreement to begin evaluating the Great Salt Pond and its role in supporting fish populations. Through a holistic approach to monitoring, investigators evaluated fish assemblages, water quality, and benthic and coastal habitats in the Great Salt Pond and Old Harbor on Block Island. Not only did initial results reveal that this study area supports recreationally and commercially important finfish, but it also recognized that Block Island could support habitat improvements aimed at increasing fish recruitment. Now that the Block Island seine survey has accrued over ten years of data, time series results continue to be a valuable tool for the DMF in managing fish populations.

As we move forward into the renewed cooperative agreement, investigators will continue to work together on incorporating datasets amongst the other established seine surveys: the Providence River Estuary and coastal salt ponds of southern Rhode Island. Investigators also acknowledge as habitat and water quality in these study areas continue to change, this long-term monitoring serves as a collective baseline to document how these changes affect fish assemblage in Rhode Island and will inform our future work together.

## **METHODS**

Ten stations on Block Island were sampled at monthly intervals from May through October: eight stations in the Great Salt Pond and two stations in Old Harbor. Investigators attempted to perform all seining on an incoming tide and in the intertidal zone at depths shallower than two meters. At each site a 130' long, 6' deep, ¼" mesh net beach seine was used to collect species. This net was also outfitted with a midpoint pocket, weighted footrope, and a floated headrope, all consistent with the net used in the Young-of-the-Year Survey of Selected Rhode Island Coastal Ponds and Embayments (conducted as part of F-61-R-23, Job #3).

For sampling, the seine net was deployed by boat along the shoreline in a semicircle shape. The net was then hauled onto shore manually from both ends. All animals caught were transferred from the midpoint pocket of the net into water-filled totes. All collected animals were identified to genus or species and measured to the nearest centimeter, except for flounder and crustacean species, which were measured in millimeters. All finfish were measured in total length, and crustaceans were measured by carapace width. When appropriate, species were subsampled by measuring the first 20 individuals identified and the remaining individuals enumerated. Upon completion, all animals were released back into the water at the collection site. Additionally, water temperature (°C), salinity (ppt), dissolved oxygen (mg/L), water depth (m), and transparency (m) were measured using a Professional Plus series handheld YSI multiparameter meter and Secchi disk. The YSI multiparameter meter was calibrated monthly throughout the sampling season per manufacturer recommendations.

## **RESULTS & DISCUSSION**

For the 2025 field season, a total of 60 seines were hauled across the ten sampling sites. A total of 15,387 finfish were identified and enumerated, and 2,867 of those were measured. A total of 16,385 individuals were caught (Table 1). Of the species caught, only finfish were included in the results below.

A mean of  $256.45 \pm 75.47$  SE finfish were caught per haul in 2025. Catch per haul across sites for the Block Island survey was greatest at the Eelgrass Bed site at  $751.00 \pm 694.64$  SE and lowest at Cormorant Cove at  $66.83 \pm 28.13$  (Figure 1). The high catch rate at Eelgrass Bed is partially due to a large number of Atlantic silversides (see Forage Fish Species below). Catch per haul across months was greatest in September at  $842.10 \pm 386.23$  SE and lowest in June at  $23.30 \pm 6.24$  SE (Figure 2).

### *TARGET SPECIES*

#### Winter Flounder (*Pseudopleuronectes americanus*)

Of the total 42 winter flounder caught in 2025 seines, 39 individuals were YOY (*individuals measuring under 120mm*), and 3 individuals were age 1+ (max length = 220 mm; Able and Fahay 1998; Berry et al. 1965; Meng et al. 2000). In 2025, winter flounder were collected during all months but May and caught at all sites except for Andy's Way, Ball O'Brien, and Inner Pond. The most abundant site for winter flounder was the Sand Flat site in Old Harbor at a catch per haul of  $2.833 \pm 2.06$  SE (Figure 3a). The most abundant month for winter flounder was June at a catch per haul of  $2.2 \pm 1.36$  SE fish/seine haul (Figure 3b). The 2025 juvenile winter flounder abundance index was  $0.7 \pm 0.27$  SE fish/seine haul, which was lower than the 2024 index of  $12.77 \pm 8.63$  SE. This year marked a decrease from 2024, which saw the highest abundance index of winter flounder for the Block Island time series.

#### Black Sea Bass (*Centropristis striata*)

A total of 33 black sea bass were caught in 2025. Black sea bass were caught at 6 out of the ten sites for the survey: Harris Point, Coast Guard Station, Cormorant Cove, Bonnell Beach, Ball O'Brien, and Eelgrass Bed. They were most abundant at Bonnell Beach in New Harbor at a catch per haul of  $3.67 \pm 2.09$  SE (Figure 4a). Most individuals were caught in September and October at a catch per haul of  $1.40 \pm 0.74$  SE and  $1.40 \pm 1.12$  SE respectively. (Figure 4b). Black sea bass ranged in size between 3cm and 8cm in 2025.

The abundance index for black sea bass in 2025 was  $0.55 \pm 0.24$  SE fish/seine haul. This was higher than the 2024 index of  $0.40 \pm 0.16$  SE fish/seine haul. In the last five years of the Block Island dataset, black sea bass abundance indices have been significantly lower than the indices recorded between 2015 and 2019. While investigators acknowledge that indices rise and fall, the presence of black sea bass has been increasingly prevalent across regional seine surveys and supported by recruitment signals observed along the Northern Atlantic Coast (NEFSC 2017; Tuckey and Fabrizio 2019).

#### Summer Flounder (*Paralichthys dentatus*)

A total of 1 summer flounder was caught in 2025 beach seines at 56mm. Summer flounder was only caught at the Sand Flat site at Old Harbor in May (Figures 5a and 5b). The 2025 abundance index was  $0.02 \pm 0.02$ , which was smaller than the 2024 abundance index of  $0.23 \pm 0.15$  SE. Since the start of the Block Island seine survey, summer flounder have been the least abundant catch out of all species of interest.

#### Tautog (*Tautoga onitis*)

During the 2025 survey, 120 tautog were collected and ranged in size from 3cm to 15cm. This total number was an increase from the 2024 survey, where 72 juveniles were collected. The 2025 abundance index was  $2.00 \pm 0.69$  SE, an increase from the 2024 index of  $1.20 \pm 0.33$  SE. No tautog were caught at the following four sites: Andy's Way, Beane Point, Coast Guard Station, and Cormorant Cove. At the 6 sites they were caught, tautog were most abundant at Harris Point, with a catch per haul of  $6.00 \pm 4.30$  SE (Figure 6a). Tautog were most abundant in September with a catch per haul of  $7.40 \pm 3.10$  SE (Figure 6b).

0 scup were caught in 2025 beach seines. This marks a decrease from the 2024 abundance index ( $0.22 \pm 0.12$  SE). With no catches, this year is marked as the new lowest abundance index recorded for the species in the Block Island time series.

#### *OTHER SPECIES OF INTEREST*

##### Family Clupeidae

In 2025, 1 species of clupeid was collected during the sampling season: Atlantic herring. While other species of clupeids have been collected in past Block Island surveys such as river herring and hickory shad, they were not captured during the 2025 season.

##### Atlantic Menhaden (*Brevoortia tyrannus*)

In the 2025 sampling season, no Atlantic menhaden were caught. The mean abundance index of 0 is lower than last year's mean abundance index of  $1.37 \pm 1.19$  SE.

##### Atlantic herring (*Alosa*)

A total of 1 Atlantic herring was caught in 2025 and was 4cm in length. It was found in August at Sand Flat in Old Harbor. The total survey mean abundance for Atlantic herring was  $0.02 \pm 0.02$  SE fish/seine haul in 2025.

#### *FORAGE FISH SPECIES*

Forage fish species are commonly encountered across stations and months throughout the sampling season. In 2025, Atlantic silverside, mummichog, sheepshead minnow, and striped killifish comprised 93.4% of the total fish catch. For the Block Island time series, forage fish species have accounted for about 85-90% of the total fish catch each season.

##### Atlantic Silverside (*Menidia menidia*)

During the 2025 sampling season a total of 12,554 Atlantic silversides were caught. The total mean abundance was  $209.23 \pm 73.63$  SE in 2025 and was lower than last year's index of  $232.73 \pm 47.11$  SE. The species was most abundant at the Eelgrass Bed site in Old Harbor with a catch per haul of  $726.83 \pm 692.06$  SE. The highest number of silversides were caught in September at a catch per haul of  $700.00 \pm 395.01$  SE. Silversides ranged in size from 3cm to 15cm and were found in all months and at all sites. This species had the highest abundance of all species caught during the 2025 season and have ranked as the most abundant finfish species since the start of the Block Island survey in 2014.

##### Mummichog (*Fundulus heteroclitus*)

A total of 491 mummichogs were caught in 2025 and ranged in size from 2cm to 9cm. The species was caught at all sites this season except for the Sand Flat site in Old Harbor. Mummichogs had the highest abundance at the Inner Pond site with a catch per haul of  $26.33 \pm 12.00$  SE in 2025. They were caught during all months in 2025 except for May. Mummichogs were most abundant in September at a catch per haul of  $16.70 \pm 4.75$  SE. The total mean abundance was  $8.18 \pm 2.31$  SE in 2025.

##### Sheepshead Minnow (*Cyprinodon variegatus*)

During the 2025 sampling season, 10 sheepshead minnows were caught. Individuals ranged in size from 3cm to 4cm. The total mean abundance index for the species was  $0.17 \pm 0.12$  SE. Sheepshead minnows were most abundant in September at a catch per haul of  $0.6 \pm 0.57$  SE and Inner Pond was the most abundant site at a catch per haul of  $1.67 \pm 1.09$  SE.

### Striped Killifish (*Fundulus majalis*)

In 2025, a total of 1,317 striped killifish were collected and ranged in size from 2cm to 13cm. Striped killifish occurred during all months except for June and at all sites except for the eelgrass bed and sand flat in Old Harbor. The total mean abundance was  $21.95 \pm 10.38$ , which was lower than the 2024 index of  $31.88 \pm 10.09$  SE. In 2025, the highest number of striped killifish were caught in September at a catch per haul of  $83.50 \pm 57.18$  SE, and they were most abundant at the Inner Pond site in the Great Salt Pond with a catch per haul of  $108.50 \pm 94.28$  SE. Their high abundance also contributes greatly to the total catch of forage fish species each year.

### *WATER QUALITY DATA*

Water quality data for the 2025 season can be found in Table 2. In the Great Salt Pond, water temperature ranged from 14.2°C in May to 28.4°C in July. In Old Harbor, water temperature ranged from 13.7°C in May and 24.5°C in July. The mean salinity of the eight sites in the Great Salt Pond was  $32.87\text{ppt} \pm 0.21$  SE, and the mean salinity of the two sites in Old Harbor were  $32.87\text{ppt} \pm 0.19$  SE.

The lowest dissolved oxygen value recorded across the Great Salt Pond sites was 6.25mg/L in September month at Inner Pond, while the mean was  $8.53\text{mg/L} \pm 0.15\text{mg/L}$  SE. In 2025, the Sand Flat site in Old Harbor recorded the lowest dissolved oxygen value at 4.17mg/L in September, with a mean of  $8.7\text{mg/L} \pm 0.59\text{mg/L}$  SE between the Old Harbor sites.

### **TIME SERIES SUMMARY**

Since the beginning of the time series in 2014, a total of 710 seines have been hauled across ten sites on Block Island, capturing a total of 254,628 finfish individuals of 101 different species representing 45 families. No new species were recorded on Block Island for the 2025 season. In addition, 2025 marked a decrease in the overall number of many fish species, including winter flounder, summer flounder, scup, Atlantic menhaden, Atlantic silversides, mummichogs, and striped killifish. An increase in species abundance was documented in black sea bass and tautog. Figures displaying abundance and diversity can be found in the Appendix. Additional data is available upon request.

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# FIGURES

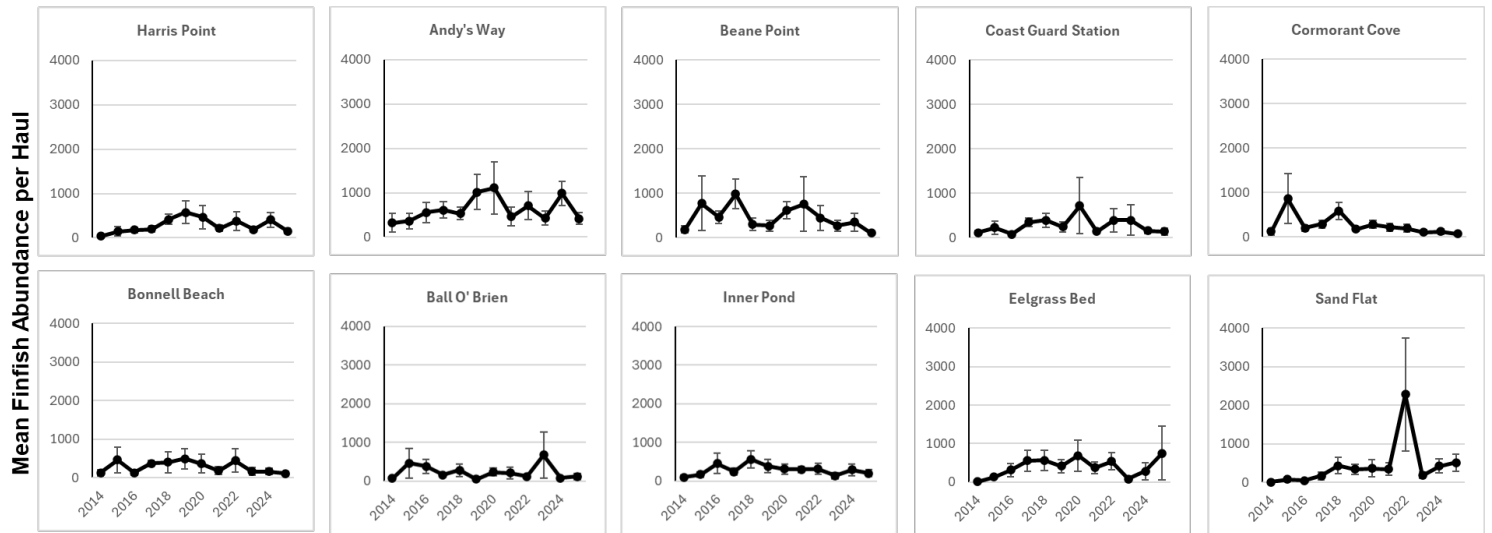


Figure 1. Mean abundance of finfish across sites ( $\pm$  SE) in 2014-2025 beach seines.

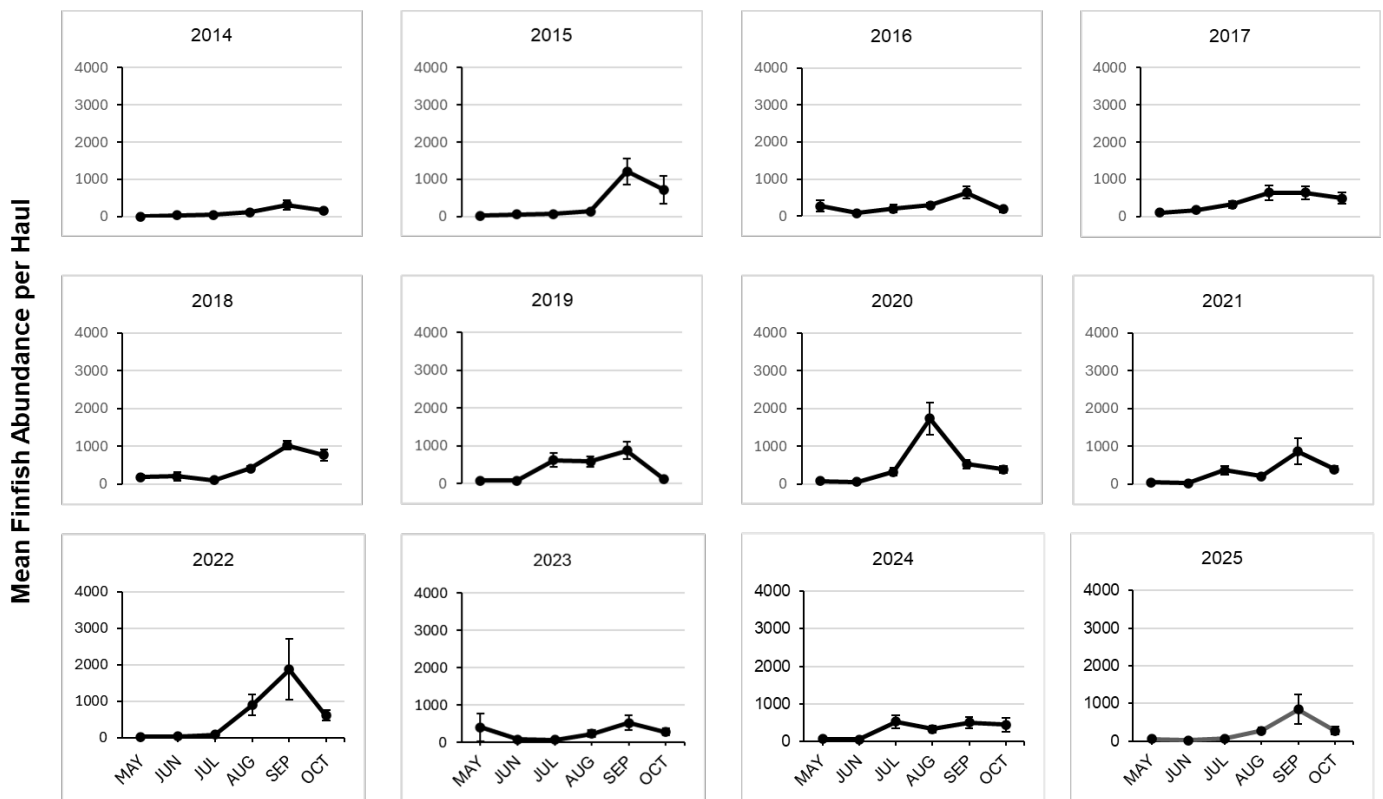


Figure 2. Mean abundance of finfish caught each month ( $\pm$  SE) in 2014-2025 beach seines.

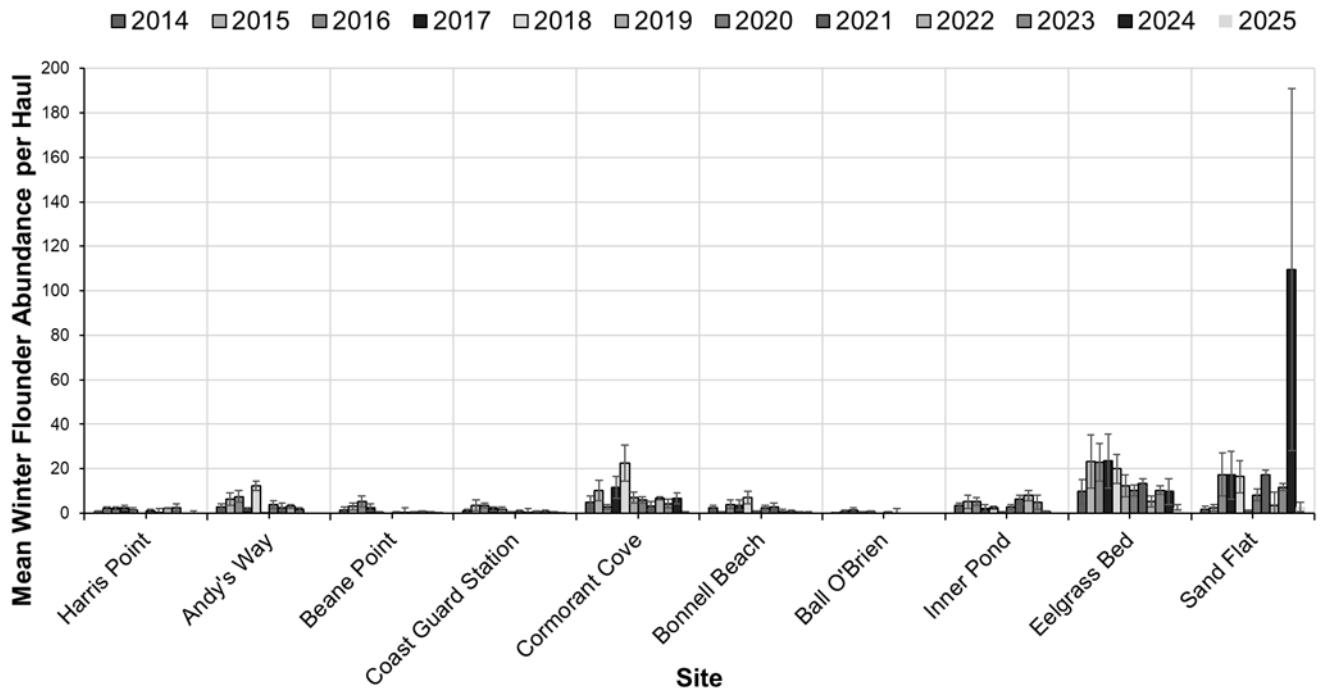


Figure 3a. Mean abundance of winter flounder caught by site ( $\pm$  SE) in 2014-2025 beach seines.

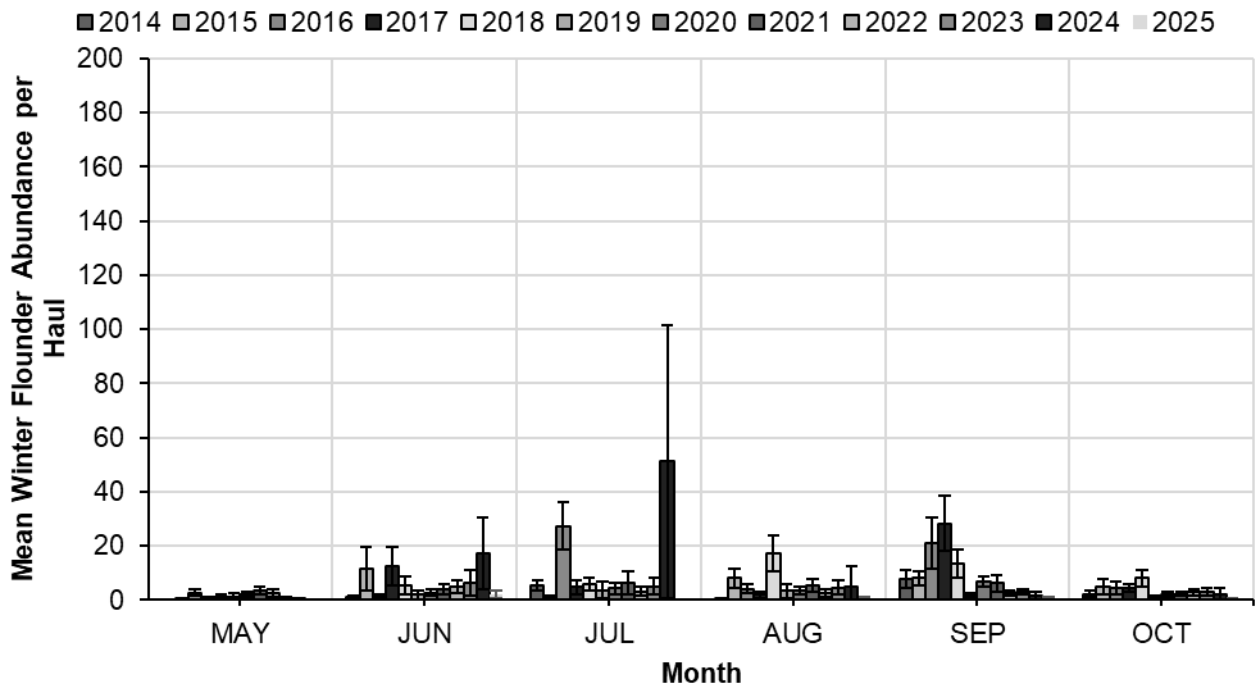


Figure 3b. Mean abundance of winter flounder caught by month ( $\pm$  SE) in 2014-2025 beach seines.

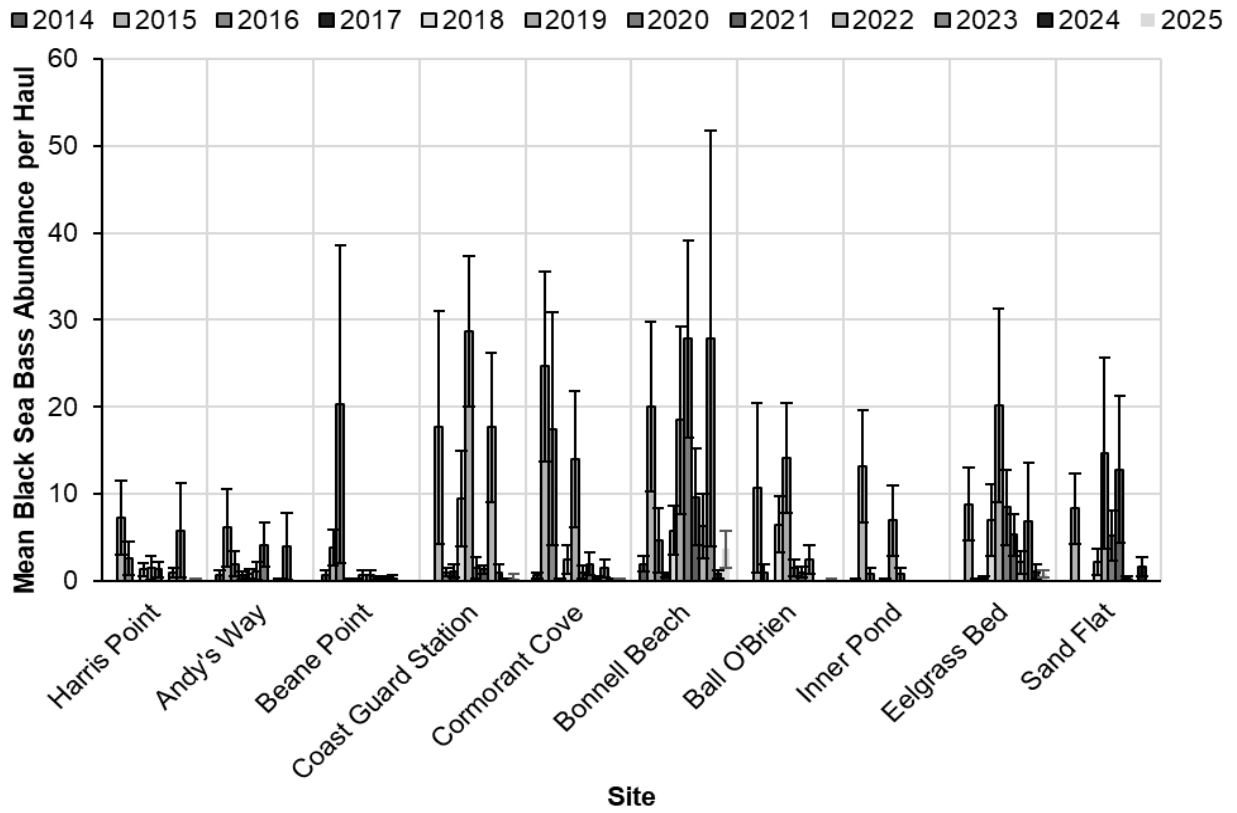


Figure 4a. Mean abundance of black sea bass caught by site ( $\pm$  SE) plotted for each month during the 2014-2025 field seasons.

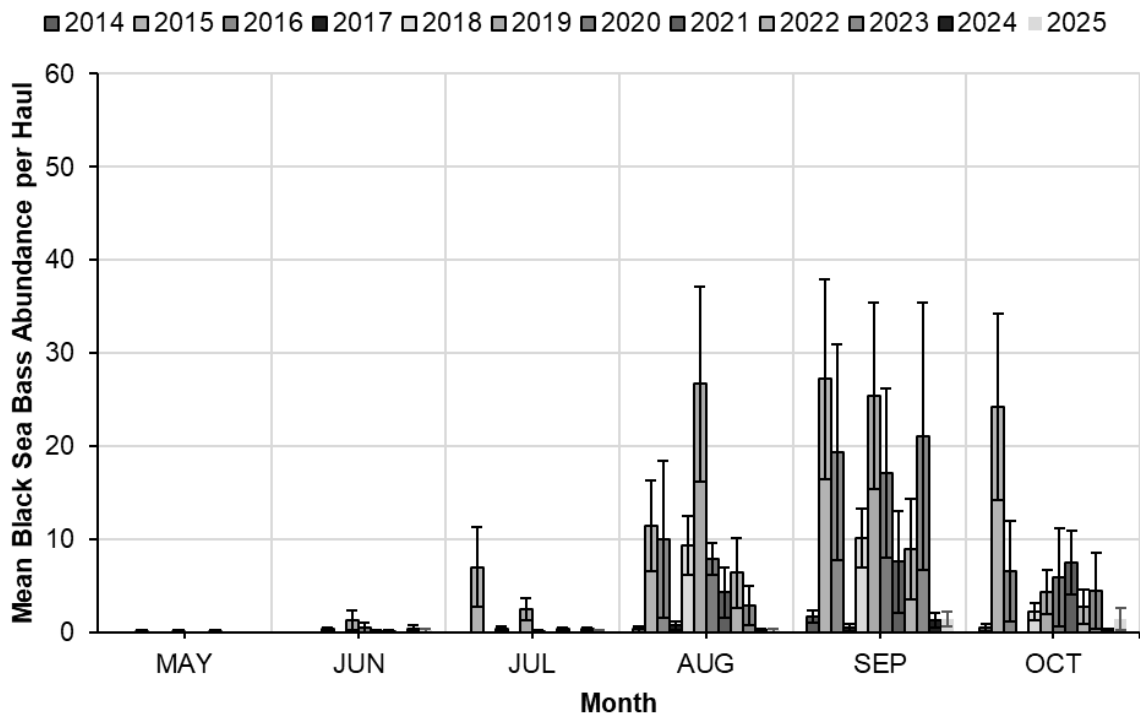


Figure 4b. Mean abundance of black sea bass caught by month ( $\pm$  SE) plotted for each month during the 2014-2024 field seasons.

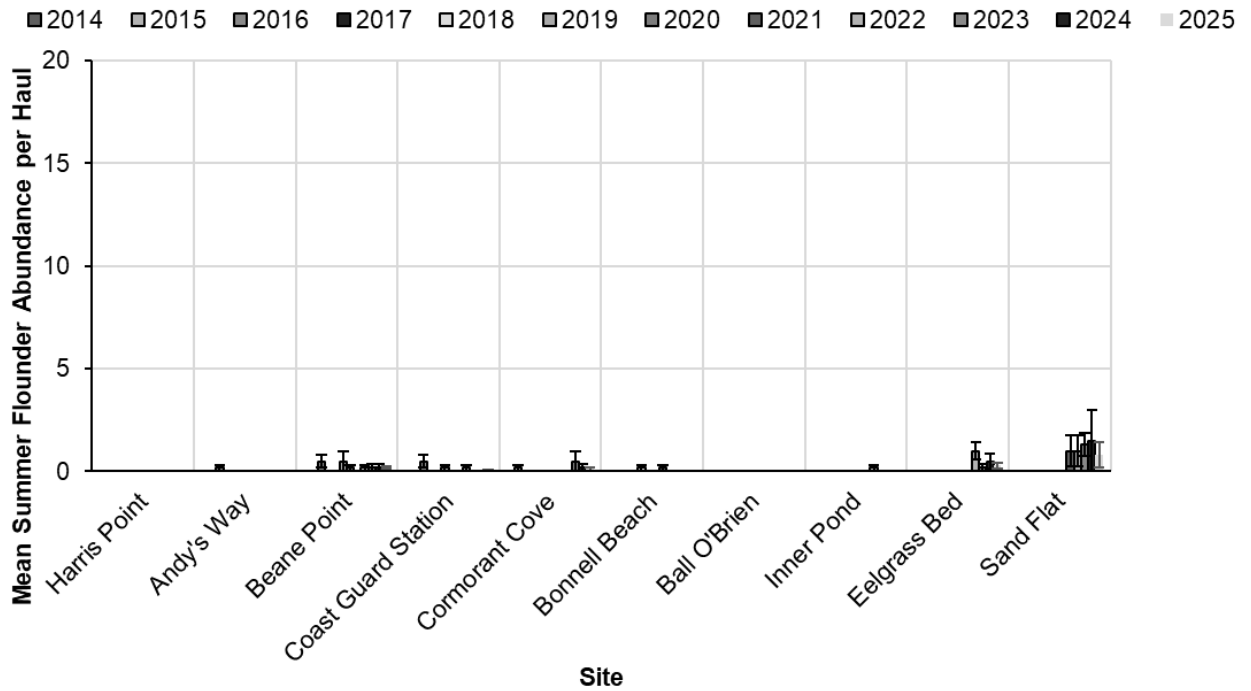


Figure 5a. Mean abundance of summer flounder caught by site ( $\pm$  SE) plotted for each month during the 2014-2025 field seasons.

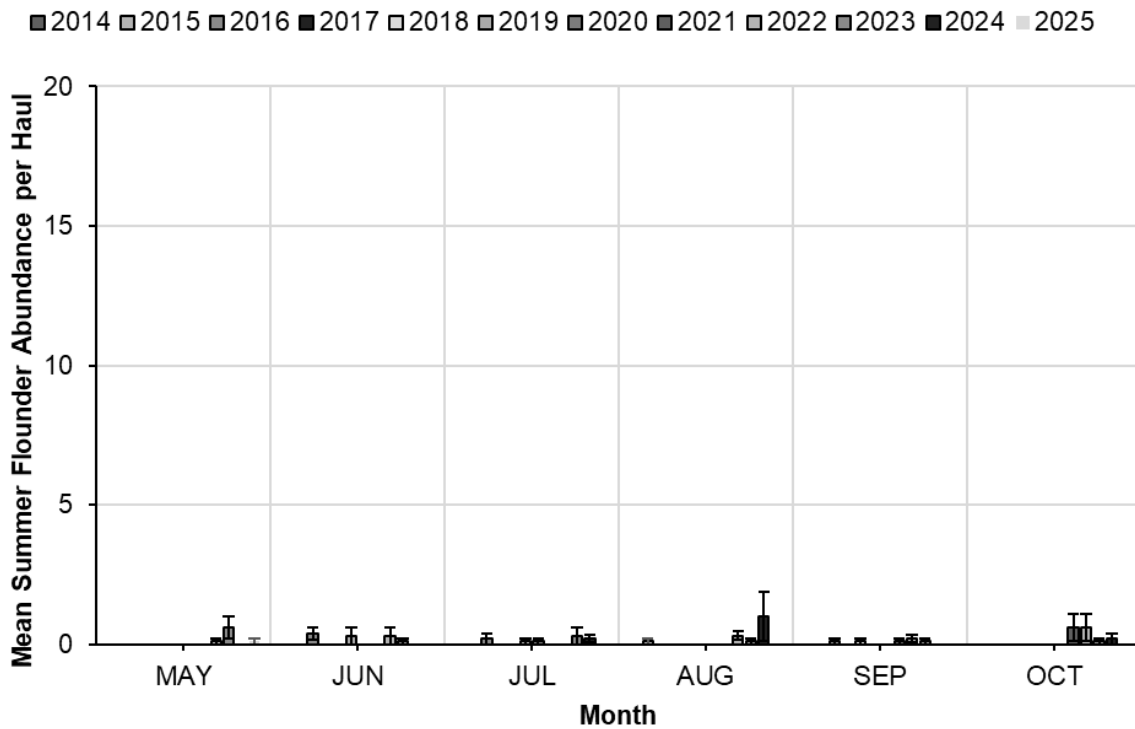


Figure 5b. Mean abundance of summer flounder caught by month ( $\pm$  SE) plotted for each month during the 2014-2025 field seasons.

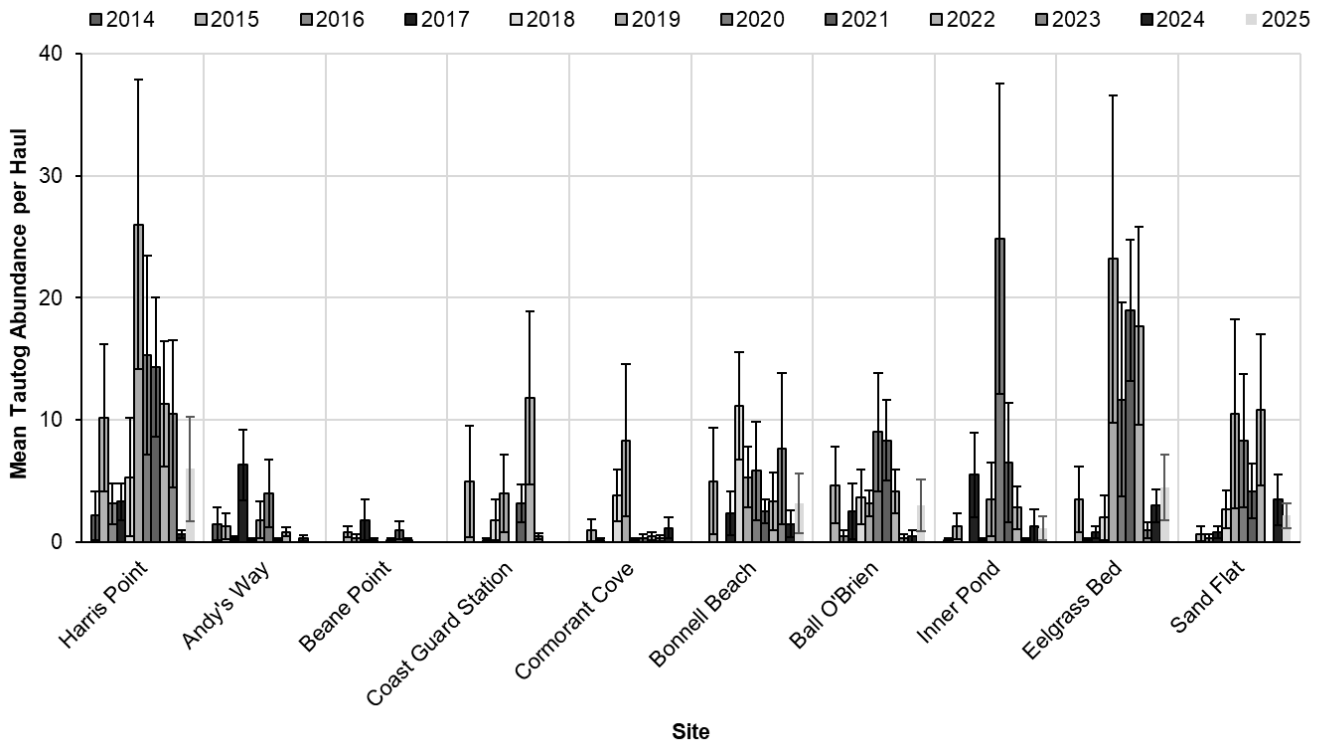


Figure 6a. Mean abundance of tautog caught by site ( $\pm$  SE) plotted for each month during the 2014-2025 field seasons.

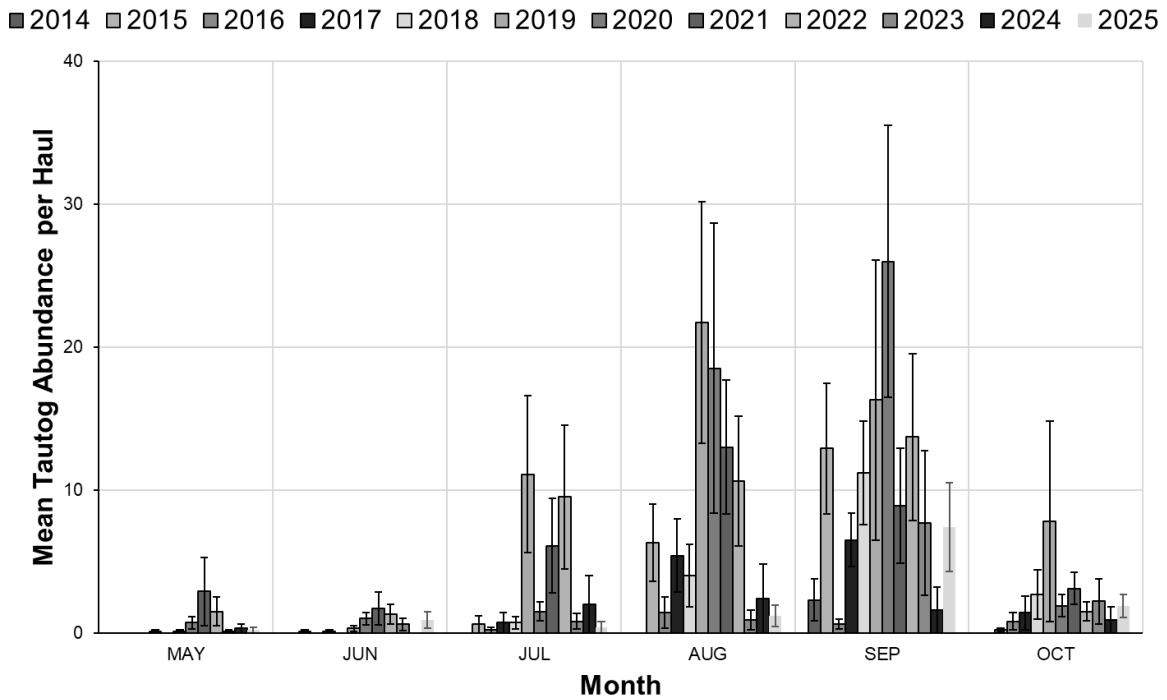


Figure 6b. Mean abundance of tautog caught by month ( $\pm$  SE) plotted for each month during the 2014-2025 field seasons.

## TABLES

Table 1. Scientific, common names, and total abundance of all species caught in beach seines during 2025

<b>Common Name</b>	<b>Scientific Name</b>	<b>Abundance</b>
Atlantic Silverside	<i>Menidia menidia</i>	12554
Striped Killifish	<i>Fundulus majalis</i>	1317
Green Crab	<i>Carcinus maenas</i>	865
Mummichog	<i>Fundulus heteroclitus</i>	491
White Mullet	<i>Mugil curema</i>	335
Bay Anchovy	<i>Anchoa mitchilli</i>	147
Tautog	<i>Tautoga onitis</i>	120
American Sand Lance	<i>Ammodytes americanus</i>	75
Atlantic Croaker	<i>Micropogonias undulatus</i>	52
Blue Crab	<i>Callinectes sapidus</i>	52
Fourspine Stickleback	<i>Apeltes quadracus</i>	45
Cunner	<i>Tautoglabrus adspersus</i>	42
Winter Flounder	<i>Pseudopleuronectes americanus</i>	42
Lady Crab	<i>Ovalipes ocellatus</i>	38
Black Sea Bass	<i>Centropristis striata</i>	33
Spider Crab	<i>Libinia emarginata</i>	26
Grubby	<i>Myoxocephalus aeneus</i>	20
Northern Pipefish	<i>Syngnathus fuscus</i>	20
Pollock	<i>Pollachius virens</i>	14
Longfin Squid	<i>Loligo pealei</i>	11
Sheepshead Minnow	<i>Cyprinodon variegatus</i>	10
Crevalle Jack	<i>Caranx hippos</i>	9

Table 1. (continued)

Common Name	Scientific Name	Abundance
Northern Puffer	<i>Sphoeroides maculatus</i>	9
Northern Sennet	<i>Sphyræna borealis</i>	7
Northern Kingfish	<i>Menticirrhus saxatilis</i>	5
Rainwater Killifish	<i>Lucania parva</i>	5
Jonah Crab	<i>Cancer borealis</i>	4
Oyster Toadfish	<i>Opsanus tau</i>	4
Pinfish	<i>Lagodon rhomboides</i>	4
Snakefish	<i>Trachinocephalus myops</i>	4
Spotfin Mojarra	<i>Eucinostomus argenteus</i>	4
Atlantic Cod	<i>Gadus morhua</i>	2
Atlantic Tomcod	<i>Microgadus tomcod</i>	2
Bay Scallop	<i>Argopecten irradians</i>	2
Northern Searobin	<i>Prionotus carolinus</i>	2
Sargassum Swimming Crab	<i>Portunus sayi</i>	2
Atlantic herring	<i>Clupea harengus</i>	1
Atlantic Needlefish	<i>Strongylura marina</i>	1
Bluespotted Cornetfish	<i>Fistularia tabacaria</i>	1
Lined Seahorse	<i>Hippocampus erectus</i>	1
Lookdown	<i>Selene vomer</i>	1
Naked Goby	<i>Gobiosoma bosc</i>	1
Permit	<i>Trachinotus falcatus</i>	1
Shorthorn sculpin	<i>Myoxocephalus scorpius</i>	1
Spot	<i>Leiostomus xanthurus</i>	1
Striped Cuskeel	<i>Ophidion marginatum</i>	1
Summer Flounder	<i>Paralichthys dentatus</i>	1

Table 2. Water temperature, salinity, dissolved oxygen by site and month during the 2025 beach seines.

Site	Month	Temp. (°C)	Sal. (ppt)	DO (mg/L)	Site	Month	Temp (°C)	Sal. (ppt)	DO (mg/L)
Harris Point	MAY	16.7	35.02	7.72	Bonnell Beach	MAY	17	36.29	7.58
	JUN	19.2	32.72	9.88		JUN	17.5	32.83	8.22
	JUL	27.7	31.51	11.8		JUL	23.5	30.9	8.18
	AUG	26.6	32.34	8.37		AUG	24.2	31.6	9.23
	SEP	23.1	32.59	8.06		SEP	23.1	32.52	8.95
	OCT	22.3	33.42	8.51		OCT	21.7	33.29	7.47
Andy's Way	MAY	18.2	35.32	7.27	Ball O'Brien	MAY	17.8	35.75	8.48
	JUN	21	32.36	8.6		JUN	17.6	32.34	9.39
	JUL	25.6	31.21	9.34		JUL	24.2	30.98	8.77
	AUG	24.3	32.46	9.02		AUG	24.6	32.6	10.69
	SEP	24.1	32.75	8.1		SEP	22.6	32.26	8.55
	OCT	22.4	33.45	8.15		OCT	21.2	31.88	7.49
Beane Point	MAY	14.2	35.88	7.67	Inner Pond	MAY	16.7	31.78	7.67
	JUN	22.7	32.12	8.86		JUN	18.2	32.57	8.15
	JUL	23.3	31.1	8.27		JUL	28.4	31.52	9.39
	AUG	25	32.62	9.29		AUG	22.4	32.85	6.9
	SEP	23.9	32.88	9.71		SEP	21.6	33.24	6.25
	OCT	22.1	33.56	9.21		OCT	17.8	33.91	7.7
Coast Guard	MAY	14.6	36.14	8.15	Eelgrass Bed	MAY	14.1	33.22	8.32
	JUN	19	32.84	8.45		JUN	17.2	32.77	8.67
	JUL	23.8	31.05	8.8		JUL	24.5	32.38	10.22
	AUG	24.4	30.8	10.3		AUG	22.4	32.64	9.5
	SEP	23.5	32.97	9.7		SEP	22.8	32.89	11.23
	OCT	22.1	33.48	9.3		OCT	20.4	33.87	11.82
Cormorant Cove	MAY	15.1	36.15	7.54	Sand Flat	MAY	13.7	33.22	8.17
	JUN	17	32.23	7.52		JUN	17.4	32.71	8.79
	JUL	23.2	31.12	7.05		JUL	23.9	31.78	8.92
	AUG	24.2	32.17	8.15		AUG	23.6	32.06	6.36
	SEP	23.5	32.95	7.87		SEP	21.7	32.85	4.17
	OCT	22.3	33.45	9.85		OCT	19.7	34.05	8.25

Table 3a. Catch frequency of all species by site for the 2025 Block Island seine survey.

Species	Harris Point	Andy's Way	Beane Point	Coast Guard	Cormorant Cove	Bonnell Beach	Ball O'Brien	Inner Pond	Eelgrass Bed	Sand Flat	Total
American Sand Lance				65	10						75
Atlantic Cod								1	1		2
Atlantic Croaker								49	3		52
Atlantic Herring									1		1
Atlantic needlefish									1		1
Atlantic Silverside	788	2013	491	732	196	540	589	197	4361	2647	12554
Atlantic tomcod								2			2
Bay Anchovy							147				147
Bay Scallop						1	1				2
Black Sea Bass	1		3	1	22	1		5			33
Blue Crab	1	2		4			35	5	5		52
Bluespotted Cornetfish					1						1
Crevalle Jack				1				2	6		9
Cunner	17				12			12	1		42
Fourspine Stickleback							45				45
Green Crab	26	14	10	29	21	82	200	10	228	245	865
Grubby	3				2		3	10	2		20
Jonah Crab						1	1		2		4
Lady Crab	1	4	7	8	5	12	1				38
Lined Seahorse						1					1
Longfin Squid	1			6	1	2	1				11
Lookdown									1		1
Mummichog	85	96	10	16	25	31	69	158	1		491
Naked Goby									1		1
Northern Kingfish				1	1		1		2		5
Northern Pipefish	2			3	2	4	1	3	5		20
Northern Puffer					2	2		1	4		9
Northern Searobin				1					1		2
Northern Sennet	1		3		2				1		7
Oyster Toadfish							4				4
Permit									1		1
Pinfish						1		3			4
Pollock				1				5	8		14
Rainwater Killifish							5				5
Sargassum Swimming Crab				2							2
Sheepshead Minnow							10				10
Shorthorn sculpin						1					1
Snakefish			1		1			2			4
Spider crab	6	1	7		2	2	1	3	3	1	26
Spot								1			1
Spotfin Mojarra		2			1				1		4
Striped cuskeel							1				1
Striped Killifish	2	371	110	12	153	2	16	651			1317
Summer Flounder									1		1
Tautog	36					19	18	7	27	13	120
White Mullet								7	8	320	335
Winter Flounder	3		1	1	3	2		15	17		42

Table 4a. Species presence by site for May 2025 beach seines.

<b>MAY</b>	<b>Site</b>										
<b>Species</b>	<b>Harris Point</b>	<b>Andy's Way</b>	<b>Beane Point</b>	<b>Coast Guard</b>	<b>Cormorant Cove</b>	<b>Bonnell Beach</b>	<b>Ball O'Brien</b>	<b>Inner Pond</b>	<b>Eelgrass Bed</b>	<b>Sand Flat</b>	<b>Total</b>
Atlantic Silverside	1	1	1			1	1	1			<b>6</b>
Blue crab				1							<b>1</b>
Green crab	1		1	1	1	1	1	1	1	1	<b>8</b>
Jonah crab					1	1				1	<b>3</b>
Lady crab				1							<b>1</b>
Pollock				1				1	1		<b>3</b>
Rainwater Killifish							1				<b>1</b>
Spider crab	1			1							<b>2</b>
Striped killifish							1				<b>1</b>
Summer flounder										1	<b>1</b>
Tautog										1	<b>1</b>
Tomcod								1			<b>1</b>

Table 4b. Species by site for June 2025 beach seines.

<b>JUNE</b>	<b>Site</b>										
<b>Species</b>	<b>Harris Point</b>	<b>Andy's Way</b>	<b>Beane Point</b>	<b>Coast Guard</b>	<b>Cormorant Cove</b>	<b>Bonnell Beach</b>	<b>Ball O'Brien</b>	<b>Inner Pond</b>	<b>Eelgrass Bed</b>	<b>Sand Flat</b>	<b>Total</b>
Atlantic Silverside	1	1	1	1	1		1	1			<b>7</b>
Black Sea Bass								1			<b>1</b>
Blue crab		1		1				1	1		<b>4</b>
Cod								1	1		<b>2</b>
Green crab	1	1		1	1	1		1	1		<b>8</b>
Grubby	1					1					<b>2</b>
Lady crab			1		1	1					<b>3</b>
Mummichog						1					<b>1</b>
Northern Pipefish	1									1	<b>2</b>
Pollock								1			<b>1</b>
Spider crab			1								<b>1</b>
Tautog	1							1	1		<b>3</b>
Winter flounder				1				1	1		<b>3</b>

Table 4c. Species presence by site for July 2025 beach seines.

Species	Site										
	Harris Point	Andy's Way	Beane Point	Coast Guard	Cormorant Cove	Bonnell Beach	Ball O'Brien	Inner Pond	Eelgrass Bed	Sand Flat	Total
American sand lance			1	1							2
Atlantic croaker								1	1		2
Atlantic Silverside	1	1	1	1		1	1	1			7
Bay anchovy							1				1
Black Sea Bass			1								1
Blue crab	1						1	1			3
Four-spine Stickleback							1				1
Green crab	1	1	1	1	1	1		1	1		9
Grubby					1				1		2
Lady crab		1	1		1						3
Lined seahorse					1						1
Longfin Squid	1		1	1	1	1					5
Mummichog	1						1	1			3
Northern Pipefish	1				1	1		1			4
Oyster toadfish							1				1
Pinfish						1		1			2
Striped cusk-eel						1					1
Striped killifish		1					1				2
Spot								1			1
Spider crab						1	1	1			3
Tautog						1					1
Winter flounder									1		1

Table 4d. Species presence by site for August 2025 beach seines.

AUGUST	Site										
Species	Harris Point	Andy's Way	Beane Point	Coast Guard	Cormorant Cove	Bonnell Beach	Ball O'Brien	Inner Pond	Eelgrass Bed	Sand Flat	Total
Atlantic croaker								1			1
Atlantic herring									1		1
Atlantic Silverside	1	1	1	1	1	1	1	1	1	1	10
Bay scallop					1						1
Black Sea Bass					1						1
Blue crab		1					1				2
Crevalle jack				1					1		2
Cunner					1						1
Four-spine Stickleback							1				1
Green crab	1		1	1	1	1	1	1	1	1	9
Grubby				1				1	1		3
Lady crab			1								1
Lookdown									1		1
Mummichog		1	1		1	1	1	1			6
Naked Goby									1		1
Northern kingfish				1	1		1		1		4
Northern Pipefish				1			1	1	1		4
Northern Puffer					1	1			1		3
Northern sennet	1		1								2
Oyster toadfish							1				1
Permit									1		1
Pinfish								1			1
Rainwater killifish							1				1
Striped killifish		1	1	1	1			1			5
Spider crab					1			1			2
Tautog					1			1	1		3
Winter flounder			1		1			1			3
White mullet									1		1

Table 4e. Species presence by site for September 2025 beach seines.

SEPTEMBER	Site										
	Harris Point	Andy's Way	Beane Point	Coast Guard	Cormorant Cove	Bonnell Beach	Ball O'Brien	Inner Pond	Eelgrass Bed	Sand Flat	Total
Atlantic Silverside	1	1	1	1	1	1	1	1	1	1	10
Atlantic Needlefish									1		1
Black Sea Bass	1		1		1	1		1			5
Blue crab							1		1		2
Crevalle jack								1	1		2
Cunner	1				1			1			3
Green crab	1	1	1	1	1	1		1	1		8
Grubby	1					1		1			3
Lady crab	1	1			1						3
Mummichog	1	1	1	1	1	1	1	1			8
Northern kingfish									1		1
Northern Pipefish				1	1						2
Northern Searobin				1							1
Northern sennet				1					1		2
Sargassum swimming crab				1							1
Sheepshead Minnow							1				1
Spotfin Mojarra				1							1
Snakefish		1	1	1							2
Striped killifish		1	1	1	1	1	1	1			7
Spider crab	1	1							1		3
Tautog	1				1	1	1	1	1	1	6
Winter flounder	1	1						1	1		4
White mullet							1	1	1		3

Table 4f. Species presence by site for October 2025 beach seines.

OCTOBER	Site										Total
	Harris Point	Andy's Way	Beane Point	Coast Guard	Cormorant Cove	Bonnell Beach	Ball O'Brien	Inner Pond	Eelgrass Bed	Sand Flat	
Atlantic Silverside	1	1	1	1	1	1	1	1	1	1	10
Bay scallop						1					1
Black Sea Bass				1	1			1			3
Blue crab				1			1	1			3
Bluespotted cornetfish					1						1
Cunner					1			1	1		3
Four-spine stickleback							1				1
Green crab	1	1	1	1	1	1	1	1	1	1	10
Grubby								1			1
Lady crab		1	1	1	1						4
Mummichog	1		1	1	1	1					5
Northern Pipefish				1					1		2
Northern Puffer								1			1
Northern Searobin									1		1
Northern sennet				1							1
Oyster toadfish							1				1
Sargassum swimming crab				1							1
Sheepshead Minnow							1				1
Shorthorn Sculpin					1						1
Spotfin Mojarra		1								1	2
Snakefish							1				1
Striped killifish	1	1	1	1	1		1	1			7
Spider crab	1	1		1	1		1	1			6
Tautog	1						1	1	1	1	5
Winter flounder				1				1	1		3
White mullet									1		1

Table 5a. Abundances of winter flounder in 2025 beach seines.

Month	Site										Mean	SD	SE	Total
	Harris Point	Andy's Way	Beane Point	Coast Guard Station	Cormorant Cove	Bonnell Beach	Ball O'Brien	Inner Pond	Eelgrass Bed	Sand Flat				
MAY	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0
JUN	0	0	0	0	1	0	0	0	8	13	2.20	4.54	1.44	22
JUL	0	0	0	0	0	0	0	0	0	2	0.20	0.63	0.20	2
AUG	0	0	0	1	0	2	0	0	3	0	0.60	1.07	0.34	6
SEP	3	0	1	0	0	0	0	0	3	1	0.80	1.23	0.39	8
OCT	0	0	0	0	2	0	0	0	1	1	0.40	0.70	0.22	4
<b>Mean</b>	0.50	0.00	0.17	0.17	0.50	0.33	0.00	0.00	2.50	2.83				
<b>SD</b>	1.22	0.00	0.41	0.41	0.84	0.82	0.00	0.00	3.02	5.04				
<b>SE</b>	0.50	0.00	0.17	0.17	0.34	0.33	0.00	0.00	1.23	2.06				
<b>Total</b>	3	0	1	1	3	2	0	0	15	17				
												<b>Total Fish</b>	<b>42</b>	

Table 5b. Abundances of summer flounder in 2025 beach seines.

Month	Site										Mean	SD	SE	Total
	Harris Point	Andy's Way	Beane Point	Coast Guard Station	Cormorant Cove	Bonnell Beach	Ball O'Brien	Inner Pond	Eelgrass Bed	Sand Flat				
MAY	0	0	0	0	0	0	0	0	0	1	0.10	0.32	0.10	1
JUN	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0
JUL	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0
AUG	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0
SEP	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0
OCT	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0
<b>Mean</b>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17				
<b>SD</b>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.41				
<b>SE</b>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17				
<b>Total</b>	0	0	0	0	0	0	0	0	0	1				
												<b>Total Fish</b>	<b>1</b>	

Table 5c. Abundances of black sea bass in 2025 beach seines.

Month	Site										Mean	SD	SE	Total
	Harris Point	Andy's Way	Beane Point	Coast Guard Station	Cormorant Cove	Bonnell Beach	Ball O'Brien	Inner Pond	Eelgrass Bed	Sand Flat				
MAY	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0
JUN	0	0	0	0	0	0	0	0	2	0	0.20	0.63	0.20	2
JUL	0	0	0	1	0	0	0	0	0	0	0.10	0.32	0.10	1
AUG	0	0	0	0	0	2	0	0	0	0	0.20	0.63	0.20	2
SEP	1	0	0	2	0	8	1	0	2	0	1.40	2.46	0.78	14
OCT	0	0	0	0	1	12	0	0	1	0	1.40	3.75	1.19	14
<b>Mean</b>	0.17	0.00	0.00	0.50	0.17	3.67	0.17	0.00	0.83	0.00				
<b>SD</b>	0.41	0.00	0.00	0.84	0.41	5.13	0.41	0.00	0.98	0.00				
<b>SE</b>	0.17	0.00	0.00	0.34	0.17	2.09	0.17	0.00	0.40	0.00				
<b>Total</b>	1	0	0	3	1	22	1	0	5	0				
												<b>Total Fish</b>	<b>33</b>	

Table 5d. Abundances of tautog in 2025 beach seines.

Month	Site										Mean	SD	SE	Total
	Harris Point	Andy's Way	Beane Point	Coast Guard Station	Cormorant Cove	Bonnell Beach	Ball O'Brien	Inner Pond	Eelgrass Bed	Sand Flat				
MAY	0	0	0	0	0	0	0	0	0	2	0.20	0.63	0.20	2
JUN	5	0	0	0	0	0	0	0	3	1	0.90	1.73	0.55	9
JUL	0	0	0	0	0	0	4	0	0	0	0.40	1.26	0.40	4
AUG	0	0	0	0	0	4	0	0	1	7	1.20	2.39	0.76	12
SEP	27	0	0	0	0	15	13	1	17	1	7.40	9.81	3.10	74
OCT	4	0	0	0	0	0	1	6	6	2	1.90	2.51	0.80	19
<b>Mean</b>	6.00	0.00	0.00	0.00	0.00	3.17	3.00	1.17	4.50	2.17				
<b>SD</b>	10.53	0.00	0.00	0.00	0.00	6.01	5.14	2.40	6.53	2.48				
<b>SE</b>	4.30	0.00	0.00	0.00	0.00	2.46	2.10	0.98	2.67	1.01				
<b>Total</b>	36	0	0	0	0	19	18	7	27	13				
												<b>Total Fish</b>	<b>120</b>	

**APPENDIX**

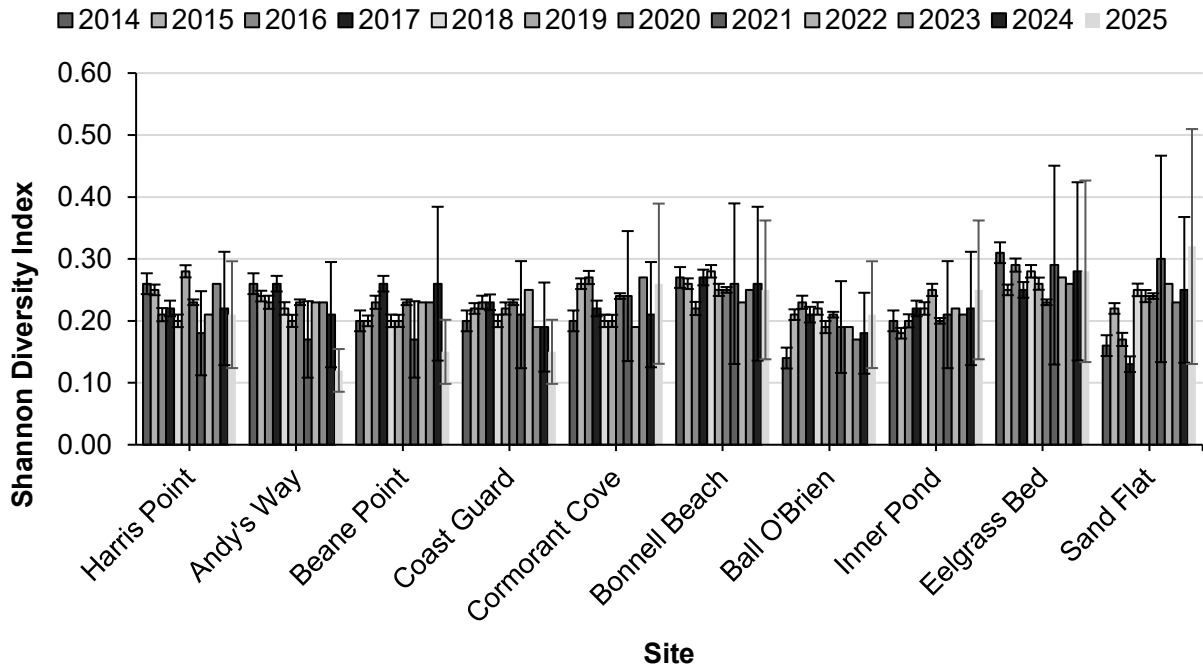


Figure 7. Mean Shannon diversity across sites in 2014-2025 beach seines

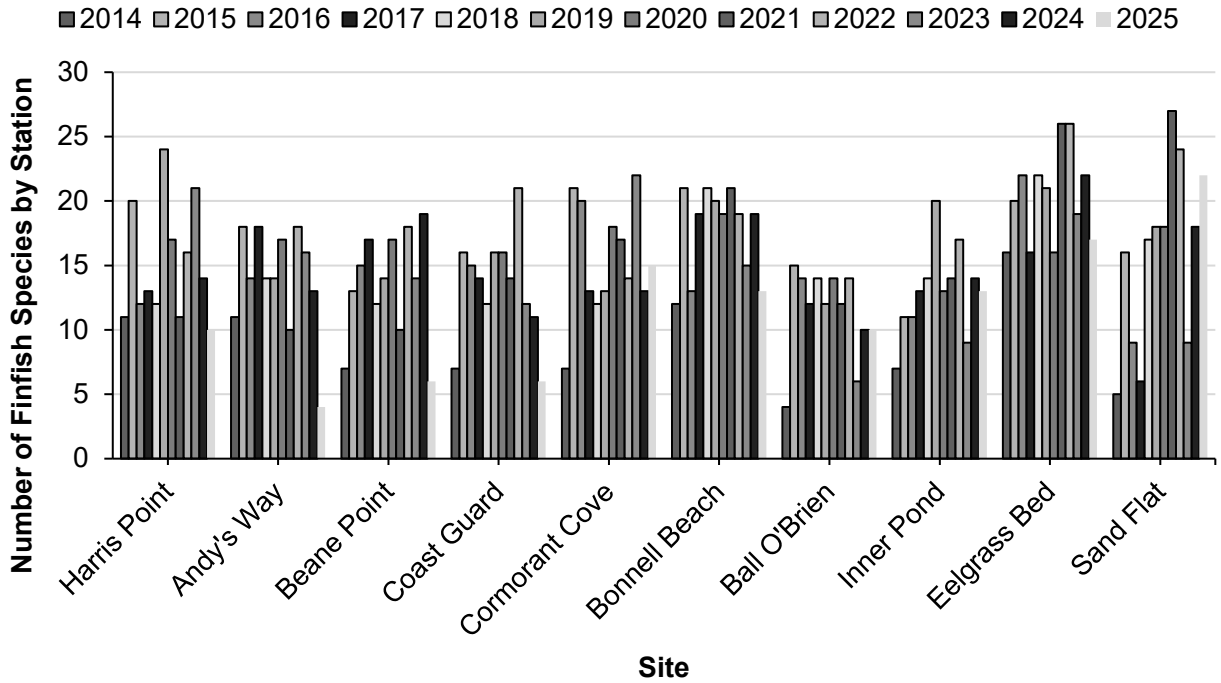
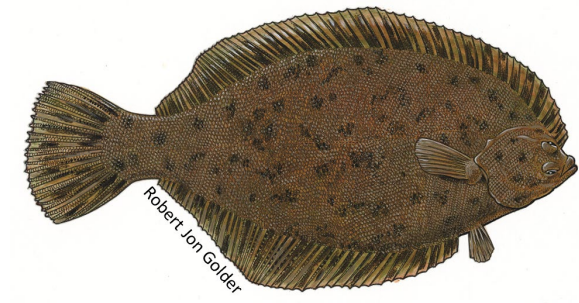


Figure 8. Cumulative number of finfish species by site in 2014-2025 beach seine

# Assessment of Recreationally Important Finfish Stocks in Rhode Island Coastal Ponds

## Young of the Year Survey of Selected Rhode Island Coastal Ponds and Embayments



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Federal Aid in Sportfish Restoration  
F-61-R

## Performance Report

**State:** Rhode Island

**Project Number:** F-61-R

**Project Title:** Assessment of Recreationally Important Finfish Stocks in Rhode Island Waters.

**Period Covered:** January 1, 2025 - December 31, 2025

**Job Number & Title:** Job 3 – Young of the Year Survey of Selected Rhode Island Coastal Ponds and Embayments

**Job Objectives:** To collect, analyze, and summarize beach seine survey data from Rhode Island's coastal ponds and estuaries for the purpose of forecasting recruitment in relation to the spawning stock biomass of winter flounder and other recreationally important species.

**Target Date:** December 31, 2025

**Status of Project:** On schedule

**Significant Deviations:** There were no significant deviations in 2025.

**Recommendations:** Continue into the next segment with the project as currently designed; continue at each of the 24 sample stations.

## **Summary:**

During 2025, investigators successfully sampled all twenty-four traditional stations in eight coastal ponds from May through October: Winnapaug Pond, Quonochontaug Pond, Charlestown Pond, Point Judith Pond, Green Hill Pond, Potter Pond, Pawcatuck River/Little Narragansett Bay and Narrow River (Figure 1).

All 144 seine samples were completed in 2025. In total, 65 different species representing 43 families were caught within the Washington County coastal ponds in 2025. The most frequently encountered species were Atlantic Silverside (85% occurrence, CPUE = 114.8 number/haul), Winter Flounder (73% occurrence, CPUE = 12.1 number/haul), and Blue Crab (61% occurrence, CPUE = 2.6 number/haul).

The Block Island juvenile finfish seine survey was completed by Diandra Verbeyst, Great Salt Pond Scientist, The Nature Conservancy. Appendix 1 displays the frequency of all species caught by station during the 2025 Coastal Pond Survey. Additional data is available by request.

## **Materials and Methods:**

As in previous years, investigators attempted to perform all seining on an outgoing tide. To collect animals, investigators used a seine 130 ft. long (39.62m), 6 ft deep (1.67m) with ¼" mesh (6.4mm). The seine has a bag at its midpoint, a weighted foot rope and floats on the head rope. Figure 4 describes the area covered by the seine net. The beach seine is set in a semi-circle away from the shoreline and back again using an outboard powered 16' Polarkraft aluminum boat. The net is then hauled toward the beach by hand and the bag is emptied into a large water-filled tote. All animals collected are identified to species, measured, enumerated, and sub-samples taken when appropriate. Water quality parameters including temperature, salinity and dissolved oxygen are measured at each station. Figure 1 shows the locations of the sampling stations within each waterbody.

The abundance indices for winter flounder targets only YOY individuals. For consistency, only individuals with a total length (TL) less than 12 cm are included in these analyses.

## **Results and Discussion:**

### **Winter Flounder (*Pseudopleuronectes americanus*)**

Juvenile winter flounder were collected at all 24 stations over the course of the season. Winter flounder ranked third in species abundance (CPUE = 12.1 fish/haul, total=1743) in 2025, with the highest mean abundance (fish/seine haul) occurring in June and August (Table 1). The early season peak in abundance in June was fairly consistent across all ponds and is consistent with past years. However, the second peak in August is unusual, as typically winter flounder abundance declines as summer progresses. This was largely driven by a particularly large catch of winter flounder in Narrow River in August.

Winter flounder abundance in 2025 was above the time series low of 4.1 fish/haul in 2018. The juvenile winter flounder abundance index (YOY WFL index) for 2025 measured using the mean fish/seine haul was 12.1 fish/haul, comparable to the last few years of the survey and near the time series median, but a linear regression still shows a continued decline (Figure 3). Table 1 and Figure 4 display the CPUE of winter flounder for each month by pond during the 2025 survey. Figure 6 displays winter flounder abundance against mean

recorded water temperature, showing a negative correlation between winter flounder abundance and mean measured water temperature.

With increasing seasonal temperatures, Rhode Island waters have seen an ecological shift from resident demersal species (including winter flounder) to a pelagic community dominated by more southern species (Collie et al. 2008, Oviatt 2004). Over the course of this survey, average water temperature of the coastal ponds has steadily increased, while winter flounder YOY CPUE has decreased. Average water temperature measured during the survey has not been below 20°C since 2006 (19.3°C). The highest average temperature was observed in 2016 at 22.5 °C. The mean temperature in 2025 was slightly lower at 20.5 °C. Findings from this sampling are consistent with the overall warming trends occurring in northeast region and the observed declines in the winter flounder population. A clear negative trend is seen between mean coastal pond water temperature and winter flounder catch (Figure 6).

In 2025, juvenile winter flounder ranged in size from 1.9 cm to 13.3 cm, representing ages 0-1+ (Figure 5). The size range of animals collected is similar to those caught in previous years. Length-frequency distributions indicate that 99.9% of individuals collected during sampling season were less than 12 cm TL and considered age 0 fish (1741/1743). The size ranges of these fish agree with ranges for young-of-the-year winter flounder in the literature (Able & Fahay 1998; Berry 1959; Berry et al. 1965).

Two other RIDMF surveys target juvenile and adult winter flounder: the Narragansett Bay Spring Seasonal Trawl Survey (Spring Trawl) and the Narragansett Bay Juvenile Finfish Survey (NBS). A comparison of the Coastal Pond Survey (CPS) to these other projects reveals that despite some slight differences, they display similar trends (Figure 7). Like the CPS, the NBS has seen a continued decline in CPUE of YOY winter, with only 1.2 fish/haul in 2025. The Spring Trawl Survey WFL index was at a timeseries low of 0.9 fish/tow. Winter flounder catch in the trawl continues to trend downwards. Regulations changed ending the prohibition on possession of winter flounder in federal waters of Southern New England in 2012. Federal possession limits were either unlimited or set to 5,000 lbs per trip depending on the permit category of the vessel. It is believed that these high limits encourage a directed fishery for winter flounder in the spring. NOAA Fisheries has changed their procedures for administration of common pool possession limit, restricting it to lower values during the year than allowed (typically 2,000 lbs per day) in 2013. Possession limits remain 50 pounds in State waters. Despite these low catch limits, abundance of adult winter flounder remains low.

### **Target Species**

In 2025, summer flounder and tautog were the most frequently caught species (31.9% and 11.1% of hauls respectively), and summer flounder and black sea bass had the highest abundances (0.6 and 0.4 fish/haul respectively). In 2025, summer flounder abundance was at a time series-high. Tautog, black sea bass, summer flounder, and scup continue to show positive trends in abundance over the time series. Abundances of target recreational species are shown in Table 2 and Figures 9-13.

### **Clupeids**

In 2025, four species of clupeids were caught in the coastal pond survey: Atlantic menhaden (*Brevoortia tyrannus*), Alewife (*Alosa pseudoharengus*), Atlantic herring (*Clupea harengus*), and bay anchovy (*Anchoa mitchilli*) (Table 3 and Figure 14). The most prevalent

was Atlantic menhaden, with a percent occurrence of 11.8% and an overall CPUE of 24.7 fish/haul. No blueback herring were caught in 2025. Clupeid catches are highly variable. In many instances, high numbers of fish, especially YOY menhaden, are caught in a single seine haul due to their dense schooling nature and because such a school was present at a given station upon sampling. Due to the highly variable magnitude of catches, abundance is shown in log-scale (Figure 14).

## References

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Table 1: Coastal Pond Survey winter flounder mean abundance indices (fish/seine haul) by pond and month for 2025. 95% confidence intervals are given in parentheses.

Waterbody	May	June	July	Aug	Sept	Oct
Charlestown Pond	5.5 (-4.6, 15.6)	13.2 (4.9, 21.6)	15 (0.8, 29.2)	9.2 (-0.8, 19.3)	3.2 (1.2, 5.3)	1.5 (-0.4, 3.4)
Green Hill Pond	20.5 (-0.1, 41.1)	17 (-0.6, 34.6)	1.5 (-1.4, 4.4)	0 (0, 0)	0 (0, 0)	0 (0, 0)
Narrow River	21.3 (-6.3, 48.9)	63.3 (-29.9, 156.6)	13.7 (-8.4, 35.7)	55.7 (-37.3, 148.6)	9.7 (-3.1, 22.4)	2.7 (-0.2, 5.5)
Pawcatuck River	1.3 (-1.3, 3.9)	25 (-9.5, 59.5)	16.3 (-2, 34.6)	7.7 (-3.5, 18.8)	0.3 (-0.3, 1)	1 (-0.1, 2.1)
Point Judith Pond	0.8 (-0.2, 1.7)	10.2 (2.1, 18.4)	21.2 (0.4, 42.1)	17.8 (8, 27.5)	5 (-4.8, 14.8)	2 (-0.4, 4.4)
Potter Pond	1 (-1, 3)	6 (-5.8, 17.8)	0.5 (-0.5, 1.5)	9.5 (-9.1, 28.1)	2.5 (-2.4, 7.4)	0 (0, 0)
Quonochontaug Pond	6 (-3.9, 15.9)	37 (3.6, 70.4)	9.7 (-0.8, 20.2)	8 (2, 14)	3.7 (-1.7, 9)	9 (2.7, 15.3)
Winnapaug Pond	26.3 (-8.4, 61)	38.3 (13.3, 63.4)	12 (-5.8, 29.8)	16 (5.2, 26.8)	14.3 (-1.3, 29.9)	4 (0.1, 7.9)

Table 2: Coastal Pond Survey mean abundance indices (fish/seine haul) for target species by month for 2025. 95% confidence intervals are given in parentheses.

Species	May	June	July	Aug	Sept	Oct
Summer Flounder	0.6 (0.3, 1)	1 (0.5, 1.4)	1 (0.2, 1.8)	1 (0.3, 1.7)	0.1 (0, 0.2)	0 (0, 0.1)
Winter Flounder	9.7 (3.2, 16.2)	26.3 (12.7, 39.9)	12.7 (6.8, 18.5)	16.2 (4.2, 28.2)	5.1 (1.9, 8.3)	2.7 (1.2, 4.1)
Bluefish	0 (0, 0)	0.1 (0, 0.2)	0.5 (0, 0.9)	0.3 (0, 0.6)	0 (0, 0.1)	0 (0, 0)
Black Sea Bass	0 (0, 0)	0.1 (-0.1, 0.2)	0.1 (0, 0.2)	0 (0, 0)	2.1 (0.2, 4)	0.1 (0, 0.2)
Scup	0 (0, 0)	0 (0, 0)	0 (0, 0.1)	0 (0, 0)	0.2 (-0.1, 0.5)	0 (0, 0)
Tautog	0 (0, 0.1)	0.2 (-0.1, 0.4)	0.1 (-0.1, 0.2)	1.4 (-0.1, 2.9)	0.5 (-0.1, 1)	0.1 (0, 0.2)

Table 3: Coastal Pond Survey mean abundance indices (fish/seine haul) for clupeid species by month for 2025. 95% confidence intervals are given in parentheses.

Species	May	June	July	Aug	Sept	Oct
Atlantic Herring	0 (0, 0)	0.8 (-0.3, 1.8)	0 (0, 0)	0 (0, 0.1)	0 (0, 0)	0 (0, 0)
Alewife	0 (0, 0)	0 (0, 0)	0.4 (-0.1, 0.8)	0 (0, 0)	0 (0, 0)	0 (0, 0)
Blueback Herring	0 (0, 0)	0 (0, 0)	0 (0, 0)	0 (0, 0)	0 (0, 0)	0 (0, 0)
Atlantic Menhaden	0 (0, 0)	134.9 (-78.7, 348.4)	8.6 (-3.8, 21.1)	4 (-3.5, 11.5)	0.5 (0, 1.1)	0 (0, 0.1)
Bay Anchovy	2 (-1.9, 6)	7 (-6.1, 20)	7 (-6.7, 20.8)	0.2 (-0.1, 0.5)	3.1 (-2.7, 8.9)	0.1 (0, 0.2)

Table 4: Coastal Pond Survey mean abundance indices (fish/seine haul) for forage and bait species by month for 2025. 95% confidence intervals are given in parentheses.

Species	May	June	July	Aug	Sept	Oct
Atlantic Silverside	15.8 (6.1, 25.4)	293.7 (-227.9, 815.4)	41.3 (2.2, 80.5)	220.4 (88.6, 352.2)	106.2 (17, 195.4)	11.7 (7.2, 16.2)
Sheepshead Minnow	0 (0, 0)	0.1 (-0.1, 0.2)	0 (0, 0.1)	5.1 (-4.5, 14.6)	1.8 (-0.9, 4.4)	29.5 (-2.7, 61.7)
Mummichog	2.9 (0.2, 5.5)	4.9 (-0.7, 10.5)	7.5 (0.4, 14.6)	12 (-0.1, 24.2)	3 (-1.7, 7.7)	1.1 (-0.1, 2.3)
Striped Killifish	0 (0, 0)	0.2 (0, 0.4)	2.5 (-0.6, 5.6)	8 (0.9, 15.1)	12.2 (0.4, 24.1)	46.4 (-15.1, 108)

Table 5: Mean measured water temperature (°C) by pond and month for 2025.

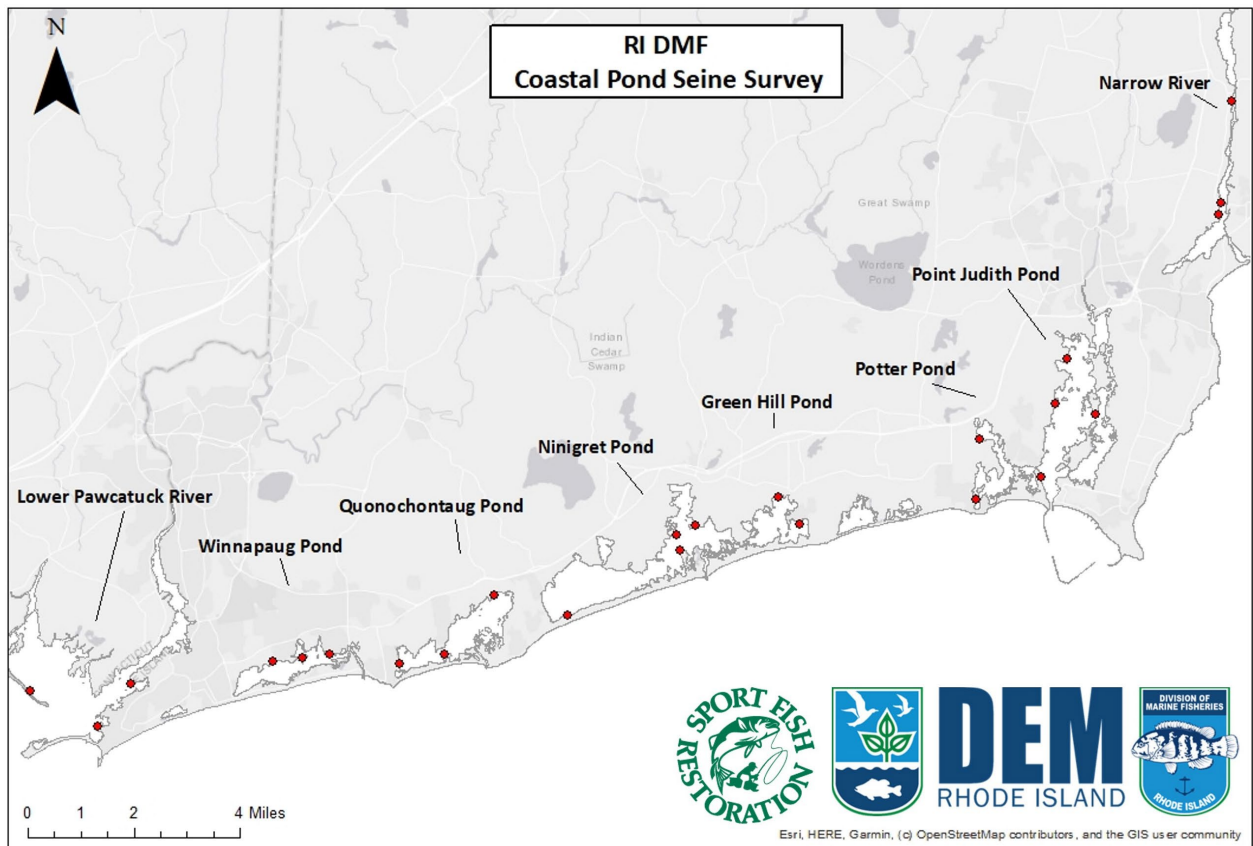
Waterbody	May	June	July	Aug	Sept	Oct
Charlestown Pond	18.6	20.6	26.4	25.3	20.9	12.5
Green Hill Pond	19.4	21.1	27.2	25.2	20.9	12.2
Narrow River	17.0	22.2	24.4	25.9		
Pawcatuck River	12.6	23.1	25.2	24.8	21.7	12.1
Point Judith Pond	17.4	20.7	24.1	25.6	20.9	15.3
Potter Pond	19.2	20.8	27.8	26.5	21.0	15.3
Quonochontaug Pond	15.6	19.2	24.7	24.5	19.2	14.0
Winnapaug Pond	16.3	18.9	23.2	23.1	21.4	12.4

Table 6: Mean measured salinity (ppt) by pond and month for 2025.

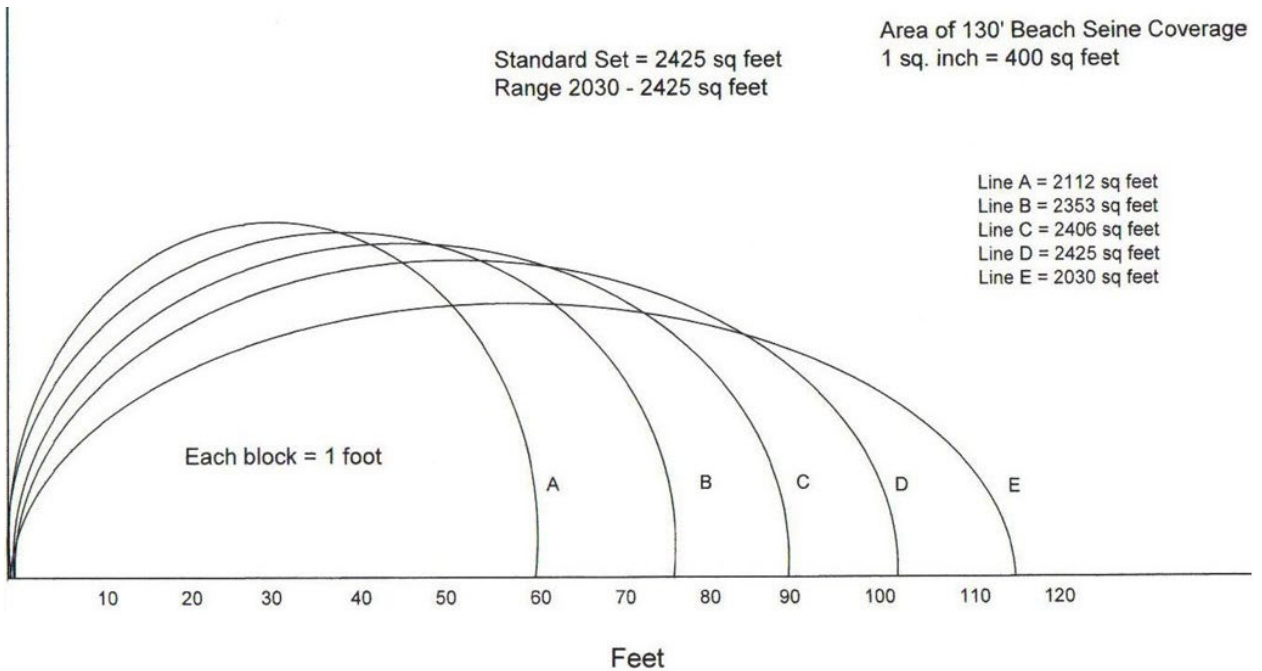
Waterbody	May	June	July	Aug	Sept	Oct
Charlestown Pond	29.3	29.2	29.9	30.0	30.8	29.8
Green Hill Pond	14.2	22.6	23.4	26.4	27.5	26.0
Narrow River	22.4	22.8	26.2	25.0		
Pawcatuck River	20.2	23.3	22.3	28.9	29.7	28.1
Point Judith Pond	28.4	29.0	29.5	29.2	31.1	30.2
Potter Pond	27.9	28.1	27.5	28.8	27.9	29.8
Quonochontaug Pond	30.9	29.7	30.7	31.2	31.3	31.6
Winnapaug Pond	30.2	29.9	30.1	30.8	31.4	31.4

Table 7: Mean measured dissolved oxygen (mg/L) by pond and month for 2025.

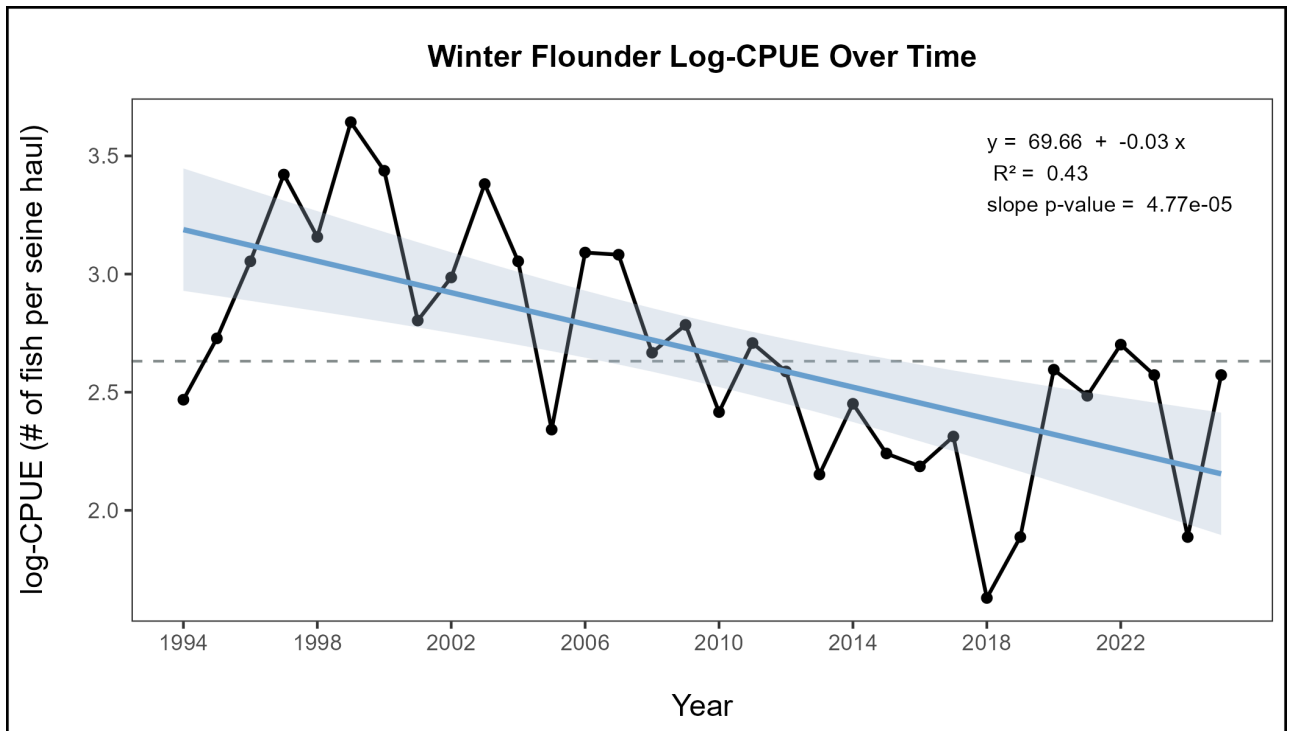
Waterbody	May	June	July	Aug	Sept	Oct
Charlestown Pond	10.6	8.5	8.7	9.2	8.7	9.5
Green Hill Pond	9.2	7.8	8.7	7.2	7.7	8.6
Narrow River	8.9	9.3	7.3	7.9		
Pawcatuck River	9.6	10.0	8.4	10.2	8.5	9.2
Point Judith Pond	9.5	9.2	6.8	10.1	8.3	8.8
Potter Pond	9.3	8.0	7.3	7.8	8.4	8.4
Quonochontaug Pond	8.7	8.6	8.8	7.3	7.2	9.5
Winnapaug Pond	8.4	8.0	8.0	8.6	7.6	8.8



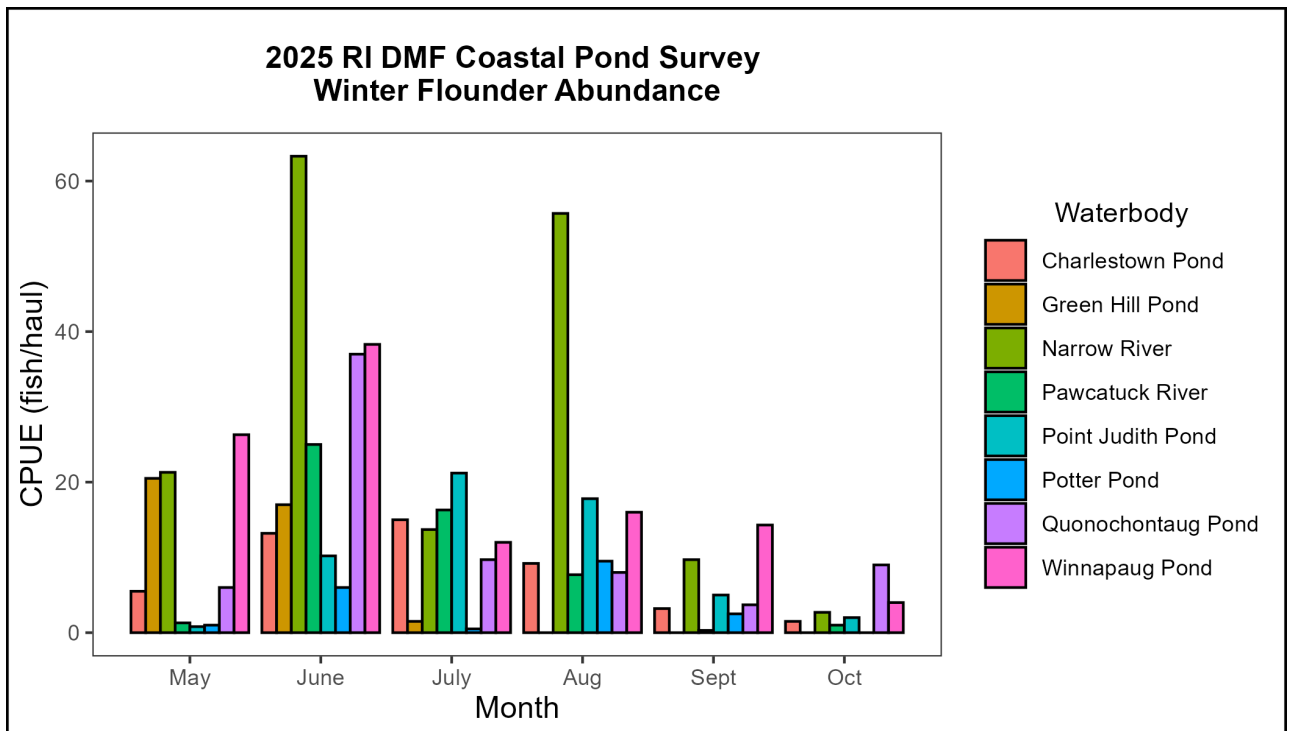
**Figure 1:** Location of coastal ponds sampled by the Coastal Pond Juvenile Finfish Survey in Southern Rhode Island.



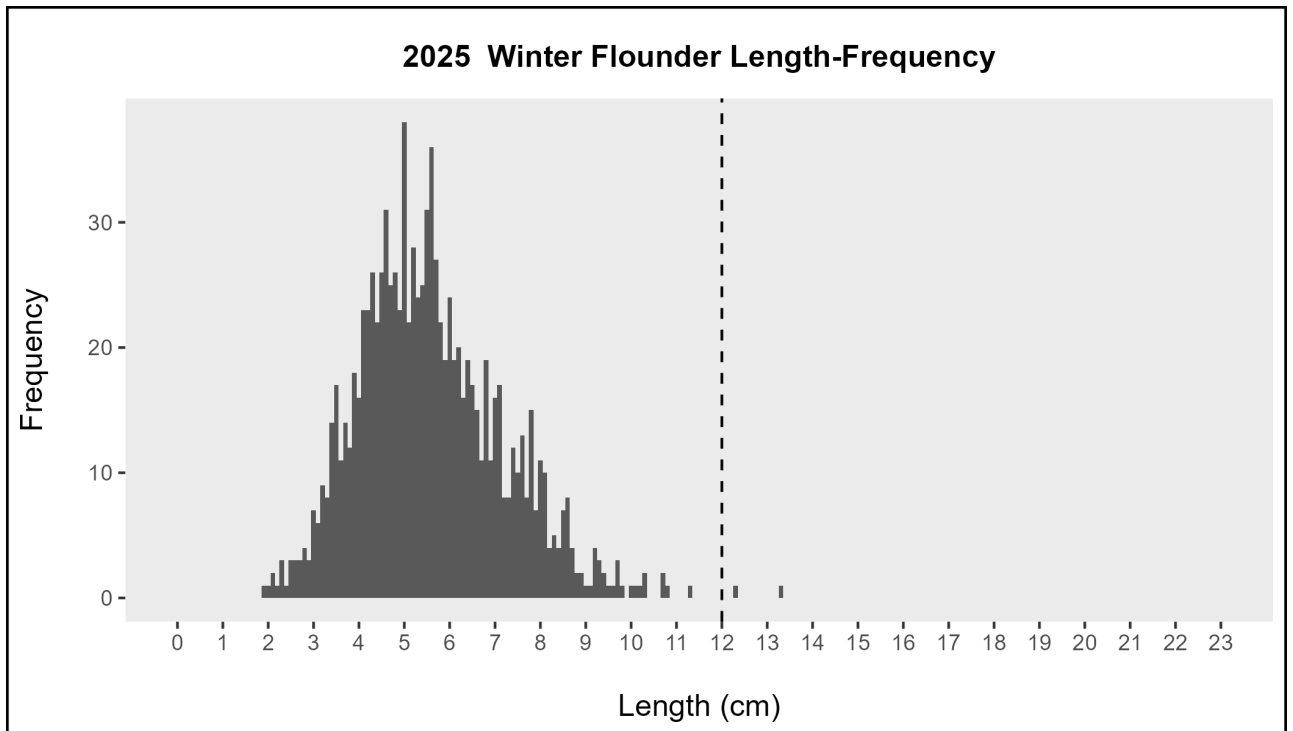
**Figure 2:** Approximate swept area of beach seine net.



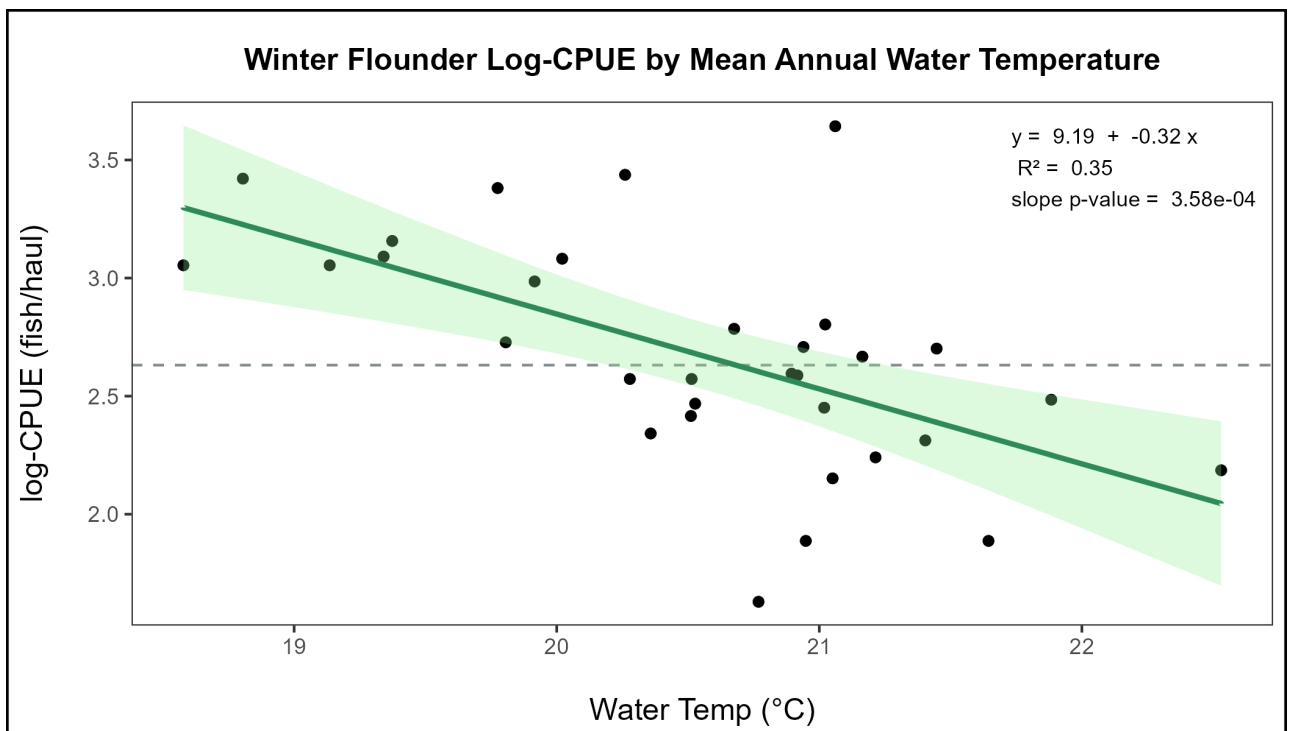
**Figure 3:** Time series of mean log-transformed abundance indices (fish/seine haul) for winter flounder young-of-year. The solid line is a linear regression, with shaded areas indicating the 95% confidence interval. The grey dashed line is the time series median.



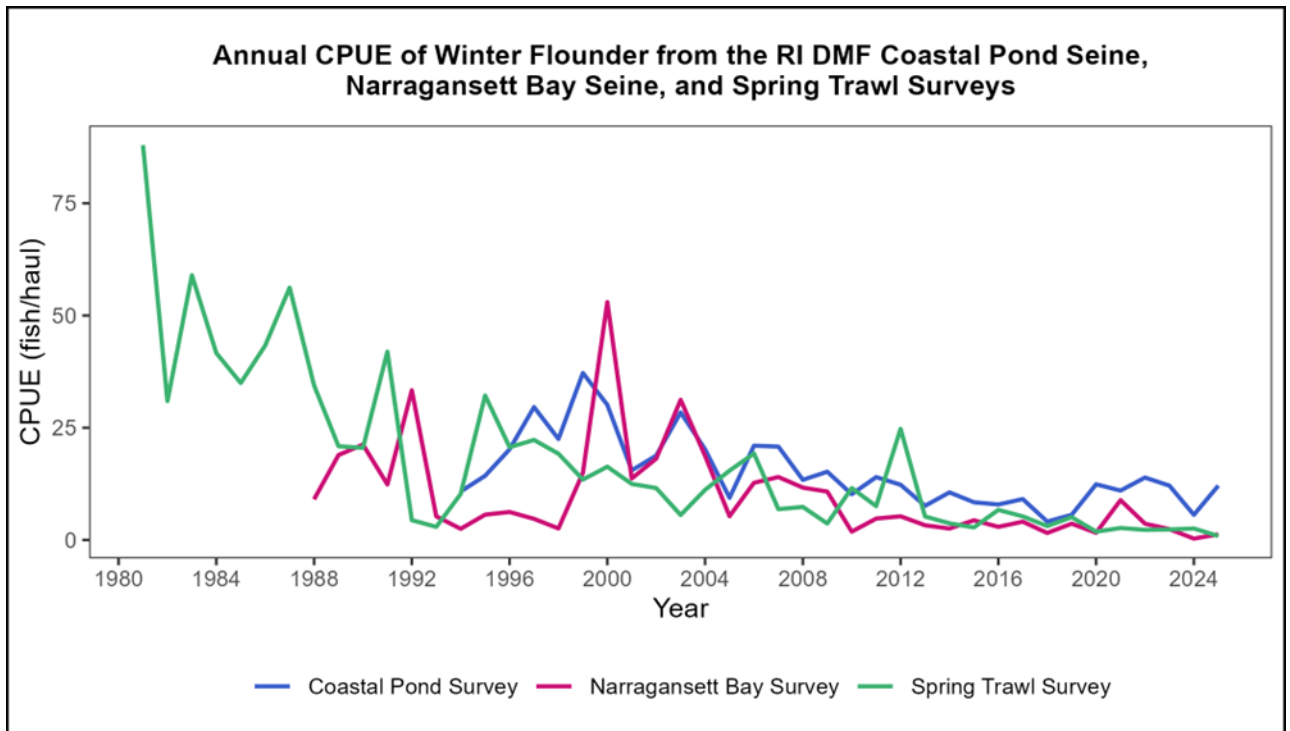
**Figure 4:** 2025 abundance indices (fish/seine haul) for YOY winter flounder for each pond by month.



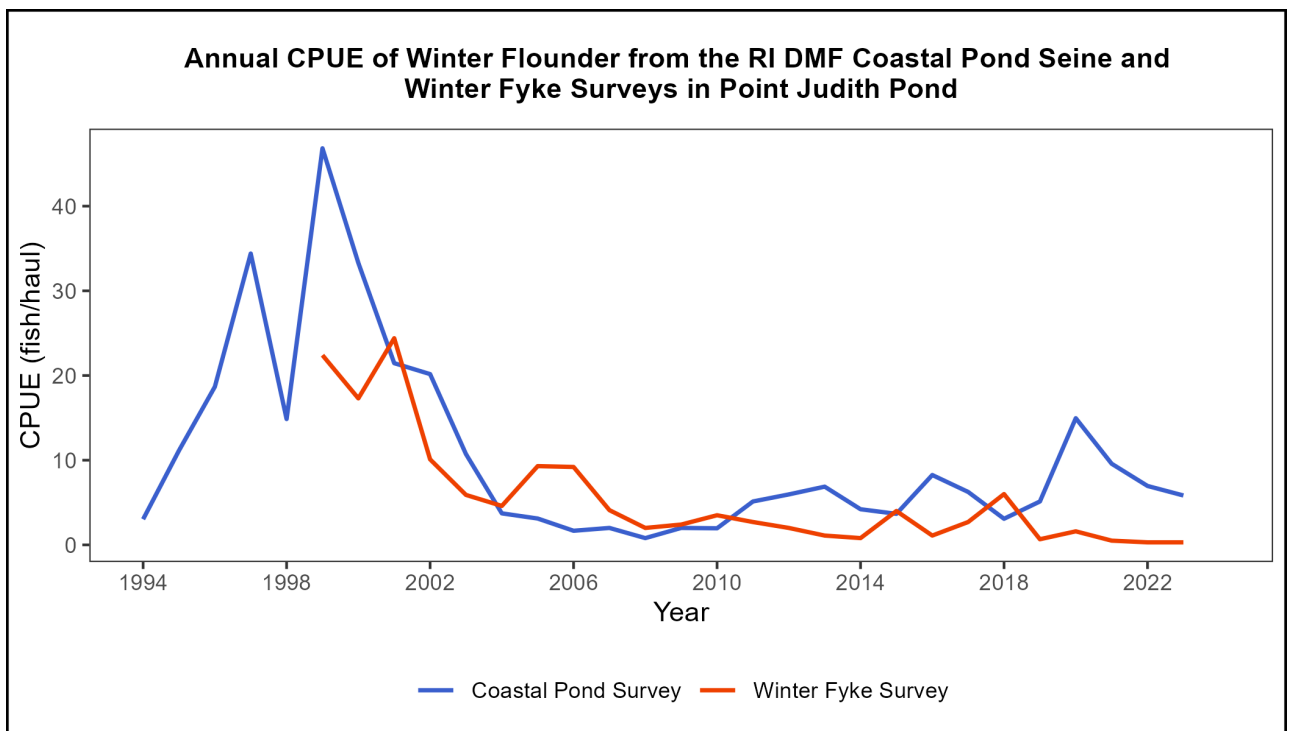
**Figure 5:** Length frequency of all winter flounder caught in Coastal Pond Survey during 2025. Note: YOY are to the left of the dashed line (<12cm TL)



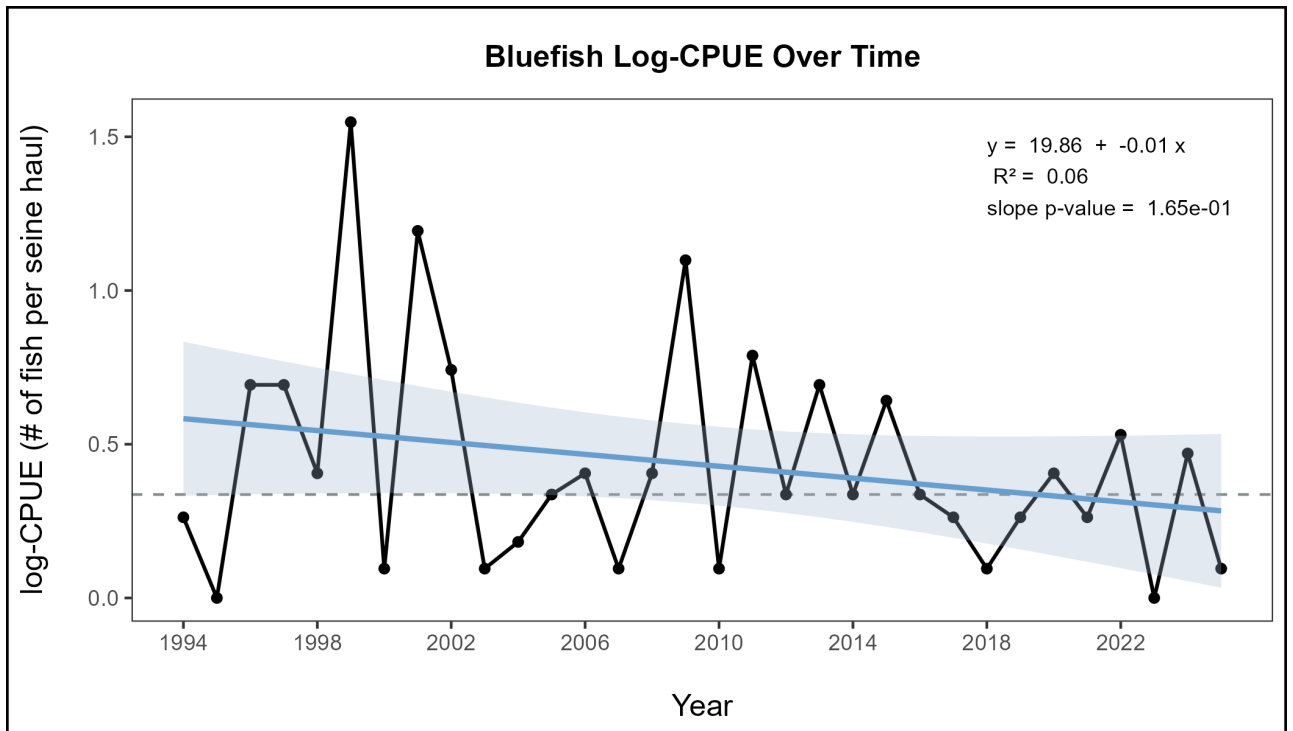
**Figure 6:** Winter flounder CPUE against mean measured water temperature. The solid line is a linear regression and shading represents 95% confidence intervals. The dashed grey line is the time-series median.



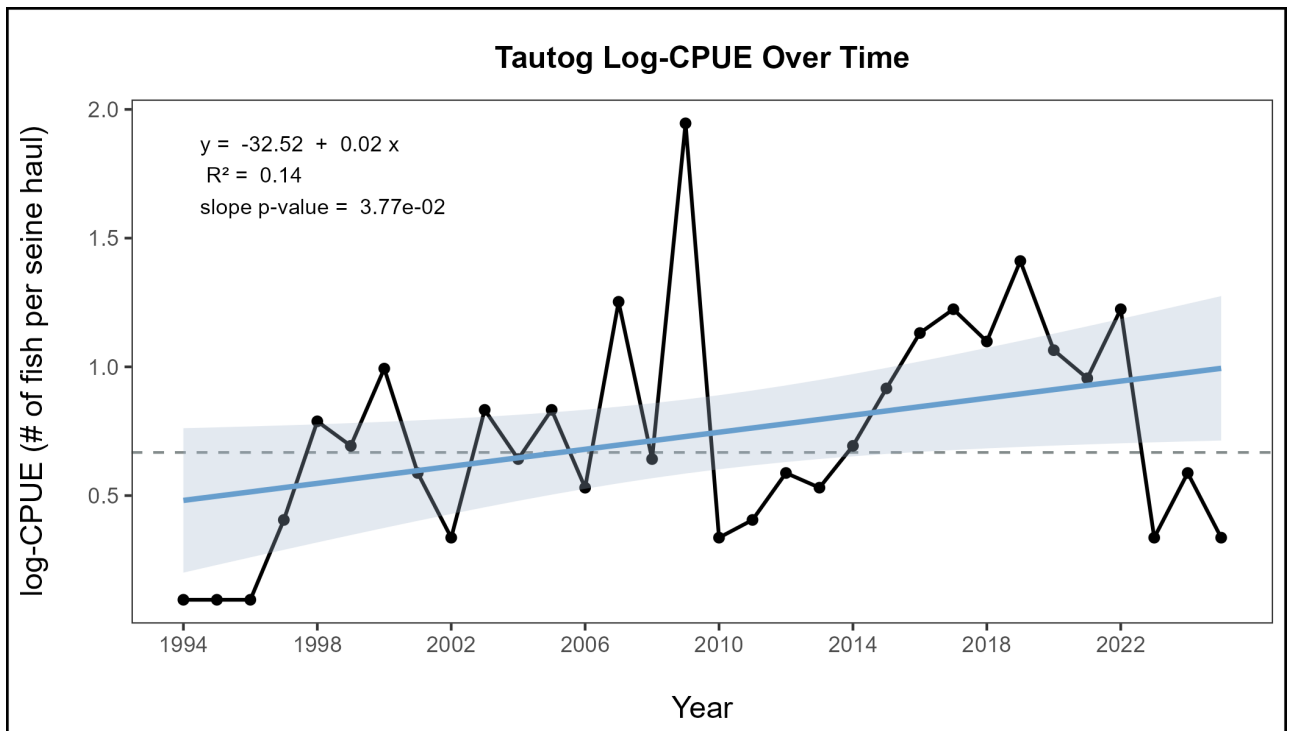
**Figure 7:** Abundance indices (fish/haul) from the RIDMF Coastal Pond Survey, Narragansett Bay Seine Survey, and Spring Trawl Survey for winter flounder.



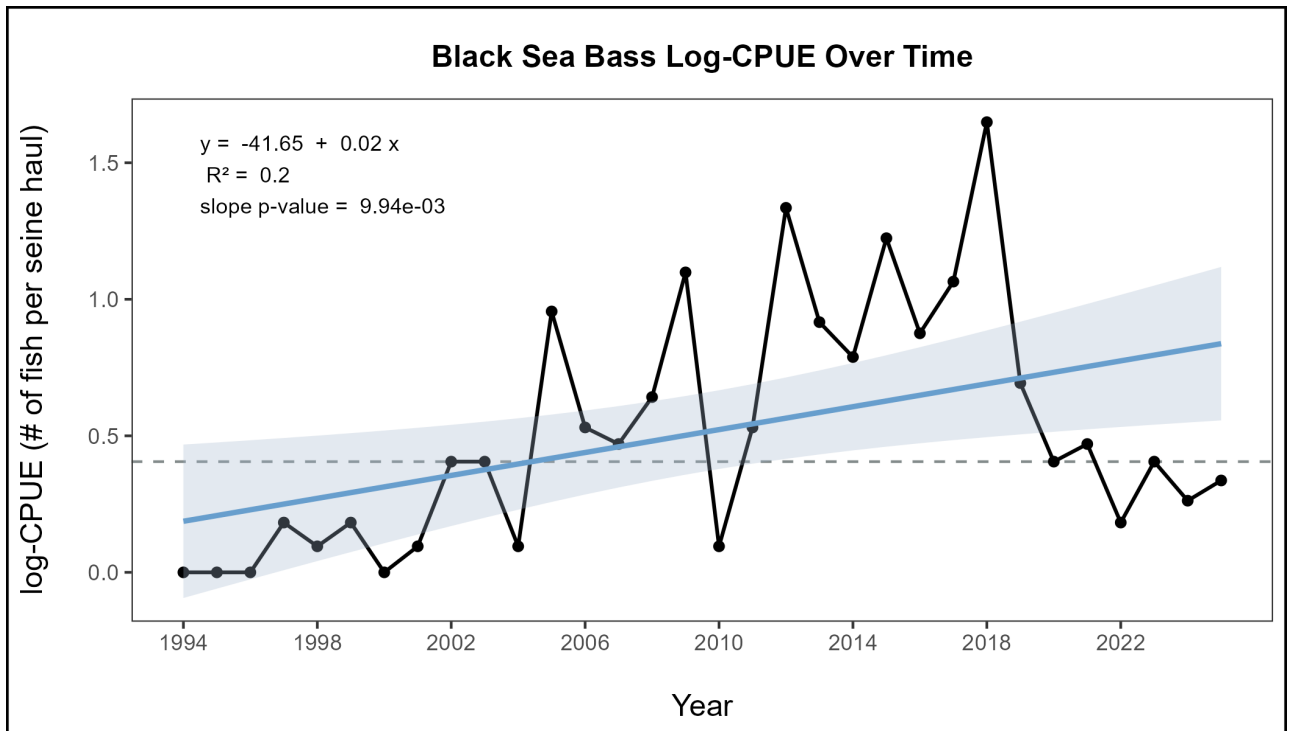
**Figure 8:** Abundance indices (fish/haul) from the Coastal Pond Survey and the Adult Winter Flounder Tagging Survey for winter flounder.



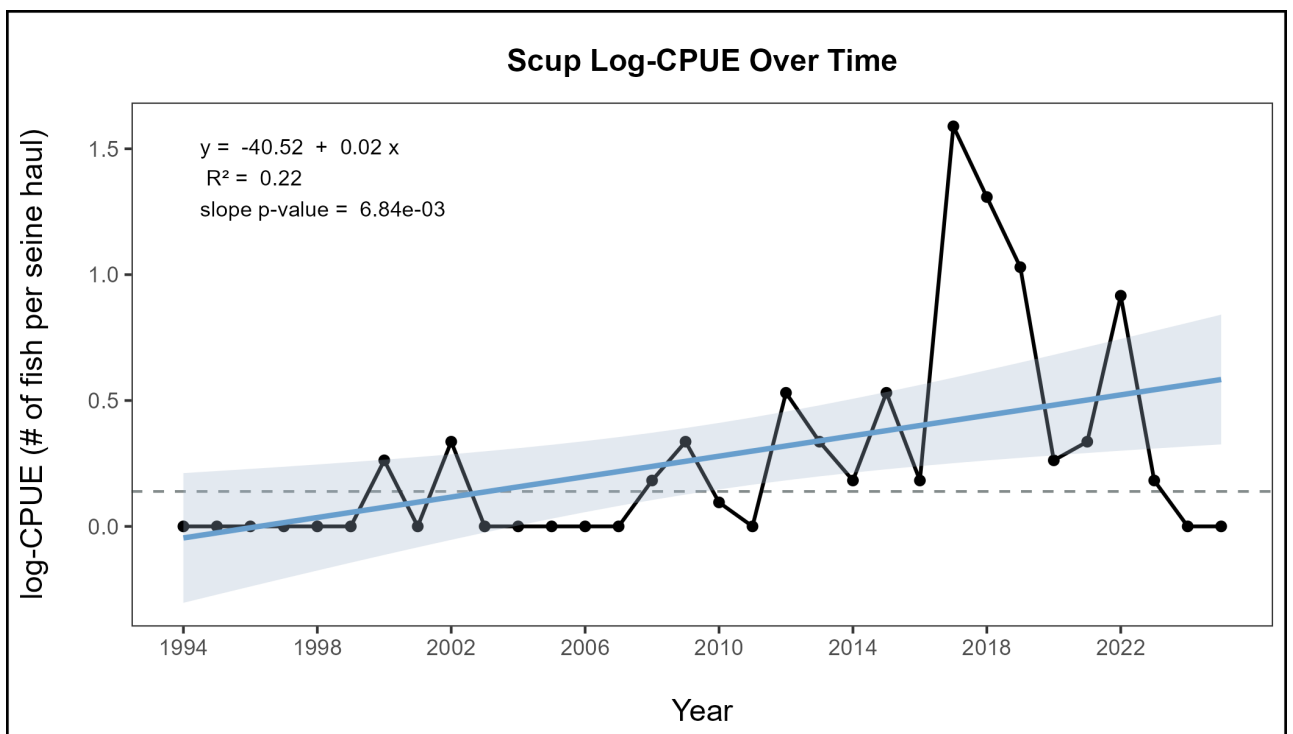
**Figure 9:** Time series of mean log-transformed abundance indices (fish/seine haul) for bluefish. The solid line is a linear regression, with shaded areas indicating the 95% confidence interval. The grey dashed line is the time series median.



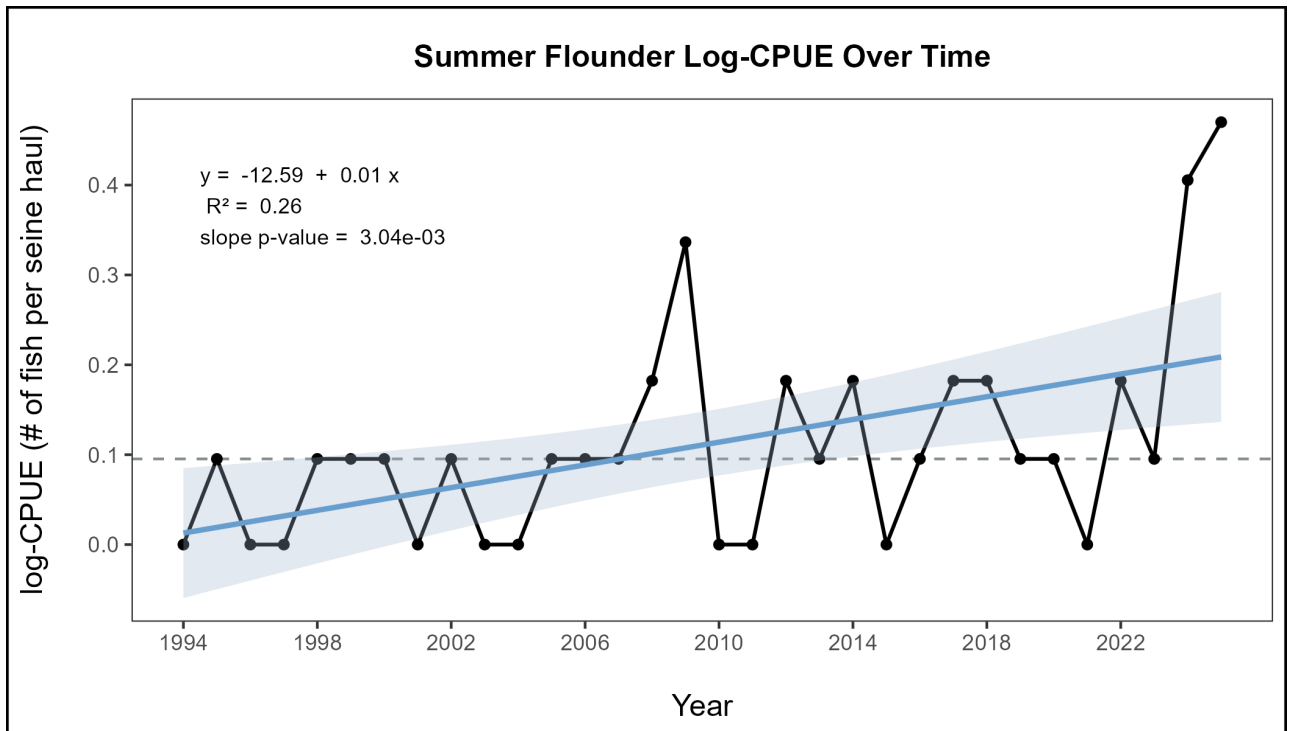
**Figure 10:** Time series of mean log-transformed abundance indices (fish/seine haul) for tautog. The solid line is a linear regression, with shaded areas indicating the 95% confidence interval. The grey dashed line is the time series median.



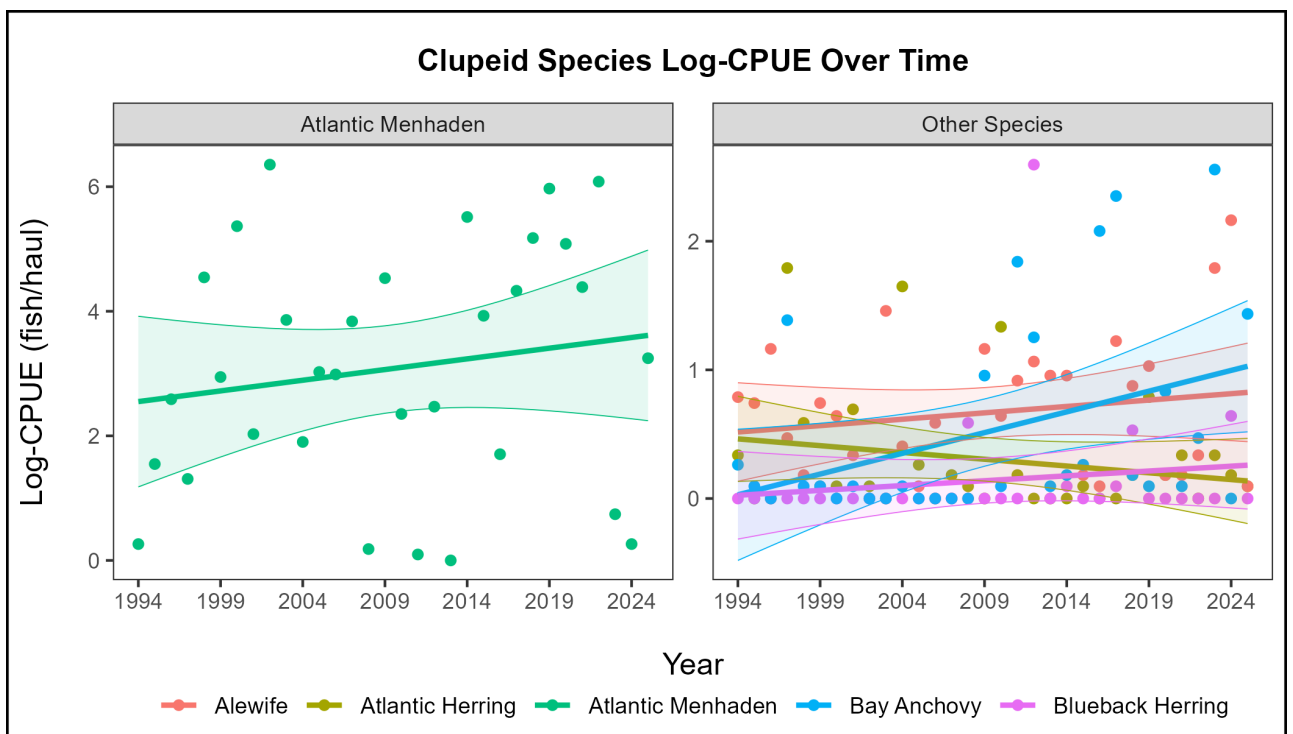
**Figure 11:** Time series of mean log-transformed abundance indices (fish/seine haul) for black sea bass. The solid line is a linear regression, with shaded areas indicating the 95% confidence interval. The grey dashed line is the time series median.



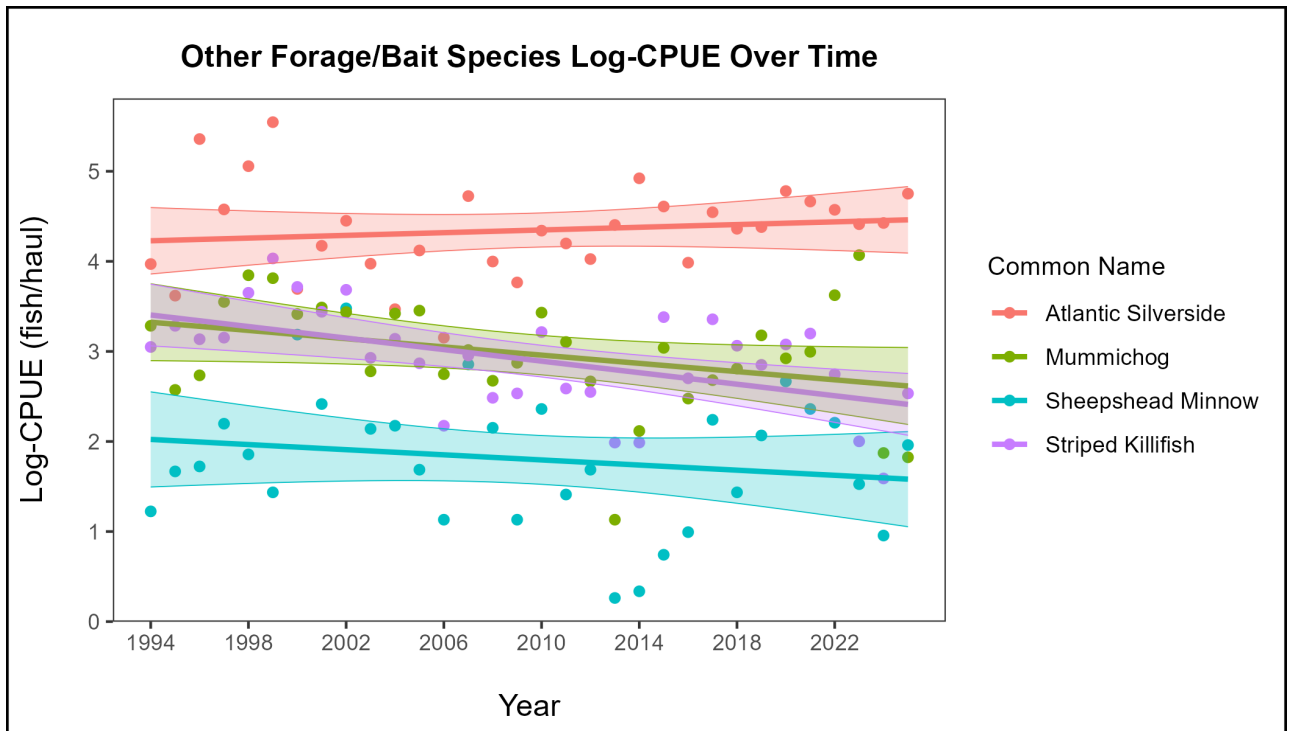
**Figure 12:** Time series of mean log-transformed abundance indices (fish/seine haul) for scup. The solid line is a linear regression, with shaded areas indicating the 95% confidence interval. The grey dashed line is the time series median.



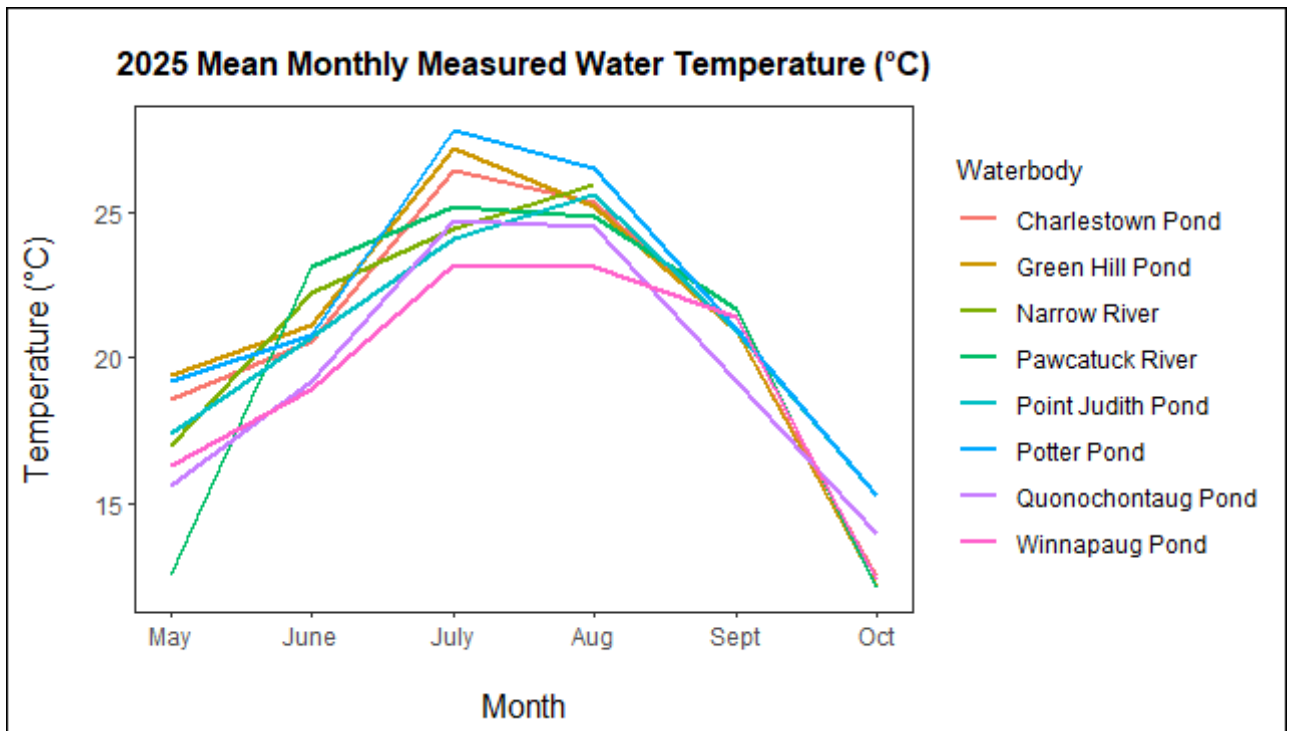
**Figure 13:** Time series of mean log-transformed abundance indices (fish/seine haul) for summer flounder. The solid line is a linear regression, with shaded areas indicating the 95% confidence interval. The grey dashed line is the time series median.



**Figure 14:** Time series of mean log-transformed abundance indices (fish/seine haul) for all Clupeid species. The solid lines are linear regressions, with shaded areas indicating the 95% confidence intervals.



**Figure 15:** Time series of mean log-transformed abundance indices (fish/seine haul) for all bait/forage species. The solid lines are linear regressions, with shaded areas indicating the 95% confidence intervals.



**Figure 16:** Average recorded water temperature in the coastal ponds by month for 2025.



SPECIES	CP1	CP2	CP3	CP4	GH1	GH2	NR1	NR2	NR3	PJ1	PJ2	PJ3	PJ4	PP1	PP2	PR1	PR2	PR3	QP1	QP2	QP3	WP1	WP2	WP3
BAY ANCHOVY (ANCHOA MITCHILLI)		160			2	71		5		2	3	1		4		1	168							49
BLUEFISH (POMATOMUS SALTATRIX)		1	3				1								1	2		3			2	3	1	4
EEL AMERICAN (ANGUILLA ROSTRATA)		3	8		1				1					1	1									
MUMMICHOG (FUNDULUS HETEROCLITUS)		15	57	1	23	3	72	50	9	218	44		6	17	114	1		14		6		72	7	26
NEEDLEFISH ATLANTIC (STRONGYLURA MARINA)		1								2	1													
SPOT (LEIOSTOMUS XANTHURUS)		21					2			6					1	2								
STICKLEBACK NINESPINE (PUNGITIUS PUNGITIUS)		2																						
FLYING GURNARD (DACTYLOPTERUS VOLITANS)			1					1																
HOGCHOKER (TRINECTES MACULATUS)			2					1																
JACK CREVALLE (CARANX HIPPOS)			1				9							1							1			
MULLET WHITE (MUGIL CUREMA)			4		10						47						1							1
SENNET NORTHERN (SPHYRAENA BOREALIS)			3								2													
SPIDER CRAB (LIBINIA EMARGINATA)			4																2		1		1	
SCUP (STENOTOMUS CHRYSOPS)			2													3			1					
FLOUNDER SMALLMOUTH (ETROPUS MICROSTOMUS)				1													4		1		4		2	4
HORSESHOE CRAB (LIMULUS POLYPHEMUS)				1																				
SCAD BIGEYE (SELAR CRUMENOPHTHALMUS)					1																			
PERCH WHITE (MORONE AMERICANA)						4	7																	
TOADFISH OYSTER (OPSANUS TAU)						2		3	3	3				9	15			2						1
ATLANTIC ROCK CRAB (CANCER IRRORATUS)							11																	
BLUEGILL (LEPOMIS MACROCHIRUS)							1																	
ATLANTIC HERRING (CLUPEA HARENGUS)								2		3									13			1		
HORSESHOE CRAB FEMALE (LIMULUS POLYPHEMUS)								1							1									
HORSESHOE CRAB MALE (LIMULUS POLYPHEMUS)								2												1		2		
LIZARDFISH INSHORE (SYNODUS FOETENS)								1														1	4	





**ASSESSMENT OF RECREATIONALLY IMPORTANT  
FINFISH STOCKS IN RHODE ISLAND WATERS  
NARRAGANSETT BAY JUVENILE FINFISH SURVEY**

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**2025**

## PERFORMANCE REPORT

STATE: Rhode Island

PROJECT NUMBER: F-61-R

SEGMENT NUMBER: 24

PROJECT TITLE: Assessment of Recreationally Important Finfish Stocks in Rhode Island Waters.

PERIOD COVERED: 1 January 2025 - 31 December 2025

JOB NUMBER AND TITLE: IV - Juvenile Marine Finfish Survey

**JOB OBJECTIVE:** To monitor the relative abundance and distribution of the juvenile life history stage of winter flounder (*Pseudopleuronectes americanus*), tautog (*Tautoga onitis*), bluefish (*Pomatomus saltatrix*), scup (*Stenotomus crysops*), weakfish (*Cynoscion regalis*), black sea bass (*Centropristis striata*), alewife (*Alosa pseudoharengus*), blueback herring (*Alosa aestivalis*), Atlantic menhaden (*Brevoortia tyrannus*), Atlantic herring (*Clupea harengus*), striped bass (*Morone saxatilis*), and other selected species of commercial and recreational importance in Narragansett Bay. To use these data to evaluate short- and long-term annual changes in juvenile population dynamics, to provide data for stock assessments, and for the development of Fishery Management Plans. To collect fish community data that is used to continue to identify, characterize, and map essential juvenile finfish habitat in Narragansett Bay.

**SUMMARY:** Eighteen fixed stations (Figure 1) around Narragansett Bay were sampled once a month from June through October during 2025 with the standard 61 x 3.05 m beach seine. Adults and juveniles of sixty-two species were collected during the 2025 survey, which is a slight increase from the 2024 survey (60 species) and one of the lowest over the past five years. For comparison eighty species were collected in 2015, the highest number of species and families collected since the survey began. For the entire survey time series (1988 – 2025), all individuals of the target species: winter flounder, tautog, bluefish, weakfish, black sea bass, striped bass, scup, river herring, sea herring, and menhaden were enumerated and measured. With few exceptions (noted) all individuals of these species that were collected in the survey were juveniles. Adult and juveniles of other species collected were not differentiated for data analysis or descriptive purposes prior to 2009. Presence and relative abundance (few, many, abundant) of three forage species: Atlantic silversides (*Menidia menidia*), common mummichog (*Fundulus heteroclitus*) and striped killifish (*Fundulus majalis*) had been noted until 2009. Since 2009 all finfish species caught were enumerated and measured. Invertebrate species were noted and enumerated using the relative abundance scale as noted above (with the exception of blue crabs, lady crabs, horseshoe crabs and squid). Data on weather, water temperature, salinity, and dissolved oxygen were recorded at each station.

**TARGET DATE:** December 2025

**SIGNIFICANT DEVIATIONS:** There were no significant deviations to methodology in 2025. A new net was purchased in 2023 and was used during the June through October months of the survey.

**RECOMMENDATIONS:** Continue standard seine survey at all eighteen stations. Continue to provide comments and recommendations to other resource management and regulatory agencies regarding potential anthropogenic impacts to fisheries resources and habitat. Continue to analyze and provide data for use in fisheries stock assessments. A reassessment and characterization of the habitat at each station should be undertaken to see if any major changes have occurred since the original evaluation.

**REMARKS:** Abundance trends derived from adult data collected from the RIDMF seasonal trawl survey since 1979 indicate a declining abundance of demersal species and an increasing abundance for pelagic species in Rhode Island waters. It should be noted that the trawl survey samples both adult and juvenile fish and invertebrates. This trend has also been observed in other estuaries along the Atlantic coast. Reasons for these shifts are attributed to several factors but may not be limited to these factors. These include the effects of climate change, warming coastal waters, water quality, habitat degradation and loss, overexploitation of some species leading to niche replacement by other species, and trophic level changes and shifts associated with all these factors. Anthropogenic effects and the synergy between factors have no doubt led to changes in fish communities along the coast (Kennish, 1992).

A non-parametric Mann-Kendall test for trend significance can be used to show annual abundance trends for species collected during this juvenile survey. Two iterations of this test were run on for a set of target species. The first iteration analyzed the entire dataset (1988-2025) and then a second iteration of this non- parametric trend analysis was done using a shortened time period of 10 years (2015-2025). Results from the full time series indicate that winter flounder ( $p = 2.22e-07$ ) and bluefish ( $p = 0.0013$ ) exhibit significant decreasing abundance trends (Table 1a). None of the target species showed a significant trend during the shortened 10-year analysis (Table 1b). Tautog, river herring, menhaden, and striped bass showed no significant abundance trends for either the full dataset or the recent 10-year period..

Reductions and annual fluctuations in abundance of many species may be attributed to a number of factors outlined above. Any one or more of these factors and/or the synergy between them may be responsible for inhibiting populations of some species from returning to historic or in some cases sustainable levels. Continued monitoring of juvenile fish populations is necessary to document the abundance and distribution of important species as well as the interactions between species. Further, this data can be analyzed to evaluate the effectiveness of management actions, an example being a spawning closure enacted for tautog in 2006 and then lengthened in 2010. This spawning closure was in part supported by the data derived from this survey. Trends in abundance and shifts in fish community composition can also be evaluated with these data.

While the primary purpose for conducting this survey is to provide data for making informed fisheries management decisions, these data are also used when evaluating the adverse impacts of dredging and water dependent development projects.

**METHODS, RESULTS & DISCUSSION:** A 61m x 3.05m beach seine, deployed from a 22' boat, was used to sample the juvenile life stage of selected fish species in Narragansett Bay. Monthly seine collections were completed at the eighteen standard survey stations (Figure 1)

from June through October 2025.

Number of individuals and lengths were recorded for all finfish species. While both juveniles and adults were represented in the collections for many species, individuals collected for the target species were predominately young-of-the-year juveniles (YOY). Species and number of individuals (both juveniles and adults) of invertebrate species collected were also recorded with the use of a relative index of abundance (abundant, many, few). Tables 3 - 7 show the species' occurrence and number caught at each station for June through October. Table 8 is a summary table for all stations and species collected during the 2025 survey. Tables 9-13 provide the number of fish/seine haul for each station along with the station mean, monthly mean, and annual abundance index for each target species. Figures 2 – 10 show the annual abundance index trends for a number of important species for both the original and standardized indices. It should be noted when interpreting these data, that the survey began in 1986 with fifteen stations. The data represented in the graphs begins in 1988 as the period of time when the survey began using consistent methodology with the 15 stations. Station 16 (Dyer Is.) was added in June 1990, station 17 (Warren R.) was added in July of 1993, and station 18 (Wickford) was added in July of 1995. The addition of the stations is standardized in the analysis, see appendix A.

Table 15 provides bottom temperature, salinity, and dissolved oxygen data for each station by month.

#### Winter flounder

Juvenile winter flounder (*Pseudopleuronectes americanus*) were present in thirty percent of the seine hauls for 2025. This is an decrease from 2024 when they were present in eighteen percent of the hauls.. A total of 114 fish were collected in 2025 (all of the fish collected in 2025 would be considered young-of-the-year (YOY) according to Table 2 winter flounder maximum size by month). This is an increase from the 27 individuals collected during the 2024 survey. They were present at thirteen of the eighteen stations and were collected in all months (Table 9).

The 2025 juvenile winter flounder standardized abundance index was  $1.25 \pm 3.52$  fish/seine haul; this is higher than the 2024 index of was  $0.30 \pm 0.24$  S.E. fish/seine haul. Figure 2 shows the standardized annual abundance indices since 1988. The Mann-Kendall test showed a significant decreasing abundance trend for this species for the full dataset, but no short-term trend in the last 10 years (Table 1a, b).

June 2025 had the highest mean monthly abundance of  $2.22 \pm 0.97$  S.E. fish/seine haul. Chepiwanoxet (Sta. 3), Pojac Point (Sta. 4), and Hog Island (Sta. 9) had the highest mean station abundances of  $6.00 \pm 2.95$ ,  $4.00 \pm 2.55$  S.E., and  $3.40 \pm 1.91$  S.E., respectively. Overall, upper and mid bay stations continue to have higher abundances than lower bay stations. This is expected since the primary spawning area for this species is believed to be in the Providence River followed by a secondary spawning area in Greenwich Bay where Station 3 is located.

Winter flounder length frequency data from the 2025 survey indicate that all of the winter flounder collected were young-of-the-year (YOY). The maximum lengths by month for YOY winter flounder used for this report are supported by growth rates in Rhode Island waters as reported in the literature (DeLong et al, 2001; Meng et al, 2000; Meng et al, 2001; Meng et al,

2008). See Table 2 for maximum YOY lengths by month.

Figure 2 shows the 2025 abundance index continues to be lower than most years since 2000, the survey high. The Division of Marine Fisheries' trawl survey data (sampling both adults and juveniles) saw a slight increase in winter flounder from 2020 to 2021. Over the course of the Narragansett Bay Juvenile Finfish Seine Survey the abundance index rose between 1995 and 2000 but then decreased with variability to 2018. The Mann-Kendall trend analysis shows a decreasing trend in the abundance of juvenile winter flounder in Narragansett Bay over the entire time series, and no trend indicated for the shortened 10-year time series in the terminal year of 2012 has dissipated, now showing no trend as we move away from the peak years of the early 2000's. The dramatic abundance fluctuations over the past ten years shown in Figure 2 and the declining trend over the last decade continue to be a concern to resource managers.

### Tautog

During the 2025 survey 108 juvenile and 2 adult (>26 cm length) tautog (*Tautoga onitis*) were collected. This is a decrease from the 2024 survey when 282 juveniles and 2 adults were collected. The 2025 abundance index was  $1.19 \pm 0.30$  S.E. fish/seine haul, a decrease from the 2024 index  $3.13 \pm 0.33$  S.E. (Figure 3). As indicated in the introduction, based on this survey data, it can be concluded that the spawning closure enacted in 2006 and then extended in 2010 may be having an impact on the number of juveniles produced during the spring as there appears to be an increasing trend since this time period. It may take some time for a slow growing species such as tautog to recoup its spawning stock biomass to levels that will have significant impacts and major increases in biomass; therefore, we will continue to monitor this species closely in the coming years.

Juvenile tautog were collected in forty-two percent of the seine hauls in 2025 (Table 10). This is a decrease from 2024 when they were present in forty-seven percent of the seine hauls. August and September had the highest mean monthly abundances of  $2.06 \pm 0.3$  S.E. and  $1.39 \pm 0.47$  S.E. fish per seine haul, which corresponds to the majority of the survey time series data which indicates August as being the month with the highest abundance. Warren River (Sta. 17) had the highest mean station abundance of  $3.60 \pm 1.33$  S.E. Sand Point (Sta. 6) and Fogland (Sta. 14) had the next highest abundances with a mean station abundance of  $3.00 \pm 2.14$  S.E. and  $2.80 \pm 1.32$  S.E. fish/seine haul respectively. The Mann-Kendall test showed no long-term or short-term (10-year time series) trend in juvenile abundance (Table 1a, b). It should be noted that this survey data was used as a young of the year index for the benchmark stock assessment for tautog by the Atlantic States Marine Fisheries Commission (ASMFC 2016).

Our Narragansett Bay trawl survey had an increase in biomass and abundance for tautog from 2020 to 2021. There would be a lag in time between when juveniles are caught in the seine survey and when the cohort shows up in the trawl survey, but the trends are worth monitoring.

### Bluefish

During the 2025 survey 646 juvenile bluefish (*Pomatomus saltatrix*) were collected. This is a slight increase from the 508 juveniles collected in 2024 and the highest collected in 2021 over the past five years. Juveniles were present in eleven percent of the seine hauls and were collected at eight of the eighteen stations (Table 11). They were present in July through

September, with the highest abundance occurring in September. June 2020 had zero juvenile bluefish collected during the survey, which is most likely due to the colder water temperatures (17.7 – 22.0° C in June). Since this survey began and prior to 2016, only two hundred ninety-six juvenile bluefish have been collected in October, in eleven different years (1990, 1997, 1999, 2005, 2011, 2012, 2015, 2016, 2017, 2020, and 2021), and only when water temperatures were 16 – 21° C.

The nominal abundance index for 2025 was  $0.83 \pm 0.11$  S.E. fish/seine haul. This is a slight decrease from the 2024 abundance index of  $1.00 \pm 0.14$  S.E. fish/seine haul (Figure 4). The Mann-Kendall test showed no trend in the 10-year abundance but a decreasing trend over the long-term abundance trend for this species (Table 1a, b). The Delta GLM index showed relatively high abundance between the 1980's – 1990's with a peak in abundance during 1999. A steady decline in abundance from 2017 to present with 2025 being one of the lowest in the time series.

September had the highest mean monthly abundance of  $33.00 \pm 22.27$  S.E. fish/seine haul, which was driven by a large catch (218 and 351) at Conimicut Point (Sta. 2) and Warren River (Sta. 17), respectively (Table 11). July and August are typically the months of highest juvenile abundance for this species. There appears to be a shift to their presence in September as water temperatures remain warmer longer into the fall months, as observed in the 2022 through 2024 survey data. The GLM showed spatial abundance differences with higher abundances typically associated with stations 17, 18 and 2 and lower abundances at stations 6, 10, and 13. There is also a strong environmental effect from temperature, with warmer temperatures increasing the probability of presence.

Length frequency data for 2025 indicates that all juveniles collected were young-of-the-year individuals.

The spatial distribution and abundance of juvenile bluefish in Narragansett Bay is highly variable and is dependent on a number of factors: natural mortality, fishing mortality, size of offshore spawning stocks, spawning success, number of cohorts, success of juvenile immigration into the estuaries, and the availability of appropriate size prey species like Atlantic silversides (*Menidia menidia*) when juveniles enter the bay. The annual abundance indices since 1988 show dramatic fluctuations supporting a synergy of these factors affecting recruitment of this species to Narragansett Bay (Figure 4).

### Striped Bass

During the 2025 survey 6 striped bass (*Morone saxatilis*) were collected. This is a decrease from 2024 which had an abundance of 12 fish. 2025 had the lowest abundance over the past five years with a high of 243 in 2022. Striped bass were present in four percent of the seine hauls and were collected at four of the eighteen stations (Table 14). They were present in June, September and October.

The abundance index for 2025 was  $0.14 \pm 0.09$  S.E. fish/seine haul. This is about the same as 2023, which had an abundance index of  $0.46 \pm 0.24$  S.E. fish/seine haul (Figure 8). The Mann-Kendall test showed no abundance trend for this species for the entire dataset or the shortened

10-year series (Table 1a, b).

June had the highest mean monthly abundance of  $0.17 \pm 0.12$  S.E. fish/seine haul (Table 12). September had the second highest mean monthly abundance at  $0.11 \pm 0.11$  S.E. fish/seine haul. September is usually one of the months with the highest abundance for the entire time series (Table 12).

In 2024, striped bass were only present at 4 stations. The highest abundance was found at the Pojac Point and Thirds Beach both with  $0.40 \pm 0.40$  S.E. fish/seine haul. The station with the highest abundance each year is variable, though it does tend to be the lower bay stations in general for the entire time series.

Length frequency data for 2025 indicates that a mix of juveniles and adults were collected. This is normal for the seine survey. The spatial distribution and abundance of striped bass in Narragansett Bay is highly variable and is most likely highly dependent on the availability of appropriate size prey species like Atlantic silversides (*Menidia menidia*) and juvenile menhaden (*Brevoortia tyrannus*) when fish enter the bay. The annual abundance indices since 1988 show fluctuations in abundance from year to year (Figure 8) but generally appears to have had an increasing trend during the late 90s to early 2000s, but now appears to be on a downward trajectory since 2008, although in recent years there seems to be a very slight upward trend. The standardized index, which accounts for some of these factors, follows a similar trend year to year as the straight catch per unit effort (CPUE) index.

### Clupeidae

Four species of clupeids are routinely collected during the survey. Alewife (*Alosa pseudoharengus*) and blueback herring (*Alosa aestivalis*), collectively referred to as river herring, and Atlantic menhaden (*Brevoortia tyrannus*) are most common. Atlantic herring (*Clupea harengus*) have also been collected during the surveys time series but in very small numbers.

### River Herring

Due to the large numbers of anadromous herring collected, and the difficulty of separating juvenile alewives from juvenile blueback herring without sacrificing them, both species are combined under the single category of river herring. Data collected from this survey and the Division of Fish and Wildlife's Anadromous Fish Restoration Project show alewives to be the predominate river herring species collected, although both species are present and have been stocked as part of the Division's restoration efforts.

River herring were present in twenty-seven percent of the seine hauls and were collected at eleven of the eighteen stations during 2024 and were present during each month of the survey. A total of 2,272 juveniles were collected in 2025, a significant increase from the number collected in 2024 (172).

The highest mean monthly abundance for 2025 occurred during July and was  $58.78 \pm 38.84$  S.E. fish/seine haul. Warren River (Sta. 17) and Potters Cove (Sta. 8) had the highest mean station abundance of  $207.20 \pm 185.55$  S.E. and  $136.00 \pm 136.00$  S.E., respectively (Table 13). Warren

River experienced a single large catch in August (949 fish), which drove the mean station abundance. Single large catches of these species are due to their schooling behavior and is the reason for the high standard error associated with the indices.

The standardized abundance index for 2024 was  $24.97 \pm 5.64$  S.E. fish/seine haul (Figure 5). The annual abundance indices since 1988 show dramatic fluctuations as is a common occurrence with schooling clupeid species. Due to these fluctuations, there was no significant trend in the Mann-Kendall test for both the long-term and short-term (10-year) abundance data (Table 1a & 1b).

Figure 6 shows the estimated spawning stock size of river herring as monitored by our Anadromous Fish Restoration Program at two fishways in Rhode Island. There may be some correlation between the fluctuating numbers of returning adult fish (Figure 6) and the abundance index generated by this survey (Figure 5) as the recent small increases and decreases in juvenile abundance in the data corresponds to an increase and decrease in returning adults, and vice versa. Due to an extended period of low abundance of river herring in Rhode Island, the taking of either species of river herring is currently prohibited in all state waters.

### Menhaden

Fifteen Atlantic menhaden (*Brevoortia tyrannus*) were collected during the 2025 survey, a significant decrease from 2023 (3,503 fish) and 2022 (14,984 fish). The 2017 abundance is one of the highest in recent years; the last high abundance was 2007, when eight thousand two hundred fifty-three juveniles were collected. They were present in eight percent of the seine hauls and were collected at six of the eighteen stations (Table 12).

The highest mean monthly abundance for 2024 occurred during September and was  $0.44 \pm 0.92$  S.E. fish/seine haul. Sand Point (Sta. 6) had the highest mean station abundance of  $1.20 \pm 1.20$  S.E. (Table 14), which was driven by a single catch in August of 6 fish. Single large catches of these species are due to their schooling behavior and is the reason for the high standard error associated with the indices.

The standardized abundance index for 2025 was  $0.16 \pm 1.97$  S.E. fish/seine haul. This is a decrease from 2024 ( $0.52 \pm 1.26$  S.E. fish/seine haul, Figure 7). The standardized index indicates an increased abundance during the 2000s followed by lower numbers through the 2010s. In the most recent years an increasing abundance is evident. Our Narragansett Bay trawl survey showed a decrease in menhaden abundance from 2018 to 2019. The trawl survey catches juveniles as well as some age one fish. The Mann-Kendall test showed no long-term abundance trend and no 10-year trend for this species (Table 1a and 1b).

Similar to river herring, juvenile menhaden were also observed in very large schools around Narragansett Bay and as discussed earlier, this behavior often results in single large catches resulting in a high abundance index and large standard error. This schooling behavior also contributes to the variability of their spatial and temporal abundance from year to year. Because of these characteristics it is difficult to develop an abundance index that will accurately reflect the number of juveniles observed in the field rather than the number represented in the samples. The standardization techniques used for analysis this year are an effort to take into account this

variability and high percentage of zero catches through the use of a delta lognormal model (Appendix A).

### Weakfish

There were zero, *Cynoscion regalis*, collected during the 2025 survey. Weakfish were present in zero percent of the seine hauls and were not collected at any of the eighteen stations during 2025, This is the same as 2024 when there were zero caught. Station 3 in Greenwich Bay and Station 4 at the mouth of the Potowomut River, immediately south of Greenwich Bay, are the stations where this species is typically collected most frequently.

The abundance trend over the past several years indicate the juvenile population of this species in Narragansett Bay fluctuates dramatically, a trend also reflected in our trawl survey. There, have been 12 years since 1988 where no fish have been caught. Seven of the 12 total zero catch years occur after 2004. Possible reasons for this high variability in abundance, other than fishing pressure, may be environmental and anthropogenic factors that affect spawning and nursery habitat. Survival rate at each life history stage may also be influenced by these factors. The literature indicates this species spawns in calm coves within the estuary and juveniles move up the estuary to nursery areas of lower salinity. These are the same areas of the bay where anthropogenic impacts are high, often resulting in hypoxic and/or anoxic events that may increase mortality of the early life history stages of this species.

With the limited and sporadic juvenile data generated by this survey a juvenile population trend analysis is difficult. A nominal index was developed, but due to the sparse nature of the data, the index generated should be viewed with caution.

### Black Sea Bass

Five black sea bass (*Centropristis striata*) were caught in 2025, the same number that were collected in 2024. The number of black sea bass has been highly variable from year to year during the time series of this survey, but the high abundance during 2012 and 2015 (Figure 10) stand out as unique. Black sea bass were caught in two percent of the seine hauls in 2025.

The highest mean monthly abundances for 2025 occurred during August and September at  $0.11 \pm 0.11$  S.E. fish/seine haul and  $0.17 \pm 0.17$  S.E. fish/seine haul, respectively. Black sea bass were caught at 2 of the 18 stations (Table 15).

The abundance index for 2025 was  $0.05 \pm 0.03$  S.E. fish/seine haul. This is the same as the 2024 index  $0.05 \pm 0.03$  S.E. (Figure 10). Our Narragansett Bay trawl survey had an increase in the abundance of black sea bass from 2020 to 2021 in the spring and fall. The abundance was still much greater than it has been since the survey began in 1979. The fall index dropped down from the high values in 2012 and 2013 but did show a small increase in abundance from 2016 to 2018. This recruitment signal in recent years was seen not only in RI waters, but all along the Northern Atlantic coast.

Both the trawl survey and the coastal pond survey seem to be better indicators for local abundances of black sea bass. The Narragansett Bay seine survey does not catch them in any consistent manner leading one to believe that they may be using deeper water and or the coastal

ponds as their preferred nursery areas. There are no indications that there are any problems with the local abundance of black sea bass, information that is also corroborated by the coastwide stock assessment for black sea bass, which indicates no overfishing and a rebuilt stock (NEFSC 2016).

#### Other important species

Juveniles of other commercial or recreationally important species were also collected during the 2025 survey. These juveniles included scup (*Stenotomus chrysops*), and Northern kingfish (*Menticirrhus saxatilis*).

one hundred and eighty three juvenile and adult scup were collected in 2025 during July, August, September, and October, a significant decrease from 2024 when 312 scup were collected. one hundred and one hundred and fifty nine Northern kingfish were collected in 2025 and were present in the greatest numbers during July and August. This is an increase from 2024 when 89 Northern kingfish were caught. ten summer flounder were caught in 2025. eight smallmouth flounder were caught in 2025, relative to the sixty-eight smallmouth flounder that were caught in 2011, and the twenty-four that was caught in 2022, the decrease in abundance continued in 2024. This species will have to be monitored in future years to see if, due to changing habitat conditions or possible vacant niches, it is increasing its residency in the Bay. No juvenile Haddock were caught in 2024, unlike June 2016 when 44 juvenile haddock were caught, or June 2015 when 27 were caught. They were caught primarily in the lower portion of the bay. 2015 was the first recorded observance of juvenile Haddock in the history of the survey, this species will continue to be monitored in future years to see if there is an increasing abundance over time in Narragansett Bay. See Tables 3-8 for additional survey data on these species.

#### Physical & Chemical Data

Previous to 2010 a YSI 85 was used to collect water temperature, salinity and dissolved oxygen data from the bottom water at all stations on each sampling date. This meter was upgraded in 2010 to a YSI Professional Plus Multiparameter instrument 6050000. The instrument collects the same suite of information as the YSI 85 but is an improved meter with better functionality. The water quality data collected are shown in Table 15.

Water temperatures during the 2025 survey ranged from a low of 14.3°C at stations 1, 2, and 18 in October to a high of 40.0°C at station 10 in August.

Salinities ranged from 13.2 *ppt* at station 1 in June to 31.8 *ppt* at station 15 in September.

Dissolved oxygen ranged from 5.85 *ppm* at station 5 in August to a high of 12.09 *ppm* at station 5 in October.

**SUMMARY:** In summary, data from the 2025 Juvenile Finfish Survey continue to show that a number of commercial and recreationally important species utilize Narragansett Bay as an important nursery area. Using the Mann Kendall test, tautog, river herring, menhaden and striped bass, showed no long-term abundance trends but indicated a significant long-term decrease in winter flounder abundance. There are some species abundance trends from this

survey that agree with those from our coastal pond survey and/or trawl survey, however, in some instances they do not relate. This outcome is probably influenced by the species-specific use of habitat and looking at appropriate data lags between the juvenile life stages and the adult stages. Hopefully, juvenile survey abundance indices will be reflected later in the abundance of adults in the trawl survey, but this is not always the case.

Sixty-two species, both vertebrates and invertebrates, were collected in 2025. This is the survey mean for the past twenty-five years of sixty species. An initial audit of the earlier time series and information contained on the field logs was undertaken to determine if some of the species diversity was missing from the earlier time series. These issues were resolved from this analysis.

During 2025 there were six tropical species collected during the survey. While tropical and subtropical species are typically collected during this survey most years, the number of species and individuals is dependent upon the course of the Gulf Stream, the number of streamers and warm core rings it generates, and the proximity of these features to southern New England.

The survival and recruitment of juvenile finfish to the Rhode Island fishery is controlled by many factors: over-fishing of adult stocks, spawning and nursery habitat degradation and loss, water quality changes, and ecosystem changes that effect fish community structure. Any one of these factors, or a combination of them, may adversely impact juvenile survival and/or recruitment in any given year.

An ongoing effort to increase populations of important species must embrace a comprehensive approach that takes into account the above factors, their synergy and the changing fish community in the Bay. A continued effort to identify and protect essential fish habitat (EFH) and improve water quality is essential to this effort. The Division through our permit review program does represent the interests of fish and habitat preservation and protection. As well, properly informed management decisions are tantamount to preserving spawning stock biomass in order to create and maintain sustainable populations. This survey's dataset is used to inform the statistical catch at age models for both a regional tautog assessment as well as the coastwide menhaden assessment. In addition to the direct usage of the data in fisheries models, the other information collected by the survey helps to identify ancillary information such as abundances of forage species and habitat parameters, all important information for making good, informed management decisions. These activities will all continue to be an important component of this project.

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## FIGURES

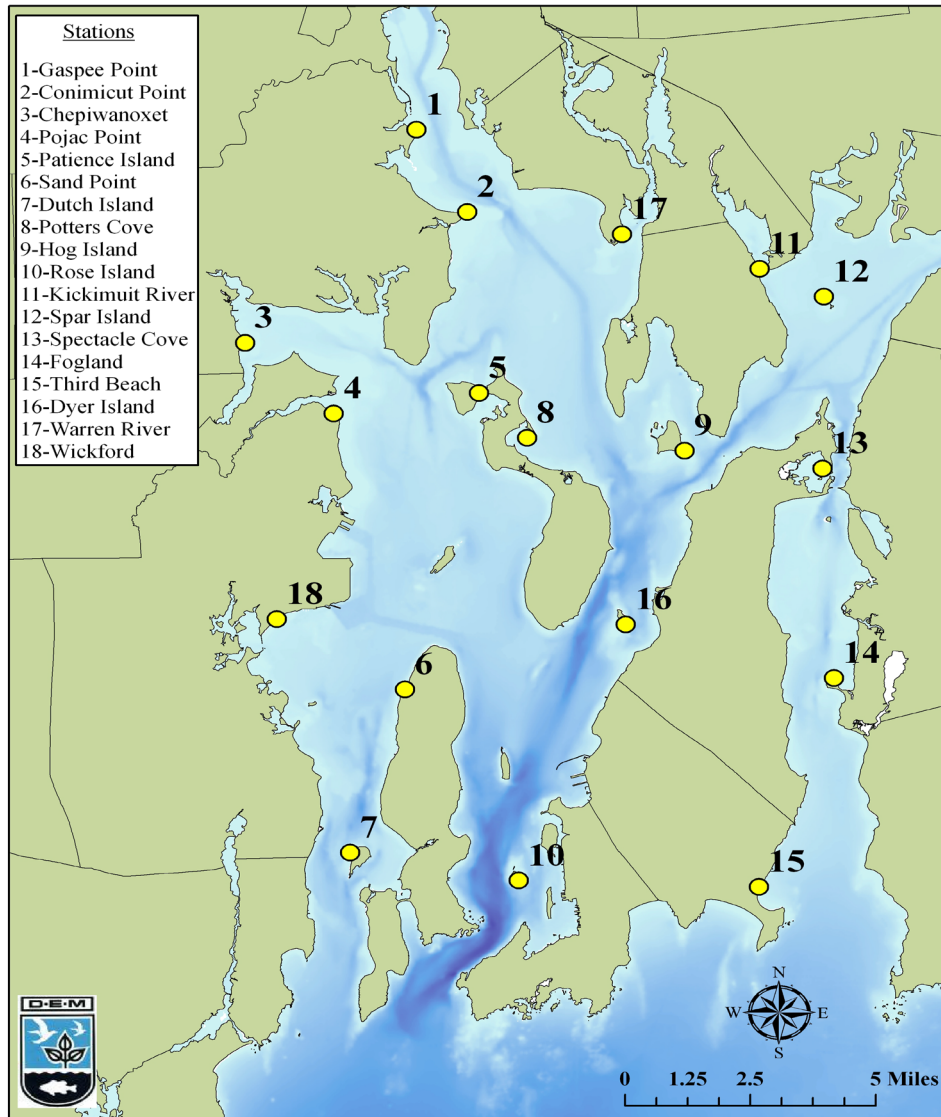


Figure 1. Survey station location map.

### Winter Flounder Abundance

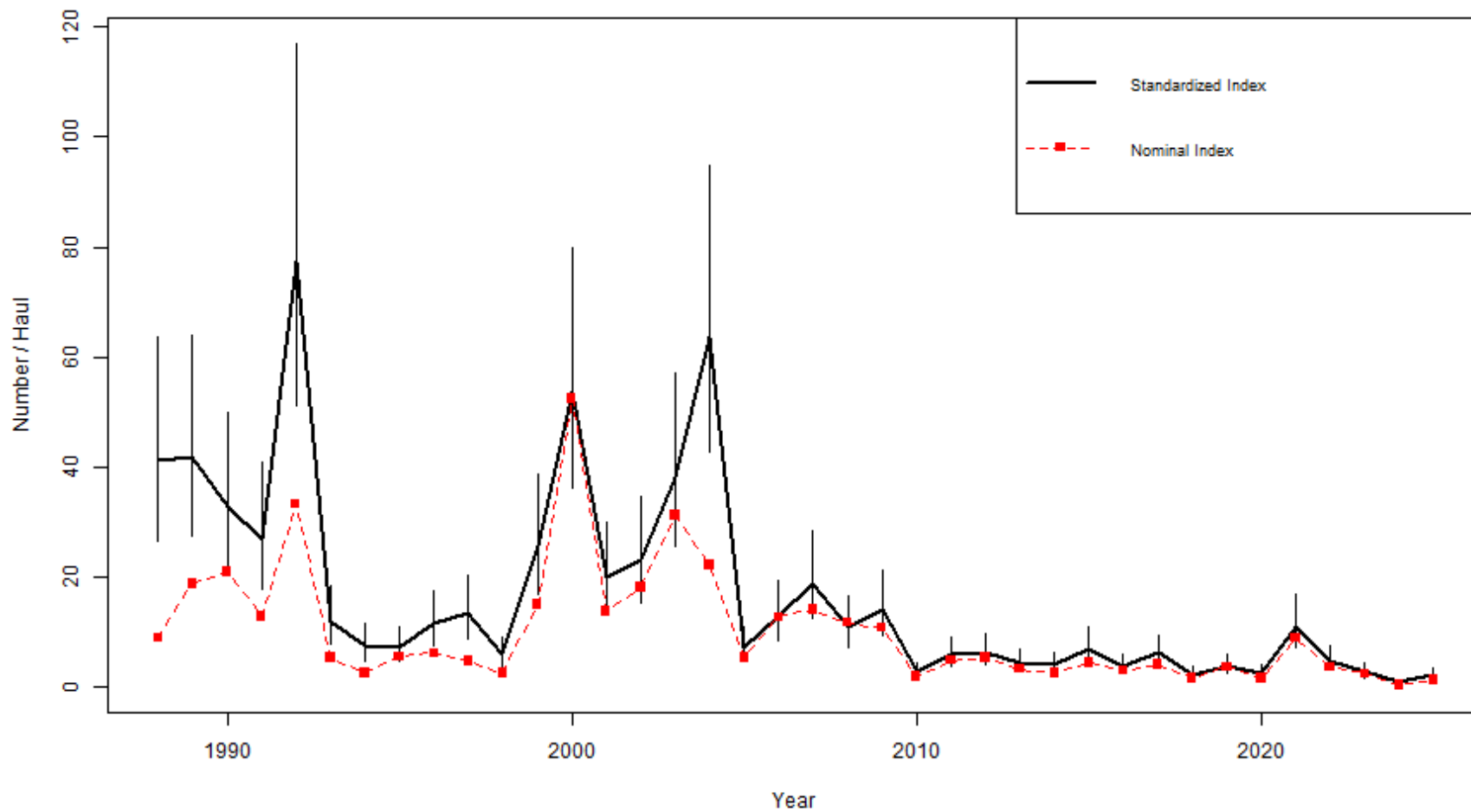


Figure 2. Juvenile winter flounder standardized abundance index 1988 – 2025 (see appendix A for standardization methodology).

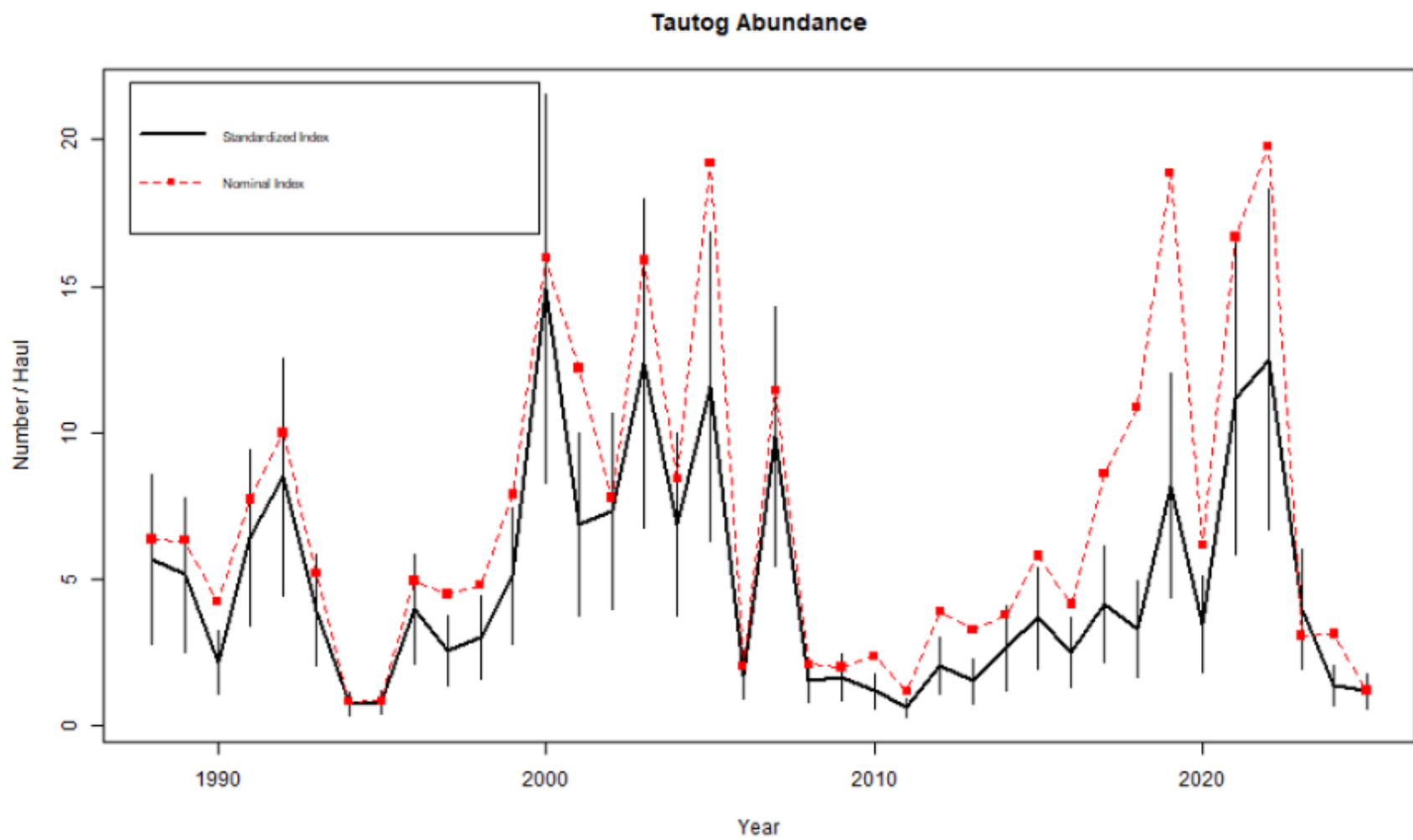


Figure 3. Juvenile tautog standardized annual abundance index 1988 – 2025 (see appendix A for standardization methodology).

### Bluefish Abundance

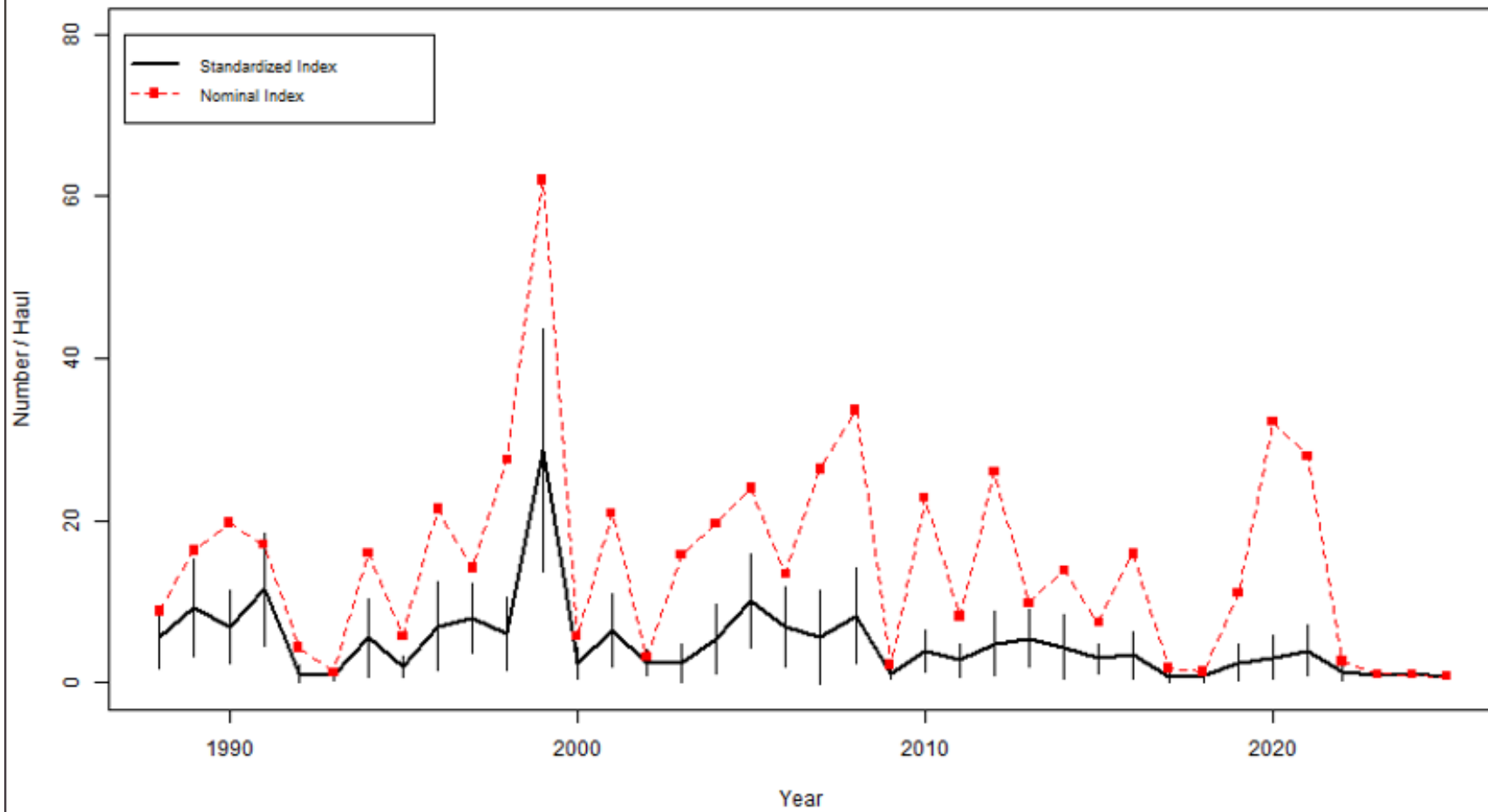


Figure 4. Juvenile bluefish standardized annual abundance index 1988 – 2025 (see appendix A for standardization methodology).

### River Herring Abundance

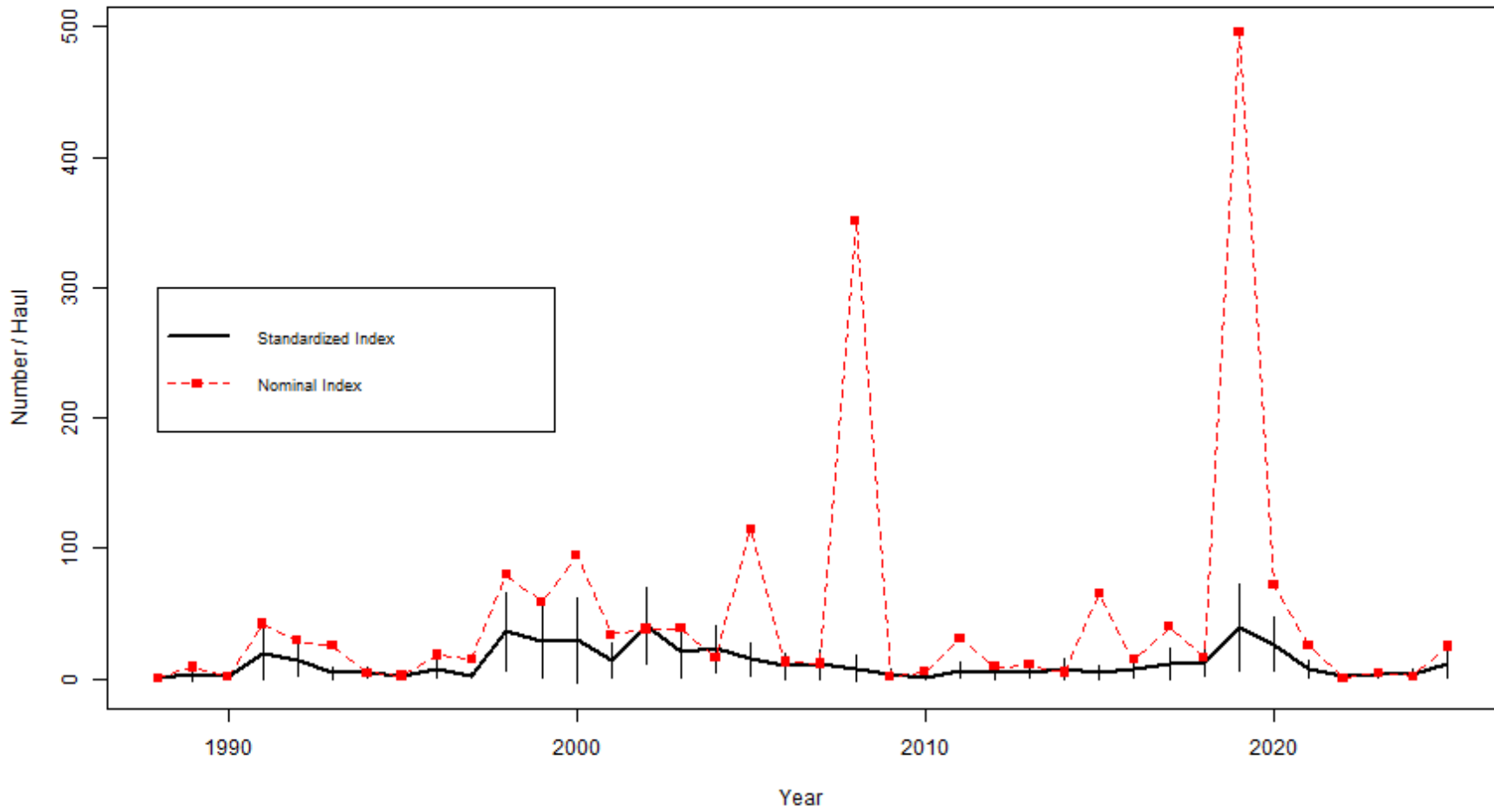
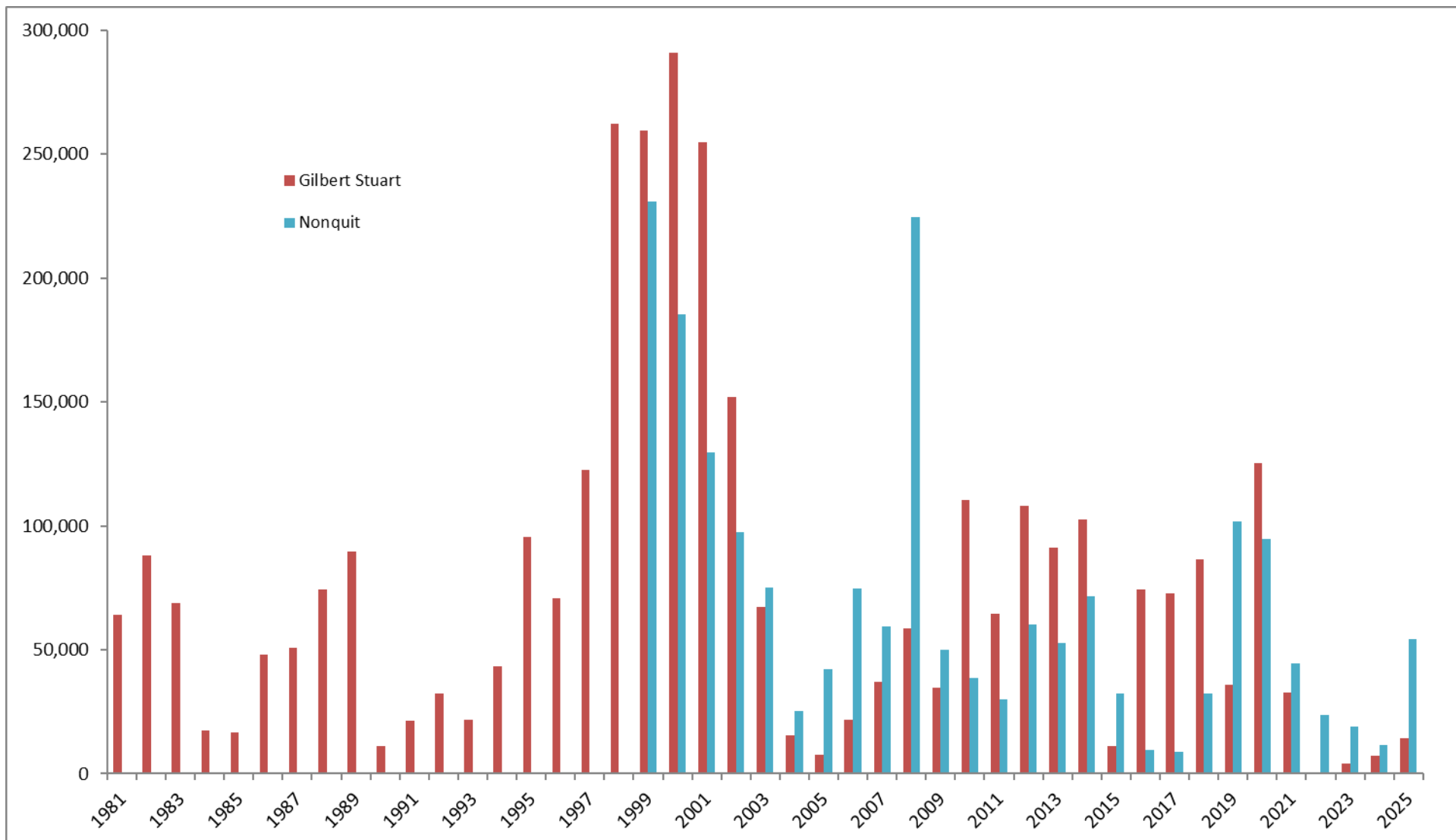


Figure 5. Juvenile river herring standardized annual abundance index 1988 – 2025 (see appendix A for standardization methodology).



Courtesy - Patrick McGee, RIF&W Anadromous Fish Restoration Program

Figure 6. River herring spawning stock size from monitoring at two locations 1999 – 2025.

### Menhaden Abundance

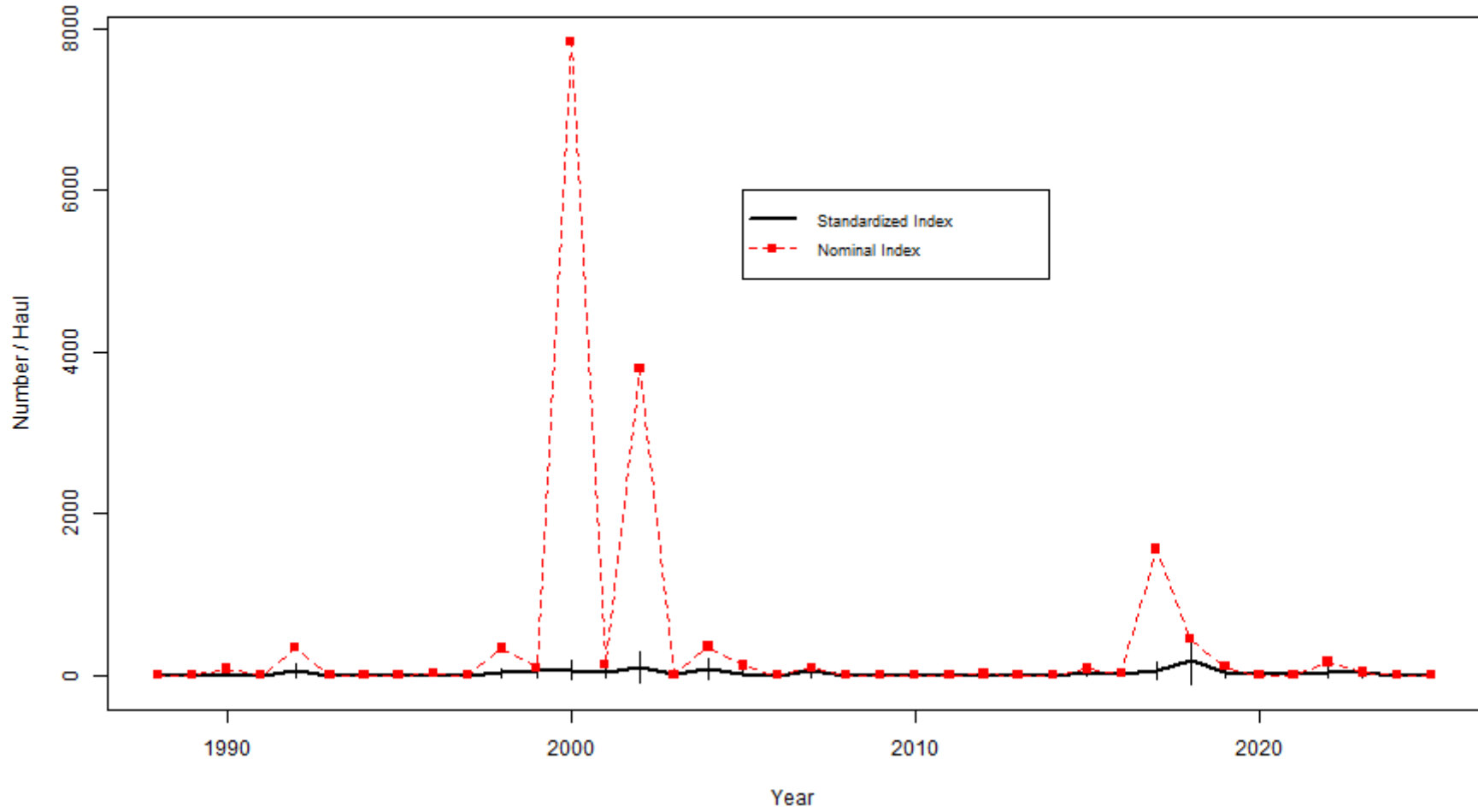


Figure 7. Juvenile menhaden standardized annual abundance index 1988 – 2025 (see appendix A for standardization methodology).

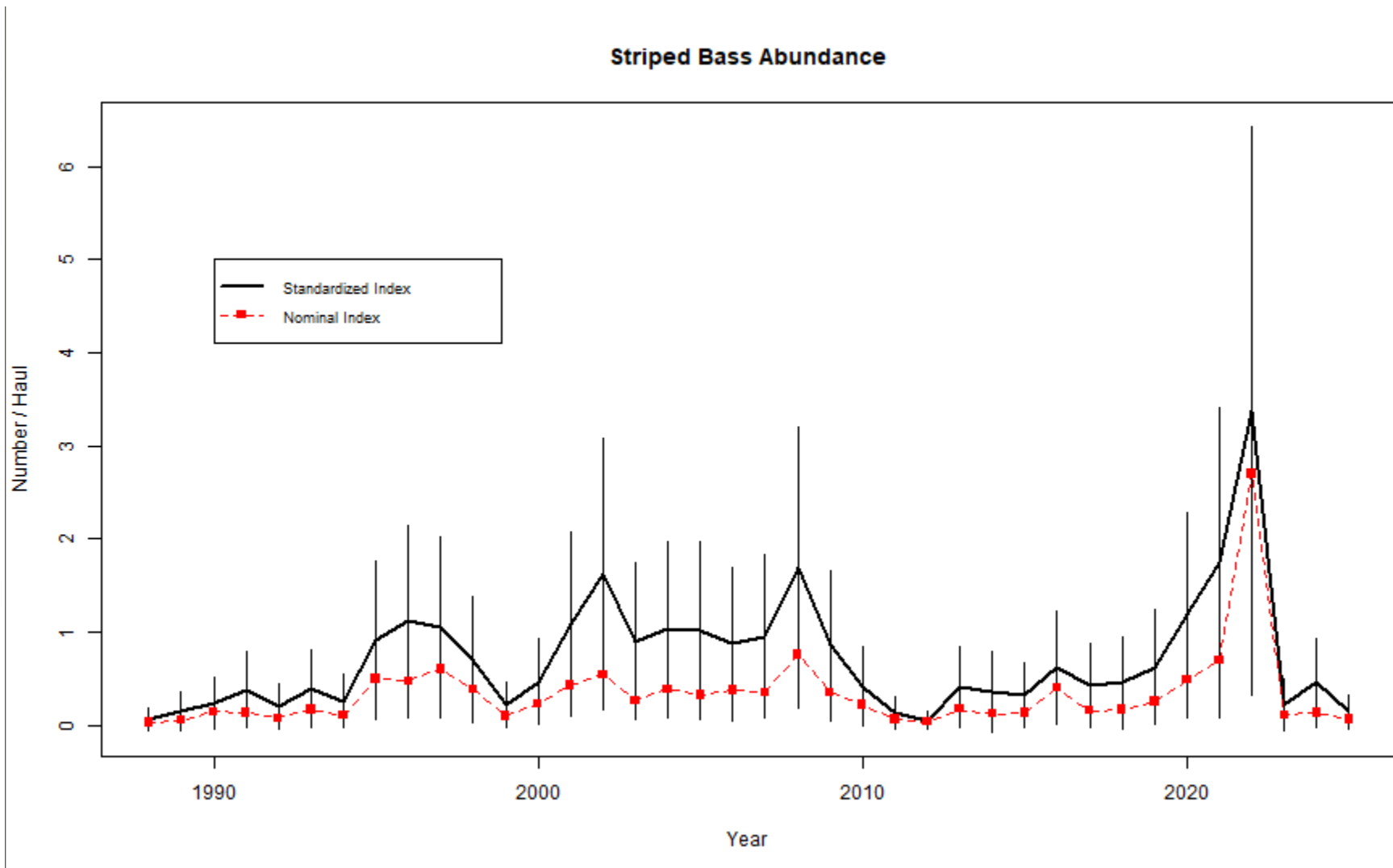


Figure 8. Striped bass standardized annual abundance index 1988 – 2025 (see appendix A for standardization methodology).

### Weakfish Abundance

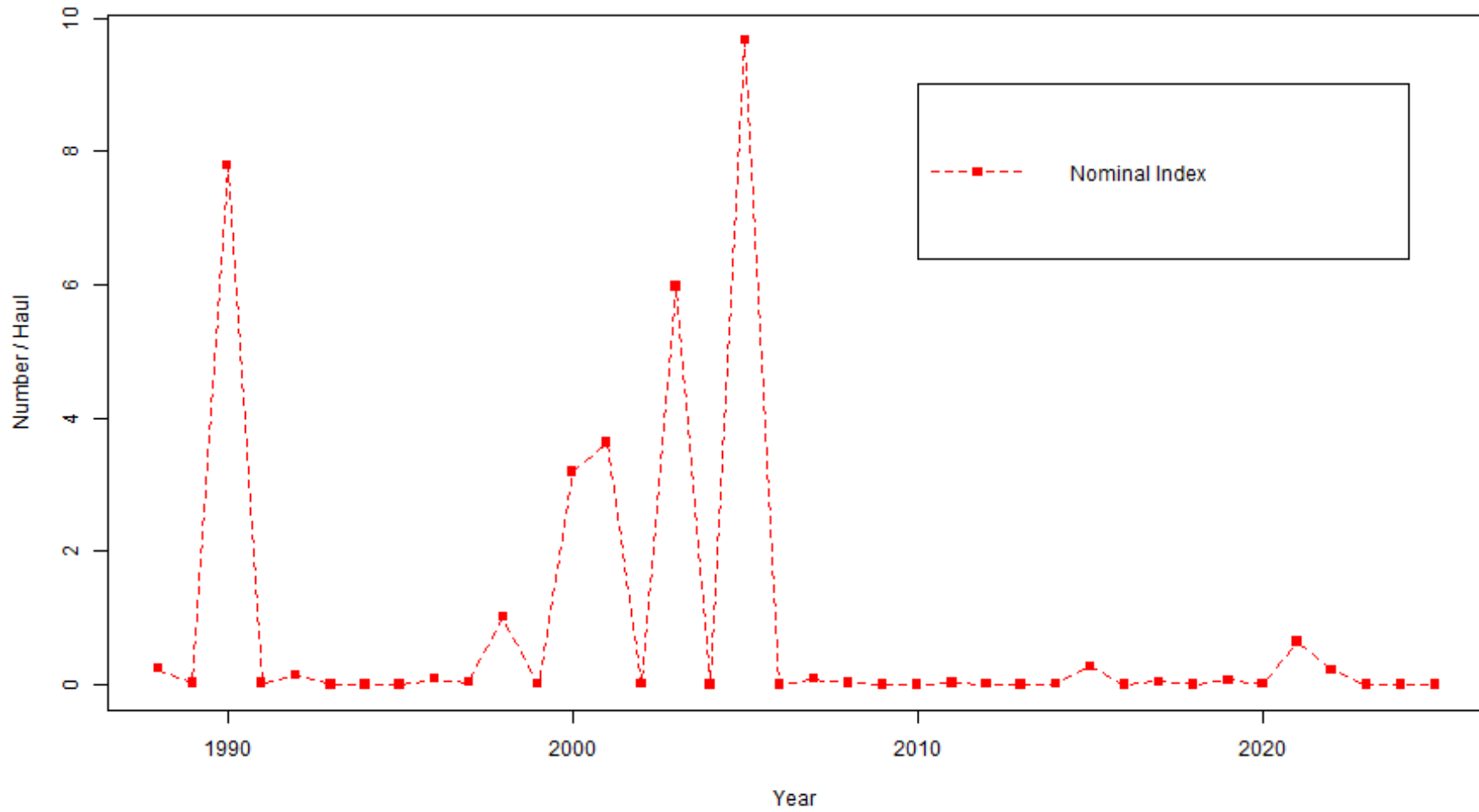


Figure 9. Weakfish annual abundance index 1988 – 2025.

### Black sea bass Abundance

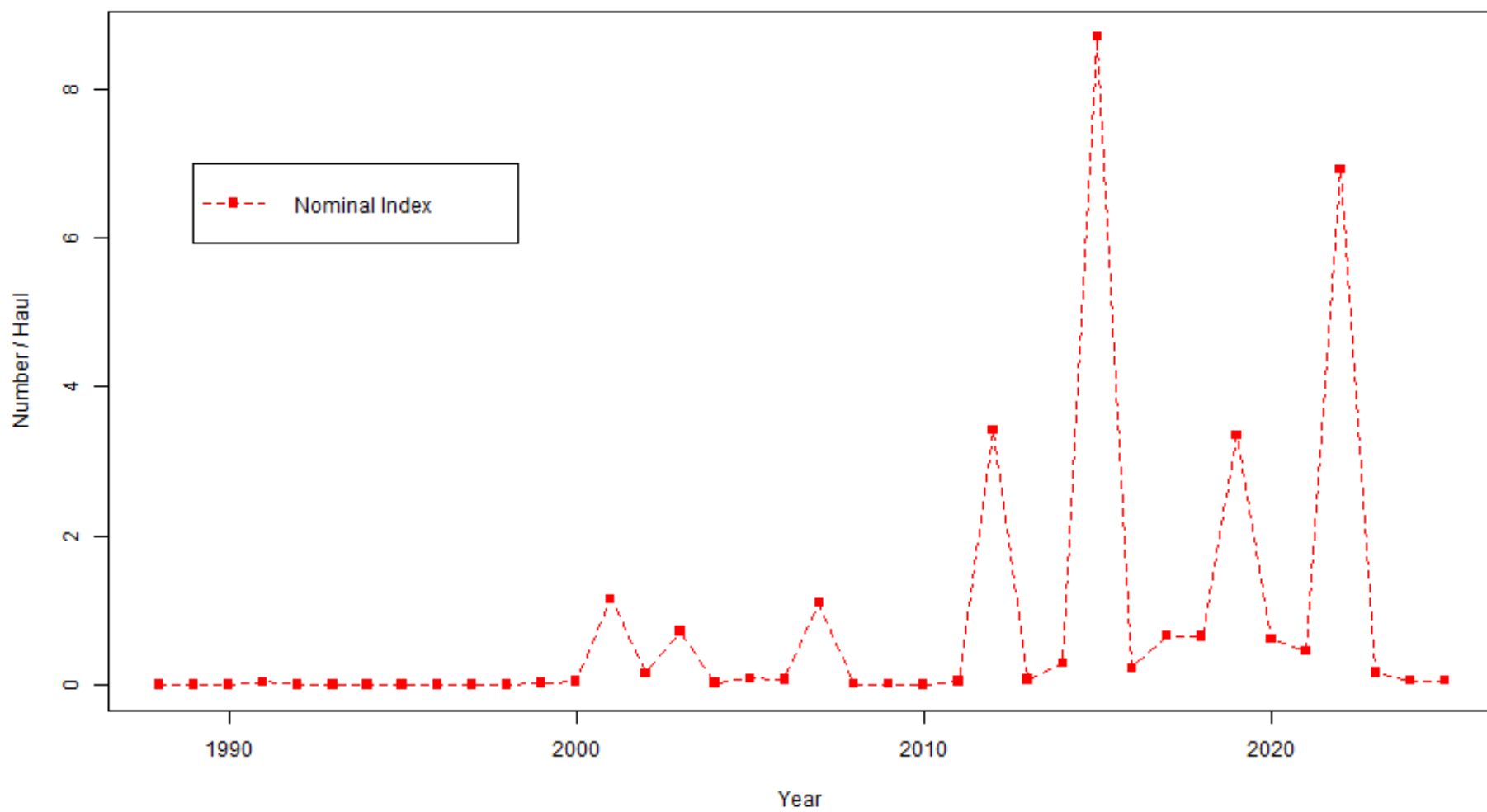


Figure 10. Black sea bass annual abundance index 1988 – 2025.

## TABLES

Table 1a. Mann-Kendall test for target species abundance trend analysis (Full dataset; 1988 - 2025).

Mann-Kendall test	Winter Flounder	Tautog	Bluefish	River Herring	Menhaden	Striped Bass
S	-413	-21	-257	5	77	79
n Observations	38	38	38	38	38	38
Variance	6327	165	6327	6327	6327	6327
Tau	-0.587	-0.382	-0.366	0.00711	0.11	0.112
2-sided p value	2.2233e-07	0.11947	0.001289	0.95989	0.33934	0.32679
$\alpha$	0.05	0.05	0.05	0.05	0.05	0.05
Significant Trend	Yes ↓	No	Yes ↓	No	No	No

Table 1b. Mann-Kendall test for target species abundance trend analysis (2015 - 2025).

Mann-Kendall test	Winter Flounder	Tautog	Bluefish	River Herring	Menhaden	Striped Bass
S	-21	-3	-13	-5	-21	3
n Observations	10	10	10	10	10	10
Variance	165	165	165	165	165	165
Tau	-0.382	-0.0545	-0.236	-0.0909	-0.382	0.0545
2-sided p value	0.11947	0.87627	0.3502	0.7555	0.11947	0.87627
$\alpha$	0.05	0.05	0.05	0.05	0.05	0.05
Significant Trend	No	No	No	No	No	No

Table 2. Young-of-the-Year (YOY) winter flounder - maximum total length for each month. \*

Month	July	August	September	October
Max. YOY length (TL)	100 mm	107 mm	109 mm	115 mm

\* data provided by L. Buckley, National Marine Fisheries Service, Narragansett Laboratory, Narragansett, R.I.

Table 3. Species presence by station for June 2025.

JUNE Species	Station																		Grand Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
<i>Alosa aestivalis</i> &/or <i>pseudoharengus</i>	72	3	1										1				39		116
Amphipoda order	x													x	x				x
<i>Anchoa mitchilli</i>		26				x	62				2						13		103
<i>Apeltes quadracus</i>	3												1						4
<i>Calinectes sapidus</i>		1	4	x													1		6
<i>Carcinus maenus</i>					x	x		x	x		x		x	x	x				x
<i>Crangon septemspinosa</i>		x	x	x							x				x		x		x
<i>Crepidula fornicata</i>																	x		x
Ctenophora phylum	x	x	x	x	x		x	x			x		x						x
<i>Fundulus heteroclitus</i>	1		49		3	20					1						10	4	88
<i>Fundulus majalis</i>	3	1	4		4			1	12				1	3			4		33
<i>Gasterosteus aculeatus</i>														1					1
<i>Gobiosoma bosc</i>							2	1				1					1		5
<i>Libinia emarginata</i>			x									x							x
<i>Limulus polyphemus</i>		1																	1
<i>Menidia menidia</i>	66	745	43	46	58	5	6	34	5	171	37	516	6			19	91	177	2025
<i>Menticirrhus saxatilis</i>																		3	3
<i>Microgadus tomcod</i>	8	2			2				1								6		19
<i>Morone saxatilis</i>				2												1			3
<i>Myoxocephalus aeneus</i>										1						1			2
<i>Nassarius obsoletus</i>	x		x	x	x			x									x		x
<i>Ovalipes ocellatus</i>															3				3
<i>Pagurus</i> spp		x		x	x		x	x		x									x
<i>Palaemonetes vulgaris</i>	x	x	x	x	x		x	x	x	x		x	x	x	x	x	x		x
<i>Panopeus</i> spp	x		x	x	x		x					x							x
<i>Paralichthys dentatus</i>			1										2						3
<i>Prionotus carolinus</i>					1														1
<i>Pseudopleuronectes americanus</i>			16	1		1	4	7					1				4	6	40
<i>Scophthalmus aquosus</i>															8				8
<i>Sphoeroides maculatus</i>																		1	1
<i>Syngnathus fuscus</i>	1		4			1		1							2		1		10
<i>Tautoga onitis</i>	1				2		3					2			1		5		14
<i>Urophycis regia</i>																	1		1
<i>Urophycis tenuis</i>																		2	2
<b>Grand Total</b>	<b>155</b>	<b>779</b>	<b>122</b>	<b>49</b>	<b>70</b>	<b>27</b>	<b>65</b>	<b>14</b>	<b>54</b>	<b>6</b>	<b>175</b>	<b>40</b>	<b>522</b>	<b>10</b>	<b>14</b>	<b>21</b>	<b>176</b>	<b>193</b>	<b>2492</b>

\* x indicates that the non-target species was collected but the abundance was recorded as abundant, many or few.

Table 4. Species presence by station for July 2025.

JULY Species	Station																		Grand Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
<i>Alosa aestivalis</i> &/or <i>pseudoharengus</i>		2					1	680				164	184	2			25		1058
Amphipoda order									x										x
<i>Anchoa mitchilli</i>													1						1
<i>Apeltes quadracus</i>																		1	1
<i>Calinectes sapidus</i>	3	6	32	3					1		2		12				2		61
<i>Carcinus maenus</i>					x				x				x					x	x
<i>Chrysaora quinquecirrha</i>												x							x
<i>Crangon septemspinosa</i>			x						x				x		x				x
<i>Ctenophora</i> phylum					x	x		x	x		x	x		x				x	x
<i>Cyprinodon variegatus</i>																1			1
<i>Fundulus heteroclitus</i>	63		32	5	31	10							55	6			1		203
<i>Fundulus majalis</i>	129	1	32								1		20	24		1	2		210
<i>Gobiosoma bosc</i>				1					1										2
<i>Illex illecebrosus</i>															4				4
<i>Leiostomus xanthurus</i>									2									3	5
<i>Libinia emarginata</i>					x								x						x
<i>Menidia menidia</i>	375	2880	70	164	530	292	67	163	11		62	6	2159	161	77	44	1143	42	8246
<i>Menticirrhus saxatilis</i>															14			2	16
<i>Microgadus tomcod</i>							2							1					3
<i>Mytilus edulis</i>											x								x
<i>Nassarius obsoletus</i>			x	x					x		x								x
<i>Pagurus</i> spp			x		x		x	x	x			x		x				x	x
<i>Palaemonetes vulgaris</i>			x		x		x		x	x	x		x			x			x
<i>Panopeus</i> spp			x		x				x				x						x
<i>Pomatomus saltatrix</i>	7	2									40	1							50
<i>Pseudopleuronectes americanus</i>	2	2	9		2				1		1		7						24
<i>Sphoeroides maculatus</i>					3								2			3			8
<i>Stenotomus chrysops</i>															71				71
<i>Strongylura marina</i>																	2	1	3
<i>Syngnathus fuscus</i>											2	1	1						4
<i>Tautoga onitis</i>	1	3			8		4						1	3		3	1		24
<i>Trachinotus carolinus</i>															40				40
<i>Trachinotus falcatus</i>															2				2
<b>Grand Total</b>	<b>580</b>	<b>2896</b>	<b>175</b>	<b>173</b>	<b>574</b>	<b>302</b>	<b>74</b>	<b>843</b>	<b>16</b>	<b>0</b>	<b>108</b>	<b>172</b>	<b>2442</b>	<b>197</b>	<b>211</b>	<b>49</b>	<b>1176</b>	<b>49</b>	<b>10037</b>

\* x indicates that the non-target species was collected but the abundance was recorded as abundant, many or few.

Table 5. Species presence by station for August 2025.

Species	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	Grand Total
<i>Alosa aestivialis</i> &/or <i>pseudoharengus</i>						1				3		58		1	1		949		1013
<i>Anchoa mitchilli</i>										1									1
<i>Apeltes quadracus</i>												1							1
<i>Brevoortia tyrannus</i>						6									1				7
<i>Calinectes sapidus</i>	19	20	16	4			7						4				7		77
<i>Caranx hippos</i>														1					1
<i>Carcinus maenus</i>						x			x		x					x			x
<i>Centropristus striata</i>															2				2
<i>Ctenophora phylum</i>				x					x			x				x			x
<i>Fundulus heteroclitus</i>				29		2							12	1					44
<i>Fundulus majalis</i>	425	37	35	40		24			267	5	18		24	17	2	308	10		1212
<i>Gobiosoma bosc</i>				1															1
<i>Leiostomus xanthurus</i>						3									x				3
<i>Libinia emarginata</i>					x														x
<i>Menidia menidia</i>	1368	3209	177	314	10	81	54	20	29	50	38	73	740	3169	145	1	661	350	10489
<i>Menticirrhus saxatilis</i>		20	22	11	1										31			9	94
<i>Opsanus tau</i>						1													1
<i>Ovalipes ocellatus</i>															1			2	3
<i>Pagurus spp</i>				x	x				x			x						x	x
<i>Palaemonetes vulgaris</i>				x	x				x	x			x						x
<i>Panopeus spp</i>				x	x				x				x						x
<i>Paralichthys dentatus</i>			6																6
<i>Pomatomus saltatrix</i>		1													1				2
<i>Prionotus evolans</i>				4														7	11
<i>Pseudopleuronectes americanus</i>		2	3	14	1								3						23
Salpidae family										x						x			x
<i>Sphoeroides maculatus</i>		1		6	1	2									5			4	19
<i>Sphyaena borealis</i>										1									1
<i>Stenotomus chrysops</i>														40	15			13	68
<i>Strongylura marina</i>		2		6							1							2	11
<i>Syngnathus fuscus</i>			1	1						1						x			3
<i>Synodus foetens</i>																		2	2
<i>Tautoga onitis</i>		1				11				2			1	7	5	3	7		37
<i>Trachinotus carolinus</i>					6					2					5				13
<i>Trachinotus falcatus</i>														1					1
<b>Grand Total</b>	<b>1812</b>	<b>3293</b>	<b>260</b>	<b>430</b>	<b>19</b>	<b>131</b>	<b>54</b>	<b>27</b>	<b>296</b>	<b>65</b>	<b>57</b>	<b>131</b>	<b>785</b>	<b>3237</b>	<b>214</b>	<b>312</b>	<b>1634</b>	<b>389</b>	<b>13146</b>

\* x indicates that the non-target species was collected but the abundance was recorded as abundant, many or few.

Table 6. Species presence by station for September 2025.

SEPTEMBER Species	Station																		Grand Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
<i>Alosa aestivalis</i> &/or <i>pseudoharengus</i>					1								1				22	1	25
<i>Anchoa mitchilli</i>															2				2
<i>Arcopectin irradians</i>				1				1											2
<i>Brevoortia tyrannus</i>												2	1	3		2			8
<i>Calinectes sapidus</i>								2					1				2		5
<i>Carcinus maenus</i>						x	x		x		x								x
<i>Centropristis striata</i>																	3		3
<i>Crangon septemspinosa</i>				x															x
<i>Ctenophora</i> phylum											x								x
<i>Cyprinodon variegatus</i>		1																	1
<i>Fundulus heteroclitus</i>	2	2	2	49				25					2				1		83
<i>Fundulus majalis</i>	55	16	23	22	6		1	126	15		52		9		4	8	81		418
<i>Gobiosoma bosc</i>				2	1														3
<i>Libinia emarginata</i>											x								x
<i>Lucania parva</i>				1				3											4
<i>Meiacanthus grammistes</i>											1								1
<i>Menidia menidia</i>	52	2143	173	151	57	332	618	100	164	27	3	1090	586	775	507	57	576	9	7420
<i>Menticirrhus saxatilis</i>	1	7	4	1						1			1		26			5	46
<i>Morone saxatilis</i>															2				2
<i>Myoxocephalus aeneus</i>								1											1
<i>Nassarius obsoletus</i>														x					x
<i>Opsanus tau</i>					1														1
<i>Pagurus</i> spp				x				x										x	x
<i>Palaemonetes vulgaris</i>				x	x			x				x							x
<i>Panopeus</i> spp					x			x											x
<i>Paralichthys dentatus</i>			1																1
<i>Pomatomus saltatrix</i>		218				1											351	24	594
<i>Prionotus evolans</i>	1	1		4														1	7
<i>Pseudopleuronectes americanus</i>	8			3					9				1				2		23
<i>Sphoeroides maculatus</i>			2	2	2	2			1				1	1			6	1	16
<i>Stenotomus chrysops</i>				6		1											15	13	35
<i>Strongylura marina</i>						1					6				3		7	5	22
<i>Syngnathus fuscus</i>					2														2
<i>Tautoga onitis</i>				1	1	4	2	2	4	1		2				2	5	1	25
<b>Grand Total</b>	<b>119</b>	<b>2388</b>	<b>203</b>	<b>243</b>	<b>71</b>	<b>341</b>	<b>621</b>	<b>260</b>	<b>194</b>	<b>28</b>	<b>62</b>	<b>1094</b>	<b>602</b>	<b>780</b>	<b>544</b>	<b>69</b>	<b>1071</b>	<b>60</b>	<b>8750</b>

\* x indicates that the non-target species was collected but the abundance was recorded as abundant, many or few.

Table 7. Species presence by station for October 2025.

OCTOBER Species	Station																		Grand Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
<i>Alosa aestivalis</i> &/or <i>pseudoharengus</i>					3						56						1		60
<i>Anchoa mitchilli</i>								8		3									11
<i>Apeltes quadracus</i>				3				2	55		11							1	72
<i>Arcopectin irradians</i>					1									1					2
<i>Busycon carica</i>																	1		1
<i>Carcinus maenus</i>				x					x	x	x			x	x			x	x
<i>Crangon septemspinosa</i>	x			x							x								x
<i>Crepidula fornicata</i>								x											x
<i>Ctenophora</i> phylum		x										x	x				x	x	x
<i>Cyprinodon variegatus</i>											13				2				15
<i>Fistularia tabacaria</i>										2									2
<i>Fundulus heteroclitus</i>						2		20	2		126		4	9			2		165
<i>Fundulus majalis</i>	9	7	8	1	1	58		4	16	1	375		5	47	4	158	97		791
<i>Hippocampus</i> genus										1									1
<i>Lactophrys trigonus</i>					1														1
<i>Libinia emarginata</i>								x			x				x				x
<i>Littorina littorea</i>														x					x
<i>Lucania parva</i>														1					1
<i>Menidia menidia</i>	10	87	472	205	146	91	6	645	37	23	28	6	26	48	41	1248	1029	1972	6120
<i>Morone saxatilis</i>																	1		1
<i>Myoxocephalus aeneus</i>									1										1
<i>Nassarius obsoletus</i>		x																	x
<i>Opsanus tau</i>											1								1
<i>Ovalipes ocellatus</i>															1				1
<i>Pagurus</i> spp	x	x	x					x		x	x		x		x				x
<i>Palaemonetes vulgaris</i>		x						x	x	x	x	x	x	x				x	x
<i>Panopeus</i> spp				x							x		x	x				x	x
<i>Penaeus monodon</i>														x					x
<i>Pseudopleuronectes americanus</i>			2	2															4
<i>Stenotomus chrysops</i>								9											9
<i>Syngnathus fuscus</i>			1	4	2				1									1	9
<i>Tautoga onitis</i>					1		1			1		1		4					8
<i>Tautoglabrus adspersus</i>							5												5
<i>Trachinotus carolinus</i>															17				17
<i>Urophycis regia</i>							1												1
<b>Grand Total</b>	<b>19</b>	<b>94</b>	<b>483</b>	<b>215</b>	<b>155</b>	<b>151</b>	<b>13</b>	<b>688</b>	<b>112</b>	<b>31</b>	<b>610</b>	<b>7</b>	<b>35</b>	<b>110</b>	<b>65</b>	<b>1406</b>	<b>1131</b>	<b>1974</b>	<b>7299</b>

\* x indicates that the non-target species was collected but the abundance was recorded as abundant, many or few.

Table 8. Summary of species occurrence by station in 2025. The units are number of times present at each station (maximum would be 18 times present for a species at all stations for the year).

ALL MONTHS Species	Station																		Grand Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
<i>Alosa aestivalis</i> &/or <i>pseudoharengus</i>	72	5	1		4	1	1	680		3	56	222	186	3	1		1036	1	2272
Amphipoda order	x								x					x	x				x
<i>Anchoa mitchilli</i>		26				x	62	8		4	2		1		2		13		118
<i>Apeltes quadracus</i>	3			3				2	55		11		2					2	78
<i>Arcopectin irradians</i>				1	1			1						1					4
<i>Brevoortia tyrannus</i>						6						2	1	3	1	2			15
<i>Busycon carica</i>																	1		1
<i>Calinectes sapidus</i>	22	27	52	7				9	1		2		17				12		149
<i>Caranx hippos</i>														1					1
<i>Carcinus maenus</i>				x	x	x	x	x	x		x		0	x	x	x		x	x
<i>Centropristis striata</i>															2		3		5
<i>Chrysaora quinquecirrha</i>												x							x
<i>Crangon septemspinosa</i>	x	x	x	x					x		x		x		x		x		x
<i>Crepidula fornicata</i>								x									x		x
Ctenophora phylum	x	x	x	x	x	x	x	x	x		x	x	x	x		x	x	x	x
<i>Cyprinodon variegatus</i>		1									13				2	1			17
<i>Fistularia tabacaria</i>										2									2
<i>Fundulus heteroclitus</i>	66	2	83	83	34	34		45	2		127		73	16			14	4	583
<i>Fundulus majalis</i>	621	62	102	63	11	82	1	131	310	6	446		59	91	10	475	194		2664
<i>Gasterosteus aculeatus</i>														1					1
<i>Gobiosoma bosc</i>				4	1			2	2			1					1		11
Hippocampus genus										1									1
<i>Illex illecebrosus</i>														4					4
<i>Lactophrys trigonus</i>					1														1
<i>Leiostomus xanthurus</i>						3			2						x			3	8
<i>Libinia emarginata</i>			x		x			x			x	x	x		x				x
<i>Limulus polyphemus</i>		1																	1
<i>Littorina littorea</i>														x					x
<i>Lucania parva</i>				1				3						1					5
<i>Meiacanthus grammistes</i>											1								1
<i>Menidia menidia</i>	1871	9064	935	880	801	801	745	934	275	105	302	1212	4027	4159	770	1369	3500	2550	34300
<i>Menticirrhus saxatilis</i>	1	27	26	12	1				1				1		71			19	159

Microgadus tomcod	8	2			2		2			1				1			6		22	
Morone saxatilis				2										2	1	1			6	
Myoxocephalus aeneus								1	1		1				1				4	
Mytilus edulis											x								x	
Nassarius obsoletus	x	x	x	x	x				x		x			x			x		x	
Opsanus tau					1	1					1								3	
Ovalipes ocellatus														5				2	7	
Pagurus spp	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	
Palaemonetes vulgaris	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	
Panopeus spp	x		x	x	x			x	x		x	x	x	x			x	x	x	
Paralichthys dentatus			8										2						10	
Penaeus monodon													x						x	
Pomatomus saltatrix	7	221				1					40	1		1		351	24	646		
Prionotus carolinus					1														1	
Prionotus evolans	1	1		8														8	18	
Pseudopleuronectes americanus	10	4	30	20	3	1		4	17		1		11	1			6	6	114	
Salpidae family										x						x			x	
Scophthalmus aquosus														8					8	
Sphoeroides maculatus		1		8	6	4			1				3	1	8		6	6	44	
Sphyræna borealis										1									1	
Stenotomus chrysops				6		1			9					40	86		15	26	183	
Strongylura marina		2		6		1					7			3			9	8	36	
Syngnathus fuscus	1		6	5	4	1		1	1	1	2	1	1		2	x	1	1	28	
Synodus foetens																			2	2
Tautoga onitis	2	4		1	12	15	10	2	4	4		5	2	14	6	8	18	1	108	
Tautoglabrus adspersus							5												5	
Trachinotus carolinus					6						2				62				70	
Trachinotus falcatus														1	2				3	
Urophycis regia							1										1		2	
Urophycis tenuis																		2	2	
<b>Grand Total</b>	<b>2685</b>	<b>9450</b>	<b>1243</b>	<b>1110</b>	<b>889</b>	<b>952</b>	<b>827</b>	<b>1832</b>	<b>672</b>	<b>130</b>	<b>1012</b>	<b>1444</b>	<b>4386</b>	<b>4334</b>	<b>1048</b>	<b>1857</b>	<b>5188</b>	<b>2665</b>	<b>41724</b>	

\* x indicates that the non-target species was collected but the abundance was recorded as abundant, many or few.

Table 9. Numbers of juvenile winter flounder per seine haul in 2025.

Month	Station																		Mean	St Dev	SE
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18			
JUN	0	0	16	1	0	1	0	4	7	0	0	0	1	0	0	0	4	6	2.22	4.11	0.97
JUL	2	2	9	0	2	0	0	0	1	0	1	0	7	0	0	0	0	0	1.33	2.57	0.60
AUG	0	2	3	14	1	0	0	0	0	0	0	0	3	0	0	0	0	0	1.28	3.34	0.79
SEP	8	0	0	3	0	0	0	0	9	0	0	0	0	1	0	0	2	0	1.28	2.76	0.65
OCT	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.22	0.65	0.15
Mean	2.00	0.80	6.00	4.00	0.60	0.20	0.00	0.80	3.40	0.00	0.20	0.00	2.20	0.20	0.00	0.00	1.20	1.20			
St Dev	3.46	1.10	6.52	5.70	0.89	0.45	0.00	1.79	4.28	0.00	0.45	0.00	2.95	0.45	0.00	0.00	1.79	2.68			
SE	1.55	0.49	2.92	2.55	0.40	0.20	0.00	0.80	1.91	0.00	0.20	0.00	1.32	0.20	0.00	0.00	0.80	1.20			
Number	10	4	30	20	3	1	0	4	17	0	1	0	11	1	0	0	6	6			
																					Total Fish
																					114

Table 10. Numbers of juvenile tautog per seine haul in 2025.

Month	Station																		Mean	St Dev	SE
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18			
JUN	1	0	0	0	2	0	3	0	0	0	0	2	0	0	1	0	5	0	0.78	1.40	0.33
JUL	1	3	0	0	8	0	4	0	0	0	0	0	1	3	0	3	1	0	1.33	2.14	0.17
AUG	0	1	0	0	0	11	0	0	0	2	0	0	1	7	5	3	7	0	2.06	3.28	0.3
SEP	0	0	0	1	1	4	2	2	4	1	0	2	0	0	0	2	5	1	1.39	1.58	0.47
OCT	0	0	0	0	1	0	1	0	0	1	0	1	0	4	0	0	0	0	0.44	0.98	0.23
Mean	0.40	0.80	0.00	0.20	2.40	3.00	2.00	0.40	0.80	0.80	0.00	1.00	0.40	2.80	1.20	1.60	3.60	0.20			
St Dev	0.55	1.30	0.00	0.45	3.21	4.80	1.58	0.89	1.79	0.84	0.00	1.00	0.55	2.95	2.17	1.52	2.97	0.45			
SE	0.24	0.58	0.00	0.20	1.44	2.14	0.71	0.40	0.80	0.37	0.00	0.45	0.24	1.32	0.97	0.68	1.33	0.20			
Number	2	4	0	1	12	15	10	2	4	4	0	5	2	14	6	8	18	1			Total Fish
																					108

Table 11. Numbers of juvenile bluefish per seine haul in 2025.

Month	Station																		Mean	St Dev	SE
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18			
JUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
JUL	7	2	0	0	0	0	0	0	0	0	40	1	0	0	0	0	0	0	2.78	9.44	2.23
AUG	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0.11	0.32	0.08
SEP	0	218	0	0	0	1	0	0	0	0	0	0	0	0	0	0	351	24	33.00	94.46	22.27
OCT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Mean	2.24	69.52	0.00	0.00	0.00	0.32	0.00	0.00	0.00	0.00	12.80	0.32	0.00	0.00	0.32	0.00	112.32	7.68			
St Dev	3.13	97.16	0.00	0.00	0.00	0.45	0.00	0.00	0.00	0.00	17.89	0.45	0.00	0.00	0.45	0.00	156.97	10.73			Total Fish
SE	1.40	43.45	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00	8.00	0.20	0.00	0.00	0.20	0.00	70.20	4.80			646
Number	7	221	0	0	0	1	0	0	0	0	40	1	0	0	1	0	351	24			

Table 12. Numbers of striped bass per seine haul in 2025.

Month	Station																		Mean	St Dev	SE
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18			
JUN	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0.17	0.51	0.12
JUL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
AUG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
SEP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0.11	0.47	0.11
OCT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0.06	0.24	0.06
Mean	0.00	0.00	0.00	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.40	0.20	0.20	0.00			
St Dev	0.00	0.00	0.00	0.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.89	0.45	0.45	0.00			
SE	0.00	0.00	0.00	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.40	0.20	0.20	0.00			
Number	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2	1	1	0		Total Fish	6

Table 13. Numbers of juvenile river herring per seine haul in 2025.

Month	Station																		Mean	St Dev	SE
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18			
JUN	72	3	1	0	0	0	0	0	0	0	0	0	1	0	0	0	39	0	6.44	18.74	4.42
JUL	0	2	0	0	0	0	1	680	0	0	0	164	184	2	0	0	25	0	58.78	164.78	38.84
AUG	0	0	0	0	0	1	0	0	0	3	0	58	0	1	1	0	949	0	56.28	223.21	52.61
SEP	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	22	1	1.39	5.16	1.22
OCT	0	0	0	0	3	0	0	0	0	0	56	0	0	0	0	0	1	0	3.33	13.16	3.10
Mean	14.40	1.00	0.20	0.00	0.80	0.20	0.20	136.00	0.00	0.60	11.20	44.40	37.20	0.60	0.20	0.00	207.20	0.20			
St Dev	32.20	1.41	0.45	0.00	1.30	0.45	0.45	304.11	0.00	1.34	25.04	71.42	82.07	0.89	0.45	0.00	414.90	0.45			
SE	14.40	0.63	0.20	0.00	0.58	0.20	0.20	136.00	0.00	0.60	11.20	31.94	36.70	0.40	0.20	0.00	185.55	0.20			
Number	72	5	1	0	4	1	1	680	0	3	56	222	186	3	1	0	1036	1		Total Fish	2272

Table 14. Numbers of juvenile menhaden per seine haul in 2025.

Month	Station																		Mean	St Dev	SE
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18			
JUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
JUL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
AUG	0	0	0	0	0	6	0	0	0	0	0	0	0	0	1	0	0	0	0.39	1.42	0.33
SEP	0	0	0	0	0	0	0	0	0	0	0	2	1	3	0	2	0	0	0.44	0.92	0.22
OCT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Mean	0.00	0.00	0.00	0.00	0.00	1.20	0.00	0.00	0.00	0.00	0.00	0.40	0.20	0.60	0.20	0.40	0.00	0.00			
St Dev	0.00	0.00	0.00	0.00	0.00	2.68	0.00	0.00	0.00	0.00	0.00	0.89	0.45	1.34	0.45	0.89	0.00	0.00			
SE	0.00	0.00	0.00	0.00	0.00	1.20	0.00	0.00	0.00	0.00	0.00	0.40	0.20	0.60	0.20	0.40	0.00	0.00			
Number	0	0	0	0	0	6	0	0	0	0	0	2	1	3	1	2	0	0		Total Fish	15

Table 15. Numbers of juvenile black sea bass per seine haul in 2025.

Month	Station																		Mean	St Dev	SE
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18			
JUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
JUL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
AUG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0.11	0.47	0.11
SEP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0.17	0.71	0.17
OCT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00
Mean	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.75	0.00			
St Dev	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	1.50	0.00			
SE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.45	0.00	0.67	0.00			
Number	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	3	0	Total Fish 5		

Table 16. Temperature, salinity, and dissolved oxygen by station and month – 2025

Station		Month					Total Average
		JUN	JUL	AUG	SEP	OCT	
1	Temperature (C)	20.8	27.2	25	21	14.3	21.66
	Salinity	13.2	20.6	27.4	26.7	16.7	20.92
	Dissolved Oxygen	9.6	10.6	7.48	7.02	9	8.74
2	Temperature (C)	20.7	26.3	24.6	21	14.3	21.38
	Salinity	19.1	22.9	28.4	27.5	23.7	24.32
	Dissolved Oxygen	12.5	8.1	6.28	7.94	8.94	8.752
3	Temperature (C)	21.3	27.8	27	21.7	14.7	22.5
	Salinity	23.9	25.6	29.4	29.4	28.8	27.42
	Dissolved Oxygen	6.4	7.1	7.32	9.16	9.46	7.888
4	Temperature (C)	22.7	24.6	23.4	21.5	14.5	21.34
	Salinity	21.5	26.6	28.8	24.8	29.6	26.26
	Dissolved Oxygen	10.3	6.3	8.76	8.6	9.46	8.684
5	Temperature (C)	19.5	23.3	23.4	22	22	22.04
	Salinity	24.6	26.8	30.2	30.4	30.3	28.46
	Dissolved Oxygen	8	5.9	5.85	11.79	12.09	8.726
6	Temperature (C)	0	22.7	22.2	20.2	15.5	16.12
	Salinity	0	27.9	30.9	31.1	30.6	24.1
	Dissolved Oxygen	0	8.8	8.76	7.47	10.09	7.024
7	Temperature (C)	17.9	21.6	22.2	20.3	16.1	19.62
	Salinity	27.4	28.2	31.1	30.9	31.6	29.84
	Dissolved Oxygen	8	8.6	8.17	7.26	8.67	8.14
8	Temperature (C)	22	23.7	23.3	20.7	20.8	22.1
	Salinity	23.8	26.7	30.2	30.1	30.3	28.22
	Dissolved Oxygen	10.4	6.6	6.8	7.25	8.5	7.91
9	Temperature (C)	19.2	23.1	22.7	20.4	20.3	21.14
	Salinity	24.7	27	30.5	30.7	30.7	28.72
	Dissolved Oxygen	8.6	7	6.13	7.2	7.45	7.276
10	Temperature (C)	17.7	20.7	40	19.8	19.6	23.56
	Salinity	27.9	28.6	63	31.9	31.5	36.58
	Dissolved Oxygen	9.7	10.7	14.15	6.84	7.49	9.776
11	Temperature (C)	20.1	0	23	21.6	18.2	16.58
	Salinity	23.8	0	30.1	30	30	22.78
	Dissolved Oxygen	7.5	0	7.75	7.52	7.9	6.134
12	Temperature (C)	19.8	24.4	22.4	21	18.4	21.2
	Salinity	24.7	0	30.3	30	30	23
	Dissolved Oxygen	10	0	8.55	6.94	7.48	6.594
13	Temperature (C)	18.9	28.7	22.6	21.5	18.5	22.04
	Salinity	27.1	30.1	31	30.9	30.8	29.98
	Dissolved Oxygen	8	7	8.91	8.5	7.92	8.066
14	Temperature (C)	19	24.5	22.6	21.1	17.8	21
	Salinity	27.9	33	31.3	31.3	31.2	30.94
	Dissolved Oxygen	8.5	8	10.3	9.19	7.76	8.75
15	Temperature (C)	18	23.7	21.2	20.4	17.9	20.24
	Salinity	28.4	30.6	31.5	31.8	31.6	30.78
	Dissolved Oxygen	7.8	6.78	7.37	7.63	7.9	7.496
16	Temperature (C)	18.6	21.2	21.5	20.3	19.8	20.28
	Salinity	26.2	27.8	30.9	31.2	31	29.42
	Dissolved Oxygen	10.7	8	6.22	6.8	7.29	7.802
17	Temperature (C)	21.4	26.1	24.4	21.3	20.5	22.74
	Salinity	23.6	0	29.8	29.7	29	22.42
	Dissolved Oxygen	9.3	0	6.38	6.69	7.83	6.04
18	Temperature (C)	20.6	24.9	22.3	20.6	14.3	20.54
	Salinity	25.5	27.3	30.9	30.9	30.4	29
	Dissolved Oxygen	9	6.8	8.07	7.88	10.26	8.402

\*Zero values are from when the YSI was not working.

## **APPENDIX A**

### ***Standardized Index Development – Delta Lognormal***

#### **Menhaden, Bluefish, River Herring**

The standardized indices for 2 of the main target species of the survey considered five factors as possible influences on the indices of abundance, which are summarized below:

<b>Factor</b>	<b>Levels</b>	<b>Value</b>
Year	38	1988-2025
Month	5	June - October
Temperature (°C)	Continuous	
Salinity (ppt)	Continuous	
Station	18	18 fixed stations throughout bay

The delta lognormal model approach (Lo et al., 1992) was used to develop standardized indices of abundance for the seine survey data. This method combines separate generalized linear model (GLM) analyses of the proportion of successful hauls (i.e. hauls that caught winter flounder) and the catch rates on successful hauls to construct a single standardized CPUE index. Parameterization of each model was accomplished using a GLM procedure in the R statistical software package (dglm function see: [http://www.sefsc.noaa.gov/sedar/download/SEDAR17-RD16%20User%20Guide%20Delta-GLM%20function%20for%20R%20languageenvironment%20\(Ver.%201.7.2,%2007-06-2006\).pdf?id=DOCUMENT](http://www.sefsc.noaa.gov/sedar/download/SEDAR17-RD16%20User%20Guide%20Delta-GLM%20function%20for%20R%20languageenvironment%20(Ver.%201.7.2,%2007-06-2006).pdf?id=DOCUMENT)).

For each GLM procedure of proportion positive trips, a binomial error distribution was assumed, and the logit link was selected. The response variable was proportion successful trips. During the analysis of catch rates on successful trips, a model assuming lognormal error distribution was examined.

The final models for the analysis of catch rates on successful trips, in all cases were:

$$\mathbf{Ln(catch) = Year + Month + Station + Temperature + Salinity}$$

The final models for the analysis of the proportion of successful hauls, in all cases including menhaden, were:

$$\mathbf{Success = Year + Month + Station + Temperature + Salinity}$$

***Standardized Index Development – Negative Binomial Generalized Linear Model***

**Winter Flounder, Tautog, Striped Bass**

The standardized indices for 3 of the main target species of the survey considered up to six factors as possible influences on the indices of abundance, which are summarized below:

<b>Species</b>	<b>Factor</b>	<b>Levels</b>	<b>Value</b>
Winter Flounder	Year	38	1988-2025
	Station Periods	4	Stations were added to the survey on 3 separate occasions (station 16 added June 1990, station 17 added July 1993, station 18 added July 1995)
	Temperature (°C)	Continuous	
	Salinity (ppt)	Continuous	
	Station	18	18 fixed stations throughout bay
	Year	38	1988-2025
Tautog	Station Periods	4	Stations were added to the survey on 3 separate occasions (station 16 added June 1990, station 17 added July 1993, station 18 added July 1995)
	Station	18	18 fixed stations throughout bay
	Year	38	1988-2025
Striped Bass	Station Periods	4	Stations were added to the survey on 3 separate occasions (station 16 added June 1990, station 17 added July 1993, station 18 added July 1995)
	Temperature (°C)	Continuous	
	Salinity (ppt)	Continuous	
	Station	18	18 fixed stations throughout bay
	Month	5	June - October

The negative binomial generalized linear model approach was used to develop standardized indices of abundance for the seine survey data. This method produces a generalized linear model (GLM) for the catch rates on all hauls to construct a single standardized CPUE index. Parameterization of each model was accomplished using a GLM procedure in the R statistical software package, the code of which was modified from Nelson and Coreia of the Northeast Fishery Science Center (personal communication).

During the analysis of catch rates on hauls, a model assuming a negative binomial error distribution was examined. The linking function selected was “log”, and the response variable was abundance (count) for each individual haul where one of the three species was caught.

A stepwise approach was used to quantify the relative importance of the factors. First a GLM model was fit on year. These results reflect the distribution of the nominal data. Next, each potential factor was added to the null model sequentially and the resulting reduction in deviance per degree of freedom was examined. The factor that caused the greatest reduction in deviance per degree of freedom was added to the base model if the factor was significant based upon a Chi-Square test ( $p < 0.05$ ). This model then became the base model, and the process was repeated, adding factors individually until no factor met the criteria for incorporation into the final model.

The final models for the analysis of catch rates were:

**Winter Flounder: Abundance = Year + Temperature + Station + Station Periods**

**Tautog: Abundance = Year + Temperature + Station + Salinity**

**Striped Bass: Abundance = Year + Station**

**PERFORMANCE REPORT**

**STATE:** Rhode Island

**PROJECT NUMBER:** F-61-R

**SEGMENT NUMBER:** 21

**PROJECT TITLE:** Monitoring and Assessment of Recreationally Important Fish Habitats

**PERIOD COVERED:** January 1, 2025 - December 31, 2025

**JOB NUMBER AND TITLE:** V, Monitoring and Assessment of Recreationally Important Fish Habitats

**STAFF:** Patrick Barrett (Principal Biologist)  
Eric Schneider (Principal Biologist)  
Reuben Macfarlan (Principal Biologist)  
Thais Fournier (Fisheries Specialist)

**OBJECTIVE:** Assess and monitor the status of important habitats, including kelp, seagrasses, and oyster reefs, and the recreationally important fish species that use them.

**OBJECTIVE NAME:** Fish Habitat Monitoring

**STRATEGY:** Research, Survey, Data Collection and Analysis

**PROPOSED OBJECTIVE:** Conduct 15 habitat data acquisition and analysis investigations by January 31, 2029

**PROPOSED #:** 1 Kelp, 1 Eelgrass, 1 Oyster investigation per year

**TARGET DATE:** December 2029

**INTRODUCTION:**

Rhode Island sportfish are supported by a variety of coastal marine habitat types, including kelp, eelgrass, and oyster reefs. More than 70% of Rhode Island's recreationally and commercially important finfish spend part of their lives in coastal waters, usually when they are young (Meng & Powell, 1999). Kelp beds, sea grasses, and oyster reefs provide excellent foraging and feeding areas as well as providing protection from larger, open-water predators. As such, the preservation of these habitats play a critical role by increasing the survival of critical life stages, helping to sustain populations for healthier stocks and future recreational opportunities for anglers. However, determining the status of these habitat types and the contribution of specific habitats to sustaining recreational finfish populations has been challenging to assess given the spatial array of habitats, fish use within these habitats, and the varying ways in which fish abundance and production can be assessed and monitored. This

project aims to continue the standardized habitat monitoring surveys and analytical approaches used to assess habitat health, resiliency, and production of recreationally important fish species supported by these habitats. In doing so, it will result in new insights into the relative importance of different coastal habitats in supporting local fish populations, and thereby provide guidance on future priorities for preserving, restoring, and enhancing habitat types such as (A) kelp, (B) eelgrass, and (C) oyster reefs as these important biogenic habitats are experience range contractions, population declines, and increased threats from climate change.

### *Kelp*

Kelp forests are abundant and cover approximately 25% of the coastline globally (Krumhansl et al. 2016). Kelps themselves are an important ecosystem engineer, forming the foundation of many temperate and boreal coastal ecosystems. In the Northeast U.S., kelps provide nursery and refuge habitat, as well as food for a myriad of recreationally important fisheries species such as striped bass (*Morone saxatilis*), tautog (*Tautoga onitis*), and scup (*Stenotomus chrysops*). Different aspects of climate change and nutrient dynamics affect kelps, and can therefore have a large impact on the services kelps provide, including recreational fisheries (Gagné et al. 1982, Smale et al. 2013). Kelps serve as indicators of ecosystem given their responsiveness to environmental conditions and exposure to anthropogenic stressors (Wernberg et al. 2013). It is uncertain, however, how such changes will impact kelps, the food webs they support, and the fisheries reliant on these ecosystems. Thus, we seek to understand how kelp ecosystems may be impacted in the future, and to what extent they will be resilient to changes.

### *Eelgrass*

Species of submerged aquatic vegetation (SAV), including Eelgrass (*Zostera marina L.*), perform several ecological functions, including chemical cycling, sediment stabilization, structural modifications of the water column, as well as provide critical habitat for marine life (Dennison et al. 1993; Fonseca 1996, Havel and ASMFC Habitat Committee 2018). Several recreationally important finfish species found in RI utilize eelgrass beds for refugia and foraging, including tautog, black seabass, striped bass, summer flounder, and winter flounder (Kritzer et al. 2016, Laney 1997). Although widely recognized as a both a sensitive and critical habitat for marine fish, studies that quantify fish productivity of SAV beds (in Nordlund et al. 2019) and responses of fish communities to changes in eelgrass bed size and health (e.g., Hughes et al. 2002, McCloskey and Unsworth 2015) have not focused on areas in the temperate northeast. Increased efforts of eelgrass seed based restoration in the region increase the need to fill these data gaps in knowledge to understand how a successful eelgrass recovery would impact our local juvenile fish populations.

### *Oyster*

In Rhode Island, complex shellfish reefs formed by oysters (*Crassostrea virginica*) are found in intertidal and shallow subtidal waters of coastal lagoons and bays. Recent decades have witnessed declines in this habitat. For example, Beck *et al.* (2011) estimated that shellfish reefs are at less than 10% of their prior abundance and that ~85% of reefs have been lost globally. The growing recognition of the ecological and economic importance of these habitats have led to an

increase in the efforts to construct structured habitats, such as oyster reefs (Coen and Luckenback 2000, Brumbaugh et al. 2006). Previous work in the Mid-Atlantic and Gulf of Mexico found that oyster reefs can increase the growth and survival of juvenile finfish (e.g., Peterson et al. 2003, zu Emgassen et al. 2016), as well as fish and invertebrate biomass (e.g., Grabowski et al. 2005, Humphries and La Peyre 2015, Ermgassen et al. 2016,) compared to unenhanced habitats. Oyster restoration continues to occur throughout the RI waters and establishing density thresholds for juvenile fish enhancement will be key to accurately assessing goals and impacts of future work.

### *Fish Habitat*

DMF is charged with protecting marine fishery resources and the habitats that support them. In order to protect our marine fisheries habitats over time, we use the data and tools developed from long term monitoring surveys to implement effective management strategies and actions (e.g., conservation, restoration and enhancement projects). The work from all three habitat will continue to codify a “RI Marine Habitat Program” that is proactive in assessing and enhancing sensitive and important marine habitat to support a healthy RI marine ecosystem. Results from this job would support aspects of a Marine Habitat Management and Restoration Plan, which would provide guidance for current (on-going) projects, as well as future work. Results will be a vital resource when prioritizing work and seeking funds via a competitive grant process. By establishing relationships between resource management agencies, environmental non-profits, academics, recreational sport fishing organizations, and commercial fisheries, we aim to facilitate -dialogue on establishing scientifically and socially-sound fish habitat enhancement practices in RI state waters.

### **APPROACH:**

The approach consists of field assessments to quantify species assemblage and density of species using targeted survey approaches at several locations and habitat types. This data is used to assess how habitat quality (density, patch size, rugosity, etc.) influences marine sportfish species to help inform habitat-related thresholds for species presence, recruitment, and production. This approach summarizes fish habitat productivity surveys and analytical approaches that will be used to understand the relationship between coastal habitats such as kelp, eelgrass, and oyster reefs and recreationally- important fish species in Rhode Island, as well as assess how changing environmental conditions affect them and their associated communities through time.

### *Field Assessments of Kelp, Eelgrass, and Oyster Habitats and associated Fauna*

To monitor and identify sentinel sites, and continue long term fish habitat monitoring program, all sites selected are sampled annually during the mid to late summer (i.e., July – September) to monitor the local kelp, eelgrass, and oyster communities at peak diversity and finfish abundance. Each site has transects sampled, each separated by at least 100m. A range of habitat density and control sites are targeted for each site, but kelp, eelgrass, and oyster presence is quantitatively assessed at all sites for proper comparison. At least one Hobo Onset Loggers are placed within the site, set to collect data temperature, salinity, DO, and light when applicable,

every 30-60 mins. Transects are 40m in length and should run roughly parallel to shore following a depth contour line between 8-12 meters for kelp, 2-5 meters for eelgrass, and 1-3 meters for oyster reefs. Five sampling methodologies are used along each transect:

1. **Uniform point count:** The diver swims the length of the 40m transect centering a 1m PVC stick perpendicular to the transect tape at each 1m interval. The diver then records the species that intersects an imaginary vertical line (operationally defined as a distinct “point” ~2mm in diameter) positioned at each end of the meter stick (n = 80 points per transect). Additionally, the substrate type under each point is noted. If there are multiple species encountered under the point (e.g., algae on top of a tunicate), then all species of plant/animal should be recorded.
2. **Quadrat:** Along each transect, a diver places a 1 or  $\frac{1}{4}$  m<sup>2</sup> PVC frame on the bottom and the diver records the number of all target species. Substrate beneath understory algae is searched, however, neither the substrate nor the organisms attached to it are removed. For a 40m transect line, there are 6 sample points 8m apart, half on the onshore side and half on the offshore side.
3. **Fish and Mobile Invert counts:** Fish and Mobile Invert sampling is performed by a diver slowly swimming the length of the 40m transect about 1m above the transect line recording the abundance and size of all fish individuals encountered within a predefined imaginary “cube”. This “cube” extends 3m on either side of the transect tape (6m across) and 3m up from the substrate (3m high). Every fish sighted within the sampling area during the survey is recorded in 10-cm size bins.
4. **Morphometrics:** Along the transect, divers should swim and collect a subsample of each habitat forming species every 4 meters (n=10 individual samples of kelp blades and eelgrass shoots, and oyster cluster). This should be completed after all other protocols are carried out to avoid biasing any other results since it is destructive. Back on land or the boat, measure and record the relevant dimensions of the kelp, eelgrass, and oysters to determine its biomass (e.g., for *Saccharina latissima*, record blade length and width, and record stipe length; *Zostera* record shoot length, rhipidium, blades, seed stage; *Crassostera virginica*, record shell height and presence of macro parasites).
5. **Rugosity:** A combination of qualitative visual estimates and quantitative straight line and chain measurements will be used to access the complexity of the benthic habitat.

### *Analytical Approach*

The Uniform Point Count (UPC) survey data was distilled into two categories, substrate and biological cover. The percent substrate for each transect was calculated by multiplying the number of substrate counts per substrate type by the total number of counts per transect (n=80 for kelp and eelgrass, n=20 for oyster reefs). Biological percent cover is presented as the mean ( $\pm$  SE) for each site (e.g., Fort Wetherill and King’s Beach) and grouped by habitat type (e.g., Kelp or Control). Control sites are similar in substrate to existing kelp, eelgrass, or oyster but contain

less than 10% percent cover of those species. Additionally maps of previous oyster and eelgrass density have been used to find locations previously suitable for reefs or beds but no longer contain the specific habitat. The mean percent cover of algae and sessile inverts is used to calculate species richness and diversity, using both the abundance of unique species and the Shannon's H index of diversity respectively. For hard to identify algae species, specimen are collected and identified to the genus level back at the lab. Kelp, Eelgrass, Oyster, and invertebrate densities were determined using the quadrat and fish and mobile invert count datasets.

The quadrat dataset was used primarily to estimate kelp, eelgrass, and oyster and sessile invert densities, where as the fish count and mobile invert dataset is used to estimate fish and mostly mobile crustacean abundances. For each transect, a mean quadrat ( $\pm$  SE) was calculated to present a more precise estimate of the overall transect kelp, eelgrass, oyster, or invertebrate density. For each site, a mean fish and mobile crustacean density are also estimated and standardized to meters squared meters ( $\# \text{ m}^{-2}$ ). To compare how invertebrate densities differed between the habitat treatments (e.g., control and kelp) we present the average invertebrate density per meter squared, summarized for each site and grouped by survey method (Quad or Fish and Mobile Invert Count).

Using the fish count survey data, we converted abundance at estimated length, to total fish mass per transect, using the DMF age and growth lab data to convert fish length in cm, to weight in grams. For our target we used RI specific allometric growth models,  $W = \alpha * L^\beta$  (where  $W$  = weight,  $L$  = length, and alpha and Beta are constants). For species not currently dissected in our growth lab, we used the geometric mean alpha and beta coefficients presented on Fishbase.org. To compare total fish biomass between our habitats and control sites, we then standardized the total fish mass by dividing the total area surveyed, to get grams per meter squared. Using our long term dataset of fish habitat monitoring we also investigate the relationship between habitat density and fish biomass using loess regression plots for each habitat type. We then proceeded to estimate the effect size of the eelgrass habitat with respect to the control sites for each habitat region using the average fish biomass and standard deviation for each habitat size, relative to the controls, using the "effsize" package in R (R Core Team 2021).

## **RESULTS:**

In 2026, we conducted 3 habitat assessments including 11 transects across two kelp monitoring sites located at Fort Wetherill and King's Beach (Figure 1), 16 transects amongst three eelgrass beds in Ninigret Pond, Quonochontaug Pond, Point Judith Pond, Narragansett Bay, exposed Coastal locations (Figures 1-4), and 9 oyster transects between Ninigret and Quonochontaug Ponds (Figures 2-3).

### *Kelp*

The uniform point count survey found the substrate conditions at each site to be fairly uniform between kelp and control (Figure 5a). On average, the proportion of large boulders was between 76% and 100% representing nearshore rocky reef habitats, typical of the region. At Fort Wetherill, transects averaged 31% kelp cover, whereas King's Beach averaged 22% cover, both

of which have increased since 2023. 2022 remains the year with highest percent cover of kelp across both sites (Figure 6a). At kelp transects, aside from kelp we found the rocky reef locations to be dominated by a variety a branching and filamentous red alae. Specifically, 60-62 percent cover *Chondrus crispus* and *Coccotylus truncatus*, as well as several *Ceramium* and polysiphonia species. Although small, the density of sea stars, urchins, and lobsters were greater at the kelp locations as well. We found that the density of the northern star coral, *Astrangia Pocolata*, was greater at the Fort Wetherill sites (Control: 0; Kelp:  $3.083 \pm 0.85$ ) than the King's Beach sites locations (Control: 0; Kelp: 0) (Figure 7a). In 2025 the average adult kelp density (*Saccharina latissima*) decreased at Fort Wetherill (2024:  $6.9 \pm 1.62$ , 2025:  $2.83 \pm 0.99$ ) and increased at King's Beach (2024:  $1.77 \pm 1.059$ , 2025:  $5.22 \pm 2.12$ ) relative to 2024. Both sites are exhibit a general decrease in overall kelp density in the region with peak density measurements peaking in 2022 and 2023 when kelp was as high as  $11.22 \pm 3.82$  and  $13.41 \pm 6.91$  respectively (Figure 8a). From 2020-2025 we found the average fish biomass greater at both the Fort Wetherill and King's Beach kelp sites than their respective controls for all years except for King's Beach in 2024 (Figure 10a). In our preliminary model we found a positive relationship between fish biomass and kelp density with fish biomass peaking at about 12 kelp per meter squared (Figure 11, top panel). Kelp blade length was summarized using histograms to differentiate the difference between the each year of the survey from 2019 - 2025. Similar to 2024, we found the blade length to have a wider range of total lengths, representing a recent increased in juvenile kelp recruitment to both Fort Wetherill and Kings Beach transect locations (Figure 9a).

### *Eelgrass*

In 2025, the eelgrass monitoring team expanded monitoring to three additional sites, now including Ninigret Pond, Quonochontaug Pond, Pt. Judith Pond, Narragansett Bay, and Coastal locations (Figures 1 - 4). Each location containing 3 eelgrass transects and 1 control transects. These locations where chosen to represent the Coastal Ponds, Narragansett Bay, and Cosatal off shore regions and will be used to compare fish productivity between one another as well as kelp and oyster reef habitat contained within those respective regions (Kelp in Narragansett Bay and Oysters in Quonochontaug and Ninigret Pond). All eelgrass transects were selected based off of specific knowledge of these regions as well as at least one confirmed observation from the SAV ariel surveys (2006, 2009, 2016). Control transects were also identified through the same process, thus these locations could contain eelgrass but the percent cover is less than 10%. In 2025, we completed 20 dives to monitor eelgrass habitat in RI waters. We found the substrate conditions at each eelgrass site (e.g. Fort Wetherill and Quonochontaug Pond) to be quite different based on the regions they reside in (Narragansett Bay, Coastal Ponds, or Offshore). The most evident difference between the three eelgrass regions is that the substrate in the Coastal Ponds contained mostly mud and more fluid sediments where as the Narragansett bay and offshore coastal eelgrass sites were mostly sand and coble with sections of small boulders. Throughout the survey the average proportion of boulders (large, medium, and small combined) was approximately < 10% at the Coastal and Narragansett Bay eelgrass sites only and < 1% percent at the coastal pond eelgrass transects (Figure 5B). Percent cover of eelgrass was greatest at the Narragansett Bay locations (93%) and lowest in Ninigret Pond (49%) (Figure 6b). In the absence of eelgrass, at our control locations (where eelgrass was less than 2.5% percent on average), we found very little algae. In both the coastal ponds and the bay, in the absence of

eelgrass we mostly saw brown algae mats and *Gracillaria* sp. at low percent cover as well as mantis shrimp burrows in the softer sediment in Quonochontaug Pond (Figure 7b). In 2025, the algae and invertebrate species richness and diversity was not different between eelgrass and control sites regardless of region (Table 1). In 2023 we found a higher density of crepidula across both the control and eelgrass sites in Narragansett Bay and Coastal Sites (46 and 40) relative to the coastal ponds (0 – 4.3 ind./m<sup>2</sup>). We found the average 2025 eelgrass shoot density increased at all sites besides Quonochontaug Pond. Within the three regions, eelgrass shoot density varied by transect locations, ranging from 8.44 ± 5.7 in Ninigret Pond to 36.77 ± 12.11 in Narragansett Bay (Figure 8b). Since 2020, eelgrass canopy height has had a downward trajectory regardless of region, with only a few exceptions in Narragansett Bay (Figure 9b). In both 2025, we found that both the mean fish biomass per meter squared of eelgrass habitat to be greater than control sites across all regions and years, except for coastal sites in 2024 (Figure 10b). Fish biomass (g/m<sup>2</sup>) increased as eelgrass shoot density grew at all three regions with peak fish productivity at 40 shoots per meter squared (Figure 11, middle panel).

### *Oyster*

During September 2025, dive surveys were conducted to determine the baseline floral and faunal communities for use in biomass estimation at 6 enhancement reefs and 3 control sites across Ninigret and Quonochontaug Pond (Figures 2-3). In Quonochontaug Pond, the percent cover at the two control sites varied depending on their location with Pond. In the northwest region of the pond, the control habitat 2D was 85% sand, whereas the control habitat 3B had a harder more complex substrate with 45% boulder cover (Figure 5C). In 2025, the overall species diversity, with respect to the algae and sessile invertebrate species, was greater at the oyster transects than the controls when averaged between both ponds (1.06, 0.76 respectively) (Table 1). The biggest difference between the reef substrate locations and controls is the abundance of branching and filamentous red algae sponge species are able to adhere to the firmer substrate. Most notably *Polysiphonia* species, *Ceramium* species, and Boring Sponge (Figure 6c). Investigators found invertebrate densities to vary depending on the species and survey location. At the reef sites, investigators found higher abundances of bay quahogs occupying the edge of oyster reefs in Quonochontaug Pond (4.66 ind./m<sup>2</sup> vs 2.33 ind./m<sup>2</sup>) (Figure 7c). The reef sites harbored a wider array of inverts, most notably increased abundance of boring sponge and red beard sponge (Figure 7c). We found greater oyster density in Ninigret Pond (42 ± 23.29 ind./m<sup>2</sup>) than in Quonochontaug Pond (4 ± 3.67 ind./m<sup>2</sup>) (Figure 8c). In 2025, the average total fish biomass at the oyster reef treatments (7.3 g/m<sup>2</sup> and 0.615 g/m<sup>2</sup>) was greater than the unenhanced control sites (0 g/m<sup>2</sup>) across both ponds, with greater fish biomass recorded at Ninigret pond reefs than Quonochontaug reefs (Figure 10c). From 2020- 2025 we found the fish biomass increases with greater oyster density (Figure 11, bottom panel).

## **DISCUSSION**

### *Kelp*

The global abundance and resilience of kelp species has been impacted by increasing environmental stressors, such as heatwaves, increasing sea surface temperatures and kelp harvest

(Wernberg et al 2019). Globally there has only been a modest decline, with kelp average instantaneous rate of change of negative 0.018 per year, However, the regional variation does exist with 28% of the kelp systems declining and 38% increasing relative to the global average (Krumhansl 2016). In context for Narragansett Bay kelp beds, the instantaneous rates of change derived for total kelp showed a marginal increase from 2016- 2020 ( $0.04 \pm 0.09$ ), however, the standard error of this estimate does overlap with the global average decline of 0.018 suggesting a non-detectable change compared to the global average. In 2022, we saw the first increases in kelp density since 2020, but a slight decrease in kelp density at both sites since then. It is crucial tracking these beds through time to further define the fish habitat linkages that exist between kelp and fish production. As the work progresses, we will work to incorporate environmental variables into our analyses to determine the impact of changing temperature impacts the kelp system and it's associated inhabitants. For example, we found that fish biomass was greatest at the kelp sites and has thus far trended positively with the overall density of kelp and in 2025 saw continue increased in juvenile kelp recruiting the rocky subtidal along the RI coastal region.

This work is crucial to monitor how impacts and changes to kelp beds further impacts sportfish productivity. Our preliminary analyses showed a positive enhancement effect on our target sportfish species with respect to the control sites, or rocky reef habitat that does not have kelp. Using this work to model the fish-habitat linkages we can identify the strength of these relationships and leverage this information to predict how changes in kelp habitat would impact sportfish and the food web in Narragansett Bay.

## Eelgrass

Across the globe, there has been an accelerating rate of decline of seagrass meadows. Waycott et al. 2009, found that this rate was greater than that of the Amazon Rain forests and comparable to the rate of mangrove loss of -1.6 per year. As nursery seagrass habitats, like *Zostera marina*, continue to decline, our coastal ecosystems will be negatively impacted through the loss of services and enhanced fisheries production (Blandon et al 2014). Through this project we establish a long-term eelgrass and fish productivity dataset for RI, as well as track how changes in eelgrass density impact the community assemblage around them. In our second year of the survey we found that eelgrass in the coastal ponds continue to have one of the strongest effect on the fish biomass estimates regardless or region and habitat type. As the dataset continues to grow and more environmental parameters are added to the analyses we can more accurately address what factors may be driving the differences we observed. We acknowledge that there are often unique habitat associated fish-assemblages and that more target, species-specific analyses, may be required to establish how fish production differs by between eelgrass locations and other habitat types (e.g. Eelgrass and Kelp; Furness et al 2021). Landscape setting will also be important to consider, as the ecosystem function of eelgrass may differ depending on the its proximity to different habitats. For example, the eelgrass transects in Narragansett Bay and Coastal regions are in deeper water and in close proximity to kelp locations that had the highest effect size across all habitat types, but in a more nursery setting of coastal ponds, we found that the eelgrass beds had a much stronger impact on the finfish community around them.

## Oyster

Oyster reef monitoring suggest our FHE reef establishment approaches have thus far been successful in both Ninigret and Quonochontaug Ponds. In Ninigret Pond, where surveys represented the first year of monitoring post re-seeding, we the Green Hill lineage exceeded the first-year survival of the previously used hatchery lineage by approximately 10 %. Various environmental and biological factors like predation play an important role in the survival of first year oysters, and determining how a given lineage may perform in certain environments provides crucial information for habitat restoration practitioners and resource managers. We will continue to look for evidence of enhanced performance in addition to susceptibility to different parasite borne diseases and the ability to enhance fish production. In Quonochontaug Pond, the oyster performance was status quo. We observed a slight drop in density and a slight increase in average oyster length suggesting that for the reefs that are successful are maintaining densities well above the minimum ecological threshold, with respect to augmented fish abundance, and that oyster growth is itself starting to plateau at about 4.5-5years of age.

Providing the health of these reefs are maintained, the quality of habitat provided should increase over time in response to successional changes on these reefs. That said, it's generally agreed that oyster reefs provide some level of enhancement to fish habitat beginning at time of reef creation. Consistent with this expectation, we observed that the abundance of fish increased across sites after reef creation, in comparison to preconstruction baseline monitoring. We also observed an increase in targeted species, such as black sea bass, tautog, and winter flounder. In Ninigret Pond, we found lower overall catch rates for the target sportfish species between the habitat treatments. In Quonochontaug Pond, Black Sea Bass, Tautog, and Cunner all showed that enhancement potential of the oyster habitat, provided greater catch than their respective controls at the green hill pond reefs which still have sufficient oyster densities. Black Sea Bass and Winter Flounder were more positively influenced at the sandier edge habitats, whereas Tautog were more positively increased at the relatively flat, siltier reefs compared to areas with already pre-existing structure. In accordance with reef production literature, Tautog are typically a recruitment enhanced species, as opposed to growth enhanced like black sea bass, and the placement of reefs in areas relatively devoid of other structured habitat may have a higher potential for fish augmentation by providing adequate substrate for juvenile tautog to recruit (Powers et al. 2003). Scup and Summer Flounder have yet to show any strong trends at our FHE sites, which is similar to work in the Mid-Atlantic (Peterson et al. 2003)

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Figure 1: Narragansett Bay Eelgrass and Coastal Kelp and Eelgrass Dive Survey locations. Circles represent the general location of the transects; Orange = Kelp, Green = Eelgrass, Grey = Control.

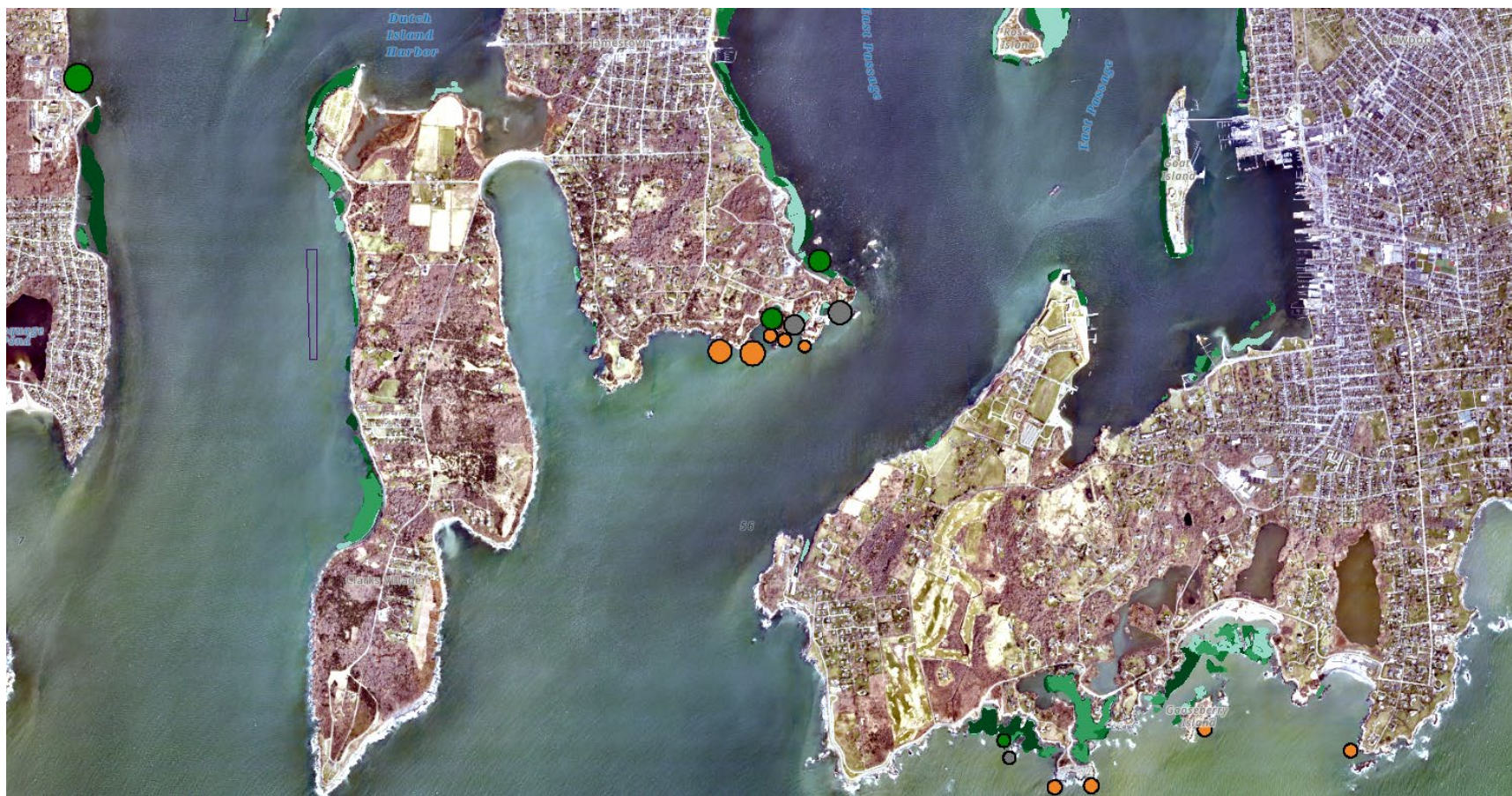


Figure 2: Quonochontaug Pond Oyster and Eelgrass Dive Survey locations. Circles represent the general location of the transects; Green = Eelgrass, Purple = Oyster, Grey = Control.



Figure 3: Ninigret Pond Oyster and Eelgrass Dive Survey locations. Circles represent the general location of the transects; Green = Eelgrass, Purple = Oyster, Grey = Control.



Figure 4: Point Judith Eelgrass Dive Survey locations. Circles represent the general location of the transects; Green = Eelgrass, Grey = Control.



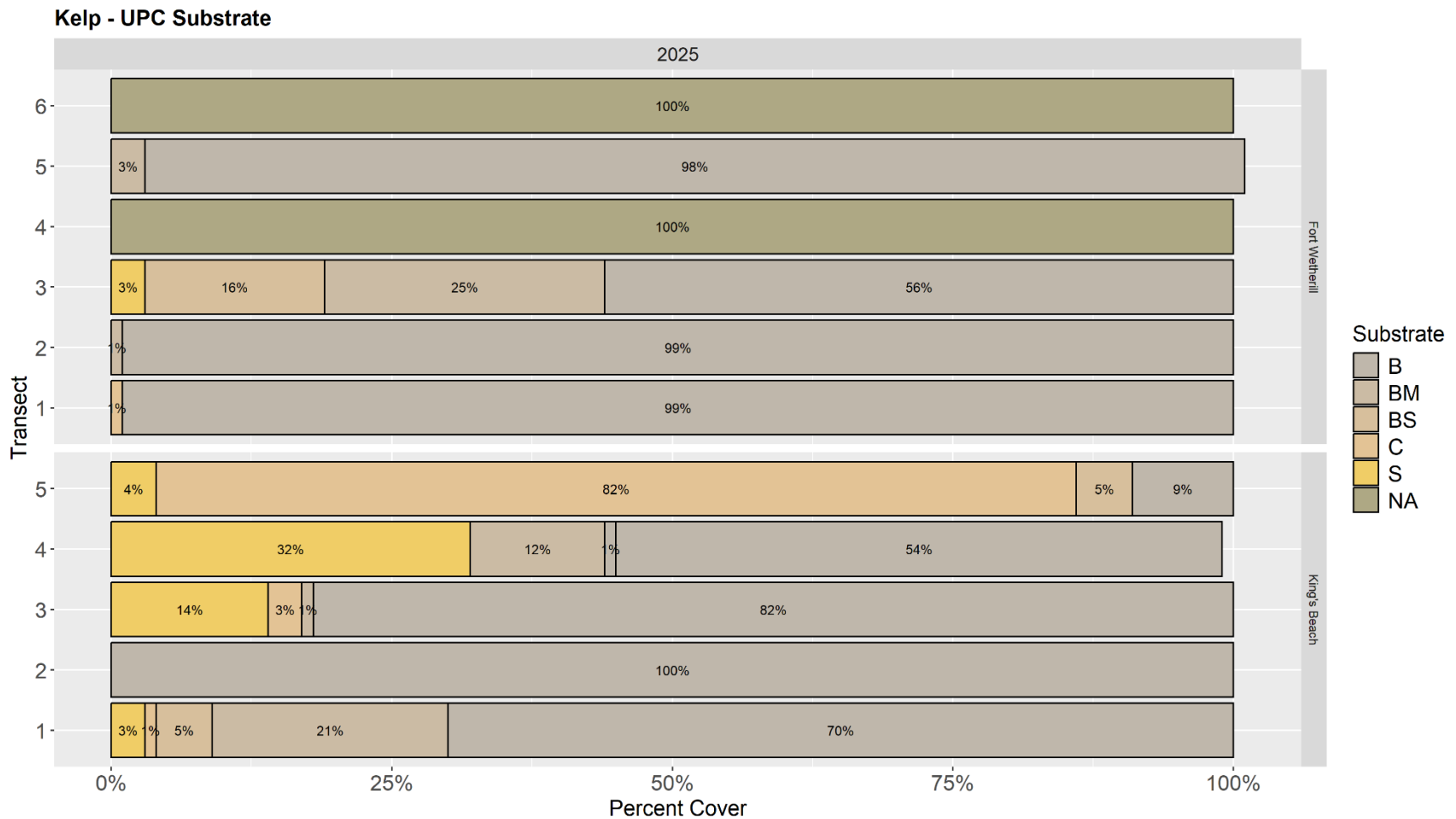


Figure 5A. Percent cover of substrate along the y-axis plotted for each transect along the x-axis, for each fish productivity survey. Percent cover is grouped by substrate type (BL = boulder large, BM = boulder medium, BS = boulder small, C= cobble, M = mud/fines, M\_S = sandy mud mix, S = Sand, B = Bedrock, L = Ledge) and faceted Year (2019-2025) and Site (Fort Wetherill and King's Beach).

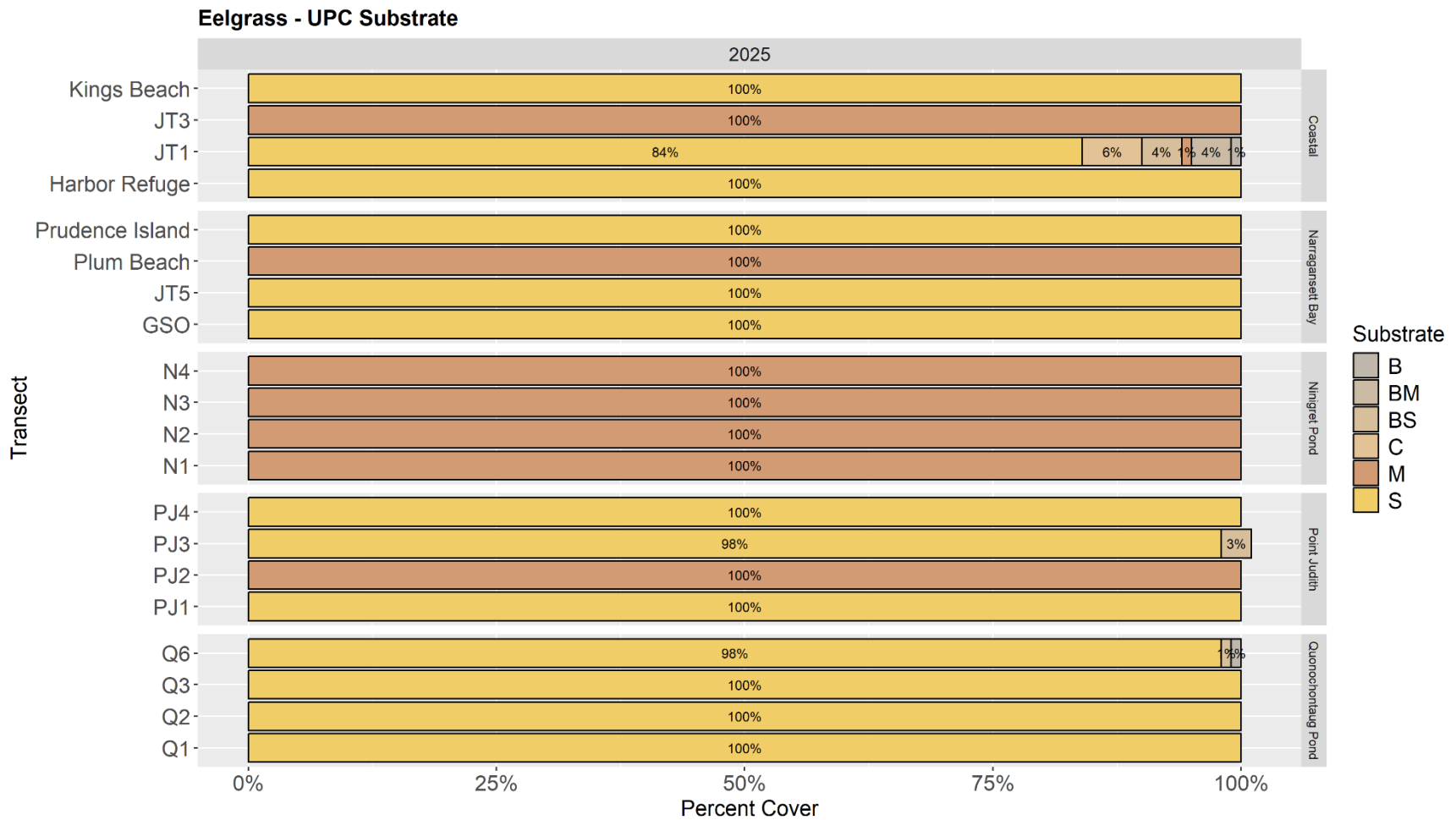


Figure 5B. Percent cover of substrate along the y-axis plotted for each transect along the x-axis, for each fish productivity survey. Percent cover is grouped by substrate type (BL = boulder large, BM = boulder medium, BS = boulder small, C= cobble, M = mud/fines, M\_S = sandy mud mix, S = Sand, B = Bedrock, L = Ledge) and faceted Year (2019-2025) and Site (Fort Wetherill and King's Beach).

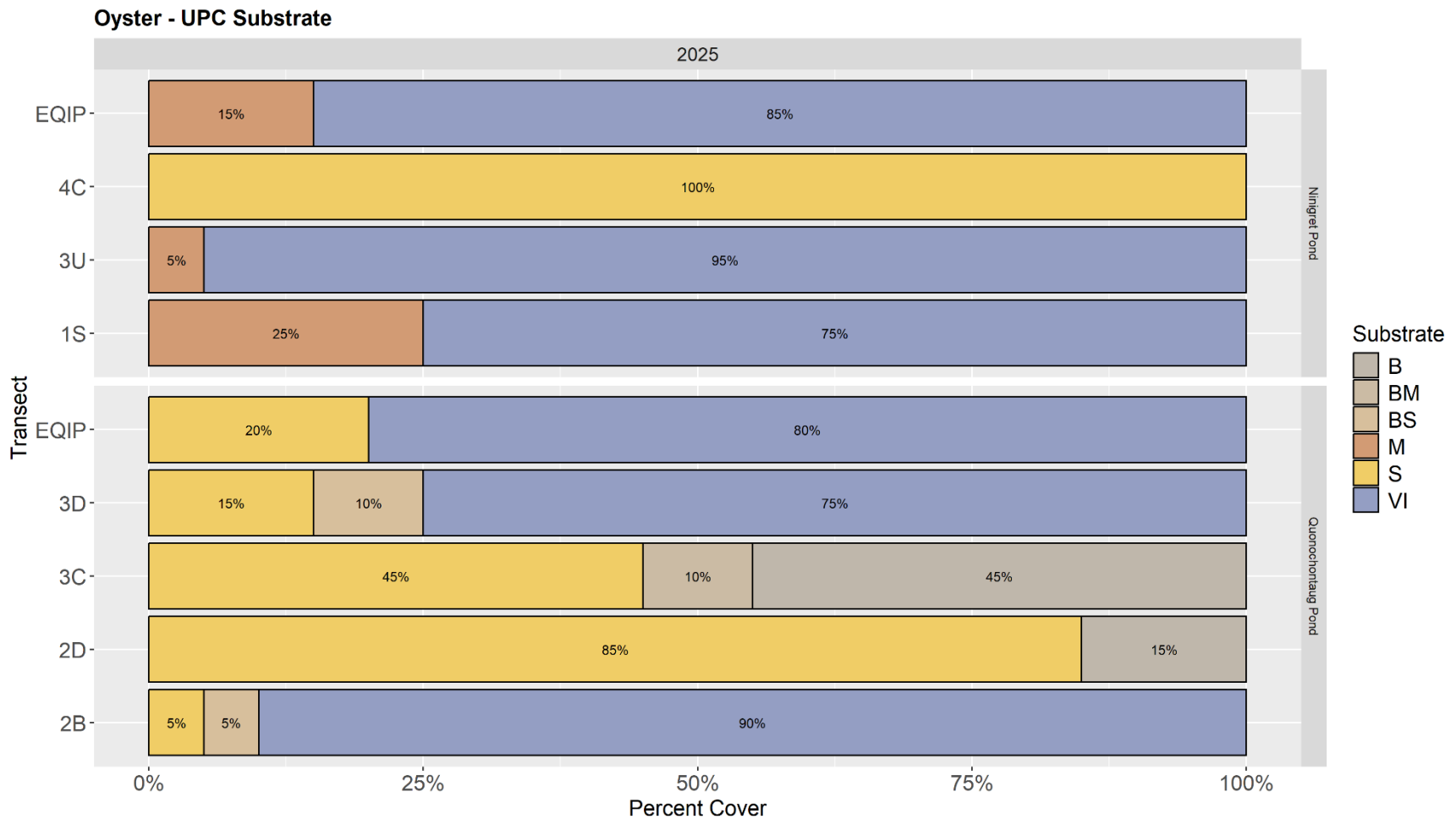


Figure 5C. Percent cover of substrate along the y-axis plotted for each transect along the x-axis, for each fish productivity survey. Percent cover is grouped by substrate type (BL = boulder large, BM = boulder medium, BS = boulder small, C= cobble, M = mud/fines, M\_S = sandy mud mix, S = Sand, B = Bedrock, L = Ledge) and faceted Year (2019-2025) and Site (Fort Wetherill and King's Beach).

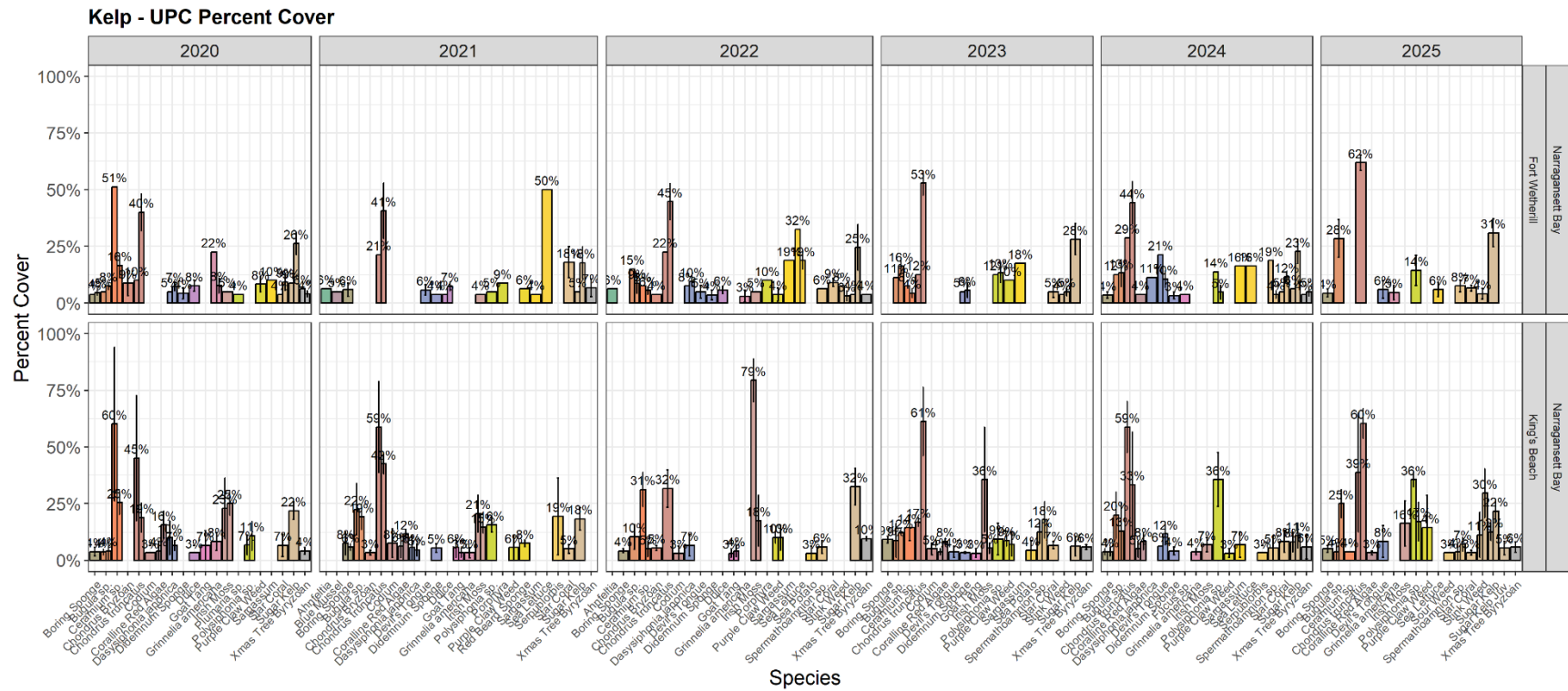


Figure 6a. Mean algal and sessile invertebrate cover  $\pm$  SE, grouped by Site (Fort Wetherill and Kings Beach) during the 2020-2025 productivity uniform point count survey.

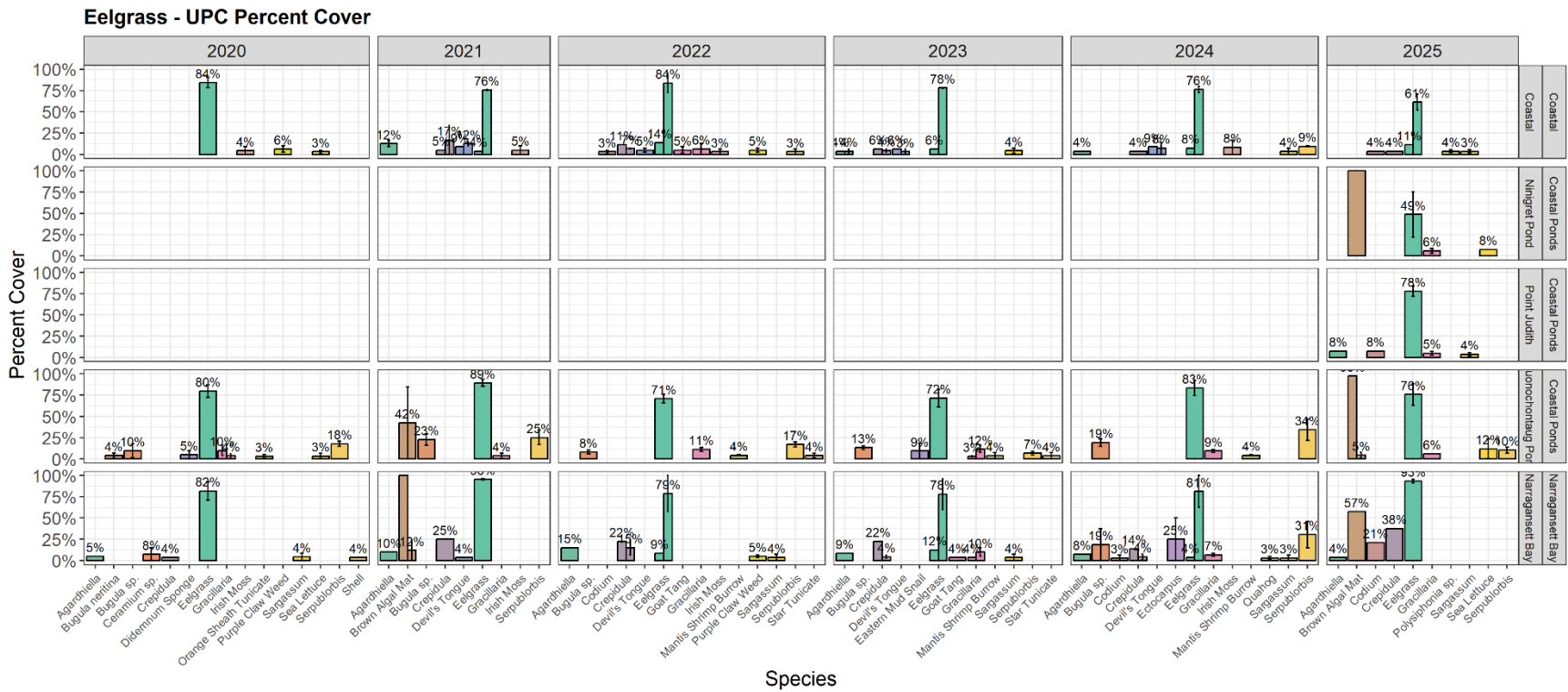


Figure 6b. Mean algal and sessile invertebrate cover  $\pm$  SE, for each habitat type grouped by Site (Coastal, Narragansett Bay, Pt Judith Pond, Quonochontaug Pond, Ninigret Pond) during the 202-2025 productivity uniform point count surveys.

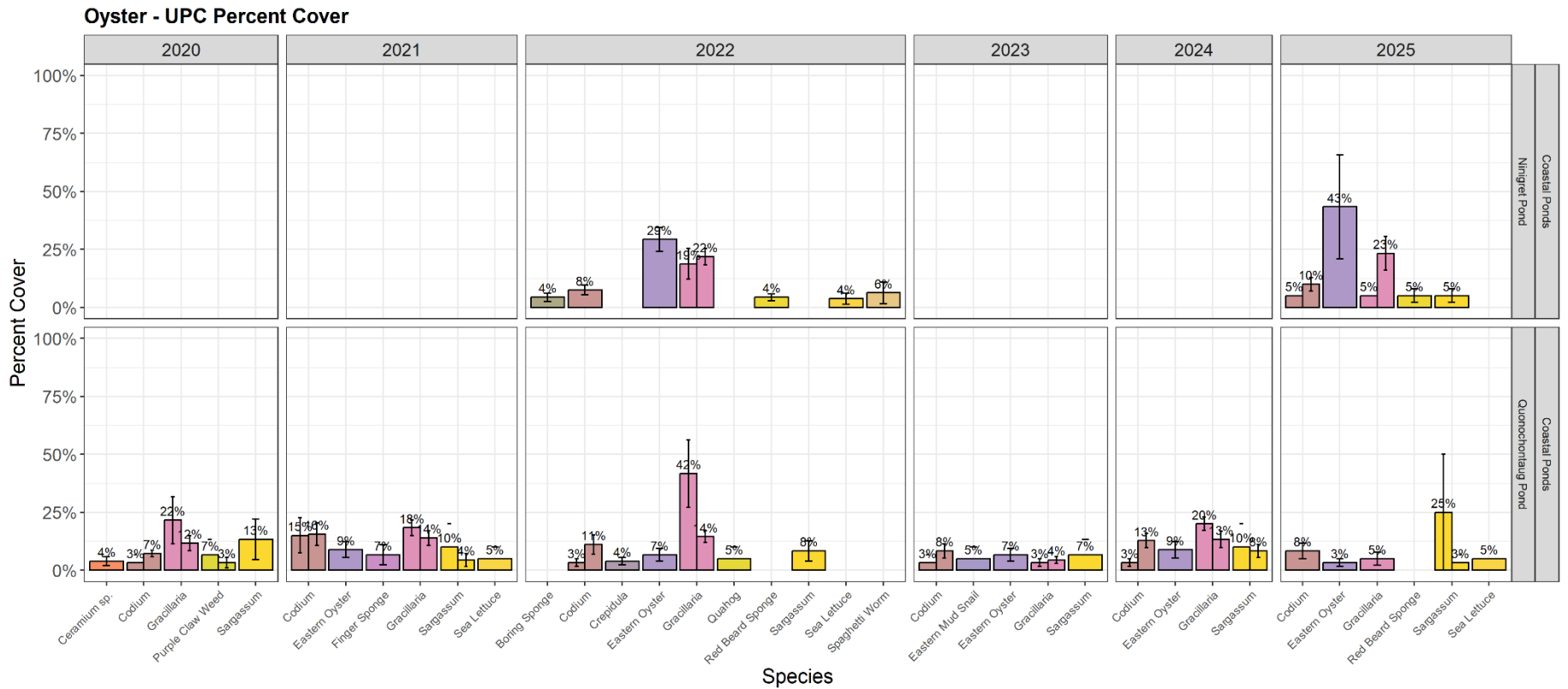


Figure 6c. Mean algal and sessile invertebrate cover  $\pm$  SE, grouped by Site (Ninigre and Quonochontaug Ponds) during the 2020-2025 productivity uniform point count survey.

### Kelp - Quadrat 2025

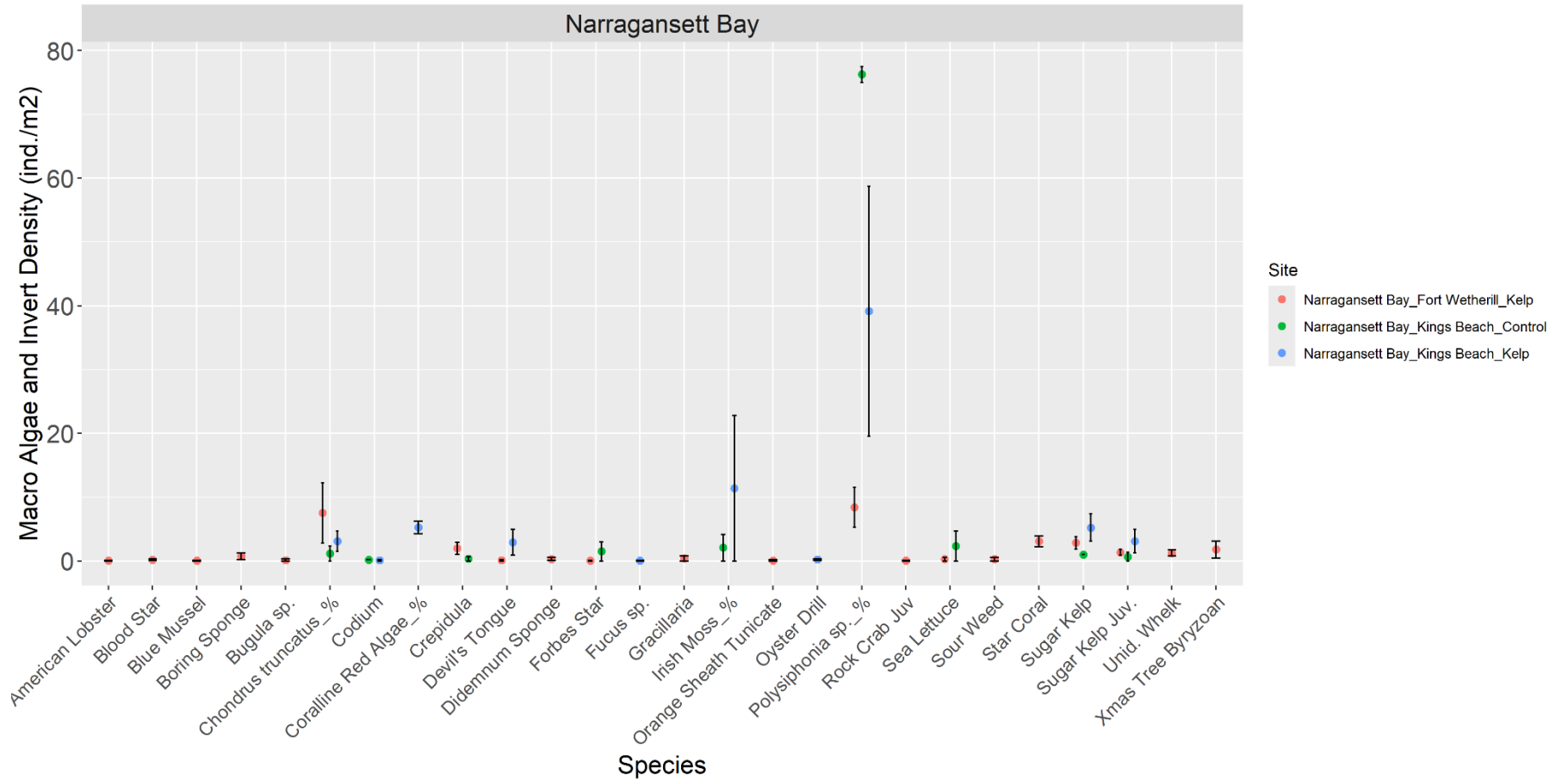


Figure 7a. Mean invertebrate and macro algae density  $\pm$  SE, per habitat treatment (i.e., Kelp and Control) and site (Fort Wetherill and Kings Beach) for the quadrat transect during the 2025 survey.

### Eelgrass - Quadrat 2025

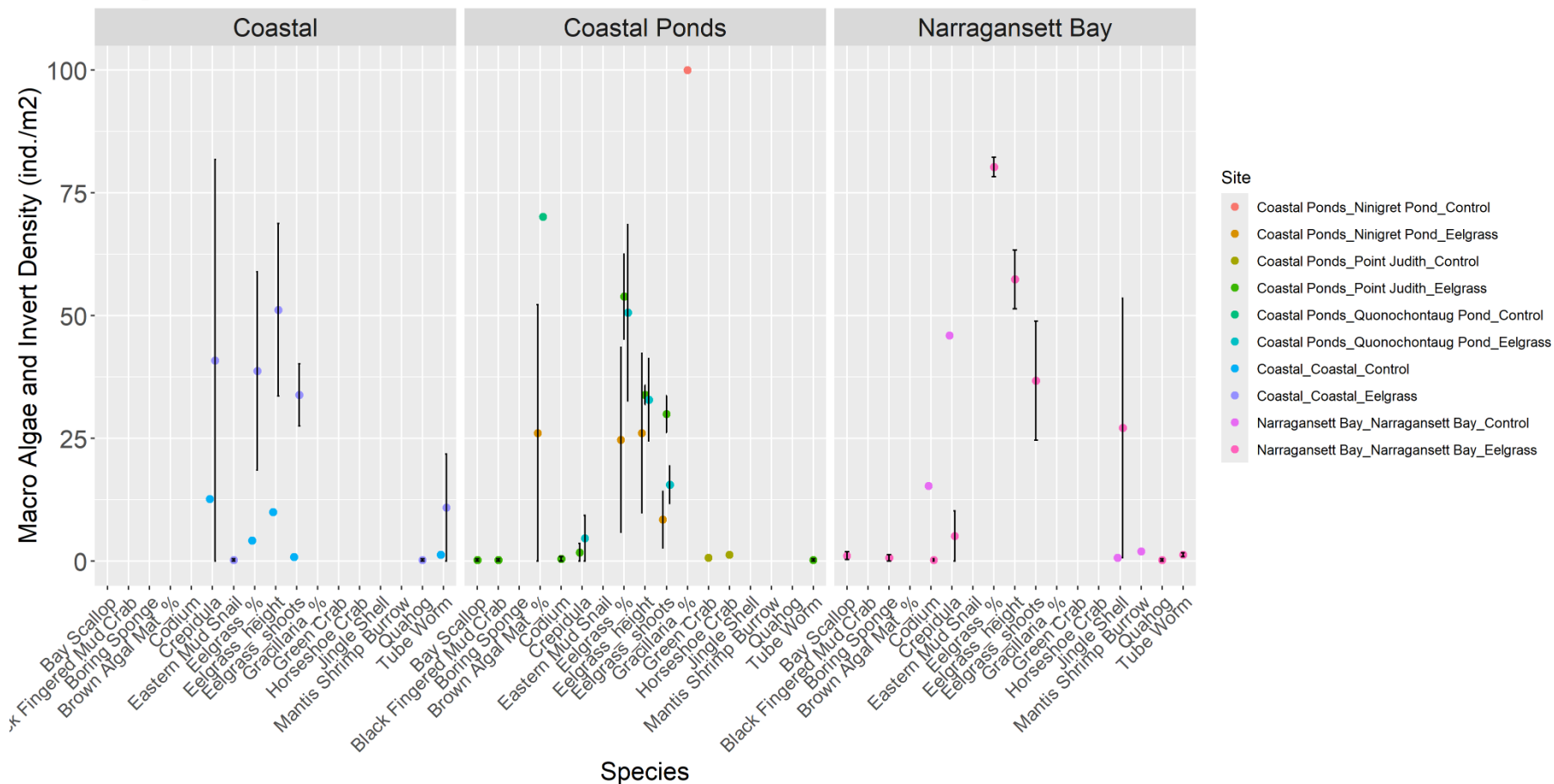


Figure 7b. Mean invertebrate and macro algae density  $\pm$  SE, per habitat treatment (i.e., Eelgrass and Control) and site (Coastal, Narragansett Bay, Pt Judith Pond, Quonochontaug Pond, Ninigret Pond)) for the quadrat transect during the 2025 survey.

### Oyster - Quadrat 2025

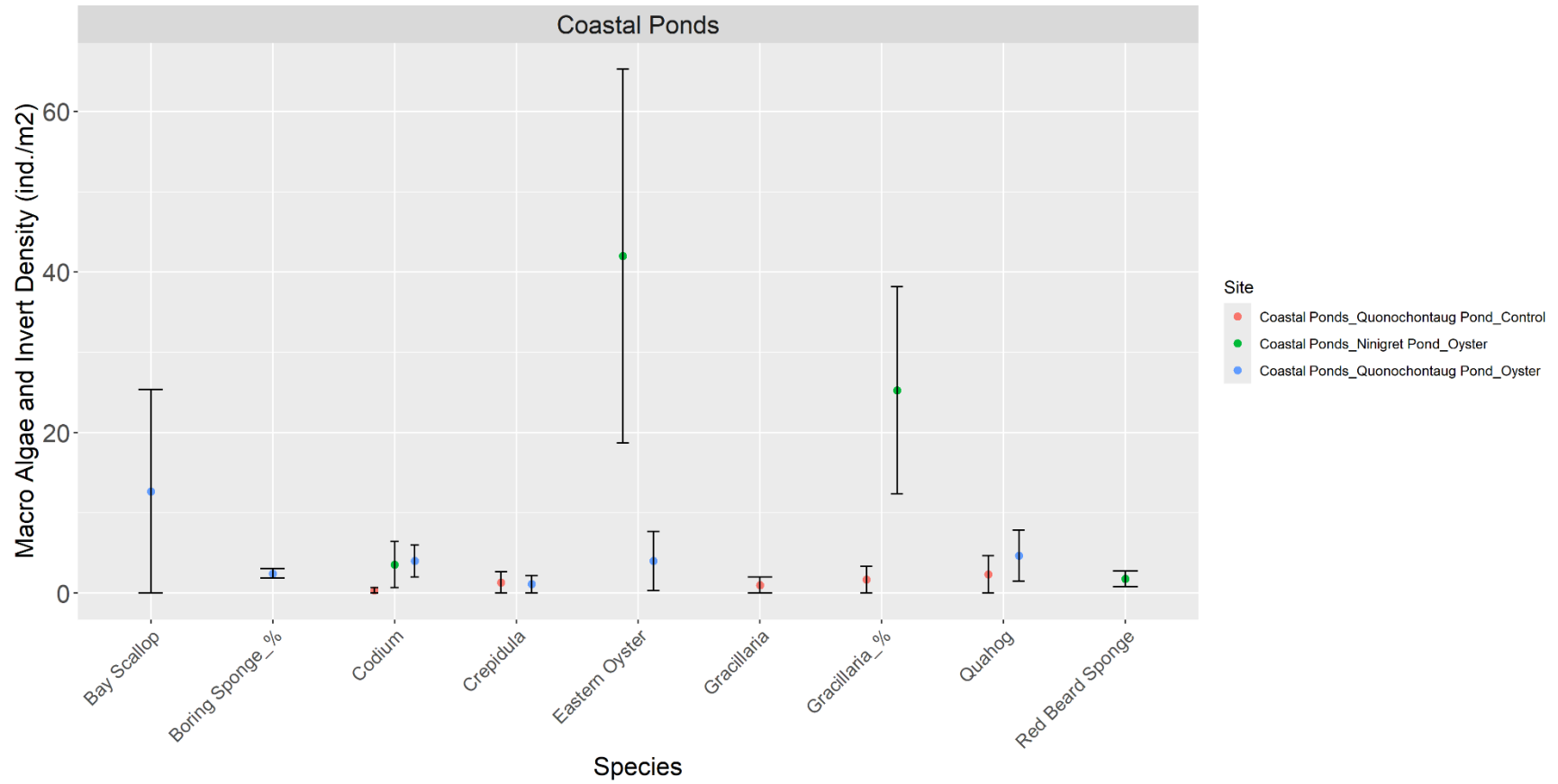


Figure 7c. Mean invertebrate and macro algae density  $\pm$  SE, per habitat treatment (i.e., Oyster and Control) and site (Quonochontaug and Ninigret Pond) for the quadrat transect during the 2025 survey.

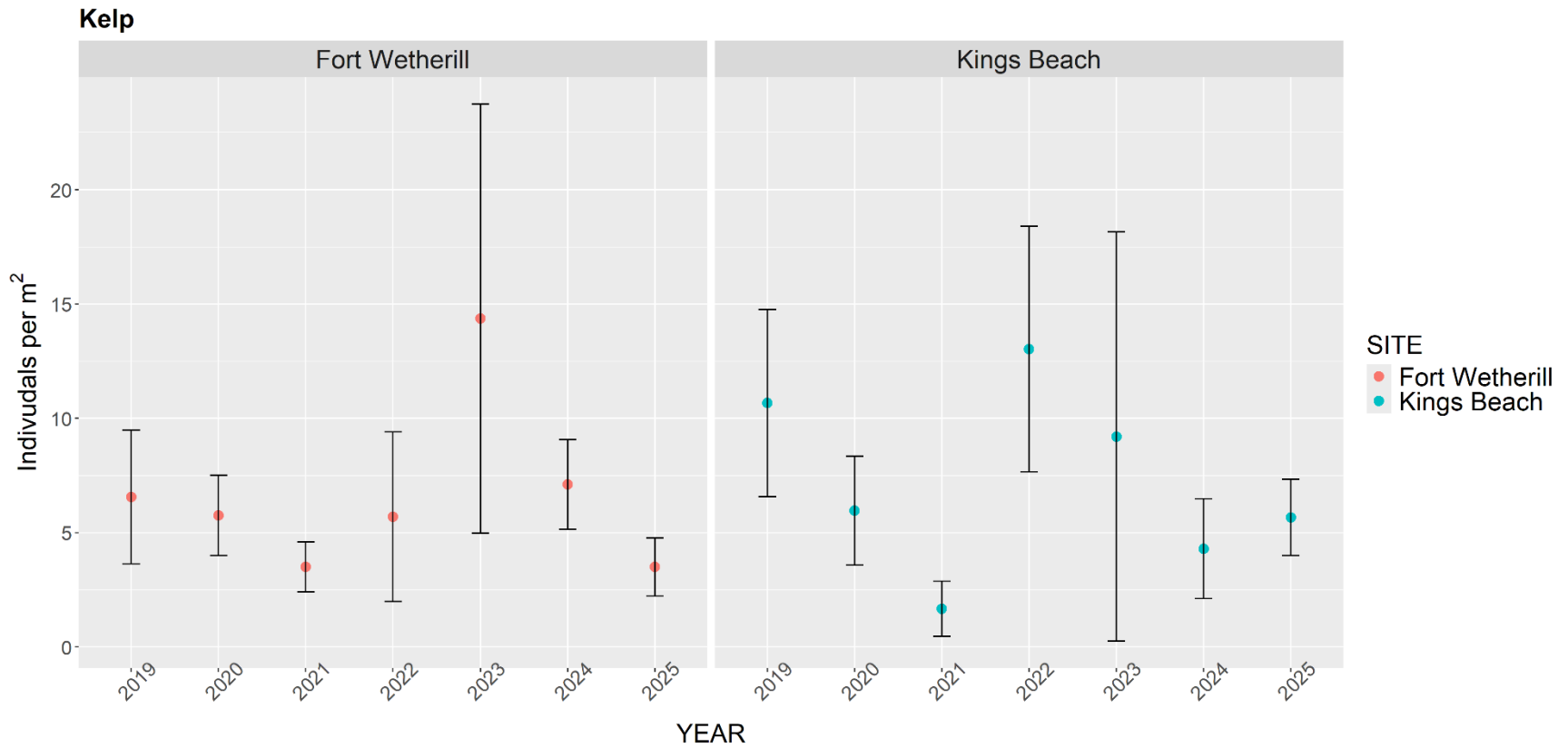


Figure 8a: Average kelp density (mean  $\pm$  SE) from 2019 – 2025 in the Narragansett Bay Region grouped by site (Fort Wetherill = Red, King’s Beach = blue). Total kelp density per meter squared for each year of the long-term Kelp monitoring survey

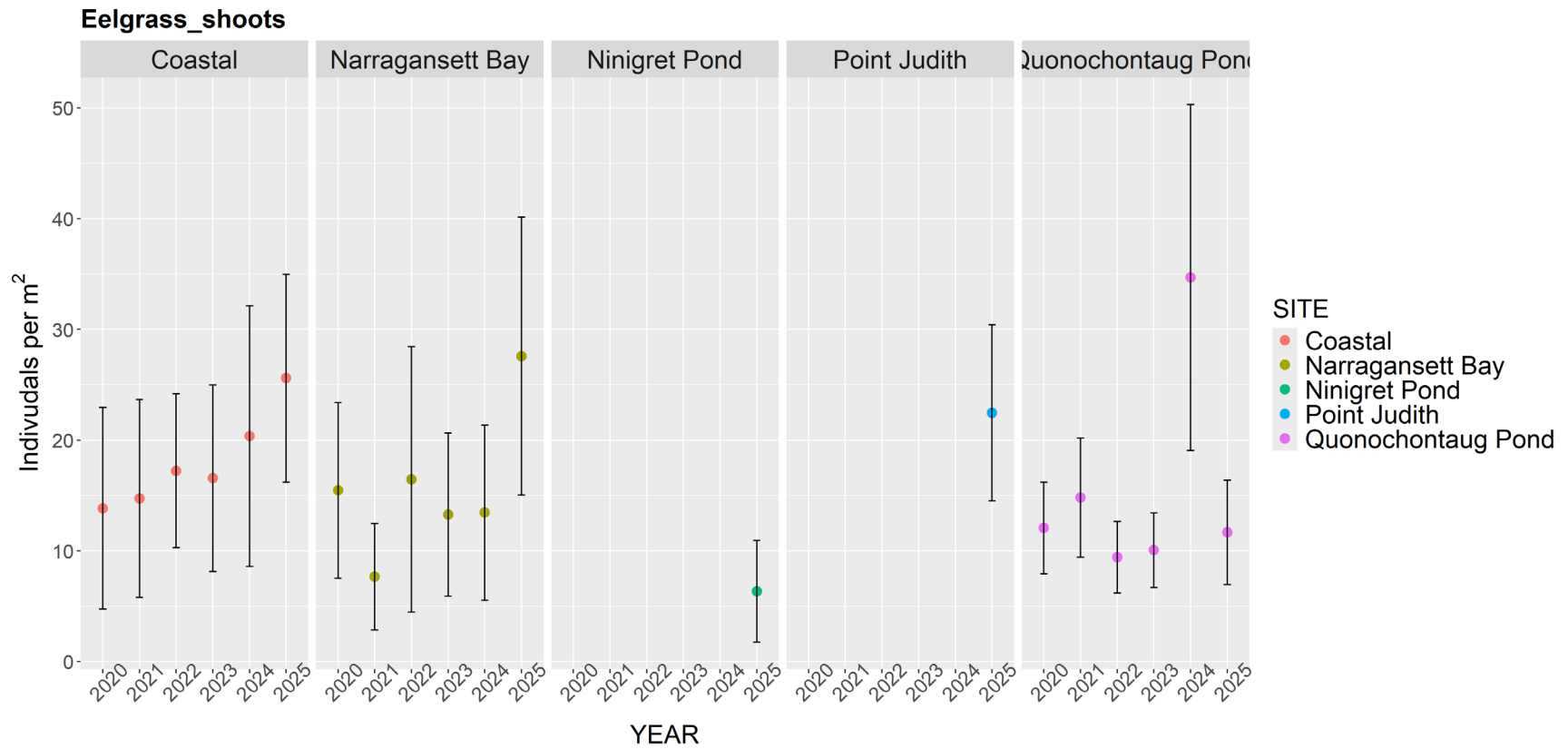


Figure 8b: Average eelgrass shoot density (mean  $\pm$  SE) from 2019 – 2025 from all regions and locations of the survey (Coastal, Narragansett Bay, Ninigret Pond, Point Judith, Quonochontaug Pond)

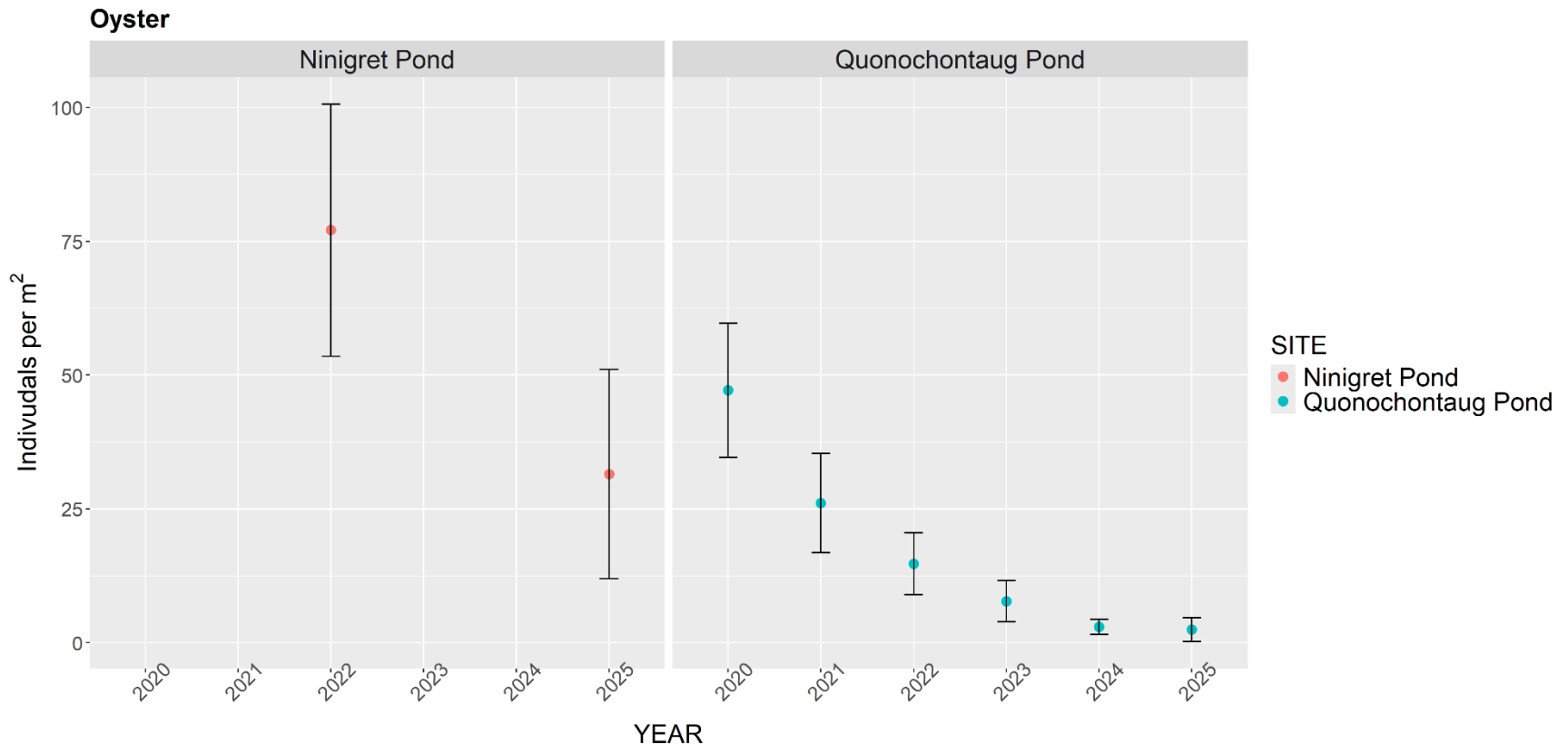


Figure 8c: Average oyster density (mean  $\pm$  SE) from 2019 – 2025 in the Coastal Pond region grouped by site (Ninigret Pond = Red, Quonochontaug Pond = blue).

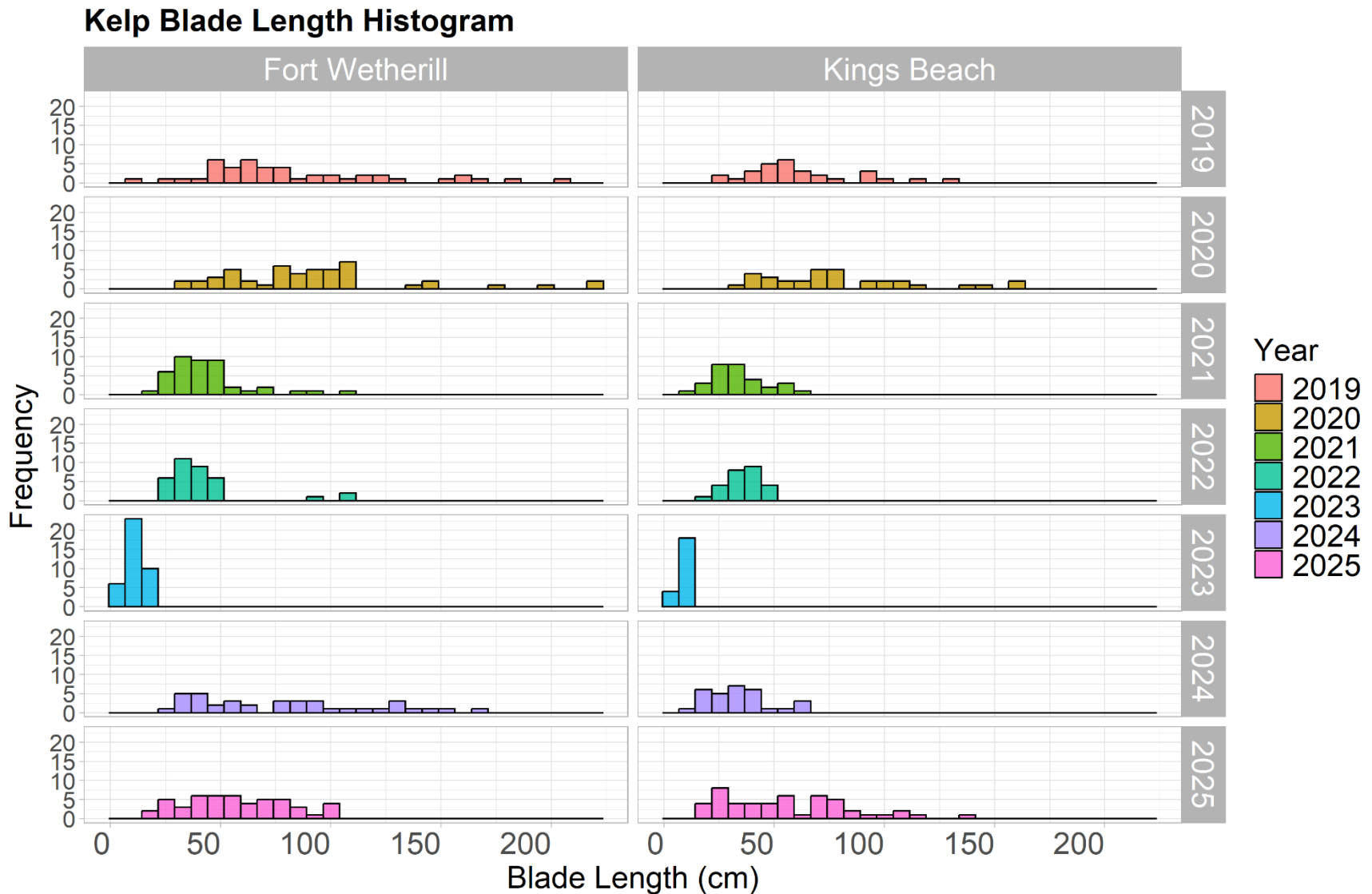


Figure 9a. Histogram of blade length (cm) from 2019 – 2025 for each kelp species (LADI = *Lammaniria digitia*, SL = *Sacharina latissimi*) group by Site (Fort Wetherill, Kings Beach)

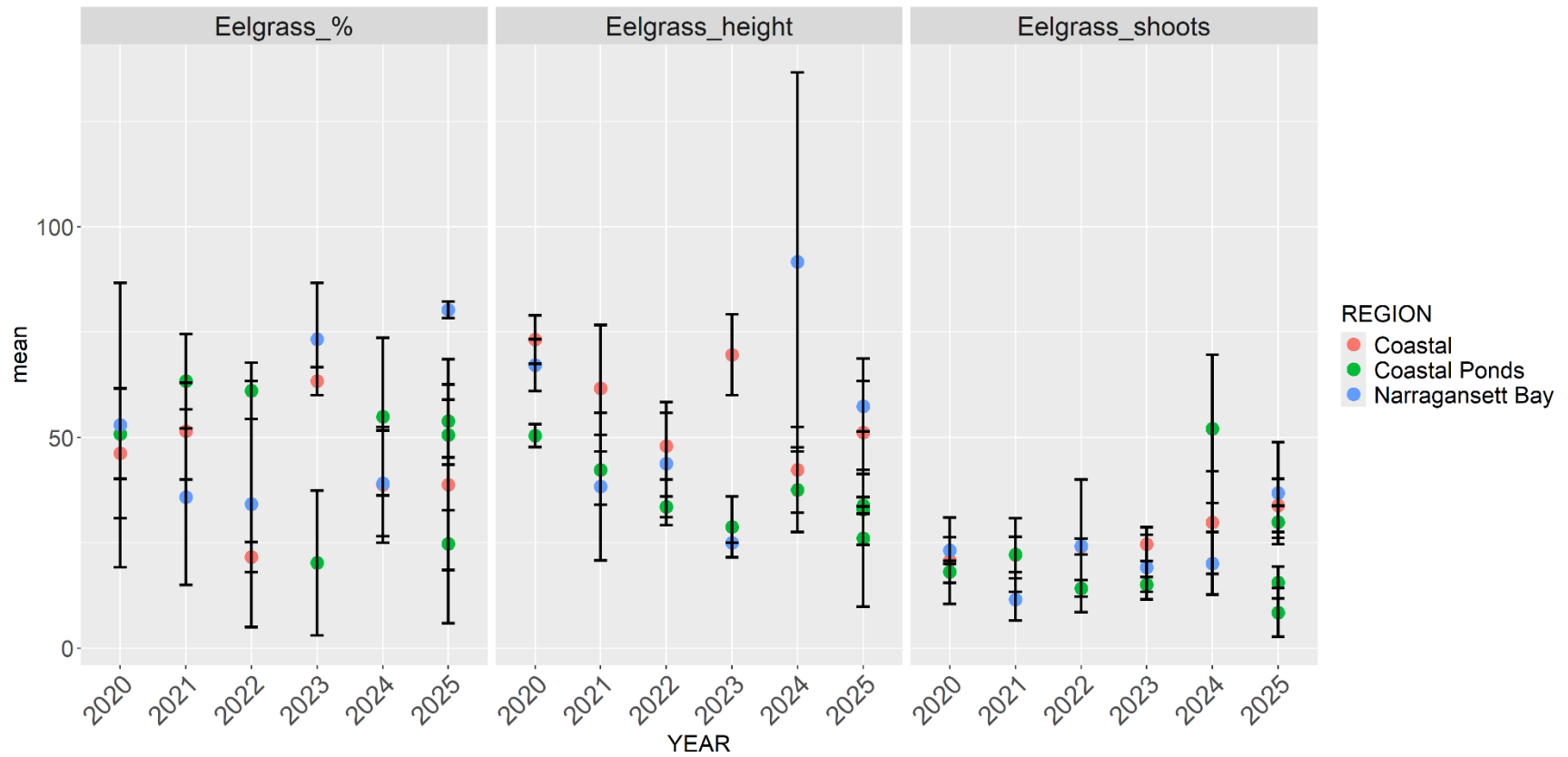


Figure 9b. Histogram of blade length (cm) from 2019 – 2025 for each kelp species (LADI = *Lammaniria digitia*, SL = *Sacharina latissimi*) group by year (2019 = red, 2020 = yellow, 2021 = green, 2022 = blue, 2023 = purple, 2025=

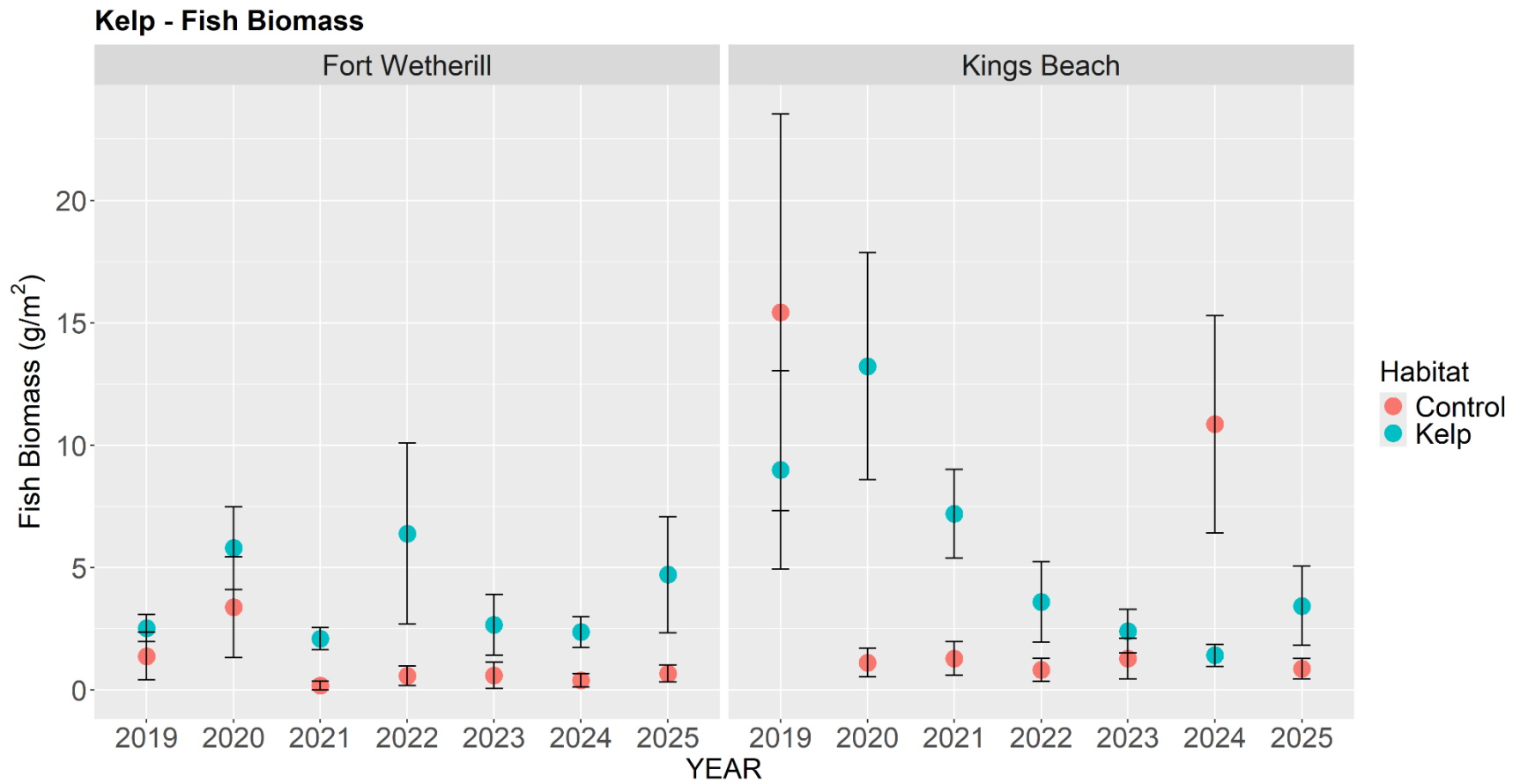


Figure 10a. Mean fish biomass ( $\text{g/m}^2$ ) for 2019 - 2025 kelp productivity fish count surveys. Fish biomass is standardized per meter squared and presented as the average biomass  $\pm$  SE, for each habitat treatment (Kelp = blue, Control = red)

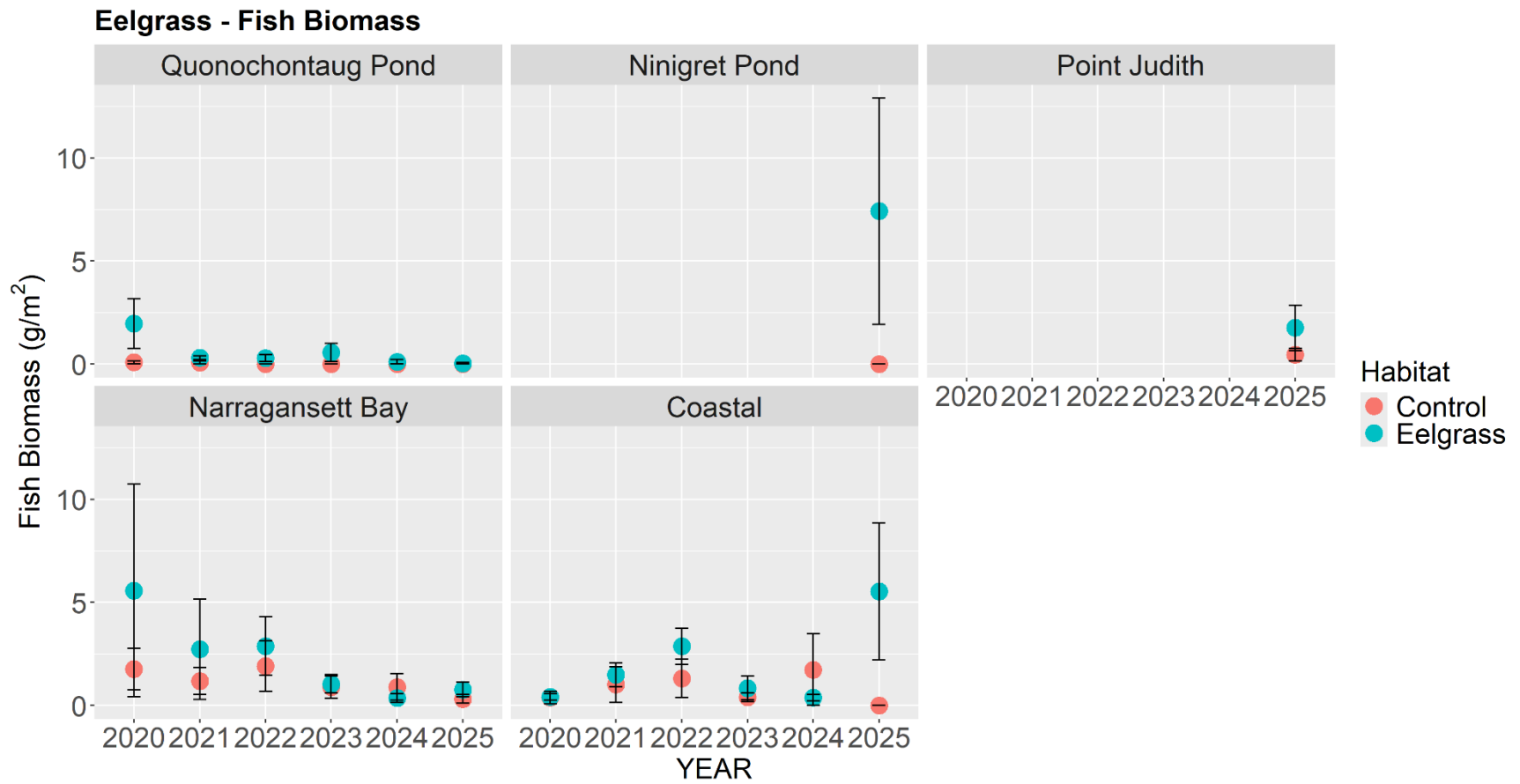


Figure 10b. Mean fish biomass (g/m<sup>2</sup>) for 2020 - 2025 eelgrass productivity fish count surveys. Fish biomass is standardized per meter squared and presented as the average biomass  $\pm$  SE, for each habitat treatment (Eelgrass = blue, Control = red)

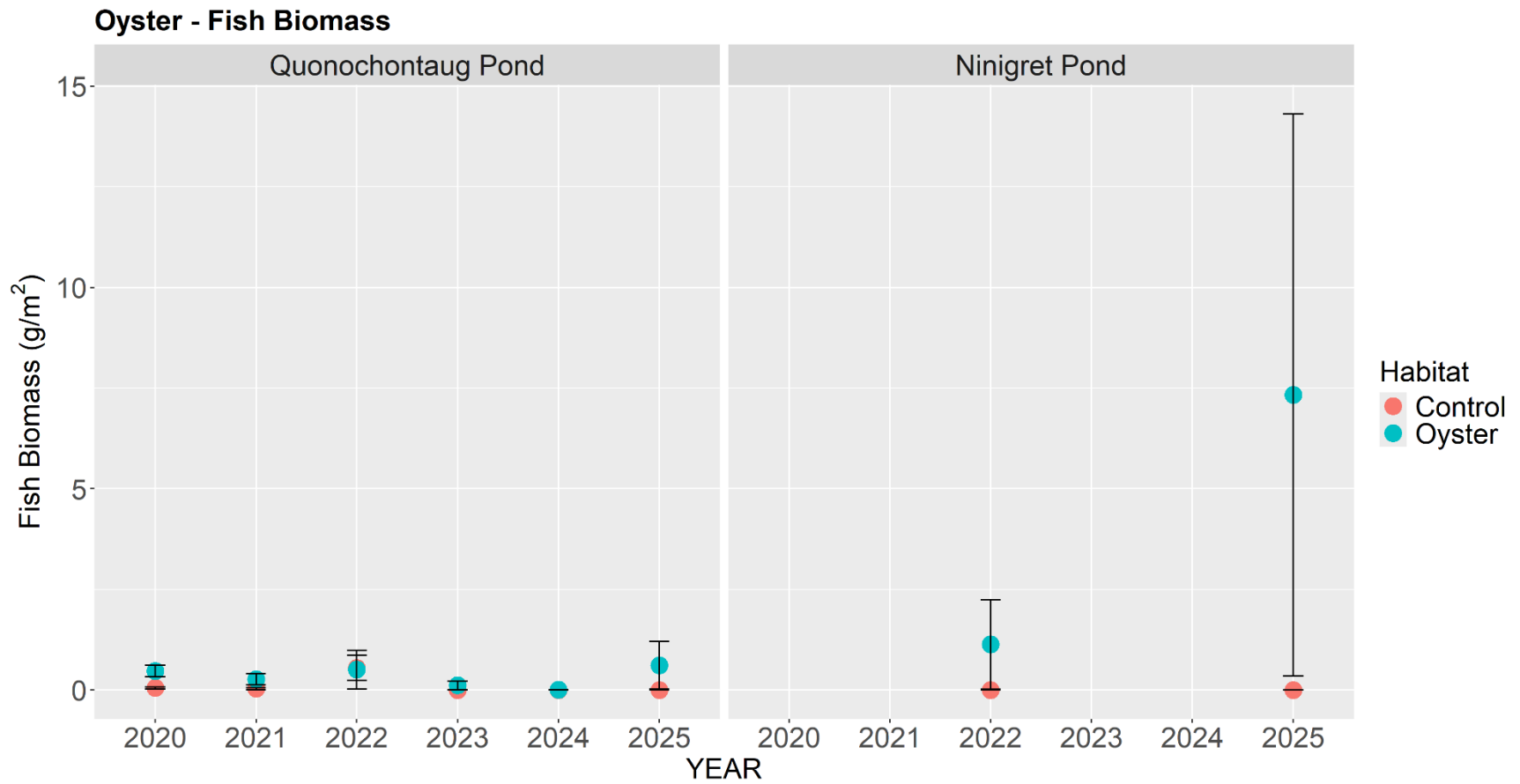


Figure 10c. Mean fish biomass (g/m<sup>2</sup>) for 2020 - 2025 oyster productivity fish count surveys. Fish biomass is standardized per meter squared and presented as the average biomass  $\pm$  SE, for each habitat treatment (Oyster = blue, Control = red)

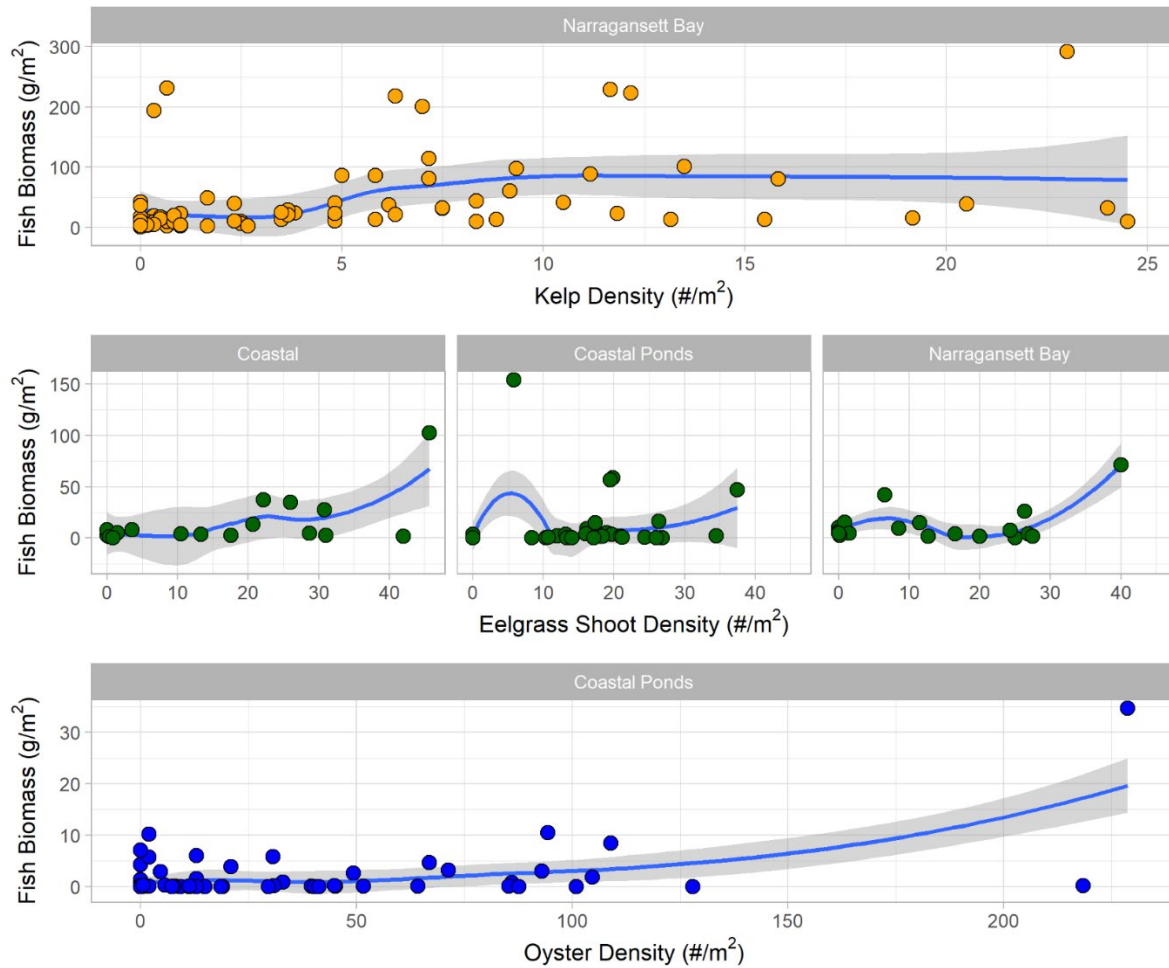


Figure 11. Mean fish biomass ( $\text{g}/\text{m}^2$ ) for 2020 – 2025 as a function of habitat density ( $\text{ind.}/\text{m}^2$ ) from productivity fish count and quadrat surveys. Fish biomass is standardized per meter squared and presented as the average biomass  $\pm$  SE, for each habitat treatment (Kelp = orange, Eelgrass = Green, Oyster = blue)

Table 1. Uniform Point Count survey estimated species richness (R) and diversity (Shannon's H-index) for each site from 2020-2025.

YEAR	REGION	HABITAT	CONTROL	R	H
2019	Narragansett Bay	Kelp	Kelp	15.78 ± 1	2.09 ± 0.11
2019	Narragansett Bay	Kelp	Control	11 ± NA	1.87 ± NA
2020	Coastal	Eelgrass	Eelgrass	6.5 ± 1.5	0.75 ± 0.29
2020	Coastal	Eelgrass	Control	6 ± NA	1.74 ± NA
2020	Coastal Ponds	Eelgrass	Eelgrass	8.25 ± 1.11	1.23 ± 0.09
2020	Coastal Ponds	Eelgrass	Control	2.5 ± 0.5	0.52 ± 0.04
2020	Narragansett Bay	Eelgrass	Eelgrass	8 ± 1	0.93 ± 0.17
2020	Narragansett Bay	Eelgrass	Control	3 ± NA	1.09 ± NA
2020	Narragansett Bay	Kelp	Kelp	17.62 ± 1.18	2.34 ± 0.06
2020	Narragansett Bay	Kelp	Control	13.67 ± 2.19	1.88 ± 0.21
2020	Coastal Ponds	Oyster	Oyster	4 ± 0.55	1.17 ± 0.19
2020	Coastal Ponds	Oyster	Control	3.67 ± 1.33	0.97 ± 0.49
2021	Coastal	Eelgrass	Eelgrass	6.5 ± 0.5	1.22 ± 0.08
2021	Coastal	Eelgrass	Control	7 ± NA	1.73 ± NA
2021	Coastal Ponds	Eelgrass	Eelgrass	8.25 ± 0.95	1.21 ± 0.12
2021	Coastal Ponds	Eelgrass	Control	3 ± 1	0.47 ± 0.2
2021	Narragansett Bay	Eelgrass	Eelgrass	5 ± 1	0.68 ± 0.01
2021	Narragansett Bay	Eelgrass	Control	6 ± NA	0.92 ± NA
2021	Narragansett Bay	Kelp	Kelp	16 ± 0.57	2.13 ± 0.09
2021	Narragansett Bay	Kelp	Control	18.33 ± 3.33	2.21 ± 0.19
2021	Coastal Ponds	Oyster	Oyster	3.78 ± 0.32	1.13 ± 0.1
2021	Coastal Ponds	Oyster	Control	5.67 ± 0.67	1.52 ± 0.13
2022	Coastal	Eelgrass	Eelgrass	11 ± 1	1.31 ± 0.13
2022	Coastal	Eelgrass	Control	7 ± NA	1.43 ± NA
2022	Coastal Ponds	Eelgrass	Eelgrass	7.5 ± 0.5	1.29 ± 0.07
2022	Coastal Ponds	Eelgrass	Control	3.5 ± 1.5	0.97 ± 0.41
2022	Narragansett Bay	Eelgrass	Eelgrass	6 ± 1	0.96 ± 0.18
2022	Narragansett Bay	Eelgrass	Control	8 ± NA	1.46 ± NA
2022	Narragansett Bay	Kelp	Kelp	16.12 ± 1.29	2.2 ± 0.08
2022	Narragansett Bay	Kelp	Control	14.67 ± 1.76	1.87 ± 0.33
2022	Coastal Ponds	Oyster	Oyster	3.88 ± 0.26	1.13 ± 0.06
2022	Coastal Ponds	Oyster	Control	3.14 ± 0.34	0.94 ± 0.13

2023	Coastal	Eelgrass	Eelgrass	6 ± 0	0.74 ± 0.02
2023	Coastal	Eelgrass	Control	7 ± NA	1.74 ± NA
2023	Coastal Ponds	Eelgrass	Eelgrass	6.5 ± 0.87	1.15 ± 0.2
2023	Coastal Ponds	Eelgrass	Control	3 ± 0	0.97 ± 0.07
2023	Narragansett Bay	Eelgrass	Eelgrass	10 ± 1	1.09 ± 0.12
2023	Narragansett Bay	Eelgrass	Control	8 ± NA	1.66 ± NA
2023	Narragansett Bay	Kelp	Kelp	14.43 ± 0.43	2 ± 0.07
2023	Narragansett Bay	Kelp	Control	17 ± 1	2.36 ± 0.01
2023	Coastal Ponds	Oyster	Oyster	3.33 ± 0.41	1.07 ± 0.11
2023	Coastal Ponds	Oyster	Control	2.67 ± 0.88	0.7 ± 0.37
2024	Coastal	Eelgrass	Eelgrass	8 ± 2	1.09 ± 0.44
2024	Coastal	Eelgrass	Control	5 ± NA	1.45 ± NA
2024	Coastal Ponds	Eelgrass	Eelgrass	7.25 ± 2.29	1.21 ± 0.15
2024	Coastal Ponds	Eelgrass	Control	2.5 ± 0.5	0.73 ± 0.06
2024	Narragansett Bay	Eelgrass	Eelgrass	8.5 ± 1.5	1.42 ± 0.05
2024	Narragansett Bay	Eelgrass	Control	6 ± NA	1.44 ± NA
2024	Narragansett Bay	Kelp	Kelp	13.12 ± 0.95	2.01 ± 0.04
2024	Narragansett Bay	Kelp	Control	20.33 ± 3.18	2.32 ± 0.23
2024	Coastal Ponds	Oyster	Oyster	3.67 ± 0.62	1.01 ± 0.2
2024	Coastal Ponds	Oyster	Control	4.33 ± 1.45	1.11 ± 0.32
2025	Coastal	Eelgrass	Eelgrass	6.67 ± 1.86	0.71 ± 0.26
2025	Coastal	Eelgrass	Control	7 ± NA	1.61 ± NA
2025	Coastal Ponds	Eelgrass	Eelgrass	5.67 ± 0.5	0.85 ± 0.09
2025	Coastal Ponds	Eelgrass	Control	4.33 ± 0.33	0.63 ± 0.24
2025	Narragansett Bay	Eelgrass	Eelgrass	4 ± 3	0.26 ± 0.26
2025	Narragansett Bay	Eelgrass	Control	6 ± NA	1.25 ± NA
2025	Narragansett Bay	Kelp	Kelp	16.71 ± 1.38	2.14 ± 0.1
2025	Narragansett Bay	Kelp	Control	14 ± 3	1.95 ± 0.06
2025	Coastal Ponds	Oyster	Oyster	3.83 ± 0.48	1.06 ± 0.09
2025	Coastal Ponds	Oyster	Control	2.33 ± 0.33	0.7 ± 0.23

**PERFORMANCE REPORT**

**State:** Rhode Island

**Project Number:** F-61-R

**Segment Number:** 21

**PROJECT TITLE:** Monitoring and Assessment of Recreationally Important Fish Habitats

**Period Covered:** January 1, 2025 - December 31, 2025

**Job Number:** Job 6: Protecting and Minimizing Adverse Impacts to Marine Fish Habitat

**STAFF:** Eric Schneider (Principal Biologist), Patrick Barrett (Principal Biologist), Anna Gerber-Williams (Principal Biologist), Katie Rodrigue (Principal Biologist), Julia Livermore (Deputy Chief)

**Job Objectives:**

The goal of this project is to protect important marine habitats to support healthy marine ecosystems and stocks of recreationally important sportfish by addressing the following objectives:

6.1 Protecting and Minimizing Adverse Impacts to Marine Fish Habitat - Permit Review. Using an environmental review strategy, review, and when appropriate provide comments on proposed projects and plans. The RI DMF will review at least 60 projects per year.

6.2 Protecting and Minimizing Adverse Impacts to Marine Fish Habitat. Using a technical assistance strategy, provide technical assistance to one organization, the DEM Office of Emergency Response, to identify important recreational fish habitat and pre-impact conditions in the event of a significant environmental incident. The RI DMF will provide technical assistance to at least one organization per year.

6.3 Protecting and Minimizing Adverse Impacts to Marine Fish Habitat - Technical assistance with planning and policy development for sport fish habitat. Using a technical assistance strategy, the DMF will provide technical assistance and actively participate in municipal, inter- and inter-agency, state-wide, and regional planning processes, risk assessments, habitat and/or spatial planning processes and committees engaging in activities with the potential to impact recreational sportfish activities and associated habitat. The RI DMF will provide technical assistance to at least two organizations per year.

**Target Date:** December 31, 2025

**Deviations:** No deviations occurred during 2025.

**Recommendations:** *None*

**Remarks:** *None*

## Summary:

Objective 1: As part of its environmental review program during 2025, verbal and/or written comments were provided on permit reviews through meetings with the Rhode Island (RI) Coastal Resource Management Council (CRMC), RI Department of Environmental Management (DEM), Office of Water Resources (OWR), US Environmental Protection Association (EPA), and US Army Corps of Engineers (ACE). As part of these reviews, RI DMF provided comments and time-of-year work windows for all dredge-related projects, as well any project that may result in potential impacts to marine resources. During 2025, RI DEM, Division of Marine Fisheries (DMF) reviewed 81 permit applications that contained approximately 196 separate activities that posed potential impacts to marine resources (Table 1). The number of applications reviewed in 2025 was similar to 2024 ( $n = 83$ ) and within the range of projects reviewed during the last 10-years (range 51:118,  $\bar{x} = 82$ ,  $SD = 18$ , Table 2). The number of activities that posed potential impacts to marine resources in 2025 ( $n = 196$ ) was greater than 2024 ( $n = 148$ ) and exceeded the 5- and 10-year average ( $\bar{x} = 184$  and  $\bar{x} = 145$ , respectively, Table 2).

During 2025, the DMF provided formal, written responses for two public noticed aquaculture lease applications. These two public noticed aquaculture applications were reviewed during RI Marine Fishery Council (RIMFC) Shellfish Advisory Panel (SAP) meetings to obtain input from industry and to provide scientific opinion to the RIMFC regarding the potential impact to marine resources, including conflicts with recreational fishing and marine habitat. DMF staff attended four Public Determination application meetings along with two direct consultations with applicants and the RI CRMC to mitigate any overlapping use concerns. Additionally, DMF provided mapping assistance to four applicants that submitted applications for site modifications.

Objective 2: In 2025, RI DMF responded to one of one reported fish kill events. The only effected species was Atlantic menhaden. The event was likely due to intermittent hypoxic conditions in the area.

Objective 3: During the 2025 reporting period, DMF staff participated in local, regional, and coastwide workshops and meetings focused on the assessment, management, and restoration of habitats that support recreationally important species of fish. RI DMF staff participated, as Steering Committee members, in the [East Coast SAV Collaborative](#) and [Long Island Sound Eelgrass Collaborative](#). DMF staff also are the co-lead for a process to develop a Guidance Document, supported by the [Atlantic Coastal Fish Habitat Partnership \(ACFHP\)](#), to inform interstate and regional seed-transfer practices for SAV, with a primary focus on *Zostera marina* (eelgrass), as well as *Ruppia maritima* (widgeongrass). DMF staff provided marine fishery expertise for the [Narragansett Bay Estuary Program](#) Steering Committee, the Rhode Island Eelgrass Task Force, salt marsh and living shoreline project teams, and provided technical support to partners aiming to protect or restore marine habitats, including the University of Rhode Island, Roger Williams University, RI DEM Division of Planning and Development, USDA Natural Resource Conservation Service, The Nature Conservancy, Watch Hill Conservancy, Salt Pond Collation, Save the Bay, and Narrow River Preservation Association. In total, RI DEMF provided technical assistance to at least 16 organizations during 2025.

## **Need**

Healthy and resilient coastal and marine ecosystems depend on the careful stewardship of both the living marine resources and the habitats upon which they depend. The importance of fish habitat to the sustainability of healthy fisheries was formally recognized with the advent of the Essential Fish Habitat (EFH) component of the Sustainable Fisheries Act (1996). Site specific baseline information detailing the condition of the habitat (water column environment, submerged aquatic vegetation (SAV), and the benthic structural habitat and epifauna) is required for several important fishery management tasks, including identifying areas of important habitat that should be protected, documenting the spatial distribution and condition of habitat in-case of an environmental disaster, assessing changes over time due to impacts from anthropogenic factors, as well as minimizing impacts from development activities.

Assessing and minimizing potential impacts from activities, including economic development projects (e.g. energy and infrastructure), dredging and dredge spoil disposal projects, as well as other activities (e.g. commercial fishing, aquaculture, habitat restoration, etc.), that occur in Rhode Island (RI) waters is a critical component of protecting and sustaining recreationally important sportfish species and the marine habitat they depend on. The environmental review process allows technical experts to use best available science to evaluate potential project impacts and suggest alternatives to permitting agencies, resulting in more informed permitting decisions aimed at minimizing or avoiding negative impacts. In addition to informing planned and permitted activities, resource managers must develop and implement emergency response plans to minimize impacts from environmental disasters and accidents. The development of emergency response plans requires high quality, spatiotemporal data detailing the composition, distribution, and status of marine resources, including recreationally important sportfish and their habitats. The planning process also involves training events and mock response drills. This ensures that in the event of an environmental disaster, RI Department of Environmental Management (DEM) Division of Marine Fisheries (DMF) staff is prepared to respond and provide technical expertise, including response coordination and field sampling, as well as contribute to damage assessments. Appropriate planning and response activities will determine the reduction in environmental damage that can be achieved, as well as help inform the type and amount of work needed to restore impacted resources.

In addition to permit review and emergency response planning, the coordination and planning of habitat research, monitoring, assessment, restoration, and enhancement occurs at local, state, regional, and coast-wide scales. These activities can directly inform policies and management of recreationally important sportfish and their habitat. Thus, it is imperative that DMF staff participate in municipal, state-wide, and regional habitat and/or spatial planning processes, risk and habitat assessments, monitoring and restoration planning, policy development, and committee activities that influence or directly affect recreational sportfish habitat.

## **Expected Results and Benefits**

By participating in all stages of the environmental review process, expertise provided by RI DEM DMF staff will improve the cooperative development of permits and allow potential issues to be discussed and resolved prior to the issuance of permits. Proper review of projects results in permitting decisions that minimize or mitigate potential impacts to marine resources, benefitting fishery resources and marine habitats, as well as users of these resources.

Providing critical information to the RI DEM Office of Emergency Response will contribute to the development and maintenance of Emergency Response Plans to better protect important fishery habitats from major environmental incidents. By providing data and technical information during major and minor environmental incidents, as well as helping to coordinate hazard mitigation, assessment of natural resource damages, and resulting habitat restoration, potential impacts will be minimized, and adequate compensation and restoration projects can be scoped and successfully implemented. Collectively, these activities will help protect marine habitat and aid in the recovery of recreationally important sportfish species.

Contributing data and staff expertise to municipal, state-wide, and regional planning processes, risk assessments, and habitat and/or spatial planning processes and committees will ensure current marine habitat data from RI is considered within these processes and impacts to marine habitat and recreational important sportfishing opportunities are adequately considered and addressed.

### **Purpose**

The purpose of this project is to protect marine and coastal habitats to support healthy marine ecosystems and stocks of recreationally important sportfish. This requires participating in environmental reviews to minimize impacts from permitted activities, participating in municipal, intra-agency, inter-agency, and regional planning processes, risk assessments, habitat restoration and enhancement project design, and policy development, as well as preparing for and responding to environmental incidents (e.g., oil spills, fish kills) and assessing associated damages, as needed.

### **Objective 6.1**

#### *Approach*

The DMF will provide a comprehensive review of any project or activity, including economic development projects (e.g. energy and infrastructure), dredging and dredge spoil disposal projects, as well as other activities (e.g. recreational and commercial fishing, aquaculture, habitat restoration, etc.) that occur in Rhode Island waters and could pose potential direct or indirect impacts to coastal and marine resources and their habitat. Reviews should include all available data and provide important information to permitting agencies to allow for more informed permitting decisions.

Depending on the size, scope, and location of the proposed project or activity the review process may involve determining the living and non-living resources present at or near the project site and evaluating the potential direct and indirect adverse effects of the proposed project or activity on fishery resources and marine habitat. More specifically, this process often requires a site visit and a review of fishery resource data and marine

habitat data, including EFH, that were collected at or near the project site or in similar habitat conditions. These data may include data collected by finfish surveys funded by the USFWS Sport Fish Restoration Program (e.g. Narragansett Bay Monthly and Seasonal Fishery Resource Assessment, Winter Flounder Spawning Stock Biomass Survey, Young of the Year Survey of selected RI coastal ponds and embayments, and the Juvenile Marine Finfish Survey) and surveys related to finfish, shellfish, and ichthyoplankton conducted by DMF pursuant to other funding sources or other originations and institutions (e.g. MA DMF, NEMAP, NEFSC, URI GSO, etc.). Habitat data, including EFH data, may require leveraging data collected previously by DMF or other organizations and institutions.

In cases where site-specific habitat and marine resource data is limited, dated, or absent new data may need to be collected, analyzed, and summarized. Prior to data collection a sampling plan will be designed to address specific permitting-related data deficiencies and outline anticipated field and data analyses methods. When possible, any information that would improve anticipated future reviews should be collected. Similarly, when possible this work should take advantage of collaborative efforts by other agencies. It's anticipated that collection of marine habitat and resource (finfish) data may require use of a vehicle, boat, research vessel, field equipment including but not limited to habitat surveying tools, such as submersible high-resolution digital cameras (video and still-shot), bottom samplers (benthic dredge/sled), water quality data sondes, meters, acoustic receivers, and associated equipment, and marine resource survey tools, including nets (bongo, seine), measuring boards, and foul weather gear. Data will be assimilated and analyzed using statistical software, databases, imaging processing software, and GIS mapping and processing technologies. Other sources of habitat data may need to be purchased, such as aerial photography, lidar, side-scan sonar, or GIS data depicting habitat (e.g. eelgrass, submerged aquatic vegetation, sediment, or structures).

In most cases the aforementioned data sources must be compiled, reviewed, and analyzed before a permit can be issued. Given the regulatory timelines set up for permit reviews, being able to accomplish these tasks timely and accurately often requires a collaborative approach that utilizes present and cutting-edge technologies, and sometimes outside expertise.

### *Objective 1 – Results and Discussion*

As part of its environmental review program during 2025, verbal and/or written comments were provided on permit reviews through meetings with the Rhode Island (RI) Coastal Resource Management Council (CRMC), RI Department of Environmental Management (DEM), Office of Water Resources (OWR), US Environmental Protection Association (EPA), and US Army Corps of Engineers (ACE). As part of these reviews, RI DMF provided comments and time-of-year work windows for all dredge-related projects, as well any project that may result in potential impacts to marine resources. During 2025, RI DEM, Division of Marine Fisheries (DMF) reviewed 81 permit applications that contained approximately 196 separate activities that posed potential impacts to marine resources (Table 1). The number of applications reviewed in 2025

was similar to 2024 ( $n = 83$ ) and within the range of projects reviewed during the last 10-years (range 51:118,  $\bar{x} = 82$ ,  $SD = 18$ , Table 2). The number of activities that posed potential impacts to marine resources in 2025 ( $n = 196$ ) was greater than 2024 ( $n = 148$ ) and exceeded the 5- and 10-year average ( $\bar{x} = 184$  and  $\bar{x} = 145$ , respectively, Table 2).

The permit review process found that waterfront bulkhead and riprap work (25 projects), new residential docks (22 projects), and impacts to salt marsh and coastal wetlands (21 projects) were the most frequent activity categories (Table 2). Despite best management practices aimed at reducing harden shorelines and impacts to coastal wetlands, the number of projects that included waterfront bulkhead and riprap work were 2.6 times greater than the 10-year average, and projects with potential impacts to salt marsh and coastal wetlands were 1.6 times greater than the 10-year average (Table 2). Applications for new residential docks were similar to the 10-year average; however, maintenance dredging work was double the 10-year average (Table 2). As part of the suite applications reviewed, DMF continued to participate in multi-year reviews for the Manchester Street Power Station 316(b) permitting process, as well as construction and cable laying for the Revolution Wind project, and finalization of the Dredge Maintenance and Management Plan for the Providence River Federal Channel Maintenance project.

During 2025, the DMF provided formal, written responses for two public noticed aquaculture lease applications. Two public noticed aquaculture applications were reviewed during RI Marine Fishery Council (RIMFC) Shellfish Advisory Panel (SAP) meetings to obtain input from industry and to provide scientific opinion to the RIMFC regarding the potential impact to marine resources, including conflicts with recreational fishing and marine habitat. DMF staff attended four Public Determination application meetings along with two direct consultations with applicants and the RI CRMC to mitigate any overlapping use concerns. Additionally, DMF provided mapping assistance to four applicants that submitted applications for site modifications.

## **Objective 6.2**

### *Approach*

The DMF will provide available scientific information to the RI DEM Office of Emergency Response, identifying important recreational fish habitat and pre-impact conditions in the event of a significant environmental incident classified as a Category 3 major environmental disaster incident (e.g., > 10,000 gal oil spill or wide coastal environmental impact likely). In addition, the DMF will provide a staff member with recreational fishery habitat expertise for coordination of DMF responses related to assisting the Office of Emergency Response Incident Command in assessing the environmental impacts of a major oil spill or incident on recreational habitat and biota in Rhode Island marine waters. The staff member will work with appropriate RI DEM and federal representatives in Incident Command during the response to provide needed DMF coordination and technical information during such an incident, including immediate responses related to impact assessment, monitoring of environmental conditions in the vicinity of a spill, immediate biota mortality estimates, as well as involvement in the Natural Resource Damage component of a major incident response following the “Bay Response Team” (BART) protocols. We will assess staff training needs and seek training and/or a

refreshers that include response protocols and techniques, as needed.

### *Results and Discussion*

In 2025, RI DMF responded to one of one reported fish kill events. This event is summarized in Table 3. The only effected species was Atlantic menhaden (*Brevoortia tyrannus*). The event was likely due to intermittent hypoxic conditions in the area. In the days leading up to the fish kill event, the RI DEM Office of Water Resources reported intermittent low levels of dissolved oxygen from the Seekonk River south to Conimicut Point (within the range of the fish kill event). No other fish kill events were reported in 2025.

In the event of an incident that causes significant environmental impact, it is imperative for RI DMF to be able to respond quickly and efficiently to assess the effects on fish habitat in Rhode Island waters. Coordination with other state agencies (including RI DEM Office of Emergency Response, OWR, and Office of Law Enforcement) has proven fundamental to this fast response time and impact assessment. The continuation of this coordinated effort is necessary to ensure that a fast and efficient response is maintained. Also, continued emergency response training will allow further improved response to these incidents. In the past, RI DMF staff have participated in training exercises including oil spill response procedures such as boom deployment and other geographic response protocols, Natural Resource Damage Assessment training, and FEMA's Incident Command System. RI DMF staff will continue to take advantage of training opportunities as they become available in the future to further hone our skills in emergency response.

### **Objective 6.3**

#### *Approach*

The DMF will actively participate in municipal, inter- and inter-agency, state-wide, and regional planning processes, risk assessments, and habitat and/or spatial planning processes and committees, including but not limited to Environmental Assessment Indexes, Special Area Management Plans, Harbor Management Plans, Restoration and Enhancement Plans, Monitoring and Assessment Plans, Environmental Risk Assessments, and other plans and associated committees (i.e., steering committees, standing committees, advisory panels, plan development teams, technical committees, working groups, advisory groups, ad hoc groups and committees, etc.) that include spatial management aspects with potential impacts to recreational sportfish activities and associated habitat. Technical assistance will be provided, but not limited to, the following organizations: RI Coastal Resource Management Council, Atlantic States Marine Fisheries Commission, Atlantic Coast Fish Habitat Partnership, Narragansett Bay Estuarine Research Reserve, Narragansett Bay Estuary Program, University of Rhode Island, Town of Charlestown, RI DEM Division of Planning and Development, USDA Natural Resource Conservation Service, EPA, FWS, NOAA Fisheries, BOEM, and The Nature Conservancy.

As needed, DMF will provide marine habitat, recreational sportfish related data, survey

data collected by DMF, and other pertinent marine data to these review and processes. DMF staff will ensure that data is adequately considered and used appropriately. As deemed necessary and appropriate, DMF may provide analyses and technical assistance at various stages of these processes, as well as technical and logistical support for the activities that result in the collection of additional data that can increase the amount of information available to assess impacts (positive and negative) to planning, policy, or management actions related to recreational important sportfish. Support for data collection activities include, but is not limited to on-water assistance with maintaining water quality meters, acoustic receivers, fish and habitat surveys, desktop analyses and modeling, and other measures used for fish and habitat qualification within these processes.

### *Results and Discussion*

During the 2025 reporting period, DMF staff participated in local, regional, and coastwide workshops and meetings focused on the assessment, management, and restoration of habitats that support recreationally important species of fish. RI DMF staff participated, as Steering Committee members, in the [East Coast SAV Collaborative](#) and [Long Island Sound Eelgrass Collaborative](#). Both Collaboratives recognize the need for regionally focused efforts to advance SAV science, monitoring, management, and advocacy. The goal for [East Coast SAV Collaborative](#) is to “bring together experts in SAV research and management from each of the U.S. East Coast states from NC to ME to share ideas and information, provide training and resources, and collaborate on efforts that bring actionable science to the forefront of our SAV management strategies”. The [Long Island Sound Eelgrass Collaborative](#) (LISEC) began as a bi-state initiative (NY and CT) to implement elements of the Long Island Sound 2022 Eelgrass Management and Restoration Strategy. As with the East Coast SAV Collaborative, eelgrass restoration in Long Island Sound would benefit from regional partnerships and collaborations, thus scientists and managers from Rhode Island, Massachusetts, and other states in the region were invited to join and contribute to the collaborative.

DMF staff also are the co-lead for a process to develop a Guidance Document, supported by the [Atlantic Coastal Fish Habitat Partnership \(ACFHP\)](#), to inform interstate and regional seed-transfer practices for SAV, with a primary focus on *Zostera marina* (eelgrass), as well as *Ruppia maritima* (widgeongrass). This Guidance Document will compile and interpret the latest science and best management practices (BMPs) to support seed-based research, restoration, and management, while serving as a resource for agencies and organizations considering policies or regulations. This document will address an important need along the Atlantic Coast and contribute significantly to the information available to support SAV practitioners’ restoration decisions. The guidance document is being developed through a multistep process combining desktop research and literature review, a discovery and brainstorming session at the Zosteraplaoza 35th Annual Conference (March 2026) to identify draft BMPs, and an invitational workshop to refine BMPs (fall 2026). After the fall 2026 workshop, the guidance document will be developed, and a corresponding manuscript will be drafted for publication in the primary literature.

DMF staff provided marine fishery expertise for the [Narragansett Bay Estuary Program](#) Steering Committee, the Rhode Island Eelgrass Task Force, salt marsh and living shoreline project teams,

and provided technical support to partners aiming to protect or restore marine habitats, including the University of Rhode Island, Roger Williams University, RI DEM Division of Planning and Development, USDA Natural Resource Conservation Service, The Nature Conservancy, Watch Hill Conservancy, Salt Pond Collation, Save the Bay, and Narrow River Preservation Association.

**Table 1.** Activities and potential impacts identified by RI DMF during the permit review process performed for 81 separate projects in 2025. Aquaculture-related reviews are excluded from this table.

Activities & Potential Impacts	Coastal Ponds	Narragansett Bay			Sakonnet River	Rivers	Coastal	Total
		Lower Bay	Upper Bay	Providence and Seekonk Rivers				
Potential Impacts to SAV or Benthic Habitat	6	1	3	2	2	1	15	
Saltmarsh Restoration	1			1	1		3	
Eelgrass Restoration							0	
Artificial Reef							0	
Maintenance Dredging	3	1	8	2	2	2	18	
New Dredging		3					3	
New Marina							0	
Marina Expansion or Reconfiguration					1	2	3	
Restoration of Tidal Flow or Dam Removal							0	
Residential Docks (New)	8	2	4	4	4		22	
Residential Docks (Modifications)	2		2	3		1	8	
Commercial/Municipal Piers or Docks	2	4	3	1	2	1	13	
Commercial/Municipal Mooring Field Expansion		1	1	1	1		4	
Potentail Salt Marsh or Coastal Wetland Impacts	5	2	5	6	3		21	
Beach Nourishment or Coastal Feature Resiliency			1	2			3	
Waterfront Bulkhead/Riprap	4	5	4	5	2	5	25	
Waterfront Development	1	4	2	1	2	1	11	
Public Works, Utility, Energy	1	2	2	4	2	1	12	
Fish Passage							0	
Potential Shellfish Impacts		1	7	2	2		12	
Channel Maintenance	1	3	7	1			12	
Boat Ramps					1		1	
Oyster Restoration							0	
Recreational Access or Fishing (Improve/Impacts)	1			1	1		3	
Impacts from Discharge or Stormwater		3		2	2		7	
<b>Total Count of Potential Impacts</b>	<b>35</b>	<b>32</b>	<b>49</b>	<b>38</b>	<b>28</b>	<b>0</b>	<b>14</b>	<b>196</b>
<b>No. of Projects</b>	<b>18</b>	<b>9</b>	<b>20</b>	<b>17</b>	<b>9</b>	<b>0</b>	<b>8</b>	<b>81</b>

**Table 2.** Activities and potential impacts identified during the permit review process by year from the current reporting period (i.e., 2025) and the average (Avg) and standard deviation (SD) for the last five- and ten-years. Aquaculture-related reviews are excluded from this table.

Activities & Potential Impacts	2025	Prior 5-Years (2020 - 2024)		Prior 10-Years (2015 - 2024)	
		Avg	SD	Avg	SD
Potential Impacts to SAV or Benthic Habitat	15	27.6	5.8	16.8	12.6
Saltmarsh Restoration	3	3.8	0.8	4.0	1.1
Eelgrass Restoration	0	0.8	0.8	0.9	1.3
Artificial Reef	0	0.0	0.0	0.2	0.4
Maintenance Dredging	18	8.4	2.3	9.1	3.3
New Dredging	3	5.2	2.0	3.3	2.5
New Marina	0	0.0	0.0	0.4	0.8
Marina Expansion or Reconfiguration	3	3.2	2.9	2.9	2.2
Restoration of Tidal Flow to Coastal Pond	0	2.0	1.2	1.7	1.7
Residential Docks (New)	22	29.4	8.5	23.7	11.0
Residential Docks (Modifications)	8	20.8	12.0	20.4	14.3
Commercial/Municipal Piers or Docks	13	8.4	3.2	6.8	4.2
Commercial/Municipal Mooring Field Expansion	4	0.8	0.4	1.1	1.5
Salt Marsh or Coastal Wetland Impacts	21	18.6	5.1	13.1	8.4
Beach Nourishment or Coastal Feature Restoration	3	2.0	2.3	2.4	2.3
Waterfront Bulkhead or Riprap	25	13.0	5.2	9.6	5.9
Waterfront Development	11	3.6	1.5	2.3	2.1
Public Works or Utility	12	9.2	4.8	6.1	5.0
Fish Passage	0	4.8	4.5	2.4	3.9
Potential Shellfish Impacts	12	3.6	2.4	3.0	2.3
Channel Maintenance	12	4.8	1.9	3.4	2.5
Boat Ramps	1	3.0	4.0	2.1	2.9
Oyster Restoration	0	1.0	2.2	1.5	2.1
Recreational Use (Improve/Impacts)	3	4.8	2.6	3.4	3.1
Impacts from Discharge	7	4.8	2.2	3.5	2.6
Coastal Restoration Other	0	0	0	0.5	1.6
<b>Total - Activities &amp; Potential Impacts</b>	<b>196</b>	<b>183.6</b>	<b>39.0</b>	<b>144.6</b>	<b>59.1</b>
<b>Total - Projects Reviewed</b>	<b>81</b>	<b>92.0</b>	<b>15.0</b>	<b>82.3</b>	<b>17.8</b>

**Table 3.** Summary of fish kill events in 2025.

Date Reported	Water Body	Specific Location	Persons/Agencies Notified	Response	Date of Response	Species Affected	Approximate number affected/dead	Water Quality	Samples Taken	Photos	Cause	Comments
8/12/2025	Woonasquatucket/Providence River	Hurricane barrier, Waterplace Park	DMF, DFW	DMF responded to the scene	8/13/2025	Atlantic menhaden <i>Brevoortia tyrannus</i>	Minor	Y	N	N	Natural, intermittent hypoxia	Many dead fish reported at Waterplace Park. During investigation next day, only one dead fish observed. OWR reported low DO in days prior to event.

The Rhode Island Chapter of The Nature Conservancy  
Annual Progress Report

Submitted to

The Rhode Island Department of Environmental Management  
Division of Fish and Wildlife

Title: Providence River Estuary Seine Survey

Cooperative Agreement Award Number: DEMMF-0012

Award Term: May 01, 2025 to December 31, 2029

Reporting Period: May 1, 2025 to December 31, 2025

Prepared By

Malik Neron (Coastal Restoration Science Technician),  
Heather Kinney (Coastal Restoration Program Manager)

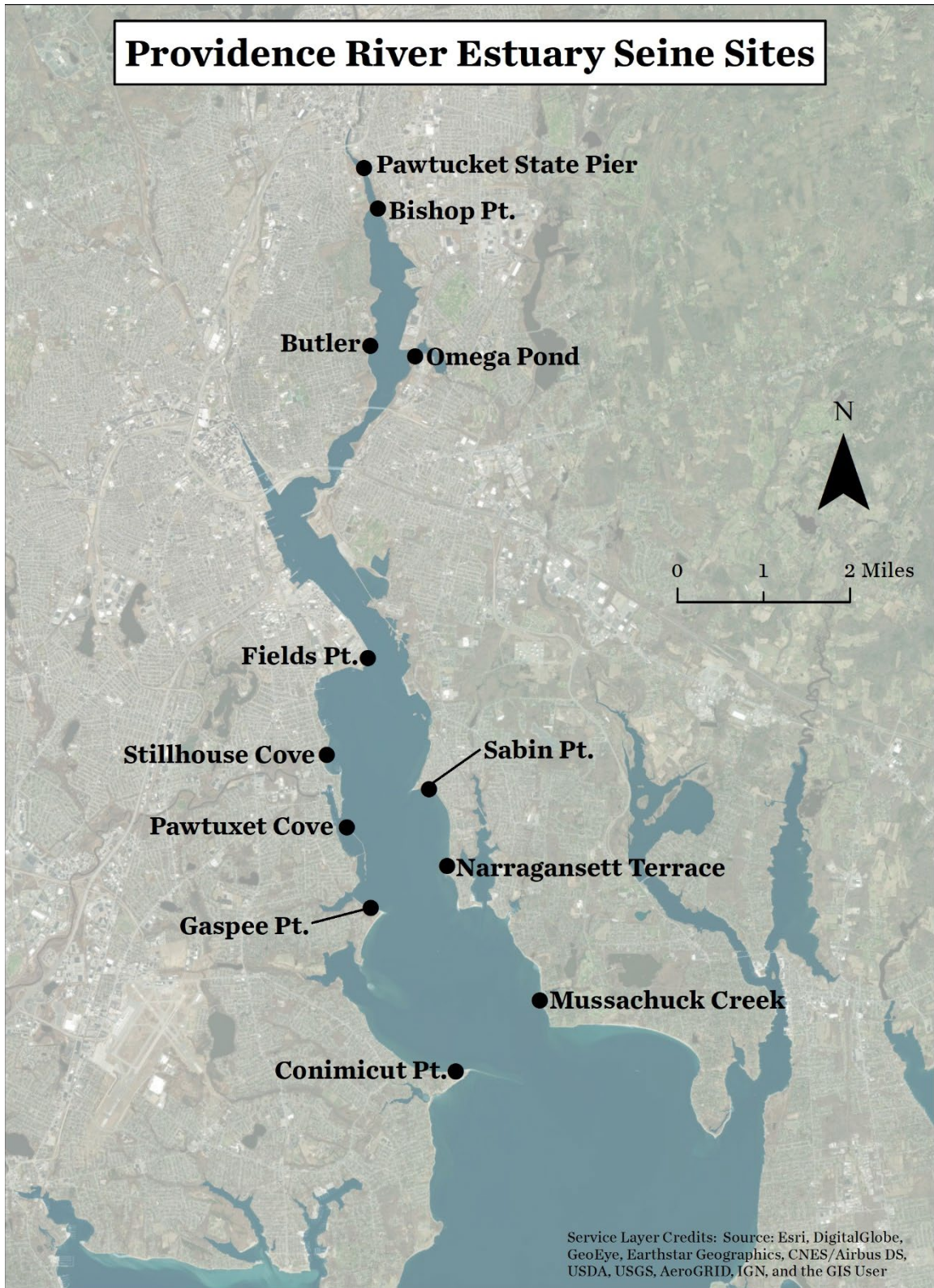
Approved By

Scott Comings, Associate State Director

The Nature Conservancy Rhode Island Chapter  
159 Waterman Street  
Providence, RI 02906



Map of the study area and sampling locations.



## **SUMMARY**

During the 2025 season, a total of 72 seines were hauled across 12 sites from May through October, resulting in the enumeration of 20,265 individuals. Of the animals caught, 4,320 were measured, and 50 species were identified (see Table 1). All scoped work was completed. All raw data have been shared with the appropriate Division of Marine Fisheries staff for incorporation into existing datasets.

## **TARGET DATE:**

December 31, 2025

## **NEXT STEPS**

Investigators intend to continue sampling with the same methodology during the field season of 2026. Additionally, the project team will continue coordinating with the primary investigators of the Coastal Ponds and Great Salt Pond juvenile fish surveys to evaluate variations in fish assemblages across regions.

## **INTRODUCTION**

Estuaries are also known as “nurseries of the sea” because they provide critical habitat for many marine species in the early parts of their life cycle. Unfortunately, estuaries are also some of the most threatened natural systems across the globe, primarily due to human development and industrialization (Halpern et al. 2008; Lotze et al. 2006). Rhode Island’s Narragansett Bay, the defining water feature of the state, is no exception, and negative human impacts on the bay have been well-documented (NBEP 2017). Among the most heavily degraded waters of Narragansett Bay are the Providence and Seekonk rivers, found in the northern range of Narragansett Bay and collectively known as the Providence River Estuary (PRE). The PRE is located along the City of Providence and is fed by the Blackstone, Mosshasuck, and Woonasquatucket rivers.

For decades, nutrient over-enrichment has been found to have many negative effects on this area, including increases in hypoxic events and fish kills (Carey et al. 2005; Deacutis 2008). In recent years, improvements in wastewater treatment facilities have led to an estimated reduction in nutrient concentration of around 60% within the PRE (Oviatt et al. 2017). This notable and rapid improvement has been dubbed by Nixon et al. in 2008 as a “Grand Ecological Experiment” as not much was known about the impacts of this abrupt change. As a result of these reduced nutrient inputs and perceived improvements in water quality to support fish populations, interest from managers grew in evaluating the utilization of this historically important estuary by juvenile fishes. Additionally, a subsequent literature review revealed that very little empirical data existed on the fish assemblages within the estuary. In fact, the most recent fisheries resource study conducted by the Rhode Island Department of Environmental Management, Division of Marine Fisheries (DMF) within the Providence and Seekonk Rivers was in 1996 (Satchwill et al. 1997). This missing information is critically important because it has also been estimated that more than 70% of Rhode Island’s recreationally and commercially important finfish spend at

least part of their lives in estuarine and coastal waters, usually when young (Meng and Powell 1999).

In 2014, the DMF and The Nature Conservancy (TNC) entered into a cooperative agreement to begin evaluating the PRE and its role in supporting fish populations. Through a holistic approach the estuary's water quality, benthic and coastal habitat, and fish assemblages were evaluated. Not only did this monitoring reveal that the PRE supported recreationally and commercially important juvenile finfish, but it also recognized that the study area could support habitat improvements aimed at increasing fish recruitment.

Among the study's approaches, a juvenile fish seine survey was established in 2016. The results of this initial evaluation have shown the seine survey to be a valuable tool for DMF in managing fish populations. Continuation of this survey contributes to DMF's ability to evaluate juvenile fish populations across Rhode Island and aligns with other active, established seine surveys across the state within the coastal ponds along the southern shores of the state and Great Salt Pond on Block Island. As the habitat and water quality of the PRE continue to change, this seine survey will also serve to document how these changes affect the fish assemblage within the study area.

## **METHODS**

Twelve sites were sampled at monthly intervals from May through October. At each site a 130' long, 6' deep, 1/4" mesh net beach seine was used. This net was also outfitted with a bag at its midpoint for fish collection, a weighted footrope, and a floated headrope, all consistent with the net used in the Young of the Year Survey of Selected RI Coastal Ponds and Embayments (conducted as part of F-61-R-23). For sampling, the net was deployed along the shoreline in a semicircle by boat. The net was then hauled onto shore from both ends toward the beach by hand. Animals caught were then emptied from the bag and transferred into a water-filled tote. All collected animals were then identified to genus or species and measured to the nearest centimeter (except winter flounder which were measured to the nearest millimeter). Additionally, the sex, shell condition, and molt stage of any blue crabs was recorded. When appropriate, species were subsampled by measuring the first 30 individuals identified then enumerating the remainder. Upon completion, all animals were discarded back into the water at the collection site. While at the sampling site, temperature (°C), salinity (ppt), and dissolved oxygen (mg/L) were recorded with a Professional Plus series handheld YSI multiparameter meter, which was calibrated monthly throughout the sampling season per manufacturer recommendations.

## **RESULTS**

For the 2025 field sampling season, a total of 72 seines were hauled across the 12 sampling sites. A total of 20,265 individuals were identified and enumerated, and 4,320 of those were measured. A total of 50 species were caught (Table 1). Of the species caught, only finfish were included in the results below (all crustaceans were excluded).

Excluding Atlantic Menhaden from the analysis, a mean of  $279.24 \pm 88.85$  finfish were caught per haul. Catch per haul across sites was greatest at Pawtuxet Cove at  $545.83 \pm 210.92$  and

lowest at Mussachuck Creek at  $59.67 \pm 22.27$  SE (Figure 1). Catch per haul across months was greatest in September at  $574.67 \pm 156.21$  and lowest in June at  $88.08 \pm 33.75$  SE (Figure 2).

### *TARGET SPECIES*

#### Winter Flounder (*Pseudopleuronectes americanus*)

Of the total 122 winter flounder caught in 2025 seines, all were young of the year (max length = 94mm; Able and Fahay 1998; Berry et al. 1965). Winter flounder were caught in all months and at all sites. The most abundant site for winter flounder was Fields Point at a catch per haul of  $3.50 \pm 2.03$  SE. The most abundant month for winter flounder was July at a catch per haul of  $3.92 \pm 1.28$  SE (Table 4a).

#### Summer Flounder (*Paralichthys dentatus*)

A total of 83 summer flounder were caught in 2025 beach seines, ranging in size from 2cm to 14cm. Summer flounder were caught at all sites except: Sabin Point, Gaspee Point, and Mussachuck Creek. Summer flounder were most abundant at Butler, at a catch per haul of  $6.50 \pm 4.54$  SE. Most individuals were caught in July at a catch per haul of  $4.17 \pm 2.21$  SE (Table 4b).

#### Tautog (*Tautoga onitis*)

A total of 12 tautog were caught in 2025 beach seines, ranging in size from 3cm to 21cm. Tautog were caught at 4 of the 12 sites: Fields Point, Gaspee Point, Mussachuck Creek, and Conimicut Point. Of the 4 sites they were caught, tautog were most abundant at Mussachuck Creek, with a catch per haul of  $1.00 \pm 0.63$  SE. Most individuals were caught in July at a catch per haul of  $0.33 \pm 0.26$  SE (Table 4e).

#### Black Sea Bass (*Centropristis striata*)

A total of 1 black sea bass was caught in 2025 beach seines, 6cm in size. The fish was caught at Field Point at a catch per haul of  $0.17 \pm 0.17$  SE. The individual was caught in September at a catch per haul of  $0.08 \pm 0.08$  SE (Table 4c).

#### Scup (*Stenotomus chrysops*)

A total of 7 scup were caught in 2025 beach seines, ranging in size from 5cm to 7cm. Scup were caught in September at 3 out of 12 sites: Sabin Point, Mussachuck Creek and Conimicut Point. They were most abundant at Conimicut Point, at a catch per haul of  $0.67 \pm 0.67$  SE. All individuals were caught in September at a catch per haul of  $0.58 \pm 0.36$  SE (Table 4d).

### *OTHER SPECIES OF INTEREST*

#### Atlantic Menhaden (*Brevoortia tyrannus*)

In the 2025 sampling season, 3,311 Atlantic menhaden were caught, ranging in size from 2cm to 15cm. The total survey mean abundance index is  $275.91 \pm 12.29$  SE. Atlantic menhaden were found June through October and at 7 sites (Pawtucket State Pier, Narragansett Terrace, Bishop Point, Gaspee Point, Omega Pond, Fields Point, and Sabin Point)

River Herring (*Alosa pseudoharengus* & *Alosa aestivalis*)

A total of 82 river herring were caught in 2025. Both Alewife (*Alosa pseudoharengus*) and blueback herring (*Alosa aestivalis*) are classified as river herring in this survey. River herring ranged in size from 3cm to 12cm and were found July through September. They were found at 5 sampling sites (Butler, Fields Point, Stillhouse Cove, Pawtuxet Cove, and Narragansett Terrace) with a total survey mean abundance of  $11.43 \pm 0.92$

Bluefish (*Pomatomus saltatrix*)

A total of 127 bluefish were caught in 2025. The total mean abundance per haul is  $21.66 \pm 12.86$  SE ranging in size from 6cm to 17cm. Bluefish were found in July through September at 5 sites (Butler, Fields Point, Sabin Point, Narragansett Terrace, and Pawtucket State Pier).

Gizzard Shad (*Dorosoma cepedianum*)

A total of 437 gizzard shad were caught in 2025. The total mean abundance is  $62.43 \pm 18.09$  SE ranging in size from 5cm to 12cm. Gizzard Shad were found in July through October at 4 sites (Pawtucket State Pier, Stillhouse Cove, Omega Pond, and Bishop Point).

Silverside (*Menidia spp.*)

A total of 11,597 silversides were caught in 2025. For the purposes of this survey, both Atlantic silversides (*Menidia menidia*) and inland silversides (*Menidia beryllina*) are categorized as silversides (*Menidia spp.*), although no inland silversides were caught this year. The total mean abundance is  $178.42 \pm 9.49$  SE and silversides ranged in size from 1cm to 14cm, found in all months and at all sites.

Striped Killifish (*Fundulus majalis*)

A total of 2,102 striped killifish were caught in 2025, ranging in size from 2cm to 13cm. The total mean abundance is  $52.55 \pm 8.73$  SE, and they were found at all sites except Bishop Point from May through October.

Common Mummichog (*Fundulus heteroclitus*)

A total of 1,594 common mummichog were caught in 2025, ranging in size from 2cm to 10cm. The total mean abundance is  $49.81 \pm 8.56$  SE, and they were found at all sites from May through October.

*WATER QUALITY DATA*

Water quality data for the 2025 season can be found in Table 2. Water temperature ranged from 12.3°C in May to 26.1°C in July. The mean salinity of the four sites within the Seekonk River was  $19.01\text{ppt} \pm 1.37$  SE, and the mean salinity of the eight sites within the Providence River was  $26\text{ppt} \pm 0.49$  SE. The lowest dissolved oxygen value recorded across all sites was 0.21mg/L in July at Pawtucket State Pier, while the mean was  $7.64\text{mg/L} \pm 0.36$  SE.

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**FIGURES:**

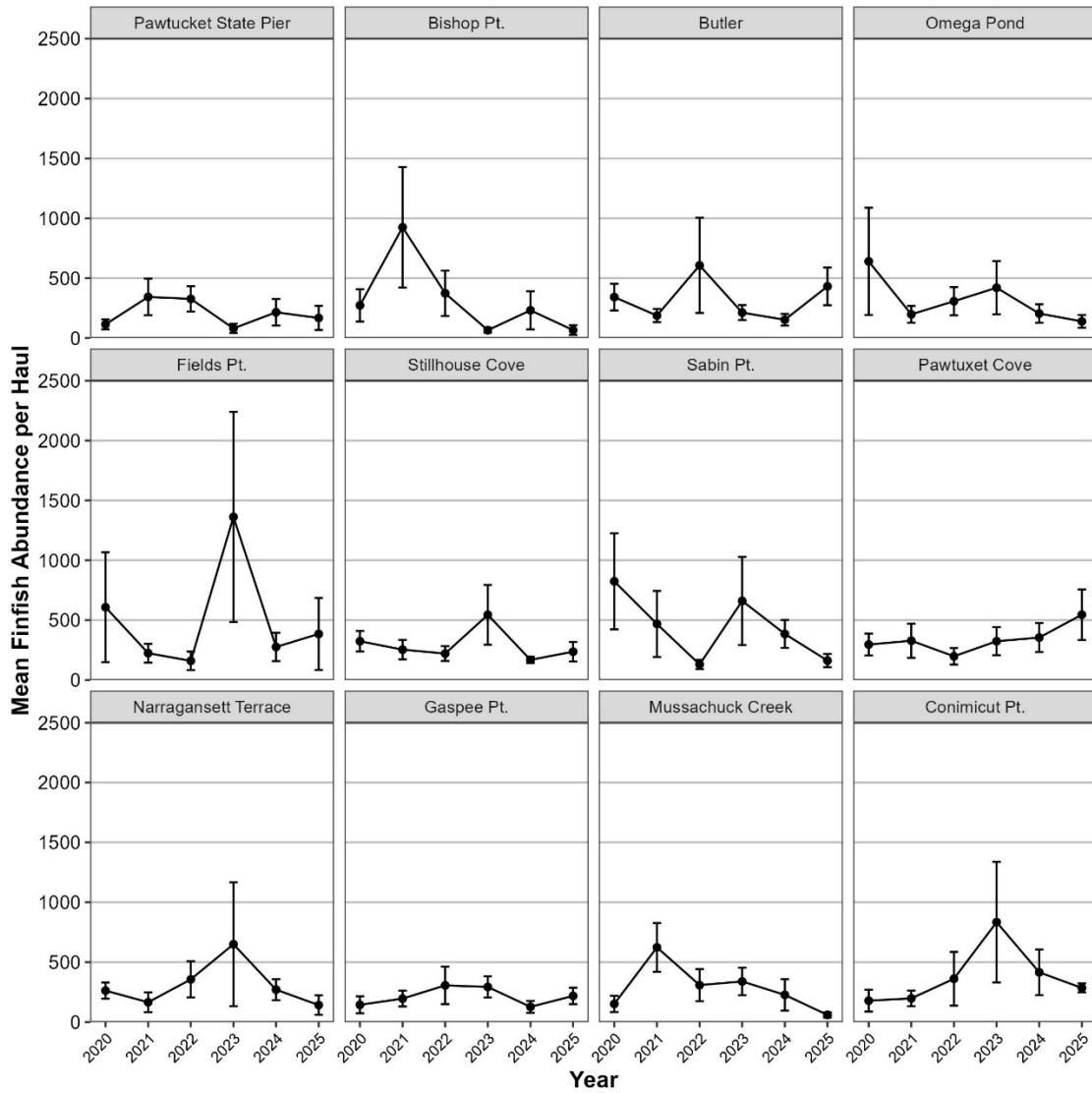


Figure 1. Mean abundance of finfish (excluding Atlantic Menhaden) across sites ( $\pm$ SE) in 2020-2025 beach seines.

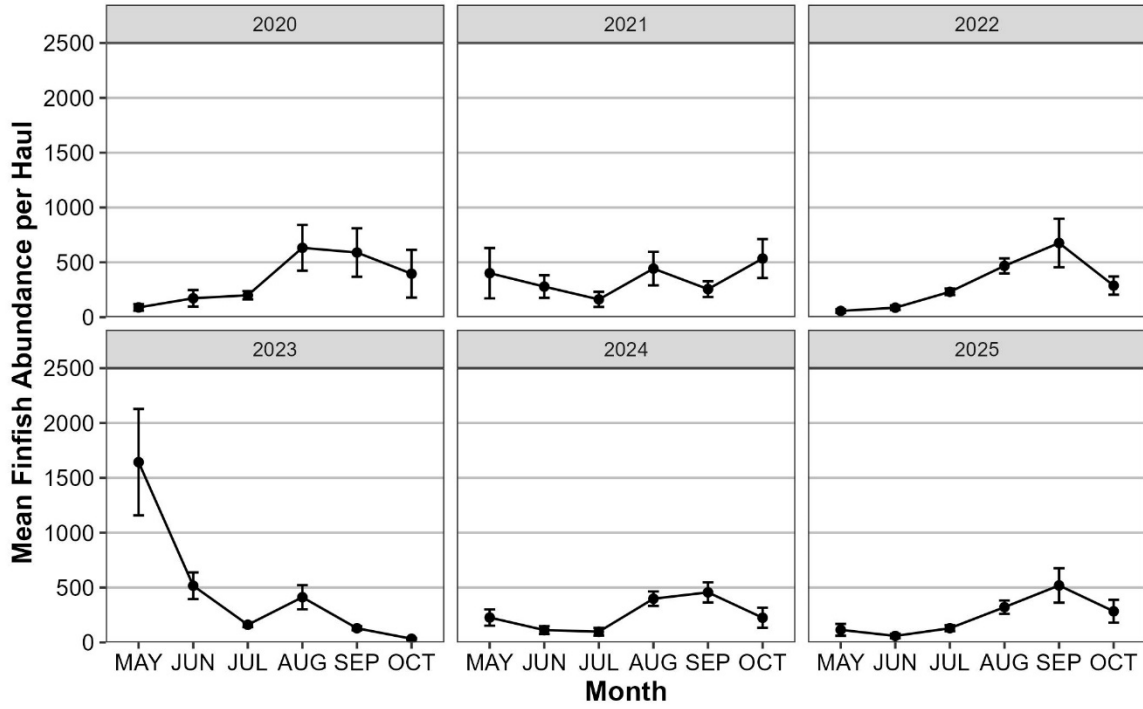


Figure 2. Mean abundance of finfish (excluding Atlantic Menhaden) caught each month ( $\pm$ SE) in 2020-2025 beach seines.

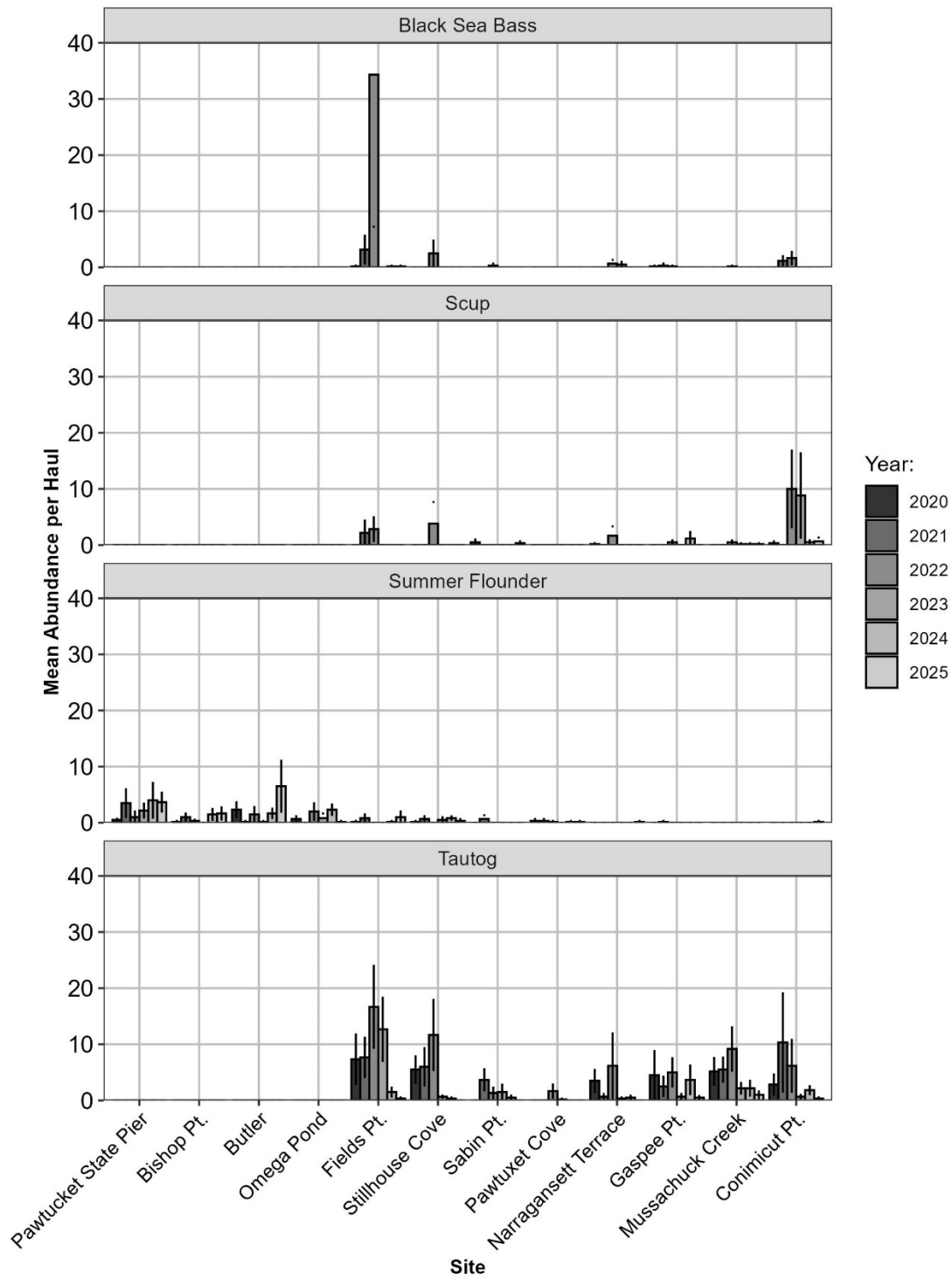


Figure 3a. Mean target finfish (black sea bass, scup, summer flounder, and tautog) abundance per haul ( $\pm$ SE) at each site ordered north to south, sampled during the 2020-2025 field seasons.

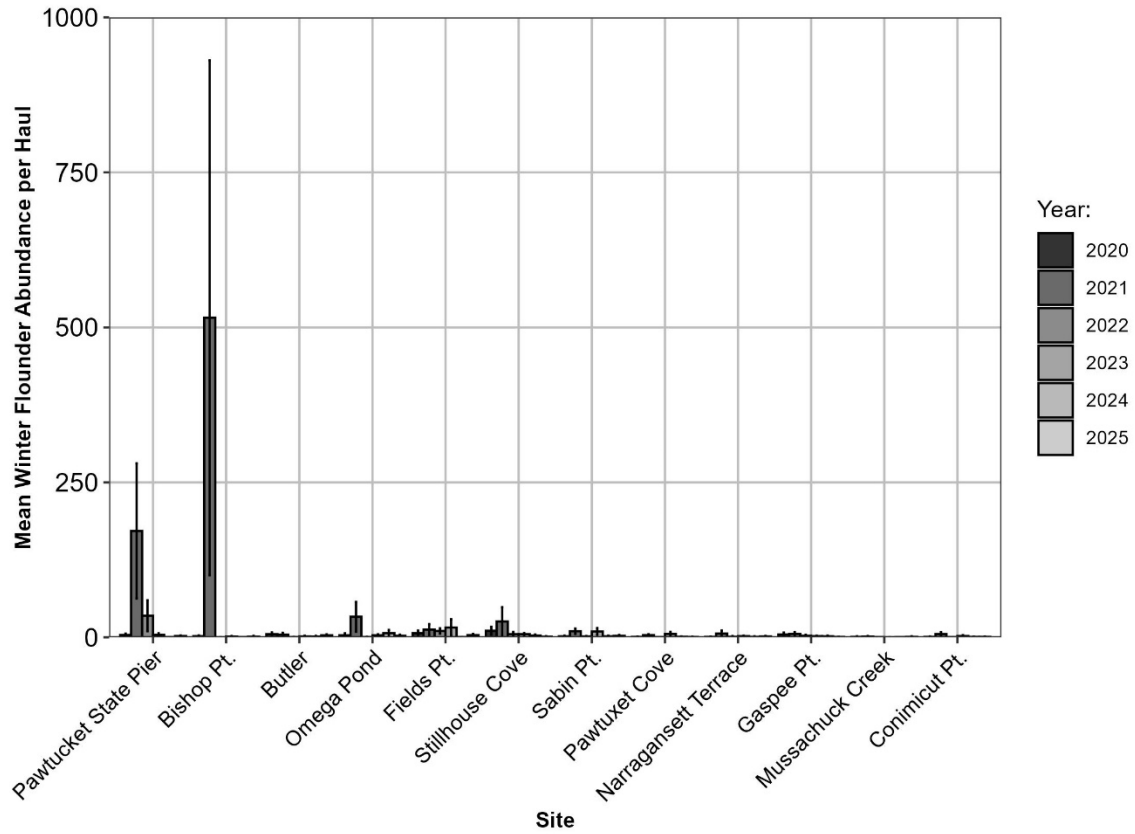


Figure 3b. Mean winter flounder abundance per haul ( $\pm$ SE) at each site ordered north to south.

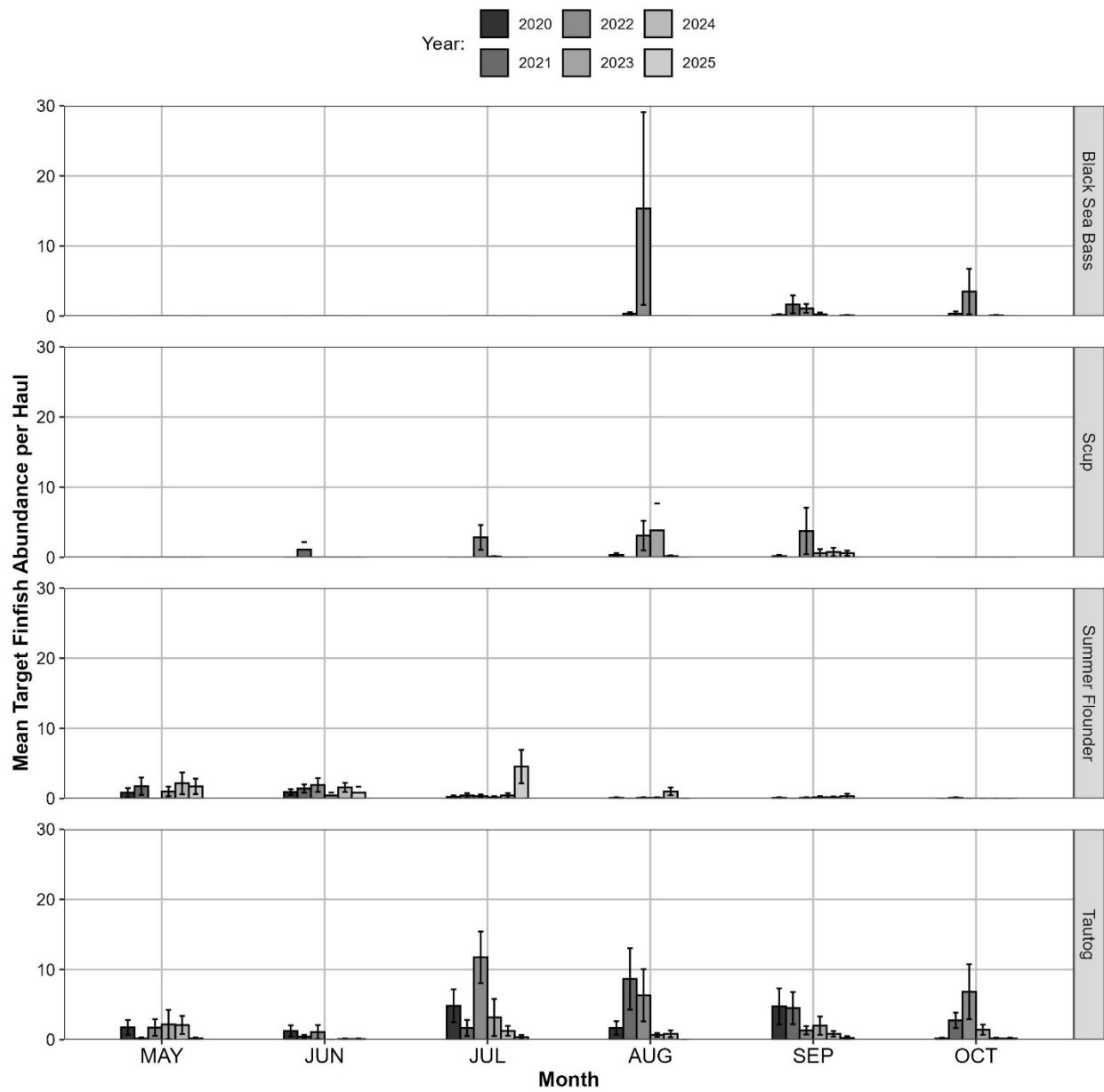


Figure 4a. Mean target finfish (Scup, Summer Flounder, and Tautog) per seine haul ( $\pm$  SE) plotted for each month sampled during the 20120-2025 field seasons.

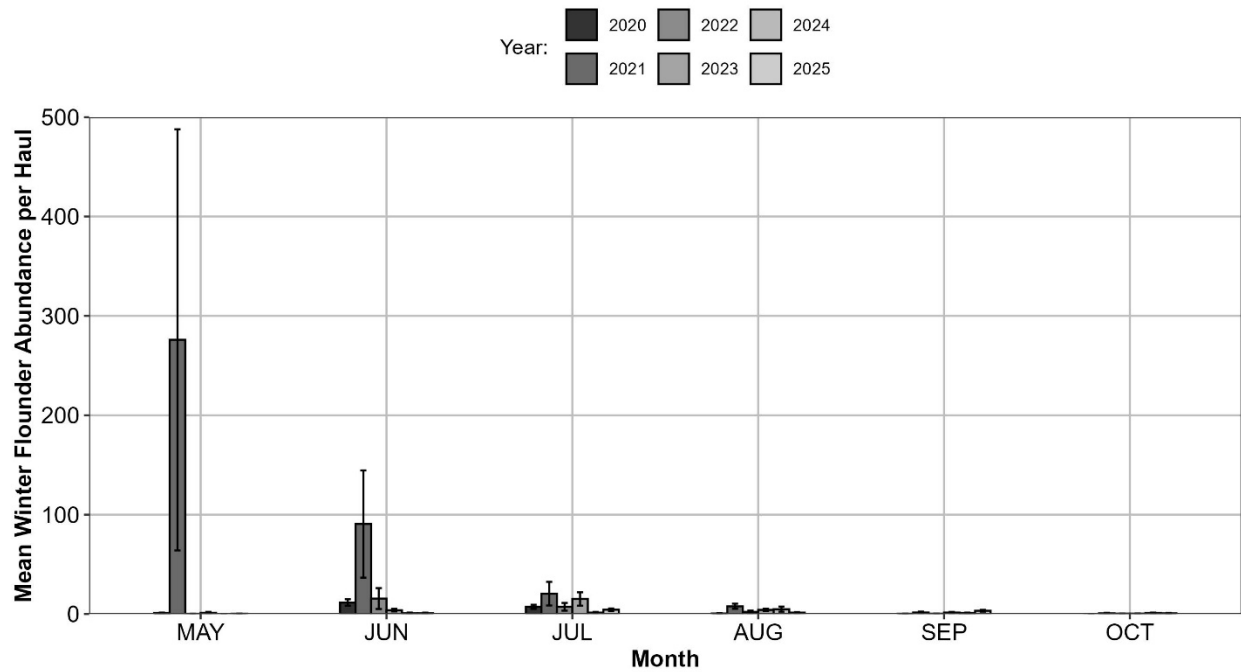


Figure 4b. Mean winter flounder abundance per seine haul ( $\pm$  SE) plotted for each month sampled during the 2020-2025 field seasons

Table 1. Common, scientific names, and total abundance of all species collected in beach seines during 2025.

<b>Common Name</b>	<b>Scientific Name</b>	<b>Total Abundance</b>
Atlantic Silverside	<i>Menidia menidia</i>	11597
Atlantic Menhaden	<i>Brevoortia tyrannus</i>	3311
Striped Killifish	<i>Fundulus majalis</i>	2102
Common Mummichog	<i>Fundulus heteroclitus</i>	1594
Gizzard Shad	<i>Dorosoma cepedianum</i>	437
Blue Crab	<i>Callinectes sapidus</i>	339
Bluefish	<i>Pomatomus saltatrix</i>	127
Winter Flounder	<i>Pseudopleuronectes americanus</i>	122
Summer Flounder	<i>Paralichthys dentatus</i>	83
River Herring	<i>Alosa aestivalis</i> &/or <i>pseudoharengus</i>	82
Northern Kingfish	<i>Menticirrhus saxatilis</i>	67
Sheepshead Minnow	<i>Cyprinodon variegatus</i>	51
Hogchoker	<i>Trinectes maculatus</i>	38
Spot	<i>Leiostomus xanthurus</i>	38
Mud Crab	<i>Panopeus spp</i>	34
4-Spine Stickleback	<i>Apeltes quadracus</i>	28
Green Crab	<i>Carcinus maenus</i>	28
3-Spine Stickleback	<i>Gasterosteus aculeatus</i>	23
Northern Pipefish	<i>Syngnathus fuscus</i>	21
Bay Anchovy	<i>Anchoa mitchilli</i>	20
Tautog	<i>Tautoga onitis</i>	12
Rainwater Killifish	<i>Lucania parva</i>	9
Spider Crab	<i>Libinia emarginata</i>	9
White Perch	<i>Morone americana</i>	9
Scup	<i>Stenotomus chrysops</i>	7
Striped Searobin	<i>Prionotus evolans</i>	7
Atlantic Tomcod	<i>Microgadus tomcod</i>	6
Pinfish	<i>Lagodon rhomboides</i>	6
Atlantic Needlefish	<i>Strongylura marina</i>	5
Bluegill	<i>Lepomis macrochirus</i>	5
Oyster Toadfish	<i>Opsanus tau</i>	5
American Eel	<i>Anguilla rostrata</i>	4
Crevalle Jack	<i>Caranx hippos</i>	4
Inshore Lizardfish	<i>Synodus foetens</i>	4

Northern Puffer	<i>Sphoeroides maculatus</i>	4
Striped Bass	<i>Morone saxatilis</i>	4
Gobies	<i>Gobiosoma</i> genus	3
Naked Goby	<i>Gobiosoma bosc</i>	3
Northern Searobin	<i>Prionotus carolinus</i>	3
Grubby Sculpin	<i>Myoxocephalus aeneus</i>	2
Quahog	<i>Mercenaria mercenaria</i>	2
Rock Crab	<i>Cancer irroratus</i>	2
Black Sea Bass	<i>Centropristis striata</i>	1
Feather Blenny	<i>Hypsoblennius hentz</i>	1
Green Sunfish	<i>Lepomis cyanellus</i>	1
Horseshoe Crab	<i>Limulus polyphemus</i>	1
Japanese Shore Crab	<i>Hemigrapsus sanguineus</i>	1
Permit	<i>Trachinotus falcatus</i>	1
Weakfish	<i>Cynoscion regalis</i>	1
Windowpane Flounder	<i>Scophthalmus aquosus</i>	1

Table 2. Temperature, salinity, and dissolved oxygen by site and month during 2025 beach seines.

Site	Month	Temp (C)	Salinity (ppt)	DO (mg/L)	Site	Month	Temp (C)	Salinity (ppt)	DO (mg/L)
Pawtucket State Pier	MAY	15.2	9.41	8.32	Sabin Pt.	MAY	13.5	27.03	8.85
	JUN	19.5	18.45	6.67		JUN	21.7	22.3	13.99
	JUL	23.6	24.7	0.21		JUL	24.9	26.68	5.61
	AUG	24.7	22.83	0.29		AUG	24.5	28.07	7.88
	SEP	21.8	26.8	0.5		SEP	21.9	28.93	7.47
	OCT	15.9	15.52	6.86		OCT	15.4	29.79	7.22
Bishop Pt.	MAY	15.1	13.01	7.14	Pawtuxet Cove	MAY	16	21.65	10.7
	JUN	18.9	20.4	5.43		JUN	19.4	20.45	11.2
	JUL	24.6	22.73	5.17		JUL	25.2	20	8.49
	AUG	24.3	23.57	0.33		AUG	25.1	27.36	6.5
	SEP	21.8	26.36	1.28		SEP	21.9	27.42	8.55
	OCT	15.6	9.83	8.4		OCT	15.5	10.02	8.71
Butler	MAY	15	7.06	8.62	Narragansett Terrace	MAY	12.3	23.93	8.42
	JUN	19.2	20.4	6.83		JUN	20.5	22.5	14.4
	JUL	22.8	25.77	1.17		JUL	26.1	25.85	8.41
	AUG	25.3	23.75	5.45		AUG	24	28.7	6.35
	SEP	22.8	20.11	9.24		SEP	22.1	28.43	9.79
	OCT	15.9	13.38	7.55		OCT	13.9	28.69	8.12
Omega Pond	MAY	15.6	7.83	7.96	Gaspee Pt.	MAY	14.2	23.96	8.12
	JUN	19.4	18.98	7.16		JUN	19.3	24.15	7.32
	JUL	23.4	25.57	4.38		JUL	24.3	24.4	7.58
	AUG	25	25.17	6.05		AUG	25.2	27.95	5.48
	SEP	21.4	26.45	3.85		SEP	22	27.09	10.99
	OCT	15.7	8.37	8.14		OCT	16.6	27.67	8.59
Fields Pt.	MAY	13.2	28.16	7.12	Mussachuck Creek	MAY	12.7	26.46	8.93
	JUN	20	21.4	11.52		JUN	19.1	25.35	12.12
	JUL	25.1	25.19	10		JUL	25.9	26.9	10.36
	AUG	24.4	27.8	4.4		AUG	24	29.29	6.55
	SEP	21.5	29.42	7.74		SEP	21.5	29.29	9.82
	OCT	16.8	27.96	9.01		OCT	13.8	28.48	8.85
Stillhouse Cove	MAY	14	26.49	13.01	Conimicut Pt.	MAY	14.1	26.05	9.42
	JUN	19.6	21.91	10.41		JUN	19.2	25.74	8.32
	JUL	24.3	26.6	6.74		JUL	25	25.62	9.07
	AUG	24.4	28.66	4.13		AUG	23.7	29.68	3.98
	SEP	22	26.09	11.39		SEP	22.3	27.73	10.24
	OCT	16.7	26.9	11.3		OCT	16.9	27.71	9.56

**APPENDIX**

Table 3a. Species presence by site for May 2025 beach seines.

<b>MAY</b>	<b>Site</b>												
<b>Species</b>	<i>Pawtucket State Pier</i>	<i>Bishop Pt.</i>	<i>Butler</i>	<i>Omega Pond</i>	<i>Fields Pt.</i>	<i>Stillhouse Cove</i>	<i>Sabin Pt.</i>	<i>Pawtuxet Cove</i>	<i>Narragansett Cove</i>	<i>Gaspee Pt.</i>	<i>Mussachusett Terrace</i>	<i>Conimicut Creek</i>	<b>Total</b>
Summer Flounder	1	1	1		1								<b>4</b>
Winter Flounder						1							<b>1</b>
Quahog								1					<b>1</b>
Atlantic Silverside		1	1	1	1		1			1	1		<b>8</b>
Northern Pipefish				1	1					1			<b>3</b>
Hogchoker	1												<b>1</b>
White Perch	1	1											<b>2</b>
Spot			1										<b>1</b>
Tautog				1							1		<b>2</b>
Atlantic Tomcod				1						1	1		<b>3</b>
Common Mummichog					1			1					<b>2</b>
Striped Killfish			1			1							<b>2</b>
Horseshoe Crab				1									<b>1</b>
Gobies			1										<b>1</b>
Bluegill		1	1										<b>2</b>
Windowpane Flounder								1					<b>1</b>
4-Spine Stickleback				1									<b>1</b>
Green Crab		1			1			1					<b>3</b>
Blue Crab	1	1	1	1									<b>4</b>

**APPENDIX**

Table 3b. Species presence by site for June 2025 beach seines.

<b>JUNE</b>	<b>Site</b>												
<b>Species</b>	<i>Pawtucket State Pier</i>	<i>Bishop Pt.</i>	<i>Butler</i>	<i>Omega Pond</i>	<i>Fields Pt.</i>	<i>Stillhouse Cove</i>	<i>Sabin Pt.</i>	<i>Pawtuxet Cove</i>	<i>Narragansett Cove</i>	<i>Gaspee Pt.</i>	<i>Mussachusett Terrace</i>	<i>Cominicut Creek</i>	<b>Total</b>
Atlantic Menhaden			1			1		1	1				<b>4</b>
Summer Flounder	1												<b>1</b>
Winter Flounder	1		1							1			<b>3</b>
Atlantic Silverside	1	1	1	1	1	1	1	1	1	1	1	1	<b>11</b>
Northern Pipefish				1					1		1		<b>3</b>
White Perch	1		1										<b>2</b>
Spot	1		1										<b>2</b>
Tautog									1				<b>1</b>
American Eel	1												<b>1</b>
Atlantic Tomcod									1	1			<b>2</b>
Common Mummichog					1					1	1		<b>3</b>
Striped Killifish						1	1	1		1			<b>4</b>
4-Spine Stickleback									1				<b>1</b>
Bluegill			1										<b>1</b>
Spider Crab									1	1			<b>2</b>
Green Crab					1								<b>1</b>
Blue Crab	1	1	1										<b>3</b>
Naked Goby											1		<b>1</b>
Japanese Shore Crab			1										<b>1</b>

**APPENDIX**

Table 3c. Species presence by site for July 2025 beach seines.

<b>JULY</b>	<b>Site</b>											
<b>Species</b>	<i>Pawtucket State Pier</i>	<i>Bishop Pt.</i>	<i>Butler</i>	<i>Omega Pond</i>	<i>Fields Pt.</i>	<i>Stillhouse Cove</i>	<i>Sabin Pt.</i>	<i>Pawtuxet Cove</i>	<i>Narragansett Terrace</i>	<i>Gaspee Pt.</i>	<i>Mussachuck Creek</i>	<b>Total</b>
River Herring				1		1		1				<b>3</b>
Atlantic Menhaden	1			1								<b>2</b>
Summer Flounder	1	1	1	1	1		1	1			1	<b>8</b>
Winter Flounder	1	1	1	1	1	1					1	<b>7</b>
Atlantic Silverside	1	1	1	1	1	1	1	1		1	1	<b>11</b>
Northern Pipefish										1	1	<b>2</b>
Hogchoker	1	1	1									<b>3</b>
Bluefish	1			1		1		1				<b>4</b>
White Perch	1	1										<b>2</b>
Northern Kingfish						1				1		<b>2</b>
Spot			1									<b>1</b>
Tautog				1						1		<b>2</b>
American Eel				1								<b>1</b>
Gizzard Shad	1											<b>1</b>
Common Mummichog			1	1	1	1				1		<b>6</b>
Striped Killifish			1	1	1	1	1			1	1	<b>8</b>
4-Spine Stickleback				1	1	1					1	<b>4</b>
Crevalle Jack			1									<b>1</b>
Gobies											1	<b>1</b>
Rainwater Killifish				1	1							<b>2</b>
Green Crab										1		<b>1</b>
Mud Crab		1		1							1	<b>3</b>
Blue Crab	1	1	1	1	1	1	1			1	1	<b>9</b>

**APPENDIX**

Table 3d. Species presence by site for August 2025 beach seines.

<b>AUGUST</b>	<b>Site</b>												
<b>Species</b>	<i>Pawtucket State Pier</i>	<i>Bishop Pt.</i>	<i>Butler</i>	<i>Omega Pond</i>	<i>Fields Pt.</i>	<i>Stillhouse Cove</i>	<i>Sabin Pt.</i>	<i>Pawtuxet Cove</i>	<i>Narragansett Terrace</i>	<i>Gaspee Pt.</i>	<i>Mussachuck Creek</i>	<i>Conimicut Pt.</i>	<b>Total</b>
River Herring							1						1
Atlantic Menhaden			1										1
Winter Flounder			1	1	1	1		1	1				6
Atlantic Silverside	1		1	1	1	1	1	1	1	1	1	1	11
3-Spine Stickleback				1									1
Northern Pipefish				1				1					2
Bluefish			1										1
Striped Bass			1										1
Northern Kingfish			1		1	1		1				1	5
Grubby Sculpin				1									1
Striped Searobin								1					1
Northern Puffer									1				1
American Eel				1									1
Gizzard Shad			1										1
Atlantic Needlefish									1			1	2
Common Mummichog	1				1	1		1	1			1	6
Striped Killifish			1		1	1	1	1	1	1	1	1	8
Crevalle Jack			1										1
Permit						1							1
Rainwater Killifish				1				1					2
Mud Crab				1									1
Blue Crab			1		1	1		1	1			1	7

**APPENDIX**

Table 3e. Species presence by site for September 2025 beach seines.

SEPTEMBER	Site												
	Pawtucket State Pier	Bishop Pt.	Butler	Omega Pond	Fields Pt.	Stillhouse Cove	Sabin Pt.	Pawtuxet Cove	Narragansett Terrace	Gaspee Pt.	Mussachusett Creek	Conimicut Pt.	Total
Species													
River Herring			1		1				1				3
Atlantic Menhaden				1					1				2
Bay Anchovy		1											1
Summer Flounder	1												1
Winter Flounder	1		1	1	1	1	1	1	1	1			9
Atlantic Silverside	1	1	1	1	1	1	1	1	1	1	1	1	12
Northern Pipefish						1							1
Hogchoker	1	1	1	1				1					5
Bluefish									1				1
Black Sea Bass					1								1
Scup							1				1	1	3
Weakfish		1											1
Northern Kingfish						1	1		1	1		1	5
Striped Searobin			1							1	1		3
Tautog											1		1
Oyster Toadfish					1								1
Northern Puffer					1		1		1				3
Gizzard Shad		1		1									2
Inshore Lizardfish									1	1	1		3
Atlantic Needlefish						1	1						2
Common Mummichog	1			1	1	1	1		1				7
Striped Killifish	1		1	1	1	1	1	1	1			1	11
4-Spine Stickleback	1			1	1								3
Crevalle Jack								1					1
Rainwater Killifish					1								1
Spider Crab					1	1	1						3
Green Crab						1	1						2
Mud Crab		1		1	1		1				1		5
Blue Crab	1	1	1	1	1	1		1		1			8
Northern Searobin							1		1				2
Pinfish									1				1
Feather Blenny							1						1
Naked Goby												1	1

**APPENDIX**

Table 3f. Species presence by site for October 2025 beach seines.

<b>OCTOBER</b>	<b>Site</b>												
<b>Species</b>	<i>Pawtucket State Pier</i>	<i>Bishop Pt.</i>	<i>Butler</i>	<i>Omega Pond</i>	<i>Fields Pt.</i>	<i>Stillhouse Cove</i>	<i>Sabin Pt.</i>	<i>Pawtuxet Cove</i>	<i>Narragansett Cove</i>	<i>Gaspee Pt.</i>	<i>Mussachusett Terrace</i>	<i>Cominicut Creek</i>	<b>Total</b>
Atlantic Menhaden	1	1						1					<b>3</b>
Winter Flounder					1	1	1	1	1		1		<b>6</b>
Atlantic Silverside	1	1	1	1	1	1	1	1	1	1	1	1	<b>12</b>
Northern Pipefish									1				<b>1</b>
Hogchoker	1	1											<b>2</b>
Tautog									1		1		<b>2</b>
Gizzard Shad	1	1			1								<b>3</b>
Sheepshead Minnow							1				1		<b>2</b>
Common Mummichog		1		1	1	1	1		1		1		<b>8</b>
Striped Killifish			1		1	1	1	1	1		1		<b>8</b>
4-Spine Stickleback	1				1	1			1				<b>4</b>
Rainwater Killifish							1						<b>1</b>
Rock Crab									1				<b>1</b>
Green Crab					1	1			1		1		<b>4</b>
Blue Crab		1		1			1	1					<b>4</b>
Green Sunfish		1											<b>1</b>
Naked Goby										1			<b>1</b>

**APPENDIX**

Table 4a. Abundances of winter flounder in 2025 beach seines.

Month	Site												Mean	SD	SE	Total
	Pawtucket State Pier	Bishop Pt.	Butler	Omega Pond	Fields Pt.	Stillhouse Cove	Sabin Pt.	Pawtuxet Cove	Narragansett Cove	Gaspee Pt.	Mussachuck Creek	Cominicut Pt.				
MAY	0	0	0	0	0	0	2	0	0	0	0	0	0.17	0.58	0.17	2
JUN	3	0	2	0	0	0	0	0	0	0	5	0	0.83	1.64	0.47	10
JUL	7	7	7	10	12	0	1	0	0	0	0	3	3.92	4.44	1.28	47
AUG	0	0	2	0	7	2	1	0	3	1	0	0	1.33	2.06	0.59	16
SEP	2	0	9	5	2	4	9	3	3	1	0	0	3.17	3.16	0.91	38
OCT	0	0	0	0	0	1	1	1	3	1	0	2	0.75	0.97	0.28	9
<b>Mean</b>	2.00	1.17	3.33	2.50	3.50	1.17	2.33	0.67	1.50	0.50	0.83	0.83				
<b>SD</b>	2.76	2.86	3.78	4.18	4.97	1.60	3.33	1.21	1.64	0.55	2.04	1.33				
<b>SE</b>	1.13	1.17	1.54	1.71	2.03	0.65	1.36	0.49	0.67	0.22	0.83	0.54				
<b>Total</b>	12	7	20	15	21	7	14	4	9	3	5	5				

**Total Fish:**  
122

**APPENDIX**

Table 4b. Abundances of summer flounder in 2025 beach seines.

		<b>Site</b>															
<b>Summer Flounder</b>	<b>Month</b>	<b>Pawtucket State Pier</b>	<b>Bishop Pt.</b>	<b>Butler</b>	<b>Omega Pond</b>	<b>Fields Pt.</b>	<b>Stillhouse Cove</b>	<b>Sabin Pt.</b>	<b>Pawtuxet Cove</b>	<b>Narragansett Terrace</b>	<b>Gaspee Pt.</b>	<b>Mussachusuck Creek</b>	<b>Conimicut Pt.</b>	<b>Mean</b>	<b>SD</b>	<b>SE</b>	<b>Total</b>
	MAY	1	4	12	0	0	2	0	0	0	0	0	0	1.58	3.50	1.01	19
	JUN	10	0	0	0	0	0	0	0	0	0	0	0	0.83	2.89	0.83	10
	JUL	7	6	27	1	6	0	0	1	1	0	0	1	4.17	7.66	2.21	50
	AUG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SEP	4	0	0	0	0	0	0	0	0	0	0	0	0.33	1.15	0.33	4
	OCT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	<b>Mean</b>	3.67	1.67	6.50	0.17	1.00	0.33	0	0.17	0.17	0	0	0.17				
<b>SD</b>	4.13	2.66	11.13	0.41	2.45	0.82	0	0.41	0.41	0	0	0.41					
<b>SE</b>	1.69	1.09	4.54	0.17	1.00	0.33	0	0.17	0.17	0	0	0.17					
<b>Total</b>	22	10	39	1	6	2	0	1	1	0	0	1					
														<b>Total Fish:</b>			
														83			

**APPENDIX**

Table 4c. Abundances of black sea bass 2025 beach seines.

		<b>Site</b>																
<b>BSB</b>	<b>Month</b>	<b>Pawtucket State Pier</b>	<b>Bishop Pt.</b>	<b>Butler</b>	<b>Omega Pond</b>	<b>Fields Pt.</b>	<b>Stillhouse Cove</b>	<b>Sabin Pt.</b>	<b>Pawtuxet Cove</b>	<b>Narragansett Terrace</b>	<b>Gaspee Pt.</b>	<b>Mussachusuck Creek</b>	<b>Conimicut Pt.</b>	<b>Mean</b>	<b>SD</b>	<b>SE</b>	<b>Total</b>	
	MAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	JUN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	JUL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	AUG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SEP	0	0	0	0	1	0	0	0	0	0	0	0	0.08	0.29	0.08	1	1
	OCT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	<b>Mean</b>	0	0	0	0	0.17	0	0	0	0	0	0	0					
<b>SD</b>	0	0	0	0	0.41	0	0	0	0	0	0	0						
<b>SE</b>	0	0	0	0	0.17	0	0	0	0	0	0	0						
<b>Total</b>	0	0	0	0	1	0	0	0	0	0	0	0						

**Total Fish:**

1

**APPENDIX**

Table 4d. Abundances of scup in 2025 beach seines.

		<b>Site</b>												<b>Mean</b>	<b>SD</b>	<b>SE</b>	<b>Total</b>	
<b>Scup</b>	<b>Month</b>	<b>Pawtucket State Pier</b>	<b>Bishop Pt.</b>	<b>Butler</b>	<b>Omega Pond</b>	<b>Fields Pt.</b>	<b>Stillhouse Cove</b>	<b>Sabin Pt.</b>	<b>Pawtuxet Cove</b>	<b>Narragansett Terrace</b>	<b>Gaspee Pt.</b>	<b>Mussachuck Creek</b>	<b>Conimicut Pt.</b>					
	<b>MAY</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	<b>JUN</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	<b>JUL</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	<b>AUG</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	<b>SEP</b>	0	0	0	0	0	0	2	0	0	0	1	4	0	0.58	1.24	0.36	7
	<b>OCT</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Mean</b>	0	0	0	0	0	0	0.33	0	0	0	0.17	0.67						
<b>SD</b>	0	0	0	0	0	0	0.82	0	0	0	0.41	1.63						
<b>SE</b>	0	0	0	0	0	0	0.33	0	0	0	0.17	0.67						
<b>Total</b>	0	0	0	0	0	0	2	0	0	0	1	4						
														<b>Total Fish:</b>				
														7				

**APPENDIX**

Table 4e. Abundances of tautog in 2025 beach seines.

		Site											Mean	SD	SE	Total		
		Pawtucket State Pier	Bishop Pt.	Butler	Omega Pond	Fields Pt.	Stillhouse Cove	Sabin Pt.	Pawtuxet Cove	Narragansett Terrace	Gaspee Pt.	Mussachuck Creek					Comimicut Pt.	
Tautog	Month																	
	MAY	0	0	0	0	1	0	0	0	0	0	0	0	1	0.17	0.39	0.11	2
	JUN	0	0	0	0	0	0	0	0	0	1	0	0	0.08	0.29	0.08	1	
	JUL	0	0	0	0	1	0	0	0	0	0	3	0	0.33	0.89	0.26	4	
	AUG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	SEP	0	0	0	0	0	0	0	0	0	0	3	0	0.25	0.87	0.25	3	
	OCT	0	0	0	0	0	0	0	0	0	1	0	1	0.17	0.39	0.11	2	
<b>Mean</b>	0	0	0	0	0.33	0	0	0	0	0.33	1.00	0.33						
<b>SD</b>	0	0	0	0	0.52	0	0	0	0	0.52	1.55	0.52						
<b>SE</b>	0	0	0	0	0.21	0	0	0	0	0.21	0.63	0.21						
<b>Total</b>	0	0	0	0	2	0	0	0	0	2	6	2						

**Total Fish:**  
12

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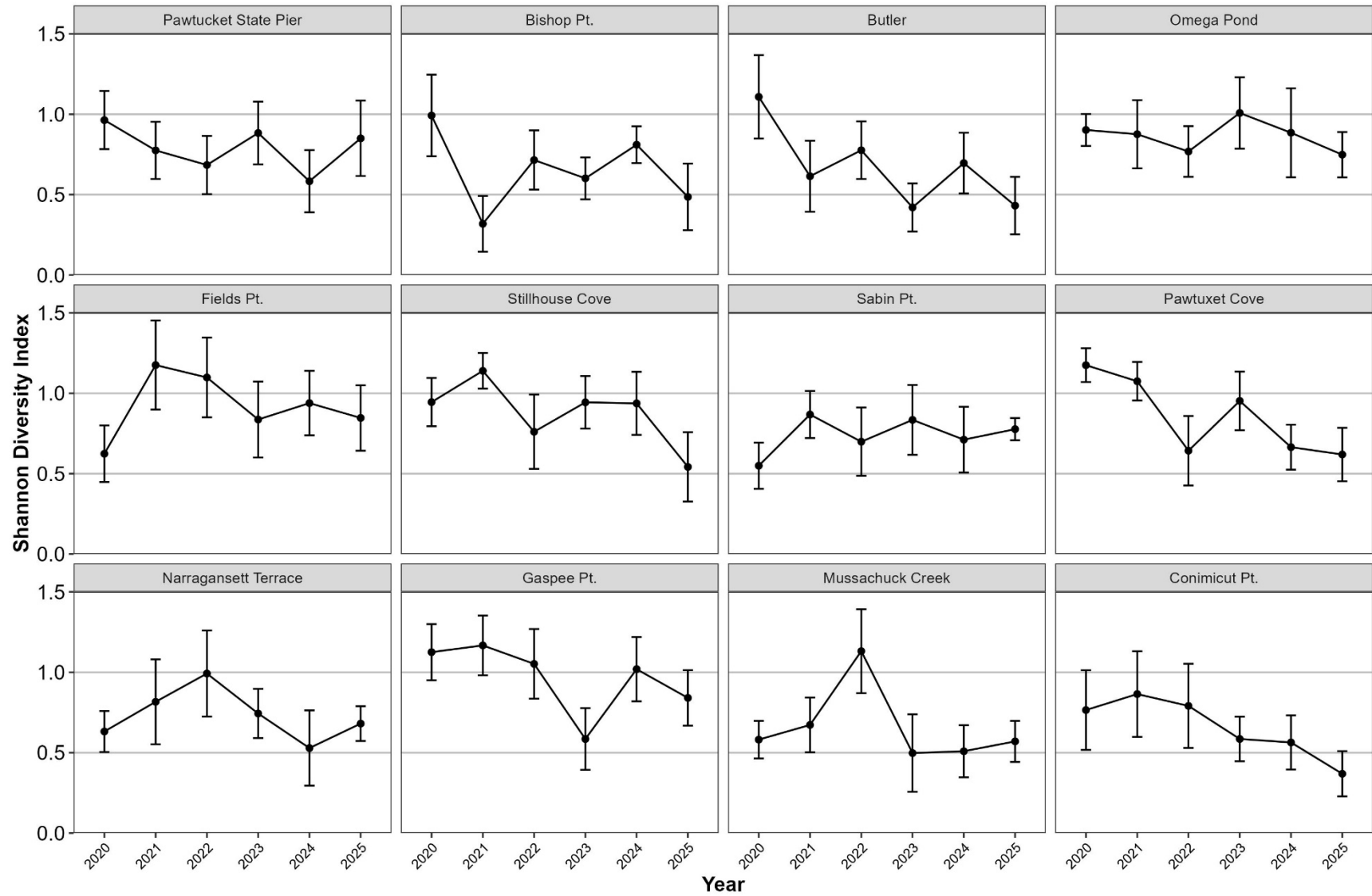


Figure 5. Mean Shannon diversity across sites in 2020-2025 beach seines.

# APPENDIX

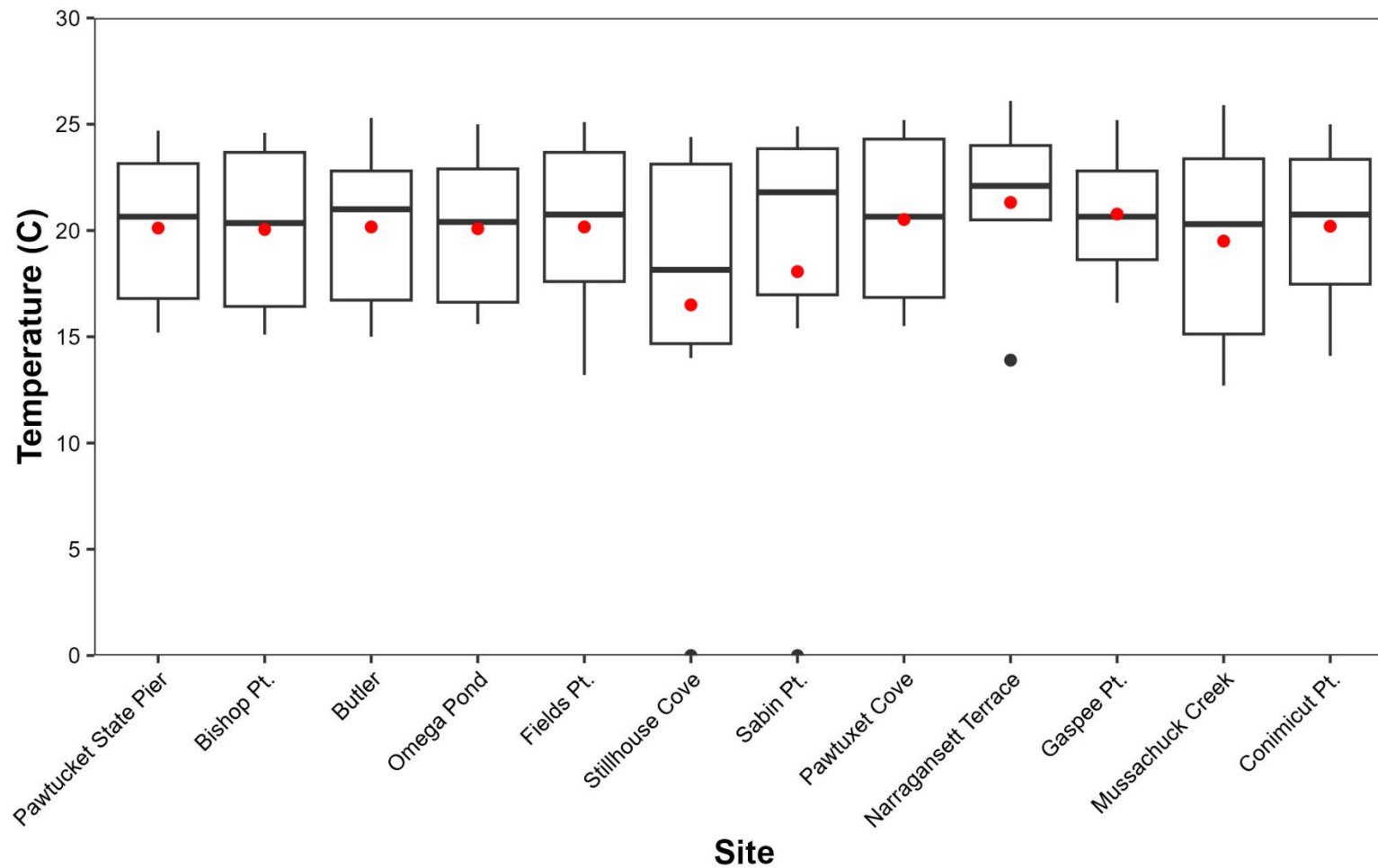


Figure 6. Boxplot of temperature (C) recorded by handheld YSI across all seine stations in 2025 at the time of sample (red dot indicates mean).

## APPENDIX

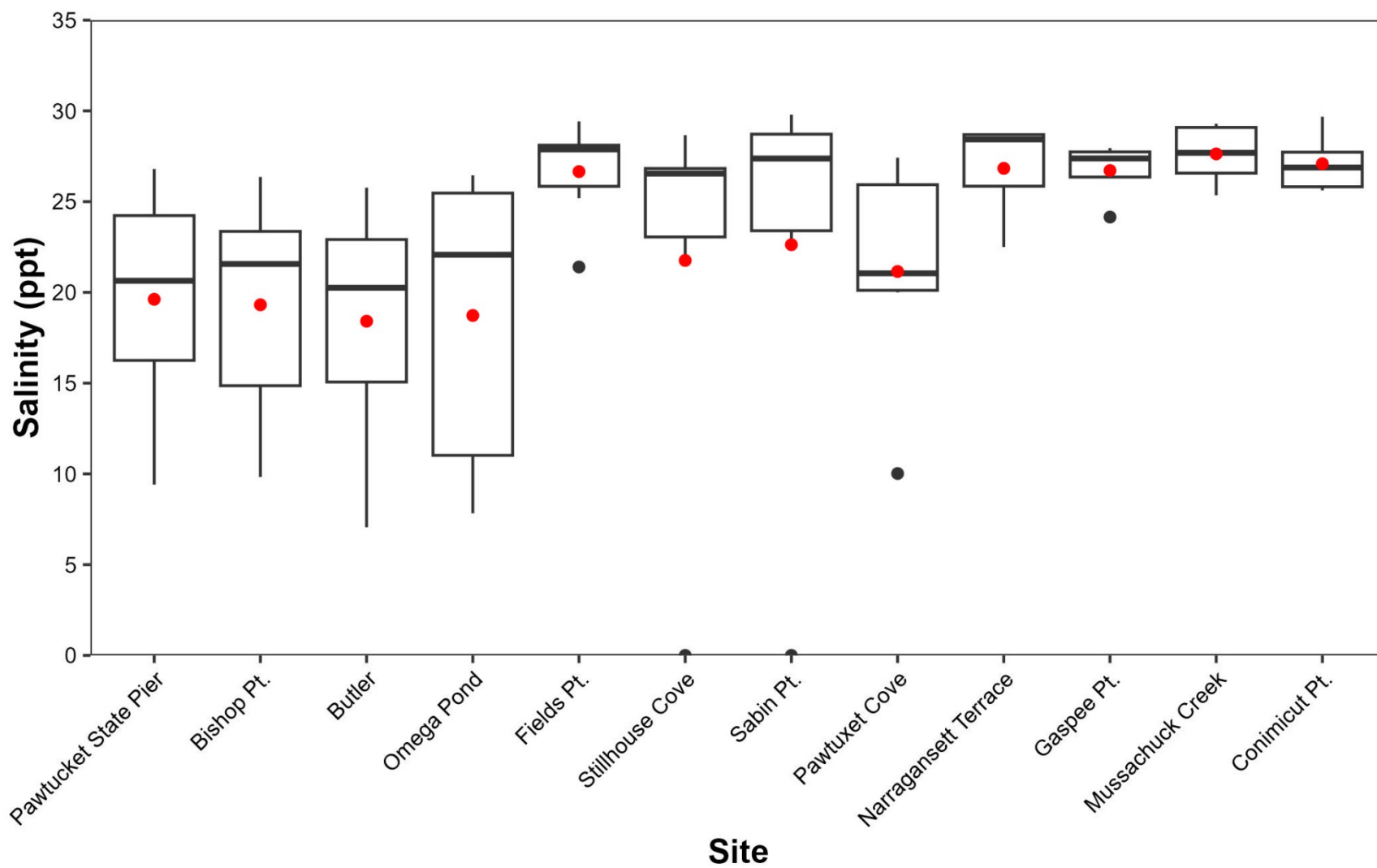


Figure 7. Boxplot of salinity (ppt) recorded by handheld YSI across all seine stations in 2025 at the time of sample (red dot indicates mean).

APPENDIX

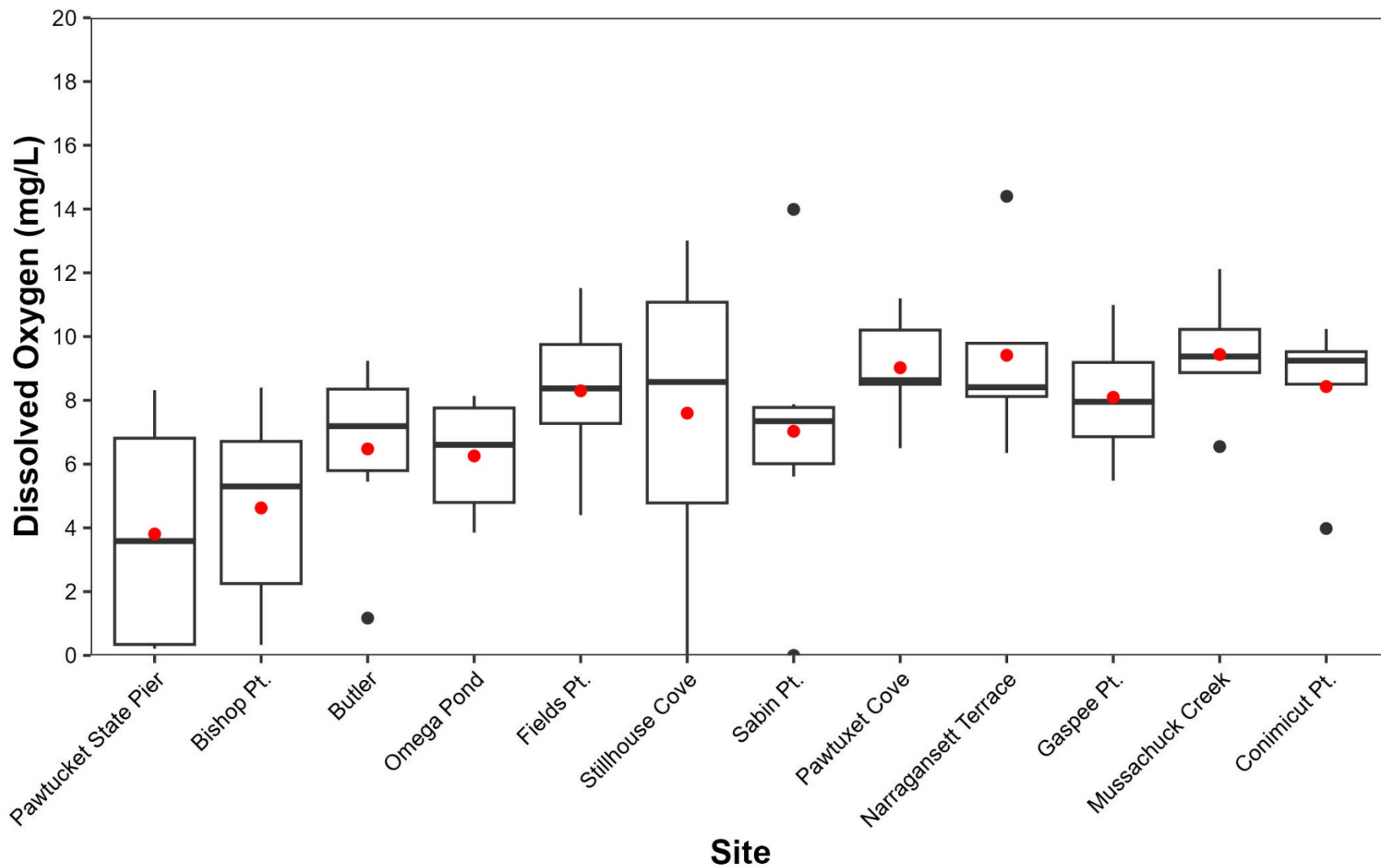


Figure 8. Boxplot of dissolved oxygen (mg/L) recorded by handheld YSI across all seine stations in 2025 at the time of sample (red dot indicates mean).

# Sportfish Assessment and Management in Rhode Island Waters

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**STATE:** Rhode Island

**PROJECT NUMBER:** F-61-R

**SEGMENT NUMBER:** 21

**PROJECT TITLE:** Assessment of Recreationally Important Finfish Stocks in Rhode Island Waters

**PERIOD COVERED:** January 1, 2025 – December 31, 2025

**JOB NUMBER 8 TITLE:** Assessment of Recreationally Important Finfish Stocks in Rhode Island Waters

During this period, several stock assessments for recreationally significant finfish species were conducted that Rhode Island Department of Environmental Management's Division of Marine Fisheries (RIDMF) staff participated in, either as stock assessment committee participants or by contributing data that were derived from surveys funded by the sportfish restoration grant to the stock assessment process. The project leaders participated at the Atlantic States Marine Fisheries Commission's (ASMFC) meetings relative to the management of recreationally important coastal stocks. They also participated in the National Oceanographic and Atmospheric Administration (NOAA) stock assessment process for species under their jurisdiction by contributing data from jobs listed in this grant report, participating in stock assessment subcommittees, or via membership in the Scientific and Statistical Committee of the New England Fishery Management Council. The status of the most important recreationally caught species in Rhode Island were presented in the annual fisheries report, posted on the Division's website. The following information by species highlights some of the major contributions during this period.

## **1. SUMMER FLOUNDER**

A management track stock assessment for summer flounder was completed in the summer of 2025. This assessment used the same methods and data as the 2019 benchmark assessment, with updated commercial and recreational catch data and research survey indices through 2024. The main tasks performed by staff were to gather both catch and fishery independent information from previous years and stratify that information by age based on aging information from the NOAA trawl survey. RIDMF contributed its trawl survey data (see job number 2 from this grant) and the University of Rhode Island Trawl Survey information (see job number 14 from this grant) to the assessment.

During the reporting period, RIDMF staff actively participated in the ASMFC technical committee and Mid-Atlantic Fishery Management Council's (MAFMC) monitoring committee to develop the Recreational Measures Setting Process Framework/Addenda.

Staff were also engaged in providing technical support to the recreational measures setting process for 2026.

Summer flounder 2025 management track assessment report: [https://asmfc.org/wp-content/uploads/2025/08/SF\\_Management\\_Track\\_Assessment\\_2025.pdf](https://asmfc.org/wp-content/uploads/2025/08/SF_Management_Track_Assessment_2025.pdf)

**Investigations:**

Data Acquisition and Analysis: 2 (Data for assessment, compliance report)

Participation in Technical Committees: 2 (TC, FMAT/PDT)

## 2. STRIPED BASS

The stock assessment update for Atlantic striped bass was conducted in 2024 and found that the stock is overfished but overfishing is no longer occurring relative to the updated biological reference points (ASMFC, 2024). Female spawning stock biomass in 2023 was estimated to be 191 million pounds, below both the SSB target and SSB threshold, 247 million pounds and 197 million pounds respectively. SSB has been declining since 2003 and has been below the threshold since 2013. F in 2023 was estimated to be 0.18, below both F target and F threshold, 0.17 and 0.21 respectively.

Staff from RIDMF spent a considerable amount of time in 2025 on the striped bass plan development team (PDT) working on Addendum III to Amendment 7 to the Atlantic Striped Bass Fishery Management Plan. Addendum III was adopted by the Board in October 2025, and addressed the total length measurement of striped bass, commercial striped bass tagging programs, and the baseline for Maryland in the Chesapeake Bay.

Staff also contributed time in 2025 to the development and adoption of Addendum III to Amendment 7 through work on the striped bass technical committee (TC) and plan development team (PDT). Staff also spent time analyzing state observer data, commercial landings data, recreational data, and age at length data for the 2027 benchmark stock assessment, currently in progress.

2024 Striped bass update assessment: [https://asmfc.org/wp-content/uploads/2025/01/2024\\_AtlStripedBassAssessmentUpdate.pdf](https://asmfc.org/wp-content/uploads/2025/01/2024_AtlStripedBassAssessmentUpdate.pdf)

**Investigations:**

Data Acquisition and Analysis: 2 (Data and analysis for Addendum III, compliance report)

Participation in Technical Committees: 2 (TC, PDT)

### 3. ATLANTIC MENHADEN AND MULTISPECIES MODELS

In 2025, the ASMFC completed a single-species assessment update and an ecological reference point (ERP) benchmark stock assessment. The main tasks for the assessments were to gather both catch and fishery independent information from previous years and stratify that information by age based on aging information from the NOAA menhaden sampling program, which RI contributed locally caught samples to. RI contributed its DMF seine survey data (see job number 4 from this grant) and its trawl survey data (jobs 1 and 2 from this report), collecting the information and processing it for the assessment. Staff also participated in meetings where the assessment information was reviewed and served as active members of the stock assessment sub-committee and technical committee.

The ERP assessment includes an Ecopath with Ecosim model, a Steele-Henderson multispecies surplus production model, a Bayesian time-varying surplus production model, and RI staff have created a multispecies statistical catch-at-age model (MSSCAA). The MSSCAA model features menhaden, striped bass, bluefish, weakfish, spiny dogfish, and Atlantic herring as the modeled species, all of which are important species in the ecosystem and of interest to recreational sportfish fisheries. The goal for these models was to incorporate more ecosystem and trophic interaction information into the assessment process, and to create ecological reference points, which were ultimately accepted for use in management by the Atlantic Menhaden Management Board. These ecological reference points are currently used to guide harvest limits for the fishery.

Atlantic menhaden 2025 single species stock assessment update report:

[https://asmfc.org/wp-content/uploads/2025/11/2025AtlMenhadenSingleSpeciesAssmtUpdate\\_October2025.pdf](https://asmfc.org/wp-content/uploads/2025/11/2025AtlMenhadenSingleSpeciesAssmtUpdate_October2025.pdf)

Atlantic menhaden 2025 ecological reference point assessment:

[https://asmfc.org/wp-content/uploads/2025/11/AtlMenhadenERPBenchmarkStockAssessment\\_PeerReview\\_SEDAR\\_Oct2025.pdf](https://asmfc.org/wp-content/uploads/2025/11/AtlMenhadenERPBenchmarkStockAssessment_PeerReview_SEDAR_Oct2025.pdf)

#### **Investigations:**

Data Acquisition and Analysis: 3 (Data for single-species and multi-species models, compliance report)

Participation in Technical Committees: 2 (TC, SAS)

### 3. BLACK SEA BASS

A research track stock assessment for black sea bass was completed in December 2023. A management track assessment, using the methods developed in the benchmark assessment, was completed in 2025, aligning the assessment timelines between scup, summer flounder, and black sea bass. Staff from RIDMF contributed trawl survey (job 2

from this grant), seine survey (jobs 3 and 4) along with age and growth data (job 9) for this assessment. Just as with summer flounder, during the reporting period, RIDEM staff actively participated in the ASMFC technical committee and Mid-Atlantic Fishery Management Council's (MAFMC) monitoring committee to develop the Recreational Measures Setting Process Framework/Addenda. Staff were also engaged in providing technical support to the recreational measures setting process for 2026, including working with stakeholders to develop regulation proposals for review by the ASMFC Board and the MAFMC Council.

Black sea bass 2025 management track assessment: [https://asmfc.org/wp-content/uploads/2025/08/2025\\_BSB\\_MgmtTrackAssmtReport.pdf](https://asmfc.org/wp-content/uploads/2025/08/2025_BSB_MgmtTrackAssmtReport.pdf)

**Investigations:**

Data Acquisition and Analysis: 3 (Data for stock assessment, compliance report, recreational measures analytical support)

Participation in Technical Committees: 2 (TC, FMAT/PDT)

## 5. SCUP

A management track stock assessment for scup was completed in the summer of 2025. This assessment used the same method (statistical catch-at-age model) and data as the 2021 operational assessment, with updated commercial and recreational catch data and research survey indices through 2024. The main tasks were to gather both catch and fishery-independent information from previous years and stratify that information by age based on aging information that is collected by NOAA. RI contributes its DMF trawl survey data (see jobs 1 and 2 from this document) and the University of Rhode Island Trawl Survey information (see job 14 from this grant) and hopes to contribute the new ventless pot survey info in the future to the assessment (job 12). Staff collects the information and processes it for the assessment. Just as with summer flounder, during the reporting period, RIDEM staff actively participated in the ASMFC technical committee and Mid-Atlantic Fishery Management Council's (MAFMC) monitoring committee to develop the Recreational Measures Setting Process Framework/Addenda for scup, summer flounder, and black sea bass.

Scup 2025 management track stock assessment report: <https://asmfc.org/resources/stock-assessment/scup-management-track-assessment-report-2025/>

**Investigations:**

Data Acquisition and Analysis: 2 (Data for stock assessment, recreational measures analytical support)

Participation in Technical Committees: 2 (TC, FMAT/PDT)

## 6. BLUEFISH

A management track stock assessment was conducted by the Northeast Fisheries Science Center (NEFSC) in 2025. The assessment found the stock is not overfished and estimated spawning stock biomass (SSB) in 2024 to be 170 million pounds, which is 89% of the SSB target. Fishing mortality in 2024 was estimated to be 0.108, below the  $F_{threshold}$ , indicating the stock is not experiencing overfishing ( $F_{msy}$  proxy = 0.232) (Northeast Fisheries Science Center (NEFSC) 2025).

In 2025, DMF staff contributed data through 2024 for the 2025 Bluefish Management Track Assessment. Data included recreational release length-frequency data, age and growth port sampling data, and YOY abundance index data from the Narragansett Bay Juvenile Finfish Seine Survey.

Bluefish 2025 management track stock assessment:

[https://asmfc.org/wp-content/uploads/2025/08/Bluefish\\_ManagementTrackAssessment\\_2025.pdf](https://asmfc.org/wp-content/uploads/2025/08/Bluefish_ManagementTrackAssessment_2025.pdf)

### **Investigations:**

Data Acquisition and Analysis: 2 (Data for stock assessment, compliance report)

Participation in Technical Committees: 1

## 7. TAUTOG

A stock assessment update was completed in 2025 and approved for management use using the same methodology as the 2015 benchmark stock assessment and the 2017 and 2021 updates. The assessment update uses the Age Structured Assessment Program v. 3.0.17, part of the NOAA Fisheries Toolbox for the four management regions coastwide (RI is in a region with Massachusetts, MARI). Data from 2021-2024 was added, including updated commercial and recreational landings, fishery-independent indices and the MRIP fishery dependent index. The main tasks were to gather both catch and fishery independent information from the previous years for and stratify that information by age based on aging information that was collected in each state, and which RI contributed locally caught samples to. RI staff served on the stock assessment subcommittee and provided support in the main tasks and ensuring the model was successfully completed. RI contributed its DMF seine survey data (see job number 4 from this grant), trawl survey data (see jobs 1 and 2 from this document) and hopes to contribute the new ventless pot survey info in the future to the assessment.

For these tasks, RI staff participated in at least 4 tautog technical committee meetings and at least 8 stock assessment subcommittee meetings. Additionally, staff aggregated and submitted data for the stock assessment: these data included age and growth data, Narragansett Bay Seine index, Coastal Trawl Fall Seasonal Survey index, and commercial landings.

Tautog 2025 stock assessment update: [https://asmfc.org/wp-content/uploads/2025/11/2025TautogStockAssessmentUpdate\\_Oct2025.pdf](https://asmfc.org/wp-content/uploads/2025/11/2025TautogStockAssessmentUpdate_Oct2025.pdf)

**Investigations:**

Data Acquisition and Analysis: 2 (data submission for stock assessment, compliance report)

Participation in Technical Committees: 2 (TC, SAS)

## **8. WINTER FLOUNDER**

A management track stock assessment for the Southern New England/Mid-Atlantic (SNE/MA) winter flounder stock was completed in 2025. This assessment revised the 2011 benchmark stock assessment that was peer reviewed at the SAW52 meeting. The 2025 assessment was a ‘level 1 direct delivery’ and as a result did not undergo peer review. This assessment had been previously updated through operational assessments for management use in 2015, 2017, and 2020, and a management track assessment in 2022. The 2025 assessment indicated that the SNE/MA stock of winter flounder is not overfished and not experiencing overfishing relative to the updated biological reference points defined in the assessment. This is not a change in stock status compared to the 2022 assessment. As part of the 2022 assessment the years of recruitment estimates used to estimate biological reference points were changed and significantly affected stock status. Instead of drawing upon the entire time series of recruitment estimates, the projections now only use recruitment estimates since 2002 as the winter flounder stock is most likely not capable of achieving the high levels of recruitment prior to 2000; therefore, using a truncated recruitment time series of more recent years better reflects the current state of the stock. A research track stock assessment was initiated in 2024 with an objective to include environmental correlates in future winter flounder stock projections, including the SNE/MA stock. The research track stock assessment was scheduled to be completed in 2026, but was indefinitely paused in early 2025.

During this grant period, the main tasks for RI were to gather both catch and fishery independent information and stratify that information by age based on aging information from the NMFS trawl survey. Staff were active participants in the NEFMC Groundfish Plan Development Team and ASMFC winter flounder TC that discussed both federal and state water management measures for the SNE/MA winter flounder stock. The RI representative serves as the chair of the ASMFC winter flounder TC and was a participant in the winter flounder research track stock assessment working group.

Winter flounder 2025 management track stock assessment update report:  
[https://apps-nefsc.fisheries.noaa.gov/saw/sasi\\_files.php?year=2025&species\\_id=10&stock\\_id=5&review\\_type\\_id=1&info\\_type\\_id=-1&map\\_type\\_id=&filename=2025\\_FLW\\_SNEMA\\_REPORT\\_v2.pdf](https://apps-nefsc.fisheries.noaa.gov/saw/sasi_files.php?year=2025&species_id=10&stock_id=5&review_type_id=1&info_type_id=-1&map_type_id=&filename=2025_FLW_SNEMA_REPORT_v2.pdf)

**Investigations:**

Data Acquisition and Analysis 2 (data for assessment, compliance report)  
Participation in Technical Committees: 2 (TC, SAS)

**9. WEAKFISH**

Historically, weakfish had not had an approved assessment for many years and management had long been based on external, non-analytical indicators. The last benchmark assessment for the species was published in 2016, with an update conducted in 2019. Since the last assessment, RIDEM staff have participated in periodical meetings of the weakfish technical committee and have served on the ecological reference point working group which incorporates weakfish in an ecosystem-level modeling framework. Diet and abundance data from RIDMF's trawl survey were provided for the 2025 ecological reference point assessment for menhaden.

Weakfish 2019 stock assessment update:

<http://www.asmfc.org/uploads/file/5de7fc7c2019WeakfishAssessmentUpdate.pdf>

**Investigations:**

Data Acquisition and Analysis: 2 (DMF Trawl data for Ecological Reference Points, compliance report)  
Participation in Technical Committees: 1

**10. SPINY DOGFISH**

Spiny dogfish are an often-encountered recreationally intercepted species for Rhode Island anglers. The last management track assessment for the species occurred in 2023, using methods from the 2022 research track assessment. During the reporting period, RIDMF staff participated in the spiny dogfish technical committee, contributing harvest and fishery data in an annual compliance report. A data update is scheduled to occur in 2026, for which staff will aggregate updated harvest data.

Spiny dogfish 2023 management track stock assessment:

[https://static1.squarespace.com/static/511cdc7fe4b00307a2628ac6/t/65328221ecf1151363521421/1697808930472/e1\\_2023+Spiny+Dogfish+MT+assessment+report.pdf](https://static1.squarespace.com/static/511cdc7fe4b00307a2628ac6/t/65328221ecf1151363521421/1697808930472/e1_2023+Spiny+Dogfish+MT+assessment+report.pdf)

**Investigations:**

Data Acquisition and Analysis: 1 (compliance report)  
Participation in Technical Committees: 1

**11. OTHER SPECIES**

In addition to the species listed above, there are other recreationally significant species for which Rhode Island staff are not fully engaged in the coastwide assessment process

but provide important fisheries data to support stock assessments. During the reporting period, RIDMF staff validated commercial landings for bluefish, red snapper, spot, and croaker.

**Investigations:**

Data Acquisition and Analysis: 4

**ASSESSMENT OF RECREATIONALLY IMPORTANT  
FINFISH STOCKS IN RHODE ISLAND COASTAL WATERS**

**Age and Growth Study**

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March 2026

## PERFORMANCE REPORT

**STATE:** Rhode Island

**PROJECT NUMBER:** F-61-R

**SEGMENT NUMBER:** 23

**PROJECT TITLE:** Assessment of Recreationally Important Finfish Stocks in Rhode Island Coastal Waters

**PERIOD COVERED:** January 1, 2025 – December 31, 2025

**JOB NUMBER AND TITLE:** 9, Age and Growth Study

**JOB OBJECTIVE:** To collect age, growth, diet composition, and maturity data on recreationally and ecologically important finfish in Narragansett Bay for management purposes. Data collected in this study will be used in state, regional, and coast-wide stock assessments and fisheries management.

**SUMMARY:** Investigators collected lengths, weights, and age structures from ASMFC-required species and other target species of recreationally important finfish. The type of age structure collected, and the number of samples collected varied by species, with otoliths being the approved ageing structure collected for 6 species (bluefish, black sea bass, scup, summer flounder, weakfish, and winter flounder). Scales were collected for ageing of striped bass port samples from commercial floating fish trap gear and general category fishery sectors. Both scales and otoliths were collected for menhaden ageing. The first pelvic fin spines were collected for tautog ageing. Additionally, otoliths were collected from striped bass samples emanating from other sources (RIDMF surveys and recreational hook and line). In 2025, investigators fell short of collecting the target number ageing structures for bluefish (n=75/100), menhaden (no samples from the bait fishery, 112 from FI sources), tautog (n=134/200), weakfish (n=63, only 3 recreational and 2 commercial), scup (n=75/100), summer flounder (n=11/100), and were only able to collect 9 sets (pairs) of otoliths for winter flounder (no target number). Investigators did collect the target number of samples for black seabass (n=100/100). Work to age the primary ageing structures collected in 2025 is near-complete.

In addition to the collection of age and growth data, investigators continued the collection of stomach content, sex, and maturity stage data from target species. This data was collected through collaboration with investigators on the Rhode Island Division of Marine Fisheries (RIDMF) Monthly and Seasonal trawl surveys (Jobs 1 and 2), RIDMF Finfish Ventless Fish Pot survey (Job 12), commercial hook & line, and recreational hook & line fishers. In 2025, the target number of stomach content samples was met for bluefish (n=48/40), scup (n=43/40), tautog (n=41/40), and weakfish (n=54/40); the target number of stomach content samples was not met for black seabass (n=33/40), striped bass (n=20/40), summer flounder (n=11/40), and winter flounder (9/40).

**TARGET DATE:** December 31, 2025

**STATUS OF PROJECT:** On schedule

**SIGNIFICANT DEVIATIONS:** Staff were challenged in achieving our target number age samples and stomach samples across species. This was largely due to fishery dynamics and the level of cooperation experienced from the commercial and recreational fisheries.

**RECOMMENDATIONS:** Move into the next project segment and continue data collection in 2026.

**REMARKS:** None

## **INTRODUCTION**

Age and growth information is essential in estimating the age structure of a fish population. Understanding the age structure of a population allows scientists to make informed management decisions regarding acceptable harvest levels for a species. In recent years, the diet composition of finfish has become increasingly important in understanding the age and growth of a population. The diet composition of a species may help to inform managers on whether an observed change in a population may be due to prey availability. Understanding predator-prey dynamics can also allow managers to utilize multi-species modeling approaches by which they can better understand not only the population dynamics of one particular target species, but other choke or prey species that may be associated with the target species. Most recently, ASMFC adopted an ecosystem-based management approach for assessing Atlantic menhaden. The data collected in this study will help contribute to the aforementioned efforts.

This study is aimed to characterize the age structure and diet composition of stocks whose ranges extend into Narragansett Bay and will supplement data collected in the Northeast Fisheries Science Center (NEFSC) spring and fall surveys as well as the NorthEast Area Monitoring and Assessment Program (NEAMAP), which do not sample within Narragansett Bay. Data collected in this study is already used in several stock assessments and we expect that number to increase each year as benchmark stock assessments are conducted and ecosystem-based modeling approaches are further developed. Additionally, this study satisfies the requirements of ASMFC Fishery Management Plans (FMP's) for tautog, bluefish, menhaden, and weakfish which require the state of Rhode Island to collect a minimum number of age and growth samples annually for stock assessment purposes. This study has also been designed to use other jobs in this grant as a platform for obtaining biological samples.

Initiated in 2014, the collection of stomach content, sex, and maturity stage data for the species listed above continued in 2025

## **METHODS, RESULTS & DISCUSSION**

Seasonal sampling of nine species of finfish considered to be extremely important to the recreational fishing community was conducted primarily from May through December of 2025. Data collected included sex (except for port samples collected at local finfish dealer facilities), lengths, weights, and the appropriate age structure for the specific species (i.e., scale, otolith,

pelvic spine). The number of samples and age structures collected varied depending on the species (Table 1). Investigators focused on obtaining samples from various locations and sources throughout the state including finfish dealers, recreational anglers, commercial gillnetters, commercial otter trawlers, commercial hook & line fishers, and RIDMF surveys (otter trawl, fyke net, and fish pot) (Table 3).

Diet composition data was collected for high priority species by excising fish stomachs from fish collected during RIDMF field surveys, from whole fish purchased or donated from local finfish dealers, or fish racks and whole fish which were donated by recreational and commercial fishermen. For each species, the target number of stomachs to be examined is 40 (Table 4). Additional data collected from these samples included length, weight (if whole fish available), sex, maturity, and age structures. Once stomachs were removed, they were analyzed in the laboratory by sorting and identifying prey to the lowest taxonomic level possible and recording the wet mass for each taxon. All collected data were entered and stored in a Microsoft Access database.

### Black sea bass

For 2025, a total of 100 black sea bass age samples were collected from the RIDMF otter trawl survey and RIDMF finfish ventless trap survey (Table 2). Black sea bass samples collected ranged in size from 10.9-18.39 inches (27.6-46.7 cm) total length and 3 – 9 years old (Figure 1). A total of 33/100 samples have been aged to date.

Stomach content and maturity stage data were collected from 33 black sea bass; stomach contents included prey items from 5 taxonomic groups (Table 3). The proportional contribution of all stomach contents encountered in 2025 is shown in Figure 9 and summarized in Table 4. Black sea bass stomach contents were dominated by crustaceans (31.0%) followed by finfish (9.0%) and bivalve molluscs (8.3%), with smaller amounts of gastropod molluscs (4.8%) and polychaetes (0.4%) accounting for the remainder; “unidentifiable” contents accounted for 46.6%. Removal of “unidentifiable” contents from the analysis resulted in crustaceans accounting for 58.1% followed by finfish (16.8%) and bivalve molluscs (15.5%), with gastropod molluscs (8.9%) and polychaetes (0.7%) accounting for the remainder (Figure 10, Table 5).

### Bluefish

The ASMFC requires that a minimum of 100 bluefish age samples be collected annually by the state of Rhode Island. In 2025, age samples were collected from 75 bluefish obtained mainly from recreational rod & reel anglers (76 samples), with the remainder (7 samples) collected from the RIDMF otter trawl survey. Investigators rely heavily on the for-hire fleet to donate bluefish for biological samples. Since 2022, the for-hire fleet has had a very low harvest of bluefish, averaging 1,981 fish from 2022 – 2025 compared to 7,498 fish in 2021. Bluefish samples ranged in fork length from 13.9-28.7 inches (35.3-72.8 cm) and 1 – 5 years old (Figure 2).

Stomach content and maturity stage data were collected from 48 bluefish; stomach contents included prey items from 3 taxonomic groups (Table 3). The proportional contribution of all stomach contents encountered in 2025 is shown in Figure 9 and summarized in Table 4. Of the bluefish stomachs examined in 2025, identifiable stomach contents encountered included finfish (58.3%) and cephalopod molluscs (0.53%), with algae (0.05%) accounting for the remainder;

“unidentifiable” contents accounted for 41.1%. Removal of “unidentifiable” contents from the analysis resulted in finfish accounting for 99.0%, cephalopod molluscs for 0.90%, with algae (0.08% accounting for the remainder (Figure 10, Table 5).

### Menhaden

A total of 112 Atlantic menhaden paired age samples (112 scale and 112 otolith) from 112 fish were collected in 2025 exclusively from the RIDMF otter trawl survey; no samples were obtained from the commercial bait fishery (Table 2). Samples can only be collected from commercial bait purse seine operations when the Narragansett Bay menhaden management area (MMA) is open to commercial fishing. The MMA remained closed for the entirety of 2025. Menhaden samples ranged in fork length from 7.3-11.5 inches (18.5-29.2cm). Age samples will be aged collaboratively with the NOAA Fisheries Beaufort Laboratory.

Maturity stage data were collected from 112 fish. Due to the fact that menhaden are filter feeders, all stomach contents encountered in previous years of this study were liquefied, with prey item(s) unable to be identified and classified. As a result, no menhaden stomachs were examined during 2025. Generally, menhaden stomach contents should reflect the dominant planktonic species present at the time of sample collection.

### Scup

In 2025, a total of 75 scup age samples were collected exclusively from fish caught by the RIDMF otter trawl survey (Table 2). Scup samples ranged in fork length from 7.9-13.8 inches (20.1-35.1 cm) and age from 1 – 16 years old (Figure 3).

Stomach content and maturity stage data were collected from 43 scup. Stomach contents included prey items from 8 taxonomic groups (Table 3). The proportional contribution of all stomach contents encountered in 2025 is shown in Figure 9 and summarized in Table 4. Identifiable stomach contents were dominated by finfish (54.5%) followed by cnidarians (4.4%), cephalopod molluscs (3.8%), polychaetes 3.8%), bivalve molluscs (2.7%), crustaceans (2.2%), sipunculids (1.3%), gastropod molluscs (0.9%), and sand/rocks (0.2%); “unidentifiable” contents accounted for 26.2%. Removal of “unidentifiable” contents from the analysis resulted in finfish accounting for 73.9%, cnidarians for 5.9%, cephalopod molluscs for 5.2%, polychaetes for 5.2%, bivalve molluscs for 3.7%, crustaceans for 3.0%, sipunculids for 1.7%, gastropod molluscs for 1.2%, and sand/rocks for 0.3% (Figure 10, Table 5).

### Spiny Dogfish

Spiny dogfish were discontinued from this project as of 2025.

### Striped Bass

A total of 211 striped bass age samples were collected in 2025. Although otoliths remain the primary ageing structure, scales are collected from commercial port samples (finfish dealers) when staff are unable to collect otoliths due to the damage it would cause to the fish. Each year investigators set a sampling target of 150 samples from floating fish traps and 150 samples from the general category fishery. Floating fish traps have a minimum size of 26” while the commercial general category fishery has a minimum size of 34”. Sampling from both of these operations allows us to sample a wider size range of striped bass. In recent years there have been

a very limited number of floating fish traps in operation making obtaining striped bass samples from this fishery difficult. A total of 190 samples were obtained from the general category fishery and 0 samples from floating fish traps, for a total of 189 samples. The majority of floating fish trap harvest (72%) occurred over a 9-day period in 2025, making it very difficult to get samples in 2025. Staff supplemented traditional sampling by collecting a total of 21 striped bass age samples from the RIDMF otter trawl survey (n=6), fyke net (n=15) survey, and recreational hook & line fishery (n=1). In 2025, the recreational hook & line fishery had slot limit with a 28" minimum size and a <31" maximum size. These samples were generally below legal minimum size(s) but helped to expand the length-frequency distribution sampled. Striped bass sampled ranged from 14.2-48.4 inches fork length (36.1-123.0 cm). Ageing scales for 2025 is ongoing. Otolith ages ranged from 3 – 8 years old (Figure 4).

Stomach content and maturity stage data were collected from 20 striped bass. Stomach contents included prey items from 6 taxonomic groups (Table 3). The proportional contribution of all stomach contents encountered in 2025 is shown in Figure 9 and summarized in Table 4. Identifiable stomach contents were dominated by finfish (83.0%) followed by crustaceans (3.5%), with small quantities algae (0.8%), gastropod molluscs (0.4%), polychaetes (0.2%), and aquatic plants (0.05%) accounting for the remainder; "unidentifiable" contents accounted for 12.1%. Removal of "unidentifiable" contents from the analysis resulted in finfish accounting for 94.3% followed by crustaceans 4.0%, with small quantities of algae (0.9%), gastropod molluscs (0.5%), polychaetes (0.2%), and aquatic plants (0.06%) accounting for the remainder (Figure 10, Table 5).

#### Summer Flounder

A total of 11 summer flounder age samples were collected in 2025, all from the RIDMF otter trawl survey. Summer flounder samples collected varied in size from 10.0-22.0 inches (25.4-56.0 cm) total length and 1 – 4 years old (Figure 5).

Stomach content and maturity stage data were collected from 11 summer flounder. Stomach contents included prey items from 4 taxonomic groups (Table 3). The proportional contribution of all stomach contents encountered in 2025 is shown in Figure 9 and summarized in Table 4. Identifiable stomach contents were dominated by cephalopod molluscs (22.8%) and finfish (19.0%), with a minor amount of crustaceans (4.6%) and a negligible amount of bivalve molluscs (0.03%); "unidentifiable" contents accounted for 53.6%. Removal of "unidentifiable" contents from the analysis resulted in cephalopod molluscs accounting for 49.1%, finfish for 40.9%, crustaceans for 0.9%, and bivalves for 0.06% (Figure 10, Table 5).

#### Tautog

ASMFC requires that a minimum of 200 tautog age samples be collected annually by the state of Rhode Island. A total of 134 tautog age samples were collected in 2025. Samples were primarily collected from the recreational hook and line fishery (n=105), with additional samples obtained from the RIDMF otter trawl survey (n=23), RIDMF fyke net survey (n=3), RIDMF fish pot survey (n=1); two (n=2) samples came from the commercial gillnet fishery. The majority of the tautog samples are typically collected in the fall months when the for-hire vessels are targeting them. The ability to obtain samples during this period of time in 2025 was heavily impacted by

weather conditions such as strong winds and high seas. Tautog samples collected ranged from 7.6-20.6 inches (19.3-52.3cm) total length and 1 – 13 years old (Figure 6).

Stomach content and maturity stage data were collected from 41 tautog in 2025. Stomach contents included prey items from 8 taxonomic groups (Table 3). The proportional contribution of all stomach contents encountered in 2025 is shown in Figure 9 and summarized in Table 4. Identifiable tautog diet was primarily comprised of crustaceans (33.6%) and bivalve molluscs (32.0%), with a small quantity of gastropod molluscs (6.8%) and negligible amounts of maxillopods (1.1%), echinoderms (0.5%), algae (0.4%), aquatic plants (0.2%), and finfish (0.007%) also observed; “unidentifiable” contents accounted for 25.3%. Removal of “unidentifiable” contents from the analysis resulted in crustaceans accounting for 45.0% and bivalve molluscs for 42.8%, with a small quantity of gastropod molluscs (9.1%) and negligible amounts of maxillopods (1.5%), echinoderms (0.6%), algae (0.6%), aquatic plants (0.3%), and finfish (0.009%) (Figure 10, Table 5).

### Weakfish

Rhode Island is required by the ASMFC to collect three age structures and 6 lengths per metric ton of weakfish landed commercially in the state. In 2025, this would have resulted in a sampling target of 57 fish lengths and 28 ages based on 2025 landings. The weakfish stock assessment sub-committee and management board have requested that length samples come from the commercial fishery as these data are used in developing the commercial age-length keys. In recent years, weakfish have become scarce in RI, which has resulted in extreme difficulty in obtaining fishery-dependent samples. When landings do come in, they are sporadic and for very few pounds. This makes it very difficult to get samples from licensed dealers. Investigators continue to attempt to purchase fish directly from seafood dealers at market value to ensure that they can obtain samples, however strong market demand and limited supply during 2025 prevented the availability of this species for sampling. In 2025, a total of 63 otolith and length samples were collected, consisting of 5 fishery-dependent (2 commercial; 3 recreational), and 58 fishery-independent (RIDMF otter trawl. Of these, a total of 13 legal-sized weakfish length samples were collected, consisting of 2 fishery-dependent and 11 fishery-independent samples (9 from the RIDMF trawl survey and 2 from the recreational hook & line fishery). Weakfish collected by the fishery-independent RIDMF otter trawl (n=58) consisted of 49 sublegal-sized fish and 9 legal-sized fish. Weakfish collected from the recreational hook & line fishery (n=3) consisted of 1 sublegal-sized fish and 2 legal-sized fish. Weakfish sampled ranged from 10.7-19.9 inches (27.1-50.5 cm) total length and were 1 – 4 years old (Figure 7).

Stomach content and maturity stage data were collected from 54 weakfish. Stomach contents included prey items from 3 taxonomic groups (Table 3). The proportional contribution of all stomach contents encountered in 2025 is shown in Figure 9 and summarized in Table 4. Of the weakfish stomachs examined in 2025, identifiable stomach contents were dominated by finfish (61.4%) and cephalopod molluscs (8.5%), with a minor contribution from crustaceans (0.3%); “unidentifiable” contents accounted for 29.9%. Removal of “unidentifiable” contents from the analysis resulted in finfish accounting for 87.5%, cephalopod molluscs for 12.1%, and crustaceans for 0.4% (Figure 10, Table 5).

### Winter Flounder

A total of 9 winter flounder scale and otolith samples were collected in 2025. These samples were collected entirely by RIDMF staff on board the RIDMF otter trawl survey. Winter flounder samples collected varied in size from 9.4-13.4 inches (23.8-34.0 cm) total length and 1 – 3 years old (Figure 8).

Stomach content and maturity stage data were collected from 11 winter flounder. Stomach contents included prey items from 4 taxonomic groups (Table 3). The proportional contribution of all stomach contents encountered in 2025 is shown in Figure 9 and summarized in Table 4. Of the winter flounder stomachs examined in 2025, identifiable stomach contents were dominated by cnidarians (41.9%) and polychaetes (18.3%), followed by crustaceans (11.7%) and negligible amounts of bivalve molluscs (0.1%) and sand/rocks (0.1%); “unidentifiable” contents accounted for 27.9%. Removal of “unidentifiable” contents from the analysis resulted in stomach contents being dominated by cnidarians (58.1%) and polychaetes (25.3%), followed by crustaceans (16.2%) and negligible amounts of bivalve molluscs (0.1%) and sand/rocks (01%) (Figure 10, Table 5).

### **SUMMARY**

In 2025, investigators fell short of collecting the target number of samples for several species. This was largely due to difficulties in staff getting samples due to dynamics of the fisheries, inclement weather, and the availability of fish. Processing of all hard parts is complete and is ongoing for 2025. In 2026, staff will continue reaching out to additional seafood dealers and the recreational community to ensure that the target number of samples is met for each species. Staff will continue to participate in ASMFC ageing workshops as they occur in 2026.

### **FIGURES**

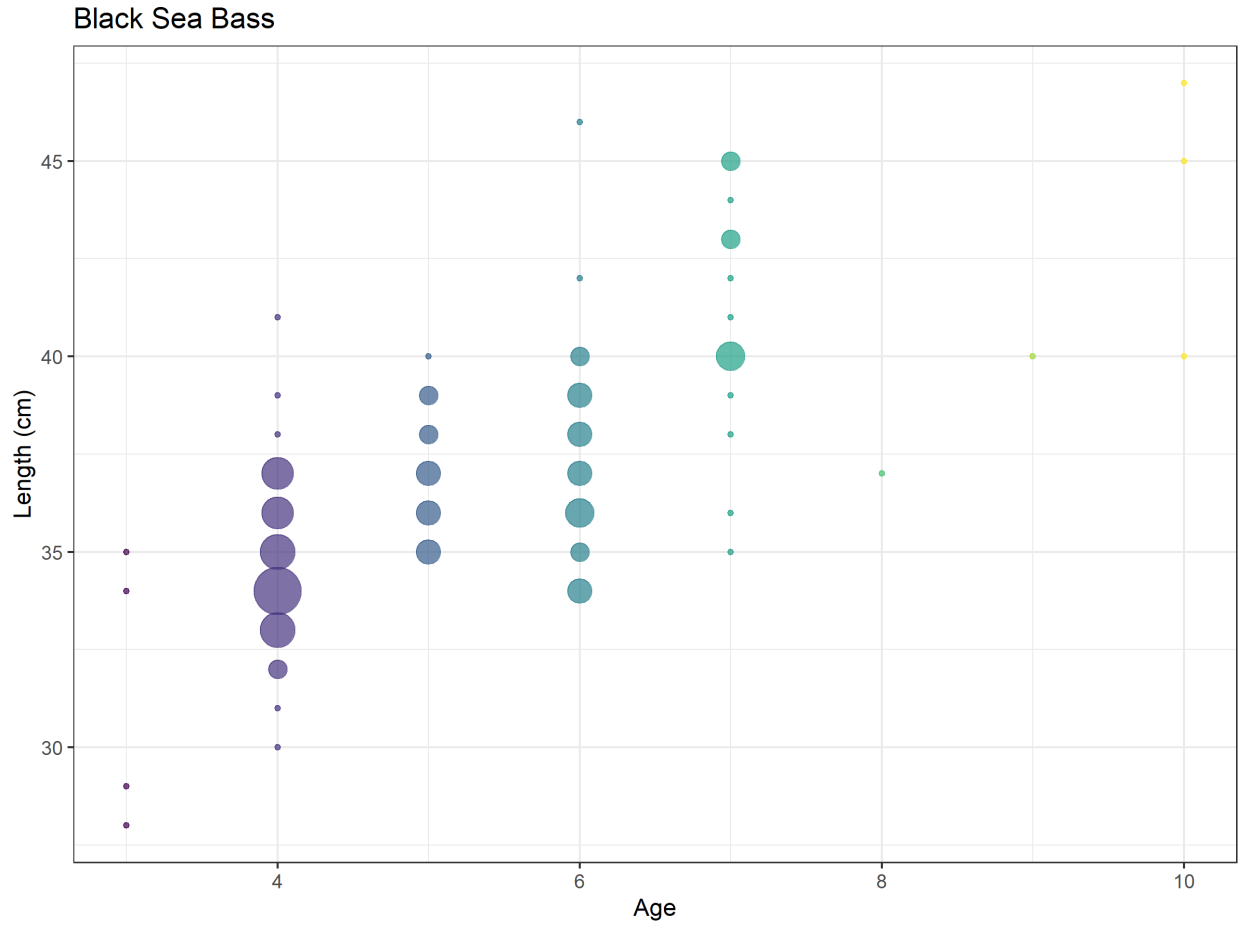


Figure 1. Black sea bass age at length. Bubble size is scaled to the count of each length and age.

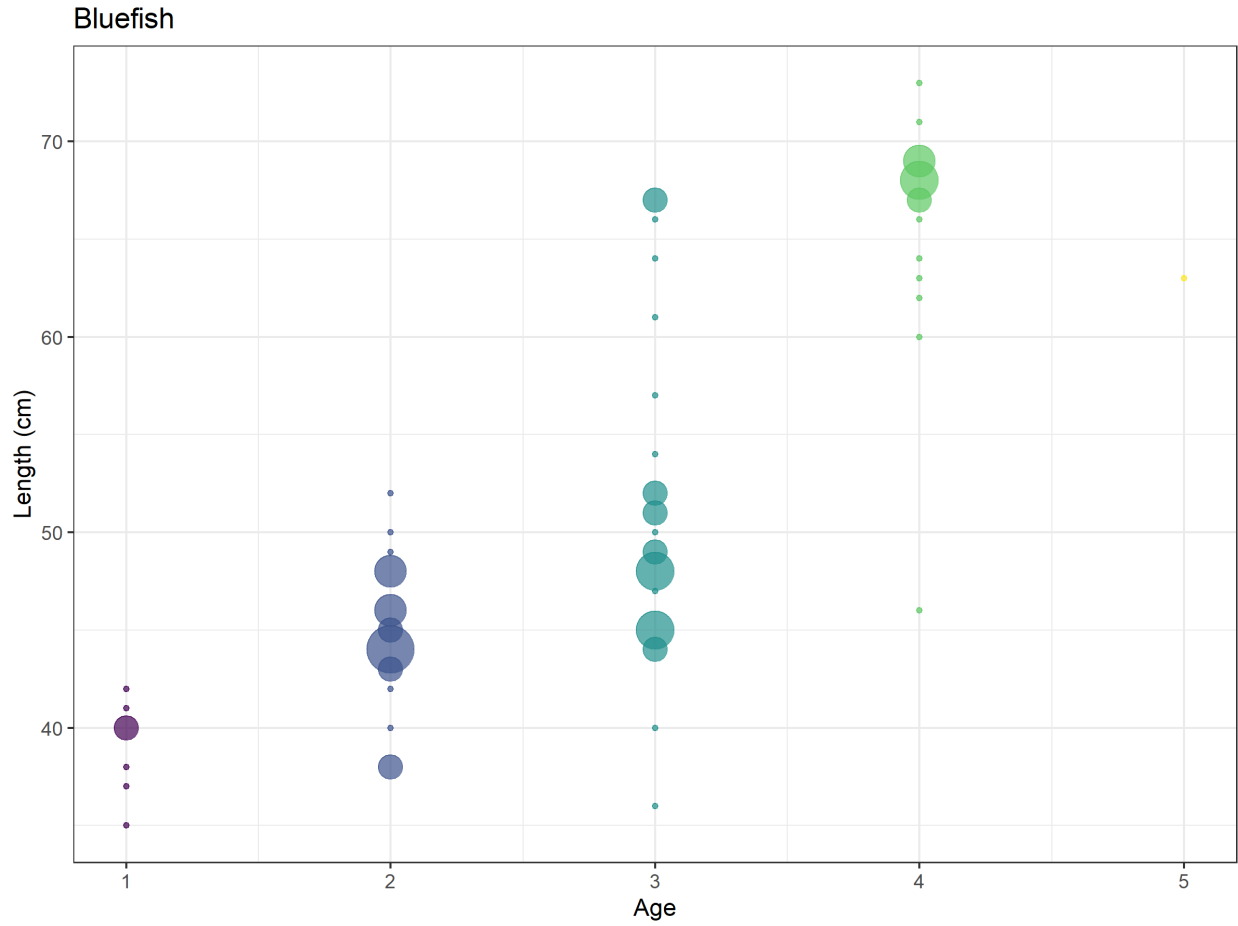


Figure 2. Bluefish age at length. Bubble size is scaled to the count of each length and age.

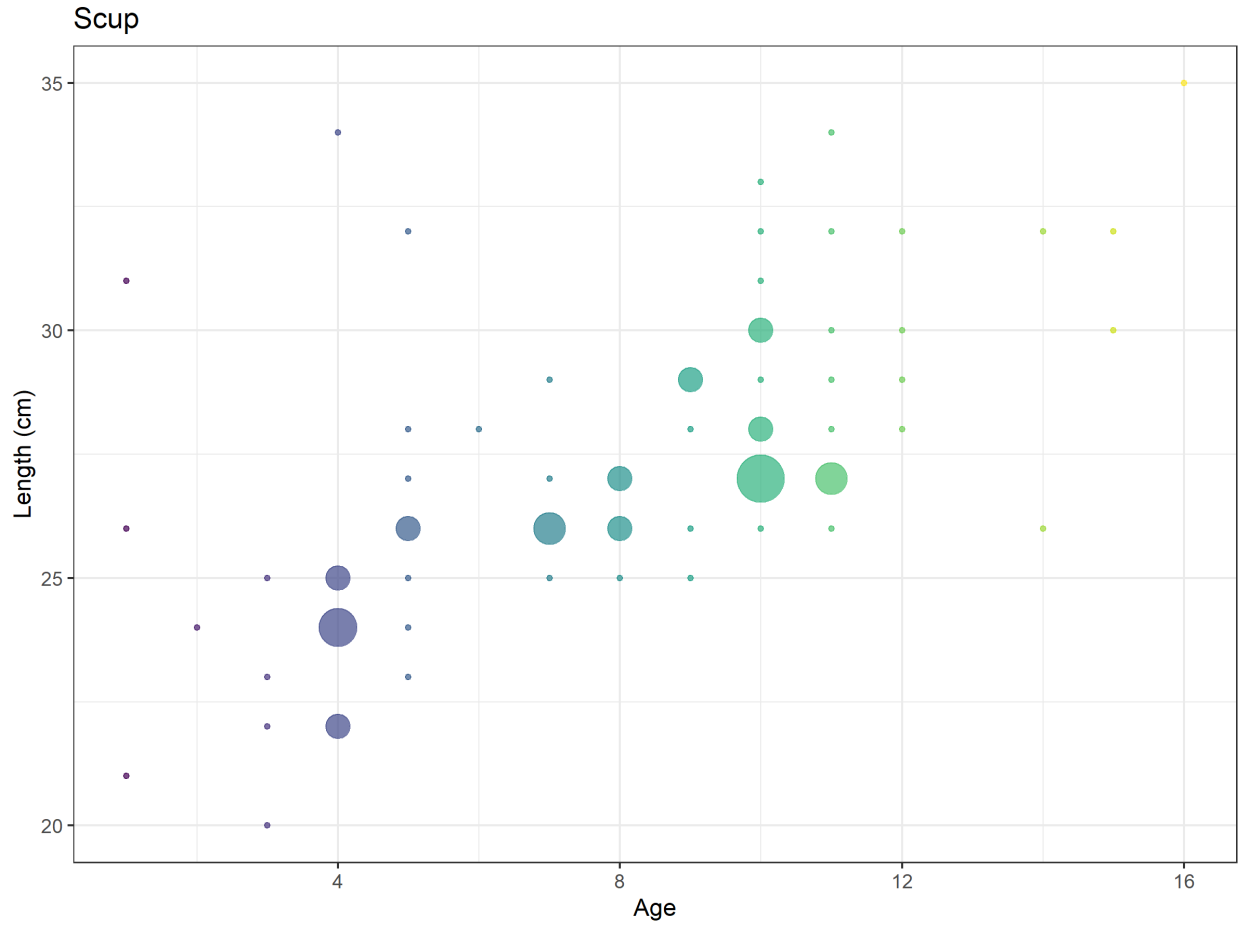


Figure 3. Scup age at length. Bubble size is scaled to the count of each length and age.

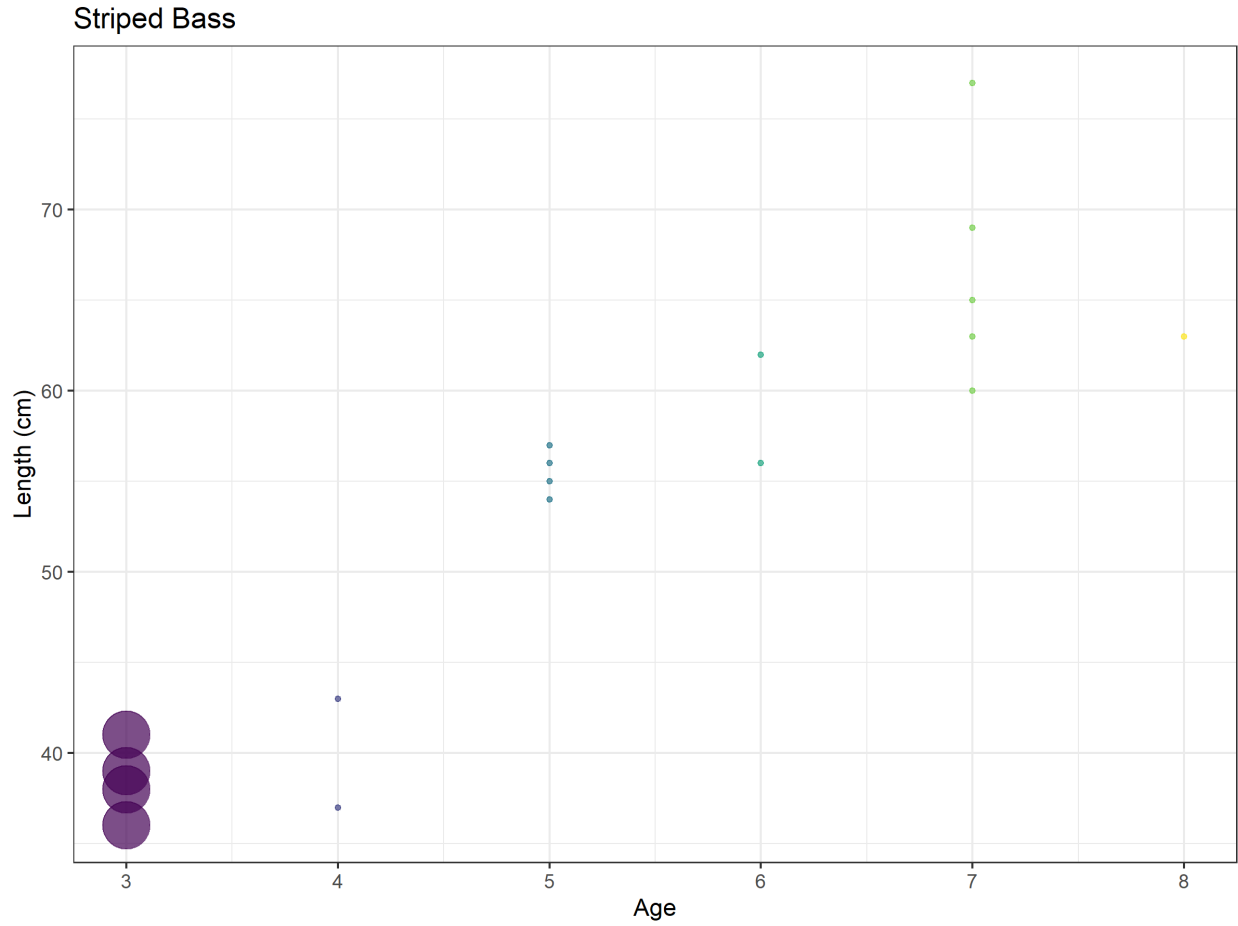


Figure 4. Striped bass age at length. Bubble size is scaled to the count of each length and age.

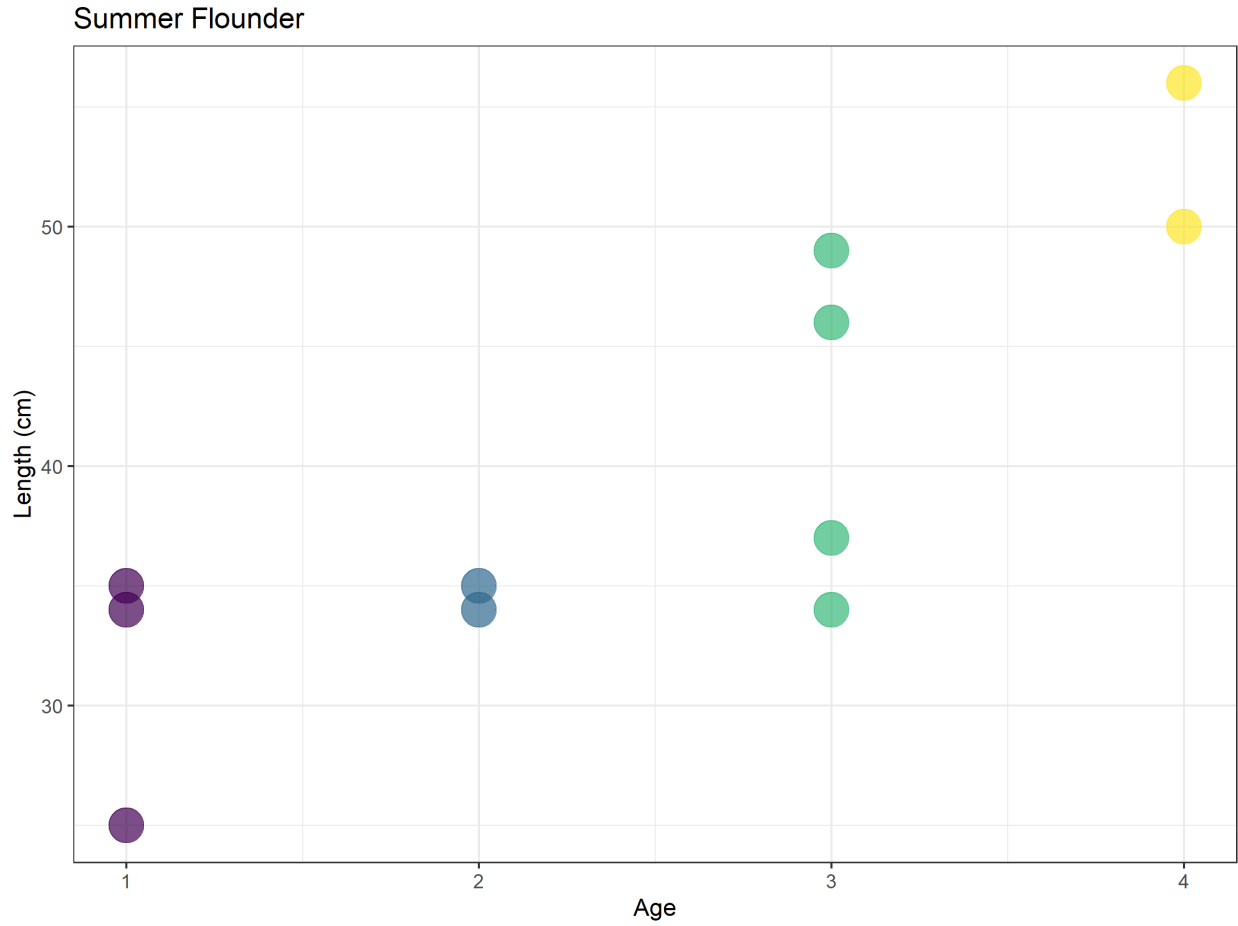


Figure 5. Summer flounder age at length. Bubble size is scaled to the count of each length and age.

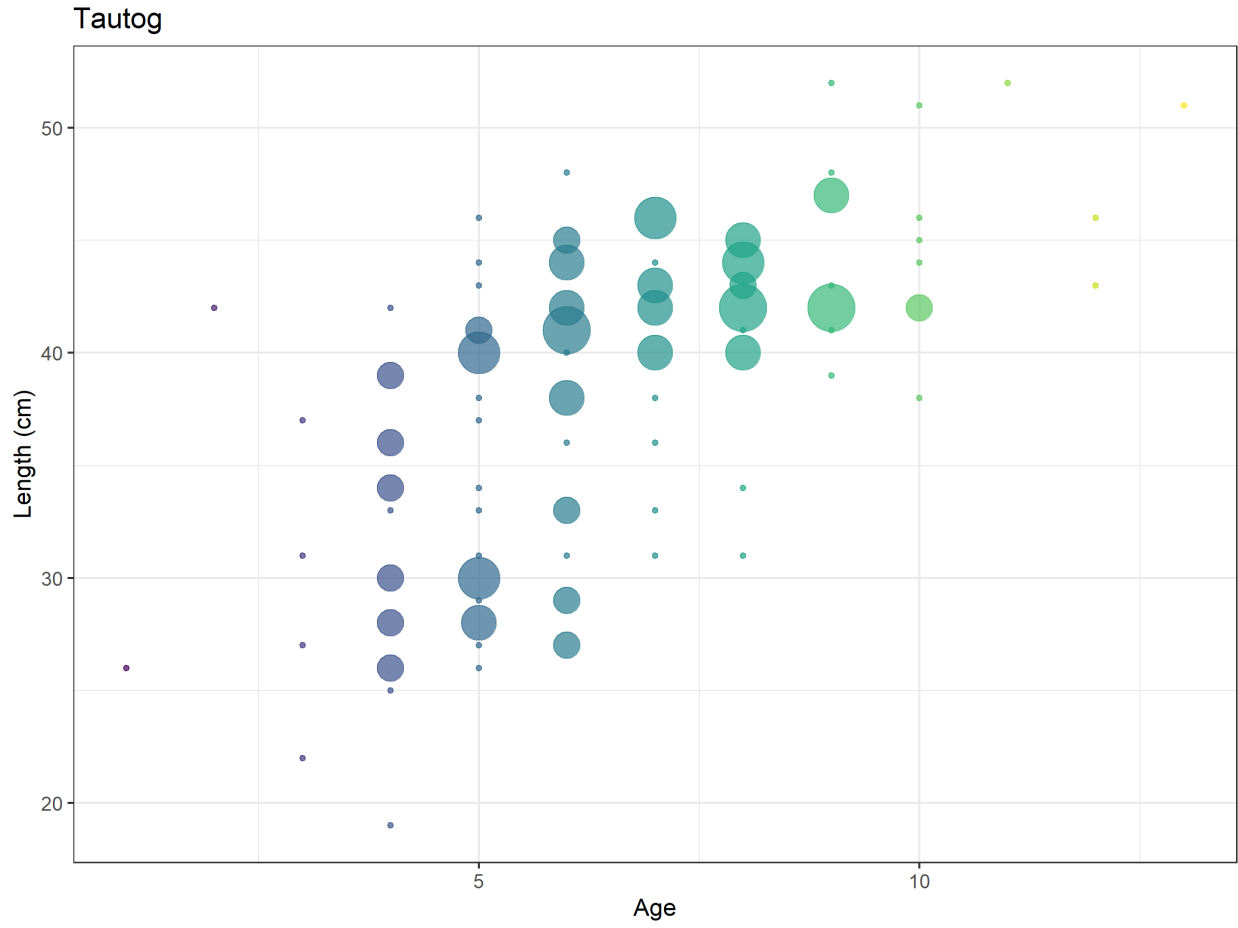


Figure 6. Tautog age at length. Bubble size is scaled to the count of each length and age.

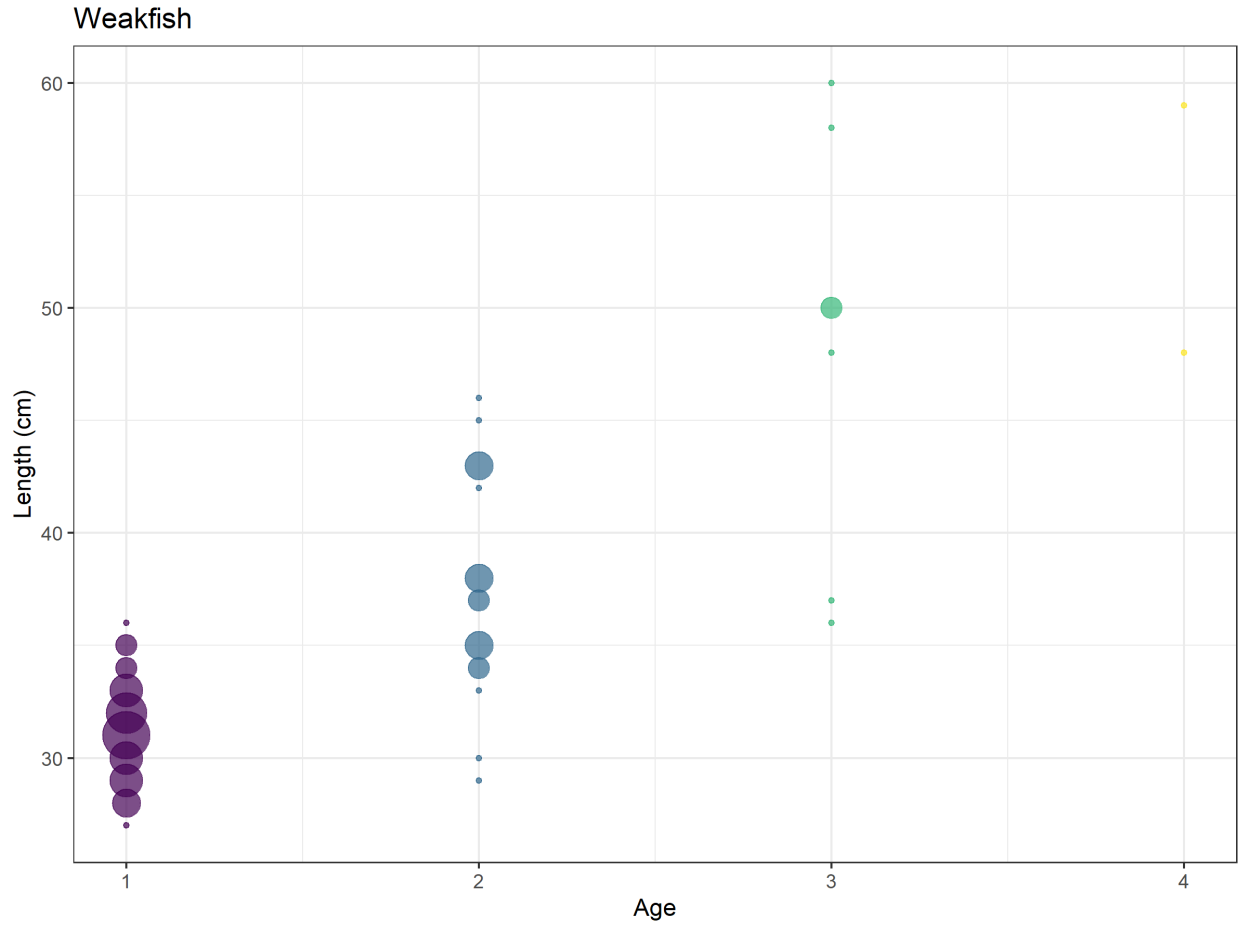


Figure 7. Weakfish age at length. Bubble size is scaled to the count of each length and age.

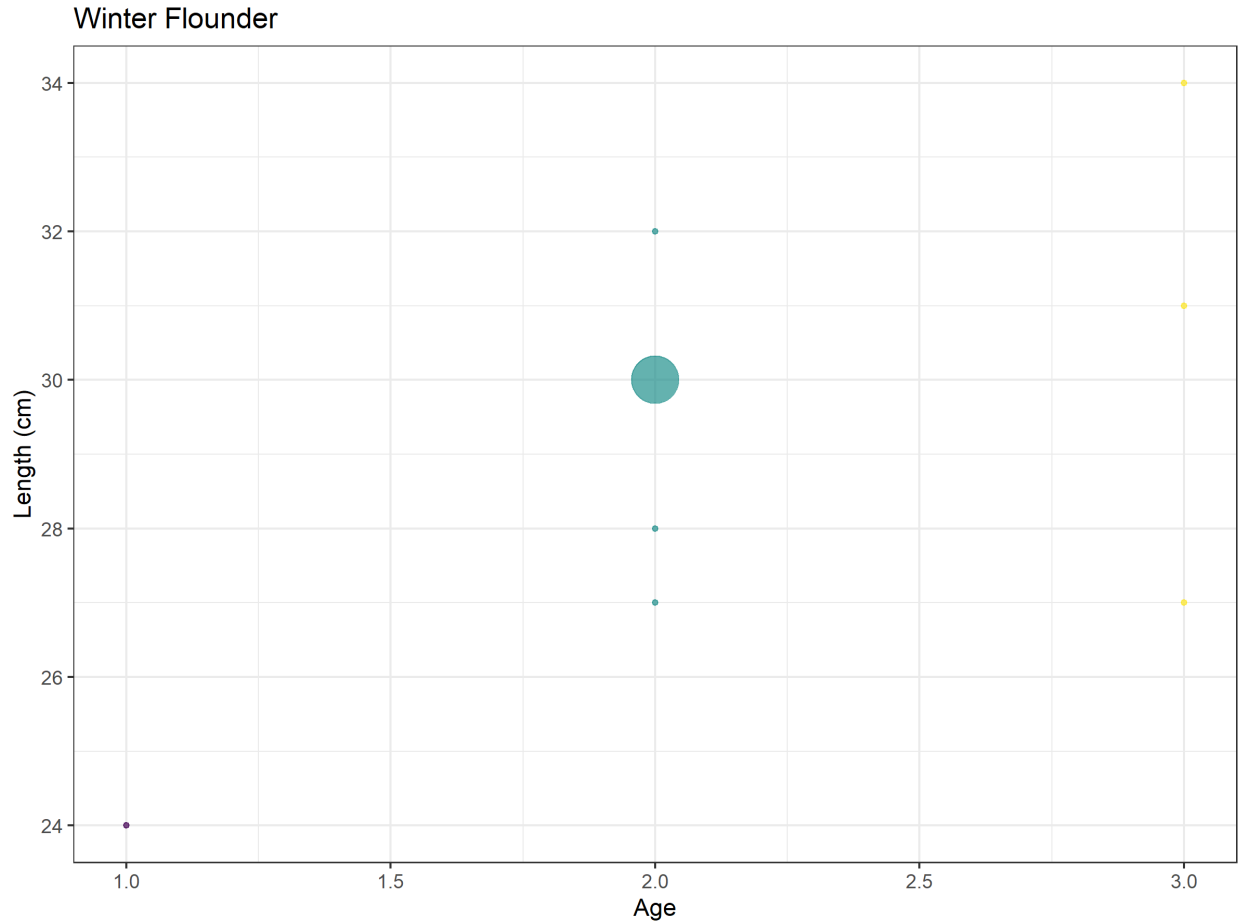


Figure 8. Winter flounder age at length. Bubble size is scaled to the count of each length and age.

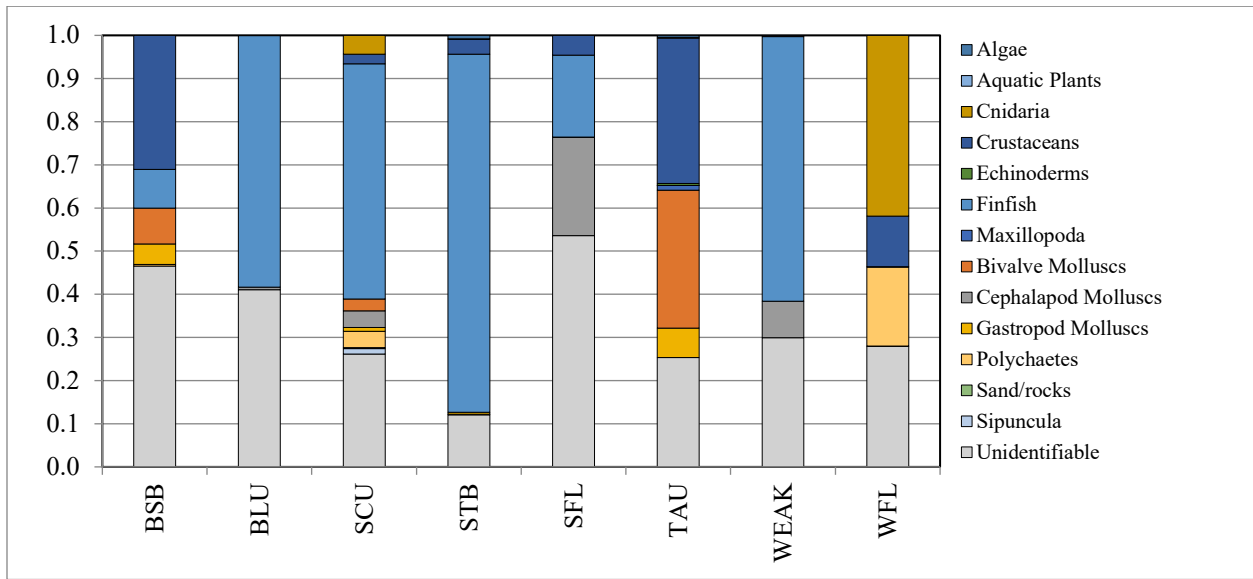


Figure 9. 2025 Proportional contribution of all stomach content types by species.

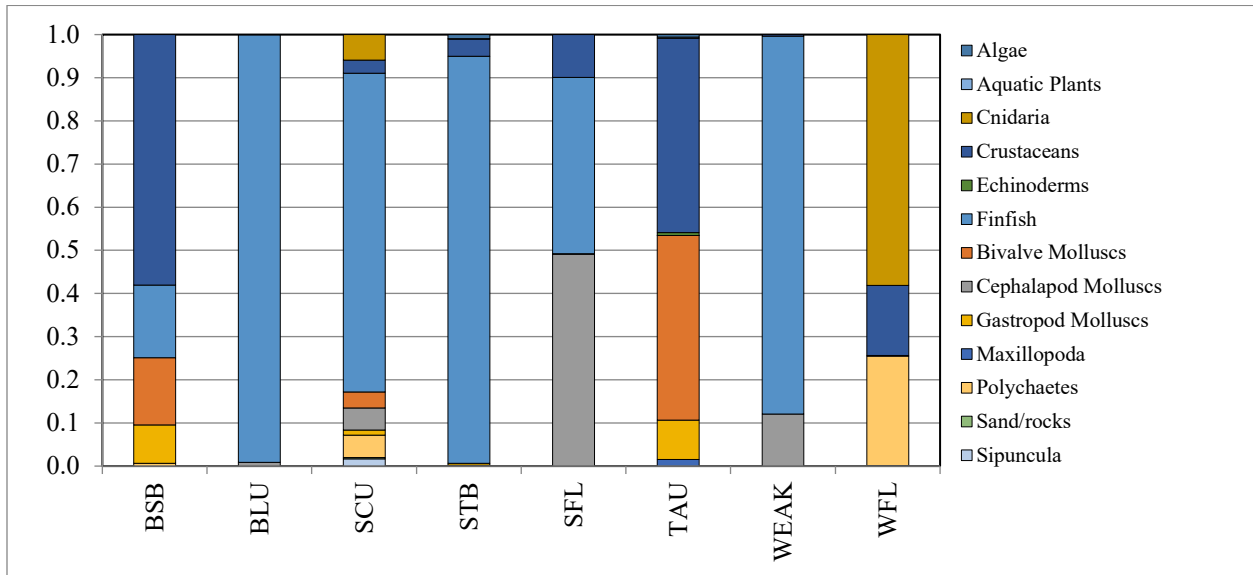


Figure 10. 2025 Proportional contribution of stomach content types by species; “unidentifiable” contents not included.

## TABLES

Table 1. Number of ageing structures collected by species in 2025.

Common name	Ageing structure(s)	Target number of ageing structures	Number of ageing structures collected
Black sea bass	Otolith	100	100 otolith
Bluefish***	Otolith	100	75 otolith
Menhaden***	Scale, Otolith	100	112 scale, 112 otolith
Scup	Otolith	100	75 otolith
Striped bass	Scale, Otolith	150 fish/gear type**	189 scale, 22 otolith
Summer Flounder	Otolith	100	11 otolith
Tautog***	1 <sup>st</sup> pelvic	200	134 pelvic spines
Weakfish***	Otolith	3 fish aged per metric ton landed*	63 otoliths (13 legal-sized, 50 sublegal)
Winter Flounder	Otolith	NA	9 otolith

\*Per ASMFC FMP requirements, 57 commercial lengths and 28 ages required for 2025

\*\*Gear types include floating fish trap and general category

\*\*\*Required by ASMFC

Table 2. Gear type sampled for each species collected in 2025 (FFT=Floating Fish trap).

Common name	Gear Type
Black sea bass	Otter Trawl, Fish Pot
Bluefish	Otter Trawl, Hook and Line
Menhaden	Otter Trawl
Scup	Otter Trawl
Striped bass	Otter Trawl, Hook and Line, Fyke Net
Summer Flounder	Otter Trawl
Tautog	Otter Trawl, Hook and Line, Fish Pot, Fyke Net, Gillnet
Weakfish	Otter Trawl, Hook & Line, Commercial-Unknown
Winter Flounder	Otter Trawl

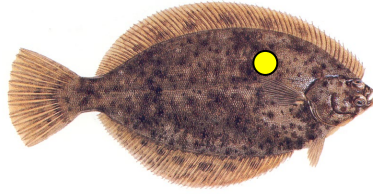
Table 3. 2025 Summary of stomach content sampling by species (\* Sand/rocks and “unidentifiable” stomach contents not included in number of prey taxa).

SPECIES	Target # Stomachs	# Stomachs sampled	# PREY TAXA*
Black Sea Bass	40	33	5
Bluefish	40	48	3
Scup	40	43	8
Striped Bass	40	20	6
Summer Flounder	40	11	4
Tautog	40	41	8
Weakfish	40	54	3
Winter Flounder	40	9	4

Table 4. 2025 Proportional contribution of **all** stomach content types by species (see Figure 9).

	BSB	BLU	SCU	STB	SFL	TAU	WEAK	WFL
Algae	0	0.0005	0	0.0083	0	0.0043	0	0
Aquatic Plants	0	0	0	0.0005	0	0.0023	0	0
Ascidiacea	0	0	0	0	0	0	0	0
Bryozoa	0	0	0	0	0	0	0	0
Cnidaria	0	0	0.0438	0	0	0	0	0.4189
Crustaceans	0.3104	0	0.0220	0.0351	0.0461	0.3363	0.0025	0.1171
Echinoderms	0	0	0	0	0	0.0048	0	0
Finfish	0.0899	0.5833	0.5453	0.8295	0.1897	0.0001	0.6137	0
Bivalve Mollusc	0.0829	0	0.0274	0	0.0003	0.3196	0	0.0011
Cephalopod Mollusc	0	0.0053	0.0381	0	0.2281	0	0.0848	0
Gastropod Mollusc	0.0476	0	0.0089	0.0042	0	0.0682	0	0
Maxillopoda	0	0	0	0	0	0.0113	0	0
Nematoda	0	0	0	0	0	0	0	0
Nemertea	0	0	0	0	0	0	0	0
Platyhelminthes	0	0	0	0	0	0	0	0
Polychaetes	0.0035	0.0381	0.0381	0.0016	0	0	0	0.1826





# **Assessment of Recreationally Important Finfish Stocks in Rhode Island Coastal Waters**

## **Winter Flounder Spawning Stock Biomass Survey**

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Federal Aid in Sportfish Restoration  
F-61-25

State: Rhode Island Project Number: F-61-R-25

Project Title: Assessment of Recreationally Important Finfish Stocks in Rhode Island Waters

Period Covered: January 1, 2025 – December 31, 2025

Job Number and Title: Job X – Winter Flounder Spawning Stock Biomass (SSB) in Rhode Island Coastal Ponds.

Job Objective: To support a seasonal young-of-the-year winter flounder survey by providing data on the dynamics and abundance of the spawning population of winter flounder in Rhode Island coastal ponds.

Significant Deviations: None to report

### **Summary:**

In 1999, the Rhode Island young of the year coastal pond and embayment project (Job 3) was expanded to support an adult winter flounder (*Pseudopleuronectes americanus*) monitoring and tagging project. This winter phase of the seasonal coastal pond juvenile flounder work presented an opportunity to collect data on the adult spawning populations of winter flounder in Rhode Island south shore coastal ponds. A commercial fisherman who had historically fished for winter flounder in the coastal ponds agreed to assist the Rhode Island Marine Fisheries staff to operationalize the survey.

From 1999 through 2011 only Point Judith Pond and, intermittently, Potter Pond were sampled as part of this survey. As adult winter flounder abundance in the Point Judith system declined to all-time lows, Ninigret Pond (also known as Charlestown Pond) was added to the survey from 2012 through 2015 in partnership with the US Environmental Protection Agency. Ninigret Pond was added to the survey again in 2019 and will continue to be sampled in the future. Point Judith Pond was discontinued as a sampled system at the end of the 2023 sampling year due to extremely high survey related mortality of winter flounder by seal predation. Rates of seal related mortality of survey captured winter flounder remain low in the other survey systems for the time being. There are twenty-one stations where data has been collected over the course of the survey, with seven found in Point Judith Pond, seven in Potter Pond, and seven in Ninigret Pond (Figure 1). The survey runs from approximately December through April annually. Fyke net fishing gear is deployed depending on ice cover in the ponds and the gear is generally hauled on three to seven-night sets.

### **Additional Research:**

Beginning in the winter of 2021/2022 a passive acoustic tag monitoring project was initiated in Ninigret Pond. An array of 12 acoustic receivers was deployed throughout Ninigret Pond to detect locations and movements of tagged winter flounder and any other tagged species that may enter the pond. In total 85 winter flounder were acoustically tagged from 2021/22

through 2023/24. The winter of 2024/25 was the final winter these tagged fish were monitored using the Ninigret Pond array based on the battery life of the tags used in the study.

Beginning in the winter of 2023/2024 fin clips were collected from all caught winter flounder to support potential genetics studies including, but not limited to, close kin mark-recapture studies. Fin clips are cheap to collect and add relatively minimal effort to field work, particularly when dry-stored. The winter of 2024/25 was the final winter of collecting fin clips from all winter flounder during this survey.

### Methods and Materials:

Fyke nets are a passive fixed fishing gear, attached perpendicular to the shoreline at mean low water. A vertical section of net wall referred to as a leader directs fish toward the body of the net where the catch is funneled through a series of parlors, eventually being retained in the terminal parlor. The wings of the net accomplish further direction of the catch. Adult winter flounder are tagged using Peterson Disk Tags (all years) and/or Vemco V13 acoustic tags (2021/22 through 2023/24).

Net dimensions:

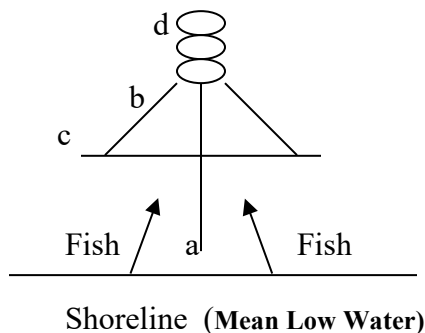
a. Leader - 100'

b. Wings - 25'

c. Spreader Bar - 15'

d. Net parlors – 2.5'

Mesh size - 2.5" throughout

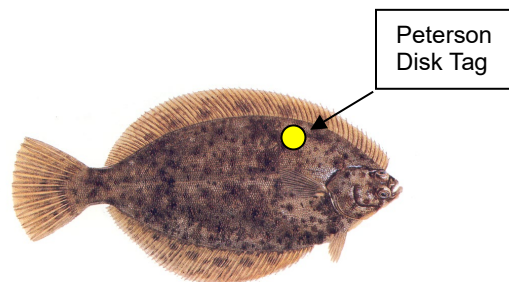


Station water profile:

Dissolved oxygen - mg/l

Salinity - ppt

Temperature - degree C



### Fieldwork:

In 2025 two to three nets were set concurrently in Potter Pond and two to three nets were set concurrently in Ninigret Pond, for a total of four to six concurrently set nets between the two systems. 83 fyke net sets were conducted in 2025 (Tables 1-3). Nets were tended every three to eight days depending on the anticipated size of the catch and weather conditions. Higher catches increase density inside the net and attract predators such as cormorants, seals, and otters thus potentially increasing survey-induced mortality.

All winter flounder captured were measured, sexed, enumerated, and categorized to describe spawning stage. Spawning stage is defined as ripe (pre-spawn), running ripe (active

spawn), spent (post-spawn), resting (non-active spawn), and immature. These data illustrate how the spawning activity of flounder advances throughout the duration of the survey season. This is useful in determining the potential impacts of coastal zone activities such as harbor and breachway dredging and pier construction.

Fish of legal retention size (30.5 cm) are tagged and released away from the capture area. Tagging and recapture data is presented in Tables 1-3.

### **Fisheries:**

Winter flounder were historically a commercially and recreationally important species to the State of Rhode Island. From 1999-2024, commercial landings of winter flounder in Rhode Island averaged 249 metric tons and had an average value of \$840,000 dollars annually (Table 4, Figure 2). Throughout the time series, landings have shown an overall and precipitous downward trend. Commercial landings in 2024 were the second lowest in the time series. Recreational harvest as monitored through NOAA Fisheries' Marine Recreational Information Program (MRIP) has declined rapidly throughout the study period and remains extremely low through 2025 (Table 5, Figure 3) (NMFS 2024 commercial landings query and MRIP database through 2025). Note that due to the rarity of the MRIP Access Point Angler Intercept Survey encountering anglers who have captured winter flounder since 2005, the percent standard error (PSE) for these data points is commonly very high and MRIP does not support the use of these estimates (Table 5).

The NOAA Northeast Fisheries Science Center 2025 SNE/MA management track stock assessment update report indicates the stock is not overfished and overfishing is not occurring (NOAA 2025). A change in the years of recruitment estimates used to estimate biological reference points were implemented in the 2022 management track stock assessment. Instead of drawing upon the entire time series of recruitment estimates, the projections now only use recruitment estimates since 2002. The SNE/MA winter flounder stock is most likely not capable of achieving the high levels of recruitment that existed prior to 2000; therefore, using a truncated recruitment time series of only the past 20 years better reflects the current state of the stock. Spawning stock biomass in 2024 was estimated to be 2,787 metric tons, which is 89% of the biomass target and 179% of the biomass threshold. The 2024 fishing mortality was estimated to be 0.048 which is 21% of the overfishing threshold.

### **Spawning Behavior:**

Winter flounder enter the Rhode Island south shore coastal pond systems to spawn in the early part of winter and engage in spawning activity from approximately December through May annually (Figures 4-6). Spawning and egg deposition takes place on sandy bottoms and algal accumulations (Collette and Klein-MacPhee 2002). Winter flounder eggs are non-buoyant and clump together on these substrates. Survey data indicate that peak-spawning activity takes place during the month of February. Figures 4 (full timeseries), 5 (2021-2025), and 6 (2025) display the ratio of spawning stages of winter flounder captured by month.

Sex ratios throughout the time series tend to skew slightly female dominant (Figures 7-9). Many decades ago similar observations were made in Green Hill Pond, a neighboring coastal pond (Saila 1961), and in Narragansett Bay (Saila 1962).

### **Results:**

A total of 83 fyke net sets were conducted in 2025 (Tables 1-3). The total number of winter flounder sampled during the 2025 survey was 518. This was slight increase of total catch from the 2024 survey. Sizes ranged from 11.8 cm to 44.9 cm in 2025 (Figures 10-14). The CPUE across all ponds in 2025 was 6.2 fish/net haul. Point Judith Pond was not sampled in 2025 due to marine mammal interactions (Figure 15). 2025 adult winter flounder CPUE in Potter Pond was 9.1 fish per net haul (Figure 16). This value is above the time series median. 2025 winter flounder CPUE in Ninigret Pond was 4.0 fish per net haul (Figure 17).

In 2025, a total of 23 mature fish were tagged in Potter Pond and 104 were tagged in Ninigret Pond. Twelve tagged winter flounder were recaptured in 2025 by both RI DMF research surveys and commercial harvesters.

### **Discussion:**

Low catch rates in all systems surveyed have been observed in the recent decade of the winter flounder spawning stock biomass survey. CPUE trends indicate that despite both commercial and recreational harvest limits put in place to reduce mortality, localized coastal pond winter flounder populations are not recovering. Continued sampling in the Potter Pond and Ninigret Pond systems is necessary to monitor these trends. Extremely low catch rates and seal interactions in Point Judith Pond have made sampling effort in that pond unsustainable and sampling was discontinued in 2024. A summary manuscript was published in 2024 on this survey's findings from over 20 years of sampling Point Judith Pond (Balouskus et al. 2024). In 2025 a paper was published summarizing the effects of numerous variables on catch rate in this survey (Galligan et al. 2025).

### **Recommendations:**

Continuation of all adult winter flounder work statewide in order to make accurate connections between coastal ponds, Narragansett Bay, and Rhode Island/Block Island Sound winter flounder stocks is necessary. The importance of returning tag data from the commercial trawl/gill net fleet in Rhode Island Sound and Block Island Sound should be stressed in order to facilitate continued reporting of recaptured fish. Utilization of the Division's Marine Fisheries listserv is recommended to alert commercial and recreational anglers to the continued efforts of this survey.

Due to moratoriums on commercial and recreational fishing in Point Judith Pond and Potter Pond, it is recommended that additional effort be placed in Ninigret Pond and potentially another system moving forward to increase the likelihood of tag returns for fish within those systems.

### **References:**

- Balouskus, R.G., Lake, J.M., Rodrigue, K.E., Olszewski, S.D. and McManus, M.C. 2024. A coastal lagoon spawning Winter Flounder subpopulation during ecosystem and fisheries shifts. *North American Journal of Fisheries Management* 44: 1534-1551.
- Collette B. and Klein-MacPhee G. 2002. *Bigelow and Schroeder's Fishes of the Gulf of Maine*. 3<sup>rd</sup> edition

Galligan, B.P., McManus, M.C. and Balouskus, R.G., 2025. Drivers of Winter Flounder subpopulation catch rates in a fisheries-independent fixed-gear survey. *Transactions of the American Fisheries Society* 154: 456-468.

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Saila, S. B. 1961. The contribution of estuaries to the offshore winter flounder fishery in Rhode Island. *Proc. Gulf Carib. Fish. Inst.*

Saila, S. B. 1962. Proposed hurricane barriers related to winter flounder movements in Narragansett Bay. *Trans. American Fisheries Society*.

**Table 1 – Winter flounder tagging/recapture totals in Point Judith Pond by year. Number recaptured indicates the number of tagged fish that were recaptured in that year, regardless of what year that tagged fish had been released. Point Judith Pond has not been sampled since 2024 and is not planned to be sampled in the future due to seal predation.**

<b>Year</b>	<b>Number of Fyke Sets</b>	<b>Number Caught</b>	<b>Number Tagged</b>	<b>Number Recaptured</b>
1999	39	1059	313	51
2000	14	350	189	43
2001	22	540	354	59
2002	27	282	165	7
2003	27	160	87	4
2004	23	102	64	13
2005	27	252	116	10
2006	44	410	89	6
2007	31	121	35	3
2008	19	39	14	0
2009	26	62	0	0
2010	24	85	21	1
2011	23	60	5	0
2012	16	32	11	0
2013	14	12	0	0
2014	14	11	1	0
2015	7	10	4	0
2016	11	6	1	0
2017	1	0	0	0
2018	3	0	0	0
2019	12	8	0	0
2020	33	53	3	0
2021	20	9	3	0
2022	9	3	2	1
2023	11	3	1	0
2024	0	0	0	0
2025	0	0	0	0
<b>Total</b>	<b>497</b>	<b>3669</b>	<b>1478</b>	<b>198</b>

**Table 2 – Winter flounder tagging/recapture totals in Potter Pond by year. Number recaptured indicates the number of tagged fish that were recaptured in that year, regardless of what year that tagged fish had been released.**

<b>Year</b>	<b>Number of Fyke Sets</b>	<b>Number Caught</b>	<b>Number Tagged</b>	<b>Number Recaptured</b>
1999	19	244	20	1
2000	10	67	13	2
2001	0	0	0	0
2002	0	0	0	0
2003	0	0	0	0
2004	0	0	0	0
2005	0	0	0	0
2006	0	0	0	0
2007	0	0	0	0
2008	0	0	0	0
2009	0	0	0	0
2010	0	0	0	0
2011	2	8	6	0
2012	5	9	3	0
2013	5	10	5	0
2014	3	3	2	0
2015	7	46	10	0
2016	2	8	1	0
2017	3	8	2	0
2018	3	35	5	0
2019	4	5	4	0
2020	14	14	8	2
2021	36	92	35	0
2022	29	49	12	0
2023	34	30	8	1
2024	56	218	43	4
2025	37	336	23	4
<b>Total</b>	<b>269</b>	<b>846</b>	<b>1182</b>	<b>13</b>

**Table 3- Winter flounder tagging/recapture totals in Ninigret Pond by year. Number recaptured indicates the number of tagged fish that were recaptured in that year, regardless of what year that tagged fish had been released.**

<b>Year</b>	<b>Number of Fyke Sets</b>	<b>Number Caught</b>	<b>Number Tagged</b>	<b>Number Recaptured</b>
2012	19	113	98	10
2013	21	146	109	11
2014	14	33	33	4
2015	16	143	67	4
2016	0	0	0	0
2017	0	0	0	0
2018	0	0	0	0
2019	5	34	17	0
2020	16	103	6	3
2021	40	121	79	0
2022	53	140	87	7
2023	69	282	124	17
2024	68	283	115	9
2025	46	182	104	8
<b>Total</b>	<b>367</b>	<b>1580</b>	<b>839</b>	<b>73</b>

**Table 4 - Commercial landings and value of winter flounder in Rhode Island by year from 1999-2024.**

<b>Year</b>	<b>Landings (metric tons)</b>	<b>Value (millions of dollars)</b>
1999	525	1.4
2000	813.1	1.8
2001	658.5	1.4
2002	602	1.5
2003	470.6	1.2
2004	394.5	1
2005	306.4	0.97
2006	586.4	2.5
2007	530.1	2.4
2008	289.3	1.3
2009	140.2	0.49
2010	34.1	0.15
2011	37.9	0.13
2012	20.1	0.09
2013	181.7	0.6
2014	206.2	0.94
2015	167.4	0.74
2016	135.7	0.82
2017	135.8	0.9
2018	86.7	0.58
2019	53.1	0.37
2020	41.9	0.19
2021	30.6	0.18
2022	13.7	0.08
2023	8.9	0.04
2024	12.2	0.07
<b>Average</b>	<b>249.3</b>	<b>0.84</b>

**Table 5 - MRIP estimated recreational harvest for winter flounder in Rhode Island. PSE values between 30 and 50 should be treated with caution and PSE values greater than 50 indicate a highly imprecise estimate. Results display harvest (Type A + B1). Values from 2020 are 100% contributed from imputed data. ‘\*’ indicates no data available.**

<b>Year</b>	<b>Harvest (A+B1) Total Weight (lbs)</b>	<b>PSE</b>
1999	196,351	25
2000	96,789	30.7
2001	155,171	31.6
2002	43,058	29
2003	38,300	49.1
2004	20,544	47.5
2005	103	61.5
2006	65	73.5
2007	1,321	99.1
2008	4,219	105.6
2009	27,455	79.3
2010	4,342	106.3
2011	*	*
2012	*	*
2013	*	*
2014	713	94
2015	91	102.5
2016	3,520	96.2
2017	9,419	105.7
2018	453	68.6
2019	4	99.3
2020	143	64.2
2021	1,952	92.2
2022	52	102
2023	*	*
2024	191	67.2
2025	1665	100.8

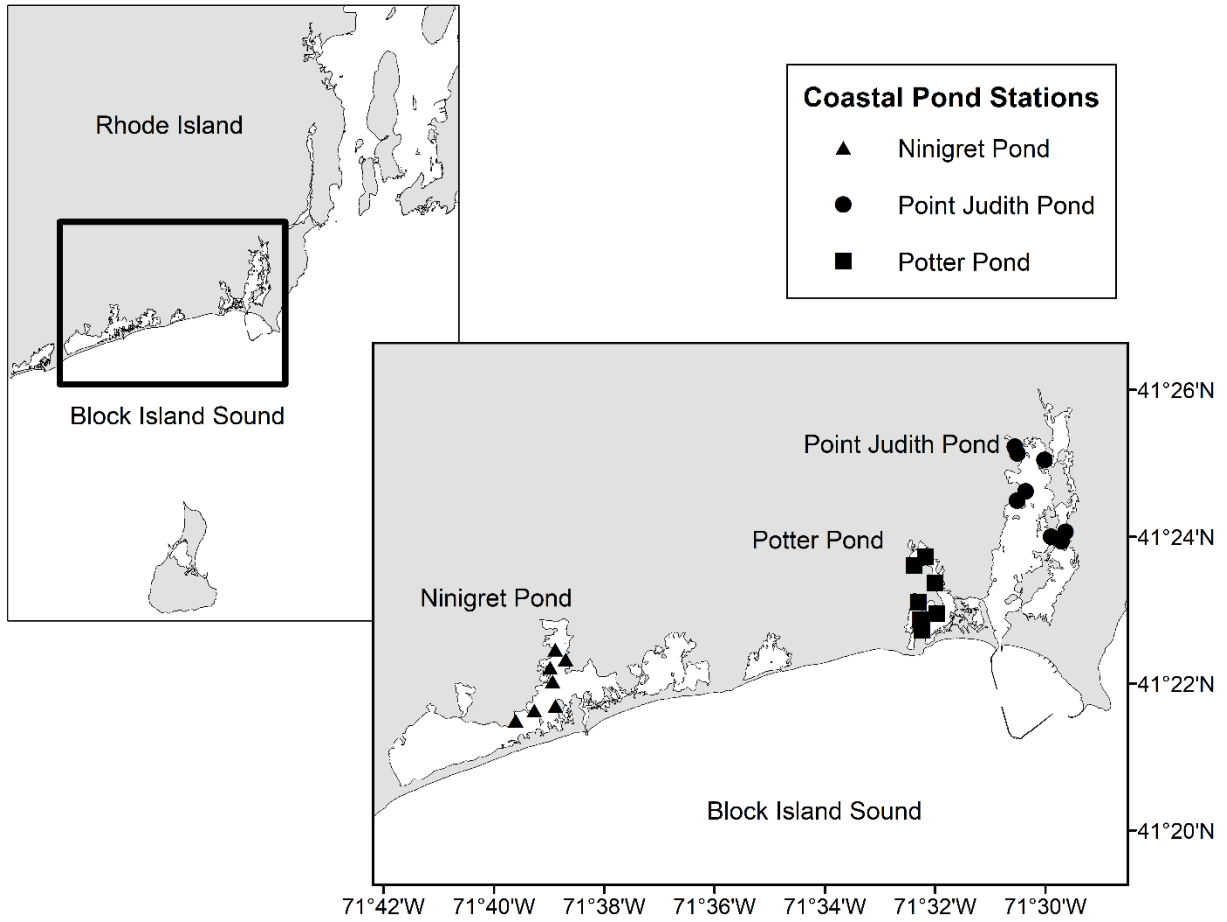


Figure 1 – Fyke net survey locations – 1999 through 2025.

Winter Flounder Commercial Landings and Value  
1999-2024

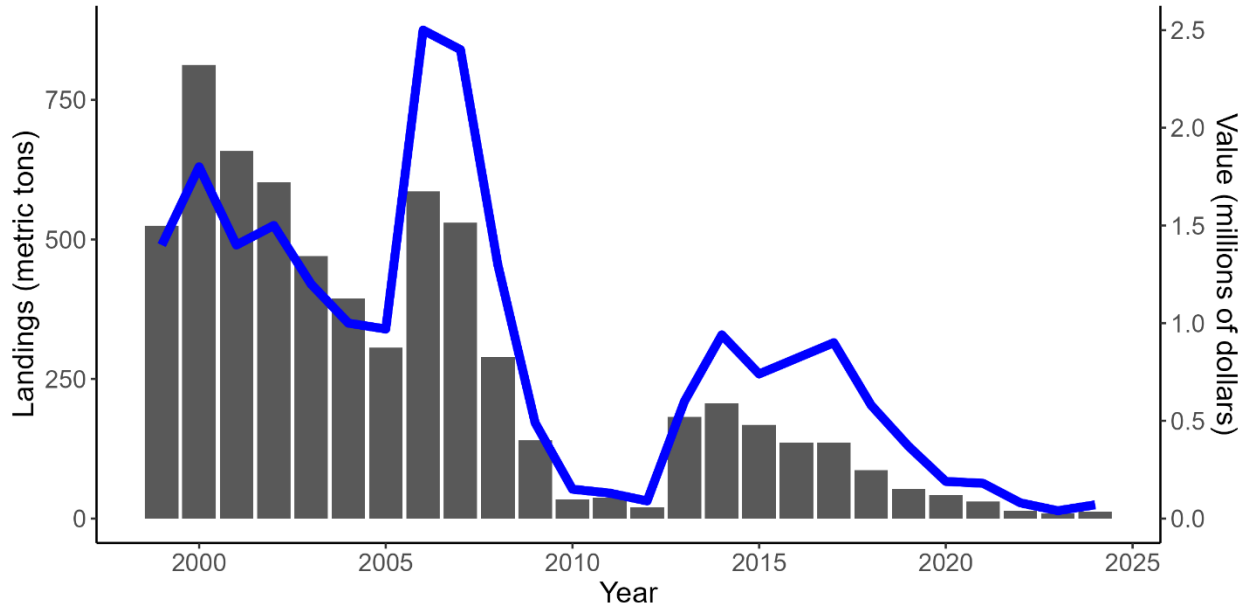


Figure 2 – Winter flounder commercial landings from 1999-2024 in Rhode Island. Grey bars indicate landings (mt) and the blue line indicates value (millions of dollars). Data from public ACCSP Data Warehouse.

Winter Flounder Recreational Harvest in Rhode Island  
1999-2025

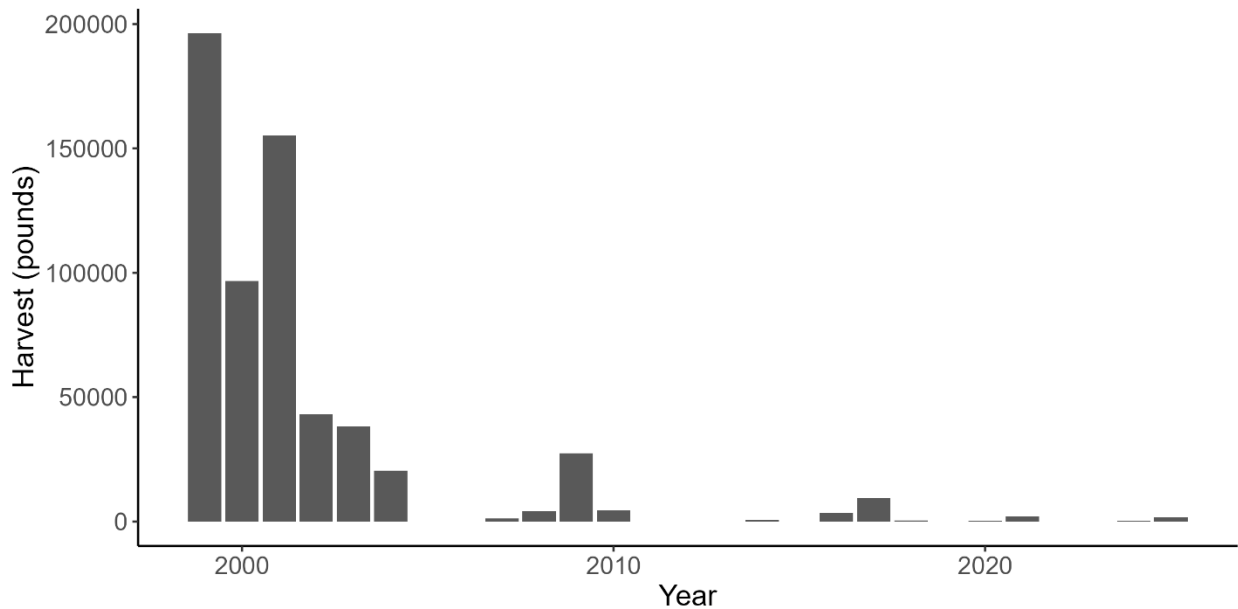


Figure 3 – Winter flounder recreational harvest (Type A + B1 - lbs) from 1999 to 2025. Data from public MRIP data query.

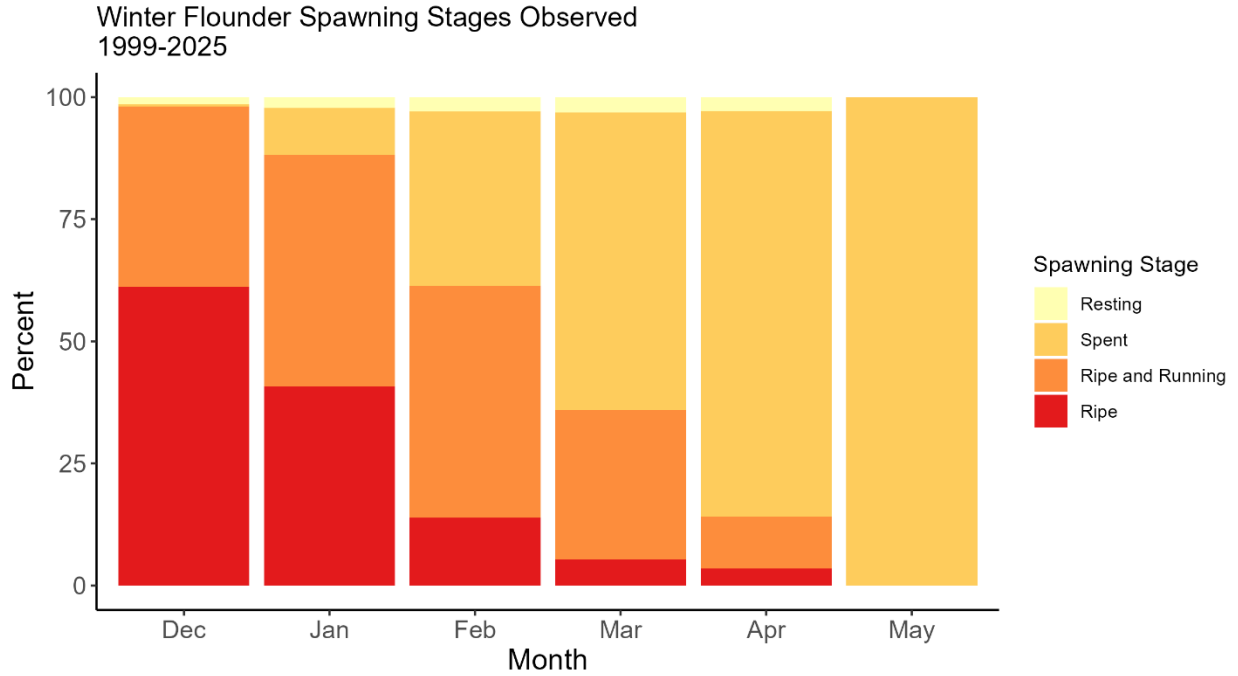


Figure 4 – Winter flounder spawning stages by percentage of caught fish observed by month from 1999-2025 across all surveyed coastal ponds.

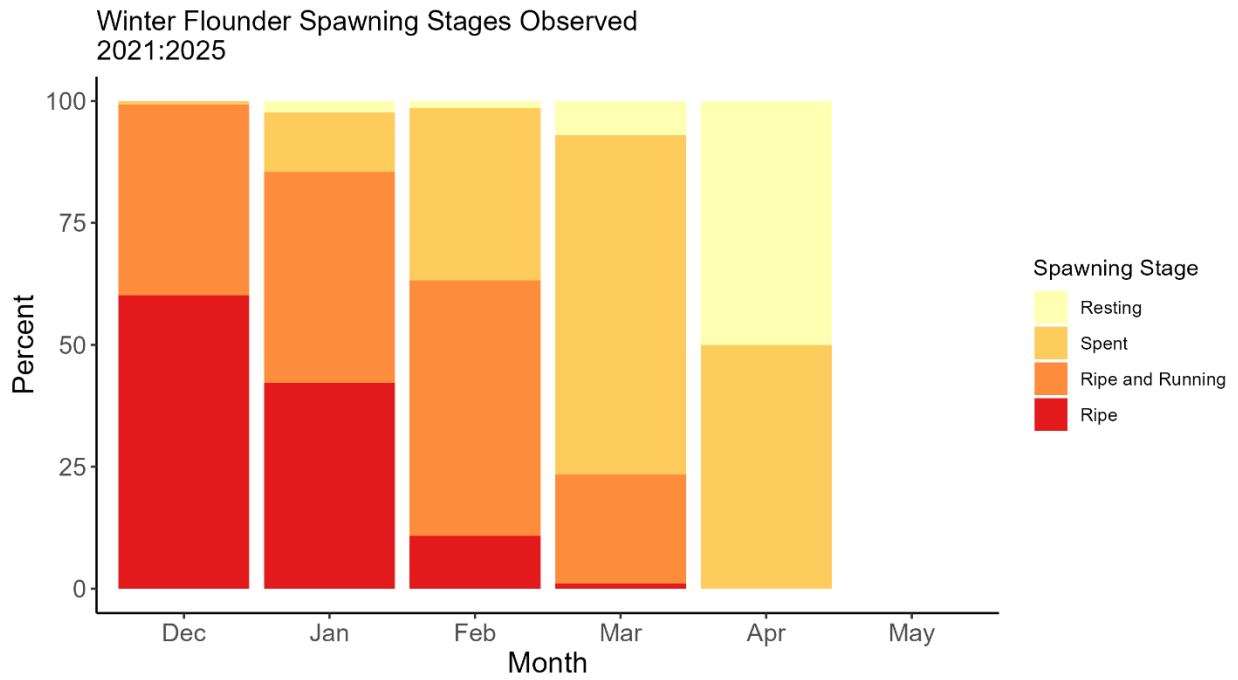


Figure 5 – Winter flounder spawning stages by percentage of caught fish observed by month from 2021-2025 across all surveyed coastal ponds.

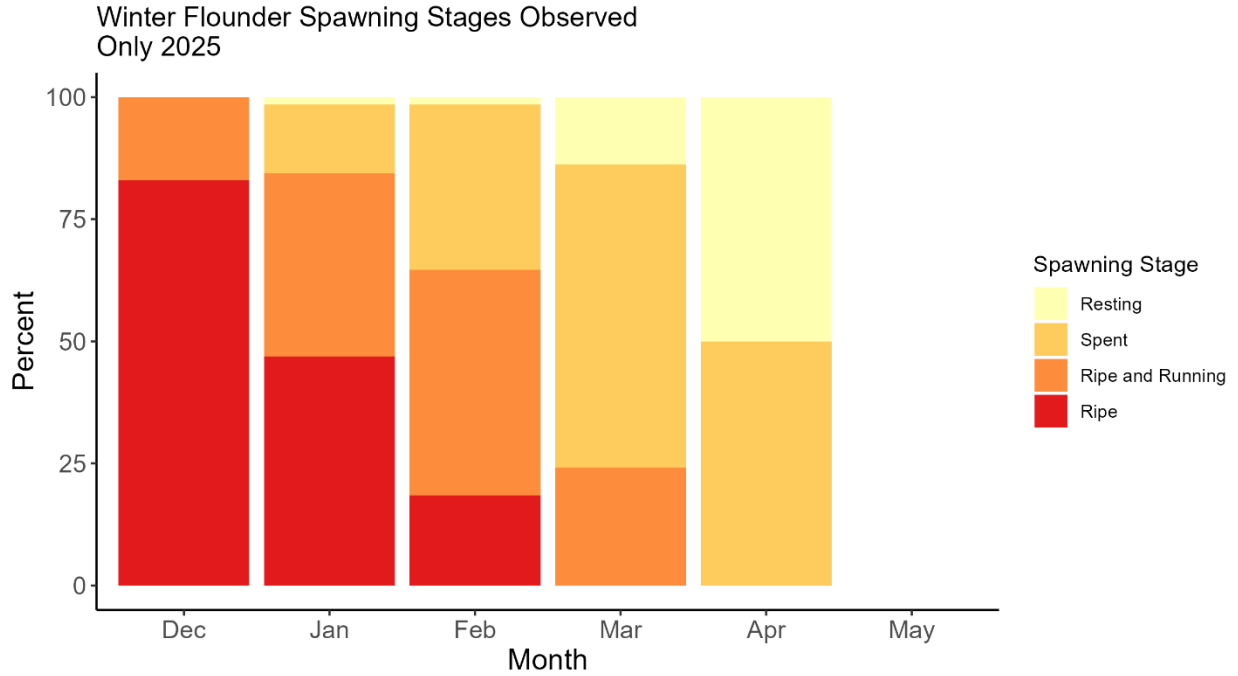


Figure 6 – Winter flounder spawning stages by percentage of caught fish observed by month from 2025 across all surveyed coastal ponds.

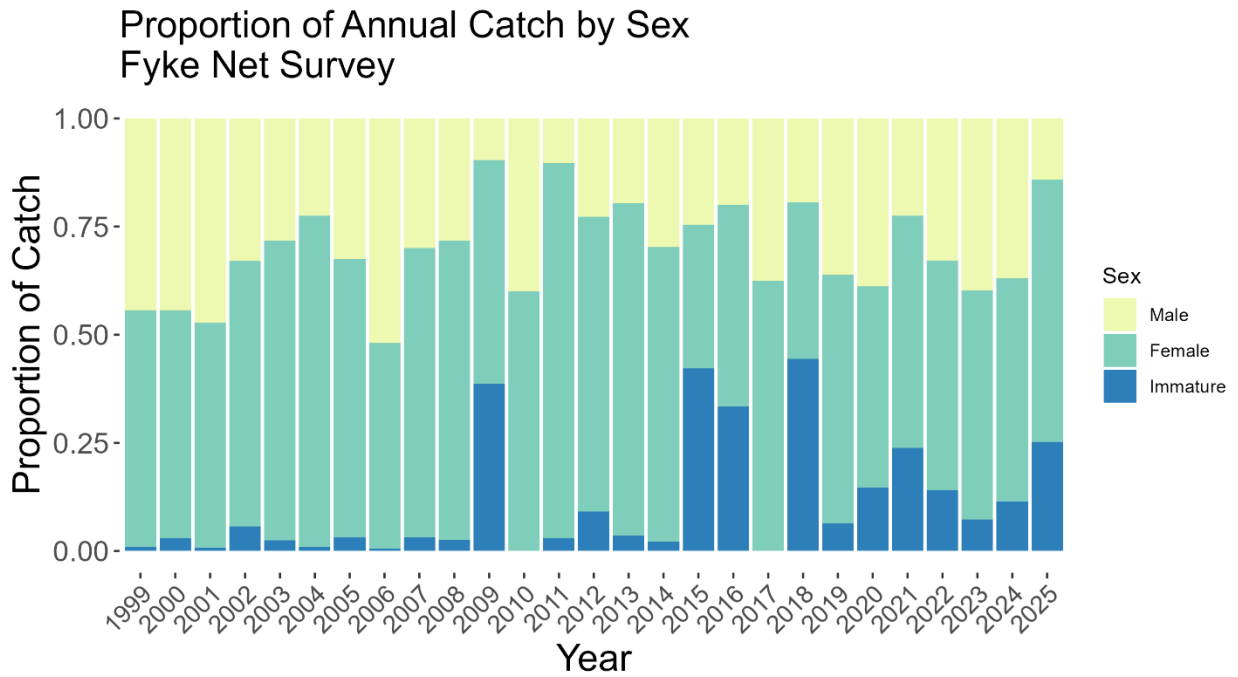
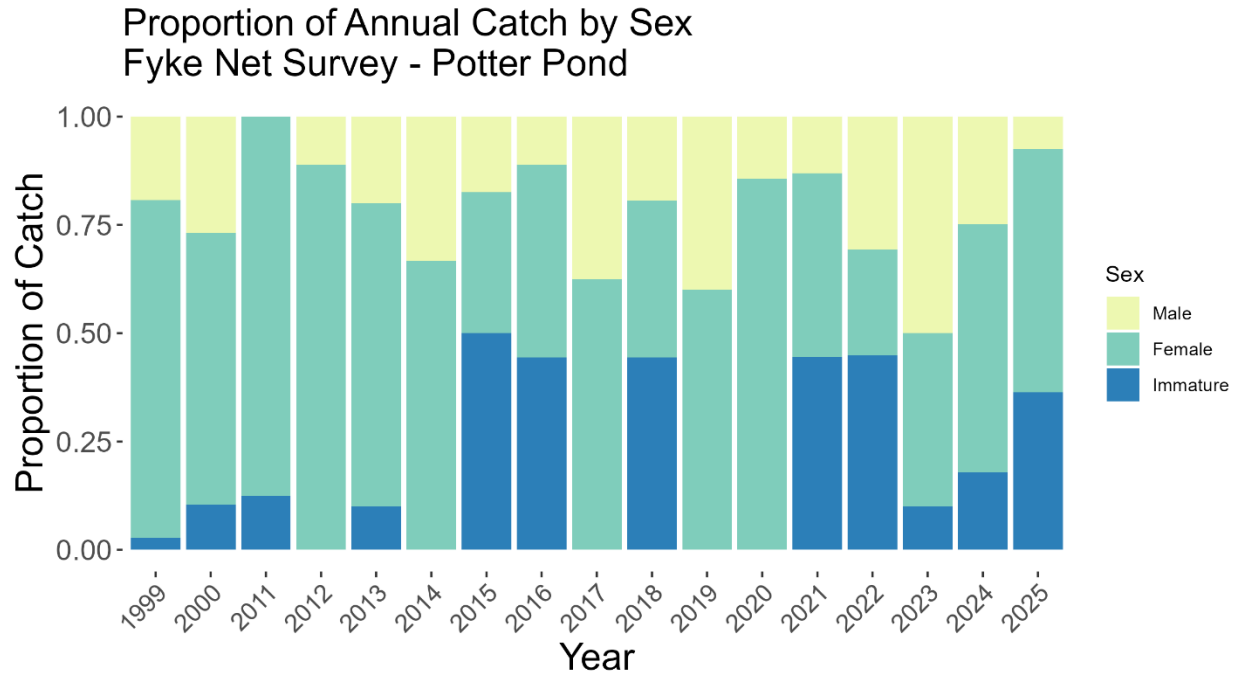
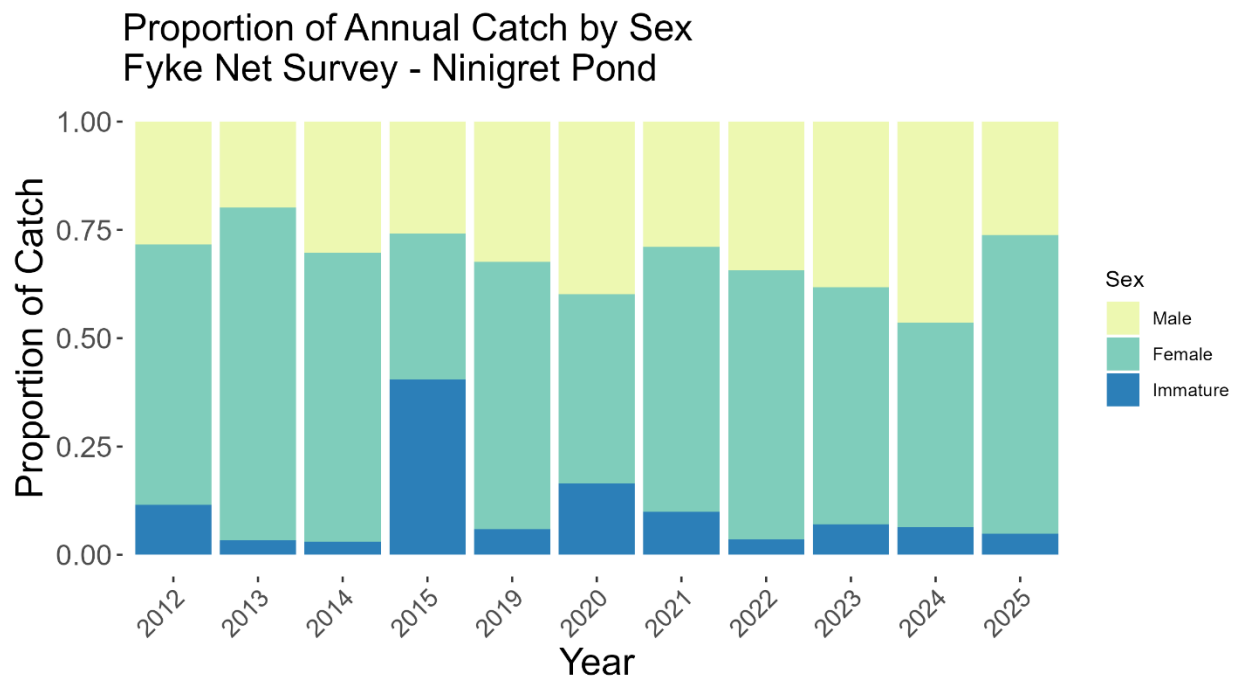


Figure 7 – Winter flounder sex ratio from 1999-2025 across all three surveyed coastal ponds.



**Figure 8 – Winter flounder sex ratio from 1999-2025 (note missing unsampled years on the X-axis) in Potter Pond.**



**Figure 9 – Winter flounder sex ratio from 2012-2025 (note missing unsampled years on the X-axis) in Ninigret Pond.**

Winter Flounder Length Frequency  
1999-2025

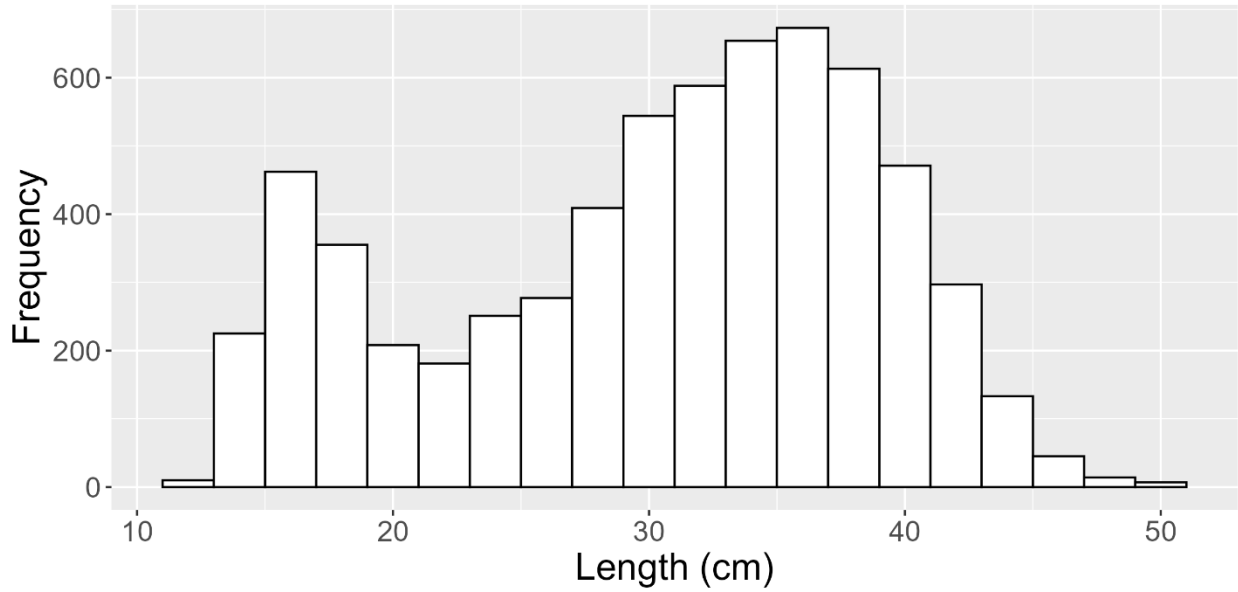


Figure 10 – Winter flounder length-frequency from 1999-2025 across all sampled coastal ponds.

2021:2025 Winter Flounder Length Frequency

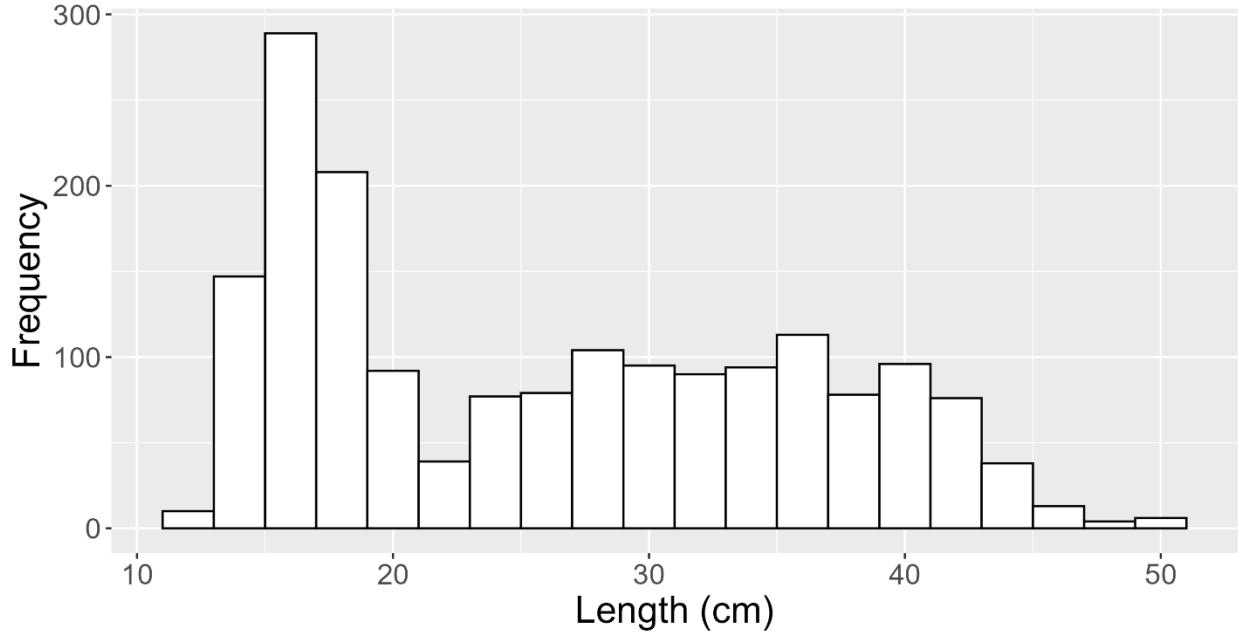


Figure 11 – Winter flounder length-frequency from 2021-2025 across all sampled coastal ponds.

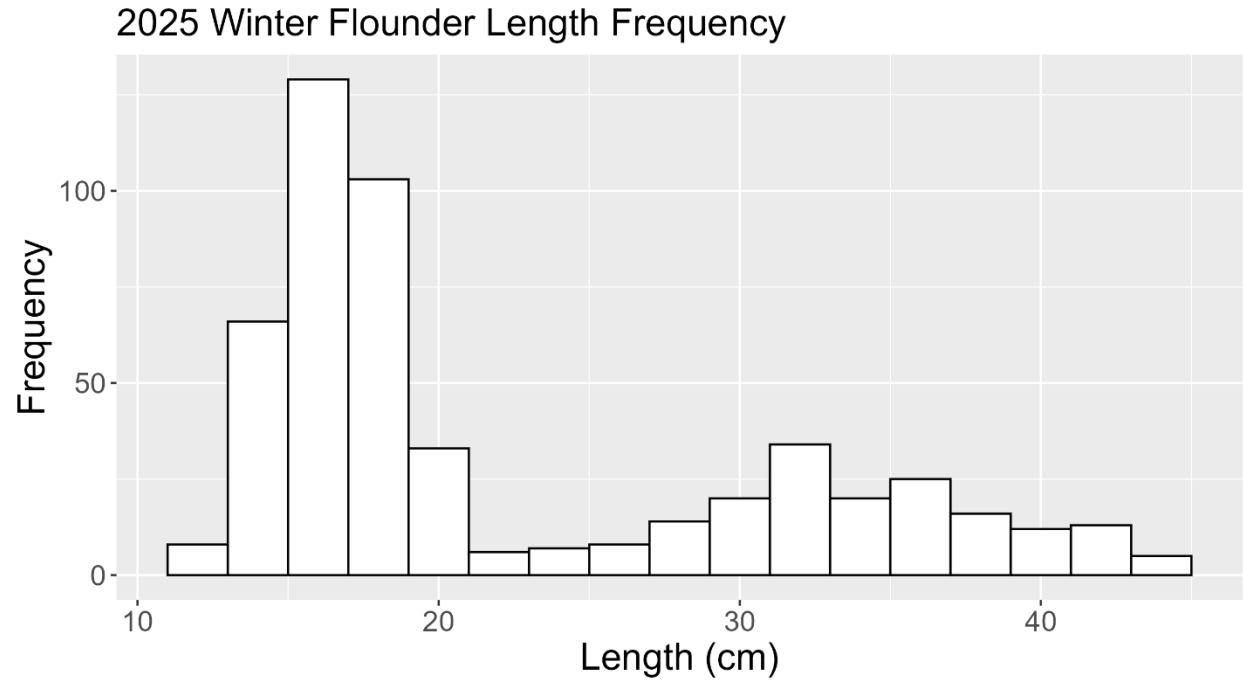


Figure 12 – Winter flounder length-frequency for 2025 survey across all sampled coastal ponds.

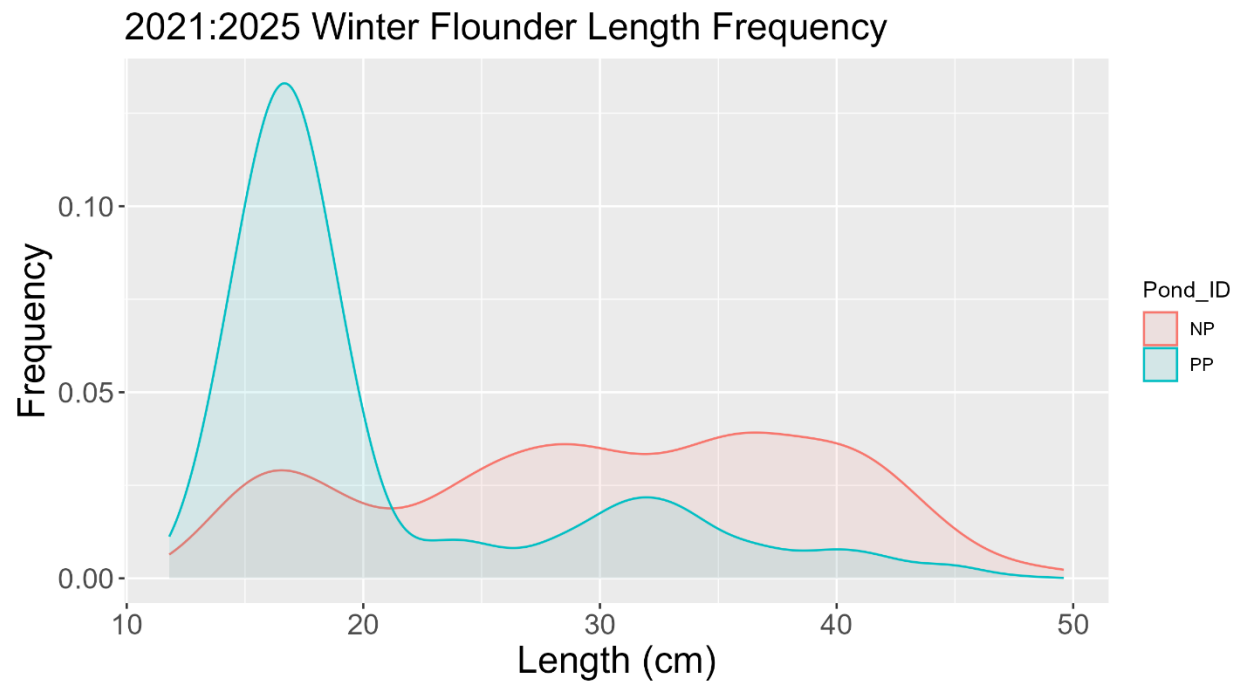
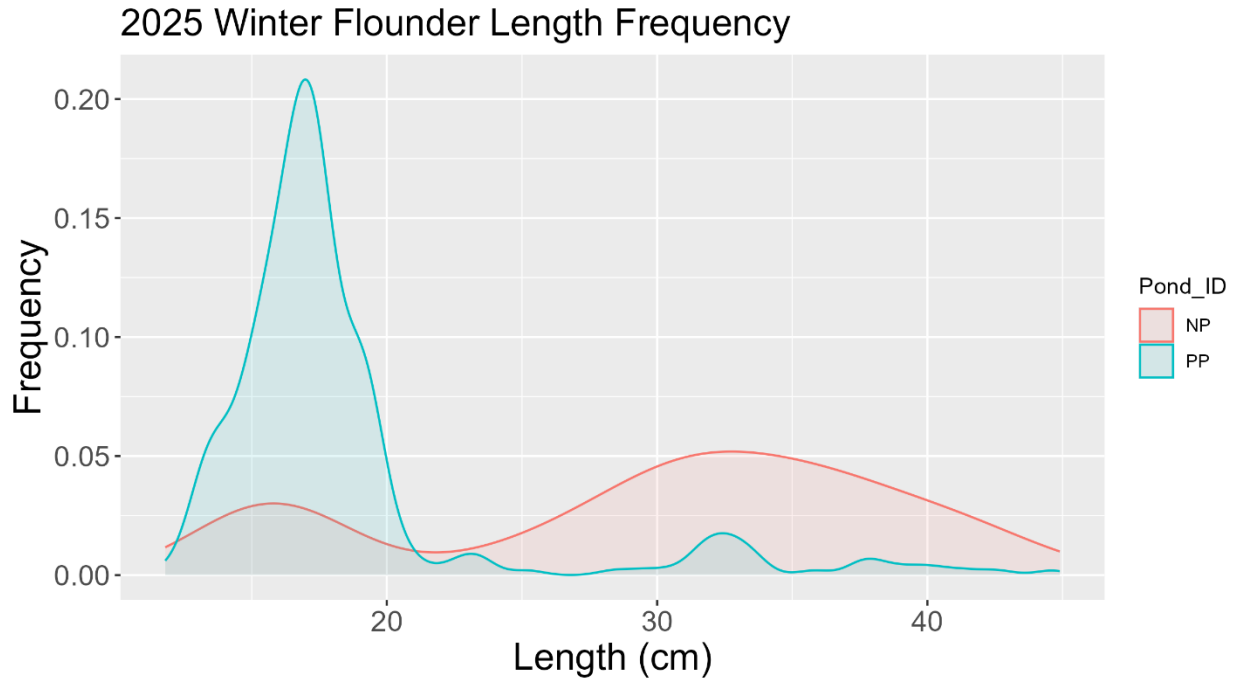
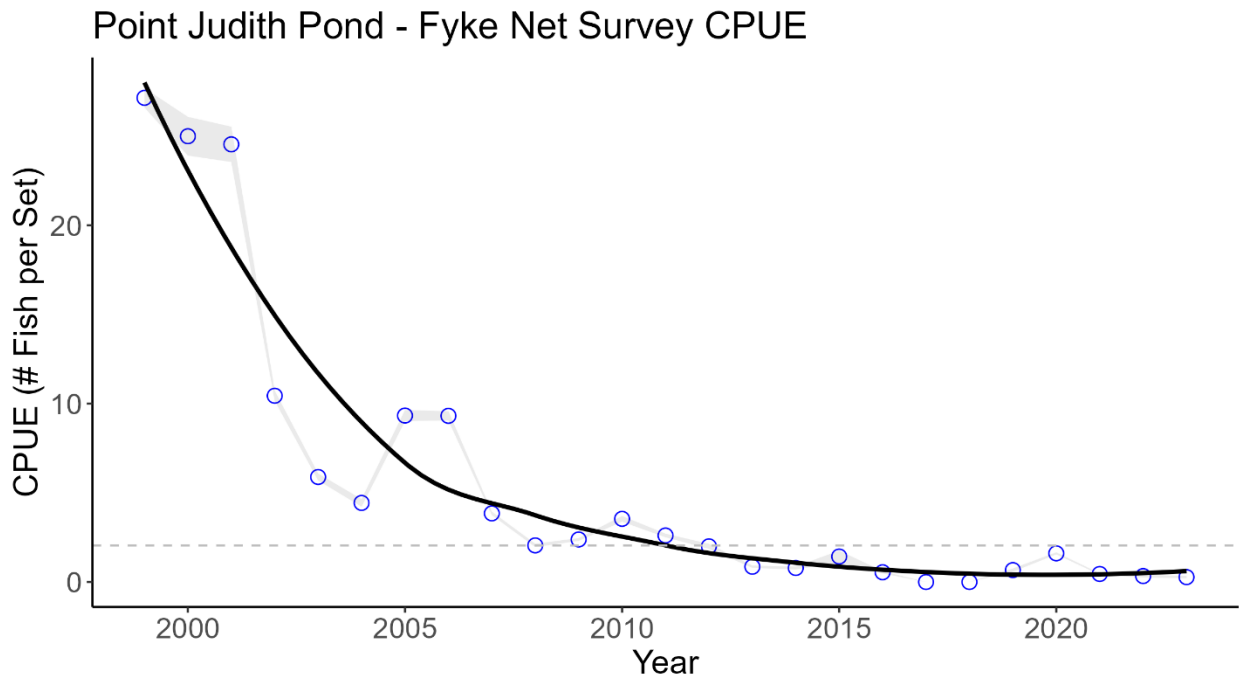


Figure 13 – Winter flounder length-frequency density plot for 2021 through 2025 comparing Potter Pond and Ninigret Pond.



**Figure 14 – Winter flounder length-frequency density plot for 2025 comparing Potter Pond and Ninigret Pond.**



**Figure 15 – Winter flounder smoothed abundance index for Point Judith Pond. Gray dashed line is time series median; black line is time series Loess regression fit; and gray shaded area is the standard error around each annual CPUE.**

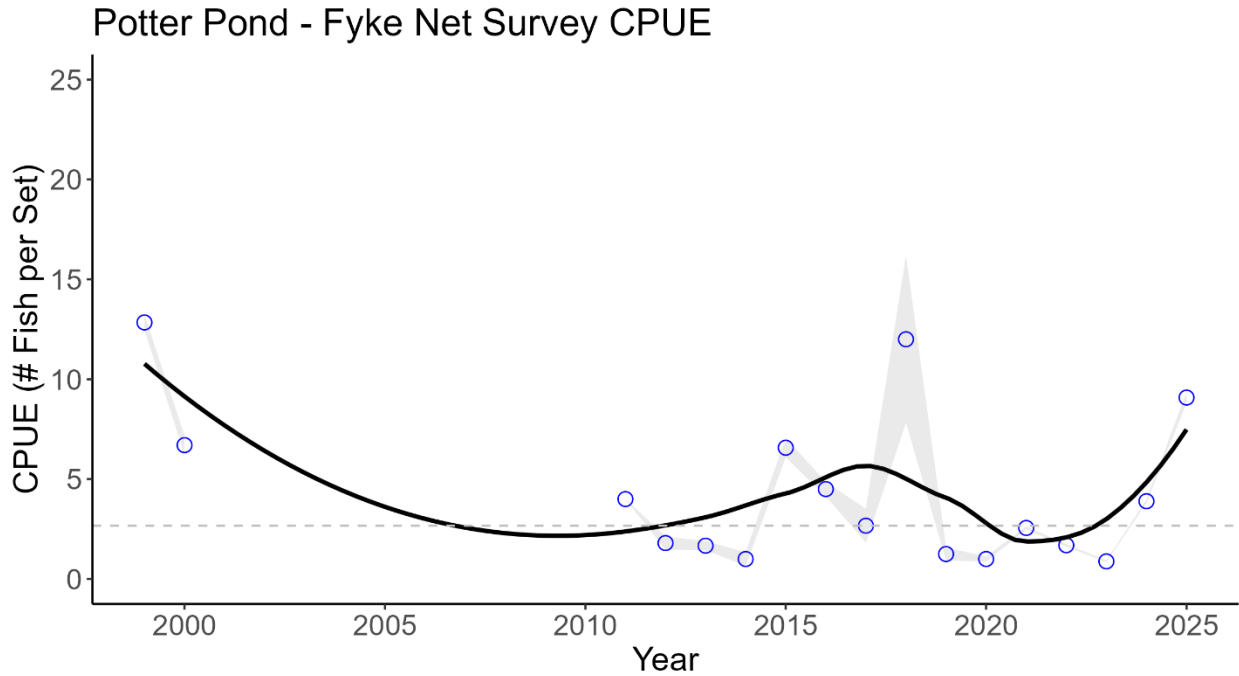


Figure 16 – Winter flounder smoothed abundance index for Potter Pond. Gray dashed line is time series median; black line is time series Loess regression fit; and gray shaded area is the standard error around each annual CPUE.

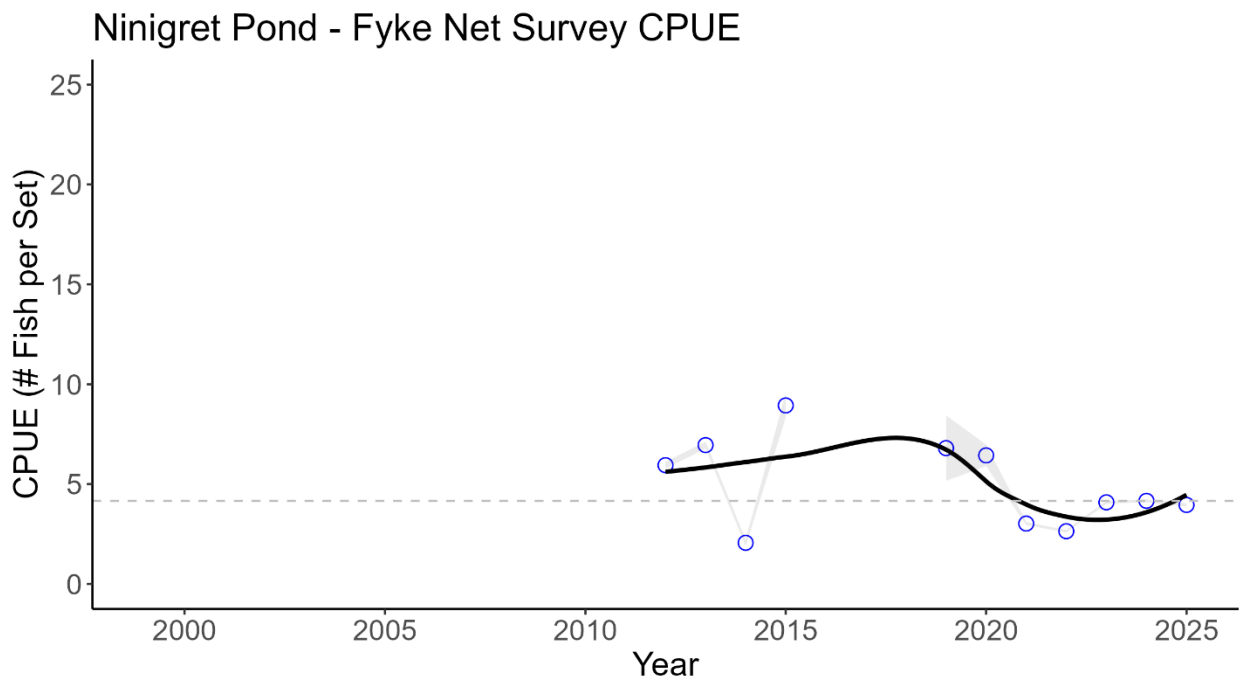
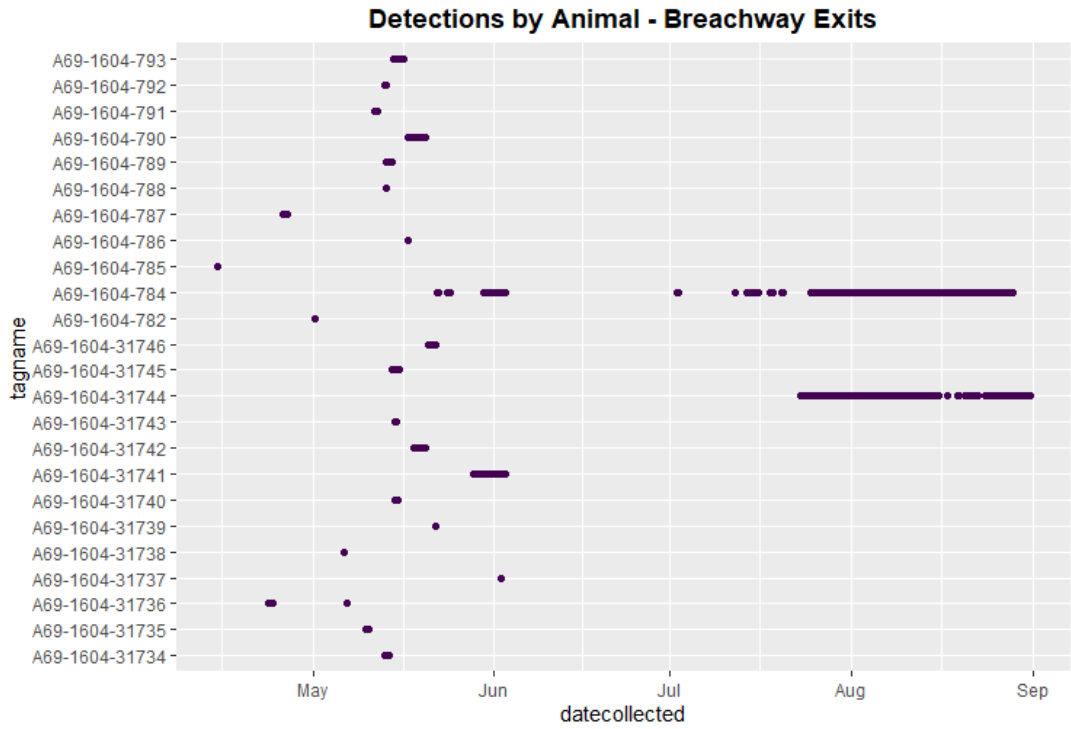


Figure 17 – Winter flounder smoothed abundance index for Ninigret Pond. Gray dashed line is time series median; black line is time series Loess regression fit; and gray shaded area is the standard error around each annual CPUE.



**Figure 18 – Acoustic pings of winter flounder at the Ninigret Pond Breachway entrance/exit during the first half of 2022.**

Narragansett Bay Atlantic Menhaden Monitoring Program

Nicole Lengyel Costa

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Division of Marine Fisheries  
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3 Ft. Wetherill Road  
Jamestown, Rhode Island 02835

**STATE:** Rhode Island

**PROJECT NUMBER:** F-61-R

**SEGMENT NUMBER:** 22

**PROJECT TITLE:** Assessment of Recreationally Important Finfish Stocks in Rhode Island Waters

**PERIOD COVERED:** January 1, 2025 – December 31, 2025

**JOB NUMBER 11 TITLE:** Narragansett Bay Atlantic Menhaden Monitoring Program

**JOB OBJECTIVE:** Continue administering an Atlantic menhaden monitoring program in Narragansett Bay that uses sentinel fishery observations (information of landings from floating fish traps), abundance information from spotter flights (with a trained spotter pilot), removal information by tracking fishery landings, and a mathematical model (Depletion Model for Open Systems; see Gibson, 2007) to monitor the biomass of menhaden in Narragansett Bay in close to real-time and adjust access to the fishery as necessary through a dynamic regulatory framework.

**SUMMARY:** Atlantic menhaden (menhaden) undergo large coastwide migrations each year. After aggregating in the offshore waters of the Mid-Atlantic region during the winter, menhaden migrate west and north stratifying by size and age the further north they migrate (Arenholz, 1991). Menhaden arrive in RI coastal waters beginning in the early spring, and in some years, enter Narragansett Bay in large numbers, where they can reside for varying amounts of time until they begin their southward migration in the fall. During the period when they reside in Narragansett Bay, a number of user groups compete for the resource. Commercial bait companies begin to fish on the schools of menhaden and provide bait for both recreational fishing interests and for the lobster fishery. As well, recreational fishermen access the schools of menhaden directly and use the resource as bait for catching larger sport fish such as striped bass and bluefish. Large numbers of sport fishermen can be seen in their boats surrounding large schools of menhaden throughout the spring and summer using various methods to harvest them (snagging lures, cast nets, dip nets). The migration of menhaden to the north is also one factor which brings these larger sport fish to northern areas, as they are an important food resource for these species (Arenholz, 1991; ASMFC, 2017). During the period when the menhaden resource is within Narragansett Bay and multiple user groups are accessing it, user group conflicts are an inevitable outcome.

To help assuage some of these conflicts, to allow for an amount of the menhaden resource to remain unharvested by commercial interests for use by the recreational community, and to allow a portion of the menhaden resource to remain in Narragansett Bay to provide ecological services, the RI Department of Environmental Management Division of Marine Fisheries (Division) administers a menhaden monitoring program in Narragansett Bay. The program collectively uses sentinel fishery observations (floating fish trap data), spotter flight information with a trained spotter pilot, fishery landings information, computer modeling, and biological sampling information to open, keep track of, and close the fisheries on menhaden as conditions dictate.

**TARGET DATE:** December 2025

**SIGNIFICANT DEVIATIONS:** No significant deviations.

**RECOMMENDATIONS:** Continue spotter flights and data collection to create the estimate of Narragansett Bay Atlantic menhaden biomass. Continue to analyze and provide data for use in the RI menhaden fishery management program.

**REMARKS:** Biomass estimates derived from the menhaden monitoring program have been used to open and close the Narragansett Bay menhaden fishery. The management is performed to accommodate the recreational sportfish fishery that depends on menhaden as a source of bait for striped bass, bluefish, and weakfish, popular sportfish species in Narragansett Bay. In addition, the maintenance of a standing stock of menhaden biomass in Narragansett Bay meets other ecological services that this species performs.

The management structure maintains a biomass threshold of 1.5 million pounds in the Bay, which provides forage for the predatory species of striped bass and bluefish. Prior to the commencement of commercial fishing, the biomass needs to reach 2 million pounds to provide a body of fish for the fishery to remove without dropping below the 1.5 million pound threshold. Once fishing is authorized, the commercial fishery is allowed to remove 50% of the biomass above the 1.5 million pound threshold, leaving the rest for ecological services and for use as bait by recreational fishermen. If the biomass estimates based on the spotter flights drop below the 1.5 million pound threshold, the fishery will close. In addition, if landings by the commercial fishery reach the 50% cap, the fishery closes. Beginning in 2015, DEM adopted a regulation that opens the fishery annually on September 1<sup>st</sup> in the lower portion of Narragansett Bay at a reduced possession limit, despite the level of biomass present in the Bay. This opening is contingent upon the state having unharvested state quota remaining or having opted into the Episodic Event Set Aside program through ASMFC. As of May 6, 2025, a weekly possession limit of 6,000 lbs/vessel is permitted in menhaden management area on Mondays and Thursdays of each week from April 1 through June 30. Harvest is further restricted by a monthly landing cap of 100,000 lbs and gear limited to hand-haul seine, cast net, and floating gill net.

**METHODS, RESULTS & DISCUSSION:** The program consists of three main elements: collection of fishery landings information through call in and logbook requirements, field work (spotter flights and biological sampling), and computer modeling work. DEM regulations require that commercial vessels fishing for menhaden in Narragansett Bay report their catches to Division staff daily. All RI licensed commercial harvesters, including floating fish trap and purse seine operators, are required to file logbook reports quarterly with the Division that details daily fishing activities.

Each year the Division contracts a trained spotter pilot to make biomass estimates of menhaden in Narragansett Bay. When in the air, the pilot records counts of menhaden schools observed, the estimated weight within the schools, and the location of the schools.

Each year biological port samples are collected from commercial purse seine operations, floating fish traps that operate in state waters outside of the menhaden management area, or from the

Divisions trawl survey (Jobs 1 and 2 of this grant). Sampling includes length frequencies, body weights, and collecting scales and otoliths for age determination (see Age and Growth Study, Job 9 of this F-61R grant progress report).

Collectively, these sources of information are analyzed using the theory of depletion estimation as applied to open populations. All of the aforementioned information is centrally collected and used in a computer modeling approach that allows the Division to monitor the abundance of menhaden in Narragansett Bay. The existing regulatory framework governing state waters allows the Division to use the output from the mathematical modeling approach to set a number of fishing activity parameters including a static amount of fish needed to be present to allow commercial fishing to commence, thus protecting recreational and ecological interests if only a small population enters the Bay. The framework also authorizes half of the standing population present in Narragansett Bay above the initial threshold amount to be harvested, thus maintaining an amount of unharvested fish even when commercial fishing has commenced. The Divisions ability to close the fishery when the standing population of menhaden in Narragansett Bay drops back below the threshold level of fish helps to maintain a portion of the population for recreational fishermen and ecological services. This program also allows the Division to accurately track the state quota and provides justification for Rhode Island to participate in the Episodic Event Set Aside Program.

#### 2025 Fishery Data

In 2025, biomass within the management area never reached the minimum 2 million pound threshold and therefore remained closed for entirety of 2025. State waters outside of the management area remained open throughout the year. RI did not harvest its full quota in 2025 and transferred 160,000 pounds to Massachusetts and 250,000 pounds to Maine. A total of 39 contractor spotter flights were completed in 2025 to accurately monitor biomass levels of menhaden within the management area (Figure 1).

**SUMMARY:** The menhaden management area in Narragansett Bay remained closed in 2025 due to biomass never reaching the 2 million pound threshold. RI did not fully harvest its initial 2025 commercial quota allocation and transferred 410,000 pounds to other states. Total landings for RI from all sources totaled approximately 290,913 pounds.

## Observed and Model Estimated Spotter Index of Menhaden in Narragansett Bay in 2025

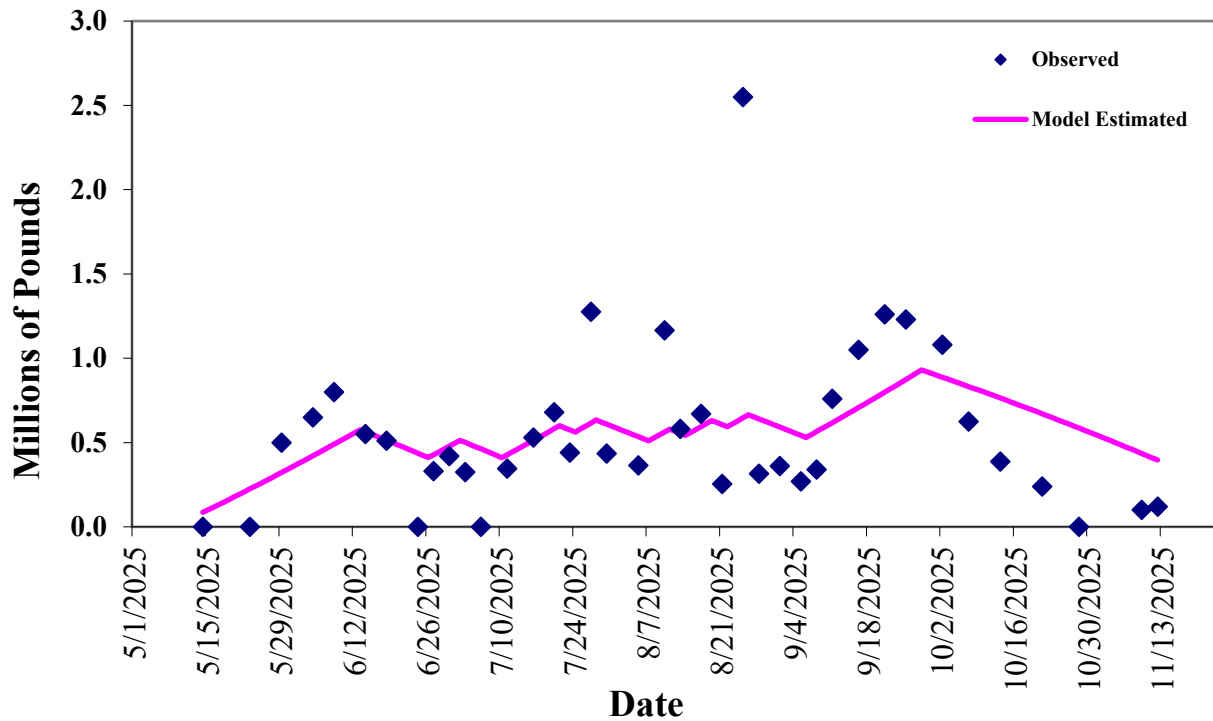


Figure 1. Predicted spotter pilot estimates and observed biomass in Narragansett Bay in 2025.

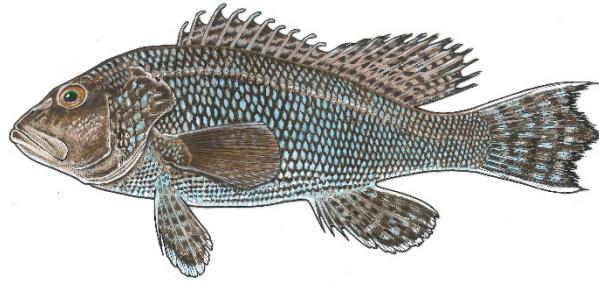
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# **Ventless Fish Pot Multi-Species Monitoring and Assessment Program**

## **Ventless Fish Pot Survey**

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Federal Aid in Sportfish Restoration  
F-61-25

State: Rhode Island Project Number: F-61-R-25

Project Title: Assessment of Recreationally Important Finfish Stocks in Rhode Island Waters

Period Covered: January 1, 2025 – December 31, 2025

Job Number Job XII - Ventless Fish Pot Multi-Species Monitoring and Assessment Program

Job Objective: To assess and standardize a time series of relative abundance for structure-oriented finfish in Rhode Island (RI) state waters. Additional collection of age, weight at length, and other biological information for these species.

Significant Deviations: Survey strata were altered in 2025 to increase sampling effort south of 41.5°N and remove all sampling north of 41.5°N. Only 50% of planned collections occurred in October 2025 due to sustained inclement weather.

### **Summary:**

Finfish species that associate with bottom structure while in nearshore ecosystems may have relatively low catchability in mobile bottom trawl gear. As such, traditional fisheries-independent survey designs are often imperfect in assessing the relative abundance of structure-oriented marine species due to their inability to sample such habitats. Various stock assessments for structure-oriented fish including black sea bass (NEFSC 2011) and scup (NEFSC 2002) have recommended exploring alternatives to trawl surveys to provide better analytical assessment data for these species. Additionally, working groups such as the Northeast Data Poor Stocks Working Group (NEFSC 2008, Shepard 2008, Terceiro 2008), have reported that size classes of many species may be under-represented in their assessments, particularly scup, black sea bass, and tautog. Most recently, the 2023 black sea bass research track assessment concluded that “given that the VTS [ventless trap survey] indices [from MA and RI] represent a unique approach to sampling that could provide an alternative perspective on stock dynamics, the working group suggests consideration of these surveys in coming years as the trap time series continues to grow.”

To address the concern of low catchability for structure oriented species, the RI Division of Marine Fisheries (RIDMF) conducted an exploratory ventless fish pot (referred to alternately as ‘pots’ and ‘traps’) survey in RI state waters from 2013 through 2016 and again in 2019. Based on data gathered during the exploratory surveys, RIDMF designed a standardized monitoring and assessment survey of recreationally important finfish utilizing ventless fish pot gear and began the survey in 2021. The goal of this survey program is to assess and standardize a time series of relative abundance for structure-oriented finfish in RI state waters, particularly black sea bass, tautog, and scup. Relative abundance indices derived from this survey will ideally be integrated into both local and coastwide assessments for the target species and will supplement state and regional trawl survey abundance indices.

**Fisheries:**

Black sea bass, tautog, and scup are commercially and recreationally important species in RI. Summaries of RI commercial landings and values are found in Tables 1-3 and Figures 1-3. Summaries of recreational harvest of each species are found in Tables 4-6. Throughout the time series, landings have shown generally stable (scup, tautog) or slightly increasing (black sea bass) trends for each of these species.

The 2025 black sea bass management track stock assessment indicates the stock was not overfished and overfishing was not occurring in 2024 relative to reference points (NEFSC 2025a). Starting in 2007, spawning stock biomass (SSB) increased rapidly and reached a peak in 2014 at over 34,473 mt, then decreased slightly. In 2024 SSB was estimated at 30,896 mt, 284% of the biomass target (NEFSC 2025a).

Based on the 2025 tautog ASMFC stock assessment update, the MA-RI stock of tautog is not overfished and overfishing is not occurring (ASMFC 2025). Spawning stock biomass in 2024 was estimated to be 9,572 mt, above the target spawning stock biomass of 6,143 mt. The 3-year average F in 2024 was 0.26 which is below the target F of 0.27.

The 2025 scup management track stock assessment update indicated the stock is considered rebuilt and not experiencing overfishing, with 2024 SSB estimated at 234,593 mt, which is 322% the SSB target of 72,783 mt (NEFSC 2025b).

**Methods and Materials:**

Survey sampling is stratified by area, depth, and time. Two subareas are sampled within RI state waters: western RI Sound and eastern RI Sound (Figure 4). At the start of each year four sampling stations are randomly selected within each subarea. Sampling stations are randomly selected from a database of known hard structure locations (e.g., rocky outcroppings, boulders/large cobbles, wrecks, bridge abutments, pilings) within the sampling region. Of the four selected annual stations within each respective subarea, two are ‘deep’ (>60ft) and two are ‘shallow’ (<60ft). In addition, two ‘fixed’ stations are positioned within each subarea, these stations are static and sampled across all survey years (non-random). All stations are sampled once per month from May through October (Figure 5). Investigators locate and sample areas of structured hard bottom closest to each station on each sampling day while avoiding conflicts with commercial fishing gear.

Survey gear is unvented black sea bass pots (43.5” x 22.5” x 15”) constructed of 1.5” x 1.5” coated wire mesh, single mesh entry head, and single mesh inverted parlor nozzle. Baited (clam bellies) trawls of five traps are fished for an overnight soak (~24 hours) at each sampling station once per month. After the 24-hour soak the trap sets are hauled, the catch processed, and gear either reset at a new station or removed from the water.

Upon hauling trap trawls, the catch is sorted by species. Finfish are measured to the nearest millimeter, fork length (FL) or total length (TL) as species appropriate. Invertebrates are measured using a species appropriate metric and counted. Total weight of each respective species is collected. A subset of black sea bass are retained for age and growth processing. Water temperature is collected at 15-minute intervals using loggers on each trawl. Major and minor bottom types present at each sampling station are noted each month based on data from an onboard Furuno transducer. Presence or absence of fixed commercial trap gear within 500 m is noted.

## **Results:**

In 2025 a total of 66 trawl sets were sampled, with 330 individual fish pots set and processed. Seventeen unique fish and invertebrate species were collected in 2025 with 2,681 fish and 420 invertebrates caught. Black sea bass were by far the most caught fish species with 2,142 individuals trapped (80% of fish catch) (Table 7). Scup were the second most caught fish species (487 individuals, 18% of fish catch) followed by cunner (13 individuals, <1% of total catch). These three species together accounted for over 98% of the total finfish catch. American lobster were the most frequently caught invertebrate representing over 92% of the total invertebrate catch (Table 8). Spider crab were the second most frequently caught invertebrate species.

With only five-years of data in the time series, trends in catch indices are difficult to interpret with much accuracy (Figures 6-11).

Across the timeseries, black sea bass have been caught in greater abundances at moderate bottom temperatures (13-21C) with scup generally found at slightly warmer temperatures (16-21C) (Figure 12). Likewise, black sea bass were caught in greatest abundances at moderate depths (50-74 ft) (Figure 13).

## **Discussion:**

Results from the first five years of the long-term ventless pot multi-species monitoring and assessment program indicate that the gear and fishing methods used in this program effectively target the species of interest for this job, in particular black sea bass. In addition, several other species of interest including conger eel and adult Atlantic cod are also caught in relatively high abundance compared with the RI DMF bottom trawl survey. Based on the continued importance of these species to RI fisheries, both recreationally and commercially, it is critical that these species be accurately assessed. Compared with the earlier exploratory fish pot studies, this expanded and modified survey design will better allow this project to meet its goals. These goals include:

- Collect fishery independent data to provide a relative index of abundance for species that may not be fully sampled by RIDMF bottom trawl.
  - Collected data to be used in state and federal stock assessments and management.
- Provide relatively high-density spatiotemporal coverage of gear selected fish species cohorts within state waters.
  - Track annual cohorts.
  - Track abundance consistency with other surveys (RIDMF trawl, NMFS trawl).
  - Determine age structure of fish sampled.
- Collect additional information on species biological characteristics.
- Track the prevalence of trap prone mid-Atlantic/southern species (e.g., grey triggerfish, blue runner, pinfish, Atlantic croaker).

Data collected through this survey will be instrumental in meeting these objectives. It is hoped that the survey will also provide numerous pathways for cross-collaborations with other state and federal agencies in the future.

## **Recommendations:**

Continuation of this survey will provide invaluable data on structure-oriented species to support effective management. Data analysis and consultation with stock assessment scientists conducted in 2024 and 2025 led to optimization of sampling design moving forward in order to

meet required budget cuts for this survey. Due to the gear ('sea bass style' pots) and survey methods (baited pots, relatively short soak times), this survey has proven to be a significantly more efficient program for catching black sea bass than tautog or scup. In addition, due to the survey methodology from 2021-2024, samples in mid- and upper-Narragansett Bay were frequently saturated with non-target bycatch, particularly spider crabs. This led to unreliable data collection (traps saturated with non-target catch are not effectively fishing) and poor survey performance. In response to these two facts, along with budget constraints, RI DMF restructured the sampling methodologies of this survey to maximize black sea bass catch. These changes do not invalidate earlier years of the time series. Future changes to gear type or survey methodology are not anticipated. Additional trap survey gear and methodologies will be required to target tautog and scup at higher catchability efficiencies.

The 2019 exploratory fish pot survey examined soak time, gear type, and fishing baited vs. unbaited traps. It did not address potential differences among bait types. It is recommended that a 'bait preference' study be conducted to explore the differences in species interactions with different bait types. Bait types to be considered may include clam bellies, green crab, squid, mussels, and unbaited. This research may also help inform the commercial fish pot community about alternate bait efficacy.

In the winter of 2023/2024 the Division purchased a TimeZero bottom mapping unit for the survey vessel. Data collected from this unit will allow for a more detailed analysis of rugosity at each sampling site. Efforts should be made to incorporate this information into both future site selection as well as data analysis.

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**Table 1 - Commercial landings (lbs) and value (dollars) of black sea bass landed in RI by year (NMFS 2025).**

<b>Year</b>	<b>Landings (lbs)</b>	<b>Value (dollars)</b>
2010	241,886	779,001
2011	211,597	734,732
2012	204,360	735,346
2013	265,691	988,877
2014	267,703	884,332
2015	238,647	808,797
2016	294,343	1,091,991
2017	458,153	1,603,746
2018	374,637	1,433,963
2019	399,085	1,508,814
2020	553,749	1,332,449
2021	660,033	2,024,679
2022	824,258	2,336,772
2023	636,587	1,850,638
2024	815,826	2,067,473

**Table 2 - Commercial landings (lbs) and value (dollars) of tautog landed in RI by year (NMFS 2025).**

<b>Year</b>	<b>Landings (lbs)</b>	<b>Value (dollars)</b>
2010	44,054	101,431
2011	47,426	124,739
2012	50,126	151,036
2013	53,428	168,479
2014	53,384	182,347
2015	47,140	172,694
2016	50,680	195,296
2017	52,844	194,380
2018	51,450	196,276
2019	46,562	168,046
2020	52,561	161,720
2021	50,164	180,723
2022	51,919	204,707
2023	51,366	204,114
2024	51,640	224,175

**Table 3 - Commercial landings (lbs) and value (dollars) of scup landed in RI by year (NMFS 2025).**

Year	Landings (lbs)	Value (dollars)
2010	4,298,488	2,833,017
2011	6,335,920	3,311,832
2012	6,310,689	3,904,255
2013	7,345,771	3,666,438
2014	6,948,870	4,117,991
2015	6,793,854	4,278,299
2016	6,808,917	4,053,288
2017	5,973,305	3,077,934
2018	4,713,742	2,739,752
2019	4,583,835	2,570,825
2020	4,302,324	2,418,396
2021	4,272,466	2,734,994
2022	3,622,626	2,563,334
2023	4,003,214	2,387,471
2024	5,761,715	3,416,666

**Table 4 - MRIP estimated recreational harvest for black sea bass in RI. Results from this query contain estimates resulting from the full application of both the Access Point Angler Intercept Survey (APAIS) and Fishing Effort Survey (FES) calibration. PSE values greater than 50 are highlighted red and indicate a very imprecise estimate. Preliminary data is highlighted yellow.**

Year	Harvest (A+B1) Total Weight (lb)	PSE
2010	643,348	26.8
2011	236,607	53.0
2012	645,039	21.7
2013	313,315	19.2
2014	659,562	19.6
2015	807,840	19.7
2016	1,124,414	21.4
2017	747,262	21.2
2018	1,628,875	15.3
2019	1,225,058	16.0
2020	1,480,782	20.1
2021	1,116,032	13.3
2022	618,968	16.2
2023	566,092	14.6
2024	602,637	14.9
2025	553,791	15.4

**Table 5 - MRIP estimated recreational harvest for tautog in RI. Results from this query contain estimates resulting from the full application of both the Access Point Angler Intercept Survey (APAIS) and Fishing Effort Survey (FES) calibration. PSE values greater than 50 are highlighted red and indicate a very imprecise estimate. Preliminary data is highlighted yellow.**

<b>Year</b>	<b>Harvest (A+B1) Total Weight (lb)</b>	<b>PSE</b>
2010	1,933,773	38.9
2011	328,959	54.3
2012	1,512,425	32.1
2013	2,602,962	47.6
2014	1,017,780	33.4
2015	1,105,259	24.3
2016	1,290,428	24.7
2017	600,869	25.3
2018	1,075,131	51.4
2019	1,483,123	24.1
2020	853,470	19.2
2021	2,623,172	19.1
2022	1,617,445	15.2
2023	3,816,532	13.1
2024	2,176,929	20.5
2025	1,975,779	14.6

**Table 6 - MRIP estimated recreational harvest for scup in RI. Results from this query contain estimates resulting from the full application of both the Access Point Angler Intercept Survey (APAIS) and Fishing Effort Survey (FES) calibration. Preliminary data is highlighted yellow.**

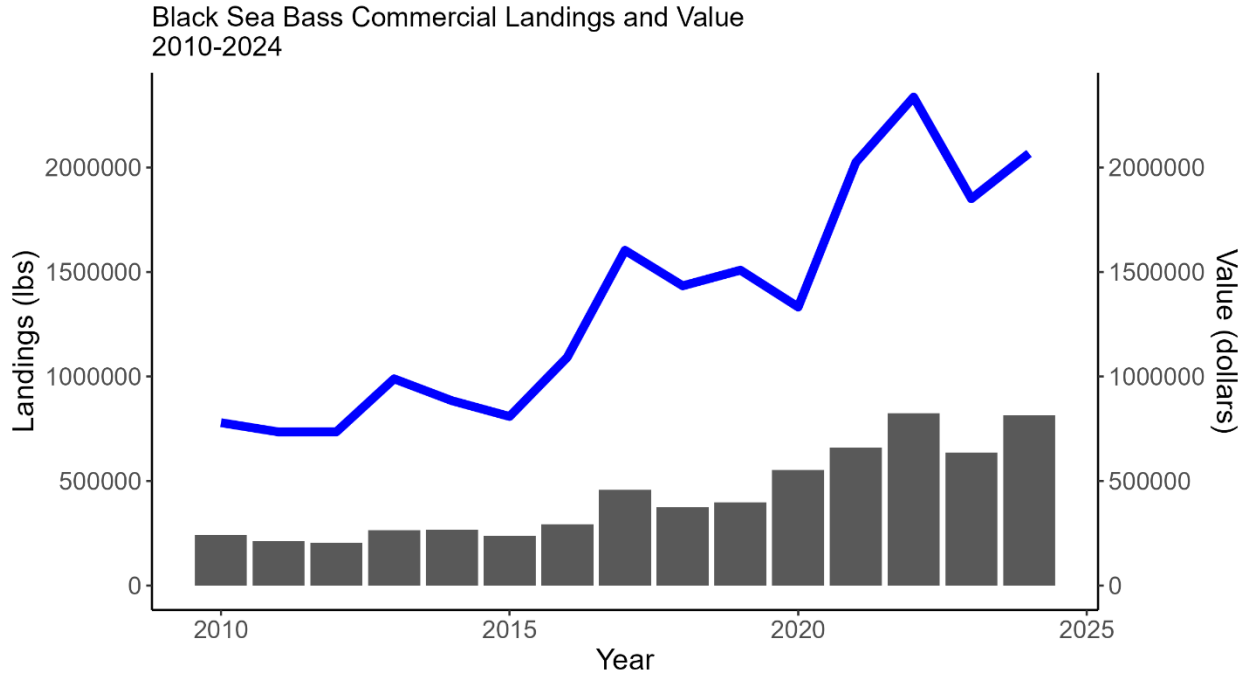
Year	Harvest (A+B1) Total Weight (lb)	PSE
2010	771,713	22.5
2011	1,269,888	29.4
2012	1,119,378	22.7
2013	2,622,654	32.5
2014	2,650,482	22.9
2015	1,370,141	25.7
2016	1,552,395	33.1
2017	1,113,035	23.5
2018	2,030,258	13.1
2019	2,856,459	15.3
2020	1,330,398	17.4
2021	2,467,932	14.7
2022	2,898,790	16.5
2023	2,073,822	13.7
2024	2,459,920	19.9
2025	2,107,287	17.6

**Table 7 – Ten most frequently caught fish species from the ventless fish pot survey from 2025. Mean catch is average number of individuals per trawl (5 trap string) ± standard error. Mean mass is average kilograms (kg) of individuals per trawl (5 trap string) ± standard error. Total catch is the number of individuals caught in 2025.**

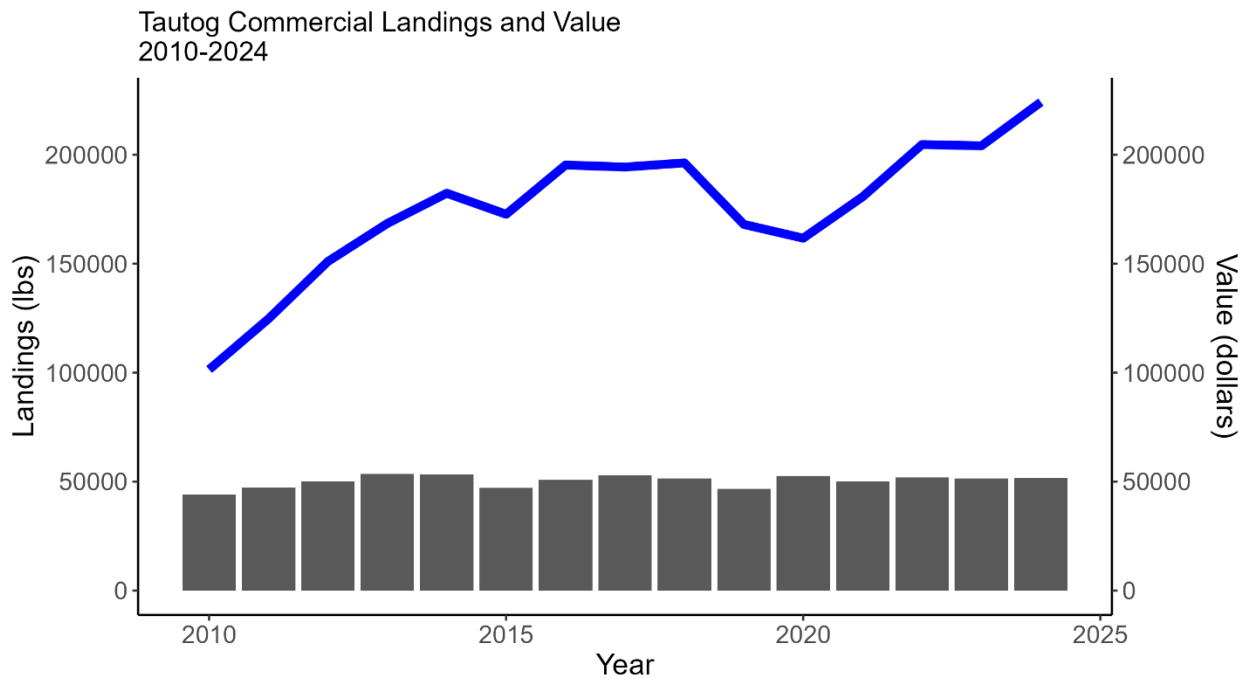
<b>Species</b>	<b>Mean Catch ± SE</b>	<b>Mean Mass ± SE</b>	<b>Total Catch</b>
Black Sea Bass	33.0 ± 2.6	9.6 ± 0.7	2142
Scup	7.5 ± 1.3	1.8 ± 0.3	487
Cunner	0.2 ± <0.1	<0.1 ± <0.1	13
Tautog	0.2 ± <0.1	<0.1 ± <0.1	10
Conger Eel	0.1 ± <0.1	0.2 ± <0.1	8
Grey Triggerfish	<0.1 ± <0.1	<0.1 ± <0.1	6
Oyster Toadfish	<0.1 ± <0.1	<0.1 ± <0.1	4
Atlantic Cod	<0.1 ± <0.1	<0.1 ± <0.1	3
Red Hake	<0.1 ± <0.1	<0.1 ± <0.1	3
Summer Flounder	<0.1 ± <0.1	<0.1 ± <0.1	3

**Table 8 – Invertebrate catch from the ventless fish pot survey from 2025. Mean catch is number of individuals per trawl (5 trap string) ± standard error. Mean mass is average kilograms (kg) of individuals per trawl (5 trap string) ± standard error. Total catch is the number of individuals caught in 2025.**

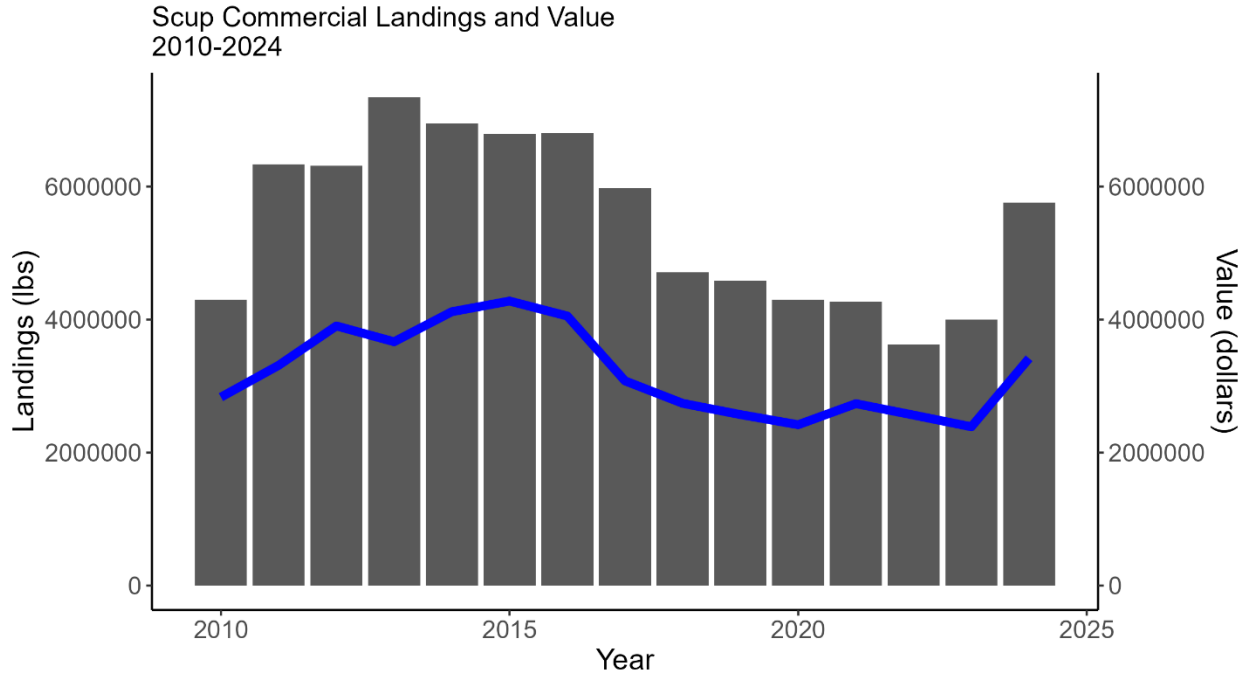
<b>Species</b>	<b>Mean Catch ± SE</b>	<b>Mean Mass ± SE</b>	<b>Total Catch</b>
American Lobster	6.0 ± 0.7	2.3 ± 0.3	389
Spider Crab	0.2 ± 0.2	<0.1 ± <0.1	13
Rock Crab	0.1 ± <0.1	<0.1 ± <0.1	8
Channeled Whelk	<0.1 ± <0.1	<0.1 ± <0.1	5
Jonah Crab	<0.1 ± <0.1	<0.1 ± <0.1	4
Blue Crab	<0.1 ± <0.1	<0.1 ± <0.1	1



**Figure 1 – Black sea bass commercial landings from 2010-2024 in Rhode Island. Grey bars indicate landings (lbs) and the blue line indicates value (dollars). Data from ACCSP Data Warehouse.**



**Figure 2 – Tautog commercial landings from 2010-2024 in Rhode Island. Grey bars indicate landings (lbs) and the blue line indicates value (dollars). Data from ACCSP Data Warehouse.**



**Figure 3 – Scup commercial landings from 2010-2024 in Rhode Island. Grey bars indicate landings (lbs) and the blue line indicates value (dollars). Data from public ACCSP Data Warehouse.**

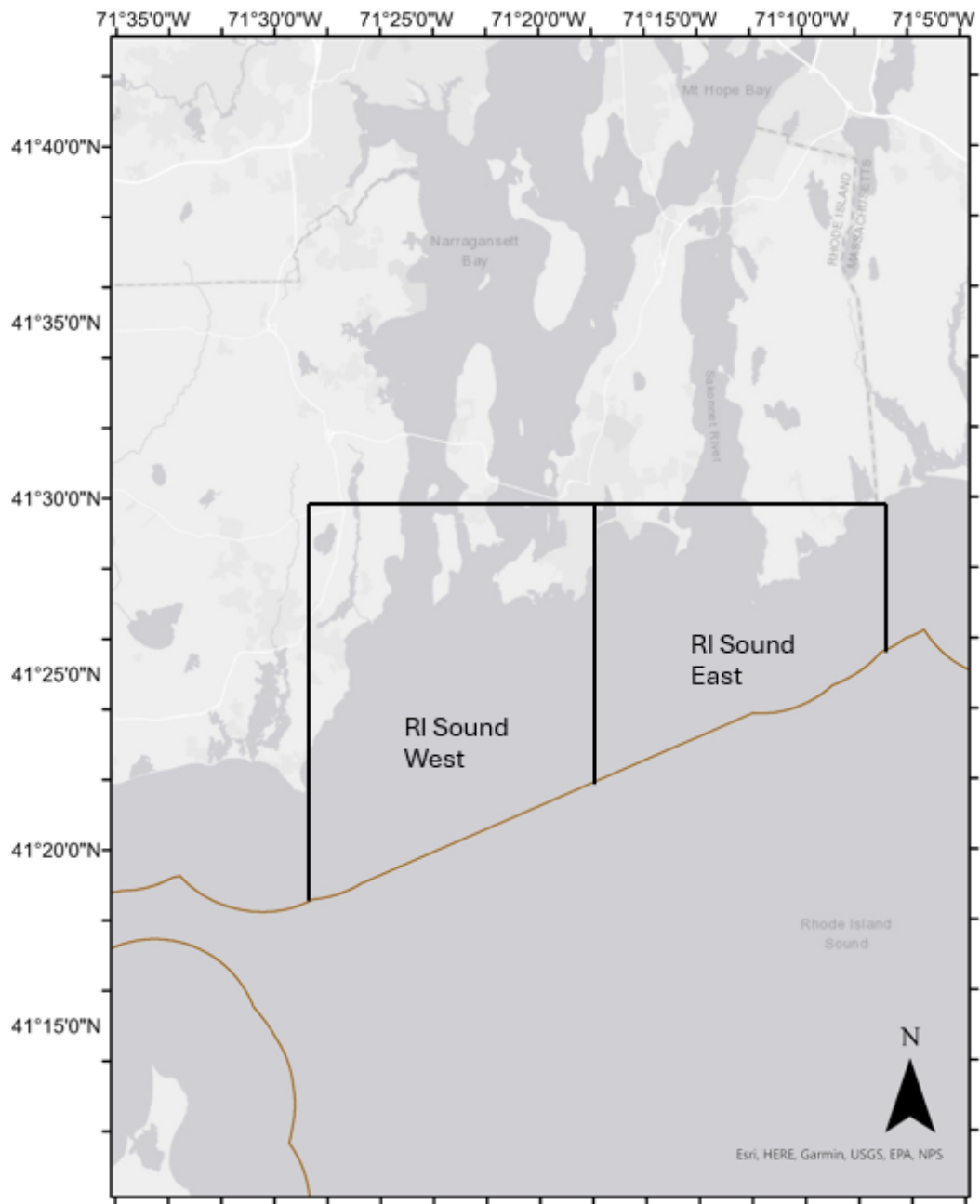
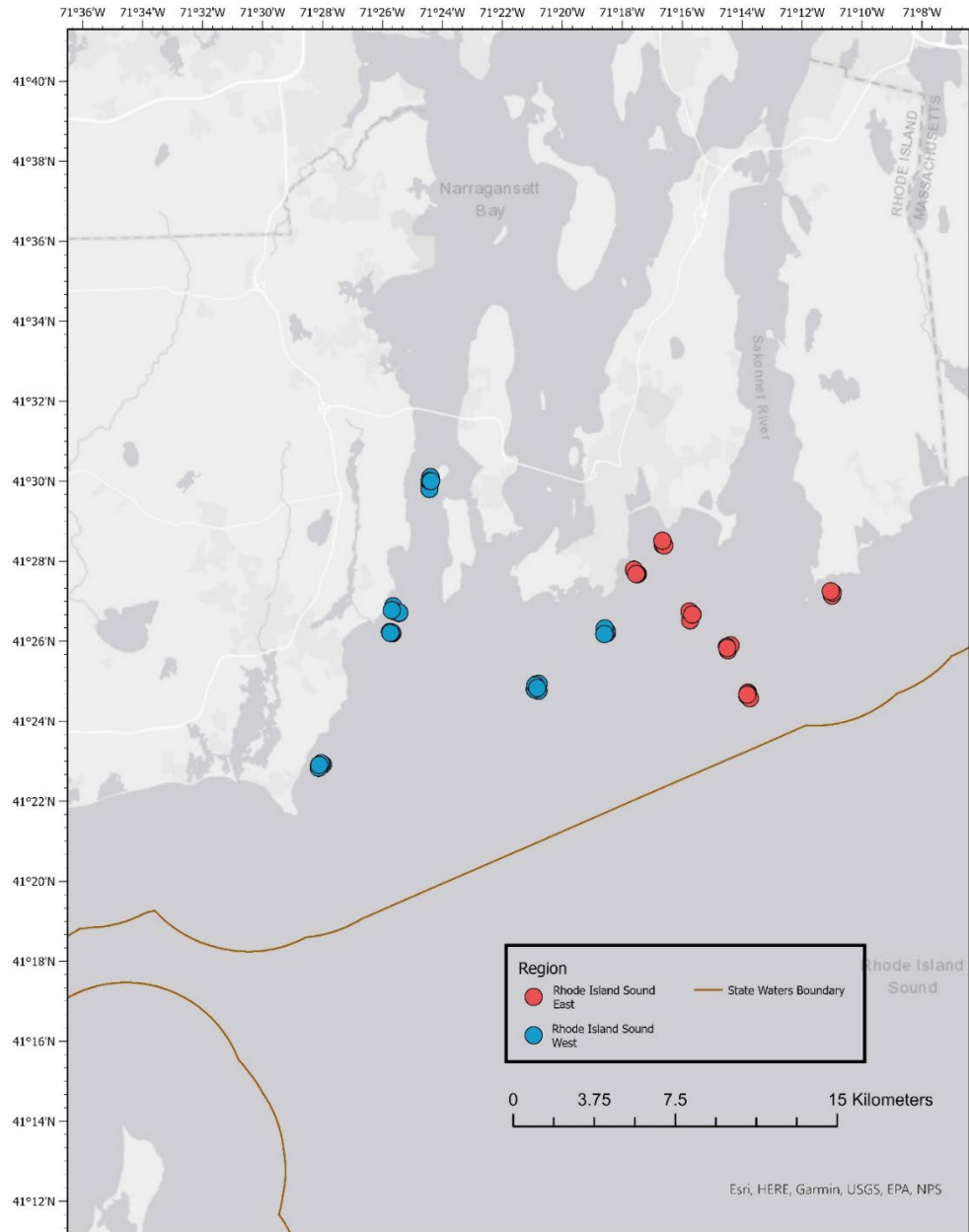


Figure 4 – Ventless pot multi-species monitoring and assessment program sampling subareas.



**Figure 5 – Ventless pot multi-species monitoring and assessment program sampling locations 2025.**

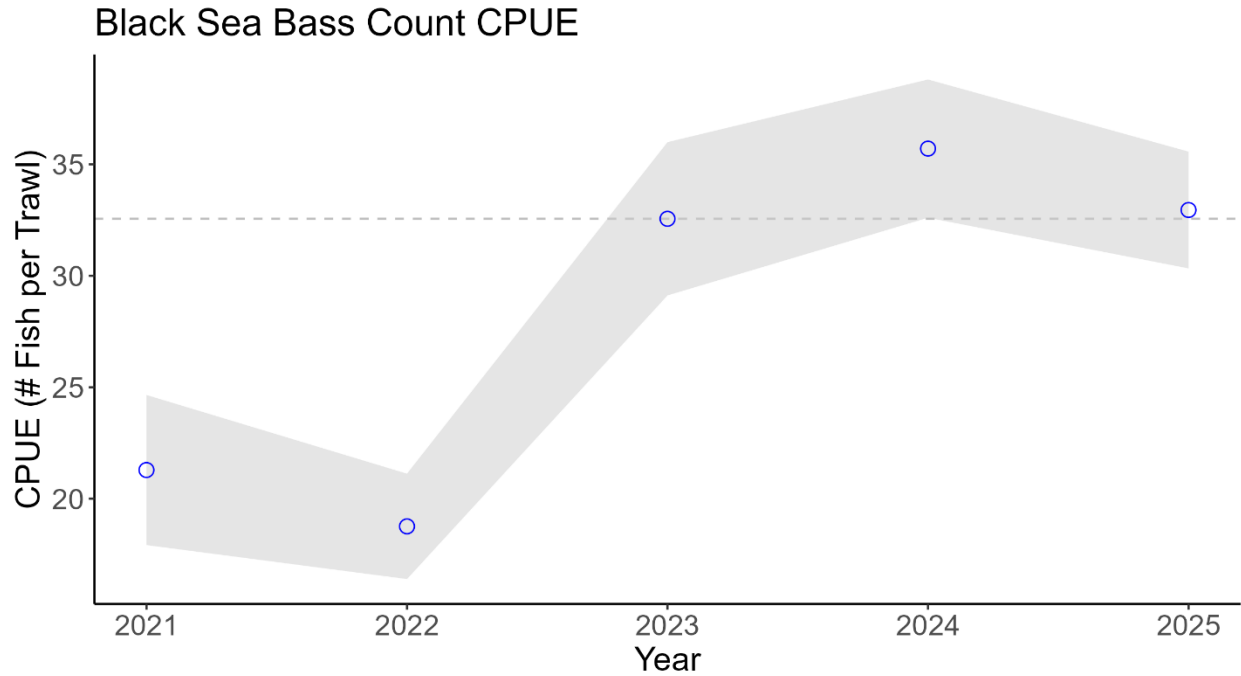


Figure 6 – Black sea bass abundance CPUE index. Gray dashed line is time series median; gray shaded area is the standard error around each annual CPUE.

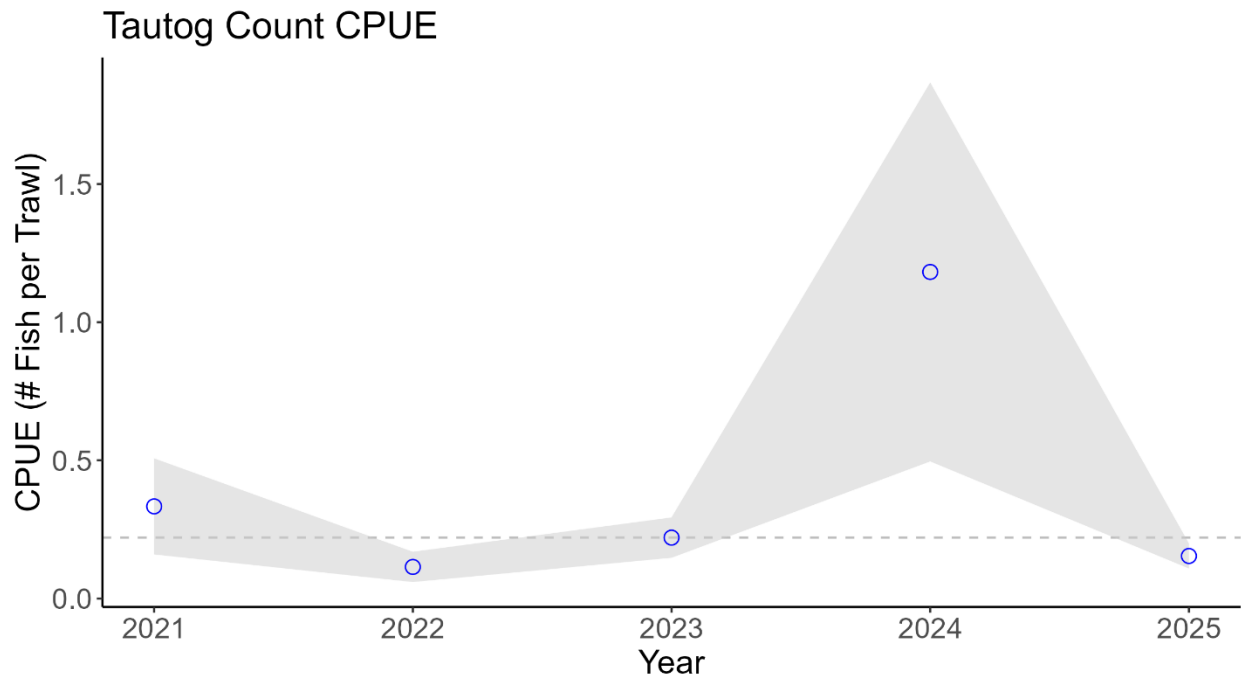
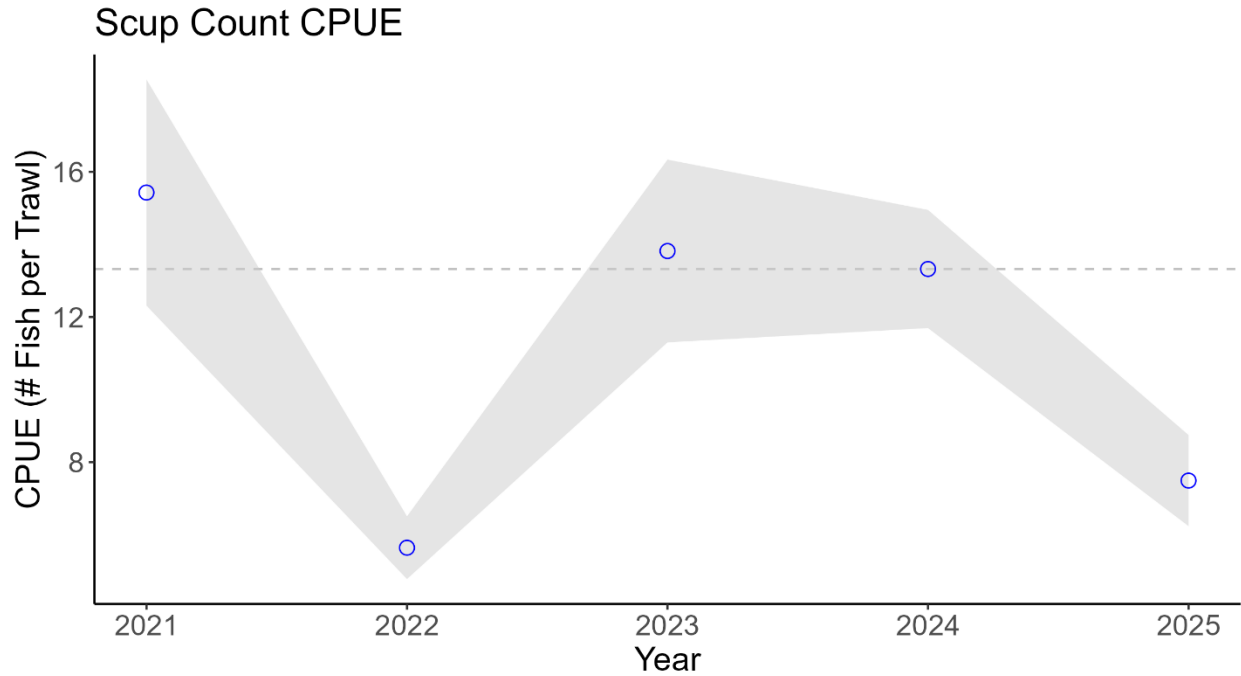
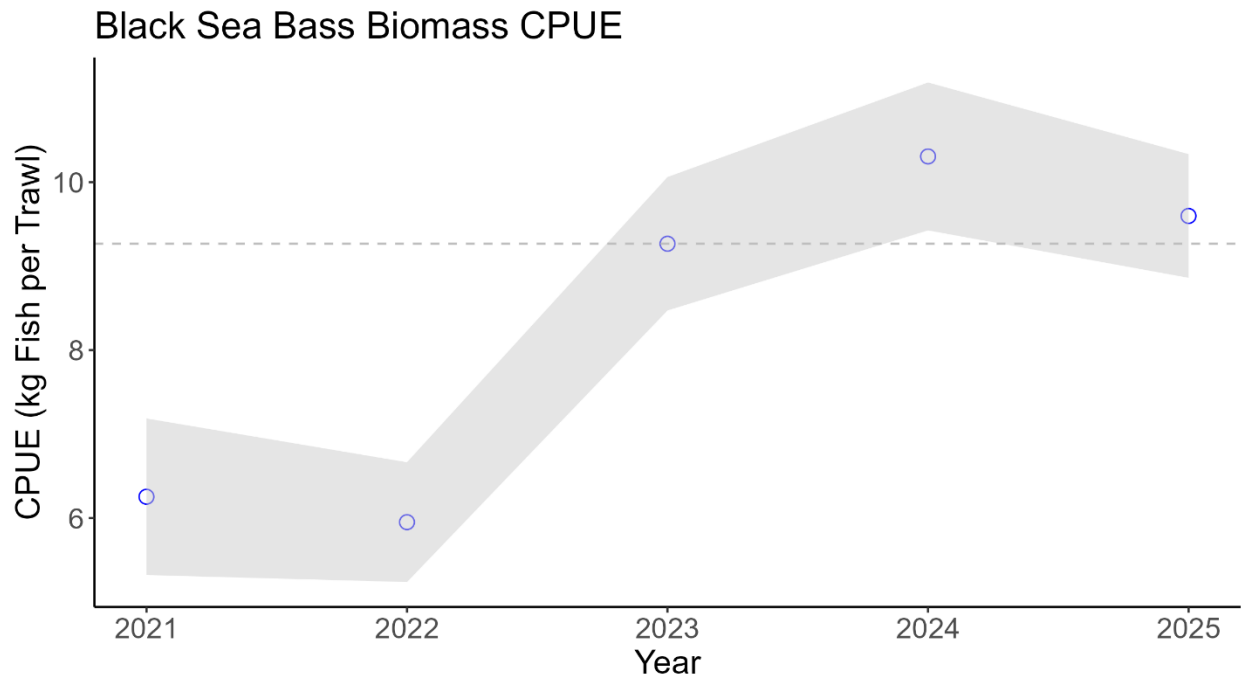


Figure 7 – Tautog abundance CPUE index. Gray dashed line is time series median; gray shaded area is the standard error around each annual CPUE.



**Figure 8 – Scup abundance CPUE index. Gray dashed line is time series median; gray shaded area is the standard error around each annual CPUE.**



**Figure 9 – Black Sea Bass biomass CPUE index. Gray dashed line is time series median; gray shaded area is the standard error around each annual CPUE.**

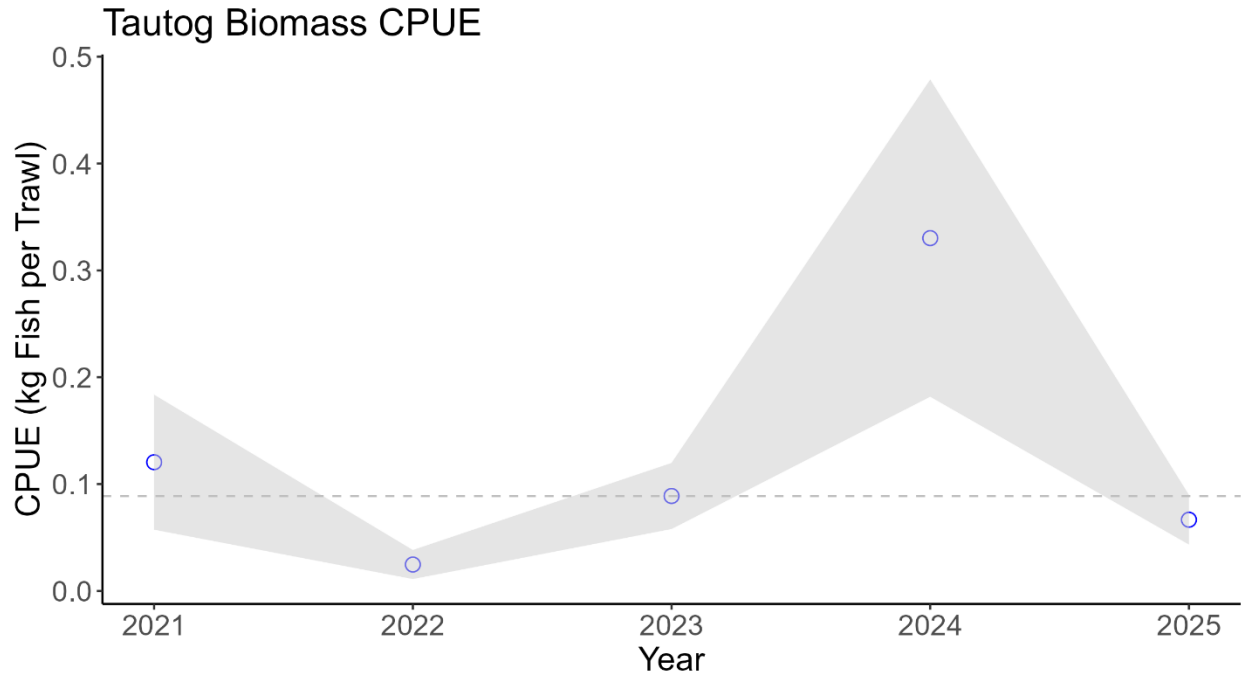


Figure 10 – Tautog biomass CPUE index. Gray dashed line is time series median; gray shaded area is the standard error around each annual CPUE.

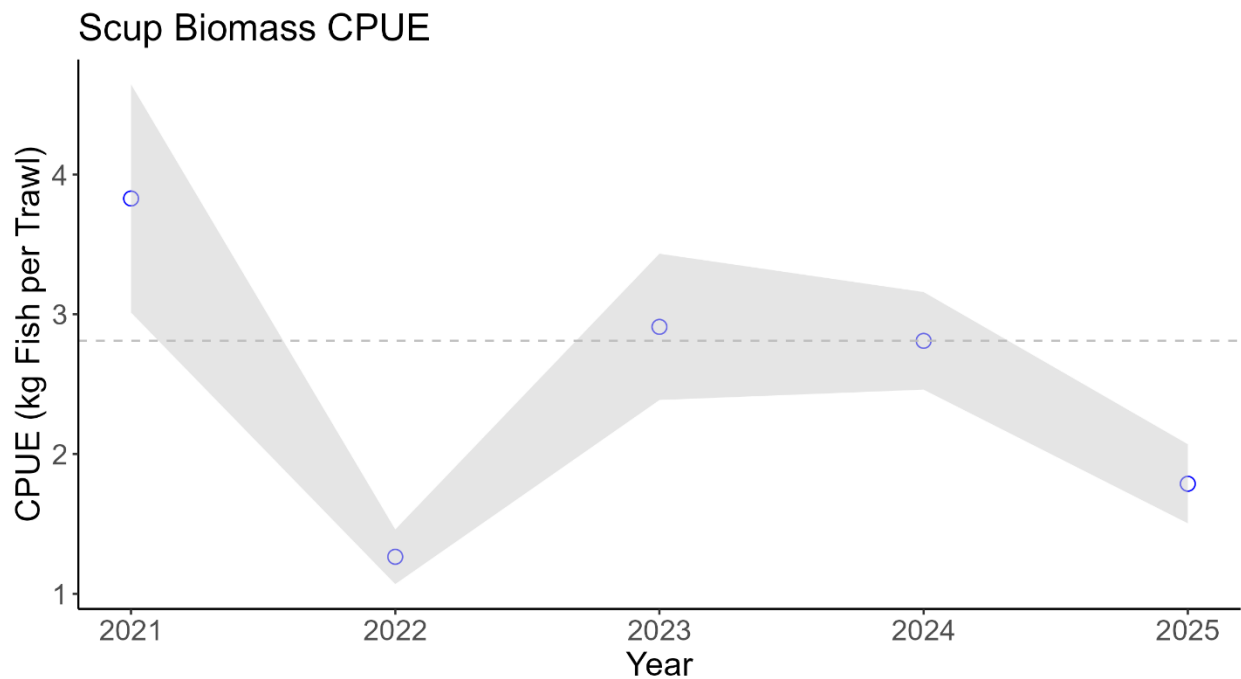


Figure 11 – Scup biomass CPUE index. Gray dashed line is time series median; gray shaded area is the standard error around each annual CPUE.

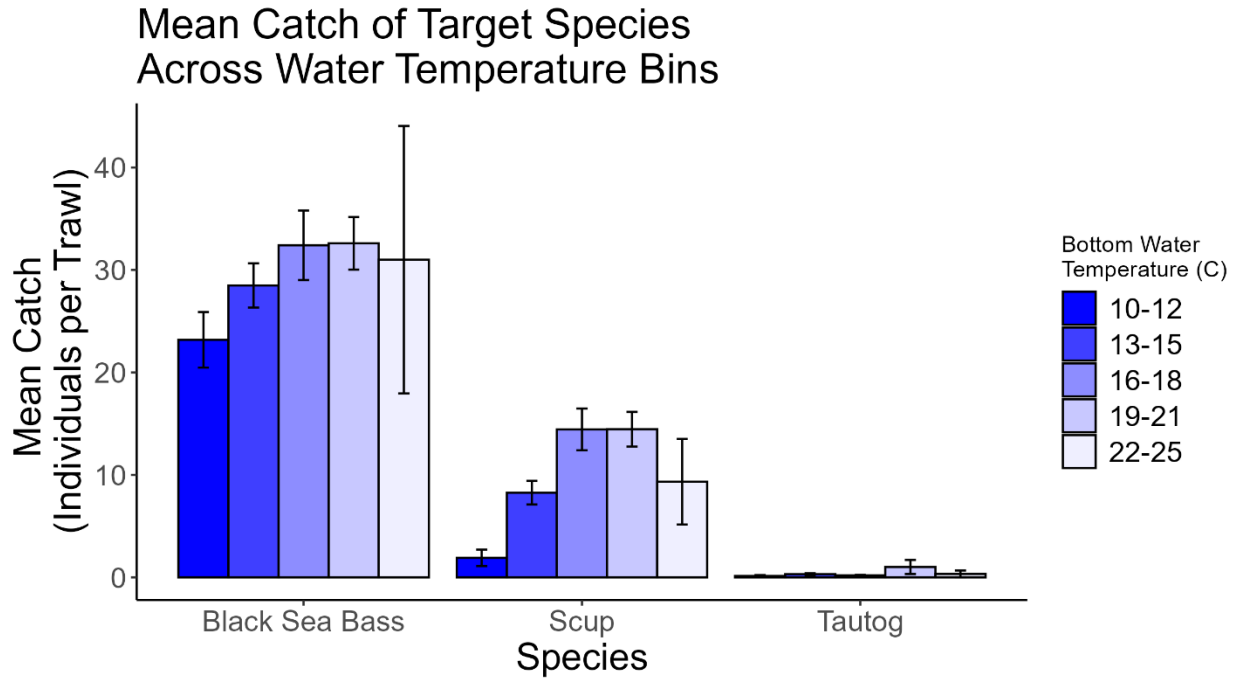


Figure 12 – Target fish species mean catch across bottom temperature bins. Bars represent mean catch and error bars represent standard error.

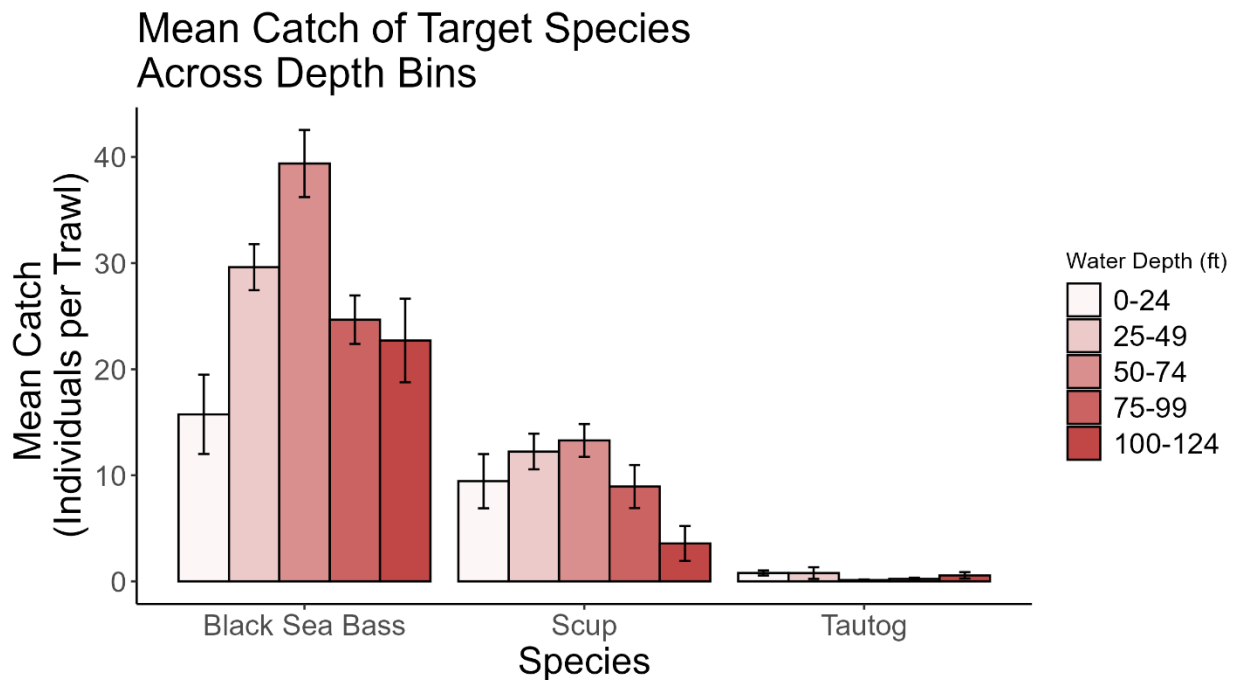


Figure 13 – Target fish species mean catch across bottom depth bins. Bars represent mean catch and error bars represent standard error.

**ASSESSMENT OF RECREATIONALLY IMPORTANT  
FINFISH STOCKS IN RHODE ISLAND WATERS**

University of Rhode Island  
Graduate School of Oceanography  
Weekly Fish Trawl  
2025

PERFORMANCE REPORT  
F-61-R SEGMENT 21  
JOB 14

Alexander Rubin  
URI GSO  
February 2026

## Annual Performance Report

STATE: Rhode Island

PROJECT NUMBER: F-61-R  
SEGMENT NUMBER: 21

PROJECT TITLE: Assessment of Recreationally Important Finfish Stocks in Rhode Island Waters

JOB NUMBER: 14

TITLE: University of Rhode Island Graduate School of Oceanography Weekly Fish Trawl

JOB OBJECTIVE: To collect, summarize and analyze bottom trawl data for biological and fisheries management purposes.

PERIOD COVERED: January 1, 2025 – December 31, 2025.

TARGET DATE: December 2025

SCHEDULE OF PROGRESS: On schedule.

SIGNIFICANT DEVIATIONS: None

RECOMMENDATIONS: Continuation of the weekly trawl survey into 2026; data provided by the survey are used extensively in the Atlantic States Marine Fisheries Commission and NOAA Fisheries fishery management process and fishery management plans.

## Executive Summary

This report details updated results from the URI-GSO Fish Trawl Survey through 2025. The report includes updated catch and environmental data. Spring and summer water temperature was generally higher than the historical average. Some target species reached recent highs in caught biomass whereas others maintained low biomass from recent years. The report discusses the recent spike in Spot abundance, biomass remained higher than historical levels but decreased from the previous year's spike.

## Introduction

The University of Rhode Island, Graduate School of Oceanography, began monitoring finfish populations in Narragansett Bay in 1959, and has continued through 2025. These data provide weekly identification of finfish and crustacean assemblages. Since the inception of the weekly fish trawl, survey tows have been conducted within Rhode Island territorial waters at two stations, one representing habitat of Narragansett Bay and one representing more open-water type habitats, characteristic of Rhode Island Sound. The weekly time step of this survey and its long duration are two unique characteristics of this survey. The short duration time step (weekly) has enough definition to capture migration periods and patterns of important finfish species and the length of the time series allows for the characterization of these patterns back into periods of time that may represent different productivity or climate regimes for many of these species. This performance report reflects the efforts of the 2025 survey year as they relate to those of the past years since the beginning of the survey.

## Methods

A weekly trawl survey is conducted on the URI research vessel *Cap'n Bert*. Two stations are sampled each week (Figure 1): one off Wickford, RI represents conditions in mid Narragansett Bay (Fox Island) and one at the mouth of Narragansett Bay represents conditions in Rhode Island Sound (Whale Rock). A hydrographic profile at each station measures temperature, salinity, and dissolved oxygen. The same otter trawl net design has been used since the survey began. A 30-minute tow is made at each station at a speed of 2 knots. All species are counted and weighed with an electronic balance. Winter flounder are routinely measured and their sex is determined by external examination. All species are measured with an electronic measuring board.

The gear dimensions of the net are as follows:

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<b>Net type</b>	2-seam with bag
<b>Length of headrope</b>	39 feet (11.9 meters)
<b>Otter boards</b>	steel, 24 inches tall, 48 inches long (61 centimeters by 1.24 meters)
<b>Distance from otter boards to net</b>	60 feet (18.3 meters)
<b>Mesh size: net</b>	3 inches (7.6 centimeters)
<b>Mesh size: codend</b>	2 inches (5.1 centimeters)
<b>Distance between otter boards while fishing</b>	52 feet (15.8 meters) at Fox Island 64.5 feet (19.7 meters) at Whale Rock

---

The following are the station locations for the survey:

Site	Location	Coordinates	Depth Range at Low Tide (North to South Along Tow Line)	Bottom Substrate
<b>Fox Island</b>	Adjacent to Quonset Point and Wickford	41°34.5' N, 71°24.3' W	20 feet (6.1 meters) to 26 feet (7.9 meters)	Soft mud and shell debris
<b>Whale Rock</b>	Mouth of West Passage	41°26.3' N, 71°25.4' W	65 feet (19.8 meters) to 85 feet (25.9 meters)	Coarse mud/fine sand

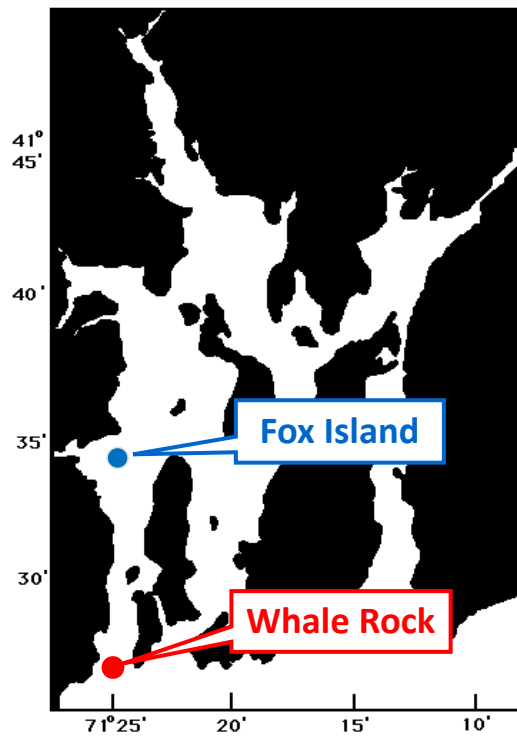


Figure 1. Location of trawl stations in Narragansett Bay.

(For more information about the GSO fish trawl go <https://web.uri.edu/gso/research/fish-trawl/>)

## Results

49 weekly tows were made at the bay (Fox Island) station and 49 were made at the sound (Whale Rock) station. One week of sampling was missed at Fox Island due hazardous weather conditions. One week of sampling was missed at Whale Rock, due to crossed wires and a ripped net, surface and bottom temperatures were still recorded for that date.

### *Environmental conditions*

Weekly water temperatures at both stations were overall comparable to the historical average throughout the year (Figure 2), with Spring, Summer, and Fall slightly warmer. Fox Island winter temperatures were notable cooler than the historic average. A profile of environmental conditions was not taken on one date in April because of an equipment malfunction. Instead, surface water temperature was recorded using the research vessel's on board temperature sensor.

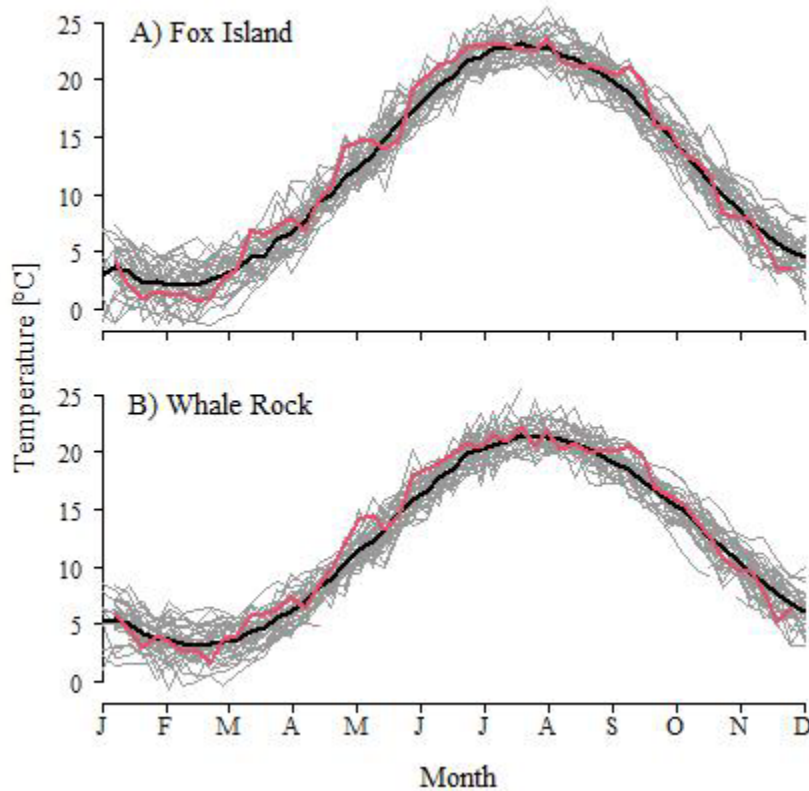


Figure 2. Weekly sea surface temperature of Narragansett Bay at each sampling station. The gray lines represent the seasonal temperature cycle for each previous year. The black line is the average temperature over all years. The most recent year, 2025, is labeled red.

Summary catch statistics

Table 3. Total catch by species at Fox Island (FI) and Whale Rock (WR) for the top 25 species caught in 2025. Across all species, 23229 individuals were caught in 2025.

Species	FI	WR	Total	% Total Catch
LONGFIN SQUID ( <i>Loligo pealii</i> )	1237	4437	5674	24.43
SCUP ( <i>Stenotomus chrysops</i> )	3468	970	4438	19.11
SILVER HAKE ( <i>Merluccius bilinearis</i> )	0	3152	3152	13.57
BUTTERFISH ( <i>Peprilus triancanthus</i> )	1436	1157	2593	11.16
ATLANTIC ROCK CRAB ( <i>Cancer irroratus</i> )	36	983	1019	4.39
SUMMER FLOUNDER ( <i>Paralichthys dentatus</i> )	519	462	981	4.22
LITTLE SKATE ( <i>Raja erinacea</i> )	10	909	919	3.96
SPIDER CRAB ( <i>Libinia emarginata</i> )	162	407	569	2.45
ATLANTIC HERRING ( <i>Clupea harengus</i> )	24	523	547	2.35
ATLANTIC MOONFISH ( <i>Selene setapinnis</i> )	418	65	483	2.08
MENHADEN ( <i>Brevoortia tyrannus</i> )	128	190	318	1.37
STRIPED SEAROBIN ( <i>Prionotus evolans</i> )	55	233	288	1.24
SPOT ( <i>Leiostomus xanthurus</i> )	103	129	232	1.00
SMOOTH DOGFISH ( <i>Mustelus canis</i> )	127	61	188	0.81
WINDOWPANE ( <i>Scophthalmus aquosus</i> )	11	169	180	0.77
SMALLMOUTH FLOUNDER ( <i>Etropus microstomus</i> )	15	126	141	0.61
BLUE CRAB ( <i>Callinectes sapidus</i> )	22	105	127	0.55
NORTHERN SEAROBIN ( <i>Prionotus carolinus</i> )	22	103	125	0.54
WINTER FLOUNDER ( <i>Pseudopleuronectes americanus</i> )	20	101	121	0.52
ATLANTIC SILVERSIDE ( <i>Menidia menidia</i> )	107	13	120	0.52
SPONGE ( <i>Suberites spp</i> )	102	0	102	0.44
BLUEBACK HERRING ( <i>Alosa aestivalis</i> )	0	101	101	0.43
SPOTTED HAKE ( <i>Urophycis regia</i> )	6	85	91	0.39
CLEARNOSE SKATE ( <i>Raja eglanteria</i> )	44	30	74	0.32
MANTIS SHRIMP ( <i>Squilla empusa</i> )	23	49	72	0.31
<b>Total</b>	<b>8095</b>	<b>14560</b>	<b>22655</b>	<b>97.53</b>

The top 10 species caught in 2025 (and the station where they were most numerous) were: Longfin squid (WR), Scup (FI), Silver hake (WR), Butterfish (FI), Longfin squid (FI), Butterfish (WR), Atlantic rock crab (WR), Scup (WR), Little skate (WR), Atlantic herring (WR).

A number of species of recreational importance were collected during 2025 by the URI Fish trawl survey. Represented below are a number of important species and their abundance trends throughout the time series of this survey. On each graph, the species abundance at the two stations is represented separately for each station.



### *Winter flounder*

Winter flounder are one of the target species for the survey. The population of winter flounder has declined dramatically during the time period of the survey with some of the lowest estimates on record for both stations occurring in the last decade (Figure 3). Since 2020 there has been a slight increase in winter flounder at Whale Rock but not at Fox Island. The survey information is used during the stock assessment process for winter flounder.

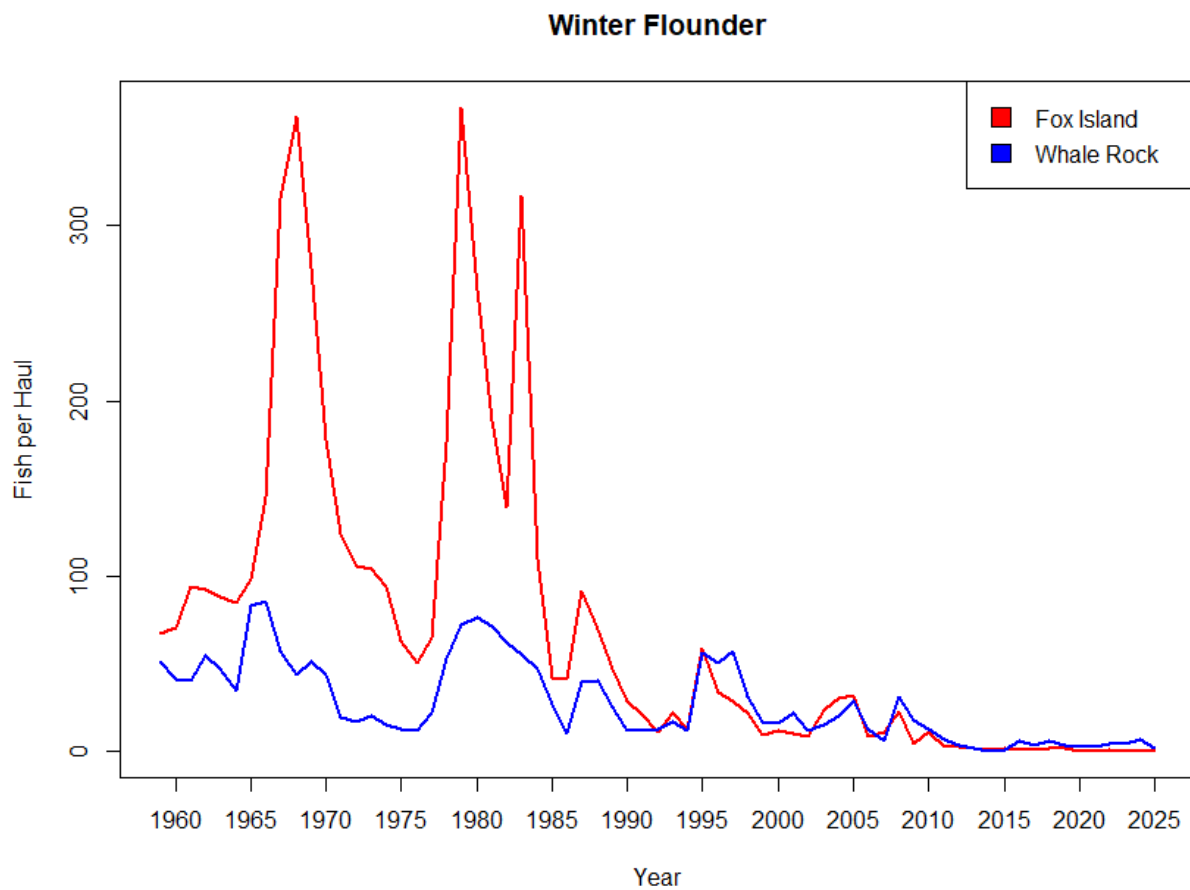


Figure 3 – Average catch per tow for the entire time series for winter flounder at both sampling stations (Fox Island and Whale Rock).



*Tautog*

Tautog are another important recreational species caught by the survey. The population of tautog has declined dramatically during the time period of the survey but does show some small improvement in the most recent period of time (Figure 4). Despite the improvement, the population according to the survey has not rebounded to former levels. Tautog are mainly caught at the Fox Island station, with only random and infrequent catches occurring at Whale Rock. The survey information was reviewed during the stock assessment process for tautog.

**Tautog**

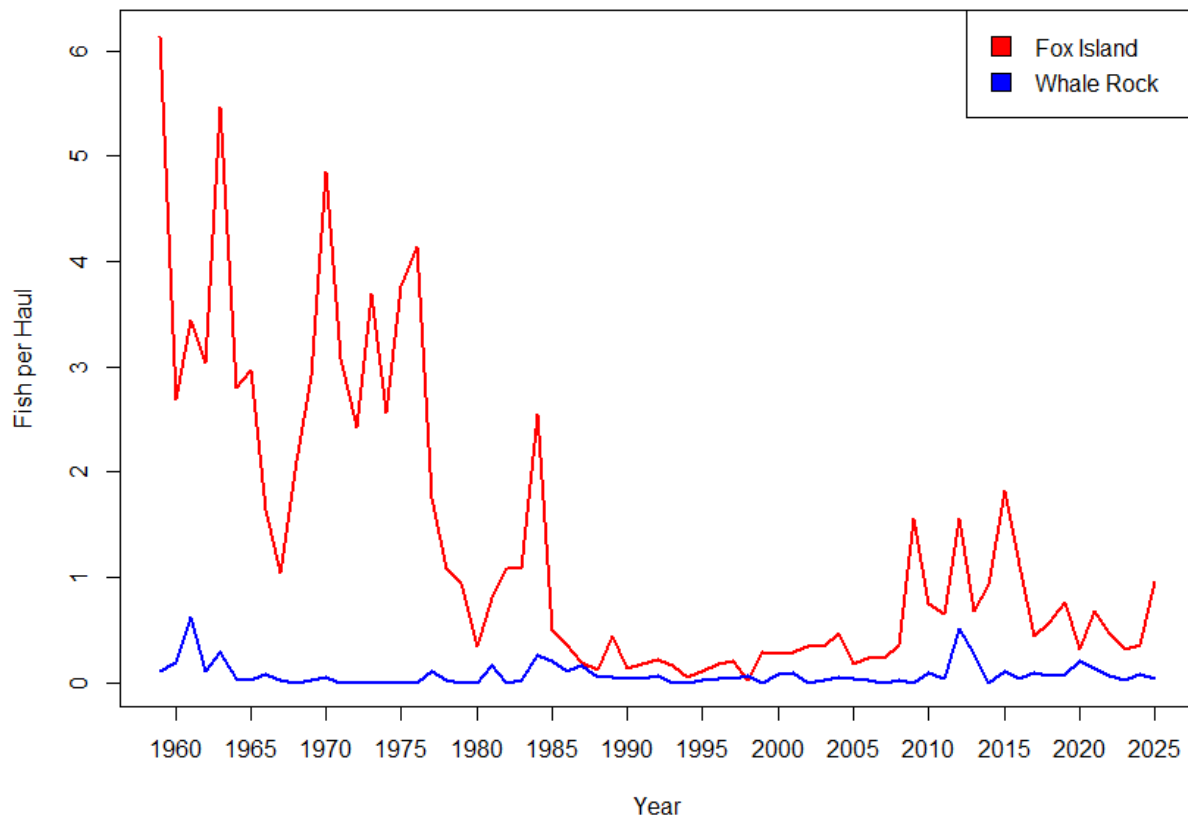


Figure 4 – Average catch per tow for the entire time series for tautog at both sampling stations (Fox Island and Whale Rock).



*Summer Flounder*

Summer flounder are another important recreational species caught by the survey. The population of summer flounder has increased dramatically during the time period of the survey but does show a fair amount of variability in the most recent time period (Figure 5). Summer flounder are caught at both sampling stations consistently, although abundance at Whale Rock has mostly been higher than at Fox Island during the second half of the timeseries. The survey information was reviewed during the stock assessment process for summer flounder, and the trends indicated by the survey are similar to those indicated by the overall population trends. The Fox Island CPUE reached a new maximum during the 2025 survey year.

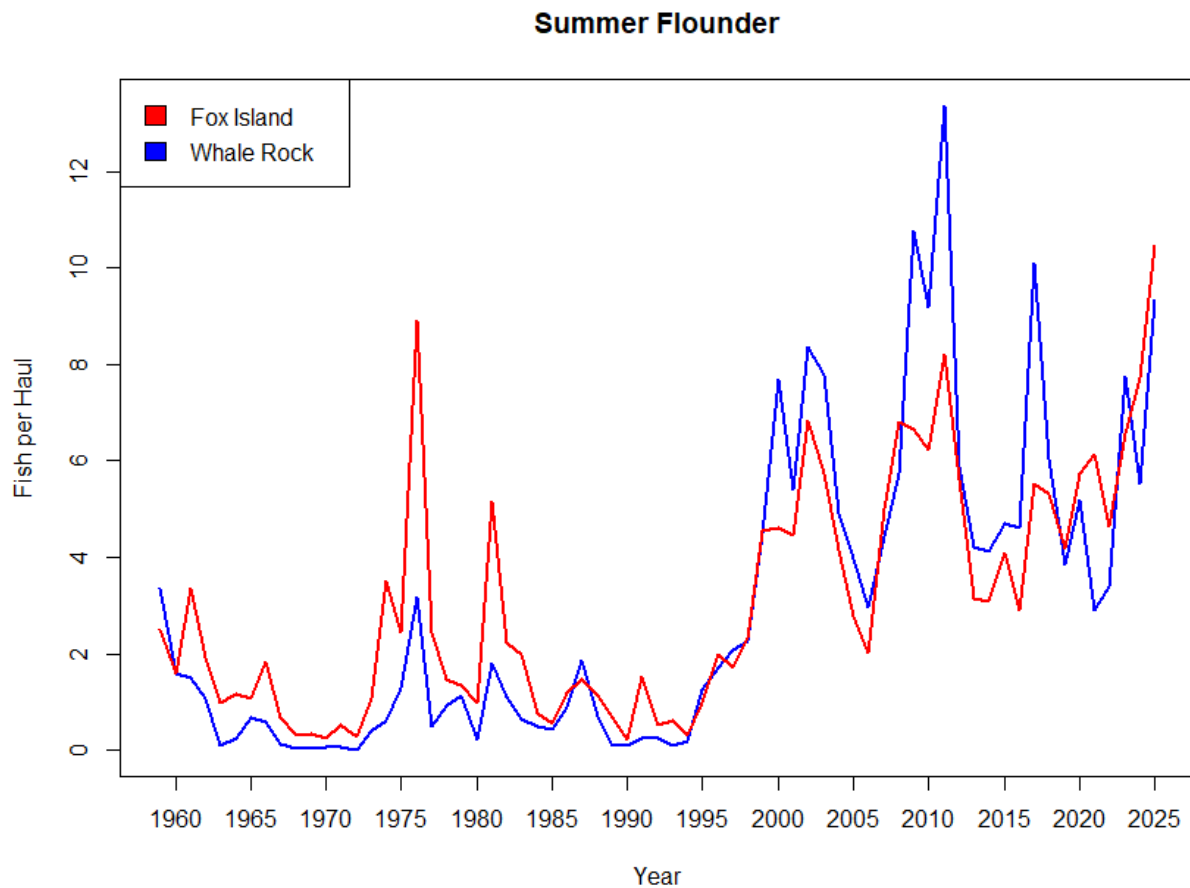


Figure 5 – Average catch per tow for the entire time series for summer flounder at both sampling stations (Fox Island and Whale Rock).



*Black Sea Bass*

Black sea bass are another important recreational species caught consistently by the survey. The population of black sea bass has increased dramatically during the time period of the survey much like summer flounder, and also shows a fair amount of variability in the most recent time period (Figure 6). Black sea bass are caught at both sampling stations fairly consistently.

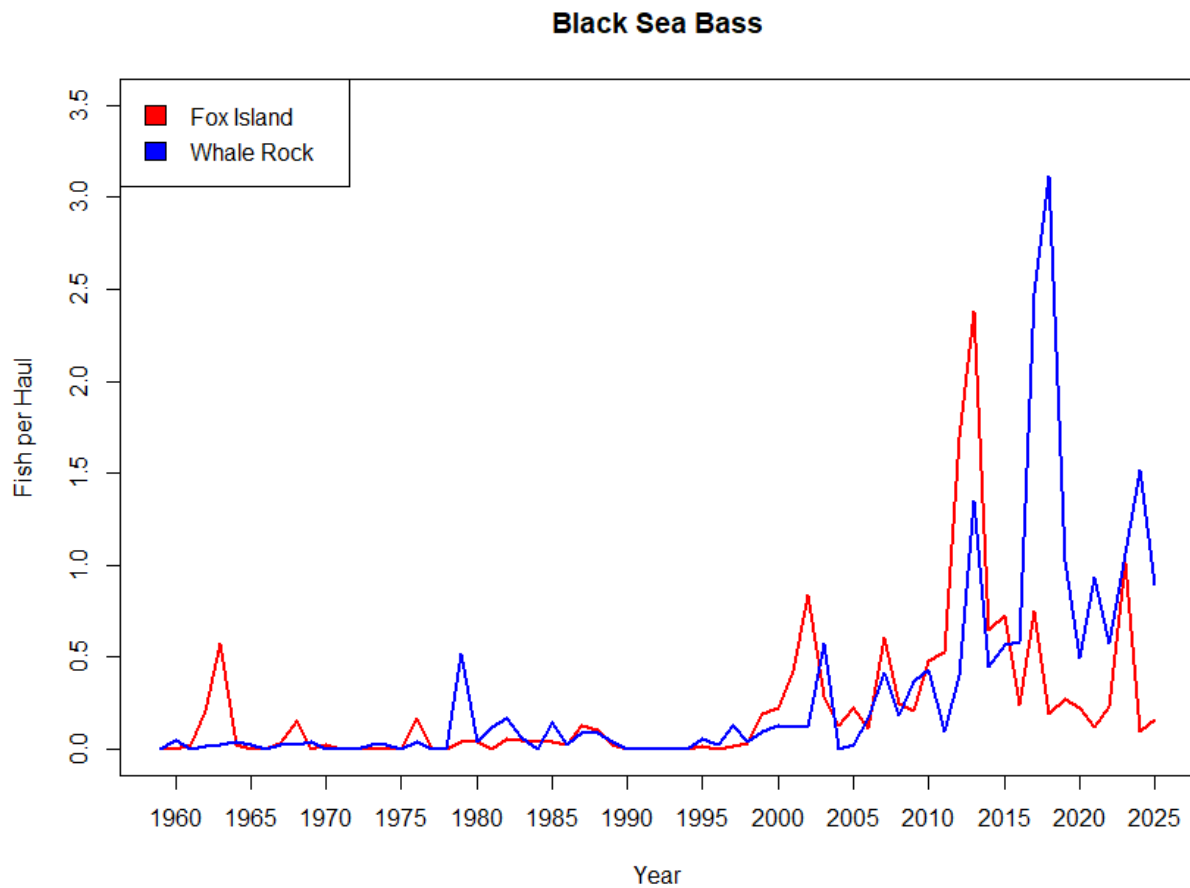


Figure 6 – Average catch per tow for the entire time series for black sea bass at both sampling stations (Fox Island and Whale Rock).



### Scup

Scup is another of the Mid-Atlantic species caught consistently by the survey, along with summer flounder, black sea bass, bluefish, and menhaden. The population of scup has increased dramatically during the time period of the survey much like summer flounder and black sea bass, showing a high degree of variability going all the way back to the mid-1970s (Figure 7). Scup are caught at both sampling stations consistently, although the Fox Island station catches a much higher magnitude than does the Whale Rock station. Some of this variability and magnitude difference for scup is driven by high recruitment events, the young-of-the-year recruits being susceptible to the trawl gear. The survey information was reviewed during the stock assessment process for scup.

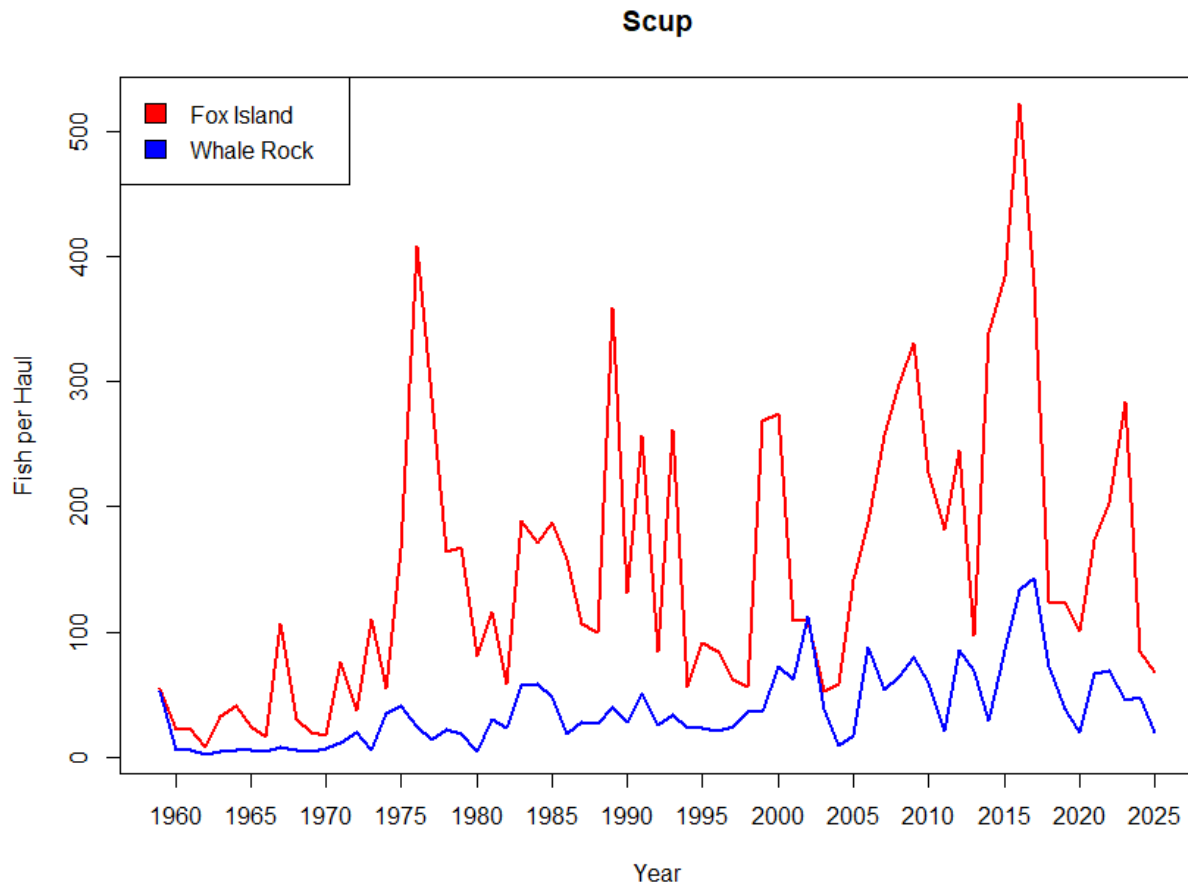


Figure 7 – Average catch per tow for the entire time series for scup at both sampling stations (Fox Island and Whale Rock).



### *Bluefish*

Bluefish is another of the Mid-Atlantic species caught consistently by the survey. The population of bluefish increased during the middle of the survey time period, but has since declined, with some potential improvement in recent years. There is high variability for this species in the survey data, again mainly due to catching young-of-the-year bluefish as opposed to adults (Figure 8). Bluefish are caught at both sampling stations fairly consistently.

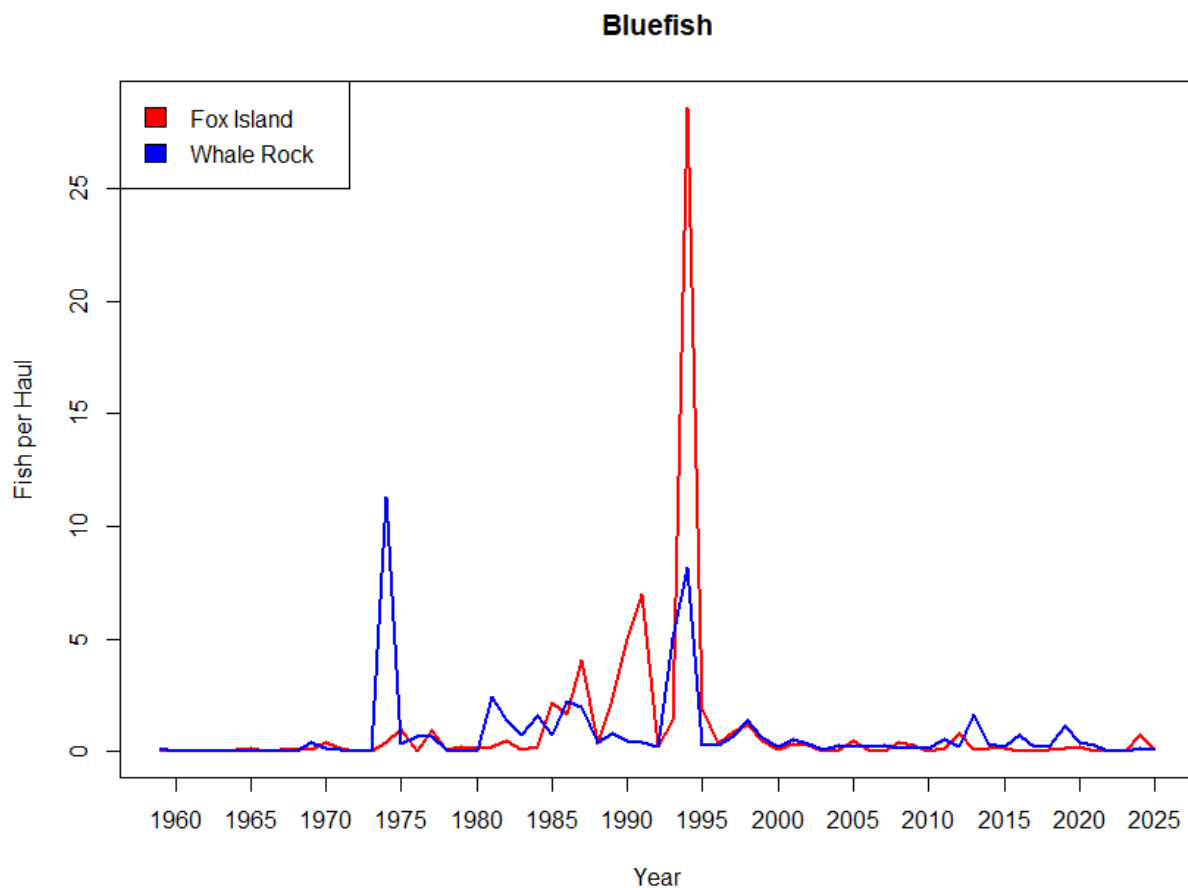


Figure 8 – Average catch per tow for the entire time series for bluefish at both sampling stations (Fox Island and Whale Rock).



### *Weakfish*

Weakfish is another of the Mid-Atlantic species caught consistently by the survey, as weakfish use Narragansett Bay as a nursery habitat. The population of weakfish has been variable through the time period of the survey with periods of high abundance and periods of very low abundance. There is high variability for this species in the survey data, again mainly due to catching young-of-the-year weakfish as opposed to adults (Figure 9), so this survey is probably a better indicator of recruitment than adult population size. Weakfish are caught at both sampling stations fairly consistently, with a shift from Fox Island to Whale Rock since the 1990s.

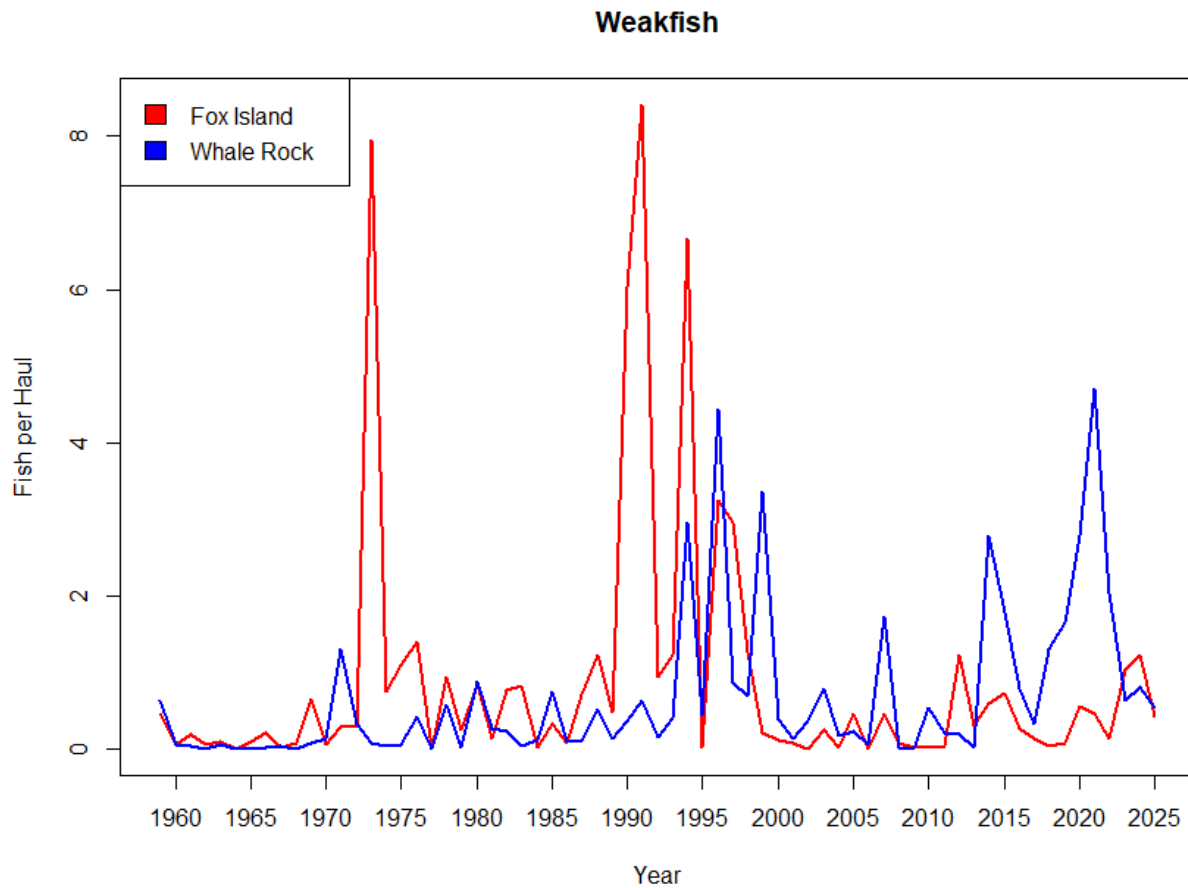


Figure 9 – Average catch per tow for the entire time series for weakfish at both sampling stations (Fox Island and Whale Rock).



### *Striped Bass*

Striped bass is probably the premier recreational species caught by the survey. The catch of striped bass has been variable throughout the time period of the survey, with peaks between 1990 and 2010, and recently in 2018. There is high variability for this species in the survey data (Figure 10), but the survey catches both juveniles and adults. Striped bass are caught in greater abundance and frequency at Fox Island than at Whale Rock.

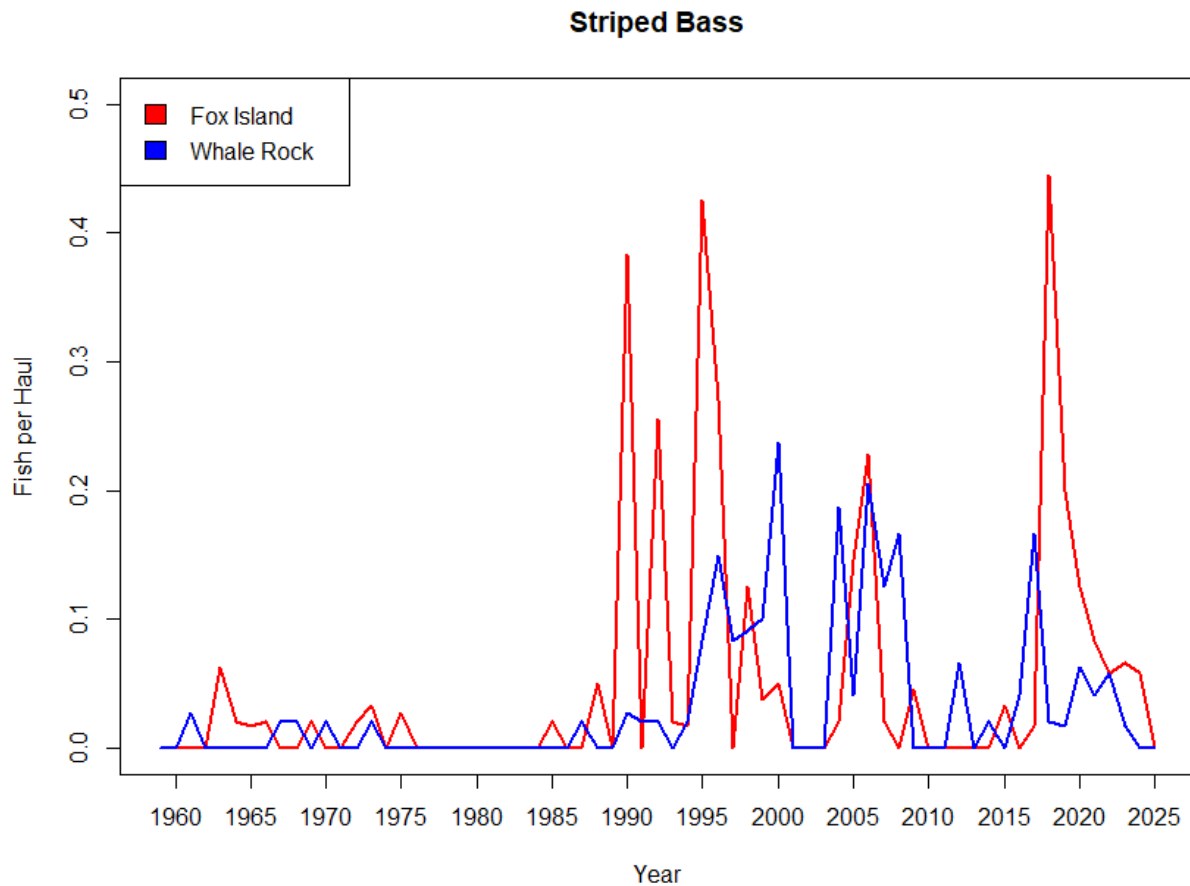


Figure 10 – Average catch per tow for the entire time series for striped bass at both sampling stations (Fox Island and Whale Rock).



*Menhaden*

Menhaden is another of the Mid-Atlantic species caught consistently by the survey. The catch of menhaden has been variable throughout the time period of the survey, mainly due to the schooling pelagic nature of this species. There is high variability for this species in the survey data (Figure 11), but the survey mainly catches juveniles. Until recently, menhaden were caught in greater abundance and frequency at Fox Island than at Whale Rock. The survey information was reviewed during the stock assessment process for menhaden.

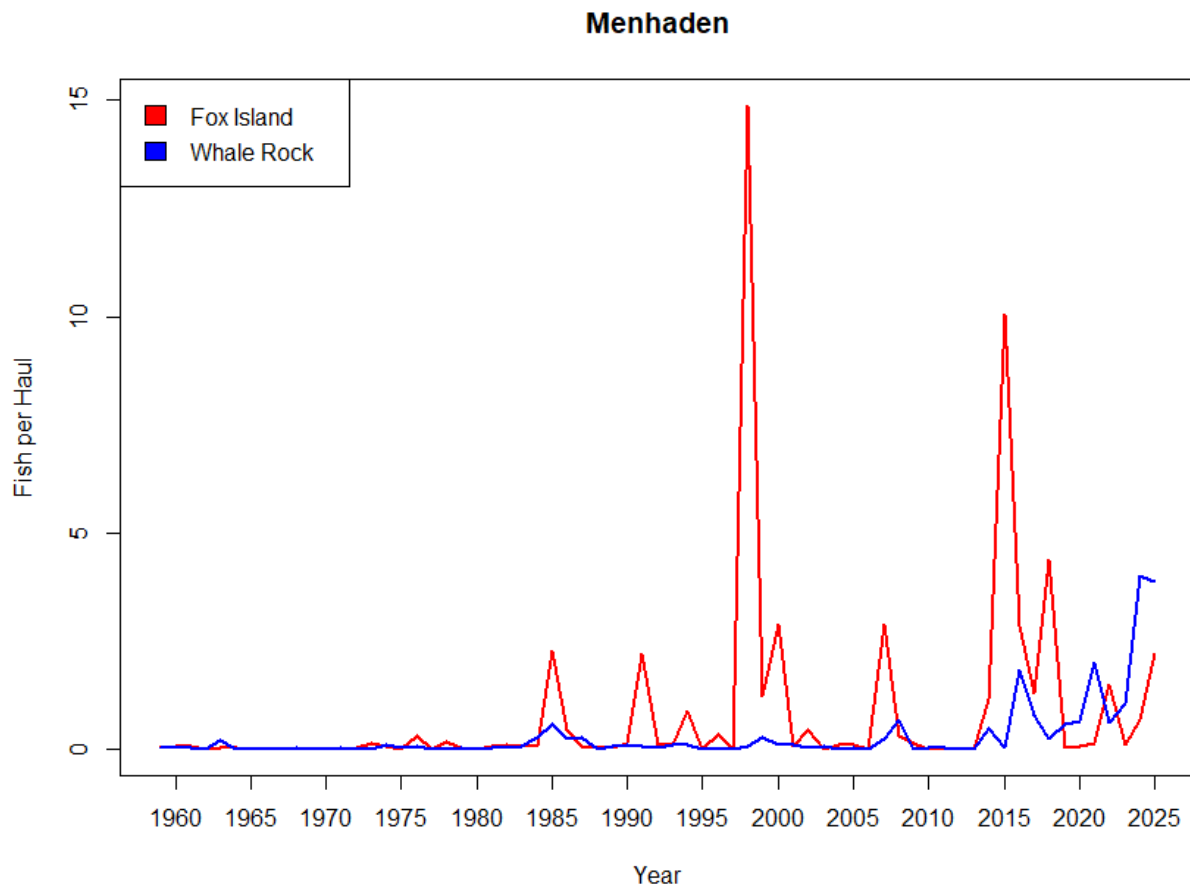
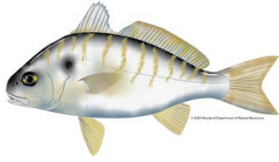


Figure 11 – Average catch per tow for the entire time series for menhaden at both sampling stations (Fox Island and Whale Rock)

## Special Projects

### *Time Series of Spot*



Spot (*Leiostomus xanthurus*) is typically a southerly distributed species with its northern range extending to New England. In recent years as southerly species migrate northwards in response to warming water temperatures, there has been an increase in occurrence of spot caught in the Fish Trawl. Spot was first recorded on the Fish Trawl in 1978 but had since been rare. However, in Summer and Fall of 2024 the abundance of spot dramatically increased in Narragansett Bay, far surpassing previous levels of incidence. Spot were intermittently observed in Summer and Fall of 2025, but in lower abundance than the previous year. Spot are caught in greater amounts at Whale Rock than at Fox Island. Spot is a recreationally targeted species, whose increasing abundance presents new opportunities for Rhode Island anglers. Monitoring the abundance of spot in Narragansett Bay should be continued, as its prevalence may persist into the future.

### Spot

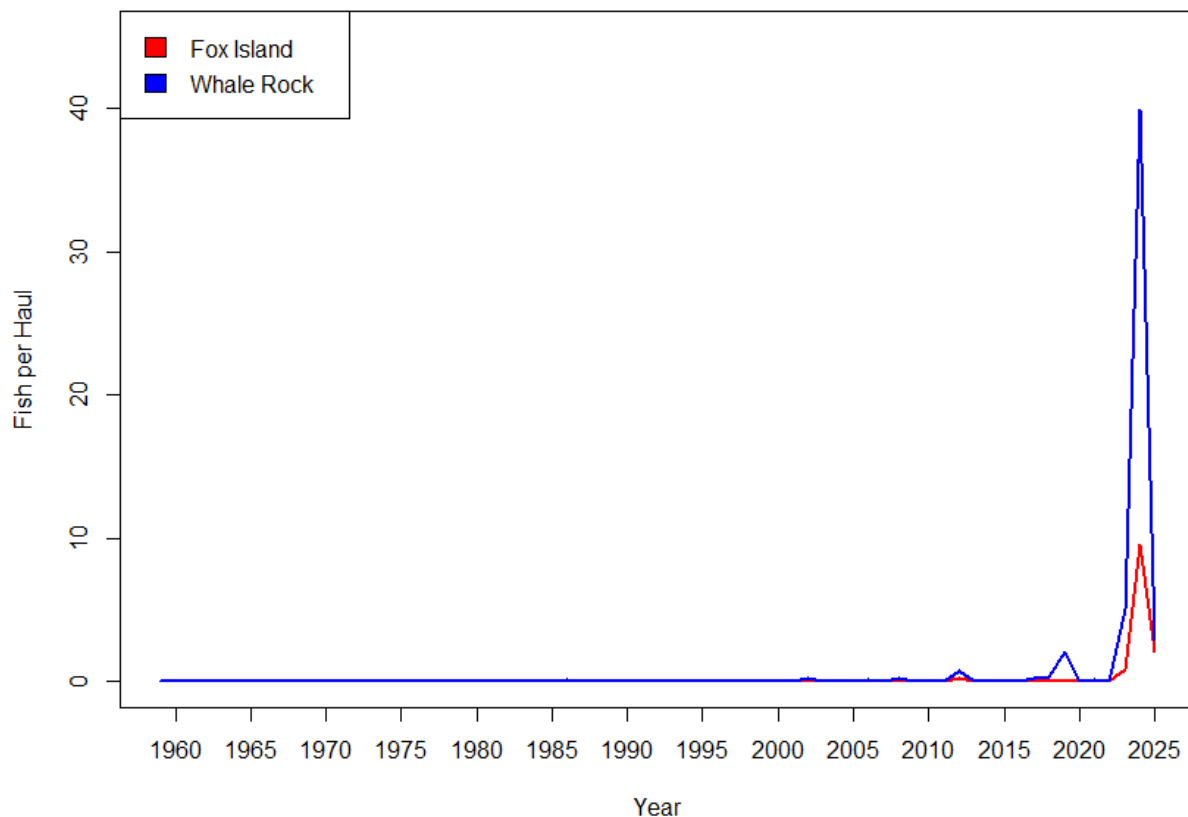


Figure 12 – Average catch per tow for the entire time series for spot at both sampling stations (Fox Island and Whale Rock)

### *Undergraduate Research Assistants*

Undergraduate assistants were recruited from URI for the spring, summer, and fall semesters to gain experience and provide extra assistance on the Fish Trawl Survey. 2025 Undergraduate assistants included: Cam Chadronet, Slate Northington, and Caitie McCabe.

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## **Enhancements to MRIP Data Collection**

John Lake  
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Division Marine Fisheries  
John.Lake@dem.ri.gov

**STATE:** Rhode Island

**PROJECT NUMBER:** F-61-R

**SEGMENT NUMBER:** 23

**PROJECT TITLE:** Assessment of Recreationally Important Finfish Stocks in Rhode Island Waters

**PERIOD COVERED:** January 1, 2025 – December 31, 2025

**JOB NUMBER 16 TITLE:** Enhancements to MRIP Data Collection

**Job 16:** Enhancements to MRIP Data Collection

Each year during this segment the RIDMF Access Point Angler Interview Survey (APAIS) hired 5 additional seasonal staff members and provided 2 months of a full time employees time in support of the survey. These additional staff complement the staff that is provided by the NOAA MRIP base funding and allows RIDMF to order additional assignments from the NOAA Marine Recreational Information Program (MRIP). The additional staff members are contracted through the Atlantic States Marine Fisheries Commission, the same as the NOAA funded staff. During 2025 RIDMF APAIS was able to add on 61 assignments in shore mode , 62 assignments in private/rental mode, and 40 assignments in Party charter mode. Additionally, each year in this segment, RIDMF APAIS added an additional 30 samples in Head Boat mode for ride along. Staff hired via this grant are also used to preform scouting assignments of existing and potentially new sites to determine site pressures and sampling feasibility.

Currently, the 2025 MRIP estimates are available on the NOAA Fisheries web site. A detailed summary of the total 2025 APAIS assignments is provided in table one. This table shows the assignments broken down by mode, the response statistics and the productivity rate which is the number of completed interviews over the number of assignments. Table 2 provides a summary of APAIS interview statistics from 2025 by wave. The program continues to improve on interview statistics with a goal to maintain similar levels as seen in 2019 or better.

Table 1. APAIS Interview Statistics from 2024 Assignments. (CH = Party/Charter, PR = Private/Rental Boat, SH = Shore, HB = Head Boat)

Year	Wave	Mode	Assignments	Completed	Initially Refused	Language Barrier	Missed Anglers	Productivity
2024	2	HB	4	32	13	5	0	8.00
2024	2	PR	24	119	39	43	32	4.96
2024	2	SH	26	59	3	14	25	2.27
2024	3	CH	46	282	488	25	110	6.13
2024	3	HB	12	212	127	16	0	17.67
2024	3	PR	66	344	190	124	104	5.21
2024	3	SH	58	263	136	205	97	4.53
2024	4	CH	82	634	681	48	270	7.73
2024	4	HB	17	319	392	24	0	18.76
2024	4	PR	105	738	380	180	238	7.03
2024	4	SH	44	236	105	179	65	5.36
2024	5	CH	49	134	363	77	53	2.73
2024	5	HB	12	190	113	42	0	15.83
2024	5	PR	72	329	115	96	124	4.57
2024	5	SH	39	149	78	64	52	3.82
2024	6	CH	15	48	156	9	56	3.20
2024	6	HB	6	81	62	18	0	13.50
2024	6	PR	16	12	3	0	0	0.75
2024	6	SH	28	86	21	16	19	3.07
<b>2024</b>			<b>721</b>	<b>4267</b>				<b>5.92</b>

Table 2. Summary of APAIS interview Statistics from 2020 – 2024 assignments by wave.

<b>Year</b>	<b>Wave</b>	<b>Completed</b>	<b>Refused</b>	<b>Missed</b>	<b>Eligible Anglers</b>	<b>Percent Complete</b>
2024	2	210	55	57	385	54.55%
2024	3	1101	941	311	2734	40.27%
2024	4	1927	1558	573	4503	42.79%
2024	5	802	669	229	1990	40.30%
2024	6	86	21	19	587	38.67%
<b>2024</b>		<b>4126</b>	<b>3244</b>	<b>1189</b>	<b>10199</b>	<b>40.45%</b>

## **Recreational Fisheries Management Support**

John Lake

Rhode Island Department of Environmental Management

Division Marine Fisheries

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**STATE:** Rhode Island

**PROJECT NUMBER:** F-61-R

**SEGMENT NUMBER:** 23

**PROJECT TITLE:** Assessment of Recreationally Important Finfish Stocks in Rhode Island Waters

**PERIOD COVERED:** January 1, 2025 – December 31, 2025

**JOB NUMBER 17 TITLE:** Outreach and Support for MRIP Data Collection

**Job 17:** Recreational Fisheries Management Support

During this segment, RIDMF provided staff and support for state and regional recreational fishing program coordination, planning, and outreach meetings. These meetings include the ACCSP Recreational Technical committee, the Rhode Island Marine Fisheries Council, ASMFC technical and stock assessment committees for various recreationally important species, RIDEM Boating and Access point workgroup, and local stake holder meetings. Additionally, the Division published and produced recreational angler outreach materials including the annual saltwater recreational magazine, APAIS staff uniforms, and stickers for handing out at events and during APAIS interviews. The RI Saltwater Fishing magazine can be viewed here: <http://www.eregulations.com/rhodeisland/fishing/saltwater/>. The Division conducts an annual kids fish camp each year in this period. The Event takes place in late June each year in conjunction with the Rhode Island Saltwater Anglers Association (RISAA). RIDMF attended other youth fishing events such as “vamos a pescar”. Vamos a pescar is a program run by the Central Falls RI School system in conjunction with RIDFW which fosters inner city youth interest in fishing. The Division also provides staff for Governor’s bay day the annual free fishing day, the annual RISAA recreational fishing show, and various other small community-based events to promote the RIDMF SW recreational fishing program. The Division is anticipating all outreach activities on schedule for normal operation in 2026 and beyond.