APCC's River Herring Monitoring Program

Fostering Stewardship and Conservation

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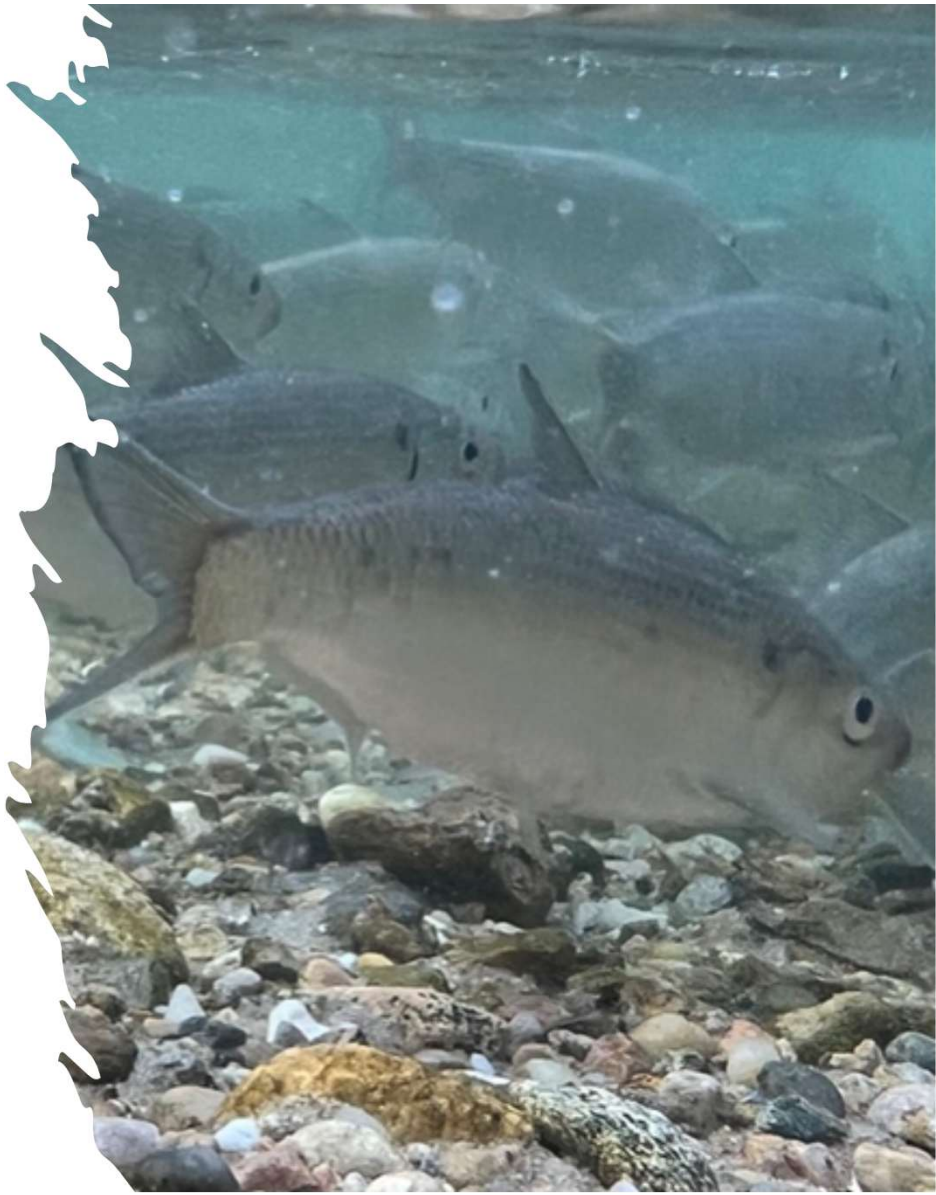
Restoration Ecologist



APCC
Association to Preserve Cape Cod

Massachusetts Division of Marine Fisheries
River Herring Counting Workshop
New Bedford, MA
March 12, 2025

Our Role

- Association to Preserve Cape Cod (APCC)
  - *"…to preserve, protect, and enhance the natural resources of Cape Cod"*

- Volunteer River Herring Monitoring Program began in 2007
  - Supported by funding through MassBays

- Provide capacity and support to volunteer run coordinators across Cape Cod

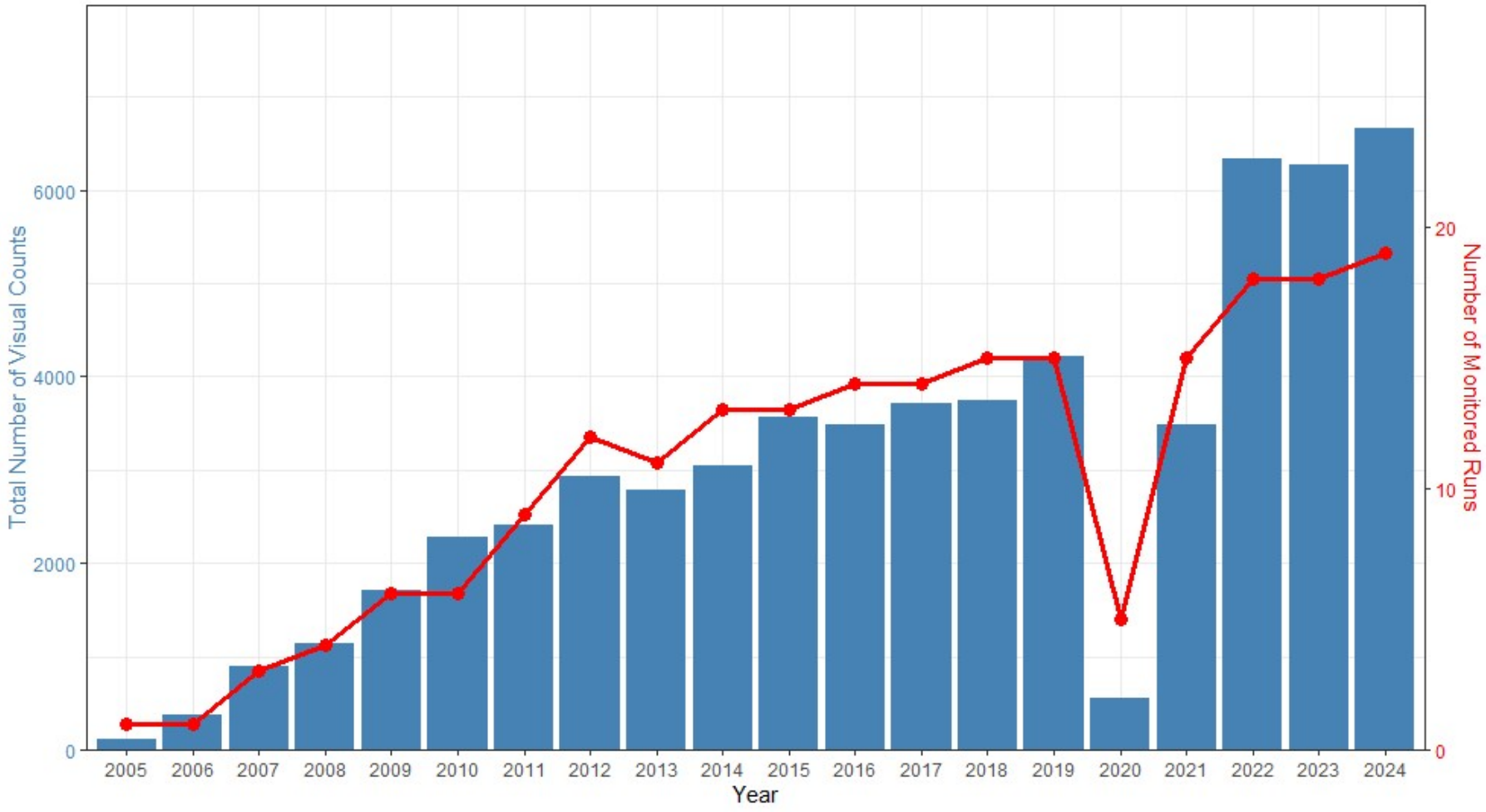
- Collect, manage, and disseminate annual run statistics from Cape Cod runs
  - Identify and monitor fish passage restoration efforts

Our Services

- Provide capacity and support to volunteer run coordinators across Cape Cod
- 20 Cape Cod runs are scheduled for monitoring in 2025

	Herring Run Name	Town	List Info on Herring Hub	Help Recruit Volunteers	Manage Volunteers In-Season	Provide Counting Kits	Assist with Volunteer Training	Use Data Entry Website	QA/QC Data and Send to MA DMF	Collect Annual Run Statistics
1	Marstons Mills River	Barnstable	Yes	No	No	No	No	No	No	Yes
2	Red Lily Pond	Barnstable	Yes	Yes	No	Yes	No	Yes	Yes	Yes
3	Centerville River	Barnstable	Yes	No	No	Yes	No	Yes	Yes	Yes
4	Stony Brook	Brewster	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
5	Bound Brook	Dennis	Yes	Yes	No	No	Yes	Yes	Yes	Yes
6	Scargo Lake	Dennis	Yes	Yes	No	No	Yes	Yes	Yes	Yes
7	Bridge Pond	Eastham	Yes	No	No	No	Yes	Yes	Yes	Yes
8	Herring Pond (Herring River)	Eastham	Yes	No	No	No	Yes	Yes	Yes	Yes
9	Trunk River	Falmouth	Yes	Yes	No	Yes	No	No	Yes	Yes
10	Coonamessett River	Falmouth	Yes	No	No	No	No	No	No	Yes
11	Herring River	Harwich	Yes	No	No	No	No	No	Yes	Yes
12	Mashpee River	Mashpee	Yes	Yes	No	No	No	Yes	Yes	Yes
13	Quashnet River	Mashpee	Yes	Yes	No	No	No	Yes	Yes	Yes
14	Santuit River	Mashpee	Yes	Yes	No	No	No	Yes	Yes	Yes
15	Pilgrim Lake	Orleans	Yes	No	No	No	No	No	No	Yes
16	Mill Creek	Sandwich	Yes	Yes	No	Unknown	No	Yes	Yes	Yes
17	Herring River	Wellfleet	Yes	No	No	No	No	Yes	Yes	Yes
18	Tom Mathews Pond	Yarmouth	Yes	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Yes
19	Long Pond	Yarmouth	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
20	Baxter Grist Mill	Yarmouth	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes

Program Growth Over Time



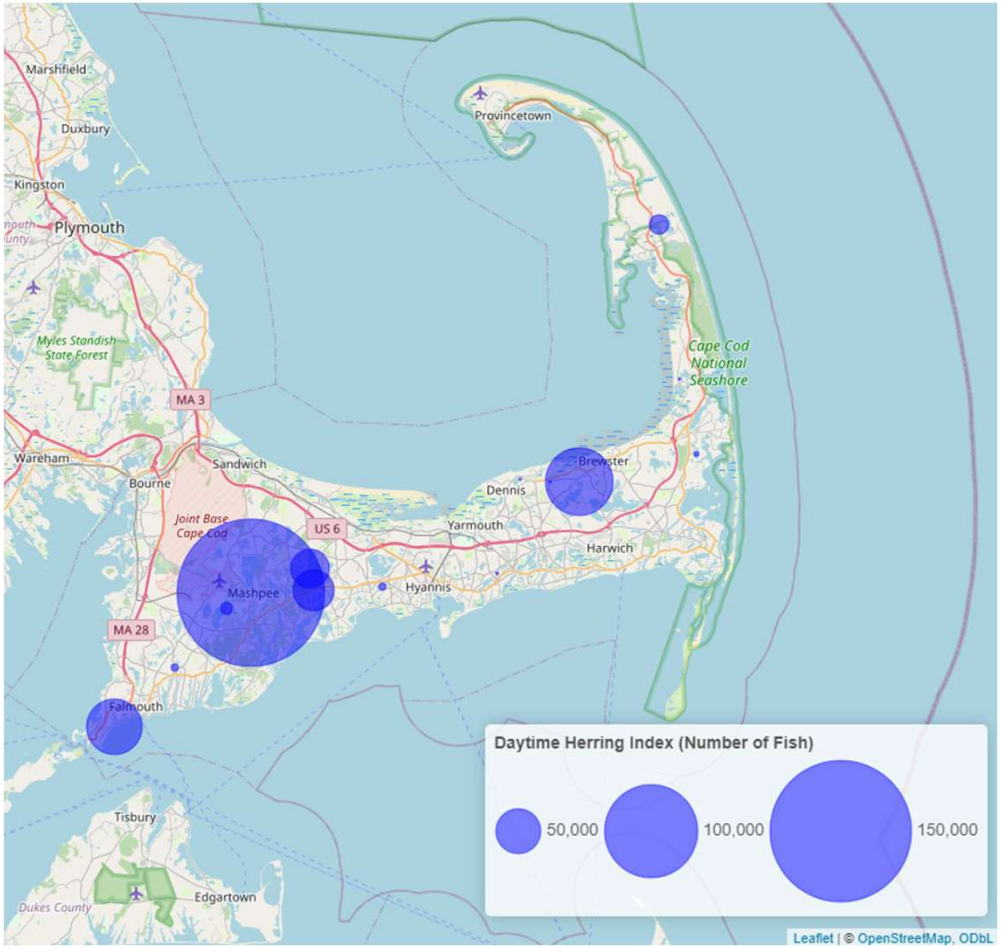
Our Approach

- Work with local coordinators to recruit and train volunteer herring counters
  - *Estimated 300+ volunteers/annually*
  - *11 towns (Barnstable, Brewster, Dennis, Eastham, Falmouth, Harwich, Mashpee, Orleans, Sandwich, Wellfleet, and Yarmouth)*

- Deploy a **consistent** sampling methodology across runs
  - Visual count
  - Two-way stratified sampling design (day, time of day)
  - 7 am to 7 pm observation window
  - 3 shifts/day (strata)
  - Target 3 observations/shift
  - 10-minute sampling interval
  - April 1 to June 15th season*

- Obtain a **representative** sample
  - Data are used to construct a **relative index of abundance**
    - Daytime index
    - Comparable across runs and years
  - **We are not attempting to count every river herring!**
  - **Collection of zeros is critically important!**

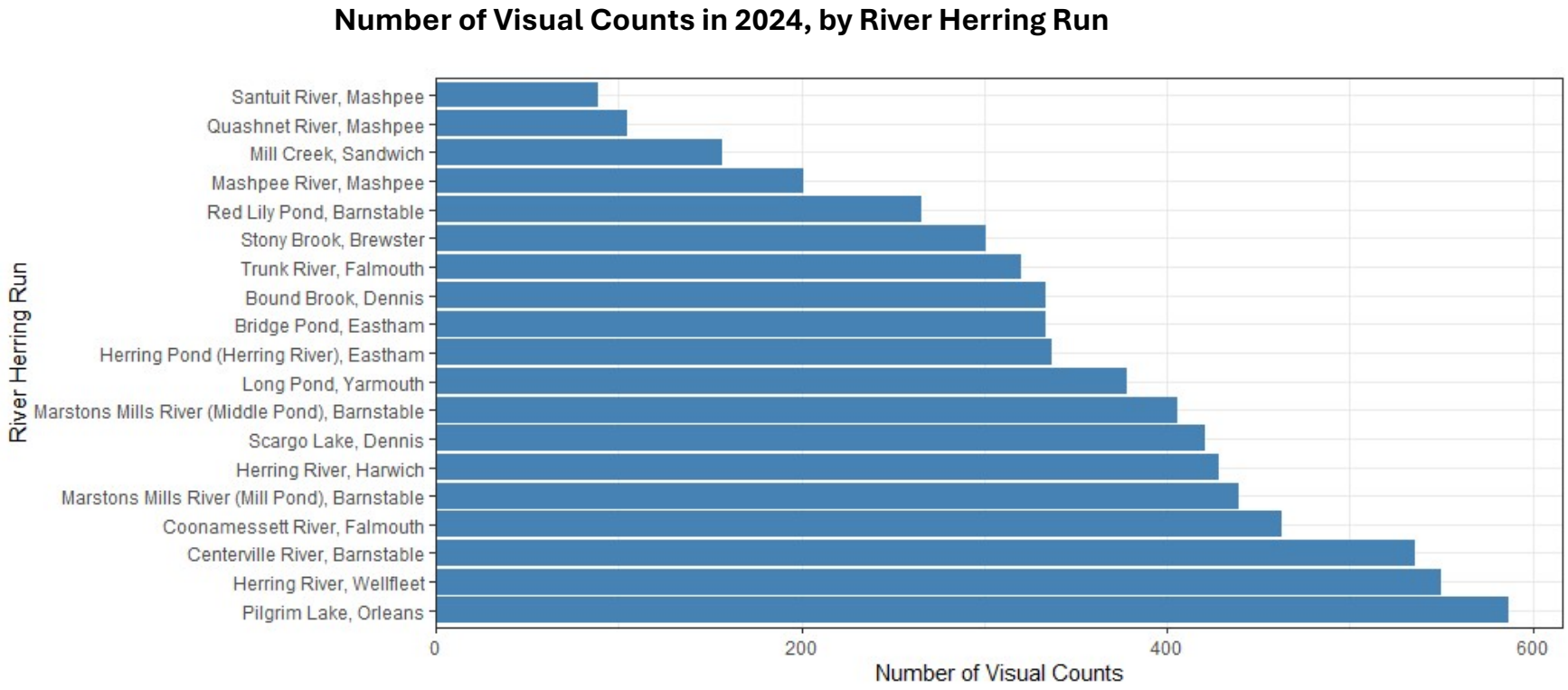
Cape Cod river herring runs are not all the same!



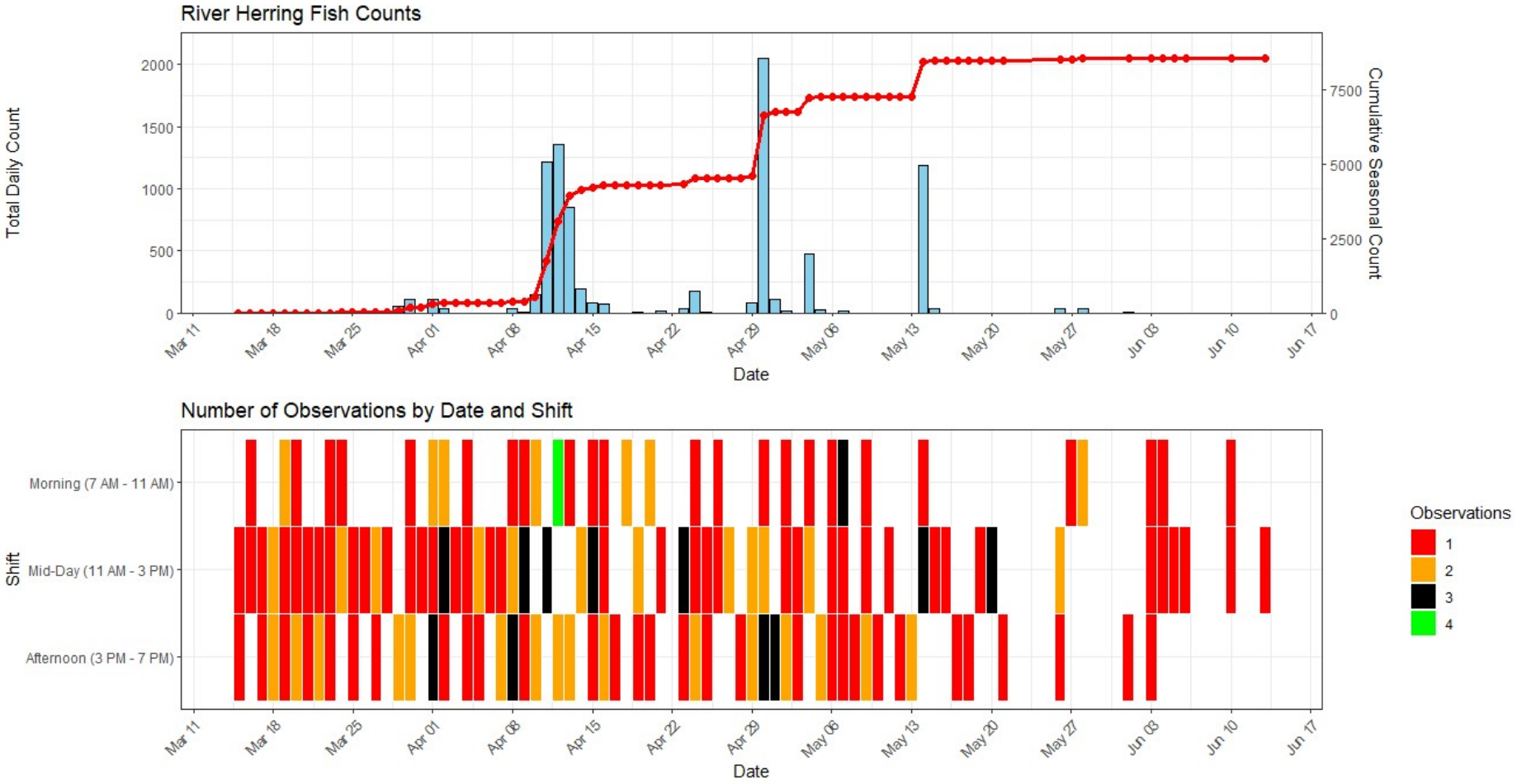
Differ in size, trends, length of time series, quality of data …

Volunteer programs struggle with sample sizes

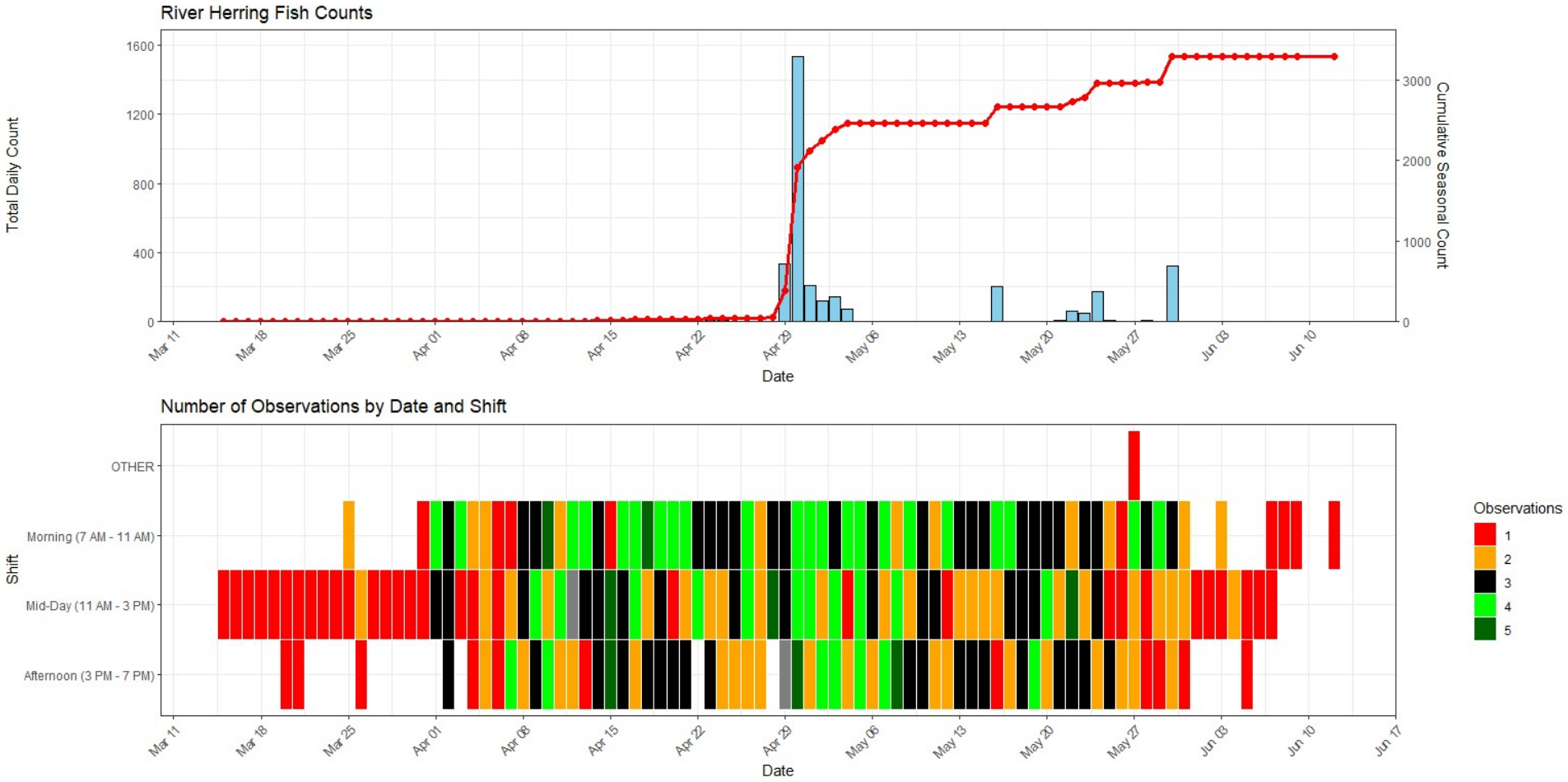
- 75 days between April 1 and June 15
- 3 shifts/day, 3 observations/shift = 9 observations/day
- **Target ~ 75 days x 9 observations/day ~ 675 total visual counts**



Mashpee River sampling effort (*2024 example*)



Herring River (WE) sampling effort (*2024 example*)



Utility of Volunteer Programs

- Population tracking and assessment
- Monitor effectiveness of restoration efforts
- Cost-effective monitoring
- Early detection of environmental issues
- Community engagement & stewardship
- Advocacy & conservation support

Looking Ahead

- This year (2025) is a transitional year as the APCC program shifts to new leadership

- In coordination with MA DMF, we have made minor adjustments to the data collection routine (staff gauge)

- Continue to expand volunteer recruitment efforts and increase sample sizes

- Review monitoring objectives for each run and adjust expectations
  - What is the expected sampling effort at each run?
  - Given this effort, what kind of data can be collected?
  - What conservation uses do these data have?

- Where can we improve?

Thank You!

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