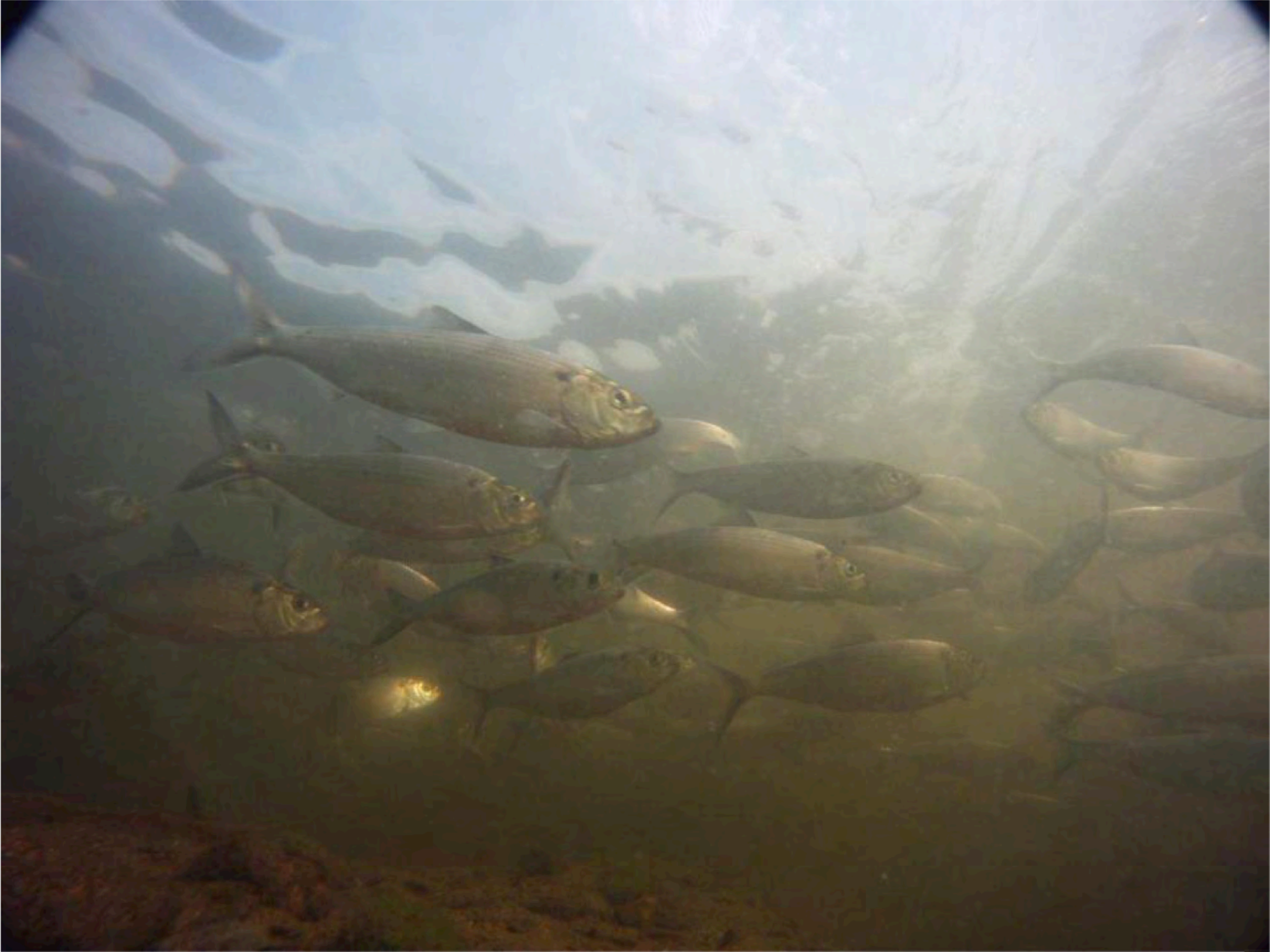


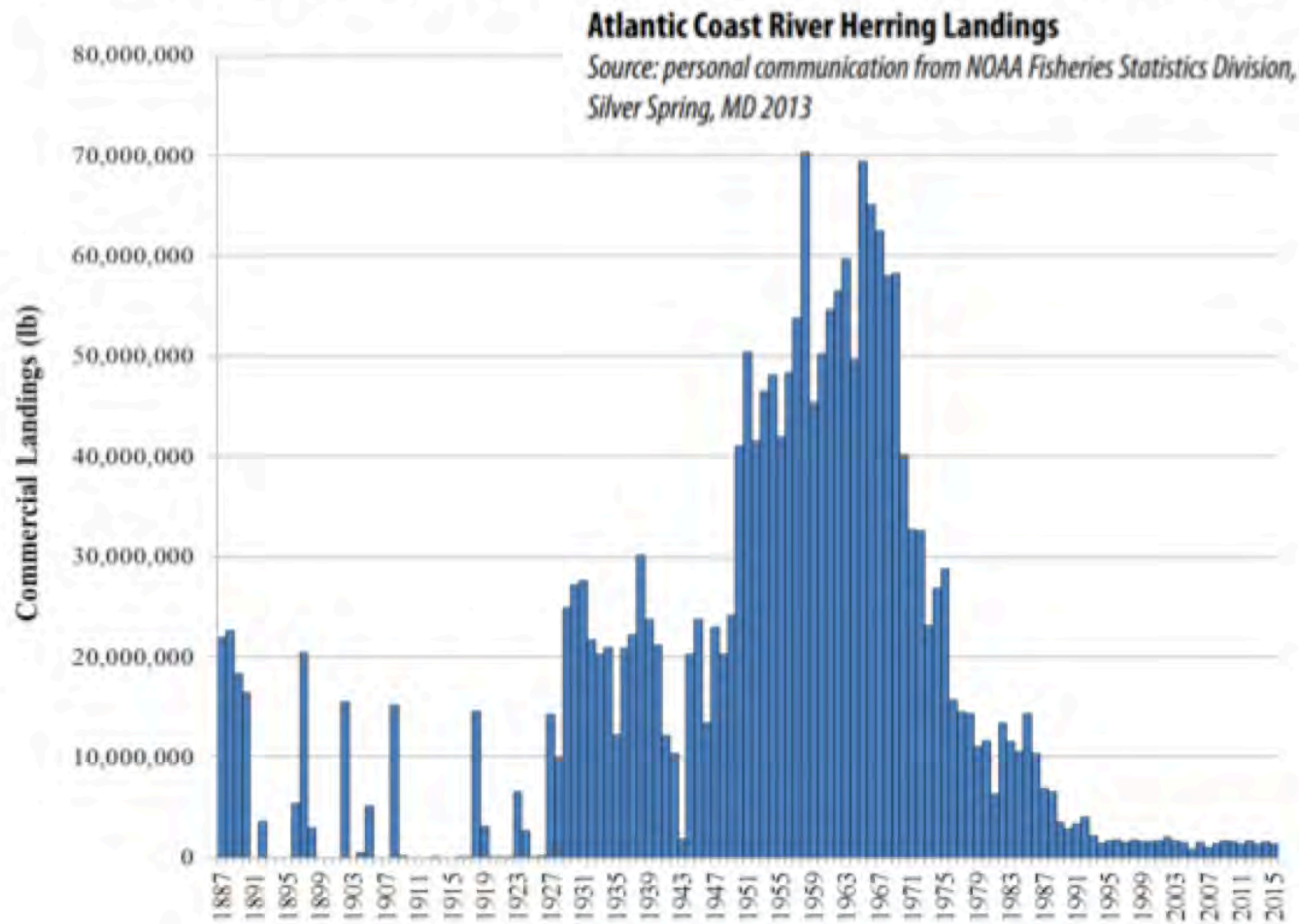
What Mystic River Herring Do at Night:

Evidence from Citizen Science Video Monitoring

Andy Hrycyna
Mystic River Watershed Association
River Rally
May 2, 2018



Commercial landings river herring



Conservation Background: Overharvesting

Habitat loss: Dams

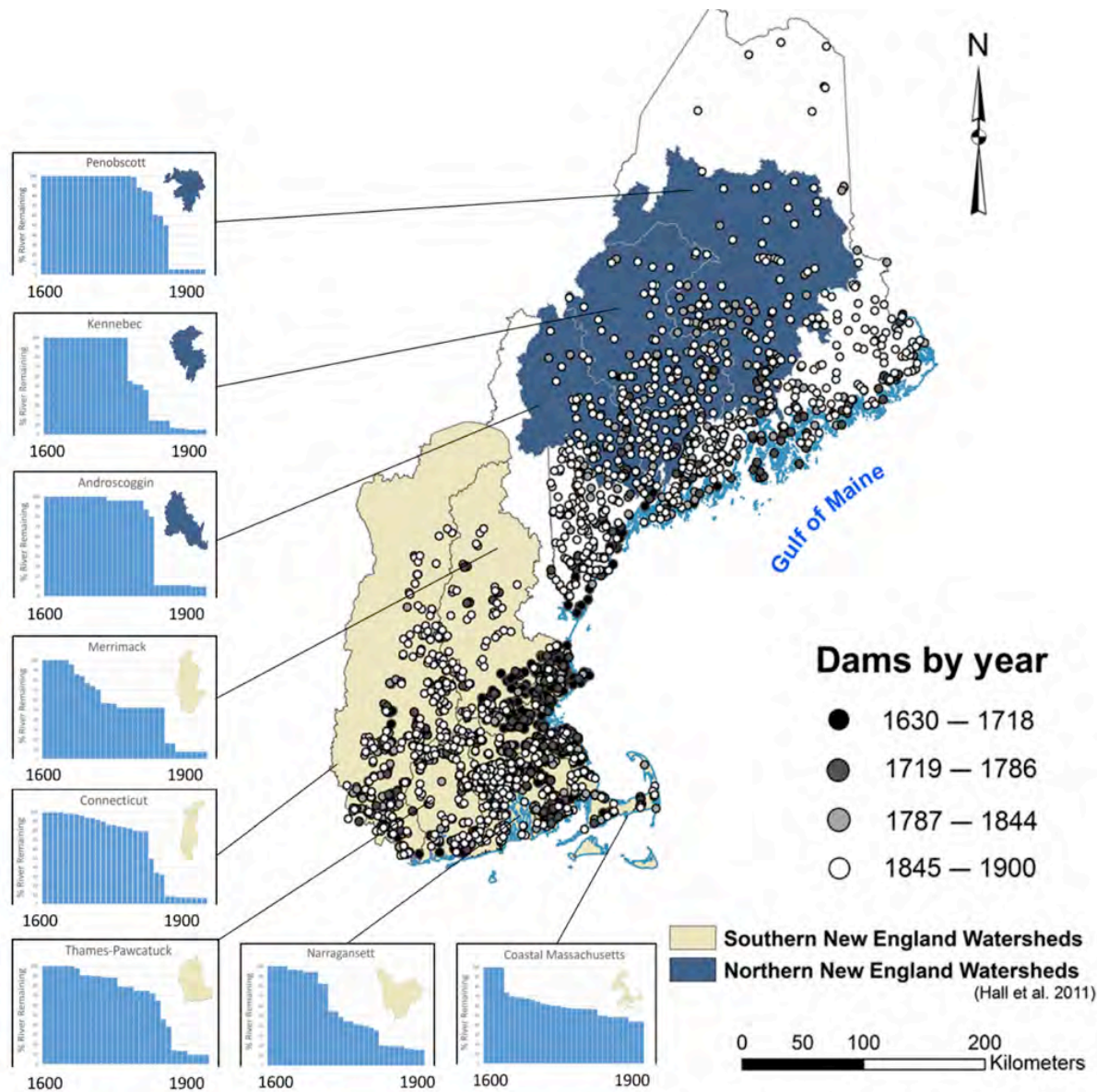


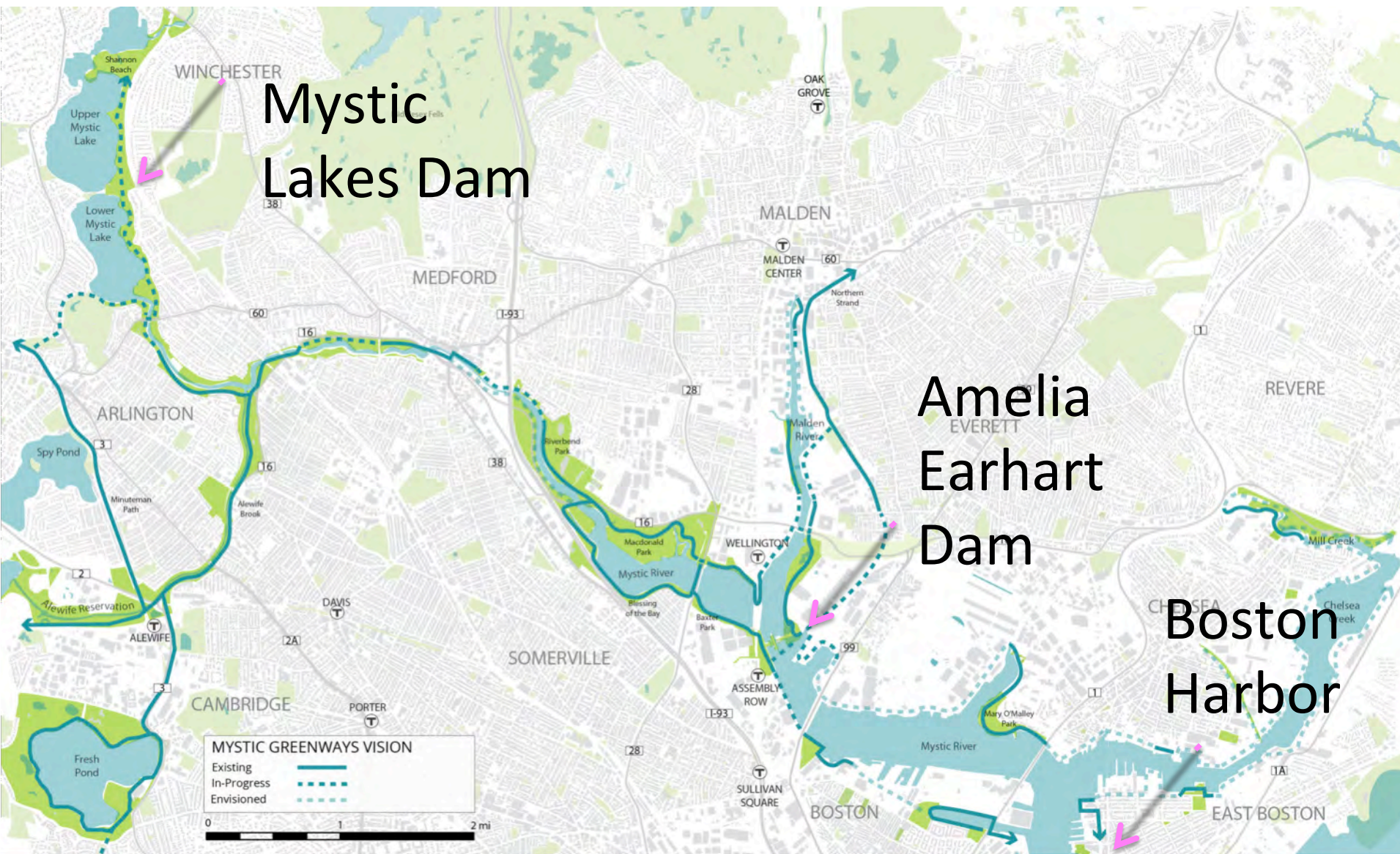
Figure 1. Historical dams and resulting timelines of habitat loss (inset graphs) from eight watersheds in New England. The black points depict earlier dams (1630–1718), and the white points represent later dams (1845–1900). The lighter watersheds are southern New England habitat; the darker watersheds are northern New England habitat. Northern New England watersheds include the Androscoggin, the Kennebec, and the Penobscot. Dams were classified using natural breaks (Jenks) and projected using Massachusetts State Plane 2001.

Mattocks et al (2017), [*Bioscience*](#). 67(8).

Mystic Lakes Dam

Amelia Earhart Dam

Boston Harbor



INTERIM SOLUTION

BUCKET BRIGADE



Permanent solution

Fish ladder at Upper Mystic Lake



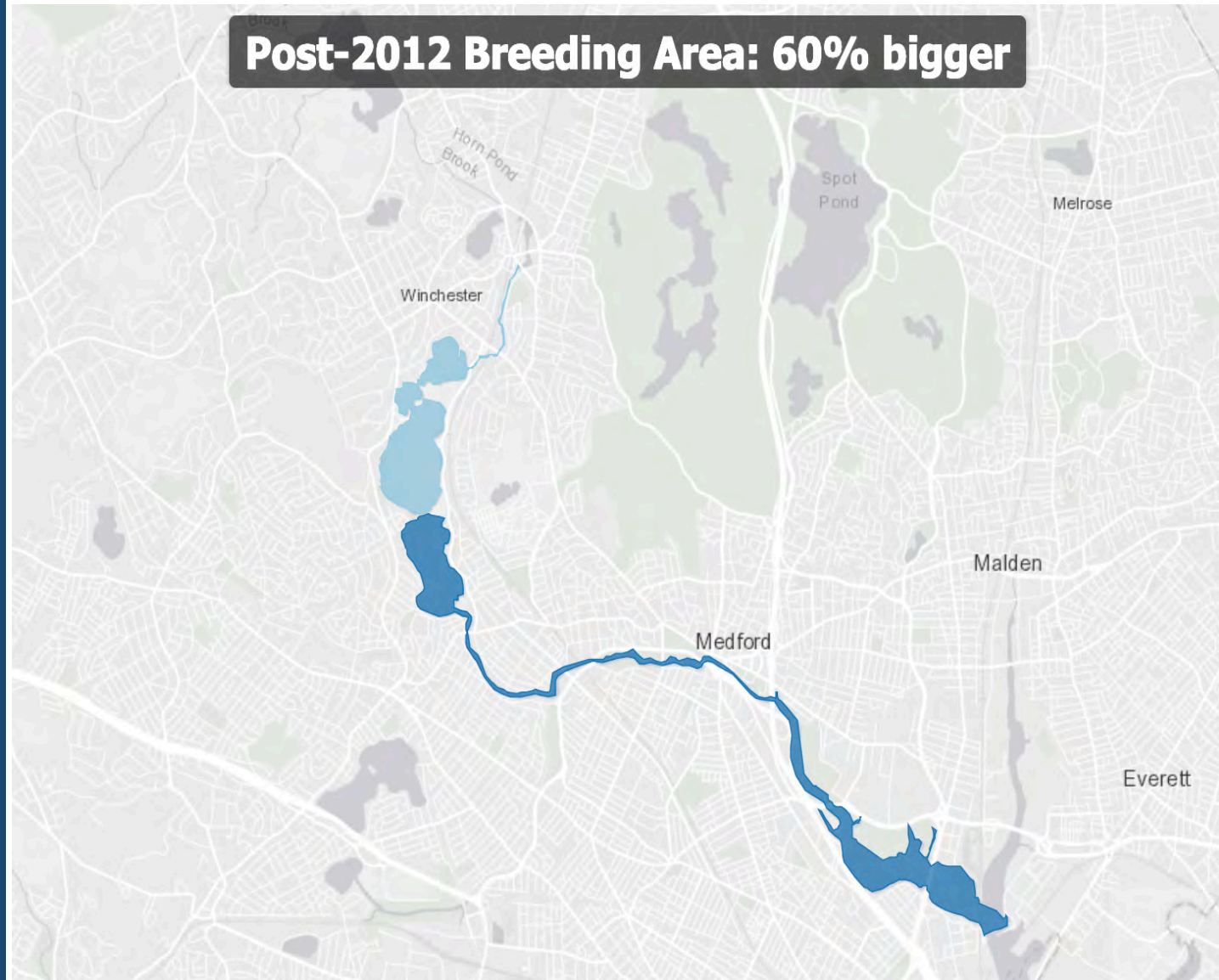
Before the fish ladder

Limited to
below the
dam



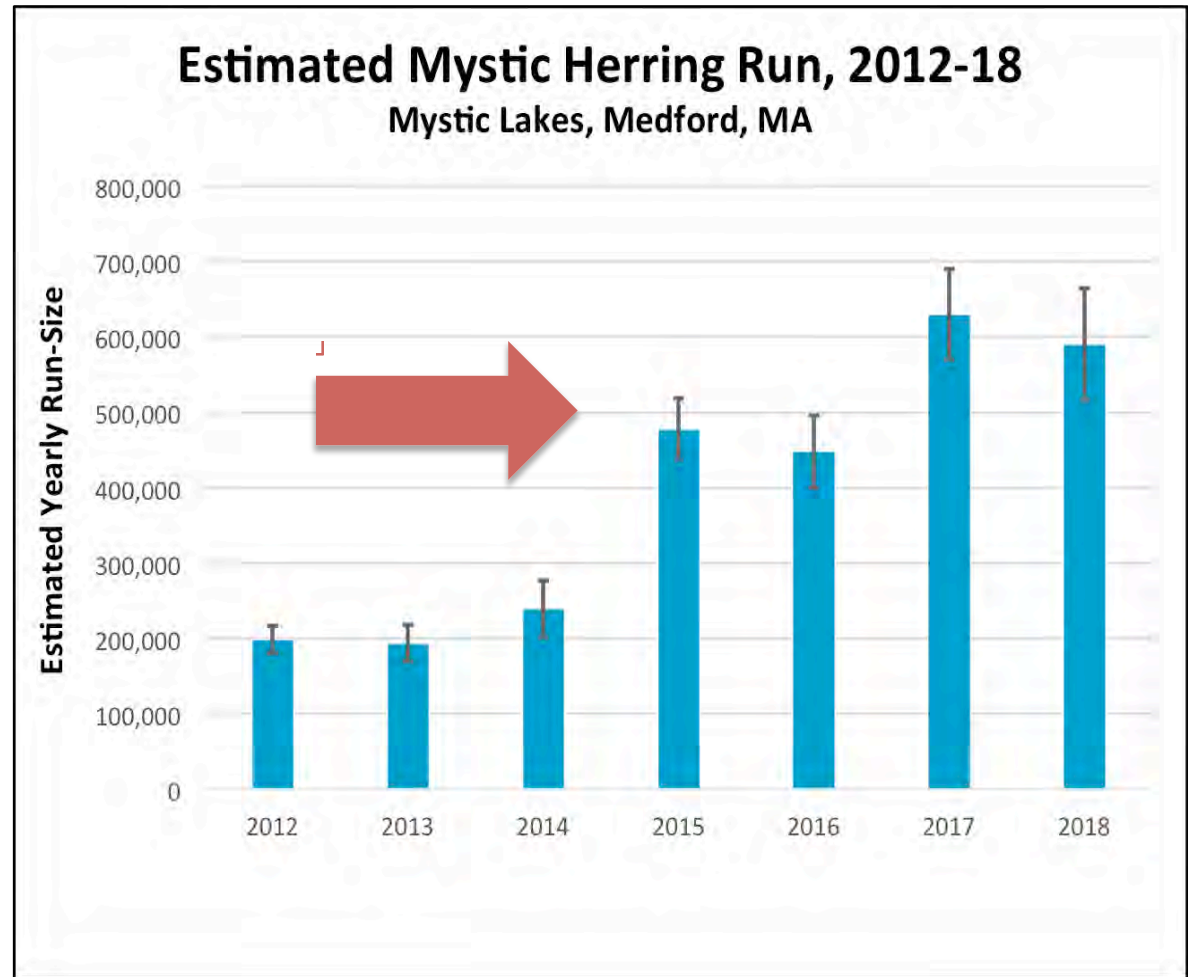
After the fish ladder

Expanded
breeding
habitat



What was the result?

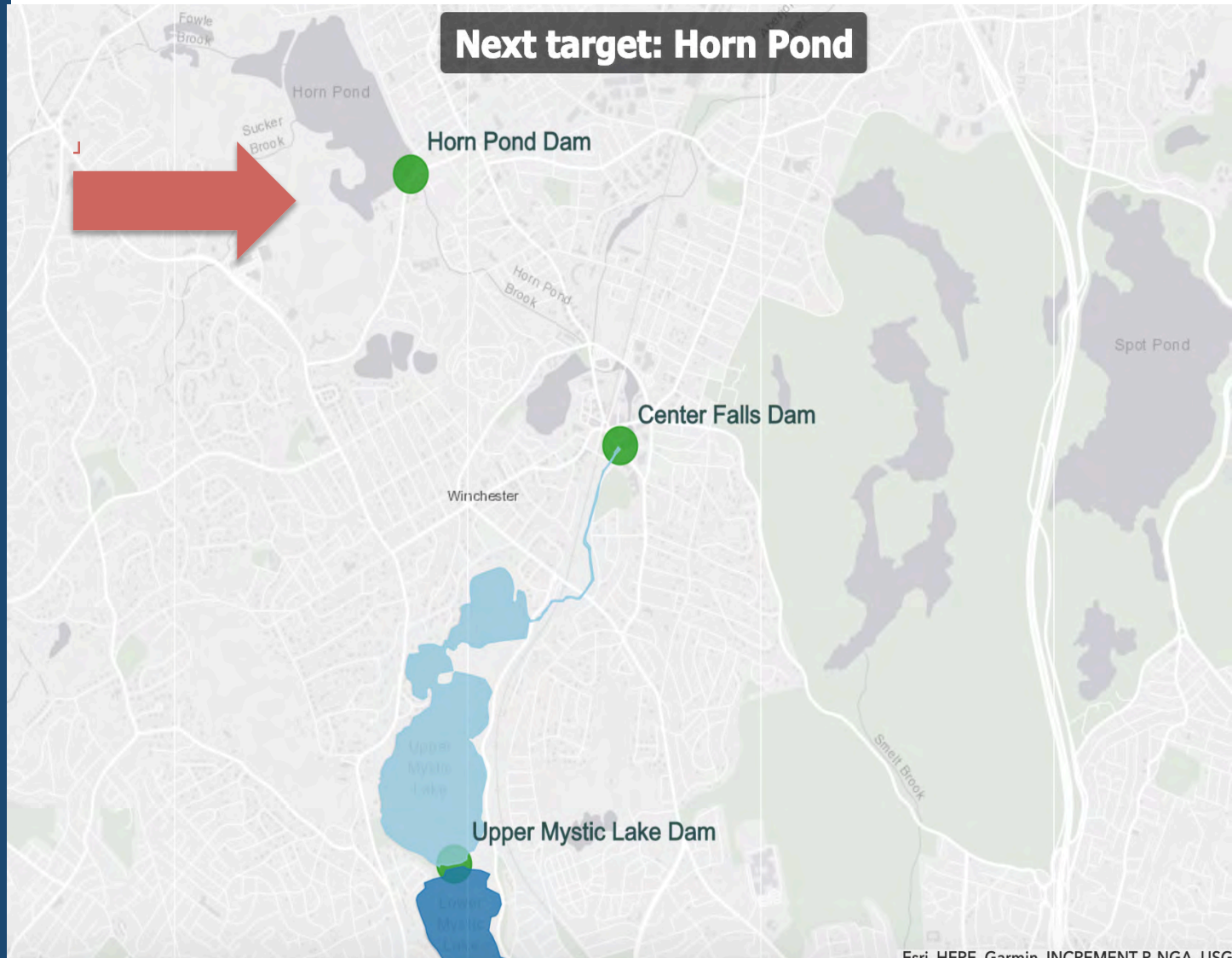
- Population more than **doubled**
- Fish return at age 3



What's next?

Fish Ladders
in Winchester
and Woburn

Next big lake
is **Horn Pond**



Video Project Partners



Medford • East Boston • Melrose • Somerville • Winchester

Public Schools



**Drane Family
Fund**

Fish Passage

Passage Narrower

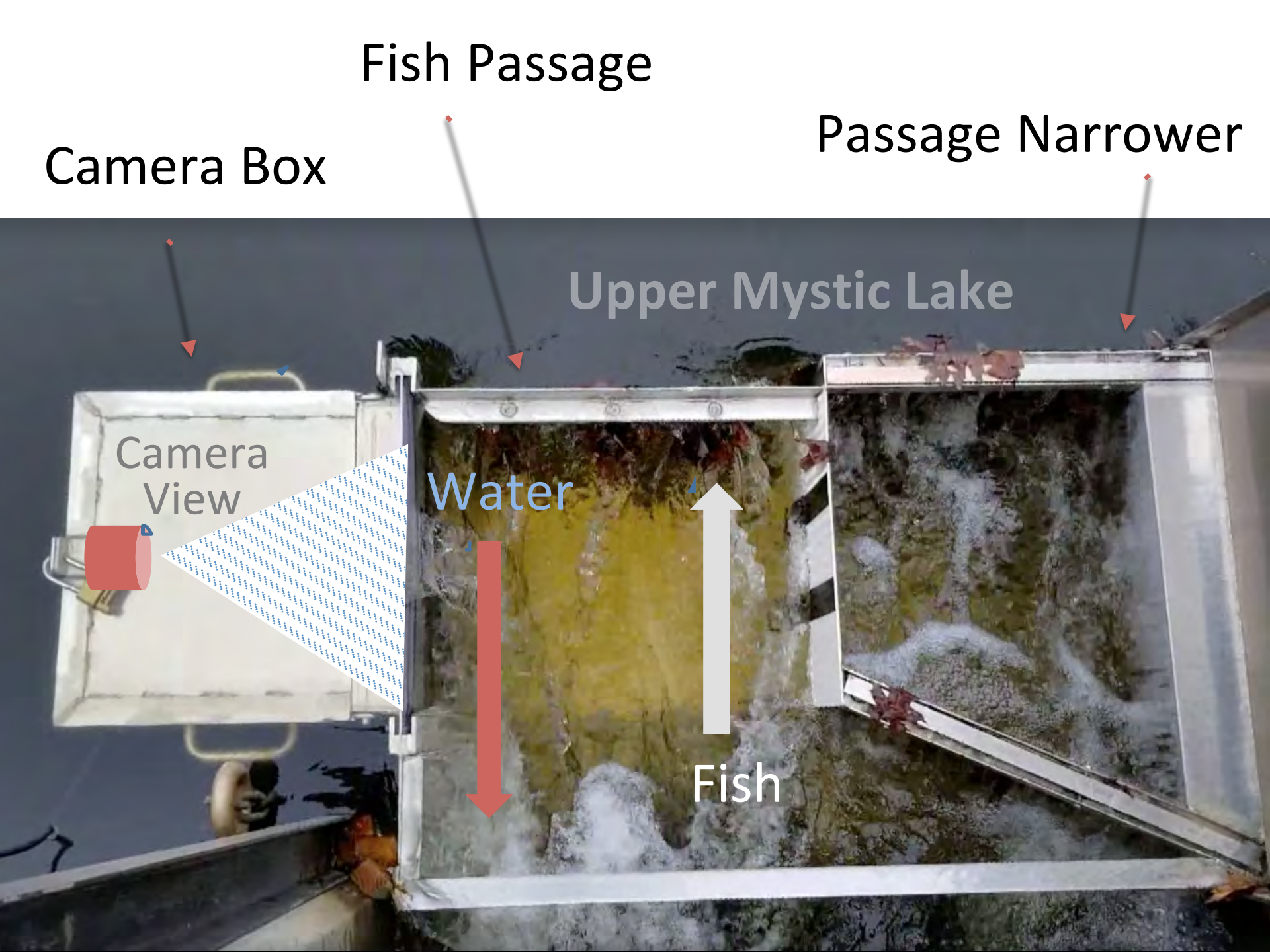
Camera Box

Upper Mystic Lake

Camera
View

Water

Fish



www.mysticherring.org

MYSTIC RIVER HERRING

HOME

ABOUT

EXPLORE THE DATA

TEACHER RESOURCES

COUNT FISH

GOT A MINUTE?

Help us monitor the Mystic River Herring Migration!

Watch a short video and tell us how many fish you see. Together, we can collect valuable data about this important species.

START COUNTING!

START COUNTING!

WELCOME

INSTRUCTIONS

CURRENT DATA

LEADERBOARD

LOGIN

SIGN UP

2019 Estimated Total Run (so far): 5,586 +/- 959 ⓘ

Video Recorded: 4/23/2019, 7:16:48 PM

FPS: 10.00 4/23/2019 7:16:46 PM



May 26, 2018 10am



Nighttime Video, 11pm





'Deis does Citizen Science

A VIRTUAL HERRING COUNT DATA SPRINT
TO SUPPORT THE MYSTIC RIVER WATERSHED ASSOCIATION

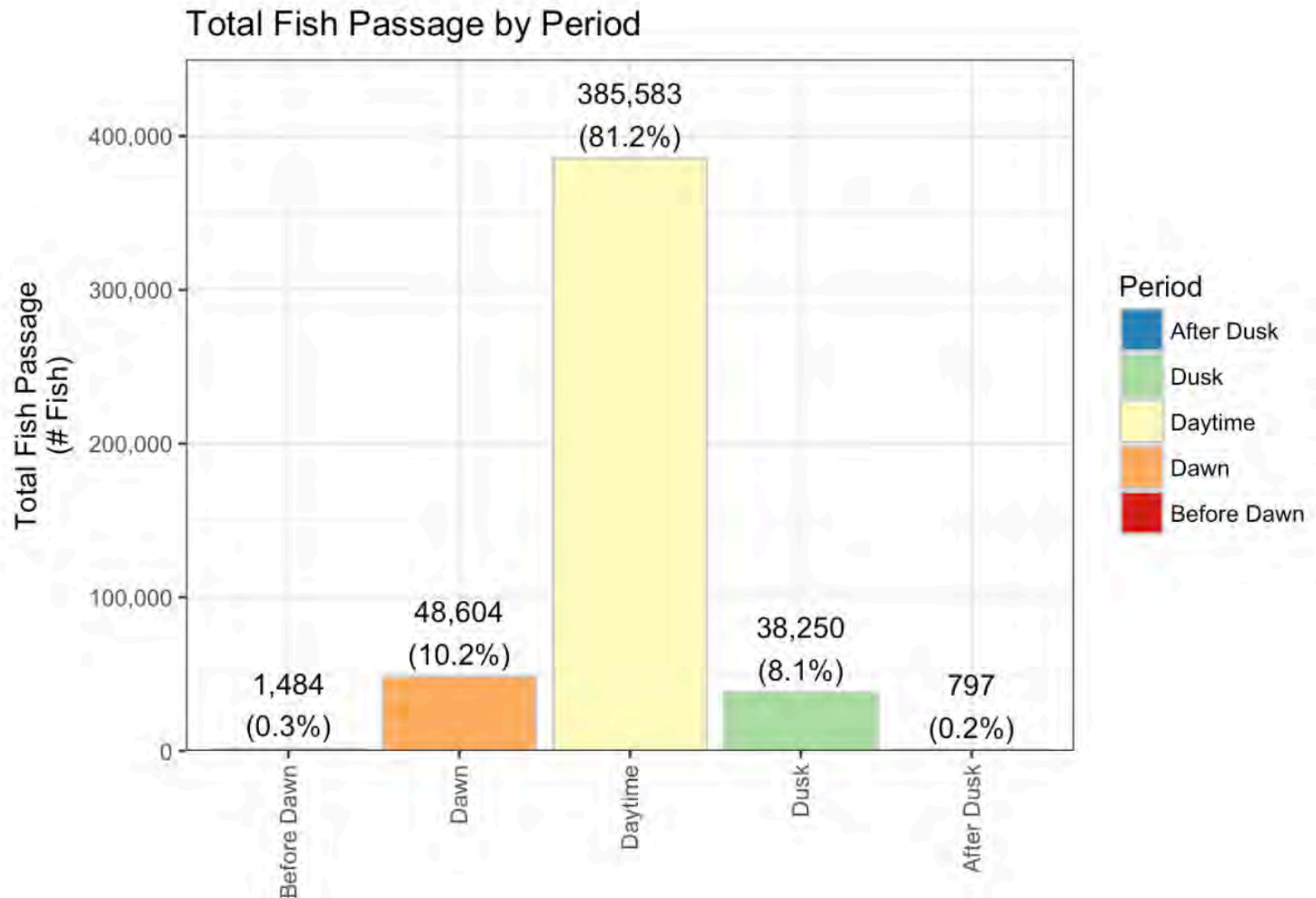
10 AM - **NOV. 7** - 1 PM

FABER LIBRARY MEZZANINE

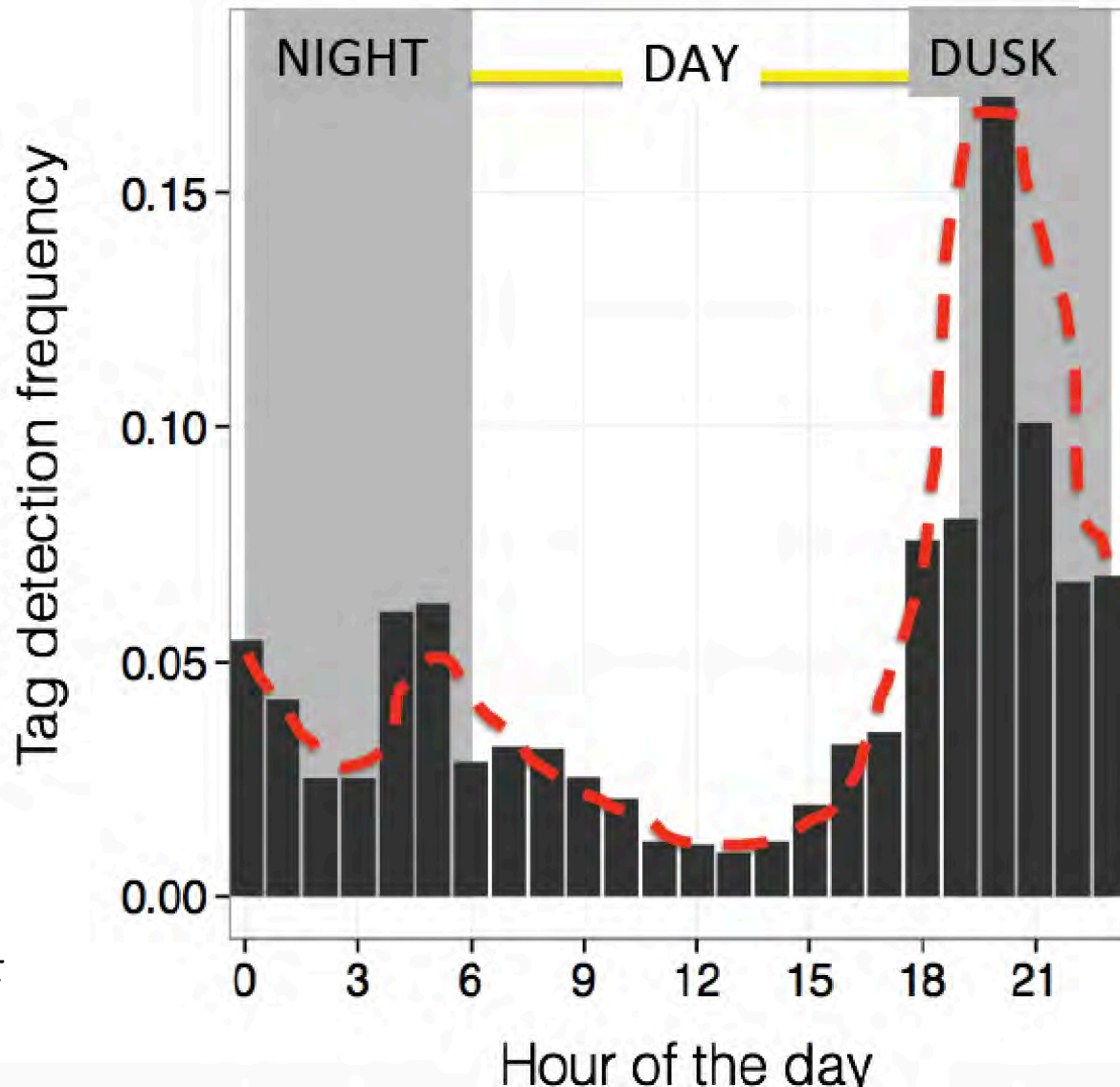
10 AM DISCOVER HERRING:
LEARN ABOUT THE ECOLOGY, MIGRATION,
& POPULATION STATUS IN THE MYSTIC RIVER

11 - 1 PM DATA SPRINT:
HELP MYWRA UNDERSTAND MIGRATION PATTERNS
IN THIS URBAN WATERSHED BY COUNTING HERRING
VIRTUALLY. DROP IN ANYTIME! BRING A LAPTOP!

Upper Mystic Dam, May 18 – June 10, 2019

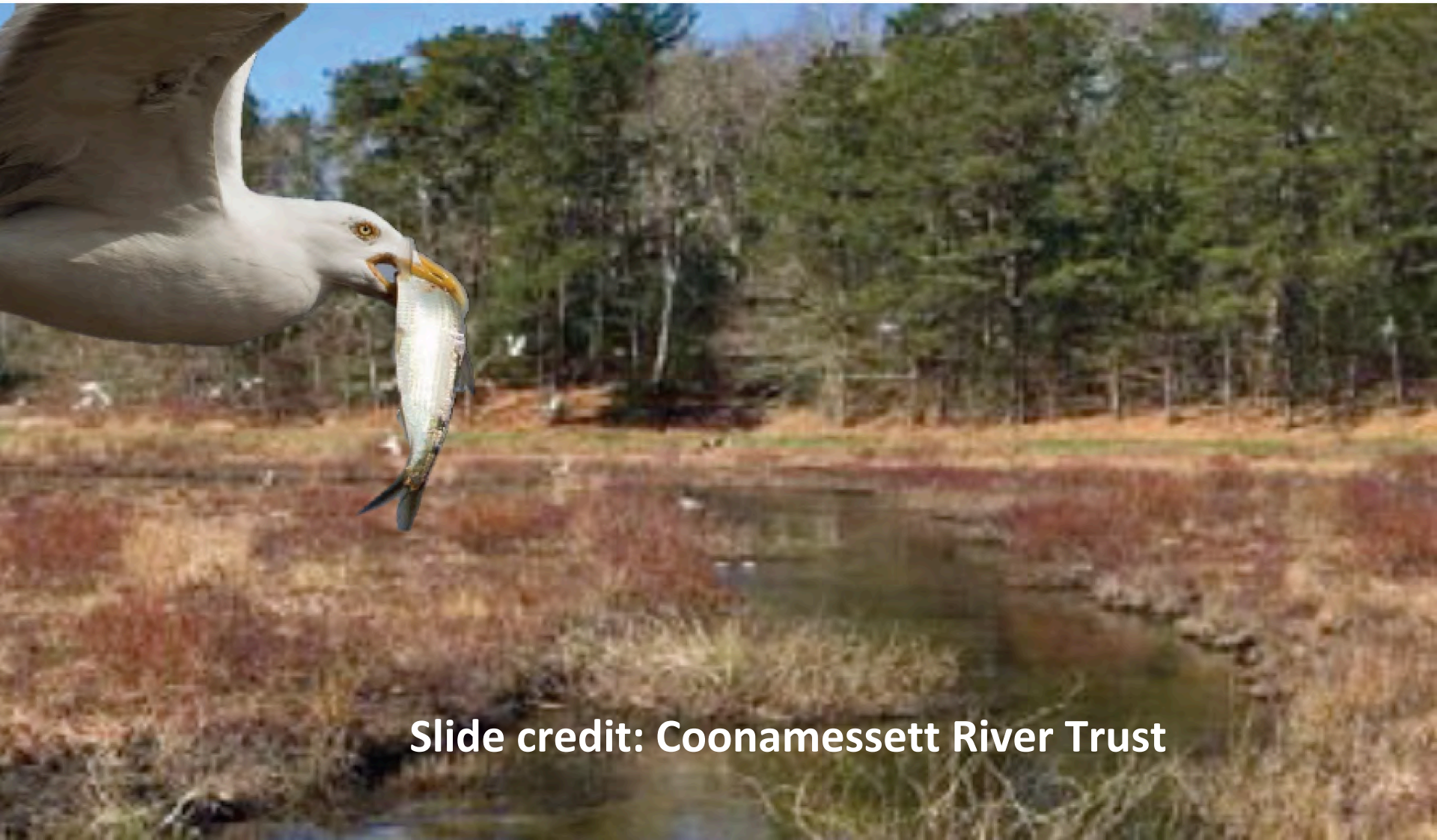


Coonamessett River, tagged fish data



Data:
Coonamesset
River Trust

Perhaps without riparian cover or in-stream structure
high bird predation has driven the fish
to migrate at night?



Slide credit: Coonamessett River Trust

Conclusions

- Up to 20% of fish pass in twilight and dawn hours at Mystic Dam
 - Few pass at night
- Different sites may experience different patterns

An underwater photograph showing a large school of herring swimming in clear water near the surface. The fish are silvery with dark stripes and are oriented in various directions. The water is slightly hazy, and the surface of the water is visible at the top of the frame.

www.MysticHerring.org

andy@mysticriver.org