



CHESAPEAKE WILD

# Scaling Up Freshwater Mussel Restoration in the James Basin

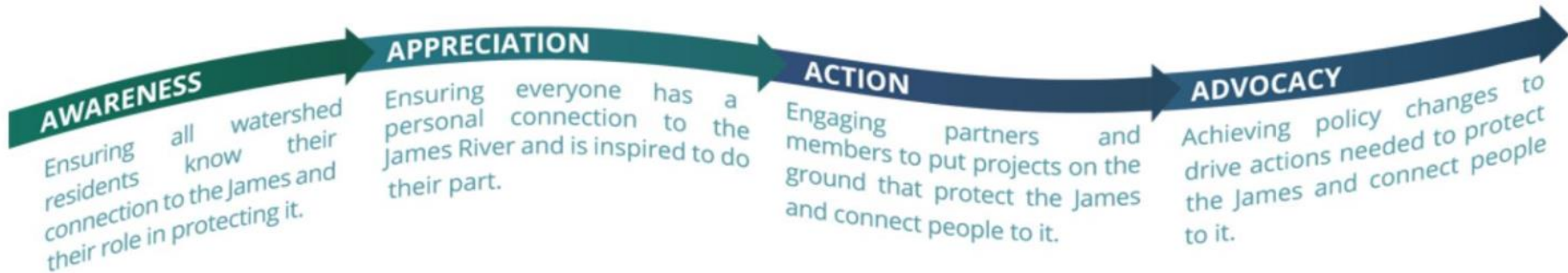
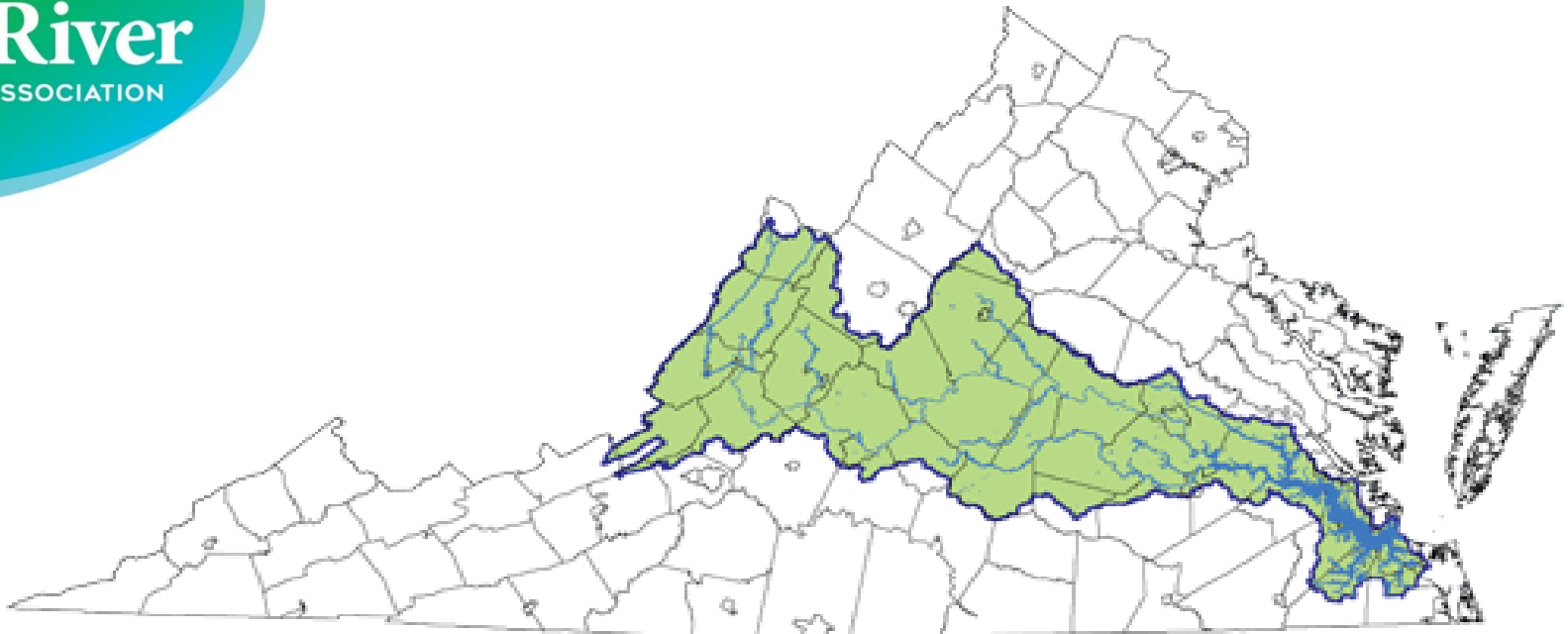


Jamie Brunkow  
Director of River Ecology





# We Protect the James We Connect People to the James

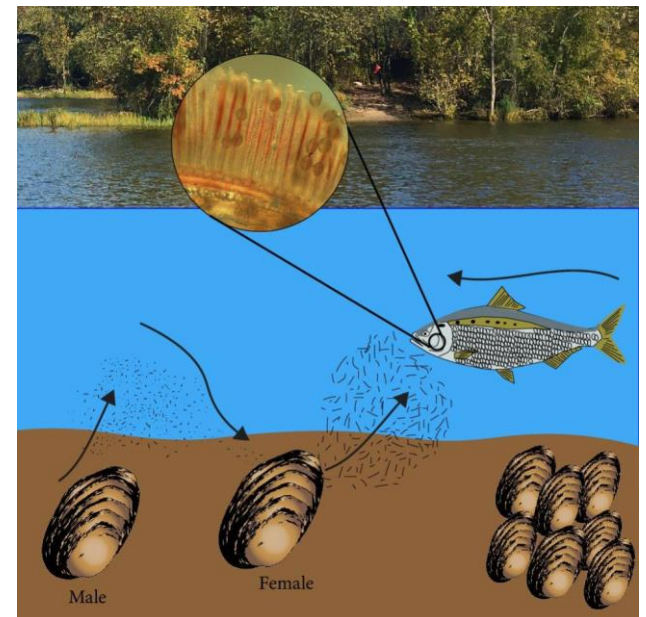


# Why Mussels?

Freshwater mussels are one of the most threatened types of animals in the world. They are sensitive to changes in their habitat - notably pollution and siltation - and many species have been depleted across the Commonwealth.

Within river ecosystems they have a unique and valuable role. Restoring populations can provide a wide range of benefits:

- Water filtration
- Sediment stabilization
- Important part of food chain
- Habitat builders
- Bioindicators





# Pilot Years 2020-2022: Building Partnerships for Mussels



Pilot funding from the Good Shepherd Foundation helped James River Association launch a collaborative initiative with the US Fish and Wildlife Service Harrison Lake Fish Hatchery, and VA Department of Wildlife Resources.

Our goal for this pilot was to build capacity for freshwater mussel monitoring, stocking and restoration planning in the James River.



# Stocking Mussels

The James River Mussel Partnership has led to more than 10,000 mussels planted at sites across the basin...so far!





# Habitat Assessments

*What are we looking for?*

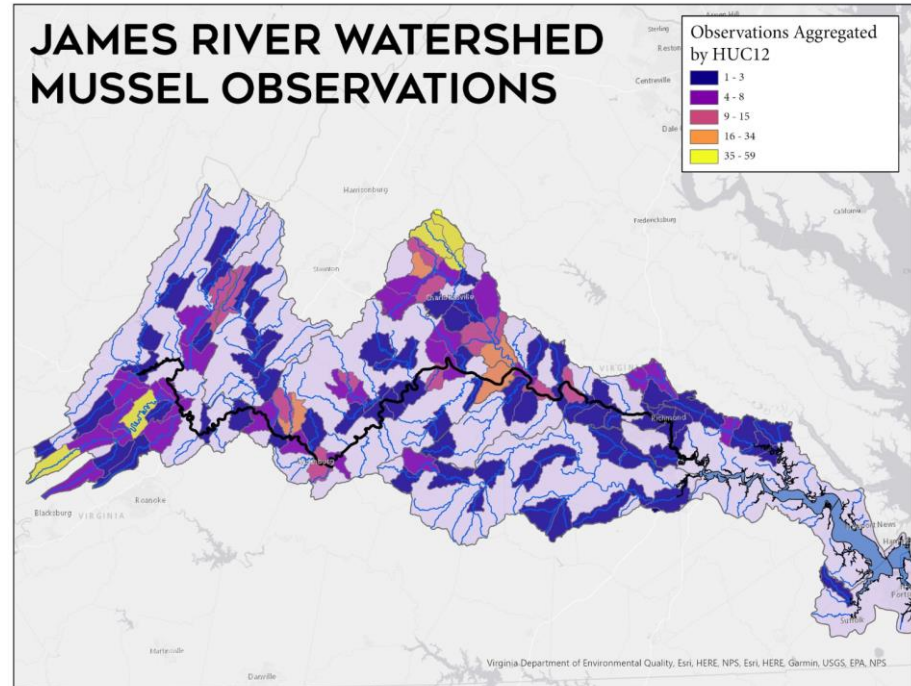
- Does suitable habitat exist?
- Do mussels live here now?
- What Species?
- Did mussels live here in the past?



# Establishing Restoration Goals

One takeaway from our pilot:

There is a need for a proactive restoration plan to guide planting activities, identify areas for further surveys and investigation and establish strategic restoration objectives for the watershed.



Left: Blueback herring spawning. Right: Alewife floater.

# Our 2022 WILD Grant: *Develop a James River Basin Freshwater Mussel Restoration Plan that guides planting activities, identifies areas for further surveys and investigation, and establishes strategic restoration objectives for the James.*



## Key Questions

- What are our management goals?
- Where can mussels persist?
- What are the appropriate species, abundance, etc.?
- What metrics should we measure to know there is progress occurring?
- How does restoration look different in urban areas, rural areas, and forested areas?

## Key Elements

- Ideal population levels and metrics
- Areas for each species/assemblages
- Hotspots for mussels that might need protecting
- Areas where more data is needed
- External/non mussel barriers that would impact restoration efforts such as culverts/dams/fish hosts/water quality
- Agreed upon norms for planting

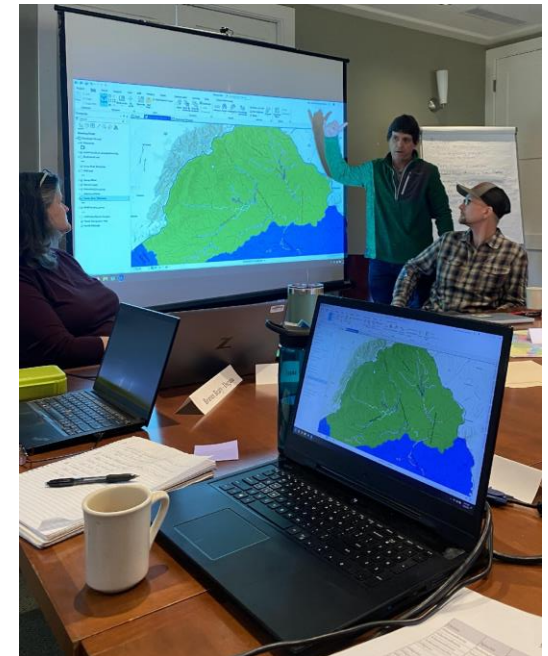


# 2022 WILD Grant: Progress and Status



JRA and Daguna Consulting held workshops in January & March 2023. Attendees from Department of Wildlife Resources, USFWS, Chesapeake Bay Foundation, Department of Conservation Resources and VA Tech attended and contributed to the elements of the plan.

Daguna Consulting is currently writing the first draft of the Plan. The plan will identify management goals, important sections of river or tributaries to focus on, appropriate species assemblages for each focused section, targets, required actions to match resources with targets, and barriers to success. Expected Winter/Spring 2024.



# What's Next? Applied for a 2023 WILD Grant



Build on JRA's mussel and buffer work and partnerships through the following:

1. In-depth research to understand the connection of instream mussel habitat and varying levels of maturity within riparian forest buffers
1. Riparian forest buffer and mussel restoration within targeted areas in the Middle and Upper James
1. The engagement of youth through mussel education activities





# Public Outreach and Education

Freshwater mussels are unsung heroes for water quality.

- James River Association is planning to develop new education modules for (elementary, middle and high school) students to gain learning experiences about these bivalves.
- Public outreach / display tanks can really raise awareness by showing how effective mussels filter water.



**RIVER CENTER** RENDERING





Funding Partners:



Good Shepherd  
Foundation