

Marsh Magic

Understanding the importance of coastal wetlands



Researcher Bio – Jenni Schmitt, MS

Jenni is the Watershed Monitoring Coordinator at the South Slough National Estuarine Research Reserve. Her research interests include understanding wetland ecosystems.

Much of her current work is focused on how climate change influences habitats and species distributions.



Teacher Bio – Kristina Webster, BS, MA

Kristina teaches math, science, and computer science at Toledo Jr/Sr High School. She received her BS from OSU in Fisheries and Wildlife Sciences and her MA in Teaching from Western Oregon University. This is her third year as an educator.



Teacher Bio – Andy Bedingfield, MS

Andy creates Ph.D. like experiences for HS students, mainly in chemistry. Prior to becoming a teacher, he worked for 10 years as an industrial chemist, and then four years as Director of Education, Outreach and Diversity at the Center for Sustainable Materials Chemistry. He has an M.S in chemistry and teaching.

Anchoring Phenomenon

Land use affects wetland ecosystem health. For example, some wetlands are no longer regularly flooded and become filled with invasive plant species, leading to low biodiversity. Others have natural flood regimes, higher biodiversity and are dominated by native species.

Research importance:

Wetlands are highly diverse systems, useful for humans by slowing flooding, filtering water, trapping carbon and reducing erosion. In the early 1900's when humans changed wetlands to farm or build on them (usually by filling, diking and draining them), they lost much of their highly productive capacity.

Our ORSEA partnership:

We created strong, collaborative connections and have imparted the importance of wetlands to students by creating a useful and engaging curriculum.

Learning Plan Components:

Engage:

- Students learn why wetlands are important via video presentation and teacher-led discussion
- Teacher shares video clips of a least-disturbed wetland, restored wetland, and impacted wetland.; students note differences observed.

Explore:

- Students explore the three wetlands in an online explorer (see below), using graphs/charts to identify patterns in the data.
- Students answer questions in their Field Notebook as they explore

Explain:

- Teacher led-discussion to wrap up each topic area

Elaborate:

- Students use a Summative Assessment Tool to create hypotheses
- Students analyze another student's claim

Evaluate:

- Formative assessments through Field Notebook, class discussions, online quiz game
- Summative Standard Achievement Assessment via Summative Assessment Tool and final online quiz

Classroom:

This unit is designed for science (biology, ecology) and math students, grades 7-12. Functional for in-person or virtual learning environments.

Science Standards:

- HS-LS2-6 Ecosystems: Interactions, Energy, and Dynamics

Math Standards:

- HSN.Q.A.2 Define appropriate quantities for the purpose of descriptive modeling
- HSS.IC.B.6 Evaluate reports based on data
- HSN.Q.A.1 Use units to understand problems/guide solutions
- HSS.IC.B.5 Use data from randomized experiments to compare two treatments



Explore Wetlands Data



Habitat Mapping



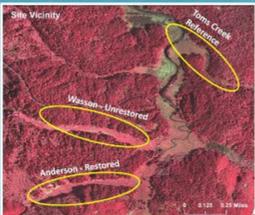
Stream Temperature



Hydrology



Birds



The Sites



Stream Habitat



Wetland Plants



Beavers



Lamprey