

## Seagrass Ecosystems - TEACHER GUIDE

Item	Time Needed	Teacher Notes
Hook	5-15 minutes	This brief Slide Presentation shows the students pictures of how the seagrass beds have died off at multiple locations in the South Slough NERR. Students brainstorm questions about this phenomenon.
Seagrass Ecology Reading & Questions	30-45 minutes	This reading gives background information on what seagrasses are, what function they serve in the ecosystem, and what threats may be causing their decline. It also introduces the scientists whose data the students will be analyzing later.
Quadrat Sampling- Paper & Pencil	20 minutes	This activity introduces Dr. Nash & Dr. Mueller's study sites as well as the techniques (quadrat & transect) that they used to sample them.
Quadrat Sampling- At home	45 minutes	<p>This activity can be done at home or school. The instructions are designed so anything can be used as a quadrat. If you are doing this at school, you might want to delete the part about finding an empty Amazon box.</p> <p>If you choose to do this quadrat sampling activity without the paper &amp; pencil version, go over the first page of the paper &amp; pencil version and show the video. This will introduce the methods of quadrat sampling as well as the study site.</p>

Choose the level of Data Analysis best suited for your students. All levels require students to decide which seagrass bed sampled by the researchers is the least healthy and write their conclusion in the Claim, Evidence, and Reasoning format.

Data Analysis- Level 1 (Basic)	20 minutes	Students will use graphs to write their conclusion.
Data Analysis- Level 2 (Intermediate)	45 minutes	With the assistance of how-to videos, students will calculate average and standard deviation by programming them in Google Sheets. They will make two graphs of the data and use these graphs to write their conclusion.
Data Analysis- Level 3 (Advanced)	60 minutes	With the assistance of how-to videos, students will write a null hypothesis based on the data, create two graphs, and perform statistical tests on their data in order to write a conclusion.