

Collecting and Evaluating Environmental Data

Wrap-Up Activity

What are your observations based on the data you collected?

We completed three types of surveys: chemical, visual and biological. The chemical survey showed that the water temperature was slightly warmer than the air temperature, and the salinity was around 25 ppt (parts per thousand). In our visual survey, we noted a few human-related elements, like a paved roadway/parking lot, marine debris, and a concrete pipe. The wetland appeared to have brown marsh grass and mostly brown mud. Plant and animal species were noted in the biological survey. Several invertebrate species were present, like periwinkle snails, fiddler crabs, squareback crabs, oysters, and horseshoe crabs. Additionally, two vertebrates, an osprey and a great egret, were present. Plant species included smooth cordgrass, black needlerush, pickleweed, and cabbage palm. No invasive plant species were found.

How might what you observed today be different on another day?

Presence and abundance of animal species can differ depending on the time of day and in relation to the tides. When the marsh is submerged by the tidal river, animals like fiddler crabs will seek refuge in their burrows, squareback crabs will seek higher ground, and marsh periwinkles will climb up the stalks of Spartina marsh grass. There may be higher or lower levels of visual human impact, like people walking in the mud or dumping debris. The abiotic measurements in the chemical survey, like water temperature, salinity and dissolved oxygen, will also fluctuate based on the weather and tides, resulting in different observations.

Why might it be important to survey the same site several times rather than just once?

Monitoring helps us better understand weather patterns, wildlife interactions in a location, environmental changes, and more. Baseline data provide a record of past and present conditions in an area. For example, data can reveal how extreme weather, like a hurricane, has affected a coastal wetland area. Since coastal wetlands provide a natural buffer and absorb storm surge, they help protect coastal communities. Thus, it is important to monitor fluctuations in weather patterns and environmental conditions over time so coastal communities have information they need to successfully plan and adapt for the future.

Monitoring data may help pinpoint when an invasive plant species, like mimosa, appears or becomes established, or reveal that a busy summer season at the boat ramp has caused a higher amount of pollution in the area's waterways. Monitoring may also reveal littering or illegal dumping activities. Data may be used to prompt solutions to protect wetland health.