Estuarine Bays Field Trip

Walton County—Grayton Beach State Park
Bay/Walton County—Camp Helen State Park
Bay County—Tyndall AFB

Note: The trip at this time is designed to be completed from shore. Future trips will be focused on the specific environments listed below that will be explored by boat, shore, and/or both.

Grade Level: K-12

Objectives: This field trip will center on exploring estuaries and their communities. Within the habitat(s) selected, Schools/classes will select up to 4-6 activities from the tables below to complete in a day trip.

The focus will be for students to be able to describe the major physical, biological and ecological features of each habitat visited during the field trip and discuss their solutions to man's impacts. The discussion and salient points taught will be based on the grade level of the class (see Activity writeups by grade in tables below). In most cases, one location with multiple activities will be all that can be visited in a day trip. Multiple trips through the year can be arranged to cover all of the habitats.

Background: Estuaries such as Choctawhatchee and St. Andrew's Bays and the salt marshes found within coastal dune lakes in Walton County are economically and ecologically important ecosystems in this region. Not only do they drive a a significant component of the economy, but they also provide a critical ecosystem that provides a nursery for a vast majority of the marine life in this part of the Florida Panhandle. Providing local students an opportunity to see, understand, and experience the animals and habitats firsthand will help build memorable experiences that can help teachers drive home key learnings and the students to develop an appreciation of the importance of these marine ecosystems.

Procedure: After splitting the class(es) into smaller working groups, students will watch and/or participate (depending on age) staff undertake the various sampling activities and lessons described below. E&FCA staff will explain the sampling and assist the group in processing the samples as well as lead the students through the identification of organisms caught and their role in the habitat. Physical characteristics of the water and substrate will be compared to areas without the habitat present to contrast both the number and diversity of the organisms between habitats (where applicable, e.g., mud bottom versus salt marsh).

A typical field trip will be composed of:

1. Introduction and safety rules.
2. Site orientation and schedule.
3. Establishment of groups and escort to stations.
4. Conduct sampling (See activity lists for stations below):

5. After sampling, staff will help students briefly discuss results and observations/address questions;
6. Bathrooms will be available on site as will water, and in some cases shade (tents over stations);
7. After students have rotated through all stations they will either leave or have lunch (brought by students or donated). Discuss overall trip and their questions/impressions.

Materials: clip boards and handouts, Seine net, dip nets, buckets, dissecting trays, aquaria, sediment corer, sieves, water quality testing kits, DO meter, salinity meter, pH meter, ID cards (plant, invertebrate, fish), UW drone (as applicable) and screen,

Activity Time: 1.5 to 3 hours depending on number of activities; choices of activities determined by teachers depending on lesson integration with classroom curriculum and location available for field trip. Students will be broken down into smaller groups for each activity and rotate between activities.

Florida Standards: see Activity Writeups in tables below.

K through 2nd Grade

Station (Required)	Description	Standards
Be the Marine Scientist: Water Quality Field Investigations	Explore the Estuary through the eyes of a marine scientist! Learn the scientific methods of field work and you will learn about the impact water quality (physical and chemical) has on this important habitat	SC.1.N.1.1-4; SC.2.N.1.1-6; SC.1.L.14.1; SC.1.E.6.2; SC.2.P.8.5;
Explore the Estuary	Using Seine nets and dip nets, participants will work with staff to catch and examine the critters that live in this nursery of the sea habitat	SC.1.N.1.1-4; SC.2.N.1.1-6; SC.1.L.14.1; SC.1.L.17.1; SC.2.L.17.1-2;
Station (Select 2)	**Description**	**Standards**
Blue Crab Observations	Staff will teach participants about the anatomy and behavior of the blue crab and its role in the estuary while trying to catch some!	SC.1.N.1.1-4; SC.2.N.1.1-6; SC.1.L.14.1; SC.2.L.14.1; SC.1.L.17.1; SC.2.L.17.1-2;
Why does the mud stink so bad?	Using sediment cores, staff will reveal the layers of sediment in the estuary, what lives in the sediment, why it stinks so bad, and why it is so important to the estuary	SC.1.N.1.1-4; SC.2.N.1.1-6; SC.1.L.14.1-3; SC.2.E.6.1-3; SC.1.E.6.1-3; SC.2.P.8.5; SC.1.L.17.1; SC.2.L.17.1-2; SC.2.L.16.1
Critters the eye can't see	Using microscopes and large picture guides, participants will look at the critters caught in plankton nets by the staff	SC.1.N.1.1-4; SC.2.N.1.1-6; SC.1.L.14.1-3; SC.2.E.6.1-3; SC.1.E.6.1-3; SC.2.P.8.5; SC.1.L.17.1; SC.2.L.17.1-2; SC.2.L.16.1
Funny Fiddlers!	Fiddler facts will be observed both in specimens in aquarium and in the estuary	SC.1.N.1.1-4; SC.2.N.1.1-6; SC.1.L.14.1; SC.2.L.14.1; SC.1.L.17.1;SC.2.L.17.1-2;

Note: For this age group, samples will be collected by staff and placed in touch tanks, aquaria or dissecting trays for observation and participant study. Some entry to the water is required to observe seine netting and to try dip netting for samples.

3rd through 5th Grade

Station (Required)	Description	Standards
Be the Marine Scientist: Water Quality Field Investigations	Explore the Estuary through the eyes of a marine scientist! Learn the scientific methods of field work and you will learn about the impact water quality (physical and chemical) has on this important habitat	SC.3.N.1.1-3, 5-7; SC.4.N.1.1-3, 5-7; SC.5.N.1.2; SC.5.N.2.1; SC.3.P.8.1
Explore the Estuary	Using Seine nets and dip nets, participants will work with staff to catch and examine the critters that live in this nursery of the sea habitat	SC.3.N.1.1-3, 5-7; SC.4.N.1.1-3, 5-7; SC.5.N.1.2; SC.5.N.2.1; SC.3.L.15.1; SC.3.L.17.1; SC.4.L.16.2; SC.4.L.17.2-4; SC.5.L.17.1
Station (Select 2)	**Description**	**Standards**
Blue Crab Observations	Staff will teach participants about the anatomy and behavior of the blue crab and its role in the estuary while trying to catch some!	SC.3.N.1.1-3, 5-7; SC.4.N.1.1-3, 5-7; SC.5.N.1.2; SC.5.N.2.1; SC.5.L.14.2;
Why does the mud stink so bad?	Using sediment cores, staff will reveal the layers of sediment in the estuary, what lives in the sediment, why it stinks so bad, and why it is so important to the estuary	SC.3.N.1.1-3, 5-7; SC.4.N.1.1-3, 5-7; SC.4.L.16.2; ; SC.4.L.17.2-4; SC.5.N.1.2; SC.5.N.2.1; SC.5.P.9.1;
Critters the eye can't see	Using microscopes and large picture guides, participants will look at the critters caught in plankton nets by the staff to learn about these important critters	SC.3.N.1.1-3, 5-7; SC.4.N.1.1-3, 5-7; SC.4.L.16.2; ; SC.4.L.17.2-4; SC.5.N.1.2; SC.5.N.2.1; SC.5.L.14.2;
Funny Fiddlers!	Fiddler facts will be observed both in specimens in aquaria and in the estuary	SC.3.N.1.1-3, 5-7; SC.4.N.1.1-3, 5-7; SC.4.L.16.2; SC.4.L.17.2-4; SC.5.N.1.2; SC.5.N.2.1; SC.5.L.14.2;
Where does the water go?	Using a miniature model of an estuary watershed in the field, participants will examine what happens to pollutants and floods caused by increased surface runoff.	SC.3.N.1.1-3, 5-7; SC.4.N.1.1-3, 5-7; SC.5.N.1.2; SC.5.N.2.1;
Plastic Pollution, does it ever go away?	Students will look for and collect plastic pollution along the shoreline; staff will sample the water column and sediment and filter for microplastics that will be examined under field microscopes; what can be done about it?	SC.3.N.1.1; SC.3.N.1.2; SC.3.N.1.6; SC.4.N.1.1-3; SC.4.L.17.4; SC.5.N.1.1; SC.5.N.1.

Note: For this age group, samples will be collected by staff and placed in touch tanks, aquaria or dissecting trays for observation and participant study. Some entry to the water is required to observe seine netting and to try dip netting for samples.

6th through 8th Grade

Station (Required)	Description	Standards
Be the Marine Scientist: Water Quality Field Investigations	Explore the Estuary through the eyes of a marine scientist! Learn the scientific methods of field work and you will learn about the impact water quality (physical and chemical) has on this important habitat	SC.6.N.1.5; SC.7.N.1.1; SC.7.N.1.3; SC.7.L.17.3; SC.8.N.1.1; SC.8.N.4.1
Explore the Estuary	Using Seine nets and dip nets, participants will work with staff to catch and examine the critters that live in this nursery of the sea habitat	SC.6.N.1.5; SC.6.L.15.1; SC.7.L.17.1; SC.7.L.17.2; SC.7.L.17.3; SC.8.N.1.1
Station (Select 2)	**Description**	**Standards**
Blue Crab Observations	Staff will teach participants about the anatomy and behavior of the blue crab and its role in the estuary while trying to catch some!	SC.6.L.15.1; SC.6.L.14.3; SC.7.L.17.1; SC.7.L.17.2; SC.7.L.17.3; SC.8.N.4.1
Why does the mud stink so bad?	Using sediment cores, staff will reveal the layers of sediment in the estuary, what lives in the sediment, why it stinks so bad, and why it is so important to the estuary	SC.6.L.15.1; SC.6.L.14.3; SC.7.L.17.1; SC.7.L.17.2; SC.7.L.17.3; SC.8.L.18.1; SC.8.L.18.3; SC.8.N.4.1
Critters the eye can't see	Using microscopes and large picture guides, participants will look at the critters caught in plankton nets by the staff to learn about these important critters	SC.6.N.1.5; SC.L.14.3; SC.6.L.15.1; SC.7.L.17.1; SC.7.L.17.2; SC.7.L.17.3; SC.8.L.18.1; SC.8.N.1.1
Funny Fiddlers!	Fiddler facts will be observed both in specimens in aquaria and in the estuary	SC.6.L.15.1; SC.6.L.14.3; SC.7.L.17.1; SC.7.L.17.2; SC.7.L.17.3; SC.8.N.4.1
Where does the water go?	Using a miniature model of a watershed in the field, participants will examine what happens to pollutants and floods caused by increased surface runoff.	SC.6.N.1.5; SC.7.L.17.3; SS.7.G.5.1; SC.8.N.4.1
Plastic Pollution, does it ever go away?	Students will look for and collect plastic pollution along the shoreline; students will sample the water column and sediment and filter for microplastics that will be examined under field microscopes; what can be done about it?	SC.7.E.6.6; SC.8.N.1.1;

Note: Students will be required to get permission to enter the water to conduct the sampling activities under E&FCA guidance.

9th through 12th Grade

Station (Required)	Description	Standards
Be the Marine Scientist: Water Quality Field Investigations	Explore the Estuary through the eyes of a marine scientist! Learn the scientific methods of field work and you will learn about the impact water quality (physical and chemical) has on this important habitat	SC.912.L.17.3; SC.912.L.17.7; SC.912.L.17.16; SC.912.N.1.6;
Explore the Estuary	Using Seine nets and dip nets, participants will work with staff to catch and examine the critters that live in this nursery of the sea habitat	SC.912.L.15.4; SC.912.L.15.5; SC.912.L.17.1; SC.912.L.17.2;
Station (Select 2)	**Description**	**Standards**
Blue Crab Observations	Staff will teach participants about the anatomy and behavior of the blue crab and its role in the salt marsh while trying to catch some!	SC.912.N.1.1; SC.912.L.17.6; SC.912.L.17.3
Why does the mud stink so bad?	Using sediment cores, staff will reveal the layers of sediment in the marsh, why it stinks so bad, and why it is so important to the critters	SC.912.L.17.3; SC.912.L.17.16; SC.912.L.17.20; SC.912.L.17.7
Critters the eye can't see	Using microscopes and large picture guides, participants will look at the critters caught in plankton nets by the staff to learn about these important critters	SC.912.L.15.4; SC.912.L.15.5; SC.912.L.17.1; SC.912.L.17.2;
Funny Fiddlers!	Fiddler facts will be observed both in specimens in aquaria and in the marshes	SC.912.N.1.1; SC.912.L.17.6; SC.912.L.17.3
Where does the water go?	Using a miniature model of a watershed in the field, participants will examine what happens to pollutants and floods caused by increased surface runoff.	SC.912.L.17.12; SC.912.L.17.13; SC.912.L.17.16; SC.912.L.17.20
Plastic Pollution, does it ever go away?	Students will look for and collect plastic pollution along the shoreline; Students will sample the water column and sediment and filter for microplastics that will be examined under field microscopes; what can be done about it?	SC.912.L.17.16;

Note: Students will be required to get permission to enter the water to conduct the sampling activities under E&FCA guidance.