



The University of Georgia®

# Educational Experiences

*in Marine Science and Coastal Ecology*

Skidaway Island, Georgia







# Hands-on, Feet-in

## Marine Education Center and Aquarium

The Marine Education Center and Aquarium on Skidaway Island has served as the education arm of the University of Georgia Marine Extension Service since 1972. The Aquarium’s mission is to develop the public’s understanding and appreciation of the numerous coastal marine environments in the state of Georgia, and to foster respect for the beauty and complexity of these environments. We encourage stewardship of ocean and coastal resources and provide opportunities that allow individuals to make informed decisions about current coastal issues and environmental challenges. The mission is fulfilled through dynamic programs delivered by professional personnel at a unique coastal facility and via diverse field sites.

## Education Program Overview

The Marine Education Center and Aquarium operates year round and offers a hands-on, feet-in approach to learning marine science and coastal ecology. Programs are available to students in grades PK-12 as well as college, teachers, and public audiences. Field-based, laboratory, and interactive discussion programs address diverse marine science and coastal ecology topics. Group visits to the facility range in length from one hour to several days. All programs are aligned with Georgia Performance, National Science, and Ocean Literacy Standards. For more information and reservations, contact the Scheduling Coordinator at (912) 598-2335 or e-mail [mared@uga.edu](mailto:mared@uga.edu).

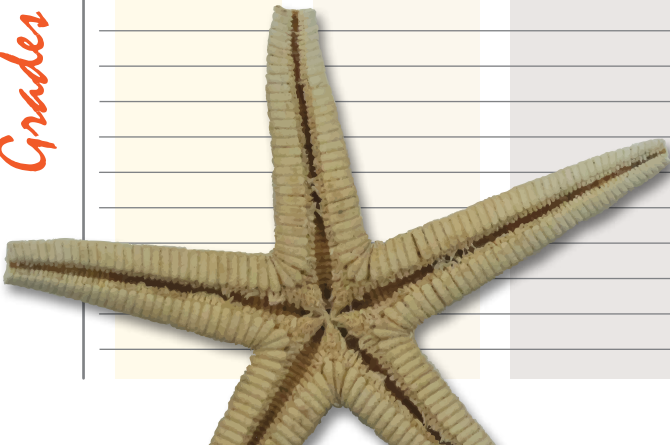
# Programs *at-a-glance*



PK thru  
Grade 4

Grades 5 - 12, College and Adult  
Grades 7 - 12, College and Adult

Indoor Studies			Outdoor Field Studies		
Aquarium/ Touch Tank	Auditorium	Laboratory	Program Titles	Land	Water
■			Dive Down Deep (PK)		
■			Sea Star-Ocean Animals (K)		
■			Sea Star-Ocean Homes (1)		
■			Sea Star-Survival in the Sea (2)		
■			Sea Star-Georgia Coast (3)		
■			Sea Star-Endangered Oceans (4)		
Your school			Aquarium Outreach (K-4)		
Your school			CrabEcology Outreach (3-4)		
■			Touch Tank		
■			Aquarium Exploration		
■			Aquarium Behind-the-Scenes		
	■		Coastal Reptiles		
	■		Introduction to the Georgia Coast		
	■		Introduction to Oceanography		
	■		Introduction to Fishes		
	■		Introduction to the Salt Marsh		
	■		Marine Debris 101		
	■		Coastal Issues		
		■	Fish Dissection		
		■	Fish Identification		
		■	Gyotaku: Fish Printing		
		■	Invertebrate Lab		
		■	Squid Dissection		
		■	Oyster Populations		
		■	Oysters: The Fanatic Filterers		
		■	Plankton Lab		
		■	Horseshoe Crab Discovery Lab		
		■	Student Research		
			Beach and Dune Study	■	
			Salt Marsh Study	■	
			Marine Debris in the Salt Marsh	■	
			Salt Marsh Transect	■	
			Maritime Forest Study	■	
			Developed Barrier Island Study	■	
			Barrier Island Study		■
			Estuary Trawl		■
			Scientific Sampling Cruise		■
			Oyster Reef Habitat Exploration		■
			Species Diversity Study		■
			Marine Debris on Barrier Islands		■
			Bottlenose Dolphin Study		■





# Aquarium/Touch Tank

Get to know the locals! These programs provide hands-on opportunities to interact with live coastal animals safely. A variety of classes focus on the natural history of macro-invertebrates, fish, and non-venomous reptiles.

## Dive Down Deep

**(PK)**

Looking for hands-on activities designed specifically for young learners? Students discover Georgia's coastal marine organisms through explorations with live animals at the touch tank and small group lessons on fish and other marine animals in the aquarium.

**1 hour; min/max = 15/30**

## Sea Star

**(K-4)**

Marine science for K-4 is best when it involves exciting hands-on lessons. Students investigate grade-specific marine science concepts through small group activities. Program includes structured aquarium exploration and handling marine invertebrates housed in our touch tanks.

**2 hours; min/max = 20/50**

**Ocean Animals (K)**

**Ocean Homes (1)**

**Survival in the Sea (2)**

**Georgia Coast (3)**

**Endangered Oceans (4)**

## Touch Tank

**(5-12, College, Adult)**

Students observe and handle live invertebrates, typically including whelks, sea stars, spider crabs, hermit crabs, and horseshoe crabs. Learn the classification and natural history of common coastal marine invertebrates through small group discussions and touch tank discovery.

**45 minutes; min/max = 15/25**



## Aquarium Outreach

**(K-4)**

Based on the Sea Star program content, visiting educators bring the aquarium to your classroom with live animals, teaching props, and natural artifacts for a dynamic and interactive presentation.

**45 minutes; min/max = 15/25**



## CrabEcology Outreach

**(3-4)**

Students participate in hands-on investigations of the crabs and coastal habitats of Georgia. This classroom-ready program includes live animals and rotating activities centered on the anatomy, diversity, feeding strategy, and conservation of common crabs. Blue, spider, fiddler, hermit, and horseshoe crabs are included. Classroom curriculum provided.

**45 minutes; min/max = 15/25**



## Aquarium Exploration

**(5-12, College, Adult)**

Interested in the animals that live successfully in estuaries and oceans? Through individual and small group activities, students observe form and function while discussing the diversity and ecological significance of fishes and invertebrates found in Georgia's coastal waters. Students discuss animal care as well as research and conservation efforts related to exhibits.

**45 minutes; min/max = 15/25**



## Aquarium Behind-the-Scenes

**(5-12, College, Adult)**

Have you ever wondered what goes on behind the scenes of an aquarium? Extend a scheduled Aquarium Exploration (above) with an informative tour of the aquarium work spaces and a discussion of the methods used for caring for animals on exhibit. Students get close-up views of holding tanks, filter systems, and food preparation areas.

**15 minutes; min/max = 15/25**

**(10 people at a time)**





# Discussions

Discussions address a wide range of marine science concepts and provide broad overviews of coastal habitats, organisms, and issues. These interactive discussions build on what students already know and introduce key ideas.

## Coastal Reptiles (5-12, College, Adult)

Over 80 species of reptiles inhabit Georgia's diverse habitats. Learn about the characteristics of this ancient group of vertebrates that have allowed them to survive for hundreds of millions of years. Using live animals and preserved specimens, students participate in interactive discussions focused on coastal reptiles, their natural history, and the importance of efforts to conserve endangered reptile species. Students may touch or handle live reptiles.

**45-60 minutes; min/max = 15/50**

## Introduction to the Georgia Coast (5-12, College, Adult)

What makes the coast of Georgia so unique? This program reviews the physical and biological processes that shape the Georgia coast. Students learn about the geological processes, oceanic currents, and tidal rhythms that produce and move the sand and clay components of coastal land forms and determine coastal habitats and biological communities.

**45 minutes; min/max = 15/50**

## Introduction to Oceanography (5-12, College, Adult)

This interactive discussion is best paired with Estuarine Scientific Sampling or Barrier Island Study where concepts can be further investigated in the field! Oceanography is the study and exploration of the ocean. Discussions will include reviewing biological, chemical, geological, and physical concepts involved in this diverse field of science.

**45 minutes; min/max = 15/50**

## Introduction to Fishes (5-12, College, Adult)

Did you know that 3/5 of all vertebrate species on this planet are fishes? Using preserved specimens and skulls, students discover the secret lives of fishes during this interactive discussion session. Combine this class with an Aquarium Tour, Fish Identification Lab, or Fish Dissection for a well-rounded view of the biology and diversity of this amazing group of animals.

**45-60 minutes;  
min/max = 15/50**



## Introduction to the Salt Marsh (5-12, College, Adult)

A large portion of all the salt marshes on the eastern U.S. coast lies in Georgia. Discover what lives in the salt marsh and review the physical, biological, and chemical processes that define a salt marsh and determine the diversity of species and ecological structure found in these tidally influenced wetlands. This discussion is always scheduled before any field exploration or formal study of the on-site marsh.

**45 minutes; min/max = 15/50**

## Marine Debris 101 (5-12, College, Adult)

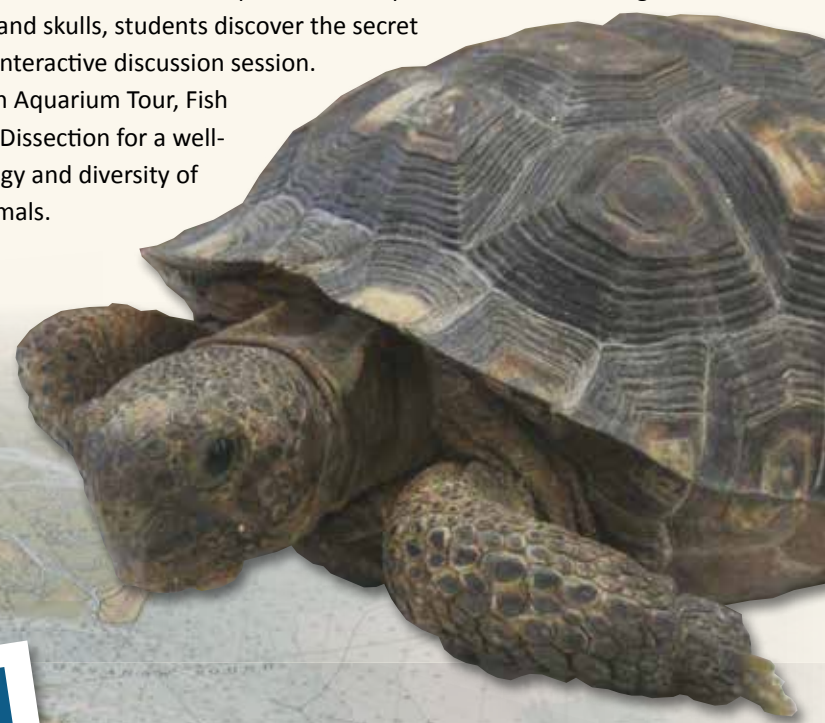
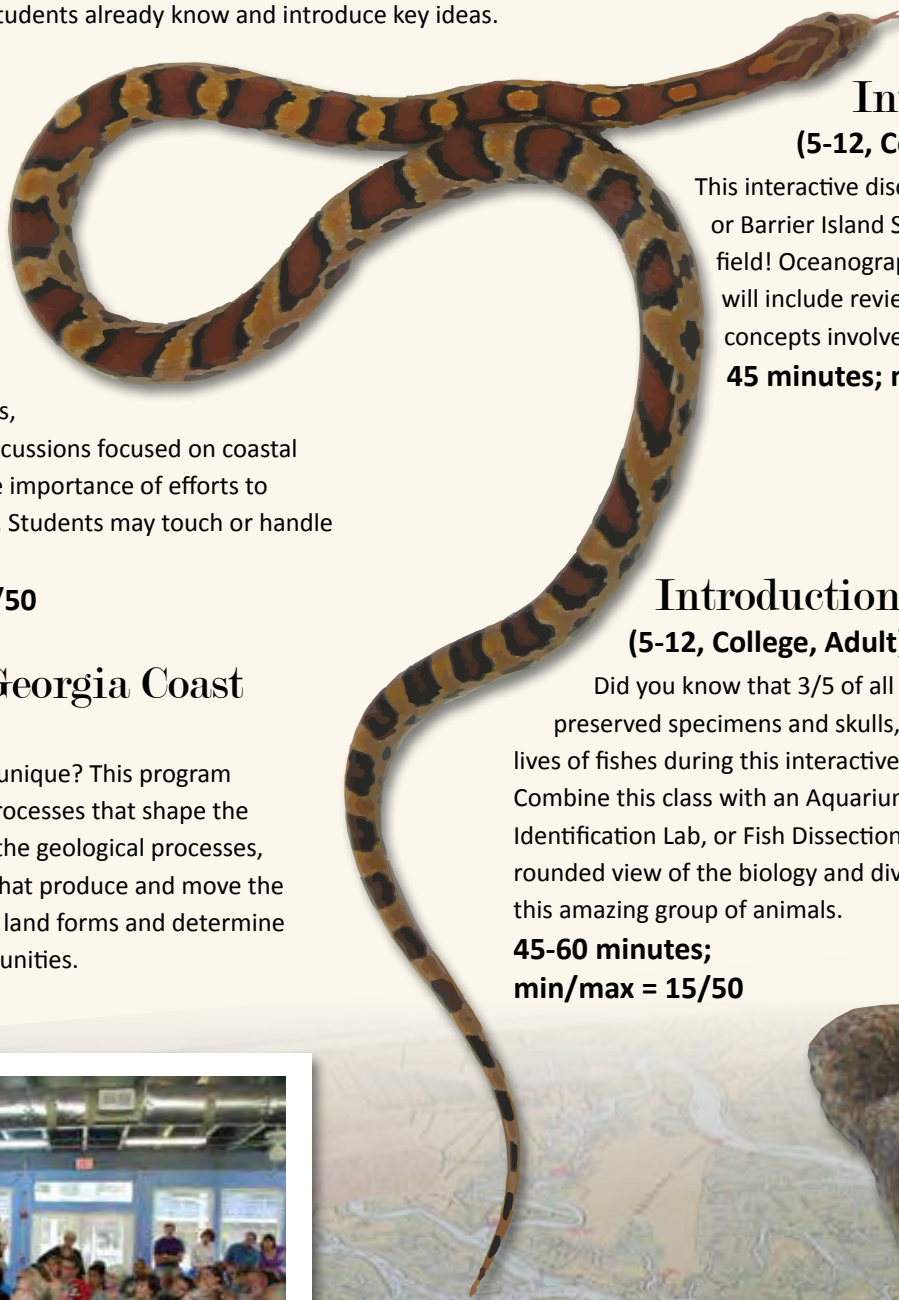
This class introduces and explores the topic of marine debris, particularly plastic debris, and its ecological and economic impacts on the ocean and coastal zone. Students learn about the sources of marine debris and the ocean processes (such as tides and currents) that influence the type, amount and frequency of plastic debris accumulating along Georgia's coast.

**1 hour; min/max = 15/50**

## Coastal Issues (5-12, College, Adult)

The majority of our nation's population lives within 50 miles of a coastline. Exponential growth of coastal populations is well documented. Consequently, coastal regions are important areas for examining how current regional/global issues such as coastal development, marine debris, coastal hazards, and water quality will impact coastal ecosystems and resources. Students discuss the critical issues faced by coastal zones, and more importantly, how to balance the needs of the rising human population with the value of coastal ecosystem services and resources.

**45 minutes; min/max = 15/50**





# Indoor Studies Laboratory

Laboratory Studies emphasize individual work in well-equipped and modern laboratories. Students use scientific equipment, standard specimen collection, professional laboratory techniques, and group discussion to investigate a range of estuarine organisms and related biological, physical, and chemical concepts.

## Fish Dissection (7-12, College, Adult)

Combine this session with Introduction to Fishes and Fish Identification to investigate the external anatomy, internal organs and reproductive systems of bony fishes. Students compare features of a fish's life-style to those of humans and other organisms in order to learn how fish are specifically adapted for life in the water.

**1.5 hours; min/max = 15/25;**  
**\$2/person additional lab fee**

## Gyotaku: Fish Printing (5-12, College, Adult)

The time-honored art of Gyotaku has been practiced for utilitarian and creative reasons for centuries. Using anatomically accurate fish molds, students create original pieces of Japanese-styled artwork on paper or a personal fabric item. Combine with Fish Dissection or Fish Identification.

**1 hour; min/max = 15/20;**  
**\$2/person additional art fee**



## Fish Identification (5-12, College, Adult)

This session is a great add-on to Introduction to Fishes and Fish Dissection. Using dichotomous keys, students identify fishes based on external features. If time allows, shark identification is included as well as discussion of the diversity and responsible management of coastal fishes.

**1 hour; min/max = 15/25**



## Invertebrate Lab (5-12, College, Adult)

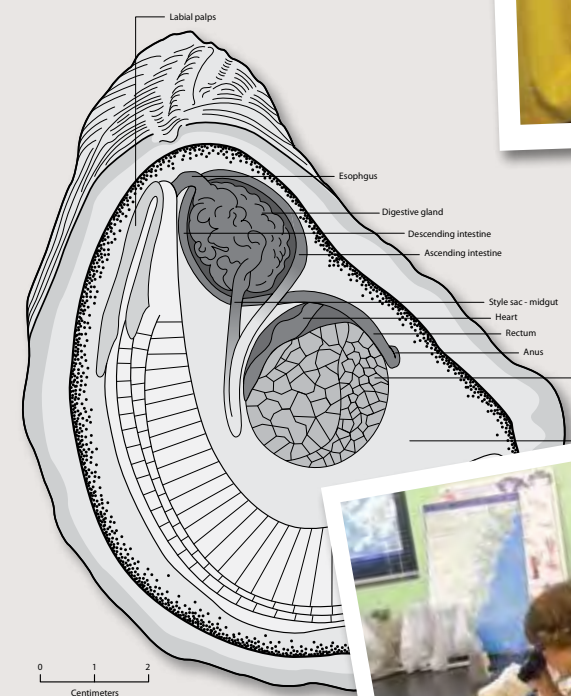
Sample the invertebrate community found living beneath the water line on floating docks. Using dissection scopes and laboratory protocols, students observe and identify species in this community and discuss the biotic and abiotic factors that determine the diversity of organisms collected there. Students practice observation, microscopy, biological illustration, and data collection skills.

**1.5 hours; min/max = 15/25**

## Squid Dissection (5-12, College, Adult)

Investigate squid form and function through dissection and interactive discussion of the internal anatomy of this complex mollusk. Students will work independently or in small groups with a guided activity sheet. Use the squid's ink and "pen" to write on paper.

**1.5 hours; min/max = 15/25;**  
**\$2/person additional lab fee**



## Oyster Populations (5-12, College, Adult)

What factors affect oyster growth and reproduction along the Georgia coast? Using scientific equipment, laboratory observation and discovery, and data collection techniques, students investigate the roles of sedimentation, over-harvesting, water quality and disease on oyster populations.

**1.5 hours; min/max = 15/25**



## Horseshoe Crab Discovery Lab (7-12, College, Adult)

Discover the ecological and economical importance of horseshoe crabs using live specimens and natural artifacts. Through learning stations, students use live horseshoe crabs to identify external features, observe behavior, study fouling organisms, discover the horseshoe crab-migratory shorebird phenomenon, and understand the importance of horseshoe crabs to the biomedical industry. Collection and analysis of data along with group discussions help students understand why these organisms are so important.

**1.5 hours; min/max = 15/25**

## Student Research (7-12, College, Adult)

This program is designed to give students research experience using live invertebrate animals (no animals will be harmed). Several options for experiments and hypothesis building will be presented. Students work in pairs to design and execute a research project, and write a summary of their work including title, abstract, methods, results (graph building) and a discussion. Access to the computer lab is provided (if time permits) to complete a lab report. Students will compare and contrast group results and analyze the research process and potential pitfalls. This class emphasizes STEM objectives.

**2-4 hours; min/max = 15/25;**  
**\$2/person additional lab fee**

## Oysters: The Fanatic Filterers (7-12, College, Adult)

One of the many ecosystem services oysters provide relates to their ability to filter large volumes of water. Students take a close look at this keystone species as they dissect and identify the internal filtering features of an oyster and calculate filtering rates of live oysters. Additionally, students collect and identify species of plankton living in the Skidaway River. This program provides opportunities for laboratory observation and discovery.

**2 hours; min/max = 15/25;**  
**\$2/person additional lab fee**

## Plankton Lab (5-12, College, Adult)

What organisms live in a single drop of salty water? Students survey a plankton sample using standard microscope techniques. Students learn how marine animals and plants are part of the plankton community and how they reproduce. Discussions also include how environmental factors such as temperature, salinity, turbidity, and seasonality relate to plankton abundance. Students practice observation, microscopy, biological illustration, and data collection skills.

**1.5 hours; min/max = 15/25**





Outdoor Field Studies

# Land

Field Studies by Land provide opportunities for scientific study and discovery at Skidaway Island field sites and on nearby Tybee Island. Field studies are weather- and tide-dependent. Appropriate footwear and field clothing is required. Inside activities will be substituted for outdoor activities in the case of severe/inclement weather and/or unprepared students/chaperones.

## Beach and Dune Study (5-12, College, Adult)

The north end of Tybee Island offers a range of sandy habitats to explore and study. Students investigate sand dune and beach communities on a developed barrier island through individual exploration and beachcombing. Class includes identification of marine invertebrates and explores the physical forces shaping the coast on a daily and seasonal basis.  
**3.5 hours (includes driving time);  
min/max = 15/50**

## Salt Marsh Study (5-12, College, Adult)

Designed to immerse students in a field experience, this study emphasizes individual discovery, observation, and identification of the unique organisms adapted for life in the intertidal zone. Students discuss the importance of the marsh ecosystem to the coastal systems of Georgia. Program is weather- and tide-dependent.  
**2 hours; min/max = 15/25**

## Marine Debris in the Salt Marsh (5-12, College, Adult)

Build on Marine Debris 101 with a field exploration. Students collect marine debris at designated salt marsh sites using NOAA shoreline survey protocols. Students gain a better understanding of this important issue as they determine types of marine debris, the weight of plastics collected, and debris accumulation rates. Our web-based "Marine Debris and Me" curriculum can serve as follow-up learning sessions at your school site. This class emphasizes STEM objectives.  
**3.5 hours; min/max = 15/30**



## Salt Marsh Transect (7-12, College, Adult)

Why do some organisms live in higher zones of a salt marsh and others are more commonly found in lower ones? Students put their knowledge to practical use in this field study in order to gain a broad perspective of salt marsh zonation and ecology. Using scientific equipment, students survey, collect, graph, and analyze data on changes in elevation in the salt marsh, soil types, and the organisms living there. Program is weather- and tide-dependent. This class emphasizes STEM objectives.  
**3 hours; min/max = 15/25**



## Maritime Forest Study (5-12, College, Adult)

Hike through on-site transitional and mature maritime forests to experience coastal Georgia's climax plant community. Examine the diverse plants and animals found here through close observation and nature study. Discuss Native American dependence on the salt marsh and the adjacent forest for survival and modern man's use of these plant communities.  
**1.5 hours; min/max = 15/25**

## Developed Barrier Island Study (5-12, College, Adult)

The south end of Tybee Island illustrates the range of human activities along Georgia's coast. Combine elements of a Beach and Dune study with a more in-depth study of a barrier island developed for human residence and tourism. Students explore the sandy beach, survey examples of development related impacts, and discuss the natural physical processes, environmental and infrastructure issues, and development trends impacting developed barrier islands.  
**3.5 hours (includes driving time);  
min/max = 15/50**





## Outdoor Field Studies

# Water

Field Studies by Water offer hands-on learning aboard University of Georgia vessels. All boat activities are weather-dependent and require appropriate and adequate student/chaperone footwear, clothing, and preparation. UGA boat captains reserve the right to cancel these field studies in the event of unsafe weather conditions and/or inadequate group preparation. If field studies are cancelled, land-based activities will be substituted.

### Barrier Island Study (5-12, College, Adult)

Travel by boat to a wild and remote barrier island. Bottlenose dolphins, sea birds and bald eagle nests are often seen along the way. An exploratory cross-island hike provides study of the dynamic ecological, physical and biological processes at work in this unique ecosystem. Study plant succession from pioneering dune grasses to the mature maritime forest. Beach combing provides marine specimens for students to examine.

**7 hours; min/max = 15/28**  
**(students + chaperones)**



### Estuary Trawl (5-12, College, Adult)

Climb aboard the 43 foot trawler R/V *Sea Dawg* for a memorable scientific collecting trip. Students sample the benthic communities found in tidal rivers and sounds, then identify, sort, count, and record species, environmental, and positional data. Discussions include the natural history, diversity, and ecological/commercial significance of findings. This class emphasizes STEM objectives.

**2.5 hours; min/max = 15/20**  
**(students + chaperones)**

### Scientific Sampling Cruise (5-12, College, Adult)

Looking for a unique scientific investigation on a working research vessel? This study aboard the R/V *Sea Dawg* emphasizes the biological communities of an estuary and the physical and chemical parameters that influence the abundance and diversity of organisms living there. Students collect, sort and identify specimens collected in a trawl net, and determine water quality (temperature, salinity, dissolved oxygen, and turbidity) at various sites with standard oceanographic equipment. After the cruise, students identify surface plankton samples and analyze data to better understand factors that influence diversity and relative abundance of organisms found in the estuary.

**7 hours; min/max = 15/20**  
**(students + chaperones)**



### Oyster Reef Habitat Exploration (5-12, College, Adult)

Travel by skiff to a nearby barrier island and investigate oyster reef communities and their importance to the larger estuarine ecosystem. Students take a close up look at oyster reef zonation, collect data on living oysters, and explore the organisms living on and around the reef. This class emphasizes STEM objectives.

**3.5 hours; min/max = 15/28**  
**(students + chaperones)**



### Bottlenose Dolphin Study (5-12, College, Adult)

Following an introductory discussion on cetacean biology, students board skiffs to explore coastal waters while searching for dolphins. From spy hopping to tail slapping, students observe and record dolphin behavior and listen to underwater sounds using a hydrophone.

**3.5 hours; min/max = 15/28**  
**(students + chaperones)**

### Species Diversity Study (5-12, College, Adult)

How many different organisms live on the land margins of an estuary? In this field program, students travel by boat to explore the land-water interface of the estuary as they investigate the species diversity of a local

barrier island. Using field equipment, students collect data and identify organisms to determine the number of species present and their relative abundance in two different habitats. This class emphasizes STEM objectives.

**3.5 hours; min/max = 15/28**  
**(students + chaperones)**

### Marine Debris on Barrier Islands (5-12, College, Adult)

Build on Marine Debris 101 with a field exploration on a wild barrier island. Students collect marine debris at designated sandy beach sites using NOAA shoreline survey protocols. Students gain a better understanding of this important issue as they determine types of marine debris, the weight of plastics collected, and debris accumulation rates. Our web-based "Marine Debris and Me" curriculum can serve as follow-up learning sessions at your school site. This class emphasizes STEM objectives.

**7 hours; min/max = 15/28**  
**(students + chaperones)**





# Facilities and Trip Planning

## Facilities

The Marine Education Center and Aquarium offers unparalleled facilities on the Georgia coast and is fully equipped to provide engaging, experiential learning in the natural coastal environment. Located on Skidaway Island, just southeast of Savannah, Georgia, student groups learn in the field, on the water, and in well-equipped science labs and multipurpose classrooms.

## Teaching Spaces

- public aquarium
- touch tanks
- science labs
- art lab
- computer lab
- auditorium

## Onsite Interpretive Areas

- archeology exhibits
- saltmarsh boardwalk
- wildlife observation platform
- Jay Wolf Nature Trail
- Skidaway Interpretive Cabin
- Skidaway Learning Garden

## Boats and Docks

- R/V *Sea Dawg* (43 ft. trawler)
- Carolina Skiffs (24 ft. open deck outboards)
- deepwater sampling docks

## Barrier Island Field Sites

- Wassaw National Wildlife Refuge
- Ossabaw Island Natural Heritage Preserve
- Tybee Island
- Skidaway Island

## Residential Amenities

- dormitory
- cafeteria
- enclosed porch
- recreation field
- picnic area

## Trip Planning

Let us help you design a visit that meets your group's educational needs. Contact the Scheduling Coordinator by phone at (912) 598-2335 or by email at [mared@uga.edu](mailto:mared@uga.edu). All programs must be reserved by phone or in person and will be confirmed by email when program deposit is received.

## Program Options

### Grades PK-4

One and two hour morning programs for primary and elementary groups are available from October – May. Dive Down Deep (PK) and Sea Star (K-4) Programs run Monday - Friday. Aquarium Outreach and CrabEcology programs are scheduled Monday - Friday during school hours.

### Grades 5-12, College and Adult

Half-, full-, and multi-day programs for secondary and college/adult groups are offered from September – May. Dormitory lodging and cafeteria meals are also available for out of town groups. The minimum number of participants for any of these programs is 15. The Center is able to host larger groups by splitting them into smaller working teams that rotate through several different classes simultaneously.

## Special Needs

The Aquarium, teaching spaces, dormitory, cafeteria, and nature trails are all wheelchair accessible. UGA personnel will assist students who may have different levels of learning in an effort to provide a successful educational experience. Please let the Scheduling Coordinator know in advance if there are special needs within your group.

## Other Educational Opportunities

Visit the Marine Extension Service website, <http://marex.uga.edu>, or contact our Scheduling Coordinator at [mared@uga.edu](mailto:mared@uga.edu) or (912) 598-2335 for more information about the variety of other program opportunities available at the UGA Marine Education Center and Aquarium.

- Summer Marine Science Camps
- Marine Education Internships
- Teacher Workshops & Graduate Courses
- Skidaway Marine Science Day
- Volunteer Opportunities

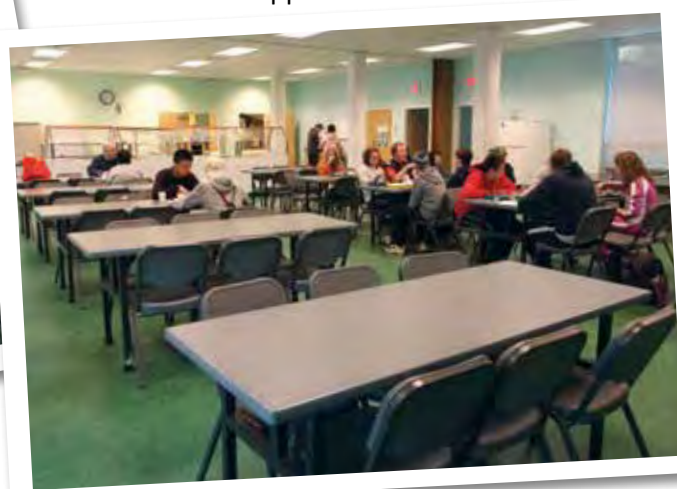
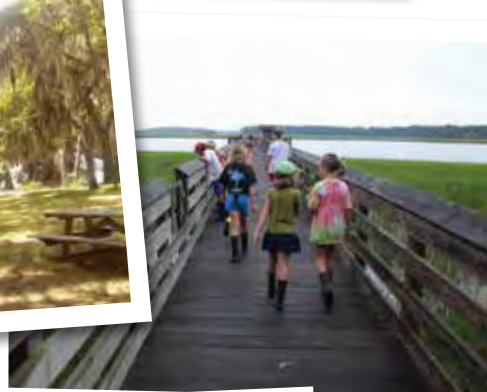
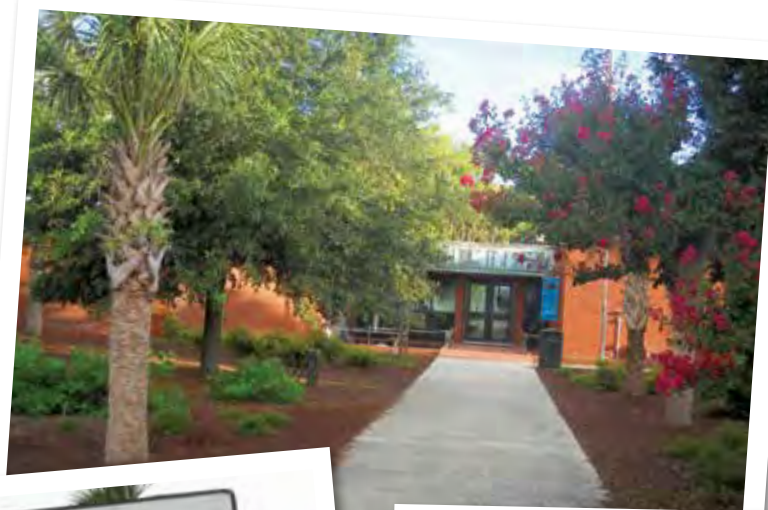
## Dorm and Cafeteria

A dormitory is available for use by overnight groups participating in education programming. The dorm has two floors of rooms that are arranged in suites that sleep up to 8 individuals each. The dormitory is directly adjacent to the cafeteria and recreation field. The full service cafeteria serves breakfast, lunch and dinner to groups in residence and on campus for the day. All meals are available for a minimum of 15 people and can accommodate up to 120 individuals in multiple seatings. The cafeteria also provides make-your-own bag lunches for residential groups headed out for a full day in the field.



**The University of Georgia**

**Marine Extension Service  
Marine Education Center and Aquarium  
30 Ocean Science Circle  
Savannah, Georgia 31411  
<http://marex.uga.edu>**





## Marine Extension Service and Georgia Sea Grant

The University of Georgia Marine Extension Service is a Public Service and Outreach unit serving the Georgia coast to increase efficiency of existing marine industries, identify new industries that do not harm the environment and increase public awareness and understanding of coastal ecosystems. Georgia Sea Grant is part of a national program within NOAA that channels funds into colleges, universities and research institutes throughout Georgia to support coastal research, education and outreach.

  
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