

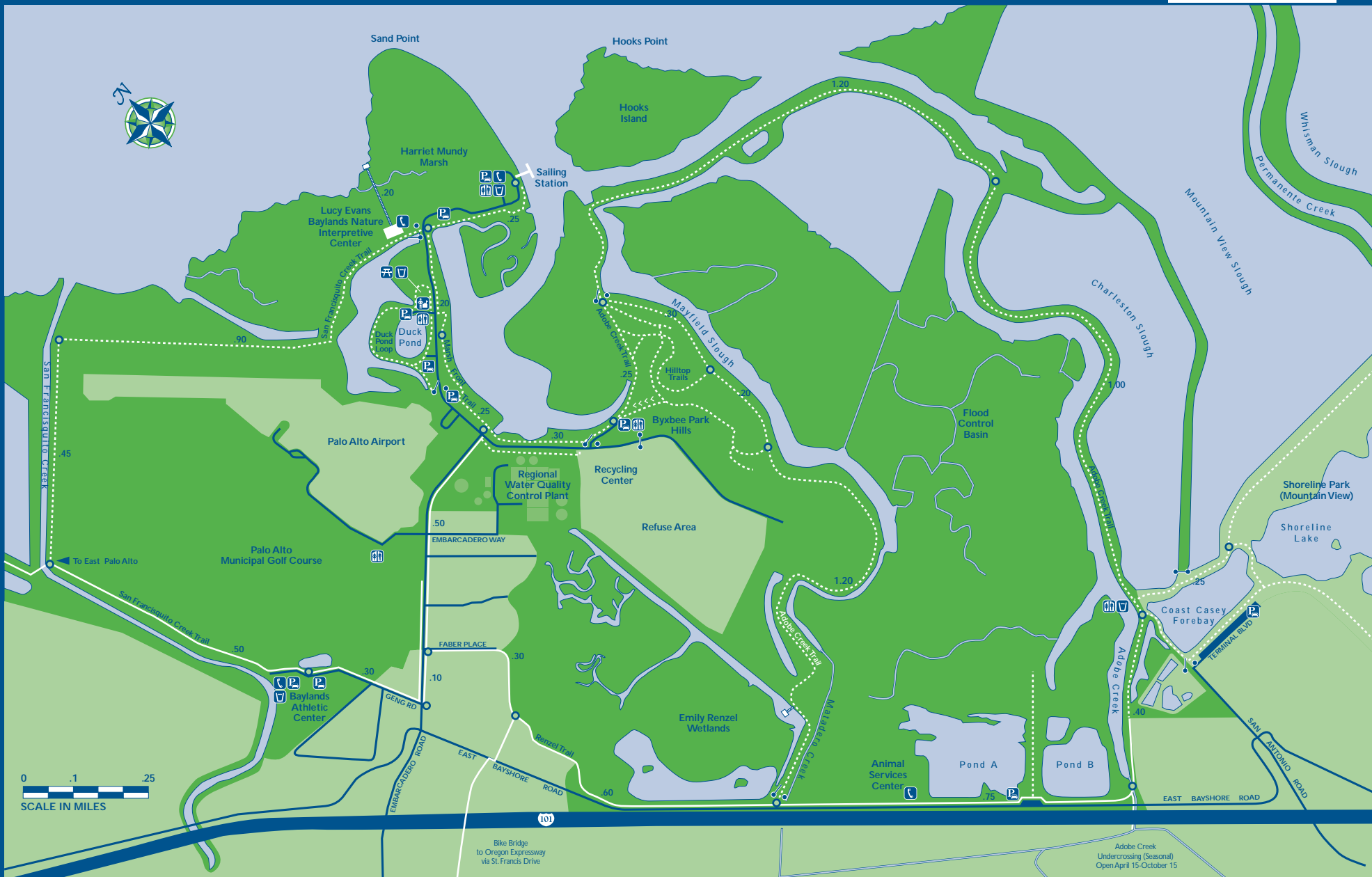
MSL: Mean Sea Level
MLLW: Mean Lower Low Water

Charleston Slough

- 📍 I-85-N to 101-N
- 📍 North on 101-N, ~2 miles to **San Antonio Rd.** exit.
(If coming from the north, it's called **San Antonio Rd. North** exit)
- 📍 Turn right (east) on San Antonio Rd. toward the Bay
 - go ~ 0.3 mile until the road ends at **Terminal Blvd.**
 - park along Terminal Blvd.
- 📍 meet at the trailhead at the corner of San Antonio Rd. and Terminal Blvd.

Palo Alto Baylands

- 📍 get back on 101-N
- 📍 North on 101-N, ~1.5 more miles to **Embarcadero / Oregon Expressway** exit
- 📍 take **east** Embarcadero (toward the Bay)
 - head east ~ 1 mile, past car lots, golf course, airport
- 📍 Embarcadero road ends past airport — **turn left**
- 📍 past the duck pond and across the bridge is the Baylands Nature Interpretive Center
 - parking lot is to the right
- 📍 Meet outside the Interpretive Center.
(If you get there early, use the displays to start answering the questions!)



ACCESS INFORMATION

- Open to the public 8 am to sunset, every day.
- Dogs permitted on leash unless posted.
- Please do not feed wildlife.
- Park in designated parking areas.

- Paved Trail
- - - Gravel/ Boardwalk Trail
- Paved Roadway
- Mileage Markers
- 🚒 Ranger Station
- 🅇 Parking Lot
- 🍃 Picnic Area
- 🚰 Drinking Water
- 🚻 Restrooms
- ☎ Public Phone
- 👁 Wildlif Viewing Platform
- 🚪 Gates



San Francisco Creek Trail
3.2 miles/1-2 1/2 hours. Easy, flat terrain, can be extremely muddy during rainy season. Mixed terrain trail bed includes decomposed granite, crushed oyster shell, paved sections.

Boardwalk Trail .2 mile (one way) 15 min. Best area to view California clapper rail. Easy, flat terrain; mixed terrain trail bed includes gravel levee and wood boardwalk.

Duck Pond Loop Trail .7 miles 10-15 min. Dogs prohibited. Easy, flat terrain; crushed oyster shell and decomposed granite trail bed; no obstacles.

Renzel Trail .9 mile/20-25 min. Trail passes along the Emily Renzel Wetlands and connects the Adobe Creek Loop Trail with the San Francisco Creek Trail. Easy, flat terrain; paved.

Hilltop Trails 1.0 mile/ 10-30 min. Bay views, wildlife, wildflowers, landfill conversion process. Hilly terrain/trails are steep in places. Trail bed is decomposed granite and crushed oyster shell.

Marsh Front Trail 1.0 miles 25-30 min. Descriptive natural history panels. Easy, flat terrain; crushed oyster shell and decomposed granite trail bed; no obstacles.

Adobe Creek Loop Trail 5.6 miles/ 2-3 hours. Bay views, bird life, converted landfill. Easy, flat terrain; trail mostly on bayside gravel levees and pavement.



From Marshes to Mudflats



Terrestrial insects and spiders are among the most abundant marsh organisms.



Pinyon Blue butterfly



Epifauna are organisms that inhabit the surface of the bottom. Individual species may be grazers, predators or detritivores.



Mud Crab



Yellowfin Goby



Topsmelt



Staghorn Sculpin



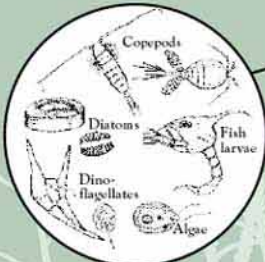
Ribbed Mussel



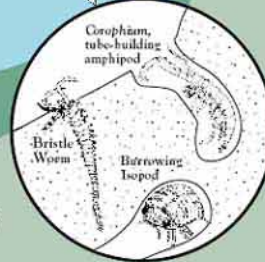
Mud Snail



Water Boatmen



Plankton come in many shapes and sizes. Some are invisible to the eye while others appear as small floating specks.



Paddle Worm



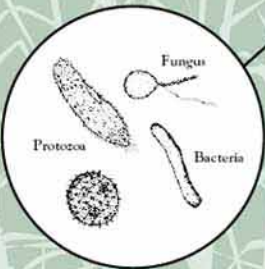
Clam Worm

Gem Clams



Baltic Clam

Infauna refers to animals that live within the sediments.



Microorganisms such as bacteria, fungi and protozoa play an important role in the decomposition of detritus (organic matter). They process this material to a level where it may be consumed by other organisms.

Plants within the tidal marsh are found in zones that correspond to individual physical tolerances. Each species may spread or decline in response to changing annual conditions.

Salt Grass-extreme high tide

Pickleweed-normal high tide

Cord Grass-normal low tide

Within the sloughs, salt marshes, mudflats and shallow waters of the Baylands, plants and animals are part of an open, interconnected, living system. Each form of life depends on the presence of others to survive. Energy cycles through the food chain in dynamic, ever changing habitats governed by the ebb and flow of the tide.

Phytoplankton, the microscopic plants that drift at the mercy of the water's movement, are the basis of the food chain. They are the food source for small floating animals called zooplankton. The zooplankton, in turn, are eaten by invertebrates (animals without backbones) such as shrimp, marine worms and clams. Birds, fish, mammals and other wildlife feed on these smaller invertebrates.

Each species in the wetland has evolved to tolerate a certain range of physical conditions. Their survival is influenced by water salinity, sediment type, slope and period of submergence.

LIFE BEYOND THE EYE

The Edge of the Bay

Be able to define the following terms and their specific relevance to the habitats observed today.

brackish	thermocline	halocline	halophytic
euryhaline	eutrophication	euphotic zone	estuary
producer	consumer	phytoplankton	zooplankton
decomposer	detritus	slough	intertidal zonation
anoxic	mudflat	siltation	infauna / epifauna
endemic	mitigation	shorebird	Pacific flyway
pickleweed	salt grass	cordgrass	dodder

Charleston Slough: Refer to Exercise 4C. Bring copies of Table 4.7 to collect data.

Baylands: Use your fieldbook to make thorough notes and observations during the walk. Use that information and the displays at the Nature Center to answer the following questions. The answers to the questions that you turn in for credit **MUST BE TYPED** on a separate piece of paper.

1. What are the major sources of primary production for the food webs in San Francisco Bay?
Explain a detritus-based food web in this situation.
2. Why does the Bay salinity vary seasonally?
How is that variation different in the south Bay from the north Bay?
How has this pattern been altered by human development?
3. How can you visually distinguish a salt marsh from a freshwater marsh?
4. What are the three principle halophytes of SF Bay salt marshes?
What factors determine their relative distributions within this habitat?
Diagram the zonation of saltmarsh plants relative to the edge of the Bay.
5. What type of organism is dodder? How does it survive in the marsh?
6. Describe niche partitioning among charadriiform shorebirds.
Describe at least three specific examples observed here today.
7. Name a species of animal endemic to this habitat.
Name two other endangered species of animal residing in this habitat.
Why have they become endangered?
8. How was the eastern mud snail introduced to SF Bay?
Describe at least two specific ways these snails are affecting the native communities.
9. Describe another invasive species and its impacts on local native communities.
10. Describe at least four additional ways that human societies have altered the SF Bay native ecosystems.