

Answers to the Student Worksheet for the Salt Marsh Virtual Field Trip

Please answer the following questions.

1. What characteristics define a Salt Marsh?
 - * *found around the world*
 - * *located only along the coast*
 - * *flooded by saline (salty) water*
 - * *better developed as you move further south in South Carolina*
2. Where is the salt shrub thicket zone found and what type of vegetation can be found there?
 - * *before you enter the salt marsh, between the mainland and the salt marsh, on higher ground*
 - * *shrubs, small trees, and grasses*
3. Give an example of a plant found in the salt shrub thicket and tell me something interesting you found out about this species.
 - * *yaupon - Ilex vomitoria, small evergreen shrub with berries that are red when ripe, young dried leaves contain caffeine, Native Americans drank a tea made from the young and old leaves called the "black drink", caused vomiting when consumed as part of a cleansing ritual.*
 - * *groundsel - shrub that grows to about 8 feet in height, leaves often remain greenish into winter, differs from marsh elder in that they have alternate leaves not opposite leaves, called consumption weed because it is used to treat that disease.*
 - * *red cedar - aromatic evergreen with prickly needles, produces aromatic oil that prevents attack from fungi, wood does not rot, wood used for shingles and fenceposts, oil also discourages attacks from insects, used in clothing chests to prevent insects from attacking clothes, also used in the past to make lead pencils, cedar waxwings eat the cones off this tree.*
 - * *wax myrtle - aromatic evergreen shrub, Myrtle Beach is named for this plant, originally grew from the pine flatwoods to the salt shrub thicket, in colonial days, the berries were collected and boiled down to release the wax, the wax was then used to make candles that were fragrant and green in color, bark from the roots were used to make tea which can induce vomiting when taken in large doses (emetic), root bark dried and pulverized was used to treat colds.*
4. Where is the black needle rush zone located?
 - * *transition zone between salt shrub thicket and the salt marsh*

5. What is a salt flat and why can't plants grow there easily?
 - * *open sandy areas where nothing grows due to the fact that they are flooded at highest tide, then the sun and air cause the water to evaporate, leaving behind the salt.*

6. Give an example of a salt loving plant and tell me something interesting you found out about this species.
 - * *glasswort - 2 species: one is an annual (lives 1 year and dies), it is the taller, branched plant found farther into the salt flat, the other is a perennial (live for many years), it is unbranched, shorter, and closer to the edge of the salt flat, both can be eaten (very salty).*
 - * *saltgrass - sends out underground stems called rhizomes, sprouts from these rhizomes make stems and leaves above ground, you can see where the rhizome lies because the stems form a straight line.*

7. The footprints of what animal are featured in the Salt Marsh Virtual Field Trip?
 - * *a raccoon*

8. What is "scat"?
 - * *feces*

9. How can you tell male fiddler crabs from a females?
 - * *males have one large claw, one smaller one, females have 2 claws the same size*

10. Describe male fiddler crab behavior.
 - * *they wave their large claws at other males to frighten them away from their territory, they also stretch up on their tiptoes to appear bigger, they wave their claws at the females to attract them.*

11. How can you tell the difference between the 2 species of fiddler crab found in a South Carolina Salt Marsh?
 - * *the sand fiddler has a purple back with whitish claws, and makes its burrow in the sandy areas of the marsh, while the mud fiddler is browner overall with yellow claws, and is found in muddy areas.*

12. What is *Spartina*?
 - * *smooth cordgrass, dominant plant of the salt marsh because it is so well adapted to the conditions there, it grows along creek banks and the high*

marsh, it grows tall during the summer (up to 7 feet along the creek banks, 1 foot or less in the high marsh), flowers in the fall, then dies back in winter, dead Spartina is a rich food source which is broken down by a variety of animals such as the periwinkle.

13. Give two examples of animals that prefer to live in the *Spartina* dominated areas of the Salt Marsh and tell me something interesting you found out about this species.
- * *periwinkle - a snail that crawls to the base of the stem where the algae grows best and graze on the algae, they crawl up the stems at high tide to avoid the blue crabs.*
 - * *clapper rail - live their whole lives in the salt marsh, nest in clumps of Spartina just above the water, downy black young are hard to see against the dark marsh mud, adults and young walk and swim through the marsh, but rarely fly, also known as mud hens and have been hunted for food, very secretive and hard to see, suppose to answer your clap, hence the common name.*
 - * *marsh wrens - build their nests in the tips of living Spartina, nests are made of dead Spartina, looks like a ball of dead grass, build above the high water mark, big storms or hurricanes can drown the eggs or young birds, males will build several nests, but the female will choose only 1 in which to lay here eggs, other nests may act as dummies to distract predators from the real nest.*
14. Give 4 examples of organisms found in a Salt Marsh that people like to eat.
- * *blue crabs*
 - * *shrimp*
 - * *hard clams*
 - * *flounder*
 - * *spot*
 - * *croaker*
 - * *bay anchovy*
 - * *sharks*
15. What is detritus?
- * *collection of dead stems of Spartina and other things that float, high tides and wind drive it ashore where it piles up in a thick mat, provide food and shelter to various animals.*
16. What is plankton?
- * *animals, plants, bacteria, and protists that cannot swim against strong currents and are swept in whatever direction the tide is flowing.*

17. What is "spat" and where in the Salt Marsh can you find it?
- * *young oysters*
18. During what months should oysters **not** be eaten and why?
- * *oysters spawn in spring and summer and they are either full of eggs or spawned out (most of their tissues are flaccid and exhausted from egg production) which is why you do not eat oysters in months without an "r" (i.e. May, June, July, or August).*
19. What physical characteristics are common to the various species of wading birds found in the Salt Marsh?
- * *long legs that enable them to wade through the shallows without getting their bodies wet*
 - * *long toes to support them as they stand in mud or sand*
 - * *long necks to reach down to the water for their food*
 - * *long, sharp, spear-like beaks they use to strike quickly at their prey*
 - * *narrow body and heads to present a minimum of visibility to the fish as they look up from the water*
20. Why is it taking so long for the Diamondback Terrapin population to recover from being overharvested due to the turtle soup demand of this last century?
- * *because turtles were sold by the inch and because the females are larger bodied, they were harvested extensively in the last century; however, females do not reach maximum egg production until 25 years old which is why it is taking the population so long to rebound.*
21. What characteristics define an estuary?
- * *an enclosed body of water that is affected by both freshwater and seawater, freshwater comes in through a river system and sea comes in from an inlet.*
22. What is biomagnification and give me an example of this event.
- * *small creatures consume the toxins which become concentrated in their bodies, these creatures are eaten by larger creatures and those creatures are eaten by even larger creatures, each time the amount of toxin concentration increases with every consumer level.*
 - * *DDT runoff from farms got into the algae, which was eaten by the plankton, which were eaten by the bay anchovies, which were eaten by the croakers, which were eaten by the ospreys which affected their ability to lay eggs with thick enough shells to survive the incubation period. Thus the population of ospreys dropped dramatically because there were no young hatching.*

23. What threats exist for the future of the Salt Marsh and what can you do to protect them from these threats?
- * *pesticides, manure, and fertilizers from runoff from urban areas and farms threatens the animals and plants that live in the marsh and us when we eat things that come from a marsh*
 - * *chemicals from factories that dump upriver end up in the marsh also threaten the animals and plants that live in the marsh and us when we eat things that come from a marsh*
 - * *marsh is filled in and built upon*
 - * *What can you do to protect them?*