Lab 10 – Estuaries – Bolsa Chica Ecological Reserve

INSTRUCTOR’S INITIALS ___________

LEARNING OBJECTIVES
By the end of this laboratory, you will:
• Understand the critical importance that wetlands have to coastlines for conditioning watersheds, protection from coastal erosion, storm buffering, biodiversity, and primary productivity.
• Be able to identify some of the residents of the Bolsa Chica Ecological Reserve.

INTRODUCTION
Welcome to the Bolsa Chica Ecological Reserve! Today, we will be taking a guided tour of the wetland that will illustrate the interplay of geomorphology, ecology, and biodiversity. The Bolsa Chica Wetland has a long history, and exists in its present state as a result of vigorous restoration efforts over the past few decades. Until 1899, the Bolsa Chica wetland existed as a typical southern California estuary, presumably with a very high biological diversity, and an open connection to the ocean. This permitted ample tidal flushing, which replenished the waters within the wetland on a daily basis. In 1899, the wetland was dramatically altered by local businessmen who purchased the land and set up a gun club within the wetland where the abundant waterfowl could be used for sport. As part of their efforts, the channel that connected the wetland to the ocean was sealed, thus completely cutting off the habitat from tidal influence. By the 1920s, oil prospectors began striking deals with The Gun Club, and oil drilling began. By the 1960s, most of the wetland area had been purchased by a large land developer who had devised a plan to eliminate the wetland and build a large housing tract and a marina. Fortunately, in 1976 a newly formed conservation group known as the Amigos de Bolsa Chica stalled the plans. After a long and drawn out legal battle, the Bolsa Chica Ecological Reserve was on the path to protection when, from 1997 to 2005, the California State Lands Commission stepped in to buy out large plots of land owned by the developer. Curiously, most of the funds to purchase the land were given by the nearby Ports of Los Angeles and Long Beach in exchange for mitigation for their own plans for expansion. But that was just the beginning… from that point, a huge restoration effort was carried out to the tune of $110 MILLION! Finally, on August 24, 2006, the Bolsa Chica wetland was reunited with the ocean when the now-existing south channel was opened. Hurray! But the story continues… There are small pockets of privately held land on the upper bluffs surrounding the wetland that are still under consideration for development. Keep an eye on the local news… we shall see what happens.

Keep your eyes open!
When walking through the wetland, keep in mind the distance that seawater must travel to be tidally flushed. Think of the fine sediments that have collected over the millennia and the physical and biological impact that restricting tidal flow would have. Notice the high diversity of birds and their varied beak shapes – this indicates the type of food they likely eat within the wetland.

Questions to consider: (these are suggestions… you should consider others too!)
(1) There are many oilrigs and tanker offshore. What contingencies exist to deal with oil spills?
(2) How has the diversity of animals within the wetlands changed since the restoration?
(3) What about the oil drilling currently going on in the wetland? How long will it continue?
THE ASSIGNMENT

Instructions:
You will conduct an internet search on a critical wetland area OTHER THAN Bolsa Chica Ecological Reserve. Below, I have provided a list of potential wetlands for you to choose from, although you are welcome to write about one that is not on this list.

Requirements:
• You must have a minimum of 500 words.
• You must discuss:
  a) the history of the wetland
  b) the historic or current impact humans are having there
  c) the current efforts being made to protect or restore the wetland
  d) legal, governmental, or private obstacles faced by those wishing to restore the wetland
• You must also include a bibliography with a minimum of 2 sources (one must be a government website “.gov” or “.mil”) – ex. for a California wetland, consider the California Coastal Commission, California Department of Fish and Wildlife, or California State Lands Commission, or Federal Agencies such as NOAA, USFWS, EPA, or USACOE.
• Please note: you MUST write this assignment in your own words. Do NOT cut and paste from the internet – doing so is plagiarism, which is intellectual theft.
• The assignment MUST uploaded before the due date noted in the syllabus – to the same place where you downloaded the handout.

POTENTIAL WETLANDS ON WHICH TO WRITE

California Wetlands:
Tijuana River Estuary
Mission Bay
Buena Vista Lagoon
Batiquitos Lagoon
Carlsbad Lagoon
Upper Newport Bay
Anaheim Bay
Golden Shores Marine Biological Preserve
Ballona Wetlands
Malibu Lagoon
Mugu Lagoon
Carpinteria Salt Marsh
Goleta Slough
Devereux Slough
Moro Bay
Elkhorn Slough
Coyote Creek, SF Bay
Suisun Marsh, San Pablo Bay
Tomales Bay
Bodega Bay

Some Wetlands Outside of California:
Indian River Lagoon, FL
Chesapeake Bay Estuary, MS
Coos Bay, OR
Barataria Bay, LA

Note: You may choose a different marine wetland that does not appear on this list, but you must clear it with me first.