

## BIRD READING ASSIGNMENT

To do *before* the field trip in class

1. **Students will read a portion of Wetland Neighbors.** The reading is available in this guide and online at [oceanconnectors.org/resources](http://oceanconnectors.org/resources).

The reading contains new vocabulary, **indicated in bold**, so it is best if teachers read the material in advance and prepare to work through it with the children. It may be helpful to review these terms together in advance and to write a summary of the most important details.

2. **Students respond to questions inside their journals** using complete sentences.
3. Please review the answers together in class.
4. This lesson covers 6<sup>th</sup> grade Common Core State Standards in ELA/Literacy, and Next Generation Science Standard MS-LS2-4.
5. **Critical Thinking Extension: Have students pair up and discuss the following questions with a classmate.**
  - Review the migration patterns of bird species along the U.S. west coast (available at [allaboutbirds.org/mesmerizing-migration-watch-118-bird-species-migrate-across-a-map-of-the-western-hemisphere](http://allaboutbirds.org/mesmerizing-migration-watch-118-bird-species-migrate-across-a-map-of-the-western-hemisphere)). What trends do you notice?
  - How have habitat changes impacted bird populations over time?
  - Is protecting one habitat area enough to protect an entire species of birds? Why or why not?
  - As humans continue to build, how we can alter or add to our manmade structures to provide migrating birds with the shelter, food, and water they need to survive?

## **BIRD READING ASSIGNMENT**

*Answer in your journal with complete sentences.*

1. What is a wetland? Give 3 examples of wetland habitats.
2. Why are wetlands important for birds? Why are wetlands important for people?
3. What is a “bioregion”?
4. What percent of Southern California wetlands have been lost today and why?
5. List 2 ways that wetland plants neutralize the high concentration of salt in their environment.
6. Describe how wetland plants act as natural filters.
7. Think back to your Ocean Connectors presentation: What is the Pacific Flyway?
8. List 3 sources of prey for wetland birds. How might changing habitats limit the availability of these resources for birds?
9. Predict what might happen if the 10% of wetlands we have left in California were to disappear (explain cause and effect).
10. How are different bird species interconnected? Give an example.

## BIRD READING ASSIGNMENT

### *Answer Key*

1. What is a wetland? Give 3 examples of wetland habitats.

*A wetland is an area covered with a layer of water for part of the time or all of the time.*

*Examples of wetland habitats include mudflats, marshes, swamps, freshwater pools, saltwater lagoons, river corridors, and estuaries.*

2. Why are wetlands important for birds? Why are wetlands important for people?

*Wetlands are important habitats for many species of birds because they provide food, water, places to rest, and shelter from predators. Wetlands are important for people for recreation, water filtration, economic reasons, and protecting cities from floods, hurricanes, and storms.*

3. What is a “bioregion”?

*A bioregion is an area with the same type of climate, plants, and animals.*

4. What percent of Southern California wetlands have been lost today and why?

*90% of Southern California wetlands have been lost today, as a result of agriculture, construction of freeways, water channels, ports, marinas, and houses.*

5. List 2 ways that wetland plants neutralize the high concentration of salt in their environment.

*Wetland plants neutralize the salt in their environment by excreting excess salt through pores in the stem and leaves, and by diluting the salt with freshwater and storing it in the stem.*

6. Describe how wetland plants act as natural filters.

*Wetland plants act as natural filters by cleaning contaminants from water and runoff before this pollution travels through the watershed and reaches the sea.*

7. Think back to your Ocean Connectors presentation: What is the Pacific Flyway?

*The Pacific Flyway is a major travel route for migratory birds, stretching from Alaska to South America along the west coast of North America. Coastal wetlands along the Pacific Flyway provide important resting spots for migratory birds.*

8. List 3 sources of prey for wetland birds. How might changing habitats limit the availability of these resources for birds?

*Sources of prey for wetland birds can include crabs, snails, oysters, clams, insects, and fish. Habitat loss means less resource availability and more competition for those resources.*

9. Predict what might happen if the 10% of wetlands we have left in California were to disappear (explain cause and effect).

*Loss in biodiversity, lack of available resources for birds, fewer resting places along their migration, more flooding, disrupts the food web, more pollution reaching the open ocean, etc.*

10. How are different bird species interconnected? Give an example.

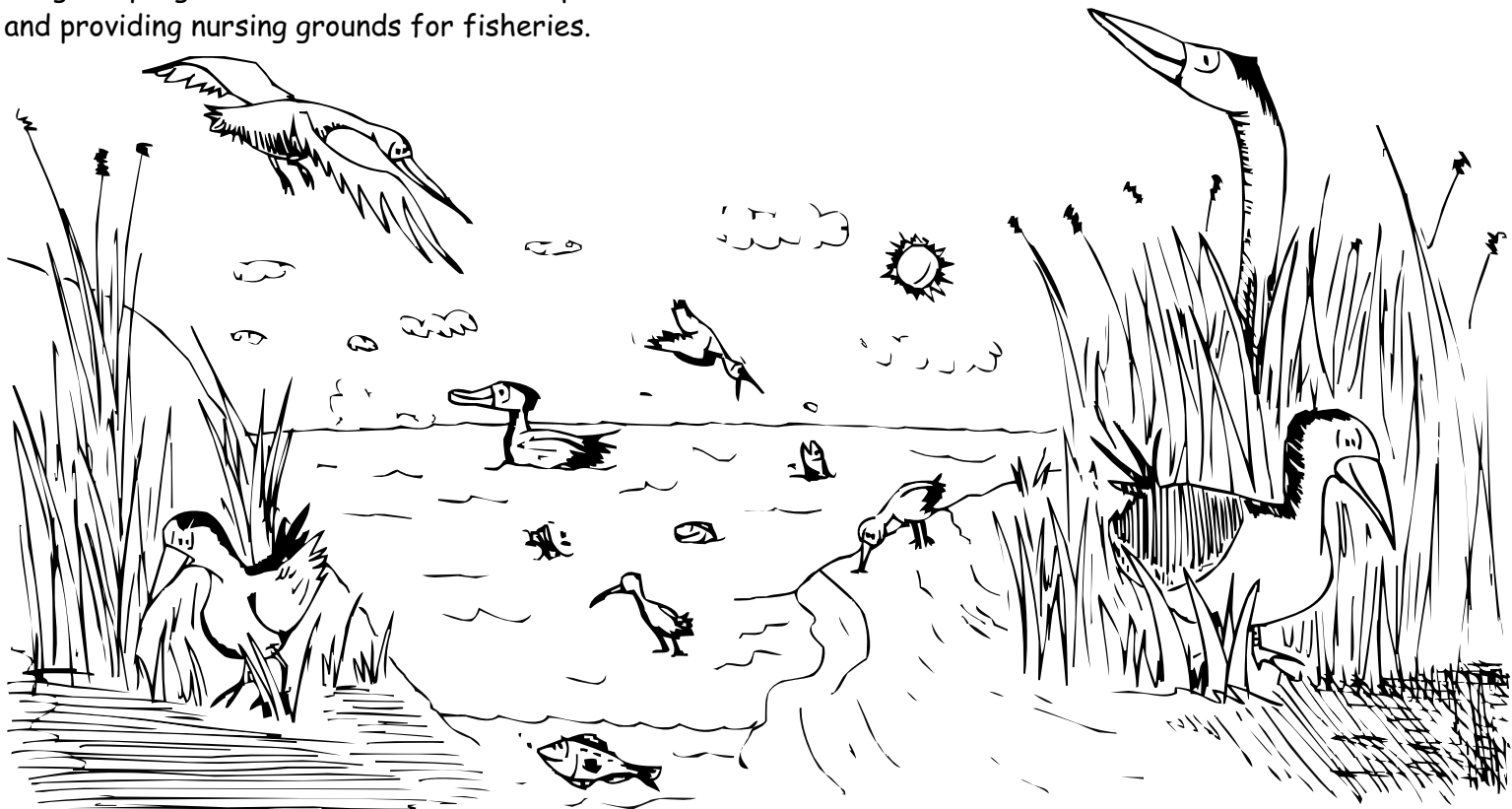
*Different bird species are interconnected through their food web, migration, and habitats.*

## What is a Wetland?

**W**etlands are areas covered with a shallow layer of water part of the time or all the time. They include mudflats, marshes, swamps, freshwater vernal pools, saltwater lagoons and estuaries.

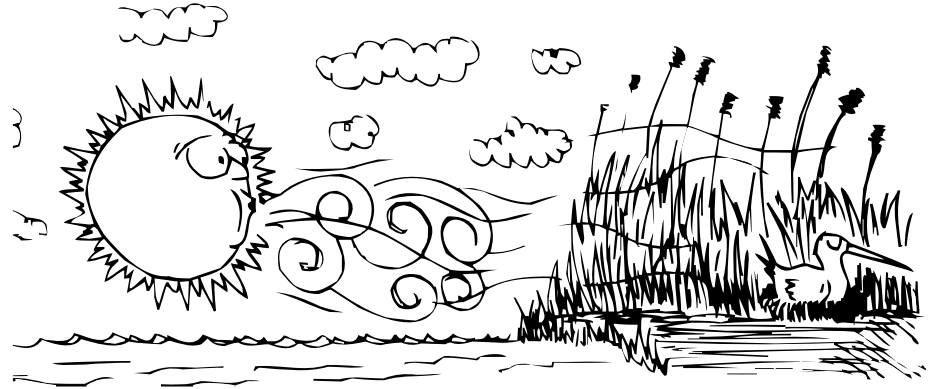
Coastal wetlands are a favorite habitat for many species of birds and mammals. They provide abundant food, places to rest and refuge from natural and domestic predators. Wetlands also provide many valuable services for humans, such as filtering toxins, acting as sponges to absorb rainwater and prevent flooding and providing nursing grounds for fisheries.

Wetlands are also a favorite place for people. Human activities, such as agriculture, construction of freeways, water channels, ports, marinas and houses, have led to the loss of 90% per cent of southern California wetlands. Today, many people understand how valuable wetlands are. Wetland conservation has become an important movement in California and Baja California. Read on to find out more about why wetlands are vital to plants, animals, and people.



## Wetland plants

The special plants of saltwater estuaries and lagoons receive all of their nutrients from the detritus of the wetlands. They have developed means to neutralize the high concentration of salt in their environment. Many wetland plants excrete excess salt through pores in their stems and leaves.

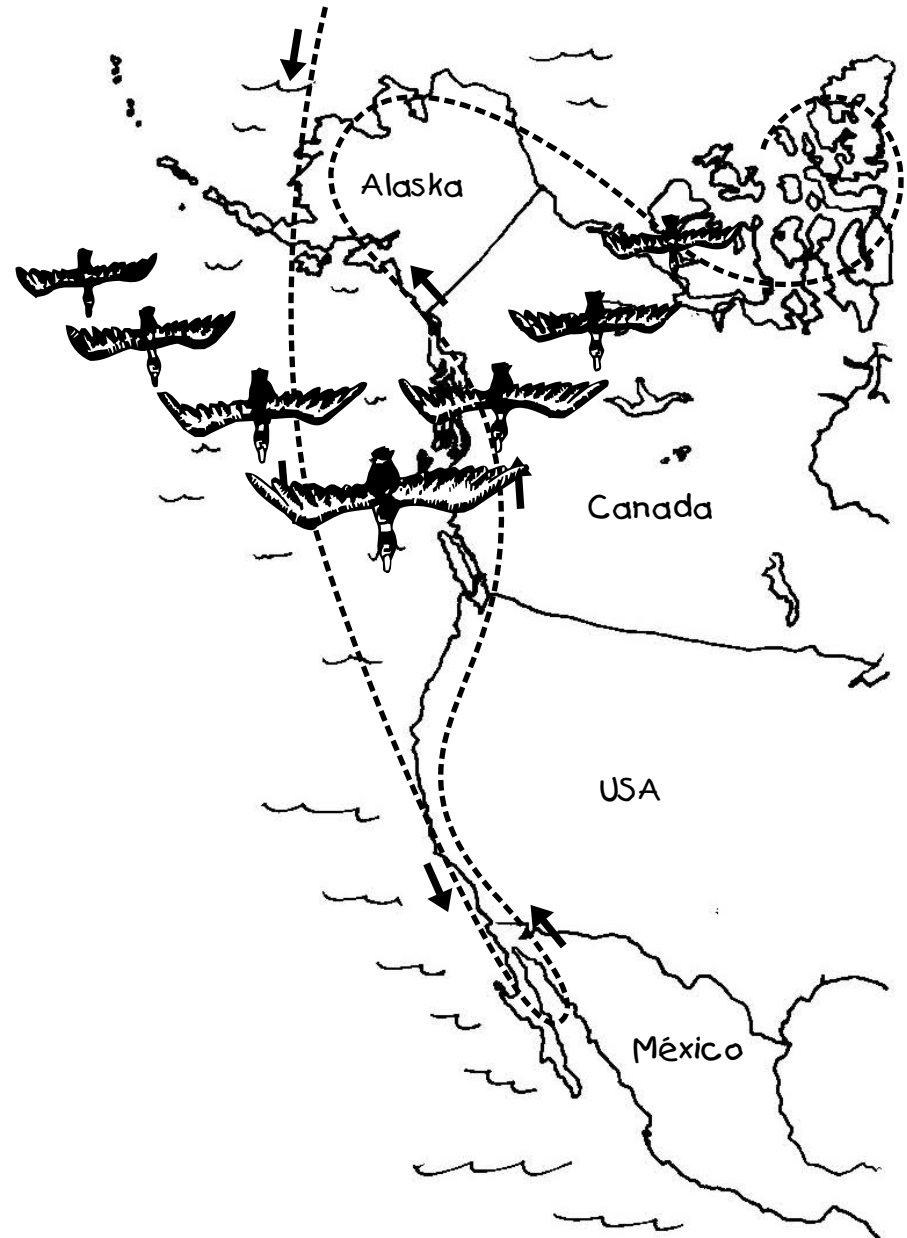


Others dilute it with fresh water and store it in their stems. Coastal wetland plants are natural filters that help clean contaminants from the waters that flow down our rivers and the runoff that comes from our lawns, gardens and farms before this pollution reaches the sea. They are also a primary food source for a great variety of invertebrates, birds, reptiles and mammals.

## Coastal Wetlands: an Important Resource for Birds...

**H**undreds of thousands of migratory birds travel long distances from the arctic to as far as South America. Many raise their young in the coastal wetlands of California and Baja California. For birds traveling this long Pacific Flyway, coastal wetlands are like stops along a highway where these long-distance travelers can find food, rest and shelter.

Coastal wetlands are equally important for resident birds. Wetland habitats provide food, water, shelter and places to rear young for these birds who live all their lives along the coast of the Californias. The birds of our wetlands search the mudflats looking for invertebrates, such as crabs, snails, oysters and clams. They also feast on small fishes swimming in the channels.



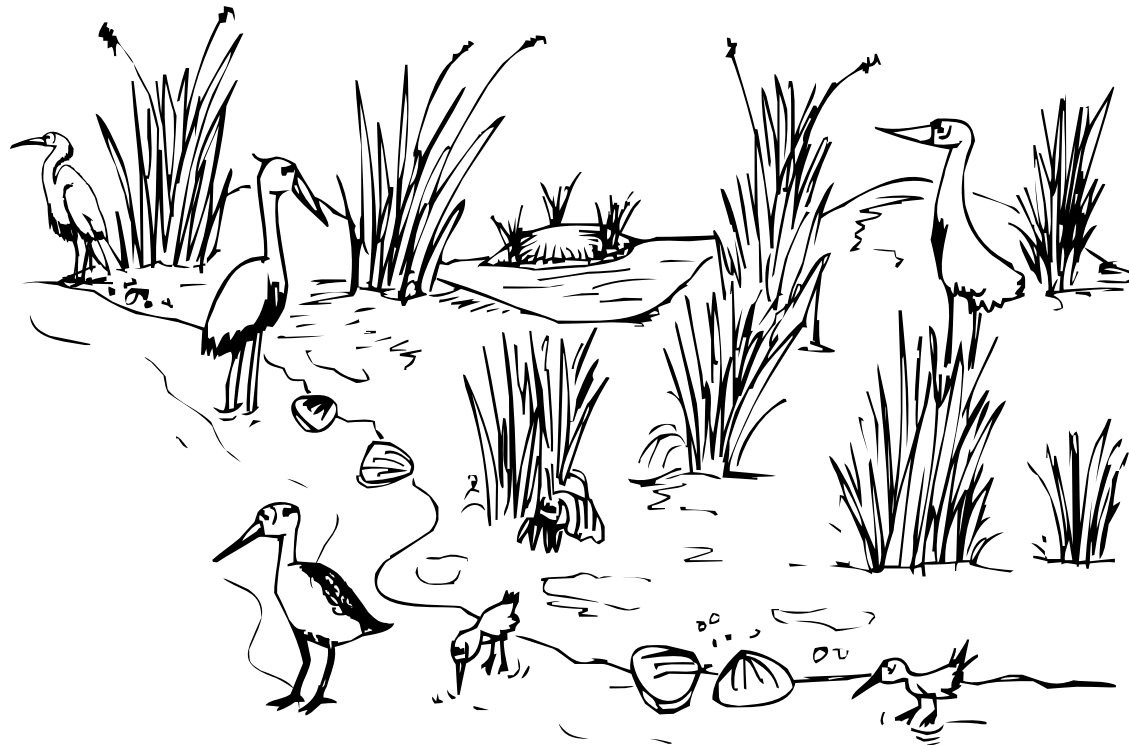
## ... and Other Species

**F**resh and saltwater wetlands are places where all kinds of organisms develop, such as plankton and invertebrates, which make up a biologically diverse food web. Plankton feeds small creatures, which in turn become the food of bigger ones, creating a food chain that includes humans who eat many species of fish and seafood. In addition, grey whales feed directly on plankton.

Thousands of gray whales travel more than 5,000 miles from their wintering grounds in Alaska to the quiet waters

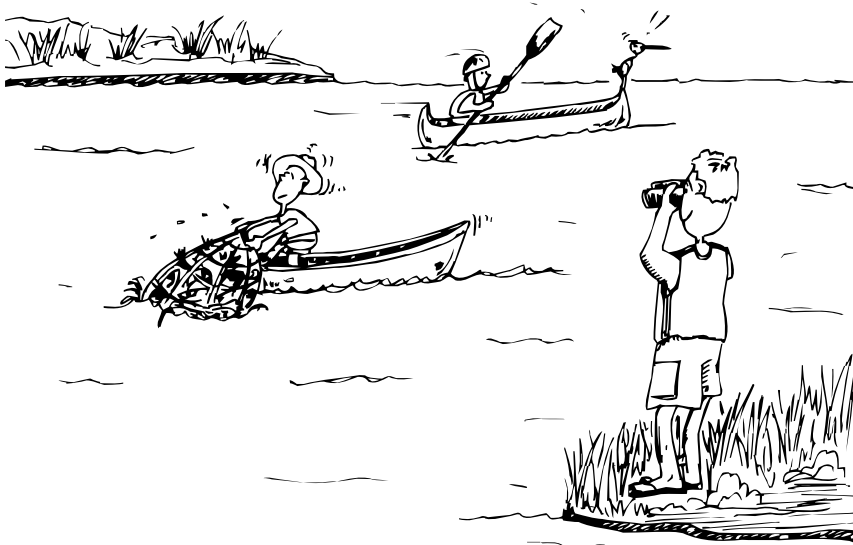
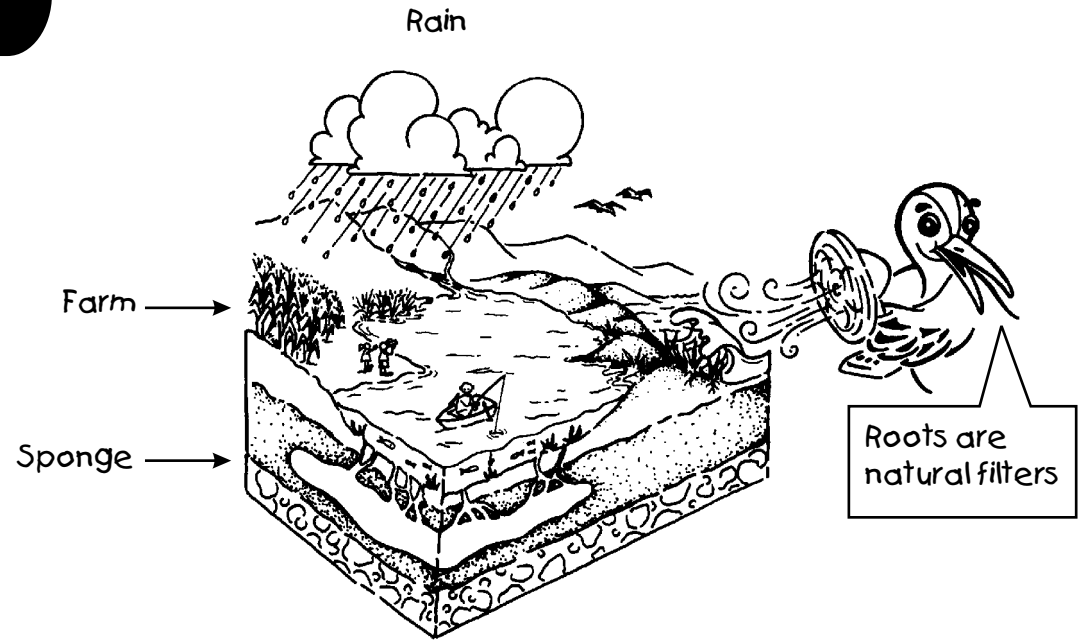
of coastal lagoons and wetlands in Baja California. There they mate and give birth to their calves. During winter, the shallow depths and high salt concentration of these coastal waters are perfect for helping the newborn whales float and learn to swim.

These same quiet, shallow waters, rich in nutrients and sheltered from heavy surf, are breeding grounds for a variety of fishes that find an excellent refuge against marine predators in coastal wetlands.



## People Are Not an Exception

**W**etlands are vital to people for many reasons. We use wetlands and surrounding areas for recreation, such as fishing, kayaking and bird watching, and for renewal of our spirit. Wetlands are also important for economic reasons such as mariculture.



Wetlands refill aquifers that allow rainwater to accumulate underground, and in the process, filter water that can then be used by people. Aquifers help stabilize the temperature for wildlife in wetlands. Larger wetlands can prevent flooding because they are natural barriers that help to decrease strong winds and ocean swells that hit shorelines. They also protect land further inland against strong river currents that can flood cities and farms. They are an excellent natural protection against hurricanes and storm surges.



## Wetland Neighbors - Then and Now

**A** long time ago there was no border dividing Baja California and California. Native peoples lived in settlements all along the coast and collected plants and seeds, built shelters from wetland rushes and reeds, and fished and hunted throughout the region.

The Kumeyaay people used native plants for their clothing and homes, and for food and medicine. One of the most common wetland plants they used was juncus, a strong flexible, reed that grows along rivers and in freshwater marshes. For hundreds of years they made baskets to store seeds, hold water and to use as cradles for babies. They still use this plant to make intricately decorated baskets.

Today, people on both sides of the border continue to share holidays and festivities, food, and many other cultural and economic activities. Mexicans live and work in United States, visit relatives or shop. Americans visit relatives in Mexico, vacation and retire there, shop and enjoy food and beautiful landscapes.

People on both sides of the border share a common **bioregion**, an area with the same type of climate, plants and animals. Our mountains, forests, rivers and wetlands are all a part of our bioregion. We also share responsibility to work together to recognize environmental challenges and to conserve, protect and restore our environment and its resources. One of our greatest environmental challenges is that of our disappearing wetlands.

