

Ecology – Disappearing Marshlands

Disappearing Marshlands

San Francisco Bay was surrounded by marshes when the Spanish explorer Gaspar de Portolo arrived in 1769. He found the Ohlone Indians hunting deer, rabbits, and other game in the tall marsh grasses.

Through the years, many of the marshes have been drained for various human purposes. Some people regard the marshes as wet, smelly places that lower property values. Many animals and plants, however, live only in the marshes, and many others depend on organisms that live there.

About three dozen types of birds live year-round in the marshes including ducks, grebes, coots, killdeer, avocets, stilts, and clapper rails. They feed on small animals that live in the mud—worms, snails, and shellfish (clams, mussels, oysters, and shrimp). These small animals, in turn, eat very small marsh producers such as diatoms and algae. They also eat decaying animal and plant matter called detritus.

Much detritus comes from plants that can tolerate high concentrations of salt, such as cordgrass, salt grass, marsh rosemary, alkali heath, pickleweed, and Australian saltbush. In addition to providing materials as detritus, pickleweed acts as host to a parasitic plant called salt marsh dodder, and the leaves of the Australian saltbush are the food of the caterpillars of pygmy blue butterflies, the smallest butterflies in North America.

Land birds such as sparrows, meadowlarks, and blackbirds come to the marsh to feed on insects, and they may become food for larger birds including kites, short-eared owls, and marsh hawks. In the mud along the water's edge, crabs and shrimp provide food for migratory birds such as sandpipers, various types of ducks, great blue herons, and great egrets. The herons and egrets also feed on mice. One type of mouse, the red-bellied salt marsh harvest mouse, is an endangered species that lives nowhere else. The mouse is food for hawks, owls, herons, and gulls.

Humans fish for striped bass, surfperch, Pacific herring, sturgeon, and flounder in the bay, as well as harvesting its shellfish. Fish feed on plants, snails, and small shellfish.

In the space provided below, draw a food web based on the information presented above.

The marshes now are restricted to about 133 km² of open space. Many people using the area would like to drain some of the marshy areas that remain, making them suitable for such uses as airport runways. What might be the effects of such drainage?