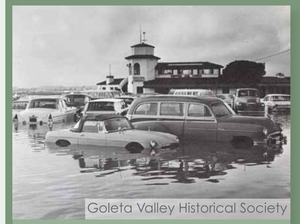
Local Wetland History: Impacts of Land-Use Changes

Changing our Perspective on Wetlands: From Wastelands to Valuable Resources

1700s
From the Portola Expedition (1769) through 1848 there are reports of large schooners (50-300 ton) using Goleta Slough as a deep water harbor, while today only shallow-hulled dredges and kayaks can enter the Slough. Land-use changes over the past two centuries years have severely impacted the Slough. Before the Mission Period (1769-1833) the Chumash had been living in this region for over 5,000 years. Cattle brought in the 1790s increased in the Santa Barbara foothills as land grants were distributed and ranches were created.

1800s
Cattle grazing, and dairy and dry farming increased during the 1800s, causing soil compaction and reducing plant cover.

In the 1860s, drought and fire in the foothills further reduced plant cover. This was followed by unusually heavy winter storms which carried huge amounts of soil to the lowlands, changing the coastal plain dramatically. Large portions of western Goleta Slough were filled with erosional sediment, reducing both its tidal intake and floodwater-holding capacity.

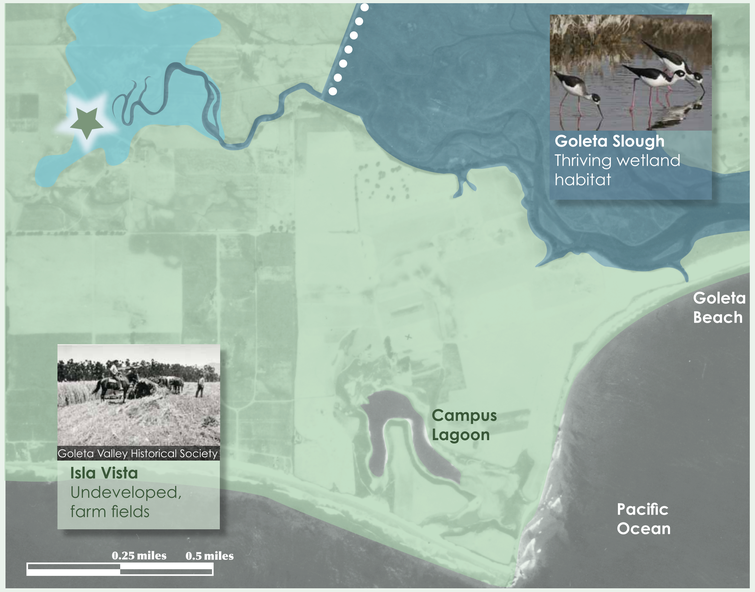

Goleta Valley Historical Society

Flooding at Santa Barbara Airport 1960s.

1900s
By the turn of the century, wetlands were converted to agricultural uses through the construction of drainage ditches, tide gates, berms and fill. You can see evidence of this filling and alteration to the wetlands in these two aerial photos from 1929 and 2004 (at right). During these years wetlands were generally viewed as interfering with our productive use of the land.

Present
As development increased and the impacts of altering wetlands became more apparent, people recognized the effects of our past and current land use on water quality, local flooding, and wetland habitat diversity (as described to the right). In 1976, coastal wetlands were formally protected through the California Coastal Act which is implemented through the California Coastal Commission. Restoration of wetland function is a goal of UCSB's Cheadle Center for Biodiveristy and Ecological Restoration.

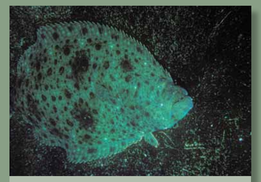
1929: Wetland Extent of Goleta Slough



- **Tidal Wetlands**
- **Altered Wetlands**
- **Wetlands Filled for Development**
- **Permeable Surfaces** Allow water infiltration
- **You Are Here**
- **Tide Gate** Blocks tidal flow; allows rain to drain
- **Berms** Constrains water to channels

2004: Fragmented Goleta Slough

Reduction in Tidal Flushing Impacts Wildlife


Reduced tidal influence impacts migrating birds and economically important fisheries such as halibut.

Goleta Slough once functioned as an extensive link between the ocean and the land by absorbing storm water and tidal energy, providing spawning grounds for ocean fish, and habitat for birds. With development, the tidal influence has been reduced to a few narrow channels, which are less able to perform these functions.

Loss of Permeable Land Increases Ocean Pollution

The reduction of water-filtering wetlands has increased coastal runoff, resulting in more frequent beach closures.

In the past fifty years, there has been a dramatic increase in impermeable surfaces, such as roads and buildings. Now rain water runs over cement and asphalt into storm drains leading to the ocean. There are few opportunities for the water to be filtered through soil and wetlands before reaching the coast or recharging the water table.

Altered Wetlands Reduce Flood Capacity


Santa Barbara County Flood Control

1995, photo of the flooded Fairview and Hollister intersection, one impact of filling the Goleta Slough wetland.

When wetlands are reduced or drained and filled, as has been the case here in Goleta, their capacity to absorb flood waters disappears. When urban development occurs on, or adjacent to, converted wetlands, heavy rains can become damaging floods.