



# Our Wetland Part of a Greater System

The restoration of the upper arms of Devereux Slough was designed with multiple water-related benefits in mind:

- Create diverse wetland types for wildlife
- Support endangered species
- Increase the capacity of the wetland to absorb floodwater
- Recharge our aquifers
- Be adaptive to sea level rise Provide public access

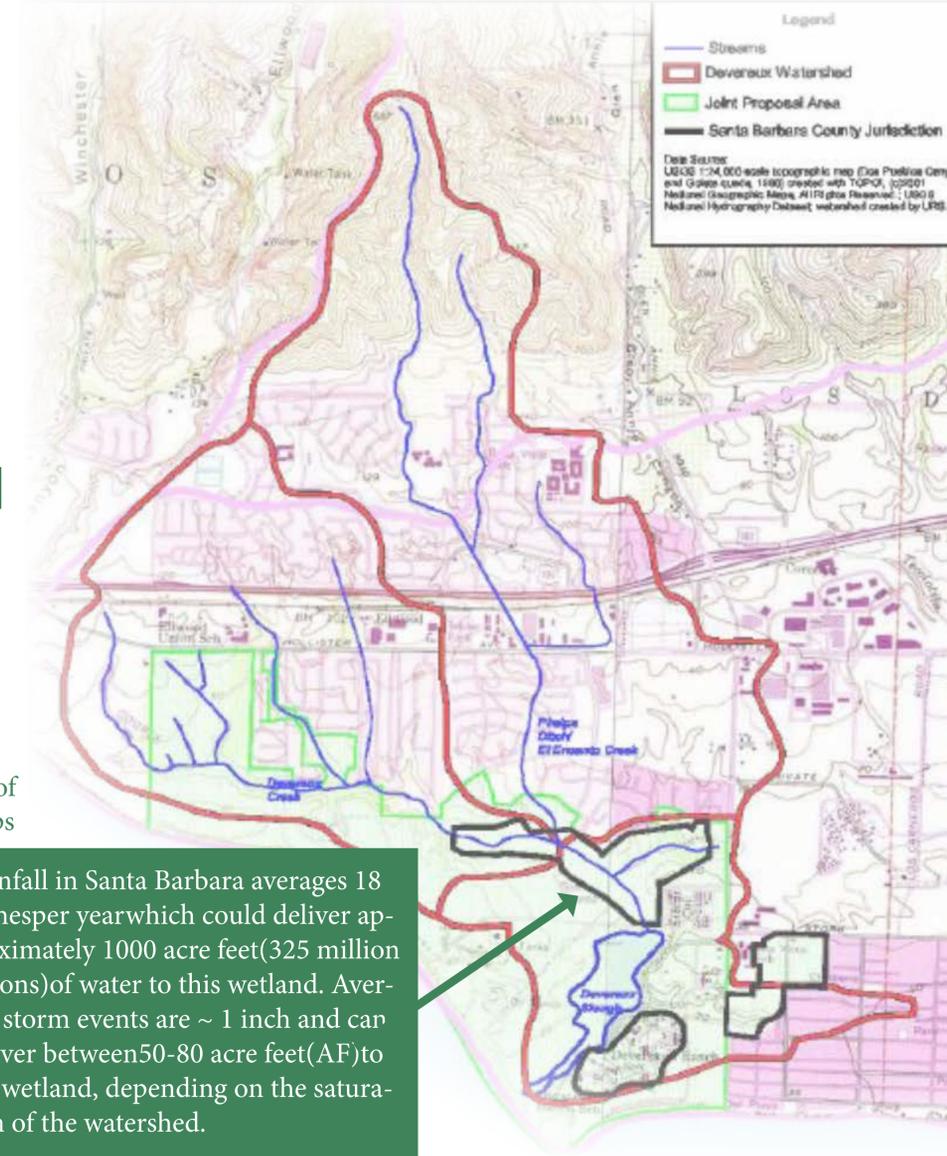
The diverse wetland habitat for fish and birds is achieved by conserving and creating wetlands with a variety of depths and salinities that are available into the spring and early summer. By doubling the water holding capacity, the project expands the ability of the wetland to absorb stormwater, which reduces neighborhood flooding, and recharges the aquifer.



The urban watershed of the estuary includes trapezoidal concrete channels which create flashier rain events and offer few opportunities for water to soak into the water table.

## Our Watershed

Devereux Slough's watershed is 2000 acres and reaches an elevation of 500 feet. It is 50% developed such that rain hits impervious surfaces and is flushed rapidly into the wetland with little opportunity to soak into the soil. By increasing the capacity of the wetland system this project helps mitigate for the flashy nature of rain events to recharge the aquifers and support wildlife. The two golf courses in the watershed likely deliver increased nutrients to and support algal and bacteria growth.

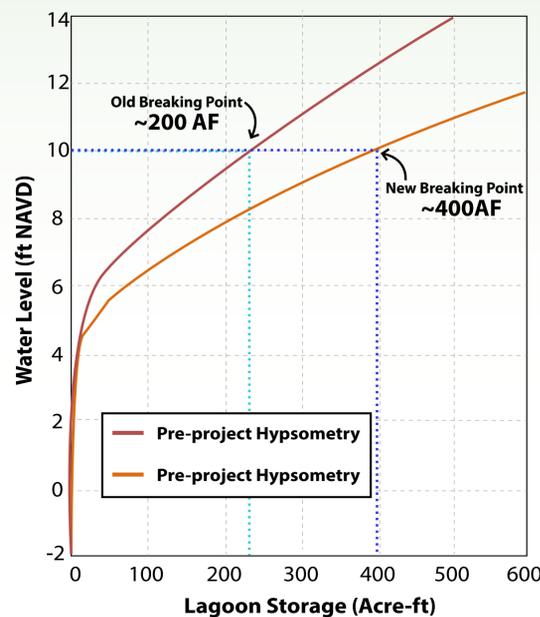


Rainfall in Santa Barbara averages 18 inches per year which could deliver approximately 1000 acre feet (325 million gallons) of water to this wetland. Average storm events are ~ 1 inch and can deliver between 50-80 acre feet (AF) to the wetland, depending on the saturation of the watershed.

## Holding Capacity

This graph shows the relationship between the elevation of the water (not the depth) and the capacity of the wetland to hold water. To orient you: you are now standing at 15 ft elevation\* and the bottom of the wetland channel is between 3 and 5 ft. elevation. The sand berm at the mouth (Sands Beach) builds up over the summer and can regularly reach an elevation of 9-10 ft. This berm holds water in the wetland to that elevation before the first breach of the winter. This hypsometric curve shows how the North Campus Open Space restoration project expanded the capacity of the wetland to hold water (yellow line) before it will breach. See dotted lines showing that at a water level of 10 ft, under pre-project conditions (blue line), the system held 200 AF of water but after expanding the capacity it can now hold 400 AF.

\* Elevation relative to sea level called NAVD, North American Vertical Datum



This curve shows the expanded capacity of the wetland to hold water (orange line) before it would breach.

## Slough Dynamics: Intermittently Tidal

Devereux Slough is an intermittently tidal system that it is only tidal when the beach berm at the mouth is open. This opening happens after larger rain or wave events cause the system to breach. The larger the tidal prism (amount of water flowing in and out with the tides) the longer the system will remain connected to the ocean in a tidal manner.



Water levels in this image are approximately 5 feet elevation and range from 1 to 6 feet deep across the full Devereux Slough system. These levels will be common for summer and fall as water evaporates from the estuary.



Water levels of approximately 8 feet, shown here, will be common during winter and spring, depending on the rainfall and breaching patterns.



Pressure from a full lagoon or large waves can break through the beach berm separating the estuary from the ocean and lead to a rapid flushing of the system.