City of Naples Multifaceted Approach to Treating Stormwater and Improving Water Quality

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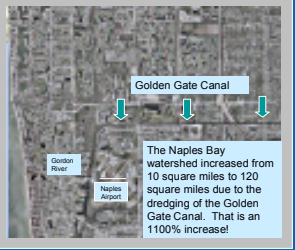
Issues Facing Naples Bay and the Surrounding Waterbodies

- Excessive freshwater flow from the Golden Gate Canal disrupts the balance of fresh and saltwater in the estuary.
- Antiquated stormwater system with little to no maintenance in past years.
- Lack of open space to treat stormwater on the uplands.
- Increase of impervious surfaces.
- Past and current lake management practices involving the treatment of algae with Copper Sulfate.
- Destruction of natural resources such as mangroves, oysters, and seagrass beds as a result of past dredging projects, the armoring of shorelines, and a disrupted hydrologic regime.

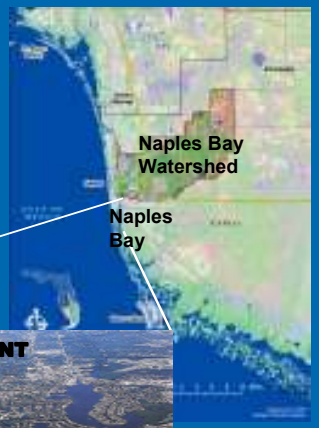
Seawalls eliminate vital estuarine habitat

Riprap is an environmentally friendly alternative to seawalls. It provides: habitat, better wave absorption and opportunities for vegetation to establish which protects the shoreline even further.



Naples Bay

1950 vs. Present



Constructing Oyster Reefs

Oyster reefs were once prolific in Naples Bay with an 80% loss observed since the 1950s. With their ability to clean the bay by filter feeding many gallons of water each day, the City would like to see oysters become productive again.

In 2005, the City, Florida Gulf Coast University, and volunteers deployed 400 oyster shell bags at two locations. This hard substrate encourages oyster spat recruitment.

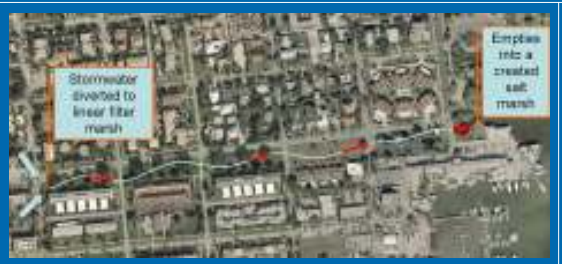
Oysters have begun growing on the bags and the City intends to continue to expand upon its shellfish restoration efforts.

Volunteers helped to deploy 200 oyster bags at the Naples Landing site in September 2005.

Measuring oyster shell bags which have been deployed for several months. Any spat recruitment on the bags is also quantified and recorded.

Filter Marshes and Swales

Two filter marshes are in preliminary design stages. Stormwater will ultimately be rerouted through these filter marshes and receive some treatment before flowing into the bay.



On a smaller scale, concrete swales as shown below are being replaced with grassy swales in order to slow down the flow of stormwater and allow it to be filtered on land before entering Naples Bay.

City Landscape Certification and Fertilizer Ordinance

Landscape maintenance companies that provide services within the City limits must:

- Complete a Best Management Practices course offered at the Rookery Bay Reserve.
- Apply to the City to become a city-certified business.
- Place the Greenscape decal on every state-licensed work vehicle.

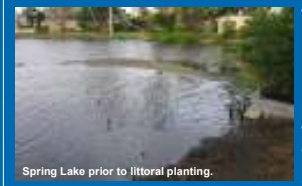
Greenscape CITY OF NAPLES 09

The second part of the ordinance specifies:

- A 2% phosphorus limit on fertilizer content.
- At least 50% of the nitrogen content is slow release.
- Fertilizers containing nitrogen and phosphorous cannot be applied in the wet season (June 1- September 30).
- Fertilizer cannot be applied within 10 feet of any waterbody and deflector shields are required when adjacent to these areas.

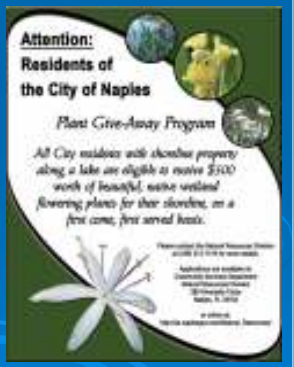
Residential Lake Planting Program

The City has 28 stormwater ponds that were built 50 years ago. Many have heavy siltation, no littoral vegetation, and large algae mats. The City is educating homeowners on the benefits of a littoral zone with flowering, emergent plants that filter nutrients out of runoff. Spring Lake, shown below, was planted by volunteers and city staff. The area is now attracting wildlife and helping to filter stormwater runoff.



Spring Lake prior to littoral planting.

City staff, along with volunteers, planted the littoral zone of Spring Lake with 4 different kinds of emergent plants which will help filter nutrients coming off of the land.



Spring Lake post planting showing high plant survival.

Wood Stork

Residents with lakefront properties can apply to the city for up to $500 worth of native aquatic plants to plant on their shoreline.

For more information regarding Naples Bay Restoration efforts, please contact the Natural Resources Division at (239) 213-7122. Also visit www.naplesgov.com