

## A WATERSHED LOOK AT THE HARBOR

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Charlotte Harbor is Florida's second largest open water estuary (including Lemon Bay to Es-tero Bay). At 30 miles long and seven miles wide, the harbor encompasses 270 square miles. The harbor's predominantly natural shoreline (albeit still hurricane battered), affords us the same sense of tranquility experienced by our earliest settlers.

Although the harbor is recognized as being a large estuary, it is small in relation to its watershed. A watershed is the land area that drains rain water to surface waters (lakes, rivers, estuaries). A watershed is also referred to as a basin. Charlotte Harbor's watershed is 4,468 square miles. This means that approximately 17 square miles of watershed drain into every one square mile of estuary, (a 17:1 ratio). If we focus just on Charlotte Harbor proper, the ratio increases to 22:1. Compare that to Lemon Bay with a land to water ration of 1:1 or Tampa Bay with a ratio of 5:1, and it becomes apparent that the watershed is the primary component affecting the health of Charlotte Harbor.

The Peace River watershed is the largest land area draining into Charlotte Harbor (2,350 square miles). This watershed begins in Polk County at the Peace Creek drainage canal, and

Saddle Creek, north of Lake Hancock. From there the river flows about 105 miles south to the harbor. "Flows from the river are critical to the health and overall productivity of Charlotte Harbor", ([www.swfwmd.state.fl.us/waterman/peacriver](http://www.swfwmd.state.fl.us/waterman/peacriver)). Predominant land uses in the Peace River watershed include phosphate mining, agriculture, and urban development.

The Myakka River watershed encompasses approximately 600 square miles. This watershed begins in Manatee County at the confluence of seven tributaries which form the headwaters known as Flatford Swamp. The predominant land use in the Myakka River watershed is agriculture, with urbanization in the lower watershed.

The cumulative effect of land use changes can affect stormwater runoff (rain water that carries pollutants with it) and baseflow contributions (the lowest river flows) to the rivers. For instance, groundwater withdrawals lower the potentiometric surface or groundwater table. Over time this causes saltwater intrusion. When groundwater (which is of poor water quality) is released into surface waters the result is degradation to overall water quality. This groundwa-

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photo courtesy of [www.checlorida.org](http://www.checlorida.org)

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ter to surface water scenario presented serious problems for the City of Punta Gorda's drinking water supply (Shell Creek), several years ago. As a result, agricultural users, who are the largest water users, came to the table and adopted best management practices (BMPs) to reduce their impact to water quality. Through the use of tail water recovery systems, groundwater releases to surface water have been dramatically reduced and water quality is much improved.

Septic systems are another concern. Septic systems in the Peace and Myakka river watersheds contribute between 11-22% of the total nitrogen load to the estuary (CHEC 2003). The majority of septic system failures occur due to improper siting. Over 70% of the soils in the Peace and Myakka are considered unsuitable for septic systems (CHEC 2003, Charlotte County Comprehensive Plan 2003).

Drainage of wetlands can also affect surface water storage and drainage patterns. Historic phosphate mining and reclamation of mined lands can alter the timing and magnitude of runoff, surface water storage, recharge, and evapotranspiration (water lost to the atmosphere).

To address the possible affects of land use activities within the Peace River watershed, in 2003 the Florida Legislature directed the Florida Department of Environmental Protection to assess the cumulative impacts of all watershed land uses. This study will form the basis for preparation of a resource management plan for the Peace River watershed. You can follow the progress of this effort by going to the Southwest

Florida Water Management District website mentioned earlier.

The most important thing each of us can do to protect our estuary is arm ourselves with technically sound knowledge. Efforts such as the cumulative impact study referenced above, which is being conducted by PBS&J under the direction of Dr. Ralph Montgomery, is key towards our obtaining this knowledge. For additional information, poke around on the Charlotte Harbor Environmental Center's WRC website, [www.checflorida.org](http://www.checflorida.org). There you will find a great deal of information about our watersheds as well as maps, graphs, and additional links. To learn more about watersheds they even have a "What is a Watershed?" website which provides a lot of local information about our watershed.

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