

## Oyster restoration goals

The Charlotte Harbor National Estuary Program (CHNEP) Oyster Habitat Restoration Plan (2012) is the guiding policy document for oyster restoration in the Charlotte Harbor estuary<sup>1</sup>.

Goals for the estuary, adapted from the 2012 Plan, are to:

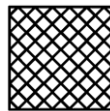
- **Map** oyster habitats by type by 2020
- **Design, implement and monitor** the success of pilot oyster restoration projects in a variety of habitats in 50% of the CHNEP estuary strata by 2020
- **Increase public awareness** of the ecosystem value of native oyster habitats by including community stewardship components in each oyster restoration project
- **Assist partners in seeking funding opportunities** (state, federal and organizational) to support oyster habitat restoration projects

## Restoration techniques and materials

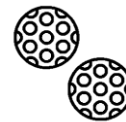
Appropriate restoration strategies for the area, identified in CHNEP's Oyster Habitat Restoration Plan, include the use of:



Bagged, caged, or loose cultch (including a variety of cultch types)



Oyster mats

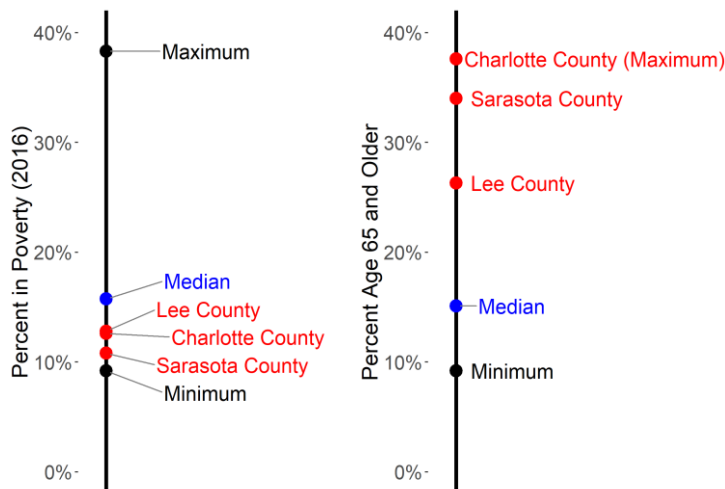


Other methods (vertical stakes, cement reef/oyster balls)

*Note:* In the following sections, the line graphs compare the counties surrounding Charlotte Harbor (as shown in the map above) with all of the U.S. counties that border the Gulf of Mexico. In each graph, the Charlotte Harbor counties are shown in red, the minimum and maximum of all of the Gulf coastal counties in black, and the median of all Gulf coastal counties in blue.

## Demographics

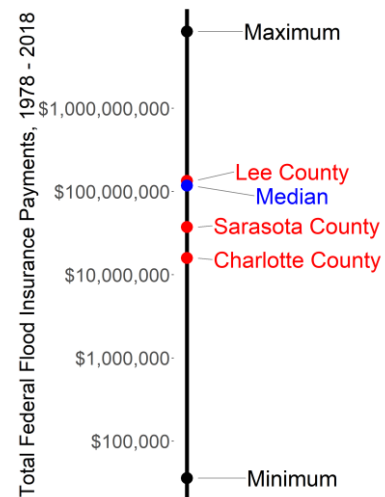
Charlotte Harbor counties have a lower poverty rate<sup>6</sup> and a higher proportion of older people than most Gulf coast counties<sup>7</sup>.



Charlotte Harbor counties have food insecurity rates between 12.7% and 13.6%, which is lower than the median Gulf coast county (14.3%)<sup>8</sup>.

## Flood vulnerability

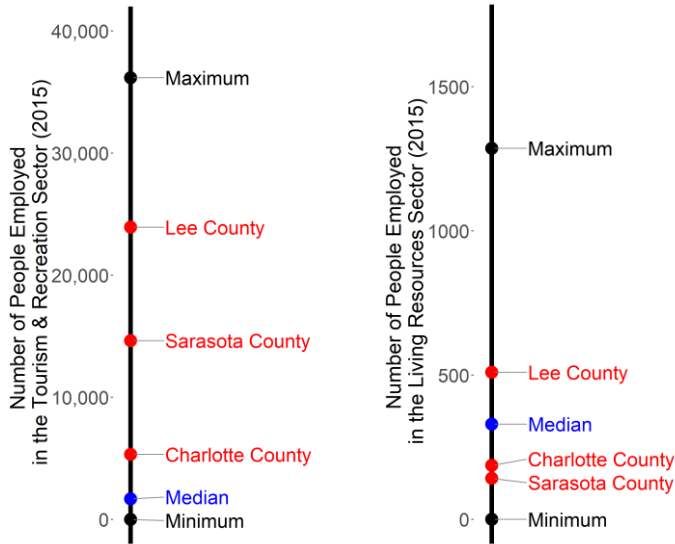
Charlotte Harbor counties have received slightly less money from federal flood insurance payments than most Gulf coast counties<sup>2</sup>.



As of 2010, more than 250,000 people were estimated to live within one mile of the shoreline in Charlotte Harbor counties<sup>3</sup>. That's more than 20% of their total population.

## Economy

Charlotte Harbor counties employ more people in the tourism sector (includes charter and recreational fishing, boat tours, marinas, campsites, hotels, and restaurants) and fewer people in the living resources sector (includes commercial fishing, aquaculture, seafood processing, and seafood markets) than most Gulf coast counties<sup>4</sup>.



The recreation sector makes up between 3.6% and 4.5% of GDP in Charlotte Harbor counties<sup>5</sup>.

The living resources sector makes up less than 0.05% of GDP in Charlotte and Lee counties.

## Recreation

Recreational activities related to healthy estuaries are popular among Florida residents and visitors to Charlotte Harbor counties<sup>9</sup>:

Saltwater beach activities (non-fishing)



Participation in the last 12 months among...

Residents: 79-87%  
Visitors: 55-60%

Saltwater boat fishing



Residents: 21-42%  
Visitors: 11-47%

Wildlife viewing



Residents: 24-34%  
Visitors: 21-33%

## Harmful algal blooms

A persistent red tide has caused ecological, recreational, and economic issues in Charlotte Harbor counties since fall 2017<sup>10</sup>. Caused by the algae *Karenia brevis*, red tides form offshore, but it is thought that nutrients from human-related sources can worsen them once they reach the coast<sup>11</sup>.

Reported fish kill events in Charlotte Harbor counties<sup>12</sup>



300+

July-August 2018

53

all of 2017

...including gamefish (tarpon and snook) and other marine wildlife (manatees and sea turtles)



Many shellfish harvesting areas have been closed and beach advisories posted in response to the red tide. Toxins from red tides can cause human health effects from skin contact, inhalation, and ingestion<sup>11</sup>.

## References

- 1: Charlotte Harbor National Estuary Program (CHNEP) Oyster Habitat Restoration Plan (2012)
- 2: Federal Emergency Management Agency. 2018. Loss statistics from Jan 1, 1978 through May 31, 2018. <https://bsa.nfipstat.fema.gov/reports/1040.htm>.
- 3: United States Census Bureau. 2010. "P1: Total Population." 2010 Census. <https://factfinder.census.gov>; United States Environmental Protection Agency / Enviroatlas. 2013. "Dasymetric Population in the Conterminous United States." <https://enviroatlas.epa.gov/enviroatlas/DataFactSheets/pdf/Supplemental/DasymetricAllocationofPopulation.pdf>; National Geospatial-Intelligence Agency. "World Vector Shoreline." <https://shoreline.noaa.gov/data/datasheets/wvs.html>.
- 4: National Oceanic and Atmospheric Administration. 2015. "Ocean Economy (employment data) and Ocean Economy (self-employed workers)." *Quick Report Tool for Socioeconomic Data*. <https://coast.noaa.gov/quickreport>.
- 5: National Oceanic and Atmospheric Administration. 2015. "GDP: Total Ocean Economy." *ENOW Explorer*. <https://coast.noaa.gov/enowexplorer>.
- 6: United States Census Bureau. "All Ages in Poverty." *Small Area Income and Poverty Estimates*. 2016. <https://www.census.gov/data-tools/demo/saie>.
- 7: United States Census Bureau. "DP05: ACS Demographic and Housing Estimates." 2012-2016 American Community Survey 5-year Estimates. 2016. [https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS\\_16\\_5YR\\_DP05&src=pt](https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_16_5YR_DP05&src=pt).
- 8: Gunderson, C., A. Dewey, A. Crumbaugh, M. Kato, & E. Engelhard. 2018. *Mind the Meal Gap 2018: A Report on County and Congressional District Food Insecurity and County Food Cost in the United States in 2016*. Feeding America. <http://www.feedingamerica.org/research/map-the-meal-gap/by-county.html>.
- 9: Florida Department of Environmental Protection. 2017. "Appendix C: Activities by County." *Economic Impact of Outdoor Recreation Activities in Florida*. [https://floridadep.gov/sites/default/files/Appendix%20C\\_0.pdf](https://floridadep.gov/sites/default/files/Appendix%20C_0.pdf).
- 10: National Ocean Service. 2018. "Red Tide in Florida and Texas." <https://oceanservice.noaa.gov/news/redtide-florida>.
- 11: Mote Marine Laboratory and Aquarium. 2018. "Florida Red Tide FAQs." <https://mote.org/news/florida-red-tide>.
- 12: Fish and Wildlife Research Institute. 2018. *Fish Kill Database Search Result Report*. <https://public.myfwc.com/fwri/FishKillReport/searchresults.aspx>.