Flood Exposure Snapshot

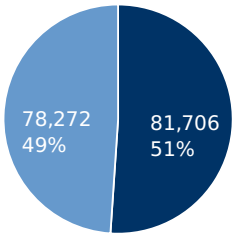
Charlotte County, Florida

People + Floodplains = Not Good
High-Risk Populations + Floodplains = Even Worse

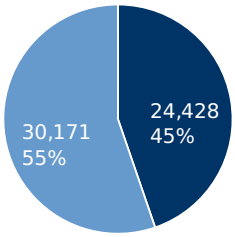
The more homes and people located in a floodplain, the greater the potential for harm from flooding. Impacts are likely to be even greater when additional risk factors (age, income, capabilities) are involved, since people at greatest flood risk may have difficulty evacuating or taking action to reduce potential damage.

Based on 2010 U.S. Census records and 2006-2010 American Community Survey 5-year Summary File data.

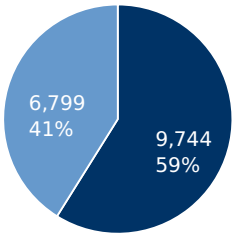
Population
Total: 159,978



Population over 65
Total: 54,599



Population in Poverty
Total: 16,543



Inside FEMA Floodplain Outside FEMA Floodplain

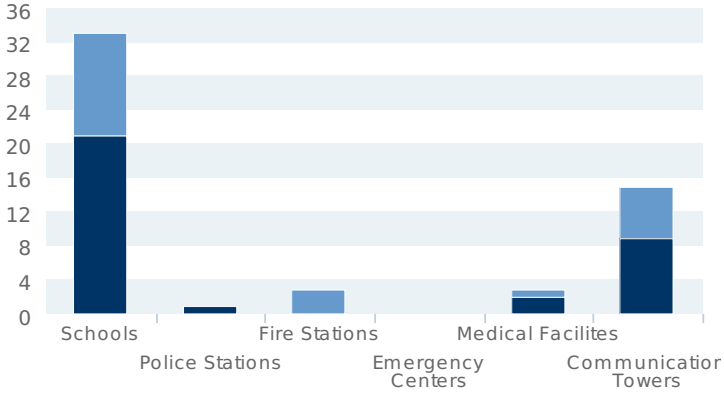
Community Infrastructure + Floodplains = Bad News

40% of critical facilities and 44% of road miles (1367 miles) in Charlotte County, Florida, are within the floodplain.

Hospitals. Roads. Schools. Shelters. These facilities play a central role in disaster response and recovery. Understanding which facilities are exposed, and the degree of that exposure, can help reduce or eliminate service interruptions and costly redevelopment. Incorporating this information into development planning helps communities get back on their feet faster.

Based on Critical Facilities from FEMA HAZUS.

Critical Facilities in FEMA Floodplain



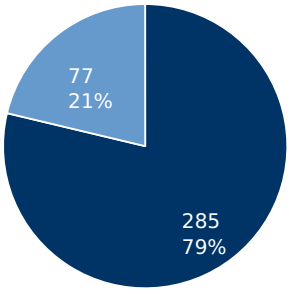
Inside FEMA Floodplain Outside FEMA Floodplain

Increasing Development in Floodplains = More People in Harm's Way
Loss of Natural Buffers = Less Protection

A county with more natural areas (wetlands, forests, etc.) and less development within floodplains typically has lower exposure to flooding. A county that monitors land cover changes within the floodplain will detect important trends that indicate whether flood exposure is increasing or decreasing. Armed with this information, local leaders can take steps to improve their safety and resilience.

Based on NOAA Land Cover Data.

Amount of Land Converted to Development 2001-2006 (acres)
Total: 362



Inside FEMA Floodplain
Outside FEMA Floodplain

Type of Land Converted to Development 2001-2006 (acres)
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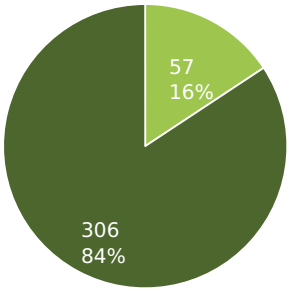

Agricultural Areas
Natural Areas

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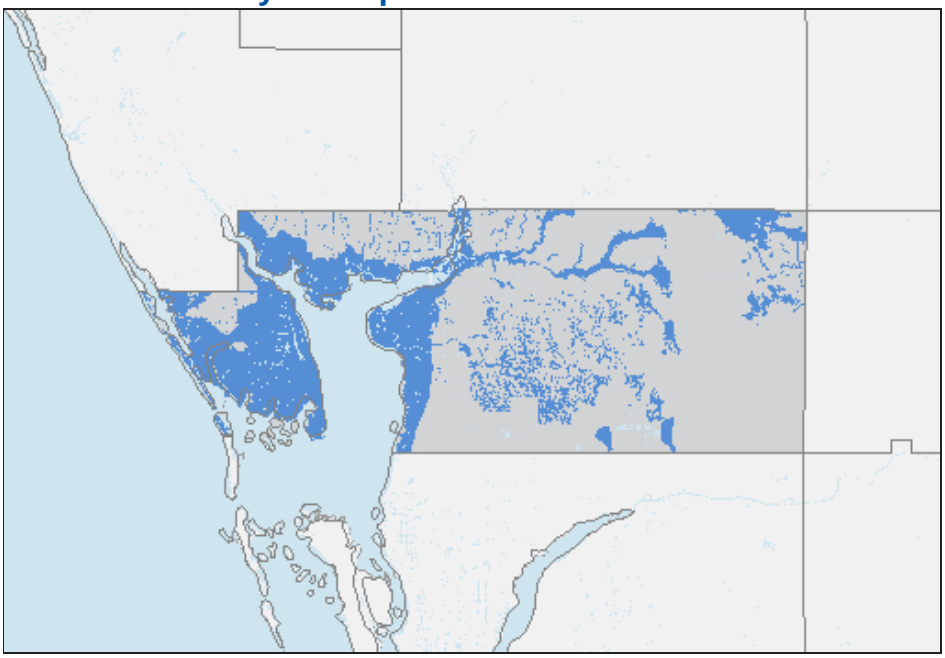
Charlotte County Floodplain



Note: This map may not represent the county's entire floodplain.

Next Steps

Through adaptation planning, all communities can be better prepared to face coastal hazards. While each community is different, there are some basic steps that all communities can follow to become more resilient.

Training that will lead your organization through this task can be brought to your office. Visit the Roadmap for Adapting to Coastal Risk training(http://www.csc.noaa.gov/digitalcoast/training/roadmap) to learn more. Many of the components of this course (which are outlined below) can be found within the Digital Coast's Coastal Inundation Toolkit(http://www.csc.noaa.gov/digitalcoast/inundation/understand).

1. **Know your risks** – If your county has a hazard mitigation plan, get a copy of it from your county emergency management office or the Federal Emergency Management Agency (FEMA)(http://www.fema.gov/plan/mitplanning/status.shtm#1). Having county information about potential hazards, vulnerabilities, and priority hazard mitigation projects is important.
2. **Develop a team** – To see the issues and opportunities from as many perspectives as possible, engaging a diverse group of stakeholders is always a good idea. The County Snapshots(http://www.csc.noaa.gov/snapshots) are used to help people visualize the issues.
3. **Know what resources are available** – Federal and state agencies have funds available for risk reduction activities. See the funding opportunities listed below to learn more. There are also data and tools available to help people visualize the issues and solutions. For information on creating inundation maps for your community, visit the Visualization section of the Coastal Inundation Toolkit(http://www.csc.noaa.gov/digitalcoast/inundation/visualize).
   Funding Sources
   - **FEMA**(http://www.fema.gov/government/grant/hmgp/)
   - **NOAA Coastal Management Program**(http://coastalmanagement.noaa.gov/funding/welcome.html)
4. **Discover what others are doing** – See how other communities are addressing these issues. Visit the discover section of the Coastal Inundation Toolkit(http://www.csc.noaa.gov/digitalcoast/inundation/discover). You may also contribute a story about your community efforts.

Frequently Asked Questions(http://www.csc.noaa.gov/snapshots/faq/flood-exposure.pdf)

Data Sources for This Snapshot

- **Flood Zones**(http://msc.fema.gov) – Based on FEMA 1% annual chance flood zones
- **Critical Facilities**(http://www.fema.gov/plan/prevent/hazus/) – FEMA HAZUS-MH data
- **Roads** – Based on ESRI 2005 streets data
- **Demographic Data**(http://csc.noaa.gov/digitalcoast/data/stics) – NOAA
- **Land Cover Data**(http://www.csc.noaa.gov/digitalcoast/data/ccapregional) – NOAA

Ocean Jobs Snapshot

Charlotte County, Florida

Ocean Jobs = A Healthy Economy

In 2011, Ocean-related businesses provided 12.3% of the total jobs in Charlotte County. This represents a 56% increase in Ocean jobs since 2005. Nationwide, Ocean jobs represent double the number of jobs supported by agriculture.

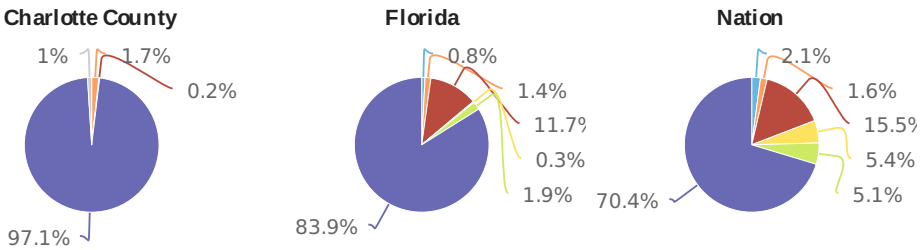
Charlotte County Ocean jobs account for

4,977	$79m	$175m
employees	in wages	in goods & services

in 2011

Ocean Jobs by Sector

Comparing Charlotte County's Ocean sectors to the state and nation shows how local concerns may or may not coincide with state and national priorities.



Charlotte County Percentages

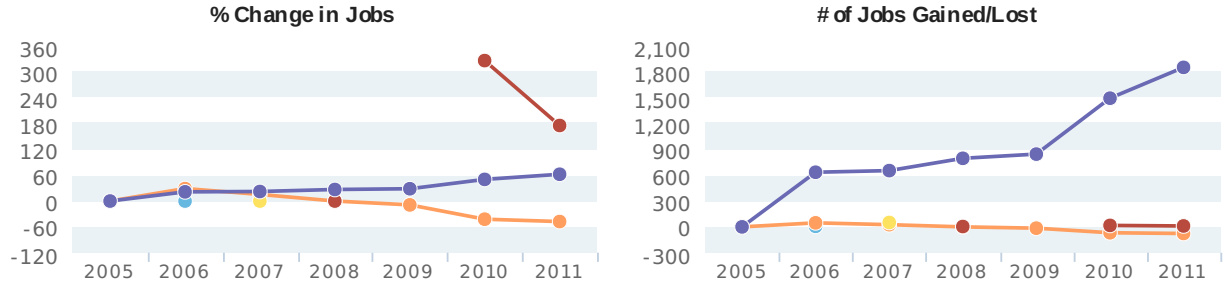
- Tourism and Recreation (97.1%)
- Living Resources (NA)
- Marine Transportation (0.2%)
- Suppressed (1%)
- Ship and Boat Building (0%)
- Offshore Mineral Extraction (NA)
- Marine Construction (1.7%)

Job Trends

When making coastal management decisions, it is important to understand how the six sectors have changed over time.

Charlotte County Percent Changes

- Tourism and Recreation (61%)
- Marine Transportation (-101%)
- Ship and Boat Building (-100%)
- Marine Construction (-48%)
- Living Resources (NA)
- Suppressed (1%)
- Offshore Mineral Extraction (NA)

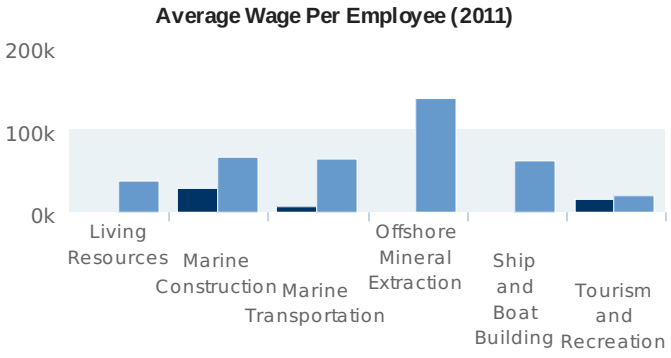


County and National Wages

Higher local wages can be attractive to employees but a deterrent to new or expanding businesses. Managers should consider cost of living rates when making this comparison.

Impact of Part-time Workers

Average tourism wages can be smaller due to the high percentage of part-time workers, but total tourism wages are often among the highest because of the large number of people employed.



County National

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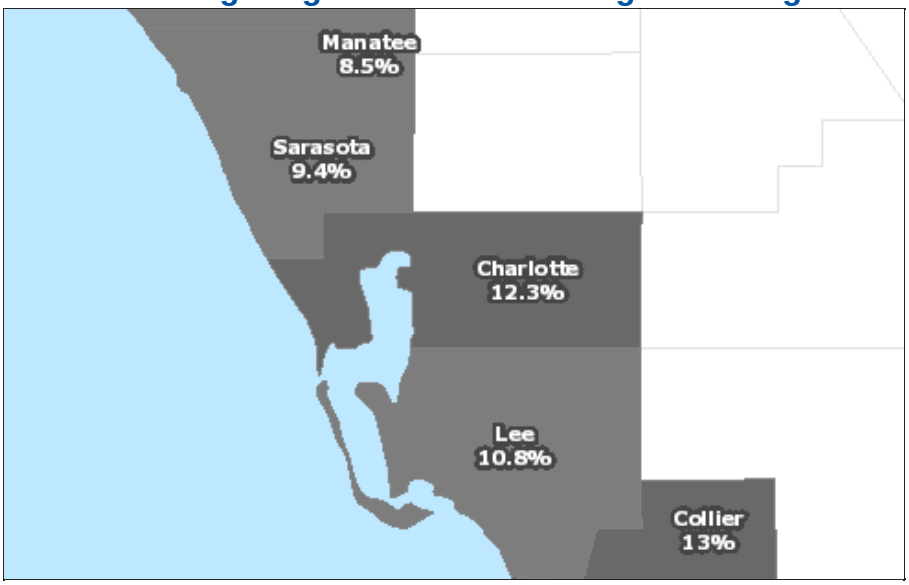
Understanding Neighbors Makes a Region Stronger



Knowing how neighboring communities depend on Ocean resources can be important when it comes to developing regional governance policies that benefit all. See the Coastal County Snapshots for nearby counties to better understand regional similarities and differences

Ocean Jobs as % of Total Jobs (2011)

< 1%	1-3%
3-5%	5-8%
8-12%	12-16%
16-20%	> 20%

Digging Deeper

This snapshot provides a good starting point, but there are aspects of the Ocean economy that are not captured in this analysis. Information to help fill these gaps is listed below.

Frequently Asked Questions(http://www.csc.noaa.gov/snapshots/faq/ocean-jobs.pdf)

Key Economic Sectors

Economic statistics that focus on employment, like those used in this snapshot, miss the contributions of the self-employed. However, the self-employed are an important part of some sectors, like commercial fishing. NOAA compiles a wide range of data on commercial fishing(http://www.st.nmfs.noaa.gov/commercial-fisheries/index) that more fully illustrates this sector's economic importance.

Values outside the Market

Because many of the natural features that make the coast attractive can be enjoyed at no cost, their value is not evident in the 'market' data (jobs, wages, etc.). However, independent studies have estimated these 'nonmarket' values (aesthetics, health, safety, etc.).

- State of the Coast(http://stateofthecoast.noaa.gov/coastal_economy/nonmarket.html)
- National Ocean Economics Program(http://www.oceaneconomics.org/nonmarket/)

Combining Data to Make Decisions

Combining information on market and nonmarket values to inform coastal management can be complicated. Below are a few resources that will assist in this task.

- General overview in laymen's terms(http://www.ecosystemvaluation.org)
- Developing and using information on nonmarket values(http://nepis.epa.gov/Adobe/PDF/P100ERJY.pdf)
- Assessing tradeoffs(http://csc.noaa.gov/digitalcoast/tools/invest)

Additional Coastal Economic Resources

- Marine Ecosystem Services Partnership:(http://www.marineecosystemservices.org/)
- Introduction to Economics for Coastal Managers(http://www.csc.noaa.gov/economics/)

Data Source for This Snapshot

Economics: National Ocean Watch (ENOW)(http://www.csc.noaa.gov/enow). This 2011 data set provides ocean- and Great Lakes-related establishments, employment, and wages computed using the Bureau of Labor Statistics' Quarterly Census of Employment and Wages, and gross domestic product (GDP) data derived from state GDP statistics from the Bureau of Economic Analysis.

Wetland Benefits Snapshot

Charlotte County, Florida

Protecting Wetlands = Coastal Communities That Are Safer, Cleaner, and More Economically Productive

Healthy wetlands provide more than just a pretty view. Wetlands are a pivotal part of the natural system, supplying tremendous benefits for coastal communities. Even small acreages can provide some level of benefit. The location, health, and size of individual wetlands also play a role. This snapshot demonstrates three key benefits of wetlands in Charlotte County.

Based on 2006 NOAA land cover.

49%

223,139 acres
of Charlotte County's land area is wetland.

More Economically Productive: Wetlands Support Fishing Economies

Coastal wetlands provide habitat for many aquatic species that contribute to local food supplies and fishing-related industries.

In addition to providing a base for commercial fishing jobs and revenue, wetlands also support recreational and charter fishing. These economic benefits extend beyond county boundaries.

Based on 2011 ENOW and 2011 ENOW for Self-Employed Workers.

Commercial Fishing	County	State
Jobs	168	10,857
Output from businesses	unavailable*	$300 million
Revenue from self-employed	$6.6 million	$328.5 million

***See the frequently asked questions page to learn why this data is not available.**

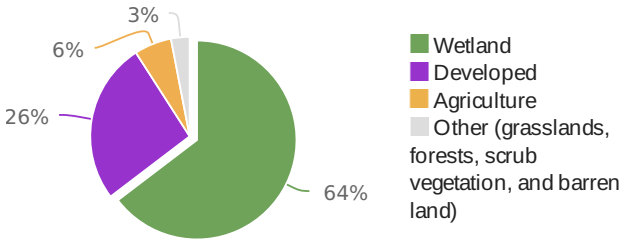
Safer: Wetlands Reduce Flood Impacts

31% (137,965 acres) of Charlotte County's land area is in the floodplain.

Wetlands located in coastal and riverine floodplains can protect people and their property, community infrastructure, and agricultural investments from floods. Wetlands act as natural sponges, holding floodwaters and lowering flood heights.

Based on Best available as of 2010 FEMA Flood Zones (100-year); 2006 NOAA land cover.

Charlotte County's Floodplain



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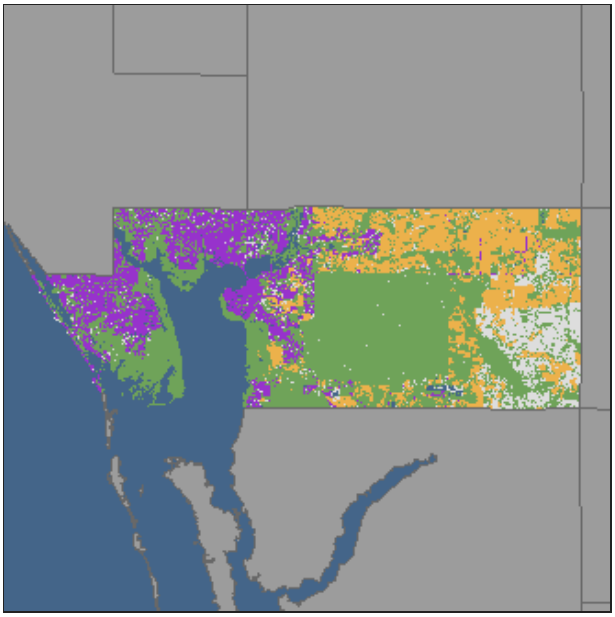
Cleaner: Wetlands Improve Water Quality

Runoff associated with concrete, asphalt, rooftops, and other impervious surfaces is a leading cause of water pollution.

Wetlands near developed and agricultural areas trap pollutants and excess nutrients in surface runoff, keeping water bodies cleaner. This natural filtering helps prevent water use restrictions, such as beach and shellfish closures, and reduces the need for costly treatment systems.

Based on 2006 NOAA land cover.

Wetland
Developed
Agriculture
Other (grasslands, forests, scrub vegetation, and barren land)



Next Steps

Understanding how wetlands benefit a coastal community can provide strong incentives for wetland protection. The following suggestions and resources provide guidance in moving forward with these efforts.

Integrate wetland protection priorities into community planning – Encouraging wetland protection and development in appropriate places makes communities more resilient. Resources are available to help communities incorporate wetland protection considerations into existing planning efforts.

- Introducing Green Infrastructure for Coastal Resilience training(http://www.csc.noaa.gov/digitalcoast/training/green)
- Roadmap for Adapting to Coastal Risk training(http://www.csc.noaa.gov/roadmap/)

Prioritize wetlands for protection – Additional factors can influence wetland protection priorities. Consult local experts regarding wetland size, location, and quality; fish and wildlife considerations; regulatory requirements; and tourism, recreation, and other benefits. Resources are available to help communities with the selection and prioritization process, including

- C-CAP land cover data(http://www.csc.noaa.gov/landcover/) and online atlas(http://www.csc.noaa.gov/digitalcoast/tools/lca/)
- National Wetlands Inventory data(http://www.fws.gov/wetlands/Data/index.html)
- Habitat Priority Planner tool(http://www.csc.noaa.gov/hpp/)
- Essential Fish Habitat Mapper(http://www.habitat.noaa.gov/protection/efh/habitatmapper.html)

Discover additional helpful resources – More tools, data, and information, including funding sources, are highlighted on the frequently asked questions page(http://www.csc.noaa.gov/snapshots/faq/wetland-benefits.pdf)

Data Sources for This Snapshot

- **Land Cover Data**(http://www.csc.noaa.gov/digitalcoast/data/ccapregional) – NOAA Coastal Change Analysis Program
- **Flood Zones**(http://msc.fema.gov) – Federal Emergency Management Agency 1% Annual Chance Flood Zones
- **Economics Data**(http://www.csc.noaa.gov/enow) – NOAA Economics: National Ocean Watch
- **Self-Employed Workers**(http://www.csc.noaa.gov/digitalcoast/data/enow-nes) – NOAA Economics: National Ocean Watch for Self-Employed Workers