

CLIMATE CHANGE



Climate change has edged its way to the top of Federal, state, and local agendas. Scientists and leaders across the nation are taking numerous steps to prepare for the consequences of a new weather era so that ecosystems, human life, and infrastructure can adapt and survive. Threats to life and property associated with global warming, such as sea level rise, land loss, aquatic and atmospheric temperature rise, changes in rainfall patterns, increased storm intensity and flooding, waterbody acidification, and general weather instability, are of particular concern in U.S. coastal zones.

To address climate change in coastal regions, the U. S. Environmental Protection Agency (EPA) recently launched a Climate Ready Estuaries (CRE) program with six National Estuary Programs (NEPs) that served as pilot programs, whose case studies and lessons learned can be transferred to other NEPs across the country. The program works to ensure the long-term survival of coastal wetlands and mitigate the threats by implementing newly developed adaptation plans. Charlotte Harbor, located in southwest Florida, is one of the most vulnerable estuaries in the country and is at particular risk for experiencing increased sea levels associated with climate change.

THE NATIONAL ESTUARY PROGRAM IN ACTION

Charlotte Harbor National Estuary Program

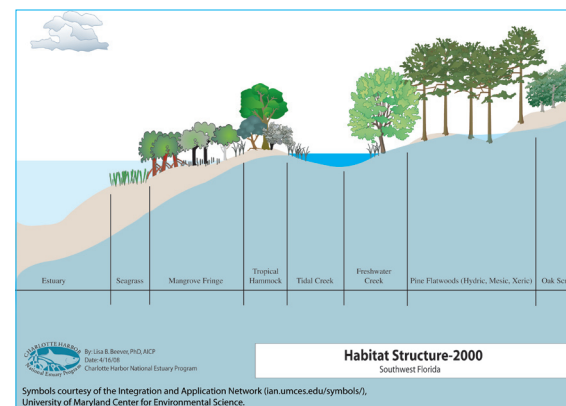
As one of six CRE pilot participants, the Charlotte Harbor National Estuary Program (CHNEP) is working to create a viable plan for addressing climate change. In conjunction with its host agency, the Southwest Florida Regional Planning Council (SWFRPC), the CHNEP is already close to reaching one of its most immediate goals, which is to complete a comprehensive climate change Vulnerability Assessment for the Greater Charlotte Harbor region.

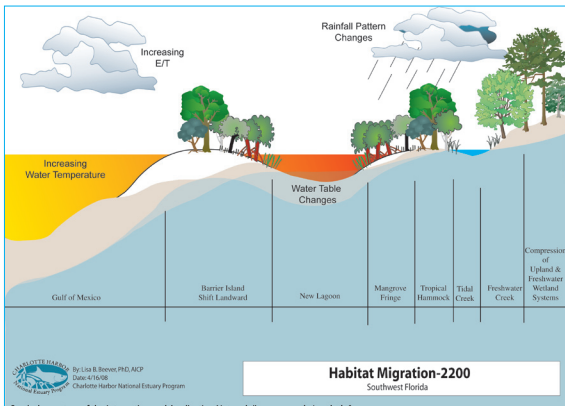
Fundamental to this effort was the early work of SWFRPC, which has been focusing on hurricane preparedness for decades. The SWFRPC adopted “Climate Prosperity” as part of its Comprehensive Economic Development Strategy to promote energy efficiencies for green savings, to encourage and support green business opportunities, and to develop green talent in the workforce. The Council has formed an Energy & Climate Committee to develop plans for implementing the strategy throughout the

region. Since 2003, the SWFRPC staff has also been collaborating with local scientists and EPA’s Office of Atmospheric Programs, Climate Change Division, on the “Land Use Impacts and Solutions to Sea Level Rise in Southwest Florida” project. Therefore, the CHNEP was able to tap this collective experience in order to study the impacts of a more permanent sea level rise. Other important tools that were immediately available included existing regulatory strategies such as comprehensive plans, zoning

regulations, and building codes. Since 1990, the SWFRPC has worked on landscape-scale conservation planning to provide opportunities for coastal habitat retreat from rising sea levels. As a result, CHNEP was able to cre-

ate a significant suite of maps illustrating the anticipated effects of climate change along with three potential “severity” scenarios: least case, moderate case, and worst case. The Vulnerability Assessment examines





the following potential effects of climate change:

- Air Temperature and Chemistry
- Altered Hydrology
- Climate Instability
- Geomorphic Changes
- Habitat and Species Changes
- Sea Level Rise
- Water Temperature and Chemistry
- Human Economy
- Human Health
- Infrastructure
- Land Use Changes
- Variable Risk

The next step in the effort is to

apply the Vulnerability Assessment to the City of Punta Gorda, a region within the study area, to identify and develop adaptation options and mitigation methodologies for inclusion in a comprehensive climate-ready Adaptation Plan. This work began in late 2008. The CHNEP's future Adaptation Plan aims to address a wide variety of issues. The plan will consider land development regulations (CHNEP past and future land acquisition and protection projects are also a crucial factor), fiscal policies, management challenges and solutions, habitat translocations, emergen-

cy response, exotic plant and animal invasion, anticipated futures, and other critical topics.

Meanwhile, CHNEP reviewed the draft Southwest Florida Feasibility Study (SWFFS), which was funded through the Water Resources Development Act of 2000 and tied to Everglades restoration. Implementation of the SWFFS would:

- Protect latitudinal and elevational gradients, along with refugia, heterogeneity, gene flow, and connectivity.
- Reduce non-climate stresses such as exotic species invasion and pollution.
- Restore natural freshwater flow regimes.
- Represent a long-term investment that buffers the effect of climate change; restoration would persist in a world of significant sea level rise.

The CHNEP CRE pilot project directly supports several goals in CHNEP's Comprehensive Conservation and Management Plan and complements the State of Florida Office of the Governor Executive Order requirement for the development of a comprehensive Energy and Climate Change Action Plan. Moreover, both the Vulnerability Assessment and Adaptation Plan will be available for use by local and regional agencies in developing their Local Mitigation Strategies updates and plans in compliance with the Disaster Mitigation Act of 2000.

Visit www.chnep.org to learn more about this and other CHNEP efforts.

EPA's National Estuary Program (NEP) is a unique and successful coastal watershed-based program established in 1987 under the Clean Water Act Amendments. The NEP involves the public and collaborates with partners to pro-

tect, restore, and maintain the water quality and ecological integrity of 28 estuaries of national significance located in 18 coastal states and Puerto Rico.

For more information about the NEP go to www.epa.gov/owow/estuaries.