Climate Security Challenges in South Florida

Fact Sheet

Adam Despang - June 2022

Florida plays an essential role in U.S. National Security. It is home to three Combatant Command headquarters and more than 20 military bases from all military branches.[1] In 2020, defense spending in Florida supported nearly 145,000 jobs and generated almost $17 billion in gross regional product.

South Florida's Role in U.S. National Security

Of note, the South Florida region is home to:

- **U.S. Southern Command Headquarters (USSOUTHCOM) Homestead Air Reserve Base**
  - **USSOUTHCOM** – Provides contingency planning, operations, and security cooperation in its assigned Area of Responsibility which includes Central America, South America, and The Caribbean (except U.S. commonwealths, territories, and possessions).
  - **482nd Fighter Wing of the Air Force Reserve** – Provides combat-ready F-16 fighter jets capable of worldwide deployment on short notice.
- **U.S. Naval Surface Warfare Center Carderock Division South Florida Ocean Measurement Facility** – Performs electromagnetic signature tests of Navy assets by providing the ability to monitor surface ship, submarine, and remote vehicle signatures in the near-shore environment.
- **U.S. Army Garrison-Miami** – Part of the U.S. Army's Installation Command, has a civilian workforce that supports the Service and Family Members assigned to SOUTHCOM.
- **U.S. Coast Guard 7th District Headquarters** – Responsible for Coast Guard activities throughout a 1.7 million square mile area, including Puerto Rico, Florida, Georgia, South Carolina, and 34 foreign nations and territories.
- **Naval Air Station Key West** – Provides an extensive air-to-air training venue for transient tactical aviation squadrons. It is home to the Joint Interagency Task Force - South, whose mission is to provide the necessary operations for the detection, monitoring, and deterrence of drug smuggling operations. Major tenants also include the Army Special Forces Underwater Operations School.

CLIMATE-RELATED THREATS TO THE REGION

South Florida is vulnerable to various climate-related threats such as flooding from sea level rise, extreme heat, and worsening storms. Homestead Air Reserve base was listed by a 2019 Senate Armed Service Committee hearing in the top 10 Air Force bases most at risk to impacts of climate change.[2]

Sea Level Rise, Inland Flooding, and Water Contamination

By 2050 Florida's inland flooding threat is projected to see the greatest increase of all states.[3] Florida currently has around 3.5 million people within the 100-year coastal flood plain—by 2050, an additional 1.1 million Floridians will also be at risk. Second, saltwater intrusion will contaminate aquifers, causing them to become brackish and undrinkable. Thirdly, wastewater and stormwater infrastructure may render water management systems in the region ineffective. Some estimates show much of South Florida becoming completely uninhabitable if rapid action is not taken.[4][5]

Extreme Heat and Public Health

The Union of Concerned Scientists warns that Florida is "in the bulls-eye" for extreme heat.[6][7] Floridians already experience an average of 25 dangerous heat days each year—by mid-century, that could increase to 130 days, more than any other state.[8] This severely impacts military readiness and national security as extreme heat makes training outdoors for extended periods difficult and creates unsafe conditions for operating aircraft.

Worsening Hurricanes that Exacerbate Other Risks

The threat from hurricanes comes in two forms—extreme rainfall and high winds. Hurricanes derive energy from warm ocean water, and sea temperatures are rising approximately 0.13°F per decade. Warmer air holds more moisture, leading to more rain, more flooding, and more damage. There is scientific evidence that climate change could be weakening the atmospheric currents that move weather systems along, which means 150+ mph winds, storm surges, and rain will stall in one place, as Hurricane Dorian did over the Bahamas in 2019.[9] As such, the storms hitting Florida could move slower and take twice as long to break apart, increasing the potential and scope of wind and flood damage to military infrastructure, communities, and assets.

RESILIENCE EFFORTS AND CLIMATE SOLUTIONS

A Southeast Florida Regional Climate Change Compact study suggests that if adaptation projects are implemented now, Miami-Dade County can avoid $3.2 billion in structural losses regionally from tidal inundation in 2040.[10][11] Adaptation can also "protect $7.7 million in tax revenue losses from 10-year storm events and $385 million in tax revenue from daily tidal inundation by 2070." Mitigating the worst climate impacts predicted will require rapid decarbonization.

To better understand the risks and vulnerabilities facing South Florida defense communities, the U.S. DoD Office of Local Defense Community Cooperation (OLDCC) recently awarded the South Florida Regional Planning Council funding through the Military Installation Sustainability program to conduct a Military Installation Resilience Review.[12] This review will examine the long-term resilience and sustainability of the four key military installations in the region.

FEDERAL PROGRAMS–CLIMATE MITIGATION & RESILIENCE

This list provides examples of programs available to help address climate change. Some of these programs are available to military installations while others are only open to communities. The funding provided by each program is helpful but insufficient.

The investment needed to catch up to years of deferred maintenance and to be ready for storms as strong as 2018's Hurricane Michael will be costly, but nowhere near the expense the DoD is likely to incur if the U.S. takes a slow or reactive approach to climate change. The programs need expansion.

Military Installation Sustainability – $12 mil/FY to identify the risks, hazards, and vulnerabilities of concern related to the military's ability to carry out its missions on the base that could be mitigated through investments and solutions outside of the fence line in the community.[13]

Defense Community Infrastructure Program – $50 mil/FY is available to empower communities that surround military installations to strengthen operational readiness by building or strengthening vital community infrastructure (roads, schools, etc.).[14]

Flood Mitigation Assistance – $200 mil/FY directed to flood prone areas. Provides funding to states, local communities, federally recognized tribes, and territories. Funds can also be used for projects that reduce or eliminate the risk of repetitive flood damage to buildings insured by the National Flood Insurance Program.[15]

National Coastal Resilience Fund – $34 mil/FY for flood protection for coastal communities through green infrastructure. Restored coastal ecosystems provide valuable habitats for fish and wildlife. These same wetlands, dunes, and coral reefs also offer flood protection for coastal communities by lessening wave energy and absorbing excess waters.[16]

Sentinel Landscape Program – $60 mil/FY for land acquisition to advance sustainable land practices around bases and to strengthen military readiness, conserve natural resources, bolster agricultural and forestry economies, and increase climate change resilience.[17]

Defense Access Road Program – $20 mil/FY for public highway improvements. DAR empowers communities to mitigate risks to infrastructure posed by recurrent flooding and sea-level fluctuation when continued access to a military installation has been impacted.[18]

Building Resilient Infrastructure and Communities – $500 mil/FY for hazard prone areas. Supports communities through capability- and capacity-building to encourage and enable innovation, promote partnerships, and enable large projects.[19]

ENDNOTES

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