

# A GEOSPATIAL COASTAL RESILIENCE ASSESSMENT FOR THE UNITED STATES

CAPE FEAR RIVER PARTNERSHIP SPRING MEETING  
2 MARCH 2023

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NFWF



UNC ASHEVILLE

NEMAC  
NATIONAL ENVIRONMENTAL  
MODELING & ANALYSIS CENTER





NFWF and NOAA are committed to supporting programs and projects that build resilience by reducing communities' vulnerability to coastal storms, sea level rise, and flooding events by strengthening natural ecosystems and the habitat they provide.

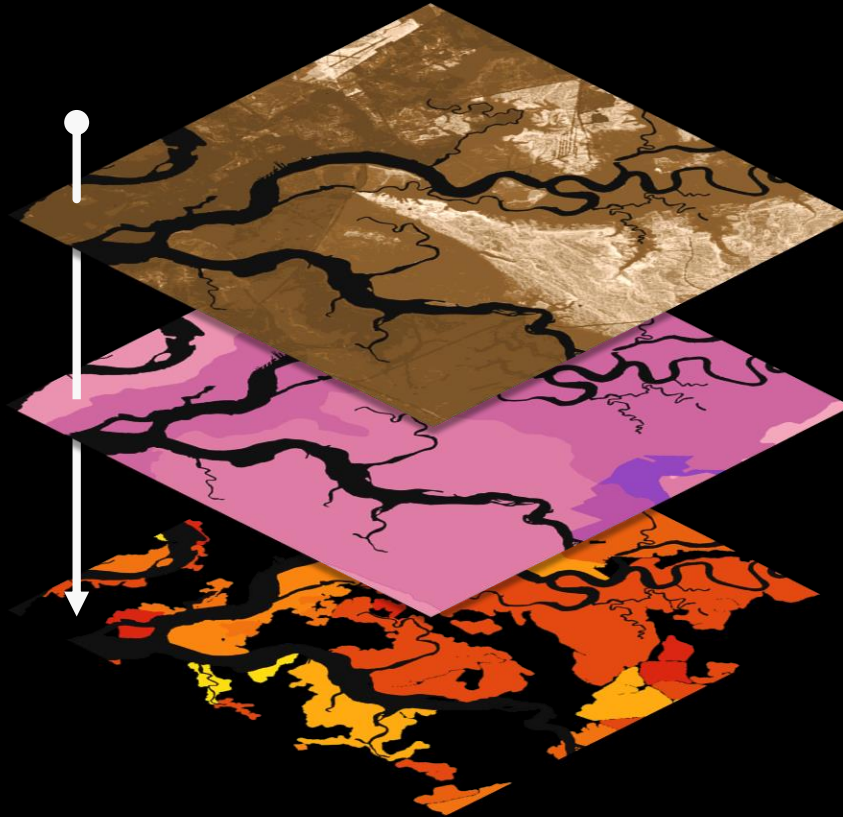


# REGIONAL COASTAL RESILIENCE ASSESSMENTS

Community Exposure Index  
Community Assets Exposed to Flood Threats

Fish & Wildlife Index  
Terrestrial & Aquatic Species of Concern

Resilience Hubs  
Open Space Areas of Dual Benefit



Identify areas on the  
landscape where nature-based  
solutions may maximize *fish  
and wildlife* benefits and  
*human community resilience* to  
flooding threats

# REGIONAL COASTAL RESILIENCE ASSESSMENTS

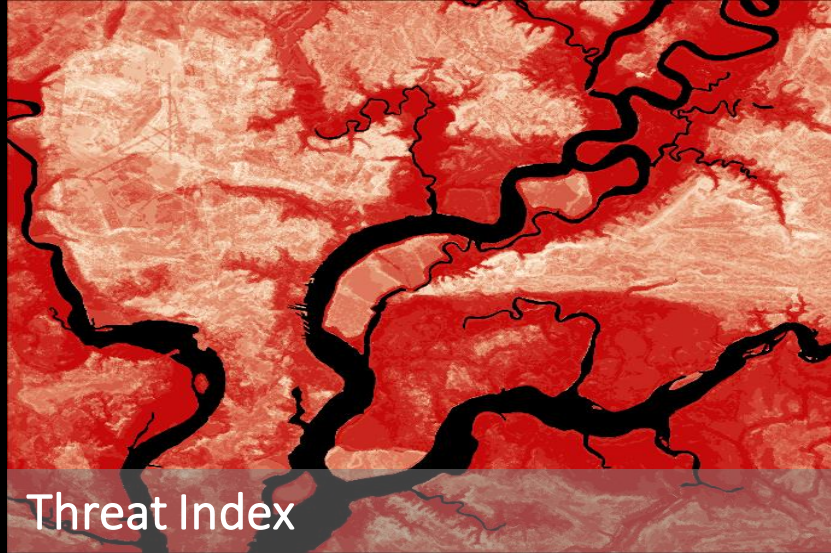
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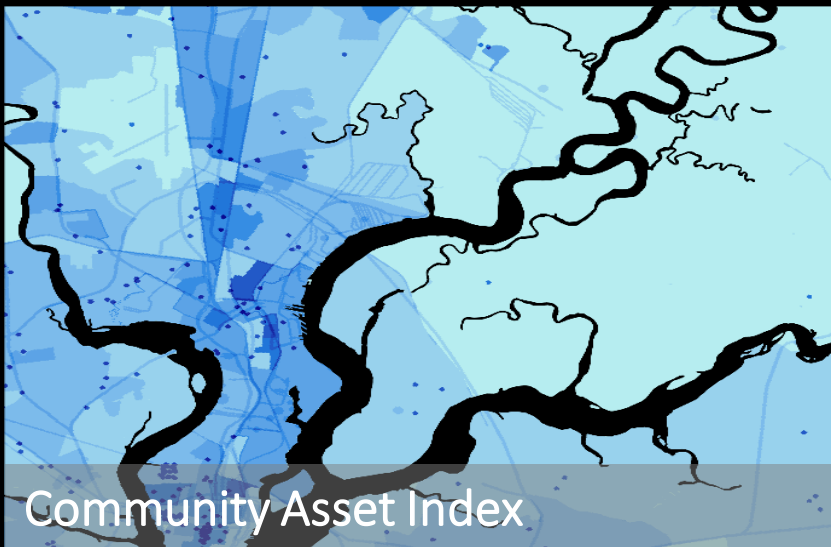
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# COMMUNITY EXPOSURE INDEX

helps identify where the most people and assets are exposed to flooding threats



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## Threat Inputs

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- Storm Surge
- Sea Level Rise
- Flood-prone Areas
- Soil Erodibility
- Impermeable Soils
- Areas of Low Slope
- Geologic Stressors
- Other Regional Stressors

## Community Asset Inputs

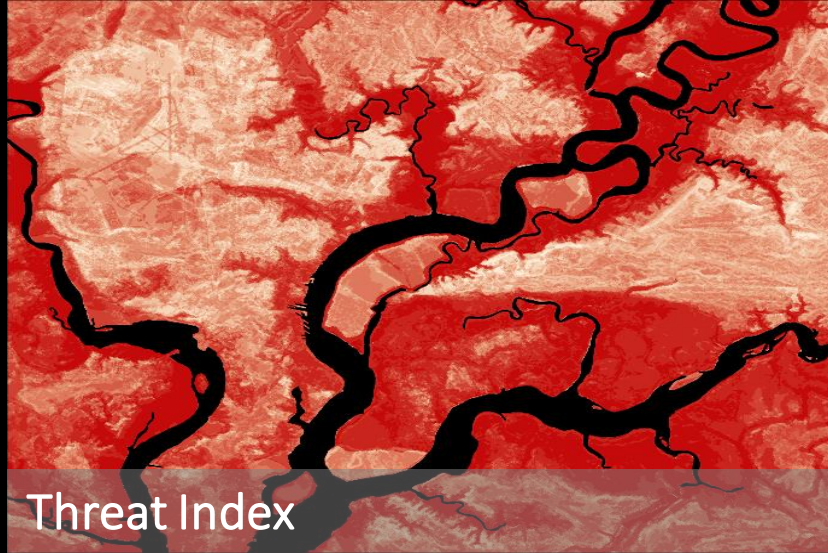
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- Population Density
- Critical Facilities
- Critical Infrastructure
- Social Vulnerability

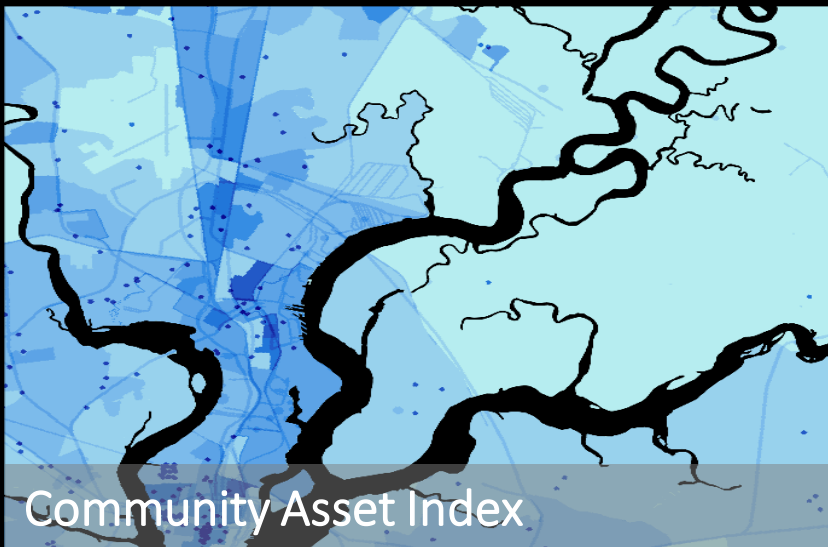


# COMMUNITY EXPOSURE INDEX

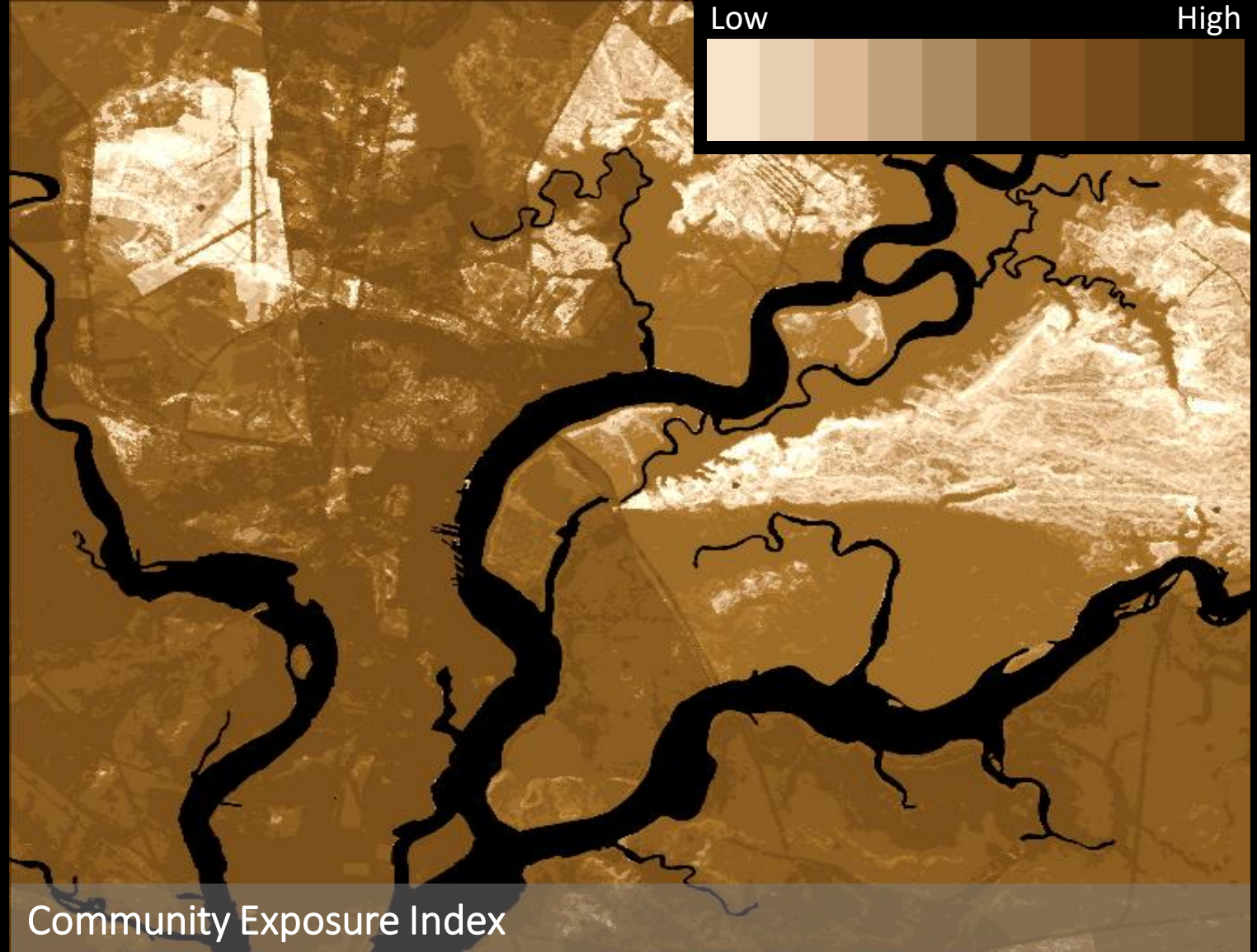
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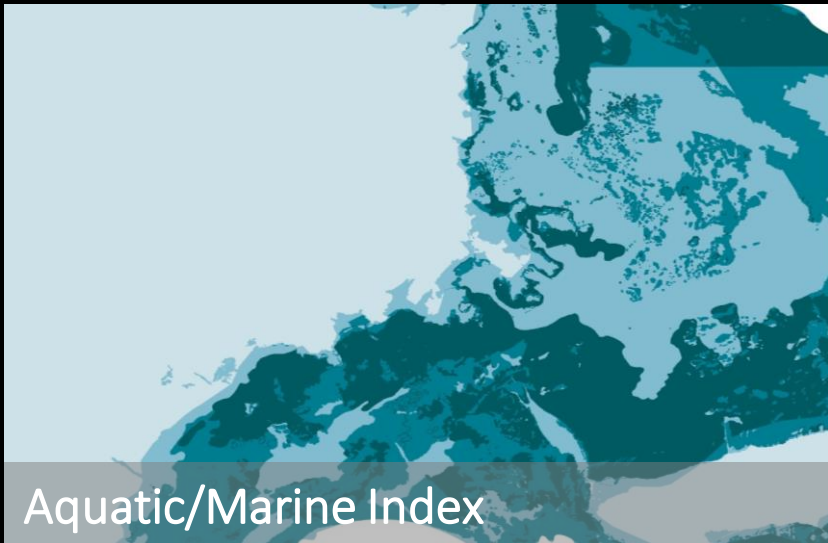


# FISH & WILDLIFE INDEX

helps identify where aquatic & terrestrial species of concern are located



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## Terrestrial Inputs

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- Species occurrence & habitat suitability
- ESA-Designated Critical Habitat
- BirdLife International Important Bird Areas
- Other Priority Conservation Areas

## Aquatic/Marine Inputs

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- Species occurrence & nearshore habitat extent
- ESA-Designated Critical Habitat
- NOAA Essential Fish Habitat
- Marine Protected Areas



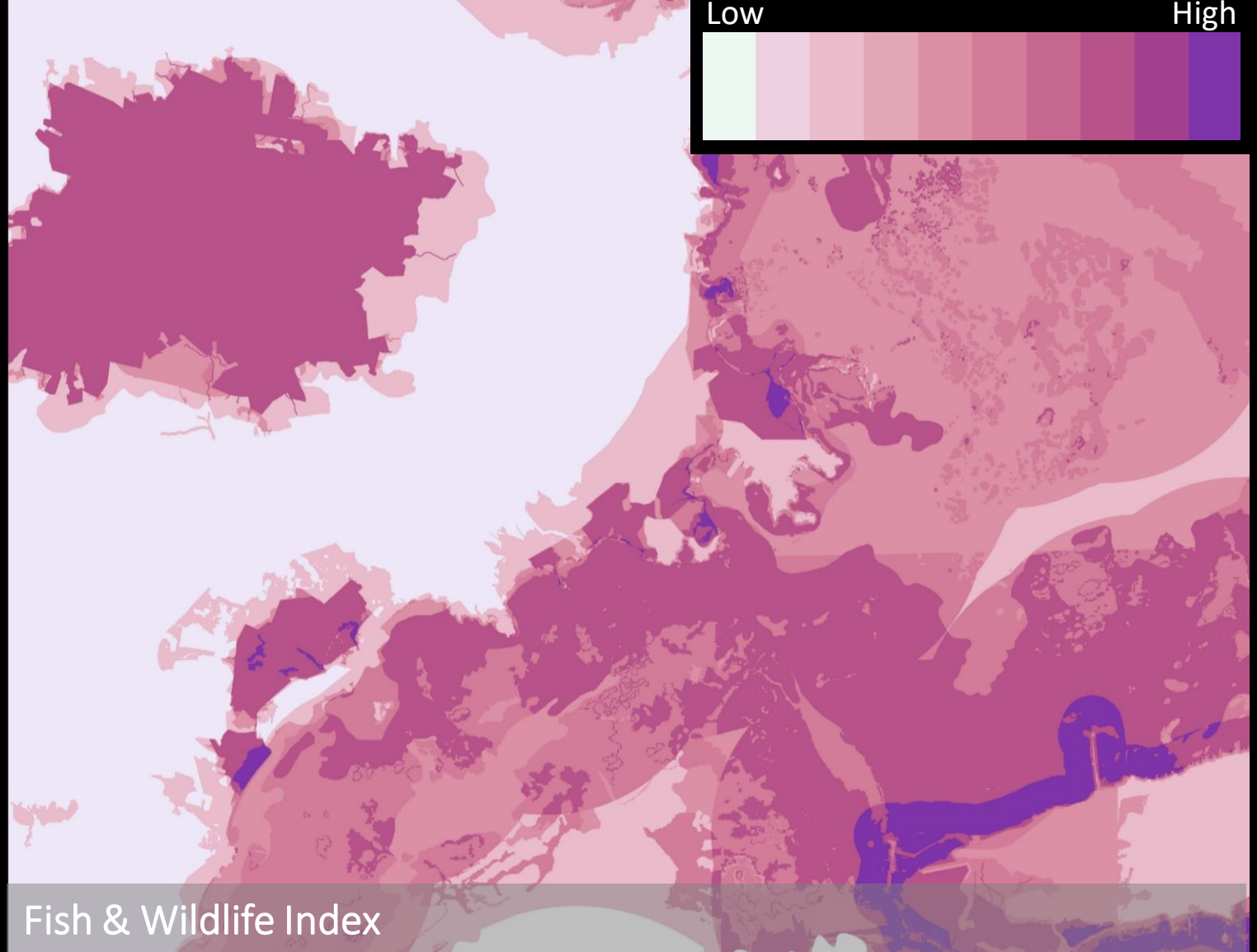
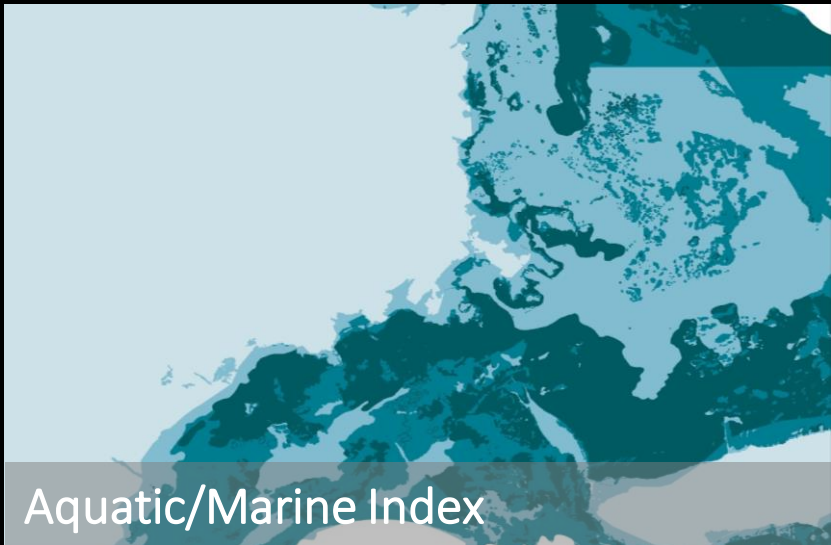
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# RESILIENCE HUBS

areas of open space where resilience projects may have the greatest potential to benefit both human community resilience and fish and wildlife



## Coastal Resilience Evaluation and Siting Tool (CREST)

CREST is used to make informed decisions about the siting of coastal restoration and resilience projects. The tool identifies Resilience Hubs, which are areas of open space where projects may have the greatest potential to benefit both human community resilience and fish and wildlife. Resilience Hubs incorporate multiple indices, all of which are available in CREST.

Select a region to start using CREST

Alaska



Alaska

American Samoa



American Samoa

Continental U.S.



Continental U.S.

Guam



Guam

Hawai'i



Hawai'i

Northern Mariana Islands



Northern Mariana Islands

Puerto Rico



Puerto Rico

U.S. Virgin Islands



U.S. Virgin Islands

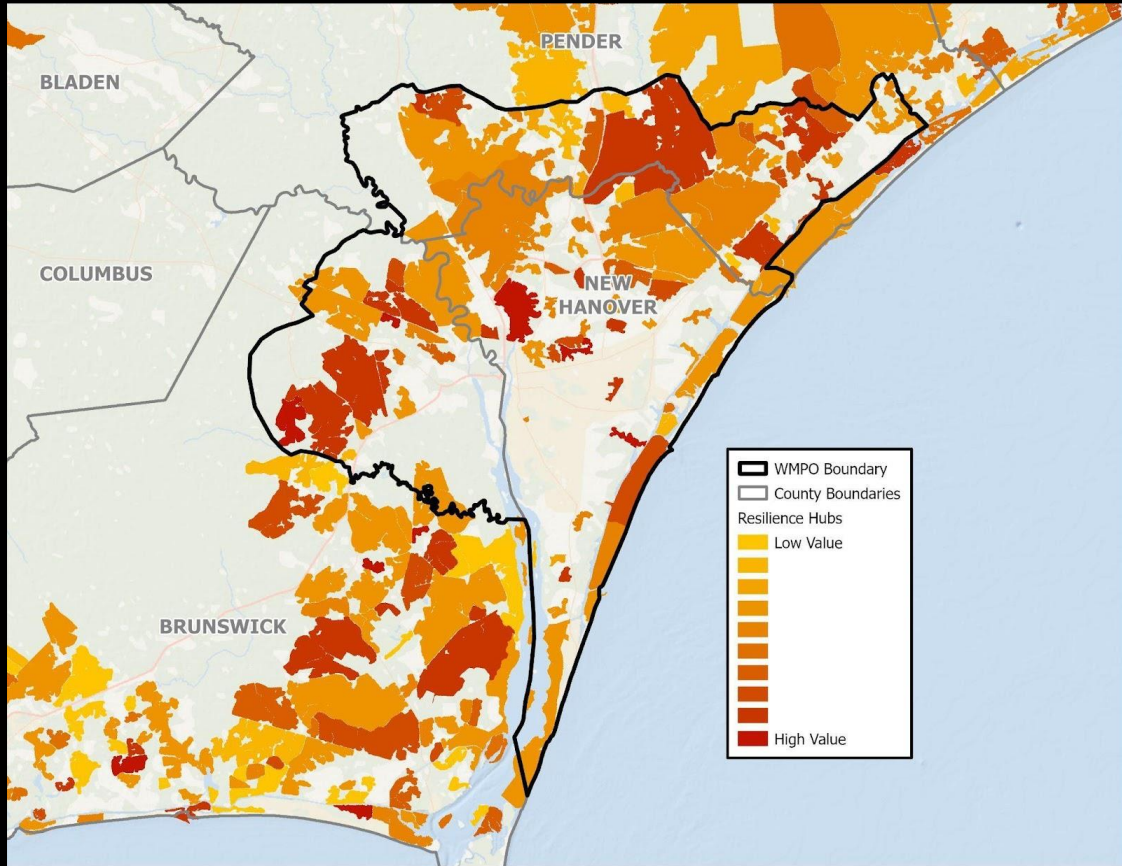
[resilientcoasts.org](https://resilientcoasts.org)



# NEXT STEPS

- Complete U.S. Great Lakes region (spring 2023)
- Update all other regions
  - Incorporate any new or better data
  - Update some methodologies for consistency across regions
- CREST V2
- New project opportunity\*\*\*







# THANK YOU

## CONTACT US

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