

**THE RESILIENCE
PUZZLE:
NEW JERSEY**



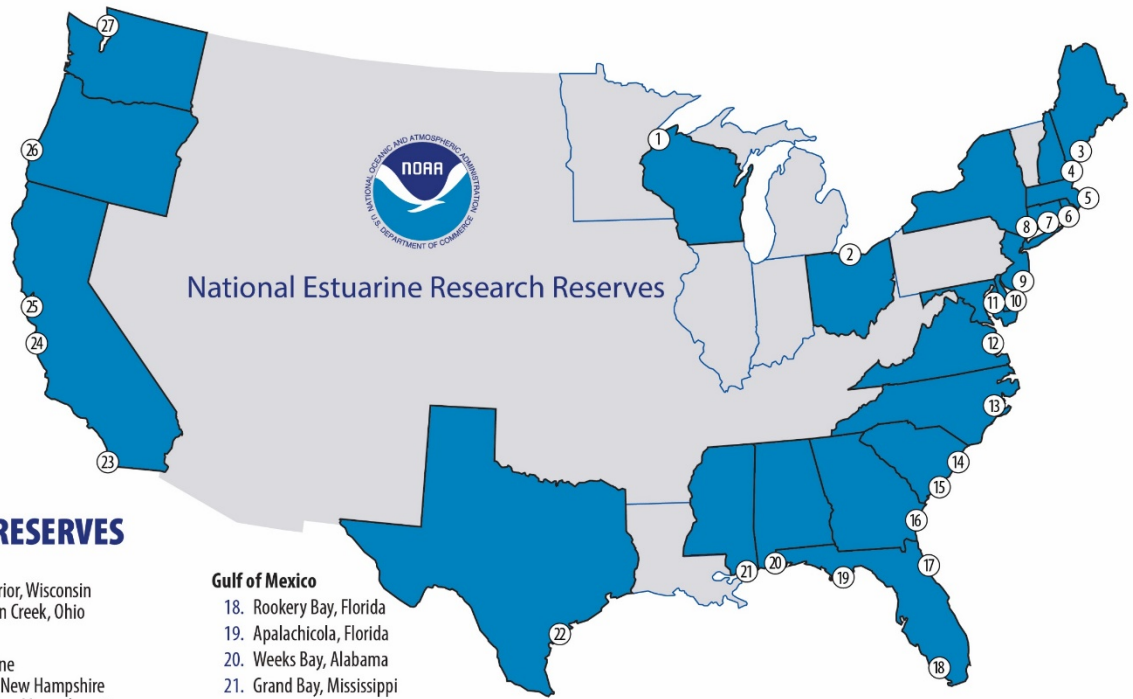




National Estuarine Research Reserve

RUTGERS
THE STATE UNIVERSITY
OF NEW JERSEY





National Estuarine Research Reserves

LIST OF RESERVES

Great Lakes

- 1. Lake Superior, Wisconsin
- 2. Old Woman Creek, Ohio

Northeast

- 3. Wells, Maine
- 4. Great Bay, New Hampshire
- 5. Waquoit Bay, Massachusetts
- 6. Narragansett Bay, Rhode Island
- 7. Connecticut (*Proposed*)

Mid-Atlantic

- 8. Hudson River, New York
- 9. Jacques Cousteau, New Jersey
- 10. Delaware
- 11. Chesapeake Bay, Maryland
- 12. Chesapeake Bay, Virginia

Southeast

- 13. North Carolina
- 14. North Inlet-Winyah Bay, South Carolina
- 15. ACE Basin, South Carolina
- 16. Sapelo Island, Georgia
- 17. Guana Tolomato Matanzas, Florida

Gulf of Mexico

- 18. Rookery Bay, Florida
- 19. Apalachicola, Florida
- 20. Weeks Bay, Alabama
- 21. Grand Bay, Mississippi
- 22. Mission-Aransas, Texas

West

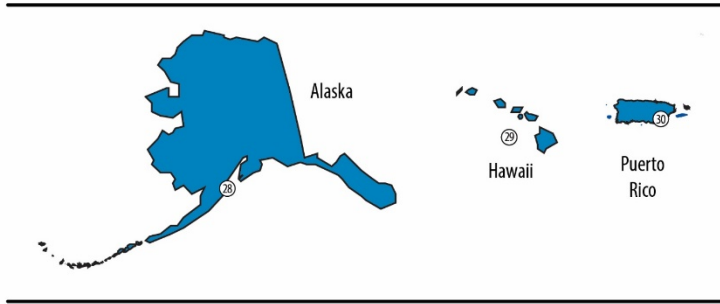
- 23. Tijuana River, California
- 24. Elkhorn Slough, California
- 25. San Francisco Bay, California
- 26. South Slough, Oregon
- 27. Padilla Bay, Washington
- 28. Kachemak Bay, Alaska

Pacific

- 29. He'eia, Hawai'i

Caribbean

- 30. Jobos Bay, Puerto Rico



Reserves are protected for:

- Long-term research and monitoring
- Education
- Resource stewardship



Locally relevant....

Nationally significant!

What's in a Name?



October 20th, 1997

Dedicated in
honor of
Jacques Y.
Cousteau
by Congressman
Saxton



The Jacques Cousteau National Estuarine Research Reserve





**Living
Laboratory
&
Classroom**





Our Mission:

To improve the management of New Jersey coastal environments and communities through science, education and stewardship.

Partners



STOCKTON
THE RICHARD STOCKTON COLLEGE OF NEW JERSEY



URBAN COAST INSTITUTE
MONMOUTH UNIVERSITY
where leaders look forward™



STATE OF NEW JERSEY
DEPARTMENT OF COMMUNITY AFFAIRS

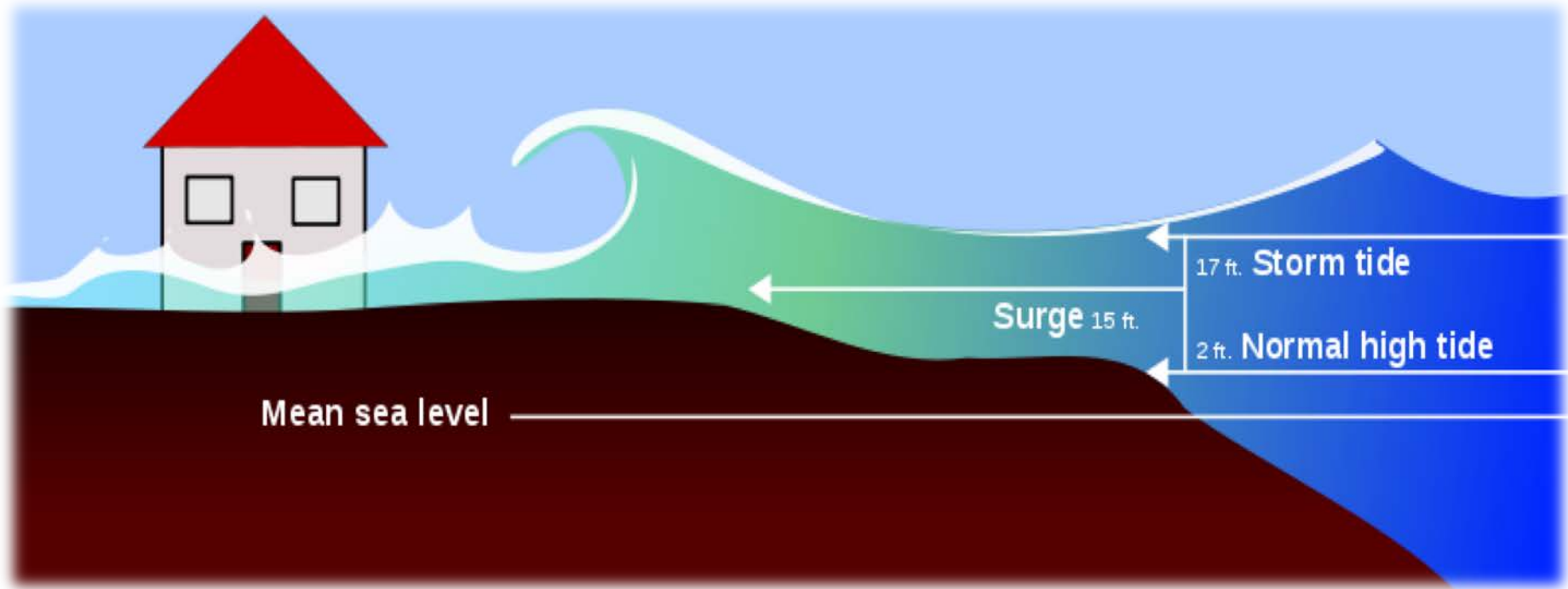


FEMA



Sandy: Changed the Coastal Conversation



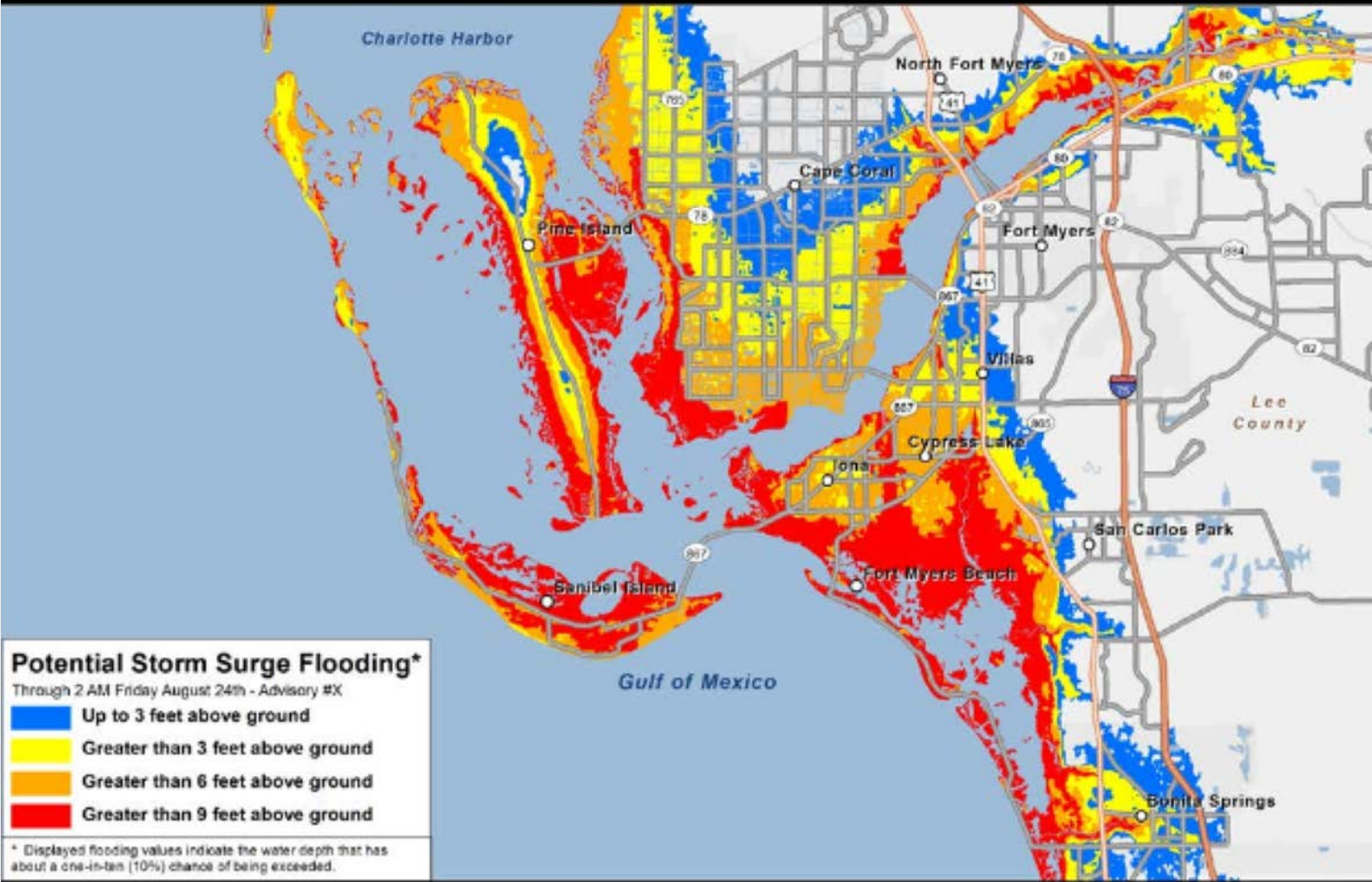


Storm Surge



Storm Surge

Hurricane X



Storm Surge

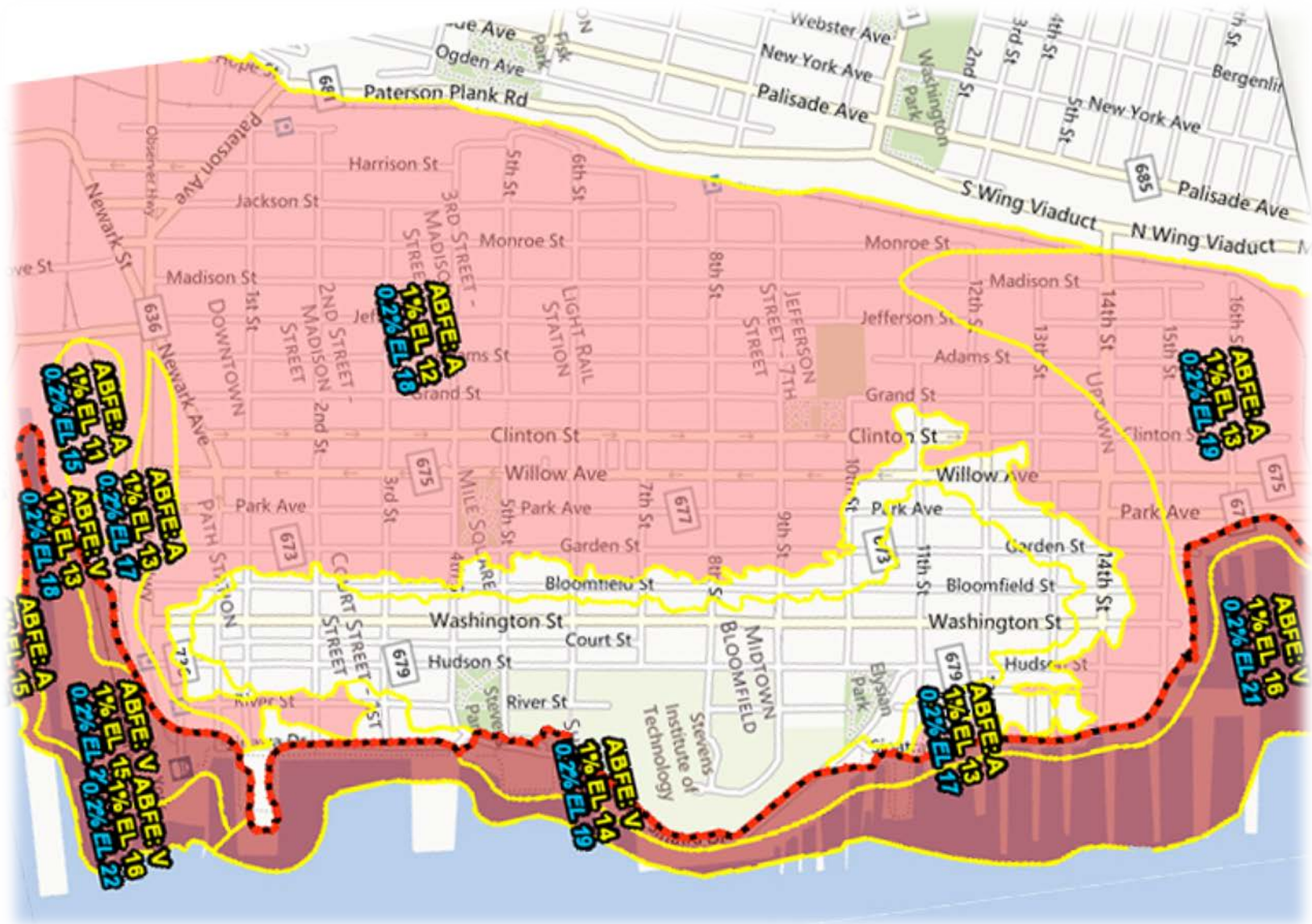


Changes Due To The
Biggert-Waters Flood Insurance
Reform Act of 2012

FEMA



BFE



Advisory BFEs



FIRMS and PFIRMS



Green Infrastructure



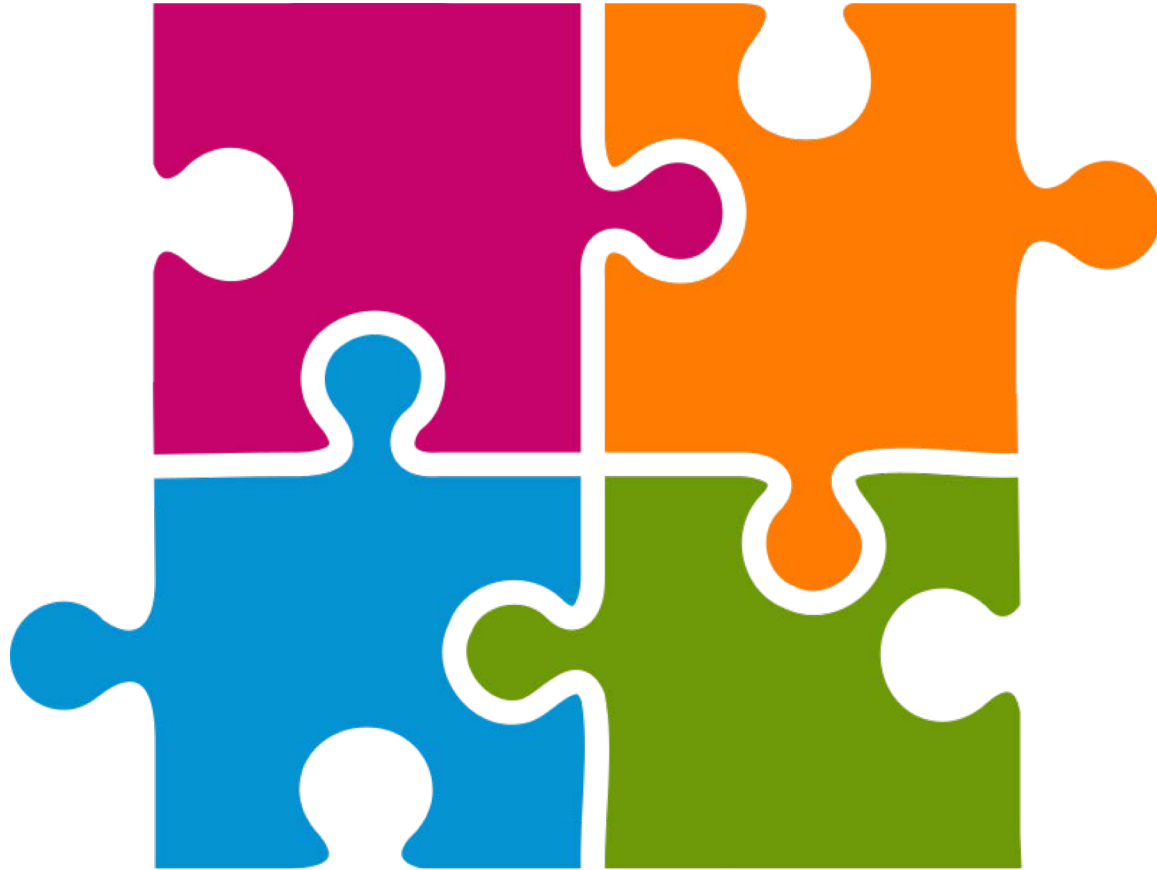
Green Infrastructure



Green Infrastructure

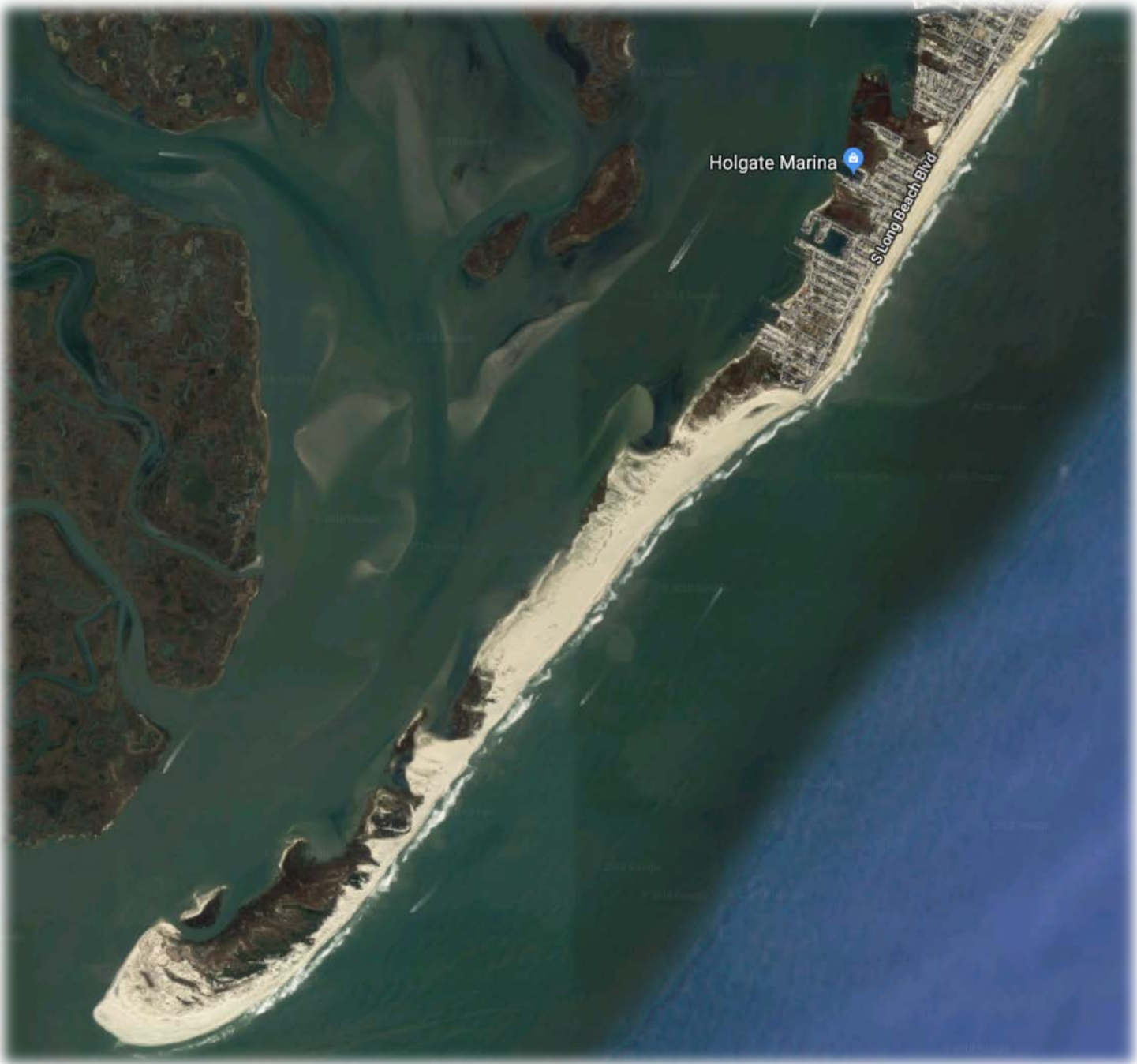


Resilient



Awareness of Change



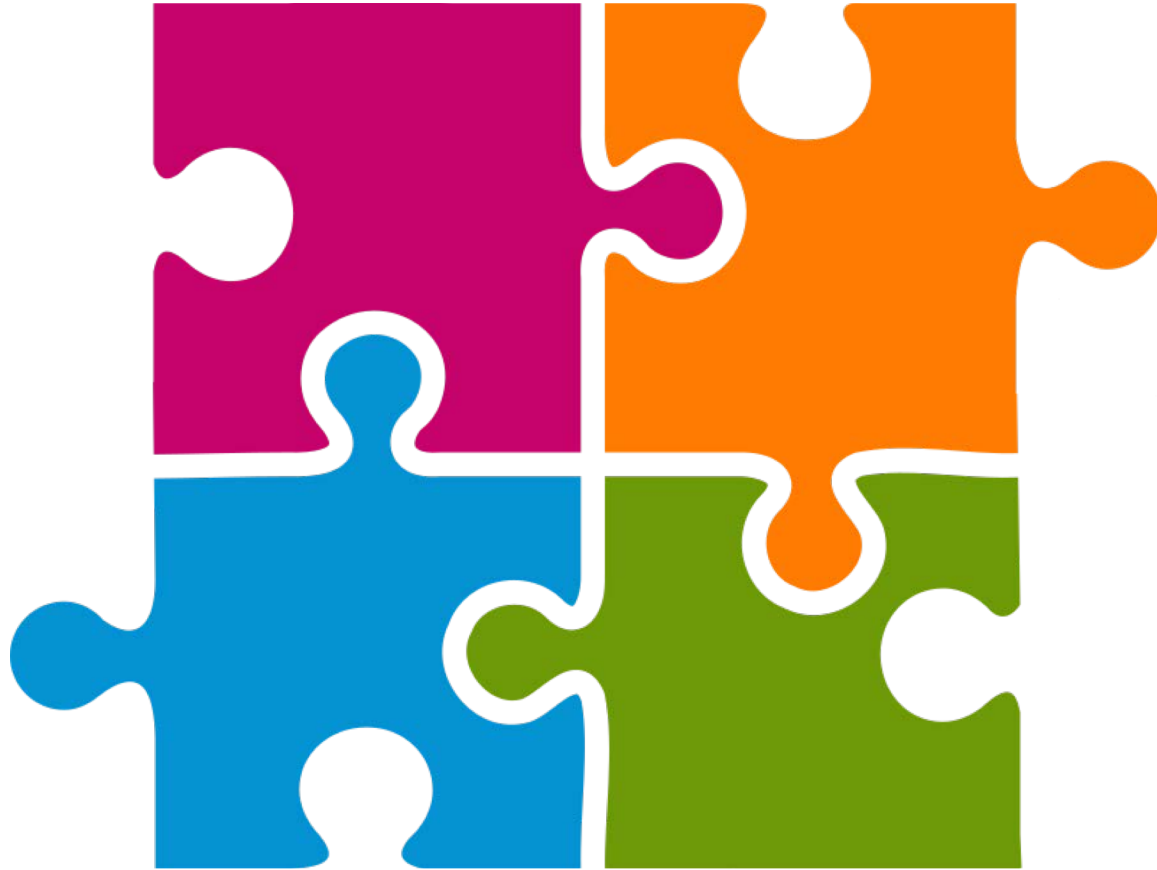


Holgate Marina

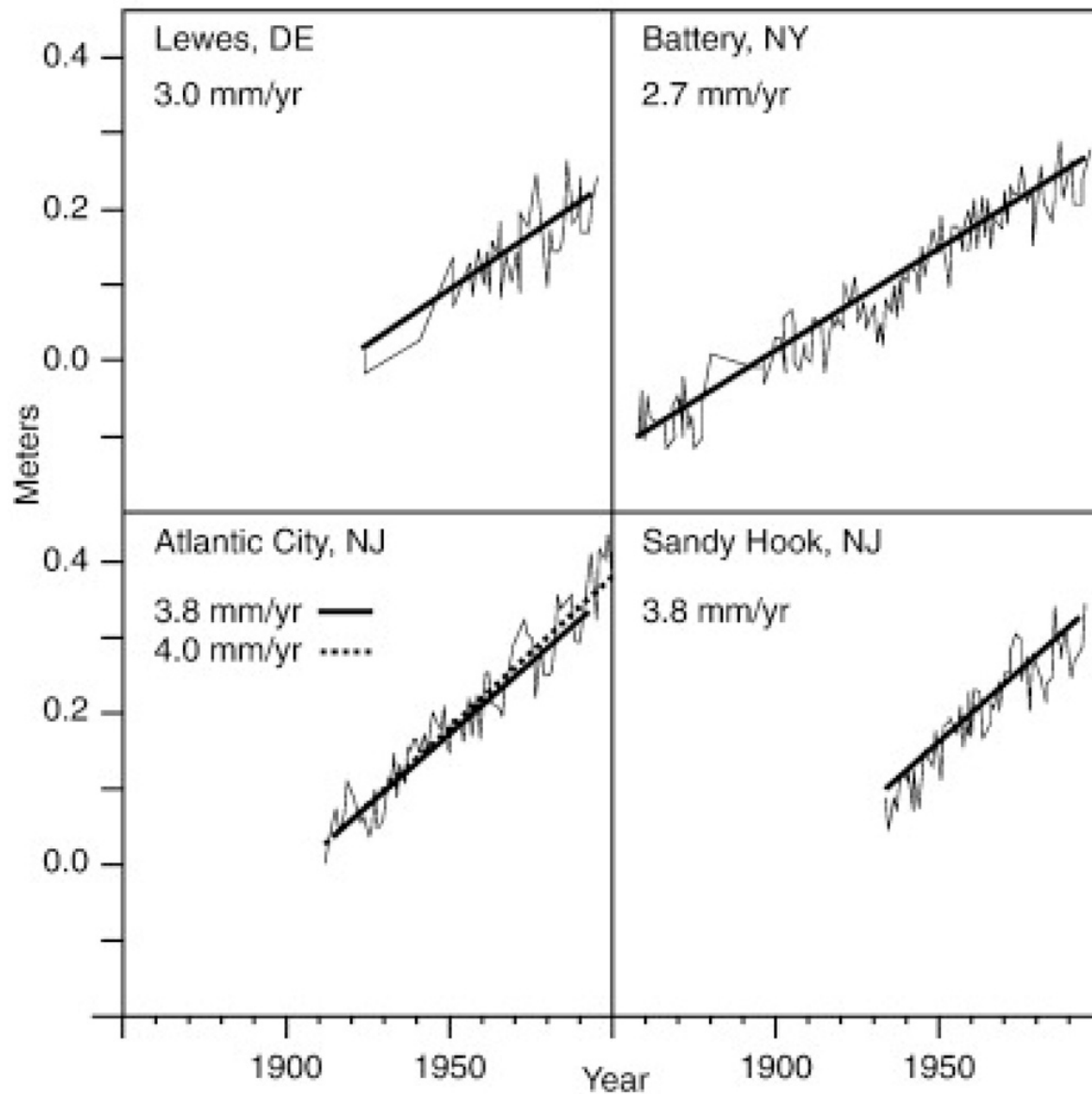
S Long Beach Blvd



Smarter Than The Storm

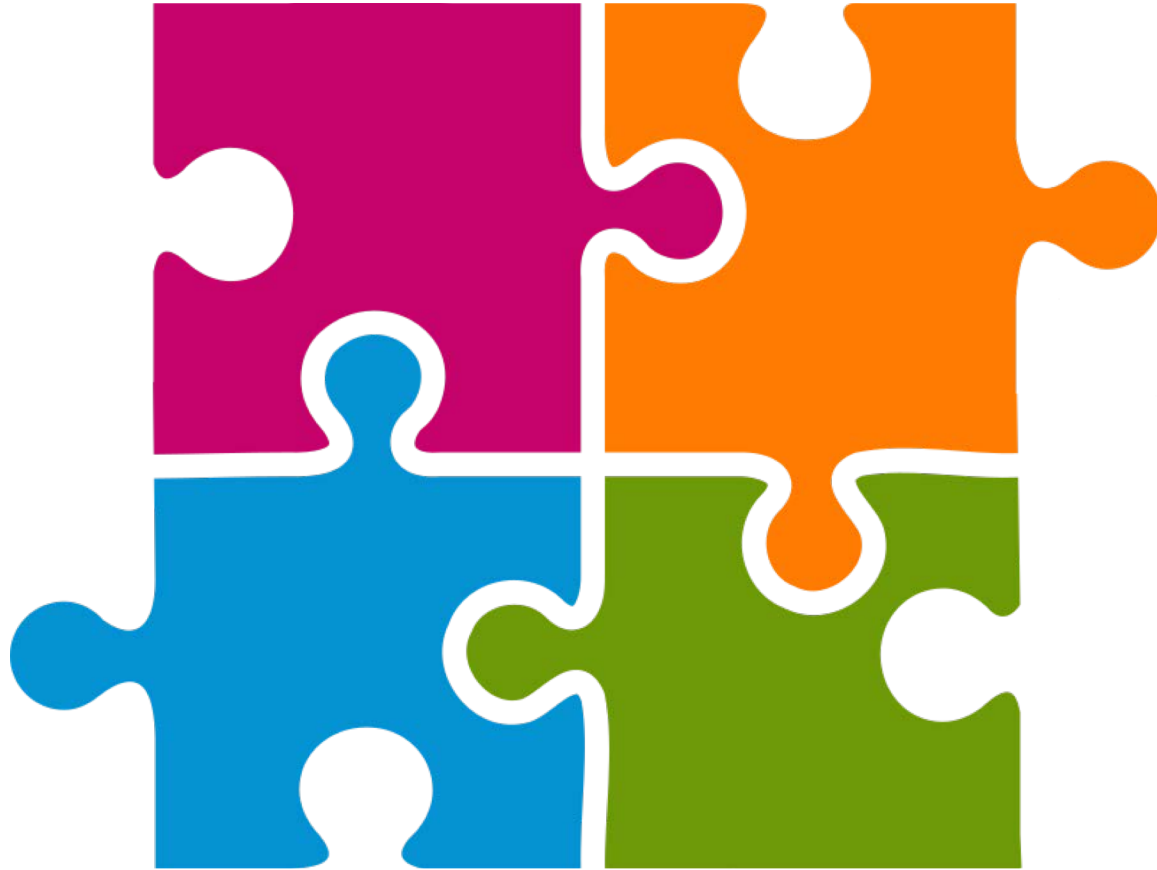


Use of Science to Inform Decision Making



Sea Level Rise Estimates for New Jersey

	Central Estimate	Likely Range	1-in-20 Chance	1-in-200 Chance	1-in-1000 Chance
Year	<i>50% probability SLR meets or exceeds...</i>	<i>67% probability SLR is between...</i>	<i>5% probability SLR meets or exceeds...</i>	<i>0.5% probability SLR meets or exceeds...</i>	<i>0.1% probability SLR meets or exceeds...</i>
2030	0.8 ft	0.6 – 1.0 ft	1.1 ft	1.3 ft	1.5 ft
2050	1.4 ft	1.0 – 1.8 ft	2.0 ft	2.4 ft	2.8 ft
2100 Low emissions	2.3 ft	1.7 – 3.1 ft	3.8 ft	5.9 ft	8.3 ft
2100 High emissions	3.4 ft	2.4 – 4.5 ft	5.3 ft	7.2 ft	10 ft



Existing Tools



Sea-Level Rise and Coastal Flooding Impacts

Sea-Level Rise	Confidence
FIRMS / Surge	Marsh
Eco. Vulnerability	Soc. Vulnerability
Facilities	
Planning Using Total Water Levels	

Sea-Level Rise ④

4 ft SLR

- Legend
- Water Depth
 - Low-lying Areas
 - Area Not Mapped
 - Visualization Location
- [View Probability](#) ?

Overview

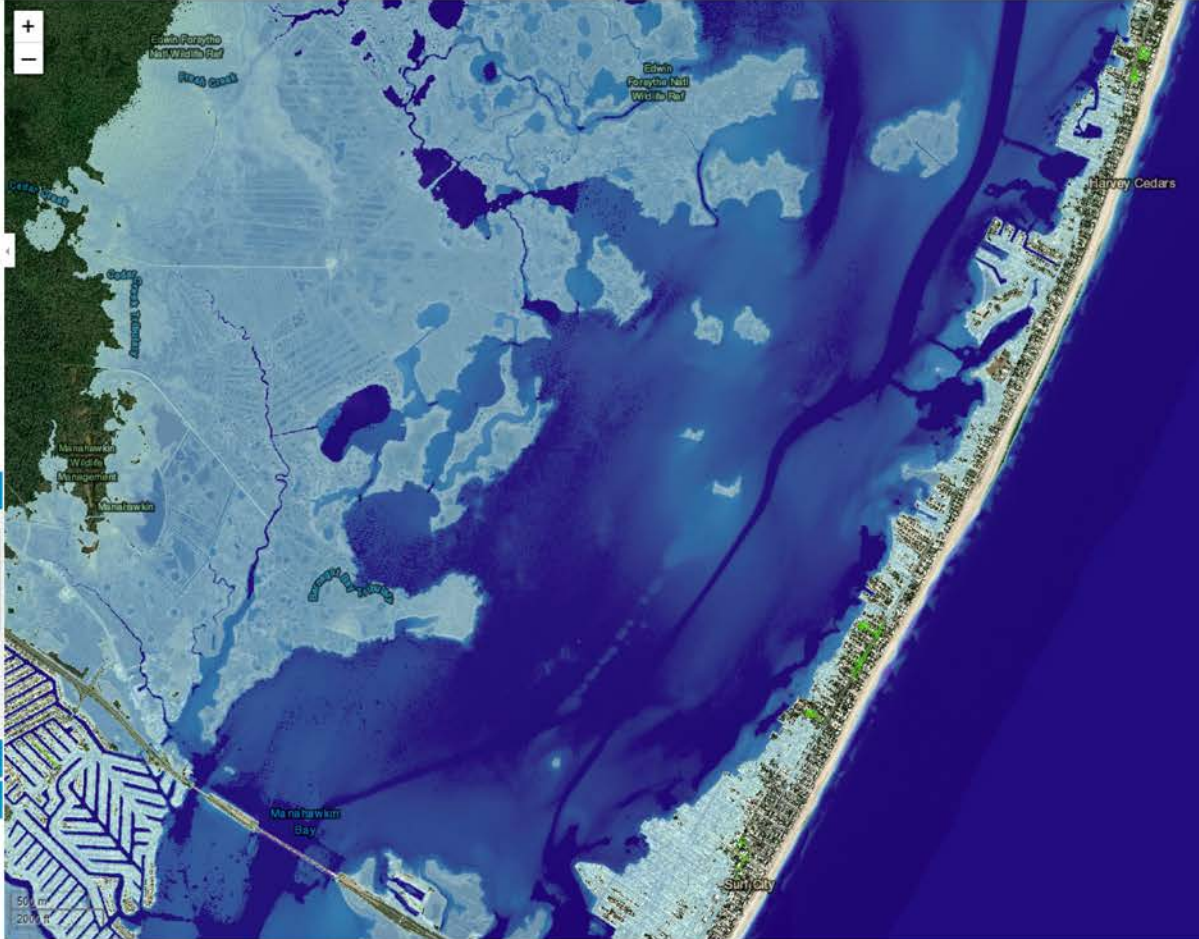
Use the slider bar above to see how various levels of sea-level rise will impact this area.

Levels represent inundation at high tide. Areas that are hydrologically connected are shown in shades of blue (darker blue = greater depth).

Low-lying areas, displayed in green, are hydrologically "unconnected" areas that may flood. They are determined solely by how well the elevation data captures the area's topography. These detailed details of...

[Understanding The Map](#)

[Additional Information](#)



Streets Download Share Map

Zoom To: New Jersey

NOAA Digital Coast

Coastal Hazards Along New Jersey's Coastal Zone

HISTORIC DISTRICTS



HALF of New Jersey's **HISTORIC DISTRICTS** are located in the coastal zone



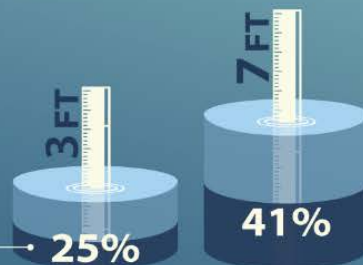
Of the 554 historic districts located in the coastal zone, 40% are projected to be impacted by a total water level of 1 foot above MHHW; 50% by a total water level of 5 feet; and 60% by a total water level of 12 feet above MHHW.

Coastal Hazards Along New Jersey's Coastal Zone

EVACUATION ROUTES



6 IN 7 miles of **EVACUATION ROUTES** in New Jersey* are located in the coastal zone



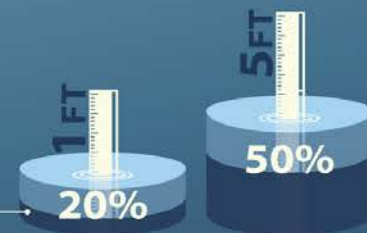
Of the 1,748 miles of evacuation routes located in the coastal zone, 25% are projected to be impacted by a total water level of 3 feet above MHHW and

Coastal Hazards Along New Jersey's Coastal Zone

COUNTY OPEN SPACE



4 IN 7 **COUNTY OPEN SPACE** properties in New Jersey are located in the coastal zone



Of the 5,886 county open space properties in the coastal zone, 20% are projected to be impacted by a total water level of 1 foot above MHHW and

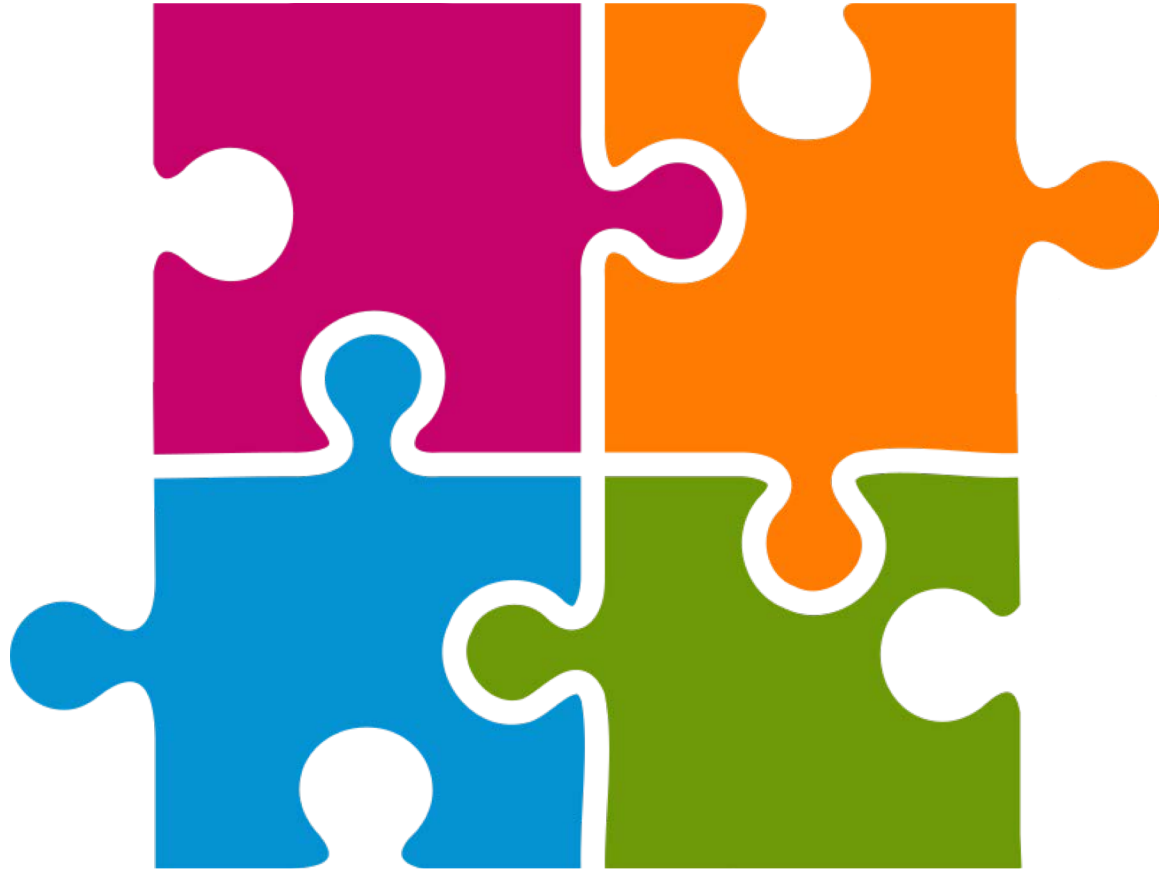
Getting to Resilience

www.PrepareYourCommunityNJ.org

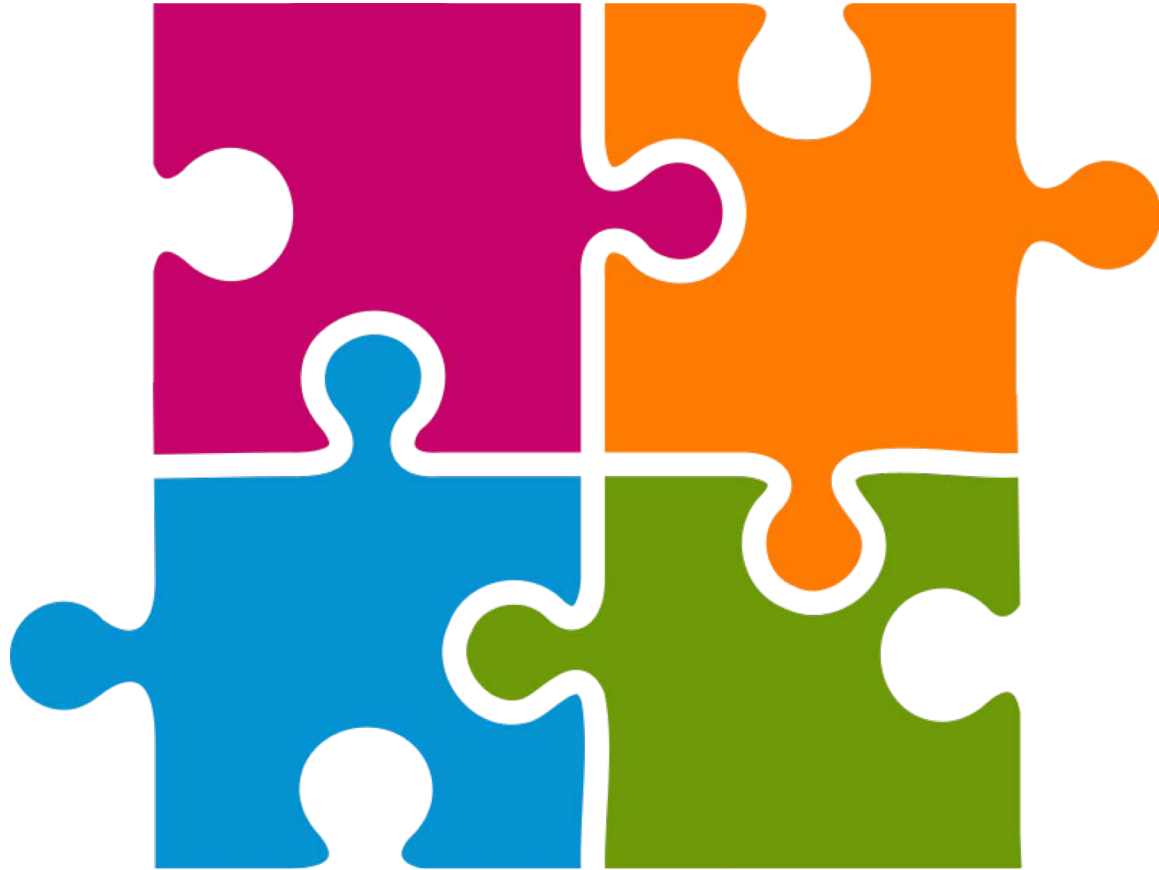


Community Plan

Plans, Ordinances, and Codes	Yes	No	Adopted
Municipal Master Plan			Yes
All-Hazards Mitigation Plan			
Floodplain Management Plan			
Emergency Response Plan			
Business Continuity Operations			



Varied Coastline



Partners



NJ Climate Adaptation Alliance



FEMA



Resilience Partners.

Municipal Members

- Land use Planners
- Hazard Mitigation Planners
- Floodplain Managers
- Emergency Managers
- Stormwater Managers
- Natural Resource Managers
- Municipal Engineers
- Town Administrators
- Construction Code Official
- Environmental Commissioners
- Clerks





Community

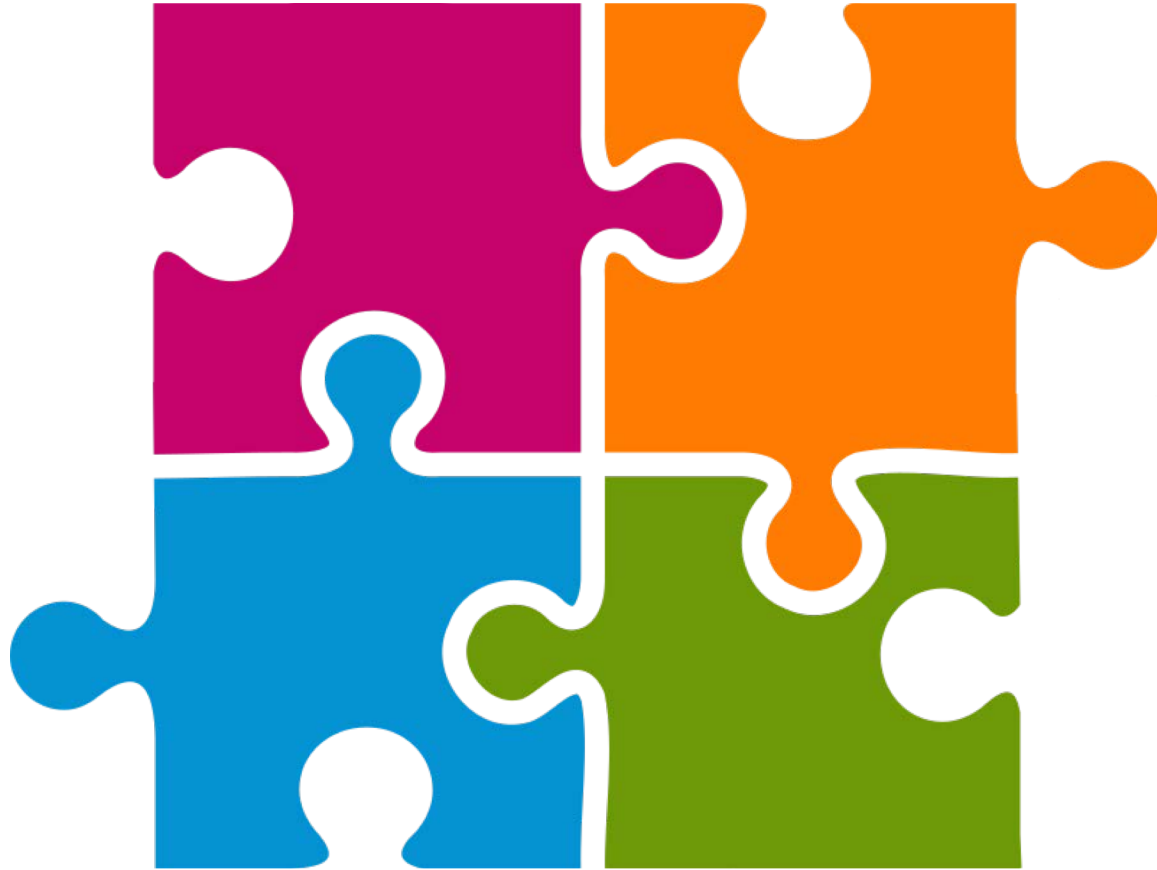




Public Engagement



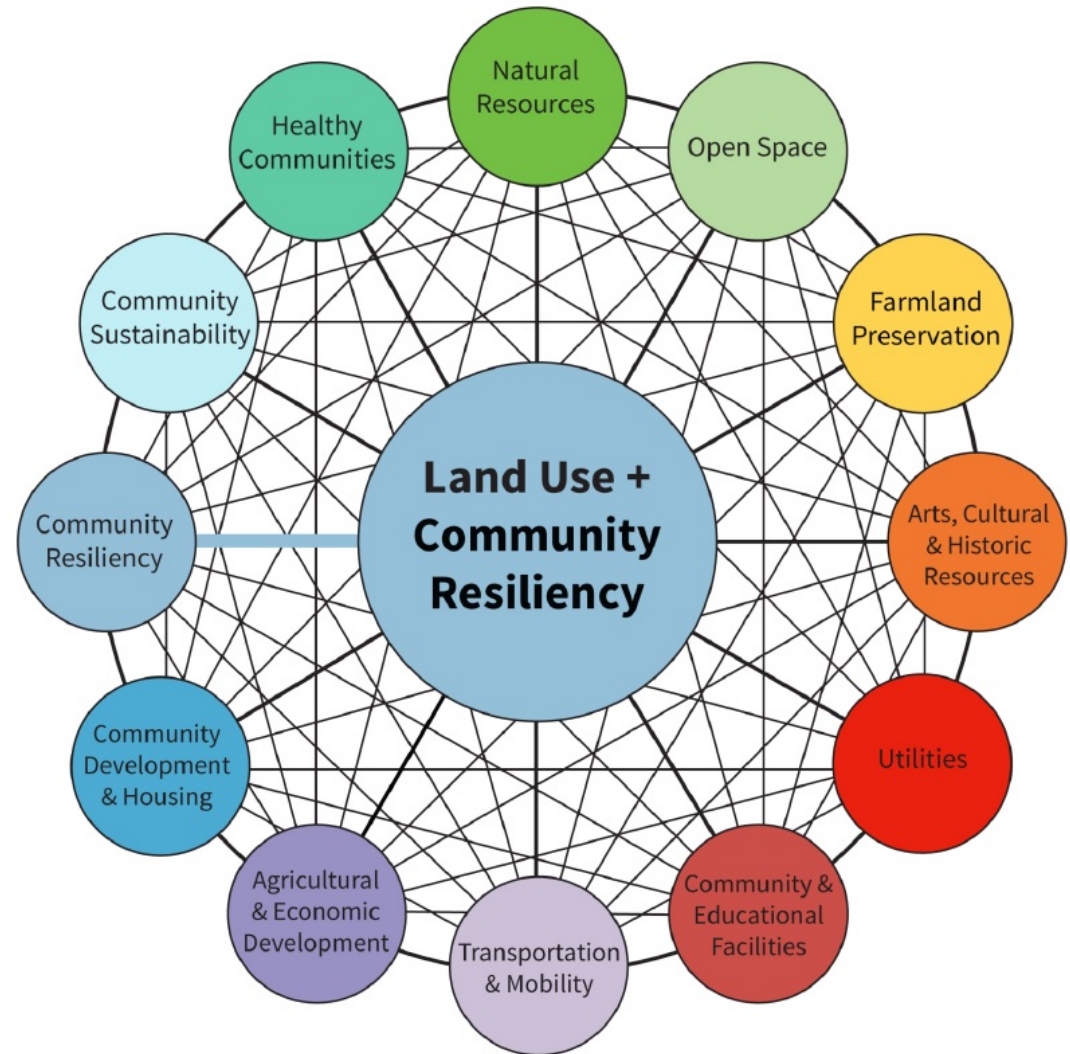
The Next Generation



Holistic Incorporation

Municipal Plans

- Master Plan
- All-Hazards Mitigation Plan
- Floodplain Management Plan
- Evacuation Plan
- Emergency Response Plan
- Continuity of Operations Plan
- Disaster Recovery Plan
- Open Space Plan
- Stormwater Management Plan





Cultural



Economic






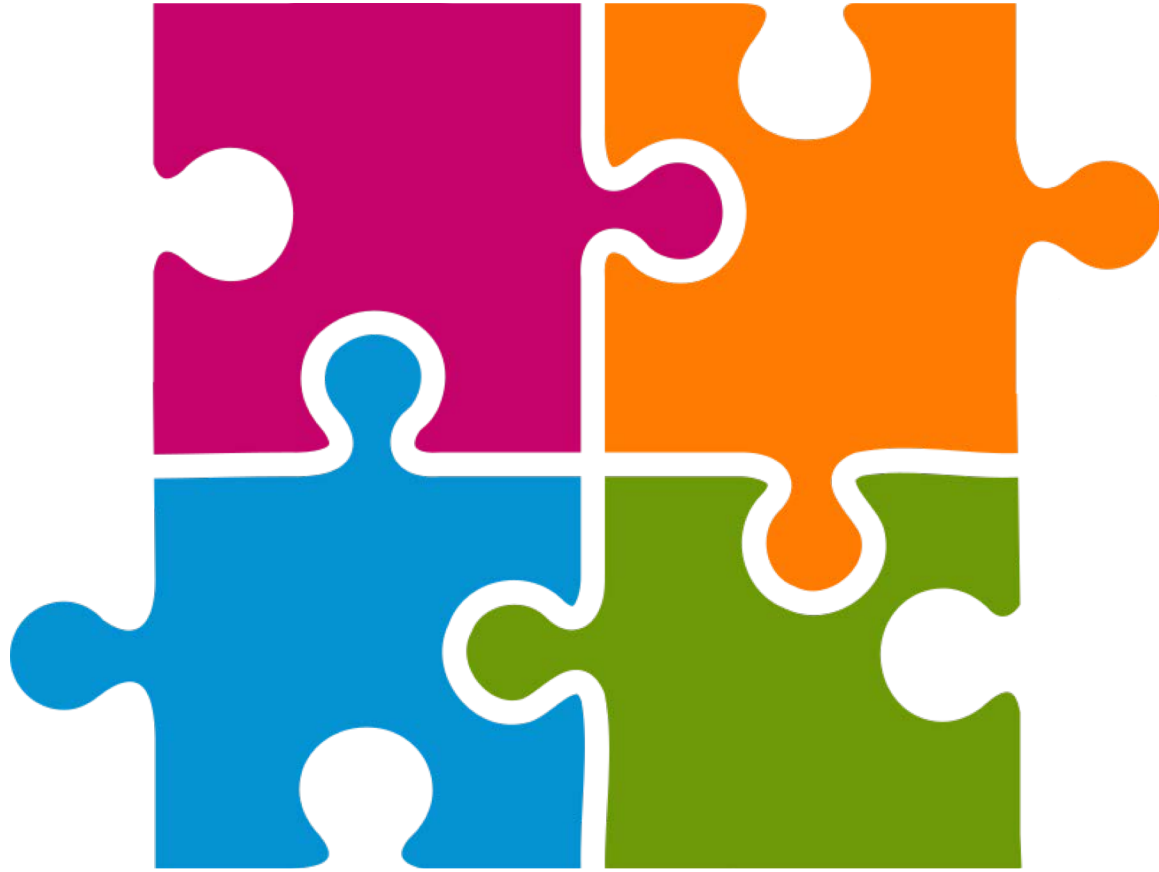
Social



Arts

The image shows two large, dark, oval-shaped objects, likely sea shells or sea turtles, resting on a rocky surface. The objects are dark brown or black with a smooth, slightly reflective surface. They are positioned in the upper and middle sections of the frame. The surrounding environment is rocky and covered with small, light-colored debris, possibly shell fragments or pebbles. There are also some small green plants growing in the crevices between the rocks. The overall scene suggests a coastal or marine environment.

Threatened and
Endangered

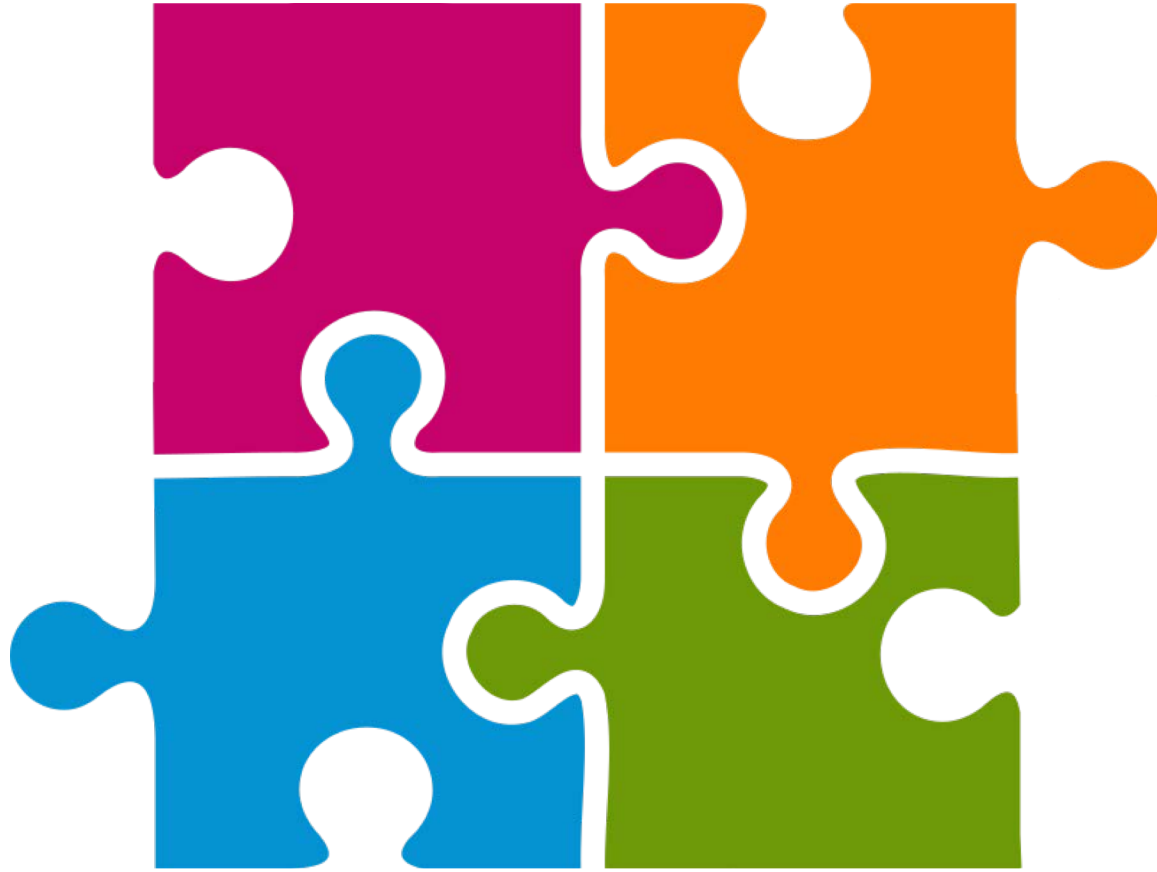


Grey Infrastructure



Hardened Structures





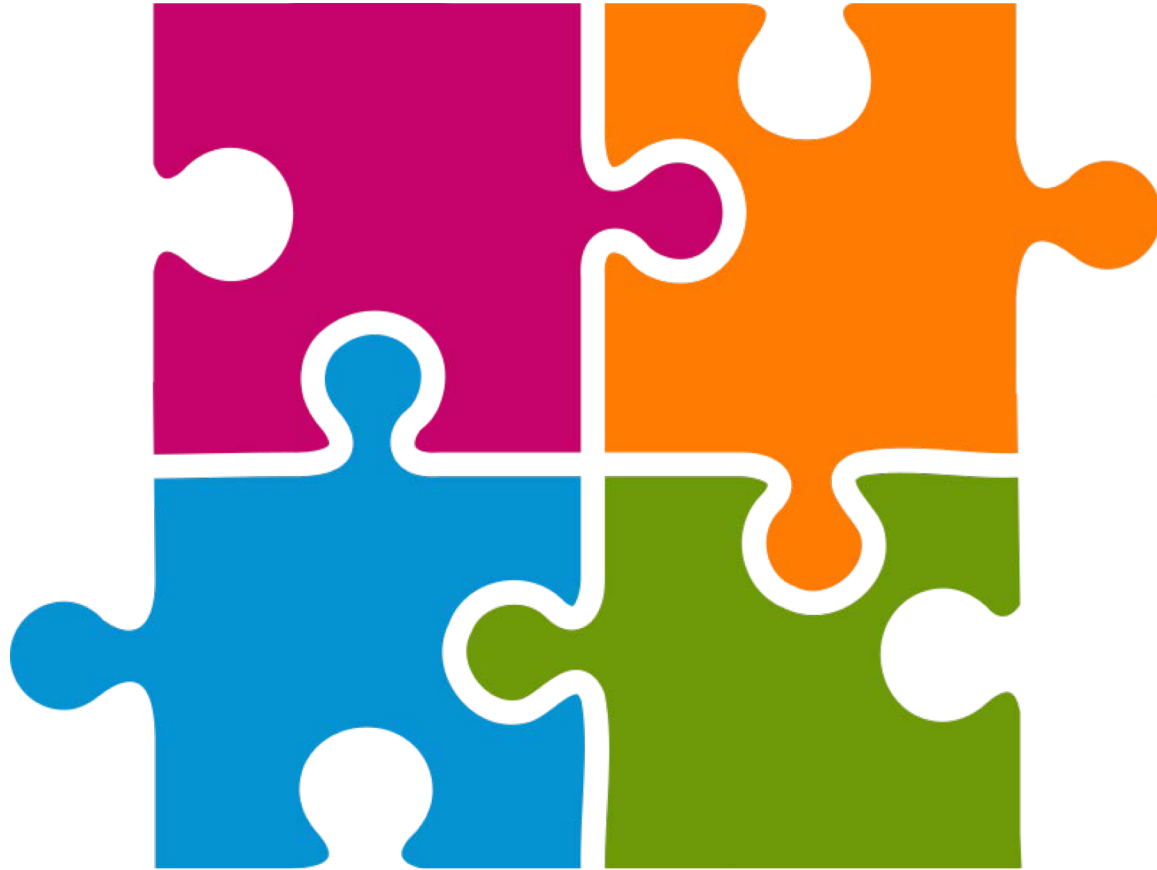
Green Infrastructure











Short-term & Long-term

Disaster Preparedness and Recovery

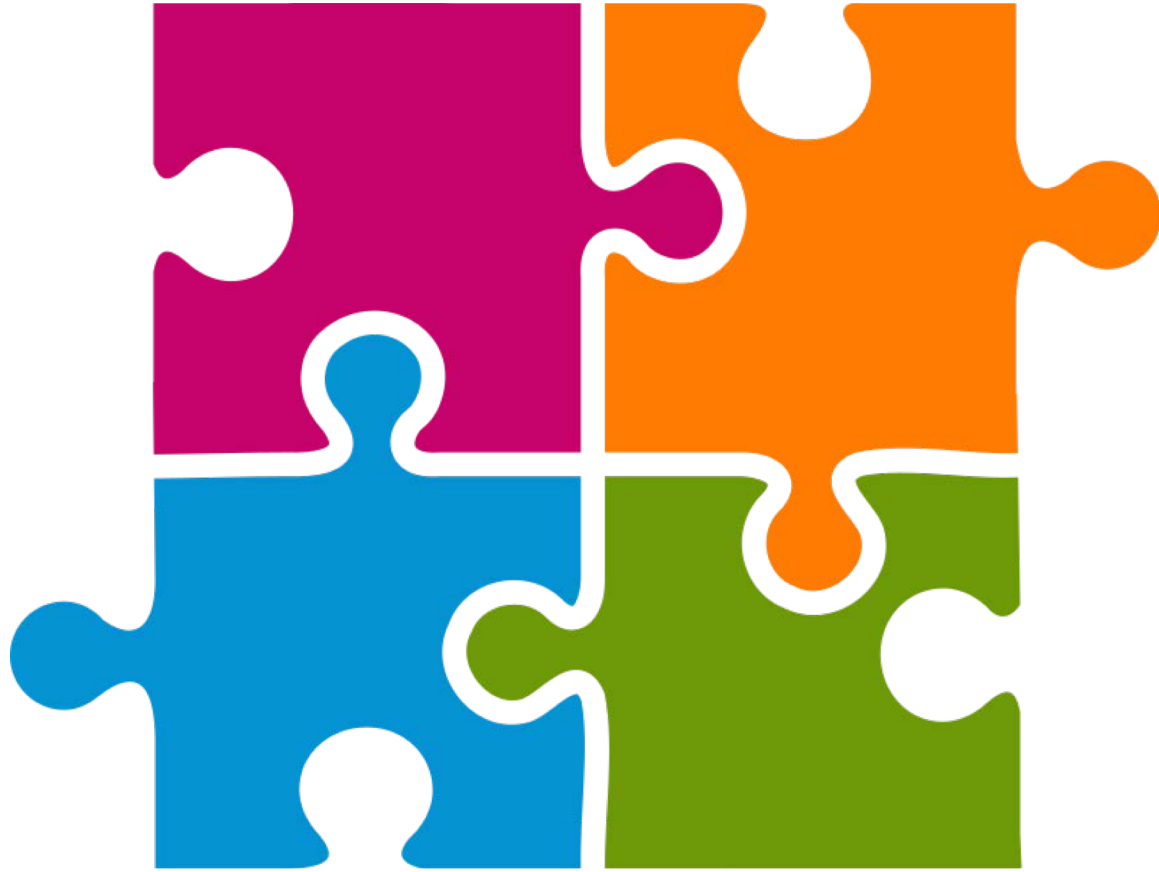


Hazard Mitigation Implementation



Long-Term





Agencies, Orgs, Academia



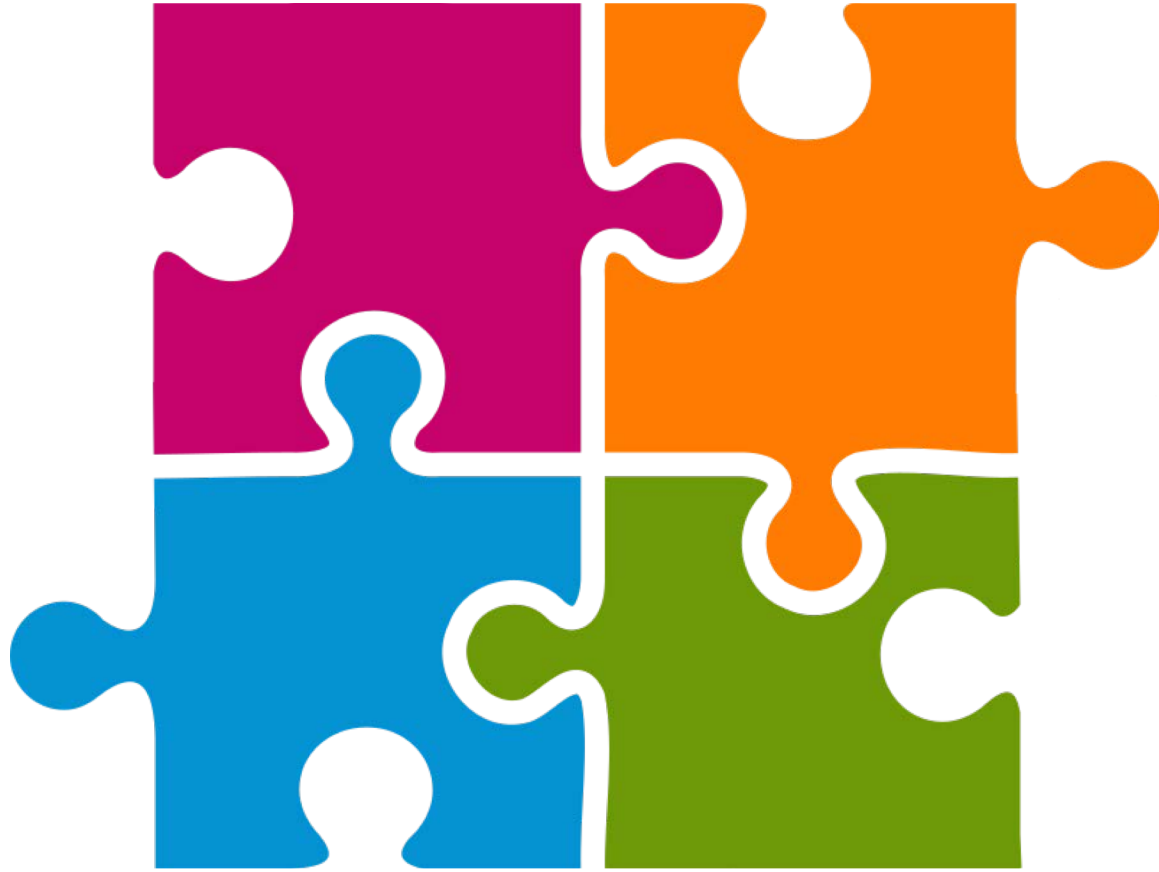
NJ Climate Adaptation Alliance



FEMA



Agencies, Orgs, Academia...



Ongoing State Efforts

Resilient NJ

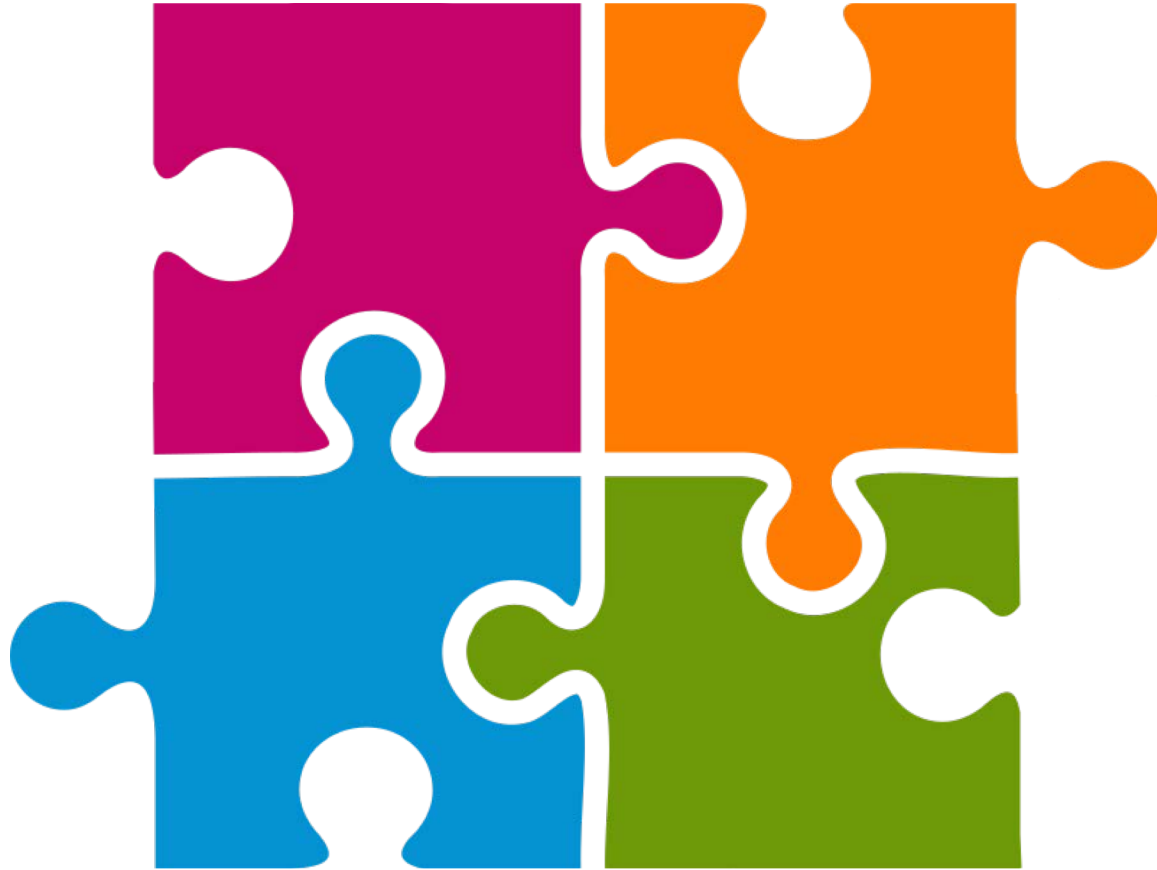


Regional Planning for a Stronger New Jersey

An aerial photograph of a coastal town. The foreground shows a dense residential area with many houses, some with docks and boats. The middle ground features a large, flat, marshy area with some water channels. In the background, a large body of water, likely a bay or ocean, stretches to the horizon under a clear sky.

COORDINATION MOVING FORWARD

**HAZARD MITIGATION PLAN
NEW STATE RESILIENCE PLAN**



Willingness to Adapt

PARKING
AREA
SUBJECT
TO
FLOODING






NO FOOT TRAFFIC
DANGER - HIGH
WATER - NO
ACCESS - NO
ACCESS - NO
ACCESS - NO





An aerial photograph of a coastal town, likely in New Jersey, showing a mix of residential buildings, a marina with several boats, and a body of water in the background. The image is split diagonally, with the top right portion showing a stylized tree made of colorful puzzle pieces.

**THE RESILIENCE
PUZZLE:
NEW JERSEY**





Lisa Auermuller, Asst. Manager