



New Jersey Coastal Flood Exposure Assessment

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To help inform coastal resiliency planning in the state of New Jersey, we undertook an assessment of coastal areas most exposed to coastal flooding, storm surge and sea level rise. The New York Department of State, in consultation with the NOAA Coastal Services Center, has developed a similar coastal flooding exposure assessment protocol. Through consultation with an expert panel, we identified criteria for the assessment protocol and ranking scheme (Table 1). The assessment distinguishes at least three classes of geographic areas based on variation in exposure to coastal hazards: moderate, high and extreme risk areas with extreme risk areas as those that are currently exposed to relatively frequent storms or chronic flooding. Both current and future risks are considered, the latter through incorporation of projected sea level rise at 2050 and 2100.

Table 1. New Jersey Coastal Flooding Exposure Assessment Protocol

Protocol Element	Available data	NJ ranking
1. Flood Hazard areas	1 and 0.2% annual SFHA A & V zones from ABFE /FIRM prelim maps	Extreme: V Zone High: 1% A& V Zones Moderate: - 0.2% (500 yr or X) zone
2. Storm Surge	SLOSH Cat 1-4	Extreme: High: SLOSH Cat 2 Moderate: SLOSH Cat 3
3. Shallow coastal flooding	NOAA/NWS Shallow Coastal Flooding (SCF)	Extreme: SCF High: Moderate:

The results for the Present Day (baseline without future sea level rise) assessment are displayed below in both map (Figure 1) and Tabular form (Table 2). The 2050 and 2100 assessments are in progress. Much of New Jersey's heavily developed Atlantic barrier islands/back bay, Cape May, Delaware Bayshore, Raritan Bay, Newark Bay and Hackensack Meadowlands communities are exposed to moderate to extreme levels of flooding exposure.

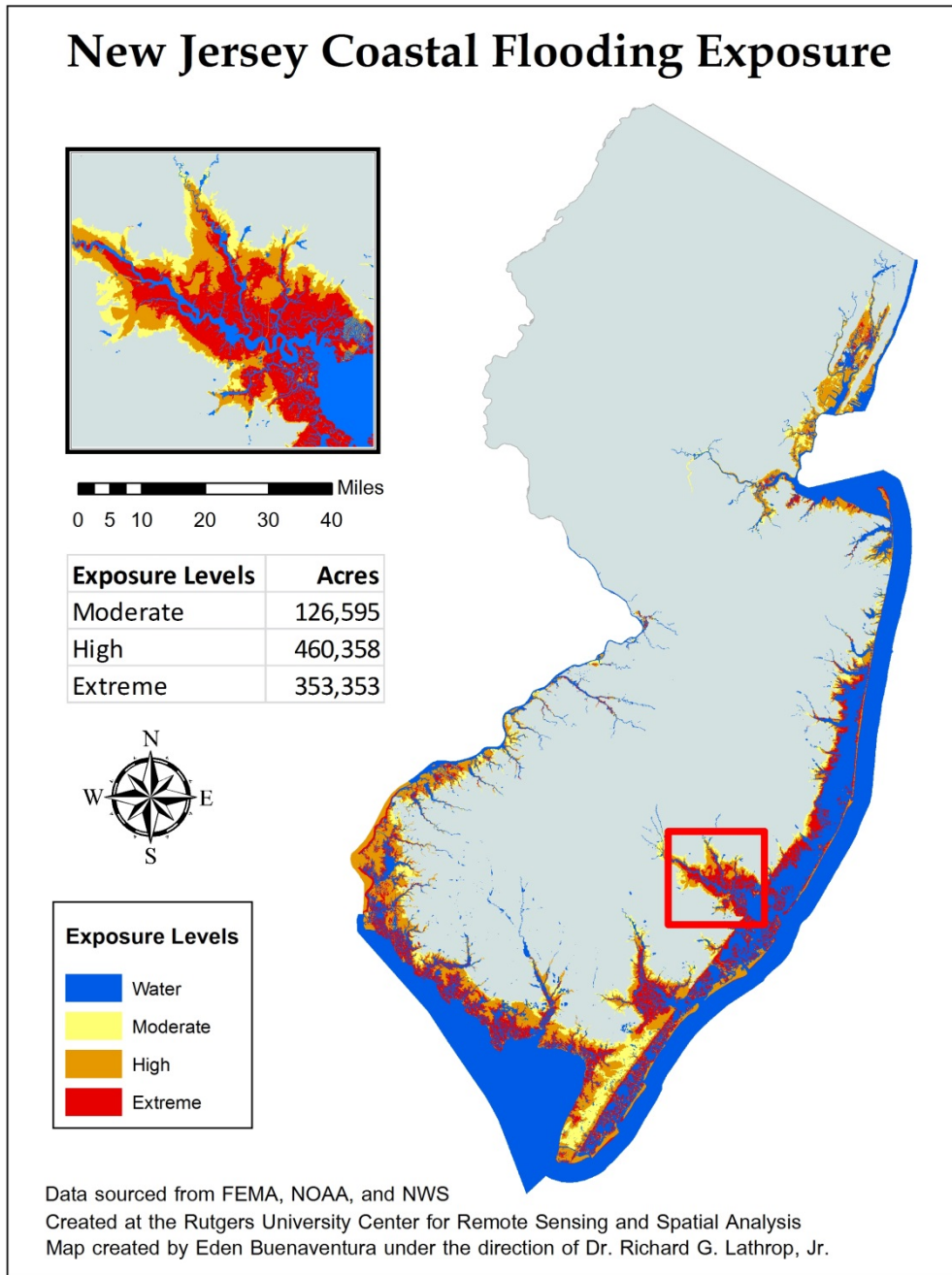


Figure 1. Map of Coastal Flooding Exposure under present day conditions.

Table 2. NJ Coastal Flood Exposure: Area by category (in acres).

Category	Area (ac)
Moderate	126,595
High	460,358
Extreme	353,353

Within these areas exposed to coastal flooding, there is a noteworthy amount of infrastructure in terms of major roads/evacuation routes, critical facilities, contaminated sites and properties that is at risk (Table 3). Also at risk are segments of society that may have limited capacity to prepare for or recover from extreme flooding events (Table 3). In planning for enhanced coastal resiliency, it is vital to consider the populations, facilities and resources at risk which can be evaluated for options such as floodproofing, property buy-outs or other adaptation options.

Table 3. Built infrastructure and socially vulnerable populations exposed to coastal flooding by exposure category.

Infrastructure	Moderate	High	Extreme
<i>Miles of road affected</i>			
Major Roads (miles)	222	576	50
Evacuation Routes (miles)	170	461	63
<i># of facilities affected</i>			
Wastewater Treatment	6	37	5
Coastal Energy Facilities	11	28	0
Schools	126	229	3
Fire Stations	72	150	7
Law Enforcement	33	72	5
Long Term Care / Assisted Living Facilities	14	21	0
Hospitals	5	9	0
<i>Socially vulnerable populations (2010 Census)</i>			
Zero Vehicle Households (persons)	17,251	59,223	12,941
Limited English Proficiency (persons)	41,492	114,128	20,028
Over 65 years in age (persons)	36,730	103,751	42,083
<i>Known Contaminated Sites (NJDEP)</i>			
Active Sites with Confirmed Contamination	667	2,063	172
Total (including pending sites)	758	2,295	192
	M-H-E categories combined		
<i>Property parcels affected</i>	# affected	\$ Land value	
Commercial Properties	20,310	\$12,130,630,476	
Industrial Properties	3,041	\$2,458,963,900	
Residential Properties (includes Apartments)	351,002	\$80,769,359,867	