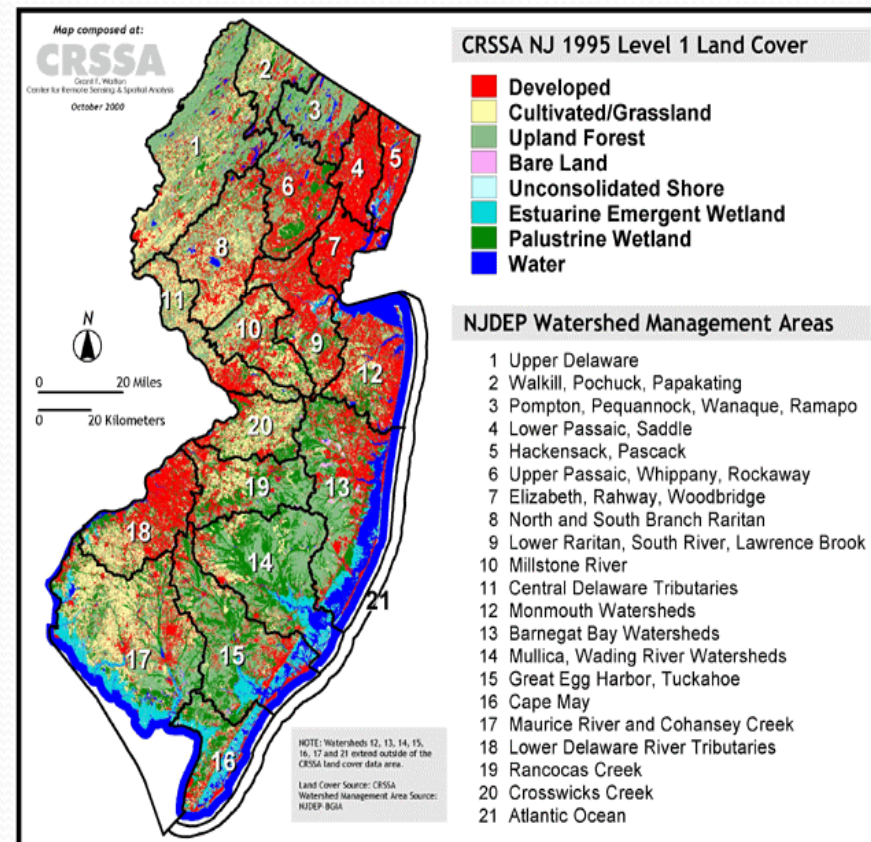
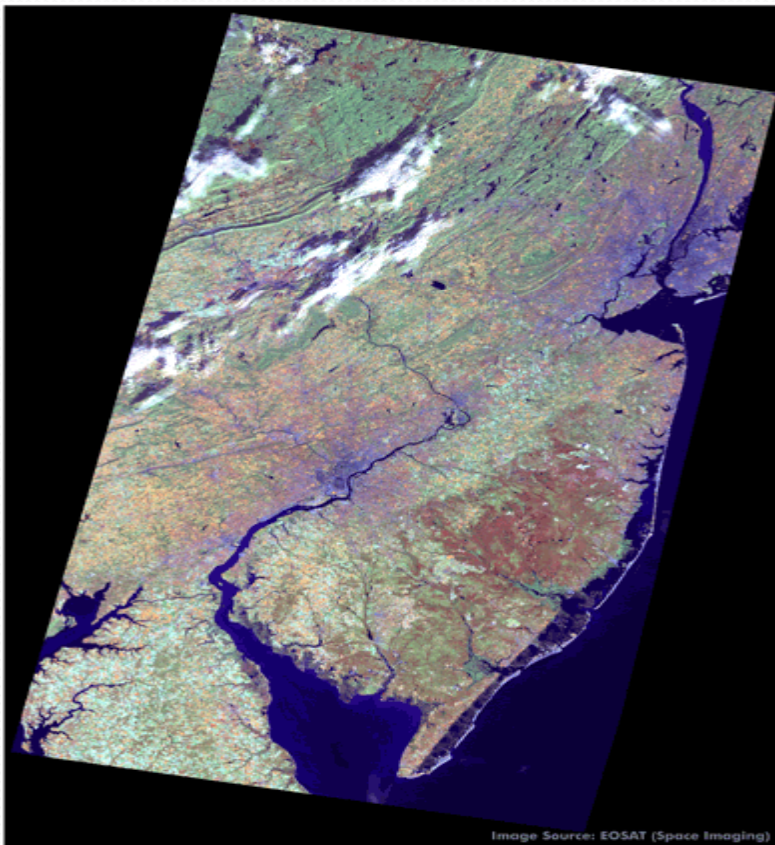


# CLIMATE CHANGE IN NEW JERSEY: PREPARING OUR INFRASTRUCTURE

MARK N. MAURIELLO

NEW JERSEY ASSOCIATION FOR FLOODPLAIN  
MANAGEMENT ([NJAFM.ORG](http://NJAFM.ORG))

# NJ LANDSAT AND LAND COVER

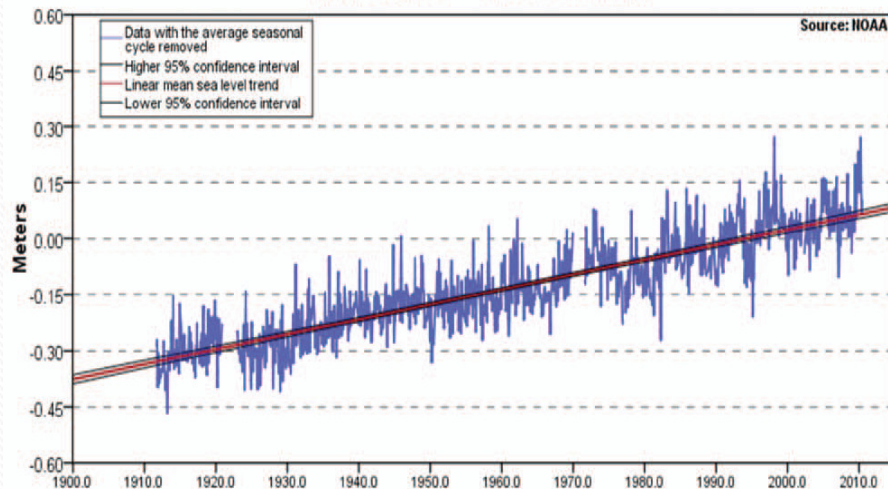




# FLOOD HAZARD VULNERABILITY TRENDS AND FUTURE CONDITIONS

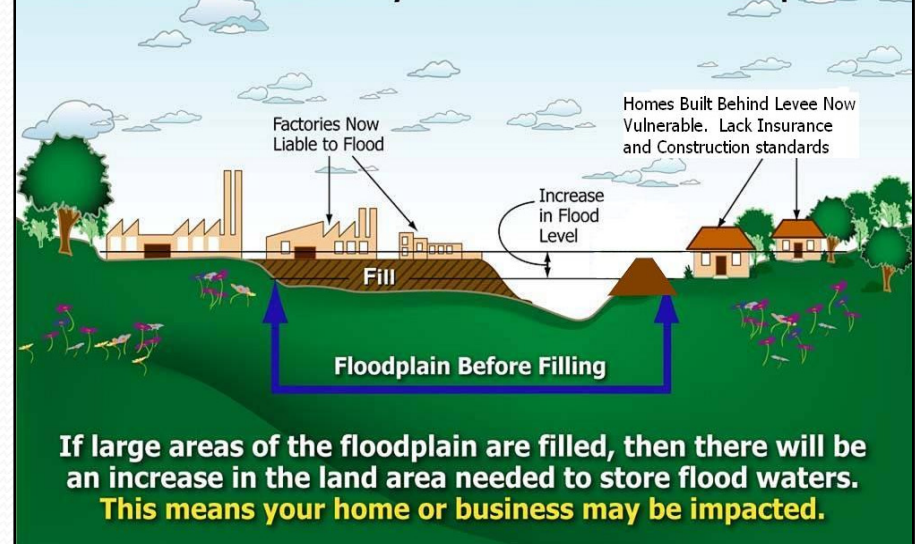
## Mean Sea Level Trend 8534720 Atlantic City, New Jersey

Atlantic City, NJ 3.99 +/- 0.18 mm/yr



The mean sea level trend is 3.99 millimeters/year with a 95% confidence interval of +/- 0.18 mm/yr based on monthly mean sea level data from 1911 to 2006 which is equivalent to a change of 1.31 feet in 100 years.

## Today's Floodplain Is Not Necessarily Tomorrow's Floodplain

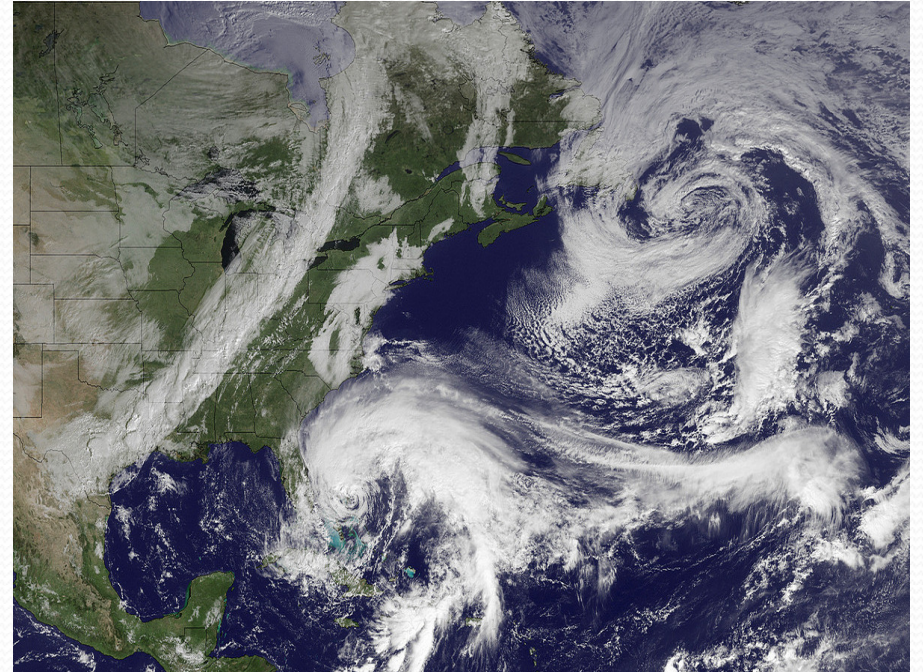




# EXTREME WEATHER

IRENE

SANDY





# Residential Development

- Elevation
- Flood Mapping & ABFEs
- Floodproofing
- Retrofits
- CRS (NJ @ 10%)
- Acquisition and Relocation
- NFIP Reform





# Stormwater Management

- Backflow
- Water Quality
- Mechanical Systems
- Containment
- LID
- Green Infrastructure





# Power Infrastructure

- Generating Facilities
- Substations
- Power Lines
- Transformers
- Gas Lines
- ROW Maintenance
- Siting
- Gas Stations





# Mass Transit

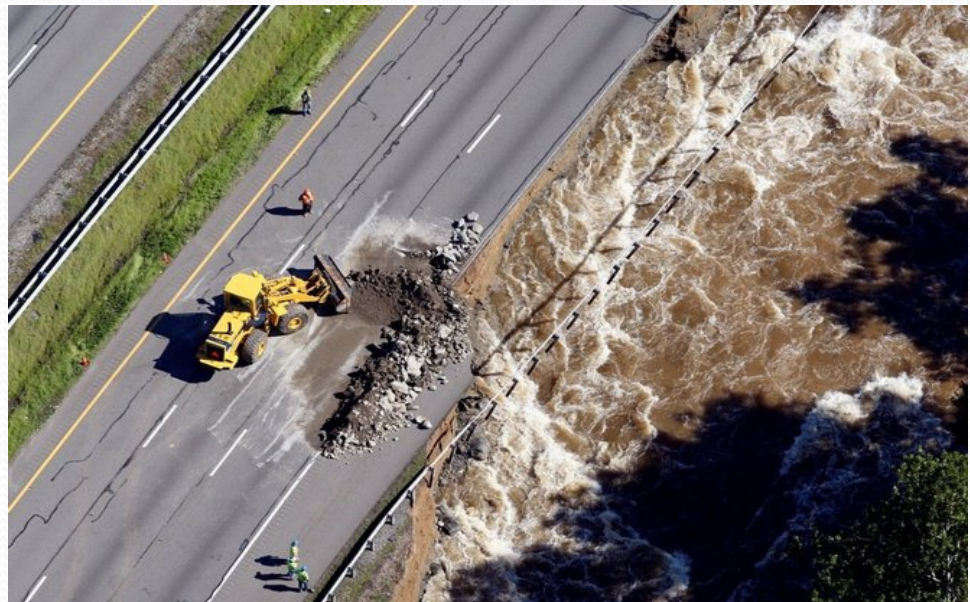
- PATH
- NE Corridor
- NJ Coast Line
- Rail Stations
- Rail Yards (NJ Transit...  
350/\$120M)
- Ferries





## Roads and Bridges

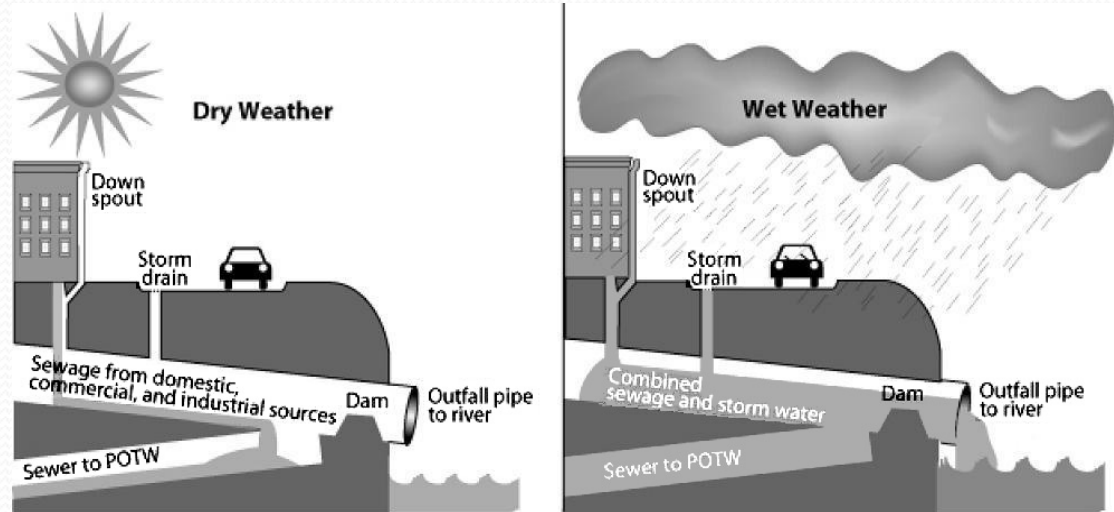
- Inundation
- Scour
- Undermining
- Passing Flows
- Causeways
- Emergency Evacuation
- Associated Utilities





# Wastewater Treatment

- Flood Mitigation
- CSOs
- Inflow and Infiltration
- Capacity
- Emergency Power Generation

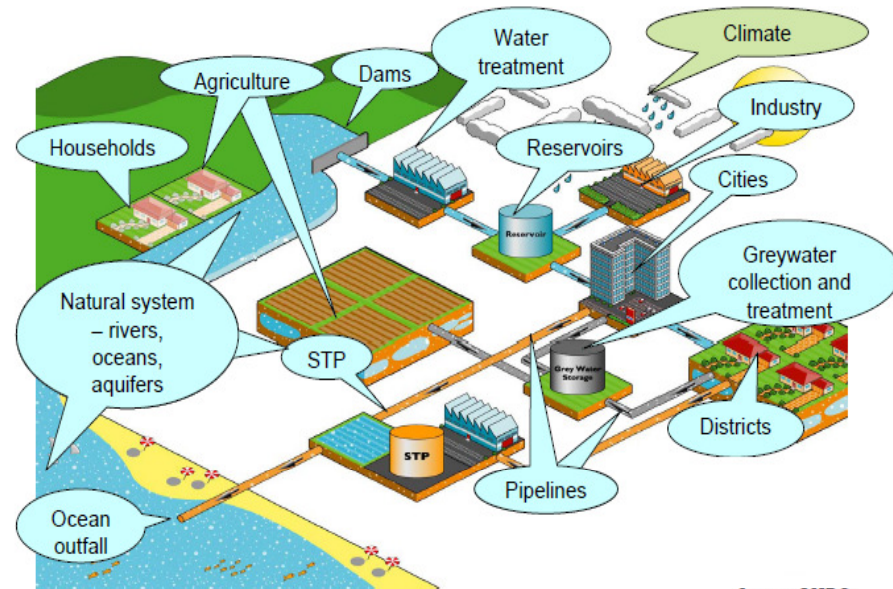




# Water Supply

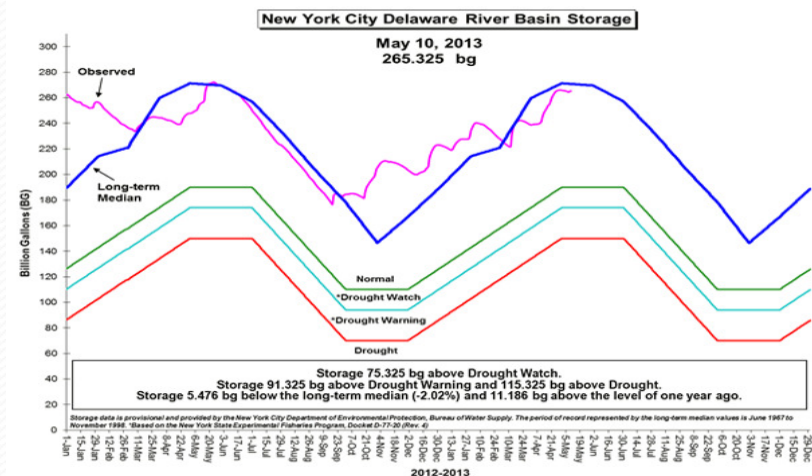
- Source/Supply
- Treatment
- Distribution and Delivery
- Saline Intrusion
- Antiquated Infrastructure
- Reservoir Management
- Stream Flows
- Private Wells
- Water Supply Plan?

## Urban Water Cycle



Source: CSIRO

### NYC DRB Reservoirs





# Shorelines

- SLR/Chronic Erosion
- Static Shorelines
- Waves & Surge
- Over-Reliance on Engineering
- Stressed Natural Systems
- Barrier Island “Drowning”
- Long-Term Planning/Priorities
- Inadequate Risk Communication





# SKEWED SPENDING

## DISASTER SPENDING

## PRIORITIES ?

**TABLE 1**  
**Federal spending on disaster relief and recovery, 2011–2013**

Fiscal year appropriations or supplemental bill spending	Estimated disaster-relief spending (in millions of \$)
FY 2011	\$21,376
FY 2012	\$32,412
FY 2012 supplemental appropriations	\$8,174
FY 2013	\$14,321
FY 2013 Superstorm Sandy supplemental appropriations	\$60,210
<b>Total</b>	<b>\$136,493</b>

Notes: The Treasury Department has two disaster-related programs, but funding levels are unavailable. Figures are rounded.  
Sources: Annual department budget reports; appropriations and supplemental appropriations law. For more detail, see the attached spreadsheet.

- **GOOD RESPONSE TO “FAST MOVING CRISES”**
- **NOT SO GOOD RESPONSE TO “SLOW MOVING CRISES”**





## NEED TO FOCUS ON...

- Comprehensive Planning
- Spending Based on Long-Term Costs and Benefits
- Future Conditions
- Leveraged Funding
- Mitigation



*“Charting a Course for Community Resilience”*

**New Jersey Association for Floodplain Management  
(NJAFM)**

**9th Annual Conference**

**Revel**

**Atlantic City**

**10.16.2013 - 10.17.2013**

*The Premier Flood Conference in the Northeast*

