

FLOODING IMPACTS ON FRESHWATER DISTRIBUTION SYSTEM



Stony Brook University
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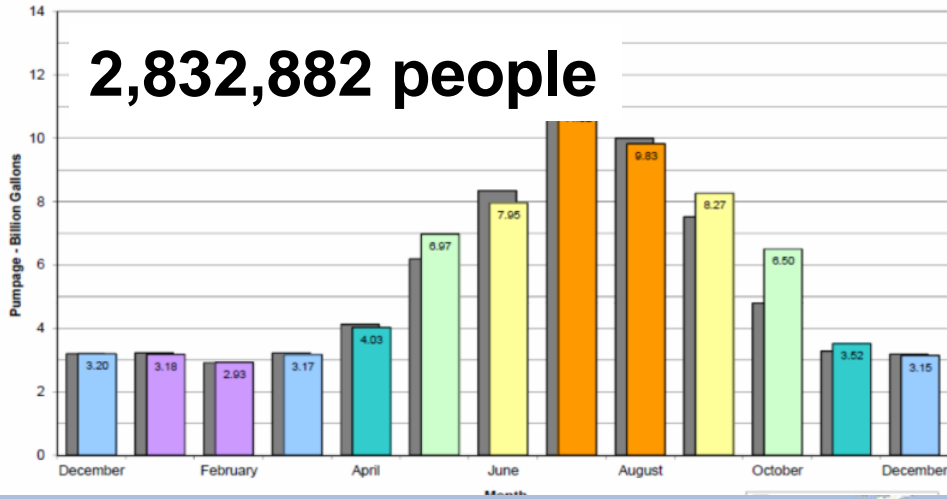
Work Unit 2.4



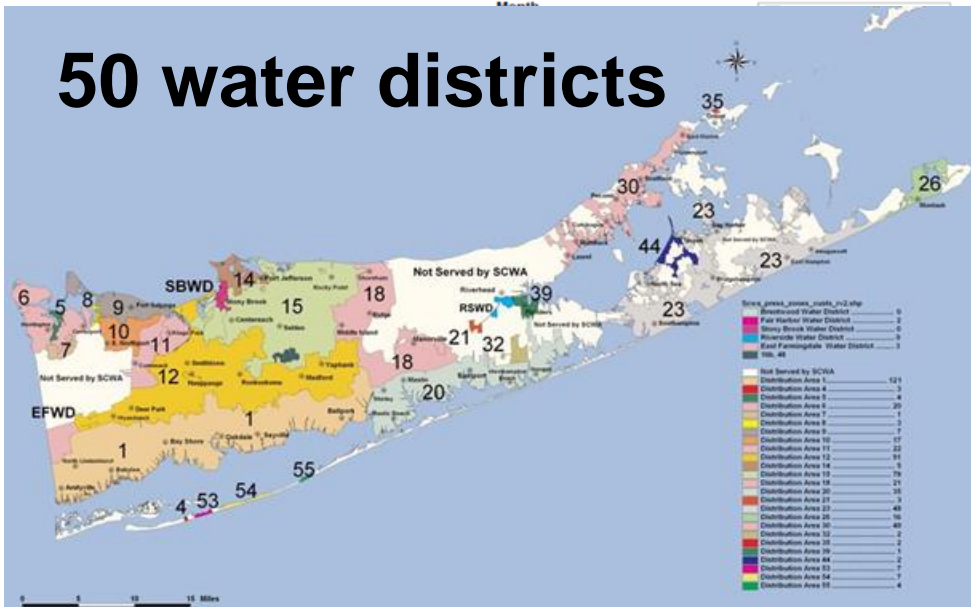
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BACKGROUND

Total System Pumpage
December 2013 & Previous 12 Months With 5 Year Average



50 water districts



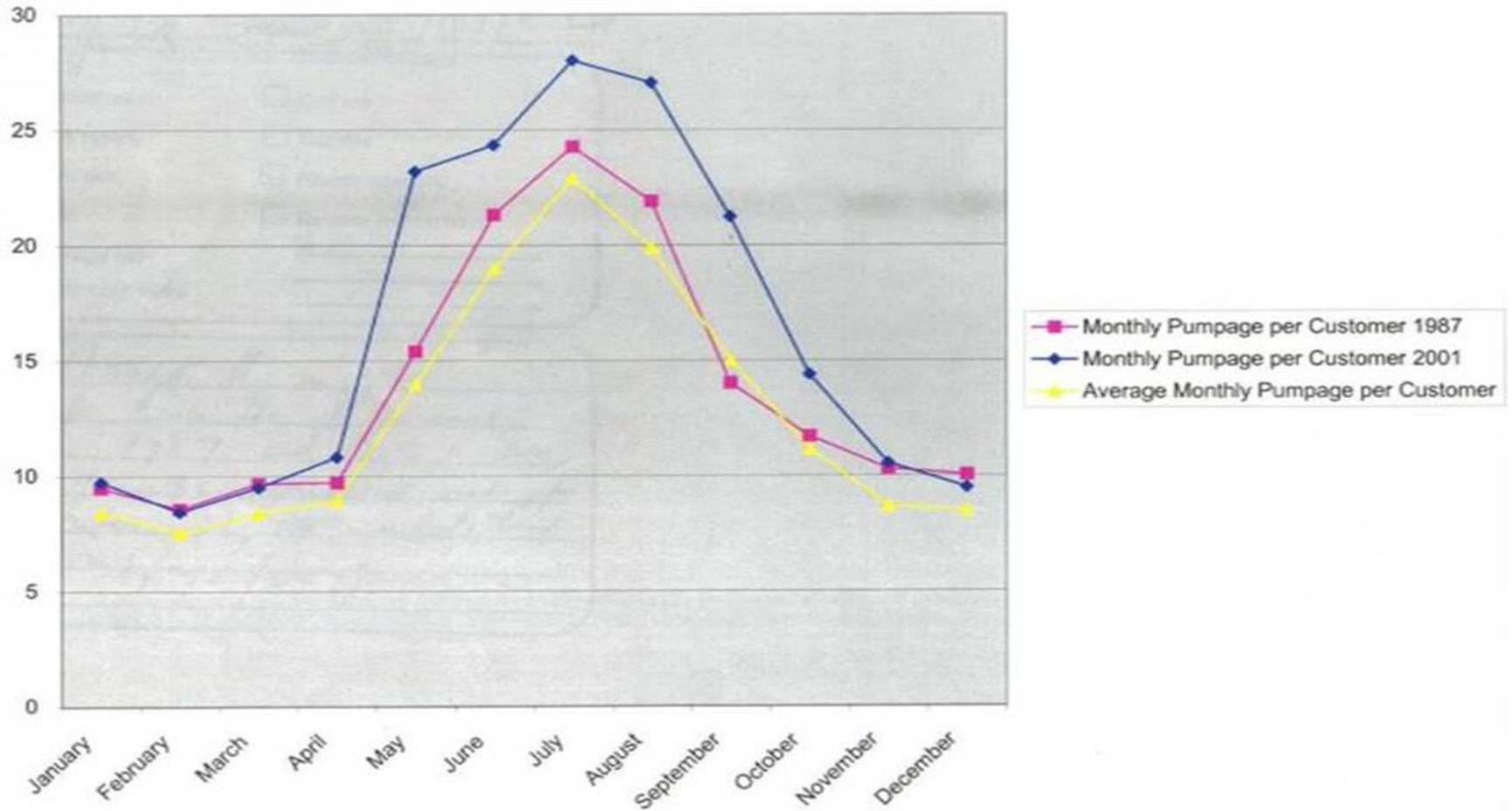
PROJECT SCOPE

- Impacts of flooding on groundwater supply and quality disruptions exemplified by Long Island
- Resiliency and redundancy in Long Island's groundwater supply systems due to Sandy
- Flooding issues for the Long Island, sole-source aquifer in light of climate change



DATA

Monthly Pumpage Per Customer 1987 and 2001
Suffolk County Water Authority



LESSONS LEARNED

Back-up generators kept almost all supply systems functioning but:

- Getting priority fuel supplies was difficult, but not impossible
- Long run-times required extra maintenance of the generators
- Systems on Fire Island were shut down due to damage and flooding
- Some values were inaccessible due to burial and debris
- Some wells, mostly private wells were flooded and required long purging times
- Shallow aquifers in flooded region were contaminated with salt, sewage, oil, etc.
- Flooded, deep monitoring wells carried salt into deep aquifers
- Salt, sewage and oil contamination persisted in the vadose zone of flooded area
- There was a high demand for post-Sandy clean-up.

DATA

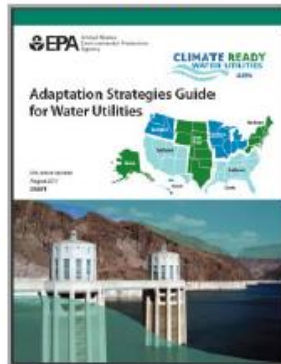
Climate Ready Process

Adaptive Response Framework



Explore Elements of Climate Readiness

Adaptation Strategies Guide



Learn Climate and Adaptation Basics

Toolbox

- Featured Resource
- Region Map
- Activities
- Funding
- Publications and Reports
- Tools and Models
- Training, Workshops and Seminars

Research and Gather Information

Extreme Events Workshop Planner



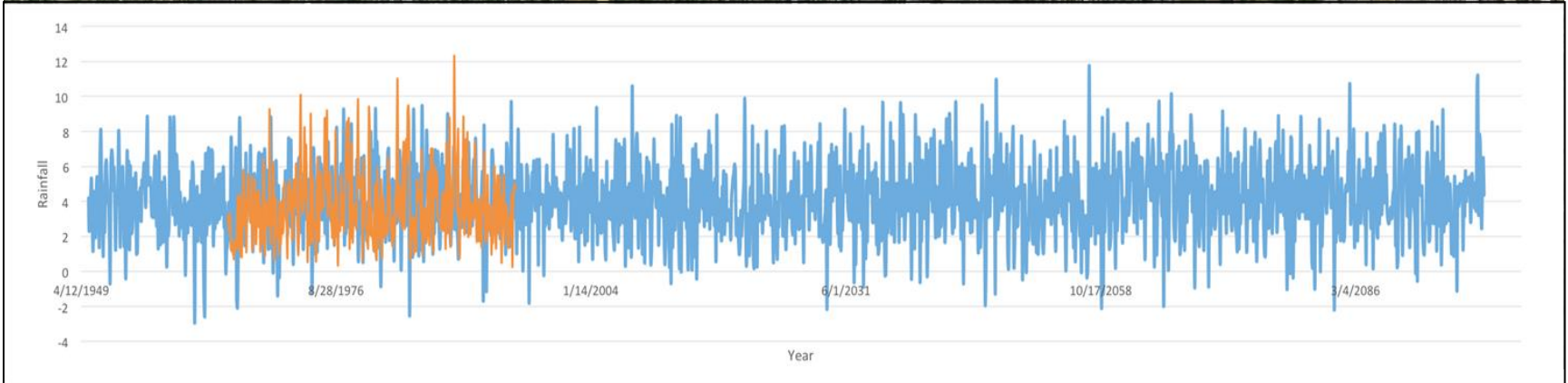
Collaborate with Partners

Climate Resilience Evaluation and Awareness Tool



Assess Risks and Evaluate Opportunities

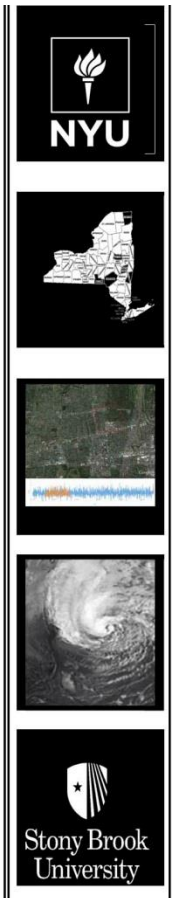
RESULTS



CONCLUSIONS

We can do better

- Add redundancy and interconnections to isolated water districts
- Provide all districts with local predictions of:
 - Sea-level rise
 - Recharge
 - Droughts
 - Extreme rainfall



FLOODING IMPACTS ON FRESHWATER
DISTRIBUTION SYSTEMS IN NASSAU
AND SUFFOLK COUNTIES

NYSRISE TR-14-15

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