

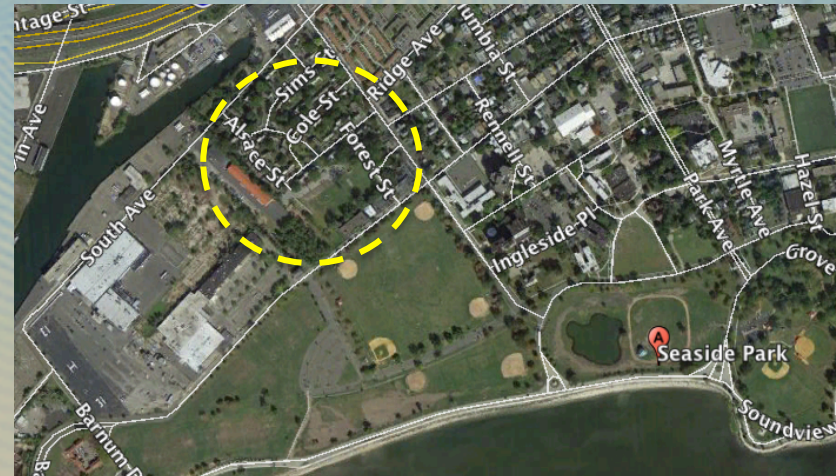
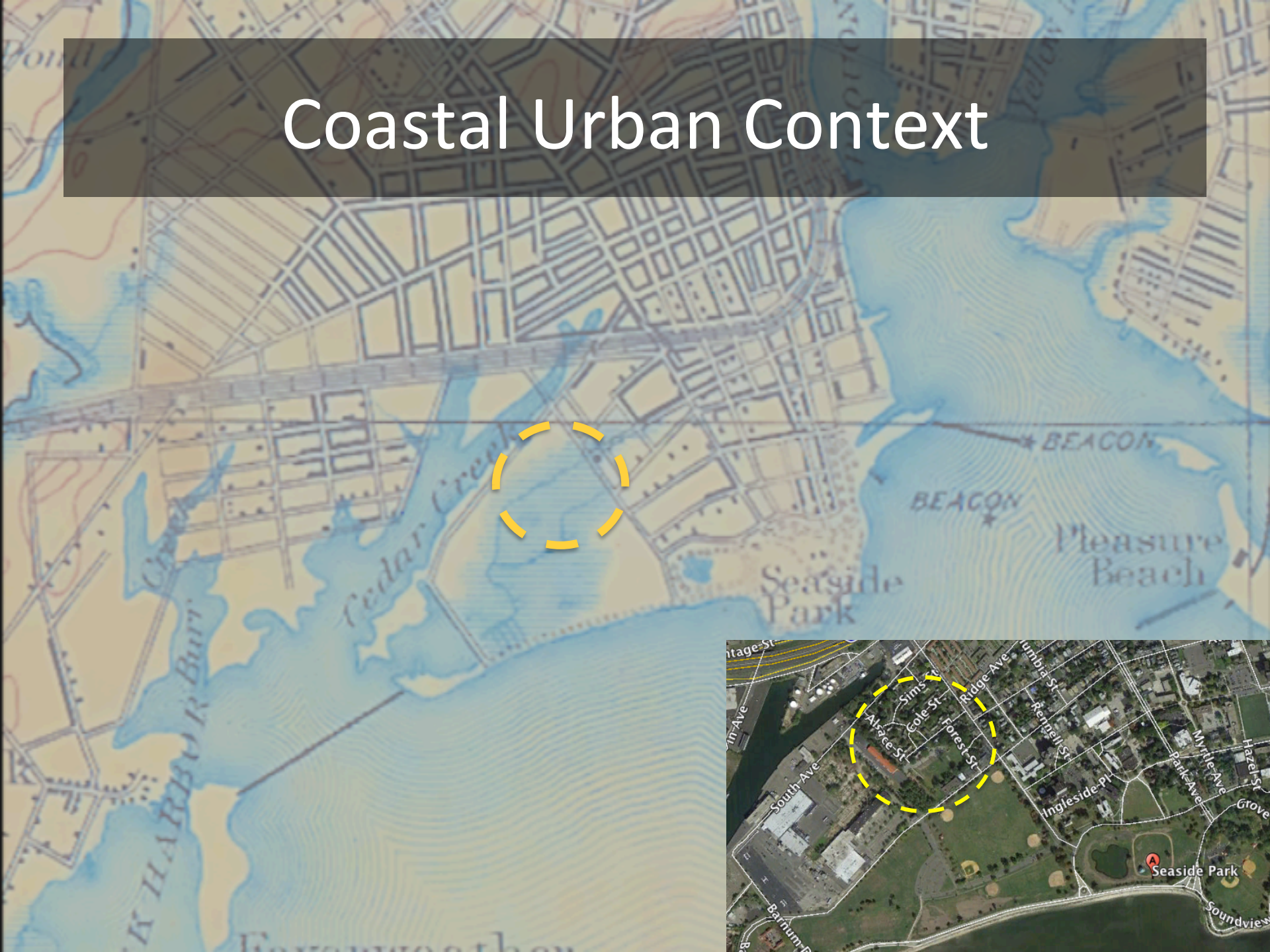
A topographic map of Seaside, Oregon, showing a grid of streets, Cedar Creek, and the harbor. The map is in shades of blue and tan. The title 'WATER BUDGETS OF COASTAL RAIN GARDENS' is overlaid in large, bold, black letters. Below the title, the author's name 'Selena Pang' and her title '2014-15 Hixon Fellow' are also overlaid in black text. The map includes labels for 'Cedar Creek', 'Seaside Park', 'Pleasure Beach', 'BEACON', 'LIGHT', and 'HARBOR'.

WATER BUDGETS OF COASTAL RAIN GARDENS

Selena Pang

2014-15 Hixon Fellow

Coastal Urban Context

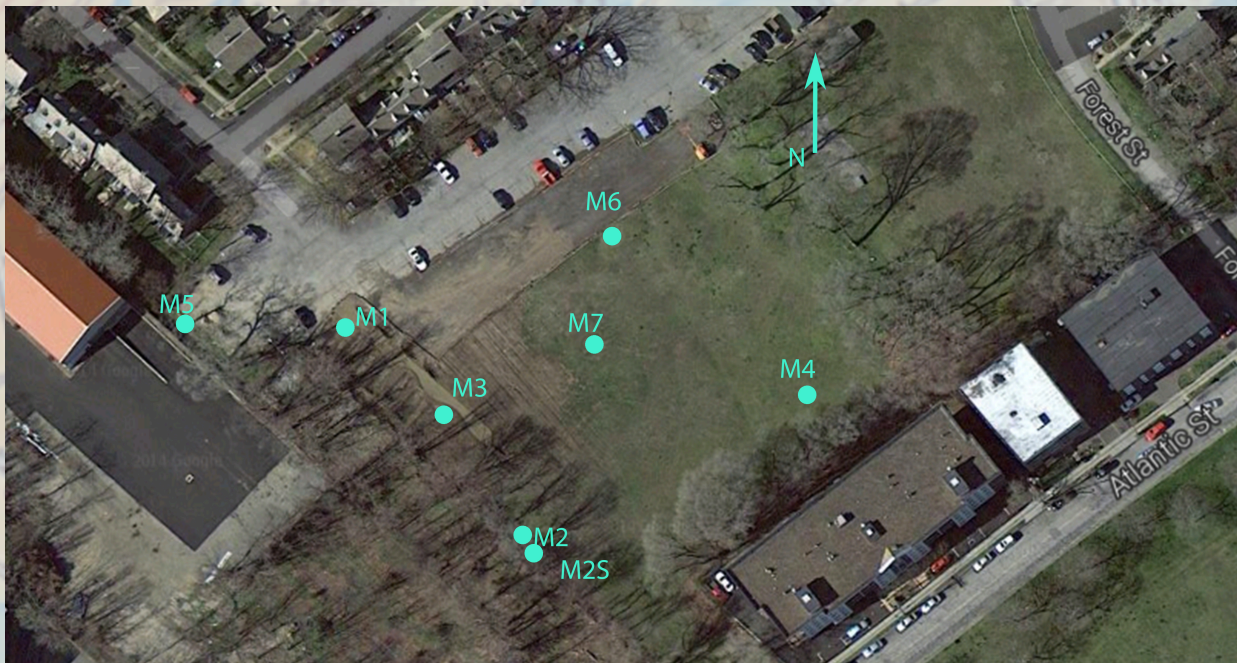


Study Area



Research Goals

- (How) does GSI work in a coastal context?
 - Physically: water budget
 - Socially: additional benefits (see my report!)



Methods

- Treatments
- **Soil and plant**

- Water budget:

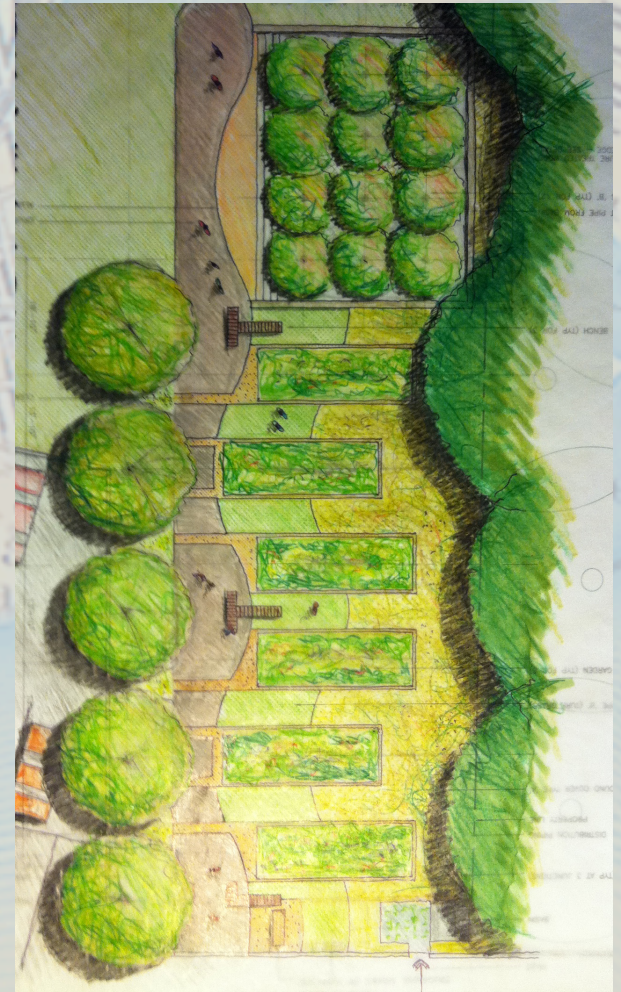
INFLOW

+ PRECIPITATION

-EVAPOTRANSPIRATION

± GROUNDWATER

= CHANGE IN STORAGE



Methods

- Treatments
- **Soil and plant**

- Water budget:

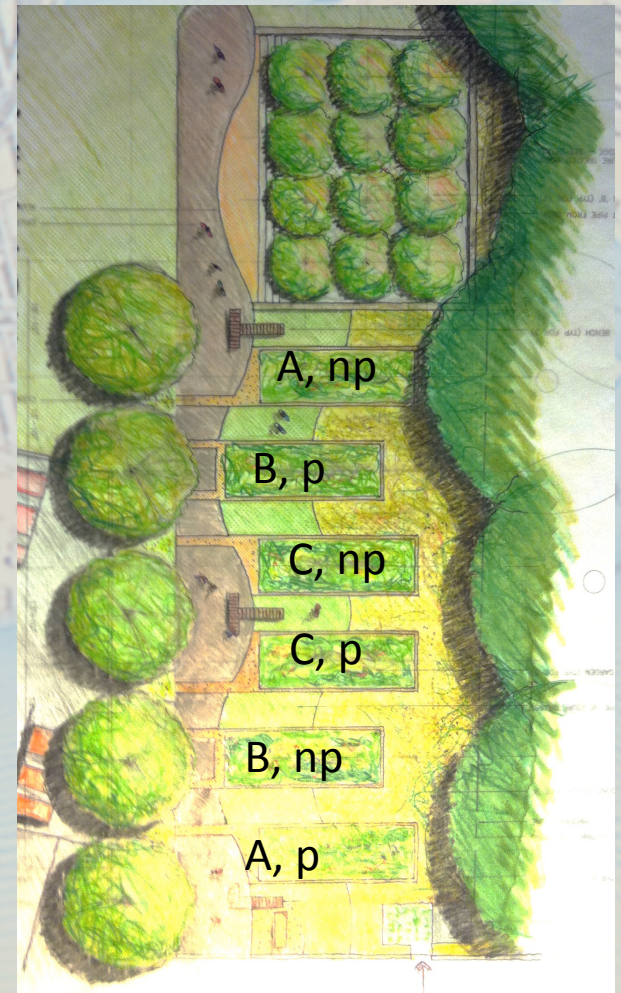
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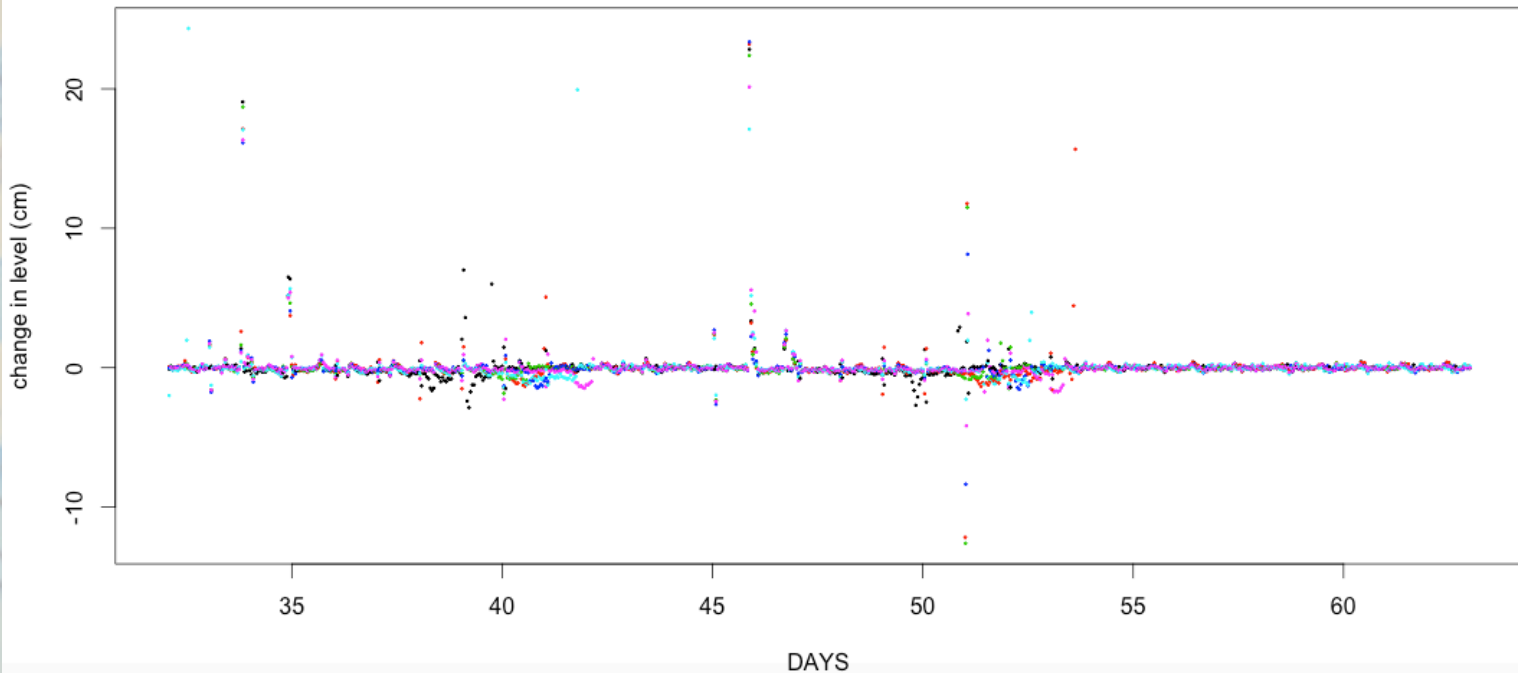
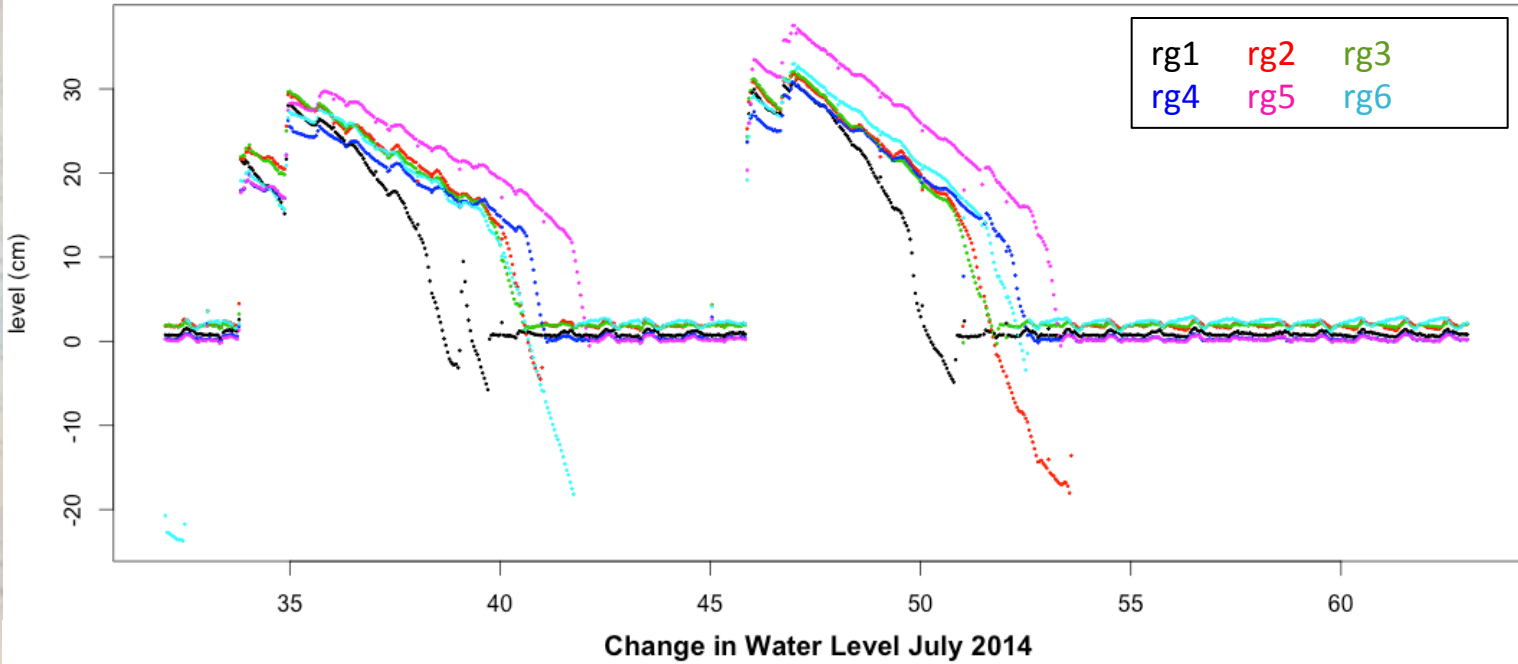


Results

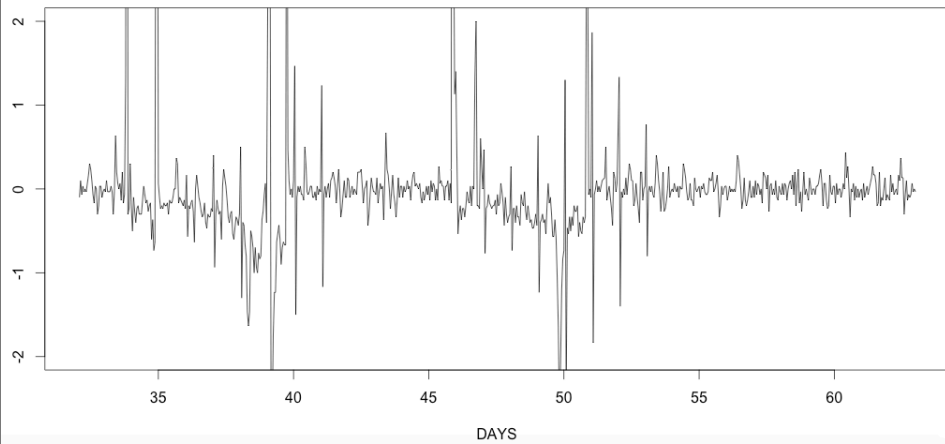
- Pipe inlets
- Rain gauge
- Solar & climate
- Water level
- Control for elevation
- Tidal cycle
- Treatment effect

- July 2014
- Data collection completed June 2015

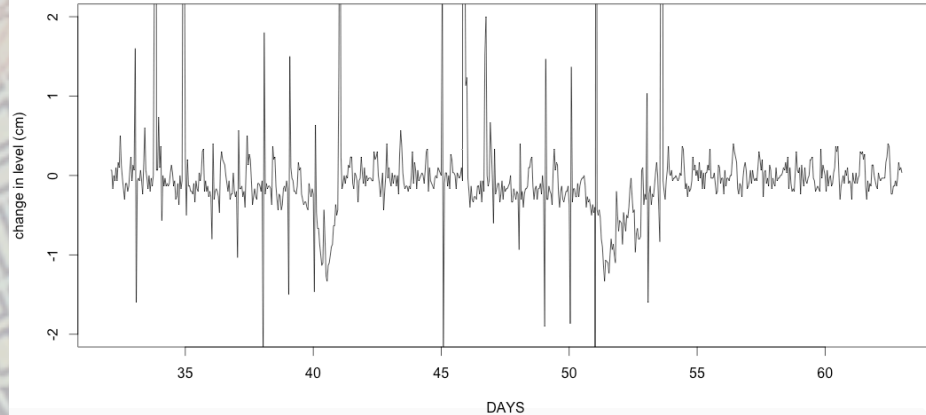
Rain Garden Water Levels July 2014



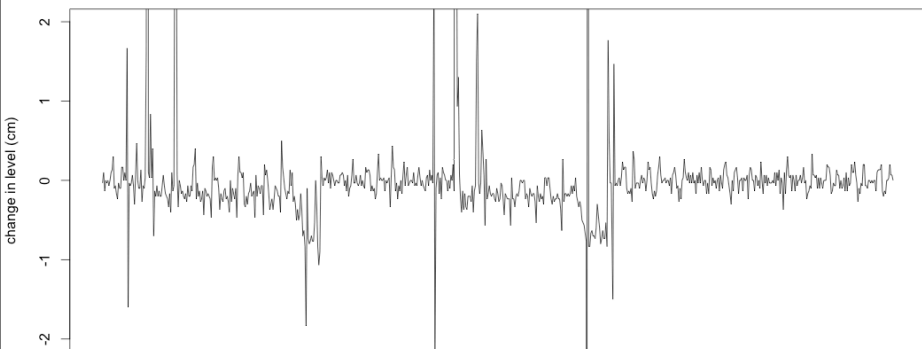
Hourly Change in Water Level July 2014, RG A



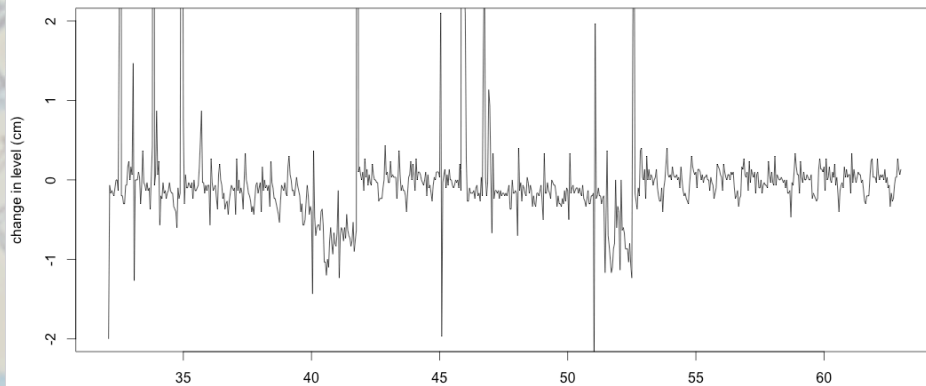
Hourly Change in Water Level July 2014, RG B



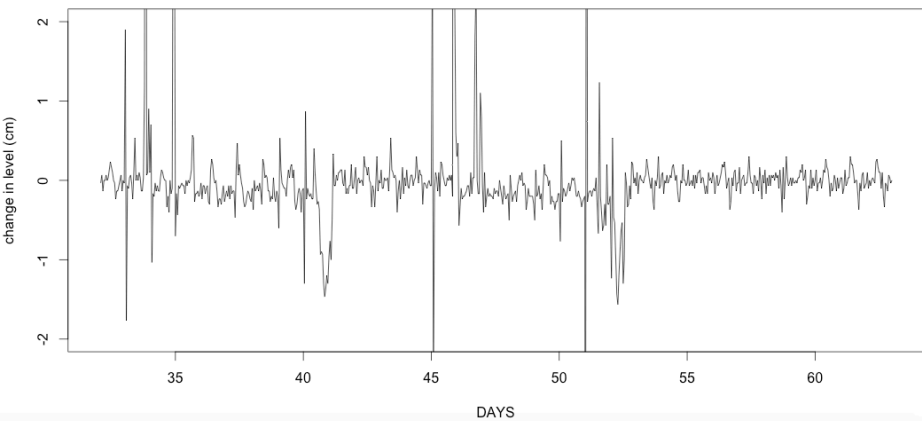
Hourly Change in Water Level July 2014, RG C



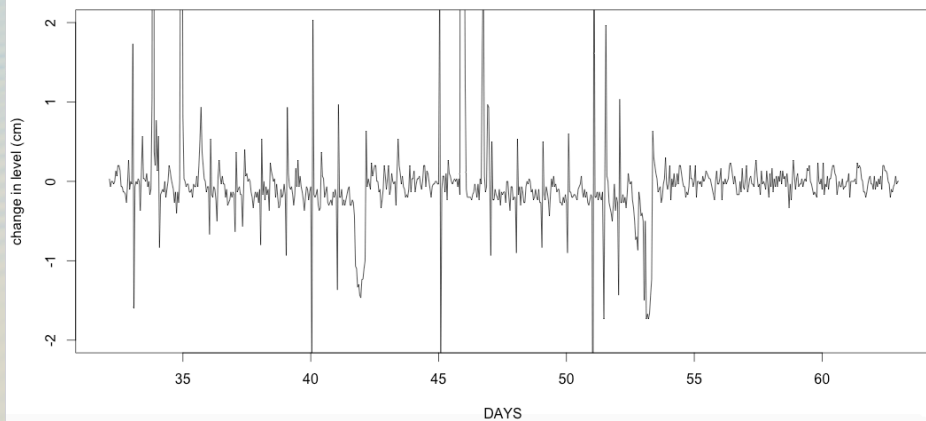
Hourly Change in Water Level July 2014, RG E



Hourly Change in Water Level July 2014, RG D



Hourly Change in Water Level July 2014, RG F



Discussion

- Relative rain garden water levels appear consistent across rain events
- Control for elevation an important next step
 - Water budget
 - Infiltration rate
 - Statistical analysis
- Implications for coastal GSI design and resilience of coastal cities + communities

A topographic map of the Seaside Village and City of Bridgeport area. The map shows a grid of streets, a harbor, and various landmarks. A dark grey rectangular box is overlaid on the top left of the map, containing the text "Thank you!".

Thank you!

- Hixon Center for Urban Ecology
- Gabe Benoit
- Alex Felson + UEDLAB
- Seaside Village and City of Bridgeport