# Kingston Point Park: Floating with the Tides

Kelly Farrell, Yuting Liu

#### LEGEND: 2080

#### **River Access**

- 1. Pier with educationaal pavilion, boat launch
- 2. Modular docks with swimming area
- 4. Migrated beach
- 5. Wave-break jetty
- 18. Lighthouse viewing opportunities

#### Recreation

- 3. Playground and soccer area
- 6. Parking-adjacent playground
- 7. Terraced area
- 11. BMX track and softball field maintained

#### 12. Dog park enhanced Circulation & Access

- 8. Walkway connections to neighborhoods
- 9. Bridge, 8' above projected high water
- 10. Sidewalks and bikeways enhanced
- 15. Neighborhood connection
- 20. Trolley bed raised and widened
- 17. Wetland trail on rail bed

#### Wetland Habitats

16. Modular wetlands

### 19. Viewing pavilion

- Infrastructure & Residents
- 13. Landfill stabilized
- 14. Residents relocated
- 21. Oil tanks used for other commodities



## **Enhance River Experiences**

- Floating modular docks increase access
- Educational pavilion on jetty
- Accessible kayak launch & docks
- Migrated beach

## Safeguard Infrastructure & Residents

- Protect landfill stability
- Plan for re-use of oil tanks
- Relocate residents out of 2080 10-year flood zone

**Maintain Recreation** 

- Raised centralized parking lot
- Maintain softball, BMX
- Complete soccer field

## **Protect Wetland Habitats**

- Add floating wetland modules
- Maintain diverse habitat types







## **Improve Circulation & Access**

- Raise trolley line above projected sea level rise
- Widen trolley causeway to facilitate bikes & pedestrians
- Maintain road access via a causeway
- Increase pathways from neighborhoods

# Kingston Point Park: Rising Over Time

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Landfill: unstabilized	١	( L
Attractions & activities	I.	I A
14 of 14 types of activities maintained	I.	Ι
1 activity added	I.	I
Transportation	I	I Ti
.17 miles of pedestrian trails added	I	I
1 neighborhood access points added	I.	I.
Wetlands	I	· I
5.66 acres of lower intertidal wetlands at ris	sk i	i N
Residents		i
16 houses within 10-year flood plain		i i
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I	.47 ac
I	floatir
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Landfill: stabilized	١
Attractions & activities	i
3 activities added	i
7 activities enhanced	i
, Transportation	i
.75 miles of pedestrian trails added	i
.87 miles of bike trails improved	i
3 neighborhood access points added	
Wetlands	
.45 acres of Lower Intertidal Vegetation	
floating modules added	
.47 acres of floating modules transition to	
SAV	
Residents	
o houses within 10-year flood plain	1

# Kingston Point Park: Preserving Wetland Habitats

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Coconut fiber mats provide substrate for plants and surface area for biofilm, which absorbs nutrients and traps sediment.

An open frame lets dappled light reach photosynthesizing algae, preventing oxygen depletion.

At high tide, tethers keep plants partially submerged to mimic their natural inundation.

Dangling plant roots increase sediment accretion.



# Wetland migration is assisted with constructed Floating Wetland Modules

- Floating wetlands have been constructed for wastewater treatment; this will be a novel use to mitigate habitat loss to sea level rise.
- Modules preserve Lower Intertidal habitat, which would otherwise diminish in the lower Hudson Estuary.
- Flexible modular design allows deployment depending on habitat needs.



- Sea level is projected to rise approximately 5' by 2080.
- As waters rise, modules that are initially planted with lower intertidal species (Spatterwort, Pickerelweed) will eventually transition to submerged aquatic vegetation (Water Celery).

# Kingston Point Park:



## Shoreline Experiences

## Modular Floating Docks



Rocky jetty protects sand from eroding

# **Dock Modules**

- Float with tides and sea level rise
- Framed with piles for security through storms • Ramps and railings between modules provide accessibility







Wetland interaction provides learning opportunities

## Landfill Stabilization

• Fit together in any combination for flexible use through time

- Sitting Dock Picnic Dock |Fishing Dock
- Metal piles protect rising waters from eroding landfill Delta
  - A clay cap prevents landfill leaching to the surface
  - Soil is backfilled to increase recreation surface

# Benches provide relaxing views

- Sunken vegetation separates picnic from pathway
- Small floating wetland module dampens waves
- Allows easy water access
- Includes lowered railing area for accessible fishing

