WATER QUALITY
An Introduction

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HUDSON RIVER FOUNDATION

Two States: One Bay
June 12, 2015
Raritan Bay – Top to Bottom

- Estuary within an estuary
- Southern-most part of system that is highly urbanized
- Generally shallow, with deep channels and shoals
- Complicated circulation, somewhat sluggish
- Greatly influenced by flows from Harbor, Hudson R., Raritan R. & the Atlantic Ocean
Water Quality Concerns

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June 12, 2015

Toxics

Pathogens

Nutrients

NYC LOWER Bay, Ocean and Sound

<table>
<thead>
<tr>
<th>Waterbody</th>
<th>Fish</th>
<th>Men Over 15 &amp; Woman Over 50</th>
<th>Women Under 50 &amp; Children Under 15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atlantic Ocean</td>
<td>American red</td>
<td>Up to 4 meals/month</td>
<td>Up to 1 meal/month</td>
</tr>
<tr>
<td>Jamaica Bay (excluding Panecalot Basin)</td>
<td>Bluefish</td>
<td>Up to 4 meals/month</td>
<td>Greater than 20° up to 1 meal/month</td>
</tr>
<tr>
<td>Long Island Sound</td>
<td>Striped bass</td>
<td>Up to 4 meals/month</td>
<td>Less than 20°, up to 4 meals/month</td>
</tr>
<tr>
<td>Lower New York Bay</td>
<td>Weakfish</td>
<td>Greater than 20°, up to</td>
<td>Greater than 20° (DONT EAT) Less</td>
</tr>
<tr>
<td>Raritan Bay east of Wolf's Pond Park</td>
<td>Crab or lobster</td>
<td>1 meal/month</td>
<td>up to 1 meal/month</td>
</tr>
</tbody>
</table>

New York State does not have advice for many fish in these waters because marine fish are generally less contaminated.
Sources of Pollution

- External & Internal Sources
  - Treated wastewater
  - CSOs
  - Non-point source runoff
  - Upper Hudson PCBs
  - Legacy contaminants in sediments
Water Quality Panel
Expectations for Raritan Bay

JEFF MYERS
NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

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June 12, 2015
Water Quality Impacts – Near and Far

Raritan Bay
and Raritan Bay Watershed
Water Quality Standards and Uses

WQ Goal: Meet Water Quality Standards
- Pathogens
- Nutrients
- Dissolved Oxygen
- Floatables
- Toxics

But Don’t Lose Sight of WHY?

Support of Uses

Credit: Riverkeeper, City of Hoboken, Northeast Angling
Water Quality Progress

**Enterococcus at Station K5A**

<table>
<thead>
<tr>
<th>Year</th>
<th>1985</th>
<th>1992</th>
<th>1999</th>
<th>2010</th>
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</table>

**NRDC – Testing the Waters**

<table>
<thead>
<tr>
<th>Beach</th>
<th>2013</th>
<th>2012</th>
<th>2011</th>
<th>2010</th>
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</thead>
<tbody>
<tr>
<td>South Beach</td>
<td>8%</td>
<td>5%</td>
<td>13%</td>
<td>8%</td>
</tr>
<tr>
<td>Midland Beach</td>
<td>2%</td>
<td>5%</td>
<td>4%</td>
<td>0%</td>
</tr>
<tr>
<td>Cedar Grove</td>
<td>17%</td>
<td>5%</td>
<td>3%</td>
<td>-</td>
</tr>
<tr>
<td>Wolfes Pond</td>
<td>19%</td>
<td>15%</td>
<td>9%</td>
<td>5%</td>
</tr>
</tbody>
</table>
...and Lack of Progress?

Factors:
- Nutrient Loads
- Temperatures
- Clarity
Water Quality Expectations

NYC DEP WASTEWATER TREATMENT PLANTS AND CSO OUTFALLS

2010 WWTPs Flow (MGD)
- 20 - 50
- 51 - 100
- 101 - 150
- 151 - 200
- 201 - 252
- CSO Outfalls

New York City Skyline

City Street Scene
Water Quality Panel
Raritan Bay Quality: Regional Asset, Regional Opportunity

DAN KENNEDY, PP/AICP, MCRP
ASSISTANT COMMISSIONER
WATER RESOURCE MANAGEMENT (WRM)
NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION (NJDEP)

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NJDEP WRM: What We Do & How We Do It

- Water Monitoring & Standards
- Water Quality
- Water Supply & Geoscience
- WRM Coordination
- Other NJDEP areas

+ Investments

New York - New Jersey Harbor & Estuary Program
www.harborestuary.org

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June 12, 2015
Expectations: Long Term Vision

- Water quality improvements through source reductions;
- Reinvestment in Water Infrastructure;
- Quality of life for all the users of the Bay: recreation, habitat, culture, history, aesthetic.
It’s All Connected

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Raritan Bay – Select Tools/ Tactics/ Resources

- Stormwater Reforms
  - MS4 audits, new permits, NSPS, infiltration basin assessments
  - CSOs (25 individual permits, effective July 2015)
- Regional / Local Efforts
- Shellfish Rules / FDA Compliance
- Fertilizer law /Soil Standards*
- TMDLs → DSW permit conditions
- Partnerships
  - Funding (319(h), EIFP)
  - Technical Resources
  - Outreach/ Education

*In development

New York - New Jersey Harbor & Estuary Program
www.harborestuary.org

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June 12, 2015
Gaps & Opportunities

- “Who’s in the room?”
- Measuring Progress
- Funding for Grey & Green

AmeriCorp Watershed Ambassadors, Britt Ash Brook clean-up
NJHDG/ A. Pengitore, PVSC, 2010
Which of the following water quality issues/tools/tactics should be the highest priority for the conference?

When poll is active, respond at PollEv.com/raritanbay

<table>
<thead>
<tr>
<th>Issue/Factor</th>
<th>Votes</th>
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</thead>
<tbody>
<tr>
<td>Pathogens</td>
<td>8</td>
</tr>
<tr>
<td>Nutrients</td>
<td>7</td>
</tr>
<tr>
<td>Dissolved oxygen</td>
<td>4</td>
</tr>
<tr>
<td>Desired uses</td>
<td>4</td>
</tr>
<tr>
<td>Wastewater treatment systems</td>
<td>5</td>
</tr>
<tr>
<td>Combined sewer overflows</td>
<td>7</td>
</tr>
<tr>
<td>Marine debris and floatables</td>
<td>2</td>
</tr>
<tr>
<td>Impervious surfaces</td>
<td>3</td>
</tr>
<tr>
<td>Green infrastructure</td>
<td>11</td>
</tr>
<tr>
<td>TMDLs</td>
<td>1</td>
</tr>
<tr>
<td>Citizen science monitoring</td>
<td>2</td>
</tr>
<tr>
<td>Central W/Q data platform</td>
<td>3</td>
</tr>
</tbody>
</table>
What other water quality issues have we missed?

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Text RARITANBAY to 22333 once to join

mitigation shoreline industrial fish activities consistent 
fail regulations recycling septic
runoff bi-state blooms wq 
river bio systems shellfish 
clarity lousy algal etc) along human 
toxins health