

Jun 22nd, 11:00 AM - 11:15 AM

Case Studies VI: Restoring Connectivity to Wreck Pond

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Krug, Jenna; Modjeski, Al; and Conrad, Katie, "Case Studies VI: Restoring Connectivity to Wreck Pond" (2016). *International Conference on Engineering and Ecohydrology for Fish Passage*. 6.
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Restoring Connectivity to Wreck Pond



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Capt. Al Modjeski, American Littoral Society
Katie Conrad, US Fish and Wildlife Service

Borough of Spring Lake
Borough of Sea Girt



US Army Corps
of Engineers®



Wreck Pond Brook Watershed



Data SIO, NOAA, U.S. Navy, NGA, GEBCO
Image © 2016 TerraMetrics

Google earth



1995

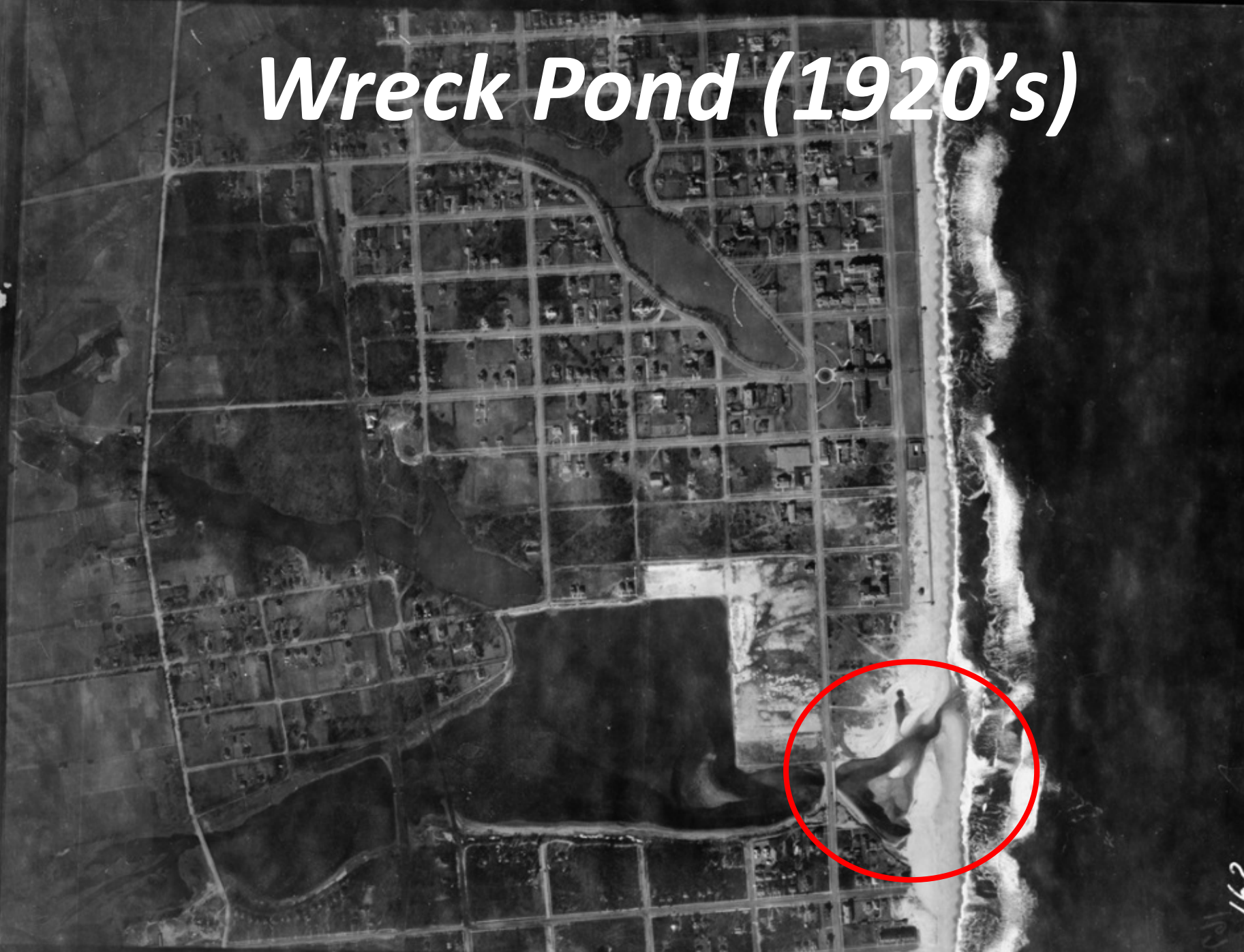
Imagery Date: 4/16/2016

40°09'39.68" N 74°03'46.93" W elev 47 ft

eye alt 21297 ft



Wreck Pond (1920's)



Wreck Pond (2013)



Google earth



1995

Imagery Date: 9/6/2013

40°08'39.64" N 74°01'55.24" W elev

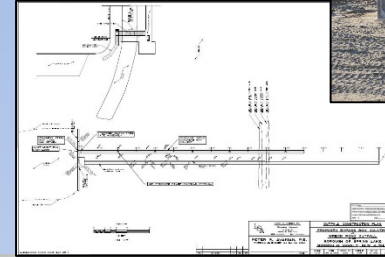
7 ft

eye alt 7395 ft



Restoring Wreck Pond

- The main project:
 - Construction and installation of a 5.5' x 8' x 600' concrete box culvert
- Project Funding:



US Fish and Wildlife Service - \$1.7M
Secondary Box Culvert/Fish Passage/Monitoring



HUD/DCA Flood Resiliency - \$3.85M
Dredging/Culvert/6,000 LF Living Shoreline/Monitoring



Borough of Spring Lake - \$915K
Funding support for entire project



NJ DEP CBT - \$608K
Funding support for entire project
+ \$130K Living Shoreline Pilot Project

Project Goals



1) ENHANCE FISH PASSAGE OPPORTUNITIES

2) IMPROVE
WATER
QUALITY



3) REDUCE FLOODING

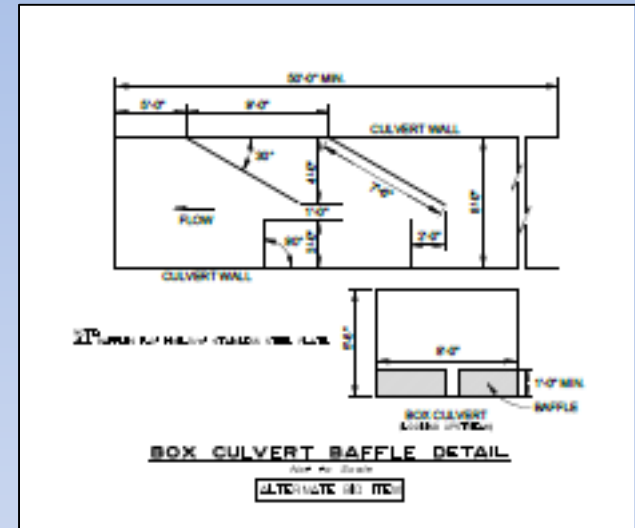


Culvert Design: Fish Passage Components

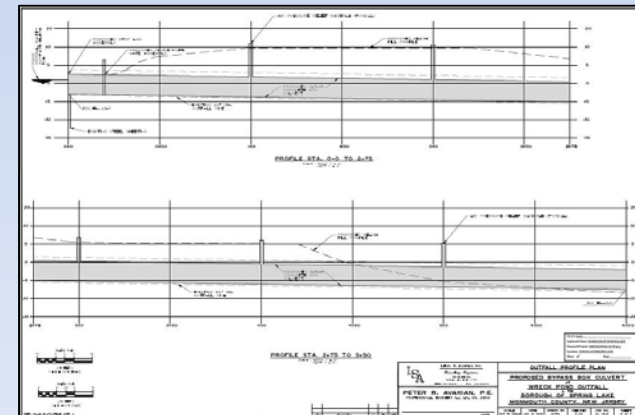
Manholes every 100'



Baffles



Invert & eel netting



Construction Photos

January 19, 2016



February 4, 2016



February 26, 2016



March 10, 2016



March 16, 2016



March 31, 2016



Construction Photos - 460' complete

April 8, 2016

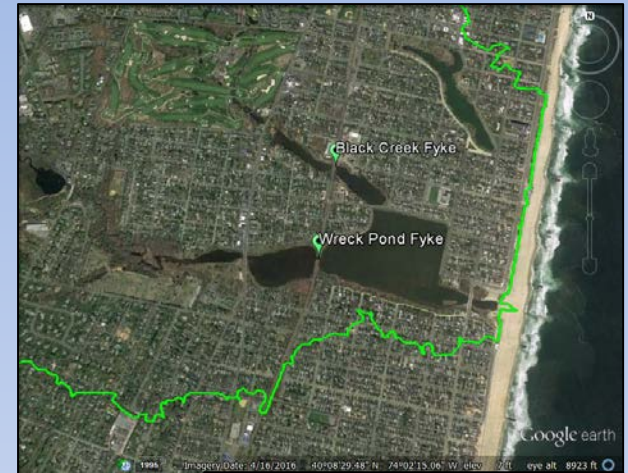


Monitoring Program

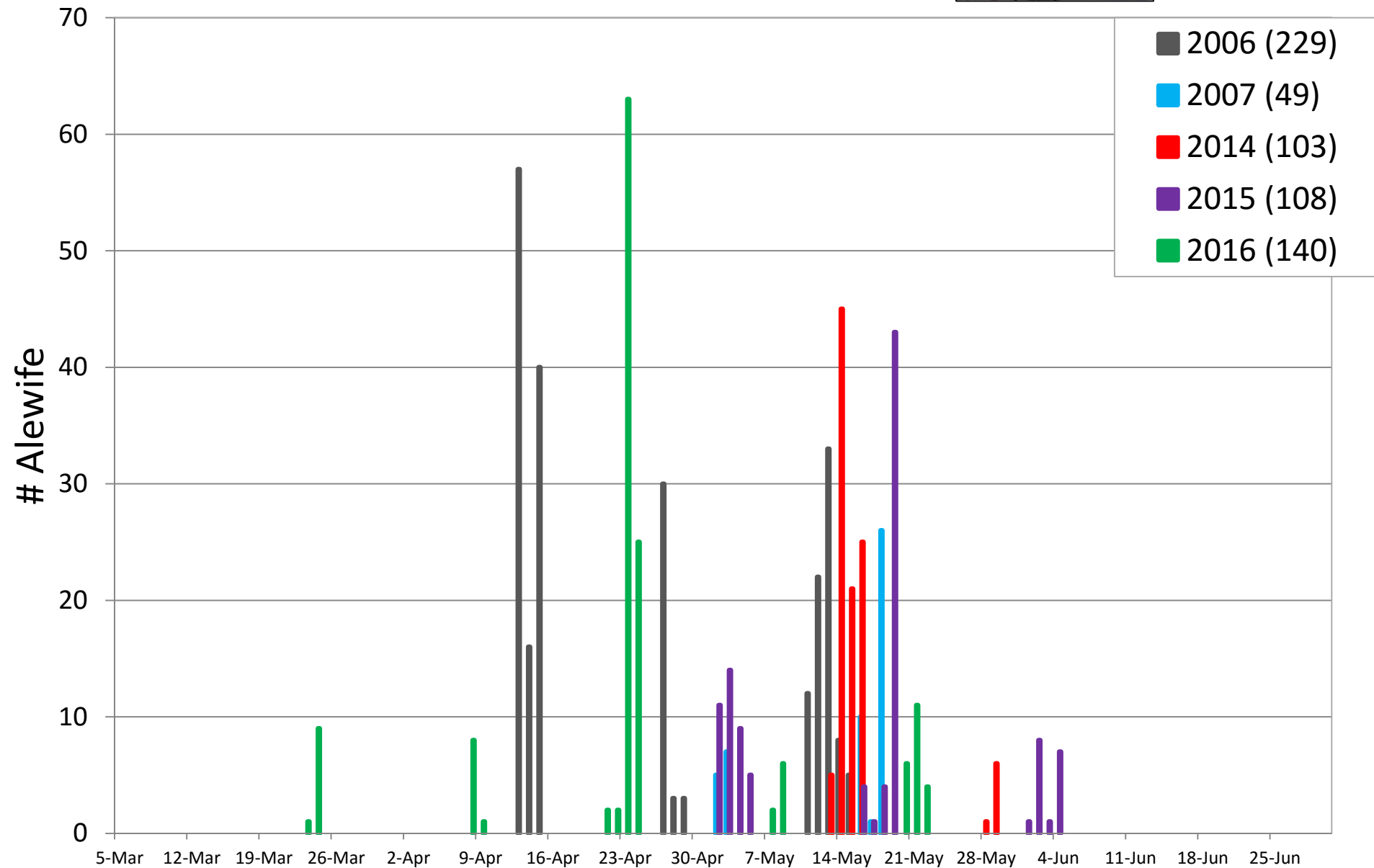
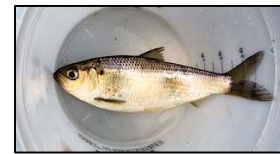
- Pre and post-construction
 - *Diadromous fishes (river herring & American eel)*
 - Water quality
 - Tidal flow
 - Flood events
- PIT tagging & instream antenna arrays
 - Movement of river herring
- Habitat assessments
 - Quality of habitat and fish passage barriers

Spring Fish Monitoring – Adult Herring

- Wreck Pond – 2006, 2007, 2008, 2014, 2015, 2016
- Black Creek – 2016
- Fyke net
- 6 am and 6 pm net checks
- Based around new and full moons
- Identified, measured and weighed catch
- Volunteers, project partners, family, friends and future scientists



Alewife: 2006-2016





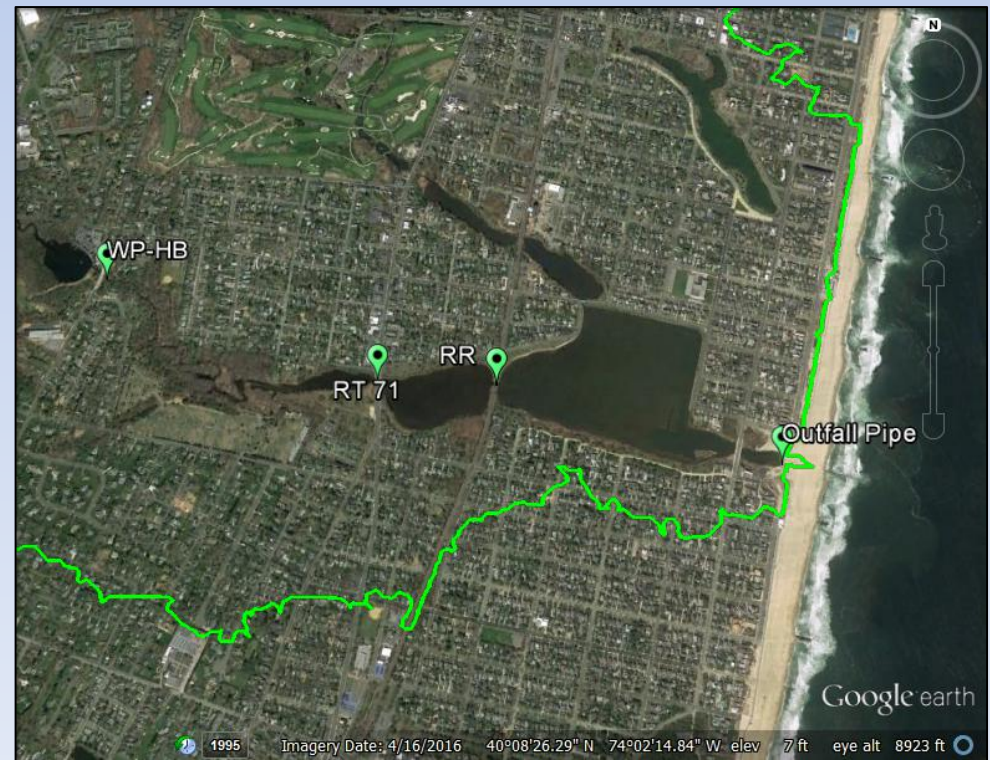
Fall Fish Monitoring - Juveniles

- Monmouth University, St. Rose High School, volunteers, project partners
- 2014: 2 alewife; 2015: 1 alewife; 2016: ~20 alewife
- Seine nets



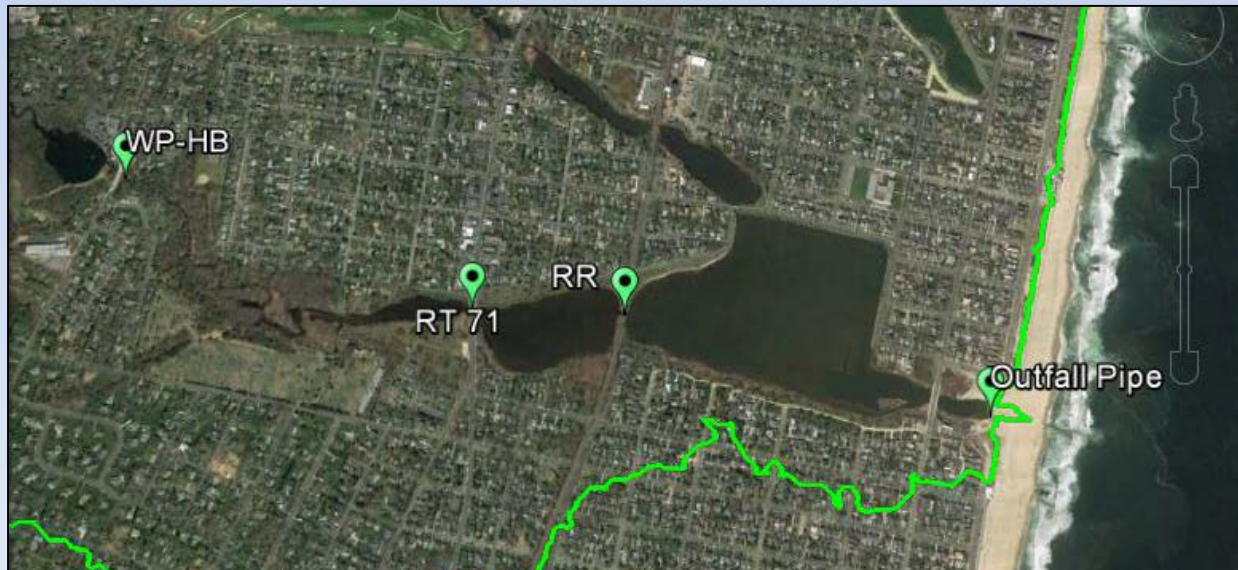
PIT tagging & Instream Antenna Arrays

- Spring 2016
- Oregon RFID gear
- Tagged, measured and weighed:
 - **122 alewife, 0 blueback herring**
- Installed antenna arrays at 5 locations:
 - Existing Outfall Pipe
 - Railroad Bridge
 - Route 71 Bridge
 - Wreck Pond Brook (Old Mill Dam)
 - Hannabrand Brook



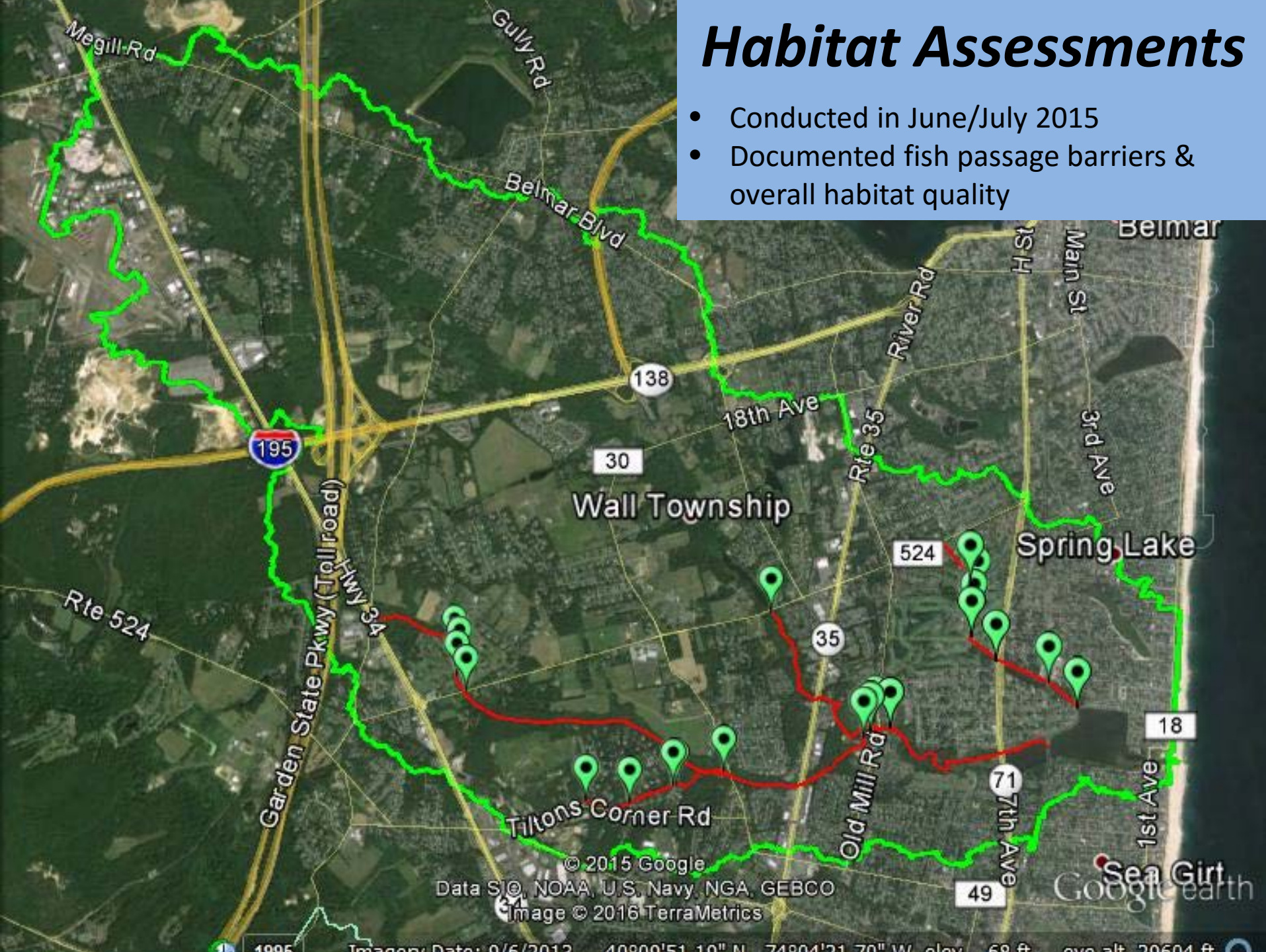
PIT tagging & Instream Antenna Arrays

- 122 individuals tagged
- Total individuals detected as of 6/15/16:
 - Wreck Pond Brook: 35
 - Hannabrand Brook: 1
 - Route 71 Bridge: 81
 - Railroad Bridge: 58
 - Outfall pipe: 30



Habitat Assessments

- Conducted in June/July 2015
- Documented fish passage barriers & overall habitat quality



Post-construction monitoring and future projects

Monitoring:

- Construction to be completed by December 2016
- Continued spring fyke net, PIT tagging and instream antenna and fall seine net monitoring to 2019
- Habitat assessment spring 2019

Future projects:

- Black Creek weir fish passage and habitat enhancement
- Old Mill Dam fish passage



Education and Outreach

- Outreach Plan

- Schools

- Living shorelines
- Biology
- Media coverage

- Lunch and Learn

- Press Event

- *eDNA project – Monmouth U.*

- Monthly Face to Face

- Stormwater Management

Committee TAC and Public Meetings



*For more information:
Visit
www.WreckPond.org*

