

Visualizing Coastal Change In New York

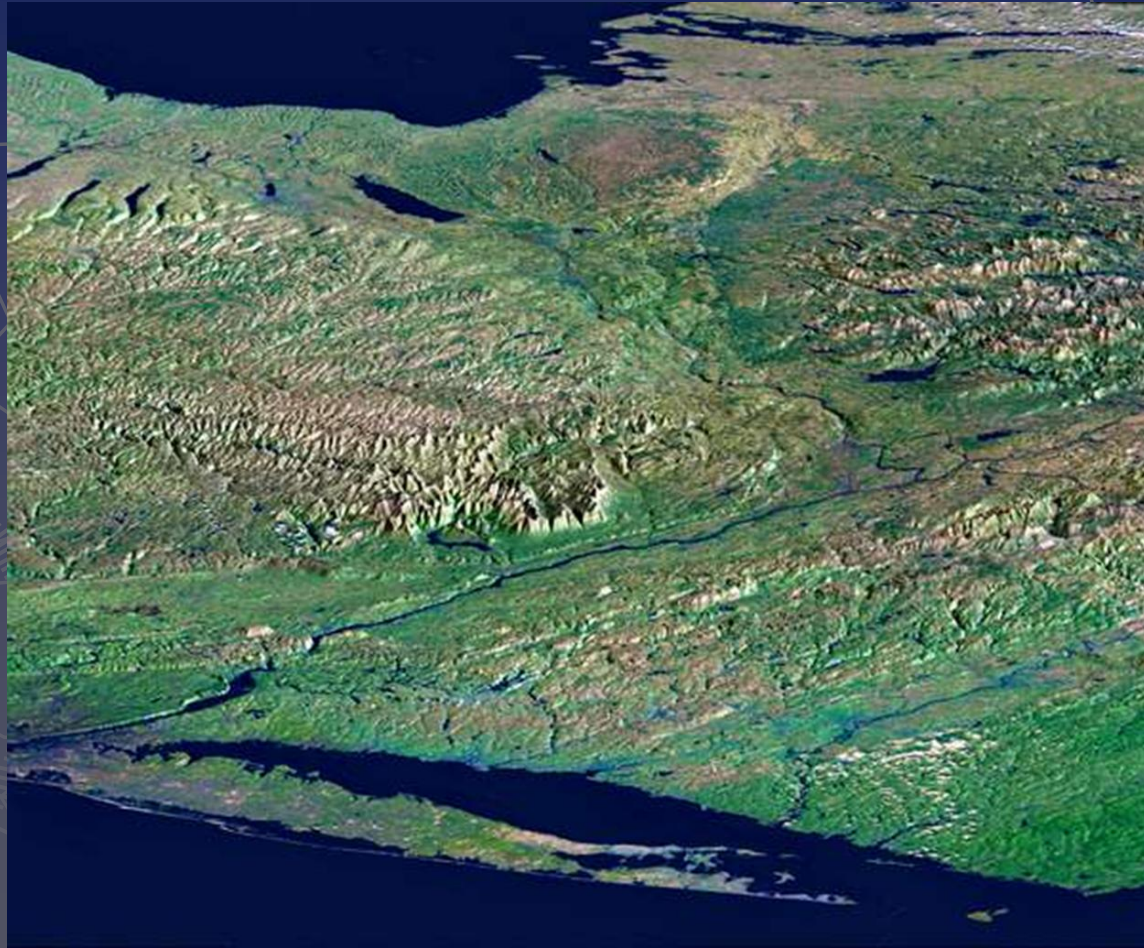
New York Sea Grant
Cornell Institute for Resource
Information Sciences

2013

NY Sea Grant and Cornell IRIS



A View of New York From Space



Recent Changes



New York Estuaries

An estuary is a partially enclosed body of water formed where freshwater from rivers and streams flows into the ocean, mixing with the salty sea water.



Irene and Sandy



- ▶ Hudson River Marina Flooding during Tropical Storm Irene
- ▶ LaGuardia Airport following Hurricane Sandy

Harbor Estuary Region Projects

Google Maps interface showing the Harbor Estuary Region. The map displays numerous project locations marked by purple pins across the area, including locations like Tinton Falls, Red Bank, Middletown, Lower Raritan River, Beach 59th St. Beach to Bay corridor, Liberty State Park, and Sommerville Basin. The left sidebar lists project details for HEP Grants, including Senior Center @ Tinton Falls, Red Bank, Middletown, LOWER RARITAN RIVER, Beach 59th St. Beach to Bay corridor, Liberty State Park, and Sommerville Basin.

HEP Grants
As of Oct-23-2011
Unlisted - 4,413 views
Created on Aug 23, 2011 - By Gabriela Munoz - Updated Oct 30, 2011
[Rate this map](#) [Write a comment](#) [KML](#)

- Senior Center @ Tinton Falls**
Year: 2011 Grant Program: Stewardship Lead Organization: NJ Audubon Project Title: NY/NJ Harbor Estuary Signature Program for Seniors Project Location: Red Bank, Tinton Falls & Middletown Award: ...
- Red Bank**
Year: 2011 Grant Program: Stewardship Lead Organization: NJ Audubon Project Title: NY/NJ Harbor Estuary Signature Program for Seniors Project Location: Red Bank, Tinton Falls & Middletown Award: ...
- Middletown**
Year: 2005 Grant Program: Stewardship Lead Organization: Middletown Township Environmental Committee Project Title: Public Right-of-Way Inventory Project Location: Township of Middletown Award: ...
- LOWER RARITAN RIVER**
Year: 2011 Grant Program: Stewardship Lead Organization: ANJEC Project Title: Stewardship of the Lower Raritan River Project Location: Lower Raritan River Award: \$ 20000 Read the Project Summary...
- Beach 59th St. Beach to Bay corridor**
Year: 2011 Grant Program: Stewardship Lead Organization: Rockaway Waterfront Alliance Project Title: Aqua 101: Rockaway Youth Stewardship Program Project Location: Beach 59th St. Beach to Bay ...
- Liberty State Park**
Year: 2010 Grant Program: Stewardship Lead Organization: Going Coastal Project Title: Estuary EcoCaching Discovery Trail Project Location: Liberty State Park & Inwood Hill Park Award: \$ 22000 R...
- Sommerville Basin**
Year: 2010 Grant Program: Stewardship Lead Organization: Rockaway Waterfront Alliance Project Title: Youth Stewardship Program Project Location: Far Rockaway, Queens, NY Award: \$ 22500 Read the...

Imagery ©2013 TerraMetrics, Map data ©2013 Google - [Report a problem](#)

<http://maps.google.com/maps/ms?msa=0&msid=201357211300719750273.0004ab2b566b2814a60bb&hl=en&ie=UTF8&ll=40.657028,-74.100037&spn=0.843918,0.934312&t=h&vpsrc=0&iwloc=0004ab2b5bd6cfeedf3ca&source=embed>

Neighborhood Waterfront Strategies



Vision 2020

Arlington Marsh



Liberty State Park



Soundview Park (The Bronx, NY)



Saugerties Lighthouse, Ulster County, NY





Changing Shorelines

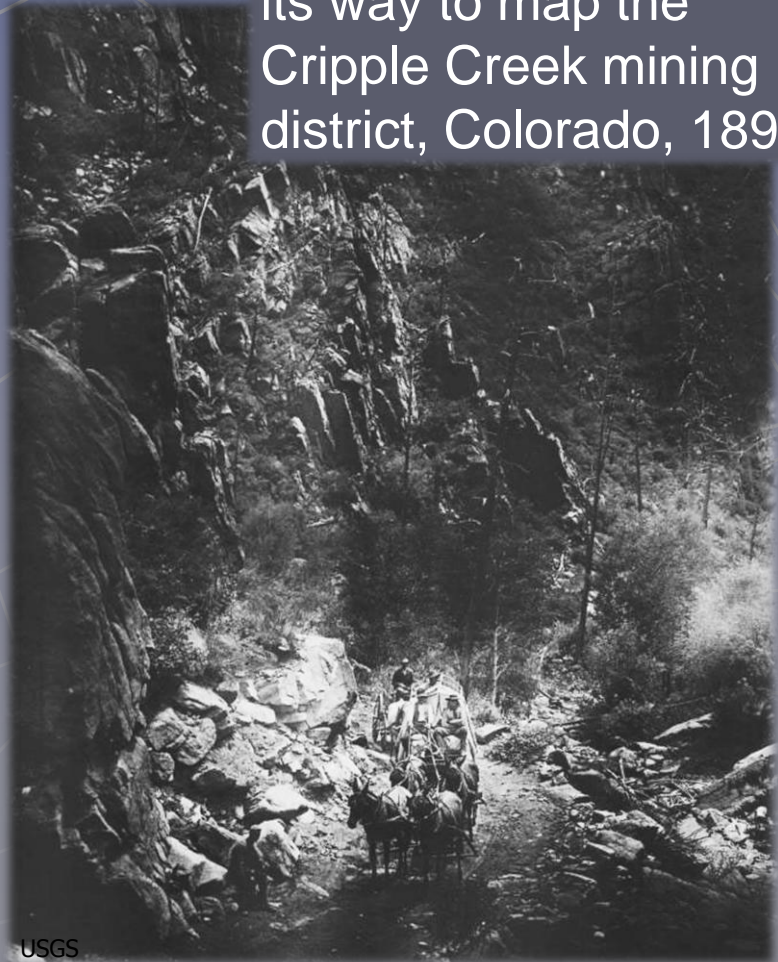


Map Making – Ground Surveys



USGS Planetable surveying by turn-of-the-century USGS topographers

A geological party on its way to map the Cripple Creek mining district, Colorado, 1893.



USGS

Map Making – Aerial Surveys



Map Making Aerial Surveys

Airborne Remote Sensing Platforms



NOAA Twin Otter



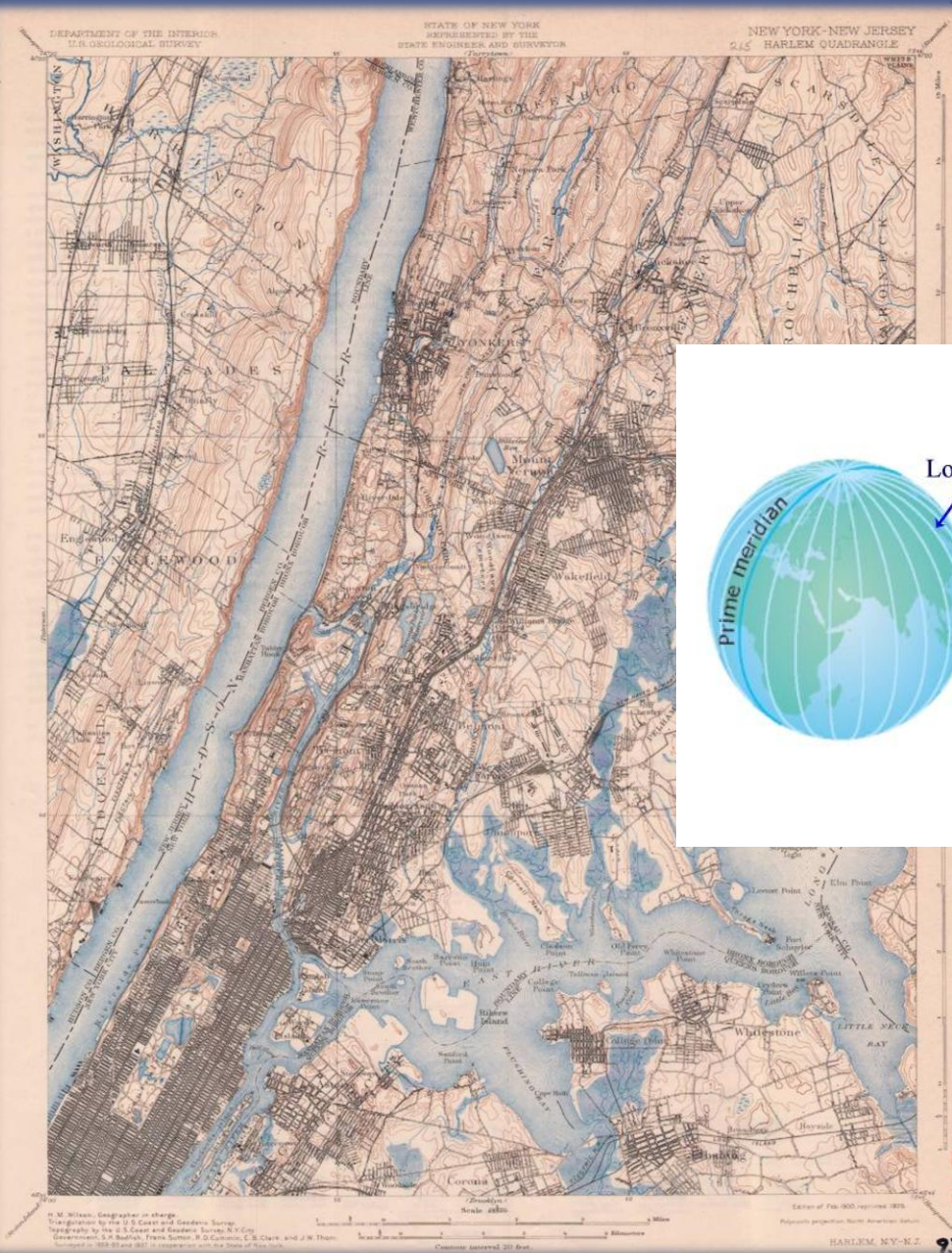
National Oceanic and Atmospheric Administration



NOAA King Air

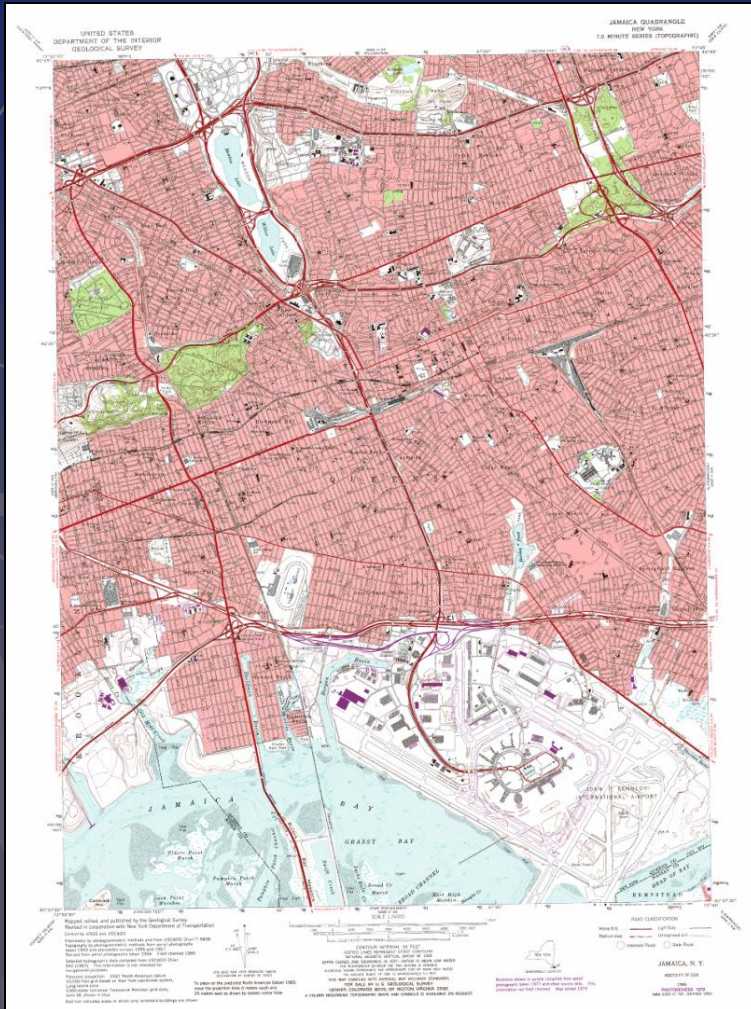


NOAA Shrike



USGS 15' Topographic Map
Harlem, 1903

Reading a Topo Map



Jamaica, NY 1966, PR 1979

- ▶ U.S. Geological Survey
- ▶ 7.5 minutes lat., long.
- ▶ 1:24,000, 1"=2000'
- ▶ Contours - elevation
- ▶ Symbols
 - Points, lines, areas
 - Color
 - Pattern

Topo Map Exercise



Aerial Photograph Characteristics



- ▶ Remote sensing
- ▶ Film or Digital array
- ▶ Color, Panchromatic, Color Infrared
- ▶ Vertical perspective
- ▶ Metadata – scale, date, exposure identification, resolution

Reading an Aerial Photograph



► Key Indicators

- Tone
- Texture
- Pattern
- Size
- Shape
- Shadow
- Location



Tone

Objects that reflect light,
appear bright in tone.

Objects that absorb light,
appear dark in tone.



Texture

Frequency of tonal change

Smoothness or Coarseness



Pattern

The spatial arrangement of objects



Size

Dimensions of an object

Size is relative to scale of the airphoto.



Shape

General form of individual objects

Constructed objects:
Regular shape

Natural objects:
Irregular shapes



Shadow

Indicates the shape or outline of an object.

Obscures features in the shadow.



Location

The occurrence of features in relation to others.

Airphoto Exercise



Geospatial Science at Work

Bronx River Restoration

<http://www.youtube.com/watch?v=tCCLu3iTYIU>

Site Characterization Materials

Map Portfolio

- ▶ Historic navigation chart
- ▶ Historic topographic map
- ▶ Recent topographic map
- ▶ Historic airphoto
- ▶ Recent airphoto
- ▶ Planimetric map overlay
- ▶ “Sandy Mapper” diagram

Site Narrative

- ▶ Restoration project descriptions
- ▶ From local NGO groups,
- ▶ Agency newsletters

Site Characterization

- ▶ **Work together as a team to answer the following:**

Site Name: _____

1. Characterize the shoreline of your site at the turn of the century, ca 1900.
2. How has the shoreline changed over the past 100 years?
3. Are these natural changes or man-made?
4. Describe the land use changes adjacent to the site over time.
5. How do you think changes in shoreline and adjacent land use impact the value of the estuary habitats?

- ▶ **Be prepared to report back to the group. Enjoy!**

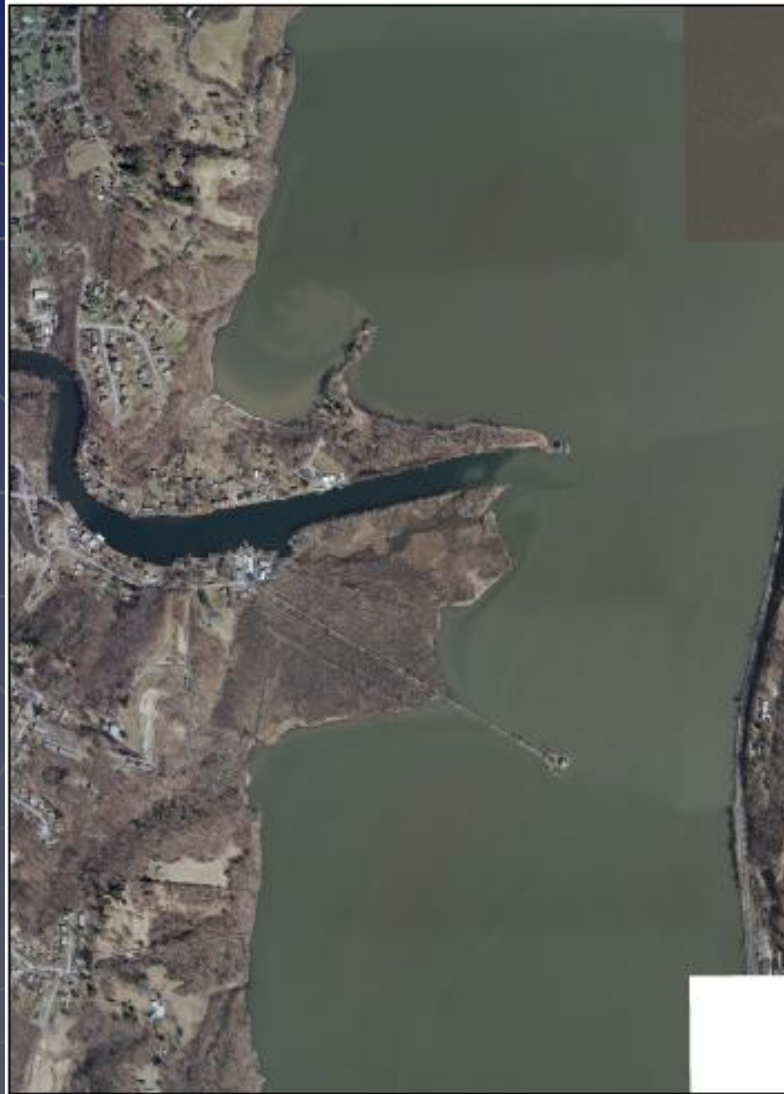
Arlington Marsh



Liberty State Park



Saugerties Lighthouse



Soundview Park



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nyc **oasis**

Address Block & Lot ZIP Code Neighborhood Community District County/Borough

enter address select a borough...

Legend

Location Report Site Search

Turn map layers on & off by clicking in the checkboxes

- ☒ Transit, Roads, Reference Features [Show All](#) [Hide All](#)
- ☒ Parks, Playgrounds, & Open Space [Show All](#) [Hide All](#)
 - ☒ Parks & Public Lands
 - ☒ Open Space (NYC Dept of City Planning)
 - ☒ Forested Areas (NJ)
 - ☐ Federal Land
 - ☒ Community Gardens
 - ☒ School property with garden
 - ☒ Playgrounds
 - ☒ Green Spaces Along Streets
 - ☒ Golf Courses
 - ☒ Baseball/Soccer/Football Fields
 - ☒ Tennis/Basketball/Handball Courts & Tracks
 - ☒ Cemeteries
- ☒ Environmental Stewardship Groups [Show All](#) [Hide All](#)
- ☒ Environmental Characteristics [Show All](#) [Hide All](#)
- ☒ Environmental Impact/Cleanup [Show All](#) [Hide All](#)
- ☒ Zoning & Landmarks [Show All](#) [Hide All](#)
- ☒ Land Use [Show All](#) [Hide All](#)
 - ☒ Block/Lot Boundaries

Transparency Control