

Water Resources of NYS: THE COASTAL ZONE

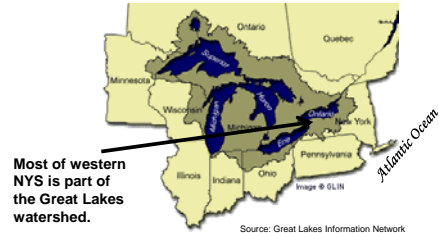
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NYS Coastal Waters

• NYS is the only state to border the Atlantic Ocean and the Great Lakes (Lakes Erie and Ontario).

- Great Lakes shoreline: 577 miles
- Atlantic shoreline: 118 miles



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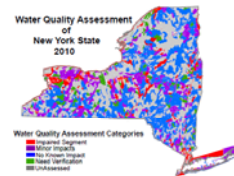
NYS Coastal Waters

- Long Island Sound and the lower Hudson River are estuaries (arms of the ocean).
 - The Hudson River is **tidal** to Albany.
 - The lower Hudson River occupies a **fjord**. (A fjord is a glacier-deepened valley flooded by the ocean).
- About 90% of the population of NYS lives within a short distance of the coastline.

Source: NYSDEC

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Coastal Zone Water Quality Issues



Land use and water quality within watersheds affect coastal areas.

- Disposal of waste water and thermal water.
- Preservation of wetlands.
- Global warming-related issues.
- Shoreline erosion control.
- Flood control, esp. storm surge.
- Fisheries.
- Recreational use.
- Commercial use.
- Imposition of rules and regulations.

Coastal Zone Management

- NYS coastal zone management program was developed to ensure people's appropriate use and protection of the state's coast and inland waterways.
- Program includes:
 - Fresh and salt water wetlands.
 - Fresh and salt water beach environments.
 - Salt water tidal ecological zones.

NYS coastal resources website is www.nyswaterfronts.com
The Great Lakes Information Network website is <http://great-lakes.net>

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NYS Coastal Atlas

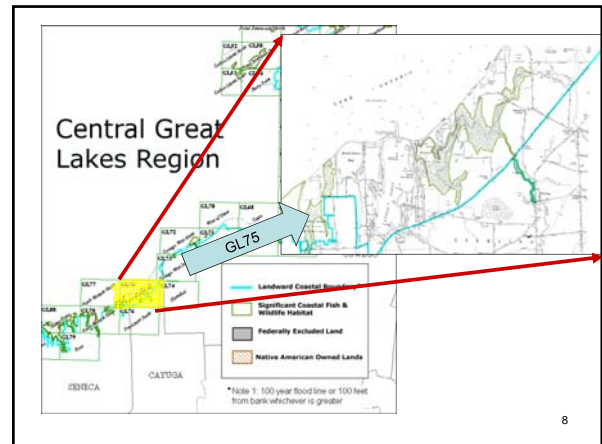
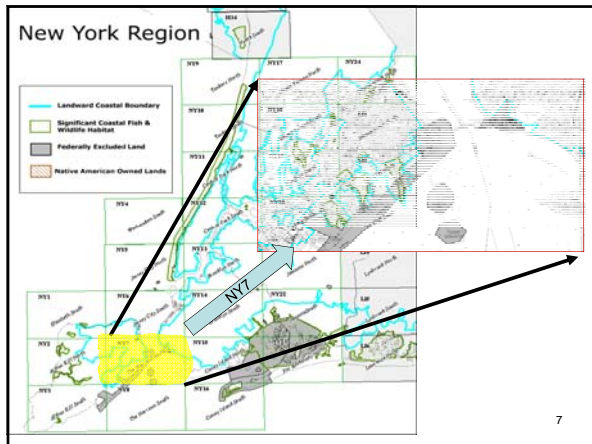
The NYS Dept of State Coastal Atlas divides New York into four geographic areas:



1. Hudson River
2. New York City
3. Long Island
4. Great Lakes (including the St. Lawrence River)

http://www.nyswaterfronts.com/maps_regions.asp

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The Long Island Coastline

NORTH SHORE	SOUTH SHORE
<ol style="list-style-type: none"> 1. Rocky shoreline 2. Steep slopes; many embayments. 3. Water quality issues with Long Island Sound, and the numerous bays. 4. Endangered by sea level rise. 	<ol style="list-style-type: none"> 1. Sandy shoreline. 2. Gentle slope; barrier islands. 3. Water quality issues with Great South Bay and Jamaica Bay. 4. Endangered by pounding waves, storm surges and sea level rise.

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Long Island Sound

NEW YORK CONNECTICUT

Long Island NY

Atlantic Ocean

33° W 72° W

http://longislandsoundstudy.net/wp-content/uploads/2010/02/1_LivingTreasures_Intro_LoRes.pdf - 6 page slide show

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LIS Watershed

- Three states (NY, CT, and RI) and Quebec Prov. border it.
- 20 million people surround it.

1. Connecticut River
2. Housatonic River
3. Thames River

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Geography of LIS

- LIS is an estuary (2nd largest on East Coast after Chesapeake Bay).
- LIS was a river valley in pre-glacial times when sea level was lower.
- Meltwater filled the area behind the Harbor Hill moraine and created a freshwater lake as the glaciers retreated.
- Salty ocean water flooded the lake as sea level rose.

- LIS stretches from the Battery (Manhattan) to The Race (islands between NY and RI).
- The East River (actually a strait between LIS and NY Harbor) did not exist as an outlet until the rising sea flowed over the western divide.

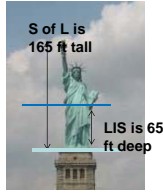
The Battery and East River

The Race

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Geography of LIS (continued)

- It has 600 miles of coastline.
- There is no major river to flush out LIS from west to east.
- It is shallow (65-120 ft).
- There is limited exchange of sea water at its the eastern end.
- Its eastern basin is saltier than its western basin.



Place the S of L on the floor of LIS and it would make a very good lighthouse.

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Problems

- **Shallow water with limited tidal and freshwater flushing.**
- Within one of the **most densely populated urban-industrialized areas** of the country.
- **Tidal wetlands have been lost to development** (filled in).
- **Has hypoxia** (low dissolved oxygen level from sewage and agricultural activities containing nitrogen).
- **Habitat degradation from pollution.**
- **Contaminated with toxic chemicals** (in bottom sediment) and **pathogens** (bacteria and viruses) in water.
- There is **floatable debris**.

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NYS Coastal Policies

The NYS Division of Coastal Resources divides the waterfront into four groups for the management of the coastal zone.

1. **Natural Waterfront**
2. **Working Waterfront**
3. **Developed Waterfront**
4. **Public Waterfront**

"The articulation of coastal policies are used to create and maintain clean, accessible and prosperous areas for present and future generations."

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Natural Waterfront

Areas where the shoreline has not be hardened.

- Has a rich diversity of resources that support economic productivity.
- Areas that are a source of scenic beauty.
- Areas that provide recreational enjoyment.



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Working Waterfront

Ports and harbors that have water-dependent uses.



- Areas that support businesses which require a water location to function (includes tourism) or harvest living or mineral resources from these waters.
- Agricultural uses that are influenced by the beneficial effects of a water body on climate.



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Developed Waterfront

Areas with an altered coastline.

There are man-made structures present and the area has a history of waterfront use.



These include:

- industrial areas
- commercial areas
- recreational areas
- traditional harbors
- residential areas



Public Waterfront

Areas that offer a significant recreational resource.

These include

- parks
- beaches
- historic sites
- any public access point



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MIDTERM EXAM

- **DATE: Thursday, October 25**
- Extra credit question on county glacial features for the midterm is due Thursday, Oct. 25.
- Extra credit exercises (4, 8, 9) for first half of semester are due Tuesday, Oct. 30 (**new date**).

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