Long Island Sound Blue Plan – Potential Data Products Review

Benthic biological habitat – Map Book Table of Contents

(Shellfish and shellfish beds will be covered on the "Fish plus" webinar, Friday 10/27, 9:30-11am)

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  - Biweekly summer narratives
  - Biweekly temperature
- Impaired rivers or coastline
- Impaired waterbodies
- TMDL rivers or coastline
- TMDL waterbodies
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- Wastewater discharges

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  - Northeast Ocean Data Portal
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- Coastal wetlands - NWI
- NYDEC Regulatory tidal wetlands
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- Epifauna habitat forming species diversity fall 2012 / may 2013
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- Infaunal diversity blocks / block average
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- SOMAS benthic communities sampling polygons

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(LISEA benthic maps include: Pelligrino and Hubbard, Wigley and Theroux (1950s-1990s) Cerrato (Peconic, 2001-2008), Reid et al. (1972))

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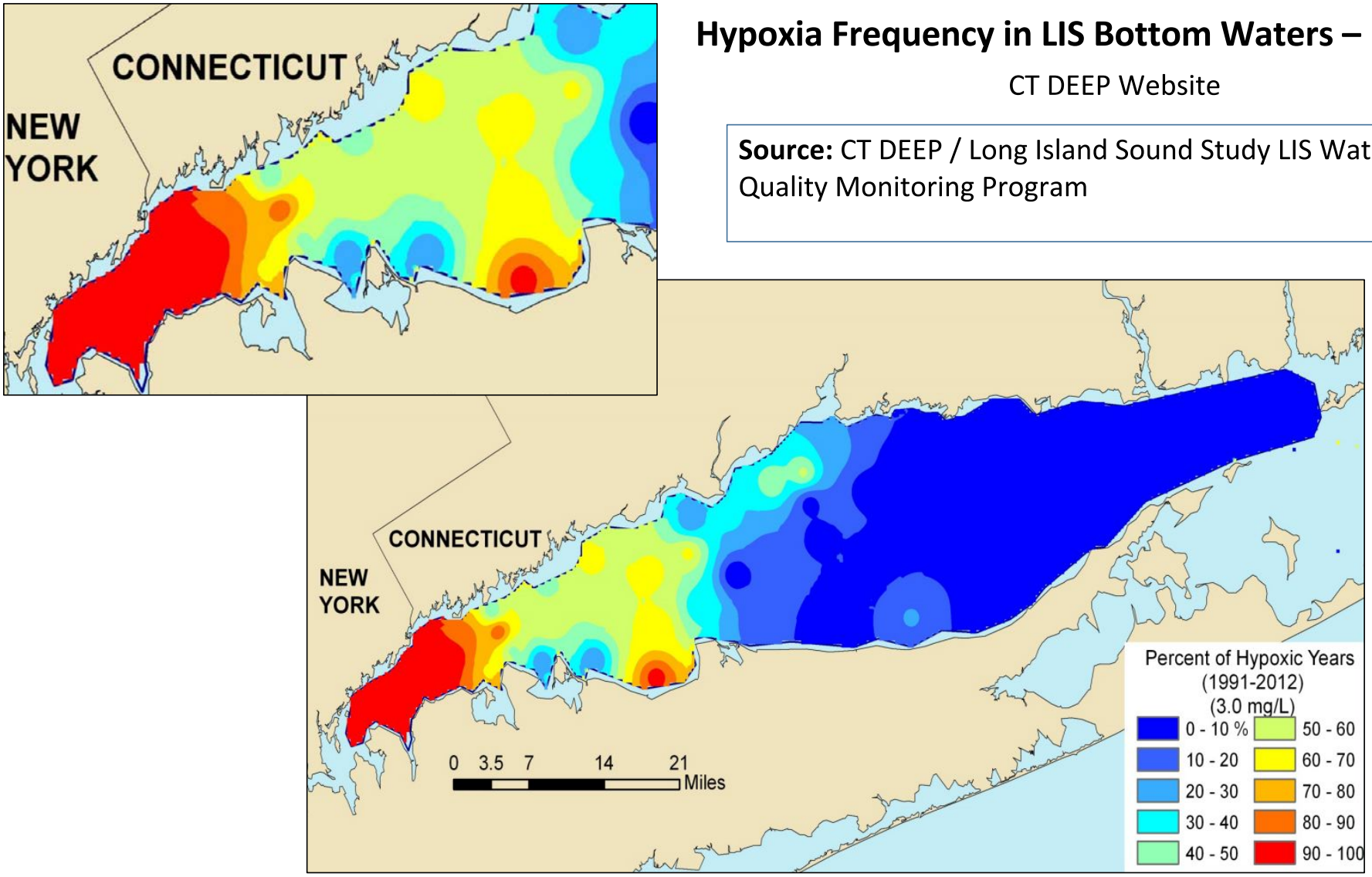
Other benthic habitat maps

- Artificial reefs
- TNC NAMERA – seafloor habitats (Northwest Atlantic shelf-scale)

Hypoxia Frequency in LIS Bottom Waters – 1991-2012

CT DEEP Website

Source: CT DEEP / Long Island Sound Study LIS Water Quality Monitoring Program



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Hypoxia Frequency in LIS Bottom Waters – 1991-2012

Blue Plan Sector(s): Environmental Characteristics > Water Chemistry/Quality

Summary Description: The term "hypoxia" means low dissolved oxygen ("DO") concentrations in the water. Marine organisms need oxygen to live, and low concentrations, depending on the duration and the size of the area affected, can have serious consequences for a marine ecosystem. As defined by the Long Island Sound Study, hypoxia exists when DO drops below a concentration of 3 milligrams per liter (mg/L), although ongoing national research suggests that there may be adverse affects to organisms even above this level. Low oxygen levels can occur naturally in estuaries during the summer, when calm weather conditions prevent the mixing of the water column that replenishes bottom water oxygen during the rest of the year. Each summer low oxygen levels render hundreds of square kilometers of bottom water unhealthy for aquatic life. DO levels follow seasonal patterns with a decrease in bottom water DO over the course of the summer. Hypoxic conditions during the summer are mainly confined to the Narrows and Western Basin of Long Island Sound. Those areas comprise the section of the Sound west of a line from Stratford, CT to Port Jefferson, NY. The maximum extent of the hypoxic condition typically occurs in early August and affects 482 square kilometers (km2) (1 km2 is approximately .4 square miles) on average.

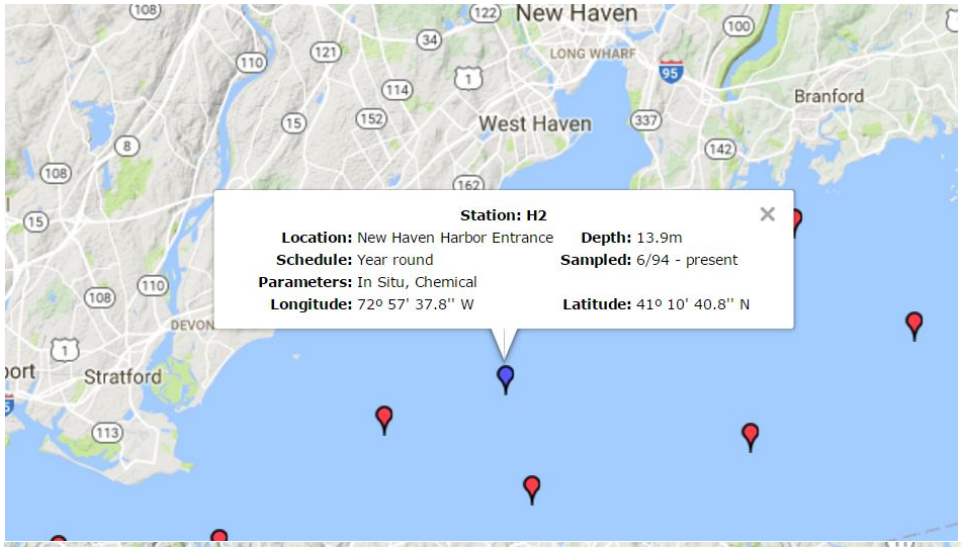
Full Description: LIS Water Quality Monitoring: http://www.ct.gov/deep/cwp/view.asp?a=2719&q=325534&deepNav_GID=1654

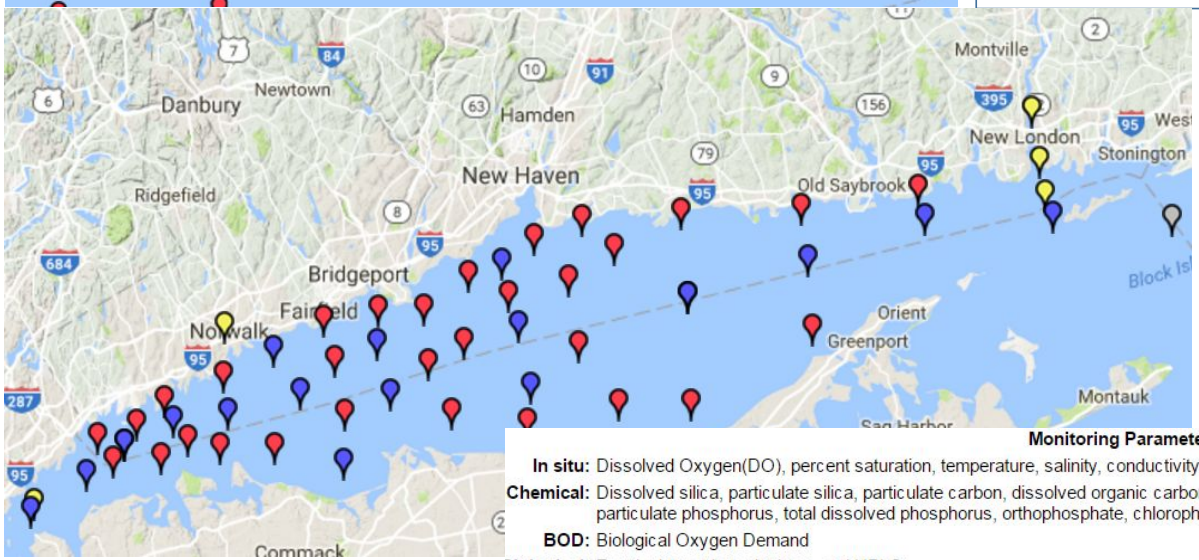
Access Instructions: Hypoxic Condition Extent: http://www.ct.gov/deep/lib/deep/water/lis_water_quality/monitoring/2013/Hypox_frequency_map_to_2012.pdf

DEEP Water Quality Monitoring Program Sample Sites

CT DEEP Website

Source: CT DEEP / Long Island Sound Study LIS Water Quality Monitoring Program





DEP Monitoring Stations

- Year Round Station
- Summer Station (mid-June to mid-September)
- Inactive Station

MYSound Buoys

- MYSound Buoy

Monitoring Parameters

In situ: Dissolved Oxygen(DO), percent saturation, temperature, salinity, conductivity, depth, and Photosynthetically Active Radiation (PAR)

Chemical: Dissolved silica, particulate silica, particulate carbon, dissolved organic carbon, dissolved nitrogen, particulate nitrogen, ammonia, nitrate and nitrite, particulate phosphorus, total dissolved phosphorus, orthophosphate, chlorophyll a, total suspended solids, and Winkler Dissolved Oxygen

BOD: Biological Oxygen Demand

Biological: Zooplankton, phytoplankton, and HPLC

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DEEP Water Quality Monitoring Program Sample Sites

Blue Plan Sector(s): Environmental Characteristics > Water Chemistry/Quality

Summary Description: In 1994 DEP established 48 permanent sampling stations to monitor hypoxia during the summer months of June, July, August, and September. There are currently 47 active stations. Seventeen stations are also sampled year round as part of the monthly water quality monitoring program. Originally sampling was aimed at evaluating the effects of dissolved oxygen concentrations on fish abundance and determining the temporal and spatial extent of hypoxia. Sampling stations were selected randomly with more sites concentrated in the western Sound where hypoxia was generally more severe. The University of Connecticut, Department of Marine Sciences, maintains a network of monitoring buoys to provide comprehensive, real-time water quality, weather and wave data from Long Island Sound, its harbors and estuaries. Additional information is available at the MYSound website.

Full Description: LIS Water Quality Monitoring: http://www.ct.gov/deep/cwp/view.asp?a=2719&q=325534&deepNav_GID=1654

Access Instructions: Long Island Sound Water Quality Monitoring Stations:

http://www.depdata.ct.gov/maps/lis/liswqmap.htm

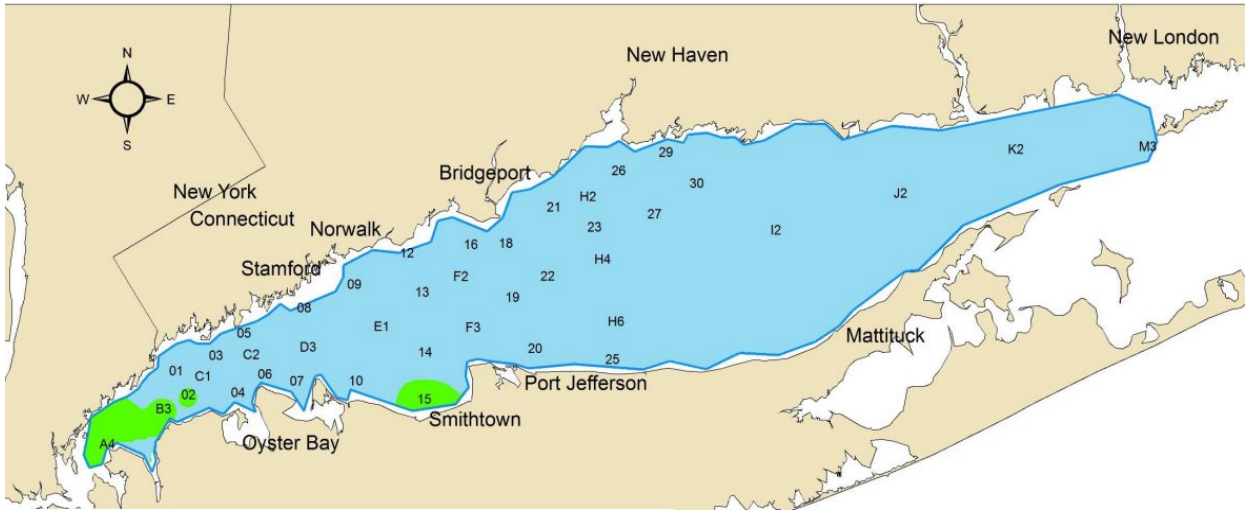
The WQJUL16 survey was conducted July 5-7 aboard the Research Vessel (R/V) John Dempsey. Forty one stations were sampled with the lowest Dissolved Oxygen (DO) level recorded at the far western Sound station A4 was 4.26mg/L. Only three other stations had DO concentrations below 4.8 mg/L. The results of this cruise indicate that the aerated waters of LIS, for this time of year, are comparable to the last 4 years but even better than in 2011 when three stations had already gone hypoxic. Maximum bottom water temperature of 19.81 ºC was recorded at station 29. Warmer that in 2015 and 2014 when the bottom temps were 19.7 and 18.9 ºC. Maximum surface temperature was 22.73 ºC.

DEEP Summer Water Quality Narrative: 5-7 July 2016*

CT DEEP Website

Source: CT DEEP / Long Island Sound Study LIS Water Quality Monitoring Program

* CT DEEP Website highlights maps for most recent sampling results; maps also exist from 1991-present



Dissolved Oxygen	Severity of impact
0.0 - 0.99	Severe
1.0 - 1.99	Moderately severe
2.0 - 2.99	Moderate
3.0 - 3.49	Marginal
3.5 - 4.79	Interim management goal
4.8+	Excellent - Supportive of marine life

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DEEP Summer Water Quality Narrative: 5-7 July 2016

Blue Plan Sector(s): Environmental Characteristics > Water Chemistry/Quality

Summary Description: CTDEEP, on behalf of the Long Island Sound Study estuary program, conducts a LIS Water Quality Monitoring Program. From October to May, water quality is monitored by collecting samples once a month from 17 sites by staff aboard the DEEP's Research Vessel. Bi-weekly hypoxia surveys start in mid-June and end in September with up to 48 stations being sampled during each survey. Water samples are collected using a Rosette Sampler that holds nine water sampling bottles. The bottles are remotely triggered to take a water sample at any depth. Dissolved Oxygen, temperature and salinity data are collected using a Conductivity Temperature Depth recorder (CTD), that takes measurements from the surface to the bottom of the water column. Samples are preserved aboard the mini laboratory for later analyses at a certified research laboratory. These data are used specifically to quantify and identify annual trends and differences in various water quality parameters and general conditions of LIS waters. Parameters for which surface and bottom waters are tested include water temperature, salinity, dissolved silica, particulate silica, dissolved nitrogen, particulate nitrogen, dissolved oxygen, chlorophyll a, and total suspended solids.

Full Description: LIS Water Quality Monitoring:
http://www.ct.gov/deep/cwp/view.asp?a=2719&q=325534&deepNav_GID=1654

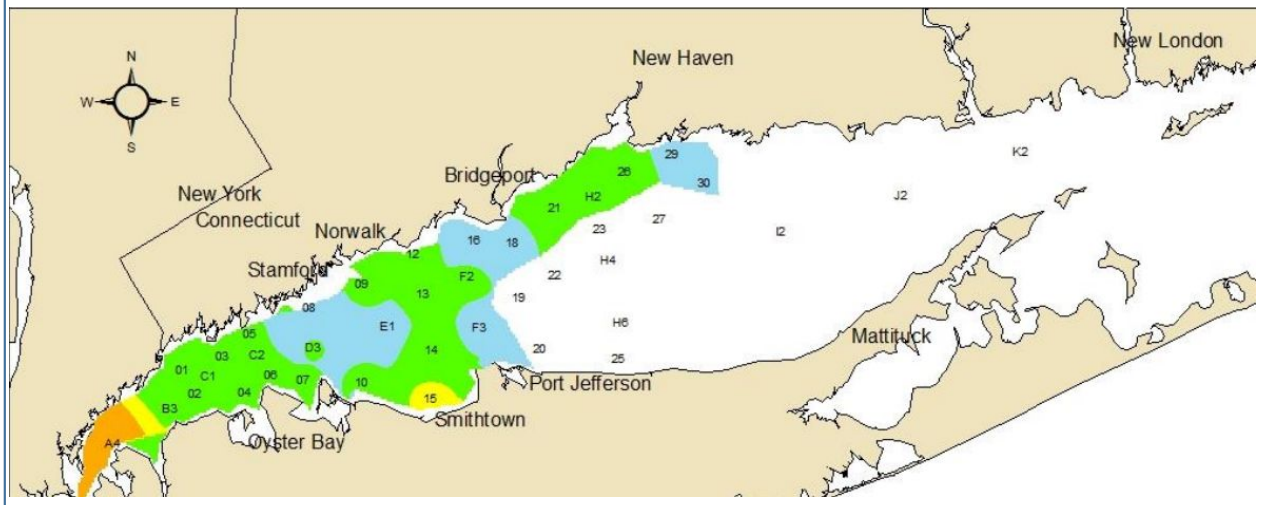
Access Instructions: Dissolved Oxygen Maps for Summer 2016:
http://www.ct.gov/deep/cwp/view.asp?a=2719&Q=584958&deepNav_GID=1654

Summer 1991-2015:
http://www.ct.gov/deep/cwp/view.asp?a=2719&Q=325532&deepNav_GID=1654

The 2016 July Hypoxia Survey (HYJUL16) was conducted July 18-19 aboard the R/V Patricia Lynn. A total of 40 stations were visited. The lowest Dissolved Oxygen (DO) level recorded at the far western Sound station A4 was 2.44mg/L. The results of this cruise showed that 19 square miles of bottom water had DO concentrations below 3.0 mg/L. An additional 13.4 sq.mi. were below 3.5 mg/L and considered 'marginally' hypoxic. Maximum bottom water temperature was again observed at station 29 (as it was two weeks before during the July 5th, WQJul cruise) just south of Branford Harbor, CT where, at a depth of 32 feet the temperature was 20.97 °C rising from 19.81 °C on July 5th. Maximum surface temperature was 25.23 °C recorded at station H2 just southwest of New Haven Harbor.

DEEP Summer Water Quality Narrative:
18-19 July 2016*
CT DEEP Website

Source: CT DEEP / Long Island Sound Study LIS Water Quality Monitoring Program
* CT DEEP Website highlights maps for most recent sampling results; maps also exist from 1991-present



Dissolved Oxygen	Severity of impact
0.0 - 0.99	Severe
1.0 - 1.99	Moderately severe
2.0 - 2.99	Moderate
3.0 - 3.49	Marginal
3.5 - 4.79	Interim management goal
4.8+	Excellent - Supportive of marine life

LONG ISLAND SOUND BLUE PLAN
Sustainable Ecosystems - Compatible Uses

DEEP Summer Water Quality Narrative: 18-19 July 2016

Blue Plan Sector(s): Environmental Characteristics > Water Chemistry/Quality

Summary Description: CTDEEP, on behalf of the Long Island Sound Study estuary program, conducts a LIS Water Quality Monitoring Program. From October to May, water quality is monitored by collecting samples once a month from 17 sites by staff aboard the DEEP's Research Vessel. Bi-weekly hypoxia surveys start in mid-June and end in September with up to 48 stations being sampled during each survey. Water samples are collected using a Rosette Sampler that holds nine water sampling bottles. The bottles are remotely triggered to take a water sample at any depth. Dissolved Oxygen, temperature and salinity data are collected using a Conductivity Temperature Depth recorder (CTD), that takes measurements from the surface to the bottom of the water column. Samples are preserved aboard the mini laboratory for later analyses at a certified research laboratory. These data are used specifically to quantify and identify annual trends and differences in various water quality parameters and general conditions of LIS waters. Parameters for which surface and bottom waters are tested include water temperature, salinity, dissolved silica, particulate silica, dissolved nitrogen, particulate nitrogen, dissolved oxygen, chlorophyll a, and total suspended solids.

Full Description: LIS Water Quality Monitoring:
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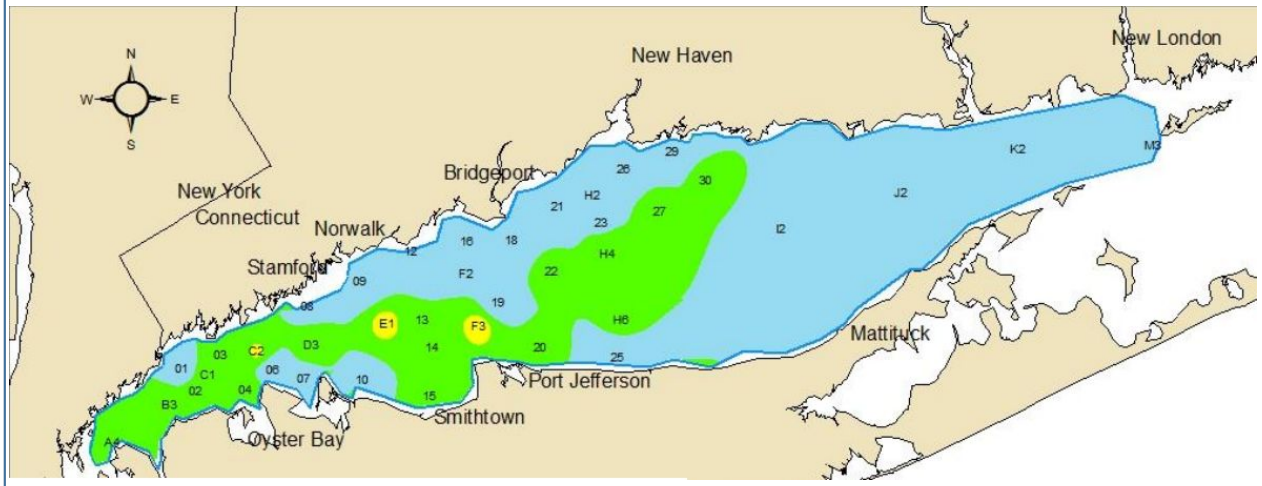
Access Instructions: Dissolved Oxygen Maps for Summer 2016:
http://www.ct.gov/deep/cwp/view.asp?a=2719&Q=584958&deepNav_GID=1654

Summer 1991-2015:
http://www.ct.gov/deep/cwp/view.asp?a=2719&Q=325532&deepNav_GID=1654

The WQAUG16 survey was conducted August 1-4 aboard the R/V Patricia Lynn. 41 stations were sampled with the lowest Dissolved Oxygen (DO) level of 3.37mg/L recorded at station F3 in the eastern end of the western basin two miles north of Crane Neck, Long Island at a depth of 124 feet. Only two other stations had DO concentrations below 3.5 in the 'marginal' range. Dissolved oxygen concentrations dropped below 4.8 mg/L at 19 addtional stations which is one more than in 2015 (18 stations below 4.8mg/L) and one less than in 2014. The area of bottom water with DO concentrations below 3.5 mg/L was 25.7 sq km (9.92 sq mi). Last year 90.1 sq km (34.8 sq mi) were hypoxic, a large contrast from 2014 when 225.6 sq km (87.1 sq mi) was hypoxic and in 2013 when 41.3 sq. km (15.9 square miles) were affected.

DEEP Summer Water Quality Narrative:
1-4 August 2016*
CT DEEP Website

Source: CT DEEP / Long Island Sound Study LIS Water Quality Monitoring Program
* CT DEEP Website highlights maps for most recent sampling results; maps also exist from 1991-present



Dissolved Oxygen	Severity of impact
0.0 - 0.99	Severe
1.0 - 1.99	Moderately severe
2.0 - 2.99	Moderate
3.0 - 3.49	Marginal
3.5 - 4.79	Interim management goal
4.8+	Excellent - Supportive of marine life

LONG ISLAND SOUND BLUE PLAN
Sustainable Ecosystems - Compatible Uses

DEEP Summer Water Quality Narrative: 1-4 August2016

Blue Plan Sector(s): Environmental Characteristics > Water Chemistry/Quality

Summary Description: CTDEEP, on behalf of the Long Island Sound Study estuary program, conducts a LIS Water Quality Monitoring Program. From October to May, water quality is monitored by collecting samples once a month from 17 sites by staff aboard the DEEP's Research Vessel. Bi-weekly hypoxia surveys start in mid-June and end in September with up to 48 stations being sampled during each survey. Water samples are collected using a Rosette Sampler that holds nine water sampling bottles. The bottles are remotely triggered to take a water sample at any depth. Dissolved Oxygen, temperature and salinity data are collected using a Conductivity Temperature Depth recorder (CTD), that takes measurements from the surface to the bottom of the water column. Samples are preserved aboard the mini laboratory for later analyses at a certified research laboratory. These data are used specifically to quantify and identify annual trends and differences in various water quality parameters and general conditions of LIS waters. Parameters for which surface and bottom waters are tested include water temperature, salinity, dissolved silica, particulate silica, dissolved nitrogen, particulate nitrogen, dissolved oxygen, chlorophyll a, and total suspended solids.

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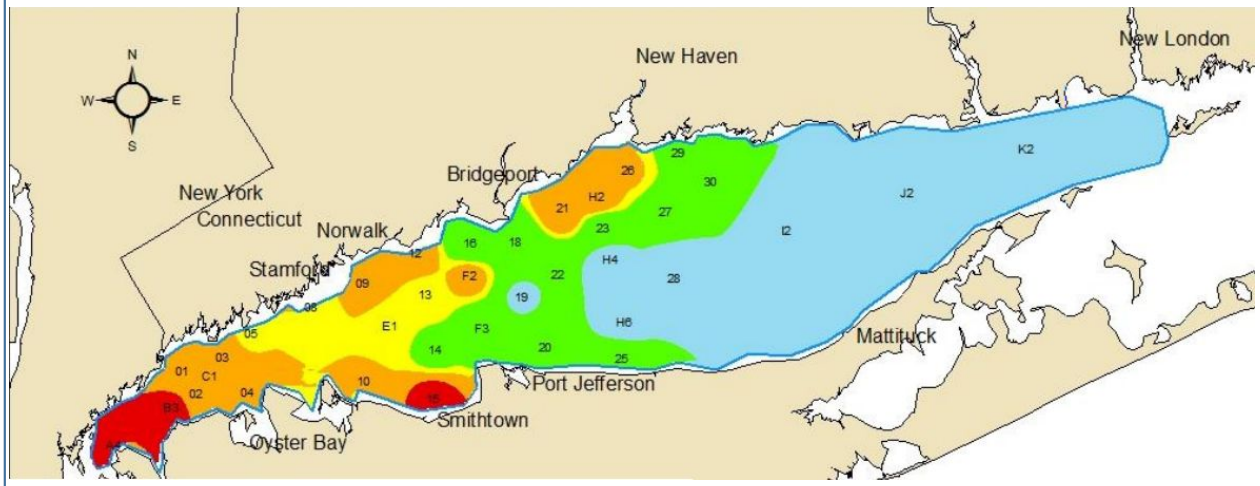
Summer 1991-2015:
http://www.ct.gov/deep/cwp/view.asp?a=2719&Q=325532&deepNav_GID=1654

The HYAUG16 survey was conducted August 16-18 aboard the R/V Patricia Lynn. 41 stations were visited with data from stations D3,C2, 06 and 07 just north of Huntington Harbor, Long Island not available due to CTD battery issues. Therefore the Dissolved Oxygen (DO) colored zones on this map were extrapolated based on DO observed at other nearby stations. The lowest DO level recorded was 1.37 mg/L at station A4. Two other stations had DO concentrations below 2.0 mg/L and 12 additional stations had DO below 3.0 in the moderate hypoxic range. The area of bottom hypoxia below 2.0 was estimated at 40.2 Sq.mi. with an additional 157.03 mi^2 between 2.0 and 3.0 mg/L. The total maximum area of hypoxia below 3.0mg/L was197.46 mi^2 which is the second largest area since 2006 when it was last at 199 sq.mi in early August. 2012 was the only other worst year at 288.5 mi^2 .

DEEP Summer Water Quality Narrative:
16-18 August 2016*
CT DEEP Website

Source: CT DEEP / Long Island Sound Study LIS Water Quality Monitoring Program
* CT DEEP Website highlights maps for most recent sampling results; maps also exist from 1991-present



Dissolved Oxygen	Severity of impact
0.0 - 0.99	Severe
1.0 - 1.99	Moderately severe
2.0 - 2.99	Moderate
3.0 - 3.49	Marginal
3.5 - 4.79	Interim management goal
4.8+	Excellent - Supportive of marine life

LONG ISLAND SOUND BLUE PLAN
Sustainable Ecosystems - Compatible Uses

DEEP Summer Water Quality Narrative: 16-18 August 2016

Blue Plan Sector(s): Environmental Characteristics > Water Chemistry/Quality

Summary Description: CTDEEP, on behalf of the Long Island Sound Study estuary program, conducts a LIS Water Quality Monitoring Program. From October to May, water quality is monitored by collecting samples once a month from 17 sites by staff aboard the DEEP's Research Vessel. Bi-weekly hypoxia surveys start in mid-June and end in September with up to 48 stations being sampled during each survey. Water samples are collected using a Rosette Sampler that holds nine water sampling bottles. The bottles are remotely triggered to take a water sample at any depth. Dissolved Oxygen, temperature and salinity data are collected using a Conductivity Temperature Depth recorder (CTD), that takes measurements from the surface to the bottom of the water column. Samples are preserved aboard the mini laboratory for later analyses at a certified research laboratory. These data are used specifically to quantify and identify annual trends and differences in various water quality parameters and general conditions of LIS waters. Parameters for which surface and bottom waters are tested include water temperature, salinity, dissolved silica, particulate silica, dissolved nitrogen, particulate nitrogen, dissolved oxygen, chlorophyll a, and total suspended solids.

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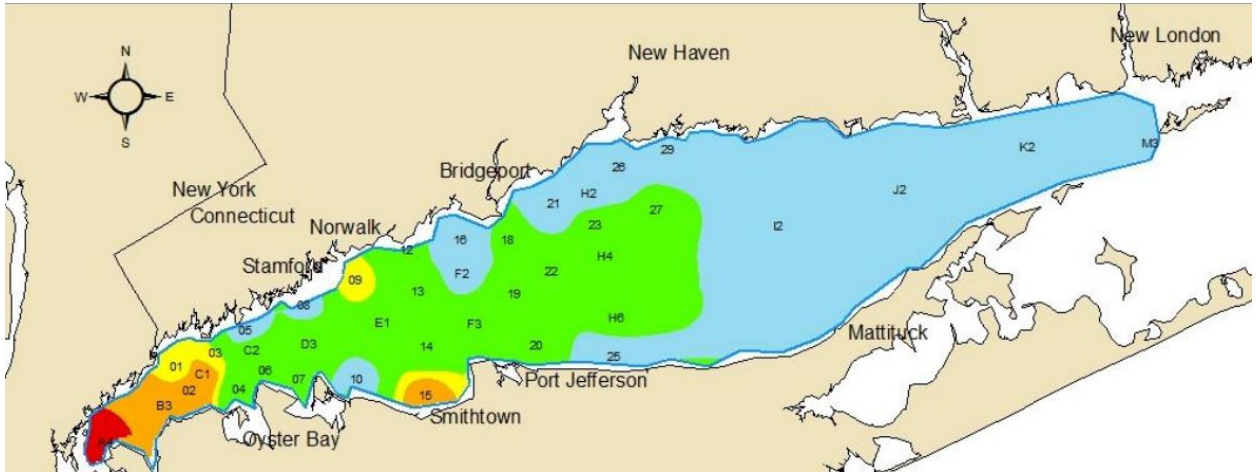
Summer 1991-2015:
http://www.ct.gov/deep/cwp/view.asp?a=2719&Q=325532&deepNav_GID=1654

The WQSept16 survey was conducted August 29-31 aboard the R/V John Dempsey. A total of 40 stations were sampled. The lowest Dissolved Oxygen (DO) recorded was 1.87 mg/L at station A4. Five other stations had DO concentrations below 3.0 mg/L and 26 additional stations had DO below 4.8 mg/L. The maximum bottom temperature was 24.56° C at station 16 and the maximum surface temperature was25.54° C at station B3. Five stations dropped below 3.0 mg/L. Only one station dropped below 2 mg/L. This is in contrast to the past three years where there have not been any stations that have dropped below the 2.0 mg/L mark at this time of year. The total area of bottom water affected by hypoxia (DO <3.0 mg/L) was 139 sq km (53.67 sq mi), a large contrast from last year and in 2014 when 56.3 sq km (35.0 sq mi) and 34.3 sq km (21.3 sq mi) were hypoxic (respectively).

DEEP Summer Water Quality Narrative:
29-31 August 2016*
CT DEEP Website

Source: CT DEEP / Long Island Sound Study LIS Water Quality Monitoring Program

* CT DEEP Website highlights maps for most recent sampling results; maps also exist from 1991-present



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1.0 - 1.99	Moderately severe
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3.0 - 3.49	Marginal
3.5 - 4.79	Interim management goal
4.8+	Excellent - Supportive of marine life

LONG ISLAND SOUND BLUE PLAN
Sustainable Ecosystems - Compatible Uses

DEEP Summer Water Quality Narrative: 29-31 August 2016

Blue Plan Sector(s): Environmental Characteristics > Water Chemistry/Quality

Summary Description: CTDEEP, on behalf of the Long Island Sound Study estuary program, conducts a LIS Water Quality Monitoring Program. From October to May, water quality is monitored by collecting samples once a month from 17 sites by staff aboard the DEEP's Research Vessel. Bi-weekly hypoxia surveys start in mid-June and end in September with up to 48 stations being sampled during each survey. Water samples are collected using a Rosette Sampler that holds nine water sampling bottles. The bottles are remotely triggered to take a water sample at any depth. Dissolved Oxygen, temperature and salinity data are collected using a Conductivity Temperature Depth recorder (CTD), that takes measurements from the surface to the bottom of the water column. Samples are preserved aboard the mini laboratory for later analyses at a certified research laboratory. These data are used specifically to quantify and identify annual trends and differences in various water quality parameters and general conditions of LIS waters. Parameters for which surface and bottom waters are tested include water temperature, salinity, dissolved silica, particulate silica, dissolved nitrogen, particulate nitrogen, dissolved oxygen, chlorophyll a, and total suspended solids.

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Summer 1991-2015:
http://www.ct.gov/deep/cwp/view.asp?a=2719&Q=325532&deepNav_GID=1654

DEEP Summer Water Quality Narrative:
12-13 Sept 2016*

CT DEEP Website

The HYSept16 survey was conducted September 12-13 aboard the R/V Patricia Lynn. 31 stations were sampled. The lowest DO level recorded was 3.03 mg/L at station H6. No stations had DO below 3.0 and three stations had CO concentrations below 4.8 mg/L. None of the sample stations dropped below 3.0 mg/L. Therefore, this year and for the past three years there has not been any area of bottom water affected by hypoxia in mid-September. The area of bottom water with dissolved oxygen concentrations below 3.5 mg/L was 30.7 sq km (11.8 sq mi).

Source: CT DEEP / Long Island Sound Study LIS Water Quality Monitoring Program

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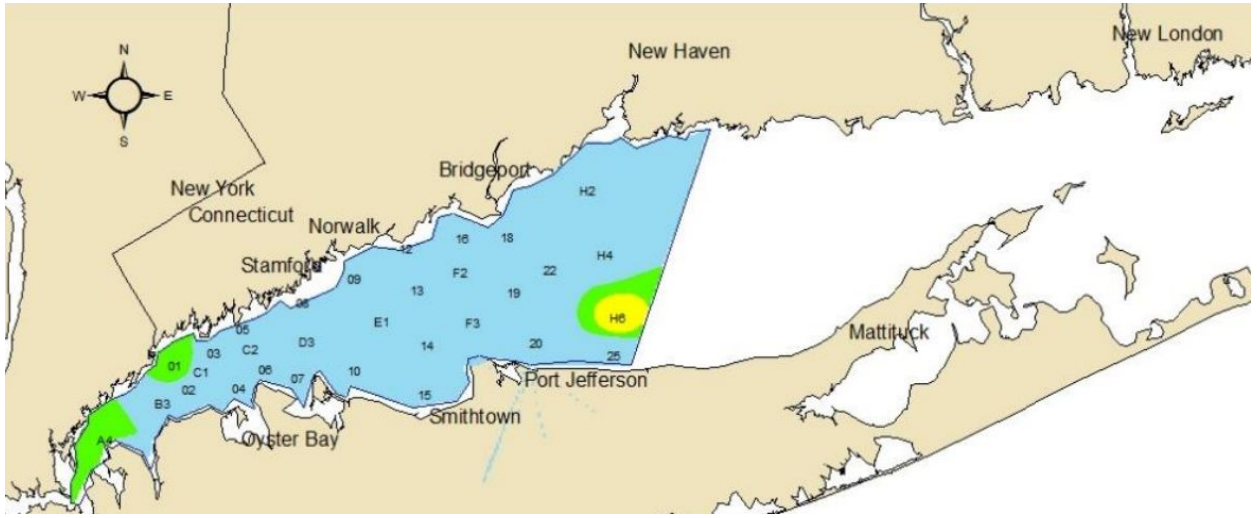

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3.0 - 3.49	Marginal
3.5 - 4.79	Interim management goal
4.8+	Excellent - Supportive of marine life

LONG ISLAND SOUND BLUE PLAN
Sustainable Ecosystems - Compatible Uses

DEEP Summer Water Quality Narrative: 12-13 Sept 2016

Blue Plan Sector(s): Environmental Characteristics > Water Chemistry/Quality

Summary Description: CTDEEP, on behalf of the Long Island Sound Study estuary program, conducts a LIS Water Quality Monitoring Program. From October to May, water quality is monitored by collecting samples once a month from 17 sites by staff aboard the DEEP's Research Vessel. Bi-weekly hypoxia surveys start in mid-June and end in September with up to 48 stations being sampled during each survey. Water samples are collected using a Rosette Sampler that holds nine water sampling bottles. The bottles are remotely triggered to take a water sample at any depth. Dissolved Oxygen, temperature and salinity data are collected using a Conductivity Temperature Depth recorder (CTD), that takes measurements from the surface to the bottom of the water column. Samples are preserved aboard the mini laboratory for later analyses at a certified research laboratory. These data are used specifically to quantify and identify annual trends and differences in various water quality parameters and general conditions of LIS waters. Parameters for which surface and bottom waters are tested include water temperature, salinity, dissolved silica, particulate silica, dissolved nitrogen, particulate nitrogen, dissolved oxygen, chlorophyll a, and total suspended solids.

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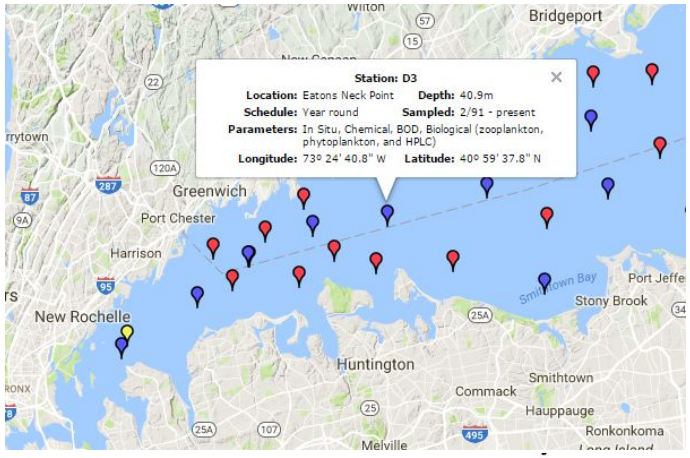


DEP Monitoring Stations

Year Round Station

Summer Station

(mid-June to mid-September)

Inactive Station

MYSound Buoys

MYSound Buoy

DEEP Water Quality Monitoring Program: Early July Temperature Time Series at Representative Station D3

CT DEEP Website

Source: CT DEEP / Long Island Sound Study LIS Water Quality Monitoring Program

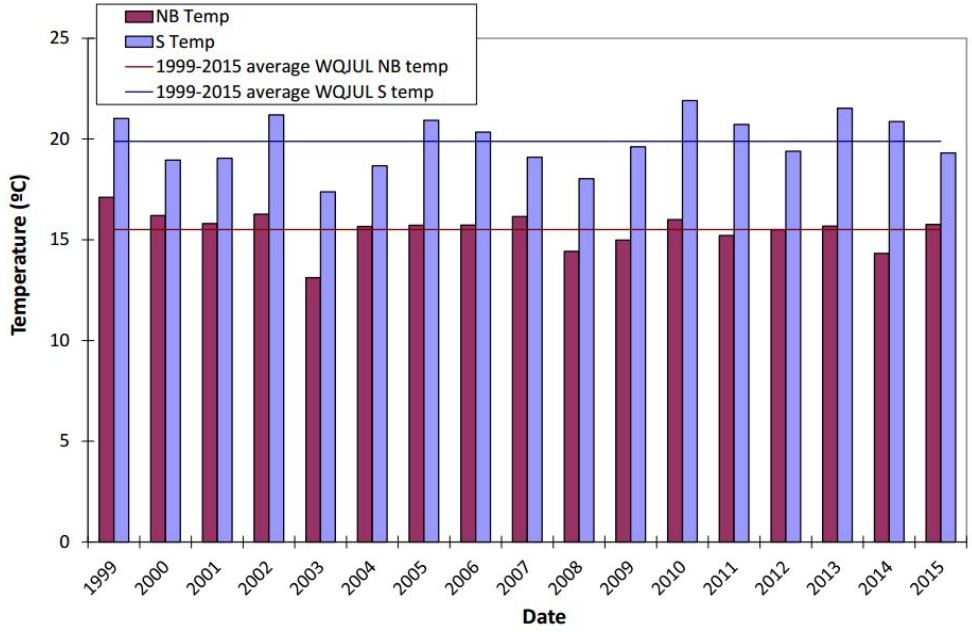
Monitoring Parameters

In situ: Dissolved Oxygen(DO), percent saturation, temperature, salinity, conductivity, depth, and Photosynthetically Active Radiation (PAR)

Chemical: Dissolved silica, particulate silica, particulate carbon, dissolved organic carbon, dissolved nitrogen, particulate nitrogen, ammonia, nitrate and nitrite, particulate phosphorus, total dissolved phosphorus, orthophosphate, chlorophyll a, total suspended solids, and Winkler Dissolved Oxygen

BOD: Biological Oxygen Demand

Biological: Zooplankton, phytoplankton, and HPLC



Graphic display of Temperature at Station D3 during the early July Water Quality Surveys 1999-2015.

NB : Near Bottom Temperature

S : Surface Temperature

LONG ISLAND SOUND BLUE PLAN

Sustainable Ecosystems - Compatible Uses

DEEP Water Quality Monitoring Program: Early July Temperature Time Series at Representative Station D3

Blue Plan Sector(s): Environmental Characteristics > Water Chemistry/Quality

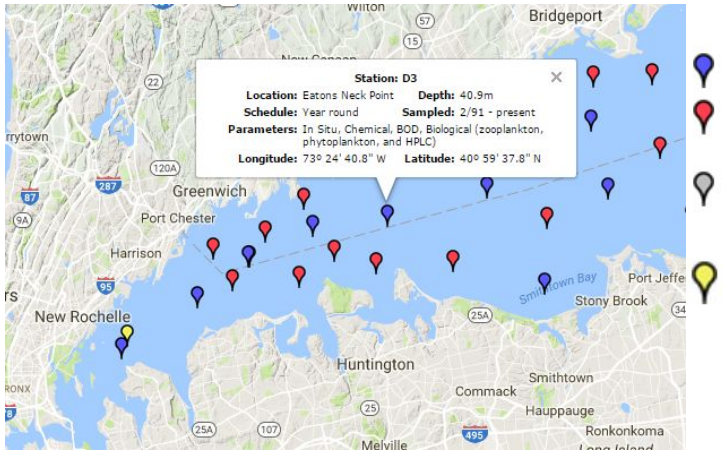
Summary Description: Water temperature plays a major role in the timing and severity of the summer hypoxia event. The temperature difference between the bottom waters and the surface waters is known as "delta T". This delta T, along with salinity differences, creates a density difference, or "density gradient" resulting in a separation or "stratification" of water layers that hinders the oxygenated surface waters from circulating downward and mixing with the oxygen starved bottom waters. The greater the delta T the greater is the potential for hypoxia to be more severe. The DEEP's monitoring program also records water temperatures and salinity during its hypoxia monitoring cruises to help estimate the extent of favorable conditions for the onset and ending of hypoxia. During the summer, two sampling surveys are conducted each month. The WQ surveys are conducted near the beginning of the month and the HY surveys are conducted in the latter of each month.

Water temperature differences in the western Sound during the summer months are particularly influential in contributing to the difference in dissolved oxygen content between surface and bottom waters. The density stratification of the water column creates a barrier between the surface and bottom waters, and it is this barrier, the pycnocline (where the change in density with depth is at its greatest), that prevents mixing between the layers. Long Island Sound is a thermally stratified estuary. The more rapid the change in temperature with depth, the stronger a barrier the thermocline presents to mixing of the water column. One of the sampling sites in the western Sound chosen as a representative site is station D3 located mid-Sound between Eatons Neck, Long Island and Norwalk, CT.

Full Description: Water Density and Hypoxia:
http://www.ct.gov/deep/cwp/view.asp?a=2719&q=325534&deepNav_GID=1654

Access Instructions: July 6-8 2015:

http://www.ct.gov/deep/lib/deep/water/lis_water_quality/monitoring/2015/D3_temp_graph_WQJul15.pdf



DEP Monitoring Stations

Year Round Station

Summer Station

(mid-June to mid-September)

Inactive Station

MYSound Buoys

MYSound Buoy

DEEP Water Quality Monitoring Program: Late July Temperature Time Series at Representative Station D3

CT DEEP Website

Source: CT DEEP / Long Island Sound Study LIS Water Quality Monitoring Program

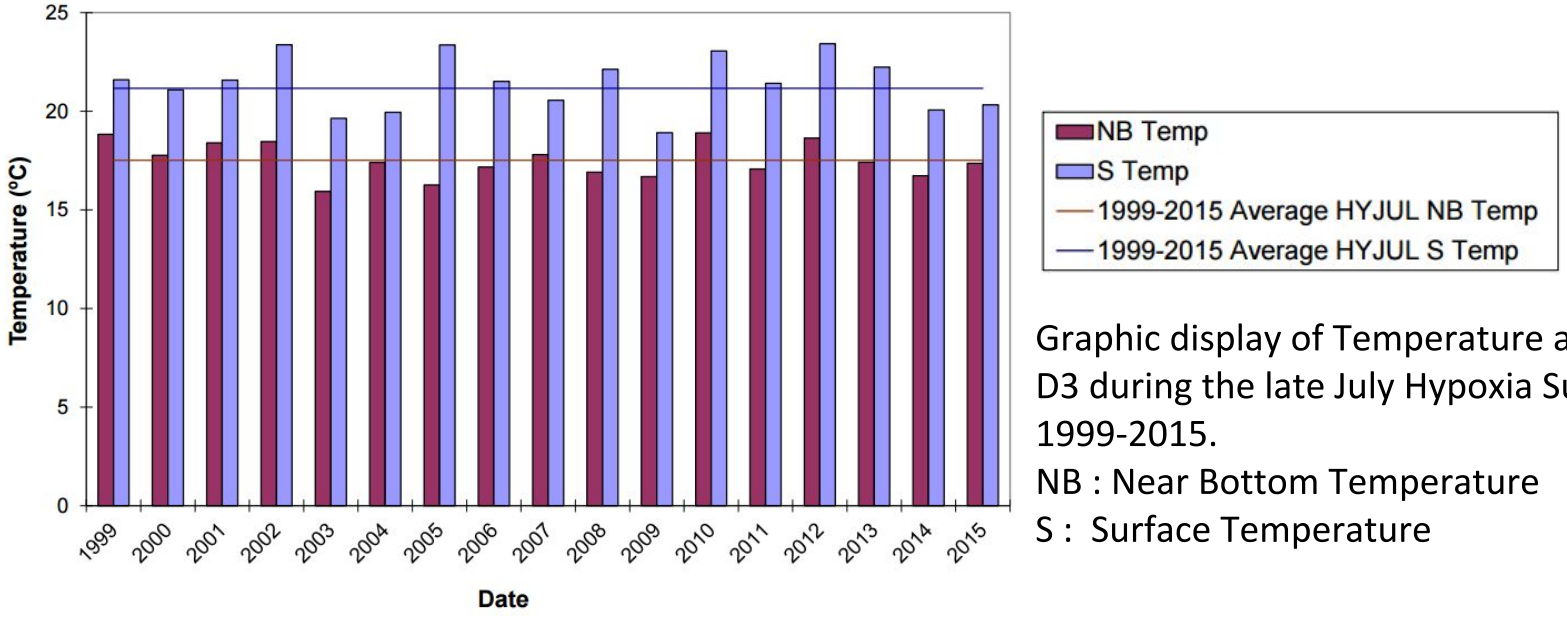
Monitoring Parameters

In situ: Dissolved Oxygen(DO), percent saturation, temperature, salinity, conductivity, depth, and Photosynthetically Active Radiation (PAR)

Chemical: Dissolved silica, particulate silica, particulate carbon, dissolved organic carbon, dissolved nitrogen, particulate nitrogen, ammonia, nitrate and nitrite, particulate phosphorus, total dissolved phosphorus, orthophosphate, chlorophyll a, total suspended solids, and Winkler Dissolved Oxygen

BOD: Biological Oxygen Demand

Biological: Zooplankton, phytoplankton, and HPLC



Graphic display of Temperature at Station D3 during the late July Hypoxia Surveys 1999-2015.

NB : Near Bottom Temperature

S : Surface Temperature

LONG ISLAND SOUND BLUE PLAN

Sustainable Ecosystems - Compatible Uses

DEEP Water Quality Monitoring Program: Late July Temperature Time Series at Representative Station D3

Blue Plan Sector(s): Environmental Characteristics > Water Chemistry/Quality

Summary Description: Water temperature plays a major role in the timing and severity of the summer hypoxia event. The temperature difference between the bottom waters and the surface waters is known as "delta T". This delta T, along with salinity differences, creates a density difference, or "density gradient" resulting in a separation or "stratification" of water layers that hinders the oxygenated surface waters from circulating downward and mixing with the oxygen starved bottom waters. The greater the delta T the greater is the potential for hypoxia to be more severe. The DEEP's monitoring program also records water temperatures and salinity during its hypoxia monitoring cruises to help estimate the extent of favorable conditions for the onset and ending of hypoxia. During the summer, two sampling surveys are conducted each month. The WQ surveys are conducted near the beginning of the month and the HY surveys are conducted in the latter of each month.

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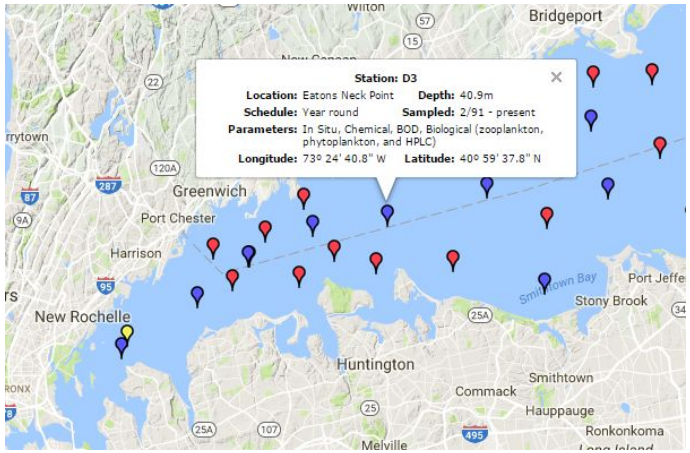
Full Description: Water Density and Hypoxia:
http://www.ct.gov/deep/cwp/view.asp?a=2719&q=325534&deepNav_GID=1654

Access Instructions: July 6-8 2015:

http://www.ct.gov/deep/lib/deep/water/lis_water_quality/monitoring/2015/D3_temp_graph_HYJul15.pdf



DEP Monitoring Stations

Year Round Station

Summer Station

(mid-June to mid-September)

Inactive Station

MYSound Buoys

MYSound Buoy

DEEP Water Quality Monitoring Program:
Early August Temperature Time Series at Representative Station D3

CT DEEP Website

Source: CT DEEP / Long Island Sound Study LIS Water Quality Monitoring Program

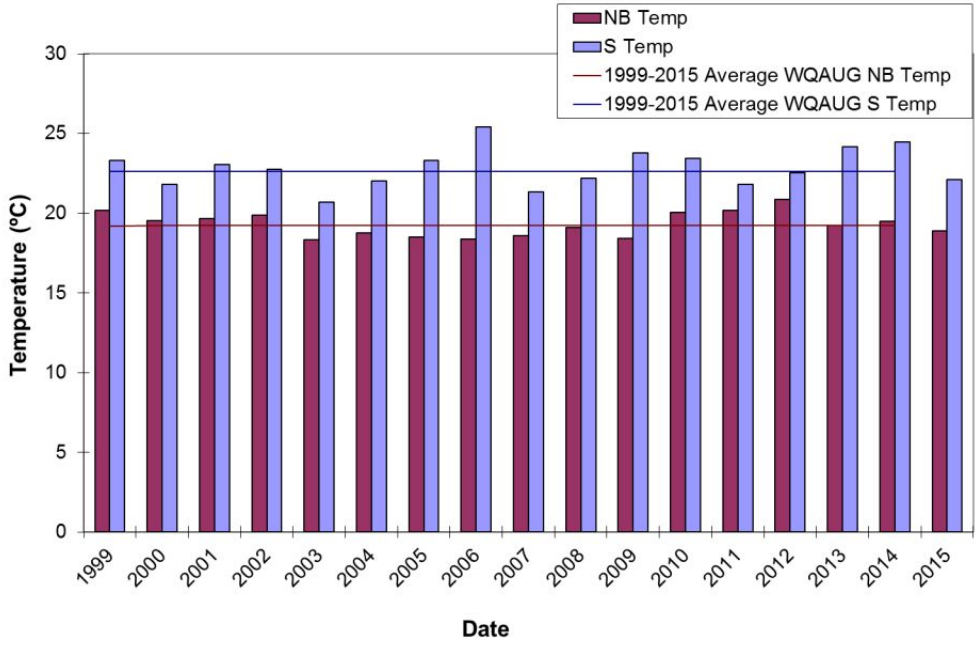
Monitoring Parameters

In situ: Dissolved Oxygen(DO), percent saturation, temperature, salinity, conductivity, depth, and Photosynthetically Active Radiation (PAR)

Chemical: Dissolved silica, particulate silica, particulate carbon, dissolved organic carbon, dissolved nitrogen, particulate nitrogen, ammonia, nitrate and nitrite, particulate phosphorus, total dissolved phosphorus, orthophosphate, chlorophyll a, total suspended solids, and Winkler Dissolved Oxygen

BOD: Biological Oxygen Demand

Biological: Zooplankton, phytoplankton, and HPLC



Graphic display of Temperature at Station D3 during the early August Water Quality Surveys 1999-2015.

NB : Near Bottom Temperature

S : Surface Temperature

LONG ISLAND SOUND BLUE PLAN
Sustainable Ecosystems - Compatible Uses

DEEP Water Quality Monitoring Program: Early August Temperature Time Series at Representative Station D3

Blue Plan Sector(s): Environmental Characteristics > Water Chemistry/Quality

Summary Description: Water temperature plays a major role in the timing and severity of the summer hypoxia event. The temperature difference between the bottom waters and the surface waters is known as "delta T". This delta T, along with salinity differences, creates a density difference, or "density gradient" resulting in a separation or "stratification" of water layers that hinders the oxygenated surface waters from circulating downward and mixing with the oxygen starved bottom waters. The greater the delta T the greater is the potential for hypoxia to be more severe. The DEEP's monitoring program also records water temperatures and salinity during its hypoxia monitoring cruises to help estimate the extent of favorable conditions for the onset and ending of hypoxia. During the summer, two sampling surveys are conducted each month. The WQ surveys are conducted near the beginning of the month and the HY surveys are conducted in the latter of each month.

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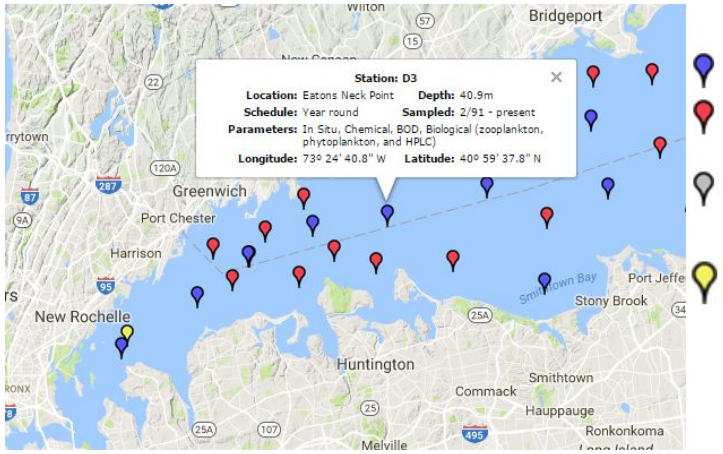
Full Description: Water Density and Hypoxia:
http://www.ct.gov/deep/cwp/view.asp?a=2719&q=325534&deepNav_GID=1654

Access Instructions: August 3-6 2015:

http://www.ct.gov/deep/lib/deep/water/lis_water_quality/monitoring/2015/D3_temp_graph_WQAUG15.pdf

DEEP Water Quality Monitoring Program:
Late August Temperature Time Series at Representative Station D3

CT DEEP Website



DEP Monitoring Stations

Year Round Station

Summer Station

(mid-June to mid-September)

Inactive Station

MYSound Buoys

MYSound Buoy

Source: CT DEEP / Long Island Sound Study LIS Water Quality Monitoring Program

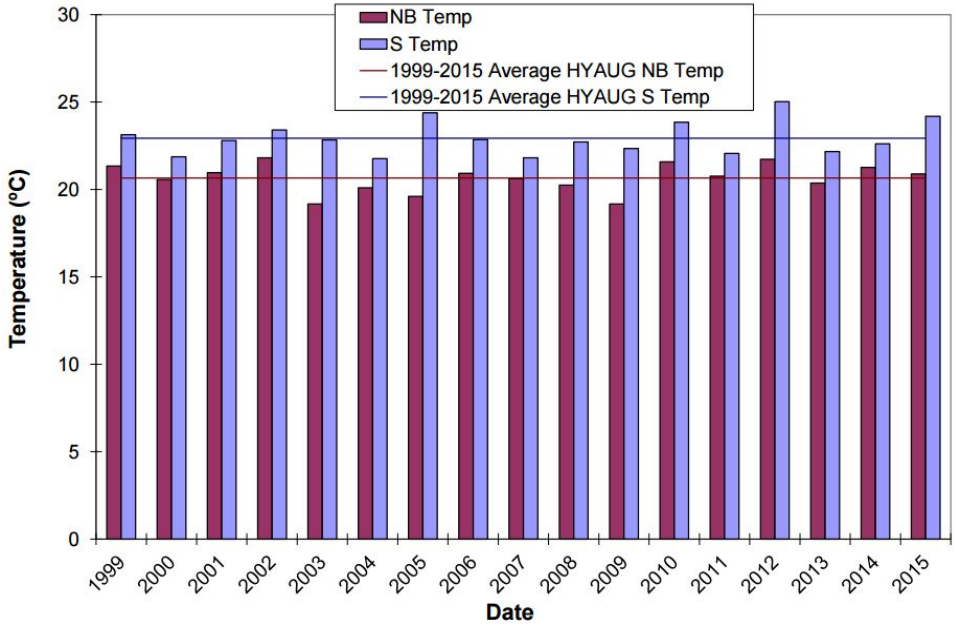
Monitoring Parameters

In situ: Dissolved Oxygen(DO), percent saturation, temperature, salinity, conductivity, depth, and Photosynthetically Active Radiation (PAR)

Chemical: Dissolved silica, particulate silica, particulate carbon, dissolved organic carbon, dissolved nitrogen, particulate nitrogen, ammonia, nitrate and nitrite, particulate phosphorus, total dissolved phosphorus, orthophosphate, chlorophyll a, total suspended solids, and Winkler Dissolved Oxygen

BOD: Biological Oxygen Demand

Biological: Zooplankton, phytoplankton, and HPLC



Graphic display of Temperature at Station D3 during the late August Hypoxia Surveys 1999-2015.

NB : Near Bottom Temperature

S : Surface Temperature

LONG ISLAND SOUND BLUE PLAN
Sustainable Ecosystems - Compatible Uses

DEEP Water Quality Monitoring Program: Late August Temperature Time Series at Representative Station D3

Blue Plan Sector(s): Environmental Characteristics > Water Chemistry/Quality

Summary Description: Water temperature plays a major role in the timing and severity of the summer hypoxia event. The temperature difference between the bottom waters and the surface waters is known as "delta T". This delta T, along with salinity differences, creates a density difference, or "density gradient" resulting in a separation or "stratification" of water layers that hinders the oxygenated surface waters from circulating downward and mixing with the oxygen starved bottom waters. The greater the delta T the greater is the potential for hypoxia to be more severe. The DEEP's monitoring program also records water temperatures and salinity during its hypoxia monitoring cruises to help estimate the extent of favorable conditions for the onset and ending of hypoxia. During the summer, two sampling surveys are conducted each month. The WQ surveys are conducted near the beginning of the month and the HY surveys are conducted in the latter of each month.

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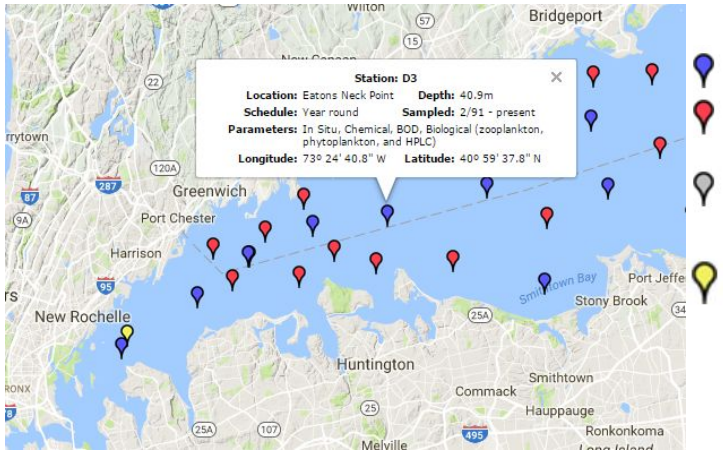
Full Description: Water Density and Hypoxia:
http://www.ct.gov/deep/cwp/view.asp?a=2719&q=325534&deepNav_GID=1654

Access Instructions: August 17-19 2015:

http://www.ct.gov/deep/lib/deep/water/lis_water_quality/monitoring/2015/D3_temp_graph_HYAug15.pdf



DEP Monitoring Stations

Year Round Station

Summer Station

(mid-June to mid-September)

Inactive Station

MYSound Buoys

MYSound Buoy

DEEP Water Quality Monitoring Program: Early Sept Temperature Time Series at Representative Station D3

CT DEEP Website

Source: CT DEEP / Long Island Sound Study LIS Water Quality Monitoring Program

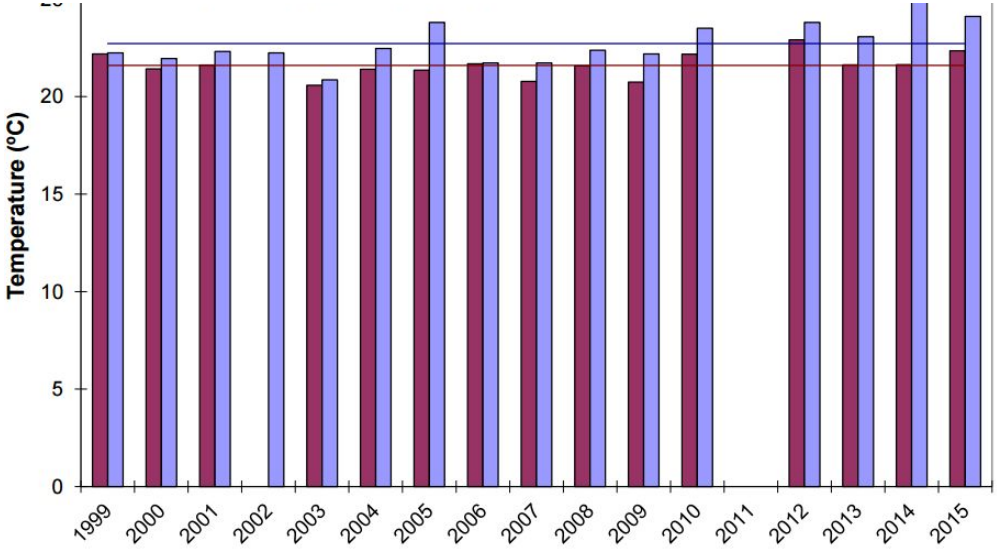
Monitoring Parameters

In situ: Dissolved Oxygen(DO), percent saturation, temperature, salinity, conductivity, depth, and Photosynthetically Active Radiation (PAR)

Chemical: Dissolved silica, particulate silica, particulate carbon, dissolved organic carbon, dissolved nitrogen, particulate nitrogen, ammonia, nitrate and nitrite, particulate phosphorus, total dissolved phosphorus, orthophosphate, chlorophyll a, total suspended solids, and Winkler Dissolved Oxygen

BOD: Biological Oxygen Demand

Biological: Zooplankton, phytoplankton, and HPLC



Graphic display of Temperature at Station D3 during the early Sept Water Quality Surveys 1999-2015.

NB : Near Bottom Temperature

S : Surface Temperature

LONG ISLAND SOUND BLUE PLAN

Sustainable Ecosystems - Compatible Uses

DEEP Water Quality Monitoring Program: Early Sept Temperature Time Series at Representative Station D3

Blue Plan Sector(s): Environmental Characteristics > Water Chemistry/Quality

Summary Description: Water temperature plays a major role in the timing and severity of the summer hypoxia event. The temperature difference between the bottom waters and the surface waters is known as "delta T". This delta T, along with salinity differences, creates a density difference, or "density gradient" resulting in a separation or "stratification" of water layers that hinders the oxygenated surface waters from circulating downward and mixing with the oxygen starved bottom waters. The greater the delta T the greater is the potential for hypoxia to be more severe. The DEEP's monitoring program also records water temperatures and salinity during its hypoxia monitoring cruises to help estimate the extent of favorable conditions for the onset and ending of hypoxia. During the summer, two sampling surveys are conducted each month. The WQ surveys are conducted near the beginning of the month and the HY surveys are conducted in the latter of each month.

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Full Description: Water Density and Hypoxia:
http://www.ct.gov/deep/cwp/view.asp?a=2719&q=325534&deepNav_GID=1654

Access Instructions: Aug 31 – Sept 2 2015:

http://www.ct.gov/deep/lib/deep/water/lis_water_quality/monitoring/2015/D3_temp_graph_HYSept15.pdf

Impaired Rivers or Coastline

Northeast Ocean Data Portal

Source: US Environmental Protection Agency

Data not visible at LIS view extent

Impaired Waters Line

LONG ISLAND SOUND BLUE PLAN
Sustainable Ecosystems - Compatible Uses

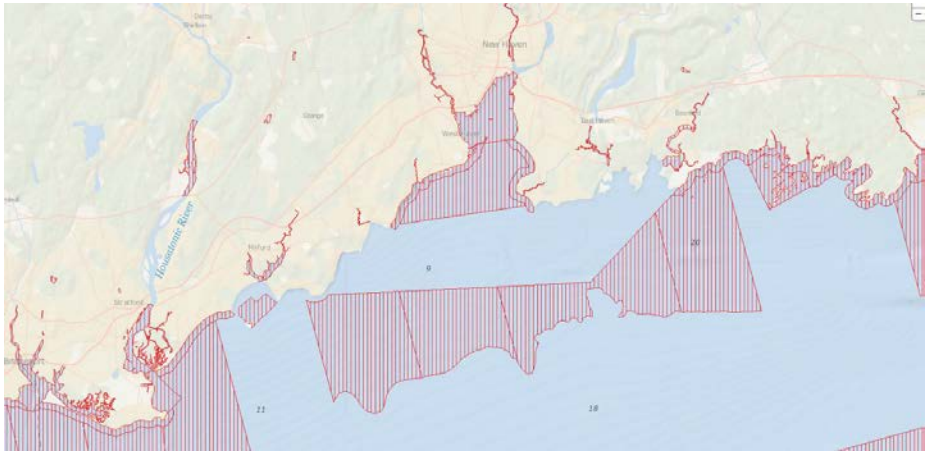
Impaired Rivers or Coastline

Blue Plan Sector(s): Environmental Characteristics > Water Chemistry/Quality

Summary Description: This layer shows river, stream, and coastline features that have been designated as impaired under Section 303(d) of the Clean Water Act. Section 303(d) requires states to identify water bodies where existing pollution controls are not sufficient to meet water quality standards and where states must establish protocols to improve water quality in those areas. The layer is hosted by the EPA and becomes visible when zoomed in to a scale of 1:288,895. The 303(d) Listed Impaired Waters program system provides impaired water data and impaired water features reflecting river segments, lakes, and estuaries designated under Section 303(d) of the Clean Water Act. Each State will establish Total Maximum Daily Loads (TMDLs) for these waters. Note the CWA Section 303(d) list of impaired waters does not represent waters that are impaired but have an EPA-approved TMDL established, impaired waters for which other pollution control mechanisms are in place and expected to attain water quality standards, or waters impaired as a result of pollution and is not caused by a pollutant. Therefore, the "Impaired Waters" layers do not represent all impaired waters reported in a state's Integrated Report, but only the waters comprised of a state's approved 303(d) list. For more information regarding impaired waters refer to EPA's Integrated Reporting Guidance at: http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/guidance.cfm. Current as of 2015.

Full Description:
https://edg.epa.gov/metadata/rest/document?id={66F27299-6B1B-42BF-8AA0-1127D7646631}&xsl=metadata_to_html_full

Access Instructions: http://www.northeastoceandata.org/data-explorer/, go to “Water Quality”



Impaired Waterbodies

Northeast Ocean Data Portal

Source: US Environmental Protection Agency

Data not visible at LIS view extent

Impaired Waters Area

LONG ISLAND SOUND BLUE PLAN
Sustainable Ecosystems - Compatible Uses

Impaired Waterbodies

Blue Plan Sector(s): Environmental Characteristics > Water Chemistry/Quality

Summary Description: This layer shows water bodies features that have been designated as impaired under Section 303(d) of the Clean Water Act. Section 303(d) requires states to identify water bodies where existing pollution controls are not sufficient to meet water quality standards and where states must establish protocols to improve water quality in those areas. The layer is hosted by the EPA and becomes visible when zoomed in to a scale of 1:288,895. The 303(d) Listed Impaired Waters program system provides impaired water data and impaired water features reflecting river segments, lakes, and estuaries designated under Section 303(d) of the Clean Water Act. Each State will establish Total Maximum Daily Loads (TMDLs) for these waters. Note the CWA Section 303(d) list of impaired waters does not represent waters that are impaired but have an EPA-approved TMDL established, impaired waters for which other pollution control mechanisms are in place and expected to attain water quality standards, or waters impaired as a result of pollution and is not caused by a pollutant. Therefore, the "Impaired Waters" layers do not represent all impaired waters reported in a state's Integrated Report, but only the waters comprised of a state's approved 303(d) list. For more information regarding impaired waters refer to EPA's Integrated Reporting Guidance at: http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/guidance.cfm. Current as of 2015.

Full Description:
https://edg.epa.gov/metadata/rest/document?id={66F27299-6B1B-42BF-8AA0-1127D7646631}&xsl=metadata_to_html_full

Access Instructions: http://www.northeastoceandata.org/data-explorer/, go to “Water Quality”

TMDL Rivers or Coastline

Northeast Ocean Data Portal

Source: US Environmental Protection Agency

Data not visible at LIS view extent

Total Max Daily Loads Line

LONG ISLAND SOUND BLUE PLAN
Sustainable Ecosystems - Compatible Uses

TMDL Rivers or Coastline

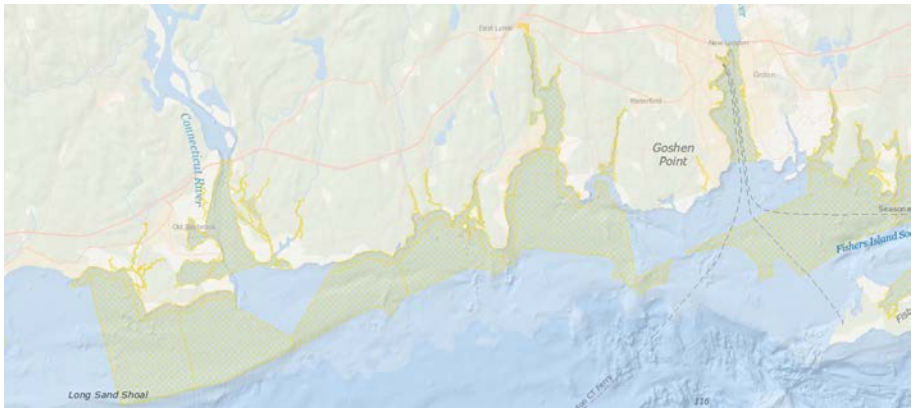
Blue Plan Sector(s): Environmental Characteristics > Water Chemistry/Quality

Summary Description: This layer shows rivers, streams, and coastlines that were at one point designated as impaired under Section 303(d) of the Clean Water Act, but now have Total Maximum Daily Loads (TMDL) established to improve water quality. The objective of a TMDL is to design an implementation plan to restore impaired water bodies. Once a TMDL is established the water body is removed from the 303(d) listing and placed in the TMDL database. The Total Maximum Daily Load (TMDL) Tracking System contains information on waters that are Not Supporting their designated uses. These waters are listed by the state as impaired under Section 303(d) of the Clean Water Act. The status of TMDLs are also tracked. TMDLs are pollution control measures that reduce the discharge of pollutants into impaired waters. A TMDL or Total Maximum Daily Load is a calculation of the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards, and an allocation of that amount to the pollutant's sources. Water quality standards are set by States, Territories, and Tribes. They identify the uses for each waterbody, for example, drinking water supply, contact recreation (swimming), and aquatic life support (fishing), and the scientific criteria to support that use. A TMDL is the sum of the allowable loads of a single pollutant from all contributing point and nonpoint sources. The calculation must include a margin of safety to ensure that the waterbody can be used for the purposes the state has designated. The calculation must also account for seasonal variation in water quality. The Clean Water Act, section 303, establishes the water quality standards and TMDL programs.

The layer is hosted by the EPA and becomes visible when zoomed in to a scale of 1:288895. Current as of 2015.

Full Description:
https://edg.epa.gov/metadata/rest/document?id={88E53742-CF0D-443C-94AF-8139C09471F9}&xsl=metadata_to_html_full

Access Instructions: http://www.northeastoceandata.org/data-explorer/, go to “Water Quality”



TMDL Waterbodies

Northeast Ocean Data Portal

Source: US Environmental Protection Agency

Data not visible at LIS view extent

Total Max Daily Loads Area

LONG ISLAND SOUND BLUE PLAN
Sustainable Ecosystems - Compatible Uses

TMDL Waterbodies

Blue Plan Sector(s): Environmental Characteristics > Water Chemistry/Quality

Summary Description: This layer waterbodies that were at one point designated as impaired under Section 303(d) of the Clean Water Act, but now have Total Maximum Daily Loads (TMDL) established to improve water quality. The objective of a TMDL is to design an implementation plan to restore impaired water bodies. Once a TMDL is established the water body is removed from the 303(d) listing and placed in the TMDL database. The Total Maximum Daily Load (TMDL) Tracking System contains information on waters that are Not Supporting their designated uses. These waters are listed by the state as impaired under Section 303(d) of the Clean Water Act. The status of TMDLs are also tracked. TMDLs are pollution control measures that reduce the discharge of pollutants into impaired waters. A TMDL or Total Maximum Daily Load is a calculation of the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards, and an allocation of that amount to the pollutant's sources. Water quality standards are set by States, Territories, and Tribes. They identify the uses for each waterbody, for example, drinking water supply, contact recreation (swimming), and aquatic life support (fishing), and the scientific criteria to support that use. A TMDL is the sum of the allowable loads of a single pollutant from all contributing point and nonpoint sources. The calculation must include a margin of safety to ensure that the waterbody can be used for the purposes the state has designated. The calculation must also account for seasonal variation in water quality. The Clean Water Act, section 303, establishes the water quality standards and TMDL programs.

The layer is hosted by the EPA and becomes visible when zoomed in to a scale of 1:288895. Current as of 2015.

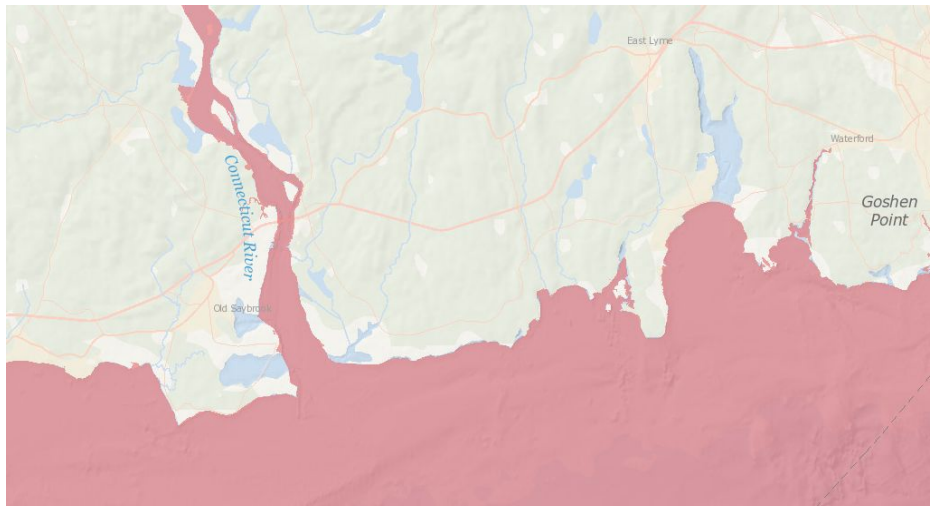
Full Description:
https://edg.epa.gov/metadata/rest/document?id={88E53742-CF0D-443C-94AF-8139C09471F9}&xsl=metadata_to_html_full

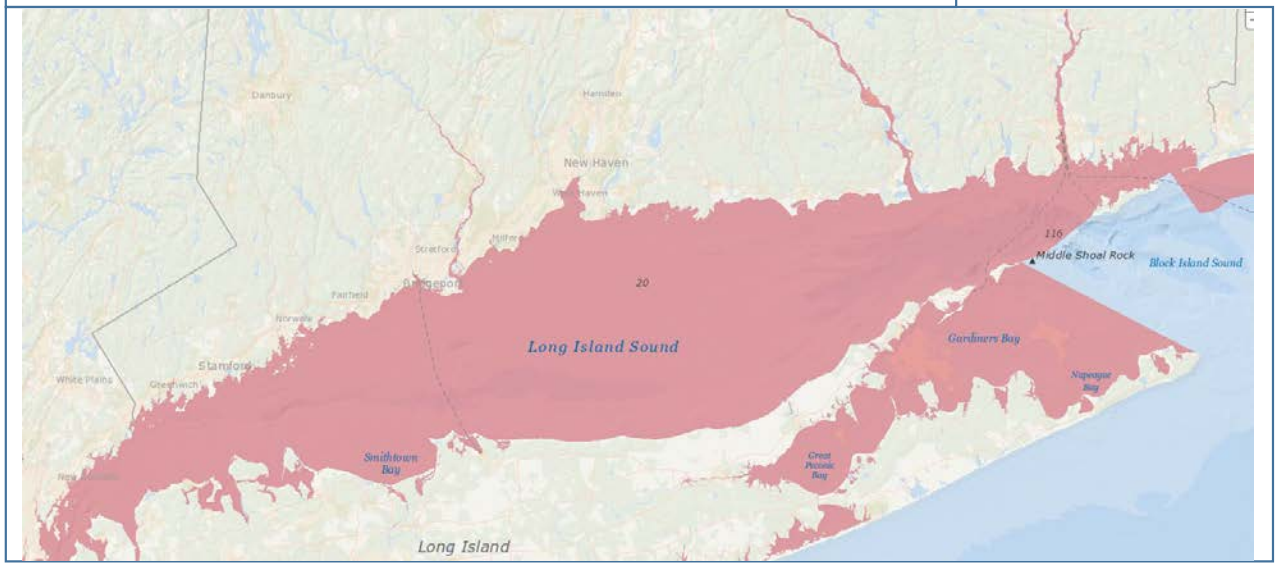
Access Instructions: http://www.northeastoceandata.org/data-explorer/, go to “Water Quality”

No Discharge Zones

Northeast Ocean Data Portal

Source: US Environmental Protection Agency





No Discharge Zones

- Final
- To be proposed

LONG ISLAND SOUND BLUE PLAN

Sustainable Ecosystems - Compatible Uses

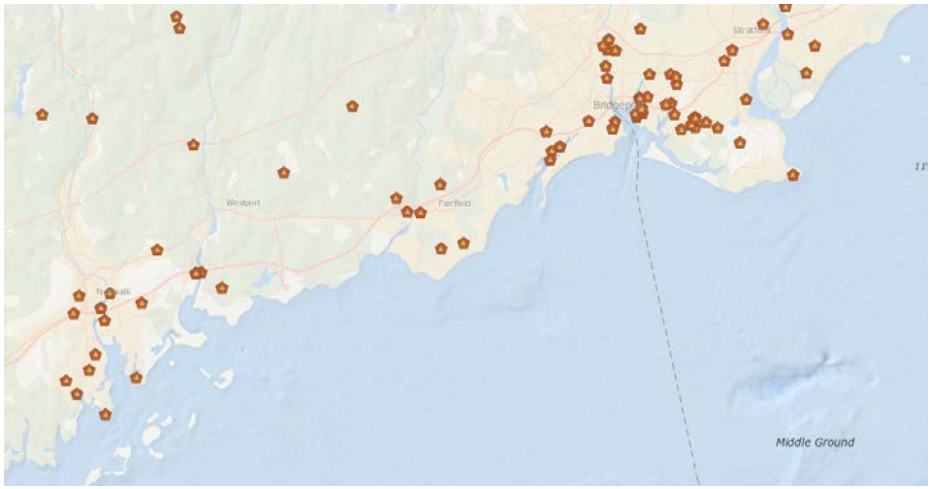
No Discharge Zones

Blue Plan Sector(s): Environmental Characteristics > Water Chemistry/Quality

Summary Description: This layer shows No Discharge Zones, which are areas where commercial and recreational vessels are prohibited from discharging treated or untreated sewage. Section 312 of the Clean Water Act authorizes states to establish No Discharge Zones and the EPA to approve them based on its determination that there are sufficient sewage pump-out facilities to serve the area's boating population. The dataset was updated in 2014 and show both final and proposed No Discharge Zones for EPA Region 1 and Region 2.

Full Description:
http://www.northeastoceandata.org/files/metadata/Themes/WaterQuality/NoDischargeZones.pdf

Access Instructions: http://www.northeastoceandata.org/data-explorer/, go to "Water Quality"



Wastewater Discharges

Northeast Ocean Data Portal

Source: US Environmental Protection Agency: Facility Registry System – Permit Compliance System (PCS) National Pollutant Discharge Elimination System (NPDES)

Data not visible at LIS scale

PCS_NPDES

LONG ISLAND SOUND BLUE PLAN
Sustainable Ecosystems - Compatible Uses

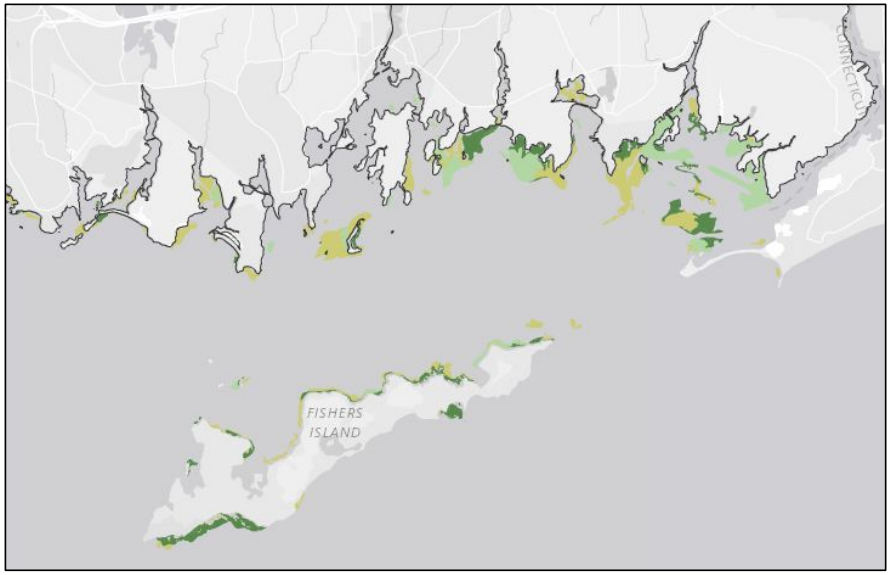
Wastewater Discharges

Blue Plan Sector(s): Environmental Characteristics > Water Chemistry/Quality

Summary Description: This web feature service contains location and facility identification information from EPA's Facility Registry System (FRS) for the subset of facilities that link to the Permit Compliance System (PCS) or the National Pollutant Discharge Elimination System (NPDES) module of the Integrated Compliance Information System (ICIS). PCS tracks NPDES surface water permits issued under the Clean Water Act. This system is being incrementally replaced by the NPDES module of ICIS. Under NPDES, all facilities that discharge pollutants from any point source into waters of the United States are required to obtain a permit. The permit will likely contain limits on what can be discharged, impose monitoring and reporting requirements, and include other provisions to ensure that the discharge does not adversely affect water quality. FRS identifies and geospatially locates facilities, sites or places subject to environmental regulations or of environmental interest. Using vigorous verification and data management procedures, FRS integrates facility data from EPA's national program systems, other federal agencies, and State and tribal master facility records and provides EPA with a centrally managed, single source of comprehensive and authoritative information on facilities. This data set contains the subset of FRS integrated facilities that link to NPDES facilities once the PCS or ICIS-NPDES data has been integrated into the FRS database.

Full Description:
https://edg.epa.gov/metadata/rest/document?id={6C7CBE2A-6547-4211-A328-6759D11DC117}&xsl=metadata_to_html_full

Access Instructions: http://www.northeastoceandata.org/data-explorer/, go to “Water Quality”



Eelgrass Beds (2012)

The Aquaculture Mapping Atlas (AMA)

Source: The Conservation Management Institute, Virginia Tech University for the USFWS National Wetlands Inventory, Region 5

LONG ISLAND SOUND BLUE PLAN
Sustainable Ecosystems - Compatible Uses

Eelgrass Beds (2012)

Blue Plan Sector(s): Ecological Characterization > Living Resources > Plants > SAVs

Summary Description:

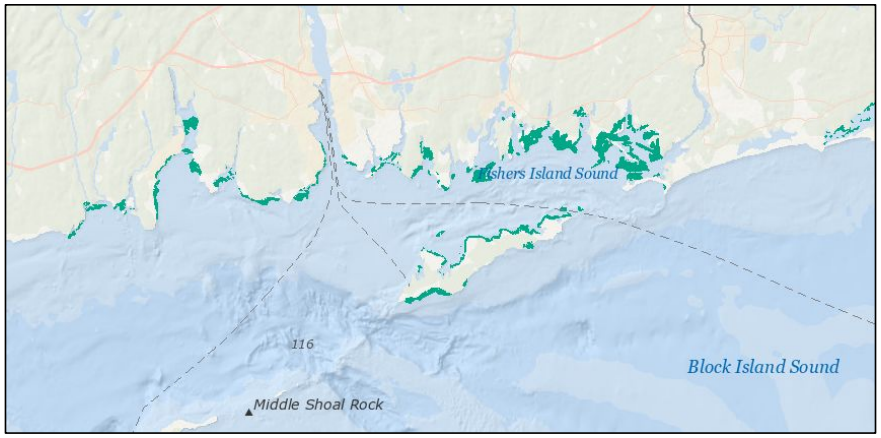
The project area encompasses the eastern end of Long Island Sound, including Fishers Island and the North Fork of Long Island. It includes all coastal embayments and nearshore waters (i.e., to a depth of -15 feet at mean low water) bordering the Sound from Clinton Harbor in the west to the Rhode Island border in the east and including Fishers Island and the North Shore of Long Island from Southold to Orient Point and Plum Island. The study area includes the tidal zone of 18 sub-basins in Connecticut: Little Narragansett Bay, Stonington Harbor, Quiambog Cove, Mystic Harbor, Palmer-West Cove, Mumford Cove, Paquonock River, New London Harbor, Goshen Cove, Jordan Cove, Niantic Bay, Rocky Neck State Park, Old Lyme Shores, Connecticut River, Willard Bay, Westbrook Harbor, Duck Island Roads, and Clinton Harbor, and two areas in New York: Fishers Island and a portion of the North Shore of Long Island. Delineations of 2012 eelgrass beds were completed using 1:20,000 true color aerial photography flown at low tide on August 02, 2012. Earlier photo acquisition was not possible due to unfavorable weather conditions. Field work was conducted by the USFWS Region 5 Southern New England-New York Bight Coastal Program Office on October 02, 2012, prior to Hurricane Sandy. Only one day of field work was conducted due largely to the late season acquisition of imagery and unfavorable weather conditions. Data have been summarized in a technical report: Tiner, R., K. McGuckin, and A. MacLachlan. 2013. 2012 Eelgrass Survey for EasternLong Island Sound, Connecticut and New York. U.S. Fish and Wildlife Service, National Wetlands Inventory Program, Northeast Region, Hadley, MA. National Wetlands Inventory report. 20 pp. including Appendix. This dataset was developed for an ongoing eelgrass monitoring of the Long Island Sound. Funding was provided by the EPA, Region 2.

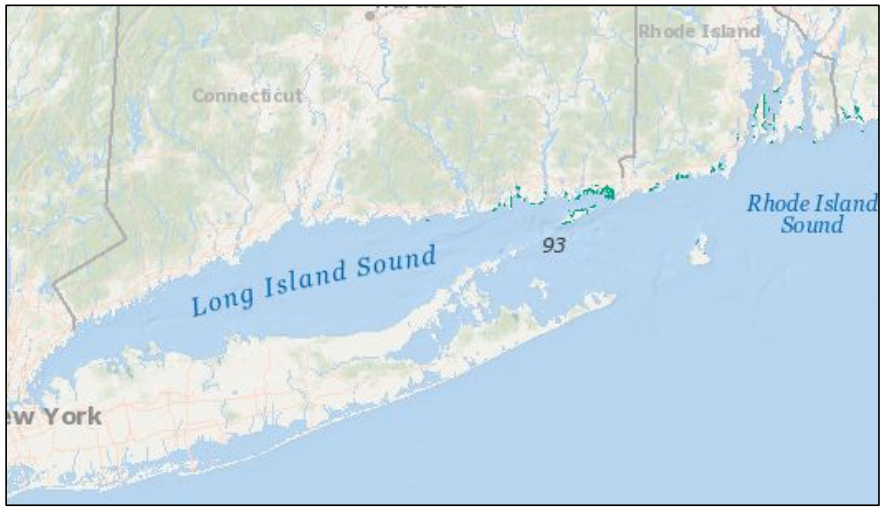
Full Description:
http://www.cteco.uconn.edu/metadata/dep/document/EELGRASS_BEDS_2012_POLY_FGDC_Plus.htm

Access Instructions: Go to: http://clear3.uconn.edu/aquaculture/ and select “Eelgrass Beds (2012)” from the choose your maps layers box

Eelgrass Beds

Northeast Ocean Data





Source: Conservation Management Institute, Virginia Tech University for the USFWS National Wetlands Inventory, Region 5

LONG ISLAND SOUND BLUE PLAN
Sustainable Ecosystems - Compatible Uses

Eelgrass Beds

Blue Plan Sector(s): Ecological Characterization > Living Resources > Plants> SAVs

Summary Description: This map shows biological habitats in the ocean in the Northeast region. Biological habitat is a term used for eelgrass beds, wetlands, corals, shellfish beds, and other structures formed of marine life, which provide habitat for other kinds of marine life. Biological habitats provide ecosystem services that benefit marine species and humans, such as serving as nursery grounds for fish and shellfish, enhancing biodiversity, producing food, and buffering shorelines from storm waves and flooding. Also shown on this map are selected biological features of aquatic habitats: primary productivity (chlorophyll *a* concentrations), secondary productivity (zooplankton abundance), and benthic fauna.

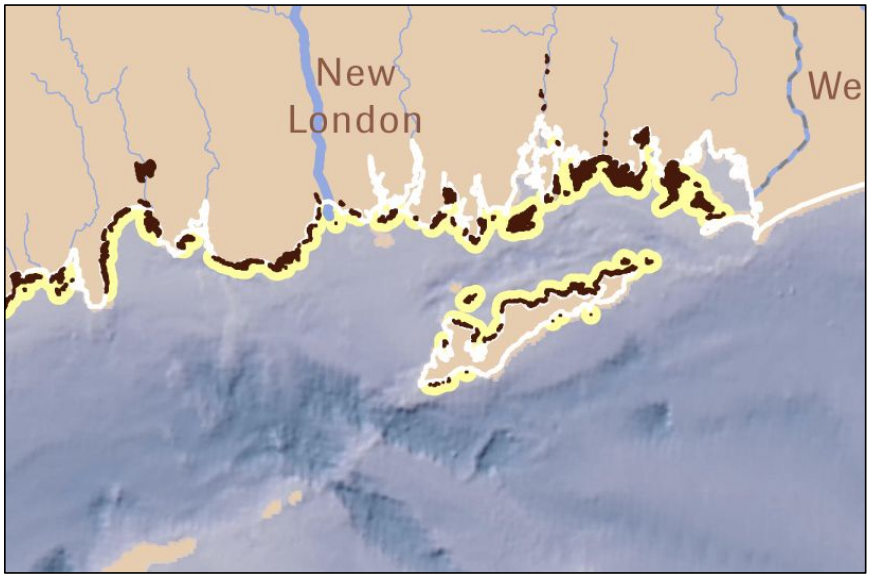
This data layer was created by the Conservation Management Institute, Virginia Tech University for the USFWS National Wetlands Inventory, Region 5. The project area encompasses the eastern end of Long Island Sound, including Fishers Island and the North Fork of Long Island. It includes all coastal embayments and nearshore waters (i.e., to a depth of -15 feet at mean low water) bordering the Sound from Clinton Harbor in the west to the Rhode Island border in the east and including Fishers Island and the North Shore of Long Island from Southold to Orient Point and Plum Island. The study area includes the tidal zone of 18 sub-basins in Connecticut: Little Narragansett Bay, Stonington Harbor, Quiambog Cove, Mystic Harbor, Palmer-West Cove, Mumford Cove, Paquonock River, New London Harbor, Goshen Cove, Jordan Cove, Niantic Bay, Rocky Neck State Park, Old Lyme Shores, Connecticut River, Willard Bay, Westbrook Harbor, Duck Island Roads, and Clinton Harbor, and two areas in New York: Fishers Island and a portion of the North Shore of Long Island. Delineations of 2012 eelgrass beds were completed using 1:20,000 true color aerial photography flown at low tide on August 02, 2012. Earlier photo acquisition was not possible due to unfavorable weather conditions. Field work was conducted by the USFWS Region 5 Southern New England-New York Bight Coastal Program Office on October 02, 2012, prior to Hurricane Sandy. Only one day of field work was conducted due largely to the late season acquisition of imagery and unfavorable weather conditions. Data have been summarized in a technical report: Tiner, R., K. McGuckin, and A. MacLachlan. 2013. 2012 Eelgrass Survey for EasternLong Island Sound, Connecticut and New York. U.S. Fish and Wildlife Service, National Wetlands Inventory Program, Northeast Region, Hadley, MA. National Wetlands Inventory report. 20 pp. including Appendix.

Full Description: http://www.cteco.uconn.edu/metadata/dep/document/EELGRASS_BEDS_2012_POLY_FGDC_Plus.htm

Access Instructions: Go to:

http://www.northeastoceandata.org/data-explorer/?habitat

And select Eelgrass Beds from the features pull down menu in the legend



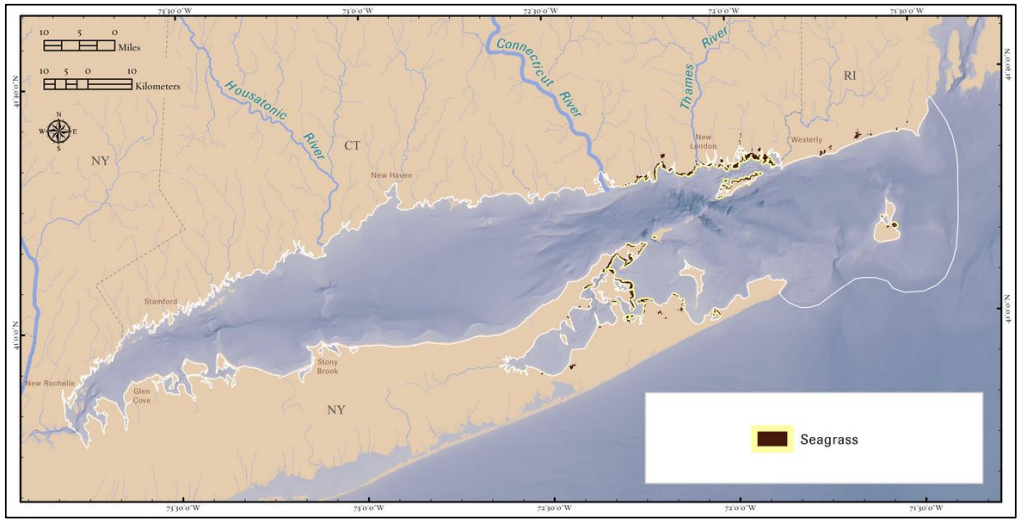


Figure 7.11 Seagrass

Long Island Sound Ecological Assessment (LISEA)

Source: The Nature Conservancy (TNC), USFWS Region 5, EPA Region 2

Seagrass

LONG ISLAND SOUND BLUE PLAN
Sustainable Ecosystems - Compatible Uses

Figure 7.11 Seagrass

Blue Plan Sector(s): Ecological Characterization > Living Resources > Plants> SAVs

Summary Description: This data layer was created by the USFWS National Wetlands Inventory, Region 5. Delineations of 2006 eelgrass beds were completed on the eastern Connecticut shoreline to the Rhode Island border. Fisher Island, Plum Island, and the northern shore of Long Island, New York were also included in this work. Spring 2006 True Color aerial photography was taken at a scale of 1:20,000 and used for detemining location and delineation of eelgrass beds. Extensive field work was conducted by the USFWS Region 5 Southern Coastal Zone program in September, October and November, with 290 field sites. The 2006 photography was scanned and geo-rectified using 2004 ADS 1/2 meter true color imagery.

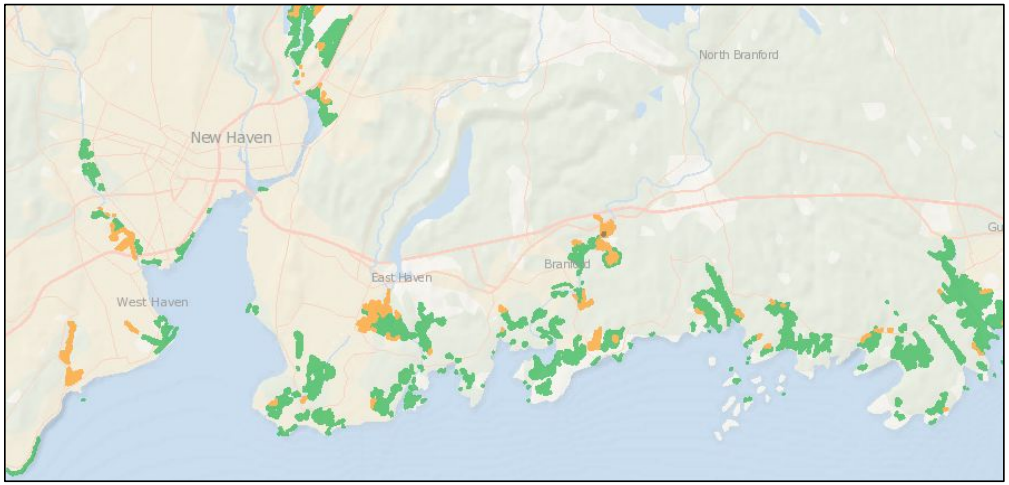
Full Description: To access metadata, go to the layer details in the GDB in ArcCatalog.

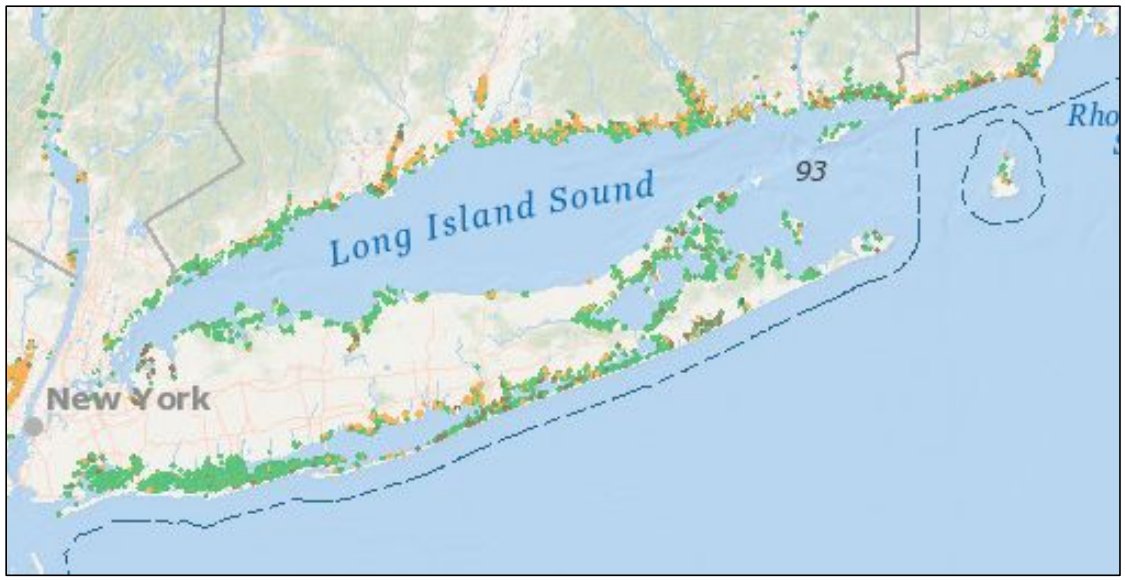
Access Instructions: Go to:
https://www.conservationgateway.org/ConservationByGeography/NorthAmerica/UnitedStates/edc/reportsdata/marine/namera/lis/Pages/default.aspx

And select Figure 7.11 Seagrass from the list of LISEA figures

Coastal Wetlands

Northeast Ocean Data Portal (NEODP)





Source: U.S. Fish and Wildlife Service, National Wetlands Inventory, North Atlantic Landscape Conservation Cooperative, Coastal Update to the National Wetlands Inventory

Coastal Wetlands

- Phragmites australis
- Unconsolidated Shore Organic Irregularly Flooded
- Scrub-Shrub Wetland Coniferous
- Scrub-Shrub Wetland Deciduous
- Emergent Non-persistent Wetland
- Emergent Persistent Wetland
- Forested Wetlands

LONG ISLAND SOUND BLUE PLAN
Sustainable Ecosystems - Compatible Uses

Coastal Wetlands

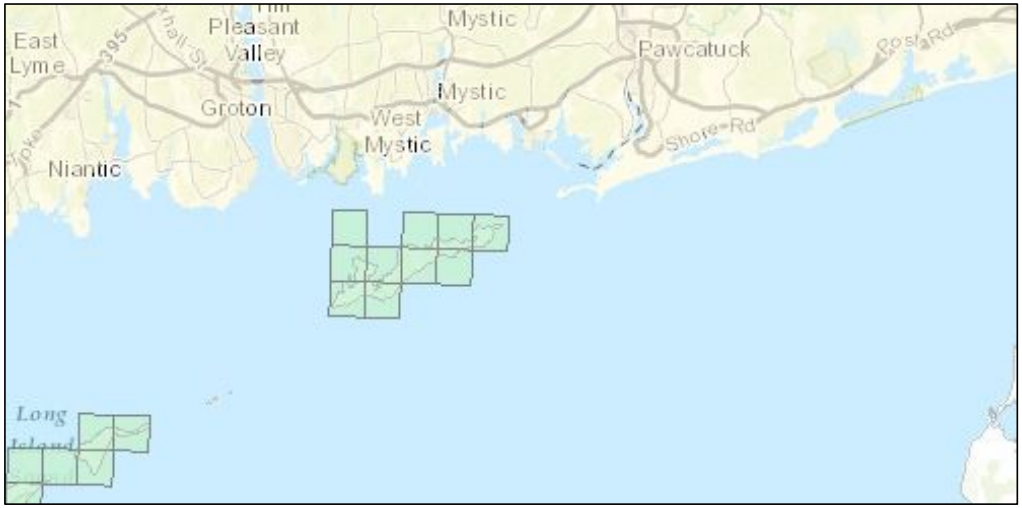
Blue Plan Sector(s): Ecological Characterization > Living Resources> Plants >Other

Summary Description: This dataset represents the extent and approximate location of coastal wetlands in the northeastern United States. The data presented were exclusively derived from the National Wetlands Inventory (NWI). The classification system used by the NWI was assessed by wetland specialists and classes were selected to specifically represent coastal wetlands. Coastal wetlands were defined as vegetated wetlands in saline or brackish waters that were not permanently flooded, or not in open water. The NWI classes that applied to this definition included estuarine intertidal emergent, estuarine intertidal scrub-shrub, estuarine intertidal forested, and estuarine intertidal unconsolidated shore with organic soil types that were irregularly flooded.

Full Description: Go to:
http://www.northeastoceandata.org/files/metadata/Themes/Habitat/CoastalWetlands.pdf

Access Instructions: Go to: http://www.northeastoceandata.org/data-explorer/

and search *"Coastal Wetlands"*



DEC Regulatory Tidal Wetland Map Index

New York Geographic Information Gateway (NYGIG)

Source: New York State Department of Environmental Conservation (Division of Marine Resources, Bureau of Marine Habitat)

Legend:

LONG ISLAND SOUND BLUE PLAN
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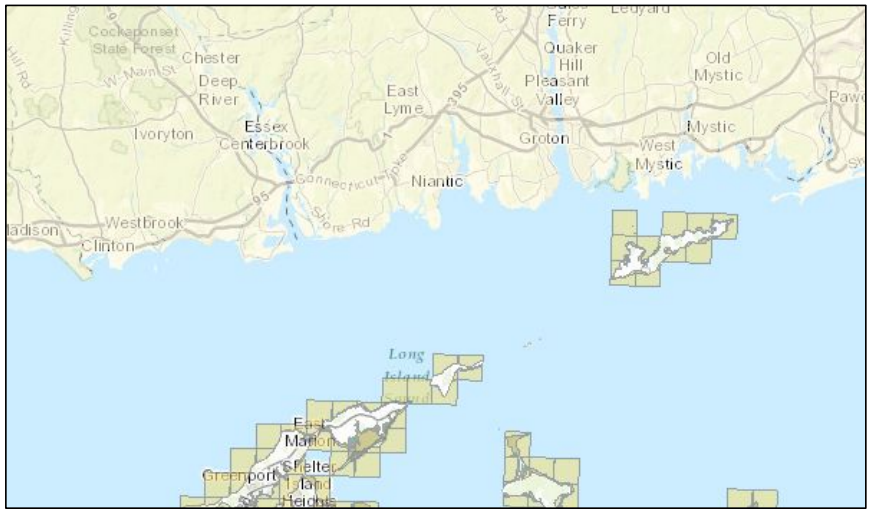
DEC Regulatory Tidal Wetland Map Index

Blue Plan Sector(s): Ecological Characterization > Living Resources> Plants >Other

Summary Description: These are digital renditions of the official 1974 tidal wetlands inventory maps of the New York State Department of Environmental Conservation (DEC). They represent tidal wetlands within the marine district of New York State (Tappan Zee bridge, south to and including Staten Island, east to and including Long Island and Fishers Island). Mylar maps were scanned with a large format 50-inch Contex scanner during December 2003 and January 2004. All maps were scanned in grayscale mode at a resolution of 100 or 150 dpi as *.jpg images. The images were then post-processed using Adobe Photoshop 7.0 to illuminate tidal wetland classifications and water bodies. The maps are provided for reference purposes only. They do not represent survey quality accuracy. Since tidal wetlands are a living entity, changes may and have occurred. Some changes have been recorded and map amendments are noted at the bottom left side of the affected map; others have not been documented. Developmental activities in and adjacent to tidal wetlands fall under the purview of the Tidal Wetlands Land Use Regulations Article 25, 6 NYCRR Part 661(www.dec.state.ny.us/website/regs/661a.htm) and are regulated. Therefore, any person planning to conduct such activities must contact their DEC Regional office for confirmation and a permit application. If a permit is required the tidal wetland boundary line will be determined at the time of a field inspection and may differ from the boundary line depicted on the respective map. *Purpose:* To identify and classify New York State's tidal wetland boundaries for regulatory purposes. *Supplemental Information:* The hard copy mylar maps were used to digitize the 1974 tidal wetland shapefiles. All rasters were then geo-referenced to and checked for alignment with the 1974 tidal wetlands shapefiles, most overlay without deviation, although, because of the absence of triangiulation and ortho-rectification, some areas along map edges do not align correctly,additionally some ground features do not overlay correctly. An example of a typical problem can be found on map 694-518. Less than 1% of the maps exhibit this problem. Additionally, because of non-triangulation many of the maps do not edgematch correctly, so during these instances, shapfile lines were drawn to meet each other at the edges without consideration of ground conditions. There was no attempt to align governmental boundary lines. The protocol for alignment, in order of importance, was upland/wetlands boundaries, intratidal boundaries and then high water and SM/LZ boundaries. After several attempts other maps exhibited mis-alignment examples are 682-514 and 682-518. Maps that have undergone map changes have notations in the lower left hand corner. The 1974 shapefile, in most cases, does not reflect these changes in the digital shapefile format, therefore the raster will exhibit boundary lines that are not part of the 1974 shapefile. This condition is most evident in the Shinnecock Bay series of maps, The changes are black lines that are part of the raster and not included in the 1974 shapefile.

Full Description: Go to:
http://opdgig.dos.ny.gov/geoportal/catalog/search/resource/detailsnoheader.page?uuid={2ABDDDD1-60BC-4E93-AACC-7D4E14046A1F}

Access Instructions: Go to: http://opdgig.dos.ny.gov/#/map and search *"DEC Regulatory Tidal Wetland Map Index"*



DEC Tidal Wetland Areas

New York Geographic Information Gateway (NYGIG)

Source: New York State Department of Environmental Conservation (Division of Marine Resources, Bureau of Marine Habitat)

Legend:

- Dredged Soil (DS)
- Formerly Connected (FC)
- Fresh Marsh (FM)
- High Marsh (HM)
- Intertidal Marsh (IM)
- Littoral Zone (LZ)
- Coastal Shoals, Bars and Mudflats (SM)

LONG ISLAND SOUND BLUE PLAN
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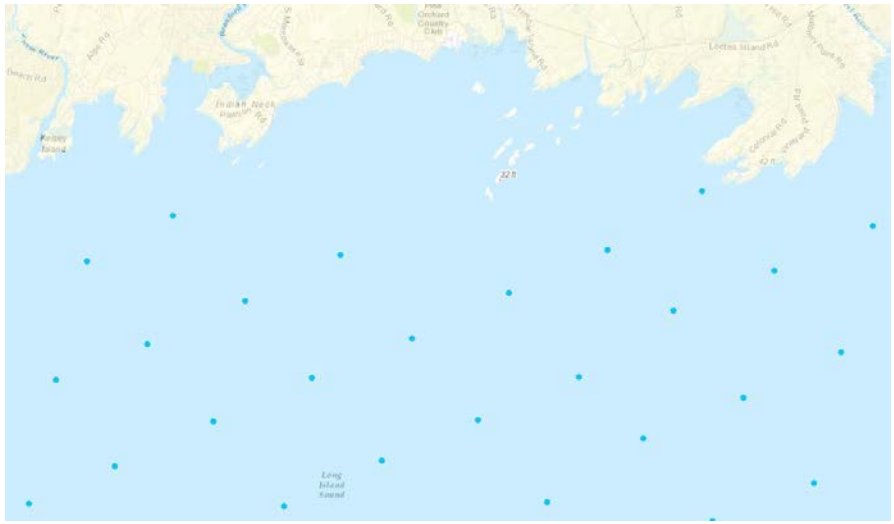
DEC Tidal Wetland Areas

Blue Plan Sector(s): Ecological Characterization > Living Resources> Plants >Other

Summary Description: These are digital renditions of the official 1974 tidal wetlands inventory maps of the New York State Department of Environmental Conservation (DEC). They represent tidal wetlands within the marine district of New York State (Tappan Zee bridge, south to and including Staten Island, east to and including Long Island and Fishers Island). Mylar maps were scanned with a large format 50-inch Contex scanner during December 2003 and January 2004. All maps were scanned in grayscale mode at a resolution of 100 or 150 dpi as *.jpg images. The images were then post-processed using Adobe Photoshop 7.0 to illuminate tidal wetland classifications and water bodies. The maps are provided for reference purposes only. They do not represent survey quality accuracy. Since tidal wetlands are a living entity, changes may and have occurred. Some changes have been recorded and map amendments are noted at the bottom left side of the affected map; others have not been documented. Developmental activities in and adjacent to tidal wetlands fall under the purview of the Tidal Wetlands Land Use Regulations Article 25, 6 NYCRR Part 661(www.dec.state.ny.us/website/regs/661a.htm) and are regulated. Therefore, any person planning to conduct such activities must contact their DEC Regional office for confirmation and a permit application. If a permit is required the tidal wetland boundary line will be determined at the time of a field inspection and may differ from the boundary line depicted on the respective map. *Purpose:* To identify and classify New York State's tidal wetland boundaries for regulatory purposes. *Supplemental Information:* The hard copy mylar maps were used to digitize the 1974 tidal wetland shapefiles. All rasters were then geo-referenced to and checked for alignment with the 1974 tidal wetlands shapefiles, most overlay without deviation, although, because of the absence of triangiulation and ortho-rectification, some areas along map edges do not align correctly,additionally some ground features do not overlay correctly. An example of a typical problem can be found on map 694-518. Less than 1% of the maps exhibit this problem. Additionally, because of non-triangulation many of the maps do not edgematch correctly, so during these instances, shapfile lines were drawn to meet each other at the edges without consideration of ground conditions. There was no attempt to align governmental boundary lines. The protocol for alignment, in order of importance, was upland/wetlands boundaries, intratidal boundaries and then high water and SM/LZ boundaries. After several attempts other maps exhibited mis-alignment examples are 682-514 and 682-518. Maps that have undergone map changes have notations in the lower left hand corner. The 1974 shapefile, in most cases, does not reflect these changes in the digital shapefile format, therefore the raster will exhibit boundary lines that are not part of the 1974 shapefile. This condition is most evident in the Shinnecock Bay series of maps, The changes are black lines that are part of the raster and not included in the 1974 shapefile.

Full Description: Go to:
http://opdgig.dos.ny.gov/geoportal/catalog/search/resource/detailsnoheader.page?uuid={E8B21766-F7F6-49B0-8346-58E71A8B3DF8}

Access Instructions: Go to: http://opdgig.dos.ny.gov/#/map and search *"DEC Tidal Wetland Areas"*



LIS Benthic Communities

NY Geographic Information Gateway

Source: University of New Haven, the Connecticut DEP, and the U.S. Geological Survey

Legend:

LIS Benthic Communities

Blue Plan Sector(s): Habitats > Ecological > Habitat Classes/Units > Benthic

Summary Description: This GIS layer provides the location where samples from Pellegrino and Hubbard were summarized to provide detailed analysis of 35 common species found in Long Island Sound benthic communities. This GIS layer, which focuses on benthic communities, was developed as part of a cooperative project between the University of New Haven, the Connecticut DEP, and the U.S. Geological Survey. Benthic communities are an integral component of the ecology of LIS. Understanding the role that spatial heterogeneity plays in the dynamic of benthic landscapes may be a key to developing a better understanding of the estuarine ecology and the impacts of human activity. The purpose of providing this data layer is to help establish a regional framework for developing a more extensive GIS for benthic communities in LIS that can be used for education, research, and environmental management.

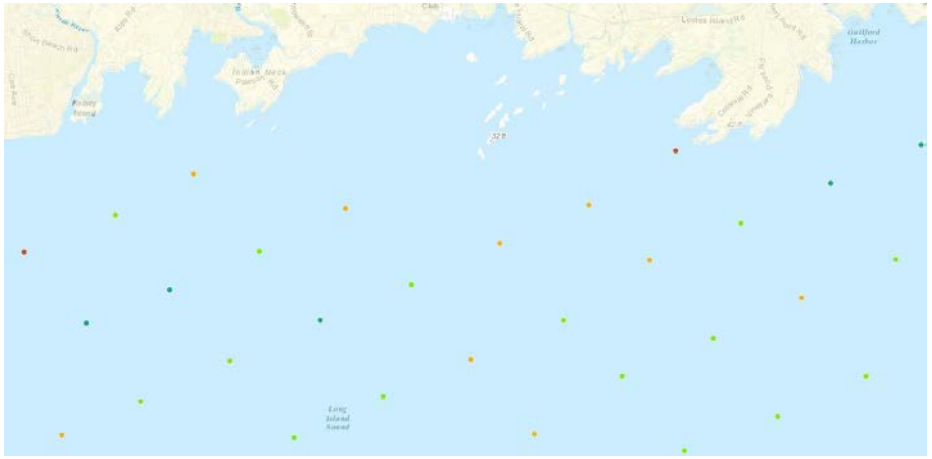
Full Description:
http://opdgig.dos.ny.gov/geoportal/catalog/search/resource/detailsnoheader.page?uuid={D9FA6B39-31B5-4C45-BAAA-9116C3E8E7E5}

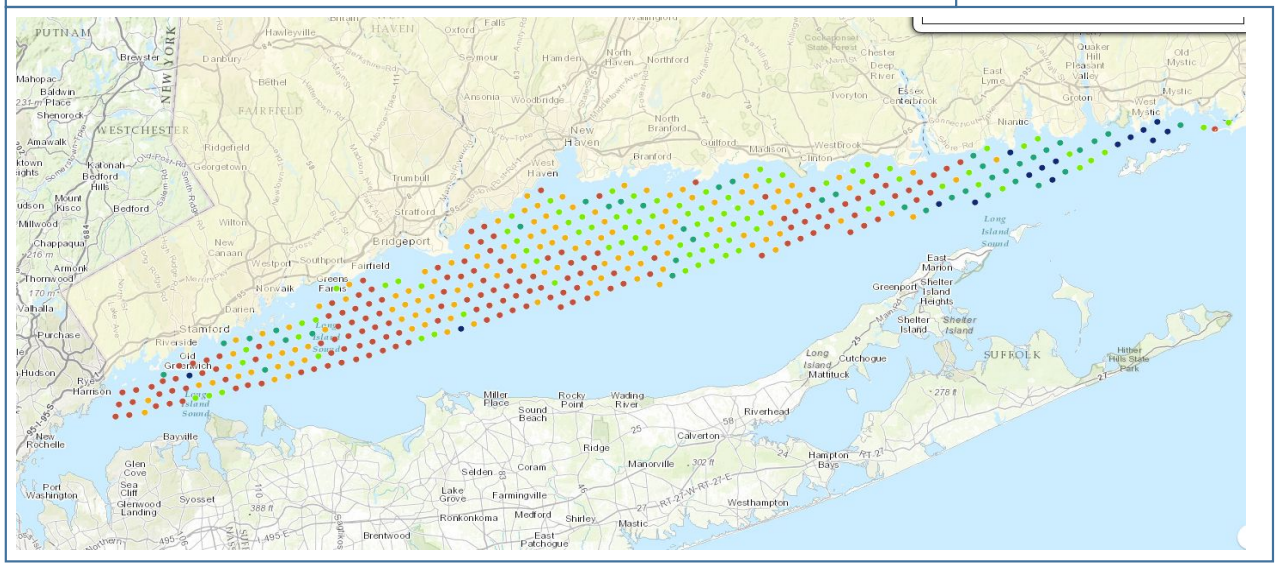
Access Instructions: http://opdgig.dos.ny.gov/#/map/, go to Biological, then Habitat

LIS Benthic Communities – Species Richness

NY Geographic Information Gateway

Source: University of New Haven, the Connecticut DEP, and the U.S. Geological Survey





LONG ISLAND SOUND BLUE PLAN
Sustainable Ecosystems - Compatible Uses

LIS Benthic Communities – Species Richness

Blue Plan Sector(s): Habitats > Ecological > Habitat Classes/Units > Benthic

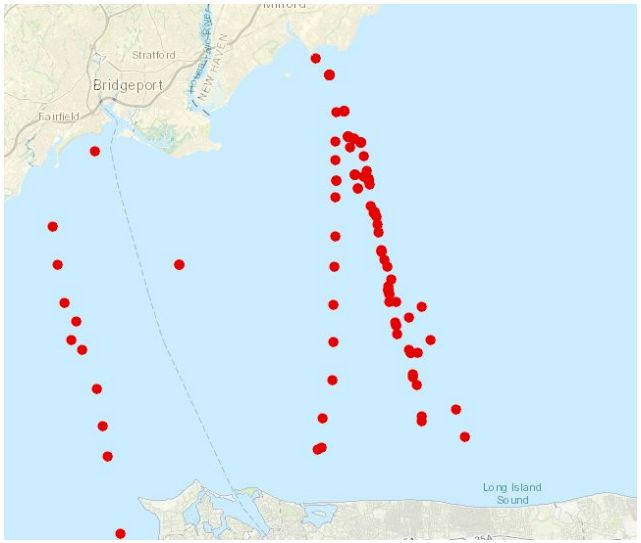
Summary Description: This GIS layer provides detailed information from Pellegrino and Hubbard (1983). It shows the sample locations and provides a summary of the total number of species found at each station (species_richness). This data layer, which focuses on benthic communities, was developed as part of a cooperative project between the University of New Haven, the Connecticut DEP, and the U.S. Geological Survey. Benthic communities are an integral component of the ecology of LIS. Understanding the role that spatial heterogeneity plays in the dynamic of benthic landscapes may be a key to developing a better understanding of the estuarine ecology and the impacts of huuman activity. The purpose of providing this data layer is to help establish a regional framework for developing a more extensive GIS for benthic communities in LIS that can be used for education, research, and environmental management.

Full Description:
http://opdgig.dos.ny.gov/geoportal/catalog/search/resource/detailsnoheader.page?uuid={E7FD57FA-2E9C-4970-83EE-573F76AB6709}

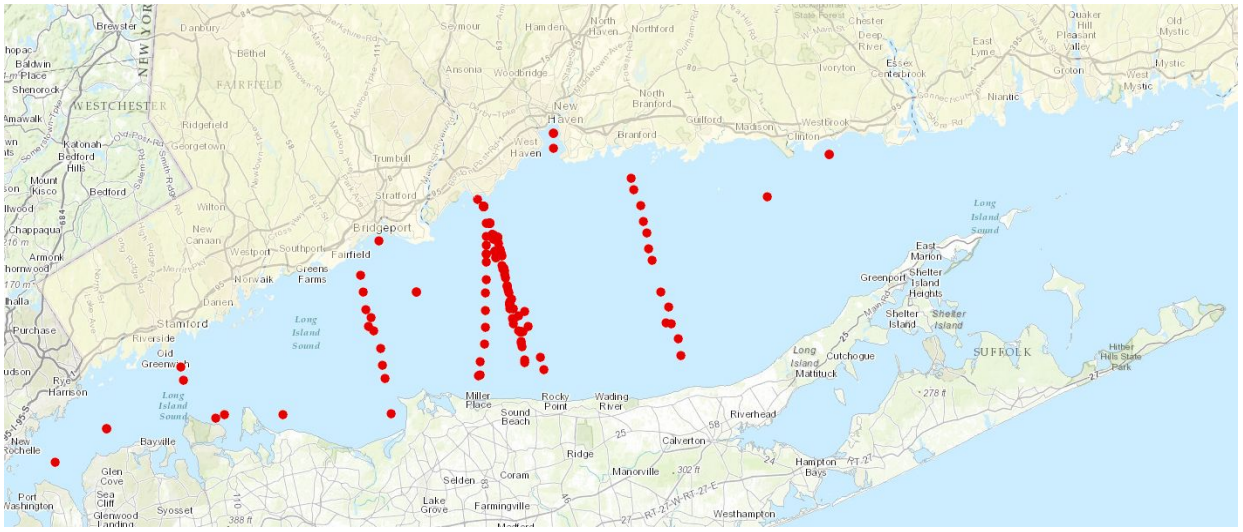
Access Instructions: http://opdgig.dos.ny.gov/#/map/, go to Biological, then Habitat

LIS Dist. Of Benthic Foraminiferal Samples - 1965

NY Geographic Information Gateway



Source: Larry Poppe (USGS) / M.A. Buzas



Legend:

LONG ISLAND SOUND BLUE PLAN

Sustainable Ecosystems - Compatible Uses

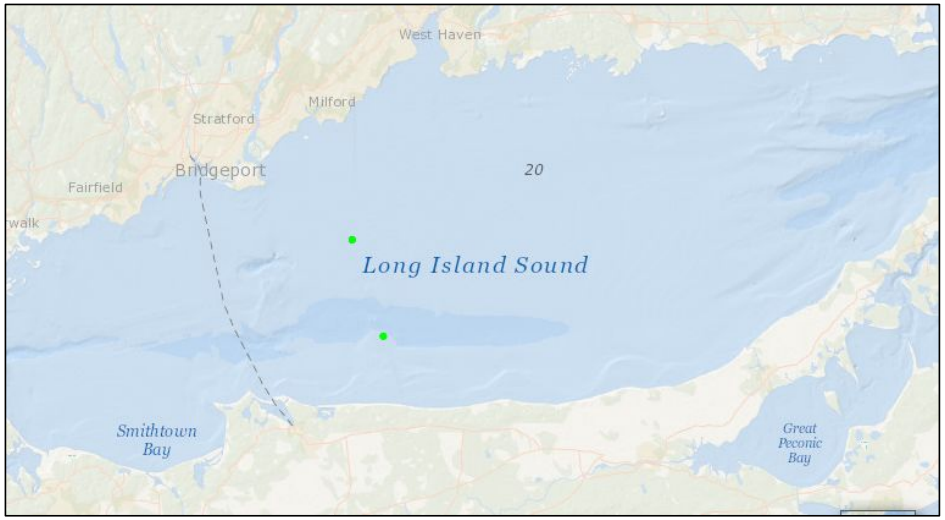
LIS Dist. Of Benthic Foraminiferal Samples - 1965

Blue Plan Sector(s): Habitats > Ecological > Habitat Classes/Units > Benthic

Summary Description: This GIS layer contains a point overlay showing the the distribution of benthic foraminiferal samples collected in 1965 by M. A. Buzas. The purpose of this layer is to disseminate a digital version of the location of samples collected and analyzed by M. A. Buzas in 1965.

Full Description:
http://opdgig.dos.ny.gov/geoportal/catalog/search/resource/detailsnoheader.page?uuid={7C0F75DE-B7D4-417F-A251-23C128F553F6}

Access Instructions: http://opdgig.dos.ny.gov/#/map/, go to Biological, then Habitat



Coldwater Corals (Observed)

Mid-Atlantic Ocean Data Portal

Source: NOAA Deep Sea Coral Research and Technology Program

LONG ISLAND SOUND BLUE PLAN
Sustainable Ecosystems - Compatible Uses

Coldwater Corals (Observed)

Blue Plan Sector(s): Ecological Characterization > Living Resources > Animals > Marine Invertebrates & Benthic Fauna

Summary Description: Areas where coldwater corals are present. These records were obtained from historical sources and are not confirmed or validated. Observations record only where surveys have been conducted. Absence of an observation should not be interpreted as absence of corals.

Full Description:
http://portal.midatlanticocean.org/static/data_manager/metadata/html/corals.html

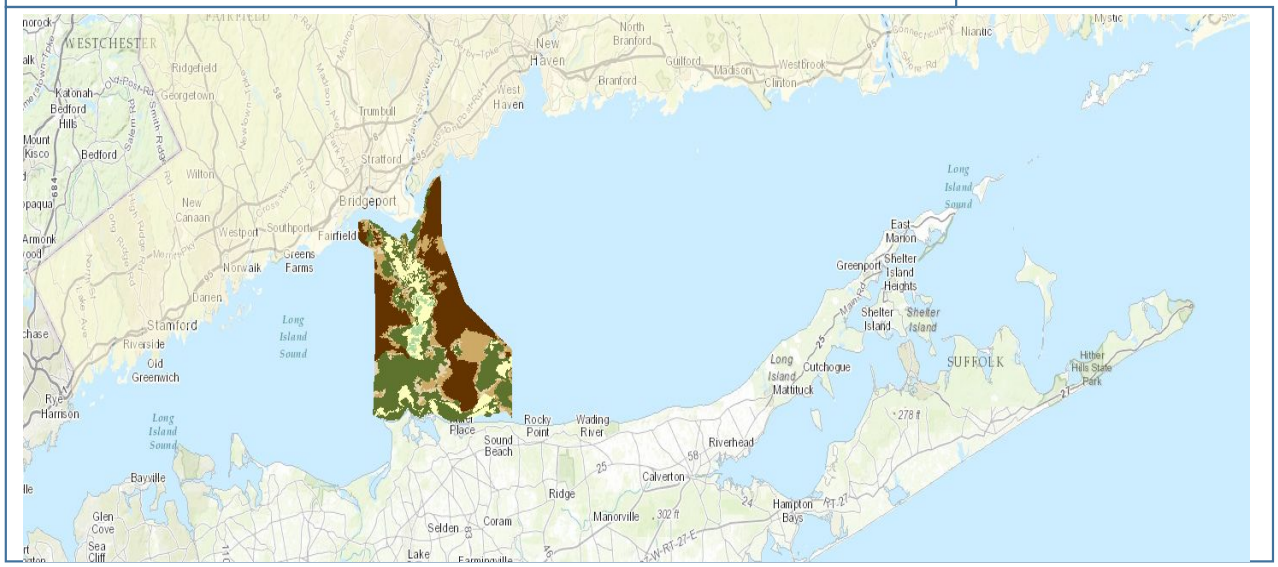
Access Instructions: Go to:
http://portal.midatlanticocean.org/visualize/#x=-73.15&y=40.95&z=11&logo=true&controls=true&dls%5B%5D=false&dls%5B%5D=1&dls%5B%5D=58&basemap=Ocean&themes%5Bids%5D%5B%5D=2&tab=active&legends=false&layers=true

Look under Data > Marine Life> Cold Water Corals (Observed)

LIS Cable Ecognition Acoustic Patches

NY Geographic Information Gateway

Source: LIS Cable Fund (Roman Zajac, as part of the Long Island Sound Mapping and Research Collaborative (LISMaRC))



Legend:

- A (Silt-Clay/Sand)
- B (Silt-Sand-Clay)
- C (Silty, Clayey Sand)
- D (Sand)
- E (Gravelly Sand)
- F (Gravel-Sand)

LONG ISLAND SOUND BLUE PLAN

Sustainable Ecosystems - Compatible Uses

LIS Cable Ecognition Acoustic Patches

Blue Plan Sector(s): Habitats > Ecological > Habitat Classes/Units > Benthic

Summary Description: Sediment-based acoustic patches, derived from backscatter imagery that can be used to support benthic habitat mapping/classification. The results of an object oriented classification using eCognition software with acoustic (backscatter) to group objects into acoustic patch types, that were then used as the basis for habitat identification / classification at multiple scales and as the large scale habitat classes that were assessed in conjunction with ecological data and analyses. Sediment composition was used as the primary factor to characterize the acoustic patches. Sediment composition data determined from samples collected during the October 2012 cruise were sorted in GIS based on their location within each of the initially identified acoustic patches.

Full Description:
http://opdgig.dos.ny.gov/geoportal/catalog/search/resource/detailsnoheader.page?uuid={E4FDA809-7F1D-4D04-9937-D863F6C4669C}

Access Instructions: http://opdgig.dos.ny.gov/#/map/, go to Biological, then Habitat

LIS Cable Epifauna Fall 2012 Community Clusters

NY Geographic Information Gateway

Source: LIS Cable Fund (Lauren Stefaniak, as part of the Long Island Sound Mapping and Research Collaborative (LISMaRC))

Legend:

- Fall_1
- Fall_2
- Fall_3
- Fall_4
- Fall_5

LONG ISLAND SOUND BLUE PLAN

Sustainable Ecosystems - Compatible Uses

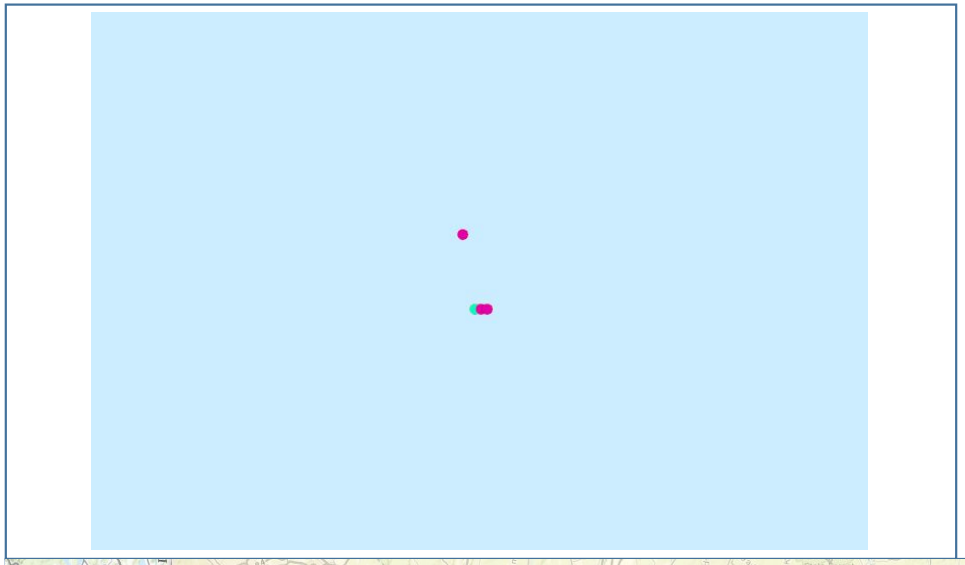
LIS Cable Epifauna Fall 2012 Community Clusters

Blue Plan Sector(s): Habitats > Ecological > Habitat Classes/Units > Benthic

Summary Description: Displays the results of ecological analyses for epifaunal communities as of Fall, 2012 within the pilot project area. This file contains ecological characteristics of epifaunal community clustering in the central Long Island Sound Pilot Area based on analyses of high definition photos and video. These data can be used to provide information on the ecological characteristics of each sample location, and in aggregate for larger areas of the pilot area. This dataset represents data collected in Fall 2012.

Full Description:
http://opdgig.dos.ny.gov/geoportal/catalog/search/resource/detailsnoheader.page?uuid={772B0A08-4C84-4873-AF95-E15F0E42D745}

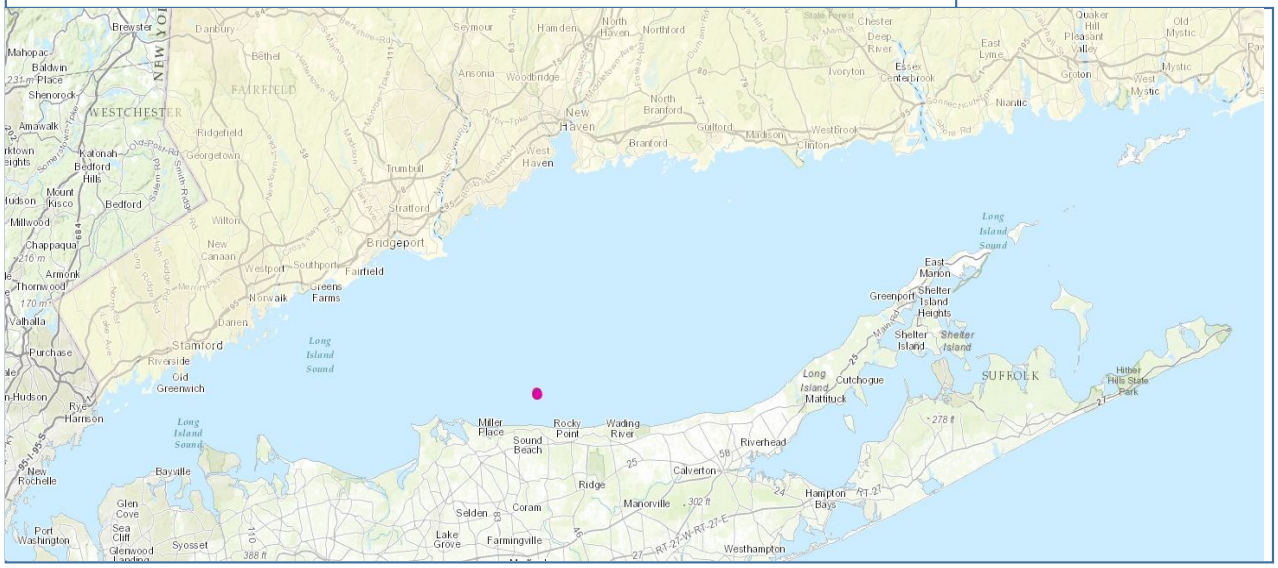
Access Instructions: http://opdgig.dos.ny.gov/#/map/, go to Biological, then Habitat



LIS Cable Epifauna May 2013 Community Clusters

NY Geographic Information Gateway

Source: LIS Cable Fund (Lauren Stefaniak, as part of the Long Island Sound Mapping and Research Collaborative (LISMaRC))



- Spring_1
- Spring_2
- Spring_3
- Spring_4
- Spring_5
- Spring_6
- Spring_7
- Spring_8

LONG ISLAND SOUND BLUE PLAN
Sustainable Ecosystems - Compatible Uses

LIS Cable Epifauna May 2013 Community Clusters

Blue Plan Sector(s): Habitats > Ecological > Habitat Classes/Units > Benthic

Summary Description: This file contains ecological characteristics of eifaunal community clustering in the central Long Island Sound Pilot Area based on analyses of high definition photos and video. These data can be used to provide information on the ecological characteristics of each sample location, and in aggregate for larger areas of the pilot area. This dataset represents data collected in Spring (May) 2013.

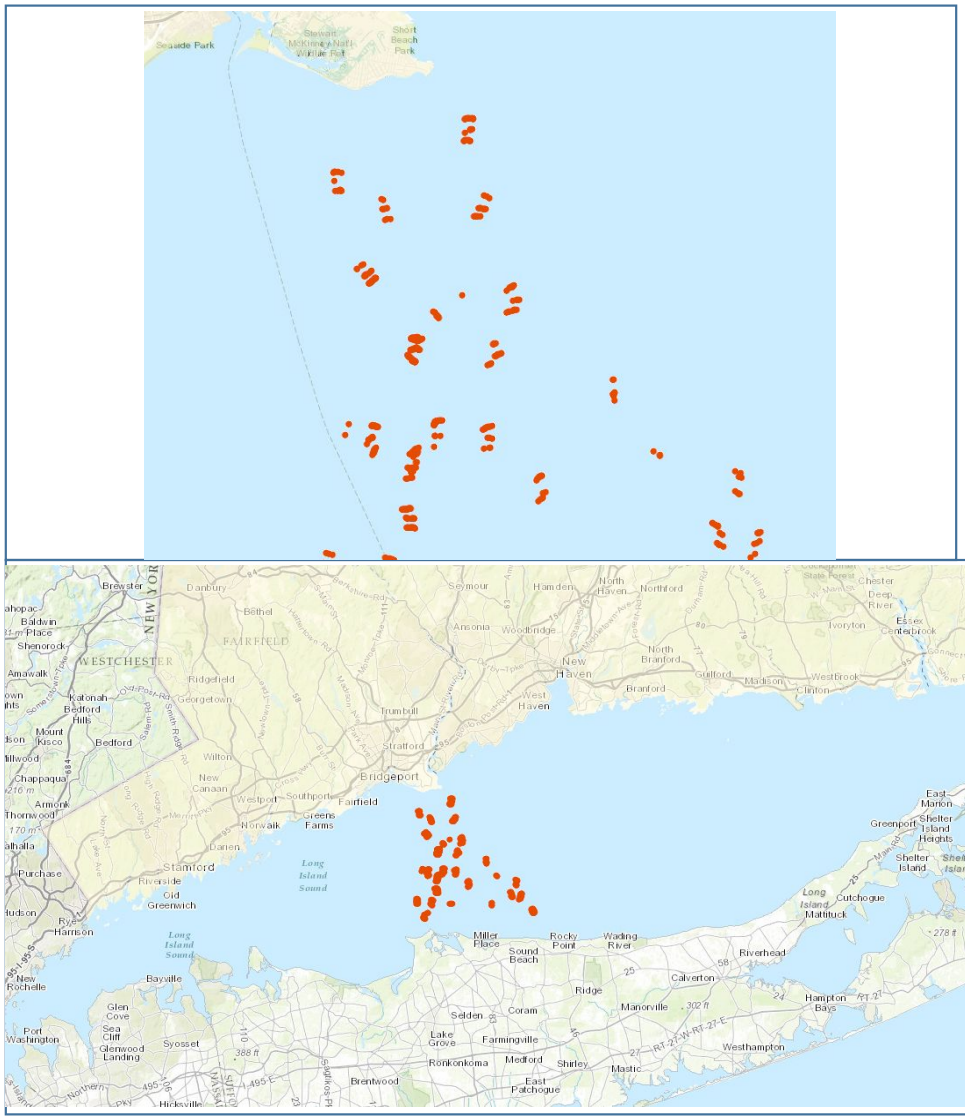
Full Description:
http://opdgig.dos.ny.gov/geoportal/catalog/search/resource/detailsnoheader.page?uuid={D6EFAA88-363A-41E0-98EA-03804607FDC3}

Access Instructions: http://opdgig.dos.ny.gov/#/map/, go to Biological, then Habitat

LIS Epifauna Abundance Fall 2012

NY Geographic Information Gateway

Source: LIS Cable Fund (Lauren Stefaniak, as part of the Long Island Sound Mapping and Research Collaborative (LISMaRC))



LONG ISLAND SOUND BLUE PLAN

Sustainable Ecosystems - Compatible Uses

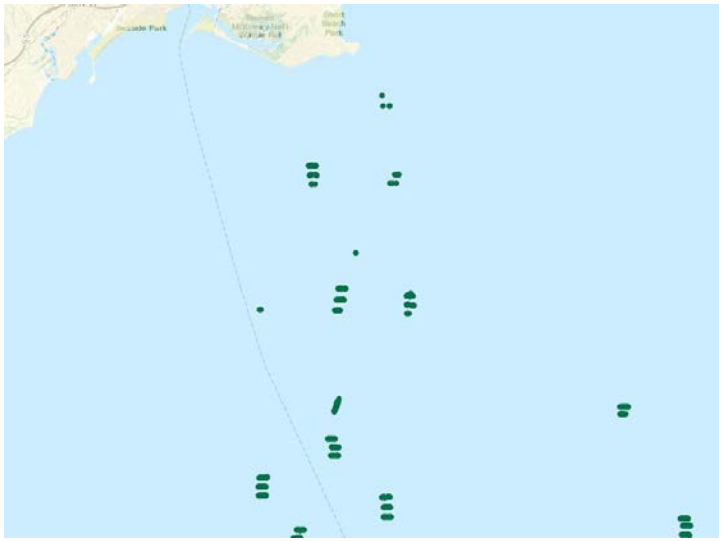
LIS Cable Epifauna Abundance Fall 2012

Blue Plan Sector(s): Habitats > Ecological > Habitat Classes/Units > Benthic

Summary Description: This shapefile contains the navigation and organismal and biogenic feature abundance (% cover) data associated with the processed transect images collected during the fall 2012 Long Island Sound Research and Mapping Collaborative cruises: USGS large SEABOSS, October 10-17, 2012; NURTEC ISIS, December 12-13, 2012).

Full Description:
http://opdgig.dos.ny.gov/geoportal/catalog/search/resource/detailsnoheader.page?uuid={BF6D5D92-8576-4BF7-9C27-97CBE649BC25}

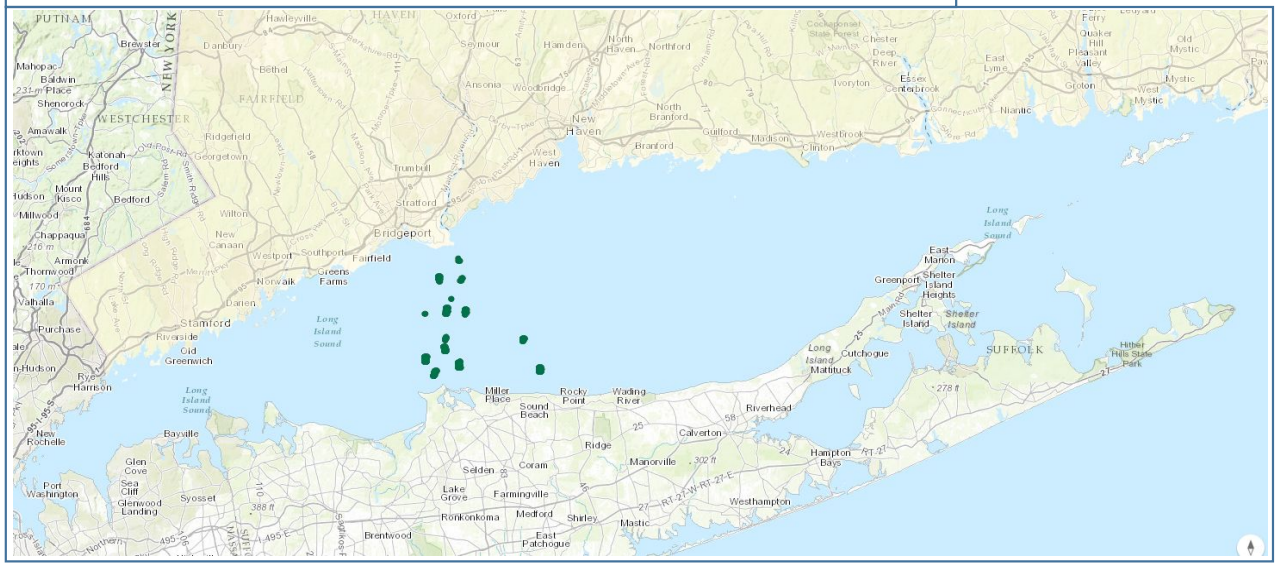
Access Instructions: http://opdgig.dos.ny.gov/#/map/, go to Biological, then Habitat



LIS Epifauna Abundance: % Cover

NY Geographic Information Gateway

Source: LIS Cable Fund (Lauren Stefaniak, as part of the Long Island Sound Mapping and Research Collaborative (LISMaRC))



Legend:

LONG ISLAND SOUND BLUE PLAN

Sustainable Ecosystems - Compatible Uses

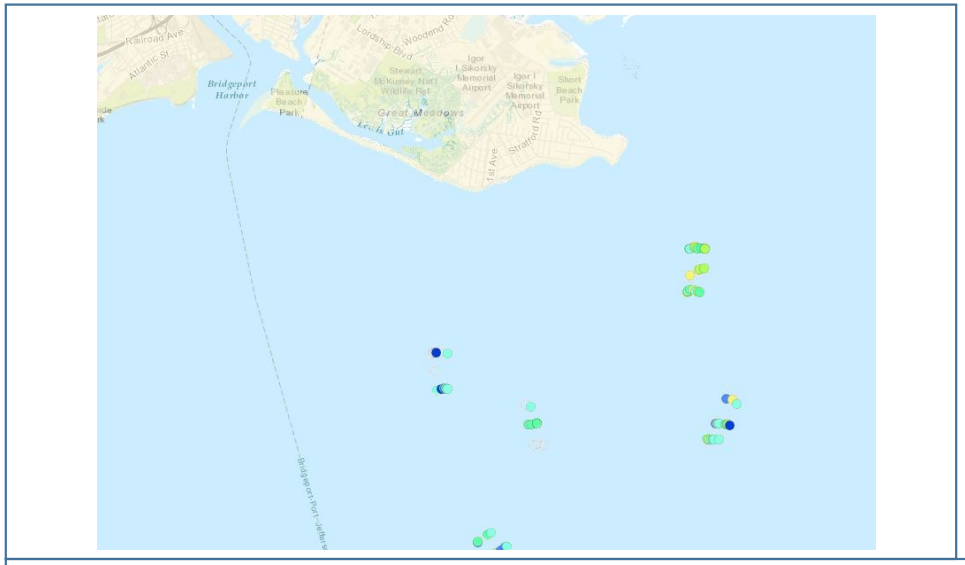
LIS Cable Epifauna Abundance: % Cover

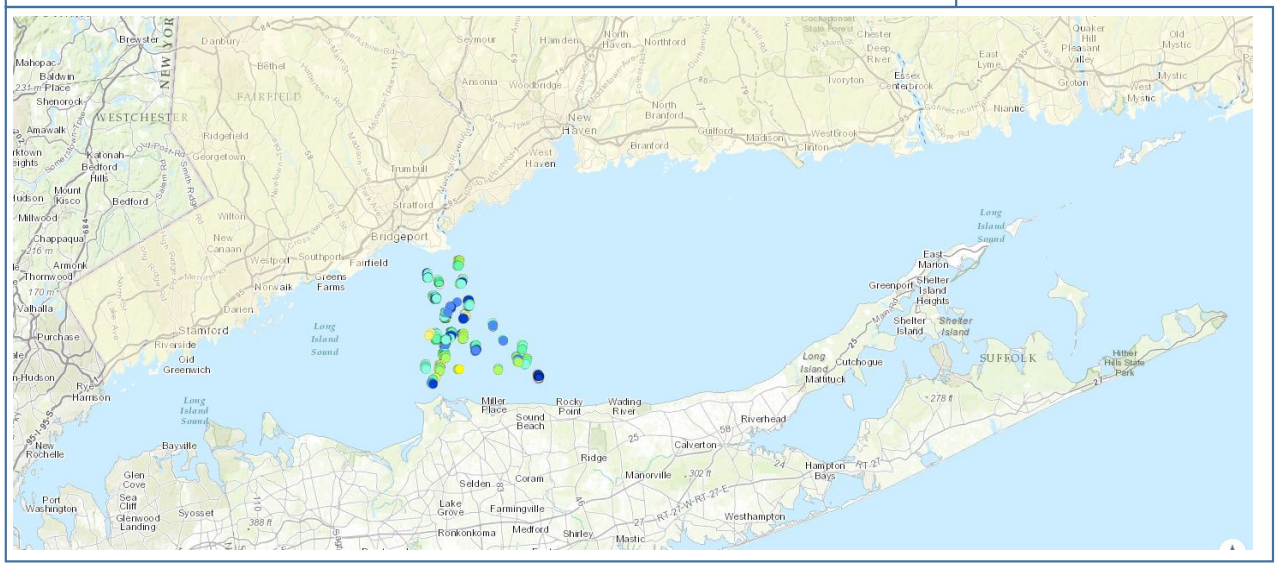
Blue Plan Sector(s): Habitats > Ecological > Habitat Classes/Units > Benthic

Summary Description: This shapefile contains the navigation data and epifauna and emergent fauna abundance (% cover) associated with the transect collected during the May 2013 Long Island Sound Research and Mapping Collaborative cruises: USGS large SEABOSS, May 21-24, 2013; NURTEC K2 ROV, May 13-15, 2013). Number of images: 630. To distribute the navigation and epifauna and emergent fauna abundance (% cover) data associated with the images collected during the May 2013 Long Island Sound Research and Mapping Collaborative cruises.

Full Description:
http://opdgig.dos.ny.gov/geoportal/catalog/search/resource/detailsnoheader.page?uuid={C9CC61E3-3995-4CCB-9A50-0D2545926E89}

Access Instructions: http://opdgig.dos.ny.gov/#/map/, go to Biological, then Habitat





LIS Epifauna Biogenic Feature Shannon Diversity - Fall 2012

NY Geographic Information Gateway

Source: LIS Cable Fund (Lauren Stefaniak, as part of the Long Island Sound Mapping and Research Collaborative (LISMaRC))

- 0
- <0.1
- 0.1 - 0.2
- 0.2 - 0.3
- 0.3 - 0.4
- 0.4 - 0.5
- 0.5 - 0.6
- 0.6 - 0.7

LONG ISLAND SOUND BLUE PLAN
Sustainable Ecosystems - Compatible Uses

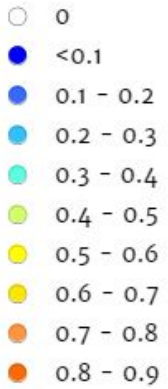
LIS Epifauna Biogenic Feature Shannon Diversity - Fall 2012

Blue Plan Sector(s): Habitats > Ecological > Habitat Classes/Units > Benthic

Summary Description: This file contains ecological characteristics of epifaunal Shannon diversity (a measure of richness and evenness of abundance) of biogenic features (structures produced by shell, worm tubes, burrows, etc.,) in the central Long Island Sound Pilot Area based on analyses of high definition photos and video. These data can be used to provide information on the ecological characteristics of each sample location, and in aggregate for larger areas of the pilot area. This dataset represents data collected in Fall 2012.

Full Description:
http://opdgig.dos.ny.gov/geoportal/catalog/search/resource/detailsnoheader.page?uuid={076E3F8D-D65B-4364-A558-48AF419399C1}

Access Instructions: http://opdgig.dos.ny.gov/#/map/, go to Biological, then Habitat



LIS Epifauna Biogenic Feature Shannon Diversity – Spring 2013

NY Geographic Information Gateway

Source: LIS Cable Fund (Lauren Stefaniak, as part of the Long Island Sound Mapping and Research Collaborative (LISMaRC))

LONG ISLAND SOUND BLUE PLAN
Sustainable Ecosystems - Compatible Uses

LIS Epifauna Biogenic Feature Shannon Diversity – Spring 2013

Blue Plan Sector(s): Habitats > Ecological > Habitat Classes/Units > Benthic

Summary Description: This file contains ecological characteristics of epifaunal Shannon diversity (a measure of richness and evenness of abundance) of biogenic features (structures produced by shell, worm tubes, burrows, etc.,) in the central Long Island Sound Pilot Area based on analyses of high definition photos and video. These data can be used to provide information on the ecological characteristics of each sample location, and in aggregate for larger areas of the pilot area. This dataset represents data collected in Spring 2013.

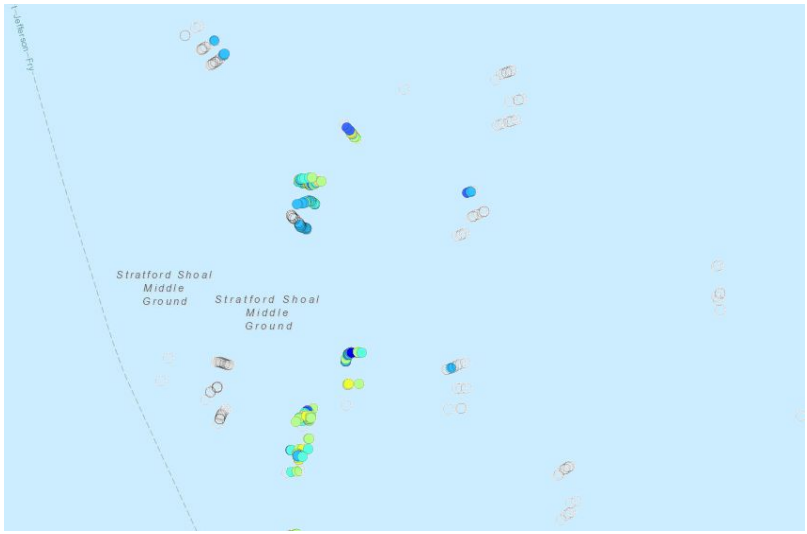
Full Description:
http://opdgig.dos.ny.gov/geoportal/catalog/search/resource/detailsnoheader.page?uuid={D96D8A7B-6706-4E17-B2AE-A29554D3D0BE}

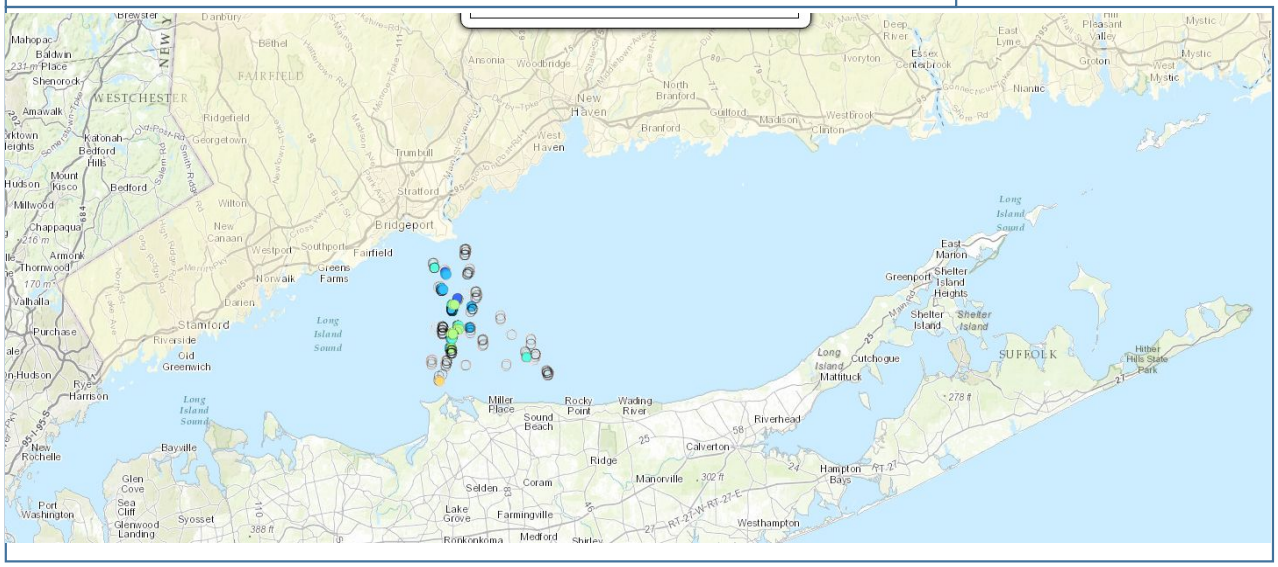
Access Instructions: http://opdgig.dos.ny.gov/#/map/, go to Biological, then Habitat

LIS Epifauna Habitat Forming Species Diversity - Fall 2012

NY Geographic Information Gateway

Source: LIS Cable Fund (Lauren Stefaniak, as part of the Long Island Sound Mapping and Research Collaborative (LISMaRC))





- 0
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- 0.1 - .0.2
- 0.2 - .0.3
- 0.3 - .0.4
- 0.4 - 0.5
- 0.5 - 0.6
- 0.6 - 0.7
- 0.7 - 0.8

LONG ISLAND SOUND BLUE PLAN
Sustainable Ecosystems - Compatible Uses

LIS Epifauna Habitat Forming Species Diversity - Fall 2012

Blue Plan Sector(s): Habitats > Ecological > Habitat Classes/Units > Benthic

Summary Description: This file contains ecological characteristics of epifaunal Shannon diversity (a measure of richness and eveness of abundance) of habitat forming species (immobile invertebrate species that are structure forming such as hydroids, branching sponges, etc.,) in the central Long Island Sound Pilot Area based on analyses of high definition photos and video. These data can be used to provide information on the ecological characteristics of each sample location, and in aggregate for larger areas of the pilot area. This dataset represents data collected in Fall 2012.

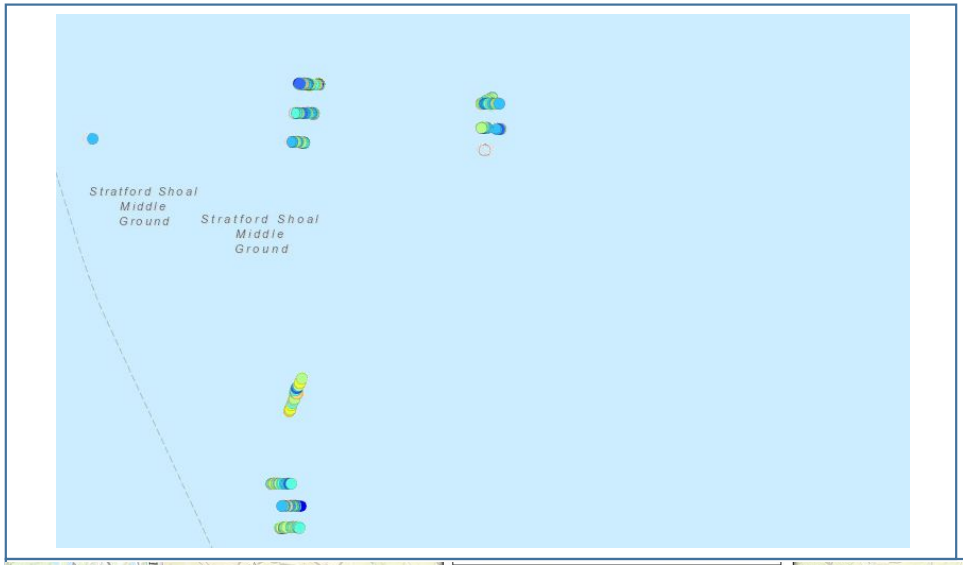
Full Description:
http://opdgig.dos.ny.gov/geoportal/catalog/search/resource/detailsnoheader.page?uuid={F731418B-F9BE-47D3-9664-83A2B3A6334B}

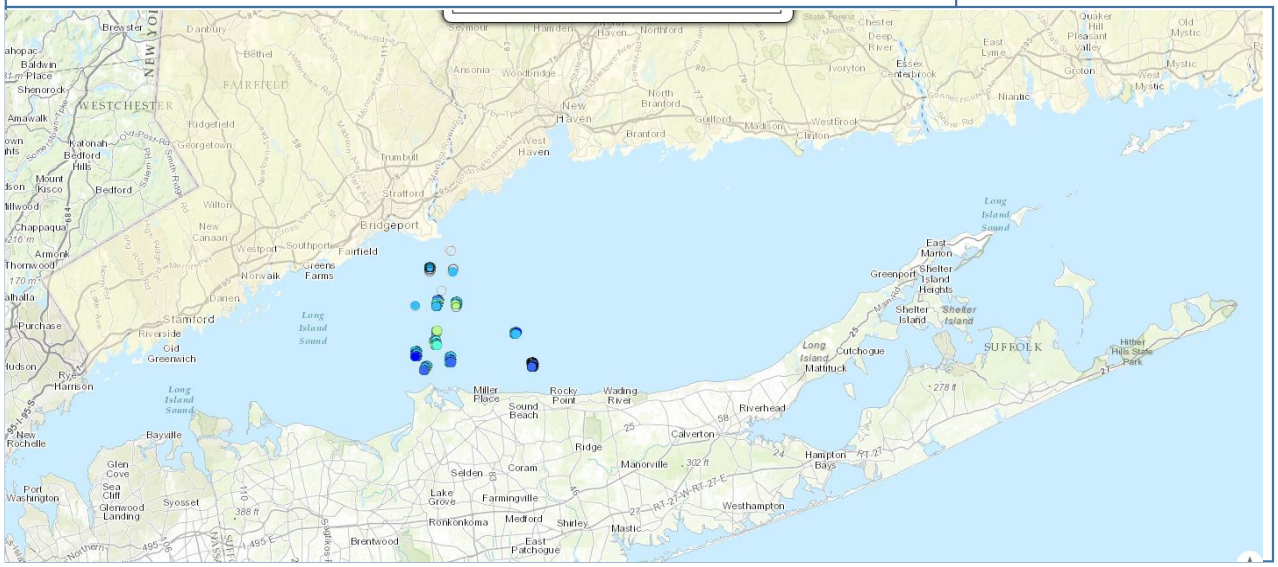
Access Instructions: http://opdgig.dos.ny.gov/#/map/, go to Biological, then Habitat

LIS Epifauna Habitat Forming Species Diversity – May 2013

NY Geographic Information Gateway

Source: LIS Cable Fund (Lauren Stefaniak, as part of the Long Island Sound Mapping and Research Collaborative (LISMaRC))





- 0
- <0.1
- 0.1 - .0.2
- 0.2 - .0.3
- 0.3 - .0.4
- 0.4 - 0.5
- 0.5 - 0.6
- 0.6 - 0.7
- 0.7 - 0.8

LONG ISLAND SOUND BLUE PLAN
Sustainable Ecosystems - Compatible Uses

LIS Epifauna Habitat Forming Species Diversity – May 2013

Blue Plan Sector(s): Habitats > Ecological > Habitat Classes/Units > Benthic

Summary Description: This file contains ecological characteristics of epifaunal Shannon diversity (a measure of richness and eveness of abundance) of habitat forming species (immobile invertebrate species that are structure forming such as hydroids, branching sponges, etc.,) in the central Long Island Sound Pilot Area based on analyses of high definition photos and video. These data can be used to provide information on the ecological characteristics of each sample location, and in aggregate for larger areas of the pilot area. This dataset represents data collected in Spring 2013.

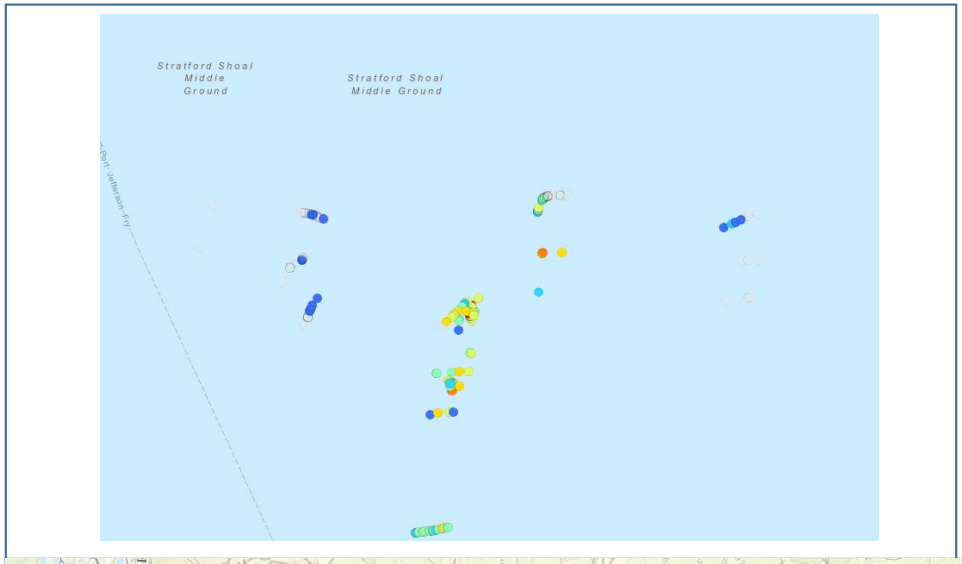
Full Description:
http://opdgig.dos.ny.gov/geoportal/catalog/search/resource/detailsnoheader.page?uuid={E925E5EB-1C5F-432E-BF3D-E0D44155EE72}

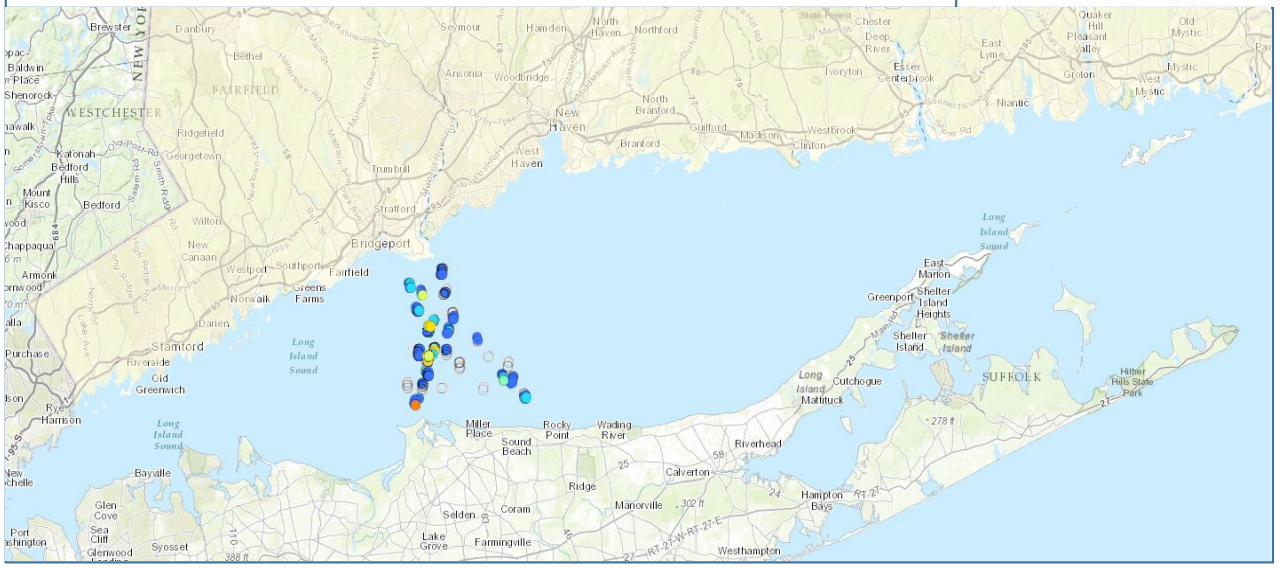
Access Instructions: http://opdgig.dos.ny.gov/#/map/, go to Biological, then Habitat

LIS Epifaunal Species Richness- Fall 2012

NY Geographic Information Gateway

Source: LIS Cable Fund (Lauren Stefaniak, as part of the Long Island Sound Mapping and Research Collaborative (LISMaRC))





0
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LONG ISLAND SOUND BLUE PLAN
Sustainable Ecosystems - Compatible Uses

LIS Epifaunal Species Richness - Fall 2012

Blue Plan Sector(s): Habitats > Ecological > Habitat Classes/Units > Benthic

Summary Description: This file contains ecological characteristics of epifaunal species richness - the number of species present in a community or taxonomic group - in the central Long Island Sound Pilot Area based on analyses of high definition photos and video. These data can be used to provide information on the ecological characteristics of each sample location, and in aggregate for larger areas of the pilot area. This dataset represents data collected in Fall 2012.

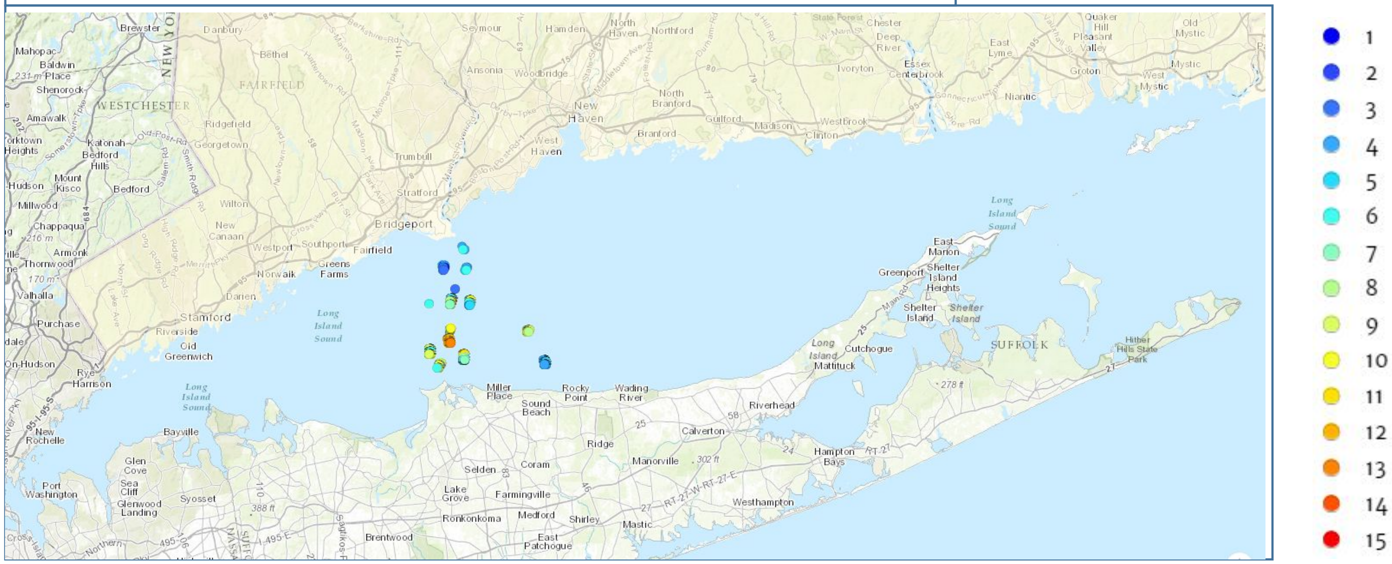
Full Description:
http://opdgig.dos.ny.gov/geoportal/catalog/search/resource/detailsnoheader.page?uuid={26FC8362-8B31-4F24-8CFE-8E55B648E983}

Access Instructions: http://opdgig.dos.ny.gov/#/map/, go to Biological, then Habitat

LIS Epifaunal Species Richness- May 2013

NY Geographic Information Gateway

Source: LIS Cable Fund (Lauren Stefaniak, as part of the Long Island Sound Mapping and Research Collaborative (LISMaRC))



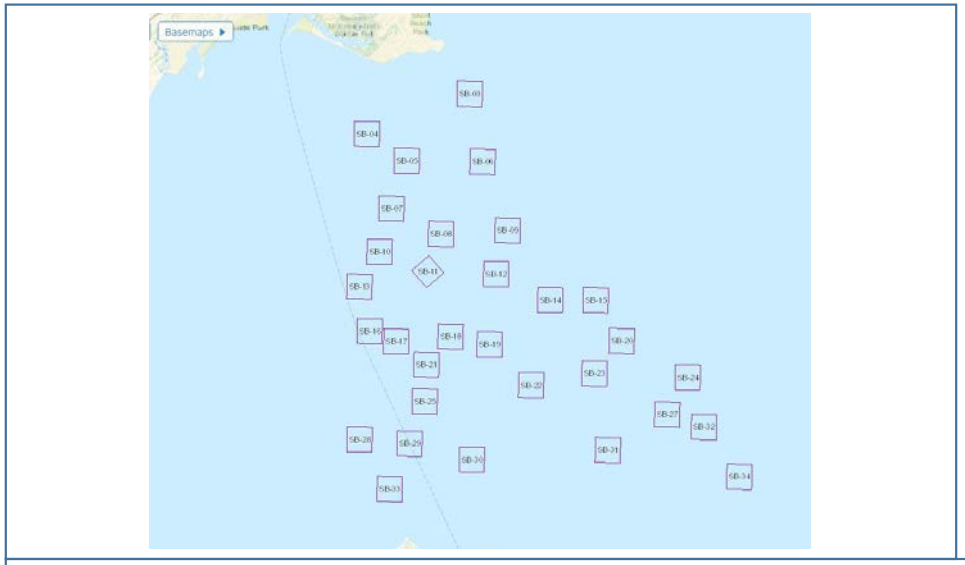
LIS Epifaunal Species Richness – May 2013

Blue Plan Sector(s): Habitats > Ecological > Habitat Classes/Units > Benthic

Summary Description: This file contains ecological characteristics of epifaunal species richness -the number of species present in a community or taxonomic group - in the central Long Island Sound Pilot Area based on analyses of high definition photos and video. These data can be used to provide information on the ecological characteristics of each sample location, and in aggregate for larger areas of the pilot area. This dataset represents data collected in Spring (May) 2013.

Full Description:
http://opdgig.dos.ny.gov/geoportal/catalog/search/resource/detailsnoheader.page?uuid={17FFAFEB-4552-44B0-9989-C868CD621105}

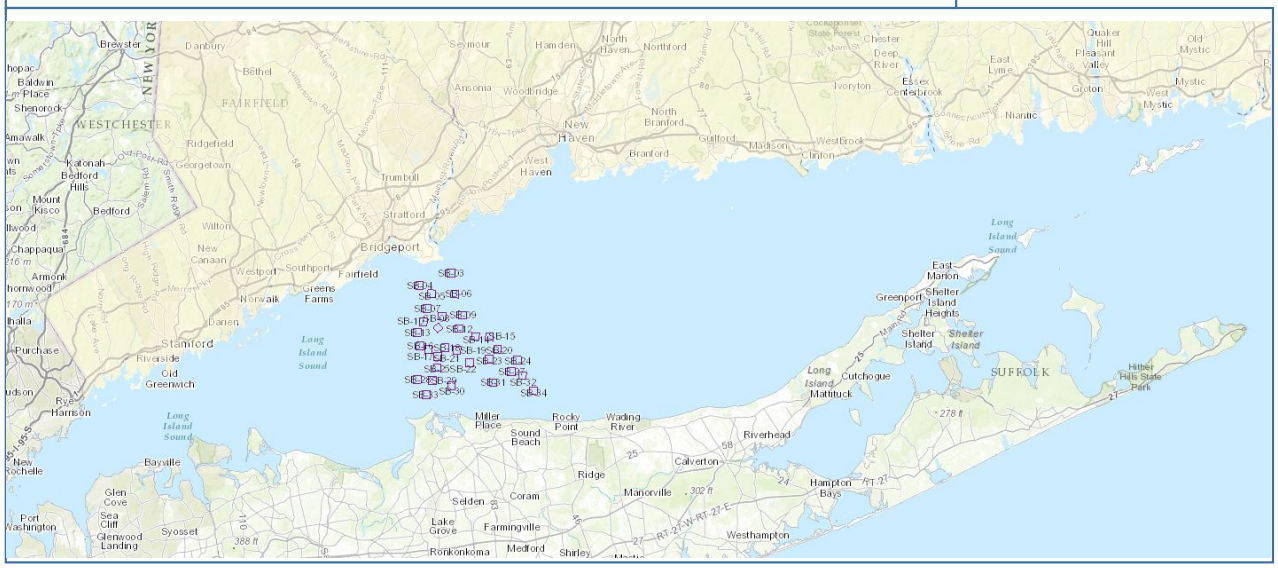
Access Instructions: http://opdgig.dos.ny.gov/#/map/, go to Biological, then Habitat



LIS Infaunal Diversity Blocks

NY Geographic Information Gateway

Source: LIS Cable Fund (Roman Zajac, as part of the Long Island Sound Mapping and Research Collaborative (LISMaRC))



Legend:

LIS Infaunal Diversity Blocks

Blue Plan Sector(s): Habitats > Ecological > Habitat Classes/Units > Benthic

Summary Description: Displays the results of averaged ecological analyses within sample blocks for infaunal diversity as of Fall 2012 within the pilot project area. This file contains ecological characteristics of infaunal Fishers diversity (prediction of the number of species at different levels of abundance) in the central Long Island Sound Pilot Area based on grab samples and analyses of high definition photos and video. These data are averages of data processed from individual samples within the larger sample block areas. This dataset represents data collected in Fall 2012.

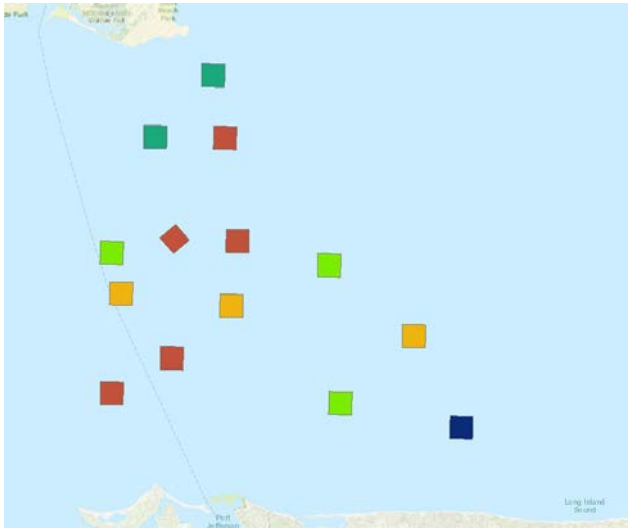
Full Description:
http://opdgig.dos.ny.gov/geoportal/catalog/search/resource/detailsnoheader.page?uuid={3BB91AF4-05E5-4C74-8C58-724EB011E92C}

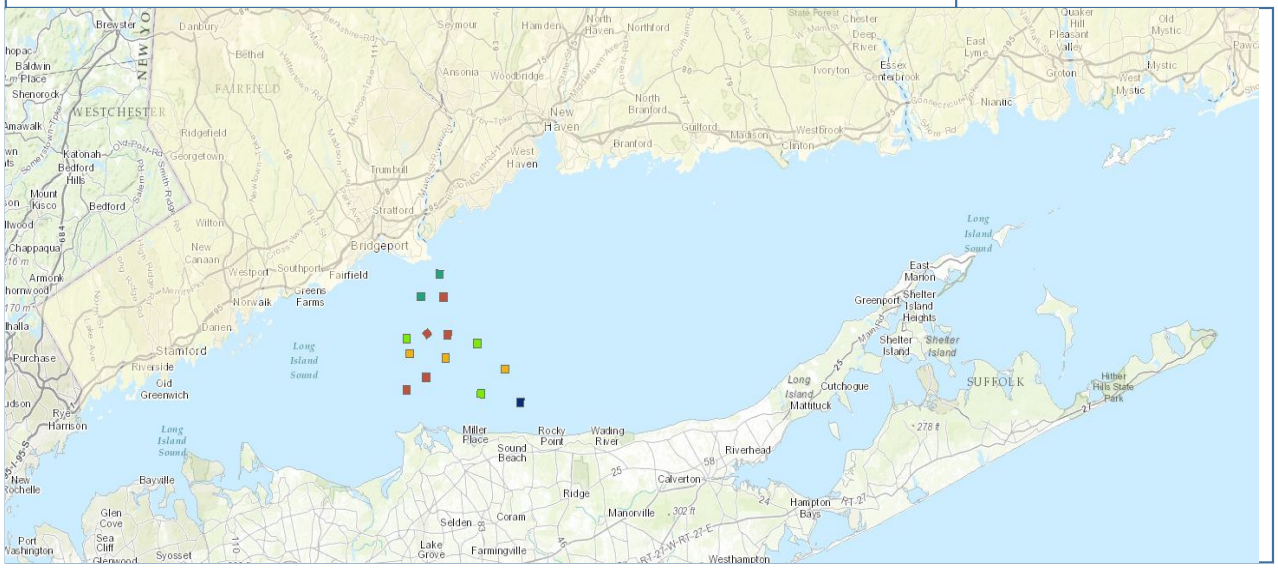
Access Instructions: http://opdgig.dos.ny.gov/#/map/, use search feature and "Diversity Blocks"

LIS Infaunal Diversity Block Average

NY Geographic Information Gateway

Source: LIS Cable Fund (Roman Zajac, as part of the Long Island Sound Mapping and Research Collaborative (LISMaRC))





- 0 - 5
- 6 - 10
- 11 - 15
- 16 - 20
- 21 - 25

LONG ISLAND SOUND BLUE PLAN
Sustainable Ecosystems - Compatible Uses

LIS Infaunal Diversity Block Average

Blue Plan Sector(s): Habitats > Ecological > Habitat Classes/Units > Benthic

Summary Description: Displays the results of averaged ecological analyses within sample blocks for infaunal diversity as of Spring, 2013 within the pilot project area. This file contains ecological characteristics of infaunal Fishers diversity (prediction of the number of species at different levels of abundance) in the central Long Island Sound Pilot Area based on grab samples and analyses of high definition photos and video. These data are averages of data processed from individual samples within the large sample block areas. This dataset represents data collected in Spring (May) 2013.

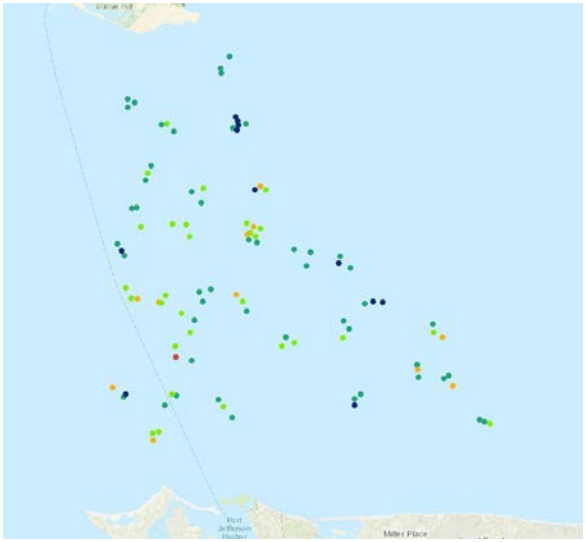
Full Description:
http://opdgig.dos.ny.gov/geoportal/catalog/search/resource/detailsnoheader.page?uuid={71D95D82-94C7-4F4F-834B-F15C5318FAE9}

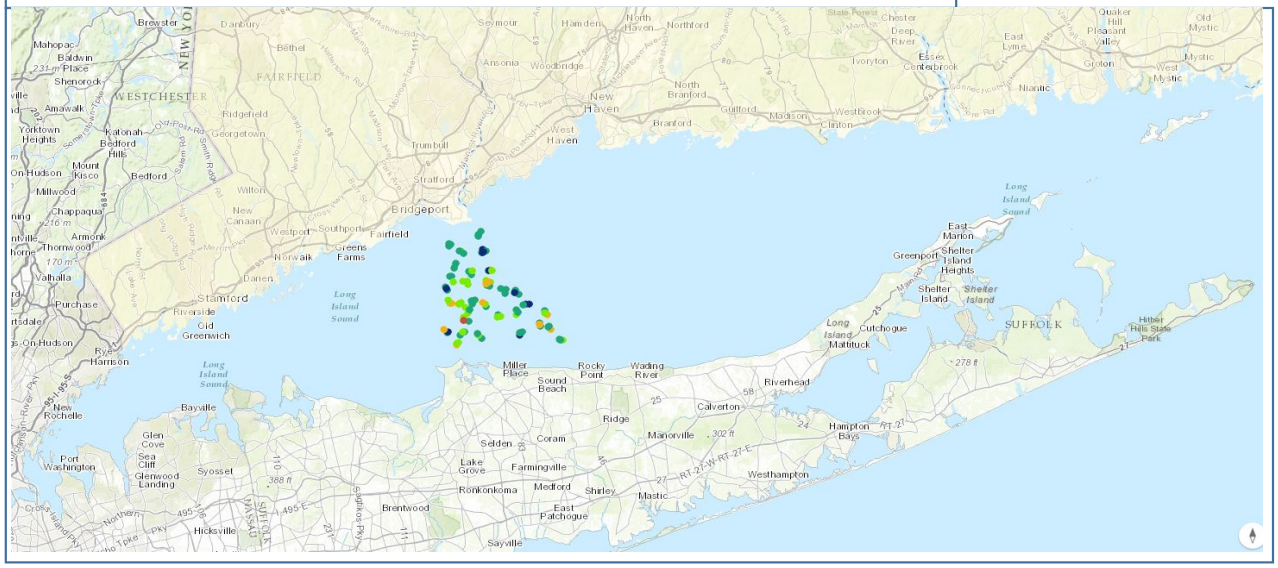
Access Instructions: http://opdgig.dos.ny.gov/#/map/, go to Biological, then Habitat

LIS Infaunal Fisher Diversity – Fall 2012

NY Geographic Information Gateway

Source: LIS Cable Fund (Roman Zajac, as part of the Long Island Sound Mapping and Research Collaborative (LISMaRC))





- 0 - 5
- 6 - 10
- 11 - 15
- 16 - 20
- 21 - 25

LONG ISLAND SOUND BLUE PLAN
Sustainable Ecosystems - Compatible Uses

LIS Infaunal Fisher Diversity – Fall 2012

Blue Plan Sector(s): Habitats > Ecological > Habitat Classes/Units > Benthic

Summary Description: This file contains ecological characteristics of infaunal Fishers diversity (prediction of the number of species at different levels of abundance) in the central Long Island Sound Pilot Area based on grab samples and analyses of high definition photos and video. These data can be used to provide information on the ecological characteristics of each sample location, and in aggregate for larger areas of the pilot area. This dataset represents data collected in Fall 2012.

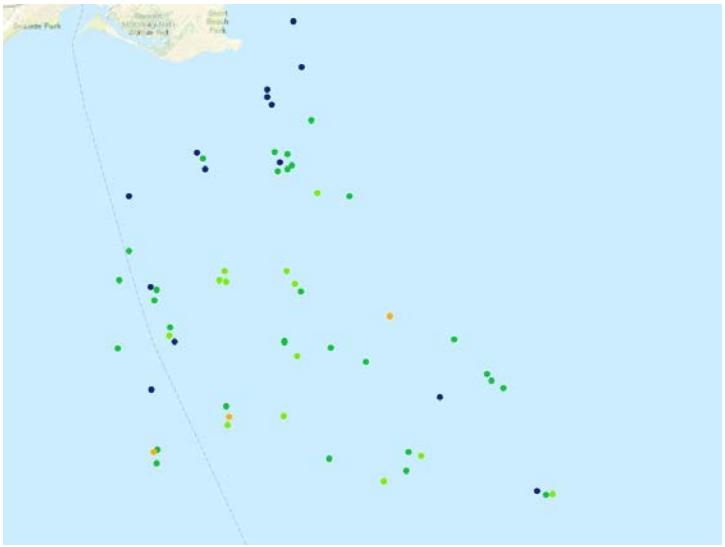
Full Description:
http://opdgig.dos.ny.gov/geoportal/catalog/search/resource/detailsnoheader.page?uuid={01B18632-40FC-4E49-97E8-4D2BB226BD60}

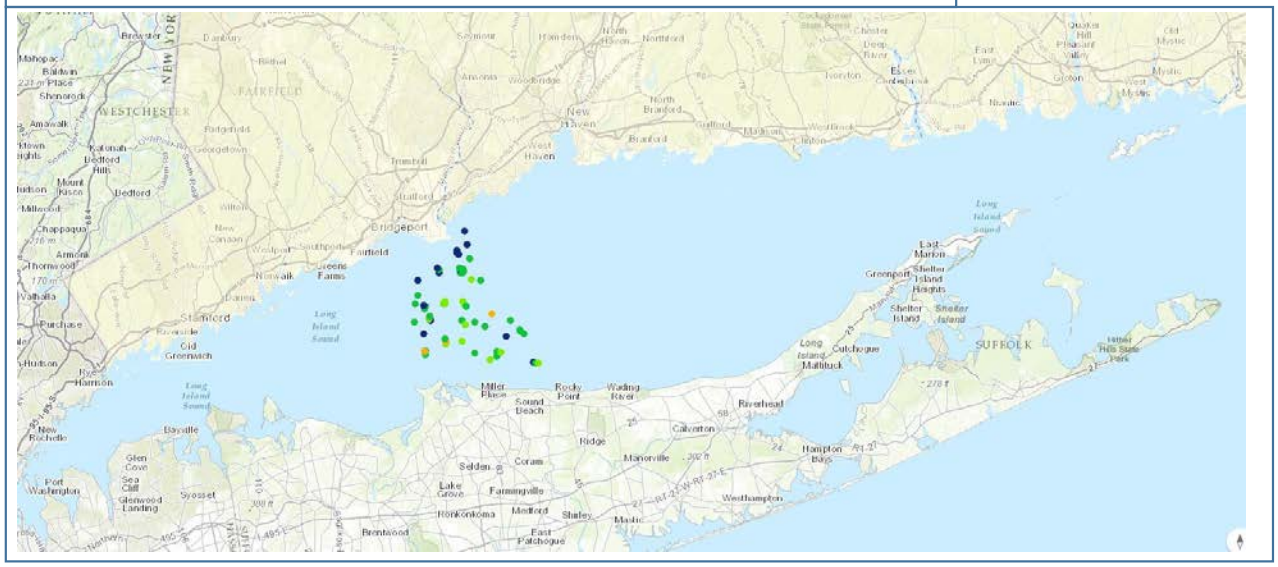
Access Instructions: http://opdgig.dos.ny.gov/#/map/, go to Biological, then Habitat

LIS Infaunal Fisher Diversity – Spring 2013

NY Geographic Information Gateway

Source: LIS Cable Fund (Roman Zajac, as part of the Long Island Sound Mapping and Research Collaborative (LISMaRC))





- 1 - 5
- 6 - 10
- 11 - 15
- 16 - 20

LONG ISLAND SOUND BLUE PLAN
Sustainable Ecosystems - Compatible Uses

LIS Infaunal Fisher Diversity – Spring 2013

Blue Plan Sector(s): Habitats > Ecological > Habitat Classes/Units > Benthic

Summary Description: This file contains ecological characteristics of infaunal Fishers diversity (prediction of the number of species at different levels of abundance) in the central Long Island Sound Pilot Area based on grab samples and analyses of high definition photos and video. These data can be used to provide information on the ecological characteristics of each sample location, and in aggregate for larger areas of the pilot area. This dataset represents data collected in May 2013.

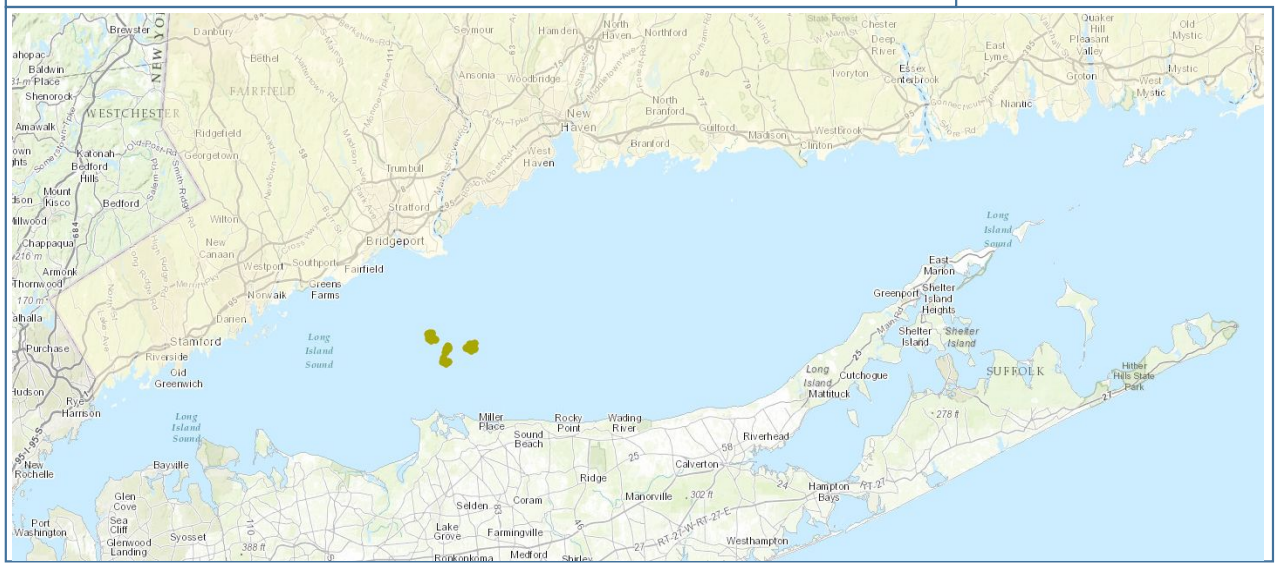
Full Description:
http://opdgig.dos.ny.gov/geoportal/catalog/search/resource/detailsnoheader.page?uuid={408EA51A-C067-4E78-A7A0-7B2E09A20743}

Access Instructions: http://opdgig.dos.ny.gov/#/map/, go to Biological, then Habitat

LIS Cable SOMAS Benthic Communities Sample Locations

NY Geographic Information Gateway

Source: LIS Cable Fund (Glenn Lopez/Bob Cerrato, Stony Brook School of Marine and Atmospheric Science)



Legend:

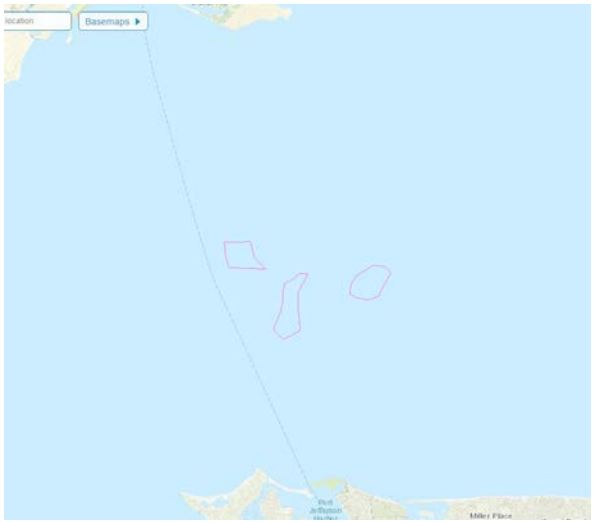
LIS Cable SOMAS Benthic Communities Sample Locations

Blue Plan Sector(s): Habitats > Ecological > Habitat Classes/Units > Benthic

Summary Description: Displays the grab sample locations of 2013 field work to assess ecological sampling strategies for rare species. Given that a full characterization of benthic community structure in well-defined habitats may be a potentially important long term goal of the Long Island Sound mapping program, a small grab sampling study was designed to determine the number of samples needed to estimate the occurrence of rare species within a habitat (i.e., bottom type). Based on prior studies in the Peconic Bays ecosystem and bays on the North Shore of Long Island (Cerrato et al., 2007; Cerrato at al., 2008), it was anticipated that 10 or more samples would be required to collect approximately 70% of the benthic species present in a bottom type. The results of the current study verify this result and extend it to habitats in Long Island Sound.

Full Description:
http://opdgig.dos.ny.gov/geoportal/catalog/search/resource/detailsnoheader.page?uuid={16683987-0462-41CB-906E-DE752BFAA254}

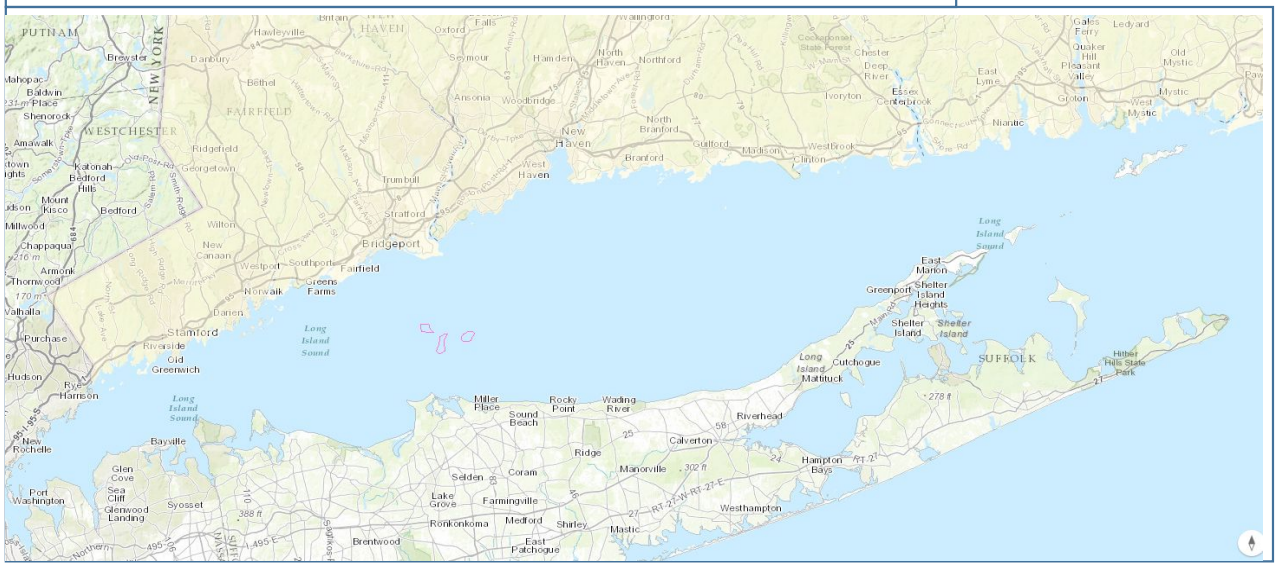
Access Instructions: http://opdgig.dos.ny.gov/#/map/, go to Biological, then Surveys



LIS Cable SOMAS Benthic Communities Sampling Polygons

NY Geographic Information Gateway

Source: LIS Cable Fund (Glenn Lopez/Bob Cerrato, Stony Brook School of Marine and Atmospheric Science)



Legend:

LIS Cable SOMAS Benthic Communities Sampling Polygons

Blue Plan Sector(s): Habitats > Ecological > Habitat Classes/Units > Benthic

Summary Description: Displays the sample areas of 2013 field work to assess ecological sampling strategies for rare species. Displays the sample areas where grab samples were taken in 2013 to assess ecological sampling strategies for rare species.

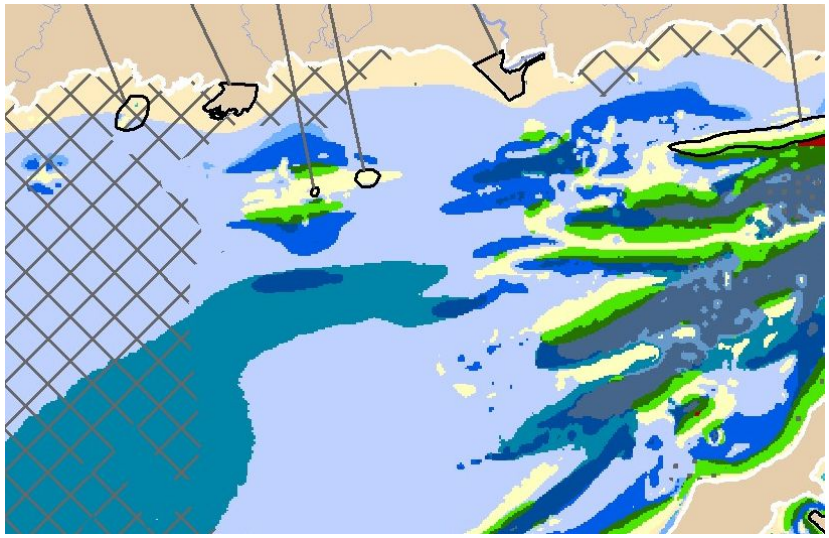
Full Description:
http://opdgig.dos.ny.gov/geoportal/catalog/search/resource/detailsnoheader.page?uuid={CFB4D941-5388-4A4A-830C-CF28084D27AC}

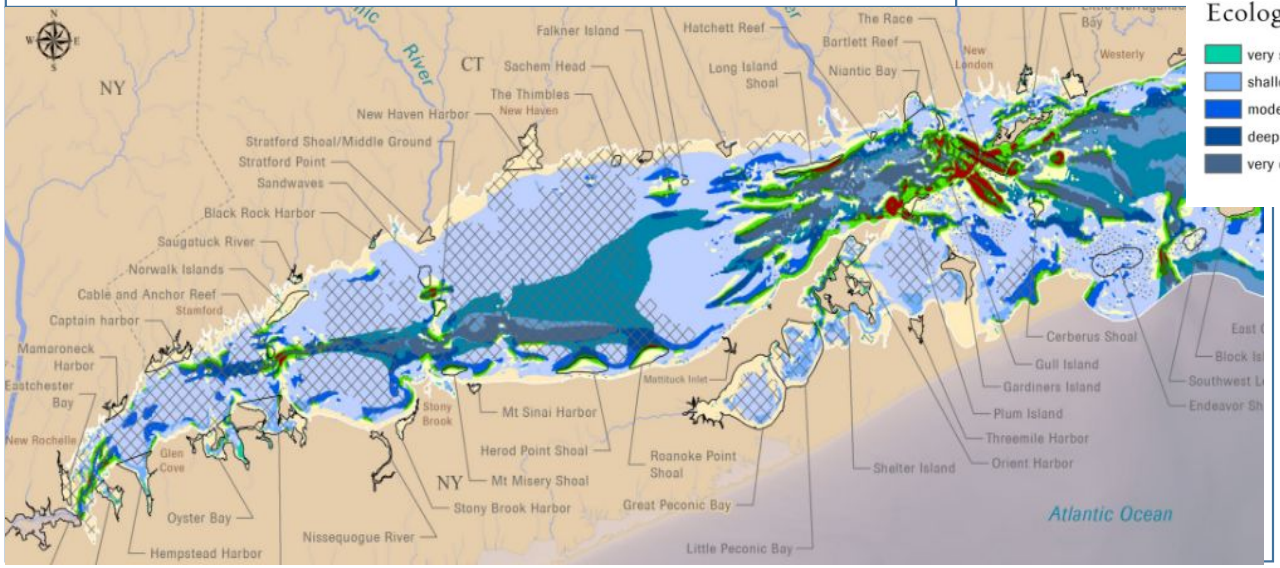
Access Instructions: http://opdgig.dos.ny.gov/#/map/, go to Biological, then Surveys

LISEA – Ecological Marine Units

Conservation Gateway

Source: The Nature Conservancy Long Island Sound Ecological Assessment





Ecological Marine Units

- very shallow depression
- shallow depression
- moderate depression
- deep depression
- very deep depression
- very shallow flat
- high flat
- shallow flat
- moderate flat
- deep flat
- very deep flat
- low slope
- side slope
- steep
- Silt
- Gravel
- Sand (areas not identified as silt or gravel)

LONG ISLAND SOUND BLUE PLAN

Sustainable Ecosystems - Compatible Uses

LISEA – Ecological Marine Units

Blue Plan Sector(s): Habitats/Ecological/Ecological Marine Units

Summary Description: To characterize the benthic environments of Long Island Sound and understand how the benthic community distributions are related to the physical structure of the sea floor, a spatially comprehensive data layer for each of three components was developed: bathymetry, sediment grain size and topographic or seabed forms. These components were chosen because of their well-documented correlation with the distribution and abundance of benthic organisms. This data product was created as part of the Long Island Sound Ecological Assessment (LISEA). Ecological Marine Units (EMUs) are the three-way combination of physical variables - depth, sediment grain size, and seabed forms. The breaks in bathymetry and substrate grain size are based on the ecological thresholds revealed by the benthic organism relationships. EMUs were derived from sediment and depth data sources. Sediment points were interpolated with kriging in ArcGIS to create a continuous surface which was then classified based on bethic organism preferences. Depth was classified by organism preferences. Depth was also used to calculate seabed form (a combination of seabed position and slope).

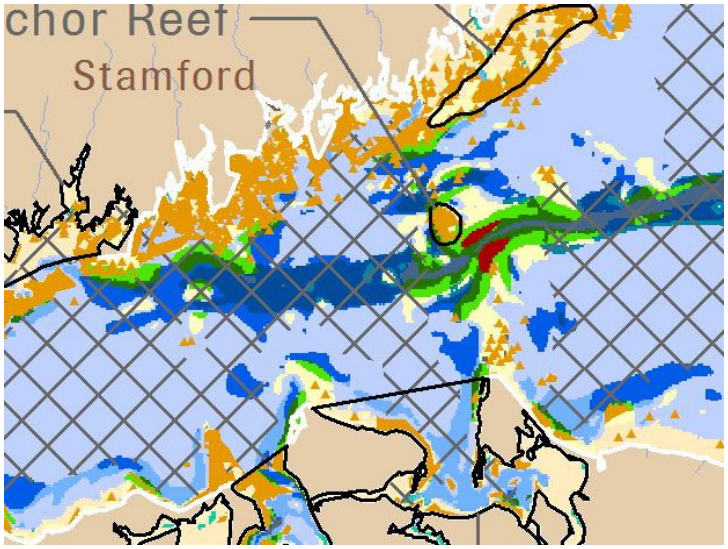
Full Description: metadata contained with downloadable GIS data or via reports at project URL below (layers = EMU, EMU_sediment_polygons)

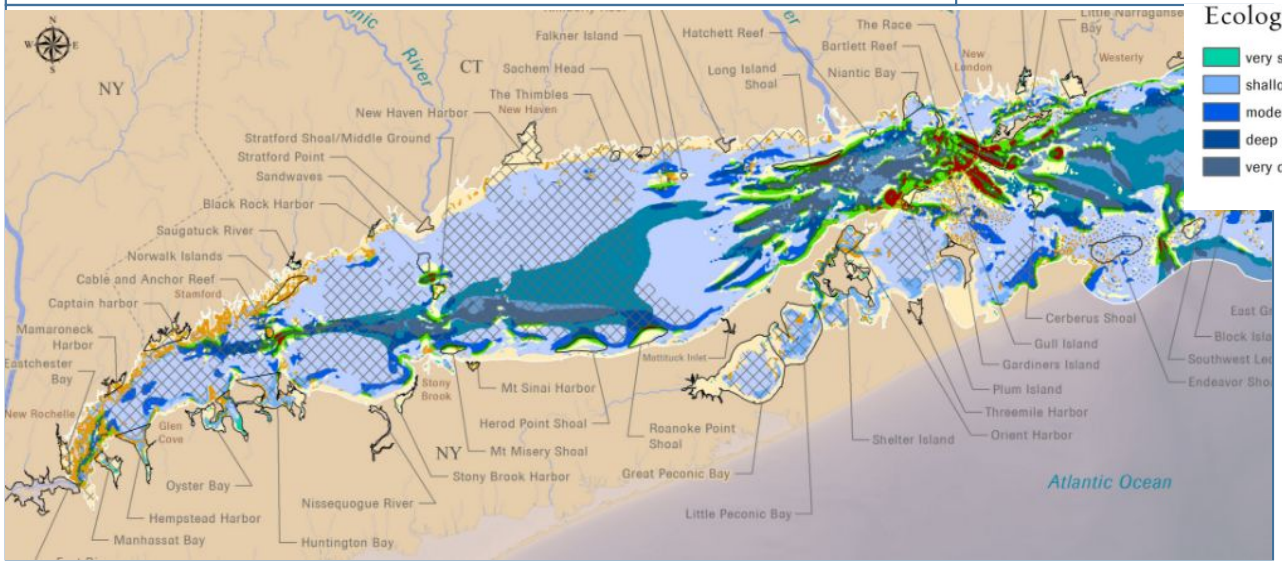
Access Instructions: Not currently available via map portal; images can be accessed at https://www.conservationgateway.org/ConservationByGeography/NorthAmerica/UnitedStates/edc/reportsdata/marine/namera/lis/Pages/default.aspx

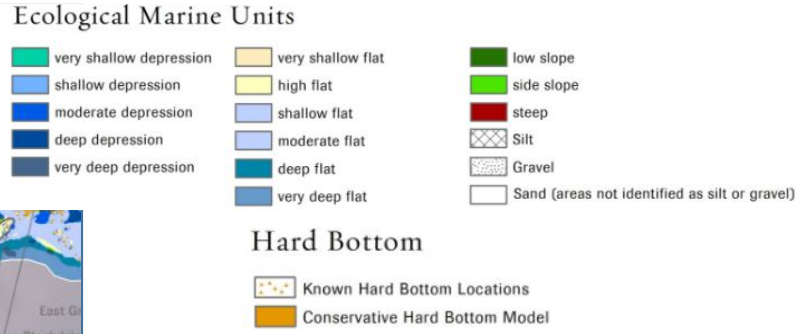
LISEA – Ecological Marine Units w/ Hard Bottom

Conservation Gateway

Source: The Nature Conservancy Long Island Sound Ecological Assessment







LONG ISLAND SOUND BLUE PLAN

Sustainable Ecosystems - Compatible Uses

LISEA – Ecological Marine Units w/ Hard Bottom

Blue Plan Sector(s): Habitats/Ecological/Ecological Marine Units

Summary Description: To characterize the benthic environments of Long Island Sound and understand how the benthic community distributions are related to the physical structure of the sea floor, a spatially comprehensive data layer for each of three components was developed: bathymetry, sediment grain size and topographic or seabed forms. These components were chosen because of their well-documented correlation with the distribution and abundance of benthic organisms. This data product was created as part of the Long Island Sound Ecological Assessment (LISEA). Ecological Marine Units (EMUs) are the three-way combination of physical variables - depth, sediment grain size, and seabed forms. The breaks in bathymetry and substrate grain size are based on the ecological thresholds revealed by the benthic organism relationships. EMUs were derived from sediment and depth data sources. Sediment points were interpolated with kriging in ArcGIS to create a continuous surface which was then classified based on bethic organism preferences. Depth was classified by organism preferences. Depth was also used to calculate seabed form (a combination of seabed position and slope).

As part of the LISEA project we complied a map of hard bottom locations (rock outcrop, bedrock, etc.). Because hard bottom patches can be small and there are likely many that aren't mapped, we made an effort to create a predictive model to identify the likely occurrence of additional hard bottom habitat based on a number of available datasets. The hard bottom model is defined as an area with depth less than 9.624 meters, structural complexity greater than 0.257, LPI greater than 40.769, and sediment grain size less than 0.1157 mm. This model captures 94% known hard bottom versus 6% random locations.

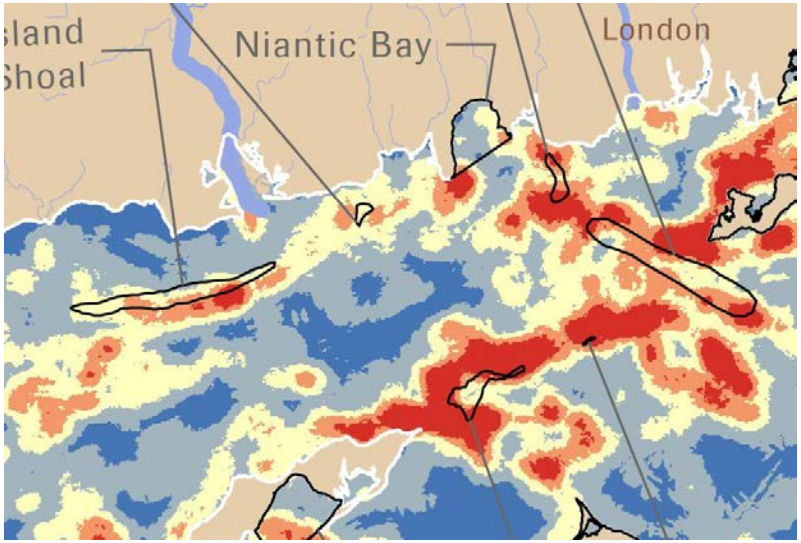
Full Description: metadata contained with downloadable GIS data or via reports at project URL below (layers = EMU, EMU_sediment_polygons, hard_bottom_model_conservative)

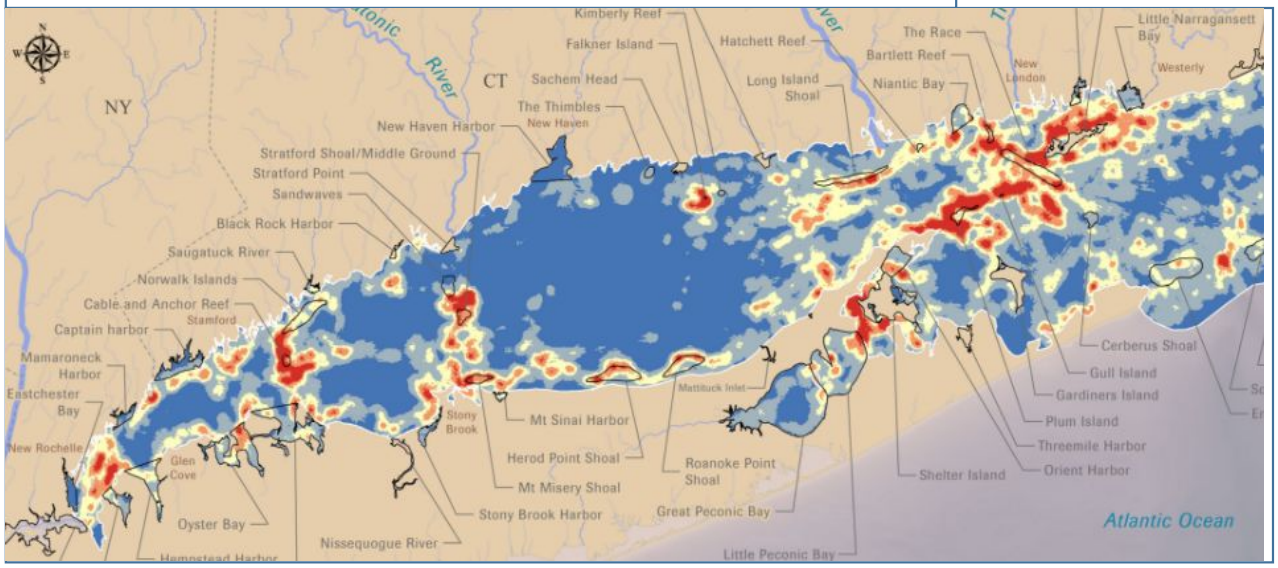
Access Instructions: Not currently available via map portal; images can be accessed at https://www.conservationgateway.org/ConservationByGeography/NorthAmerica/UnitedStates/edc/reportsdata/marine/namera/lis/Pages/default.aspx

LISEA – Ecological Marine Unit Richness

Conservation Gateway

Source: The Nature Conservancy Long Island Sound Ecological Assessment





Complexity Index

Less Complex — More Complex

LONG ISLAND SOUND BLUE PLAN

Sustainable Ecosystems - Compatible Uses

LISEA – Ecological Marine Unit Richness

Blue Plan Sector(s): Habitats/Ecological/Ecological Marine Units

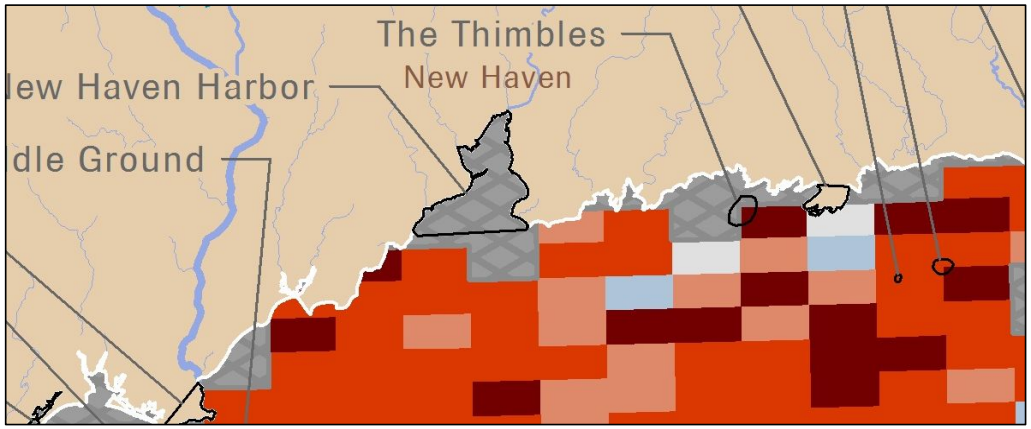
Summary Description: The EMU variety is a measure of the local variation on EMU type. It is measure of seafloor complexity used to highlight places of diverse seafloor to be included in the LISEA seafloor portfolio. The EMU variety was calculated by using a focal statistic (moving window) measure of the variety of unique EMU types within 1,000 and 500 meters. These values were combined to create a metric describing the local variation of EMU type.

Full Description: metadata contained with downloadable GIS data or via reports at project URL below (layers = EMU variety)

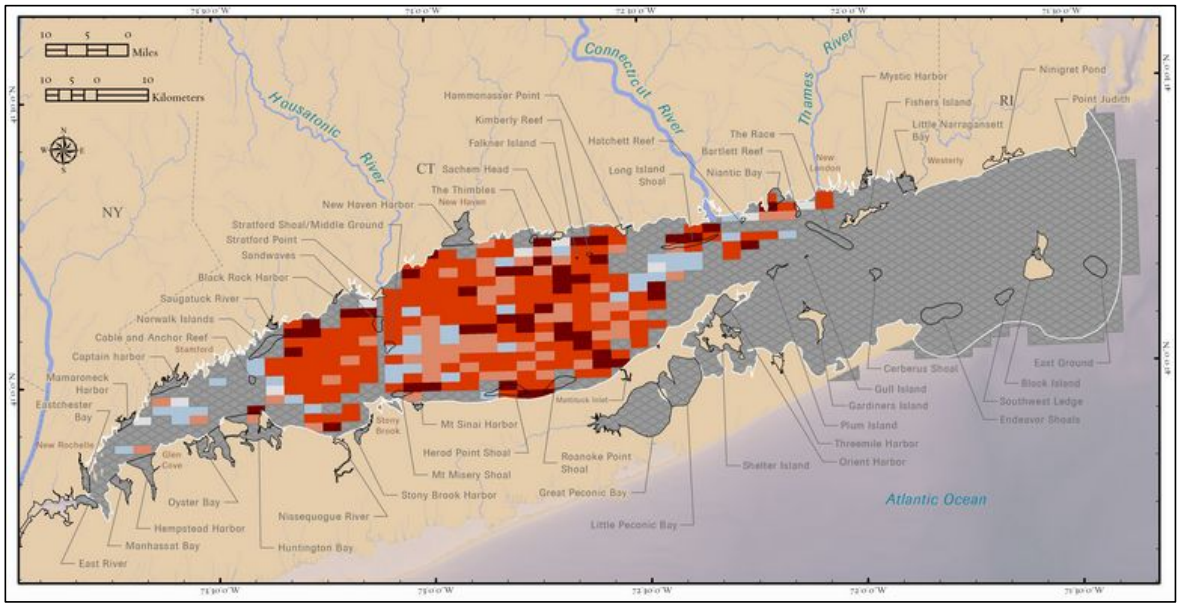
Access Instructions: Not currently available via map portal; images can be accessed at https://www.conservationgateway.org/ConservationByGeography/NorthAmerica/UnitedStates/edc/reportsdata/marine/namera/lis/Pages/default.aspx

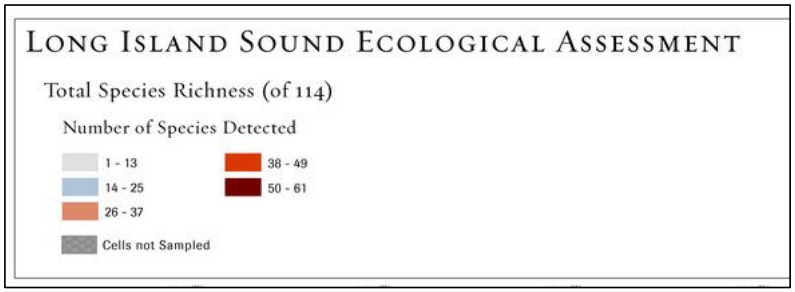
Figure 6.10 Total Species Richness

Long Island Sound Ecological Assessment (LISEA)



Source: The Nature Conservancy (TNC), USFWS Region 5, EPA Region 2





LONG ISLAND SOUND BLUE PLAN
Sustainable Ecosystems - Compatible Uses

Figure 6.10 Total Species Richness

Blue Plan Sector(s): Ecological Characterization > Living Resources > Animals > Marine Invertebrates & Benthic Fauna

Summary Description:

Full Description:

Access Instructions: Go to: https://www.conservationgateway.org/ConservationByGeography/NorthAmerica/UnitedStates/edc/reportsdata/marine/namera/lis/Pages/default.aspx

And select Figure 6.10 Total Species Richness from the list of LISEA figures

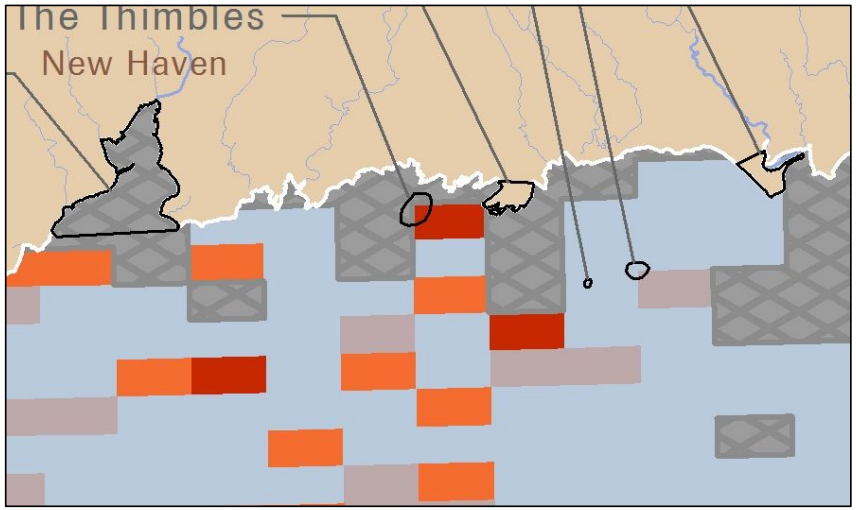
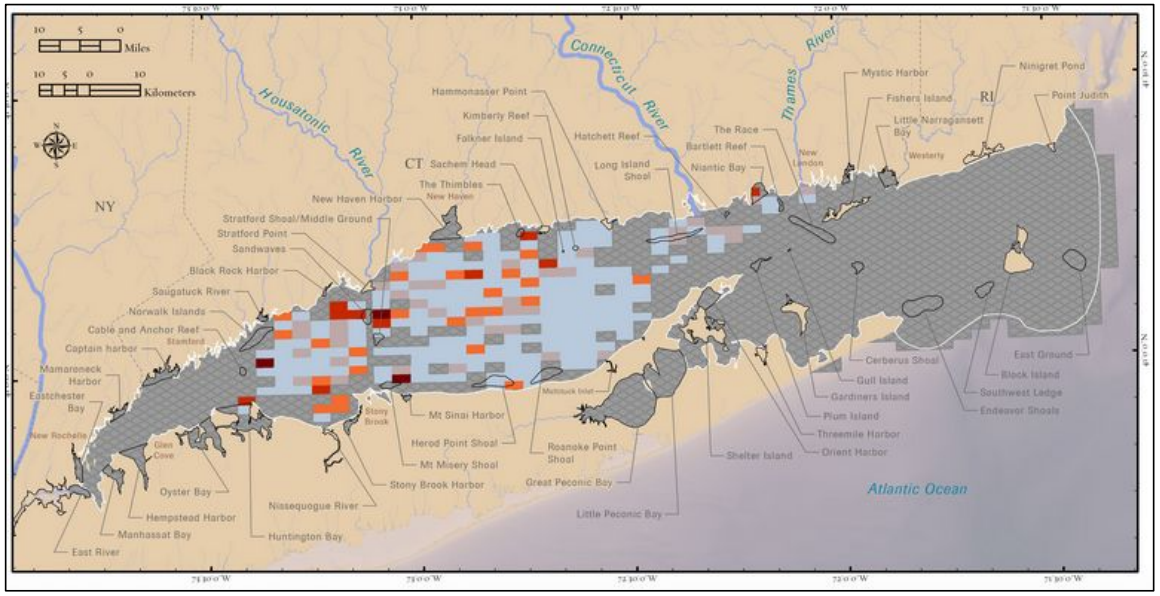
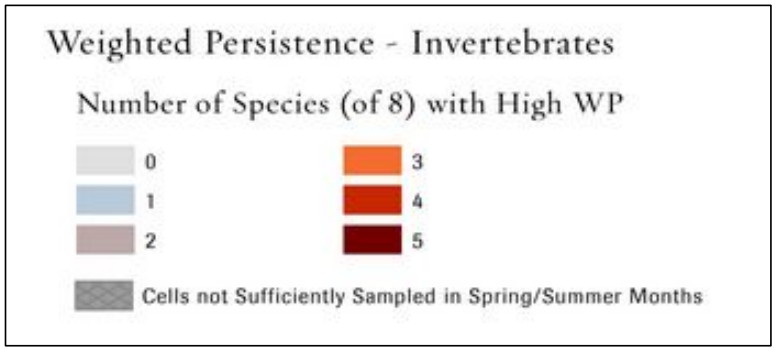


Figure 6.19 Invertebrate Weighted Persistence (WP)

Long Island Sound Ecological Assessment (LISEA)

Source: The Nature Conservancy (TNC), USFWS Region 5, EPA Region 2





LONG ISLAND SOUND BLUE PLAN
Sustainable Ecosystems - Compatible Uses

Figure 6.19 Invertebrate Weighted Persistence (WP)

Blue Plan Sector(s): Ecological Characterization > Living Resources > Animals > Marine Invertebrates & Benthic Fauna

Summary Description: Normalized count of macroinvertebrates with high WP score

Full Description:

Access Instructions: Go to: https://www.conservationgateway.org/ConservationByGeography/NorthAmerica/UnitedStates/edc/reportsdata/marine/namera/lis/Pages/default.aspx

And select Figure 6.19 Invertebrate Weighted Persistence (WP) from the list of LISEA figures

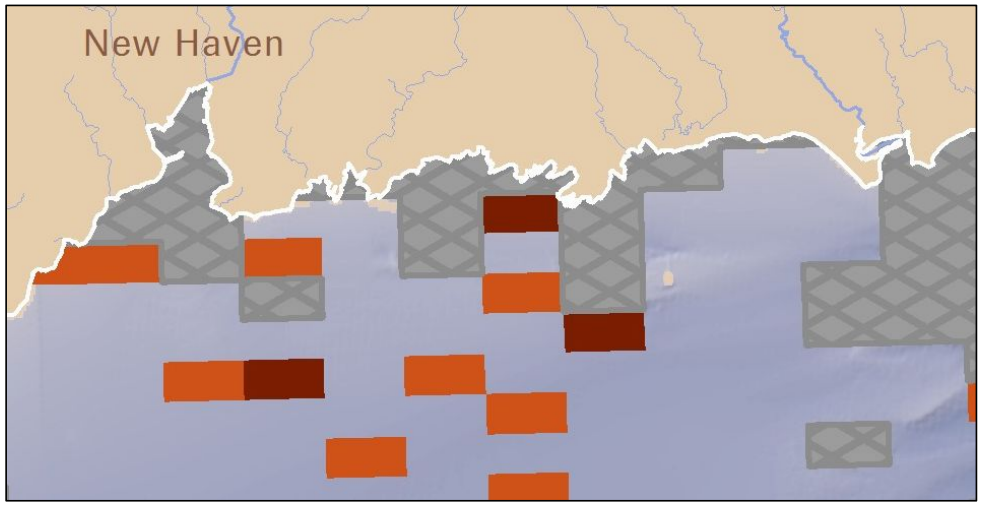
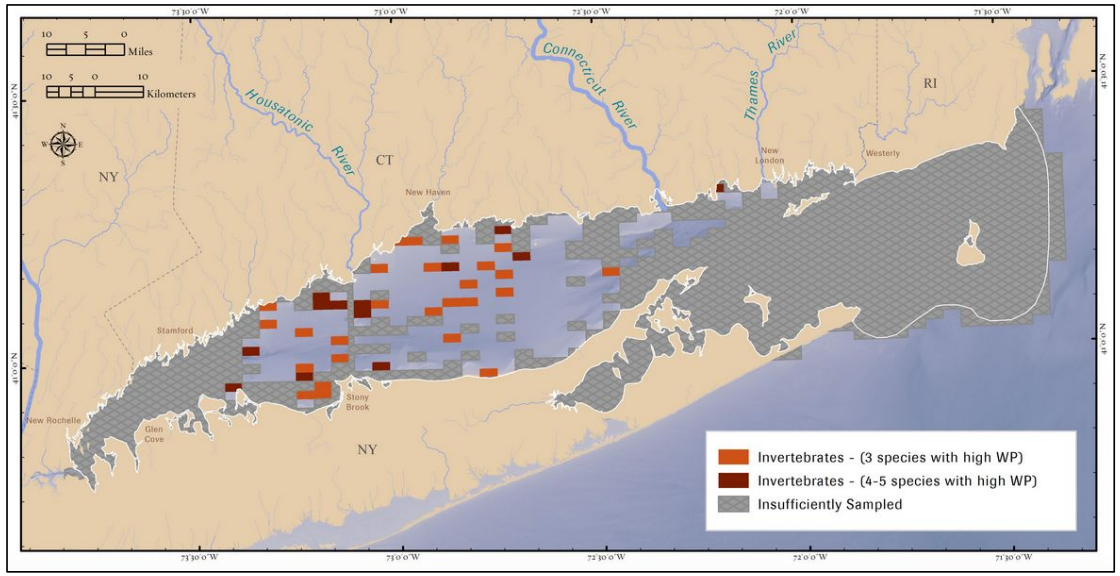
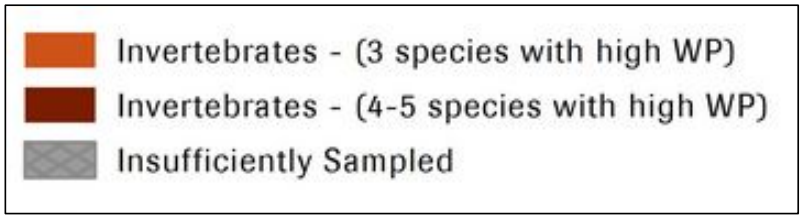


Figure 7.5 Invertebrate Persistence Areas

Long Island Sound Ecological Assessment (LISEA)

Source: The Nature Conservancy (TNC), USFWS Region 5, EPA Region 2





LONG ISLAND SOUND BLUE PLAN
Sustainable Ecosystems - Compatible Uses

Figure 7.5 Invertebrate Persistence Areas

Blue Plan Sector(s): Ecological Characterization > Living Resources > Animals > Marine Invertebrates & Benthic Fauna

Summary Description:

Full Description:

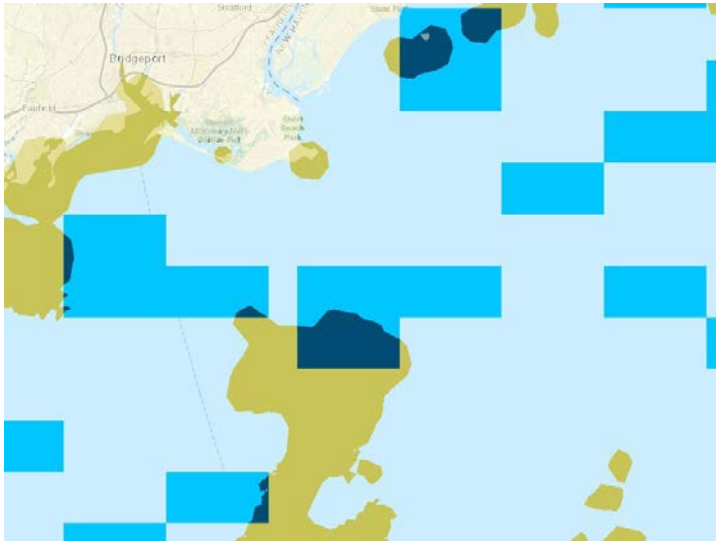
Access Instructions: Go to: https://www.conservationgateway.org/ConservationByGeography/NorthAmerica/UnitedStates/edc/reportsdata/marine/namera/lis/Pages/default.aspx

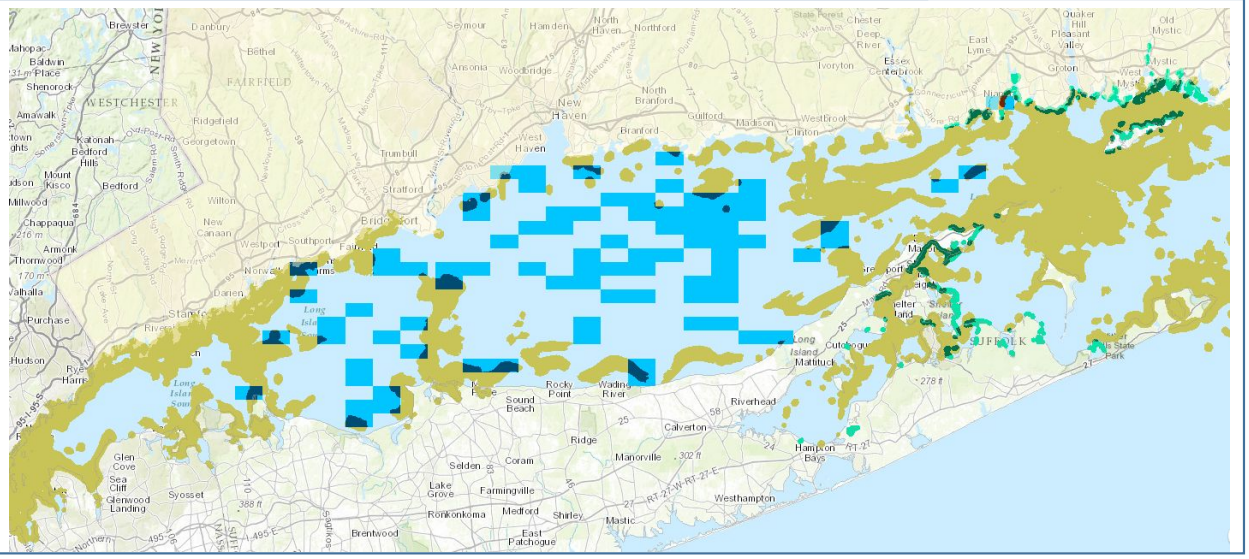
And select Figure 7.5 Invertebrate Persistence Areas from the list of LISEA figures

LISEA – Seafloor Portfolio

NY Geographic Information Gateway

Source: The Nature Conservancy Long Island Sound Ecological Assessment





LONG ISLAND SOUND BLUE PLAN

Sustainable Ecosystems - Compatible Uses

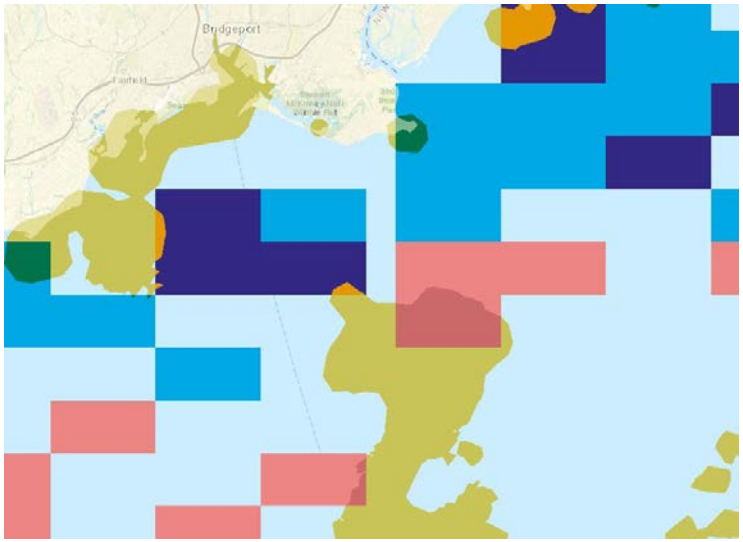
LISEA – Seafloor Portfolio

Blue Plan Sector(s): Habitats > Ecological > Habitat Classes/Units > Benthic

Summary Description: The seafloor portfolio highlights places with persistent occurences of demersal fish and macroinvertebrates and areas of complex bottm deserving further investigation for their potential importance in policy-making, management and conservation action. The ecologically notable places contributing to the seafloor portfolio included: seafloor complexity (hard bottoms and complex bottom bathymetry combined with areas of notable EMU richness), demersal (bottom) fish persistent areas, invertebrate persistent areas and seagrass beds.

Full Description:
http://opdgig.dos.ny.gov/geoportal/catalog/search/resource/detailsnoheader.page?uuid={4E8FEF79-C32D-469B-B573-D7B59AB5BA64}, metadata contained with downloadable GIS data or via reports at project URL below (layers = seafloor_portfolio, sampling_effort)

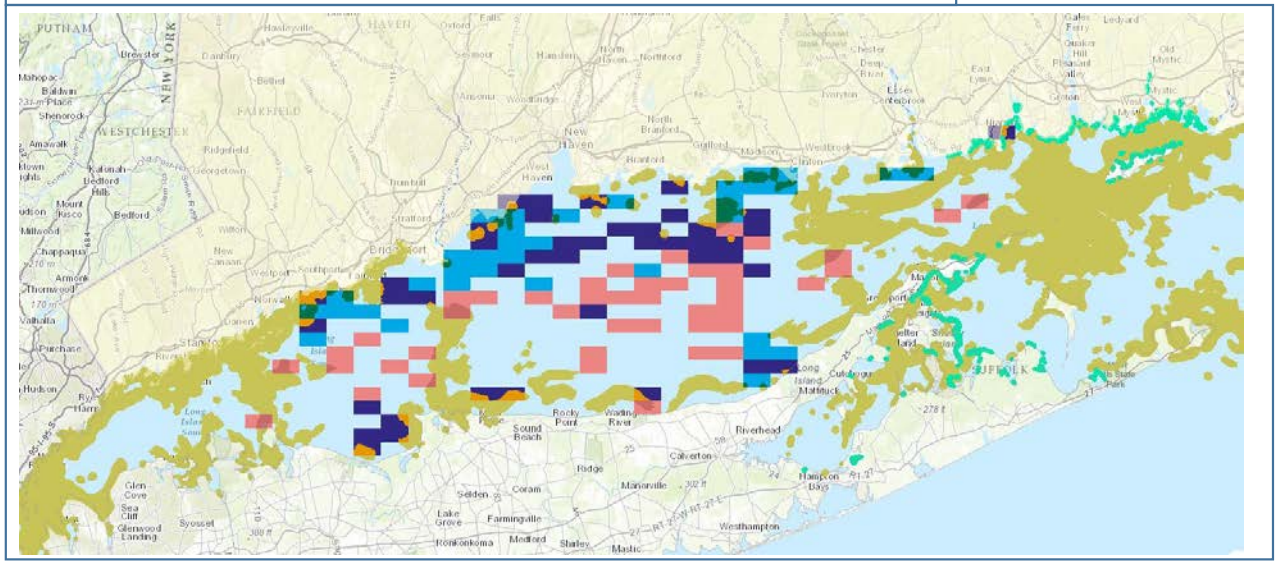
Access Instructions: http://opdgig.dos.ny.gov/#/map and search "LISEA"; images can be accessed at https://www.conservationgateway.org/ConservationByGeography/NorthAmerica/UnitedStates/edc/reportsdata/marine/namera/lis/Pages/default.aspx



LIS Ecologically Notable Places: Integrated Portfolio

NY Geographic Information Gateway

Source: The Nature Conservancy – Long Island Sound Ecological Assessment



- water column species
- all categories
- watter column AND bottom dwelling species AND structure
- bottom dwelling species AND structure
- bottom dwelling species
- Seafloor Structure
- water column species AND seafloor complexity
- water column species AND bottom dwelling species
- seagrass AND bottom dwelling species
- seagrass AND structure
- seagrass

LONG ISLAND SOUND BLUE PLAN
Sustainable Ecosystems - Compatible Uses

LIS Ecologically Notable Places: Integrated Portfolio

Blue Plan Sector(s): Habitats > Ecological > Habitat Classes/Units > Benthic

Summary Description: The integrated portfolio combines the migratory portfolio (diadromous and pelagic fish) with the seafloor portfolio (bottom dwelling species, seafloor complexity, and seagrass) to identify ecologically notable places in the LISEA study area. The integrated portfolio combines the seafloor and water column portfolios into one set of ecologically notable places as a final summary result of the LISEA. Each area shown has met a specific set of selection criteria. These places are highlighted as deserving further investigation for their potential importance in policy-making, management and conservation action. Reference back to the seafloor and water column portfolios can be made to identify which type of ecologically notable places applies to a particular location.

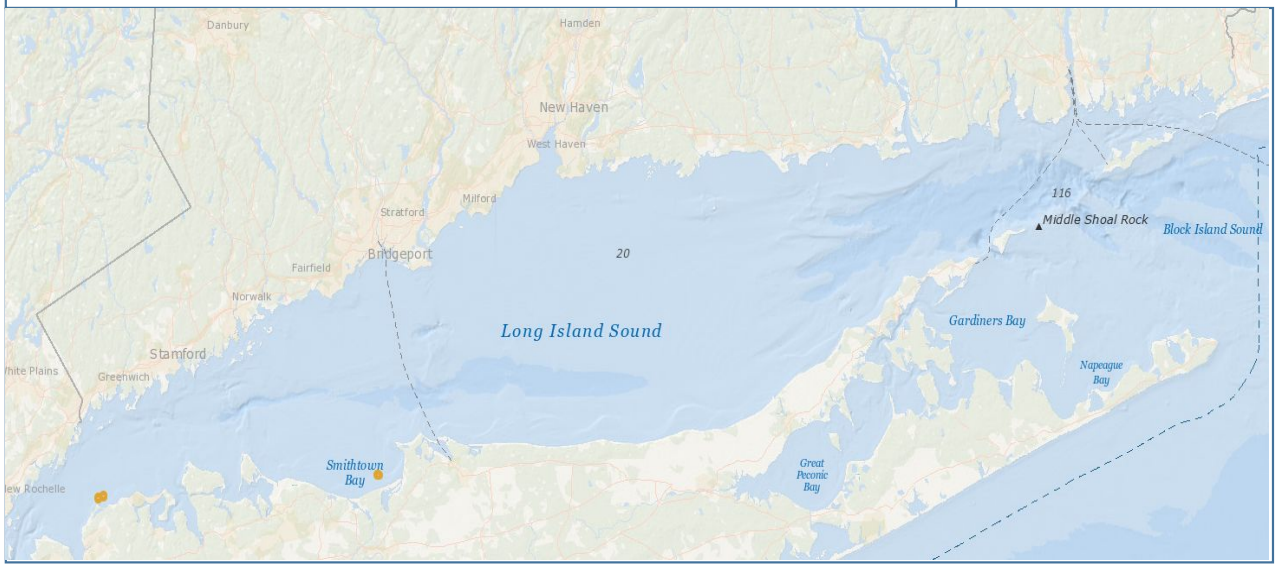
Full Description:
http://opdgig.dos.ny.gov/geoportal/catalog/search/resource/detailsnoheader.page?uuid={DE35B598-EA62-43FB-A00E-22BDC7776D6A}, or metadata contained with downloadable GIS data or via reports at https://www.conservationgateway.org/ConservationByGeography/NorthAmerica/UnitedStates/edc/reportsdata/marine/namera/lis/Pages/default.aspx (layer = integrated_portfolio and sampling_effort)

Access Instructions: http://opdgig.dos.ny.gov/#/map/, use search function for “LISEA”

Artificial Reefs

Northeast Ocean Data Portal

Source: NOAA's Ocean Service, Office for Coastal Management (OCM)



Artificial Reefs

LONG ISLAND SOUND BLUE PLAN
Sustainable Ecosystems - Compatible Uses

Artificial Reefs

Blue Plan Sector(s): Habitats > Ecological > Habitat Classes/Units > Benthic

Summary Description: An artificial reef is a human-made underwater structure, typically built to promote marine life in areas with a generally featureless bottom, control erosion, block ship passage, or improve surfing.

Many reefs are built using objects that were built for other purposes, for example by sinking oil rigs (through the Rigs-to-Reefs program), scuttling ships, or by deploying rubble or construction debris. Other artificial reefs are purpose built (e.g. the reef balls) from PVC or concrete. Shipwrecks may become artificial reefs when preserved on the sea floor. Regardless of construction method, artificial reefs generally provide hard surfaces where algae and invertebrates such as barnacles, corals, and oysters attach; the accumulation of attached marine life in turn provides intricate structure and food for assemblages of fish.

The presence and location of these artificial reefs are not considered to be exact, and have been derived from multiple state websites. These data are intended for coastal and ocean planning.

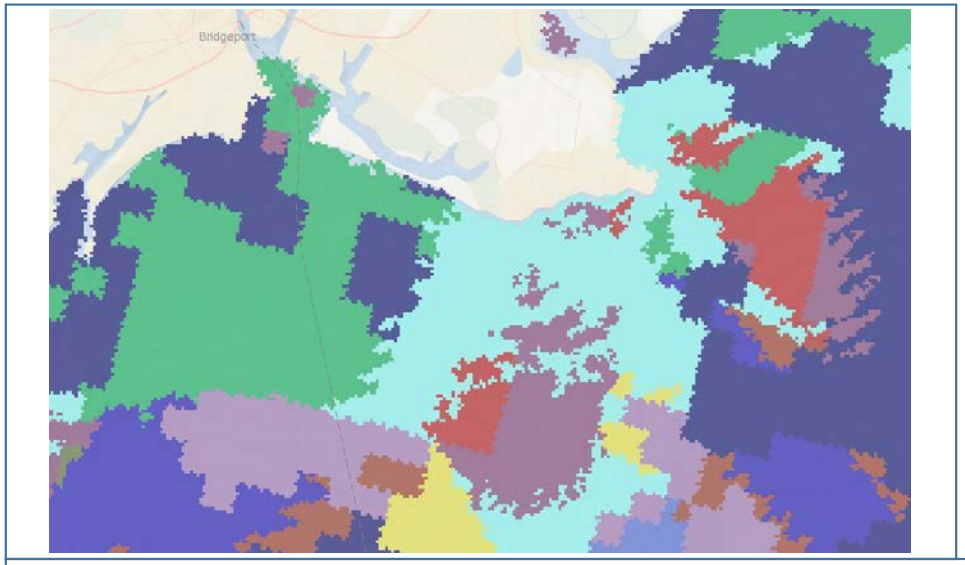
Full Description:
https://coast.noaa.gov/dataservices/Metadata/TransformMetadata?u=https://coast.noaa.gov/data/Documents/Metadata/harvest/MarineCadastre/ArtificialReefs.xml&f=html

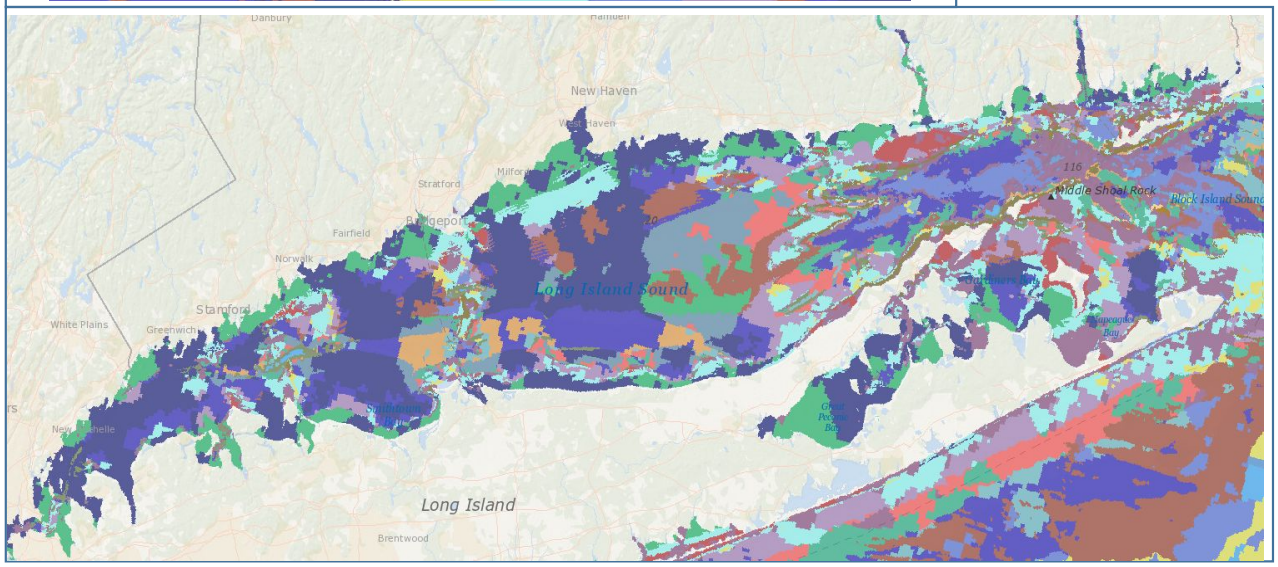
Access Instructions: http://www.northeastoceandata.org/data-explorer/, go to “Habitat”

Seafloor Habitats

Northeast Ocean Data Portal

Source: Northwest Atlantic Marine Ecoregional Assessment





- SNE_0, Not a real habitat type as there are no diagnostic species
- SNE_1, Variable seabed forms at variable depths on fine to coarse sand
- SNE_109, Depressions at very shallow depths (0 - 23m) on mostly medium to coarse sand but occasionally silt
- SNE_11, High slopes, canyons, and flats at deep depths (60 - 485m) on fine to medium sand
- SNE_113, Depressions and mid-position flats at moderate depths (23 - 44m) on very fine sand
- SNE_200, Depressions at very shallow to moderate depths (0 - 44m) on very fine to medium sand
- SNE_223, Mid-position flats and depressions at moderate depths (44 - 75m) on fine to medium sand
- SNE_230/229, Depressions at shallow depths (8.4 - 44m) on very fine sand
- SNE_24, Not a real habitat type as there are no diagnostic species
- SNE_25, Flats and side slopes at very shallow to shallow depths (0 - 23m) on fine to coarse sand
- SNE_2537, Depressions and high flats at shallow depths (23 - 31m) on very fine to fine sand
- SNE_3, Very fine to fine sand at moderate to very deep depths (average 128, minimum 44m) on
- SNE_316, Depressions at shallow depths (8 - 44m) on very fine sand
- SNE_317, Mid-position flats at moderate depths (31 - 75m) on fine to medium sand
- SNE_36, Depressions and high flats at very shallow to moderate depths (0 - 75m) on medium to coarse sand
- SNE_372, Depressions and low slopes at moderate depths (44 - 75m) on very fine sand
- SNE_381, Mid and high-position flats at moderate depths (44 - 79m) on fine to very fine sand
- SNE_387, High slopes and flats at very deep depths (> 139m) on fine sand
- SNE_390, Depressions at shallow water depths (23 - 44m) on very fine to fine sand
- SNE_437, High flats and slopes at deep to very deep depths (75 - 200m) on fine sand
- SNE_6, High slopes and flats at moderate to deep depths (44 - 139m) on fine to coarse sand
- SNE_66, High flats and slopes at moderately deep depths (75 - 139m) on very fine to fine sand
- SNE_82, All types of flats at moderately deep depths (44 - 139m) on medium to coarse sand
- SNE_873, Flats and side slopes at shallow depths (8 - 31m) on very fine to medium sand
- SNE_949, Mid and low flats at deep depths (75 - 139m) on fine to medium sand

LONG ISLAND SOUND BLUE PLAN

Sustainable Ecosystems - Compatible Uses

Seafloor Habitats

Blue Plan Sector(s): Habitats > Ecological > Habitat Classes/Units > Benthic

Summary Description: This data product was created as part of the Northwest Atlantic Marine Ecoregional Assessment. The Nature Conservancy developed this science-based ecoregional assessment for the Northwest Atlantic Marine region (Bay of Fundy to Cape Hatteras, North Carolina). This assessment synthesizes information on oceanography, chemistry, geology, biology, and social science to inform decisions about coastal and marine ecosystems. By integrating this information at a regional level, the Conservancy is able to provide both a greater understanding of the interrelated biological diversity of the marine ecoregion, and a clearer picture of the current condition of its natural areas and the challenges to their continued persistence. The ten categories of targets identified as the primary structure for the marine ecoregional assessment are: coastal and estuarine habitats, benthic habitats, diadromous fish, demersal fish, pelagic fish, forage fish, nearshore shellfish, shorebirds and seabirds, marine mammals, and sea turtles. For more information and a detailed report, please visit <http://www.nature.ly/namera>.

Benthic habitats are combinations of EMUs considered with their species assemblages. The signature of a benthic habitat type may be a combination of multiple EMUs. Thresholds were created by classifying grab samples into organism groups based on similarities in the composition and abundance of the benthic species using hierarchical cluster analysis. To perform this analysis, each grab sample was classified to an organism group, then overlaid on standardized base maps of depth, sediment grain size and seabed forms, and attributed with the information taken from the classified data. Regression trees were built individually for each physical variable to identify critical thresholds that separated sets of organism groups from each other. Regression trees were also built using all variables collectively to identify which variables were driving the organism differences. Each analysis was performed separately by ecological subregion after data exploration revealed that the relationships between genera and physical factors differed markedly among subregions.

Full Description: http://www.northeastoceandata.org/files/metadata/Themes/Habitat/TNCBenthicHabitatModel

Access Instructions: http://www.northeastoceandata.org/data-explorer/, go to “Habitat”