Long Island Sound Blue Plan – Potential Data Products Review
Fish, shellfish, and zooplankton – Map Book Table of Contents

- Zooplankton predicted biomass (all seasons) – note: patterns suggest that this layer doesn't include sample locations in LIS

CT DEEP Surveys
See list of all 61 fish and 3 invertebrate species included in trawl survey
- Estuarine seine survey forage index
- Estuarine seine survey nonforage index
- LIS trawl survey (LISTS) towpaths 1995-2012
- LISTS striped bass biomass (example of an individual species biomass product)
- LISTS striped bass log biomass (example of an individual species summarized biomass product)
- LISTS striped bass variance of log biomass (example of an individual species variance product)

LISEA
Uses CT DEEP fish trawl data, including the following inverts: American lobster, blue crab, bobtail squid (Sepiola), boreal squid, horseshoe crab, long-finned squid, mantis shrimp, rock crab
- Sufficiently sampled cells
- Alewife persistence (example of an individual species persistence product)
- Demersal fish: weighted persistence, high weighted persistence
- Diadromous fish: weighted persistence, high weighted persistence
- Elasmobranch weighted persistence
- Gaddid weighted persistence
- Pelagic fish: weighted persistence, high weighted persistence
- Pleuronectid weighted persistence
- Structure-oriented fish weighted persistence
- Miscellaneous fish weighted persistence

LISEA (continued)
- Total species richness (fish, invertebrates, benthic invertebrates
- Standardized count of weighted persistence scores by species group
- Water column portfolio
- Integrated seafloor and water column portfolio
- LIS Ecologically Notable Places: Integrated portfolio

Management areas
- CT DEEP
  - Designated natural shellfish beds 2014
  - Atlantic sturgeon gear restriction areas
  - Horseshoe crab closed areas
- NOAA GARFO
  - Scallop management areas
  - Essential fish habitat
  - Groundfish management areas
  - Groundfish and shellfish EFH overlay
 - Highly migratory species EFH overlay

Other data
- US Atlantic coast fishing atlas
- NOAA Environmental Sensitivity Index - Fish

Zooplankton – Predicted Biomass (all seasons)

New York Geographic Information Gateway (NYGIG)

Source: Department of Commerce (DOC), National Oceanic and Atmospheric Administration (NOAA), National Ocean Service (NOS), National Centers for Coastal Ocean Science (NCCOS), Center for Coastal Monitoring and Assessment (CCMA), Biogeography Program

Legend:
High : 0.8 (mL/m3)

Low : 0.02
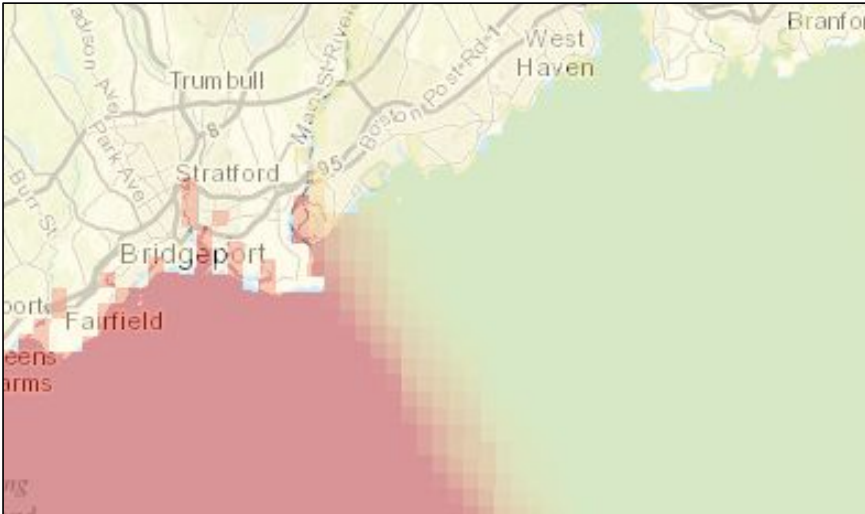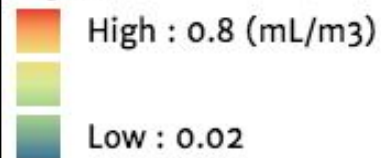
Zooplankton – Predicted Biomass (all seasons)

Blue Plan Sector(s): Ecological Characterization > Living Resources> Animals >Plankton

Summary Description: Near surface biomass of zooplankton were interpolated (ordinary kriging) from point data obtained from the NOAA National Marine Fisheries Service's (NMFS) Copepod database. This database spans from 1966 to 2001 and does not include larval fish (the all-taxa zooplankton global compilation was used, available here). Biomass is measured as mean displacement volume per volume of water strained (ml/m3).
Purpose: Zooplankton biomass (ml/m3) is a key variable important to understanding spatial and seasonal patterns in the ocean. These data are intended to support New York's offshore spatial planning.

Full Description: *Go to:*
http://opdgig.dos.ny.gov/geoportal/catalog/search/resource/detailsnoheader.page?uuid={5BE86153-D13A-4251-9BC0-9AAE9954AB05}
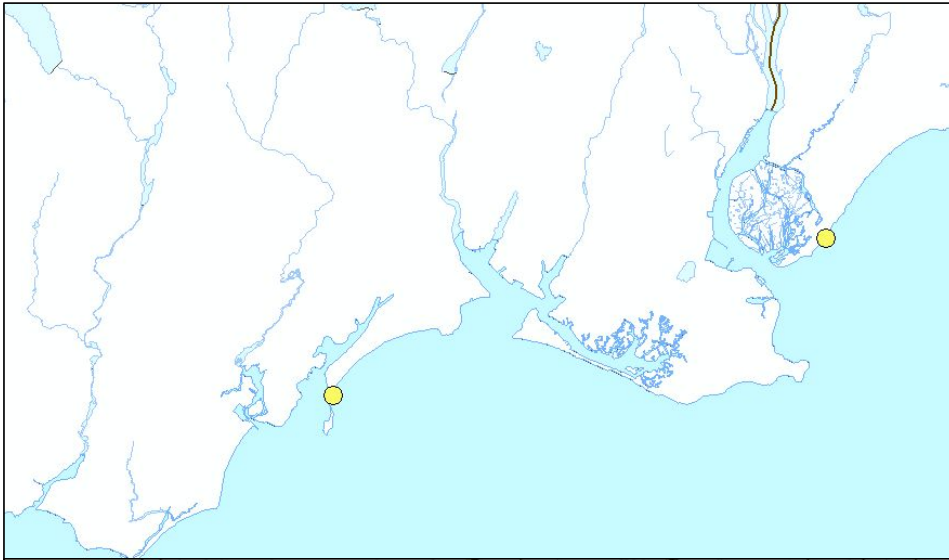
 Access Instructions: Go to: http://opdgig.dos.ny.gov/#/map and search *"Zooplankton -- Predicted Biomass"*

Estuarine Seine Survey – Forage Index

Data not currently available online

Source: CT DEEP Marine Fisheries Estuarine Seine Survey, 2008-2012*

*Additional data exists for time periods 1988-1992, 1993-1997, 1998-2002, 2003-2007

Estuarine Seine Survey: forage index (2008-2012)
GeoMean
- 40.326000
- 40.326001 - 122.270000
- 122.270001 - 196.824000

LONG ISLAND SOUND BLUE PLAN
Sustainable Ecosystems - Compatible Uses

Estuarine Seine Survey – Forage Index

Blue Plan Sector(s): Living Resources/Animals/Fish

Summary Description: This layer depicts CT DEEP Estuarine Seine Survey (ESS) forage fish index by site for 2008 - 2012. ESS is conducted by the CT DEEP along CT shoreline (1988 - 2015). Forage fish species include Atlantic silverside, mummichog, sheepshead minnow and striped killifish. Forage fish typically account for more than 80% of the total ESS catch. Index values are the geometric mean catch (number) per tow as generated in SAS and are used as a measure of relative abundance. Locations are depicted as one generalized point in vicinity of individual seine hauls.

Full Description:
http://www.ct.gov/deep/lib/deep/fishing/fisheries_management/2012_estuarine_seine_survey_report.pdf

Access Instructions: data not currently available online

Estuarine Seine Survey – NonForage Index

Data not currently available online

Source: CT DEEP Marine Fisheries Estuarine Seine Survey, 2008-2012*

*Additional data exists for time periods 1988-1992, 1993-1997, 1998-2002, 2003-2007

Estuarine Seine Survey: nonforage index (2008-2012)
GeoMean

- 3.872300
- 3.872301 - 9.770500
- 9.770501 - 30.822000

LONG ISLAND SOUND BLUE PLAN
Sustainable Ecosystems - Compatible Uses

Estuarine Seine Survey – NonForage Index

Blue Plan Sector(s): Living Resources/Animals/Fish

Summary Description: This layer depicts CT DEEP Estuarine Seine Survey (ESS) nonforage fish index by site for 2008 - 2012. ESS is conducted by the CT DEEP along CT shoreline (1988 - 2015). Nonforage fish species include 26 species commonly caught in this survey other than the four forage species (Atlantic silverside, mummichog, sheepshead minnow and striped killifish) or species that are only occasionally captured. Forage fish typically account for more than 80% of the total ESS catch. Index values are the geometric mean catch (number) per tow as generated in SAS and are used as a measure of relative abundance.
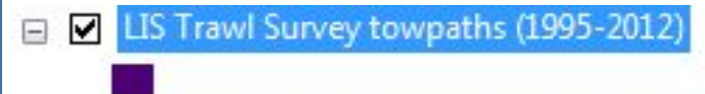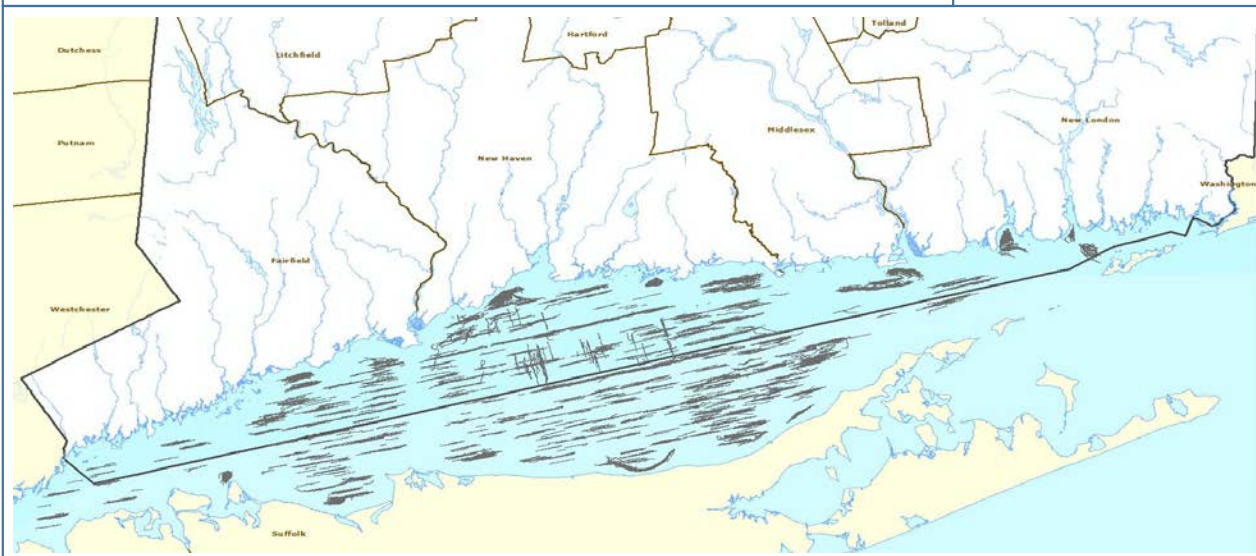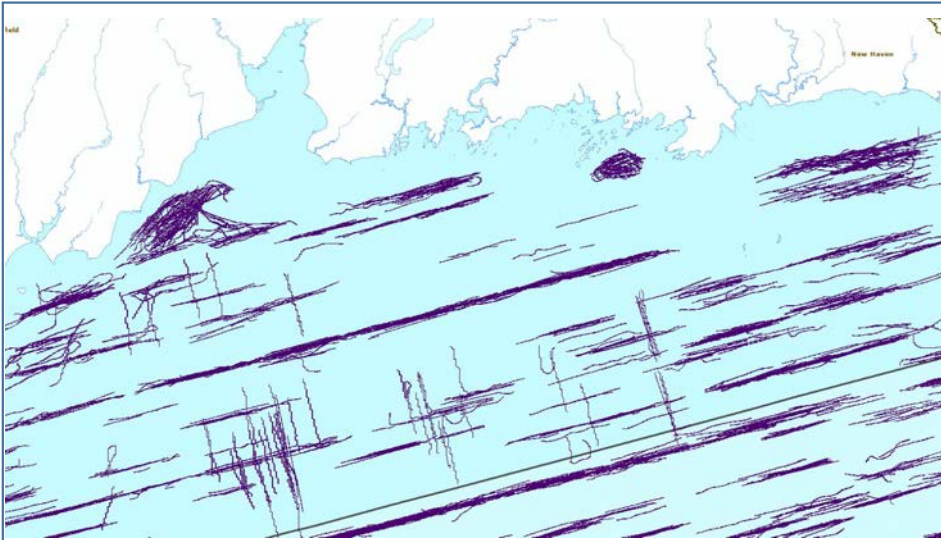
Full Description:
http://www.ct.gov/deep/lib/deep/fishing/fisheries_management/2012_estuarine_seine_survey_report.pdf

Access Instructions: data not currently available online

LIS Trawl Survey Towpaths 1995-2012

CT DEEP data

Source: CT DEEP LIS Trawl Survey (R/V John Dempsey)

LIS Trawl Survey towpaths (1995-2012)

LONG ISLAND SOUND BLUE PLAN
Sustainable Ecosystems - Compatible Uses

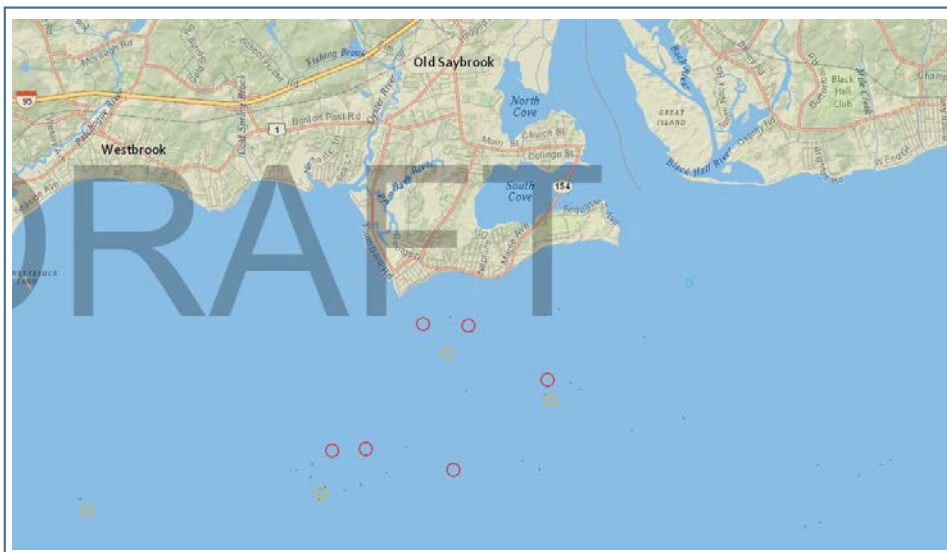# LIS Trawl Survey Towpaths 1995-2012

Blue Plan Sector(s): Living Resources/Animals/Fish

Summary Description: This layer depicts towpaths for bottom fish trawls conducted by the CT DEEP in LIS aboard the R/V John Dempsey, 1995 - 2012. Towpaths were generated from GPS trackline data collected during a tow then buffered to approximate the width of the net as it was towed. Not every tow has a towpath and not every towpath has complete GPS data for the tow (that is, there are some missing and incomplete towpaths). Each towpath has a unique identifier (LINE_FIELD variable).

Full Description: Contact CT DEEP Marine Fisheries for FGDC metadata: deep.marine.fisheries@ct.gov

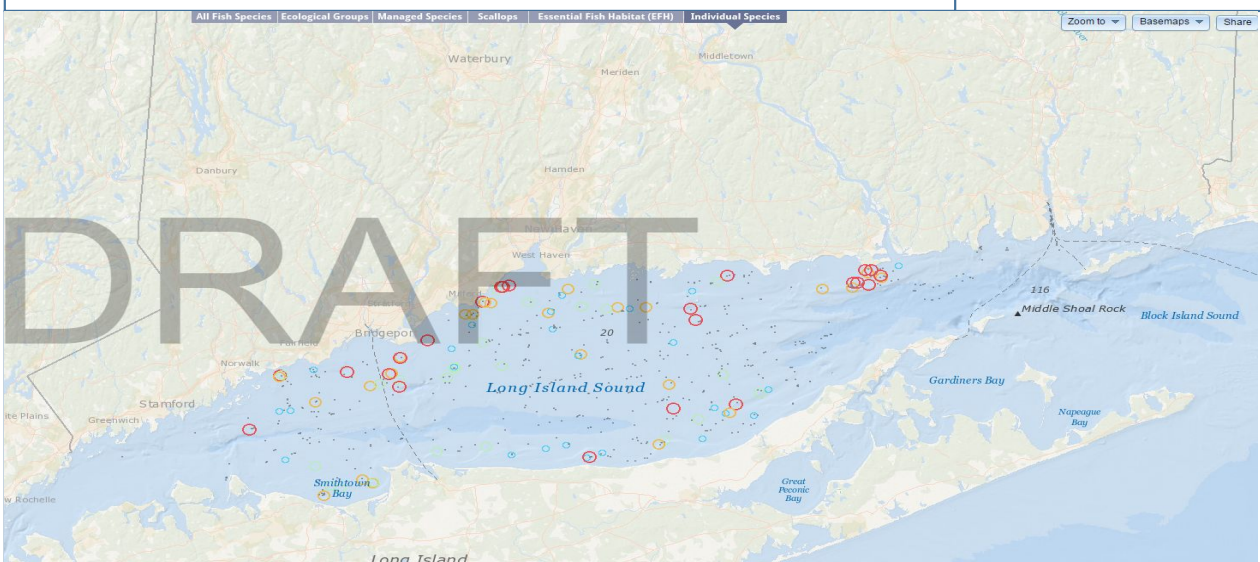**_Access Instructions_**: Not currently available online.

FISH: Individual Species – Striped Bass Log Biomass*

Northeast Ocean Data Portal

Source: CT DEEP Marine Fisheries LIS Bottom Trawl Surveys, Fall 2005 -2014**

*One of 64 datasets totaling 61 individual fish species plus 3 invertebrates (see list on last page of this summary.)
**Additional data exists for time period 1992-2014

FISH: Individual Species – Striped Bass Log Biomass

Blue Plan Sector(s): Living Resources/Animals/Fish

Summary Description: These data products are derived from fall (September-October) catch distribution data for bottom trawls conducted by the Connecticut Department of Energy and Environmental Protection (CT DEEP) in Long Island Sound aboard the R/V John Dempsey (1992-2014). Data were provided by CT DEEP Marine Fisheries Division for 61 fish species and 3 invertebrates. Only species caught in more than 5 fall tows (1992-2014) are included. The Long Island Sound Trawl Survey is a stratified random survey begun in 1984. Biomass has been recorded since 1992. Survey methodology can be found in Gottschall and Pacileo 2014 and Gottschall et al. 2000.

These data products are based on observed data, not model predictions, for the selected time period. Each raw observation is plotted as a circle, where the circle size is proportional to the value of the total fish biomass in the tow. Site summary data are attached to a 1x2 nautical mile grid.
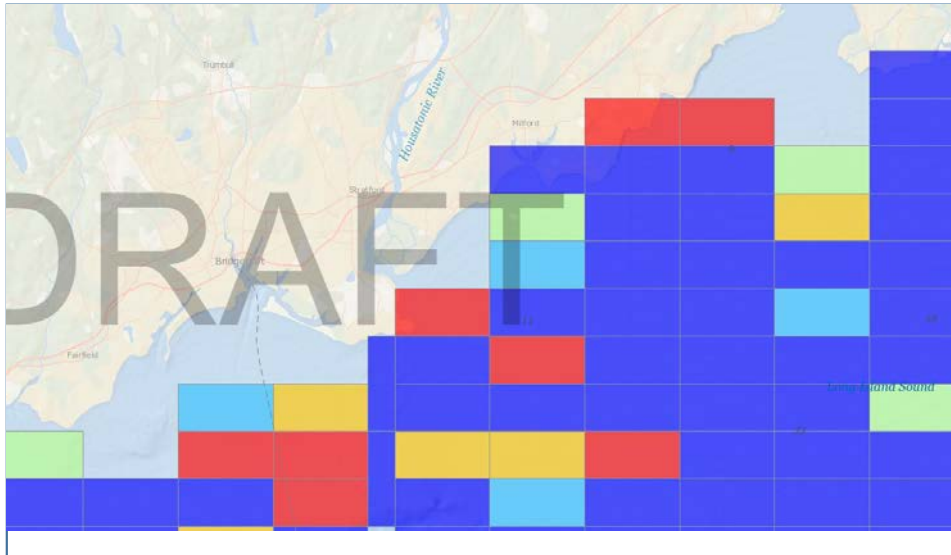
Full Description: http://www.northeastoceandata.org/files/metadata/Themes/Fish/CTTrawl.pdf

Access Instructions: http://www.northeastoceandata.org/data-explorer/?fish (click on sub-menu for "Individual Species," then from the resulting Legend box, scroll all the way to the right and click on the "LIS" tab. From there, use the drop down to select species and time period.)

FISH: Individual Species – Striped Bass Log Biomass

*Species included in the CT DEEP LIS Bottom Trawl dataset are:

alewife (ALW), American lobster (LOB), American shad (ASD), Atlantic croaker (CRO), Atlantic herring (ATH), Atlantic mackerel (MKR), Atlantic menhaden (MEN), Atlantic sturgeon (ATS), bay anchovy (BAY), bigeye scad (BES), black sea bass (BSB), blue runner (BLR), blueback herring (BBH), bluefish (BLF), butterfish (BUT), clearnose skate (CNS), conger eel (CON), crevalle jack (CRJ), cunner (CUN), fourbeard rockling (RCK), fourspot flounder (FSF), gizzard shad (GIZ), glasseye snapper (GLS), hickory shad (HSH), hogchoker (HOG), horseshoe crab (HOR), inshore lizardfish (LIZ), little skate (LSK), longfin squid (SQI), mackerel shad (MSD), moonfish (MOO), northern kingfish (NKF), northern pipefish (PIP), northern puffer (PUF), northern searobin (NSR), northern sennet (NOS), oyster toadfish (TDF), planehead filefish (FIL), red goatfish (RGF), red hake (RED), rough scad (SAU), roughtail stingray (RTS), round herring (RDH), round scad (RDS), scup (PGY), short bigeye (SBE), silver hake (WHI), smallmouth flounder (SMF), smooth dogfish (SMD), Spanish mackerel (SPA), spiny dogfish (SPD), spot (SPT), spotted hake (SPH), striped anchovy (STA), striped bass (STB), striped sea robin (SSR), summer flounder (SFL), tautog (BKF), weakfish (WKF), windowpane (WPF), winter flounder (WFL), winter skate (WSK), yellow jack (YJK).
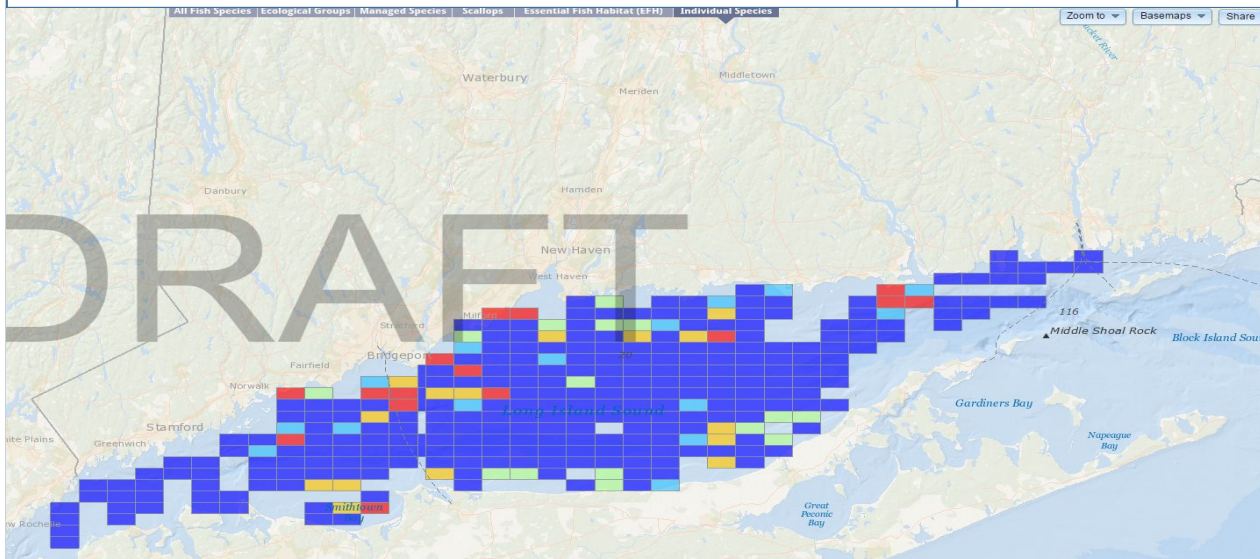
FISH: Individual Species – Striped Bass Mean Log Biomass*

Northeast Ocean Data Portal

Source: CT DEEP Marine Fisheries LIS Bottom Trawl Surveys, Fall 2005 -2014**

*One of 64 datasets totaling 61 individual fish species plus 3 invertebrates (see last page of this summary)
**Additional data exists for time period 1992-2014

FISH: Individual Species – Striped Bass Mean Log Biomass*

Blue Plan Sector(s): Living Resources/Animals/Fish

Summary Description: These data products are derived from fall (September-October) catch distribution data for bottom trawls conducted by the Connecticut Department of Energy and Environmental Protection (CT DEEP) in Long Island Sound aboard the R/V John Dempsey (1992-2014). Data were provided by CT DEEP Marine Fisheries Division for 61 fish species and 3 invertebrates. Only species caught in more than 5 fall tows (1992-2014) are included. The Long Island Sound Trawl Survey is a stratified random survey begun in 1984. Biomass has been recorded since 1992. Survey methodology can be found in Gottschall and Pacileo 2014 and Gottschall et al. 2000.

These data products are based on observed data, not model predictions, for the selected time period.
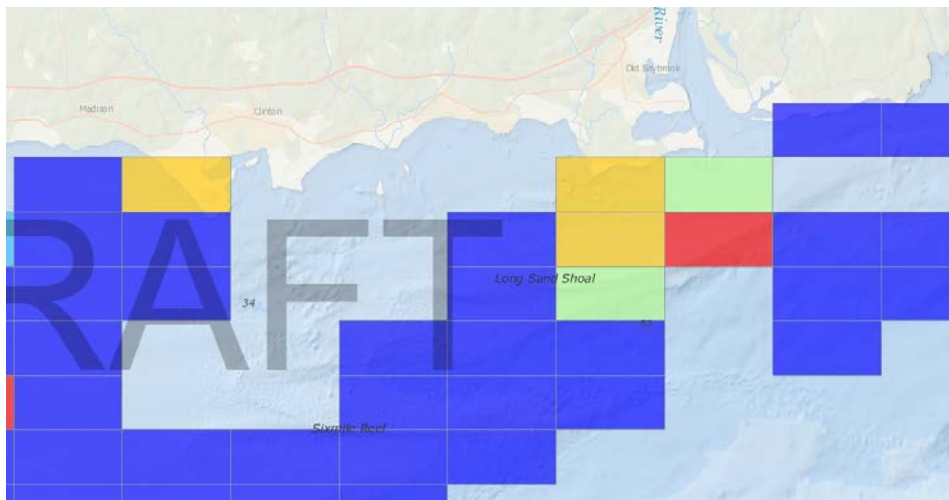
Full Description:
http://www.northeastoceandata.org/files/metadata/Themes/Fish/CTTrawl.pdf

Access Instructions: http://www.northeastoceandata.org/data-explorer/?fish (click on sub-menu for "Individual Species," then from the resulting Legend box, scroll all the way to the right and click on the "LIS" tab. From there, use the drop down to select species and time period.)

FISH: Individual Species – Striped Bass Mean Log Biomass

*Species included in the CT DEEP LIS Bottom Trawl dataset are:

Alewife (ALW), American lobster (LOB), American shad (ASD), Atlantic croaker (CRO), Atlantic herring (ATH), Atlantic mackerel (MKR), Atlantic menhaden (MEN), Atlantic sturgeon (ATS), bay anchovy (BAY), bigeye scad (BES), black sea bass (BSB), blue runner (BLR), blueback herring (BBH), bluefish (BLF), butterfish (BUT), clearnose skate (CNS), conger eel (CON), crevalle jack (CRJ), cunner (CUN), fourbeard rockling (RCK), fourspot flounder (FSF), gizzard shad (GIZ), glasseye snapper (GLS), hickory shad (HSH), hogchoker (HOG), horseshoe crab (HOR), inshore lizardfish (LIZ), little skate (LSK), longfin squid (SQI), mackerel shad (MSD), moonfish (MOO), northern kingfish (NKF), northern pipefish (PIP), northern puffer (PUF), northern searobin (NSR), northern sennet (NOS), oyster toadfish (TDF), planehead filefish (FIL), red goatfish (RGF), red hake (RED), rough scad (SAU), roughtail stingray (RTS), round herring (RDH), round scad (RDS), scup (PGY), short bigeye (SBE), silver hake (WHI), smallmouth flounder (SMF), smooth dogfish (SMD), Spanish mackerel (SPA), spiny dogfish (SPD), spot (SPT), spotted hake (SPH), striped anchovy (STA), striped bass (STB), striped sea robin (SSR), summer flounder (SFL), tautog (BKF), weakfish (WKF), windowpane (WPF), winter flounder (WFL), winter skate (WSK), yellow jack (YJK).
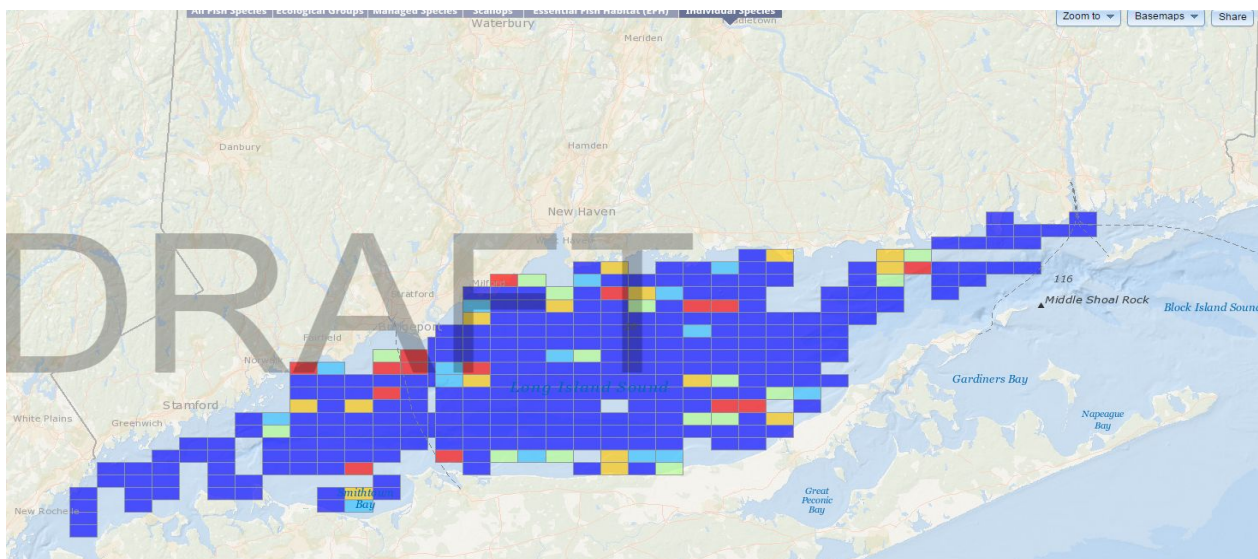
FISH: Individual Species – Striped Bass Variance Log Biomass*

Northeast Ocean Data Portal

Source: CT DEEP Marine Fisheries LIS Bottom Trawl Surveys, Fall 2005 -2014**

*One of 64 datasets totaling 61 individual fish species plus 3 invertebrates (see last page of this summary)
**Additional data exists for time period 1992-2014

FISH: INDIVIDUAL SPECIES

| ◄ | NEAMAP | ME/NH | LIS | ► |

SPECIES

| STRIPED BASS ▼ |

TIME PERIOD

| Fall 2005-2014 ▼ |

DATA TYPE (observed)
○ Log Biomass
○ Mean Log Biomass
◉ Variance of Log Biomass

STRIPED BASS, variance of mean natural log biomass, Fall 2005-2014 ⬈

■	0.000000 - 0.304202
■	0.304203 - 0.453659
■	0.453660 - 0.557504
■	0.557505 - 0.809600
■	0.809601 - 1.993565

FISH: Individual Species – Striped Bass Variance Log Biomass*

Blue Plan Sector(s): Living Resources/Animals/Fish

Summary Description: These data products are derived from fall (September-October) catch distribution data for bottom trawls conducted by the Connecticut Department of Energy and Environmental Protection (CT DEEP) in Long Island Sound aboard the R/V John Dempsey (1992-2014). Data were provided by CT DEEP Marine Fisheries Division for 61 fish species and 3 invertebrates. Only species caught in more than 5 fall tows (1992-2014) are included. The Long Island Sound Trawl Survey is a stratified random survey begun in 1984. Biomass has been recorded since 1992. Survey methodology can be found in Gottschall and Pacileo 2014 and Gottschall et al. 2000.

These data products are based on observed data, not model predictions, for the selected time period.

Full Description:
http://www.northeastoceandata.org/files/metadata/Themes/Fish/CTTrawl.pdf

Access Instructions: http://www.northeastoceandata.org/data-explorer/?fish (click on sub-menu for "Individual Species," then from the resulting Legend box, scroll all the way to the right and click on the "LIS" tab. From there, use the drop down to select species and time period.)

# FISH: Individual Species – Striped Bass Variance Log Biomass

*Species included in the CT DEEP LIS Bottom Trawl dataset are:

Alewife (ALW), American lobster (LOB), American shad (ASD), Atlantic croaker (CRO), Atlantic herring (ATH), Atlantic mackerel (MKR), Atlantic menhaden (MEN), Atlantic sturgeon (ATS), bay anchovy (BAY), bigeye scad (BES), black sea bass (BSB), blue runner (BLR), blueback herring (BBH), bluefish (BLF), butterfish (BUT), clearnose skate (CNS), conger eel (CON), crevalle jack (CRJ), cunner (CUN), fourbeard rockling (RCK), fourspot flounder (FSF), gizzard shad (GIZ), glasseye snapper (GLS), hickory shad (HSH), hogchoker (HOG), horseshoe crab (HOR), inshore lizardfish (LIZ), little skate (LSK), longfin squid (SQI), mackerel shad (MSD), moonfish (MOO), northern kingfish (NKF), northern pipefish (PIP), northern puffer (PUF), northern searobin (NSR), northern sennet (NOS), oyster toadfish (TDF), planehead filefish (FIL), red goatfish (RGF), red hake (RED), rough scad (SAU), roughtail stingray (RTS), round herring (RDH), round scad (RDS), scup (PGY), short bigeye (SBE), silver hake (WHI), smallmouth flounder (SMF), smooth dogfish (SMD), Spanish mackerel (SPA), spiny dogfish (SPD), spot (SPT), spotted hake (SPH), striped anchovy (STA), striped bass (STB), striped sea robin (SSR), summer flounder (SFL), tautog (BKF), weakfish (WKF), windowpane (WPF), winter flounder (WFL), winter skate (WSK), yellow jack (YJK).

LISEA – Sufficiently Sampled Cells

Conservation Gateway

Source: The Nature Conservancy Long Island Sound Ecological Assessment
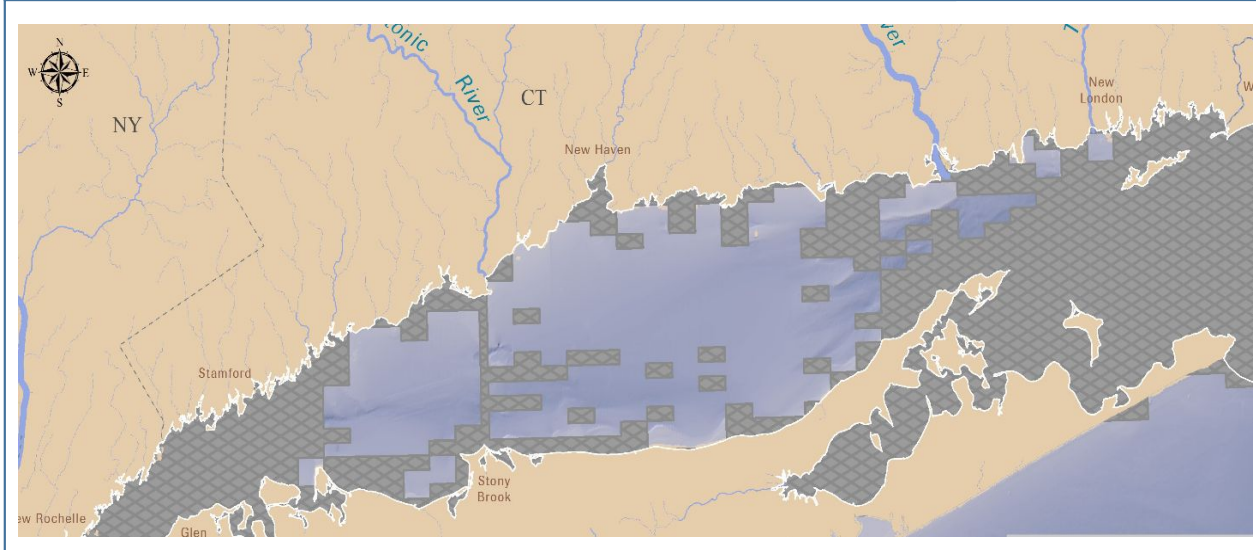
Insufficiently Sampled
(fewer than two octads sampled in spring trawl)

LISEA – Sufficiently Sampled Cells

Blue Plan Sector(s): Living Resources/Animals/Fish

Summary Description: The Long Island Trawl Survey conducted by CTDEEP forms the foundation of the species based persistance analysis. Individual trawl survey points do not overlap exactly from year to year. Thus, in order to calculate temporal trends in abundance and persistence we adopted the CT DEEP grid of 1X2 minute rectangles as our sampling unit. Each rectangle contains multiple survey points covering a range of years. We grouped the data into eight or nine year time intervals (octads) to allow for a robust analysis of persistence trends over time. This was necessary because not all cells were sampled in every year, and species differ in their detectability. We found that using the octad grouping ensured that most cells contained at least one survey point from each time period (1984-1992, 1993-2001, and 2002-2009). Cells were coded based on whether the cell was sampled in a given time period.

Full Description: metadata contained with downloadable GIS data or via reports at project URL below (layer = sampling_effort)

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 – Alewife Persistence

Conservation Gateway

Source: The Nature Conservancy Long Island Sound Ecological Assessment
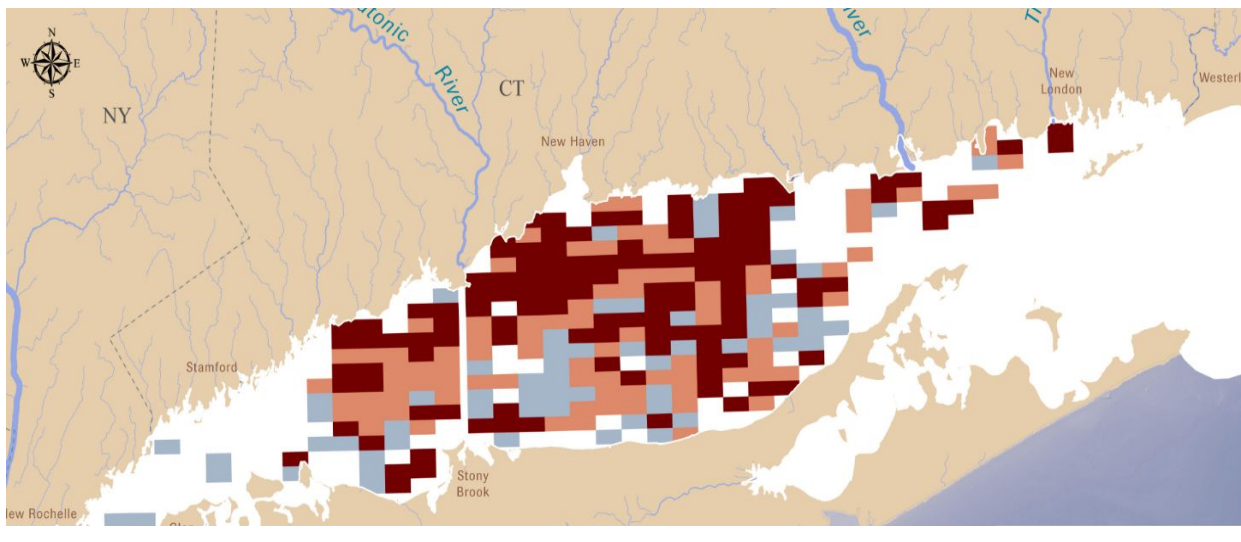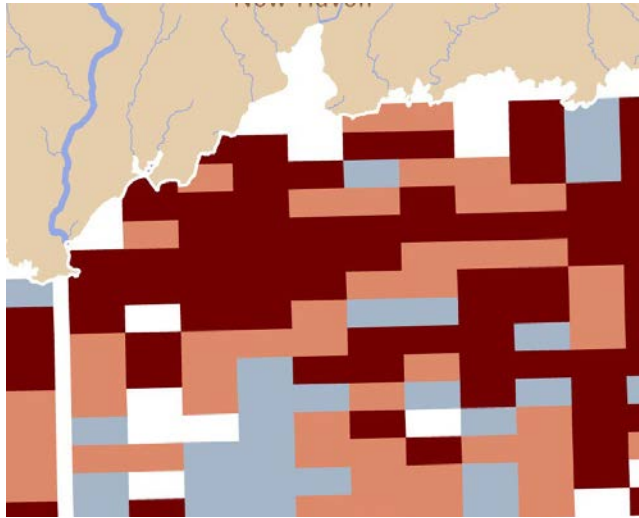
Detected in 1 Time Period
Detected in 2 Time Periods
Detected in 3 Time Periods*

*or detected with high frequency in 2 time periods when a cell was only sampled in 2

LONG ISLAND SOUND
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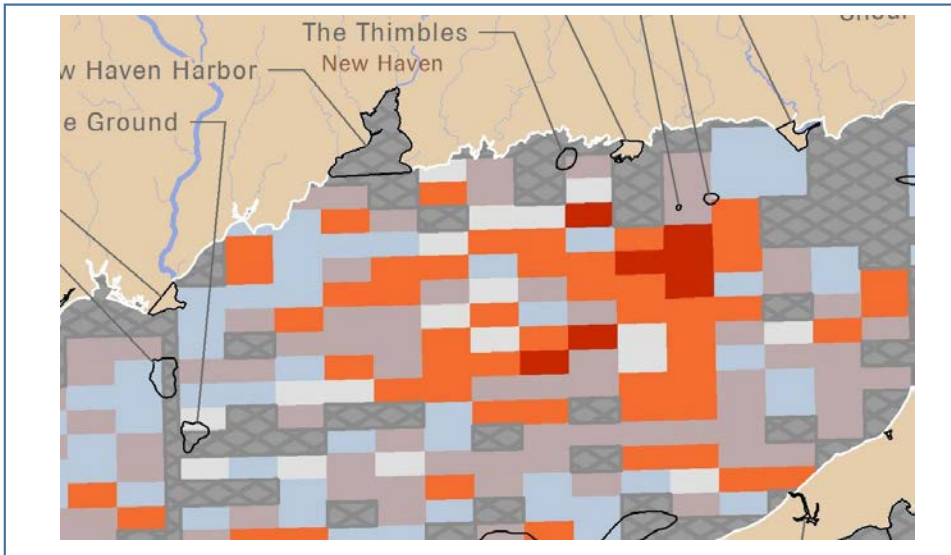- Compatible Uses

LISEA – Alewife Persistence

Blue Plan Sector(s): Living Resources/Animals/Fish

Summary Description: The weighted persistence metric was developed to address the following question regarding the distribution of specific fish and invertebrate species relative to places in Long Island Sound: Where has the species been consistently found over time (persistence)? Where in Long Island Sound has the species been found with high frequency relative to survey effort (weighting of persistence)? The Long Island Sound Trawl survey was analysed to determine the distribution of species through time in the sound. Weighted persistence is reported for each 1x2 minute square for each of the target species. Weighted persistence is a calculation involving two variables: persistence (the integer value) and a weighting score (the tenths decimal). The persistence value describes the number of time periods (octads) that the species was detected in a given cell, with a maximum value of three. The weighting score is a measure of frequency of detection within the time periods relative to the expected value based on survey effort. Data set is an example of a species-specific data analysis.

Full Description: metadata contained with downloadable GIS data or via reports at project URL below (layer = Cell_Species_data)
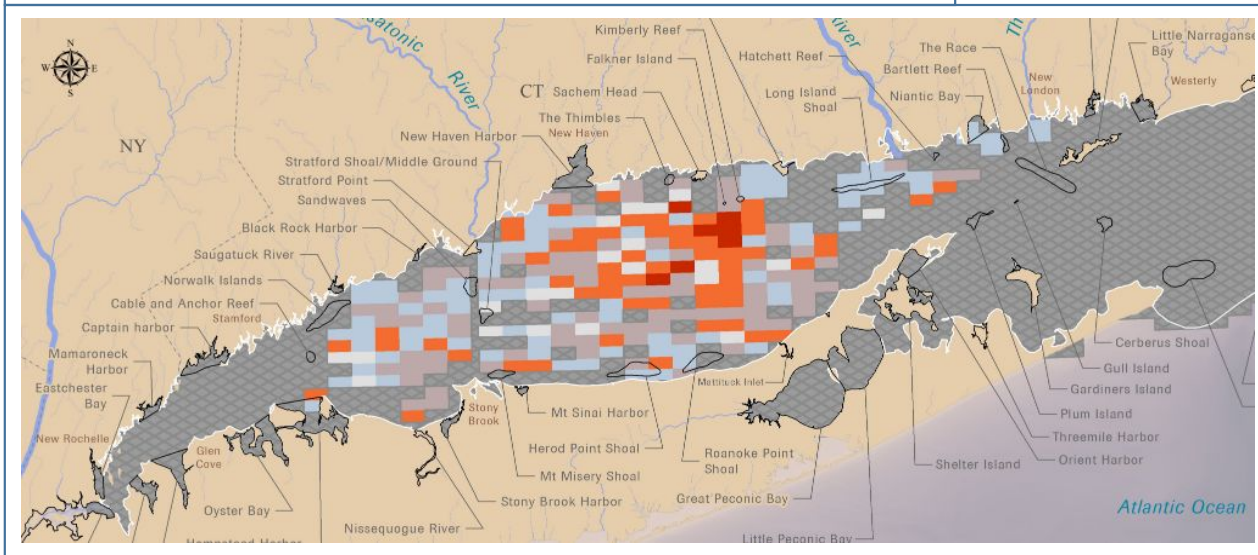
Access Instructions: Not currently available via map portal; images can be accessed at https://www.conservationgateway.org/ConservationByGeography/NorthAmerica/UnitedStates/edc/reportsdata/marine/namera/lis/Pages/default.aspx
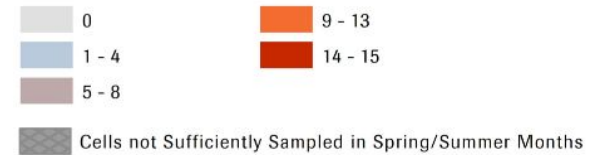
LISEA – Demersal Fish Weighted Persistence

Conservation Gateway

Source: The Nature Conservancy Long Island Sound Ecological Assessment

Weighted Persistence - Demersal Fish

Number of Species (of 59) with High WP

- 0
- 1 - 4
- 5 - 8
- 9 - 13
- 14 - 15
- Cells not Sufficiently Sampled in Spring/Summer Months

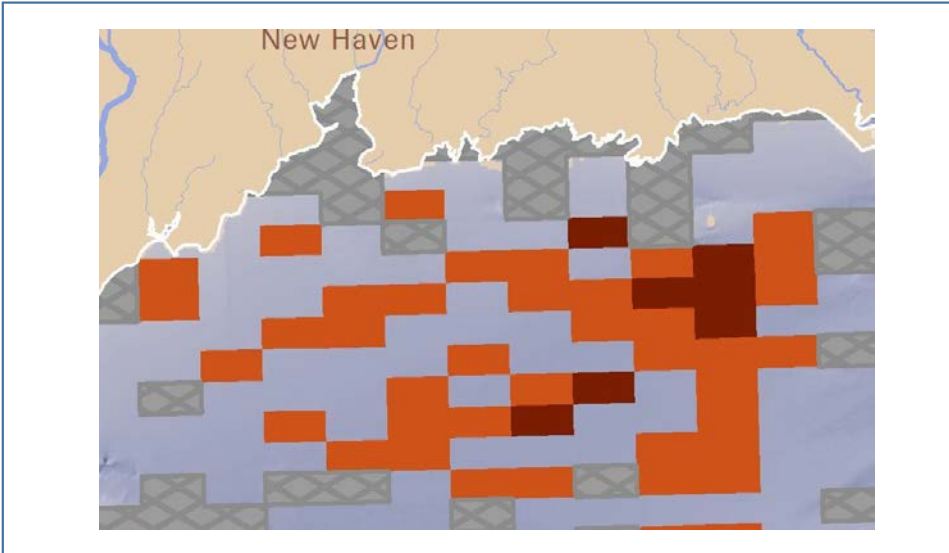# LISEA – Demersal Fish Weighted Persistence

Blue Plan Sector(s): Living Resources/Animals/Fish

Summary Description: The weighted persistence score highlights places that have been conistently been used by a number of species. The implication is that these places contain valuable habitat or are otherwise important to species survival and production. The weighted persistence score maps the locations where each species has been found consistently over time. The count of species with high weighted persistence scores maps thse places that have consistently supported the most species of a given type consistently over time. These values have been standardized to allow direct comparison between species groups. CTDEEP trawl data were used to calculate weighted persistence scores for 114 species of fish and intertebrates. A score greater than 3.5 indicates that a species has been consistently found (3 of 3 time periods) at a rate higher than expected based on survey effort. The species were then grouped into categories based on general life history characteristics (pelagic, demersal, diadromous, and invertebrates). The count of species with high weighted persistence values (>3.5) was tallied for each group. That value was normalized based on the distribution of count values among locations for each group.

Full Description: metadata contained with downloadable GIS data or via reports at project URL below (layer = WP_demersal_Species_standardized)

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
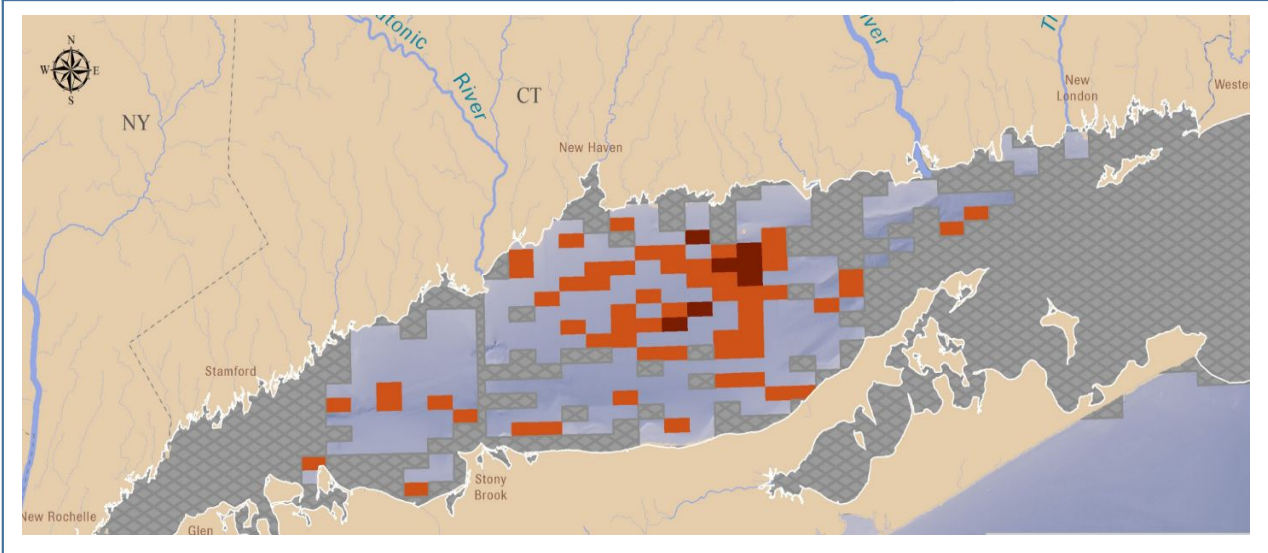
LISEA – Demersal Fish High Weighted Persistence

Conservation Gateway

Source: The Nature Conservancy Long Island Sound Ecological Assessment

Demersal Fish - (9 - 13 species with high WP)

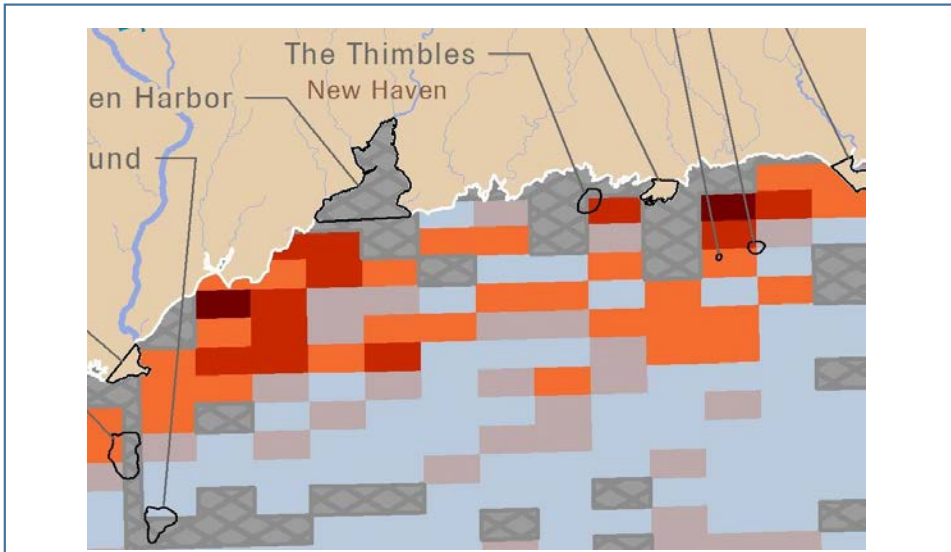Demersal Fish - (14-15 species with high WP)

Insufficiently Sampled

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LISEA – Demersal Fish High Weighted Persistence

Blue Plan Sector(s): Living Resources/Animals/Fish

Summary Description: The weighted persistence score highlights places that have been conistently been used by a number of species. The implication is that these places contain valuable habitat or are otherwise important to species survival and production. The weighted persistence score maps the locations where each species has been found consistently over time. The count of species with high weighted persistence scores maps thse places that have consistently supported the most species of a given type consistently over time. These values have been standardized to allow direct comparison between species groups. CTDEEP trawl data were used to calculate weighted persistence scores for 114 species of fish and intertebrates. A score greater than 3.5 indicates that a species has been consistently found (3 of 3 time periods) at a rate higher than expected based on survey effort. The species were then grouped into categories based on general life history characteristics (pelagic, demersal, diadromous, and invertebrates). The count of species with high weighted persistence values (>3.5) was tallied for each group. That value was normalized based on the distribution of count values among locations for each group. Focuses on "high" persistence areas.

Full Description: metadata contained with downloadable GIS data or via reports at project URL below (layer = WP_demersal_Species_standardized)
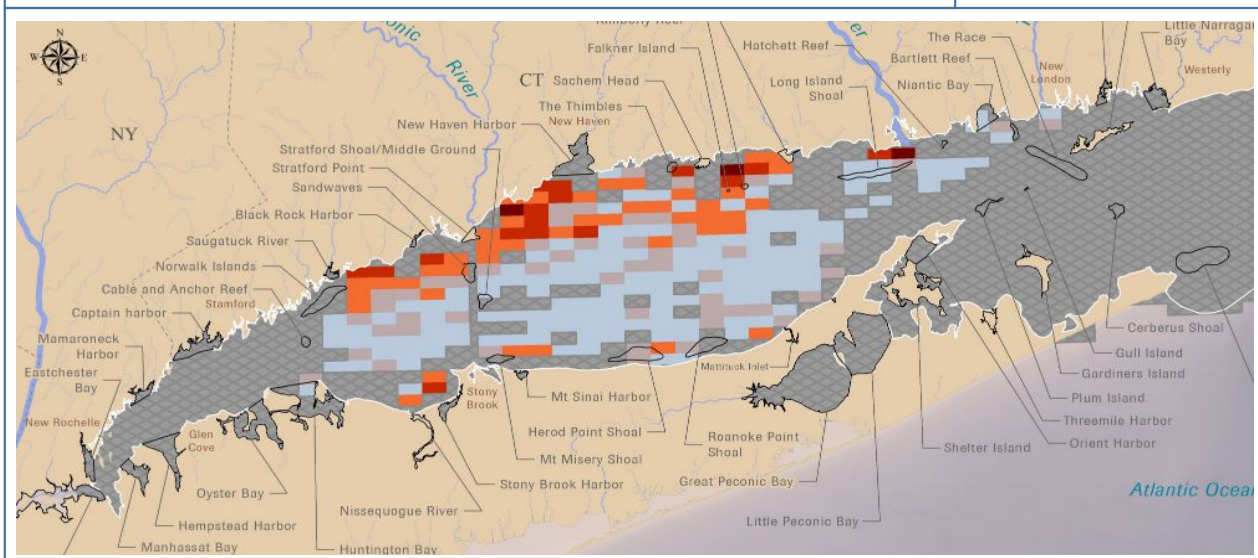
Access Instructions: Not currently available via map portal; images can be accessed at
https://www.conservationgateway.org/ConservationByGeography/NorthAmerica/UnitedStates/edc/reportsdata/marine/namera/lis/Pages/default.aspx
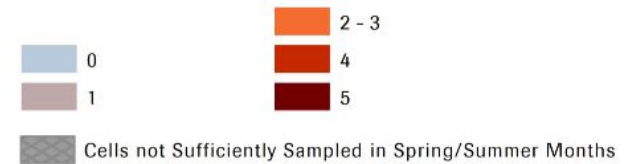
LISEA – Diadromous Fish Weighted Persistence

Conservation Gateway

Source: The Nature Conservancy Long Island Sound Ecological Assessment

LISEA – Diadromous Fish Weighted Persistence

Blue Plan Sector(s): Living Resources/Animals/Fish

Summary Description: The weighted persistence score highlights places that have been conistently been used by a number of species. The implication is that these places contain valuable habitat or are otherwise important to species survival and production. The weighted persistence score maps the locations where each species has been found consistently over time. The count of species with high weighted persistence scores maps thse places that have consistently supported the most species of a given type consistently over time. These values have been standardized to allow direct comparison between species groups. CTDEEP trawl data were used to calculate weighted persistence scores for 114 species of fish and intertebrates. A score greater than 3.5 indicates that a species has been consistently found (3 of 3 time periods) at a rate higher than expected based on survey effort. The species were then grouped into categories based on general life history characteristics (pelagic, demersal, diadromous, and invertebrates). The count of species with high weighted persistence values (>3.5) was tallied for each group. That value was normalized based on the distribution of count values among locations for each group.
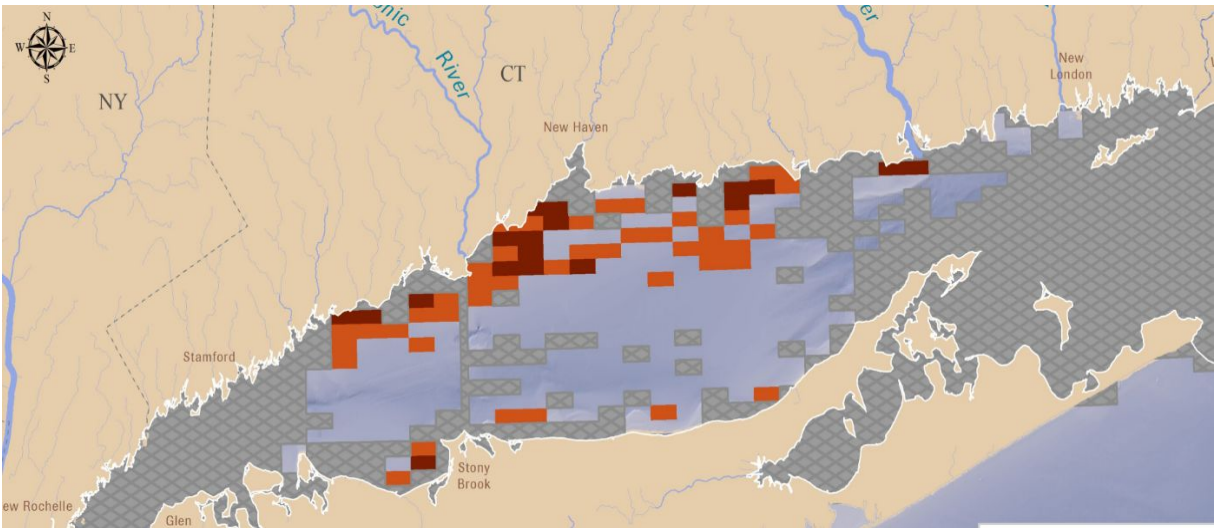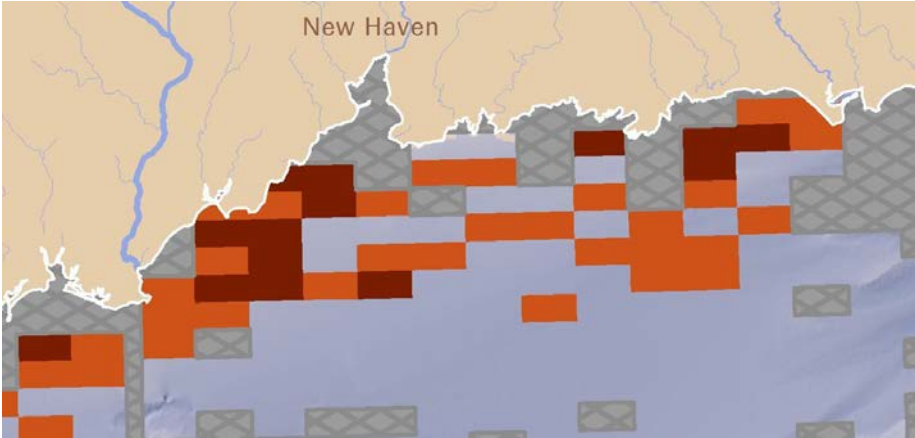
Full Description: metadata contained with downloadable GIS data or via reports at project URL below (layer = WP_demersal_Species_standardized)

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 – Diadromous Fish High Weighted Persistence

Conservation Gateway

Source: The Nature Conservancy Long Island Sound Ecological Assessment

Diadromous Fish - (2-3 species with high WP)
Diadromous Fish - (4-5 species with high WP)
Insufficiently Sampled

LISEA – Diadromous Fish High Weighted Persistence

Blue Plan Sector(s): Living Resources/Animals/Fish

Summary Description: The weighted persistence score highlights places that have been conistently been used by a number of species. The implication is that these places contain valuable habitat or are otherwise important to species survival and production. The weighted persistence score maps the locations where each species has been found consistently over time. The count of species with high weighted persistence scores maps thse places that have consistently supported the most species of a given type consistently over time. These values have been standardized to allow direct comparison between species groups. CTDEEP trawl data were used to calculate weighted persistence scores for 114 species of fish and intertebrates. A score greater than 3.5 indicates that a species has been consistently found (3 of 3 time periods) at a rate higher than expected based on survey effort. The species were then grouped into categories based on general life history characteristics (pelagic, demersal, diadromous, and invertebrates). The count of species with high weighted persistence values (>3.5) was tallied for each group. That value was normalized based on the distribution of count values among locations for each group. Focuses on areas with "high" persistence.
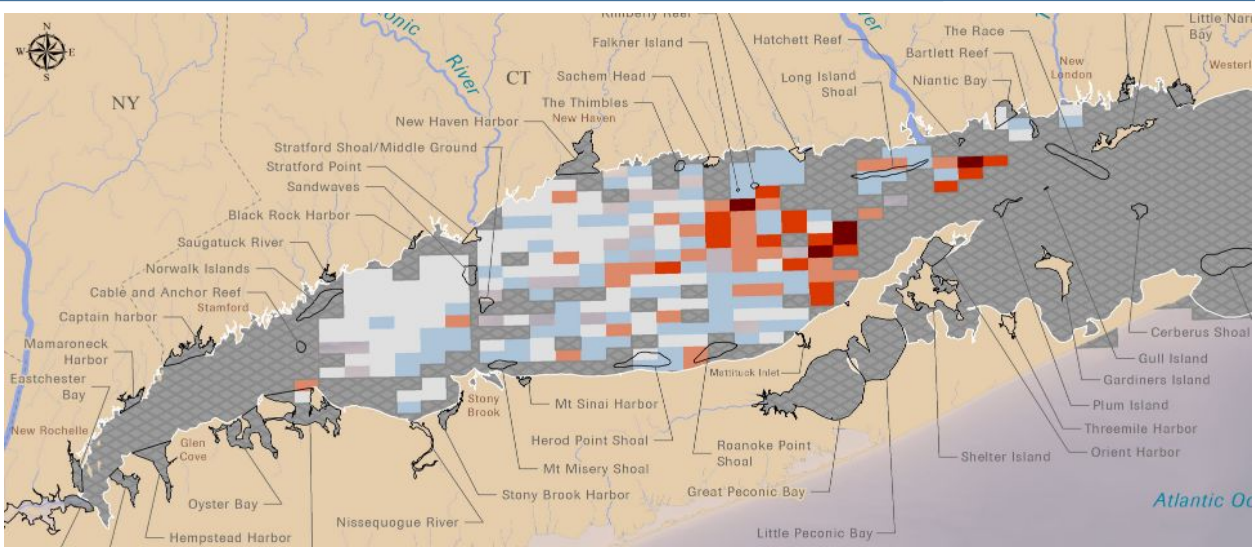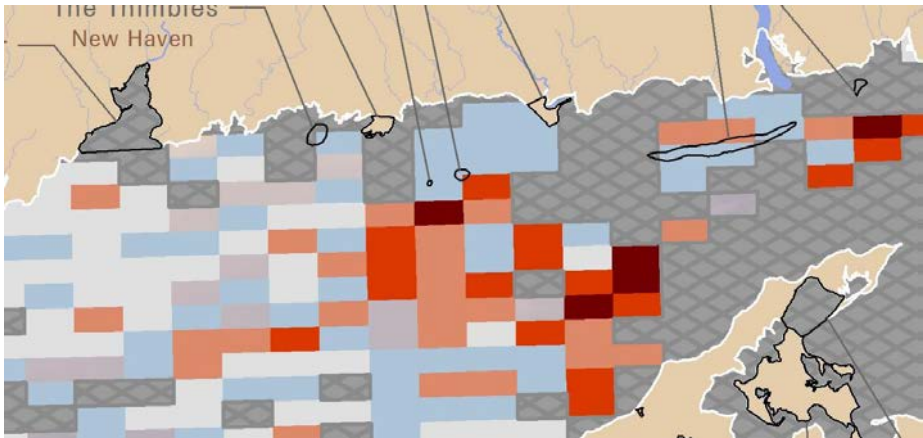
Full Description: metadata contained with downloadable GIS data or via reports at project URL below (layer = WP_demersal_Species_standardized)

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

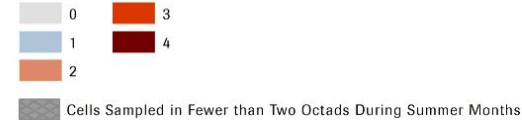# LISEA – Elasmobranch Weighted Persistence

Conservation Gateway

Source: The Nature Conservancy Long Island Sound Ecological Assessment

Demersal Functional Groups - Elasmobranchs

Number Elasmobranchs (of 7) with a High Weighted Persistence Score

- 0
- 1
- 2
- 3
- 4

Cells Sampled in Fewer than Two Octads During Summer Months

LISEA – Elasmobranch Weighted Persistence

Blue Plan Sector(s): Living Resources/Animals/Fish

Summary Description: The weighted persistence metric was developed to address the following question regarding the distribution of specific fish and invertebrate species relative to places in Long Island Sound: Where has the species been consistently found over time (persistence)? Where in Long Island Sound has the species been found with high frequency relative to survey effort (weighting of persistence)? Weighted persistence scores were calculated for all demersal fish species. These species were then grouped by similar taxonomy or life history into the following categories: elasmobranchs, gadids, pleuronectids, structure oriented, or other. The number of species in each group with a high (>3.5) weighted persistence score was then counted.
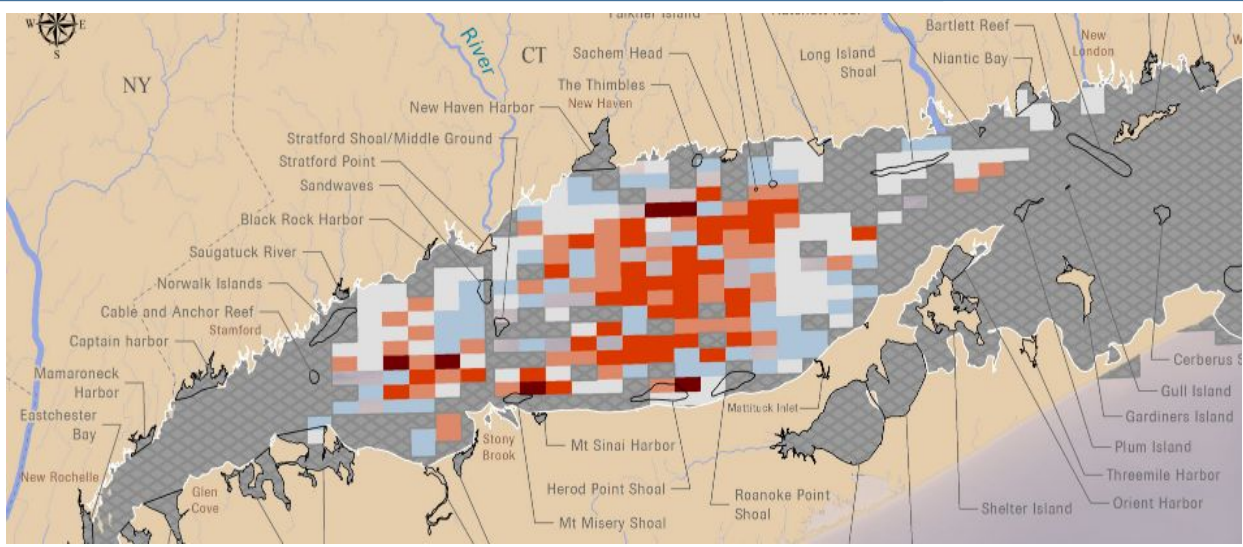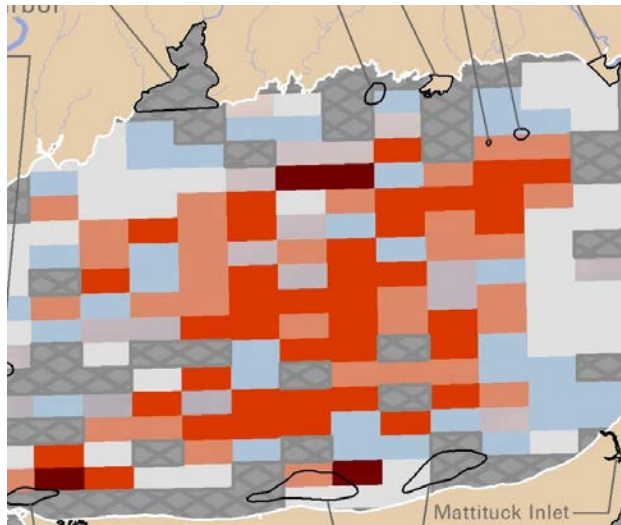
Full Description: metadata contained with downloadable GIS data or via reports at project URL below (layer = WP_demersal_Species_subgroups)

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

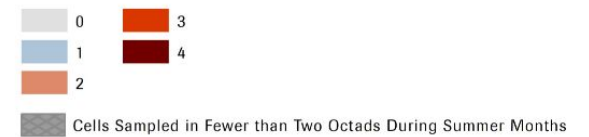# LISEA – Gaddid Weighted Persistence

Conservation Gateway

Source: The Nature Conservancy Long Island Sound Ecological Assessment

Demersal Functional Groups - Gaddids

Number Gaddids (of 7) with a High Weighted Persistence Score

- 0
- 1
- 2
- 3
- 4

Cells Sampled in Fewer than Two Octads During Summer Months

LISEA – Gaddid Weighted Persistence

Blue Plan Sector(s): Living Resources/Animals/Fish

Summary Description: The weighted persistence metric was developed to address the following question regarding the distribution of specific fish and invertebrate species relative to places in Long Island Sound: Where has the species been consistently found over time (persistence)? Where in Long Island Sound has the species been found with high frequency relative to survey effort (weighting of persistence)? Weighted persistence scores were calculated for all demersal fish species. These species were then grouped by similar taxonomy or life history into the following categories: elasmobranchs, gadids, pleuronectids, structure oriented, or other. The number of species in each group with a high (>3.5) weighted persistence score was then counted.
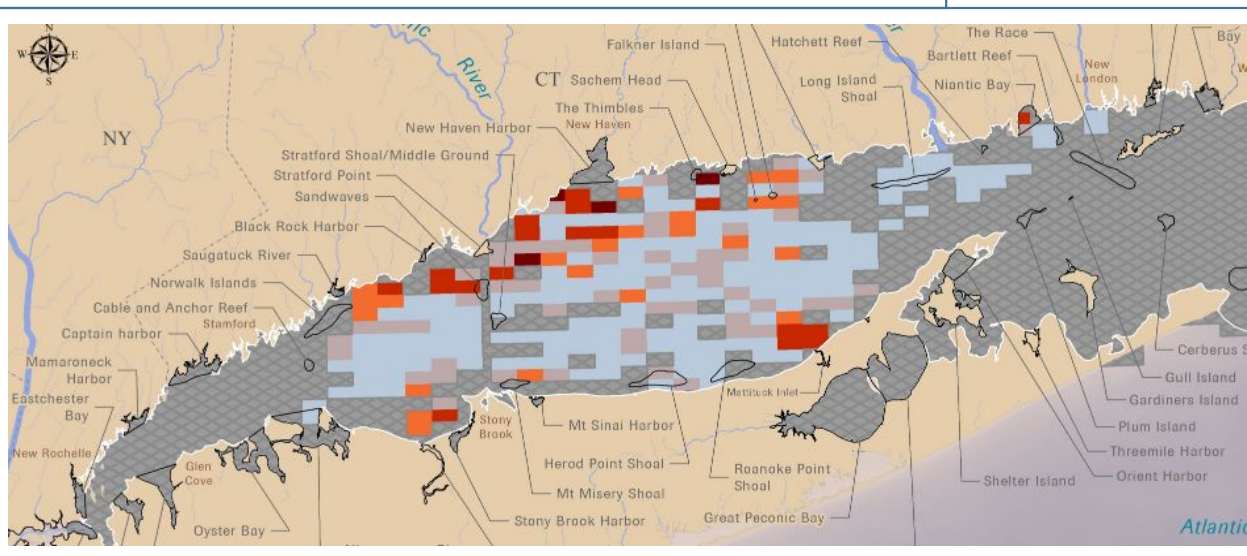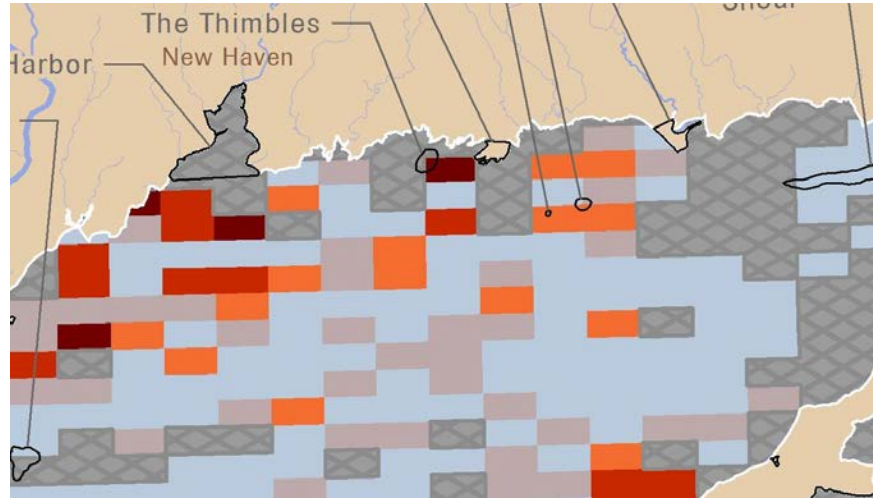
Full Description: metadata contained with downloadable GIS data or via reports at project URL below (layer = WP_demersal_Species_subgroups)

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 – Pelagic Fish Weighted Persistence
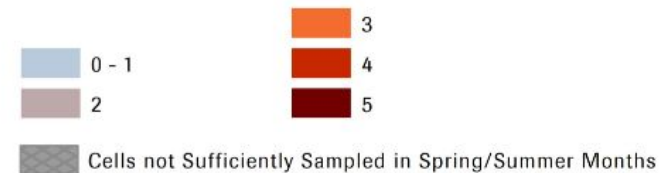
Conservation Gateway

Source: The Nature Conservancy Long Island Sound Ecological Assessment

Weighted Persistence - Pelagic Fish

Number of Species (of 23) with High WP

0 - 1	3
2	4
	5

Cells not Sufficiently Sampled in Spring/Summer Months

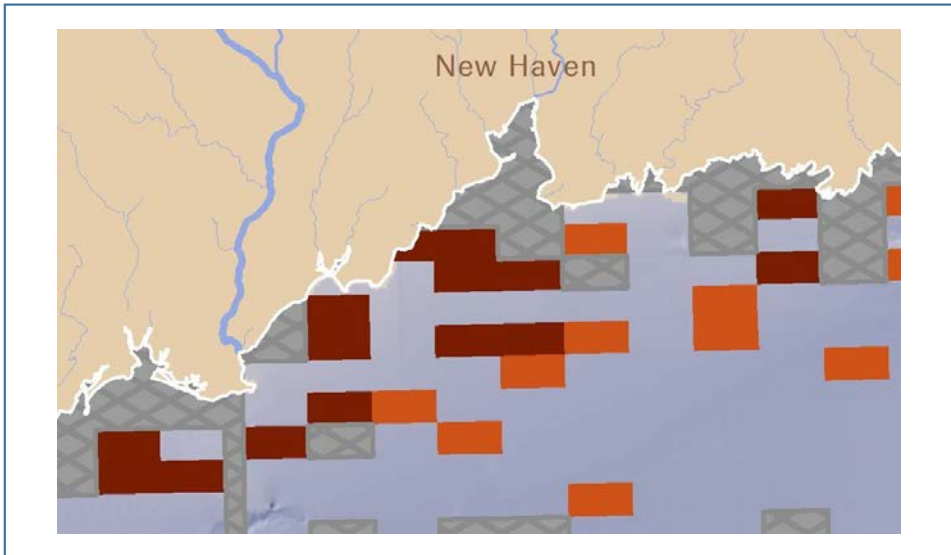# LISEA – Pelagic Fish Weighted Persistence

Blue Plan Sector(s): Living Resources/Animals/Fish

Summary Description: The weighted persistence score highlights places that have been conistently been used by a number of species. The implication is that these places contain valuable habitat or are otherwise important to species survival and production. The weighted persistence score maps the locations where each species has been found consistently over time. The count of species with high weighted persistence scores maps thse places that have consistently supported the most species of a given type consistently over time. These values have been standardized to allow direct comparison between species groups. CTDEEP trawl data were used to calculate weighted persistence scores for 114 species of fish and intertebrates. A score greater than 3.5 indicates that a species has been consistently found (3 of 3 time periods) at a rate higher than expected based on survey effort. The species were then grouped into categories based on general life history characteristics (pelagic, demersal, diadromous, and invertebrates). The count of species with high weighted persistence values (>3.5) was tallied for each group. That value was normalized based on the distribution of count values among locations for each group.

Full Description: metadata contained with downloadable GIS data or via reports at project URL below (layer = WP_demersal_Species_standardized)

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 – Pelagic Fish High Weighted Persistence

Conservation Gateway

Source: The Nature Conservancy Long Island Sound Ecological Assessment

Legend:
- Pelagic Fish - (3 species with high WP)
- Pelagic Fish - (4-5 species with high WP)
- Insufficiently Sampled

LONG ISLAND SOUND
BLUE PLAN
Sustainable Ecosystems
- Compatible Uses

LISEA – Pelagic Fish High Weighted Persistence

Blue Plan Sector(s): Living Resources/Animals/Fish

Summary Description: The weighted persistence score highlights places that have been conistently been used by a number of species. The implication is that these places contain valuable habitat or are otherwise important to species survival and production. The weighted persistence score maps the locations where each species has been found consistently over time. The count of species with high weighted persistence scores maps thse places that have consistently supported the most species of a given type consistently over time. These values have been standardized to allow direct comparison between species groups. CTDEEP trawl data were used to calculate weighted persistence scores for 114 species of fish and intertebrates. A score greater than 3.5 indicates that a species has been consistently found (3 of 3 time periods) at a rate higher than expected based on survey effort. The species were then grouped into categories based on general life history characteristics (pelagic, demersal, diadromous, and invertebrates). The count of species with high weighted persistence values (>3.5) was tallied for each group. That value was normalized based on the distribution of count values among locations for each group. Focuses on areas with "high" persistence.

Full Description: metadata contained with downloadable GIS data or via reports at project URL below (layer = WP_demersal_Species_standardized)
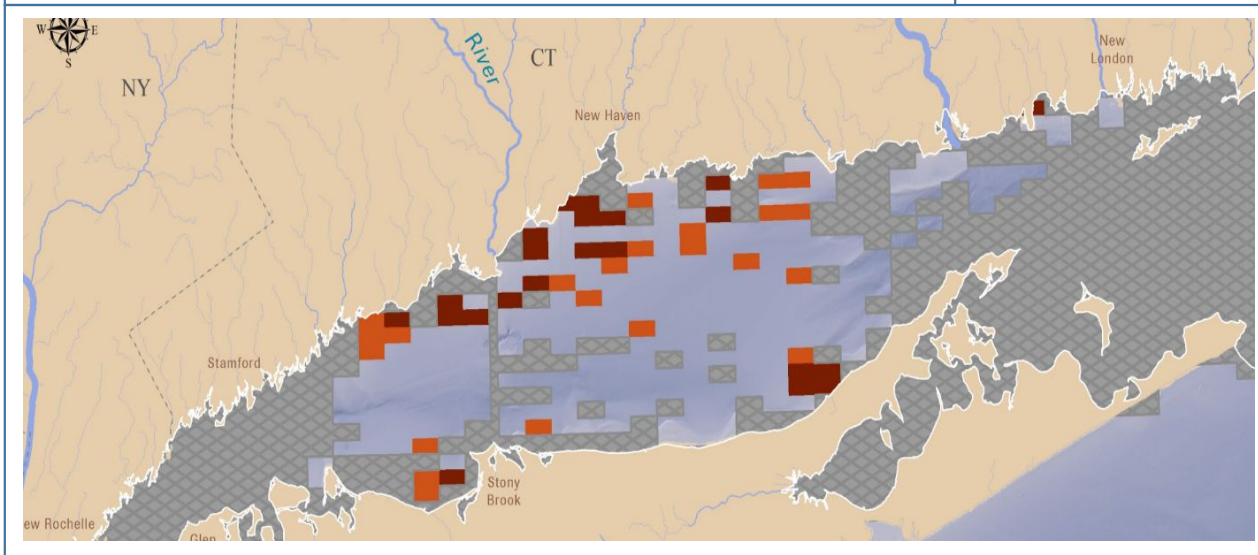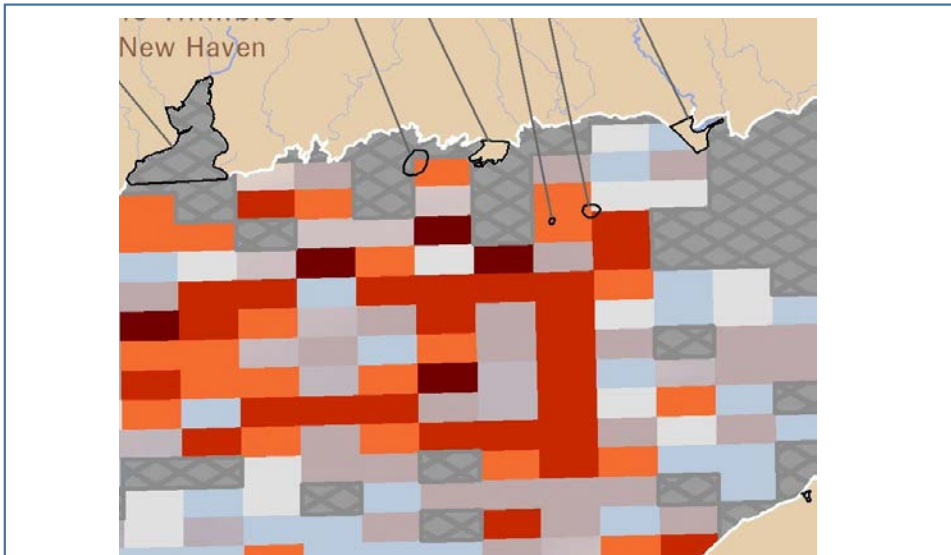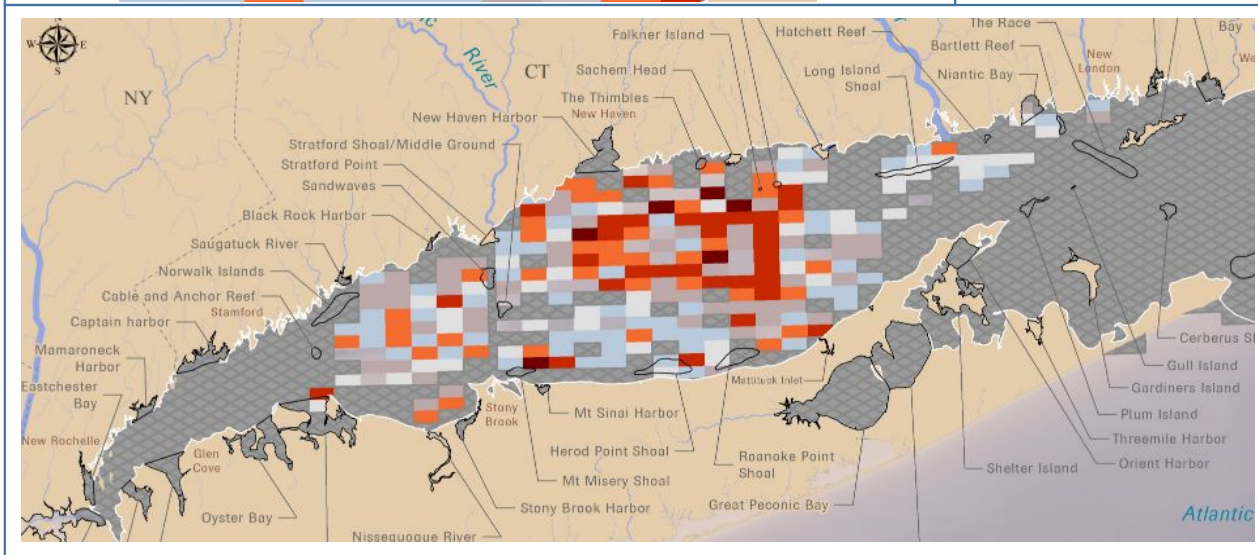
Access Instructions: Not currently available via map portal; images can be accessed at https://www.conservationgateway.org/ConservationByGeography/NorthAmerica/UnitedStates/edc/reportsdata/marine/namera/lis/Pages/default.aspx

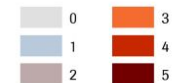# LISEA – Pleuronectid Weighted Persistence

Conservation Gateway

Source: The Nature Conservancy Long Island Sound Ecological Assessment

Demersal Functional Groups - Pleuronectids

Number Pleuronectids (of 7) with a High Weighted Persistence Score

- 0
- 1
- 2
- 3
- 4
- 5

Cells Sampled in Fewer than Two Octads During Summer Months

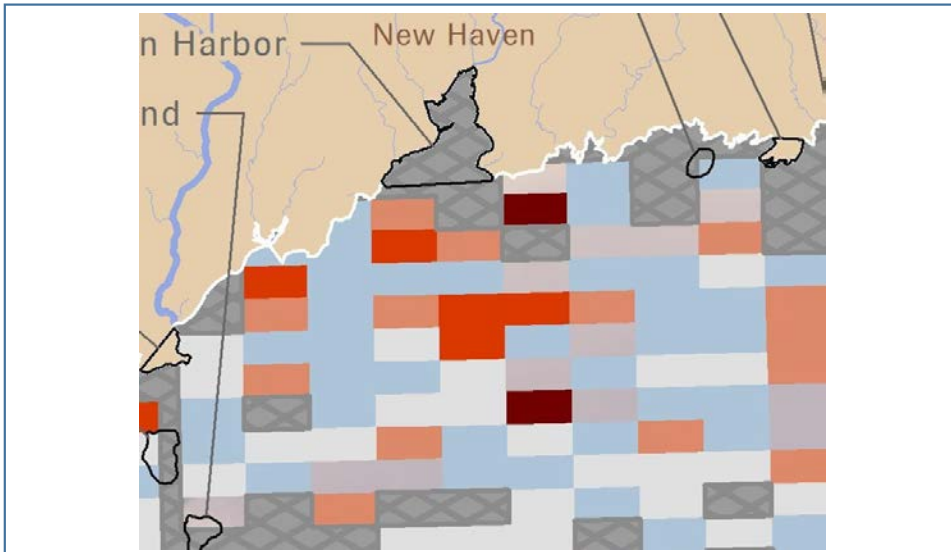# LISEA – Pleuronectid Weighted Persistence

Blue Plan Sector(s): Living Resources/Animals/Fish

Summary Description: The weighted persistence metric was developed to address the following question regarding the distribution of specific fish and invertebrate species relative to places in Long Island Sound: Where has the species been consistently found over time (persistence)? Where in Long Island Sound has the species been found with high frequency relative to survey effort (weighting of persistence)? Weighted persistence scores were calculated for all demersal fish species. These species were then grouped by similar taxonomy or life history into the following categories: elasmobranchs, gadids, pleuronectids, structure oriented, or other. The number of species in each group with a high (>3.5) weighted persistence score was then counted.

Full Description: metadata contained with downloadable GIS data or via reports at project URL below (layer = WP_demersal_Species_subgroups)

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 – Structure Oriented Fish Weighted Persistence
Conservation Gateway

Source: The Nature Conservancy Long Island Sound Ecological Assessment

Demersal Funcional Groups - Structure Oriented Fish

Number of Structure Oriented Fish Species (of 6) with a High Weighted Persistence Score

0   3
1   4
2

Cells Sampled in Fewer than Two Octads During Summer Months

LISEA – Structure Oriented Fish Weighted Persistence

Blue Plan Sector(s): Living Resources/Animals/Fish

Summary Description: The weighted persistence metric was developed to address the following question regarding the distribution of specific fish and invertebrate species relative to places in Long Island Sound: Where has the species been consistently found over time (persistence)? Where in Long Island Sound has the species been found with high frequency relative to survey effort (weighting of persistence)? Weighted persistence scores were calculated for all demersal fish species. These species were then grouped by similar taxonomy or life history into the following categories: elasmobranchs, gadids, pleuronectids, structure oriented, or other. The number of species in each group with a high (>3.5) weighted persistence score was then counted.
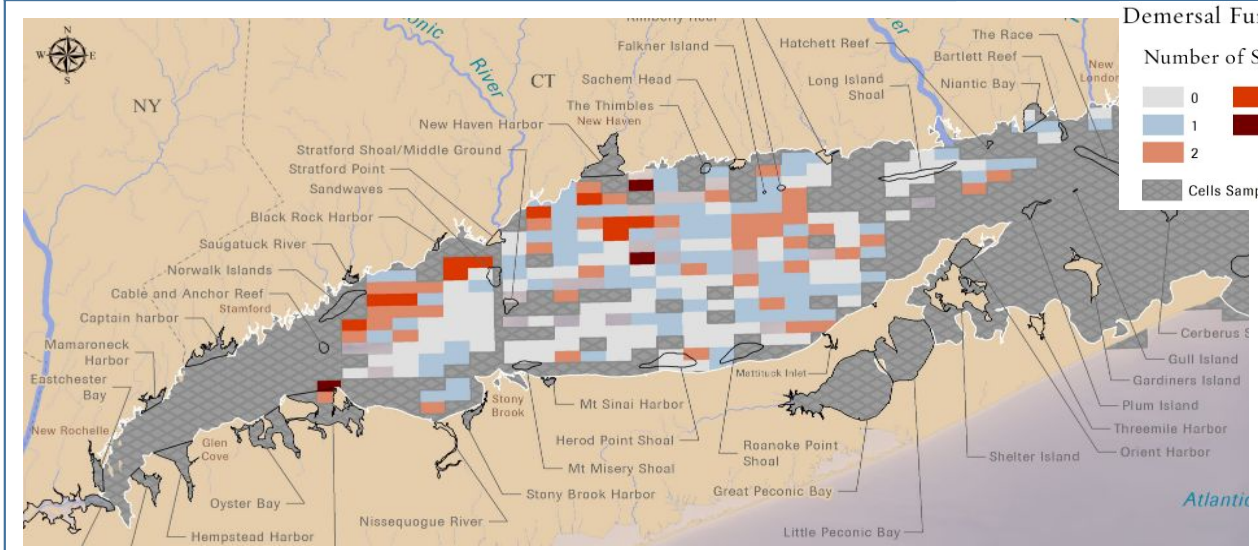
Full Description: metadata contained with downloadable GIS data or via reports at project URL below (layer = WP_demersal_Species_subgroups)

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
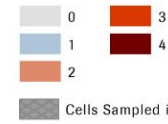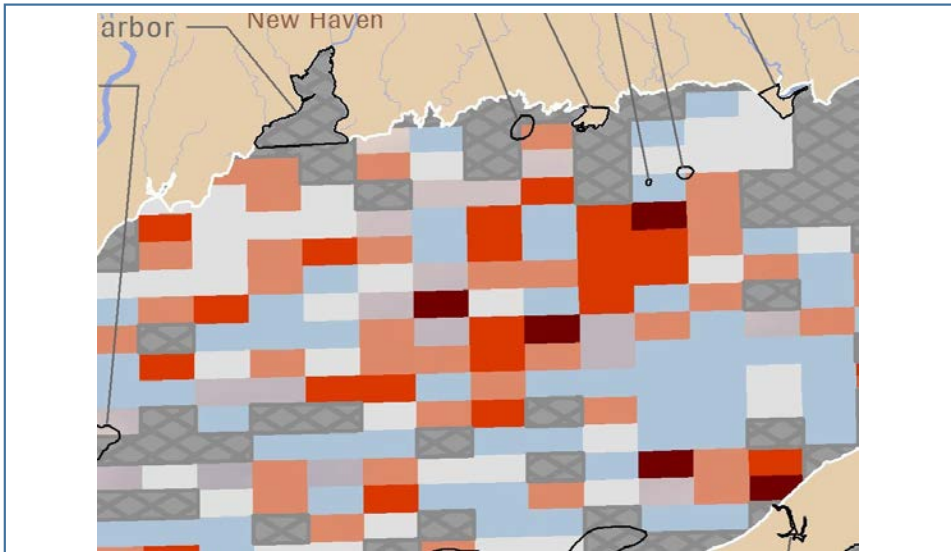
LISEA – Miscellaneous Fish Weighted Persistence

Conservation Gateway

Source: The Nature Conservancy Long Island Sound Ecological Assessment

Demersal Functional Groups - Miscellaneous Fish
Number Miscellaneous Fish Species (of 32) with a High Weighted Persistence Score

- 0
- 1
- 2
- 3
- 4
- Cells Sampled in Fewer than Two Octads During Summer Months

LISEA – Miscellaneous Fish Weighted Persistence

Blue Plan Sector(s): Living Resources/Animals/Fish

Summary Description: The weighted persistence metric was developed to address the following question regarding the distribution of specific fish and invertebrate species relative to places in Long Island Sound: Where has the species been consistently found over time (persistence)? Where in Long Island Sound has the species been found with high frequency relative to survey effort (weighting of persistence)? Weighted persistence scores were calculated for all demersal fish species. These species were then grouped by similar taxonomy or life history into the following categories: elasmobranchs, gadids, pleuronectids, structure oriented, or other. The number of species in each group with a high (>3.5) weighted persistence score was then counted.

Full Description: metadata contained with downloadable GIS data or via reports at project URL below (layer = WP_demersal_Species_subgroups)
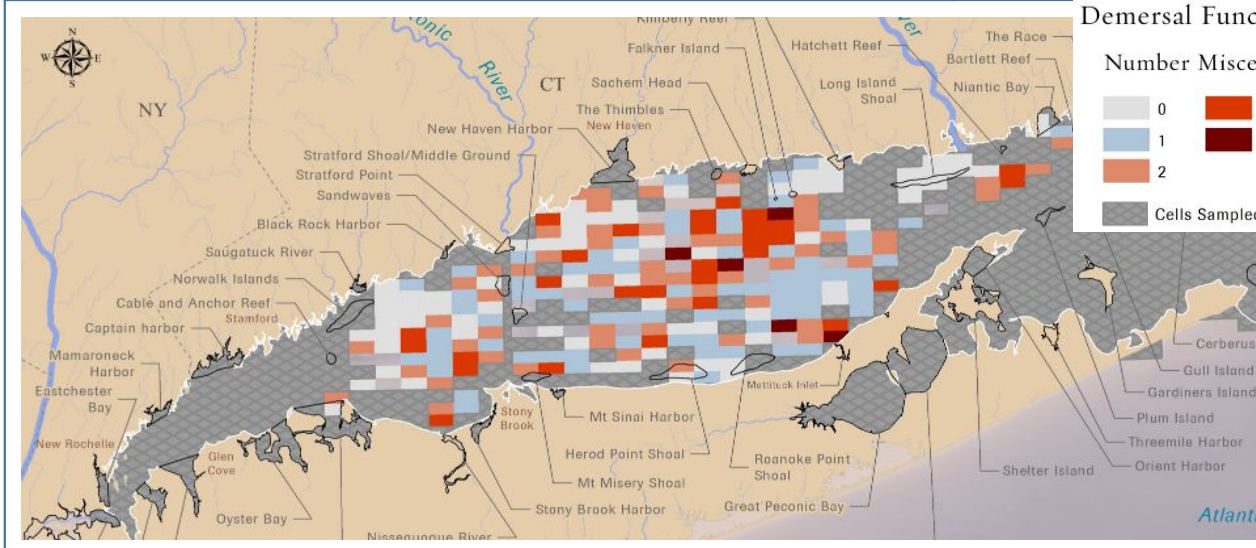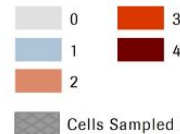
Access Instructions: Not currently available via map portal; images can be accessed at https://www.conservationgateway.org/ConservationByGeography/NorthAmerica/UnitedStates/edc/reportsdata/marine/namera/lis/Pages/default.aspx

LISEA – Total Species Richness

Conservation Gateway

Source: The Nature Conservancy Long Island Sound Ecological Assessment

Total Species Richness (of 114)

Number of Species Detected

1 - 13	38 - 49
14 - 25	50 - 61
26 - 37	

Cells not Sampled

LONG ISLAND SOUND BLUE PLAN
Sustainable Ecosystems - Compatible Uses

LISEA - Total Species Richness

Blue Plan Sector(s): Living Resources/Animals/Fish

Summary Description: Count of species found. (Fish plus other benthic vertebrates and invertebrates.) The Long Island Trawl Survey conducted by CTDEEP forms the foundation of the species based persistance analysis. The trawl data was divided into 3 time periods (octads) for the LISEA study. This data layer describes which 1x2 minute cells were sampled in each octad for each season.
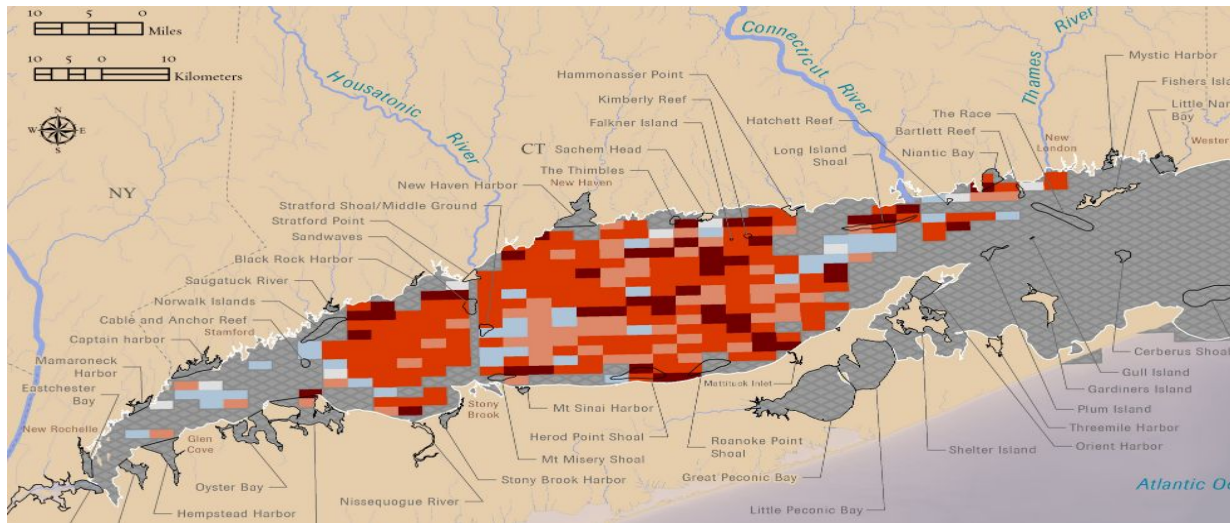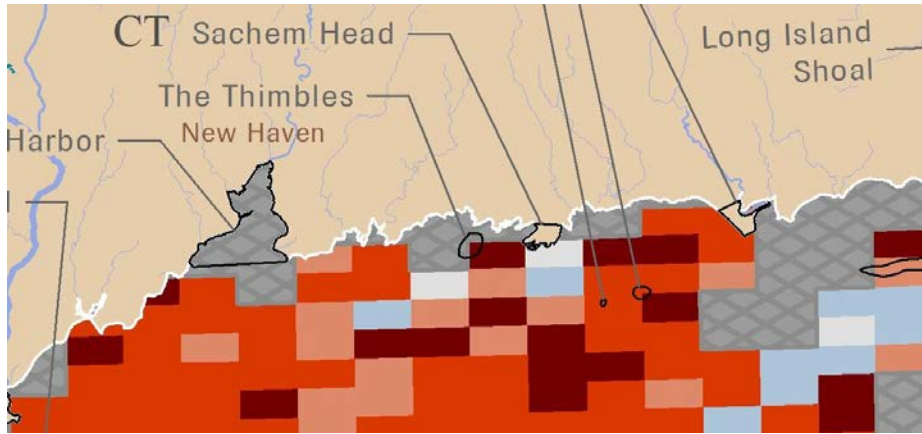
Full Description: metadata contained with downloadable GIS data or via reports at project URL below (layer = cells_Species_data)

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
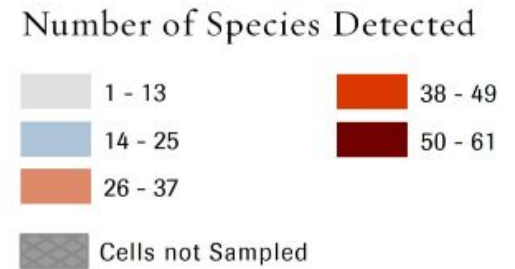
Long Island Sound Standardized Count of Weighted Persistence Scores by Species Group

New York Geographic Information Gateway

Source: TNC - Long Island Sound Ecological Assessment
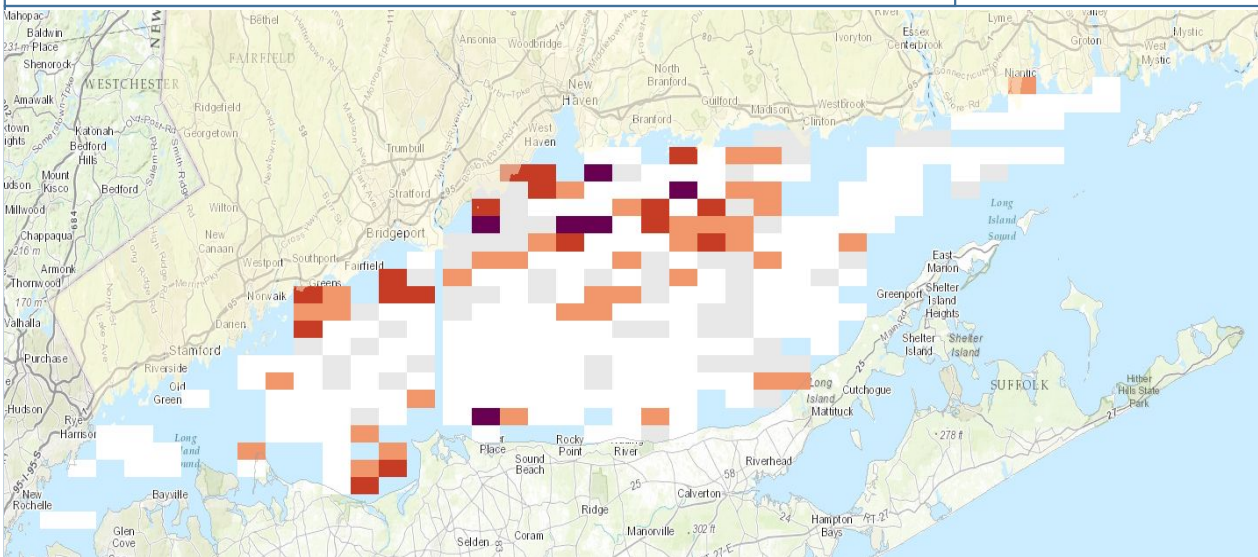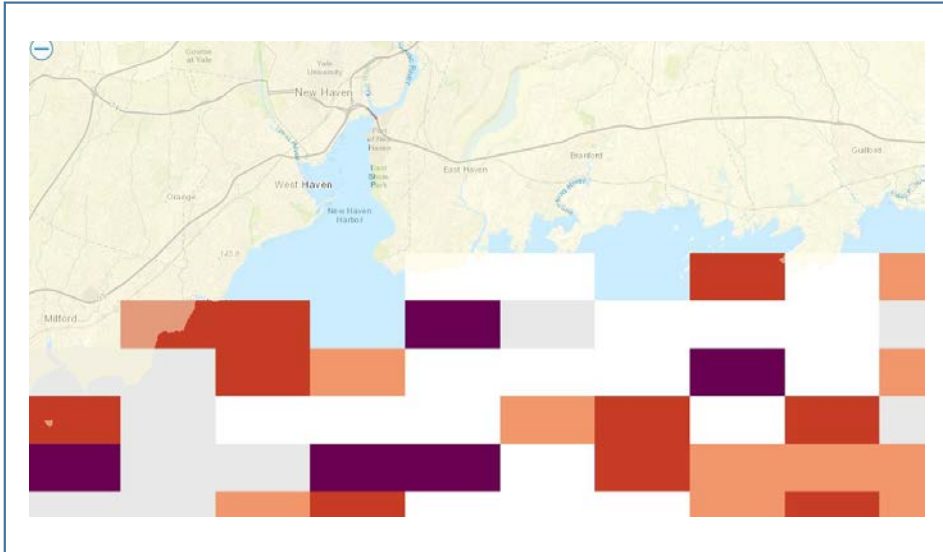
Legend:

- 0
- 1
- 2
- 3
- 4
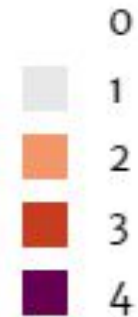
Long Island Sound Standardized Count of Weighted Persistence Scores by Species Group

Blue Plan Sector(s): Habitats > Biological > Species Persistence Areas

Summary Description: The weighted persistence score maps the locations where each species has been found consistently over time. The count of species with high weighted persistence scores maps these places that have consistently supported the most species of a given type consistently over time. These values have been standardized to allow direct comparison between species groups. The weighted persistence score highlights places that have been consistently been used by a number of species. The implication is that these places contain valuable habitat or are otherwise important to species survival and production.

Full Description:
http://opdgig.dos.ny.gov/geoportal/catalog/search/resource/detailsnoheader.page?uuid={03BF3A19-F805-4143-8F03-50ED27AC3CD3}

Access Instructions: http://opdgig.dos.ny.gov/#/map, -> Biological -> Habitat

LISEA –Water Column Portfolio

Conservation Gateway

Source: The Nature Conservancy Long Island Sound Ecological Assessment
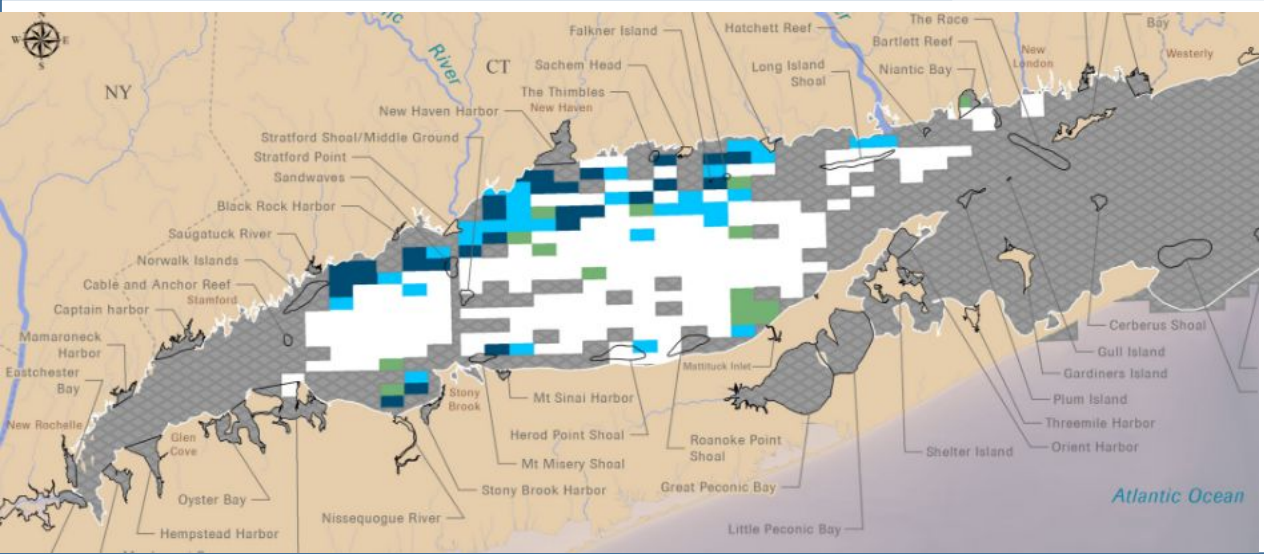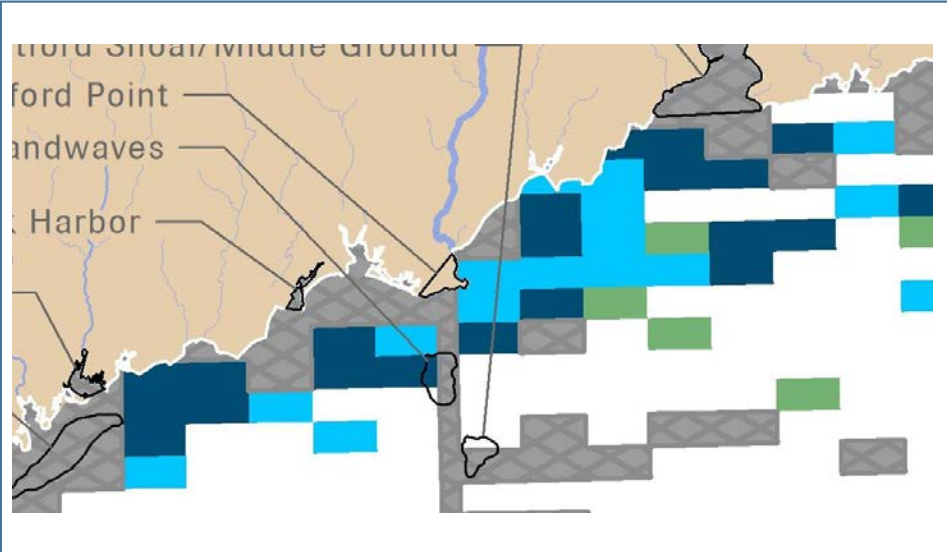
Areas Notable for Water Column Portfolio Criteria

- Diadromous and Pelagic Fish
- Pelagic Fish Only
- Diadromous Fish Only
- Cells Sampled in Fewer than Two Octads During Summer Months

LISEA – Water Column Portfolio

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

Summary Description: The ecologically notable places in the water column portfolio include the pelagic fish persistent areas and diadromous fish persistent areas. These are the fish groups found throughout the water column without a major dependence or affiliation with the seafloor. The ecologically notable places in the water column include pelagic and diadromous fish persistent areas. The migratory portfolio is comprised of the places with the highest number of target pelagic or diadromous fish species with a high weighted persistence value. High weighted persistence indicates that a species was for consistently through time at a rate higher than the average based on survey effort.

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

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
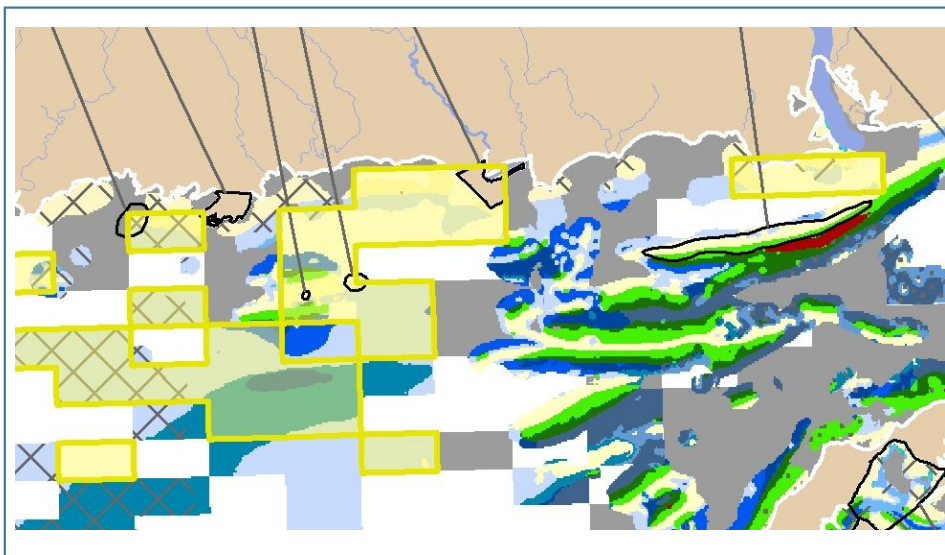
LISEA – Integrated Seafloor and Water Column Portfolio

Conservation Gateway

Source: The Nature Conservancy Long Island Sound Ecological Assessment

Ecological Marine Units

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

Water Column Portfolio

Undersampled for Organism Data

LISEA – Integrated Seafloor and Water Column Portfolio

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

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).

The ecologically notable places in the water column portfolio include the pelagic fish persistent areas and diadromous fish persistent areas. These are the fish groups found throughout the water column without a major dependence or affiliation with the seafloor. The ecologically notable places in the water column include pelagic and diadromous fish persistent areas. This version is merged for ease of display.

Full Description: metadata contained with downloadable GIS data or via reports at project URL below (layers = EMU, EMU_sediment_polygons, water_column_portfolio_merged, sampling_effort)
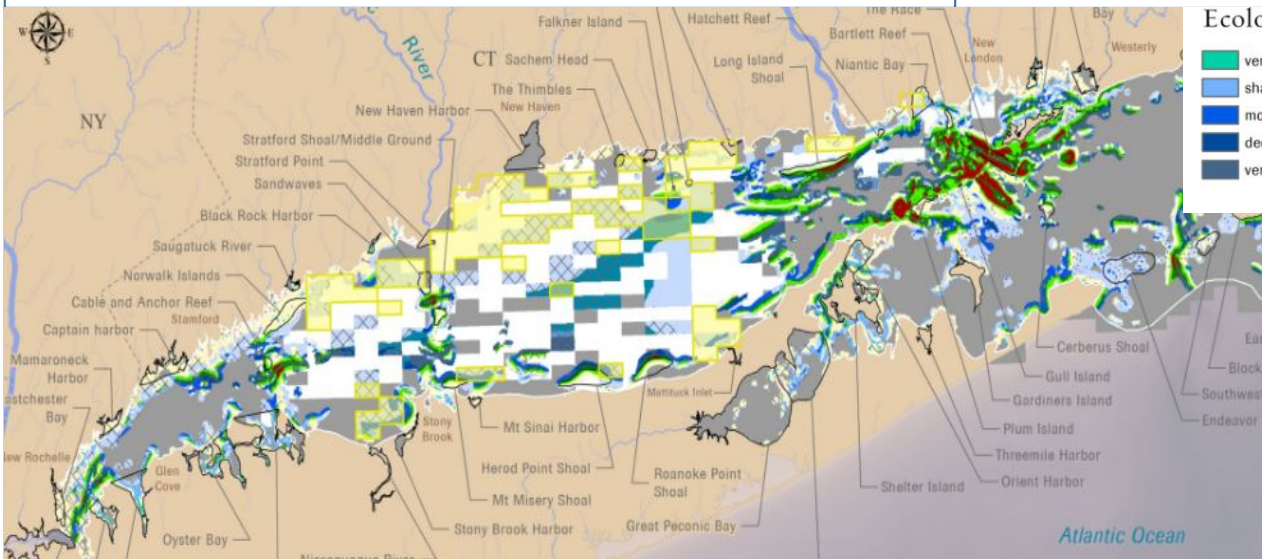
Access Instructions: Not currently available via map portal; images can be accessed at https://www.conservationgateway.org/ConservationByGeography/NorthAmerica/UnitedStates/edc/reportsdata/marine/namera/lis/Pages/default.aspx
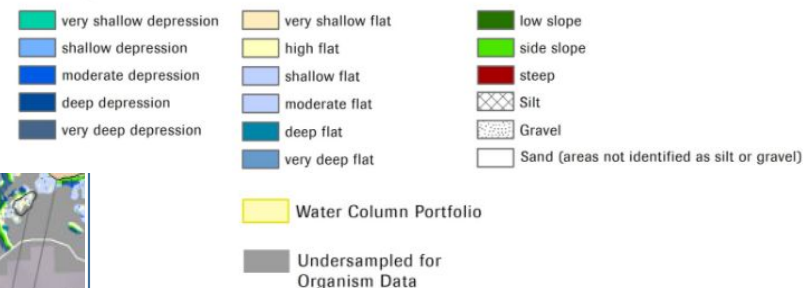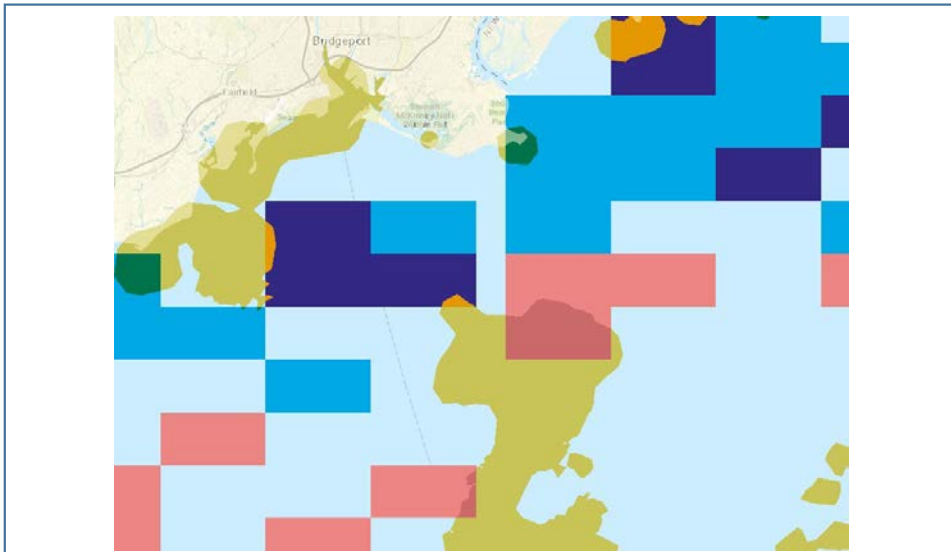
LIS Ecologically Notable Places: Integrated Portfolio

NY Geographic Information Gateway

Source: The Nature Conservancy – Long Island Sound
Ecological Assessment
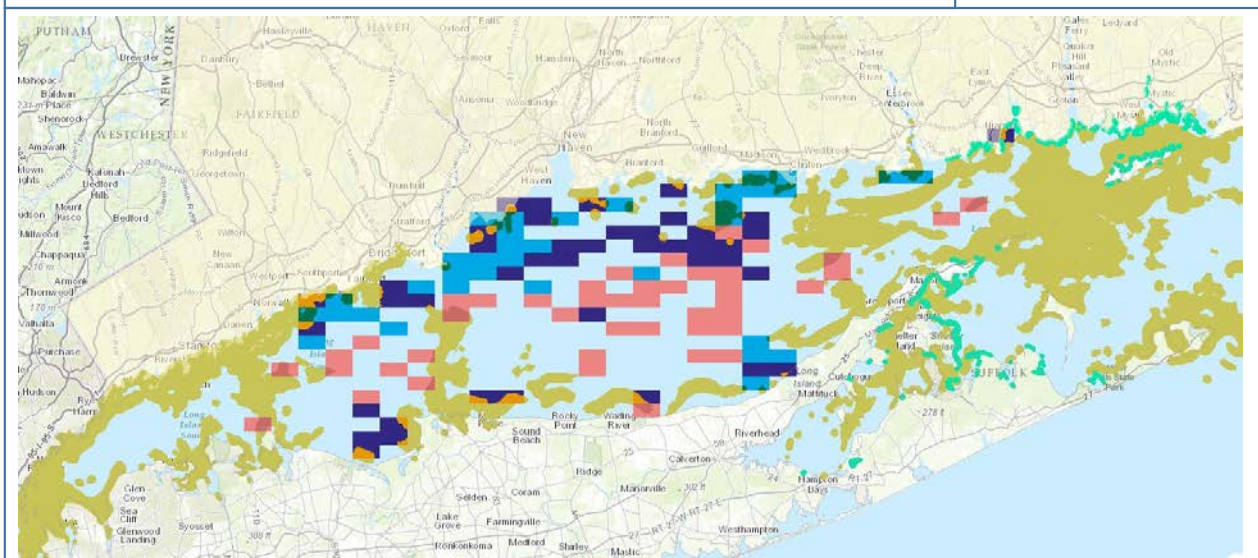
Legend:
- water column species
- all categories
- watter column AND bottom dwelling species AND structure
- bottom dwelling species AND structure
- bottom dwelling species
- Seafloor Structure
- water column species AND seafloor complexity
- water column species AND bottom dwelling species
- seagrass 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"

Designated Natural Shellfish Beds 2014

CT Aquaculture Mapping Atlas (CT AMA)

Source: UCONN CLEAR, CT Sea Grant, CT DEEP, CT DOA/ BA

View the Legend

Designated Natural Shellfish Beds (2014)

Designated Natural Shellfish Beds (2014)

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

Summary Description: In Connecticut, shellfish are defined as oysters, clams, mussels and scallops; either shucked or in the shell, fresh or frozen, whole or in part. Scallops are excluded from this definition when the final product is the shucked adductor muscle only. Lobsters, crabs, snails and finfish are not included in this definition. In the early 2000's, the National Oceanic and Atmospheric Administration (NOAA), the Connecticut Department of Environmental Protection (CTDEP) and the Connecticut Department of Agriculture Bureau of Aquaculture (DA/BA) partnered to develop shellfish mapping data to help support various programmatic needs. Various source material – historic and recent maps, reports, coordinate values, etc., contributed to the effort. While attempts were made to create accurate representations, errors in source materials and conflicts between source data occurred; in these case corrective assumptions were made based on best professional judgment.

Natural beds get their name from the fact that shellfish, especially oyster, naturally inhabited the area. These areas tend to be closer to shore and more often than not are at the mouth of a river. Natural beds have specific regulations concerning their use including licensing and harvesting methods. They are predominantly seed beds that cannot be mechanically harvested. Use of the natural beds requires a Relay/Transplant License I or II and/or Seed Oyster Harvesting License. Any person assisting in the harvesting of seed oysters must have a Helper's License. These beds cannot be leased or subdivided; they are to remain open to any properly licensed shellfisherman. A complete listing of regulations is available from DA/BA.)

State natural beds are simply natural beds south of the Commissioners line. Descriptions of these beds can be found in section 3295 of the Connecticut General Statutes (CGS), revision of 1918. Not all of the beds listed in section 3295 were mapped. Many of the natural beds in state waters off of Greenwich are now covered with leases. The town natural beds were defined by law under section 2326 of the CGS of 1888. Each town had the opportunity to map areas that they wanted to be considered natural bed. The documents, written descriptions and maps, were submitted to the Superior Court that had jurisdiction for that town. Several towns did not avail themselves of this opportunity. Some areas such as in Westport have been changed in recent court decisions. There are some areas that may have been declared natural bed that now have leases on them. (This data is subject to change and the DA/BA may have more recent information for some areas.

Full Description: https://services7.arcgis.com/9fAJJI91yoj2y4Yi/ArcGIS/rest/services/ConnecticutShellfishOnline/FeatureServer/8

Access Instructions: Go to: https://clear3.uconn.edu/aquaculture/ and turn on layer "Designated Natural Shellfish Beds (2014)" in the choose your map layers pop up window.

CT DEEP Atlantic Sturgeon Gear Restriction Areas

CT DEEP Fisheries

Source: CT DEEP Marine Fisheries, 2012

☑ Atlantic sturgeon gear restriction areas

LONG ISLAND SOUND BLUE PLAN
Sustainable Ecosystems - Compatible Uses

CT DEEP Atlantic Sturgeon Gear Restriction Areas

Blue Plan Sector(s): TBD

Summary Description: This layer depicts the locations of Atlantic sturgeon gear restriction areas as described in CT DEEP Notice to Commercial Fishermen dated 04/27/2012. In 2012, polygons were created in ArcGIS by digitizing the areas described in the Notice of Declaration of Regulation Change (12-08): "Under the authority of 26-102 of the Connecticut General Statutes, the Commissioner of Energy and Environmental Protection is authorized to establish closed areas on any state waters and prescribe conditions for the operation of commercial fishing activity when he deems it necessary for resource conservation. In accordance with the aforementioned authority Section 26-159a-6 Use of commercial fishing gear is amended as follows: NEW SUBSECTION (B) No person shall use, set or tend any otter trawl, beam trawl, sink or anchored gillnet in the following areas of Long Island Sound: (1) Falkner Island Gear Restricted Area, (2) Connecticut River Mouth Gear Restricted Area. Full text of the Declaration, including latitudinal and longitudinal coordinates, can be found at the CT DEEP website:http://www.ct.gov/deep/cwp/view.asp?A=2588&Q=503242

Full Description: Contact CTDEEP marine Fisheries for FGDC metadata: deep.marine.fisheries@ct.gov

Access Instructions: TBD

CT DEEP Horseshoe Crab Closed Areas

CT DEEP Fisheries

Source: CT DEEP Marine Fisheries, 2007

CT Horseshoe crab closed areas

CT DEEP Atlantic Horseshoe Crab Closed Areas

Blue Plan Sector(s): TBD

Summary Description: This layer depicts the locations of horseshoe crab closed areas as described in CT State Regulation 26-159a-17(g). In 2007, polygons were created in ArcGIS by visually digitizing areas using NOAA Nautical Charts (20k) for reference. Polygons were created to depict closed areas described in CT State Regulation 26-1592-17(g): "No person shall engage in the hand-harvest of horseshoe crabs from the following areas: (1) Menunketesuck Island in Westbrook; and (2) the region known as Sandy Point in West Haven from the West Haven boat ramp on Beach Street south to, and clockwise around said point, including the breakwater, tidal flats and embayment and southeastern facing barrier beach to the groin adjacent to the intersection of Beach Street and Morse Avenue; and (3) the region known as Milford Point in Milford, Connecticut, including all beaches and adjacent sand bars and tidal flats to the west of, and including, the spit that lies south-southeast of the southern terminus of Francis Street." Full text of the regulation can be found at the CT DEEP website: http://www.ct.gov/deep/cwp/view.asp?a=2704&q=323516 (under "Fishing" Title, select link to Commercial and Sport Fishing in the Marine District).

Full Description: Contact CTDEEP marine Fisheries for FGDC metadata: deep.marine.fisheries@ct.gov

Access Instructions: TBD

Scallop Management Areas

Mid-Atlantic Ocean Data Portal

Source: NMFS Greater Atlantic Regional Fishery Office (GARFO)

Scallop Management Areas

Management Areas

Scallop Management Areas

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

Summary Description: These layers show the following:

• Sea Scallop Access Areas. These are designated under the Atlantic Sea Scallop Fishery Management Plan (FMP) as areas with management measures that are designed to control fishing effort and mortality. A Scallop Access Area may become a Scallop Rotational Closed Area or an open area when it is no longer suitable to control fishing effort in the area.
• Habitat Closure areas, or Essential Fish Habitat (EFH) areas for the Atlantic sea scallop fishery. EFH is defined as those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity. No vessel fishing for scallops, or person on a vessel fishing for scallops, may enter, fish in, or be in the EFH Closure Areas.
• Scallop Rotational Closed Areas. Scallop Rotational Closed Areas are designated by the Scallop FMP as an area in which the fishing, possession, and landing of sea scallops by vessels issued a scallop permit is prohibited. These areas are closed to protect small scallops and promote growth of the scallop resource and may become Scallop Access Areas when the condition of the scallop resource inside is more suitable for harvest.
• Northern Gulf of Maine (NGOM) Management Area off the coast of Maine, New Hampshire, and Massachusetts. Fishing or possession of scallops in this area is limited to 200 lbs. per trip. This dataset is from NMFS and represents areas and regulations mandated in the U.S. Code of Federal Regulations (CFR). This layer does not represent a legal definition of the Regulated Area. The description published in the CFR is the only legal definition.
• Area where chain-mat and the turtle deflector dredge gear are required for the fishing and harvesting of Atlantic sea scallops. The National Marine Fisheries Service (NMFS) requires the use of this type of gear to help reduce mortality of endangered and threatened sea turtles from May 1 through November 30. The final rule issued by NMFS clarifies where on the dredge the chain mat must be hung.

Full Description: http://portal.midatlanticocean.org/data-catalog/fishing/#layer-info-management-areas

Access Instructions: Go to:
http://portal.midatlanticocean.org/visualize/#x=-71.89&y=40.73&z=7&logo=true&controls=true&dls%5B%5D=true&dls%5B%5D=0.7&dls%5B%5D=293&basemap=Ocean&themes%5Bids%5D%5B%5D=7&themes%5Bids%5D%5B%5D=4&tab=legend&legends=false&layers=false

Look under: Data > Fishing> Management Areas > Scallop Management Areas

Essential Fish Habitat

Northeast Ocean Data Portal

Source: NOAA, National Marine Fisheries Service, Office of Habitat Conservation
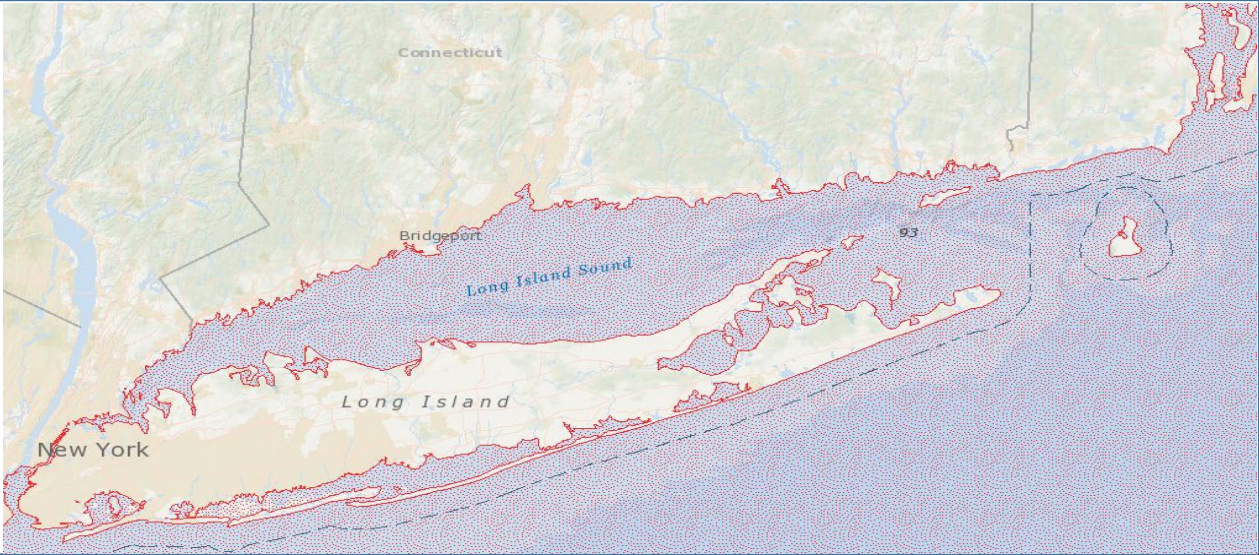
Essential Fish Habitat - Areas Protected from Fishing

Essential Fish Habitat

Blue Plan Sector(s): Ecologically Significant Areas > Essential Fish Habitat

Summary Description: Designated Essential Fish Habitat (EFH) areas where fishing or the use of fishing gears has been restricted or modified in order to minimize the adverse effects of fishing on EFH, as required by Section 303(a)(7) of the Magnuson Stevens Act. The purpose of these data is to visually represent spatial information for areas in which fishing has been restricted to minimize the adverse effects of fishing to EFH. The spatial extent of these areas will be calculated and used in partial satisfaction of the performance metric reporting requirements of the Habitat Program.
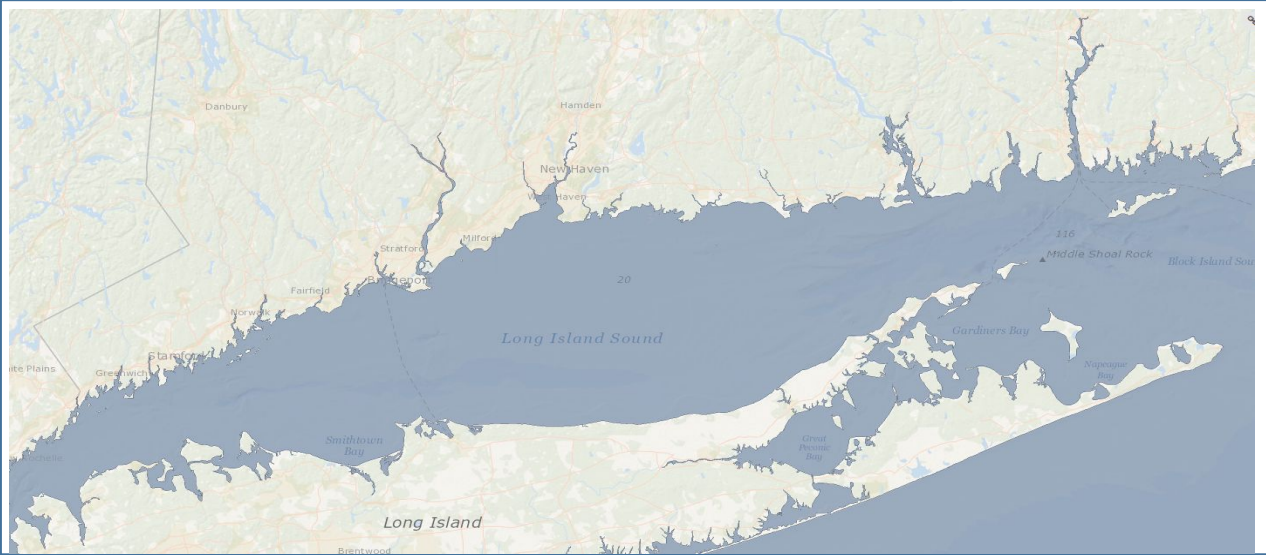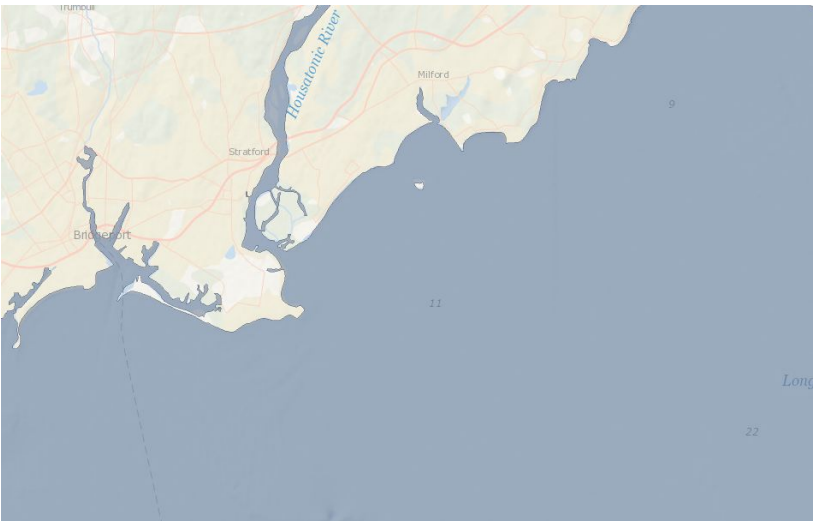
Full Description:
http://www.habitat.noaa.gov/protection/efh/newInv/EFHI/dd/metadata/efha_fgdc_std.htm

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

Groundfish Management Areas

MARCO Marine Planner

Source: These datasets are from NMFS – Greater Atlantic Regional Fishery Office

Groundfish Management Areas

Management Areas

Groundfish Management Areas

Blue Plan Sector(s): Living Resources/Animals/Fish

Summary Description: These layers show the boundary that demarcates the Northern and Southern Monkfish Management Areas, extending south from Cape Cod and Nantucket and then east toward the Exclusive Economic Zone, for the purpose of managing the monkfish fishery in the Northeast and Mid-Atlantic. This layer shows Habitat Closures areas, or Essential Fish Habitat (EFH). These areas are closed year-round, regardless of fishery, to any fishing with bottom tending mobile gear. There are seven areas offshore in New England on Georges Bank and in the Gulf of Maine including Western Gulf of Maine, Cashes Ledge, Jeffrey's Bank, Closed Area I - North, Closed area I - South, Closed Area II, and Nantucket Lightship. These datasets are from NMFS and represent areas and regulations mandated in the U.S. Code of Federal Regulations (CFR). These layers do not represent a legal definition of the Regulated Area. The description published in the CFR is the only legal definition.

Full Description:
http://portal.midatlanticocean.org/data-catalog/fishing/#layer-info-management-areas, which includes links to sub-area documentation as well

Access Instructions:
http://portal.midatlanticocean.org/visualize/#x=-73.24&y=38.93&z=7&logo=true&controls=true&basemap=Ocean&tab=data&legends=false&layers=true, go to Fishing/Management Areas

Groundfish and Shellfish EFH Overlay

Northeast Ocean Data Portal

Source: The Nature Conservancy, National Marine Fisheries Services (NMFS), Mid-Atlantic Regional Ocean Council
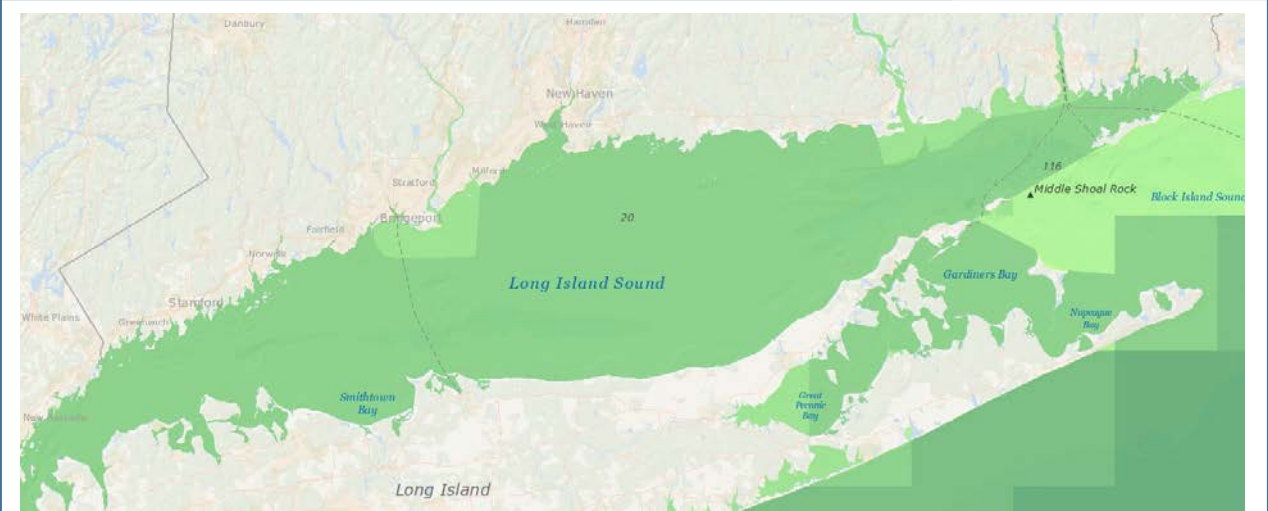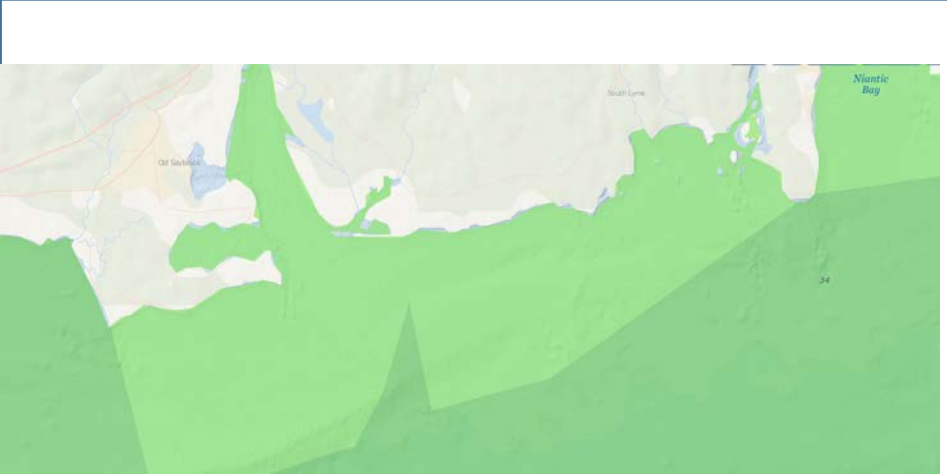
Groundfish and Shellfish EFH Overlay

- 1 - 5
- 6 - 10
- 11 - 15
- 16 - 20
- 21 - 25
- 26 - 30

Groundfish & Shellfish EFH Overlay

Blue Plan Sector(s): Ecologically Significant Areas > Essential Fish Habitat

Summary Description: This layer is an aggregation of Essential Fish Habitat (EFH) datasets for all 39 species under federal management in the Mid-Atlantic and Northeast using source data from 2009. EFH is defined as those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity. This layer represents an overlay of EFH polygons for numerous species, including American Plaice, Atlantic Cod, Atlantic Halibut, Atlantic Herring, Atlantic Sea Scallop, Atlantic Wolffish, Barndoor Skate, Black Sea Bass, Bluefish, Butterfish, Clearnose Skate, Haddock, Little Skate, Longfin Inshore Squid, Mackerel, Monkfish, Northern Shortfin Squid, Ocean Pout, Offshore Hake, Pollock, Quahog, Redfish, Red Crab, Red Hake, Rosette Skate, Scup, Silver Hake, Smooth Skate, Spiny Dogfish, Surfclam, Summer Flounder, Tilefish, Thorny Skate, White Hake, Windowpane Flounder, Winter Flounder, Winter Skate, Witch Flounder, and Yellowtail Flounder. This layer was developed for general visualization and informational purposes only and does not necessarily represent the most important habitats. The Nature Conservancy obtained individual EFH layers from NOAA. The data presented here do not represent EFH for individual species but rather the number of overlapping EFH in any given location.
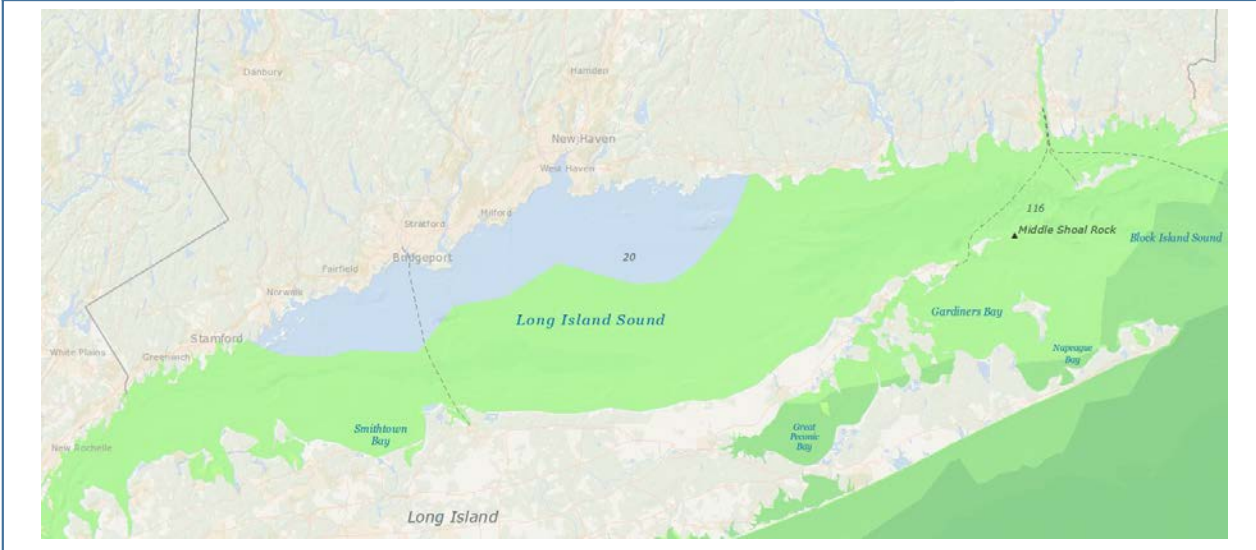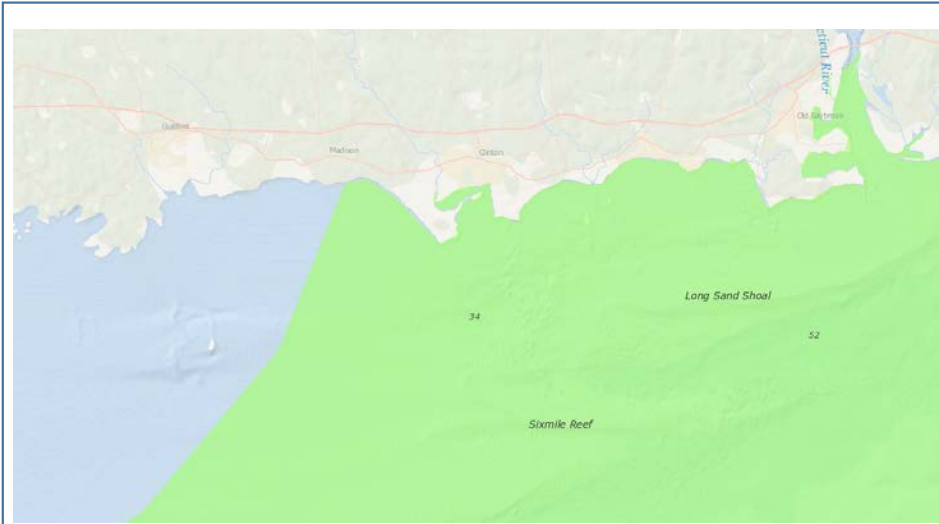
Full Description:
http://portal-staging.midatlanticocean.org/static/data_manager/metadata/html/efh_overlay_update.htm

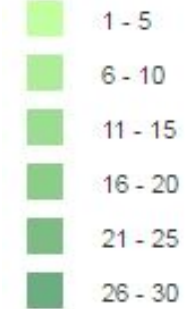***Access Instructions***: http://www.northeastoceandata.org/data-explorer/, go to 'Fish'

Highly Migratory Species EFH Overlay

Northeast Ocean Data Portal

Source: The Nature Conservancy, National Marine Fisheries Services (NMFS), Mid-Atlantic Regional Ocean Council

Highly Migratory Species EFH Overlay

- 1 - 5
- 6 - 10
- 11 - 15
- 16 - 20
- 21 - 25
- 26 - 30

Highly Migratory Species EFH Overlay

Blue Plan Sector(s): Ecologically Significant Areas > Essential Fish Habitat

Summary Description: This layer shows an aggregation of multiple Essential Fish Habitat (EFH) datasets for Highly Migratory Species along the Atlantic coast and in the Gulf of Mexico. EFH is defined as those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity. This layer represents an overlay of EFH polygons for 42 species, including Albacore Tuna, Angel Shark, Atlantic Sharpnose Shark, Basking Shark, Bigeye Thresher Shark, Bigeye Tuna, Bignose Shark, Blacknose Shark, Blacktip Shark, Bluefin Tuna, Blue Marlin, Blue Shark, Bonnethead Shark, Bull Shark, Caribbean Reef Shark, Common Thresher Shark, Dusky Shark, Finetooth Shark, Great Hammerhead Shark, Lemon Shark, Longbill Spearfish, Longfin Mako Shark, Night Shark, Nurse Shark, Oceanic Whitetip Shark, Porbeagle Roundscale Spearfish, Shark, Sailfish, Sandbar Shark, Sand Tiger Shark, Scalloped Hammerhead Shark, Shortfin Mako Shark, Silky Shark, Skipjack Tuna, Smooth Dogfish, Spinner Shark, Swordfish, Tiger Shark, Whale Shark, White Marlin, White Shark, and Yellowfin Tuna. This layer was developed for general visualization and informational purposes only and does not necessarily represent the most important habitats. Additionally, only certain species were included in this analysis; included species are those under Federal management for which spatial data exists. The data presented here do not represent EFH for individual species but rather the number of overlapping EFH in any given location. Due to the geometry and high number of source datasets, feature boundaries may appear irregular and there are numerous features with minute geometries which occur at the boundaries of source EFH datasets. This is a multipart dataset.

Full Description:
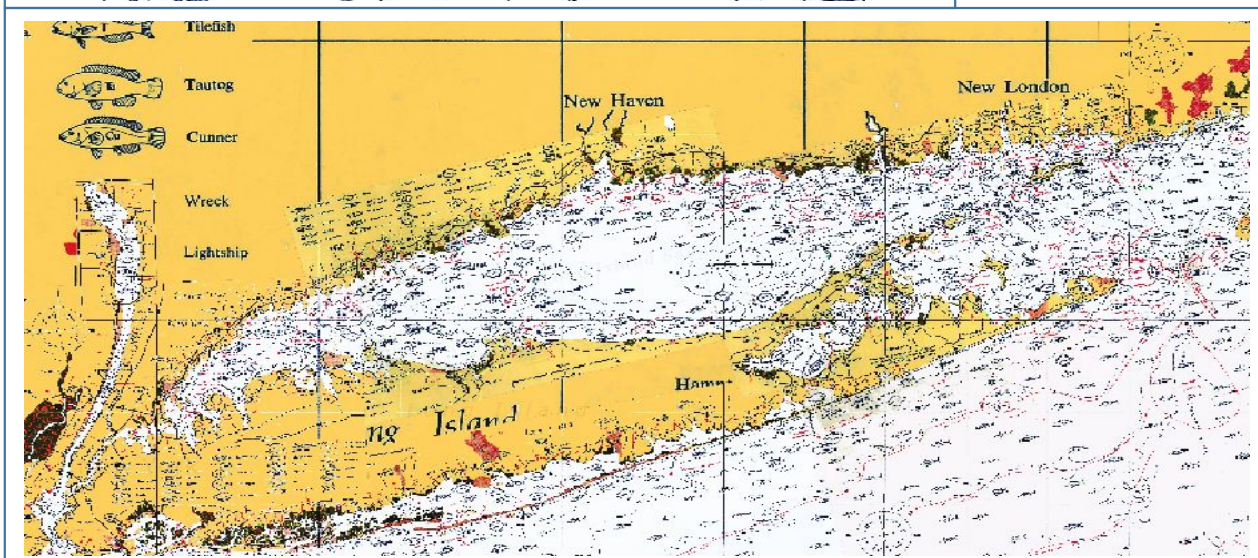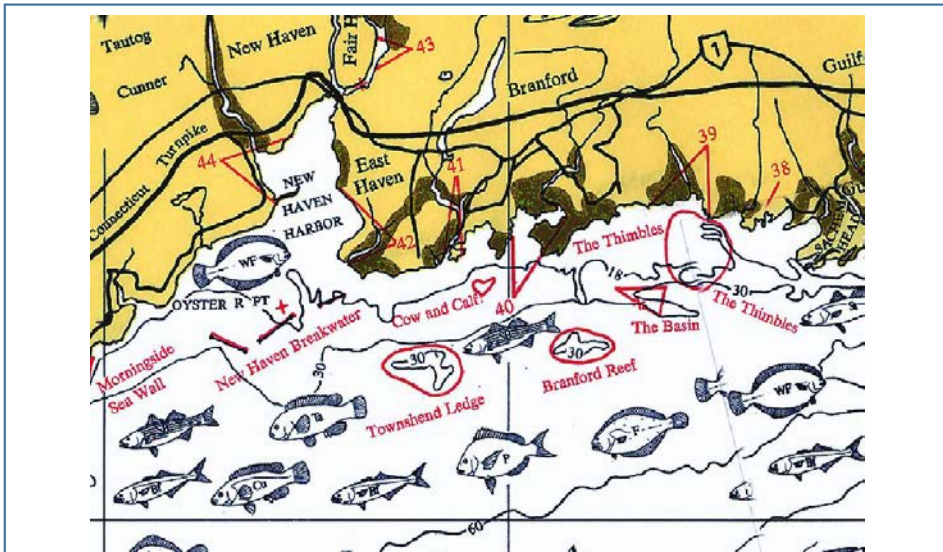http://www.northeastoceandata.org/files/metadata/Themes/Fish/HighlyMigratorySpeciesEFHOverlay.pdf

Access Instructions: http://www.northeastoceandata.org/data-explorer/, go to 'Fish'

US Atlantic Coast Fishing Atlas

US Atlantic Coast Fishing Atlas

Source: National Marine Fisheries Service

US Atlantic Coast Fishing Atlas

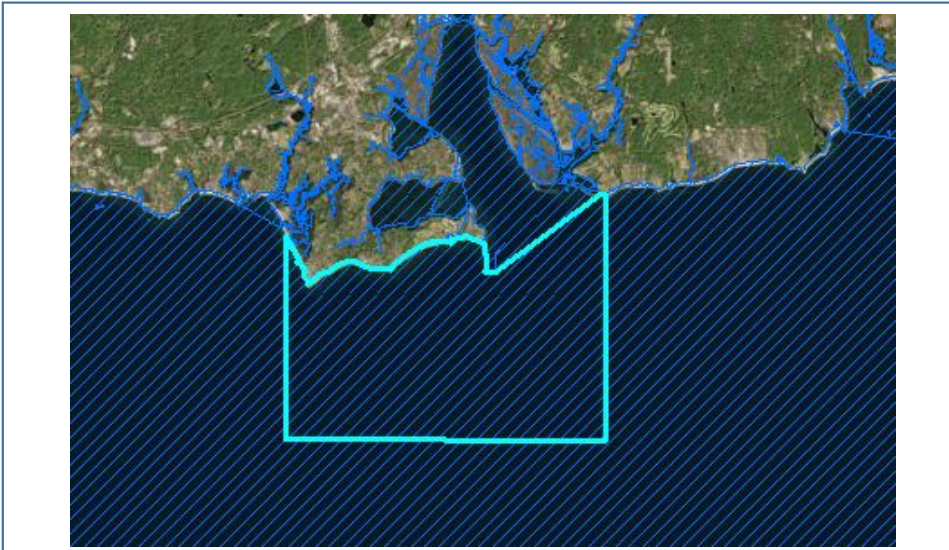**_Blue Plan Sector(s)_**: Living Resources/Animals/Fish

Summary Description: Digital version of the Anglers' Guide to the United States Atlantic Coast. This is a digital conversion of the National Marine Fisheries Service original hardcopy anglers' atlases between the years of 1974-1976 to assist the Bureau of Ocean Energy Management (BOEM) in marine spatial planning efforts, specifically the siting of renewable energy projects on the outer continental shelf (OCS). Other elements from this guide have been pulled out into geospatial data including caution points, lines, and areas, as well as a digital map index.

Full Description:
https://gis.boem.gov/arcgis/rest/services/AtlanticFishGuide/Atlantic_Coast_Fishing_Atlas/MapServer/4

Access Instructions:
http://www.arcgis.com/home/webmap/viewer.html?webmap=cf81d2ed99374d50b6e888 13c5d53181; click on Content, turn on Atlantic Coast Fishing Atlas, turn on US Atlantic Coast Fishing Atlas layer. Alternatively, these all can be downloaded from http://www.boem.gov/uploadedFiles/BOEM/Renewable_Energy_Program/Mapping_and_ Data/Anglers _Guide_Maps/AnglersGuideDatabase.zip.

NOAA ESI Fish

Data not currently available online

Source: NOAA Office of Response and Restoration
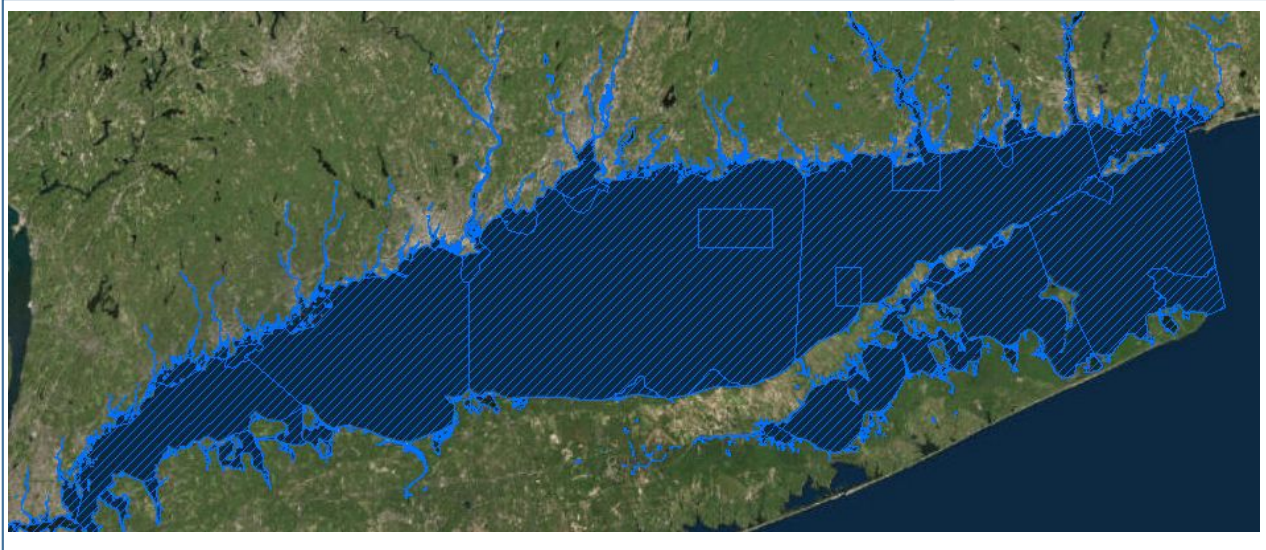
☑ Fish

NOAA ESI Fish

Blue Plan Sector(s): Living Resources > Animals > Fish

Summary Description: Eighty nine species of fish are represented in this atlas, but this is not intended to include all species present within the study area. Fish species depicted in this atlas include select marine, estuarine, diadromous, and freshwater species. Species of conservation interest, ecological importance, or commercial or recreational importance are emphasized. In most cases, terms to describe species abundance include the commonly used terms of rare, common, and abundant.

Though the data will be useful for many shoreline applications, the goal of the ESI data is to present a concise summary of resources that may be particularly vulnerable to spilled oil. The intent of the data should caveat other uses. As an example, the ESI is not intended to present a catalog or comprehensive listing of species present in an area, rather the focus is on species particularly sensitive to oiling and life stages where vulnerability may increase.

Full Description: not available as individual file; can be accessed as part of larger data download located here: http://response.restoration.noaa.gov/maps-and-spatial-data/download-esi-maps-and-gis-data.html#Connecticut

Access Instructions: data not currently available via online viewer; can be accessed as part of larger data download located here: http://response.restoration.noaa.gov/maps-and-spatial-data/download-esi-maps-and-gis-data.html#Connecticut

NOAA ESI Fish

Biofile data example: ESI uses a relational database structure to link many species records to a single area. The multiple records below correspond to the single selected area in the zoomed in map sample.

ELEMENT	SUBELEMENT	NAME	GEN_SPEC	S	F	STATE	S_DATE	F_DATE	GRANKDATE	MAPPING_QUALIFIER	CONC	SEAS_SUM	BREED1	BREED2	BREED3	BREED4	BREED5	RARNUM *	G_SOURCE	S_SOURCE
FISH	e_nursery	Bluefish	Pomatomus saltatrix				0	0	201503	CONCENTRATION AREA	COMMON	Apr-Nov	Jun-Sep	Jun-Sep	Jun-Sep	Jun-Nov	Apr-Nov	283001125	28300465	28300405
FISH	diadromous	Alewife	Alosa pseudoharengus				0	0	200412	MIGRATION	COMMON	Apr-Nov	Apr-Jul	Apr-Jul	Apr-Jul	Apr-Nov	Apr-Nov	283001125	28300402	28300401
FISH	diadromous	Blueback herring	Alosa aestivalis	C/-		CT/NY	201602	0	200412	MIGRATION	COMMON	Apr-Nov	May-Sep	May-Sep	May-Oct	Apr-Nov	Apr-Nov	283001125	28300409	28300405
FISH	diadromous	American shad	Alosa sapidissima				0	0	201503	NURSERY AREA	ABUNDAN	Apr-Nov	May-Jul	May-Jul	May-Aug	Jun-Nov	Apr-Jul	283001125	28300461	28300401
FISH	e_nursery	Winter flounder	Pleuronectes americanus				0	0	0	CONCENTRATION AREA	ABUNDAN	Jan-Dec	Feb-May	Feb-May	Mar-Jun	Jan-Dec	Jan-Dec	283001125	28300465	28300405
FISH	m_benthic	Tautog	Tautoga onitis				0	0	0	NURSERY AREA	COMMON	Jan-Dec	Apr-Sep	Apr-Sep	May-Sep	Jan-Dec	Jan-Dec	283001125	28300409	28300405
FISH	diadromous	American eel	Anguilla rostrata				0	0	201503	MIGRATION	COMMON	Jan-Dec	-	-	Apr-Aug	Jan-Dec	Sep-Nov	283001125	28300402	28300405
FISH	diadromous	Atlantic sturgeon	Acipenser oxyrinchus	E/-	E	CT/NY	201602	201602	201503	VULNERABLE OCCURRENC	RARE	Jan-Dec	May-Jun	May-Jun	May-Jun	Jan-Dec	Jan-Dec	283001125	28300477	28300403
FISH	diadromous	Striped bass	Morone saxatilis				0	0	201503	CONCENTRATION AREA	COMMON	Jan-Dec	-	-	-	Jan-Dec	Jan-Dec	283001125	28300465	28300405
FISH	e_nursery	Summer flounder	Paralichthys dentatus				0	0	0	CONCENTRATION AREA	COMMON	Mar-Nov	-	-	-	Mar-Nov	Mar-Nov	283001125	28300465	28300405
FISH	e_nursery	Weakfish	Cynoscion regalis				0	0	201503	NURSERY AREA	ABUNDAN	May-Nov	May-Sep	May-Sep	May-Sep	Jul-Nov	May-Nov	283001125	28300409	28300405
FISH	e_nursery	Scup	Stenotomus chrysops				0	0	201503	NURSERY AREA	COMMON	May-Nov	May-Aug	May-Aug	May-Aug	May-Nov	May-Nov	283001125	28300409	28300405
FISH	e_nursery	Northern kingfish	Menticirrhus saxatilis				0	0	0	NURSERY AREA	COMMON	Apr-Nov	Jun-Sep	Jun-Sep	Jun-Sep	Apr-Nov	Apr-Nov	283001125	28300409	28300405
FISH	m_benthic	American sand lance	Ammodytes americanus				0	0	0	GENERAL DISTRIBUTION	COMMON	Jan-Dec	Nov-Mar	Nov-Mar	Dec-Jun	Jan-Dec	Jan-Dec	283001125	28300411	28300405
FISH	m_pelagic	Butterfish	Peprilus triacanthus				0	0	0	NURSERY AREA	COMMON	May-Dec	May-Aug	May-Aug	May-Oct	May-Dec	May-Dec	283001125	28300409	28300405
FISH	e_nursery	Windowpane	Scophthalmus aquosus				0	0	200612	NURSERY AREA	ABUNDAN	Jan-Dec	Apr-Oct	Apr-Oct	May-Nov	Jan-Dec	Jan-Dec	283001125	28300409	28300405
FISH	e_nursery	Hogchoker	Trinectes maculatus				0	0	200412	NURSERY AREA	COMMON	Jan-Dec	May-Aug	May-Aug	May-Aug	Jan-Dec	Jan-Dec	283001125	28300409	28300405
FISH	e_resident	Grubby	Myoxocephalus aenaeus				0	0	0	NURSERY AREA	COMMON	Jan-Dec	Dec-Apr	Dec-Apr	Jan-May	Jan-Dec	Jan-Dec	283001125	28300411	28300475
FISH	e_resident	Northern pipefish	Syngnathus fuscus				0	0	0	NURSERY AREA	COMMON	Jan-Dec	Apr-Aug	-	May-Sep	Jan-Dec	Jan-Dec	283001125	28300409	28300405
FISH	m_benthic	Northern searobin	Prionotus carolinus				0	0	0	NURSERY AREA	COMMON	Apr-Nov	May-Sep	May-Sep	May-Sep	Apr-Nov	Apr-Nov	283001125	28300409	28300405
FISH	m_benthic	Little skate	Leucoraja erinacea				0	0	200612	NURSERY AREA	ABUNDAN	Jan-Dec	Jan-Dec	Jan-Dec	-	Jan-Dec	Jan-Dec	283001125	28300409	28300405
FISH	m_benthic	Smooth dogfish	Mustelus canis				0	0	201503	NURSERY AREA	COMMON	May-Oct	-	-	-	May-Oct	May-Oct	283001125	28300409	28300405
FISH	m_benthic	Striped searobin	Prionotus evolans				0	0	200704	NURSERY AREA	COMMON	Apr-Nov	May-Sep	May-Sep	May-Sep	Apr-Nov	Apr-Nov	283001125	28300409	28300405