

Long Island Sound Blue Plan – Potential Data Products Review

Benthic physical habitat - Map Book Table of Contents

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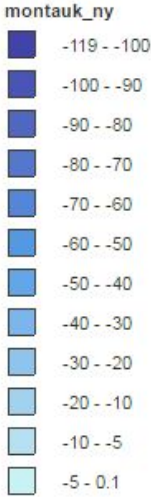
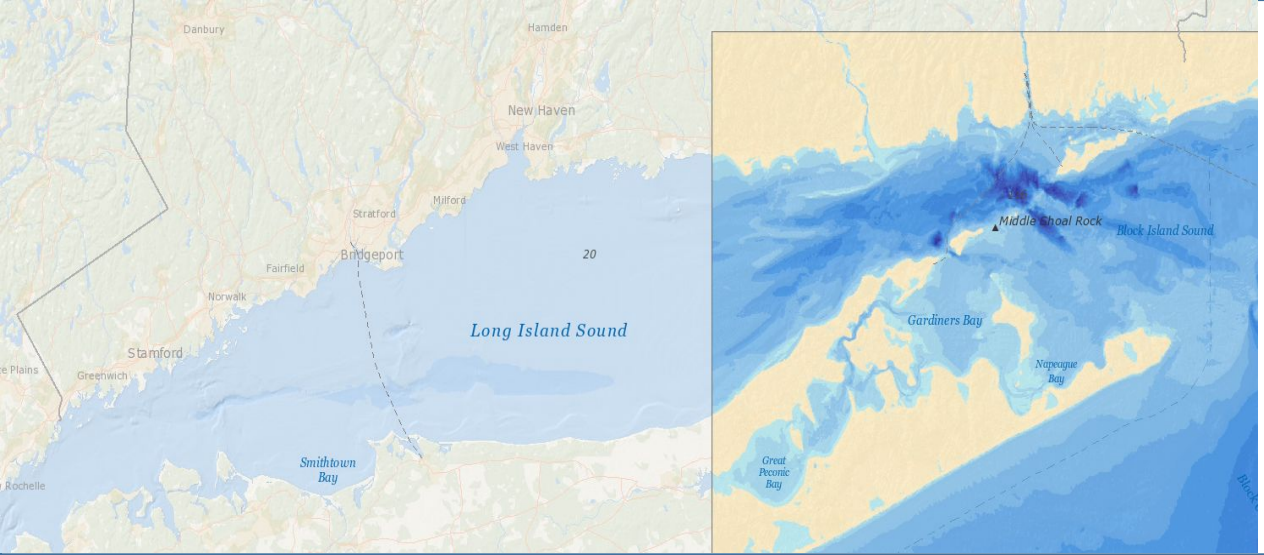
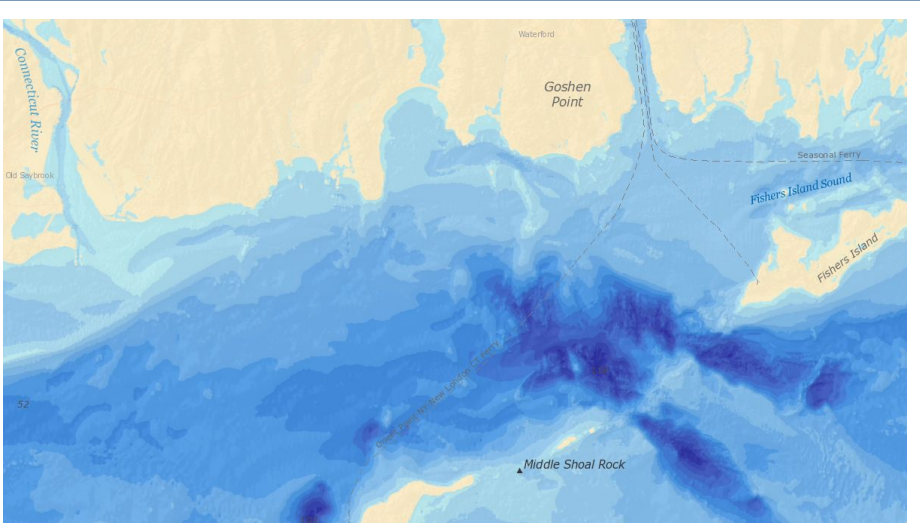
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Montauk Bathymetry

Northeast Ocean Data Portal

Source: NOAA National Geophysical Data Center (NGDC).



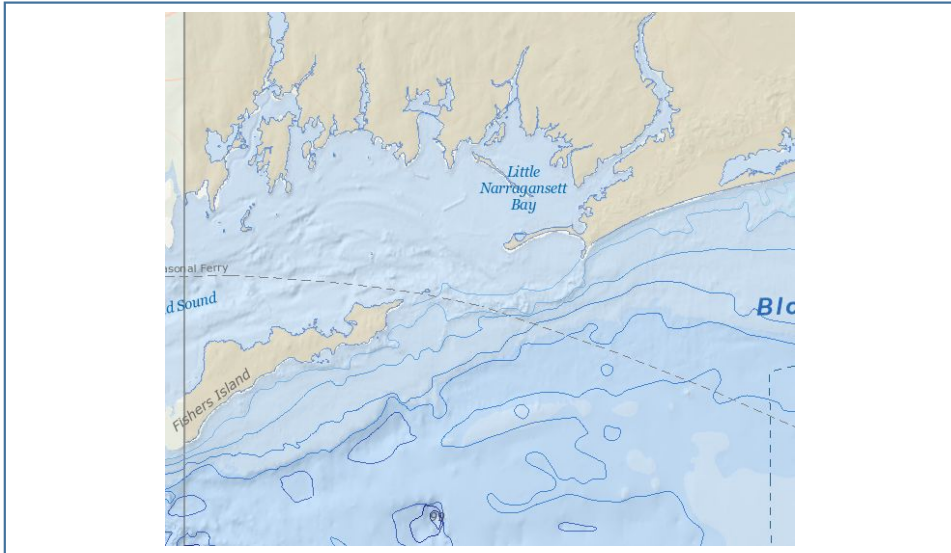
Montauk Bathymetry

Blue Plan Sector(s): Habitats/Physical/Bathymetry

Summary Description: This is a tiled cache service of bathymetry for eastern Long Island Sound that contains topo-bathymetric values for southeastern Connecticut, Montauk, and Block Island. The DEM has a 1/3 arc-second (~10 meter) cell size, and is referenced to a vertical datum of mean high water. It was built in September 2007 to support NOAA's Tsunami Program.

Full Description: <https://www.ngdc.noaa.gov/dem/squareCellGrid/download/599>

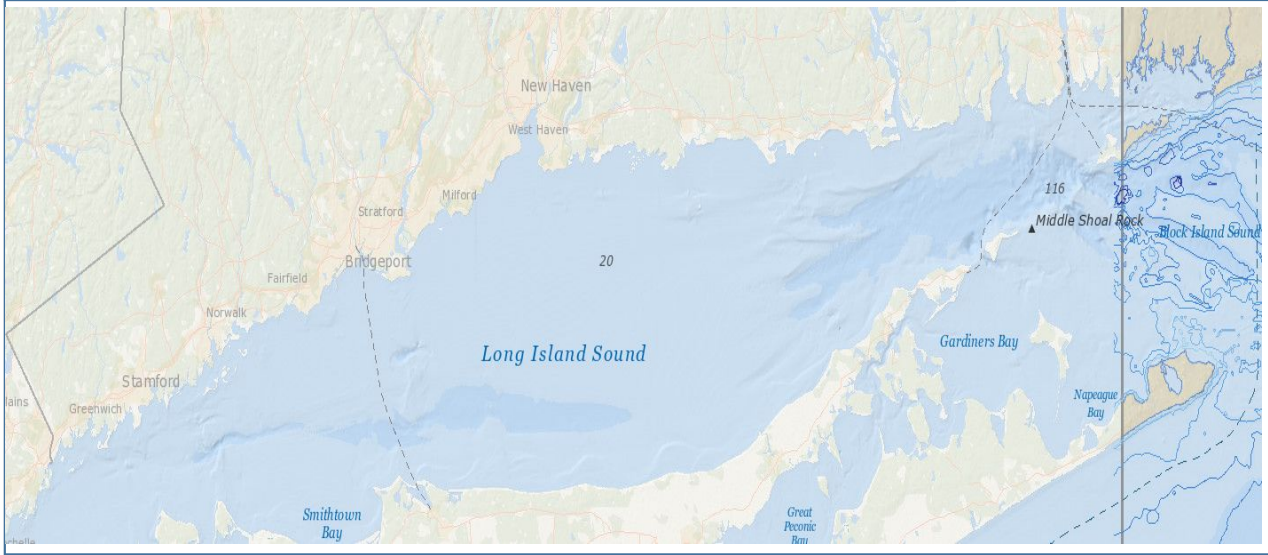
Access Instructions: <http://www.northeastoceandata.org/data-explorer/>, then go to “Bathymetry & Imagery”



Montauk to Nantucket Shores Contour Lines

Northeast Ocean Data Portal

Source: NOAA Office of Coast Survey – Electronic Navigation Charts (ENCs®)



Contours Lines

- < 12
- 12 - 18
- 18 - 36
- 36 - 60
- 60 - 120
- 120 - 210
- > 210



Montauk to Nantucket Contour Lines

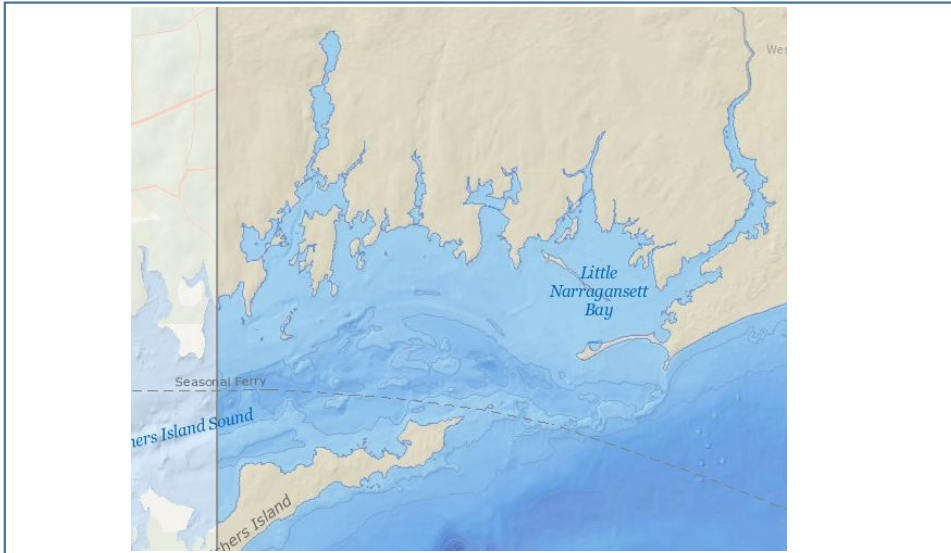
Blue Plan Sector(s): Habitats/Physical/Bathymetry

Summary Description: This data product is derived by combining high resolution (Approach_Depth_Area) and low resolution (COASTAL_DEPARE_POLYGON) datasets from National Oceanic and Atmospheric Administration (NOAA) Electronic Navigation Charts (ENCs®). Contour values are expressed in feet.

Full Description:

<http://www.northeastoceandata.org/files/metadata/Themes/PhysicalOceanography/MontaukToNantucketShoalsContours.pdf>

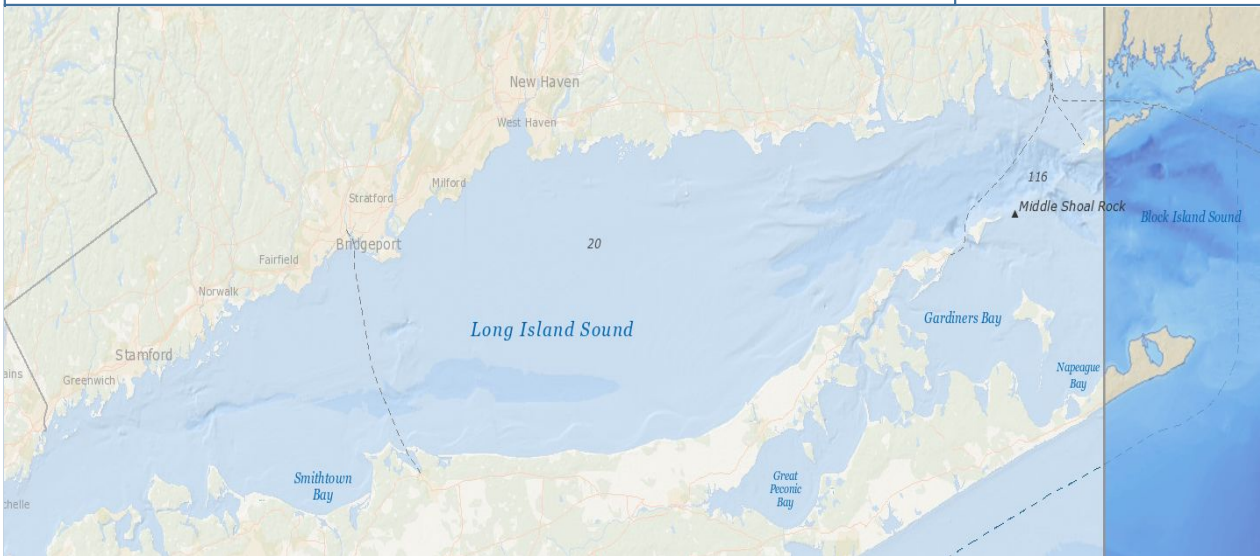
Access Instructions: <http://www.northeastoceandata.org/data-explorer/>, then go to “Bathymetry & Imagery”



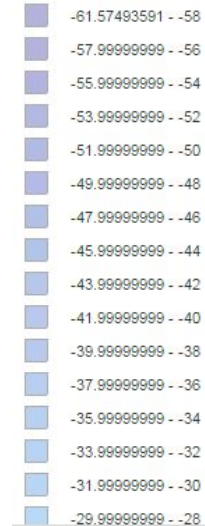
Montauk to Nantucket Shores Bathymetry

Northeast Ocean Data Portal

Source: NOAA Office of Coast Survey



MontaukToNantucketShoals_30m_clip



Montauk to Nantucket Bathymetry

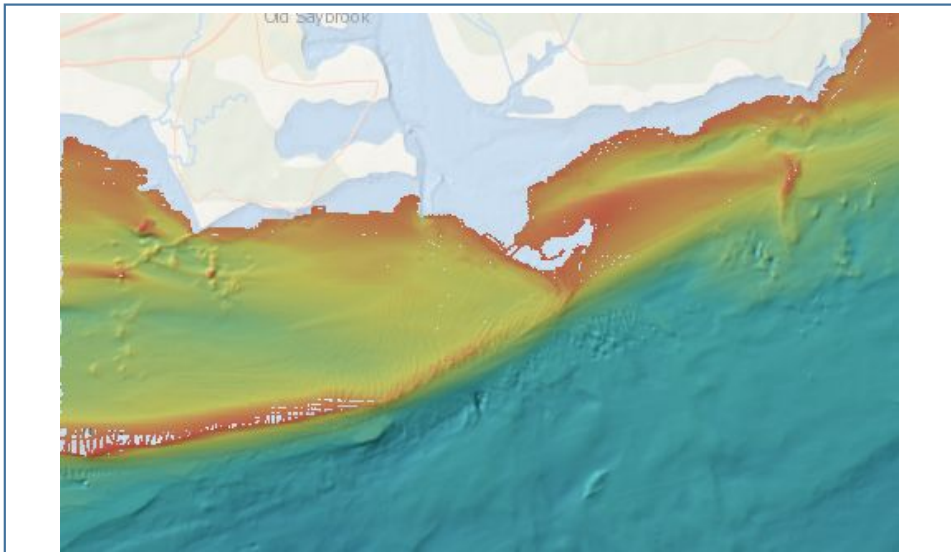
Blue Plan Sector(s): Habitats/Physical/Bathymetry

Summary Description: This layer is a tiled service of bathymetry from Montauk to Nantucket Shoals. The bathymetry data product is composed of over 200 surveys that were collected in the northeast United States since 1887 principally for the purpose of navigation safety. This product includes only historic point soundings collected prior to the established use of multi-beam survey methods by the NOAA Office of Coast Survey.

Full Description:

http://www.northeastoceandata.org/files/metadata/Themes/PhysicalOceanography/MontaukToNantucketShoals_30m.pdf

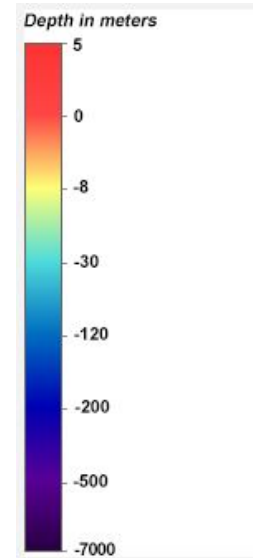
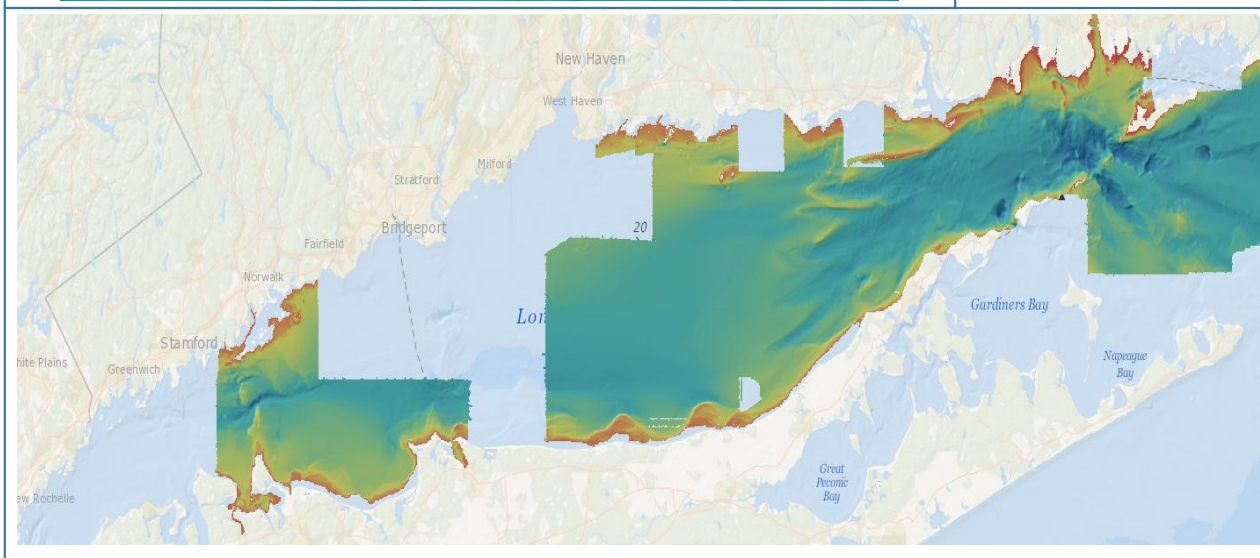
Access Instructions: <http://www.northeastoceandata.org/data-explorer/>, then go to “Bathymetry & Imagery”



NOS Hydrographic Survey Data

MARCO Marine Planner

Source: NOAA / National Ocean Service (NOS) Hydrographic Survey



NOS Hydrographic Survey Data



Blue Plan Sector(s): Habitats/Physical/Bathymetry

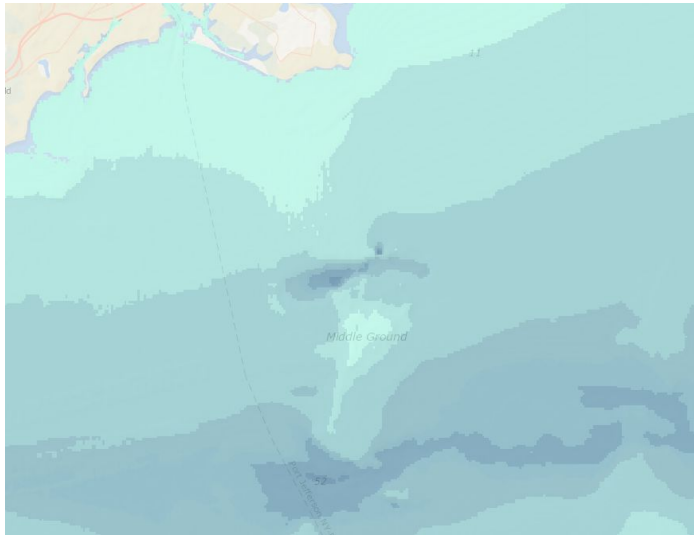
Summary Description: This data displays detailed color shaded relief visualizations of high-resolution quality-controlled seafloor elevation from NOAA / National Ocean Service (NOS) Hydrographic Survey Bathymetric Attributed Grids (BAGs) in U.S. coastal waters. Many near-shore areas have been mapped at high resolution (often 1 meter or better). The depths are usually relative to Mean Lower Low Water (MLLW) datum. BAG files are gridded, multi-dimensional bathymetric data files and is the standard NOS hydrographic data file for public release. These data not to be used for navigation. Although these data are of high quality and useful for planning and modeling purposes, they are not suitable for navigation. For official navigation products, please refer to the U.S. nautical charts available from the NOAA Office of Coast Survey.

Full Description:

https://www.ngdc.noaa.gov/docucomp/page?xml=NOAA/NESDIS/NGDC/Collection/iso/xml/NOS_Hydrographic_Survey_Collection.xml&view=xml2text/xml-to-text-ISO

Access Instructions:

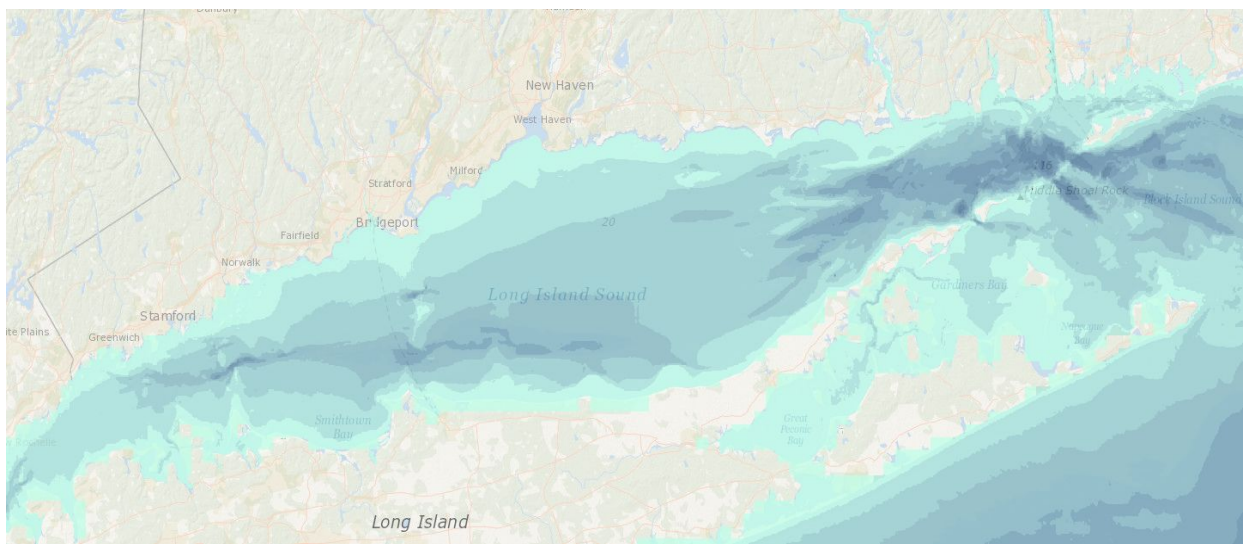
<http://portal.midatlanticocean.org/visualize/#x=-73.08&y=41.07&z=12&logo=true&controls=true&dls%5B%5D=true&dls%5B%5D=0.75&dls%5B%5D=339&basemap=Ocean&themes%5Bids%5D%5B%5D=14&tab=data&legends=false&layers=true>, go to Oceanography -> Bathymetry -> NOS Hydrographic Survey Data



Regional Bathymetry

MARCO Marine Planner

Source: NOAA, Center for Coastal and Ocean Mapping/Joint Hydrographic Center, The Nature Conservancy



Regional Bathymetry
Depth (meters)



Regional Bathymetry

Blue Plan Sector(s): Habitats/Physical/Bathymetry

Summary Description: This raster dataset represents region-wide bathymetry data that covers the entire Mid-Atlantic region out to the Exclusive Economic Zone (EEZ). It was compiled by The Nature Conservancy primarily from NOAA's Coastal Relief Model and Atlantic margin bathymetry data compiled by the Center for Coastal and Ocean Mapping/Joint Hydrographic Center, University of New Hampshire. The raster cell size is approximately 100 meters. These data not to be used for navigation. Although these data are of high quality and useful for planning and modeling purposes, they are not suitable for navigation.

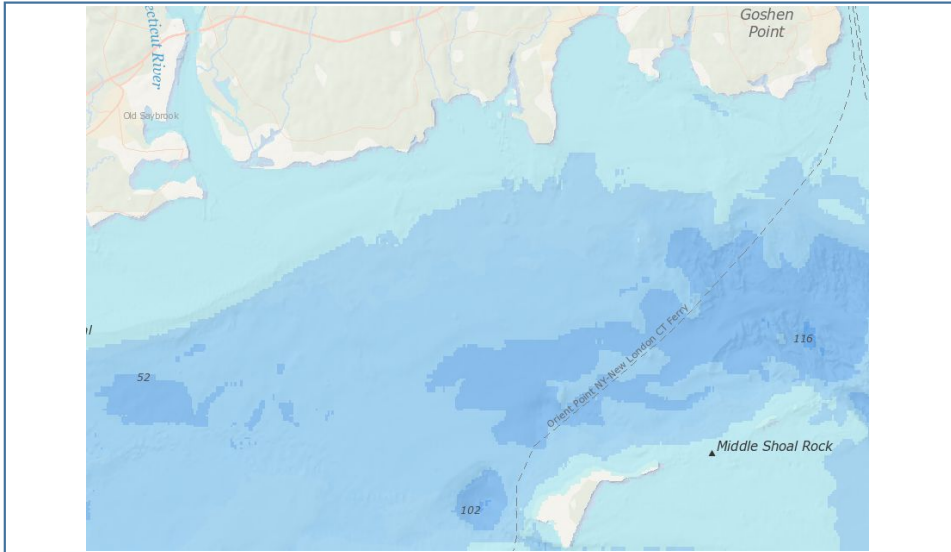
Full Description:

http://portal.midatlanticocean.org/static/data_manager/metadata/html/regional_bathymetry_metadata.htm

Access Instructions:

<http://portal.midatlanticocean.org/visualize/#x=-73.08&y=41.07&z=12&logo=true&controls=true&dls%5B%5D=true&dls%5B%5D=0.75&dls%5B%5D=339&basemap=Ocean&themes%5Bids%5D%5B%5D=14&tab=data&legends=false&layers=true>, go to Oceanography ->

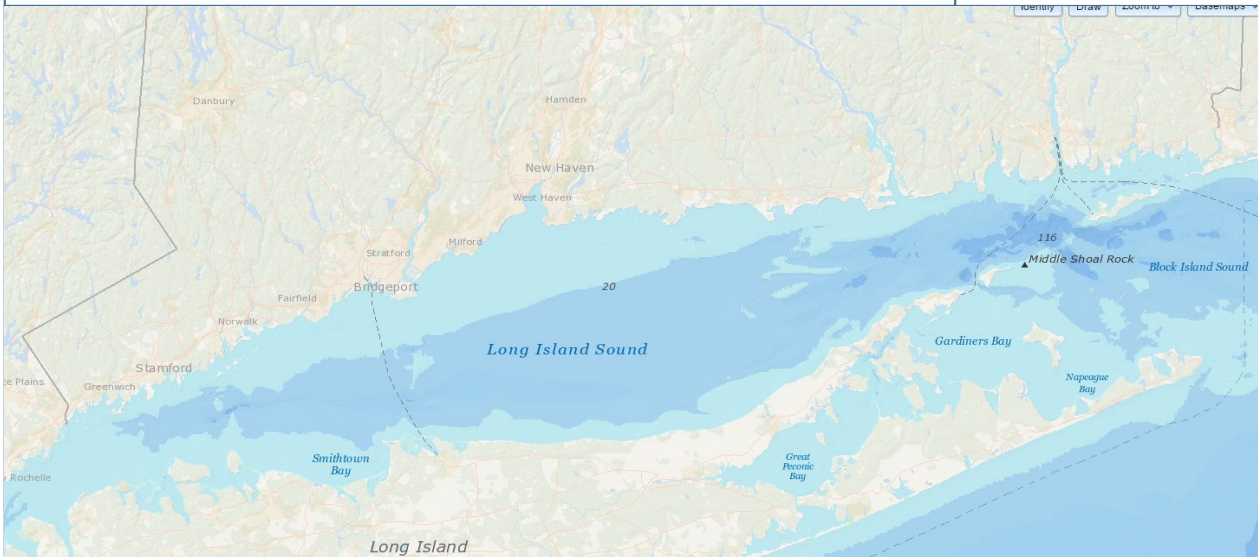
Bathymetry -> Regional Bathymetry



Water Depth

Northeast Ocean Data Portal

Source: NOAA National Geophysical Data Center



Water Depth

Blue Plan Sector(s): Habitats/Physical/Bathymetry

Summary Description: This map layer shows depth, or bathymetry, in 90-meter square grid cells from the NOAA National Geophysical Data Center's Coastal Relief Model. Vertical units are in meters and the data cover coastal and offshore areas in the northeastern U.S. and extend out to the continental shelf. The maximum depth shown on the map is 3,942.5 m. Bathymetric and topographic data sources include: NGDC's NOS hydrographic surveys, multibeam bathymetry, and trackline bathymetry; the U.S. Geological Survey (USGS); and other federal government agencies and academic institutions.

Full Description:

<http://www.northeastoceandata.org/files/metadata/Themes/Bathymetry/Bathymetry>

Access Instructions: <http://www.northeastoceandata.org/data-explorer/>, then go to "Bathymetry & Imagery" group



Fronts Fall Max 2013

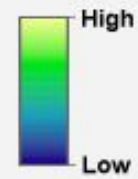
Mid-Atlantic Marine Planner Portal (MAMP)

Source: NOAA CoastWatch



Fronts Fall Max 2013

Probability



Fronts Fall Max 2013



Blue Plan Sector(s): Ecological Characterization > Environmental Characteristics > Physical Oceanography

Summary Description: Fronts play an important role in upper ocean processes. Fronts can impact ocean fisheries, for example, by influencing the spatial distribution of biological productivity and by controlling the accumulation of marine debris, which serves as a beacon to higher trophic levels. The NOAA CoastWatch Oceanic Front Probability Index measures the probability of sea surface temperature front formation based on data from NOAA's GOES satellites. These data represent seasonal 'max' values of ocean fronts for Fall 2013 and were generated using fronts probability data available from CoastWatch. The data were processed to monthly rasters, then computed into composites representing seasonal maximum values. The seasons are as follows: Winter- January, February, December; Spring- March, April, May; Summer- June, July, August. Fall- September, October, November.

Full Description: Go to:

http://portal.midatlanticocean.org/static/data_manager/metadata/html/Fronts_SeasonalMax.html

Access Instructions: Go to:

<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>

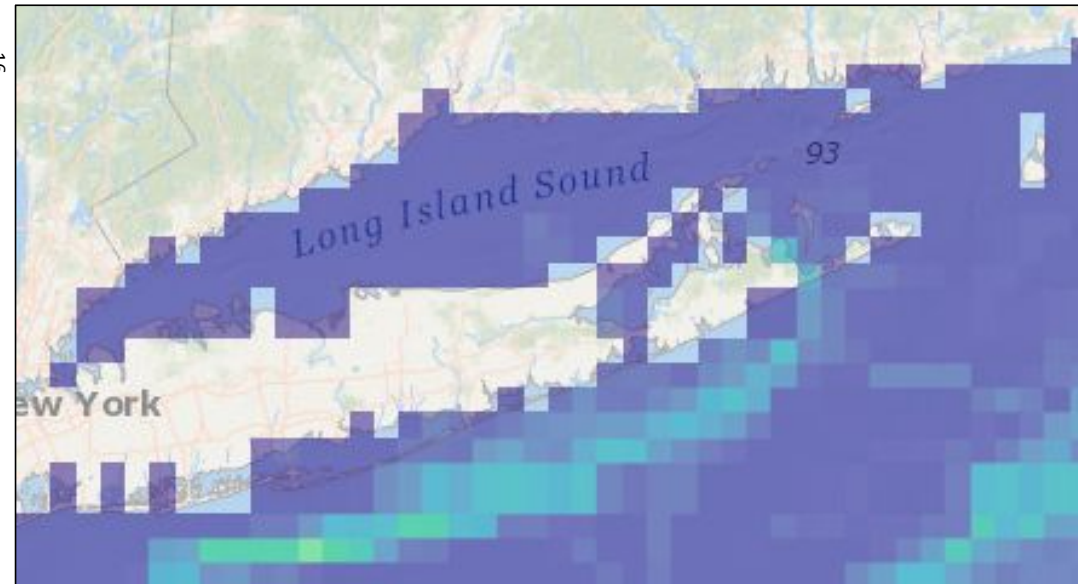
and search "Fronts Fall Max 2013"



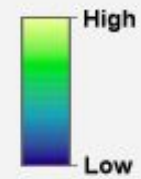
Fronts Spring Max 2013

Mid-Atlantic Marine Planner Portal (MAMP)

Source: NOAA CoastWatch



Fronts Spring Max 2013 Probability



Fronts Spring Max 2013



Blue Plan Sector(s): Ecological Characterization > Environmental Characteristics > Physical Oceanography

Summary Description: Fronts play an important role in upper ocean processes. Fronts can impact ocean fisheries, for example, by influencing the spatial distribution of biological productivity and by controlling the accumulation of marine debris, which serves as a beacon to higher trophic levels. The NOAA CoastWatch Oceanic Front Probability Index measures the probability of sea surface temperature front formation based on data from NOAA's GOES satellites. This dataset represents seasonal 'max' values of ocean fronts (2012, 2013) and were generated using fronts probability data available from CoastWatch. The data were processed to monthly rasters, then computed into composites representing seasonal maximum values. The seasons are as follows: Winter- January, February, December; Spring- March, April, May; Summer- June, July, August. Fall- September, October, November.

The Oceanic Front Probability Index is an EXPERIMENTAL dataset, distributed for scientific evaluation. The source dataset by NOAA CoastWatch is based on sea surface temperature (SST) data; daily SST averages were calculated, then an edge detection algorithm was applied to identify fronts. The index for front probability was then calculated using the number of times a pixel is counted as a front divided by cloud free days for the time period. This helps to eliminate days in which the fronts are masked out by clouds. NOAA CoastWatch accepts no liability for use of these data products. NOT to be used for navigation.

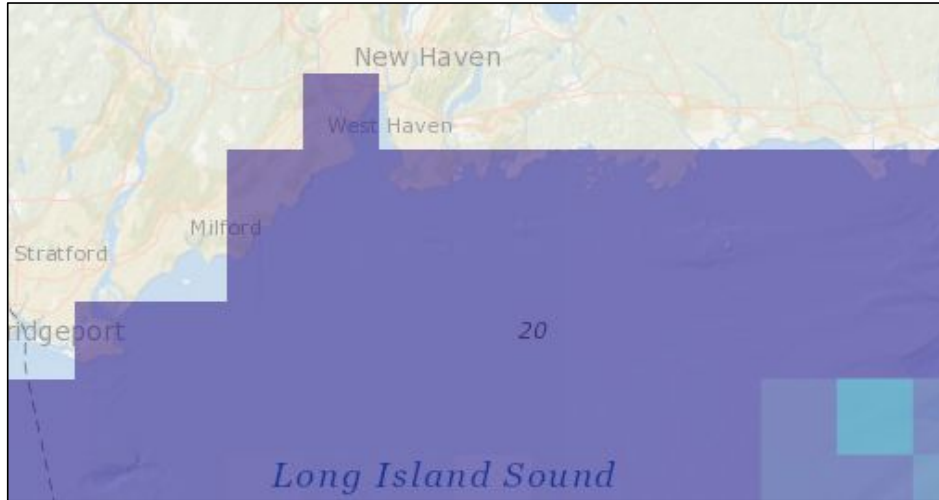
Full Description: Go to:

http://portal.midatlanticocean.org/static/data_manager/metadata/html/Fronts_SeasonalMax.html

Access Instructions: Go to:

<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>

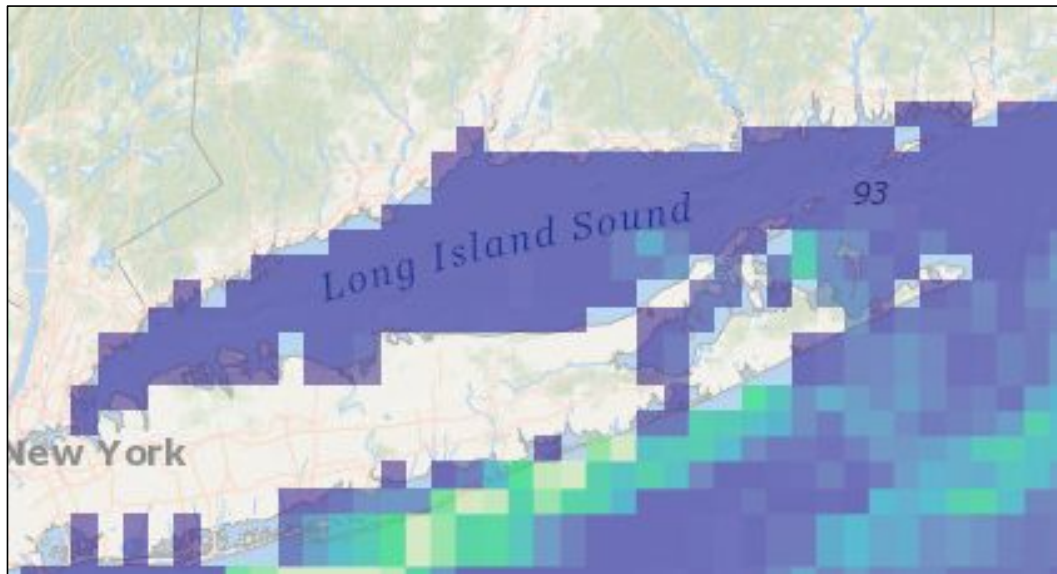
and search "Fronts Spring Max 2013"



Fronts Summer Max 2013

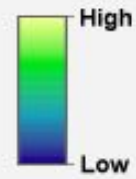
Mid-Atlantic Marine Planner Portal (MAMP)

Source: NOAA CoastWatch



Fronts Summer Max 2013

Probability



Fronts Summer Max 2013



Blue Plan Sector(s): Ecological Characterization > Environmental Characteristics > Physical Oceanography

Summary Description: Fronts play an important role in upper ocean processes. Fronts can impact ocean fisheries, for example, by influencing the spatial distribution of biological productivity and by controlling the accumulation of marine debris, which serves as a beacon to higher trophic levels. The NOAA CoastWatch Oceanic Front Probability Index measures the probability of sea surface temperature front formation based on data from NOAA's GOES satellites. This dataset represents seasonal 'max' values of ocean fronts (2012, 2013) and were generated using fronts probability data available from CoastWatch. The data were processed to monthly rasters, then computed into composites representing seasonal maximum values. The seasons are as follows: Winter- January, February, December; Spring- March, April, May; Summer- June, July, August. Fall- September, October, November.

The Oceanic Front Probability Index is an EXPERIMENTAL dataset, distributed for scientific evaluation. The source dataset by NOAA CoastWatch is based on sea surface temperature (SST) data; daily SST averages were calculated, then an edge detection algorithm was applied to identify fronts. The index for front probability was then calculated using the number of times a pixel is counted as a front divided by cloud free days for the time period. This helps to eliminate days in which the fronts are masked out by clouds. NOAA CoastWatch accepts no liability for use of these data products. NOT to be used for navigation.

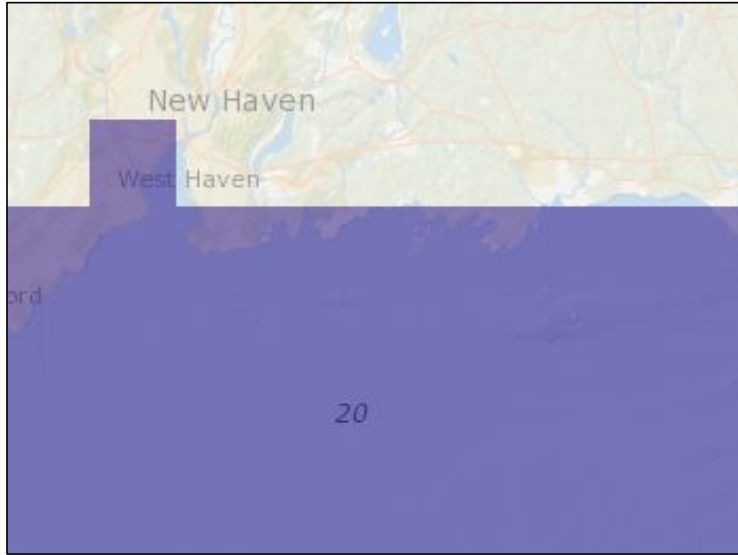
Full Description: Go to:

http://portal.midatlanticocean.org/static/data_manager/metadata/html/Fronts_SeasonalMax.html

Access Instructions: Go to:

<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>

and search "Fronts Summer Max 2013"



Fronts Winter Max 2013

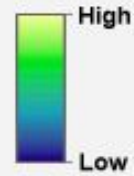
Mid-Atlantic Marine Planner Portal (MAMP)

Source: NOAA CoastWatch



Fronts Winter Max 2013

Probability



Fronts Winter Max 2013



Blue Plan Sector(s): Ecological Characterization > Environmental Characteristics > Physical Oceanography

Summary Description: Fronts play an important role in upper ocean processes. Fronts can impact ocean fisheries, for example, by influencing the spatial distribution of biological productivity and by controlling the accumulation of marine debris, which serves as a beacon to higher trophic levels. The NOAA CoastWatch Oceanic Front Probability Index measures the probability of sea surface temperature front formation based on data from NOAA's GOES satellites. This dataset represents seasonal 'max' values of ocean fronts (2012, 2013) and were generated using fronts probability data available from CoastWatch. The data were processed to monthly rasters, then computed into composites representing seasonal maximum values. The seasons are as follows: Winter- January, February, December; Spring- March, April, May; Summer- June, July, August. Fall- September, October, November.

The Oceanic Front Probability Index is an EXPERIMENTAL dataset, distributed for scientific evaluation. The source dataset by NOAA CoastWatch is based on sea surface temperature (SST) data; daily SST averages were calculated, then an edge detection algorithm was applied to identify fronts. The index for front probability was then calculated using the number of times a pixel is counted as a front divided by cloud free days for the time period. This helps to eliminate days in which the fronts are masked out by clouds. NOAA CoastWatch accepts no liability for use of these data products. NOT to be used for navigation.

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Access Instructions: Go to:

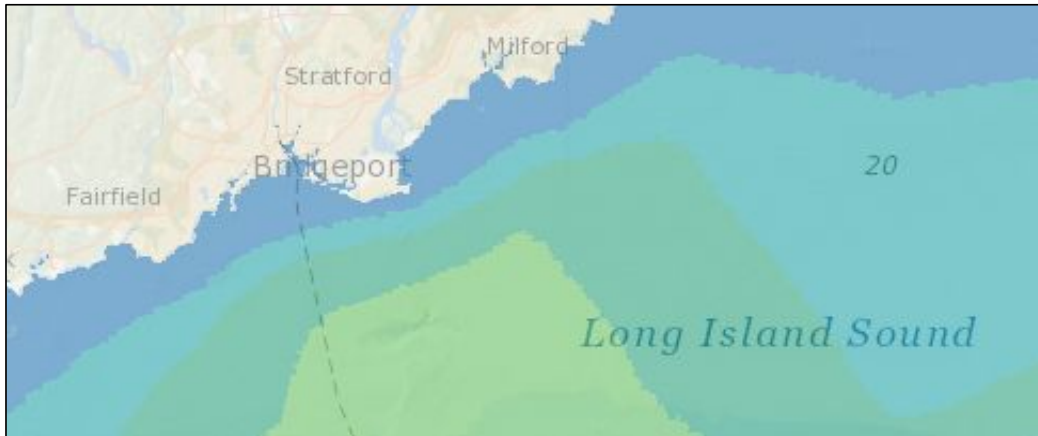
<http://portal.midatlanticocean.org/visualize/#x=-73.24&y=38.93&z=7&logo=true&controls=true&basemap=Ocean&tab=data&legends=false&layers=true>

and search "Fronts Winter Max 2013"

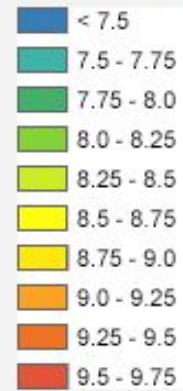
Wind Speed

Mid-Atlantic Marine Planner Portal (MAMP)

Source: AWS Truepower/NREL



Wind Speed at 90m (m/s)



Wind Speed

Blue Plan Sector(s): Ecological Characterization > Environmental Characteristics > Physical Oceanography

Summary Description: Annual average offshore wind speed for the Atlantic Coast (Connecticut, Delaware, Georgia, Massachusetts, Maine, Maryland, New Hampshire, New Jersey, New York, North Carolina, Rhode Island, South Carolina, and Virginia) at a 90 meter height.

Full Description: **Go to:**

http://www.nrel.gov/gis/data/GIS_Data_Technology_Specific/United_States/Wind/metadata/atlantic_coast_metadata.htm

Access Instructions: Go to:

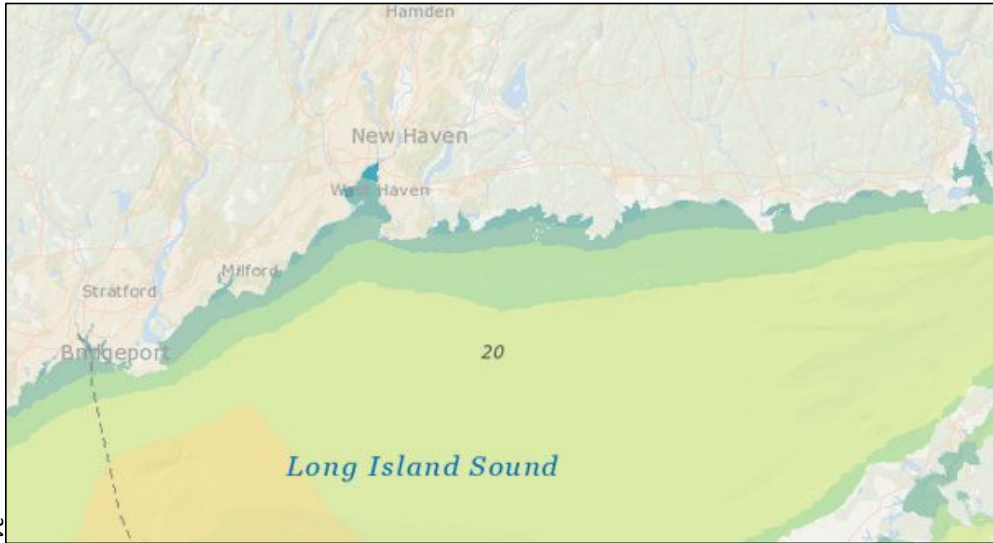
<http://portal.midatlanticocean.org/visualize/#x=-73.24&y=38.93&z=7&logo=true&controls=true&basemap=Ocean&tab=data&legends=false&layers=true>

and search “*Wind Speed*”

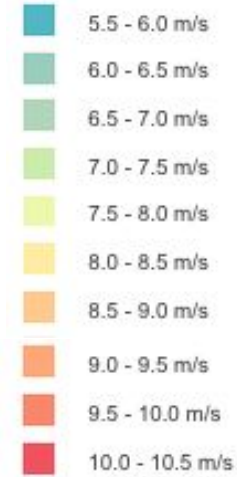
Annual Mean Offshore Wind Speed

Northeast Ocean Data Portal (NEODP)

Source: National Renewable Energy Laboratory



Annual Mean Offshore Wind Speed m/s



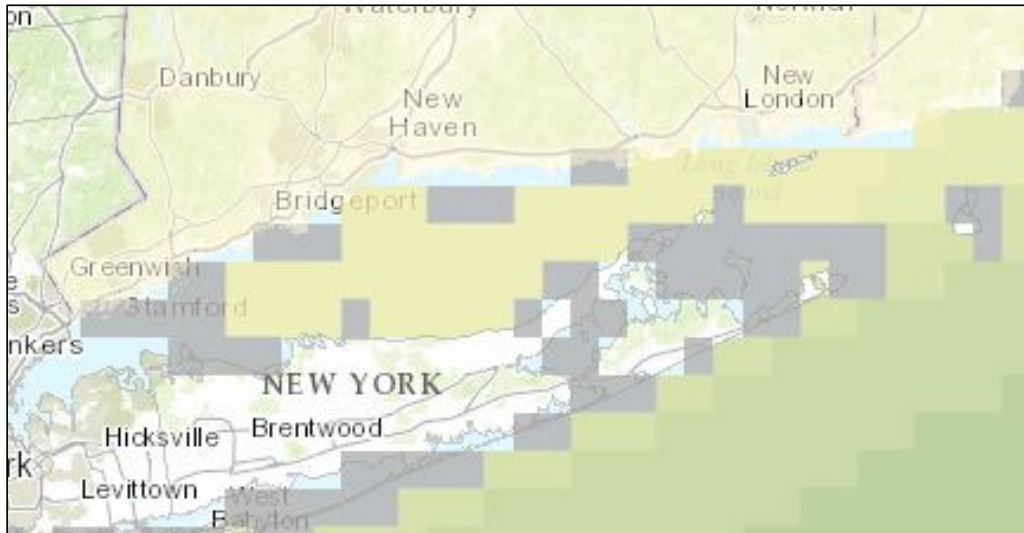
Annual Mean Offshore Wind Speed

Blue Plan Sector(s): Ecological Characterization > Environmental Characteristics > Physical Oceanography

Summary Description: This map layer shows model estimates of offshore wind speeds at height of 90 m above the ocean surface. The estimates are shown in 100-meter grid cells. The lowest annual mean wind speed in the model was 5.5 m/s, and the highest was 10.375 m/s.

Full Description: Go to: <http://www.nrel.gov/docs/fy10osti/45889.pdf>

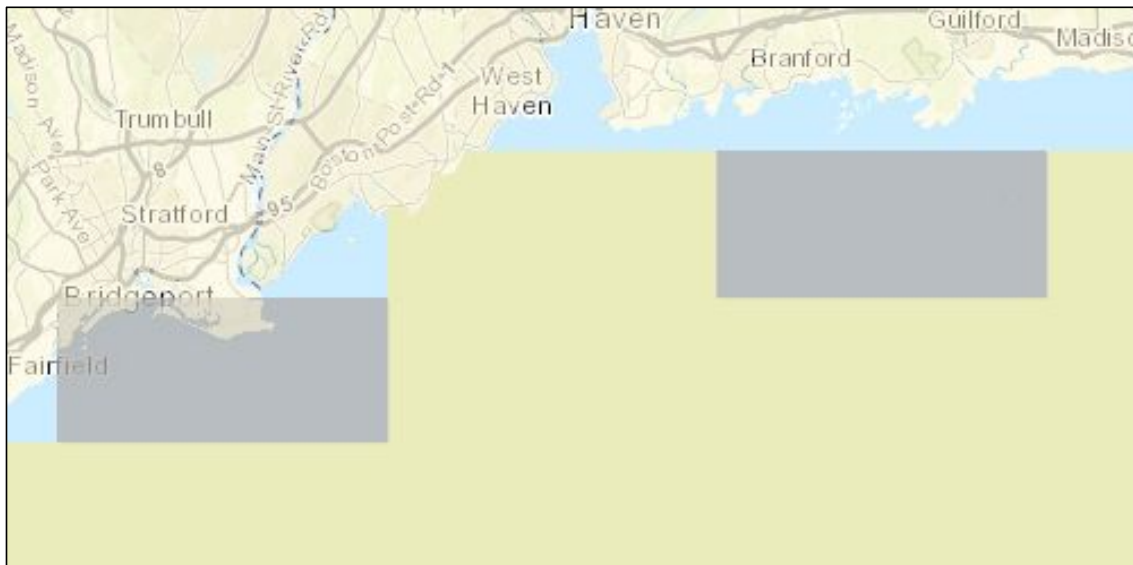
Access Instructions: Go to: <http://www.northeastoceandata.org/data-explorer/> and search “Annual Mean Offshore Wind Speed”



Ocean Wave Resource Potential

New York Geographic Information Gateway (NYGIG)

Source: Electric Power Resource Institute



Legend:

- Depths < 20m require hi-res models.
- Depths < 50m require hi-res models.
- 0.0 - 1.6 kW/m
- 1.7 - 3.2 kW/m
- 3.3 - 5.0 kW/m
- 5.1 - 7.3 kW/m
- 7.4 - 11.1 kW/m
- 11.2 - 19.4 kW/m
- 19.5 - 27.0 kW/m
- 27.1 - 33.7 kW/m
- 33.8 - 41.1 kW/m
- 41.2+ kW/m

Ocean Wave Resource Potential

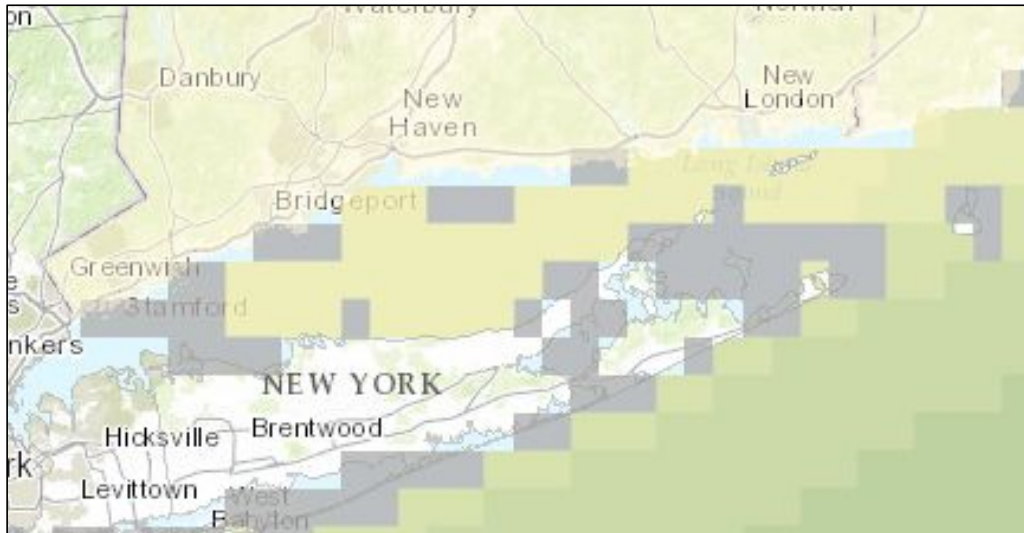


Blue Plan Sector(s): Ecological Characterization > Environmental Characteristics > Physical Oceanography

Summary Description: The project estimated the naturally available and technically recoverable U.S. wave energy resources, using a 51-month Wavewatch III hindcast database developed especially for this study by National Oceanographic and Atmospheric Administration's (NOAA's) National Centers for Environmental Prediction. For total resource estimation, wave power density in terms of kilowatts per meter is aggregated across a unit diameter circle. This approach is fully consistent with accepted global practice and includes the resource made available by the lateral transfer of wave energy along wave crests, which enables densities within a few kilometers of a linear array, even for fixed terminator devices. *Purpose*: The project estimated the naturally available and technically recoverable U.S. wave energy resources, using a 51-month Wavewatch III hindcast database developed especially for this study by National Oceanographic and Atmospheric Administration's (NOAA's) National Centers for Environmental Prediction. For total resource estimation, wave power density in terms of kilowatts per meter is aggregated across a unit diameter circle.

Full Description: Go to: <http://opdgig.dos.ny.gov/geoportal/catalog/search/resource/detailsnoheader.page?uuid={052C3538-9155-4095-9975-C06B5550093C}>

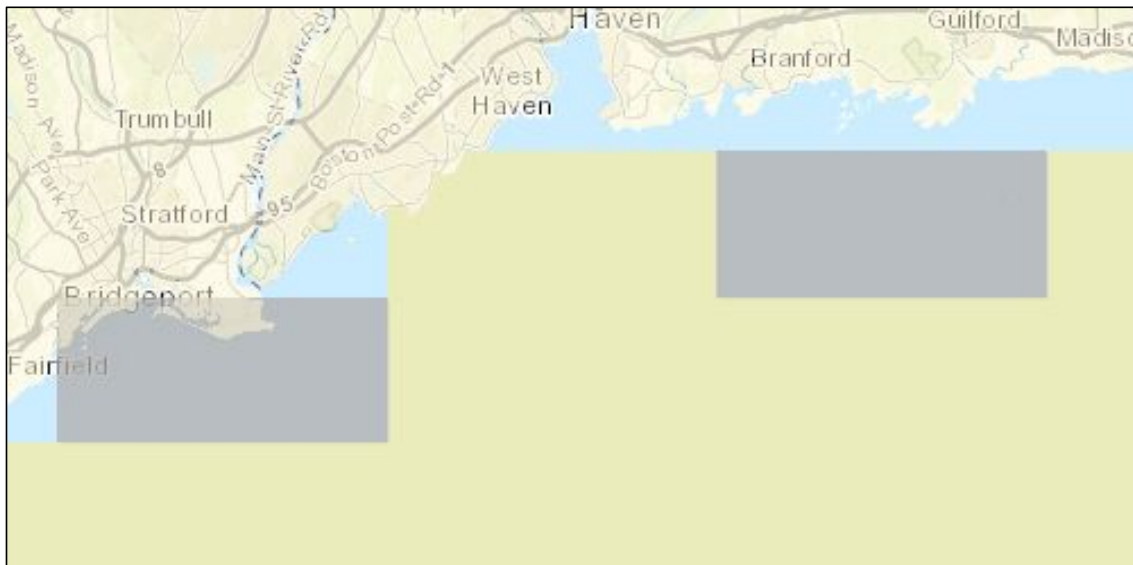
Access Instructions: Go to: <http://opdgig.dos.ny.gov/#/map> and search "Ocean Wave Resource Potential"



Ocean Wave Resource Potential

New York Geographic Information Gateway (NYGIG)

Source: Electric Power Resource Institute



Legend:

- Depths <20m require hi-res models.
- Depths <50m require hi-res models.
- 0.0 - 1.6 kW/m
- 1.7 - 3.2 kW/m
- 3.3 - 5.0 kW/m
- 5.1 - 7.3 kW/m
- 7.4 - 11.1 kW/m
- 11.2 - 19.4 kW/m
- 19.5 - 27.0 kW/m
- 27.1 - 33.7 kW/m
- 33.8 - 41.1 kW/m
- 41.2+ kW/m

Ocean Wave Resource Potential



Blue Plan Sector(s): Ecological Characterization > Environmental Characteristics > Physical Oceanography

Summary Description: The project estimated the naturally available and technically recoverable U.S. wave energy resources, using a 51-month Wavewatch III hindcast database developed especially for this study by National Oceanographic and Atmospheric Administration's (NOAA's) National Centers for Environmental Prediction. For total resource estimation, wave power density in terms of kilowatts per meter is aggregated across a unit diameter circle. This approach is fully consistent with accepted global practice and includes the resource made available by the lateral transfer of wave energy along wave crests, which enables densities within a few kilometers of a linear array, even for fixed terminator devices. *Purpose*: The project estimated the naturally available and technically recoverable U.S. wave energy resources, using a 51-month Wavewatch III hindcast database developed especially for this study by National Oceanographic and Atmospheric Administration's (NOAA's) National Centers for Environmental Prediction. For total resource estimation, wave power density in terms of kilowatts per meter is aggregated across a unit diameter circle.

Full Description: Go to:

<http://opdgig.dos.ny.gov/geoportal/catalog/search/resource/detailsnoheader.page?uuid={052C3538-9155-4095-9975-C06B5550093C}>

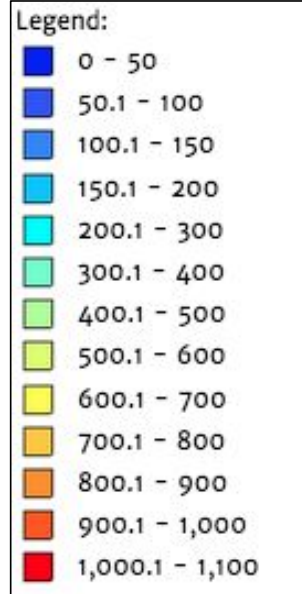
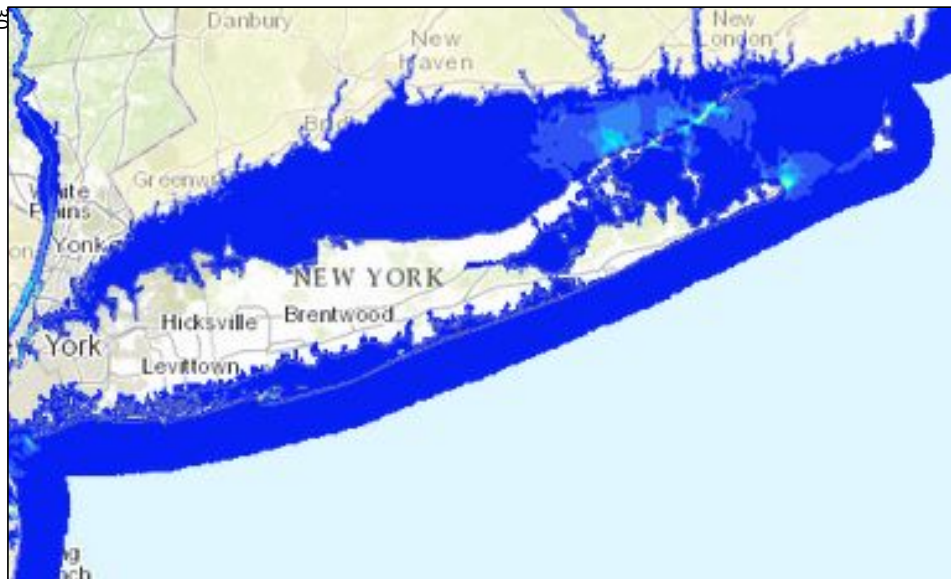
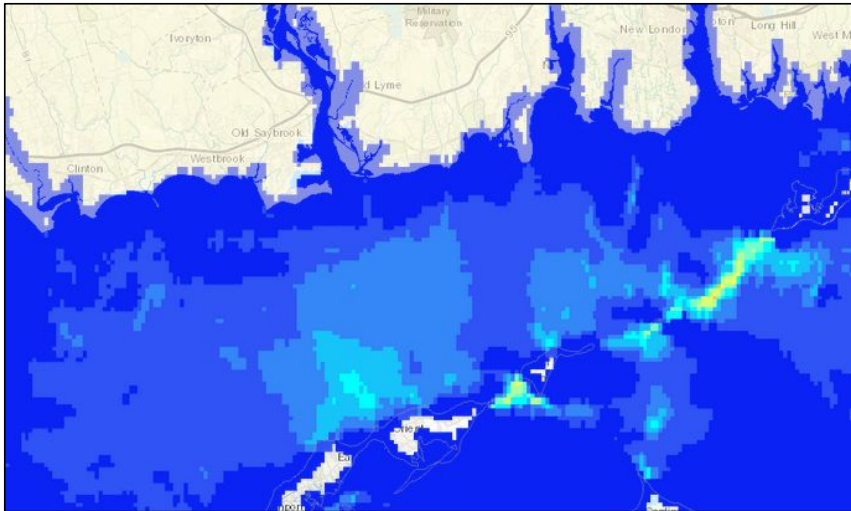
Access Instructions: Go to: <http://opdgig.dos.ny.gov/#/map>

and search "Ocean Wave Resource Potential"

Tidal Stream Resource Potential – Mean Power Density

New York Geographic Information Gateway (NYGIG)

Source: US Department of Energy, Office of Energy Efficiency and Renewable Energy



Tidal Stream Resource Potential – Mean Power Density

Blue Plan Sector(s): Ecological Characterization > Environmental Characteristics > Physical Oceanography

Summary Description: Data depicts tidal stream mean power within U.S. waters. Tidal streams are high velocity sea currents created by periodic horizontal movement of the tides. Tidal stream energy is derived from the kinetic energy of the moving flow. A numerical model was used for simulating the tidal flows along the coast of the entire United States. Model results were calibrated with available measurements of tidal currents from NOAA tidal current stations. It should be noted that tidal currents and associated power per unit area can have significant spatial variability; therefore currents at one location are generally a poor indicator of conditions at another location, even nearby. Tidal power (energy) is measured in watts per meter squared (W/m²). For more information, please click here. *Purpose*: Average power (watts/square meter) of tidal streams in U.S. waters.

Full Description: Go to:

<http://opdgig.dos.ny.gov/geoportal/catalog/search/resource/detailsnoheader.page?uuid={A5F9D612-7F29-4D23-AB90-C0FD13B7AB99}>

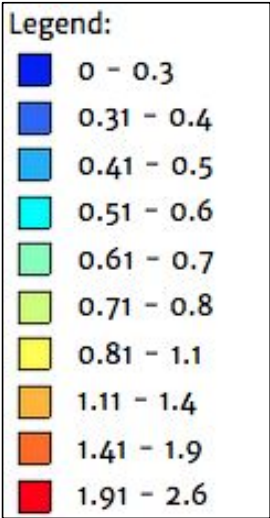
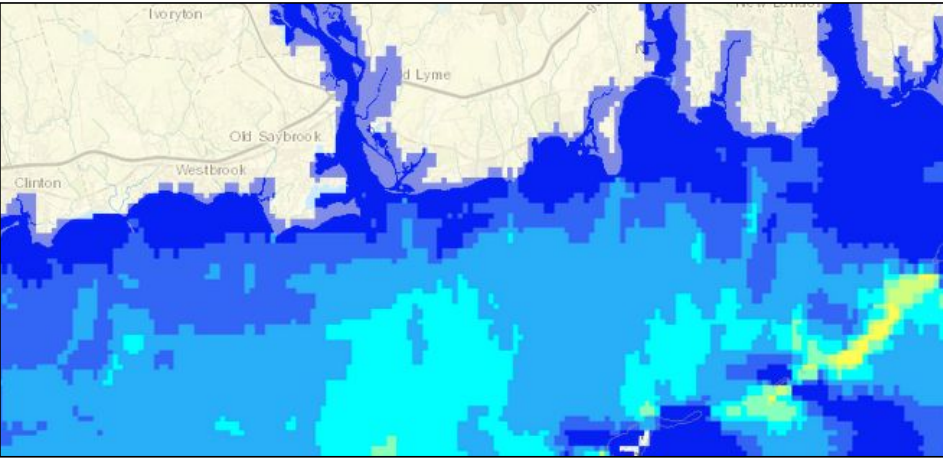
Access Instructions: Go to: <http://opdgig.dos.ny.gov/#/map>

and search “Tidal Stream Resource Potential– Mean Power Density”

Tidal Stream Resource Potential – Mean Current

New York Geographic Information Gateway (NYGIG)

Source: US Department of Energy, Office of Energy Efficiency and Renewable Energy



Tidal Stream Resource Potential – Mean Current

Blue Plan Sector(s): Ecological Characterization > Environmental Characteristics > Physical Oceanography

Summary Description: Data depicts tidal stream mean current within U.S. waters. Tidal streams are high velocity sea currents created by periodic horizontal movement of the tides. Tidal stream energy is derived from the kinetic energy of the moving flow. A numerical model was used for simulating the tidal flows along the coast of the entire United States. Model results were calibrated with available measurements of tidal currents from NOAA tidal current stations. It should be noted that tidal currents and associated power per unit area can have significant spatial variability; therefore currents at one location are generally a poor indicator of conditions at another location, even nearby. Tidal current (velocity) is measured in meters per second (m/s). For more information, please click here. *Purpose*: Average current speed (meters/second) of tidal stream in US waters.

Full Description: Go to:

<http://opdgig.dos.ny.gov/geoportal/catalog/search/resource/detailsnoheader.page?uuid={286FAA27-CF09-475A-A608-9AABA22D80C7}>

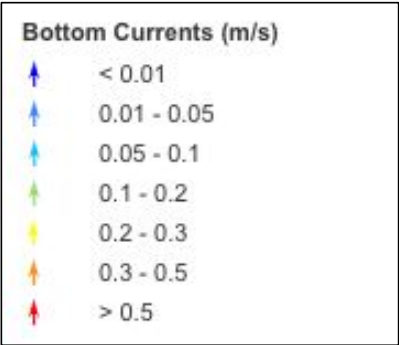
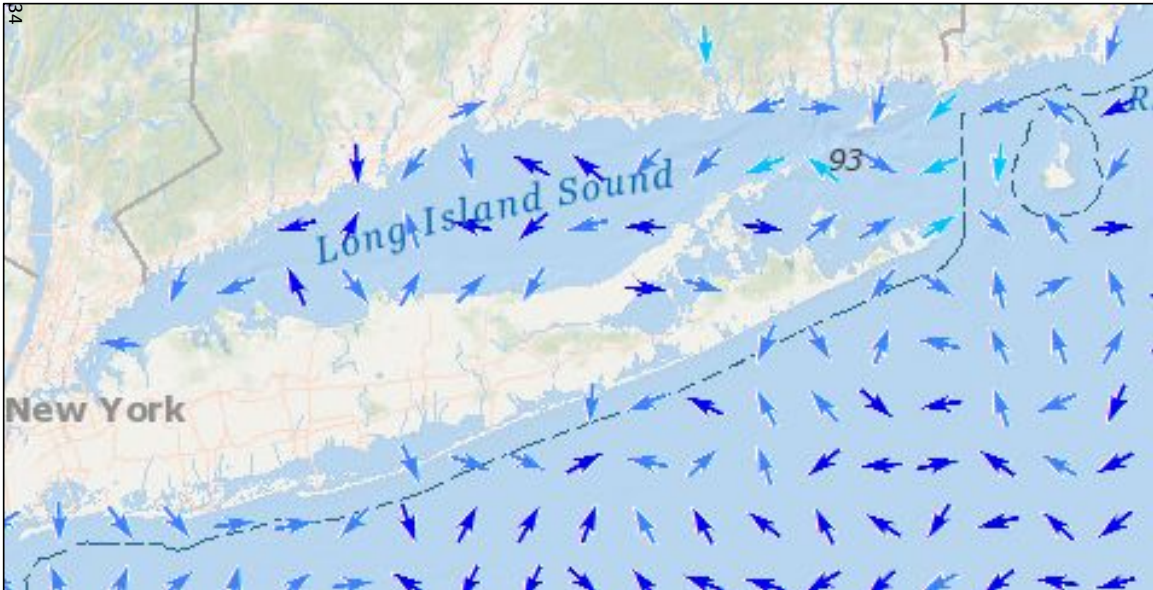
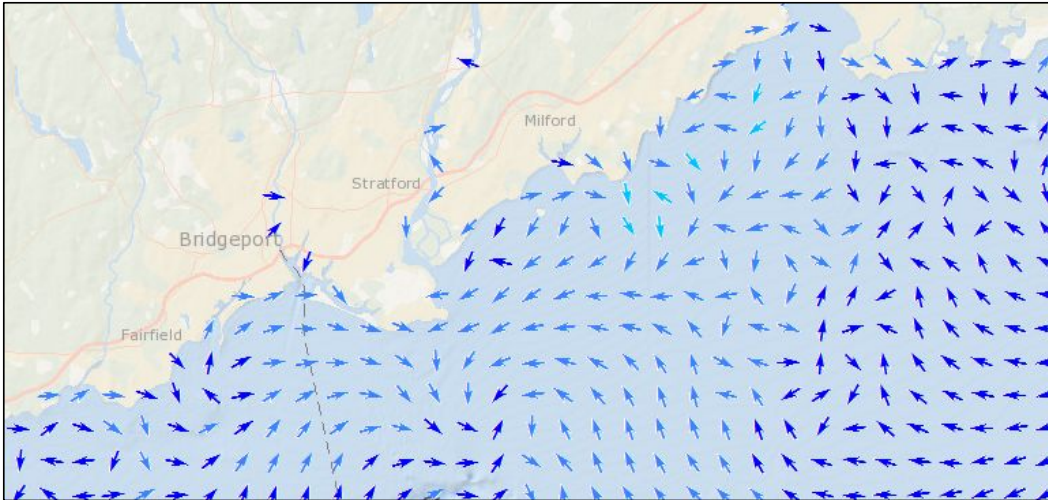
Access Instructions: Go to: <http://opdgig.dos.ny.gov/#/map>

and search “Tidal Stream Resource Potential– Mean Current”

Bottom Currents

Northeast Ocean Data Portal (NEODP)

Source: University of Massachusetts-Dartmouth School for Marine Science and Technology (SMAST), Woods Hole Oceanographic Institution (WHOI), RPS Applied Science Associates (RPS ASA)



Bottom Currents

Blue Plan Sector(s): Ecological Characterization > Environmental Characteristics > Physical Oceanography

Summary Description: This is a climatological product based on the unstructured Finite Volume Coastal Ocean Model (FVCOM), developed by the Marine Ecosystem Dynamics Modeling Laboratory at the University of Massachusetts-Dartmouth and the Woods Hole Oceanographic Institute.

A climatology is a long term average of a given environmental variable over a certain time range. This layer shows the climatological annual average bottom currents (meters/second) from 1978 to 2013, which comprises 36 years for which FVCOM hindcast data are available

Full Description:

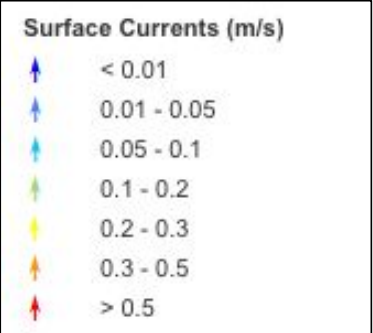
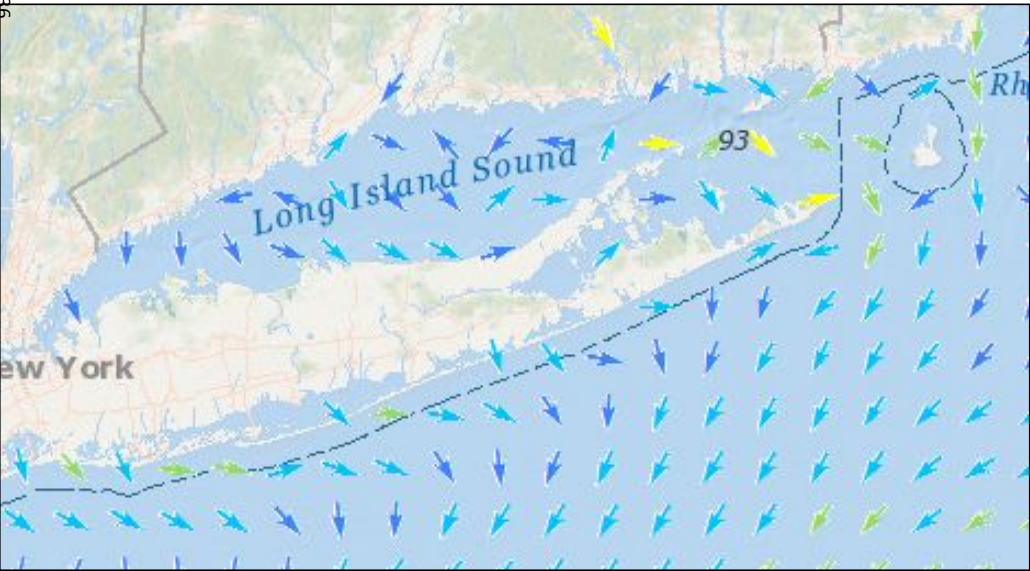
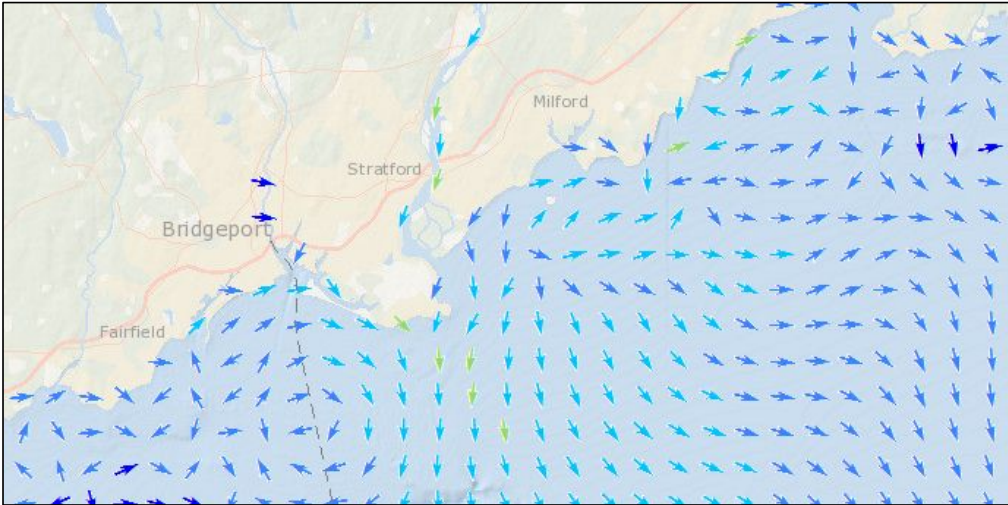
<http://www.northeastoceandata.org/files/metadata/Themes/Habitat/FVCOMAnnualClimatology.pdf>

Go to: Access Instructions: Go to: **<http://www.northeastoceandata.org/data-explorer/>** and search “*Bottom Currents*”

Surface Currents

Northeast Ocean Data Portal (NEODP)

Source: University of Massachusetts-Dartmouth School for Marine Science and Technology (SMAST), Woods Hole Oceanographic Institution (WHOI), RPS Applied Science Associates (RPS ASA)



Surface Currents

Blue Plan Sector(s): Ecological Characterization > Environmental Characteristics > Physical Oceanography

Summary Description: This is a climatological product based on the unstructured Finite Volume Coastal Ocean Model (FVCOM), developed by the Marine Ecosystem Dynamics Modeling Laboratory at the University of Massachusetts-Dartmouth and the Woods Hole Oceanographic Institute.

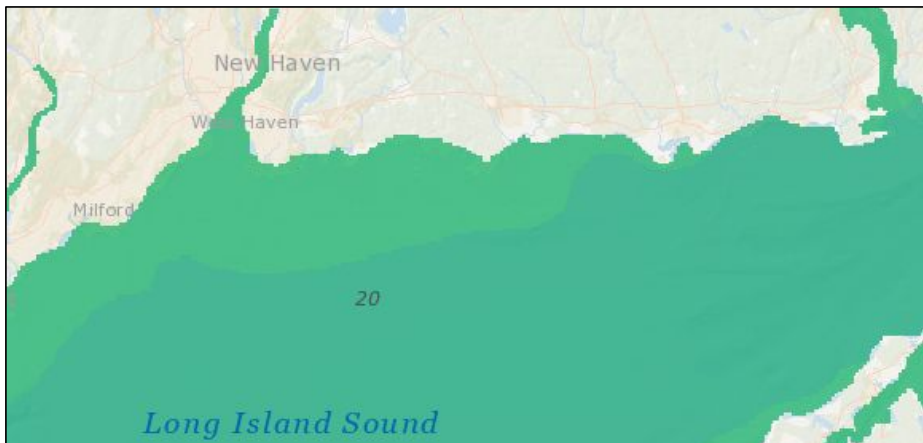
A climatology is a long term average of a given environmental variable over a certain time range. This layer shows the climatological annual average surface currents (meters/second) from 1978 to 2013, which comprises 36 years for which FVCOM hindcast data are available.

Full Description: Go to:

<http://www.northeastoceandata.org/files/metadata/Themes/Habitat/FVCOMAnnualClimatology.pdf>

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

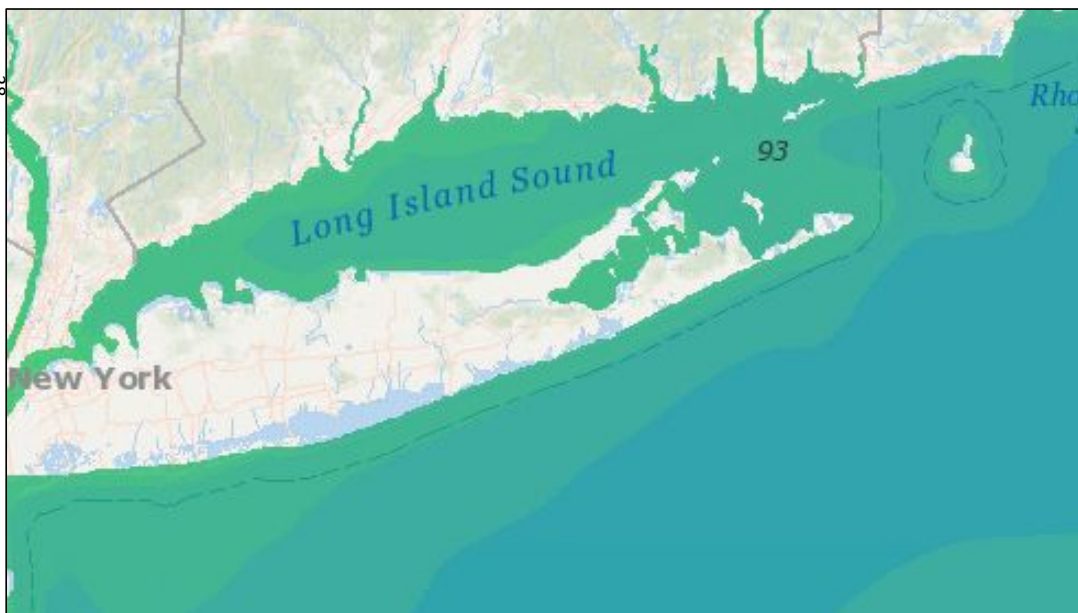
and search “Surface Currents”



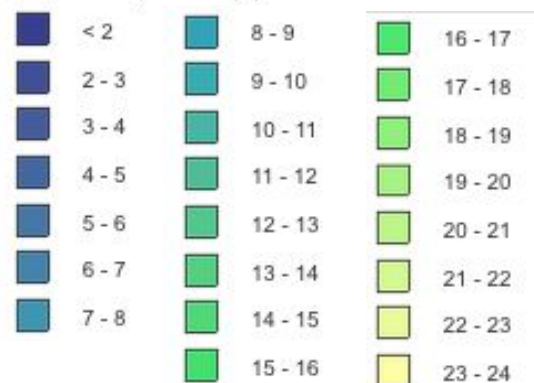
Bottom Temperature

Northeast Ocean Data Portal (NEODP)

Source: University of Massachusetts-Dartmouth School for Marine Science and Technology (SMAST), Woods Hole Oceanographic Institution (WHOI), RPS Applied Science Associates (RPS ASA)



Bottom Temperature (C)



Bottom Temperature

Blue Plan Sector(s): Ecological Characterization > Environmental Characteristics > Physical Oceanography

- **Summary Description**: This is a climatological product based on the unstructured Finite Volume Coastal Ocean Model (FVCOM), developed by the Marine Ecosystem Dynamics Modeling Laboratory at the University of Massachusetts-Dartmouth and the Woods Hole Oceanographic Institute.
- A climatology is a long term average of a given environmental variable over a certain time range. This layer shows the annual average bottom temperature from 1978 to 2013, which comprises 36 years for which FVCOM hindcast data are available.

Full Description:

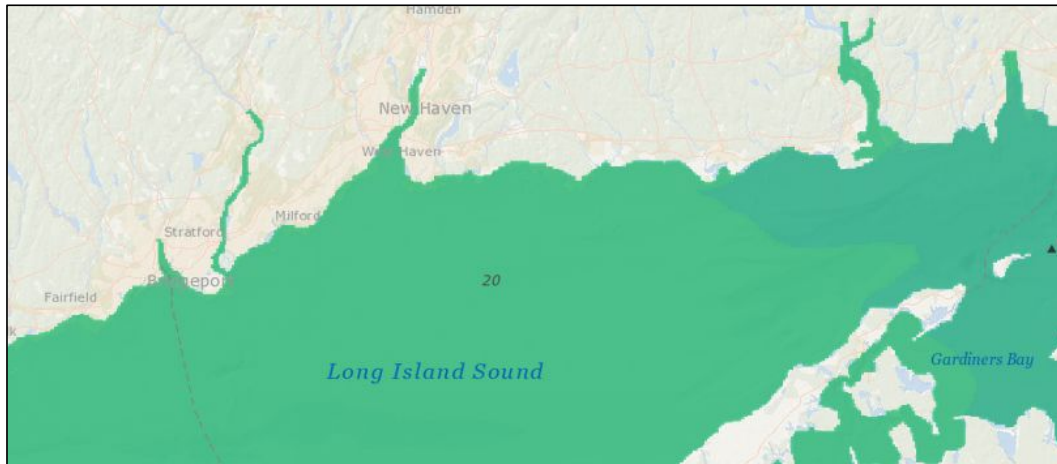
<http://www.northeastoceandata.org/files/metadata/Themes/Habitat/FVCOMAnnualClimatology.pdf>

Go to: Access Instructions: Go to: <http://www.northeastoceandata.org/data-explorer/> and search “*Bottom Temperature*”

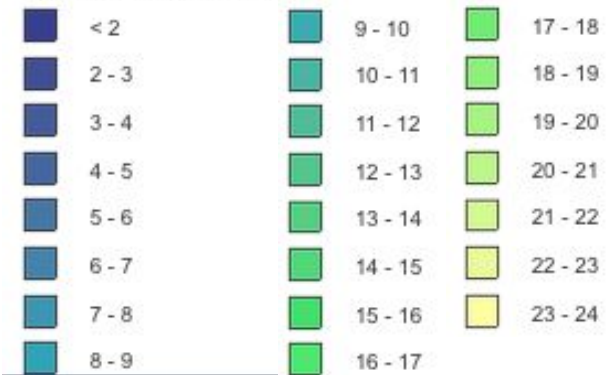
Surface Temperature

Northeast Ocean Data Portal (NEODP)

Source: University of Massachusetts-Dartmouth School for Marine Science and Technology (SMAST), Woods Hole Oceanographic Institution (WHOI), RPS Applied Science Associates (RPS ASA)



Surface Temperature (C)



Surface Temperature

Blue Plan Sector(s): Ecological Characterization > Environmental Characteristics > Physical Oceanography

- **Summary Description**: This is a climatological product based on the unstructured Finite Volume Coastal Ocean Model (FVCOM), developed by the Marine Ecosystem Dynamics Modeling Laboratory at the University of Massachusetts-Dartmouth and the Woods Hole Oceanographic Institute.
- A climatology is a long term average of a given environmental variable over a certain time range. This layer shows the annual average surface temperature from 1978 to 2013, which comprises 36 years for which FVCOM hindcast data are available.

Full Description: Go to:

<http://www.northeastoceandata.org/files/metadata/Themes/Habitat/FVCOMAnnualClimatology.pdf>

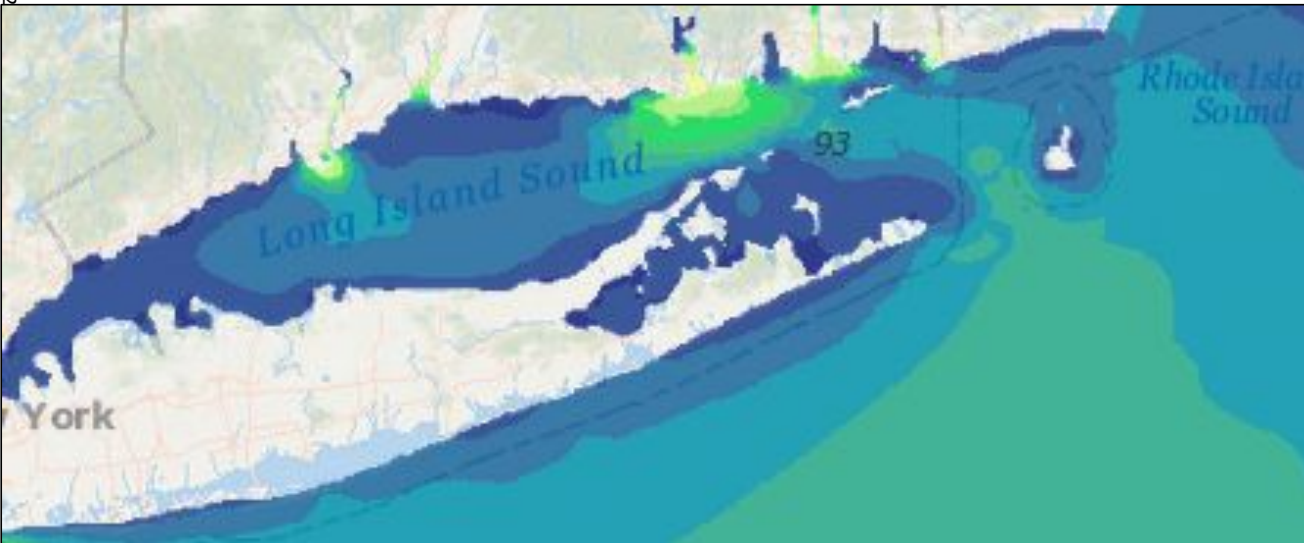
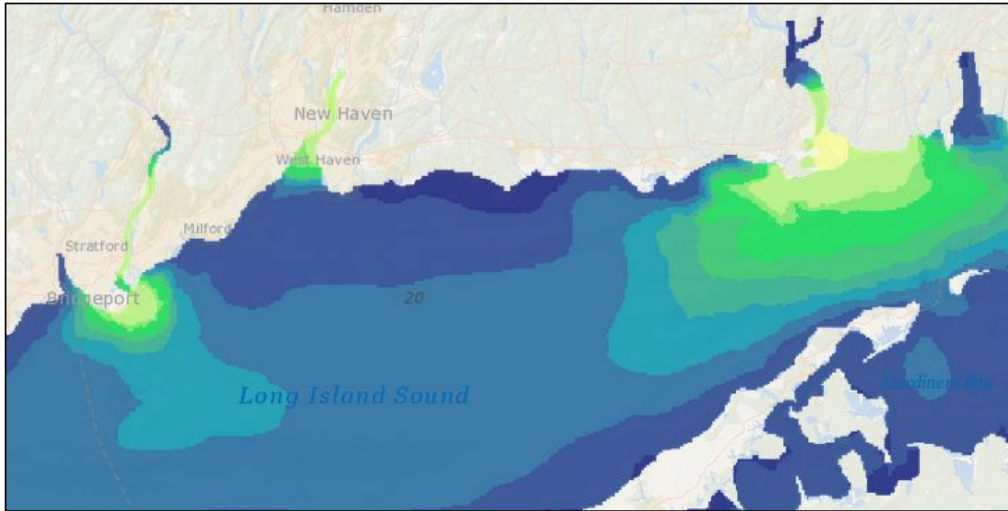
Access Instructions: Go to: <http://www.northeastoceandata.org/data-explorer/>

and search “Surface Temperature”

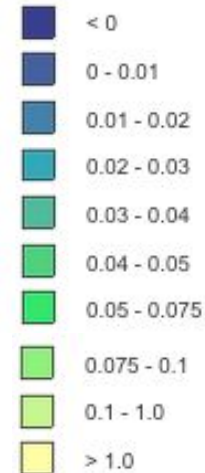
Stratification

Northeast Ocean Data Portal (NEODP)

Source: University of Massachusetts-Dartmouth School for Marine Science and Technology (SMAST), Woods Hole Oceanographic Institution (WHOI), RPS Applied Science Associates (RPS ASA)



Stratification ($\sigma T/m$)



Stratification

Blue Plan Sector(s): Ecological Characterization > Environmental Characteristics > Physical Oceanography

- **Summary Description**: This is a climatological product based on the unstructured Finite Volume Coastal Ocean Model (FVCOM), developed by the Marine Ecosystem Dynamics Modeling Laboratory at the University of Massachusetts-Dartmouth and the Woods Hole Oceanographic Institute.
- A climatology is a long term average of a given environmental variable over a certain time range. This layer shows the annual average stratification from 1978 to 2013, which comprises 36 years for which FVCOM hindcast data are available. Mean and standard deviation of density at surface minus the density at 20 meters (or bottom, whichever is shallower), divided by the difference in depth between the two observations.

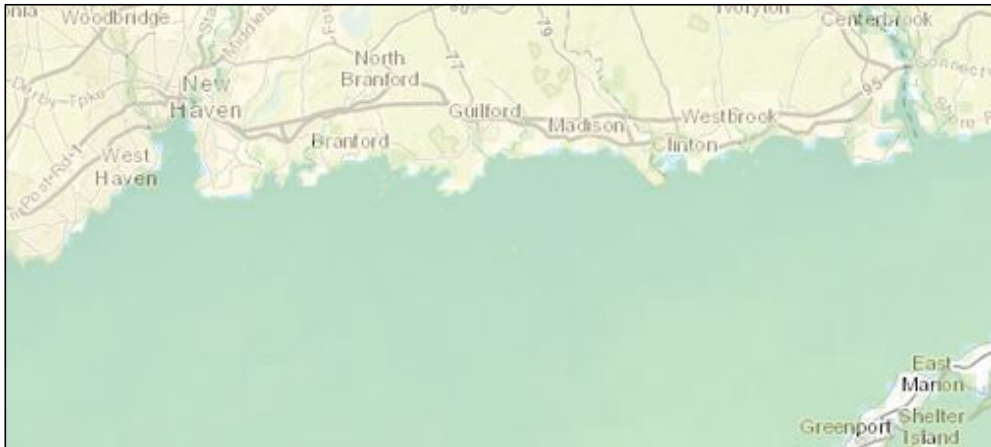
Full Description: Go to:

<http://www.northeastoceandata.org/files/metadata/Themes/Habitat/FVCOMAnnualClimatology.pdf>

Access Instructions: Go to: <http://www.northeastoceandata.org/data-explorer/> and search “Stratification”

Sea Surface Temperature Long Term Average

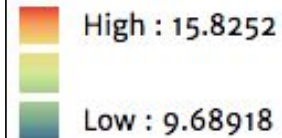
New York Geographic Information Gateway (NYGIG)



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:



Sea Surface Temperature – Long Term Average

Blue Plan Sector(s): Ecological Characterization > Environmental Characteristics > Physical Oceanography

Summary Description: Seasonal averages of sea surface temperature (SST) were calculated by averaging monthly composites of SST, ranging from 1985-2001. SST monthly composites were obtained from the National Aeronautics and Space Administration (NASA) Pathfinder 1.1 km Advanced Very High Resolution Radiometer SST archive for the Northwest Atlantic region; these data are maintained at the University of Rhode Island and publicly available via OpenDAP. For more details about data processing, please see the NOAA NCCOS report prepared for the NY Department of State's Offshore Atlantic Ocean Study. *Purpose*: Sea surface temperature is an important variable that helps explain spatial and seasonal patterns of species distributions 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={4B45E078-63D1-478D-A165-CBE3DCB14ED9}>

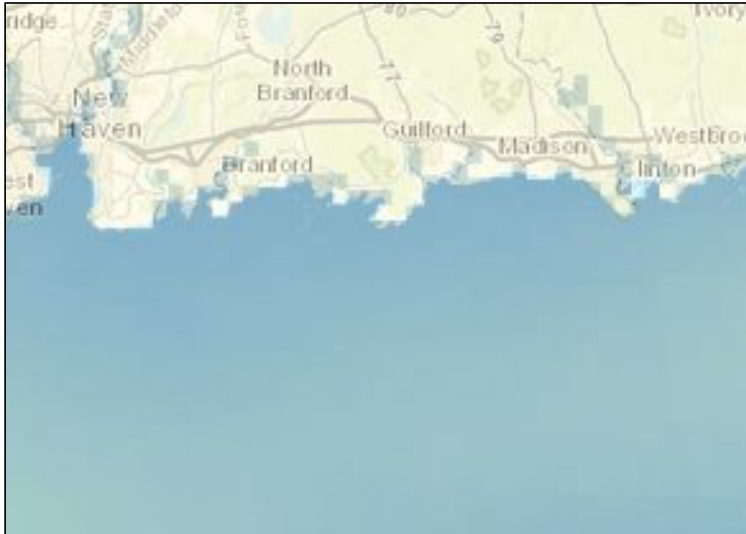
Access Instructions: Go to: <http://opdgig.dos.ny.gov/#/map>

and search “Sea Surface Temperature – Long Term Average”

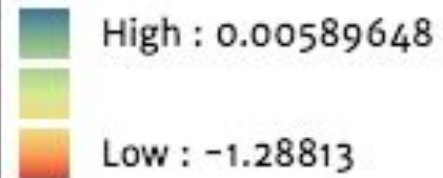
Water Column Stratification – Long-term Average

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:



Water Column Stratification – Long-Term Average



Blue Plan Sector(s): Ecological Characterization > Environmental Characteristics > Physical Oceanography

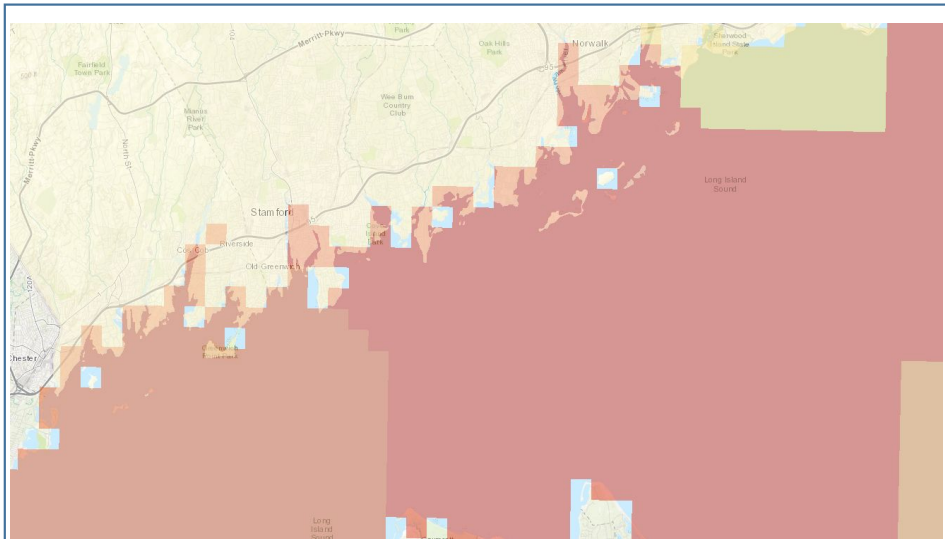
Summary Description: Seasonal averages of water column stratification were calculated for the period 1980-2007. Data were obtained from The Nature Conservancy and Dr. Grant Law. Data were processed and mapped by NOAA NCCOS. Briefly, three-dimensional ocean temperature and salinity were interpolated from conductivity-temperature-depth (CTD) casts. CTD cast data were obtained from a combination of Hydrobase, NOAA National Marine Fisheries Service, Fisheries and Ocean Canada, and South-Atlantic Bight oceanographic databases. Stratification was calculated by subtracting seawater density at 50 meters depth from surface seawater density. The resultant values were then averaged to generate a 1980-2007 climatology. For more details about data processing, please see the NOAA NCCOS report prepared for the NY Department of State's Offshore Atlantic Ocean Study. *Purpose:* Water column stratification (kg/m³) is dependent on water densities and has implications for ocean mixing, circulation, and biological productivity. 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={3646B9FF-5F1E-407A-89C7-412740C1B3D8}>

Access Instructions: Go to: <http://opdgig.dos.ny.gov/#/map>

and search “Water Column Stratification – Long Term Average”

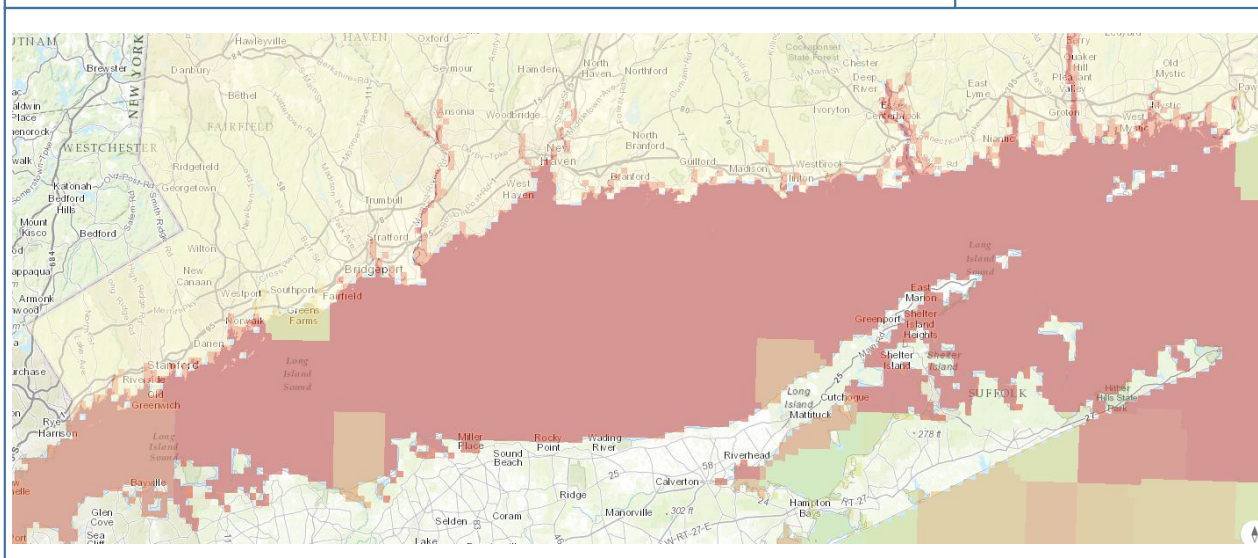


Turbidity – Long Term Averages

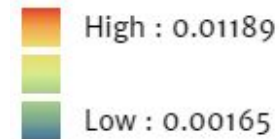
NY Geographic Information Gateway

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

*Examples shown for Summer; data also exists for Spring, Fall, and Winter



Legend:



Turbidity – Long Term Averages



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

Summary Description: Seasonal averages of surface turbidity were calculated for the period 1998-2006. Turbidity was estimated using high-resolution SeaWiFS satellite data to measure the water-leaving radiance at 670nm. Raster values correspond to surface concentrations of chlorophyll a (mg/m³). Turbidity values were normalized to reflect the fraction of incident light reflected, resulting in dimensionless values ranging from 0 to 1. For more details about data processing, please see the NOAA NCCOS report prepared for the NY Department of State's Offshore Atlantic Ocean Study. This dataset provides a proxy for water clarity at the ocean surface and is intended to support New York's offshore spatial planning. For more information see Menza, C., B.P. Kinlan, D.S. Dorfman, M. Poti and C. Caldow (eds.). 2012. A Biogeographic Assessment of Seabirds, Deep Sea Corals and Ocean Habitats of the New York Bight: Science to Support Offshore Spatial Planning. NOAA Technical Memorandum NOS NCCOS 141. Silver Spring, MD. 224 pp.

Full Description:

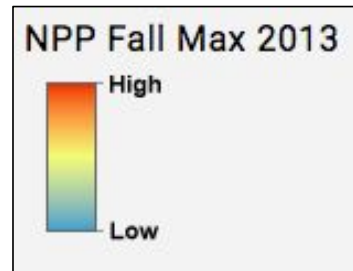
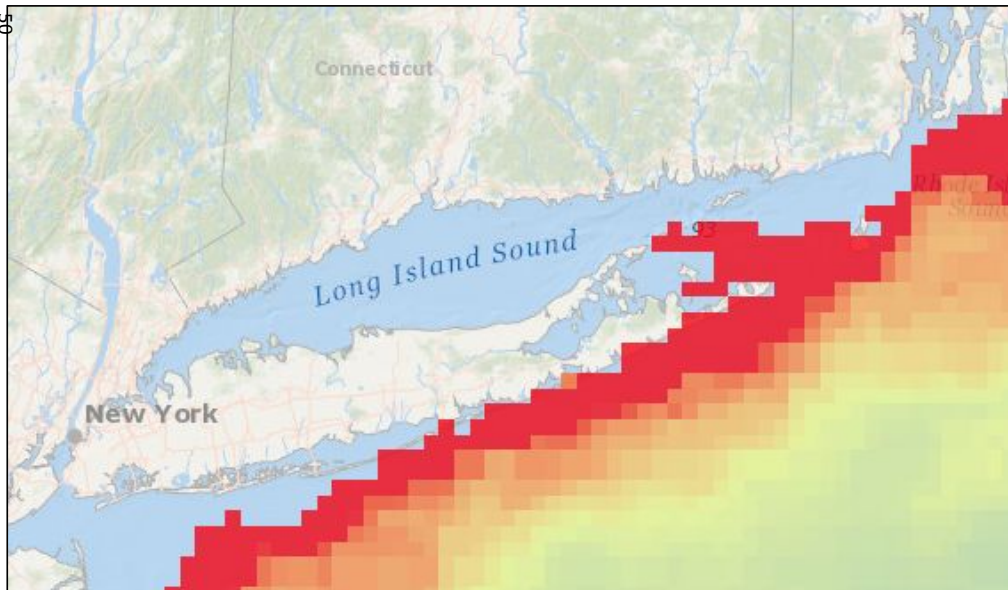
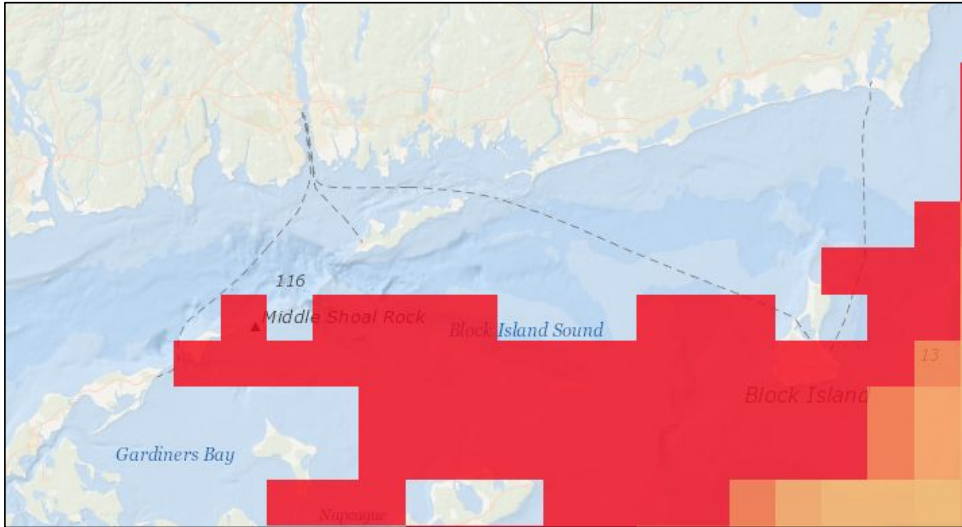
<http://opdgig.dos.ny.gov/geoportal/catalog/search/resource/detailsnoheader.page?uuid={07288051-B16F-4CE9-A6EA-76F9D276DB8C}>

Access Instructions: <http://opdgig.dos.ny.gov/#/map>, Go to “Physical Environment -> Offshore Oceans”

NPP Fall Max 2013

Mid-Atlantic Marine Portal (MAMP)

Source: NOAA CoastWatch; Seasonal Maximum composites generated by the Grant F. Walton Center for Remote Sensing and Spatial Analysis (CRSSA), Rutgers University



NPP Fall Max 2013

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

Summary Description: In the surface ocean, net primary productivity (NPP) is the amount of organic carbon generated by photosynthesis in planktonic organisms minus the amount of organic carbon used by these organisms in respiration. Primary producers form the base of the food chain and generate the biomass that sustains all life in the ocean. NOAA CoastWatch provides a measurement of primary productivity based on a number of satellite measurements. These data represent seasonal 'max' values of ocean NPP for Fall 2013 and were generated utilizing data available from NOAA CoastWatch. Data were processed to monthly rasters, then computed into composites representing seasonal maximum values. The seasons are as follows: Winter- January, February, December; Spring- March, April, May; Summer- June, July, August. Fall- September, October, November.

Full Description: Go to:

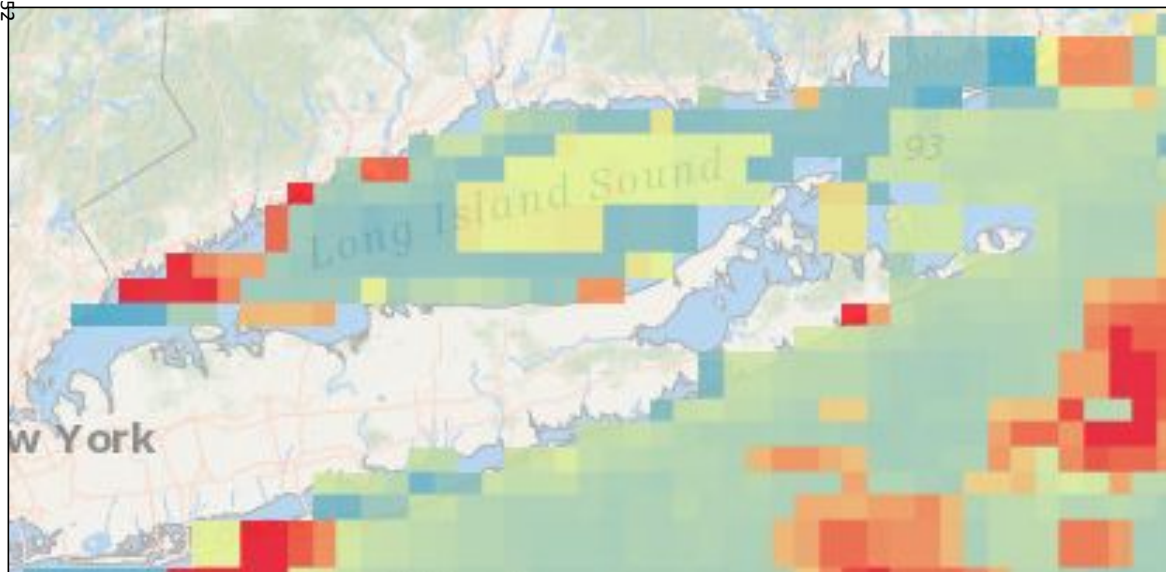
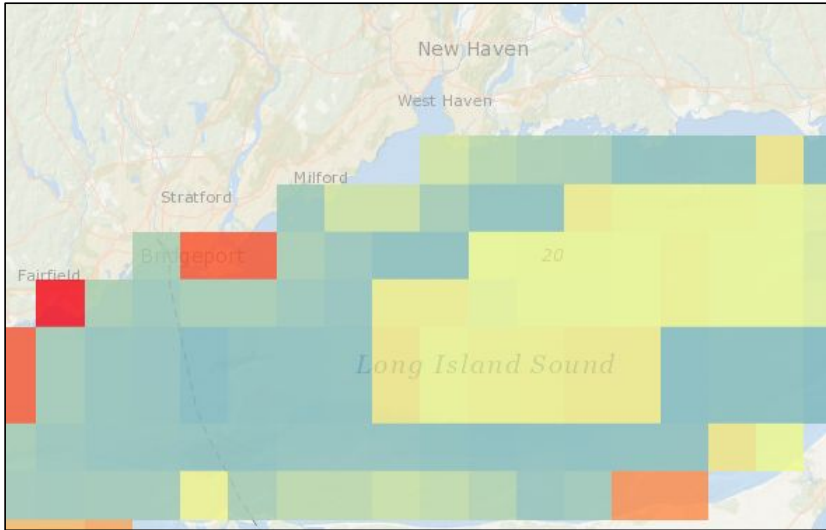
http://portal.midatlanticocean.org/static/data_manager/metadata/html/NPP_SeasonalMax.html

Access Instructions: Go to: <http://portal.midatlanticocean.org/>and search “NPP Fall Max 2013”

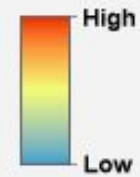
NPP Spring Max 2013

Mid-Atlantic Marine Portal (MAMP)

Source: NOAA CoastWatch; Seasonal Maximum composites generated by the Grant F. Walton Center for Remote Sensing and Spatial Analysis (CRSSA), Rutgers University



NPP Spring Max 2013



NPP Spring Max 2013



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

Summary Description: In the surface ocean, net primary productivity (NPP) is the amount of organic carbon generated by photosynthesis in planktonic organisms minus the amount of organic carbon used by these organisms in respiration. Primary producers form the base of the food chain and generate the biomass that sustains all life in the ocean. NOAA CoastWatch provides a measurement of primary productivity based on a number of satellite measurements. These data represent seasonal 'max' values of ocean NPP (2011, 2012, 2013) and were generated utilizing data available from NOAA CoastWatch. Data were processed to monthly rasters, then computed into composites representing seasonal maximum values. The seasons are as follows: Winter- January, February, December; Spring- March, April, May; Summer- June, July, August. Fall- September, October, November.

NOAA CoastWatch Primary Productivity is an EXPERIMENTAL dataset, distributed for scientific evaluation NOAA CoastWatch accepts no liability for use of these data products. It is recommended that these products NOT be used for navigation. The source dataset utilized satellite measurements of photosynthetically available radiation (PAR), chlorophyll-a concentration, and sea surface temperature (SST). The method used to calculate the dataset follows the primary productivity model developed by Behrenfeld and Falkowski, 1997. This model uses these three variables to visualize the rate of primary productivity by determining how well light penetrates the water column. When there is a higher density of primary producers in the water column, the light penetration will decrease and vice versa.

Full Description: Go to:

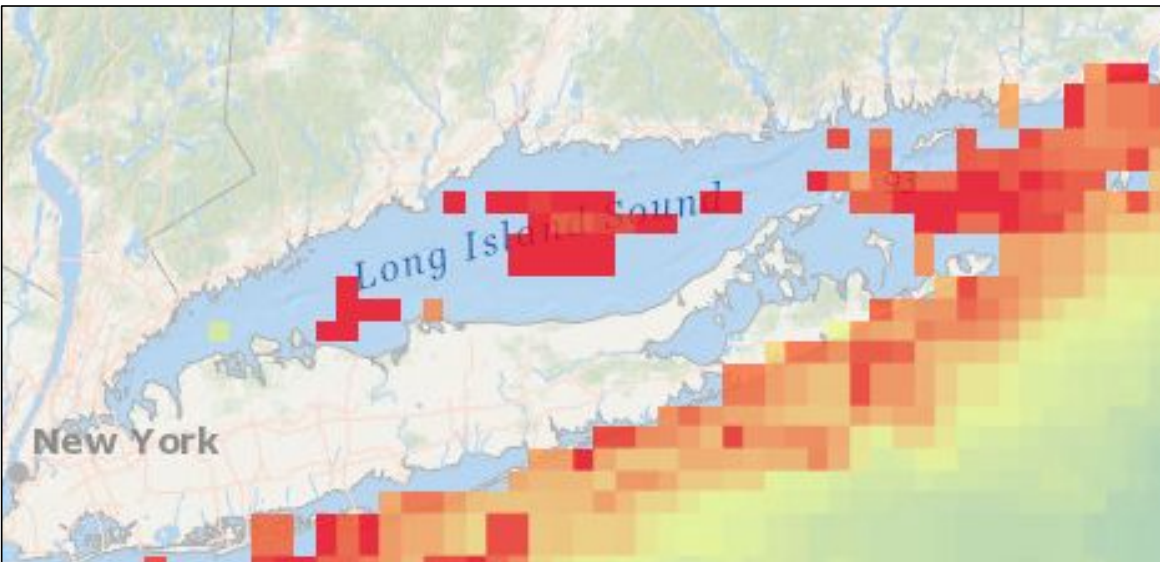
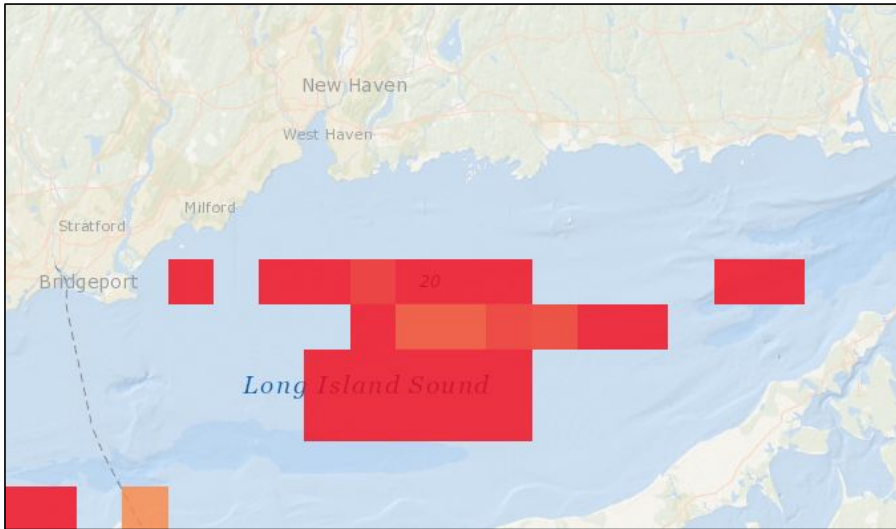
http://portal.midatlanticocean.org/static/data_manager/metadata/html/NPP_SeasonalMax.html

Access Instructions: Go to: <http://portal.midatlanticocean.org/>and search "NPP SpringMax 2013"

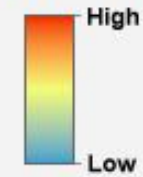
NPP Summer Max 2013

Mid-Atlantic Marine Portal (MAMP)

Source: NOAA CoastWatch; Seasonal Maximum composites generated by the Grant F. Walton Center for Remote Sensing and Spatial Analysis (CRSSA), Rutgers University



NPP Summer Max 2013



NPP Summer Max 2013



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

Summary Description: In the surface ocean, net primary productivity (NPP) is the amount of organic carbon generated by photosynthesis in planktonic organisms minus the amount of organic carbon used by these organisms in respiration. Primary producers form the base of the food chain and generate the biomass that sustains all life in the ocean. NOAA CoastWatch provides a measurement of primary productivity based on a number of satellite measurements. These data represent seasonal 'max' values of ocean NPP (2011, 2012, 2013) and were generated utilizing data available from NOAA CoastWatch. Data were processed to monthly rasters, then computed into composites representing seasonal maximum values. The seasons are as follows: Winter- January, February, December; Spring- March, April, May; Summer- June, July, August. Fall- September, October, November.

NOAA CoastWatch Primary Productivity is an EXPERIMENTAL dataset, distributed for scientific evaluation NOAA CoastWatch accepts no liability for use of these data products. It is recommended that these products NOT be used for navigation. The source dataset utilized satellite measurements of photosynthetically available radiation (PAR), chlorophyll-a concentration, and sea surface temperature (SST). The method used to calculate the dataset follows the primary productivity model developed by Behrenfeld and Falkowski, 1997. This model uses these three variables to visualize the rate of primary productivity by determining how well light penetrates the water column. When there is a higher density of primary producers in the water column, the light penetration will decrease and vice versa.

Full Description: Go to:

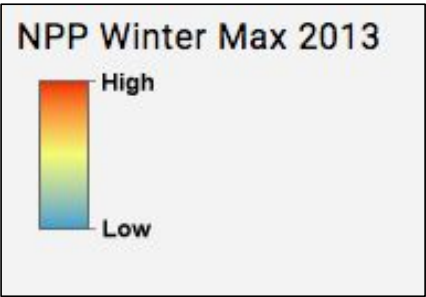
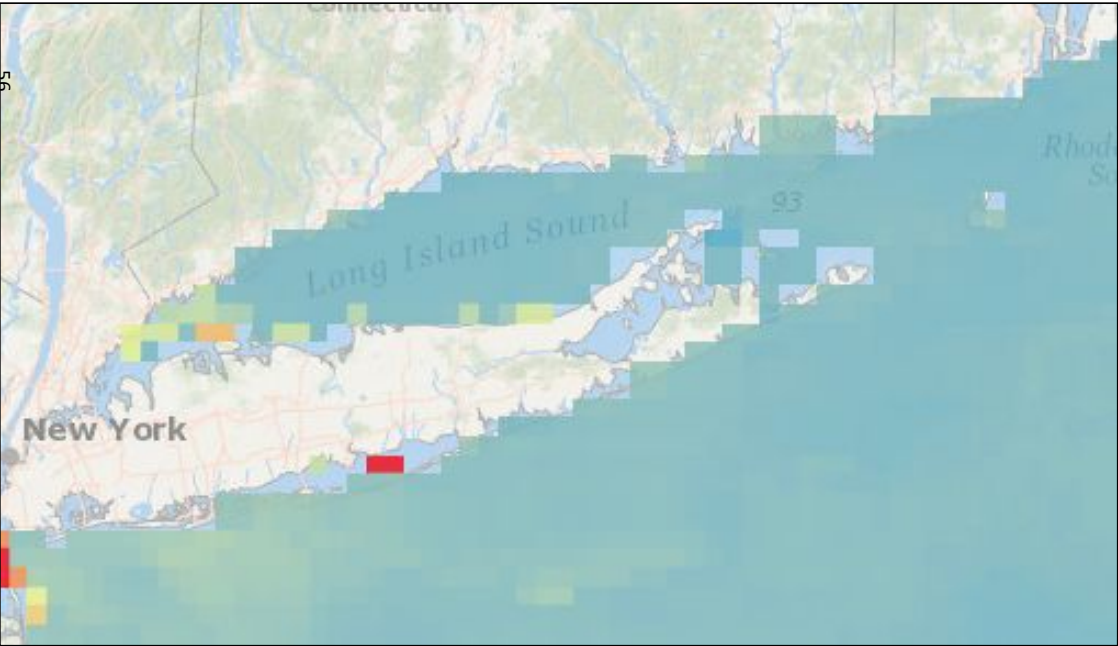
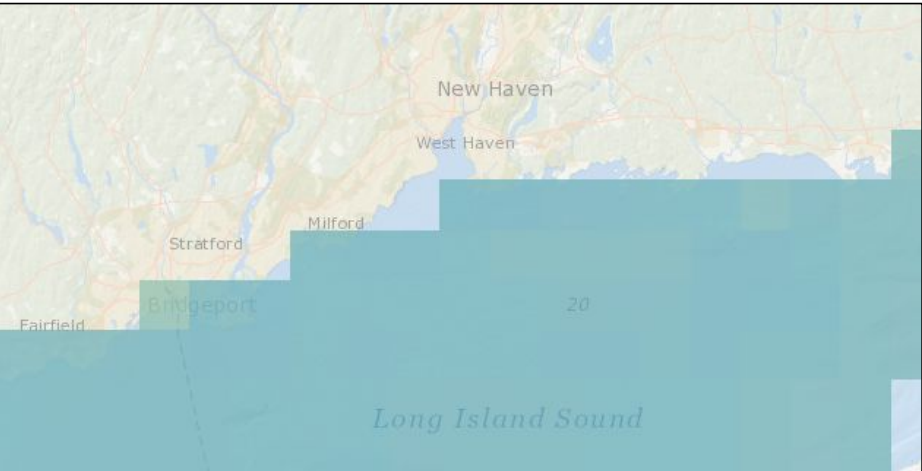
http://portal.midatlanticocean.org/static/data_manager/metadata/html/NPP_SeasonalMax.html

Access Instructions: Go to: <http://portal.midatlanticocean.org/>and search “NPP Summer Max 2013”

NPP Winter Max 2013

Mid-Atlantic Marine Portal (MAMP)

Source: NOAA CoastWatch; Seasonal Maximum composites generated by the Grant F. Walton Center for Remote Sensing and Spatial Analysis (CRSSA), Rutgers University



NPP Winter Max 2013



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

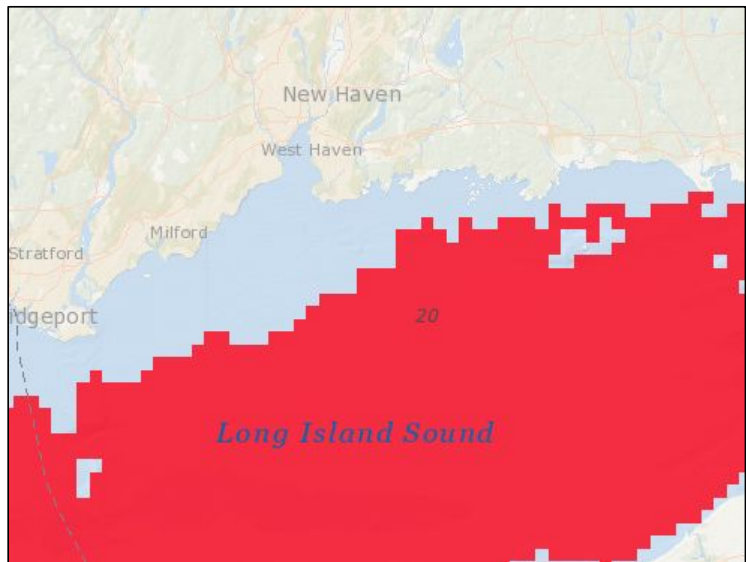
Summary Description: In the surface ocean, net primary productivity (NPP) is the amount of organic carbon generated by photosynthesis in planktonic organisms minus the amount of organic carbon used by these organisms in respiration. Primary producers form the base of the food chain and generate the biomass that sustains all life in the ocean. NOAA CoastWatch provides a measurement of primary productivity based on a number of satellite measurements. These data represent seasonal 'max' values of ocean NPP (2011, 2012, 2013) and were generated utilizing data available from NOAA CoastWatch. Data were processed to monthly rasters, then computed into composites representing seasonal maximum values. The seasons are as follows: Winter- January, February, December; Spring- March, April, May; Summer- June, July, August. Fall- September, October, November.

NOAA CoastWatch Primary Productivity is an EXPERIMENTAL dataset, distributed for scientific evaluation NOAA CoastWatch accepts no liability for use of these data products. It is recommended that these products NOT be used for navigation. The source dataset utilized satellite measurements of photosynthetically available radiation (PAR), chlorophyll-a concentration, and sea surface temperature (SST). The method used to calculate the dataset follows the primary productivity model developed by Behrenfeld and Falkowski, 1997. This model uses these three variables to visualize the rate of primary productivity by determining how well light penetrates the water column. When there is a higher density of primary producers in the water column, the light penetration will decrease and vice versa.

Full Description: Go to:

http://portal.midatlanticocean.org/static/data_manager/metadata/html/NPP_SeasonalMax.html

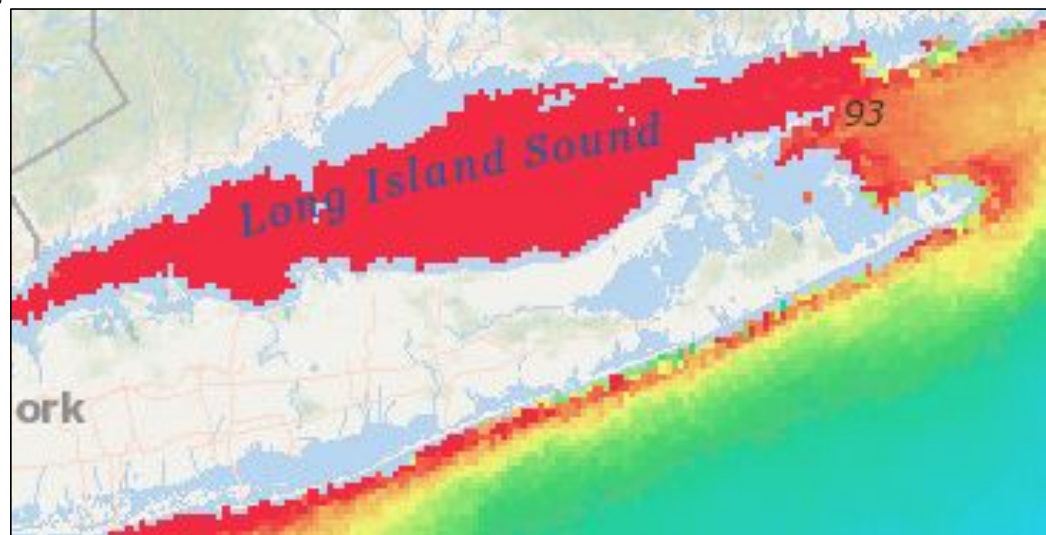
Access Instructions: Go to: <http://portal.midatlanticocean.org/>and search “NPP Winter Max 2013”



Chlorophyll-a Fall (median)

Northeast Ocean Data Portal (NEODP)

Source: National Aeronautics and Space Administration (NASA) and The Nature Conservancy (TNC)



Median Chlorophyll-a Fall



Chlorophyll-a Fall (median)

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

Summary Description: This data product shows the median concentration of the pigment Chlorophyll-a (mg/m³) in surface waters during Fall months (September to November) from 2003 to 2015. Chlorophyll-a concentration is often used as a proxy for phytoplankton abundance. This dataset was created by The Nature Conservancy (TNC) using remote sensing data from the Moderate-resolution Imaging Spectro-radiometer (MODIS, a sensor onboard the Aqua satellite) provided by the National Aeronautics and Space Administration (NASA). This layer covers offshore waters from North Carolina to northern Maine, with a spatial resolution of 1300 meters. Pixels with no data represent data points either consistently flagged by NASA during post-processing or shallower than 10 meters of depth. This layer has a spatial resolution of 1300 meters.

Full Description: Go to:

<http://easterndivision.s3.amazonaws.com/Marine/MooreGrant/ChlorophyllaMedian20032015.pdf>

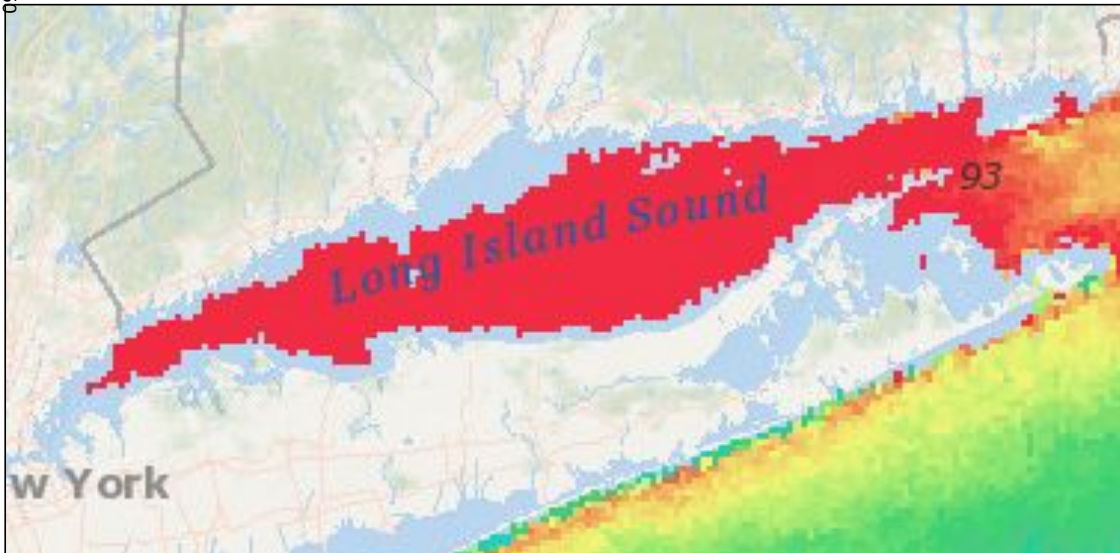
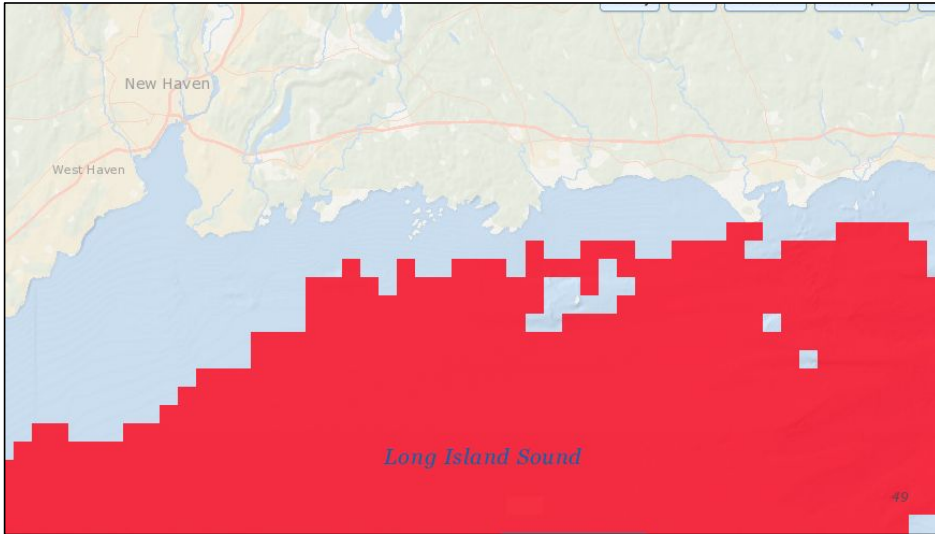
Access Instructions: Go to: <http://www.northeastoceandata.org/data-explorer/>

And search “Chlorophyll-a Fall (median)” in the layers window

Chlorophyll-a Spring (median)

Northeast Ocean Data Portal (NEODP)

Source: National Aeronautics and Space Administration (NASA) and The Nature Conservancy (TNC)



Median Chlorophyll-a Spring



Chlorophyll-a Spring (median)

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

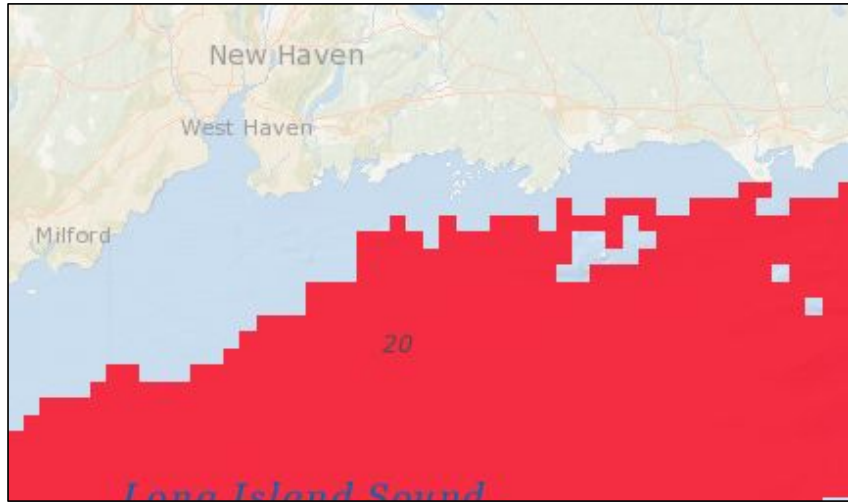
Summary Description: This data product shows the median concentration of the pigment Chlorophyll-a (mg/m³) in surface waters during Spring months (March to May) from 2003 to 2015. Chlorophyll-a concentration is often used as a proxy for phytoplankton abundance. This dataset was created by The Nature Conservancy (TNC) using remote sensing data from the Moderate-resolution Imaging Spectro-radiometer (MODIS, a sensor onboard the Aqua satellite) provided by the National Aeronautics and Space Administration (NASA). This layer covers offshore waters from North Carolina to northern Maine, with a spatial resolution of 1300 meters. Pixels with no data represent data points either consistently flagged by NASA during post-processing or shallower than 10 meters of depth. This layer has a spatial resolution of 1300 meters.

Full Description: Go to:

<http://easterndivision.s3.amazonaws.com/Marine/MooreGrant/ChlorophyllaMedian20032015.pdf>

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

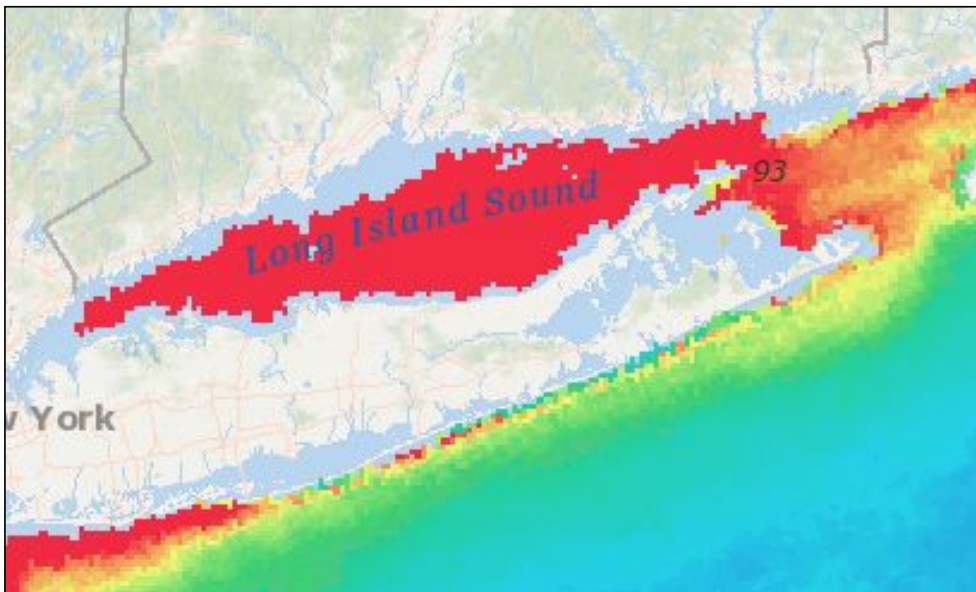
And search “Chlorophyll-a Spring(median)” in the layers window



Chlorophyll-a Summer (median)

Northeast Ocean Data Portal (NEODP)

Source: National Aeronautics and Space Administration (NASA) and The Nature Conservancy (TNC)



Median Chlorophyll-a Summer



Chlorophyll-a Summer (median)

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

Summary Description: This data product shows the median concentration of the pigment Chlorophyll-a (mg/m³) in surface waters during Summer months (June to August) from 2003 to 2015. Chlorophyll-a concentration is often used as a proxy for phytoplankton abundance. This dataset was created by The Nature Conservancy (TNC) using remote sensing data from the Moderate-resolution Imaging Spectro-radiometer (MODIS, a sensor onboard the Aqua satellite) provided by the National Aeronautics and Space Administration (NASA). This layer covers offshore waters from North Carolina to northern Maine, with a spatial resolution of 1300 meters. Pixels with no data represent data points either consistently flagged by NASA during post-processing or shallower than 10 meters of depth. This layer has a spatial resolution of 1300 meters.

Full Description: Go to:

<http://easterndivision.s3.amazonaws.com/Marine/MooreGrant/ChlorophyllaMedian20032015.pdf>

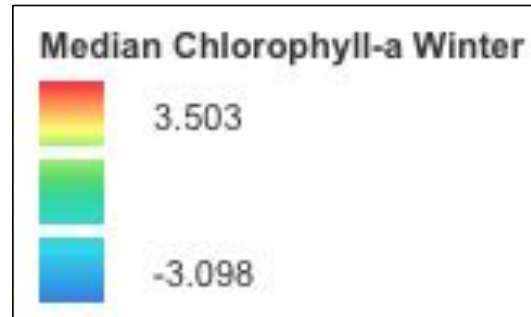
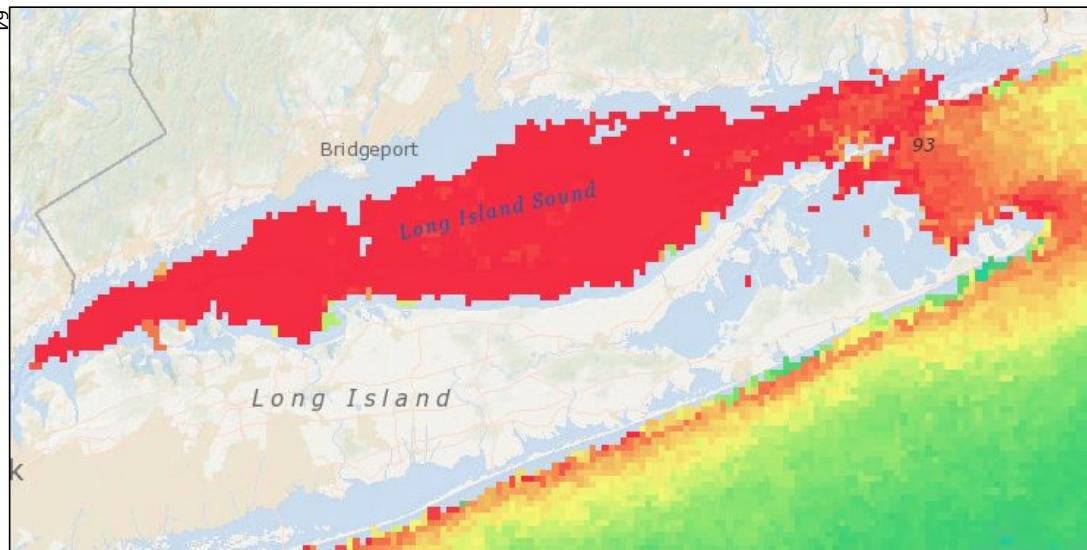
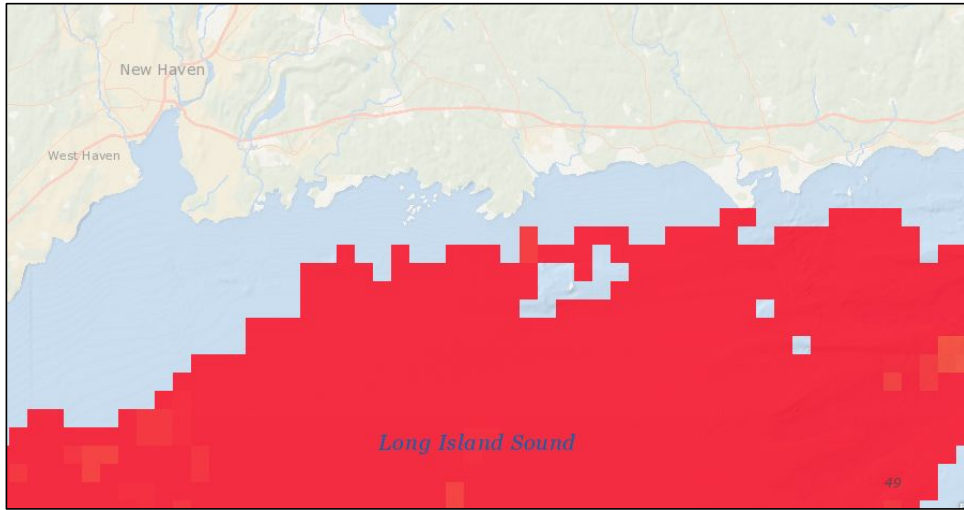
Access Instructions: Go to: <http://www.northeastoceandata.org/data-explorer/>

And search “Chlorophyll-a Summer (median)” in the layers window

Chlorophyll-a Winter (median)

Northeast Ocean Data Portal (NEODP)

Source: National Aeronautics and Space Administration (NASA) and The Nature Conservancy (TNC)



Chlorophyll-a Winter (median)

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

Summary Description: This data product shows the median concentration of the pigment Chlorophyll-a (mg/m³) in surface waters during Winter months (December to February) from 2003 to 2015. Chlorophyll-a concentration is often used as a proxy for phytoplankton abundance. This dataset was created by The Nature Conservancy (TNC) using remote sensing data from the Moderate-resolution Imaging Spectro-radiometer (MODIS, a sensor onboard the Aqua satellite) provided by the National Aeronautics and Space Administration (NASA). This layer covers offshore waters from North Carolina to northern Maine, with a spatial resolution of 1300 meters. Pixels with no data represent data points either consistently flagged by NASA during post-processing or shallower than 10 meters of depth. This layer has a spatial resolution of 1300 meters.

Full Description: Go to:

<http://easterndivision.s3.amazonaws.com/Marine/MooreGrant/ChlorophyllaMedian20032015.pdf>

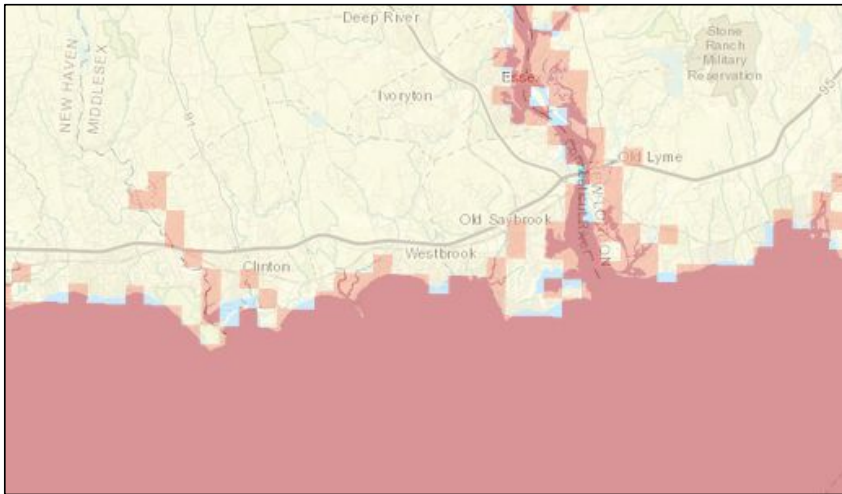
Access Instructions: Go to: <http://www.northeastoceandata.org/data-explorer/>

And search “Chlorophyll-a Winter (median)” in the layers window

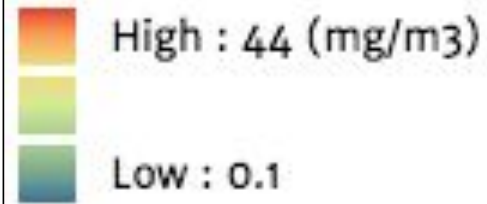
Chlorophyll a – Predicted Concentration

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:



Chlorophyll a – Predicted Concentration

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

Summary Description: As a proxy for surface primary productivity, seasonal chlorophyll a concentrations (mg/m³) for the period of 1998-2006 were extracted from high-resolution SeaWiFS satellite imagery.

Full Description: Go to:

<http://opdgig.dos.ny.gov/geoportal/catalog/search/resource/detailsnoheader.page?uuid={65B8D843-5534-4207-98B9-A55DDFB5F854}>

Access Instructions: Go to: <http://opdgig.dos.ny.gov/#/map> and search “Chlorophyll a -- predicted concentrations”