















Indicator		Long term	Short term	Summary
1	Sea Surface Temperature			<ul style="list-style-type: none"> Surface temperature is increasing in all seasons with the largest rate of increase during the summer.
2	Marine Heatwaves*			<ul style="list-style-type: none"> Surface: mhw days increase following 2010. Bottom: mhw days show increase since 1990's.
3	Bottom Temperature			<ul style="list-style-type: none"> Bottom temperature has been increasing steadily since the 1970's.
4	Cold Pool^			<ul style="list-style-type: none"> Cold pool volume has been decreasing. Last decade shows dissipation before October.
5	Bottom Dissolved Oxygen*	N/A		<ul style="list-style-type: none"> Bottom DO highest during winter with decreases through spring and summer to lows during autumn.
6	Ocean Acidification Risk*	N/A		<ul style="list-style-type: none"> Aragonite saturation state varies seasonally and may impede development of longfin squid larvae.
7	Mean Wind Speed*			<ul style="list-style-type: none"> During Autumn wind speed has been increasing offshore but decreasing closer to shore
8	Stratification			<ul style="list-style-type: none"> Stratification anomaly shows no clear trend
9	Hudson River^			<ul style="list-style-type: none"> Hudson River flow shows a significant increasing linear trend since the 1950's
10	Salinity^			<ul style="list-style-type: none"> No significant long term trends in salinity
11	Global CO ₂			<ul style="list-style-type: none"> CO₂ has been increasing rapidly since the late 1800's
12	Surface 20C			<ul style="list-style-type: none"> Surface 20°C isotherm moving northward in summer and autumn bringing warmer waters into NYB.
13	Lobster Thermal Habitat			<ul style="list-style-type: none"> Greater than 95% of the NYB area provides hospitable lobster thermal habitat.

Indicator		Long term	Short term	Summary
14	Surface Chlorophyll ^a			<ul style="list-style-type: none"> Surface chlorophyll is on average lower in the summer months when the maximum is subsurface
15	Calanus finmarchicus			<ul style="list-style-type: none"> Calanus finmarchicus (large zooplankton) abundance has been increasing over the last three years.
16	Small/Large Copepod			<ul style="list-style-type: none"> Driven by the recent increase in C. finmarchicus the small/large copepod ratio has decreased
17	American Lobster			<ul style="list-style-type: none"> During the fall American Lobster has decreased in the long term but increased in the last three years
18	Jonah Crab			<ul style="list-style-type: none"> Jonah crab has decreased during the spring over the long term
19	Longfin Squid			<ul style="list-style-type: none"> Longfin squid has decreased during the spring but increased during the fall
20	Shortfin Squid			<ul style="list-style-type: none"> No significant trends in shortfin squid biomass
21	Forage Species			<ul style="list-style-type: none"> Forage species biomass has increased in the last three years during the fall
22	Aggregate Feeding Groups			<ul style="list-style-type: none"> Benthos have increased during the fall while piscivores have decreased during the fall
23	Total Trawl Biomass			<ul style="list-style-type: none"> Total trawl biomass has decreased during the fall
24	Black Sea Bass			<ul style="list-style-type: none"> Black sea bass biomass has increased, especially since 2010
25	Summer Flounder			<ul style="list-style-type: none"> Summer flounder have increased in both the spring and fall, especially since 2000
26	Northern to Southern Ratio			<ul style="list-style-type: none"> Northern to southern species ratio has decreased during the fall
27	Benthic to Pelagic Ratio			<ul style="list-style-type: none"> Benthic to Pelagic ratio has decreased during the fall
28	Fish Species Richness			<ul style="list-style-type: none"> Fish species richness has increased in both spring and fall in both the long and short term
29	Average Trophic Level			<ul style="list-style-type: none"> The average trophic level of the fish community has decreased during the fall
30	Temperature Preference			<ul style="list-style-type: none"> Temperature preference has increased several degrees in both spring and fall

Indicator		Long term	Short term	Summary
31	Commercial Harvest (KG)			<ul style="list-style-type: none"> From a high in the early 1960s the commercial harvest has been on a decline
32	Commercial Harvest (USD)			<ul style="list-style-type: none"> The commercial landings value has increased since the 1950s, but decreased in the last three years
33	Recreational Harvest			<ul style="list-style-type: none"> The recreational harvest has decreased, and the percent released increased, since 1980s
34	Recreational Effort*			<ul style="list-style-type: none"> Recreational effort shows a linear increase, with a decrease in recent years.
35	Vessel Density*			<ul style="list-style-type: none"> Fishing vessels peaked in 2016 and 2017. Most vessel types show longer track length in summer.
36	Human Population			<ul style="list-style-type: none"> Population has been on the rise since the 1980s.
37	Sea Level Rise Risk			<ul style="list-style-type: none"> Long island communities are at risk from sea level rise and storm surge.

Indicator		Summary of Ongoing Development
2	Marine Heatwaves	<ul style="list-style-type: none"> Bottom marine heatwaves have been added using the GLORYS12 dataset
4	Cold Pool	<ul style="list-style-type: none"> Continuing effort to better incorporate glider data for more immediate cold pool analysis
5	Bottom Dissolved Oxygen	<ul style="list-style-type: none"> Bottom DO is now summarized by the mean value for each cruise
6	Ocean Acidification Risk	<ul style="list-style-type: none"> Percent area under aragonite saturation thresholds more directly links acidification with biological implications
9	Hudson River	<ul style="list-style-type: none"> Examining salinity and winds in the NYB may better constrain this freshwater input
10	Salinity	<ul style="list-style-type: none"> We aim to focus in on continuous observational campaigns such as Seawolf, and glider
14	Surface Chlorophyll	<ul style="list-style-type: none"> Glider and Seawolf data will be used to identify the subsurface chlorophyll missed by surface measurements
	Whale Body Condition	<ul style="list-style-type: none"> Drone measurements estimate whale body volume to describe health, resource availability, and stressors.
	Odontocete Strandings	<ul style="list-style-type: none"> Increase (decrease) in the proportion of strandings by warm (cold) water species
34	Recreational Effort	<ul style="list-style-type: none"> Recreational Effort Indicator is new for this report.
35	Vessel Density	<ul style="list-style-type: none"> Vessel Density Indicator is new for this report

<div></div>	Winter
<div></div>	Spring
<div></div>	Summer
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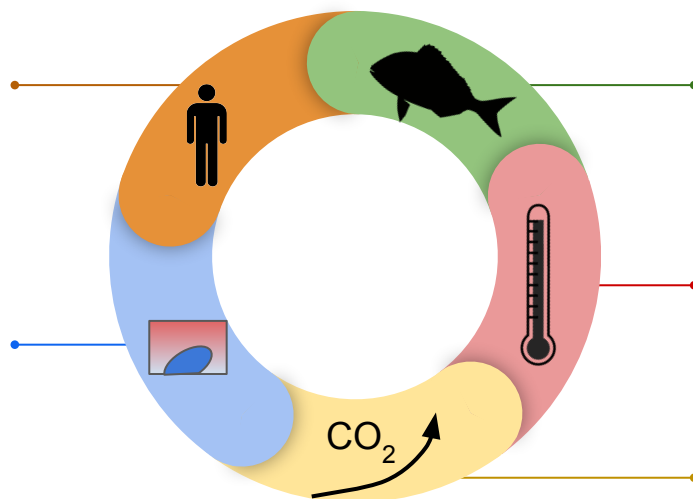
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Human populations rely on the New York Bight

Human populations on Long Island continues to rise. Recreational and commercial fishing were adversely affected by the COVID19 pandemic.

Earlier Cold Pool breakdown

The Mid Atlantic Bight Cold Pool within the New York Bight has been breaking down before October for the last decade. This may be linked to rising bottom temperatures.



Shifts in marine communities

Summer flounder and black sea bass have been increasing in recent decades. More warmer water species are in the NYB.

Temperatures on the rise

Sea surface temperatures, bottom temperatures, and number of marine heatwave days have all been increasing, especially since 2010.

Ocean acidification concern

Although ocean acidification is not yet of concern to most species, longfin squid larvae may be at risk of impeded growth.

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