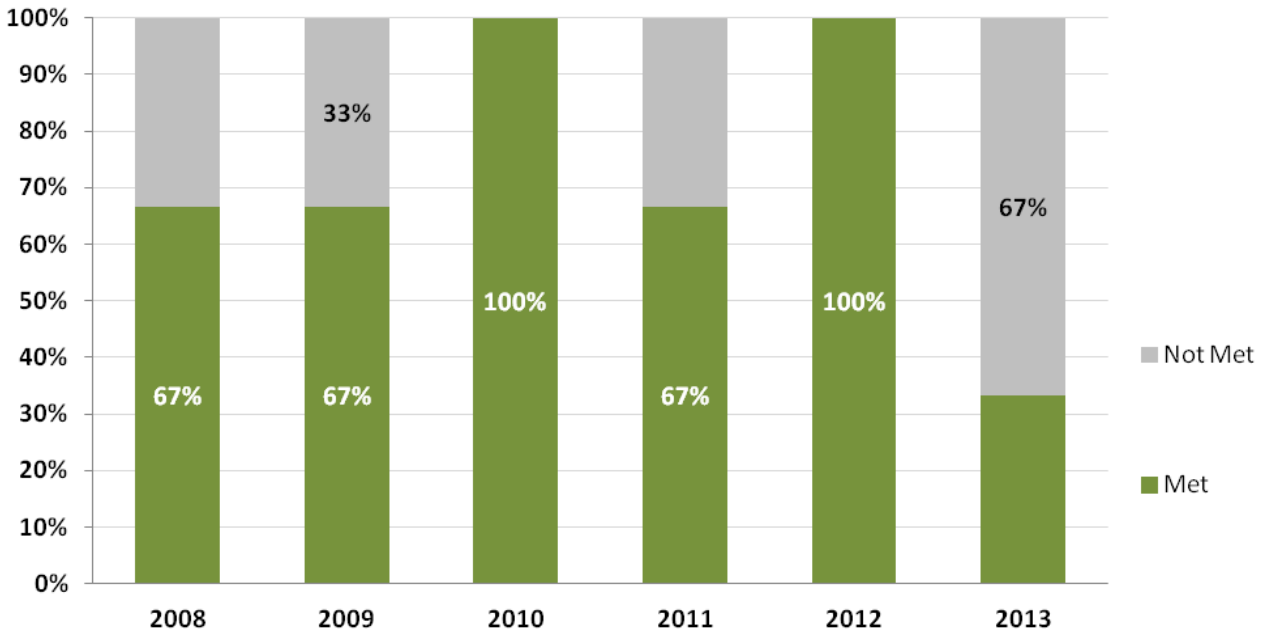
Subobjective: Long Island Sound

EPA's performance declined in FY 2013 for measures under the Long Island Sound subobjective of the *FY2011-FY2015 Strategic Plan.* EPA missed 2 of 3 of its commitment in FY 2013. This is mostly due to the devastating impact of Super Storm Sandy on Long Island Sound and its watersheds in the fall of 2012 and the ability of EPA and its partners to focus its resources on restoring and protecting the Sound. (Figure 80).

Figure 80: Long Island Sound Subobjective Five-Year Trend



FY 2013 ACS Code	Abbreviated Measure Description		Results and Commitment Status: = Met; = Not Met; = Data Not Available; = Indicator/Long-Term (No Commitment); = Measure Did Not Exist							Appendix Page Number (D-0)/ Figure Number
			2007	2008	2009	2010	2011	2012	2013	
Subobjective 2.2.7 Restore and Protect the Long Island Sound										
LI-SP41	Percent reduction Long Island Sound nitrogen		40,440	39,011	70%	69%	83%	88%		D-50/Fig. 83
LI-SP42.N11	Reduce Long Island Sound hypoxic zone (sq miles)		180	169	101	130	289	80		D-50/Fig. 81
LI-SP43	Number acres Long Island Sound coastal habitat restored		1,199	1,614	7	9	537	336		D-51
LI-SP44	Number miles river and streams for fish passage reopened		124	147	72%	72%	72.3	56		D-51

More than 20 million people live within 50 miles of Long Island Sound's shores, and more than 1 billion gallons per day of treated effluent enter the Long Island Sound from 106 treatment plants. A study conducted in 1990 estimated that Long Island Sound contributes more than $5.5 billion annually to the regional economy from clean water-related activities alone—recreational and commercial fishing and shellfishing, beach-going, and swimming. In 2013 dollars, that equates to $9.5 billion. Long Island Sound is a breeding ground, nursery, feeding ground, and habitat to more than 170 species of fish and 1,200 species of invertebrates that are under increasing stress from development and competing human uses.

FY 2013 Performance Highlights and Management Challenges

Long Island Sound and its surrounding watersheds were significantly affected by the devastation caused by Superstorm Sandy in the fall of 2012. The storm resulted in a number negative impacts on performance results. However, while EPA's partners fell short of the FY 2013 commitment to restore or protect 420 acres of key coastal habitat, partners did restore or protect 336 acres (80% of commitment) of coastal habitat, including tidal wetlands, dunes, riparian buffers, and freshwater wetlands (SP-43). Partner agencies invested their resources in protecting and restoring life and property rather than planned restoration projects. For example, Sunken Meadow (New York) State Park was a planned restoration site of over 150 acres that was restored to open water circulation by the storm, which destroyed a berm and culvert that had restricted flow. The fact that the restoration was achieved naturally precluded EPA from counting the restoration as an accomplishment.

In 2013, while the Long Island Sound partners failed to achieve the annual goal of reopening 75 miles of rivers and streams to diadromous fish passage, they did manage to reopen fifty-six (56) miles, which is 75% of the commitment to river and stream corridors were reopened by the removal of dams and barriers or by installing bypass structures. Partners' resources were redirected to restoration and protection of life and property as priorities rather than planned projects. Coastal and inland areas in New York and Connecticut were severely affected by the storm. In addition, ambient conditions were not suitable for construction projects, i.e., downed trees, swollen and diverted streams and river banks and severe sedimentation. This contributed to the result for the measure being less then planned.

The states of Connecticut and New York have listed Long Island Sound as impaired for DO under Section 303(d) and have developed a TMDL to control nitrogen deposition to the Sound as a means of improving DO. The TMDL calls for a 58.5% reduction in anthropogenic nitrogen deposition from baseline levels over a 15-year period commencing in 2000 and ending in 2014. Nitrogen from sewage treatment plants has been reduced by more than 76,000 pounds per day from baseline loads. A key measure for assessing the states' progress in restoring water quality standards for DO in the Sound is the annually measured size of its maximum area of hypoxia. In 2013, the maximum area of hypoxia in Long Island Sound measured 80 square miles (SP-42) (Figure 81). Summer 2013 was one of the warmest for water temperatures in the Sound. The five-year rolling average maximum area of hypoxia is 153.8 square miles, or a 26.1% percent reduction from the 208 square mile pre-TMDL average maximum area of hypoxia, thereby exceeding the 15% target in the Strategic Plan for 2013. Figure 82 shows the locations of dissolved oxygen levels in Long Island Sound bottom waters.[27]

[27] Data from the State of Connecticut water quality monitoring program.

Figure 81: Reduction in Size (Square Miles) of Long Island Sound Hypoxic Zone by Calendar Year (LI-SP42.N11)

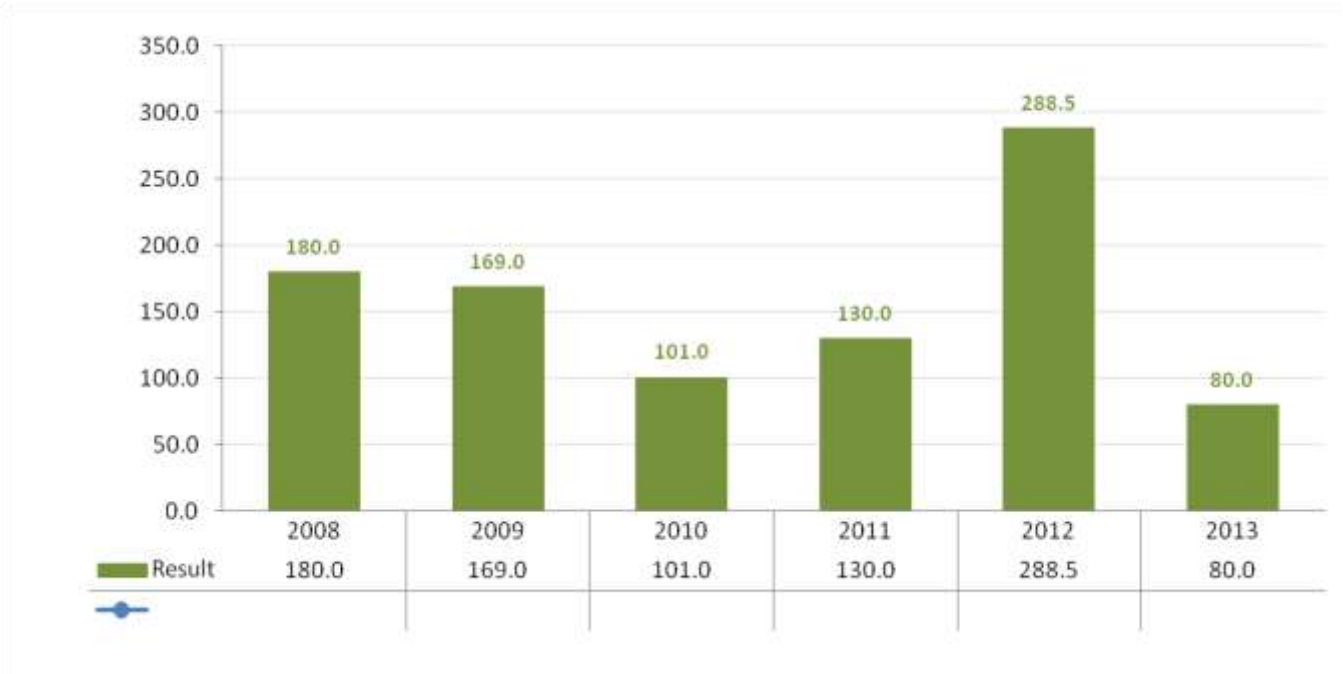
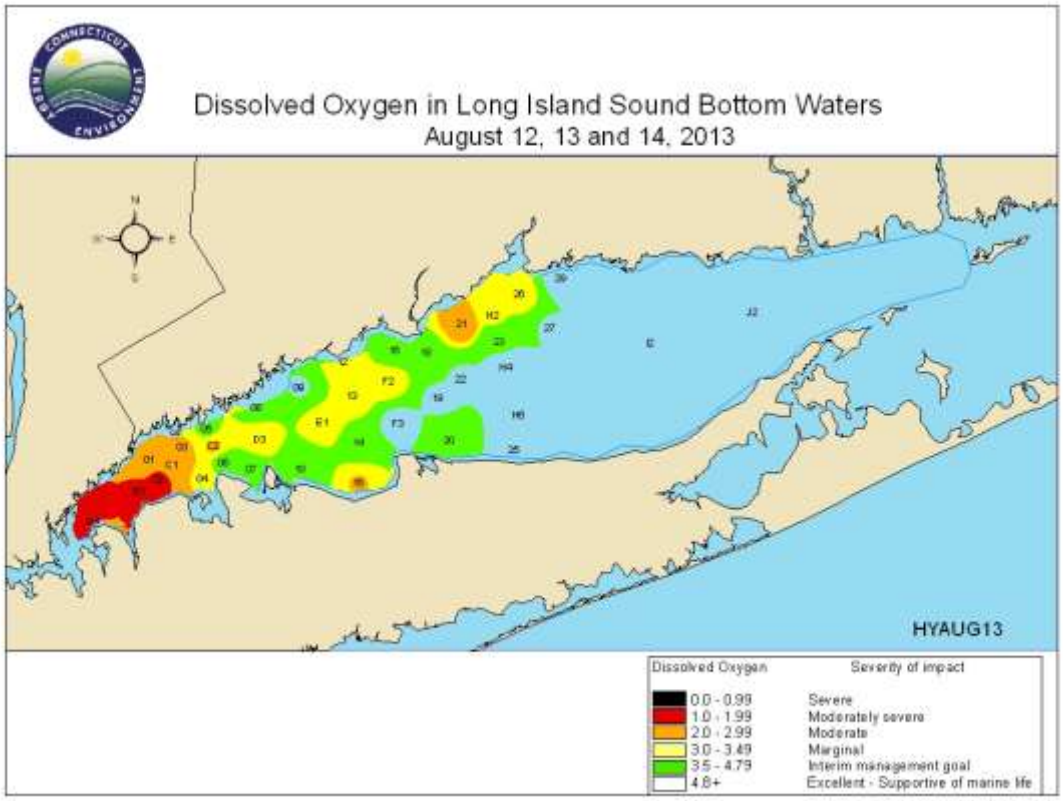


Figure 82: Dissolved Oxygen in Long Island Sound Bottom Water August 15-17, 2013



Long Island Sound program's measurement on reduction in nitrogen discharges (SP-41) from sewage treatment plants was 88 percent compared with the target of 76 percent in 2013. Data is collected on a calendar year basis. This ensures that the full seasonal variation in biological treatment methods is accounted for in the results (e.g., colder winter temperatures slow down biological nitrogen removal processes, wet spring weather can inhibit biological controls at treatment plants).

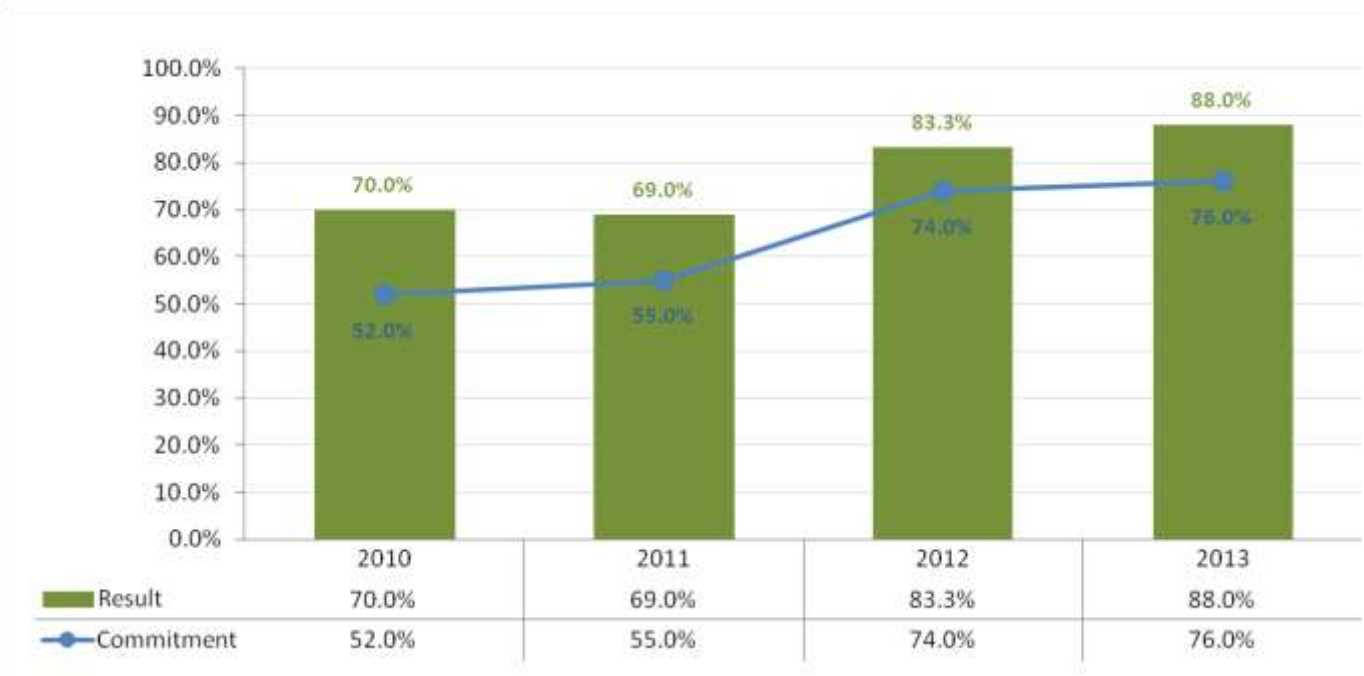



Figure 83: Percent of Goal to Reduce Long Island Sound Nitrogen by Fiscal Year (LI-SP41)