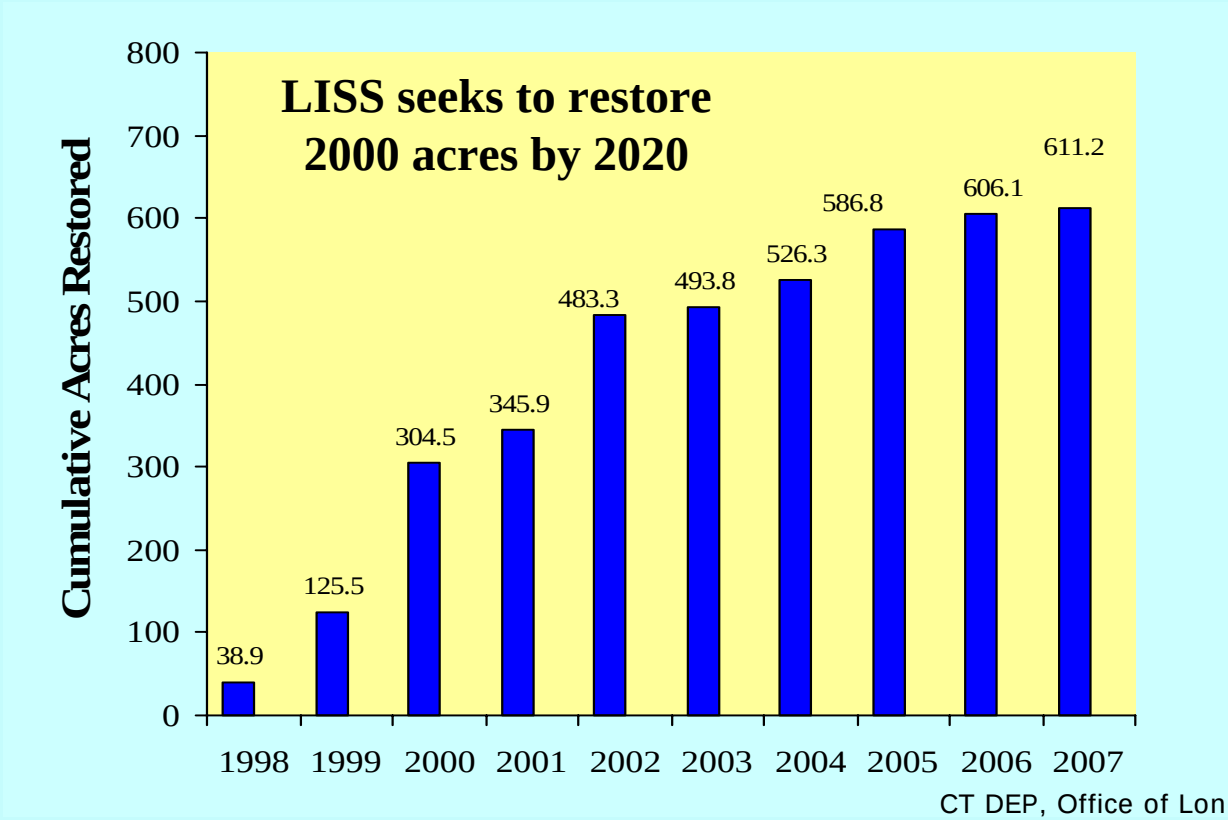
Acres of Tidal Wetlands

Tidal wetlands are the transitional zone between the land and tidally-influenced systems. These areas are dominated by rooted plants covered by water at high tide and exposed at low tide. Healthy wetlands help trap sediments, store flood waters, and reduce wave energy during storms. In addition, two thirds of all marine species depend on tidal wetlands for a portion of their life cycle.

Sudden losses of tidal wetlands throughout the Sound has scientists wondering about the cause. A number of variables, including global warming and sea level rise, nutrient-rich treated wastewater, and sediment deprivation, may all have a role to play in this complicated event.

Research is underway to map existing acreage of tidal wetlands to compare it to acreage existing in 1974 to more accurately determine actual wetland loss.

Acres of Coastal Habitat Restored



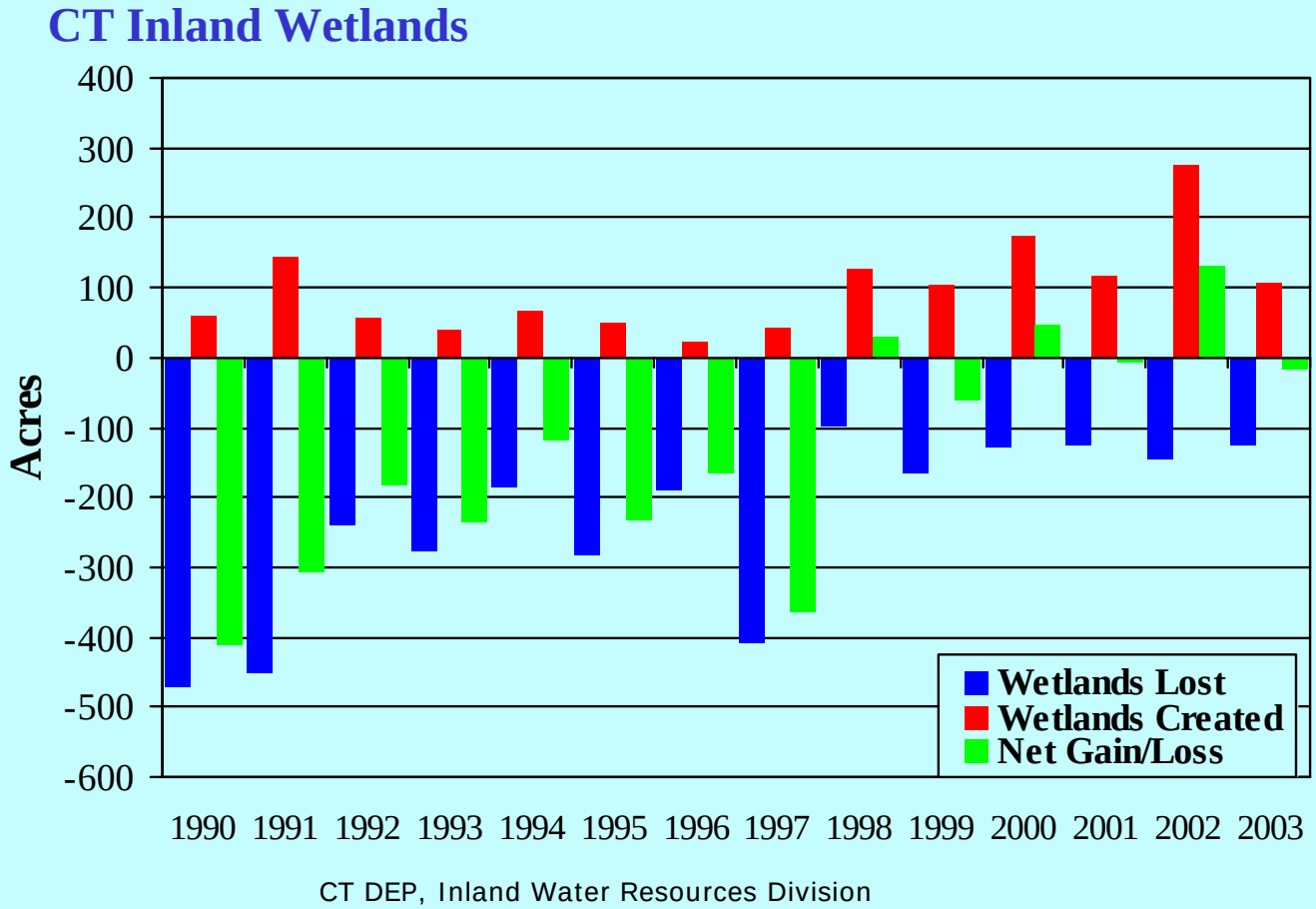
CT DEP, Office of Long Island Sound Programs
and NYSDEC Marine Resources Division

In 1998, LISS adopted a goal of restoring 2000 acres of coastal habitats, including dunes, tidal wetlands, forests, salt marsh wetlands, and submerged aquatic vegetation. In recent years, the pace of restoration has slowed in part because there are fewer larger sites available to restore, and because recent projects involve more obstacles such as the need to use special equipment on sensitive lands. As a result, the restoration goal year has been extended from 2008 to 2020.

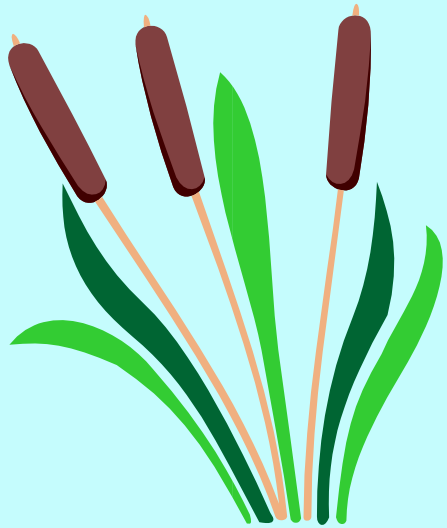
Indicator Type: Response

SH 2008: Habitat Protection (4.2)

Acres of Inland Wetlands



CT DEP, Inland Water Resources Division



Since 1990, wetland loss has outweighed the amount of wetlands created. But the trend shows that Connecticut wetland alterations and loss have consistently declined while wetland creation has been gaining in recent years. While freshwater wetlands are mapped in New York, no trend analysis has been done to date.

Indicator Type: D/R

SH 2008: Habitat Protection (4.2)

Tidal Wetland Loss at Significant Wetland Sites in NY

Wetland Loss at Four Long Island Sites (including West Pond)

Marsh Zone	1974 acreage	2005 acreage	change
Marsh	433.3	345.5	(87.80)
Mud Flat	39.9	131.2	91.30

NYSDEC

West Pond, Glen Cove, NY

Infrared image of West Pond in 2006 shows marsh grass (8.6 acres) in red, and mudflats in white, and green (22.1 acres). The green area had been marsh grass habitat when the area was surveyed in 1974.

There are about 12,000 tidal marsh acres along the coast of Long Island Sound. Since 1974, state laws have prevented marshes from being dredged or filled in for development, and programs to restore degraded marshes have been implemented. Despite protection and restoration, marshes are still being threatened. Aerial photography and infrared imagery studies in New York of important wetland complexes in Long Island reveal that tidal marshes are being converted to mudflats and open water. Possible reasons include subsidence, the sinking of the peat soil, and sea level rise.

Indicator Type: Driver

SH 2008: Habitat Protection (4.2)

Tidal Wetland Loss at Significant CT sites

Wetland Loss in Six Southeast CT Sites (including Five Mile River)

Marsh Zone	1974 acreage	2004 acreage	change
Marsh	229.77	176.62	(53.52)
Mud Flat	201.76	253.60	51.84

U.S. FWS/CT DEP

Five Mile River

1972

2000

Example site (photos right): From 1974 to 2004 the Five Mile River habitat lost nearly four acres of tidal grasses to mudflat. Aerial photography taken in 1972 and 2000 reveals some of the loss.

There are about 12,000 tidal marsh acres along the coast of Long Island Sound. Since 1974, state laws have prevented marshes from being dredged or filled in for development, and programs to restore degraded marshes have been implemented. Despite protection and restoration, marshes are still being threatened. Aerial photography studies in CT of six important wetland complexes in southeastern CT reveal that tidal marshes are being converted to mudflats and open water. Possible reasons include subsidence, the sinking of the peat soil, and sea level rise.

Indicator Type: Driver

SH 2008: Habitat Protection (4.2)

Riparian Buffers in CT

Natural vegetated Buffer areas	1985(acres)	2002 (acres)	% change
Within 100 feet of river	106,822	104,387	(2.29)
Within 200 feet of river	205,741	199,177	(3.2)
Within 300 feet of river	296,307	284,788	(3.89)

UConn CLEAR

Riparian buffers describe vegetated areas adjacent to a stream that provides shoreline and streambank protection, water quality protection, fish and wildlife habitat, flood control, and scenic beauty. In CT, many wetlands and conservation commissions have adopted a minimum 100 foot buffer to protect river corridors. Satellite imagery analysis by the University of Connecticut's Center for Land Use Education and Research (CLEAR) reveals that 67.5 percent of land within 100 feet of rivers are vegetated, compared to 69.1 percent in 1985.

Indicator Type: Driver

Development in Riparian Buffers in CT

Development in buffer areas	1985(acres)	2002 (acres)	% change
Within 100 feet of river	24,189	26,855	11
Within 200 feet of river	50,703	56,679	11
Within 300 feet of river	77,311	87,026	12

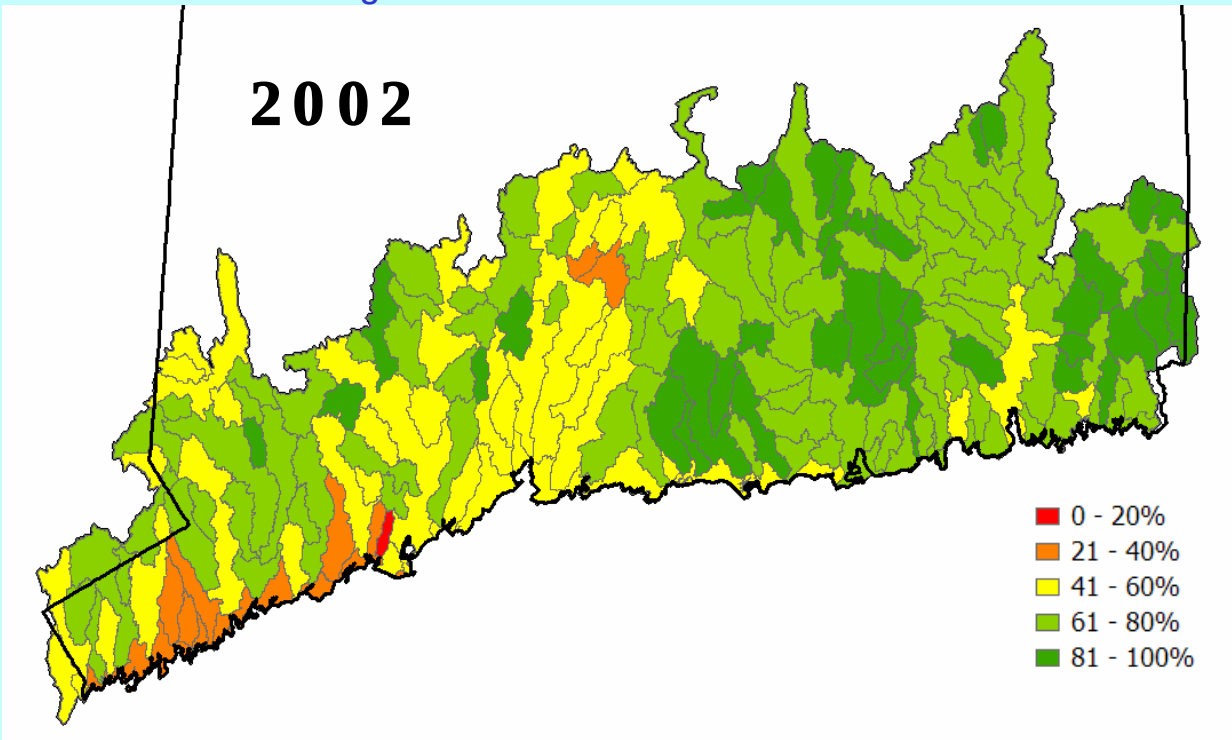
UConn CLEAR

Human land uses within riparian zones add hard surfaces such as driveways, roads, and buildings. These impervious surfaces not only replace the natural protecting qualities of vegetation for stream, but they also increase the flow of water, including water carrying pollutants, into streams. Within the 100-foot buffer, the amount of developed land in Connecticut increased from 17.6 percent in 1985 to 19.8 percent in 2002.

Indicator Type: Driver

CT Land Cover Within Buffers

Percent Natural Vegetation Within 100 foot buffer



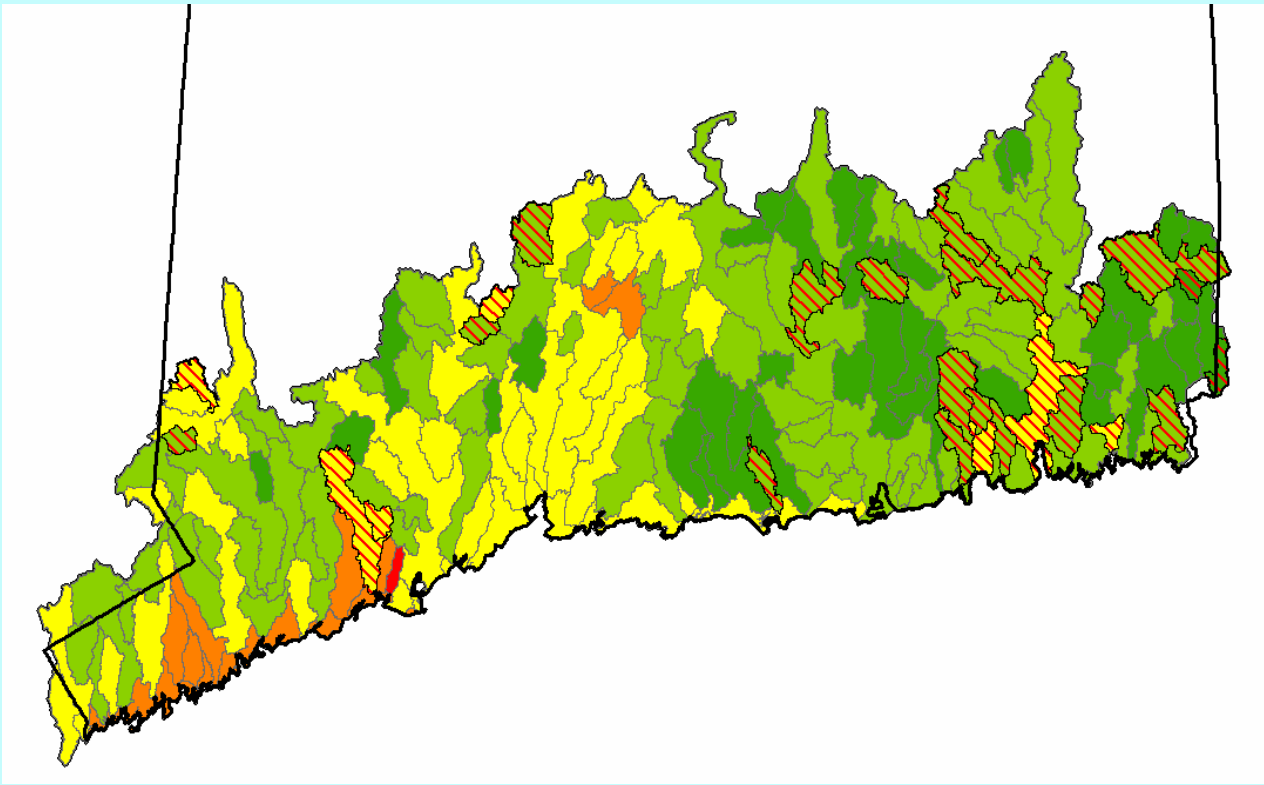
UCONN CLEAR

In northeastern CT, most riparian buffers contain at least 60 percent vegetation, while in southeastern CT, most riparian buffers contain less than 60 percent vegetation.

Indicator Type: Driver

SH 2008: Habitat Protection (4.2)

Land Cover Change in CT Within Buffers



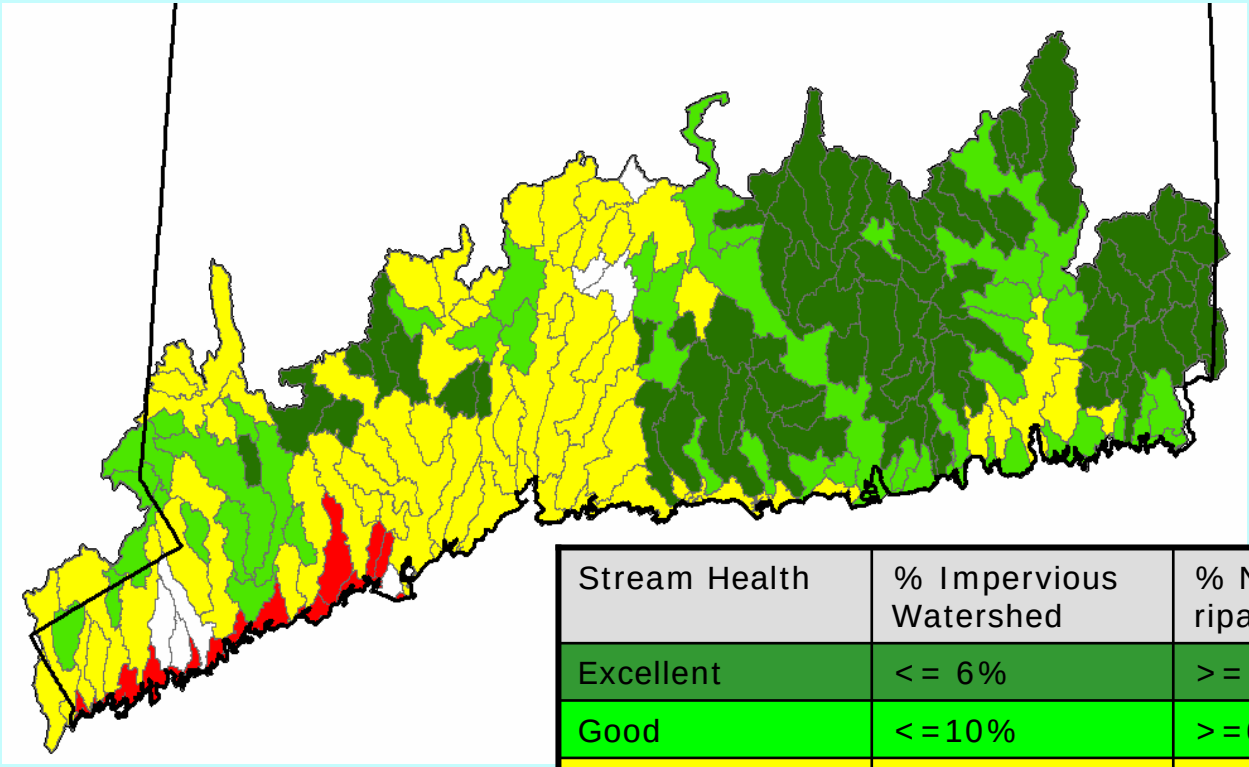
UConn CLEAR

While northeastern CT contains the most vegetated buffers, it has also experienced the greatest loss in vegetated areas from 1985 to 2002. The above map represents the 25 Long Island Sound sub-basins with the greatest natural vegetation loss (from 3.7% to 6.6%) within 100 feet of a river.

Indicator Type: Driver

SH 2008: Habitat Protection (4.2)

Indicator: Stream Health in CT



UConn CLEAR

Stream Health	% Impervious Watershed	% Natural Veg. 100 ft riparian buffer
Excellent	<= 6%	>= 65%
Good	<=10%	>=60%
Fair	10-25%	40-60%
Poor	>25%	<40%

Goetz et al. Univ. of MD Geography Dept./Woods Hole Research Center

Research at the University of Maryland suggests that the amount of hard (impervious surfaces) in a sub-watershed, and the percentage of natural vegetation within 100 feet of a river affects stream health. The UConn CLEAR project used that information to show indicators for stream health in CT sub-basins.

Indicator Type: Driver