

Appendix A. Public Summary

Coastal Riparian Buffers Analysis

Overview and Objectives

This project, conducted by the University of Connecticut Center for Land Use Education and Research, looked at land cover and land cover change within watersheds and riparian corridors of coastal Connecticut. Riparian, or streamside, corridors are known to be environmentally important areas critical to stream stability, pollutant removal, and both aquatic and terrestrial wildlife habitat; these areas are also sometimes known as “buffer” areas. This study constitutes the first statewide assessment of the land cover status of coastal riparian areas. As far as the authors know, it is the first study of its kind in the nation.

This study was intended to give local officials, researchers, landowners and other interested parties an overview of the status of riparian corridors draining to the Sound, and a feel for land use trends within these areas and the implications for stream health.

Specific project objectives included:

- (1) provide an overall picture of the state of riparian areas in the Sound’s immediate drainage basin;
- (2) develop diagnostic information at the subregional watershed level which LISS, state and local managers can use to direct future efforts, and
- (3) create highly accurate information for at least one high priority basin, which can be used as part of local efforts to protect and/or restore riparian areas.

Methods

Connecticut statewide land cover from 2002, and land cover change from 1985-2002, were employed and analyzed to derive a variety of statistics for both entire basins and buffer zones within basins. Land cover data are derived from Landsat satellite information, which comes in 100 foot x 100 foot pixels. Basins were characterized for land cover and land cover change at the subregional level of organization, resulting in 167 study units. In addition, within these basins data were compiled for riparian corridors of three different widths: 100 feet, 200 feet, and 300 feet to either side of the stream.

Research Results and Conclusions

The major tasks of this research project and summarized below are as follows:

1. Determine study area
2. Characterize coastal sub-regional watersheds: land cover and land cover change
3. Characterize riparian areas within coastal sub-regional watersheds
4. Investigate comparative methods and indices
5. Conduct trial fine scale analysis
6. Develop project website

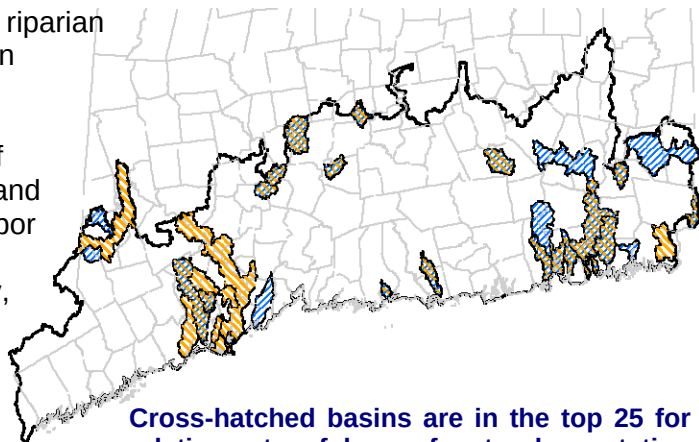
The 2002 land cover breakdown of the 167 subregional basins was very similar to the statewide average. Within the riparian buffer areas, increases

in development and losses of natural vegetation increased with increasing buffer width, both in terms of acreage, and in relative terms as depicted by percent changes of 2002 over 1985

Land cover change 1985-2002: percent of study area	100 ft	200 ft	300 ft	Study area
Developed land	1.7%	2.0%	2.2%	2.6%
Natural vegetation	- 1.6%	- 2.2%	- 2.6%	-3.7%

levels. The relative loss of natural vegetation was smallest in the 100 foot zone (1.6% loss), increased in the 200 foot zone (2.2%), and increased again in the 300 foot zone (2.6%). This could partly be due to relatively larger errors incurred in the 100 foot width, but is more likely evidence that Connecticut's watercourse and wetlands laws are having at least some effect in retarding deforestation along riverbanks and wetlands.

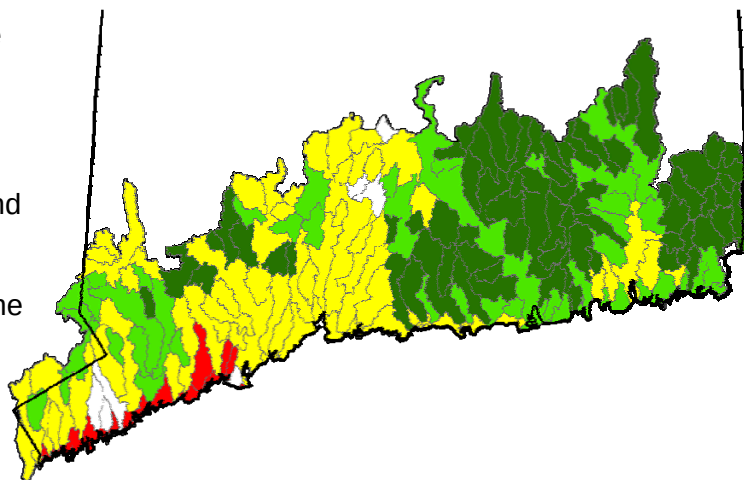
"Hot spot" areas where relatively forested riparian zones are quickly losing natural vegetation were identified (right). The largest concentrations of hot spots were in southeastern Connecticut in the stretch of shoreline from East Lyme to Stonington, and in the area draining to the Bridgeport Harbor region. This is consistent with the *Connecticut's Changing Landscape* study, which showed those areas of the state to be experiencing some of the most rapid expansion of development.



Cross-hatched basins are in the top 25 for relative rate of loss of natural vegetation from 1985-2002 in the 100 foot (blue) and 300 foot (orange) riparian corridors.

The 167 basins also were assessed using a metric that combines overall basin impervious cover and vegetated cover within the 100 foot buffer zone. The resulting analysis shows a striking East/West dividing line in predicted stream quality, at approximately the westernmost extent of the greater Connecticut River drainage area (below).

This study constitutes the first coast-wide assessment of the land cover status of Connecticut's coastal riparian areas. The objective of the study was to develop a "triage"-type overview that would allow federal, state and local land managers and researchers to comparatively assess the status of the riparian areas, and the changes that have been occurring over the last 15-20 years. The study has accomplished that goal. Finally, in addition to meeting the original objectives, this project has produced data that should be useful to managers and researchers beyond the original scope of the research project.



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