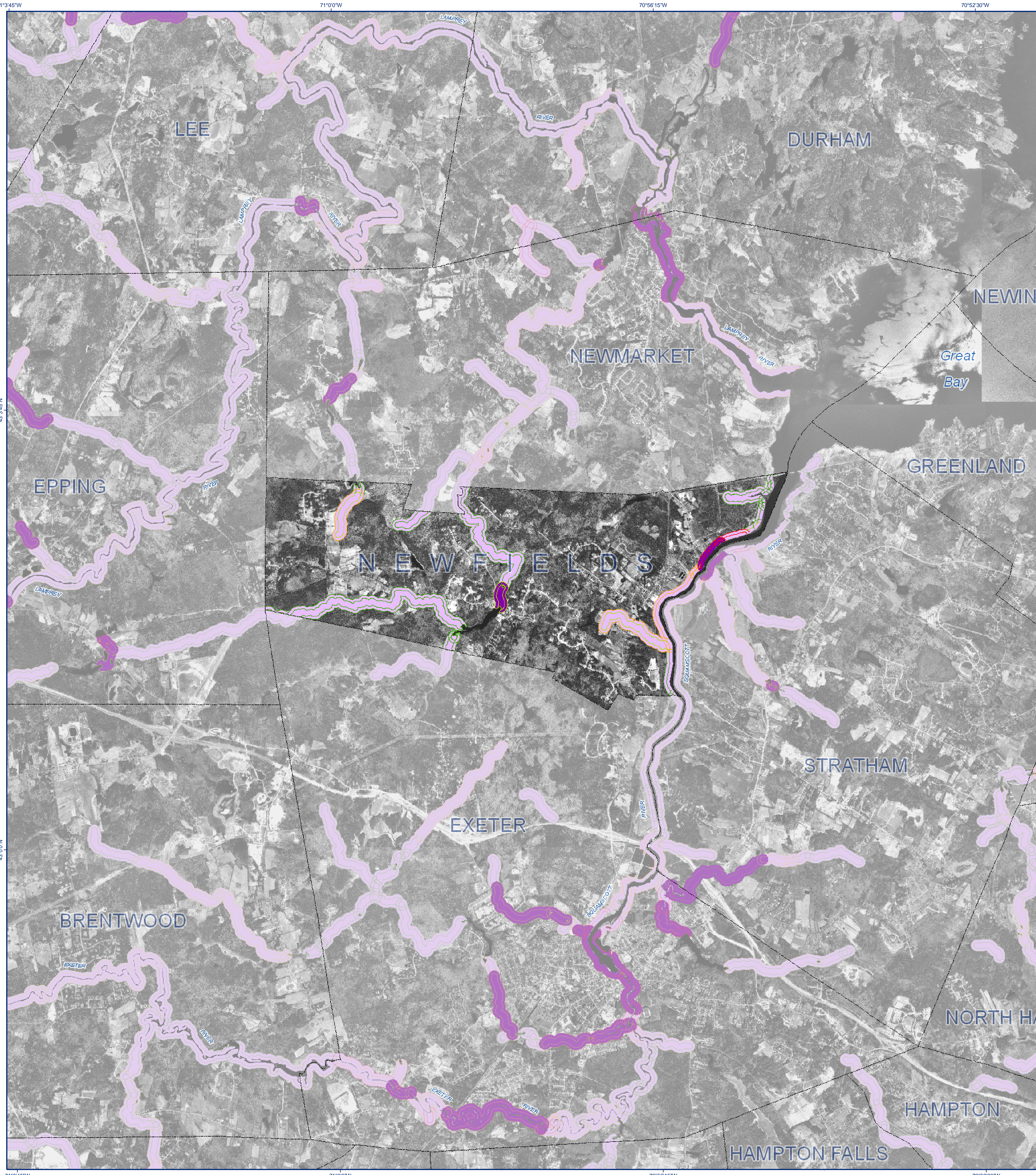


STREAM BUFFER CHARACTERIZATION STUDY

Town of Newfields, NH



Project Description:

The Complex Systems Research Center at the University of New Hampshire conducted a characterization of 2nd order and higher streams within the Piscataqua/Coastal Basin of coastal New Hampshire. Existing GIS and remote sensing data were used to map a suite of anthropogenic factors, including land use, impervious surface coverage, and transportation infrastructure, within standard buffers around each stream segment. These factors were then analyzed to produce a categorical indicator representing the status of each stream.

Processing began using the GRANIT hydrography data to identify perennial streams/streams of order 2 or higher. Each stream segment was buffered by 150' to support water quality analyses and by 300' to support habitat analysis, and the buffers were then combined with land use data derived from 1998 USGS Digital Orthophotoquads (DOQs). Finally, the buffer/land use composites were categorized

based on the degree to which each buffer was impacted by human activity.

Specifically, the buffer categories reflect the percent of land area within each buffer mapped as either developed, transportation, or agriculture, and include:

Category	Decision Rule
Intact	<10% impacted
Mostly Intact	10-25% impacted
Somewhat Modified	25-50% impacted
Altered	>50% impacted

The buffer characterizations are depicted on the map and summarized in the tables below. The map also displays the 300' buffers based on the degree of imperviousness in 2005, and the townwide conservation lands data. Impervious surface coverage by town for 1990, 2000, and 2005, as well as conservation lands acreage by town, are also reported.

150-ft Buffer Stream Characterization Data Summary

Town Name	Total Acres	Land Area		Surface Water Area		150' Buffer Area		Percent of Town Buffer Acreage Categorized as:			
		Acres	% of Town	Acres	% of Town	Acres	% of Town	Intact	Mostly Intact	Somewhat Modified	Altered
Total	759673	708144	93.2	51529	6.8	25279	3.6	2.3	0.7	0.4	0.2

Stream Buffer Characterization

- Intact
- Mostly Intact
- Somewhat Modified
- Altered

Percent Impervious by 300-ft Buffer Segment

- Less Than 10%
- Greater Than 10%

Conservation Lands

- Level 1, 2, or 2A

Townwide Conservation Lands Data Summary

Town Name	Townwide Conservation Lands		
	Acres	% of Town	% of Land
Total	75596	10.0	10.7

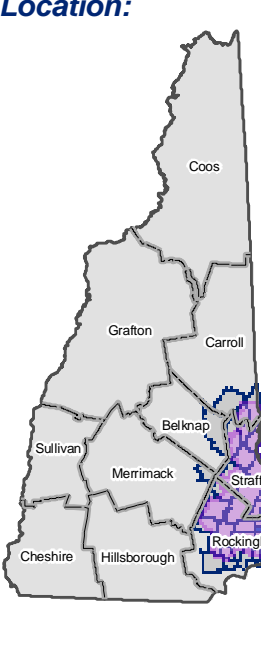
300-ft Buffer Stream Characterization Data Summary

Town Name	Total Acres	Land Area		Surface Water Area		300' Buffer Area		Percent of Town Buffer Acreage Categorized as:			
		Acres	% of Town	Acres	% of Town	Acres	% of Town	Intact	Mostly Intact	Modified	Altered
Total	759673	708144	93.2	51529	6.8	52037	7.3	3.9	1.6	1.3	0.6

Townwide Impervious Surface Data Summary

Town Name	Townwide Impervious Surface Coverage		
	Area, 1990	Area, 2000	Area, 2005
Total	4.4	6.4	7.5

Map Location:



Map Notes:

- Stream reaches were identified, attributed, and buffered based on their extent from the centerline to the bank. Points were used to define the determination of segments in specific situations, e.g. where confluences existed on one river bank but not on the opposing bank. These procedures occasionally yielded very short stream segments and therefore relatively small buffers.
- Because only 2nd order and higher perennial streams were analyzed, some discontinuities exist in the input data and errors in the buffers.
- At points of confluence and in other locations where buffers overlapped, the most impacted category was assigned to the overlap area.
- Data was processed for the Piscataqua/Coastal Basin, which includes all or part of 48 municipalities. Six of these municipalities (Durham, Greenland, Stratham, South Hampton, and Wolfeboro) were not included in the printed map set as they have no streams that extend into the Watershed.
- Only 300' buffers were analyzed with respect to impervious surface data due to the 30-meter resolution of the source satellite imagery.
- Conservation lands shown on the map and summarized in the table include only those classified as permanently protected (Level 1, 2, or 2A) in the GRANIT database.

Data Sources:

- Stream buffers were created from 1:24,000-scale New Hampshire National Hydrography Dataset (NHNHD) stream centerlines (2005).
- Impervious Surface data was generated from Landsat 5 TM (30m resolution) imagery (1990, 2000, 2005).
- Land Use data was created from 1998 USGS Digital Orthophotoquads.
- Conservation Lands were based on April, 2006 version of GRANIT data layer.

Map by:

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Institute for the Study of Earth, Oceans, and Space
University of New Hampshire, Durham
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