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Geomorphology Project Proposal

- *Identifying the channel morphology and processes in mountain environments in New England would facilitate understanding and predicting their response to human and natural disturbances. The morphology of Sandy Pond and Ogontz Lake in New Hampshire, their streams and deltas will be studied to gain a better understanding of the mechanics of mountain drainage basins.*

Goals

Classify the reaches along the mountain streams.

Determine the typical sediment (alluvium, till, bedrock) and size in the stream beds and delta.

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Methods

□ Detailed field observations of at least one stream at each basin will be gathered in order to categorize the channel morphology of each using the classifications in Montgomery and Buffington (1997). The diagnostic features of classification will be: typical bed material, dominant roughness elements, dominant sediment source, and channel width. Observations of channel morphology will be used mostly to classify the streams. Each change in morphology will need to be categorized and their longitudinal profiles will be determined with an auto-level and stadia rod. In order to obtain the best representative profile, measurements will be taken at 5-15 m increments.

□ Stream sediments will be collected along cut banks and the stream deltas. A scoop of fine fraction material that hopefully will represent source sediment will be gathered with a small scoop, bagged and labelled. The GPS position at each sampling location will be logged and plotted on the basin map. Sampling sites will be chosen because of the channel properties, a total of six sediment samples will be gathered along each mountain stream. As stated before one stream will be categorized in each lake basin.

□ Topographic maps of both basins will be used as well as USGS bedrock maps. These maps will provide more information about each drainage basin, stream and their sediments. At each sampling or reach location the coordinates will be plotted on a map using a Garmin GPS to acquire the position. An auto-level and stadia rod will be used to calculate the surface gradient and longitudinal profile where each stream enters the lake.

□ The data collected in the field will then be organized and reduced. Possible correlations will be longitudinal profile with channel type and bedrock lithology with channel type. The sediments collected, stream profiles and channel classification will be combined to look at the downstream evolution of the streams. A findings will be presented in a five page paper and a short presentation for the Geomorphology class.