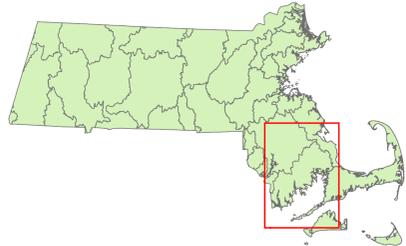


Prioritizing Land for Conservation: Environmental vs. Social Services

Buzzards Bay Watershed, Massachusetts

Project Goals:

Priority lands for conservation are identified in the Buzzards Bay watershed in southeastern Massachusetts according to environmental and social services. This watershed is one of the fastest growing areas in the Northeast in regards to population growth and development. In order to maintain and improve the water quality of the Bay land conservation is critical, as it has been shown to be one of the most cost-effective ways to protect water resources. Priority land will be identified in two ways. The first scenario will place high value on land that is critical to protect for water quality- wetlands, vernal pools, flood zones, and agricultural lands. The second scenario will place high value on additional criteria to determine which lands are most important to protect if social services are considered- proximity to schools and environmental justice communities.



Methods:

Data for the watershed was selected from Mass GIS and Buzzards Bay National Estuary Program GIS data layers. Layers were set to the same coordinate system and clipped to the area of the watershed. Polygon data was converted to raster files and reclassified, ranking characteristics according to the priority rankings at right. Weighted overlay was then used to determine priority lands for environmental and social services.

Results: Environmental Services

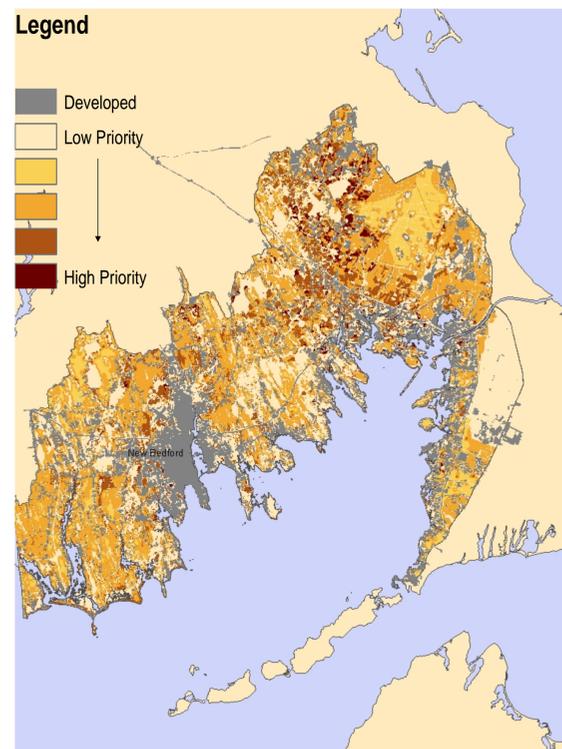
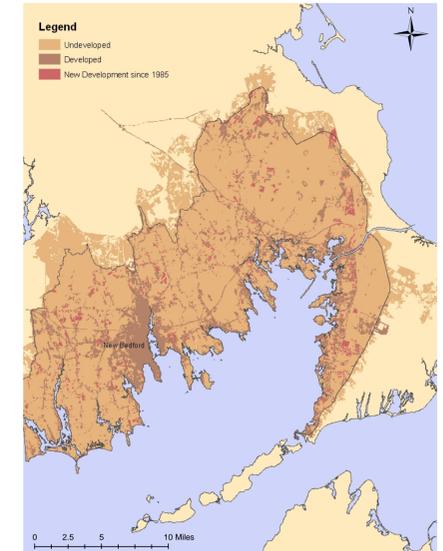
Environmental characteristics— wetlands, vernal pools, agricultural land, and flood planes— were weighed as twice as important as social service characteristics. High priority land is largely concentrated in the North East corner of the watershed, removed from major population centers.

Results: Social Services

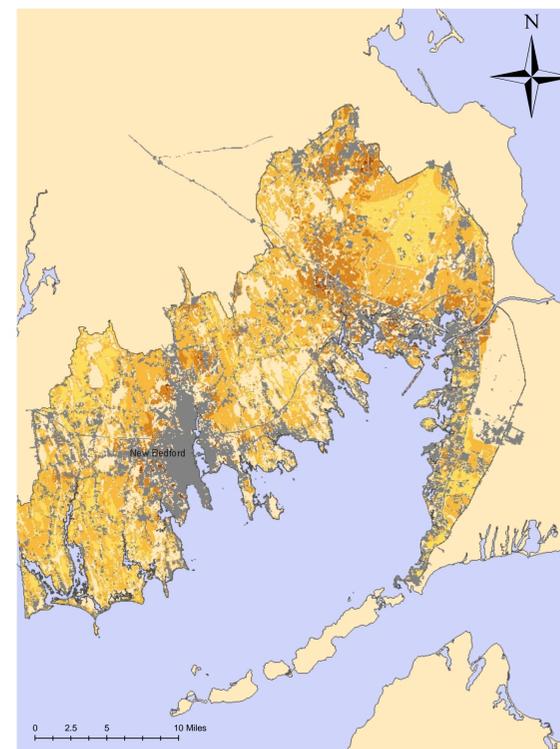
Social characteristics— distance from schools and environmental justice communities— were weighted as twice as important as environmental services. High priority land is located in population centers and near existing development.

Priority Rankings

High	Priority Rankings		Low
Wetland	100 meter buffer	200 meter buffer	> 200 meters
Vernal Pool	100 meter buffer	200 meter buffer	>200 meters
Ag. Land			
Within 100 year flood plane		Forested Lands	Other
.25 miles from school		Within 500 year flood plane	Outside flood plane
.5 miles from EJ community			> 1 mile
			> 3 miles



Priority Land for Environmental Services



Priority Land for Social Services

Limitations of Methods:

This project illustrated GIS methods used to prioritize land for conservation, with characteristics chosen according to available data. The differences in identified land illustrates the importance of selecting appropriate criteria and rankings. Under ideal circumstances the major stakeholders in the Buzzards Bay watershed would be consulted to determine important characteristics and their individual rankings. This is often done through a series of community meetings and charrettes. As stakeholders determine criteria for conservation, ranks and weights can be changed in real time to show the community the difference in high priority lands for different scenarios.