

AN INTERNET-BASED, GEOSPATIAL TECHNIQUE FOR ASSESSING SCENIC PREFERENCES AND AESTHETIC RESOURCES FOR WASHINGTON STATE PARKS

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KEYWORDS: aesthetic evaluation, scenic resources, parks, management, GIS, internet, survey

Land use planning along shorelines is often required to consider aesthetic values as part of decision-making processes, which has resulted in various efforts to identify and quantify visual attributes of landscapes. These have included various component-based field survey methods, surveys of visual preference based on photography and field visits, as well as use of remotely sensed data and GIS modeling. In Washington State, as in many other states, shoreline management programs require aesthetic resources to be protected. However, data pertaining to shoreline aesthetics are usually not available and standardized procedures for developing this data generally do not exist. As a result, aesthetic qualities are often not adequately addressed in many comprehensive shoreline management plans and inappropriate development continues to threaten these resources.

This project developed a methodology for assessing aesthetic resources for parks along marine shorelines. First, an internet-based, scenic preference survey instrument was developed based on a literature review of best practices. The survey instrument combines digital aerial photographs, maps, and panoramic photographs in an application that can be used to gather spatially referenced data concerning shoreline aesthetic resources from stakeholders via a web-based, Likert scale questionnaire. This is accomplished by linking representative panoramic photographs, taken at the shore's edge, to an interactive map modeled partially after a University of Wisconsin Sea Grant Great Lakes Circle Tour Project using OpenLayers. This project's interactive map allows users to visit representative coastal views as a tourist, as well as spatially locate and evaluate scenic amenities in a 360 degree panoramic view divided into four equal segments, each representing waterward, shoreward or alongshore views. The results of the survey may be used to rank-order view directions, locations, and parks on the basis of scenic preference. Survey results may also be statistically compared to measurements of the type and extent of physical landscape components evident in each 90 degree portion of the panoramic view.

In addition, the methodology includes geospatial techniques to help analyze the results of the scenic preference survey in conjunction with physical, biological, and cultural information obtained from existing GIS databases. Using a 10 meter resolution digital elevation model that integrated top surface LIDAR data, viewsheds were constructed in ArcGIS for 40 locations, which were further divided into quadrants corresponding to the 90 degree portions of the panoramic views evaluated through the scenic preference survey. These quadrants were then geospatially analyzed to identify and quantify the landscape characteristics of each view, including geomorphic types and conditions,

vegetation cover, habitat information, shoreline alterations, land use, and distance of vista.

The project has been implemented as a pilot for five Washington State parks, representing a diversity of shoreline morphologies and cultural settings along the Puget Sound, and the internet application for collecting scenic preference data has been tested using several different response groups, including lower- and upper-level university classes, the general public, and park managers. The methodology has broad application for environmental planners, as the software and techniques developed in this research are useful for inventorying aesthetic resources in any shoreline environment.

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