Using Public Participation Geographic Information Systems to Identify Watershed Services

There is a growing need to make natural resource decision making processes more participatory. Due to the fact that much of the scientific data that is used for natural resource planning is stored in Geographic Information Systems (GIS) databases, it is beneficial to elicit stakeholder preferences in the same way. Public Participation Geographic Information Systems (PPGIS) was developed to spatially capture the landscape values (i.e. aesthetic, historic, recreation values) and management preferences of stakeholders. In addition to identifying stakeholder values and management preferences, PPGIS systems allow for the testing of the spatial accuracy of these preferences. Previous studies have used PPGIS methods to elicit stakeholder identification of places that are important for ecosystem service provisioning, but none have analyzed the spatial accuracy of the identification of these places by a representative sample of the general public. It is critical to understand how accurate participants are in identifying places if they are to be used to inform management decisions. This paper assessed the accuracy of participant watershed service (flood control, storm protection, water quality, wetland fish nurseries) identification using land and water cover data. We found that the accuracy with which participants identified places with the necessary land cover to provide each service varied dramatically. While we believe this to be a useful tool, we recommend that further criteria be developed to assess participant accuracy to supplement the use of land cover data.

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