61. Assessing watershed benefits of bioenergy crops: Recreational and subsistence value of fishes

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Abstract: A suite of economic benefits are derived from freshwater ecological resources. In the United States, a large part of these benefits stem from recreational and subsistence angling and from non-use values. Valuing these benefits can be undertaken through market-based or nonmarket-
based methods to gauge preferences for environmental quality attributes. At the scale of a river reach or lake, fish valuation techniques often involve the collection of primary survey data on expenditure, frequency, and duration of fishing trips reported from resource users. However, challenges exist to measuring direct use over a larger spatial extent. We addressed this challenge by conducting a study of market-based, revealed preferences over a large watershed. We assembled a dataset composed of fishing privilege and species richness to estimate a spatiallyoriented,
welfare-relevant measure of use for the Arkansas-White-Red River Basin that covers eight states. Geographic Information Systems-based analysis is used to explain the role of biodiversity in determining use values across the Arkansas-White River basin. Our goal is to apply the relationship between biodiversity and value to anglers to project future changes in value associated with changes in land-use resulting from a large scale expansion of lignocellulosic feedstock cultivation. Recommendations on incorporating species richness into future economic and agricultural systems will be provided with regards to angling privilege.

Keywords: biodiversity, bioenergy, fisheries, GIS, valuation