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Economic Analysis of Fishery Enhancement: Case Study of Yakima River

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Abstract:

Salmon and steelhead populations having been declining in the Pacific Northwest for a number of years with the result that stocks of these species have been listed as threatened or endangered under the U.S. Endangered Species Act. Various Federal agencies, including the U.S. Bureau of Reclamation (USBR), are undertaking projects to improve the population levels of these species.

Salmon and steelhead species provide economic values in a number of ways. These species have been harvested commercially and provide recreation values due to fishing. However, economic justification for recovery of these species likely will not rely on future commercial and recreation use values since future values are discounted at the current interest rate due to the prospect of slow growth in populations. Rather economic justification will depend on existence or passive use values held currently by the public for these species to avoid extinction.

Existence or passive use values are defined as the benefit received from knowing the resource exists without use of the resource. Resources within this concept include free-flowing rivers, unique geographic resources and declining species such as wild salmon and steelhead stocks. People who know they will never be able to recreate on free-flowing rivers, visit unique sites, or fish for these species still value their existence. This recognition of economic value is theoretically sound, based on economic theory.

This study considers the alternative methods for valuing existence value for these anadromous fish species. These methods include estimating a value using stated preference techniques. Discussion of the strengths and limitations of this technique are provided. Another method is using benefits determined by other studies and applying these values to the site in question, a method called benefit transfer. A third choice is consideration of the National Ecosystem Restoration method, which compares non-monetary benefits with economic costs, essentially a cost-effectiveness analysis.

This analysis is applied to a case study undertaken by USBR designed to improve the population of salmon species in the Yakima River basin. Estimates of the economic benefits and economic costs are considered for this project along with policy implications. Comparisons of the methods in question are provided, considering cost level, theoretic consideration, public acceptance, and data needs.