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New Approaches to Providing Streamflow for Fisheries in the American West: Embracing Prior Appropriation and the Marketplace

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New Approaches to Providing Streamflow for Fisheries in the American West: Embracing Prior Appropriation and the Marketplace

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Abstract.—Most rivers in the American West are highly managed for irrigation and other uses, but they also support popular trout fisheries and other ecologically valuable resources. Traditionally, streamflow to support these resources has been conceptually based on minimum streamflow and natural hydrologic regimes while the prior appropriation doctrine is generally considered an impediment to providing these flows. Successes often occur in situations with substantial federal nexus. However, protective federal laws and policies usually do not apply to popular nonnative trout fisheries or to nonlisted native species. Furthermore, many western trout fisheries and important native fish populations occur in highly altered dam tailwaters and in agricultural landscapes where hydrologic regimes have been more subtly altered by a century of irrigation diversion, seepage, and groundwater return flow. In these cases, traditional ecological and administrative viewpoints can fail to provide appropriate instream flows and may be detrimental to existing fish and wildlife resources. We propose a new paradigm based on the viewpoints that fisheries and related resources can be maintained in regulated hydrologic regimes and in watersheds dominated by private-land agriculture and that prior appropriation can be a pragmatic tool for providing instream flow at times and places where it addresses ecologically limiting factors. Application of this paradigm requires collaboration among irrigators and other water users, agricultural producers, government agencies, and conservation organizations. New strategies for providing ecological streamflow include capitalizing on the difference between physical and "paper" water, providing high-resolution water-supply information to water users and managers, actively managing groundwater and surface water together, and developing market mechanisms to change irrigation practices. We provide examples of these strategies from the Snake River basin and discuss transferability of our approach to other watersheds.

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