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# Evaluation of Boundary Dam Spillway Using an Autonomous Sensor Fish Device

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## Abstract

Fish passage conditions over spillways are important for the operations of hydroelectric dams because spillways are usually considered as a common alternative passage route to divert fish from the turbines. The objectives of this study were to determine the relative potential of fish injury during spillway passage both before and after the installation of baffle blocks at Boundary Dam, and to provide validation data for a model being used to predict total dissolved gas levels. Sensor Fish were deployed through a release system mounted on the face of the dam in the forebay. Three treatments, based on the lateral position on the spillway, were evaluated for both the baseline and post-modification evaluations: Left Middle, Right Middle, and Right. No significant acceleration events were detected in the forebay, gate, or transition regions for any release location; events were only observed on the chute and in the tailrace. Baseline acceleration events observed in the chute region were all classified as strikes, whereas post-modification events included strike and shear on the chute. While the addition of baffle blocks increased the number of severe events observed on the spillway chute, overall fewer events were

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