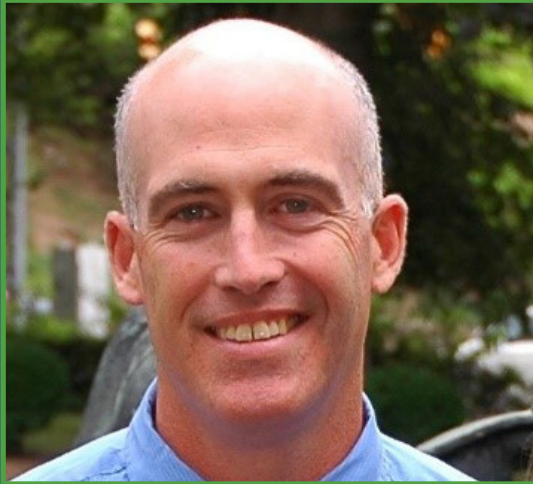


JOINT COMMITTEE ON FISHERIES ENGINEERING AND SCIENCE



2017 Webinar Series



PRESENTER BIOGRAPHY

Throughout his fifteen year career as a biologist with the U.S. Geological Survey, Toby Kock has worked extensively on evaluations of downstream fish passage and survival at dams throughout the Pacific Northwest. His expertise includes the application of telemetry systems to monitor fish behavior and movement patterns, focusing on data collection that supports the decision-making process for resource managers responsible for protecting salmon and steelhead populations in the region. Toby has degrees from Pacific Lutheran University and the University of Idaho, where he studied the effects of sediment on white sturgeon embryo survival in the Kootenai River. He is currently working on studies in the Yakima River and Willamette River.

WEBINAR INFORMATION

Date: Thursday, December 14, 2017

Time: 1:00 pm ET | 10:00am PT

Duration: 60 Minutes

Webinar Platform: Microsoft Lync (call in number will be provided to registrants)

Please RSVP and direct any questions or comments to Erin McCombs at fisheriesengineeringscience@gmail.com

DOWNSTREAM FISH PASSAGE: IMPROVING THE DESIGN AND OPERATION OF DAM-BASED FOREBAY COLLECTION SYSTEMS.

A review of the environmental, physical, and operating features at forebay collectors with summaries of project-specific performance and factors found to be statistically important predictors of collection success.

Toby Kock, *U.S. Geological Survey, Western Fisheries Research Center*

Presentation Description

The construction of dams in the Pacific Northwest has severely affected many populations of Pacific salmon (*Oncorhynchus* spp.), resulting in depressed or extirpated populations throughout the region. Efforts to improve fish passage and survival have largely been successful at run-of-river dams such as those on the Columbia River. However, improvements at high-head dams have been more challenging and substantial room for improvement remains.

At several locations, floating forebay collectors have been developed to capture downstream-migrating juvenile salmon and steelhead. These devices have been very successful at some locations, yet perform poorly at others. In 2017, we conducted a thorough review of forebay collectors located at eight projects in Washington and Oregon. These included:

- Upper Baker Dam and Lower Baker Dam, Baker River, Washington
- Cushman Dam, Skokomish River, Washington
- Swift Dam, Lewis River, Washington
- North Fork Dam and River Mill Dam, Clackamas River, Oregon
- Round Butte Dam, Deschutes River, Oregon
- Cougar Dam, McKenzie River, Oregon

The goals of our review were to synthesize operating characteristics and conditions among projects, and to attempt to determine if there were factors that appeared to be affecting collection success. Forebay collectors are being considered at numerous locations throughout the region, and a need exists to better understand how operations can be established to increase the likelihood of achieving fish collection goals at each new project.

Our review provides an overview of each project, comparisons of environmental, physical, and operating features among projects, and summaries of project-specific performance. Data collected during this review were analyzed and we identified factors that were found to be statistically important predictors of collection success. Through this review, we provide data that can be used by resource managers to improve the design and operation of dam-based forebay collection systems in the future.

The Joint Committee on Fisheries Engineering and Science is hosting a free webinar series as part of its mission to engage scientists and engineers on topics related to fish passage. The Committee consists of members of the American Fisheries Society Bioengineering Section (AFS-BES) and the American Society of Civil Engineers Environmental and Water Resources Institute (ASCE-EWRI). It was established in January 2011 to foster communication between the two groups, provide opportunities for engineers and biologists to share relevant knowledge and learn from one another, and to collaborate on projects related to fish passage.