



Western Washington University
Western CEDAR

Salish Sea Ecosystem Conference

2018 Salish Sea Ecosystem Conference
(Seattle, Wash.)

Apr 6th, 2:30 PM - 2:45 PM

Downstream fish passage improvements at Hiram M. Chittenden Lock and Dam, Seattle, WA: a new Approach for an old dam

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Peterson, Phil; Pozarycki, Scott V.; Slowik, Adam; and Heisey, Paul, "Downstream fish passage improvements at Hiram M. Chittenden Lock and Dam, Seattle, WA: a new Approach for an old dam" (2018). *Salish Sea Ecosystem Conference*. 578.

<https://cedar.wvu.edu/ssec/2018ssec/allsessions/578>

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Downstream Fish Passage Improvements at Hiram M. Chittenden Dam, Seattle, WA: New Approach for an Old Dam

Scott Pozarycki, N. Phil Peterson, Adam Slowik, Erek Arnold,
Tom Hoover, and Paul Heisey

Salish Sea Ecosystem Conference

Seattle, WA

April 4-6, 2018



US Army Corps of Engineers

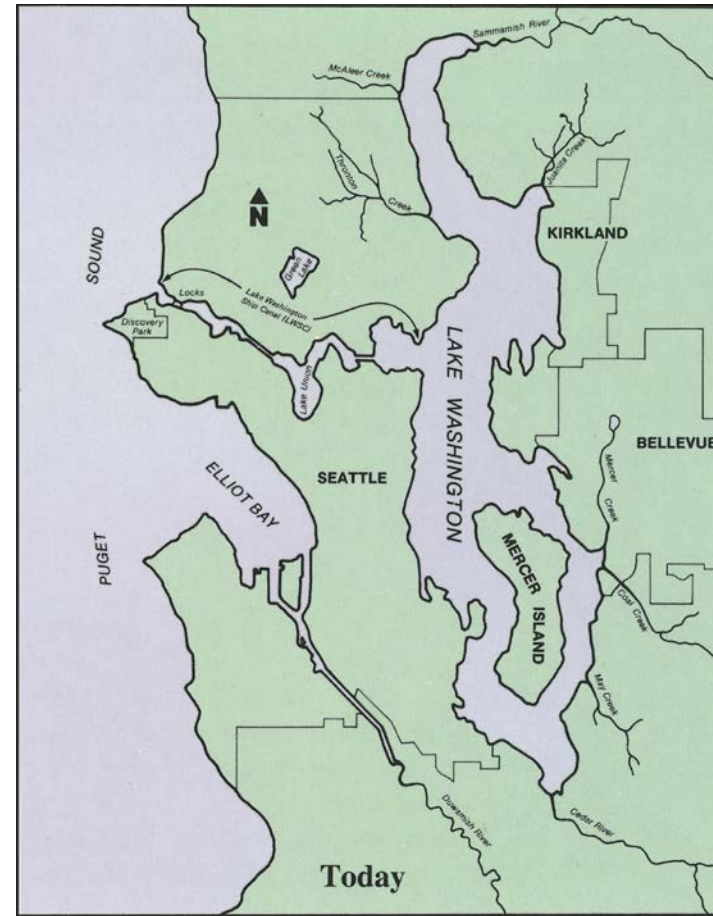
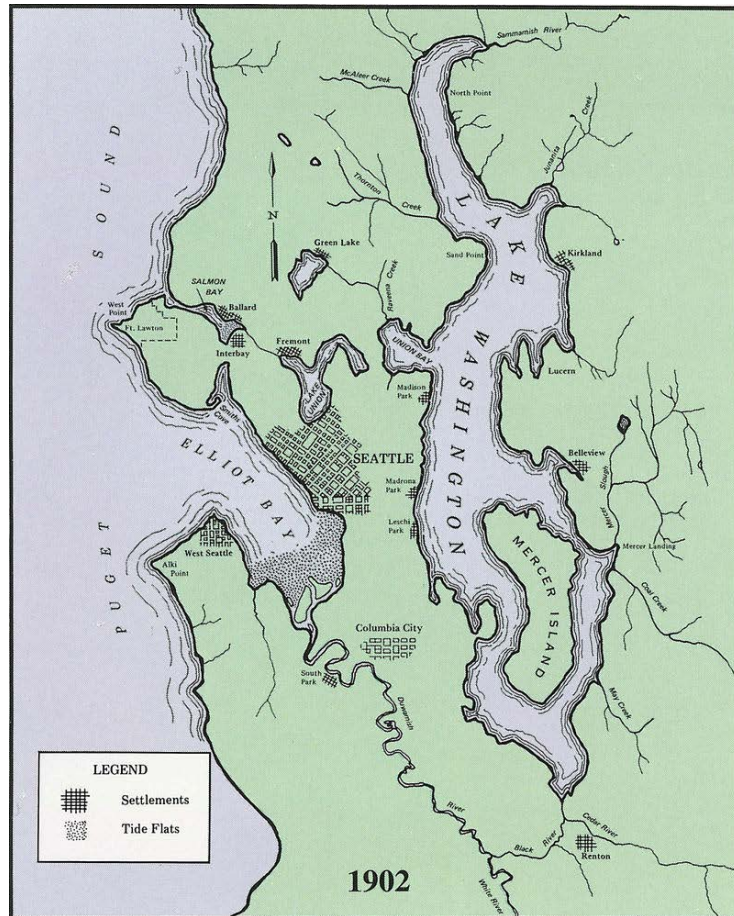




Watershed as it exists today...

Jason Mulvihill-Kuntz, King County

Early River Diversions



U.S. Government Printing Office Pamphlet 1999-791-887: "Lake Washington Ship Canal and Hiram M. Chittenden Locks"





LAKE WASHINGTON CANAL, WASH.
LOCKS AT NARROWS OF SALMON BAY.
SPILLWAY DAM.
JUNE 19, 1916.

Friends of Ballard Locks historical photo collection

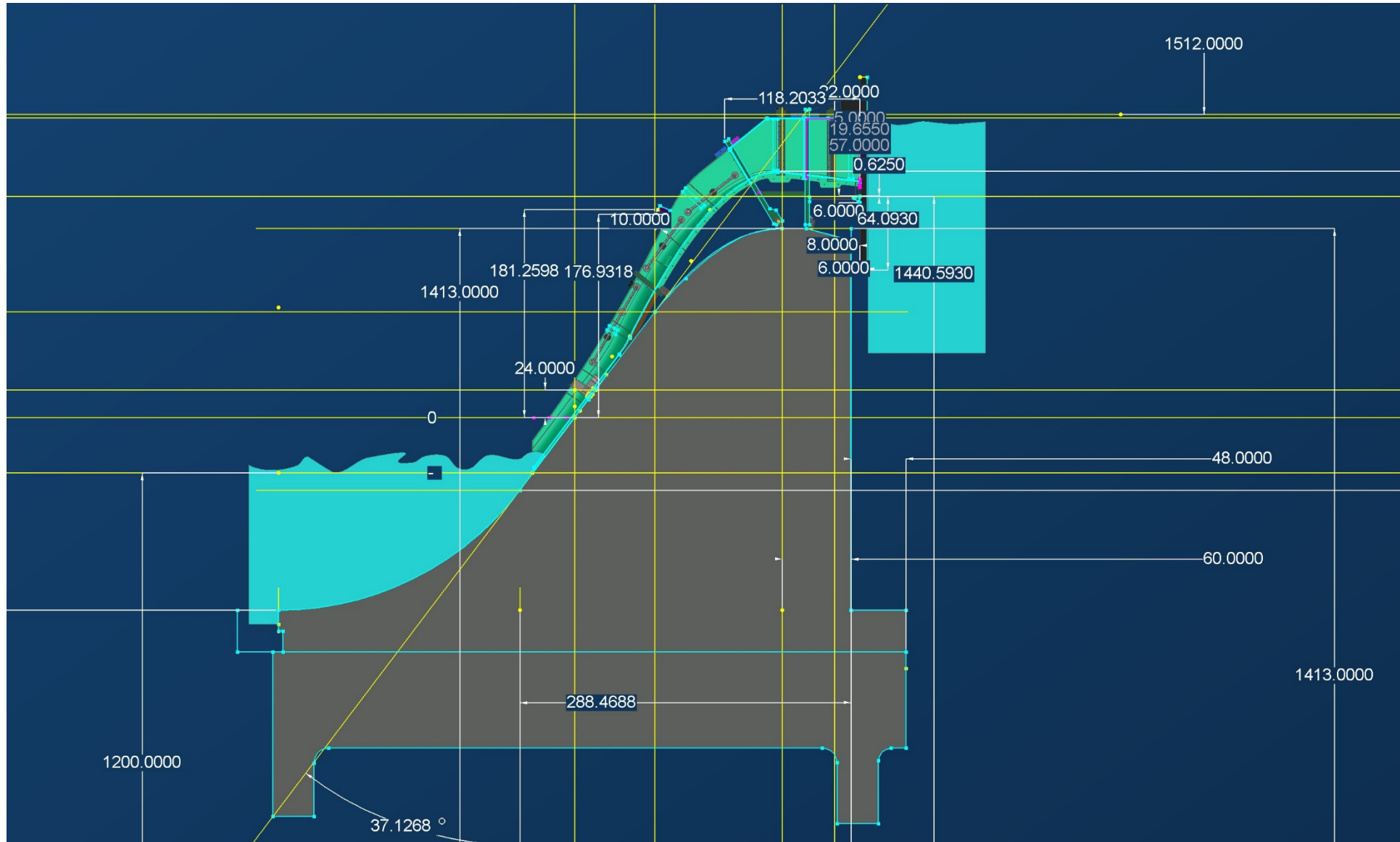
Hiram M. Chittenden Lock and Dam



U.S. Army Corps of Engineers, Seattle, WA



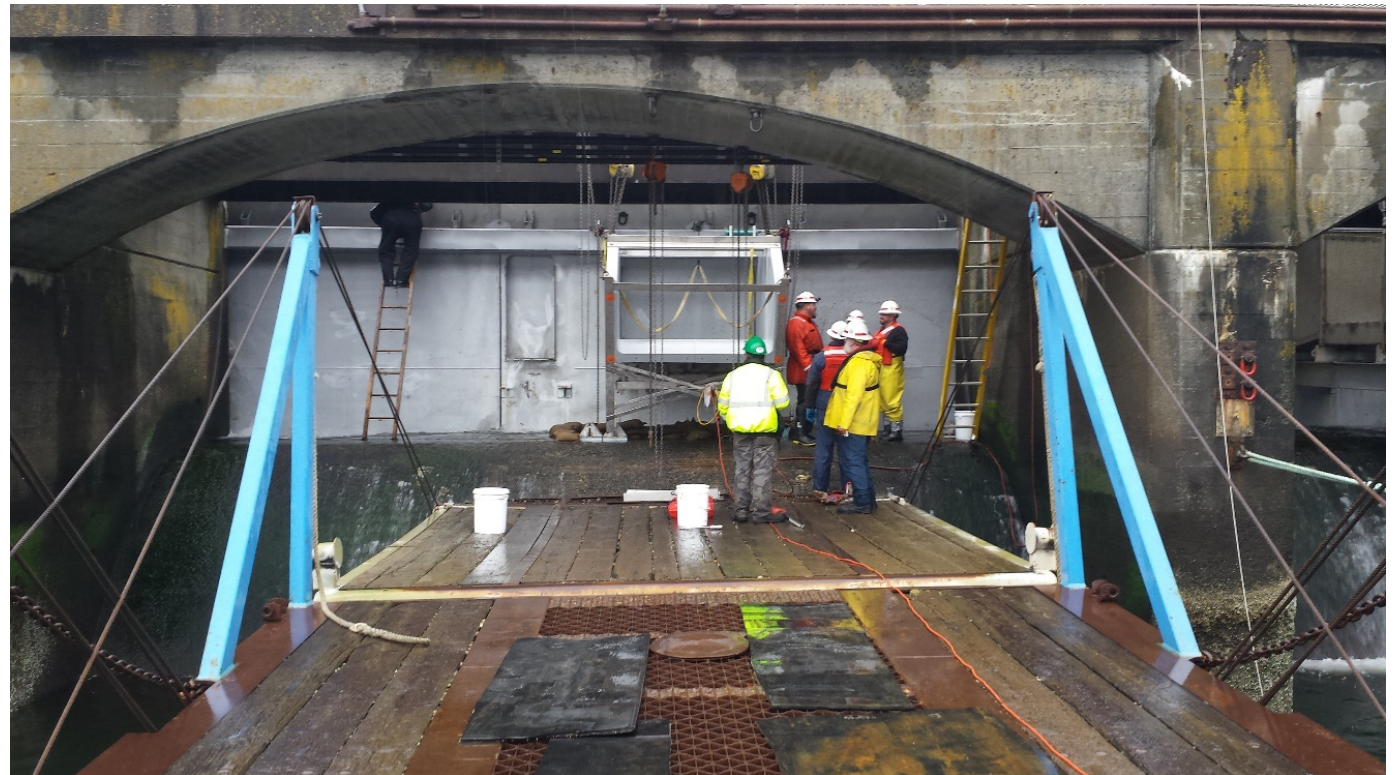
Smolt Flume Design



Smolt flume fabrication



Smolt Flume Installation





Smolt Flume Evaluation

(both new and old flumes evaluated in spring 2017)



HI-Z Turb'N Tag (balloon) Tag Study with Yearling Coho Salmon



Tagged Coho Test Fish "Swimming" the Flume



Collection Below the Dam

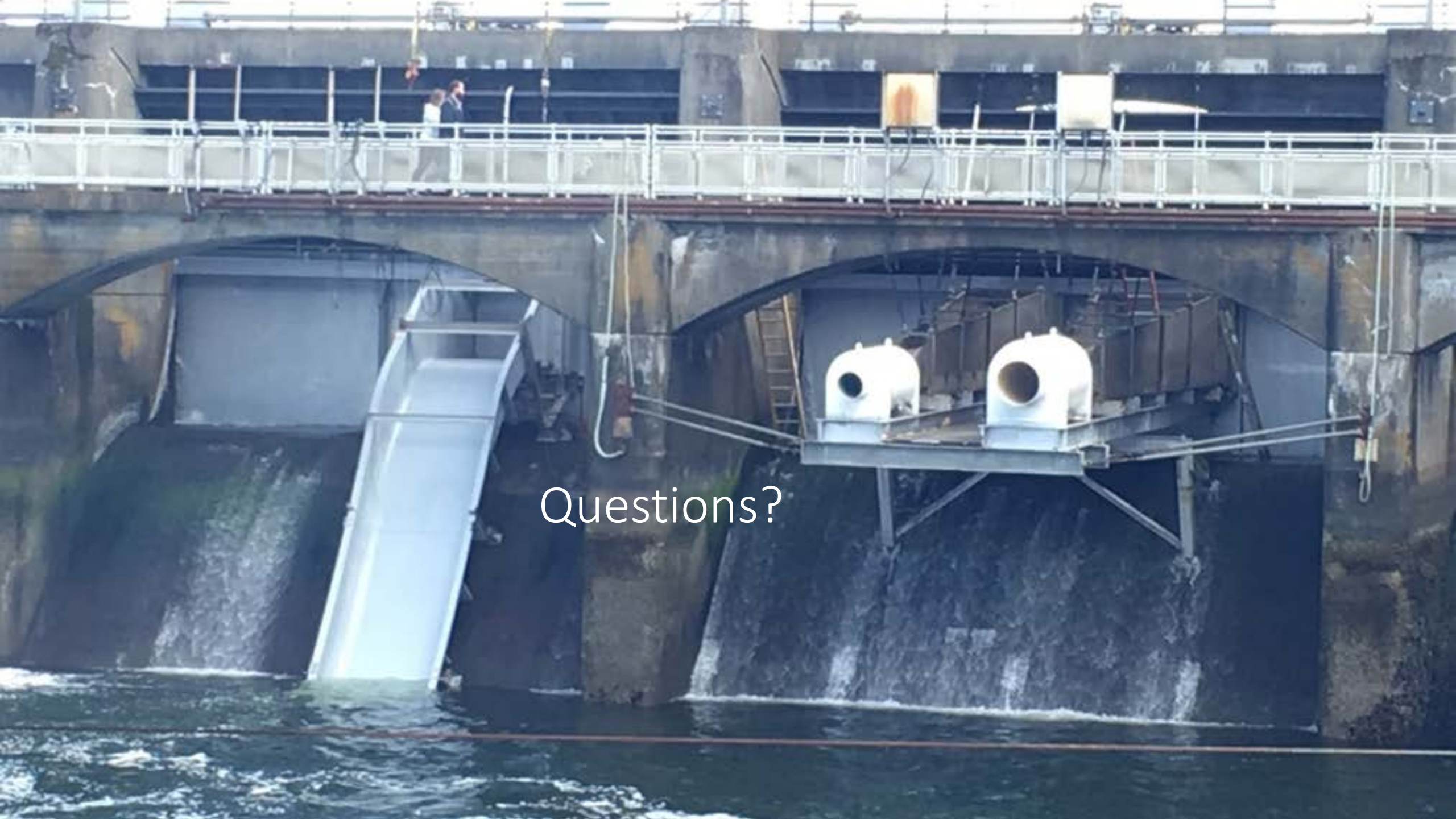


Recovered Test Fish after Balloon Inflation



Study Results

	Old Flume	New Flume	Control
Fish Released	127	126	61
Recaptured Alive	119	124	58
Alive Not Recaptured	0	0	1
Recaptured Dead	0	0	0
Known Predated	0	0	2
Assigned Dead/Stationary Signal	1	0	0
Unknown	7	2	0
Survival 1 h	99.2%	100%	59*
Held for 48 hrs	119	124	58
Died in Holding	0	0	1
Survival rate at 48 h	99.2%	100%	98.2%
Number Examined for Injuries	119	124	57
Number of Visible Injuries	3	1	1
Injury Rate	2.5%	0.8%	1.8%



Questions?