235 Bob Wubbena - Attachment

Subject	**Fwd:**
From	Robert Wubbena [redacted]
To	Comment--EIS <comment@capitollakewatershedeis.org>
Cc	Jack Havens [redacted], Denisc733 [redacted], Maia Bellon [redacted]
Date	2018-11-10 14:31

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To: DES EIS Scoping Team
From: **Robert Wubbena** [redacted]
Date: Tue, Nov 10, 2018
Subject: Lake and Tidal Hydraulics--a full scale Dye Test

Facts Contradict Ecology's Public Claim of Dam.Causing WQ problem. .A Picture is Worth a 10000 Words----

The attached picture confirms the hydraulics of the Capitol Lake Discharge Flows with the Tidal Actions of Budd Inlet. It also contradicts several major Department of Ecology TMDL modeling conclusions on the Dam's impact on water quality. Simple hydraulics, a full scale naturally occurring "DYE TEST" on February 10, 2017 at about 9:00 am, along with routine State flow and water quality records from the E Street sampling point documents the following:

At about mid tidal action . the Deschutes River Watershed experienced a heavy rain with muddy runoff into the Deschutes River. The "muddy water/dye " arrived at the 5th Avenue Dam/Lake outlet just as the tide changed to an outgoing tide. (not the low tide of the year but mid level). At about 9:00 am , the attached picture was taken at 2201 Bayside Pl NE, just south of Priest Point Park.

NOTE the dramatic light brown (Deschutes Mud) color along the west shore of Budd Inlet. About noon, the tide changed to an incoming tide, and the entire southern body of Budd Inlet filled up with diluted muddy water, with the tide returning with the Northern Budd Inlet waters mixed and diluting the mud flow.. What this shows is as follows:

1) DEMONSTRATION OF ACTUAL FLOWS VS ECOLOGY MATHEMATICAL MODEL. The Deschutes River during outgoing tides (twice per day) flows along the west shore until it collides with the incoming tide from the North ---not interfering with the East Bay outflow as claimed by Ecology. and their TMDL model

2) NORTHERN PUGET SOUND FLOW AND WATER QUALITY DWARFS FLOW FROM LAKE. The comparative flows of the Deschutes River is about 1200 cfs during low River flows and up to 4,000 cfs during high flows. The incoming tidal flows from Northern Budd Inlet is from 30 to 50,000 cfs, dwarfing the volume flowing out of the Lake from the upper watershed. This re mixing of flows from the North occurs twice per day on each tide exchange.

3) ECOLOGY'S CRITICAL MODEL CELL NORTH OF SWAN TOWN MARINA SKEWS THEIR MODEL RESULTS & IS CONTRADICTED BY THIS PICTURE AND FLOW. The critical cell in the Ecology Model refers to one low DO level prediction north of the Swan Town Marina (disputed by Dr Dave Milne's 140 page critique of the Ecology Model -the cell is in the area where it is a mud flat much of the time) . This single prediction of a model cell by Ecology is mathematically expanded by the Model to then be used by Ecology claiming that the Dam is the "largest single source of human impacts on Budd Bay water quality". They do not mention that the claim against the dam is a measure of the accumulated total of the upper Deschutes River, with the Dam being only the near by site of of cause created by the Deschutes River not the Dam. They further claim that the flow releases from the Dam interferes with the flow from Moxlie Creek and East Bay, causing this single model cell to predict a low DO sample in that area--not by actual measure but by prediction. This picture and the hydraulics of the River and Tidal interaction twice per day contradict Ecology's conclusions and public statements.

4) ECOLOGY KEEPS REVISING THE MODEL THAT WAS PEER REVIEWED SEVERAL YEARS AGO TO ATTEMPT TO MATHCH FIELD CONDITIONS. FIELD VALIDATION OF MODEL NEVER PROVIDED/DOCUMENTED Until recently (last two years) Ecology's modelling results ignored the contribution of the Northern Budd Inlet and Puget Sounds contribution to the South Puget Sound/Budd Inlet water quality problems. This twice daily flows from the north of 30,000 to 50,000 cfs has a dramatic impact on both the hydraulics and the volume of water diluting the flows from the upper Deschutes Watershed.and the relatively small quantity of water coming from the Lake.

4) ECOLOGY DATA SUPPORTS A DIFFERENT CONCLUSION AND SUPPORTS RETENTION OF DAM. Another significant omission by the Ecology Modeling program is the fact that their own data shows that the Lake reduces the Nitrogen flowing from the upper watershed to the discharge of Capitol Lake by about 70%. A simple and low cost annual plant harvesting program of the plants in Capitol Lake has not even been discussed by Ecology in their previous public reports. The pounds of nutrients that a harvesting program would remove "meet or exceed" the pounds of nitrogen that the $50 million LOTT treatment plant process removes. Removing Capitol Lake Dam would eliminate this added Lake mitigation program now helping improve Budd Bay water quality every day at very little cost to the community.

5) EIS TEAM NEEDS TO INITIATE OBJECTIVE AND IMPORTANT FIELD SAMPLING PROGRAM TO ADDRESS ABOVE ISSUES. The CLIPA Board has been recommending for the last five years that Ecology, LOTT, the County Health Department and others initiate a monthly field sampling program from Pioneer Park to Priest Point Park to establish a current record on the many disputed issues surrounding the lack of a field verification of the Ecology TMDL Model. The future recommendations from the EIS and the future Federal regulatory TMDL program requires an objective and well defined water quality baseline that can be used to answer the above questions and the future management program for the Deschutes River, Capitol Lake and marine waters.

THE MUDDY DESCHUTES RIVER ON FEBRUARY 10 ABOUT 9:00 AM.. The picture was taken at about 9:00 am The light tan you see in the distance is the Muddy Deschutes, showing the pathway of the Deschutes sediment load moving to the north. High Tide on that Friday was about 4:00 AM. High tide served as a "water dam" blocking the flooding Deschutes River in the Capitol Lake. The City of Olympia and DES Crews were on site managing the storm water and 5th Ave dam operations to minimize the flooding of downtown.

As the tide began to recede the Budd Inlet Water Dam was slowly removed and the Deschutes River's high water stage slowly moved north as the Budd Inlet high tide moved north and lowered. The distinctive "mud flow of the Deschutes stayed as a muddy plume until about 11:00 when the mud dispersed into the entire lower Budd Inlet as it was diluted by the returning incoming tide.

The Mud Plume never entered East Bay during this time. The bright blue waters of Budd Inlet stayed blue in East Bay and extended out beyond Priest Point Park until after the 11:00...

The separation of Deschutes River Water and Budd Inlet waters was dramatic and clear. It was clear where the mud from the Deschutes River would settle out .

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Bob Wubbena
[redacted]

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