

Capitol Lake: Protector of Water Quality in Budd Inlet.

David H. Milne
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Executive Summary.

This report was prompted by claims that Capitol Lake has a negative impact on Budd Inlet's water quality and that a reconstructed estuary at the head of the Inlet would be environmentally preferable. My findings contradict such claims.

I find that the Lake does not have negative effects on Budd Inlet and that the Lake improves the water quality of the Inlet.

The evidence I analyzed is in a Dept. of Ecology document, the "TMDL Tech Report (2012)" listed in the References. DOE compiled this evidence by using a computer simulation to compare two sets of scenarios, one with a Lake and one with a reconstructed estuary at the head of the Inlet. My analysis is divided into 9 sections. The conclusion of each section (except the Introduction) is as follows:

- 2) The computer calculations presented are only tangentially relevant to a Lake/Estuary comparison and are presented in formats that are very prone to misinterpretation.
- 3) All violations of water quality *standards* reported by the computer are mathematically microscopic and ecologically inconsequential.
- 4) The TMDL computer simulation data show no water quality *problems* occurring anywhere at any time throughout Budd Inlet.
- 5) Data that probably show a beneficial effect of Capitol Lake on all of Budd Inlet have been mistakenly presented as showing a negative effect.
- 6) Water exiting Capitol Lake does not go into areas that experience water quality *standards* violations (East Bay, eg); it flows straight toward the mouth of the Inlet.
- 7) Capitol Lake prevents some 27 metric tons of nitrate nitrogen from entering Budd Inlet every summer — a huge beneficial impact equivalent to the action of two LOTT plants.
- 8) There are many likely sources of East Bay's water quality standards violations in and near that Bay. The Lake is not one of them.
- 9) It seems likely that the "baseline" for simulations of the Lake's effects was wrongly calculated. If so, "Lake Scenario" simulation outcomes are not to be trusted.

I conclude that Capitol Lake is the Deschutes River Watershed's biggest and best asset for preventing and reducing water quality degradation in Budd Inlet.