

Capitol Lake + Deschutes River Great Waters... Great Partners.



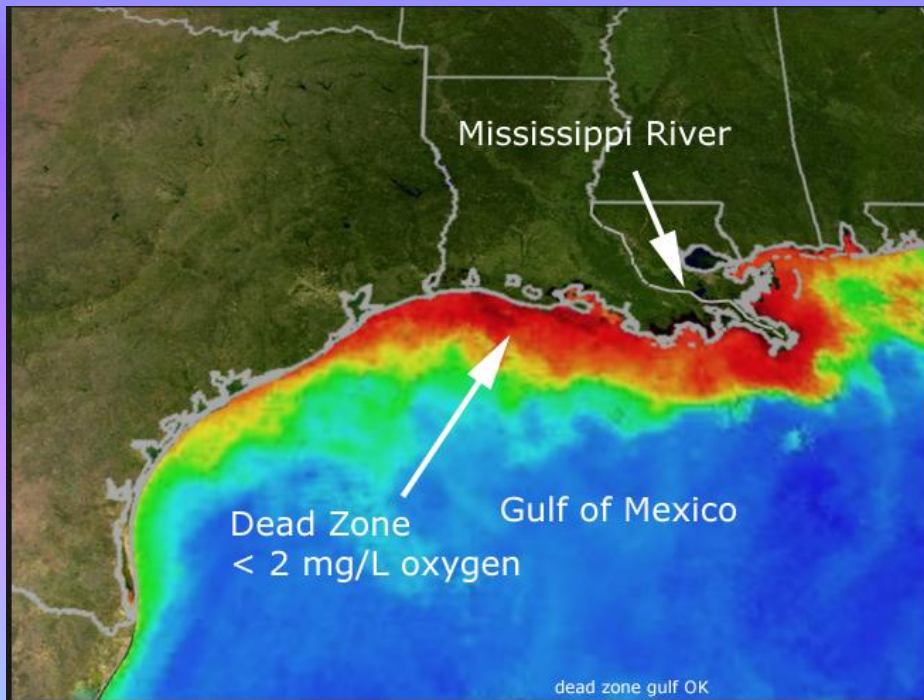
The Lake protects the health of Budd Inlet ...
The River protects the health of Capitol Lake.

OVERVIEW: OUR TOPICS TODAY.

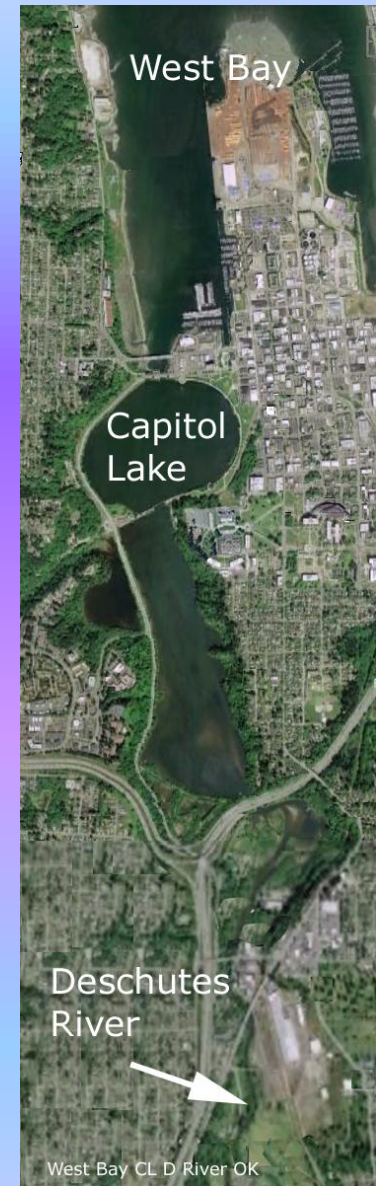
1. Nutrient Overloads in Rivers -- Bad News for Saltwater Bodies
2. Capitol Lake -- As Good As A LOTT Plant for Blocking Nutrient Overloads
3. Computer Sees Benefits of Dam Removal -- Marine Life on the Bottom May See Problems ...
4. Our Community's Powerful Water Quality Ally: Capitol Lake.



NUTRIENT OVERLOADS IN RIVERS CAN WIPE OUT DISSOLVED OXYGEN IN MARINE WATERS...



Two overloaded rivers -- the Mississippi (left) and the Deschutes (right).



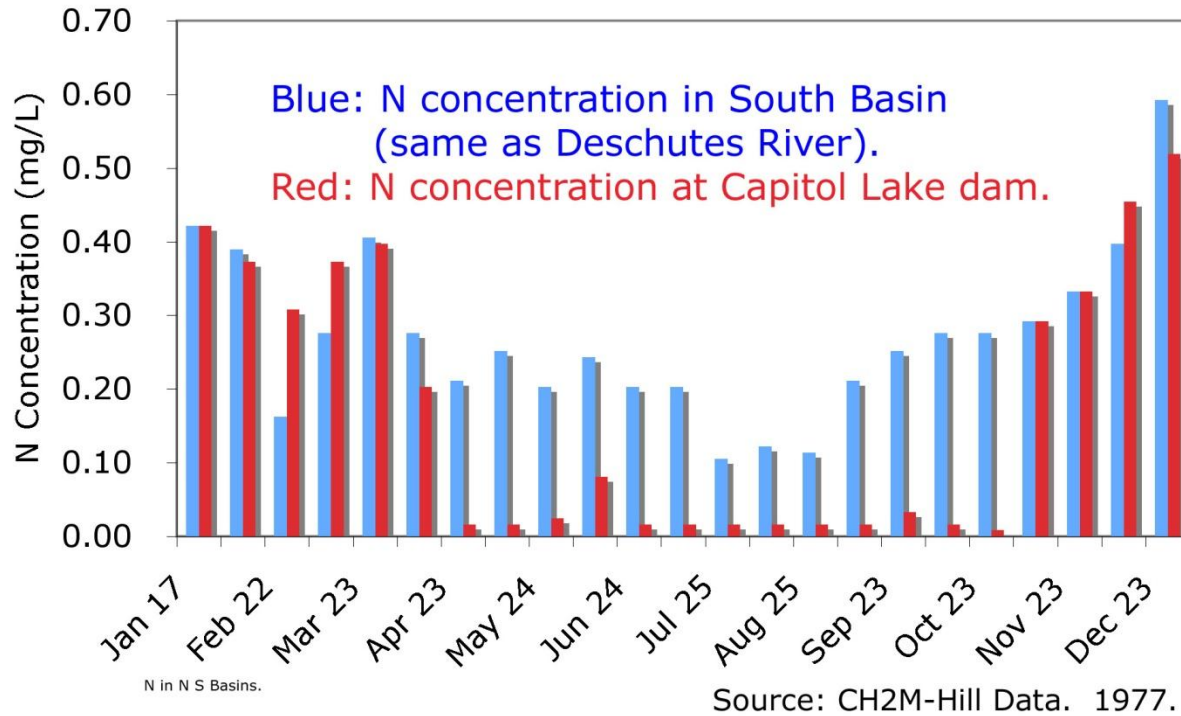
The Deschutes River Carries More Nutrient Nitrogen Toward Puget Sound than Almost Any Other Natural River or Stream.*



*Fortunately, Capitol Lake intercepts and captures **half to 90%** of this nutrient overload **and prevents it from entering Puget Sound ...***

* Of 56 other creeks and streams, only the Nisqually River carries slightly more ...

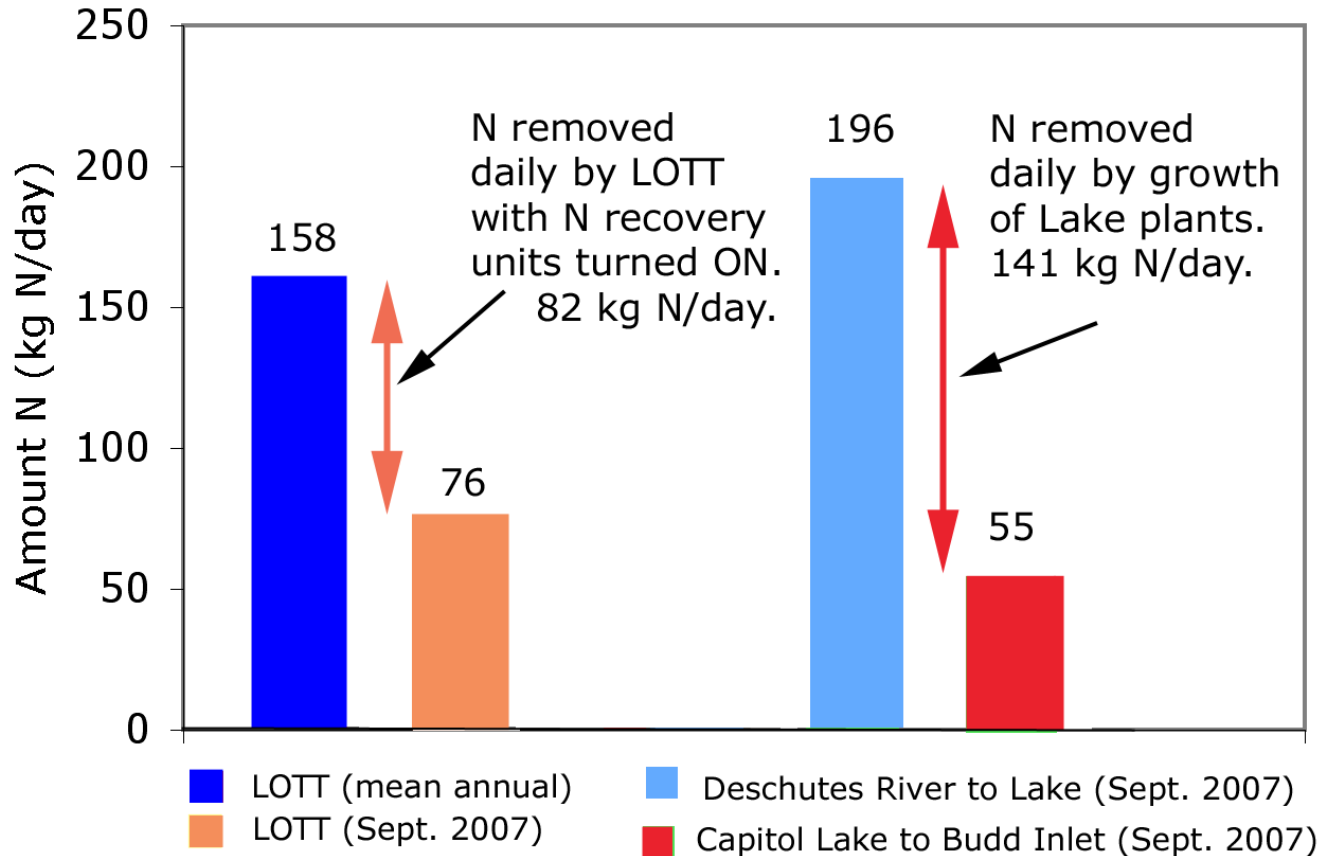
N Concentration in South Basin and North Basin, Capitol Lake. 1977.



CAPITOL LAKE -- NATURAL LOTT PLANT IN ACTION. 1977.

Blue bars show Nitrogen Nutrients in Deschutes River water entering Lake.
Red bars show Nitrogen Nutrients in Lake water entering Puget Sound.

Nitrogen Nutrients kept out of Budd Inlet by the LOTT Plant & the Lake. Sept. 2007.



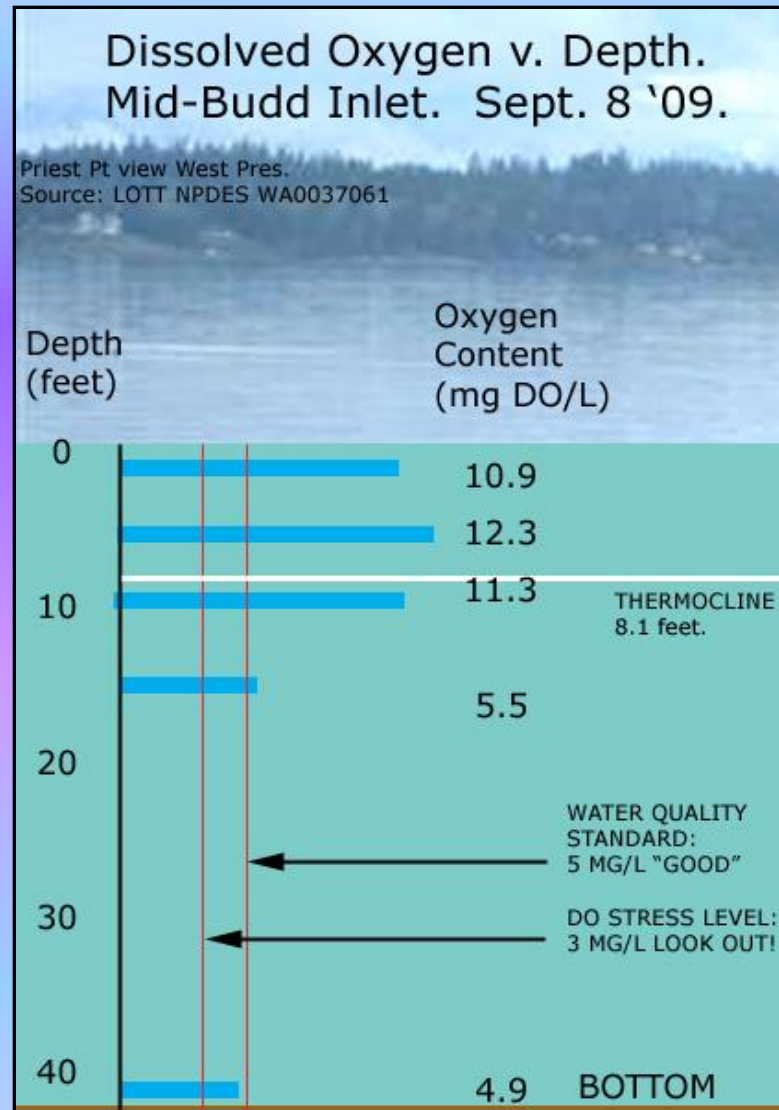
DISCHARGES. All Values are kg N/day.

LOTT watershed N's PP

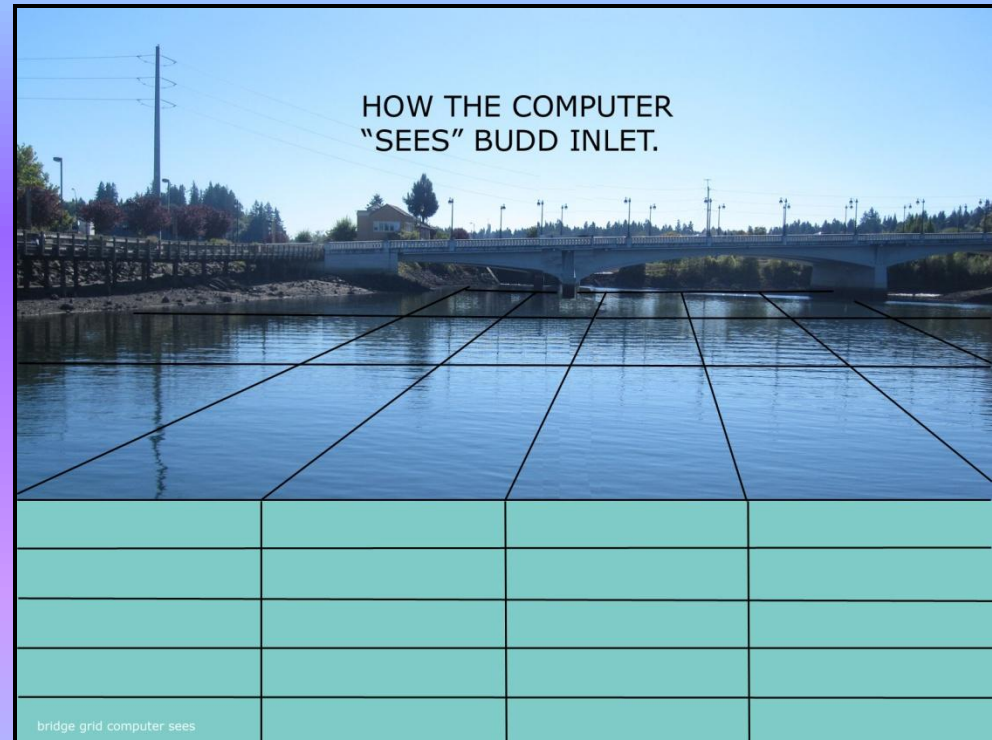
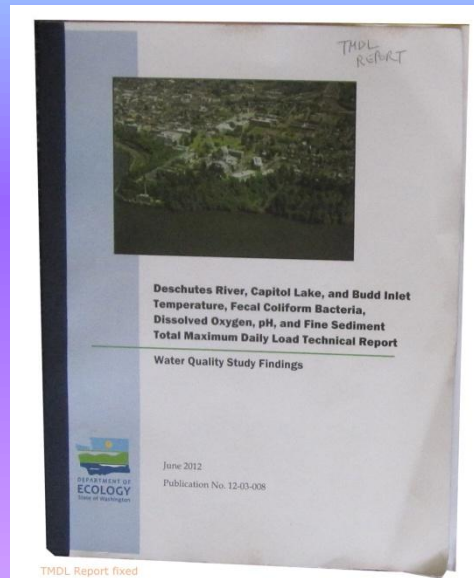
What About Budd Inlet?

In summer ...

- 1) There is a lot of oxygen near the surface;
- 2) there is not much oxygen near the bottom;
- 3) oxygen shallower than the “thermo-cline” doesn’t mix into deeper water.



The Department of Ecology's Computer Team Got the Answers ...



The "TMDL Report" (2012) cites a computer simulation that mimics the hydrodynamics, biology and chemistry of the water in each of ~ 3000 grid cells in search of violations of water quality standards. The "search" looks at Budd Inlet from Jan. 15 - Sept. 15, 1997.

... answers but not understanding.

In this Figure, the team showed that dam removal would result in more dissolved oxygen (DO) in Budd Inlet than if the dam stays in place.

... well ... yes and no.

More at the surface where it doesn't matter ... LESS at the bottom where DO is short, often critical, and (in dead zones) can drop to ZERO.

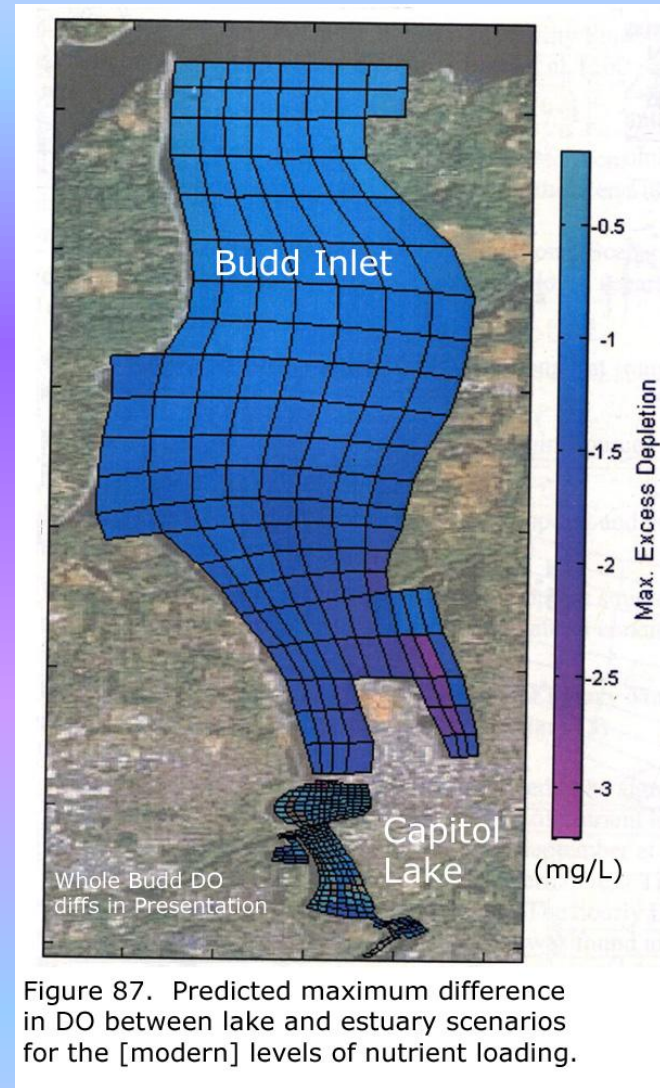
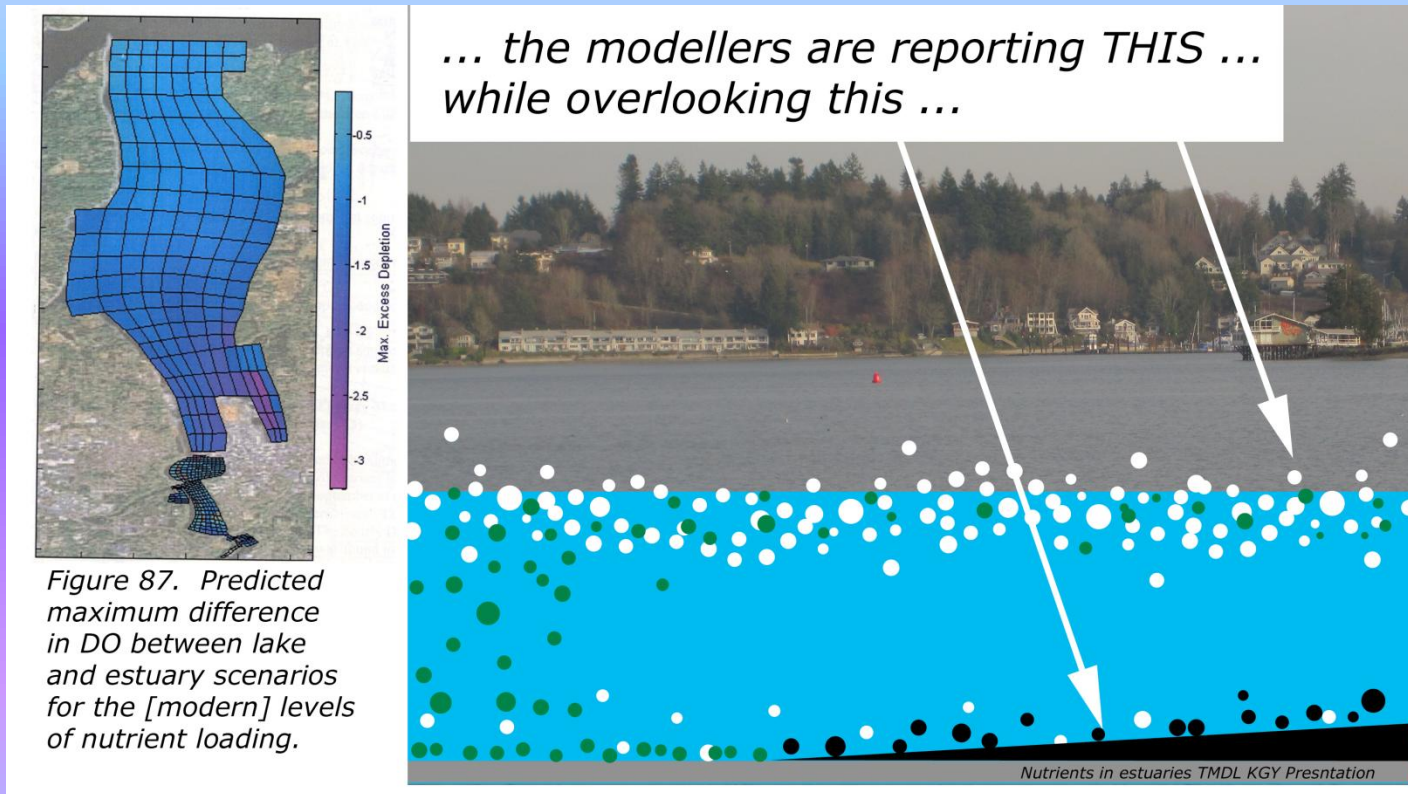


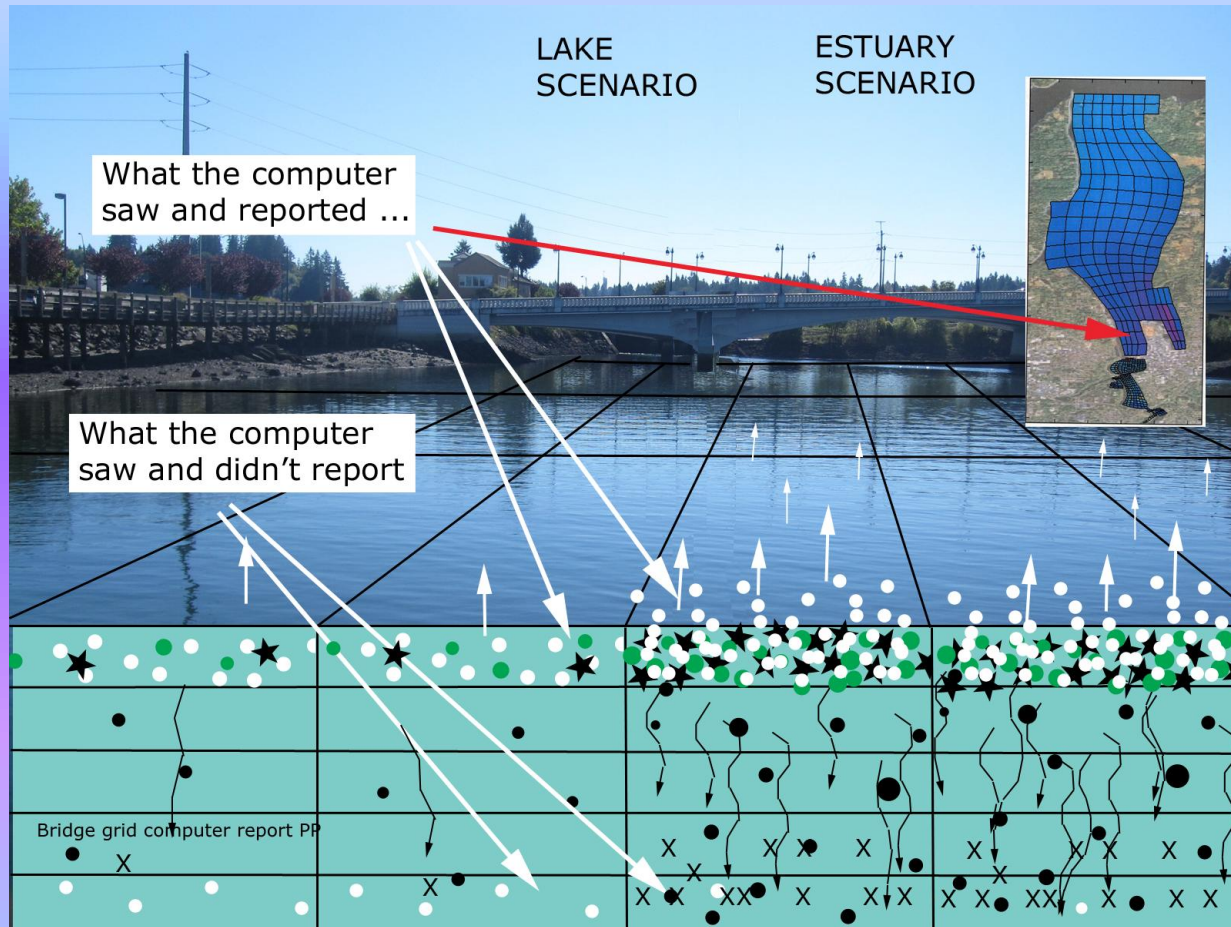
Figure 87. Predicted maximum difference in DO between lake and estuary scenarios for the [modern] levels of nutrient loading.

What the Figure Probably Shows ...



The computer searches for the biggest changes. Where there is nutrient overload, that will always be near the surface. The smaller changes at the bottom that always accompany nutrient overload -- *potentially fatal changes* -- won't be reported.

WHAT THE COMPUTER REPORTED



The Deschutes River would discharge a nutrient overload into West Bay if the dam were removed. That would fuel phytoplankton growth and more oxygen near the surface. But where it matters -- at the bottom -- the sinking decaying biomass would create LESS OXYGEN. The computer was not set to report this. The net effect on the ecosystem would be negative.

GREAT INLET -- GREAT CAPITOL -- GREAT CAPITOL LAKE!

1. The Deschutes River carries the second-largest nutrient overload of any natural stream around South Sound.
2. Capitol Lake prevents tons of Deschutes River nutrients from entering Puget Sound every summer.
3. In so doing, the Lake protects Puget Sound from oxygen depletion at the bottom.
4. ... and finally, the Lake is a cultural, aesthetic, recreational and economic centerpiece of our community.



NOT THE END!

"CONSTRUCTION AND MAINTENANCE COST --- TURNING CAPITOL LAKE INTO TIDAL MUDFLATS"

Base Cost from CLAMP Report by Moffatt and Nichol (M&N)

- 2006 Cost by M&N = \$90.3 m with 2012 const = \$112.9 m
- Adj to 4th Ave Bridge Design = \$125.6 m
- Adj for design/permit and 2019 to 2022 const = \$180.7 m

Added Costs/ Sediment Carryover into Budd Inlet due to Lake Maintenance Delay

- Use OYC 2014 Project Cost/CY for Dredge of Budd Bay = \$77.4 m

TOTAL TIDAL MUDFLAT-DAM REMOVAL COST = \$258,000,000

UPGRADING AND MANAGING CAPITOL LAKE

Based on CLIPA 20 Year Maintenance Dredging
Program of 880,000 CY, Dam repair:

Watershed enhancements = \$39.7 m

**TOTAL COST OF MANAGED LAKE (20 years) =
\$39,700,000**

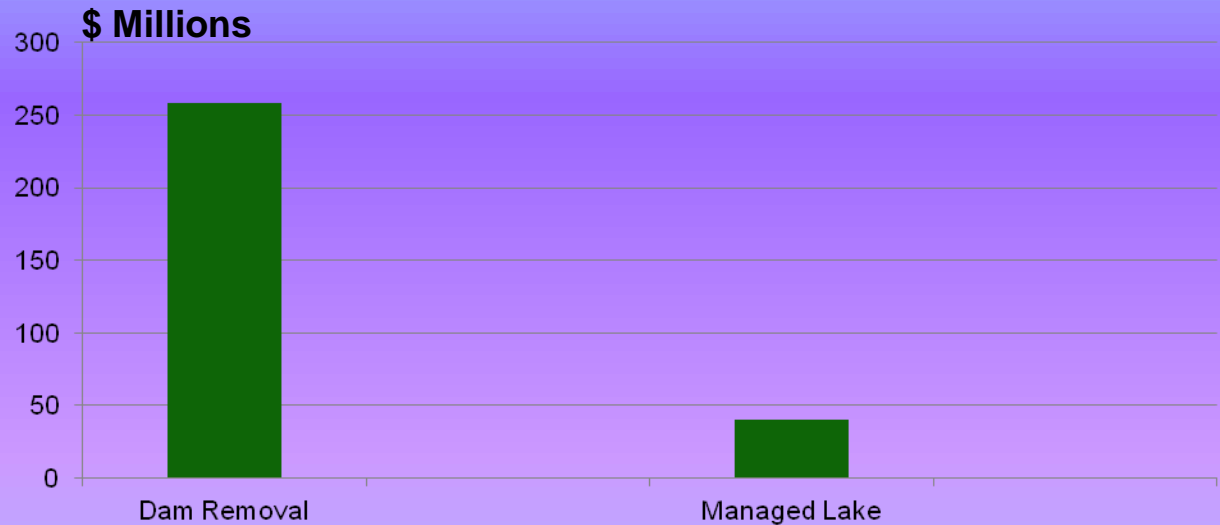
ECONOMIC BENEFITS LOST BY REMOVING THE DAM WITHOUT A SEDIMENT MANAGEMENT PLAN

- The boating industry in the western portion of Budd Inlet generates over \$24 million annually in economic benefits to the community, pays nearly \$400,000 per year in taxes and fees.
- The economic impact of the Port of Olympia's commercial marine terminal totals over \$240 million annually and generates \$836,000 a year in local taxes
- The investments that have been or are planned to be made that would be negatively impacted if the dam were removed total over \$84 million
- For more information on these issues go to www.savecapitollake.org

COST COMPARISONS

The twenty year cost of removing the dam and converting Capitol Lake into tidal mud flats totals \$258 Million

The twenty year cost to maintain Capitol Lake totals \$39.7 million or 15 percent of dam removal



The longer the delay, the more that these costs will increase

CLIPA PROPOSAL TO THE COMMUNITY & ELECTED OFFICIALS

Designate the Deschutes Urban Watershed from the Tumwater Pioneer Park to Priest Point Park an Urban Watershed Management District

- Assist DES and the Ruckelshaus Center Complete the Six Month Assessment, and be prepared to implement the findings in 2015
- Request a \$10m Legislative Appropriation from the 2015-16 Budget to initiate associated permitting and initial maintainance dredging common to both the dam removal and the managed Lake alternatives..
- Convene a public/private team of community leaders to oversee financing and development of the Urban Watershed Management District and associated Plan and to establish a long term management program for the area.
- The Thurston County Chamber should take an active role in working with the Department of Enterprise Services (DES), our local Legislators and local elected officials to establish the Public/Private Management Team..

NOTE: Each year of delay is costing the Community \$1.4 to 9.3 million and increasing negative impacts on the Downtown economy.