DESCHUTES RIVER, PERCIVAL CREEK, AND BUDD INLET TRIBUTARIES TEMPERATURE, FECAL COLIFORM BACTERIA, DISSOLVED OXYGEN, PH, AND FINE SEDIMENT TMDL

Presentation on the DRAFT WQIR/IP

October 30, 2014

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Process

- Draft Deschutes River TMDL ready for review by the Advisory Committee
  Deschutes River, Percival Creek, and Budd Inlet Tributaries Temperature, Fecal Coliform Bacteria, Dissolved Oxygen, pH, and Fine Sediment TMDL
- We will e-mail you a comment deadline
- Next steps:
  - Ecology makes some updates
  - Public review draft TMDL
  - Send to EPA for approval

TMDL 101

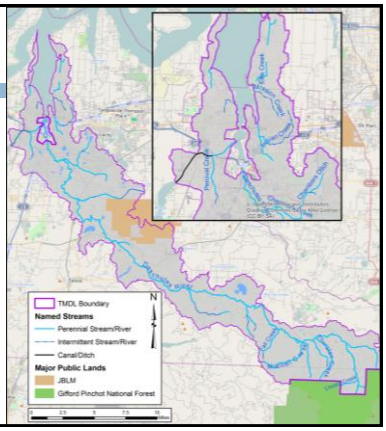
- Mandated by Clean Water Act
- Based on 303(d) listings
- Determine how to meet standards
- Sets allocations for permittees and non-point sources
- Implementation plan

Deschutes Process 101

- Collected data 2003-2004
- Started current advisory group in 2009
- June 2012 Technical Report
- Draft 2014 Deschutes River TMDL
- Future:
  - Finish Deschutes River et al TMDL
  - Budd Inlet and Capitol Lake

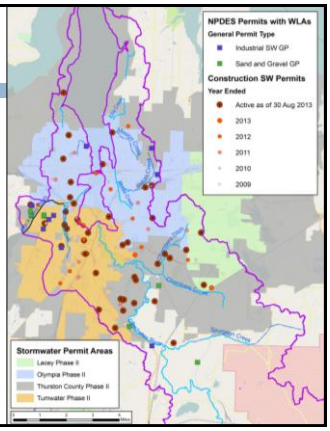
Watershed

- Temperature
- Bacteria
- DO
- pH
- Fine Sediment



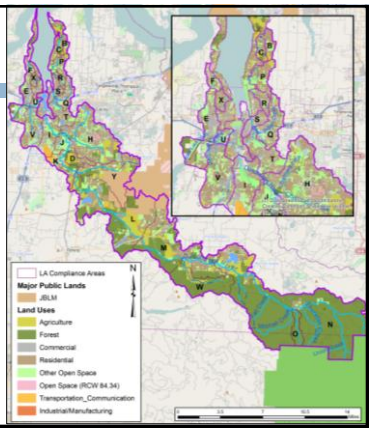
Permittees

- Industrial SW
- Sand and Gravel
- Construction SW
- Municipal SW



Non-Point

- Lack of riparian buffer
- OSS
- Manure
- Fertilizer



Loading Capacity and Allocations

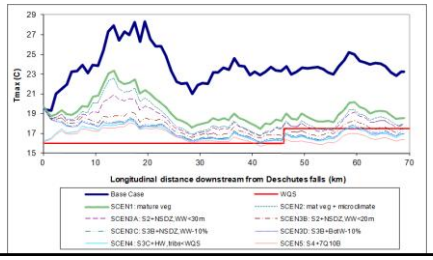
THE NITTY-GRITTY-DETAILS

Loading Capacity for Bacteria

- Deschutes River and tributaries, and Budd Inlet tributaries designated Primary Contact.
  - FCB must not exceed a geometric mean value of **100**cfu/100mL and 10% not to exceed **200**cfu/100mL
- Percival Creek, it's tributaries, and Black Lack Ditch designated Extraordinary Primary Contact.
  - FCB must not exceed a geometric mean value of **50**cfu/100mL and 10% not to exceed **100**cfu/100mL

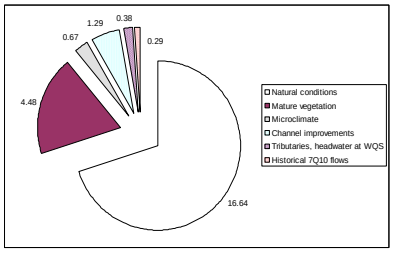
Loading Capacity for Temperature

- Scenario 4 used as estimate of System Potential Temperature for Deschutes River



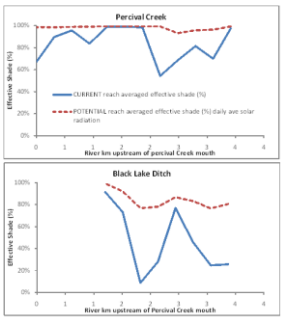
Relative Effects of Temperature Components for the Deschutes River

Each "pie slice" is that component's contribution to change (reduction) of DMax stream temperature



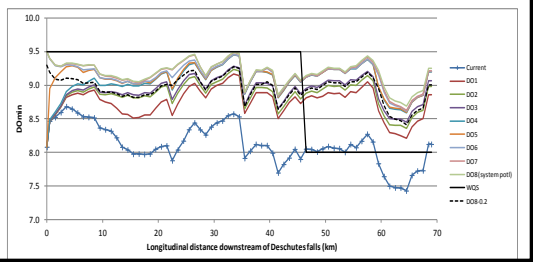
Loading Capacity for Temperature

- Expressed as solar heat load based on system potential vegetation
- The dashed line is the Loading Capacity



Loading Capacity for DO

- Scenario DO8 used to estimate system potential DO for the Deschutes River



General Permit Wasteload Allocations

- Sets WLAs for all permittees under the Sand & Gravel General Permit (GP) and all Stormwater GPs including: Construction, Industrial, Phase II Municipal, and WSDOT
  - Benchmarks → Effluent Limits
- No visible accumulation of fine sediment; Turbidity benchmark becomes the effluent limit; pH limit equal to the water quality standard.
- Cannot increase DO, pH, bacteria, or temperature above the allowance for anthropogenic influences in the water quality standards.

Bacteria Load Allocations

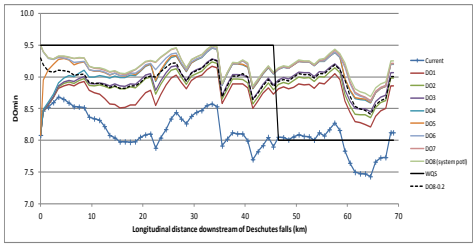
- Wet and Dry Season LAs
- Expressed as percent reduction needed to meet the standard
- 90th percentile part of the criteria is the most stringent
- Storm targets included within Phase II Municipal Stormwater permit boundaries

Temperature Load Allocations

- Biggest reductions in stream temperature are due to having mature system potential riparian vegetation
  - Reductions in wetted width and NSDZ width are improvements with the next biggest reduction effect
- LA = System Potential Veg – Current Veg
  - Calculated for every 1Km model reach for Deschutes River
  - Calculated for every 500m model reach for Percival Creek and Black Lake Ditch

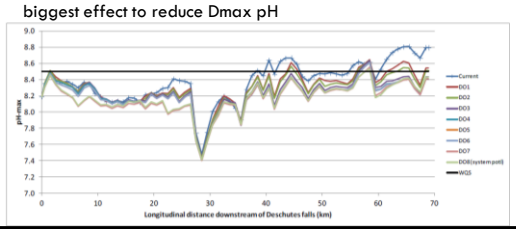
Dissolved Oxygen Load Allocations

- Cooler water does the most to raise Dmin DO
- Stream temperature LA is used for the DO LA



pH Load Capacity and Allocations

- Current Dmax pH condition in the upper watershed is great until around model RKM 38, but problematic in lower watershed
- Scenario DO8 is also the Loading capacity
- As with DO, Mature System Potential Riparian Vegetation has biggest effect to reduce Dmax pH



Fine Sediment Load Allocations

- Loading Capacity is 12% Fines in streambed
  - Target is GOOD HABITAT as classified by TFW Manual.
- LA Applies to the segments in the table.

Segment	Name	River mile	1995	2004	Target	% Reduction
19	Weyerhaeuser	31.4 - 35.4	15.5%	17.7%	12%	32%
22	Lake Lawrence	28.8 - 30.4	22.5%	17.1%	12%	30%
28	State Route 507	20.8 – 24.4	19.4%	20.5%	12%	41%
31	Waldrick	14.5 – 17.2	19.9%	20.1%	12%	40%
36	Pioneer	0.5 – 2.7	22.0%	22.1%	12%	46%

TMDL Implementation

Implementation Actions

Implementation Plan

- Describes what needs to be done to meet TMDL / standards
- Ongoing and future actions
- Includes schedules (2025)
- Prioritizes areas
- Buffers ⇝ Temperature/DO/pH

Implementation Plan, by entity

- Ecology
- DOH
- WSDA
- WSDOT
- DES
- PSP
- EPA
- DNR
- Forest Landowners
- USFS
- Capitol Land Trust
- Construction Stormwater
- Industrial Stormwater
- Sand and Gravel
- Cities of Lacey, Olympia, and Tumwater
- Thurston County
- Squaxin Island Tribe
- Conservation District
- WSU Extension
- Stormwater Center

Implementation, general land use

- Activities within the watershed must not cause any discharge of pollutants to state waters.
- If implementing specified BMPs, presumed in compliance with standards.
- But if violations of water quality criteria remain, it may be necessary to modify/add BMPs.

Implementation (Table 39)

- Flow (increase groundwater flow)
- Forest practices
- Livestock confinement / off-stream watering (100')
- Nutrient application
- **Riparian buffers (75')**
- **Riparian and channel restoration**

Implementation Schedule (Table 40)

Measure	Target
Instream fecal coliform concentrations	Meet WQS during summer, winter, and storm conditions by 2025
Percent river miles restored or canopy cover achieved	20% by 2020 50% by 2025 100% by 2030
Instream temperature	Meets standards by 2065
DO and pH instream values	Achieve system potential DO and pH by 2065
Fine Sediment: % upper watershed controls in place	100% by 2025
In situ fine sediment concentrations	Meets good habitat conditions by 2050

Implementation Plan

- Effectiveness Monitoring
- Funding Opportunities
- Legal Authorities

Recap

- Please review the draft TMDL!
  - We will e-mail you a comment deadline
  - Available at ftp://www.ecy.wa.gov/wq/DeschutesTMDLdocs/
- Next steps:
  - Ecology makes some updates
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