

Deschutes TMDL Advisory Group

Focus on the

Middle Watershed

January 2011



Parameters of Concerns

- Temperature
- Fecal Coliform
- Fine Sediments
- Dissolved Oxygen (& pH)

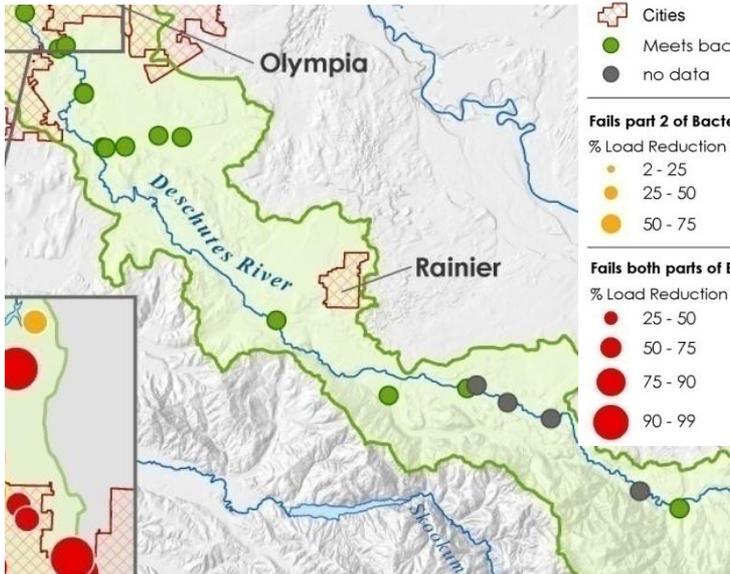


Other Issues

- Livestock
- Agriculture
- Gravel mine operations



Winter Bacteria



MAP KEY

- Deschutes Watershed
- Cities
- Meets bacteria std.
- no data

Fails part 2 of Bacteria std.

% Load Reduction Needed:

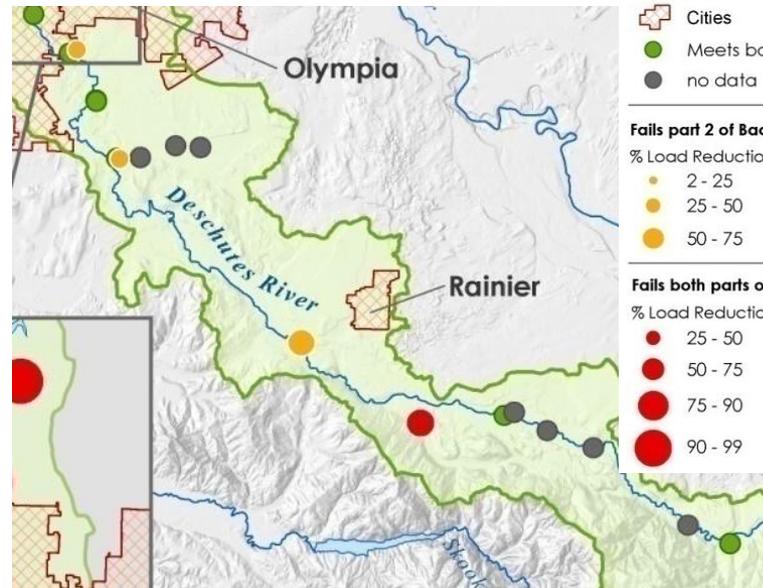
- 2 - 25
- 25 - 50
- 50 - 75

Fails both parts of Bacteria std.

% Load Reduction Needed:

- 25 - 50
- 50 - 75
- 75 - 90
- 90 - 99

Summer Bacteria



MAP KEY

- Deschutes Watershed
- Cities
- Meets bacteria std.
- no data

Fails part 2 of Bacteria std.

% Load Reduction Needed:

- 2 - 25
- 25 - 50
- 50 - 75

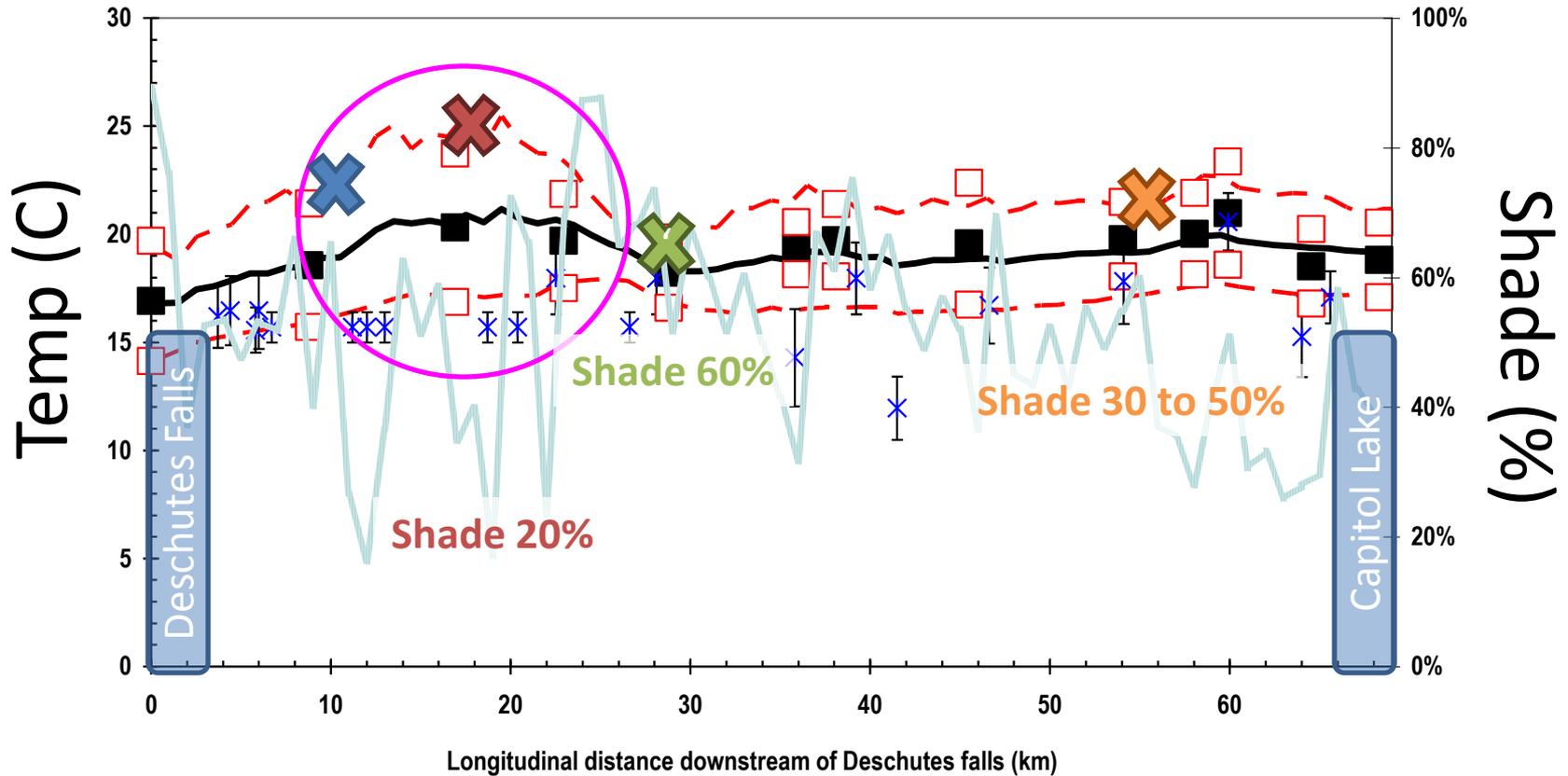
Fails both parts of Bacteria std.

% Load Reduction Needed:

- 25 - 50
- 50 - 75
- 75 - 90
- 90 - 99

Temperature Profile

Deschutes River (7/24/2004)



— Temp(°C) Average Predicted	■ Mean Temp-data	--- Temp(°C) Min Predicted	--- Temp (°C) Max Predicted
□ Minimum Temp-data	□ Maximum Temp-data	* Tribes	— Shade (06:00-18:00)

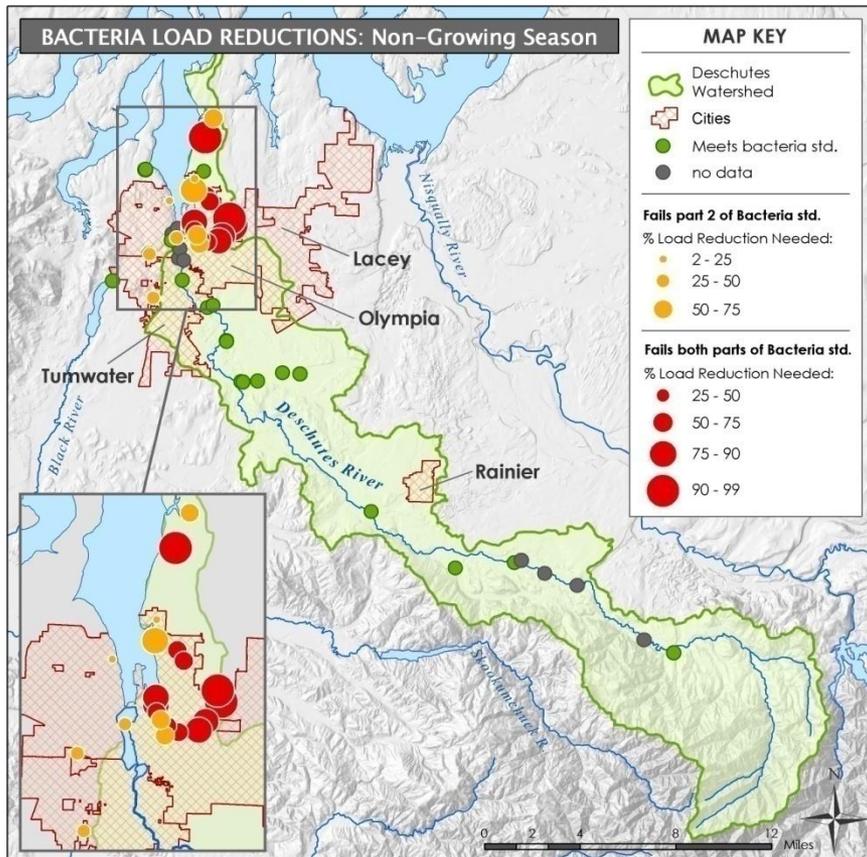
Recommendations

- Restore riparian shade
- Continue to identify and reduce bacterial pollution
- Manage sediments
- Consider feedback loops
- Plan and act comprehensively

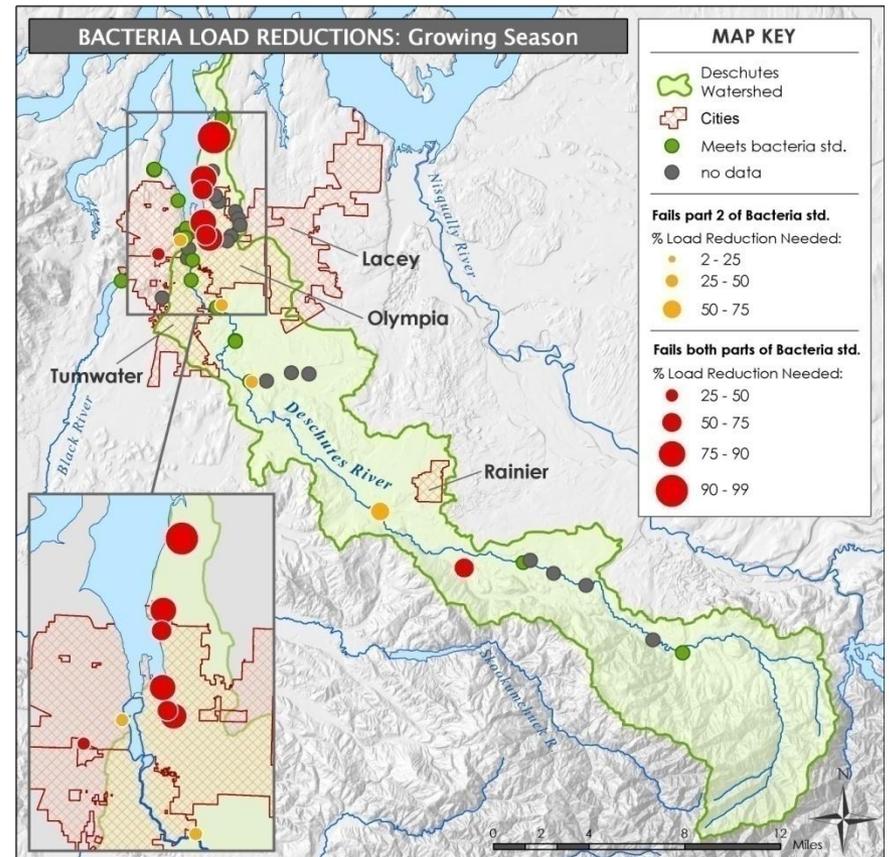


Fecal Coliform Bacteria Reduction Targets

Winter



Summer



Fecal Coliform Bacteria Loads

Growing Season (May-September)

Station	Count	Water Quality Standards Part 1				Water Quality Standards Part 2					Overall	
		Geomean	WQS Part 1	Meets?	% Reduction	% > WQS Part 2	WQS Part 2	Meets?	90%ile	% Reduction	Meets?	% Reduction
<i>Deschutes River</i>												
13-DES-20.5	10	89.2	100	meets		20.0%	200	fails	544	63%	fails Part 2	63%
13-DES-09.2	10	81.5	100	meets		10.0%	200	meets	153		meets	
13-DES-05.5	10	65.8	100	meets		10.0%	200	meets	150		meets	
13-DES-02.7	16	16.9	100	meets		0.0%	200	meets	54		meets	
<i>Tributaries to Deschutes River</i>												
13-SPU-00.0	16	81.2	100	meets		12.5%	200	fails	357	44%	fails Part 2	44%
13-AYE-00.0	16	24.2	100	meets		0.0%	200	meets	74		meets	
13-CHA-00.1	16	71.5	100	meets		18.8%	200	fails	306	35%	fails Part 2	35%

Modified from Table 1.

Fecal Coliform Bacteria Loads

Non-Growing Season (October-April)

Station	Count	Water Quality Standards Part 1				Water Quality Standards Part 2					Overall	
		Geomean	WQS Part 1	Meets?	% Reduction	% > WQS Part 2	WQS Part 2	Meets?	90%ile	% Reduction	Meets?	% Reduction
<i>Deschutes River</i>												
13-DES-20.5	14	6.5	100	meets		0.0%	200	meets	22		meets	
13-DES-09.2	14	13.3	100	meets		0.0%	200	meets	70		meets	
13-DES-05.5	14	13.2	100	meets		0.0%	200	meets	49		meets	
13-DES-02.7	18	6.5	100	meets		0.0%	200	meets	49		meets	
<i>Tributaries to Deschutes River</i>												
13-SPU-00.0	22	11.2	100	meets		0.0%	200	meets	39		meets	
13-AYE-00.0	21	10.3	100	meets		9.5%	200	meets	99		meets	
13-CHA-00.1	18	9.9	100	meets		0.0%	200	meets	43		meets	

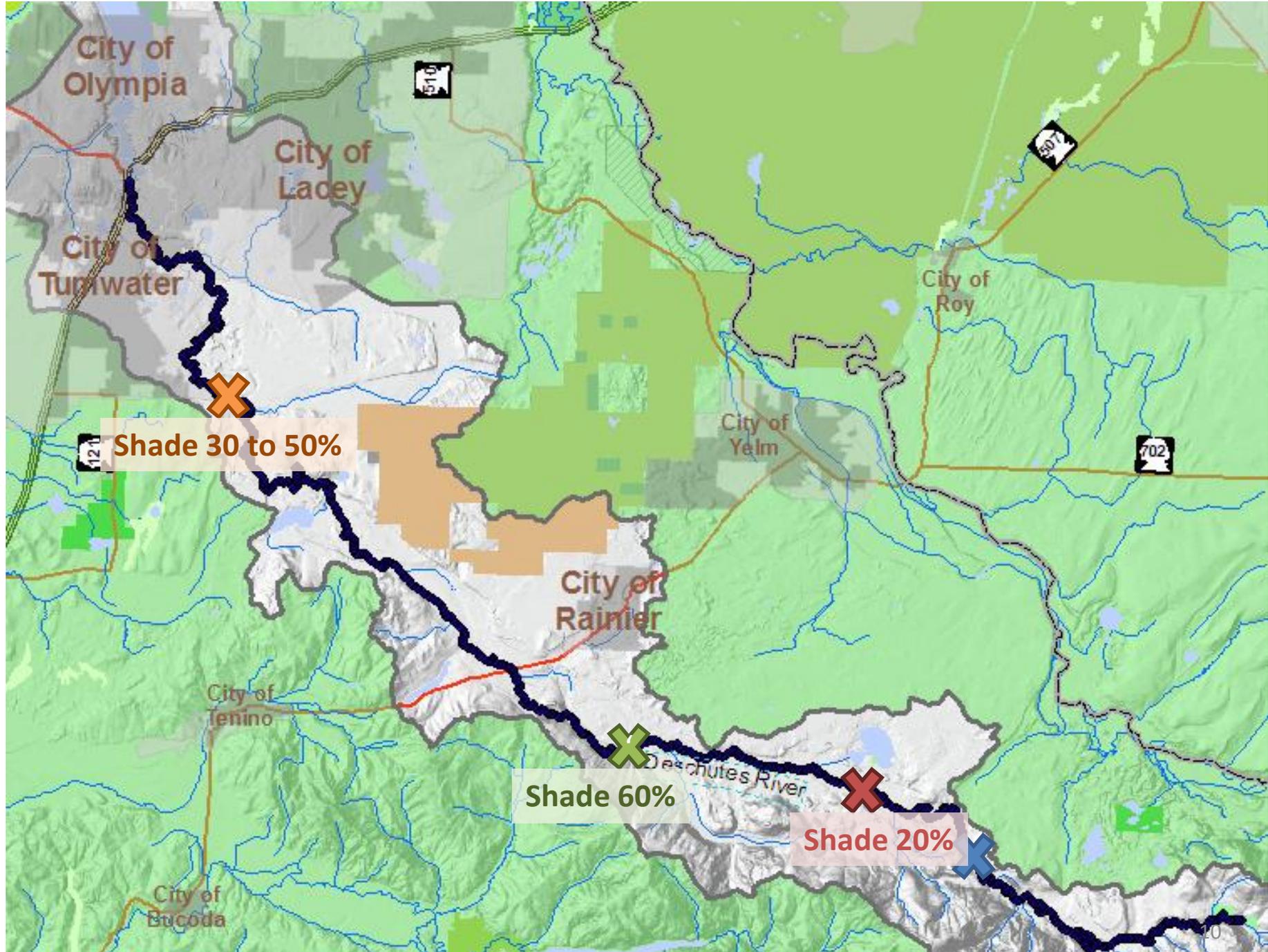
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Fecal Coliform Bacteria Wasteload Targets

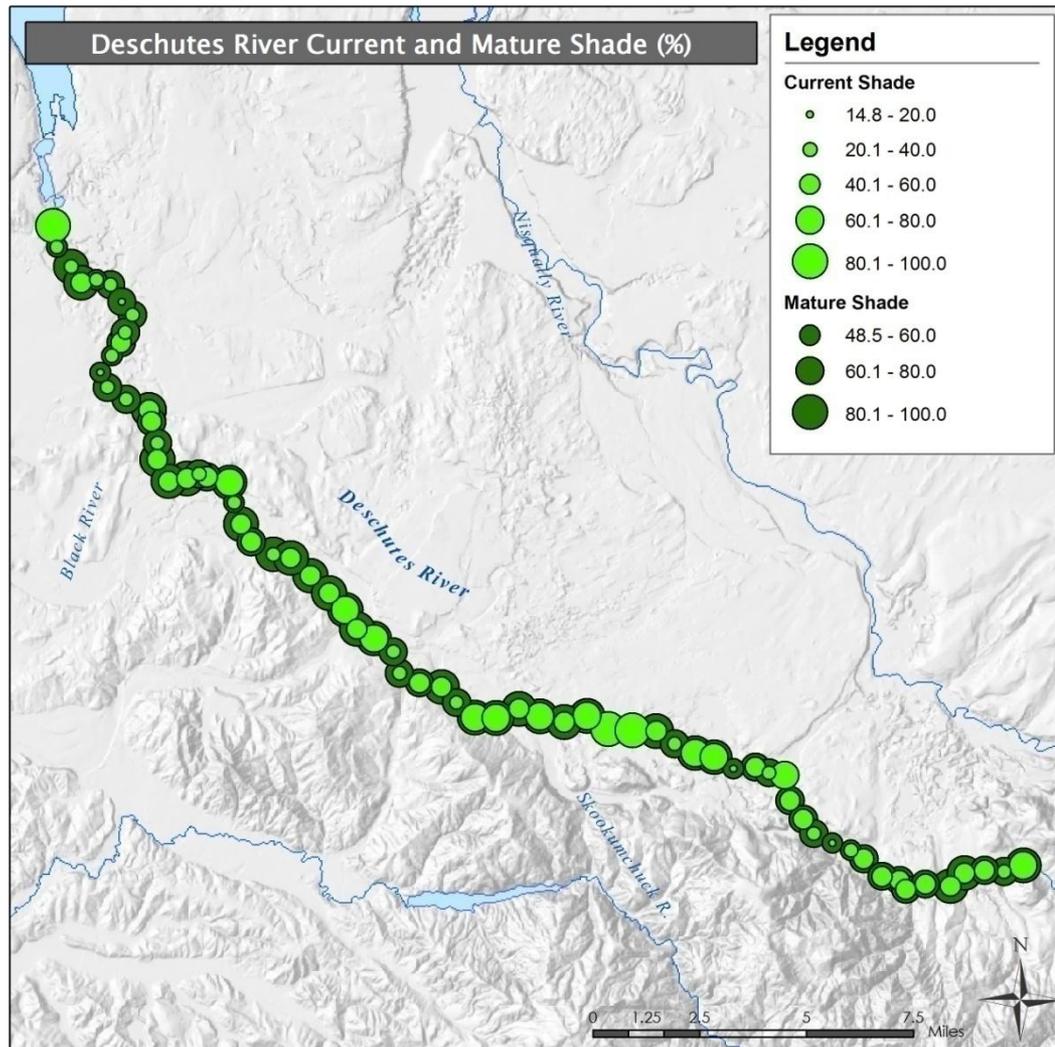


Deschutes River	
Station: 13-DES-20.5	Reduction: 63 %
Tributaries to Deschutes River	
Station: 13-SPU-00.0	Reduction: 44%
Station: 13-CHA-00.1	Reduction: 35%





Deschutes River Shade Improvements



Temperature Load Targets



Deschutes River km	Station	Description	7DADmax		WQS	Meets WQS?	Target (°C)	Load target
			2003 (°C)	2004 (°C)				
35.8	13-SP1-00.1	Spring outlet at Hwy 507	15.65		16.0	yes		
41.5	13-SIL-00.4	Silver Spring near mouth	14.00		16.0	yes		
46.5	13-DES-13.4spr	Spring near Cowlitz Dr.	17.71		17.5	no	17.5	Full mature riparian shade
46.6	13-TEM-00.0	Tempo Lake outflow at Stedman Rd.	23.14		17.5	no	17.5	Full mature riparian shade
54.1	13-SPU-00.0	Spurgeon Creek at Rich Rd.	18.94		17.5	no	17.5	Full mature riparian shade
59.9	13-AYE-00.0	Ayer Creek off Sienna Ct.	21.61		17.5	no	17.5	Full mature riparian shade
64	13-CHA-00.1	Chambers Creek off 58th Ave.	16.24		17.5	yes		

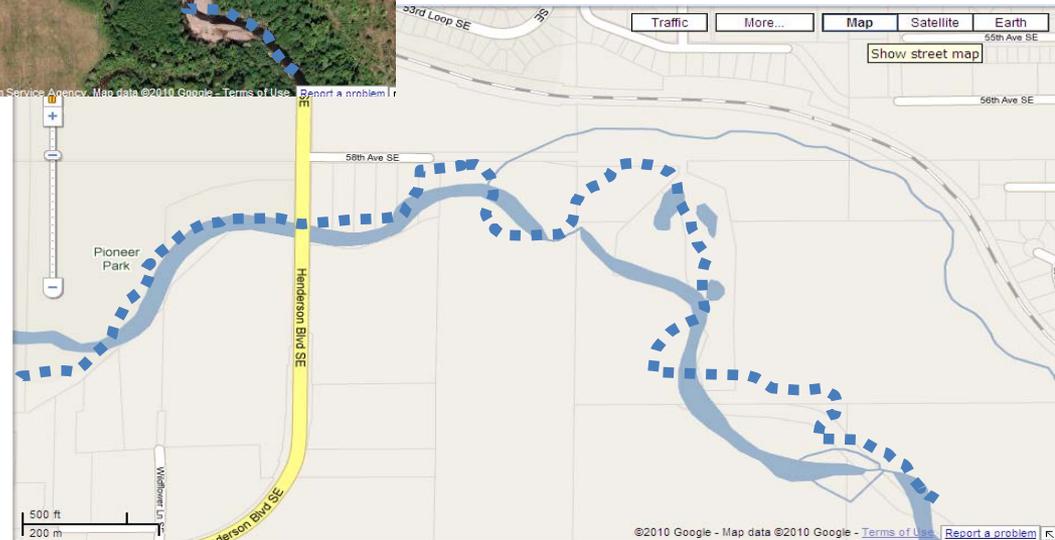
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Feedback Loops



Shade
Sediment

*Remember - rivers
move over time.*

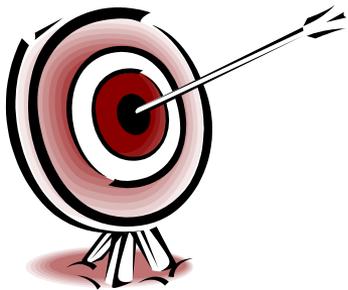


Dissolved Oxygen, pH & Nutrients Load Targets



Tributary	Target	
	DO min (mg/L)	pH min (SU)
<i>None identified for the Middle Watershed</i>	8.0	6.5

Modified from Table 4.



Fine Sediment Load Targets



Reach (River Kilometer)	Reach (Konovsky and Puhn, 2005)	1995 Levels	Current Levels	<u>12% Target</u> % Reduction	<u>17% Target</u> % Reduction
RK 30.0 to 35.9	28/Hwy 507	19.4%	20.2%	-68%	-19%
RK 41.6 to 46.0	31/Waldrick	19.9%	19.5%	-63%	-15%
RK 64.6 to 68.3	36/Pioneer	22.0%	22.0%	-83%	-29%

Modified from Table 5.





Fine Sediments Wasteload Targets

*None
recommended*



What else can we do?

- Plan and act comprehensively throughout the watershed.
- Increase public awareness of problems and potential solutions.
- Identify work happening now.
- Continue to identify problem areas.
- Develop strategies to successfully communicate with landowners.

Key Partners

Local



Tribal



State



Environmental Education & Outreach



<http://www.thurstoncd.com/>



<http://www.streamteam.info/>



“Resource Bank”

<http://www.psparchives.com>

They only have 3.5
dairy inspectors –
statewide!



Inspections done
on a 22-24
month cycle.



Two permitted
dairies in the
watershed.



Critical Areas Ordinance

http://www.co.thurston.wa.us/planning/Critical_Areas/CriticalAreas_Home.htm

Shoreline Master Program

http://www.co.thurston.wa.us/PLANNING/shoreline/shoreline_home.htm

Watershed Characterization Study

<http://www.co.thurston.wa.us/stormwater/chara/chara-deschutes.html>



Monitoring

- Thurston County
- Thurston Conservation District
 - South Sound GREEN
- Ecology
 - Effectiveness Monitoring Pilot Project



Compliance



Southwest Region Complaints: 360-407-6300

www.ecy.wa.gov/programs/spills/forms/nerts_online/SWRO_nerts_online.html

Department of Agriculture

Dairy Nutrient Management: 360-902-1928

Pesticide Management: 360-902-2040



Thurston County

Agricultural Issues: 360-867-2626

Hazardous Waste Hotline: 360-867-2664

Septic System General Questions: 360-867-2673

Report suspected illegal discharges to stormwater systems:

<http://www.co.thurston.wa.us/stormwater/dumping/dumping-online.html>



Implementation Strategy

Riparian Vegetation Restoration

- Thurston Conservation District
- Landowners
- Volunteer Groups

Source Identification

- Local Government
- State Government

Source Control

- Landowners
- Agricultural Community
- Local Government (permits)

Implementation Strategy

Best Management Practices

- Agricultural Community
- Thurston Conservation District
- Landowners

Reduce Nutrient Loads

- Agricultural Community
- Landowners

Implementation Strategy

Seek Funding Opportunities

- Thurston Conservation District
- Local Government
- State Government
- Squaxin Island Tribe

Develop Partnerships

- State Government
- Local Government
- Thurston Conservation District
- Squaxin Island Tribe
- Non-profit Organizations

Implementation Strategy

Technical Assistance

- Thurston Conservation District
- Local Government
- State Government

Environmental Education & Outreach

- Thurston Conservation District
- Thurston County Stream Team
- Local Government
- State Government

Challenges

- Negative public perception
- Thurston County Critical Areas Ordinances
- Dedicated funding for implementation
- Non-point source pollution
- Behavior change

Items *not* addressed in this TMDL



Water Resources Program

http://www.ecy.wa.gov/programs/wr/comp_enforce/gwpe.html

**Water withdrawal
& exempt wells**

**Chemical Usage
(Fertilizers)**



WA State Department of Agriculture
Pesticides and Fertilizers

<http://agr.wa.gov/Portals/PF/>

Items *not* addressed in this TMDL (continued)

Pharmaceuticals & Personal Care Products

Publication:

“Pharmaceuticals and Personal Care Products in Municipal Wastewater and Their Removal by Nutrient Treatment Technologies”

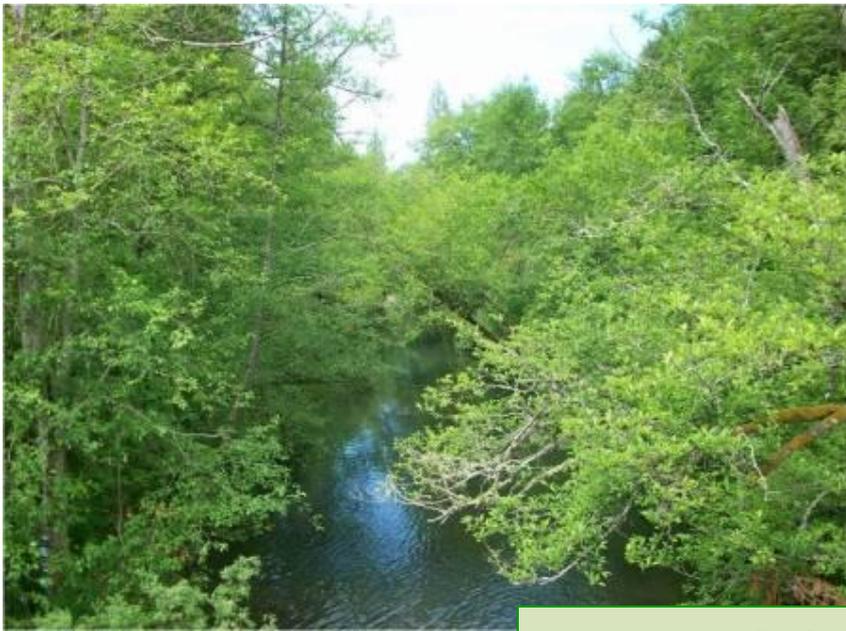
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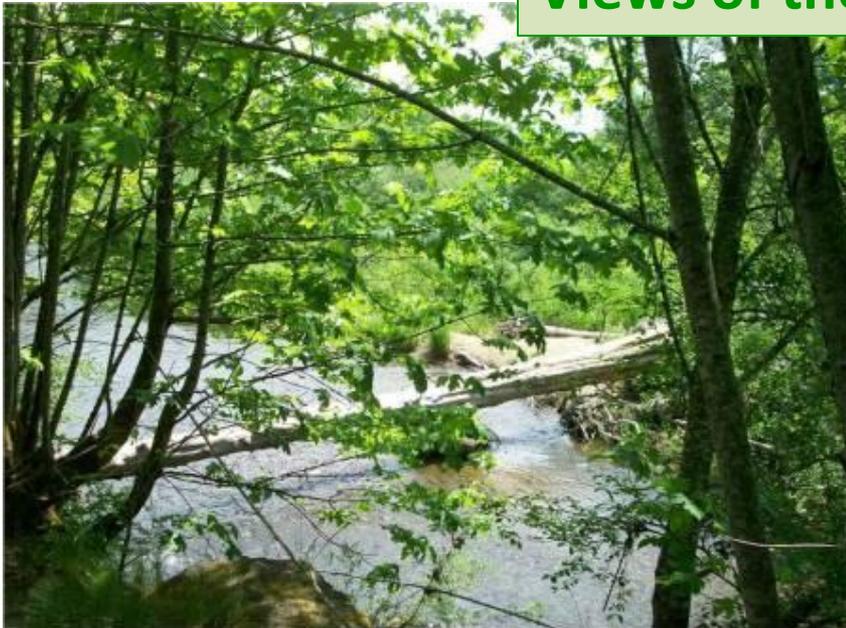
Next Meeting

- Date:** March 31, 2011
- Time:** 9:00 a.m. – 12 noon
- Place:** LOTT Clean Water Alliance
500 Adams St. NE, Olympia





Views of the watershed.





For more information:

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Ecology Home Page: www.ecy.wa.gov