# Deschutes River, Capitol Lake, and Budd Inlet TMDL

**Allocations Discussion**

Deschutes TMDL Advisory Group Meeting

December 13, 2012

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## Deschutes River, Capitol Lake, and Budd Inlet TMDL

- Five parameters involved:
  - Fecal Coliform Bacteria
  - Temperature
  - Fine Sediment
  - pH
  - Dissolved Oxygen
- Fresh waters
- Marine waters

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## Deschutes River, Capitol Lake, and Budd Inlet TMDL

**Allocations**

- Areas where water quality standards (WQS) are not being met need an allocation which will enable WQS to be met.
- Allocations are required as part of the Water Quality Improvement Report (WQIR) submittal to EPA.
- Allocations can be established that are greater than the corresponding reduction needed to meet WQS.
- Allocations will be assigned to jurisdictions for future action.

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## Deschutes River, Capitol Lake, and Budd Inlet TMDL

**Allocations** (cont.)

- Allocations can be equal or unequal in magnitude.
- Allocations are based upon scientific assessments, modeling results, advisory group discussions, personal knowledge, and other factors.
- The TMDL (for each parameter) = sum of the wasteload allocations + load allocations + reserve + margin of safety.

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## Deschutes River, Capitol Lake, and Budd Inlet TMDL

**Allocations** (cont.)

- For each parameter of the TMDL where WQS are *not* being met, we need to determine:

| Location | Jurisdiction | Reduction |
|---|---|---|
| | | |
| | | |
| | | |

- Unless specified, the default allocation is "zero".

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## Deschutes River, Capitol Lake, and Budd Inlet TMDL

Fecal Coliform Bacteria Wasteload Allocations

- Needed for all permitted point source discharges, including stormwater.
- Stormwater allocations will be in terms of percent (%) reduction needed to address the respective geographic area.

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## Deschutes River, Capitol Lake, and Budd Inlet TMDL

### Fecal Coliform Bacteria Load Allocations

- Seasonal reductions are needed for the Deschutes mainstem, Deschutes tributaries, Percival Creek, and Budd Inlet tributaries.



## Deschutes River, Capitol Lake, and Budd Inlet TMDL

### Fecal Coliform Bacteria - Summer (May-Sept)

| Station | Count | Water Quality Standards Part 1 | | | | Water Quality Standards Part 2 | | | | | Overall | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Geo-mean | Target | Vio-lation? | Percent Re-duction | >Target % | Target | Vio-lation? | 90%ile | Percent Re-duction | Meets WQS? | Percent Re-duction |
| ***Deschutes River*** | | | | | | | | | | | | |
| 13-DES-00.5 | 16 | 21.1 | 100 | | | 0% | 200 | | | | meets | |
| 13-DES-02.7 | 16 | 16.9 | 100 | | | 0% | 200 | | | | meets | |
| 13-DES-05.5 | 10 | 65.8 | 100 | | | 10% | 200 | | | | meets | |
| 13-DES-09.2 | 10 | 81.5 | 100 | | | 10% | 200 | | | | meets | |
| 13-DES-20.5 | 10 | 89.2 | 50 | Part 1 | 44% | 20% | 100 | Part 2 | 544 | 82% | fails both | 82% |
| 13-DES-28.6 | 12 | 56.1 | 50 | Part 1 | 11% | 17% | 100 | Part 2 | 213 | 53% | fails both | 53% |

[See page 98 of Technical Report.]



## Deschutes River, Capitol Lake, and Budd Inlet TMDL

### Fecal Coliform Bacteria - Summer (cont.)

| Station | Count | Water Quality Standards Part 1 | | | | Water Quality Standards Part 2 | | | | | Overall | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Geo-mean | Target | Vio-lation? | Percent Re-duction | >Target % | Target | Vio-lation? | 90%ile | Percent Re-duction | Meets WQS? | Percent Re-duction |
| ***Tributaries to Deschutes River*** | | | | | | | | | | | | |
| 13-AYE-00.0 | 16 | 24.2 | 100 | | | 0% | 200 | | | | meets | |
| 13-CHA-00.1 | 16 | 71.5 | 100 | | | 19% | 200 | Part 2 | 306 | 35% | fails Part 2 | 35% |
| 13-HUC-00.3 | 10 | 10 | 100 | | | 0% | 200 | | | | meets | |
| 13-REI-00.9 | 16 | 102.4 | 100 | Part 1 | 2% | 19% | 200 | Part 2 | 620 | 68% | fails both | 68% |
| 13-SPU-00.0 | 16 | 81.2 | 100 | | | 13% | 200 | Part 2 | 357 | 44% | fails Part 2 | 44% |

[See page 98 of Technical Report.]



## Deschutes River, Capitol Lake, and Budd Inlet TMDL

### Fecal Coliform Bacteria - Summer (cont.)

| Station | Count | Water Quality Standards Part 1 | | | | Water Quality Standards Part 2 | | | | | Overall | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Geo-mean | Target | Vio-lation? | Percent Re-duction | >Target % | Target | Vio-lation? | 90%ile | Percent Re-duction | Meets WQS? | Percent Re-duction |
| *Capitol Lake* | | | | | | | | | | | | |
| 13-CAP-00.4 | 16 | 3.9 | 50 | | | 6% | 100 | | | | meets | |

| Station | Count | Water Quality Standards Part 1 | | | | Water Quality Standards Part 2 | | | | | Overall | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Geo-mean | Target | Vio-lation? | Percent Re-duction | >Target % | Target | Vio-lation? | 90%ile | Percent Re-duction | Meets WQS? | Percent Re-duction |
| ***Percival Creek Watershed*** | | | | | | | | | | | | |
| 13-BLA-00.0 | 15 | 21.3 | 50 | | | 0% | 100 | | | | meets | |
| 13-BLA-02.3 | 16 | 5.6 | 50 | | | 0% | 100 | | | | meets | |
| 13-PER-00.1 | 16 | 44 | 50 | | | 13% | 100 | Part 2 | 152 | 34% | fails Part 2 | 34% |
| 13-PER-01.0 | 16 | 93.5 | 50 | Part 1 | 47% | 44% | 100 | Part 2 | 171 | 41% | fails both | 47% |

[See page 98 of Technical Report.]



## Deschutes River, Capitol Lake, and Budd Inlet TMDL

### Fecal Coliform Bacteria - Summer (cont.)

| Station | Count | Water Quality Standards Part 1 | | | | Water Quality Standards Part 2 | | | | | Overall | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Geo-mean | Target | Vio-lation? | Percent Re-duction | >Target % | Target | Vio-lation? | 90%ile | Percent Re-duction | Meets WQS? | Percent Re-duction |
| ***Budd Inlet Tributaries*** | | | | | | | | | | | | |
| 13-ADA-00.5 | 16 | 22.1 | 100 | | | 6% | 200 | | | | meets | |
| 13-ADA-UNK | 10 | 2668 | 100 | Part 1 | 96% | 90% | 200 | Part 2 | 18736 | 99% | fails both | 99% |
| 13-BUT-00.1 | 16 | 60.7 | 100 | | | 6% | 200 | | | | meets | |
| 13-ELL-00.0 | 16 | 132.5 | 100 | Part 1 | 25% | 25% | 200 | Part 2 | 1082 | 82% | fails both | 82% |
| 13-IND-00.2 | 16 | 540.8 | 100 | Part 1 | 82% | 81% | 200 | Part 2 | 1841 | 89% | fails both | 89% |
| 13-MIS-00.1 | 16 | 173.5 | 100 | Part 1 | 42% | 50% | 200 | Part 2 | 425 | 53% | fails both | 53% |
| 13-MOX-00.0 | 15 | 438.3 | 100 | Part 1 | 77% | 93% | 200 | Part 2 | 1239 | 84% | fails both | 84% |
| 13-MOX-00.6 | 15 | 177.5 | 100 | Part 1 | 44% | 47% | 200 | Part 2 | 538 | 63% | fails both | 63% |
| 13-SCH-00.1 | 13 | 23.6 | 100 | | | 0% | 200 | | | | meets | |

[See page 98 of Technical Report.]



## Deschutes River, Capitol Lake, and Budd Inlet TMDL

### Fecal Coliform Bacteria – Winter (Oct - April)

| Station | Count | Water Quality Standards Part 1 | | | | Water Quality Standards Part 2 | | | | | Overall | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Geo-mean | Target | Vio-lation? | Percent Re-duction | >Target % | Target | Vio-lation? | 90%ile | Percent Re-duction | Meets WQS? | Percent Re-duction |
| ***Deschutes River*** | | | | | | | | | | | | |
| 13-DES-00.5 | 18 | 9.1 | 100 | | | 0% | 200 | | | | | meets |
| 13-DES-02.7 | 18 | 6.5 | 100 | | | 0% | 200 | | | | | meets |
| 13-DES-05.5 | 14 | 13.2 | 100 | | | 0% | 200 | | | | | meets |
| 13-DES-09.2 | 14 | 13.3 | 100 | | | 0% | 200 | | | | | meets |
| 13-DES-20.5 | 14 | 6.5 | 50 | | | 0% | 100 | | | | | meets |
| 13-DES-28.6 | 18 | 8.1 | 50 | | | 6% | 100 | | | | | meets |
| ***Tributaries to Deschutes River*** | | | | | | | | | | | | |
| 13-AYE-00.0 | 21 | 10.3 | 100 | | | 10% | 200 | | | | meets | |
| 13-CHA-00.1 | 18 | 9.9 | 100 | | | 0% | 200 | | | | meets | |
| 13-HUC-00.3 | 14 | 1.3 | 100 | | | 0% | 200 | | | | meets | |
| 13-REI-00.9 | 18 | 24.8 | 100 | | | 6% | 200 | | | | meets | |
| 13-SPU-00.0 | 22 | 11.2 | 100 | | | 0% | 200 | | | | meets | |

[See page 99 of Technical Report.]

## Deschutes River, Capitol Lake, and Budd Inlet TMDL

### Fecal Coliform Bacteria – Winter (cont.)

| Station | Count | Water Quality Standards Part 1 | | | | Water Quality Standards Part 2 | | | | | Overall | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Geo-mean | Target | Vio-lation? | Percent Re-duction | >Target % | Target | Vio-lation? | 90%ile | Percent Re-duction | Meets WQS? | Percent Re-duction |
| *Capitol Lake* | | | | | | | | | | | | |
| 13-CAP-00.4 | 18 | 15.9 | 50 | | | 11% | 100 | Part 2 | 144 | 30% | fails Part 2 | 30% |
| *Percival Creek Watershed* | | | | | | | | | | | | |
| 13-BLA-00.0 | 22 | 10.4 | 50 | | | 9% | 100 | | | | meets | |
| 13-BLA-02.3 | 22 | 7 | 50 | | | 5% | 100 | | | | meets | |
| 13-PER-00.1 | 22 | 13.4 | 50 | | | 5% | 100 | | | | meets | |
| 13-PER-01.0 | 21 | 27.8 | 50 | | | 14% | 100 | Part 2 | 152 | 34% | fails Part 2 | 34% |

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## Deschutes River, Capitol Lake, and Budd Inlet TMDL

### Fecal Coliform Bacteria – Winter (cont.)

| Station | Count | Water Quality Standards Part 1 | | | | Water Quality Standards Part 2 | | | | | Overall | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Geo-mean | Target | Vio-lation? | Percent Re-duction | >Target % | Target | Vio-lation? | 90%ile | Percent Re-duction | Meets WQS? | Percent Re-duction |
| *Budd Inlet Tributaries* | | | | | | | | | | | | |
| 13-ADA-00.5 | 21 | 53.5 | 100 | | | 24% | 200 | Part 2 | 617 | 68% | fails Part 2 | 68% |
| 13-ADA-UNK | 11 | 351.5 | 100 | Part 1 | 72% | 64% | 200 | Part 2 | 5069 | 96% | fails both | 96% |
| 13-BUT-00.1 | 22 | 33.4 | 100 | | | 9% | 200 | | | | meets | |
| 13-ELL-00.8 | 21 | 33.3 | 100 | | | 19% | 200 | Part 2 | 203 | 2% | fails Part 2 | 2% |
| 13-IND-00.2 | 22 | 104.7 | 100 | Part 1 | 5% | 32% | 200 | Part 2 | 646 | 69% | fails both | 69% |
| 13-MIS-00.1 | 22 | 66.1 | 100 | | | 27% | 200 | Part 2 | 880 | 77% | fails Part 2 | 77% |
| 13-MOX-00.0 | 22 | 330.6 | 100 | Part 1 | 70% | 68% | 200 | Part 2 | 1295 | 85% | fails both | 85% |
| 13-MOX-00.6 | 22 | 62.8 | 100 | | | 23% | 200 | Part 2 | 433 | 54% | fails Part 2 | 54% |
| 13-SCH-00.1 | 17 | 15.2 | 100 | | | 12% | 200 | Part 2 | 130 | nom 10% | fails Part 2 | nom 10% |

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## Deschutes River, Capitol Lake, and Budd Inlet TMDL

### Fecal Coliform Bacteria – Winter (cont.)

| Station | Count | Water Quality Standards Part 1 | | | | Water Quality Standards Part 2 | | | | | Overall | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Geo-mean | Target | Vio-lation? | Percent Re-duction | >Target % | Target | Vio-lation? | 90%ile | Percent Re-duction | Meets WQS? | Percent Re-duction |
| 13-BUT-NW | 6 | 40.8 | 100 | | | 16.70% | 200 | Part 2 | 283 | 29% | fails Part 2 | 29% |
| 13-BUT-SE | 6 | 69.9 | 100 | | | 16.70% | 200 | Part 2 | 200 | nom 10% | fails Part 2 | nom 10% |
| 13-BUT-SW | 6 | 155.8 | 100 | Part 1 | 36% | 66.70% | 200 | Part 2 | 392 | 49% | fails both | 49% |
| 13-ELL-33RD | 6 | 103.9 | 100 | Part 1 | 4% | 66.70% | 200 | Part 2 | 294 | 32% | fails both | 32% |
| 13-IND-12TH | 5 | 34.3 | 100 | | | 0.00% | 200 | | | | meets | |
| 13-IND-BOUL | 6 | 332 | 100 | Part 1 | 70% | 83.30% | 200 | Part 2 | 1294 | 85% | fails both | 85% |
| 13-IND-FRED | 6 | 303.6 | 100 | Part 1 | 67% | 83.30% | 200 | Part 2 | 822 | 76% | fails both | 76% |
| 13-IND-MART | 6 | 846.2 | 100 | Part 1 | 88% | 100.00% | 200 | Part 2 | 7353 | 97% | fails both | 97% |
| 13-IND-SBAY | 6 | 367.6 | 100 | Part 1 | 73% | 66.70% | 200 | Part 2 | 2201 | 91% | fails both | 91% |
| 13-IND-WHEE | 6 | 393 | 100 | Part 1 | 75% | 100.00% | 200 | Part 2 | 837 | 76% | fails both | 76% |
| 13-MIS-BETH | 6 | 268.6 | 100 | Part 1 | 63% | 100.00% | 200 | Part 2 | 549 | 64% | fails both | 64% |

[See page 100 of Technical Report.]

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## Deschutes River, Capitol Lake, and Budd Inlet TMDL

### Fecal Coliform Bacteria – Winter (cont.)

| Station | Count | Water Quality Standards Part 1 | | | | Water Quality Standards Part 2 | | | | | Overall | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Geo-mean | Target | Vio-lation? | Percent Re-duction | >Target % | Target | Vio-lation? | 90%ile | Percent Re-duction | Meets WQS? | Percent Re-duction |
| 13-MIS-ETHR | 6 | 143.7 | 100 | Part 1 | 30% | 50.00% | 200 | Part 2 | 422 | 53% | fails both | 53% |
| 13-MOX-5TH | 12 | 103 | 100 | Part 1 | 3% | 58.30% | 200 | Part 2 | 1257 | 84% | fails both | 84% |
| 13-MOX-8TH | 7 | 203.6 | 100 | Part 1 | 51% | 85.70% | 200 | Part 2 | 479 | 58% | fails both | 58% |
| 13-MOX-PARK | 6 | 38.3 | 100 | | | 50.00% | 200 | Part 2 | 421 | 52% | fails Part 2 | 52% |
| 13-MOX-PLUM | 6 | 99.1 | 100 | | | 66.70% | 200 | Part 2 | 337 | 41% | fails Part 2 | 41% |
| 13-PER-54TH | 6 | 62 | 50 | Part 1 | 19% | 33.30% | 100 | Part 2 | 217 | 54% | fails both | 54% |
| 13-SPU-EQUU | 6 | 18.4 | 100 | | | 0.00% | 200 | | | | meets | |
| 13-SPU-LATI | 6 | 19.4 | 100 | | | 0.00% | 200 | | | | meets | |
| 13-SPU-MOOD | 6 | 18.4 | 100 | | | 0.00% | 200 | | | | meets | |

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## Deschutes River, Capitol Lake, and Budd Inlet TMDL

### Temperature Wasteload Allocations

- No numeric values are recommended.

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## Deschutes River, Capitol Lake, and Budd Inlet TMDL

### Temperature Load Allocations

- Recommended for Deschutes tributaries and Percival Creek.

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## Deschutes River, Capitol Lake, and Budd Inlet TMDL

### Temperature

| Deschutes River km | Station | Description | 7-DADMax 2003 (ºC) | 7-DADMax 2004 (ºC) | WQS | Meets WQS? | Target (ºC) | Load target |
|---|---|---|---|---|---|---|---|---|
| 3.7 | 13-THU-00.1 | Thurston Creek at 3000 Rd. | 16.72 | | 16 | no | 16 | Full mature riparian shade |
| 4.4 | 13-JOH-00.1 | Johnson Creek at 3000 Rd. | 17.14 | | 16 | no | 16 | Full mature riparian shade |
| 5.8 | 13-HUC-00.3 | Huckleberry Creek at 3000 Rd. | 15.62* | | 16 | yes | 16 | Full mature riparian shade |
| 6 | 13-MIT-00.2 | Mitchell Creek at 3000 Rd. | 17.34 | | 16 | no | 16 | Full mature riparian shade |
| 11.2 | 13-FAL-00.3 | Fall Creek at 1000 Rd. | 15.13 | | 16 | yes | | |

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## Deschutes River, Capitol Lake, and Budd Inlet TMDL

### Temperature (cont.)

| Deschutes River km | Station | Description | 7-DADMax 2003 (ºC) | 7-DADMax 2004 (ºC) | WQS | Meets WQS? | Target (ºC) | Load target |
|---|---|---|---|---|---|---|---|---|
| 28.1 | 13-REI-00.9 | Reichel Creek at Vail Loop Rd. | 19.01 | | 16 | no | 16 | Full mature riparian shade |
| 31.5 | 13-DES-22.7spr | Spring near Deschutes River 860 Rd. | | 11.81 | 16 | yes | | |
| 35.8 | 13-SP1-00.1 | Spring outlet at State Route 507 | 15.65 | | 16 | yes | | |
| 41.5 | 13-SIL-00.4 | Silver Spring near mouth | 14 | | 16 | yes | | |
| 46.5 | 13DES13 4spr | Spring near Cowlitz Dr. | 17.71 | | 17.5 | no | 17.5 | Full mature riparian shade |

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## Deschutes River, Capitol Lake, and Budd Inlet TMDL

### Temperature (cont.)

| Deschutes River km | Station | Description | 7-DADMax 2003 (ºC) | 7-DADMax 2004 (ºC) | WQS | Meets WQS? | Target (ºC) | Load target |
|---|---|---|---|---|---|---|---|---|
| 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 | | |

[See page 138 of Technical Report.]

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## Deschutes River, Capitol Lake, and Budd Inlet TMDL

### Fine Sediment

| Water Body | Facility Name | Permit No. | Wasteload target (allowable load) |
|---|---|---|---|
| **Western Washington Phase II Municipal Stormwater Permit** | | | |
| Deschutes River | City of Olympia | WAR045015A | 0 |
| Deschutes River | City of Lacey | WAR045011A | 0 |
| Deschutes River | City of Tumwater | WAR045020A | 0 |
| Deschutes River and tributaries | Thurston County | WAR045025A | 0 |
| **Stormwater Permit** | | | |
| Deschutes River and tributaries | WSDOT | WAR043000 | 0 |

[See page 184 of Technical Report.]

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## Deschutes River, Capitol Lake, and Budd Inlet TMDL

### Fine Sediment (cont.)

| Water Body | Facility Name | Permit No. | Wasteload target (allowable load) |
|---|---|---|---|
| **Industrial Stormwater General Permit** | | | |
| Deschutes River | O'Neill and Sons | SO3001404 | 0 |
| Deschutes River | Tumwater Lumber Company | SO3004272 | 0 |
| **Construction Stormwater General Permit** | | | |
| Deschutes River and tributaries | (varies) | (varies) | 0 |
| **Sand and Gravel General Permit** | | | |
| Deschutes River | Waldrick Road Pit | WAG501231 | 0 |

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## Deschutes River, Capitol Lake, and Budd Inlet TMDL

### Fine Sediment Load Allocations

| Segment | Name | River mile | 1995 | 2004 | Target | % reduction |
|---|---|---|---|---|---|---|
| 19 | Weyerhaeuser | 31.4-35.4 | 15.50% | 17.70% | 12% | 32% |
| 22 | Lake Lawrence | 28.8-30.4 | 22.50% | 17.10% | 12% | 30% |
| 28 | State Route 507 | 20.8-24.4 | 19.40% | 20.50% | 12% | 41% |
| 31 | Waldrick | 14.5-17.2 | 19.90% | 20.10% | 12% | 40% |
| 36 | Pioneer | 0.5-2.7 | 22.00% | 22.10% | 12% | 46% |

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