

ODFW AQUATIC INVENTORY PROJECT
OREGON PLAN FOR SALMON & WATERSHEDS
STREAM RESTORATION HABITAT REPORT

STREAM: Rock Creek (MC-341)
BASIN: Devils Lake
SURVEY TYPE: Post-Tx
DATE: March 19, 2007
SURVEY CREW: Ryan Jacobsen, Jason Hatfield
REPORT PREPARED BY: Paul Jacobsen
BASIN AREA: 13.8 km²
USGS MAPS: Devils Lake
ECOREGION: Coast Range Coastal Uplands

GENERAL DESCRIPTION:

The Rock Creek habitat survey extended 5,264 meters. The channel was alternately constrained by hillslope and terrace in a broad valley floor. The average valley width index was 3 (range: 1.5-6). Land use for the reach was second growth timber (15-30 cm dbh) and large timber (30-50 cm dbh). The average unit gradient was 1.8 percent. Riffles (69%) and scour pools (19%) dominated stream habitat. Gravel (47%) and sand (20%) dominated stream substrate. Wood volume was high at 38.7 m³/100m.

COMMENTS:

There were no potential barriers to upstream fish migration in the surveyed length.

3 culverts were recorded in the survey.

The crew noted several habitat structures and debris jams during the survey.

Minimal beaver activity was noted in the survey. Salmon fry were observed during the survey.

REACH 1

T07S-R11W-S13NW

REACH 1

Valley and Channel Summary

Valley Characteristics (Percent Reach Length)

| <u>Narrow Valley Floor</u> | | <u>Broad Valley Floor</u> | |
|----------------------------|-----|---------------------------|---------|
| Steep V-shape | 0% | Constraining Terraces | 100% |
| Moderate V-shape | 0% | Multiple Terraces | 0% |
| Open V-shape | 0% | Wide Floodplain | 0% |
| Valley Width Index | 3.0 | VWI Range: | 1.5 - 6 |

Channel Morphology (Percent Reach Length)

| <u>Constrained</u> | | <u>Unconstrained</u> | |
|--------------------|------|----------------------|----|
| Hillslope | 0% | Single Channel | 0% |
| Bedrock | 0% | Multiple Channel | 0% |
| Terrace | 0% | Braided Channel | 0% |
| Alt. Terrace/Hill | 100% | | |
| Landuse | 0% | | |

Channel Characteristics

| <u>Type</u> | <u>Length (m)</u> | <u>Area (m2)</u> | <u>Dry Units</u> |
|-------------------|-------------------|------------------|------------------|
| Primary Channel | 5,264 | 31,908 | 0 |
| Secondary Channel | 245 | 848 | 0 |
| Off-Channel Units | 241 | 492 | 0 |

Channel Dimensions (m)

| <u>Wetted</u> | <u>Active</u> | <u>Floodprone</u> n = 22 | <u>First Terrace</u> n = 9 |
|---------------|---------------|--------------------------|----------------------------|
| Width: 5.8 | Width: 8.7 | 19.0 (10.1 - 44.8) | 28.1 (20 - 38) |
| Depth: 0.52 | Height: 0.8 | 1.6 (1.4 - 2) | 2.4 (1.6 - 4) |

W:D ratio: 10.9
 Stream Flow Type: MF
 Average Unit Gradient: 1.8%
 Water temperature (°C): 9.0 - 9.0

Entrenchment (ACW:FPW ratio): 2.3
 Habitat Units/100m (total channel length): 4.7
 Habitat Units/100m (primary channel length): 5.1

Riparian, Bank, and Wood Summary

| | <u>Primary</u> | <u>Secondary</u> |
|----------------------|----------------|------------------|
| Land Use: | ST | LT |
| Riparian Vegetation: | D30 | S |

Bank Condition and Shade

| <u>Bank Status</u> | <u>Percent Reach Length</u> | <u>Shade (% of 180)</u> |
|--------------------|-----------------------------|-------------------------|
| Actively Eroding: | | Reach avg: |
| Undercut Banks: | | Range: - |

Large Wood Debris

| | <u>Total</u> | <u>Total / 100m primary channel</u> |
|-----------------------------|--------------|-------------------------------------|
| All pieces (>=3m x 0.15m): | 1,133 | 21.5 |
| Volume (m ³): | 2,037 | 38.7 |
| Key pieces (>=12m x 0.60m): | 114 | 2.2 |

OREGON DEPT OF FISH AND WILDLIFE

ROCK CREEK POST-TX (2-MC, 341)

HABITAT INVENTORY

Report Date: 4/25/2007

Survey Date:

3/19/2007

| REACH 1 | | T07S-R11W-S13NW | | | | | REACH 1 | | | | | |
|--------------------|-----------------|------------------------|---------------------|---------------------|------------------------------------|-------------------------------|----------------------------------|-----------|-----------|-----------|----------|----------|
| HABITAT DETAIL | | | | | | | | | | | | |
| Habitat Type | Number Units | Total Length (m) | Avg Width (m) | Avg Depth (m) | Total Area (m ²) | Large Boulders (#>0.5m) | Substrate Percent Wetted Area | | | | | |
| | | | | | | | S/O | Snd | Grvl | Cbl | Bldr | Bdrk |
| CASCADE/BEDROCK | 1 | 19 | 9.3 | 0.70 | 174 | 0 | 0 | 10 | 10 | 10 | 0 | 70 |
| CASCADE/BOULDERS | 8 | 80 | 2.5 | 0.11 | 188 | 0 | 10 | 26 | 47 | 17 | 0 | 0 |
| POOL-BACKWATER | 9 | 52 | 3.0 | 0.41 | 150 | 0 | 61 | 23 | 16 | 0 | 0 | 0 |
| POOL-DAMMED | 3 | 26 | 9.1 | 1.20 | 232 | 0 | 20 | 33 | 23 | 8 | 2 | 13 |
| POOL-ISOLATED | 2 | 4 | 4.1 | 0.38 | 14 | 0 | 100 | 0 | 0 | 0 | 0 | 0 |
| POOL-LATERAL SCOUR | 76 | 883 | 6.9 | 0.93 | 6,201 | 0 | 17 | 28 | 39 | 11 | 1 | 3 |
| POOL-PLUNGE | 5 | 25 | 5.5 | 0.92 | 139 | 0 | 9 | 22 | 35 | 24 | 0 | 10 |
| RAPID/BEDROCK | 4 | 110 | 4.8 | 0.44 | 455 | 0 | 11 | 20 | 18 | 5 | 3 | 44 |
| RAPID/BOULDERS | 18 | 450 | 4.3 | 0.32 | 2,191 | 0 | 8 | 16 | 43 | 26 | 4 | 2 |
| RIFFLE | 109 | 3,238 | 5.2 | 0.33 | 17,558 | 0 | 5 | 14 | 58 | 21 | 1 | 2 |
| RIFFLE W/ POCKETS | 20 | 809 | 6.7 | 0.40 | 5,434 | 0 | 7 | 20 | 49 | 21 | 1 | 2 |
| STEP/BEDROCK | 1 | 2 | 0.3 | 0.02 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 100 |
| STEP/COBBLE | 11 | 50 | 9.2 | 0.31 | 497 | 0 | 7 | 20 | 65 | 8 | 0 | 0 |
| STEP/LOG | 4 | 3 | 6.0 | 0.25 | 15 | 0 | 28 | 43 | 25 | 5 | 0 | 0 |
| Total: | 271 | 5,750 | 5.8 | 0.52 | 33,248 | 0 | Avg: 12 | 20 | 47 | 16 | 1 | 4 |

| HABITAT SUMMARY | | | | | | | | | |
|-------------------|-----------------|------------------------|---------------------|---------------------|-------------------|---------|----------------|--------------------------|--|
| Habitat Group | Number Units | Total Length (m) | Avg Width (m) | Avg Depth (m) | Wetted Area | | Large Boulders | | |
| | | | | | (m ²) | Percent | Number | (# / 100m ²) | |
| Dammed & BW Pools | 14 | 81 | 4.5 | 0.57 | 397 | 1.19% | 0 | 0.0 | |
| Scour Pools | 81 | 909 | 6.8 | 0.93 | 6,340 | 19.07% | 0 | 0.0 | |
| Glides | 0 | 0 | | | 0 | 0.00% | 0 | 0.0 | |
| Riffles | 129 | 4,048 | 5.4 | 0.34 | 22,992 | 69.15% | 0 | 0.0 | |
| Rapids | 22 | 560 | 4.4 | 0.34 | 2,646 | 7.96% | 0 | 0.0 | |
| Cascades | 9 | 98 | 3.3 | 0.17 | 362 | 1.09% | 0 | 0.0 | |
| Step/Falls | 16 | 55 | 7.9 | 0.28 | 513 | 1.54% | 0 | 0.0 | |
| Dry | 0 | 0 | | | 0 | 0.00% | 0 | 0.0 | |
| Culverts | 0 | 0 | | | 0 | 0.00% | 0 | 0.0 | |

| POOL SUMMARY | | | |
|---------------------------------------|-------|--|----------------------------------|
| | Total | Total of all Channel Lengths # / Km | Primary Channel Length # / Km |
| All Pools: | 95 | 16.5 | 18.0 |
| Pools >=1m deep: | 31 | 5.4 | 5.9 |
| Complex pools (LWD pieces>=3): | 48 | 8.3 | 9.1 |
| Pool frequency (channel widths/pool): | 7.0 | | |
| Residual pool depth (avg): | 0.66 | | |

Comment Summary

Restoration Monitoring Sites 2007

MONITORING AREA: **2-MC** SITE ID: **341** **ROCK CREEK POST-TX**

| UNIT# | TYPE | CHAN | DIST. (m) | COMMENTS | NOTE ESTIMATOR |
|-------|------|------|-----------|----------|---------------------------|
| 1 | LP | 00 | 15.8 | SS/SS | |
| 6 | RI | 00 | 147.6 | HS | |
| 40 | RI | 00 | 696.4 | HS | CUT LOGS |
| 41 | LP | 00 | 709.4 | HS, DJ | CUT LOGS |
| 46 | RI | 00 | 796.6 | HS | CUT LOG |
| 47 | LP | 00 | 811.3 | HS, DJ | CUT LOGS |
| 48 | SC | 00 | 817.9 | | CUT LOGS |
| 52 | RI | 00 | 891.8 | HS, DS | CUT LOGS, OLD CABLED LOGS |
| 53 | RI | 00 | 920.2 | HS, DJ | CUT LOGS |
| 54 | LP | 00 | 929.4 | DJ | |
| 56 | LP | 00 | 943 | DJ | |
| 58 | LP | 00 | 977.9 | HS, DJ | CUT LOGS |
| 60 | LP | 00 | 1015.8 | HS, DJ | |
| 61 | RI | 01 | 1059.4 | HS, TJ/ | |
| 62 | RI | 11 | 1059.4 | | ACW=8.5 TEMP=10.0 |
| 63 | RI | 00 | 1097.8 | HS, DJ | CUT LOGS |
| 64 | LP | 00 | 1114.3 | HS | CUT LOGS |
| 65 | RR | 00 | 1143.1 | CC | |
| 67 | LP | 00 | 1209.7 | HS, DJ | |
| 68 | RI | 01 | 1257.7 | HS | CUT LOGS |
| 72 | RI | 00 | 1362.5 | HS | OLD CUT LOGS |

Comment Summary

Restoration Monitoring Sites 2007

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|-------|------|------|-----------|----------|--------------------|
| 73 | LP | 00 | 1369.5 | HS, DJ | OLD CUT LOGS |
| 74 | RI | 00 | 1415.2 | HS | OLD CUT LOG |
| 77 | RI | 00 | 1470.1 | HS | OLD CUT LOGS |
| 79 | LP | 01 | 1526.2 | /TJ, HS | OLD CUT LOGS |
| 80 | RB | 11 | 1526.2 | | ACW=2.7, TEMP=10.0 |
| 83 | LP | 01 | 1632.3 | /TJ | |
| 84 | RB | 11 | 1632.3 | | ACW=3.1, TEMP=10.0 |
| 87 | RB | 01 | 1684.5 | HS | CUT LOGS |
| 88 | LP | 02 | 1684.5 | TJ/ | |
| 89 | CB | 11 | 1684.5 | | ACW=3.5, TEMP=10.0 |
| 94 | RB | 02 | 1798.9 | HS, DJ | CUT LOGS |
| 95 | DP | 02 | 1798.9 | WL | FRY |
| 97 | LP | 00 | 1810.6 | HS | |
| 98 | RB | 00 | 1819.9 | CC | |
| 99 | RP | 01 | 1867.9 | DJ | |
| 100 | CB | 11 | 1867.9 | | ACW=2.7, TEMP=9.0 |
| 101 | RI | 00 | 1915.8 | DJ, WL | FRY NATURAL JAM |
| 102 | RP | 00 | 1961.5 | DJ, DJ | |
| 105 | LP | 00 | 2009.5 | DJ | |
| 109 | RI | 00 | 2050.7 | HS, DJ | CUT LOGS |
| 110 | LP | 00 | 2065.4 | HS, DJ | |

Comment Summary

Restoration Monitoring Sites 2007

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| UNIT# | TYPE | CHAN | DIST. (m) | COMMENTS | NOTE ESTIMATOR |
|-------|------|------|-----------|------------|-----------------------------|
| 113 | RI | 02 | 2099.4 | SS/ | |
| 116 | RP | 00 | 2121 | HS | |
| 117 | LP | 00 | 2136 | HS, DJ, WL | CUT LOGS, FRY 90MM SALMONID |
| 120 | RB | 00 | 2213.1 | HS, DJ | CUT LOGS |
| 125 | LP | 01 | 2342.1 | /TJ | |
| 126 | SR | 00 | 2344.1 | | ACW=0.8, TEMP=9.5 |
| 128 | BW | 10 | 2385.3 | WL | FRY |
| 132 | LP | 00 | 2391.7 | WL | FRY |
| 133 | LP | 00 | 2403.9 | DJ | |
| 134 | RP | 01 | 2428.9 | /TJ | |
| 135 | CB | 00 | 2438.9 | | ACW=1.4, TEMP=9.0 |
| 145 | RP | 00 | 2763.7 | DJ | |
| 148 | RI | 00 | 2907.7 | /SS | |
| 150 | RP | 00 | 3019.4 | DJ, WL | FRY |
| 151 | RI | 00 | 3047.6 | /SS, SS/ | |
| 159 | RP | 00 | 3151.6 | HS, DL | CUT LOGS |
| 162 | SL | 01 | 3169.5 | DJ | |
| 168 | BW | 10 | 3247.6 | WL | FRY |
| 170 | RI | 00 | 3292.6 | DJ | |
| 171 | LP | 01 | 3310.8 | /TJ | |
| 174 | RB | 00 | 3357.7 | DJ | |

Comment Summary

Restoration Monitoring Sites 2007

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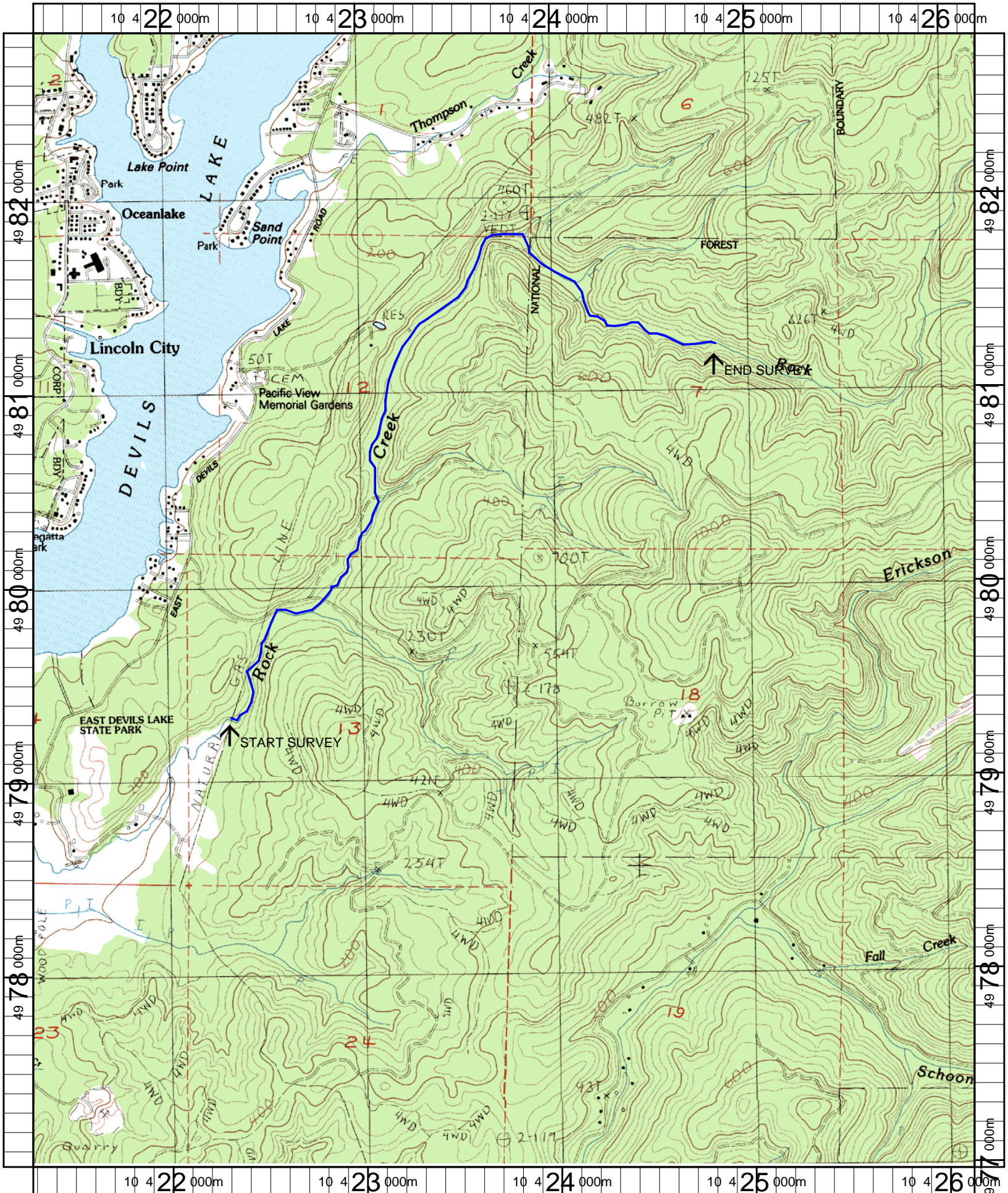
| UNIT# | TYPE | CHAN | DIST. (m) | COMMENTS | NOTE ESTIMATOR |
|-------|------|------|-----------|------------|--------------------------------|
| 177 | RI | 02 | 3382.3 | WL | FRY LOW FLOW SIDE CHANNEL |
| 179 | RI | 01 | 3417.6 | WL | FRY |
| 181 | RP | 01 | 3483.6 | DJ | |
| 188 | RR | 00 | 3582.5 | DJ, BV | |
| 190 | RI | 00 | 3601.9 | WL | FRY |
| 191 | CR | 00 | 3620.6 | DJ | BEDROCK CASCADE WITH 1 METER D |
| 193 | RP | 00 | 3703.9 | HS, DJ | CUT LOGS |
| 194 | LP | 00 | 3716.7 | WL, DJ, HS | 40-60MM SALMONIDS, CUT LOGS RT |
| 200 | RP | 01 | 3871.4 | TJ/, DJ | |
| 201 | RI | 11 | 3871.4 | | ACW=3.5, TEMP=8.5 |
| 203 | RB | 00 | 3899 | CC | |
| 204 | RP | 01 | 3949 | WL | FRY |
| 205 | BW | 10 | 3949 | WL | FRY |
| 208 | LP | 00 | 3996.1 | HS, DJ | CUT LOGS |
| 209 | RI | 00 | 4034.4 | HS, DJ | CUT LOGS |
| 210 | RP | 00 | 4082.4 | HS, DJ, BV | CUT LOGS |
| 213 | RI | 00 | 4226.4 | | CUT LOGS STARTING TO COLLECT |
| 214 | RI | 01 | 4274.4 | HS | CUT LOGS |
| 215 | BW | 10 | 4274.4 | WL | FRY |
| 218 | RI | 11 | 4274.4 | | ACW 4 |
| 219 | RI | 00 | 4288.8 | HS | CUT LOGS |

Comment Summary

Restoration Monitoring Sites 2007

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| UNIT# | TYPE | CHAN | DIST. (m) | COMMENTS | NOTE ESTIMATOR |
|-------|------|------|-----------|------------|------------------------------|
| 220 | LP | 00 | 4295.2 | HS, DJ | CUT LOGS |
| 221 | RP | 00 | 4348.2 | WL | FRY |
| 224 | RI | 00 | 4392.2 | WL | FRY |
| 225 | BW | 10 | 4392.2 | WL | FRY |
| 230 | LP | 00 | 4395.6 | WL | FRY |
| 235 | RP | 00 | 4524.5 | HS, DJ | CUT LOGS |
| 236 | RI | 01 | 4572.5 | BV, DJ, HS | CUT LOGS |
| 237 | CB | 00 | 4586.6 | | ACW=2.3, TEMP=9.0 |
| 238 | BW | 10 | 4586.6 | WL | FRY |
| 243 | RI | 02 | 4631.5 | | CHANNEL COVERED IN LOGS |
| 248 | RP | 00 | 4708.6 | /SS, HS DJ | |
| 249 | LP | 00 | 4718.3 | BV | |
| 254 | CB | 00 | 4827.6 | | ACW=1.5, TEMP=10.0 |
| 256 | LP | 00 | 4853.2 | HS | |
| 257 | RP | 00 | 4880.3 | HS, DJ | |
| 262 | RI | 01 | 4966.9 | TJ/ | |
| 263 | CB | 11 | 4966.9 | | ACW=2.5, TEMP=10.0 |
| 267 | RI | 00 | 5064.2 | BV | |
| 269 | RI | 01 | 5120.1 | TJ/ | |
| 270 | RI | 00 | 5155.3 | WL | ACW=4.0, TEMP=9.0, FRY |
| 271 | RI | 00 | 5203.3 | DJ | MOVING BUT NOT BLOCKING FLOW |



Name: DEVILS LAKE
 Date: 5/9/2007
 Scale: 1 inch equals 2000 feet

Location: 10 423734 E 4979918 N
 Caption: ROCK CREEK RESTORATION SITE - DEVILS LAKE BASIN