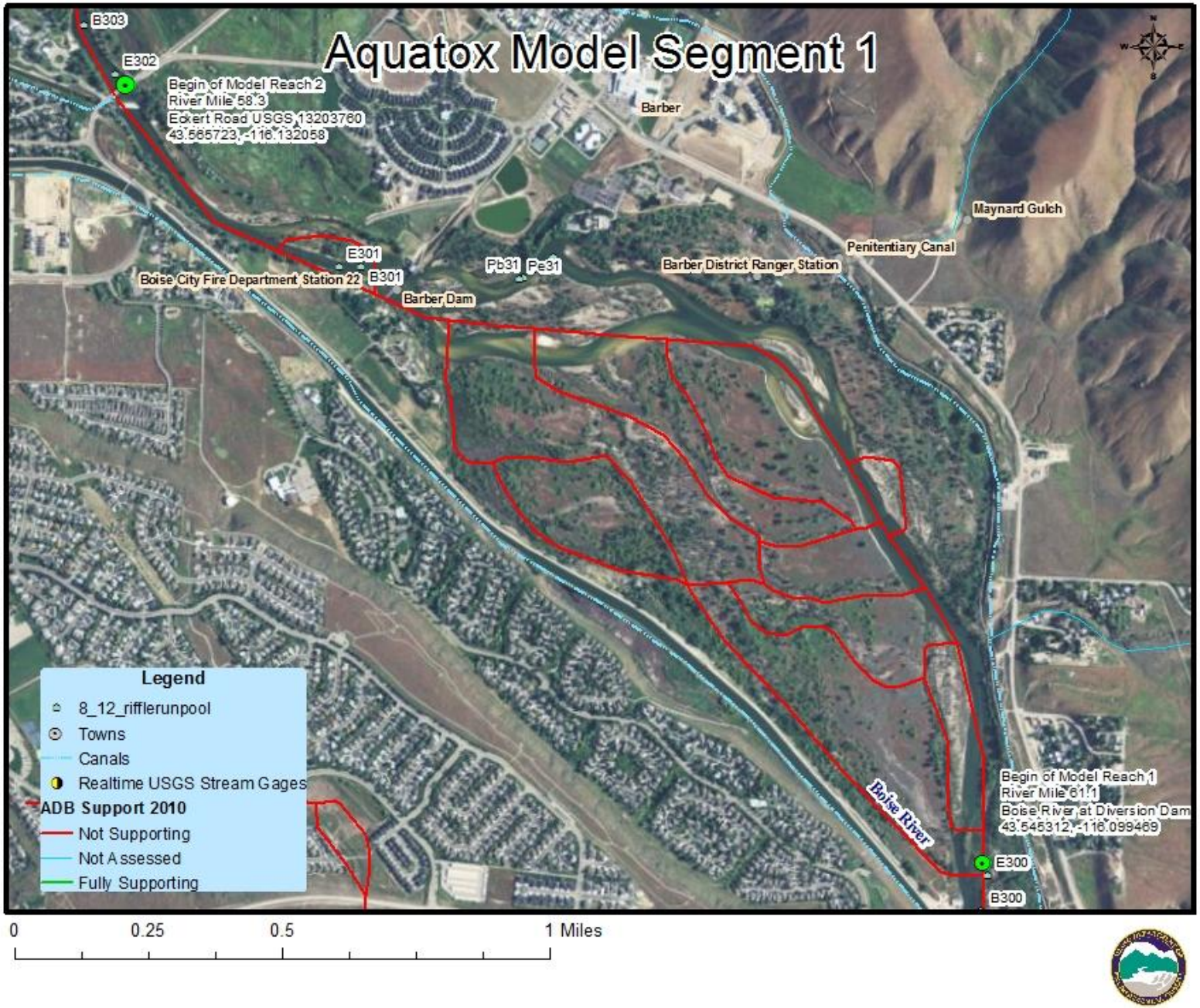
Lower Boise River
Aquatox Model segments 2-8

Pool/Run/Riffle Ratio
Periphyton Visual Assessment

August 9 & 12 2013

Troy Smith Boise Regional Office

Darcy Sharp, Technical Services, State Office


Aquatox Model Segment 1
B303
E302
Begin of Model Reach 2
River Mile 58.3
Eckert Road USGS 13203760
43.565723, -116.132058
Barber
Maynard Gulch
Penitentiary Canal
E301
Pb31
Pe31
Barber District Ranger Station
Boise City Fire Department Station 22
B301
Barber Dam
Legend
8_12_rifflerunpool
Towns
Canals
Realtime USGS Stream Gages
ADB Support 2010
Not Supporting
Not Assessed
Fully Supporting
Boise River
Begin of Model Reach 1
River Mile 61.1
Boise River at Diversion Dam
43.545312, -116.099469
E300
B300
0
0.25
0.5
1 Miles

State Highway 21 Bridge; Riffle 300

- 50% habitat
- 5% covered
- 1.3 meter visibility

2 to 8 inch cobbles in a sandy substrate
50-70% habitat; 0-5% covered
08.12.2013

Riffle 300
08.12.2013

Long, slow run—1.5 miles
08.12.2013

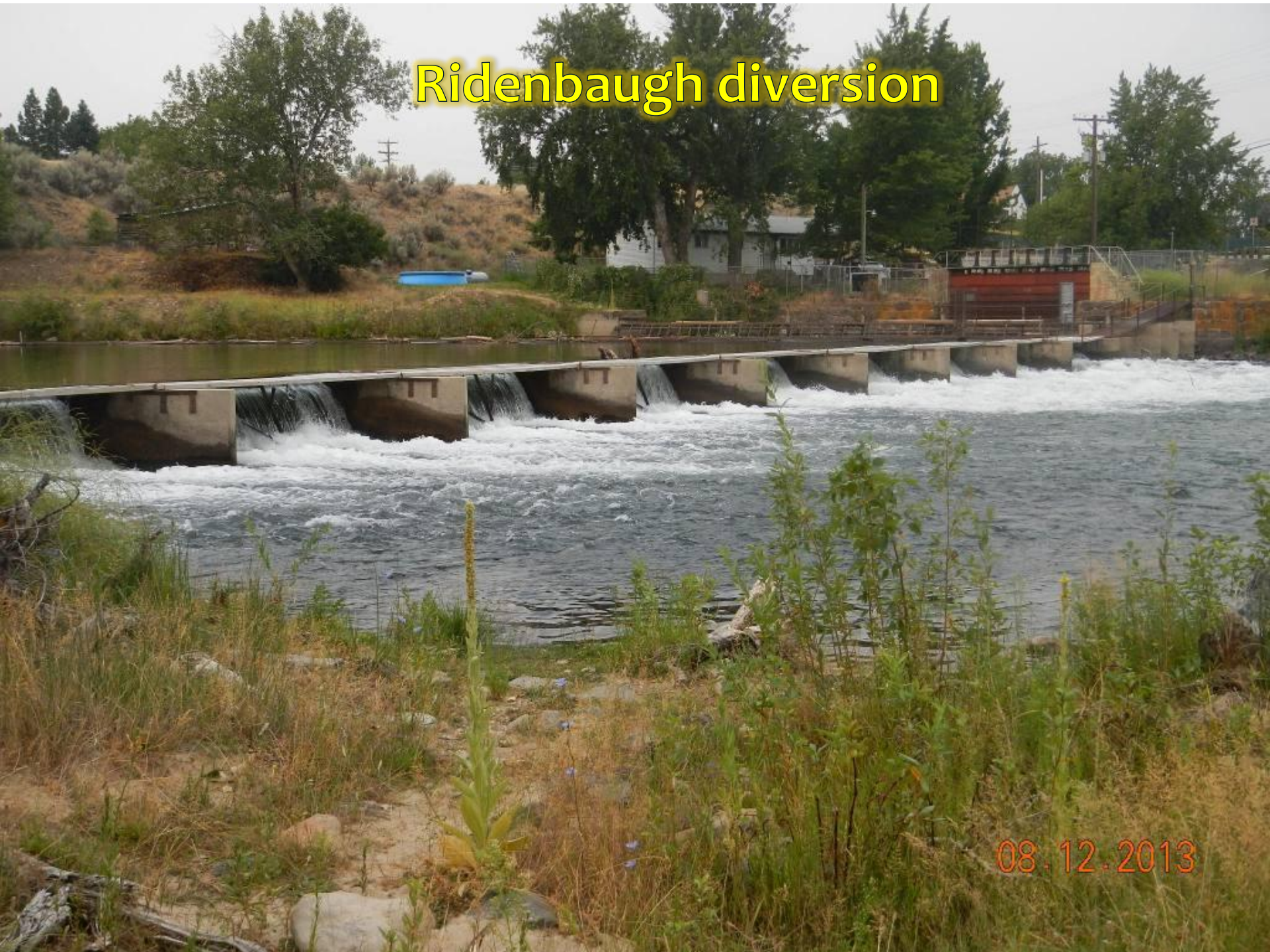
Historic impacts to streambank
Instream erosion source of excess sediment
08.12.2013

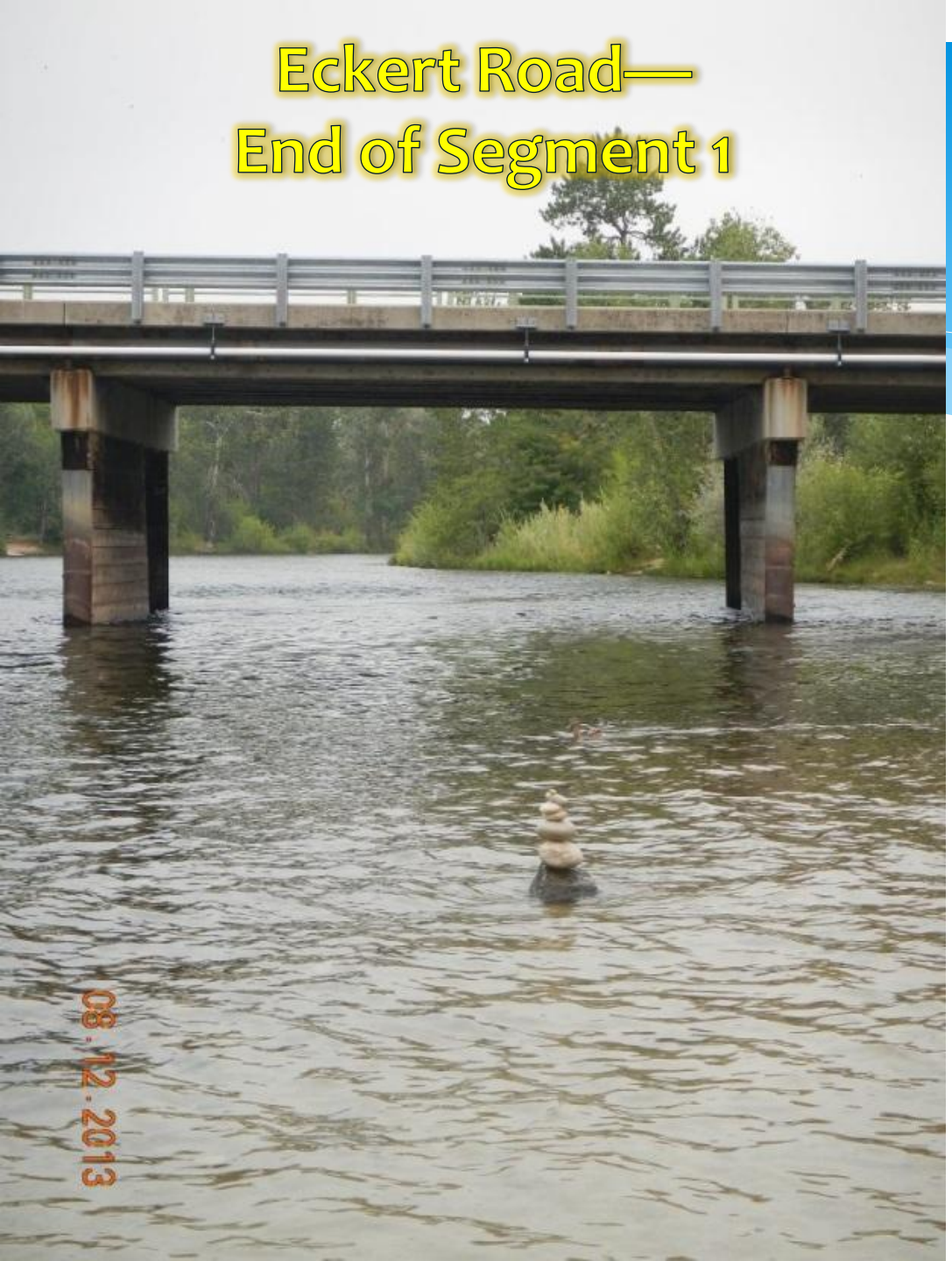
Historic impacts to streambank—0.6 miles
Instream erosion source of excess sediment
Boise River

Riffle 301

- 80% habitat
- 20% covered
- 1.3 meter visibility

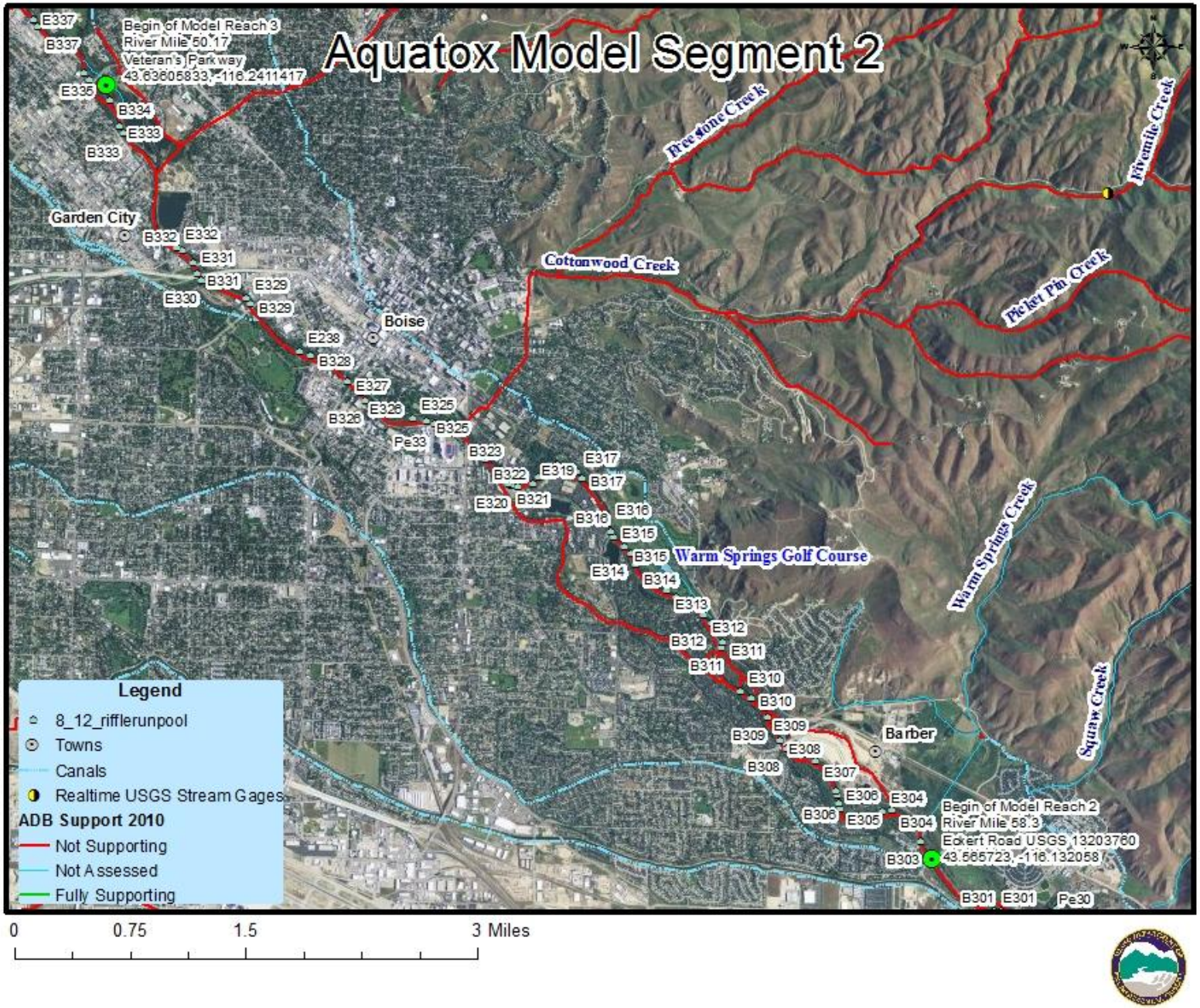
Near Riffle 301—downstream of Barber Dam
08.12.2013


Ridenbaugh diversion
08.12.2013



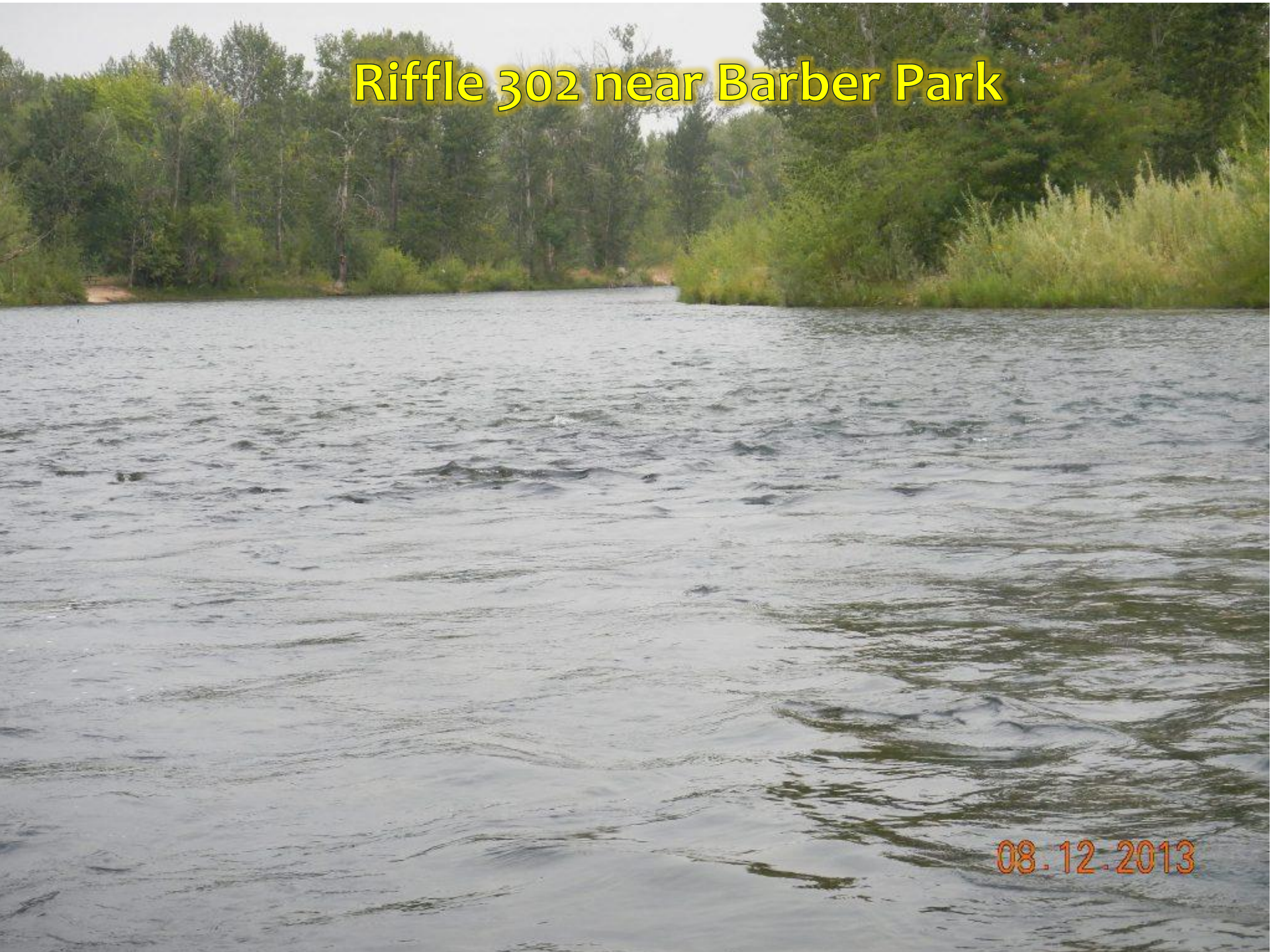
Aquatox Model Segment 1 Summary

* Average periphyton = 4%
  * 49% habitat
  * 9% coverage
* 1.8 meter visibility


Aquatox Model Segment 2
Begin of Model Reach 3
River Mile 60.17
Veteran's Parkway
43.63606833, -116.2411417
Begin of Model Reach 2
River Mile 58.3
Eckert Road USGS 13203760
43.565723, -116.132058
Garden City
Boise
Barber
Warm Springs Golf Course
Cottonwood Creek
Freestone Creek
Fivemile Creek
Picket Pin Creek
Warm Springs Creek
Squaw Creek
Legend
8_12_rifflerunpool
Towns
Canals
Realtime USGS Stream Gages
ADB Support 2010
Not Supporting
Not Assessed
Fully Supporting
0
0.75
1.5
3 Miles

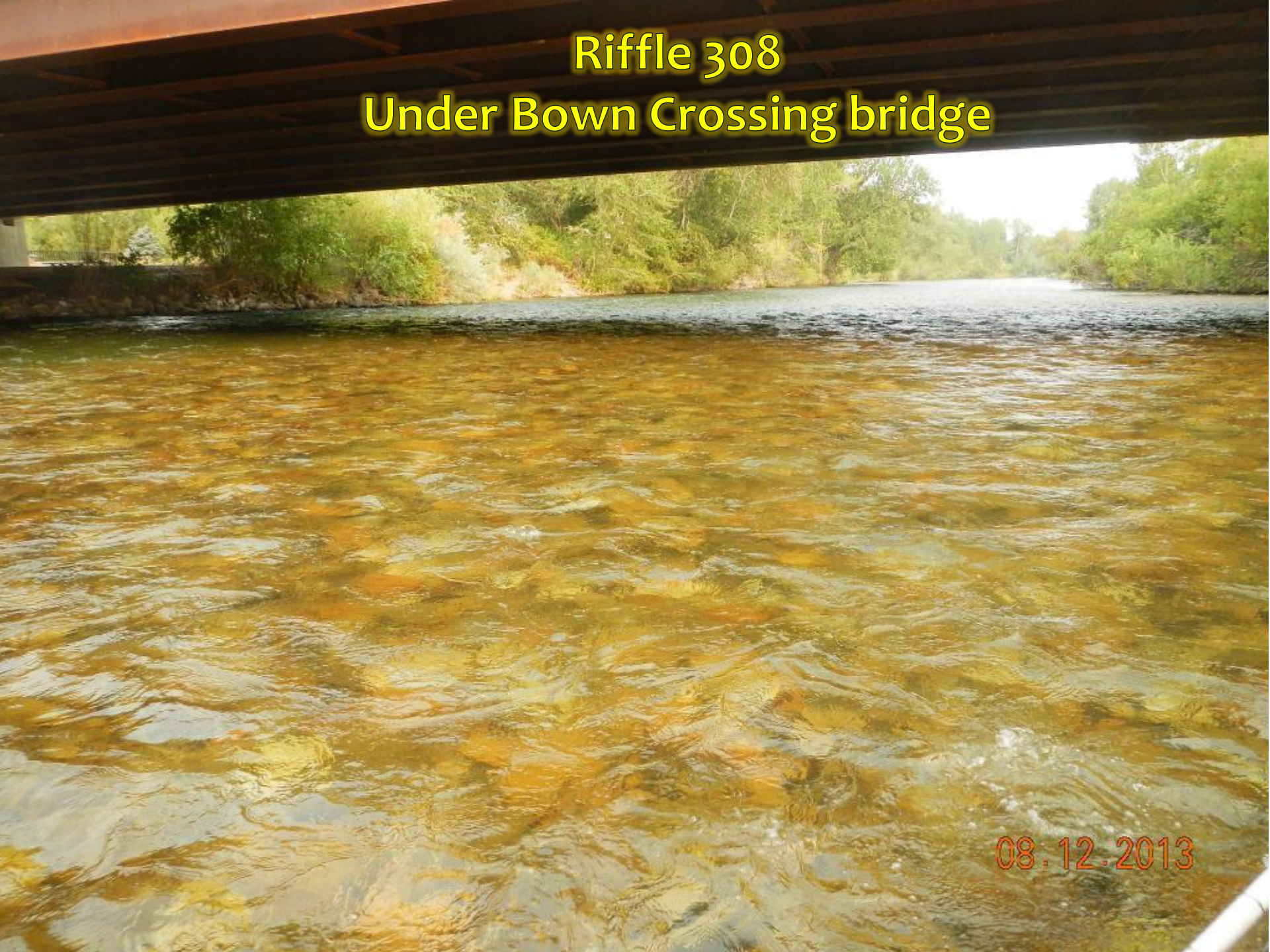
Riffles 302-308—from Eckert Road to Bown Crossing.

- 92% habitat
- 5% covered
- 2.0 meter visibility


Riffle 302 near Barber Park
08.12.2013

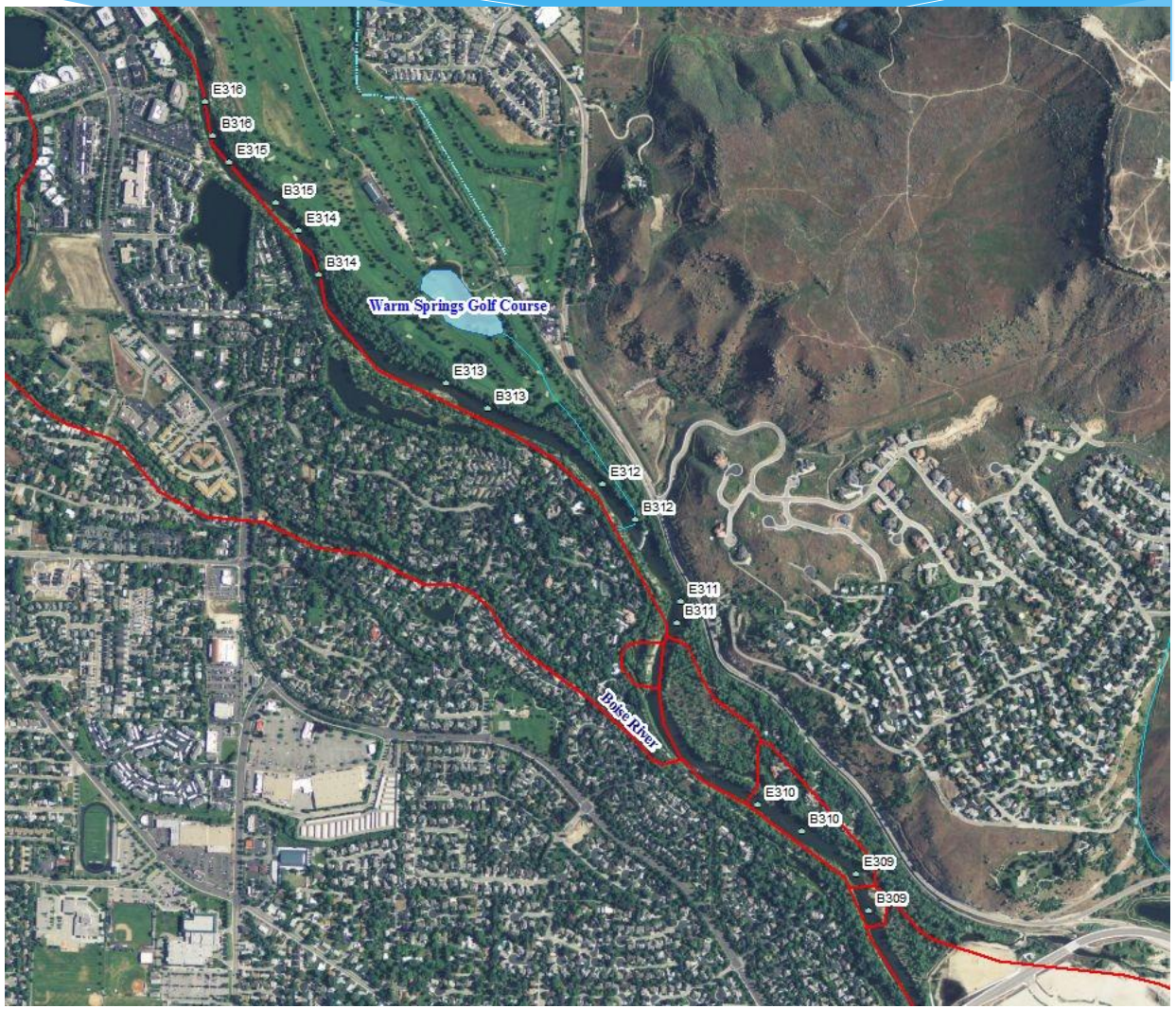
E308
B308
Barber
Warm S
Wise
E307
B307
Wildernest
Boise River
E306
B306
Habitat
Parkriver
E305
B305
B304
E304
Migratory
Boise

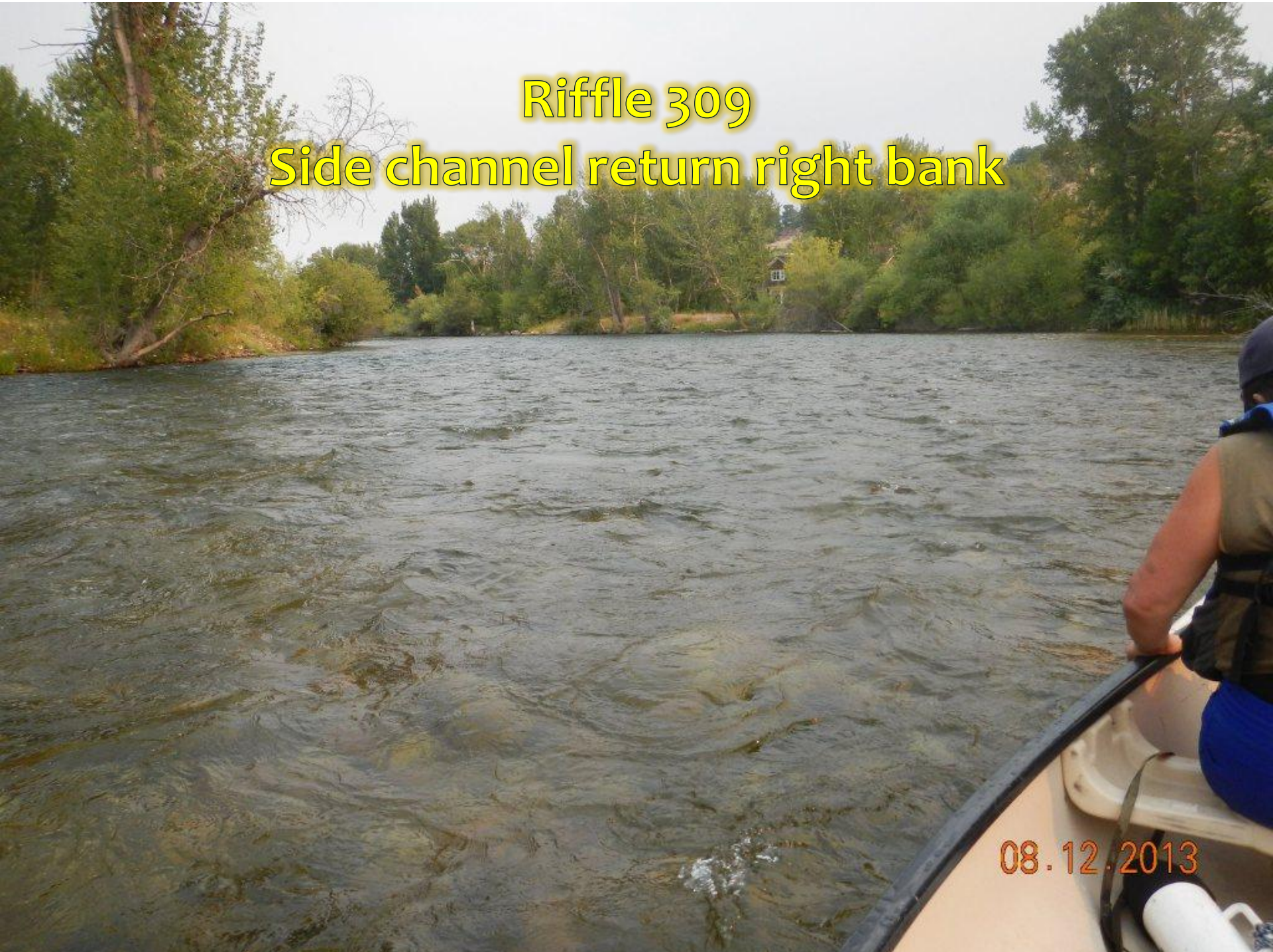
Riffle 307
08.12.2013

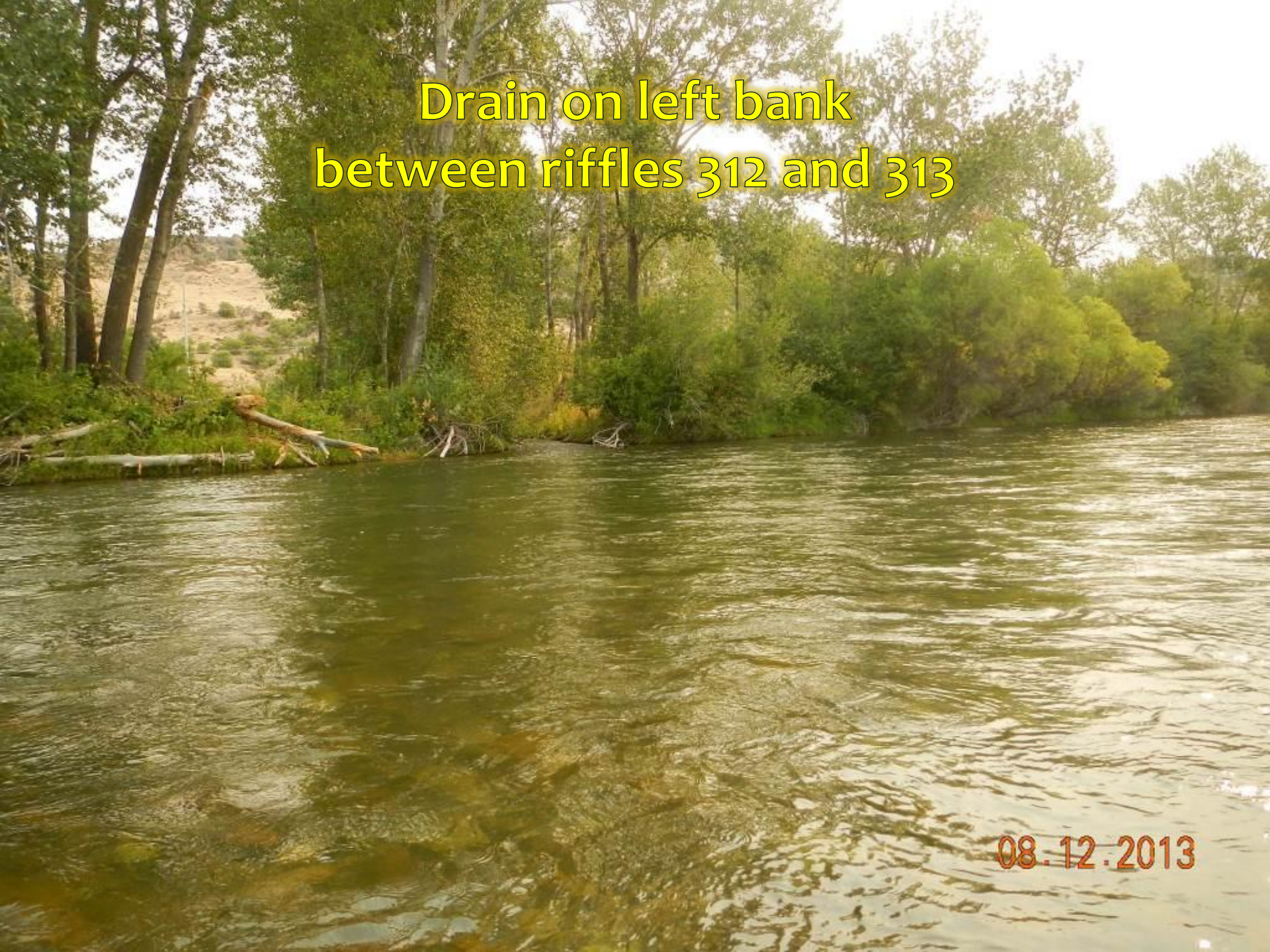

Riffle 308
Under Bown Crossing bridge
08.12.2013

Riffles 309-316

- 87% habitat
- 2% covered
- 1.8 meter visibility




Riffle 309
Side channel return right bank
08.12.2013

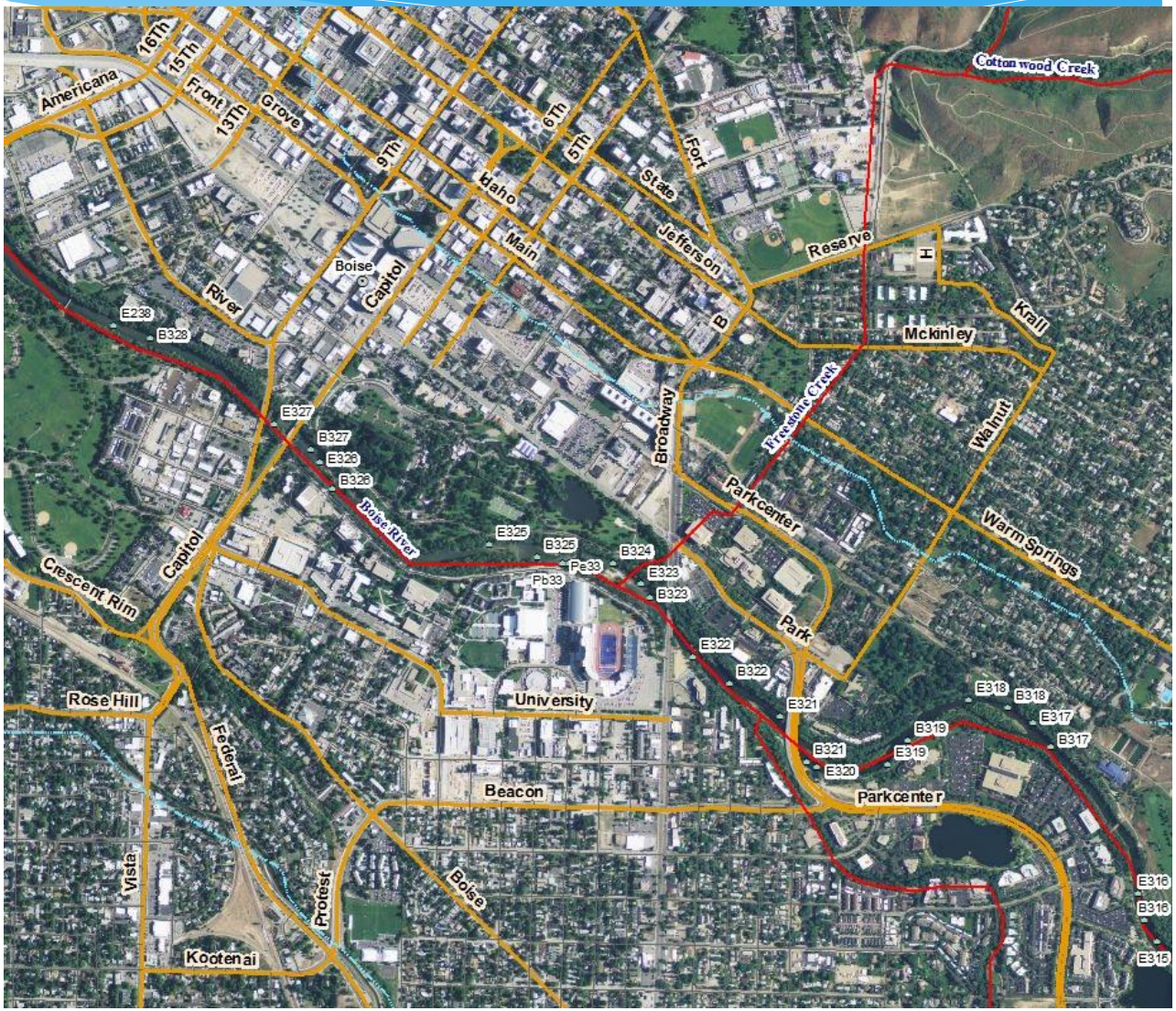

Drain on left bank
between riffles 312 and 313
08.12.2013

Stormwater drain near
Baybrook Court Bridge
08.12.2013

08.12.2013

Riffles 317-328 Beginning near Municipal Park through to 9th Street Bridge

- 81% habitat
- 9% covered
- 1.8 meter visibility

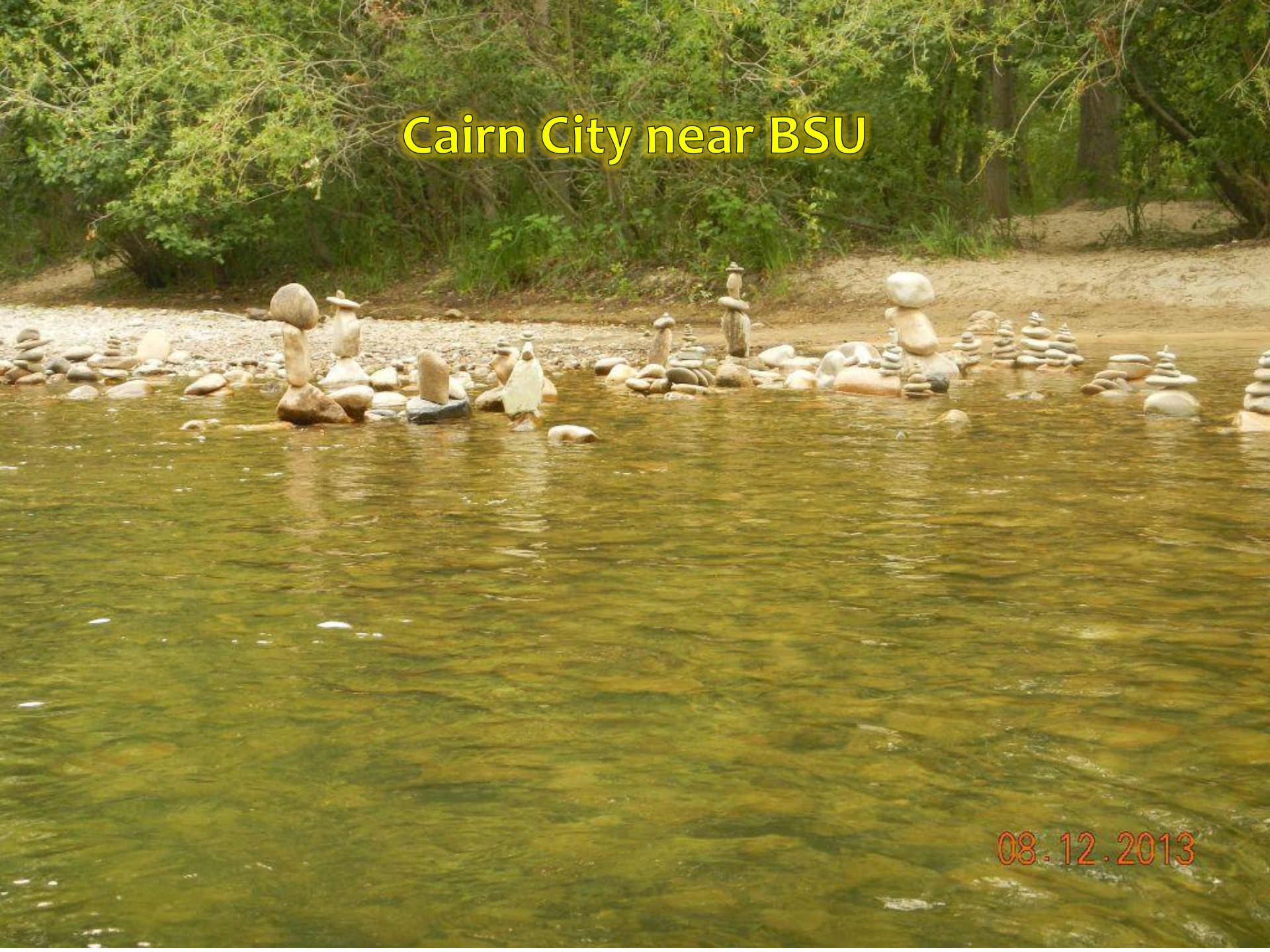


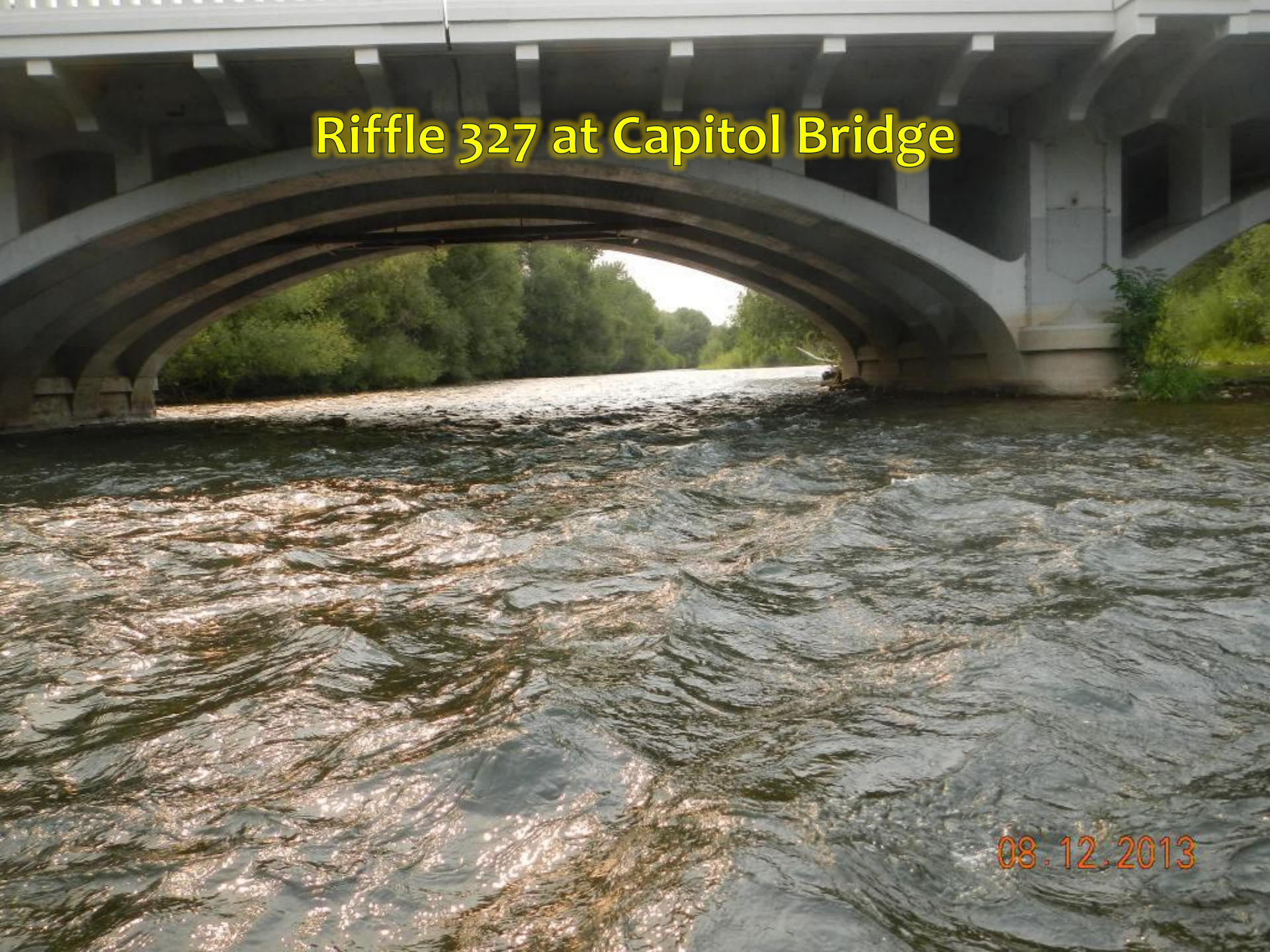
Riffle 317
08 . 12 . 2013

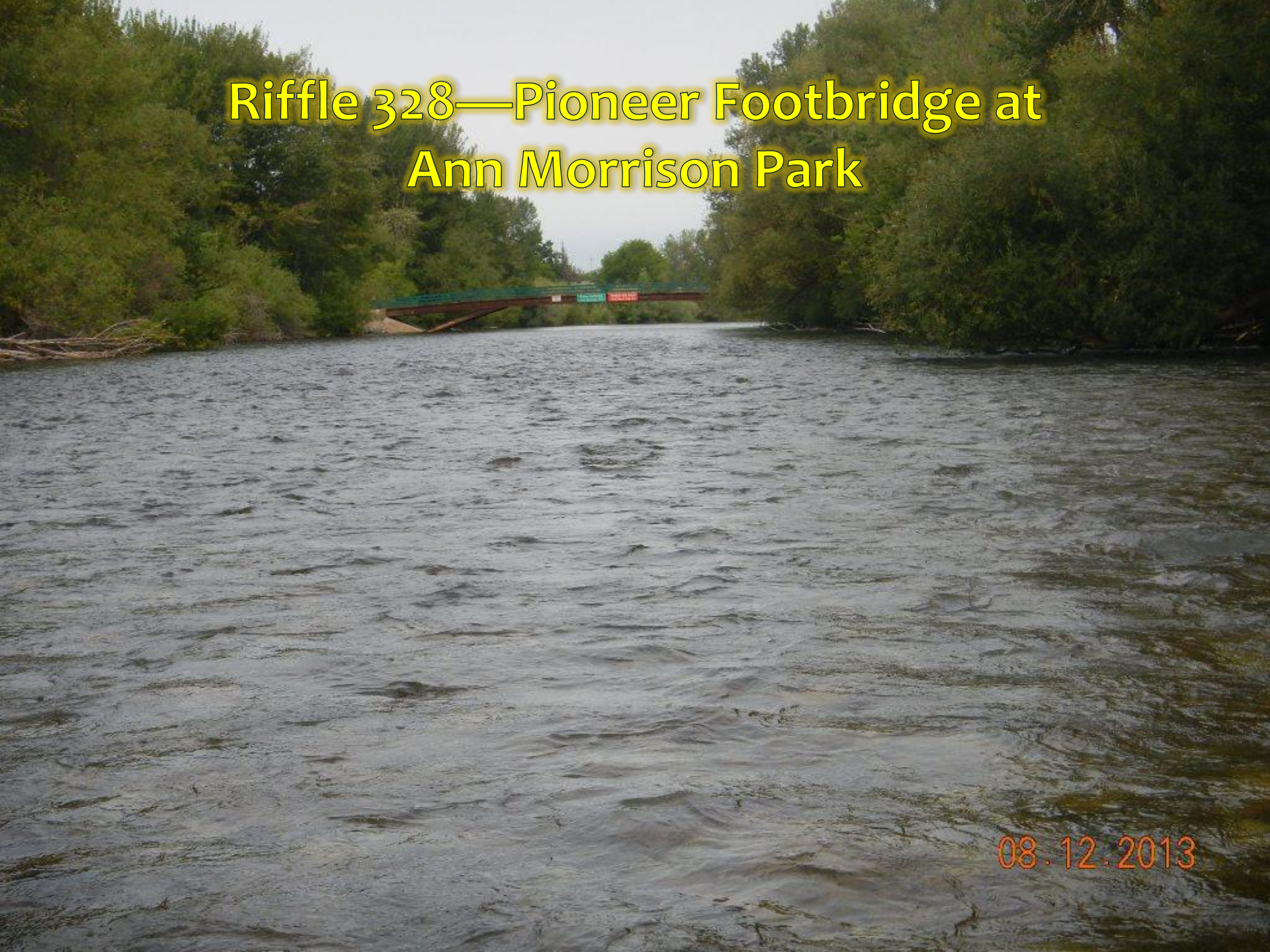
Riffle 320
Park Center Bridge ahead
08.12.2013

Riffle 323
08.12.2013

Riffle 325
08.12.2013


Cairn City near BSU
08.12.2013

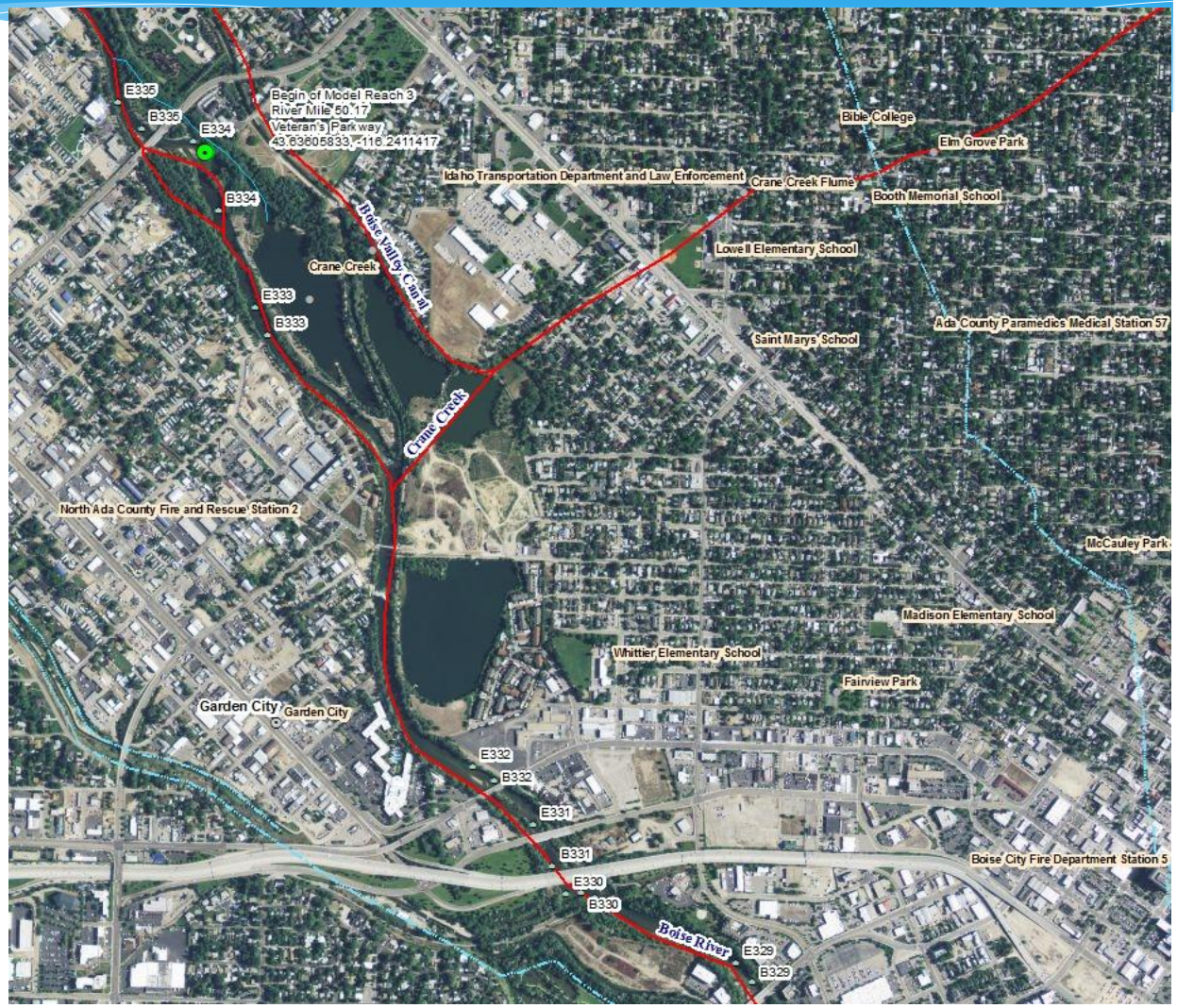

Riffle 327 at Capitol Bridge
08.12.2013


Riffle 328—Pioneer Footbridge at
Ann Morrison Park
08.12.2013

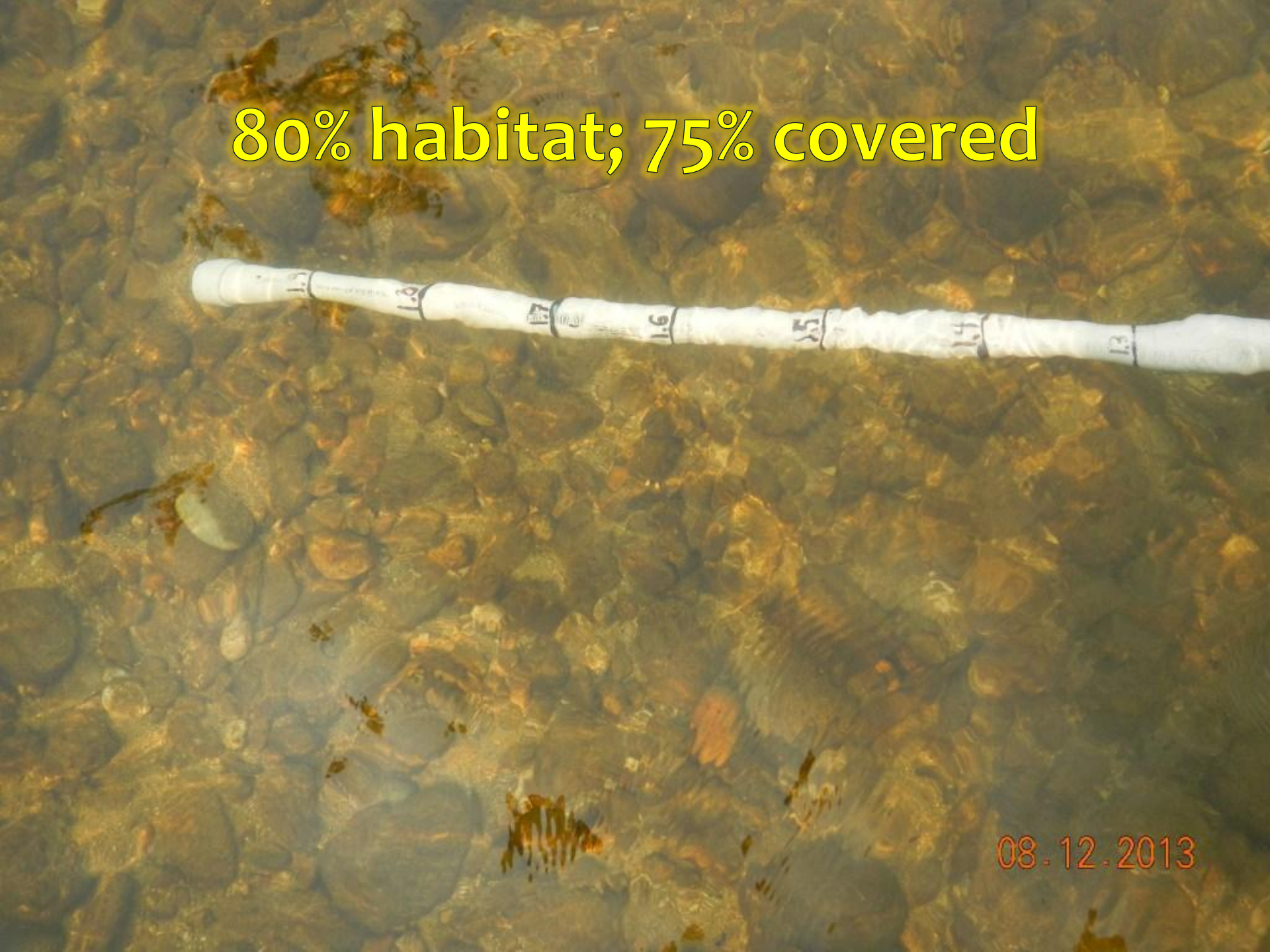
Riffles 329-334

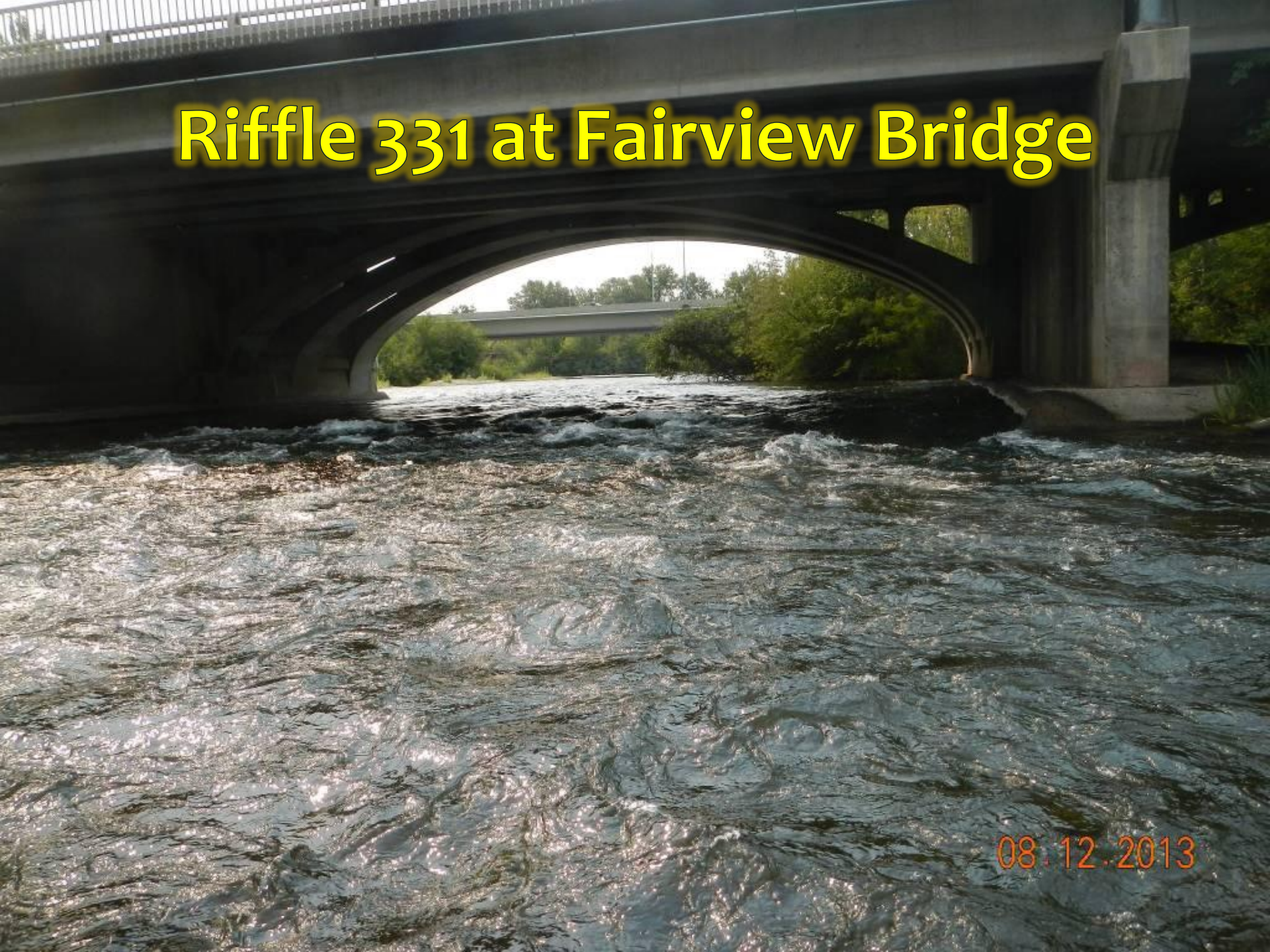
- 73% habitat
- 66% covered
- 1.3 meter visibility

Beginning in this reach, periphyton coverage was systematically higher than in the upstream reaches.



Riffle 329—Americana Road bridge
08.12.2013


80% habitat; 75% covered
08.12.2013


Riffle 331 at Fairview Bridge
08.12.2013

Drain or channel on left bank near
Joe's Crab Shack
08.12.2013

Riffle 334 by Veteran's Memorial Park
08 . 12 . 2013

Aquatox Model Segment 2 Summaries in comparison to Segment 1

Segment 2, Barber Park through Ann Morrison

* Average periphyton = 5%
  * 86% habitat
  * 6% coverage
* 1.9 meter visibility

Segment 2, Americana through Veteran's Bridge

* Average periphyton = 48%
  * 73% habitat
  * 66% coverage
* 1.3 meter visibility

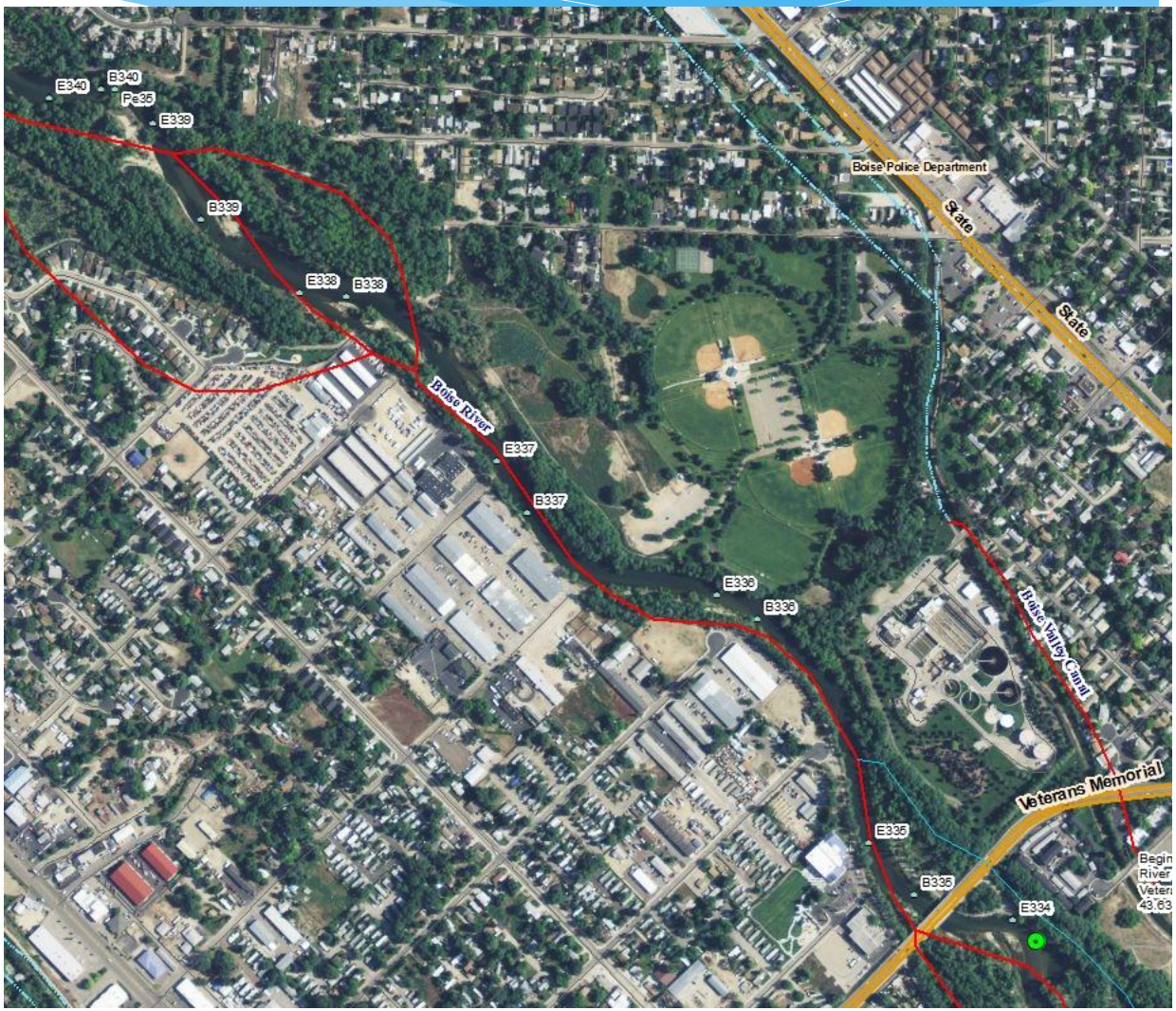
Segment 1

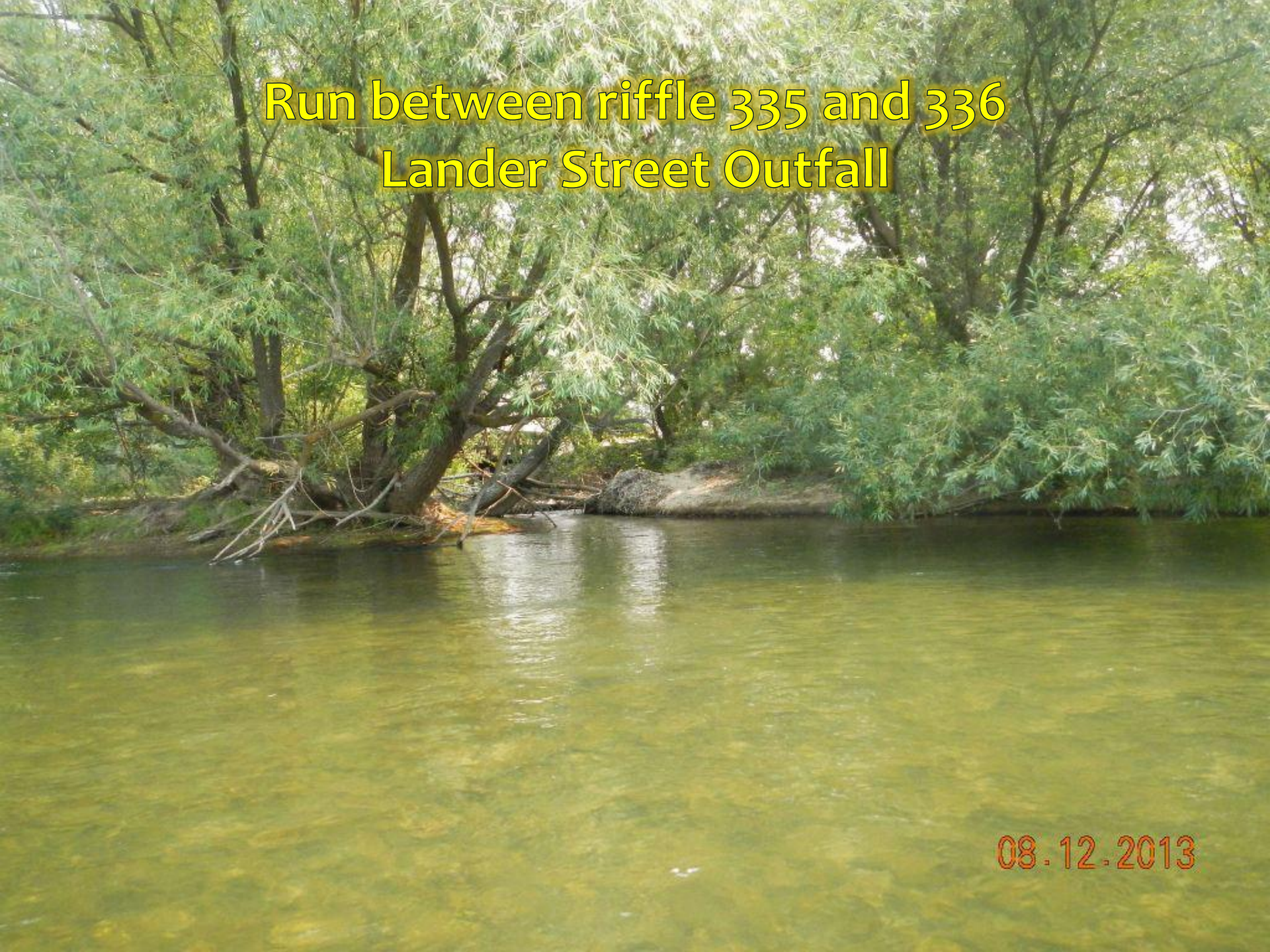
* Average periphyton = 4%
  * 49% habitat
  * 9% coverage
* 1.8 meter visibility

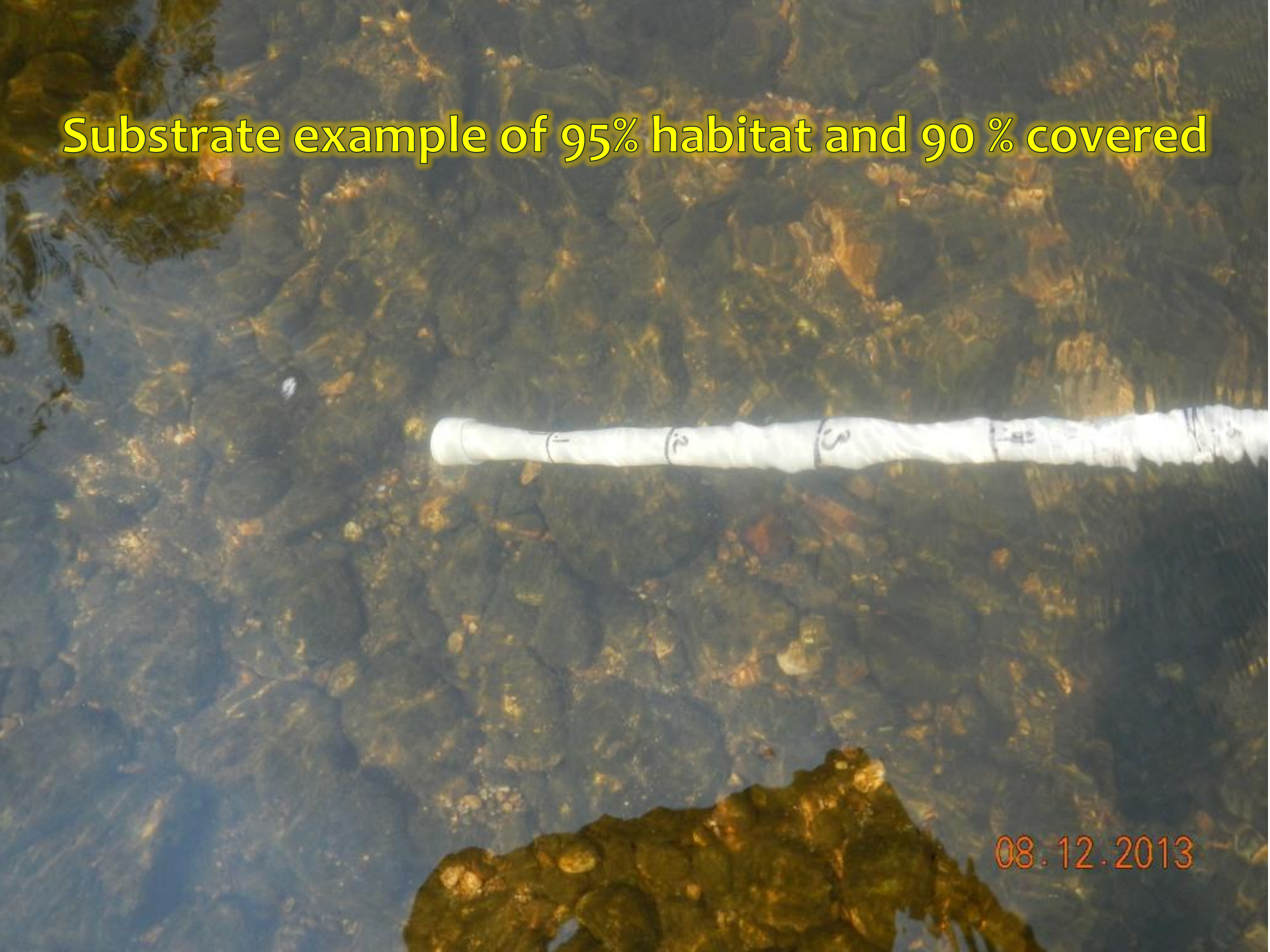
Aquatox Model Segment 3
Begin of Model Reach 4
River Mile 47.5
Boise River at Glenwood Bridge
USGS 13206000
43.66104167, -116.2796389
E349
E348
B348
E347
B347
E346
B346
E345
B345
E344
B344
E343
B343
E342
B342
E341
B341
E340
Pe35
B340
B339
E338
B338
E337
B337
E336
B336
E335
B335
E334
Western Idaho Fairgrounds
Collister
Collister Elementary School
Hillside Junior High School
Collister Shopping Center
Boise City Fire Department Station 9
Boise Police Department
Bradley Field
Capital Senior High School
Taft Elementary School
Sunset Park
West State
Boise Police Department
Begin of Model Reach 3
River Mile 50.17
Veteran's Parkway
43.63605833, -116.2411417
Idaho Transportation Department and Law Enforcement
Legend
8_12_rifflerunpool
Towns
Canals
Realtime USGS Stream Gages
ADB Support 2010
Not Supporting
Not Assessed
Fully Supporting
0
0.3
0.6
1.2 Miles

Riffles 335-340— Veteran's Bridge through Lakeharbor development

- 86% habitat
- 81% covered
- 1.5 meter visibility



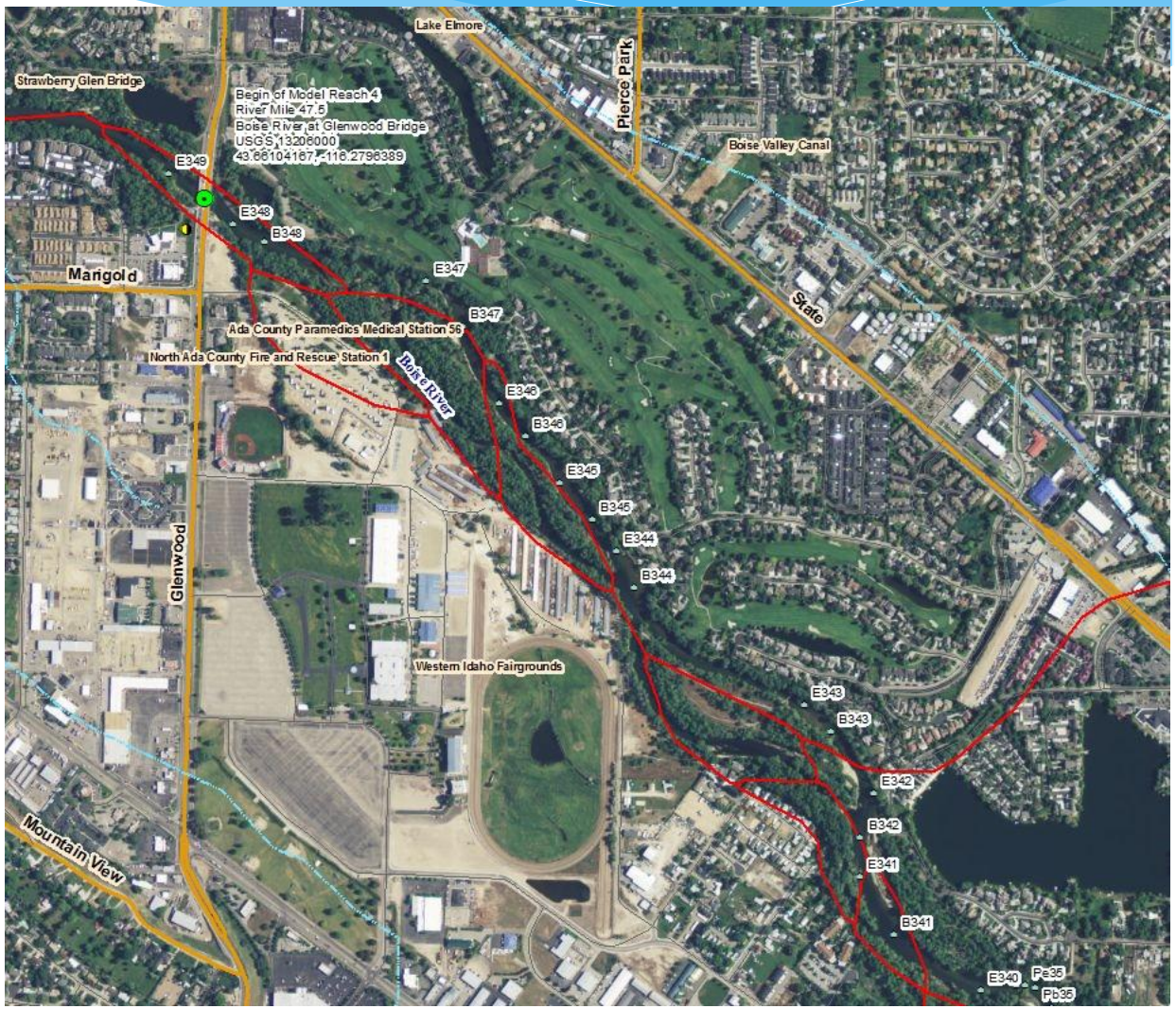

Run between riffle 335 and 336
Lander Street Outfall
08.12.2013


Substrate example of 95% habitat and 90 % covered
08.12.2013

Riffle 340
08.12.2013

Riffles 341-348

- 97% habitat
- 60% covered
- 1.5 meter visibility



Riffle 341
08.12.2013

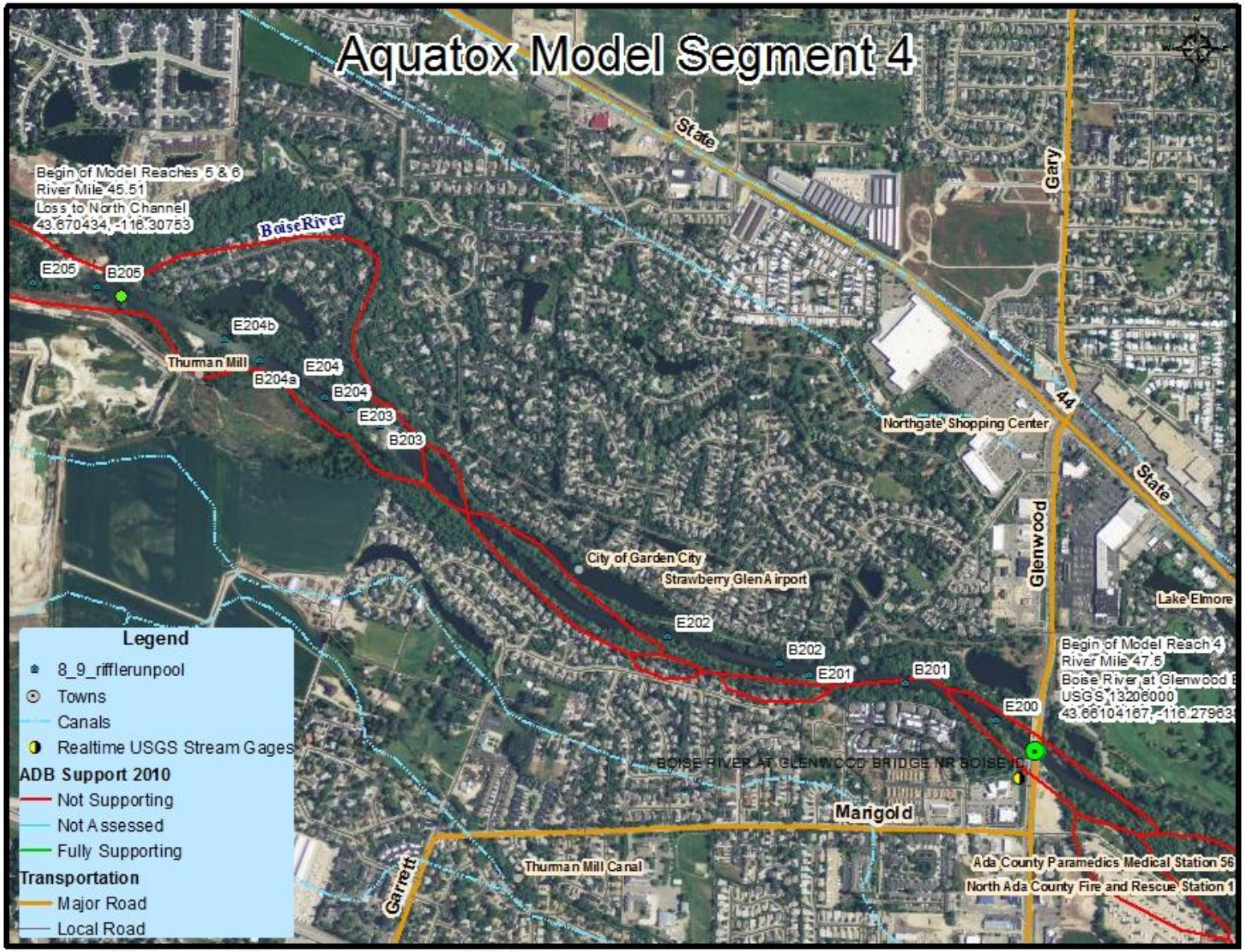
Substrate between Riffles 342 and 343
08.12.2013

Riffle 347
08.12.2013

Riffle 348 and Glenwood Road bridge
08.12.2013

Aquatox Model Segment 3 Summary

* Average periphyton = 72%
  * 92% habitat
  * 71% coverage
* 1.4 meter visibility


Aquatox Model Segment 4
State
Gary
Begin of Model Reaches 5 & 6
River Mile 45.51
Loss to North Channel
43.670434, -116.30753
Boise River
E205
B205
E204b
Thurman Mill
E204
B204a
B204
E203
B203
Northgate Shopping Center
44
State
Glenwood
City of Garden City
Strawberry Glen Airport
Lake Elmore
E202
B202
E201
B201
Begin of Model Reach 4
River Mile 47.5
Boise River at Glenwood
USGS 13206000
43.66104167, -116.27963
E200
BOISE RIVER AT GLENWOOD BRIDGE NR BOISE ID
Marigold
Garrett
Thurman Mill Canal
Ada County Paramedics Medical Station 56
North Ada County Fire and Rescue Station 1
Legend
8_9_rifflerunpool
Towns
Canals
Realtime USGS Stream Gages
ADB Support 2010
Not Supporting
Not Assessed
Fully Supporting
Transportation
Major Road
Local Road
0
0.175
0.35
0.7 Miles

Substrate near Glenwood Bridge
100% covered
08.09.2013

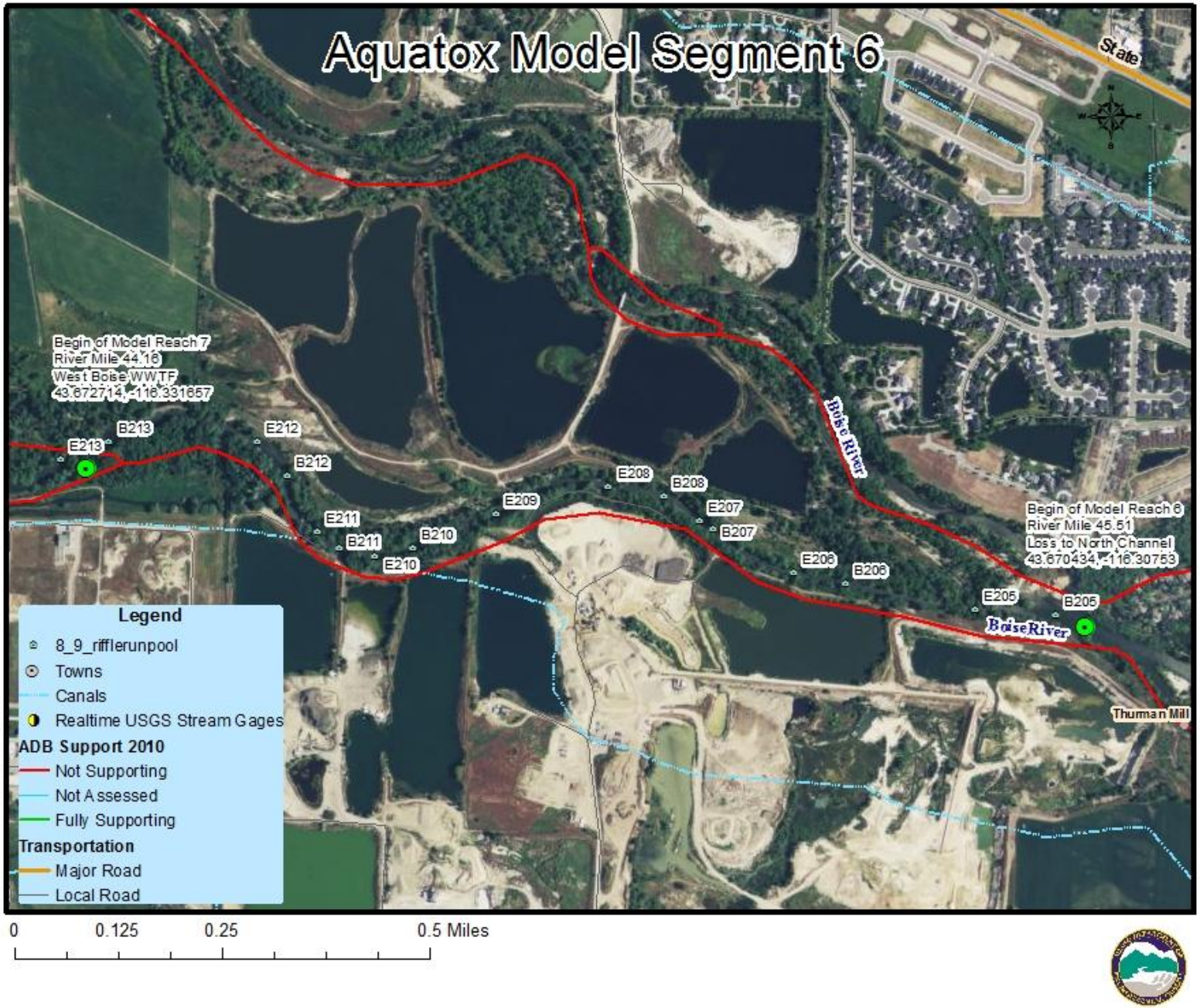
Substrate near Glenwood Bridge
60% covered
08.09.2013

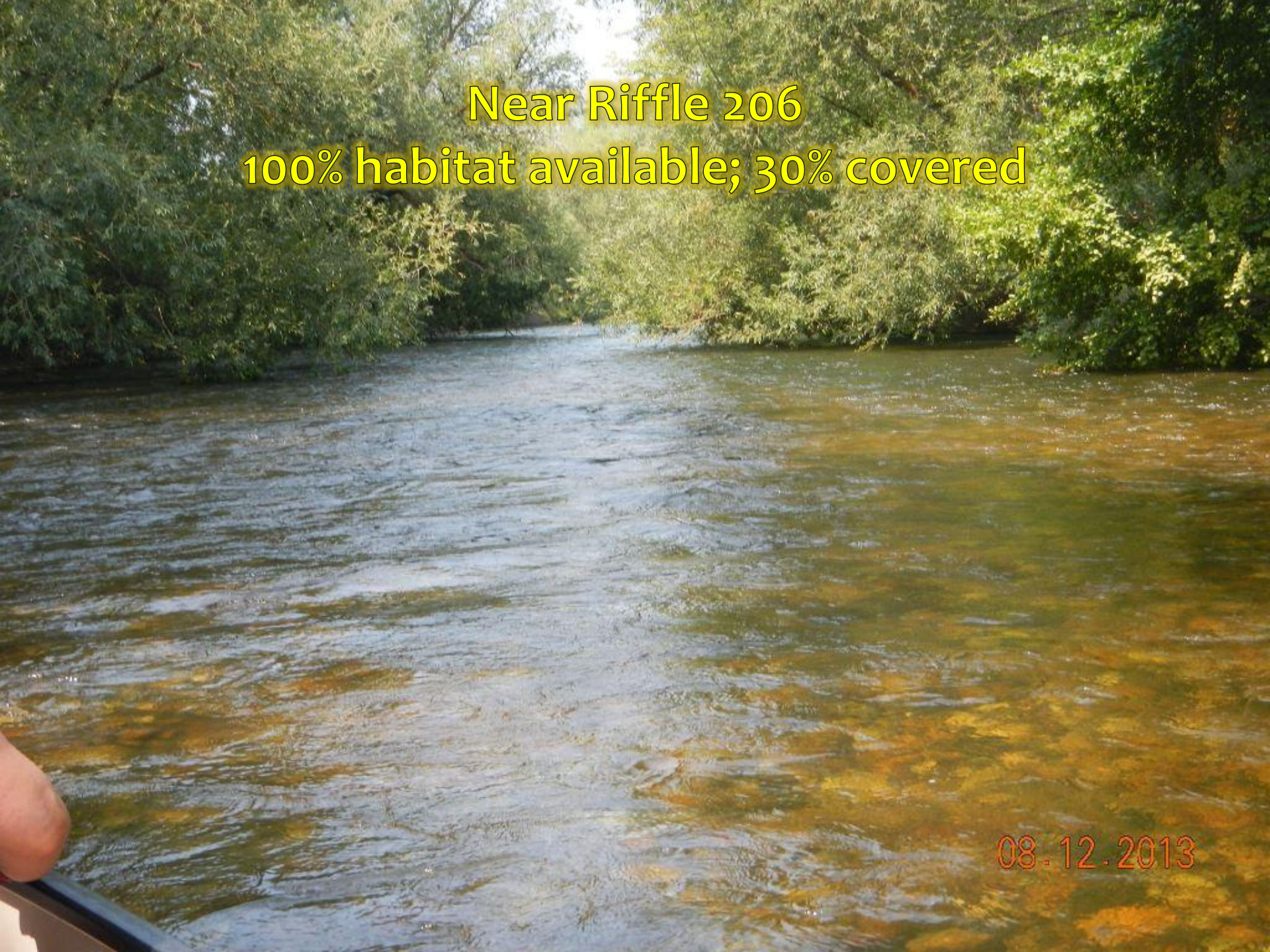
Drain in long run between riffles 202 and 203
08.09.2013

08.12.2013

Aquatox Model Segment 4 Summary

* Average periphyton = 71%
  * 95% habitat
  * 75% coverage
* 1.3 meter visibility


Aquatox Model Segment 6
State
Begin of Model Reach 7
River Mile 44.16
West Boise WWTF
43.672714, -116.331657
B213
E213
E212
B212
E211
B211
B210
E210
E209
E208
B208
E207
B207
E206
B206
E205
B205
Boise River
Begin of Model Reach 6
River Mile 45.51
Loss to North Channel
43.670434, -116.30753
BoiseRiver
Thurman Mill
Legend
8_9_rifflerunpool
Towns
Canals
Realtime USGS Stream Gages
ADB Support 2010
Not Supporting
Not Assessed
Fully Supporting
Transportation
Major Road
Local Road
0
0.125
0.25
0.5 Miles


Near Riffle 206
100% habitat available; 30% covered
08.12.2013

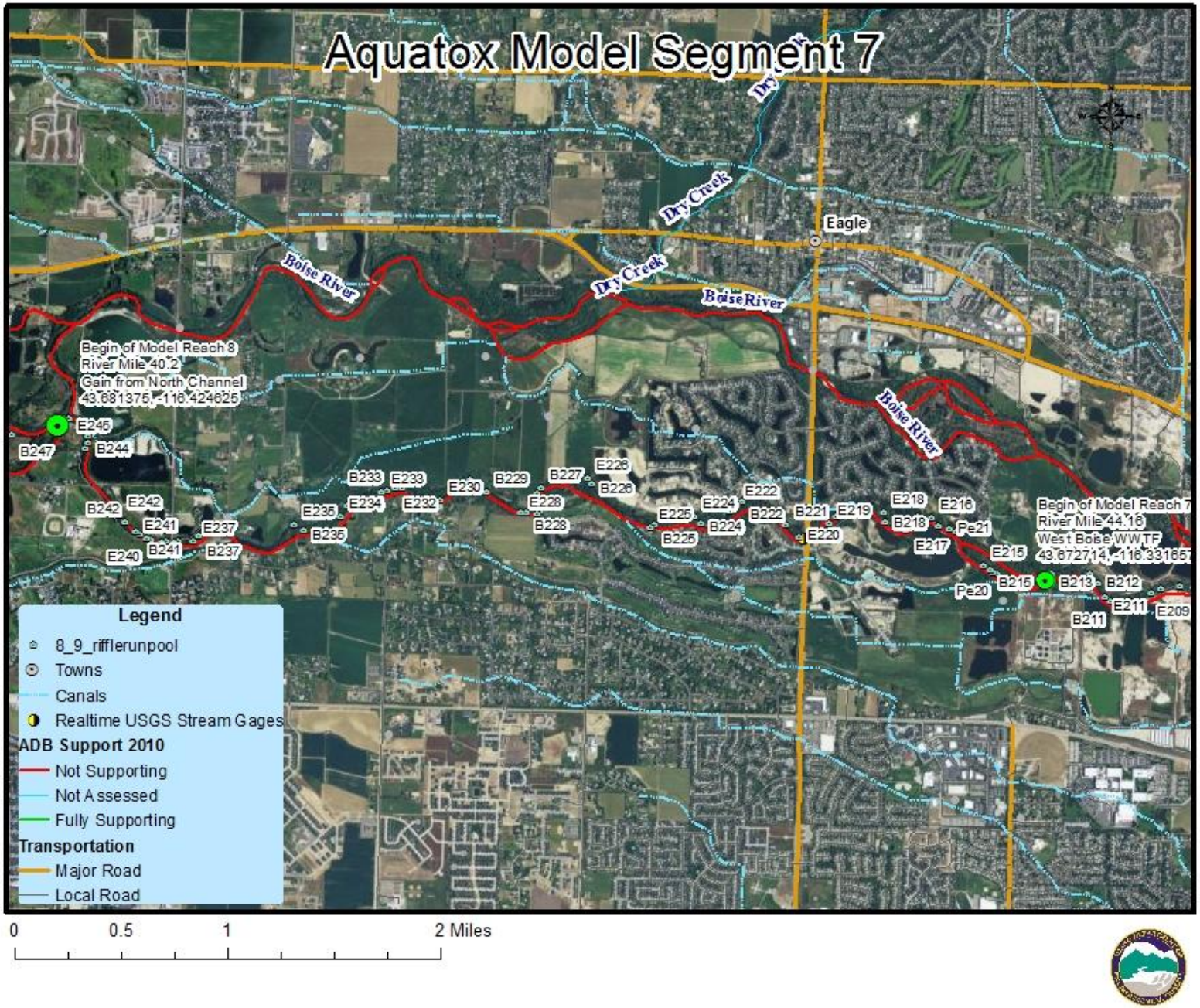
Milky side channel between Riffles 209 and 210
08.12.2013

River Mile 44.16
West Boise WWTF
43.672714, -116.331657
Milky side channel=runoff from gravel excavation
E213
E212
B212
E211
B211
E210
B210
E209
B209
E208
B208
E207
B207
E206
B206
E205
Boise River

Riffle 213
08.12.2013

Aquatox Model Segment 6 Summary

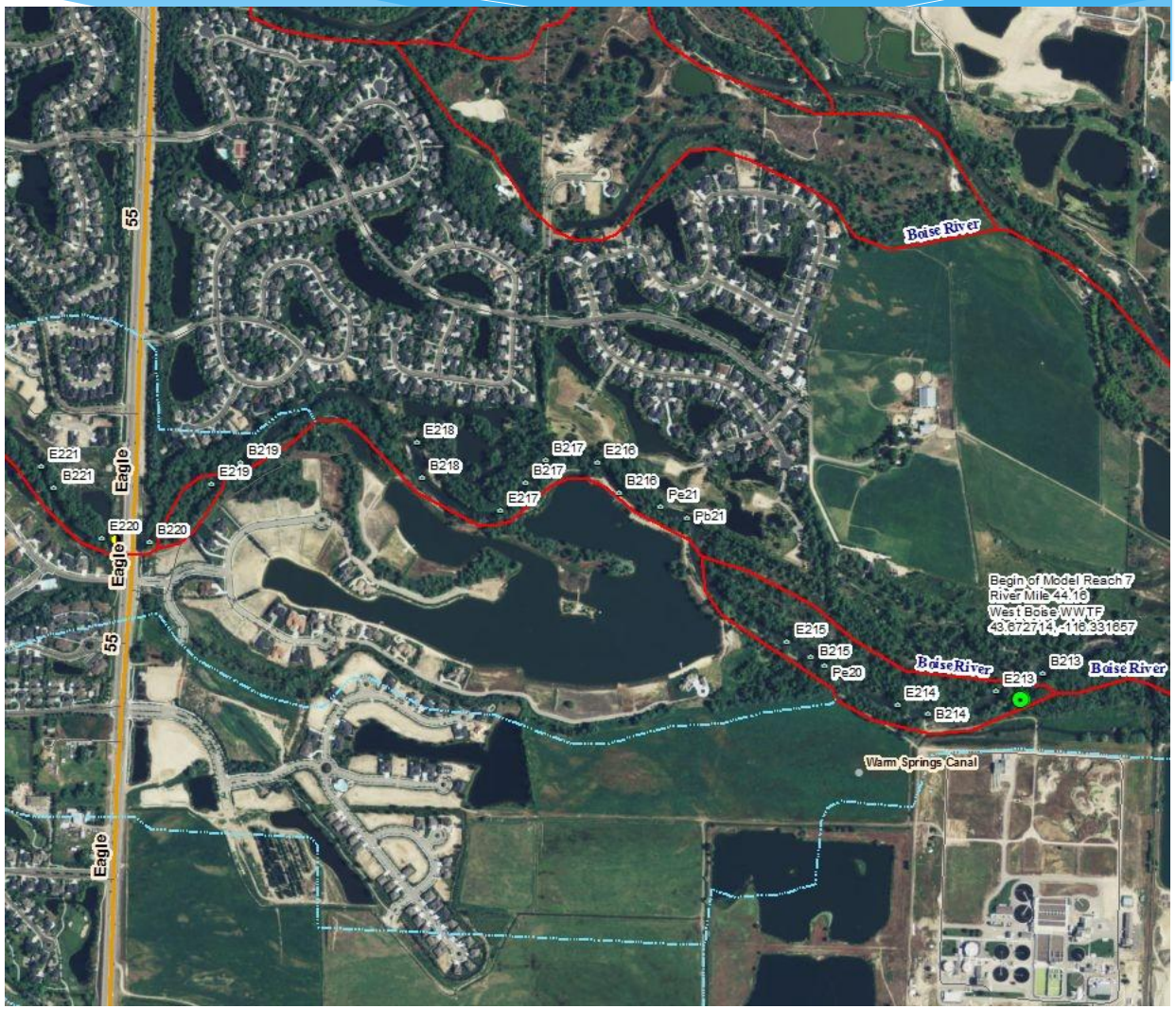
* Average periphyton = 71%
  * 96% habitat
  * 50% coverage
* 1.3 meter visibility



Aquatox Model Segment 7
Dry Creek
Eagle
Boise River
Begin of Model Reach 8
River Mile 40.2
Gain from North Channel
43.681375, -116.424625
Begin of Model Reach 7
River Mile 44.16
West Boise WWTF
43.672714, -116.33165
E245
B247
B244
B242
E242
E241
E237
E240
B241
B237
B233
E233
E235
E234
E232
B235
E230
B229
B227
E226
B226
E228
B228
E225
B225
E224
B224
E222
B222
B221
E219
E220
E218
B218
E216
Pe21
E217
E215
B215
B213
B212
Pe20
E211
E209
B211
Legend
8_9_rifflerunpool
Towns
Canals
Realtime USGS Stream Gages
ADB Support 2010
Not Supporting
Not Assessed
Fully Supporting
Transportation
Major Road
Local Road
0
0.5
1
2 Miles

Riffles 214-220

- 91% habitat
- 70% covered
- 1.3 meter visibility

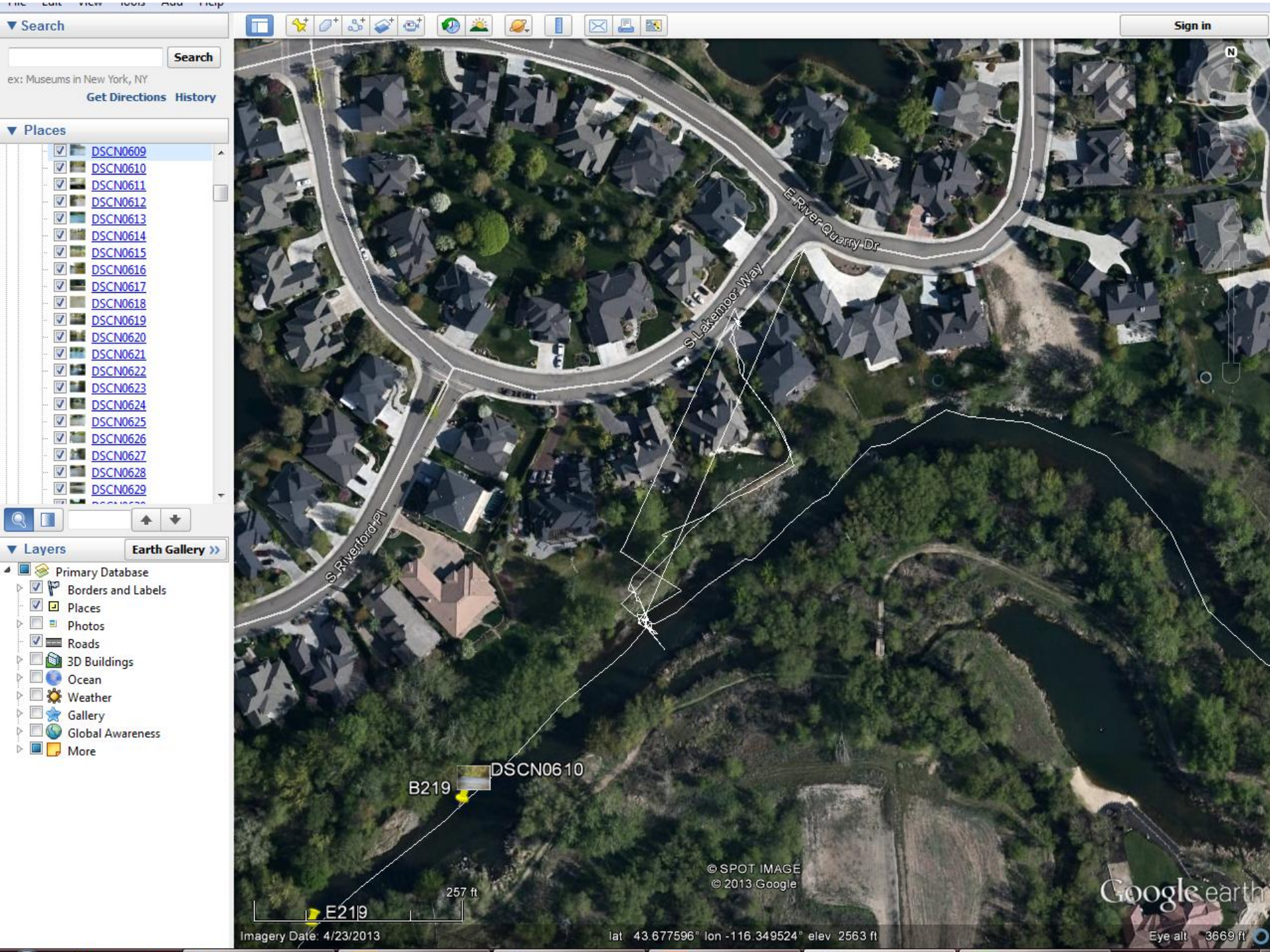


Riffle 214
08.12.2013

Riffle 216
08.12.2013

Pool 20
08.12.2013

Riffle 218
08.09.2013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ex: Museums in New York, NY
Get Directions
History
Places
DSCN0609
DSCN0610
DSCN0611
DSCN0612
DSCN0613
DSCN0614
DSCN0615
DSCN0616
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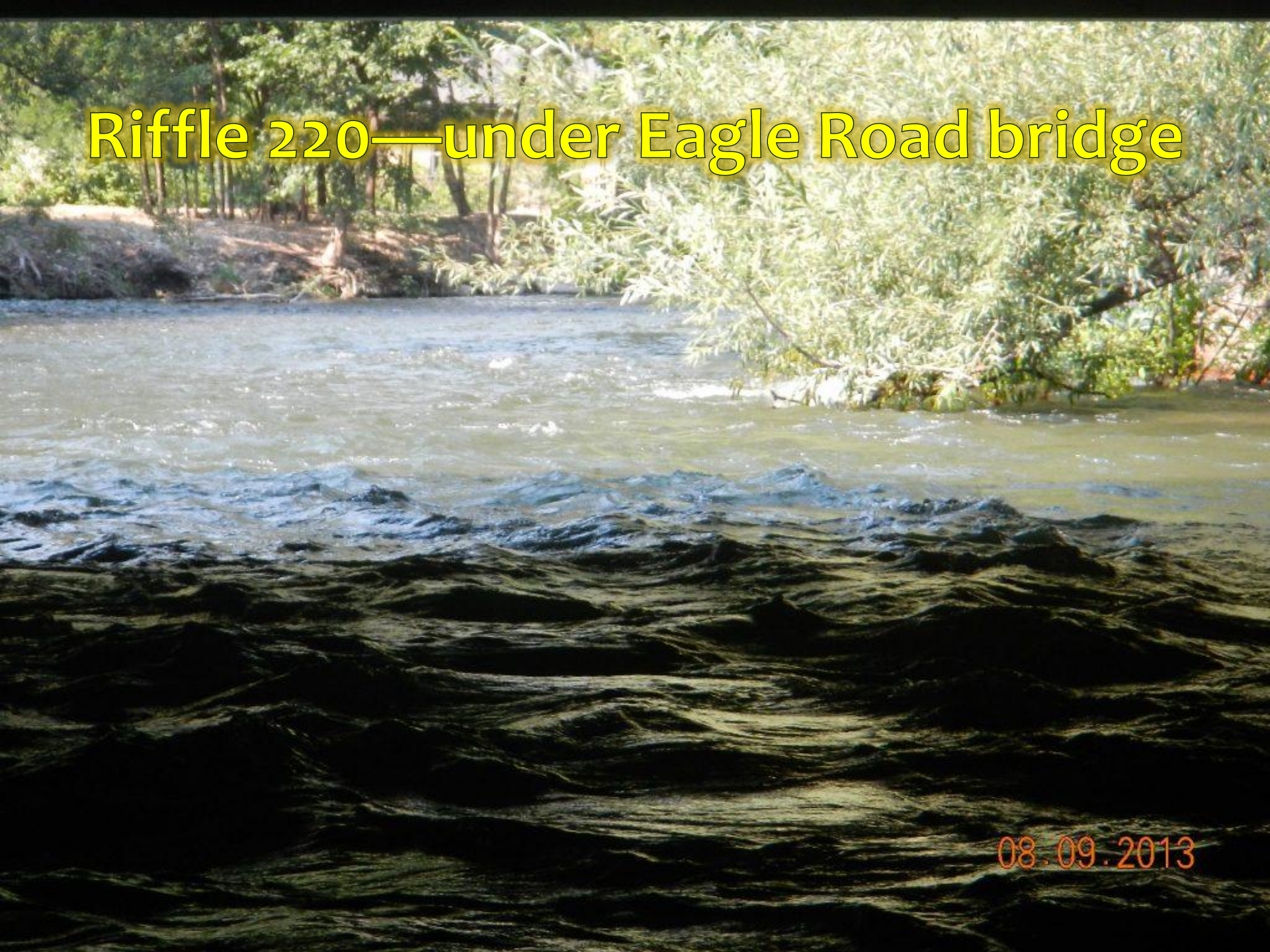
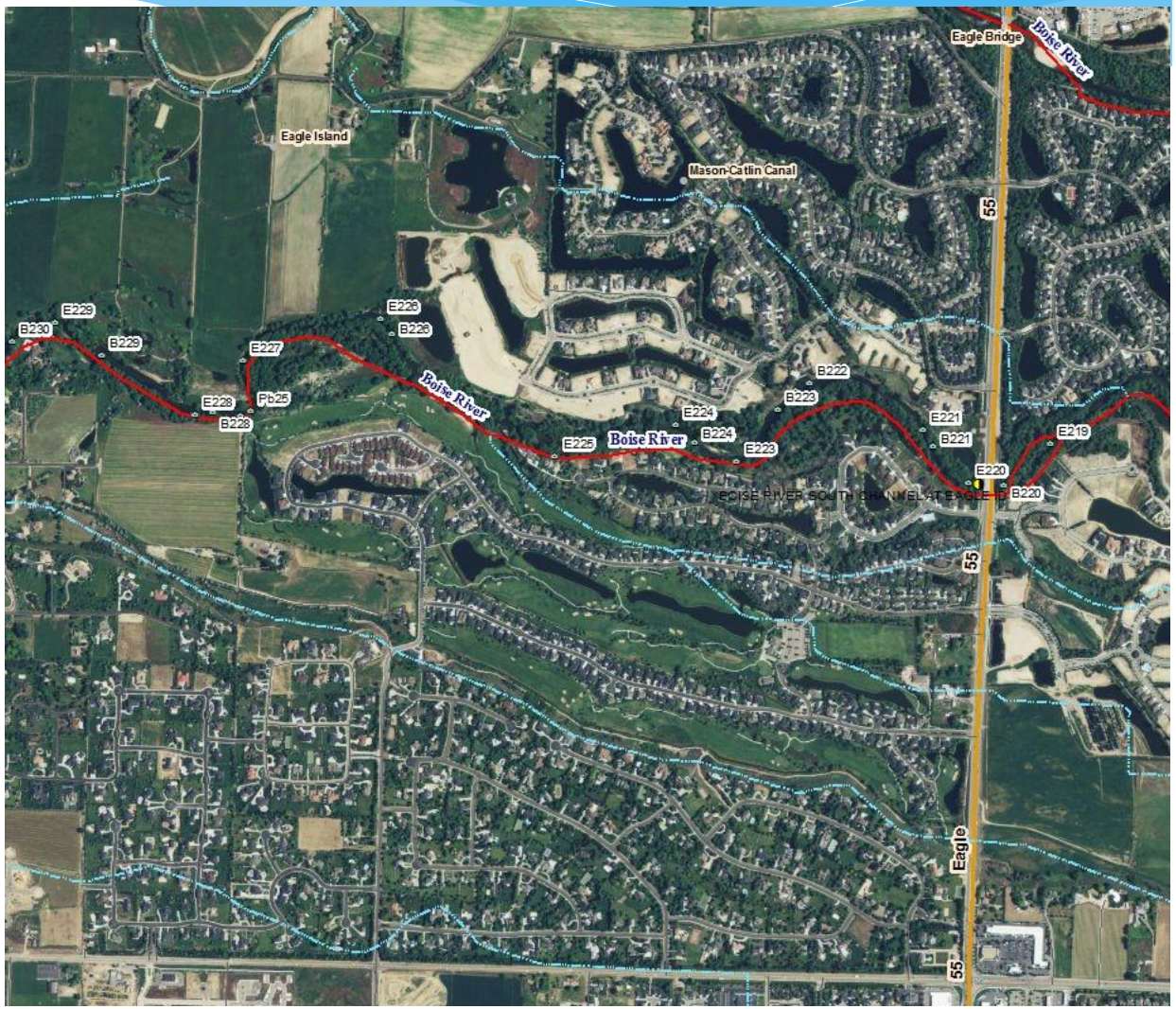
DSCN0625
DSCN0626
DSCN0627
DSCN0628
DSCN0629
Layers
Earth Gallery
Primary Database
Borders and Labels
Places
Photos
Roads
3D Buildings
Ocean
Weather
Gallery
Global Awareness
More
Sign in
E River Quarry Dr
S Lakemoor Way
S Riverford Pl
DSCN0610
B219
E219
257 ft
© SPOT IMAGE
© 2013 Google
Google earth
Imagery Date: 4/23/2013
lat 43.677596° lon -116.349524° elev 2563 ft
Eye alt 3669 ft

Riffle 219
08.09.2013

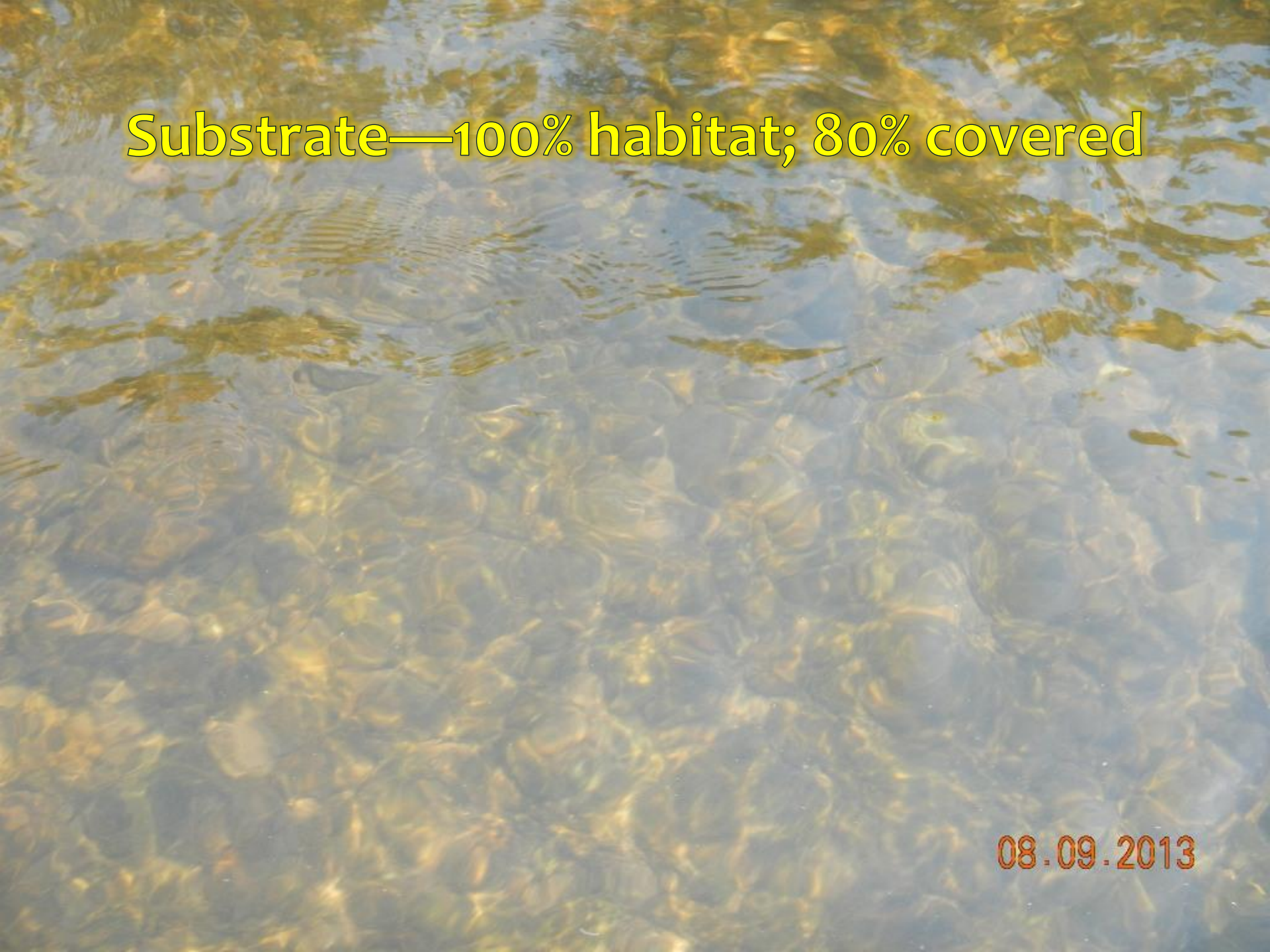

Riffle 220—under Eagle Road bridge
08.09.2013

Riffles 221—229
Eagle bridge to Eagle Island

- 94% habitat
- 62% covered
- 1.1 meter visibility



Riffle 225
08.09.2013


Substrate—100% habitat; 80% covered
08.09.2013

Riffle 229
08.09.2013

Riffles 230—246

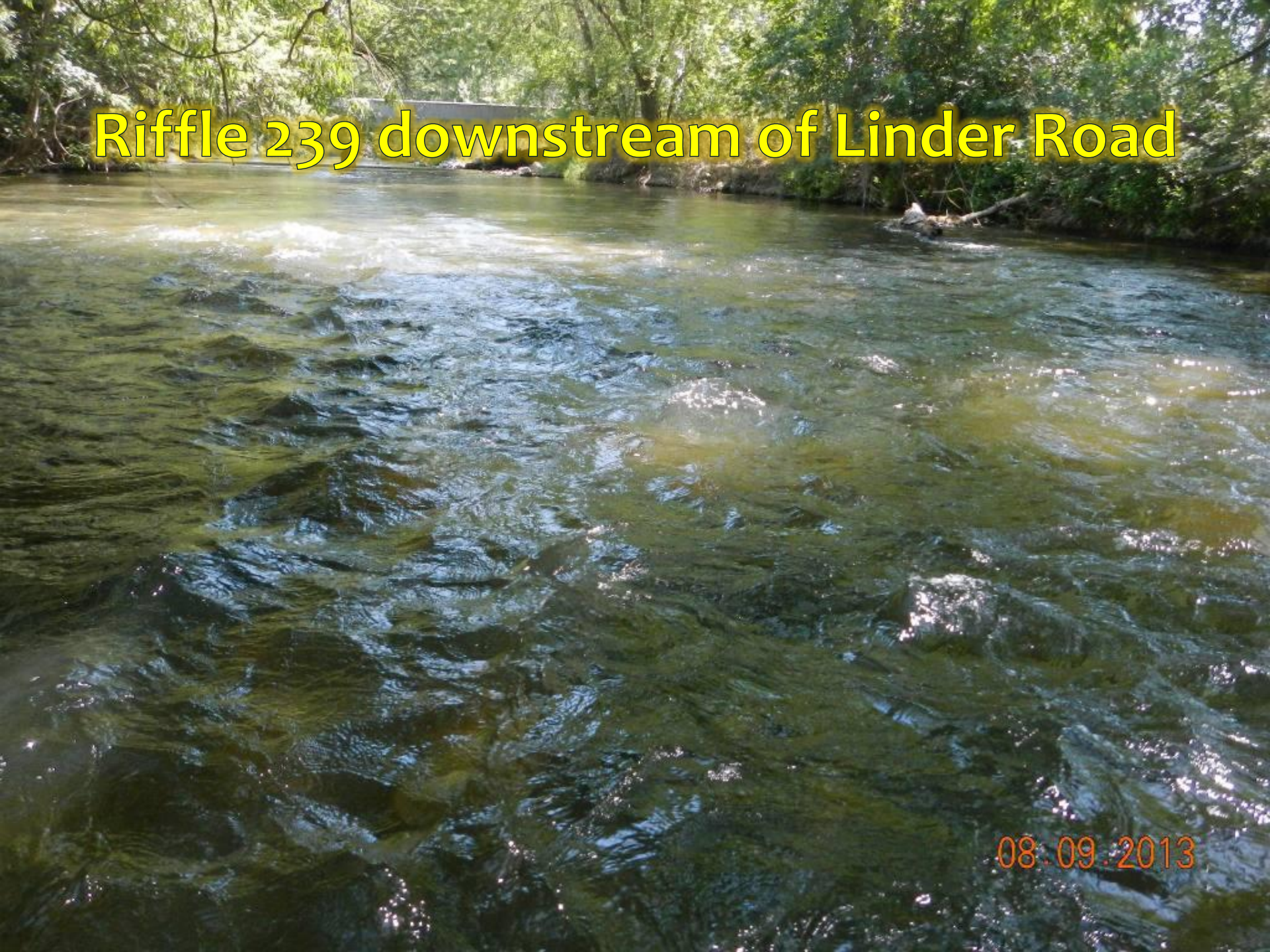
- 68% habitat
- 74% covered
- 1.1 meter visibility

Riffle 234
08.09.2013

Side channel south side
08.09.2013

08.09.2013

Phyllis Diversion
08.09.2013


Riffle 239 downstream of Linder Road
08.09.2013

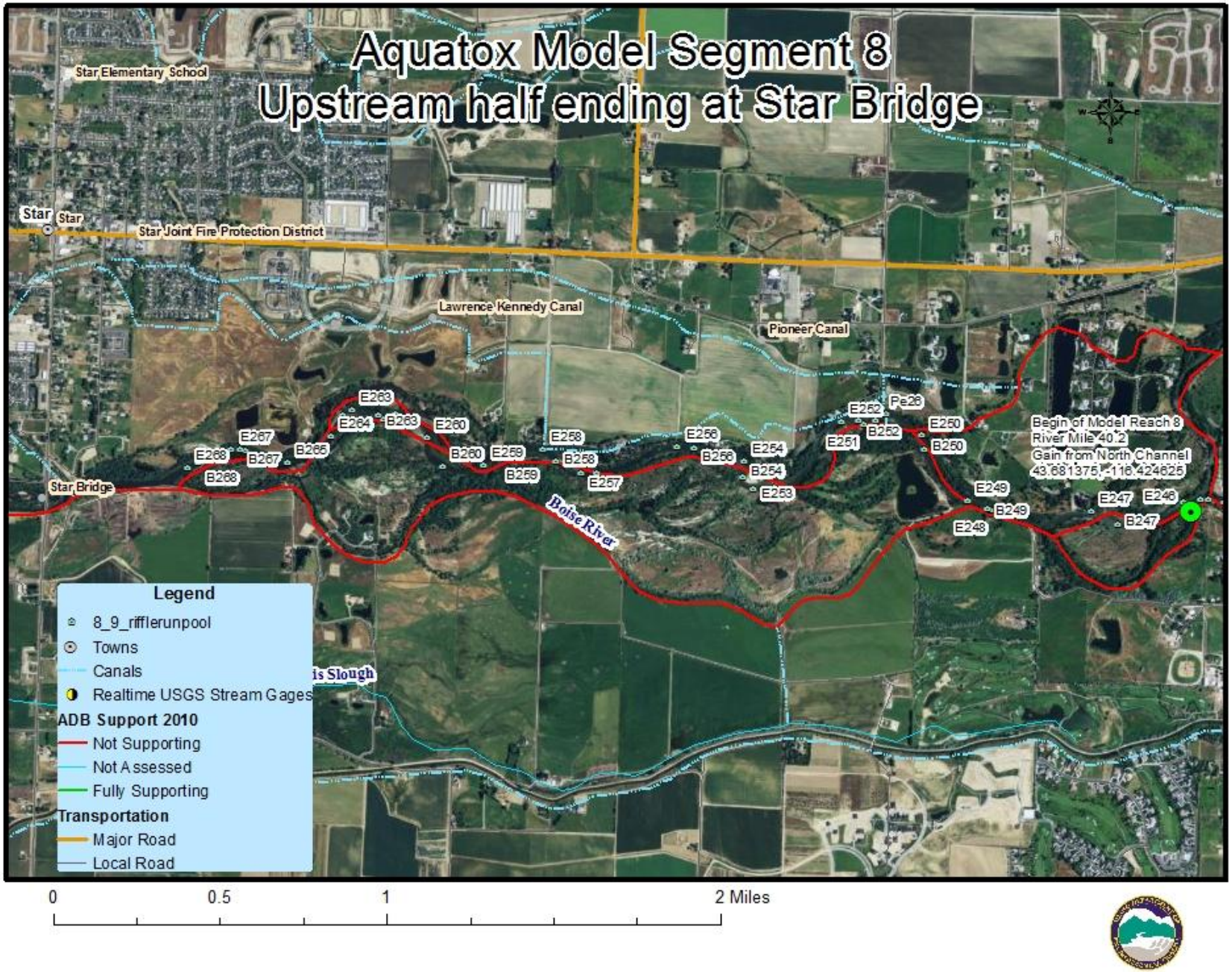
Riffle 242
08.09.2013

Gain from North Channel
43.681375, -116.424625
E245
B245
E244
B244
E243
B243
Boise River
E242
B242
E241
B241
E240
B240
E239
B239
E238
B238
E237
B237
E236
B236
Boise River
Seven Suckers Ditch
Eagle Hatchery
North Slough

Riffle 246
08.09.2013

Aquatox Model Segment 7 Summary

* Average periphyton = 55%
  * 79% habitat
  * 70% coverage
* 1.1 meter visibility


Aquatox Model Segment 8
Upstream half ending at Star Bridge
Star Elementary School
Star
Star
Star Joint Fire Protection District
Lawrence Kennedy Canal
Pioneer Canal
E263
E264
B263
E260
E267
B265
E268
B267
B268
B260
E259
B259
E258
B258
E257
E256
B256
E254
B254
E253
E252
Pe26
B252
E251
E250
B250
Begin of Model Reach 8
River Mile 40.2
Gain from North Channel
43.681375, -116.424625
E249
B249
E248
E247
E246
B247
Star Bridge
Boise River
is Slough
Legend
8_9_rifflerunpool
Towns
Canals
Realtime USGS Stream Gages
ADB Support 2010
Not Supporting
Not Assessed
Fully Supporting
Transportation
Major Road
Local Road
0
0.5
1
2 Miles

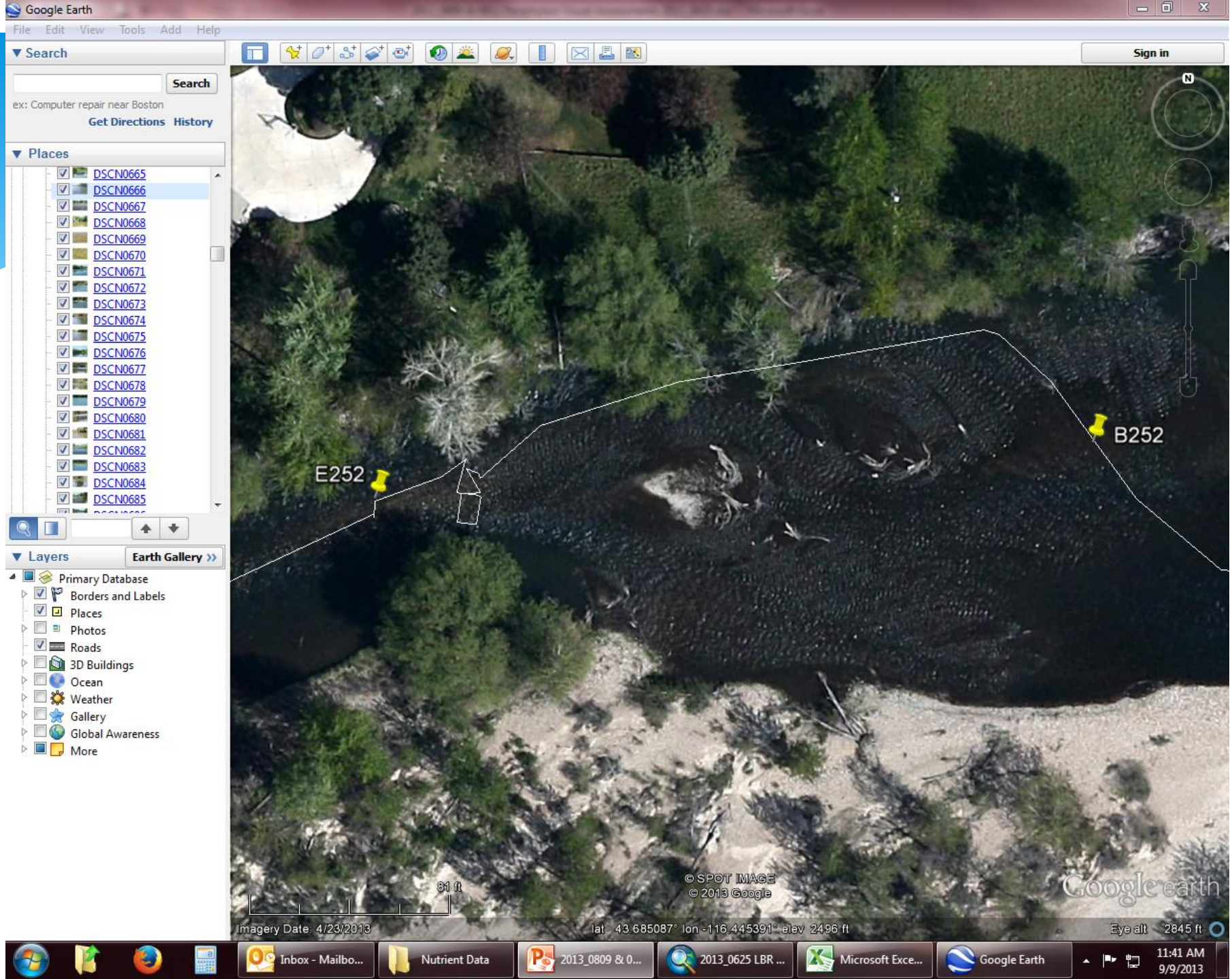
Riffles 247-256

- 78% habitat
- 80% covered
- 1.1 meter visibility

Riffle 247
08.09.2013

Pool 26
08.09.2013

Riffle 251
08.09.2013


Google Earth
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ex: Computer repair near Boston
Get Directions History
Places
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Layers
Earth Gallery
Primary Database
Borders and Labels
Places
Photos
Roads
3D Buildings
Ocean
Weather
Gallery
Global Awareness
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Imagery Date: 4/23/2013
lat 43.685087° lon -116.445391° elev 2496 ft
Eye alt 2845 ft
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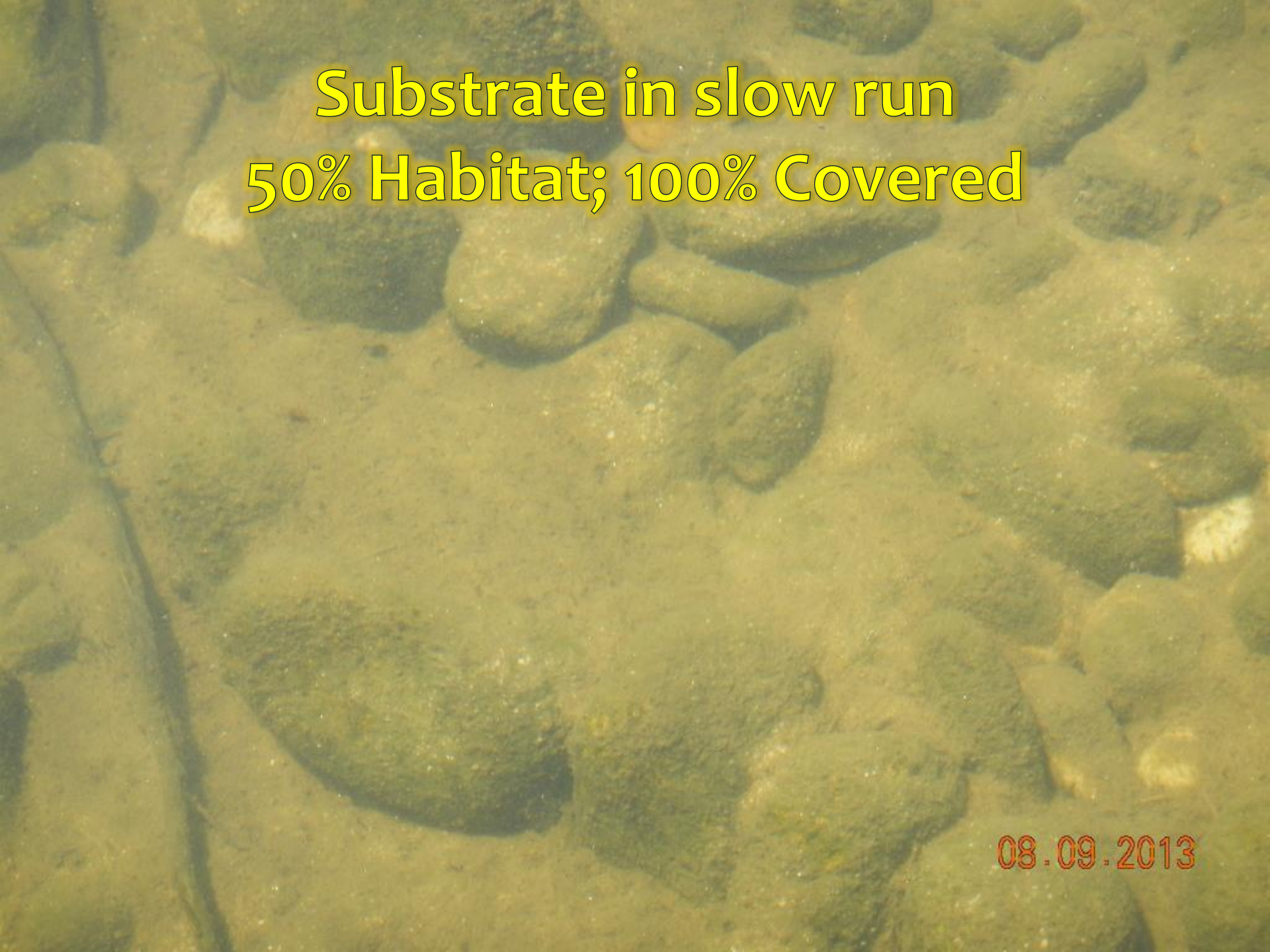
Substrate in slow run
50% Habitat; 100% Covered
08.09.2013

Riffle 254
08.09.2013

Riffles 257-268

- 85% habitat
- 82% covered
- 1.1 meter visibility

New bridge under construction for Highway 16 extension
08.09.2013

Riffle 257 near new bridge
08.09.2013

Riffle 263
08.09.2013

Riffle 268
08.09.2013

Star Bridge Recreation
08.09.2013

Star Bridge Recreation
08.09.2013

Aquatox Model Segment 8—upper half--summary

* Average periphyton = 66%
  * 81% habitat
  * 81% coverage
* 1.1 meter visibility

Aquatox Model Segment Summaries

- Segment 1
- 1.8 meter visibility
- 4% periphyton present
  - 49% habitat available
  - 9% periphyton coverage
- Segment 2
- 1.7 meter visibility
- 16% periphyton present
  - 82% habitat available
  - 20% periphyton coverage
- Segment 3
- 1.5 meter visibility
- 65% periphyton present
  - 92% habitat available
  - 71% periphyton coverage
- Segment 4
- 1.3 meter visibility
- 71% periphyton present
  - 95% habitat available
  - 75% periphyton coverage
- Segment 6
- 1.3 meter visibility
- 49% periphyton present
  - 96% habitat available
  - 51% periphyton coverage
- Segment 7
- 0.9 meter visibility
- 55% periphyton present
  - 79% habitat available
  - 70% periphyton coverage
- Segment 8
- 0.9 meter visibility
- 72% periphyton present
  - 82% habitat available
  - 88% periphyton coverage

Aquatox Model Segment Summaries

* Segment 9
* 0.5 meter visibility
* 67% periphyton present
  * 85% habitat available
  * 79% periphyton coverage

* Segment 10
* 0.4 meter visibility
* 35% periphyton present
  * 83% habitat available
  * 42% periphyton coverage

* Segment 11
* 0.1 meter visibility
* 45% periphyton present
  * %83 habitat available
  * % 54 periphyton coverage

* Segment 12
* 0.1 meter visibility
* 33% periphyton present
  * 82% habitat available
  * 40% periphyton coverage

ATOX Segment	% Run	% Riffle	% Pool		
1	93.0%	4.5%	2.6%		
2	72.6%	26.5%	0.9%		
3	69.2%	30.4%	0.5%		
4	65.5%	34.5%	0.0%		
5	72.8%	26.1%	1.1%	(average of 6 & 7)	
6	62.6%	37.4%	0.0%		
7	75.1%	23.6%	1.3%		
8	68.2%	29.7%	2.0%		
9	69.5%	29.0%	1.5%		
10	80.4%	19.1%	0.5%		
11	72.9%	27.1%	0.0%		
12	75.4%	24.6%	0.0%		
13	75.4%	24.6%	0.0%	(same as 12)	