



Missouri  
Department of  
Natural Resources

Use Attainability Analysis

for

WBID 1935 Shoal Creek

Submitted by  
Olsson Associates

To  
Missouri Department of Natural Resources  
Water Protection Program

On  
October 14, 2008

**Field Data Sheets for Recreational Use Stream Surveys**

**Data Sheet A – Water Body Identification**

**I. Water Body Information** (for water body being surveyed)

Water Body Name (from USGS 7.5' quad): Shoal Cr.
Missouri Water Body Identification (WBID) Number: 1935
8-digit HUC: 07140102
County(ies), Listed Upstream to Downstream: Crawford
Upstream Legal Description (from Table H): 27, 36N, 2W
Downstream Legal Description (from Table H): 10,35N, 2W
Number of sites evaluated: 3
List all site numbers, <u>consecutively upstream to downstream</u> : 1935-1, 1935-2, 1935-3
<b>Include a Site Location Map(s).</b> The map must include all requirements detailed in the <i>Missouri Recreational Use Attainability Analyses: Water Body Survey and Assessment Protocol</i> (Section IV.D.8.a).

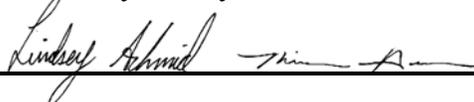
**II. Facility Information** (list all permitted discharges to this water body segment)

Facility Name(s) and Permit Number(s):  Holiday Lake RV Park WWTF MO 0089613
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**III. UAA Surveyor** (please **PRINT** legibly)

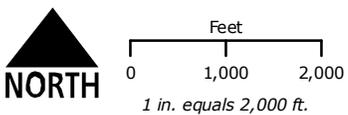
Name of Surveyor: Lindsey Schmid /Micah Hamer	Telephone Number: 417-890-8802
Organization/Employer: Olsson Associates	

**Please verify that you have completed all sections of all data sheets, checked all applicable boxes, provided a map (that includes all requirements listed in the *Missouri Recreational Use Attainability Analyses: Water Body Survey and Assessment Protocol*) and that this form is complete.**

**Signed:**  **Date:** 08-14-08



**MISSOURI RECREATIONAL  
USE ATTAINABILITY ANALYSIS**



**Stream:** Shoal Cr.  
**WBID:** 1935

**Map Sheet:** 1/1  
**County:** Crawford

WBID # 1935

Site # 1

**Field Data Sheets for Recreational Use Stream Surveys**

**Data Sheet B – Site Characterization** (Page 1 of 3)

(must be completed for each site)

<b>Date &amp; Time:</b> 08-14-08                      1:00 p.m.	Location Description (e.g., road crossing): 0.35 miles from point on map (due to lake)
<b>Stream Name:</b> Shoal Cr.	
Current Weather Conditions: Clear	Facility Name(s): Holiday Lake RV Park WWTF
Weather Conditions for Past 10 days: 1.72" @ Rolla	Permit Number(s): MO 0089613
Official Drought Conditions at time of this survey (search DNR home page for "drought"): No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

**Site Location:**

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site 01	Easting (UTM X): 664478	Northing (UTM Y): 4181556	Horizontal Accuracy: (EPE / FOM / PDOP)    58 ft. <del>Meters</del>
Site 11	Easting (UTM X): 664490	Northing (UTM Y): 4181762	Horizontal Accuracy: (EPE / FOM / PDOP)    75 ft. <del>Meters</del>

**Photos:**

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
1935-1-A	Campground /lake	1935-1-B	Upstream looking down	1935-1-C	Downstream looking up
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

**Uses Observed\*:** (Uses actually observed at the time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use <i>Data Sheet D- Recreational Use Interview</i> when conducting interviews.)				

Site # 1

**Field Data Sheets for Recreational Use Stream Surveys**

**Data Sheet B – Site Characterization** (Page 2 of 3)

**Surrounding Conditions\*:** (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input checked="" type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Steep slopes	<input type="checkbox"/> Other:
Comments:				

**Evidence of Human Use\*:** (Attach photos and reference in “Photos” section.)

<input type="checkbox"/> Roads	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Rope swings
<input type="checkbox"/> RV / ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Livestock Watering
<input checked="" type="checkbox"/> None of the above	Comments / Other:			

**Substrate\*:** (These values should add up to 100%.)

% Cobble	60% Gravel	20% Sand	% Silt	% Mud/Clay	20% Bedrock
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**Aquatic Vegetation\*:** (Note amount of vegetation or algal growth at the assessment site.)

Orange algae, 40% algae
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**Water Characteristics\*:** (Mark all that apply.)

Odor:	<input checked="" type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
Bottom Deposit:	<input checked="" type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

\*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Site # 1

**Field Data Sheets for Recreational Use Stream Surveys**

**Data Sheet B – Site Characterization** (Page 3 of 3)

**Additional Stream Morphology:** (Record isolated pools or other features identified during the survey that may support recreational uses.)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)

**Comments:** (Please record any additional comments here.)

**Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.**

Printed Names of Personnel Collecting Data: Lindsey Schmid / Micah Hamer

Surveyor's Signature:  Date of Survey: 08-14-08

Organization: Olsson Associates Position: Field Service

## Field Data Sheets for Recreational Use Stream Surveys

### Data Sheet C - Field Survey Results

Stream Name: <u>Shoal Cr.</u> Waterbody ID: <u>1935</u> Site #: <u>1</u> Estimated Channel Incision: <u>0.1</u> (m) (height between low bank width and water) GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM) <b>01</b> UTM X: <u>664478</u> UTM Y: <u>4181556</u> +/- <u>58 ft.</u> (meters) <b>11</b> UTM X: <u>664490</u> UTM Y: <u>4181762</u> +/- <u>75 ft.</u> (meters) Average Stream Width: <u>2</u> (meters)      Length of Survey Segment: <u>150</u> (meters) (To determine Length of Reach)      (20x average stream width) Field Staff: <u>Lindsey Schmid / Micah Hamer</u>	<b>Dissolved Oxygen</b> Date: <u>08-14-08</u> Time: <u>1:15 p.m.</u> Dissolved Oxygen: <u>3.53</u> (mg/L) Dissolved Oxygen: <u>39.5</u> (% sat) Specific Cond: <u>372</u> (µS/cm) Water Temperature: <u>21.1</u> (°C)
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#### Transect Cross-Section

Station	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)																				
<b>Left Bank</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0.23	0.05	0.25	0.07	0.22	0.14	0.26	0.05	0.11	0.05	0.09	0.05	0.26	0.05	0.13	0.05	0.25	0.05	0.14	0.05	0.21	0.05
2	0.46	0.05	0.50	0.09	0.44	0.16	0.52	0.05	0.22	0.05	0.18	0.05	0.52	0.05	0.26	0.05	0.50	0.05	0.28	0.05	0.42	0.05
3	0.69	0.05	0.75	0.11	0.66	0.13	0.78	0.07	0.33	0.05	0.27	0.05	0.78	0.05	0.39	0.06	0.75	1.20	0.42	0.05	0.63	0.05
4	0.92	0.06	1.00	0.21	0.88	0.14	1.04	0.05	0.44	0.05	0.36	0.05	1.04	0.05	0.52	0.09	1.00	1.30	0.56	0.05	0.84	0.06
5	1.15	0.07	1.25	0.27	1.10	0.13	1.30	0.05	0.55	0.07	0.45	0.05	1.30	0.05	0.65	0.08	1.25	1.30	0.70	0.05	1.05	0.08
6	1.38	0.09	1.50	0.23	1.32	0.07	1.56	0.05	0.66	0.08	0.53	0.05	1.56	0.05	0.78	0.07	1.50	1.40	0.84	0.05	1.26	0.07
7	1.61	0.08	1.75	0.27	1.54	0.05	1.82	0.05	0.77	0.14	0.62	0.05	1.82	0.09	0.91	0.05	1.75	1.70	0.98	0.05	1.47	0.05
8	1.84	0.07	2.00	0.21	1.76	0.05	2.08	0.05	0.88	0.13	0.71	0.05	2.08	0.05	1.04	0.07	2.00	1.90	1.12	0.05	1.68	0.05
9	2.07	0.07	2.25	0.11	1.98	0.05	2.34	0.08	0.99	0.14	0.80	0.09	2.34	0.05	1.17	0.06	2.25	1.90	1.26	0.05	1.89	0.05
<b>Right Bank</b>	2.30	0.00	2.50	0.00	2.20	0.00	2.60	0.00	1.10	0.00	0.89	0.00	2.60	0.00	1.30	0.00	2.50	0.00	1.40	<.05	2.10	0.00
<b>Feature Type</b> <small>(riffle, run, or pool)</small>	Run		Riffle		Run		Run															

**Notes:** Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width  
 GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.  
 Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)  
 Mark dry depth measurements as 0; record actual measurements to 0.1 meter unless depth is too deep to measure (then record as > 1)  
 All measurements to be taken to the nearest 0.01 meter.

MAXIMUM      1.90  
 MEDIAN      0.05

Surveyor's Signature:



Date: 08-14-08

**Field Data Sheets for Recreational Use Stream Surveys**

**Data Sheet B – Site Characterization** (Page 1 of 3)

(must be completed for each site)

<b>Date &amp; Time:</b> 08-14-08 2:00 p.m.	Location Description (e.g., road crossing):
<b>Stream Name:</b> Shoal Cr.	Road crossing
Current Weather Conditions: Partly cloudy	Facility Name(s): Holiday Lake RV Park WWTF
Weather Conditions for Past 10 days: 1.72" @ Rolla	Permit Number(s): MO 0089613
Official Drought Conditions at time of this survey (search DNR home page for "drought"): No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

**Site Location:**

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site 01	Easting (UTM X): 664188	Northing (UTM Y): 4183294	Horizontal Accuracy: (EPE / FOM / PDOP) 53 ft. <del>Meters</del>
Site 11	Easting (UTM X): 664184	Northing (UTM Y): 4183474	Horizontal Accuracy: (EPE / FOM / PDOP) 209 ft. <del>Meters</del>

**Photos:**

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
1935-2-A	Upstream looking down	1935-2-B	Downstream looking up		
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

**Uses Observed\*:** (Uses actually observed at the time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use <i>Data Sheet D- Recreational Use Interview</i> when conducting interviews.)				

Site # 2

**Field Data Sheets for Recreational Use Stream Surveys**

**Data Sheet B – Site Characterization** (Page 2 of 3)

**Surrounding Conditions\*:** (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input checked="" type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Steep slopes	<input type="checkbox"/> Other:
Comments:				

**Evidence of Human Use\*:** (Attach photos and reference in “Photos” section.)

<input type="checkbox"/> Roads	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Rope swings
<input type="checkbox"/> RV / ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Livestock Watering
<input checked="" type="checkbox"/> None of the above	Comments / Other:			

**Substrate\*:** (These values should add up to 100%.)

% Cobble	70% Gravel	20% Sand	% Silt	% Mud/Clay	10% Bedrock
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**Aquatic Vegetation\*:** (Note amount of vegetation or algal growth at the assessment site.)

20% brown algae, some creek plant life along sides.
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**Water Characteristics\*:** (Mark all that apply.)

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input type="checkbox"/> Fine sediments	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

\*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Site # 2

**Field Data Sheets for Recreational Use Stream Surveys**

**Data Sheet B – Site Characterization** (Page 3 of 3)

**Additional Stream Morphology:** (Record isolated pools or other features identified during the survey that may support recreational uses.)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)

**Comments:** (Please record any additional comments here.)

**Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.**

Printed Names of Personnel Collecting Data: Lindsey Schmid / Micah Hamer

Surveyor's Signature:  Date of Survey: 08-14-08

Organization: Olsson Associates Position: Field Service

## Field Data Sheets for Recreational Use Stream Surveys

### Data Sheet C - Field Survey Results

Stream Name: <u>Shoal Cr.</u> Waterbody ID: <u>1935</u> Site #: <u>2</u> Estimated Channel Incision: <u>0.2</u> (m) (height between low bank width and water) GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM) <b>01</b> UTM X: <u>664188</u> UTM Y: <u>4183294</u> +/- <u>53 ft.</u> (meters) <b>11</b> UTM X: <u>664184</u> UTM Y: <u>4183474</u> +/- <u>209 ft.</u> (meters) Average Stream Width: <u>3</u> (meters)      Length of Survey Segment: <u>150</u> (meters) (To determine Length of Reach)      (20x average stream width) Field Staff: <u>Lindsey Schmid / Micah Hamer</u>	<h4 style="text-align: center; margin: 0;">Dissolved Oxygen</h4> Date: <u>08-14-08</u> Time: <u>2:00 p.m.</u> Dissolved Oxygen: <u>10.75</u> (mg/L) Dissolved Oxygen: <u>128.1</u> (% sat) Specific Cond: <u>405</u> (µS/cm) Water Temperature: <u>24.4</u> (°C)
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#### Transect Cross-Section

Station		01		02		03		04		05		06		07		08		09		10		11	
		Distance (m)	Depth (m)																				
<b>Left Bank</b>		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1	0.28	0.05	0.31	0.08	0.48	0.13	0.36	0.11	0.22	0.05	0.13	0.05	0.21	0.05	0.22	0.05	0.22	0.15	0.21	0.05	0.46	0.11
	2	0.56	0.05	0.62	0.10	0.96	0.21	0.72	0.18	0.44	0.05	0.26	0.05	0.42	0.05	0.44	0.05	0.44	0.15	0.42	0.11	0.92	0.08
	3	0.84	0.06	0.93	0.05	1.44	0.26	1.08	0.26	0.66	0.05	0.39	0.05	0.63	0.09	0.66	0.11	0.66	0.16	0.63	0.13	1.38	0.09
	4	1.12	0.08	1.24	0.00	1.92	0.21	1.44	0.29	0.88	0.05	0.52	0.05	0.84	0.10	0.88	0.07	0.88	0.17	0.84	0.05	1.84	0.07
	5	1.40	0.05	1.55	0.00	2.40	0.27	1.80	0.24	1.10	0.05	0.65	0.06	1.05	0.21	1.10	0.05	1.10	0.18	1.05	0.10	2.30	0.16
	6	1.68	0.05	1.86	0.05	2.88	0.15	2.16	0.30	1.32	0.05	0.78	0.11	1.26	0.20	1.32	0.05	1.32	0.19	1.26	0.05	2.76	0.11
	7	1.96	0.07	2.17	0.13	3.36	0.14	2.52	0.29	1.54	0.05	0.91	0.11	1.47	0.20	1.54	0.05	1.54	0.18	1.47	0.05	3.22	0.14
	8	2.24	0.07	2.48	0.11	3.84	0.14	2.88	0.25	1.76	0.07	1.04	0.08	1.68	0.13	1.76	0.05	1.76	0.17	1.68	0.05	3.68	0.16
9	2.52	0.08	2.79	0.06	4.32	0.19	3.24	0.19	1.98	0.09	1.17	0.09	1.89	0.11	1.98	0.05	1.98	0.14	1.89	0.05	4.14	0.13	
<b>Right Bank</b>		2.80	0.00	3.10	0.00	4.80	0.00	3.60	0.00	2.20	0.00	1.30	0.00	2.10	0.00	2.20	0.00	2.20	0.00	2.10	0.00	4.60	0.00
<b>Feature Type</b> <small>(riffle, run, or pool)</small>		Run		Riffle		Run		Run		Riffle		Run		Run		Riffle		Run		Run		Run	

**Notes:** Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width  
 GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.  
 Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)  
 Mark dry depth measurements as 0; record actual measurements to 0.1 meter unless depth is too deep to measure (then record as > 1)  
 All measurements to be taken to the nearest 0.01 meter.

MAXIMUM      0.30

MEDIAN      0.08

Surveyor's Signature:

Date: 08-14-08

WBID # 1935

Site # 3

**Field Data Sheets for Recreational Use Stream Surveys**

**Data Sheet B – Site Characterization** (Page 1 of 3)

(must be completed for each site)

<b>Date &amp; Time:</b> 08-14-08	2:45 p.m.	Location Description (e.g., road crossing): Road crossing
<b>Stream Name:</b> Shoal Cr.		
Current Weather Conditions: Partly cloudy		Facility Name(s): Holiday Lake RV Park WWTF
Weather Conditions for Past 10 days: 1.72" @ Rolla		Permit Number(s): MO 0089613
Official Drought Conditions at time of this survey (search DNR home page for "drought"): No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>		

**Site Location:**

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site 01	Easting (UTM X): 663798	Northing (UTM Y): 4185280	Horizontal Accuracy: (EPE / FOM / PDOP) 43 ft. <del>Meters</del>
Site 11	Easting (UTM X): 663676	Northing (UTM Y): 4185446	Horizontal Accuracy: (EPE / FOM / PDOP) 63 ft. <del>Meters</del>

**Photos:**

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
1935-3-A	Upstream looking down	1935-3-B	Downstream looking up		
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

**Uses Observed\*:** (Uses actually observed at the time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use <i>Data Sheet D- Recreational Use Interview</i> when conducting interviews.)				

Site # 3

**Field Data Sheets for Recreational Use Stream Surveys**

**Data Sheet B – Site Characterization** (Page 2 of 3)

**Surrounding Conditions\*:** (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input checked="" type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Steep slopes	<input type="checkbox"/> Other:
Comments:				

**Evidence of Human Use\*:** (Attach photos and reference in "Photos" section.)

<input checked="" type="checkbox"/> Roads	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Rope swings
<input type="checkbox"/> RV / ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Livestock Watering
<input type="checkbox"/> None of the above	Comments / Other:			

**Substrate\*:** (These values should add up to 100%.)

% Cobble	10% Gravel	10% Sand	% Silt	% Mud/Clay	80% Bedrock
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**Aquatic Vegetation\*:** (Note amount of vegetation or algal growth at the assessment site.)

Small amount of algae green/brown
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**Water Characteristics\*:** (Mark all that apply.)

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input type="checkbox"/> Fine sediments	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

\*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Site # 3

**Field Data Sheets for Recreational Use Stream Surveys**

**Data Sheet B – Site Characterization** (Page 3 of 3)

**Additional Stream Morphology:** (Record isolated pools or other features identified during the survey that may support recreational uses.)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)

**Comments:** (Please record any additional comments here.)

**Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.**

Printed Names of Personnel Collecting Data: Lindsey Schmid / Micah Hamer

Surveyor's Signature:  Date of Survey: 08-14-08

Organization: Olsson Associates Position: Field Service

## Field Data Sheets for Recreational Use Stream Surveys

### Data Sheet C - Field Survey Results

Stream Name: <u>Shoal Cr.</u> Waterbody ID: <u>1935</u> Site #: <u>3</u> Estimated Channel Incision: <u>0.1</u> (m) (height between low bank width and water) GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM) <b>01</b> UTM X: <u>663798</u> UTM Y: <u>4185280</u> +/- <u>43 ft.</u> (meters) <b>11</b> UTM X: <u>663676</u> UTM Y: <u>4185446</u> +/- <u>63 ft.</u> (meters) Average Stream Width: <u>8</u> (meters)      Length of Survey Segment: <u>160</u> (meters) (To determine Length of Reach)      (20x average stream width)  Field Staff: <u>Lindsey Schmid / Micah Hamer</u>	<b>Dissolved Oxygen</b> Date: <u>08-14-08</u> Time: <u>2:45 p.m.</u>  Dissolved Oxygen: <u>8.24</u> (mg/L) Dissolved Oxygen: <u>94.6</u> (% sat) Specific Cond: <u>372</u> (µS/cm) Water Temperature: <u>22.5</u> (°C)
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#### Transect Cross-Section

Station		01		02		03		04		05		06		07		08		09		10		11	
		Distance (m)	Depth (m)																				
<b>Left Bank</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1	0.68	0.06	0.63	0.08	0.49	<.05	0.45	0.06	1.14	0.08	1.37	0.13	1.19	0.15	1.06	<.05	1.11	<.05	0.99	<.05	1.11	0.06
	2	1.36	<.05	1.26	<.05	0.98	<.05	0.90	0.18	2.28	0.16	2.74	0.07	2.38	0.33	2.12	<.05	2.22	0.20	1.98	0.08	2.22	0.05
	3	2.04	<.05	1.89	<.05	1.47	<.05	1.35	0.26	3.42	0.15	4.11	0.08	3.57	0.25	3.18	<.05	3.33	0.11	2.97	0.06	3.33	<.05
	4	2.72	<.05	2.52	0.13	1.96	<.05	1.80	0.21	4.56	0.14	5.48	<.05	4.76	0.30	4.24	0.07	4.44	<.05	3.96	<.05	4.44	0.06
	5	3.40	<.05	3.15	0.22	2.45	<.05	2.25	<.05	5.70	0.06	6.85	<.05	5.95	0.21	5.30	0.11	5.55	0.07	4.95	0.05	5.55	<.05
	6	4.08	0.09	3.78	0.21	2.94	<.05	2.70	<.05	6.84	0.10	8.22	<.05	7.14	0.22	6.36	<.05	6.66	0.06	5.94	0.07	6.66	<.05
	7	4.76	<.05	4.41	0.16	3.43	<.05	3.15	<.05	7.98	<.05	9.59	<.05	8.33	0.18	7.42	0.05	7.77	0.08	6.93	0.06	7.77	0.09
	8	5.44	<.05	5.04	<.05	3.92	<.05	3.60	<.05	9.12	<.05	10.96	<.05	9.52	0.12	8.48	0.13	8.88	<.05	7.92	0.07	8.88	0.08
9	6.12	<.05	5.67	0.11	4.41	<.05	4.05	<.05	10.26	<.05	12.33	<.05	10.71	0.13	9.54	<.05	9.99	0.06	8.91	<.05	9.99	0.08	
<b>Right Bank</b>	6.80	0.00	6.30	0.00	4.90	0.00	4.50	0.00	11.40	0.00	13.70	0.00	11.90	0.00	10.60	0.00	11.10	0.00	9.90	0.00	11.10	0.00	
<b>Feature Type</b> <small>(riffle, run, or pool)</small>	Riffle		Riffle		Riffle		Riffle		Riffle		Riffle		Run										

**Notes:** Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.  
 Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)  
 Mark dry depth measurements as 0; record actual measurements to 0.1 meter unless depth is too deep to measure (then record as > 1)  
 All measurements to be taken to the nearest 0.01 meter.

MAXIMUM      0.33      <-- Don't use. Data from class P segms  
 MEDIAN      0.08

Surveyor's Signature:

Date: 08-14-08



