BEAR CREEK WATERSHED ASSOCIATION
PHYSICAL STREAM INDICES FIELD SHEET BEAR CREEK WATERSHED

LOCAL WATERSHED FEATURES

Predominant Surrounding Landuse
O Forest O Commercial
O Meadow/Pasture O Open Space
O Large Lot Mix O Other (list)
O Residential/Urban BCLP

Local Watershed NPS Pollution in Tier 1 Buffer
O No evidence O Some potential sources
O Obvious sources (list)

Local Watershed Erosion
O None O Moderate O Heavy (photo)

RIPARIAN VEGETATION (100-ft buffer)

Indicate the dominant type and record the dominant species present
O Trees O Shrubs O Grasses O Herbaceous
dominant vegetation type present tree/shrub mix

INSTREAM FEATURES

Estimated Reach Length 100 ft
Estimated Stream Width 15' ft
Sampling Reach Area 50 ft²
9.7 ds
Estimated Stream Depth .95 ft
Surface Velocity (at mid-channel) 1.44 cfs

Canopy Cover
O Partly open O Partly shaded O Shaded
High Water Mark +8 ft

Proportion of Reach Represented by Stream Morphology Types
O Riffle 35 % O Run 45 %
O Pool 20 %
Channelized O Yes O No

VERY LARGE WOODY DEBRIS

LWD 2 ft²
Estimated Density of LWD 1 %/ft² **(LWD/ reach area)**

ROOTED OR FLOATING AQUATIC VEGETATION

Indicate the dominant type and record the dominant species present
O Rooted emergent O Rooted submergent O Free floating
Dominant species present or photo phyto no attached
Portion of the reach with aquatic vegetation(excluding Periphyton) 0 %

WATER QUALITY

Temperature 10.7 °C
Specific Conductance .315 us/m
Dissolved Oxygen 8.6 mg/l
pH 7.44 su
WQ Instrument Used X YSI Multiprobe

Water Odors
O Normal/None O Sewage
O Petroleum O Chemical
O Fishy O Other

Water Surface Oils (Visual)
O Slick O Sheen O Globs O Flecks
O None O Other

Turbidity (visual)
O Clear O Slightly Murky O Murky
O Other

SEDIMENT/ Periphyton Coverage

Pebble Count
O Yes O No
Estimate Embeddedness (%) 20%

Periphyton on Rocks
O <5% O 5-15% O 15-25% O Profuse >25%

Deposits on Substrate
O Sludge O Organic O Trash O Silt/clay
O Odors (list)
Looking at stones which are not deeply embedded, are the undersides black in color?
O Yes O No

INORGANIC SUBSTRATE COMPONENTS (If No Pebble Count, Then Rough Estimate)			SMALLER ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)		
Substrate Type	**Diameter**	**% Composition in Sampling Reach**	**Substrate Type**	**Characteristic**	**% Composition in Sampling Area**
Bedrock		5%	Detritus	sticks, wood, coarse plant materials (CPOM)	1
Boulder	> 256 mm (10")	20			
Cobble	64-256 mm (2.5"-10")	30	Muck-Mud	black, very fine organic (FPOM)	05
Gravel	2-64 mm (0.1"-2.5")	20			
Sand	0.06-2mm (gritty)	15	Other	Define:	
Silt/Clay	0.004-0.06 mm	5			
	Total				

BEAR CREEK WATERSHED ASSOCIATION
PHYSICAL STREAM INDICES FIELD SHEET BEAR CREEK WATERSHED

STREAM NAME: BCLP	**Bear Creek Watershed, Colorado**	
BCWA SITE # 15A	Colorado Stream Segment Classification: 1e	
LAT _____ LONG _____	**South Platte River Basin**	
Web Site: www.bearcreekwatershed.org	**Bear Creek Watershed Association**	
INVESTIGATORS:		
COMPLETED BY; Bear Creek Watershed Association Board	DATE TIME 9-22-5 8:30 (AM) PM	Baseline Habitat Survey for BCWA Sampling Locations; Reference Conditions

WEATHER CONDITIONS

Now		Past 24 hours
O	storm (heavy rain)	O
O	rain (steady rain)	O
O	showers (intermittent)	O
O	% cloud cover	O %
(O)	clear/sunny	(O)

Has there ~~been a~~ heavy rain in the last 7 days?
O Yes (O No)

Air Temperature 65 °C

Other _____

SITE LOCATION/MAP

Draw a map of the site and indicate the areas sampled (attach a photograph)

STREAM CHARACTERIZATION

Stream Subsystem
(O Perennial) O Intermittent

Stream Type
(O Coldwater) O Warm-water

transition site-specific temps

Stream Origin
O Mainstem
O Tributary
O Wetland or fen

(O Bear Creek Drainage)
O Turkey Creek Drainage

Watershed Area 236 sq-miles

BEAR CREEK WATERSHED ASSOCIATION
PHYSICAL STREAM INDICES FIELD SHEET BEAR CREEK WATERSHED

LOCAL WATERSHED FEATURES

Predominant Surrounding Landuse
O Forest O Commercial
O Meadow/Pasture O Open Space
O Large Lot Mix O Other (list)
O Residential/Urban

Local Watershed NPS Pollution in Tier 1 Buffer
O No evidence O Some potential sources
O Obvious sources (list)

Local Watershed Erosion
O None O Moderate O Heavy (photo)

RIPARIAN VEGETATION (100-ft buffer)

Indicate the dominant type and record the dominant species present
O Trees O Shrubs O Grasses O Herbaceous
dominant vegetation type present Tree/shrub mix

INSTREAM FEATURES

Estimated Reach Length 100 ft
Estimated Stream Width 25 ft
Sampling Reach Area 50 ft²
Estimated Stream Depth .75 ft
Surface Velocity (at mid-channel) .75/.87 cfs

Canopy Cover
O Partly open O Partly shaded O Shaded
High Water Mark +3 ft

Proportion of Reach Represented by Stream Morphology Types
O Riffle 80 % O Run 25 %
O Pool 15 %
Channelized O Yes O No

VERY LARGE WOODY DEBRIS

LWD 2 ft²
Estimated Density of LWD 1 %/ft² (LWD/ reach area)

ROOTED OR FLOATING AQUATIC VEGETATION

Indicate the dominant type and record the dominant species present
O Rooted emergent O Rooted submergent O Free floating
Dominant species present or photo grass
Portion of the reach with aquatic vegetation(excluding Periphyton) 1 %

WATER QUALITY

Temperature 10.5 °C
Specific Conductance .215 us/m
Dissolved Oxygen 10.35 mg/l
pH 7.81 su
WQ Instrument Used YSI Multiprobe

Water Odors
O Normal/None O Sewage
O Petroleum O Chemical
O Fishy O Other

Water Surface Oils (Visual)
O Slick O Sheen O Globs O Flecks
O None O Other

Turbidity (visual)
O Clear O Slightly Murky O Murky
O Other

SEDIMENT/ Periphyton Coverage

Pebble Count
O Yes O No
Estimate Embeddedness (%) 30

Periphyton on Rocks
O <5% O 5-15% O 15-25% O Profuse >25%

Deposits on Substrate
O Sludge O Organic O Trash O Silt/clay
O Odors (list)
Looking at stones which are not deeply embedded, are the undersides black in color?
O Yes O No

INORGANIC SUBSTRATE COMPONENTS (If No Pebble Count, Then Rough Estimate)			SMALLER ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)		
Substrate Type	**Diameter**	**% Composition in Sampling Reach**	**Substrate Type**	**Characteristic**	**% Composition in Sampling Area**
Bedrock		2%	Detritus	sticks, wood, coarse plant materials (CPOM)	1
Boulder	> 256 mm (10")	10%			
Cobble	64-256 mm (2.5"-10")	20%	Muck-Mud	black, very fine organic (FPOM)	0
Gravel	2-64 mm (0.1"-2.5")	68%			
Sand	0.06-2mm (gritty)	1	Other	Define:	
Silt/Clay	0.004-0.06 mm	1			
	Total				

BEAR CREEK WATERSHED ASSOCIATION
PHYSICAL STREAM INDICES FIELD SHEET BEAR CREEK WATERSHED

STREAM NAME: Morrison	**Bear Creek Watershed, Colorado**
BCWA SITE # 14A	Colorado Stream Segment Classification: 1e
LAT _____ LONG _____	**South Platte River Basin**
Web Site: www.bearcreekwatershed.org	**Bear Creek Watershed Association**
INVESTIGATORS: KDC Mike Tony	
COMPLETED BY; Bear Creek Watershed Association Board	DATE TIME 9-22-15 AM PM 9:10 — Baseline Habitat Survey for BCWA Sampling Locations; Reference Conditions

WEATHER CONDITIONS

Now		Past 24 hours
O	storm (heavy rain)	O
O	rain (steady rain)	O
O	showers (intermittent)	O
O	% cloud cover	O %
O	clear/sunny	O

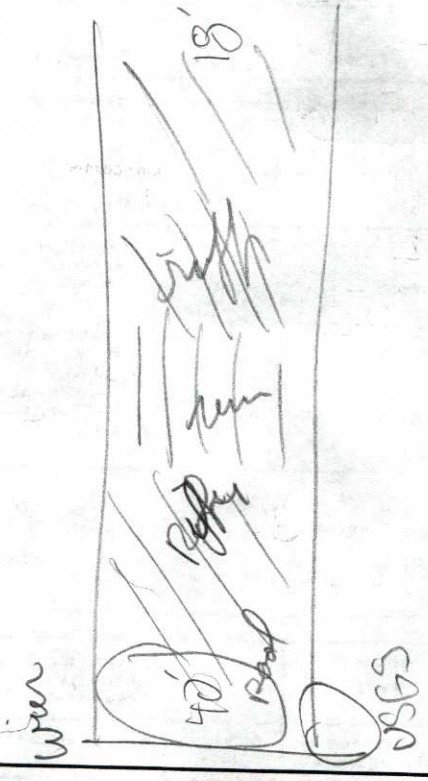
Has there been a heavy rain in the last 7 days? O Yes O No

Air Temperature 70 °C

Other _____

SITE LOCATION/MAP

Draw a map of the site and indicate the areas sampled (attach a photograph)



STREAM CHARACTERIZATION

Stream Subsystem
O Perennial O Intermittent

Stream Origin
O Mainstem
O Tributary
O Wetland or fen

O Bear Creek Drainage
O Turkey Creek Drainage

Stream Type
O Coldwater O Warm-water

Watershed Area 236 sq-miles

There Should T

BEAR CREEK WATERSHED ASSOCIATION
PHYSICAL STREAM INDICES FIELD SHEET BEAR CREEK WATERSHED

LOCAL WATERSHED FEATURES

Predominant Surrounding Landuse
O Forest O Commercial
O Meadow/Pasture O Open Space
O Large Lot Mix O Other (list)
O Residential/Urban

Local Watershed NPS Pollution in Tier 1 Buffer
O No evidence O Some potential sources
O Obvious sources (list)

Local Watershed Erosion
O None O Moderate O Heavy (photo)

RIPARIAN VEGETATION (100-ft buffer)

Indicate the dominant type and record the dominant species present
O Trees O Shrubs O Grasses O Herbaceous
dominant vegetation type present Trees

INSTREAM FEATURES

25 ds

Estimated Reach Length 100 ft
Estimated Stream Width 25 ft
Sampling Reach Area 50 ft²
Estimated Stream Depth 1 ft
Surface Velocity (at mid-channel) .41 / 1.08 cfs

Canopy Cover
O Partly open O Partly shaded O Shaded

High Water Mark +7 ft

Proportion of Reach Represented by Stream Morphology Types
O Riffle 40 % O Run 40 %
O Pool 20 %
Channelized O Yes O No

VERY LARGE WOODY DEBRIS

LWD 4 ft²
Estimated Density of LWD 1 %/ft² (LWD/ reach area)

ROOTED OR FLOATING AQUATIC VEGETATION

Indicate the dominant type and record the dominant species present
O Rooted emergent O Rooted submergent O Free floating
Dominant species present or photo green
Portion of the reach with aquatic vegetation(excluding Periphyton) 1 %

WATER QUALITY

Temperature 10.2 °C
Specific Conductance .212 us/m
Dissolved Oxygen 9.98 mg/l
pH 7.87 su
WQ Instrument Used / YSI Multiprobe

Water Odors
O Normal/None O Sewage
O Petroleum O Chemical
O Fishy O Other rotten

Water Surface Oils (Visual)
O Slick O Sheen O Globs O Flecks
O None O Other

Turbidity (visual)
O Clear O Slightly Murky O Murky
O Other

SEDIMENT/ Periphyton Coverage

Pebble Count
O Yes O No
Estimate Embeddedness (%) 15

Periphyton on Rocks
O <5% O 5-15% O 15-25% O Profuse >25%

Deposits on Substrate
O Sludge O Organic O Trash O Silt/clay
O Odors (list)
Looking at stones which are not deeply embedded, are the undersides black in color?
O Yes O No

INORGANIC SUBSTRATE COMPONENTS (If No Pebble Count, Then Rough Estimate)			SMALLER ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)		
Substrate Type	**Diameter**	**% Composition in Sampling Reach**	**Substrate Type**	**Characteristic**	**% Composition in Sampling Area**
Bedrock		2	Detritus	sticks, wood, coarse plant materials (CPOM)	1
Boulder	> 256 mm (10")	8			
Cobble	64-256 mm (2.5"-10")	35	Muck-Mud	black, very fine organic (FPOM)	1
Gravel	2-64 mm (0.1"-2.5")	35			
Sand	0.06-2mm (gritty)	15	Other	Define:	fine House
Silt/Clay	0.004-0.06 mm	5			
	Total				

BEAR CREEK WATERSHED ASSOCIATION
PHYSICAL STREAM INDICES FIELD SHEET BEAR CREEK WATERSHED

STREAM NAME:	**Bear Creek Watershed, Colorado**	
BCWA SITE # 13A	Colorado Stream Segment Classification:	
LAT _____ LONG _____	**South Platte River Basin**	
Web Site: **www.bearcreekwatershed.org**	**Bear Creek Watershed Association**	
INVESTIGATORS:		
COMPLETED BY; Bear Creek Watershed Association Board	DATE 9-22-15 TIME 10:00 (AM) PM	Baseline Habitat Survey for BCWA Sampling Locations; Reference Conditions

WEATHER CONDITIONS

Now		Past 24 hours
O	storm (heavy rain)	O
O	rain (steady rain)	O
O	showers (intermittent)	O
O	% cloud cover	O %
O	clear/sunny	O

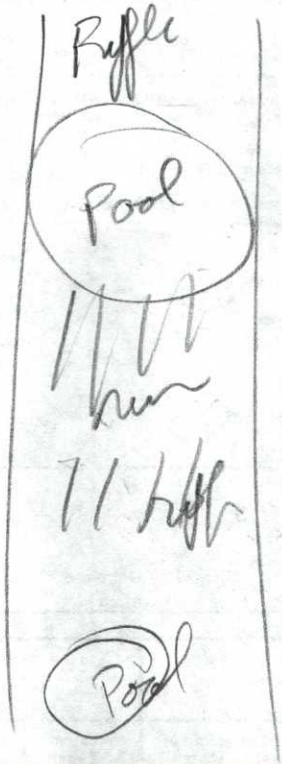
Has there been a heavy rain in the last 7 days? O Yes (O) No

Air Temperature 20 °C

Other _____

SITE LOCATION/MAP

Draw a map of the site and indicate the areas sampled (attach a photograph)



STREAM CHARACTERIZATION

Stream Subsystem
(O) Perennial O Intermittent

Stream Type
(O) Coldwater O Warm-water

Stream Origin
O Mainstem
O Tributary
O Wetland or fen

(O) Bear Creek Drainage
O Turkey Creek Drainage

Watershed Area 236 sq-miles

SS Temp

BEAR CREEK WATERSHED ASSOCIATION
PHYSICAL STREAM INDICES FIELD SHEET BEAR CREEK WATERSHED

LOCAL WATERSHED FEATURES

Predominant Surrounding Landuse
O Forest O Commercial
O Meadow/Pasture O Open Space
O Large Lot Mix O Other (list)
O Residential/Urban Park

Local Watershed NPS Pollution in Tier 1 Buffer
O No evidence O Some potential sources
O Obvious sources (list)

Local Watershed Erosion
O None O Moderate O Heavy (photo)

RIPARIAN VEGETATION (100-ft buffer)

Indicate the dominant type and record the dominant species present
O Trees O Shrubs O Grasses O Herbaceous
dominant vegetation type present Grass

INSTREAM FEATURES

Estimated Reach Length 100 ft
Estimated Stream Width 25 ft
Sampling Reach Area 50 ft²
Estimated Stream Depth .75 ft
Surface Velocity (at mid-channel) .79/1.52 cfs

Canopy Cover
O Partly open O Partly shaded O Shaded
High Water Mark +4 ft

Proportion of Reach Represented by Stream Morphology Types
O Riffle 45 % O Run 45 %
O Pool 10 %
Channelized O Yes O No

22 dp

VERY LARGE WOODY DEBRIS

LWD 2 ft²
Estimated Density of LWD 1 %/ft² (LWD/ reach area)

ROOTED OR FLOATING AQUATIC VEGETATION

Indicate the dominant type and record the dominant species present
O Rooted emergent O Rooted submergent O Free floating
Dominant species present or photo green
Portion of the reach with aquatic vegetation(excluding Periphyton) 1 %

WATER QUALITY

Temperature 10.7 °C
Specific Conductance .29 us/m
Dissolved Oxygen 10.32 mg/l
pH 7.85 su
WQ Instrument Used X YSI Multiprobe

Water Odors
O Normal/None O Sewage
O Petroleum O Chemical
O Fishy O Other

Water Surface Oils (Visual)
O Slick O Sheen O Globs O Flecks
O None O Other

Turbidity (visual)
O Clear O Slightly Murky O Murky
O Other

SEDIMENT/ Periphyton Coverage

Pebble Count
O Yes O No
Estimate Embeddedness (%) 20%

Periphyton on Rocks
O <5% O 5-15% O 15-25% O Profuse >25%

Deposits on Substrate
O Sludge O Organic O Trash O Silt/clay
O Odors (list)
Looking at stones which are not deeply embedded, are the undersides black in color?
O Yes O No

INORGANIC SUBSTRATE COMPONENTS (If No Pebble Count, Then Rough Estimate)			SMALLER ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)		
Substrate Type	**Diameter**	**% Composition in Sampling Reach**	**Substrate Type**	**Characteristic**	**% Composition in Sampling Area**
Bedrock		2	Detritus	sticks, wood, coarse plant materials (CPOM)	1
Boulder	> 256 mm (10")	13			
Cobble	64-256 mm (2.5"-10")	45	Muck-Mud	black, very fine organic (FPOM)	0.1
Gravel	2-64 mm (0.1"-2.5")	25			
Sand	0.06-2mm (gritty)	13	Other	Define:	
Silt/Clay	0.004-0.06 mm	1			
	Total				

BEAR CREEK WATERSHED ASSOCIATION
PHYSICAL STREAM INDICES FIELD SHEET BEAR CREEK WATERSHED

STREAM NAME: Lair O'Boa	**Bear Creek Watershed, Colorado**	
BCWA SITE # 12	Colorado Stream Segment Classification: 1e	
LAT _____ LONG _____	**South Platte River Basin**	
Web Site: **www.bearcreekwatershed.org**	**Bear Creek Watershed Association**	
INVESTIGATORS:		
COMPLETED BY; Bear Creek Watershed Association Board	DATE 9-22-15 TIME 10:30 (AM) PM	Baseline Habitat Survey for BCWA Sampling Locations; Reference Conditions

WEATHER CONDITIONS

Now		Past 24 hours
O	storm (heavy rain)	O
O	rain (steady rain)	O
O	showers (intermittent)	O
O	% cloud cover	O %
(O)	clear/sunny	(O)

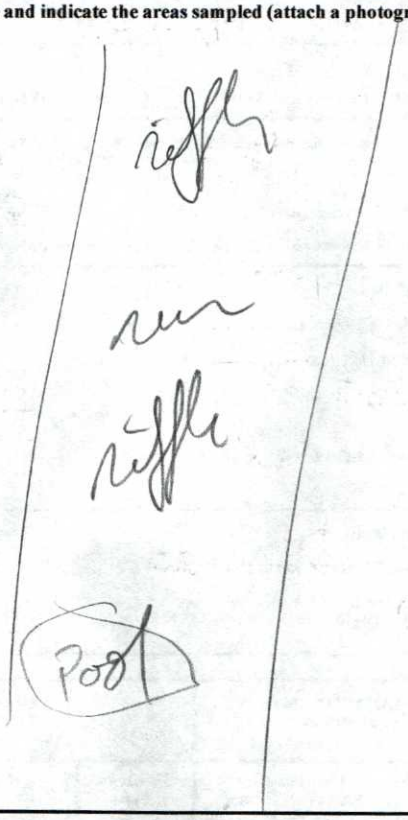
Has there been a heavy rain in the last 7 days? O Yes (O) No

Air Temperature 20 °C

Other _____

SITE LOCATION/MAP

Draw a map of the site and indicate the areas sampled (attach a photograph)



STREAM CHARACTERIZATION

Stream Subsystem (O) Perennial O Intermittent

Stream Origin (O) Mainstem O Tributary O Wetland or fen

(O) Bear Creek Drainage O Turkey Creek Drainage

Stream Type (O) Coldwater O Warm-water

Watershed Area 236 sq-miles

BEAR CREEK WATERSHED ASSOCIATION
PHYSICAL STREAM INDICES FIELD SHEET BEAR CREEK WATERSHED

LOCAL WATERSHED FEATURES

Predominant Surrounding Landuse
O Forest (O) Commercial
O Meadow/Pasture (O) Open Space
O Large Lot Mix O Other (list)
O Residential/Urban Park

Local Watershed NPS Pollution in Tier 1 Buffer
O No evidence (O) Some potential sources
O Obvious sources (list)

Local Watershed Erosion
O None (O) Moderate O Heavy (photo)

RIPARIAN VEGETATION (100-ft buffer)

Indicate the dominant type and record the dominant species present
O Trees (O) Shrubs O Grasses O Herbaceous
dominant vegetation type present Shrub

INSTREAM FEATURES

Estimated Reach Length 100 ft
Estimated Stream Width 30 ft
Sampling Reach Area 50 ft²
25 ft
Estimated Stream Depth .75 ft
Surface Velocity (at mid-channel) .5 / 1.57 cfs

Canopy Cover
O Partly open (O) Partly shaded O Shaded
High Water Mark + 3 ft

Proportion of Reach Represented by Stream Morphology Types
O Riffle 30 % O Run 40 %
O Pool 30 %
Channelized O Yes (O) No

VERY LARGE WOODY DEBRIS

LWD 2 ft²
Estimated Density of LWD 1 %/ft² **(LWD/ reach area)**

ROOTED OR FLOATING AQUATIC VEGETATION

Indicate the dominant type and record the dominant species present
O Rooted emergent (O) Rooted submergent O Free floating
Dominant species present or photo long green
Portion of the reach with aquatic vegetation(excluding Periphyton) 1 %

WATER QUALITY

Temperature 12.0 °C
Specific Conductance 147 us/m
Dissolved Oxygen 9.12 mg/l
pH 7.98 su
WQ Instrument Used X YSI Multiprobe

Water Odors
O Normal/None (O) Sewage
O Petroleum (O) Chemical
O Fishy O Other

Water Surface Oils (Visual)
O Slick (O) Sheen O Globs O Flecks
O None O Other

Turbidity (visual)
O Clear (O) Slightly Murky O Murky
O Other

SEDIMENT/ Periphyton Coverage

Pebble Count
O Yes O No
Estimate Embeddedness (%) 20

Periphyton on Rocks
O <5% O 5-15% O 15-25% O Profuse >25%

Deposits on Substrate
O Sludge O Organic O Trash O Silt/clay
O Odors (list)
Looking at stones which are not deeply embedded, are the undersides black in color?
O Yes O No

INORGANIC SUBSTRATE COMPONENTS (If No Pebble Count, Then Rough Estimate)			SMALLER ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)		
Substrate Type	**Diameter**	**% Composition in Sampling Reach**	**Substrate Type**	**Characteristic**	**% Composition in Sampling Area**
Bedrock		2	Detritus	sticks, wood, coarse plant materials (CPOM)	1
Boulder	> 256 mm (10")	20			
Cobble	64-256 mm (2.5"-10")	30	Muck-Mud	black, very fine organic (FPOM)	1
Gravel	2-64 mm (0.1"-2.5")	38			
Sand	0.06-2mm (gritty)	8	Other	Define:	
Silt/Clay	0.004-0.06 mm	2			
	Total				

constructed dams 90 degree
poor design

BEAR CREEK WATERSHED ASSOCIATION
PHYSICAL STREAM INDICES FIELD SHEET BEAR CREEK WATERSHED

STREAM NAME: OFallen	**Bear Creek Watershed, Colorado**	
BCWA SITE # 9	Colorado Stream Segment Classification:	
LAT _____ LONG _____	**South Platte River Basin**	
Web Site: **www.bearcreekwatershed.org**	**Bear Creek Watershed Association**	
INVESTIGATORS: RJC		
COMPLETED BY; Bear Creek Watershed Association Board	DATE 9-22-15 TIME 11:00 (AM) PM	Baseline Habitat Survey for BCWA Sampling Locations; Reference Conditions

WEATHER CONDITIONS

Now		Past 24 hours
O	storm (heavy rain)	O
O	rain (steady rain)	O
O	showers (intermittent)	O
O	% cloud cover	O %
O	clear/sunny	O

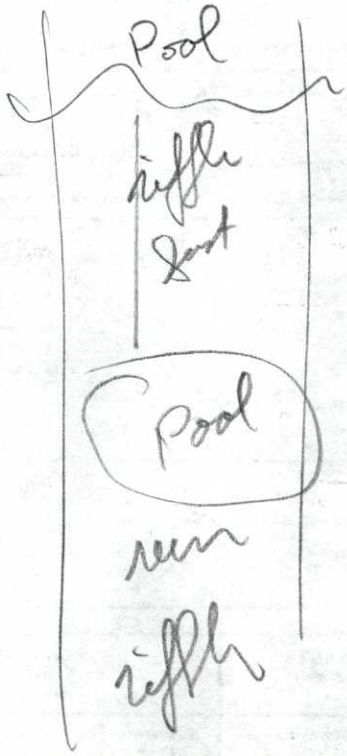
Has there been a heavy rain in the last 7 days? O Yes O No

Air Temperature 10 °C

Other _____

SITE LOCATION/MAP

Draw a map of the site and indicate the areas sampled (attach a photograph)



STREAM CHARACTERIZATION

Stream Subsystem
O Perennial O Intermittent

Stream Type
O Coldwater O Warm-water

Stream Origin
O Mainstem
O Tributary
O Wetland or fen
O Bear Creek Drainage
O Turkey Creek Drainage

Watershed Area 236 sq-miles

SC Temp

BEAR CREEK WATERSHED ASSOCIATION
PHYSICAL STREAM INDICES FIELD SHEET BEAR CREEK WATERSHED

LOCAL WATERSHED FEATURES

Predominant Surrounding Landuse
O Forest O Commercial
O Meadow/Pasture O Open Space
O Large Lot Mix O Other (list)
O Residential/Urban Cabin

Local Watershed NPS Pollution in Tier 1 Buffer
O No evidence (O) Some potential sources
O Obvious sources (list)

Local Watershed Erosion
O None (O) Moderate O Heavy (photo)

RIPARIAN VEGETATION (100-ft buffer)

Indicate the dominant type and record the dominant species present
(O) Trees O Shrubs O Grasses O Herbaceous
dominant vegetation type present Tree/Shrub

INSTREAM FEATURES

Estimated Reach Length 100 ft
Estimated Stream Width 35 ft
Sampling Reach Area 50 ft²
Estimated Stream Depth .50 ft
Surface Velocity (at mid-channel) 3 cfs 1.62

Canopy Cover
(O) Partly open O Partly shaded O Shaded
High Water Mark +5 ft
Proportion of Reach Represented by Stream Morphology Types
O Riffle 70 % O Run 25 %
O Pool 5 %
Channelized O Yes (O) No

VERY LARGE WOODY DEBRIS

LWD 2 ft²
Estimated Density of LWD 1 %/ft² (LWD/ reach area)

ROOTED OR FLOATING AQUATIC VEGETATION

Indicate the dominant type and record the dominant species present
O Rooted emergent O Rooted submergent O Free floating None
Dominant species present or photo _____
Portion of the reach with aquatic vegetation(excluding Periphyton) 0 %

WATER QUALITY

Temperature 13.4 °C
Specific Conductance .117 us/m
Dissolved Oxygen 8.61 mg/l
pH 7.88 su
WQ Instrument Used X YSI Multiprobe _____

Water Odors
(O) Normal/None O Sewage
O Petroleum O Chemical
O Fishy O Other

Water Surface Oils (Visual)
O Slick O Sheen O Globs O Flecks
(O) None O Other

Turbidity (visual)
O Clear (O) Slightly Murky O Murky
O Other _____

SEDIMENT/ Periphyton Coverage

Pebble Count
O Yes (O) No
Estimate Embeddedness (%) 20%

Periphyton on Rocks
(O) <5% O 5-15% O 15-25% O Profuse >25%

Deposits on Substrate
O Sludge O Organic O Trash (O) Silt/clay
O Odors (list)
Looking at stones which are not deeply embedded, are the undersides black in color?
(O) Yes O No

INORGANIC SUBSTRATE COMPONENTS (If No Pebble Count, Then Rough Estimate)			SMALLER ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)		
Substrate Type	**Diameter**	**% Composition in Sampling Reach**	**Substrate Type**	**Characteristic**	**% Composition in Sampling Area**
Bedrock		2	Detritus	sticks, wood, coarse plant materials (CPOM)	1
Boulder	> 256 mm (10")	10			
Cobble	64-256 mm (2.5"-10")	45	Muck-Mud	black, very fine organic (FPOM)	0.1
Gravel	2-64 mm (0.1"-2.5")	35			
Sand	0.06-2mm (gritty)	6	Other	Define:	
Silt/Clay	0.004-0.06 mm	2			
	Total				

BEAR CREEK WATERSHED ASSOCIATION
PHYSICAL STREAM INDICES FIELD SHEET BEAR CREEK WATERSHED

STREAM NAME: BCC	**Bear Creek Watershed, Colorado**	
BCWA SITE # 8B	Colorado Stream Segment Classification: 1e	
LAT _____ LONG _____	**South Platte River Basin**	
Web Site: www.bearcreekwatershed.org	**Bear Creek Watershed Association**	
INVESTIGATORS: BNC		
COMPLETED BY; Bear Creek Watershed Association Board	DATE 9-29-15 TIME 11:30 AM PM	Baseline Habitat Survey for BCWA Sampling Locations; Reference Conditions

WEATHER CONDITIONS

Now		Past 24 hours
O	storm (heavy rain)	O
O	rain (steady rain)	O
O	showers (intermittent)	O
O	% cloud cover	O %
O	clear/sunny	O

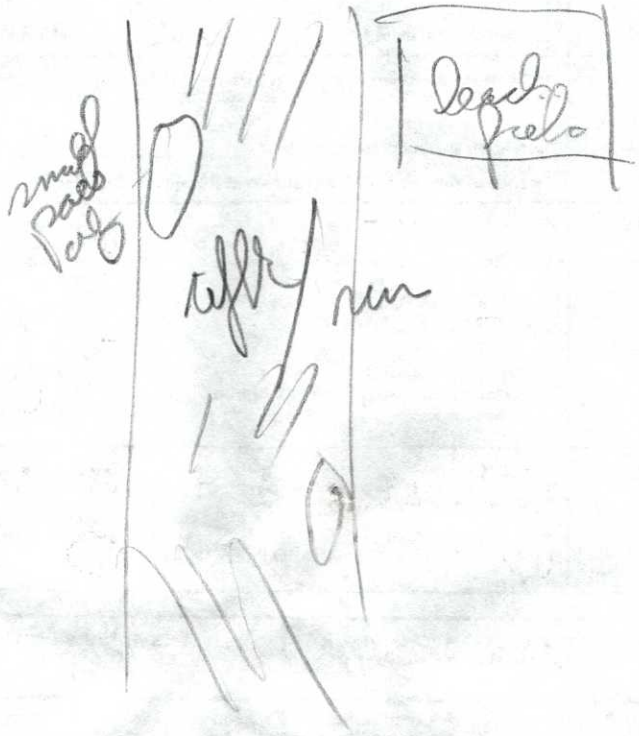
Has there been a heavy rain in the last 7 days? O Yes O No

Air Temperature 70 C

Other_____

SITE LOCATION/MAP

Draw a map of the site and indicate the areas sampled (attach a photograph)



STREAM CHARACTERIZATION

Stream Subsystem
O Perennial O Intermittent

Stream Type
O Coldwater O Warm-water

Stream Origin
O Mainstem
O Tributary
O Wetland or fen

O Bear Creek Drainage
O Turkey Creek Drainage

Watershed Area 236 sq-miles

SS Temp

BEAR CREEK WATERSHED ASSOCIATION
PHYSICAL STREAM INDICES FIELD SHEET BEAR CREEK WATERSHED

LOCAL WATERSHED FEATURES

Predominant Surrounding Landuse
O Forest O Commercial
O Meadow/Pasture O Open Space
O Large Lot Mix O Other (list)
O Residential/Urban

Local Watershed NPS Pollution in Tier 1 Buffer
O No evidence O Some potential sources
O Obvious sources (list) House/SM

Local Watershed Erosion
O None O Moderate O Heavy (photo)

RIPARIAN VEGETATION (100-ft buffer)

Indicate the dominant type and record the dominant species present
O Trees O Shrubs O Grasses O Herbaceous
dominant vegetation type present Shrubs

INSTREAM FEATURES

Estimated Reach Length 100 ft
Estimated Stream Width 30 ft
Sampling Reach Area 50 ft²
(22 ft)
Estimated Stream Depth 1 ft
Surface Velocity (at mid-channel) cfs .82 1.97

Canopy Cover
O Partly open O Partly shaded O Shaded

High Water Mark +6 ft

Proportion of Reach Represented by Stream Morphology Types
O Riffle 35 % O Run 35 %
O Pool 30 %
Channelized O Yes O No

VERY LARGE WOODY DEBRIS

LWD 6 ft²
Estimated Density of LWD 1 %/ft² (LWD/ reach area)

ROOTED OR FLOATING AQUATIC VEGETATION

Indicate the dominant type and record the dominant species present
O Rooted emergent O Rooted submergent O Free floating
Dominant species present or photo Green/pondweed
Portion of the reach with aquatic vegetation(excluding Periphyton) 1 %

WATER QUALITY

Temperature 7.4 °C
Specific Conductance .073 us/m
Dissolved Oxygen 10.92 mg/l
pH 7.75 su
WQ Instrument Used X YSI Multiprobe

Water Odors
O Normal/None O Sewage
O Petroleum O Chemical
O Fishy O Other

Water Surface Oils (Visual)
O Slick O Sheen O Globs O Flecks
O None O Other

Turbidity (visual)
O Clear O Slightly Murky O Murky
O Other

SEDIMENT/ Periphyton Coverage

Pebble Count
O Yes O No
Estimate Embeddedness (%) 30%

Periphyton on Rocks
O <5% O 5-15% O 15-25% O Profuse >25%

Deposits on Substrate
O Sludge O Organic O Trash O Silt/clay
O Odors (list)
Looking at stones which are not deeply embedded, are the undersides black in color?
O Yes O No

INORGANIC SUBSTRATE COMPONENTS (If No Pebble Count, Then Rough Estimate)			SMALLER ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)		
Substrate Type	**Diameter**	**% Composition in Sampling Reach**	**Substrate Type**	**Characteristic**	**% Composition in Sampling Area**
Bedrock		8%	Detritus	sticks, wood, coarse plant materials (CPOM)	1%
Boulder	> 256 mm (10")	10%			
Cobble	64-256 mm (2.5"-10")	30%	Muck-Mud	black, very fine organic (FPOM)	1%
Gravel	2-64 mm (0.1"-2.5")	30%			
Sand	0.06-2mm (gritty)	20%	Other	Define:	
Silt/Clay	0.004-0.06 mm	2%			
	Total				

BEAR CREEK WATERSHED ASSOCIATION
PHYSICAL STREAM INDICES FIELD SHEET BEAR CREEK WATERSHED

STREAM NAME: Deep	**Bear Creek Watershed, Colorado**	
BCWA SITE # 3A	Colorado Stream Segment Classification:	
LAT _____ LONG _____	**South Platte River Basin**	
Web Site: www.bearcreekwatershed.org	**Bear Creek Watershed Association**	
INVESTIGATORS: Rue Tom		
COMPLETED BY; Bear Creek Watershed Association Board	DATE 9-21-15 TIME 11:00 (AM) PM	Baseline Habitat Survey for BCWA Sampling Locations; Reference Conditions

WEATHER CONDITIONS

Now		Past 24 hours
O	storm (heavy rain)	O
O	rain (steady rain)	O
O	showers (intermittent)	O
O	% cloud cover	O %
(O)	clear/sunny	O

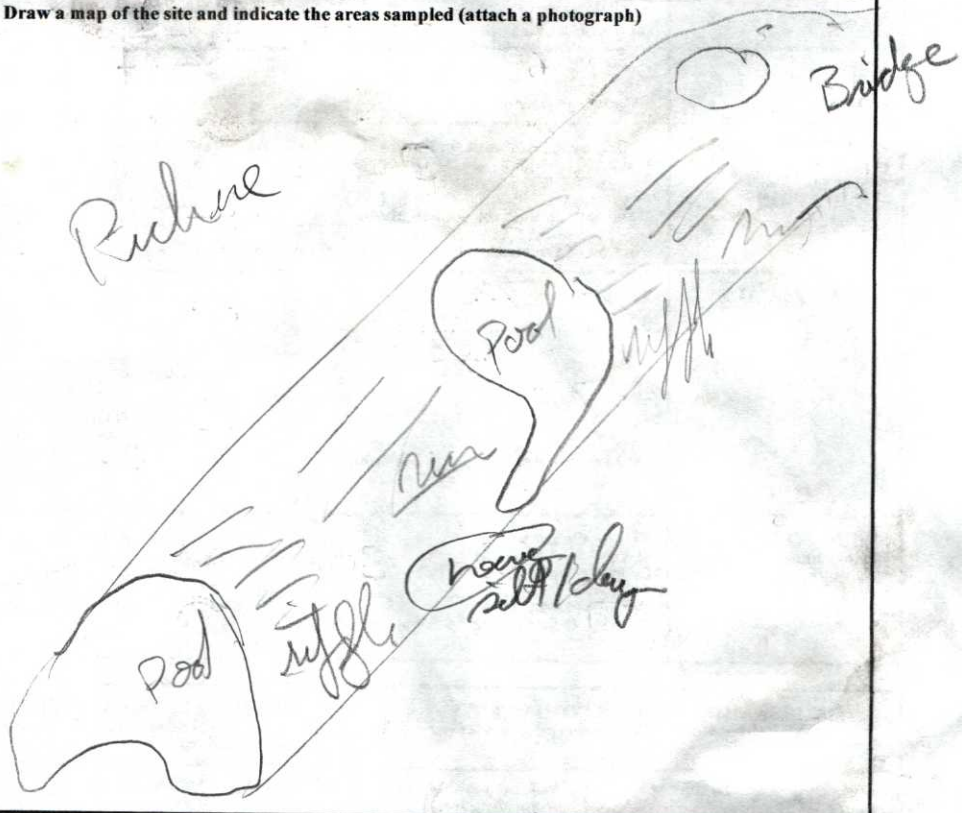
Has there been a heavy rain in the last 7 days? O Yes (O) No

Air Temperature 70 °C

Other _____

SITE LOCATION/MAP

Draw a map of the site and indicate the areas sampled (attach a photograph)



STREAM CHARACTERIZATION

Stream Subsystem
(O) Perennial O Intermittent

Stream Origin
O Mainstem
O Tributary
O Wetland or fen

(O) Bear Creek Drainage
O Turkey Creek Drainage

Stream Type
O Coldwater O Warm-water

Watershed Area 236 sq-miles

BEAR CREEK WATERSHED ASSOCIATION
PHYSICAL STREAM INDICES FIELD SHEET BEAR CREEK WATERSHED

LOCAL WATERSHED FEATURES

Predominant Surrounding Landuse
O Forest O Commercial
O Meadow/Pasture O Open Space
O Large Lot Mix O Other (list)
(O) Residential/Urban

Local Watershed NPS Pollution in Tier 1 Buffer
O No evidence O Some potential sources
(O) Obvious sources (list) Parking lot

Local Watershed Erosion
O None (O) Moderate O Heavy (photo)

RIPARIAN VEGETATION (100-ft buffer)

Indicate the dominant type and record the dominant species present
(O) Trees O Shrubs O Grasses O Herbaceous
dominant vegetation type present Trees South Bank / under

INSTREAM FEATURES

Estimated Reach Length 100 ft
Estimated Stream Width 30 ft
Sampling Reach Area 50 ft²
Estimated Stream Depth 2.5 ft
Surface Velocity (at mid-channel) 1.45 / .85 cfs

Canopy Cover open
O Partly open (O) Partly shaded O Shaded
High Water Mark +6 ft

Proportion of Reach Represented by Stream Morphology Types
O Riffle 25 % O Run 40 %
O Pool 35 %
Channelized (O) Yes O No

VERY LARGE WOODY DEBRIS

LWD 10 ft²
Estimated Density of LWD 3 %/ft² (LWD/ reach area)

ROOTED OR FLOATING AQUATIC VEGETATION

Indicate the dominant type and record the dominant species present
O Rooted emergent (O) Rooted submergent O Free floating
Dominant species present or photo Green / Blue green /
Portion of the reach with aquatic vegetation(excluding Periphyton) 2 %

WATER QUALITY

Temperature 12.5 °C
Specific Conductance .089 us/m
Dissolved Oxygen 9.20 mg/l
pH 7.64 su

WQ Instrument Used X YSI Multiprobe ____

Water Odors
O Normal/None O Sewage
(O) Petroleum O Chemical
O Fishy (O) Other decayed organics

Water Surface Oils (Visual)
O Slick (O) Sheen O Globs (O) Flecks
O None O Other

Turbidity (visual)
O Clear O Slightly Murky (O) Murky
O Other ____

SEDIMENT/ Periphyton Coverage

Pebble Count
O Yes (O) No
Estimate Embeddedness (%) 20%

Periphyton on Rocks
O <5% (O) 5-15% O 15-25% O Profuse >25%

Deposits on Substrate
O Sludge O Organic O Trash O Silt/clay
O Odors (list) oil sheen
Looking at stones which are not deeply embedded, are the undersides black in color?
(O) Yes O No
many in riffle

INORGANIC SUBSTRATE COMPONENTS (If No Pebble Count, Then Rough Estimate)			SMALLER ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)		
Substrate Type	**Diameter**	**% Composition in Sampling Reach**	**Substrate Type**	**Characteristic**	**% Composition in Sampling Area**
Bedrock		5%	Detritus	sticks, wood, coarse plant materials (CPOM)	2%
Boulder	> 256 mm (10")	15%			
Cobble	64-256 mm (2.5"-10")	25%	Muck-Mud	black, very fine organic (FPOM)	3% edges Deeper silt pockets
Gravel	2-64 mm (0.1"-2.5")	25			
Sand	0.06-2mm (gritty)	15	Other	Define:	deep silt
Silt/Clay	0.004-0.06 mm	5%			Trash
	Total	100			

asphalt, concrete
steel & concrete pipe
plywood, lumber

BEAR CREEK WATERSHED ASSOCIATION
PHYSICAL STREAM INDICES FIELD SHEET BEAR CREEK WATERSHED

STREAM NAME: Little Bear	**Bear Creek Watershed, Colorado**	
BCWA SITE # 5	Colorado Stream Segment Classification:	
LAT _____ LONG _____	**South Platte River Basin**	
Web Site: www.bearcreekwatershed.org	**Bear Creek Watershed Association**	
INVESTIGATORS:		
COMPLETED BY; Bear Creek Watershed Association Board	DATE 9-24-15 TIME 11:30 (AM) PM	Baseline Habitat Survey for BCWA Sampling Locations; Reference Conditions

WEATHER CONDITIONS

Now		Past 24 hours
O	storm (heavy rain)	O
O	rain (steady rain)	O
O	showers (intermittent)	O
O	% cloud cover	O %
(O)	clear/sunny	(O)

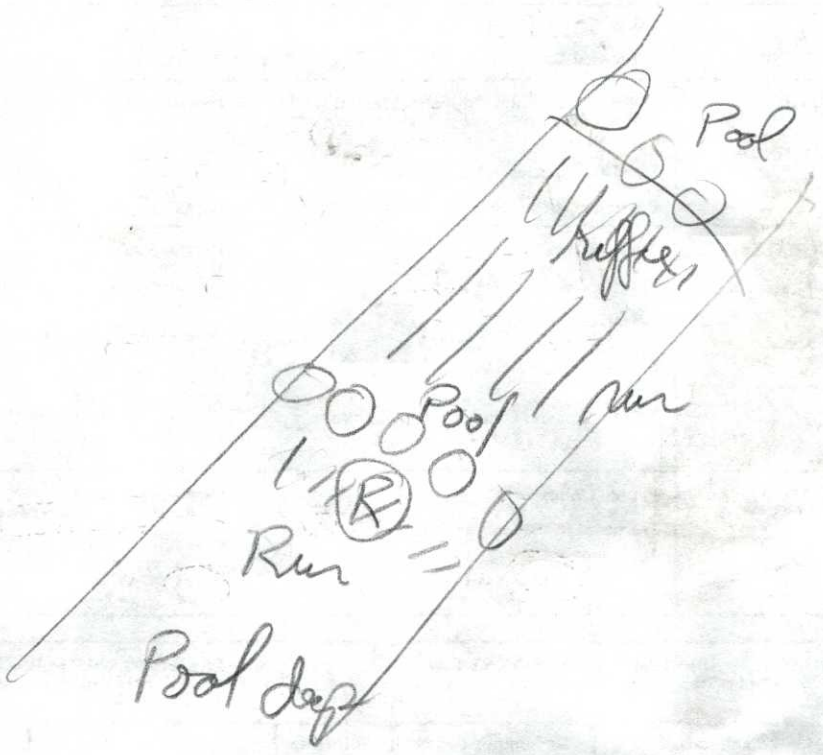
Has there been a heavy rain in the last 7 days? O Yes (O) No

Air Temperature 70 °C

Other _____

SITE LOCATION/MAP

Draw a map of the site and indicate the areas sampled (attach a photograph)



STREAM CHARACTERIZATION

Stream Subsystem
(O) Perennial O Intermittent

Stream Origin
O Mainstem
O Tributary
O Wetland or fen

(O) Bear Creek Drainage
O Turkey Creek Drainage

Stream Type
(O) Coldwater O Warm-water

Watershed Area 236 sq-miles

BEAR CREEK WATERSHED ASSOCIATION
PHYSICAL STREAM INDICES FIELD SHEET BEAR CREEK WATERSHED

LOCAL WATERSHED FEATURES

Predominant Surrounding Landuse
O Forest O Commercial
O Meadow/Pasture O Open Space
O Large Lot Mix O Other (list)
O Residential/Urban

Local Watershed NPS Pollution in Tier 1 Buffer
O No evidence O Some potential sources
O Obvious sources (list)

Local Watershed Erosion
O None O Moderate O Heavy (photo)

RIPARIAN VEGETATION (100-ft buffer)

Indicate the dominant type and record the dominant species present
O Trees O Shrubs O Grasses O Herbaceous
dominant vegetation type present Meadow Pasture

INSTREAM FEATURES

Estimated Reach Length 100 ft
Estimated Stream Width 35 ft
Sampling Reach Area 50 ft²
Estimated Stream Depth .4 ft
Surface Velocity (at mid-channel) .29/.96 cfs

Canopy Cover Open
O Partly open O Partly shaded O Shaded
High Water Mark 4 2 ft

Proportion of Reach Represented by Stream Morphology Types
O Riffle 30 % O Run 40 %
O Pool 30 %
Channelized O Yes O No

VERY LARGE WOODY DEBRIS

LWD 2 ft²
Estimated Density of LWD .2 %/ft² (LWD/ reach area)

ROOTED OR FLOATING AQUATIC VEGETATION

Indicate the dominant type and record the dominant species present
O Rooted emergent O Rooted submergent O Free floating

Dominant species present or photo Green

Portion of the reach with aquatic vegetation(excluding Periphyton) 1 %

WATER QUALITY

Temperature 6.8 °C
Specific Conductance .067 us/m
Dissolved Oxygen 12.25 mg/l
pH 7.68 su

WQ Instrument Used X YSI Multiprobe ____

Water Odors
O Normal/None O Sewage
O Petroleum O Chemical
O Fishy O Other

Water Surface Oils (Visual)
O Slick O Sheen O Globs O Flecks
O None O Other

Turbidity (visual)
O Clear O Slightly Murky O Murky
O Other ____

SEDIMENT/ Periphyton Coverage

Pebble Count
O Yes O No
Estimate Embeddedness (%) 40%

Periphyton on Rocks
O <5% O 5-15% O 15-25% O Profuse >25%

Deposits on Substrate
O Sludge O Organic O Trash O Silt/clay
O Odors (list)
Looking at stones which are not deeply embedded, are the undersides black in color?
O Yes O No

INORGANIC SUBSTRATE COMPONENTS (If No Pebble Count, Then Rough Estimate)			SMALLER ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)		
Substrate Type	**Diameter**	**% Composition in Sampling Reach**	**Substrate Type**	**Characteristic**	**% Composition in Sampling Area**
Bedrock		0	Detritus	sticks, wood, coarse plant materials (CPOM)	1%
Boulder	> 256 mm (10")	25			
Cobble	64-256 mm (2.5"-10")	60	Muck-Mud	black, very fine organic (FPOM)	1%
Gravel	2-64 mm (0.1"-2.5")	25			
Sand	0.06-2mm (gritty)	11	Other	Define:	
Silt/Clay	0.004-0.06 mm	2			
	Total	100			

BEAR CREEK WATERSHED ASSOCIATION
PHYSICAL STREAM INDICES FIELD SHEET BEAR CREEK WATERSHED

STREAM NAME: Golden Gulch	**Bear Creek Watershed, Colorado**
BCWA SITE # 2A	Colorado Stream Segment Classification:
LAT _____ LONG _____	**South Platte River Basin**
Web Site: www.bearcreekwatershed.org	**Bear Creek Watershed Association**
INVESTIGATORS: Tony Russ	
COMPLETED BY; Bear Creek Watershed Association Board	DATE 9-21-15 TIME 10:30 (AM) PM — Baseline Habitat Survey for BCWA Sampling Locations; Reference Conditions

WEATHER CONDITIONS

Now		Past 24 hours
O	storm (heavy rain)	O
O	rain (steady rain)	O
O	showers (intermittent)	O
O	% cloud cover	O %
(O)	clear/sunny	(O)

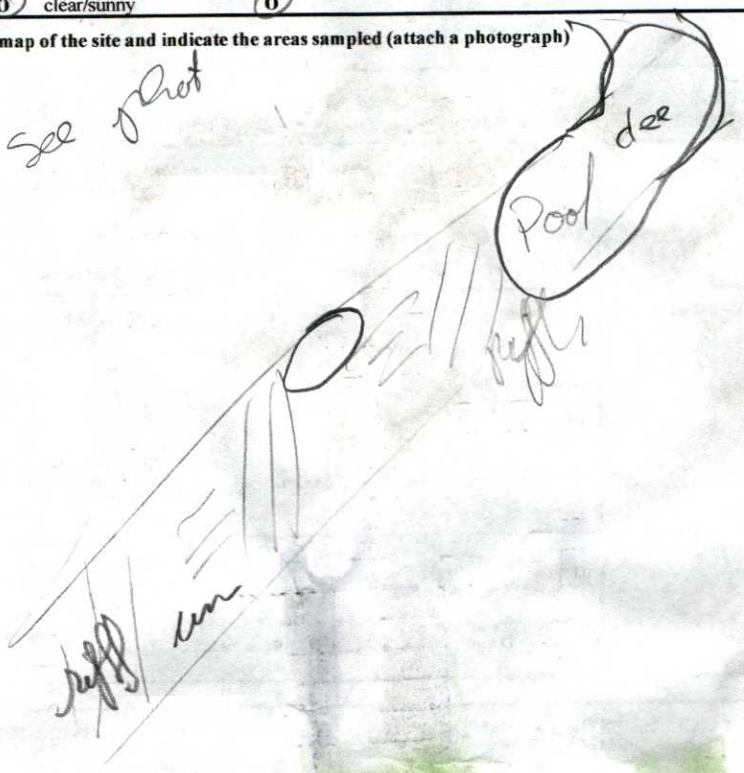
Has there been a heavy rain in the last 7 days? O Yes (O) No

Air Temperature 70 °C

Other _____

SITE LOCATION/MAP

Draw a map of the site and indicate the areas sampled (attach a photograph)



STREAM CHARACTERIZATION

Stream Subsystem
(X) Perennial O Intermittent

Stream Type
(X) Coldwater O Warm-water

Stream Origin
O Mainstem
O Tributary
O Wetland or fen
(X) Bear Creek Drainage
O Turkey Creek Drainage

Watershed Area 236 sq-miles

BEAR CREEK WATERSHED ASSOCIATION

PHYSICAL STREAM INDICES FIELD SHEET BEAR CREEK WATERSHED

LOCAL WATERSHED FEATURES 58

Predominant Surrounding Landuse
O Forest O Commercial
O Meadow/Pasture O Open Space
O Large Lot Mix O Other (list)
O Residential/Urban

Local Watershed NPS Pollution in Tier 1 Buffer
O No evidence O Some potential sources
O Obvious sources (list)

Local Watershed Erosion
O None O Moderate O Heavy (photo)

RIPARIAN VEGETATION (100-ft buffer)

Indicate the dominant type and record the dominant species present
O Trees 80% O Shrubs 10% O Grasses 5% O Herbaceous 5%
dominant vegetation type present Tree canopy forest

INSTREAM FEATURES

Estimated Reach Length 100 ft
Estimated Stream Width 15' ft
Sampling Reach Area 80 ft²
width 9-15'
cfs @ 15 cfs
Estimated Stream Depth 1.0 ft
Surface Velocity (at mid-channel) 1.52 (1,1) cfs

Canopy Cover
O Partly open O Partly shaded O Shaded
High Water Mark + 3 ft
Proportion of Reach Represented by Stream Morphology Types
O Riffle 20 % O Run 15 %
O Pool 15 %
Channelized O Yes O No

VERY LARGE WOODY DEBRIS

LWD 4 ft²
Estimated Density of LWD 2 %/ft² (LWD/ reach area)

ROOTED OR FLOATING AQUATIC VEGETATION

Indicate the dominant type and record the dominant species present
O Rooted emergent O Rooted submergent O Free floating
Dominant species present or photo Green filamentous few algae
Portion of the reach with aquatic vegetation(excluding Periphyton) 0.1 %

WATER QUALITY

Temperature 36 °C
Specific Conductance 1045 us/m
Dissolved Oxygen 11.24 mg/l
pH 8.29 su
WQ Instrument Used YSI Multiprobe

Water Odors
O Normal/None O Sewage
O Petroleum O Chemical
O Fishy O Other

Water Surface Oils (Visual)
O Slick O Sheen O Globs O Flecks
O None O Other

Turbidity (visual)
O Clear O Slightly Murky O Murky
O Other

SEDIMENT/ Periphyton Coverage

Pebble Count
O Yes O No
Estimate Embeddedness (%) 60

Periphyton on Rocks
O <5% O 5-15% O 15-25% O Profuse >25%
thickness 0-1

Deposits on Substrate
O Sludge O Organic O Trash O Silt/clay
O Odors (list)
Looking at stones which are not deeply embedded, are the undersides black in color?
O Yes O No

INORGANIC SUBSTRATE COMPONENTS (If No Pebble Count, Then Rough Estimate)			SMALLER ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)		
Substrate Type	**Diameter**	**% Composition in Sampling Reach**	**Substrate Type**	**Characteristic**	**% Composition in Sampling Area**
Bedrock		5	Detritus	sticks, wood, coarse plant materials (CPOM)	2
Boulder	> 256 mm (10")	15			
Cobble	64-256 mm (2.5"-10")	40	Muck-Mud	black, very fine organic (FPOM)	0
Gravel	2-64 mm (0.1"-2.5")	25			
Sand	0.06-2mm (gritty)	13	Other	Define:	
Silt/Clay	0.004-0.06 mm	2			
	Total				

BEAR CREEK WATERSHED ASSOCIATION
PHYSICAL STREAM INDICES FIELD SHEET BEAR CREEK WATERSHED

STREAM NAME: BC	**Bear Creek Watershed, Colorado**	
BCWA SITE # 58	Colorado Stream Segment Classification:	
LAT _____ LONG _____	**South Platte River Basin**	
Web Site: www.bearcreekwatershed.org	**Bear Creek Watershed Association**	
INVESTIGATORS: Tony Rum		
COMPLETED BY; Bear Creek Watershed Association Board	DATE TIME 9-21 (AM) PM	Baseline Habitat Survey for BCWA Sampling Locations; Reference Conditions

WEATHER CONDITIONS

Now		Past 24 hours
O	storm (heavy rain)	O
O	rain (steady rain)	O
O	showers (intermittent)	O
O	% cloud cover	O %
(O)	clear/sunny	(O)

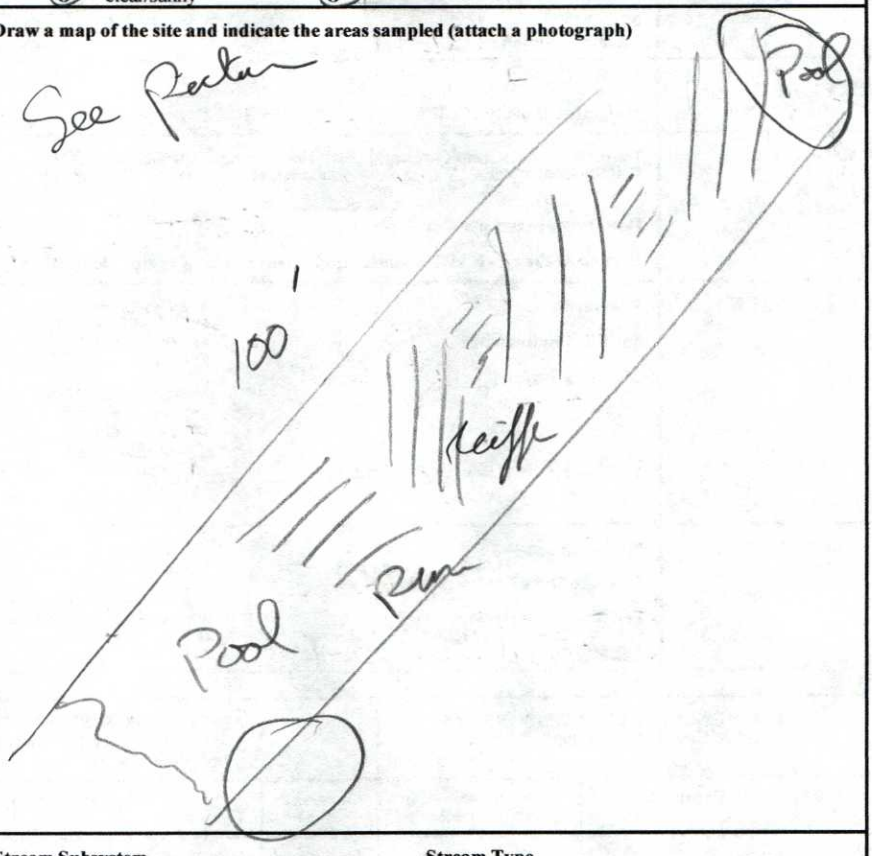
Has there been a heavy rain in the last 7 days? O Yes (O) No

Air Temperature 80 °C

Other _____

SITE LOCATION/MAP

Draw a map of the site and indicate the areas sampled (attach a photograph)



STREAM CHARACTERIZATION

Stream Subsystem
(X) Perennial O Intermittent

Stream Origin
O Mainstem
O Tributary
O Wetland or fen
(X) Bear Creek Drainage
O Turkey Creek Drainage

Stream Type
(X) Coldwater O Warm-water

Watershed Area 236 sq-miles