

(Beartooth snow melt site)
Teton Stoneflies 2021
WYNDD-Tronstad 307-766-3115

Date: 1 Aug 2021

Time: Arrived: 1:30 Departed: 4:00 Collectors: Deb

Stream: Silver Run stream Location Description: E side of silver run patch near

Coordinates: N (Deb's GPS) W - the pass Datum: (same site as 2017)

Elevation: ft Site name on GPS: Silver Run

Water quality (Recorded with a YSI Pro Plus Multitprobe)

Parameter	Value	Units
Water temperature	<u>13.6</u>	°C
Barometric pressure	<u>—</u>	mmHg
DO	<u>111</u>	% saturation
DO	<u>8.1</u>	mg/L
Specific conductivity (SPC)	<u>23.3</u>	µS/cm
Conductivity	<u>18.2</u>	µS/cm
pH	<u>6.0</u>	
ORP	<u>176</u>	mV
Air temp		°C

Last calibrated: this AM DO: this AM

Photos taken: Site ☒ Temp Probe (did not leave one)

Weather: rel. warm, sunny, breezy

Substrate type: cobble / pebble

3 Surbers collected: (all in 1 bag) (+ extra for metabarrodging)

Biofilm rank: Little Medium Green

Microbes collected: no

ANC: N=1 scant vial, but only had new w/out the inverted V-cap.

Pfankuck Index

	Excellent	Good	Fair	Poor	Score	Notes
Angularity	Lots of edges (1)	Some edges, some round (2)	Rounded edges (3)	All round (4)	<u>2</u>	
Brightness (Dull = biofilm)	Most surfaces dull (1)	Mostly dull, <35% bright (2)	50/50 dull & bright (3)	Mostly bright, >65% (4)	<u>3</u>	
Scour	<5% evidence of scour (6)	5-30% of bed scoured (12)	30-50% of bed scoured (18)	>50% of bed scoured (24)	<u>12</u>	<u>fine deep in slow areas</u>
Consolidation of substrate	Tightly packed (2)	Moderately packed (4)	Mostly loose (6)	Totally loose, easily moved (8)	<u>4</u>	
Aquatic Veg	Abundant veg, moss in swift water (1)	Common veg or algae, lots in pools (2)	Spotty, in backwater or seasonal algae (3)	Perennial types, very scarce or absent (4)	<u>1</u>	<u>lots moss</u>

Deployed Temp logger number: N/A Coordinates: UTM: N W -

Retrieved Temp logger number: YAY! From 2017 20155964 Notes: light still blinking!

Description of logger location: Other sad Note: "permanent" snowbed is gone

Photo numbers of temp logger placement:

Suspended Solids:

Filter number	SR 1	SR 2	SR 3
Volume filtered (mL)	<u>600</u>	<u>600</u>	<u>600</u>

labeled w/ blue Sharpie

Nutrient samples collected: N=2 (1 for UNM)

DOC collected: N=1 (filter)

Chl a collected: (no)

Algae collected: N=3, in formalin

Teton Stoneflies 2021

WYNDD-Tronstad 307-766-3115

Date: 1 Aug 2021

Stream Profile: (left edge)

looking down stream

(right edge)

Distance (cm)	0	10	20	30	40	50	60	70	80
Depth (cm)	2	6	6	5	8	6	6	3	2

Flow:

Replicate	Distance (yds)	Time (sec)
1		
2		
3		

N/A - ran out of time for velocity and chl a

Benthic Organic Matter:

Replicate	Water depth (cm)	Volume (mL)
1		
2		
3		

N/A

3 Rock tracings (chlorophyll a):

Notes:

Didn't manage to get All the Teton data here, but lots of stuff for baseline, just in case!

Took too long w/ just one, too long a hike, weather coming in! :)

(Beartooth site)
Teton Stoneflies 2021
WYNDD-Tronstad 307-766-3115

Date: 2 Aug 2021

Time Arrived: 10:40 Departed: 1:00

Collectors: Deb

Stream: Quad Cr. (Beartooths)

Location Description: same ol'... closin' er down

Coordinates: N

W -

Datum:

(in Deb's GPS)

Elevation: ft

Site name on GPS:

Quad Cr

Thunderstorm

Water quality (Recorded with a YSI Pro Plus Multprobe)

Parameter	Value	Units
Water temperature	<u>6.2</u>	°C
Barometric pressure	<u>—</u>	mmHg
DO	<u>117</u>	% saturation
DO	<u>10.2</u>	mg/L
Specific conductivity (SPC)	<u>28.5</u>	µS/cm
Conductivity	<u>18.3</u>	µS/cm
pH	<u>6.8</u>	
ORP	<u>121</u>	mV
Air temp	<u>(mid 60s F)</u>	°C

Last calibrated: yesterday DO: today

Photos taken: Site ☒ Temp Probe n/a

Weather: cloudy, calm, warm

Substrate type: boulder/cobble/gavel

3 Surbers collected: yes - 1 combo sample

Biofilm rank: Little Medium

Green

1 Surber for meta-project.

Microbes collected: no

ANC: ☒ 1 scint vial

Pfankuck Index

	Excellent	Good	Fair	Poor	Score	Notes
Angularity	Lots of edges (1)	Some edges, some round (2)	Rounded edges (3)	All round (4)	<u>2</u>	
Brightness (Dull = biofilm)	Most surfaces dull (1)	Mostly dull, <35% bright (2)	50/50 dull & bright (3)	Mostly bright, >65% (4)	<u>1</u>	
Scour	<5% evidence of scour (6)	5-30% of bed scoured (12)	30-50% of bed scoured (18)	>50% of bed scoured (24)	<u>8</u>	only went 8 1/2 lots of fines
Consolidation of substrate	Tightly packed (2)	Moderately packed (4)	Mostly loose (6)	Totally loose, easily moved (8)	<u>2</u>	
Aquatic Veg	Abundant veg, moss in swift water (1)	Common veg or algae, lots in pools (2)	Spotty, in backwater or seasonal algae (3)	Perennial types, very scarce or absent (4)	<u>1</u>	

Deployed Temp logger number:

n/a

Coordinates: UTM's: N

n/a

W- n/a

Retrieved Temp logger number:

10972587

Notes:

one of the bolts rusted completely

Description of logger location:

n/a

Photo numbers of temp logger placement:

Suspended Solids:

Filter number	Quad 1	Quad 2	Quad 3
Volume filtered (mL)	<u>600</u>	<u>600</u>	<u>600</u>

Nutrient samples collected: N=2 scint vials

DOC collected: N=1 scint vial

Chl a collected: no

Algae collected: N=3 scint vials
W/ 4 cu² scrapes

Teton Stoneflies 2021
WYNDD-Tronstad 307-766-3115

Date: 2 Aug '21

Stream Profile: (left edge)

looking down stream

(right edge)

Distance (cm)									
Depth (cm)									

Flow:

Replicate	Distance (yds)	Time (sec)
1		
2		
3		

Benthic Organic Matter:

Replicate	Water depth (cm)	Volume (mL)
1		
2		
3		

3 Rock tracings (chlorophyll a):

N/A -
Storming!

Notes: Surbers like pea soup in bucket, w/blend of algae + fine sed.
Even tho road is not in this watershed, I wonder if it
still has some influence.

Also: I noticed one large stonefly in the metabarcoding Surber, but
not (necessarily) in the other 3. Makes me wonder if we
could use our Teton data on var. among individual Surbers to
inform the meta project...

Teton Stoneflies 2021
WYNDD-Tronstad 307-766-3115

Date: 8/6/21

Time Arrived: 11:22 Departed: 1:45 Collectors: A. Eichert, L. Tronstad, T.A.R.

Stream: Wind Cave Location Description: Darby Canyon

Coordinates: N 43.66583 W - 110.95601 Datum: NAD83

Elevation: 8719 ft Site name on GPS: Wind Cave

Water quality (Recorded with a YSI Pro Plus Multprobe)

Parameter	Value	Units
Water temperature	<u>3.6</u>	°C
Barometric pressure	<u>556.2</u>	mmHg
DO	<u>98</u>	% saturation
DO	<u>12.88</u>	mg/L
Specific conductivity (SPC)	<u>158.5</u>	µS/cm
Conductivity	<u>93.7</u>	µS/cm
pH	<u>8.03</u>	
ORP	<u>—</u>	mV
Air temp	<u>26.5</u>	°F

Last calibrated: 9/11 DO: 8/6

Photos taken: Site ☒ Temp Probe ☒

Weather: sprinkling occasionally

Substrate type: bedrock, cobble, Boulder

3 Surbers collected: ☒

Biofilm rank: Little ☒ Medium ☒ Green

Microbes collected: ☒

ANCL: ☒

Pfankuck Index

	Excellent	Good	Fair	Poor	Score	Notes
Angularity	Lots of edges (1)	Some edges, some round (2)	Rounded edges (3)	All round (4)	<u>1</u>	
Brightness (Dull = biofilm)	Most surfaces dull (1)	Mostly dull, <35% bright (2)	50/50 dull & bright (3)	Mostly bright, >65% (4)	<u>1</u>	
Scour	<5% evidence of scour (6)	5-30% of bed scoured (12)	30-50% of bed scoured (18)	>50% of bed scoured (24)	<u>24</u>	
Consolidation of substrate	Tightly packed (2)	Moderately packed (4)	Mostly loose (6)	Totally loose, easily moved (8)	<u>4</u>	
Aquatic Veg	Abundant veg, moss in swift water (1)	Common veg or algae, lots in pools (2)	Spotty, in backwater or seasonal algae (3)	Perennial types, very scarce or absent (4)	<u>1</u>	

Deployed Temp logger number: 20571726 Coordinates: UTM: N — W - —

Retrieved Temp logger number: 20155969 Notes: Blown downstream ~30-40 ft

Description of logger location: Charged location of logger, inside Cave now

Photo numbers of temp logger placement: Where water comes to surface, photo taken

Suspended Solids:

Filter number	<u>1</u>	<u>2</u>	<u>3</u>
Volume filtered (mL)	<u>1000</u>	<u>1000</u>	<u>985</u>

Nutrient samples collected: ☒

DOC collected: ☒

Chl a collected: ☒

Algae collected: ☒

Date: 8/6/21

Stream Profile: (left edge)

looking down stream

(right edge) (R)

Distance (cm)	0	30	60	90	120	150	180	210	227
Depth (cm)	0	1	1	1	1	2	1	1	4

Flow:

Replicate	Distance (m)	Time (sec)
1	240 inches	11.25
2	240 inches	10.8
3	240 inches	10.05

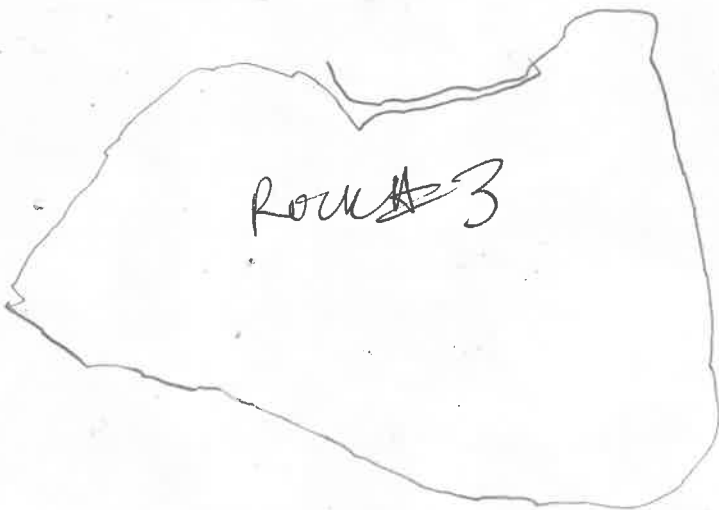
Benthic Organic Matter:

Replicate	Water depth (cm)	Volume (mL)
1	5	72
2	5	59
3	10	120



Rock #1

3 Rock tracings (chlorophyll a):



Rock #3



Rock #2

Notes:

Moss covering bedrock below mouth of cave.
Very unstable below.

Teton Stoneflies 2021

WYNDD-Tronstad 307-766-3115

Slope = 30°

Date: 8 Aug 2021

Time: Arrived: 9am Departed: Collectors: LT, SH, Shaginan, Bella

Stream: SF Teton Creek Location Description: Above original location

Coordinates: N 43.69086 W - 110.84094 Datum: NAD83

Elevation: 9805 ft Site name on GPS: SF Teton

Water quality (Recorded with a YSI Pro Plus Multiprobe)

Parameter	Value	Units
Water temperature	7.4	°C
Barometric pressure	532.1	mmHg
DO	77.0	% saturation
DO	9.20	mg/L
Specific conductivity (SPC)	74.4	µS/cm
Conductivity	49.3	µS/cm
pH	7.80	
ORP	—	mV
Air temp		°C

Last calibrated: DO: 8/8

Photos taken: Site Temp Probe

Weather: Sunny, slight breeze

Substrate type: Cobble, gravel

3 Surbers collected: ✓

Biofilm rank: Little Medium Green

Microbes collected:

ANC: ✓

Pfankuck Index

	Excellent	Good	Fair	Poor	Score	Notes
Angularity	Lots of edges (1)	Some edges, some round (2)	Rounded edges (3)	All round (4)	2	
Brightness (Dull = biofilm)	Most surfaces dull (1)	Mostly dull, <35% bright (2)	50/50 dull & bright (3)	Mostly bright, >65% (4)	4	
Scour	<5% evidence of scour (6)	5-30% of bed scoured (12)	30-50% of bed scoured (18)	>50% of bed scoured (24)	12	
Consolidation of substrate	Tightly packed (2)	Moderately packed (4)	Mostly loose (6)	Totally loose, easily moved (8)	4	
Aquatic Veg	Abundant veg, moss in swift water (1)	Common veg or algae, lots in pools (2)	Spotty, in backwater or seasonal algae (3)	Perennial types, very scarce or absent (4)	4	

Deployed Temp logger number: 20416500 Coordinates: UTM: N W -

Retrieved Temp logger number: 20571724 Notes:

Description of logger location: In stream before switchback over RG, Below large rock

Photo numbers of temp logger placement:

Suspended Solids:

Filter number	1	2	3
Volume filtered (mL)	1000	1000	800

Nutrient samples collected: ✓

DOC collected: ✓

Chl a collected: ✓ n=3

Algae collected: ✓ n=3

Stream Profile: (left edge)

looking down stream

edge

(right edge)

Distance (m)	0	1	2	3	4	5			
Depth (cm)	0	8.5	11	18.5	8	3			

Flow:

Replicate	Distance (m)	Time (sec)
1	8	11
2	8	11
3	8	10.7

Benthic Organic Matter:

Replicate	Water depth (cm)	Volume (mL)	Filtered (mL)
1	6	80	20
2	7	100	60
3	8	80	80

3 Rock tracings (chlorophyll a):



Notes:

Used epoxy to glue on labels on temp loggers

Date: 5 Aug 2021

Time: Arrived: 1:00 pm Departed: 2:50 Collectors: Deb, Shannon, Taylor

Stream: NF Teton Cr Location Description: classic NFT reach

Coordinates: N _____ W - _____ Datum: _____

Elevation: _____ ft Site name on GPS: N Fork Teton (IN Deb's GPS)

Water quality (Recorded with a YSI Pro Plus Multiprobe)

Parameter	Value	Units
Water temperature	<u>13.8</u>	°C
Barometric pressure		mmHg
DO	<u>110</u>	% saturation
DO	<u>8.1</u>	mg/L
Specific conductivity (SPC)	<u>12.8</u>	µS/cm
Conductivity	<u>10.1</u>	µS/cm
pH	<u>5.96</u>	
ORP	<u>211</u>	mV
Air temp	<u>WARMISH BUT RAIN COMING!</u>	°C

Last calibrated: THIS AM DO: THIS AM

Photos taken: Site ☒ Temp Probe ☒

Weather: storm clouds coming in

Substrate type: boulders / cobbles

3 Surbers collected: n=3 + 1 FOR BYU

Biofilm rank: Little ☒ Medium ☐ Green ☐

Microbes collected: Taylor has 'em!

ANK: ✓ n=1
(Alkalinity)

Pfankuck Index

	Excellent	Good	Fair	Poor	Score	Notes
Angularity	Lots of edges (1)	Some edges, some round (2)	Rounded edges (3)	All round (4)	<u>1</u>	<u>same</u>
Brightness (Dull = biofilm)	Most surfaces dull (1)	Mostly dull, <35% bright (2)	50/50 dull & bright (3)	Mostly bright, >65% (4)	<u>2.5</u>	<u>seems brighter than usual</u>
Scour	<5% evidence of scour (6)	5-30% of bed scoured (12)	30-50% of bed scoured (18)	>50% of bed scoured (24)	<u>12</u>	<u>fine sed deposition in pools</u>
Consolidation of substrate	Tightly packed (2)	Moderately packed (4)	Mostly loose (6)	Totally loose, easily moved (8)	<u>2</u>	
Aquatic Veg	Abundant veg, moss in swift water (1)	Common veg or algae, lots in pools (2)	Spotty, in backwater or seasonal algae (3)	Perennial types, very scarce or absent (4)	<u>2</u>	

Deployed Temp logger number: 20475520 Coordinates: UTM: N 2110 W - _____

Retrieved Temp logger number: 20204665 Notes: _____

Description of logger location: Same place, d/s of large boulder River right.

Photo numbers of temp logger placement: _____

Suspended Solids:

Filter number	NFT 1	NFT 2	NFT 3
Volume filtered (mL)	<u>600</u>	<u>600</u>	<u>600</u>

Nutrient samples collected: n=2

DOC collected: n=1

Chl a collected: n=3

Algae collected: n=3

Date: 5 Aug 2021

Stream Profile: (left edge)

looking down stream

(right edge)

Distance (cm)	0	20	40	60	80	84			
Depth (cm)	11	2	13	9	4	0			

Flow:

Replicate	Distance (meters)	Time (sec)
1	2.5	16.6
2	2.5	18.2
3	2.5	20.6

Benthic Organic Matter:

Replicate	Water depth (cm)	Volume (mL)
1	3	60
2	8	80
3	3	40

3 Rock tracings (chlorophyll a):



Rock #3

Rock #2

Notes:

Much lower flow than usual, but still flowing! Cased caddis crawling around + saw a couple of Chloroperlids adults

Teton Stoneflies 2021
WYNDD-Tronstad 307-766-3115

Date: 7 Aug 3° Slope

Time: Arrived: 6 pm Departed: _____ Collectors: ST, SA, Isabella, Ana,

Stream: S. AK Basin RG

Location Description: _____

Coordinates: N 43.69275 W - 110.85851 Datum: NAD83

Elevation: 9340 ft Site name on GPS: South Alaska Basin RG

Water quality (Recorded with a YSI Pro Plus Multprobe)

Parameter	Value	Units
Water temperature	<u>2.2</u>	°C
Barometric pressure	<u>541.9</u>	mmHg
DO	<u>90.5</u>	% saturation
DO	<u>12.40</u>	mg/L
Specific conductivity (SPC)	<u>228.2</u>	µS/cm
Conductivity	<u>128.9</u>	µS/cm
pH	<u>8.07</u>	
ORP		mV
Air temp		°C

Last calibrated: _____ DO: 8/7

Photos taken: Site _____ Temp Probe _____

Weather: Pleasant Evening

Substrate type: Cobble

3 Surbers collected: ☒

Biofilm rank: Little ☒ Medium ☐ Green ☐

Microbes collected: _____

ANC: _____

Pfankuck Index

	Excellent	Good	Fair	Poor	Score	Notes
Angularity	Lots of edges (1)	Some edges, some round (2)	Rounded edges (3)	All round (4)	<u>1</u>	
Brightness (Dull = biofilm)	Most surfaces dull (1)	Mostly dull, <35% bright (2)	50/50 dull & bright (3)	Mostly bright, >65% (4)	<u>2</u>	
Scour	<5% evidence of scour (6)	5-30% of bed scoured (12)	30-50% of bed scoured (18)	>50% of bed scoured (24)	<u>6</u>	
Consolidation of substrate	Tightly packed (2)	Moderately packed (4)	Mostly loose (6)	Totally loose, easily moved (8)	<u>4</u>	
Aquatic Veg	Abundant veg, moss in swift water (1)	Common veg or algae, lots in pools (2)	Spotty, in backwater or seasonal algae (3)	Perennial types, very scarce or absent (4)	<u>2</u>	

Deployed Temp logger number: 21101990 Coordinates: UTM: N _____ W - _____

Retrieved Temp logger number: 10767834 Notes: _____

Description of logger location: At head of icy seep

Photo numbers of temp logger placement: _____

Suspended Solids:

Filter number	<u>1</u>	<u>2</u>	<u>3</u>
Volume filtered (mL)	<u>1000</u>	<u>1000</u>	<u>1000</u>

Nutrient samples collected: ☒

DOC collected: ☒

Chl a collected: ☒

Algae collected: _____

Stream Profile: (left edge)

looking down stream

(right edge)

Distance (cm)	0	0.5	1.0	1.5	2.0	2.5	3.0	3.5	
Depth (cm)	7.5	7.0	5.0	11.0	8.5	6.5	0	4.5	

Flow:

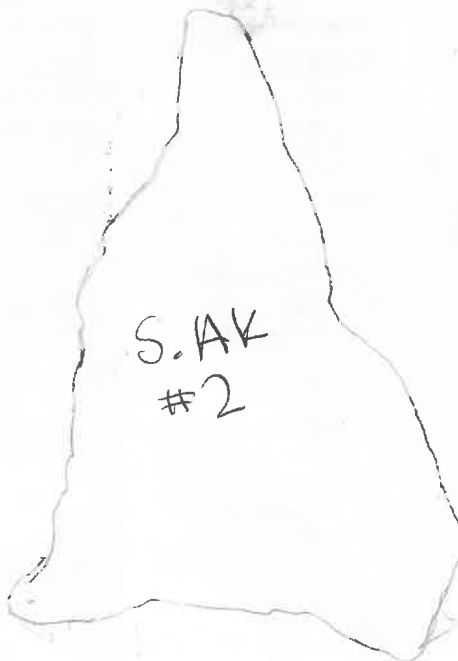
Replicate	Distance (yds) in	Time (sec)
1	107	8.94
2	107	8.78
3	107	9.73

Benthic Organic Matter:

Replicate	Water depth (cm)	Volume (mL)
1	6	95
2	7	72
3	5.5	30

Filtered 10ml only, lots of fines

3 Rock tracings (chlorophyll a):



Notes:

Rock glacier is limestone + landscape
is igneous (granite)
Lower water level than normal.

Teton Stoneflies 2021
WYNDD-Tronstad 307-766-3115

Date: 8 Aug 2021

Time: Arrived: W NOON Departed: 2:15 Collectors: Taylor, Anna E, Isabella E, Deb

Stream: S. Cascade icy seep Location Description: same - full reach exposed! Did not collect samples right @ source. But all along reach.
Coordinates: N (in Deb's GPS) W - Datum:

Elevation: ft Site name on GPS: S Casc seep

Water quality (Recorded with a YSI Pro Plus Multprobe)

Parameter	Value	Units
Water temperature	<u>4.1</u>	°C
Barometric pressure	<u>523.0</u>	mmHg
DO	<u>106</u>	% saturation
DO	<u>9.6</u>	mg/L
Specific conductivity (SPC)	<u>170.9</u>	µS/cm
Conductivity	<u>102.8</u>	µS/cm
pH	<u>7.97</u>	
ORP	<u>150.9</u>	mV
Air temp		°C

Last calibrated: yesterday DO: now - @ site

Photos taken: Site ☒ Temp Probe ☒

Weather: mostly sunny, warm

Substrate type: loose cobbles, gravel

3 Surbers collected: ☒

Biofilm rank: Little Medium Green

Microbes collected: TL P ✓

ANC: ✓ 1 for Shannon

Pfankuck Index

	Excellent	Good	Fair	Poor	Score	Notes
Angularity	Lots of edges (1)	Some edges, some round (2)	Rounded edges (3)	All round (4)	<u>1</u>	
Brightness (Dull = biofilm)	Most surfaces dull (1)	Mostly dull, <35% bright (2)	50/50 dull & bright (3)	Mostly bright, >65% (4)	<u>23</u>	<u>lots fine seeds; not much silt</u>
Scour	<5% evidence of scour (6)	5-30% of bed scoured (12)	30-50% of bed scoured (18)	>50% of bed scoured (24)	<u>24</u>	
Consolidation of substrate	Tightly packed (2)	Moderately packed (4)	Mostly loose (6)	Totally loose, easily moved (8)	<u>4-5</u>	
Aquatic Veg	Abundant veg, moss in swift water (1)	Common veg or algae, lots in pools (2)	Spotty, in backwater or seasonal algae (3)	Perennial types, very scarce or absent (4)	<u>4</u>	

Deployed Temp logger number: 21101991 Coordinates: UTM's: N W -

Retrieved Temp logger number: 10972590 Notes: found in same place, fully submerged

Description of logger location: We placed the new one in the lower location where

Photo numbers of temp logger placement: ✓✓ used the past couple of years. River left. Just before steeper section

Suspended Solids: S. Cascade icy seep

Filter number	<u>1</u>	<u>2</u>	<u>3</u>
Volume filtered (mL)	<u>400 ml</u>	<u>300 ml</u>	<u>250 ml</u>

Nutrient samples collected: n=2

DOC collected: n=1

Chl a collected: n=3

Algae collected: n=3 (Taylor)

Date: 8 Aug '21

Stream Profile: (left edge)

looking down stream

(right edge)

Distance (cm)	0	20	40	50	70	90	100		
Depth (cm)	0	5	6	4	3	4	4		

Flow:

Replicate	Distance (m)	Time (sec)
1	3 m	4.9
2	3 m	4.95 (4.95)
3	3 m	5.05

* Benthic Organic Matter:

Replicate	Water depth (cm)	Volume (mL)
1	6	90
2	6	55
3	8	72

3 Rock tracings (chlorophyll a):



Notes:

- * Filtered the BOM samples onto spare little filters back @ camp. There was a lot of fine sed. Each sample took between ~4-9 filters. wrapped them up in multiple in some spare strips of foil.

Teton Stoneflies 2021
WYNDD-Tronstad 307-766-3115

Date: 8/10/21

Time: Arrived: 1:30 Departed: 3:30 Collectors: SH/LT

Stream: Middle Teton Location Description: _____

Coordinates: N 43.72809 W - 110.79617 Datum: NAD83
Same as always

Elevation: 9578 ft Site name on GPS: Middle Teton

Water quality (Recorded with a YSI Pro Plus Multitprobe)

Parameter	Value	Units
Water temperature	<u>2.9</u>	°C
Barometric pressure	<u>536.9</u>	mmHg
DO	<u>82.9</u>	% saturation
DO	<u>12.05</u>	mg/L
Specific conductivity (SPC)	<u>2.4</u>	µS/cm
Conductivity	<u>1.4</u>	µS/cm
pH	<u>6.51</u>	
ORP	<u>—</u>	mV
Air temp		°C

Last calibrated: _____ DO: 8/10

Photos taken: Site _____ Temp Probe _____

Weather: Sunny/clear

Substrate type: Gravel/Boulder

3 Surbers collected: ✓

Biofilm rank: Little Medium Green

Microbes collected: ✓ SH

ANC: ✓

Pfankuck Index

	Excellent	Good	Fair	Poor	Score	Notes
Angularity	Lots of edges (1)	Some edges, some round (2)	Rounded edges (3)	All round (4)	<u>2</u>	
Brightness (Dull = biofilm)	Most surfaces dull (1)	Mostly dull, <35% bright (2)	50/50 dull & bright (3)	Mostly bright, >65% (4)	<u>4</u>	
Scour	<5% evidence of scour (6)	5-30% of bed scoured (12)	30-50% of bed scoured (18)	>50% of bed scoured (24)	<u>24</u>	
Consolidation of substrate	Tightly packed (2)	Moderately packed (4)	Mostly loose (6)	Totally loose, easily moved (8)	<u>6</u>	
Aquatic Veg	Abundant veg, moss in swift water (1)	Common veg or algae, lots in pools (2)	Spotty, in backwater or seasonal algae (3)	Perennial types, very scarce or absent (4)	<u>4</u>	

Deployed Temp logger number: 21101992 Coordinates: UTM: N Same as always W - _____

Retrieved Temp logger number: 10767841 Notes: SH has photo

Description of logger location: In place, below water fall

Photo numbers of temp logger placement: _____

Suspended Solids:

Filter number	<u>1</u>	<u>2</u>	<u>3</u>
Volume filtered (mL)	<u>400</u>	<u>350</u>	<u>400</u>

Nutrient samples collected: ✓

DOC collected: ✓

Chl a collected: ✓

Algae collected: ✓

Date: 8/10/21

26
2

Stream Profile: (left edge)

looking down stream

(right edge)

Distance (cm)	0	2	4	6	8	10	12	14	16	18	20	22	24
Depth (cm)	0	3	3.5	4.5	.5	0	.5	4.5	3.5	2	3	11	15

Flow:

Replicate	Distance (yds)	Time (sec)
1		
2		
3		

Can't see
flashes in stream
to turbulent
no velocity

Benthic Organic Matter:

Replicate	Water depth (cm)	Volume (mL)
1	4	57
2	5	79
3	16	62

Filtered all
no sign of organic matter
all sediment

3 Rock tracings (chlorophyll a):



Notes:

strong flow

Slope = 22°

Date: 10 Aug 2021

Time: Arrived: 12:20 Departed: 2:45 Collectors: LT, SB, Isabella, Karen, DF

Stream: Claudveil Damo Location Description: Upper Barnett Canyon

Coordinates: N 43.72551 W - 110.79608 Datum: NAD83

Elevation: 9354 ft Site name on GPS: Claudveil Damo

Water quality (Recorded with a YSI Pro Plus Multitprobe)

Parameter	Value	Units
Water temperature	4.2	°C
Barometric pressure	541.8	mmHg
DO	84.5	% saturation
DO	10.96	mg/L
Specific conductivity (SPC)	10.6	µS/cm
Conductivity	6.4	µS/cm
pH	6.87	
ORP	—	mV
Air temp		°C

Last calibrated: DO: 8/10

Photos taken: Site ☒ Temp Probe ☒

Weather: Sunny Breeze

Substrate type: Cobble, Boulder

3 Surbers collected: yes +1 for BYU

Biofilm rank: Little Medium Green

Microbes collected: NO - Taylor comes
ANC: ☒ 1 scint vial later

Pfankuck Index

	Excellent	Good	Fair	Poor	Score	Notes
Angularity	Lots of edges (1)	Some edges, some round (2)	Rounded edges (3)	All round (4)	1	
Brightness (Dull = biofilm)	Most surfaces dull (1)	Mostly dull, <35% bright (2)	50/50 dull & bright (3)	Mostly bright, >65% (4)	3	could be 3.5!
Scour	<5% evidence of scour (6)	5-30% of bed scoured (12)	30-50% of bed scoured (18)	>50% of bed scoured (24)	24	similar to middle Teton
Consolidation of substrate	Tightly packed (2)	Moderately packed (4)	Mostly loose (6)	Totally loose, easily moved (8)	4	
Aquatic Veg	Abundant veg, moss in swift water (1)	Common veg or algae, lots in pools (2)	Spotty, in backwater or seasonal algae (3)	Perennial types, very scarce or absent (4)	1	MOSS in swift H ₂ O

Deployed Temp logger number: 20416497 Coordinates: UTM: N W -

Retrieved Temp logger number: 10972588 Notes: In place

Description of logger location: Below giant Boulder (w/ metamorphic lines!)

Photo numbers of temp logger placement: ☒ u/s and d/s

Suspended Solids:

Filter number	CLD 1	CLD 2	CLD 3
Volume filtered (mL)	300	350	350

Nutrient samples collected: N=2

DOC collected: N=1

Chl a collected: N=3

Algae collected: N=3

Date: 10 Aug 2021

Stream Profile: (left edge)

looking down stream

(right edge)

Distance (m)	0	1	2	3	4	5	6	7	8	9	10
Depth (cm)	1	4	0	1	5	3	5	9	7	21	1

Flow:

Replicate	Distance (m)	Time (sec)
1	3	4.95
2	3	5.64
3	3	5.75

Benthic Organic Matter:

Replicate	Water depth (cm)	Volume (mL)
1	4	60
2	5.5	95
3	4	30

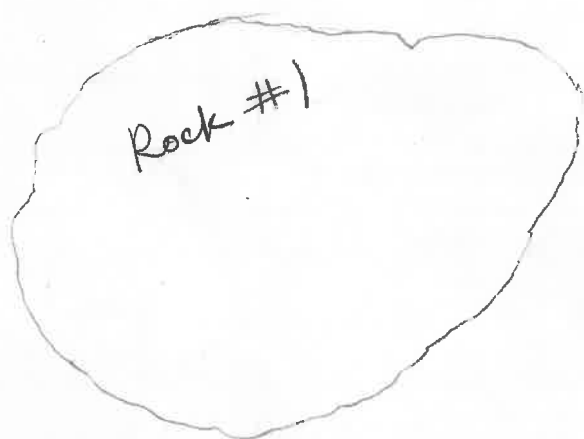
Vol. Filtered (mL)

18

20

10

3 Rock tracings (chlorophyll a):



Notes:

Geology = metamorphic
+ granite

2021
ad 307-766-3115

Date: 11 Aug 2021

Arrived: 11:30 Departed: Collectors: Scott, Karen, Casey, Deb
Stream: Delta Inlet Location Description: above Delta Lake

Coordinates: N W - Datum:
Elevation: ft Site name on GPS: (Same ol')
NO delta variants (har har)

Water quality (Recorded with a YSI Pro Plus Multprobe)

Parameter	Value	Units
Water temperature	2.4	°C
Barometric pressure	551	mmHg
DO	11.3	% saturation
DO	11.2	mg/L
Specific conductivity (SPC)	9.2	µS/cm
Conductivity	5.2	µS/cm
pH	7.2	
ORP	145	mV
Air temp	~13.5	°C

Last calibrated: 3 days ago DO: on site

Photos taken: Site ☒ Temp Probe

Weather: Warm, partly cloudy

Substrate type: gravel, cobble

3 Surbers collected: ☒ (+1 for BYU → SH)

Biofilm rank: Little Medium Green

Microbes collected: ☒ SH

ANC: ☒ N=1 to UNM

Pfankuck Index

	Excellent	Good	Fair	Poor	Score	Notes
Angularity	Lots of edges (1)	Some edges, some round (2)	Rounded edges (3)	All round (4)	2	
Brightness (Dull = biofilm)	Most surfaces dull (1)	Mostly dull, <35% bright (2)	50/50 dull & bright (3)	Mostly bright, >65% (4)	4	
Scour	<5% evidence of scour (6)	5-30% of bed scoured (12)	30-50% of bed scoured (18)	>50% of bed scoured (24)	15	Right around 30%
Consolidation of substrate	Tightly packed (2)	Moderately packed (4)	Mostly loose (6)	Totally loose, easily moved (8)	6	
Aquatic Veg	Abundant veg, moss in swift water (1)	Common veg or algae, lots in pools (2)	Spotty, in backwater or seasonal algae (3)	Perennial types, very scarce or absent (4)	1	moss in swift H ₂ O

Deployed Temp logger number: 21101989 Coordinates: UTM: N W -

Retrieved Temp logger number: 20224649 Notes:

Description of logger location: Same

Photo numbers of temp logger placement: Scott took two phone photos

Suspended Solids:

Filter number	Delta 1	Delta 2	Delta 3
Volume filtered (mL)	300	250	250

Nutrient samples collected: N=2 (one for Shannon)

DOC collected: N=1 vial (for Shannon)

Chl a collected: N=3

Algae collected: N=3 for Shannon - fixed in field

Teton Stoneflies 2021
WYNDD-Tronstad 307-766-3115

Date: 08/11/2021

Stream Profile: (left edge)

looking down stream

(right edge)

Distance (cm)	0	30	60	90	120	150	180	210	X
Depth (cm)	0	10	19	15	20	14	19	10	X

Flow:

Replicate	Distance (yds)	Time (sec)
1	4.2	2.85
2	4.2	2.95
3	4.2	2.65

Benthic Organic Matter:

Replicate	Water depth (cm)	Volume (mL)
1	13	98
2	10	76
3	12	66

vol filtered (mL)

55

60

25

3 Rock tracings (chlorophyll a):



Notes:

Geology granite + metamorphic similar to Garnet Canyon
stream has that beautiful grayish but "sparkly"
sand.

Teton Stoneflies 2021
WYNDD-Tronstad 307-766-3115

Date: 12 Aug 2021

Time: Arrived: 2:00 Departed: 3:35 Collectors: LT, SA Anna, Karen O., Isabella,

Stream: Grizzly Location Description: _____

Coordinates: N 43.79766 W - 110.80715 Datum: NAD83

Elevation: 9551 ft

Site name on GPS: Grizzly

Water quality (Recorded with a YSI Pro Plus Multprobe)

Parameter	Value	Units
Water temperature	<u>19.7</u>	°C
Barometric pressure	<u>539.4</u>	mmHg
DO	<u>85.0</u>	% saturation
DO	<u>7.75</u>	mg/L
Specific conductivity (SPC)	<u>23.6</u>	µS/cm
Conductivity	<u>21.3</u>	µS/cm
pH	<u>7.60</u>	
ORP		mV
Air temp		°C

Last calibrated: 8/11 DO: 8/12

Photos taken: Site ☒ Temp Probe _____

Weather: Clear, sunny, warm

Substrate type: Gravel, Cobble

3 Surbers collected: ☒ SA

Biofilm rank: Little Medium Green

Microbes collected: ☒ SA

ANC: ☒

Pfankueck Index

	Excellent	Good	Fair	Poor	Score	Notes
Angularity	Lots of edges (1)	Some edges, some round (2)	Rounded edges (3)	All round (4)	<u>1</u>	
Brightness (Dull = biofilm)	Most surfaces dull (1)	Mostly dull, <35% bright (2)	50/50 dull & bright (3)	Mostly bright, >65% (4)	<u>1</u>	
Scour	<5% evidence of scour (6)	5-30% of bed scoured (12)	30-50% of bed scoured (18)	>50% of bed scoured (24)	<u>6</u>	
Consolidation of substrate	Tightly packed (2)	Moderately packed (4)	Mostly loose (6)	Totally loose, easily moved (8)	<u>4</u>	
Aquatic Veg	Abundant veg, moss in swift water (1)	Common veg or algae, lots in pools (2)	Spotty, in backwater or seasonal algae (3)	Perennial types, very scarce or absent (4)	<u>2</u>	

Deployed Temp logger number: 2086406 Coordinates: UTM: N _____ W - _____

Retrieved Temp logger number: 20155864 Notes: _____

Description of logger location: Same In place

Photo numbers of temp logger placement: No new photos

Suspended Solids:

Filter number	<u>1</u>	<u>2</u>	<u>3</u>
Volume filtered (mL)	<u>1000</u>	<u>1000</u>	<u>600</u>

Nutrient samples collected: ☒

DOC collected: ☒

Chl a collected: ☒

Algae collected: ☒

Teton Stoneflies 2021

WYNDD-Tronstad 307-766-3115

Date: Aug 12, 2021

Stream Profile: (left edge)

looking down stream

(right edge)

Distance (cm)	0	10	20	30	40	50	60	(edge) 62	
Depth (cm)	1	2	4.3	5	3.5	1	1	0	

Flow:

Replicate	Distance (m)	Time (sec)
1	3.3	22.6
2	3.3	18
3	3.3	16.6

Benthic Organic Matter:

Replicate	Water depth (cm)	Volume (mL)
1	3	38
2	3.5	40
3	8	51

Filtered (mL)

34

40

36

Rock
#3

3 Rock tracings (chlorophyll a):

Rock
#1

Rock
#2

Notes:

NO snowfield on the way down. Tiny snowfield on mountainside. Hydrus disappeared from 2 weeks ago when Karen visited. Flow was ~ 2x 2 weeks ago. Difficult to take Subers b/c of low flow. Tons of money flowers, butterflies + bees. Very hot!

Teton Stoneflies 2021
WYNDD-Tronstad 307-766-3115

Slope: 24°

Date: 13 Aug 2021

Time: Arrived: 10:20 Departed: Collectors: Lusha, Scott, Anna, Karen, Isabella

Stream: gusher

Location Description:

Coordinates: N 43.79385

W - 110.77860

Datum: NAD83

Elevation: 8,046 ft

Site name on GPS: gusher

Water quality (Recorded with a YSI Pro Plus Multiprobe)

Parameter	Value	Units
Water temperature	4.0°C	°C
Barometric pressure	569.3	mmHg
DO %	85.1%	% saturation
DO	11.07	mg/L
Specific conductivity (SPC)	38.6	µS/cm
Conductivity	23.1	µS/cm
pH	7.37	
ORP		mV
Air temp		°C

Last calibrated: 8/11 DO: 8/13

Photos taken: Site ☒ Temp Probe ☐

Weather: Sunny, Calm

Substrate type: Cobble + Boulders

3 Surbers collected: ☒

Biofilm rank: Little ☒ Medium ☐ Green ☐

Microbes collected: ☒

ANC: ☒

Pfankuck Index

	Excellent	Good	Fair	Poor	Score	Notes
Angularity	Lots of edges (1)	Some edges, some round (2)	Rounded edges (3)	All round (4)	1	
Brightness (Dull = biofilm)	Most surfaces dull (1)	Mostly dull, <35% bright (2)	50/50 dull & bright (3)	Mostly bright, >65% (4)	1	
Scour	<5% evidence of scour (6)	5-30% of bed scoured (12)	30-50% of bed scoured (18)	>50% of bed scoured (24)	24	
Consolidation of substrate	Tightly packed (2)	Moderately packed (4)	Mostly loose (6)	Totally loose, easily moved (8)	4	
Aquatic Veg	Abundant veg, moss in swift water (1)	Common veg or algae, lots in pools (2)	Spotty, in backwater or seasonal algae (3)	Perennial types, very scarce or absent (4)	1	

Deployed Temp logger number: 21101988 Coordinates: UTM: N W -

Retrieved Temp logger number: 20155967 Notes: Used plant material to attach it

Description of logger location: Logger was just barely in the water.

Photo numbers of temp logger placement:

Suspended Solids:

Filter number	1	2	3
Volume filtered (mL)	600	600	600

Nutrient samples collected: ☒

DOC collected: ☒

Chl a collected: ☒

Algae collected: ☒

Date: 13 Aug 2021

Stream Profile: (left edge)

looking down stream

edge

(right edge)

Distance (m)	0	1	2	3	4	5	5.5		
Depth (cm)	1	5	13	4	9	13	0		

Flow:

Replicate	Distance (m)	Time (sec)
1	4	3.10
2	4	2.31
3	4	4.02

Benthic Organic Matter:

Replicate	Water depth (cm)	Volume (mL)	Filtered (mL)
1	10	80	35
2	5	30	12
3	10	80	50



3 Rock tracings (chlorophyll a):



Notes:

A little lower this year, logs barely in water
so temps may be marginal. Good flow.
Zapada + Leuctra

Teton Stoneflies 2021
WYNDD-Tronstad 307-766-3115

Date: 9 Aug 2021

Time: Arrived: 12:00 Departed: _____ Collectors: AT, SH, Karen J.

Stream: Skillet Glacier Location Description: _____

Coordinates: N 43.83958 W - 110.75655 Datum: NAD83

Elevation: 8873 ft Site name on GPS: _____

Water quality (Recorded with a YSI Pro Plus Multitprobe)

Parameter	Value	Units
Water temperature	<u>5.8</u>	°C
Barometric pressure	<u>851.5</u>	mmHg
DO	<u>85.5</u>	% saturation
DO	<u>10.85</u>	mg/L
Specific conductivity (SPC)	<u>2.4</u>	µS/cm
Conductivity	<u>1.5</u>	µS/cm
pH	<u>7.26</u>	
ORP	<u>—</u>	mV
Air temp		°C

Last calibrated: 8/1 DO: 8/9

Photos taken: Site ☒ Temp Probe ☐

Weather: Sunny, Breezy

Substrate type: Cobble + Boulders

3 Surbers collected: ☒

Biofilm rank: Little Medium Green

Microbes collected: ☒

ANC: ☒

Pfankuck Index

	Excellent	Good	Fair	Poor	Score	Notes
Angularity	Lots of edges (1)	Some edges, some round (2)	Rounded edges (3)	All round (4)	<u>3</u>	
Brightness (Dull = biofilm)	Most surfaces dull (1)	Mostly dull, <35% bright (2)	50/50 dull & bright (3)	Mostly bright, >65% (4)	<u>4</u>	
Scour	<5% evidence of scour (6)	5-30% of bed scoured (12)	30-50% of bed scoured (18)	>50% of bed scoured (24)	<u>24</u>	
Consolidation of substrate	Tightly packed (2)	Moderately packed (4)	Mostly loose (6)	Totally loose, easily moved (8)	<u>6</u>	
Aquatic Veg	Abundant veg, moss in swift water (1)	Common veg or algae, lots in pools (2)	Spotty, in backwater or seasonal algae (3)	Perennial types, very scarce or absent (4)	<u>4</u>	

Deployed Temp logger number: 20571723 Coordinates: UTM: N _____ W - _____

Retrieved Temp logger number: 20416499 Notes: Didn't move!

Description of logger location: _____

Photo numbers of temp logger placement: _____

Suspended Solids:

Filter number	<u>1</u> ^{WC}	<u>2</u>	<u>3</u>
Volume filtered (mL)	<u>1000</u>	<u>1000</u>	<u>1000</u>

Filter ruptured

Filter ruptured

Filter ruptured

Nutrient samples collected: ☒

DOC collected: ☒

Chl a collected: ☒

Algae collected: ☒

Stream Profile: (left edge)

looking down stream

(right edge)

Distance (cm)	0	2	4	6	8	10	12	14	15	
Depth (cm)	0	14	15	14	8.5	0	1.5	3	0	

Flow:

Replicate	Distance (yds)	Time (sec)
1	10	4.4
2	1	2.3
3	↓	1.85

Benthic Organic Matter:

Replicate	Water depth (cm)	Volume (mL)
1	6	72
2	5	90
3	12	120

Filtered

72

80

120

3 Rock tracings (chlorophyll a):



Notes:

Jackson Lake very low. Bearpaw Bay dry. Lots of
flow in stream.
Karen found Lediina, Blephariseoids

Teton Stoneflies 2021
WYNDD-Tronstad 307-766-3115

8° Slope

Date: 13 Aug 2021

Time: Arrived: 8:30 Departed: _____ Collectors: LT, SA

Stream: Paintbrush RG Location Description: _____

Coordinates: N 43.78534 W - 110.79382 Datum: _____

Elevation: 8864 ft Site name on GPS: _____

Water quality (Recorded with a YSI Pro Plus Multprobe)

Parameter	Value	Units
Water temperature	<u>9.8</u>	°C
Barometric pressure	<u>551.9</u>	mmHg
DO	<u>75.9</u>	% saturation
DO	<u>8.48</u>	mg/L
Specific conductivity (SPC)	<u>48.3</u>	µS/cm
Conductivity	<u>34.3</u>	µS/cm
pH	<u>8.31</u>	
ORP	<u>—</u>	mV
Air temp		°C

Last calibrated: 8/11 DO: 8/13

Photos taken: Site ☒ Temp Probe _____

Weather: Sunny, calm

Substrate type: Cobble, gravel, boulders

3 Surbers collected: _____

Biofilm rank: Little Medium Green

Microbes collected: _____

ANC: _____

Pfankuck-Index

	Excellent	Good	Fair	Poor	Score	Notes
Angularity	Lots of edges (1)	Some edges, some round (2)	Rounded edges (3)	All round (4)		
Brightness (Dull = biofilm)	Most surfaces dull (1)	Mostly dull, <35% bright (2)	50/50 dull & bright (3)	Mostly bright, >65% (4)		
Scour	<5% evidence of scour (6)	5-30% of bed scoured (12)	30-50% of bed scoured (18)	>50% of bed scoured (24)		
Consolidation of substrate	Tightly packed (2)	Moderately packed (4)	Mostly loose (6)	Totally loose, easily moved (8)		
Aquatic Veg	Abundant veg, moss in swift water (1)	Common veg or algae, lots in pools (2)	Spotty, in backwater or seasonal algae (3)	Perennial types, very scarce or absent (4)		

Deployed Temp logger number: 20861405 Coordinates: UTM: N _____ W - _____

Retrieved Temp logger number: 20155865 Notes: _____

Description of logger location: _____

Photo numbers of temp logger placement: _____

Suspended Solids:

Filter number			
Volume filtered (mL)			

Nutrient samples collected: _____

DOC collected: _____

Chl a collected: _____

Algae collected: _____

Date: _____

stoneflies 2021
D-Tronstad 307-766-3115

Profile: (left edge)

looking  down stream

(right edge)

ance (cm)									
th (cm)									

ow:	Distance (yds)	Time (sec)
eplicate		
2		
3		

Benthic Organic Matter:

Replicate	Water depth (cm)	Volume (mL)
1		
2		
3		

3 Rock tracings (chlorophyll a):

Notes: Not flowing. Only a couple of pods, including the
data logger being in the deepest pod. Granite Geology
Karen visited ~ 2 weeks ago. Stream still flowing but
low. Only midges + tipulids in pods.