

3 Aug 2015

We got in late (1:30 am) b/c  
of a bad accident in Yellowstone.  
Deb arrived around 8 am at the  
Amk. We all decided what  
to take and we were going to  
do and we took off around  
noon. We dropped Deb's car  
off at Teton Village and  
we rode the boat across  
Tenny Lake. We started hiking  
around 3 pm and within  
an hour we got dumped on.  
It rained and haled very  
hard. We are wet. After  
a while, the rain slowed down.  
We made camp at the bottom  
of the camp zone for North  
Cascade. Everything is wet and  
puddles. My sleeping bag is  
a bit wet, but I will make it.  
We went to bed at 9:30  
and I need a good night sleep.  
I hope we see some blue sky  
tomorrow.

Scale: 1 square = \_\_\_\_\_

11 am

4 Aug 2015

Mica Lake / Peterson Glacier  
Pfankuch Index

Angularity = 2 (some angular, some rounded)

Brightness = 4 (mostly bright)

Scour = 24 (75% bed)

Consolidation = 8 (mostly loose)

Aquatic Veg = 4 (absent)

92

Peterson Glacier = 43.78182° N

110.84663° W

9562 ft elevation

Sonde measures

temp : 0-3°C

pressure : 540.6 mm

% Sat. O<sub>2</sub>: 118 %

D. O. : 12 mg/L

cond (sp) : 3.7 µS/cm

cond : 2.0 "

pH : 7.93

ORP : 128.4

Temp logger SN 10767841

Scale: 1 square = \_\_\_\_\_

Rite in the Rain

TSS

Petersen Glacier

Petersen upper #1 = 175 mL

#2 170 mL / .03295 g

#3 230 mL / .03305 g

Inverts - Composited 6 Subsamples  
in the bag.

Water w/ glacier flour in it.  
Very sandy, some cobbles in stream.

We checked out stream at outlet of Mica, and only found midges. We decided to have our downstream site where the trail crosses the stream farther downstream.

Temp logger 10767.842

Inverts = 4 Subsamples

Scale: 1 square = \_\_\_\_\_

Below Mica Lake 2pm

GPS = Mica Outlet 4 Aug 2015

43.78534° N 110.84130° W

9486 ft elevation

Temp 10.2°C

Baro 542.3 mm Hg

DO 103%

DO 8.2 mg/L

SPC 9.9  $\mu$ s/cm

Cond 7.1  $\mu$ s/cm

pH 8.59

ORP 24.8 mV

Inverts = 7 Subsamples

Nice stream, full of cobble & boulders. No visible biofilm.

Temp logger = 10767.842

Collected adult *Zapada* + collected Nematid larva!

Logger = 43.78535° N, 110.84115° W

Scale: 1 square = \_\_\_\_\_ 9584 ft elevation  
Rite in the Rain.

4 Aug 2015

Today was a full day. We hiked up to Mica Lake and arrived ~11am. This was our first sampling site so we took a little time getting organized + learning from each other + deciding exactly what we are going to do. We hiked to Petersen Glacier (bottom) and the resulting stream was sandy w/ a few small cobbles. The water was cloudy with glacial flour and the stream was braided.

Not much far inverts lived in the stream, only midges. We sampled the outflow of Mica Lake. Initially, we only found midges, but a little further down we found stoneflies. We collected a few stonefly adults (including *Dednia setinaria*). We also collected *Zapada* larvae downstream of Mica. We arrived back at

our camp at 4pm, and found all of our stuff dry! Yay! We packed up camp and headed up South Fork of Cascade Cr. We camped ~1 mile north of where the outflow stream of Tiefaw Lake joins the S. fork. We arrived ~7:30. We are all tired from a big day.

South Cascade Trib  
43.72856° N, 110.83725° W  
elevation = 9687 ft

Rfkfch

Angularity = 2  
Brightness = 2  
Scarf = 6  
Consolidation = 4  
Leg = 2  
Tl6

Temp loss = 107.67840

Scale: 1 square = \_\_\_\_\_

Scale: 1 square = \_\_\_\_\_

Rite in the Rain.

# South Cascade Trib (continued)

Temp = 6.0 °C

Pressure = 537.6 mm Hg

DO = 105 %

DO = 9.2 mg/L

SPC = 110.30 µS/cm

Cond = 70.2 µS/cm

pH = 8.40

ORP = 58.4 mV

Snow is snow fields

Took the spur trail near Hurricane Pass.

Lots of insects including dragon + zapada. Full of midges.

6 Subsamples collected

Scale: 1 square = \_\_\_\_\_

Alaska Basin 5pm

Upper Teton Crk

5 Aug 2015

43.69080° N 110.84345° W

9772 ft elevation

Caught in a thunderstorm.

So we aren't going up as high as ideal, but stream looks good here.

Temp logger = 10767832

Temp 11.8 °C

Pressure 534.6 mm Hg

DO 101%

DO 7.7 mg/L

SPC 74.3 µS/cm

Cond 55.6 µS/cm

pH 8.61

ORP -0.2

TSS	Volume (mL)	Filter mass (g)
#1	300	.03298
#2	300	.03353
#3	300	.03332

Scale: 1 square = \_\_\_\_\_

Rain in the Rain.

Lower Teton Creek - Alaska Basin

6:30 pm

5 Aug 2015

Sampling in a downpour.  
Big storm.

Temp biggus = 107.6 7.8 31  
5 subs

43.69287° N 110.85854° W  
9457 ft elevation

Site	Mainstem	Moraine	Downstream
Temp	8.8	2.1	3.4
Pressure	5411.7	5411.6	5411.6
DO	102	103	101
DO	8.4	10.1	8.4
SPC	110.8	199.9	114.7
Cad	76.6	112.3	78.3
pH	8.69	8.26	8.51
ORP	23.0	38.3	23.0

Small channel flowing into stream  
out of moraine.

Pfranklin, Amy = 2, Bright = 3,  
Scar = 6, Consolid = 4, Vg 1-2

Scale: 1 square = \_\_\_\_\_

lots of filamentous algae

5 Aug 2015

Our Teton Rain adventure continues.  
The rain started early today and  
we delayed getting out of our  
tents. It stopped and we picked  
up camped and headed up the  
pass stopping at the lower site  
of South Cascade trib that  
was fed by snowmelt. The  
logger is downstream of the massive  
bedrock by a large boulder. Then  
we headed up Hurricane Pass.  
Beautiful country. We dropped  
down to Sunset Lake and ate  
lunch ~ 2:15. We set up camp  
below the lake and took  
small packs down to Teton  
Creek at the south end of  
Alaska Basin. The south side  
of the stream was bordered  
by a moraine. We sampled  
the upper site first and arrived  
just after it started pouring  
rain. We all worked as  
quickly as possible and got done

Scale: 1 square = \_\_\_\_\_

Rite in the Rain

in shot order. Then we walked down stream to the lower site. A stream flowed into Teton Creek that came straight out of the moraine. The stream was a bit colder + higher conductivity. They took Surber samples (2 upstream of moraine stream, at confluence, + 2 downstream all in mainstem). It was raining hard and we were all soaked. The temperature logger is below the confluence next to a rock by the bank. The logger at the upper site is just upstream of our group of trees we hid in, next to a large boulder. The rocks around are marbled (black w/ white streaks). We got back to camp right before dark made dinner and got in our tents to warm up.

Scale: 1 square = \_\_\_\_\_

Inverts removed from sample:

Peterson Glaciers - none

Mica Lake outlet - 0 nemurids

South Cascade lower = 8 nemurids

(2 didnia), 1 limnephilid adult,

3 Rhyacophila, 3 emeraldids,

1 Megacyx?

Upper Teton (Alaska) = 2 nemurids,

5 Rhyacophila

Lower Teton Creek (Alaska)

62 Zapada removed

Scale: 1 square = \_\_\_\_\_

Rite in the Rain

3pm  
6 Aug 2015

## Upper South Cascade trib

Sampling near the spur trail  
to k10 Lake. The stream originates  
at a large snowfield above  
us. Cold, windy day.

43.72171° N 100.83775° W  
elevation = 10,211 ft

TSS	Volume (ml)	filter mass (g)
#1	240	.03384
#2	240	.03317
#3	300	.03311

Stream profile (cm) 76cm wide							
Distance	0	10	20	30	40	50	60
Depth	0	5	7	8	5	4	3.5

Rift park

## Pfankuch

$$\text{Angularity} = 2$$

$$\text{Brightness} = 3$$

$$\text{Scars} = 6$$

$$\text{Consolidation} = 6$$

$$\text{Aqueous } V_{ef} = 4$$

Scale: 1 square = \_\_\_\_\_

## Upper South Cascade (continued)

Temp = 3.7 °C

Bar Pressure 525.4 mm Hg

DO = 104%

DOL = 9.5 mg/L

SPL = 113.2 µS/cm

Cond = 67.1

pH = 8.53

ORP = -4.6

Temp probe = 10767833

## 10 Surface Samples

No inverts removed from  
samples. Primary midges

Snowfield based streams originating  
from the WQ from other stream

## Upper South Cascade #2

Temp 4.8 °C Cond = 36.5 µS/cm

Pressure 524.6 mm Hg pH = 8.56

DO 103% ORP = 4.8 mV

DO 9.1 mg/L

SPL 59.5 µS/cm

Scale: 1 square = \_\_\_\_\_

Rite in the Rain.

6 August 2015

We awoke in Alaska Basin below sunset lake. Everything is soaked. We laid out gear and dried out and enjoyed some sunshine. Around 11, we packed up with Deb and she headed down the Idaho side. Joe, Scott and I headed back up Hurricane Pass (10,500 ft). We made camp at the uppermost site in the camping zone. After eating some lunch, we walked back up the trail and cut off to head up to the upper Cascade Crk site. We sampled below the snow field - Not much for bugs in there. We slowly made our way back down and checked other small streams for Nemourids. Joe found them in the outflow of Schoolroom glacier downstream before the waterfall. We enjoyed a nice evening & went to bed.

Scale: 1 square = \_\_\_\_\_

8 Aug 2015

### Upper Middle Teton

Temp	1.7°C
Pressure	533.1 mm Hg
DO	101%
DO	9.9 mg/L
SPC	4.8 µS/cm
Cond	2.6 µS/cm
pH	8.44
ORP	41.2 mV

43.72767° N 110.79539° W  
9503 ft elevation

### Pfankuch

Angularity	= 2
Brightness	= 4
Scair	= 24
Consolidation	= 7
Aq. Veg	= <u>4</u> 42

Temp dogen = 10767837

Scale: 1 square = \_\_\_\_\_

Rite in the Rain.

Upper Middle Teton (continued)

TSS	Volume (ml)	mass (g)
#1	300	.03340
#2	300	.03270
#3	300	.03315

Stream Profile - 2 cm wide  
m

Distance (m)	.5	1.5	2.5	3.5	4.5	5.5
Depth	3.5	4.5	16	0	5	4

The stream is steep (slope  $\approx 35-45^\circ$ )  
below a water fall. A shallow,  
wide cascade leading down a  
boulder field.

# 3 Substrates collected

We are soaked

Scale: 1 square = \_\_\_\_\_

Lower Middle Teton 8 Aug 2002

Rfan kueh

Angularity = 2

Brightness = 4

Scars = 18

Consolidation = 2

Aquatic Vg = 4

Stream Profile w = 1.5 m

Distance (m)	0.25	0.25	0.25	0.25	0.25
Depth (cm)	21.5	19.5	19.5	16.5	22.0

Hobo # 10767838

Location = N 43.72527°  
W 110.79001°

Temp = 3.3°C SPC = 5.7 µS/cm

Pressure = 545.2°C = 3.4

DO = 100% pH = 8.88

DO = 9.6 mg/L ORP = 62.9 mV

5 Substrates tried

Stream is flooding w/ rain  
Rate in the Rain.

# Upper Wind Cave

9 Aug 15

	Outside	Inside
Cave	Cave	Cave
Temp °C	2.6	2.4
Pressure mmHg	559.3	558.5
DO	102%	97%
DO mg/l	10.2	9.7
SPC $\mu\text{S/cm}$	176.8	177.4
Cond $\mu\text{S/cm}$	101.1	100.8
pH	8.58	8.43
ORP mV	47.0	53.6

Below waterfall outside of  
cave.

In cave where water  
emerges out of the ground

Location = 43.06607° N, 110.95602° W

elevation = 8599

TDS	Volume (ml)	mass (g)
#1	180	.03309
#2	180	.03274
#3	180	.03312

Dosser = S/N 10767835

Scale: 1 square = \_\_\_\_\_

# Upper Wind Cave (continued)

8 Surbs (4 outside +  
4 inside cave)

Placed logger outside the cave  
below the bedrock cascade.  
I placed the logger under the  
second waterfall. There are  
lots of people here, but I  
tried to pick a spot where  
fewer people seem to walk  
and I buried the log  
under flat rocks.

Scott collected *Leptinia* on  
(adults) on cave walls.

Water comes out of ground  
in cave. Water from ice,  
but Scott couldn't find  
any in.

Scale: 1 square = \_\_\_\_\_

Rite in the Rain.

Lower Wind Cave 9 Aug 15

43.66657° N, 110° 9' 55.35° W  
elevation = 8549 ft

Temp	4.4°C
Pressure	564.0 mm Hg
DO	99%
DO	9.5 mg/L
SPC	175.2 $\mu$ S/cm
Cond	106.2 $\mu$ S/cm
pH	8.44
ORP	77.2 mV

Dissn = 107677839

## 6 Surfaces

Placed bogen in a pool by  
large boulders 2 switch backs  
from the top below the falls  
at base of wind cave a beginning  
of climb. Above meadow.

Scale: 1 square = \_\_\_\_\_

7 August 2015

We awoke in South Cascade  
Canyon, ate a nice breakfast,  
packed camp, and headed  
down the boat (68.5 miles).  
The weather was great and there  
were tons of folks by the  
boat, so boating was tough at  
the end. We headed to Jackson  
ate lunch at the pub, bought  
new scales, and grab TA  
before heading back to the ANK.

8 August 2015

Joe, Scott and I got up at  
6 am and headed for Middle  
Teton Glacier. It was a wet  
and miserable sort of day but  
we made it. We walked up  
Gardner trail, which is a climbing  
route. We sampled a stream  
flowing out of middle Teton  
Glacier. We sampled lower  
in the meadows camp. The  
stream we sampled was scared

Scale: 1 square = \_\_\_\_\_

Rite in the Rain.

and running high w/ all the rain. One stream to the north was a more productive + stable stream where Joe found Zapada. We got soaked and Scott even got into snow up by the glacier. Glad to be back to a warm meal + roof to dry out.

9 Aug 2015

Joe left for Glacier this morning. Scott + I headed over the pass for Idaho where we meet Deb in Driggs. We hiked up Wind Cave (Darby Canyon) and sampled at the cave entrance + below the waterfall. Tons of people + dogs. High use area. We ate at Teton Thai that evening + it tasted great.

## North Fork Teton Creek Upper

10 Aug 2015

43° 77' 42" N 110° 85' 945" W  
elevation 9678 ft

ID#	Volume (ml)	Mass (g)
#1	360	.03289
#2	360	.03281
#3	360	.03284

Logger # S/N = 10767836

Surfaces = 6 scrubs (all above waterfall)

Temp	9.9°C
Pressure	540.2 mm Hg
DO	101%
DO	8.1 mg/l
SRP	11.1 µS/cm
Cond	7.9 µS/cm
pH	8.45
DRP	64.9

Beautiful Day!

Scale: 1 square = \_\_\_\_\_

Scale: 1 square = \_\_\_\_\_

Rite in the Rain.

# North Teton Cr (continued)

I placed logger at the first boulder below the spring head. logger is below (downstream) of boulder right where the water flows through the crack in the boulder. Very stable stream w/ lots of biofilm. Inverts are diverse. I caught a small adult



## Lower North Teton Cr

43.77953° N 110.86115° W  
10 Aug 2015  
elevation 9515

Sampled at timeline

logger S/N# - 10767834

Substrates = Scrubs

Scale: 1 square = \_\_\_\_\_

Scale: 1 square = \_\_\_\_\_

Rite in the Rain.

Temp	8.2 ° C
Pressure	543.6 mm Hg
DO	96%
DO	8.1 mg/L
SPC	11.8 µS/cm
Cond	8.0 µS/cm
pH	7.81
BORP	89.6 mV

logger below a large white boulder at the edge of the trees.