

State of the Rivers

29th Student
GREEN Congress



South Sound
GREEN

Global Rivers Environmental Education Network



Capital Region
ESD 113



NISQUALLY

R I V E R
EDUCATION PROJECT



General Notes

Use this space to write down notes during the keynote, questions for your teacher, or just general ideas!

Watershed Investigation

In this journal, you will compare three water quality sites across western Washington. Scientists have gathered data about the water's quality at each one, but that data needs to be **interpreted**- basically, we need to figure out what those numbers mean and what to do about them!



1

Investigating

Learn more about the surroundings of each site.

2

Building the Case

Develop theories about what's causing poor water quality in some areas.

3

Taking Action

Choose actions to take to preserve watershed health.

WANTED: HEALTHY WATERSHED



Our local watersheds are critically important for the health of local species like salmon. What do you think a healthy watershed looks like? In the box above, draw some features you would want in a healthy watershed. This can include physical features (like rivers and streams), plants, animals, human actions, or anything else you can think of!

Site 1: Nisqually River @ Nisqually Pines

Use the map and 360 images to look around the site. Record any initial observations or predictions you may have. Think about what you notice nearby, human impacts, etc.



This site had a wide, pebbly shore to walk on.



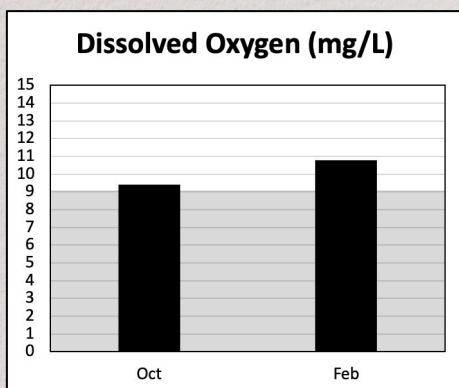
There was a bit of erosion across the river.

Nisqually River @
Nisqually Pines

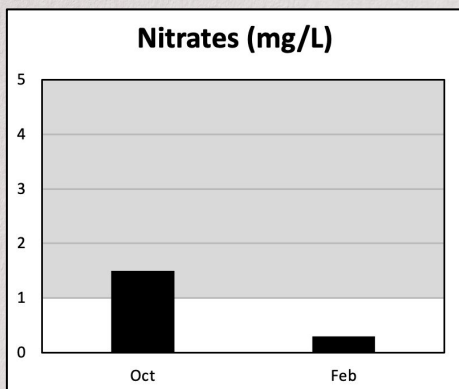
The data collected at the site was used to create the following graphs. Values in the shaded area are NOT within optimal values. Are there any parameters that need to be improved?

Remember: if a parameter is NOT within Optimal Values, it means salmon might not survive there!

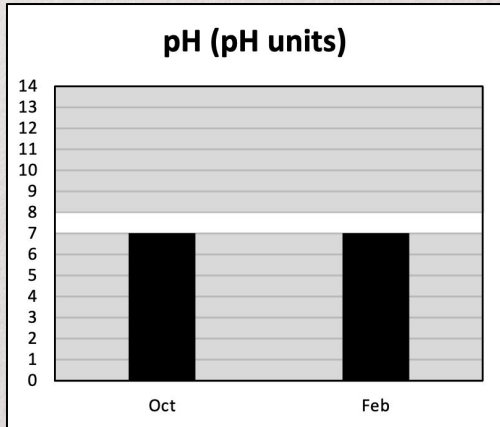
Dissolved Oxygen	
(mg/L)	
Optimal Value: > 9 mg/L	
Oct.	Feb.
9.4	10.8



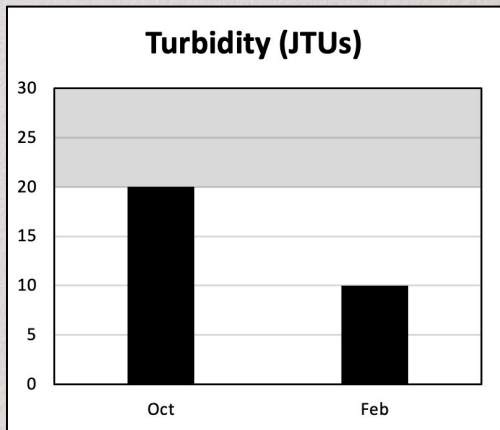
Nitrates	
(mg/L)	
Optimal Value: < 1 mg/L	
Oct.	Feb.
1.5	0.3



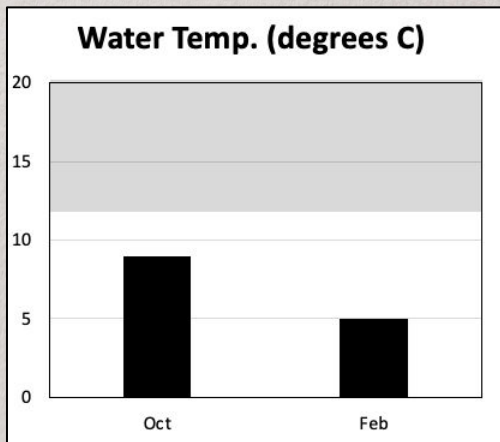
pH	
(pH units)	
Optimal Value: 7.0-8.0 pH units	
Oct.	Feb.
7	7



Turbidity	
(JTU)	
Optimal Value: < 20 JTUs	
Oct.	Feb.
20	10



Water Temp.	
(°C)	
Optimal Value: < 12 degrees C	
Oct.	Feb.
9	5





Explore the Land Use activity to look at the impacts to the water quality at Nisqually Pines. In a few sentences, **summarize** why the water at Nisqually Pines is so healthy.

Site 2: Spruce Creek @ Millersylvania State Park

Use the map and 360 images to look around the site. Record any initial observations or predictions you may have. Think about what you notice nearby, human impacts, etc.



This trail gets a lot of use. The park is popular!



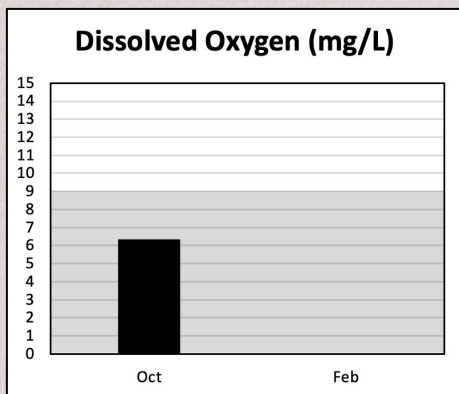
Lots of dead grasses around the banks.

Spruce Creek @
Millersylvania SP

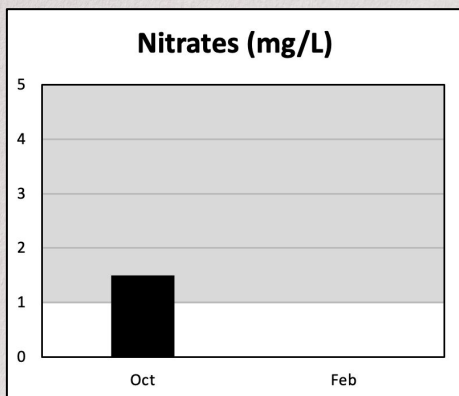
Use the data collected at the site to finish the following graphs. October's data has been graphed for you; you will need to add February's data. Values in the shaded area are NOT within optimal values. Are there any parameters that need to be improved?

Remember: if a parameter is NOT within Optimal Values, it means salmon might not survive there!

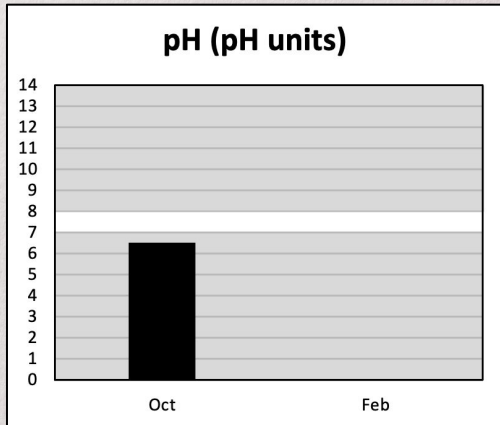
Dissolved Oxygen	
(mg/L)	
Optimal Value: > 9 mg/L	
Oct.	Feb.
6.33	10.6



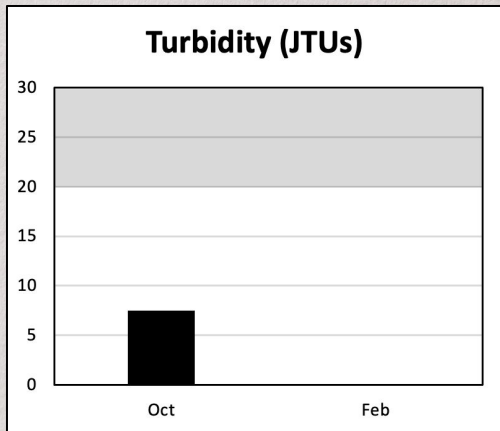
Nitrates	
(mg/L)	
Optimal Value: < 1 mg/L	
Oct.	Feb.
1.5	0.35



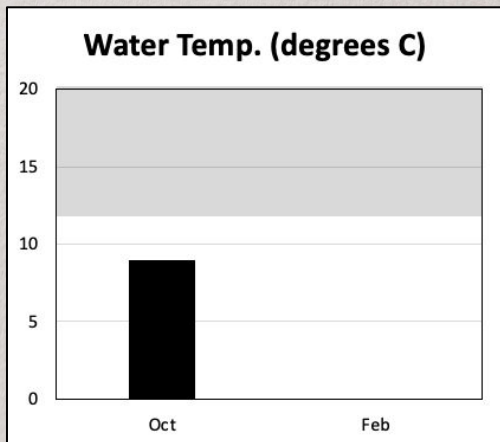
pH	
(pH units)	
Optimal Value: 7.0-8.0 pH units	
Oct.	Feb.
6.5	5



Turbidity	
(JTU)	
Optimal Value: < 20 JTUs	
Oct.	Feb.
7.5	10



Water Temp.	
(°C)	
Optimal Value: < 12 degrees C	
Oct.	Feb.
9	11



Spruce Creek @
 Millersylvania SP

Top Suspects

Explore the Land Use activity to look at **potential** impacts to the water quality at Spruce Creek. Which impacts do you think are **actually** happening? Remember to refer back to the data to figure out which parameters are affected.

Site 3: Mission Creek @ Wetlands

Use the map and 360 images to look around the site. Record any initial observations or predictions you may have. Think about what you notice nearby, human impacts, etc.



The water was super slow moving!



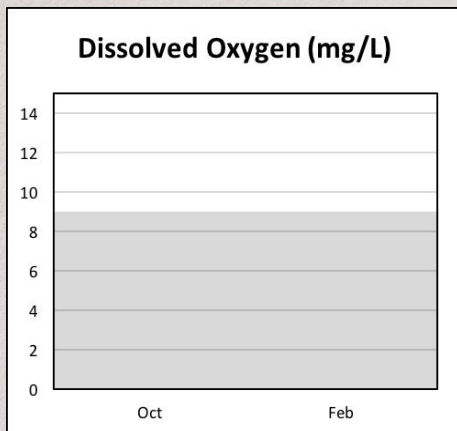
The trail has tons of people visiting daily.

Mission Creek @
Wetlands

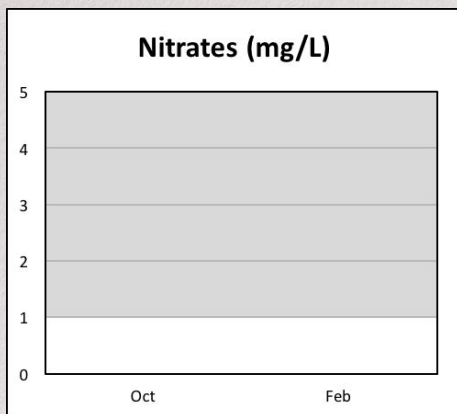
Use the data collected at the site to create your graphs. Values in the shaded area are NOT within optimal values. Are there any parameters that need to be improved?

Remember: if a parameter is NOT within Optimal Values, it means salmon might not survive there!

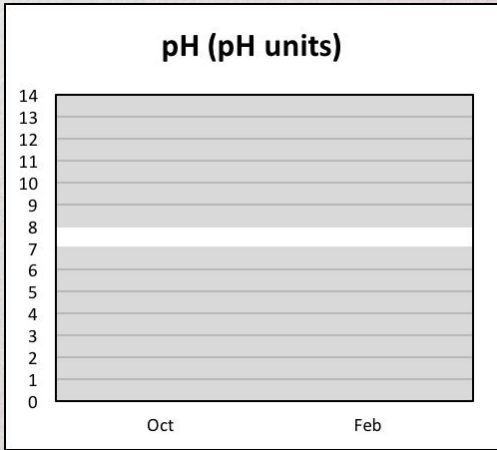
Dissolved Oxygen	
(mg/L)	
Optimal Value: > 9 mg/L	
Oct.	Feb.
2.33	6.2



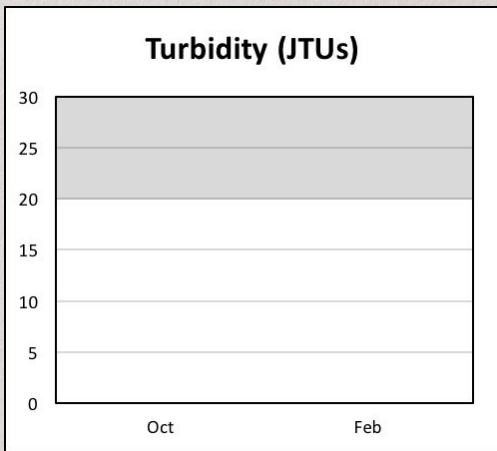
Nitrates	
(mg/L)	
Optimal Value: < 1 mg/L	
Oct.	Feb.
0.33	0.67



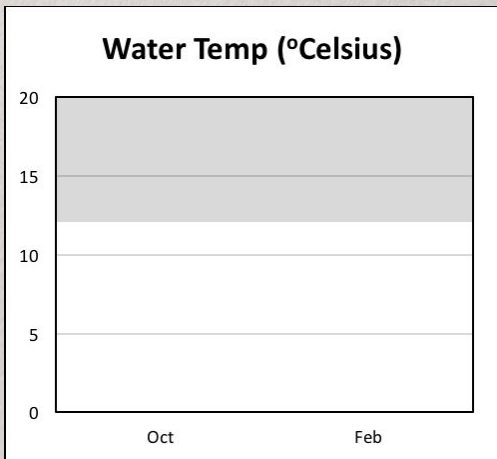
pH	
(pH units)	
Optimal Value: 7.0-8.0 pH units	
Oct.	Feb.
6	6.5



Turbidity	
(JTU)	
Optimal Value: < 20 JTUs	
Oct.	Feb.
5	5



Water Temp.	
(°C)	
Optimal Value: < 12 degrees C	
Oct.	Feb.
7	6



Top Suspects

Explore the Land Use activity to look at **potential** impacts to the water quality at Mission Creek. Which impacts do you think are **actually** happening? Remember to refer back to the data to figure out which parameters are affected.

Go back to the graphs of each site and circle any bars that are NOT within optimal values.

Then, imagine you are a salmon.

Which site would you want to live in?

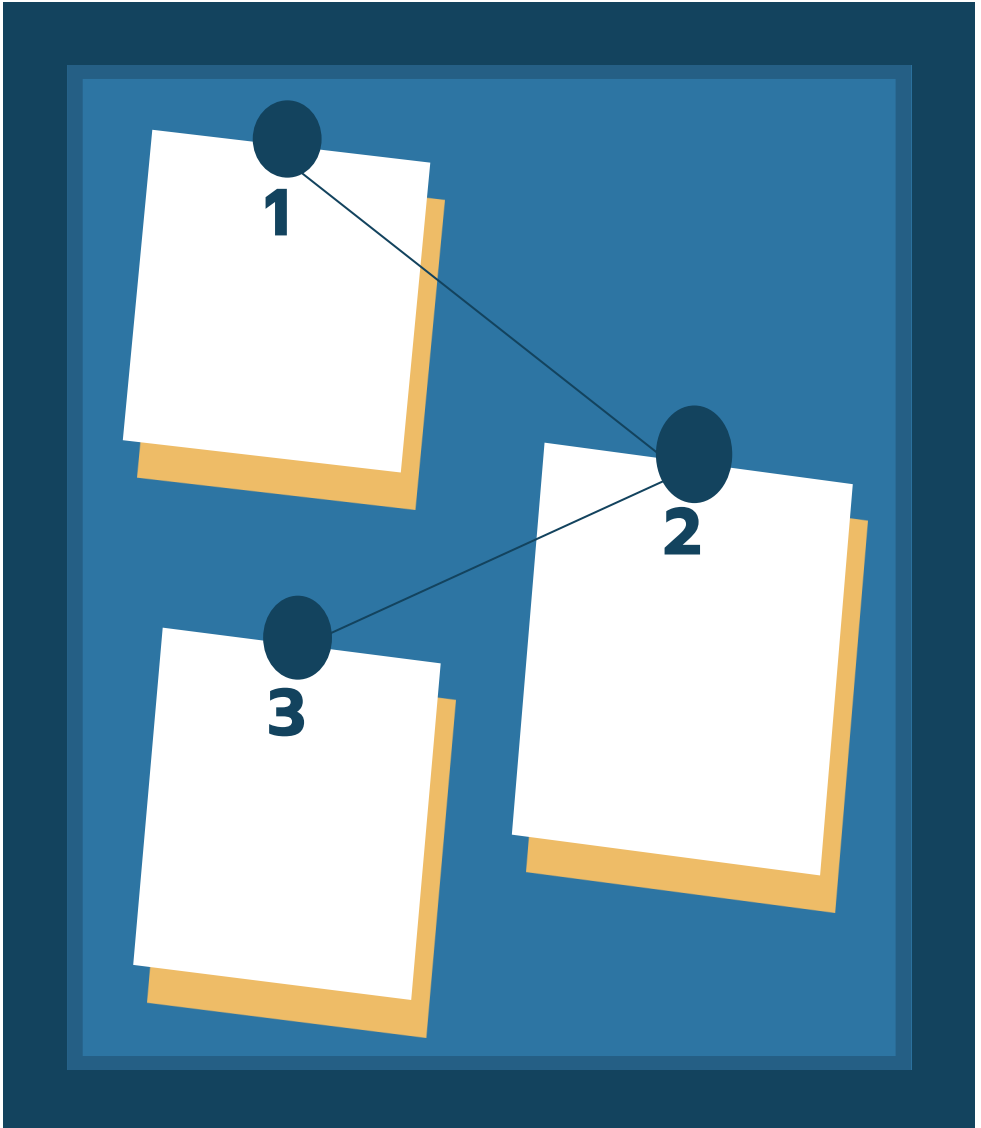
On the lines below, develop an argument for why you chose that site.

I want to live in _____ because



Take Action!

Use the Actions activity to explore different actions you can take to improve watershed health. On the notes below, list or draw 3 things you would be interested in doing in your own community.



Watershed Pledge

I, _____,
[Sign your name here!]

hereby resolve to do things
great or small, to improve the
earth, its many ecosystems, its
water, land and living things,
and all its human hearts. I
promise I shall care, to love
and cherish all its gifts with
people everywhere.



Thank you!

Our program
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Northwest Trek Wildlife Park
METRO PARKS TACOMA



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