

LARGE WOOD MANAGEMENT 2018 ANNUAL REPORT AND 2019 WORKPLAN

PELTON ROUND BUTTE PROJECT
(FERC 2030) LICENSE ARTICLE 434

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Pelton Round Butte
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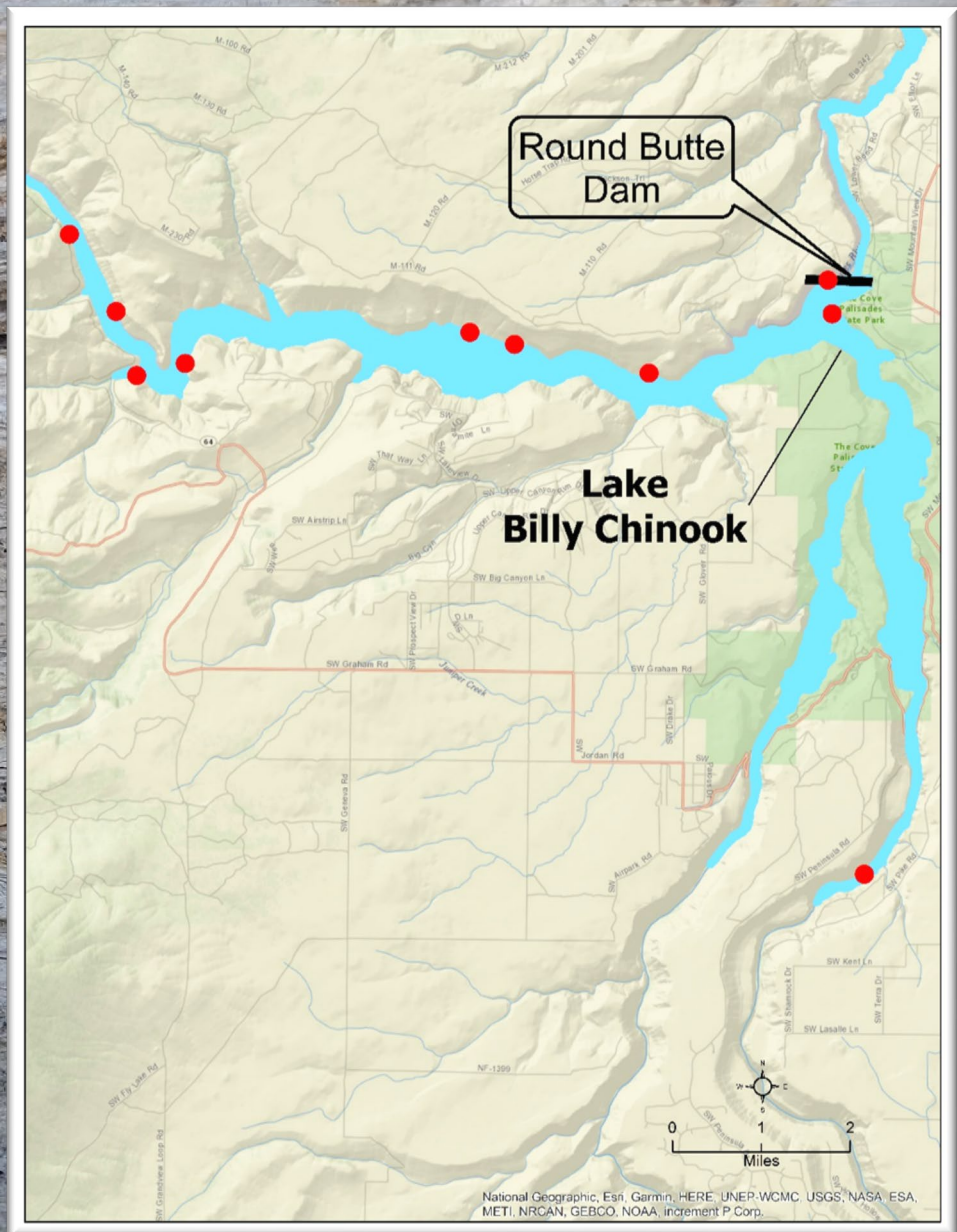


- The goal of the large wood management plan is to reconnect large wood (LWD) transport from the upper Deschutes basin to the lower Deschutes
- After LWD is placed it is monitored for effect on vegetation changes, fish and wildlife use and movement
- LWD is ≥ 8 " diameter (10 feet from butt end) by ≥ 10 feet long that enters Lake Billy Chinook



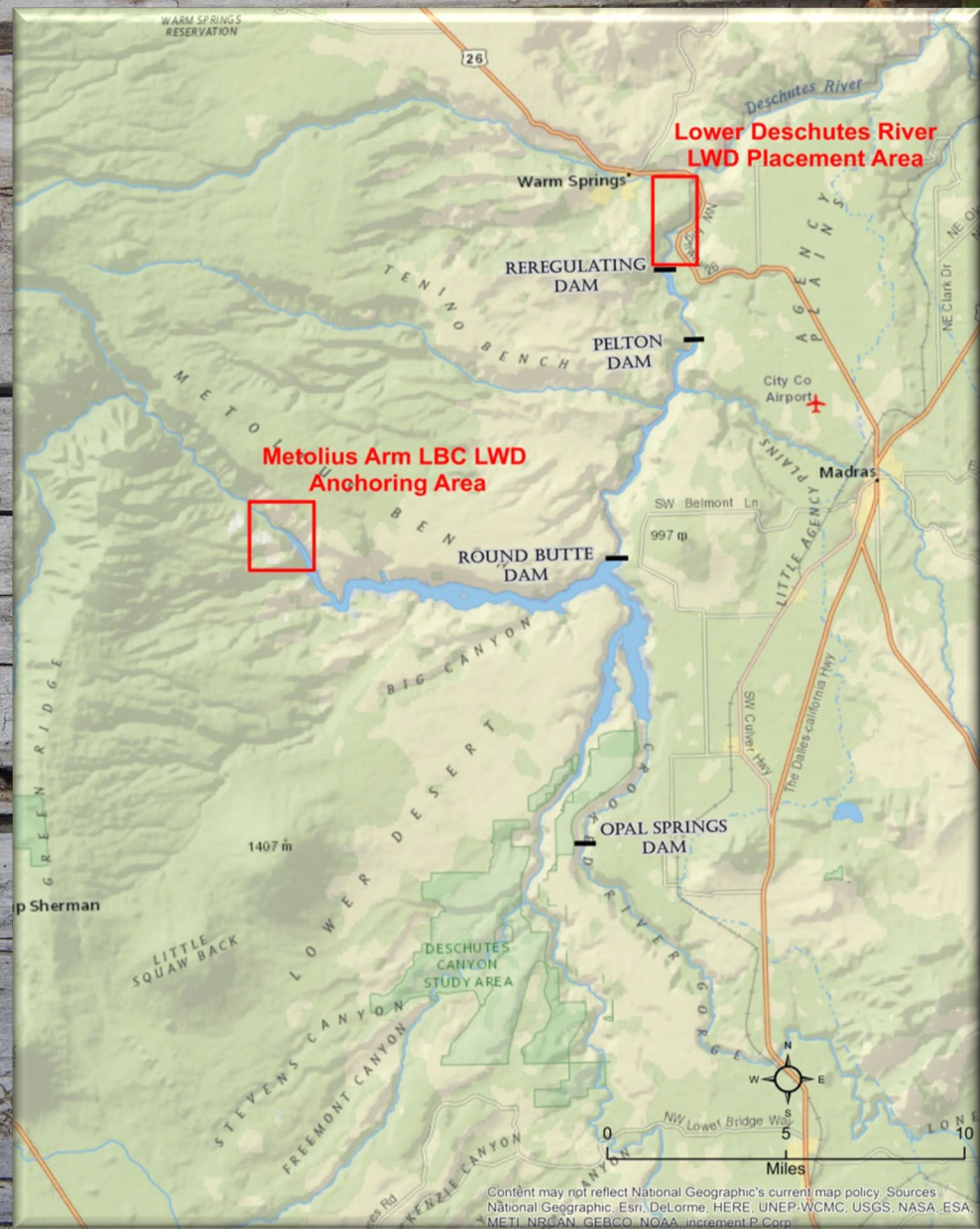
2018 LWD Acquisition

- In 2018 a total of 16 pieces of LWD were removed from Lake Billy Chinook
- They had an average length of 23.2 feet, and an average diameter of 1.2 feet
- LWD gathered from Lake Billy Chinook mostly came from the Metolius arm



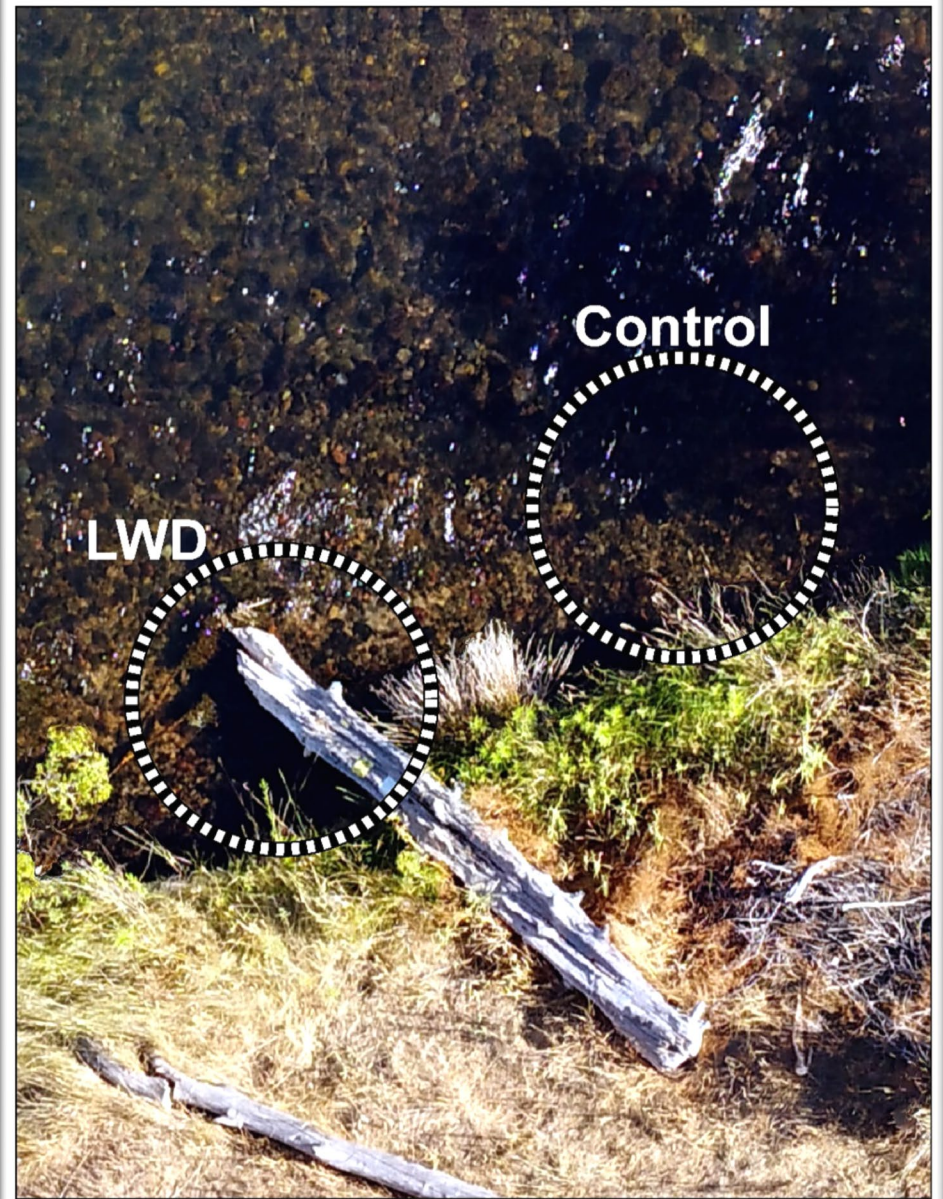
2018 Large wood placement locations

- LWD found above Rattlesnake Point on the Metolius arm is anchored nearby
- LWD found in all other parts of Lake Billy Chinook is placed in the Lower Deschutes River
- In 2018 all LWD that is destined for the Lower Deschutes River was stockpiled for incorporation into phase two of the lower river gravel study



LWD Snorkel Monitoring

- A paired design is used to monitor placed LWD by comparing it to an adjacent control site without LWD
- This design removes biases due to variation of abundance between sites and dates
- Null hypothesis: median difference between paired sites with and without LWD is zero





LWD Site Lake



Control Site Lake



LWD Site River



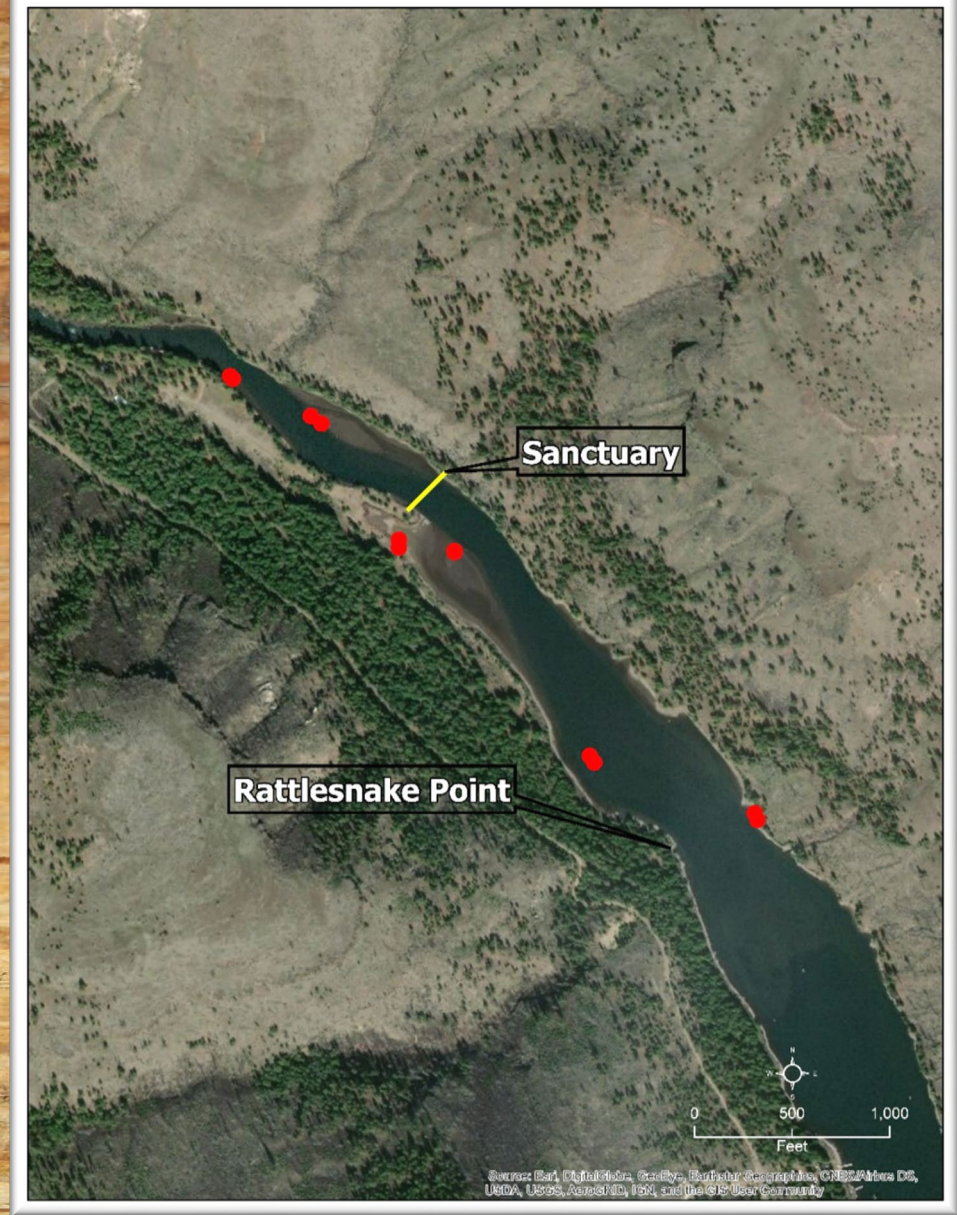
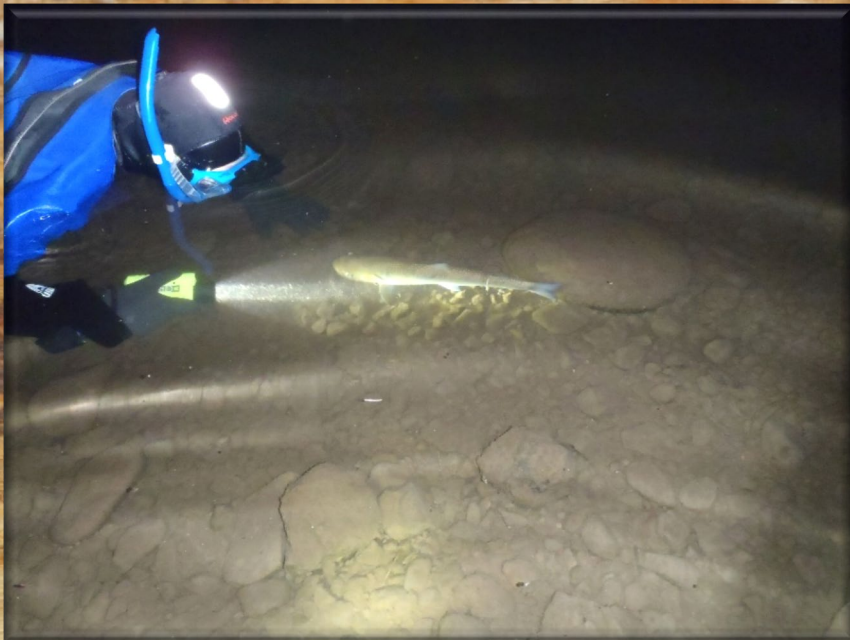
Control Site River

2018 Snorkel Monitoring

- The first round of surveys on the Metolius Arm of Lake Billy Chinook was not completed because of turbid water and low lake levels

Metolius Arm LBC 2018 Monitoring Sites

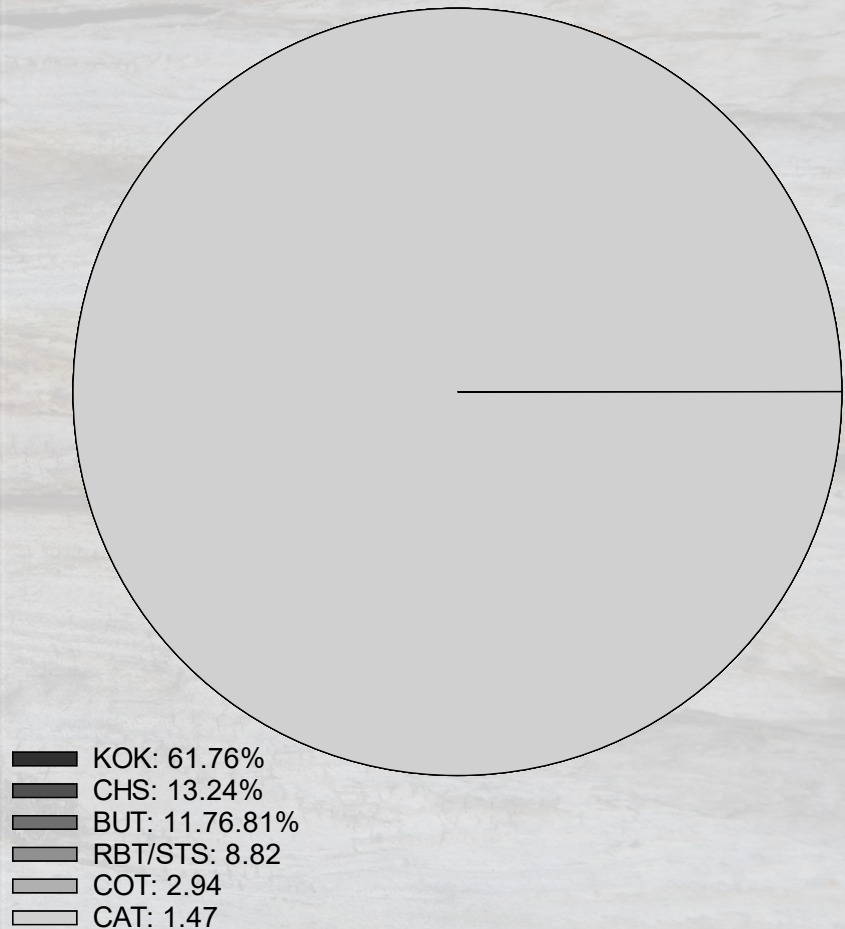
- 6 Locations LWD and Control
- Snorkeled April 23rd



Metolius Arm LBC LWD 2018 Night Snorkel Surveys

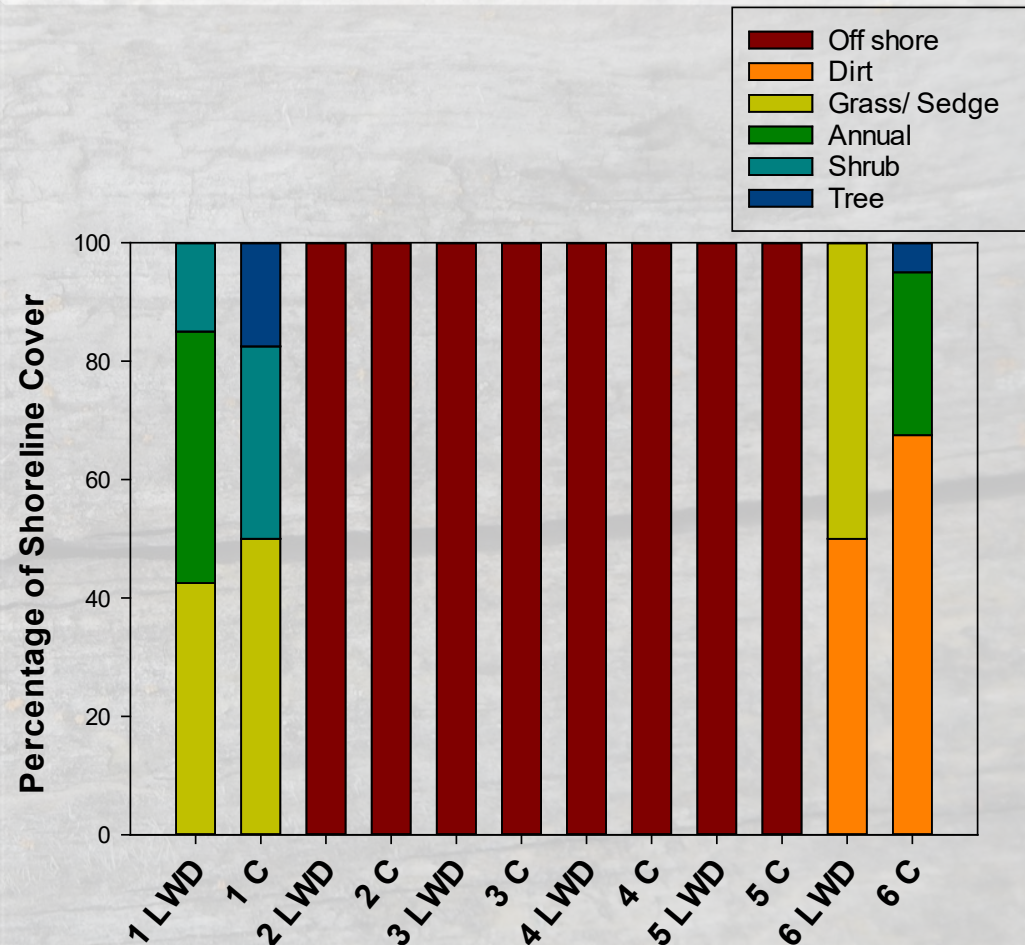
- 68 fish observed during one snorkel event
- 42 KOK, 9 CHS, 8 BUT, 2 COT
1 CAT
- Mann-Whitney Rank Sum Test was used to compare LWD sites to control sites since data was abnormally distributed
- There was no difference found in respect to treatment compared to control at Metolius arm snorkel sites.
- KOK ($P = 0.937$), CHS ($P = 0.699$), BUT ($P = 0.485$), RBT ($P = 0.937$), COT ($P = .699$) and CAT ($P = .699$)

Percentage of Species Found



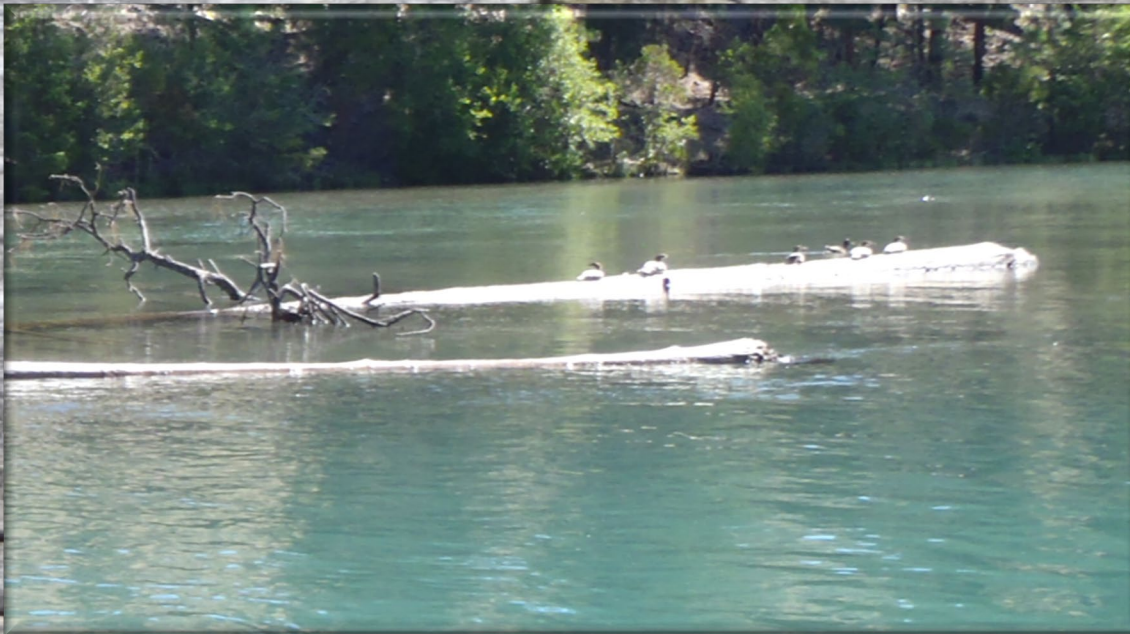
Metolius arm LBC 2018 photo points and vegetation transects

4 of 6 Sites were off shore, and therefore do not directly affect vegetation and are not effected by it



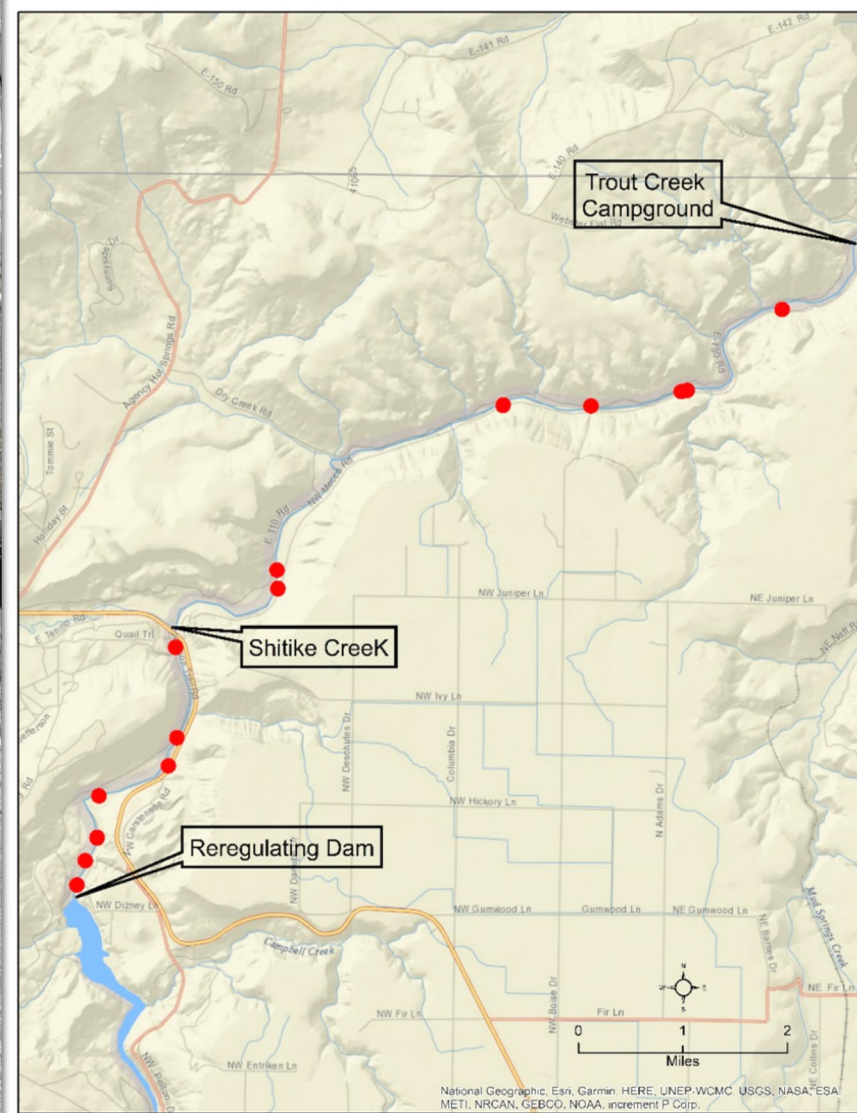
Metolius arm LWD 2018 Wildlife use

Date	Site	wildlife	wildlife use
4/25/2018	LWD 6	Goose and Cow	scat
4/25/2018	Control 6	Goose and Cow	scat
4/25/2018	LWD 5	Bird	scat
4/25/2018	LWD 3	Ducks	2 ducks on log
4/25/2018	LWD 3	Bird	scat
4/25/2018	LWD 4	Bird	scat
4/25/2018	LWD 2	Goose	scat
4/25/2018	LWD 1	Bird	scat



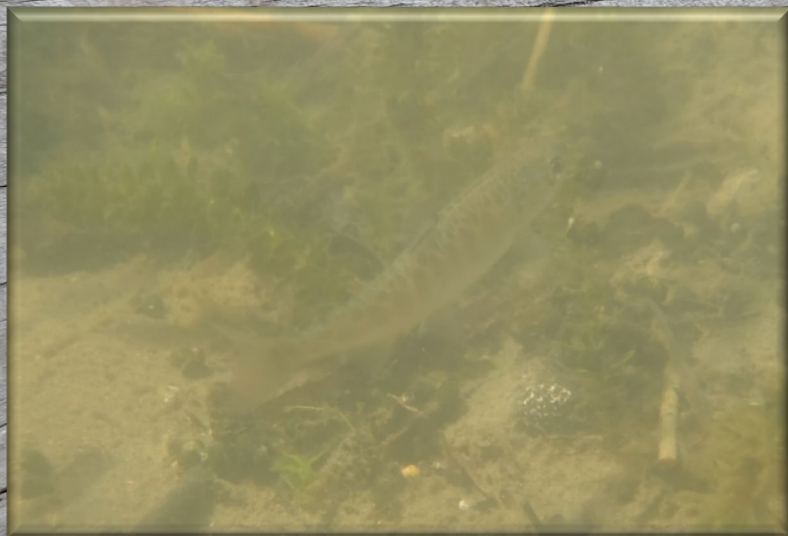
Lower Deschutes River 2018 snorkel monitoring sites

- 14 sites LWD and Control
 - 7 upstream Shitike Creek
 - 7 downstream Shitike Creek
- Snorkeled May 21st and 22nd and June 20th and 27th
- Photo points and vegetation transects June 20th and 27th

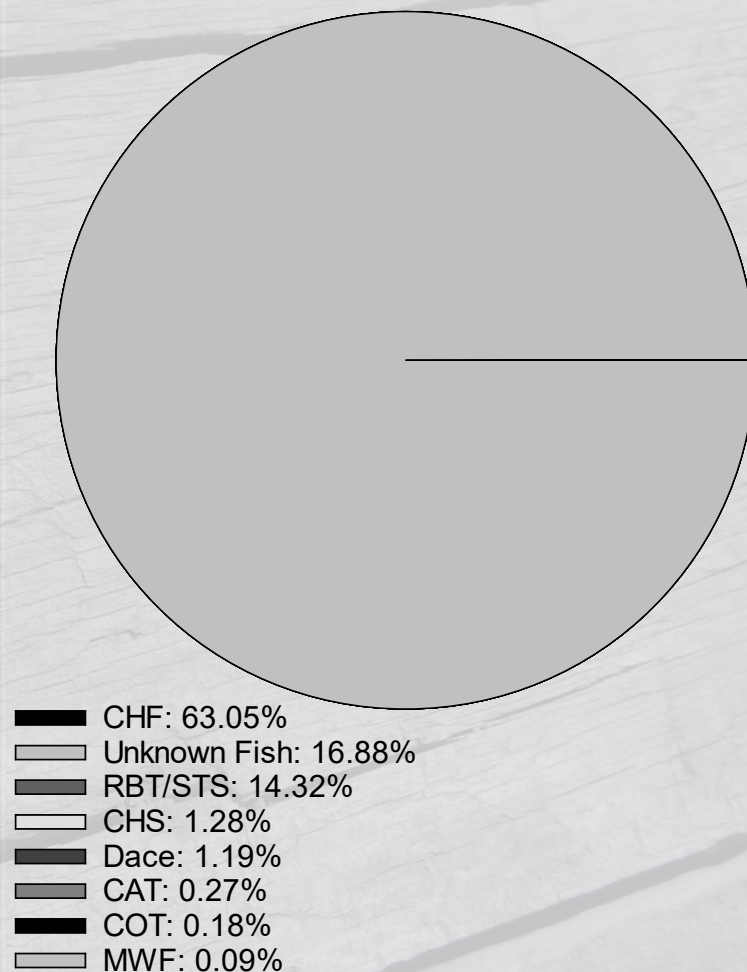


Lower Deschutes River LWD 2018 fish snorkel surveys

- Observed 1096 fish: 691 CHF, 14 CHS, 157 RBT/STS, 2 COT, 3 CAT, 13 Dace, 1 MWF, and 185 unknown fish
- Mann-Whitney Rank Sum Test found a significant difference between Large wood sites and Control sites for CHF ($P=0.003$) and RBT/STS ($P=0.010$)

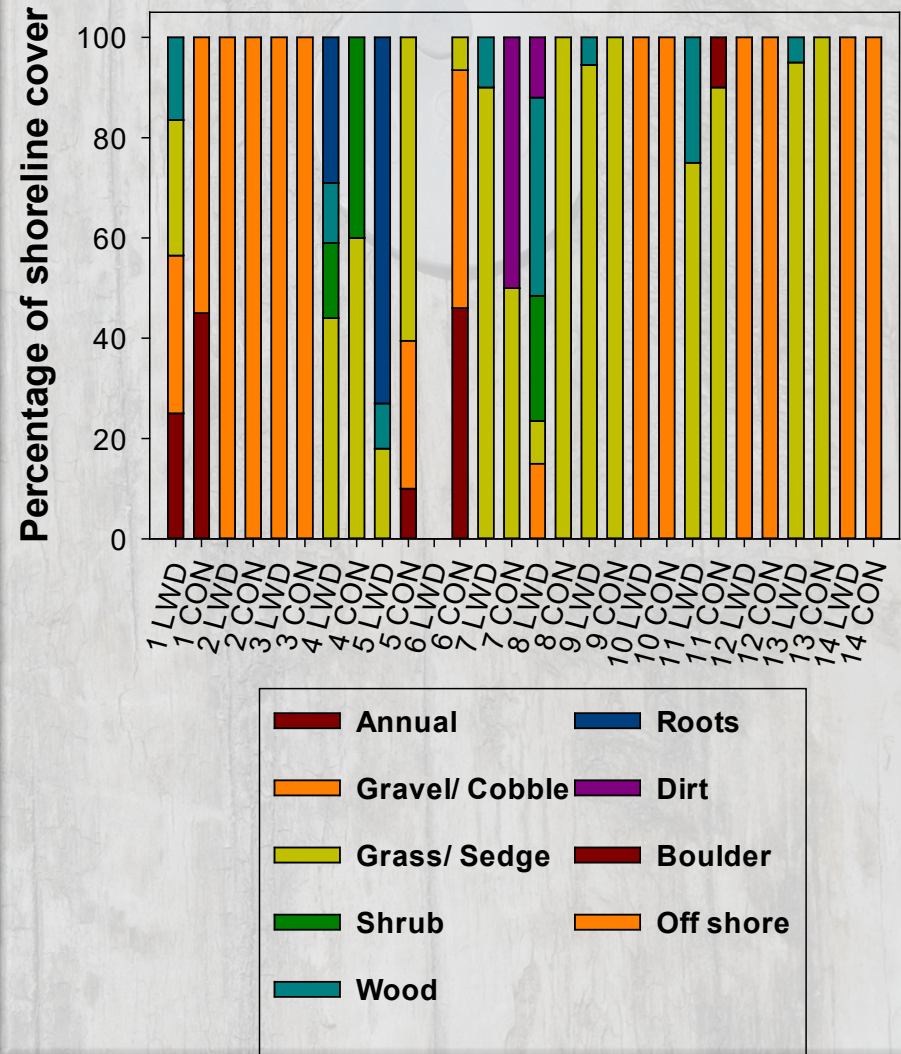


Percentage of Species Found



2018 Lower Deschutes River LWD Vegetation Transects

- Dominant cover varied between sites
- 5 sites offshore
- 4 sites Grass/Sedge dominant ground cover



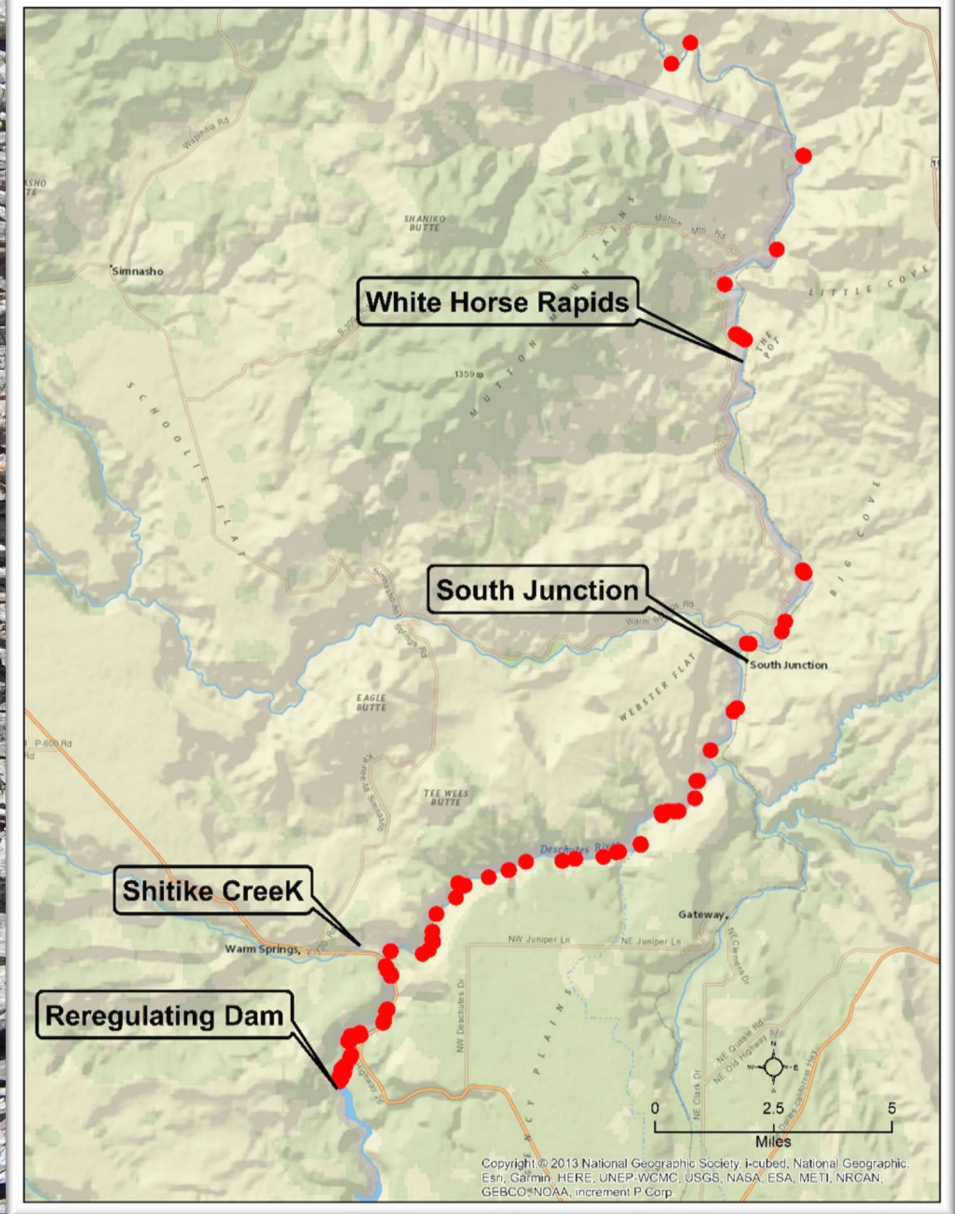
Lower Deschutes River LWD 2017 wildlife use

Date	Site	wildlife	wildlife use
5/21/2018	3 LWD	Merganser	perching on log
5/22/2018	12 LWD	Bird	scat
6/20/2018	4 LWD	Otter	scat
6/20/2018	4 LWD	Bird	scat
6/20/2018	5 LWD	Bird	scat
6/27/2018	8LWD	Bird	carcass
6/27/2018	13 CON	Otter	scat
6/27/2018	13 CON	Beaver	den



2018 large wood tracking

- 198 of 318 total placed LWD pieces were found in 2018
- Rereg to Warm Springs 123
- Warm Springs to Trout Creek 45
- Trout Creek to Harpham Flat boat ramp 30
- Just above Harpham Flat boat Ramp is the lowest point in the system wood has been tracked



Large wood Movement

- In 2018 10 logs moved at least 10 meters from their 2017 locations.
- The maximum movement in 2018 was about 6.7 kilometers. The average was about 2 kilometers
- 2017 maximum movement was about 64 kilometers with an average of about 8.7 kilometers, and 83 logs moved from their previous locations



2019 Large Wood Management Plan

Large wood removed from Lake Billy Chinook has been stockpiled since 2016 and wood gathered in 2019 will be added to this stock pile, and used in the gravel augmentation project scheduled to start in September.

There are 52 logs that meet LWD criteria currently stockpiled.

Any LWD not used will be placed as normal in 2020.

DSL fill and removal permits for 2017-2021 large wood placement were renewed in 2017.



Thanks for your help:

PRB outside crew

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